



## Aiken High School Phase 2A

Design Development Submittal - January 2016

LS3P Commission No. 2201-147220





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## Aiken High School Phase 2A



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*“The mission of Aiken County Public School System is to create in students a passion for learning and achievement that will serve them as they compete and contribute in a global society.”*

- Aiken County Public School District’s Purpose Statement



# Design Statement



PRELIMINARY 3-D RENDERING OF NEW MAIN ENTRY AT ADMINISTRATION

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 completed the design of Phase 1 of the Master Plan, which consisted of two new building additions: a two-story science classroom building and a one-story field house, construction of which were completed in 2013. Phase 2 is the logical second step, which seeks to develop and provide the following:

Phase 2A: New administration, general classrooms, media center, student dining/food service and business classrooms/labs.

Phase 2B: New auxiliary gym, art, sewing and child care, culinary, ROTC, band and chorus.

Phase 2C: New auditorium and vocational facilities.

The Design Development process of Phase 2A has resulted in a project that remains consistent with the original project goals and represents a solid evolution of the original master plan and the work undertaken during Phase 1.



# Site Plan



The site is the existing Aiken High School campus located at 449 Rutland Drive NW in Aiken, South Carolina. The new work will be phased in order to keep the school in operation as portions of the existing buildings are selectively demolished while new portions are constructed. The new buildings will be designed to take advantage of a predominantly north-south solar orientation, will visually complement the existing gymnasium elevation, and will build upon the design language of the building designed and constructed as part of Phase 1.

Vehicular circulation will be largely re-designed, with new car and bus drop-off loops incorporated into the design. The parking area accessed from Rutland Drive, which was constructed during Phase I, will be reconfigured to accommodate a new main entrance to the administration wing and parent drop-off loop. New parking areas will increase parking accommodations while providing safer pedestrian connections between the existing buildings to remain and the new buildings.



# Phasing Plans



EXISTING SITE PLAN



PHASE 2A SITE PLAN



# Phasing Plans





# Phase 2 Overall Site Plan

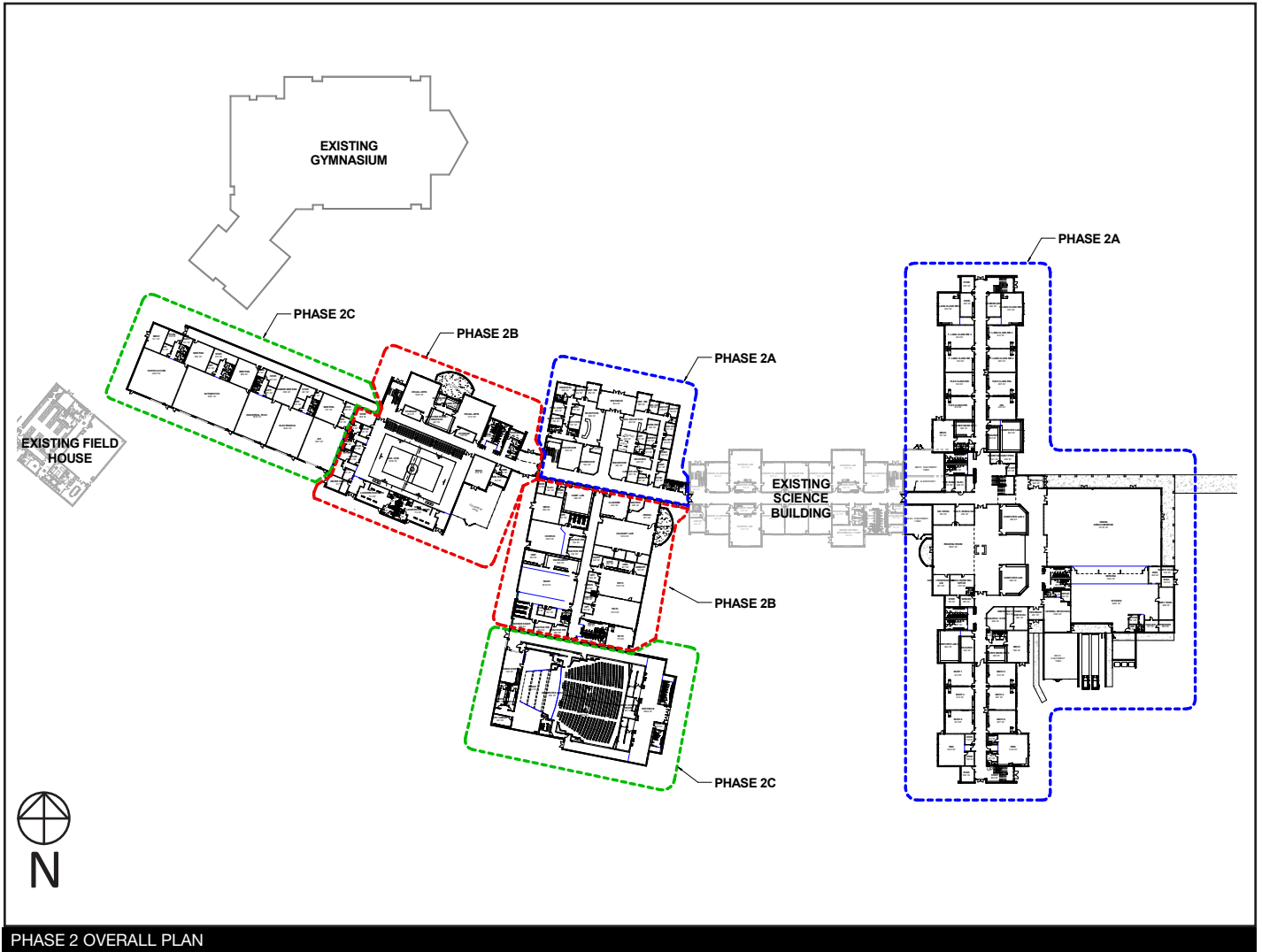


PHASE 2 OVERALL SITE PLAN

# Program of Spaces

SUMMARY SCHEMATIC DESIGN PROGRAM						
AIKEN HIGH SCHOOL - PHASE 2						
1,600 STUDENT HIGH SCHOOL						
July 29, 2015						
PHASE 2A						
SPACE	Number of Existing Spaces	Number of New Spaces	Number of Students (in each)	Student Capacity	GROSS SF	Notes
<b>CLASSROOMS / MEDIA CENTER</b>						
EXISTING SCIENCE & MATH CLASSROOMS	18	0	24	432		Existing spaces to remain counted in student capacity but not counted in new SF amount
EXISTING CLASSROOMS IN TAYLOR GYM	5	0	24	120		Existing spaces to remain counted in student capacity but not counted in new SF amount
GENERAL NEW CLASSROOMS		38	24	912		12 English, 6 Math, 10 SS, 6 Foreign Language, 2 Flex, 1 ISS & 1 Homebound
NEW SPECIAL EDUCATION		12	12	144		6 Resource, 1 ESOL, 3 ACES, 1 PMD & 1 TMD
MEDIA CENTER TOTAL						
BUSINESS LAB/CLASSROOMS						4 Business Labs/Classrooms
<b>CLASSROOMS / MEDIA CENTER</b>				<b>1,608</b>		
<b>ADMINISTRATION</b>						
ADMINISTRATION						Includes reception area, Principal and other administrative offices, testing storage and staff workroom
GUIDANCE						Includes reception area, Guidance and other offices, records vault and health room
<b>ADMINISTRATION</b>						
<b>DINING &amp; CUSTODIAL</b>						
DINING & FOOD SERVICE		1				3 Seatings of 534 students each
CENTRAL RECEIVING		1				
<b>DINING &amp; CUSTODIAL SUB-TOTAL</b>						
<b>TOTAL BUILDING GROSS SF - PHASE 2A</b>				<b>1,608</b>	<b>152,633</b>	

# Floor Plan - Full Build-Out



PHASE 2 OVERALL PLAN



# Phase 2A Floor Plans

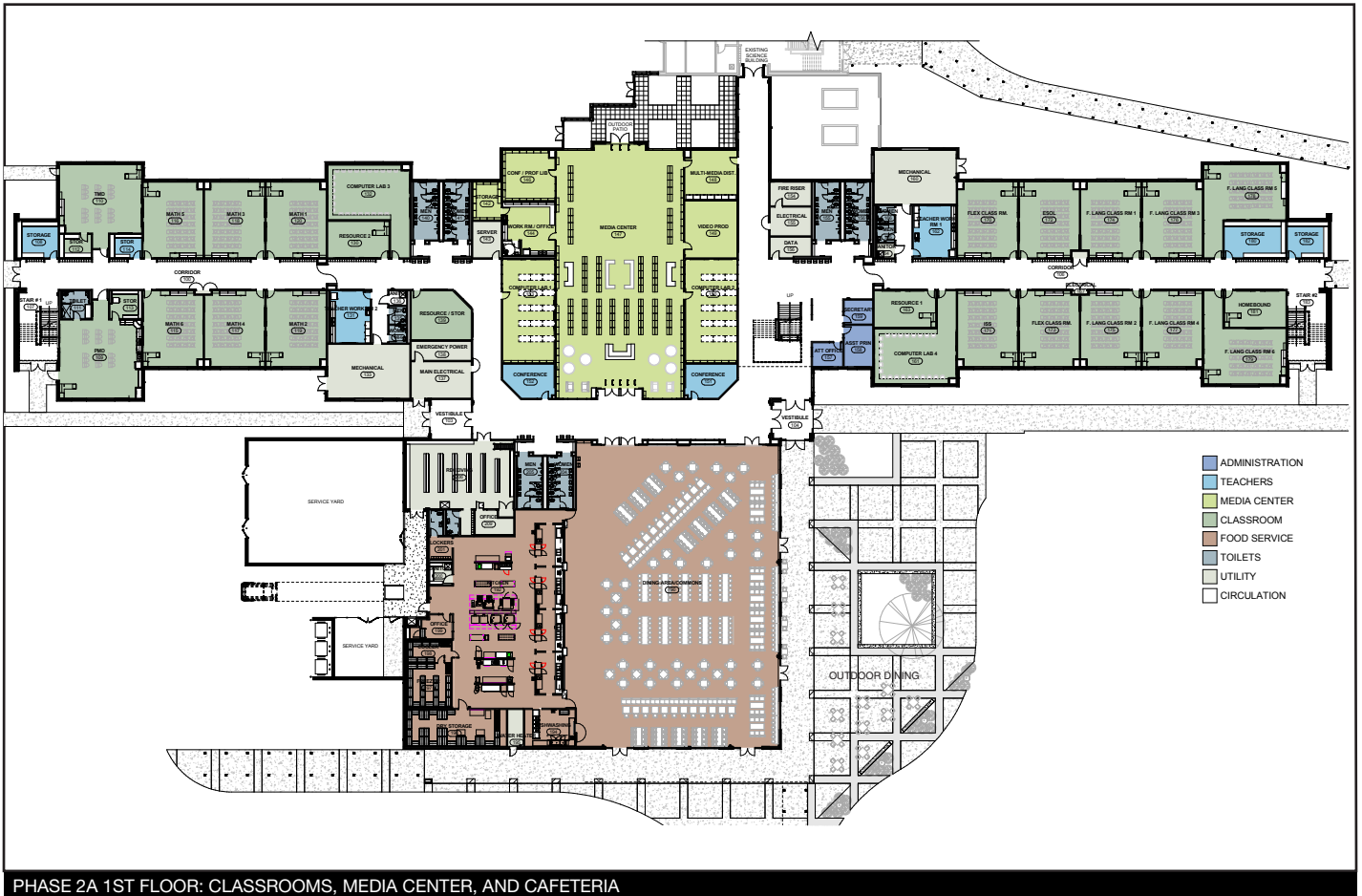


PHASE 2A 2ND FLOOR: BUSINESS LABS



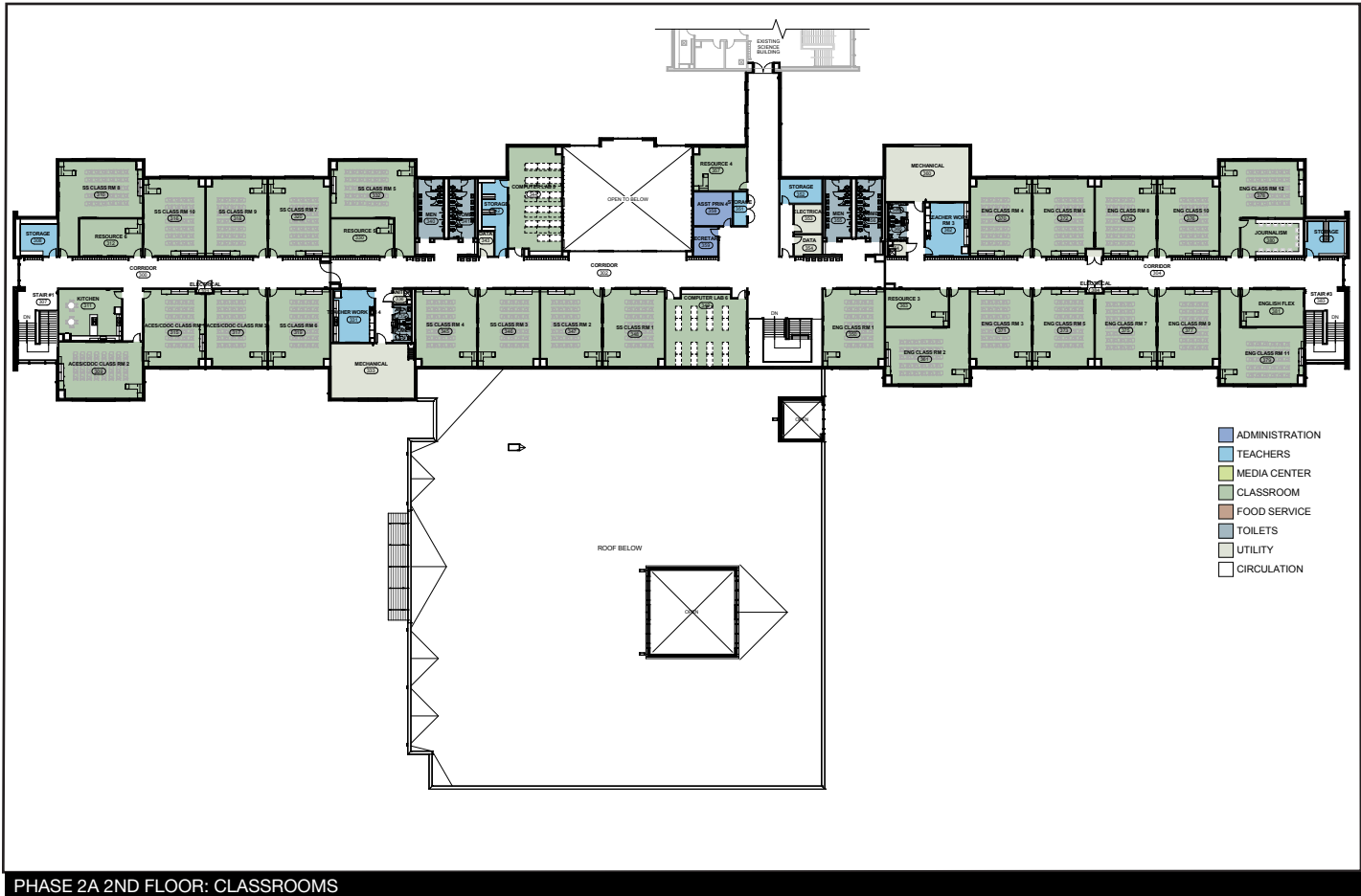
PHASE 2A 1ST FLOOR: ADMINISTRATION AND GUIDANCE

# Phase 2A Floor Plans



PHASE 2A 1ST FLOOR: CLASSROOMS, MEDIA CENTER, AND CAFETERIA

# Phase 2A Floor Plans



PHASE 2A 2ND FLOOR: CLASSROOMS



# Elevations & Perspectives



EXISTING TAYLOR GYMNASIUM TO REMAIN



OVERALL RUTLAND DRIVE ELEVATION (PHASES 1 & 2A)



OVERALL DUPONT DRIVE ELEVATION (PHASES 1 & 2A)



ADMINISTRATION (PHASE 2A) AND EXISTING SCIENCE BUILDING (PHASE 1)

# Elevations & Perspectives



EXISTING SCIENCE BUILDING TO REMAIN



SITE FENCING/WALL AT DETENTION POND ALONG RUTLAND DRIVE (PHASE 2A)



CAFETERIA AND CLASSROOM WINGS (PHASE 2A)



# Materials and Systems

## A. Structural System

The structural design will be in accordance with the 2012 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 reinforced and 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 roofs will be framed with steel joists spaced approximately five feet on center. Similar to the floor, the steel joists will bear at main bearing lines including exterior walls, and corridor walls. Areas of pitched roofs will be framed with galvanized structural steel framed on top of steel joists. Roof deck will consist of 1 1/2" galvanized steel.

Per the Geotechnical report significant undercutting and fill placement will be required at the classroom building. With these ground modifications, conventional shallow spread and strip footings will 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 15-mil vapor barrier.

Per the Geotechnical report the site is a Site Class "D" resulting in a Seismic Design Category "C" classification for the structures. 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, decorative CMU, and metal panels with aluminum windows. The majority of the interior wall surfaces will be painted concrete block, with gypsum wall board in the administration and guidance office suites.

## D. Doors and Windows

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



# Materials and Systems

windows will be used at selected locations, such as stair towers and windows above the main visitor entry.

## E. Wall Finishes

All interior walls will be primed and will have a minimum of two finish coats of paint applied. Waterborne epoxy paint will be used on all CMU walls.

## F. Floor Finishes

The classroom building will typically feature vinyl composition tile at the classrooms and corridors. Terrazzo flooring with vinyl wall base will be specified at the visitor entry lobby. The toilets will feature an epoxy flooring. The flooring in the auxiliary gym (Phase 2B) is to be determined based on anticipated usage of the gym.

## G. Ceilings

Acoustical ceiling tile (2'x2') will typically be provided throughout corridor and classroom spaces. Hard ceilings will be used in toilet and shower areas. No ceilings will typically be installed in janitor, electrical, data, mechanical, or fire riser rooms.

## 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. All classrooms will feature built-in teacher desks. Library shelving will be included in the building package.

## J. Mechanical System

The HVAC system for the Phase 2A addition will include a new variable flow primary air cooled chiller plant, with three (3) chillers, each sized for 35% to 40% of the total building cooling load, and variable speed chilled water system pumps with each pump sized for 100% of the chilled water load. The new chiller plant will also serve the existing Science Wing. The Science Wing chillers will remain as installed but disconnected from the chilled water system. When the Taylor Gym is renovated, the chillers will be relocated to the Taylor Gym site to serve the Taylor Gym HVAC system. The existing Science Wing mechanical room will be modified and the pumps in that wing removed.

The classroom and administrative areas will be served with indoor, variable air volume (VAV) air handlers and terminal units with electric heat. The kitchen and cafeteria will be served with rooftop units and will be single zone VAV air handlers or constant volume air handlers. One rooftop VAV air handler unit will be provided to serve the middle section of second floor rooms in the Classroom Building. All air handlers will be dual wall with chilled water coils and SCR electric heaters.

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). The existing control system serving the Science Wing and the Field House will be removed and replaced with Automated Logic Controls.





# Materials and Systems

## 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. Flush valves shall be self-generating hydropower battery sensor-operated.

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 feature self-generating hydropower 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. 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. Hydrants (on roof) will be provided for wash down and maintenance. A hot water recirculation pump will be provided with each water heater when the hot water system extends over 50 feet from water heater to last fixture.

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

## L. Fire Protection System

The Classroom and Cafeteria building (in Phase 2A) will be protected throughout by a wet pipe sprinkler system unless indicated otherwise. The wet pipe sprinkler system shall consist of six zones (three for first floor and three for second floor). A dry pipe system shall be provided for the loading dock.

The Administration wing (in Phase 2A) will be protected throughout by a wet pipe sprinkler system. The wet pipe sprinkler system shall consist of two zones (one for first floor and one for second floor).

The Culinary Lab/Band wing (in Phase 2B) will be protected throughout by a wet pipe sprinkler system. 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 and water heater rooms shall be designed for Ordinary Hazard Group I occupancy. The remainder of the building shall be designed for Light Hazard Occupancy.

Each riser room shall have an individual incoming fire line with a freestanding post indicator valve and a freestanding fire department connection (FDC). Each riser room shall have a reduced pressure backflow preventer 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. Service voltage will be 277/480V 3 phase 4 wire. Transient voltage surge suppression (TVSS) will be provided for the new electrical service and downstream distribution equipment.

Emergency power will be derived from an outdoor diesel generator set in a sound



# Materials and Systems

attenuated weatherproof enclosure. Nominal size is estimated to be 200 kW at 480Y/277 3 phase 4 wire.

Interior lighting will generally consist of specification grade LED lay-in lighting fixtures. Lighting levels in classrooms will be controlled via simple 0-10V dimming, inherent in contemporary LED driver design, and shall provide separate control for teaching wall.

Exterior lighting will consist of building mounted LED 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.

An addressable fire alarm system will be provided. The system will be a voice-evacuation type utilizing strobes, speakers, and pre-recorded voice messages to notify occupants. The fire alarm system will report automatically to a Central Receiving Station. Basis of design will be systems manufactured by Silent Knight.

A premises wiring system, including fiber optic backbone with CAT 6 copper drops, will be provided. This will include a conduit and/or cable tray system for support of IT technology wiring and equipment racks for installation of jack panels and Owner-installed electronics. Nominal outlet locations in instructional spaces shall be for two (2) drops per classroom, one for teacher station and one for wireless access point.

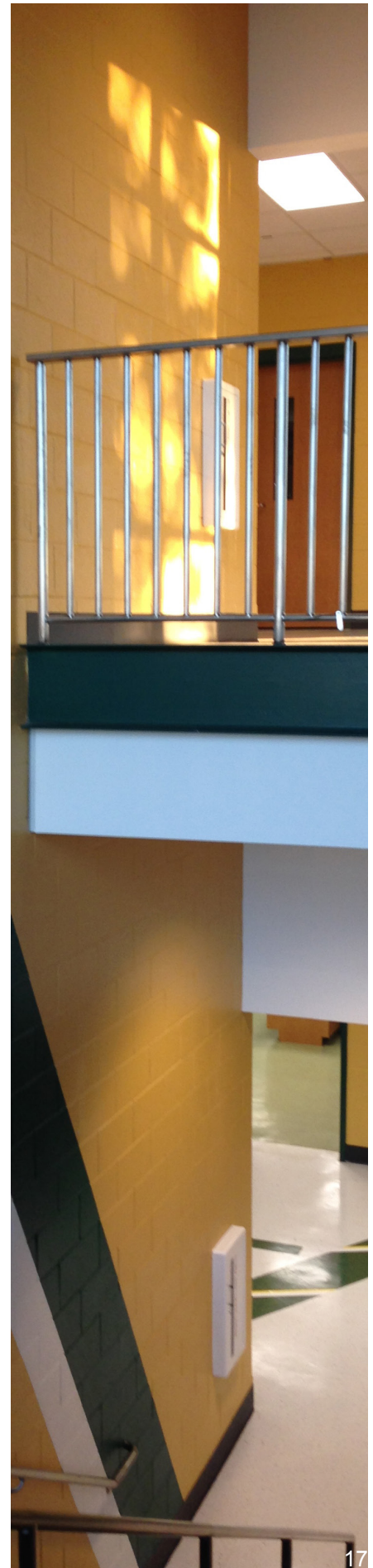
Cable tray system shall be for the sole use of IT, security, CCTV, and other systems installed outside the construction contract. HVAC controls shall not be installed in the cable tray system. Cable tray shall be aluminum ladder type tray.

Conduit pathway shall be provided within instructional spaces to support multi-media applications between the instructor's station and display equipment.

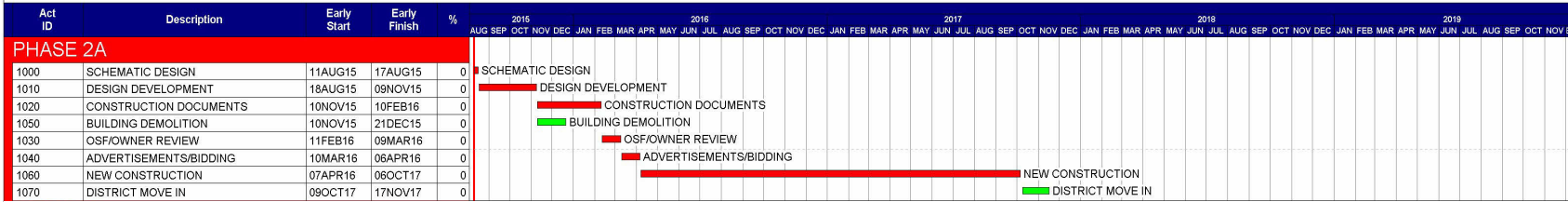
Empty conduit will be provided for an intrusion detection system (IDS), building access control and CCTV systems. System electronics and installation will be included in the construction contract via Owner's security vendor. Device locations to be provided by Owner's security systems vendor for incorporation into the contract documents.

A two-way school intercom system shall be provided for calls to instructional areas and for general paging through the building. Basis of design will be Rauland Borg, # TC-21. Call-back buttons shall be provided in classrooms and selected locations. Administrative phone handsets shall be provided announcements at the main reception desk, principal's office, and the guidance reception desk.

Sound reinforcement systems and AV presentation systems will be provided in the cafeteria.



**Aiken High School  
Aiken County Public School District**



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Finish date	24MAY19
Data date	11AUG15
Run date	24AUG15
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H.G. Reynolds Company, Inc.

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- Critical bar
- Summary bar
- ◆ Start milestone point
- ◆ Finish milestone point

# Preliminary Project Budget Summary Estimate

Aiken High School - Phases 2A (2015-2017)  
 Aiken County School District  
 LS3P Commission No.: 2201-147220



Description	Schematic Design - Phase 2A			Design Development - Phase 2A					
	Aug-15		Totals	Jan-16		Totals	GSF	\$/GSF	Totals
<b>Estimated Construction Costs</b>	<b>HG Reynolds</b>								
<b>Demotion</b>									
Site and Building Demolition	11900	\$10	\$119,000	39,000	\$8.54	\$333,117			
<b>Building &amp; Site</b>									
New Construction	152,633	\$185	\$28,237,105	152,633	\$190.07	\$29,010,717			
<b>Projected Sub-Total Construction</b>			<b>\$28,356,105</b>			<b>\$29,343,834</b>			
<b>Design / Estimate Contingency</b>		4.95%	<b>\$1,403,627</b>		1.7%	<b>\$500,000</b>			
<b>Projected Total Construction / Phase</b>			<b>\$29,759,732</b>			<b>\$29,843,834</b>			
<b>Professional/Technical/Inspection Fees</b>	<i>(Fees, surveys, inspections)</i>								
<b>TOTAL</b>			<b>\$2,721,979</b>			<b>\$2,721,979</b>			
<b>Advertising</b>									
<i>Bid advertisements</i>			<i>(included in CM@R)</i>			<i>(included in CM@R)</i>			
<b>Miscellaneous</b>									
Fixtures, Furnishings & Equipment; Technology									
<i>(% of Estimated Const.)</i>		8%	\$2,380,779		10%	\$2,984,383.40			
<b>TOTAL</b>			<b>\$2,380,779</b>			<b>\$2,984,383</b>			
<b>Sub-Total</b>			<b>\$34,862,490</b>			<b>\$35,550,196</b>			
Overall Project Contingency									
<i>(of estimated const)</i>		3%	\$1,045,874.69		5.03%	\$1,500,000			
<b>ESTIMATED TOTAL</b>			<b>\$35,908,364</b>			<b>\$37,050,196</b>			
<b>Alternates</b>									
Add'l. Construction Admin (LS3P weekly)	24 mo	\$7,000	\$168,000	24 mo	\$7,000	\$168,000			
Add'l. Construction Admin (Consultants as req'd)	24 mo	TBD		24 mo	TBD				
			<b>\$36,076,364</b>			<b>\$37,218,196</b>			
<b>Budget over/under \$60M</b>			<b>\$23,923,636</b>			<b>\$22,781,804</b>			

**OVERALL PROJECT BUDGET**  
 \*Actual costs to be provided by District.