DESIGN GUIDELINES & STANDARDS MANUAL

JUNE 2025

SAN DIEGO
Community College District

City College · Mesa College · Miramar College
College of Continuing Education

SAN DIEGO
Community College District

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College of Continuing Education

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01 VISION

EXECUTIVE SUMMARY

These Design Guidelines and Standards have been prepared for use by the design professionals and construction teams during the planning & design phases of renovation and construction projects for SDCCD. It outlines the design approach, space allocation, physical environment, materials, and system requirements. The most current version of The Design Guidelines and Standards Manual is available for download per https://www.sdccd.edu/departments/operations

USE OF DESIGN GUIDELINES AND STANDARDS MANUAL

Policy
District policy is to set forth a framework of criteria and standards that establishes a level of consistency and quality for all new and rehabilitated building projects.

Scope
The A/E/C firms retained to execute the design of new and remodeled buildings will be expected to follow the Design Guidelines, meet or exceed the standards described herein, and provide the consistency required within each college. The guide will not only provide the tools to meet these goals, but will furthermore offer the time-saving benefit of clearly identifying the level of quality and consistency that will be acceptable by each college. Providing these consistencies will greatly enhance the long-term maintenance of these facilities.

The criteria and standards are generic for the projects overall. Specific requirements related to each college will be addressed in individual campus guidelines and during the design process.

Updates
Design Guidelines and Standards are reviewed regularly by the Building Design Standards Committee, which, at minimum, consists of representatives from the campuses admin and faculty representatives, Architectural Department, Facilities Services, Project Inspection, and the District Architect. The District Architect issues bulletins for periodic revisions and provides comprehensive updates on an annual basis.

Variations
Proposed variations to the District Guidelines and Standards must be submitted in writing to the District Architect for review and written approval prior to depicting such variations in the design documents.

Summary
The Design Guidelines and Standards Manual provide technical standards that the design and construction teams will be expected to meet or exceed.

SAN DIEGO
Community College District

ACKNOWLEDGMENT

I have read and understand the District Standards and if I propose any deviations I will bring the deviations to the attention of the District and request their approval.

Standards Version Date: _____

Project Name: _____

_____ _____
Signature Date

Contact Name: _____

Company: _____

Address: _____

_____

_____

E-Mail: _____

Telephone: _____

SAN DIEGO
Community College District

1.1

SDCCD STRATEGIC PLAN

In August 2022, the SDCCD Board of Trustees approved the 2023-2030 District Strategic Plan. This culminated a six-month process that included dozens of meetings, on-line presentations, and input from roughly 10,000 employees, students, and community members. Susan Topham, Vice Chancellor of Educational Services, and our consultants, MIG, were instrumental in facilitating these conversations, which were influential in shaping the final strategic plan.

The SDCCD Strategic Plan will guide the future of the colleges and the District between now and 2030 by identifying our collective vision, goals, and objectives. It builds on and complements strategic plans developed by San Diego City, Mesa, Miramar Colleges, and the San Diego College of Continuing Education. A key focus of the plan will be how the District can fulfill its commitment to equitable outcomes for the 100,000 students it serves annually. Towards this end, the strategic plan includes six primary goals:

- Student Success and Well Being
- Academic Excellence
- Workforce Development
- Financial Health
- State of the Art Facilities
- Institutional Resiliency

SEE THE STRATEGIC PLAN

1.2

FACILITY STRATEGIC PLANS

1.2.1

SAN DIEGO CITY COLLEGE STRATEGIC PLAN

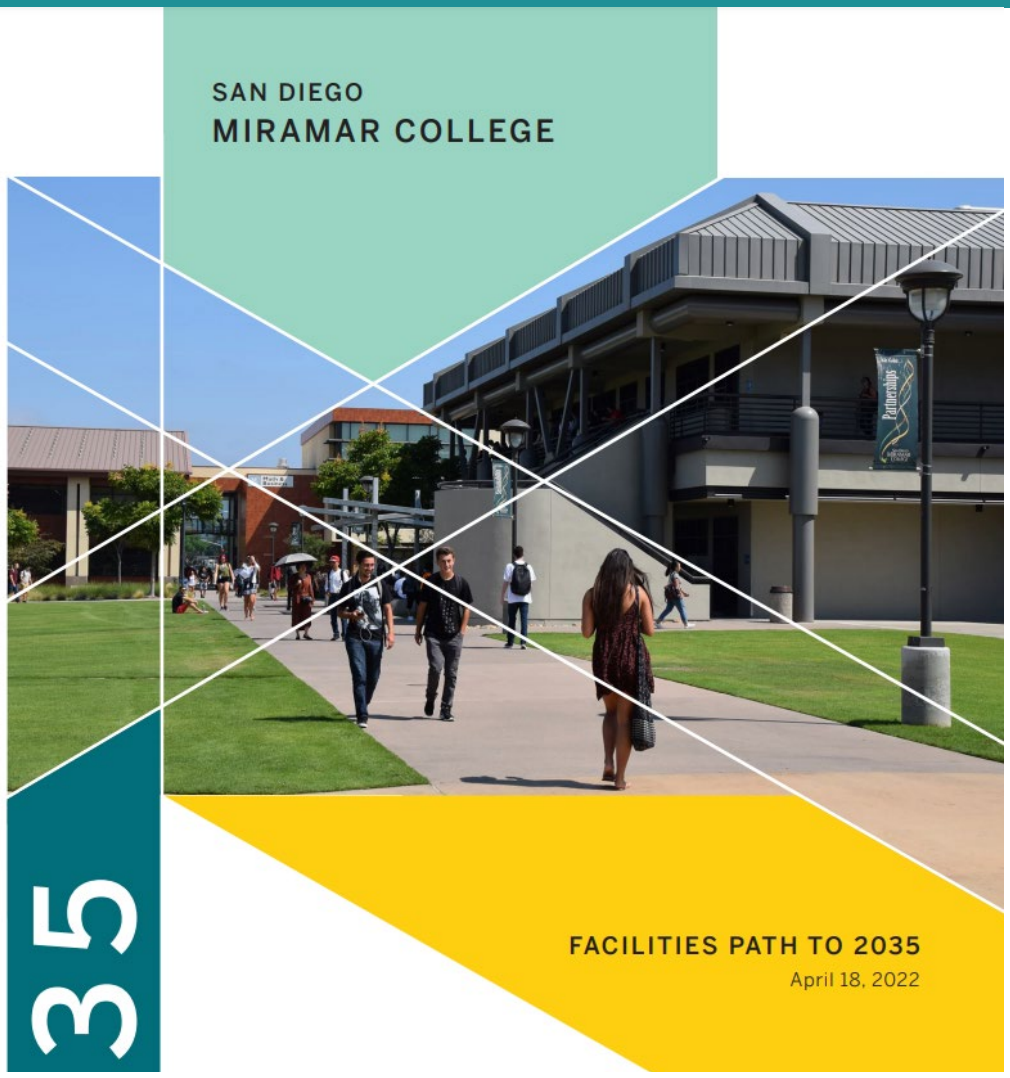
1.2.2

SAN DIEGO MESA COLLEGE STRATEGIC PLAN

Mesa2030
Comprehensive
Master Plan

1.2.3

SAN DIEGO MIRAMAR COLLEGE STRATEGIC PLAN



1.2.4

SAN DIEGO COLLEGE OF CONTINUING EDUCATION STRATEGIC PLAN

San Diego College of Continuing Education **Facilities Master Plan**

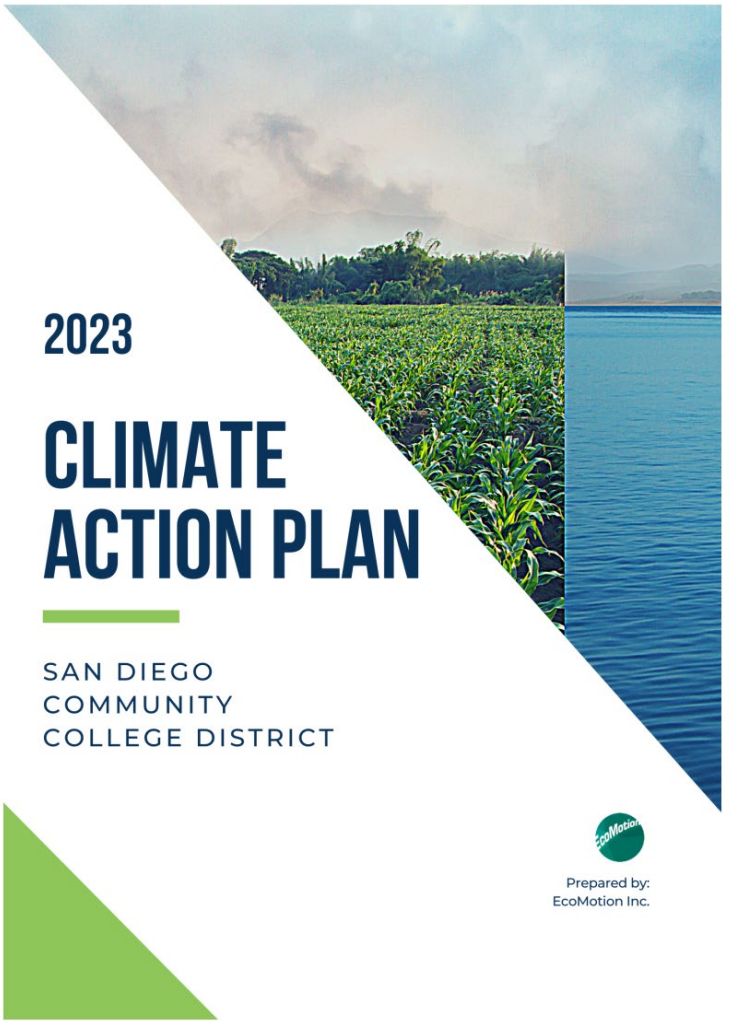
SAN DIEGO COLLEGE OF CONTINUING EDUCATION

1.3

SUSTAINABILITY & CLIMATE STRATEGY

1.3.1

CLIMATE ACTION PLAN



1.3.2

SUSTAINABILITY PLAN

EXECUTIVE SUMMARY

San Diego Community College District (SDCCD) recognizes the critical role of sustainability leadership both within its campuses and across the broader San Diego community. SDCCD has undertaken a comprehensive sustainability planning initiative to establish key environmental and operational sustainability goals that will guide future district-wide efforts.

Aligned with California's ambitious climate action targets and the directives of the State Chancellor's Office, SDCCD's sustainability framework includes goals in carbon reduction, energy efficiency, water conservation, climate resilience, materials management, indoor and outdoor environmental quality, health and wellness, and community engagement. These objectives aim to reduce environmental impact while fostering a culture of sustainability among students, faculty, and staff.

Through an approach that focuses on integrated project design and focus on holistic sustainability, that incorporates building reuse, sustainable material sourcing, reduced water use, and creating spaces that support faculty and student health and well being, SDCCD is committed to implementing tangible actions that align with long-term sustainability goals. The district also emphasizes education and outreach, community awareness events, and campus-wide sustainability initiatives ensuring that sustainability principles are embedded in campus life.

Stakeholder engagement has been at the core of this initiative, with active participation from students, faculty and staff. Their input, through sustainability values workshops, has informed the development of innovative programs that promote sustainable practices and reinforce SDCCD's leadership in higher education sustainability.

STATE CHANCELLOR OFFICE OF SUSTAINABILITY POLICIES

The California Community Colleges Chancellor's Office has established a comprehensive Climate Action and Sustainability Framework to guide the system's environmental initiatives. This framework, adopted in 2021, builds upon the 2019 Climate Change and Sustainability Policy and aims to create environmental, social, and educational benefits for the communities served by the colleges. It emphasizes a holistic approach, integrating sustainability into facilities, operations, curriculum, workforce development, and community engagement.

Specific Goals:

Greenhouse Gas Emissions Reduction:
- 2025 Benchmark: Conduct emissions inventory baselines and create a climate action plan.
- 2030 Goal: Reduce greenhouse gas emissions to 75% below baseline levels.
- 2035 Goal: Achieve a 100% reduction in greenhouse gas emissions, effectively reaching carbon neutrality.

Green Buildings:
- 2025 Benchmark: Establish energy usage intensity (EUI) scores for each building.
- 2030 Goal: Reduce natural gas usage in buildings by 30%.
- 2035 Goal: Achieve a 75% reduction in natural gas usage.

Energy Efficiency:
- 2025 Benchmark: Establish EUI scores.
- 2030 Goal: Decrease EUI by 25%.
- 2035 Goal: Decrease EUI by 40%.

Water Conservation:
- 2025 Benchmark: Benchmark potable water usage.
- 2030 Goal: Reduce potable water usage by 25%.
- 2035 Goal: Reduce potable water usage by 50%.

Waste Reduction:
- 2025 Benchmark: Benchmark and comply with state regulations.
- 2030 Goal: Reduce total material consumption by 10%.
- 2035 Goal: Decrease consumption of materials by 25%.

Sustainable Purchasing and Procurement:
- 2025 Benchmark: Benchmark sustainability characteristics of existing products and services.
- 2030 Goal: Increase procurement of sustainable products and services by 25%.
- 2035 Goal: Increase procurement of sustainable products and services by 50%.

Transportation:
- 2025 Benchmark: Conduct assessment of fleet vehicles and develop electric vehicle (EV) charging infrastructure.
- 2030 Goal: Ensure 50% of fleet vehicles are zero-emission vehicles (ZEVs).
- 2035 Goal: Achieve 100% of new fleet vehicles being ZEVs.

Food Systems:
- 2025 Benchmark: Campus food services to track sustainable food purchases.
- 2030 Goal: Increase sustainable food purchases to 20% of the total food budget.
- 2035 Goal: Ensure 80% of food served on campus meets the Real Food Challenge criteria.

These goals are designed to be implemented progressively, with benchmarks set for 2025, building and institutionalizing efforts by 2030, and achieving significant improvements by 2035. SDCCD has used this framework as a tool to establish baselines, track progress, and continually reassess their sustainability practices to benefit both the environment and their communities.

POLICY DRIVERS

SDCCD aligns with these state mandates and sustainability goals by integrating carbon reduction, energy efficiency, water conservation, and green infrastructure across its campuses. SDCCD will continue to advance sustainability leadership in alignment with these policies, ensuring that future projects contribute to California's long-term environmental goals.

California Global Warming Solutions Act of 2006 (SB 32)
This law designates the California Air Resources Board (CARB) as the authority to regulate statewide greenhouse gas emissions. The legislation requires emissions reductions to 1990 levels by 2020 and sets future targets of 40% below 1990 levels by 2030, with a long-term goal of achieving 80% reductions by 2050.

Senate Bill 100: 100% Clean Energy Mandate
SB 100 requires California utilities to source 60% of electricity from renewable sources by 2030, with a goal of reaching 100% carbon-free electricity by 2045.

Title 24, Part 11: CALGreen
California's Green Building Code (CALGreen) mandates energy efficiency, water conservation, and sustainable construction practices for all new buildings and major renovations. The latest update (2022) enforces on-site renewable energy generation and EV-charging infrastructure.

Water Conservation Act of 2009 (SB X7-7, AB 1668, SB 606)
This legislation requires a 20% reduction in urban water use per capita by 2020. Updates in AB 1668 and SB 606 introduced long-term conservation targets, with additional mandates expected in 2024.

Recycled Water Policy
California's goal is to increase recycled municipal wastewater usage from 714,000 acre-feet per year in 2015 to 2.5 million acre-feet by 2030 to support non-potable demands such as irrigation and industrial processes.

Sustainable Communities and Climate Protection Act of 2008 (SB 375)
This law requires regional planning agencies to implement strategies that reduce greenhouse gas emissions from passenger vehicles through smarter urban development and reduced vehicle miles traveled.

Low Carbon Fuel Standard
California requires fuel producers to reduce the carbon intensity of transportation fuels by 20% by 2030, encouraging alternative fuels such as hydrogen, biofuels, and electricity.

Innovative Clean Transit Regulation
All public transit agencies must transition to 100% zero-emission buses by 2040, with interim targets requiring 25% of new bus purchases to be zero-emission by 2023 and 100% by 2029.

California 75 Percent Initiative
California aims to divert 75% of solid waste from landfills by requiring all businesses and public entities to implement recycling and organic waste programs.

Buy Clean California Act
State-funded construction projects, including those within the California Community College system, must disclose embodied emissions of building materials and use low-carbon materials.

VALUES WORKSHOPS
(VIEWING ARCHITECTURE THROUGH THE LENS OF USER EXPERIENCE AND SUSTAINABILITY)

San Diego Community College District (SDCCD) held two VALUES workshops with over 50 participants of students, faculty, and staff. The sessions were critical planning and project visioning sessions used to establish sustainability and wellness goals while also considering project-specific challenges and available resources. VALUES assisted the stakeholders in identifying top project goals, determine how the success of these goals would be measured, and create a values-based road map for project decision-making.

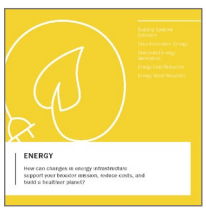
Workshop Activities
Over the course of two workshops, attendees participated in several activities, framed by a series of educational topics related to resource conservation, human health, ecology, and community health:

VALUES Prioritization – Participants reviewed a series of sustainability-related themes and design directions to identify the top goals for the project.

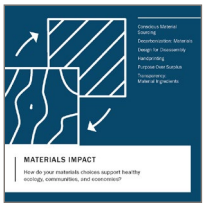
- Report | Observe | Measure – For each of their selected top goals, participants identified what they would see, feel, and measure if the project successfully implemented that goal.
- Defining Goals & Key Initiatives – For each of the top VALUES, participants defined specific goals and developed key initiatives to support successful implementation.
- The following key themes arose across engagement groups and have been used to guide the development of the SDCCD Sustainability Plan.

Health + Well-Being
A project's design can promote mental, physical, and emotional well-being and support users in accomplishing their personal goals.

Community Connector
A project can support its community by providing public resources and programs, encouraging neighborhood vitality, forging partnerships, and involving the public in decision-making processes.



Energy
Generating renewable energy, reducing energy consumption and cost, modeling how a proposed building design will perform in the future, and intentionally selecting building systems.



Materials
Building materials impact human well-being, carbon consumption (both embodied and operational), and cost over the course of their lifetimes.

Water
Water encompasses water quality, water and stormwater management practices, hydrological balance, and water's cultural context in a community.

Indoor & Outdoor Environmental Quality
Acoustic comfort, air quality, thermal comfort, and visual comfort support occupant health and well-being, cognitive function, and performance. Projects can use their outdoor spaces to restore ecology, build community, and create a strong sense of place.

SUSTAINABILITY GOALS

For each of the top VALUES, participants defined specific goals and developed key initiatives to support successful implementation. These goals have been incorporated into the SDCCD Green Growth program and shall be considered on future facility improvement projects.

KPI - A focused action to support a goal.

Goal 1

Design spaces that reduce stress, maintain emotional well-being, and promote recovery (e.g. social services, biophilic design, wellness spaces)

KPI: Access to views, fresh air, natural light/ materials, plants, flexibility, places to grow things, meditate, reset, affirming.

Goal 2

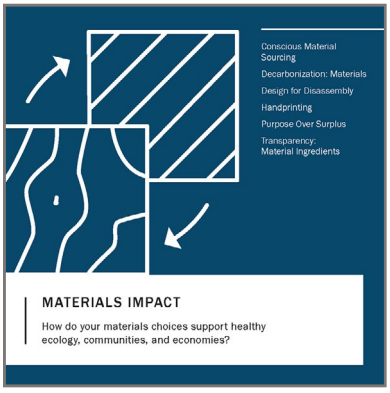
Distribute resources around campus for better access.

KPI: Master plan overlay locating resources, determine safe and distributed locations with necessary resources (power, data, water, etc.) Vending machine approach for food, drinks, health products.

Goal 3

Provide places where students can play, explore, experiment and find joy.

KPI: Maintain a variety of interactive spaces (e.g., maker spaces, nature play areas, art labs, gaming zones, experiment hubs).



Goal 1

Reduce waste going to landfill by 75% compared to current levels by 2030.

KPI: Require contractors to submit waste tickets and documentation to verify diversion.

Goal 2

Provide healthy environment that does not abuse material resources and improves health.

KPI: Maintain optimal CO^2 and VOC levels. Use materials that are low-carbon, recycled, or responsibly sourced.

Goal 3

Use natural and local materials as much as possible.

KPI: At least 25% of materials (by cost or weight) sourced within a 500-mile radius.

SUSTAINABILITY GOALS

Goal 1

Provide welcoming spaces for campus and community interactions.

KPI: Increase campus hosted events and ensure that shared spaces meet or exceed ADA and universal design standards.

Goal 2

Facilitate open communications between campus and community.

KPI: Transparent updates, reports and decisions made by district to community.

Goal 3

Fostering partnerships through built-in course experiences and extracurricular activities for career opportunities. (both for students going out and local businesses being invited into campus).

KPI: Community Program events for local businesses (career fair, open houses, workshops, etc.)

Vending machine approach for food, drinks, health products.

Goal 1

Decrease water usage.

KPI: Separate landscape from domestic water reporting.

KPI: Implement rainwater capture

KPI: Use water efficient plumbing fixtures.

KPI: Plant native and water efficient planting.

Goal 2

Provide better accessibility to hydration stations.

KPI: Increase quantity and frequency of filling station locations.

Goal 3

Upgrade & Improve long term maintenance of utilities.

KPI: Increase number of valves on utility loops to allow for increased maintenance access.

KPI: provide monitoring system of underground utilities.

KPI: Eliminate waterless fixtures.

SUSTAINABILITY GOALS

Goal 1

Maximize the amount of on-site renewable energy generation

KPI: Solar Panels installed on every new building.

Goal 2

Carbon Reduction

KPI: Build all electric facilities. No natural gas.

KPI: Utilize all electric vehicles for SDCCD facilities use.

Goal 3

Decrease Energy Consumption

KPI: Meter each building.

KPI: Utilize cool roofs.

KPI: Utilize natural daylight. ie. skylights.

Goal 1

Create meeting spaces and intentional spaces for gathering, enjoyment, and sitting.

KPI: More intentional furniture and places to linger.

Goal 2

Improve indoor air quality and acoustics.

KPI: Ensure proper level of air changes per hour in classrooms and high-occupancy spaces.

KPI: Maintain indoor noise levels below 35 dB in classrooms and below 40 dB in shared spaces.

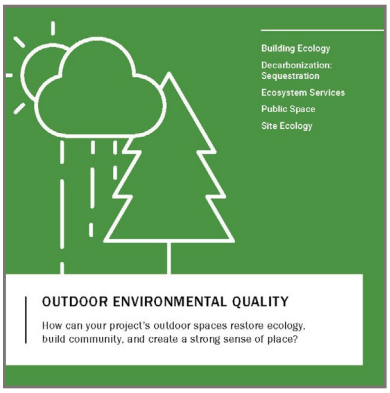
Goal 3

Incorporate biophilia and nature into both indoors and outdoors to increase enjoyment and well-being.

KPI: Plants and biophilia inside the buildings.

KPI: Access to student gardens and educational gardens

KPI: Landscape and garden areas to rest and study in.



1.3.3

GREEN POLICIES

DESIGN PROFESSIONAL SHALL STAY UP TO DATE WITH BOARD POLICIES:

- **BOARD POLICY 6970 - GREEN BUILDING POLICY AND MAJOR RENOVATION STANDARDS**
- **ADMINISTRATIVE PROCEDURE 6970 - GREEN BUILDINGS**
- **BOARD POLICY 6980 - ENVIRONMENTAL SUSTAINABILITY**
- **ADMINISTRATIVE PROCEDURE 8100.2 - ENVIRONMENTAL SUSTAINABILITY**
- **BOARD POLICY 7235 - INTEGRATED PEST MANAGEMENT**
- **BOARD POLICY 8101 - GREEN CLEANING PLAN**

1.3.4

SDCCD SUSTAINABILITY LEVELS

SDCCD SUSTAINABILITY LEVELS

OVERVIEW

SDCCD Sustainability Levels are designed to recognize, measure, and promote sustainable practices across SDCCD campuses and facilities. It provides a tiered rating system that encourages environmentally responsible design, construction, and operations, focusing on climate resilience, energy efficiency, resource conservation, and human-centered wellness. Including:

- Climate-Responsive: Addresses San Diego's unique environmental challenges.
- Education-Driven: Integrates sustainability into campus curriculum and student engagement.
- Flexible & Scalable: Adaptable for new construction, renovations, and operational improvements.
- Community-Oriented: Encourages collaboration, equity, and environmental leadership.

All SDCCD capital projects—including new construction, major renovations, and modernization—shall incorporate the principles outlined in the SDCCD Sustainability Levels and meet applicable local, state, and District-adopted sustainability policies.

INTEGRATED PROJECT DESIGN

A core principle of sustainable design is Integrated Project Design (IPD)—a collaborative approach that brings together architects, engineers, sustainability experts, faculty, and students from the outset of a project. This ensures that sustainability goals are embedded into the project from the beginning, leading to better long-term performance and cost savings. Key Elements:

- A Sustainability Kick-Off Workshop shall be held during project programming or schematic design. The District Architect, Facilities Planning, sustainability consultant, design team, and faculty user representatives must participate.
- Early Collaboration: Engaging stakeholders from the start to align sustainability objectives.
- Holistic Decision-Making: Addressing energy, water, materials, and wellness as interconnected factors.
- Performance-Based Goals: Using data-driven benchmarks to track sustainability outcomes.
- Educational Opportunities: Incorporating hands-on learning experiences for students in real-world projects.

SITE AND BUILDING FACTORS TO BE CONSIDERED:

1. Durability of Materials
2. Life-cycle costs
3. Recycled Content
4. Recycled Water
5. Decarbonization
6. Local/Regional Nature
7. Maintenance Demands
8. Labor and Materials Savings
9. Optimized Energy Performance
10. Energy Efficient Lighting
11. Low VOC content
12. Vegetation Preservation
13. Brownfield Redevelopment
14. Minimize/Eliminate Heat Islands
15. (Parking Lots)

OTHER DISTRICT ADOPTED SUSTAINABILITY STANDARDS:

1. Each campus shall facilitate and maintain an ongoing waste recycling program that establishes where facilities on campus will handle recycled materials including paper, cardboard, glass, plastics, and metal.
2. Renewable woods shall be specified and detailed.
3. The designer shall specify the Carpet and Rug Institute's Green Label Plus Program. All carpet cushion installed in the building shall have low emitting materials and backing.
4. The District's Facilities Services have adopted a program of Green cleaning materials and techniques.

CATEGORY BREAKDOWN & REQUIREMENTS

Integrated Project Design (10 Points)

☐ 2pts

Basic stakeholder collaboration and sustainability goals established from project inception.
Design Requirement: A preliminary sustainability framework must be developed and documented at the outset, involving key stakeholders such as architects, engineers, faculty, and sustainability coordinators. This framework should outline sustainability objectives and guiding principles that will be embedded throughout the project lifecycle.

☐ 2pts

Early engagement of all project disciplines, with sustainability focused workshop.
Design Requirement: A sustainability workshop must be conducted and documented early in the design process, bringing together all relevant disciplines (architecture, engineering, construction, operations, faculty, and student representatives) to align on sustainability targets, opportunities, and challenges.

☐ 2pts

Lifecycle assessments and energy modeling incorporated into design.
Design Requirement: Projects must perform a comprehensive lifecycle assessment (LCA) and energy modeling analysis to evaluate long-term environmental impacts and optimize energy efficiency strategies on three HVAC systems by the end of schematic design. These assessments should inform system selection.

☐ 2pts

Student and faculty participation in the project design process.
Design Requirement: Meaningful engagement of students and faculty must be demonstrated through participation in design charrettes, research contributions, and curriculum integration (e.g., sustainability-focused coursework linked to the project).

☐ 2pts

Fully integrated design process with sustainability embedded in every phase.
Design & Construction Requirement: Sustainability must be considered in every phase of the project, from pre-design through occupancy. This includes implementing sustainable procurement policies,construction waste diversion strategies, post-occupancy evaluations, and alignment with longterm district-wide sustainability goals.

Climate Resilience (15 Points)

☐ 1pts ☐ 2pts ☐ 3pts ☐ 4pts

Implement passive cooling and shading strategies.
Design Requirement: Projects that integrate the following passive cooling techniques, 1 point each, optimized building orientation, natural ventilation strategies, high-performance window glazing, and shading devices (e.g., overhangs, and vertical shading systems) to reduce cooling loads.

☐ 6pts

Reduce heat island effect with cool roofs and green spaces.
Design Requirement: New or renovated buildings that incorporate high-albedo (cool) roofing materials, reflective concrete paving surfaces and shade trees that contribute to reducing urban heat island effects and enhancing microclimate conditions.

☐ 5pts

Incorporate fire and flood-resilient design elements.
Design Requirement: Site planning and building design must incorporate wildfire-resistant materials (e.g., fire-retardant siding and non-combustible roofing), defensible space planning, and flood mitigation strategies such as permeable surfaces, bioswales, and stormwater retention systems.

Energy & Carbon Performance (35 Points)

☐ **Required**

Building Commissioning
Design & Construction Requirement: Projects must comply with Title 24 requirements and undergo fundamental and enhanced commissioning to optimize building performance. A third-party commissioning agent must verify HVAC, lighting, and renewable energy systems to ensure energy efficiency and occupant comfort.

Better energy efficiency than baseline.
Design Requirement: Project must demonstrate energy savings compared to the Title 24 baseline standards, as verified through energy modeling. Efficiency strategies may include high-performance building envelopes, optimized HVAC systems, and advanced lighting controls. (Select one below.)

☐ 10% Better than T24 **5pts**

☐ 15% Better than T24 **10pts**

☐ 20% Better than T24 **15pts**

☐ **2pts**

Integration of on-site renewable energy sources and battery storage.
Design Requirement: Code minimum is required. Projects must generate at least 20% of their annual energy demand through on-site renewable energy sources such as solar PV or wind turbines. Additionally, energy storage solutions, such as battery systems, must be incorporated to enhance grid resilience and peak load reduction.

Embodied carbon reduction.
Design Requirement: Project must implement low-carbon material strategies that reduce embodied carbon. Acceptable strategies include using low-carbon concrete, sustainably sourced wood, recycled steel, and whole-building life-cycle assessments (LCAs) to quantify reductions.

☐ Code Minimum **Required**

☐ 10% Reduction **5pts**

☐ 20% Reduction **10pts**

☐ **5pts**

Building reuse
Design Requirement: Modernization projects must retain or reuse at least 50% of an existing building's structure and envelope materials (walls, floors, roofs) to reduce embodied carbon and construction waste. Adaptive reuse strategies should prioritize historic and structurally sound buildings.

☐ **3pts**

All electric construction
Design Requirement: Building must be fully electric, eliminating the use of on-site fossil fuels. HVAC, water heating, and cooking systems. Evaluate feasibility and associated cost during schematic design.

Water Conservation & Management (20 Points)

☐ 5pts

Low-flow fixtures installed.
Design Requirement: All new construction and major renovations must install low-flow plumbing fixtures (toilets, urinals, faucets, and showers) that achieve at least 20% water use reduction compared to standard fixtures.

☐ 5pts

25% potable water use reduction.
Design Requirement Requirements: The project must demonstrate a 25% reduction in potable water use compared to baseline consumption levels by incorporating water-efficient appliances, and fixture upgrades.

☐ 5pts

Reduce potable water use for irrigation by 50% or more or use reclaimed water for irrigation.
Design Requirement: The landscape irrigation system must use 50% less potable water than a conventional system through high-efficiency irrigation technologies, drip irrigation, or climate-responsive controls. Alternatively, projects can utilize reclaimed or non-potable water sources for irrigation needs.

☐ 5pts

Implement native and drought-tolerant landscaping.
Design Requirement: At least 75% of the landscaped area must use native, adaptive, or drought-tolerant plant species to reduce irrigation demands and support local biodiversity. Turf grass should be minimized, except in designated recreational areas.

Materials & Waste (20 Points)

☐ 4pts

Use at least 30% recycled, materials.
Design & Construction Requirement: At least 30% of total building materials (by cost or volume) must be composed of recycled content, including post-consumer and post-industrial recycled materials. Documentation must include manufacturer specifications verifying the recycled content percentages.

☐ 4pts

Material Lifecycle Cost & Maintenance Considerations
Design Requirement: All material selections shall be based on a lifecycle cost analysis, considering initial cost, durability, maintenance effort, and long-term performance. Material proposals must include documentation on expected lifespan, cleaning requirements, and associated maintenance costs to ensure cost-effective and sustainable selection.

☐ 3pts

Divert at least 75% of construction waste from landfills.
Design & Construction Requirement: Projects must implement a construction and demolition waste management plan that diverts at least 75% of total project waste from landfills through recycling, salvage, and reuse strategies. Compliance must be demonstrated through waste tracking and reporting.

☐ 3pts

Use of at least 25% of locally sourced materials.
Design & Construction Requirement: Locally sourced materials within a 500 mile radius from the project site including aggregate, concrete, wood, steel, and finishes. Calculation shall be based on material cost.

Certified Wood.
Design & Construction Requirement: Wood products used in construction must be Forest Stewardship Council (FSC) certified or equivalent, ensuring sustainable forest management and responsible sourcing practices.

- ☐ 50% FSC Certified use — **1pt**
- ☐ 75% FSC Certified use — **2pts**
- ☐ 90% FSC Certified use — **3pts**

☐ **3pts**

Composting
Design & Construction Requirement: Commercial prep kitchens must integrate on-site or campus-wide composting programs, with designated collection bins and educational signage.

Indoor Environmental Quality & Wellness (15 Points)

☐ **Required**

Compliance with minimum indoor air quality standards.
Design & Construction Requirement: The project must meet or exceed California Title 24 ventilation and air quality standards, ensuring compliance with ASHRAE 62.1 or equivalent indoor air quality regulations. Documentation must include air quality testing reports and system verification.

☐ **Required**

Low-VOC materials
Design & Construction Requirement: All adhesives, sealants, paints, coatings, and composite wood products must contain low or no volatile organic compounds (VOCs) in compliance with California Air Resources Board (CARB) regulations.

☐ **3pts**

Provide natural ventilation
Design Requirement: At least 50% of regularly occupied spaces must be designed with operable windows, vents, or mixed-mode ventilation strategies to reduce reliance on mechanical systems.

☐ **3pts**

Access to views and daylighting.
Design Requirement: A minimum of 75% of regularly occupied spaces must provide direct access to daylight and views through appropriately placed windows, skylights, or light wells. Interior layouts should maximize daylight penetration without excessive glare.

☐ **2pts**

Improved air filtration.
Design Requirement: HVAC systems must include MERV 13 or higher air filters to capture airborne contaminants and improve indoor air quality. Projects must implement dedicated outdoor air systems (DOAS) or equivalent filtration enhancements.

☐ **3pts**

Acoustics
Design Requirement: Projects must comply with ANSI S12.60-2010 acoustical performance standards, ensuring noise reduction, optimal speech intelligibility, and sound insulation in classrooms, offices, and shared spaces.

☐ 2pts

Wellness-focused indoor environment.
Design Requirement: Projects must incorporate biophilic design elements, such as indoor greenery, access to outdoor spaces, and acoustic comfort strategies, to promote occupant well-being.

☐ 2pts

Exemplary indoor environmental conditions exceeding industry best practices.
Design Requirement: The project must achieve at least one WELL Building Standard feature related to mental health, ergonomics, or enhanced indoor air and water quality.

Community Engagement & Learning (10 Points)

☐ 2pts

Incorporate a central educational display.
Design Requirement: Each project must feature a permanent educational display that highlights sustainability features, energy performance, and environmental impact. The display should be interactive, digital, or physical, and accessible to students, faculty, and visitors.

☐ 3pts

Engage students in hands-on learning through green building projects.
Design Requirement: Projects must provide opportunities for students to participate in green building efforts, including sustainability audits, construction site visits, or capstone projects. Documentation must include project-based learning activities integrated into coursework.

☐ 2pts

Partner with faculty to inform sustainability curriculum based on project sustainability goals.
Design Requirement: Faculty members must be involved in aligning sustainability strategies with course material and using real-world project data for instructional purposes. A minimum of one course must integrate elements of the sustainability initiatives into its syllabus.

☐ 3pts

Partner with campus organizations for environmental outreach.
Design Requirement: The project must collaborate with student organizations or sustainability clubs to facilitate outreach, awareness campaigns, and campus-wide sustainability initiatives. Activities may include workshops, guest lectures, and community engagement events.

Innovation (10 Points)

☐ 3pts

Unique and creative approaches to sustainability challenges.
Design Requirement: Projects must demonstrate the use of novel solutions to sustainability challenges, going beyond industry standards in energy, water, materials, or community impact. Solutions should be distinct from conventional best practices and adaptable to future innovations.

☐ 3pts

Application of interdisciplinary collaboration and design thinking.
Design Requirement:Projects must showcase collaborative problem-solving across multiple disciplines, integrating expertise from architecture, engineering, environmental science, and social studies to develop holistic, sustainable solutions.

☐ 4pts

Use of experimental or pilot strategies to improve sustainability outcomes.
Design Requirement:The project must incorporate an experimental or prototype element that tests new sustainability approaches, technologies, or operational processes. These efforts should be documented and evaluated for long-term feasibility.

Scorecard

CATEGORY	MAX POINTS	BASELINE	CERTIFIED	SILVER	GOLD	PLATINUM
		SAGEBRUSH	COASTAL LIVE OAK	TORREY PINE	REDWOOD	SEQUOIA
Integrated Project Design	10	2	4	6	8	10
Climate Resilience	15	5	7	10	12	15
Energy & Carbon Performance	35	8	10	15	20	25
Water Conservation & Management	20	5	10	15	15	20
Materials & Waste	20	4	7	11	15	18
Indoor Environmental Quality & Wellness	15	5	8	11	13	15
Community Engagement & Learning	10	2	5	7	8	10
Innovation	10	0	3	3	7	10
Total Possible Points*	135	31+	54+	78+	98+	123+

*Ratings are determined by the total points earned; however, minimum point thresholds must be met in each category to qualify for a rating.

DESIGNED LEVELS

Projects and buildings earn a rating based on their performance across sustainability categories per the following:

- **Baseline/ Sagebrush (Baseline Sustainability)** – Meets SDCCD's minimum sustainability standards, with basic energy and water conservation measures.
- **Certified/ Coast Live Oak (Sustainable Performance)** – Demonstrates significant sustainable strategies.
- **Silver/ Torrey Pine (High-Performance Green Building)** – Meets advanced sustainable quality benchmarks.
- **Gold/ Redwood (Leadership in Sustainability)** – Implements innovative sustainability strategies.
- **Platinum/ Sequoia (Exemplar of Sustainability)** – Sets model for sustainable education facilities.

REQUIRED SUBMITTALS

5. Submit proposed points at completion of programming to District Architect.
6. Submit proposed points at completion of schematic design to District Architect.
7. Submit completed scorecard with backup documentation for design requirements at time of DSA submittal to District Architect.
8. Submit final scorecard with backup documentation for design and construction requirements at time of substantial completion to District Architect.

02 DESIGN STANDARDS

2.1

DESIGN GUIDES & STANDARDS

2.1.1

PROJECT PROGRAMMING

GENERAL PROGRAMMING PROCESS AND PROCEDURES

The following standards are required for new construction and major modernizations.

GENERAL REQUIREMENTS

1. Consultant shall, in close coordination with College Campus Project Manager, Faculty and Staff, perform the following services:
   a. Review the approved College Master Plan and visit the project site to become thoroughly familiar with existing conditions, assets and constraints.
   b. Review all existing program data including existing college space inventory and enrollment history and projections. Prepare a thorough Project Description and Scope statement and submit it to the District Architect for Review and Comment.
   c. Conduct a needs assessment to determine 5-year space needs for this project.
   d. Prepare an analysis of existing space versus existing Full Time Equivalents (FTEs) to determine whether eligibility exists for California Community College (CCC) Funding Participation.
   e. Prepare a detailed program for this project separated into site and building- related requirements and submitted as draft and final versions.
   f. Include the information listed below in the detailed program for each project component:
   g. Description of function to be accommodated.
   h. Size/capacity of each facility including occupancy, where applicable.
   i. Required toilet room facilities.
   j. Required building utilities including power, lighting, public address system, audio visual devices, fire alarm, voice communications, data communications, climate control, ventilation, water and wastewater systems.
   k. Surface improvements, including paving and landscaping.
   l. Description of any required demolition and remodeling.
   m. Consultant shall, based on approved program and site plan, prepare a rough- order-of-magnitude (ROM) construction cost estimate to validate that the facility can be implemented within the parameters of the District funding allocation. Consultant shall also prepare a conceptual bar graph schedule which spans the period from Notice-to-Proceed to project completion.

SITE RELATED PROGRAM

1. Establish project limits based on approved master plan. Indicate that all improvements within these limit lines are part of the project scope.
2. Describe required surface improvements including but not limited to:
   a. Outdoor physical education facilities.
   b. ADA Circulation Element.
   c. Roads and fire department access.
   d. Parking including ADA requirements
   e. Bike racks
   f. Pedestrian walkways
   g. Service yards
   h. Courts/plazas
   i. Outdoor seating
   j. Outdoor lighting including required foot-candles
   k. Landscape
   l. Security Talk-A-Phones per Division 27 (Coordinate with College Police Dept.)

3. Low Impact Development (LID)
   a. Integrate LID concepts where possible into landscaped areas and site improvements to manage stormwater runoff as a resource.
   b. Utilize site design measures to reduce, or replicate, pre-construction water balance.
   c. Conserve natural area, soils, and vegetation and minimize disturbances to natural drainage areas.
   d. Incorporate landscape designs that promote water retention and evaporation.
   e. Maximize the percentage of pervious surfaces for low traffic areas, parking lots, trails, and pedestrian walkways to allow percolation of stromwater into the ground.
   f. Minimize directly connected impervious areas by directing roof, parking lot, and surface flows to pervious/ vegetated areas.
4. Fire Accessibility Plan
   a. Note that DSA requires a fire accessibility site plan, specific to the project, including a fully dimensioned fire department access route. All fences and gates along the fire access route shall be indicated with required dimensions. Include fire hydrant locations, post indicator valves, fire department connections and fire sprinkler risers. Indicate which hydrants were used for testing in the fire flow data report with elevations from the lowest tested hydrant to the building being served. Also on the fire accessibility site plan, provide a local fire authority plan review approval stamp with all the information included per DSA requirements.
5. Fire Flow Requirements
   a. Work closely with the District to provide a fire flow data report, with a minimum of two hydrants tested in the immediate vicinity of the proposed project. Testing for the fire flow data report shall be conducted by the local fire authority or certified staff from the local water purveyor. The fire flow data report shall indicate which hydrants were tested and elevations. Fire flow tests are to be conducted within six months of submittal to DSA.
6. DSA Submittal Requirements
   a. Note that DSA will require the certification letters and DSA Application Numbers for all existing elements affected by the proposed scope of work, including the path of travel from the area of proposed work to the parking lot and public right of way. The walkways and parking lot are included in the path of travel and require the application number to be indicated on the site plan.

BUILDING RELATED PROGRAMMING

1. The following description is applicable for new buildings or additions to existing buildings. However, building additions require that the existing portion of the building be surveyed to determine compliance (or non-compliance) with American Disabilities Act (ADA), California Building Code (CBC) (seismic related design) and the absence or presence of toxic substances (asbestos, lead-based paint, others). The District has ADA transition plans and record drawings for all campuses.

PROGRAMMING OF TEACHING STATIONS

1. Space standards, as applicable, are to follow CCC Title 5 regulations. The Title 5 regulations set forth utilization ratios for classrooms and laboratory spaces as well as Assignable Square Foot (ASF) allocation per full time equivalent faculty (FTEF) for office space and student stations by room use. The latter is divided into fifty-two categories. Also included are space allocations for libraries, indoor and outdoor physical education facilities. Refer to District Space Standards in the table below:

PROGRAMMING OF NON-TEACHING STATIONS

1. Space allocation for these rooms is to be based on user demands and generally acceptable standards and include, but are not limited to, the following:

a. General office space
   i. Faculty work rooms
   ii. Conference rooms
   iii. Storage rooms
   iv. Support rooms for reproduction and facsimile
   v. Cafeteria/dining rooms
   vi. Food preparation/food dispensing areas
   vii. Vending machine rooms
   viii. Day care facilities

SPACE PROGRAM DATA VERIFICATION AND DEFINITION

1. Existing program data is to be verified and confirmed to assure that it is current and addresses the priorities established during the campus master planning process. Following this verification, an in-depth analysis shall be conducted with faculty and staff to determine detailed requirements of each component which will become part of the final program. Where applicable, space allocation for new construction is to follow the standards set forth in the California Code of Regulations. Adherence to these standards, even though not required for locally funded Bond projects, will aid future funding requests. The following rules shall apply in determining office, classroom and laboratory spaces.

GENERAL PROGRAMMING PHASE - SUSTAINABLE DESIGN

1. The District is committed to sustainable development and has mandated that by District Policy 6970 that all new construction projects shall show implementation of energy efficiency, green building and sustainable measures. It is the policy of the District for all projects to be as energy efficient and as space efficient as possible. Refer to the Sustainability & Climate Strategy Section.

CONCEPT DESIGN PHASE

1. In addition to all the programming services described above, for some “blended” funding projects consisting of Title 5 and Bond Program funds, the Programming Consultant shall provide Conceptual Design Services. Such services shall be of adequate scope to satisfy the requirements of a CCC FPP and shall include the following deliverables:
   a. Progress review meetings, 3 each minimum, with College Project Manager, faculty, and staff
   b. Detailed Project Description
   c. Site information
   d. Vicinity map
   e. Existing Campus Plan
   f. Master Plan, addressing improvements and showing facility under consideration.
   g. Site Plan- showing project-related site improvements
   h. ADA Access Route
   i. Sections
   j. Exterior elevations
   k. Axonometric view, perspective, or 3D Modeled Rendering.

CONCEPTUAL DESIGN PHASE— SUSTAINABLE DESIGN

1. (See Sustainability & Climate Action Section) All final programming documents must contain a section related to sustainability. For new building projects, the report should describe in detail how the project will comply with the SDCCD Sustainability Level requirements to achieve a Certified Coastal Live Oak at a minimum. The supporting documentation must comply and receive approval from the District Architect to earn the credit points shown on the Project Checklist. The report shall contain all the assumptions and requirements that are necessary so that the follow-on Architectural/ Engineers can use the information to continue the design and obtain the remaining points.
2. A completed Project Scorecard must be submitted to the District Architect for approval as required in the Sustainability Plan Section 1.3.4. Each time a scorecard is submitted, a coordination meeting shall be held with the District Architect and other interested parties to discuss each item and its implementation to program documents. After satisfactory discussions, resolutions and revisions to the documents, these will then be submitted to the District for approval.

NEW BUILDING PROJECTS

1. The conceptual design for new building projects must have sustainable features that achieve a Certified Coastal Live Oak at a minimum. All the sustainable features should be incorporated early in the design process in order to ensure an integrated green building design solution.

CONCEPTUAL DESIGN PROCESS FOR NEW BUILDINGS AND MAJOR RENOVATIONS

1. The College Design Team, including all college key stakeholders, project management and design professionals, will convene to determine if the project complies with the District definitions for new construction and is a sustainable candidate. If the project is not a sustainable candidate, the Programming Consultant shall prepare a detailed report justifying the decision for the District Architect's review and approval.
2. If the building project is a sustainable candidate, after the general programming effort is complete the team will develop initial design concepts and alternatives by holding an intensive charrette. Issues under discussion are to include the implications of building orientation, shape, aspect ratio of the building, shading, etc. Three alternative design schemes are to be developed and one recommended alternative is to be chosen.
3. The Programming Consultant then presents all three alternatives to the District Architect, who then discuss the merits of each option. Approved design schemes continue to the next stage of the design process. After obtaining final District Architect approval, the project progresses to the next stage of design development.

MAJOR RENOVATION PROJECTS (INTERIOR OR EXTERIOR)

1. Conceptual design schemes for major renovation projects should have sustainable features and may be required to achieve a Certified Coastal Live Oak at a minimum, to be determined on a case by case basis.

CONCEPTUAL DESIGN PROCESS FOR MAJOR RENOVATION PROJECTS

1. The College Design Team, including all college key stakeholders, project management and design professionals, will convene to determine if the project complies with the definition outlined for major renovation and is a sustainable candidate. If the project is not a sustainable candidate, the Programming Consultant shall prepare a detailed report justifying the decision for the District Architect's review and approval. If the building project is a sustainable candidate, after the general programming effort is complete the team will develop initial design concepts and alternatives by holding an intensive charrette. Issues under discussion may include topics such as

2.1.2

BUILDING PROGRAMMING STANDARDS

BUILDING RELATED PROGRAMMING

1. The following description is applicable for new buildings or additions to existing buildings. However, building additions require that the existing portion of the building be surveyed to determine compliance (or non-compliance) with American Disabilities Act (ADA), California Building Code (CBC) (seismic related design) and the absence or presence of toxic substances (asbestos, lead-based paint, others). The District has ADA transition plans and record drawings for all campuses.

PROGRAMMING OF TEACHING STATIONS

1. Space standards, as applicable, are to follow CCC Title 5 regulations. The Title 5 regulations set forth utilization ratios for classrooms and laboratory spaces as well as Assignable Square Foot (ASF) allocation per full time equivalent faculty (FTEF) for office space and student stations by room use. The latter is divided into fifty-two categories. Also included are space allocations for libraries, indoor and outdoor physical education facilities. Refer to District Space Standards in the table below:

PROGRAMMING OF NON-TEACHING STATIONS

1. Space allocation for these rooms is to be based on user demands and generally acceptable standards and include, but are not limited to, the following:
   General office space
   a. Faculty work rooms
   b. Conference rooms
   c. Storage rooms
   d. Support rooms for reproduction and facsimile
   e. Cafeteria/dining rooms
   f. Food preparation/food dispensing areas
   g. Vending machine rooms
   h. Day care facilities

SPACE PROGRAM DATA VERIFICATION AND DEFINITION

1. Existing program data is to be verified and confirmed to assure that it is current and addresses the priorities established during the campus master planning process. Following this verification, an in-depthanalysis shall be conducted with faculty and staff to determine detailed requirements of each component which will become part of the final program. Where applicable, space allocation for new construction is to follow the standards set forth in the California Code of Regulations. Adherence to these standards, even though not required for locally funded Bond projects, will aid future funding requests. The following rules shall apply in determining office, classroom and laboratory spaces. Classroom Space - Based on use of a minimum of 53 hours out of 70 hours per week with at least 66% of their stations occupied. Laboratory Space - Based on use of a minimum of 27.5 hours out of 70 hours per week with at least 85% of the stations occupied.

GENERAL RULES

1. Office Space - 140 ASF based on full time equivalent faculty (FTEF). Of this area 80 ASF are allocated to each FTEF with the balance of 60 ASF used for office support areas.
2. Classroom Space - Based on use of a minimum of 53 hours out of 70 hours per week with at least 66% of their stations occupied.
3. Laboratory Space - Based on use of a minimum of 27.5 hours out of 70 hours per week with at least 85% of the stations occupied.

CLASSROOMS AND LABORATORIES

1. The standards listed below in are based on Barclays California Code of Regulations, California Community Colleges-Title 5:

Use Category	Assignable Square Feet (ASF) Per Student Station	Remarks
Office Space	140	Full Time Equivalent Faculty (FTE)
Agriculture	115	
Architecture	60	
Biological Sciences	55	(FTEF)
Business and Mgmt.	30	
Classroom	15	
Seminar Rooms	15	
Teaching Laboratories	TBD	
Communications	50	
Computer & Info Science	40	
Advanced CAD Computer Lab	86	ASF Includes Req'd Support Spaces
Education	75	
Use Category	**Assignable Square Feet (ASF) Per Student Station**	**Remarks**
Diesel	200	
Air Conditioning	130	
Refrigeration	130	
Auto-Body & Fender	200	
Auto-Mechanic	200	
Auto-Technology	75	
Small Engine Repair	100	
Aviation Maint.	175	
Plastics	130	
Stationary Eng.	200	

Use Category	Assignable Square Feet (ASF) Per Student Station	Remarks
Engineering	75	
Fine & Applied Arts	60	
Foreign Language	35	
Health Services	50	
Home Economics	60	
Letters	35	
Library Science	35	
Mathematics	35	
Physical Sciences	60	
Psychology	35	
Public Affairs & Serv.	50	
Social Sciences	35	
Commercial Services	50	
Interdisciplinary	60	
Carpentry	175	
Electricity	175	
Plumbing	175	
Glazing	175	
Roofing	175	
Masonry	175	
Dry Wall	175	
Plastering	175	
Painting	175	
Millwork	90	
Metal Trades	90	
Welding	90	
Machine Tools	90	
Heavy Equipment	200	
Auto-Mechanics	200	
Auto-Body & Fender	200	
Graphics Arts	80	
Stationary Eng.	200	

LIBRARY SPACE

1. All library space shall be computed by assignable square feet for library functions as specified in the subdivisions of this section. Square feet are "assignable" only if they are usable for the function described. Areas such as the main lobby (excluding card catalogue area), elevators, stairs, walled corridors, rest rooms and areas accommodating building maintenance services are not deemed usable for any of the described functions.

   a. Stack Space:
      i. 1 ASF x Number of Bound Volumes
   b. Number of Volumes
      i. Initial Increment = 16,000 volumes
      ii. Additional Increments
         (a) Under 3,000 DGE*= +8 volumes per DGS **
         (b) 3,000-9,000 DGE = +7 volumes per DGS
         (c) Above 9,000 DGE = +6 volumes per DGS
   c. Staff Space:
      i. (140 ASF x Number of FTE Staff) + 400 ASF
      Number of FTE Staff
      Initial Increment= 3.0 FTE
      ii. Additional Increments
         (a) Under 3,000 DGE= +.0020 FTE Staff per DGS
         (b) 3,000-9,000 DGE= +.0015 FTE Staff per DGS
         (c) Above 9,000 DGE= +.0010 FTE Staff per DGS
   d. Reader Station Space:
      i. 27.5 ASF x Number of Reader Stations
      Number of Reader Stations
      Initial Increment= 50 Stations
      ii. Additional Increments
         (a) Under 3,000 DGE= +.10 Stations per DGS
         (b) 3,000-9,000 DGE= +.09 Stations per DGS
         (c) Above 9,000 DGE= +.08 Stations per DGS
   e. Total Spaces:
      i. Initial Increment= 3,795 ASF.
      ii. Additional Increments
         (a) Under 3,000 DGE= +3.83 ASF per DGS
         (b) 3,000-9,000 DGE= +3.39 ASF per DGS
         (c) Above 9,000 DGE= +2.94 ASF per DGS

AUDIO-VISUAL SPACE

1. For audio-visual and programmed instruction activities associated with library learning resource functions, additional areas sized for individual needs but not exceeding the following totals for the district as a whole.
   a. Total Space:
      i. Initial Increment= 3.500 ASF
      ii. Additional Increments
         (a) Under 3,000 DGE*= 1.50 ASF per DGS**
         (b) 3,000-9,000 DGE= 0.75 ASF per DGS
         (c) Above 9,000 DGE= 0.25 ASF per DGS
      * Day-Graded Enrollment / ** Day-Graded Student

CONFERENCE ROOMS

1. 200 to 400 S.F.

INDOOR PHYSICAL EDUCATION (PE) FACILITIES STANDARDS

1. The total assignable square feet (ASF) for indoor PE is determined for each campus as follows:

TARGET FTE	ASF/FTE
2,000	12
3,000	11
4,000	10.5
5,000	10.2
6,000	9.7
8,000	9.0
10,000	8.1
15,000	7.4
20,000	6.6
25,000	6.0

INDOOR PHYSICAL EDUCATION (PE) FACILITIES STANDARDS

1. Outdoor physical education facilities are planned for each campus as follows:

ENROLLMENT	TEACHING STATIONS	ACRES
2,500	4	18
5,000	8	22
7,500	9	26
10,000	11	29
15,000	14	34
20,000	17	37
25,000	19	39

   a. Special outdoor facilities such as tennis courts and handball courts are to be provided on the following basis: facilities providing for twenty-four students constitute one teaching station; that is, six tennis courts or six handball courts constitute one teaching station.

CORRIDORS

1. Recommended Corridor Width/Height Standards
   a. Corridor with offices: 6 ft. minimum.
   b. Corridor and instructional rooms on one side: 8 ft. minimum.
   c. Corridor with instructional rooms on each side: 10 ft. (where doors open into corridor)
   d. Corridor with instructional rooms on each side: 8 ft. (where doors open into protected inset)
   e. Minimum Corridor Height: 8-ft. Clear
   f. Optimal Corridor Height: 10-ft. Clear

FORMAT OF PROGRAM

1. Programs for new construction as well as building rehabilitation/repair and additions shall follow District's Space Program. Programs for remodeling shall be presented with a detailed description of room amenities and furnishings as well as diagrammatic layouts.

AMENITIES/EQUIPMENT/FURNITURE

1. Either as part of the detailed space program form or in matrix form, list the following by room:
   a. Type I Equipment: All built-in cabinets, counters, lab benches, fume hoods, etc which are customarily part of the construction contract. Note that a mock up sample is required for typical Lab Casework during the construction submittal process.
   b. Type II Equipment: Furniture and all movable (copier, fax, printers, etc.).
      i. Data communication requirements (computer related)
      ii. Voice communication requirements (phone related)
      iii. Special power requirements (voltage, amps, emergency power)
      iv. Special utility requirements (gas, compressed air, distilled water, oil and acid separations)
      v. Special environmental requirements (humidity control, 100% exhaust, special lighting requirements-dimming)
      vi. Other project-related requirements determined as a result of communication with faculty and staff.
      vii. Note: Provide small scale floor plans (on 8-1/2x11 paper) with descriptive paragraphs and examples of equipment layouts.

2. The Programming Consultant then presents all three alternatives to the District Architect, who then reviews the merits of each option. Approved design schemes continue to the next stage of the design process. After receiving final District Architect approval, the project progresses to the next stage of design development.

2.1.3

PROJECT CRITERIA

NOISE & VIBRATION CONTROL

1. Noise and vibration, that is the emission and transmission control is the combined responsibility of the design profession and their consultants and must be considered in the design of every building, or space, even though specific requirements might not be stated in the guidelines.
2. Principal considerations must be given to noise and vibration control as follows:
   a. Noise control to provide for maximum usefulness of the facility by keeping levels of sound within ranges which are conducive to study and work or other uses for which the facility is designed.
   b. Noise control in compliance with OSHA requirements for the health and safety of building occupants; control shall be for all areas of the facility, including equipment rooms, boiler rooms, and fan rooms.
   c. Vibration control to limit sound produced by equipment and for protection of the equipment and the building structure. On recent projects slight vibration of the main HVAC lines caused the projector to vibrate which in turned causes enough vibration on the screen for students to complain of nausea.
   d. Special attention should be given to proximity by keeping noise producing equipment removed as far as possible from areas requiring low sound levels. For example, classrooms should not be adjacent to mechanical rooms.
   e. A post-construction sound test shall be specified to prove the integrity of sound control where control is critical.
3. General design criteria for rooms requiring acoustic control;
   a. All plumbing penetrations in walls must be caulked airtight.
   b. Where fixtures of any type are installed ensure that required acoustic wall construction extends behind these recessed elements.
   c. Maximize separation of operable windows so that opening window areas of adjoining rooms requiring acoustical protection in order to minimize sound transfer.
   d. Do not use recessed mounted lighting fixtures at ceilings of rooms requiring acoustical protection.
   e. Space doors to rooms requiring acoustical protection so that neighboring rooms do not have directly adjoining doors, and stagger doors so that doors on opposite sides of corridors do not directly face each other. Do not place any doors to rooms requiring acoustical protection opposite stairwell or restroom doors.
   f. Do not place restrooms or lounges over rooms requiring acoustical protection.
   g. Provide a maximum gap of ½" at all door bottoms.

BUILDING ENTRANCE LOBBIES

1. The lobby shall contain a building directory, a lockable bulletin board for schedules and special announcements.
2. Each main entry lobby should have an electronic video monitor; coordinate with the IT Project Manager for specific criteria.
3. An AED device shall be provided in each lobby of every new campus building. Architectural plans shall show location.
4. Provide automatic door opener at accessible exterior entry door.
5. Building Memorial Plaque is required at each new building lobby. Design Professional shall make provisions for a wall area in the main lobby to be used for installation of a future plaque.
6. Corner guards should be provided to 48" AFF in entry recesses and appropriate locations.
7. Hydration station is required at all building lobbies.

CLASSROOM DESIGN REQUIREMENTS

1. Effective classroom design requires a collaborative approach to planning and programming to facilitatethe instructional mission. The focus must be the users; both students and faculty. The goal is to enhance the communication from instructor to student and student to instructor in the most efficient and simple manner.
2. These guidelines are not meant to be static. They should be reviewed and updated on an annual basis. Any proposed revisions or suggestions are welcomed and should be submitted to the District Architect.
3. Student entries/exits should be at the back of the room, or if not possible, at the sides. The students should not enter at the front (teaching wall) of the room, which interferes with the instructor. Entrances/exits required near the front of lecture rooms should be designed to minimize the amount of outside light cast on the projection screen.
4. Wall surfaces under whiteboards to be coated with extra heavy duty paint to facilitate washing off shoe marks.
5. Machinery and other noises need to be located remote from the classrooms.
6. Dedicated locations for waste and recycling containers should be near the classroom doors.
7. Windows should be towards the back of the classroom.
8. Windows should be designed to not cast sun or day-light onto the front instructional area.
9. Avoid windows in assembly spaces.
10. For lecture rooms over 100 occupants there should be no windows without specific approval from the District Architect.
11. Glare on whiteboards can cause distractions to learning, carefully review classroom lighting to minimize glare.
12. For classrooms designed as computer labs, additional space shall be provided for printing tables and lockable storage space for printing supplies, batteries, paper, cartridges, etc.
13. There should be no visual obstructions, such as columns or podiums, between student seating and the whiteboards and screens.
14. Ceiling Tiles; use tegular tiles; 24 x 24 or 24 x 48 sizes and normal grid members.

RESTROOM DESIGN REQUIREMENTS

1. For all new buildings and complete building modernization projects, the following restroom facilities shall be provided:
   a. Men's/ Women's Multi-Stall Restroom
      i. Provide a minimum of one Men's and Women's, multi-stall restroom.
      ii. Depending on building size, e.g., small buildings, multiple single occupancy restrooms may be acceptable with District approval.
   b. All-Gender Multi-Stall Restroom
      i. Provide a minimum of one all-gender, multi-stall restroom.
      ii. Stalls shall have full-height partitions and doors for privacy.
      iii. Fixtures and accessories shall be specified to accommodate all users, in compliance with applicable accessibility and plumbing code requirements.
   c. Single-Occupancy Staff Restroom
      i. Provide a minimum of one single-occupancy all-gender restroom designated for staff use per floor.
      ii. Restroom shall be fully ADA-compliant and include appropriate signage.
      iii. A card reader access control system shall be installed at the entrance to the staff restroom.

2.1.4

FACILITY SERVICES STANDARDS

GENERAL CONDITIONS CRITERIA

The following standards are required for new construction and major modernizations.

CUSTODIAL LOCKERS (CLOSET)

1. Minimum Size Requirements:
   a. Ground Floor: 150 usable square feet (s.f.) minimum.
   b. Upper Floors (2nd and above): 100 usable square feet (s.f.) minimum.
2. Additional Considerations:
   a. Storage of equipment shall not reduce the minimum square footage.
   b. If doors swing inward, the square footage must be increased accordingly.
3. Location:
   a. Provide a custodial locker on each floor or at least one per 20,000–25,000 square feet.
4. Fixtures & Equipment:
   a. Mop Sink:
      i. Floor-style mop sink with a stainless steel panel backsplash.
      ii. FRP is not permitted for the mop sink backsplash but may be used on other custodial room walls.
   b. Faucet:
      i. Wall-hung faucet over the mop sink shall be Chicago 897-RCF (rough chrome utility faucet) or a District-approved equal.
   c. Shelving:
      i. Three 6’ long wall-mounted shelves, starting 3' above the floor in all closets.
   d. Closet Organizer:
      i. Grip-All Closet Organizer, 1-36" holder #660420 from Waxie.
   e. Ventilation & Air Quality:
      i. Vented door or wall louver, if possible.
      ii. Exhaust fan for air circulation.
   f. Lighting:
      i. LED linear fixtures, 4000K minimum color temperature.
   g. Ceiling:
      i. Gypsum board or exposed and painted.
   h. Floor Drain:
      i. Preferred Option: Kohler K-6710-0 Whitby cast iron 28x28 service sink.
   i. Floor Finish:
      i. Sealed concrete with a 6” concrete curb around the entire perimeter.
      ii. Slimfoot tile base.
   j. Electrical:
      i. Two GFCI electrical outlets for custodial use. One mounted at open shelving unit for charging of devices.
   k. Storage Cabinet:
      i. One locking cabinet (50-100 cubic feet) with adjustable shelves for storing paper products and non-flammable materials.
   l. Prohibited Equipment:
      i. No water heaters, HVAC systems, electrical panels, or roof access shall be located in the custodial room.

CUSTODIAL STORAGE

1. Minimum Space Requirement:
   a. Each Continuing Education site must have at least 300 square feet of custodial storage.
   b. Designed to accommodate campus materials, paper products, cleaning supplies, and custodial equipment.
2. Access & Layout:
   a. Storage room must have out-swinging double doors.

RESTROOMS

1. Types:
   a. Public Men's restrooms shall include lavatories, toilets, and urinals.
   b. Public Women's restrooms shall include lavatories, and toilets.
   c. Public All-Gender restrooms shall include lavatories and toilets.
   d. Single accommodation restrooms shall be provided on per building and shall be all-gender.
2. Fixtures, Partitions, and Countertops:
   a. Toilets.
      i. Floor-mounted models.
   b. Urinals:
      i. 1-Pint auto-flush urinals by Kohler.
      ii. Waterless urinals are not allowed.
   c. Shower Valves:
      i. For separate hot/cold feed: Use Moen 8375 Posi-Temp Pressure-Balancing Valve. (chrome trim)
      ii. For pre-mixed & tempered water lines: Use Chicago 770-665 slow-closing valve.
   d. Toilet Partitions:
      i. Solid polymer.
      ii. Floor-mounted, overhead-braced for stability.
   e. Countertops.
      i. Solid surface countertops with under-mount porcelain sinks.
3. Plumbing and Ventilation
   a. Hot Water Supply.
      i. Restrooms shall have automatic single-temperature hot water mixer valves.
   b. Water Hose Bib.
      i. Must have a keyed valve.
      ii. Recessed behind a keyed access panel under sink, one per restroom.
   c. Floor Drains.
      i. Floors shall slope towards drains.
      ii. Easily removable drain covers.
      iii. Multiple drains required in larger restrooms.
   d. Ventilation.
      i. Fans shall be twice the recommended size for adequate airflow. Sinks & Countertops:
4. Flooring, Walls & Ceilings:
   a. Floor & Wall Finishes.
      i. Floors: 8"x8" minimum tile size, dark grout or polished concrete.
      ii. Walls: 12"x12" minimum tile size, dark grout.
      iii. Concrete curb under perimeter walls.
      iv. For modernizations, fixtures must be removed before tile installation and replaced with new fixtures once tiling is complete. Do not tile around existing fixtures.

b. Wall Finishes:
   i. Tile height slightly above mirror.
   ii. Gypsum board above tile.
   iii. Semi-gloss paint on walls and ceilings.
c. Ceilings:
   i. Gypsum board (gyp) ceilings.
   ii. Code-required lighting only (no cove lighting).

5. Restroom Accessories: (Refer to Division 10 - Specialties for which accessories are CFCI, DFCI, or DFDI)
   a. Toilet Accessories shall be ADA compliant.
      i. Toilet accessories shall be recessed for ADA compliance only when required.
   b. Toilet Paper Dispensers.
      i. Jumbo roll dispensers in all stalls.
   c. Sanitary Units.
      i. Sanitary disposal units shall be partition-mounted.
      ii. Sanitary dispenser units shall be semi-recessed for ADA compliance only when required.
   d. Toilet Seat Cover Dispensers.
      i. Toilet seat cover dispensers in all stalls.
   e. Hooks & Stops.
      i. Installed on partition doors.
   f. Hand Dryers.
      i. Motion-activated and ADA-compliant.
      ii. Quiet-rated models, located adjacent to sinks.
   g. Soap Dispensers.
      i. Wall-mounted, direct-feed dispensers.
      ii. Positioned above handwashing sinks.
   h. Paper Towel Dispensers.
      i. Not permitted in single or multiple accommodation restrooms.
   i. Mirrors.
      i. Individual mirror positioned above each sink.
   j. Changing Tables.
      i. Installed at designated locations as directed by the District.
      ii. Minimum one per men's and women's restroom.
      iii. Plastic wall-mounted models are acceptable.

2.1.5

BUILDING ENVELOPE

EXTERIOR FINISH DESIGN GUIDELINES

The following standards apply to new construction and major modernization projects, ensuring durability, functionality, and aesthetic quality while minimizing maintenance costs.

GENERAL REQUIREMENTS

1. Material Durability:
   a. Select materials that withstand various environmental conditions and potential occupant abuse.
   b. Exterior walls must be constructed with durable, low-maintenance materials designed for a 50-100 year lifespan.
2. Maintenance & Aesthetics:
   a. Minimize maintenance costs by selecting resilient, easy-to-clean materials.
   b. Design exterior finishes to prevent cracking, water runoff staining, and other aesthetic degradation.
   c. Typical stucco is acceptable; however, consider a durable wainscot with stucco above for high-traffic areas.
   d. When using split-face CMU, specify smooth-face units for areas that will receive signage, light fixtures, louvers, and other building components.
   e. Provide safe access points for cleaning crews, ensuring all glazing can be reached without excessive risk. Incorporate maintenance strategies such as integrated tie-off points, or designated access routes for exterior glazing.
3. Design Considerations:
   a. Avoid horizontal ledges that could become perching or nesting spots for birds.
   b. Prevent exterior openings that allow birds, bees, and insects to enter the structure.
   c. Exterior walls and assemblies must function as weather barriers, selectively filtering heat, sound, fire, and human passage while ensuring structural stability in all conditions.
   d. Design to prohibit easy roof access.
4. Code & Structural Considerations:
   a. Ensure compliance with fire-rating and combustibility requirements.
   b. Address glazing and security requirements for windows and openings.
   c. Consider the structural frame, whether load-bearing or non-load-bearing, as well as horizontal framing spacing when selecting materials.
   d. Design exterior finishes in coordination with continuous air barrier and thermal insulation systems. All penetrations, joints, and transitions must maintain weatherproofing integrity in accordance with CBC and Title 24 Part 6 (Energy Code).

RECOMMENDED EXTERIOR MATERIALS

1. Concrete Masonry Units (CMU):
   a. Precision CMU – Smooth, clean finish for a modern appearance.
   b. Ground Face CMU – Polished surface with exposed aggregates.
   c. Split Face CMU – Textured, rough-cut finish (not recommended in high-traffic or graffiti-prone areas).
   d. Bead Blasted CMU – Subtly textured through abrasive treatment.
   e. Scored CMU – Features grooves to create visual patterning.
   f. Decorative CMU – Custom finishes designed for aesthetic enhancement.
2. Concrete / Precast Concrete Wainscot:
   a. Poured-in-Place Concrete – Durable and seamless finish.
   b. Precast Concrete Panels – Factory-finished panels for consistency and performance.

3. Brick (Use only as a veneer):
    a. Standard Brick – Traditional aesthetic with high durability.
    b. Glazed Brick – Glossy, protective surface for enhanced weather resistance.
4. Exterior Portland Cement (Stucco):
    a. Standard Stucco Finish – Acceptable exterior wall treatment.
    b. Inset Tile is NOT Allowed – Avoid due to maintenance and performance concerns.
5. Metal Wall Panels:
    a. Minimum 16-Gauge Panels with Kynar Finish for durability.
    b. Finished with a factory-applied Kynar 500 or Hylar 5000 coating system.
    c. Detail for Weatherproofing: Ensure appropriate flashing and drainage details.
    d. Minimize metal panel use within 8 feet of walkways or landscape areas.
    e. Not recommended in high-traffic areas due to susceptibility to scratches and dents.
6. Rainscreen Systems:
    a. Composite Panels – Engineered for durability and weather resistance.
    b. Porcelain Tile Rainscreens – High-performance, aesthetically refined solution.
    c. Terra Cotta Panels – Elegant, durable facade with natural texture.

2.1.6

INTERIOR FINISHES

INTERIOR FINISH DESIGN GUIDELINES

The following standards apply to new construction and major modernization projects, ensuring durability, functionality, and aesthetic quality while minimizing maintenance costs. These guidelines ensure that all interior finishes contribute to long-term durability, ease of maintenance, indoor air quality, and a cohesive aesthetic identity for SDCCD facilities. All interior materials shall be reviewed and approved by the District Architect and comply with applicable code requirements, including fire resistance, accessibility, and environmental safety.

WALL PROTECTION AND WAINSCOT

1. A minimum 48-inch-high wainscot is required in all corridors, lobbies, and public foyers.
2. Acceptable wainscot materials include precast concrete, GFRC panels, stone, ceramic tile, or other durable, cleanable surfaces.
3. In areas with budget constraints, semi-gloss or epoxy paint with embedded protective rails may be permitted upon approval.
4. Corner guards shall be installed on all exposed corners in public corridors. These shall extend to the top of the wainscot or full height in high-abuse areas such as custodial zones or areas with frequent cart traffic.
5. All finishes must resist impact, staining, and discoloration from cleaning chemicals and daily use.

FLOOR FINISHES

1. All floor finishes shall be selected based on durability, slip resistance, cleanability, and appropriateness for space use.
2. Flooring in public and instructional areas shall have a minimum Dynamic Coefficient of Friction (DCOF) of 0.42, in accordance with ANSI A137.1 and CBC Chapter 11B, to meet slip resistance requirements under both wet and dry conditions.
3. Flooring must meet ADA accessibility standards for smooth transitions and thresholds not exceeding 1/2 inch.
4. All adhesives and backing systems must be low-VOC.
5. Interior classroom corridor floor finishes can be polished concrete, resilient flooring, or tile. Carpet is not allowed.

WALL FINISHES

1. In public-facing and high-traffic areas, wall finishes shall be cleanable, durable, and low-VOC.
2. All painted surfaces shall use eggshell or semi-gloss finish. Flat and matte paints are prohibited in any space open to the public or students.
3. Vinyl wall coverings must be heavy-duty commercial grade, scrubbable, and Class A fire-rated in accordance with ASTM E84.
4. Wall bases shall be integral cove base of resilient material or tile in wet areas.

CEILING FINISHES

1. Suspended acoustical ceilings shall have a minimum NRC of 0.70, be Class A fire-rated, and resistant to sagging and microbial growth.
2. Gypsum board ceilings may be used in corridors, lobbies, restrooms, and specialty spaces. All ceiling systems must allow for required access to above-ceiling systems.
3. Finishes in ceilings must meet applicable seismic bracing and DSA requirements per IR 25-2.

DOORS, FRAMES, AND HARDWARE FINISHES

1. Doors in instructional and public zones shall be solid-core wood with a factory-applied finish or painted hollow metal.
2. Door and window frames shall be factory-painted hollow metal or stainless steel in high-wear areas.
3. Hardware shall be satin chrome or brushed stainless steel. Brass, bronze, or oil-rubbed finishes are not permitted.

ENVIRONMENTAL AND INDOOR AIR QUALITY STANDARDS

1. All interior finish materials must comply with the following environmental standards:
   a. Composite wood products must meet CARB Phase 2 requirements.
   b. All flooring materials must be FloorScore or Greenguard Gold certified.
   c. All adhesives, sealants, paints, and coatings must meet or exceed SCAQMD Rule 1113 VOC content limits.

FIRE SAFETY AND CODE COMPLIANCE

1. All interior finishes must comply with the California Building Code (CBC) for flame spread and smoke development.
2. Wall and ceiling finishes must be Class A-rated per ASTM E84 in all egress corridors, stairways, and assembly areas.
3. All finishes in instructional and lab spaces must meet chemical resistance standards appropriate for the program.

SUBMITTAL AND APPROVAL PROCESS

1. At the conclusion of 50% Construciton Documents, the Architect shall submit:
   a. A physical materials board clearly labeled by space type and finish schedule code.
   b. A digital finish schedule cross-referenced to floor plans, including material manufacturer, product name, finish type, flame spread rating, VOC content, and environmental certifications.

2.1.7

DOOR KEYING

DOOR KEYING DESIGN GUIDELINES

The following door keying standards apply to new construction and major modernization projects, ensuring long-term security, operational efficiency, and system compatibility while minimizing maintenance and rekeying costs.

DOOR KEYING REQUIREMENTS

1. The District requires a 7 pin, small IC format core.
2. Schlage will provide pricing for cores and keys and deliver once District approves proposed hierarchy.
   a. Schlage contact information will be provided at time of need.
3. Proposed hierarchy shall be submitted to Facilities Director via project designee for approval.
4. Prior to install, the District shall provide appropriate sub master and control keys.
   a. Keys will be delivered to the designated responsible party.
   b. Responsible party shall sign for keys delivered.
5. Upon completion of project, submaster and control keys shall be returned to the District via project designee.
6. In the case where assigned keys are lost, the District can require responsible party to, at their expense, replace all cores with alternate hierarchy.

2.1.8

FURNITURE STANDARDS

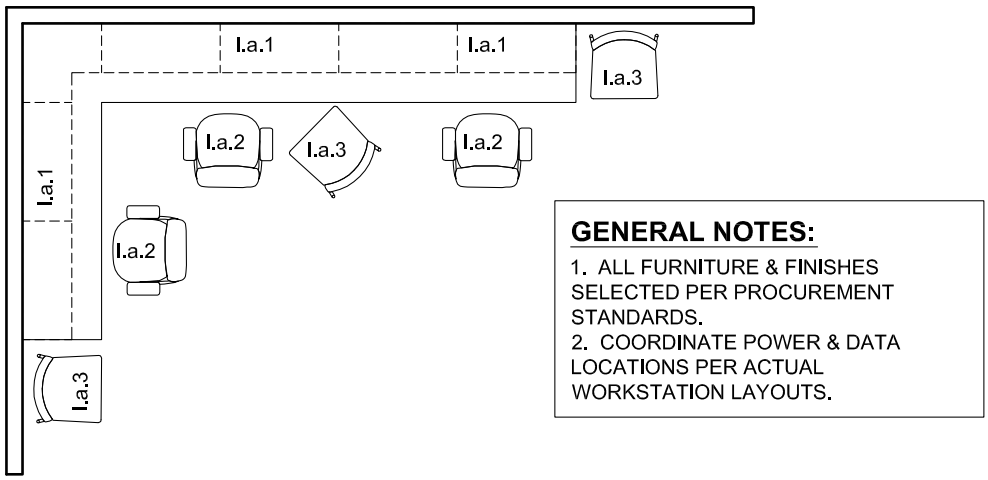
1. **DISTRICT & CAMPUS OFFICES**
   a. Adjunct Faculty/ Open Office
   b. Standard Office/ Full-Time/ Tenured
   c. Assistant Manager's/ Supervisor/ Dean's Office
   d. Manager's/ Director's/ Vice President's Office
   e. Vice Chancellor's & President's Office

2. **ADMINISTRATION SUPPORT SPACES**
   a. Conference Rooms
      i. Conference Room - 4-6 People
      ii. Conference Room - 8-10 People
      iii. Conference Room - 20 Or More People
   b. Faculty/ Staff Lounge
   c. Reception Stations
   d. Mail/ Copy Room
   e. Aed Units/ Cabinets
   f. Evacuation Chairs

3. **GENERAL CLASSROOMS**
   a. Flat Floor - Table And Chairs
   b. Flat Floor - Chair & Tablet Arm Combination
   c. Sloped/ Stepped Floor - Congressional Seating With Built In Tables And Loose Chairs
   d. Sloped/ Stepped Floor - Chair & Tablet Arm Combination

4. **COMPUTER EQUIPPED CLASSROOMS**
   a. Flat Floor - Tables And Chairs
   b. Sloped/ Stepped Floor Congressional Seating With Built In Tables And Loose Chairs

5. **LABORATORIES**
   a. Typical Laboratory Furniture



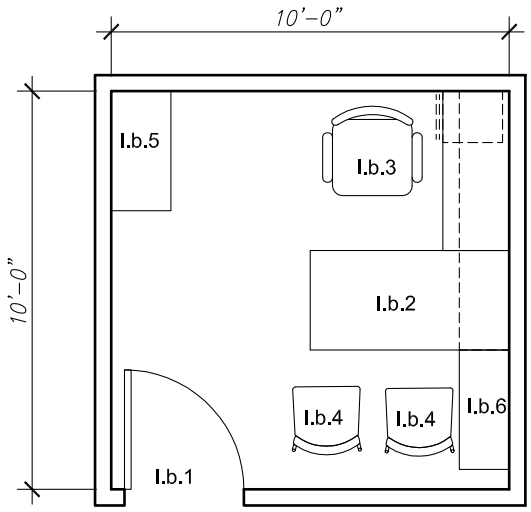
I.a ADJUNCT FACULTY - OPEN OFFICE

I.a.1 WORK STATIONS FOR THREE (3) ADJUNCT FACULTY (OR MORE DEPENDING ON PROJECT) - 24"D X MIN. OF 36"-72"L WORK SURFACE (AS SPACE PERMITS), WIRE MANAGEMENT CAPABILITIES & GROMMETS FOR ACCESSIBILITY AS REQUIRED, ENCLOSED OVERHEAD STORAGE ATTACHED TO WALL OR PANEL, LOCKABLE WITH KEY.

I.a.2 ONE (1) ERGONOMIC DESK CHAIR PER WORKSTATION.

I.a.3 ONE (1) GUEST CHAIR PER WORKSTATION (AS SPACE PERMITS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: DISTRICT & CAMPUS OFFICES		
	ROOM NAME: ADJUNCT OPEN OFFICE		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL WORKSTATION LAYOUTS.

I.b STANDARD OFFICE/ FULL-TIME/ TENURED OFFICE

I.b.1 A LOCKABLE DOOR WITH KEY.

I.b.2 ONE (1) DESK - 30"D X 60"L, RETURN - 20"D X 48"L, FREE STANDING WITH ONE PEDESTAL @ RETURN - BOX, BOX, FILE, LOCKABLE WITH KEY. HEIGHT ADJUSTABLE LEVELERS @ BASE. MONITOR ARM TO BE PLACED IN THE FIELD. COORDINATE ACCESS TO DATA & POWER (WIRE MANAGEMENT & GROMMETS AS REQ'D.). 78" X15" OVERHEAD STORAGE, LOCKABLE WITH KEY & UNDER-MOUNTED TASK LIGHTING. TACKABLE PANELS ATTACHED TO WALL OR PANEL BELOW OVERHEAD STORAGE TO DESK TOP.

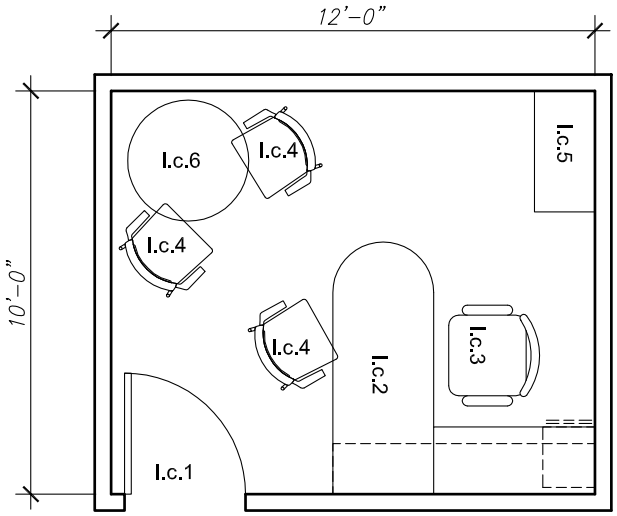
I.b.3 ONE (1) ERGONOMIC DESK CHAIR.

I.b.4 TWO (2) GUEST CHAIRS FOR VISITORS (AS SPACE PERMITS).

I.b.5 ONE (1) LATERAL, LEGAL FILING CABINET - MIN. OF 2 DRAWERS, 36" WIDE, LOCKABLE WITH KEY.

I.b.6 ONE (1) BOOKCASE - 36" W X 15" D X A MIN. OF 4 SHELVES, ADJUSTABLE. HEIGHT ADJUSTABLE LEVELERS AT BASE.

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: DISTRICT & CAMPUS OFFICES		
	ROOM NAME: STANDARD OFFICE / FULL TIME / TENURED		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: 100 S.F.	No. of OCCUPANTS: 1



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL WORKSTATION LAYOUTS.

I.c ASSISTANT MANAGER'S/ SUPERVISOR/ DEAN'S OFFICE

I.c.1 A LOCKABLE DOOR WITH KEY

I.c.2 ONE (1) DESK - 30"D X 60"L W/ 'P'-TOP STYLE END, RETURN - 20"D X 48"L, FREE STANDING WITH ONE PEDESTAL @ RETURN - BOX, BOX, FILE, LOCKABLE WITH KEY & ADJUSTABLE SHELVING (2 OR 3 SHELVES HIGH). HEIGHT ADJUSTABLE LEVELERS @ BASE. MONITOR ARM TO BE PLACED IN THE FIELD. COORDINATE ACCESS TO DATA & POWER (WIRE MANAGEMENT & GROMMETS AS REQ'D.). 78" X15" OVERHEAD STORAGE, LOCKABLE WITH KEY & UNDER-MOUNTED TASK LIGHTING. TACKABLE PANELS ATTACHED TO WALL OR PANEL BELOW OVERHEAD STORAGE TO DESK TOP.

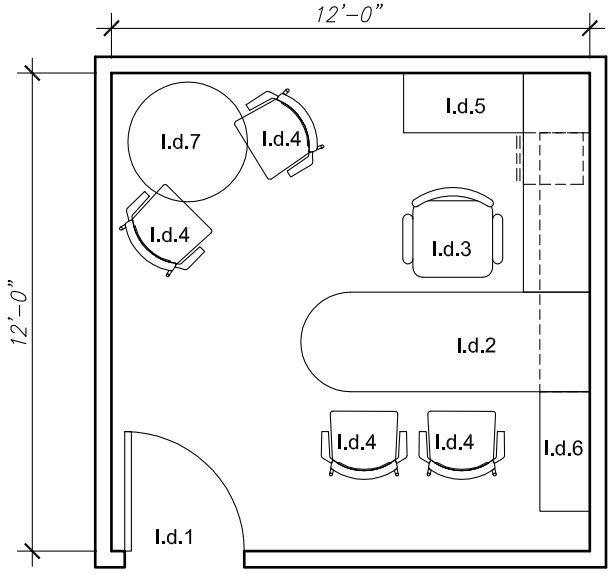
I.c.3 ONE (1) ERGONOMIC DESK CHAIR.

I.c.4 THREE (3) GUEST CHAIRS FOR VISITORS (AS SPACE PERMITS.)

I.c.5 ONE (1) LATERAL, LEGAL FILING CABINETS - MIN. OF 2 DRAWERS, 36" WIDE, LOCKABLE WITH KEY.

I.c.6 ONE (1) TABLE (AS SPACE PERMITS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: DISTRICT & CAMPUS OFFICES		
	ROOM NAME: ASSISTANT MANAGER'S / SUPERVISOR / DEAN'S OFFICE		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: 120 S.F.	No. of OCCUPANTS: 1



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL WORKSTATION LAYOUTS.

I.d MANAGER'S/ DIRECTOR'S/ VICE PRESIDENT'S OFFICE

I.d.1 A LOCKABLE DOOR WITH KEY

I.d.2 ONE (1) DESK - 30"D X 72"L W/ 'P'-TOP STYLE END, RETURN - 20"D X 48"L, FREE STANDING WITH ONE PEDESTAL @ RETURN - BOX, BOX, FILE, LOCKABLE WITH KEY. HEIGHT ADJUSTABLE LEVELERS @ BASE. MONITOR ARM TO BE PLACED IN THE FIELD. COORDINATE ACCESS TO DATA & POWER (WIRE MANAGEMENT & GROMMETS AS REQ'D.). 78" X15" OVERHEAD STORAGE, LOCKABLE WITH KEY & UNDER-MOUNTED TASK LIGHTING. TACKABLE PANELS ATTACHED TO WALL OR PANEL BELOW OVERHEAD STORAGE TO DESK TOP.

I.d.3 ONE (1) ERGONOMIC DESK CHAIR.

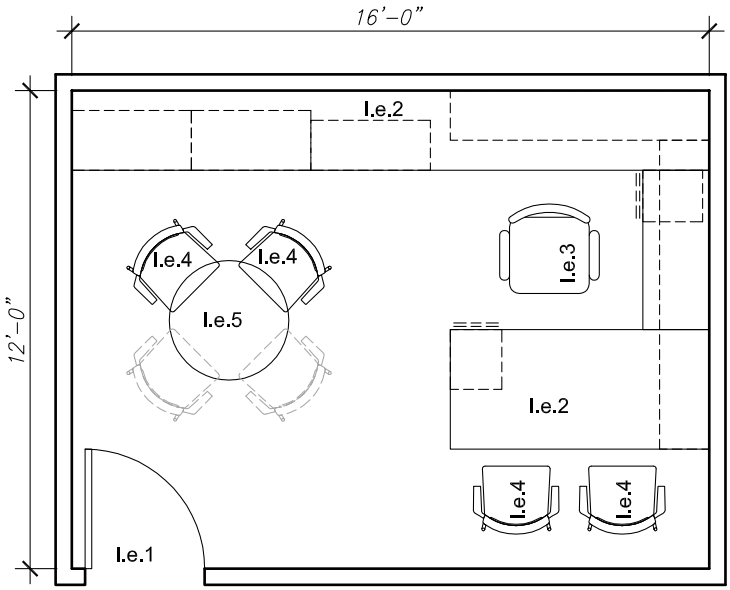
I.d.4 FOUR (4) GUEST CHAIRS FOR VISITORS (AS SPACE PERMITS).

I.d.5 ONE (1) LATERAL, LEGAL FILING CABINETS - MIN. OF 2 DRAWERS, 36" WIDE, LOCKABLE WITH KEY.

I.d.6 ONE (1) BOOKCASE - 36" W X 15" D X WITH A MIN. OF 2 OR 3 SHELVES HIGH, ADJUSTABLE. HEIGHT & ADJUSTABLE LEVELERS AT BASE.

I.d.7 ONE (1) TABLE (AS SPACE PERMITS)

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: DISTRICT & CAMPUS OFFICES		
	ROOM NAME: MANAGER'S / DIRECTOR'S / VICE PRESIDENT'S OFFICE		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: 144 S.F.	No. of OCCUPANTS: 1



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL WORKSTATION LAYOUTS.

I.e VICE CHANCELLOR'S/ PRESIDENT'S OFFICE

I.e.1 A LOCKABLE DOOR WITH KEY

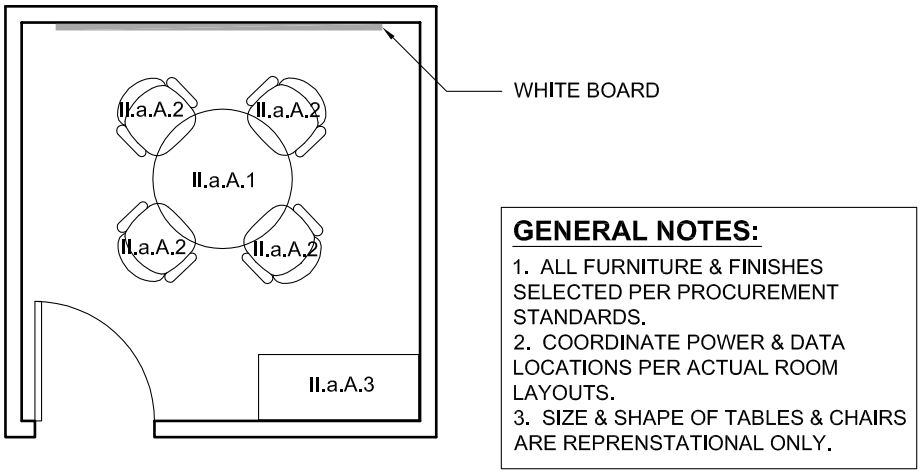
I.e.2 ONE (1) DESK - 36"D X 78"L MAIN DESK WITH ONE PEDESTAL - BOX/BOX/FILE, LOCKABLE WITH KEY, 20"D X 48"L RETURN, 24"D BACK CREDENZA WITH BUILT-IN FILE/FILE, FILE/FILE & OPEN SHELVING, ENCLOSED SHELVING ABOVE. HEIGHT ADJUSTABLE LEVELERS @ BASE. MONITOR ARM TO BE PLACED IN THE FIELD. COORDINATE ACCESS TO DATA & POWER (WIRE MANAGEMENT & GROMMETS AS REQ'D.). OVERHEAD STORAGE, LOCKABLE WITH KEY & UNDER-MOUNTED TASK LIGHTING. TACKABLE PANELS ATTACHED TO WALL OR PANEL BELOW OVERHEAD STORAGE TO DESK TOP.

I.e.3 ONE (1) ERGONOMIC DESK CHAIR.

I.e.4 FOUR (4) GUEST CHAIRS FOR VISITORS (AS SPACE PERMITS).

I.e.5 ONE (1) TABLE - 36" DIAMETER TABLE TOP W/ BASE.

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: DISTRICT & CAMPUS OFFICES		
	ROOM NAME: VICE CHANCELLOR'S / PRESIDENT'S OFFICE		
FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: 192 S.F.	No. of OCCUPANTS: 1



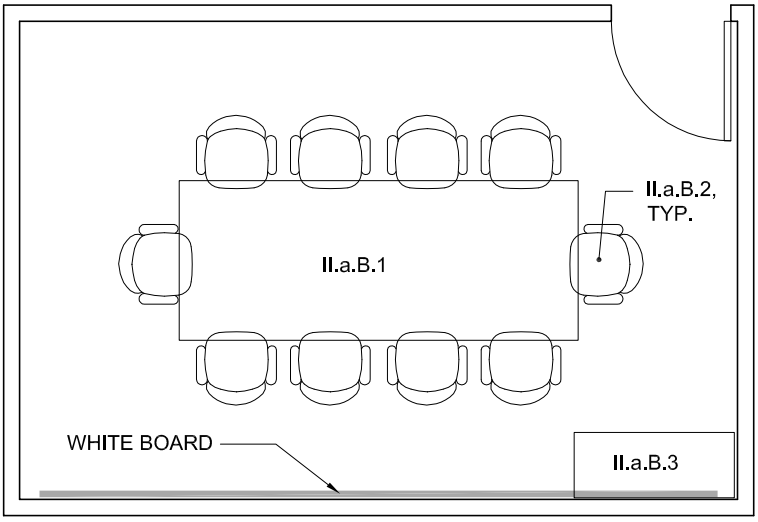
GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRENSTATIONAL ONLY.

II.a.A CONFERENCE ROOM - 4-6 PERSON

II.a.A.1	ONE (1) CONFERENCE TABLE - SIZE OF TABLE TOP DETERMINED BY ROOM SIZE REQUIREMENTS.
II.a.A.2	FOUR TO SIX (4-6) CHAIRS.
II.a.A.3	ONE (1) CREDENZA - 48"W X 24"D X 30"H. PROVIDE CLEARANCE & VENTING SPACE FOR AV PROVIDED EQUIPMENT RACK (AV/IT PER DISTRICT STANDARDS) ADJUSTABLE SHELF STORAGE & DOORS LOCKABLE WITH KEY. (IN LIEU OF MILLWORK).

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: CONFERENCE ROOM - 4-6 PERSON		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: 100 S.F.	No. of OCCUPANTS: 4-6



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRENSTATIONAL ONLY.

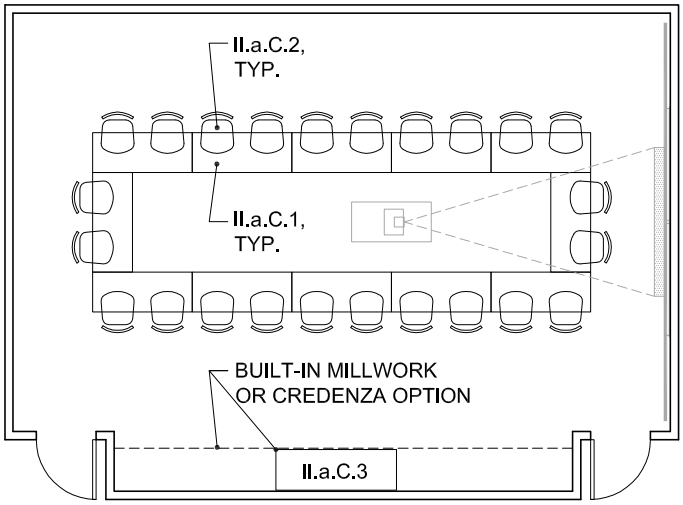
II.a.B CONFERENCE ROOM - 8-20 PERSON

II.a.B.1 ONE (1) CONFERENCE TABLE - SIZE OF TABLE TOP DETERMINED BY ROOM SIZE REQUIREMENTS - CENTER FLIP TOP POWER / DATA CENTER (AV/IT PER DISTRICT STANDARDS). BASE TO INCLUDE CABLE & WIRE MANAGEMENT FROM CORE FLOOR POWER SOURCE TO TABLE & HEIGHT ADJUSTABLE LEVELERS.

II.a.B.2 EIGHT TO TEN (8-10) CHAIRS.

II.a.B.3 ONE (1) CREDENZA - 48"W X 24"D X 30"H. PROVIDE CLEARANCE & VENTING SPACE FOR AV PROVIDED EQUIPMENT RACK (AV/IT PER DISTRICT STANDARDS) ADJUSTABLE SHELF STORAGE & DOORS LOCKABLE WITH KEY. (IN LIEU OF MILLWORK).

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: CONFERENCE ROOM - 8-20 PERSON		
FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: 8-20



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRENSTATIONAL ONLY.

II.a.C CONFERENCE ROOM - 20 OR MORE PERSON

II.a.C.1 CONFERENCE TABLE OR MODULAR TABLES (DEPENDING ON PROGRAMMING) - (QUANTITY & SIZE BASED ON ROOM SIZE).

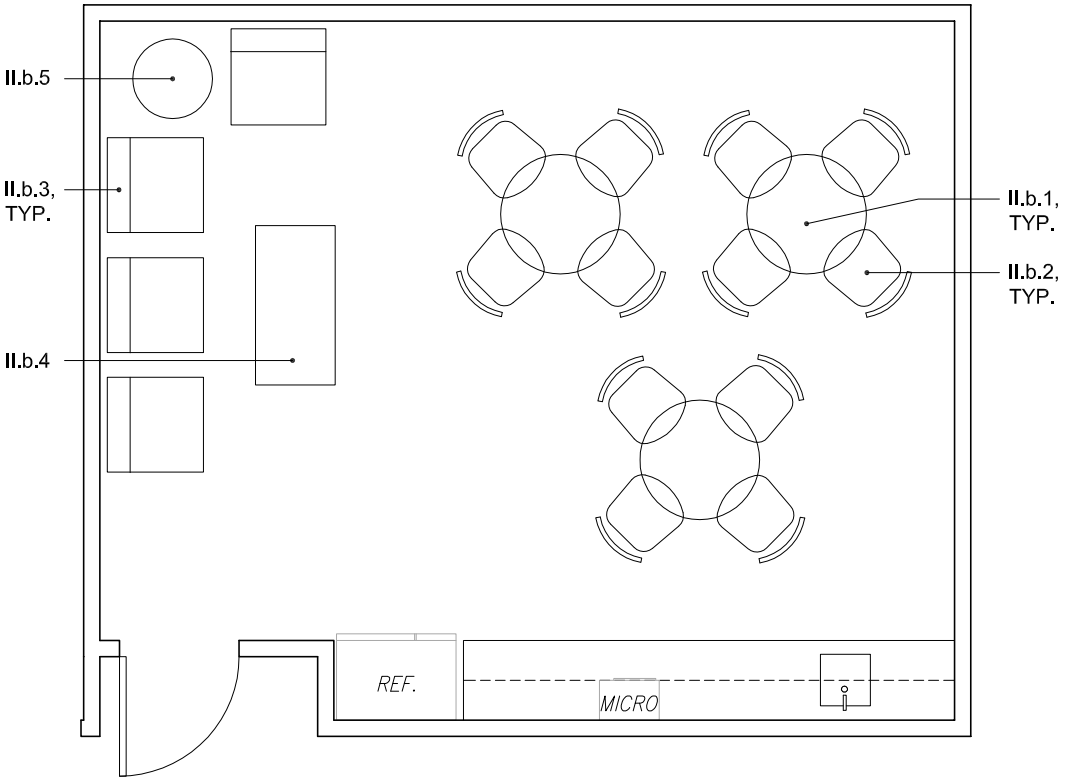
II.a.C.2 CHAIRS - (QUANTITY BASED ON ROOM SIZE)

II.a.C.3 ONE (1) CREDENZA - 6'-0" W X 24"D X 30"H OR BUILT-IN CABINETRY, PROVIDE CLEARANCE & VENTING SPACE FOR AV PROVIDED EQUIPMENT RACK (AV/IT PER DISTRICT STANDARDS), ADJUSTABLE SHELVING & DOORS LOCKABLE WITH KEY. (IN LIEU OF MILLWORK).

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: CONFERENCE ROOM - 20 OR MORE		
	FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: 20+

GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.
4. SIZE & CONFIGURATION OF LOUNGE TO BE DETERMINED DURING PROGRAMMING & DESIGN PHASES.



II.b FACULTY / STAFF LOUNGE (WHERE APPROVED BY VICE CHANCELLOR OF FACILITIES)

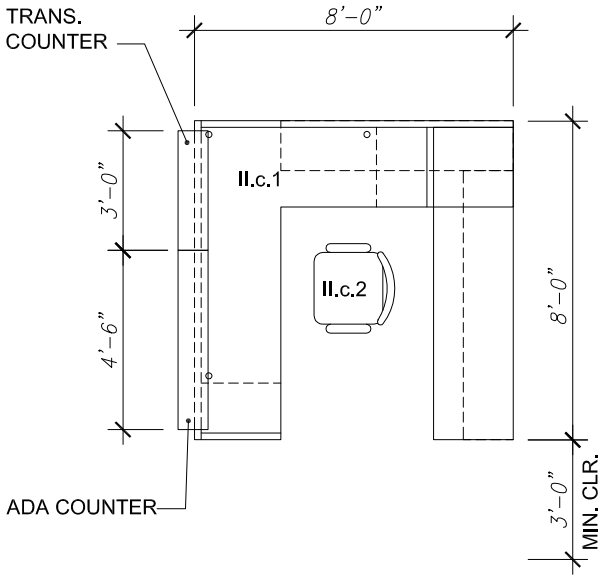
II.b.1	LUNCH TABLES - SIZE & SHAPE DETERMINED BY PROJECT. (QUANTITY BASED ON ROOM SIZE).
II.b.2	CHAIRS - (QUANTITY BASED ON ROOM SIZE).
II.b.3	LOUNGE CHAIRS - (QUANTITY BASED ON ROOM SIZE).
II.b.4	COFFEE TABLE - (SIZE BASED ON ROOM REQUIREMENTS).
II.b.5	SIDE TABLE - (SIZE BASED ON ROOM REQUIREMENTS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT
FURNITURE STANDARDS DATE: 03.26.13

SAN DIEGO Community College District

DEPARTMENT: ADMINISTRATION SUPPORT SPACES
ROOM NAME: FACULTY / STAFF LOUNGE

FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES



GENERAL NOTES:

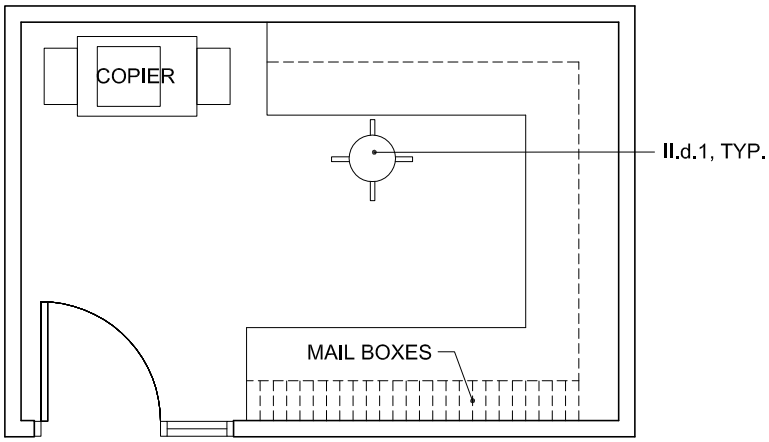
1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF DESK & CHAIR ARE REPRENSTATIONAL ONLY.

II.c RECEPTION STATION

II.c.1 ONE (1) RECEPTION DESK - MIN. OF 8'-0"W X 8'-0" RETURN, 24"D WORK SURFACE, 42"H TRANSACTION COUNTER, 30"H DESK. PROVIDE ADA COUNTER WITH A MIN. OF 36"W TRANSACTION COUNTER @ 28"H MIN. TO 34"H MAX. HIGH. OVERHEAD (15"D) & CREDENZA (24"D) FOR STORAGE, 2- FILE PEDESTALS, LOCKABLE WITH KEY, PROVIDE GROMMETS AND WIRE MANAGEMENT TO ACCESS POWER @ DESKTOP. HEIGHT ADJUSTABLE LEVELERS @ BASE.

II.c.2 ONE (1) ERGONOMIC DESK CHAIR

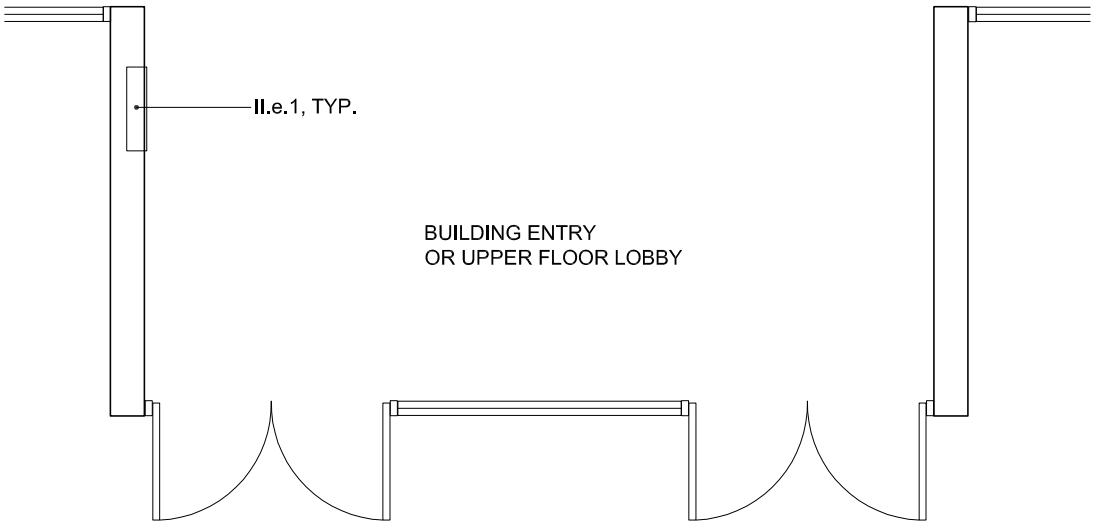
SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: RECEPTION STATION		
FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: 1



II.d MAIL / COPY ROOM

II.d.1 STOOL (QUANTITY BASED ON ROOM SIZE).

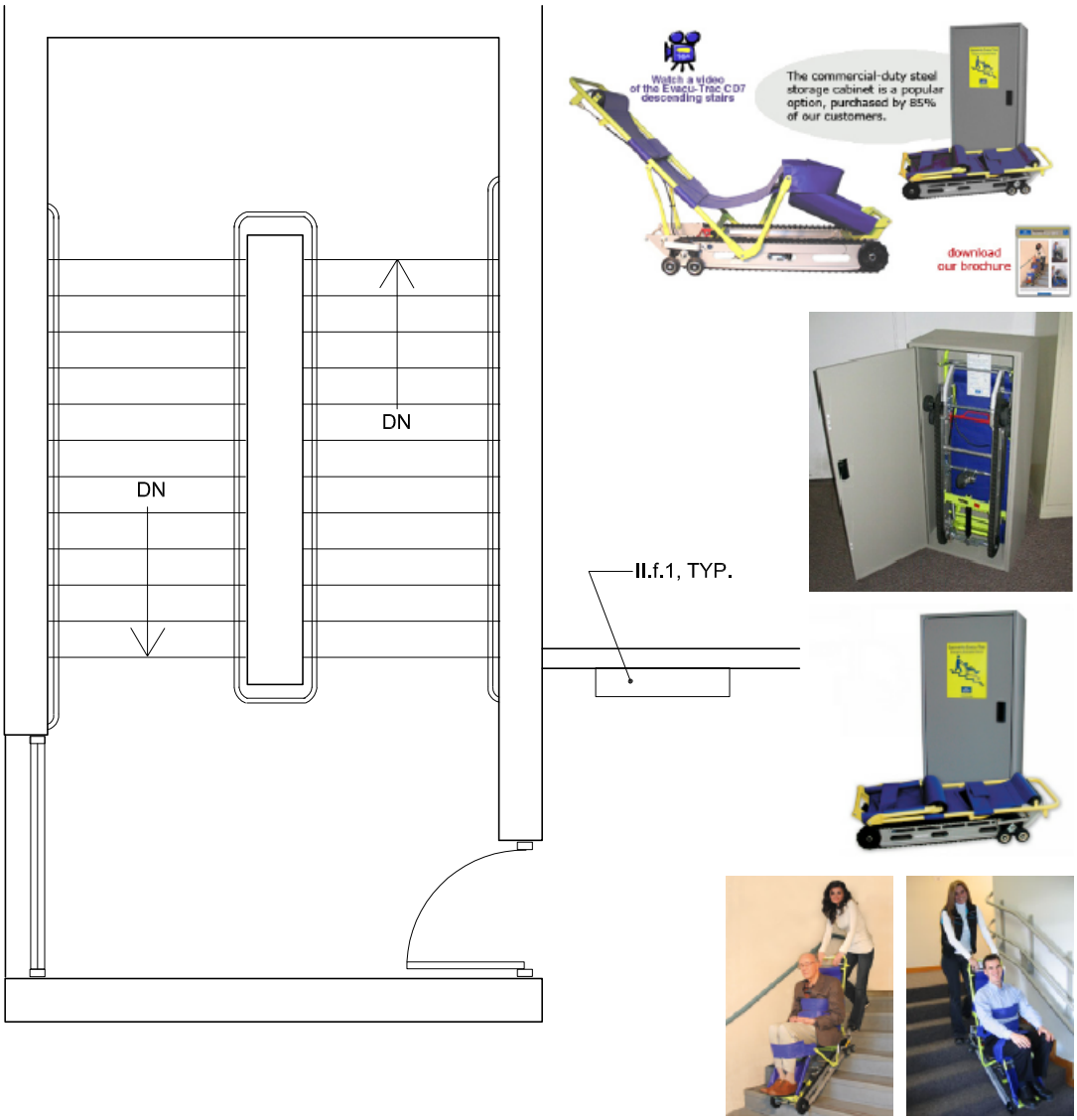
SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: MAIL / COPY ROOM		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES



II.e AED UNITS / CABINETS

II.e.1 AED UNIT / CABINET - DEFIBRILLATOR TO BE LOCATED IN METAL CABINET RECESSED FLUSH WITH WALL FACE. TO BE LOCATED IN PROMINENT PUBLIC LOCATION AS DIRECTED BY DISTRICT ARCHITECT. MINIMUM ONE PER FLOOR.

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: AED UNITS / CABINETS		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES



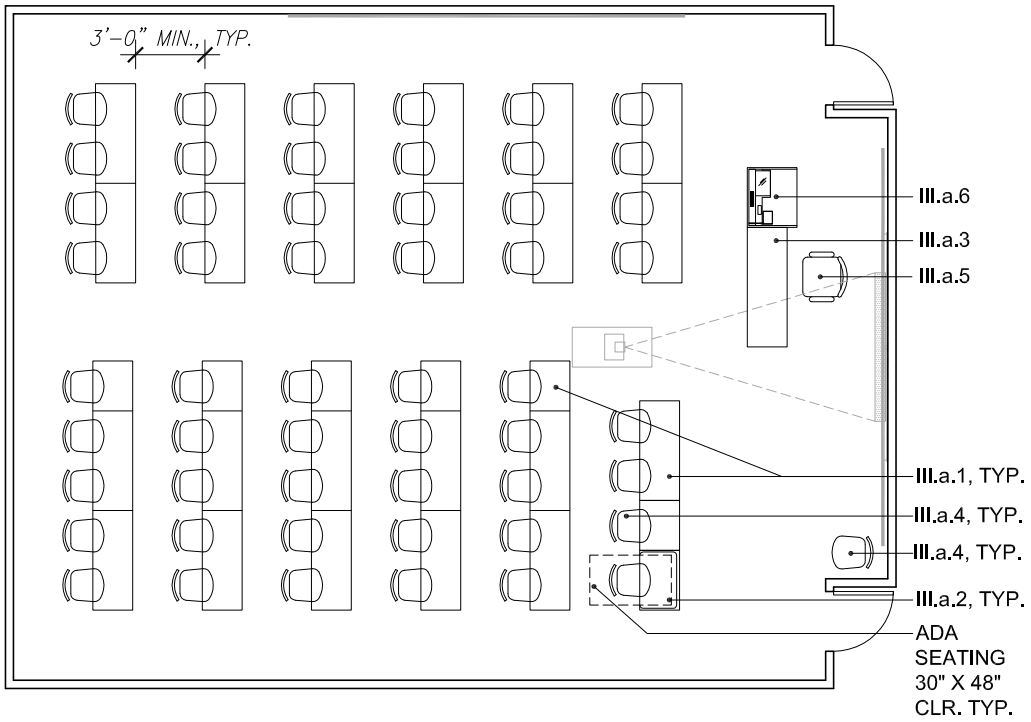
II.f EVACUATION CHAIRS

II.f.1 EVACUATION CHAIR - (MANUFACTURER: GARAVENTA EMERGENCY CHAIRS, MODEL #: EVACU-TRAC CD7)

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: ADMINISTRATION SUPPORT SPACES		
	ROOM NAME: EVACUATION CHAIRS		
	FLOOR PLAN	SCALE: 1/4" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

GENERAL NOTES:

1. CLASSROOM CONFIGURATION & STUDENT CAPACITY TO BE DETERMINED DURING THE PROGRAMMING & DESIGN PHASES.
2. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.



III.a OPTION A FLAT FLOOR - TABLES AND CHAIRS

III.a.1 TABLE DESK - 24"D X 60"L x 30"H (2 STUDENTS), 24"D X 30"L X 30"H (1 STUDENT)

III.a.2 ADA DESK - 24"D x 36"L x 26" to 43"H, HEIGHT ADJUSTABLE. (COUNT, SIZE & HEIGHT REQUIREMENTS MUST COMPLY WITH MOST RECENT ACCESSIBILITY REFERENCE MANUAL CODE & CHECKLIST)

III.a.3 ONE (1) TEACHERS DESK - 24"D X 72"W X 30"H (OPTIONAL).

III.a.4 STUDENT DESK CHAIR.

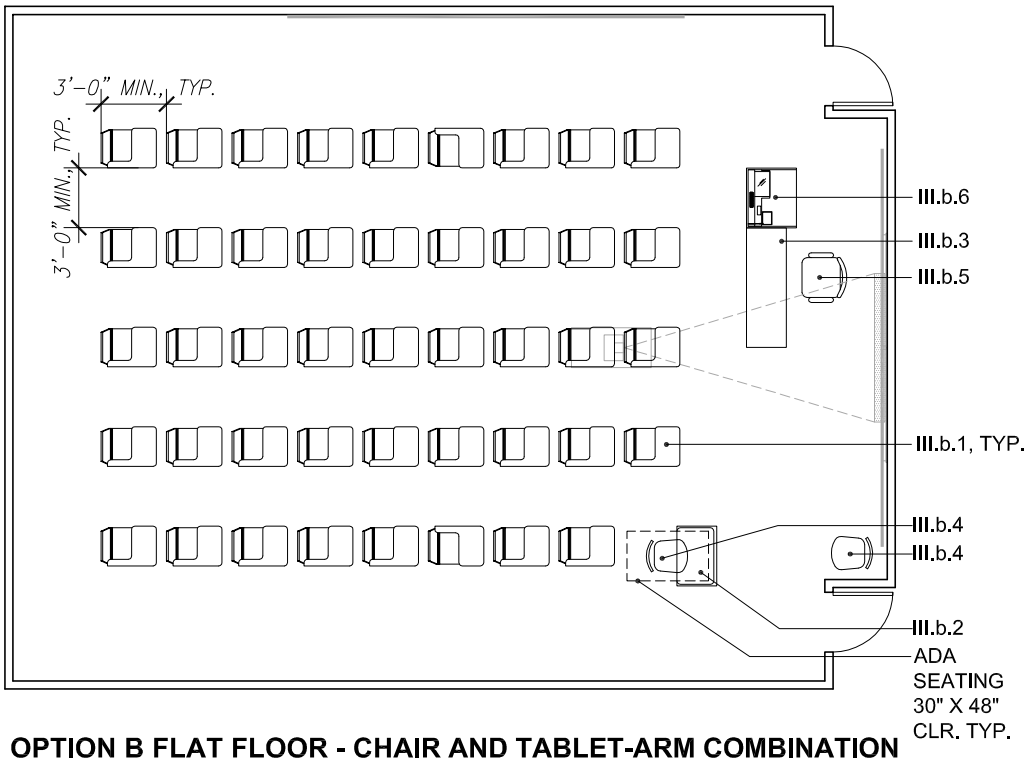
III.a.5 ONE (1) TEACHER STOOL.

III.a.6 ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: GENERAL CLASSROOM		
	ROOM NAME: OPTION A FLAT FLOOR - TABLES AND CHAIRS		
FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

GENERAL NOTES:

1. CLASSROOM CONFIGURATION & STUDENT CAPACITY TO BE DETERMINED DURING THE PROGRAMMING & DESIGN PHASES.
2. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.



III.b OPTION B FLAT FLOOR - CHAIR AND TABLET-ARM COMBINATION

III.b.1 TABLET ARM / CHAIR COMBO UNIT .

III.b.2 ADA DESK - 24"D x 36"L x 26" to 43"H, HEIGHT ADJUSTABLE. (COUNT, SIZE & HEIGHT REQUIREMENTS MUST COMPLY WITH MOST RECENT ACCESSIBILITY REFERENCE MANUAL CODE & CHECKLIST)

III.b.3 ONE (1) TEACHERS DESK - 24"D X 72"W X 30"H (OPTIONAL).

III.b.4 STUDENT DESK CHAIR.

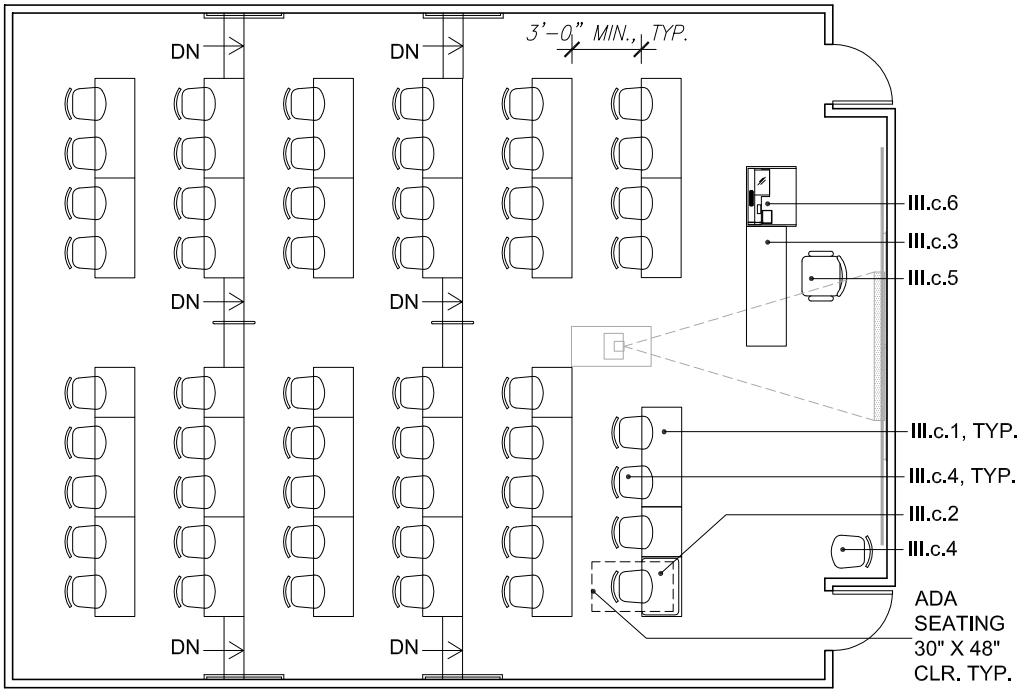
III.b.5 ONE (1) TEACHER STOOL.

III.b.6 ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: GENERAL CLASSROOM		
	ROOM NAME: OPTION B FLAT FLOOR - CHAIR AND TABLET-ARM COMBINATION		
	FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

GENERAL NOTES:

1. CLASSROOM CONFIGURATION & STUDENT CAPACITY TO BE DETERMINED DURING THE PROGRAMMING & DESIGN PHASES.
2. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.
4. FOR SLOPED OR TIERED TYPE CLASSROOMS, TABLES TO BE FIXED, PURCHASED BY OWNER & INSTALLED BY CONTRACTOR.



III.c OPTION C SLOPED / STEPPED FLOOR - CONGRESSIONAL SEATING WITH BUILT-IN TABLES AND CHAIRS

III.c.1 TABLE DESK - 24"D X 60"L x 30"H (2 STUDENTS), 24"D X 30"LX 30"H (1 STUDENT)

III.c.2 ADA DESK - 24"D x 36"L x 26" to 43"H, HEIGHT ADJUSTABLE. (COUNT, SIZE & HEIGHT REQUIREMENTS MUST COMPLY WITH MOST RECENT ACCESSIBILITY REFERENCE MANUAL CODE & CHECKLIST)

III.c.3 ONE (1) TEACHERS DESK - 24"D X 72"W X 30"H (OPTIONAL).

III.c.4 STUDENT DESK CHAIR.

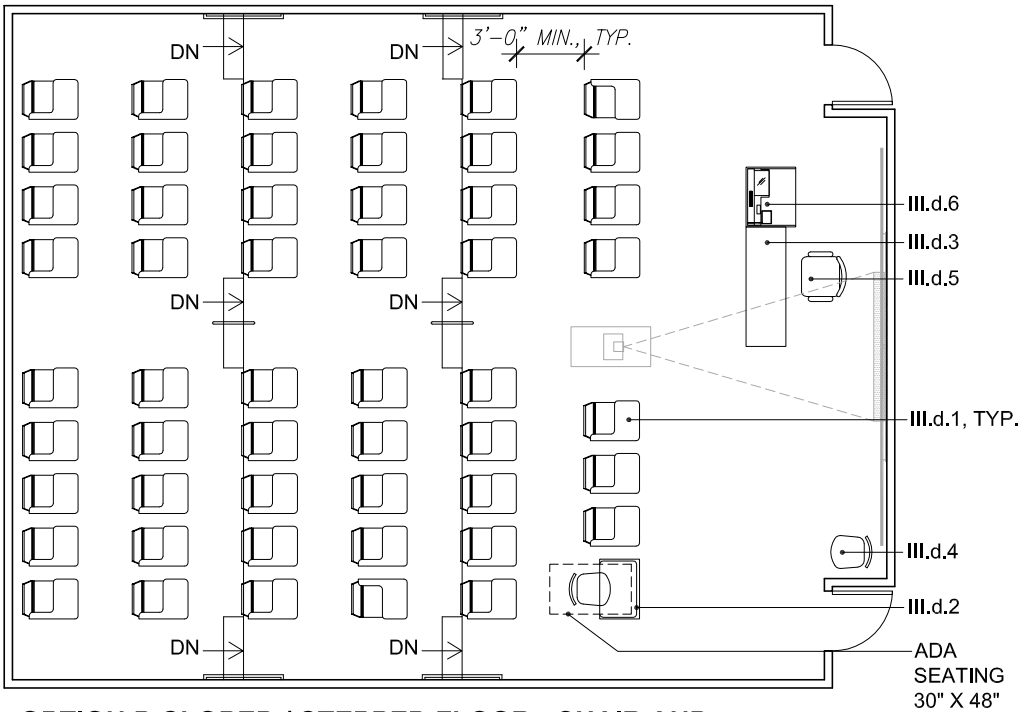
III.c.5 ONE (1) TEACHER STOOL.

III.c.6 ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: GENERAL CLASSROOM		
	ROOM NAME: OPTION C SLOPED / STEPPED FLOOR - CONGRESSIONAL SEATING WITH BUILT-IN TABLES AND CHAIRS		
FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

GENERAL NOTES:

1. CLASSROOM CONFIGURATION & STUDENT CAPACITY TO BE DETERMINED DURING THE PROGRAMMING & DESIGN PHASES.
2. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.
4. FOR SLOPED OR TIERED TYPE CLASSROOMS, TABLES TO BE FIXED, PURCHASED BY OWNER & INSTALLED BY CONTRACTOR.



III.d OPTION D SLOPED / STEPPED FLOOR - CHAIR AND TABLET-ARM COMBINATION

III.d.1 RETURN TABLET ARM / CHAIR COMBO UNIT FLOOR MOUNTED.

III.d.2 ADA DESK - 24"D x 36"L x 26" to 43"H, HEIGHT ADJUSTABLE. (COUNT, SIZE & HEIGHT REQUIREMENTS MUST COMPLY WITH MOST RECENT ACCESSIBILITY REFERENCE MANUAL CODE & CHECKLIST)

III.d.3 ONE (1) TEACHERS DESK - 24"D X 72"W X 30"H (OPTIONAL).

III.d.4 STUDENT DESK CHAIR.

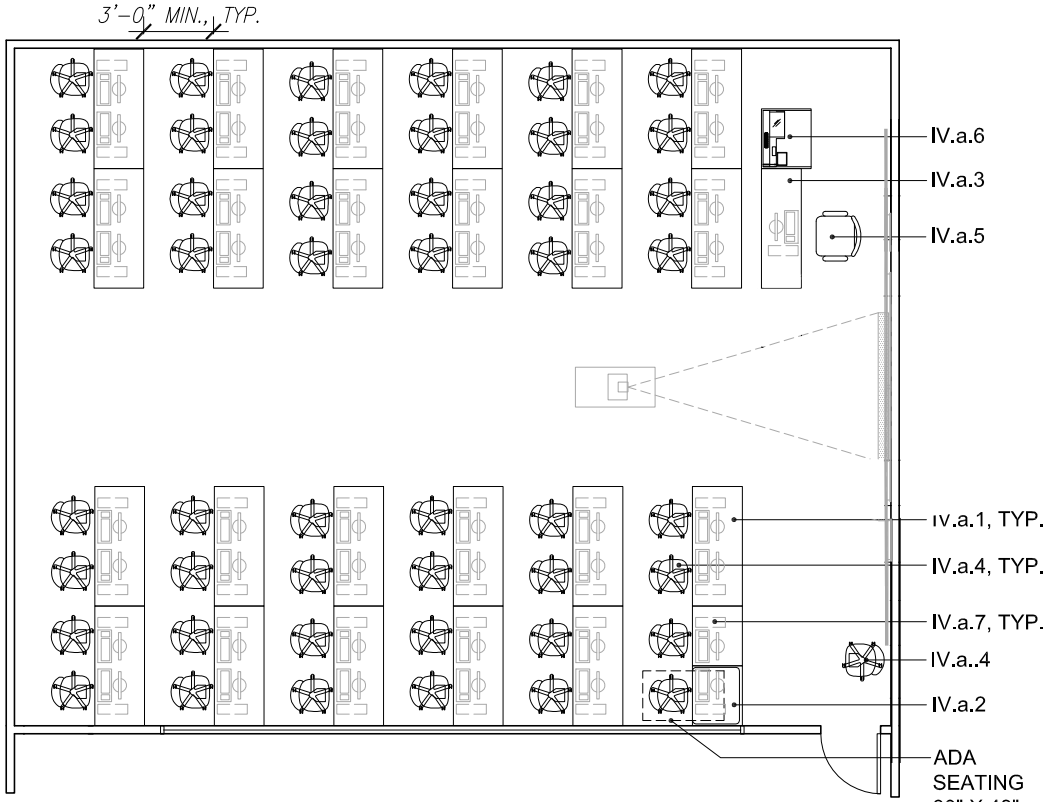
III.d.5 ONE (1) TEACHER STOOL.

III.d.6 ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: GENERAL CLASSROOM		
	ROOM NAME: OPTION D SLOPED / STEPPED FLOOR - CHAIR AND TABLET-ARM COMBINATION		
FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

GENERAL NOTES:

1. CLASSROOM CONFIGURATION & STUDENT CAPACITY TO BE DETERMINED DURING THE PROGRAMMING & DESIGN PHASES.
2. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.



IV.a OPTION A FLAT FLOOR - TABLES AND CHAIRS

IV.a.1 COMPUTER TABLE DESK - 30"D x 72"L (2 STUDENTS), 30"D X 36L (1 STUDENT).

IV.a.2 ADA DESK - 24"D x 36"L x 26" to 43"H, HEIGHT ADJUSTABLE. (COUNT, SIZE & HEIGHT REQUIREMENTS MUST COMPLY WITH MOST RECENT ACCESSIBILITY REFERENCE MANUAL CODE & CHECKLIST).

IV.a.3 ONE (1) TEACHERS DESK - 24"D X 72"W X 30"H (OPTIONAL).

IV.a.4 ERGONOMIC STUDENT DESK CHAIR.

IV.a.5 ONE (1) TEACHER STOOL.

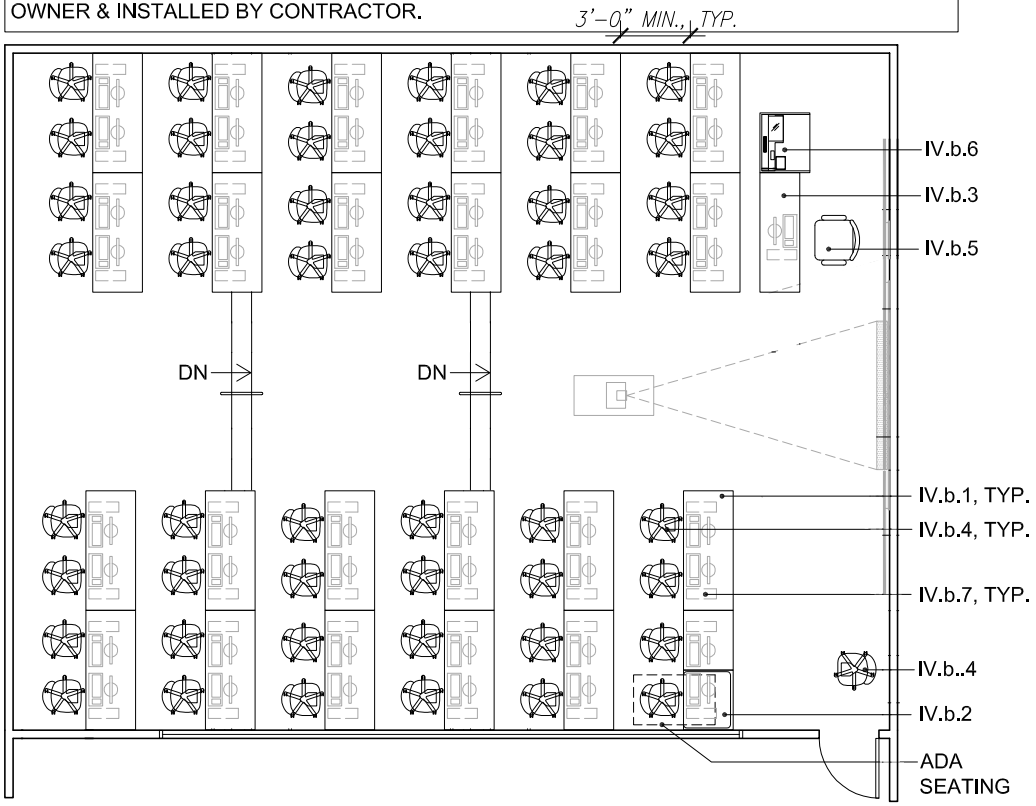
IV.a.6 ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

IV.a.7 COMPUTER HOLDER - ONE (1) PER STUDENT CHAIR

SAN DIEGO COMMUNITY COLLEGE DISTRICT			
FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: COMPUTER EQUIPPED CLASSROOM		
	ROOM NAME: OPTION A FLAT FLOOR - TABLES AND CHAIRS		
	FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

GENERAL NOTES:

1. CLASSROOM CONFIGURATION & STUDENT CAPACITY TO BE DETERMINED DURING THE PROGRAMMING & DESIGN PHASES.
2. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRESENTATIONAL ONLY.
4. FOR SLOPED OR TIERED TYPE CLASSROOMS, TABLES TO BE FIXED, PURCHASED BY OWNER & INSTALLED BY CONTRACTOR.



IV.b OPTION B SLOPED / STEPPED FLOOR - CONGRESSIONAL SEATING WITH BUILT-IN TABLES AND CHAIRS

IVb.1 COMPUTER TABLE DESK - 30"D x 72"L (2 STUDENTS), 30"D X 36L (1 STUDENT).

IV.b.2 ADA DESK - 24"D x 36"L x 26" to 43"H, HEIGHT ADJUSTABLE. (COUNT, SIZE & HEIGHT REQUIREMENTS MUST COMPLY WITH MOST RECENT ACCESSIBILITY REFERENCE MANUAL CODE & CHECKLIST).

IV.b.3 ONE (1) TEACHERS DESK - 24"D X 72"W X 30"H (OPTIONAL).

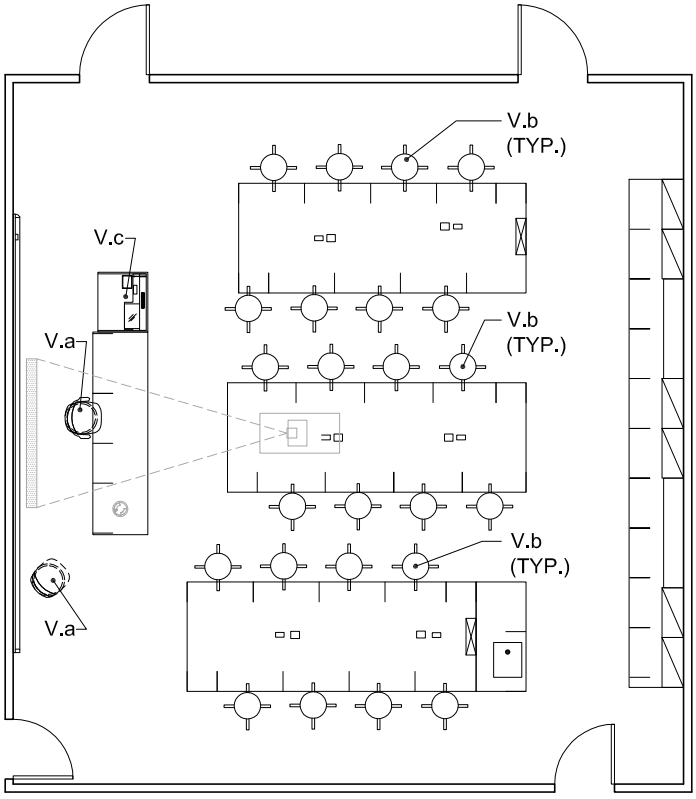
IV.b.4 ERGONOMIC STUDENT DESK CHAIR.

IV.b.5 ONE (1) TEACHER STOOL.

IV.b.6 ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

IV.b.7 COMPUTER HOLDER - ONE (1) PER STUDENT CHAIR

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: COMPUTER EQUIPPED CLASSROOM		
	ROOM NAME: OPTION C SLOPED / STEPPED FLOOR - CONGRESSIONAL SEATING WITH BUILT-IN TABLES AND CHAIRS		
FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES



GENERAL NOTES:

1. ALL FURNITURE & FINISHES SELECTED PER PROCUREMENT STANDARDS.
2. COORDINATE POWER & DATA LOCATIONS PER ACTUAL ROOM LAYOUTS.
3. SIZE & SHAPE OF TABLES & CHAIRS ARE REPRENSTATIONAL ONLY.

V. TYPICAL LABORATORY FURNITURE

V.a TWO (2) LAB STOOLS PER INSTRUCTOR DEMONSTRATION BENCH & HEARING IMPAIRED INTERPRETER).

V.b LAB STOOL FOR STUDENT LAB BENCHES - ALTERNATE OPTION - LAB STOOL TO HAVE SEAT BACK.

V.c ONE (1) INSTRUCTOR PODIUM/ LECTERN (PER DISTRICT AV STANDARDS).

SAN DIEGO COMMUNITY COLLEGE DISTRICT FURNITURE STANDARDS			DATE: 03.26.13
SAN DIEGO Community College District	DEPARTMENT: LABORATORIES		
	ROOM NAME: TYPICAL LABORATORY FURNITURE		
FLOOR PLAN	SCALE: 1/8" = 1'-0"	NET AREA: VARIES	No. of OCCUPANTS: VARIES

2.1.9

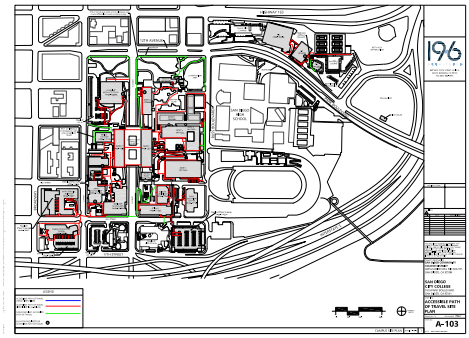
SIGNAGE GUIDELINES

2.1.10

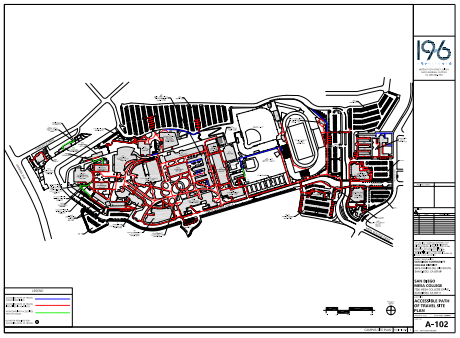
UNIVERSAL ACCESS STANDARDS

2.1.11

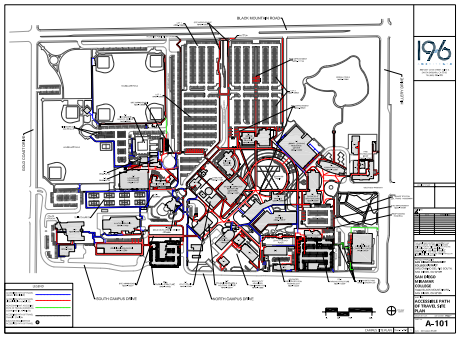
ADA SITE PLANS



City College
ADA Path of Travel Plan



Mesa College
ADA Path of Travel Plan



Miramar College
ADA Path of Travel Plan

ADA site plans for City College, Mesa College, and Miramar College are available and shall be used as reference documents during the planning, design, and construction phases of all applicable projects. These site plans provide critical information regarding accessible routes, path of travel, accessible parking, curb ramps, entrances, and other key accessibility features that are essential for ensuring compliance with ADA regulations and District accessibility standards.

Design teams are required to consult the most current ADA site plans at the outset of each project to identify existing accessibility infrastructure and to coordinate any proposed modifications or additions accordingly. These documents serve as a baseline for maintaining continuity, avoiding conflicts, and supporting the District's commitment to providing fully accessible campus environments.

2.1.12

SITE DESIGN

GENERAL REQUIREMENTS

1. The following design standards shall be used for the development of site improvements outside of the building envelope. These standards shall serve as best practices for implementing common site design elements but does not relieve the engineer of record from adhering to applicable California Building Codes.
2. References
   a. City of San Diego Sewer Design Guide
   b. City of San Diego Drainage Design Manual
   c. Manual on Uniform Traffic Control
   d. Model BMP Design Manual
   e. City of San Diego Stormwater Standards Manual
   f. San Diego Regional Standard Drawings
   g. Greenbook, Standard Specifications for Public Works Construction
3. Paving sections shall follow project geotechnical report recommendations.

SURFACE IMPROVEMENTS

1. Pedestrian Pathways
   a. Provide safe, durable, non-yielding, ADA-compliant pedestrian access that supports all facility functions.
   b. Design all paved areas to accommodate maintenance vehicle traffic.
   c. Provide a minimum 10-foot-wide paved access route to waste collection areas.
   d. When replacing or extending existing walkways, ensure no segment is narrower than 3 feet. If this cannot be achieved, replace the entire walkway.
   e. Walkway and mow curb control joints: spaced at a maximum of 5 feet on center. Expansion joints: required at 20-foot intervals. No paving panel should exceed 100 square feet.
   f. Do not allow downspouts to drain across pedestrian paving.
   g. Slope all flatwork away from utility vault covers.
   h. Avoid walkways that narrow abruptly or include angles less than 90 degrees.
   i. Provide curved or angled corners where pedestrians are likely to take shortcuts.
   j. Use physical barriers—such as walls, raised planters, dense shrub massings, galvanized posts with chain barriers, or fencing—to discourage undesired pedestrian circulation.
2. Minimum Walkway Widths
   a. 12 feet adjacent to buildings.
   b. 8 feet for high-use paths between buildings.
   c. 5 feet for low-use pedestrian routes.
   d. 8 feet minimum for occasional vehicular use.
3. Additional Paving Guidelines
   a. In parking areas, swales must be constructed with concrete (not asphalt) and drain into concrete gutters.
   b. Identify and design for high-traffic areas such as cafeterias, auditoriums, offices, and lunch areas.
   c. Pedestrian access between building entries and active areas should be as direct as possible.
   d. Ensure compliance with code requirements for accessible paths of travel and CalGreen shade requirements.

PARKING DESIGN

1. Vehicular Circulation
   a. Provide continuous internal circulation. Avoid dead-end parking configurations whenever possible.
   b. Ensure adequate space for maneuvering near loading docks or service areas.
   c. Clearly show the emergency vehicle access route on the plans

2. Access Points
   a. Small lots: One entrance/exit may be sufficient.
   b. Large or high-traffic lots: Provide at least two driveways.
3. Driveway Dimensions
   a. Minimum driveway width for non-emergency access roads: 24 feet.
   b. If driveways are narrower than 24 feet, provide separate 12-foot-wide entrance and exit lanes.
4. Parking Layout
   a. Parking should be provided on both sides of traffic aisles.
   b. Install wheel stops at spaces adjacent to sidewalks to maintain required clear walking width.
   c. Avoid placing parallel parking spaces directly across from 90-degree parking.
   d. Set parking lots back at least 10 feet from sidewalks.
5. Parking Space Standards
   a. Standard stall dimensions at parking garages: 8'-6" wide by 20'-0" long.
   b. Standard stall dimension at surface lots: 9'-0" wide by 20'-0" long.
   c. Any deviations must be approved in writing by the District Architect.
   d. Accessible parking spaces shall dimensioned per the requirements in the California Building Code.
6. Fire Access Roads
   a. Fire Access Roads shall meet the requirement of the California Building Code Title 24, Part 9, Appendix D.

PARKING SIGNAGE & EQUIPMENT

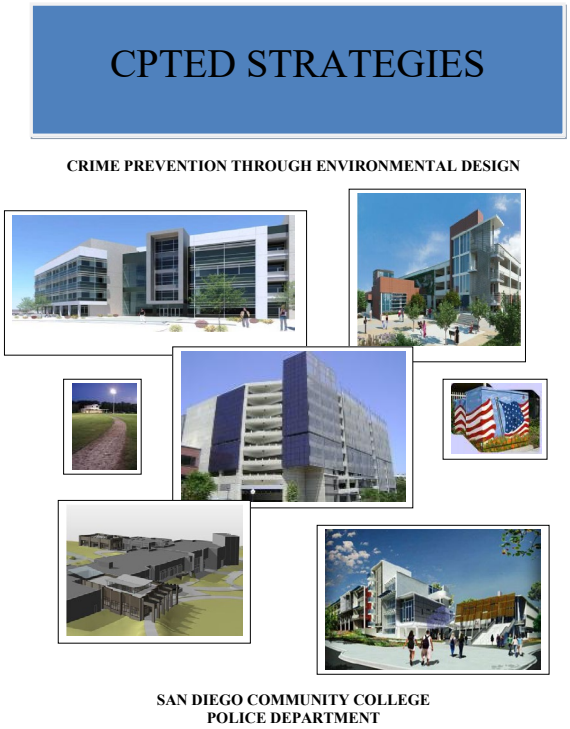
1. All parking signage and striping must comply with CBC Title 24 and Caltrans standards.
2. Sign Types and Colors
   a. Non-Regulatory Signage
      i. Prohibitive: Red text on white background.
      ii. Staff: Blue text on white background.
      iii. Student: Green text on white background.
      iv. Information: Black text on white background.
   b. Regulatory
      i. Accessible: Per California Building Code (white on blue).
      ii. All other regulatory signage (e.g., stop, yield, speed limit, etc.) shall be per the Manual on Uniform Traffic Control Devices, current edition).
3. Sign Installation
   a. Signs mounted to walls: Four-point attachment with tamper-resistant hardware.
   b. Signs mounted to poles: Two-point minimum attachment.
4. Space Marking
   a. “STAFF,” “STAFF/FLEX,” “METERED,” and “CARPOOL” spaces must be labeled with 5-inch, all-capital letters at the entry of the space.

PARKING TECHNOLOGY & SECURITY

1. Call Boxes
   a. Standard: Talk-a-Phone products
   b. Use tower model ETP-MT/R in open lots; wall-mounted model ETP-WMS in garages, Contractor Furnished Contractor Installed (CFCI) and also programmed per IT Manager's requirements.
   c. Program to call SDCCD Police Dispatch at 619-388-6405
   d. Coordinate location and type with the District.
2. Security
   a. Parking structures must be securable to restrict vehicle and pedestrian access after hours.

2.1.13

CPTED STRATEGIES



2.1.14

STORM WATER MANAGEMENT

STORM WATER MANAGEMENT REQUIREMENTS

1. The SDCCD has elected to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit for Waste Discharge Requirements (WDRs) for Stormwater Discharge From Small Municipal Separate Storm Sewer Systems (MS4s) - Order No. 2013-0001-DWQ NPDES No. CAS000004 (Phase II Small MS4 permit). The engineer of record is required to determine if a project is subject to the Phase II Small MS4 permit requirements.
2. A Preliminary Water Quality Technical Report (WQTR) shall be submitted to the District for review and comment at the 50% Construction Document Submittal milestone. The Final WQTR shall be submitted to the District for review and comment at the DSA Submittal milestone.
3. The SDCCD is responsible for the installation of permanent post-construction Storm water management measures (also known as best management practices (BMPs).
4. The SDCCD is responsible for the verification of installed BMPs.
5. The SDCCD is responsible for the ongoing implementation of source BMPs that require routine actions, and maintenance of permanent BMPs annually or more frequently when necessary to maintain BMP capacity.
6. Phase II Small MS4 compliance does not constitute compliance with the National Pollutant Discharge elimination System (NPDES) General Permit for Stormwater Discharges Associate With Construction And Land Disturbance Activities (General Permit) - Order WQ 2022-0057-DWQ NPDES No. CAS000002 (CGP).
7. Compliance with the CGP does not necessarily constitute compliance with the Phase II Small MS4 permit.
8. Some portions of SDCCD projects may be conducted in the City of San Diego Right-of-Way (ROW). These portions of the project may be required to provide the following documents to the City of San Diego:
   a. City of San Diego Storm Water Requirements Applicability Checklist
   b. City of San Diego Standard Project Storm Water Quality Management Plan (SWQMP) forms
   c. City of San Diego Priority Development Project (PDP) SWQMP.

STORM WATER POLLUTION PREVENTION PLAN

PROJECTS DISTURBING SOIL: COMPLIANCE WITH CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

1. For projects disturbing less than one acre, a Water Pollution Control Plan (WPCP) must be developed to manage sediment, materials, waste, and other pollutants in stormwater.

PROJECTS DISTURBING ONE ACRE OR MORE

1. Projects disturbing one acre, or more, of soil are subject to the National Pollutant Discharge Elimination System (NPDES) General Permit For Stormwater Discharges Associated With Construction And Land Disturbance Activities (General Permit) Order WQ 2022-0057-DWQ NPDES No. CAS000002 (CGP)
2. A SWPPP must be developed to meet CGP requirements based on the project's risk level.

COST-EFFECTIVE AND FEASIBLE PERMIT COVERAGE

1. Careful consideration should ensure permit coverage is:
   a. Feasible from a construction management perspective
   b. Fully compliant with CGP requirements.
2. Projects disturbing less than one acre that are adjacent to other projects, share timelines or scopes, are hydraulically connected, or are managed by the same construction manager or contractor should consider seeking coverage under a single Waste Discharge Identification (WDID) number.

PREPARATION OF SWPPPS

1. All SWPPPs must be:
   a. Prepared by a Qualified SWPPP Developer (QSD).
   b. Aligned with the SDCCD SWPPP template for the project size.
   c. Tailored to site-specific conditions, including the selection of appropriate Best Management Practices (BMPs) for each construction phase.
   d. Submit SWPPP at DSA Submittal and finalized prior to bid.

PRELIMINARY AND FINAL WATER BALANCE CALCULATIONS

1. During the conceptual phase, a preliminary water balance calculation must be conducted to assess the need for post-construction BMPs. Reference the SDCCD WQTR template for the Water Balance Calculator.
2. Post-construction BMP types and locations must be refined during design development and construction drawing preparation to account for actual site conditions.
3. Must be done in compliance with the Phase II MS4 permit.

WATER QUALITY TECHNICAL REPORT (WQTR)

1. The selection, siting, sizing, and operation and maintenance requirements of the post-construction BMPs should be documented in a Water Quality Technical Report (WQTR).

WATER POLLUTION CONTROL DRAWINGS (WPCD)

1. Water Pollution Control Drawings (WPCDs) must be prepared for each phase of construction. The major phases of construction, are generally considered to be, Demolition, Grading, Land Development and Utilities, Streets and Vertical, Landscaping and Final Stabilization. Each WPCD must be prepared as an individual exhibit.

2.2

GENERAL SPECIFICATIONS

These are general specifications, product and material data, their use and reference in no way relieves the design professionals from preparing code compliant and accurate technical specifications specific to the project for which they are contracted. There are often exceptions to the standards presented here. Therefore, the design professionals will work with the District to modify any information provided here to meet specific site conditions and program needs. The design professionals and contractors shall propose materials, systems, and equipment that bring the highest value to the District.

2.2.1

VOLUME I
DIVISIONS 00 - 14

GENERAL CONDITIONS CRITERIA

Division 00 General Conditions, Special Conditions, and instructions to bidders have been prepared by San Diego Community College District Legal Council and have been approved by the Director of Facilities. General Conditions are not to be modified except via the Special Conditions.

GEOTECHNICAL REQUIREMENTS

A project-specific geotechnical and seismic report is required for all new construction and must undergo California Department of Conservation review as part of the DSA approval process and adhere to Note 48 requirements.

1. Use the report's recommendations as the basis for earthwork/site improvements and foundations for structures.
2. The Geotechnical Engineer of Record shall review the earthwork specifications and drawings prior to bidding and provide a letter of general conformance.
3. Stormwater Infiltration Analysis
    a. Assess soil permeability, percolation rates, and depth to bedrock.
    b. Evaluate impacts to adjacent properties, including seepage, dry-weather curb flow, and potential algae growth.
4. Subsurface Conditions & Constraints
    a. Describe subsurface conditions such as faults, abandoned mines, walls, wells, tanks, and septic systems that may affect construction.
    b. Include boring logs and lab test results, with boring locations and elevations referenced to the nearest benchmark.
    c. Identify potential excavation challenges and provide mitigation strategies.
5. Groundwater & Drainage
    a. Report groundwater levels and assess impacts on construction.
    b. Recommend protective measures for groundwater management during and after construction.
6. Foundations & Structural Support
    a. Provide allowable vertical and lateral bearing capacities, anticipated settlement, and uplift resistance.
    b. Outline foundation recommendations for buildings and site structures.
    c. Evaluate effects of new foundations on adjacent structures.
    d. Provide lateral earth pressure data, including seismic active/passive loads for retaining walls.
7. Site Grading & Earthwork
    a. Define compaction standards for backfill and assess the suitability of native soils.
    b. Identify acceptable off-site fill sources, if needed.
    c. Recommend slope configurations and excavation support systems for temporary and permanent conditions.
8. Expansive Soils & Corrosive Materials
    a. Identify expansive soils and provide treatment strategies.
    b. Note any presence of alkali or other corrosive substances that may affect concrete or steel.
    c. Recommend corrosion protection measures and estimate design life.
    d. Identify any toxic or hazardous materials requiring mitigation.
9. Slab & Pavement Support
    a. Recommend subgrade preparation methods and testing requirements.
    b. Provide the modulus of subgrade reaction for slab-on-grade and pavement design.
    c. Pavement thickness and base design must follow geotechnical report recommendations.
    d. Design major walkways to accommodate occasional light truck traffic, ensuring access for District vehicles.
10. Geologic and Fault Evaluation
    a. Review local and regional seismic data, maps, and records.
    b. Identify and analyze nearby faults in accordance with the current governing code, including location, slip rate, and seismicity.
    c. Define the Seismic Source Type and Soil Profile Type Coefficient as required.

11. Seismic Response & Hazard Mitigation
    a. Analyze site-specific seismic ground motion using historical and geologic data.
    b. Provide a seismic response spectrum per code.
    c. Assess risks such as liquefaction, seismic settlement, landslides, and earthquake-induced flooding.
    d. Recommend appropriate mitigation measures.
12. Documentation & Project Manual Inclusion
    a. The Geotechnical Report is not a Contract Document.
    b. All enforceable recommendations must be incorporated into project drawings and specifications.
    c. Avoid nonspecific references like “per geotechnical report”—all requirements must be clearly restated in the construction documents. Provide lateral earth pressure data, including seismic active/passive loads for retaining walls.

TEMPORARY TREE AND PLANT PROTECTION

CONSTRUCTION SCHEDULE

1. Submit construction schedule (pursuant to the project's Submittal Requirements) which includes time frame for work near existing plant material. Provide transplanting and tree removal schedule including tree transplants and locations. Obtain approval by Landscape Architect prior to beginning of transplanting work and construction near restricted area.

METHODS

2. Submit proposed methods for effecting tree and plant protection for approval, including proposed methods, materials, and schedule for root pruning, construction pruning, aeration and subsequent tree fertilization. Mark plan location of root pruning and siltation fencing in field with paint for approval by Landscape Architect. Any root pruning which is required due to construction work adjacent to existing trees and shrubs designated to remain shall occur any time ground can be worked except when tree or shrubs are in leaf. Root pruning when tree or shrubs are in leaf may occur only with approval by Landscape Architect.ted to remain shall adhere to the following:

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

GENERAL REQUIREMENTS

1. Implement a construction waste management plan to significantly reduce the amount of waste going to landfills.
2. Prior to construction, provide a Waste Management Plan to Campus Facility Services. This plan must specify the locations on campus where recycled materials will be collected, staged, handled, and picked up. Source separation of construction waste for recycling is required wherever possible.

WASTE REDUCTION GOALS

1. Achieve a minimum "end-of-project" recycling rate of 75% for non-hazardous solid waste.
2. Aim for a further goal of 90% diversion from landfills and incinerators by weight, including both demolition and construction waste.
3. Practice efficient material use and actively divert waste from landfills using reasonable means.

MATERIALS FOR RECYCLING AND SALVAGE

1. Demolition Waste:
   a. Asphalt paving.
   b. Concrete.
2. Construction Waste:
   a. Masonry and CMU.
   b. Wood and sheet materials.
   c. Metals.
   d. Roofing materials.
   e. Insulation.
   f. Carpet and pad.
   g. Gypsum board.
   h. Piping.
   i. Electrical conduit.
3. Packaging Materials: Salvage or recycle 100% of the following uncontaminated packaging materials:
   a. Paper.

b. Cardboard and boxes.
c. Plastic sheet and film.
d. Polystyrene packaging.
e. Wood crates.
f. Plastic pails.

IMPLEMENTATION PRACTICES

1. Facilitate recycling and salvage activities during site clearing and construction phases.
2. Ensure debris from site clearing is properly sorted and recycled where possible.
3. Actively promote material reuse and recycling to achieve waste reduction goals.

COMMISSIONING REQUIREMENTS

GENERAL REQUIREMENTS

1. Building commissioning requirements; coordinate with mechanical, electrical and plumbing requirements. Include special facility start-up process used to bring facility to a fully operational state, substantially free of deficiencies, in an effective and timely manner.
2. Equipment to be Commissioned:
   a. Mechanical: Air Handling Units, Pumps, Split system air conditioning Unit, Variable frequency drives, Constant volume terminal units, Variable volume terminal units, Mechanical ventilation fans, Air distribution systems, Hot water terminal heating equipment, Fire/Smoke dampers, Indoor air quality, Equipment sound control., Automatic temperature control system and Testing, Adjusting and Balancing work.
   b. Electrical: Interior lighting fixtures and controls, Exterior lighting fixtures and controls and Electrical power distribution.
   c. Plumbing: Domestic water heaters, Pumps, Cold and hot water distribution, Fixture and Piping systems.

MOCKUP REQUIREMENTS

PURPOSE & REQUIREMENTS

Mockups are physical assemblies of construction elements designed to establish quality standards for site work, interior finishes, and exterior finishes. They serve as full-scale representations to verify material selection, assess workmanship, and ensure compliance with design intent. Mockups are not to be confused with samples, which are small-scale representations of materials or finishes. Mockups are required for the following construction elements:

1. Site Work: Concrete finishes, paving, hardscapes.
2. Interior Finishes: Paint, wall finishes, flooring.
3. Exterior Finishes: Masonry, stucco, cladding, glazing systems.

MOCKUP OBJECTIVES

Mockups shall be constructed to achieve the following:

1. Material & Finish Verification – Validate selections made under sample submittals before full-scale installation.
2. Aesthetic & Quality Control – Demonstrate design intent, colors, textures, and craftsmanship to align with project expectations.
3. Constructability Testing – Evaluate installation methods, sequencing, and coordination between trades.

4. Performance Testing – Perform preconstruction tests, such as air and water infiltration for windows or adhesion and durability tests for coatings and finishes.
5. Interface & System Integration – Verify the compatibility of different materials, products, and construction methods to ensure seamless execution.

QUALITY ASSURANCE & APPROVAL

1. General Requirements
   a. Build mockups before fabricating or installing critical project components.
   b. Use approved materials and follow specified installation methods.
   c. Construct mockups in a controlled location, as indicated in project drawings or as directed by the District Construction Manager.
   d. Mockups must be constructed using the same workforce and supervisory personnel responsible for the final project work.
2. Approval Process
   a. The Architect and District Construction Manager must approve all mockups before full-scale construction begins.
   b. Approved mockups shall serve as the quality standard for the final Work.
   c. Maintain mockups in an undisturbed condition throughout construction as a reference for finished work.

CONSTRUCTION & PERFORMANCE CRITERIA

1. Fabrication & Installation
   a. Build mockups at the designated size and specified location, ensuring they accurately represent field conditions.
   b. Mockups must include all relevant finishes, components, and assemblies to demonstrate workmanship and integration.
   c. Employ the same workers and tradespeople who will perform the final work, ensuring consistency in quality. Document installation techniques and performance testing procedures to ensure compliance with specifications.
2. Specific Testing & Demonstrations
   a. Exterior Envelope: Perform air and water leakage tests for windows and cladding systems.
   Concrete Finishes: Evaluate color, texture, jointing, and curing methods.
   b. Paint & Wall Finishes: Assess coverage, sheen, texture, and adhesion.
   c. Tile & Flooring: Demonstrate alignment, grouting, slip resistance, and finish quality.
   d. Interface of Materials: Validate joint sealing, transitions, and compatibility between adjacent materials.
3. Documentation & Record Keeping
   a. Photographic documentation is required for all exterior mockups, showing interface details between different materials and systems.

REMOVAL & MAINTENANCE OF MOCKUPS

1. Mockups shall be preserved during construction as a reference for final work quality.
2. Mockups shall not be a part of the final construction.
3. Remove and dispose of mockups upon project completion unless otherwise specified.

COORDINATION WITH SPECIFICATION SECTIONS

1. Ensure all materials and finishes used in mockups comply with the approved specifications.
2. Mockup requirements must be coordinated with individual trade sections, ensuring consistency in workmanship and material application.
3. Any deviation from approved mockups must receive written approval before proceeding with construction.

SDCCD BIM REQUIREMENTS

1. The SDCCD BIM Standards are a contract requirement and must be incorporated into the design team and contractor's scope of work. Non-compliance may result in rejected submittals, withheld payments, or requirement for model rework. Refer to section 3.1 BIM Standards for requirements.

SDCCD PROJECT CLOSEOUT

PROJECT CLOSEOUT CHECKLIST

NO	DESCRIPTION	RESPONSIBLE	DATE COMPLETED	REMARKS
1	General Closeout Procedures.			
2	Substantial Completion & Inspection procedures.			
3	Punchlist completion			
4	Final Completion procedures.			
5	Final Inspection			
6	Final cleaning - interior			
7	Final cleaning/Rubbish removal - site			
8	Testing, Balancing, and Adjusting.			
9	Secure subcontractor as-built drawings			
10	Complete as-builts created by the contractor.			
11	Drawings in scanned original format, and all items digitally transfered to PDF file format. PDF files shall be bookmarked and hyperlinked.			
12	Specifications in scanned original format, and all items digitally transfered to PDF file format. PDF files shall be bookmarked and hyperlinked.			
13	Project Record Documents prepared by the design team after reviewing the as-built information .			
14	Drawings in bookmarked and hyperlinked PDF, CAD & Revit file formats.			
15	Specifications in bookmarked and hyperlinked PDF file format.			
16	Offsite Record Documents. (If applicable)			
17	Finalize logs (RFI, submittals, and etc.)			
18	Operation and Maintenance Manuals. PDF file format. PDF files shall be bookmarked and hyperlinked.			

NO	DESCRIPTION	RESPONSIBLE	DATE COMPLETED	REMARKS
19	Operation and repair manuals with product literature and maintenance instructions for all plumbing equipment, door hardware, electrical doors, locks, fire doors (like Won Doors), graffiti coatings, designer exterior wall coverings, etc.			
20	Flooring - product literature and maintenance instructions.			
21	Submittal of Warranties. PDF file format. PDF files shall be bookmarked and hyperlinked.			
22	Punchlist completion			
23	Commissioning Reports. PDF file format. PDF files shall be bookmarked and hyperlinked.			
24	Remove all temporary site facilities, trailers, and etc.			
25	Addenda DSA approved. PDF file format. PDF files shall be bookmarked and hyperlinked.			
26	All CCD's Type A, DSA approved, PDF file format. PDF files shall be bookmarked and hyperlinked.			
27	All CCD's Type B, PDF file format. PDF files shall be bookmarked and hyperlinked.			
28	Revisions, DSA Approved. (If applicable)			
29	Deferred Submittals, DSA Approved. (If applicable)			
30	State Certification of Elevator.			
31	Final DSA Verified Reports, DSA 6PI, 6AE & DSA 6C.			
32	System start-up and customer training			
33	District does not require surplus materials or spare parts. Do not include additional stock in specs.			
34	Collect and transfer keys to District Director of Facility Services			
35	Notify Builder Risk carrier of project completion			
36	Change over utility connections/fees (gas, electric, telephone, and etc.)			
37	Collect all final invoices/billings: Complete and deliver final billing			
38	Reconcile change orders and retainage			
39	Complete final designer affidavits and closeout docs			
	- Substantial Completion (Designer)			
	- Final Completion (Designer)			
	- Notice of Completion (Agency)			
40	Notice of Termination - SWPPP (Storm Water Resources Control Board)			
41	Post occupancy at 12 months			

BUILDING DEMOLITION

GENERAL CONDITIONS CRITERIA

1. Permits and Approvals: Secure all necessary permits and approvals from local and state authorities before commencing demolition activities.
2. Site Safety: Establish safety protocols, including fencing, signage, and access control, to protect workers and the public.
3. Utility Disconnection: Coordinate with utility providers to disconnect and cap all utilities (electric, water, gas, sewer, etc.) before demolition begins.
4. Environmental Compliance: Ensure compliance with local, state, and federal environmental regulations regarding dust control, noise, and vibration.
5. Debris Management: Develop a plan for sorting, removing, and disposing of debris, prioritizing recycling and reuse where possible.
6. Structural Assessment: Perform a structural assessment to ensure controlled and safe demolition without unplanned collapses or hazards.
7. Demolition Plan: Prepare and submit a detailed demolition plan outlining the sequence of operations, equipment to be used, and emergency procedures.

SELECTIVE DEMOLITION

GENERAL CONDITIONS CRITERIA

1. Scope Definition: Clearly identify areas and elements to be demolished versus those to remain, using marked-up plans and drawings.
2. Controlled Removal: Utilize tools and techniques appropriate for selective demolition to minimize damage to adjacent materials and structures.
3. Dust and Noise Mitigation: Implement measures such as dust barriers, negative air pressure systems, and noise-dampening methods.
4. Access Control: Limit access to demolition areas and provide temporary protection for occupants and other trades working nearby.
5. Material Sorting: Separate reusable and recyclable materials from waste for proper disposal and compliance with sustainability goals.
6. Coordination: Ensure demolition activities are coordinated with adjacent construction activities to avoid disruptions.
7. Inspections: Conduct pre- and post-demolition inspections to verify compliance with the scope of work and identify any damages or issues.

REMOVAL & DISPOSAL OF HAZARDOUS MATERIALS

GENERAL CONDITIONS CRITERIA

1. Regulatory Compliance: Abide by all federal, state, and local regulations (e.g., OSHA, EPA) for handling hazardous materials such as asbestos, lead, or PCBs.
2. Pre-Demolition Survey: Conduct a hazardous material survey to identify materials requiring special handling or disposal.
3. Certified Contractors: Employ licensed and certified contractors for the abatement and removal of hazardous materials.

4. Containment: Establish containment zones and use negative pressure systems to prevent contamination spread.
5. Worker Safety: Provide appropriate personal protective equipment (PPE) and training for all personnel involved in hazardous material handling.
6. Waste Manifest: Maintain documentation, such as waste manifests, for the proper transportation and disposal of hazardous materials at approved facilities.
7. Clearance Testing: Perform air and surface clearance testing after removal to confirm the site is free of contamination.

CAST IN PLACE CONCRETE

Formed concrete including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for footings, foundation walls, slabs-on-grade, concrete toppings, and building walls and columns. All concrete work shall conform to ACI 301 – Specifications for Structural Concrete and ACI 117 – Specifications for Tolerances for Concrete Construction and Materials.

MATERIAL REQUIREMENTS

1. Concrete: Ready mix per C 94, regular weight. No Calcium chloride. Admixtures may be used to improve workability, not reduce cement content.
2. Cement: ASTM C150, Type II/V Portland cement; gray color, or as determined by geotechnical report for concrete exposed to soils.
3. Fine and Coarse Aggregates: ASTM C33.
4. Water: Clean and not detrimental to concrete.
5. Mix Designs:
   a. Mix concrete in accordance with ACI 318.
   b. Provide concrete for foundations to attain 28 day compressive strength of 4500 psi. or as required for project conditions.
   c. Provide concrete for slabs to attain 28 day compressive strength of 4500 psi, or as required for project conditions.
   d. Provide concrete for sidewalks and flatwork to attain 28 day compressive strength of 2500 psi, or as required for project conditions
6. Concrete Forms:
   a. Plywood: Douglas fir species; select sheathing-tight face grade; sound, undamaged sheets with straight edges.
   b. Lumber: Douglas Fir species; Construction grade; with grade stamp clearly visible.
   c. Architectural Concrete: Formliners for Exposed and Architectural Concrete:
   d. Thermally formed, pressed or molded fiber-reinforced plastic (FRP), ABS alloy plastic, PVC alloy plastic, or similar material, manufactured to produce finished concrete of design, configuration, and surface texture indicated. Provide formliners with inherent form-release surface.
7. Steel reinforcing:
   a. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet-steel deformed bars, uncoated finish.
   b. Welded Steel Wire Fabric: ANSI/ASTM A185 plain type; coiled rolls; uncoated finish.
8. Vapor Retarder: Stego Wrap, www.stegoindustries.com, or equal, 15 mil polyolefin film. Vapor retarders shall be installed directly below interior slabs receiving flooring, in accordance with ASTM E1643. Lap joints minimum 6 inches and seal with manufacturer's tape.
9. Concrete shall be cured using wet curing or curing compound complying with ASTM C309. Curing period shall be no less than 7 days for foundations and 28 days for slabs scheduled for polishing or architectural finish.
10. Non-Shrink Grout: Master Builders or equal, non-shrink, non-metallic, with a range of consistency for placement.
11. Joint Treatment: All construction joints shall be Burke Key Kold or equal. All weakened plane joints shall SOF Cut or saw cut. All expansion joints shall be formed flush. Control joints in slabs-on-grade shall be spaced at a maximum of 12'-0" in both directions.

LIGHTWEIGHT STRUCTURAL CONCRETE

Concrete fill, light weight aggregate, as a component of structural floor and roof deck assemblies.

MATERIAL REQUIREMENTS

1. Ready mix concrete, complying with ASTM c 94, shall be used for all topping concrete. Aggregate shall conform to ASTM c-330.

POLISHED CONCRETE

DESIGN REQUIREMENTS

1. Floor Finish: Mild, highly concentrated liquid concrete cleaner and conditioner containing wetting and emulsifying agents; biodegradable, environmentally safe and certified High Traction by National Floor Safety Institute (NFSI).
   a. Finish: 800 GRIT minimum.

MATERIAL REQUIREMENTS

1. Hardener, Sealer, Densifier: Water based, odorless liquid, VOC compliant, environmentally safe chemical hardening solution leaving no surface film.
2. Joint Filler: Semi-rigid, 2-components, self leveling, 100% solids, rapid curing, polyurea control joint and crack filler with Shore A 65-67 or higher hardness.
3. Concrete Dyes: Fast drying dye, packaged in premeasured units ready for mixing with VOC compliant solvent, formulated for application to polished cementitious surfaces.

CONSTRUCTION REQUIREMENTS

1. Mockups: Construct and approve mockups to validate finishes, colors, textures, and repair techniques.
2. Polished concrete floors designated as ‘very flat’ shall achieve a minimum FF 50 / FL 35
3. After concrete is cured and prior to polishing or after initial grinding, but prior to finishing, protect all areas to receive polished concrete with Skudo HT floor protection or equal. Vapor transmission rate and pH level testing shall be in conformance with installation requirements prior to installation.
4. Protect exposed concrete finish such as bases, curbs and similar work as necessary to prevent damage resulting from impact or from subsequent work.
5. Protect finished work from damage with Ram Board.

ARCHITECTURAL PRECAST CONCRETE

Architectural precast concrete is a versatile material used for aesthetic and structural elements in buildings. It must meet project-specific design, performance, and durability requirements. Proper coordination between the design team, precast fabricator, and contractor is essential to ensure quality and compliance with standards such as PCI (Precast/Prestressed Concrete Institute) guidelines.

DESIGN REQUIREMENTS

1. To establish a benchmark for surface quality and appearance, a Design Reference Sample is required. This sample, designated by the Architect in the Contract Documents, serves as a standard against which the finished cast-in-place architectural concrete will be evaluated. It provides clear expectations for texture, color, and surface uniformity, helping to guide construction and quality control processes.

2. Finishes:
    a. Slab Finish:
        i. Steel trowel finish, typical, unless otherwise specified.
        ii. Utility areas, and similar surfaces: medium swirl texture.
        iii. Slabs receiving clear or colored sealer: steel trowel and medium broom finish.
        iv. Slabs receiving mortar beds, ceramic tile, waterproofing membranes or seamless flooring: steel trowel and very light broom finish.
        v. Polished Concrete: very flat floor. Protect floors scheduled for polished concrete with Skudo HT Floor Protection prior to polishing, there are no approved equals.
        vi. Floors designated as very flat floors:
        vii. Place concrete using vibratory laser screeds, highway straight edges and large diameter power troweling.
3. Wall/Column/Footing Face Finish:
    a. Concrete receiving no further finish or receiving paints or coating system: Produce surface without honeycomb, air pockets or “bug-holes”. Plug tie holes, fill and grind smooth.
    b. Sandblasted concrete: Water or sandblast exposed surface in medium texture, exposing coarse aggregate to a depth of 1/16 inch.
    c. Site concrete components: Provide medium water or sandblast finish at all vertical surfaces of all planters, benches, and related site furnishings, sufficient to remove surface paste and expose fine aggregate. Provide smooth steel trowel at flat seating surfaces.
4. Exterior Slab Floors at Service Areas:
    a. Provide steel trowel and medium broom finish.
5. Surface Defects:
    a. Repair defects and irregularities as specified.

MATERIAL REQUIREMENTS

1. Concrete mix includes cement, aggregates, water, admixtures, and reinforcement.
2. Mix design must achieve specified strength, durability, and appearance.
3. High-quality aggregates and pigments are used for aesthetic finishes (e.g., color, texture)
4. Sealers: Apply VOC-compliant sodium silicate or penetrating sealers to enhance durability and environmental compliance.
5. Reinforcement must conform to ASTM standards.
6. Embedded items (e.g., anchors, inserts) should be corrosion-resistant.

CONSTRUCTION REQUIREMENTS

1. Mockups: Construct and approve mockups to validate finishes, colors, textures, and repair techniques before proceeding with full-scale work.

CONCRETE UNIT MASONRY

GENERAL REQUIREMENTS

1. Any soil retaining walls without surcharge or a sloping backfill shall be designed per Title 24 requirements and DSA approved.

DESIGN REQUIREMENTS

1. Fire-Resistance Ratings
   a. Must comply with ASTM E119 or equivalent testing.
   b. Where required, units must be listed by a qualified testing agency.
2. Exterior Finishes
   a. Exterior masonry should not be painted; instead, apply clear or colored water-repellent sealers.
3. Control & Expansion Joints
   a. Installed to accommodate movement and prevent cracking.
   b. Bond-breaker strips or compressible fillers must be used in control joints.
4. Lintels & Structural Openings
   a. Lintels must match adjacent CMUs in color, texture, and density.
   b. Prefabricated or built-in-place masonry lintels require proper reinforcement and grouting.
5. Weather & Environmental Considerations
   a. Hot-weather masonry procedures must comply with TMS 602/ACI 530.1/ASCE 6.
   b. Protect exposed masonry from staining, rainwater splashes, and mortar droppings.

MATERIAL REQUIREMENTS

1. All masonry work must adhere to TMS 602/ACI 530.1/ASCE 6 requirements and comply with project-specific codes and standards.
2. Concrete Masonry Units (CMU) Types
   a. Precision.
   b. Ground Face.
   c. Split Face. (Not recommended in high traffic areas, or in areas subject to graffiti.)
   d. Bead Blasted.
   e. Scored.
   f. Decorative.
3. Compressive strength based on structural requirements.
4. Mortar & Grout
   a. Grout shall be 2,000 psi, max. slump 8 inches. All cells of all walls shall be fully grouted. Mortar shall be colored to match block, 1800 psi.
   b. Portland Cement: ASTM C150/C150M, Type I or II.
   c. Hydrated Lime: ASTM C207, Type S.
   d. Mortar Pigments: ASTM C979/C979M, with iron oxides and chromium oxides for colored mortar.
5. Reinforcement must conform to ASTM A615/A615M, Grade 60.
6. Anchors & Ties: Galvanized or stainless steel per ASTM A153/A153M.
7. Sealer
   a. Penetrating sealer max VOC per San Diego Air Pollution Control District requirements.

CONSTRUCTION REQUIREMENTS

1. Installation Standards
   a. Use full-size units whenever possible; cut units must have clean, sharp edges.
   b. Lay out masonry in running bond or as specified in drawings.
   c. Tool exposed joints to a concave profile unless otherwise specified.
2. Tolerances
   a. Cross-section dimensions must not vary by more than +1/2 inch or -1/4 inch.
   b. Vertical and horizontal alignment must remain within 1/4-inch per 10 feet.
   c. Joint thickness must be consistent with a maximum variation of 1/8 inch.
3. Grouting & Reinforced Masonry
   a. Grout lift height limited to 48 inches, for 8 inch block, unless using high-lift techniques.
   b. Reinforcing bars must be securely positioned and encased in grout per structural requirements.
   c. Fully grouted CMU walls are required for all structural and load-bearing walls, including shear walls. For DSA-reviewed projects, grout all cells containing reinforcement, conduit, or utilities, and any cells adjacent to those.
4. Masonry Cleaning
   a. Use proprietary acidic cleaners approved by the masonry manufacturer.
   b. Test cleaning methods on sample walls before proceeding.

METALS

GENERAL REQUIREMENTS

1. Where metals are used at the exterior of a building, they shall be finished so as to protect the metal and its surrounding materials from degradation typically known in the industry.
2. For projects near coastal environments, specify corrosion-resistant coatings and finishes designed to withstand exposure to salt air and moisture, ensuring the longevity of both the metal and adjacent materials.

STRUCTURAL STEEL FRAMING

GENERAL REQUIREMENTS

1. Fabricator Qualifications, minimum of five years experience in similar types of fabrication, and one of the following:
   a. Participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD.
   b. Is accredited by the IAS Fabricator Inspection Program for Structural Steel (AC 172).
   c. Is approved by the Los Angeles Department of Building and Safety.
2. Shop prime all steel surfaces except the following.
   a. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of 2 inches.
   b. Surfaces to be field welded.
   c. Surfaces of high-strength bolted, slip-critical connections.
   d. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
   e. Galvanized surfaces.
3. All exterior shapes, frames, beams, connectors and other structural components shall be hot dip galvanized per ASTM 123 and 153.
4. Welding Standards: All welding per AWS Standards. Minimize field welding.
5. Architectural steel exposed to view:
   a. Feature elements not in close view, (e.g., 20 + feet away) shall follow AESS 2. Typical uses include, roof trusses, catwalks, and roof screens.
   b. Feature elements in close view shall follow AESS 3. Typical uses included stair railings, exposed columns and beams, and entry features.
   c. Exposed structural steel scheduled to painted shall be prepared for specified paint finish and at minimum grind exposed welds subject to contact or visible in final construction to smooth surfaces free of holes, slag or other defects, flush with adjoining surface

STEEL DECKING

GENERAL REQUIREMENTS

1. Provide fluted steel decking for all floors, roofs, and sloped roof surfaces.
2. All exterior floor and all concrete filled roof and floor decking shall be vented.
3. All decking shall be galvanized unless otherwise specified.

METAL FABRICATION

GENERAL REQUIREMENTS

1. Structural fabrications, including all embedded items, shall be ASTM A36 or other ASTM designation appropriate to the steel type, welded or bolted per AISC and AWS requirements.
2. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, over-stressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
3. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
4. All exterior structural fabrications shall be hot dipped galvanized unless otherwise specified, not painted.
   a. Access ladders.
   b. Handrails and Guardrails.
   c. Fabricated Fences and Gates.
   d. Pipe Bollards.

METAL STAIRS

GENERAL REQUIREMENTS

1. Exterior stairs, where used as required exits, shall meet the requirements of the California Building Code.
2. Exterior site stairs shall have treads between 11 inches and 14 ½ inches; risers shall be between 4 inches and 6 ½ inches.
3. Surface of treads shall be non-slip, shall comply with ANSI A137.1 Dynamic Coefficient of Friction ≥ 0.42 when wet, and pitched forward at 1/8 inch per foot to drain surface water.
4. Stair nosings shall comply with ADA requirements by using metal inserts.

DECORATIVE METAL RAILINGS

GENERAL REQUIREMENTS

1. Stair and Ramp Railings
   a. Construct railings of hot dipped galvanized steel, or stainless steel Type 316.
   b. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
2. Tubing: ASTM A 500 (cold formed) or ASTM A 513.
3. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40),
4. Provide a "Cane" rail at the base of a ramp or stair that is at a height of 2"-4”off the walking surface.
5. Where guardrails are required, do not use aircraft cable in design.
6. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.

DECORATIVE METAL

GENERAL REQUIREMENTS

1. Metal Wall Panels
   a. Minimize use as a finish within 8 ft. above the adjacent walkway or landscape surface.
   b. 16 gauge minimum with Kynar finish.
   c. Detail appropriately for weatherproofing and constructability.
2. Exposed exterior galvanized metal may be painted with high performance paint.

ROUGH CARPENTRY

GENERAL REQUIREMENTS

1. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship.
2. Lumber:
   a. DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
   b. Factory mark each piece of lumber with grade stamp of grading agency.
   c. Maximum Moisture Content of Lumber: 15 percent for 2-inch nominal thickness or less, 19 percent for more than 2-inch nominal thickness unless otherwise indicated.
3. Miscellaneous Lumber:
   a. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
      i. Blocking.
      ii. Nailers.
   b. For items of dimension lumber size, provide Douglas Fir No. 2 grade.
4. If wood sheathing is used, employ plywood sheathing; do not use OSB.

INTERIOR ARCHITECTURAL WOODWORK

DESIGN REQUIREMENTS

1. WI custom grade plastic-laminate-faced architectural cabinets.
2. High-Pressure Decorative Laminate: NEMA LD 3.
3. Core Material at Cabinet Body
   a. Exterior veneer core plywood.
   b. Particleboard is not permitted for use as core material.
4. Laminate Cladding for Exposed Surfaces:
   a. Horizontal Surfaces: Grade HGS.
   b. Vertical Surfaces: Grade VGS.
5. Edges:
   a. Grade HGS or PVC edge banding.
6. Countertops:
   a. Solid surfacing 1/2" thick with backsplash.
7. Hardware:
   a. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch-thick metal.
   b. Wire Pulls: Back mounted, brushed stainless steel, 4 inches long, 5/16-inch in diameter.
   c. Catches: Push-in magnetic catches, BHMA A156.9, B03141.
   d. Adjustable Shelf Standards and Supports: BHMA A156.9, B84071; with shelf rests, B84081.
   e. Drawer Slides: BHMA A156.9. Rated for the following loads:
      i. Box Drawer Slides: 100 lb/f. (Grade 1HD-100).
      ii. File Drawer Slides: 200 lb/f. (Grade 1HD-200).

iii. Pencil Drawer Slides: 45 lb/f. (Grade 1).
iv. Keyboard Slides: 100 lb/f. (Grade 1HD-100).
v. Grade 1: Side mounted; full-extension type; zinc-plated steel with polymer rollers.
vi. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.

f. Door Locks: BHMA A156.11, E07121.
g. Drawer Locks: BHMA A156.11, E07041.
h. Door and Drawer Silencers: BHMA A156.16, L03011.
i. Tempered Float Glass for Cabinet Doors: ASTM C 1048, Kind FT, Condition A, Type I, Class 1 (clear), Quality-Q3, 6-mm thick unless otherwise indicated.
j. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.
i. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
ii. Satin Stainless Steel: BHMA 630.

CONSTRUCTION REQUIREMENTS

1. Laminate shall be applied to interior casework using contact cement; spray adhesive is not permitted.
2. Assemble cabinets and complete fabrication at Project site to the extent that it was not completed in the shop.
3. Install cabinets level, plumb, true, and straight. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8-inch in 96 inches.

WALL PROTECTION

GENERAL REQUIREMENTS

1. Provide wood or vinyl chair rails around the perimeter of classrooms.
2. Coordinate installation height with the selected classroom chair to ensure proper protection.

PLASTIC LUMBER

GENERAL REQUIREMENTS

1. Plastic Lumber: Manufactured lumber and shapes created by melt processing. The lumber and shapes shall be manufactured from any resin or blend of resins with added compounding materials.
   a. Solid sections
   b. Hollow sections
2. Composite Lumber: Plastic composite lumber and shapes containing non-plastic filler, typically wood or cellulose fiber.
3. Reinforced Plastic Lumber: Plastic lumber containing an inner core of structural material
4. Plastic lumber shall not be painted.

THERMAL INSULATION

MATERIAL REQUIREMENTS

1. Thermal Batt Insulation: Pre-cut flexible panels used to insulate walls, ceilings, and floors.
   a. Formaldehyde-free fiberglass batts: Manufactured with low-toxicity acrylic resin.
   b. Standard glass fiber: Minimum 15% post-consumer recycled content and 30% total recycled content.
   c. Mineral wool (rock wool): Minimum 75% post-industrial metallurgical slag.
2. Rigid Board Insulation: Dense, stiff panels used for thermal insulation in walls, roofs, and below-grade applications.
   a. Cellular glass foam: Inert, non-toxic, and suitable for below-grade applications.
3. Damp Spray-Applied Cellulose Insulation: Wet-applied cellulose insulation for vertical surfaces, providing excellent thermal performance and soundproofing.
   a. Cellulose: Made from 80% post-consumer recycled paper, treated with borate for fire resistance.
   b. Mineral wool: Contains 60% post-industrial recycled content (slag), offering high fire and sound resistance.
4. Loose-Fill Insulation: Blown-in insulation ideal for irregularly shaped spaces and hard-to-reach areas.
   a. Mineral wool: Made with 60% post-industrial recycled content, providing excellent fire and thermal performance.
   b. Cellulose: Composed of 80% post-consumer recycled paper, suitable for filling wall and ceiling cavities with netting support.
   c. Foamed-in-Place Insulation:
      i. Silicate Foam: An inorganic material made with a cementitious stabilizer (magnesium oxide), a microscopic cell generator, and a catalyst, providing excellent fire resistance and thermal performance.
5. Continuous Board Insulation: Rigid panels installed continuously over structural elements to eliminate thermal bridging and improve energy efficiency.
   a. Polyisocyanurate (Polyiso): High thermal resistance with foil-facing to enhance energy efficiency.
   b. Extruded Polystyrene (XPS): Durable and moisture-resistant, suitable for foundation walls and roofs.
   c. Expanded Polystyrene (EPS): Lightweight, cost-effective insulation with moderate thermal performance.

ROOFING (NEW & RE-ROOF)

GENERAL REQUIREMENTS

1. Conduct roof scans for all replacement projects to identify damaged insulation; replace as needed before re-roofing.
2. All re-roofing bids will provide for the contractor to complete a pull test of the roof that is to be bid. It is the roof contractor's responsibility to ascertain the condition of the light weight under the existing roof before a bid is submitted. If the roof contractor pull test shows that the light weight is in poor condition, it will be noted in the bid with a cost to resolve the problem.
3. Manufacturer shall review roofing details and existing conditions to properly select roof assembly prior to DSA approval.
4. At roofs that will not be entirely replaced, provide patch and repair with matching material of existing roof.

DESIGN REQUIREMENTS

1. Roof Drainage and Slope
   a. Minimum roof slope of ½" : 1'.
   b. Drainage systems to direct water to bioswales, detention/retention cisterns, and/or the building's recycled water system.

   c. Overflow roof drains must:
      i. Be no more than 2 inches above roof drains.
      ii. Discharge through exposed scuppers or downspouts spilling into the landscape.
      iii. Avoid overflow roof drains near entrance doors.
      iv. Overflow drains must daylight and not tie into the storm drain system.
2. Roof Tie-Ins and Flashings
   a. All roof tie-ins must extend at least 24 inches into the existing roof.
   b. New roof curbs to be a minimum of 8 inches high.
   c. Clerestory window sills, roof penetrations, and equipment supports to be at least 12 inches above finished roofing.
   d. Roof penetrations shall be located minimum 3 feet from parapets.
3. Roof Hatches
   a. Minimum size: 30 inches x 36 inches with interior padlock provisions.
   b. Include looping handrails mounted to the roof hatch curb with self-closing swing gate.
   c. Maintain a minimum of 10 feet separation from exterior walls.
   d. Fixed ladders over 20 feet require a personal fall arrest system or a ladder safety system.
4. Mechanical Equipment and Screening
   a. Provide architectural screening for visible roof-mounted mechanical equipment with consideration for future re-roofing and waterproofing.
5. Additional Design Criteria
   a. Replace all roof drains during re-roofing.
   b. Replace sheet metal pans and flashings under HVAC units, covering them with a cap sheet before reattaching HVAC equipment.
   c. 42-inch parapets are preferred. Roofs without parapets require District approval.
   d. For roofs without parapets, provide fall protection per OSHA compliant fall arrest measures including tie off anchors.
   e. For roofs without parapets or with parapets lower than 42" above finished roof, provide a red warning line six foot from roof edge around the perimeter of the roof to provide a visual boundary for workers and enhance fall protection awareness. This marking must be high-contrast and durable, ensuring visibility in all conditions. Additionally provide text every fifty feet, "DO NOT CROSS BEYOND LINE WITHOUT TIE OFF"
   f. Integrated crickets with tapered insulation; coordinate layout with manufacturer.
   g. Pitch pockets are not allowed.
   h. Provide 5-foot-high roof identification letters on each building, applied using stenciled paint or contrasting roofing material, in a color clearly visible from the air.
   i. All roof access points shall be securely locked and restricted to authorized personnel only, with access controlled through keyed or electronic entry systems to prevent unauthorized entry and ensure site security.

MATERIAL REQUIREMENTS

1. Roof System
   a. The Garland Company, Inc. Or equal.
   b. Two-ply SBS Modified system with:
      i. Base (Ply) Sheet: 80 mil SBS-modified base sheet set in ultra-low odor / VOC interply moisture-cured polymer adhesive per manufacturer application guidelines.
      ii. Modified Cap (Ply) Sheet: 155 mil SBS-modified cap sheet set in ultra-low odor / VOC interply moisture-cured polymer adhesive per manufacturer application guidelines.

iii. Interply Adhesive: Cold applied solvent free membrane adhesive

c. For visible roofs near adjacent buildings, use flood and gravel surfacing with ultra-low odor / VOC moisture-cured polymer adhesive per manufacturer application guidelines and 3/8" aggregate.

2. Roof Surfacing
   a. Reflective urethane-acrylic coating applied after 30-day cure time per manufacturer application guidelines.
3. Insulation and Protection
   a. Rosin paper. (wood decks only)
   b. Nailable Type II base sheet (LWIC decks only)
   c. R30 polyisocyanurate insulation, mechanically attached or fully adhered in low-rise polyurethane foam adhesive per manufacturer provided ASCE 7-16 wind uplift calculations.
   d. 1/2" rigid DensDeck or Securock coverboard, mechanically attached or fully adhered in low-rise polyurethane foam adhesive per manufacturer provided ASCE 7-16 wind uplift calculations.
4. Warranties
   a. 30-year NDL (No Dollar Limit) warranty for labor and materials.
   b. 5-year roofing installer warranty to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.

CONSTRUCTION REQUIREMENTS

1. Preconstruction meeting
   a. Hold a meeting to confirm project scope and execution plan.
2. Manufacturer Oversight
   a. Manufacturer of the roofing system shall perform QA inspections a minimum 3x weekly during construction. Field inspections shall be performed by a Representative employed full-time by the Manufacturer and whose primary job description is to assist, inspect, and approve membrane installation for the Manufacturer. Independent, third party reps do not qualify. Provide observation reports a minimum 3x per week to the Architect and Owner indicating procedures followed, weather conditions and any discrepancies found during inspection.
3. Roofs shall be flood tested upon completion.
4. Final Walkthrough
   a. Conduct a walkthrough with a punch list and generate a final report.

EXTERIOR SOLID PHENOLIC PANELS

MATERIAL REQUIREMENTS

1. 8mm solid phenolic panel.
2. Concealed bracket and rail components using extruded aluminum profiles, clips, closure, and tees attached to metal striping.

SHEET METAL FLASHING AND TRIM

GENERAL REQUIREMENTS

1. Materials and workmanship shall be per SMACNA requirements.
2. Fasteners must be installed into studs.

MATERIAL REQUIREMENTS

1. Pre-finished Aluminum Sheet: Provide 0.063 inch pre-finished aluminum sheet, ASTM B92,consisting of 70%

Kynar 500/Hylar 5000 flouropolymer resin. Color selected by Architect from full range of standard and exotic colors. Confirm coating at coastal zones.

2. Provide fabricated Kynar 500 prefinished aluminum wall and soffit panels per drawings, minimum .063" thickness. Confirm coating at coastal zones.

ROOF ACCESSORIES

GENERAL REQUIREMENTS

1. Roof Hatch: Metal roof-hatch units with lids and insulated single -walled curbs, welded or mechanically fastened and sealed corner joints, continuous lid-to-curb counterflashing and weathertight perimeter gasketing, and integrally formed deck-mounting flange at perimeter bottom.
   a. Type and Size: Single-leaf lid, 30 by 36 inches.
   b. Safety Railing System: Roof-hatch manufacturer's standard system including rails, clamps, fasteners, safety barrier at railing opening, and accessories required for a complete installation; attached to roof hatch and complying with 29 CFR 1910.23. Safety rails must be anchored into the building structure, such as beams, joists, or into backing or blocking,
   c. Ladder-Assist Post: Roof-hatch manufacturer's standard device for attachment to roof-access ladder.
   d. Fall Arrest: For ladders greater than 20 feet provide fall arrest system kit.

JOINT SEALANTS

MATERIAL REQUIREMENTS

1. Provide joint sealants for the following applications, in colors to match adjacent surfaces.
   a. Type 1: Unless noted otherwise, at exterior openings, joints, material transitions, bedding, and other conditions where anticipated joint movement will be plus/minus 25% or less: DOWSIL 795, Pecora 895, Tremco Tremsil 600, or equal.
   b. Type 2: At all exposed metal to metal wall and roof flashing conditions, all exposed prefinished metal roofing and flashing conditions; storefront perimeter conditions, and all other conditions where anticipated joint movement will be plus/minus 25 - 50%.: DOWSIL 795, GE Silicones Silglaze II, or equal.
   c. Type 3: At horizontal concrete paving joints exposed to pedestrian and vehicular traffic, and all joints subject to immersion: Pecora DynaTred, Mameco Vulkem 227, Sonneborn NP2, or equal.
   d. Type 4: Exterior application in conjunction with wood products: Tremco Dymonic, Sika Sikaflex-1a, Sonneborn NP1, or equal.
   e. Type 5: Pipes and conduits penetrating underground walls: Sealant compatible with waterproofing system.
   f. Type 6: Interior applications in conjunction with sanitary conditions (non-food use): General Electric Silicone Sanitary Sealant 1702, DOWSIL 786, Pecora 898 Sanitary Silicone Sealant, or equal.
   g. Type 7: Interior sound control applications: USG Sheetrock Acoustical Sealant, Pecora AC20FTR, Tremco Acoustical Sealant, or equal.

EXPANSION CONTROL

GENERAL REQUIREMENTS

1. Seismic joint covers: Provide manufactured extruded aluminum joint covers with clear anodized finish or color to match adjoining finish.
2. Movement Requirements: Provide for 50% expansion/contraction capability at all joint designs.
3. Locate seismic joints with consideration to constructability.
4. Properly detail for a watertight installation.
5. Make sure that roof and floor joint covers are coordinated with wall joint covers.

HOLLOW METAL DOORS AND FRAMES

MATERIAL REQUIREMENTS

1. Frames
   a. Exterior Frames:
      i. Metal frames, 14 gage minimum. Fully weld frames with corners mitered, reinforced, and continuously welded full depth and width of frame including faces, rabbet or rebate, and fixed stops.
   b. Interior Frames:
      i. Metal frames, 16 gage minimum, heavier if doors are wider than 3'. Continuously weld and grind smooth all corner joints and contact edges once joints are closed tight.
   c. Anchoring: Securely anchor all frames to the floor. Minimum three wall anchors on each jamb.
   d. Reinforce frames for all required hardware.
   e. Grout: Fill with mortar all metal door frames in masonry walls.
2. Steel Doors:
   a. Type: Flush, Hollow Metal, with specified core material.
   b. Material: Cold Rolled Steel per ASTM A 653, CS grade, A 60 galvanized, extra smooth.
   c. Thickness: 1-3/4 inch.
   d. Seams shall be continuously welded along the edges, then ground and filled smooth so they are invisible.
   e. Inverted channel at top and bottom.

FLUSH WOOD DOORS

GENERAL REQUIREMENTS

1. All wood based products shall be "FSC Certified Wood" sources certified by the Forest Stewardship Council unless approved by the District Architect. Provide certification and chain of custody documentation from the manufacturer.
2. Wood doors are for interior applications only.

MATERIAL REQUIREMENTS

1. Door Manufacturers: Subject to compliance with requirements, doors may be provided by::
   a. Algoma Hardwoods, Inc.
   b. Eggers Industries.
   c. Graham Wood Doors; ASSA ABLOY Group.
   d. Haley Brothers, Inc.
   e. Masonite.
   f. or District Approved Equal.
2. Doors shall comply WI premium grade, type a, 5 ply construction. Provide solid core doors, particle board or mineral core as required for rating. Finish as selected by architect.
   a. Non-Rated Wood Doors:
      i. Type: Flush face, solid core, with vision glass or louvers where required.
   b. Fire-Rated Wood Doors:
      i. Type: Fire-Rated, Flush face, mat formed particle board core, with vision glass, louvers or transom panel where required.

CONSTRUCTION REQUIREMENTS

1. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

DOOR HARDWARE

GENERAL REQUIREMENTS

1. Design professionals should comply with current applicable codes:
   a. Refer to UBC, CBC, and NFPA sections that apply to new construction or alterations.
2. Contact ALLEGION for assistance in preparing specifications for doors and frames, door hardware, and access control hardware.
3. Incorporate Universal Design strategies that relate to ADA access.
4. Coordinate with fire life safety drawings:
   a. Coordinate with design professional to determine egress path of travel to specify panic hardware.
5. Coordinate with security drawings:
   a. Door hardware selection should be selected with consideration with security drawings.
6. Door ratings:
   a. Refer to construction drawings and coordinate door ratings with wall ratings as required by applicable codes.
7. Verify that all door hardware is ADA compliant:
   a. Avoid using any hardware component that requires that users apply tight pinching or grasping.
   b. Use accessible door handles that are lever-type and push-pull handles.
   c. Install automatic openers where applicable.
   d. Door pressures to be adjusted to 5 pounds, with exceptions, for exterior pressure and no more than 5 pounds for interior restroom doors.
8. Door widths:
   a. Minimum door width is 32 inches.
9. Door threshold:
   a. Maximum allowable change in elevation at a door threshold is 1/4” vertical rise or a beveled 1/2”.
10. Door swing:
    a. Door swing should not encroach into a clear floor space unless applicable codes allow such movement.

DESIGN REQUIREMENTS

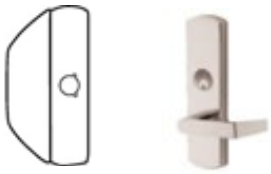
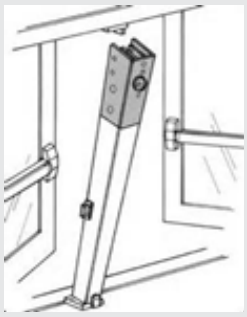
1. Door hardware shall comply with owner hardware standards.
2. To determine how the building should be keyed and how many keys are required for each door the contractor needs to set up a meeting with the Campus Project Manger and the individual responsible for keying at each campus. The keying hierarchy then needs to be submitted to the District Locksmith.
3. The District Locksmith will review key hierarchy to determine its compatibility with the site master key system.
4. Provide Hotel privacy function locks at staff single-stall restroom doors. Use Sargent KP8200.
5. Specify gate hardware for site gates, panic devices, and overhead closers. Gates should include overhead frame rail to mount closer on.
6. All classroom door hardware shall include intruder function and must be lockable from the inside.
7. Recessed floor closers shall not be used.

CONSTRUCTION REQUIREMENTS

1. The District Locksmith will order the required cores and stamp keys from Stanley Best using the appropriate budget code. Orders will take up to 4 weeks.
2. District Locksmith will provide the keys and cores to the contractor.
3. The contractor must submit the control keys and master keys to the District Locksmith after the building is completed or the District will withhold $10,000 from the contractors payment request.

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
KEY SYSTEM CYLINDERS	**GENERAL**	Consult campus locksmith, Chris White & Michale Arizala for keying instructions. End user owner managed BEST TC SFIC Key system. All future projects SCH SFIC 29R Factory Managed City college currently using SCH SFIC 29R Factory Managed Permanent cores to be supplied and delivered directly to lockshop for projects. Temporary cores are to be installed and removed by the general contractor.		
PADLCOK	**GENERAL**	Abus 83/45 SFIC Prep		
DEADBOLT	**GENERAL**	Schlage B660J Acceptable BEST QDB 100 Series	Where applicable	
HINGES	**EXTERIOR**	IVES 112HD-Continuous geared aluminum hinges	IVES 112HD-Continuous geared aluminum hinges	

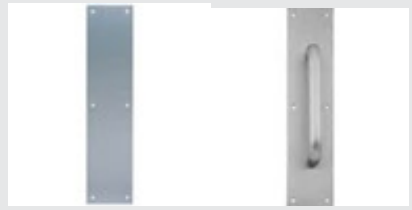
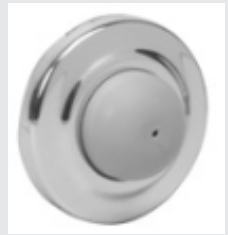
HINGES	**Exterior Electrified Hardware**	IVES 112HD – EPT Continuous geared aluminum hinges	Aluminum storefront, Curtainwall and/or high frequency/high use doors	
	Exterior	IVES Continuous geared aluminum hinges.	Hollow metal and/or high frequency/high use doors	
	Exterior Electrified Hardware	IVES 112HD – EPT Continuous geared aluminum hinges.	Hollow metal and/or high frequency/high use doors	
	Interior	IVES 5BB1	5 Knuckle Hinges 4.5x 4.5 (4.5 x 4 not approved) NRP	
	Interior Electrified Hardware	IVES 5BB1 TW4	Electrified 5 Knuckle 4.5x 4.5 (4.5 x 4 not approved) NRP	

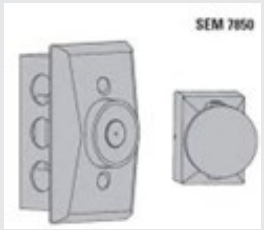
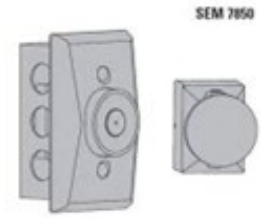
EXIT DEVICES	**Exterior/ Interior**	VON DUPRIN CD-AX99 Series CDSI (non-rated doors) 2SI (rated doors) Devices acceptable	Rim devices only. Mullions at paired doors. Unit requires a standard. 1 1/4" Mortise cylinder with straight cam- to be inverted. (Schlage Cam B502-191 reference). Thumb Turns in place of cylinders on classrooms. Indicators not to be installed on electronic exit devices.	**Cylinder Dogging**  **Classroom Security Indicators (CDSI/25I)**  
ANTI-VANDAL PULLS	**Exterior**	IVES -PULL VON DUPRIN LEVER	Ives VR900 Pull at Non-Rated Doors; 996L-F Trim at Rated	
REMOVABLE MULLIONS	**Exterior+ Interior Pairs**	VON DUPRIN KR Series with MT54 Storage Bracket Kits	Steel Removable Mullion	
CYLINDRICAL LOCKSETS	**Interior Only**	SCHLAGE ND Series Vandlgard is designed to Dis-engage outside spindle from latch when locked.	All Door Types Requiring cylindrical indication	

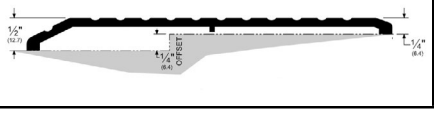
CYLINDRICAL LOCKSETS	**Interior Only**	SCHLAGE ND Series Vandlgard is designed to Dis-engage outside spindle from latch when locked.	All Door Types	
MORTISE LOCKSETS	**Exterior Only (Storerooms-Mechanical-Electrical-Custodial Rooms)** **Non-rated Doors use Holdback feature; Utilize with Deadbolt** **Interior Classroom**	SCHLAGE L9000 Series • #06 Lever • "A" Rose Series Classroom security indicator inside escutcheon (sectional/Full) Stanley Best 45H Series Acceptable	All Door Types All Door Types	 
FLOOR CLOSERS + PIVOTS	**Option for Storefront/ Curtainwall**	NONE	Heavy doors	**NONE**
CYLINDRICAL LOCKSETS	**Interior Only**	SCHLAGE ND Series Vandlgard is designed to Dis-engage outside spindle from latch when locked.	All Door Types Requiring cylindrical indication	

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
SURFACE CLOSERS	**Interior Doors**	LCN 4040 XP Series	Closer arm determined by Door function.	
SURFACE CLOSERS	**Exterior Doors**	LCN 4040 XP-EDA	All Doors	
LOW ENERGY POWER OPERATORS	**ADA Openings**	LCN Senior Swing (keyed switch SFIC)	Accessible openings or where 5-lbs. opening force cannot be achieve with mechanical closer	
COORDINATORS	**Interior Fire-rated Pair**	IVES COR Series	Pairs of doors with astragal	
MANUAL FLUSHBOLT	**Interior Non-rated Pair**	IVES Model determined by need/ condition.	Pairs of doors	

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
AUTOMATIC FLUSHBOLT	**Interior Fire-rated Wood Pair**	IVES Model determined by need/ condition.	Pairs of doors	
	Interior Fire-rated Hollow Metal Pair	IVES Model determined by need/ condition.	Pairs of doors	
DUST PROOF STRIKE	**Pairs of Doors with bottom flush bolt**	IVES DP1/2 AS REQ'D	Doors with Bottom Bolts	
ENTRANCE PULLS	**Ext. Doors– Decorative**	IVES 8190 Offset Series	HM/ WD/ Alum Doors	
ANTI-VANDAL PULLS	**Exterior Doors**	IVES VR 900 Series	All Door Types	

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
LATCH GUARDS	**Where needed**	IVES LG13	All Door Types	
PUSH + PULL PLATES	**Non-rated Restroom/ Similar application**	IVES Push Plate – 8200 Series Pull Plate – 8300 Series	All Door Types	
KICKPLATES	**Doors with Closers**	IVES 8400 Series	Install on push side 10” x 2” LDW (Less Door Width)	
FLOOR STOPS	**Exterior**	IVES FS18	All Door Types	
	Interior	IVES FS17 Series	All Door Types (Do not locate in walkways to avoid trip hazard.)	
WALL STOPS	**Restroom**	IVES WS406	All Door Types	

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
OVERHEAD STOP/ HOLDERS	**Interior/ Exterior Concealed**	Glynn-Johnson 100 Series	Where floor or wall stop not applicable	
	Hold-open Fire-rated Doors	LCN SEM 7800 Series	Doors requiring automatic closing	
ELECTRO-MAGNETIC HOLDERS	**General**	LCN SEM 7800 Series	Single occupant toilet rooms and offices	
SILENCERS	**General**	IVES SR64	Door Frames	
FLAT ASTRAGAL	**General**	ZERO, PEMKO		
MEETING	**Exterior**	ZERO, PEMKO		
STILE SPLIT ASTRAGALS	**Pairs**			
MULLION SEAL	**Exterior**	NONE	NONE	NONE

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
HEAD + JAMB SEALS	**Interior**	ZERO 328A or 8303A PEMKO	Surface Applied	
	Interior Sound Doors	ZERO PEMKO	STC Rating and Sound Insulation	
AUTOMATIC DOOR BOTTOMS		ZERO PEMKO	Surface Applied	
DOOR SWEEPS		ZERO PEMKO	Surface Applied	
DOOR BOTTOMS	**General**	ZERO PEMKO	As Needed	
SADDLE THRESHOLD OR ASSEMBLIES	**Exterior**	ZERO PEMKO	Based on Condition	

Gates should be prepared to SFIC removable core

ACCESS CONTROL HARDWARE

GENERAL REQUIREMENTS

1. Campus facilities personnel are trained in the installation and maintenance of the material listed below.
2. The facilities department owns considerable stock of the material for repair work.
3. The campus has standardized on the following brands and is not prepared to accommodate the adoption of any additional hardware.
4. Provide access control at elevators.

HARDWARE TYPE	USE	DESCRIPTION		CATALOG CUTS
ELECTRONIC ACCESS CONTROL	**Exterior/ Interior (as required)**	Lenel	All Door Types	

GLAZING SYSTEMS

GENERAL REQUIREMENTS

1. Provide 1" nominal thickness insulating glass units (IGUs) consisting of two fully tempered 1/4" lites (clear or low-e, as required), with 0.5" sealed airspace. Glass must be fabricated and labeled in accordance with ASTM E2190, CPSC 16 CFR 1201, and ANSI Z97.1.
2. Performance Values:
   a. Visible Light Transmittance (VLT): 64%
   b. U-Factor (Winter/Night): 0.28 (NFRC)
   c. U-Factor (Summer/Day): 0.26 (NFRC)
   d. Solar Heat Gain Coefficient (SHGC): 0.27 (NFRC)
   e. Shading Coefficient (SC): 0.32
3. Provide thermal breaks for metal framed windows. Specify durable, factory-applied finishes: anodized, polyvinylidene fluoride (Kynar), Siliconized polyester.
4. Provide 4-mil clear anti-graffiti window film, such as SunTek Window Films or equal, applied to all exterior glazing within 8' of finished grade or walking surface. Extend material to the first vertical mullion or 8' above finished floor. Films shall be scratch-resistant, UV-resistant, optically clear, and installed per manufacturer guidelines. Provide minimum 5-year warranty on film and installation.

GLAZING ACCESS & FACADE MAINTENANCE REQUIREMENTS

Design professionals shall ensure safe and practical access for cleaning and maintenance of all glazing. The design must:

1. Provide safe access points for cleaning crews, ensuring all glazing can be reached without excessive risk. Incorporate maintenance strategies such as integrated tie-off points, or designated access routes for exterior glazing.
2. Avoid inaccessible glazing by considering window placement, operability, and accessibility from both interior and exterior spaces.

FACADE ACCESS & OSHA COMPLIANCE

1. All façade maintenance and access systems must comply with OSHA 29 CFR 1910 and 29 CFR 1926 Subpart M for fall protection.
2. Where applicable, provide Permanent Anchor Systems and Tie-Off Points in accordance with an OPOS (Operating Procedures Outline Sheet) plan, ensuring long-term safety for maintenance personnel.
3. If exterior glazing or façade elements exceed 35 feet in height, integrate building maintenance units (BMUs), davits, or engineered tie-back anchors to facilitate periodic cleaning and inspections.
4. Design professional shall consider access for cleaning of glazing. Provide access to cleaning crews and confirm all glazing can be reached for cleaning and maintenance.

PORTLAND CEMENT PLASTERING

DESIGN REQUIREMENTS

1. Follow the Plaster and Lathing Systems Manual by the National Association of Architectural Metal Manufacturers for additional guidance.
2. While Portland Cement Plaster cracking cannot be completely eliminated, proper detailing and installation can significantly reduce it.
3. Lath Selection:
   a. Use wire mesh or self-furring metal lath that meets California Building Code (CBC) requirements. Do NOT use expanded metal lath, even where permitted by code, due to long-term cracking risk and corrosion susceptibility.
4. Substrate Considerations:
   a. Do not apply stucco directly over masonry.
   b. Where permitted by code, use plywood or Exterior Sheathing beneath lath and plaster.
5. Exterior Insulation and Finish Systems (EIFS) are not permitted.

APPLICATION AND INSTALLATION REQUIREMENTS

1. Plaster Thickness:
   a. Exterior walls: Minimum 7/8-inch thickness.
   b. Interior walls and soffits: Minimum 3/4-inch thickness.
2. Drying & Curing Times:
   a. Scratch coat: Minimum 7 days drying time.
   b. Brown coat: 3-5 days drying time.
   c. Finish coat: 28 days curing time before painting.
3. Control & Expansion Joints:
   a. Exterior panels should not exceed 144 sq. ft., with no dimension exceeding 18 feet or a length-to-width ratio of 2.5:1.
   b. Panels should be as square as possible within joint boundaries.
   c. Lath must be broken at expansion joints to prevent cracking.
   d. Provide expansion joints at perimeters and edges of plaster membranes where movement would otherwise be restricted.
   e. Align expansion joints with architectural elements and follow a modular spacing approach.
   f. Expansion screeds must be included where structural system changes or dissimilar substrates occur. Show all control and expansion joints on contract drawings.
4. Weep Screed Requirements:
   a. Galvanized steel weep screeds (ASTM C1063) at the base of all exterior walls, minimum 4 inches above adjacent soil or 2 inches above paved surfaces.
5. Integral Color Finish Coat:
   a. Can be used in place of painting but has a shorter life cycle and will require repainting in the future.
   b. Must be applied at a minimum thickness of 1/8 inch.
6. Surface Texture:
   a. Avoid smooth troweled finishes. These finishes are prone to crazing and telegraphing of substrate movement.
   b. Use medium or float finishes for exterior cement plaster.
   c. Do not use heavy texture finishes.
7. Mock-ups: Require onsite mock-ups of lath, control joints, finishes, and color samples for approval by Architect and District.

GYPSUM BOARD

DESIGN REQUIREMENTS

1. Acoustical Performance & Sound Transmission
   a. Sound Transmission Classification (STC) must be evaluated for each space to enhance speech privacy and noise control.
2. Requirements.
   a. Private Offices:
      i. STC 45–50
      ii. Maximum 25–30 dB transmitted (loud speech faint, normal speech inaudible)
   b. Conference Rooms:
      i. STC 50–55
      ii. Maximum 20–25 dB transmitted (loud speech barely audible, high confidentiality)
   c. Classrooms:
      i. STC 45–50
      ii. Maximum 25–30 dB transmitted (normal conversation muffled or unintelligible)
   d. Laboratories:
      i. STC 50–55
      ii. Maximum 20–25 dB transmitted (equipment and speech sounds minimized)
   e. Mechanical/Electrical Rooms Adjacent to Occupied Spaces:
      i. STC 55+
      ii. Maximum 15–20 dB transmitted (equipment noise substantially isolated)
   f. Corridors Adjacent to Offices/Classrooms:
      i. STC 40–45
      ii. Maximum 30–35 dB transmitted (speech audible but unintelligible, reduced hallway noise)

MATERIAL REQUIREMENTS

1. Gypsum Board:
   a. Non-Rated Wall and Ceiling Assemblies: Provide 5/8" thick drywall, as necessary, at all walls and ceilings.
   b. Rated Wall and Ceiling Assemblies: Provide 5/8" thick drywall, Type X as necessary, at all walls and ceilings.
   c. Moisture Resistant: Paperless Interior Drywall, purple board. Green board is NOT allowed.
2. Shaftwall Board: 1 inch thick. Provide 1 hour rated wall system at all shafts.
3. Where required to meet STC ratings of 50 or above, use enhanced acoustic gypsum board such as QuietRock 510 or approved equal.

APPLICATION AND INSTALLATION REQUIREMENTS

1. Gypsum Board Finishes:
   a. Provide smooth Level 4 at all surfaces designated as painted. Provide taped joints at all concealed surfaces. Provide smooth Level 5 finish at surfaces with vinyl wall covering.

TILING

DESIGN REQUIREMENTS

1. Conform to TCA Handbook for Ceramic Tile Installation methods.
2. ANSI A137.1 slip resistance (DCOF ≥ 0.42 for wet areas).
3. Toilet Rooms: Full mortar set, with floor sloped to drains.

MATERIAL REQUIREMENTS

1. Tile Types:
   a. Ceramic tile.
   b. Porcelain tile.
   c. Stone tile.
2. Tile Sizing & Grout Requirements:
   a. Floors: 8"x8" minimum tile size, dark grout.
   b. Walls: 12"x12" minimum tile size, dark grout.
3. Backer Board:
   a. Fiberglass-mat gypsum tile backer board.
   b. Cement backer bard.
4. Cement Mortar (All options must be Zero-VOC):
   a. Dry-set mortar.
   b. Latex-Portland cement mortar.
   c. Thin-set mortar.
5. Tile Adhesive:
   a. Must be water-based and low-VOC (Maximum 44 grams/liter).
6. Grout:
   a. Must be cement-based, petroleum-free, and plastic-free.
7. Sealants:
   a. Single-component polyurethane sealant: Zero-VOC.
   b. Two-component polyurethane sealant: Maximum VOC: 45 grams/liter.

APPLICATION AND INSTALLATION REQUIREMENTS

1. Meet code and industry standards for non-slip surfaces to ensure safety.
2. Tile in food preparation areas, shower and locker rooms, and other “wet” areas, shall have a smooth, easily cleanable surface which is moisture and grease resistant.

CEILINGS

DESIGN REQUIREMENTS

1. All suspension systems must be detailed and specified to meet seismic restraint requirements per California Code of Regulations (CCR) and the Division of the State Architect (DSA) regulations, which are more stringent than the California Building Code (CBC).
2. The DSA provides specific Interpretations of Regulations (IRs) for ceiling systems to ensure compliance with the California Building Code (CBC). IR 25-2: Suspended Lay-In Panel Ceilings and associated details are available for reference and use.
3. The recommended minimum ceiling height is 9 feet above the finished floor.
4. Suspended acoustical grid ceilings shall not be installed in student toilet rooms.

MATERIAL REQUIREMENTS

1. Tile Types:
   a. Fine fissured, .70 NRC, white color. (Used in classrooms and office areas)
   b. Fine fissured, scrubable, .70 NRC, white color. (Used in kitchens and other areas subject yo humidity)

2. System
    a. Use 24" x 24" or 24” x 48” acoustical panels.
    b. 15/16” heavy-duty grid for durability and performance.
    c. Anti-microbial treatment to mitigate the risk of mold growth.
    d. Acoustical panels must have zero formaldehyde emissions to maintain indoor air quality.

CARPET

DESIGN REQUIREMENTS

1. Performance Expectations:
    a. Carpet enhances comfort, acoustics, and safety in learning environments.
    b. It must meet minimum indoor air quality standards to prevent allergen accumulation, biological growth, and maintenance challenges.
2. Approved Applications:
    a. Roll Goods Carpet:
        i. Classrooms.
        ii. Multi-purpose rooms.
        iii. Common areas.
        iv. Hallways.
        v. Libraries.
        vi. Other spaces as approved.
    b. Modular Carpet Tiles:
        i. Staff/Faculty offices with modular furniture.
        ii. Access panel floors.
        iii. Flat wire and ductwork access.
        iv. Areas requiring accessibility accommodations.
        v. Other approved locations.
    c. Walk off Mats: Install permanent matting at all exterior door locations where new flooring is being installed.
        i. Single Door Entrances: 4.5' x 4.5'
        ii. Double Door Entrances: 7.5' x 9'

MATERIAL REQUIREMENTS

1. Manufacturers:
    a. Bentley.
    b. Interface.
    c. Mannington.
    d. Miliken.
    e. Mohawk.
    f. Shaw.
    g. Tarkett.
    h. Or equal.
2. Carpet shall be vinyl-cushioned tufted textile with integrated vinyl backing.
3. Sustainability and Environmental Standards:
    a. Green Label Plus Certification (CRI)
        i. Specify carpets and adhesives certified under the Green Label Plus program to ensure low VOC emissions and improved indoor air quality.

ii. Carpets must comply with California's Section 01350 Specification for emissions.
iii. All specified carpets must be ANSI ISO 17065 accredited to meet industry sustainability standards.
iv. Ensure carpets are Low-Emitting Materials.

b. Environmental Product Declarations (EPDs)
i. Require manufacturers to provide EPDs that document the carpet's lifecycle environmental impact.
ii. Ensure that EPDs comply with international standards and can be used to support green building certifications.

c. Sustainable Manufacturing Practices
i. Select carpets from manufacturers committed to reducing water and energy consumption in production.
ii. Specify carpets that support zero waste manufacturing initiatives.
iii. All carpet materials must contain recycled content wherever feasible.
iv. Include take-back and recycling programs as part of the carpet specification to ensure end-of-life recyclability.
v. Prioritize products that align with circular economy principles, minimizing landfill waste and environmental impact.

LINOLEUM FLOORING

DESIGN REQUIREMENTS

1. Linoleum Tile is recommended in all interior spaces unless carpet or other specialized floor coverings are installed i.e. wood for gyms and dance floors and ceramic tile in restrooms.
2. Rubber flooring shall not be used in any area.
3. Performance Expectations:
   a. Linoleum flooring must provide durability, sustainability, and ease of maintenance.
   b. Suitable for high-traffic areas such as classrooms and hallways.
   c. Must comply with ADA slip resistance standards while offering a comfortable, resilient surface.
   d. Flooring should have low VOC emissions.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. Forbo.
   b. Gerflor.
   c. Tarkett.
   d. Or equal.

EPOXY FLOORING

DESIGN REQUIREMENTS

1. Epoxy flooring must provide high durability, chemical resistance, and ease of maintenance.
2. The system should ensure seamless installation, preventing moisture infiltration, bacterial growth, and cracking.
3. Suitable for high-traffic areas and industrial environments.
4. Must comply with ADA slip resistance standards and offer impact resistance for long-term performance.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. Dexo-O-Tex.
   b. Diamondstone.
   c. Stonhard.
   d. Or equal.
2. Composition:
   a. 100% solids epoxy resin with no VOCs.
   b. Multi-layer system with primer, base coat, and topcoat for added protection.
   c. Quartz aggregate or slip-resistant additives for enhanced safety.

TERRAZZO FLOORING

DESIGN REQUIREMENTS

1. Terrazzo flooring must provide high durability, low maintenance, and aesthetic appeal.
2. The system should be seamless, non-porous, and resistant to moisture and bacterial growth.
3. Must comply with ADA slip resistance standards while maintaining a polished, decorative surface.

MATERIAL REQUIREMENTS

1. Composition:
   a. Cementitious or epoxy-based terrazzo system, as per project requirements.
   b. Marble, quartz, granite, or recycled glass aggregates for decorative and durable finishes.
   c. Divider strips made of aluminum, brass, or zinc for design control and expansion joints.

FIBER-REINFORCED PLASTIC (FRP)

DESIGN REQUIREMENTS

1. Fiber-reinforced plastic (FRP) panels must provide high durability, impact resistance, and ease of maintenance.
2. The system should be moisture-resistant, non-porous, and resistant to mold and bacterial growth, making it ideal for high-humidity and high-traffic environments.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. Crane Composites.
   b. Marlite.
   c. Nudo Products.
   d. Or equal.
2. Composition:
   a. Made of fiberglass-reinforced polymer resin with an embossed or smooth surface.
   b. Available in standard thicknesses (typically 0.090" – 0.125").
   c. Pre-fabricated FRP trim moldings for joints, corners, and edges to ensure a clean finish.
   d. Pre-finished surface resistant to stains, scratches, and chemicals.

EXTERIOR PAINT

DESIGN REQUIREMENTS

1. The design professional shall review and confirm recommended paint types, ensure product availability, and specify paints that align with project design requirements and environmental conditions.
2. Follow campus standard exterior color palettes and obtain campus approval.
3. Follow San Diego regional air quality requirements.

SYSTEM REQUIREMENTS

1. Coating System:
   a. Apply a minimum of three coats: one primer coat and two finish coats (or additional coats as required for complete coverage, ensuring no streaking or holidays).
2. Metal Surfaces:
   a. Galvanized Metal: Apply two coats of architectural-grade acrylic enamel over a galvanized metal primer.
   b. Primed Metal: Apply two coats of architectural-grade acrylic enamel over factory-applied primer, as specified. Hollow Metal Frames & Doors: Apply two coats of semi-gloss 100% acrylic over an alkyd enamel primer.
3. Exterior Plaster:
   a. Apply two coats of flat acrylic paint over a primer coat for optimal coverage and longevity.
   b. Color integral exterior cement plaster stucco finish shall be used in conjunction with paint finish. Color plaster finish coat shall be a minimum of 1/8 inch thick.
4. Weather Resistance:
   a. Paint and coatings shall be weather-resistant, UV-resistant, and formulated for high-performance exterior applications.
5. Anti-Graffiti Coating:
   a. Provide anti-graffiti coating on concrete block, brick, and cast in place concrete to surfaces up to 10' above grade.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. PPG Industries.
   b. Sherwin-Williams Company.
   c. Vista Paint Corporation.
   d. Dunn-Edwards Paints.
   e. Or equal.
2. Block Fillers (Exterior Latex Block Filler). For porous masonry and concrete surfaces, use a high-performance exterior latex block filler:
   a. Dunn-Edwards: SBSL00 - Smooth Bloc-Fil Select.
   b. PPG: SPEEDHIDE® Interior/Exterior Masonry Latex Block Filler 6-15XI.
   c. Sherwin-Williams: PrepRite B25W25 Block Filler.
   d. Vista Paint: 40 Block Kote.
3. Primers & Sealers
   a. Concrete & Masonry Alkali-Resistant Primer. For priming masonry, stucco, and concrete surfaces, use:
      i. Dunn-Edwards: ESPR00 Eff-Stop Premium.
      ii. PPG: Perma-Crete Interior/Exterior Alkali Resistant Primer 4-603XI.
      iii. Sherwin-Williams: Loxon Primer A24W8300.
      iv. Vista Paint: 4600 Uniprime.

   b. Acrylic Bonding Primer (For Previously Painted or Glossy Surfaces). For previously painted or glossy substrates, use:
      i. Dunn-Edwards: SLPR00 Super-Loc.
      ii. PPG: Seal Grip Interior/Exterior Acrylic Universal Primer/Sealer, 17-921XI.
      iii. Sherwin-Williams: PrepRite ProBlock B51W8020.
      iv. Vista Paint: 4000 Uniprime.
4. Metal Primers
   a. Acrylic Ferrous Metal Primer. For steel and other ferrous metals, use:
      i. Dunn-Edwards: ENPR00 EnduraPrime.
      ii. PPG: Pitt Tech Plus 4020PF Primer.
      iii. Sherwin-Williams: ProCryl B66.
      iv. Vista Paint: 4800 Metal Pro Acrylic Primer.
   b. Acrylic Galvanized & Non-Ferrous Metal Waterborne Primer
      (Galvanized metal must be acid-etched with the manufacturer's recommended phosphoric acid solution and rinsed before priming.)
      i. Dunn-Edwards: ULGM00 UltraShield Galvanized Metal Primer.
      ii. PPG: Pitt Tech Plus 4020PF Primer.
      iii. Sherwin-Williams: ProCryl B66.
      iv. Vista Paint: 4800 Metal Pro Acrylic Primer.
5. Wood Primers (Exterior Latex Wood Primer). For wood surfaces, use:
   a. Dunn-Edwards: EZPR00 EZ-Prime Premium.
   b. PPG: Seal Grip Interior/Exterior Stain-Killing Primer 17-921.
   c. Sherwin-Williams: PrepRite ProBlock B51W8020.
   d. Vista Paint: 4200 Terminator.
6. Exterior Latex Paints
   a. Exterior Acrylic Latex (Semi-Gloss Finish). For trim, doors, and other surfaces requiring a durable, semi-gloss finish:
      i. Dunn-Edwards: SSHL50 Sparta Shield Semi-Gloss.
      ii. PPG: 4216 HP Series Pitt-Tech Plus DTM Semi-Gloss.
      iii. Sherwin-Williams: ProIndustrial DTM Acrylic Semi-Gloss B66-1150.
      iv. Vista Paint: 8400 Carefree.
   b. Exterior Acrylic Latex (Gloss Finish). For applications requiring a higher-gloss finish, use:
      i. Dunn-Edwards: SSHL60 Sparta Shield Gloss.
      ii. PPG: 4216 HP Pitt-Tech Plus DTM Gloss.
      iii. Sherwin-Williams: ProIndustrial DTM Acrylic Gloss, B66-1050.
      iv. Vista Paint: 8500 Carefree Gloss.

INTERIOR PAINT

DESIGN REQUIREMENTS

1. The design professional shall review and confirm recommended paint types, ensure product availability, and specify paints that align with project design requirements and environmental conditions.
2. Follow campus standard exterior color palettes and obtain campus approval.
3. Follow San Diego regional air quality requirements.

SYSTEM REQUIREMENTS

1. Coating System:
   a. Apply a minimum of three coats: one primer coat and two finish coats (or additional coats as needed to ensure complete, uniform coverage, free from streaking or holidays).
2. Interior Drywall Surfaces:
   a. Confirm that gypsum wall finish is at least a Level 4 finish. Provide Level 5 finish at high traffic areas like lobbies and corridors.
   b. Unless noted otherwise, apply two coats of eggshell acrylic latex paint over a primer coat.
   c. Paint Finishes by Space Type:
      i. Hallways: low sheen.
      ii. Classroom/general: eggshell.
      iii. Office: eggshell.
      iv. Kitchen: semi gloss.
      v. Restrooms/custodial/locker: semi gloss.
3. Metal Surfaces:
   a. Hollow Metal Frames & Doors: Apply two coats of semi-gloss 100% acrylic over an alkyd enamel primer for durability and a smooth finish.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. PPG Industries.
   b. Sherwin-Williams Company.
   c. Vista Paint Corporation.
   d. Dunn-Edwards Paints.
   e. Or equal.
2. Block Fillers (Interior/Exterior Latex Block Filler)For porous masonry and concrete surfaces, use a high-performance block filler:
   a. Dunn-Edwards: SBSL00 Smooth Bloc-Fil Select.
   b. PPG: 6-4900 XI Speedhide Zero Interior Zero VOC Latex Sealer.
   c. Sherwin-Williams: B25W25 Block Filler.
   d. Vista Paint: 40 Block Kote.
3. Primers & Sealers
   a. Interior Latex Primer/Sealer for Gypsum Board. For priming new or previously unpainted drywall, use:
      i. Dunn-Edwards: VNSL00 Vinylastic Select.
      ii. PPG: 6-4900 XI Speedhide Zero Interior Zero VOC Latex Sealer.
      iii. Sherwin-Williams: ProMar 200 Zero VOC Primer, B28W2600.
      iv. Vista Paint: 5000 V-Pro Primer.
   b. Interior Latex Primer/Sealer for Concrete, Plaster & Porous Surfaces. For high-adhesion priming of porous surfaces, use:
      i. Dunn-Edwards: UGPR00 Ultra-Grip Premium.
      ii. PPG: Seal Grip Interior/Exterior Acrylic Universal Primer/Sealer 17-921XI.
      iii. Sherwin-Williams: Prep Rite ProBlock B51W8020.
      iv. Vista Paint: 4000 Uniprime.
   c. Wood-Knot Sealer
      i. Use a manufacturer-approved sealer for wood surfaces to prevent knot bleed-through in painted finishes.

4. Metal Primers
   a. Acrylic Ferrous Metal Primer. For steel and iron surfaces, use:
      i. Dunn-Edwards: ENPR00 EnduraPrime.
      ii. PPG: Pitt Tech Plus 4020PF Primer.
      iii. Sherwin-Williams: ProCryl B66.
      iv. Vista Paint: 4800 Metal Primer.
   b. Acrylic Non-Ferrous Metal Primer. For aluminum and other non-ferrous metals, use:
      i. Dunn-Edwards: ENPR00 EnduraPrime.
      ii. PPG: Pitt Tech Plus 4020PF Primer.
      iii. Sherwin-Williams: ProCryl B66.
      iv. Vista Paint: 4800 Metal Pro Acrylic Primer.
   c. Non-Ferrous Metal Pretreatment. Prior to priming, clean and etch surfaces using:
      i. Dunn-Edwards: Krud Kutter Metal Clean and Etch.
      ii. PPG: Krud Kutter Metal Clean and Etch.
      iii. Sherwin-Williams: GLL Clean ‘n Etch.
      iv. Vista Paint: Jasco Prep ‘n Prime.
   d. Wood Primers (Interior Latex Wood Primer). For priming wood surfaces, use:
   e. Dunn-Edwards: DCPR00 DecoPrime.
   f. PPG: Seal Grip Interior/Exterior Stain-Killing Primer 17-921.
   g. Sherwin-Williams: Pro Block B51W8020.
   h. Vista Paint: 4000 Uniprime.
5. Interior Acrylic Latex Paints
   a. Interior Acrylic Latex (Eggshell Finish)For walls requiring a durable, washable finish:
      i. Dunn-Edwards: EVSH30 Evershield Eggshell.
      ii. PPG: 6-4310xi Speedhide Zero VOC Eggshell.
      iii. Sherwin-Williams: ProMar 200 Zero VOC Eggshell B20W2600.
      iv. Vista Paint: 8300 Carefree.
   b. Interior Acrylic Latex (Low Sheen Finish). For low-glare, smooth surface applications:
      i. Dunn-Edwards: ARSH40 Aristoshield Low Sheen.
      ii. PPG: 9-300XI PURE PERFORMANCE® Interior Latex Eggshell.
      iii. Sherwin-Williams: ProMar 200 Zero VOC Low Sheen, B24-2600.
      iv. Vista Paint: 8200 Carefree Velvasheen.
   c. Interior Acrylic Latex (Semi-Gloss Finish). For areas requiring increased durability and moisture resistance:
      i. Dunn-Edwards: EVSH50 Evershield Semi-Gloss.
      ii. PPG: 4216 HP Series Pitt-Tech Plus Interior/Exterior Semi-Gloss.
      iii. Sherwin-Williams: ProIndustrial DTM Acrylic Semi-Gloss B66-1150.
      iv. Vista Paint: 8400 Carefree.
   d. Interior Acrylic Latex (Gloss Finish). For high-wear areas requiring a glossy, durable finish:
      i. Dunn-Edwards: ASHL70 AristoShield.
      ii. PPG: 4216 HP Series Pitt-Tech Plus Interior/Exterior Gloss.
      iii. Sherwin-Williams: ProIndustrial DTM Acrylic Gloss B66-1050.
      iv. Vista Paint: 8500 Carefree.
6. Dry Fog / Fall Coatings
   a. Latex Dry Fog / Fall Paints. For high-ceiling applications in commercial and institutional settings:
      i. Dunn-Edwards: AQUA10 AQUAFALL Flat.
      ii. PPG: Speedhide Super Tech WB Interior Latex Dry Fog Flat.
      iii. Sherwin-Williams: Low VOC WB Dryfall Flat B42W81.
      iv. Vista Paint: DF12 Dry Fall.

VISUAL DISPLAY SURFACES

DESIGN REQUIREMENTS

1. Visual display surfaces must provide durability, clarity, and ease of maintenance for educational and professional environments.
2. The system should be ghost-resistant, stain-resistant, and magnetic-compatible.
3. Must accommodate dry erase markers, magnets, and additional instructional accessories.
4. Designed for high-traffic, long-term usage while maintaining a clean and professional appearance.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. Claridge Products.
   b. Or equal.
2. Product Specifications:
   a. Claridge LCS Deluxe Wallboard with 5/8" aluminum face trim, map rail, and marker rail.
   b. Steel-backed porcelain enamel writing surface, resistant to ghosting and scratches.
3. Board Construction:
   a. Porcelain-on-steel surface ensures high durability and magnetic compatibility.
   b. Low-glare finish for optimal visibility in various lighting conditions.
4. Frame & Accessories:
   a. 5/8" satin anodized aluminum frame.
   b. 2-5/8" deep marker tray with enclosed ends.
   c. Map rail with tan cork insert and one map hook per two feet of rail (minimum of 2 hooks). Angled clip hangers for secure installation.

TOILET COMPARTMENTS

DESIGN REQUIREMENTS

1. Toilet partitions must be highly durable, moisture-resistant, and impact-resistant to withstand heavy use in public and educational facilities.
2. Must be designed for privacy, ease of maintenance, and vandal resistance.
3. Must comply with ADA accessibility standards for appropriate stall dimensions and clearances.
4. Ensure secure anchorage to walls and floors for structural stability.

MATERIAL REQUIREMENTS

1. Approved Partition Materials:
   a. Solid Plastic (HDPE – High-Density Polyethylene)
   b. Stainless Steel
   c. Phenolic (Compact Laminate)
2. Partition Dimensions & Layout:
   a. Minimum 33” clear inside stall width (District standard).
   b. Floor-mounted, overhead-braced partitions for enhanced stability.
   c. Provide one shelf in each restroom for user convenience.
3. Hardware & Fasteners:
   a. Concealed fasteners wherever possible for a clean appearance.
   b. Brackets and fasteners must be compatible with tile wainscot and wall systems to ensure a level and secure installation.

TOILET ACCESSORIES

GENERAL REQUIREMENTS

1. Provide theft resistant fasteners for all accessory mountings.
2. No condom dispensers shall be provided.
3. All toilet accessories shall be mounted in compliance with current CBC Chapter 11B and ADA Standards for Accessible Design, including reach ranges, operable parts, and clear floor space requirements.

PRODUCT REQUIREMENTS

1. Soap Dispensers: District Furnished, District Installed (DFDI)
   a. Wall Mounted
      i. Bobrick B-4112 Contura Series.
      ii. The container will be type 304, 20-gauge (1.0mm) stainless steel with satin finish.
      iii. Seamless construction except for the top where refilling will take place.
      iv. Provide plastic soap refill-indicator window.
      v. A hinged stainless steel lid for top filling and a minimum filling capacity of 40-fluid oz.
      vi. Valve spring should be stainless steel, stainless steel hinges, with a back plate of 22-gauge stainless steel.
      vii. Liquid soap dispensers - Motion sensor controlled(mounted accessible for filling) (hardwired - not battery)
   b. Deck Mounted: Contractor Furnished, Contractor Installed (CFCI). Contractor to coordinate counter coring and electrical connection.
      i. Bobrick B-826 with B-826-20 6V AC adapter.
      ii. Automatic touch-free sensor eliminates cross contamination. Meets Barrier-Free accessibility standards. Sensor detects user's hand to automatically dispense controlled amount (0.8ml) of soap; activation range is 4" (100mm) from sensor lens.
      iii. Reduces soap usage, waste.
      iv. Provide brushed aluminum or bright-polished chrome spout cover.
      v. Provide model with 2000 hand washes per 1600ml OneShot® soap refills. Soap refills available from sanitary supply distributors.
      vi. Red LED light blinks when soap refill is low. Yellow LED light blinks when battery life is low (average battery life 100 soap refills or 2 years). Water-resistant battery compartment and motor housing.
      vii. Mount transformer under countertop.

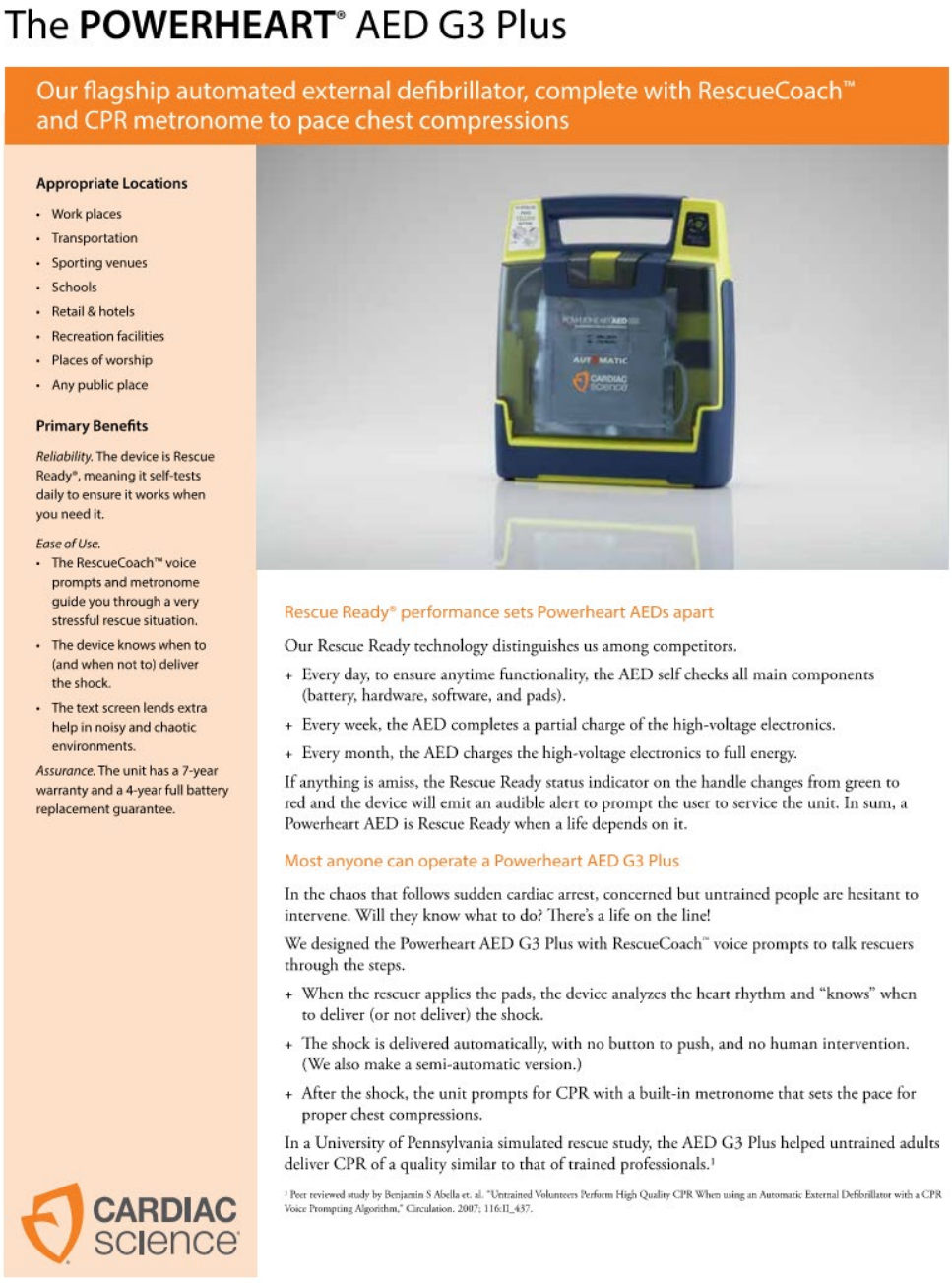
2. Toilet Paper Dispenser:
   a. ADA required stalls: Contractor Furnished, Contractor Installed (CFCI)
      i. Multi-Roll Toilet Tissue Dispenser- Bobrick B-4288.
      ii. It must be able to hold two rolls of toilet tissue up to 5-1/4 inch.
      iii. Must have a flush tumbler lock.
      iv. Must be designed so that the extra roll above drops in place when the bottom roll is depleted.
      v. Must have heavy duty spindles.
   b. All other non-ADA required stalls and open restrooms: (DFDI)
      i. Bobrick's classic series twin jumbo roll toilet tissue dispenser-B-2892.
      ii. Satin-finish stainless steel.
      iii. Equipped with tumbler lock.
      iv. Must hold two 10inch (255mm) diameter, rolls of toilet tissue.
      v. Must be convertible to hold 2 ¼ inch and 3 inch diameter core rolls.

vi. Must have a sliding access panel to expose one roll at a time, which allows easy roll change over.
vii. Must have a wide viewing slot in front/door revealing amount of tissue on both rolls.

3. Paper Towel Dispenser: Contractor Furnished, Contractor Installed (CFCI)
   a. Paper Towel Dispensers are no longer acceptable at multiple accommodation Toilet Rooms.
   b. They may be used in custodial closets, laboratories and specialty classrooms, or as directed by District Architect.
   c. District Approved Paper Towel Dispensers Manufacturers
      i. B-4262 Contura Series Surface- Mounted Paper Towel Dispenser.
   d. Satin-finish stainless steel.
   e. Tumbler lock on top of cabinet.
   f. Door swings down for loading towels.
   g. Dispenses 400 C-fold or 525 multifold towels or District approved equal.
4. Toilet Seat Cover Dispensers: Contractor Furnished, Contractor Installed (CFCI)
   a. Bobrick Classic Surface Mounted Seat-Cover Dispenser. B-221.
   b. Satin-finish stainless steel.
   c. Dispenses 350 single-or half-fold toilet seat covers.
5. Dual Sanity Napkin/Tampon Dispensers: Contractor Furnished, Contractor Installed (CFCI)
   a. B-47064 Contura Series Semi-Recessed Sanitary Napkin/Tampon Vendor.
   b. Satin-finish stainless steel.
   c. Dispenses 31 napkins and 22 tampons.
   d. Single-coin mechanisms convertible for 25¢-operation.
   e. Two flush tumbler locks. Separate lock and key for coin box.
6. Electric Hand Dryers: Contractor Furnished, Contractor Installed (CFCI)
   a. Provide Electric hand dryers mounted adjacent to sinks at all single and multiple accommodation toilet rooms (one for every 3 lavatories.)
   b. District Approved Manufacturers
      i. Dyson Airblade V, or District approved equal.
7. Mirrors: Contractor Furnished, Contractor Installed (CFCI)
   a. Bobrick B-165 2436.
   b. Frameless polished float glass mirror, 1/4" thick, with concealed mounting.
   c. Size: 24" x 36".
8. Sanitary Disposal Units: Contractor Furnished, Contractor Installed (CFCI)
   a. Bobrick B-270 or approved equal.
   b. Surface-mounted sanitary napkin disposal unit with self-closing cover.
   c. Satin-finish stainless steel.
   d. Capacity: 1.2 gallons (4.5 liters).
   e. Removable leak-proof receptacle for easy servicing.
9. Changing Tables: Contractor Furnished, Contractor Installed (CFCI)
   a. Koala Kare KB200-00 or approved equal.
   b. Horizontal wall-mounted baby changing station, high-density polyethylene.
   c. Includes built-in safety strap and liner dispenser.
   d. Meets ADA and ASTM safety standards.
   e. Supports up to 200 lbs.
10. Trash Can Standards: District Furnished, District Installed (DFDI)
   a. From Waxie catalog:
      i. Classrooms: Brown, Item#730132C 41 1/4" qt 11"x19 7/8"x 15 1/4"
      ii. Offices: Brown, Item#730113C 28 1/8" qt 10 1/2"x15'x 14 1/2"

SAFETY EQUIPMENT

1. Defibrillators and Cabinets:
   a. Each modernization project and new campus buildings shall have a defibrillator and recessed cabinet in a prominent public location (i.e. Lobby perhaps near a fire extinguisher cabinet) as directed by the District Architect; min. one per floor. Cabinet shall have an audible local alarm when cabinet is opened cabinet shall be Contractor Installed (CFCI) and defibrillator will be District Furnished District Installed (DFDI)



The **POWERHEART**® AED G3 Plus

Our flagship automated external defibrillator, complete with RescueCoach™ and CPR metronome to pace chest compressions

Appropriate Locations

- Work places
- Transportation
- Sporting venues
- Schools
- Retail & hotels
- Recreation facilities
- Places of worship
- Any public place

Primary Benefits

Reliability. The device is Rescue Ready®, meaning it self-tests daily to ensure it works when you need it.

Ease of Use.

- The RescueCoach™ voice prompts and metronome guide you through a very stressful rescue situation.
- The device knows when to (and when not to) deliver the shock.
- The text screen lends extra help in noisy and chaotic environments.

Assurance. The unit has a 7-year warranty and a 4-year full battery replacement guarantee.

CARDIAC science

Rescue Ready® performance sets Powerheart AEDs apart

Our Rescue Ready technology distinguishes us among competitors.

+ Every day, to ensure anytime functionality, the AED self checks all main components (battery, hardware, software, and pads).
+ Every week, the AED completes a partial charge of the high-voltage electronics.
+ Every month, the AED charges the high-voltage electronics to full energy.

If anything is amiss, the Rescue Ready status indicator on the handle changes from green to red and the device will emit an audible alert to prompt the user to service the unit. In sum, a Powerheart AED is Rescue Ready when a life depends on it.

Most anyone can operate a Powerheart AED G3 Plus

In the chaos that follows sudden cardiac arrest, concerned but untrained people are hesitant to intervene. Will they know what to do? There's a life on the line!

We designed the Powerheart AED G3 Plus with RescueCoach™ voice prompts to talk rescuers through the steps.

+ When the rescuer applies the pads, the device analyzes the heart rhythm and "knows" when to deliver (or not deliver) the shock.
+ The shock is delivered automatically, with no button to push, and no human intervention. (We also make a semi-automatic version.)
+ After the shock, the unit prompts for CPR with a built-in metronome that sets the pace for proper chest compressions.

In a University of Pennsylvania simulated rescue study, the AED G3 Plus helped untrained adults deliver CPR of a quality similar to that of trained professionals.[1]

[1] Peer reviewed study by Benjamin S Abella et. al. "Untrained Volunteers Perform High Quality CPR When using an Automatic External Defibrillator with a CPR Voice Prompting Algorithm," Circulation. 2007; 116:II_437.

AV CONSIDERATIONS

GENERAL REQUIREMENTS

1. Whenever feasible, as much flexibility as possible should be included in structuring the room, so as to provide opportunity for multiple learning configurations (lecture style, group work, individual work, etc.); this is most useful and practical in general classroom spaces, as opposed to laboratories and lecture halls.
2. Sharing the ceiling is a challenge, as lighting and HVAC ventilation compete for space with the distributed sound system, ceiling mounted document camera, and projector placement.
   a. These systems sometimes interfere with each other and the following factors should be taken into consideration:
      i. Avoid placing the projector and screen directly under light fixtures, as the light can wash out the image; although with the level of lumens specified for SDCCD projectors and controlled lighting, this can be managed to a certain extent.
      ii. If light fixtures are not recessed lighting style, consider their profile in laying out the projector and screen placement.
      iii. Never place an HVAC vent in front of a projection screen, as it will cause vibration, making it unreadable, and can damage the screen over time.
   b. The ceiling height adds another consideration to this mix, as does the floor and whether it is flat or tiered.
      i. On a flat floor, the screen needs to be placed so that people in the back rows have enough clearance to see the screen. Minimum height is often recommended at 45” above the finished floor (AFF); however, industry standards recommend even higher to assure that everyone can see what is projected to the screen.
      ii. With a 10’ ceiling, a 100” wall mounted diagonal screen could be placed at 48”AFF. This accounts for 6” of clear space above the screen for aesthetics, 6” for the screen casing, and 60” for the screen. With ceiling recessed screens, they can be placed even higher in the room, raising the screen approximately 6-8” higher. However, these are most easily managed with electric controls.
   c. Consider the methods for teaching that need to take place in the room.
      i. With labs, this means any teaching/lecturing that will take place in the lab, including demonstrations, and the actual hands-on lab work done by the students.
      ii. With lecture halls, consider if the projection system will be used simultaneously with the whiteboard, and if any demonstrations will be conducted at the lectern/demonstration table.
      iii. With classrooms, consider flexible re-configurations depending upon type of engagement inherent in the instruction.
   d. In addition to the reflective ceiling plan, draw a side view to reflect line of vision and any interference. Per the District BIM Guidelines the A/E must model the Projector Throw Clearance.
   e. In the end it will be a give and take to layout the rooms. There are structural considerations for the room, teaching considerations for the room, and AV considerations for the room. The goal is to manage these three considerations for the purpose of optimal learning and teaching opportunities for students and faculty.

PROJECTION SCREENS

DESIGN REQUIREMENTS

1. Projection screens must provide clear visibility, optimal image quality, and compatibility with standard projection equipment.
2. Screens should be easy to operate, durable, and glare-resistant for long-term use in classrooms and teaching labs.
3. Ensure proper aspect ratio, screen size, and mounting height for maximum viewing efficiency.
4. Location & Placement:
   a. Verify alignment with lighting conditions, seating arrangement, and viewing angles.
   b. Use the on-line projection calculator (Epson Projection Distance Calculator) to calculate the optimal placement of the projector relative to the screen.
5. General Assumptions:
   a. Diagonal screen size: 100”
   b. Bottom of screen to floor: 45”
   c. Aspect ratio: 16:9 confirm with District.

MATERIAL REQUIREMENTS

1. Manufacturers:
   a. Da-Lite.
   b. Draper, Inc.
   c. Elite Screens.
   d. Stewart Filmscreen.
2. Screen Specifications:
   a. Matte white, high-gain, or ambient light-rejecting surface based on room conditions.
   b. Retractable manual or motorized operation, depending on the classroom setup.
   c. Low-glare, high-contrast material for optimal visibility in well-lit rooms.
   d. Black borders to enhance contrast and focus.
   e. Tab-tensioned screens for flat and uniform projection surfaces.
3. Mounting Options:
   a. Ceiling-recessed, wall-mounted, or free-standing depending on classroom layout.
   b. Motorized options should be equipped with low-voltage control for integration with AV systems.

LABORATORY EQUIPMENT

DESIGN REQUIREMENTS

1. Laboratory equipment must be durable, chemical-resistant, and designed for long-term scientific use.
2. Must comply with safety, ventilation, and ergonomic standards for educational and research laboratories.
3. All laboratory fixtures and furnishings must provide compliant clearances, reach ranges, and maneuvering space per CBC Chapter 11B
4. Equipment should be user-friendly, easy to clean, and resistant to corrosion, heat, and impact.
5. Ensure compatibility with laboratory workstations, storage, and safety systems.
6. Equipment Placement & Layout:
   a. Determine equipment placement based on workflow efficiency, ventilation, and utility access.
   b. Confirm clearances for emergency access and ADA compliance.
   c. Coordinate with the District Architect and Science Department for final placement.

7. General Assumptions:
    a. Workstations should include chemical-resistant surfaces.
    b. Ventilation systems must be designed to remove hazardous fumes.
    c. Storage must be adequate for chemicals, glassware, and lab tools.

MATERIAL REQUIREMENTS

1. Manufacturers:
    a. Fisher Scientific.
    b. Labconco.
    c. Thermo Fisher.
    d. Kewaunee Scientific.
2. Equipment Specifications:
    a. Fume Hoods – Chemical-resistant, with proper ventilation and exhaust systems.
    b. Workbenches & Tables – Acid- and heat-resistant epoxy resin surfaces.
    c. Storage Cabinets – Flame-resistant metal or wood laminate cabinets for chemical and equipment storage.
    d. Emergency Equipment – Eyewash stations, safety showers, and fire extinguishers must be easily accessible.
    e. Sinks & Plumbing Fixtures – Acid-resistant epoxy sinks with gooseneck faucets and emergency shut-off valves.
3. Utility Integration:
    a. Gas, water, and electrical connections must be properly integrated and labeled.
    b. Ventilation and exhaust systems should meet OSHA and NFPA safety standards.

WINDOW SHADE DEVICES

DESIGN REQUIREMENTS

1. Window shade devices must provide solar control, glare reduction, and energy efficiency while maintaining visibility and natural daylighting.
2. Shades should be durable, easy to operate, and compatible with classroom and office windows.
3. The system should allow for manual adjustment of light levels based on orientation and time of day.
4. Location & Placement:
    a. Install at all classroom and exterior office windows to control glare and heat gain.
    b. Confirm shade openness factor based on window orientation and transmittance in coordination with the District Architect.
5. General Assumptions:
    a. Manual shades shall be ADA-compliant operation and comply with ANSI/WCMA A100.1 standards for safety.
    b. Fascia concealer for a clean and finished appearance.
    c. At blackout conditions clear aluminum side tracks for guided operation and reduced light leakage.
6. Motorized operation shall be provided for window shades exceeding 8 feet in height or where access for manual operation is impractical. Motorized units shall include programmable control interface.

MATERIAL REQUIREMENTS

1. Manufacturers:
    a. Hunter Douglas
    b. MechoShade.
    c. Standard Textiles.
    d. Or equal.
2. Shade Material Specifications:
    a. Openness Factor: 3-5%, depending on window orientation and manufacturer's selection guide.
    b. Fabric Type: Solar screen fabric that allows controlled daylight transmission.

LABORATORY CASEWORK

DESIGN REQUIREMENTS

1. Laboratory casework must be durable, chemical-resistant, and designed for long-term use in science and research environments.
2. Cabinets and work surfaces should be chemical-resistant, impact-resistant, and easy to clean.
3. Must meet ADA accessibility standards, providing appropriate height and reach for all users.
4. Ensure structural integrity and load-bearing capacity for heavy equipment and storage.

MATERIAL REQUIREMENTS

1. Manufacturers:
    a. Kewaunee Scientific.
    b. Stevens Industries.
    c. Fisher Hamilton.
    d. Labconco.
    e. Or equal.

2. Material Specifications:
   a. Metal Casework:
      i. Heavy-gauge steel construction with welded seams for strength.
      ii. Powder-coated or epoxy finish for chemical and corrosion resistance.
   b. Wood Casework:
      i. Hardwood veneer or laminate construction for durability.
      ii. Chemical-resistant finish to withstand spills and daily use.
   c. Countertops & Work Surfaces:
      i. Epoxy resin on lab function.
      ii. Impact-resistant and non-porous for easy maintenance.
   d. Hardware & Accessories:
      i. Full-extension drawer slides for maximum accessibility.
      ii. ADA-compliant handles and pulls for ease of use.
      iii. Soft-close hinges to reduce noise and prevent damage.

ELEVATORS

DESIGN REQUIREMENTS

1. Elevators must be non-proprietary, durable, and designed for reliability and ease of maintenance.
2. All elevator systems should comply with ADA accessibility standards and emergency power requirements.
3. Exterior elevators are not preferred. If necessary, entry points must be covered and ensure positive drainage away from elevator doors.
4. Refer to DSA IR 30-1: Elevators—Building Materials and Systems for clarification of construction materials and fire protection system requirements for elevators and associated equipment.
5. Location & Placement:
   a. If an exterior elevator is required, review with the District Architect.
   b. Elevator pits must be waterproofed and equipped with drainage.
   c. Machine rooms must have independent ventilation or air-conditioning to prevent overheating, capable of maintaining temperature below 85°F.
   d. Do not route utilities through machine room (per ASME A17.1, CBC 3006). Only utilities and sprinkler heads that serve the room are allowed in the machine room.
   e. Provide permanent structural hoistway beams at all shafts.
   f. Provide lighting at the hoistway.
   g. GFCI outlets for maintenance tools.
   h. Hoistway shall be flush with no ledges.
   i. Provide pit ladder.
6. General Assumptions:
   a. Provide emergency release for traction elevators, allowing the cab to drop to the first floor for emergency exit. Include a permanent structural hoistway beam at all shafts, even if not required by code.
   b. Card readers are required. Card readers shall be compatible with the District's access control system. Coordinate with IT and Security for final system integration.
7. Finishes:
   a. Elevator cab finishes shall be durable, vandal-resistant, and low maintenance.
   Wall Panels: High-pressure laminate or stainless steel.
   Ceiling: LED panel with acrylic diffuser, vandal-resistant.
   Flooring: Floor finish shall be no wax linoleum or carpet tile. Rubber flooring is not allowed.

SYSTEM REQUIREMENTS

1. Elevator Types:
   a. Traction Elevators.
   b. Hydraulic Elevators. (if required and approved by the District Architect)
2. Non-Proprietary Systems:
   a. Elevator control systems must be microprocessor-controlled, ensuring open access for maintenance and repairs.
   b. Provide a complete parts catalog listing all components used in the installation.
3. Maintenance Tools & Software:
   a. Provide diagnostic tools and supporting software documentation for complete maintenance and fault detection.
   b. Maintenance tools should not require recharging, reprogramming, or automatic deactivation.
   c. The tool may be programmed to operate only with this project's serial identification number.

4. Fault Diagnostic System:
    a. The system must provide real-time monitoring of all car computers.
    b. Fault detection storage for at least 200 error entries, displaying:
        i. Fault code messages.
        ii. Elevator location at the time of error.
        iii. Time of occurrence and frequency of fault.
5. Wiring Diagrams:
    a. One laminated set mounted in the machine room.
6. Wiring diagrams must be as-built and match controller terminal points. Two-Way Communication System:
    a. A two-way communication system must be installed at the landing serving each elevator or group of elevators on every accessible floor that is one or more stories above or below the level of exit discharge.
    b. System Requirements:
        i. Communication Link: The system must facilitate communication between each required location and the fire command center or a central control point.
        ii. Automatic Dial-Out: If the central control point is not constantly attended, the system should have a timed automatic telephone dial-out capability to a monitoring location or directly to 9-1-1.
        iii. Audible and Visible Signals: The system must include both audible and visible signals to accommodate individuals with hearing or visual impairments.
        iv. Signage: Clear instructions for using the two-way communication system, including how to summon assistance and identification of the location, must be posted adjacent to the system.

CLOSEOUT REQUIREMENTS

1. Full parts list and service documentation.
2. O&M manuals and training session for District staff.
3. As-built wiring diagrams (mounted and digital).
4. Diagnostic software or access credentials.
5. Proof of service agreement and maintenance contact info.

SERVICE AND REQUIREMENTS

1. Two-year warranty by installer supported by local elevator maintenance company - 45-minute or less response time on emergency calls. Elevator will provide same day service on calls.

2.2.2

VOLUME II
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WET PIPE SPRINKLER SYSTEMS

GENERAL

1. Wet-Pipe Sprinkler System:
   a. An automatic sprinkler system connected to a water supply through an alarm valve.
   b. Water remains in the piping and discharges immediately when a sprinkler head opens.
   c. Sprinklers activate when heat melts a fusible link or breaks a frangible device in accordance with NFPA Sections 9.6.1.3 and 9.6.2.6.1.
2. Tampered Shut-Off Valves:
   a. Each floor of a building shall have at least one tampered shut-off valve for localized water control.
3. Standard-Pressure Piping System Components:
   a. Components shall be rated for a minimum working pressure of 175 psig at Mesa College.
   b. Verify system listings for other campuses to ensure compliance with basis of design criteria.
4. Compliance with NFPA Standards:
   a. NFPA 13 – Standard for the Installation of Sprinkler Systems.
   b. NFPA 24 – Standard for the Installation of Private Fire Service Mains and Appurtenances.
   c. NFPA 72 – National Fire Alarm and Signaling Code.
   d. Reference UL Standard for visual signaling devices.
   e. Reference CBC (SFM) Chapter 35 for applicable NFPA Standards.

SEISMIC PERFORMANCE REQUIREMENTS

1. Seismic Resilience of Sprinkler Piping:
   a. Sprinkler piping must withstand earthquake forces per:
      i. NFPA 13.
      ii. ASCE/SEI 7.
      iii. Latest State of California seismic requirements.
   b. Seismic Design Category C Requirements:
      i. Sprinkler heads and penetrations shall have a minimum clearance of 1/4 inch (6 mm) on all sides to allow for seismic movement.
      ii. Flex connectors or oversized escutcheons shall be installed at all fire sprinkler heads, as mandated by DSA.
      iii. The use of oversized escutcheons shall continue until directed otherwise by the District.
   c. Mechanical-T and Cross Pipe Fittings:
      i. Permitted only in retrofit applications and not applicable for new projects.
      ii. Prior specific written approval from the Engineer is required.
   d. Alarm Devices:
      i. Alarm devices must match the piping and equipment connections to ensure system compatibility.

PLUMBING & PIPING SYSTEM REQUIREMENTS

GENERAL REQUIREMENTS

1. This section outlines the District's plumbing design and construction standards to ensure safe, sanitary, reliable, and maintainable systems throughout all facilities. These standards apply to all new construction, modernization, and renovation projects and are intended to promote long-term durability, energy and water efficiency, and code compliance. All plumbing design and installations shall adhere to applicable codes, District specifications, and regulatory agency requirements. Any deviations must receive prior written approval from the District Architect.
2. Underground pipe design standards shall be of 50+ year quality standards.
3. Provide an access ladder in storm drain and sewer manholes that are greater than four feet deep per San Diego Regional Standards.

GENERAL DESIGN GUIDELINES

1. Unisex, single-occupancy restrooms shall be provided as follows, with no exceptions;
   a. One per building for each 100,000 SF, this will be a public accessible restroom with the control of the keys to be determined by the specific Dean. A sign should be posted providing direction to the individual with the key.
2. Hose bibs every 75 feet in lockable flush boxes.
3. For design of multi-stall restroom facilities, men should be consistently on the right and women on the left.
4. Where drinking fountains are provided near multi-stall restrooms they should be recessed.
5. Architecture and plumbing design shall Coordinate that eyewash stations and emergency showers have floor drains. 30 second max travel distance is required. Locate outdoors and use portable units where possible. If located indoors locate in corner or alcove with concrete curb on three sides and floor slope to drain.
6. Environmental Plumbing considerations
   a. Avoid polyvinyl chloride (PVC) pipe for water delivery and drain systems (due to potential impacts of PVC disposal at end of product life)
   b. Do not use solder containing lead. Only NSF 61-certified lead-free solder shall be used.
   c. Use of reclaimed shall be encouraged (non-treated water from showers, lavatories, and clothes washers) for below grade landscape irrigation where applicable.

SANITARY AND STORM SEWER SYSTEMS

1. Goals and Objectives
   a. Safety, Efficiency, and Maintenance:
      i. Design safe, efficient, and easily maintained plumbing systems.
      ii. Coordinate surface elevations and level appurtenances in relation to other site elements.
   b. Maintenance Accessibility:
      i. Ensure all plumbing systems are designed for easy access and maintenance.
   c. Storm Drainage Compliance:
      i. Design storm drainage systems in accordance with the California Plumbing Code.
      ii. Storm drains serving collections deeper than 2 inches shall include a full-size cleanout adjacent to the collector to service its outlet drain.
   d. Regulatory Coordination:
      i. Coordinate the design of storm and sanitary sewer systems with state and local governing authorities.
      ii. Comply with the Phase II MS4 permit requirements regarding stormwater discharge from the site.
   e. Stormwater Management:
      i. Stormwater shall be filtered through landscaping or other means whenever possible.

f. Utility Service Coordination:
   i. The District provides service request forms and maintains contact points for public utility systems.
g. Pump-Free Design:
h. Systems shall be designed to function without the need for pumping whenever possible. Coordinate site utility depths to align with building utilities for seamless integration.

WASTE PIPING - GENERAL

1. Sanitary Sewer Piping
   a. Acceptable materials:
      i. Cast-iron. (no hub with Husky bands for above grade couplings). Do not use cast iron below grade where possible.
      ii. Solid core PVC pipe.
      iii. SDR 35 PVC sewer pipe.
2. Storm Drainage Piping
   a. Acceptable materials:
      i. Ductile iron. (within the building zone of influence)
      ii. HDPE with gasketed, watertight couplers.
      iii. Solid core PVC pipe.
      iv. SDR 35 PVC pipe.
3. Storm Drain Installation Guidelines:
   a. Storm drain piping shall not be routed underneath buildings and shall not discharge near doorways.
4. Specialty Piping Requirements:
   a. Polypropylene (PP) drainage pipe and fittings in compliance with ASTM F1412.
5. Cleanouts and Accessibility:
   a. Provide accessible cleanouts in practical, clear spaces with adequate room for service personnel and equipment.
   b. Design systems with future expansion and relocatable units in mind.
6. Outdoor Drainage and Stormwater Management:
   a. Outdoor lunch areas require a large catch basin with a separator to retain solids.
   b. Planter area drain lines must be located to avoid conflicts with proposed trees.
   c. If roof drain lines connect to the storm drain system, coordinate the depth of footings to allow for proper installation.
   d. Exterior downspouts shall be Schedule 40 galvanized steel pipe, equipped with a cast iron “T” cleanout and ABS plug just above grade.
   e. Provide storm drain connections to electrical manholes.
   f. Retaining walls with perforated foundation drainage pipes shall connect to the storm drain system.
   g. Catch basins must be strategically placed to prevent water ponding on hardscape.
   h. Catch basins and manholes should not be located in pedestrian traffic lanes.
   i. Drainage structure inlets in pedestrian areas shall comply with ADA spacing requirements for grating bars.
7. Underground Drainage and Construction Standards:
   a. Underground drainage/sewer piping shall be laid in a uniform sand bed with pea gravel bedding beneath the piping, extending 2 feet beyond the building.
   b. At project completion, the contractor shall:
      i. Pressure jet all storm drains and sewers to remove construction debris.
      ii. Video inspect sewers and storm drains to verify alignment, flow, and proper drainage.
      iii. Video documentation must include a wet-run water test conducted in the presence of the inspector.
   c. Provide a 24-inch-wide concrete apron around catch basins located in decomposed granite surfaces.
   d. Catch basin grates shall be galvanized steel, traffic-rated, and ADA-compliant in all traffic areas.

8. Water System Isolation and Shut-Off Valves:
    a. Each building's water delivery system and bathrooms on each floor must be independently isolatable without disrupting the water supply to the rest of the building.
    b. Accessible shut-off valves shall be provided for all restrooms.

LABORATORY PIPING REQUIREMENTS

1. Material Requirements:
    a. Provide polypropylene (PP) drainage pipe and fittings in compliance with ASTM F1412.
    b. Pipe shall be extruded, and drainage-pattern fittings shall be molded with Schedule 40 dimensions.
    c. Material shall be PP resin with a fire-retardant additive, meeting the requirements of ASTM D4101.
    d. All components must have fusion-joint ends for secure connections.
2. Approved Manufacturers:
    i. Subject to compliance with requirements, acceptable manufacturers include but are not limited to: IPEX Inc.
    ii. Orion Fittings, Inc.
    iii. George Fischer Sloane Inc.
3. Adapters and Transition Fittings:
    a. Adapters and Transition Fittings shall be Corrosion-Resistant including assemblies with combination of clamps, couplings, adapters, and gaskets; compatible with piping and system liquid; made for joining different piping materials.

DOMESTIC WATER SYSTEM

GOALS AND OBJECTIVES

1. The intent of this section is to define system features that will provide a safe and sanitary domestic water distribution system designed for a life of 50 years, with low maintenance and operating costs. Preference is for all electric. Gas may be used in select instances when approved by District Architect.

DOMESTIC WATER LINES

1. Material Specifications:
    a. All domestic water lines within buildings and above ground shall be type "L" copper.
    b. Cold water piping below grade shall be type "K" copper, with wrought copper and brazed fittings. Pipes outside buildings in the ground will be copper up to 3 inch lines and C900 for larger lines with mechanical compression couplings, mechanical joints, or cement lined cast iron bell and spigot pipe with cement lined cast iron Class D fittings.
    c. Prohibited Materials:
        i. Galvanized steel and soft copper shall not be used for domestic water piping, except for under-slab trap primers.
        ii. Asbestos cement pipe shall not be used.
2. System Sterilization:
    a. The domestic water system shall be sterilized and disinfected using approved processes and testing methods.
3. Shut-Off Valves:
    a. A main shut-off valve shall be installed on the exterior wall of each building and clearly labeled. Gate valves are not allowed.
    b. If located inside the building, the valve must be in a designated service room (e.g., custodial room with attic access). Gate valves are not allowed.

c. If the shut-off valve is placed below ground, it shall be housed within a concrete box. Gate valves are not allowed.
d. Provide dielectric unions at transition from underground to aboveground piping prior to shut-off valve.

4. Branch Mains and Fixture Valving:
   a. Branch mains serving fixture batteries shall have valves at pipe spaces.
   b. Single fixtures and hose bibs shall have individual shut-off valves.
   c. Concealed piping shall include partition stops.
   d. No exposed piping in toilet rooms.
   e. Accessible isolation valves shall be provided for each restroom and cafeteria.
   f. Only full-port hot and cold ball valves shall be used.
   g. Partition stops must be accessible through adequately sized access panels.
5. Exterior Water Piping Installation:
   a. Pipes shall be sheathed/encased in clean sand, with 6 inches of sand below and 12 inches above the piping.
   b. Valve operators shall be within 6 inches of grade.
   c. Provide minimum of 24 inches of cover from finished grade.
   d. Metallic tracer wires/tubing shall be installed over all below-grade piping.
   e. Trap primer valves must be accessible via adequately sized access panels on vertical walls.

INSPECTION AND TESTING OF WATER PIPING

1. Compliance and Testing:
   a. All water piping shall be inspected in accordance with CCR Title 24, the California Plumbing Code, and all local regulations.
   b. Water piping must be flushed and hydrostatically tested at 150 psi.
   c. Air testing is strictly prohibited.
2. Dielectric Isolation:
   a. Copper piping must be isolated from dissimilar metals and equipment using dielectric couplings.
   b. Dielectric couplings shall be installed at all connections between pipe or tubing and hot water equipment, including both inlet and outlet connections.
3. Water Meter Requirements:
   a. Meter size shall be determined by a consulting engineer based on:
      i. Flow demand
      ii. Available pressure
      iii. Line length
      iv. Future site requirements
   b. The construction contract shall include the water meter installation.
   c. A minimum of three water services shall be provided at each site:
      i. Domestic water
      ii. Landscape irrigation
      iii. Fire protection
   d. For schools with turf playfields maintained by the City of San Diego (currently only Miramar College), a separate meter and service shall be provided.
   e. Water service may include one or more meters manifolded in parallel, with bypasses and gauges.
   f. If parallel meter installations result in lower installation and rate charges than a larger single meter, the consulting mechanical engineer shall determine the most cost-effective option based on a cost-of-service analysis.

PRESSURE REGULATORS FOR DOMESTIC WATER

1. General Requirements:
   a. Pressure regulators are required when water pressure exceeds 80 psi.
   b. Regulators shall consist of two or more valves manifolded together.
   c. For high-flow volume applications, pilot-operated regulators may be necessary.
   d. If a regulator is not currently needed, space shall be allocated for its future installation where feasible.
   e. All regulators shall include shutoff valces and unions on both the inlet and outlet piping to facilitate maintenance.
2. Strainers and Pressure Gauges:
   a. Strainers shall be installed upstream of all regulators.
   b. Gate valves and flanged unions shall be installed on each side of the strainer-regulator assembly for pipes over 2 inches to allow for servicing.
   c. One set of pressure gauges (0-200 psi) shall be installed upstream and downstream of the strainer-regulator assembly.
3. Regulator Assemblies by Service Size:
   a. Small Services (Up to 75 GPM, Pipe Size ≤ 2 inches):
      i. Require two regulators in parallel: one for high-flow and one for low-flow conditions.
   b. Medium Services (Up to 100 GPM, Pipe Size = 2 ½ inches):
      i. May require multiple regulator assemblies for high-flow applications.
      ii. One smaller assembly on a straight-through run may be included to serve portable building toilet facilities, if anticipated.
      iii. Lines shall be properly valved at the service end using a ball valve in a service box and shall be capped or stubbed off when not in use.
   c. Large Services (Over 100 GPM, Pipe Size > 2 ½ inches):
      i. Shall have multiple regulator assemblies similar to medium-size services.
      ii. Service gate valves shall be installed above ground on both:
         1) The line from the meter(s)
         2) The line to the building
      iii. The contractor shall deliver two wrenches (of adequate length) to the District Inspector or Maintenance Department for operation of any installed gate valve.
4. Branch Lines for Portable Buildings:
   a. Valved water branch lines (minimum 2-inch size) shall be installed downstream of the regulator assembly to accommodate portable building toilet facilities when required.
   b. These lines shall be properly valved at the service end using a ball valve in a service box and shall be capped or stubbed off downstream of the valve when not in use.

WATER VALVES

1. Temperature and Pressure Relief Valves:
   a. Relief valves shall be piped at full size from the valve to the discharge point.
   b. No additional valves shall be installed in the discharge line.
   c. Relief valves must discharge into an approved receptor in a visible location.
   d. Brass compression unions shall be used to connect pressure relief valve drains to facilitate easy valve replacement.
2. Water Hammer Arresters:
   a. Water hammer arresters shall be sized, located, and certified per the manufacturer's recommendations.

b. Branch lines in toilet rooms supplying multiple fixtures with quick-closing valves must include water hammer arresters.
c. Air chambers are not permitted.
d. Adequately sized access panels shall be installed to allow for removal and replacement of arresters.

3. Shut-Off Valves:
   a. A shut-off valve shall be installed for each restroom.

HOSE BIBS

1. General Requirements:
   a. Hose bibs installed in or on buildings shall be equipped with shut off valves.
   b. Finished area hose bibs shall be rough chrome-plated, while all others shall be rough brass. Hose bibs that are accessible to students must be vandal-proof.
2. Exterior Hose Bibs:
   a. Install exterior hose bibs every 100 feet around all buildings.
   b. Wall-mounted hose bibs for building maintenance and cleaning shall use domestic water.
   c. Landscape hose bibs shall use reclaimed and be equipped with signage indicating reclaimed usage.
3. Restroom Hose Bibs:
   a. Provide a chrome-plated, lock-shield cold water hose bib inside a chrome recessed box with a cover in both men's and women's restrooms.
4. Rooftop Mechanical Areas:
   a. Install exterior hose bibs at each rooftop mechanical enclosure.

DOMESTIC WATER SYSTEM

1. Compliance and Design Standards:
   a. The generation and distribution of hot water shall comply with the California Plumbing Code and CCR Title 24, Article 2, Division 7 (Service Water Heating).
   b. System components, distribution, hot water demand estimates, and equipment sizing shall align with ASHRAE's Current Systems Handbook, Chapter 34: "Service Water Heating", unless more stringent requirements are mandated by National, State, or Local codes.
2. Hot Water for Portable Classrooms and Remote Locations:
   a. Individual electric water heaters (minimum 6-gallon capacity) with a drain pan shall be provided for portable classrooms or remote locations.
3. System Capacity and Efficiency:
   a. The hot water system shall have sufficient capacity for full recovery.
   b. Multiple high-efficiency, fast-recovery water heaters shall be used.
4. Energy Source and Heater Configuration:
   a. Natural gas is the preferred energy source and shall be used whenever available.
   b. Water heaters serving isolated or remote locations may use electricity with either:
      i. 6-gallon storage tanks.
      ii. Multiple smaller heaters in a manifold arrangement. (preferred over large boilers where approved by the District)
      iii. Non-storage, instant point-of-use (P.O.S.) heaters, if permitted by the District.
5. Recirculating Lines and Pumps:
   a. Hot water recirculating lines and pumps shall be installed whenever a fixture requiring hot water is located more than 60 feet from the heat source.
   b. All recirculating systems shall be constructed using Type L copper and installed in accessible areas whenever possible.

c. Fittings for recirculating systems shall be cast brass, copper sweat type where feasible.

DIRECT WATER HEATERS

1. Preference is for all electric. Gas may be used in select instances when approved by District Architect.
2. Gas Water Heaters:
   a. Shall be AGA-certified commercial-type units with power venting and high thermal efficiency.
   b. Features include:
      i. Glass-lined tank.
      ii. 125 psig working pressure.
      iii. Magnesium anode for corrosion protection.
      iv. Insulation per CCR Title 24, Article 2.
      v. 100% safety shut-off.
      vi. Combination temperature and pressure relief (T&P) valve.
      vii. Piping and Accessories:
      viii. Ball valve and check valve on both cold and hot water piping at the heater.
      ix. Shock absorber and thermometer on hot water piping.
   c. Ventilation:
      i. PVC flue through the roof with an approved weather cap.
3. Electric Water Heaters:
   a. Shall be commercial-type with:
      i. Magnesium anode for corrosion resistance.
      ii. Immersion-type thermostats and heating elements.
      iii. UL 174 certification and labeling.
   b. Piping and Accessories:
      i. Ball valve and check valve on cold water piping.
      ii. Shock absorber, ball valve, and adjustable thermometer on hot water piping.
      iii. ASME T&P relief valve.
   c. Service Accessibility:
      i. Provide minimum 36" clearance in front of the service panel for maintenance
4. Electric Booster Heaters (Dishwashers):
   a. Shall be stainless steel with:
      i. Rod-type heating element.
      ii. Aquastat temperature control.
      iii. Combination pressure and temperature relief valve vented to the exterior.
      iv. Must be ASME and UL approved.

HOT WATER STORAGE TANKS

1. Tank Construction and Coating:
   a. Tanks shall be ASME-labeled for 150 psig service.
      i. All storage tanks shall be equipped with magnesium anodes for corrosion protection.
      ii. Larger storage tanks shall be either:
      iii. Unlined steel (with magnesium anodes)
      iv. Lined steel, using one of the following coatings:
         1) SOC-CO-CO.
         2) Kessite No.1
         3) Heresite of 6 millimeter thickness. (applied in a minimum of three coats, with baking between each coat)

2. Piping Isolation:
   a. Copper piping shall be isolated from hot water tanks and other equipment using dielectric couplings or unions.
3. Valves and Monitoring:
   a. All hot water storage tanks and water heaters shall have:
      i. Shut-off valve and check valve installed on both the cold water inlet and hot water outlet.
      ii. Thermometer installed at the hot water outlet.
4. Tankless Water Heater Option:
   a. Where approved by the District, properly sized commercial on-demand tankless water heaters may be used as an alternative.

INSULATING OF HOT WATER STORAGE TANKS AND PIPING

1. Insulation Requirements:
   a. Unfired service water storage tanks, as well as service hot water supply and recirculation piping, shall be insulated in accordance with CCR Title 24, Article 2, Division 7.
   b. Exception: Run-outs to fixtures not exceeding 10 feet in length do not require insulation.

DOMESTIC WATER PUMPS

1. In-Line Circulating Pumps:
   a. Working Pressure: 175 psig
   b. Construction:
      i. Bronze body, flanges, and impeller.
      ii. Carbon and stainless steel shaft.
      iii. Drip-proof, premium efficiency motor.
   c. Maintenance:
      i. Self-lubricated, maintenance-free design
   d. Installation Requirements:
      i. Service ball valves shall be installed immediately upstream and downstream of the pump.
      ii. A bleed hose bib shall be installed between the pump and the downstream service shut-off valve.
2. Floor-Mounted Circulating Pumps:
   a. Pump Type:
      i. Direct-connected, close-coupled, centrifugal.
      ii. 1750 RPM rating.
   b. Construction:
      i. Enclosed-type bronze impeller.
      ii. Mechanical seal.
      iii. Drip-proof, premium efficiency motor.
      iv. Reinforced metal flexible connections on suction and discharge.

SANITARY WASTE SYSTEM

GOALS AND OBJECTIVES

1. The intent of this section is to define system features that will provide a safe and sanitary system for disposal of liquid waste and sewage.

SOIL WASTE AND VENT LINES

1. Chemical Waste and Vent Lines:
   a. Polypropylene fittings, vents, and waste lines shall be used for all chemistry sinks.
   b. Dilution or neutralization tanks are typically required.
2. Sewer Lines:
   a. Sewer lines installed underground must be:
      i. At least 4 feet away from other metal pipes or conduits when running parallel.
      ii. Separated by 1 foot when crossing other metal pipelines or conduits.
      iii. Wrapped for 1 foot on both sides of the intersection using approved 10-millimeter plastic tape with 50% overlap.
   b. Sewer lines serving toilets shall be a minimum of 4 inches in diameter.
3. Plumbing Vents:
   a. Approved vent materials include:
      i. Cast iron pipe (service weight, no-hub) with neoprene gasketed fittings.
      ii. Copper drainage tube (Type DWV) with wrought or cast brass solder fittings.
   b. Roof vent terminations must be protected against roofing material or debris entering the vent system.
4. Closet Bends:
   a. Closet bends shall be 4” x 4”.
   b. 4” x 3” closet bends are not permitted in District restrooms.

SEWER MATERIAL - WITHIN BUILDINGS

1. In-Ground Piping:
   a. PVC.
2. Above-Ground Piping:
   a. Service weight cast iron no-hub pipe with no-hub cast iron couplings.
3. Grease Traps:
   a. Food preparation and service sink grease traps shall be installed in unobstructed, accessible areas to allow for regular maintenance.

CLEANOUTS

1. General Requirements:
   a. Cleanouts shall be installed as required by code and District standards.
   b. Cleanout sizes shall match pipe sizes, with a maximum cleanout size of 6 inches.
   c. Cleanouts shall be brought to finish grade/surface using full “Y” angles.
   d. Cleanouts in floors or exterior walkways shall feature nickel-brass frames and cover plates, secured with mechanical fasteners, and set flush with the finish floor.
2. Exterior Cleanouts:
   a. Except in walkways, exterior cleanouts shall be housed in a No. 3 meter box with a cast iron cover marked "Sewer", set flush with finish grade.
   b. Cleanouts shall be threaded pipe with screw plugs. Compressor-type cleanouts with rubber seals are not permitted.
   c. A minimum 4-inch thick concrete base shall be poured at the base of the box to secure the riser and prevent movement.
   d. Cleanout boxes shall be installed in line with the drainage system, and cover lids shall be color-coded as follows:

i. Blue – Water.
ii. Yellow – Gas.
iii. Green – Sewer.

e. Two-way cleanouts shall be used for building and exterior locations.

3. Cleanouts in Walls and Floors:
   a. Provide access doors or locking cover plates for cleanouts in walls.
   b. Where feasible, floor cleanouts should be used instead of wall cleanouts.
   c. Wall cleanouts shall be positioned above horizontal waste lines, such as those serving urinals, lavatories, and water closets.
4. Cleanout Spacing and Accessibility:
   a. Cleanouts shall be installed every 75 feet of developed length and shall extend to the surface for easy access.
   b. A two-way cleanout shall be installed at the exterior edge of each building.
   c. Manholes shall be installed every 200 feet of developed length in lieu of cleanouts where required.
5. End-of-Line Cleanouts:
   a. End-of-line cleanouts that would typically be located inside a building shall be extended to a serviceable exterior space and terminated in an approved manner.
   b. In carpeted areas, cleanouts shall be extended to the building's exterior and terminated appropriately.
6. Future Stub-Outs:
   a. Stub-outs for future buildings, including sewer lines designated for portable toilet facilities, shall terminate in a full "Y" cleanout.
   b. Cleanouts shall be brought within 6 inches of grade and housed in a No. 3 concrete meter box with a cast iron cover, set flush with finish grade.
   c. Cleanout boxes shall be installed in line with the piping run.
7. Inspection and Testing:
   a. All sewer lines 6 inches in diameter or smaller must pass inspection under a 10-foot head of water, with no leakage.
8. Cleanouts in Functional Areas:
   a. Accessible cleanouts shall be provided in each:
      i. Bathroom.
      ii. Custodial area.
      iii. Laundry room.
      iv. Kitchen area.
   b. Cleanouts shall be positioned adjacent to the fixtures they serve, ensuring they remain unobstructed.
9. Concealment Restrictions:
   a. Cleanouts shall not be concealed inside walls.

STORM DRAINAGE SYSTEM

GOALS AND OBJECTIVES

1. The intent of this section is to define system features that will provide a rainwater drainage system to dispose of rain from a 4inch minimum rainfall without pooling or allowing erosion.

DOWNSPOUT AND STORM DRAIN SYSTEM

1. Piping Under Buildings and Near Slabs:
   a. All downspout and storm drain piping under buildings and extending 5 feet beyond and 6 inches above concrete slabs shall be:
      i. ASTM A74 service weight hub-and-spigot cast iron pipe.
      ii. Cast iron fittings with elastomeric gaskets. (Husky HD 4-band)
2. Above-Grade Downspout Piping:
   a. All downspout piping up to 6 inches above grade shall be:
      i. ASTM A120 Schedule 40 galvanized steel pipe with appropriate fittings.
3. Anchoring and securing shall be determined by the consulting Mechanical Engineer.
   Underground Storm Drain Piping (Beyond 5 Feet from the Building):
   a. Schedule 40 PVC pipe may be used , using approved and correct fittings per relevant ASTM specifications.
4. Exposed and Concealed Rain Leaders:
   a. Exposed rain leaders shall be constructed from unpainted Schedule 40 galvanized iron pipe with threaded or mechanical couplings.
   b. Concealed rain leaders should be installed inside walls or pipe chases to improve aesthetics and reduce maintenance.
   c. Concealed rain leaders shall be no-hub cast iron.
   d. Transitions from copper or plastic to cast iron must use a mechanical dielectric coupling.
   e. Roof drain domes shall be securely attached to the drain body in a vandal-proof manner.
   f. Plastic domes are not permitted.
   g. P-traps are not allowed in storm drain lines.
   h. All piping shall be installed as straight as possible, avoiding unnecessary bends.
5. Cleanouts for Rainwater Systems:
   a. Cleanouts shall be installed in all rainwater systems.
   b. Sanitary fittings shall be used whenever possible.
   c. Cleanouts shall consist of a 4-inch tee with a newer seal or ABS plug.
6. Backfill Requirements for Underground Piping:
   a. Provide pea gravel backfill around all underground piping:
      i. 6 inches below the pipe.
      ii. 12 inches above the pipe.
7. Roof Overflow Drains:
   a. Overflow drains shall be daylighted through a scupper or through the wall at the lowest level in a location visible to Facility Services Staff.
8. Drain Slope Requirement:
   a. The minimum slope for any drain in the District shall be ¼ inch per foot of fall.

PLUMBING FIXTURES

GOALS AND OBJECTIVES

1. Provide safe and sanitary plumbing systems with low operating and maintenance costs.
2. System design shall consider ease of fixture accessibility.
3. Select low-flow, water-efficient plumbing fixtures.

DESIGN CRITERIA

1. Equipment Placement:
   a. Plumbing equipment shall be located to avoid conflicts with clearance requirements for electrical panels or other equipment.
2. Mounting Heights and Locations:
   a. All mounting heights and fixture locations shall follow the construction documents, SDCCD Planning Guides, and the requirements outlined herein.
3. Fixture Carrier Access:
   a. Where feasible, and where specified, a 24-inch-wide walk-in pipe and plumbing chase shall be provided for multiple-fixture restrooms.
   b. Access shall be through the men's restroom only.
4. Shut-Off Valves and Water Control:
   a. Stop valves shall be installed at all fixtures to enable individual shutdowns.
   b. Group shut-off valves shall be provided for areas with multiple plumbing fixtures to prevent full-building shutdowns for maintenance.
   c. Only full-port valves shall be used.
   d. Ball valves are preferred over gate valves.
   e. The contractor shall provide a water shut-off register at job completion, listing all valve locations and the areas/fixtures they serve.
   f. Valve tags shall be supplied by the contractor and must correspond to the identification numbers in the shut-off register.
   g. Shut off valves must be accessible with a 6' ladder.
5. Vacuum Breakers:
   a. Any water line serving a faucet with hose attachment provisions must be equipped with a vacuum breaker. Vacuum breakers must be mounted outside walls, not inside.
6. Garbage Disposals:
   a. In food service areas only, all garbage disposals must have an air gap device or vacuum breaker.
7. Water Hammer Arresters:
   a. Water hammer arresters shall be installed in branch lines serving:
      i. Toilets.
      ii. Flush valves.
      iii. Quick-closing faucets.
   b. Ball valves shall be installed ahead of water hammer arresters to allow for easy replacement.
8. Water Service Metering and Backflow Prevention:
   a. Water services shall be divided into three separately metered lines:
      i. Primary school site. (except remote services for relocatables)
      ii. Landscape irrigation.

iii. Fire protection.
b. Approved backflow prevention devices shall be installed on each service at the main takeoff.
c. The contractor shall secure and provide initial certification of backflow devices.
d. Brass backflow devices shall be protected from theft and tampering using a stainless steel mesh cage, secured to the concrete slab below.
e. The cage shall include a lockable adequately sized access panel for testing and maintenance.

9. Sewer Piping:
   a. All underground piping shall be PVC piping.
   b. No-hub cast iron sewer pipe shall be installed above ground in buildings.
   c. PVC piping is not permitted within buildings.
   d. 4-band or "Husky" type couplings shall be used for all no-hub pipe connections.
10. Water Pressure Regulator Stations:
   a. All piping, fittings, and strainers (3 inches and smaller) in water pressure regulator stations shall be made of brass or copper.
11. Lavatory Faucets:
   a. Self-closing metering faucets (requiring 5 psi or less operating pressure) shall be installed in all school lavatories.
12. Water Piping Restrictions:
   a. Water piping shall not be installed in or under concrete slabs.
   b. Piping may be installed under raised buildings with crawl spaces.
13. Roof Vents:
   a. All vents through the roof shall be metal and equipped with vandal-proof caps.
   b. PVC or ABS venting is only permitted when used with single-ply roofing systems.
   c. Maintain separation from outside air intakes.
14. Soil Line Cleanouts:
   a. The main soil line cleanout shall be extended to grade within 2 feet of the exterior of each building.
   b. Cleanouts shall be two-way for accessibility.
15. Handicap-Accessible Showers:
   a. Handicap showers shall include:
      i. Hand-operated flexible hose.
      ii. Single-lever water control.
      iii. Vacuum breaker
16. Material Restrictions:
   a. Lead shall not be used in any system.
   b. All solvents must be water-flushed.
17. Water System Sterilization:
   a. Sterilization and disinfection of domestic water systems shall be performed using approved processes and testing methods.
18. Hot Water Requirements:
   a. Hot water shall be provided at all service sinks.
   b. If a central hot water source is not feasible, a minimum 6-gallon electric water heater shall be installed at each service sink.
   c. Hot water shall be provided in all restrooms.
19. Roof Hose Bibs:
   a. Hose bibs shall be provided every 75’ OC at roofs.
20. Drain and Sewer Line Cleaning:

a. All sanitary, horizontal waste, and storm lines shall be rodded out using a rotary cutter matching the pipe diameter.
b. Flushing shall be performed simultaneously.
c. Rodding shall occur after construction completion but before occupancy.
d. The School District Inspector must be present for this process.

21. Drain and Sewer System Inspection:
    a. The contractor shall provide a video inspection of the sanitary and storm drainage systems upon project completion.
    b. The District Inspector must be present during filming.
    c. Drain video must include running water to confirm proper fall and absence of pipe "bellies".
22. Waterless Urinals:
    a. Waterless urinals shall not be used.
23. Eyewash Stations:
    a. Shall be faucet mounted eyewash station.
24. Shower/ Eyewash Stations:
    a. Freestanding shower-type eyewash stations shall be installed near a floor drain, slope to drain to ensure proper drainage. Required at labs, shops, and workshops. Travel distance shall be 30 seconds or less. If possible, locate at exterior of building. Use portable units where possible.
25. Piping Identification:
    a. All cold, hot, recirculating, de-ionized, fire sprinkler, and gas piping shall be clearly labeled in at least two visible locations per room.
    b. Flow direction shall be indicated with arrows on pipe runs.
26. Bathroom Shut-Off Valves:
    a. Shut-off valves for bathrooms shall be located inside an interior wall, 5 feet above the floor.
    b. An access door shall be installed to allow operation of both valves through a single penetration.
27. Sensor-Activated Faucets:
    a. Sloan sensor-activated faucets are acceptable only if hardwired (not battery-powered).
    b. Each sensor faucet shall be wired individually, not in a daisy-chain configuration.
28. Stainless Steel Fixtures:
    a. The standard for stainless steel sinks and drinking fountains shall be 18-gauge stainless steel. 24-gauge sinks and fountains are no longer acceptable.

Faucet Types		
Item	**Make/Model**	**Part Number**
Bathroom Lavatory Sinks 4” center faucets	Chicago	802-VE2805-665ABCP
De-ionized faucet – for labs	Chicago	869-BPVC
Kitchen wall mount sink faucets double and triple pot sinks	Chicago	445 L8CP
Lavatory faucet, single hole, deck mount for potable water	Chicago	930-CP
Lavatory Air/Gas Vacuum dispensers	Chicago	900 series valves
Service/custodial sinks	Chicago	897-CP (wall mount)
Toilet Floor Mount Accessible	Kohler	K4368 (12” rough)
Toilet Floor Mount Standard	Kohler	K4350 (12” rough)
Lavatory faucets; hot & cold	Chicago	802-VE2805-665ABCP
Lavatory faucet; cold only	Chicago	807-E12-665PAB
Lavatory peddle values	Chicago	625 CP or 625 LPSLOCP
Gooseneck single-hole	Moen	8303
“Emergency Shower Eyewash Station” fixture	WaterSaver	Varies

TRAP PRIMERS

1. Trap primers shall be connected to flush valves for floor drains throughout the facility.
2. Trap primers shall be installed at fire sprinkler drains to maintain proper trap seal.

MULTIPLE GANG LAVATORY SINKS

1. Trough Sink Options:
   a. Kohler Undertone® 60" Undercounter Trough Sink. (K-3157)
   b. EKO Commercial Trough CounterSink.
   c. Sonoma Cast Stone Commercial Trough Countertop.
2. Solid Surface Multi-Compartment Sinks:
   a. Three-compartment solid surface sink.
   b. Stained or stamped concrete is also an acceptable material option.

URINALS

1. Preferred Urinals:
   a. 1-pint urinals are preferred over waterless models.
   b. District standard manufacturers: Zurn, Moen, Sloan, or Kohler.
   c. The china urinal and flushometer shall be matched and provided as a single unit.
   d. A cleanout shall be installed to serve the sanitary tee for each urinal.
2. Waterless Urinals:
   a. Waterless urinals are no longer installed in the District.

SLOAN

REGAL® MANUAL FLUSHOMETER
REGAL 186-1.0-XL

COMPLIANCES & CERTIFICATIONS

(ADA Compliant, BAA Compliant, BABAA Compliant, cUPC Certified, Made in the USA)

RECOMMENDED SPECIFICATION

Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be in compliance with the applicable sections of ASSE 1037 and ANSI/ASME 112.19.2.

VALVE OPERATING PRESSURE (FLOWING)

15–80 PSI (103–552 kPa). Specific fixtures may require greater minimum flowing pressure - consult manufacturer requirements.

CODE NUMBER

3082675

DESCRIPTION

1.0 gpf, XL Sweat Solder Adapter Kit, Polished Chrome Finish, Fixture Connection Top Spud, Single Flush, Regal® Exposed Manual Urinal Flushometer.

DETAILS

- Flush Volume: 1.0 gpf (3.8 Lpf)
- Finish: Polished Chrome (CP)
- Valve: Diaphragm
- Valve Body Material: Semi-red Brass
- Fixture Type: Urinal
- Fixture Connection: Top Spud
- Rough-In Dimension: 11 ½" (292mm)
- Spud Coupling: ¾" (19mm)
- Supply Pipe: ¾" (19mm)
- Adapter: XL Sweat Solder Adapter Kit (XL)

REGAL® MANUAL FLUSHOMETER
REGAL 111

Image for a standard REGAL 111 shown

DESCRIPTION

Regal® Exposed Manual Water Closet Flushometer

FEATURES

- Flush volumes start as low as 1.6 gpf/6.0 Lpf to meet water-efficiency objectives
- Water conservation is aided by the ADA-compliant, non-hold-open handle, which prevents toilet from exceeding intended flush volume
- Low Consumption flush accuracy controlled by Para-Flo™ Technology
- Integrity of the product is maintained with control stop plug
- Durability is facilitated with high copper, low zinc brass castings for dezincification resistance
- Adjustable tailpiece
- Valve body, Cover, Tailpiece and Control Stop shall be in compliance with ASTM Alloy Classification for Semi-Red Brass
- Valve shall be in compliance to the applicable sections of ASSE 1037.

CHICAGO FAUCETS
Geberit Group

Metering Faucets
802-VE2805-665ABCP

Product Type

Deck-mounted manual faucet with 4" centers

Features & Specifications

- 4" fixed centers
- Vandal Proof Pressure compensating Econo-Flo™ non-aerating laminar spray, 0.5 GPM
- Vandal Proof 1-3/4" MVP® metering push handle (pair)
- MVP® metering cartridge and actuator
- ECAST® design provides durable cast brass construction with total lead content equal to or less than 0.25% by weighted average
- Complies with the requirements of the Buy American Act of 1933.
- CFNow! Item Ships in 3 Days

Performance Specification

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

Warranty

- 5-Year Limited Cartridge Warranty
- Lifetime Limited Faucet Warranty
- 1-Year Limited Finish Warranty

Codes & Standards

- ASME A112.18.1/CSA B125.1
- ADA ANSI/ICC A117.1
- Complies with CALGreen requirements
- NSF/ANSI/CAN 372 Low Lead Content
- NSF/ANSI/CAN 61: Q ≤ 1

CHICAGO FAUCETS
Geberit Group

Metering Faucets
807-E12-665PAB

Product Type

Deck-mounted metering faucet, single-hole, single-supply

Features & Specifications

- Single-hole
- Pressure compensating Softflo aerator, 2.2 GPM
- Vandal Proof 1-3/4" MVP® metering push handle
- MVP® metering cartridge and actuator
- ECAST® design provides durable cast brass construction with total lead content equal to or less than 0.25% by weighted average
- Complies with the requirements of the Buy American Act of 1933.
- CFNow! Item Ships in 3 Days

Performance Specification

- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

Warranty

- 5-Year Limited Cartridge Warranty
- Lifetime Limited Faucet Warranty
- 1-Year Limited Finish Warranty

Codes & Standards

- ASME A112.18.1/CSA B125.1
- ADA ANSI/ICC A117.1
- NSF/ANSI/CAN 61: Q ≤ 1

SLOAN®

OPTIMA® ACCESSORY
MIX-60-A

CODE NUMBER
3326009

DESCRIPTION
Standard

FEATURES
MIX-60-A Below Deck Mechanical Water Mixing Valve with the following features:

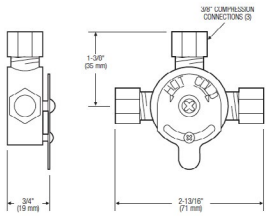
- Designed to install under the lavatory
- Supplied with Sloan Optima and Optima Plus faucets that are specified with the “BDM” (Below- Deck-Mixer) variation.
- Installs in place of the Tee fitting supplied with the faucet prior to the solenoid valve
- Equipped with integral check valves at inlets
- 3/8” compression fittings on inlets and outlet
- Compression sleeves and nuts included
- Lever dial adjustment with lock screw: COLD-HOT
- Brass construction
- Chrome plated finish

NOTES
All information contained within this document subject to change without notice.

Flow Capacities

SYSTEM PRESSURE						
PSI	20	30	40	50	60	70
BAR	1.4	2.1	2.8	3.4	4.2	4.9
GPM	1.75	2.25	2.75	3.0	3.5	4.0
Lpm	6.62	8.51	10.40	11.35	13.25	15.14

CAUTION! This is a mechanical hot and cold mixing valve only! It DOES NOT provide automatic control of water temperature. Hot water in excess of 110°F (43°C) is dangerous and CAN CAUSE SCALDING!



COMPLIANCES & CERTIFICATIONS

LOW-LEAD
UPC
C ®
STATE OF CALIFORNIA Proposition 65

(cUPC Low Lead Compliant, Proposition 65)

ELKAY®
SPECIFICATIONS

Enhanced Bottle Filler & Single ADA Cooler Refrigerated Stainless High Capacity Lead Drop Down Wrapper
Model LZS8WSSP

PRODUCT SPECIFICATIONS

Enhanced Bottle Filler & Single ADA Cooler Refrigerated Stainless High Capacity Lead Drop Down Wrapper. Chilling Capacity of 8.0 GPH (gallons per hour) of 50° F drinking water, based on 80° F inlet water and 90° F ambient, per ASHRAE 18 testing. Features shall include Antimicrobial*, Automatic Filter Status Reset, Energy Savings, Filtered, Green Ticker™, Hands Free, Laminar Flow, Real Drain, Visual Filter Monitor, Quick Filter Change. Furnished with Flexi-Guard ® Safety Bubbler. Electronic Bottle Filler Sensor with Electronic Front and Side Bubbler Pushbar activation. Product shall be Wall Mount (On Wall), for Indoor applications, serving 1 station(s). Unit shall be certified to UL 399 and CAN/CSA C22.2 No. 120.

Special Features:	Antimicrobial, Automatic Filter Status Reset, Energy Savings, Filtered, Green Ticker™, Hands Free, Laminar Flow, Real Drain, Visual Filter Monitor, Quick Filter Change
Finish:	Stainless Steel (S)
Power:	115V/60Hz
Bubbler Style:	Flexi-Guard ® Safety Bubbler
Activation by:	Electronic Bottle Filler Sensor with Electronic Front and Side Bubbler Pushbar
Mounting Type:	Wall Mount (On Wall)
Chilling Capacity*:	8.0 GPH
Full Load Amps	5
Rated Watts:	370
Dimensions (L x W x H):	18-3/8" x 19" x 39-7/16"
Approx. Shipping Weight:	85 lbs.
Installation Location:	Indoor
No. of Stations Served:	1
*Based on 80° F inlet water & 90° F ambient air temp for 50° F chilled drinking water.	

Special Note: One-Box Packaging.

- Visual Filter Monitor: LED filter status indicator alerts to needed filter changes.
- Automatic Filter Recognition: FillSafe™ recognition recognizes new filter and updates LED light back to green.
- High-capacity Filter Included: Elkay's 6,000-gallon filter is tested and certified to NSF 42 and 53 to reduce lead, Class 1 particulates and chlorine taste and odor.
- Energy-savings mode reduces energy consumption.
- Faster Filter Changes: Quick filter change wrapper provides easy access to filter from the front and side of cooler for efficient filter changes in under a minute.
- LED lighting: Low-energy LED light encourages use, assists with

INDOOR USE ONLY

Additional Finishes: **Arctic White (A)**
Midnight Black (M)

Included with Product: **Bottle Filler, Water Cooler, Filter**

Ships in one box.

A Century of Tradition and Quality.
For more than 100 years, Elkay has been making innovative products and providing exceptional customer care. We take pride in offering plumbing products that make life easier, inspire change and leave the world a better place.

PRODUCT COMPLIANCE

ADA & ICC A117.1
ASME A112.19.3/CSA B45.4
CAN/CSA C22.2 No. 120
FCC & ISED
GreenSpec®
NSF/ANSI 42, 53, 61 (Q≤1), 372 (lead free), & 401
UL 399

Complies with ADA & ICC A117.1 accessibility requirements when installed according to the requirements outlined in these standards. Installation may require additional components and/or construction features to be fully compliant. Consult the local Authority Having Jurisdiction if necessary.

Installation Instructions (PDF) - 2000001214

5 Year Limited Warranty on the refrigeration system of the unit. Electrical components and water system are warranted for 12 months from date of installation. **Warranty pertains to drinking water applications only. Non-drinking water applications are not covered under warranty.**

Warranty (PDF)

FILTER

1. Install with filter.

Guardian Emergency Shower/Eyewash Station - Plastic

More Images

PRIMARY

Quickly wash contaminants from eyes or body.

- Galvanized steel piping with protective plastic sleeve.
- Twin spray heads.
- Flip-top dust covers.
- Combination drench shower and eyewash bowl in one.
- **Plumbing required.**
- Recommended for factories and warehouses.
- Includes: Emergency sign and inspection tag.

Meets ANSI Z358.1-2014

MODEL NO.	DESCRIPTION	BOWL	SHOWER HEAD	WT. (LBS.)	PRICE EACH		IN STOCK SHIPS TODAY
					1	2+	
H-5101	Shower with Eyewash	Plastic	Plastic	39	$785	$760	1 ADD

Bradley® Faucet-Mount Eye Wash

PLS1615 Faucet Mount; Plumbed,Flow Rate 0.4 gal./Minute

Turn any faucet near high-risk areas into an emergency eye wash station

- Universal mount connects eye wash to any standard or gooseneck faucet to provide an unlimited water supply
- Versatile design won't interfere with normal sink operation; water flows straight through until knob is pulled to activate eye wash
- Twin spray heads include pop-off plastic dust caps to keep out contaminants
- Integral flow control produces a safe, steady flow of water at 0.4 gpm; regulates varying water supply conditions from 30 to 90 psi
- Chrome-plated brass construction resists corrosion and provides a clean, mirrored finish
- Includes universal signage and inspection tag to help identify and encourage maintenance of eye wash

WATER AND GAS SUPPLY AND DISTRIBUTION SYSTEMS

GOALS AND OBJECTIVES

1. Ensure safe and sanitary water supplies for potable water, irrigation, and fire protection systems.
2. Design and install safe gas piping systems that comply with utility company and government regulations.
   a. Coordinate water system design with state and local governing authorities.
3. The District maintains service request forms and contact points for public utility systems.
4. Provide separate water services for:
   a. Domestic use.
   b. Fire protection.
   c. Irrigation.
   d. Each service shall have a separate meter.

WATER SERVICE

1. Design water systems that minimize water waste.
2. Locate water meters and control valves above ground, secured within a fenced enclosure.
3. Verify meter location with the San Diego City Water Department prior to design.
4. Provide a separate water meter for irrigation systems.
5. Acceptable Underground Water Pipe Materials:
   a. Type "K" copper with brazed joints.
   b. Cement-lined ductile iron with mechanical or flanged joints.
   c. PVC Schedule 80 or Class 200 (as applicable), with ductile iron joints.
6. Prohibited Materials and Practices:
   a. ABS or asbestos cement piping is not permitted.
   b. Glued pipe fittings are not allowed; use mechanical joints or soldered copper.
   c. Piping smaller than 3/8” diameter shall not be used.
   d. Three-piece valves shall not be used underground.
7. Water Piping and Isolation Requirements:
   a. Copper piping shall be used for lines 3 inches and smaller.
   b. In acidic soil conditions, metallic pipes shall be encased in PE sheathing.
   c. Maintain consistent pipe and fitting types; all selections must be reviewed with the District.
   d. Provide zone valves for water supply to each building:
      i. Valve locations must be identified on contract drawings.
      ii. A printed and numbered valve schedule shall be posted in the building mechanical room for service reference.
      iii. Each valve shall be tagged with a corresponding identification number.
      iv. Underground outdoor water shut-offs shall have a brass tag indicating the area of the building served.
   e. Hot and cold water shut-off valves shall be provided for:
      i. Each floor in multi-story buildings (accessible shut-offs).
      ii. Custodial, kitchen, and other high-use areas with multiple plumbing fixtures.
   f. Buildings connected to a campus "looped" water system or served by two separate meters shall be plumbed for individual building isolation using a single water valve.

FIRE WATER SERVICE

1. Coordinate fire hydrant locations, detector check valves, and alarm devices with state and local fire authorities.
2. The contractor shall provide certified flow charts for fire hydrants, ensuring sufficient water volume and pressure to serve the designated area.
3. Provide individual shutoff valves for all hydrants.
4. Label all piping with flow direction indicators.

GAS SERVICE

1. PE piping shall be used for underground gas distribution.
2. Each building shall have a dedicated gas shut-off valve.
3. All underground gas piping shall include a tracer wire in accordance with local codes.
4. Seismic automatic shut-off valves shall be installed at each gas main and shut-off valve and housed in a protective enclosure.
5. The gas distribution system shall be designed to maintain a minimum pressure of 10 psi at the project meter.
6. Gas pressure shall be regulated to meet the manufacturer's specifications for all connected equipment.

HVAC SYSTEM REQUIREMENTS

GENERAL REQUIREMENTS

1. This section establishes the District's standards for HVAC systems, environmental controls, and associated mechanical equipment. These standards are intended to ensure consistency, energy efficiency, long-term maintainability, and alignment with the District's sustainability goals across all new construction, modernization, and renovation projects.

   All mechanical systems must be designed to:
   a. Support an all-electric infrastructure wherever feasible, minimizing reliance on natural gas.
   b. Maximize energy performance and operational efficiency through appropriate equipment selection, control strategies, and commissioning practices.
   c. Comply with all applicable local, state, and federal codes, including the California Mechanical Code, Title 24, and ASHRAE guidelines.
   d. Provide redundancy and system reliability in critical IT and infrastructure environments (e.g., MDF/IDF rooms).
   e. Integrate with the District's Energy Management Control System (EMCS) for centralized monitoring, control, and optimization.
   f. Incorporate best practices in acoustics, air distribution, and vibration control to support occupant comfort and indoor environmental quality.

2. These standards shall be applied to all HVAC equipment, ductwork, piping, controls, and commissioning efforts associated with the design and construction of District facilities. Deviation from these standards requires prior written approval by the District Architect.

COMMISSIONING

PURPOSE AND PROCESS

1. Commissioning is a quality-driven process used by contractors to ensure the proper installation, startup, and operation of building equipment and systems.
2. The commissioning process ensures that systems perform according to design intent and meet the Owner's operational needs.
3. The process encompasses and coordinates the following functions:
   a. System documentation.
   b. Equipment startup.
   c. Control system calibration.
   d. Testing and balancing.
   e. Performance testing.
   f. Operational training for maintenance staff.
   g. Upon 60 days after full occupancy, perform an additional TAB and rebalance as required.

COMMISSIONING OBJECTIVES

1. Verify that equipment and systems are installed correctly per:
   a. Manufacturer recommendations.
   b. Owner requirements.
   c. Industry-accepted minimum standards.

2. Ensure that systems undergo a thorough operational checkout by the installing contractors.
3. Verify and document that all equipment and systems operate properly and efficiently to maximize energy performance.

HVAC CONSTRUCTION EQUIPMENT REQUIREMENTS

1. HVAC Unit Power Requirements.
   a. Use the highest voltage/ phase possible for efficiency.
   b. Use 3-phase motors or EC wherever it provides the best operational efficiency for the equipment.
2. Refrigerant and Cooling System Standards.
   a. Approved refrigerants: R-454 or R-32.
   b. Air-cooled chillers shall be constructed with all copper fins and copper tubes.
3. Approved Manufacturers.
   a. Compressors: Use York, Carrier, or Daikin compressors or magnetic bearing compressors.
   b. Boilers: Use Patterson Kelley or Raypak.
4. System Design and Installation Guidelines
   a. Large Tonnage Units:
      i. For systems 300 tons and above, install two smaller units (e.g., use two 150-ton units instead of one 300-ton unit).
   b. Computer Server Rooms:
      i. Use Carrier duct-free split systems with commercial-grade condensing units and matching fan coil units.
      ii. Do not locate condensate pumps over electrical or networking equipment, fire alarm panels, or other critical infrastructure.
   c. MDF Room - Environmental Requirements:
      i. Provide redundant systems for all MDF rooms.
   d. IDF Room - Environmental Requirements:
      i. The preferred system for cooling IDF rooms is ductless split systems.
      ii. When the door of the IDF opens to the exterior, provide redundant systems.
   e. Hot Water / Chilled Water Pumps:
      i. Install two pumps for redundancy (N+1 configuration) to allow alternate operation.
   f. Exhaust Fans:
      i. Use direct-drive exhaust fans with EC motors where possible.
      ii. Motors shall be sized to handle 110% of design airflow at design static pressure and 110% of design static pressure at design airflow.

HVAC CONTROLS

1. BACnet/IP Controllers:
   a. Provide dual BACnet/IP controllers for system communication and integration.
2. Direct Digital Controls (DDC) for Energy Management Systems (EMS) and Lighting:
   a. Implement DDC controls to manage EMS and lighting systems for improved efficiency and automation.
   b. Implement controls that maintain minimum ventilation as required.
   c. Implement controls that provide feedback/alarms as required for remote troubleshooting.
   d. Review control strategies/points lists with district.
3. HVAC Control System Requirements:
   a. DDC Controls: Shall be provided by Automated Logic, Carrier, or Distech.

b. Conventional Controls:
   i. May be acceptable on a case-by-case basis.
   ii. Must include a time clock, bypass timer, and room thermostats where applicable.

DUCTWORK

1. Weatherproofing and Drainage:
   a. Ductwork exposed to weather shall be waterproof and lined with internally lined, double wall pr phenolic duct for ducts that are exposed.
   b. Ducts shall be pitched, cross-broken, or equipped with a cap sheet to facilitate rainwater drainage.
   c. Roof penetrations shall include curbs and proper flashing details to prevent leaks.
2. Sealing and Construction Requirements:
   a. All concealed supply, return, and exhaust ducts shall be sealed with a high-quality duct sealant, similar to Polymer Adhesive Air Seal #11.
   b. Manual volume dampers shall be included in all branch ducts for supply, return, and exhaust outlets per SMACNA.
   c. Use high-quality, factory-manufactured manual volume dampers, similar to Ruskin.
3. Flexible Ducts:
   a. Flexible duct connections shall be used for all duct connections to vibration isolatedequipment.
   b. Flexible ducts shall meet UL Class 1 standards, have a maximum length of 5 feet, and include factory-attached collars.
4. Structural Supports and Seismic Restraints:
   a. Provide detailed plans for duct supports and seismic restraints to ensure structural stability.
5. Ducting Accessibility:
   a. Duct systems must include access panels to allow proper cleaning and maintenance of coils.

HVAC PACKAGE EQUIPMENT

1. General:
   a. The district standard is for all new equipment to be “all-electric” and not use natural gas for heating. Natural gas may only be used in select instances with prior approval by District Architect.
2. Rooftop Package Units:
   a. Preference is for all electric heat pump package units. Gas may be used in select instances when approved by District Architect.
   b. Approved manufacturers: Daikin, Aaon, York, and Carrier.
3. Air Handler Units (AHUs):
   a. AHUs exposed to weather shall be specifically designed for outdoor use.
   b. Weatherproofing an indoor unit for outdoor installation is not acceptable.
4. Exhaust Fans:
   a. Use direct drive ECM exhaust fans whenever possible.
   b. Approved manufacturers: Cook and Greenheck.
5. Diffusers and Grilles:
   a. Ceiling supply diffusers: Modular core type, with or without a perforated face.
   b. Sidewall supply diffusers: Double deflection type.
   c. Ceiling return grilles: Shall match ceiling supply diffusers, with ¾-inch blade spacing.
   d. Exhaust grilles: ¾-inch blade type.
6. Seismic Restraints:
   a. Provide detailed specifications for HVAC seismic restraints to ensure compliance with structural requirements.

OTHER HVAC RELATED COMPONENTS

1. Gas Cocks:
   a. Shall be high-quality bronze body plug type.
2. Appliance Connectors:
   a. Must be stainless steel for durability and corrosion resistance.
3. Gas Piping and Fittings:
   a. Exposed gas pipes and fittings shall be galvanized for weather protection.
4. Piping Supports and Seismic Restraints:
   a. Provide detailed specifications for piping supports and seismic restraints to ensure structural stability.
5. Condensate Piping:
   a. All condensate piping located in ceiling spaces shall be insulated to prevent condensation issues.
6. HVAC Filters:
   a. Only standard filter sizes shall be used to ensure ease of maintenance and replacement.

HEAT GENERATING SYSTEMS

GOALS AND OBJECTIVES

1. Heat-Generating Systems:
   a. Design systems to maintain specified thermal conditions while minimizing energy costs.
2. Equipment Standards:
   a. Use commercial and/or industrial-grade heat-generating equipment.
   b. Equipment shall be installed professionally by an experienced contractor approved by the manufacturer.
3. Heating Source Requirements:
   a. The district standard is for all new equipment to be “all-electric” and not use natural gas for heating. Natural gas may only be used in select instances with prior approval by District Architect.
   b. Heat pumps shall be used in package air handlers, capable of two-stage or modulating control.
   c. Forced-air heating systems shall include a ducted return

CENTRAL HEATING BOILERS AND ACCESSORIES

1. Boiler Plant Design:
   a. Heat pump boilers that meet the districts "all electric" goals shall be the basis of design.
   b. Centralized hot water boiler plants shall utilize multiple, staged hot water generators.
   c. Select boilers for high-efficiency operation.
2. Burner Requirements:
   a. The district standard is for new equipment to be "all-electric" and not use natural gas for heating. Natural gas may only be used in select instances with prior approval by District Architect.
3. System Monitoring and Control:
   a. Systems shall be monitored and controlled through the District Energy Management Control System (EMCS).
4. Additional Design Considerations:
   a. Avoid dual-service hot water boilers for space heating and water heating within the same system.
   b. Select heat-generating equipment with automatically controlled outside air dampers to minimize flow during building warm-up.
   c. Steam heat generation shall not be specified.
   d. Implement heat recovery strategies whenever possible.
   e. Ensure heat pump boilers are provided with adequate loop volume and minimum flow per manufacturers recommendations.

HEAT PUMPS

1. Heat Pump Application:
   a. Heat pump boilers that meet the districts "all electric" goals shall be the basis of design.
   b. Electric boilers may be used on a case by case basis.

GAS FURNACES

1. General:
   a. The district standard is for all new equipment to be “all-electric” and not use natural gas for heating. Natural gas may only be used in select instances with prior approval by District Architect.
2. Material Requirements:
   a. Gas furnaces and heaters exceeding 250,000 BTU shall be constructed with 321 stainless steel heat exchangers.
   b. Unit heaters shall be constructed with aluminized steel heat exchangers.
3. Combustion and Ventilation Requirements:
   a. Ducted combustion air with forced-draft fans shall be used (natural draft units are not permitted).
   b. Adequate clearance shall be provided for maintenance access.

FUEL FIRED HEATERS

1. General:
   a. The district standard is for all new equipment to be “all-electric” and not use natural gas for heating. Natural gas may only be used in select instances with prior approval by District Architect.
2. Performance Requirements:
   a. Only high-efficiency, high-quality heaters shall be used.
   b. Furnaces shall operate exclusively on natural gas.
   c. Unit heaters may be used in specific applications with District approval.

COOLING GENERATING SYSTEMS

GOALS AND OBJECTIVES

1. Cooling Systems:
   a. Provide cooling systems where necessary to maintain specified thermal conditions.
2. Cooling System Equipment Standards:
   a. Equipment shall be designed and built for commercial and/or industrial applications.
   b. Installation shall be performed professionally by experienced contractors, approved by the equipment manufacturer, with adequate maintenance access.
   c. Systems shall be designed to accommodate varying loads, with variable flow air systems as the standard.
   d. Cooling systems shall be integrated with occupancy sensors and the District Energy Management Control System (EMCS).

CENTRAL COOLING EQUIPMENT AND ACCESSORIES

1. System Monitoring & Control:
   a. All cooling systems shall be monitored and controlled through the District EMCS.
2. Energy Efficiency Standards:

a. Specify and install cooling equipment with high EER (Energy Efficiency Ratio) or SEER (Seasonal Energy Efficiency Ratio) ratings.
b. Provide variable frequency drives (VFDs) on all applicable equipment.
c. Use energy-efficient motors to optimize performance.

3. Compressor Requirements:
   a. Rotary compressors shall not be specified.
4. Equipment Placement Considerations:
   a. Ensure proper maintenance access when locating cooling equipment.
5. Economizers
   i. Air economizers shall be incorporated into air conditioning systems whenever possible.
6. Evaporative Coolers
   a. Restricted Use:
      i. Evaporative coolers may only be used under specific and limited conditions, e.g., temporary use on renovation projects, as determined by District Architect and the HVAC Department.

WATER DISTRIBUTIONS SYSTEMS

MATERIALS

1. Underground hydronic piping
   a. U/G Hydronic piping shall be steel piping with insulation and an HDPE carrier pipe.
   b. All joints shall be butt welded for 2.5 inches and larger and socket welded for 2 inches and smaller.
2. Above ground hydronic piping
   a. Hydronic piping shall be welded steel or soldered/brazed copper.
   b. Mechanical joints/couplings shall not be used.

MAINTENANCE

1. Building Valves
   a. Where new UG piping is provided to a building provide shutoff valves at the entry to the building and a bypass valve to help with building/site flushing.

AIR DISTRIBUTION SYSTEMS

GOALS AND OBJECTIVES

1. Air Supply System Requirements:
   a. Ensure the supply air to conditioned spaces is:
      i. Temperature-controlled for occupant comfort.
      ii. Filtered and integrated with outside air control and $CO2_2$ sensors for indoor air quality.
      iii. Uniformly distributed across each zone.
      iv. Delivered draft-free, maintaining a noise level below NC 35, per ASHRAE guidelines.
      v. Supplied in a well-controlled, energy-efficient manner.

SYSTEM ACOUSTICAL FEATURES

1. Noise Control Guidelines:
   a. Follow ASHRAE HVAC Applications Handbook, Chapter on Sound and Vibration Control, referencing “Design Guidelines for HVAC Noise in Occupied Spaces.”

2. Equipment Placement Considerations:
    a. Locate noise-generating equipment such as compressors, fan coil units, exhaust fans, and pumps outside occupied spaces.
3. Duct Noise Control Measures:
    a. Utilize turning vanes, low-velocity duct design, and sound attenuation baffles/materials to minimize noise transmission.
4. Vibration Isolation:
    a. Ensure vibration-isolating connections between air handlers, ducts, and supporting structures are adequately installed.

ENERGY EFFICIENCY STANDARDS

1. System Components for Energy Efficiency:
    a. Use low-pressure drop filters, dampers, silencers, and diffusers.
    b. Filters shall be extended surface type and configured for easy replacement.
2. Fan and Motor Efficiency:
    a. Utilize high-efficiency backward-curved or airfoil impeller fans.
    b. Implement variable frequency drives (VFDs) or electrically commutated (EC) motors for variable loads.
    c. Use premium efficiency motors, correctly sized for their application, with optional drive belts where feasible.
3. Optimized Airflow and Exhaust Placement:
    a. Position exhaust hoods and return air intakes near heat or odor-generating equipment such as copiers, kilns, graphic arts rooms, and food preparation areas to facilitate efficient removal of heat and odors.
    b. Size air supply appropriately to balance additional exhaust requirements.
4. Thermostat Placement Considerations:
    a. Install thermostats away from heat-generating equipment or locations with obstructed airflow (e.g., behind furniture, near partitions, exterior walls, doors, or windows).
5. Control System Integration:
    a. Connect HVAC system controls to the District Energy Management Control System (EMCS).
6. Economizer Requirements:
    a. Economizers shall be included on all units 33 MBH (thousand BTU per hour) and larger.

MINIMIZE SYSTEM MAINTENANCE AND COSTS

1. Service Accessibility:
   a. Position system components requiring routine service outside conditioned spaces to minimize disruptions to classrooms and administrative activities.
   b. Ensure manufacturer-recommended clearance around equipment for easy maintenance and replacement.
2. Component Installation:
   a. Install damper actuators outside volume control units.
   b. Size and locate access panels to allow unobstructed access for servicing and replacing components.
3. Insulation Requirements:
   a. Use interior insulation resistant to air erosion and environmental factors such as humidity and corrosive airborne chemicals.
   b. Consider manufacturer limitations and application precautions throughout the building lifecycle, including design, specification, construction, operation, and renovation.
   c. Internal HVAC insulation must be durable per ASTM or UL 181 erosion tests and must not support microbial growth as determined by ASTM or UL standards.
   d. Insulation must be installed to prevent contact with liquid water.
   e. Fiberglass shall not be used as interior insulation for supply ducting downstream of filters.
4. Air Quality and Sterilization:
   a. In high-risk environments for mold and microorganism growth, install UV lamps for sterilization of air handling unit coils and air discharge plenums.
5. Control Systems:
   a. Pneumatic controls and actuators shall not be used in new construction and should be avoided in retrofits where economically feasible.
6. Ducting and Airflow Management:
   a. Flexible duct connections shall not exceed 5 feet in length and must be properly sized, matched, and securely connected using clamps, brackets, or screws.
   b. Equip all air distribution grilles and registers with opposed blade dampers (OBDs) at main duct take-offs.
7. Air Intake Placement:
   a. Position air intakes to prevent contamination and minimize vandalism.
   b. Avoid intake locations near or downwind of loading docks and passenger pick-up zones.
   c. Ensure placement complies with the California Mechanical Code in relation to vent locations.

TERMINAL AND PACKAGE UNITS

GOALS AND OBJECTIVES

1. Be designed and manufactured for commercial and industrial applications.
2. Be installed professionally by experienced contractors approved by the equipment manufacturer.
3. Be maintained according to a recognized preventive maintenance program to ensure maximum system efficiency.
4. Utilize single-duct variable volume terminal units in air-conditioned areas served by large air-handling units catering to multiple occupied spaces with varying functions and orientations.
5. Employ package units in small, isolated air-conditioned areas with integral heating coils.

TERMINAL UNITS

1. Systems shall be monitored and controlled through the District Energy Management Control System (EMCS).
2. Terminal units shall have removable panels with airtight gaskets and quarter-turn latches for easy access to

dampers, regulatory assemblies, and other serviceable components.
3. Terminal units shall not be located above classroom areas.
4. Noise levels shall be assessed, and attenuator sections lined with insulation shall be provided as necessary.
5. Maximum damper leakage shall not exceed 2.5% of nominal terminal airflow at 1-inch wg inlet static pressure.

PACKAGE UNITS

1. Use extended surface disposable air filters with ultra-low pressure drop where possible.
2. Install seismic vibration isolators.
3. Incorporate 100% outdoor air (OSA) economizers in package units.
4. Do not use window-type air conditioners.
5. Provide a minimum of 15 CFM per person of outside air in all occupied classrooms, following the latest CMC, Title 24 and ASHRAE Standards.
6. Ensure full access to all serviceable components once installed.
7. Condensate drains shall be connected outside the air handling unit and discharged through an air lock.
8. Drain depth shall comply with manufacturer requirements, and the AHU base mount shall be high enough to accommodate this depth. The drain shall be pitched at ¼ inch per foot.

CONTROLS AND INSTRUMENTATION

GOALS AND OBJECTIVES

1. The San Diego Community College District (SDCCD) is implementing a district-wide Energy Management Control System (EMCS). Controllers at each site are connected via a Local Area Network (LAN), while all sites are linked to each other and the Maintenance and Operations Office through the District Wide Area Network (WAN).
2. The EMCS enables measurement and analysis of energy performance for individual mechanical and electrical systems at each site while providing direct control of mechanical systems.
3. All new construction shall include the installation of the District Standard EMCS for comprehensive monitoring and control of mechanical systems. New mechanical systems and EMCS installations must incorporate provisions for periodic testing and recalibration, with detailed control sequences of operation and product specifications.
4. Current sensors shall be used for Variable Frequency Drive (VFD) feedback. Digital inputs (DI) shall be used for feedback monitoring.
5. Temperature sensors and wells shall be installed at a 45° angle on all horizontal piping runs for chilled water, and heating hot water..
6. Pete's plugs shall be installed at the inlet and outlet of:
   a. All pumps.
   b. Condenser water loops.
   c. Heating hot water loops.
   d. Chiller barrel heat exchangers.
   e. All piping systems entering or exiting buildings.
7. Controls, temperature, and pressure sensors or gauges shall be labeled with large, legible, and durable lettering designed to withstand environmental conditions.

EQUIPMENT CONTROLLED BY THE ENERGY MANAGEMENT SYSTEM (EMS):

1. Boilers.
2. Package HVAC units.

3. Air handlers.
4. Split systems.
5. Fan Coils.
6. All chillers, cooling towers, and KW meters.
7. All pumps.
8. All fans.
9. Associated valves.
10. Exterior lighting.

SPECIAL HVAC SYSTEMS AND EQUIPMENT

GOALS AND OBJECTIVES

1. Special HVAC systems and equipment used in the District's air conditioning and refrigeration systems shall be:
   a. Designed and built for commercial and industrial applications.
   b. Installed professionally by experienced contractors approved by the equipment manufacturer.
   c. Maintained through a recognized preventive maintenance program to ensure maximum system efficiency.
   d. Designed to meet all Department of State Architect (DSA) seismic requirements.
2. Computer air conditioning systems shall be selected to meet the temperature and humidity requirements specified by computer equipment manufacturers. Year-round operation shall be considered when selecting equipment, and split systems shall be used for rooms operating Monday through Friday.

SYSTEM DESCRIPTION

1. Use extended surface, low-pressure drop disposable air filters, designed for easy replacement.
2. Select and install high-efficiency HVAC equipment with optimal Energy Efficiency Ratio (EER) and Seasonal Energy Efficiency Ratio (SEER) ratings.
3. Provide economizers for systems rated at 33 MBH cooling capacity or greater, unless modeling supports their use for smaller units.
4. Choose HVAC and refrigeration equipment to meet actual special system load requirements, while allocating physical space for potential future expansion.
5. Implement heat recovery strategies where feasible on large refrigeration and cooling units.
6. Ensure exhaust heat from printers and copiers is properly vented when direct duct connections are available.

BUILDING SYSTEMS APPROACH FOR IAQ CONTROL

1. Optimize HVAC equipment placement to allow for direct outdoor air intake, minimizing the need for extensive ductwork runs.

INDOOR AIR QUALITY

GENERAL PRINCIPLES

1. The San Diego Community College District (SDCCD) follows a Building Systems Approach based on key ASHRAE Standards to ensure good indoor air quality (IAQ) and occupant comfort.
2. A school building is a dynamic environment with fluctuating pollutant levels, heating, and cooling loads. A well-designed and properly functioning ventilation system must respond to these changes before they impact occupants. While achieving this ideal condition can be challenging, the Building Systems Approach should be integrated into design, construction, commissioning, operator training, and ongoing facility operations and maintenance.

3. Successful implementation requires coordination among multiple disciplines and IAQ education for key system operators, with the shared goal of maintaining occupant health and comfort throughout the building's lifespan.

BUILDING SYSTEM APPROACH GUIDELINES

1. Compliance with current ASHRAE standards is essential for a successful Building Systems Approach:
   a. ASHRAE Standard 62.1 – Ventilation requirements.
   b. ASHRAE Standard 55 – Thermal comfort guidelines.
   c. ASHRAE Standard 52.1 – Filtration standards.
2. Building personnel must familiarize themselves with these standards, and equipment operation and maintenance manuals should be updated accordingly. Modifications to existing equipment may be necessary.
3. MERV 13 filters shall be installed unless otherwise specified.

DESIGN GUIDELINES

1. Site Planning.
   a. The physical site and outdoor environment must be analyzed for their impact on IAQ, including prevailing weather, wind patterns, ambient air quality, and nearby pollution sources.
2. Building Configuration.
   a. Building layout affects pollutant migration from outside to inside and within the building itself. Design considerations should include:
      i. Location and orientation of air intakes, exhausts, and stacks.
      ii. Vehicle access, parking, and garage ventilation.
      iii. Pollutant pathways and solar heat loads.
3. HVAC System Design.
   a. Given the reliance on mechanical ventilation in modern energy-efficient buildings, HVAC design must accommodate:
      i. Projected occupant densities, activities, and spatial usage.
      ii. Proper ventilation rates and air distribution.
      iii. Ventilation flexibility and zoning for core vs. perimeter loads.
      iv. Control systems, humidification/dehumidification, filtration, and energy recovery technologies
   b. Key Areas of Focus:
      i. Outdoor (Fresh) Air Supply – Follow ASHRAE Standard 62.1 for minimum outdoor air intake requirements.
      ii. Temperature and Humidity Control – Maintain seasonal consistency as per ASHRAE Standard 55.
         1) Heating setpoint: 68°F
         2) Cooling setpoint: 74°F
      iii. HVAC Filtration – Filters shall be selected per California Mechanical Code (CMC) and properly fitted, considering outdoor air quality when specifying filter efficiency.
      iv. Building Pressurization – Maintain slightly positive pressure inside school buildings.
      v. Areas with dedicated exhaust (e.g., art studios, labs) shall remain under negative pressure to prevent contaminated air from recirculating.
4. Maintainability.
   a. HVAC systems should be designed for easy maintenance to support healthy IAQ throughout the building's lifespan. Considerations include:
      i. Access points for critical HVAC components.
      ii. Corrosion-resistant materials to prevent microbial contamination.
      iii. Insulation materials that do not degrade over time.

5. Interior Material Selection.
    a. Materials should be chosen to minimize indoor pollutant loads based on:
        i. Off-gassing potential.
        ii. Fiber release and microbial resistance.
        iii. Durability and ease of maintenance.
6. Temporary Ventilation & Filtration During Construction.
    a. When interior finishing products (e.g., adhesives, paints) are applied, increase ventilation rates and use:
        i. Temporary filtration systems.
        ii. Portable conditioning and filtering units.
        iii. Open doors/windows where feasible.
7. Ventilation Regime for Building Activation.
    a. Upon activating the HVAC system, maximize fresh air intake and minimize recirculation:
        i. Operate return air dampers in a closed position.
        ii. Set the system to dehumidify and warm the interior to facilitate curing of interior finishes.
        iii. Maintain this mode for at least 48 hours before occupancy.
        iv. Provide building flushout as required per CalGreen.
8. Installation Sequencing.
    a. The order of installation for equipment, materials, and finishes significantly impacts final IAQ.
        i. Wet-applied materials (e.g., adhesives, paints) must be installed before porous materials (e.g., ceiling tiles, fabrics, furniture) to minimize absorption of VOCs.

GENERAL DESIGN GUIDELINES

APPLICABLE CODES

1. All electrical work shall comply with the California Building Standards Code, Part 3 – California Electrical Code, Part 6 – California Energy Code, and Part 9 – California Green Building Standards Code.

POWER

SERVICE AND DISTRIBUTION

1. Main Campuses (City College, Mesa College, Miramar College)
   a. All three main campuses have 12 kV SDGE utility services with 12 kV loop, radial, or combination loop/radial campus distribution systems. City College also has several existing SDGE 600 volt services. All new buildings and facilities on these campuses shall be connected to the campus 12 kV distribution systems in the same fashion as the other buildings on that campus. All new electrical connections to the campus distribution systems will be coordinated with and approved by the District Facilities Maintenance Department.
2. Continuing Education Campuses (ECC, North City, CE Mesa, Cesar Chavez, Mid City, West City)
   a. All continuing education campuses have 600 volt SDGE utility services with radial campus and/or building distribution systems. All new electrical connections to the campus distribution systems will be coordinated with and approved by the District Facilities Maintenance Department.
3. Buildings and Facilities
   a. For sites with loads less than 500 kVA, including future growth, the service shall be 120/208 volt, three phases, four wire. For services larger than 500 kVA the service shall be 277/480 volt, three phase, four wire.
   b. Service Entrance
      i. Ground fault protection shall be provided with the main breaker as required by the CEC.
      ii. The electric room shall not house the telecom/data network equipment, which shall be located in a separate room.
      iii. The electrical room shall have double-doors and keyed to SDCCD standards. The opening shall be not less than the largest single piece of equipment.
      iv. Electrical room shall have a duplex outlet on each wall.
      v. Electrical room shall have adequate lighting that is not on a timer or occupancy sensor.
      vi. Electrical room shall have floors with proper slope for drainage. Surrounding ground elevation shall not be higher than finished floor. Floor drains shall not be installed in electrical rooms; natural drainage to the exterior shall be used.
      vii. Cabinet and panel mounting locations shall be selected for efficient serviceability.
   c. Branch Circuits
      i. All mechanical equipment shall be connected to a separate feeder and panel board separate from lighting and receptacle loads.
      ii. Separate circuits for lighting, mechanical and general-purpose loads shall be provided.
      iii. The computer switching equipment in IDF's shall be powered by a circuit separate from classroom computer loads, Up to four powered switches may be on a single circuit.
      iv. Computer laboratories shall be provided with a minimum of fifteen circuits. Coordinate number of circuits once equipment is selected.
      v. All raceways shall be a minimum of ¾ inch conduit. Use of ½ inch conduit is not acceptable.
      vi. Provide a minimum of two duplex outlets on each classroom wall, or more as required by the NEC, whichever is greater. Adjacent receptacles shall be connected to alternate circuits

vii. Surface mounted raceways are not acceptable in any educational or office space. Outlets must be recessed into walls.

d. Panel Boards
   i. All distribution panels shall be provided with a main circuit breaker for each building.
   ii. Provide for 20% additional capacity for future circuits at all main panels and branch panels.
   iii. Provide spare conduit, accessible within rooms, routed into and out of new panels to accommodate future expansion.

e. Grounding
   i. Provide a service entrance ground within 5 feet of service entrance.
   ii. Provide a building ground at each distribution panel per code.
   iii. Where grounding rod is provided, resistance shall not exceed 5 ohms.

f. Conductors and Conduits
   i. All conductors shall be copper THHN; where subject to moisture, provide THWN insulation type.
   ii. All conductors shall be in conduit or raceways.
   iii. There shall not be less than one 3 inch conduit from power distribution to each sub- distribution panel.
   iv. Underground raceways shall be PVC or non-metallic raceway materials. Duct banks shall be encased in red concrete.
   v. All power and signal underground distribution system shall be run in separate duct banks and through a separate manhole system. Signal and power shall never occupy the same manhole.
   vi. Conduits shall be rigid metal where exposed in a room. Conduits within a wall or otherwise concealed shall be in EMT.
   vii. The use of MC Cable shall not be used without approval. 6 foot fixture whips are permitted.
   viii. Compression fittings only
   ix. Penetration through rated walls to use firestop EZ-path or equal.

g. Meters
   i. Meters shall be located inside of the main electric room for protection from the elements.
   ii. Site meters shall have a dedicated 4-20 mA or pulse output for input to the District Energy Management Control System.

h. Surge Protection
   i. Transient voltage surge suppressors shall be installed at each distribution board greater than 400 amps.
   ii. Surge Protective Devices shall be Unit type, panel-mounted design with The following features and accessories:
      1) LED indicator lights for power and protection status.
      2) Audible alarm, with silencing switch, to indicate when protection has failed.
      3) One set of dry contacts rated at 5 A, 220-V ac, for remote monitoring of protection status.
      4) Arrangement with wire connections to phase buses, neutral bus, and ground bus.
      5) Red and green LED indicator lights for power and protection status.
      6) Audible alarm, with silencing switch, to indicate when protection has failed.
      7) Suppressors shall be installed in panels that supply HVAC equipment.

i. Warning Mark
   i. All enclosures that do not clearly show that they contain electrical devices shall be marked with a black lightning flash on a yellow background within a black triangle as NFPA-79 Code requires.

j. Lighting Control
   i. All new lighting control panels shall be Wattstopper brand with full standalone control capability. Panels shall be designed to control interior common areas

1 Purpose

This document outlines the foundational requirements and standards for network cabling infrastructure at new or renovated facilities across the City College, College of Continuing Education, Mesa, and Miramar campuses and other locations within the San Diego Community College District (SDCCD). It aims to guide the Architect, Electrical Engineer, HVAC Consultant, Civil Consultant, and Telecommunication Consultant through the essential criteria during every project's Schematic Design, Design Development, and Construction Documents phases. SDCCD mandates integrating this information into each project phase and encourages a collaborative design process. This entails iterative engagement with the Campus Technology Services and District Information Technology Services (ITS) teams for review and input. Any departures from these established standards require explicit approval from SDCCD ITS and District Facilities, culminating in written authorization from the SDCCD Vice Chancellor of Finance and Facilities.

Created through a collaborative effort between the District ITS and campus Technology Services departments at College of Continuing Education, City College, Mesa College and Miramar College — collectively known as the District ITS Group — this document ensures the network infrastructure's design, construction, and approval processes are comprehensive. The District IT Group is pivotal in ensuring that campus-specific and district-wide IS representatives are involved throughout the project lifecycle. While local campus IT teams primarily support network operations, the design philosophy advocates for a cohesive system across all SDCCD locations.

The emphasis on standardizing materials, installation techniques, labeling, and documentation aims to achieve uniformity in functionality and operability across all cabling projects. This approach facilitates a streamlined understanding, operation, and maintenance of the network infrastructure and the services it supports, ensuring long-term reliability and effectiveness for both current and anticipated future needs.

2 Introduction

2.1 Responsibilities of the SDCCD ITS Department

The Information Technology Services (ITS) department is dedicated to establishing and managing a comprehensive Information Technology Infrastructure for the San Diego Community College District (SDCCD). This infrastructure is designed to fulfill the connectivity requirements for voice, data, video, and multimedia communications while accommodating the demands of current and future applications, including Intelligent Building Management Systems (BMS), Security, Surveillance, and Fire Alarm systems. ITS oversees the transportation of all computer network traffic across SDCCD campuses and sites.

ITS commits to a hands-on role in the design process, ensuring its participation in architectural and engineering meetings that impact the provisioning of information and telecommunication systems throughout the project lifecycle.

ITS holds the authority to scrutinize and endorse all construction documents that influence the Information Technology Infrastructure. Furthermore, ITS has the final say in approving all construction submissions and the project acceptance related to Information Technology Infrastructure systems. This authority extends to evaluating pathways, cabling, the quality of craft, and the acceptance testing of installed cable plants alongside any construction or renovation aspects that may affect the Information Technology Infrastructure.

The department mandates that the guidelines presented in this document serve as the cornerstone for the design of the cabling infrastructure, necessitating their inclusion in project drawings and specifications.

2.2 Telecommunication Consultant/Designer Role

The ITS department may engage a Telecommunication Consultant directly or request that the Architect secures such consultancy services. Regardless of the method chosen, the Architect must ensure the inclusion of expert telecommunication design insights at every stage of the design process. The Architect is responsible for integrating feedback and recommendations from the Telecommunication Consultant into all design documentation packages, ensuring a comprehensive and informed approach to communication infrastructure design.

2.3 Telecommunication Design Approach

Adopting a forward-thinking strategy regarding cabling and pathway requirements is crucial to developing a building's telecommunications infrastructure to be operational in the distant future. The design of a telecommunications system generally encompasses the following three critical components:

2.4 Rooms, Routes & Risers

Strategic planning of equipment rooms, cabling routes, and risers is essential for successfully designing an IT infrastructure. It is necessary to allocate sufficient space for current and future IT systems, ensuring rooms and pathways accommodate additional cabling and equipment. The positioning of telecommunication rooms must be carefully chosen to guarantee support from the appropriate environmental control systems. Early estimations of the locations and sizes of equipment rooms, based on extensive experience and national standards in telecommunications design, facilitate the building's design process while accommodating a broad spectrum of communication systems and technologies essential for the District/College operations. Ensuring adequate cable pathways is fundamental to meet present and future cabling requirements, integrating risers, cable trays, and conduits seamlessly with the building's structure. Following ANSI/TIA-569-E standards for Telecommunications Pathways and Spaces, these guidelines are shared with the building design team early in the project to meet basic telecommunications design needs during the programming and schematic design phases.

2.4.1 Common Cabling Infrastructure

The selection of the communications cabling system and media is finalized in the latter stages of the design phase to incorporate the latest product advancements. Adhering to ANSI/TIA568.1-E standards for Commercial Building Telecommunications Cabling, SDCCD prefers the CommScope SYSTIMAX Category 6A unshielded twisted pair (UTP) and shielded twisted pair (STP) copper for voice and data connections alongside Sumitomo Future Flex Air Blown laser-optimized multimode and single-mode fiber for backbone interconnects. See Section 4.3 for guidance on choosing STP over UTP cabling. Effective distribution of this cabling across the building and campus is ensured by designing cabling pathways to support the anticipated volume and types of cabling for current and future needs, also meeting the stringent installation standards required, especially for optical fiber cables.

2.5 Equipment & Systems – Logical Design Considerations

The selection and acquisition of Information Technology equipment, including network switches, routers, desktop systems, telephones, and other critical components, are conducted independently from the construction phase. While these items may be financed within the project budget, their purchase, and associated installation expenses are managed separately, ensuring they are not included in specifications or bid packages tied to a specific building construction project. It is imperative that the Architectural and Engineering teams meticulously plan for the spatial, power, and cooling needs of this equipment, with a particular focus on the requirements for the spaces designated as communications rooms. This proactive approach ensures that the infrastructure is adequately prepared to support the organization's technology needs, facilitating seamless integration and operation of IT systems within the new or renovated facility.

3 Architectural Considerations for Technology Infrastructure

Addressing technology infrastructure is essential for a modern, functional building. This section guides architects in incorporating technology elements into their designs, ensuring compliance with all ADA requirements.

3.1 Campus Information Technology Rooms – Functions

Information Technology Rooms (ITRs) serve as telecommunications and computer equipment operational environments. Depending on the size and design of a building, functions of various technology systems may be housed together or in separate rooms.

3.1.1 Main Distribution Frame (MDF)

The MDF is the primary connection point between the campus and external service providers such as Local Exchange Carriers (LEC), Competitive Local Exchange Carriers (CLEC), or Internet Service Providers (ISP). It acts as the Minimum Point of Entry (MPOE) and demarcation point for external communications services. The MDF, also known as a Network Operations Center (NOC), contains network interface devices, telecommunications data networking and computer equipment, and voice and voicemail systems. The MDF may be a standalone structure for buildings with extensive requirements to accommodate the necessary equipment and cable terminations. Campus facilities are connected to the MDF through Customer-Owned Outside Plant (CO-OSP) backbone cabling, requiring underground infrastructure like conduits and maintenance holes for service delivery. Direct-buried methods are not accepted; conduits are mandatory for building connections.

3.1.2 Intermediate Distribution Frame (IDF)

The IDF, formerly referred to as BDF, is critical for building-level communications and network equipment. It acts as the juncture for campus backbone connectivity and includes:

a) Equipment racks or cabinets and cable support infrastructure.
b) LAN devices, including routers and switches.
c) Voice cross-connects, CATV, and CCTV systems.
d) Backup power solutions and independent cooling systems.
e) Access control mechanisms.

Designed for present and future technology needs, the IDF houses the transition from external to internal cabling, entrance protectors for copper cables, and the bonding point for metallic cables. It must accommodate equipment related to IT systems and their environmental support, often sharing

space with fire/life/safety systems. Detailed layouts for IDFs are integral to the project drawings, ensuring all housed systems are accounted for.

3.1.3 Telecommunications Rooms (TR)

Each building should contain at least one TR or IDF, providing a space for telecommunications equipment, cable terminations, and cross-connect wiring. TRs, unlike IDFs, primarily serve individual floors, acting as hubs for backbone and horizontal distribution pathways. They must offer a safe and suitable environment for:

a) Cable and termination fields.
b) Electronic equipment and support structures.

The number and placement of TRs depend on the building's size, number of floors, and layout. They ensure efficient cable management and adherence to maximum cabling distances.

3.1.4 Non-Information Technology Systems

Architects must account for non-IT systems such as AV, BMS, fire alarms, public address, and security systems, ensuring these do not obstruct access to or maintenance of IT systems and comply with all codes.

3.2 Information Technology Room Locations

Selection factors for IT Room placements include room stacking and expansion capabilities, avoiding areas prone to environmental risks, electromagnetic interference, and mechanical vibrations. Key considerations are:

a) Avoidance of water or steam infiltration and proximity to potential sources of EMI.
b) Exclusion from electrical closets, boiler rooms, washrooms, and areas not integral to IT support.
c) Strategic location to minimize acoustic noise and vibration impact on sensitive equipment.
d) Vertical alignment in multistory buildings to ensure coherence and efficiency.

3.2.1 Telecommunications Rooms (TR)

TRs must be dedicated to IT functions, centrally located to serve their designated areas efficiently, and designed with future expansion in mind. Direct access from hallways, rather than through private spaces, is preferred to maintain an average horizontal cable run of 150 feet or less, with no individual run exceeding 90 meters.

3.2.2 Intermediate Distribution Frame (IDF)

IDFs should be considered for future expansion, easy access for large equipment deliveries, and optimal connection to distribution pathways. The location should also minimize exposure of building entrance cables, adhering to the California Electrical Code requirements for cable routing and protection.

3.3 Information Technology Services Room Sizing

The dimensions specified for Information Technology Rooms represent the minimum requirements. Additional space may be necessary depending on the specific needs, auxiliary systems sharing the space, or the functions performed within.

3.3.1 Multi Distribution Frame (MDF)

In the initial stages of building design, the MDF should minimally measure 12 feet in length, 10 feet in width, and 10 feet in height (interior dimensions). The MDF will accommodate building entrance frames with electrical protectors and service racks or cabinets. For preliminary planning, anticipate the need for at least three racks or cabinets in buildings of any size. Equipment racks/cabinets should have a minimum clearance of three feet on all sides. Wall-mounted equipment should project 12 to 24 inches from the wall. More significant buildings may require additional equipment racks or cabinets. Buildings exceeding five stories will receive specific MDF sizing guidelines from the District ITS team.

3.3.2 Intermediate Distribution Frame (IDF)

At least one IDF is required per floor, with additional IDFs for every 10,000 sq. ft. or part thereof, especially when:

a) The floor area exceeds 10,000 sq. ft.
b) The distance from the first Telecommunications Room (TR) to the workstation surpasses 90 meters.

Each IDF should be at least 10 feet wide, 8 feet long, and 10 feet high (interior dimensions). In smaller structures, MDF and IDF functionalities may merge into one space.

3.4 Lighting

Proper lighting in Information Technology Rooms is crucial. Lighting requirements include:

a) A minimum of 50-foot candles must be lit 3 feet above the floor in the center of the aisles between racks or cabinets.
b) Control by switches near the entrance door(s).
c) Separate power sources from those of telecommunications or network equipment.
d) No connection to timing devices or use of dimmer switches.
e) Emergency lighting and signage for safe egress without light.
f) Fixtures should be at least 8 feet 6 inches above the floor and oriented 90 degrees to rack or cabinet layouts. Wall-mounted fixtures are necessary for areas with wall-mounted Main Cross-Connect fields.

3.5 Water Infiltration

Information Technology Rooms should be above water level and free from unnecessary water or drainpipes, ensuring a dry environment essential for MDFs and IDFs.

3.6 Floor

3.6.1 General Floor Design Elements

Floors should be covered with anti-static asphalt or similar tile. The exception is access-highlighted or raised floor systems, which must adhere to Article 645 of the California Electrical Code and NFPA 75 standards.

3.6.2 Loading

Floors must support distributed and concentrated loads, with a minimum capacity of 250 lbs. per square foot distributed and 1,000 lbs. for concentrated loads, following the latest BICSI standards.

3.7 Sprinklers/Fire Suppression

3.7.1 Sprinklers

Designs requiring sprinklers must protect heads with cages and, if feasible, utilize a pre-action system.

3.7.2 Fire Suppression Systems

Alternative systems like FM200 are preferred over sprinklers. Systems should include easily accessible abort and reset switches with protective covers. Fire alarms and appropriate portable extinguishers are mandatory. For raised floors, a cross-zone detection system is advised to minimize false alarms from dust during cable work.

3.8 Doors

Doors to Information Technology Rooms must be at least 3 feet 6 inches wide and 80 inches high, swinging outward where possible, with locks. Larger equipment necessitates double doors, 72 inches wide by 90 inches high, with a removable center post and a dust-preventing gasket, matching the room's fire rating.

3.9 Interior Finishes

Floors, walls, and ceilings should be sealed to minimize dust, and light-colored finishes should be used to improve lighting efficiency.

4 Mechanical (HVAC) Guidelines

The following guidelines serve as the foundation for the Mechanical Design Consultant, outlining the minimum HVAC requirements for Information Technology Rooms. These specifications ensure proper environmental conditions for both the hardware and operational efficiency. The HVAC Consultant is urged to liaise with the District IT Group to ascertain any unique or additional specifications.

4.1 General Requirements

a) Mechanical plans must include a note specifying that the ductwork installation is to be coordinated with communication cable trays, ensuring unobstructed access for IT cabling installation and maintenance, as detailed in Section 4.
b) HVAC must operate continuously (24/7/365) in all Building and Main Telecommunications Rooms (IDF/MDF), independent of the building's general HVAC system. Should the building's

system be inadequate, a dedicated HVAC unit with independent control must be installed, preferably utilizing chilled water at 45℉. If water is unavailable, an alternative method for evacuating heat from the evaporator must be implemented.

c) The HVAC unit should share the electrical panel with the Information Technology Rooms to streamline power management.
d) Initial BTU load estimates will be refined post-equipment selection; plan for a minimum of 6,000 BTUs per rack/cabinet.
e) Critical and large-scale setups should connect the air conditioning system to an emergency generator in coordination with the district IT group to prevent equipment from overheating during power outages.
f) Data centers require a fire-resilient split HVAC system to maintain cooling during fire alarms, with designs approved by both the Architect and District IT Group.
g) Maintain a positive pressure differential in IT Rooms compared to adjacent areas to control dust and particulate ingress.
h) Once operational, ambient conditions (temperature and humidity) should be regulated within the optimal range of 64℉ to 74℉ and 35% to 55% humidity, measured 5 feet above the floor and along equipment aisle centerlines.
i) Fire-rated IT Rooms necessitate fire/smoke dampers for ventilation systems.
j) Integrate HVAC monitoring into the building's Energy Management System (EMS) for efficient operation and maintenance.

4.2 Thermal Dissipation

The heat generated by computing devices correlates with their power consumption. The HVAC design must effectively manage heat build-up, especially in densely populated tech areas. Cold aisle and hot aisle configurations are recommended for IT Rooms to optimize cooling distribution in collaboration with architects and mechanical engineers. Estimated heat outputs for standard devices include:

a) Desktop computer with LCD monitor: 1600 BTU/hr.
b) Color LaserJet printer: 1900 BTU/hr.
c) Scanner: 50 BTU/hr.
d) Facsimile or all-in-one printer: 250 BTU/hr.
e) Servers: 4750 BTU/hr.

Further coordination with the District IT Group will refine thermal management for specific IT equipment, including:

a) Network switch (48 port): 250 BTU/hr.
b) Network switch (fiber concentrator): 4000 BTU/hr.
c) Network router: 600 BTU/hr.

Adopting Enhanced Power over Ethernet (PoE++) standards increases power delivery to devices, potentially significantly affecting cooling needs in Telecommunications Rooms. Architects and telecommunications consultants must consider the implications of PoE++ on HVAC requirements.

4.3 Coordination with SDCCD Facilities and Operations

While the District ITS plays a central role in addressing IT room-related concerns, the Mechanical Design Consultant must also work closely with the Facilities and Operations departments at both the district and campus levels. This collaboration addresses broader HVAC concerns in renovated

spaces and ensures ongoing communication with Facilities and Operations across all pertinent trades, including Plumbing, Electrical, and Fire Alarm systems.

5 Telecommunication Guidelines

5.1 Role of the Telecommunication Consultant

The Telecommunication Consultant, acting under the guidance of the District ITS, is tasked with developing a comprehensive Telecommunication Cabling Design for SDCCD's building and infrastructure projects. This role requires a BICSI Registered Communications Distribution Designer (RCDD) certification. The Consultant may be engaged by either the Architect or the SDCCD.

Responsibilities include:

a) Ensuring adherence to this Standard by the Architect and other consultants. Any deviations identified must be reported to the District IT Group for resolution.
b) Formulating a Telecommunication Cabling Design grounded in the latest ANSI/TIA Standards and BICSI guidelines in alignment with District ITS policies.

5.1.1 Design Documentation shall encompass:

a) A detailed legend.
b) Site plans illustrating OSP conduit and junction box locations.
c) Floor plans denoting types and quantities of communication cables at each outlet.
d) Infrastructure blueprints (pathways, outlet box positions, conduit, cable tray, and J-Hook layouts).
e) Comprehensive Information Technology Room schematics.
f) Backbone connectivity Single Line Drawings.
g) Additional construction details as needed.

5.1.2 Compilation of Project Manual Specifications or Scope of Work (SOW) documents.

5.1.3 Coordination between the Architectural/Engineering teams and District ITS

Advising on the necessity for multiple Information Technology Rooms based on building configuration and compliance with the 100-meter data cable length limitation. Pre-design discussions with District ITS will outline specific active equipment requirements for each IT Room, including electrical, HVAC, and connectivity prerequisites.

5.2 SDCCD Product Specifications

SDCCD adheres to a standardized infrastructure utilizing CommScope SYSTIMAX Category 6A components for data cabling and Sumitomo Future Flex for fiber backbone connectivity. The backbone network will integrate 19-cell tube cables for main links, with 7-cell or 4-cell tubes servicing smaller structures, all routed via underground conduits to the MDF.

5.3 Outside Plant (OSP) Infrastructure

OSP infrastructure encompasses the necessary cabling and support structures for campus connectivity, following NESC and ANSI/TIA-758-B standards. The design excludes direct buried or aerial cable installations.

5.3.1 OSP Design Tasks involve:

a) Route planning and underground cable specifications.
b) Cable type identification for campus segments.
c) Conduit, maintenance hole, handhole, and pull box configurations.
d) Electrical protection and grounding strategies.

5.3.1.1 OSP Fiber Optic Specifications

Buildings will integrate multi-mode and single-mode fiber links to the MDF, abiding by UL-1666 standards, featuring color-coded, water-blocked tubes. Cables will support temperature ranges from -40℃ to +75℃, with multi-mode fibers being OM4 and single-mode fibers OS2, adhering to ANSI/TIA-568.3-D and other relevant standards.

5.3.2 Tube Cabling Installation

Utilizing the Sumitomo Future Flex system, all backbone installations will link directly to the MDF, with provisions for future expansions via pre-installed pull ropes in conduits.

5.3.3 OSP Fiber Sizing for Permanent vs. Semi-Permanent Structures

Permanent buildings will feature comprehensive fiber backbones to the MDF, while semi-permanent structures receive scaled-back connectivity. Decisions on redundant pathways and backbone configurations will be in concert with District ITS guidelines.

5.3.4 OSP Fiber Installation Protocols

All OSP fiber installations must follow stringent guidelines to protect against physical damage and maintain system integrity. These include specific requirements for pulling, spacing from heat sources, and conduit fill limitations.

5.3.5 Copper OSP Requirements

A baseline of 25 pairs per building back to the MPOE is mandatory, with design phase evaluations determining the final pair count. Backbone UTP cabling will meet or exceed Category 3 standards, with installation specifications designed to withstand outdoor conditions and comply with ISO/IEC 11801 horizontal link criteria.

Design Guidelines for Permanent Buildings
For SDCCD's voice/voicemail systems, analog and digital connections are utilized, necessitating one twisted pair per telephone set. OSP pair counts will be projected based on active pair utilization. VoIP systems may leverage data cabling for phone support, with exceptions outlined in Section 3.12.16:

a) Classroom: one telephone.
b) Computer lab: one telephone.
c) Large lecture hall: two telephones.
d) Theatre: two telephones.
e) Single-person office: one telephone.
f) Partitioned office: one per cubicle, plus three extras for every ten cubicles.
g) Conference room: one telephone and one speakerphone.
h) Maintenance room: one telephone.

Exclusions include external phones such as parking lot call boxes. Additional pairs will be considered during site-specific analysis. A 20% growth factor will be applied to estimate pair counts, rounding up to the next cable size. Redundant copper cabling for building connectivity will be assessed individually. Redundant backbone cabling involves two separate OSP copper connections to prevent single points of failure.

Design Guidelines for Semi-Permanent or Temporary Buildings:
Backbone UTP copper cabling for these buildings will mirror permanent building guidelines, albeit with a 10% growth factor.

General Installation Guidelines for Copper Cables:

a) Use water-based pulling compound as needed, adhering to manufacturer guidelines on tension and lubricant.
b) Maintain a minimum distance of 30 inches from heat sources.
c) During installation, Avoid sharp bends, kinks, twists, or sheath damage.
d) Use plastic bushings for conduits and sleeves with rough edges.
e) Ensure cables do not obstruct access doors or pull box covers.
f) Splicing is prohibited within cable runs.
g) Install all OSP backbone cables in conduits, excluding aerial runs.
h) Conduits should not exceed 25% fill, with appropriately sized pull boxes every 300 feet or at each 180-degree bend.
i) Service loops of 30 feet at building connections, neatly coiled.
j) Cable routing and mounting to follow bend radius specifications, with cable tie-wraps every 4 to 6 feet.
k) Continuous cable runs without splices.
l) OSP cables to terminate within 50 feet of building entrances.

Copper Protection
All inter-building copper cables must terminate at protector blocks at both ends, with full pair protection. Protector blocks should be housed in covered cases, sized for the cable's pair count, and grounded via a #6 AWG copper conductor to the Telecommunications Grounding Busbar (TGB).

Riser Segment
SDCCD's building layouts may necessitate multiple TRs to comply with the 295-foot length limitation on station cabling. Riser cabling includes vertical and horizontal distribution.

Fiber Optic Riser Cable
Multi-story buildings require an 18-strand single-mode and a 12-strand 50/125-micron multimode fiber bundle between IT Rooms.

Riser Tube Cable
Riser systems will utilize riser-rated tube cables coordinated with the District IT Group.

Copper Riser Cable
The copper pair count equals the number of voice stations the TR serves plus a 20% growth factor, rounded to the next multiple of 25, 50, or 100 pairs.

Coaxial Riser Cable
Utilize .500 plenum-rated coaxial cables for balanced CATV signal distribution.

Optical Fiber Terminations
Fiber patch panels should be rack-mounted, duplex LC style, with high-density options for MDF/BDF installations.

Copper punch-down blocks
All new copper cables will terminate on rack-mounted patch panels, facilitating easy modifications.

Horizontal Station Cable
Cabling projects must comply with the latest standards, currently Category 6A, with plenum-rated "CMP" cabling. Different subsystems will utilize distinctively colored sheaths for easy identification.

Voice/Data Jacks
Voice/Data jacks shall comply with Category 6A standards, supporting robust connectivity needs.

Work Area Outlets
Requirements will be determined in collaboration with the District IT Group, focusing on VoIP implementations.

Faceplates
Standard configurations are single-gang, four-port faceplates, with other configurations subject to District IT Group approval.

Copper Patch Panels
Category 6A patch panels will terminate all station cabling featuring front-facing RJ-45 patch panels and rear-facing 110 blocks.

Grounding and Bonding
Ensuring compliance with ANSI/TIA-607-D, the telecommunication ground system supports IT Room infrastructure.

Rack/Cabinet Layout
Equipment placement within racks or cabinets follows specific guidelines to optimize space and functionality.

Floor Mounted Racks
Specified as open, self-standing relay racks, meeting physical and installation criteria.

Wall Mounted Racks
Designed for easy access and compliant with physical specifications for secure installation.

This condensed guide ensures a coherent approach across all telecommunication infrastructure aspects, prioritizing reliability, scalability, and compliance with established standards and best practices.

5.4 Floor-Mounted Cabinets

IT infrastructure must be securely housed within lockable telecommunication cabinets for environments where Information Technology Rooms share space with other electrical or low-voltage systems. These self-standing, floor-mounted cabinets should adhere to the following specifications:

a) Dimensions: 24" Width x 24" Depth x up to 84" Height.

b) 19-inch rack mounting space within.
c) Uniformly keyed locks for security across all cabinets from the same manufacturer.
d) Black finish with removable, smoked glass front and back doors and vented sides for adequate ventilation.
e) Fitted with a circulation fan for temperature management.
f) Includes a seismic bracing kit rated for Zone 4, ensuring stability in earthquake-prone areas.
g) Internal rails adjustable for versatile mounting of patch panels, wire managers, and network equipment.
h) Equipped with cable management knockouts, safeguarded with plastic bushings to protect cabling.

Installation guidelines mandate a clearance of at least 3 feet around all cabinet sides for easy access and maintenance, with secure anchoring to the floor using the provided seismic kit. Anchoring must comply with stringent safety tests, such as the Hilti ½" anchor bolts passing a 45 lb. torque test.

Electrical outlets for powering the cabinets should be strategically placed at the top or bottom, determined in consultation with the District IT Group. Each cabinet must have a 20A/115V, rack-mounted, non-switched power strip featuring surge suppression, a visible AMP meter, and at least six transformer-spaced outlets. Power strips should also include a lockable switch to prevent accidental shutdowns and have a power cord at least 10 feet long, complying with UL 1363 and 1449 standards.

Grounding requirements stipulate a connection to the Telecommunications Grounding Busbar (TGB) using a minimum #6 AWG copper wire for safety and compliance.

5.5 Cable Wire Management

In instances where integrated cable management is unavailable, both vertical and horizontal cable management systems must be provided for all racks and cabinets. Finger duct-style management with hinged covers is preferred for efficient cable organization and protection. Vertical cable managers should span the full height of the rack and include lockable hinged covers for secure and tidy cable routing. Horizontal cable managers, sized at 3.5" height, should accompany every 48-port patch panel to facilitate orderly patch cord connections.

Cable bundles within the management systems must be secured with Velcro straps, avoiding tie-wraps to ensure cables are not overly constricted and to facilitate easy adjustments.

5.6 Cable Runway

Exposed horizontal cabling within IT Rooms must be routed through cable runways (ladder racks), securely mounted, and grounded following manufacturer guidelines. In new constructions, these runways should be black to match the aesthetics of the IT space, ensuring compatibility with existing ladder racks where applicable.

5.7 Cable Pathways

Main corridors should employ communication cable trays as the primary cable pathway, maintaining at least 12 inches of clearance above and 12 to 18 inches of side clearance around the tray. J-Hook systems are acceptable for directing cables from main pathways to specific outlets, with installation standards ensuring no overcapacity and adherence to safety guidelines.

5.8 Cable Installation Methods

Cable installation must mitigate interference risks by maintaining specified clearances from EMI sources and adhering to stringent installation standards. This includes using pulling compounds, maintaining minimum clearances from potential interference sources, and ensuring accessibility and protection of cables throughout the installation process.

5.9 Fiber Optic and Copper Cable Testing, Labeling, and Inspection

Comprehensive testing and validation procedures are mandatory for fiber optic and copper cabling, ensuring all installations meet specified performance standards. Documentation of test results and systematic labeling and identification practices will facilitate ongoing maintenance and compliance with industry standards.

The District IT Group will rigorously inspect all installations at various construction phases to confirm adherence to these guidelines and the integrity of the telecommunication infrastructure.

6 Contacts

Direct questions about this document to:

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7 Document Review and Approval History

This section is for internal use only and is not to be published.

First Level Review: Stakeholders

Department/Committee	Reviewer	Date Sent	Comments Returned
Information Technology Services	Dr. Peter Maharaj Director, Information Technology Services	03/2024	

Second Level Approval: Chancellor Cabinet

Department/Committee	Reviewer	Date Sent	Date Approved
Chancellor	Gregory Smith		
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Vice Chancellor, Facilities	Dr. Joel Peterson		
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President, Miramar College	Dr. Wesley Lundburg		
President, College of Continuing Ed.	Dr. Tina King		
Director, Communications and Public Relations	Jack Beresford		

PUBLIC ADDRESS SYSTEM

GENERAL REQUIREMENTS

1. The District standard is for a building-wide public address system to be installed in all new buildings with more than two floors. The public address system will be designed and installed by the District's audio visual contractor.
2. The point of initiation for an announcement will be through the District's telephone system. Audio output for an announcement will be through speakers installed in all designated announcement zones.
3. Announcement zones will include corridors, conference rooms, classrooms and student/faculty lounge areas.
4. PA system Infrastructure Requirements
    a. The control hardware for the PA system will be rack-mounted in an IDF or MDF closet. The specific closet will be determined on a per-project basis. The total rack space needed for the hardware may be up 24 U's.
    b. Where available, speakers will be installed above the t- grid. Where t-grid is not available, speakers may be surface mounted. Speaker locations will be determined on a per-project basis.
    c. Typically, speaker cable will be run above the t-grid. Where t-grid is not available, the AV contractor will coordinate with the CM to determine the optimum cable path.
    d. A half inch cable pass-through will be needed into each room where PA speakers will be installed.
5. DIGITAL SIGNAGE
    a. Digital Signage for informational, way-finding, and safety purposes, will be a component of all new buildings. A minimum of one (1) digital signage display shall be located on each floor of any new building. Coordinate the exact locations of all digital signage displays with the Audio Visual Project Manager. The digital signage displays shall be located in a high-visibility area. A typical location would be:
        i. Entrance Lobby
        ii. Elevator Lobby
        iii. Staircase Landings (for large staircases only)
        iv. Public Gathering / Common Areas
    b. Display Mounting
        i. All flat panel display locations shall have structural backing support provided inside the wall construction. Back support shall be a minimum of ¾" plywood spanning the entire size of the flat panel display. Display specifications will be provided by the audio visual contractor.
        ii. For locations requiring extra large displays (60"+) and/or cantilever or swing arm mounts, additional backing support will be required. Specifications will be provided by the audio visual contractor.
        iii. Power receptacles located behind the display shall be recessed "clock" style outlets.
        iv. Typical Flat Panel Display mounting heights will be 52" AFF to the bottom of the display.
        v. Typical electrical, data, and low voltage connection plate heights will be 60" AFF. A dual port data connection and dual power is required at all Digital Signage Display locations.
        vi. A cable path must be identified from each display location to an IDF/MDF closet to be determined on a per project basis.
        vii. Digital Signage hardware and installation will be provided and installed by the District's Audio Visual Contractor.
6. Digital Clocks (wireless)
        i. Locate clock on the wall opposite the teaching wall or back third of the side wall; include in Contractor Bid.

2.5" and 4" 4-Digit Display

2.5" and 4" 6-Digit Display

Primex Wireless

GPS Synchronized Time Systems
shall be District Standard

Wall Display
14201G 4"(10.16cm), 4-digit display, 120 vac
Green LED Display

Digital Clocks (wireless) cont'd

Transmitter 1- watt model number 14006 with internal antenna

Transmitter 1-watt Model number 14000E
with external antenna

CommandPoint
72 XR Transmitter
72XR5 5-watt Transmitter

AV CONSIDERATIONS

GENERAL REQUIREMENTS

1. Whenever feasible, as much flexibility as possible should be included in structuring the room, so as to provide opportunity for multiple learning configurations (lecture style, group work, individual work, etc.); this is most useful and practical in general classroom spaces, as opposed to laboratories and lecture halls.
2. Sharing the ceiling is a challenge, as lighting and HVAC ventilation compete for space with the distributed sound system, ceiling mounted document camera, and projector placement.
   a. These systems sometimes interfere with each other and the following factors should be taken into consideration:
      i. Avoid placing the projector and screen directly under light fixtures, as the light can wash out the image; although with the level of lumens specified for SDCCD projectors and controlled lighting, this can be managed to a certain extent.
      ii. If light fixtures are not recessed lighting style, consider their profile in laying out the projector and screen placement.
      iii. Never place an HVAC vent in front of a projection screen, as it will cause vibration, making it unreadable, and can damage the screen over time.
   b. The ceiling height adds another consideration to this mix, as does the floor and whether it is flat or tiered.
      i. On a flat floor, the screen needs to be placed so that people in the back rows have enough clearance to see the screen. Minimum height is often recommended at 45” above the finished floor (AFF); however, industry standards recommend even higher to assure that everyone can see what is projected to the screen.
      ii. With a 10’ ceiling, a 100” wall mounted diagonal screen could be placed at 48”AFF. This accounts for 6” of clear space above the screen for aesthetics, 6” for the screen casing, and 60” for the screen. With ceiling recessed screens, they can be placed even higher in the room, raising the screen approximately 6-8” higher. However, these are most easily managed with electric controls.
   c. Consider the methods for teaching that need to take place in the room.
      i. With labs, this means any teaching/lecturing that will take place in the lab, including demonstrations, and the actual hands-on lab work done by the students.
      ii. With lecture halls, consider if the projection system will be used simultaneously with the whiteboard, and if any demonstrations will be conducted at the lectern/demonstration table.
      iii. With classrooms, consider flexible re-configurations depending upon type of engagement inherent in the instruction.
   d. In addition to the reflective ceiling plan, draw a side view to reflect line of vision and any interference. Per the District BIM Guidelines the A/E must model the Projector Throw Clearance.
   e. In the end it will be a give and take to layout the rooms. There are structural considerations for the room, teaching considerations for the room, and AV considerations for the room. The goal is to manage these three considerations for the purpose of optimal learning and teaching opportunities for students and faculty.

SAN DIEGO Community College District	**Information Technology Services – AV Standards**	**Report No.**	SDCCD-ITS-SOP	**Ver**: 1.1
		Owner:	SDCCD ITS	
		Prepared by:	Annette De Lozier	
		Approved by:		
		Date:	3/19/2025	
		Revised:	3/19/2025	Page 1 of 4

1. Introduction

This document establishes the technology and audiovisual (AV) standards for the San Diego Community College District (SDCCD). These standards support modern teaching and learning environments, focusing on accessibility, hybrid learning capabilities, and secure network integration across district-wide systems.

The standards apply to classrooms, lecture halls, meeting rooms, and study spaces, ensuring consistency, functionality, security, and accessibility for students and faculty in compliance with California and federal accessibility and IT security laws, including ADA, Section 508 of the Rehabilitation Act, California Government Code 11135, and cybersecurity policies for network infrastructure.

2. Technology & AV Standards by Category

2.1 Projectors (Short Throw vs. Ceiling Mounted)

Short Throw Projectors (For Small and Medium Classrooms)
- Ultra-short throw (UST) laser projectors (minimum 4,000 lumens).
- Wall-mounted near the display surface.
- No need for pull-down screens in small rooms with a projectable white board surface.

Ceiling-Mounted Projectors (For Large Classrooms & Lecture Halls)
- Laser-based projectors (minimum 5,000 lumens).
- Mounted with secured brackets.
- Motorized pull-down or fixed screens.

Accessibility & Network Compliance:
- Must be connected to the district network for remote management and firmware updates.
- Secure wireless connectivity required for faculty and student device screen sharing.
- Must be configured to prevent unauthorized external connections to maintain cybersecurity standards.

2.2 Digital Displays
- 75-inch or larger 4K commercial-grade screens.
- Wall-mounted at an optimal viewing height for seated and standing users.
- Multi-touch and interactive capability for enhanced engagement.
- Text-to-speech and screen magnification options for accessibility.

Network Compliance:
- Must be configured to use the SDCCD Wi-Fi and VLAN segmentation for device security.
- Displays must support encrypted wireless and wired connections to prevent data interception.

2.3 Podiums & Lecterns

2.3a Technology (Computers, Switch Controllers)

- Podiums must be height-adjustable for standing or seated users.
- Integrated desktop computers with speech-to-text and screen-reader software.
- Switch controllers and touchscreens with high-contrast settings and voice-command capabilities.
- Secure district login required for podium computers.

Network Compliance:

- All podium computers must use district-approved authentication methods (Single Sign-On with Multi-Factor Authentication).
- Only district-approved software and networked applications are allowed on podium computers.

2.4 Microphones & Speakers

- Wireless lapel and handheld microphones.
- Ceiling or wall-mounted speakers for even sound distribution.
- Assistive listening devices (ALDs) such as hearing loop systems.
- Live captioning integration for hybrid learning platforms.

Network Compliance:

- Microphone systems must be integrated with SDCCD's AV network for centralized control.
- Wireless microphones must use secure frequencies to prevent interference or unauthorized access.

2.5 Cameras (For Hybrid & Lecture Capture)

- Pan-Tilt-Zoom (PTZ) cameras with auto-tracking.
- One front-facing camera for the instructor, additional cameras for student engagement.
- AI-powered auto-captioning for recorded and live-streamed lectures.
- Compatible with screen readers and text magnification software.

Network Compliance:

- Cameras must be connected to SDCCD's secure video management system.
- End-to-end encryption is required for video streams to prevent data leaks.
- Must support district-approved integration with Zoom, Microsoft Teams, and LMS platforms.

2.6 Access Points for Wireless Services

- Wi-Fi 7E for high-density, low-latency connectivity.
- Evenly distributed ceiling-mounted access points.
- Accessible login portals for students using assistive devices.

Network Compliance:

- All classroom Wi-Fi access points must be part of SDCCD's managed network infrastructure.
- Separate VLANs for faculty, students, and guest access to ensure security.

- 802.1X authentication is required for faculty and district-managed devices.

2.7 Desktop Computers for Students
- Adjustable height desks to accommodate mobility devices.
- Pre-installed with:
  - Screen readers (e.g., NVDA, JAWS, Voiceover).
  - Speech-to-text software (e.g., Dragon NaturallySpeaking).
  - Color contrast and magnification options for low-vision users.

Network Compliance:
- District-approved security policies must be used, including firewall rules and endpoint protection.
- Only SDCCD-approved applications can be installed.
- Automated session logoff after inactivity to protect user privacy.

2.8 Emergency Call Appliances (Red Call Buttons)
- Wall-mounted at an ADA-compliant height for easy access.
- Near entry and exit doors, podiums, and designated ADA seating areas.
- Visual and audio alerts for individuals with hearing or vision impairments.

Network Compliance:
- Emergency call appliances must be integrated into SDCCD's VoIP and dispatch system.
- Dedicated VLAN and power backup to ensure emergency functionality during outages.

3. Compliance with Network & Wi-Fi Standards
All AV and technology components must adhere to SDCCD's IT security and network policies, including:

3.1 Secure Network Access
- All devices must authenticate to SDCCD's network using secure credentials.
- Devices must be assigned to the correct VLAN based on their role (faculty, student, guest, emergency).
- Unauthorized devices are prohibited from connecting to SDCCD's secure network.

3.2 Data Security & Compliance
- End-to-end encryption required for all AV streaming and data transmission.
- Regular security audits for connected devices to prevent vulnerabilities.
- Compliance with FERPA and CCPA for any recorded or transmitted classroom data.

3.3 IT Management & Support
- All AV devices must be centrally managed by SDCCD's IT department.
- Firmware updates and patches must be applied regularly to prevent security risks.
- IT staff must have remote monitoring and control capabilities to troubleshoot issues.

4. Implementation & Maintenance

- Routine Accessibility & Network Audits:
- Conducted each semester to test AV controls, emergency appliances, and network security.
- Software Updates:
- Quarterly updates for captioning software, network firmware, and security patches.
- Faculty & Staff Training:
- Annual workshops on secure technology use, network compliance, and ADA standards.

5. Conclusion
   SDCCD's AV and technology standards provide a fully accessible, hybrid-ready, and secure learning environment for students and faculty. By adhering to ADA, Section 508, California accessibility laws, and SDCCD's network security policies, these standards ensure equitable access and data protection for all users.

   These specifications will be reviewed and updated regularly to align with emerging educational technologies, network security best practices, and compliance requirements.

EMERGENCY CALL BOXES

GENERAL REQUIREMENTS

1. To provide a reliable, accessible, and code-compliant emergency communication system in outdoor parking lots and parking garages across district facilities, supporting campus safety and incident response capabilities.
2. Emergency Call Station Types
   a. Use tower-mounted emergency call stations (model ETP-MT/R or District-approved equivalent) in open parking lots and large outdoor pedestrian areas.
   b. Use wall-mounted emergency call stations (model ETP-WMS or District-approved equivalent) in structured parking garages and other wall-accessible locations.
3. Installation Method
   a. All emergency call stations shall be Contractor Furnished, Contractor Installed (CFCI).
   b. Mounting, conduit, power supply, and network cabling shall be installed per manufacturer requirements and coordinated with site utilities.
4. Connectivity and Programming
   a. Emergency call stations shall connect via the District's existing IP-based communication network or dedicated emergency phone line, as determined by the District IT Manager.
   b. Each unit shall be programmed, tested, and commissioned in coordination with the District's IT Manager, including:
      i. Assignment of IP addresses or extension numbers.
      ii. Integration with campus security systems or dispatch points.
      iii. Verification of two-way voice functionality, visual indicators, and fault monitoring.
5. Location and Layout Coordination
   a. Final locations shall be reviewed and approved by the District Facilities Planning Department and Campus Police.
   b. Towers shall be placed to provide maximum visual coverage and accessibility (e.g., near ADA paths, intersections of travel).
   c. Minimum sightline distances and coverage zones shall follow CPTED (Crime Prevention Through Environmental Design) guidelines.
6. Submittals and Closeout
   a. Provide cut sheets, wiring diagrams, and configuration documentation for all installed units.
   b. Submit test reports verifying operation under live network conditions.
   c. Provide final programming documentation and contact info for IT coordination.

INTRUSION ALARM SYSTEM

GENERAL CONDITIONS

1. The Contractor shall furnish all labor, equipment, tools, material, drawings, et cetera, necessary for a complete intrusion alarm system. The system shall be as designed by the Owner. The purpose of the furnished specifications and drawings is to convey to the Contractor the scope of the work required, all of which the Contractor is responsible to furnish.
2. The Contractor shall examine all existing physical conditions which may be material to, or affect, the performance of his work. No extra payments will be allowed made necessary by his failure to do so. Any omission, discrepancy, or lack of clarity shall be promptly identified to the Owner and Engineer for clarification prior to bidding the project.
3. The Contractor shall provide all devices and equipment required by these specifications and drawings. Under no circumstances shall the Contractor omit or delete any devices or equipment without the written directive of the Owner or Engineer.
4. The Contractor shall furnish and install, unless otherwise indicated, all items required for a complete Intrusion Alarm System(s) as described.
   a. Provide a new, state of the art Intrusion Alarm System. This is to include all wiring, communicators, modules, door contacts, motion detectors, keypads, panic/hold-up switches and any other devices and equipment.
   b. Provide a network connection for each Panel from the nearest available connection to the District network. Cable to be run by others.
   c. Provide an on-site, factory trained technician acceptable to the Owner and AHJ to supervise the installation.
   d. Provide an on-site project manager.
   e. Conduct weekly progress meetings and issue monthly written job progress reports to the Owner's Representative and Engineer.
   f. Submit shop drawings to the Engineer or Owner's Representative for approval by the Engineer and Owner.
   g. The contractor shall provide any x-ray of walls or slabs prior to core drilling and any required fireproofing or sealing of the cores.
   h. Prior to the final acceptance test and pre-testing by the Contractor, conduct a complete test of the entire system upon completion of the installation to assure the Owner's Representative and Engineer that the system is operational.
   i. Conduct the final acceptance test. The Alarm Contractor shall furnish personnel who are familiar with the installation at a time convenient to the Owner's Representative, the Engineer, and the AHJ. This test shall take place as soon as convenient after the completion of the installation and prior to the building being turned over to the Owner for occupation. If necessary, any punch list items shall be corrected and the entire system re-tested at the Contractor's expense prior to final acceptance of the system. The two-year warranty shall begin upon acceptance of the system by the Owner's Representative, the Engineer, and the AHJ.
   j. Provide training of the Owner's personnel as required by the Owner. A maximum of two days shall be required for this training.
   k. Provide a two-year job site warranty of all materials and labor as specified elsewhere in this section.

SYSTEM DESCRIPTION

1. The Intrusion Alarm System shall be a state-of-the-art, networked system and shall be programmable using the District's current software over the District network (WAN).
2. The Intrusion Alarm System shall communicate to Dispatch via the District WAN.

3. Each Alarm Initiation Device shall be on its own zone either on the Communicator or on a zone expansion module connected to the Communicator.

Link to Intrusion Alarm District Standard Specification

FIRE ALARM SYSTEMS

GENERAL CONDITIONS

1. The Contractor shall furnish all equipment, materials, tools, labor, engineering, drawings, etc. necessary for a complete total coverage, addressable fire alarm system. The Contractor shall not delete any equipment or devices without the written directive of the Owner and Engineer.
2. The purpose of the furnished specifications and drawings is to convey to the Contractor the scope of work required, all of which the Contractor is responsible to furnish, install, adjust, and make operable.
3. The fire alarm system shall comply with all applicable codes including, but not limited to, the following: National Fire Code (NFPA72), California Building Code, California Fire Code, National Electric Code (NFPA70).
4. The Contractor shall examine all existing physical conditions, which may be material to the performance of his work. No extra payments will be allowed to the Contractor as a result of extra work made necessary by his failure to do so. Omission, discrepancy or lack of clarity shall be promptly identified to the Owner and Engineer for clarification prior to the bid due date.
5. Doors that lead to the Fire Alarm Panel shall have signage in RED that reads, " FIRE CONTROL PANEL INSIDE."

SCOPE OF WORK

1. The Contractor shall furnish and install, unless otherwise indicated, items required for a complete fire alarm system as outlined in these specifications and shown on the drawings. The work includes, but is not necessarily limited to, the following:
   a. Provide a new state-of-the-art fully automatic addressable fire alarm system, including smoke detectors, manual pull stations, heat detectors, duct detectors, ADA compliant annunciation (strobes, horns, etc.), waterflow switches, valve supervisory devices, magnetic door holders and any other devices or equipment.
2. Provide a point addressable control system, addressable initiating devices, signaling devices, indicating devices, sensors, annunciators, relays, software, accessories and other materials and equipment for a complete operating system.
3. Provide monitoring of the fire sprinkler system.
4. Provide Notifier addressable duct-mounted smoke detectors in the main supply-air ducts(s) to effect shutdown of each air handler rated at supplying more than 2000 CFM. Provide control relays to actuate smoke/fire doors as shown on the drawings.
5. Connect to the existing HVAC control system to provide control functions, in accordance with the specifications.
6. Provide a network connection from the new FACP to the existing fire alarm OnyxWorks or current District monitoring system including all necessary.

Link to Fire Alarm District Standard Specification

2.2.3

VOLUME III
DIVISIONS 31 - 48

EARTHWORK REQUIREMENTS

Earthwork and grading design shall follow the recommendations provided in the project-specific Geotechnical Report, which serves as the basis for all site preparation, excavation, fill, and slope stability strategies. The report shall guide the design team in determining suitable excavation methods, compaction requirements, allowable bearing pressures, and subgrade preparation for both structural and non-structural areas. All grading activities shall account for site-specific soil conditions and be coordinated with the geotechnical engineer of record.

1. All cut and fill operations shall be designed to maintain long-term stability, avoid differential settlement, and support surface and subsurface drainage goals.
2. Native soils must be evaluated for reuse. Unsuitable or expansive soils shall be treated, removed, or replaced per geotechnical recommendations.
3. Temporary and permanent slopes shall be designed with appropriate factors of safety and erosion control measures.
4. Provide clear grading limits, finish grades, and elevations on all plans. Tie elevations to an established benchmark.
5. Surface drainage shall be designed to prevent ponding and direct water away from structures and pavement areas.
6. Where grading occurs near existing buildings, utilities, or easements, ensure protection measures and confirm that grade changes do not adversely impact adjacent infrastructure.
7. All grading plans shall coordinate closely with civil, landscape, and structural disciplines to ensure consistency with stormwater management, accessibility, and utility routing.
8. For projects located at Miramar College, the following notes must be included in the contract documents:
    a. The Contractor may encounter old military ordnance. If any ordnance is discovered, the Contractor shall immediately notify the District.
    b. Geotechnical investigations for surrounding improvements identify subsurface conditions as sandy clay overlying a highly cemented gravel and cobble conglomerate (Linda Vista Formation). Excavation into the Linda Vista Formation is difficult and will require heavy-duty equipment.

PAVING

CONCRETE PAVING

1. Vehicle Paving
   a. Minimum 6" thick concrete with #5 rebar at 18" on center, each way. Coordinate with Geotech recommendations.
2. Pedestrian Paving
   a. Reinforcement shall be #4 bars at 24" on center, each way. Wire mesh fabric is not acceptable. Coordinate with Geotech recommendations.
3. Concrete Mix
   a. Minimum 2,500 psi compressive strength with a water/cement ratio of 0.50 or less.
   b. No pea gravel mixes permitted.
   c. For heavy-traffic areas, use a minimum 3,500 psi mix.
4. Trench Repairs in Existing Flatwork
   a. Use 3/4" aggregate, 2,500 psi concrete, at least 4" thick on a 2" sand base.
   b. Dowel all repairs into adjacent existing concrete.
5. Sub-Base
   a. Sub-base profile shall follow recommendations from the project's Record Geotechnical Report.
   b. Over-excavate and replace expansive soils as required.
6. Drainage and Slope
   a. Standing water (ponding) is not acceptable.
   b. Provide a minimum 1% slope for drainage and a maximum 2% cross slope away from buildings.
7. Reinforcement
   a. Secondary fibrous reinforcement is recommended for added durability.
8. Concrete Finish
   a. Preferred finish is a combination of slightly weathered etched look/ exposed aggregate look through the use of a surface retarder.
   b. Preferred finish at utility type areas is medium broom, with strokes perpendicular to the primary direction of travel.
   c. Salt finishes and stamped textures are not permitted.
9. Gradients
   a. Pedestrian paths under 5% grade are considered walkways.
   b. Paths with grades from 5% to 8.33% are ramps and must comply with ADA and Title 24 ramp standards.
   c. For slopes between 4%–5%, provide 5' long level landings every 100 feet or for every 30" of vertical rise.
10. Joints in Concrete
    a. Control joints must be placed at 5-foot intervals and expansion joints must be placed at a maximum of 20-foot intervals.
    b. Hand-troweled joints or over saw cuts are acceptable.
    c. If saw cuts are used, they must be made to a depth of at least 1/3 of the slab thickness.
    d. Control joint layout requires approval from the District Architect.
    e. All concrete paving expansion joints shall be sealed with elastomeric expansion joint sealants.
11. Curb Cuts
    a. Provide curb cuts at all grade changes between street and sidewalk, and at all ADA access points.
    b. Must comply with ADA and Title 24 standards.

12. Concrete Trenches
    a. Minimum trench width: 18".
    b. Dowel #4 rebar at 24" on center into both sides of the existing concrete.
    c. Control joints to be installed during pour or within 48 hours of placement.
13. Concrete Stairs
    a. Install metal nosings.
    b. Provide direct and accessible routes between building entrances and key activity areas.

ASPHALT PAVING

1. Section Requirements
    a. All new or replaced asphalt shall include at minimum, coordinate with Geotech report:
        i. 12" Class II base
        ii. 4" of 3/4" asphalt base
        iii. 2" of 3/8" asphalt surface course (or per engineered design)
    b. Installation
        i. Asphalt must be placed in two lifts.
        ii. Curing time between lifts shall meet Caltrans Chapter 39 specifications.
    c. Fire Lanes
        i. Fire lanes must include curbs painted red and stenciled “FIRE LANE” per the local fire marshal's direction.
        ii. Design profiles must meet PSI ratings required by the fire marshal.
        iii. Where pedestrian walkways double as fire lanes, use removable bollards or planter pots to restrict campus traffic. Maintain a minimum 12-foot clear zone for service vehicles.

LANDSCAPE STANDARDS

GENERAL

1. For every 20,000 square feet of new or additional landscaped area, provide a 100 square foot enclosed gardening storage area. This area must include a cast iron slop sink equipped with a dirt filter.
2. All work must include the cost to restore the landscape to its pre-construction condition. The contractor is responsible for repairing any damage to existing irrigation components, including lines, wires, sprinklers, and valves, caused during construction.
3. The District’s designated landscape supervisor for the site must be present at the final inspection and must approve all landscape and irrigation repairs.
4. All landscaped areas should be evaluated for potential Low Impact Development (LID) strategies. These areas may be used as vegetated swales or bioretention zones. Stormwater from rooftops and other impervious surfaces should be directed into landscape areas where feasible. Incorporate soil amendments to improve infiltration, water retention, and overall soil quality. Collected rainwater from cisterns or rain barrels may be used to irrigate portions of the landscape. These Best Management Practices (BMPs)—including the planting of deciduous and evergreen trees—may be eligible for credit toward mitigating runoff associated with increased impervious surfaces on the project site.

IRRIGATION STANDARDS

GENERAL

1. Note: Calsense is the District-approved sole source irrigation control system. It shall be installed and fully programmed at the start of the project to ensure maximum efficiency and compliance with water regulations. Coordination with the Landscape Supervisor at the specific campus is required.

IRRIGATION COMPONENTS

1. Sprinklers
   a. Use pressure regulated spray and rotar heads.
   b. Pop-up Sprinklers: Rain Bird 1800 series or Hunter Pro Spray with Pro Spray nozzles.
   c. Rotor Sprinklers: Rain Bird 3500, Rain Bird 7005, or Hunter "I" Series.
   d. Use ultra-high-flow nozzles for large open areas to maximize water application efficiency.
2. Valves
   a. Hunter ICV with Accu-Set.
   b. Rain Bird PESB-R with PRS-D (for reclaimed water use at Miramar College). Accu-Set, Hunter ICV-R is not allowed at Miramar.
3. Quick Couplers
   a. Install next to every valve.
   b. Provide one every 100 feet along sidewalks, buildings, and throughout landscaped areas.
   c. Include a ¾” quick coupler on each valve manifold.
   d. Isolation valves required on each manifold.
4. Pipe Sleeving and Depth
   a. All irrigation under concrete driveways and patios must be sleeved.
   b. Where landscaping meets concrete, install a minimum of two 4” sleeves for irrigation and electrical—sleeves should match the depth of pipe/conduit.
   c. Lateral lines (non-mainline) should be buried no deeper than 18 inches.
   d. Swing joint assemblies must not use “funny pipe”.
5. Swing Joint Assembly
   a. Consist of three Marlex fittings and one 4"–6" Schedule 80 riser (threaded to match sprinkler head)
   b. Use check valves only where necessary
6. Sprinkler Placement
   a. Set sprinkler heads at least 2" away from concrete edges, especially in shrub beds.
7. Valve Manifolds
   a. End manifolds with a tee and a capped stub-out.
   b. Include threaded unions on both sides for maintenance access.

CALSENSE SYSTEM REQUIREMENTS

1. Controllers
   a. Must have a dedicated electrical circuit.
   b. Install with an 8’ x 5/8” ground rod in accordance with Calsense specifications.
   c. Interior controllers: Mount on Calsense stainless steel back plate.
   d. Exterior controllers: Place in Calsense SSE-R lockable stainless steel enclosures.
   e. Controller type and location must be verified by Calsense field service personnel prior to installation.
   f. A Calsense Installation Certification is required before project closeout.

2. Sensors and Accessories
   a. Install a master valve and Calsense FM Series flow meter with all new systems.
   b. Install a Calsense rain sensor ("rain bucket") and ET gauge if not already present.
      i. Location for both must be verified by Calsense field service personnel.
   c. Use Paige P-7171-D communications cable between hardwired controllers.
   d. CAT5 or CAT6 data cable with RJ45 terminals shall be installed as needed.
3. Wiring
   a. No 2-wire systems, Minimum 3 wires when manifolds have 3+ valves. Extra wire w/MV & FM.
   b. Use 14-gauge direct burial wire for all control wiring.
   c. Provide two additional yellow 14-gauge wires at each valve manifold for future use.

BACKFLOW PREVENTION AND GENERAL NOTES

1. Backfill all irrigation trenches with topsoil and appropriate underground tape markers.
2. Install stainless steel cage over backflow preventers per City specifications.
3. All work must meet current District irrigation standards and specifications.

WATERING GUIDELINES (DURING MAINTENANCE PERIOD)

1. To be determined.

AUTOMATIC CONTROLLERS AND RELATED EQUIPMENT

1. Design Coordination
   a. Prior to system design, the design team shall consult with a Calsense representative to review communication and flow monitoring requirements.
2. As-Built Documentation
   a. Upon project completion, SDCCD shall receive a complete irrigation zone diagram indicating all watering zones and valve locations.
   b. Include all POCs, shut off valves, and gate valves.
3. Controller Specifications
   a. Controllers shall be as indicated in the construction drawings and shall be manufactured by Calsense Inc. All controllers shall be the Calsense CS3000 clocks and installed per manufacturer's specifications, project drawings, and these requirements.
4. Controller Enclosures
   a. Controllers shall be housed in weatherproof, lockable, stainless steel enclosures with a powder-coated finish. Enclosures shall be suitable for either wall mounting or freestanding pedestal installation.
5. Electrical Requirements
   a. Controllers shall operate with the following electrical specifications:
      i. Input: 120 VAC, 60 Hz, 1.0A.
      ii. Transformer: 40 VA, Class 2.
      iii. Output: 24 VAC, maximum load 1.5A.
      iv. Capable of actuating up to four (4) 0.25A solenoids plus a master valve or pump start relay.
6. Additional Components
   a. All additional components (e.g., flow sensors, antennae, radios) shall be installed in accordance with the manufacturer's specifications. Coordinate with Calsense as needed.
7. Wireless Communication
   a. Controllers located within line-of-sight proximity shall communicate using integrated spread-spectrum radio. This wireless communication method is secure, FCC license-free, and uses frequency-hopping error correction to ensure a reliable signal.

i. A single controller with radio: Model suffix "-SR".
ii. Multiple controllers sharing one radio: Models "-MSR" and "-MS".

8. Ethernet Communication
   a. The controller shall communicate with a central computer using an integrated Ethernet module (TCP/IP protocol). No separate power source shall be required for this communication.
      i. Single controller connected via Ethernet: Model "-EN".
      ii. Controller sharing an Ethernet jack with others: Model "-MEN" (with -ME option controllers).
      iii. The contractor shall provide an RJ45 Ethernet connection at each controller location, with access to a static IP address assigned by the network administrator.
9. Remote Access
   a. Each controller shall be provided with:
      i. Remote access through smart phone or tablet.
      ii. Appropriate antenna.

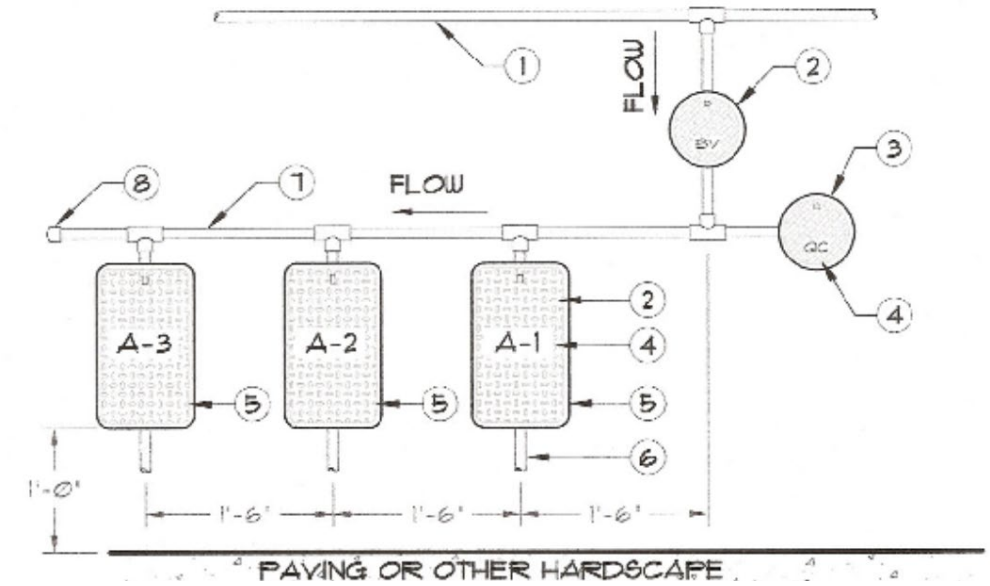
WEATHER MONITORING

1. The central irrigation control system shall include a remotely connected ET Gauge (Model ETG) as indicated in the plans and specifications. The ET gauge shall be powered by the designated field controller, specified as a "-G" model, and installed in accordance with the manufacturer's instructions.
2. Only one ET gauge is required per campus. Verify existing site conditions prior to installation to determine if an ET gauge is already in place. I.

FLOW MONITORING

1. All new Calsense irrigation systems shall include a dedicated flow monitoring assembly consisting of a separate water meter, master valve, and flow sensor.
2. The flow meter shall be Calsense Model FM and connected to the irrigation controller using two #14 AWG wires (one red, one black) routed in 1" PVC conduit. The maximum allowable wire run between the flow meter and the controller is 2,000 feet.
3. Installation shall follow the manufacturer's specifications:
   a. The master valve must be normally closed.
   b. The flow sensor must be brass construction only.
   c. PVC is okay to use for FM.
4. The central control system shall include a remotely connected Rain Bucket (Model RB-1), as shown in the plans and specifications. The rain sensor shall be installed per the manufacturer's guidelines and located on the highest rooftop available. Only one rain bucket is required per campus.
5. Both the ET Gauge (Model ETG) and Rain Bucket (Model RB-1) shall be supplied by Calsense (Carlsbad, CA) through an authorized local distributor.
6. Provide a dedicated irrigation water meter or separate device to measure irrigation usage independently from domestic water supply.

DESIG



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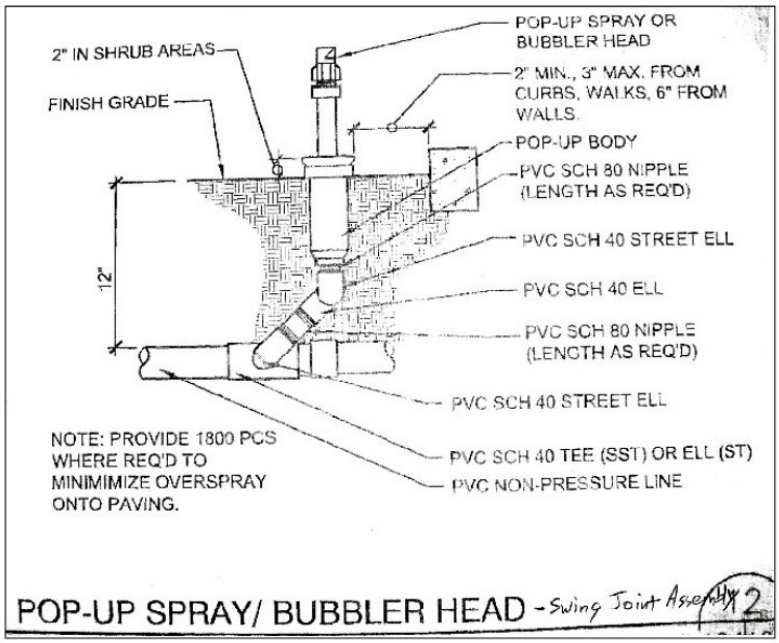


COMPUTERIZED CENTRAL CONTROL SYSTEM

1. The computerized central control system shall be installed in accordance with the manufacturer's specifications. The system shall include the following components:
   a. Operating system shall be cloud based.

b. Satellite irrigation controllers.
c. Controller enclosure cabinets.
d. Communication options, including radio, phone line, and/or two-wire path cable.
e. Flow and weather sensor integration, as applicable.

LANDSCAPE PLANTING

1. Coordination and Oversight
   a. Each campus has a designated Gardening Supervisor. Coordinate with the respective supervisor during landscape programming, plant selection, and throughout the design process.
   b. Prior to planting, all plant material shall be inspected and approved by both the Facilities Landscape Supervisor and the Project Landscape Architect for quality, size, and condition.
   c. The Grounds Department must be provided with accurate as-built irrigation drawings and a laminated diagram upon project completion.
2. Plant Selection and Placement
   a. Select trees, shrubs, and groundcovers that are resistant to pests, disease, and animal damage (e.g., rabbits).
   b. Preferred plant materials shall be appropriate to site conditions, considering factors such as:
      i. Local climate and durability.
      ii. Water requirements and drought tolerance.
      iii. Maintenance needs.
      iv. Visual impact and color.
      v. Suitability to zoning and reduced waste stream impact.
   c. Avoid excessive turf; use only where functionally necessary. Design ornamental areas with drought-tolerant shrubs, low-water groundcovers, mulch, and hardscape elements.
   d. Turf varieties must be selected based on location, use, water consumption, and zone. Acceptable types include Bermuda, Fescue, and Perennial Rye. Coordinate any special turf needs with the Landscape Supervisor.
   e. Locate shrubs and deciduous trees away from air intake systems to reduce the intrusion of organic debris.
   f. Maintain at least a 12" concrete mow strip adjacent to buildings to prevent irrigation spray and mulch contact with building walls.
   g. Use concrete mow curbs to separate turf and shrub planting areas.
   h. Plant spacing must support healthy, natural growth without requiring excessive pruning or causing crowding.

MULCH AND SOIL AMENDMENTS

1. Apply shredded mulch (free of weeds) in all shrub areas to a minimum depth of 3".
   a. Note: Bark chips, pea gravel, and similar materials are not acceptable.
2. Utilize soil amendments as needed to enhance water retention, percolation, and conservation.
3. Rock larger than 1" is not permitted in planting areas.
4. All planting areas must receive a minimum of 12" of tilled topsoil with a complete pre-plant fertilizer prior to installation.

DRAINAGE AND GRADING

1. All planting areas shall have positive surface drainage with a minimum slope of 1%.
2. Provide a drainage system with inlets and piping where needed to prevent standing water.

SOIL REQUIREMENTS

1. Conduct soil testing through a certified agronomic soil lab and/or perform 24-hour percolation tests prior to irrigation and planting system design.
2. Imported topsoil shall be:
   a. Natural, friable, well-draining, and free from:
      i. Subsoil.
      ii. Weeds, seeds, or roots.
      iii. Organic or inorganic debris.
      iv. Toxic substances, salts, and soil sterilants.
      v. Roadbed excavation materials.
   b. Required soil composition for Screened Topsoil Mix:
      i. Screen Size: 3/8”.
      ii. Sand: 65–75%.
      iii. Silt: 15–20%.
      iv. Clay: 10–14%.
      v. Electrical Conductivity (ECe): 0–3 dS/m.
      vi. pH: 6.0–7.5.
   c. Contractor must provide a soil report from an approved agricultural lab for the intended import soil.
      i. The report shall detail full composition and will guide final amendment recommendations.
      ii. If the soil is deemed unsuitable by the District, the contractor must remove and replace it at their own expense, including the cost of soil testing.

ADDITIONAL REQUIREMENTS

1. Apply a pre-emergent herbicide to planting areas after planting, before mulch.
2. All improvements must accommodate the proper operation of the irrigation system and allow access for maintenance equipment.

ADDITIONAL REQUIREMENTS

1. Tree Placement and Setbacks
   a. Trees shall be planted, from trunk center, a minimum of 20 feet from:
      i. Sewer lines.
      ii. Main lines.
      iii. Underground utilities.
      (Unless otherwise directed by the District Architect)
   b. Trees must be planted at least:
      i. 96 inches from the face of curb or sidewalk.
      ii. 20 feet from traffic signals, stop signs, or light standards.
      iii. 10 feet from driveways (for landscape features over 30 inches high).
      iv. 10 feet from fire hydrants, utility poles, overhead wires, street lights, and above-ground utility structures.

TREE SPECIES AND SELECTION

1. Select species that are:
   a. Disease- and pest-resistant.
   b. Low maintenance (minimal trimming required).

   c. Not prone to dropping fruit, branches, or attracting bees in high-use areas.
   d. Not leaf- or needle-dropping when planted with dense shrubs or groundcover.
   e. Without aggressive surface roots (to avoid pavement damage).
   f. Without low-spreading branches.
2. Major tree branches must have minimum clearances of:
   a. 8 feet above sidewalks.
   b. 14.5 feet above streets.
3. In areas without an approved street tree plan, selected trees should complement existing predominant species, unless otherwise specified by SDCCD and the Campus Landscape Supervisor.

TREE INSTALLATION STANDARDS

1. Root barriers (minimum 24 inches deep) are required near:
   a. Sidewalks.
   b. Curbs.
   c. Driveways.
2. Tree planting holes shall include:
   a. 3 evenly spaced trenches, each 12 inches deep.
   b. Trenches extending 6 feet on both sides of the planting hole.
   c. A "wheel with six spokes" layout
      (Not required in parking lot areas. Trenches must be at least 6 feet from concrete, pavement, or buildings.)
3. Backfill soil must be amended per recommendations from:
   a. District-appointed arborist and/or
   b. Certified soil testing.
4. Tree staking must meet industry standards at time of planting.

TREE SIZING REQUIREMENTS

1. 24” box trees: Minimum trunk caliper of 1½ inches.
2. 15-gallon trees: Trunk caliper of ¾ to 1 inch.
3. Palms: Measured by brown trunk height, with a minimum 6 feet in pedestrian walkway areas.

TREE PROTECTION

1. Tree Protection Fencing
   a. During construction, protective fencing shall be installed a minimum of 10 feet beyond the dripline of all existing trees to safeguard the root zone.
2. Irrigation During Construction
   a. The contractor is responsible for weekly irrigation of all protected trees to maintain their health throughout construction.
      i. The District may conduct inspections through a certified arborist and provide recommendations as needed.
3. Root Management
   a. Any tree roots that are damaged or removed during construction must be:
      i. Clean-cut.
      ii. Inspected.
      iii. Immediately covered with soil.
4. Branch Pruning
   a. If branches interfere with construction activities, they must be removed cleanly with a saw, leaving no stubs.
      i. Always consult a certified arborist prior to pruning.

5. Tree Stability and Removal
    a. If a significant portion of the root zone is removed and the tree is deemed unsafe, the contractor shall be responsible for removal of the tree.
        i. Determination of structural stability will be made by the District's designated licensed arborist.
6. Damage and Replacement
    a. If construction equipment damages the trunk or multiple large branches of a tree, the contractor shall be fully responsible for the removal and replacement of the tree with one of equal size and value.

TREE AND PLANT SELECTION

1. General Guidelines
    a. The District requires the use of low-maintenance and low-water-use trees and plants in all landscape designs.
    b. All plant and tree species not included on the District's approved list must be submitted to the District Architect for review and approval prior to being specified.
2. Prohibited Plant Species
    a. Trees – Not Permitted:
        i. Eucalyptus.
        ii. Melaleuca.
        iii. Pines.
        iv. Sycamore. (Platanus racemosa)
        v. Xylosma.
        vi. Hibiscus.
        vii. Hebe.
        viii. Erythrina caffra. (Coral Tree)
        ix. Poplar.
        x. Washingtonia robusta. (Mexican Fan Palm)
    b. Groundcovers – Not Permitted:
        i. Equisetum hyemale. (Horsetail)
        ii. Exception: May be used in containers only.
    c. Shrubs – Not Permitted:
        i. Cortaderia selloana. (Pampas Grass)
    d. Palms:
        i. Only King Palms are permitted.
        ii. Washingtonia robusta is not allowed.

PREFERRED PLANT MATERIALS

1. Refer to the list below for the District Landscape Department's recommended low-water-use species.
    a. Groundcovers and Low-Growing Plants
        i. Coreopsis sp.
        ii. Ceanothus griseus.
        iii. Ceratostigma plumbaginoides.
        iv. Festuca glauca.
        v. Gazanias.
        vi. Ice Plant varieties.
        vii. Juniper. (prostrate forms)
        viii. Lantana sp.

ix. Lavandula.
x. Liriope.
xi. Myoporum parvifolium.
xii. Rosmarinus officinalis prostratus.
xiii. Salvia sp.

b. Shrubs
i. Aucuba. (shade only)
ii. Agapanthus sp.
iii. Bougainvillea sp.
iv. Cassia sp.
v. Calliandra sp.
vi. Cistus sp.
vii. Clivia sp.
viii. Echium sp.
ix. Grevillea sp.
x. Hemerocallis sp. (used as accents only)
xi. Juniper sp.
xii. Lavatera sp.
xiii. Leptospermum sp.
xiv. Nerium oleander
xv. Pittosporum sp.
xvi. Plumbago capensis (Royal Cape)
xvii. Photinia sp.
xviii. Rhapiolepis indica ('Majestic Beauty')
xix. Rosmarinus officinalis.
xx. Santolina sp.
xxi. Statice perizii.
xxii. Strelitzia reginae .(Bird of Paradise)

c. Vines
i. Wisteria.
ii. Other drought-tolerant vines suitable to San Diego's climate

d. Trees
i. Albizia sp. (Mimosa/Silk Tree)
ii. Arbutus unedo. (Strawberry Tree)
iii. Callistemon sp. (Bottlebrush)
iv. Cedrus deodara. (Deodar Cedar)
v. Chitalpa tashkentensis.
vi. Geijera parviflora.
vii. Leptospermum laevigatum.
viii. Jacaranda mimosifolia.
ix. Araucaria heterophylla. (Norfolk Island Pine)
x. Erythrina coralloides. (Naked Coral Tree)
xi. Erythrina crista-galli. (Cockspur Coral Tree)
xii. Cotinus coggygria. (Smoke Tree)
xiii. Podocarpus gracilior – Acceptable, but not preferred. (messy)
xiv. Podocarpus macrophyllus – Acceptable, but not preferred. (messy)

GREENHOUSES

1. Where a new Greenhouse is included on a campus, provide 8" floor sinks with dirt trap at each floor sink.

SITE FURNISHINGS

1. Solar Charging Umbrellas.
    a. Provide solar-powered aluminum umbrellas equipped with integrated photovoltaic panels capable of charging mobile devices in outdoor environments. Each umbrella shall include a minimum of four solar modules embedded in the canopy to continuously capture sunlight and charge a rechargeable battery system (such as lithium iron phosphate). The system must support at least three dual USB charging ports for use with phones, tablets, and laptops. Umbrellas should be compatible with standard outdoor table configurations (e.g., carousel-style) and be available in a range of durable, weather-resistant finishes and color options. The design must balance functionality, aesthetics, and long-term performance in high-use public settings.

UTILITY REQUIREMENTS

1. This section establishes the minimum design and documentation requirements for site utility infrastructure, ensuring clarity, accuracy, and compliance with applicable codes and local agency standards. These requirements support the coordination, installation, and long-term maintainability of domestic water, fire water, sewer, storm drain, and other underground systems. The intent of this section is to direct the civil engineer to the applicable standards for materials, drawings and specifications for utility design. There are three phases that should be separated: Planning, Final Design and Construction.
    a. Planning phase needs to have references to design guidance such as the City of SD Sewer Design Guide, Drainage design guide and CASQA BMP Handbook. This will help guide the sizing, alignment and material selection of the utility.
    b. Final Design needs to have references the design standards for particular facilities such as the SDRSD Drawings for curb inlets, box culverts and manholes.
    c. Construction (and Design) needs to have references the Standard Specifications that will be used, e.g., Greenbook.
2. Standards and References:
    a. Incorporate San Diego Regional Standard Drawings for trenching and underground piping; reference specific details on the plans and in the contract documents. Refer to County of San Diego Regional Standard Drawings.
    b. Show existing right-of-way, property lines, and utility easements.
3. All references to Greenbook Specifications must include the applicable section. Any modified or standalone specifications must be incorporated as Supplementary Special Provisions in the contract documents.
4. Design Documentation Requirements:
    a. Clearly label all utility piping by type (e.g., domestic water, fire water, sewer, storm drain).
    b. Indicate pipe size, material, and alignment on all plans.
    c. Include invert and rim/top elevations for manholes, catch basins, and utility structures.
    d. Maintain horizontal and vertical separation distances in accordance with CCR Title 22, Division 4, Chapter 16, Section 64572.
5. Connections to Existing Utilities:
    a. Clearly show connection points, invert/rim elevations, and references to record drawings from the agency with jurisdiction.
    b. Coordinate with relevant agencies to secure necessary approvals. In some cases, a separate plan set may be required.
6. Utility Coordination:
    a. Use the District's GIS system as a resource to understand existing utilities and their interface with proposed improvements.
    b. Verify existing utilities through record drawings and/or field surveys to the extent practicable before final design.
7. Testing and Inspection:
    a. Camera storm drain and sewer lines two times, once upon placement and backfill, prior to placement of flatwork, and again upon project completion.

PURPOSE AND POLICY STATEMENT

1. The San Diego Community College District (SDCCD) is committed to implementing clean, resilient, and code-compliant energy systems in support of California's energy goals, district sustainability objectives, and long-term operational efficiency. This section establishes the minimum requirements for the design, installation, and integration of solar photovoltaic (PV) systems and battery energy storage systems (BESS) on all new construction and major modernization projects within the district.
2. Photovoltaic Array Generation Commitment:
    a. The District has committed to providing 1 megawatt (MW) of photovoltaic generation capacity at each of the following campuses:
        i. San Diego Mesa College.
        ii. San Diego City College.
        iii. San Diego Miramar College.
3. Project teams must coordinate with the District to assess potential applications of photovoltaic systems on new or existing buildings. Integration opportunities shall be reviewed during project planning phases with the Facilities Planning Department.

APPLICABILITY

1. This policy applies to:
    a. All new building construction, including permanent additions, submitted to the Division of the State Architect (DSA) for review on or after January 1, 2023.
    b. Modernizations or energy system upgrades where PV and BESS integration is feasible and cost-effective.

DESIGN AND CODE REQUIREMENTS

1. Solar Photovoltaic (PV) Systems
    a. All new nonresidential buildings must include a solar PV system as required by the 2022 California Energy Code, Title 24, Part 6.
    b. Minimum PV capacity shall be calculated using the CEC's prescribed formula (Equation 140.10-A) and should be sized to offset at least 60%–100% of annual site electricity use.
    c. PV panels shall be:
        i. Certified to UL 61730 and IEC 61215.
        ii. Minimum efficiency: ≥ 19%.
        iii. Backed by a 25-year performance warranty (≥80% output at Year 25).
2. Battery Energy Storage Systems (BESS) – Mandatory
    a. BESS are required when a PV system is installed on a new building, per Title 24, Section 140.10(b).
    b. Minimum sizing shall comply with Energy Code Tables 140.10-B and 140.10-C, which prescribe energy (kWh) and power (kW) capacity based on PV system size.
    c. BESS must:
        i. Be UL 9540 and UL 9540A listed.
        ii. Use batteries certified to UL 1973.
        iii. Achieve ≥85% round-trip efficiency and support ≥4,000 cycles at ≥80% depth of discharge.
3. DSA Regulatory Guidance
    a. Compliance with DSA IR N-3 is mandatory for submittals involving PV and/or BESS.
    b. For modular, prefabricated, or outdoor BESS enclosures, follow DSA IR N-4 requirements.

PERFORMANCE AND INTEGRATION

1. PV and BESS systems must integrate with the District's centralized Energy Management System (EMS).
2. Inverters must be UL 1741 SB certified and configured to support grid services (volt-var, frequency-watt, etc.).
3. Systems must enable:
   a. Load shifting and peak demand reduction.
   b. Emergency backup capability for critical building loads.
   c. Net metering participation when available.

DESIGN COORDINATION AND REVIEW

1. Design consultants must engage District Facilities Planning at schematic design to confirm PV and battery integration strategy.
2. Solar zones must be preserved per CALGreen/Title 24 for future or immediate PV placement.
3. Structural roof loads must account for PV arrays and BESS weight (roof or ground-mounted).
4. Coordinate interconnection application and submit to SDG&E's Distribution Interconnection Information System (DIIS) portal.

DOCUMENTATION, COMMISSIONING, AND TRAINING

1. All projects must submit the following at closeout:
   a. CEC compliance forms (Title 24, Part 6).
   b. As-built drawings showing PV and BESS layouts.
   c. O&M manuals including safety procedures and warranty details.
   d. DSA-approved battery system documentation.
2. Incorporate interconnection requirements into project planning, permitting, and commissioning schedules.
   a. Step 1: Pass final inspection by Inspector of Record (IOR).
   b. Step 2: Notify SDG&E and complete any required on-site SDG&E inspection.
   c. Step 3: Receive Permission to Operate (PTO) from SDG&E to begin parallel operation with the grid.
3. Facility staff shall receive hands-on operational training from the integrator.

30 DIGITAL TECHNOLOGY STANDARDS

3.1

BIM STANDARDS

OVERVIEW

1. The San Diego Community College District (SDCCD) recognizes the value of utilizing Building Information Modeling (BIM) to enhance the design, construction, and facilities management of both new construction and modernization projects. The SDCCD BIM Standards have been developed to define the processes, requirements, procedures, and protocols for the effective implementation of BIM. These standards apply to all new construction and modernization projects within the District.

OBJECTIVES

1. The primary objective of incorporating Building Information Modeling (BIM) is to enhance the quality of design solutions and optimize the exchange of information among all project participants. The SDCCD BIM Standards are established to achieve the following goals:
   a. Develop an open, shared framework for BIM processes across all projects.
   b. Define clear BIM modeling, analysis, and documentation requirements.
   c. Facilitate a collaborative and integrated project environment among all stakeholders.
   d. Utilize BIM as a primary tool for project information management and communication.
   e. Produce fully coordinated project documents through parametric modeling practices.
   f. Ensure the long-term viability of the BIM database for use in facilities management and ongoing building operations.

BIM MODELING REQUIREMENTS

1. BIM project requirements shall encompass modeling, visualization, documentation, and analytical processes supporting the design of the facility. Each project shall develop a digital representation of the facility's physical and functional characteristics, integrated with a linked database of project information. All model elements shall be parametric and interconnected, with embedded data that forms a complete information set for use throughout the facility's lifecycle. At a minimum, the model shall meet all requirements outlined in the SDCCD BIM Standards. Any proposed deviations or modifications to these minimum requirements must receive prior approval from the District Architect before implementation.
2. Autodesk BIM 360 and Autodesk Construction Cloud (ACC) or equal shall be used as the primary cloud-based platform for hosting, managing, and collaborating on Revit models and associated project documentation. Architects are required to utilize ACC to support real-time coordination, version control, and centralized access throughout all project phases. Revit models shall be published and maintained within the Model Coordination environment, ensuring that the design team and project stakeholders have continuous access to the most current, shared models.

BIM EXECUTION PLAN

1. Proper upfront planning is essential to the successful implementation of BIM. The BIM Execution Plan (BEP) serves as the primary planning tool to guide this process.
2. To develop an effective BEP, it is critical to define how the BIM model will be utilized throughout design, construction, and facilities operations. The project planning team shall be assembled during the early stages of the project and must include representatives from all primary project team members, including designers, contractors, engineers, and major specialty contractors.
3. The purpose of the BIM Execution Plan is to establish agreed-upon protocols for the BIM process and clearly define team roles and responsibilities.
4. The BIM Execution Plan shall be submitted to the SDCCD District Architect for review and approval within thirty (60) days of contract award.

BIM COORDINATOR

1. At project inception, a dedicated BIM Coordinator shall be assigned to oversee BIM procedures and serve as the primary point of contact for all BIM-related activities.
   The BIM Coordinator shall be responsible for:
   a. Authoring the BIM Execution Plan.
   b. Scheduling and chairing BIM coordination meetings.
   c. Managing the development and completion of BIM deliverables as defined in the BIM Standards.
   d. Validating that models are compliant with the SDCCD BIM Standards.

SITE MODEL

1. **Existing Conditions**
   a. Modeling of the project site is required for all new construction and renovation projects. Where available, existing site models may be obtained from SDCCD. Regardless of availability, the project team shall model the existing conditions based on District-provided as-built information, supplemented by field verification to confirm the accuracy of site features. Existing conditions that are to be modified or demolished shall be modeled to the appropriate Level of Development (LOD) as defined in the SDCCD BIM Standards.

2. **Civil Model**
   a. The civil model deliverable shall include all systems and elements as defined by the BIM Standards. Parametric modeling software shall be used to develop components and objects not provided by the District. All modeled objects shall include the necessary parameters and associated data relevant to the civil systems they represent. Model detail and accuracy shall progress according to the project's approved Model Progression Specification (MPS).

3. **Digital Terrain Model (DTM)**
   a. A three-dimensional surface model (DTM) shall be created to represent existing and proposed site conditions. The DTM shall include grading information, vertical elevation changes at walls, building pads, and critical site features to establish a common vertical and horizontal datum for coordination with building and utility models. Surface elevations shall be based on available topographic information from record drawings or field surveys. The DTM shall show detailed site features, including existing walkways, roads, curbs, ramps, sport courts and field striping, parking lot striping, and walls, each with accurate elevation data. All site components shall be modeled to support the production of grading plans, civil site sections, and integration with overall project models.

4. **Utility Model Requirements**
   a. All existing and new utilities from the point of connection to the project boundary, extending to within five (5) feet of the building footprint, shall be modeled. Utility modeling shall include, but is not limited to, hydrants, shutoff valves, cleanouts, manholes, Post Indicator Valves (PIV), Fire Department Connections (FDC), and backflow preventers. Modeled utility systems shall be parametric and include database attributes necessary to produce accurate site utility plans and profiles.
   b. Required Model Data for Pipe Systems:
      i. Pipe material.
      ii. Pipe size.
      iii. Pipe slope.
   c. Where the depth of existing utilities is unknown, pothole to confirm utility depth and location prior to modeling.

d. Utility Systems to be Modeled:
   i. Storm Drain.
   ii. Sanitary Sewer.
   iii. Potable Water.
   iv. Fire Service Water.
   v. Irrigation Mainlines.
   vi. Cold Water Supply and Hot Water Return/Supply.
   vii. Natural Gas.
   viii. Electrical. (Primary and Secondary)
   ix. Communications. (Data/Telecom)
e. Landscape
   i. All proposed tree boxes and planting excavation zones shall be modeled. A clash analysis shall be performed to identify and resolve conflicts with all underground utilities.

BUILDING MODEL

1. **Model Development Requirements**
   a. The deliverable model must include all building systems as defined by the BIM Standards.
   b. BIM authoring software shall be used to create parametric components and objects.
   c. All modeled objects must include parameters and data relevant to their respective building systems.
   d. The model's Level of Development (LOD) shall advance according to the Model Progression Specification. At a minimum, models must accurately represent the design solution at each phase.
   e. System models shall be linked to the architectural model and must be visible during the production of Schematic Design, Design Development, and Construction Documents.

2. **Existing Conditions Modeling**
   a. Existing structures must be modeled for all new construction and renovation projects.
   b. Where available, a model of existing conditions may be obtained from SDCCD.
   c. All existing building modeling shall be based on District-provided as-built information, with field verification by the project team to confirm accuracy.
   d. Existing elements that are to be modified or demolished as part of the renovation must be modeled.

3. **Model Components**
   a. Model components shall include parameters and data relevant to their respective building systems.
   b. At a minimum, each component must contain the following attributes: Family name, type name, type mark, and description.

4. **Minimum Architectural Model Requirements**
   a. General
      i. The architectural model shall be developed using BIM authoring software.
      ii. Parametric relationships must be maintained to enable the automatic generation of plans, sections, elevations, and schedules.
   b. Architectural Site Plan
      i. Model all site amenities and architectural elements typically shown on enlarged-scale site plans.
   c. Rooms and Spaces
      i. Include room names, room numbers, accurate net square footage, occupancy classifications, occupant counts, finish properties, programmatic information, and space inventory data.

d. Walls and Curtain Walls
   i. Interior and exterior walls shall be modeled to reflect accurate height, length, width, finish materials, and ratings (thermal, acoustic, and fire).
   ii. Curtain wall systems shall include modeled mullions and glazing configured to their true profiles.
e. Doors, Windows, and Louvers
   i. Doors, windows, and louvers shall be modeled to represent actual size, type, and location for both interior and exterior conditions.
f. Roof
   i. The roof system shall be modeled to include roof type, overall assembly thickness (including insulation), drainage systems, major penetrations, access ladders, and associated specialties.
g. Ceilings
   i. Model ceiling systems, soffits, openings, slopes, and accessories, including associated framing and bracing.
h. Vertical Circulation
   i. Model all elevators, stairs, handrails, and guardrails.
i. Architectural Specialties and Casework
   i. Model all architectural specialties, including toilet accessories, toilet partitions, grab bars, lockers, display cases, shelving, and other interior elements.
   ii. Casework shall include dimensions, WI (Woodwork Institute) numbers, and additional component data as required.
j. Signage
   i. All signage components shall be modeled in the architectural model.
k. Schedules
   i. Provide door, window, and finish schedules.
   ii. All schedule data must be extracted directly from the modeled components to ensure consistency.
l. Fixtures and Equipment
   i. Model all fixtures and equipment necessary to meet design layout and coordination requirements.

5. **System Models**
   a. System models shall be developed as separate BIM files.
   b. Each system model must include the required systems as defined in the BIM Standards.
   c. BIM authoring software shall be used to create all parametric components and objects.
   d. All modeled objects must include parameters and data relevant to their respective building systems.
   e. The model's Level of Detail (LOD) shall progress in accordance with the Model Progression Specification.
   f. System models are required for the following disciplines:
      i. Structural.
      ii. Mechanical.
      iii. Electrical.
      iv. Communications.
      v. Plumbing.
      vi. Fire Protection.
   g. Model components shall include the following minimum; family name, type name, type mark, and description.

6. **Minimum Structural Model Requirements**
   a. General
      i. The structural model shall be developed and documented using BIM authoring software.
      ii. Parametric relationships must be maintained to enable automatic generation of plans, sections, elevations, and schedules.
   b. Foundations
      i. Model all foundation and footing elements, including zones of influence.
   c. Floor Slabs
      i. Model all structural floor slabs, including recesses, curbs, pads, and major penetrations.
   d. Structural Steel Framing and Decking
      i. Model all structural steel framing, including columns, primary and secondary framing members, bracing, roof decks, and floor decks.
   e. Cast-in-Place Concrete
      i. Model all cast-in-place elements such as retaining walls, footings, foundations, columns, and beams.
   f. Precast Concrete
      i. Model all primary and secondary precast elements.
   g. Expansion Joints
      i. Accurately model all expansion joints.
   h. Stairs
      i. Model stair framing members and associated openings required for stair systems.
   i. Shafts and Pits
      i. Model all shafts, pits, and associated openings.

7. **Minimum Mechanical Model Requirements**
   a. General
      i. The mechanical model shall be developed and documented using BIM authoring software.
      ii. Parametric relationships must be maintained to enable automatic generation of plans, sections, elevations, and schedules.
   b. HVAC Equipment
      i. Model all major HVAC equipment, including:
      ii. Air Handling Units. (AHUs)
      iii. Fans.
      iv. VAV (Variable Air Volume) boxes.
      v. Compressors.
      vi. Chillers.
      vii. Cooling Towers.
      viii. Boilers.
      ix. Air Handlers.
      x. Hoods.
      xi. Other major mechanical equipment.
   c. HVAC Distribution
      i. Model all air distribution systems, including:
      ii. Supply, return, ventilation, and exhaust ducts.
      iii. Duct hangers and seismic bracing.
      iv. Fire smoke dampers and control systems.

v. Registers, diffusers, grilles, and louvers
vi. Ductwork shall be modeled to the outside face dimension.

d. Mechanical Piping
i. All mechanical piping 1" diameter and larger shall be modeled.
ii. Piping shall be modeled to reflect the outside diameter of the pipe or the pipe insulation, whichever is greater.

e. Equipment Clearances and Service Zones
i. Model all required clearances for clash detection and maintenance access.
ii. Access and service zones shall be modeled, especially above ceilings, to verify ease of maintenance access.

8. **Minimum Plumbing Model Requirements**

a. General
i. The plumbing model shall be developed and documented using BIM authoring software.
ii. Parametric relationships must be maintained to enable automatic generation of plans, sections, elevations, and schedules.

b. Fixtures and Equipment
i. Model all major plumbing fixtures and equipment, including:
ii. Sinks.
iii. Toilets.
iv. Carriers.
v. Floor drains.
vi. Roof drains and leaders.
vii. Sumps.
viii. Booster pumps.
ix. Grease interceptors.
x. Sediment separators.
xi. Other major plumbing equipment.

c. Piping
i. Model all plumbing piping systems to a point five feet beyond the building footprint.
ii. Systems to be modeled include:
iii. Hot and cold water piping.
iv. Sewer piping.
v. Storm drain piping.
vi. Gas piping.
vii. Pipe hangers and seismic bracing.
viii. Valves and cleanouts.

d. Piping shall be modeled to the outside diameter of the pipe or pipe insulation, whichever is greater.

e. Equipment Clearances
i. Model all clearances and access zones to support clash detection and maintenance access verification.

9. **Minimum Electrical/Communications/Security Model Requirements**

a. General
i. The electrical, communications, and security models shall be developed and documented using BIM authoring software.
ii. Parametric relationships must be maintained to enable automatic generation of plans, sections, elevations, and schedules.

b. Power Systems
   i. Model all major power equipment and devices, including:
   ii. Transformers.
   iii. Emergency generators.
   iv. Main distribution panels.
   v. Switchgear.
   vi. Outlets, switches, and junction boxes.
   vii. Model electrical feeders and conduit runs 2" diameter and larger, including underground conduit.
c. Lighting Systems
   i. Model all permanently mounted lighting fixtures, lighting controls, switches, and junction boxes.
d. Communications Systems
   i. Model all existing and new communications service components, including:
   ii. Audio equipment and speakers.
   iii. Phone and data ports and connections. (above ground and underground)
   iv. Projector locations and image throw paths. (to verify projection clearance)
   v. Cable trays, hanger supports, and seismic bracing.
   vi. Communications conduit 2" diameter and larger shall be modeled.
e. Security Systems
   i. Model all security devices, including:
   ii. Keypads.
   iii. Cameras.
   iv. Motion sensors.
f. Equipment Clearances and Access Zones
   i. Model all required equipment clearances and access zones for clash detection and maintenance access verification.

10. **Minimum Fire Protection Model Requirements**
    a. General
       i. The fire protection model shall be developed and documented using BIM authoring software.
       ii. Parametric relationships must be maintained to enable automatic generation of plans, sections, elevations, and schedules.
    b. Fire Protection System
       i. Model all fire protection system components, including:
       ii. Main supply lines and branch piping.
       iii. Pipe hangers and seismic bracing.
       iv. Sprinkler heads.
       v. Valves and drains.
       vi. Fire pumps and tanks.
       vii. Sensors, heat detectors, and smoke detectors.
       viii. Notification devices.
       ix. Control panels and related equipment

BUILDING MODEL

1. **Software Interoperability**
   a. Software interoperability is the seamless exchange of data at the software level among various applications. Interoperability is achieved by assembling each application's internal data structure to a universal model. All software platforms used for SDCCD must be compliant with the most current version of Industry Foundation Class (IFC) file format and interoperable with commercially available collaboration software applications (e.g. NavisWorks or equal). Approved BIM software includes the following, but software other than listed below may be used subject to interoperability requirements:

CATEGORY	COMMON SOFTWARE PLATFORMS
Authoring – Architectural	Autodesk Revit Architecture, Graphisoft ArchiCAD, Bentley OpenBuildings Designer, Vectorworks Architect
Authoring – Structural	Autodesk Revit Structure, Tekla Structures, Bentley Structural, ArchiCAD, SCIA Engineer
Authoring – MEPF	Autodesk Revit MEP, AutoCAD MEP, Trimble Nova, Bentley OpenBuildings Mechanical, CADmep, AutoSprink,
Authoring – Civil	Autodesk Civil 3D, Bentley OpenRoads Designer, Carlson Civil, Trimble Business Center
Coordination / Clash Detection	Autodesk Navisworks Manage, Trimble Connect, Solibri Office, Revizto, BIM Track, Bentley iTwin
Energy Analysis	IES VE, Autodesk Insight, Sefaira, OpenStudio, DesignBuilder, Cove Tool
Daylight / Solar Analysis	LightStanza, ClimateStudio, Ladybug Tools, Heliodon, AGI32
Carbon Analysis	One Click LCA, EC3, Tally, Athena Impact Estimator, Cove.Tool, Autodesk Forma
Specifications Management	VisiSpecs, E-SPECS, AVITRU, Deltek Specpoint

MODELING STANDARDS

1. **Level of Development**
   a. Level of Development (LOD) defines the degree of completeness Phase. LOD standards ensure consistent expectations for the use and progression of model elements across disciplines.

   There are five standardized levels, each representing increasing levels of detail and information:
   i. LOD 100 – Conceptual
   Generalized massing and overall system or element performance, used for preliminary analysis and studies. Geometry is schematic or symbolic.
   ii. LOD 200 – Approximate Geometry
   Elements are represented with approximate geometry and attached non-geometric information. Location, quantity, size, shape, and orientation are indicative.
   iii. LOD 300 – Precise Geometry
   Elements are modeled with accurate geometry, size, shape, quantity, and orientation. Information is suitable for coordination and construction documents.

iv. LOD 350 – Construction Coordination
Elements include interfaces with other building systems. Geometry is modeled to reflect supporting connections, clearances, and coordination requirements.
v. LOD 400 – Fabrication
Elements are modeled with sufficient detail and information for fabrication and assembly, including specific materials, dimensions, and installation details.
vi. LOD 500 – As-Built
Field-verified elements that reflect actual constructed conditions, with accurate geometry and information suitable for operations, maintenance, and facilities management.

MODELING REQUIREMENTS BY PHASE

1. **Schematic Design**
   a. All Disciplines – equivalent LOD 100
      i. Schematic drawings and sketches indicating preliminary design, scope, materials, and general systems configuration.
      ii. All Engineers to provide Basis of Design in a Text Summary.

2. **Design Development**
   a. ARCHITECTURE – equivalent LOD 200
      i. Defines Generic Wall, Floor, Roof, Ceiling, Elements.
      ii. Define and Locate all Depressed Slabs.
      iii. Generate slopes and preliminary design for all roofs.
      iv. Define Vertical Circulation Elements. (Stairs and Elevators)
      v. Locate and Size Shaft Locations for Mechanical Use.
      vi. Locate and Size Riser Rooms, Electrical Rooms, IDF Rooms, MDF Room, Storage, and Janitors Closets.
      vii. Define Primary Building Materials.
      viii. Detailed Windows and Openings Modeled. (switch from storefront to formal window elements in Revit)
      ix. Define Methodology for Locating Building System Elements. (Chases, Soffits, Utility Corridors, Etc.)
      x. Size Restrooms. (Number of Toilets)
      xi. Confirm Code Regulations for Building Size, Exiting, Stair Widths & Number.
      xii. Define General Grading Strategy Including Preliminary Pad Elevations .

   b. STRUCTURAL – equivalent LOD 200
      i. The goal for the initial structural design is to create an understanding of the likely structural system. Members should be conservatively sized.
      ii. Define Typical Structural System.
      iii. Define a Typical Member Size and Locate All Beams and Columns .
      iv. Define and Locate Floor/Roof Deck Assemblies.
      v. Define and Locate Generic Depressed Slabs.
      vi. Define and Locate Typical Shear Wall and Braced Frames.
      vii. Define and Locate Bearing Walls.
      viii. Define and locate Preliminary Foundations – conservatively sized.
      ix. Foundation Elements to include a toggle-able areas of influence.
      x. Locate Conservative Wind Girts and Curtain Wall Columns only at locations with larger Glazing Assemblies.
      xi. Define and Locate Retaining Walls – conservatively sized.
      xii. Provide generic slopes of critical roof and floor elements where design requires.

c. MECHANICAL – equivalent LOD 200
   i. Mechanical Systems Defined.
   ii. Define and Locate Roof Top Units, Major Equipment.
   iii. Incorporate clearance/access zones into all Modeled Elements.
   iv. Define and Locate Major Trunk lines within ceiling cavities and inside proposed shaft locations.
   v. Include Insulation buffers, parametrically controlled.
   vi. Locate Diffusers in Ceilings – Modeled Connections to mechanical system are not required.
   vii. Define Preliminary venting layout.
   viii. Locate and size any probable exhausts or vents required through exterior walls or roofs - Connections to mechanical system are not required.

d. PLUMBING – equivalent LOD 200
   i. Define and Locate Underground Main Lines, (water, sewer, gas) to Proposed POC with Civil Engineer
   ii. Provide modeled main gas line to POC at public right of way.
   iii. Model, generically, any above ground elements (meters, switches, etc) that would be visible to the naked eye for coordination and concealment.
   iv. Define Primary Points of Connection for All Buildings.
   v. Generically Model and Locate Hose Bibs, Sub Meters, Utility Meters, and other Wall Hosted or Above Ground Elements.
   vi. Define and Locate Main Building Water Lines.
   vii. Include insulation buffers with all family elements where required.
   viii. Size (based upon tributary area) and Locate Initial Roof and Overflow Drains on Roof Plans, with proposed routing to overflow Drain Locations.
   ix. Locate Floor Drains –modeled connection to main lines not required.

e. CIVIL – equivalent LOD 200
   i. Model all main utility lines.
   ii. Provide invert elevations for Points of Connection with all building utilities.
   iii. Provide invert elevations for points of connection at public rights of way.
   iv. Model all primary grading elements, such as pads, driveways, sidewalks, retention basins, parking lots, and fields and provide each element either a general slope or elevation for site planning – three-dimensional precise grading not required at this time.
   v. Generically model and locate proposed backflow preventors, FDCs, and other above ground elements on site plan. Connections to main lines not required.

f. ELECTRICAL/LIGHTING – equivalent LOD 200
   i. Define and Locate major equipment with clearance zones built into family elements parametrically.
   ii. Define and Locate Electrical Panels with clearance zones built into family elements parametrically.
   iii. Define and Locate Lighting elements within all ceilings, connections not required. Provide Clearance Zones above all family elements parametrically.
   iv. Model generic three-dimensional boxes with all outlet elements. Elevation does not require accuracy at this stage.

g. FIRE PROTECTION – equivalent LOD 200
   i. Locate Sprinkler heads within ceiling assemblies – Connections to main lines not required.
   ii. Define and Locate Main Lines within wall or ceiling cavities. Elevations not required to be accurate at this time.
   iii. Define and Locate riser assemblies within Riser Rooms.
   iv. Define and Locate Main Fire Line POC to coordinate with Civil with correct elevation.
   v. Provide general modeled elements indicating probable location of seismic assemblies. Connections to main lines not required.

3. **Construction Documents**
   a. ARCHITECTURE – equivalent LOD 300/350
      i. Define Detailed Wall, Floor, Roof, Ceiling Elements Assemblies.
      ii. All Wall Assemblies Tagged, All Layers Modeled, All Ratings Applied with Appropriate Hatch.
      iii. All Roof appurtenances modeled. (ladders, access hatches, parapets, scuppers, crickets)
      iv. Interior Finishes Established and Scheduled.
      v. Windows Families Detailed, Glazing Types Modeled within families.
      vi. Detailed Code Analysis Conducted, Rated Walls Identified.
      vii. All Wall Assemblies Detailed and Tagged .
      viii. Detailed Ceilings Modeled.
      ix. Model all horizontal shaft assemblies. (in kitchens and other rated assemblies)
      x. Site Modeled.
      xi. Model all Root Balls as Proposed by Landscape Design within site plane.
      xii. Model all Gate and Posts including footings for underground coordination.

   b. STRUCTURAL – equivalent LOD 300/350
      i. Structural System Updated, all structural elements designed, sized, and located.
      ii. Define and Located bracing elements at ceilings, unsupported walls, and parapets. (stud bracing at soffits, kickers, tube steel supports, etc)
      iii. Foundations elements Updated and Designed.
      iv. Foundation Elements to include a toggle-able areas of influence.
      v. Define and Locate all curbs.
      vi. Define and Locate all depressed slabs.
      vii. Accurately Define and Locate Wind Girts and Curtain Wall Columns for all Glazing Assemblies.
      viii. Model stepped foundations in coordination with plumbing, civil, and fire protection.
      ix. Accurately Define and Locate Retaining Walls.
      x. Establish slopes of all decking, sloped steel.
      xi. Custom Shapes Modeled. (Tapered W-Flanges, etc)

   c. MECHANICAL – equivalent LOD 300/350
      i. Define and Locate All Mechanical Equipment and Ducting.
      ii. All Ducts to be located within appropriate shafts as required.
      iii. All Ducts to include toggle-able thermal insulation wrap where required.
      iv. For banks of ducting. (2 lines or more adjacent one another), model proposed support system (Unistrut or similar)

v. Model and Locate all wall vents and roof penetrations and coordinate with Architect and Structural Engineer.
vi. Smoke Fire Dampers Located, Confirmed by Code Analysis.
vii. Locate and model all Thermostats.
viii. All Roof Top Units to be located properly within the roof plane.
ix. All roof penetrations coordinated with Structural Framing and associated shafts where provided.
x. Define and Size Roof Top Unit Curbs.

d. PLUMBING – equivalent LOD 300/350
i. Define and Locate Main Sewer Lines Underground to Proposed POC with Civil Engineer.
ii. Define Primary Points of Connection for All Buildings modeled.
iii. At 50%: Model and Locate (connection to main line not required) Hose Bibs, Overflow Drain Escutcheons, Utility Meters, and other Wall Hosted or Above Ground Elements.
iv. At 100%: All above elements to be connected to main lines.
v. Define and Locate Main Water Lines, Main Sewer Lines, Gas Lines.
vi. Include insulation buffers with all family elements.
vii. Refined Locate Initial Roof and Overflow Drains on Roof Plans.
viii. Define, Locate, and connect all floor drains to main lines.

e. FIRE PROTECTION – equivalent LOD 300/350
i. Model and connect all elements of the fire sprinkler systems within the building model.
ii. Develop three-dimensional bracing elements to be used as part of your construction document symbols/components.

f. ELECTRICAL /LIGHTING – equivalent LOD 300/350
i. Model Main Sweeps into buildings for coordination with foundation design. Detailed model content for other conduits and lines are not required.
ii. Model Cable Tray and Other Electrical Elements in Excess of 1” diameter.
iii. Define and Locate major equipment with clearance zones built into family elements parametrically.
iv. Define and Locate Electrical Panels with clearance zones built into family elements parametrically.
v. Define and Locate Lighting elements within all ceilings, connections not required. Provide Clearance Zones above all family elements parametrically.
vi. Model generic three-dimensional boxes with all outlet elements. Elevation does not require accuracy at this stage. Model generic three-dimensional junction boxes where provided on roof, within ceiling assemblies, and within wall assemblies.

VIRTUAL DESIGN COORDINATION

1. Virtual design coordination enables the identification, review, and reporting of interferences within a coordinated 3D model. All models submitted for DSA review shall be free of major construction clashes—defined as conflicts that, if unresolved, would result in rework by another trade, cause project delays, or lead to increased costs.

2. **DD System Coordination Goals**
   a. Establish Main Points of Connection Between Civil, Plumbing, Fire Protection.
   b. Coordinate Foundations Clashes between Structural, Fire Protection, Civil, and Plumbing and future points of coordination.
   c. Reconcile Preliminary Strategy for Routing Water from Roof to Ground Plane. (Plumbing & Architectural)
   d. Coordinate Location of All Systems and Assemblies within Ceiling Planes.
   e. Become Clash Free Between Primary Structure and Main Mechanical Ducted Trunk Lines.
   f. All Roof Top Mechanical Units should be hosted to roof, Concealed from View,
   g. Identify areas of concern for future coordination and higher degree of modeling effort.

3. **CD System Coordination Goals**
   i. Project should be major clash free prior to submittal to DSA
   ii. Run clashes of all major elements between all disciplines

4. **Model Coloring**
   i. Models shall be identified with a unique color per the following:

MODEL	MODEL COLOR
CIVIL SURFACE MODEL	EXIST – GRAY, PROPOSED - BROWN
CIVIL UTILITIES MODEL	SD-ORANGE, SS-DARK GREEN, FS-RED, WATER-BLUE
ARCHITECTURAL MODEL	NATIVE/WHITE
LANDSCAPE MODEL	PURPLE
MECHANICAL DUCTING MODEL	SUPPLY – LIGHT BLUE RETURN - PINK EXHAUST- MUSTARD
MECHANICAL PIPING MODEL	LIGHT BLUE
MECHANICAL EQUIPMENT	LIGHT GRAY
PLUMBING SEWER	DARK GREEN
PLUMBING STORM DRAIN	ORANGE
PLUMBING WATER	COLD - ROYAL BLUE HOT- MAGENTA
PLUMBING GAS	LIGHT GREEN
ELECTRICAL POWER MODEL	YELLOW
ELECTRICAL LIGHTING MODEL	YELLOW
ELECTRICAL SITE MODEL	YELLOW
STRUCTURAL MODEL	GRAY
FIRE SPRINKLER MODEL	RED
FIRE ALARM MODEL	RED

BIM PROCESS REQUIREMENTS

1. Integrated Project Design (IPD) is a project approach that harnesses the early involvement of key participants and the use of advanced technologies to maximize the collective expertise of the team. This method enhances value across the entire project lifecycle—from design through construction and into operations.

   At the heart of IPD are collaborative, integrated teams built on trust, transparency, and mutual accountability. These teams are composed of the project's core contributors and operate under shared principles, including:

   a. Early and active engagement of all key disciplines.
   b. Open information sharing and transparent processes.
   c. Decision-making driven by project value rather than individual scope.
   d. Shared risk and reward tied to overall project success.
   e. Full utilization of digital tools and technologies to streamline delivery.

   By aligning goals, promoting cross-disciplinary collaboration, and leveraging the strengths of each team member, IPD enables more efficient, coordinated, and innovative outcomes in the design, construction, and operation of buildings.

CM MULTI-PRIME PROCESS

1. This delivery method divides the BIM modeling into two models - a design model and a construction model. The design model is used to generate the construction documents used for bidding and the construction model is generated be each respective prime trade contractor for fabrication and coordination.
   a. The architectural and structural models will be provided to the prime trade contractors (PTC). All other models must be completely regenerated. If provided, system models are for reference only.
   b. CM shall require PTC to submit models and participate in coordination meetings, as a part of the bidding requirements.
   c. Prior to construction modeling, establish a BIM Coordinator and BIM Execution Plan (see BIM Modeling Requirements).
   d. The BIM Coordinator will integrate models into a composite fi le which will be used for coordination and clash detection.
   e. Interferences will be resolve interactively during coordination meetings. See BIM Analysis Requirements for virtual design coordination.
   f. Once all conflicts have been resolved, each prime trade contractor is to provide fully annotated drawings of their respective systems, in PDF format via confirming RFI, to the Architect/Engineer of Record for review and approval.

DESIGN BUILD PROCESS

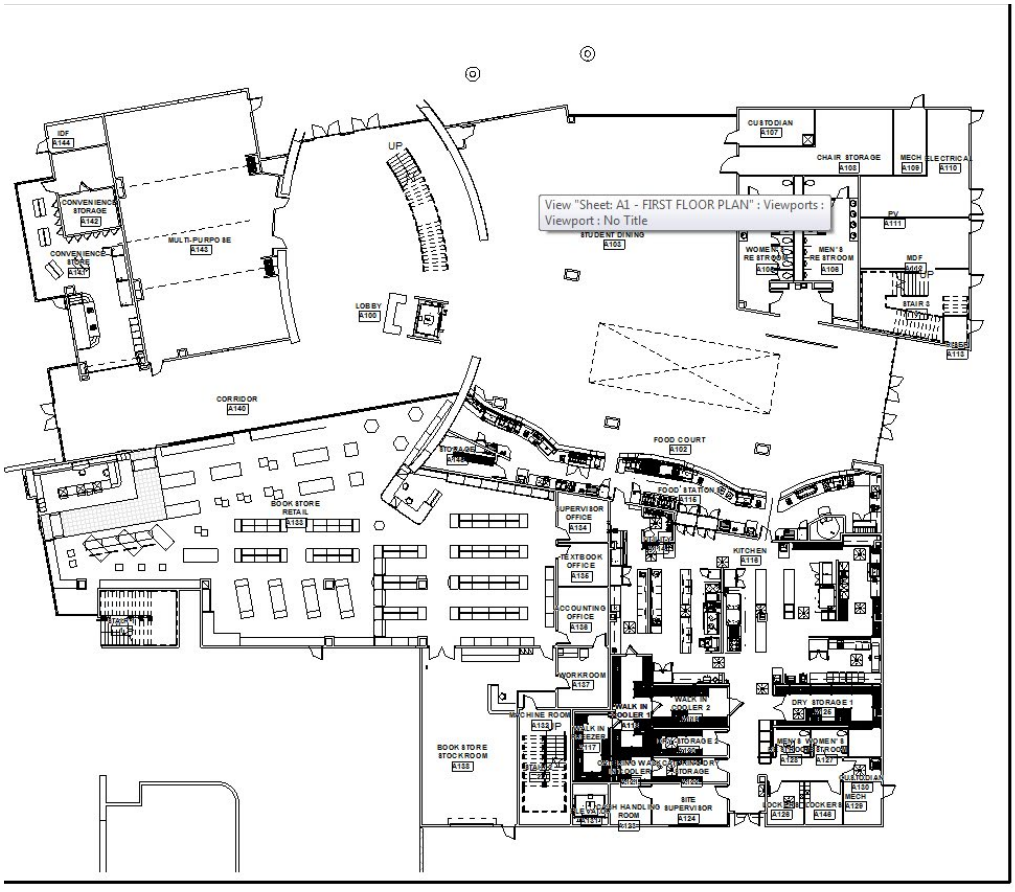
1. The Design-Build delivery method supports the development of a single, integrated BIM model used to produce construction documents, coordinate trades, and enable digital fabrication of building systems.

   Requirements and Workflow:
   a. A BIM Coordinator shall be appointed prior to the start of modeling, and a BIM Execution Plan (BEP) must be developed in accordance with BIM Modeling Requirements.
   b. During the design phase, the design team shall collaborate with subcontractors to develop discipline-specific BIM models that meet defined project requirements.

c. The BIM Coordinator shall compile individual models into a composite coordination model for use in clash detection and interdisciplinary coordination.
d. All interferences shall be resolved interactively through scheduled coordination meetings. Refer to BIM Analysis Requirements for virtual coordination protocols.
e. Upon resolution of all conflicts, construction documents may be finalized and submitted for agency approval.
f. The Design-Build team shall conduct installation planning meetings, utilizing the coordinated model to guide construction phasing and field installation.
g. The final coordinated model shall support digital fabrication of major components, including structural steel, mechanical ductwork, hydronic piping, plumbing systems, and fire protection piping.

SMALL SCALE PLANS

a. Small scale plans are to be generated directly from the BIM model for district use. Provide by building and floor. Example:

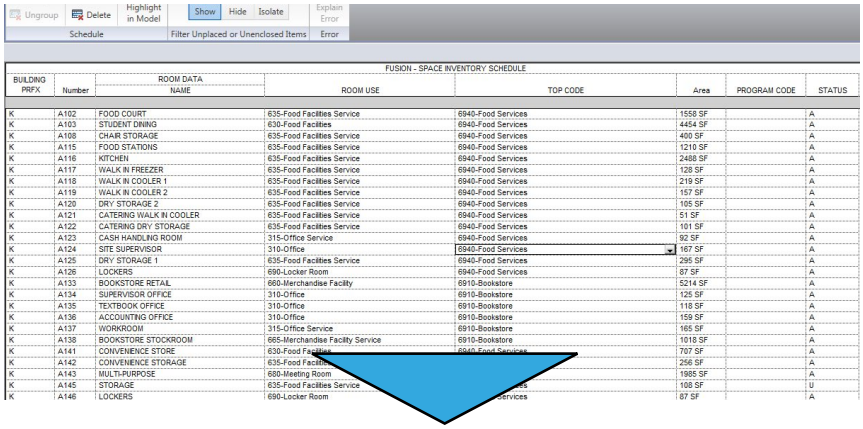


SDCCD - SMALL SCALE - FIRST FLOOR		
Number	ROOM DATA NAME	Area
1	STAIR 1	227 SF
2	STAIR 2	324 SF
3	STAIR 3	369 SF
A100	LOBBY	2656 SF
A101	ELEVATOR	59 SF
A102	FOOD COURT	1558 SF
A103	STUDENT DINING	4454 SF
A104	MACHINE ROOM	13 SF
A105	WOMEN'S RESTROOM	356 SF
A106	MEN'S RESTROOM	366 SF
A107	CUSTODIAN	151 SF
A108	CHAIR STORAGE	400 SF
A109	MECH	115 SF
A110	ELECTRICAL	248 SF
A111	PV	148 SF
A112	MDF	301 SF
A113	RISER	40 SF
A114	UTILITY	49 SF
A115	FOOD STATIONS	1210 SF
A116	KITCHEN	2488 SF
A117	WALK IN FREEZER	128 SF
A118	WALK IN COOLER 1	219 SF
A119	WALK IN COOLER 2	157 SF
A120	DRY STORAGE 2	105 SF
A121	CATERING WALK IN COOLER	51 SF
A122	CATERING DRY STORAGE	101 SF
A123	CASH HANDLING ROOM	92 SF
A124	SITE SUPERVISOR	167 SF
A125	DRY STORAGE 1	295 SF
A126	LOCKERS	87 SF
A127	WOMEN'S RESTROOM	60 SF
A128	MEN'S RESTROOM	60 SF
A129	MECH	87 SF
A130	CUSTODIAN	44 SF
A131	ELEVATOR	79 SF
A132	MACHINE ROOM	31 SF
A133	BOOKSTORE RETAIL	5214 SF
A134	SUPERVISOR OFFICE	125 SF
A135	TEXTBOOK OFFICE	118 SF
A136	ACCOUNTING OFFICE	159 SF
A137	WORKROOM	165 SF
A138	BOOKSTORE STOCKROOM	1018 SF
A140	CORRIDOR	1172 SF
A141	CONVENIENCE STORE	707 SF

FUSION™ (FACILITY UTILIZATION SPACE INVENTORY OPTION NET)

a. FUSION is a web-based suite of tools to support the integrated management and reporting on California community college facilities throughout the state. This approach allows for a consistent, standardized approach used by all college districts and for improved efficiency for the districts as well as the California Community College System Office staff who are responsible for reviewing and approving district submissions and compiling information system-wide. Information required for FUSION will be extracted directly from the BIM. Required fields include: Building Number, Room Number, Room Suffix, Room Use Number, Room Use, Top Code, Top Code Description, Assignable Square Footage, Program Code, Status and Notes. Information required shall be embedded into the BIM model and be exported to Excel file and submitted to SDCCD.

BIM Schedule:



FUSION - SPACE INVENTORY SCHEDULE

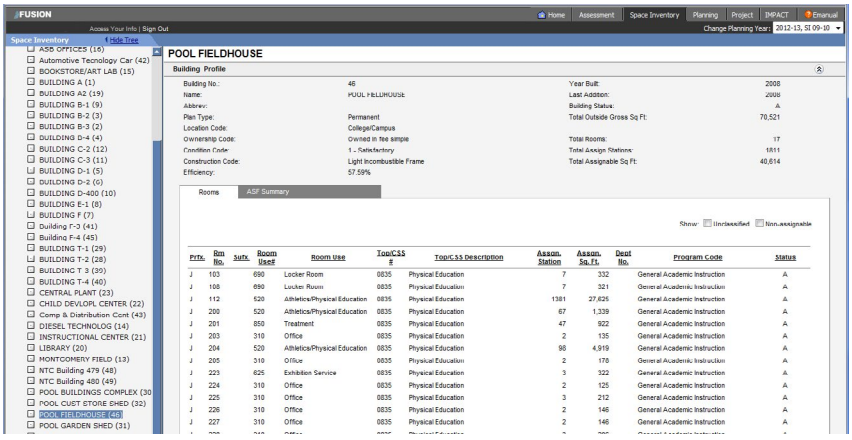
BUILDING PRFX	Number	ROOM DATA NAME	ROOM USE	TOP CODE	Area	PROGRAM CODE	STATUS
K	A102	FOOD COURT	635-Food Facilities Service	6940-Food Services	1558 SF		A
K	A103	STUDENT DINING	630-Food Facilities	6940-Food Services	4454 SF		A
K	A108	CHAIR STORAGE	635-Food Facilities Service	6940-Food Services	400 SF		A
K	A115	FOOD STATIONS	635-Food Facilities Service	6940-Food Services	1210 SF		A
K	A116	KITCHEN	635-Food Facilities Service	6940-Food Services	2488 SF		A
K	A117	WALK IN FREEZER	635-Food Facilities Service	6940-Food Services	128 SF		A
K	A118	WALK IN COOLER 1	635-Food Facilities Service	6940-Food Services	219 SF		A
K	A119	WALK IN COOLER 2	635-Food Facilities Service	6940-Food Services	157 SF		A
K	A120	DRY STORAGE 2	635-Food Facilities Service	6940-Food Services	105 SF		A
K	A121	CATERING WALK IN COOLER	635-Food Facilities Service	6940-Food Services	51 SF		A
K	A122	CATERING DRY STORAGE	635-Food Facilities Service	6940-Food Services	101 SF		A
K	A123	CASH HANDLING ROOM	315-Office Service	6940-Food Services	92 SF		A
K	A124	SITE SUPERVISOR	310-Office	6940-Food Services	167 SF		A
K	A125	DRY STORAGE 1	635-Food Facilities Service	6940-Food Services	295 SF		A
K	A126	LOCKERS	690-Locker Room	6940-Food Services	87 SF		A
K	A133	BOOKSTORE RETAIL	660-Merchandise Facility	6910-Bookstore	5214 SF		A
K	A134	SUPERVISOR OFFICE	310-Office	6910-Bookstore	125 SF		A
K	A135	TEXTBOOK OFFICE	310-Office	6910-Bookstore	118 SF		A
K	A136	ACCOUNTING OFFICE	310-Office	6910-Bookstore	159 SF		A
K	A137	WORKROOM	315-Office Service	6910-Bookstore	165 SF		A
K	A138	BOOKSTORE STOCKROOM	665-Merchandise Facility Service	6910-Bookstore	1018 SF		A
K	A141	CONVENIENCE STORE	630-Food Facilities	6940-Food Services	707 SF		A
K	A142	CONVENIENCE STORAGE	635-Food Facilities	6940-Food Services	256 SF		A
K	A143	MULTI-PURPOSE	680-Meeting Room	6940-Food Services	1985 SF		A
K	A145	STORAGE	635-Food Facilities Service	6940-Food Services	108 SF		U
K	A146	LOCKERS	690-Locker Room	6940-Food Services	87 SF		A

Excel:

FUSION - JCAF 31

Number	ROOM USE	TOP CODE	Name	Area
A103	630-Food Facilities	6940-Food Services	STUDENT DINING / FOOD COURT	5518 SF
A108	635-Food Facilities Service	6940-Food Services	CHAIR STORAGE	400 SF
A115	635-Food Facilities Service	6940-Food Services	FOOD STATIONS	1656 SF
A116	635-Food Facilities Service	6940-Food Services	KITCHEN	2513 SF
A117	635-Food Facilities Service	6940-Food Services	WALK IN FREEZER	107 SF
A118	635-Food Facilities Service	6940-Food Services	WALK IN COOLER 1	176 SF
A119	635-Food Facilities Service	6940-Food Services	WALK IN COOLER 2	158 SF
A120	635-Food Facilities Service	6940-Food Services	DRY STORAGE 2	112 SF
A121	635-Food Facilities Service	6940-Food Services	CATERING WALK IN COOLER	51 SF
A122	635-Food Facilities Service	6940-Food Services	CATERING DRY STORAGE	112 SF
A123	315-Office Service	6940-Food Services	CASH HANDLING ROOM	75 SF
A124	310-Office	6940-Food Services	SITE SUPERVISOR	168 SF
A125	635-Food Facilities Service	6940-Food Services	DRY STORAGE 1	279 SF
A126	690-Locker Room	6940-Food Services	LOCKERS	73 SF
A133	660-Merchandise Facility	6910-Bookstore	BOOKSTORE RETAIL	5146 SF
A134	310-Office	6910-Bookstore	SUPERVISOR OFFICE	128 SF
A135	310-Office	6910-Bookstore	TEXTBOOK OFFICE	120 SF

FUSION:



REQUIRED DELIVERABLES & ACTIVITIES

a. Provide the following deliverables and conduct activities per the following:

	PHASE						
	PROJECT START	DD	50% CD	90% CD	DSA SUB	DSA APP	CO
BIM EXECUTION PLAN	☒						
AREA VALIDATION SCHEDULE		☒	☒		☒		
BIM - FACILITIES REVIEW			☒	☒	☒		
VIRTUAL DESIGN COORDINATION		☒	☒	☒	☒	☒	
SMALL SCALE PLANS							☒
FUSION EXCEL SPREADSHEET							☒
CLOSEOUT DELIVERABLES							☒

☒ Required Submittal to District

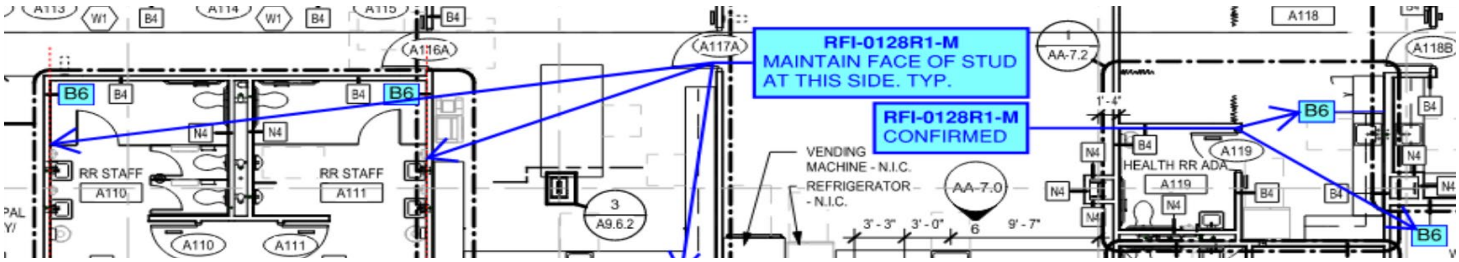
3.2

DIGITAL TECHNOLOGY STANDARDS

DIGITAL DOCUMENTATION

1. All digital documentation requirements outlined herein shall be contractually binding and included as part of the project submittal, review, and closeout processes. Compliance is required for DSA submittals, District recordkeeping, and as-built documentation.
2. Bluebeam Revu is a collaborative PDF-based markup and review platform used to facilitate digital drawing reviews, submittal processes, RFIs, and construction coordination. It allows real-time and asynchronous collaboration, improves markup clarity, and supports a streamlined documentation workflow across design and construction teams.
3. Platform Requirements
    a. Software: Bluebeam Revu (latest version), with access to Bluebeam Studio.
    b. User Accounts: All participating firms must have licensed users with access to Studio Sessions and Projects.
4. Application
    a. For Architects
        i. Architects shall initiate and manage Studio Sessions, inviting the project team and maintaining session records.
        ii. Utilize Studio Sessions to collaborate with consultants and Owner representatives.
        iii. Studio Sessions shall be used for milestone drawing reviews, submittal coordination, and design responses.
        iv. Perform digital drawing reviews and design markups in real time.
        v. Comply with the Division of the State Architect, (DSA) electronic plan review, (EPR) submittal process, including file formatting, naming conventions, digital signatures, and use of the Bluebeam Studio platform as mandated by DSA.
    b. For Contractors
        i. Participate in Studio Sessions for drawing reviews and coordination.
        ii. Submit submittals, shop drawings, and as-built markups using Bluebeam PDF format.
        iii. Bookmarks: Electronic Submittals shall be bookmarked. All Pages (thumbnails) shall be named with the page Number and then Page Title. Each page should also be bookmarked with its Page Name. This functionality is readily available within the Bluebeam Batch process, and its use is encouraged if the application is available to the contractor.
        iv. Highlight and Notation: Information submittals are to be highlighted. Highlights shall indicate all requirements listed in the specification. Adjacent to the highlights should be included text the identifies the appropriate article or section of the specification that identifies the requirement.
        v. Text recognition: All non-vectorized documents (scans, etc) should be processed through an Optical Character Recognition (OCR) process or application to make text searchable. This functionality is readily available within the Bluebeam Batch OCR process, and its use is encouraged if the application is available to the contractor.
        vi. Hyperlinking: All detail references provided in shop drawings will be hyperlinked to the appropriate detail page/reference. This functionality is readily available within the Bluebeam Batch Hyperlinking process, and its use is encouraged if the application is available to the contractor.
        vii. Optimizing large PDF Documents: Each PDF document should be flattened and optimized to reduce file size. All layers should be deleted (retaining content) to assist in increasing refresh rates.

viii. Provide field markups, such as redlines or photos, for integration into record drawings or model updates. Changes shall be highlighted and or cloded and shall document the change event with a brief narrative. Example:



360° PHOTO DOCUMENTATION

1. OpenSpace shall be used on all new construction and renovation projects to capture and manage 360° photo documentation of existing conditions, track construction progress, and support turnover of the final built asset. The District will provide a shared platform where all capture data shall be uploaded and maintained.
2. Architects and Contractors are responsible for purchasing a compatible 360 camera and any accessories needed. (https://store.openspace.ai/ or other resellers)
3. Existing Conditions Documentation (Architects)
   a. Requirements:
      i. Architect will complete OpenSpace training either through the OpenSpace Academy or through 1:1 virtual training sessions.
      ii. Walks must be geolocated to floorplans and synced to the OpenSpace platform.
      iii. An initial full image capture of all spaces to be affected by the project.
      iv. Architects must verify that the imagery aligns with scanned data.
      v. Captures shall be completed prior to schematic design and updated if field conditions change.
4. Construction Progress Documentation (Contractors)
   a. Requirements:
      i. Contractor will complete OpenSpace training either through the OpenSpace Academy or through 1:1 virtual training sessions.
      ii. Walks must be geolocated to floorplans and synced to the OpenSpace platform.
      iii. Contractors shall perform regular OpenSpace image captures throughout construction. At minimum, one full image walk per week.
      iv. Additional captures may be required before slab pours, wall closures, or above-ceiling inspections.
      v. All major work areas must be documented, including structural, MEP systems, ceiling spaces, and inaccessible zones.
5. Final Asset Delivery (Architects and Contractors)
   a. Requirements:
      i. At project closeout, the architect shall coordinate to ensure that the final OpenSpace project includes a complete and navigable 360° record of the as-built condition.
      ii. Final walkthrough shall be conducted after punchlist completion.
      iii. Archive of the OpenSpace project provided to the Owner to the District hosted site.

CONSTRUCTION CAMERAS

1. OxBlue cameras shall be used to provide continuous, time-stamped visual documentation of construction progress. These cameras support project transparency, remote monitoring, stakeholder engagement, and integration with project schedules and milestones.
2. General Requirements
   a. Installation Required: OxBlue time-lapse construction cameras shall be installed and maintained by the contractor on all new construction and major modernization projects, as specified by the Owner or Program Manager.
   b. Location Approval: Camera placement must be coordinated with and approved by the Architect and Owner to ensure optimal field of view without compromising safety or interfering with construction activities.
   c. Power & Connectivity: The contractor is responsible for ensuring adequate power and cellular connectivity to support continuous image capture and remote access.
   d. Coverage: Cameras shall capture wide-angle views of the entire construction site, including key work zones such as structural framing, utility installation, roofing, and staging areas.
   e. Contractor shall coordinate with OxBlue to ensure:
      i. Camera footage is continuously uploaded to the cloud platform.
      ii. Time-lapse video files are saved monthly and made available to the District.
      iii. Final video and full image archive are provided as part of project closeout.

GIS INTEGRATION

1. As part of SDCCD's ongoing efforts to maintain a comprehensive and accurate GIS database, all projects shall adhere to standardized requirements for geospatial data collection and delivery.

   a. Underground Utilities: Design teams must deliver as-built locations for all underground infrastructure in GIS-ready format. SDCCD will provide an empty geodatabase schema with predefined fields to be populated by the designer. This will include basic data such as type of utility and piping materials but may also include more detailed fields such as invert elevations. When potholing is done to locate existing utilities, the relevant geospatial data (with accuracy within a meter) must be provided to SDCCD's GIS consultants or staff so that existing utility GIS layers can be updated.

   b. Building Layouts / Room Info: Design teams must provide final room layout information to SDCCD's GIS consultants or staff in a GIS-ready format. Attribute data for each room is to be included as well. The full list of required attributes to capture will be provided by SDCCD, but it will include such information as square footage, room type (e.g., standard classroom, office, laboratory, restroom).

   c. Building Systems Information: Design team shall provide geospatial and attribute information for all equipment noted on Mechanical, Electrical (including Fire Alarm systems), and Plumbing (MEP) schedules in the as built/record drawing set. The full list of required attributes to capture will be provided by SDCCD, but it will include make and model of equipment, date of installation, and the date of equipment warranty expiration.Only the MEP equipment is currently identified for geospatial capture of building system information. This may change, however, as SDCCD continues to build its GIS system. Items such as security camera locations, and even wall/floor/ceiling finishes may be required for capture in the future.

   d. Coordination with SDCCD's GIS Consultant: All data associated with this GIS-data capture shall be coordinated with SDCCD's GIS consultants or staff. The designer shall engage SDCCD's GIS consultant or staff periodically, with an initial meeting occurring prior to the start of the Construction Document-level document set. The designer shall inform SDCCD's GIS consultants or staff whenever new information is learned concerning the location (or attributes) of existing utilities. The designer shall lead a separate meeting with SDCCD's GIS consultants or staff after the as-built conditions have been finalized to ensure that the required geospatial and attribute info is conveyed appropriately for import into SDCCD's GIS system.

   e. GIS Data and Design Software: It is SDCCD's goal to minimize additional work on the design teams in relation to the capture of this geospatial and attribute information. It may be possible to set up data exports from AutoCAD and Revit layers in a manner that minimizes manual data entry for the GIS system. The design teams shall coordinate with SDCCD's GIS consultants or staff to coordinate these functionalities.

04 PROJECT ADMINISTRATION

4.1

BUILDING DESIGN & CONSTRUCTION PROCESS

4.1.1

BUILDING DESIGN & CONSTRUCTION REQUIREMENTS

To ensure effective communication of building design requirements and address discrepancies during design, construction, and post-completion, the following process will be utilized. This process promotes transparency, accountability, and collaboration to ensure all building design requirements are met and discrepancies are addressed efficiently throughout the project lifecycle.

PARTICIPATION AND COMMUNICATION

1. The Architectural Department, Facilities Services, IT Department Staff, College Police, and Campus Site Staff will actively participate in the design process by:
   a. Attending meetings with design consultants at key milestones.
   b. Reviewing plans and submitting any changes or input in writing via email or department memos.
2. All written input will be forwarded to the District's Project Manager and District Architect, but not directly to the Architect of Record.
3. Special meetings will be scheduled with the Architect of Record to address concerns and review marked-up plans collaboratively.

PROJECT MANAGER RESPONSIBILITIES

1. The Project Manager will oversee the coordination and management of design and construction contracts.
2. The Project Manager will maintain a list of issues or discrepancies using an Issue Management Checklist, which will include:
   a. Description of the issue.
   b. Date identified.
   c. Name of the person who identified the issue.
   d. Name of the person responsible for resolution.
   e. Date the issue was resolved.
3. The responsible party will provide regular status updates, preferably weekly, via email to all relevant stakeholders.

MILESTONES FOR REVIEW

1. Design reviews will occur at the following project milestones:
   a. 100% Schematic Design Submittal.
   b. 50% Design Development Submittal.
   c. 100% Design Development Submittal.
   d. 50% Construction Documents Submittal.
   e. DSA Submittal Set.
   f. Substantial Completion (Punch List Period).
   g. Post-Beneficial Occupancy.

PROJECT PHASE DELIVERABLES

GENERAL

1. All drawings will be prepared on standard 30” x 42” (ARCH E1) sheets except for offsite improvement drawings submitted to the City of San Diego. The City of San Diego requires 24" x 36" (ARCH D) sheets.
2. Depending on project size and/or scope, the District may elect to forego any of the following phases.

SCHEMATIC DESIGN

Identify/design and review with the District site use and improvements; selection of materials, building systems including structural, mechanical, electrical and building’s envelope/”skin” and equipment in compliance with the Final Programming and Project Criteria. Based on the District’s programming needs, Project Budget requirements, and the Final Programming and Project Criteria, prepare Schematic Design Documents consisting of the following minimum documents:

a. Drawings
   i. Preliminary site plan indicating major improvements such as proposed parking areas, walks, and location of exterior utilities and service lines, and landscaping.
   ii. Preliminary floor plans showing all rooms and areas, entrances, exits, stairways, elevators, circulation corridors, toilet rooms, major mechanical and electrical areas.
   iii. Preliminary roof and reflected ceiling plans.
   iv. Preliminary furniture lay-out plans.
   v. Building sections showing floor-to-floor dimensions sufficient to indicate interface with mechanical and structural systems.
   vi. Building elevations with material call-outs.
   vii. Lifecycle assessment (LCA) and energy modeling analysis to evaluate long-term environmental impacts and optimize energy efficiency strategies on three HVAC systems. These assessments should inform system selection.
   viii. Preliminary design of systems including structural, electrical, HVAC, plumbing, audio-visual, building fire protection, lighting, telecommunications/TV, fire and intrusion alarms, special systems, and others, and the general type and scope of construction and the equipment required therein.
b. Outline Specifications
c. Tabulation of Areas
   i. A tabulation of areas, including net and gross areas of the various parts of the Project shall be included.
d. Statement of Probable Construction Cost
   i. Provide a Statement of Probable Construction Cost (“Statement”) based on the Schematic Design Documents and available data, including appropriate design and construction contingencies. Using Uniformat Level 1 Estimate or approved equal template for Schematic Design Estimate by space, provide a square foot estimate based on historical data for each program space using unit price and/or square foot price for each space to develop a preliminary total Estimated Construction Cost to as much detail as the schematic drawings and specifications permit.
e. Project Schedule
   i. Provide a Project Schedule and update it on a monthly basis showing all changes. All Project Schedule changes must have prior written approval by the District.
f. Alternates (if applicable)
   i. Propose, describe their cost/benefit impact on the Project, and discuss with District a range of possible alternatives. Suggestions for alternatives shall maximize the building’s performance.

g. Colored Renderings and Materials Samples:
   i. Provide three (3) digital rendering perspectives, appropriately colored, showing materials to be used, in an “easy-to-see” clear format.
   ii. Provide an initial materials sample board in digital format.

DESIGN DEVELOPMENT – 50% AND 100%

Based on the accepted Schematic Design Documents, prepare Design Development Documents to describe the size and character of the entire Project as to architectural, structural, mechanical and electrical systems, materials, and such other elements as may be required. Include the following minimum documents:

a. Drawings:
   i. Architectural Drawings
      1. Updated site plan showing exterior utilities, sidewalks, other site improvements, grades, and drainage.
      2. Demolition plan(s) clearly indicating demolition scope versus existing work to remain (as applicable).
      3. Reflected ceiling plans indicating ceiling heights, materials, lighting, and location of HVAC/fire sprinkler lay-outs (as applicable).
      4. Building elevations indicating exterior design elements and features including fenestration, colors, materials, mechanical, and electrical features appearing on walls, roofs, and adjacent areas (as applicable).
      5. Interior elevations to establish functional requirements, equipment, and systems locations.
      6. Typical building, thermal energy storage tank or piping support sections showing structural members, dimensions, accommodation of functional systems and other dimensions sufficient to indicate interface with existing structures (as applicable).
   ii. Civil Drawings
      1. Demolition plan(s) clearly indicating demolition scope versus existing work to remain (as applicable).
      2. Preliminary grading, utility (storm drain, sewer, water, and fire service) and site plan(s) indicating existing and new grade elevations, locating buildings and structures by foot print, easements, paving, retaining walls, walkways, roads and gutters, all monuments and benchmark(s) which coordinate the elevations, areas of work limits, etc.
      3. As required, an initial Storm Water Pollution Prevention Plan (“SWPPP”) in accordance State Water Resources Control Board policies.
      4. As required, an initial Storm Water Soil Loss Prevention Plan in conformance with CALGreen Section 5.106.1.
   iii. Structural Drawings
      1. Plans and sections of sufficient detail to show the preliminary floor and roof framing plans, lateral system design, shoring design and, foundation design including preliminary type/sizes and preliminary reinforcing steel design and type of structures, and foundations.
      2. Details and notes to show that the structure conforms to the provisions of applicable codes and is otherwise sufficient.
      3. Notes to indicate foundation and structural design complies with the requirements of soils analysis and applicable seismic requirements.

4. Notes on provisions to meet special requirements such as vibration/deflection and acoustical constraints.
5. Calculations-Legible sheets showing the structural engineering calculations for all structural components of the Project.

iv. Mechanical Drawings
1. Plans showing single line layouts with approximate sizing of major duct and piping systems on architectural plan backgrounds.
2. Plans showing space assignment, sizes, and outline of central heating, cooling, ventilation, and thermal energy storage equipment.
3. Sections through critical areas showing coordination of architectural, structural, mechanical, and electrical elements.
4. Riser diagrams showing plumbing, HVAC, and special process piping distribution systems.
5. Notes on provisions to meet special requirements such as vibration and acoustical constraints.
6. Design calculations for equipment, duct and piping sizing, life cycle costs analyses for recommended and alternative systems, and energy conservation measures.
7. Plans showing HVAC controls for each mechanical system to include a list of input/output devices, control schematics for each mechanical system, a written sequence of operations and functional logic diagrams to define the sequence of operation for programming all controls.

v. Electrical Drawings
1. Plans showing space assignments, sizes, and outline of fixed equipment such as transformers, switchgear, and generator sets.
2. Riser diagrams for construction, showing arrangements of feeders, sub-feeders, bus ducts, load centers, and branch circuit panels.
3. Lighting plans coordinated with previously established ceiling system.
4. Electrical power plan layout showing switches, outlets, etc.
5. Phone/data/security plan layout telecommunications, data, and security systems.
6. Audio-Visual System Plan
7. Preliminary Fire Alarm plan indicating devices
8. Energy Studies: Provide energy studies in the form of calculation consistent with Title 24 of California Building Code, latest edition. Complete standard forms for District's review.

vi. Fire Protection Drawings
1. Plans showing fire protection including fire riser, sprinklers, and details. Include fire pump design if required.

b. Outline Specifications
i. Civil – Expanded specifications by CSI Code including mass excavation, grading, site utilities (sewer, storm drain, domestic water, and fire), SWPPP and offsite street improvements.
ii. Landscape – Expanded specifications by CSI Code including irrigation, plant material, planting soil/ amendments and site furnishings,
iii. Architectural – Expanded specifications by CSI Code of the construction, including exterior building envelope, interior construction and finishes, stairs, and elevators.
iv. Structural – Expanded specifications by CSI Code for the various structural specification sections including shoring, cast-in-place concrete, reinforcing steel, concrete masonry units, misc. metals and structural steel.
v. Plumbing – Expanded specifications by CSI Code of the various plumbing systems including waste, domestic water, gas and roof drainage. Include specifications of plumbing fixtures and equipment including hot water heaters/boilers.

vi. HVAC – Expanded specification by CSI Code of air-conditioning, heating, and ventilation systems, HVAC/EMS controls and commissioning and duct, and piping systems, including provisions to meet any special criteria such as acoustic, air changes, filtration, humidity, vibration isolation, and temperature controls.

vii. Electrical – Expanded specification by CSI Code of electrical services, including voltage, type and number of feeders, lighting system, including lighting levels, fire alarm, telecommunications, data, and security systems as applicable.

viii. Equipment – Recommendations/specification to District for purchases of specific equipment based upon Project requirements, District's needs, and design team's evaluation of the suitability, efficiency, and durability of the equipment.

c. Revised Tabulation of Areas

d. Revised Statement of Probable Construction Cost

i. Upon 50% completion of Design Development, and upon 100% completion of Design Development, update the Construction Cost Estimate developed in Schematic Design using Uniformat Level 3 or approved equal for Design Development Estimate to as much detail as the design development drawings and specifications permit, including appropriate design and construction contingencies. Provide Owner with all documents used to prepare 50% and 100% updated Statement of Probable Construction Cost.

e. Updated Project Development Schedule

i. The Project Schedule shall be updated on a monthly basis showing all changes. All Project Schedule Services changes must have prior written approval by the District.

f. Alternates (if applicable)

i. Propose, describe their cost/benefit impact on the Project, and discuss with District a range of possible alternatives. Suggestions for alternatives shall maximize the building's performance.

g. Updated Colored Renderings

i. Provide updated renderings from Schematic Design Phase. Renderings should be mounted on rigid board and be of sufficient detail to show the intended character and color of the complete complex.

CONSTRUCTION DOCUMENTS – 50% AND 100%

a. Drawings, Details and Specifications:

i. Architectural plans, sections, schedules, elevations, details, and specifications;

ii. Civil plans, details, and specifications;

iii. Landscape plans, details and specifications

iv. Structural plans, details, calculations, and specifications;

v. Mechanical plans, details and specifications including HVAC and HVAC controls, details, schedules, and specifications including full HVAC controls design, airflow specifications, and procedures for balancing and commissioning systems, vendor drawings and specifications, such as those for above ground thermal energy storage tank system; Plumbing details, fixtures and equipment schedules and specifications

vi. Electrical, fire alarm, and telecommunications/data plans, details and specifications including complete and functional communications infrastructure system to provide voice and data communications to and through-out the building;

vii. Plans showing coordinated and planned installation of major systems and equipment, including kitchen equipment, audio-visual equipment, and security equipment.

viii. Fire protection plans, schedules, details, and specifications;

ix. Special conditions; and

x. All other requirements in compliance with the Final Programming and Project Criteria and any approved District changes thereto.

b. Revised Tabulation of Areas
c. Revised Statement of Probable Construction Cost
    i. Upon 50% completion of Construction Documents, update the total Estimated Construction Cost developed in the design development phase and breakdown into CSI format and unit pricing for each division including sub categories within the Divisions using Uniformat Level 3 or approved equal for 50% Construction Documents Estimate. And upon 100% completion of Construction Documents, provide detailed quantity takeoff and unit pricing in CSI format using Uniformat Level 3 or approved equal for Construction Documents and DSA Estimate. Scope of work to include changes resulting from constructability review. Cost for General Conditions to be itemized including quantity and unit price; and in consideration of projected construction schedule. Cost for other indirect costs (Insurance and Bond, Mobilization, Job Conditions, and Contractor's Profit) as a percentage (%) of the direct cost. Cost for Escalation to mid-point of construction based on industry recommended rate to be included. Provide the District with all documents used to prepare both 50% and 100% updated Statement of Probable Construction Cost.
d. Updated Project Development Schedule
e. Updated Colored Renderings
f. Finishes:
    i. Present color board options to the District upon submission of 50% Construction Documents for District's review and incorporation into 100% CD submission.
    ii. Include in 100% Construction Documents District approved finish materials and colors to be incorporated in the Work and prepare schedules of such materials and colors.

AGENCY APPROVAL

Prepare and file all documents required for obtaining the required entitlements and approvals from all agencies having jurisdiction over the Project.

a. Upon District authorization, submit all required documents to the necessary governing agencies, obtain reviews and corrections from the governing agencies, and incorporate any required changes and/or corrections into the Construction Documents, including District Review and Constructability Review comments, calculations or other documents.
b. Produce all plan sets required by all agencies required for approval of the Project.
c. Attend all meetings required by all agencies required for approval of the Project.
d. Do all things necessary to secure all entitlements and approvals for the Project.

MISCELLANEOUS DESIGN REQUIREMENTS

BUILDING & ROOM NUMBERING

1. Final building / room numbering shall be determined by the District Architect. This shall happen after the 100% Schematic Design submittal. Submit a small scale floor plan(s) to District.

KNOX BOX

1. The City of San Diego Fire Prevention Bureau requires a Knox Box at the main entry; only one is required per building. Requirement should be coordinated with the Fire-Rescue Department.

OVERSTOCK

1. Do not specify overstock products unless specifically requested.

SUBMITTALS REQUIRING DISTRICT REVIEW

1. The following Division Specification Submittals shall be submitted to the District Architect along with the A/E early in the construction phase for review and comment prior to ordering materials:
   a. Door Hardware.
   b. Fire Alarm.
   c. Intrusion.
   d. Roofing.
   e. Signage.
   f. Paint; with complete draw downs.
   g. Toilet Accessories.
   h. Floor Boxes.
   i. Substitutions.

PUNCH LIST AND SUBSTANTIAL COMPLETION PROCESS

1. Upon substantial completion, the contractor will notify the District Project Inspector and Project Manager to arrange a campus meeting. This meeting will clarify and resolve issues to the satisfaction of all parties.
2. During the punch list process, the Project Inspector will coordinate with:
   a. Facility Management Staff.
   b. Regional Facilities Supervisor.
   c. Appropriate technical staff.
3. The Project Inspector for the Project will notify Facility Management Staff and the Regional Facilities Supervisor (and appropriate technical staff) on a final walk-through during the punch list process.

PROJECT DESIGN AND CONSTRUCTION DOCUMENT CONTROL

1. Project Information
    a. Project Files: Directory & Description
        i. Folder may contain: documents about location, scope; budget and schedule; project teams involved; contact information and directory; information pertaining to the project. The Design Team shall post submittals and submit memos, agenda, and minutes on Onedrive. Access to Onedrive will be provided by the Program Manager.
    b. Project Planning Documents
        i. Folder may contain: soil's study, EIR and survey
    c. Contracts
        i. Folder may contain: all architectural and/or consulting contracts also contract amendments; all contracts pertaining to professional services.
    d. District Documents/Legal Documents
2. Reference Documents
    a. Drawings Sets
        i. Files may contain: drawing logs and drawing sets.
    b. Project Manual and Specifications
        i. Files may contain: project manuals and specification.
    c. Insurance
        i. Files may contain: insurance certificate.
3. Design Information
    a. Communication
        i. Folder may contain: transmittals, letters agendas and/or meeting minutes pertaining to design.
    b. Preliminary Design
        i. Folder may contain: architectural documents, schematics, and preliminary design related documents.
    c. Construction Documents
        i. Folder may contain: Construction documents related to the project.
    d. Cost Estimates
        i. Files may contain: cost estimates of construction.
4. Design Review
    a. Folder may contain: district review, constructability, VE, and/or design related review documents.
5. Bid & Award
    a. Folder may contain: bid documents, bidder list, bid analysis, bid process, bid award and bid correspondence; proposal (no contract) and construction contract.
    b. CM Multiple Prime and Design Build Teams have been successfully used by the District (e.g. Mesa College Math & Science Building project). Sub-Trade design/building packages have been used where subcontractor trades are brought onto a project design schemes. Trades such as Precast Concrete, Drywall, Window Wall, and Mechanical, Plumbing and Electrical trades have been successfully contracted for Predesign, design detailing, fabrication, and construction.
6. Pre-Construction
    a. Folder may contain: preliminary submittals; schedule of values; cash flow schedule;
    b. Subcontractors list; notice to proceed (NTP) and any pre-construction related documents.
7. Construction Information

a. Communication
   i. Folder may contain: transmittal; letters; meeting agenda and meeting minutes; issue logs and memorandum.
b. Schedule
   i. Folder may contain: baseline schedule and schedule updates.
c. RFI's
   i. Folder may contain: requests for information. (RFI's)
d. Submittals
   i. Folder may contain: submittals and submittal logs.
e. Purchase Orders
   i. Folder may contain: purchase orders.
f. Payment Application
   i. Folder may contain: payment applications and/or payment requisitions.
g. Change Management
   i. Folder may contain: change order work order and/or change management related document; pending/ preliminary change orders (PCO), change orders (CO), contract change order (CCO) and field work orders (FWO); proposals (with existing contract) and request for proposals (RFP); allowance authorization requests (AAR); estimates and ASI's.
h. Notices and Bulletins
   i. Folder may contain: notice and notice of noncompliance; preliminary; stop work; stop payment; subcontractor; substitution request and certificate of substantial completion.
i. Weekly Report
   i. Files may contain: weekly reports.
j. Monthly Report
   i. Files may contain: monthly reports.
k. Safety (Safety Plan, Safety Report, and etc)
   i. Files may contain: safety related documents and safety reports. (weekly)
l. SWPPP requirements before and during construction.
m. Testing/Geotech.
n. Franchise Utilities.

8. Inspection Records
   a. Folder may contain: daily report, notice of non-compliance, specialty, and any inspection related documents to be completed by Project Inspector.
9. Fixtures Furniture and Equipment
   a. Files may contain: FF&E related documents, budget, scope and FF&E manual and specifications.
10. Telecom Room (to be completed by District I.T. Department)
11. Post Construction Information
   a. Folder may contain: As-Built, Commissioning, Manuals, Warranties, and post construction information
12. Division of the State Architect (DSA) - Sign-off to be completed by Architect and District.

ISSUE MANAGEMENT CHECKLIST

1. The District has determined that design and construction projects need to be closely tracked as the project develops so as to monitor the issues that arise to make sure they are adequately resolved prior to construction. Design teams shall log issues by phase and include the following information; issue description, date initiated, assigned to, action needed, and status. Example format:

Project Name:
Project Architects Firm:
Issued by:

Project Issue Management Checklist
Date:
Page 1 of 4

Item	Date Initiated	Assigned to	Issue Description	Action Needed	Status
Black = Previously Listed		New Updates:	Red = AOR/Team Blue = MEP Green = SDCCD-PM	CLOSED = Remove from List	
MEETINGS:		AOR/PM			
1.1.	10-0707	AE Team	1. Bi-Weekly meetings at Architects office	Attend	Ongoing
1.2.					
SCHEDULES:		CM/GC/PM			

4.1.2

DISTRICT ARCHITECT CHECKLIST

DISTRICT ARCHITECT CHECKLIST

SECTION	DESCRIPTION	REVIEWED DATE / SUBMITTED DATE	DISTRICT DIRECTION
	Variation from District Standards		
1.3.4	Sustainability Level Requirements - Programming		
1.3.4	Sustainability Level Requirements - Schematic Design		
1.3.4	Sustainability Level Requirements - DSA Submittal		
1.3.4	Sustainability Level Requirements - Completion		
2.1.1	Prepare project description & scope statement		
2.1.2	Programming approval		
2.1.3	Windows in lecture rooms over 100 occupants		
2.1.6	Material Board		
2.1.12	Deviations of standard parking stall		
2.1.14	WQTR preliminary at 50% CDs & Final at DSA Submittal		
2.2.1 - DIV 01	SWPPP at DSA Submittal and finalized prior to bid		
2.2.1 - DIV 01	Closeout Requirements		
2.2.1 - DIV 10	Paper towel dispensers, as directed		
2.2.1 - DIV 10	Defibrillator locations as directed		
2.2.1 - DIV 12	Lab equipment layout		
2.2.1 - DIV 12	Window shade openess factor		
2.2.1 - DIV 12	Elevator opening direct to exterior		
2.2.1 - DIV 14	Use of hydraulic elevator		
2.2.1 - DIV 22	Tankless water heaters		
2.2.1 - DIV 22	Use of gas water heaters		
2.2.1 - DIV 23	Use of gas HVAC package units		
2.2.1 - DIV 23	Use of evaporative coolers		
2.2.1 - DIV 32	Trees planted closer than 20' to utility lines		
2.2.1 - DIV 32	Plant and tree species not on the District's approved list		
3.1	BIM execution plan with in 60 days of NTP		
3.1	Deviations of BIM Standards		
4.1.1	Final building and room numbering, 100% SD		
4.1.1	Submittals		
	Door Hardware		
	Fire Alarm		
	Intrusion		
	Roofing		
	Signage		
	Paint with draw downs		
	Toilet Accessories		
	Floor Boxes		
	Substitutions		
4.2.1	Floor box locations		

4.2

FF&E DESIGN PROCESS

4.2.1

FF&E REQUIREMENTS

FF&E PROCESS

1. Furniture vendors on contract as of March 2025.
    a. Cultura.
    b. BKM.
    c. Parron Hall.
    d. Verify current vendors with District.
2. Design build teams will procure furniture.
3. Systems in Contract
    a. All systems/desking systems. The furniture vendors will be able to get the line information to you.
    b. Files/bookcases - The furniture vendors will be able to get the line information to you.
    c. Classroom Chairs - The furniture vendors will be able to get the line information to you.
4. District Procured
    a. Task chairs will be procured by the District, mockups will be available.
5. Accessibility requirements
    a. Please contact the following DSPS officers specific to each campus for their occupancy requirements:
    b. The ADA tables should be motorized height adjustable.
    c. Please confirm with each campus, but most prefer to have special seating for the ADA stations. They would like this chair to be ergonomic for people with back injuries.
6. Computer Tables
    a. The District prefers not to have floor boxes. Preferred to have all power coming off the walls.
    b. Floor boxes and locations if provided must be approved by the District Architect.
7. Layouts
    a. For layout purposes please use the following measurements:
        i. Computer tables – 30” x 72” – for 2 people. CPU sling - district’s computers have a dimension of: 13.8” H x 7.0” W x 14.6” D
        ii. Classroom tables – 24” x 60” – for 2 people
        iii. Aisles – SDCCD prefers aisles of 4’ minimum in most cases.
        iv. Offices – The following are the minimum requirements for each Faculty office:
            1) A lockable door with a key
            2) One desk with one lockable drawer with a key
            3) One desk chair
            4) One chair for visitors
            5) One lockable filing cabinet with a key
            6) Shelving for books
            7) Approximately 100 square feet
    b. Classrooms – please provide the following in all classroom layouts:
        i. Instructor’s table – 24” x 72” table preferably by podium.
        ii. Instructor’s Chair – Typically, these will be the same as classroom chair which will be
        iii. Located with the instructor’s table. Please ask the user group for their preferences.
        iv. Podium Stool
        v. Smart Podium – dimensions – 36” W x 30” D x 44” H. The district would like to maintain 5’ from the front wall, and 36” clear on other 3 sides
            1) Smart Podium is Owner furnished and contractor installed and comes with accommodations for:
                a) Computer
                b) Projector

c) Assisted Listening Device
d) Podium
e) AV and Controls

8. Computer Desk Criteria
   a. General:
      i. Verify current requirements with the District FF&E Project Manager.
      ii. The intent of the computer desks is to provide versatility in the computer classrooms, conveniently converting them to standard classrooms by lowering and concealing the computer monitors. In the closed position, the vertical work surfaces must be smooth, free of obstruction and suitable as a writing surface. In the open position, the monitors must be completely visible to the user, and all controls easily accessible.
   b. Operation:
      i. Two types of mechanisms shall be provided to raise and lower the monitors. One must be fully electronic, using a low-voltage motor, housed within the desk. The control switch to raise and lower the monitor shall be mounted below the work surface, close to the user. The electrical components shall all be U.L Listed.
      ii. The monitor opening must accommodate a 22: LCD monitor and have VESA compliant mounting bracket. The monitor must have the capability to pivot up to 15 degrees to accommodate user-preferred viewing angle.
      iii. The second type shall be manual, operated either by crank, spring-load, or pneumatic arm.
      iv. The mouse and keyboard may be housed and concealed with the monitor or on a separate keyboard tray mounted under the work surface.
      v. Both options shall ensure the integrity of cabling and housed equipment during raising/lowering operation.
   c. Construction:
      i. Horizontal work surfaces shall be constructed of at least 1" thick, 45 lb. medium density fiberboard or particleboard with high-pressure laminate and high-pressure backing sheet. All fiberboard and particleboard components shall be of domestic origin.
      ii. Edge options shall include Post-formed Laminate, Urethane, T-mold, PVC and Vinyl. Flat laminate self-edged is not acceptable. Offerings may combine a Post-formed front edge with one of the other three edges. These desk may be used in a side-by-side configuration. Please consider this when identifying an appropriate edge for the sides.
      iii. Work surfaces shall be bolted to leg assemblies using torx-head (tamper-resistant) bolts through threaded steel inserts in the underside of the surface.
      iv. The frame of a steel constructed desk shall be tubular with full width/height sheet metal panels. All steel components must have matching powder-coat finishes.
      v. All MDF wood components must be compliant with the California Air Resources Board (CARB) regulations.
      vi. Available options shall include side panels with grommets, keyboard and mouse holder, full modesty panels, lower cord channel to accommodate most power strips, and sturdy, adjustable steel CPU holders that maximize legroom.
      vii. Each model shall have corresponding dual or tandem desk available (two computer systems) with a minimum width of 72 inch width. Single use desk must have a minimum width of 36 inches.
      viii. Each model shall have a corresponding desk available meeting all ADA compliance regulations.

9. Power and Data:
    a. The power in-feed shall bring power from the building power source up to the beam electrical system of the computer desk. The in-feed must be pre-wired to connect at least four computer desks. Each desk must include four 110 power inputs and two RJ-45data ports. Power and data shall be placed under the desk. Each shall have cable management features for the cable runs from the CPU/monitor to the owner/data ports.
10. Warranty:
    a. The successful bidder will be required to furnish a minimum five (5) year warranty including all terms and conditions, limitations, and exclusions from either the manufacturer or the successful bidder's company on all equipment. The cost of the warranty shall be included in the unit price for each item bid.