# DISTRICT STANDARDS

SWEETWATER
UNION HIGH SCHOOL DISTRICT

WORKING DRAFT

9/15/2016

## Volume 1 – Design Standards

Design Standards and Educational Specifications for use by Design Professionals for new construction and modernization for Sweetwater Union High School District Schools.

Office of the District Architect
619.796.7729

# District Standards

## VOLUME 1 – DESIGN STANDARDS

## PREFACE

This Design Standards portion of the District Standards is a work in process. The instructional side of the district is reviewing the standards and educational specifications.

This document is a snapshot of the work in process and sections are being reviewed by the Maintenance Department and the Planning and Construction Department.

Comments received will be incorporated into future updates.

Comments and suggestions should be forwarded to Paul Woods, District Architect at paul.woods@sweetwaterschools.org.

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# District Standards

## VOLUME 1 – DESIGN STANDARDS

## PURPOSE

The Sweetwater Union High School District (SUHSD) is committed to creating equitable learning environments. These Design Standards and Educational Specifications were developed to provide direction to Design Professionals to enable the creation of quality facilities and spaces and to create uniformity with respect to quality and type of materials and systems to be incorporated into the various designs. Refer to Volume 2 for the outline specifications for products, materials and installation standards.

## COMPLIANCE WITH STANDARDS

All Design Professionals (architects, engineers, etc.) shall follow the requirements and standards in this document for the planning and design of new construction (including additions), modernization or alterations to school buildings and sites. These standards are not intended to dictate the scope of work or to restrict creativity or innovation. It is the Design Professional's responsibility to develop scope within the budget established as the project progresses through the design phases per their Agreement.

The District welcomes suggestions to improve these standards; however, deviations from these standards need to be specifically approved, in writing, by the District's designated representative. Any deviation requests should be submitted as early in the design phase as possible. It is the objective that continued input from the Design Professionals, District Staff, and other stakeholders will result in continuous improvement of these Design Standards.

These Design Standards do not address all items required for all projects. The intent is to address the District's concerns and those items that require standardization. Specialty products unique to an individual project that are not addressed in these Standards will need to be reviewed and approved by the District Representative prior to completion of Construction Documents.

## GENERAL DESIGN PRINCIPLES

1. **Learning Environments.** Schools should provide instructional spaces that facilitate student-teacher interaction with collaborative learning, flexibility to accommodate different teaching styles, and a health-enhancing environmental ambience. Designers should recognize that the exterior spaces on the campus are also learning environments.

2. **Architectural Quality.** The appearance, layout and overall character of each school should be both pleasing and stimulating to students, staff, parents and the surrounding

community. Additions or alterations to existing sites should take into account compatibility with existing facilities. The design should foster a sense of pride of ownership by students and staff.

3. **Flexibility.** Site layouts should be designed for future expansion.

4. **Accessibility.** All District facilities must accommodate all students, staff and community members including the physically disabled, wheelchair-bound, deaf, visually or emotionally impaired. Projects shall be designed to meet the Americans with Disabilities Act and other applicable accessibility codes. Do not design to the absolute minimum or maximum when construction tolerances may result in non-compliant design.

5. **Safety and Security.** Schools must be safe without appearing prison-like. Structures, fences and site amenities shall be designed to maintain safety, prevent unauthorized access and deter vandalism. See section on Crime Prevention through Environmental Design (CPTED).

6. **Community Focus.** Schools are used as community centers. School buildings and fields shall be laid out in a manner that enhances the learning environment while recognizing the need for secure access to facilities commonly used by outside groups.

7. **Sustainability.** On March 10, 2008, the Board of Trustees adopted Resolution 3794 Directing Green Building Practices to be Employed Where Possible During the Proposition O Construction Program. Regardless of funding source, all projects shall be designed to minimize operating costs, in particular for energy and water use. While obtaining LEED certification or CHPS verification is not required, Projects shall be designed with a goal of meeting the requirements of LEED Gold.

8. **Maintenance.** Projects shall be designed to minimize maintenance requirements. Durable products that are easily maintained shall be incorporated in the design. The Design Professional may request a deviation from these Design Standards if there are products or systems that will improve maintainability or durability.

## STATE REQUIREMENTS

Projects shall be designed in conformance with the California Department of Education requirement delineated in the California Code of Regulations, Title 5, Division 1, Chapter 13, Subchapter 1, Sections 14001 through 14036. These Design Standards incorporate by reference the standards in Article 4, Standards, Planning and Approval of School Facilities (Section 14030) even if they are reiterated in this document.

Projects shall be designed in conformance with the following sections of the California Building Standards Code (California Code of Regulations, Title 24):

- Part 1 California Administrative Code
- Part 2 California Building Code.

- Part 3 California Electrical Code
- Part 4 California Mechanical Code
- Part 5 California Plumbing Code
- Part 6 California Energy Code
- Part 9 California Fire Code
- Part 10 California Historical Building Code.
- Part 11 California Green Building Standards Code (CALGreen)
- Part 12 California Reference Standards Code

# SITE DESIGN STANDARDS

## 1. Standard School Site Sizes

a) Middle School Options

i) 1,000 students on 20 acres

ii) 1,500 students on 25 acres

b) High School: 2,200 students on 50 acres with expansion to 2,400.

c) Statistically, HS enrollment is about 2.4 times MS enrollment so the ideal pairing would be one 1,000 MS for each 2,400 student HS.

## 2. General Site Layout

a) Parent drop off, bus loading areas, student parking and parking shall be separated to allow students to enter and exit the school grounds safely. Bus and vehicle drop off for events such as football games shall be considered.

b) Adequate physical education teaching stations (hard court and fields) shall be available to accommodate course requirements.

c) Delivery areas shall be located to provide vehicular access that does not jeopardize the safety of students and staff.

d) Ample lighting shall be provided for parking lots and paths of travel. The paths of travel may be zoned to allow for use of different areas of the campus after dark. For example: parking and access to the stadium may be needed while the rest of the campus is dark and inaccessible.

e) Parking should be located with good access to areas commonly used for community use and after school programs or events such as libraries, media centers, multi-purpose rooms, cafeterias, auditoriums, fields, courts, and stadiums.

f) Buildings should be sited away from noise sources and air pollution such as streets.

g) Electrical service transformer and switchgear locations to be approved by San Diego Gas & Electric. This gear should be located in areas that do not detract aesthetically from the campus.

## 3. Crime Prevention through Environmental Design (CPTED)

a) Projects must employ the principles of CPTED.

b) Natural surveillance – the design and placement of physical features in such a way as to maximize visibility. There shall be no hiding places or areas of impaired visibility. Avoid isolated gathering areas and blind spots in corridors.

c) Access Management – the physical guidance of people coming and going from a space. Access management defines and directs legitimate users to the safest way into and out of buildings, parking areas and pedestrian walkways. Access management may also direct students, staff and visitors past key locations for contact, communications and observation. The entire perimeter of the campus is to be fenced with limited, controlled access points, and the building compound should have secondary fencing and limited, controlled access points to enable restricted access for community use during non-school hours.

d) Territoriality – the delineation of private, semi-private and public space or the use of physical attributes that express ownership. A well-defined space that appears to be "owned" will tend to encourage acceptable behavior while discouraging illegitimate or disruptive users. Clean and well-lit spaces tend to encourage positive social interaction. Incorporate areas for supervision of gathering places.

e) For additional information refer to the National Crime Prevention Council's website at: http://www.ncpc.org.

## 4. Imported Fill Material Requirements

a) Imported fill should be free from environmental contaminants, and should consist solely of native soil and rock materials. No recycled materials should be imported onto a school site, and must not be mixed into or in any way made a part of any other material. Thus, crushed miscellaneous base, crushed brick mixes for baseball diamonds; etcetera must never be specified. Organic materials, such as mulch and those which contain a mixture containing organic materials (e.g., rice hulls), must be individually approved by the District's Representative.

b) Imported materials must be suitable for engineered fill, even if used at landscaping, free from large rocks.

c) Imported materials shall not have high clay content and must meet the permeability requirements of the projects' hardscape.

## 5. Architectural Site Items

a) Provide a minimum 8-foot high ornamental fence around the perimeter of the site except at fields or hard courts. Detail and coordinate fabrication to accommodate gate hardware. Include tight mesh screening to secure areas around panic hardware to prevent unauthorized access.

b) Provide a minimum 10-foot high chain link fence around the perimeter of site at fields and hard courts. 1" openings shall be provided where climbing may be anticipated such as near building roofs.

c) Chain link fencing is also allowed at utility enclosures.

d) All parking lots and access driveways are to have vehicle gates.

i) The gate used for deliveries shall be a sliding motorized gate.

ii) If the delivery gate does not lead to access of the interior of the campus, a second sliding motorized gate shall be provided.

iii) Motorized gates shall utilize “v” tracks on concrete, not asphalt, and shall have guide wheels at the top of gate posts.

iv) Bar-type swing gates may be used on main entry driveways.

v) The maximum leaf of a sliding gate is 26 feet for a 20-foot opening.

vi) The height of sliding gates shall match the height of the adjacent fence.

e) Pedestrian gates to be maximum 8-foot high, with transoms at taller fences.

f) Fencing shall be designed so that it does not provide access to roofs.

g) Show score lines and details for site concrete (flatwork).

h) Design six-inch by six-inch concrete mow strips (with #4 reinforcing bar) between turf areas and planters, buildings, or other obstructions. Provide 12-inch wide concrete mow strip on either side of fences where turf is planted adjacent to fences.

i) Where asphalt abuts the building, provide a 12-inch concrete edge bordering the building to eliminate asphalt touching the building.

j) Do not locate raised planters adjacent to buildings. Raised planters, retaining walls, concrete benches and other low barriers shall utilize notched concrete as skateboard deterrents. Other deterrents may be used if approved by the District’s Representative.

k) Stand-alone handrails shall be provided with skateboard deterrents.

l) When providing unit pavers, secure perimeter pavers in concrete setting bed.

m) Site stairs to be concrete without metal nosings. Provide tooled nosings with contrasting color stripes.

n) Coordinate access gates, fire lanes, access roads, remote pumper, and fire hydrant locations with the local fire jurisdiction.

o) Provide access for ride-on mowers to all turf areas, including curb cuts, ramps and gates.

p) Parking Lots and Access Roads:

i) Asphalt fire, bus and truck access roads (and parking lots drive aisles) shall be 4-inch asphalt over 12-inch crushed aggregate base section, or greater, if required by the geotechnical report.

ii) Other asphalt paving shall be 3-inch asphalt over 8-inch crushed aggregate base section, or greater, if required by the geotechnical report.

q) Exterior walkways: Where doors swing into exterior walkways, integrate the door swing path into the paving design. Door stops shall be mounted on the walkway, not the building. Walkways next to doorways shall be doweled into the building foundation to eliminate differential settlement.

r) Bike Racks: Provide chain link fencing around bike rack area for security and locate the enclosure in an approved visible area on site. Quantity of racks is site specific and should be determined by the project/site needs. Provide concrete paving to accommodate bike rack anchors.

s) School Gardens: Only include when specifically included in the project scope, design raised planters with irrigation.

t) Include a non-obtrusive paved location on site, ten-foot by twenty-four-foot (10' x 24'), to accommodate an eight-foot by twenty-foot (8' x 20') emergency preparedness cargo container.

u) Provide a location adjacent to a building, which can accommodate a 25-foot by 8-foot mobile trailer for maintenance repairs. Building must have an electrical receptacle approximately 10 feet above finish floor for trailer to be plugged in.

## 6. Physical Education (PE) and Athletic Facilities

a) PE fields and hard courts should be located on the periphery of the campus. All fields and courts should be located adjacent to parking, restrooms, ticket booths and concessions to facilitate events.

b) Field space shall be designed to accommodate physical education activities and all men's and women's varsity sports. All designs must meet Federal Title IX standards.

c) Hardcourt areas shall include a painted number system for PE Roll Call Numbers. Coordinate exact numbering system and location with District Representative.

d) Design playground equipment in accordance with the National Program for Playground Safety (NPPS) standards and provide design options to the design team.

e) Exterior Basketball Courts: Provide 16-foot high 4½-inch diameter post with 4-foot extension with a straight and square backboard. Mount backboards at 10 feet to top of the goal ring. Back-to-back backboards on single posts require the approval of the District Representative.

f) Physical Education Fields except for stadiums shall be natural turf.

g) High School Stadiums

   i) Artificial Turf: Provide synthetic turf installation complete with an irrigation system for disinfecting and cooling and drainage system.

ii) Running tracks: Provide all-weather synthetic surface. Provide power, conduit and weather-proof connection boxes for timing devices.

iii) Provide conduit to connect the field with the press-box for communications and PA purposes.

iv) Provide home and visitor ticket booths (at least two sales windows). Separate entrances are desireable.

v) Provide a concession stand that can serve both the home and visitor sides with separation if necessary. At least six sales windows.

vi) Provide restrooms to serve the stadium for both home and visitor sides. These restrooms may serve other PE fields.

vii) Provide storage buildings (not containers) for PE and sports such as: football, track, soccer, field hockey, lacrosse, baseball, softball, etc.

h) High School Baseball and Softball Fields:

i) Dugouts may be chain link and shall not be recessed.

ii) Provide fixed benches in the dugouts.

iii) Provide storage facilities.

iv) Provide concrete pads for portable bleachers.

v) Provide a drinking fountain.

vi) Provide a batting cage with galvanized chain link and non-climbable mesh.

vii) Provide quick coupler connections so that the infield and the batting cage area can be watered down periodically.

viii) Provide power requirements at the field and batting cages for pitching machines and other electrical equipment.

ix) Provide ticket booths (at least two sales windows).

x) Provide a concession stand that can serve both the softball and baseball. At least four sales windows.

xi) Provide restrooms to serve the both softball and baseball fields. These restrooms may serve other PE fields.

xii) Provide storage buildings (not containers) for PE and sports such as: football, track, soccer, field hockey, lacrosse, baseball, softball, etc.

xiii) Provide equal stadium seats (stands) for both softball and baseball and softball.

i) High School Backstops:

i) Provide galvanized chain link fencing with 2-inch mesh and top, middle, and bottom rails.

ii) Minimum of 20 feet high and higher where required.

iii) Boars shall not exceed 42 inches high in order to provide viewing from wheel chairs.

iv) Provide vertical fencing only, no horizontal fencing.

j) High School Exterior Scoreboards:

i) Provide scoreboards for each stadium, varsity baseball and varsity softball field.

ii) Provide power and provide an empty conduit for wired control even if the scoreboard is wireless.

k) High School Pools:

i) Pool must meet CIF requirements to be a competition pool.

ii) Coordinate pool supply room and ventilation requirements for chemicals and items to be stored.

iii) Provide stadium seats (stands)

iv) Provide shade structure for the stadium seats.

## 7. Site Gathering Areas

a) Areas between buildings, quads and eating areas are learning environments.

b) Provide a main quad for each campus.

c) Exterior amphitheaters are desirable.

d) Provide areas for small groups, both formal classes and informal gatherings.

e) Provide a senior lawn area at high schools.

## 8. Site Furnishings

a) Provide anchored outdoor tables, trash, and recycle receptacles.

## 9. Site Accessibility

a) Review existing site access from public right-of-way(s) for compliance with current ADA requirements for path of travel including landings, signage, path-of-travel, railings, and other requirements.

b) Review parking lot access and accessible parking access to site. Verify stall count, van accessible locations, ramps, signage, lighting, and path of travel is compliant with current ADA requirements.

## 10. Site Concrete

a) Thickness and base requirements for site concrete to be determined from the geotechnical report recommendations.

b) Reinforce concrete with minimum #3 reinforcing bars at 18 inches on center, each way.

c) Control, construction, and expansion joints shall be identified and indicated on the drawings and detailed.

d) Provide dowels at all expansion joints and when new concrete adjoins existing concrete.

e) Non-structural concrete flatwork shall be a minimum of 2,500 PSI, unless otherwise required by soils report. Non-structural flatwork shall be excluded from the DSA test and inspection form.

f) Do not use textures other than medium broom finish or top-cast etching at horizontal concrete. Obtain permission from the District to implement design concepts that require patterns, textures, or colors in site concrete.

g) Slope all sidewalks and hardscape, surrounding planter areas, towards the landscape.

## 11. Civil (Site Service Utilities, Grading and Drainage)

a) Obtain geotechnical report with percolation test data from the District Representative.

b) Water monitoring: Provide a system that provides District-supervised, water monitoring at the site.

c) A qualified civil engineer or SWPPP consultant is required to prepare and obtain approval of the SWPPP. Require contractor to provide and maintain erosion control and all-weather access during construction per the approved Storm Water Pollution Prevention Plan (SWPPP). Obtain the Department of Water Resources (DWR) “SMART” website access information from the District Representative.

d) In addition to requiring the contractor to notify Dig Alert and local utility service providers, require the contractor to hire an underground utility locating service and identify underground utilities prior to start of construction.

e) Coordinate and verify building utility services tie-ins with existing infrastructure capacity and with the local utility companies. Confirm available utility capacities and available gas and water pressures. Incorporate findings into the Field Report due at the end of the Schematic Design phase.

f) The grading on the site should be balanced to avoid import or export of soil.

g) Provide a balance calculation including the spoils generated by footing excavation.

h) Separate landscape areas from paved areas with a moisture barrier that will prevent irrigation water from migrating under paved areas.

i) Retaining walls, and raised planters to have a drain system tied into the storm drain system. Show points of connection for retaining wall foundation drains.

j) Provide drain inlets at downspout discharges for indirect connection. The downspout should discharge onto drain inlet grate with enough clearance to service the drainage structure. Coordinate inlet structure with footing design.

k) Storm drain underground piping to be straight pipe with structures for cleanout at the changes in direction. Avoid the use of "Y" fittings when possible.

l) Drainage Structures:

    i) Catch basins to be concrete, with 24-inch square minimum grate size.

    ii) Provide bottoms on catch basins.

    iii) Set basins in six inches of gravel base.

    iv) Inlets in sump conditions or recessed areas shall be designed for relief overflows to prevent inundation of buildings

    v) Parkway culverts to be minimum 4 inches high.

    vi) Locate drainage structures away from or outside of play fields.

m) Slopes and Drainage:

    i) Do not design slopes to code maximum to avoid compliance issues due to allowable construction tolerances.

    ii) Provide 1.9 percent maximum cross-slope for path-of-travel.

    iii) Minimum slopes for asphalt concrete shall be 1 percent.

    iv) Minimum slopes for concrete pavement shall be 0.5 percent.

    v) Concentrated flows in asphaltic concrete areas shall be contained in a 3-foot wide concrete drainage gutter with 8 inches of base below. Use horizontal reinforcing bar in gutters and dowel joints.

    vi) Maintain 2 percent slopes for grass fields.

    vii) Grass slopes shall be maintained at 4 to 1 or flatter to allow for mowing. Steeper slopes shall be planted with landscape shrubs or ground cover.

n) Site Water Mitigation:

i) See landscape requirements for irrigation water mitigation.

ii) Installation and location of drainage retention devices shall be determined on site characteristics based on geotechnical and hydrology reports.

iii) Submit water mitigation methods to the District prior to implementation.

iv) Comply with DWR and CHPS requirements for water run-off.

o) Review water services requirements including fire service connections with local water purveyor prior to design. Confirm typical details used by the agency.

p) Coordinate placement of double detector check assemblies for water and fire services with local water purveyor and designated District Representative who will coordinate with the District's Maintenance Department. Detector assemblies shall be accessible from adjacent street and secured with approved locking devices.

q) Piping:

i) Underground water piping 3-inch and under shall be copper. Larger pipe to be PVC.

ii) Fire service lines shall be PVC piping.

iii) Sewer piping shall be SDR 35.

iv) Ensure compliant slope and proper drainage is achieved.

v) Storm drain pipe shall be PVC. Only use concrete when required by local agency for tie-in. Do not use corrugated pipe.

vi) Wrap metal pipe, regardless of soils conditions.

r) Trenches:

i) Native soil is the District's preferred backfill to avoid materials export.

ii) Compact to 90 percent (or higher when required by soils report).

iii) Provide metallic warning tape 12 inches below grade above utilities.

s) Standard Details:

i) Use City or County Standard Details for work in the public way.

ii) Provide project specific details on the plans and specifications based on Greenbook standard details where applicable. Do not just reference Greenbook details or requirements.

t) Testing: Require flood testing, including landscaped areas in presence of inspector to confirm drainage.

# 12. Landscaping

a) General Landscaping Requirements

i) Obtain the agricultural suitability soil test and percolation test for determinations on landscape requirements from the District Representative.

ii) Landscaping is to be as maintenance free as possible.

iii) Refer to the Appendix for Tree, Shrub, and Ground Cover Plant Palette.

iv) Use organic soil amendments to help restore the health of disturbed soils.

v) Evaluate condition of existing topsoil and specify amendments as appropriate. Utilize on-site soil whenever possible.

vi) Develop master landscape design character and theme for school sites. Site design shall be zoned; e.g. front of school, parking lots, quads, play fields, building adjacencies, buffer zones, and pedestrian traffic areas. Differences in design criteria will occur based on grade level.

vii) Employ Crime Prevention Through Environmental Design (CPTED) strategies. Refer to General Site requirements for additional information. In particular, be aware of the following:

(1) No hiding spots with clear sightlines and visibility. Maintain visibility through landscaping from street for police patrol.

(2) Ensure that key areas (parking, bicycle storage, drop-off points, play equipment, entries) are easily observable from inside the building

(3) Coordinate tree placement with video surveillance cameras. Allow visual surveillance of all entries from inside the school

viii) Adhere to State AB1881 directives, group plantings appropriately based upon water use. Create planting groups by specifying varieties of plants that are similar in native habitat and watering requirements.

ix) Preserve existing vegetation, especially groups of plants or significant specimens wherever possible.

x) Coordinate with civil and architectural the storm water design impact on landscaping and irrigation systems that slow water velocity, maximize its use for irrigation, and filter pollutants. Minimize maintenance requirements for bioswales. Utilize best management practices for fine grading and drainage.

xi) Coordinate with designated District Representative for construction schedule to accommodate the following requirements:

(1) All turf areas are to be sod and planted at least 180 days prior to occupancy to be established enough for use at time of occupancy.

(2) All other plantings are to be planted at least 90 days prior to occupancy.

xii) Select planting to enable compliance with CHPS requirements for water usage and mitigation.

xiii) Planter areas are to have weed fabric installed and four inches of shredded bark mulch. Apply mulch in planting areas to prevent weed growth, protect soil, reduce water loss, and prevent irrigation from washing into other areas.

xiv) Planter areas shall have proper drainage. All raised planters are to have sub-grade drainage in addition to surface drainage. Coordinate with civil requirements and drainage plans.

xv) Specify ground cover and shrubs in lieu of turf in areas too small to accommodate ride-on mowers. Avoid turf areas less than 72 inches clear width.

xvi) Emphasize plant diversity to develop and maintain a healthy natural system.

xvii) Prepare planting designs that layer plant types; use a mixture of sizes at initial plantings; and plan for plant succession.

xviii) Clearly define planting zones by intended use – for example, lawns for play; tree groves for shade and habitat; shrub masses for buffering and screening, etcetera.

xix) Design plantings to allow space for full-size mature growth of each species with space for maintenance access. Specify and locate plants within planting areas so that trees and shrubs will not 'over-grow' their location requiring excessive pruning.

xx) Introduce plants to increase habitats – for example, attracting butterflies and hummingbirds.

xxi) Design with line of sight in mind at driveway corners.

xxii) Do not plant under stairs.

xxiii) Include Plant list on the drawings that includes all quantities and sizes for bid purposes.

xxiv) Educational Applications

(1) Landscape spaces should extend the teaching opportunities beyond the classroom walls. There are many themed garden alternatives, providing a myriad of educational opportunities applicable to early childhood programs through advanced high school curricula, which can be implemented within landscape areas. These include:

(2) Seasonal Change Gardens

(3) Edible and Harvest Gardens

(4) Watershed or Hydrologic System Gardens

(5) Southern California Zone Gardens

(6) Native Gardens

(7) Drought-tolerant Gardens

(8) Habitat Creation Gardens

(9) Soil Remediation Gardens

(10) Sensory Gardens

(11) Wellness Gardens

(12) Historic and Cultural Gardens

(13) Sculptural and Artistic Gardens

b) Plant Selection:

i) Refer to District standard plantings as included in the Appendix.

ii) Propose the project specific plantings to designated District Representative for approval prior to proceeding with design.

c) Tree Locations and Design:

i) Locate trees in a manner that avoids the mature canopy from overhanging the buildings and have adequate separation between trees to avoid canopies from connecting.

ii) Coordinate location of trees with underground utilities. Do not locate trees where underground utilities exist or are planned.

iii) Locate trees a minimum of 15 feet from buildings, canopies, fences and underground utilities. Consider access for tree trimming equipment, such as a boom truck, for large trees.

iv) Design a minimum of a 15-foot separation between trees and paving surfaces to prevent mature roots from damaging walkways, hard courts, and parking lots. Alternatively, specify root barriers to prevent spread of roots under paving. Refer to landscape details included in the appendix.

v) Show on plans the mature canopy size and note the mature height of trees.

vi) Utilize deciduous shade trees to provide some summer shading of parking lots. Use root barriers to prevent root spread under paving. Refer to landscape details included in the appendix.

vii) Utilize deciduous shade trees to provide summer shading around ball fields and hard courts.

viii) Locate trees to reduce solar heat gain and minimize glare. Planting deciduous trees on the southeast, southwest, and west side of the building will reduce solar gain in summer during the morning and afternoon. Plant low branching deciduous trees on the west side to keep low afternoon sun off west and north walls in summer.

ix) Locate tree rows or tall hedge rows to provide visual and sound blocks if needed.

x) Where trees are located in planter areas or at existing trees, specify groundcover or cobbles under drip line.

xi) Trees shall be deep rooted. Do not use shallow rooting trees.

xii) Coordinate planting schedule with watering schedule so that the different initial water periods do not compromise the health of the plantings.

xiii) Trees to be a minimum of 24-inch box size.

xiv) Consider window locations to optimize and enhance outdoor views when placing trees.

xv) Coordinate tree placement with exterior lighting fixtures.

d) Turf Areas:

i) Restrict turf areas to large, active use spaces. Use groundcover and/or no-mow grasses in narrower, passive spaces.

ii) Limit turf areas to those large enough to accommodate ride-on mowers.

iii) Design adequate clearances around trees in turf areas to accommodate ride-on mowers.

iv) Coordinate with architectural standards for the necessary access with curb-cuts or ramps for ride-on mower access to turf areas.

## 13. Irrigation

a) Refer to the appendices for Tree, Shrub, and Ground Cover Planting details for District standard deep bubbler detail for trees.

b) Use reclaimed water where available.

i) Coordinate requirements of the city or county for use of reclaimed water.

ii) Use purple pipe and box covers at reclaimed systems.

iii) Provide appropriate warning signage for reclaimed water.

iv) No hose bibs or equipment couplers are allowed on reclaimed water services.

v) Coordinate location of irrigation main riser and backflow preventer within the utility yard in manner that will accommodate a booster pump if required.

c) Coordinate electrical service to booster pump if necessary and irrigation metering requirements.

d) Verify available water pressure and include irrigation booster pump or pressure reducer in contract, if necessary to maintain adequate water pressure. Incorporate findings into the Field Report and design as necessary.

e) Adhere to State AB1881 directives.

f) Include landscape water budget calculations showing compliance with CHPS.

g) Operate irrigation system based upon climatic conditions.

h) The use of drip irrigation is highly discouraged; design the site in compliance with AB1881 without confining the project to options that require drip irrigation. For designs where drip irrigation is unavoidable, written approval from the District Representative is required.

i) Install low-volume, water-efficient irrigation or systems connected to humidity sensors, where appropriate.

j) Install irrigation systems to avoid runoff, low-head drainage, overspray, or other similar conditions where irrigation water flows onto adjacent property, non-irrigated areas, or impervious surfaces.

k) Irrigation system installation should provide easy access to sprinkler heads for inspection and maintenance.

l) Use irrigation zones to group plants with similar water needs close to a water source, which limits the scope and impact of an in-ground irrigation system.

m) Confirm existing conditions on site with the District Representative and obtain their approval of schematic layout and controls prior to proceeding with system design.

n) Design a loop system with isolation gate valves to separate each individual ball field and landscape zone when possible.

o) Irrigate trees with deep bubbler irrigation system.

p) Irrigate shrubs and groundcover with spray system in areas allowed by AB1881.

q) Irrigate turf with pop-up heads in areas allowed by AB1881.

r) Specify ET (evapotranspiration) based or smart controller with web access wireless data plan and remote control. Allow for 4 of the stations per clock to be for future use. Specify separate time clocks for shrubs and turf areas.

s) Locate valves away from turf areas and outside of ball field boundaries.

T) Work on the irrigation system, including hydrostatic, coverage, and operational tests and the backfilling and compaction of trenches shall be performed prior to planting operations.

# BUILDING DESIGN STANDARDS

## 1. General Requirements

a) Schools are to serve as an emergency evacuation shelters.

i) Provide a separate emergency circuit(s) in gymnasiums with an external connection for a mobile generator.

b) Day Lighting

i) Incorporate indirect, diffused, and natural day-lighting. Provide sun protection of windows to avoid direct sunlight during the summer months. Address glare concerns during winter months. Use skylights, tubular skylights, clerestory windows, and light wells to introduce natural light in occupied rooms.

ii) Do not allow direct sunlight into the spaces.

iii) All windows shall have roll-down shades.

iv) Obtain recommendations from the mechanical engineer on the U-values required for the glazing.

v) Only use skylights in rooms that are “landlocked” in the building, are occupied, and cannot receive shared light from perimeter windows.

vi) Do not use internal lights in tubular skylights.

vii) Glass is not allowed as a skylight material.

viii) Provide safety devices around skylights so that staff working on the roof cannot step or fall through the skylight.

ix) Skylight curbs must be no less than 8 inches high. Coordinate curb height to properly cricket for positive drainage and meet both the skylight and roofing manufacturer requirements.

x) Use manufacturer pre-glazed units. Do not specify custom or special order products.

xi) Provide translucent glazing in toilet rooms, locker rooms, and other areas where visibility is a concern.

c) Provide overhangs at exterior doors large enough to protect users during rain. Recess windows or provide overhangs to prevent direct rain from hitting the windows.

d) Provide natural, cross-ventilation, where practical, in addition to mechanical ventilation. Provide operable high and low windows and oriented to the prevailing breezes.

e) Construct building primary structures with concrete, concrete masonry units, brick, plaster, steel studs, and structural steel members. Wood framing is not permitted without written permission from the District (exception: portables).

f) Wherever “painted gypsum board” is specified for a wall surface, the surface may be painted concrete, painted CMU block or other structural element.

g) Provide pre-wrapped tackable wall covering panels over gypsum board. Specify panels in standard sizes and provide from +34 inches height to the top of the door header for all classrooms and laboratories.

h) The primary consideration for building materials is to provide a low maintenance facility. Exterior wood is not allowed. Metal siding, at interiors or exterior, is not allowed.

i) Exterior soffits to be a solid surface with insect screens or perforated metal at vents.

j) Design rooms around the furniture and equipment layout.

k) Unless otherwise noted, flooring shall be vinyl composite tile (VCT). Carpet to be specified only with permission of the District.

l) Provide rubber base, cove or carpet, as appropriate.

m) Specify location of foam soap dispensers and paper towel dispensers at all sinks. Provide backing for installation by others (the District’s sanitary supply vendor); except provide for installation if required for access compliance.

n) Provide data outlets in every room except storage rooms. Data outlets are used for phone systems in addition to networking. Locate data outlets near desk or workstations.

o) Provide data outlets for wireless access points (WAPs) that will provide wifi coverage for the entire site. Assure additional coverage for intensive areas of use such as near remote point-of-sale machines.

p) Provide conduit for intrusion alarm locations in every building.

q) Provide PA system that allows announcements to be heard in every room and exterior campus location.

r) Provide clocks in all rooms except storage rooms.

s) Provide heating, ventilating and air-conditioning (connected to the district’s central environmental management system [EMS]) for all enclosed spaces. Exception: large storage areas.

t) Provide LED lighting with lighting controls unless noted otherwise.

# 2. Classrooms

**General:**

Middle and high school classrooms and ancillary learning spaces need to provide for flexibility of use for a variety of subject areas being taught, allow of the evolution of curriculum changes, instructional practices and technology, and maintain the capability of being modified easily from spaces of presentation to spaces where adults and students meet in groups for a variety of reasons.

**Location (desired proximities):**

Classrooms and learning spaces should be dispersed throughout campus in such a way as to ensure that there is equitable access for all students and staff to be equidistant from other important spaces on campus including restrooms, the library media center, the administration building, the cafeteria, and physical education facilities.

Classrooms should be clustered and near other, learning spaces, storage, and teacher offices in an "open" arrangement that allows for smaller collaborative working groups yet allows for ease of supervision. Flexibility options for creating larger spaces able to accommodate up to 100 individuals is desirable.

The optimum arrangement of classroom spaces would be to have classrooms adjoined to a central teacher office space with storage areas adjoined to multiple classrooms.

**Design Features:**

- Size: 960 sq. ft.
- General classrooms should have a maximum capacity of 35 students and 2 adults.
- The classroom space should include adequate floor space, storage space (including one small lateral file cabinet), whiteboards and bulletin boards.
- The teacher desk location should be flexible.
- Provide pre-wrapped tackable wall covering panels over gypsum board. Provide panels in standard sizes from +34 inches to the top of the door header.
- Site specific needs should be designed into specific buildings based upon program offerings.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Student desks that are flat (not inclined) for experimental learning.
- Separate chairs (no sled desks).

- Teacher work station/desk.
- Desktop computer or laptop for teacher.
- Laptop/tablet charging cart.
- Flag
- Whiteboards
- Projection system (ceiling mount)
- Screen
- Audio amplification system
- Sink

## 3. ASB Classrooms

**General:**

The ASB is typically similar to a classroom. It provides workspace for collaborative projects and serves as a student store. ASB students, under the supervision of an Assistant Principal or teacher, stock and sell school apparel, year books, event tickets, snacks and miscellaneous items for the convenience of students. The ASB staff office receives, dispenses, and accounts for all ASB funds.

**Location (desired proximities):**

The ASB should be located near the student dining and lunch shelter areas, and convenient for students, faculty and deliveries.

**Design Features:**

- Size: 960 sq. ft.
  - Student store, work area, sales, office: 761 sq. ft.
  - Storage: 200 sq. ft.
- Tables or counters for layout space.
- Four exterior walk-up windows for sales.
- Data and power for point-of-sale machines

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- steel storage shelving
- lockable safe bolted to the floor for storing cash
- upright reach-in cooler for beverage sales
- tables and chairs for 25 students
- desk and task chair for AP or teacher

## 4. Science Laboratories

**General:**

At both the middle and high school level, students develop an understanding of how science works through the observation and explanation of occurrences. They learn a multitude of methods that constitute "the scientific method", and experience traditional methods of research and investigation

in different scientific areas. They learn how to collect evidence, apply logic, utilize arguments, and foster imagination in solving problems. The development of various investigative skills including observation, predicting, classifying, inferring, measuring, questioning, hypothesizing, experimenting, interpreting, constructing and explaining models requires an environment and learning spaces that facilitates physical movement and at the same time retains meeting space for small teams of collaborating students.

Science laboratories at the high school level take on a more sophisticated instructional program. The laboratory design incorporates features for complex experiments and testing. Advanced equipment is used in elaborate research. The chemicals used require security storage when not in use. Ventilation systems for the preparatory and laboratory station areas are imperative. Laboratories are equipped with fire extinguishers, eyewash and deluge showers, a first aid kit, and disconnect valves for gas. Chemical disposal systems are designed to meet current state and federal standards.

**Location (desired proximities):**

Laboratory spaces should be integrated with storage and staff office areas that allow for the storage and preparation of lab activity resources including chemicals, tools, recording devices, and safety equipment.

**Design Features:**

Size: 1260 – 1500 sq. ft.

Teaching station with sink.

Laboratory stations:

- Perimeter lab stations for 28 expandable to 36 (4-station peninsulas with the ability for two end seats as well) plus accessible stations.
- Individual stools for students to sit at countertop height while conducting experiments.
- Provide water, power and data for each station.
- Provide storage space for student equipment.

The laboratory environment should include adequate floor space, storage space, lighting, ventilation, marker board and bulletin boards.

The laboratory area also should contain exhaust fume hoods, eye washes, and deluge showers, fire extinguisher, first aid kit, master disconnect valve for gas, fire blanket for obvious safety applications. Provide one fume hood in each Chemistry classroom and Chemistry preparation room. All other science classrooms and preparation rooms do not need a fume hood. Conceal all ductwork on fume hoods.

The classroom laboratory should include space for individual seating for whole-class instruction.

Offices and storage spaces should contain ample countertop space for materials prep and appropriate casework for the secure storage of materials, chemicals, and delicate instruments. Obtain a list of the current science chemicals from District Representative. Design shall

accommodate storage of such chemicals (e.g. fire cabinet and acid cabinet). Submit the list to DSA if required.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Epoxy Resin with integral sinks |

**Furniture and Equipment:**

- Same list as general classrooms plus:
- Lockable chemical storage cabinet in prep room.
- Lockable fire storage cabinet in prep room.
- Refrigerator/freezer in prep room.
- Eyewash and deluge shower in each laboratory.
- Wall cabinets to have sloped tops to prevent storage or display.

# 5. Visual and Performing Arts (VAPA) Classrooms

**General:**

The Visual and Performing arts programs will introduce, develop, and encourage students' skills and appreciation of the arts.

Visual arts instruction will offer students the opportunity to explore the arts, and experience how the arts interface with other areas of learning. This program will foster individual expression and an understanding of the contribution the arts make to the world. The areas of exploration will include 2-D and 3-D art forms, computer and graphic arts, photography, multimedia, and art history (HS).

Performing Arts, including instrumental and vocal music, drama, and dance, are design so that students will be able to use their knowledge of the arts, through instruction and rehearsal, in a performance setting. These program areas will contain the auditorium, drama, dance, instrumental rooms, vocal music rooms, and related auxiliary spaces.

These facilities and operations need to reflect recommendations from specialized consultants regarding design, flexibility, acoustics, and future technological concepts while providing a safe learning environment.

**Location (desired proximities):**

Music/Performing Arts: Periphery of campus with clearly identifiable and easily accessible main entrances that direct the public to the facility without the need to provide access to the remainder of the campus, adjacent to theater. With access to restrooms.

Visual Arts: Located near Library/Media Center

Storage: Adjacent to classrooms

Teacher Offices: adjacent to classrooms, with appropriate supervision capability

The dance studio may be part of the Gymnasium.

**Design Features:**

Each school will have need for space for the following programs. Classes are organized by discipline and include courses already offered at SUHSD. Sizes shown include storage.

- Visual Arts
  - 3D Art Lab/Classroom (960 sq. ft)
  - 2D Art Lab/Classroom (960 sq. ft)
  - Ceramics including Kiln Room (1,300 – 1,500 sq. ft.)
  - Graphic Arts/Digital Photography (960 sq. ft)
- Music/Performing Arts
  - Auditorium/Theater
  - Mariachi Music Room (2,500 sq. ft at HS; 1,500 sq. ft at MS)
  - Instrumental Music Room (2,500 sq. ft at HS; 1,500 sq. ft at MS)

- Choral Room (2,000 sq. ft at HS; 1,500 sq. ft at MS)
- Dance Studio (2,000 sq. ft at HS; 1,500 sq. ft at MS)
- Black Box Theater/TV Studio (1,600 sq. ft)
- Scene Shop (adjacent to Theater for HS only)
- Practice rooms (sound-proofed)

Provide high ceilings for music/performing arts rooms.

Provide heat and acid resistant countertops in 2D and 3D art rooms.

Provide instrument cleaning area with sink.

Provide storage for chairs, music stands, instruments, sheet music, and uniforms. Instrument storage is to be located in specialized lockers.

Provide an instructor's office.

High School Theaters (Performing Arts Centers):

- Provide a lobby with a ticket booth (4 windows minimum) and concession area (4 windows minimum).
- Provide theater seating (22" width) with removable front rows for flexibility.
- Provide public restrooms.
- Provide a backstage workshop and storage areas with large roll-up doors to exterior and to the stage.
- Provide enclosed control booth with lighting and sound controls. Also provide alternate control location backstage.

**Finishes and Features:**

| **Classrooms (art and music rooms)** | |
|---|---|
| Floor: | VCT (or polished concrete at art rooms) |
| Base: | Rubber or polished concrete |
| Ceiling: | Painted gypsum board and/or suspended ceiling; or open |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Epoxy resin in 2D and 3D art rooms. Plastic laminate elsewhere. |

| **Dance Room** | |
|---|---|
| Floor: | Floating wood sports floor |
| Base: | Rubber |
| Ceiling: | Gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space and acoustical treatment |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

| **Auditoriums and Theaters** | |
|---|---|
| Floor: | VCT or polished concrete. Carpeted aisles. |
| Base: | Rubber or polished concrete |
| Ceiling: | Painted gypsum board and/or suspended ceiling with acoustical treatment |
| Walls: | Painted gypsum board with acoustical treatment |

| **Stage** | |
|---|---|
| Floor: | Plywood (black) |
| Base: | Rubber |
| Ceiling: | open |
| Walls: | Painted gypsum board with acoustical treatment |

| **Scene shop (back stage)** | |
|---|---|
| Floor: | Polished concrete |
| Base: | Polished concrete |
| Ceiling: | open |
| Walls: | Painted gypsum board |

**Furniture and Equipment:**

- The same equipment as general classrooms plus:
- Portable risers for mariachi, band and choral rooms.
- Wenger type lockers for musical instruments
- Stage rigging, front, back and side curtains.
- Theatrical lighting, audio visual and sound systems
- Theater seating in theaters. Verify whether fold-away writing tables are required. Include seat and row numbers.
- Kiln ventilation system is to be designed and specified as recommended by the kiln manufacturer.
- Coordinate equipment requirements per specialized programs, such as spinning wheel stations, lockable clay bins, adequate casework and open shelving for storage, trough sinks, minimum door clearance, etc.

## 6. Special Education Classrooms (Moderate/Severe)

**General:**

The goal of the Special Education Program is to meet the needs of students with disabilities within the least-restrictive environment enabling them to become responsible, life-long learners.

To meet student needs, the Special Education Program staff offers a continuum of services ranging from self-contained programs to providing instruction within the general education environment through an inclusion process. Similarly, in consideration of the changing enrollment in the Special Education program, the rooms should be flexible to accommodate increases or decreases in the number of students served.

Areas include:

- Moderate/Severe classrooms (960 sq. ft.)
- Severe classrooms (800 sq. ft.)
- Restrooms
- Hygiene rooms with changing areas (with or without showers) (350 – 400 sq. ft.)
- "Cool down" rooms and/or sensory rooms (100 sq. ft.)
- Life skills area or room (teaching kitchen with washer and dryer) (250 – 300 sq. ft.)
- Administration and meeting rooms for academies
- Adaptive PE Rooms (see separate section)

**Location (desired proximities):**

The least-restrictive environment generally requires that special education classrooms be dispersed throughout the campus. Consult with the Special Services Department for the programming needs of the specific project.

**Design Features:**

Provide spaces that are free from distractions. Most if not all wiring, conduits, ducts, etc. shall be concealed or located in unobtrusive areas to provide a clean, orderly and non-distracting environment.

The surfaces of each classroom must be easily cleanable and hygienic.

Provide additional soundproofing between classrooms and other spaces.

Provide drinking fountains near the restrooms and near play fields, hard courts, courtyards, or eating areas.

Provide a hygiene toilet room adjacent to classrooms for severe students. Include a changing area with an adult-sized table and an accessible roll-in shower with a fold down seat and ceiling mounted shower curtain (hospital type).

Provide hand washing sinks in all classrooms.

For academies (such as East Hills Academy) provide discrete perimeter security and design the site with supervision in mind. Provide separate bus drop-off zones.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- The same equipment as general classrooms plus:
- Blackout shades.
- A refrigerator and freezer unit, washing machine, electric dryer, and combination residential, electric stove top, range, and oven. Coordinate floor drains and dryer vents for washer and dryer.
- Changing table
- Shower seat
- Shower curtain
- Access to a scanner and printer

## 7. Adaptive PE Rooms

**General:**

A special education support facility for both PE and occupational therapy.

**Location (desired proximities):**

On a comprehensive campus, locate near the gymnasium and locker rooms. At an academy, locate on the perimeter near fields, hard courts and restrooms.

**Design Features:**

Size: 1,500 sq ft including storage.

Provide spaces that are free from distractions. Most if not all wiring, conduits, ducts, etc. shall be concealed or located in unobtrusive areas to provide a clean, orderly and non-distracting environment. Surfaces of must be easily cleanable and hygienic.

The room must accommodate up to 12 students and 11 staff for the moderate-severe program and up to 30 students and 4 staff for the non-severe program.

The room must accommodate large pieces of equipment such as treadmills, stationary bikes, small trampolines, and other equipment to support the loco-motor and non-loco-motor training activities.

Provide sufficient storage adjacent to the room for both indoor and outdoor equipment.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space and backing for wall mounted equipment |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Will be determined on a site-by-site basis.

# 8. Gymnasium Building

**General:**

The Gymnasium is one of the primary Physical Education (PE) facilities at each high school. The facility must not only accommodate PE needs but must be designed for school assemblies and other gatherings and events.

**Location (desired proximities):**

Locate on the periphery of campus near public parking, and fields. Locate adjacent to the locker room.

**Design Features:**

The gymnasium (15,000 sq. ft.), while primarily used for physical education instruction, is also used as a meeting space for students and community events. As such, adequate floor seating (500 persons) for large assemblies is required. Site specific PE and athletic equipment will be identified and purchased based upon site instructional focus and needs.

Provide sport wood flooring system with manufactured vented metal base and painting of team logo in the main center court and school name on each baseline. Provide for District logo and conference label on court. For projects where the team logo has not been determined, provide an allowance.

Provide multi-sport colored striping to accommodate main basketball/volleyball court, perpendicular practice basketball/volleyball courts, and badminton courts.

All courts must conform to CIF requirements and court clearance requirements. Coordinate the retractable practice court backstops for required vertical clearance.

Provide sport wood flooring system with manufactured vented metal base at dance rooms.

Incorporate the use of natural day-lighting, but do not allow direct sunlight to hit the gym floor or to be visible to athletes using the facility.

Provide acoustical treatment.

Provide ticket booth with at least 4 windows.

Provide concession booth with at least 4 windows. Provide counters and power for refrigerator/freezer, microwave ovens, crockpots, etc.

Provide public and student restrooms.

**Finishes and Features:**

| | |
|---|---|
| Floor: | Gym: Floating wood sport flooring system.<br>Dance Rooms: Floating wood sport flooring system.<br>Concession: VCT<br>Ticket booth: VCT |

| | |
|---|---|
| | Lobby: VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space (no tackable surface inside Gym). Walls in Gyms shall be durable and have mounting systems for pads, acoustical treatment, and pennants |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Interactive Multimedia System with projection capabilities, sound, LED display(s), computer/tablet interface
- Multi-sport scoreboard.
- Provide motor operated, telescoping bleachers that do not interfere with the regulation basketball court or four wrestling mats and required court clearances in fully opened position.
    - Coordinate with manufacturer representative for appropriate rise and row spacing.
    - Coordinate headroom clearance at top row of seating with basketball backstops of cross courts.
- Provide retractable motorized basketball backstops for main court and practice courts.
- Bulletin boards
- Trophy display cabinets in Gym lobby.
- Retractable flag in Gym.

# 9. Locker Rooms, Team Rooms and PE Offices

**General:**

These facilities support the Physical Education (PE) program at each school. The facilities must be equitable between girls and boys. The facilities include the locker room, teachers (coaches) offices, team rooms, treatment areas, laundry room (high school) and storage.

**Location (desired proximities):**

Part of, or directly adjacent to the Gymnasium at high school or Multi-purpose room at middle school. The teachers offices should be adjacent to and provide supervision of the locker room.

**Design Features:**

- The student locker room/shower/lavatory space needs to accommodate up to 400 students per instructional period for high school and 200 students for middle school. The space needs to allow for easy supervision of students, ease of cleaning, and sufficient space for safety and comfort.
- All lockers shall be anchored to concrete bases. 1500 basket-type lockers and 500 full-length lockers for high schools (verify based on design size of school).
- Separate varsity locker rooms and showers are desirable.
- Protective cages over all exposed clock and life-safety alarms.
- Drinking fountain.
- Teacher office space (100 sq. ft. per staff member) needs to be constructed adjacent to student locker room area with full view of all lockers for safety reasons. Teacher locker room, shower, and lavatory need lockable doors for privacy purposes (100 sq. ft).
- Adequate storage rooms with limited access for security purposes. These spaces exist adjacent to teacher offices and multipurpose room with casework as appropriate for maintaining inventory of equipment of all sizes, clothing, etc.
- Separate restrooms for teachers.
- Laundry Room:
    - Provide one shared laundry room with adjacent access or secured access from both locker rooms.
    - Provide both gas and electric utilities for the dryer.
    - Include a sink and counter workspace.

**Finishes and Features:**

| **Locker Rooms and Team Rooms** |
|---|

| | |
|---|---|
| Floor: | Terrazzo or polished concrete (slip resistant finish) |
| Base: | Terrazzo or polished concrete |
| Ceiling: | Painted gypsum board suitable for high humidity. |
| Walls: | Painted gypsum board suitable for high humidity. |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

| **Teachers Offices** | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Whiteboards in team rooms and offices.
- Bulletin boards in locker rooms, team rooms and offices.
- Provide an ice machine in each locker room in comprehensive High School Gyms.
- In laundry room, provide a washer and dryer with a floor drain, dryer vent, and a high volume exhaust fan

# 10. Media Center (Library)

**General:**

Media Centers and Libraries are changing with technology and can serve different functions on a campus, including: research, group meetings, computer instruction, reading place for students' free time, social meeting area, as well as a repository for books. Meet with the District Representative and Library Services to determine the design and functions of the libraries at each campus prior to proceeding with the design.

**Location (desired proximities):**

Near perimeter of the site for access to public and access after-hours. Being near the administration center allows for secure entry and exit of the site.

**Design Features:**

Size: 4,000-4,500 sq. ft. at HS; 2,700-3,000 sq. ft. at MS) for the main room, stacks, reading area, computer area and circulation desk.

Provide an open design, easy to supervise from the circulation desk, no hidden corners or nooks with good lighting over stacks and reading areas. No direct sunlight on bookshelves to avoid fading. Provide day-lighting in the reading spaces.

Accommodate two full classes at a time. One class can use the computer lab while the other can access print resources. The computer lab area must accommodate at least 40 laptop, desktop or tablet computers.

Safe and efficient student and material logistics require that the library needs a flow through type of arrangement for textbook and/or device check-out and return. For example, during textbook check-out, our classes come through the back entrance, go into the textbook room, pull the book from the shelf, walk to the circulation desk to check it out and then exit out the front door. For returns, the process is reversed. They come in the front, check in the book at the circulation desk, walk into the textbook room, place the book on the shelf and exit out the back door. This method significantly decreases hand/arm/back and other stress injuries and provides for safe student movement.

The library technician station should be at the circulation desk, instead of a separate office. It is convenient for tech to be at circulation desk already whenever a patron needs assistance as opposed to getting up and walking out of office every time.

Provide a conference room at high schools (180-240 sq. ft.).

Provide a textbook processing and storage room (700-800 sq. ft. at HS; 400-500 sq. ft. at MS). It needs to be wide enough to accommodate the passage of a pallet of boxes. There should be room enough for a minimum of three pallets of boxes on the floor next to a large table which serves as the processing workspace. There needs to be access for a pallet jack on the sidewalks and a convenient area where they can be loaded off the truck. As we move away from textbooks to online resources, this may be used for electronic equipment and boxes of workbooks.

Provide a separate secured room (120 sq. ft.) for computer device storage (laptops, tablets, etc.). This storage room may be within the textbook storage room.

Provide a Librarian's office (120-180 sq. ft.)

A workroom (140-160 sq. ft) with provisions for a book scanner, book repair area and storage and computer workstation. Provide a sink.

Consider the decreasing need for desktop computers and increased areas needed for independent study with electrical outlets for charging devices.

Provide acoustical treatment to maintain an environment conducive to study. Separate group meeting areas with sound barriers.

Consider large screen smart TV instead of digital projectors which require expensive bulb replacement.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Built-in circulation desk.
- Low height shelving so that step stools are not needed and to facilitate supervision. Center stacks shall be 4 feet high and perimeter wall stacks to be 6 feet high.
- Design the library shelving to accommodate 28 books per student with an average thickness of one-inch per book. Confirm the amount of book storage prior to the start of design and submit the linear footage provided in the conceptual design phase.
- Book security system at entry.
- Verify whether fixed storage shelves or space-saver rolling shelves are required for the textbook room. The move to electronic textbooks may reduce the need for storage.
- Display/signage areas indoor AND out.
- Library catalog stations (data).
- Audible security alarm at exit doors other than the main entry.
- Book scanner

## 11. Multipurpose Room

**General:**

Depending on the site needs, the multi-purpose room may function as a Gymasium, theater, eating area and/or meeting space. Refer to each section to determine the needs.

Do not use carpet if the space is to be used for dining.

Provide a drinking fountain and/or water station.

## 12. Administration / Lobby

**General:**

The administration center of the school is utilized by students, staff, and the public. It should include a public-friendly yet secure entrance, a centralized reception area with seating, and access to the administrative offices. The administrative offices (principal, assistant principal(s), and site security) should be located beyond the reception/entrance area. Other areas important to the administrative offices include medium and small conference rooms (at least one with teleconference capabilities--- one for the principal another specifically for small student group presentations re: credit recovery, college recruitment, etc.), shipping and receiving area, storage, teacher lounge and teacher workroom.

**Spaces:**

- Centralized reception area/entrance, public-friendly atmosphere with (comfortable) seating that can easily be secured (240 – 360 sq. ft at HS; 180 – 240 sq. ft. at MS)
- Administration offices
    - Principal (120-180 sq. ft)
    - Assistant Principal (100-120 sq. ft.)
- Medium and small conference rooms (at least one with teleconference capabilities; one specifically for the principal (180-240 sq. ft for HS; 120-180 sq. ft. at MS); at least one for small student group presentations re: credit recovery, college recruitment, etc.
- Offices for itinerant staff (100-120 sq. ft.)
- Parent center or room (600-740 sq. ft.)
- Shipping and receiving area
- Storage
- Student Support Services (counselors, speech therapist, psychologist, attendance clerk, registrar) – See separate section
- Nurse's office – See separate section
- Attendance office (80 sq. ft. per person)
- Staff break room – See separate section.
- Staff workroom – See separate section.

**Location (desired proximities):**

The integration of administrative offices, student services area (counseling, etc.), teacher lounge/workroom area, and shipping and receiving areas confirm to the casual eye that this is the hub of school activity. Any library or performance center should be near this building. Visitor parking should be available close to this building and/or close to the entrance of the school.

**Design Features:**

- Built-in reception desk and transaction counter with high-low counter. Include open space below the countertop to accommodate two-drawer lateral file cabinets.
- Distance between the reception desk counter height and transaction counter needs to be able to accommodate a binder (13 inches minimum between the two surfaces).

- Lobby door access control.
- Perimeters are controlled at a central location supporting automated processes for security (lockdown) procedures.
- Safe room in this location which could be a multi-use room. Needs equipment to convey messages to the campus locations and communicate with the off-campus law enforcement organizations/District office.
- Sufficient work stations/offices for current staff as well as ample room for projected additional staff with a margin for growth.
- Countertop space near sink and casework at the Nurse's office.
- All casework to include drawers and storage cabinets below the countertop and tall storage cabinets.
- Fire alarm annunciator must be in a planned and coordinated location.
- Provide space within the secure file room to accommodate a safe.
- Mailboxes to be 12 inches wide by 12 inches deep by 4 inches high.
- Provide 1 mailbox per 12 students based on the maximum capacity of the campus. For example: If the school's maximum capacity is 3,000 students, provide 250 faculty/staff mailboxes.
- A built-in lockable display case with tackable surface and an area for messages to be posted for parents/visitors to read.
- Non-skid floors in front office, corridors, heavy student used rooms and work areas. Walk off mats at exterior doors.
- Separate restroom facilities for staff and public are preferred.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT; Lobby may be terrazzo or polished concrete |
| Base: | Rubber; terrazzo or polishied concrete |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space (except no tackable wall space in lobby; use locking bulletin boards) |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Comfortable, welcoming furniture in reception/lobby area for visitors.
- Desks and workstations
- A key cabinet within a secure room such as the secure file room.
- A wall-mounted, lockable metal storage box to store 11-inch by 17-inch plans of the school near the key cabinet.

# 13. Student Support Services

**General:**

The student support services area is utilized by students, staff, and the public. It should include a public-friendly yet secure entrance, a centralized reception area with seating (the entry and reception can be the main lobby if located within the administration building), and access to the offices. The offices (attendance clerk, registrar, speech therapist, psychologist and nurse's/health office) should be located beyond the reception/entrance area. In order to provide a sense of connectedness for students, this area should be conveniently accessible both from the public entrance of the school as well as from the main campus area. Include at least one medium conference rooms. Career center is heavily reliant on computers for research and on-line applications.

**Spaces:**

- Centralized reception area/entrance, public-friendly atmosphere with (comfortable) seating that can easily be secured. (220 sq. ft. if separate from the main lobby.)
- Attendance office. Exterior office space with walk-up windows for the attendance clerk (or space in the reception area if attendance is not in the administration center).
- Offices for:
    - Counselors: One (1) 100 sq. ft. office for approx. every 400 students with table for 3 visitors. Panic button near desk. Sidelight next to door for visibility. Good soundproofing.
    - Speech Therapist: One (1) 200 sq. ft. office with desk, table for up to 6 visitors, lateral file cabinets.
    - Psychologist: One (1) 100 sq. ft. office with seating for 2 visitors
    - Registrar: One (1) 100 sq. ft. office with seating for 2 visitors
- Medium conference room (space for conference table and 10-12 chairs) (180-240 sq. ft.)
- Storage: One (1) secure file room for student records adjacent to registrar's office (100-120 sq. ft. at HS; 80-100 sq. ft. at MS)
- Staff workroom with a work area for printer/copier/fax, work table or counter, storage for supplies (225 sq. ft.)
- Career center at HS only (960 sq. ft.)

**Location (desired proximities):**

Integration with the administrative offices is preferred. Located at the perimeter of the campus with easy access from parent parking area.

**Design Features:**

- Built-in reception desk and transaction counter with high-low counter. Include open space below the countertop to accommodate two-drawer lateral file cabinets. Reception desk/workstation with seating for two (2): employee and student worker; panic button at reception desk; guest seating for 3-6; display space(s) for counseling materials.

- Attendance office: walk-up windows for the attendance clerk (or space in the reception area if attendance is not in the administration center).
- Career center: computer work stations. Display areas and storage.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space (except no tackable wall space in lobby; use locking bulletin boards) |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Comfortable, welcoming furniture in reception/lobby area for visitors.
- Desks and workstations
- Tables and chairs
- Lateral file cabinets

## 14. Nurse's Office

**General:**

Health Services includes intervention, attendance to sick or injured students, prevention, seminars, screening, and consultation. Health Service personnel are involved in extensive communication with building staff, students, parents, and health care providers. Increasingly, interest has been expressed to engage in greater collaboration with community health services for the screening and referral of students, parents, and community members. The plan for this area should be flexible and lend itself to future expansion.

**Location (desired proximities):**

The Health Services area should have access from reception/secretarial area as well as outside direct access. Adjacent to main office with door and/or window accessibility between the offices is ideal. Access to conference rooms.

**Design Features:**

Provide the following spaces:

- Office for the nurse (100-120 sq. ft.)
- Exam and first aid area (340-400 sq. ft)
- Waiting area (120-160 sq. ft at HS; 60-100 sq. ft. at MS)
- Storage
- One unisex restroom

The design must easy to keep sanitary.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT or sheet goods |
| Base: | Rubber or integral cove |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board; cleanable surface |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Furniture should be welcoming and comforting.
- Cot and curtain in exam and first aid area.
- Computer station(s).
- Refrigerator and locked cabinet for storage of temperature sensitive medications and supplies.
- Counter space should be a combination of high and low counters.
- Lockable cabinets.
- If records are not kept electronically, they should be kept in a secure location in this area.

- Sink and counter space for wound-dressing.
- Bulletin boards

# 15. Staff Break Rooms

**General:**

Staff break rooms are needed to provide staff with a place to take breaks as well as gather before or after school. They may be used for collaboration as well.

**Location (desired proximities):**

Distributed throughout the campus. Should be adjacent to staff workrooms but should be separated so that workroom noise does not interfere with breaks or collaboration sessions.

**Design Features:**

Provide Provide an open countertop space near sink area with enough space to accommodate Owner-furnished (F&E) microwave oven and coffee maker.

Provide a location for a soap dispenser and paper towel dispenser at all sinks. Refer to Restroom Accessories for further dispenser requirements.

Provide CFCI under-counter dishwasher and refrigerator.

Provide casework that includes drawers and storage cabinets below countertops.

Provide space and electrical provisions to accommodate two Owner- furnished vending machines.

Storage area for tables and chairs.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable surface |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

1. Comfortable furniture for relaxation
2. Large tables and chairs for collaboration and dining

# 16. Staff Workrooms

**General:**

Staff workrooms provide an area to consolidate office equipment (printers, scanners, copiers, laminators, paper cutters, etc.) for efficiency.

**Location (desired proximities):**

Distributed throughout the campus. Should be adjacent to staff break rooms but should be separated so that workroom noise does not interfere with breaks or collaboration sessions.

**Design Features:**

Size of main workroom in administration center: 500-600 sq. ft. at HS; 400500 sq. ft. at MS.

Provide open countertop space with casework. Casework to include storage cabinets above and below.

Provide space and electrical provisions to accommodate Owner-furnished printer/copier/scanner equipment and other equipment required for the project.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable surface |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Storage cabinets.

# 17. Serving Kitchens

**General:**

The Serving Kitchen is an area where district staff receives food goods, stores goods (refrigerated, frozen and dry), prepares food, reheats pre-prepared meals and serves the food service court.

**Location (desired proximities):**

The Serving Kitchen should be connected to the Food Service Food Court. Centrally located on site with proximity to the periphery of campus for food deliveries. Garden sites near the kitchen would allow "Farm to School" integration.

**Design Features:**

Comply with all County Health Department requirements.

Designed to prepare student meals that will be served at multiple food stations (kiosks, food carts, and staff dining) for those seeking meals or snacks. Space in the Serving Kitchen should include reach-in refrigerators and freezers, walk-in refrigerators and freezers, ovens, other food service equipment, delivery, storage for dry goods, paper products, utensils, food carts, as well as an office for the Food Service Manager (with views that supervise deliveries, exit doors, and kitchen preparation area), employee lockers, restroom (one single uni-sex restroom unless code requires both men's and women's), custodian closet, areas for trash and recycling, and accommodations for use of washable service trays, including tray washing station and storage area.

Provide pass-thru service windows with security roll-down doors or grills. Provide large openings to allow fast service. Verify whether line-up areas outside the windows to be separated with galvanized railings.

Consider an area for demonstration cooking.

**Finishes and Features:**

| | |
|---|---|
| Floor: | Quarry tile |
| Base: | Quarry tile |
| Ceiling: | Painted gypsum board suitable for high humidity and/or washable vinyl suspended ceiling. |
| Walls: | Painted gypsum board suitable for high humidity. Stainless steel panels to 8'-0" above finished floor (a.f.f.) behind sinks, stoves and ovens.<br>Fiberglass reinforced panels (FRP) (smooth, white) to 8'-0" a.f.f. in all locations except where stainless steel is located. |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- It is anticipated that a Food Service Consultant will work with the district to develop the furniture and equipment specifications needed to provide meal, fast food, and snack preparation.
- Stainless steel counters.
- One locker for each staff member working in the kitchen at peak hours.
- Walk-in freezer accessible through the walk-in refrigerator with an adjoining door. Floors are to be quarry tile, freezer floors to be insulated. The walk-in units are to have separate condensing units. Multi-circuited condensers are not acceptable.

# 18. Food Service Areas

**General:**

The primary serving area for food services will be a Food Service Court attached to the Serving Kitchen. The Food Service Food Court will serve as an area where students, staff, and visitors can obtain a quick, nutritious, desirable, economical snack or meal. The facility (approx. 8500 SF) will be both comfortable and cheerful, and centrally located on the site to serve as a hub of social interaction. A staff dining area should be part of the facility.

A main outdoor eating area designed for comfort and ease of supervision by site staff is also required. Satellite food service areas should be provided for distributed sales.

**Location (desired proximities):**

Centrally located on site with proximity to the periphery of campus for food deliveries.

Food Service Court: connected to the Serving Kitchen along with a staff dining room.

Main outdoor eating area: central and adjacent to Food Service Food Court

Satellite food service and eating areas: per site, as available space exists

**Design Features:**

Size for kitchen, service area, dry storage, cold storage, staff lockers, restroom and custodial closet: 4,500-5,000 sq. ft. at HS; 3,500-4,000 at MS.

Comply with all County Health Department requirements.

Satellite Areas: Provide infrastructure (power and data) for point-of-sale (POS) machines at remote exterior carts and kiosks.

Remote Serving: Provide infrastructure (power, data, water, sewer and natural gas) for remote exterior preparation and serving areas such as BBQs.

Incorporate the concept of Nutrition as key to the educational process. In this design food service areas would be located as a central hub as well as satellites where students congregate. Concepts to consider:

- Main Food Service Court located near admin offices (which tend to be designed as the site hub) or library.
- Seating provided inside and out which would allow for eating and socializing.
- Food court designs to allow for more sophisticated/upscale dining options.
- Strategic service points around campuses that are already plumbed for natural gas.
- Use of enclosures that can be utilized for multiple concepts i.e. Asian, Mexican, Italian menu features.
- Drinking fountain, or water station, in or near all designated eating areas.

Teacher and Staff Dining Rooms (960-1,200 sq. ft. at HS; 800-960 sq. ft. at MS):

- Provide an open countertop space near sink area with enough space to accommodate Owner-furnished (F&E) microwave oven and coffee maker
- Provide a location for a soap dispenser and paper towel dispenser at all sinks.
- Provide CFCI under-counter dishwasher and refrigerator.
- Provide casework that includes drawers and storage cabinets below countertops.
- Provide space and electrical provisions to accommodate two Owner-furnished vending machines.
- Provide an adjacent private patio (400-600 sq. ft at HS; 200-300 sq. ft. at MS)

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT |
| Base: | Rubber |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board with tackable wall space |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Free standing and built-in dining facilities (booths, tables, chairs)
- It is anticipated that a Food Service Consultant will work with the district to develop the furniture and equipment specifications needed for the food court.
- Trash and recycling containers.

# 19. Restrooms

**General:**

Restrooms will be needed in accordance with codes. Public, staff and student restrooms will be required. Provide uni-sex restrooms distributed throughout the campus to meet transgendered requirements.

**Location (desired proximities):**

Staff and student restrooms should be distributed throughout the campus. Public restrooms should be provided at the administration center, performing arts centers, gymnasiums and fields.

**Design Features:**

Provide a cleanable facility with adequate floor drains.

At tile floors, use mortar setting bed on first level and provide a depressed slab on upper level floors to accommodate mortar setting. Floor tiles to be 2-inch by 2-inch, integral colored, non-slip with non-sanded, 1/8-inch dark colored epoxy grout joints.

Provide thin-set glazed ceramic tile at walls to approximately 8-foot high. Preference is for cutting of tile to not be necessary. Use cementitious backer board or fiber-glass faced gypsum board as tile backers over water resistant gypsum board. Wall tiles to be glazed, 4¼-inch by 4¼-inch, white field tile with accent colored tile patterns, with non-sanded, 1/8-inch light colored epoxy grout joints. Show patterns and accent trim on the Construction Documents.

Extend ceramic tile behind and above mirrors.

Provide code required accessible clearances, plus 2 inches for each horizontal clearance requirement, except at water closets and other code mandated hard-dimensioned items.

Slope floors away from doors and toward floor drains. Provide multiple floor drains as required to achieve a 1 percent slope to the drain.

Do not utilize urinal partition screens.

Design toilet rooms to prevent visibility into the toilet room with consideration given to the line-of-sight visibility of mirrors.

Use solid plastic toilet partitions (metal partitions are prohibited). Ceiling hung is preferred. Use deterrents on top of panels. Specify and detail overhead braced floor mounted vandal resistant stall dividers.

Design the Student restroom doors with the ability to padlock in an open position.

Restroom Accessories:

- Only accessories required by DSA for access compliance, toilet paper dispensers, soap dispensers and paper towel dispensers shall be specified in the project. Provide backing and

location templates for district vendor supplied accessories (hand soap, paper towel, toilet paper, seat covers, and feminine napkins).

- Provide backing for paper towel dispensers in staff and public toilet rooms for District provided rolled paper towel dispensers. Consult with District Representative for information from the current accessory vendor.
- Provide a location for District provided and installed protective seat covers only at staff restrooms, auditoriums, gyms, joint use, and other toilet rooms that the public will be using.
- Feminine Napkin Disposal, one per stall, all grade levels and staff toilet rooms.
- Mirrors in student toilet are to be stainless steel mirrors without shelves. Staff toilet rooms are to have float glass with stainless steel frame mirrors without shelves.
- Hand dryers at student and public restrooms shall be air only (no heat).
- Trash Receptacles will be provided by the District. Design entry doorways to allow a freestanding trash receptacle next to the door while maintaining proper clearances for accessibility.
- Accessible stalls:
    a. Specify accessible standard sized multi-roll toilet paper dispenser.
    b. Combined/recessed units are acceptable, as well as individual items, if space permits.

**Finishes and Features:**

| | |
|---|---|
| Floor: | Ceramic tile, terrazzo or polished concrete. |
| Base: | Ceramic tile, terrazzo or polished concrete |
| Ceiling: | Painted gypsum board (water and mold resistant) |
| Walls: | Painted gypsum board; ceramic tile to 8'-0" above finished floor. Use of fiberglass reinforced panels must have approval of the District Representative |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- See list of toilet room accessories under Design Features.
- The District's sanitary supplies vendor will supply most accessories.

# 20. Custodial Rooms and Grounds

**General:**

Areas utilized by custodial, grounds keeping, and maintenance should be centrally sited and easily accessible to all other campus areas. The location of the Plant Operations Office and Main Storage should provide for immediate attention of site needs, ease of distribution of supplies, and serve as a backup location for site security and safety. Individual building Custodial closets and storage locations should allow for ample supply storage, floor sinks, and safe storage of chemical cleaners. Grounds keeping equipment storage should be large enough to accommodate necessary tools and machinery, and support the needs of the site for storage of indoor and outdoor athletic equipment.

**Location (desired proximities):**

The Plant Operations Office and Main Storage should be located where external delivery access is convenient yet isolated from student/staff traffic. Loading docks, while not critical, are desirable based upon design criteria of other project spaces. These should be isolated from public traffic and view.

Custodial closets should be distributed throughout campus and within buildings to maximize efficiency and response time.

Grounds keeping equipment storage, however, should be located on the periphery of campus well away from areas in which learning may be adversely affected by the use of power tools and equipment traffic (e.g. tractors, lawnmowers, etc.).

Campus utility areas will be distributed to the campus area as determined by final mechanical and electrical design requirements.

**Design Features:**

Plant Operations Office and Main Storage (900-1000 sq. ft at HS; 800-900 sq. ft. at MS): Open floor space for large items storage, shipping and receiving, tool bench, office work station, secured and open storage, wash basin, minimum 48” rollup door, custodial cart storage and power, backup security and life safety panels.

Custodian Closets:

- Floor-mounted mop sink, hot water, and mop rack. Design to accommodate Owner Furnished Owner Installed cleaning product dispensing system above mop sink with cold water hose bib at six feet above finish floor.
- metal storage shelving and a locking metal storage cabinet.
- 180 degree door swing with hold open device
- Floor drain
- Fiber-reinforced plastic (FRP) wall panels around mop sink (or epoxy painted CMU blocks). Extend 12 inches beyond the mop sink and extent to 8 feet above finished floor.

- One microfiber washing machine and dryer in one custodial room per school. Coordinate floor drain and dryer vent for washer and dryer.
- Exhaust fan with wall louver. Avoid use of door louvers when possible.
- If water heater is in the room, provide sufficient space for access to storage and sinks. Include painted floor striping for areas adjacent to equipment that are required by code to be kept clear.
- Provide ¾-inch plywood sheathing to accommodate anchorage of racks, and hooks on all walls. When possible, expose and paint the plywood that extends to eight feet above the finished floor. When not possible due to fire rating requirements, provide ¾-inch plywood sheathing from floor to ceiling behind the gypsum board on all walls.

Grounds Keeping (800-900 sq. ft.): Tool bench, fuel and chemical storage, wash basin, rollup door.

**Finishes and Features**

| | |
|---|---|
| **Floor:** | Sealed concrete |
| **Base:** | Sealed concrete |
| **Ceiling:** | Gypsum Board (water resistant) |
| **Walls:** | Painted Gypsum Board or CMU block |
| **Doors:** | Exterior Door - Gloss Enamel Security Door - Interior Door - Semi-Gloss |
| **Windows:** | N/A |
| **Casework** | Metal storage and shelving. |

**Furniture and Equipment:**

Plant Operations Office and Main Storage:

- Desk
- Computer
- Telephone
- Power hand tools
- Metal shelving
- Sink
- Storage (locked and secured) for items received until distributed
- Storage for cleaners, chemicals, paint
- Custodian electric cart

Custodian Closets:

- Custodian Carts
- Cleaner storage
- Metal shelving

Grounds Keeping:

- Tool storage
- Tool bench
- Gardening tools

- Sink
- Gardening machinery (hand power tools, tractor, lawn equipment)

# 21. Corridors

**General:**

Interior corridors not only provide a path of travel between other spaces, they are used as gathering areas and display areas.

**Design Features:**

Provide sufficient width for passing periods (this may exceed the code required exiting width).

At exterior locations (upper floor exterior corridors and balconies): Provide sealed concrete with integrated waterproof membrane under topping slab with top-cast finish.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT, terrazzo or polished concrete |
| Base: | Rubber, terrazzo or polished concrete |
| Ceiling: | Painted gypsum board |
| Walls: | Painted gypsum board |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Lockable bulletin boards
- Display cases
- Directional signage

# 22. Storage Rooms

**General:**

Provide storage rooms as required in other sections of these standards.

**Location (desired proximities):**

Adjacent to uses that require storage.

**Design Features:**

Provide sufficient area for shelving, counters, and work areas.

In custodial and gardening storage, chain link fence may be utilized as partitions.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT or polished concrete |
| Base: | Rubber or polished concrete |
| Ceiling: | Painted gypsum board and/or suspended ceiling |
| Walls: | Painted gypsum board |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- For heavy duty metal shelving units, provide anchorage details.
- Where locking metal storage cabinets are required, provide as CFCI.

# 23. Mechanical and Electrical Rooms

**General:**

Provide mechanical and electrical rooms as needed to support the facility.

**Location (desired proximities):**

Entry doors should not be in prominent places such as immediately adjacent to the main entry or facing main courtyards. Sidewalk access of sufficient width to accommodate vehicles is required.

**Design Features:**

Access to utility rooms shall not be through classrooms.

Provide an electrical room to include, electrical panels, inverters, and other power related devices. The room must be ventilated. Only step-down transformers may be located inside buildings, at MDF and IDF rooms.

Mechanical Rooms. Provide mechanical rooms for furnaces or other air handling equipment. Do not combine mechanical rooms with other functions.

Include painted floor striping for areas adjacent to equipment that are required by code to be kept clear.

Do not combine with storage rooms.

**Finishes and Features:**

| | |
|---|---|
| Floor: | Sealed concrete |
| Base: | Sealed polished concrete |
| Ceiling: | Painted gypsum board and/or open |
| Walls: | Painted gypsum board |
| Casework: | Plastic laminate |
| Countertop: | Plastic laminate |

**Furniture and Equipment:**

- Fire extinguishers

# 24. Main Distribution Frames (MDF) or Head End Equipment Rooms

**General:**

One MDF is needed for each campus to be the connecting point between service providers and the campus data infrastructure.

**Location (desired proximities):**

Central 1st floor location to shorten runs to Intermediate Distribution Frames (IDFs).

**Design Features:**

Rectangular room; minimum of 10 feet by 15 feet clear inside dimensions.

Provide a 42-inch wide outward swinging door with no louvers or glass and locate in the middle of the wall.

Provide enough space to include all low voltage systems head end equipment. Maintain a minimum of 36-inch clearance in the front and rear of each rack. Include 5 racks: 2 fully enclosed server racks and 3 open four post racks (two for data, one spare for IT Department, one for intercom system, one for CATV).

Provide plywood backing wrapping walls 8 feet high by ¾-inch thick, with the "A" side facing out, painted off-white.

The room must have a dedicated air-conditioning system with gravity fed condensate lines. Ventilation only is not acceptable.

Do not run plumbing lines, rainwater leaders, or other utilities not serving the MDF in or above this room. Do not run condensate lines above this room.

**Finishes and Features:**

| | |
|---|---|
| Floor: | Sealed concrete or VCT |
| Base: | Sealed concrete or rubber |
| Ceiling: | open |
| Walls: | Painted gypsum board with plywood backing panels |

**Furniture and Equipment:**

- Racks

# 25. Intermediate Distribution Frames (IDF) Rooms

**General:**

The IDF is needed to provide a distribution facility for data and technology for each building. Trunk lines connect each IDF to the MDF.

**Location (desired proximities):**

One IDF per floor (stacked) in each building centrally located (if possible) to reduce distance to furthest classroom or data drop.

**Design Features:**

Provide a minimum of 10 feet by 10 feet clear inside dimension with a square plan.

Provide a 36" outward swinging door with no glazing or louvers.

Provide an IDF enough space to include, intermediate low voltage systems, 36 inches of clearance around the rack, and include a minimum of two racks. Provide 1 rack for every 150 drops. Teaching stations will require 1 drop for a wireless access point (WAP) (2 for large rooms) or one drop per 30 users, whichever is greater. Teaching stations also require a four-drop location for the teacher and four drop locations for future needs. Science labs require one drop at each peninsula.

Do not design with wall mounted IDF racks. Utilize 4 open post racks.

Provide plywood backing wrapping walls eight feet high by ¾-inch thick, with the "A" side facing out, painted off-white.

The room must have an air-conditioning system with gravity fed condensate lines. Ventilation only is not acceptable.

o not run plumbing lines, rainwater leaders, or other utilities not serving the IDF in or above this room. Do not run condensate lines above this room.

**Finishes and Features:**

| | |
|---|---|
| Floor: | VCT or sealed concrete |
| Base: | Rubber or sealed concrete |
| Ceiling: | Open |
| Walls: | Painted gypsum board with plywood backing |

**Furniture and Equipment:**

- Equipment Racks

# BUILDING COMPONENT DESIGN STANDARDS

## 1. Color Selection

a) Propose color selections in the Design Development phase. All color selections are to be finalized prior to the completion of the construction documents.

b) Limit paint scheme to two colors: one main body color and one accent color. Match existing exterior paint scheme when applicable. Design proposals exceeding two colors must have written approval from the District.

## 2. Exterior Finishes

a) Finishes must be durable and low maintenance.

b) Plaster is to be integrally colored and receive a paint finish.

c) Finishes are to be paintable or if exposed masonry, treat with anti-graffiti coating. Planes above eight-feet do not require graffiti coating, however, do not partially coat a plane, even if some portions exceed eight-feet.

d) Non-painted masonry is to be sealed in addition to the anti-graffiti coating.

e) Exterior Insulated Finish System (EIFS) assemblies are not permitted.

f) Exterior wood siding, wood doors, or wood trim are not acceptable.

g) Metal siding shall not be located within reach of pedestrians.

h) Styrofoam trim pieces are not permitted.

## 3. Roofs

a) Roofing types:

i) Built-up roofing: minimum 30-year warranty.

ii) Sloped metal roofing: minimum 30-year warranty.

iii) Composition Shingle Roofs: minimum 20-year warranty.

(1) Composition shingle roofs are only allowed for replacement of existing roofs on the auditoriums at Chula Vista Middle School, National City Middle School and Southwest Middle School.

b) Design flat roofs to have parapets of 42-inch guard height, minimum.

c) Where the use of tie-offs is unavoidable, tie-offs shall comply with maintenance workers safety requirements per CAL OSHA.

d) On sloped roofs (3 inches in 12 or greater) to receive a new roof, use standing seam metal roofing that meets the “Cool Roofing” and “Energy Star” roofing criteria.

e) On low-sloped roofs (½ inches in 12 to 3 inches in 12) use modified bituminous roofing that meets the “Cool Roofing” and “Energy Star” roofing criteria. Do not allow the use of pitch pockets.

f) Roof access is to be internal in a secure location if at all possible. If exterior ground level roof access is required, design roof access that prohibits the ability to access the roof by climbing security gates, chain link fences, low walls, planters, trees or other access method. External roof ladders are permitted to provide access from one roof level to a higher level.

g) Locate accessories 10-feet from roof edges without parapets and 12 inches from cant strips at parapets.

h) Provide tie-offs and safety equipment for the servicing of sloped metal roofing.

i) Design to discourage bird perching and nesting.

j) Design roofs to prevent overlap below or above other roofs.

k) Roof Drains, Gutters, Downspouts, and Rainwater Leaders:

   i) Only external gutters and downspouts are permitted. Eaves to have gutters and downspouts, including lunch shelters and covered walkways. Internal gutters are permitted only with the written permission of the district.

   ii) Provide external 18 gauge, fully welded, rain gutters. Gutters to have a minimum of 6-inch continuous flange to lap under roofing membrane and be secured with heavy duty gutter anchor straps at a minimum of six- feet on center.

   iii) Size gutter profile per SMACNA design guidelines but minimum of 4- inch by 4-inch with ¾-inch turned edge at lip. Detail with outer edge ½-inch lower than roof edge to accommodate overflowing

   iv) Do not use internal gutters.

   v) Downspouts are to be constructed of schedule 40 galvanized steel pipes below ten feet (10’).

   vi) Specify indirect connection to storm drain system via drain inlet at downspout discharge.

## 4. Interior Wall Finishes

a) Specify and detail durable, low maintenance interior finishes.

b) All gypsum board to be Type ‘X’ 5/8-inch.

c) Interior corridors, locker rooms and other areas of high abuse are to have reinforced gypsum wall board with vandal resistant corner guards.

d) Specify impact resistant panels in sport facilities that do not have concrete or masonry walls.

e) Do not specify plaster faced gypsum board.

## 5. Ceilings

a) Do not use fire rated acoustical suspended ceilings.

b) Exposed MEP is only allowed in Gyms, Utility rooms, Storage rooms, IDF rooms, MDF rooms, and Custodial rooms. Exposed piping, ducts and conduits are to be painted.

c) No exposed insulation.

d) Install non-sag gypsum board at ceilings and soffits.

## 6. Concrete Building Slabs

a) Recommend assemblies, admixtures and/or sealers to control slab moisture and pH levels as required by the flooring manufacturer's requirements.

b) Coordinate requirements for under slab vapor barrier with wood floor manufacturer.

## 7. Flooring

a) VCT is preferred. Polished Concrete is acceptable for interior corridors. Unfinished smooth sealed concrete is acceptable in mechanical rooms.

b) Design patterns may be proposed using one main body color and one accent color at corridors and other appropriate areas to create a sense of identification and design impact. Also, to mark where doors swing into corridors for safety.

c) Carpet selection is limited to one color and pattern per school.

d) Where sealed concrete curb and sealed concrete floor meet provide detail illustrating how the joint is finished.

## 8. Windows and Glazing

a) Exterior windows to be Low-E, dual pane with thermal break and to be constructed of clear anodized extruded aluminum.

b) Apply 8mil Mylar film to existing glazing in or adjacent to doors, at entries or other places that need security. Coordinate with the District's security manager.

c) Specify heavy duty hardware with stainless steel hinges and handles on windows. Plastic hardware is not acceptable.

d) Specify operable window sections in rooms to allow for cross ventilation. Do not include window screens except where required by Health Department.

e) In classrooms with operable windows, specify single hung windows in the lower section and hopper windows at the top. Do not specify awning windows. Design windows so they do not protrude into path of travel when open. Design pole operated hopper windows to open to the interior to allow access for opening and closing.

f) At food service windows, specify double hung windows with operable stainless steel screens in compliance with the Health Department requirements for maximum size opening.

g) Design sun shading of windows. Screen from direct sunlight with overhangs or external sun shades.

h) Use fire rated glazing only when other options are not available. Use wire glass or fire doors before using fire rated glazing. Consider eliminating windows that require fire rated glazing. Avoid need for fire sprinkler water curtains to protect openings.

i) Dual pane glazing to be standardized in size for ease of replacement.

   i) Panes cannot be larger than can be handled by one person, maximum five-feet by five-feet.

   ii) Specify no more than five pane sizes per site.

j) Glazing to be installed from inside the building when the top of the panes are over eight feet above grade.

k) Provide a standard minimum sill height of 48-inches, except at windows for service and point-of-sale interaction.

l) Curtain walls are to be avoided.

m) No glazing below 16-inches.

n) The use of insulated polycarbonate glazing systems and similar wall panel systems is prohibited.

o) Provide motorized openers at high, inaccessible, windows.

## 9. Window Coverings

a) Manual operated heavy duty roller shades shall be provided at offices, conference rooms, nurse's room, classrooms, and other areas where appropriate.

b) Do not specify motorized shades unless absolutely necessary because of location.

c) Specify black-out shades in the Chemistry and Physics labs.

d) Limit color selection to one.

## 10. Ramps, Guards, and Handrails

a) Whenever possible reduce the need for ramps through use of sloped walks.

b) Do not design ramps to maximum allowed slope by code to accommodate construction tolerances. Ramps should be designed up to a maximum slope of 8 percent in order to stay within the absolute maximum 8.33 percent.

c) Exterior railing to be hot-dipped galvanized steel. Do not paint.

## 11. Room Numbering, Naming, and Building Signage

a) Building numbers shall be determined during schematic design.

b) Room numbers shall be determined during design development (or schematic design) so that the room numbers on the construction documents will match the assigned room numbers.

c) Room numbering shall be used for electrical panel labeling, phone assignments, data outlet assignments, energy management system, security alarm device addresses and fire alarm device addresses.

d) Room numbers and building signage shall be mechanically fastened with vandal-resistant fasteners and reinforced with double-stick tape.

e) Coordinate signage locations with other items that may be in conflict, such as windows adjacent to doors where room identification sign is required to be placed. Signage may not be affixed to windows.

f) Room identification signage is not desired at non-occupied rooms such as utility and storage rooms.

g) For new construction or major modernization projects provide an allowance for an 12” x 18” bronze dedication plaques. Coordinate a location near the Administration building with the District and provide backing in the wall to support the plaque as part of the construction contract. District will provide text and SUHSD Logo during construction.

h) Refer to local jurisdictions for building and address signage required at entrances.

## 12. Doors

a) Doors shall be hollow metal doors. Do not use wood doors.

b) Use hollow metal doorframes, do not use wood frames. KD (knock-down) frames are not permitted).

c) Minimum sized door is 3-foot by 7-foot.

d) Doors shall not exceed eight feet high or four feet wide.

e) Doors sizes greater than 3-foot by 7-foot to be increased by 2-inch increments.

f) Door thickness to be 1¾ inches, no exceptions.

g) Vision Lite:

i) Doors shall have a vision light in all locations except utility rooms, custodial office, restrooms, MDF/IDF rooms, gymnasiums, and storage rooms.

ii) The vision lights are to be long (approximately 30 inches) and narrow (approximately 6 inches) to allow better visibility while maintaining security. Coordinate actual size with door hardware requirements.

iii) Use small size and fire rated glass at rated doors, tempered ¼-inch glass at all others.

iv) Doors to music practice rooms shall have half glass, insulate as appropriate for acoustic insulation.

h) Hardware:

i) Submit completed finished hardware specification to the District Representative, for review and acceptance with the District locksmith prior to including in bid documents.

ii) Keying:

(1) Keying to be tied into the District grand mastered keyway system.

(2) The District Locksmith will determine keying requirements.

(3) District locksmith will key cylinders to be installed after installation of hardware is complete and just prior to Owner occupancy.

(4) Contractor to have the supplier send zero bitted cores with specified keyway and key blanks directly to District locksmith. Materials must be received directly from the manufacturer six months prior to occupancy.

iii) Lever/Locksets:

(1) Lock/lever sets to be in accordance with DSA Bulletin 11-05 (AB 211) that allow doors to classrooms and any room with an occupancy of five or more persons to be locked from the inside. Doors that are always locked from the outside and student toilet room doors are exempt.

(2) Unless otherwise specified, exterior and interior locks shall be mortised type.

(3) Entrance doors shall be specified to have turn/push locking; pushing and turning button disengages outside lever, requiring the use of a key until button is manually unlocked:

(4) Student toilet room doors shall have latchbolt thrown or retracted by key outside or lever inside. Students must not be able to lock themselves in room. Rotating inside lever will retract deadbolt. Also include push plates with cutout around the fixed exterior side lever. Student toilet room doors must be able to be padlocked in the open position during school hours.

(5) Staff toilet rooms without toilet partitions shall be specified to have push-button locking. Lock can be opened from outside with small screwdriver. Turning inside lever or closing door releases button. Lockset shall show “Vacant” or “Occupied.”

(6) Interior office doors shall be specified to have push-button locking. Push-button locks outside lever until unlocked with key or by turning inside lever:

(7) Storage rooms shall be specified to have an outside lever to always be disengaged. Entrance by key only. Door is always locked with inside lever always unlocked. Only to be used on rooms that is used solely for storage:

iv) Exit Devices:

(1) Exit devices shall be furnished with rim touch bar device.

(2) Specify with flush, cup style pull.

(3) Specify keyed removable mullions at paired doors.

(4) Specify with hex dogging where allowed by code.

v) Door Closers: Exterior and fire rated doors to have door closures.

vi) Hinges:

(1) Exterior doors are to be full length, mortised, continuous hinges.

(2) Interior doors to have ball bearing butt hinges.

vii) Stops: Provide floor mounted door stops at doors with a minimum of two fasteners. Avoid the use of wall stops.

viii) Door Louvers:

(1) Do not specify exterior door louvers.

(2) Interior door louvers to be heavy duty, vandal resistant, fixed blade louvers.

i) Accessories:

i) Specify custom heavy-duty hasp on student toilet room doors that will allow the custodian to pad-lock the doors open during occupied hours.

ii) Specify kick plates at the base of doors high abuse locations such as gym, locker rooms, toilet rooms, storage rooms, etc.

iii) Exterior locksets to be equipped with vandal resistant lock guard.

## 13. Architectural Woodwork and Casework

a) Acceptable finishes are wood veneer, plastic laminate, and paint.

b) Use common woods such as birch, fir, and maple. Do not use exotic or scarce woods.

c) Use woods that are certified by the Forest Stewardship Council (FSC) http://www.fscus.org/ where practical and available. Check cost and availability before specifying.

d) Bamboo or other rapidly renewable resource may be used with written permission of the district. Provide cost and availability before specifying.

e) Provide plastic laminate countertops unless epoxy-resin is required for programmatic purposes. Provide backsplashes where countertops are susceptible to water damage such as art rooms and sink cabinets.

## 14. Acoustical Treatment

a) Comply with CHPS acoustical prerequisite requirements.

b) Architectural acoustical treatment is required at all spaces. Acoustical ceilings are the minimum requirement. Carpet and sound absorbing wall panels may be used in lieu of acoustical ceilings.

c) Specify acoustical metal decking when exposed in locations with acoustical requirements.

d) Provide sound insulation in all walls at occupied locations. Fill wall cavities completely.

e) Extend wall framing with sound insulation to room or underside of floor above at conference rooms and other areas where sound transition is a concern, but sound walls are not necessary.

f) Provide staggered stud sound walls in areas where sound transmission is a concern such as occupied areas adjacent to auditoriums, band rooms, band practice rooms, and toilet rooms.

g) Mitigate noise from mechanical equipment. Coordinate with mechanical equipment provisions for sound deadening.

## 15. Concrete Masonry Unit (CMU) Walls

a) Provide furred out walls, when necessary, to accommodate switches, conduits, outlets, etc.

b) At all non-rated walls provide a “block out” opening to run new, existing, and future conduit through.

c) Detail connections of steel beams between CMU walls with field welded connection on at least one side to accommodate construction tolerances and work sequence.

d) CMU is to be sealed in all cases on the side exposed to weather, or both sides where freestanding and exposed to weather.

e) Limit color selection to two colors: one main body color and one accent color. Design proposals exceeding two colors must be approved by the district in writing.

## 16. Fire Extinguishers

a) All required fire extinguishers are to be included in the construction contract and installed in semi-recessed fire extinguisher cabinets. Locate in appropriate wall types; wall-mounted cabinets are to be avoided due to accessibility clearance requirements.

b) Provide painted steel cabinets with glazing in the door.

## 17. Vertical Circulation

a) Building Stairs:

i) Stair risers must be solid.

ii) Detail a two-piece aluminum stair nosing.

b) Elevators:

i) Coordinate any required devices in the elevator shaft such as: smoke detectors, heat detectors, and fire sprinklers with the elevator manufacturer, California Building Code, and the State Elevator Inspector.

ii) Elevator cabs shall be sized to accommodate standard gurneys.

iii) Provide flooring for cab, include on finish schedule on the Drawings.

iv) Elevator equipment room and shaft to be rated per code requirements.

v) Size rooms of sufficient size to accommodate the specified manufacturers.

vi) Provide proximity fob addition to key operator to call elevator.

vii) Do not run conduit, water lines, roof drains, or other utility not serving the elevator in these rooms.

c) Accessibility Lifts:

i) Avoid the use of lifts whenever possible. Lifts are not allowed in new construction.

ii) Provide code required lighting levels for lifts.

# MECHANICAL STANDARDS

## 1. General Requirements

a) All interior spaces shall be air conditioned unless specifically excluded herein or in writing by the District.

b) The HVAC system shall comply with the current California Code of Regulations, T-24, the standards of ASHRAE and NFPA as well as the requirements of local authorities having jurisdiction including but not limited to the county health department for kitchens, air quality management district for emissions and permitting related to boilers, City and County Pollution Control District and Fire Departments for Hazardous materials storage and distribution.

c) Comply with the minimum requirements of Title 24 energy efficiency standards, however the District encourages the designs to improve on the minimum performance to the extend life cycle cost effective. Consult with San Diego Gas & Electric to determine the amount of any incentives for higher efficiency such as “Savings by Design”.

d) All projects shall be designed to meet CHPS certification requirements but certification is not required. For Sample CHPS score card see the Collaborative for High Performance Schools “Best Practices Manual” (available at http://www.chps.net).

e) Assure maintenance and accessibility provisions for servicing and replacement. Provide adequate working space around equipment for servicing.

f) Single-drop gas package roof-mounted equipment is preferred (Trane or Carrier). All other equipment types and locations must be approved by the District in writing.

   i) Fixed ladders and roof hatches shall be incorporated in projects where regular access to the roof is required for servicing equipment. Comply with Cal OSHA requirements.

   ii) Do not provide screening for roof-mounted equipment.

   iii) Locate rooftop equipment, of any sort, such that guardrails are not required at roof edges.

   iv) Locate rooftop equipment to maintain proper clearance for intake and exhaust separation.

   v) All curbs must be 8” minimum.

g) If components requiring regular service are located above ceiling, they shall be accessible from the floor via portable ladder through access doors or removable ceiling tiles of adequate size to accommodate requirements of servicing.

h) Locate mechanical equipment in a manner to minimize noise transmission into occupied spaces. Use vibration isolation, concrete pads and insulated and flexible ducts.

i) Filter sizes shall be standard sizes and shall be limited to the minimum number of different sizes as much as practical.

## 2. HVAC System Commissioning

a) Coordinate project specific commissioning requirements with the District Representative and the District's commission consultant (if applicable).

b) Provide the commissioning requirements needed before the District will accept the project as complete. This includes air balancing and submission of balance reports, acoustical measurements and submission of acoustical reports for noise sensitive areas, final calibration and set points for control systems and components, and training of the District's Maintenance and Operations staff for operating and maintaining the systems prior to occupancy. Also require re-balancing, review of equipment performance and submission of findings on a report to the District prior to expiration of two year warranty.

c) Require a review on site and re-training for maintenance department prior to the end of the warranty period.

## 3. HVAC System Design Criteria

a) Review scope statement and propose additional scope that may be determined necessary with designated District representative prior to starting design.

b) Review existing site specific HVAC and plumbing conditions with the Maintenance and Planning and Construction Departments to identify problems or issues at the site or within the district to avoid repeating problems being experienced at sites or past projects.

c) Following the initial investigations and consultations with the District, present the proposed approach for HVAC to the District in a narrative form with catalogue cuts and any drawings or diagrams to amplify or explain approach. This should be done as early as practical, preferably in the schematic design phase. Design shall not proceed until the approach and concept design is reviewed and accepted by the District.

d) Calculations and Load Criteria

i) Heating and cooling load calculations shall be performed using a computerized load calculation program that is ASHRAE-based and intended for calculating heating and cooling loads for HVAC design. In addition, a computerized energy simulation shall be performed to use in conjunction with life cycle cost analysis and as required by Title 24. A certified program shall be used for compliance, such as Energy Pro. Copies of calculations shall be submitted on request from the District. Equipment shall be sized and selected to handle the heating and cooling loads calculated, and per the requirements of Title 24 and meets requirements.

ii) Utilize the appropriate outdoor design conditions as required by Title 24 and ASHRAE with appropriate adjustments to temperatures for site specific conditions such as coastal vs. inland.

iii) Indoor design conditions (if not noted below) shall be as required by Title 24 and ASHRAE.

(1) For most occupied, fully conditioned spaces, design HVAC systems to be able to maintain the following conditions: Heating: 72 degrees F; Cooling: 74 degrees F. Thermostat set points however shall be as follows: Heating: 68 degrees F; Cooling: 74 degrees F during occupancy (M-F 7:00 am to 3:30 pm) and Heating : 40 degrees F; Cooling: 99 degrees F during unoccupied periods); does not apply in specialty areas such as music rooms or other spaces where the program requires something different.

(2) For electrical rooms, maximum temperatures shall be 85 or as otherwise required by the engineer for the equipment installed in the room. Provide with thermostatically controlled exhaust fan, unless above conditions cannot be maintained or lower temperatures are required by District or designer for equipment contained in the room.

(3) Heating only spaces such as locker rooms and gyms, corridors etc., shall be heated to 68 degrees.

(4) 'Traditional' Shop spaces shall be heated to 68 degrees or provided with infrared heating for occupant comfort.

(5) Kitchens shall be designed for 70 heating and 78 cooling.

(6) IT/MDF/IDF spaces shall be conditioned to temperatures required for equipment contained in the space.

(7) Elevator equipment rooms shall be conditioned as required and shall meet all the requirements of the State Elevator Inspectors.

iv) Internal loads such as lighting, equipment and number of occupants shall be based on industry practice but shall be validated by District to allow for any unique uses within the District.

e) Systems shall be properly zoned according to exposure and occupancy/usage. No more than one classroom per zone or more than 4 like offices on the same exposure on the same zone.

## 4. Ventilation Criteria

a) Minimum outside air rates delivered to the occupied spaces shall be in accordance with Title 24 or ASHRAE Standard 62, whichever is more stringent.

b) "Demand Control Ventilation" (CO2 control) of minimum outside air delivery rate shall be used on high occupancy spaces, including multipurpose rooms, cafeterias, gymnasiums, and theaters. Provide override for humidity control.

## 5. Exhaust Criteria

a) Student toilet rooms shall be exhausted at a rate of 12 air changes per hour and be held at a negative pressure. Fans shall have a 15-minute time delay.

b) Custodial closets shall be exhausted at a rate of 6 air changes per hour, be held at a negative pressure and be manually switched. Gas water heaters shall not be installed within custodial closets.

c) Exhaust for specialty areas such as shops and other career technical educational (CTE) spaces shall be suitable for functions in the space. Rooms with noxious fumes that cannot be controlled with source capture systems shall be fully exhausted.

## 6. Acoustic Criteria

a) Noise and vibration control are required for mechanical systems and are critical for the instructional environment. HVAC system must comply with the latest edition of ASHRAE Applications, Chapter 48, Noise and Vibration Control and additional measures required to meet CHPS criteria. It is recommended the designers consult with an acoustical specialist to validate that the mechanical systems are compliance with required noise criteria.

| Area | RC (NC) |
|---|---|
| General Office | 30-40 |
| Corridors | 40-45 |
| Public Spaces/Shops | 40-45 |
| Mechanical Areas | 50 |
| Dining/Common | 40 |
| Classrooms | 30 |
| Administration | 30 |
| Libraries/Performing Arts | 25 |
| Multipurpose/Gyms | 45 |

b) Internally line, with acoustic duct liner, supply and return ducts for a minimum of ten-feet from HVAC units and exhaust fans, except for moist airstreams such as evaporative cooling, shower exhaust, grease ducts, and the like, that are not suitable for internal lining. On larger air handling systems, acoustical lining may be insufficient and sound traps, heavier gage sheet metal and other strategies may be necessary including vibration isolation of prime movers and distribution.

c) Transfer ducts or grilles between adjacent classrooms, offices and noise sensitive spaces, shall have offsets and lining to control noise.

d) Rooftop units shall be generally mounted on spring curbs unless 4 ton capacity or less on moderately stiff roofs. Comply with ASHRAE Acoustical and Vibration guidelines, which recommend spring deflection to be a minimum of 10 times maximum roof deflection at the support points of the HVAC units. Consideration shall be given to lining the inside of the curbs with layers of gypsum board. One piece curbs are preferred. Curb top shall be a minimum of 8 inches above the roof surface.

e) Select diffusers to accommodate minimum/maximum flows without dumping or exceeding space noise criteria previously defined. Place grilles to provide adequate mixing in space and velocity in areas of the occupied zone (three feet to seven feet above finished floor) between 50 and 80 fpm.

f) When equipment is mounted outdoors or is inside behind louvered surfaces and adjacent a property line, the potential exists to exceed the local noise ordinance. Caution must be taken to verify local requirements and design systems to be under the thresholds.

## 7. Indoor Air Quality

a) Minimum outside air rates shall be in accordance with Title 24 or ASHRAE Standard 62, whichever is more stringent.

b) Locate outside air intakes away from pollutant sources and plumbing vents.

c) Design local exhaust at indoor pollutant sources.

d) Specify low VOC duct materials and duct sealants, as defined in CALGreen.

e) Specify a 72-hour pre-occupancy building purge at system start-up. Run heating cycle on full continuously for 72-hours with exhaust fans on.

f) Design control systems to provide the Title 24 required daily pre-occupancy purge cycle.

## 8. HVAC System Selection Criteria

a) HVAC systems shall be selected on the best combination of first cost, cost to operate and maintain, useful life, reliability, flexibility, ease of maintenance and comfort. When a choice exists between multiple system types that meet the criteria, a life cycle cost analysis shall be utilized based on a 20 year life cycle.

   i) Comfort considerations shall include noise.

   ii) Cost to operate and maintain shall include considerations for vandalism, energy cost, replacement parts, environmental and permitting requirements.

   iii) Consideration shall also be given to the yearly load profile, so equipment can effectively and efficiently operate at all expected minimum and maximum loads.

b) Design system to accommodate any of the major equipment manufacturers such as Carrier or Trane. Quality shall be commercial grade (no residential units allowed).

c) Only decentralized HVAC systems shall be used. Decentralized systems consist of HVAC units which serve a single zone and are relatively 'stand-alone' except for the connection of utilities such as gas or electricity. These would include packaged rooftop air conditioners and split system air conditioners. Decentralized (non-heat pump) systems shall be used for 24 hour loads such as IT spaces.

i) Packaged, single-drop, outdoor rooftop systems are preferred.

ii) Split systems are permitted only with written approval of the District and can include, the following combinations: interior gas furnace units with DX cooling and built-up economizers (outdoor condensers located on grade in completely fenced enclosures including a fence "roof"); interior fan/coil units with heat pump condensing unit and built-up economizers; metal jacket insulation on all exposed lines.

## 9. HVAC System Application

a) 'Passive' HVAC shall be utilized whenever life cycle cost effective and can meet all the thermal comfort, acoustical and air quality criteria. This includes natural ventilation for cooling and to meet minimum outdoor air requirements.

b) General Classrooms: One zone per classroom. Minimum of two supply grilles and minimum one return per classroom. Consider incorporating thermal displacement style distribution with a minimum of two drops for a typical 960 square foot classroom. Particular attention shall be taken in placing inlets and outlets for optimum distribution.

c) Science Classroom: Same as general classrooms except supply air shall be 100% exhausted in biology or chemistry rooms. Return air shall be used where possible in non-odorous science classrooms. If room incorporates chemical hoods or utilizes hazardous materials, consideration shall be given to air flow patterns within room to avoid re-entrainment of hazardous fumes and or eddies near fume hoods. Hoods shall be incorporated with appropriate, end- of-run exhaust fans with suitable discharges.

d) Arts and Crafts Classroom: Similar to science classrooms except where kilns are used, they shall be provided with special kiln ventilation systems as recommended by the kiln manufacturer.

e) Kitchens shall be air conditioned to maintain comfort for the workers and provided with appropriate ventilation and make up for cooking range hoods and dishwashing areas. Ideally, refrigeration condensers for walk-in coolers and walk-in freezers shall be located outside.

f) Gyms, locker rooms and corridors shall be heated and ventilated only. Shower areas shall be exhausted.

g) Career technical education spaces (CTE) such as shops for auto and wood shall be heated and ventilated only, with a preference toward radiant heating, or space heating that is switched to shut off when the roll-up door is opened. Source capture exhaust systems, appropriate for the use, shall be provided as required (e.g. sawdust collection). Provide

electrostatic room filtration unit(s) for these spaces to reduce dust accumulation. The CTE spaces associated with culinary, engineering, health/medical and forensics shall generally be treated similar to classrooms, with specialty exhaust as required for the specific application.

h) Toilet rooms, custodian closets shall be ventilated only; storage rooms shall be unventilated unless requested otherwise by the District.

i) IT closets and other spaces with 24 hour loads shall be conditioned with independent systems.

j) Provide building pressure relief in spaces that are pressurized due to minimum outside air introduction or due to economizer outside air introduction. Adequate relief shall be provided so that ADA Door Closure Requirements are met in all rooms. Relief is to be provided by specifying HVAC units with accessory modulating power exhaust systems that are controlled by room static pressure or if acceptable to the District, gravity relief may be provided within individual zones.

## 10. Air Distribution Criteria

a) Coordinate locations of required access doors with architectural reflected ceiling plans and show accordingly.

b) Avoid remote damper controls. If necessary, indicate and coordinate location with architectural.

c) Duct systems shall be designed in accordance with ASHRAE and SMACNA standards, and per applicable codes. Duct systems shall be designed for quiet and efficient system operation.

d) All ductwork is to be sealed after fabrication and until in service per CHPS requirements.

e) Return air shall be ducted.

f) Round ductwork is preferred, space permitting. Ductwork is preferred to be concealed, however exposed ducts may be used as long as they don't interfere with sightlines or lighting or fire sprinklers. Exposed ductwork shall be painted.

g) Existing ductwork should be replaced to the greatest extend feasible on renovated systems. Any ductwork that is reused for new systems shall be cleaned and sealed to standards equivalent to new ductwork.

h) Flexible ductwork may be used for the last 7-8 feet of a distribution run to connect ceiling inlets and outlets in suspended ceilings.

i) Velocity of ductwork shall be limited to the recommendations of SMACNA and not to exceed California Mechanical Code to meet any acoustical criteria for the spaces served. Generally duct shall be sized via the equal friction method, for low-pressure, low-velocity applications (1,500 fpm maximum inside shafts and 1,000 fpm elsewhere except above

noise sensitive spaces which may be lower). Avoidance of excessive friction in the distribution system is an important consideration for long term energy savings and thus careful consideration of the number and type of fitting and the duct velocity to minimize friction loss is expected.

j) Low air velocity should be applied at acoustically sensitive rooms.

## 11. Equipment Section/Sizing Criteria

a) Packaged and unitary HVAC units, indoor and outdoor, shall have an efficiency rating or at least 15 percent higher than that required by Title 24. When equipment is available with energy efficiency higher ratings, such equipment shall be specified, provided there are enough manufacturers who can meet the higher efficiency requirement to insure a non-proprietary competitive bid.

b) All coils for projects west of the 805 shall be corrosion resistant.

c) High efficiency type motors shall be specified for HVAC equipment and exhaust fans.

d) Air Handling Systems:

i) Size to accommodate peak calculated block load for spaces served and add 5% additional capacity for safety and 5% for leakage.

ii) Cooling Coils shall be sized for no more than 400 feet per minute face velocity and heating coils for 600 feet per minute.

iii) Maximum size for a single air handling unit is 30,000 cfm unless otherwise approved by the District.

iv) Plenum fans and airfoil or backward inclined wheels are preferred over forward curved. Select for maximum efficiency. Variable speed motor controllers shall be used when applied on variable air flow systems. Discharge dampers shall not be used.

## 12. HVAC Controls

a) The building automation/energy management system shall be compatible with the existing District wide energy management system (Honeywell WEBs System).

b) The temperature control system shall be comprised of a network of interoperable, stand-alone digital controllers communicating via LonMark/LonTalk communication protocols to a Network Area Controller.

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

d) HVAC unit operating schedules shall be controlled by an Energy Management System (EMS). Determine if campus already has an EMS system and if so, coordinate adding the new building(s) to the existing system. If no EMS system exists, then provide a new campus-wide control system and modem for remote communications to control both the exterior lighting and the HVAC systems. Coordinate with electrical engineer. For each campus, HVAC units shallbe zoned as 1) Classrooms, 2) Administration, and 3) Multipurpose/Gymnasium. Coordinate with the School District to provide necessary telephone modem lines. Pneumatic control systems will not be acceptable. HVAC Units shall be provided with factory economizer controls.

e) If embedded controls on equipment furnished under this contract are utilized as part of the control sequence, designers shall ensure compatibility between the District's EMS and site specific control system and the equipment.

f) For each HVAC unit, provide a programmable room thermostat setup with the current time and day, and have the thermostat's occupied time schedule programmed for Monday thru Friday, 6:00 am to 10:00 pm. The thermostats shall be setup in the "Keypad Lock #1" setting such that the user can only adjust the room heating and cooling set points between 66 to 68 degrees for heating and between 78 to 80 degrees for cooling. Temporary override set points shall be setup so they are the same.

g) Thermostats shall be used in lieu of wall sensors when a Building Automation System does not exist at the site and where the control is required. Thermostats shall be programmable with time control, deadband and set back features along with bypass switch. Provide suitable sub-base and locking cover with key lock. Confirm exact features with District's project manager.

## 13. Sequence of Operations for Air Conditioning Systems

a) Provide a wiring diagram in the drawings indicating the required sequence of operations.

# PLUMBING STANDARDS

## 1. General Requirements

a) The Plumbing systems shall comply with the current California Code of Regulations, Title 24, Title 19 and Title 8 as well as the standards of ASPE and NFPA and the requirements of local authorities having jurisdiction including but not limited to the county health department for kitchens, city and county pollution control district and fire departments for hazardous materials storage and distribution.

b) Plumbing System Components shall comply with California Assembly Bill1953 (effective January 1, 2010), which limits the allowable lead content in certain potable water system components.

c) Design systems to be durable, easy to service and energy efficient. Should the choice exist between multiple alternatives that all generally achieve the same goals of quality, duty and cost to operate and maintain, the decision shall be made on the basis of a 20-year life cycle cost analysis.

d) Assure accessibility provisions for servicing and replacement.

i) Where practical, all equipment shall be housed within interior equipment spaces within buildings.

ii) Roof mounted equipment is discouraged unless no other alternatives are available and may only be done with the approval of the District. Fixed ladders and roof hatches shall be incorporated in projects where regular access to the roof is required for servicing equipment. Comply with Cal OSHA requirements.

iii) Provide adequate working space around equipment for servicing. Coordinate with architectural drawings for required clearance striping.

iv) If components requiring regular service are located above ceiling, they shall be accessible from the floor via portable ladder through access doors or removable ceiling tiles of adequate size to accommodate requirements of servicing.

## 2. Plumbing System Commissioning

a) Coordinate project specific commissioning requirements with the District Representative and the District's commission consultant if required for CHPS requirements.

## 3. Design Coordination with District

a) Prior to starting design, meet with the District's Maintenance Department and review existing site specific plumbing conditions, problems or issues if applicable as well as issues of general concern within the district to avoid repeating problems being experienced on other sites or past projects.

b) Review scope statement and propose additional scope that may be determined necessary with the District representative and the Maintenance Department prior to starting design.

c) Meet with District representative to help develop phasing schedule and coordinate system design for construction phasing requirements. The goal is to minimize impact to school operations and allow for functioning systems during construction.

d) For renovations, review plumbing as-built drawings, conduct independent site investigations and evaluate existing conditions. Incorporate findings into the Field Report due at the end of the Schematic Design phase and update as necessary in subsequent submittals.

e) Following the initial investigations and consultations with the District, the proposed approach for plumbing shall be presented to the District in a narrative form with catalogue cuts and any drawings or diagrams to amplify or explain approach. This should be done as early as practical, preferably in the concept stage. Design shall not proceed until the approach and concept design is reviewed and accepted by the District.

## 4. Site Utilities

a) Contact utility providers to determine the site specific requirements, confirm availability of desired pressure and flow rates and make a recommendation to the District for the most cost effective service connection.

b) Gas meters shall be enclosed in utility yard that meets the utility company's requirements. Locations shall be approved by both the District and the Utility Company. Specify a seismic gas shutoff valve on the consumer side of the gas meter with-in the secure utility yard.

c) Site gas distribution piping shall be medium pressure (5 PSIG) where available, and regulated down to low pressure (12-inch W.C.) at each building. Specify code-required accessible gas shutoff valve outside each building served. Building shutoff valves and regulators shall be accessible for service but located to prevent vandalism.

d) Size site utilities to allow for possible future campus expansions. Coordinate with master plan requirements.

e) Coordinate fire hydrant locations with the local fire jurisdiction.

f) Confirm the existence of utilities within the project area. At heavily congested locations, critical routing and/or points of connection, locating services may be desired in addition to pot-holing in strategic locations. Discuss recommendations of these additional measures with District if the potential exists for interferences that could cause major cost or disruption.

g) Design site water system with isolation valves for major areas, at building entrances, or at mains on branch lines to buildings. Valves shall be accessible for maintenance and replacement.

h) Tracer wires shall be provided for all non-metallic underground piping systems.

## 5. Building Plumbing Systems

a) The project shall be provided with complete interior plumbing systems, connected to site services complying with the requirements of the California Plumbing Code (CPC). This may include but is not limited to, domestic cold water, domestic hot water, sanitary soil, waste and vent, acid waste and vent, grease waste and grease vent, storm drain, condensate, fuel gas systems and compressed air as needed for the scope of the project.

b) Water Distribution:

i) Each building shall have a shut-off valve for isolating that building.

ii) Provide water service to all fixtures and outlets that require supply. Design distribution to enable 25 psi to be maintained at furthest flush valve; provide booster systems as required.

iii) Size piping based on the number of fixture units and demand load curves in the CPC.

iv) Provide water hammer arrestors for portions of system that may be subject to water hammer, such as for quick closing valves.

v) Maximum water velocity shall be 5 feet per second for pipes 2 inches and smaller and 7 feet per second for piping 2½ inches and larger

vi) In noise sensitive spaces, the use of isolation at support points may be required; consult acoustical engineer.

vii) Minimum pipe size serving any flush valve shall be 1¼ inches. May be reduced in wall cavity to flush valve connection size, e.g. 1 inch, prior to penetrating wall.

viii) Design cold water system with shut off valves to enable isolation of distinct areas of the building, such as at each floor and each toilet room. Provide at each piece of equipment (e.g. water heater). Valves shall be accessible to maintenance and replacement.

c) Waste and Vent

i) General:

(1) The use of low-flow fixtures affects the slope required for waste lines. Waste lines shall be designed with slopes to exceed code required minimums at low-flow fixtures whenever possible. Determine the slope necessary for complete flushing of the waste lines.

(2) Cleanouts shall be provided above all urinals, under sinks and elsewhere required by code. Exterior cleanouts shall be installed in yard boxes or in walkways, flush with surface. Interior cleanouts shall be located to avoid finished public or student areas and if unavoidable, shall be fit with suitable top a located to be as unobtrusive as possible, yet functional for its intended use.

(3) In addition to the chemical waste and grease waste below, other waste streams may be subject to regulatory oversight and may require pre-treatment such as auto shop drains, film processing drains and other applications using and potentially discharging regulated chemicals or substances.

(4) Interceptors shall be located so they may be effectively inspected and cleaned. Interceptors shall be separately vented.

ii) Chemical Waste and Vent:

(1) Consult with local department of public works relative to waste disposal requirements for chemical waste. Provide neutralization system if required and or sampling box. Confirm the requirements with the local jurisdiction.

(2) Chemical waste and vent system shall be independent of other waste and vent systems.

iii) Grease Waste

(1) Consult with local department of public works relative to waste disposal requirements for grease waste. Provide trap of size as required to meet demand and local requirements of jurisdiction. Health department approval may be required.

iv) Storm Drain

(1) Storm drain systems shall be piped to underground. Provide roof drains and overflow drains as required by code, compatible with roof system.

(2) Design for a minimum of 3 inches per hour rainfall.

(3) Insulate rainwater leaders and bodies of roof drains in interior areas subject to condensation.

d) Natural Gas:

i) Avoid lengthy horizontal roof mounted piping. Paint exterior piping.

ii) Provide shut-off valve, union, flex connection and dirt leg on all gas connections to appliances.

iii) Provide accessible shut off valves for each gas outlet or groups of outlets with a room (master shut-off valve for science classrooms, in secure location not accessible to students).

iv) All valves shall be protected from public or student tampering.

v) Regulators if required in addition to appliance regulators furnished with gas fired equipment, shall be located in secure locations and vented to exterior when located inside buildings.

e) Compressed Air:

i) If required for curriculum or for staff use, verify demand and pressure requirements with users.

ii) Compressors shall be duplex, tank mounted and located within secure mechanical spaces whenever possible. Provide dryer and filters. Contractor shall be responsible for all operating permits.

iii) Piping shall be sloped to facilitate drainage and shall be provided with end use connectors needed for required function.

f) Water Heating:

i) Hot or tempered water shall be provided in the following locations:

(1) Staff rooms with sinks or lavatories

(2) Science classroom sinks or as otherwise required for curriculum

(3) Special education classroom sinks

(4) Art classroom sinks

(5) Shop sinks

(6) Staff and public toilets

(7) Showers including emergency showers (tempered only)

(8) Custodial sinks

(9) Washrooms serving food service areas

(10) Kitchens

(11) Nurses offices

ii) Water heaters shall be located as close to the point of use as possible and set at temperatures to minimize bacterial growth. Provide tempering valves as required to limit discharge at student and public uses to 120 degrees maximum.

iii) Domestic hot water temperatures shall be 120 degrees F storage at the tank and 110 degrees F delivery from the fixture. Hot water for kitchens shall be 140 degrees F, and for commercial kitchen dishwashers shall be 160-180 degrees F, or as required by the dishwasher manufacturer. Delivery temperature of hot water will be controlled by mixing valve.

iv) High efficiency water heaters including solar thermal and heat pump water heaters should be evaluated as part of the overall sustainable strategy and CHPS goals.

v) Locker and shower room water heating system shall be of the separate water heater and storage tank type with hot water recirculation system and thermal expansion tank, and shall be dedicated for student shower areas. Coach's functions shall be served by separate dedicated water heater.

vi) Tank type water heaters may be used in kitchens where instantaneous type cannot provide an adequate supply.

vii) Water heater must be sized to fit through a three-foot doorway.

viii) Gas fired water heating is preferred. Instantaneous shall only be used with approval from District.

ix) Water heaters shall be certified by the California Energy Commission and meet the requirements of Title 24, and if gas fired, the requirements of the South Coast Air Quality Management District Rules 1121 and 1146.2.

x) Provide a water temperature maintenance system or other strategy designed to eliminate wait times for hot water, which contributes to water conservation efforts. A recirculation system with pump and aquastat is required.

## 6. Fixtures

a) Fixtures must comply with State water conservation guidelines and efficiency standards in effect.

b) Comply with California and Federal accessibility standards and lead free standards.

c) Water Closets:

i) Water closets shall be high efficiency (HET) type with compatible, manual flush valve. Floor mounted, vitreous china with siphon jet action elongated bowl with open front seat, in both ADA and non-ADA compliant configurations as applicable.

d) Urinals:

i) Urinals shall be 0.5 gpm high efficiency (HEU) type with compatible manual flush valve. Wall mounted, vitreous china with top spud flush valve, in both accessible and non-accessible configurations.

ii) Use brass nipples for dirt arms.

e) Lavatories:

i) General student restroom lavatories shall be wall mount vitreous china with push button metering faucet and floor supported concealed arm brackets.

ii) Food Service restroom lavatories and hand wash sinks within food service spaces shall be provided where required to meet health department requirements.

iii) Multiple-user Staff restroom lavatories shall be self-rimming vitreous china oval with lever handle mixing faucet.

iv) Single-user Staff restroom lavatories shall be wall mount vitreous china with lever handle mixing faucet and floor supported concealed arm brackets.

f) Sinks:

i) Countertop sinks (classrooms, staff rooms, etc.) shall be self-rimming stainless steel single bowl type unless noted otherwise. Minimum 18 gauge stainless steel..

ii) Sinks shall have lever handle, gooseneck faucets unless noted otherwise.

iii) Staff counter sinks shall be accessible, stainless steel, single bowl, with lever handle mixing faucet and swing spout or gooseneck faucet.

iv) Kitchen, Break Room or pantry sinks shall have a 3/4 horse-power garbage disposal.

v) Sinks used for special programs such as art and ceramics, agricultural and other uses that may involve large particulates, shall be equipped with solids interceptors. Hair traps shall be provided in sinks used for programs involving hair cutting or styling. Special purpose sinks may be stainless steel as they are available in more sizes and configurations.

vi) Science room sinks shall be under-counter, corrosion resistant resin type.

vii) Staff science room sinks shall be single bowl, with serrated hose nozzle gooseneck faucet and integral vacuum breaker.

(1) Student science room sinks shall be single bowl cold water, with serrated hose nozzle gooseneck faucet and integral vacuum breaker.

viii) Service Sinks (floor sinks) shall be corner floor mount enameled cast iron (acid resistant coated interior) or terrazzo type, with aluminum dome bottom strainer, ½" grate nickel bronze top, lever handle faucet with integral stops and vacuum breaker, pail hook, hose and vinyl rim guard.

g) Emergency Fixtures:

i) Where required to meet the intent of the code (CCR, Title 8, Section 5162), and elsewhere as directed by the District, provide emergency combination drench showers and eyewash stations. Provide drainage as required to reduce water damage on accidental discharge and alarm actuated from flow switch to tie to EMS system or local alarm as directed by District. Prove tempering system as required to meet ANSI standards.

ii) Emergency eyewash shall be made of ABS colored plastic and be countertop swing-away type.

h) Floor Drains:

i) Floor drains shall be Duco coated cast-iron body with adjustable nickel bronze strainer.

ii) General purpose floor drains shall be square strainer type for tiled areas, round strainer type for poured surface areas, with trap seal primer connections.

iii) Shower floor drains shall be square strainer type for tiled areas, round strainer type for poured surface areas.

iv) Emergency drench shower or eyewash floor drains shall be square strainer type for tiled areas, round strainer type for poured surface areas, minimum 4-inch outlet size with trap seal primer connections.

v) Floor drains not receiving regular discharge from a plumbing fixture, or as otherwise required by code, shall be provided with an automatic trap priming system.

vi) Provide floor drains in all toilet rooms, custodial closets, mechanical rooms, shower rooms, laundry areas, and adjacent non-carpeted drying areas. Where more than more than 4 water closets or urinals are provided, two drains shall be used.

i) Showers:

i) Showers shall be stainless steel showerhead (2.2 gpm) chrome plated shower arm, and chrome plated escutcheon. Provide pressure balanced thermostatic mixing valve and floor drain with chrome plated strainer.

ii) Provide showerhead on flexible hose and slide bar for special education facilities and other accessible showers.

j) Drinking Fountains:

i) Wall mounted: shall be dual height 14 gauge stainless steel non-refrigerated type.

ii) Exterior: exposed aggregate reinforced concrete pedestal type. Do not locate where reclaimed irrigation water may spray the drinking fountain.

iii) Do not provide drinking fountains at Gymnasium floor areas.

iv) Provide water hammer arrestors at drinking fountains.

k) Roof and Overflow Drains:

i) Roof Drains: Cast-iron drains with flashing collar and cast-iron dome. Furnish extension for insulated roofs. Use under-deck clamp for all but poured-in-place concrete installations. Provide flashing.

ii) Overflow Roof Drains: Cast-iron drains with flashing collar, cast-iron dome and 2” high water dam. The top of the dam shall be at least 2” above the adjacent finished roof surface. Furnish extension for insulated roofs. Use under-deck clamp for all but poured-in-place concrete installations. Provide flashing.

l) Trap Primers

i) Cast bronze with shut-off valve and union before connection. Provide 14" x 14" access panel.

m) Cleanouts

i) Floor cleanouts (concrete and tile floors) – Duco coated cast-iron with round adjustable scoriated secured nickel bronze top. Secure plate with countersunk head. Bronze plug and spigot outlet.

ii) Wall cleanouts – Cast iron branch cleanout tee with flanged bronze plug and polished stainless steel cover plate with center, countersunk head securing screws.

iii) Grade cleanouts –

(1) Finished concrete areas – Duco coated cast-iron with round adjustable scoriated secured nickel bronze top. Secure plate with countersunk head. Bronze plug and spigot outlet.

(2) Soil, grass, asphalt and other exterior areas - Duco coated cast-iron. Bronze plug and spigot outlet. Provide precast vault with heavy-duty cast iron cover. Cover shall state "SEWER". The vault shall be large enough to allow tools to be used to remove the plug.

n) Hose Bibbs

i) Interior Hose Bibs shall be standard wall flange type with vacuum breaker and loose key operation. Install at 24" a.f.f. unless otherwise noted. Provide in the following locations:

(1) Multiple-user Restrooms: under lavatory, one per restroom. Chrome plated.

(2) Locker Rooms: accessible for use throughout entire locker area.

(3) Custodial Rooms: above service sink to accommodate cleaning product dispenser system.

ii) Exterior hose bibs shall be recessed lockable box type with integral vacuum breaker. Hose bibs shall be located not more than 100 feet apart.

iii) Exterior rooftop hose bibs shall be loose key free standing type with rough chrome finish and integral vacuum breaker. Provide adjacent to mechanical cooling equipment, not to exceed 50-foot radius.

o) Miscellaneous Fixtures:

i) Provide IPS inlet angle stops (loose-key, lockshield) and one-piece, braided polymer supply tubing for water supplies to faucets.

ii) Water line nipples shall be brass. No galvanized or black steel.

iii) Gas turrets shall be provided adjacent to student and staff science sinks and shall have a check valve and vandal resistant anchor.

iv) Science room gas outlets shall be controlled via a remote solenoid valve located above ceiling at gas point of entry to classroom. A control station shall be provided at the teacher's demonstration table to allow emergency shut off and lockout of the remote solenoid valve. The control station is to remain visible and not hidden in demonstration table cabinets. The valve shall be normally closed.

v) Refrigerator icemaker locations shall be provided with wall mount recessed box type cold water supplies.

vi) Clothes washer locations shall be provided with wall mount recess box type supply and drain with integral water hammer arrestors.

vii) Coordinate dryer vents for dryer locations.

viii) P-traps shall be minimum 17 gauge chrome plated brass, adjustable with cleanout plug, installed with chrome plated escutcheon with set screw. Provide chrome plated slip nuts. No die-cast metal allowed.

(1) ADA trap and supply covers shall be provided where required.

(2) Incorporate water hammer arrestors where quick closing valves are incorporated such as flush valves.

ix) Water Pressure Reducing Valves:

(1) Provide a separate stainless steel strainer for each valve.

(2) Connections shall be threaded.

(3) Set pressure to 80 psi.

(4) Provide precast concrete yard box if valves are below grade.

x) Water Hammer Arresters – Stainless steel completely sealed. Install on cold water lines in an upright position. Provide 14” x 14” access panel.

## 7. HVAC System Plumbing Connections

a) Provide gas shut-off cock at each gas fed unit. Use galvanized pipe (no black iron) and include a dirt leg prior to the flexible connection line. Prime and paint to match existing surfaces; paint white on roofs.

b) Condensate lines shall be copper and shall drain by gravity. Provide two unions and a threaded cleanout cap. Prime and paint red.

c) Provide condensate trap at each mechanical cooling unit. Condensate piping shall discharge to a roof receptor, floor sink, or service sinks with an air gap termination (no indirect waste trap connections).

d) Overflow condensate shall terminate through ceiling with a polished chrome escutcheon centered above a sink or other fixture such that an overflow condition will not cause damage to floors or other surfaces.

e) Provide backflow preventer at each makeup water connection.

f) Interior, RP backflow preventers shall be equipped with indirect drain piped to nearest floor drain or floor sink.

g) All roof penetrations shall use lead roof jack flashing for a weatherproof installation.

h) Durablocks must be used for all pipe supports.

# FIRE PROTECTION STANDARDS

## 1. General:

a) Fire sprinkler design must be included in the construction documents. DSA no longer accepts deferred approvals.

b) Provide specialized fire suppression systems in kitchens (such as for grease hoods).

## 2. Sprinkler Heads:

a) At exposed open ceilings provide upward or downward heads as best to accommodate requirements.

b) At exterior locations use exterior-rated heads.

c) Concealed heads with covers at finished ceilings may be considered for aesthetic reasons with approval from the District Representative.

# ELECTRICAL STANDARDS

## 1. Campus Site Service

a) Confirm whether the existing electrical service is adequate to service the proposed new or modernized building(s). Incorporate findings into the Field Report due at the end of the Schematic Design phase and update as necessary in subsequent submittals. If upgraded service is required, the following items apply:

i) Site primary service design and location must be coordinated with and approved by the local utility company. Obtain written approval from the utility provider, incorporate requirements into the bid documents, and confirm availability of design voltage and phase.

ii) Obtain approval of electrical service location from the District Representative prior to final system design. Service conductors shall be routed to avoid pathway and common areas.

iii) Locate switchgear and transformer away from classroom areas in a fully secure utility yard with concrete housekeeping pad. Coordinate the location with the existing service to minimize down-time at switch over. Obtain approval of proposed location prior to proceeding with construction documents.

iv) Specify a minimum of a 2,000 Amp service. Increase size of service if necessary to accommodate design loads plus future loads of master planned additions or for the addition of 12 portable classrooms if no additions are planned.

v) All primary feeds to have a red concrete slurry cap. Coordinate specific requirements with SDG&E.

b) Confirm whether the existing phone, data, and cable service is adequate to service the proposed new building(s). Incorporate findings into the Field Report due at the end of the Schematic Design phase and update as necessary in subsequent submittals. If upgraded service is required, the following items apply:

i) Site primary service design and location must be coordinated with and approved by District Technology Representative. Coordinate with utility provider, walk the site with the utility provider and incorporate requirements of pathway from local feed to major point of entry at the MDF Room.

ii) Obtain a quote from the local utility provider for the cost of work associated with new utility service. Coordinate with District Technology Representative.

c) Provide vandal resistant, locking lids at all underground electrical boxes.

## 2. Electrical Distribution

a) Underground electrical conduits shall be concrete encased to 3 inches above conduit. Backfill with native soil and provide red metallic warning tape 12 inches below grade.

b) Electrical duct-banks shall be installed with spacer racks to provide 3-inch separation of conduits.

c) Step-down transformers to be located at individual buildings for 480/277 volts or higher distribution systems. Recommend energy efficient transformers. Transformers and feeder conductors shall be located away from classroom areas.

d) Include spare conduits with pull ropes in conduit duct banks. The number, size and termination points of the spare conduits need to be determined specifically for each campus layout. Meet with the District Representative prior to finalizing the DSA submittal set to determine the specifics.

e) All spare conduit to be capped or plugged.

f) Surface mounted raceway is not permitted without permission of the District. Conceal cable sleeves and pathway in wall whenever possible.

g) Limit the use of flex conduit. If flex conduit must be used, limit the length to six feet in concealed spaces such as walls.

h) Specify necessary conduits to service future campus additions.

i) Locate panels in dedicated electrical closets. Specify surface-mounted panels with skirts.

j) Specify copper for transformers, switchboards and panel boards.

k) Design electrical circuits to service no more than five, non-computer, duplex receptacles on one circuit. Circuits servicing computers shall be limited to no more than three duplex receptacles.

l) Main Distribution Frames (MDFs) and Intermediate Distribution Frames (IDFs) require a dedicated 20 AMP circuit at each rack and wall mounted head end equipment enclosure. Where an Uninterruptible Power Supply (UPS) is required, provide an additional dedicated circuit for each UPS system sized per system (i.e.: 20 amp, 30 amp).

m) Specify dedicated power to fire alarm system, telecommunication system, copiers, digital video surveillance system, and other specialty equipment.

## 3. Power Receptacles

a) Floor mounted receptacles, of any sort, are not allowed except in specific circumstances such as under conference room tables, on stages, and gymnasiums. Obtain approval of the District Representative for locations.

b) Computer receptacles are to be identified and to have isolated ground. No shared neutrals are permitted for computer receptacles.

c) Shared neutrals are permitted for non-computer receptacles up to 60 percent of capacity.

d) In toilet rooms, provide GFI service receptacle by the door at 24 inches above finish floor with locking cover and water seal to service cleaning equipment.

e) In areas designated for vending machine, provide receptacle at six-feet (6') above finished floor.

f) Coordinate location and receptacle requirements for office equipment such as copiers, scanners, laminators, etc.

g) Provide power receptacles adjacent to all data outlets.

h) Provide an electrical receptacle below all light switches near main entry door.

i) Provide power receptacles above all casework countertops, minimum one duplex receptacle per 36" of counter length. Provide power with GFCI receptacles at countertops with sinks.

j) Provide an electrical receptacle for Maintenance to plug in their mobile trailer.

k) Provide power with GFCI receptacles at each field and batting cage for pitching machines.

l) At auditorium, lecture hall, or performing arts centers with fixed seating, provide power and data service package incorporated into seat if required.

## 4. Batteries

a) The use of lead acid batteries should be minimized. In no case are lead acid batteries allowed in equipment storage rooms.

b) Uninterrupted Power Supplies (UPS) must be in accessible locations allowing the UPS systems to be easily replaced.

## 5. Surge Protection

a) Specify integrated TVSS in the main switchgear panel to protect system from external surges.

## 6. Grounding

a) Specify separate ground conductors for equipment grounding in feeder and branch circuits including lighting circuits. Specify separate neutral conductor from electronic equipment. Specify grounding conductors in conduit or raceways. Use of raceway as ground is not permitted.

b) Metallic objects on the Project site that enclose electrical conductors, or that are likely to be energized by electrical currents, shall be effectively grounded.

c) Metal equipment parts, such as enclosures, raceways, and equipment grounding conductors, and earth grounding electrodes shall be solidly joined together into a continuous electrically conductive system.

d) Metallic systems shall be effectively bonded to the main grounding electrode system.

e) A separately derived AC source shall be grounded to the equipment grounding conductor, and to separate “made” electrode of building grounding electrode system.

f) Electrical continuity to ground metal raceways and enclosures, isolated from equipment ground by installation of non-metallic conduit or fittings, shall be provided by a green insulated grounding conductor of required size within each raceway connected to isolated metallic raceways, or enclosures at each end. Building structural steel shall be part of the grounding electrode system.

g) Cold water, or other utility piping systems, shall not be utilized as grounding electrodes due to the installation of insulating couplings and non-metallic pipe in such installations. In addition to bonding to cold water pipe provide at least one of the following made grounding electrodes:

   i) A dedicated “made” electrode, fabricated of at least twenty-feet of galvanized ½-inch diameter rebar encased by at least 2 inches of concrete, and placed next to the bottom of a concrete foundation, or footing in direct contact with earth A welded extended portion shall surface at the location of the common grounding electrode bus bar and be extended by a 3/0 CAD welded bare copper cable, or be CAD welded directly to the bus. The CAD weld shall be at least 4 inches above finished floor in a dry location. The main grounding electrode and associated grounding conductors shall be in an enclosure and in conduit.

   ii) Grounding electrodes: Concrete enclosed electrode, fabricated of at least twenty-feet of No. 3/0 AWG, minimum size, bare copper conductor, encased by at least 2 inches of concrete, located within or near bottom of a concrete foundation, or footing, which is in direct contact with earth. Footing rebar shall be connected to copper wire with approved connectors. An external electrode, as specified hereafter or as required by the CEC, shall be installed and connected to foundation or footing rebar.

h) Non-current carrying metal parts of high-voltage equipment enclosures, signal and power conduits, switchboard and panel board enclosures, motor frames, equipment cabinets, and metal frames of buildings shall be permanently and effectively grounded. Provide a CEC sized grounding conductor in every raceway.

i) Metallic or semi-conducting shields and lead sheaths of cables operating at high voltage shall be permanently and effectively grounded at each splice and termination.

j) Neutral of service conductors shall be grounded as follows:

i) Neutral shall be grounded at only one point within the Project site for that particular service. Preferable location of grounding point shall be at the service switchboard, or main switch.

ii) Equipment and conduit grounding conductors shall be bonded to that grounding point.

iii) If other buildings or structures on the Project site are served from a switchboard or panel board in another building, power supply is classified as a feeder and not as a service.

iv) Equipment grounding conductor is installed from switchboard to each individual building. At building, grounding conductor is bonded with power equipment enclosures, metal frames of building, etcetera, to "made" electrode for that building.

v) Feeder neutrals shall be bonded at service entrance point only, neutrals of separately derived systems shall be bonded at the source only.

k) If there is a distribution transformer at a building the secondary neutral conductor shall be grounded to "made" electrode serving the building.

l) Within every building, the main switchboard or panel board shall be bonded to the cold water line. Metallic piping systems such as gas, fire sprinkler, or other systems shall be bonded to the cold water line.

## 7. Lighting

a) Lighting shall exceed Title 24 requirements for energy efficiency based on watts per square foot. Comply with CHPS recommended guidelines.

b) Provide District with copies of lighting calculations indicating anticipated lighting levels and watts per square foot. Coordinate colors of finishes with Architect for reflective values.

c) Specify LED light fixtures for all applications. Submit proposed fixtures that meet the following general requirements:

i) Must bear UL label.

ii) Must be readily available from major local wholesale houses.

iii) Must have replaceable diode banks and easily accessible drivers.

iv) Kelvin temperature to be 4000K.

v) 50,000 hour minimum lifetime.

vi) Must have 10-year warranty.

vii) Must be appropriately selected for intended application; custom or modified light fixtures are not acceptable.

d) Where possible, design suspended fixtures to allow an unobstructed swing of 45 degrees in any direction to avoid the need for seismic bracing.

e) Do not specify “tamper proof” fasteners for interior light fixtures.

f) Light fixtures shall be located in a manner that accommodates ease of maintenance.

g) Controls:

i) Submit proposed controls for LED fixtures that meet the following general requirements:

(1) Specify dual-sensing occupancy sensors.

(2) Photocell controlled.

(3) Dimmable for day light harvesting

(4) Do not specify any loose remote controls

ii) Locate all light switches near main entry door.

iii) Specify multi-level switching in spaces. In areas with day-lighting, specify separate, remote switch to control bank of lights adjacent to daylight source. In other areas switch lamps within fixtures individually to allow light level control. Review switch locations with designated District Representative prior to finalizing plans.

iv) Specify keyed switches in gyms, multi-purpose, cafeterias, hallways and auditoriums.

v) Provide keyed light switches with dual sensor motion detectors in student restrooms.

vi) Exterior lighting to be coordinated with and controlled by photocell input and linked to the EMS system. This includes site lighting as well as light fixtures attached to building exteriors. Coordinate exterior lighting control panel with EMS manufacturer’s requirements.

vii) Specify lighting control panels with dimmers for theatrical and specialty event lighting in assembly areas.

h) Exterior Lighting:

i) Exterior lighting shall be heavy-duty and vandal-resistant per District standard light fixture schedule.

ii) Minimize use of pole lights where possible.

iii) Provide general lighting of entire exterior of building compound, primary walkways and parking lots. Design exterior lighting system to achieve a minimum maintained 1.5-foot candle. Provide photometric study to show compliance.

iv) Exterior lighting to be designed to minimize light pollution and avoid overspill to adjacent properties. Specify full cut-off fixture with the use of house side shields.

v) Determine the CHPS points to be obtained through lighting.

vi) Design is to be reviewed and approved prior to finalizing.

i) Emergency Lighting:

i) Self-powered battery type with integral solid-state automatic charger and self-contained power pack.

ii) Sealed, maintenance-free, nickel-cadmium batteries.

iii) Provide wire guards in locker rooms, multi-purpose rooms, gyms and vandal-prone areas.

iv) Exit Signage: Coordinate faceplate color to match adjacent wall color. Secure with tamper-resistant fasteners.

v) Exit signs shall be LED type with vandal-resistant system with polycarbonate shields or wire guards.

## 8. HVAC System Electrical Connections

a) Provide convenience outlets at each HVAC unit

b) Label all disconnects and convenience outlets with electrical panel, circuit number and room number(s).

c) All disconnects should be mounted on the units.

d) All electrical panels and feeders should not be loaded above 60%.

e) Where underground feeders and conduits are installed, they install additional conduit for future use.

f) Exterior flexible conduit connections must have enough slack to allow a drip loop.

## 9. General Technology and Low Voltage System Requirements

a) Design a fully functioning system(s) according to the provided specifications.

b) Technology equipment is to have dedicated power.

c) Provide drawing submittals to the District Representative at each phase submittal indicating the required scope and proposed pathways for District review and comment. Proposed device layouts shall be indicated on drawings at the beginning of the Construction Document Phase.

d) The Design Professionals are responsible for the coordination, finalization and incorporation of the design for the backbone/infrastructure pathway to accommodate the cabling and installation of devices/receptacles for telephone/voice, data, digital intercom/clock and bell, intrusion, video monitoring (CCTV), video distribution (CATV), classroom AV (including voice amplification), large assembly areas AV and any other systems required for the project.

e) Attend coordination meetings with the designated District Representative and District's technology representative.

f) At the beginning of the design phase the District will determine if the cabling and components associated with the Structured Cabling System and Data Communications Active Infrastructure will be specified under a separate E- Rate contract for installation only.

g) Where vending machines are located provide duplex data outlets at 6-feet above finish floor. If located at exterior, provide weather proof duplex data outlets.

h) All data outlets to be a minimum of duplex data outlet, unless noted otherwise.

## 10. Intrusion Detection System

a) Do not specify any door contacts.

b) Coordinate keypad locations with District Representative.

c) Provide dual technology motion detectors.

d) Head end equipment shall be located in the MDF.

## 11. Digital Video Surveillance System (CCTV)

a) Camera locations must be confirmed with District Representative and Bosch Representative.

b) It is not the intent to cover the entire campus only the areas of concern.

c) Provide a storage array system at the headend; analog not acceptable.

d) Provide headend equipment in the MDF room.

e) Provide an auto shut down sequence.

f) Drawings must have a camera schedule that indicates the following: camera model number, part number, mounting type, required accessories, power requirements, licensing and software options.

## 12. Cable Television System

a) Provide two-inch conduit from TV distribution room to MDF.

b) Headend equipment shall be located in the MDF room.

c) Provide adequate space in MDF room for full size seven-foot rack.

## 13. Digital Intercom and Bell System

a) Show all Remote Addressable Units (RAU) ("terminal cabinet"), clock and speak locations.

b) RAUs shall be located in IDF room. RAUs shall have (1) 120V quad receptacle located inside of cabinet.

c) Provide at least one panic call button ("lockdown button") and locate in the Administration. Coordinate exact location with District Representative.

d) Provide interface with telephone system for All Call capabilities.

e) Provide page interface with AV equipment.

f) Head end equipment shall be located in the MDF room. Provide enough space for full size 7ft rack.

g) The Head end equipment shall have one (1) 120V dedicated quad receptacle.

h) Provide at least one speaker unit in all spaces except the following:

   i) Restrooms

   ii) MDF/IDF Rooms

   iii) Utility Rooms

   iv) Storage Rooms

i) Provide speakers in corridors and hallways.

j) Speaker zoning:

   i) Each classroom shall be considered one zone.

   ii) Each outside horn shall be considered one zone.

   iii) Each grade level shall be considered one zone.

   iv) Corridors may be on one zone.

## 14. Voice Communications System

a) Voice Communication VoIP Phone systems shall use data cabling.

b) Consult with the IT department if modernization projects will be affecting existing standard communication systems.be CAT6 cabling.

## 15. Audio Visual System

a) All projectors, projection screens, etc. shall be Contractor Furnished Contractor Installed.

b) Provide a minimum of two (2) recessed speakers per classroom.

c) Provide quad power receptacle at ceiling adjacent to data outlets for projector.

## 16. Data Communications Active Infrastructure

a) Use Cat 6a for all cabling unless fiber-optic cable is required.

b) Provide rack elevations, single line diagram, and switch port counts for the MDF and each IDF, for District review and approval. All quantities must be indicated in the rack elevations.

c) Provide UPS system at each IDF/MDF.

   i) Each UPS must be remotely monitored.

d) Provide redundant power supplies at each IDF/MDF.

e) Provide rack mounted KVM, (keyboard video monitor).

f) Provide data outlet for Wireless Access Points throughout the entire campus including, but not limited to, Library, MPR, Gym, Administration, exterior roll call area for PE, fields, stadiums, interior and exterior access for Point of Sale system, and all classrooms.

g) In rooms with thirteen-foot ceiling heights or more, mount the WAP on the wall at ten feet above finish floor.

## 17. Assistive Listening System

a) Provide connection to room speakers.

b) Coordinate antenna frequency with Autonomous Sound System / AV System in Multi-Purpose Room / Lecture Hall / Auditorium.

## 18. Book Theft Protection Equipment System

a) Provide a book detection system at all Media Centers/Libraries.

b) The Media Center book drop is not part of the book detection system.

c) Provide buried cable system in lieu of surface mounted cable between detection isles.

d) Provide minimum 1¼-inch non-metallic conduit connection from first aisle to second aisle, then stub down and up to second aisle.

e) Indicate location of surface mounted control box on drawings. Surface mounted control box must have the following:

i) Location that is serviceable and accessible.

ii) Box cover with louvers for ventilation

iii) An electrical convenience receptacle on wall adjacent to control box for connecting system power supply box.

f) Provide audio and visual alarm.

g) Maintain a proper distance between the Detection system and large metal objects. The minimum distances from a Detection System Panel to a wall using metal studs and metal windows, doors, walls, cabinets, shelves, pipes, counter edges, display cases wastebaskets, and furniture is 18 inches.

h) Locate the electronic enclosure within 10 feet of a power receptacle.

i) The allowable distance between the electronics enclosure and a detection panel is 4 feet minimum; 21 feet maximum.

j) Maintain a minimum of 7 feet from the Detection System to a CRT (computer) display.

k) Avoid positioning the Detection System within 5 feet of power panels, data cables, and large conduits.

l) Provide a 4-foot clear space between the system panels and any door.

m) Locate the system to allow good observation/supervision of the system by the circulation desk staff.

n) Books and other secured items must be stored at least 3 feet from the Detection System.

o) Power requirements for the entire system are computer based devices that require high quality, sure and noise free electrical power for optimum performance.

p) Single phase power is required. The system is supplied with a 16 gauge, 3- wire, S-rating 10 ft. long NEMA 5-15 plug.

q) Provide in-counter book demagnetization system flush with casework.

r) Maintain clearances from structural steel that could interfere with the detection system.

## 19. Specific Room Requirements

a) Multi-Purpose / Lecture Hall / Auditorium:

i) Audio/Visual Systems

(1) Provide an AV System with projection and an electric projection screen.

(a) Walls with appropriate finishes may also be incorporated into the design in lieu of providing projection screens.

(2) Provide an Autonomous Sound System that ties into the AV System at the AV rack and shares the same ceiling speaker array.

(a) Provide one 2-gang box per ceiling speaker array inputs. Include a 1¼-inch conduit to route to AV rack.

(b) Provide quad power receptacle at ceiling for speaker array.

(3) Provide quad power receptacle next to AV rack location. Exact location must be field coordinated to ensure receptacle aligns with the knockout provided in the AV rack.

(4) Provide 3-gang box in the ceiling to accommodate an AV projector. Projector inputs to be routed in 1¼-inch conduit to AV rack.

(5) Provide a minimum of one guest location for audio visual input and controls for laptop connection.

(a) Provide a 2-gang box with 1¼-inch conduit to AV rack. vi) Design projector with scissor lift with flush ceiling installation

(6) Provide 4-gang box for lockable AV controller. AV controller includes the projection screen controller.

(a) a) AV controller with 4-gang box to be routed in 1¼-inch conduit to AV rack.

ii) Campus wide intercom/clock system is an entirely separate system from the Autonomous Sound System/AV System.

iii) Provide a fully enclosed lockable IDF cabinet, adjacent to AV rack, and at or near the stage area.

(1) Provide quad power receptacle adjacent to IDF, coordinate exact location with District Representative.

(2) Provide a minimum of two data outlets at ceiling per wireless access point.

iv) Provide data outlets for each register Point of Sale (POS) system at ticket booths.

v) Provide a 4-gang floor box at the stage with microphone jacks, data outlets, and quad power receptacle.

vi) If the MPR is utilized for food services, provide data outlets for each register Point of Sale (POS) system; one homerun data to kitchen office POS system and one homerun data to nearest IDF.

vii) If there are ticket sale booths or snack bars, provide data outlets for each register POS system.

viii) Lighting Levels:

(1) Multi-Purpose Rooms: Average maintained 30-foot candles at the play/eating surface.

(2) Theater: Light fixtures and lighting design to be proposed to designated District Representative prior to finalizing design.

b) Gymnasium:

i) Provide multi-sport scoreboard with remote controllers. Provide two shot clocks for basketball. Provide two score boards for high school. Provide one for middle school unless a single score board is not visible from all portions of the gym.

ii) Provide autonomous multi-media sound system to accommodate athletic events with wireless microphones. This system is separate from the school wide intercom, clock, and bell system. No video, no projectors.

(1) Provide quad power receptacle at ceiling for speaker array.

(2) Aim autonomous sound speakers to cover all bleachers when fully extended.

iii) Provide minimum of two (one on either side of the main court) 10-inch by 12-inch by 4-inch floor boxes with microphone, data, scoreboard controls, speaker connections, and power.

iv) Provide one clock and speaker combo near the main entrance in the gym and one in the lobby. Provide additional speakers as necessary. Provide protective guard for clock.

v) Provide data outlet for each register POS system at the snack bar.

vi) Lighting Levels:

(1) Sporting Events: Average maintained 80-foot candles at the horizontal playing surface.

(2) Social Events: Average maintained 25-foot candles at the horizontal surface.

(3) Lockers: Minimum maintained 10-foot candles at the horizontal surface(s).

c) Conference Rooms:

i) Audio Visual Systems

(1) Provide an AV System with ceiling mounted projection and a wall or ceiling mounted manual projection screen.

(a) Walls with appropriate finishes may also be incorporated into the design in lieu of providing projection screens.

(2) Provide infrared voice amplification receiver in ceiling.

(a) If ceilings are thirteen feet or more provide a Radio Frequency (RF) voice amplification system in lieu of the infrared voice amplification system.

(3) Provide a three gang back box with double gang reducing ring for the AV controller with volume control on face plate, (1¼-inch conduit) adjacent to the light switch.

ii) Provide at least one duplex data outlet on a wall.

iii) Provide a double gang floor box with quad power receptacle, duplex data outlet, VGA, and 3.5 mm jack below center of conference table.

iv) Lighting Level: Average maintained 50-foot candles at the horizontal work surface, with a minimum of 30-foot candles at any location.

d) Classroom:

i) At the Teacher's Desk provide:

(1) Provide double gang box for phone, data, VGA, and 3.5 millimeter audio jack (1¼-inch conduit).

(2) Provide quad power receptacle adjacent to double gang box above.

(3) Provide three gang with double gang reducing ring for Media Link Controller (MLC) with volume control on face plate, (1¼-inch conduit) all located in same stud bay.

ii) In addition to the Teacher's desk power and data requirements, provide a minimum of one duplex data outlet on the same wall.

iii) Locate combination clock and speaker unit opposite teaching wall at the back of the classroom.

iv) Lighting Levels:

(1) Minimum maintained 5-foot candles at the vertical surface(s), including white boards.

(2) Average maintained 35- to 50-foot candles at the horizontal work surface, with a minimum of 25-foot candles at any point more than3-feet from any wall.

e) Computer Lab:

i) Provide duplex data outlets and duplex power receptacles on the backwall for large printers.

ii) Locate combination clock and speaker unit opposite teaching wall at the back of the classroom.

iii) Provide quad power receptacle and six data outlets at every computer bank location (maximum six computers per computer bank).

iv) Provide minimum of 9 circuits per computer classroom – one at each computer bank, one at printer area, one at teacher's desk, one for housekeeping purposes.

f) Media Center (Library):

i) Provide one clock and speaker combo. Provide additional recessed ceiling mounted speakers as necessary.

ii) Provide data and power at the end of the stacks for catalog look up stations. Confirm number of locations with architectural.

iii) Provide data and power for the Online Public Access Catalog research stations. Confirm number and location with architectural.

iv) Walls with appropriate finishes may also be incorporated into the design in lieu of providing projection screens.

v) Provide infrared voice amplification receiver in ceiling.

vi) If ceilings are thirteen feet high or more provide a Radio Frequency (RF) voice amplification system in lieu of the infrared voice amplification system.

vii) Lighting Level: Average maintained 50-foot candles at the horizontal work surface, with a minimum of 30-foot candles at any location.

g) 7. Administration/Reception/Lobby:

i) Provide wireless access (data and power at ceiling).

ii) Provide surface mounted clock/speaker in all offices.

iii) Provide analog fax line, telephone line, and 911 phone line.

iv) Coordinate electrical receptacles and power requirements for copiers and printers.

v) Coordinate with architectural program and furniture layout to provide adequate power receptacles and data outlets at open administrative office areas. Provide a minimum of one duplex receptacle and one data outlet at each workstation.

vi) Lighting Level for Offices: Average maintained 50-foot candles at the horizontal work surface, with a minimum of 30-foot candles at any location.

h) Textbook Storage Rooms:

i) Provide duplex data outlet.

i) Minimum Point of Entry (MPOE):

i) MPOE must be located in the MDF room. b. MPOE shall include:

(1) CATV cabling.

(2) Verizon copper and fiber.

j) Main Distribution Frame (MDF) and Intermediate Distribution Frame (IDF) Rooms:

i) The MDF and IDF rooms are dedicated only for Data, Fiber, CATV, Clock and Speaker, Telephone, Security and UPS backup.

ii) MDF Rooms:

(1) Place on the first floor and adjacent to the main electrical room.

(2) Provide a minimum of four open data full-racks with 3-foot clearance at the front and back of the rack and enough space for at least one additional future rack.

(3) Three data drops: two data at 18 inches above finish floor and one phone wall mounted at 48 inches above finish floor all located next to the door.

(4) Provide correct electrical receptacle for Uninterrupted Power Supply (UPS). The Trip Lite SU3000 and higher models require a 220 volt circuit.

(5) Provide a 20 Amp receptacle at 42 inches above finish floor for CATV, EMS, FACP, and Security.

iii) MDF and IDF Rooms:

(1) Wrap the room in ladder rack with access to the top of the racks at both north-south and east-west creating a cross ladder rack. Attach to top of data rack.

(2) Provide dual technology motion sensors for lights and two Emergency Lights.

(3) Provide a quad power receptacle at 18 inches above finish floor centrally located on each wall.

(4) Run conduit along bottom of ladder racking to top of each rack and mount quad 20 Amp dedicated box. Provide one ladder rack mounted quad receptacle above each cabinet and future cabinet.

(5) Provide split system air conditioning with remote control, with condensate line with gravity feed. Mount unit above the door, to operate 24 hours a day.

(6) Overhead service conduits are preferred. If underground conduits are utilized, conduits shall be in a single row and flush against the wall.

(7) Provide a minimum of ten percent spare conduits.

(8) Avoid sharing any walls of an MDF or IDF room with restrooms or where water is present.

(9) Lighting Levels: Provide 40- to 50-foot candles at 12 inches above finish floor at front and back of rack.

iv) IDF Rooms:

(1) Each building shall have at least one IDF and IDF's cannot be wall mounted cabinets.

(2) Stack IDF rooms if multi-level building and provide at least one IDF per floor.

(3) Two data racks with 3-foot clearance at the front and back of rack and enough spacing for at least one additional future rack.

(4) Provide a 20 Amp dedicated receptacle at 42 inches above finish floor for CATV.

k) Kitchens:

i) Provide an additional data outlet in the Kitchen Manager's Office to connect with the Point Of Sale system.

ii) Lighting Levels:

(1) Kitchen/Food Preparation: Average maintained 70-foot candles at the horizontal surface(s).

(2) Dining: Average maintained 30-foot candles at the horizontal surface(s).

l) Elevator:

i) Provide dedicated analog phone line to elevator cab.

m) Restrooms:

i) Lighting Level: Minimum maintained 20-foot candles at the horizontal surface(s).

n) Corridors:

i) Lighting Level: Minimum maintained 10-foot candles at the horizontal surface(s).

## 20. Fire Alarm System

a) The District's preferred location for all horns and strobes is on the wall, in lieu of in the ceiling, opposite of the door.

b) Do not size the fire alarm control panel for more than 15 percent over a school's total proposed fire alarm device capacity.

c) Provide fire alarm control panels with a dedicated analog telephone line and an alternate transmission method per NFPA 72 code requirements.

# INTERIM HOUSING STANDARDS

## 1. General Requirements

a) Provide for interim housing for modernization projects that affect classrooms and other student use spaces that will displace teachers and students.

b) The preferred solution for interim facilities is to use existing campus spaces. Coordinate with the District Representative, site principal (or designee) and the Planning and Construction Department.

c) Develop phased interim housing plans for projects that require phased construction.

d) Confirm with the District that the site does not have summer school or special summer functions.

e) Interim housing shall include ramps, building/room signage, fire extinguisher, and white boards on front and rear walls.

f) Coordinate moving F&E with the site.

g) The general contractor shall perform any work excluded by the interim housing building supplier.

## 2. Interim Housing Building Installation

a) Where no other accommodations are available, prepare plans for the installation of relocatable buildings.

b) Relocatable buildings may be available from other school sites, confirm with the District. Verify that relocatable buildings taken from different sites have been closed with certification by DSA.

c) Interim housing does not have to be located over asphalt.

d) Provide that all utilities underground conduits, conductors, and vaults are to remain for potential future use.

e) Provide restroom relocatable buildings when the existing restrooms will be modernized.

## 3. Interim Housing Removal

a) Include requirements for removal of buildings at the end of construction.

b) Require removal of fencing, gates, drywells, ramp extensions and utility lines.

c) Require restoration of the conditions that existed prior to the installation of interim housing including but not limited to:

i) Repair paving.

ii) Restore landscaping.

iii) Restore the irrigation system to its original extent.

iv) Restripe and repaint any affected parking lots or hardcourts.

## 4. Agency Approvals

a) Request the DSA pre-approved, relocatable drawings for incorporation into the DSA site approval plans. The District will only use relocatable buildings with a current PC (DSA pre-approval) number.

b) Submit interim housing for DSA review and approval.

c) Coordinate the scope of work with the building mover and site contractor clearly indicating on the bid documents the scope of work and coordination requirements.

d) Relocatable buildings are Type V-N buildings and must comply with the CBC requirements for this type of construction. The maximum number of 24-foot by 40-foot relocatable buildings less than twenty-feet apart is nine. Twenty-foot separation is required on all sides of the unit group.

e) Obtain local fire jurisdiction acceptance of the proposed site plan prior to finalizing the construction documents. Local fire will require water flows at the fire hydrants. Request the fire flows, from the local water company, well in advance of submitting to the local fire jurisdiction.

# SHADE SHELTERS AND PREFABRICATED UNIT STANDARDS

## 1. General Information

a) The District will consider the use of pre-fabricated structures (e.g. shade structures, ticket booths, athletic equipment storage buildings, bleachers) with specific approval. Provide a cost analysis to the District Representative that show the pre-fabricated unit is more cost effective than a custom built unit for consideration.

b) The structures must compliment the site and the design of the campus.

c) Prepare a site plan showing the structure's locations. Site the structure using the site design standards.

i) Insure that the structure does not block drainage patterns on the site, and that primary drainage swales do not run through the structure.

ii) Insure that the structure has a path of travel to the primary access point of the campus and is fully accessible.

iii) Structures of any type must comply with the CBC for separation between building, exiting, access, and fire resistance. Provide a code analysis with each structure.

d) Use metal roofed units or other roof types. Fabric roofs are not acceptable except for shade structures.

e) Determine if the District will need water, lighting, power, data or other utilities at the structure.

f) Coordinate the scope of work with the manufacturer and site contractor clearly indicating on the bid documents the scope of work and coordination requirements.

## 2. Shade Structures

a) Provide a ¾-inch water line and keyed hose bib at each shelter. Strap hose bib supply line to shelter column.

b) Provide 4-inch thick concrete slabs below open shelters with control joints between each column. Drain slab to existing site drainage features.

## 3. Marquees

a) The display board is to be double-sided (when viewable from two sides), full-color, and electronic. Single-sided marquees are acceptable if located appropriately. Wall-mounted displays are acceptable in new construction projects as part of the project construction contract.

b) Locate the marquee front of the school viewable by students, staff, parents and passing traffic.

c) The bottom of the display board must be at ten-feet above grade.

d) Overall size of the display board, not including the fixed sign cabinet, shall be a minimum of eight-feet wide by three-feet high.

e) Provide column supports and reduce the surface area of the marquee base.

f) Sign must not obstruct views of pedestrians or traffic on the streets, sidewalks, or driveways.

g) Sign must be located for easy access by maintenance and repair crews.

h) Divert irrigation spray away from the signage.

i) Coordinate the colors of the marquee and its supports with building's colors or school colors and architectural style.

j) City Approvals: Comply with the requirements of the city's (in which the sign is located) sign ordinances. However, a permit or city review is not required.

k) Include the sign mounting system, structural calculations, electrical and low voltage requirements.

l) Signs must be approved by DSA, unless the total height of a free-standing sign is below eight-feet tall. Where possible, utilize PC-approved marquee designs, however marquees should be incorporated with overall project scopes of work for new construction and major, campus-wide modernizations.

## 4. Agency Approvals

a) Only use structures with a current PC (DSA pre-approval Plan Check) number. Submit complete construction documents, including calculations to DSA for the structure. The drawings should contain the DSA pre-approval number.

b) DSA requires the structure's drawings for approval, and asks that they be listed in the set's index. Request the drawings from the manufacturer selected by the District.

c) The manufacturer's drawings are required for approval. In most cases, the drawings offer options, typically regarding sizes and footing types. Using "X" lines, mark-out the options that are not used. Do not alter the manufacturer's drawings in any other way.

d) Sign the manufacturer's drawings per the requirements of DSA IR A-18.

e) Obtain local fire jurisdiction acceptance of the proposed site plan prior to finalizing the construction documents. Local fire may require water flows at the fire hydrants. Request the fire flows, from the local water company, well in advance of submitting to the local fire jurisdiction.

# ACRONYMS

| | |
|---|---|
| ADA | Americans with Disabilities Act |
| AEIC | Association of Edison Illuminating Companies |
| AFCI | Arc-Fault Circuit Interrupter |
| A.F.F. | Above finished floor |
| AGM | Absorbed Glass Mat |
| ANSI | American National Standards Institute |
| ARI | Air-Conditioning and Refrigeration Institute, |
| ASHRAE | American Society of Heating Refrigerating and Air-Conditioning Engineers |
| ASTM | American Society for Testing and Materials |
| AV | Audio Video |
| AWG | American Wire Gauge |
| AWI | Architectural Woodwork Institute |
| AWWA | American Water Works Association |
| BIM | Building Information Modeling |
| CAB | Crushed Aggregate Base |
| CAD | Computer-aided Design |
| CAFM | Computer-aided Facility Management |
| CAL-EPA | California Environmental Protection Agency |
| CATV | Cable Television |
| CBC | California Building Code |
| CCTV | Closed Circuit Television |
| CD | Construction Documents |
| CDE | California Department of Education |
| CEC | California Energy Commission |
| CEQA | The California Environmental Quality Act |
| CFC | Chloro Fluro Carbon |

| | |
|---|---|
| CFCI | Contractor Furnished, Contractor Installed |
| CFM | Cubic Feet per Minute |
| CHPS | Collaborative for High Performance Schools |
| CMU | Concrete Masonry Unit |
| CPTED | Crime Prevention through Environmental Design |
| CRI | Color Rendering Index |
| CRR | Corrosion Resistance Ratio |
| DD | Design Development |
| DSA | Division of the State Architect |
| DTSC | Department of Toxic Substance Control |
| DVD | Digital Versatile Disc |
| DWR | Department of Water Resources |
| EIFS | Exterior Insulated Finish System EMS Energy Management System |
| EPA | Environmental Protection Agency |
| ET | Evapotranspiration |
| FACP | Fire Alarm Control Panel |
| FDC | Fire Department Connection |
| FDS | Facility Design Standards |
| FPM | Feet per Minute |
| FPS | Feet per Second |
| FRP | Fiberglass Reinforced Plastic |
| FSC | Forest Stewardship Council |
| GFEP | Ground-Fault Equipment Protection |
| GPM | Gallons per Minute |
| HCFC | Hydro Chloro Fluoro Carbon |
| HPI | High Performance Initiative |
| HVAC | Heating, Ventilation, & Air Conditioning |

| | |
|---|---|
| ICC-ES | International Code Council – Evaluation Service |
| ICEA | Insulated Cable Engineers Association |
| IDF | Intermediate Distribution Frames |
| IEEE | Institute of Electrical and Electronics Engineers |
| ISA | Industry Standard Architecture |
| KV | Kilovolt |
| LAN | Local Area Network |
| LCCA | Life-Cycle Cost Analysis |
| LED | Light-emitting Diode |
| MC | Metal Clad |
| MDF | Main Distribution Frame |
| MERV | Minimum Efficiency Reporting Value |
| MIS | Main Information System |
| MPOE | Minimum Point of Entry |
| NEMA | National Electrical Manufacturer Association |
| NFPA | National Fire Protection Association |
| OFCI | Owner Furnished Contractor Installed |
| OFOI | Owner Furnished Owner Installed |
| OPAC | Online Public Access Catalog |
| OPALS | Ogren Plant-Allergy Scale |
| OPSC | Office of Public School Construction |
| PA | Public Address |
| PC | Pre-Checked |
| PIR | Passive Infrared |
| PIV | Post Indicator Valve |
| POS | Point of Sale |
| PSF | Pounds per Square Foot |

| | |
|---|---|
| PSI | Pounds per Square Inch |
| PSIG | Pounds per Square Inch Gauge |
| PV | Photovoltaic |
| PV | Present Value (Product System & Material Analysis) |
| PVC | Polyvinyl Chloride |
| RAW | Remedial Action Work Plan |
| SBR | Styrene-Butadiene Rubber |
| SCAQMD | South Coast Air Quality Management District |
| SCE | Southern California Edison |
| SCRC | Solid Color Reinforced Composite |
| SDI | Steel Door Institute |
| SMACNA | Sheet Metal and Air Conditioning Contractors' National Association |
| SSPC-SP | Society for Protective Coatings, Surface Preparation Standards |
| SQ. FT. | Square foot, square feet or square footage |
| SUHSD | Sweetwater Union High School District |
| SWPPP | Storm Water Prevention Pollution Plan |
| TCNA | Tile Council of North America |
| TEFC | Totally Enclosed Fan Cooled |
| THHN | Thermoplastic High Heat Resistant Nylon Coated |
| THWN | Thermoplastic Heat and Water Resistant Nylon |
| TVSS | Transient Voltage Surge Suppressor |
| UL | Underwriters Laboratory |
| UPS | Uninterrupted Power Supply |
| VAV | Variable Air Volume |
| VCR | Video Cassette Recorder |
| VOC | Volatile Organic Compound |
| WAN | Wide Area Network |

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| WAP | Wireless access point |
| WDMA | Window and Door Manufacturer's Association |
| WPA | Wetlands Preservation Act |

# GLOSSARY

1. Americans with Disabilities Act: A federal law that gives civil rights protections to individuals with disabilities similar to those provided to individuals on the basis of race, color, sex, national origin, age, and religion. It guarantees equal opportunity for individuals with disabilities in public accommodations, employment, transportation, state and local government services, and telecommunications. Website: http://www.ada.gov

2. Architectural Woodwork Institute: The Architectural Woodwork Institute (AWI) is a nonprofit trade association founded in 1953. Today, AWI represents nearly 4000 members consisting of architectural woodworkers, suppliers, design professionals and students from around the world. Website: http://www.awinet.org

3. California Building Standards Commission: The state government entity to oversee the development of building standards and to publish the California Building Standards Code in Title 24 of the California Code of Regulations. The California Building Standards Commission operates under the authority established by Health and Safety Code, Division 13, Part 2.5, 3 known as the California Building Standards Law. The abbreviation CBSC or BSC is often used to identify the California Building Standards Commission. Website: http://www.bsc.ca.gov

4. California Department of Education: The department oversees funding and testing, and holds local educational agencies accountable for student achievement. Its stated mission is to provide leadership, assistance, oversight, and resources (via teaching and teaching material) so that every Californian has access to a good education. Website: http://www.cde.ca.gov

5. California Department of Water Resources: Manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments. Website: http://www.water.ca.gov

6. California Green Building Code: The document is the 11th of 12 parts of the official compilation and publication of the adoptions, amendments and repeal of regulations to California Code of Regulations, Title 24, also referred to as the California Building Standards Code. The Part that is known as the California Green Building Standards Code and it is intended that it shall also be known as the CALGreen Code. The California Building Standards Code is published in its entirety every three years by order of the California Legislature. The California Legislature delegated authority to various State agencies, boards, commissions and departments to create building regulations to implement the State's statutes. These building regulations or standards have the same force of law, and take effect 180 days after their publication unless otherwise stipulated. The California Building Standards Code applies to all occupancies in the State of California as annotated. Website: http://codes.iccsafe.org/app/book/toc/2016/California/Green/index.html

7. California Plumbing Code: Part 5, Title 24, California Code of Regulations. Website: http://www.iapmo.org/Pages/2013CaliforniaPlumbingCode.aspx

8. Collaborative for High Performance Schools Best Practice Manual: CHPS has developed technical resources for schools, districts and practitioners on the design, construction, maintenance and operations of high performance schools. Website: http://www.chps.net

9. Color Rendering Index: A quantitative measure of the ability of a light source to reproduce the colors of various objects faithfully in comparison with an ideal or natural light source.

10. Construction Documents: The documents, consisting of Drawings and Specifications, and other documents as defined in the Agreements, to be prepared and/or assembled by Architect to define the Work to be constructed as part of the Project.

11. Cool Roof Rating Council: An independent, non-profit organization that maintains a third-party rating system for radiative properties of roof surfacing materials. Website: http://www.coolroofs.org

12. Crime Prevention through Environmental Design: Crime Prevention Through Environmental Design (CPTED) theories contend that law enforcement officers, architects, city planners, landscape and interior designers, and resident volunteers can create a climate of safety in a community right from the start. CPTED's goal is to prevent crime by designing a physical environment that positively influences human behavior. The theory is based on four principles: natural access control, natural surveillance, territoriality, and maintenance. NCPC's course helps participants put the theories behind CPTED into action in their communities by designing a hands-on, interactive, two- or three- day basic or advanced training specifically tailored to their community's needs. Website: http://www.cptedsecurity.com/index.htm

13. Department of Toxic Substance Control: Is to protect California's people and environment from harmful effects of toxic substances by restoring contaminated properties, identifying and promoting safer ingredients in consumer products, and ensuring stewardship through enforcement, regulation and pollution prevention. Website: http://www.dtsc.ca.gov

14. Design Professional: A term to refer to architects; civil, structural, mechanical, electrical, plumbing, and heating, ventilating, and air conditioning engineers; interior designers; landscape architects; and others whose professional services require licensing or registration by the state, or otherwise require the knowledge and application of design principles appropriate to the problem at hand.

15. District Consultants: Those consultants retained by the District who will assist the District in carrying out the Project.

16. Division of the State Architect (DSA): "Division of the State Architect" is the California State agency responsible for checking construction documents for compliance with Title 24, California Code of Regulations, and monitoring compliance on the construction site. The Division of the State Architect also approves inspectors on all public school projects. Website: http://www.dgs.ca.gov

17. DSA Inspectors: Inspectors-of-record (IORs) are registered as Class I through Class IV. The projects which may be inspected by each type of inspector are on the DSA web page.

18. DSA Pre-Approval Number (DSA Pre-Check (PC) Approval Process): DSA PROCEDURE #07-01 The goal of the PC Approval Process is to streamline DSA plan review by providing a procedure for approving the design of commonly used structures prior to the submittal of plans to DSA for construction projects. The PC Approval Process allows designers to incorporate designs for structures that have already been "pre checked" by DSA into their plans for actual site specific construction projects. PC approval is one prerequisite for "Over-the-Counter" (OTC) review; see Policy PL 07-02 for additional OTC requirements. The purpose of this procedure is to describe the DSA requirements for the submission of the design of a building or structure for pre-check (PC) review and the procedures DSA uses to approve such PC designs.

19. Energy Management System: The control system that monitors the environment and energy usage in a building and alters equipment operation to conserve energy while providing occupant comfort.

20. Interim Housing: The intermediate period of housing assistance that covers the gap between sheltering and the return of disaster victims to permanent housing.

21. Office of Public School Construction: "Office of Public School Construction" is the California State agency responsible for apportionment, disbursement and monitoring of state provided school district capital improvement funds. Website: http://www.dgs.opsc.gov

22. Ogren Plant Allergy Scale: A scale that measures the allergy potential of all garden and landscape plants. The new trademarked scale is called OPALSTM, or Ogren Plant Allergy Scale. The scale uses a simple, easy-to-use 1 to 10 ranking system. The safest, least allergenic plants rank at 1, and the worst, most allergenic at 10.

23. Photovoltaic System: A system that uses one or more solar panels to convert sunlight into electricity. It consists of multiple components, including the photovoltaic modules, mechanical and electrical connections and mountings and means of regulating and/or modifying the electrical output.

24. Savings by Design from San Diego Gas & Electric: Savings by Design (SBD) is California's nonresidential new construction energy efficiency program, administered statewide and funded by Utility customers through the Public Purpose Programs surcharge applied to gas and electric services. Website: http://www.savingsbydesign.com/

25. Site Committee: A group of site staff and other stakeholders, assembled by the District, to determine the needs of their individual campus.

26. San Diego Gas & Electric: Provides electric service to San Diego county. Website: http://www.sdge.com/

27. State AB1881: The Water Conservation in Landscaping Act of 2006 (Laird). This act requires, among other actions, that the California Department of Water Resources (DWR) report to the Legislature on the status of water efficient landscape ordinances adopted by local agencies.

28. Storm Water Prevention Pollution Plan (SWPPP): Is a fundamental requirement of storm water permits. A SWPPP identifies all potential sources of pollution, which may reasonably be expected to affect the quality of storm water discharges from the construction site; describes practices to be used to reduce pollutants in storm water discharges from the construction site; and helps assurecompliance with the terms and conditions of the permit (when the plan is designed for the individual site, and is fully implemented)

29. The California Environmental Quality Act: CEQA, or the California Environmental Quality Act, is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. Website: http://ceres.ca.gov/ceqa/

30. Title 24: The 24th title within the California Code of Regulations. Title 24 is reserved for state regulations that are building standards published by the California Building Standards Commission. Title 24 is given the name of California Building Standards Code by Health and Safety Code Section 18902. It is sometimes referred to as the State Building Standards Code.