LS3P

LS3P ASSOCIATES LTD.

Enhancing Client Strategies

AIKEN HIGH SCHOOL PHASE 1 ADDITIONS
DESIGN DEVELOPMENT SUBMITTAL - MARCH 2012
LS3P COMMISSION NO. 2201-116250

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Design Statement

Aiken High School
Phase I Additions

Our initial project scope was to develop a campus Master Plan based on Phasing to ultimately replace most or all of the existing academic facilities on the campus. Phasing plans were developed for renovations/additions to the campus, presented to the District Committee, and presented to the School Board by District Staff.

LS3P was then commisioned to proceed with design of Phase I of the Master Plan. The project consists of two new building additions: a two-story classroom building and a one-story field house. The two-story classroom building houses six new science labs with prep rooms, eleven classrooms for science lectures, seven general classrooms, two teacher workrooms and associated support space for mechanical, electrical, communication, group toilets, and staff toilets. Covered walkways and sidewalks connect the new classroom building to the other buildings on campus. The design provides flexibility for future phase additions.

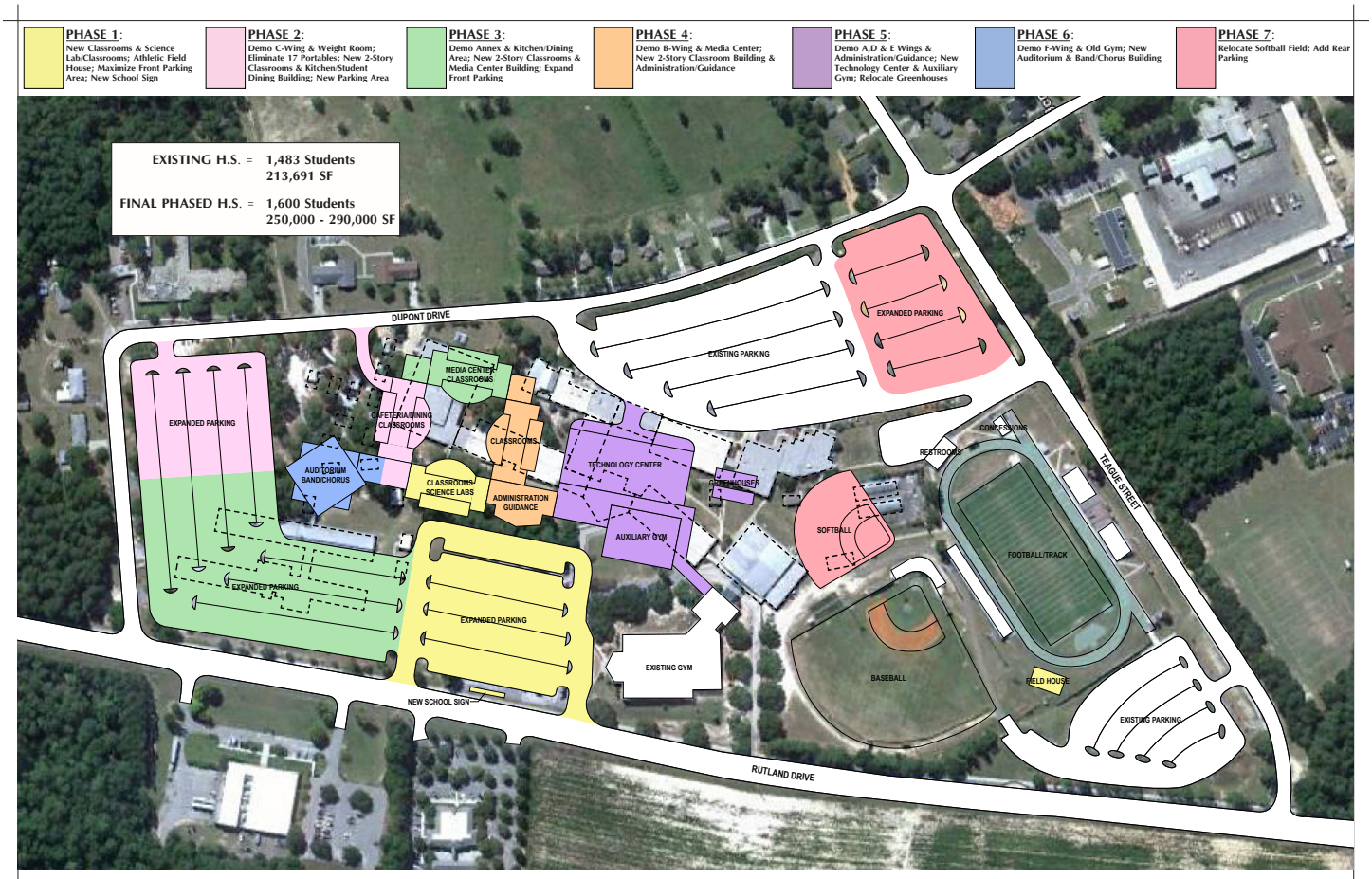
A new one-story field house accomodates a locker room sized for 122 lockers, a 2,600 sf weight room, a training room to acommodate taping tables, a meeting room, a head coach's office, and a larger office to accomodate ten coaches. The building also houses associated support space for laundry, equipment and miscellaneous storage, toilets, water heaters, and electrical service.

The Design Development phase has resulted in a project that remains consistent with the original project goals and represents a solid evolution of the Schematic design that was presented during the February 28, 2012 School Board Meeting.

New Classroom Building

Aiken High School Master Plan

Aiken High School Phase I Additions



AIKEN HIGH SCHOOL
CONCEPTUAL MASTERPLAN

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Site Plan

Aiken High School Phase I Additions

The site is the existing Aiken High School campus located at 499 Rutland Drive NW in Aiken, South Carolina. The classroom building is sited north of the main high school building cluster and southwest of the high school annex. The new building is designed to take advantage of north-south solar orientation, as well as to visually complement the existing gymnasium elevation, while setting the tone for future building phases on the high school campus.

Vehicular circulation will remain as currently designed, with the existing car and bus drop-off loops to remain. A new, larger parking area accessed from Rutland Drive will increase parking accomodations while providing safer pedestrian connections between the existing buildings to remain and the new buildings.

Existing Site Plan

Site Plan

Aiken High School Phase I Additions

Phase I Site Plan

(Dashed lines indicate future phases. See Master Plan.)

Space Program

Aiken High School Phase I Additions

February 28, 2012 Schematic Design Program

CLASSROOM BUILDING				
SPACES	**SF**	**# OF SPACES**	**TOTAL SF**	**NOTES**
General Classrooms	812	7	5684	
Subtotal			**7200**	
Science:				
a. Science Classrooms	812	11	8932	
b. Science Labs	1270	6	7620	
c. Science Prep Rooms	200	6	1200	
Subtotal			**17752**	
Staff Areas:				
a. Teacher Workrooms	390	2	780	
b. Staff Toilets	70	4	280	
c. 1st Floor Storage	320	1	320	
d. 2nd Floor Storage A	404	1	404	
e. 2nd Floor Storage B	124	1	124	
Subtotal			**1908**	
Group Toilets				
a. Girls	266	2	532	
b. Boys	266	2	532	
c. Toilet Vestibules	162	2	324	
Subtotal			**1388**	
Additional Core Spaces:				
a. Fire Riser Room	110	1	110	
b. Boiler/Pump/Water Heater Rooms	770	2	1540	
c. Main Electrical Room	220	1	220	
d. Janitor Closets	55	2	110	
e. Electrical Closet	130	1	130	
f. Communications Closets	90	2	180	
g. Classroom Stairs	0	2	0	Included in NGF
h. Corridors	0	1	0	Included in NGF
Subtotal			**2290**	
Total Net SF			30538	
Net Gross Factor @ 45%			13742	
TOTAL Gross SF			**44280**	41854 per Revit Model

FIELD HOUSE				
SPACES	**SF**	**# OF SPACES**	**TOTAL SF**	**NOTES**
Lockers:				122 lockers
a. Locker Room	1850	1	1850	
b. Locker Showers	170	1	170	
c. Laundry	185	1	185	
Subtotal			**2205**	
Group Toilets:				
a. Boys	220	1	220	
b. Girls	195	1	195	
Subtotal			**415**	
Athletics:				
a. Weight Room	2600	1	2600	
b. Equipment	300	1	300	
c. Training	160	1	160	
d. Storage	130	1	130	
Subtotal			**3190**	
Staff Areas:				
a. Head Coach's Office	165	1	165	
b. Head Coach's Toilet	85	4	340	
c. Coaches' Offices	300	1	300	
d. Coaches' Toilet/Lockers	140	1	140	
e. Meeting Room	465	1	465	
Subtotal			**945**	
Additional Core Spaces:				
a. Janitor	40	1	40	
b. Water Heater Room	632	2	1264	
c. Main Electrical Room	234	1	234	
d. Corridors	0	1	0	Included in NGF
Subtotal			**1498**	
Total Net SF			8253	
Net Gross Factor @ 10%			825	
TOTAL Gross SF			**9078**	9163 per Revit Model

Floor Plan

Aiken High School Phase I Additions

The classroom building floor plan has been designed to take advantage of existing campus pedestrian and vehicular circulation, while also providing for optimal north-south solar orientation. The plan provides connection to both the main high school building and the annex buildings, while setting the stage for a future quad of classroom buildings, and foreseeing connections to the core areas to follow in future phases. The new classroom building north elevation will align parallel to the existing gymnasium and accentuate the school's prominent North elevation.

The one-story field house connects to the existing gymnasium complex via a short sidewalk, and is located in proximity to the existing athletic fields. It accomodates a locker room sized for 122 lockers, a 2,600 sf weight room, a training room to accomodate taping tables, a meeting room, a video review room, a head coach's office, a larger office to accomodate ten coaches, and associated support space for laundry, equipment and miscellaneous storage, toilets, water heaters, and electrical equipment.

Floor Plan

Aiken High School Phase I Additions

Second Floor Plan - Classroom Building

Ground Floor Plan - Classroom Building

Ground Floor Plan - Field House

Elevations

Aiken High School Phase I Additions

Existing Gymnasium Building

The exterior of the new buildings will complement the existing facility in material color and pattern. The exterior facade will be composed of brick and will feature aluminum egress windows.

The building roof will be a low-slope built up system to complement the existing facility.

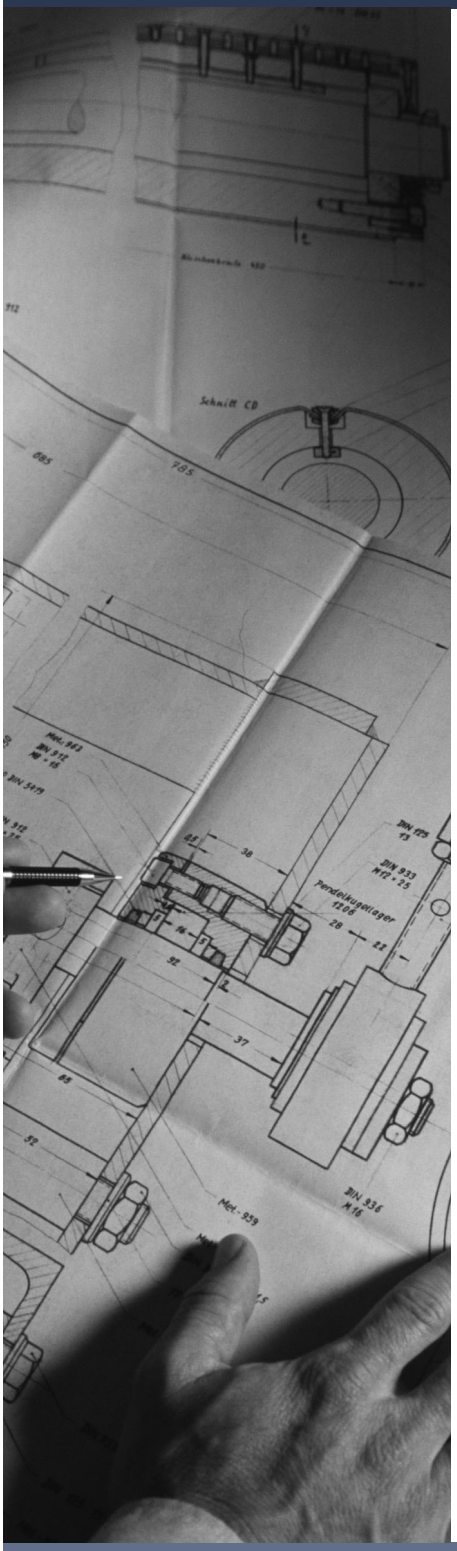
Field House East Elevation

Classroom Building North Elevation

Classroom Building South Elevation

Materials and Systems

Aiken High School Phase I Additions



A. Structural System

The structural design will be in accordance with the 2006 IBC and ASCE 7-05 for wind, seismic and gravity loadings. The structural system will consist primarily of load bearing CMU (concrete masonry unit) walls of eight and twelve inch thickness as required by height. The exterior masonry walls will be vertically reinforced and grouted CMU with additional horizontal joint reinforcing with an integral veneer tie system. The interior CMU walls will also be vertically grouted and contain horizontal joint reinforcing.

Elevated floors will consist of a welded wire mesh reinforced slab on composite metal deck. The slab and deck will be supported on composite steel beams which bear on the main load bearing lines to include exterior walls, corridor walls, and interior partition walls at isolated locations.

The majority of the roofs will be framed with steel joist spaced approximately five feet on center. Similar to the floor the steel joists will bear at main bearing lines including exterior walls, corridor walls. Areas of pitched roofs will be framed with cold formed metal trusses on cold formed bearing walls framed on top of steel joist. Roof deck will consist of 1″ galvanized steel deck welded to steel joist framing and screw attached to cold formed framing.

A geotechnical report has not yet been provided for the project. It is assumed that conventional shallow spread and strip footings may be used with an allowable soil bearing pressure of 2500 psf. Continuous strip footings will be provided beneath all exterior walls and interior masonry walls. Larger spread footings will be used at isolated and integral cmu wall piers. All foundations will be constructed of reinforced concrete. The first floor construction will be a 4-inch welded wire mesh reinforced concrete slab on grade placed on a vapor retarder and capillary barrier layer.

Based on code permitted assumptions, it is appears that the building will fall under Seismic Design Category "C" classification. It is not expected that the results of the Geotechnical exploration will result in this classification changing to a higher or lower classification.

The code applied wind and seismic lateral loads will be resisted by a system composed of the elevated concrete floor slab diaphragms, metal roof deck diaphragm and reinforced masonry shear walls.

B. Roofing

The Insulation system within the new roofing system assemblies will consist of polyisocyanurate roof insulation and perlite insulation with a minimum R-value of 30 as requested.

The roofing membrane on the low sloped roof areas will consist of three (3) plies of fiberglass ply felts adhered in hot asphalt and a granule surfaced modified bitumen cap sheet adhered in cold adhesive. A three (3) year Contractor's Warranty and a twenty (20) year Manufacturer's Warranty will be provided for the low sloped roofing system.

The roofing system on the steep sloped roof areas will consist of structural standing seam metal roofing with polyisocyanurate roof insulation being the insulation system with a minimum R-value of 30. All sheet metal components for both roofing systems will consist of pre-finished, minimum 24 gauge Galvalume. Other specific flashings will require other metal types. The roofing assemblies will comply with 2009 IBC and ACPS requirements as well as Energy Star.

C. Exterior and Interior Walls

The exterior facade of the new classroom building will consist of brick and

metal panels with aluminum windows. The majority of the interior wall surfaces will be painted concrete block. The facade of teh field house will present a similar design aesthetic.

D. Doors and Windows

Exterior doors will be painted hollow metal, while interior doors will typically be stained solid core wood. All door frames will be hollow metal (steel). Egress windows will be aluminum, double-glazed, with integral blinds.

E. Wall Finishes

All interior walls will be primed and will have a minimum of two finish coats of paint applied.

F. Floor Finishes

The classroom building will typically feature vinyl composition tile at the classrooms and corridors. The toilets, which will feature ceramic tile flooring, as will the lockers in the field house. the weight room will feature resiliant althletic flooring.

G. Ceilings

Acoustical ceiling tile (2'x2') will typically be provided throughout.

H. Accessories and Specialties

Marker and tack boards will be provided in all classroom and teaching areas. Signage will be provided to identify each space. Rough-ins will be provided for District-installed Smart Boards.

I. Casework and Millwork

Durable grade plastic laminate cabinets will be typically provided throughout. Science labs will recieve chemical-resistant casework and countertops.

J. Mechanical System

The HVAC system for the new addition will include two (2) air cooled chillers, sized at approximately 60% to 75% of the building cooling load, constant speed chiller pumps, and variable speed building chilled water pumps with each pump sized for 100% of the chilled water load. When future phases are constructed, the Owner will have several choices depending upon the size of the future phase and how far in the future that phase occurs. These choices include:

1. Provide a separate chiller system for the next addition.

2. Relocate the chillers in the first phase to support the next phase and first phase.

3. Provide a chiller plant for the next phase which will ultimately support both phases (when the chillers in the first phase die).

The classroom areas will be served with dual wall variable air volume (VAV) air handlers with chilled water coils, and SCR electric heaters and terminal units with electric heat.

Laboratories will have the fume hoods and laboratory spaces exhausted with a central exhaust system with automatic air valves controlling the amount of exhaust air from each hood and lab. One or two central exhaust systems will be provided.

Ducts will be rectangular or spiral galvanized sheetmetal with fiberglass insulation with FRP jackets. Piping will be schedule 40 black steel or Type L copper with polyiso insulation outdoors and in mechanical rooms and fiberglass insulation with ASJ jacket in other locations. Outdoor piping will have an aluminum jacket. Underground chilled water piping shall have polyurethane insulation with a PVC or FRP jacket.

The control system will be a web based control system by Automated

Logic Controls. All components of the HVAC system will be controlled along with water heaters and common lighting zones (primarily corridors and exterior lighting).

K. Plumbing System

Water closets will be the flush valve type and will be floor mounted. Urinals will be the flush valve types and will be wall mounted. At Owner's preference, self-generating hydropower battery sensor operated or hardwire sensor operated flush valve will be provided in group toilets.

Lavatories will be wall hung enameled cast iron. Group bathroom lavatories will be a one (1) piece, wall hung, molded unit with integral sinks. Student lavatories will be provided with cold water only. Adult lavatories will be provided with hot and cold water. Group bathroom lavatories will be self-generating hydropower sensor operated or hardwire sensor operated faucets.

Sinks will be stainless steel 18 gauge type 302 with hot water and cold water. Staff Workroom, Teachers' Lounge, and Conference Room sinks will be stainless steel with hot water and cold water. Service sink for custodial will be terrazzo with stainless steel caps and HW/CW.

Showers will be stainless steel wall mounted units with privacy partitions.

Drinking fountains and water coolers will be wall hung for the designated grade level and for the handicapped. Generally all interior locations will be provided with electric water coolers. All drinking fountains and water coolers will be stainless steel and vandal proof.

Hose bib with loose key and vacuum breaker will be located in all toilets with floor drains and in mechanical rooms. Wall hydrants outside building will be surface mounted, loose key, anti-freeze with backflow preventer, located at approximately 100-ft. intervals around perimeter of the building. Hydrant (on roof) provided for wash down and maintenance. A hot water recirc. pump will be provided with each water heater when HW system extends over 50 feet from water heater to last fixture.

Floor drains with deep seal traps and trap primer connection will be provided in all wet areas.

All labs will be provided acid waste piping. All waste piping will be piped to an acid dilution tank prior to connecting to sewer system. Acid dilution tank will be located outside of the building.

L. Fire Protection System

The entire classroom building will be protected throughout by a wet pipe sprinkler system unless indicated otherwise. The wet pipe sprinkler system shall consist of two zones (one for first floor and one for second floor).

The mechanical rooms, electrical rooms, storage areas, janitor rooms, water heater rooms, Science lab and Prep rooms shall be designed for Ordinary Hazard Group I occupancy. The remainder of the building shall be designed for Light Hazard Occupancy.

The incoming fire line will be provided with a freestanding post indicator valve and a freestanding fire department connection (FDC).

The backflow preventer will be a reduced pressure backflow preventer assembly located indoors.

Concealed sprinklers will be provided in all areas with finished ceilings. Upright sprinklers will be installed in mechanical rooms, electrical rooms, storage rooms, and similar rooms and any other space without ceilings.

M. Electrical System

Electrical service for the new addition will be obtained from a pad-mount transformer from SCE&G connected to an existing 3 phase overhead line on site. Service voltage will be 277/480V 3 phase 4 wire. The estimated service size for the addition is 1200A. Transient voltage surge suppression (TVSS) will be provided for the new electrical service and downstream distribution equipment. Three phase electrical service will be provided for

the new elevator. The distribution system configuration will be arranged to facilitate integration into later phases of work on the campus.

Emergency lighting will be powered by a central inverter. This configuration will lend itself to integration into an emergency power system installed during later phases of work.

Interior lighting will generally consists of fluorescent lay-in fixtures with T5 lamps and electronic ballasts. Exterior lighting will consist of building mounted architectural cut-off security fixtures. Occupancy sensors for lighting control and energy savings will be used as much as possible. Commons areas such as corridors and exterior lighting will be controlled by the building automation system.

The fire alarm system for the addition will be a non-proprietary system separate from the existing Simplex fire alarm system. Various modules will be utilized to interface the two systems for alarm and trouble reporting. Remote annunciators for the addition's fire alarm system will be placed both in the addition and the main administration area of the existing campus. The existing Rauland Telecenter 2100 school intercom system will be extended into the addition. Callback buttons will be provided in each new classroom.

An intrusion detection system will be installed in the new addition. The system will utilize existing telephone lines for remote monitoring.

The school LAN (Local Area Network) will be extended into the new addition. Telecommunications closets will be located on each floor. New premises wiring systems will be installed in the new addition. Cable tray will be utilized above the ceiling in the corridors to collect data conduits and wiring from each of the classrooms. Conduit pathway for classroom smartboards and multi-media systems will be provided.

Schedule

Aiken High School Phase I Additions

AIKEN HIGH SCHOOL - Phase 1 Projects: Science/Classroom Building & Field House	Anticipated Start Date	Anticipated Finish Date	Duration (Weeks)
Preliminary Schedule, Updated 1/9/12			
Project Schedule	10/6/11	12/20/13	115.1
Contract Negotiations / Programming Phase	10/6/11	12/12/11	9.6
Conceptual Design Phase	11/28/11	1/16/12	7.0
Conceptual Design Submittal to OSF/Review	1/16/12	1/30/12	2.1
Conceptual Design Review	1/18/12	1/30/12	1.9
School Board SD Approval	2/14/12	2/14/12	0.1
Design Development Phase	1/16/12	3/12/12	8.1
Design Development Submittal to OSF/Owner	3/5/12	3/26/12	3.0
Design Development Review	3/7/12	3/26/12	2.8
School Board DD Approval	3/20/12	3/20/12	0.1
Construction Documents Phase	3/5/12	5/14/12	10.1
Construction Documents Submittal to OSF/Owner	4/16/12	5/14/12	4.1
Construction Documents Review	4/18/12	4/30/12	1.9
Construction Documents Final Revisions	4/30/12	5/14/12	2.1
School Board CD Approval	5/8/12	5/8/12	0.1
Advertise to Bid	5/13/12	6/12/12	4.4
Pre-Bid	5/30/12	5/30/12	0.1
Receive Bids	6/12/12	6/12/12	0.1
School Board Approval	6/26/12	6/26/12	0.1
Construction, Field House	6/27/12	5/24/13	47.4
Substantial Completion/OSF Final	4/26/13	4/26/13	0.1
Final Completion	4/26/13	5/24/13	4.1
Construction, Classroom Building	6/27/12	12/20/13	77.4
Substantial Completion/OSF & DHEC Inspections	11/21/13	11/21/13	0.1
Final Completion	11/22/13	12/20/13	4.1
		9/9/96