School Design Standards

APS Facilities
Design + Construction
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Section 01

Introduction and Overview

Introduction and Overview

- ***This one-volume design standards replaces the individual separate school and site standards previously published by the Albuquerque Public Schools [APS]. This volume's functions are manifold:***
  - It will serve as guideline for new construction as well as existing facility renovations for all sites and buildings.
  - It outlines broad and specific criteria to support the educational and other needs of the district.
  - It addresses adequacy, health and safety, equity and maintainability.
  - It is informed by current, adopted APS facility and curriculum practices, national standards, and the aggregate input from a committee composed of APS administrative personnel, content area experts, principals, and community representatives.
  - It is organized to outline minimum, general expectations and approaches for ALL buildings and sites serving all grade levels and those staff serving them.
  - It presents very specific requirements for ALL buildings and sites for each school level or educational/organizational paradigm: Elementary, Middle, K-8, High School.
  - It shall be used in accordance with and complementary to all published building system and component standards published in the Department's website. Clickable links below:

Building Standard Links	
Aluminum Storefront Specification	Mechanical VRF Pre-Selection Process
Interface Carpet Tile Specifications	Playground Standards
Mannington Carpet Tile Specifications	Polished Concrete Finishing
Custom Plastic Laminate Casework Standards	Portable Building Electrical and Special Systems Service Blueprint – E-201
Door Hardware Standards	Portable Building Electrical and Special Systems Service Blueprint – E-202
Electrical Design Standards	Solar PV Guidelines
Glazing and Window Standards	Roofing Design Guidelines & Specifications
LEEDv4 Guideline	Roof Drain No Hub Coupling
Mechanical Design Standards	Mechanical Design Standards Appendix A

- ***Key to parenthetical and related supplementary notations:***

  **** Refers to information complementing or expanding the more general policy or standard.*
  LEED®: Refers to elements of the LEED® for Schools process that will possibly influence the approach, execution, or options evaluated for the referenced policy or standard.
  FD+C and M&O Notes: Refers to information that directly impacts the departments of Facilities Design + Construction (FD+C) and Maintenance & Operations (M&O) and often provides some restrictions or lessons learned to be used in executing the standard.

- ***The requirements outlined in this Introduction are for specific site and facility parameters not covered in the more "performance based" standards that follow. Requirements for all projects:***
  - The contract Architect / Engineer (A/E) shall coordinate all work with the APS Facilities Design and Construction (FD+C) project team and participate in a School Building Committee process.

- A utilization will be provided to the A/E by APS FD+C and Capital Master Plan (CMP) prior to the design of each project. The CMP utilization will identify the specific spaces required for each project. The APS Standards will define the square footage and character requirements for each of the specified spaces.
- The school facility shall accommodate the education of all students. The A/E will coordinate with FD+C and APS Capital Master Plan (CMP) to determine special education facility requirements. Facilities shall support universal design and accessibility.

- ***Grade level accommodations:***

School Type	Grades
Elementary School	Kindergarten, 1st, 2nd, 3rd, 4th, and 5th grades (Some schools have pre-K)
Middle School	6th, 7th and 8th grades
K-8 School	Kindergarten, 1st, 2nd, 3rd, 4th, 5th , 6th, 7th, and 8th grades
High School	9th, 10th, 11th, and 12th grades

- New facilities shall be designed and constructed in alignment with phasing identified in the school's site master plan. Phases shall be designed and constructed to limit disruption to previous phase(s) of work and to facilitate future phases to the extent feasible.
- The contracted A/E will thoroughly review files of the APS Real Estate Director to ensure that legal description, boundary description, vacations, easements, rights-of-way, property lines, and zoning issues are clarified. If available, existing surveys, drainage plans, and public infrastructure plans are generally on file with FD+C.
- The contracted A/E will meet to clarify with the City / County / utility companies on drainage, street access, zoning, utility availability, sector development (or other area plan restrictions), fire protection, easements, right-of-way, and other applicable considerations.
- Where known, APS will notify the A/E of extension requirements for telephone, cable, or power from substation; water / sewer line taps requirements; fire hydrant requirements; up and down stream storm water requirements; number of meters APS will allow; and street extensions.
- These standards do not specifically address furnishings. The contract Architect will coordinate the configuration of spaces requiring furnishings with the FD+C Interiors Department.
- The A/E will present a color board to represent suggested color scheme and materials to FD+C Interiors Department for approval based from APS Standards and allotted budgets. Once approved, A/E will present to occupants.
- All new stand-alone buildings shall follow the sustainability process developed by the U.S. Green Building Council's Leadership in Energy and Environmental Design or LEED® for Schools for New Construction and Major Renovations. The district strives for all stand-alone new school buildings to meet a minimum of LEED® for Schools Silver Certification. Policies and Standards influenced by the LEED® process are noted when possible.

- The A/E shall consider and employ the principles of Universal Design.
- APS reserves the right to exceed the PSFA Adequacy Standards for site and facility areas noted in this document.

Section 02

General Site and Facility Design Concepts

School Sites and Facilities Overview

- ***The school location should be convenient to the student population in a manner that minimizes busing and provides student, parent, and community controlled safe pedestrian and vehicle access to the school.***
- ***Site the school on adequate area of land in a primarily residential area; ideal land sizes of recent schools:***

Elementary School	10 acres
Middle School	20 -25 acres
K-8 School	25 acres
High School	45-50 acres

- ***In addition to the permanent building, the site should be able to accommodate a stated quantity of future portables to be confirmed during programming.***
- ***An enclosed circulation school. Areas of recently constructed schools (permanent GSF; excludes portables):***

Elementary School	79,000 gsf
Middle School	170,000 gsf
K-8 School	217,000 gsf
High School	349,000 gsf

- ***APS FD+C assigns 30% tare to facilities. Tare space includes circulation (hallways, lobbies, vestibules, etc.), wall thickness, custodial space, general storage, and restrooms (except where fulfilling specific program requirements, i.e. nurse's restroom). Tare space excludes mechanical rooms, electrical rooms, specific programmed storage, and specific programmed restrooms.***
- ***Special Education demographics may impact the size/design of school. See Special Education Program Overview and Appendix B for Special Education space standards.***
- ***Accommodate the enumerated number of student population dictated by CMP's Utilization Study/ Projections. The table below depicts recently built ground-up schools:***

Elementary School	650 student-base population with ability to increase / accommodate 1,000 students using portable classrooms (permanent area for 8 portable classrooms; interim area for up to 12)
Middle School	1,200 student-base population with ability to increase to 1,500 students using portable classrooms (permanent area for 8 to 12 portable classrooms)
K-8 School	1,200 student-base population with ability to increase to 1,500 students using portable classrooms (permanent area for 8 to 12 portable classrooms)
High School	2,100 student-base population with ability to increase to 2,650 students using permanent or portable classrooms (permanent area for 8 to 12 portable classrooms)

- Meet specific program area/SF requirements defined in these Standards.
- Meet specific educational, instructional, and functional needs of specified activities.

- Provide a pleasant environment for students, teachers, and staff and be a positive addition to the community.
- Provide a safe environment that promotes learning opportunities in accordance with relevant codes and ordinances.
- Allow for team teaching options in part of each group of classrooms. (Use of extra wide double doors has worked well in many schools.)
- Restrooms distributed to be convenient to students and staff.
- Courtyard(s)/outdoor learning spaces that can be used for educational purposes.
- Be designed for cost effective operation and maintenance.
- Be adaptable as center for community use and education, fine arts education, and/or before and after-school programs.
- Provide opportunities to adjust to programmatic (instructional and community) and technological changes:
    - Flexibility of existing spaces to meet a number of purposes.
    - Ability to expand.
    - Ability to accommodate new technologies into learning environments.
- Organized in clear and consistent manner featuring:
    - Single point-of-entry.
    - Ease of supervision and security (controlled building access, functional organization and separation for after-hours use).
    - Locate common-use facilities (media center, cafeteria/kitchen, gym, PAC, restrooms) for after-hours use while securing the remainder of the school.
    - Locate workrooms in convenient proximity to the administration office and staff areas.
    - Natural light to learning areas.
    - Separation of noisy from quiet activities.
    - Universal design.
- Some APS schools have a School Based Health Center (SBHCs) or a Community Based Health Clinic (CBHC) on campus. See CMP Utilization for program needs.
    - These programs are run by third party providers. APS provides the required spaces, power, data, and regular janitorial services.
    - The SBHC provider provides a variety of services (not all services are at each site) such as primary care, preventive care, behavioral health and dental (very limited). All the APS SBHCs serve only students at the school they are housed.
    - A CBHC serves the students at the school and also has hours when the community has access to the clinic
- Refer also to each individual school level standards (Elementary School, Middle School, K-8, and High School).

Site Development

- Elements of site development include the harmonious blend of the following elements for the school site, perimeters, parking lots, and adjacent streets. Aesthetic appeal and ease of maintenance are paramount concerns.
- Areas adjacent to an existing or planned housing development shall be buffered from the houses. Drainage or blowing sand impact on neighbors is not allowed. Consider impacts of fugitive dust and storm water run-off in project planning.

- ***Off-Site Student Pedestrian Access, Sidewalks, and Access Streets***
    - While FD+C and the contract A/E will meet with the BLUZ team to identify and minimize hazards where feasible, off-site sidewalks, access streets, and circulation are not within the jurisdiction of APS. "Park and walk" use of adjacent neighborhood streets is discouraged. The following are desirable, but not within APS's control:
        - Signals and signs to permit safe pedestrian entrance to and exits from the school area.
        - Barrier-free sidewalks connecting schools to adjacent residential areas.

- ***On-Site Pedestrian Access/Sidewalks***
    - The pedestrian entry to the site shall be clearly defined. Paved sidewalks shall connect all school activity areas, including portables, (to provide accessibility and avoid undue maintenance in interior areas from mud or sand).

- ***On-Site Bicycle Use***
    - Provide fencing (lockable) around a concrete pad for bicycle storage.
    - Provide bicycle racks.

- ***Accessibility***
    - Provide ADA compliant access to facilities (universal access preferred). Use ramps, handrails, and curb at building entrances, parking areas, playgrounds, and pedestrian walks in accordance with the New Mexico Building Code, American National Standards Institute, specifications for designing buildings and facilities accessible to and usable by people with physical disabilities.

- ***Main Entry/ Single Point of Entry***
    - Access points (See Safety/Security section for additional single-point of entry requirements):
        - For security, limit the number of school access points. The main entrance to buildings or building complexes shall be clearly defined by employing, primarily, architectural elements, and, secondarily, reinforced by landscaping, directional signage, and other means. Signage shall clearly identify car, bus, delivery, handicapped parking, and drop-off areas; different parking areas; location of accessible routes; and route to the office.
    - School Sign:
        - The school shall have an integral sign mounted on the building with the name of the school and the street number. The school may also have a free standing monument sign with the name of the school and street number located near the street. The monument sign is not to be confused with a marquee sign (refer to signage section in these Guidelines).
    - Flagpole:
        - Provide one flagpole that is a minimum of 20' tall with sheathed metallic flag-snaps. The pole shall be one piece, non-tilted, aluminum.

- ***Vehicular Circulation***
    - There shall be clear, separate, distinct and safe on-site circulation paths for pedestrians, school buses and staff, visitor, and service vehicles. Multiple access points for vehicles are preferred.

**** M&O Notes: Posts for signs to be #3 U-channel. Sign hardware shall be vandal-guard. Fence mounted signs to have 3.5" aluminum plates. All traffic signs for directions, safety, traffic control, and ADA will be installed by general contractor. The signs that are mounted on buildings to be attached on all corners of the sign and high enough to prevent graffiti or vandalism. Identification numbers or letters of school names etc. will be high enough off ground and adhered sufficiently to inhibit vandalizing.*

- Bus Loading / Unloading:
  - During programming, confirm the current and projected number of buses at a school with APS Transportation and CMP.
  - Strive to provide separate bus loading/unloading zones accommodating the required number of buses for that school that do not conflict with other vehicular or pedestrian pathways and provides for the safe loading and unloading of students.
  - The loading area shall be able to accommodate up to 80% of the school population in a safe and orderly manner and load students from the curb directly into the bus door without passing between or behind buses or cars. Confirm the projected number of students and buses based on the school's projected student population. Provide curb access area for the projected number of SPED buses with lifts (check with transportation regarding the size of the buses to be used at each particular site) as well as after-school daycare vans.
  - Design bus lanes per bus configurations and turning radius requirements.
    - See Appendix K for bus configurations and turning radius requirements.
  - Provide separate bus lanes from parent drop off and pick up lane.
  - Provide a separate drop off for wheel chair buses (Typically is a mid-size bus).
  - Bus boarding zones:
    - Provide a fence at boarding zones.
    - Load buses directly from the adjacent sidewalk (no walking around or between buses).
    - Include way-finding design elements for younger students to find their bus. Consider color coding.
  - Consider new technology (swipe on and off buses) at bus loading area.

**** The contract A/E is required to meet with APS Transportation and BLUZ team for approval of the bus loading area layout and entry / egress turning schemes.*

****The contract A/E shall confirm with APS CMP and Transportation the intensity of bus lane use.*

- Student Drop-Off / Pick-Up
  - There shall be a separate area for the drop-off and pick-up of students by individual vehicles that shall not conflict with other vehicular or pedestrian pathways and provides for the safe loading and unloading of students. This has been a consistent safety concern for schools as the number of walking students have tended to diminish. The area should allow for a right door exit from the vehicle to the curb. Employ fencing to control pedestrians from walking in front of waiting cars. No parent cars in bus lanes.
  - Provide separate kindergarten drop-off and parking area when site allows.

**** To the extent possible, provide the length of the drop-off roadway to accommodate stated amount of vehicles cued for pick up and drop off; to be discussed with BLUZ Committee.*

- Vehicular Entrances / Exits
  - If feasible, buses should not be dependent on other on-site traffic movement in order to exit, since buses all exit at the same time turning both directions from the site drives.
- Service / Emergency Access
  - Appropriate access to all areas of the site by service, garbage, and emergency vehicles shall be properly identified.
  - Truck access to the kitchen and garbage trucks will not pass through general pedestrian or play areas.
  - Design of surfaces for maintenance vehicles shall be appropriate for the weight and clearance.
  - Design dumpster area and garbage truck approach per City of Albuquerque (COA) dimensional details, and/or other jurisdictions if applicable. (Note: Although APS FD+C projects are permitted through NM CID, vehicular clearance requirements identified by the COA provide practical functionality for campus circulation.)
  - The COA's requirement for grease traps at dumpsters does not apply to APS campuses. Follow the requirements of the AHJ (usually CID).

****The contract A/E's will meet with local Fire Department to determine access points for fire trucks to site. Allow for fire hose access to all parts of the school and fire trucks to portable area. Access to the nurse's office shall be direct and easily identifiable for emergency medical personnel. APS Nursing Services has requested a reserved area for emergency medical service vehicles at every school.*

- Street / Parking Area Condition
  - Streets and parking areas shall have the appropriate pavement profile(s) for vehicles using them. Consult the project geotechnical study, and account for all types of traffic that will transverse the pavement.
  - Discuss with BLUZ committee as to jurisdictional responsibilities of these subject adjacent areas.
- Parking Standards and Signage
  - Coordinate facility parking requirements with the NM Building Code.
  - There shall be adequate, safe parking for staff and visitors. Parking areas shall be paved and separate from other access ways. Parking areas shall be equipped with LED security lighting (including rough-ins for security cameras as afforded and needed). Design lighting in compliance with New Mexico Night Sky Protection Act, City Ordinances and Neighborhood Regulation and per APS Electrical Design Standards.
  - Provide 3 designated parking spaces with signs for the principal and 2 other personnel to be determined during design.
  - Determine the appropriate number of visitor parking spaces with the school and FD+C staff architect (20 - 30 visitor parking spaces is typical). Provide signage for visitor parking spaces.
  - Prefer visitor parking and part of staff parking centralized for control of access to the office.
  - Provide 1 designated parking space with sign for APS police.
  - Provide a designated parking area with signage for 1.5 spaces for each teacher and staff member. Optimize adjacency for visitor and staff parking to the school office to support safety and security.
  - Install signage in kitchen parking lot. School needs signage for delivery zone and to prevent others from parking in their area.
    - Schools require a minimum of 3 parking spaces next to kitchen door for

early morning arrival, and require 3 - 8 parking spaces designated with signage for kitchen staff near the kitchen area. Check with Food and Nutrition Services for required kitchen parking spaces during design.
- A/E shall confirm parking requirements for other agencies (social services, city daycare, etc.) with school administration.
- Number of handicapped parking spaces, shall be as required per most restrictive code designated and dispersed between staff and visitor lots.
- Provide an M&O parking space with sign.
- Provide a dedicated parking space for other law enforcement agencies.
- Provide signs for parent drop-off lane indicating direction of travel and no parking.
- Provide signs for bus lane indicating buses only, no private vehicles or parking.
- Provide signage at entrances to direct visitors to the school office. "Visitors must report to the School Office".
- Provide signage for green vehicles and/or signage required for LEED points [e.g. tobacco use prohibition, facilities community use availability, etc.]
- Provide signage for EV parking spaces. See EV Standard.
- Provide student parking area at high schools.
- Consider joint use of parking area for band use. Joint use requires area free of light poles and special striping for band practice.

- ***Portable Classroom Building Locations***
  - If expressly stated as a consideration during programming, there shall be sufficient room for ingress and egress of portable buildings to the site.

**** Provide 32' improved access lane with straight-in clearance of 96' for doubles and 60' for singles. Access lane gate shall be 30' wide.*

  - Define portable classroom areas during planning and design phases.
  - Identify the total number of portables that the site can feasibly support.
  - Plan for infrastructure to support portable classrooms.
  - Integrate portable classroom buildings with other academic learning areas and provide equal access to school support and common-use spaces, as well as open space.
  - Discuss other potential portable issues, including access, security, condition, etc.
  - Portable areas shall have main domestic water and sewer lines installed and ready for connection. In areas with more than 4 doubles, expect installation of a restroom portable.

Safety / Security

- ***Single Point of Entry***
  - All school facility(ies) shall be accessed from a single point of entry. Parking, drop-off/pick-up, pedestrian routes, and other site access locations shall guide/funnel anyone entering the campus to the single point of entry.
  - The single point of entry shall be designed as a secure vestibule. The secure vestibule will require all visitors to sign in at the school's reception area before accessing other areas of the school.
  - The single point of entry applies to all school sites, including both single and multi-building campuses.

  - See Appendix for more vestibule and security gate requirements.

- ***Site Fencing***
  - The site shall be securable with perimeter and/or interior fencing.
    - Security fencing shall be a minimum of 6'-0" high. Chain link is acceptable for "back-of-house" areas, while welded wire fence may be desirable at specific areas.
    - Interior fencing is also referred to as "inter-building" fencing. This strategy may be employed where school buildings serve as barriers/walls and fencing is constructed between buildings to provide a fenced environment to allow exterior circulation for school occupants between and among separate buildings.
    - The site fencing layout must be coordinated with building egress requirements as well as the District's fire evacuation plan and ALICE (Alert, Lockdown, Inform, Counter, Evacuate) protocol. Provide egress gates within the security fence as required by code, for fire evacuation, and for access to site features (recreation, playgrounds, parking, etc.).
    - Be cognizant of elevation and material changes at fencing as these conditions may make fencing easier to scale.
    - Pedestrian egress gates (aka ALICE gates) shall be exit-only, except where approved for re-entry with card access by the APS staff architect and security team representatives.
    - Install perimeter fencing on the property line. Coordinate requirements with the APS staff architect and APS Real Estate Department.
    - Provide signage on ALICE gate that the gate should remain closed during school hours, with instruction about how to properly access school site.
    - The site fencing layout must be coordinated with joint-use areas. The school shall be able to secure and use joint-use space during school hours. Coordinate requirements for community use of joint use areas with the APS staff architect and APS Real Estate Department.
    - Provide signage at perimeter and joint use fences. Coordinate signage requirements with the APS staff architect and the APS Real Estate Department.
    - Vehicle gates may be required within site security fencing for maintenance access and fire lanes. Coordinate locations with the APS staff architect and M&O.
    - In addition to site security, fencing may be used to protect students/staff from traffic hazards, steep slopes, drainage ponds.
    - Refer to Appendix A in this document for detailed fencing requirements.
    - ALICE gates should be ADA compliant whenever possible.

- ***Site Security Lighting***
  - Sites shall have illuminated parking areas, walks, entrances, portable areas, and exterior building areas for both safety and security purposes.
  - Exterior lighting shall meet Illumination Engineering Society (IES) recommendations.

- ***Cameras (CCTV)***
  - Coordinate camera configuration during design reviews, including 50% and 95%.
  - Coordinate the locations and configurations of exterior and interior cameras with the APS staff architect and APS security team.

- Provide a perimeter view of the building.
- Confirm current camera technology with APS staff architect / security team.
- Locate cameras efficiently; avoid doubling up.
- Cover all common and open areas, including gyms.
- Camera monitoring is typically located in the administrative office area, or in a security suite if the school has one. Provide sufficient power and data in monitoring rooms. Provide 4 data jacks on each wall. Verify monitor quantities, design, and workstation layout/requirements with APS police in addition to the security team.
- Clearly identify the general contractor's versus APS special systems contractor's scopes of work in the contract documents.

Site and General Utility Requirements

- ***General site utility requirements***
  - Design for easy and low cost maintenance.
  - All underground utilities must be traceable for GPS coordinate documentation.
    - On a case by case basis, consider GPS survey of the site utilities prior to backfill.
  - To the extent made possible, consider the conceptual designs for utility services [sewer, water, gas] as loops.
  - For additions and renovations, consider the consolidations of meters for all services [electrical, gas, water].
  - Remove all abandoned utility lines and infrastructure, including underground.
  - Coordinate site utility easement requirements with FD+C and the APS Real Estate department.

- ***Electric Service***
  - Electric service shall be underground.
  - Overhead lines are allowed for temporary portable classroom areas to facilitate connection and allow for special systems wiring that will share masts. For such overhead lines comply with special wiring requirements of M&O and codes.
  - See APS Electrical Design Standards.

  ****Arrange, locate, size utilities to accommodate future expansion[s]*

- ***Electrical Equipment***
  - Outdoor light fixtures, electric outlets, equipment (such as sump pumps), and other fixtures shall be accessible for repair and replacement, energy efficient, and locally serviceable. Access means sized so a person can efficiently work on the item, and safe so buried items are not in water-filled vaults. Equipment will be vandal resistant and avoid glass components. Refer to the current published APS Electrical Design Standards on the FD+C website.

  M&O Note: APS has transferred ownership and servicing of primary transformers to PNM.

- ***Supply Water***
  - Outside water supply shall be adequate for normal usage. Meter domestic and irrigation water separately. Consolidate water meters; the APS preference is for one domestic and one irrigation meter per campus. The irrigation system shall be 'water only' meter. If gray water or non-potable system is proposed, discuss with APS M&O and FD+C. Ensure the existence of a water and sewer availability statement.

  Refer to the current published APS Mechanical Systems Design Standards.

- ***Water for Fire Protection***
  - Fire hydrants must be included per jurisdiction Development Process Manual (DPM) standards. Provide easements where required and coordinate these easements with APS Real Estate office. Refer to the current published APS Mechanical Systems Design Standards.
  - Locate FDC Connections outside of the secure fence area whenever possible. If not possible, then provide Fire Department knox padlock on vehicle gate.

- ***Drain Fields***
  - Septic tanks and drainage fields shall be located away from all student-accessed areas or sealed in monitored vaults. All such areas will be fenced.

- ***Gas Lines***
  - Site gas piping shall be traceable and accessible for repair. Locate "U" shut-off above surface in fenced enclosure for each portable area. Zone site piping so sections of the site can be turned off and tested without turning off the main gas service for the whole school. Refer to the current published APS Mechanical Systems Design Standards.

  M&O Note: Comply with APS M&O low/medium pressure design guidelines for gas piping.

- ***Mechanical Units***
  - Ensure units are protected from vandalism, safe, and easy to access for maintenance and visually screened to public areas. Refer to the current published APS Mechanical Systems Design Standards.
  - If using a VRF system mechanical vendors will be pre-selected and procured after the 50% CD review.
  - Consider the location, proximity, and acoustically- separating noisy building mechanical equipment with respect to adjacent neighbors.

- ***Fire Systems***
  - Locate the Fire alarm system panel in the administrative office, separate from MDF/IDF room.

- ***Knox Boxes and Locks***
  - Provide knox boxes and locks as required by the Fire Marshal.
  - Coordinate knox boxes during the design process and determine the final location in the field with the Fire Marshal prior to installation.
  - Do not alarm the knox box.

- ***Fire Extinguishers***
  - Call out fire extinguishers, including type, quantity, and location in the contract documents.
    - APS M&O provides 10 pound and 60 pound K-rated fire extinguishers as identified by the A/E in the contract documents.
    - The general contractor provides fire extinguishers if they are different from

those identified above.
    - The general contractor installs all fire extinguishers, including those provided by APS M&O.
- Locate fire extinguishers in cabinets. Cabinets shall be provided and installed by the general contractor.
    - Cabinets shall be semi-recessed, glass free, and sized to hold 10 pound fire extinguishers.
    - Provide space for a 60 pound K-rated fire extinguisher in the kitchen.

- ***Pest Control***
    - Design shall consider and prevent hazards at any fresh air intake. Add air intake/ bird deterrent at roofs, edges, windows, HVAC units, etc.

- ***Garbage Collection***
    - Each school shall have a designated garbage collection area meeting (CID) standards, and/or other authority having jurisdiction (AHJ) as applicable.
    - The garbage collection area shall be located near the kitchen, and accessible to a service access drive. Coordinate service requirements with APS M&O Grounds Department. The garbage collection area shall:
        - Meet COA/AHJ standard detail for enclosure with gates.
        - Provide space for 4 six cubic yard dumpsters (of which one is for recyclables) or 1-2 trash compactors with one dumpster for recyclables. Coordinate the size and amount of dumpsters with APS M&O and Waste Management.
        - Accommodate Waste Management garbage truck access clearances.
        - Locate dumpsters close to kitchen door, but not too close (rodents).
        - Drain + G.T at dumpsters is not required by APS unless necessitated by AHJ.

Landscaping

- APS requires review by representatives of both FD+C and M&O Grounds and Maintenance.
- Site landscaping shall require minimal maintenance and water conservation. APS site maintenance personnel should be able to maintain all site landscaping with existing district equipment. Raised or steep lawn areas requiring small mower use are not allowed.
- Plant material shall provide shade, wind protection, erosion control, and aesthetic qualities for the building and surrounding area. Ideally, strive to landscape 7-15% of the school site with indigenous trees and planted areas (not including a grass field).
- Other considerations:
    - Minimize use of water and consider water harvesting to assist plant survival.
    - Types and placement of plantings. Avoid plantings directly adjacent to buildings and foundations. Plantings should not obscure site security needs for visibility.
    - Irrigation systems. (Note that irrigated landscaping immediately adjacent to buildings is not allowed.)

M&O Note: Avoid loose rock or gravel ground cover near windows and artificial stucco surfaces.

- ***Priority Areas for Landscape***
    - Parking lots (break up the visual expanse of paving).
    - Perimeters of the school facing public right-of-ways (on APS property).
    - Exterior common areas (courts, plaza, between wings, permanent portable area).
    - Outside learning areas.
    - Playgrounds and fields.

M&O Note: Provide tree wells with mulch in grass areas and with sufficient open dirt around them in hard surface areas to deter uplifting of surface.

M&O Note: Provide for remote control of irrigation system controllers. For new systems provide the conduit, pull wire and electrical to allow for this connection to occur.

- ***Landscape and Site Design Directives***
    - Emphasize use of tree plantings, both ornamental and shade, and large-scale shrubs.
    - Avoid ornamental shrub plantings.
        - Use sparingly and only to emphasize the primary building entrance.
        - APS Grounds Department cannot maintain shrub beds and shrub plantings, and cannot perform weeding, deadheading, or apply chemical herbicide or pesticide applications that extensive ornamental shrub beds require.
    - The following trees and shrubs shall not be planted on APS property:
        - Green and white ashes
        - Elms (except hybrid elms)
        - Kentucky coffee tree and aspen trees
        - Spruces
        - Golden rain tree
        - Black locust
        - Sugar and silver maple
        - Poplars, cottonwoods
        - Box elder (except sensation maple)
        - Willows (except desert willow)
        - Russian olives
        - Pyracantha
        - Ponderosa pine
        - Piñon pine
        - Sycamores
        - Oleander
        - Junipers
        - Cotoneasters
        - Euonymous
    - Ornamental Native Grass and Native Grass Re-Veg Seeding
        - Landscape designs shall use native grass re-veg seeding in perimeter areas of a site that are not accessible to students.
        - Use native grass seeding as an ornamental landscape treatment only in irrigated areas.
    - Specify establishment period and fencing requirements. Planting requirements:
        - Shade trees shall be a minimum 2.5” caliper or larger.
        - Ornamental trees (flowering pear, flowering plum, etc.) shall be a minimum 2” caliper or larger.

- All shrubs shall be a minimum 5 gallon or larger.
- All shrubs shall be xeric plantings.
- Tree wells located in paved areas shall have a minimum interior area of 10′ x 10′.
- All trees planted in turf areas shall receive a minimum of 2″ depth and 6′ diameter bark mulch ring at the base of the tree. The bark shall be kept back away from the trunk of the tree to prevent rotting.

- Design all landscape areas so that there is no site run-off of irrigation water.
- Mulch:
  - All landscape areas shall receive aggregate mulches as ground cover in the form of gravel mulches and/or crusher fines.
    - Minimum depth of all gravel mulches shall be 2″ depth and the minimum depth of all crusher fine mulches shall be 3′ depth.
    - All mulch areas shall receive filter fabric unless the mulch is crusher fines that are installed in high traffic areas. APS Grounds will determine whether filter fabric is required or not.
    - Aggregate mulch sizes shall be limited to the smallest size aggregate that is practical for each specific application.
    - Aggregate mulches larger than 1″ size will not be allowed on APS properties except for use on steep slope areas (3:1 and greater) and drainage areas. Crusher fines shall not be used in areas steeper than 10:1 and in areas that are used for conveying drainage or temporarily holding storm water run-off.
    - Organic mulches are not allowed on district properties except for the use of bark mulch rings at tree plantings.
    - All aggregate mulches used in drainage areas near buildings shall be embedded in concrete to prevent the stones from being dislodged.
    - The design of sloped areas adjacent to or near buildings shall include the use of retaining walls, etc. to step grades and avoid the use of mulches on steep slopes.

- ***Playfields and Athletic Fields***
  - Grass sod shall be limited to use on playfields and athletic fields only; and provided that the playfield and athletic field areas are one acre or larger (contiguous, not aggregate).
  - Grass seeding shall not be used on playfields and athletic fields.
  - Any field one acre or less shall be required to have artificial turf installed.
  - Plan Requirements:
    - Note the grass species on the construction drawings and do not include in the written specifications.
    - Grass species is limited to Bluegrass species mix unless otherwise prior approved by the APS Grounds Department (for example: Bluegrass-Bermuda grass mix). Grass species mixes such as 'Park Blend" shall not be used on APS District properties.
    - All playfields and athletic fields shall be fenced with temporary construction fencing during the grass establishment period. The new field will not be available for use by the school during the establishment period. The cost of temporary construction fencing shall be paid for by APS through their on-call fencing contract and costs of this fencing shall be

included in the Landscape Architect's Opinion of Probable Construction Cost estimate for the project.
    - The establishment period will be twelve months (one year) from the date of final acceptance.
    - All grass sod areas shall have a concrete mow curb consisting of a minimum 6″ wide x 6″ deep concrete mow curb around the entire edge of grass.
    - Separate all grass areas from all street curbs by a porous landscape buffer of ¼″ minimum crusher fines. The buffer shall be a minimum of 18′ wide and 6′deep.
    - The top surface of the buffer shall be two inches below the top of the mow curb and two inches below the top of the street curb.
- Irrigation and Water Audit
  - All sodded grass areas shall have full head to head coverage irrigation systems.
  - Design all landscape areas so that there is no off-site run-off of irrigation water.
  - All grass playfields and athletic fields of one acre or greater shall have an irrigation system water audit performed prior to the installation of the sodded grass. Submit a copy of the water audit to APS Grounds Department for review prior to installation of the sodded grass. Any installed irrigation system that does not meet the minimum audit requirements shall be modified and a re-audit performed and approved prior to the installation of sodded grass.
- Artificial Turf Design Directives
  - Any field one acre or less shall be required to have artificial turf installed.
  - Use cooling granular fill / low temperature reduction fill for all artificial turf construction.
  - For elementary schools and fields less than 50,000 SF, use Slit Film artificial turf.
  - For fields greater than 50,000 SF, both slit film and mono-filament artificial turf are acceptable. This includes:
    - Baseball/softball fields
    - Multipurpose fields
    - Soccer/football fields
    - Multipurpose fields
  - Landscape-only artificial turf surfacing: Use primarily in areas such as courtyards, plazas, landscape areas that do not require G-max testing.
  - Irrigation is required where trees and shrubs are planted in or adjacent to the artificial turf.
  - Drainage requirements apply for artificial turf areas the same as grass.
  - The contractor shall verify special conditions required for the installation of the system and shall notify the owner and/or architect of any discrepancies.
  - Mitigate erosion from adjacent areas onto the artificial turf as it significantly impacts the lifespan of the artificial turf.
- Irrigation System Design Directive
  - There shall be fully automatic underground sprinkler systems with vandal-proof sprinkler heads that cover all play fields, lawns, and planting areas. All sprinkler systems shall be automatic and can be controlled remotely.
  - Process Requirements:
    - Prior to starting irrigation designs for any new or existing APS district property, contact the APS Irrigation Supervisor with APS Grounds Department to discuss the design scope, intent, equipment required, etc.
    - APS Irrigation Supervisor must approve all irrigation designs prior to

bidding or construction.
    - The APS Irrigation Supervisor must be represented at all pre-construction conferences and must be present for all required irrigation testing and for the final project walk-through meetings.
- Provide an irrigation audit for all high water use grass areas.
- High water use grass areas less than one acre are not allowed on APS District properties.
- Plan Requirements:
    - All irrigation plans shall meet the requirements of local ordinances.
    - Whenever an irrigation plan involves modification to an existing irrigation system, the existing system shall be modified as necessary to bring the existing system into compliance with Plumbing Code requirements for back-flow prevention.
    - All irrigation systems shall have a separate water meter, to the extent practical.
    - In all cases, irrigation systems with high water grass areas or large planted areas shall have separate water meters.
    - The following statement shall appear on the face of each irrigation plan:
        - "At the time of final acceptance, the Contractor shall demonstrate to the Landscape Architect and the Owner, that the operating pressure at each head has been adjusted to match the specified design operating pressure for each valve."
    - The APS Irrigation Supervisor shall approve the selection of all irrigation product brands and models.
    - All irrigation plans shall state the following information:
        - Existing static pressure at meter or point of connection.
        - A system performance chart that provides the following information for each control valve:
        - Control valve number. Irrigation control valves shall be labeled numerically.
        - Valve brand and model number.
        - Irrigation head brand and model number.
        - Irrigation head nozzle size.
        - Irrigation head spacing.
        - Irrigation head gallons per minute.
        - Total gallons per minute for each valve and for the total project.
        - Design operating pressure at the head.
        - Precipitation rate at design operating pressure.
        - Length of time required to operate valves in order to apply 0.33 inches of water.
    - Whenever possible, systems shall use pressure regulating valves.
- The APS Irrigation Supervisor shall approve the selection of the specific type of controller and size of controller.
    - Place controllers in a fenced enclosure along with the back-flow device. Fenced enclosure shall be 6 feet tall with a 3 foot wide gate, and provide 3 feet minimum clearance around the controller and back-flow preventer.
    - Irrigation controllers shall not be placed inside of buildings or inside of walled enclosures unless approved by APS Grounds Department.
- Design irrigation systems with capacity to place 2 inches of water per week on high water use grasses.
    - The water shall be applied in a six day period during a watering window from 10 PM to 7 AM.
- Provide reduced pressure back-flow prevention devices in an insulated, heated hot box at all irrigation points of connection.
    - Extend electrical service to the hot box location.
    - If electrical is not available the APS Irrigation Supervisor shall decide on an alternative solution.
    - To the extent practical, install hot boxes and irrigation controllers in the same location and inside a standard APS fenced enclosure.
    - The use of PVB's and AVB's will not be allowed on APS District properties.
- Bubbler heads shall be low flow pressure compensating bubblers.
    - Drip irrigation systems will not be used on APS District properties unless prior approval is provided by APS Grounds Department.
    - Irrigation systems on slopes shall be designed so that heads at the bottom of the slope are on separate valves from heads on the side and top of the slope.
- Irrigation systems shall be designed so that there is no off-site run-off of irrigation water.

****Provide separate metering for irrigation and domestic water systems with back flow prevention. Irrigation metering shall be water only. Sprinkler controls shall be in an outside vandal-proof vault.*

- ***Walkways / Gathering Areas***
    - High pedestrian traffic areas shall be paved.

**** For accessibility, walkway slopes shall comply with accessibility standards for children.*

- ***Outdoor Seating***
    - Fixed seating is required in high pedestrian areas.
    - Fixed seating with a shade structure is required in outdoor learning areas.
    - Consider an outdoor performance area.
    - Outdoor seating will be provided by the GC (not by APS FD+C or F+E). Could be exterior ground-mounted furniture, poured-in-place concrete, or other appropriate exterior application. Slope all concrete seats for best drainage.

M&O Note: Provide skateboard deterrents on all low walls, seating, and other structures that could be targeted by skate boarders. Modular play units of recycled material are acceptable except for slides. (Slides have had high UV degradation rate and vandalism in past.)

- ***Developed Area***
    - The school shall be developed as completely as practical with building area, landscaping, traffic areas, hard-surface play areas, and pedestrian ways with the intent of minimizing vacant, dirt areas and nuisance ponding.

*** Non-landscaped areas impose legal storm water and fugitive dust control issues on APS.*

- ***School Gardens***
    - School gardens are driven by curriculum which is approved by APS School Gardens and utilization data. Budget-permitting, an area may be set aside for a school garden. In design, work with the FD+C Cluster Team.
    - School gardens are located at all school levels, although most are at elementary schools and must be coordinated among APS School Gardens department,

General Concepts

FD+C, M+O, and the school.
- The school garden must have principal support and developed curriculum, community gardens are not permitted on school property.
- Size for manageability. In locating, work with FD+C, consider sunlight, irrigation, and future campus development.
- Coordinate with M&O or FD+C regarding irrigation.
- Quick coupler valve with main line installation is the preferred option. Second option is a quick coupler tied to irrigation system and coordinated timing with M&O. Third option is a building hose bib.
- All irrigation and equipment must be installed through an APS-approved contract for M&O to repair or maintain.
- FD+ C will provide the APS School Garden Coordinator with the recessed garden bed, an accessible raised planter, and a quick coupler valve.
  - Raised planters are recommended for accessibility and may be constructed of concrete, CMU, or non-toxic wood.
  - Planters should be no wider than 3 feet.
- Site water flow should be towards the garden area to conserve water.
  - Consider water quality of rainwater; water catchment systems are not recommended for watering plants that may be consumed by students, staff, and people due health and safety concerns.

- If a greenhouse is programmed:
  - The greenhouse is an instructional space used for growing plants.
  - Consult with APS Staff Architect for prototype examples. The greenhouse at South Valley Academy is one example. Another example is at Sandia High School.
  - Greenhouses may be shared among various school programs. For example, high school greenhouses may be shared between science and culinary arts.
  - Provide an adjacent outdoor work area, such as a patio or garden space.
  - Provide a utility sink with drain boards and threaded faucet.
  - If skylights or high windows are provided, include motorized blinds to control daylighting.
  - The greenhouse shall be ADA compliant.
  - A greenhouse should include: a door lock, shelving, ventilation, 2 foot deep shelves.
  - Add irrigation inside (hydrant) and outside of greenhouse, with a timer (battery operated) to control water.

- ***Drainage Design Directives***
  - The site shall be graded to ensure effective drainage directed away from buildings, pedestrian traffic, and congregation areas.

    ****Due to requirements of new federal regulations for storm water pollution protection, leaving large areas in bare soil is no longer acceptable. Recommendation shall plant perimeter areas in native grasses and provide a permanent irrigation system to support initial germination and allow for sustaining the area in drought conditions.*

  - Drainage requirements
    - Water shall not discharge over sidewalks.
    - Discharge on the north side of a building shall be avoided over walks or traffic areas.

    - Drainage shall be removed by adequate catch basins and drainpipes.
    - Roof drainage shall be directed away from the building and not flow into the landscape areas adjacent to buildings, except when intentionally designed for water harvesting.
    - Recreation and play areas shall be properly drained at about 2% slope.
    - Drainage into public rights-of-way is prohibited unless approved by governing authority.
  - Roof Drains
    - Provide a paved swale extending from the point where the roof drain exists to a point where it exits the landscaped area.
    - Pave these swales with either concrete, or rip-rap that is embedded in cement.
      - No loose cobble swales shall be allowed on APS District properties.
  - Landscaped Area
    - Water harvesting in landscape areas is encouraged.
      - The depressions for harvesting water must be shallow enough to drain quickly upon a storm event and shall not hold water for more than 96 hours.
      - Depressions greater than 18 inches in depth or not draining within 96 hours must be fenced.
    - Provide a paved drainage swale extending through a landscape/planting area to a point where it exits the landscaped area.
    - Pave drainage swales with either concrete, or rip-rap that is embedded in cement.
    - Provide drainage drop inlets with an apron of cemented rip-rap placed around the entire drop inlet.
      - The rip-rap apron shall be at least 18" wide.
      - This rip-rap apron is in addition to the standard concrete apron and will not be substituted for the standard concrete apron.
    - Sidewalk culverts are not allowed.

LEED®: Consider design elements for storm water management such as water harvesting, minimizing erosion and wind-blown dirt, and reducing off-site impact of on-site water generation towards levels of pre-construction runoff volume. Wetlands or vegetated side slopes of naturally designed ponds may qualify for points.

Site Recreation

- The school site shall provide outdoor recreation and learning areas suitable for age of student population served.
- Playgrounds shall only be built at elementary and prekindergarten school facilities. Refer to the APS Playground Standards.
- High schools may have a concessions stand, which includes restrooms. Locate the concessessions stand to be central to all fields/athletic events and be cognizant of Title IX equity.

- ***Physical Education and Athletic Facilities***
  - All physical education and athletic facilities, including exterior playing fields, must be equal (quality and quantity) for male and female per Title IX requirements and must meet all requirements of the Americans with Disabilities Act.
    - High School playing fields and courts that are intended for competition use must

meet the requirements of the National Federation of High School Associations (NFHS), including overall dimensions, line markings, and safety zones.
    - All fields less than 1 contiguous acre shall be artificial turf.

- ***Standard Fields***
    - Elementary School:
        - 23,690 SF, Artificial Turf. Approximately 160 LF x 148 LF or similar.
    - Middle School:
        - Artificial Turf = 54,100 SF, Oval shaped with longest dimensions approximately 190 LF x 327 LF.
        - Natural Grass = 73,800 SF. Oval Shaped with longest dimensions approximately 180 LF x 410 LF.
        - Track surfaces surrounding natural grass fields at middle schools are graded earth, which are maintained by M&O. The tracks are approximately 20 FT wide.
        - Track surfaces surrounding artificial turf fields at middle schools are asphalt with flush height concrete curbs at edges.
    - High School:
        - Multipurpose Synthetic Turf = 330 LF x 195 LF playing field area plus perimeter safety zone. Provide striping for both soccer games and football practice.
        - Track and Field/Football Practice Synthetic Turf = Playing field per NFHS requirements (360 LF x 160 LF plus restraining line and perimeter safety zone).
            - Include 400 meter perimeter track with (6) 42 inch lanes with an (8) lane straight away per NFHS.
            - Track shall be polyurethane (not latex).
            - Put concrete around the outside of the track. Dirt on the outside of the track will destroy the surface. Limit sprinklers adjacent to track.
            - Configure track and field for efficient use of limited space.
            - One D-end of the field shall be polyurethane for track and field events and the other D-end shall be synthetic turf.
            - Locate javelin and discus activities for close adjacency.
                - Pole vault pit
                - Long jump pit
                - Discus and javelin
        - If providing natural grass: 77,000 SF, or as dictated by field use, with playfield and track dimensions as noted above and per NFHS requirements.
        - Provide pedestrian access to field for students, athletes, and spectators.
        - Provide perimeter field fencing with vehicular access gates for maintenance.
        - Provide scoreboard, including electrical and data needs for scoring table.
        - Provide ADA accessible bleachers (5 rows) at high school fields.

- ***Tennis Courts***
    - Provide 4 tennis courts per high school.
        - Recommended orientation of courts north-northwest by south-southwest at approximately 22 degrees (true north).
        - If feasible, locate courts for potential expansion from 4 to 6 courts.
        - Court standards:
            - Provide post tensioned concrete slab designed for the soil conditions, ideally if budget is permitting. Otherwise provide reinforced concrete slab.
            - Provide textured acrylic surfacing for concrete tennis courts and epoxy

sealant with acrylic resurfacer.
            - Surface drainage: pitch 1 inch per 10 feet. Each court should be in one plane and pitch side to side; never up or down to middle court.
        - Provide court dimensions (for doubles play), line marking, net posts, nets, perimeter safety zones, and other standards per the NFHS.
        - Provide 10 foot high perimeter fencing for ball containment and to secure courts. Include pedestrian gates.

- ***Soccer Field***
    - Play field dimensions shall comply with the requirements of the NFHS. Specifically: 195 feet by 330 feet (actual field dimensions; additional border width required for safety zone).

- ***Baseball and Softball Fields:***
    - Field dimensions shall comply with requirements of the NFHS.
    - Fields shall be sloped to drain from the center towards both sides.
        - Field facilities shall include (for both baseball and softball):
            - Backstop, field fencing with cap, foul ball poles
            - Dugout with tall fence protection (8 feet)
            - Bleachers - 5 row (may require protective netting)
            - Pitcher warm-up area
            - Batting cage
            - Storage (400 square feet each, not combined)
            - Mind uses on the other side of the fence outside the field; protective netting may be required.
            - Outfields of the baseball/softball fields may be used by PE and other athletics in the fall.

- ***Basketball Courts***
        - If space is available on site, Provide 2 to 4 outdoor basketball courts for middle and high schools, and 2 outdoor basketball courts for elementary schools.
        - If space allows, court dimensions shall be 85'x50'
        - Court surface material shall be concrete, with striping painted per the National Federation of State High Schools (NFHS) guidelines to the extent feasible.
        - Outdoor courts are recreational in nature and may be smaller than regulation high school size due to space limitations.

General Concepts

Section 03

School Design and Construction Integrity

General

- ***Sites, facilities, and building systems shall be designed and constructed to:***
  - Provide safe and healthy environments for learning.
  - Provide reliable and predictable, cost effective operation.
  - Require minimal maintenance.
  - Be durable.
  - Be energy efficient, capitalizing available resources to maximize energy performance and sustainability.
  - Use safe materials that are free of asbestos and lead as well as stabilized for fiber and gas vapor discharge. Use paints that are low volatile, washable, easily matched, and durable.
  - Reflect APS commitment to excellent stewardship of taxpayer dollars.
  - Be responsive to their immediate context and the community they serve.

- ***Accessibility***
  - School facilities shall be designed for universal access.
  - All accessible elements must be age appropriate.

Building Components

- ***Structural System***
  - Provide reasonable flexibility and be adaptable to meet changing educational program needs.

- ***Foundations***
  - Provide positive drainage away from foundations.
  - Where utility trenches are adjacent to building foundations, provide drains and sump pumps as needed.
  - Consult the project geotechnical study/report.

- ***Floors (Slabs / Balconies / Porches)***
  - Provide adequate strength to support structural loads imposed.
  - Provide a vapor barrier under concrete slabs.
  - Floor surfaces shall drain, be appropriate for any covering material, and be weather resistant.
  - Consider strategies to prevent excessive cracking, achieve levelness and other concrete issues.

- ***Walls***
  - Walls shall be weather-tight, with junctures sealed.
  - Joint patterns shall facilitate graffiti treatment by allowing M&O to treat a panel or subdivision of the wall without treating the entire wall.
  - Avoid wall systems that are easily damaged or penetrated, especially in areas that have high traffic, ball impact, or are prone to vandalism.
  - Avoid exterior metal panels that are below 8’-0” above adjacent grade.
  - Artwork or murals on walls or attached to the building must be able to be removed.

- ***Exterior Openings, Windows, and Translucent Panels***
  - Design exterior glazing (including windows and storefront systems) in accordance with APS Glazing and Window Standards, Door Hardware Standards, and APS Aluminum Storefront Specification on the FD+C website.
  - Incorporate appropriate daylighting strategies to minimize electricity consumption, control glare and heat gain .
  - Glazed and translucent panels shall:
    - Meet size limitations defined in APS Glazing and Window Standards.
    - Meet Energy Conservation Code and other applicable code requirements.
    - Be clear. No tinting or films allowed unless authorized by APS staff architect.
    - Have regular/rectangular geometry. Minimize shape cut glass. I.e. glass not square or rectilinear in shape.
    - Be recessed to receive window treatment.
    - Have a sill height of 30" above grade minimum at all exterior locations.
    - Interior sills may be at floor level, provided that the glazing location does not impede maintenance/cleaning equipment, and does not require privacy screening (i.e. glazing will not be adjacent to chairs, conference tables, desks, etc).
    - Be accessible for ease of cleaning and removal at all locations. Ground level glazing shall be removable from the exterior. Upper floor level glazing shall be removable from interior floors. Multi-story glazing in open areas shall be removable from the exterior side.
    - Consider and prevent hazards at operable window locations.
      - Provide bird and pest deterrent to protect air quality.
      - Do not project into walking pathways.
  - All windows, including interior windows at classrooms, below 6' AFF are required to be covered (blinds or shades) for security.
    - Window coverings, including both manual and electrically operated, shall be provided and installed by the general contractor.
    - Approved manufacturers: Roller shades: Draper and MechoShade (have been the only ones to pass the specification qualifications), 3% openness with a color of oyster-grey (fire resistant fabric).
    - Black out shades only in special circumstances, where approved by the APS staff architect
  - Electronically operated shades are required for all high windows in teaching spaces, including libraries.
  - Operable window hardware and screen application shall not interfere with the ability to install window treatments/coverings.
  - Design kitchen windows to provide natural light while minimizing potential for break-ins. Solar tubes are a possible solution.

- ***Roofs***
  - Design roofs in accordance with APS Roofing Standards documents on the FD+C website. Click links below:
    - Roofing Design Guidelines & Specifications (PDF)
    - Roof Drain No Hub Coupling (PDF)

- ***Interior Walls and Partitions***
  - Provide smooth surface walls (i.e. Gypsum board finish level 4 in public spaces and level 3 in back of house). Back of house areas include storage rooms, janitor closets, mechanical, electrical, and IT rooms.
  - Provide level 2 finish where walls extend above ceilings.
  - Do not specify level 5 finish.
  - Use semi-gloss paint on all interior walls, including support spaces (i.e. custodial, electrical, mechanical, and IT rooms).
  - If providing writable wall surfaces, (Dry-Erase paint or similar), then install the writable surface full-height or up to 7'-0" AFF, minimum. For Elementary, the writable surface is to extend to floor or top of wall base, and to be differentiated by color variation.
  - Provide 2" stainless steel or heavy-duty clear plastic corner guards at all high pedestrian traffic areas.
  - Provide impact resistant surface in lower 48" (minimum) of hallways. Acceptable materials include concrete masonry units, tiles, fiberglass reinforced gypsum wallboard, or 2 layers of 5/8" gypsum wallboard.
  - Multiple fixture student restrooms: Tile to extend to top of partitions or ceiling.
  - Staff restrooms/ single occupant restrooms: Tile up to 4'-0" min.
  - Provide metal toilet partitions in most restrooms, except where high impact and vandalism is anticipated. In such restrooms, provide CMU toilet partitions.
  - Avoid high, flat surfaces or ledges which are difficult to access and maintain. Consider an angled ledge.
  - Comply with fire code requirements for allowable area of tack boards at walls.
  - Wall-mounted (and items attached to walls), including restroom partitions, grab bars, pencil sharpeners, counter top supports, door bumpers, and shelf supports need to have solid backing. No strap backing at these locations.
  - Additional guidelines for modular wall systems.

- ***Doors***
  - Doors shall be of sufficient width and threshold clearance to be accessible to persons with disabilities. Apply universal design.
  - Provide wider door widths, or removable mullions, at doors into hallways, kitchen, cafeteria, gymnasiums, mechanical rooms, and other spaces that may need to accommodate movement of large equipment.
  - Where doors include windows/lites that require window covering, the opening must be above the door hardware/opening mechanism. An alternative could be to provide a solid door with adjacent sidelite. This is typical at classroom doors and private offices. Entry doors do not usually require window covering.
  - Classroom doors shall be recessed and open outward. Classroom doors shall be solid core wood, with adjacent sidelite.
  - Provide view lites in public access doors including main office and hallways.
    - Locate view lites for use by students, including those in wheelchairs.
    - Limit size of view lites to half-lite above hardware.
  - Attach all doorstops and bumpers mechanically into robust blocking.
  - Review flush bolt locations with M&O.
  - Door hair pins need to be set at 120 degrees and in line with door.
    - Door hair pins must be present at exterior doors and at all doors exiting the gym, and not conflict with accessibility.
  - Roll up doors should not be encased in hard ceiling.
  - Card reader and key access control to be located at elevators.

- Additional requirements for exterior doors:
  - All main exterior entry and exit doors shall be located in an air lock (vestibule), open outward, and have panic hardware.
  - Provide power assisted, automatic door opener, entry doors at the main entry/exit and at the parent and bus drop-off locations.
  - Coordinate card reader locations and access control device or camera phone with the APS staff architect and APS security team.
- Refer to:
  - Door Hardware Standards
  - Aluminum Storefront Specifications
  - Glazing and Window Standards
  - Electrical Design Standards

- ***Interior Floors***
  - Surfaces shall be non-skid, attractive, durable, free from projections, and easy to clean without the use of special equipment.
  - Floors in restrooms, kitchens, cafeterias and hallways shall tolerate disinfecting chemicals.
  - All floor tiles shall be slip resistant.
  - All carpet shall be carpet tiles and shall comply with the following specifications on the FD+C website:
    - Interface Carpet Tile Specifications
  - Where patching is required, use self-leveling floor patch.
  - Hard surface areas to be exposed concrete wherever feasible.
  - Provide the following floor finishes in designated spaces (consult the APS staff architect for exceptions):

Space	Flooring type	Notes
Classrooms (grades K – 5)	1/3 polished concrete, 2/3 carpet tile	
Classrooms (grades 6 -12)	Polished concrete	
Hallways and circulation areas	Polished concrete	
Entry vestibule	Walk off carpet tile mat	Do not use metal slatted mud mats
Administration, reception, and offices	Carpet tile	Carpet tile may be used in other quiet areas. Verify additional areas with the APS staff architect
Student health and nurse's office	Sheet linoleum or polished concrete	Commercial grade with welded seams
Elementary gymnasiums / multi-purpose rooms	Rubberized flooring	With coordinated cove base
Middle and high school gymnasiums and cheer rooms	Athletic wood flooring	Main and auxiliary gymnasiums
Cafeteria	Polished concrete	
STEAM Labs	Polished concrete	

Kitchen	Polished and sealed concrete, or homogeneous sheet vinyl with welded seams (for example: Polyflor)	Kitchen floors must be sealed, have texture to improve slip resistance, and be easily cleaned including the serving line area. Install kitchen cove base continuous from bottom up. No white color flooring.
Library / media centers	Carpet tile	
OT/PT classrooms	Resilient flooring	Resilient flooring may also be preferred in some special education spaces; coordinate with the APS staff architect.
Science classrooms	Polished concrete	
Music classrooms, band, orchestra, and chorus	Carpet tile	
Art classrooms	Polished concrete	
Drama classrooms	Polished concrete	
Family and consumer science classrooms	Polished concrete	
Teachers' lounge	Polished concrete	
Teachers' workroom/bullpen	Carpet tile or polished concrete	
Restrooms	Ceramic tiles	Provide ceramic tile wainscot with cove base
Mechanical, electrical, IT/data, and custodial rooms	Sealed concrete	Includes IDF and MDF

- ***Ceilings***
  - Ceilings shall not be lower than 8'-0". Some functions may require higher ceilings. Discuss ceiling heights with the APS staff architect.
  - Texture and reflectivity shall support illumination appropriate for the intended space use. For gypsum ceilings, provide level 4 finish in public spaces.
  - For all wet areas use only moisture-rated board ceilings. In student restrooms, use moisture-rated gypsum board ceilings.
  - For kitchens, ceiling has to be washable (not just wipeable). Use mylar or other cleanable surface lay-in ceiling panels approved for kitchen use.
  - Preferred acoustical ceiling tiles include Armstrong Fine Fissured School Zone, High NRC/High CAC product 1734 or the USG Equivalent which is Radar ClimaPlus High NRC/High CAC, or equivalent Rockfon product.
  - If required by code, use fire-rated ceiling tile #1810/1811 fine fissured 'fireguard' high NRC/High CAC.

- ***Casework***
  - Counter-tops and work counters to be solid surface if possible. Post form is acceptable. See APS's Custom Plastic Laminate Casework Standard.

- ***Acoustical Requirements and Sound Transmission***
  - Comply with current LEED Indoor Environmental Quality (EQ) prerequisite and credit for acoustical performance.

- Design walls, floors, and ceilings to absorb or retard transmission of unwanted sound from outside the space, speech transmission between learning spaces and offices, and high noise producing spaces due to occupancy or tasks performed.
- Locate and treat electrical boxes, receptacles, and other recessed wall devices to avoid sound transmission through the wall.
- Noisy spaces may require sound absorbing treatment in addition to sound wall construction, especially for gym/multipurpose, music, and cafeteria areas. Refer to/comply with LEED minimum requirements even if not a LEED project.
- Gyms, multipurpose rooms, and cafeterias must support sound systems associated with audio/visual (AV) equipment and infrastructure, as well as provide reasonable acoustics for performance/stage areas.
- Provide acoustical separation between the kitchen and cafeteria. Avoid use of grate style doors due to sound transmission.
- Minimize exterior sound transmission to neighbors.

Signage

- ***Interior Signage***
  - Identify all occupied spaces with room signage.
  - Verify with the APS staff architect if the project will have signage in multiple languages (most applicable at dual language schools/programs).
  - Comply with ADA sign regulations.
  - Coordinate signage schedule with site (school) administration.
  - Coordinate room numbers with the APS staff architect, who will consult with APS CMP. (Note: If feasible, this coordination occurs during the design phase and the room numbers are incorporated into the construction documents. Otherwise, include final room numbers in the Record Drawings.)
  - Provide occupancy load signage in assembly areas (for example: gyms, multi-purpose rooms, libraries, media centers, cafeterias, PACs, etc.).

- ***Exterior Signage***
  - Signage shall be vandal resistant, easily visible from a distance, and compliant with ADA requirements.
  - Each school site shall include the name of school and street number visible from the street. Mount building mounted signs high enough to deter graffiti and vandalism.
  - Coordinate signage requirements with the Fire Marshal and their written requirements.
  - Signage for traffic directions, safety, traffic control, ADA, and parking shall be provided and installed by general contractor.
  - Signage that prohibits smoking and skateboarding shall be provided and installed by the general contractor.
  - Signage that states "APS Property Extends Beyond This Point" as applicable. Coordinate signage with APS Real estate.

- ***Monument Signs***
  - Provide a monument sign at new schools.
  - The monument sign is a free-standing, durable sign that has the name and address of the school along with a non-electric, non-illuminated, and optional protected message board. The monument sign should be less than 8'-0" high and located on the site to be visible from cars passing on the main road in front of the school without creating a visual barrier for traffic.

- ***Marquee Signs***
  - Marquee signs and the required infrastructure are not installed under FD+C contracts. Installation and maintenance must be provided by the school.

Common Educational Areas and Support Spaces

- Plan for Flexibility
- Facilities shall support the district's current educational programs and curricula. Build into facilities ability to adjust to future changes in:
  - Educational, instructional, and functional/programmatic needs, including community use
  - Student enrollment (expansion and contraction)
  - Technology
  - Create environment that promotes educational programming and enhance students' and teachers' academic experiences.

- ***Communication and Information Technology (IT)***
  - The general contractor provides data and special systems rough-ins. APS provides data and special systems cabling, terminations, and equipment, unless noted otherwise.
  - Provide one MDF per school. The MDF room must be located on the ground floor and be sized at 12' x 14'. The MDF room needs separate HVAC. Locate MDF and electrical rooms in a central location. Coordinate distances required for cabling and voltage drops with APS FD+C and APS Technology. See electrical standards.
  - Locate IDF rooms such that areas served are within 150 to 200 feet max. The IDF room must be stacked above the MDF room, and stacked above other IDF rooms where applies. IDF rooms to be sized 10' x 12' and may require separate HVAC, verify with APS Technology. No sinks in IT rooms.
  - Learning and office spaces shall accommodate communication and information technology.
    - Provide one 2-port face plate on each wall in classrooms. (8 data drops total in 4 locations.)
    - Pair corresponding number of electrical outlets with data drops.
    - Power poles and columns are not allowed.
  - Coordinate data and special systems locations with APS Technology and on-call contractors (Coordination occurs through the APS staff architect/construction manager). Provide infrastructure for a mobile interactive flat screen in each classroom, instructional space, and conference room. Instructional spaces include music, art, gym/multi-purpose, Family and Consumer Science (FACS), etc.
  - Printers
    - No printers in classrooms.
    - Provide power and data for printer in Individual Educational Plan (IEP) conference rooms.
  - STEAM labs (Utilization data from CMP determines the number of labs.)
    - District uses 1:1 student devices and traditional labs are evolving into

Design and Construction

flexible technology labs and STEAM labs.
    - Coordinate wireless access point (WAP) location with APS technology.
- Include communication and technology infrastructure and equipment in construction documents. Clearly identify in the construction documents who is responsible for providing infrastructure versus cabling versus equipment (i.e. GC vs owner's on-call special systems contractor).
- Telephones are VOIP (voice over IP) and require a data outlet.
- Large projection screens for assembly:
    - In one location only per school, provide a drop down large screen and projector, sound system and podium.
    - Typically, the large projection screen and related devices are located in the Cafeteria, Commons, Gym, or Multi-purpose building. (One location per school only; not all.)
    - Provide power and data to support technology.
- Consider location for storing and issuing technology devices. (I.e. in library, book room, tech storage room, etc.). A high school may need up to 150 extra devices available.
- Schools need more charging locations for technology devices throughout the school than they have needed in the past due to 1:1 student devices.

- ***Zoning and Supervision of Common-Use Areas***
    - Strategically locate common use areas near the front entrance to the school. Provide the ability to secure common use areas separately from the remainder of the facility. Access to common use areas shall be controlled from the front entrance. Large gathering areas shall be designed for effective supervision. Common use areas include:
        - Media Center
        - Cafeteria / Kitchen
        - Gymnasium
        - Performing Arts Center (PAC)
        - Restrooms

- ***Facility Entrances and Exits***
    - All visitors must pass through a reception area that is secured from the rest of the school (Single Point Entry/ Secure vestibule).
    - The main facility entrance shall be visible from the main office.
    - Entrances and exits shall permit efficient student circulation.

- ***Corridors and Lobbies***
    - Provide display cases with safety glass for student work and awards near the main office/entrance, art and music classrooms, and main gymnasium. At high schools, also provide display cases with safety glass near/for each academy.
        - If display cases have integral lighting, verify that bulbs can be easily changed.
        - Consider corridors or hallways within a school as an opportunity for student interaction, enhanced way-finding, and place making.

- ***Student Lockers***
    - Can be provided at the request of the school.

- Distribute lockers evenly for student access. In high schools, distribute lockers among the Academies and Small Learning Communities.
- Locate lockers in corridors or dedicated alcoves. Successful approaches include:
    - Two-tier lockers in corridors if against the wall.
    - Two-tier lockers along walls with lower one-tier lockers in the middle to allow supervision.
- Basis of Design: Lockers shall be constructed of one-piece (Unibody) side frame and locker front. All welded body with no rivets, screws or bolts. Powder coated 2-tiered, 16 gauge doors with louvers, 16 gauge body steel units with high security latch with no moving parts to receive pad lock, one double hook on ceiling and 3 single hooks on walls.
- Aluminum number plate. Two-tier lockers will be 15"W, 60"H, 15"D. Built-in with furr-out above lockers to ceiling or angled top and built-in solid base or coved sealed base on metal legs.

- ***Kitchen***
    - Some schools are served from the APS central kitchen, yet most schools have on-site food preparation. The contract A/E will meet with Food and Nutrition Services for current operating needs prior to design.
    - (See Appendix D for Guide to Space Planning of a School Food Service Facility based on the number of meals served).
    - The serving line shall be free of any hazards to students (e.g. hot surfaces).
    - The kitchen shall include the following areas.
        - Food preparation area with vegetable sink.
        - Dish/pot washing area (requires a 3 compartment sink) and grease trap located on the exterior.
            - At the HS level, include (1) 4-compartment sink with a garbage disposal.
            - Sink basin dimensions shall be sufficient for full sheet baking pans.
        - Cook/prep/serve area with hand sink, soap dispenser - surface mounted with screws (receives APS supplied pouch soap refills – verify specified model with FD+C), and paper towel dispenser - surface mounted, stainless steel, lever operation (receives roll towels).
        - Cold and hot storage equipment.
            - Include a walk-in freezer/refrigerator with wire rack shelving. Conceal drain lines, or locate out of traffic areas. In new construction, recess the walk-in units for flush door access. Ramp access as necessary is acceptable in existing facilities only.
            - Include 2 to 4 transporters for hot food.
            - Provide reach-through units for hot food with universal shelving.
            - Provide pass-through units for cold food with rolling wire rack shelving units.
        - Dry storage.
            - Provide door widths to allow for roll- through carts.
            - Must be able to maintain temperature range between 50 – 70 degrees.
        - Restroom for the staff with separate area for staff lockers and electric washer / dryer units.
            - Kitchen bathroom must have a door and door closer.

- Locate staff lockers outside kitchen restroom, not inside the restroom.
- Office with telephone, fax, and data. Provide a window to view into the kitchen.
- Custodial area in the kitchen with mop sink. Provide rack for the contracted chemical system.
- Serving line - Requires power and data at both ends. Coordinate with APS staff architect/ food and nutrition.

- Floors, walls, ceilings, doors
  - Surfaces must be able to be disinfected.
  - Provide stainless steel behind cooking and washing areas (floor to ceiling or to height of equipment). Use fiberglass reinforced panels (FRP) on remainder of walls up to 8 feet throughout the kitchen.
  - 18" minimum back-splash around stoves, sinks, and dirty tray drop-off.
  - For kitchens, ceiling has to be washable (not just wipeable). Use mylar or other cleanable surface lay-in ceiling panels approved for kitchen use.
  - Lay-in tiles are acceptable.
  - Provide accent wall(s). Avoid an institutional look.
  - Tray drop off area needs a washable surface wall on customer side.

- ***Plumbing:***
  - Provide cold water supply to all refrigerator locations.
  - Provide dedicated water break for backflow prevention.
  - Provide back flow prevention on mop sinks.
  - Hand wash sinks required and the number of sinks depends on the size of the kitchen. Typically provide:
    - One near the serving line.
    - One in the food prep area. Cook/ prep/ serving area may need multiple hand sinks.
    - One in restroom inside and one outside the restroom (might be same as the food prep sink).
    - One in snack bar area.
  - Tilt skillet needs water and a drain. Make sure drain is located under where skillet tips the fluid.
  - Regarding hot water, the kitchen must meet a minimum time required for getting hot water.
  - Provide solar preheating of hot water for kitchen use.
  - In elementary schools, provide a location to dump milk to be discarded, near the tray drop off area.
  - Locate grease traps outside, for ease of maintenance, and away from the door due to smells.

- ***FF&E:***
  - Equipment lists are in Appendix E: Kitchen size will impact requirements.
  - Provide roll paper towels dispensers with paddle operation.
  - Food services will provide their own soap dispensers.
  - Snack bars: if run by Distributive Education Clubs of America (DECA) provide a soap dispenser.
  - Provide 44-gallon trash cans. Kitchen requires multiple trash cans.

- Restroom needs small trash can with no touch lid.
- Provide racks and hanging clips for mops and cleaning tools. Avoid conflict with mop sink faucet/handles.
- Provide space in custodial area for a rack for the contracted chemical system (current contractor system is an "eco-lab system." Dish soap/ hand soap / chemical rack there.)
- Provide serving line. Height of serving depends on school level.
- Provide space for office furniture: a desk, chair and 4 drawer filing cabinet.
- All storage shelving needs to be anti-microbial. GC will provide fixed, non-rolling shelves in dry storage, refrigerator and freezer.
- Provide small staff lockers. Staff will bring their own locks.
  - Provide (1) box locker per kitchen staff.
  - Each locker shall be 12" x 12" x 12".
  - Locate the staff lockers outside of the kitchen restroom.
- Provide an area with lockers and stackable electric washer/dryer units.
- Milk cooler needs to be a forced air cooler.
  - Buffer sounds from milk coolers. Locate in an alcove. Consider heat from equipment.
- After school programs need access to milk cooler(s) and reach-in refrigerator(s). The after-school coolers and refrigerators need to be located such that they can be secured and do not require access through the kitchen.
- Consider staff access to roll up gates at dish area for operations. Avoid gates that are out of reach and difficult to secure.
- Provide a kitchen receiving area:
  - Provide sufficient access for delivery vehicles into a receiving area through a 3' - 8" door (minimum clear area) x 7'-0" high screen door and fly fan entry. Cover screen on door with expanded metal covers on both sides to protect screening.
  - Provide doorbell and peephole at rear entry.
  - Provide door hardware to hold the door open for delivery.
- Provide a dumpster area for trash pick-up: Coordinate with M&O Grounds.
  - Provide sufficient access for pick-up by garbage trucks.
  - Shield exterior trash area from major sightlines. Locate dumpsters close to kitchen door, but not too close (rodents).
- Kitchen technology requirements:
  - The kitchen frequently requires a Holocom box. Verify this requirement with APS IT based on proximity of technology infrastructure.
  - Data is required for the kitchen office. Provide three data drops with power located at three walls of the office.
  - Provide technology to track the freezer temperatures.
  - Provide data and power at the front and end of the line (two data drops) for cashiers at serving lines and at the snack bar.
  - Provide power and data for future menu board at the serving line.

- ***Custodial Areas***
  - Provide a minimum of one custodial closet per floor, per building.
  - Provide a dedicated custodial area for the kitchen.
    - In the kitchen, the custodial area does not require a door. It does need to be out of view from the serving line.

- Coordinate chemical dispenser requirements with APS staff architect and M&O.
- Custodial areas/closets shall include:
  - Floor mounted mop sink with hot and cold water, chemical dispenser, and back-splash.
  - Mop holder with shelf.
  - Provide space for shelving for custodial supplies storage.
- Space for a custodial cart.
- Custodial offices require power and data.

Restroom and Drinking Fountains

- ***General***
  - Provide one unisex "family style" restroom adjacent to each 'A occupancy' space (gym, cafeteria, or as required by the building code); and provide one unisex restroom that is visible by line-of-sight from the Administration area.
  - Provide a urinal in each unisex restroom.
  - Provide the maximum number of boys' urinals that is allowed by code in lieu of water closets. Provide full height walls or stalls for urinals rather than screens.
  - Provide plumbing chase access for all multi-fixture restrooms.
  - Lavatory sinks shall be single occupant use, wall-mounted on heavy-duty carriers per manufacturer's instructions. No multi-occupant wash basins. No battery operated faucets or sensors. No soap dispensers that are integral to the sink unit.
  - Restrooms shall be accessed from interior space; no direct access from the exterior.
  - Provide restrooms for students, staff, and visitors convenient to the areas served.
  - Install changing tables only when new construction of a restroom. Provide changing tables in the restrooms that are adjacent to public spaces, cafeteria, library, gymnasiums. Provide signage to identify restrooms with baby changing stations. Coordinate the changing table locations with APS staff architect and APS ADA construction manager.

- ***Drinking Fountains***
  - Filtered, non-refrigerated.
  - Locate drinking fountains at central and convenient locations on each floor or wing of the school, in vestibules near playfields, and in or near portables and parks. Distribution of accessible drinking fountains shall be the same, except for areas not readily accessible in existing schools.
  - Provide drinking fountains in the cafeteria/dining area (USDA requirement).
  - Provide bottle fillers with half of all drinking fountains with a minimum of one bottle filler per floor. Locate bottle fillers in public areas. Filters and indicator lights are required on bottle fillers. Filters must be located within the fixture housing. Filters for bottle fillers located within a wall cavity are not acceptable, regardless of whether access panels are provided, they must be accessible for maintenance.
  - Provide carrier to support drinking fountains.
  - Do not provide exterior drinking fountains.

- ***Sink and Restroom Accessories***
  - All restroom accessories shall be GC provided and installed.

- Coordinate the type of toilet and sink accessories to be provided by the GC with the APS Warehouse and the school.
- All sinks shall be provided with:
  - Soap dispenser - surface mounted with tamper-proof screws (receives APS supplied pouch soap refills – verify specified model with FD+C).
  - Electric hand dryers shall be provided in student restrooms, and may be provided in adult restrooms. Electric hand dryers shall be surface mounted with electrical connection behind the dryer, and through bolted securely to wall surface. Verify manufacturer and model with FD+C.
  - Paper towel dispensers shall not be provided in student restrooms.
  - Paper towel dispensers shall be provided at all sinks that are not served by electric hand dryers, including in adult restrooms. Paper towel dispensers shall be surface mounted, polycarbonate, paddle operation (receives roll towels). Must be ADA compliant.
- All toilet stalls shall be provided with:
  - Toilet paper dispenser – vandal resistant (Confirm that specification with existing school supplies for large jumbo or standard roll based on school preference).
  - Provide ADA compliant grab bars and accessories in accordance with reach ranges for applicable age groups.
  - Feminine trash receptacle located in each stall of elementary, middle, and high school girls'/women's staff restroom.
- All restrooms to be provided with:
  - Trash receptacle - freestanding 18-gallon capacity stainless steel (provided and placed by the General Contractor). No surface mounted or built-in trash receptacles allowed.
  - Provide recessed feminine hygiene dispensers with free operation for both pads and tampons in:
    - All female student restrooms except kindergarten restrooms.
    - All female and unisex staff restrooms.
    - All family restrooms.
    - All restrooms in the nurse's suite.
    - One male student restroom per school (verify location with APS staff architect).

- ***Student Restrooms***
  - Locate boys' and girls' restrooms adjacent to each other.
  - Provide lavatories and mirrors directly accessible from the hallway, and separate from the water closets. Lavatories shall be physically separated from the toilet facilities to allow efficient supervision/sightlines.
  - Provide "airport style" entrances (no doors or gates) at all student multi-fixture restrooms. The design must provide visual blocking of stalls and urinals while maintaining open access.
  - Airport design shall include separate entrances for boys and girls.
  - Kindergarten Restrooms:
    - Kindergarten restrooms shall be located inside kindergarten classrooms.
    - Kindergarten fixtures shall accommodate Kindergarten students (not pre-kindergarten).
  - Refer to Children's Accessible Elements Table for mounting heights and reach ranges.

- ***Staff Restrooms***
  - In addition to men's and women's staff restrooms, provide unisex staff restrooms to meet code/fixture count requirements and to provide flexibility.

Classrooms

- Classrooms and rooms for student learning shall have:
  - Natural light
  - Power and data
  - Built-in casework. General classrooms typically include at least one full-height wardrobe unit (36"W) and 12 LF of base and upper cabinets with countertop.
  - Whiteboards and tackboards
  - Wall-mounted manual pencil sharpeners installed on blocking

Special Education Program Overview

- The following discusses Special Education Programs throughout the District and corresponding facility needs.
- The special education department categories all special education programs into three categories:
  - Cross-categorical (serves students in levels A through D)
  - Gifted
  - District programs (all students are D level: Programs serving students with severe or multiple handicaps and primarily in need of rehabilitation and treatment, while requiring a staff person for small groups of students within the class), including preschool programs.

- ***Cross-Categorical and Gifted Program Facility Needs***
  - All Cross-categorical and Gifted classrooms follow regular classroom design standards.
  - Appendix B contains detailed design standards for the Cross Categorical, Gifted, and District programs. Consult with Capital Master Plan at the time of Design Program of Space to determine the types and quantity of spaces needed. Not all SPED programs are delivered at every school.

- ***District Level Special Education Programs***
  - District Level Special Education Program Categories are designed for a maximum of eight (8) students and special design amenities such as restrooms, changing tables, lighting, and early childhood facilities may be required depending on the program type. The following is a list of Special Education District Programs.
    - Preschool (Community Based, Intensive Global Support, and Social & Communication Support Services)
    - Social Emotional Support Services Level 1 (SES 1) formerly Emotionally Disturbed (ED)
    - Social Emotional Support Services Level 2 (SES 2) formerly PACES
    - Intensive Global Support Services Level 1 (IGS 1) formerly Functional Skills (FS)

    - Intensive Global Support Services Level 2 (IGS 2) formerly Intensive Support Program (ISP)
    - Primary Global Support Services Level 2 (IGS 2) formerly D k/1
    - Social and Communication Support Services Level 1 (SCS1) formerly AU-Social Communication
    - Social and Communication Support Services Level 2 (SCS2) formerly AU-Independent
    - Social and Communication Support Services Level 3 (SCS3) formerly AU-Emerging
  - Appendix B contains descriptions and detailed design standards for all District Level programs. Consult with Capital Master Plan at the time of Design Program of Space to determine the types and quantity of spaces needed. Not all SPED programs are delivered at every school.
  - Provision of District Special Education Programs varies at schools throughout the District and is provided in a manner giving all students equal access. To address the corresponding facility needs that reflect the scale and presence of District Level programs, schools are categorized as Hubs and Non-Hubs. The following is a definition of Hubs and Non-Hubs.
- District Program Hubs:
  - These Schools have four (4) or more District Type Special Education Programs. The Ancillary Support Suite is designed to support the larger presence of ancillary staff to serve special education students. Site master planning will reflect the presence of Special Education District Program buses. All comprehensive high schools function as Special Education Hubs.
- Non-Hubs:
  - These schools have less than four (4) District Special Education programs. Ancillary support spaces are provided and are commensurate to the quantity and frequency of ancillary support staff on campus providing service to special education students.

- ***SPED Ancillary Support Suite***
  - The Ancillary Support Suite aims to address the quantity of Special Education ancillary staff supporting students at schools throughout the District. Many ancillary staff are on a school campus on a part time basis. The design standards reflect the functional use calling for flexibility of space usage and sharing spaces.
  - The Suite accommodates a space for a staff workstation area and private student meeting area that is used flexibly by various ancillary staff throughout the day. The Suite should be located adjacent to District SPED spaces, as well as adjacent to the Transition Specialist Office at High School. The SPED Ancillary Support Suite will accommodate the following staff:
    - Social Workers (SW)
    - Speech Language Pathologist (SLP)
    - Occupational Therapist (OT)
    - Physical Therapist (PT)
    - Adapted Physical Education (APE)

- ***Standard Ancillary Support Suite Components (ES and MS) – 840 SF Total***
  - (OT/PT) Instructional/Therapy Space (500 SF):
    - This space includes an area for a table to provide 1:1 student instruction. This

room includes a therapy swing that is located at the center of the open space relative to the edge of the student instructional area. Install two hooks at 5 ½ ft. apart (see example of La Cueva High School). A whiteboard is required for instruction. Provide space for non-built-in cubbies with counter and a wardrobe for storage. Provide space and power/data for an active panel. Resilient flooring in the OT/PT and IGS classrooms is preferred over carpet. Through scheduling, this space is designed to be used fluidly by all ancillary staff, giving priority to OT/PT therapy instruction and service needs.

- OT/PT Storage (90 SF):
  - A storage area is provided with direct access to the OT/PT instructional therapy space. Double doors are provided, similar to doors found in a gym, providing access for wide equipment. The storage room also features vertical storage shelves. See diagram for optimal spatial layout.
- Office Workstation Hub (120 SF):
  - An office area to accommodate space for two workstations and cabinet to store personal belongings. More than two people, reflecting that ancillary staff positions are often part-time, may use the two workstations. Various ancillary staff assigned to the school will use the two workstations fluidly. VOIP is provided as per office standards. The office workstation has access to a one-on-one private Student Meeting Area as noted below.
- Private Student Meeting Area (130 SF):
  - A private area with access to the office workstations will allow ancillary staff to meet privately with students for delivery of instruction or service. This area will accommodate a small table and chairs for 2 to 4 people.

Standard Ancillary Support Suite, Elementary and Middle School	
Student Population	# 650
Instructional/Therapy Space with Swing (OT/PT and APE)	500
Therapy space Storage (OT/PT and APE)	90
Office Workstation Hub (60 sf each, 2 workstations)1	120
Private Student Meeting Area2	130
Total	840
1. (Social Workers, Speech Language Pathologist, Occupational Therapists, Physical Therapists, Adaptive PE teacher). For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.	
2. One Private Student Meeting Area for every 2.0 FTE. To be used fluidly by ancillary staff. The number of Private Student Meeting Areas is contingent on FTE allocation and shall be determined at the time of design program of space.	

- The above SPED Ancillary Suite is standard for all Elementary and Middle schools with the following exceptions:
- District SPED Hubs at both ES and MS require a larger Instructional Therapy Space reflecting the larger number of students served (1,180 SF):

Hub Ancillary Support Suite, Elementary and Middle School	
Space	Size (sq. ft.)
Instructional/Therapy Space with Swing (OT/PT and APE)[5.5' Min distance apart]	840
Therapy space Storage (OT/PT and APE)	90
Office Workstation Hub (60 sf each, 2 workstations)1	120
Private Student Meeting Area2	130
Total	1,180
1. (Social Workers, Speech Language Pathologist, Occupational Therapists, Physical Therapists, Adapted PE teacher). For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.	
2. One Private Student Meeting Area for every 2.0 FTE. To be used fluidly by ancillary staff. The number of Private Student Meeting Areas is contingent on FTE allocation and shall be determined at the time of design program of space. Criteria for placement of Therapy Swing: 1. Consideration to structural requirements, 2. Interface with adjacent building systems and elements (mechanical, lighting, furniture, etc.)	

Small K-8 SPED Hub Suite			
Number of spaces	Space	Notes	Size (sq. ft.)
1	OP/PT	Office , supervised wellness room	840
1	OT/PT Storage	Supervised by redirector	90
2	Student meeting Area/ Break-out Spaces (IEP)		240
1	SPED Office Hub	Includes up to 3 office work stations (SLP, Head SPED, etc)	260
Total			1,430

- ***High schools will require a larger Office Workstation Hub for up to 4 workstations. In addition, high schools will require two private student-meeting rooms. A typical high school will require the following spaces (1,430 SF):***

High School Ancillary Suite Support Spaces	
Space	Size (sq. ft.)
Instructional/Therapy Space with Swing (OT/PT)	840
Therapy space Storage (OT/PT)	90
Office Workstation Hub (60 sf each, 4 stations)1	240
Private Student Meeting Area A 2	260
Total	1,430
1.To be used fluidly by Social Workers, Speech Language Pathologist, Occupational Therapists, Physical Therapists, Adapted PE teacher. For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.	
2.One Private Student Meeting Area for every 2.0 FTE. To be used fluidly by ancillary staff. The number of Private Student Meeting Areas is contingent on FTE allocation and shall be determined at the time of design program of space.	

Community Education / After Hour Use

- The school facility shall accommodate the use of some portions of the school after regular school hours without impacting security of other portions of the school.
- Joint-use space shall be safe, secure, and include separately keyed (and in some circumstances card accessed) activity spaces (gym, cafeteria, and classrooms), accessible restrooms, and storage areas.
- Community use of school facilities shall not conflict/interfere with school programs.

Section 04

Programmed Spaces: Elementary Schools

Needs Analysis for Standards-Based Elementary School

» ***A utilization will be provided to the A/E by APS FD+C and Capital Master Plan (CMP) prior to the design of each Project. The CMP utilization will define the specific spaces required for each project. The APS Standards will define the square footage and character requirements for each of the specified spaces.***

Space Description	# Spaces	NSF per Space	Total NSF	Comments
General Classrooms				
Pre-kindergarten w/ snack area, restroom, and storage	2	1,200	2,400	Anticipated - discuss preK requirements
Kindergarten w/ snack area, restroom, and storage	6	1,200	7,200	
Teaching kitchen	1	640	640	
Standard classrooms, grades 1 - 5	25	840	21,000	
Subtotal general classrooms			31,240	
Specialized Classrooms				
STEAM / maker space	2	1,200	2,400	Could be analogue vs digital or lower vs older grades
Fine arts	1	900	900	
Fine arts kiln room	1	150	150	
Fine arts storage	1	150	150	
Music	1	900	900	
Music room storage	1	50	50	Could be part of the music room; does not need to be a separate closet.
Subtotal specialized classrooms			4,550	
Media Center				
Entry / circulation desk	1	incl. w/ tare	incl. w/ tare	
Stacks	1	2,090	2,090	Up to 50 occupants (2 classes)

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Computer research area	1	480	480	Space for 16 computers
Story time area	1	450	450	Up to 30 occupants
Librarian's office	1	100	100	Locate adjacent to workroom
Workroom	1	150	150	Locate adjacent to circulation desk
Storage	1	200	200	Locate adjacent to circulation desk
Subtotal media center			3,470	
Physical Education				
Gymnasium	1	2,900	2,900	24" high minimum ceiling/bottom of structure required.
Equipment storage	1	240	240	
PE office	1	180	180	
After school office	1	150	150	
Restrooms	3	incl. w/ tare	incl. w/ tare	Provide girls, boys, and family restrooms
Subtotal physical education			3,470	
Cafeteria/Kitchen				
Seating area, including serving line	1	3,000	3,000	Accommodate school population within 3 lunch periods per day, maximum.
Serving line	1	incl. above	incl. above	
After school milk cooler and milk dump	1	incl. above	incl. above	
Platform	1	400	400	
Cafeteria storage	1	200	200	
Kitchen	1	1,700	1,700	
Walk-in refrigerator	1	incl. above	incl. above	
Walk-in freezer	1	incl. above	incl. above	
Dry storage	1	incl. above	incl. above	
Kitchen office	1	incl. above	incl. above	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Kitchen staff restroom	1	incl. above	incl. above	
Kitchen staff lockers	1	incl. above	incl. above	
Kitchen janitor closet	1	incl. above	incl. above	
Subtotal cafeteria/ kitchen			5,300	
Administration				
Secure entry vestibule	1	200	200	
Waiting/reception	1	250	250	Accommodate up to 12 people
Receptionist/clerk	1	150	150	
Secretary	1	100	100	
Principal	1	150	150	
Assistant principal	1	120	120	
Conference room	1	240	240	Accommodate up to 14 people
File room	1	200	200	
Admin work area	1	60	60	
Teachers' workroom	1	675	675	
Teachers' workroom storage	1	80	80	
Mailboxes	1	40	40	
Teachers' lounge	1	850	850	
Family room (parents' room)	1	400	400	
Adult restrooms	2	incl. w/ tare	incl. w/ tare	
Subtotal administration			3,515	
School Nurse's Suite				
Waiting area	1	80	80	
Treatment room	1	250	250	Locate half of required cots in the treatment room
Recovery/isolation room	1	180	180	Locate half of required cots in the recovery/ isolation room
Restroom	1	80	80	
Nurse's office	1	130	130	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Storage	1	45	45	
Subtotal school nurse's suite			765	
Counseling Area				
Waiting area	1	80	80	
Counselor office	1	150	150	
Head SPED office	1	150	150	
Instruction coach office	1	150	150	
Evaluation and testing	1	100	100	
Conference/IEP room	1	240	240	
Subtotal counseling area			870	
OT/PT Suite (non-hub) See appendix for hub requirements				
Instructional / therapy space	1	500	500	
Instructional / therapy storage	1	90	90	
Workstations in shared office (for social workers, speech/language pathologists, occupational therapists, physical therapists, and adapted PE teachers)	2	60	120	2 workstations, 60 NSF each. Social workers, speech/language pathologists, occupational therapists, physical therapists, and adapted PE teachers share the workstations. Provide 1 workstation per every 2.0 FTE.
Private student meeting room	1	130	130	
Subtotal OT/PT suite			1,710	
Programmed Facilities Support				
Security office	1	150	150	
General storage	1	200	200	Could be multiple spaces totaling 200 SF maximum

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Testing materials storage	1	600	600	
Technology storage	1	120	120	
MDF	1	168	168	12'x14'
IDF	2	120	240	10'x12'
Custodial office/ storage	1	80	80	
Custodial closet	1	40	40	
Subtotal facilities support			1,598	
Elementary School Facility Space Summary				
General Classrooms			31,240	
Specialized Classrooms			4,550	
Media Center			3,470	
Physical Education			3,470	
Cafeteria/Kitchen			5,300	
Administration			3,515	
School Nurse's Suite			765	
Counseling Area			870	
OT/PT Suite (non-hub)			1,710	
Programmed Facilities Support			1,598	
Subtotal elementary NSF			56,488	
30% Tare (70% Efficiency)			24,209	
Total Elementary School GSF			80,697	
Elementary School Site Requirements	Quantity	SF	GSF	
Students	650			
Staff	90			
Permanent Buildings	1	80,697	80,697	
Portable Buildings (if required)	8	1,800	14,400	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Staff and visitor parking spaces	135	400	54,000	
Special event parking	0	N/A	N/A	
Bus parking	14	765	10,710	45' x 17' per space
Cars at student drop-off/pick-up	35	400	14,000	
Synthetic turf field	1	2,400	2,400	
PreK and kindergarten playground	1	13,225	13,225	Approximately 115 students
Playground grades 1 - 3	1	30,500	30,500	Approximately 305 students
Playground grades 4 - 5	1	23,000	23,000	Approximately 230 students
Outdoor learning area	1	12,100	12,100	With shade
Basketball courts	1	4,200	4,200	
Easements / setbacks (typical)	1	30,000	30,000	
Subtotal elementary school site			289,232	
30% Tare (70% Efficiency)			123,957	
Total Elementary Site GSF			413,189	1 acre = 43,560 SF
Total Elementary Site Acres			9.5	1 acre = 43,560 SF

Corridors And Lobby Areas

- Design for easy and intuitive school navigation.
- Provide tack strip in corridors. Locate tack strip outside each classroom.
- At the art / music classroom and the main office area provide tall display cases with safety glass for student work.

General Needs For All Elementary School Classroom Spaces

- Convenient to common resources (media center, cafeteria, PE facility).
- Utilize natural light to reduce daytime lighting costs, balance spectrum of lighting available, and provide views.
- Acoustically balanced for hearing voice in the space and blocking noise from outside the space.
- Accommodate technology needs for teacher and students to include: telephone, computers, and electrical and data connections for an interactive teaching board

(Refer to Appendix F).

- Accommodate APS furniture and equipment list. Plan for furniture to allow for good view lines for teaching boards from all desks and tables.
- Large, deep ADA stainless steel sink.
- Sufficient built-in storage (174 cubic feet) organized to avoid clutter:
  - Wardrobe/storage (95 cf, 6'-6" x 7'-4" x 2'-0") to allow for globes and other large items.
  - Sink storage cabinets (25 cf base, 2'-6" x 5' x 2'; 8.3 cf upper, 2'-6" x 2'-6 " x 1'-4"; 20 cf corner cabinet).
  - Paper storage (27.6 cf flat storage, 3' x 4' x 2'-4").
  - Shelves (9 cf, 3' x 3' x 1').
  - Use of secure closet for some of this storage is allowed.
  - Provide additional storage space for teachers.
- Standard white boards (2 - 8'x 4') and tack boards (4 - 4'x 4') with tack strip on top, and flag pole holders (2). Consider tack strip around the rest of classroom.
- Manual pencil sharpener on wooden block with blocking in wall at child height for each classroom, library, art/music room and other areas where students will be working. The sharpeners are to be provided by and installed by general contractor.
- Area for coats that does not clutter the classroom and avoids safety issues of hooks in high traffic areas. General contractor is to provide blocking, shelf, and hooks. Provide cubbies for each child for kindergarten.

- ***Additional special needs for kindergarten***
  - Classroom square footages should include a restroom and storage. It should have 2 sinks (1 adult height and 1 child height), a refrigerator (no ice maker) and location for a microwave.
  - Teaching Kitchen (kitchenette) to be shared by all kindergarten classes (large enough for a class to observe the food preparation). It shall include a dishwasher, range with oven and induction cooktop including signage "Use only cast iron or magnetic stainless steel cooking vessels, refrigerator (no ice maker), space for a microwave, teacher sink, commercial fume/fire hood and a grease trap if required. Provide point-of-use hot water heater for dishwasher to meet Environmental Health regulations. The counter should be adult height to enable the appliances but a section of the counter should be at child height and include a child sink so that children can sit around and "work". (Refer to Appendix E). All appliances to be Energy Star, white, labeled and provided by general contractor.
  - Comply with Children's ADA Standards for this age group. Easy access to the playground. No direct access from the classroom.
  - A multi-use kindergarten play area designed for children ages 2 to 5 (with hose bib water available and variety of play materials).
  - Convenient restrooms designated and designed for kindergarten student use must also be ADA accessible. Restroom doors shall provide rough-in for 4 hinge locations to allow future installation of a 2-panel Dutch style door.
    - Provide backing in wall for possible future changing table
  - Locate near a convenient parent pick-up and drop-off space with parking.
  - Built-in furnishings, cabinets, and accessories shall comply with height and reach standards.
  - Energy Star (white) 18 cubic foot frost free refrigerator (no ice maker) for each

classroom and one for the shared kitchen.

NOTE: Consider group restrooms and kitchens in a secure area.

- ***Special Education Spaces***
  - Refer to Appendix B for Special Education Design Standards. Special education requirements are the same as the regular classrooms except where noted. The allocation for each elementary school will vary according to the specific enrollment needs. Consult APS Capital Master Plan (CMP) to determine the school's specific space allocation requirements prior to commencing with the Programming and Design of the Project.

- ***Fine Arts***
  - Accommodate at least 8 – 36" x 72" tables for art, space for movement instruction, and space for risers, platforms, sets and scenery, and other music performance equipment. Provide an area for art and coats.
  - A large kiln is to be located in a dedicated room or space adjacent to the art room. It must be properly vented and should include adjacent space for open shelving and storage. In addition to the kiln vent, the room is required to have a room exhaust fan operated by a thermostat to protect against overheating of the room to avoid setting off fire suppression alarms, etc. due to the kiln. General Contractor provides kiln and all kiln components. A/E to confirm type and quality of kilns with FD+C and APS Fine Arts Department. (Refer to Appendix G).
  - Provide an outdoor teaching area adjacent to the art room, such as an outdoor amphitheater.
  - Provide a separate, adjacent storage room with locking doors; easily accessible from within the art classroom; and include an open shelving system for storage.
    - Shelves should be no more than 2' deep.
  - Provide two sinks, one for instructor and one for students. Provide a deep, clean-up sink and a lower, ADA accessible sink. Put clay trap on all sinks. (This source of water is essential for art classes.)
    - Provide at least 8 linear feet of counter space around sink with at least 1 GFCI electrical outlet close to the sink.
  - Provide spaces to display, including ample wall space to accommodate 2 large bulletin boards for display of instructional visuals and finished art work.
  - Provide 1 large 4' x 8' magnetized chalkboard positioned in the room so as to be part of the instructional focus. A chalkboard is preferred over a "white board" for art instruction.
  - Consider north facing high windows for additional natural light.
  - Technology includes instructional use of Interactive Boards, Tablets, and Computers.
    - Provide at least two power and data locations at every wall.
  - Storage located within the instructional space should include cabinets and horizontal drawers large enough to accommodate the largest papers used in art class (tagboard: 24" x 36").
  - Although not a big consideration for the art room itself, provide space throughout the school for the display of student art.

- Music
  - Provide enough floor space to leave instruments set up,.

  - Consider surface materials that eliminate distortions and undesirable transmissions of sound.
  - Design the music classroom using at least one non-parallel wall for sound diffusion. Acoustical treatment for windows, doors, walls, and floors should be addressed to mitigate sound transmission to other areas, based on the proximity of the music room to other instructional spaces in order to avoid sound "bleeding."
  - Provide an outdoor teaching area adjacent to the music room, such as an outdoor amphitheater. (Could be shared with art)
  - Provide a separate, adjacent room with locking doors; easily accessible from within the music classroom; and include an open shelving system for storage.
    - Open adjustable shelving is optimal for storage of various musical instruments including drums in the storage room.
    - Shelves should be no more than 2' deep.
  - Provide two sinks, one for instructor and one for students. Provide a deep, clean-up sink and a lower, ADA accessible sink. (This source of water is essential for cleaning music equipment and instruments.)
    - Provide at least 8 linear feet of counter space around sink with at least 1 electrical outlet close to the sink.
  - Provide spaces to display, including ample wall space to accommodate 2 large bulletin boards for display of instructional visuals.
  - Consider north facing high windows for additional natural light.
  - Technology includes instructional use of Interactive Boards, Tablets, and Computers.
    - Provide at least two power and data locations at every wall.
    - Provide a sound system and built-in speaker system for music reproduction.

- ***Computer Learning Center (Lab)***

  Only if specifically programmed

  - Each lab shall have:
    - 32 computer stations.
    - Centrally located near the media center.
    - Layout shall be reviewed by APS FD+C and IT Department.
    - 1 printer.
    - Option to bring in laptop cart with higher capacity electrical requirements.
    - Provide adequate cooling and exhaust for computer rooms.

- ***STEAM / Maker Space***
  - Each lab shall have:
    - Teacher office/workroom with storage.
    - Preferably centrally located near the media center.
    - Flexible space for multiple movable furniture and work tables for various research layouts.
    - 2 sinks: 1 student and 1 teacher.
    - Plenty of backing in the wall for future mounting of shelves, peg boards, and equipment.
    - Whiteboards and blackboards.
    - Dimmable lighting.

- Adjacent to outdoor secured patio, with hose bib.
- Data drops / outlets to include options for:
  - Printer.
  - Retractable power outlets from ceiling, minimum of 4 ceiling cord reels with 2 outlets each.
  - Laptop cart with higher capacity electrical requirements.
  - Run power and data on wall with wire mold if possible.
  - Quantity of data outlets can be the same as a standard classroom (assuming sufficient WiFi).
  - Quantity of power outlets on wall to be the same as old style computer lab.

- ***Library / Media Center***
  - Circulation desk should be about 16 feet in length, provide limited access and visual control throughout and include with phone, data and power outlets.
    - Provide a combination of built-in circulation desk with power and data along with mobile furniture pieces.
    - Powered portion of the circulation desk will be built-in casework (to be in GC contract) and the remaining of the circulation desk will be mobile furniture pieces (in the F&E package).
    - Sight lines from circulation desk is top priority.
    - Book return location shall be movable. (Coordinate with APS FF+E)
    - Built-in section preferred adjacent to library office; if sight lines do not allow desk near office then a central location is preferred.
    - Built-in to include countertop and under counter storage.
      - Lockable pedestal storage with two box drawer and one file drawer – at least two per built-in desk or one unit per librarian.
      - Provide either a second lockable pedestal storage or a mixture of all three as follows: Two file drawers; Doors with adjustable shelves; Two boxes and one file drawers.
      - Lockable pencil drawer or center drawer – one per knee space and/or librarian.
  - Accessible electrical outlets and data on every wall and columns. Coordinate with casework, furniture, equipment, and FD+C staff.
  - Provide day lighting (with a majority of the windows to have a sill height of 65"-70"H to clear shelving and aid in safety).
  - Space able to be darkened enough for AV use.
  - Lights in individually controlled banks to allow darkening.
  - Space to allow for different arrangements and programs to occur at one time and include:
    - Shelving: 3 linear feet of shelving for every 25 volumes (or 50 picture books). A/E to work with APS FD+C for age appropriate furniture, shelving, desks, and layout.
    - Prefer space for mobile shelving units and wall space for 60" tall shelving. Shelving and furniture is owner provided.
    - Work study area for 2 classes, for large group reading activities, and for reference.
    - 4 computer stations for book search.
    - Provide space for storage of maker space items - such as robotics, paper & pens, and consider built-in locking cabinetry.
    - Provide fully accessible area for storytelling, videos, and special presentations. Include story area to be stepped (no pits) - consider curved or work with FDC F&E on flexible furniture.
      - Design the space to have full visual access of the presentation area.
      - Design the space to be fully visible from the general library area. No pit areas.
  - Display areas are important. Provide a tack board, magnetic whiteboard and/or wall display areas, tack strip area above the shelves and around the room, including story area for multiple display options.
  - Provide a Librarian office adjacent to library/media center with phone and data.
    - Combine library workroom and office.
    - Provide direct access to a library workroom from main area.
      - Provide a sink in the library work room.

- ***Mini Gym / Physical Education (Interior Area)***
  - Minimum 24' clearance at ceiling is required (including light fixtures, structural elements, ect).
  - A 5' safety space between the court and wall is required.
  - Gym should have 2 adjustable and retractable basketball goals with backboard and wall pads.
  - 4 additional adjustable and retractable basketball goals with backboard and wall pads on the gym sidewalls with free throw lines are required.
  - Provide wall eye bolts for net activities, and a climbing rope attachment.
  - Discuss climbing wall option. Provide location to be installed by APS Special Projects.
  - Floor sleeve inserts with matching standards and nets for volleyball (main court only) are required and provided by general contractor.
  - Mini gym to be located near the exterior playgrounds and recreation fields and away from classrooms.
  - Provide minimum 4' wide access door to outdoor play areas.
  - Provide windows that are impact resistant or protected.
  - Provide an office for physical education staff.
  - If this space is to have a performance platform, provide a platform with curtain option, ramp access, and storage (see chart for square footages)(Platform may be located in cafeteria in lieu of gym).
  - Provide a separate storage space for after-school programs.
  - Technology is mobile and moved in and out of the gym space. Provide data and outlets in gyms.
  - Provide spaces for students to put valuables.
  - Athletic flooring: commercial grade sheet with welded seams (10mm thickness).
  - Provide an exterior ball wall as part of the building design.

- ***Physical Education (Exterior Area)***
  - Playgrounds and fields (See "Site Recreation" at the end of this section, as well as "General" section
- ***Support Spaces***
  - All school areas will provide an environment that meets the functional needs of support services.

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- ***Cafeteria***
  - Cafeterias serve as a food serving area as well as a multi-purpose area for school activities.
    - Centrally located.
    - Sized to seat 15 sf/student with no more than 3 lunch periods.
    - Provide ample storage for additional special events folding tables and chairs.
    - Provide a performance platform, with curtain option, ramp access, and storage.
    - Provide data connections for an interactive teaching board (Refer to Appendix F).
    - Acoustically treat the cafeteria ceiling to absorb sound.
    - Provide windows to the outside with window coverings.
    - Provide shelter-in-place area away from windows.
    - Discuss with Food & Nutrition Service the option of self-service and/or cafeteria staff-serve. (Relates to serving line set-up.)
    - Discuss with Food & Nutrition Service serving counter heights, depths, and points of access.
    - Provide a milk dump located in the dining area with access for after school programs.
    - Provide a sink located in the dining area with access for after school programs.
    - Provide additional outlets for small milk coolers located in the dining area.
    - Provide outside dining.

- ***Kitchen***
    - See Kitchen requirements in Design & Construction Integrity Section.

- ***Utility / Storage***
  - Custodial Utility Areas
    - There are to be sufficient custodial areas with hot and cold water to efficiently clean all permanent and portable facilities. They are to be conveniently distributed in a manner that is appropriate to serve entire school.
    - 1 custodial office shall provide for supplies and provide space for a desk.
      - Provide an outlet and data drop for custodian's desk.
    - Additional custodial closets shall be located in each building and on each floor.
      - All shall have a janitor's floor mop sink with mop holders and sufficient shelves for storage.
      - Cover walls around sink with stainless steel or FRP surround.
      - All spaces to have active mechanical ventilation.
    - Custodial Rooms will have painted walls (and ceilings or exposed structure if they are not lay-in).
    - Facility Storage Interior (other than in classrooms)
      - Unassigned storage (that can be used for a variety of purposes).
      - Paint all walls and hard ceilings (hard ceilings are not required).
    - Facility Storage Exterior
      - Exterior storage shall be 10' tall and directly accessible to the outside to store inventory salvage and excess equipment and furniture.
      - Provide storage with exterior double door.
      - Provide safe storage for gas appliances.

- ***Administrative Offices / Support Areas***
  - Secure Entry Vestibule
    - A secure entry vestibule shall be designed as the initial point of access into the building.
  - Administrative Offices
    - The administration area will be central to the school and visitor access. It is the school's access control point, so visibility and easy way finding are important to and from these offices. Minimize curved walls and odd angled walls in this area to best accommodate high density of furniture.
      - Main office shall be designed in a way that receptionist can buzz-in (controlled access with cameras) from a secure vestibule.
      - The main office reception desk should be designed and installed as casework and located where visitors enter the main lobby.
      - Reception area shall provide space for tables for registration with computer data drop.
      - Reception is to have visual control of the school's secure vestibule.
      - Main fire alarm annunciator, PA and intercom system control shall be located in administrative office area.
      - Secretary and/or clerk shall have a clear view of cots in the nurse's cot room.
      - Secretary and/or clerk shall have a clear view of special-system panels (fire/intercom).
      - Space for file cabinets to include (sufficient for student population) fire proof and lockable cabinets. A/E to coordinate with APS FD+C.
      - Provide recessed display space with locking glass doors to display student 2-D and 3-D art work. Lighting shall be on a manually controlled system from outside of the display space.
      - Mail boxes (1 per staff + 10% for growth) to be located in "staff area", admin area, or in the teachers' lounge. Mailboxes should comfortably allow for 8-1/2" x 11" paper size. Additional boxes shall provide for the receipt of packages.
      - The principal's office shall have more than one exit path. (For example, one path could be through the reception area and a second path could be via a hallway through the administrative suite.)

- ***Counseling***
  - Review needs for a particular school program with APS Counseling for information on counseling allocations.
  - Counseling office requires privacy, therefore no FTE sharing of offices. Even a half time FTE must have a private office.
    - For Privacy, offices will: Limit glass. Provide window covering for privacy. Require sound isolation. Be located away from the public waiting area. Have close access to a printer for printing of confidential documents.
  - Offices requires space for a locked file cabinet.
  - Provide a secure storage room for archive file storage.
  - Locate office in the vicinity but separate from the administration.
    - Proximity to the cumulative file room is preferred.
    - Parents need to check in at the front area to see a counselor. Parents waiting at the school office /reception and should not be able to see

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students going to counseling.
- Students can have direct access to counseling offices. Students should not have to talk to anyone to see counselor. Waiting area by counseling offices is for students. (Not parents/visitors)

- ***Redirector Room***
  - Redirector room to be located at the counseling suite near the main hall to encourage student access throughout the day. Adjacencies to counselor(s) and social worker(s) for added support is preferable.
    - Redirector requires space for a desk with small file storage, bookshelf, white board, and power and data for a laptop.
    - Work space is to be shared with a welcoming and comfortable student activity area, furnished with soft seating, small table and chairs. Flexibility for creating zones for individual and group restorative activities is required.
    - Room requires carpet and soft colors.
    - Daylighting, color LED, and dimmable lighting is preferable where possible.

- ***Nurse Suite***
  - The nurse suite should be adjacent to and have a visual connection to the reception area. (In the event that the nurse is not on-site and reception staff needs to keep an eye on sick students.)
  - Refer to Appendix C Health Room requirements for list of equipment requirements.
  - Provide space for a minimum of 6 chairs in waiting area and wall rack for educational materials.
  - Vision screening:
    - Provide a 20 feet deep space to conduct eye exams.
  - Provide private office for school nurse to include at least 2 duplex outlets, phone with dedicated line, computer with Internet access, paper shredder, and window to cot areas. Design walls / window for hearing testing (as sound proof as possible). Consult APS Nursing Department for specific design parameters.
  - Treatment Room includes:
    - Provide space for half of required recovery cots separated by ceiling mounted curtains. Total number of recovery cots is calculated at a ratio of 1 recovery cot (74" L x 24" W x 18" H) per 250 students.
    - Duplex outlets and data drops at each cot for equipment that may be required.
    - Deep sink unit with hot and cold water.
    - Provide space for 7 foot tall storage cabinet for large equipment.
    - Provide space for second desk with at least 2 outlets for a phone and computer with Internet access.
    - Refrigerator with ice maker.
  - Recovery/isolation room includes:
    - Provide space for for half of required recovery cots separated by ceiling mounted curtains. Duplex outlets and data drops at each cot for equipment that may be required.
  - Space for double locking medication cabinet. (See Appendix C Health Room requirements for list of equipment requirements.)
  - Provide wide door with 36" minimum clear door opening to allow for an

emergency gurney.
- Restroom to include a shower and space for a padded changing table (changing table provided and installed by APS – Consult APS FD&C for current sizes). Allow space for a Hoyer lift in bathroom.
- Provide exhaust fan in rooms.
- Provide space for 1 locking fire proof file cabinet for every 800 students.
- Provide storage closet for wheelchair, crutches, and other bulk item storage.
- Provide stackable unit washer/dryer.

- ***Bookroom***
  - The Bookroom is to be located either in the Administration Area or adjacent to the Library/Media Center with easy access from the corridor and delivery area.
  - Provide space for shelving to be installed by general contractor.

- ***Workroom***
  - The workroom is to be centrally located to the teaching staff with easy access from the corridor.
  - Provide sufficient permanent lockable storage including,
    - Base cabinets with sufficient countertop for workspace and equipment.
    - Upper cabinets.
    - Storage area for large paper rolls.
  - Deep double sink area.
    - Consider use of a utility sink set into the counter.
  - Accommodate a variety of shelving systems for storage of paper, books, supplies, and audio-visual material.
  - Provide space for lay-out table.
    - Coordinate requirements for dedicated circuits and outlets for equipment. Confirm all existing and anticipated equipment (including laminators, Gestetner style copier/printer/scanner/fax machines, etc.) with the school staff and FD+C.

- ***Teachers' Lounge***
  - Locate teachers' lounge near the administrative offices or workroom and adjacent to staff restrooms. When possible, provide patio area with wall privacy.
  - Outdoor furniture shall be attached to pavement and provided/installed by the general contractor.
  - Provide a small kitchenette area with a refrigerator (with water connection for ice maker), two microwave ovens (no range), and double sink. Provide 5 duplex outlets with dedicated circuits above counter.
  - Provide space and power/data for two vending machines.
  - Provide one 4' x 4' tack board.
  - Refer to 'Administration Area' description for mailboxes which may be located in the Teacher's lounge.

- ***Site Recreation***
  - The school site is to provide outdoor recreation and learning areas suitable for age of student population served. Design of play areas and equipment selection will follow APS Playground Guidelines and the U.S. Consumer Product Safety and the most recent ASTM Standard. See Site Design Directives section and APS Playground Standards
  - Playground design must be age specific.

- ***Playground Location***
  - Playground is to be conveniently located for student population and with safety in mind.
  - Provide shade trees in addition to permanent shade structures, if possible, and include benches and tables in the shade area that are secured to the pavement or ground.

- ***Kindergarten Playground***
  - Provide a separate, fenced kindergarten and/or pre-kindergarten playgrounds in close proximity to the building with appropriate equipment scaled to kindergartner use. Fence to be 6'-0" tall if part of the secure perimeter.
  - Provide tricycle circular path and exterior storage for play equipment.

- ***Playground Safety***
  - Provide accessible routes to play areas.
  - Provide skateboard deterrents on all low walls, curbs, seating etc. that are targeted by skate boarders.
  - Avoid barrel nut fasteners which cause maintenance problems (blue loctite).
  - Typical playground equipment is a minimum 20' x 20' play structure.

- ***Hard Surface Play Areas***
  - Locate hard surface play areas near the buildings with southern sun exposure where possible. If distant from the buildings and accessed through unpaved areas, extend a wide walk between the two (crusher fines may be acceptable) to minimize mud and sand being tracked into the buildings. Areas are to include:
    - 1 concrete pad with basketball goals (lowered height) if space allows.
    - Asphalt play area with painted game lines.
    - Surfaced, running / walking track (minimum 5' wide).

- ***Grass Playing Field***
  - There is to be one game field. For fields under 1 acre, provide artificial play turf (G max certified). See Site Design Directives section for size.
  - A separate Joint-Use natural grass field may be provided/required under agreement with either the City or the County (confer with APS Real Estate Department). The grass field shall be sized per the Joint-Use agreement requirements.

- ***Playground Supervision***
  - Playgrounds are to be sited with good sight lines for good supervision.

Elementary School

Section 05

Programmed Spaces: Middle Schools

Needs Analysis for Standards-Based Middle Schools

» ***A utilization will be provided to the A/E by APS FD+C and Capital Master Plan (CMP) prior to the design of each Project. The CMP utilization will define the specific spaces required for each project. The APS Standards will define the square footage and character requirements for each of the specified spaces.***

Space Description	# Spaces	NSF per Space	Total NSF	Comments
General Classrooms				
Regular classrooms	39	840	32,760	
SPED classrooms	--	--	TBD	Include SPED classrooms as determined by CMP. See SPED program space types listed in the appendix.
Subtotal general classrooms			32,760	
Laboratories / Flexible Learning Areas				
Science laboratories	6	1,250	7,500	
Lab prep/storage	3	420	1,260	1 prep/storage space is shared per 2 labs.
Computer lab or STEAM lab	3	1,100	3,300	
Computer/STEAM storage	3	150	450	
Project based learning break-out, large	4	840	3,360	
Project based learning break-out, medium	6	420	2,520	
Project based learning break-out, small	4	340	1,360	
FACS - Sewing	1	1,200	1,200	FACS = Family and consumer sciences
Sewing storage	1	175	175	Includes washer and dryer
FACS - Culinary	1	1,200	1,200	
Culinary storage/ pantry	1	175	175	
Subtotal laboratories			22,500	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Fine + Performing Arts / Music				
Fine Arts classroom	1	1,300	1,300	
Art office	1	120	120	
Art kiln room	1	100	100	
Art storage	1	200	200	
Chorus	1	1,300	1,300	
Chorus office	1	120	120	
Chorus storage	1	400	400	
Band/Orchestra	1	2,070	2,070	
Band/Orchestra office	1	120	120	
Band/Orchestra storage	1	500	500	
Drama/ Performance	1	1,100	1,100	
Office	1	120	120	
Storage	1	500	500	
Practice rooms (large)	2	100	200	Practice rooms are shared among chorus, band, orchestra, drama, and performance.
Practice rooms (small)	3	50	150	
Subtotal fine + performing arts / music			8,300	
Media Center				
Entry / circulation desk	1	200	200	
Stacks and reading	1	2,800	2,700	Up to 50 occupants (2 classes)
Group study area	2	200	400	
Computer research area	1	600	600	Space for 16 computers
Classroom area	2	750	1,500	Up to 30 occupants
Librarian's office/ workroom	1	300	300	Could be combined or separate spaces
Storage	1	200	200	Locate adjacent to circulation desk

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Subtotal media center			5,900	
Physical Education				
Main gym	1	8,600	8,600	24' ceiling, minimum.
Bleacher seating	1	incl. above	incl. above	
Main gym storage	1	600	600	
Auxiliary gym	1	5,800	5,800	24' ceiling, minimum.
Aux gym storage	1	300	300	
Multi-purpose classroom	1	1,700	1,700	Could be used for health class, dance, weight, or PE class. 12' ceiling minimum.
Multi-purpose storage	1	200	200	
PE Lockers - Boys	1	1,450	1,450	
PE Lockers - Girls	1	1,450	1,450	
PE Teachers' Office	2	175	350	PE offices include a restroom
Snack bar	1	170	170	
Subtotal physical education			20,620	
OT/PT and Adaptive PE (APE)				
OT/PT and APE	1	500	500	Assumes non-hub. See appendix for additional information.
Therapy space storage	1	90	90	
Office hub	1	120	120	(2) shared workstations at 60 SF each. Shared workstations accommodate social workers, speech language pathologists, occupational therapists, physical therapists, and APE teachers). See appendix for more info

Middle School

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Student meeting room	1	130	130	Provide girls, boys, and family restrooms
Subtotal OT/PT and APE			840	
Cafeteria/Kitchen				
Seating area, including serving line	1	3,800	3,800	Accommodate school population within 3 lunch periods per day, maximum.
Serving line	1	incl. above	incl. above	
Cafeteria storage	1	200	200	
Performance stage / platform	1	800	800	Could be located with drama/fine arts instead of cafeteria
Snack bar	1	250	250	
Kitchen	1	see below	see below	
Main prep, cooking, serving area	1	1,200	1,200	
Cleaning	1	250	250	
Walk-in refrigerator	1	225	225	
Walk-in freezer	1	225	225	
Dry storage	1	325	325	
Office	1	100	100	
Restroom	1	50	50	
Washer/dryer and staff lockers	1	80	80	Provide 10 lockers
Kitchen janitor closet	1	50	50	
Deliveries	1	incl w tare	incl w tare	
Subtotal cafeteria/ kitchen			7,555	
Administration				
Secure entry vestibule	1	200	200	
Waiting/reception	1	250	250	Accommodate up to 12 people
Receptionist/clerk	1	250	250	
Secretary	1	160	160	
Principal	1	150	150	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Assistant principal	2	120	240	Accommodate up to 14 people
Conference room	1	240	240	
File/storage/coffee	1	160	160	
Admin work area	1	150	150	
Subtotal administration			1,800	
Staff/Teacher Support				
Teachers' workroom	1	900	900	
Teachers' workroom storage	1	200	200	
Teachers' lounge	1	1,200	1,200	
Work area	1	180	180	
Mailboxes	1	175	175	
Book storage	1	400	400	
Family room (parents' room)	1	600	600	
Adult restrooms	2	incl. w/ tare	incl. w/ tare	
Subtotal staff/ teacher support			3,655	
School Nurse's Suite				
Waiting area	1	120	120	
Treatment room	1	250	250	Locate half of required cots in the treatment room
Recovery/isolation room	1	180	180	Locate half of required cots in the recovery/ isolation room
Restroom	1	80	80	
Nurse's office	1	120	120	
Health assistant work area	1	100	100	
Storage	1	50	50	
Subtotal school nurse's suite			900	
Counseling Area				
Secretary with waiting area	1	175	175	
Counselor office	3	150	450	
Head SPED office	1	150	150	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Instruction coach office	1	150	150	
Evaluation and testing	1	120	120	Configure same as office
Conference/IEP room	1	240	240	
File storage	1	150	150	
Subtotal counseling area			1,435	
Programmed Facilities Support				
In-School Suspension / TIPS	1	650	650	
Security office	1	150	150	
Lobby / pre-function area	1	800	800	Allocate judiciously where needed to improve circulation and flow. Does not have to be a singular, separate space.
General/building storage	1	200	200	Could be multiple spaces totaling 200 SF maximum
School store	1	240	240	
Lockers	1	600	600	
Testing materials storage	1	600	600	
Technology storage	1	120	120	
MDF	1	168	168	12'x14'
IDF	5	120	600	10'x12'
Head custodian office	1	80	80	
Custodial supplies and site equipment	5	40	200	
Subtotal facilities support			4,408	
Middle School Facility Space Summary				
General Classrooms			32,760	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Laboratories / Flexible Learning Areas			22,500	
Fine + Performing Arts / Music			8,300	
Media Center			5,900	
Physical Education			20,620	
OT/PT and Adaptive PE (APE)			840	
Cafeteria/Kitchen			7,555	
Administration			1,800	
Staff/Teacher Support			3,655	
School Nurse's Suite			900	
Counseling Area			1,435	
Programmed Facilities Support			4,408	
Subtotal middle school NSF			110,673	
30% Tare (70% Efficiency)			47,431	
Total Middle School GSF			158,104	
Middle School Site Requirements	Quantity	SF	GSF	
Students	1,200			
Staff	xx			
Permanent Buildings	1	158,104	158,104	Assumes single story construction
Portable Buildings (if required)	6	1,800	10,800	
Staff and visitor parking spaces	145	400	58,000	
Special event parking	0	N/A	N/A	
Bus parking	21	765	16,065	45' x 17' per space
Cars at student drop-off/pick-up	60	400	24,000	
Synthetic turf field	1	54,100	54,100	
Natural grass field with track	1	73,800	73,800	
Outdoor learning area	2	12,100	24,200	With shade

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Basketball courts	4	4,200	16,800	
Easements / setbacks (typical)	1	40,000	40,000	
Subtotal middle school site			475,869	
30% Tare (70% Efficiency)			203,944	
Total Middle School Site GSF			679,813	1 acre = 43,560 SF
Total Middle School Site Acres			15.6	1 acre = 43,560 SF

General Needs for Corridors and Lobby Areas in Proximity to Classrooms:

- Provide tall display cases with safety glass for student work and awards near each grade level, the art / music classroom(s), main office and main gymnasium.
- At the discretion of the school, provide student lockers in the hallways. If located in a room and for easy monitoring, lockers shall be one-tier. If against the walls, the locker units can be 2-tiers.

- ***General Needs for all Middle School Classrooms:***
  - Refer to Chapter 2 [School Design + Construction Integrity].

- ***Special Education Spaces:***
  - Refer to Appendix B

- ***Science Laboratories***
  - Provide 6 science laboratories for 32 students each with shared workroom / storage / prep room. Provide a pair of laboratories and one workroom / storage / prep room for each grade level.
  - For each science lab, provide six student stations with sinks. Five (5) of which measuring 34" H x 24" D, shall feature 48" lockable base unit (with shelves), 18" three-drawer unit and 18" sink unit with 12" W, 12" L, 8" D phenolic resin sink with tall goose-neck lever handle faucet. The sixth station shall include a 48" lockable base unit with shelves and a 36" ADA sink unit.
  - Of the six laboratories, four will have the scheme exactly as described above. For the other two labs (in the 6th grade wing) the 48" base cabinet shall feature 20 plastic trays inserted into the lockable cabinet rather than shelves. All groups shall have upper wall cabinet units that measure 36" W, 24" H, 18" D with lockable sliding glass doors. Provide additional base cabinets as required for design. All tops shall be phenolic resin.
  - Workroom / Storage / Prep Room – each space shall feature a 36" x 36" glass drying rack over 36" W, 34" H, 24" D base cabinet unit with a cutout for 12" W, 12" L, 8" D phenolic resin sink with goose-neck lever handle faucet, a three-drawer 18" W base unit, a 32" W base unit with shelves with a cook top inset, a 24" built-in dishwasher, a full size refrigerator, and a 66" desk area with 2 pedestals of three drawers each and knee space of 30" wide. Provide upper open wall cabinets over the desk of two 30" H, 24" H, 13" D and one over the cook-top for the hood. Provide open solid metal shelving for science equipment storage.
  - Utilities to be included are natural gas, water, and electricity.
    - Provide retractable power outlets from ceiling over lab tables.
    - Provide emergency gas shut off, eye wash/ shower, and fire blanket.
    - Consider if natural gas is required for all science classrooms.
    - Consider if a fume hood is required at some science classrooms.

- ***Performing and Fine Arts:***
  - Discuss the school's Fine Arts program activities and needs with the school building committee including Fine Arts staff.
  - Accommodate technological tools in instruction: recorded music, projection of lyrics, and displaying video clips of performances.
    - Provide Bluetooth compatibility for music classrooms.
    - Provide speakers and AV system for classrooms.
    - LED screen with air play Promethean for each classroom.
    - Provide appropriate number of power outlets at walls and counters.
    - Coordinate special systems with APS technology and APS Fine Arts. General contractor will provide conduit/rough-in and APS contractor will pull cable and provide special systems.
  - The A/E shall consider an outdoor performance venue in close proximity to the indoor performance space. The configuration of the performance spaces are as follows:

- ***Chorus, and Band/Orchestra:***
  - Spaces shall be acoustically tuned with non-parallel walls, sound panels from ceiling (or acoustical ceiling), wall panels and floor treatment.
  - Ceiling heights in main rooms should be non-parallel to floor, unless using ceiling sound panels, and may vary from noted ceiling heights (that are averages for space).
  - Because these rooms are high-noise spaces, acoustically-separate them from the rest of the school and from one another.
  - Protect walls w/ chair rail and corner guards around band/orchestra and chorus walls.
  - Chorus and band/orchestra room shall feature an office for each teacher, with visual access to the classroom.
  - APS F&E will provide riser and file cabinets for Chorus, which will require storage for both.
  - Band and orchestra requires its own instrument storage cabinets to be provided by A/E & GC, which need to be anchored for seismic code requirements.
  - Provide practice rooms with acoustical treatment of walls and doors. Design practice rooms to open into the ensemble rooms.
  - Provide interior windows into the practice rooms, preferably from the main ensemble space.

- ***Drama / Performance:***
  - Program space shall allow use of the stage as a part of the drama academic

space and to open a folding powered sound wall to the stage (part of the cafeteria) while closing the drama classroom off from the stage. (Jackson MS is an example)
- Provide an office with a window into the classroom space and lockable storage room.
- Provide casework for storage of props, fabrics and other stagecraft materials for the drama classroom.

- ***Performance Stage***
  - Provide space for performance Stage to be equipped with front/side/back curtains with stage wings and be located in close proximity or adjacent to the drama classroom.
  - Provide ramp access onto stage. Performance area shall be provided in the cafeteria. Stage area is additionally described more fully in the Cafeteria Section.

- ***Art***
  - Provide space for eight 60" x 60" shop tables, clay area with two electric potter's wheels, damp proof cabinet, and an open area to place model or still life.
  - Orient openings to the north if possible.
  - Provide a deep, wide sink with clay trap and a separate hand sink for ADA compliance as required. Tie all sinks in area to clay trap(s).
  - Provide (1) magnetic white, (1) chalk boards and tack board and/or tack strips. Provide places to display student work. Consider dry erase walls to encourage advertising of student performance.
  - Provide and coordinate a separate kiln room with proper power and outlet for the specific kiln and exhaust hood for the specific kiln. The kiln room will be provided with a thermostatically controlled room exhaust fan separate from the kiln exhaust hood. The District preferred kiln and associated equipment, see Appendix G, and shall be provided and installed by the general contractor.
  - Provide storage room with 24" deep shelving with kiln or adjacent to kiln room.
  - Provide retractable power outlets from ceiling over shop tables.
  - Provide a contiguous or adjacent art patio if possible.

- ***Flexible Labs – Elective Labs***
  - Each classroom will accommodate 32 students.

- ***JROTC / Leadership***
  - Consult with CMP for JROTC spaces / utilization and funding.

- ***Family and Consumer Science – Sewing.***
  - If such program/need exists in a mid-school and verified by CMP, the space shall accommodate the following functions:
    - Sewing will have up to 32 sewing machines, measuring 24"D x 36" W on 16 tables. Power to be supplied by ceiling-mounted retractable outlets instead of floor outlets.
    - Sewing area to have a 30"W by 60"H mirror in space for fitting clothes.
    - Provide mobile demo unit to match casework which must meet ADA requirements.
    - Provide two 48"W, 84"H, 24"D locking tall cabinets with shelves and one

wardrobe unit 18"W by 84"H by 24"D.
- Laundry area with washer and dryer. Provide 60"W, 24"H, 13"D lockable upper cabinets over the washer and dryer. Provide standing laundry sink near the washer and dryer.
- Storage room to have built-in cabinets that accommodate five 32 storage tray cabinets, with each tray about 20"H, 20"D in a nominal 24"W, 5"H, 24"D slot in a nominal 48"W, 84"H, 24"D casework unit.

- ***Family and Consumer Science - Culinary Arts***
  - If such program/need exists in a mid-school and verified by CMP, the space shall accommodate the following functions:
    - Cooking will have six student kitchenettes, "L" shaped base cabinets have worked well previously, each with a double stainless steel sink (each 14x16x6) with single action lever faucet (no gooseneck), a slide-in stove with oven that has controls on the front (side exhaust ranges are not allowed), and a space for a microwave on the counter. Provide a residential style fume hood with a suppression system at each range.
    - Upper cabinets to contain evenly sized wall units including the stove hood location.
    - Each kitchenette is about 15 linear feet of 34"H, 24"D base cabinets mixing door and drawer units as for residence, with 8' of upper cabinets at minimum 13" deep. Each kitchenette to have at least 6 drawers in multiple units, multiple standard storage units, a sink base unit , a corner storage unit with rotating shelves, a 12" vertical try storage unit, and a slot for the slide-in stove/oven.
    - The instructors demo kitchen island will be 36"H, 30"D, with 30" cooktop unit with storage below, 24" four drawer unit, 36" sink unit, and one drawer and storage unit. Provide cabinets or ceiling mounted mirror that is long enough to show stove and counter prep area. Behind demo kitchen island provide base cabinets with 36"H, 24"D units: one 36"W sink unit with double stainless steel sink unit with sprayer and disposal, one 24"W dishwasher unit, one 1-drawer and slide out trash 24"W unit, one 1-drawer and storage 24" unit, one 12' vertical try storage unit, and one 30"W, 84"H, 24"D tall unit for double oven unit with 2 drawers below.
    - Provide accent lighting over demonstration kitchen.
    - Pantry to have 1 each upright freezer and one refrigerator (minimum 21 cubic feet each, Energy Star, white). Install five wire metal shelving units that are each 74"H, 24"D, and 48" W.

- ***Computer Labs***
  - If space utilization from CMP validates the need, a computer lab shall be designed with the following:
    - Each station will be 36"W by 30"D using specialized counters mounted at 26" +/- for middle school students. One workstation will be set at ADA height.
    - All screens shall be visible from instructor workstation.
    - All wiring to run in wire / cable management system along or below counters. There shall be no power poles or floor outlets.
    - Storage room (to be shared with Technology Education Lab) has four 30"W, 34"H, 24"D, lockable base cabinets with shelves, one 36"W, 34"H, 24"D six-drawer unit. Provide about 16' of upper cabinets made up of 36"W, 24"H, 13"D lockable

cabinets, except for a shorter one over the sink.
- Provide power/data in te storage room
- Provide a separate HVAC zone for each computer and steam lab.

- ***Technology Education Lab***
  - This lab provides space for improving computer technology skills.
    - The design of the lab should allow its workstations to be viewed by the teacher.
    - Provide lockable upper cabinets for storage of equipment.

- ***STEAM / STEM Lab / Maker Space***
    - Data drops and power outlets in raceway on walls for flexibility.
      - Provide multi zone/dimmable lighting controls to optimize space functionality and illumination levels.
    - Accommodate space for movable furniture and work tables which APS F&E will provide.
    - Retractable power outlets from ceiling, four duplex cord reels.
    - Locate as close as feasible to library.
    - Provide sink in at least one STEAM lab. It is not required in a regular computer lab.
    - Consider storage room in addition to in-room storage casework or furniture storage.

- ***Library / Media Center***
  - The library / media center requirements follow:
    - Accommodate multiple classes in library.
      - Seat about 85 students and staff at tables and computers.
      - Acoustics at teaching area should be designed for teaching.
      - Space to allow for different arrangements and programs to occur at one time.
      - Work study area for 2 classes, for large group reading activities and for reference.
      - Four to eight computer stations for book search.
      - Expect more talking in libraries due to project based learning.
      - Use sound baffles at an open ceiling to absorb sound so students can talk.
      - Provide accessible electrical outlets on every wall and columns. Coordinate casework, furniture, and equipment with FD+C staff.
  - Circulation desk should be about 16 feet in length, provide limited access and visual control throughout.
    - Provide circulation desk with phone, data and power outlets.
    - Circulation desk requires storage- an under counter box/file pedestal or a file cabinet with doors and adjustable shelves per librarian needs.
    - Allow the book drop location to be flexible/ or as furniture.
  - Shelving
    - The library requires less shelf space than needed in the past. Reading materials are a blended model - technology and paper books. FF&E will work with the school and APS library services to provide shelving based on the book count [including the tall shelving against the walls].
    - Provide space for 60" tall shelving, and space for lower shelving to facilitate visibility/supervision when not against a wall.

- Lighting
  - Provide day lighting (with a minimum window sill height of 65 or 70" to clear shelving).
  - Space able to be darkened enough for AV use.
  - Provide multi zone/dimmable lighting controls to optimize space functionality and illumination levels.
  - Reference Electrical Systems Design Standards for additional requirements.
- Technology
  - Provide power outlets and data drops.
  - Provide flexible access to power. No power columns/poles or floor boxes.
  - Accommodate space for 30 by 60 desk and 30 by 60 work table, with cable management.
  - Install appropriate wiring for audio visual and computer equipment.
  - Provide storage and charging for electronics (i.e. phones, laptops, tablets, etc.)
    - Provide power for charging up to 30 units.
    - A& E will provide wall outlets/power for furniture that includes charging stations and charging walls for devices if budget allows. Need flexibility to change device cords.
    - Provide a device charging system so that no school staff are responsible for the phones.
  - Metal-detector security gates shall not be used.
- Office / Workroom
  - Direct access to a media center workroom is required.
    - Combine library workroom and office.
  - Provide sink with soap (receives APS supplied pouch soap refills – verify specified model with FD+C) and paper towel dispensers. Provide built-in upper and lower lockable cabinets of 40 linear feet.
  - Provide storage space for maker space supplies.

- ***Physical Education / Main Gym, Offices, PE Classroom***
  - All physical education facilities must have equal facilities for male and female per the Title IX requirement. The MS facilities support PE and athletics programs.
  - Provide coach offices. A MS program typically has 3 to 4 coaches. Provide 2 shared offices.
  - Provide a PE Classroom.
  - If there are before and after-school programs, provide lockable office / storage space.

  - Main Gym/Physical Education Area
    - No ductwork or lighting to be installed below the 25' height.
    - A safety space (minimum 10 Feet) between the court and wall is required with wall pads at each end.
    - Stripe the floor for a main basketball court (50' x 84'), and a main volleyball court co-located with the main basketball court.
      - In addition, stripe the floor for 2 basketball cross-courts and 2 volleyball cross-courts.
    - Gym should have 2 main motorized retractable basketball goals with clear backboard and flooring court markers. Plus 4 additional motorized retractable

basketball goals with backboard. Provide wall pads on the gym sidewalls.
- Provide volleyball sleeves, standards, padding, net, and sleeve screw caps for safety. Provide 5 sleeves for full and half court games.
- Wall eye bolts for net activities, and a climbing rope attachment.
- Main gym to be located near the exterior playgrounds and recreation fields and away from classrooms.
- Provide direct access
- Provide windows that are impact resistant or protected.
- Provide motorized telescoping bleachers to seat ½ of the student population with one-piece molded bench type plastic seating on one side of gymnasium. Provide 8'-0" clear space between the top row of the bleachers and bottom of the roof structure.
- Provide full-time designated wheelchair spaces at bleachers. No "Flex Rows."
- If not adjacent to cafeteria, provide a snack bar with rolling door that seals tight to stainless steel counter. Provide cabinets, shelving and 3-compartment sink.
- Provide storage space with lockable double doors for athletic equipment and folding chairs. Ceiling height to accommodate volleyball poles. Secure all shelving units to floor to meet seismic conditions.
- Provide a motorized divider curtain across the middle of the gym.
- Technology is mobile and moved in and out of the gym space. Provide data and outlets in main and auxiliary gyms.

FD+C Note: Refer to the APS Electrical Design Standards and APS Mechanical Design Standards on the FD+C website

- ***Locker Rooms***
  - Provide separate locker rooms for boys and girls for 70 students each, with equal facilities for each sex per Title IX requirements.
  - Provide 2 offices (to be shared by 2 people each) with adjacent restrooms in close proximity to locker rooms. Provide (2) single tier full height 15" wide, 18" deep lockers. Provide the restroom with a water closet, lavatory with mirror and accessories. Restroom to have ceramic tile floor and base.
  - Lockers: Provide alternating 6- and 2- combination locker system where 6 over/ under lockers in 72" high by 12" wide by 18" deep lockers paired with a 2- tier locker 72" high by 15" wide by 18" deep. Doors shall have a piano hinge.
  - Design for maximum 210 students with generally less than 70 students (each sex) per period. Provide fully welded lockers with padlock eye (no moving parts), one double hook on ceiling and 3 single hooks on walls of lockers. Provide aluminum number plates. Provide 35 6-tier lockers and 35 2-tier lockers. Provide benches with integral bases and anchored securely to the floor.
  - Restrooms: Provide restrooms for students with access from the gym via the locker room.
  - All exterior windows in locker rooms shall be at least 8'-0" a.f.f.

- ***Auxiliary Gym***
  - Auxiliary gym sized to have a standard basketball court with a safety space around the court (3,800 sf) with a minimum 25' ceiling height is required.
    - Discuss climbing wall option in the auxiliary gymnasium.
  - Flooring shall be striped for basketball and volleyball with wall pads on the end walls.

  - A safety space (minimum 10 Feet) between the court and wall is required with wall pads at each end.
  - Provide volleyball pole anchor sleeves, standards, padding, net and sleeve screw caps for safety.
  - Storage room for athletic equipment and chair storage to have ceiling height to accommodate the volleyball poles.

- ***Circuit Training***
  - The circuit equipment should be enclosed in a 1,500 square feet space with a raised ceiling to accommodate the circuit training equipment that is specified.
    - Mirrors or glass panels in weight rooms to be no greater than 48" wide x 60" tall sections. Multiple sections can be stacked on top of each other to generate floor to ceiling condition. (Spacing mirrors too tightly has resulted in cracked glass)
  - Flooring shall be striped to indicate the clearances required during the use of each piece of the circuit.
  - Consider a training course at the exterior.

- ***Cafeteria***
  - In addition to the cafeteria's function as the dining area, it may serve as the school's performance venue and for assemblies.
    - Access into space should be in no less than a double door arrangement (two 36" minimum wide doors) at all exit points even if exiting calculation allows less.
    - The cafeteria should be accessible from the exterior for after school programs without allowing access to the remainder of the school.
  - Sized to seat 15 nsf/student with no more than 3 lunch periods.
  - Provide adequate point-of-sale connections for computerized checkout units at food purchasing appropriate locations (2 minimum).
  - Provide powered AV screen mounted in the structure of the ceiling area. Key operate switch or locate switch in storage or custodial room.
    - Screen size to be approximately 78" x 139"
  - Provide windows with a view to the outside and provide with electrically operated roller shades for shading and lockdown.
  - Discuss with Food & Nutrition Service the option of self-service and/or cafeteria staff-serve.
  - Floors to be polished concrete.
  - For after school programs provide storage, hand sink, snack cooler and required outlets in a separate lockable room.
  - Provide designated area for recycle bins for paper, plastic and aluminum.

- ***Stage (if located in the cafeteria)***
  - Provide rough in for a high-fidelity sound system with equipment located in storage. Install conduit so 4 speakers will cover space from stage to back of room.
  - Provide one to two connections for a wired microphone and provisions for two to three cordless microphones.
  - Provide lighting for stage area. Provide stage lighting system with minimum 16 PAR 38 fixtures, 8/16 channel controller, dimmer packs, cabling, clamps, and needed gel sheets. Mount lighting for maximum coverage of stage area.

- Provided manually operated curtains on front, side and back, ramp access, and storage.
- Provide acoustic treatment to allow use of space for small plays and music ensembles.
- Coordinate rough-in with APS staff architect and APS on-call AV contractor

- ***Snack Bar***
  - Snack bar shall be contiguous with the cafeteria or gym as in recent builds.
  - Provide service openings into the cafeteria and to the outside. Each opening shall have a lockable stainless steel fire-rated (as needed) roll door with stainless steel sill. At exterior openings provide inset vertical hung aluminum storm window units (or equal) to close off opening when not operating to prevent draft and insects. Openings to be 18" wide x 30" high.
  - At the exterior openings, provide effective cover from rain and sun for students.
  - Provide snack bar with only warming capabilities with 22 Ln. ft. of HDL open base shelf cabinets with counter top to connect with the window serving areas. Provide wire mold along back-splash of counter for warming equipment (5 devices such as microwaves).
  - Provide wire metal shelving along wall opposite from windows.
  - Provide 3 compartment sink – each 10" wide x 14" long by 12" deep – with same accessories and faucet as in kitchen unit. Provide with 20" drain boards each side. Provide 12" high stainless steel wall protection behind sink area.
  - Provide a hand sink with soap (receives APS supplied pouch soap refills – verify specified model with FD+C) and paper towel dispensers.
  - Provide 2 point-of-sale computer jacks with outlets (one each pair of windows) for interface with food service computer sales system from kitchen office.

- ***Storage / Custodial***
  - Provide separate custodial areas: one in kitchen and cafeteria. Each with custodial sink, backsplashes, faucets, broom and mop holder rack.
  - Provide ample storage for additional special events folding tables and chair carts.
  - Provide doors to allow for 72" clear opening.

- ***Outside Dining Patio***
  - Provide hard surface, well drained and half shaded patio area (shade between 10:30 am and 1:30 pm) adjacent to the snack bar and easily available for students from the cafeteria. Provide anchored, exterior rated, vandal resistant tables and benches for up to 100 students.
  - Provide hose bib in area for cleaning. Provide outlet for cleaning equipment with 30 amp GFCI circuit.
  - Provide general site lighting for dining area (and adjacent socialization areas) to allow evening use for special programs.

- ***Kitchen***
  - See requirements in Chapter 2- Design & Construction Integrity Section.

- ***Other School Support***
  - These are miscellaneous spaces that have no specific relationship to specific spaces:
  - School Store: The store will have a 72" by 42" tall stainless steel roll-up door, rated for location. It will be key lockable from inside. Room will have five 36"W, 34"H, 24"D base cabinets (one 6-drawer unit and 4 lockable shelf units). Countertop with integral back-splash. Wall opening at roll door to receive stainless steel cap on the sill or plastic laminate counter extension. Provide three 48"W, 78"H, 18"D wire steel shelving.
  - MDF and IDF to conform to all requirements in the APS Electrical Design Standards and Telecommunications Guidelines. Seal all wall to roof and floor to wall joints to prevent dust infiltration. Locate MDF near utility entry to school. The main services and distribution of all cable / wire for all special systems goes through these rooms. Rooms to be acclimatized with good air exchange, free of dust, and operate 24 hours a day so no time clock interference.
  - IT repairs typically take place off-site. If an IT office is required then it should be located near the MDF and include a 60"L, 36"H, 36"D workbench.

- ***Utility / Storage Custodial Utility Areas***
  - Refer to Chapter 2 [School Design + Construction Integrity]

- ***Facility Storage Interior (other than in classrooms)***
  - Refer to Chapter 2 [School Design + Construction Integrity]

- ***Facility Storage Exterior***
  - Refer to Chapter 2 [School Design + Construction Integrity]

Administrative Offices / Support Areas

- ***Administrative Offices***
  - The administration area will be central to the school and visitor access. It is the school's single point of entry so visibility and way finding are important to and from these offices.
    - Main office should be easily located by visitors to the school.
    - Reception areas: Provide one area with 2 built-in workstations for staff that control phones, PA and support administration staff. Provide space for a reception desk with upper and lower cabinets for both, each using about an 8' by 8' work area. Provide another built-in reception area for public sign-in, phone console, and information. This area shall have 3 built-in work stations of custom design to set the design theme of the school. The casework shall be about 20 linear ft. of base units with 3 knee spaces separated by drawer units. The transaction counter height should be 42" high except for a section of the desk that is ADA compliant and the work surface behind the transaction counter should be 30" a.f.f. This area shall have visual control of the school's main entry point and capable of being secured with a grille after hours.
    - Provide a waiting area in the lobby for seating for up to 12 people and allowing room for tables for registration.
    - Principal's office will have APS-provided furniture which may include a desk, credenza, and table and chairs. Principal's office should have 2 exit paths out of space.
    - Assistant principals' office will have APS-provided furniture which may include desk and a small round table and chairs.

- Conference room should be located for easy access by multiple groups within the school.
  - Room shall seat 12-14 people. The room shall have lower and upper lockable cabinets and a sink.
- Secretary/Bookkeeper shall have a room similar to the assistant principals.
- Workroom/copier is support for administrative staff. Space includes copiers, form storage, and clerk workstation. Provide six 36" W, 36" H, 24" D base storage cabinets with shelves, and six 36" W, 24" H, 15" D open shelf upper cabinets. The 2' x 2' head-end console for the PA system can be located in this room. Provide four wardrobe cabinets for staff in the open office area (18" W, 84" H, 24" D).
- File/storage/coffee area is off the main office portion of administration. In the file/storage room provide two 48" W, 84" H, 24" D lockable tall cabinets. (Eight vertical file cabinets and one table will be provided by others.) The coffee bar area is intended more as a non-secure entry area to the high security file room. The coffee bar has one 24" ADA sink base unit with 12" by 12" by 8" stainless steel sink with gooseneck faucet, on 24" 4-drawer base unit, two 30" lockable storage base units with shelves and one small (18 cubic foot) refrigerator with ice maker (to be provide by the general contractor). Provide plug mold along counter for coffee maker and microwave.
- Family/parent room can be in the vicinity with data and power. Accommodate space for four to six computer work stations in family/parent room which parents may come in and utilize.
- Provide recessed display space with locking safety glass doors to display student 2-D and 3-D art work and which is visible to the public.
- Provide restrooms in proximity to the administration area or adjacent to this area for public/staff adults.

FD+C Note: All windows to have a minimum sill height of 30" a.f.f. Minimize curved and odd-angled walls in this area to best accommodate high density of furniture.

- ***Counseling Area***
  - Review needs for a particular school program with APS Counseling for information on traditional counseling allocations.
  - The counseling area will be self-contained but shall be easily accessible for all students and parents. Access to the counseling area will be a controlled area and should be located out of the general circulation for privacy.
    - Provide secretary open office desk and waiting area for 6 people.
    - Parents need to check in at the front area to see a counselor. Parents need to wait at school office /reception. Locate the counseling suite away from the public waiting area so that the public or parents don't see students going to counseling.
    - Students should have direct access to counseling offices. Waiting area by counseling offices is for students.
    - Provide offices for counselor(s), head SPED,instructional coach, and space per evaluation/testing per project utilization requirements.
    - For privacy, avoid glass. Counseling offices require sound isolation.
    - Provide power, data, and space for printers to be located in the counseling suite for confidentiality.
    - Provide a conference room for 14 people. Provide one 48" W, 34" H, 24" D ADA sink and drawer unit for sing 14", 16" 6" D stainless steel sink with gooseneck lever handle faucet; one 36 W, 34" H, 24" D base storage unit and compact refrigerator under a 24" +/- base unit with side panel. Provide matching lockable upper cabinets 24" H and 13" D. Assemble so that there is a counter on each side of sink. Provide paper towel dispenser and pouch type soap dispenser at sink (receives APS supplied pouch soap refills – verify specified model with FD+C). Provide outlets at back of counter.
    - Provide fire-proof secure space for 14 vertical file fire-rated cabinets to include 2 lockable storage cabinets (48" W x 24" D x 84" H) to be provided by F&E for supplies, forms, and brochures. This room is a secure area with limited access.

- ***Nurse Suite***
  - The nurse suite shall be located near the main office and lobby for easy access by students and parents. This will also facilitate the mandatory signing-in and-out procedures and allows for quick backup by staff in an emergency. Design so that the Health Center may expand in the future.
  - Provide a waiting area with seating for 6 students. This space should be visible from the Nurse's office and Health Assistant's desk. The people waiting should not be able to see into the treatment and recovery areas.
  - Provide office for nurse, and space for a desk that is about 11 linear feet. The double locked medicine check (NIC See Appendix C for space requirements) is located in this space. Key access to this room is limited due to files and medicines. Provide space in layout for compact sized refrigerator to store controlled/prescription medicines. Provide window into treatment and recovery areas and waiting area to supervise students. Design doors, wall, ceiling, windows for speech privacy when door is closed.
  - Provide space for a health assistant desk within the waiting area.
  - Recovery (Isolation) area: Provide space for half of required recovery cots separated by ceiling mounted curtains. Total number of recovery cots is calculated at a ratio of 1 recovery cot (74" L x 24" W x 18" H) per 250 students. Duplex outlets and data drops at each cot for equipment that may be required.
  - Treatment area: Provide refrigerator (provided by general contractor) that is white, Energy Star, 18 cubic foot frost free with ice maker. Provide 10 Ln. Ft. of lockable plastic laminate casework 34" h and 24" D with 30" wide ADA sink unit with 14" x 16" x 8" deep stainless steel sink with gooseneck faucet with lever handles, one 30" base cabinet with 4 small drawers side by side and 2 large drawers below and one 30" W by 34: H by 24" D storage units. Provide four 13" D lockable upper storage cabinet units over base units and refrigerator. Locate refrigerator far enough away from sink so that a GFCI outlet is not required. Provide pouch-type soap dispenser (receives APS supplied pouch soap refills – verify specified model with FD+C), paper towel dispenser and mirror at sink. Include space for half of required recovery cots separated by ceiling mounted curtains. Duplex outlets and data drops at each cot for equipment that may be required.
  - Provide area for a 24" wide by 60" high safety mirror.
  - Patients should be able to view a supervisory person from the recovery cot if curtains are open. Area of cots should be able to be darkened to reduce stress. Privacy curtains to be installed around each cot. Duplex outlets are required at each cot for equipment.

- ADA-compliant bathroom with ceramic tile floor and standard restroom accessories. For schools with Special Education DD level students, allow space for Hoyer lift in bathroom. Inclusion of shower if special education program requires it. No changing table.
- Choose paint, tile, and other coverings to be easily cleaned and disinfected.
- Dedicated climate control. Operable window if possible; also provide exhaust fan in rooms.
- Provide storage closet for wheelchair, crutches, and other bulk item storage.
- Provide space for locking fire proof vertical file cabinet - one for every 800 students.
- Provide combo washer-dryer laundry unit (stacking unit).

- ***Teachers' Workroom***
  - The workroom shall be centrally located to the teaching staff with easy access from the corridor.
    - Defer to flooring table.
    - Centrally located with proximity access to the Media Center preferred.
    - Sufficient permanent lockable storage.
    - Base cabinets with sufficient countertop for workspace and equipment.
    - Upper cabinets.
    - Deep double sink area.
    - Soap dispenser - surface mounted with screws (receives APS supplied pouch soap refills – verify specified model with FD+C)
    - Paper towel dispenser - surface mounted, stainless steel, lever operation (receives roll towels)
    - Consider use of a utility sink set into the counter.
    - Sufficient storage area, minimum 60 sf.
    - Accommodate a variety of shelving systems for storage of paper, books, supplies, and audio-visual material.
    - Ability to accommodate space for a desk (30x60) for an educational assistant.
    - Accommodate space for a work table (30x72).
    - Dedicated circuits and outlets for equipment.

- ***Teachers' Lounge***
    - Located near the administrative offices or workroom and adjacent to staff restrooms. Where applicable, provide patio area with wall privacy.
    - Accommodate space for seating 30, APS F&E provides the tables and chairs as well as the microwaves. Small kitchenette area with an 18 c.f. frost free refrigerator with ice maker, microwave oven (no range), and double sink. Provide 5 duplex outlets with dedicated circuits above counter. At the sink provide soap dispenser, surface mounted with screws (receives APS supplied pouch soap refills – verify specified model with FD+C), and paper towel dispenser - surface mounted, polycarbonate, lever operation (receives roll towels).
    - Space and power/data for two vending machines.
    - Staff mail boxes (1 per staff and 10% growth) either here or in a staff only area of the administration area. And base cabinet for larger reams of paper and/or larger packages.
    - Windows and, typically, access to an outside patio area. Keep window sills at minimum 30" a.f.f.

- ***Site Recreation***
    - The school site shall provide outdoor recreation and learning areas suitable for age of student population served. Refer to individual sections for specific school level requirements.

- ***Outside Gathering Areas***
    - Provide exterior space central to school that permits social gathering of students during leisure time and for group presentations (e.g. commons area, amphitheater).
    - Provide seating options in high activity areas (at crossroads, lobbies, courtyards, etc.) and social/outdoor class areas.
    - Provide an outdoor paved plaza area to accommodate 300 students with a 440 sf raised area with a GFCI outlet access to accommodate speakers and small performances.
      - Outdoor AV system will be portable. Rough in not required.
    - Provide an outdoor learning area for seating 40 students with shading.
    - Provide an outdoor dining patio (standard included in cafeteria section).

- ***Athletic Fields***
  - Locate the gym complex close to the main field and track, auxiliary field, and locate the exterior basketball courts in a convenient location for student use and away from streets and parking areas. Provide a 12'-0" wide gated opening for M&O access.
  - For field and amenity sizing, see General Concepts - Site Recreation section.
    - Main Field and Track
      - Provide a main field with graded earth track close to the main gym with an asphalt-paved pathway connecting the field to gym. The track and field areas shall be accessible by persons with disabilities. The main field should be able to accommodate soccer and football. Provide a nominal 400 meter asphalt paved and curbed 6-lane track around the field. The track shall have positive drainage. Turf and irrigation design and installation will be provided by APS consultant. Nighttime lighting is not required. Provide a 12'-0" wide gated opening for M&O access.
    - Hard Surface Recreation Courts
      - Provide concrete pads sized to accommodate six to eight basketball goals on three to four high school standard sized courts (about 50 feet x 84 feet each court with safety run-outs). Basketball goals shall be single curved metal support standards with durable all weather metal backboards and all weather extra heavy-duty metal hoops with metal nets. Locate the courts so they are easily supervised and are accessible to PE classes and general student lunch-time use. Provide a 12'-0" wide gated opening for M&O access.
    - Recreation Area Supervision
      - Recreation areas shall be organized to minimize the number of supervisory personnel required.
      - Refer to General Concepts - Site Recreation for other requirements

Section 06

Programmed Spaces: K-8

Needs Analysis for Standards-Based K-8

» ***A utilization will be provided to the A/E by APS FD+C and Capital Master Plan (CMP) prior to the design of each Project. The CMP utilization will define the specific spaces required for each project. The APS Standards will define the square footage and character requirements for each of the specified spaces.***

Space Description	# Spaces	NSF per Space	Total NSF	Comments
General Classrooms				
Pre-kindergarten w/ snack area, restroom, and storage	2	1,200	2,400	Anticipated - discuss preK requirements
Kindergarten w/ snack area, restroom, and storage	6	1,200	7,200	
Teaching kitchen	1	640	640	
Regular classrooms, grades 1 - 5	25	840	21,000	
Regular classrooms, grades 6 - 8	20	840	16,800	6th grade is a separarate academy
SPED classrooms	--	--	TBD	Include SPED classrooms as determined by CMP. See SPED program space types listed in the appendix.
Subtotal general classrooms			48,040	
Laboratories / Flexible Learning Areas				
Science laboratories, grades 6-8	6	1,250	7,500	
Lab prep/storage	3	420	1,260	1 prep/storage space is shared per 2 labs.
STEAM / maker space, grades 1-5	2	1,200	2,400	Could be analogue vs digital or lower vs older grades
Computer lab or STEAM lab, grades 6-8	3	1,100	3,300	
Computer/STEAM storage	3	150	450	
Project based learning break-out, large	4	840	3,360	
Project based learning break-out, medium	6	420	2,520	
Project based learning break-out, small	4	340	1,360	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
FACS - Sewing	1	1,200	1,200	FACS = Family and consumer sciences
Sewing storage	1	175	175	Includes washer and dryer
FACS - Culinary	1	1,200	1,200	
Culinary storage/pantry	1	175	175	
Subtotal laboratories			24,900	
Fine + Performing Arts / Music				
Fine Arts classroom, grades 1 - 5	1	900	900	
Art kiln room	1	150	150	
Art storage	1	150	150	
Fine Arts classroom, grades 6 - 8	1	1,300	1,300	
Art office	1	120	120	
Art kiln room	1	100	100	
Art storage	1	200	200	
Art multi-use space	1	1,300	1,300	
Chorus	1	1,300	1,300	
Chorus office	1	120	120	
Chorus storage	1	400	400	
Band/Orchestra	1	2,070	2,070	
Band/Orchestra office	1	120	120	
Band/Orchestra storage	1	500	500	
Drama/Performance	1	1,100	1,100	
Office	1	120	120	
Storage	1	500	500	
Practice rooms (large)	2	100	200	Practice rooms are shared among chorus, band, orchestra, drama, and performance.
Practice rooms (small)	3	50	150	
Subtotal fine + performing arts / music			10,800	
Media Center				
Entry / circulation desk	1	200	200	
Stacks (preK - 2 books)	1	1,000	1,000	
Stacks (grades 3 - 8)	1	1,700	1,700	Up to 50 occupants (2 classes)

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Story time area	1	450	450	Up to 30 occupants
Group study area	2	200	400	
Computer research area	1	600	600	Space for 16 computers
Classroom area	2	750	1,500	Up to 30 occupants
Librarian's office/workroom	1	300	300	Could be combined or separate spaces
Storage	1	200	200	Locate adjacent to circulation desk
Subtotal media center			6,350	
Physical Education				
Main gym	1	8,600	8,600	24' ceiling, minimum.
Bleacher seating	1	incl. above	incl. above	
Main gym storage	1	600	600	
Auxiliary gym	1	5,800	5,800	24' ceiling, minimum.
Aux gym storage	1	300	300	
Multi-purpose classroom	1	1,700	1,700	Could be used for health class, dance, weight, or PE class. 12' ceiling minimum.
Multi-purpose storage	1	200	200	
PE Lockers - Boys	1	1,450	1,450	
PE Lockers - Girls	1	1,450	1,450	
PE Teachers' Office	2	175	350	PE offices include a restroom
Snack bar	1	170	170	
Subtotal physical education			20,620	
OT/PT and Adaptive PE (APE)				
OT/PT and APE	1	500	500	Assumes non-hub. See appendix for additional information.
Therapy space storage	1	90	90	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Office hub	1	120	120	(2) shared workstations at 60 SF each. Shared workstations accommodate social workers, speech language pathologists, occupational therapists, physical therapists, and APE teachers). See appendix for more info
Student meeting room	1	130	130	Provide girls, boys, and family restrooms
Subtotal OT/PT and APE			840	
Cafeteria/Kitchen				
Seating area, including serving line	1	4,600	4,600	Accommodate school population within 3 lunch periods per day, maximum.
Serving line	1	incl. above	incl. above	
After school milk cooler and milk dump	1	incl. above	incl. above	
Cafeteria storage	1	280	280	
Performance stage / platform	1	800	800	Could be located with drama/fine arts instead of cafeteria
Snack bar	1	250	250	
Kitchen	1	see below	see below	
Main prep, cooking, serving area	1	1,365	1,365	
Cleaning	1	250	250	
Walk-in refrigerator	1	225	225	
Walk-in freezer	1	225	225	
Dry storage	1	325	325	
Office	1	100	100	
Restroom	1	50	50	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Washer/dryer and staff lockers	1	80	80	Provide 10 lockers
Kitchen janitor closet	1	50	50	
Deliveries	1	incl w tare	incl w tare	
Subtotal cafeteria/kitchen			8,600	
Administration				
Secure entry vestibule	1	200	200	
Waiting/reception	1	300	300	Accommodate up to 16 people
Receptionist/clerk	1	250	250	
Secretary	1	160	160	
Principal	1	150	150	
Assistant principal	2	120	240	
Conference room	1	240	240	Accommodate up to 14 people
File/storage/coffee	1	160	160	
Admin work area	1	150	150	
Subtotal administration			1,850	
Staff / Teacher Support				
Teachers' workroom	2	850	1,700	
Teachers' workroom storage	1	200	200	
Teachers' lounge	2	850	1,700	
Work area	1	180	180	
Mailboxes	1	175	175	
Book storage	1	400	400	
Family room (parents' room)	1	600	600	
Adult restrooms	2	incl. w/ tare	incl. w/ tare	
Subtotal staff/teacher support			4,955	
School Nurse's Suite				
Waiting area	1	175	175	
Treatment room	1	250	250	Locate half of required cots in the treatment room
Recovery/isolation room	1	180	180	Locate half of required cots in the recovery/ isolation room
Restroom	1	80	80	
Nurse's office	1	120	120	
Health assistant work area	1	100	100	
Storage	1	50	50	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Subtotal school nurse's suite			955	
Counseling Area				
Secretary with waiting area	1	200	200	
Counselor office	3	150	450	
Head SPED office	1	150	150	
Instruction coach office	1	150	150	
Evaluation and testing	1	120	120	
Conference/IEP room	1	240	240	
File storage	1	150	150	
Subtotal counseling area			1,460	
Programmed Facilities Support				
In-School Suspension / TIPS	1	650	650	
Security office	1	150	150	
Lobby / pre-function area	1	800	800	Allocate judiciously where needed to improve circulation and flow. Does not have to be a singular, separate space.
General / building storage	2	200	400	Could be multiple spaces totaling 200 SF maximum
School store	1	240	240	
Lockers / cubbies	1	600	600	
Testing materials storage	1	600	600	
Technology storage	1	120	120	
MDF	1	168	168	12'x14'
IDF	7	120	840	10'x12'
Head custodian office	1	80	80	
Custodial supplies and site equipment	7	40	280	
Subtotal facilities support			4,928	
PreK - 8 School Facility Space Summary				
General Classrooms			48,040	
Laboratories / Flexible Learning Areas			24,900	
Fine + Performing Arts / Music			10,800	
Media Center			6,350	
Physical Education			20,620	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
OT/PT and Adaptive PE (APE)			840	
Cafeteria/Kitchen			8,600	
Administration			1,850	
Staff / Teacher Support			4,955	
School Nurse's Suite			955	
Counseling Area			1,460	
Programmed Facilities Support			4,928	
Subtotal preK - 8 school NSF			134,298	
30% Tare (70% Efficiency)			57,556	
Total PreK - 8 School GSF			191,854	
PreK - 8 School Site Requirements	Quantity	SF	GSF	
Students	1,340			
Staff	xx			
Permanent Buildings	1	191,854	191,854	Assumes single story construction
Portable Buildings (if required)	8	1,800	14,400	
Staff and visitor parking spaces	240	400	96,000	
Special event parking	0	N/A	N/A	
Bus parking	22	765	16,830	45' x 17' per space
Cars at student drop-off/pick-up	200	400	80,000	
PreK and kindergarten playground	1	13,225	13,225	Approximately 115 students
Playground grades 1 - 3	1	30,500	30,500	Approximately 305 students
Playground grades 4 - 5	1	23,000	23,000	Approximately 230 students
Synthetic turf field	1	54,100	54,100	
Natural grass field with track	1	73,800	73,800	
Outdoor learning area	2	12,100	24,200	With shade
Basketball courts	4	4,200	16,800	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Easements / setbacks (typical)	1	40,000	40,000	
Subtotal preK - 8 school site			674,709	
30% Tare (70% Efficiency)			289,161	
Total PreK - 8 School Site GSF			963,870	1 acre = 43,560 SF
Total PreK - 8 School Site Acres			22.1	1 acre = 43,560 SF

K-8

Section 07

Programmed Spaces: High Schools

Needs Analysis for Standards-Based High Schools

» ***A utilization will be provided to the A/E by APS FD+C and Capital Master Plan (CMP) prior to the design of each Project. The CMP utilization will define the specific spaces required for each project. The APS Standards will define the square footage and character requirements for each of the specified spaces.***

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Main Entry and Central Administration				
Secure entry vestibule	1	200	200	
Waiting / reception / counter	1	635	635	
Registrar / data processing	1	230	230	
Book keeper	1	120	120	
Attendance office	1	120	120	
Open office work area	1	450	450	
Admin work room	1	220	220	
Coffee / break bar	1	45	45	
Conference room	1	240	240	
Mail	1	420	420	
Test preparation room	1	300	300	
File room	1	100	100	
Vault	1	75	75	
Admin storage	1	500	500	
Principal office	1	220	220	
Principal secretary office	1	120	120	
Principal restroom	1	65	65	
School store	1	240	240	Could be located near the cafeteria or other common area
In-School suspension room	1	840	840	
Subtotal main entry and central admin			5,140	
Security Suite				
Office	1	220	220	
APS police	1	120	120	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Delinquent hold room	1	90	90	
CCTV monitoring room	1	120	120	
CCTV equipment room	1	90	90	
Subtotal security suite			640	
Family Center / Parent Room				
Work area	1	580	580	
Offices	2	100	200	
Break area	1	170	170	
Storage	1	50	50	
Restroom	1	65	65	
Subtotal family center / parent room			1,065	
Student Activities Center				
Activities room	1	840	840	May include overhead roll-up counter door.
Activities director office	1	120	120	
Subtotal activities center			960	
School Nurse's Suite				
Waiting area	1	540	540	Accommodate 6 to 10 seats
Treatment room	1	330	330	Locate half of required cots in the treatment room
Recovery/isolation room	1	225	225	Locate half of required cots in the recovery/ isolation room
Restroom	2	65	130	
Special needs changing room	1	100	100	Includes washer, dryer, and changing table
Nurse's office	2	120	240	
Health assistant work area	1	100	100	Open workstation at reception counter

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Vision screening	1	125	125	Verify distance requirements
File room	1	100	100	Verify need; Records are converting to electronic
Storage	1	360	360	
Subtotal school nurse's suite			2,250	
Counseling Area				
Secretary with waiting area	1	200	200	
Counselor office	5	150	750	Offices may be distributed among the Academies or may be centrally located. Includes College and Career counselor and Cross-roads counselor.
Social worker	0	150	0	Allocated with OT/ PT
Psychologist	0	150	0	Allocated with OT/ PT
Speech and Language Pathologist	0	150	0	Allocated with OT/ PT
Head SPED office	1	150	150	
Transition specialist	1	150	150	
Instruction coach office	1	150	150	
Evaluation and testing	1	120	120	
Conference/IEP room	1	240	240	
File storage	1	150	150	
Career exploration center	1	320	320	

High School

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Wellness Room	1	840	840	Could be located in proximity to other common use areas, such as the media center or the health center.
Subtotal counseling area			3,070	
Academy Spaces				
Lobby / waiting	1	350	350	Accommodate 6 seats
Secretary / reception / work station	1	100	100	
Dean / assistant principal	1	150	150	
Academy records	1	125	125	
Ancillary office	1	120	120	
Staff / adult restrooms	2	incl. w/ tare	incl. w/ tare	
Conference	1	240	240	Accommodate 14 seats
Academy storage	1	185	185	
General classroom	4	840	3,360	
Science classroom / laboratory	2	1,250	2,500	
Science prep / storage	1	420	420	
Project studio	1	1,360	1,360	
Student team area	1	300	300	
Conference / seminar room	1	840	840	
Teacher home base	3	600	1,800	
Teacher work room	3	275	825	
Teacher Lounge	3	840	2,520	
Teacher restrooms	2	incl. w/ tare	incl. w/ tare	
Student lockers	150	5	750	
Student restrooms	2	incl. w/ tare	incl. w/ tare	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Academy dining commons	1	2,000	2,000	Size for 15 SF per student. Coordinate total area required with main cafeteria
Warming kitchen	2	230	460	
Serving area(s)	2	220	440	
Student restrooms	2	incl. w/ tare	incl. w/ tare	
Storage	1	225	225	Adjacent to dining commons
Custodial closet	1	60	60	
Subtotal academy spaces			19,130	
Laboratories / Flexible Learning Areas				
Computer, STEAM, or Technology Education Lab	1	1,100	1,100	
Storage	1	150	150	
Tiered lecture	1	2,290	2,290	Capacity to seat small learning community
Greenhouse	1	960	960	Sandia HS greenhouse = 40' x 24'
Student senate / gov't activities	1	1,200	1,200	
FACS - culinary arts classroom / cafe	1	965	965	
Commercial lab area	1	575	575	
Kitchenette area	1	965	965	
Laundry area	1	105	105	
Pantry / storage	1	100	100	
FACS - sewing / fashion lab	1	840	840	
Fitting areas	2	60	120	
Laundry area	1	60	60	
Storage	1	60	60	
Office	1	120	120	
Child development lab	1	900	900	
Observation area	2	60	120	
Snack area	1	60	60	
Student restrooms	1	65	65	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Adult restroom	1	65	65	
Health occupation classroom	1	840	840	
Lab area	1	600	600	
Storage	1	60	60	
Business education lab	1	1,200	1,200	
Wood Shop	1	2,400	2,400	
Classroom	1	600	600	Classroom can be shared with other shops
Office	1	120	120	
Storage	2	400	800	Tools and project storage
Finish area	1	220	220	
Metals Shop	1	3,000	3,000	
Classroom	1	600	600	Classroom can be shared with other shops
Office	1	120	120	
Storage	1	1,200	1,200	
Welding room	1	540	540	
Transportation technology shop	1	3,300	3,300	Includes bench area (about 900 SF)
Classroom	1	600	600	Classroom can be shared with other shops
Office	1	120	120	
Tools	2	180	360	
Storage	2	130	260	
Subtotal laboratories/flex learning			27,760	
Fine Arts				
2D Studio Classroom	1	1,300	1,300	
2D Storage	1	265	265	
2D Office	1	120	120	Provide visual supervision of the classroom from the office.
3D Studio	1	1,325	1,325	
3D Storage	1	360	360	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
3D Office	1	120	120	Provide visual supervision of the classroom from the office.
3D Kiln room	1	150	150	
3D drying room	1	150	150	
Computer graphics / editing studio	1	1,100	1,100	
Graphics storage	1	150	150	
Graphics office	1	120	120	Provide visual supervision of the classroom from the office.
Film studio	1	1,935	1,935	
Sound recording / control room	1	120	120	
Whisper room	1	70	70	
Vestibule	1	140	140	
Storage	1	250	250	
Photography classroom	1	785	785	
Darkroom / finishing	1	720	720	
Photography storage	1	120	120	
Photography office	1	120	120	Provide visual supervision of the classroom from the office.
Subtotal fine arts			9,420	
Music				
Band Classroom	1	2,345	2,345	Ceiling shall be approximately 18' high. Walls need chair rails.
Instrument storage	1	525	525	
Instrument workroom	1	110	110	Can be combined with instrument storage
Percussion storage	1	230	230	
Uniform storage	1	310	310	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Practice rooms - large	2	310	620	Provide visual supervision from main space
Practice rooms - small	4	55	220	Provide visual supervision from main space
Library	1	135	135	
Sound control room	1	200	200	
Office	1	120	120	Provide visual supervision of the classroom from the office.
Orchestra	1	1,185	1,185	Ceiling shall be approximately 18' high. Walls need chair rails.
High strings storage	1	280	280	For violins and violas
Low strings storage	1	230	230	For cellos and bases
Practice rooms - large	1	250	250	Provide visual supervision from main space
Practice rooms - small	2	55	110	Provide visual supervision from main space
Library	1	260	260	
Listening room	1	145	145	
Office	1	120	120	Provide visual supervision of the classroom from the office.
Chorus	1	1,560	1,560	Ceiling shall be approximately 18' high. Walls need chair rails.
Large storage	1	390	390	
Small storage	1	80	80	
Practice room	1	165	165	Provide visual supervision from main space
Practice room w/ piano	1	235	235	Provide visual supervision from main space
Library	1	130	130	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Office	1	120	120	Provide visual supervision of the classroom from the office.
Subtotal fine arts			10,075	
"Performing Arts Center (PAC) and Black Box"				
Entrance / Pre-Function	-	-	-	
Entry vestibule	1	280	280	
Lobby	1	2,320	2,320	
Ticket window	1	120	120	Can be combined with coats
Coat window	1	120	120	Can be combined with tickets
Concessions	1	400	400	
Public toilets (multi-stall)	2	300	600	
Public toilets / family restroom	2	65	130	Single occupant
Theater	-	-	-	
Seating	1	5,160	5,160	450 seatings (including mezzanine seating)
Orchestra pit	1	550	550	Include piano storage
Stage, including backstage	1	2,900	2,900	Include proscenium arch with apron
Controls / AV room	1	620	620	
Drama classroom / green room	1	1,000	1,000	
Office	0	120	0	Office not required
Dressing room	2	240	480	Consider 2 additional dressing rooms for adults
Dressing room toilet	2	65	130	
Make-up room	2	200	400	
Wardrobe / costume storage	1	265	265	Include washer and dryer

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Set-building / work area	1	2,000	2,000	
Storage	1	incl. w/ above	incl. w/ above	
Receiving	1	incl. w/ above	incl. w/ above	Included in the work area. Share the receiving area between the PAC and the black box.
Mechanical	1	incl. w/ tare	incl. w/ tare	
Electrical	1	incl. w/ tare	incl. w/ tare	
Communications	1	incl. w/ tare	incl. w/ tare	
Black Box	-	-	-	
Pre-function / lobby	1	Incl. w/ PAC	Incl. w/ PAC	Share pre-function / lobby with PAC
Public restrooms	2	Incl. w/ PAC	Incl. w/ PAC	Share with PAC restrooms. If black box is located in a separate facility, then provide 2 restrooms at 200 NSF each.
Staging / set - up	1	Incl. w/ PAC	Incl. w/ PAC	Share with PAC work area. If black box is located in a separate facility, then provide 200 NSF.
Theater	1	2,360	2,360	Rectangular space with recessed wood stage floor (may have concrete border). Provide space for portable risers to accommodate 70 to 100 seats.
Equipment storage	1	225	225	For storage of portable risers, chairs, and other equipment.
Subtotal PAC and black box			20,060	
Media Center				
Entry / circulation desk	1	290	290	Include 2 - 3 workstations and countertop layout area

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Circulation storage	1	55	55	
Stacks	1	1,780	1,780	Accommodate about 18,000 volumes. Provide daylight. Window sill height 48" minimum AFF to allow for shelving below.
Computer area / study tables	1	1,370	1,370	Space for 36 seats, minimum. Provide sound system and projector/screen or other digital presentation board.
Computer research area	1	450	450	Space for 16 computers
Reading alcoves	1	530	530	Soft seating area, about 25 seats
Periodicals	1	48	48	48 linear feet
Student copiers	1	75	75	1 or 2 copiers
Search computer	1	75	75	1 dedicated computer
Librarian's office	1	170	170	
Work room	1	275	275	Includes kitchenette
Computer lab or STEAM / flex lab	2	1,250	2,500	
Classroom - seminar / conference	1	840	840	
Classroom - graphic production	1	480	480	
Lab - graphic production	1	250	250	
Storage - graphic production	1	110	110	For shelved items and carts. Provide power and data.
Professional room	1	440	440	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Book room	1	1,830	1,830	Does not need to be associated with the media center. Could be located with central administration.
Equipment storage	1	745	745	Includes IT / AV storage
Public toilets	2	230	460	Also provide convenient access to student toilets from the media center
Subtotal media center			12,773	
Physical Education				
Lobby / pre-function	1	3,000	3,000	Assume 400 occupants at 7.5 SF per occupant
Ticket sales	1	100	100	
Snack bar	1	340	340	
Dry storage	1	120	120	
Service area	1	120	120	Include 3 compartment sink and mop sink
Restrooms	-	-	-	
Public restrooms (women/men)	4	300	1,200	Multi-stall restrooms
Public restrooms (family)	1	65	65	Single occupant
Student restrooms (girls/boys)	2	300	600	Multi-stall restrooms
Main gym	1	12,210	12,210	
Bleacher seating	1	incl. above	incl. above	
Main gym storage	2	315	630	1 storage room is for competition wrestling mats, and the other storage area is for tables, chairs, and equipment.
Main gym AV room	1	75	75	
Auxiliary gym	1	9,355	9,355	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Aux gym storage	1	300	300	For athletic equipment and folding chairs
Aux gym AV room	1	40	40	Could be combined with main gym AV room
Multi-purpose mezzanine	1	2,790	2,790	
Multi-purpose mezzanine storage	2	250	500	For ping-pong tables and other multi-purpose mezzanine equipment
Adaptive PE mezzanine	1	3,310	3,310	
Adaptive PE office	1	120	120	
Adaptive PE storage	1	130	130	
PE Classroom	2	600	1,200	Can be combined into 1 large classroom
PE classroom storage	1	200	200	
Multi-purpose classroom #1	1	1,850	1,850	For PE studio
Office	1	120	120	
Dressing rooms	2	75	150	
Storage	1	150	150	
Multi-purpose classroom #2	1	3,500	3,500	For cheer, dance, etc
Office	1	120	120	
Dressing rooms	2	75	150	
Storage	1	150	150	
Weight room	1	3,875	3,875	
Office	1	120	120	
Circuit training area	1	1,260	1,260	
Storage	1	100	100	
Wrestling Room	1	4,270	4,270	Includes area for stationary bikes and similar equipment
Office	1	120	120	
Student showers	2	85	170	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Coach's shower	1	85	85	
Wrestling storage	1	200	200	For general wrestling storage (not mats)
Training Room	1	840	840	Includes equipment, first aid, and treatment areas
Office	1	120	120	
Therapy pool area	1	345	345	
Restroom	1	65	65	
Storage	1	120	120	
Ice and laundry room	1	150	150	Provide residential style washers and dryers
Athletic director's office	1	150	150	
Athletic director storage	1	75	75	
PE teacher's offices	2	120	240	Locate near PE locker rooms
PE teacher restroom	2	75	150	
PE teacher storage	2	100	200	
Open office area	1	900	900	For athletic coaches. Assume 60 NSF per workstation. Verify quantity of required workstations during programming phase.
Huddle room	1	120	120	Additional huddle rooms may be recommended based on quantity of open workstations required.
Conference room	1	240	240	
Restrooms	2	65	130	
PE locker rooms (girls/boys)	2	2,945	5,890	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
PE storage (interior)	1	200	200	
PE storage (exterior)	1	150	150	
Athletic locker rooms (girls/boys)	2	2,775	5,550	
Athletic storage A	10	200	2,000	
Athletic storage B	1	620	620	For football equipment
Referee locker room	1	210	210	
Referee restrooms (women/men)	2	125	250	Includes shower and lockers
Janitor closet	2	100	200	
Mechanical	1	2,535	2,535	Utility SF may vary
Electrical	1	525	525	Utility SF may vary
Communications	1	165	165	Utility SF may vary
JROTC	-	-	-	
Multi-purpose area	1	2,600	2,600	Could be located in Business + Leadership Academy. Includes air rifle firing range; verify length/width requirements for firing lanes.
Classroom	2	600	1,200	
Offices	2	120	240	
Air rifle storage	1	175	175	
Drill storage	1	175	175	
Uniform storage	1	250	250	Includes laundry area
Training aid storage	1	200	200	
Restrooms (girls/boys/staff)	3	65	195	
Subtotal physical education			74,935	
OT/PT and Adaptive PE (APE)				
OT/PT and APE	1	840	840	Assumes non-hub. See appendix for additional information.

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Therapy space storage	1	90	90	
Office hub	1	240	240	(2) shared workstations at 60 SF each. Shared workstations accommodate social workers, speech language pathologists, occupational therapists, physical therapists, and APE teachers). See appendix for more info
Student meeting room	2	130	260	Provide girls, boys, and family restrooms
Subtotal OT/PT and APE			1,430	
Cafeteria/Kitchen (aka Food Service)				
Dining commons, including serving line	400	15	6,000	Size for 15 sf/ student minimum. Accommodate school population within 3 lunch periods per day, maximum.
Serving line	2	150	300	
After school milk cooler and milk dump	1	incl. above	incl. above	
Cafeteria storage	1	280	280	
Kitchen	1	see below	see below	
Main prep, cooking, serving area	1	1,375	1,375	
Dish-washing/ cleaning	1	250	250	
Walk-in refrigerator	1	225	225	
Walk-in freezer	1	225	225	
Dry storage	1	325	325	
Office	1	100	100	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Restroom	1	65	65	
Washer/dryer and staff lockers	1	80	80	Provide 10 lockers
Kitchen janitor closet	1	70	70	
Deliveries	1	incl w tare	incl w tare	
Student restrooms	2	incl w tare	incl w tare	
Subtotal cafeteria/ kitchen			9,295	
Snack Bars (including DECA)				
Concessions	1	435	435	Size for 15 sf/ student minimum. Accommodate school population within 3 lunch periods per day, maximum.
Work room	1	150	150	
Storage	1	90	90	
Classroom (DECA only)	1	840	840	
Subtotal snack bars (each)			1,515	
Programmed Facilities Support				
Lobby / pre-function area	1	800	800	Allocate judiciously where needed to improve circulation and flow. Does not have to be a singular, separate space.
General / building storage	2	200	400	Could be multiple spaces totaling 200 SF maximum
Lockers / cubbies	0	0	0	Allocated in academy areas
Testing materials storage	1	600	600	
Technology storage	1	120	120	
MDF	1	168	168	12'x14'
IDF	7	120	840	10'x12'

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Head custodian office	1	120	120	
Custodial supplies and site equipment	7	40	280	SF may be distributed or combined into fewer spaces.
Subtotal facilities support			3,328	
High School Facility Space Summary				
Main Entry and Central Administration			5,140	
Security Suite			640	
Family Center / Parent Room			1,065	
Student Activities Center			960	
School Nurse's Suite			2,250	
Counseling Area			3,070	
Academy Spaces			19,130	
Laboratories / Flexible Learning Areas			27,760	
Fine Arts			9,420	
Music			10,075	
"Performing Arts Center (PAC) and Black Box"			20,060	
Media Center			12,773	
Physical Education			74,935	
OT/PT and Adaptive PE (APE)			1,430	
Cafeteria/Kitchen (aka Food Service)			9,295	
Snack Bars (including DECA)			1,515	
Programmed Facilities Support			3,328	
Subtotal high school NSF			202,846	
30% Tare (70% Efficiency)			86,934	
Total High School GSF			289,780	

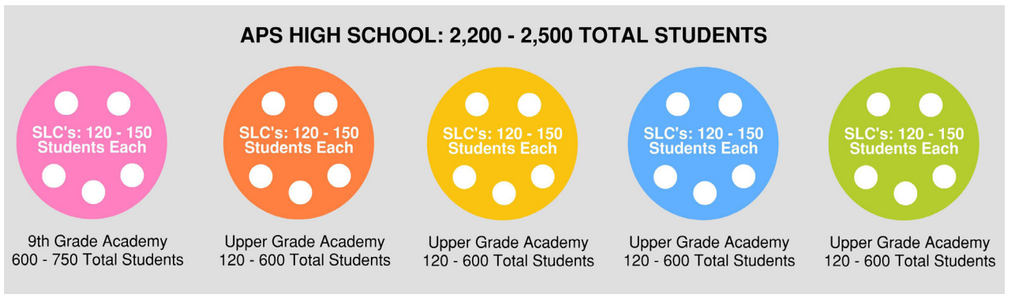
Space Description	# Spaces	NSF per Space	Total NSF	Comments
High School Site Requirements	Quantity	SF	GSF	
Students	TBD			
Staff	TBD			
Permanent Buildings	1	289,780	289,780	Assumes single story construction
Portable Buildings (if required)	8	1,800	14,400	
Staff and visitor parking spaces	250	400	100,000	
Student parking	900	400	360,000	
Special event parking	0	N/A	N/A	
Bus parking	33	765	25,245	45' x 17' per space
Cars at student drop-off/pick-up	75	400	30,000	
Track and field	1	200,000	200,000	Playfield and track dimensions per Site Recreation section of these standards and NFHS requirements
Field	1	incl. above	incl. above	
Track	1	incl. above	incl. above	
Pole vault pit	1	incl. above	incl. above	
Long jump pit	1	incl. above	incl. above	
Shot put and other events	1	incl. above	incl. above	
Bleachers	2	incl. above	incl. above	
Press box	1	200	200	
Football storage	1	400	400	
Track storage	1	300	300	
Auxiliary field	1	64,350	64,350	
Soccer storage	1	400	400	
Bleachers	2	incl. above	incl. above	
Baseball field	1	150,000	150,000	
Dugout	2	200	400	
Baseball storage	1	400	400	
Backstop	1	incl. above	incl. above	
Batting cage	1	incl. above	incl. above	
Bleachers	2	incl. above	incl. above	
Softball field	1	70,000	70,000	

Space Description	# Spaces	NSF per Space	Total NSF	Comments
Dugout	2	200	400	
Softball storage	1	400	400	
Backstop	1	incl. above	incl. above	
Batting cage	1	incl. above	incl. above	
Bleachers	2	incl. above	incl. above	
Basketball courts	2	3,750	7,500	50 FT x 75 FT each
Tennis courts	4	7,200	28,800	60 FT x 120 FT each
Tennis storage	1	100	100	
Concession stand	1	200	200	
Toilets	2	300	600	
Easements / setbacks (typical)	1	40,000	40,000	
Subtotal high school site			1,383,875	
30% Tare (70% Efficiency)			593,089	
Total High School Site GSF			1,976,964	1 acre = 43,560 SF
Total High School Site Acres			46	1 acre = 43,560 SF

Organizational Structure Into Academies And Small Learning Communities (SLC's)

- ***High Schools are comprised of several Academies.***
- ***Academies are comprised of several of Small Learning Communities (SLC's).***
- ***Most teachers will not have assigned classrooms, but will teach in a collegiate model, with the Home Base serving as an office and professional collaboration area.***

- ***APS High School - Typical Size***



Academies

- ***APS Standard high schools will include:***
  - One 9th grade academy
  - Up to four upper grade academies
  - Space for a future expansion academy to accommodate growth
  - The upper grade academies will generally be organized by career or academic focus, with each academy offering multiple related career paths. Each upper grade academy shall be sized for between 120 and 600 students.

- ***Ninth Grade Academy***
  - The ninth grade academy will serve approximately 600 to 750 students, and will:
    - Be physically separated from other academies to the extent practical.
    - Have its own administration and dining areas.
    - Facilitate student circulation from their academy to the media center, gymnasium, administration, dining, and transportation without navigating through large groups of upper grade students.
  - Upper grade career academies integrate academic and vocational instruction for grades 10, 11, and 12. These academies will:
    - Provide work-based learning opportunities for students and prepare students for post–secondary education and employment, with the personalized learning environment of a small community.
    - Have separate administration areas that are adequately staffed.
    - Be flexible over time to meet the career ambitions of the students and the cultural requirements of the community.
    - Have dedicated elective labs and technology shops. Labs may be used for computer or other hands-on learning, such as robotics. Technology shops will provide an industrial setting to accommodate the use of heavy machinery or loud activities.

- ***Career Academy Precedents:***
  - Instructional spaces should reflect the career environments of the program of study.
  - The following upper grade career academies / Programs of Study are offered at many APS high schools:
    - Audio and Video Technology and Film
    - Construction Technologies
    - Design/Pre-Construction: Architecture and/or Engineering
    - Education and Training
    - Facility and Mobile Equipment Maintenance (Automotive Technologies)
    - General Business
    - Health Informatics
    - Production (Welding)
    - Restaurant and Food/Beverage Services

Small Learning Communities (SLC's)

- Academies will be organized into smaller groups of students, called Small Learning Communities (SLC's). Each SLC will be a separate learning unit, comprised of about 120 to 150 students. Students and teachers within each SLC will be scheduled together and have a dedicated area in the school for conducting most of their classes. Students also

attend some classes outside of their SLC's. The 9th grade academy may have up to 5 SLC's.
- Areas included within all SLC's:
  - Core classrooms for English, math, science and humanities.
  - Elective classrooms and technology shops to support evolving curriculum.
  - SPED program space.
  - Staff areas: home base (preparation area), workroom, and conference room. Several SLC's may share a staff work room and conference room.
  - Restrooms and (if desired) student lockers.
  - Informal space for student teams, projects and resources.

Secure Entry Vestibule

- Provide single-point entry into the school that can be supervised from the central administration area and by APS Police. See "Safety/Security" in the General Section.
- The high school campus may include several buildings, parking lots and joint use facilities. Develop a security strategy which addresses student and staff safety and allows the administration to control public access to the campus during the instructional day.

Central Administration

- All school visitors must enter through the school's central administration.
- Visibility and way finding are important to and from this area.
- In addition to the central administration area, each Academy shall also house its own administrative functions. The space descriptions below are for the central administration area.
  - The lobby shall provide the entry experience into the school. Include:
    - 1 display case somewhere in or near the lobby. The display case shall be approximately 16' wide x 5' high x 2' deep. The display case shall have safety glass doors and shelving, illumination, and shall be lockable.
  - Provisions (backing, power, and data) for mounting a flat screen in the lobby for announcements.
  - Provide a waiting area in or adjacent to the lobby with space for seating 12 to 16 people as well as space for tables for registration.
- Reception area:
  - Provide a built-in reception counter with 3 workstations for visitor/public sign-in and information. The reception counter shall have visual control of the school's main security vestibule entrance and be capable of being secured with a grille or doors after-hours.
  - The reception counter shall be about 20 LF, with base casework and pedestal units to separate the 3 workstations. Counter height for visitors shall be 42", except where variation is required for ADA.
  - Include the fire annunciation panel, accessible to the fire department, in the reception area.
  - In addition to the workstations at the reception counter, provide space for 2 open office workstations for reception staff to operate the phones, intercom, and support the school administration. Each workstation shall be about 8' x 8'. Provide space for (4) wardrobe cabinets for staff in the open office area (wardrobes are approximately 18"W, 84"H, 24"D).
- Attendance office, Bookkeeper's office, and Registrar's office/Data Processing:
  - Locate these offices adjacent to the reception area. The reception counter shall serve as the contact point for these offices.
- Principal's office:
  - Requires 2 exit paths out of the office, and a dedicated restroom. Include space for a desk, credenza, and table with 4 chairs.
- Principal's Secretary:
  - Provide a work area adjacent to the principal's office for the principal's secretary. The secretary's work area may be an open office work area.
- The vault is secure storage for the school. Locate the vault close to the principal and bookkeeper. The vault requires secure construction of reinforced masonry walls, or drywall with steel mesh. Extend vault walls full height to bottom of structure above and provide a hollow metal steel vault door with security quality lockset.
- The administration workroom includes copiers, Gestetner machine(s), form storage, and (1) clerk workstation. Provide (6) 36" wide, 34" high, 24" deep base storage cabinets with shelves, and (6) 36" wide, 24" high, 15" deep open shelf upper cabinets. The head-end console for the PA system can be located in this room (console is approximately 24" x 24").
- The coffee bar shall include (1) 24" deep ADA sink base unit with (1) 12" x 12" x 8" deep stainless steel sink with goose-neck lever faucet, (1) 24" 4-drawer base unit, (2) 30" lockable storage base units with shelves and (1) white, 18 cubic FT Energy Star refrigerator with ice maker. Provide above counter power for the coffee maker and a microwave. Provide space for a 30" x 60" table near the coffee bar.
- The administrative conference room may be used by various school groups, and shall have space for a table with seating for 12-14 people. Provide casework. Base casework shall be approximately 2' deep x 7' long. Integrate 1 ADA sink and 1 under-counter refrigerator into the casework. Provide matching lockable upper cabinets (1' deep x 2' high). Sink basin shall be stainless steel, approximately 14" x 16" x 6" deep, with goose-neck lever handle faucet.
- Mail room: Option A) Provide a central Mail Room in the central administration area with letter slots (minimum 10" wide x 13" deep x 6" high) for each staff member above a continuous countertop, with open base cabinets or cubbies below for larger items. Option B) Provide separate mail rooms in each academy.
- The Test Preparation Room is for receiving, organizing and delivering test materials to teachers. This room must be secure and lockable. Provide (2) power and data outlet locations, (1) 12' whiteboard, and (1) 4' tackboard.
- Locate the file/storage area adjacent to, and monitored from, the main office portion of administration. Include (2) 48" wide x 84" high x 24" deep lockable cabinets. Allocate space for 8 file cabinets and 1 table (provided by owner).
- Locate the Parent Room/Family Center in or near the central administration area, or other area that can be monitored and is appropriate for community access. Provide data and power.
- The Career Exploration Center is for informal counseling, prospective employer meetings, college recruitment, and information distribution to students about potential career and higher education choices. The Career Exploration Center may include a staffed workstation. The area may be subdivided into meeting and office space. Provide space for shelving for printed material/resources.
  - Provide student access to computers (i.e. for applications, FAFSA work, etc.).
- Provide an In-School Suspension Room (ISS), outfitted as for a core classroom. Locate the In-School Suspension Room adjacent to the security suite (see

description below) or combine with the APS Security Office. In-School Suspension is supervised by APS Police (provide a window between the two). If construction is phased, then provide temporary accommodations for the in-school suspension room in the first phase.
- Provide a security suite. Locate the suite in or adjacent to the central administration office. Include an office for APS Police and another office for security personnel. Include a Delinquent Hold Room for suspects awaiting intake by APD (access separate from main circulation, with exterior access for APD desirable), an office for the CCTV security system monitors with an observation station, and a CCTV equipment room with 24/7 HVAC split system (as for MDF and IDF). Provide a window to view the In-School Suspension Room. Provide a mirrored window in the CCTV monitoring office into the Police/CSA office for monitoring purposes.

Special Education Center

- Refer to the Appendix B for special education requirements.

Media Center

- The Media Center (also known as the Library or the Learning Resource Center) shall be centrally located within the main building and on a major circulation route, and able to accommodate 10% – 15% of the student body in the main space.
- If there is a mezzanine, no student areas will be located on the second floor/mezzanine.

- ***Entry / Circulation Desk***
  - The main entrance to the Media Center may be either from the interior or exterior.
    - Include display cases and tack boards at the entry area. Display cases may be used for showing items available from the student store.
  - Provide a circulation desk with visual supervision of the main entrance, as well as the main library area.
    - Locate circulation desk near the library office.
    - The circulation desk should be a maximum of 40 LF to include countertop/base cabinets with up to 3 built-in workstations.
    - Powered portion of the circulation desk will be built-in casework (to be in GC contract) and the remaining of the circulation desk can be mobile furniture pieces (in the F&E package). Provide power and data outlets at a built-in section of the circulation desk. A pony wall may be provided with power and data for the mobile section(s) of the circulation desk. No floor boxes.
    - Provide space for at least 6 book trucks and book drop-off unit at the circulation desk. Allow the book drop location to be flexible. Consider an exterior wall book drop-off.
  - Provide a storage area with cubbies for student backpacks, near the circulation desk.
  - Provide a secondary exit from the Media Center visible from the circulation desk.
  - Provide a storage room adjacent to the circulation desk to contain 12" and 18" deep metal shelving units and storage for technology.
  - Provide convenient access to student and staff restrooms from the media center.

- ***Collections / Reference Area (Stacks) / Main Library Space***
  - Design the space to allow for different furniture arrangements and programs to occur simultaneously.

  - Accommodate reference materials including books, maps, atlases, globes and other items. In general, the reference collection is migrating towards electronic formats.
  - Provide space for 4' high book stacks in the collections area, with 6' high stacks at perimeter walls. (Intent is to allow for visual supervision.) APS F&E to provide both mobile and wall stacks/shelving.
  - Pony walls with power and data may be desirable to accommodate furniture arrangements; avoid floor receptacles.
  - Provide a tack board, magnetic whiteboard and/or wall display areas.
  - Provide a classroom area within the main library area. Include space for tables and chairs to accommodate 36 students (minimum) and an instructor's station (on which a document camera may be located). Provide a 12' whiteboard flanked by 4' tack boards, and interactive flat screen display.
  - Provide a computer area within the main library area to accommodate 8 computer stations (minimum).
  - Provide space for a social area to accommodate owner provided mix of tables and soft seating with visual sight lines from all areas of the library.
  - Provide space for approximately 140 seats-- which may be a combination of tables and chairs for up to 4 classes, and soft seating.
  - Provide power and data on all walls.
    - Libraries need as much power and Internet access as possible.
      - Provide flexible access to power. Power columns and poles are not allowed.
      - Provide desks with cable management.
    - Storage and charging phones.
      - Provide tech storage needs with power for charging up to 30 units.
      - Provide charging walls for personal devices and flexibility to change device cords. Coordinate with the APS Staff Architect and APS FF+E. Owner may provide furniture that facilitates charging. Provide a device charging system so that school staff is not responsible for the phones.
    - Provide daylight. Window sill height at most windows shall be 65" above floor to allow for shelving below windows. Provide electronically operated window coverings/treatment for shading and lockdown.
    - Provide a sound system, projector, and projection screen. Coordinate requirements with APS IT through the FD+C staff architect.
    - Provide the ability to darken space for audio/visual use.
    - Provide individually controlled lighting banks to allow darkening of teaching areas.

- ***Librarian's Office/Work Room***
  - Locate the librarian's office adjacent to the circulation desk.
  - The librarian's office shall include a work counter with base and upper cabinets along one wall.
  - Provide space for 1 workstation, 2 side chairs, and a 4' wide bookcase. The workstation shall accommodate a computer.
  - Provide a work room either as part of the librarian's office, or adjacent to it, and in close proximity to the circulation desk.
    - Provide 20 LF of countertop with base cabinets, and 10 LF upper cabinets.
    - The countertop serves as a prep area for printing machines.
    - Provide power and data for equipment.
    - Provide a single basin utility sink and separate ADA hand wash sink.

- ***Conference/Seminar Room/Group Collaborative learning area***
  - Access to the conference/seminar room can be adjacent to or accessed from the collections area.
  - Provide a dividable conference/seminar room with a total capacity of 12 to 16 occupants. Accommodate various uses including meetings, presentations, and group study.
  - On each side of the dividable conference/seminar room, provide:
    - 8' whiteboard
    - 4' tackboard
    - Rough-in for interactive flat screen

- ***Graphics/AV Production Classroom and Lab***
  - The Graphics and Audio/Visual Production Area may be used by staff and students. It consists of the following 3 spaces:
  - Production Classroom. Include:
    - Countertop with base and upper cabinets
    - Countertop with space for 4 to 8 computer graphics workstations
    - Island countertop with base cabinets each side, 8 – 10 LF
    - (1) 12' whiteboard with smart board projector
    - (1) 4' tackboard
  - Production Lab (recording space). Include a blue screen/green screen on one wall for video backdrop for school announcements and other video activities.
  - Production Storage Room that accommodates 18" deep shelving.

- ***Computer Labs***
  - CMP statement of program needs will determine number of computer labs required.
  - Each lab shall accommodate 40 student stations and 1 instructor's station.
  - These computer labs may also be used for computer-based testing.
  - Provide access to the computer labs from the Media Center, with visual supervision from the circulation desk.
  - Provide one wall of countertop, base cabinets and upper cabinets for peripherals and supplies in each computer lab.
  - Provide power and data as necessary to support equipment.
  - Provide 12' whiteboard, rough-in for interactive flat screen, 4' tackboards flanking the whiteboard, and (2) 8' tackboards all other walls of each computer classroom.

- ***Professional Room***
  - The professional area is a research room for faculty and staff that also allows for teacher/librarian collaboration. In the professional room, provide:
    - Space for a conference table for 8 people.
    - Provide power and data (WIFI is ok) for 2 laptop computers (minimum).
    - An area for casual seating (with access to power and data).
    - Space for book shelves.

- ***Book Room***
  - This is a central book and teaching materials storage room that serves the entire school. It can be located either with the Media Center or with the central administration. Include:
    - A powered, high density storage shelf system for compact storage of text books.
    - Lighting layout to accommodate the movable storage system.

  - An overhead counter door with counter for textbook distribution. Provide sufficient space for student queues at this door (usually queues from the hallway).
  - Provide built-in countertop work-surface, including 1 workstation with power and data.

Performing Arts Center (PAC)

- The PAC consists of an auditorium, a black box theater, and drama/theater arts instructional and support areas. The auditorium shall be located adjacent to the black box theater for shared support space. Music and other fine arts areas should be located adjacent to the PAC for program synergies.

- ***Auditorium***
  - The PAC auditorium includes a stage with fly loft and backstage area, orchestra pit, and seating for 450 people.
    - Provide a pre-function lobby area with ticket booth and public restrooms.
    - Configure the auditorium, including pre-function area, for after-hours public access while securing other parts of the school.
    - Acoustically tune the auditorium, and control reverberation time in accordance with current ANSI standards.
    - Provide upholstered auditorium seating on a sloped floor. Coordinate the rake of the floor with sight lines to the stage.
    - Provide ADA access from the seating area to the stage, the orchestra pit, and to the control room areas. Ramp access is preferred.
    - Provide a gallery space separate from and behind the last row of seats to transition from the pre-function lobby to the auditorium seating area.
  - Stage requirements:
    - Provide proscenium arch with apron.
    - Provide fly loft with sufficient height necessary for vertical movement of flats and curtains.
    - Provide a wood stage floor system consisting of hardboard surface, double layer plywood underlayment, wood sleepers, and vibration pads.
    - Provide a backstage area within the stage enclosure, but behind the curtains, to provide space for staging sets during productions.
    - Provide dead-hung and motorized pipe rigging.
    - Provide a motorized projection screen sized for the auditorium (approximately 18' x 24').
    - Provide typical draperies: Grand Valence, Grand Drape, 4 Borders, Midstage Traveler, Scrim, Upstage Traveler, and Cyclorama.
  - Other theater systems requirements:
    - Provide house and theater lighting controlled by dimmer racks. Locate the dimmer racks in a separate room with adequate cooling and sound isolation. Provide a secondary dimmer control station within the auditorium seating area.
    - Configure auditorium lighting systems for flexibility and pre-set scenes.
    - Provide acoustic response for spoken word and musical performances without reconfiguration.
    - Provide a catwalk over the auditorium, with clear view of stage but concealed from the audience, for lights and sound equipment.

- Provide dual pipe battens for stage electrics, and single pipe battens for other line sets.
- Provide motorized battens for raising and lowering lights and curtain/equipment supports, to eliminate the need for a grid iron. Locate the control center for motorized battens above or near the stage operator's control station (with lock).
- Provide space for tormentor lights on each side of the hall.
- Provide a control room at the rear of the auditorium, with clear sight lines to the stage and orchestra pit.
- Provide space adjacent to, and on each side of, the control room for follow-spot lighting.
- Provide a sound control station near the center of the auditorium seating area, with sound and lighting control systems linked electronically to the control room. Provide a voice system between the station and the control room.
- Provide cross-over access outside of the stage enclosure to allow performers to move from one side of the stage to the other without disruption to a performance.

- Orchestra pit requirements:
  - Pit cover: Removable pit filler system to be comprised of acoustically-dampened honeycomb core decks, aluminum beams and columns that are pinned together for easy installation and removal. Decks are to be independent of each other allowing for individual decks to be removed for easy access to or from the pit area when the pit filler is installed. Deck finish to match adjacent stage.
  - Size the pit to accommodate a small performing group.
  - Position the pit to balance sound from the pit and from the stage. At least one position in the pit (which may be raised) must have visibility of the stage and the entire pit.
  - Piano storage requirements:
    - Provide a storage room for a grand piano at either stage or pit level. If at pit level, provide a lift or an oversize elevator to move the piano from one level to the other.
    - Provide HVAC to control temperature and humidity in the piano storage room.

- ***Drama Classroom***
  - Provide a drama classroom with features as per a general classroom.
  - Locate the drama classroom adjacent to the dressing, make-up, and wardrobe rooms. (During productions and performances, the drama classroom functions as the Green Room.)
  - Configure the drama classroom for student access, while other areas of the PAC, including auditorium and black box theater, are secured.
  - Provide a drama office with visual supervision of the classroom area.
  - Provide a storage room.

- ***Black Box***
  - If feasible, locate the black box theater adjacent to the auditorium.
  - Adjacency between the black box and the auditorium provides the ability to share support space including: staging/set-up areas, storage rooms, the pre-function lobby, and public restrooms.
  - The black box theater shall be a rectangular space.
  - Provide space for portable risers to accommodate 70 - 100 seats.
  - Provide a wood stage floor. The floor may have a concrete border around the perimeter.
  - Tune acoustics for spoken word and small music performances.
  - Provide a wire tension grid above for stagecraft.
  - Provide access to the tension grid from outside of the space.
  - The grid shall accommodate a maximum live load of 15,000 pounds, and a live load on any one pipe hanger of 700 pounds.
  - Provide support and power for theater lighting around the perimeter of the room, and on the tension grid.
  - Provide a theater sound system.
  - Provide an equipment storage room for the portable risers, chairs, cart for transporting the risers, and other equipment.
  - Provide a staging/set-up room.
  - May be part of the PAC work area/scene shop.
  - Locate adjacent to the black box theater, for backstage operations and support.
  - Locate adjacent to the receiving area.

- ***Back of House***
  - The back of house spaces support both the auditorium and the black box theater, as well as drama curriculum.
    - Provide a work area (scene shop/set-building) with convenient access to the auditorium stage and the black box theater. Include the following:
      - Areas for staging of flats and for storage of set construction supplies.
      - Power for tools and equipment for set fabrication and construction.
      - Data drops.
      - Whiteboard and tackboard.
      - Large stainless steel work sink.
      - Custodial closet with sink.
    - Provide a general storage room for make-up and supplies.
    - Provide separate make-up rooms for girls and boys.
      - Include 24 LF of make-up counters in each room, with mirrors, make-up lighting, and power for grooming devices.
    - Provide separate girls and boys dressing rooms.
      - Include a full length mirror in each dressing room, and 12 coat hooks in each student dressing room.
    - Provide girls and boys restrooms.
    - Provide a wardrobe workroom with separate entry and exit doors for efficient circulation before and after performances. Include:
      - 18 LF total of base cabinets with open shelves, arranged in a tee shape; 14 LF against the wall and a 2' x 4' stem, open below, that projects into the room (this counter is for garment assembly and repair).
      - Washer and dryer, with adjacent 30" wide base cabinet and countertop.
      - Wall-mounted garment rack system.
      - Wardrobe storage room with double door access from the wardrobe workroom.

High School

- Provide a receiving area to accommodate theater supplies, lumber, sheet materials, and lighting and sound equipment. Include an overhead coiling door to an outdoor receiving area or loading dock.

Physical Education and Athletics Sports

- All physical education and athletic facilities, including exterior playing fields, must be equal (quality and quantity) for male and female per Title IX requirements and for parity among high schools. Some areas, such as the Training Room and Weight Room, will be shared by the sexes.
- In addition to curricular physical education classes, the gymnasium and related spaces accommodate high school competitive athletic sports teams. Among the team sports that are usually offered are football, soccer, volleyball, cross country/ track, basketball, wrestling, swimming (usually off-site or at a joint-use facility), baseball, softball, and, usually off-site, golf and tennis. Other sports or activities may include rugby, field hockey, lacrosse, dance, cheer, ballet and folklorico.
- An AV system is required in the main gym. Consult an AV professional during design and coordinate the system with the APS staff architect and construction manager, and with APS IT.

- ***Main Lobby with Ticket Sales and Snack Bar***
  - Provide a main lobby for 400 occupants (due to no re-entry policy at APS events). Using an occupant load factor of 7.5 SF, the main lobby shall be approximately 3,000 SF.
  - In the main lobby, provide trophy display cases (6' high x 16' long) protected by railing(s).
  - Plan for message boards and illuminated signage.
  - Provide a ticket booth with countertop, under-counter drawer, power, and point of sale data drop near the main lobby entry.
  - Provide public restrooms, including a unisex family restroom, with convenient access from the main lobby.
  - Provide a snack bar with:
    - (2) 6' wide serving windows. Each window shall have a lockable, rolling door (fire-rated, automatic closing) that seals tight to a stainless steel countertop.
    - At each serving window, provide countertop, cabinets with 2 drawers, and open shelving.
    - Within the snack bar, provide a hand sink, full refrigerator, and ice maker. Provide space and utilities for (2) reach-in beverage coolers, and (1) reach-in freezer. Provide countertop area with utilities for a (3) beverage and drink machines. If run by DECA, see DECA section.
    - On the back wall of the snack bar, provide a glass display and (2) full length shelves for display.
    - Provide adequate power for heating and vending equipment, (6) countertop heating and warming devices (minimum), and the ice machine. Check electrical standards for circuit requirements. Provide water supply and floor drain for the ice maker condensate line.
    - Provide data drops for point of sales devices.
    - Provide a service room, accessed from the concessions area, with a 3-compartment sink equipped with commercial spray hose in 8 LF of counter with upper double shelves and 3' x 3' drying rack. Provide a mop sink in the service room also.
    - Provide a storage room for dry goods, accessed from the snack bar. Include (2) 4' wide by 18" deep wire rack shelving units.

- ***Main Gym***
  - Provide public access to the main gym from the main lobby
  - Locate the main gym to provide direct access to the athletic fields, and away from classrooms.
  - Provide a minimum 10 foot safety zone between the courts and walls. Provide safety wall padding at each end of the main court and at obstructions. Wall pads shall meet the minimum ASTM standards specification for impact performance requirements.
  - Minimum ceiling height in the main gym shall be 30 feet. No ductwork or lighting below 30 feet.
  - Provide a maple hardwood floor system. Provide wood gym floor protective cover with storage cart(s), to be stored in the gym storage room.
  - Stripe the floor for a main basketball court (50' x 94'), and a main volleyball court co-located with the main basketball court.
    - In addition, stripe the floor for 2 basketball cross-courts and 2 volleyball cross-courts.
  - Provide 6 electrically retractable basketball goals with clear backboards and break away rings. Meet NCAA and NFHS Standards.
  - Provide volleyball sleeves with caps, standards, and nets. Arrange volleyball courts for 1 main court and 2 cross courts; each volleyball court shall have separate net supports.
  - Provide ADA accessible seating areas in main gym and mezzanines.
  - Provide powered telescoping bleachers, on main floor (wall-attached) and on mezzanines (reverse-fold), with one-piece molded bench type plastic seating. Flex bleacher rows are not allowed. Provide a total capacity of 3,300 spectators (1.5 x school enrollment capacity) when fully extended. Provide minimum 8 foot clear height from top of bleachers/railings and bottom of the roof structure, lighting, or ducts. Verify ADA seating locations with FD+C.
    - Provide hinged front skirt for cleaning. Limit switches.
  - Provide 2 scoreboards for visibility from bleacher seating, asymmetrical from the centerline of the court.
  - Provide an electrically-operated divider curtain across the width of the gym to separate the 2 cross-courts for PE classes. Roof structure shall accommodate the weight of the curtain.
  - Provide public address and intercom system per APS IT requirements; provide a dedicated room for A/V head-end equipment, adjacent to main gym. Lighting controls shall be nearby.
  - Provide a projector, screen(s) and provisions for hard-wired and wireless microphones.
  - In addition to the A/V requirements noted above, provide power, data, and microphone connections at the score table location. Outlets in bleachers are one strategy utilized at Rio Grande High School.
  - Provide a lockable main gym storage with double door clear access (removable or no mullion), for athletic equipment, scorer's table, other tables, a lectern and at least 200 folding chairs on carts. Ceiling height shall accommodate volleyball poles.

- Provide an additional main gym storage area (separate or subdivided) for wood floor cover carts and for competition wrestling mats. Provide door threshold configurations to allow space for maneuvering of carts loaded with wrestling mats and gym floor covers.
  - The GC shall provide and install all gymnasium related shelving. All shelving must be anchored to the floor.

- ***Main Gym Mezzanines and Bleachers/Adaptive PE (APE)/Multi-Purpose***
  - Mezzanine must be ADA accessible. Provide public access (stairs and elevator) from the main lobby to the mezzanines. Consider an arrangement that allows for mezzanines and access stairs to be locked when not in use.
  - Provide a mezzanine for additional bleacher seating on each side of the main gym, above the main bleachers, as part of the total seating capacity to be accommodated (i.e. 3,300 (1.5 x school enrollment capacity)).
    - Consider impact of railing design on spectator vision to game floor.
  - The mezzanine spaces are additional teaching spaces for PE. To secure the railing side of the space:
    - Retract the power-operated mezzanine bleachers towards the rail side of the mezzanine, forming a wall. If bleachers do not fold toward the rail of the mezzanine, provide an electrically-operated divider curtain across the length of the mezzanine to separate the mezzanine from the main gym below. Roof structure shall accommodate the weight of curtain.
  - Provide an office and storage room adjacent to the mezzanine for Adaptive PE. Also provide convenient access to restrooms from the Adaptive PE mezzanine.
  - Install athletic flooring surface at mezzanines when used for PE and athletics space.
  - Provide lockable multi-purpose mezzanine storage areas with double door clear access (removable or no mullion), for items used on the mezzanines, such as ping pong tables.

- ***Auxiliary Gym***
  - Locate the auxiliary gym for public access from the main lobby.
  - Provide a minimum 10 foot safety zone between the courts and walls. Provide safety wall padding at end of courts and at obstructions. Wall pads shall meet the minimum ASTM standards specification for impact performance requirements.
  - Minimum ceiling height in the auxiliary gym shall be 30 feet. No ductwork or lighting below 30 feet.
  - Provide wood flooring as for main gym. Stripe the floor for main basketball and main volleyball courts and 2 basketball and 2 volleyball cross courts. Main courts will be regulation high school size. Smaller cross courts will not be competition size. Coordinate with APS FD+C and school's athletic director for court striping.
  - Provide a small scoreboard.
  - Provide six basketball goals with clear backboards and break-away rings. Meet NMAA and NFHS Standards.
  - Provide volleyball sleeves with caps, standards, and nets, arranged for one large court and two cross courts; each volleyball court to have separate net supports.
  - Provide an electrically-operated divider curtain across the width of the gym to separate the two cross-courts for PE classes. Roof structure shall accommodate the weight of curtain.

- Provide 3 rows of power-operated folding bleachers along one wall only, for about 300 occupants (requires about 800 SF). Flex bleacher rows are not allowed, provide hinged front skirt for cleaning, and limit switches.
- Provide an auxiliary gym A/V room. This room can be combined with the A/V room serving the main gym.
- Provide a lockable auxiliary gym storage room for athletic equipment and folding chair storage, with ceiling height sufficient for volleyball poles.

- ***Weight Room***
  - Provide access to the weight room via double doors (removable or no mullion) for moving equipment in and out.
  - The weight room shall be a rectangular space with a 12 foot ceiling.
  - The weight room shall be designed as one open room to accommodate free weights and training machines (some of which require power).
  - Provide an area separate from, but connected to, the weight room for circuit training equipment.
  - Provide an adjacent office with observation window to the weight room, including circuit training area.
  - Provide a storage room.
  - Provide rubber flooring system designed for free weight impacts.
  - Provide a mirrored (safety-glazed) wall.
  - Provide access to service sink to clean floors.
  - Provide safety light fixtures.

- ***Wrestling Room***
  - Locate the wrestling room near the main gym, training, laundry room (for access to washers and dryers) and weight room.
  - Provide access to the wrestling room via double doors (removable or no mullion) for moving equipment in and out. Arrange doors to avoid swinging into/onto mats due to thickness.
  - The wrestling room shall be proportioned to accommodate wrestling mats (traditionally (2) 42' x 42' mats, may also be 40' x 40' mats, 12' roll mats, or 6' roll mats x 42' long). Verify with FFE if APS will provide new the mats and carts.
  - Provide additional space (6' x 42') within the wrestling room for stationary bikes and similar equipment.
  - Provide minimum 16' high ceiling.
    - Provide anchors for climbing ropes.
    - Provide chin-up bars and peg climbing board.
  - Provide 6' high wall padding all around. Coordinate padding with thermostats (for performance) and limit penetrations for other wall-mounted devices. Wall pads shall meet the minimum ASTM standards specification for impact performance requirements.
  - Provide a student shower area with 2 showers.
  - Provide a storage room for spare mats. The storage room shall include:
    - Water-resistant flooring.
    - A custodial sink for mopping down mats.
    - A floor drain.
    - A chemical storage cabinet.
  - Provide a storage space for competition wrestling mats. Competition mats are

comprised of 6 rolls; each 12.5' long x 6' diameter. Competition mat storage may be provided either in the wrestling storage room or near the main gym.
- Provide an office for the wrestling coach with observation window into the wrestling room and with space for a desk, file cabinet, and 4 chairs.
  - Provide a restroom with shower and two 18" x 18" x 72" lockers with bench for use by the wrestling coach.

- ***Multi-Purpose Rooms (PE Studio, Cheer, etc)***
  - Multi-purpose rooms can be used for PE, aerobics, gymnastics, dance, cheer, health, and weight classes.
  - Provided minimum 16 foot ceilings.
  - Provide a sound system in a lockable cabinet.
  - Provide separate cheer and dance offices, with space for 2 desks, 2 chairs, 2 file cabinets and one guest chair.
  - 2 dressing rooms, and a storage room to support each multi-purpose room.
  - Cheer requires a practice area to accommodate mats plus a minimum 10 foot safety zone on one end of the mats (54' x 70').
    - Provide non-slip flooring.
    - Provide mirrors.
    - Provide a separate storage room for (9) 6' x 60' pads (which roll up to 6' long x 5' diameter). The pads are stored six rolls on end. Storage room shall have double door clear access. Avoid door thresholds that impede moving pads in and out of cheer space, and in and out of the main gym.
  - Dance requires a practice area of about 30' x 60' (same as competition), with a wood floor (high performance laminated type).
    - Provide mirrors and bars in the dance area.
    - For a remodeled space, if wood floors cannot be installed, provide a Marley floor.

- ***PE Classroom***
  - Provide a general team/academic classroom to accommodate up to 100 students, with operable partition to divide space in half.
    - Furnishing by FD+C FFE, typically 35 chairs per classroom, desk tables, teacher desk and chair and file cabinet.
    - This space shall be used for training films, large team meetings, academic subjects such as Sports Medicine and Health, and other classes.
    - This classroom can be combined with one of the multi-purpose rooms described above if appropriate flooring and other considerations are addressed.
  - Provide (2) 12' whiteboards, interactive flat screen at each teaching wall, and (2) 4' tackboards for each side of classroom.
  - Provide power and data drops as for core classrooms. Provide a dedicated circuit for computer cart recharging.
  - Provide a storage room.

- ***PE Locker Rooms***
  - Locate PE locker rooms to provide direct access to the main gym and convenient access to athletic fields.
  - Visiting teams may use PE locker rooms for games, and will need a white board

and space for the coach to talk with the team.
- Provide 1 locker room each for boys and girls. Each locker room shall accommodate 120 students per class period.
- Provide polished, sealed concrete flooring.
- Provide a minimum of 120 lockers each for boys and girls.
  - Provide ventilated athletic type lockers, with baked enamel welded steel construction, sloped tops, and no moving parts.
  - Provide some tall lockers (12" wide x 12" deep x 60" tall).
  - Lockers should not have integral combination locks.
  - For each tall locker, provide space for seven box lockers (12" wide x 12" deep x 12" tall).
  - Configure lockers to keep overall height below eye level for easier supervision.
- Provide 2' wide bench for lockers, either mid-aisle or as part of the concrete base for the lockers.
- Provide (1) 8' whiteboard and (1) 4' tackboard in the locker room for announcements.
- Provide restrooms and changing areas.
  - Provide floor drains in the restrooms and changing areas.
- Provide an instructor's supervision station in each locker room with power and data for a laptop. The supervision station shall have good visibility of the locker room.
- Provide a PE storage room with (4) 4' wide x 2' deep x 7' tall storage cabinets.
- For students entering locker rooms from the exterior, provide walk-off mats at that door.

- ***Athletic Locker Rooms***
  - Locate athletic locker rooms to provide direct access to the main gym and convenient access to athletic fields.
  - Locker room distance to track must be comparable for boys and girls.
  - Access from gym to locker rooms may not pass through the lobby. Provide one combined locker room for all boys' sports and one combined locker room for all girls' sports.
  - Provide polished, sealed concrete flooring.
  - Provide minimum 110 lockers for football; 80 lockers for boys' other sports; and 190 lockers in the girls' locker room. (I.e. Equal number of boys and girls lockers.)
    - Football lockers shall be 18" wide x 18" deep x 60" high.
    - Non-football lockers can be smaller.
    - Girls and boys lockers shall be equal in quality and quantity.
    - Configure lockers for easier supervision.
    - Lockers shall be ventilated athletic type, with baked enamel welded steel construction, sloped tops, and no moving parts.
    - Provide 2' wide bench for lockers, either mid-aisle or as part of the concrete base for the lockers.
  - Provide (1) 8' whiteboard and (1) 4' tackboard in the locker room for announcements.
  - Provide (2) 8' whiteboards and (2) 4' tack boards to serve (2) team meeting areas within the locker area (an E-shaped arrangement of the lockers will define 2 such areas).

- Provide restrooms and changing areas.
  - Provide 2 shower stalls with curtains for each locker room.
  - Provide floor drains in the restrooms and changing areas.
- Provide a coach's supervision station in each locker room with power and data for a laptop. The supervision station shall have good visibility of the locker room.
  - For students entering locker rooms from the exterior, provide walk-off mats at that door.

- ***Athletic Director's Office (private)***
  - Provide a private office with windows to view traffic in and out of locker room area.
  - Locate this office close to the gym; as the Athletic Director is the Gym event manager.
  - Provide space for 1 desk, 6 chairs, 1 table, file cabinets, and a 4' wide bookcase.
  - Provide an 8' whiteboard and 4' tackboard.
  - Provide a storage room with a 4' wide tall cabinet and 6' high wire shelving unit for storage.
  - Provide a portable AED for the athletic director.

- ***PE Instructor Offices (private)***
  - Provide (2) PE instructor's private offices near the athletic coaches' open office area.
  - Provide space for a desk, file cabinet, book cabinet, and 6 chairs.
  - Provide male and female restrooms for PE instructors adjacent or nearby. Include water closets, lavatories, showers, lockers, and changing areas.

- ***Athletic Coaches' Office Area (Open Workstations)***
  - Provide an open office environment for athletic coaches. The open office environment shall accommodate all athletic team coaches.
    - Opposite seasons and contract coaches to share offices for efficiency.
  - Locate the office area near athletic locker rooms and with convenient access to exterior fields and primary practice rooms.
  - Provide a huddle space adjacent to the open office area for private conferences.
  - Football may include 1 head coach and up to 9 assistant coaches. Football coaches will be accommodated in the open office area with other sports teams.
  - A typical coaches' office area is described below. This should be modified in conjunction with FD+C/CMP and the school's athletic department to accommodate the expected number coaching staff based on the school's target enrollment.
    - Provide a 24" deep writing counter around one or two walls, with space in center for additional tables and staging of equipment.
    - Provide space for task chairs, guest chairs, and lockable file and storage cabinets.
    - Provide a 6' long counter with base cabinets and upper cabinet. Include hand sink, full size refrigerator, and power for small appliances.
    - Provide male and female restrooms adjacent or nearby. Include water closets, lavatories, showers, lockers, and changing areas.
    - Provide a 12' whiteboard, (2) 4' tackboards, and equip for interactive whiteboard.

- ***Athletics Storage***
  - Provide either individual storage rooms for major team sports, or a large storage area subdivided with mesh partitions.
  - Provide 10 storage rooms/spaces with interior access. These rooms/spaces will be assigned to Volleyball, Girls Basketball, Softball, Boys' Basketball, Baseball, Soccer, Track/Field, Golf, and Tennis. (1 storage room/space will be unassigned.)
  - Provide 1 storage room with exterior access for PE/athletic equipment. Space will be used for shelving and floor storage. Soccer goals and track/field equipment may be accommodated in this room. This room may also house Gators (or equivalent vehicles).
  - Provide a Football Equipment Storage Room.
  - Accommodate storage space for 140 helmets on storage racks, and pads.
  - Provide a large stainless steel sink with drain board for cleaning of equipment.
  - Provide space for portable game lockers to be stored.
  - Provide an overhead counter door/counter for dispensing and receiving of equipment at beginning and end of season.

- ***Training Room and Therapy Pools***
  - This space accommodates therapy, taping, and meetings with trainers.
  - Locate the training room to be equally accessible to boys and girls (primarily athletics sports).
  - Provide a 10' ceiling (minimum) in the training room.
  - Provide an area to accommodate equipment, including a range of motion machine, elliptical machine, and stationary bike. Provide power for equipment.
  - Provide a first aid area with a full-size, lockable refrigerator/freezer.
  - Provide a treatment area with 4 portable training/massage tables, 4 short movable taping tables, a large capacity, reach-in ice machine (see Appendix H), a hand sink at the taping area, 6' countertop with workstation, and base and upper cabinets.
    - Provide 8 quad receptacles (minimum) for each training/taping table and at the first aid counter.
  - Provide whirlpool area in a moisture-resistant environment, with visual access to the training room (and privacy curtain). Include:
    - Space for 2 large above-floor whirlpools and 1 arm whirlpool with temperature mixing check valves.
    - Wall hose bib to fill whirlpools.
    - Slip-resistant, ceramic tile flooring with floor drain.
    - Space for tables, chairs and 4' wide tall clothing storage unit.
  - Provide restroom with toilet, urinal, and lavatory, accessories and mirror.
  - Provide a trainer's office with view into training room, and space for 1 desk, 1 file cabinet, a table and 2 chairs.
  - Provide space for a secure storage room with metal shelving (12" deep x 60 LF), and space for wheelchair, crutches, canes, drink coolers, and travel bags.
  - Provide special hot water with temperature control at valves and hook-ups, humidity control, service sink in or nearby to sterilize floors, and a floor drain for ice maker.
  - Provide safety lighting units with high illumination levels.

- ***Ice and Laundry Room***
  - Provide a room (or rooms) for general laundry and ice pick-up room. Locate the room(s) near the athletic locker rooms and near an exterior wall or roof for dryer vents. Include:
    - 2 large capacity residential washers
    - 2 large capacity residential dryers
    - 1 large ice maker, (see Appendix H).
    - Space for (1) 4' x 8' folding table
    - Space for (1) 4' wide tall cabinet for supplies
    - Floor drain and venting
  - Provide a separation barrier between ice machine and laundry area.

- ***Junior Reserve Officer Training Corps (JROTC)***
  - JROTC offers federally-sponsored elective classes at high schools. This program may have up to 200 students participating, and may be part of a Business or similar Academy. The JROTC area is typically a separate suite of spaces at the school. The JROTC suite shall have direct exterior access, and convenient access to the gym and weight room. Provide concrete floors, durable walls, and acoustic ceilings for all spaces (except restrooms, which require hard ceilings).
    - Consult with CMP for JROTC spaces / utilization and funding. JROTC requirements could be different for each service. Each HS will have only one service sponsor.
    - Supervision and proximity of spaces is key. There may be up to 4 teams and only two supervisors.
  - JROTC Multipurpose Classroom
    - Provide a long, rectangular, multi-purpose classroom space for drill, firing range, and other activities. Include:
      - Ideal size is 80 feet x 45 feet. One end structurally needs to support steel plate for firing range.
      - Base cabinets (12 LF).
      - Power and data.
      - 12' ceiling (minimum).
      - Acoustical isolation from other spaces.
      - Sound attenuation within the space.
  - The firing range is 50' long with addition zones for queuing and safety. The range and zones shall be located in the 80' length of the multi-purpose room. Requirements as follows:
    - 50' long firing range
    - 8 to 10 firing lanes (3'-6" minimum width), with floor markings for firing positions
    - 8' deep queuing area behind the firing line
    - 10' deep safety zone behind the queuing area
    - 10 gauge steel on 8' high plywood special construction on the face of the firing wall
    - Provide lighting to illuminate the firing wall, in addition to general area lighting.
  - Electronic targets are used now. Provide power and data needs for targets.
  - Provide space for 2 instructor workstations with power and data within the multipurpose classroom. Private offices are not required.

- Air Rifle Storage, Training Aids, and Drill Storage
  - Locate storage within the JROTC suite.
  - Storage must be secure, and capable of maintaining low humidity levels.
  - Provide heavy duty wire mesh shelving or racks for rifles and ammunition storage.
    - Rifle racks may be further secured from other equipment by expanded metal cage construction.
    - The APS carpentry shop has constructed some rifle racks for JROTC.
  - Provide heavy-duty metal shelving for items including magnetic compasses, GPS unit and devices, digital camera, digital camcorder, LDC projector and digital television, as well as drill rifles and parade swords, Color Guard materials, and miscellaneous supplies.
  - Provide space to store marksmanship backstops, shooting mats, and kneeling pads.
- Property (Uniform) Storage
  - Locate storage within the JROTC suite.
  - Provide racks for uniform storage.
  - Uniform area must serve a minimum of 100 students. (Programs typically have 125-175 cadets each year. The area also depends on the service; Marine Corp has larger type of uniforms.
    - Provide power and data (for computer based inventory). Consider access to a laundry area near the uniform storage. Laundry area can be shared with other school PE, PAC, and athletic programs. Residential quality washer and dryer is adequate.
- Equipment and Maintenance Area
  - Provide a utility sink.
  - Provide a refrigerator
  - Provide casework, approximately 7 LF x 2 feet deep of base and upper cabinets with countertop.
  - Provide space with power and data connections for activities such as uniform ironing, and servicing rifles and other equipment.
  - Provide a mirror for uniform fitting.
- Restrooms
  - JROTC requires access to restrooms for students and adults.
    - Provide in-suite restrooms if general restrooms are not available after hours for JROTC use.
    - Restrooms require space for changing clothes and trying on uniforms.
  - If provided, in-suite restrooms require:
    - 2 student restrooms.
    - 1 unisex adult restroom.
- Classroom Spaces
  - JRTOC requires access to two classrooms to support 40-45 students at one time. Provide access to shared classrooms with adjacency to JROTC suite.
    - Classrooms could be configured as one oversize CR but dividable: one 1200 SF classroom and dividable with acoustical bi-fold, or could be two smaller classrooms about 600 - 650 SF in size.
    - Classrooms should support STEM program activities.

Student Activities Center

- The Student Activities Center shall be centrally located. Include:
- A flexible activities room with built-in casework storage, including a countertop work surface with a sink. The activities room may include a contact window with roll-up counter door. Provide power and data for equipment, including student ID equipment, and space for desk/chair and/or table, and files.
- An office for the Activity Director (staff member), with voice/data drops.
- Consider locating a vending area in the main circulation space, near the student activities center.

Nurse Suite

- Locate the Nurse Suite near the main office and lobby for easy access by students and parents and to allow for quick backup by staff in an emergency. Provide separate, direct exterior access to a vehicular circulation/parking area for emergency vehicles. Doors shall accommodate a gurney (36" clear, minimum).
- Provide a waiting area for 6 - 10 students based on the population served: 6 (<500); 8 (500-1000); 10 (>1000). This space should be visible from the nurse's office and health assistant's workstation. The people waiting should not be able to see into the treatment/recovery room.
- See Appendix C for the equipment list for all nurse suites.
- Provide space for a workstation for the Health Assistant. Include:
  - Visual privacy of the Health Assistant's computer monitor.
  - Visual access to the waiting area and treatment/recovery area.
  - 8 LF to 10 LF of countertop, base cabinets and upper cabinets along one wall.
- Provide a nurse's office. Include:
  - Limited access to this office due to files and medicines.
  - (1) double-locked medicine cabinet (See Appendix C).
  - Window(s) for natural light.
  - Window into the treatment and recovery areas and waiting area to supervise students.
  - Acoustic speech privacy when the door is closed.
- Provide a Treatment Room. Include:
  - 1 white, Energy Star, 18 cubic FT refrigerator with ice maker incorporated into 14 LF of lockable plastic laminate casework (approximately 34" high x 24"deep x 30" wide). Locate the refrigerator away from plumbing fixtures so that it does not require a GFCI outlet.
  - 1 ADA stainless steel sink (approximately 14" x 16") with goose-neck faucet and lever handles.
  - (1) 30" base cabinet with 4 small drawers side by side and 2 large drawers below.
  - (1) 30" wide x 34" high x 24" deep storage cabinet.
  - (4) 13" deep lockable upper storage cabinets over base cabinets.
  - (1) double-locked medicine cabinet (See Appendix C).
  - (1) 24" wide x 60" high safety mirror.
  - Provide space for half of required recovery cots separated by ceiling mounted curtains. Total number of recovery cots is calculated at a ratio of 1 recovery cot (74" L x 24" W x 18" H) per 250 students.
  - Duplex outlets and data drops at each cot for equipment that may be required.
- Provide a Recovery/Isolation Room. Include:
  - Provide space for half of required recovery cots separated by ceiling mounted curtains.
  - Duplex outlets and data drops at each cot for equipment that may be required.
- Provide necessary data and power for vision screening equipment. Requires 20 LF.
- Provide a storage closet for wheelchair, crutches, and other bulk item storage.
- Provide a storage room for locking fire proof file cabinet (1 cabinet for every 500 students).
- Provide 2 restrooms with ceramic tile floor and standard restroom accessories.
  - For schools with District Special Education students, provide an additional restroom with space for Hoyer lift and changing table in restroom.
  - Include a shower if required by the school's special education program.
  - Provide a combination washer/dryer (not stacking unit) near the Special Education restroom.
- Choose paint, tile, and other coverings to be easily cleaned and disinfected.
- Flooring to be commercial grade sheet linoleum with welded seams.
- All faucets in the health center shall be manual operation (no automatic sensors).
- Provide exhaust fan in triage/cot areas and restrooms. In addition, provide operable window(s) if possible.
- Provide power/data at all offices and workstations. Provide data for a student-use phone. Provide a dedicated fax line and space for a printer/copier/fax machine in a private location.

Counseling Area

- Review needs for a particular school program with APS Counseling for information on traditional counseling allocations.
- Provide a self-contained counseling area. Access to the counseling area shall be controlled from the academy secretary/support station. The counseling area shall be located out of the general circulation space for privacy.
  - Students can have direct access to counseling offices. Students should not have to talk to anyone to see a counselor. Waiting area by offices is for students.
  - Prefer counselors located together or as part of an area where adults can serve the students right away. If there are mini-admins with the academy model, it's ok for a counselor in each area.
- Consider a public access computer station for online scheduling.
- Provide offices for up to 5 counselors, distributed among the Academies. A high school will have 4 or more counselors which includes a college and career counselor and a crossroads counselor (who deals with substance abuse and addictions).
- In the central Administration or in the central Special Education area there will be offices for 1 to 2 social workers, 1 transition specialist office, 1 head special education teacher, 1 evaluation/testing, and 1 to 2 speech and language pathologists.)
  - Counseling offices require privacy, therefore no FTE sharing of offices. Even a half time FTE must have a full office.

- For privacy, avoid glass.
- Counseling offices require sound isolation.
- Offices require space for a locked file cabinet.
- Secure file storage room for the counseling suite is also required.
- Locate printers close to the offices for privacy concerns.

- ***High School Wellness Room***
  - Per the APS Student, Family, & Community Supports Division, this space should be designed to help students relax and be mindful in order to improve focus on academic work. It is intended to be a short term (approximately 15 minutes) , first-tier, preventative support for students experiencing stress.
  - Wellness room is to be centrally-located on campus to encourage student access throughout the day. Proximity to common use areas such as the media center or student health is preferable.
  - Staff work space requires space for a desk with small file storage, bookshelf, white board, and power and data for a laptop. Desk is to be located adjacent to door for students to sign in. The staff area requires docking/charging stations for iPads or similar devices that may be checked out by students.
  - Work space is to be shared with a welcoming and comfortable student activity area. Flexibility for creating and re-arranging zones for individual and group restorative activities is required. Provide space for soft seating and tables, GC to provide white board, power and data access for charging student devices. Examples activities may include: listening to music or guided meditations, coloring, arts and crafts, journaling, and reading.
  - Room requires carpet and soft colors.
  - Daylighting, color LED, and dimmable, zoned lighting is preferable where possible.
  - Plants and/or nature images/textures are encouraged.
  - Provide power and data/wifi as per a standard classroom.

Student Commons / Central Food Service / Cafeteria

- Student Commons shall serve as an indoor gathering area with access to common use facilities such as cafeteria/dining, snack bar, student activities, family/community room, administration, gymnasium, and library/media center. Ideally, the Commons area will integrate or flow into the Cafeteria / Food Service areas.
  - Provide space for a variety of seating options.
  - Provide power for opportunities for charging devices.
  - Consider a raised performance area.
  - The student commons is similar to an outdoor student gathering area.
- Cafeterias serve as food serving areas as well as small assembly areas for school activities. The number of meals served varies among high schools; Food and Nutrition Services will provide information about meals served and staffing for each high school site.
  - Provide access to the dining areas via double doors (2 doors at 36" wide each) at all entrance/exit locations even if not required by code for egress width.
  - Provide access to the cafeteria from the exterior for after school programs, while also providing ability to lock the kitchen and the remainder of the school. Provide one set of restrooms that are accessible from the cafeteria for use after hours.
- Size the seating areas for 15 SF/student (minimum) with no more than 3 lunch periods.

  - Plan the dining areas to accommodate typical APS seating; a combination of 60" round tables and 12' bi-fold models. Dining furniture will be provided and installed by the owner.
- Design the cafeteria to encourage formation of single file serving lines.
  - Provide separate dining areas and serving lines for the Ninth Grade Academy vs upper grades.
  - Discuss with APS Food + Nutrition Services the option of self-service and/ or cafeteria staff-serve. Typically, cafeteria staff serve the hot food items and students self-serve cold food items.
  - Provide data drops for point-of-sale connections for computerized checkout units at appropriate locations, including:
    - 2 (minimum) on serving lines.
    - 1 in the cafeteria.
    - 2 connections on parallel walls in the kitchen manager's office.
- Provide a separate, lockable room for after school programs. Include:
  - Access to the room directly from the cafeteria.
  - Space for storage.
  - A sink.
  - Power for equipment, including a refrigerator (for milk and other cold items) and a re-therm unit for at-risk dinner program and/or homework dinner program.
  - Provide infrastructure for a flat screen (approximately 60" or 72").
  - Provide infrastructure for a ceiling mounted projector for large group meetings.
  - Provide a powered AV screen (approximately 90" x 160") mounted in the structure of the ceiling area.
    - Provide a key operated switch, or locate the switch in a storage or custodial room.
  - Provide rough-in for a sound system.
    - Locate sound system equipment in a storage room.
    - Provide wired microphone and audio access in two locations.
    - Provide for up to 4 wireless microphones.
    - Install conduit so 4 speakers will cover space from stage to back of room.
  - Provide power and data outlets along a wall for multiple table use during registration.
  - Provide general and specialty lighting for activities within the Commons/ Cafeteria.
  - Provide windows. Include:
    - A view to the outside.
    - Electrically operated shades for shading and lockdown.
  - Provide polished concrete floors.
  - Provide a designated area for recycle bins for paper, plastic, and aluminum.
- Acoustically condition the Commons/Cafeteria:
  - Reverberation Time Maximum: 1.5 seconds; Noise produced by HVAC and Building Utility Systems: Maximum 45 dBA; STC rating for the walls: STC 50; STC rating for windows or translucent panels: STC 35.
  - Verify STC and reverberation requirements with the project's acoustic consultant.

- ***Kitchen***
  - See Kitchen requirements in Design & Construction Integrity Section.
  - The contract architect must meet with APS Food and Nutrition Services (F+NS) prior to designing the kitchen. Coordinate this meeting(s) through the APS staff architect. See Appendix D for Guide to Space Planning of a School Food Service Facility based on number of meals served.
  - Kitchen equipment shall be included in the general construction contract. Coordinate requirements for kitchen equipment, see Appendix E.

- ***Snack Bar***
  - Generally there are two (2) snack bars in the high school – one near the cafeteria and one near the gym lobby. Both snack bars are mostly the same. See DECA section for their program needs.
  - Locate the food services snack bar near interior and exterior student gathering areas.
  - Provide about 4 service openings, (1 to 2 interior and 1 to 2 to the outside).
    - Service openings shall be 18" wide x 30" high.
    - Interior service openings shall have a lockable stainless steel fire-rated (as needed) roll door with stainless steel sill.
    - Exterior service openings shall have inset vertical hung aluminum storm window units (or equal) to close off opening when not operating to prevent draft and insects.
  - At the exterior openings, provide effective cover from rain and sun for students.
  - Provide snack bar with warming only capabilities.
  - Do not include fryers, grills, or any equipment that requires a commercial hood.
  - Include 22 LF of HDL open base shelf cabinets with countertop to connect with the window serving areas.
  - Provide wiremold above back-splash of counter for warming equipment (up to 5 devices).
  - Provide stainless steel wire metal shelving along wall opposite from windows.
  - Provide (1) 3 compartment sink (each compartment shall be 10" x 14" x 12" deep) with faucet as accessories as per a commercial kitchen unit. Include 20" drain boards each side and 12" high stainless steel wall protection behind sink area.
  - Provide a hand washing sink.
  - Provide (1) point-of-sale data and power outlet at each pair of windows (2 locations, total) for interface with the food service computer sales system in the kitchen office.

- ***DECA Snack Bar***
  - The DECA snack bar is generally the same as other snack bars in the school, with these additional program needs:
    - Provide a soda fountain machine. Fountain is not able to be shared with other snack bar vendors.
    - Provide electricity for:
      - Hot holding equipment
      - Ice machine
      - Point of sale for each window. (Data and power). Avoid Wi-Fi for POS.
      - Cameras at each monitor.
      - Big refrigerators for drinks.
      - Provide data for electronic menus, nutrition guidelines.
      - Provide area for taped menus at windows.
    - Provide slat walls at back.
    - Provide a large storage room with power for hot holding equipment and refrigerators.
    - Provide adjacency to DECA classroom if possible.

- ***Storage / Custodial***
  - Provide a custodial closet in the kitchen.
  - Provide each dining area with a custodial closet.
  - Provide each dining area with a storage room for special events, folding tables and chair carts.
    - Storage room doors shall allow for 72" clear opening.

- ***Outside Dining Patio***
  - Provide a hard surfaced, well-drained patio area.
    - Locate the patio adjacent to the snack bar and easily accessible by students from the cafeteria.
    - The patio shall be half-shaded between 10:30 am and 1:30 pm.
    - Provide a hose bib in the area for cleaning.
    - Provide outlet for cleaning equipment with 30 amp GFCI circuit.
  - Provide fixed tables, benches, and trash receptacles for up to 100 students.
    - Tables, benches, and trash receptacles shall be exterior-rated, vandal resistant, vinyl coated expanded metal.
    - The general contractor shall provide and install the tables, benches, and trash receptacles.
    - Tables, benches, and trash receptacles shall be anchored.
    - Each trash receptacles shall have a 30 to 40 gallon capacity.
  - Provide general site lighting for the outside dining area (and adjacent socialization areas) to allow evening use for special programs.

Academy Areas

- The administrative and academic spaces below are distributed among:
  - One Ninth Grade Academy
  - Upper Grade Academies
- The upper grade academies will generally be organized by career or academic focus, with each academy offering multiple related career paths.

- ***Ninth Grade Academy Spaces***
  - The Ninth Grade Academy generally includes spaces similar to upper grade academies, with the following unique requirements:
    - Be physically separated from other academies to the extent practical.
    - Facilitate student circulation from their academy to the media center, gymnasium, administration, dining, and transportation without navigating through large groups of upper grade students.
    - Have its own administration and dining areas.

- The Ninth Grade Academy dining commons has the option to be supported by a warming kitchen, or by the school's main cooking kitchen. It will have a serving line and a dining area similar to the main cafeteria.
- The Ninth Grade Academy Administration area is similar to other academy administration suites.

- ***Academy Administration***
  - A waiting area with space for seating for up to six visitors.
  - A secretary/support area with space for 1 open office workstation to operate phones, intercom, and support the academy administration.
  - One office for the Academy dean / assistant principal. Allow space for an L-shaped desk and round table with 4 chairs.
  - A secure file room with limited access for academy records. The GC shall provide (1) 48" wide x 84" high x 24" deep lockable storage cabinet in each file room for supplies, forms, and brochures. Include space for a total of 3 to 4 fire-proof file cabinets (larger units), per each academy. Fire-proof file cabinets will be provided by the owner (not the GC).
  - Provide a conference room with space for seating for 14 people.
    - Provide casework, (1) ADA sink, and an under-counter refrigerator in each conference room. Base casework shall be approximately 7' long x 2' deep. Provide lockable upper cabinets (24" high x 12" deep). Sink basin shall be stainless steel, approximately 14" x 16" x 6" deep with goose-neck lever handle faucet. Provide outlets at the back of the counter.

Academic Areas

- ***General Classrooms***
  - General classrooms shall be standardized to provide flexibility to move classes between different grade levels.
- Casework and Equipment
  - Provide built-in casework. Typically, classroom casework includes at least one 36"W full height wardrobe and 12 LF of base and upper cabinets with countertop. (I.e.: 36"W, 84"H, 24"D tall storage with adjustable shelves, 12'L, 30"H, 12"D upper storage units with adjustable shelves, 12'L, 34"H, 24"D lower storage units with adjustable shelves and drawers).
  - Key all storage alike within each classroom; each classroom storage key to be unique.
  - 28 LF of magnetic whiteboard and 4'x4' tackboards with tack strip on top of all boards.
- Science Classrooms and Laboratories
  - Provide a minimum of one science laboratory per small learning community. A general science classroom requires water, sink, electricity, shelves, and cabinets. Consider an arrangement of two classrooms sharing a single laboratory space.
  - Arrange student stations in the laboratory so that students do not have their backs to the teaching station (i.e. avoid perimeter workstations).
  - This setup could include 4 islands for students to work in groups. Each island includes 2 student sinks and utility connections (power, data, gas, and water).
  - Emphasize flexibility and movable furniture layout.

  - At least one group station shall be ADA compliant.
  - Consider arrangement for the teaching station at a long wall, so that students are not as far away from the teaching wall.
  - Provide lots of white boards. No chalk boards.
  - Provide retractable outlets from ceiling, like those in STEAM labs, to support lab work done at tables. Ceiling outlets allow more modular/flexible use of the classroom. Watch the ceiling height and site lines.
- Plumbing:
  - Provide master shut off valves for gas, water, and power near the teaching wall.
  - Provide a dual-head emergency eye-wash combined with shower in each laboratory.
  - All sciences require three sinks (see additional requirements for Chemistry classrooms).
  - Provide deep sinks only. Shallow sink sprays all over the place.
  - Sinks shall have goose-neck faucets.
  - Provide an ion exchange unit for water treatment for sinks.
  - Provide a disposal.
  - Note: Chemically treated biology parts are not disposed of in the sink.
- Owner will provide a fire blanket in each laboratory.
- Provide an exhaust fan in each laboratory. Accommodate scientific equipment heat loads when sizing HVAC equipment.
- Provide a variety of casework for storage options (minimum 80 LF). Requirements as follows:
- Casework shall be wood, with epoxy resin counter-tops and sinks.
- Casework shall be lockable. Key locks within each laboratory alike, but unique to each different laboratory.
- Include base cabinets with adjustable shelves, totes, and drawers. Include 18" deep upper cabinets with sliding glass doors. Include full height cabinets (approximately 48" wide X 24" deep X 84" high with glass doors.
- Provide a hood for all science classrooms.
- Provide direct access to a prep room from the laboratory. Prep rooms may be shared among laboratories. The laboratory prep room will include the following items. Some equipment will be provided by the owner; coordinate with staff architect:
- An epoxy resin sink with goose-neck faucet.
- Dishwasher (approximately 24" wide).
- Refrigerator (full size with freezer).
- Glass drying rack (approximately 36" X 36").
- Similar range of casework storage options as in the laboratory.
- Space for shelving to store science equipment. Chemistry shelving needs to be wood; other science shelving should be metal.
- Cabinets specifically designed for chemical storage referred to as acid cabinets which APS F&E will provide.
- Provide a chemical storage room (to be shared among science labs).
- Chemistry Classroom additional requirements:
- Only chemistry labs require gas. Gas is not required in classrooms for biology and physics and environmental science and astrogeology.
- Chemistry rooms require six sinks.

- In Chemistry Labs, provide one fume hood each, 4 feet wide, with epoxy top and cup sink, water, gas, power, and light, designed to be fully accessible.
- APS Risk Management maintains a list of chemicals used in high school science programs and provides safety training for teachers. Chemicals may include flammables, non-flammables, corrosives, acids, bases and others and may require venting; chemicals must be stored in appropriate cabinets in a locked room. GC should provide and install cabinets with direct ventilation.
- Some science classrooms will support digital labs. For these labs students use 1:1 devices
- Provide an outdoor garden area with irrigation.
- If a greenhouse is programmed for science, refer to the greenhouse requirements in the general section.

- ***Computer Labs, Elective Labs, Flex Labs, and STEAM Spaces***
  - As 1:1 student devices become the District policy, dedicated computer labs, including those for standards-based testing, are evolving into flexible technology labs for educational programs including STEAM. Verify the number of dedicated computer labs with CMP during the programming design phase.
    - Each lab shall have physical space and power/data capacity to accommodate 37 equal computer workstations (32 student and 5 support devices). Each station shall be 36" wide X 30" deep.
      - Electrical Engineer must confirm computer amps per device for circuit requirements.
    - Provide space for at least one ADA station per lab.
    - Consider locating computer labs as centralized collaborative spaces within Small Learning Communities and/or Academies.
    - All wiring shall run in a wire/cable management system along or below the counters. Provide overhead retractable cord reels with power. Minimum of (4) cord reels each with duplex power.
    - Avoid floor outlets and power poles.
    - Consider a lab storage room for every 2 to 4 computer labs, based on location. Include:
      - Power and data to plug in the COW cart.
      - Four 30" wide X 34" high X 24"deep lockable base cabinets with shelves.
      - One 36" wide X 34" high X 24" deep six-drawer unit
      - One ADA sink unit with 14" X 16" X 16" deep stainless steel sink with goose-neck lever handle faucet
      - 20 LF of upper cabinets made up of 36" wide X 24" high X 13" deep lockable cabinets with two adjustable shelves, except for a shorter unit over the sink.

- ***Elective Labs***
  - Elective Labs, including technology and vocational labs, can be used for general science, computer, or other hands-on learning curriculum. Labs can provide an industrial setting for curriculum requiring the use of heavy machinery and/or noisy activities.
    - Consider a maker space a place to cut wood, work with PVC, etc. for students to build and test things.
    - Locate elective labs for convenient access to associated academy(ies)
      - Provide 200 SF of prep space in addition to classroom area for each elective lab.

- Provide retractable outlets from ceiling, like those in STEAM labs, to support lab work done at tables. Ceiling outlets allow more modular/flexible use of the classroom. Watch the ceiling height and site lines. Minimum (4) cord reels each with duplex outlets.

- ***Project-based learning labs***
  - Verify program and space needs with CMP.
  - Technology Education Lab
  - A Technology Education Lab supports project-based learning. It is a cross-curricular environment, with technology to solve problems, promote hands-on fabrication opportunities, and support team building skills. Curricula may include applied physics, general science, flight technology, robotics, power, mechanics, electronics, and others.
    - Provide a flexible classroom that allows for multiple, collaborative workstation configurations.
      - One approach is to cluster computer workstation furniture into pods (for example, seven pods of five-sided workstations). Other configurations may also be appropriate.
      - Configuration should encourage collaborative, project-based learning.
      - Provide power and data to support the technology stations. Consider retractable outlets from ceiling, like those in STEAM labs, to support lab work done at tables.
    - Provide space for 60" x 30" tables around the perimeter of the room with wiremold on walls above table height.
    - Provide built-in upper cabinets.
    - Provide acoustic control, storage, whiteboards and tackboards, and pencil sharpener block as for core classrooms.

- ***Project Studio***
  - The Project Studio is a shared resource area for students for project-based curriculum, provided for specialized curriculum programs only. The studio can be co-located with student team areas; it can be a room or an open informal area.
    - Accommodate flexible, movable furniture layouts.
      - Provide a minimum of 10 Ln. ft. of casework including one 36"W, 84"H, 24"D storage unit with file drawers on the lower 2/3 and storage cabinets above with adjustable shelves.
      - Provide casework storage (approximately 7 LF). Include base storage cabinets with adjustable shelves and minimum one 4-drawer cabinet; countertop with back and side splashes, and upper storage cabinets with adjustable shelving.
      - Provide (1) 8' whiteboard and (1) 4' tackboard.
      - Consider retractable outlets from ceiling, like those in STEAM labs, to support lab work done at tables. Ceiling outlets allow more modular/flexible use of the classroom. Watch the ceiling height and site lines.

Special Education Spaces

See Appendix B for requirements in addition to those noted below.

- Special education (SPED) requirements are the same as general education classrooms except where noted. Special education spaces shall be distributed among the academies. The APS Special Education Department aims to provide services to students in the least restrictive environment possible, and to integrate SPED students (inclusion) with other students to the greatest extent possible.
  - General Notes for All Special Education Spaces
    - All special education offices and conference spaces require sound isolation.
    - Special education students may require specialized lighting with different cycles, spectrum, ballast noise level, etc. Discuss HVAC, lighting, and other systems designed for severely disabled students with the FD+C staff architect and APS Special Education.
    - Some space(s) may be classified as Institutional Occupancy under the building code because some students may be generally incapable of self-preservation, requiring specialized door controls.

Teacher Home Base

- Most High School teachers will not have assigned classrooms, but will teach in a collegiate model, with the Home Base serving as an office and professional collaboration area.
  - In the Ninth Grade Academy, provide 1 teacher home base for each small learning community (or shared by 2 small learning communities).
  - In Upper Grade Academies, provide teacher home bases as required to accommodate general education staff. Each Upper Grade Academy home base shall accommodate a similar number of teachers.
  - Typically, science and special subject teachers have workstations within classrooms, rather than in the home base.
  - The home base is a collaborative work space and shall include a large conference table.
  - Provide space for conference table and seating. Allow for flexibility of shapes and lengths of furniture. Number of chairs may vary school to school.
    - Provide countertop for shared printer and devices, with voice/data/power connections.
  - Provide space for systems furniture (with preference for built-in furniture, so the program remains in tact and isn't dismantled by current staff) in order to accommodate each teacher served by the home base.
  - Each workstation shall consist of 36" wide x 30" deep desk space with grommet holes for cabling. Include a box/box/file pedestal with pencil tray in the top box drawer, (1) 48" wide overhead flipper door storage unit, with task light below; (1) 48" wide tackboard below the overhead storage unit, and voice/data/power at each workstation.
  - The designer should accommodate the schools needs which may vary school to school, and sometimes may include a wardrobe storage unit with top shelf and wardrobe hanging rod for each teacher.
  - Provide space for (1) 4 drawer vertical file or equivalent lateral file per teacher.
  - Provide space for (2) 3' wide x 1' deep x 4' high bookcases per teacher.
  - Provide a break area in each home base with a refrigerator, single basin sink, and microwave.
  - Provide space for a small lounge seating area.

Teacher Workroom

- Each teacher workroom shall include:
  - Space for a large work table and copy equipment to be provided by APS.
  - Permanent lockable storage with shelving to accommodate storage of paper, books, supplies, and audio-visual material.
  - Base cabinets with countertop for workspace and equipment with upper cabinets above.
  - Double sink.
  - Ability to accommodate a desk for an educational assistant.
  - Dedicated circuits and outlets for equipment (possibly including ceiling electrical drops).
  - Polished concrete flooring.
- In the Ninth Grade Academy, provide 1 teacher workroom for each small learning community (or shared by 2 small learning communities).
- In the Upper Grade Academies provide 1 teacher workroom per 1 to 2 teacher home bases.

Specialized Classrooms

- Fine Arts Center (2D and 3D)
- The Fine Arts Center includes studios for photography, computer graphics, video production, two-dimensional painting/drawing, and three-dimensional ceramics/ sculpture/jewelry.
  - Locate fine arts studios adjacent to each other.
  - Provide places to display the work. Consider dry erase walls to encourage advertising of student performance. Provide display cases for student work.
  - Provide a protected outdoor area/art patio for work and display.
  - Provide kilns, see Appendix G.
  - Allow for use of ceiling grid or exposed ceiling to hang work.
  - Provide north light where feasible.
  - Provide power and data similar to a general classroom.
  - Provide infrastructure to accommodate technology in fine arts classrooms.
  - Consider an outdoor performance venue in close proximity to the indoor performance space.
  - Consider a computer lab within, or near, the music suite, computer keyboarding, composition and theory classes.

- ***Painting and Drawing***
  - Provide a classroom area.
  - Include whiteboard, tackboard, and interactive whiteboard similar to general classrooms.
  - Casework requirements:
    - Base cabinets (approximately 15 LF) with counter area (adjacent to or near the sink) and open upper cabinets with adjustable shelving, and an integral accessible counter space.
    - Provide many outlets at the counters for glue guns and encaustic painting.
    - Tall open storage with adjustable shelving or cubbies (approximately 6 LF).

- Combination (approximately 18 LF) of tall, open flat storage for paper and artwork, and base cabinet drawer units, with some countertop area.
- 5' tall divided vertical storage (approximately 8 LF) for paper and mat board supplies.
- Casework described above can be located in the classroom area and/or the 2D storage rooms.

- Sink requirements:
  - One deep, wide stainless steel sink with integral drain boards and clay trap.
  - Separate hand sink.
  - Protective wall covering behind sinks.
  - Provide storage room for supplies and easels.
  - Provide an office with visual access to the studio area.

- ***Ceramics, Sculpture, and Jewelry***
  - Provide classroom area.
  - Allow space for shop tables (provided by owner).
  - Include whiteboard, tackboard, and interactive whiteboard similar to general classrooms.
  - Provide space for a clay area with electric potter's wheels and damp proof cabinets.
  - Include an open area to place models or still life.
  - Casework requirements:
    - Base cabinets with counter area (adjacent to sink) and open upper cabinets with adjustable shelving (approximately 10 LF).
    - Provide many outlets at the counters.
    - Tall open storage with adjustable shelving or cubbies (approximately 18 LF).
  - Sink requirements:
    - One deep, wide stainless steel sink with integral drainboards and clay trap.
    - Separate hand sink.
    - Protective wall covering behind sinks.
  - Provide kilns in a separate kiln room or structure with appropriate utilities including power and exhaust. (See kiln specification in Appendix G)
    - Kilns shall be provided and installed by the general contractor.
    - Types of kilns may include a large gas-fired kiln; two or more small electric kilns; and possibly a raku kiln.
    - Provide a thermostatically controlled kiln room exhaust fan separate from, and in addition to, the kiln exhaust.
  - Provide storage and drying rooms.
  - Provide a damp clay storage area if desired by the school program.
  - Provide an office with visual access to the studio area.

- ***Computer Graphics***
  - The computer graphics lab shall support 32 student computers (minimum) and one teacher station with appropriate power and data drops.
  - Include whiteboard, tackboard, and interactive whiteboard similar to general classrooms.
  - Provide enclosed base cabinets (approximately 21 LF) with counter area and upper cabinets with adjustable shelving.

- Provide an office with visual access to the lab area.

- ***Film Studio***
  - The video studio consists of a larger studio for video recording, filming, and production activities; and a smaller video editing/production studio. Support space includes storage, and office, and an optional sound-proof booth.
    - Provide an office with visual access to both the video studio and video editing studio.
    - Provide a storage room for video equipment, convenient to both the video studio and the exterior.
    - In the video studio,
      - Include whiteboard, tackboard, and interactive whiteboard similar to core classrooms.
      - Provide sound isolation from other spaces as well as outdoor noise.
      - Provide acoustic treatment to reduce reverberation time.
      - Provide a curtain track for a "blue screen" which can be positioned along at least two walls including one interior corner.
      - Provide exposed ceiling structure and include power outlets in the ceiling and means for attachment of lighting support systems.
      - Access to the exterior is optional, but recommended. Students and equipment often go outside and off-site for filming activities.
      - A sound booth is optional. If provided, it is a free-standing acoustically-isolated structure that is located in the video studio.
    - The video editing studio is similar to a computer lab.
      - Provide 15 student editing stations (minimum) and one teacher station.
      - Student stations shall be 36" wide, minimum.
      - Arrange the video editing studio similar to the computer graphics lab to enable the teacher to observe all student screens from a single position. (Individual video editing booths are an alternate arrangement, although this arrangement is more difficult to supervise.)
      - Locate the video editing studio adjacent to the video studio.

- ***Photography***
  - Provide a classroom area.
  - Include whiteboard, tackboard, and interactive whiteboard similar to general classrooms.
  - Casework requirements:
    - Base cabinets (approximately 10 LF) with counter area (adjacent to or near the sink) and open upper cabinets with adjustable shelving.
    - Tall open storage with adjustable shelving or cubbies (approximately 12 LF).
    - Tall, open flat storage (approximately 8 LF) for paper and artwork.
  - Sink requirements:
    - One deep, wide stainless steel sink with integral drainboards and clay trap.
    - Separate hand sink.
    - Protective wall covering behind sinks.
  - Provide a dual-head emergency eye wash unit.
  - Provide a ventilation hood over the acid sink with 4 hour twist timer control.
  - Provide two film loading booths, light-tight, with base cabinet, countertop and

upper cabinets; "white" light for cleaning; need not be accessed through dark room.
- Provide a storage room suitable for shelved items and large items.
- Provide an office with visual access to the studio area.
- Provide a Dark Room with revolving darkroom door and a separate light-tight emergency exit door. Include:
  - 36" wide enlarger workstations (15-18) with countertop, dividers, with provision for a curtain behind the student, and an above counter duplex receptacle at each station for enlarger and portable safe light.
  - Large freestanding photo developer sink with vent hood; photo wash sink (three sides usable also with vent hood.
  - Base cabinets and countertop (approximately 12 LF) with open large paper storage shelving, and one 4 drawer unit, and upper wall cabinets.
  - Normal ("white") light illumination, 5000K non-fluorescent fixtures for cleaning and general use, with a safety cover over the switch to prevent inadvertent operation of switch.
  - General safe light illumination (one way to do this is with suspended indirect safe light fixtures such as those made by Thomas Instrument Company).
  - Sinks connected to acid drain. Consider an automatic silver collection unit for spent fixative at the sink(s); discuss with teacher and determine volume of silver recovery to be addressed.
  - A dual-head emergency eye wash unit.
  - Workroom accessed from the dark room only. In the workroom, provide a tray sink with drain board, chemical shelf above sink, film drying cabinet with power receptacle, photo wash sink with vent hood, 6 LF of base cabinets with countertop and upper cabinets, 2 countertop workstations with 4-drawer units adjacent, receptacles at countertop locations, and safe lights. Connect sink to acid drain. Consider an automatic silver collection unit for the spent fixative at the sink. Provide a dual-head emergency eye wash unit.
  - Dark room and dark room workroom to have white or light colored ceiling; flat black wall color up to 7 feet high; light gray wall color above; and light gray floor color (flooring to be non-dusting).
  - For dark room and dark room workroom position air supply, return (filtered) and vent hoods to draw chemical fumes away from sink users' faces. These spaces should be slightly negative in pressure.

- ***Music Center***
  - Provide ensemble rooms for band, chorus and orchestra. Ensemble rooms may be shared among programs, based on program need; coordinate with FD+C, who will consult CMP.
  - Provide individual and small group practice rooms
    - Arrange practice rooms for visual supervision; consider locating directly off of the main ensemble rooms.
  - Provide a sound control room with power/data drops for recording band, orchestra, and choir rehearsals. Include countertop, base cabinets and upper cabinets with open workspace.
  - Provide a sound isolated listening room with sound system connections to

sound control room.
- Provide additional space as required to accommodate music programs such as guitar, piano, and mariachi; coordinate with FD+C, who will consult CMP.
- Acoustically isolate ensemble and other music program rooms from each other and from the rest of the school.
- Floors shall be level; No built-in risers.
- Ceilings shall be about 18 feet high on average. Provide additional volume in the band room, above the ceiling, to help with sound dissipation.
- Acoustically tune rooms and control reverberation time per ANSI S12.60. Options include: non-parallel walls and ceilings, sound panels, and floor treatment.
- Provide wall protection (chair rails, corner guards) in large ensemble spaces.
- Provide infrastructure to accommodate technology in fine arts classrooms. Provide speakers and A/V system for music classrooms.
- Provide storage as follows:
  - Chorus will have storage rooms which accommodate space for choral risers, 10 file cabinets for music, and robes for choirs with clothes rods (all to be provided by APS F&E).
  - Orchestra will have storage rooms which accommodate space for 10 file cabinets for music (to be provided by APS F&E), and built-in lockable instrument storage cabinets with wall support and seismic requirements (to be provided by GC).
  - Verify equipment inventory/storage requirements with the school and APS fine arts department.
- Band will have an exterior access with proximity to exterior practice marching area, which may be a shared space.
- Band also requires GC provided built-in instrument storage with wall support.

Flexible Elective Classrooms And Other Optional Spaces

- ***Tiered Lecture Hall***
  - Tiered lecture hall to seat 200 students. Include the following:
    - Fixed seating and work surface for 200 students.
    - 16' whiteboard flanked by 4' tackboards.
    - Projector and projection screen sized for the space.
    - Sound system for the room operated from a lectern.

- ***Greenhouse - Refer to greenhouse requirements in the general section.***

- ***Career Technical Education***
  - Career Technical Education programs can be integrated into Academies. Most of the programs can be housed in the programmed elective technology flexible classroom within the SLC's. A few programs, notably the industrial arts shops, need specific spaces tailored to the curriculum of the program. Traditional vocational/industrial arts programs may be adapted to updated curriculum.
    - Traditional career vocational/industrial arts programs can include:
      - Culinary Arts
      - Family and Consumer Science (Home Economics)
      - Business
      - Health Occupations

- Technology Education (Drafting and Graphic Arts, Metals, Woods, and Transportation Technology)

- ***Culinary Arts Lab***
  - Provide one main instructional space with a commercial kitchen environment.
    - Provide four rows of stainless steel student tables; each row to have two 9-foot student tables on each side of a two-compartment pot sink with drain board on each side, and space for a food holding cart at each end of the row. Provide two gas cooktops on each student table, space for a mixer, and power for several small appliances. Provide sliding door storage cabinets below the table tops on the teacher side, and space for stools on the student side. Students need counters in the middle of each kitchen area to work.
  - Provide storage shelf at each student metal table.
  - Provide (minimum) one ADA compliant student station.
  - Provide a teacher's demonstration area. Include a single-compartment sink with drain boards on each side and stainless-steel enclosed utility pony wall for services; stainless steel demonstration table with mirror, two gas cooktops and space for mixer; 4' mobile steel table; and mobile pot rack. Provide power for small appliances.
  - Provide giant interactive teaching board for teaching demonstrations.
  - Floors: Provide slip-resistant surface.
- Classroom organization:
  - Keep walls low so that teacher can see students. Supervision and clear sight lines are required.
  - Provide a principle cooking line. Include four convection ovens and one range/oven under a commercial kitchen hood. Provide two stainless steel worktables close by each with a stainless steel utility chase to ceiling cavity.
- Locate a secondary cooking area behind the teacher's demonstration area. Include one gas broiler, one 24" griddle, and one cheese melter under a commercial kitchen hood. Provide a stainless steel prep table on each side of this area.
  - Provide a griddle, (preferred over a tilt skillet or braiser).
- Provide reach-in refrigerators and freezer near the secondary cooking area.
- Provide combination walk-in cooler and walk-in freezer, each 6' x 6', with remote condensing unit and individual access door, and wire shelving.
- Provide a scullery area with a three-compartment sink, dish tables, dishwasher with booster heater (consider solar hot water pre-heating), garbage disposal with pre-rinse, and wire shelving rack for clean ware.
  - The size of the deep three-compartment sinks in the professional kitchen area should be able to accommodate the cooking sheets.
  - Include a roll-up counter door and counter-top in the scullery area to serve the culinary lab.
- Provide a washer and dryer area with table, under-table laundry hamper, shelf above washer and dryer. Locate the washer and dryer area to minimize the length of dryer exhaust vent piping.
- Provide storage for aprons.
- Provide student lockers to accommodate backpacks for a full class.
  - Locate backpacks where students can watch their backpack.

  - Provide a long, trough-type sink in this area for wash-up before and after class.
- Ventilation:
  - Provide ventilation to exterior due to smells and steam. Not a recirculation vent, not a charcoal vent.
  - All cooking hoods must have fire suppression.
  - Provide a big exhaust hood at commercial kitchen.
  - Provide operable windows with screens in classrooms.
- Culinary Arts Café / Dining Area
  - Provide an instructional space with a commercial cafe environment. Classroom doubles as café and hot bar.
    - Include a mobile serving line consisting of a three-well hot table, cold table, solid top buffet table with display case, and small starter table; and one small table with point-of-sale (POS) cash register nearby (voice/data drop required).
    - Include whiteboard, tackboard, and interactive whiteboard similar to core classrooms.
    - APS FF+E will furnish the classroom area with round tables and chairs.
    - The room must meet environmental health requirements in order for the cafe to sell food.
    - Provide exterior access.
  - Locate the culinary arts laboratory adjacent to the culinary arts classroom to accommodate:
    - Transportation of food to the mobile serving line, and
    - Return of dirty dishes through the roll-up counter door to the scullery area.

- ***Culinary Arts Program Support Space***
  - Provide the following spaces to support Culinary Arts instructional areas:
  - A secure, dry storage room with clothes rod for uniforms and wire rack shelving and 3 ingredient bins.
    - Separate chemicals and cleaning materials away from food.
    - Separate food storage from work area.
  - Provide a custodial closet with floor sink and shelf storage.
    - Provide shelving for detergents.
  - An appliance storage room with mobile wire shelving units.
  - A teacher's office is not needed. If provided, include a window to the Culinary Arts Classroom (and also to the Culinary Arts Laboratory if possible).
  - If a greenhouse is programmed for the culinary arts program, refer to greenhouse requirements in the general section.

- ***Family and Consumer Science (Home Economics)***
  - Historically, Home Economics space included a Food and Nutrition Lab and a Sewing (Fashion) Lab; and may also include Child Development.
    - The program has recently experienced a shortage of instructors. Verify program need with CMP.
    - The Food and Nutrition Lab has been replaced by the Culinary Arts program. (See previous section for space requirements.)
      - If providing residential kitchen areas, include a single-compartment sink.
      - Provide induction stove in family area. Induction cook tops require magnetic special pans.

- The Sewing Lab (also known as: Fashion Lab) includes tables, chairs, sewing machines, an office, a storage area, a laundry area, and at least two fitting areas.
- The Child Development Lab (also known as: Working With Young Children) includes an observation area, a full kitchen (this is problematic with current fire code requirements), two restrooms for pre-K children and a restroom for adults, and a fenced outdoor play area of at least 1,000 SF complying with APS Playground Standards. The Child Development Lab is accessible to the public.

- ***Health Occupations***
  - This program may be a sports medicine, nursing, or dental, etc. program.
  - A Health Occupation Lab is similar to a general classroom but includes 4 sinks.
  - Health Occupation Support space includes an office, a smaller classroom, and a storage room.

- ***Business Education***
  - Business Education programs:
    - Provide instruction in office skills including keyboarding and accounting.
    - Most business education programs can be housed in computer or technology labs.
  - Business Education lab requirements:
    - Provide a lab space.
    - Include a sink, and adequate power and data for business machines and computers, with master power shut-off switches.
    - Include whiteboard, tackboard, and technology as for a general classroom.

- ***DECA Classroom and Office***
  - Most career technical student organizations can be accommodated after hours within spaces provided for other programs. DECA is an exception in that is requires dedicated spaces, including:
    - A general education classroom.
    - An office with visual access to the classroom.
    - A snack bar, see Snack Bars section for additional requirements.
      - DECA classroom and office should be adjacent to the snack for supervision ; provide close proximity if adjacency is not possible.

- ***Technology Education (CAD and Graphic Arts, Woods Technology, Metals Technology, Transportation Technology)***
  - Technology Education programs may include a Drafting and Graphic Arts program, Woods Technology Shop, Metals Technology Shop, and Transportation (automotive and aviation) Technology Shop. High schools may have one or more of the Technology Education labs.
    - Drafting and Graphics Arts may be part of the Fine Arts Curriculum.
    - The programs have recently experienced a shortage of instructors. Verify program need with CMP.
    - Provide display cases, and at least 112 metal box lockers, in the hallway/lobby of the Technology Education area. Lockers shall be 18" x 18" x 18" minimum.
    - Some schools may include industrial cooperative training programs. These would typically require a large classroom of about 1,000 SF, an office, and a storage/library room.

- See Appendix I for suggested equipment lists for Technology Education labs.
- Provide a separate room (about 250 SF) with sound isolation for compressors for pneumatic / compressed air equipment.
- Drafting and Graphics Arts includes a computer lab (840 - 1,200 SF), an office (120 SF), a server room (120 SF), a plotter room (225 SF), a secure storage room (245 SF), and a project storage room (200 SF).
  - The server room shall be accessed from the office, and shall not function as the building area IDF room.
  - Provide a 6" raised access floor over recessed slab throughout, except at built-ins (including casework).
  - In the computer lab, provide about 90 – 100 LF of countertop with base cabinets, six 3' workspaces, and eight 3' open shelf units with one horizontal shelf and the lower compartment divided into two spaces by a vertical divider.
  - In the plotter room, provide about 15 LF of space along a wall for countertop with one 3' workspace, one 3' base cabinet, and 9 LF of two tier vertical under-counter storage; also provide solid floor along wall for one 48 inch wide flat file.
  - In the project storage room and secure storage room, provide 24" deep metal shelving.
  - Provide a utility sink in the computer lab.
  - Provide a full wall erasable marker surface with continuous tack strip for display, marker dispenser, and tack tray.
  - Provide a projection screen with overhead projector rough-in in the computer lab.
- Woods Technology includes a laboratory (2,400 – 3,200 SF), classroom (600 – 750 SF), an office (120 SF), tools storage (400 SF), project storage (400 SF), and a finish area (220 SF).
  - Provide exterior access for deliveries and outside work. Include a covered exterior concrete slab of about 600 SF.
  - Accommodate painting outside. If an interior paint area is also provided, note that a Paint Spray Booth in accordance with the fire code, and other applicable codes, is required.
  - Coordinate utility requirements with woodworking equipment.
  - Indicate safety zones for woodworking equipment on floor surfaces.
  - Provide dust collection.
  - Provide a minimum of 156 lockers in the woods laboratory. Each locker shall be at least 12" x 12" x 12".
  - Provide an eyewash and wash fountain in the woods shop. Include soap dispenser (receives APS supplied pouch soap refills – verify specified model with FD+C), towel dispenser and mirror.
- Metals Technology requires a laboratory (3,000 – 3,350 SF), classroom (600 – 750 SF), an office (120 SF), shop support/storage (1,200 SF), and welding room (540 SF).
  - The laboratory will accommodate welding, foundry and forge, sheet metal, pattern making, and machine tools.
  - Provide exterior access for deliveries and outside work. Include an overhead door and hoist beam with motorized crane hoist in the metals laboratory.
  - Provide a covered exterior concrete slab of about 600 SF, prepped for welding.
  - Accommodate painting outside. If an interior paint area is also provided, note that a Paint Spray Booth in accordance with the fire code, and other applicable

codes, is required.
- Coordinate utility requirements with metal working equipment.
- Indicate safety zones for metal working equipment on floor slabs.
- In the welding room, provide an entry curtain, individual booths also with curtains, and a 2A:20BC fire extinguisher.
- Provide lockable cages in the shop support/storage area for supply and project storage, gas manifolds, and tools.
- Provide a minimum of 112 lockers in the metals laboratory. Each locker shall be at least 18" x 18" x 18".
- Provide an eyewash and wash fountain in the metal shop. Include soap dispenser (receives APS supplied pouch soap refills – verify specified model with FD+C), towel dispenser and mirror.

- Transportation Technology requires a laboratory (2,600 - 3,300 SF) with 4 automotive stalls comprising 2,400 SF, and a bench area of 900 SF; a classroom (600 SF) (can be shared with other shops); office (120 SF), tool area (180 SF); tool crib (180 SF); supply storage (130 SF); equipment storage (135 SF).
  - Space criteria and other requirements noted above may vary for programs that focus on avionics.
  - The laboratory shall include 4 automotive stalls (2,400 SF) and a bench area (900 SF).
  - Depending on program needs, welding booths may be required.
  - Coordinate requirements for utilities, including water, gas, compressed air, and power, for shop equipment.
  - Provide a screened exterior space for storage of automobiles.
  - Accommodate equipment safety requirements, including handling and storage of hazardous fluids.
  - Provide an eyewash and wash fountain in the transportation laboratory. Include soap dispenser (receives APS supplied pouch soap refills – verify specified model with FD+C), towel dispenser, and mirror.

Other School Support

- ***Education Program Storage***
  - Education program storage rooms are assigned at each grade level, or by academy. Provide 12 plastic laminate cabinets 36" wide x 84" high x 24" deep with lockable shelving units.
  - 1 General storage area shall be accessed from the exterior, via double doors/ removable mullion for yard equipment.

- ***Custodial Space***
  - Provide sufficient custodial areas with hot and cold water to support efficient cleaning of all permanent and portable facilities. Custodial areas shall be conveniently distributed in a manner that is appropriate to serve entire school. See General Requirements for detailed custodial space needs. The High School needs include:
  - At least 1 custodial closet per building and per story.
  - Minimum of 6 interior custodial areas per high school.
    - (1) 200 SF custodial room shall accommodate space for supplies and a desk. The remainder of custodial closets shall be 65 SF each.

  - Provide access to the roof in some of the custodial storage areas or nearby storage rooms (if not provided at exit stair towers).

- ***Site Recreation***
  - PE uses outside facilities, track, and fields, in fall and spring. In winter PE will use just inside space.
  - Share athletic facilities seasonally to maximize efficient use of facilities.
  - All High School sports and fields must meet NFHS regulations including size/ dimensions.
  - Verify if HS fields are open to the community. Typically the campus is locked by 5:30 PM.
  - No lights required at site recreation facilities. Provide lighting only as required to prevent theft of bleachers. (Home night games are played at district athletic complexes or stadiums).
  - Refer to the Site Recreation general section for additional requirements.

Section 08

Appendix

Appendix A: Fencing Requirements

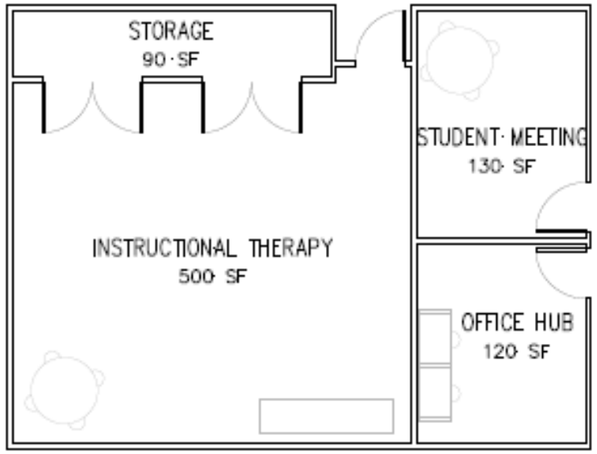
- ***Chain Link Fencing***
  - Steel Wire Fabric: Metallic-coated 9 gauge wire.
    - Mesh Size: 2”
    - Weight of Metallic (Zinc) Coating: ASTM A 392, Type II, Class 1, 1.2 ounce/square foot with zinc coating applied before weaving.
    - Coat selvage ends of fabric that is metallic coated before the weaving process with manufacturer’s standard clear protective coating.
    - Selvage: Knuckled top and bottom, or as indicated in the drawings.
    - Wind Screen, Provide in locations if indicated on drawings or directed by APS personnel. Typical material to be ci-Permatex black mesh vinyl coated polyester fabric, with 85% opacity manufactured by ci Fabrics 800-622-7169 or approved substitution.
  - Framing
    - Posts and Rails: Comply with ASTM F 1043 for framing and the following:
    - Group IA, round steel pipe, Schedule 40.
    - Post Size and Thickness: According to ASTM F 1043.
      - Top Rail: 1-5/8 inches O.D., unless otherwise noted in the drawings.
      - Line Post: 2-3/8 inches O.D., unless otherwise noted in the drawings.
      - End, Corner and Pull Post: 2-7/8 inches O.D., 4.64 pounds per foot, unless otherwise noted in the drawings.
    - Coating for Steel Framing: Type C, Zn-5-Al-MM alloy, consisting of not less than 1.8 ounce/square foot coating.
  - Tension Wire
    - General: Provide horizontal tension wire extended along bottom of fence fabric.
    - Metallic-Coated Steel Wire: 7 gauge, marcelled tension wire complying with ASTM A 817, ASTM A 824, and Type II, zinc coated (galvanized) by hot-dip process, with matching chain link fabric coating weight.
  - Fittings
    - Post and Line Caps: Provide for each post.
    - Rail Fittings: provide the following where indicated in the drawings or directed by APS personnel:
      - Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
      - Rail Clamps: Line and corner boulevard clamps for connecting rails in the fence line-to-line posts.
  - Chain Link Fence Installations
    - Chain Link Fabric: Fabric for athletic fields shall be applied to the inside of posts adjacent to the field of play. Leave 1 inch between finish grade or surface and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.
    - Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.
  - Welded Metal Fencing
  - Egress Gates at Security

Appendix B: Special Education Design Standards

» ***Conceptual Drawings***

» The following are conceptual drawings of the Ancillary Support Suite at Hubs and Non-Hubs for elementary, middle, and high schools:

» ***Standard Ancillary Support Suite for Elementary and Middle School***

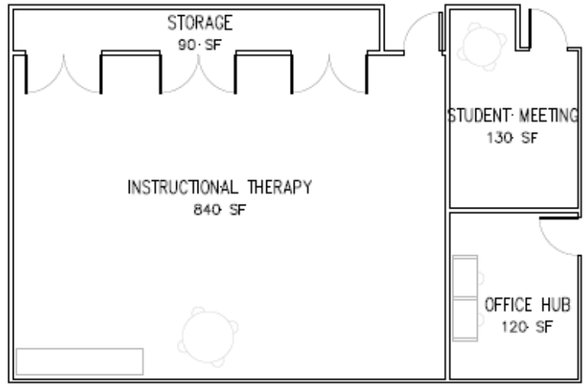


Standard Ancillary Support Suite, Elementary and Middle School	
Student Population	Size (sq. ft)
Instructional/Therapy Space with Swing (OT/PT and APE)	500
Therapy space Storage (OT/PT and APE)	90
Office Workstation Hub (60 sf each, 2 workstations)1	120
Private Student Meeting Area2	130
Total	840

1. (Social Workers, Speech Language Pathologist, Occupational Therapists, Physical Therapists, Adapted PE teacher). For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.

2. One Private Student Meeting Area for every 2.0 FTE. To be used fluidly by ancillary staff. The number of Private Student Meeting Areas is contingent on FTE allocation and shall be determined at the time of design program of space.

» ***Hub Ancillary Support Suite for Elementary and Middle School***

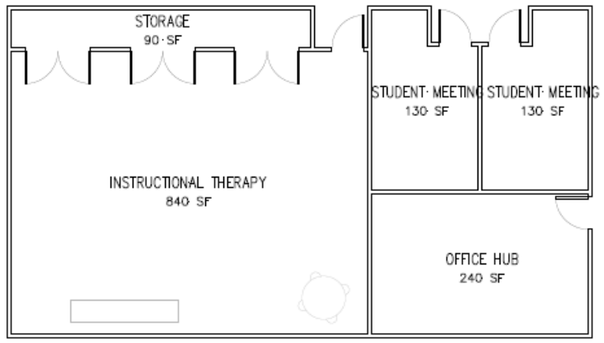


Hub Ancillary Support Suite, Elementary and Middle School	
Space	Size (sq. ft.)
Instructional/Therapy Space with Swing (OT/PT and APE)	840
Therapy space Storage (OT/PT and APE)	90
Office Workstation Hub (60 sf each, 2 workstations)1	120
Private Student Meeting Area2	130
Total	1,180

1. (Social Workers, Speech Language Pathologist, Occupational Therapists, Physical Therapists, Adapted PE teacher). For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.

2. One Private Student Meeting Area for every 2.0 FTE. To be used fluidly by ancillary staff. The number of Private Student Meeting Areas is contingent on FTE allocation and shall be determined at the time of design program of space.

» ***High School Ancillary Support Suite***



High School Ancillary Suite Support Spaces	
Space	Size (sq. ft.)
Instructional/Therapy Space with Swing (OT/PT)	840
Therapy space Storage (OT/PT)	90
Office Workstation Hub (60 sf each, 4 stations)1	240
Private Student Meeting Area A 2	130
Total	1,430

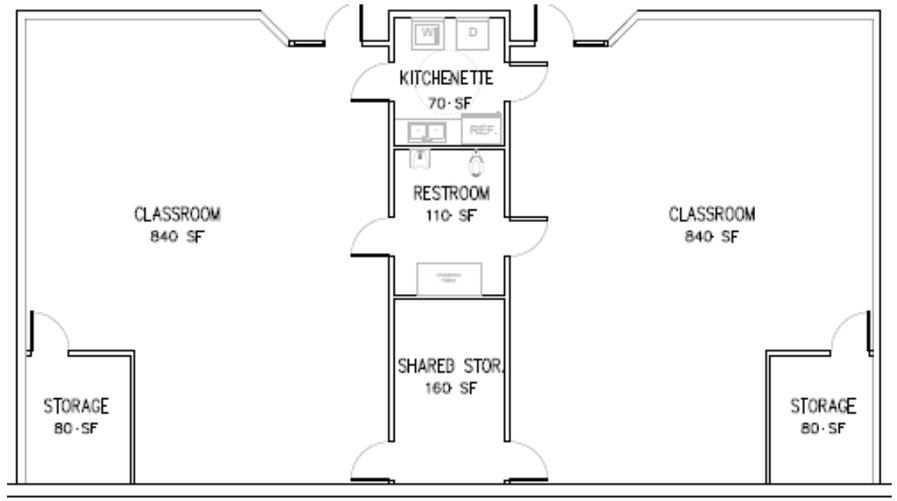
1. To be used fluidly by Social Workers, Speech Language Pathologist, Occupational Therapists, Physical Therapists, Adapted PE teacher. For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.

2. One Private Student Meeting Area for every 2.0 FTE. To be used fluidly by ancillary staff. The number of Private Student Meeting Areas is contingent on FTE allocation and shall be determined at the time of design program of space.

» ***Intensive Global Support (IGS) Levels I & II Program Classroom Suite***

- The following are conceptual drawings of the Ancillary Support Suite at Hubs and Non-Hubs for elementary, middle, and high schools:
- Intensive Global Supports I and Intensive Global Supports II Classroom Spaces
- IGS Level I students are building independence. IGS Level II students are dependent and may have feeding issues among other medical conditions.
-
- At all school levels, IGS classrooms are designed in sets of two with the objective of sharing the restroom and kitchenette.
  - (C) Classroom – Standard classroom design including sink. 840 SF
  - (S) Storage – 1 individual storage area for each classroom at 80 SF each and 1 shared storage area for both classrooms at 160 SF each. See diagram for optimal spatial layout.
  - (K) Shared Kitchenette – The shared kitchenette is 70 SF and provides ADA access. It includes an area for stacked washer and dryer, an area for an efficiently sized refrigerator, a counter with sink, and a microwave above the sink. Storage cabinets are also provided above the counter area (doors/ no doors).The microwave is not for student use.
  - (R) ADA restroom – 110 SF with standard changing table (motorized for height).
- Doors throughout the classroom and shared suite are placed in locations where they do not block the accommodation and placement of a Hoyer or Arjo lifting system near the shared rest room.
- The Arjo or Hoyer lifting system is generally placed within the classroom so that the instructor can easily access this device for use within the restroom or within the classroom space. These systems are used to lift non-ambulatory students.
- No Shower is needed within IGS facility space. Shower amenities are provided through Nurse's Office.
- Furniture solution: Playtex diaper genie or similar product for odorless diaper disposal

» ***The following is a conceptual drawing of Intensive Global Support (IGS) classroom space for all grade levels.***



Intensive Global Support I and II Classroom Spaces: Elementary, Middle, and High School	
Space	Size (sq. ft.)
Classrooms (2 at 840 sq. ft. each)	1680
Shared Kitchenette	70
ADA Restroom with changing table	110
Storage area (1 per classroom at 80 sq. ft. each and 1 shared for both classrooms at 160 sq. ft.)	320
Total	2180
Note: These spaces are designed as two classrooms spaces with shared kitchenette, shared restroom, and individual storage areas.	

» ***Current District SPED Program Designations***

» In spring 2017, APS SPED underwent a program restructuring; new program name designations are reflected below:

Current Term	Definition	Former Term
SES1 (Social Emotional Support Services Level 1)	Significant emotional challenges which impact adaptive behavior skills.	ED
SES2 (Social Emotional Support Services Level 2)		PACES
IGS1 (Intensive Global Support Services Level 1)	Significant global learning deficits and global adaptive behavior skills deficits.	FSP
IGS2 (Intensive Global Support Services Level 2)		ISP
SCS1 (Social and Communication Support Services Level 1)	Significant communication and social skills deficits which impact other adaptive behavior skills.	AU-Social Communication
SCS2 (Social and Communication Support Services Level 2)		AU-Independent Communication
SCS3 (Social and Communication Support Services Level 3)		AU-Emerging

» ***Elementary School Special Education Design Standards***

» Consult with Capital Master Plan at the time of design program of space to determine the types and numbers of SPED spaces needed. Not all SPED programs are delivered at every school.

ELEMENTARY SCHOOL SPECIAL EDUCATION DESIGN STANDARDS					
SPED Instructional Classrooms	PTR	Non-Hub Description	Non Hub Total SF	Co-located District Hub Description	Co-Located Hub Total SF
Gifted	24	840 SF General Classroom	840	same as non-hub	840
Cross Categorical	8 to 24	840 SF General Classroom	840	same as non-hub	840
District Early Childhood (Developmental Preschool Program)/ Kindergarten1	8	Development Preschool Program classrooms shall be constructed in 2 classroom units. Each classroom shall be 1,250 SF to include private ADA bathroom with changing table and storage.2	1250	same as non-hub	1250
Levels 1 and 2: Social Emotional Support Services (SES 1 and SES 2)	8	815 SF Classroom and 25 SF quiet room for a total 840 SF. The Quiet Room to have the following components: floor and walls surfaces made from durable and cleanable materials that cannot be easily damaged, no outlets or light switches on interior walls.3 and 5	840	same as non-hub	840
Levels 1 and 2: Intensive Global Support Services (IGS 1 and IGS2)	8	IGS classrooms are designed in sets of two with the objective of sharing the restroom, kitchenette and storage. The classroom is a standard classroom including sink for 840 SF. Each classroom shall have 1 storage area of 80 SF each and 1 shared storage area of 160 SF (80 SF each). The shared kitchenette is 70 SF and provides ADA access. It includes an area for stacked washer and dryer (ADA compliant), an area for an efficiently sized refrigerator, a counter with sink, and a microwave above the sink. Storage cabinets are also provided above the counter area (doors/no doors).The microwave is not for student use. The ADA restroom is 110 SF and has a standard changing table (motorized to adjust height). Doors throughout the classroom and shared suite are placed in locations where they do not block the accommodation and placement of a Hoyer or Arjo lifting system near the shared restroom.4	840 SF plus storage and shared Kitchenette and Restroom	same as non-hub	840 SF plus storage shared Kitchenette and Restroom
Levels 1, 2, and 3: Social and Communication Support Services (SCS 1, SCS 2, and SCS 3)	8	815 SF Classroom and 25 SF quiet space (to include specialized lighting and furniture) for a total 840 SF Quiet space is meant to refocus and relax; quiet space can be accomplished with furniture.3 and 5	840	same as non-hub	840

SPED Administration Spaces	Non-Hub Description	Total SF	Co-located District Hub Description	Total SF
Individualized Educational Plan (IEP) Meeting Room	A space for 16 people (240 SF). Include VOIP capabilities with Active Panel and data.	240	same as non-hub	240
Head SPED Teacher6	Office with VOIP capabilities	120	same as non-hub	120
SPED Assistant Principal6	Office with VOIP capabilities	120	same as non-hub	120

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SPED Administration Spaces	Non-Hub Description	Total SF	Co-located District Hub Description	Total SF
The SPED Ancillary Support Suite will accommodate the following staff: Social Worker (SW), Speech Language Pathologist (SLP), Occupational Therapist (OT), and Physical Therapist (PT), and Adapted PE (APE). The suite includes: instructional/therapy space with swing, therapy space storage, office workstation hub (based on FTE), and private student meeting area.7				
Instructional/Therapy Space	This space includes an area for a table to provide 1:1 student instruction. This room includes a ceiling hook for a therapy swing that is located at the center of the open space relative to the edge of the student instructional area. A whiteboard is required for instruction. Furniture needs include non-built-in cubbies with counter and a wardrobe for storage. No active panels are needed. Through scheduling, this space is designed to be used fluidly by all ancillary staff, giving priority to OT/PT therapy instruction and service needs. To have adjacent access to the Office workstation hub to facilitate ancillary staff circulation.	500	Instructional/ Therapy Space at a collocated hub is larger.	840
Therapy Space Storage	A storage area is provided with direct access to the OT/PT instructional therapy space. Double doors are provided, similar to doors found in a gym, providing access for wide equipment. The storage room also features vertical storage shelves.	90	same as non-hub	90
Office Workstation Hub8	An office area to accommodate two workstations and cabinet to store personal belongings. More than two people, reflecting that ancillary staff positions are often part-time, may use the two workstations. Various ancillary staff assigned to the school will use the two workstations fluidly. VOIP capabilities are provided as per office standards. The office workstation has access to the one-on-one private Student Meeting Area.	120	same as non-hub	120
Private Student Meeting Area9	A private area with adjacent access to the office workstation area will allow ancillary staff to meet privately with students for delivery of instruction or service. This area will accommodate a small table and chairs for 2 to 4 people. VOIP capabilities provided.	130	same as non-hub	130

1. Pre-School outdoor play area and Bathroom to 3-5 year old standard
2. PreK classrooms will share an appliance area: a refrigerator is needed; only one appliance area is needed in school for pair of DPP programs; sink for food prep - these spaces are for adult use; Instructional kitchenette not needed for student instruction at the PreK level.
3. See detailed SPED standards regarding surfaces and fixtures in Quiet Spaces.
4. Resilient flooring in the OT/PT and IGS classrooms is preferred over carpet.
5. IGS classrooms shall be constructed in 2 classroom units with shared Appliance and Bathroom areas for a total of 2,180 SF.
6. Close proximity to school restrooms are given preference to District Programs SES and SCS classrooms over the general 1st through 5th grades classrooms.
7. To facilitate Ancillary Staff collaboration and flexible, functional space, VOIP capabilities are to be outfitted throughout the Ancillary Support Suite.
8. For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be
9. For every 2.0 FTE, one private student meeting area is needed (2:1 ratio). The number of private student meeting areas shall be determined at the time of design program of space.

» ***Middle School Special Education Design Standards***

» Consult with Capital Master Plan at the time of design program of space to determine the types and numbers of SPED spaces needed. Not all SPED programs are delivered at every school.

MIDDLE SCHOOL SPECIAL EDUCATION DESIGN STANDARD					
SPED Instructional Classrooms	PTR	Non-Hub Description	Non Hub Total SF	Co-located District Hub Description	Co-Located Hub Total SF
Gifted	24	840 SF General Classroom	840	same as non-hub	840
Cross Categorical	8 to 24	840 SF General Classroom	840	same as non-hub	840
Levels 1 and 2: Social Emotional Support Services (SES 1 and SES 2)	8	815 SF Classroom and 25 SF quiet room for a total 840 SF. The Quiet Room to have the following components: floor and walls surfaces made from durable and cleanable materials that cannot be easily damaged, no outlets or light switches on interior walls.1 and 3	1250	same as non-hub	1250

Levels 1 and 2: Intensive Global Support Services (IGS 1 and IGS2)	8	IGS classrooms are designed in sets of two with the objective of sharing the restroom, kitchenette and storage. The classroom is a standard classroom including sink for 840 SF. Each classroom shall have 1 storage area of 80 SF each and 1 shared storage area of 160 SF (80 SF each). The shared kitchenette is 70 SF and provides ADA access. It includes an area for stacked washer and dryer, an area for an efficiently sized refrigerator, a counter with sink, and a microwave above the sink. Storage cabinets are also provided above the counter area (doors/no doors).The microwave is not for student use. The ADA restroom is 110 SF and has a standard changing table (motorized to adjust height). Doors throughout the classroom and shared suite are placed in locations where they do not block the accommodation and placement of a Hoyer or Arjo lifting system near the shared restroom.4	840 SF plus storage and shared Kitchenette and Restroom	same as non-hub	840 SF plus storage shared Kitchenette and Restroom
Levels 1, 2, and 3: Social and Communication Support Services (SCS 1, SCS 2, and SCS 3)	8	815 SF Classroom and 25 SF quiet space (to include specialized lighting and furniture) for a total 840 SF Quiet space is meant to refocus and relax; quiet space can be accomplished with furniture.1 and 3	840	same as non-hub	840

SPED Administration Spaces	Non-Hub Description	Total SF	Co-located District Hub Description	Total SF
Individualized Educational Plan (IEP) Meeting Room	A space for 16 people (240 SF). Include VOIP capabilities with Active Panel and data.	240	same as non-hub	240
Head SPED Teacher4	Office with VOIP capabilities	120	same as non-hub	120

SPED Assistant Principal4	Office with VOIP capabilities	120	same as non-hub	120

SPED Administration Spaces	Non-Hub Description	Total SF	Co-located District Hub Description	Total SF
The SPED Ancillary Support Suite will accommodate the following staff: Social Worker (SW), Speech Language Pathologist (SLP), Occupational Therapist (OT), and Physical Therapist (PT), and Adapted PE. The suite includes: instructional/therapy space with swing, therapy space storage, office workstation hub (based on FTE), and private student meeting area.5				
Instructional/Therapy Space	This space includes an area for a table to provide 1:1 student instruction. This room includes a ceiling hook for a therapy swing that is located at the center of the open space relative to the edge of the student instructional area. A whiteboard is required for instruction. Furniture needs include non-built-in cubbies with counter and a wardrobe for storage. No active panels are needed. Through scheduling, this space is designed to be used fluidly by all ancillary staff, giving priority to OT/PT therapy instruction and service needs. To have adjacent access to the Office workstation hub to facilitate ancillary staff circulation.	500	Instructional/ Therapy Space at a collocated hub is larger.	840
Therapy Space Storage	A storage area is provided with direct access to the OT/PT instructional therapy space. Double doors are provided, similar to doors found in a gym, providing access for wide equipment. The storage room also features vertical storage shelves.	90	same as non-hub	90
Office Workstation Hub6	An office area to accommodate two workstations and cabinet to store personal belongings. More than two people, reflecting that ancillary staff positions are often part-time, may use the two workstations. Various ancillary staff assigned to the school will use the two workstations fluidly. VOIP capabilities are provided as per office standards. The office workstation has access to the one-on-one private Student Meeting Area.	120	same as non-hub	120

APPENDIX

Private Student Meeting Area7	A private area with adjacent access to the office workstation area will allow ancillary staff to meet privately with students for delivery of instruction or service. This area will accommodate a small table and chairs for 2 to 4 people. VOIP capabilities provided.	130	same as non-hub	130

1. See detailed SPED standards regarding surfaces and fixtures in Quiet Spaces
2. IGS classrooms shall be constructed in 2 classroom units with shared Appliance and Bathroom areas for a total of 2,180 SF.
3. Close proximity to school restrooms are given preference to District Programs SES and SCS classrooms over the general 6th through 8th grades classrooms.
4. Head SPED teacher and SPED Assistant Principal offices are contingent on FTE allocation and educational program at the time of design program of space. Not all schools have designated SPED administrative support.
5. To facilitate Ancillary Staff collaboration and flexible, functional space, VOIP capabilities are to be outfitted throughout the Ancillary Support Suite.
6. For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.
7. For every 2.0 FTE, one private student meeting area is needed (2:1 ratio). The number of private student meeting areas shall be determined at the time of design program of space.

» ***High School Special Education Design Standards***

» Consult with Capital Master Plan at the time of design program of space to determine the types and numbers of SPED spaces needed. Not all SPED programs are delivered at every school.

HIGH SCHOOL SPECIAL EDUCATION DESIGN STANDARDS			
SPED Instructional Classrooms	PTR	Non-Hub Description	Non Hub Total SF
Gifted	24	840 SF General Classroom	840
Cross Categorical	8 to 24	840 SF General Classroom	840
Levels 1 and 2: Social Emotional Support Services (SES 1 and SES 2)	8	815 SF Classroom and 25 SF quiet room for a total 840 SF. The Quiet Room to have the following components: floor and walls surfaces made from durable and cleanable materials that cannot be easily damaged, no outlets or light switches on interior walls.1 and 3	1250
Levels 1 and 2: Intensive Global Support Services (IGS 1 and IGS2)	8	IGS classrooms are designed in sets of two with the objective of sharing the restroom, kitchenette and storage. The classroom is a standard classroom including sink for 840 SF. Each classroom shall have 1 storage area of 80 SF each and 1 shared storage area of 160 SF (80 SF each). The shared kitchenette is 70 SF and provides ADA access. It includes an area for stacked washer and dryer, an area for an efficiently sized refrigerator, a counter with sink, and a microwave above the sink. Storage cabinets are also provided above the counter area (doors/ no doors).The microwave is not for student use. The ADA restroom is 110 SF and has a standard changing table (motorized to adjust height). Doors throughout the classroom and shared suite are placed in locations where they do not block the accommodation and placement of a Hoyer or Arjo lifting system near the shared restroom.4	840 SF plus storage and shared Kitchenette and Restroom
Levels 1, 2, and 3: Social and Communication Support Services (SCS 1, SCS 2, and SCS 3)	8	815 SF Classroom and 25 SF quiet space (to include specialized lighting and furniture) for a total 840 SF Quiet space is meant to refocus and relax; quiet space can be accomplished with furniture.1 and 3	840
SPED Administration Spaces		Non-Hub Description	Total SF
Individualized Educational Plan (IEP) Meeting Room		A space for 16 people (240 SF). Include VOIP capabilities with Active Panel and data.	240
Head SPED Teacher4		Office with VOIP capabilities	120
Transition Specialist4		Office with VOIP capabilities	120
SPED Assistant Principal4		Office with VOIP capabilities	120
SPED Administration Spaces		Non-Hub Description	Total SF
The SPED Ancillary Support Suite will accommodate the following staff: Social Worker (SW), Speech Language Pathologist (SLP), Occupational Therapist (OT), and Physical Therapist (PT), and Adapted PE. The suite includes: instructional/therapy space with swing, therapy space storage, office workstation hub (based on FTE), and private student meeting area.5			
Instructional/Therapy Space		This space includes an area for a table to provide 1:1 student instruction. This room includes a ceiling hook for a therapy swing that is located at the center of the open space relative to the edge of the student instructional area. A whiteboard is required for instruction. Furniture needs include non-built-in cubbies with counter and a wardrobe for storage. No active panels are needed. Through scheduling, this space is designed to be used fluidly by all ancillary staff, giving priority to OT/PT therapy instruction and service needs. To have adjacent access to the Office workstation hub to facilitate ancillary staff circulation.	840

Therapy Space Storage	A storage area is provided with direct access to the OT/PT instructional therapy space. Double doors are provided, similar to doors found in a gym, providing access for wide equipment. The storage room also features vertical storage shelves.	90
Office Workstation Hub6	An office area to accommodate two workstations and cabinet to store personal belongings. More than two people, reflecting that ancillary staff positions are often part-time, may use the two workstations. Various ancillary staff assigned to the school will use the two workstations fluidly. VOIP capabilities are provided as per office standards. The office workstation has access to the one-on-one private Student Meeting Area.	240
Private Student Meeting Area7	A private area with adjacent access to the office workstation area will allow ancillary staff to meet privately with students for delivery of instruction or service. This area will accommodate a small table and chairs for 2 to 4 people. VOIP capabilities provided.	2 @ 130 sq. ft.each

1. See detailed SPED standards regarding surfaces and fixtures in Quiet Spaces
2. IGS classrooms shall be constructed in 2 classroom units with shared Appliance and Bathroom areas for a total of 2,180 SF.
3. Close proximity to school restrooms are given preference to District Programs SES and SCS classrooms over the general 6th through 8th grades classrooms.
4. Head SPED teacher and SPED Assistant Principal offices are contingent on FTE allocation and educational program at the time of design program of space. Not all schools have designated SPED administrative support.
5. To facilitate Ancillary Staff collaboration and flexible, functional space, VOIP capabilities are to be outfitted throughout the Ancillary Support Suite.
6. For every 2.0 FTE, 1 workstation area (2:1 ratio) is to be utilized fluidly by various ancillary staff assigned to a school. The number of workstation areas is contingent on FTE allocation and shall be determined at the time of design program of space.
7. For every 2.0 FTE, one private student meeting area is needed (2:1 ratio). The number of private student meeting areas shall be determined at the time of design program of space.

Appendix C: Student Health Equipment

- ***Provided by Owner***
  - Wheelchair
  - Computer(s)/Printer(s)
  - Scale
  - Stadiometer (wall-mounted)
  - Cots
  - Phones
  - Free-standing furniture
  - Fire-proof cabinet(s) (1 per 500 students)
  - Trash cans
  - Audiometer
  - Vision screening equipment
  - Otoscope
  - Stethoscope
  - Blood pressure cuffs
  - Sharps container
  - Paper cup dispenser

- ***Provided by Nursing Services***
  - Reference books
  - First aid and triage supplies

Appendix D: Food Service

Space	Number of Meals Served per Day					
	200	201-400	401-600	601-800	801-1,200	1,201-1,500
Receiving	45	55	70	80	90	120
Can Wash / Dry	50	60	85	115	135	155
Staff Toilets/Lockers	100	200	200	200	225	250
Janitor Closet/Storage	50	55	70	80	90	115
Offices	50	65	90	110	145	155
Dry Storage	200	250	350	450	550	650
Fridge/Freezer	130	175	250	350	500	700
Prep/Cooking	500	550	650	750	900	1,150
Pot/Pan Washing	75	80	95	105	120	140
Serving	250	325	650	1,000	1,300	1,600
Dining	800	1,200	2,000	2,800	3,400	4,000
Dish/Tray Washing	100	125	175	225	300	375
Total NSF	2,350	3,140	4,685	6,265	7,755	9,410
From: National Food Service Management Institute						

Appendix E: Kitchen Appliance Guidelines

High School Kitchen Equipment List (Example from AHS)		
Item No.	Quantity	Description
1	1	S/S 3-COMPARTMENT SINK
2	4	S/S HAND SINK
3	LOT	POT & PAN STORAGE SHELVING
4	8	S.S WORK TABLES
5	1	40 QT. MIXER
6	LOT	FREEZER REFRIGERATION SYSTEM
7	LOT	WALK-IN STORAGE SHELVING
8	LOT	COOLER REFRIGERATION SYSTEM
9	LOT	WALK-IN COOLER / FREEZER
10	1	FLY FAN
11	LOT	DRY STORAGE SHELVING
12	1	HOT-TOP RANGE
13	1	TILTING SKILLET
14	1	S/S FLOOR TROUGH
15	2	DOUBLE CONVECTION OVENS
16	2	ROLL-THRU REFRIGERATORS
17	2	PASS-THRU HEATED CABINETS
18	1	S/S GRAB-N-GO COUNTER
19	1	DROP-IN FROST PLATE
20	1	HEATED MERCHANDISER
21	2	MILK DIPENSERS
22	1	S/S TRAY SLIDE
23	1	S/S CASHIER'S COUNTER
24	1	P.O.S. COMPUTER (N.I.C)
25	2	FLAT-TOP COUNTERS
26	1	HOT FOOD COUNTER
27	1	SNEEZE GUARD
28	1	COLD FOOD COUNTER
29	1	SNEEZE GUARD
30	1	FLAT-TOP COUNTER
31	1	S/S SLIDE TRAY
32	23	S/S CORNER GUARDS
33	4	BUN PACK RACKS
1	1	S/S 3-COMPARTMENT SINK
2	4	S/S HAND SINK
3	LOT	POT & PAN STORAGE SHELVING

Appendix F: Active Panel

- Active Panel (aka: Interactive teaching Boards): Promethean Active-Panel Touch large screen high definition flat screen on mobile stand. Provide power and data connections at teaching wall.

Appendix G: Kiln Standards

- Elementary, middle, and high schools typically get the same (or similar) electric kiln. High school art programs may require more than one electric kiln, as well as a gas kiln. Kiln needs for all programs shall be evaluated during design. Both types of kilns shall be installed inside of a building (no exterior kilns).

- ***Approved Electric Kiln Manufacturer (or approved equal) for all Elementary, Middle, and High Schools***
  - Skutt Ceramic Products
  - Address: 6441 SE Johnson Creek Blvd., Portland, OR, 97206-9552
  - Phone: 503-774-6000
  - Website: www.skutt.com
  - Email: skutt@skutt.com

- ***Electric Kiln Model and Required Accessories***
  - SKKM1227-3-208-3: Electric Ceramics Kiln, 208V, 3 Phase
  - All new kilns shall be 208V 3 phase power. Consult the staff architect if an existing school does not have 208V 3 phase power.
  - SKF1227-3: Interior Kiln Furniture for 1227-3 Kiln
  - SKEnvironVent2: Vent for direct exhaust to exterior of building from the bottom of the kiln
  - SKEnvironLink: Electrical switching device to automatically turn on one or more exhaust vents when the kiln is operating
  - Easy View: This accessory angles the touchpad for easy viewing.
  - Lifter Upgrade Kit: Provides safe and easier lifting.
  - Installation: Installation and testing of the kiln at the site shall be performed by an approved installer.

- ***Other important electric kiln Information:***
  - Kiln Vent: The kiln shall have a motorized vent from the bottom of the kiln that is exhausted through a vent similar to that used for a residential clothes dryer (EnvironVent2 listed above). Even though the kiln interior is extremely hot, this vent mixes this hot air with such a large proportion of ambient room air that no special vent construction is required through the wall.
  - Room Exhaust: The room shall have an exhaust fan to remove the heat generated from the kiln, but this does not need to be in a special hood or have special fire suppression equipment. The contract architect shall verify fire suppression requirements with CID and the fire department having jurisdiction. In the past, the City of Albuquerque has NOT required a hood since there is an exception in Chapter 9 of the UMC for electric kilns that are equipped with vent blowers. This exhaust, in conjunction with the building HVAC system, must be able to maintain the room temperature below 105 degrees F, which is the maximum temperature that the electronic controller can tolerate. The EnvironLink device (see above) will automatically turn on the EnvironVent (see above) on the bottom of the kiln when the kiln is running. The room exhaust fan shall be on a line voltage thermostat to prevent the room from ever getting hot enough to trigger the fire sprinkler system. The room fan should not be controlled by a manual

switch, because forgetting to turn it on would run the risk of setting off the fire sprinklers (as has happened at two Rio Rancho schools).
- Fire Sprinklers: Ceiling mounted fire sprinkler heads shall NOT be located directly above the kiln and shall have the highest temperature setting allowable.
- Clearance: Kilns must be a minimum of 18" (or greater if required by code) from any wall or combustible material. The approximate diameter of the kiln is 34" for planning purposes.
- Wall and Floor Coverings: Flooring must be non-combustible. Concrete is preferred.

- ***Approved Gas Kiln Manufacturer (or approved equal) for High Schools***
  - Laguna Gas Kilns
  - NM Distributer: NM Clay
  - 3300 Girard NE, Albuquerque, NM 87107
  - Phone: 505-881-2350

- ***Gas Kiln Model and Required Accessories***
  - LE 200-24 Gas-fired Pottery Kiln – Front Loading
  - Include all standard features as well as the following:
  - K-26 firebrick walls, arch, and door (recommended for Cone 10 firing)
  - Programmable controller

Appendix H: Ice Machine Standards for High School Athletics

- Indigo™ Series 606 Ice Cube Machine
- Model: IY-0606A

Manitowoc

Ice Machine Electric
208-230/60/1 standard. (230/50/1 also available)

Minimum circuit ampacity:
Air Cooled: 11.1
Water Cooled: 10.7
Remote: 11.7

Maximum fuse size:
Air Cooled: 15
Water Cooled: 15
Remote: 15

Specifications
BTU Per Hour:
11,800 (average)
13,700 (peak)
Refrigerant: R-404A
CFC-free

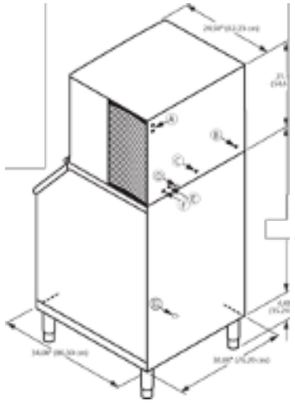
Operating Limits:
Ambient Temperature Range:
35° to 110°F (1.7° to 43.3°C)

Water Temperature Range:
35° to 90°F (1.7° to 32.2°C)

Water Pressure Ice Maker Water In:
Min. 20 psi (137.9 kPA)
Max. 80 psi (551.1 kPA)

- Designed for operators who know that ice is critical to their business, the Indigo™ Series ice machine's preventative diagnostics continually monitor itself for reliable ice reduction.
- Improvements in clean ability and programmability make your ice machine easy to own and less expensive to operate.

- ***Indigo™ Series 606 Ice Cube***
  - i-606 on B-570
  - Storage Bin
    - Electrical Entrance (2) Options
    - 3/8″ (0.95 cm) F.P.T. Water Condenser Inlet (water-cooled units)
    - 1/2″ (1.27 cm) F.P.T. Water Condenser Outlet (water-cooled units)
    - 1/2″ (1.27 cm) Auxiliary Base Drain Socket
    - 3/8″ (0.95 cm) F.P.T. Ice Making Water Inlet
    - 1/2″ (1.27 cm) F.P.T. Ice Making Water Drain
    - 3/4″ (1.91 cm) Bin Drain
    -
    -
    -



- ***Specifications:***

	Model	Ice Shape	Ice Production 24 Hours		Power Usage kWh/100 lbs. @90°Air/70°F	Potable Water Usage/100 lbs. of Ice	ENERGY STAR*
			0°Air/ 50°F Water	90°Air/ 70°F Water			
AIR-COOLED	ID-0606A	dice	632 lbs.	490 lbs.	5.41	20.0 Gal.	Yes
	IY-0606A	half-dice	<635 lbs.	(555 lbs.	5.29	20.0 Gal.	Yes
WATERCOOLED	ID-0606W	Dice	661 lbs.	575 lbs.	4.44	20.0 Gal.	NA
	IY-0606W	half-dice	700 lbs.	580 lbs.	4.45	20.0 Gal.	NA
	* Water-cooled Condenser Water Usage / 100 lbs. of Ice: 140 gal. * Water-cooled models are excluded from ENERGY STAR qualification.						
REMOTE COOLED	ID-0696N	Dice	612 lbs.	535 lbs.	5.85	20.0 Gal.	Yes
	IY-0696N	half-dice	642 lbs.	565 lbs.	5.76	20.0 Gal.	Yes

  - Order ice storage bin separately. Ice storage bin and JC-0895 remote condenser must be ordered separately. Consult remote condenser specification sheet for details.

- ***Accessories:***

LuminIce™ Growth Inhibitor
Reduces yeast and bacteria growth for a cleaner ice machine.

Bin Level Control

Allows ice bin level to be automatically set. Built-in LED light illuminates bin.

Arctic Pure® Water Filters

Reduces sediment and chlorine odors for better tasting ice.

iAuCS®

Schedules and performs routine ice machine cleaning automatically.

Appendix I: Technology Education Equipment

- ***Wood Technology Equipment List (suggested)***
  - The following equipment may be part of the project and provided by the General Contractor (one each in the Wood Technology Lab unless noted otherwise):
    - Table Saws, 12-14" and 18"
    - Jointer
    - Surfacer
    - Shaper
    - Band Saws, 20" and 14" (2)
    - Belt Sander (2)
    - Spindle Sander
    - Panel Saw
    - Miter Saw Bench (approximately 26 LF)
    - Drill Press (3, ¾ - 1 ½ hp)
    - Router Table (2, 1 ½ and 3 ½ hp)
    - Wood turning lathes (6)
    - Scroll Saw (2)
    - Dowel Machine
    - 4000 lb capacity lumber shelving, 48" D x 72" L x 60" H.
    - Student Work Tables (6)
    - Tool Cabinet 5'W x 2'D (2)
    - Metal Storage Cabinet 4'W x 2'D (2)
    - Lathe Tool Grinder
    - Lathe Tool Buffer

- ***METALS Technology Equipment List (suggested)***
  - The following equipment may be part of the project and provided by the General Contractor (one each in the Metals Technology Lab unless noted otherwise):
    - Clausing Metosa lathes (8)
    - Clausing Metosa lathe support cabinets (3)
    - Vertical Milling Machines (4)
    - Vertical Milling Machines cabinets (3)
    - Band Saw 20" (2)
    - Drill Press, 15" and 20"
    - Horizontal Band Saw
    - Iron Worker apparatus
    - Student Workbenches (4)
    - Heat Treat Oven (in Shop Support)
    - Surface Grinder (in Shop Support)
    - Tool Grinder 7" (2 in Shop Support)
    - Grinder 10", 5 hp (in Shop Support)
    - Wire Wheel (in Shop Support)
    - Tool and bit grinder 6" (in Shop Support)
    - Belt Grinder (in Shop Support)
    - Arc Welders (2 in Shop Support)
    - RMD Notcher (in Shop Support)
    - RMD Pipe Bender (in Shop Support)
    - Welding Booths, 48" x 48" 10 with curtains (in Welding Room)
    - Welding Grate Top Tables, 48" x 24", one in each welding booth
    - Oxygen and inert gas tanks and manifolds (in Shop Support)
    - Exterior area prepped for welding
    - Hoist beam with motorized crane

- ***Transportation Technology Equipment List (suggested)***
  - The following equipment may be part of the project and provided by the General Contractor (one of each in the shop unless noted otherwise):
    - Two-post lifts
    - Tire mounting machine
    - Wheel balancer
    - Battery charger
    - Bench or pedestal grinder
    - Tool cabinets
    - Metal storage shelving
    - Compressed air for tools and tires
    - Power from retractable overhead reels
    - Vehicle Exhaust Recovery system
    - Student Work benches/tables
    - Containment area for 55 gallon liquid waste storage drums

APPENDIX

Appendix J: Wireless Installation Requirements

- ***Wireless Specifications***
  - Wireless networking – wireless access points (WAPs o AP's) shall be planned for and installed per requirements set forth by APS IT department.
  - Wireless shall be deployed in all public areas such classrooms, conference rooms, study areas, stadiums, open areas adjacent to buildings, etc.

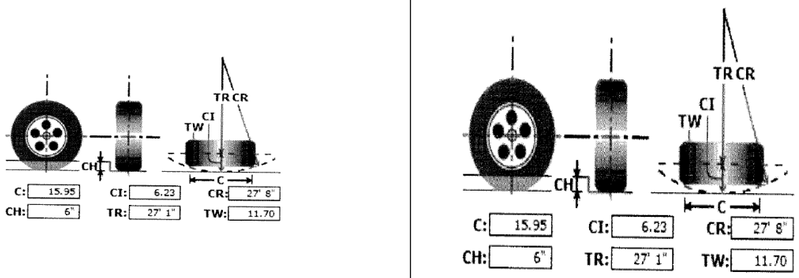
- ***BICSI TDMM requirement/environmental considerations***
  - Consider these factors when developing of the wireless access points:
    - When deploying and/or designing wireless networks, thoroughly evaluate the environment in which wireless standards (BICSI; TDMM and BISCI wireless standards manual), propagation analysis, or modeling.
    - Materials, objects, local geography, electrical, HVAC units and other EMI/RFI factors in the atmosphere can effect wireless communications.
    - Per BICSI/EIA/TIA/IEEE/ANSI: factors affecting the behavior of waves: refraction, scattering, diffraction, and or absorption any of the following factors can affect the wireless broadcast and design considerations need to be considered when designing and or installing the wireless.
    - Design/installation requirements: ceiling installation in the center of the classroom is APS's standard: other facilities may vary on the placement of the WAPs (gym, cafeteria, library, auditorium…)
    - WAP locations that are in areas with lay in ceilings require per code to be self-supported to the ceiling deck and the WAP will be mounted to a T-bar hanger and centered in the tile in the center of the room and supported to the red iron/I-beams and or trusses.
  - Open ceiling installation requirements: 2-4" squire boxes, ¾" rigid/IMC (cut to length so that the WAP is no longer than 10 feet: support to ceiling deck), 2-swivel mounts (part#tpsfh12) wall installations can only be installed if APS it approves the installation. For specific wireless details contact APS IT department. (New 2015/2017 requirement 1 WAP per classroom; 2 cat6 drop per)

Appendix K: Transportation

School Bus Configurations				
Configuration	 Type A	 Type B	 Type C	 Type D
Passenger Capacity Width & Length	Typically 16-36 Width 8′ Length 25′	Typically 30-36 Width 8′ Length 35′	Typically 36-78 Width 8′ Length 40′	Typically 54-90 Width 8′ Length 45′
GVWR	Type A-I: ≤ 14,500 pounds (6,600 kg) Type A-II:14,500 pounds (6,600 kg) and up	Type B-I: ≤ 10,000 pounds (4,500 kg) Type B-II: between 10,000–21,499 pounds (4,536–9,752 kg)	Over 21,500 pounds (9,800 kg) (typically between 23,000–29,500 pounds (10,400–13,400 kg))	Over 20,000 pounds (9,100 kg) (typically between 25,000–36,000 pounds (11,000–16,000 kg))
Description	A bus body placed on a cutaway van chassis with a left-side driver's door Single or dual rear wheels on drive axles.	A bus body mounted to either a stripped chassis or a cowled chassis The entrance door is mounted behind the front wheels The engine compartment is located partially inside the passenger compartment next to the driver and the hood is significantly shorter than that of conventional buses (similar to step vans)	A bus body mounted to a cowled medium-duty truck chassis The entrance door is mounted behind the front wheels. The engine is mounted forward of the windshield	A bus body mounted to a separate chassis. The entrance door mounted in front of the front wheels. Single rear axle or (very rarely) tandem rear axles The engine is mounted next to the driver inside the bus (front-engine/ "FE"), in the rear of the bus behind the rearmost seats (rear-engine/ "RE")

Turning Radius – 47 PAX

Proposal: 10070 Version: 1 Model: INTEGRATED CE S BUS (PB105)
Dealer: SUMMIT TRUCK GROUP (821041 000) Application: School Transportation
GVWR: 29800

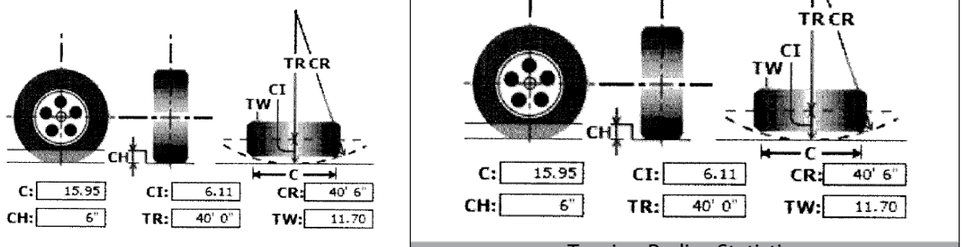


Turning Radius Statistics	
Calculation Factors	
Front Axle Code	0002ASH
Steering Gear Code	0005PSA
Front Wheel Code	0027DUG
Front Tire Code	07372135429
Wheelbase	193
General Information	
Inside Turn Angle	50.00 Degrees
Radial Overhang	19.00
Axle Information	
KingPin Inclination	6.25 Degrees
KingPin Center	69.00

** All Measurements are in inches, unless otherwise specified.*

Turning Radius – Activity Bus

Proposal: 10289 Version: 1 Model: INTEGRATED RE S BUS (PB305)
Dealer: SUMMIT TRUCK GROUP (821041 000) Application: Activity Trip GVWR: 36220

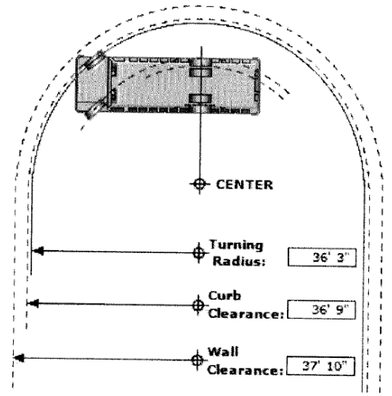


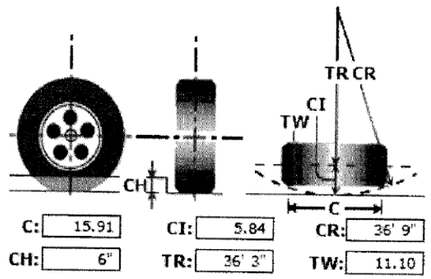
Turning Radius Statistics	
Calculation Factors	
Front Axle Code	0002AST
Steering Gear Code	0005PRJ
Front Wheel Code	0027DMC
Front Tire Code	07382135429
Wheelbase	276
General Information	
Inside Turn Angle	43.00 Degrees
Radial Overhang	52.00
Axle Information	
KingPin Inclination	6.25 Degrees
KingPin Center	69.00

** All Measurements are in inches, unless otherwise specified.*

Turning Radius – 71 PAX

Proposal: 10477 Version: 1 Model: INTEGRATED CE S BUS (PB105)
Dealer: SUMMIT TRUCK GROUP (821041 000) Application: Activity Trip GVWR: 36220





Turning Radius Statistics	
Calculation Factors	
Front Axle Code	0002ASH
Steering Gear Code	0005PSA
Front Wheel Code	0027DUW
Front Tire Code	07382135415
Wheelbase	276
General Information	
Inside Turn Angle	50.00 Degrees
Radial Overhang	19.00
Axle Information	
KingPin Inclination	6.25 Degrees
KingPin Center	69.00

** All Measurements are in inches, unless otherwise specified.*

Appendix L: Sign Standards

Appendix M: Library Services/Instructional Materials for K-5 Libraries

- ***6.27.30.16 N MAC***
  - There must be a Library/Media Center, where students can access research materials, literature, non-text reading materials, books and technology.
  - Must include a space for reading, listening and viewing materials.
  - Area: needs to be at least 3 net sf/student of the planned school program capacity, but no less than 1,000 net sf, with additional office/workroom space and secure storage.
  - Resources: library fixtures, equipment and resources in accordance with the standard equipment necessary to meet the educational requirements of the PED.
  - Source:https://www.srca.nm.gov/parts/title06/06.027.0030.html

- ***NM School Library Program Standards and APS Status Report***
- ***Facility Design***
  - The Library/Media Center should be centrally located and convenient to all students.
  - Minimum interior space should be the larger of 3600 square feet or enrollment multiplied by 6.
  - Basic functional areas must include space for:
    - Sufficient shelving to house the collection (3 linear feet for every 25 standard volumes or 50 picture books)
    - Two classes (24 students per class) at elementary school, 3 classes (32 students per class) for middle school, 4 classes (32 students per class) for high school.
    - Large group presentations (with the ability to darken area to show presentations on screens)
    - Circulation activities
    - Electronic resource work area(s) at 30 sq. ft. per workstation, with 4 computers at elementary schools, and 8 at middle and high schools.
    - Library office(s)/workroom, with a view of the library
    - Ample and secure storage
    - Displays
    - Work/study
    - Reading
    - Instruction (with the ability to darken area to provide instruction on screens)
    - Group study or meeting
    - Charging stations for student devices
  - The Library/Media Center should be aesthetically pleasing, welcoming, and have natural light.
  - Windows should provide sufficient UV protection for library materials.

- ***Building Infrastructure***
  - Electrical wiring, adequate to meet lighting needs and electronic equipment needs, which meets or exceeds current National Electric Code.
  - Maximum Internet and intranet connectivity (high-speed, many ports, strong wireless network, etc.)

- Meets/exceeds state uniform building codes, is accessible and flexible.
- Adequately heated, cooled, and ventilated.
- Lighting and sound provisions appropriate for reading, study, and other library activities.

- ***Furniture***
  - Appropriate-size chairs and tables for student population.
  - Four computer workstations and ample charging stations for student devices.
  - Shelving for physical collection with a minimum of 3 linear feet for every 25 standard volumes or 50 picture books.
    - Shelving should be flexible, not impede lines-of-sight, and either be along library walls or be movable.
  - Secure storage cabinets.
  - File cabinets.
  - Circulation desk with ample space, designed to be usable by elementary students.
  - Furniture appropriate to study or meeting rooms, if included in library design.
  - All furniture is owner provided except circulation desk.

- ***Computer equipment***
  - Four to eight computers stations/kiosks.
  - Should have current operating systems and a variety of software.
    - Should include software that allows students and staff to virtually collaborate and create products/content in the library.
  - Mobile devices and technology for maker spaces.
  - One Promethean (or similar presentation system) board.
  - Library equipment (scanners, printer, librarian tablet for checkout, etc.).
  - Additional equipment (telephone, scanners, laminators, etc.).
  - Current media production equipment and software.

Sources: Standards for New Mexico School Libraries (http://nmla.org/clocs/NM Task Force for School Library Standards RevMar04.pdf) and APS Library Status Report Rubric (attached document).

Appendix N: Library Services/Instructional Materials for High School Libraries

- ***6.27.30.16 NMA***
  - There must be a Library/Media Center, where students can access research materials, literature, non-text reading materials, books and technology.
  - Must include a space for reading, listening and viewing materials.
  - Area: needs to be at least 3 net sf/student of the planned school program capacity, with additional office/workroom space and secure storage.
  - Resources: library fixtures, equip0ment and resources in accordance with the standard equipment necessary to meet the educational requirements of the PED.

- ***NM School Library Program Standards and APS Status Report***
- ***Facility Design***
  - The Library/Media Center should be centrally located and convenient to all students.
  - Minimum interior space should be the larger of 3600 square feet or enrollment multiplied by 6.
  - Basic functional areas must include space for:
    - Sufficient shelving to house the collection (3 linear feet for every 25 standard volumes)
    - Three or more classes of 25-30 students each
    - Large group presentations
    - Reference (mostly computers or other devices to access online reference)
    - Circulation activities
    - Electronic resource work area(s) at 30 sq. ft. per workstation, with a minimum of 6 computers
    - Multiple electronic resource work areas are preferable
    - Library office(s)/workroom, with a view of the library
    - Ample and secure storage
    - Displays
    - Work/study spaces (preferably three)
    - Reading areas (preferably at least two)
    - Multiple instruction areas (with ability to darken any with boards or projectors)
    - Content creation area(s)
    - Group study or meeting areas
    - Mobile device carts
  - Any doors used by students or staff under normal, non-emergency circumstances should have security gates.
  - The Library/Media Center should be aesthetically pleasing, welcoming, and have natural light.

- ***Building Infrastructure***

  - Electrical wiring, adequate to meet lighting needs and electronic equipment needs, which meets or exceeds current National Electric Code.
  - Maximum Internet and intranet connectivity (high-speed, many ports, strong

APPENDIX

wireless network, etc.)
- Meets/exceeds state uniform building codes, is accessible and flexible.
- Adequately heated, cooled, and ventilated.
- Lighting and sound provisions appropriate for reading, study, and multiple classes using the library simultaneously.

- ***Furniture***
  - Appropriate-size chairs and tables for student population(s); sufficient seating for at least three classes.
  - Computer workstations (sufficient for at least two and preferably three — classes).
  - Shelving for physical collection with a minimum of 3 linear feet for every 25 standard volumes or 50 picture books.
    - Shelving should be flexible, not impede lines-of-sight, and be movable.
  - Secure storage cabinets.
  - File cabinets.
  - Circulation desk with ample space.
  - Well-designed furnishings appropriate for recreational reading areas (sufficient for at least two areas).
  - Furniture appropriate to study or meeting rooms.
  - All furniture is owner provided except circulation desk.

- ***Computer equipment***
  - At least 60 new computers or laptops.
    - Should have current operating systems and a variety of software.
    - Should include software that allows students and staff to virtually collaborate and create products/content in the library.
  - Mobile devices (iPads, other tablets, etc.).
  - At least one Promethean (or similar presentation system) board(s).
  - Library equipment (scanners, librarian tablet for checkout, etc.).
  - Additional equipment (telephone, printers, scanners, laminators, etc.).
  - Current media production equipment and software.