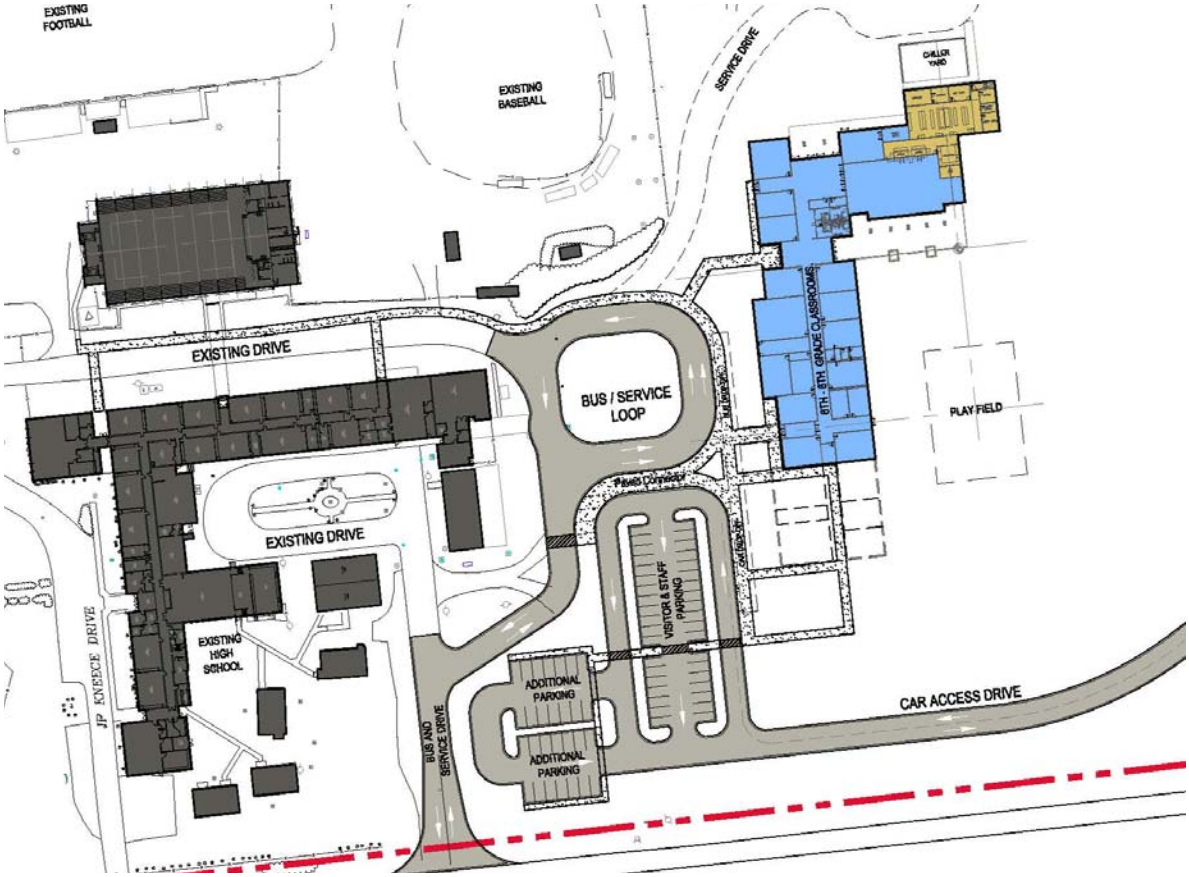
RIDGE SPRING-MONETTA K-12 CAMPUS

PHASE ONE - NEW CLASSROOM WING

Aiken County Public Schools



SCHEMATIC DESIGN SUBMITTAL

March 13, 2012

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AIKEN COUNTY PUBLIC SCHOOL DISTRICT

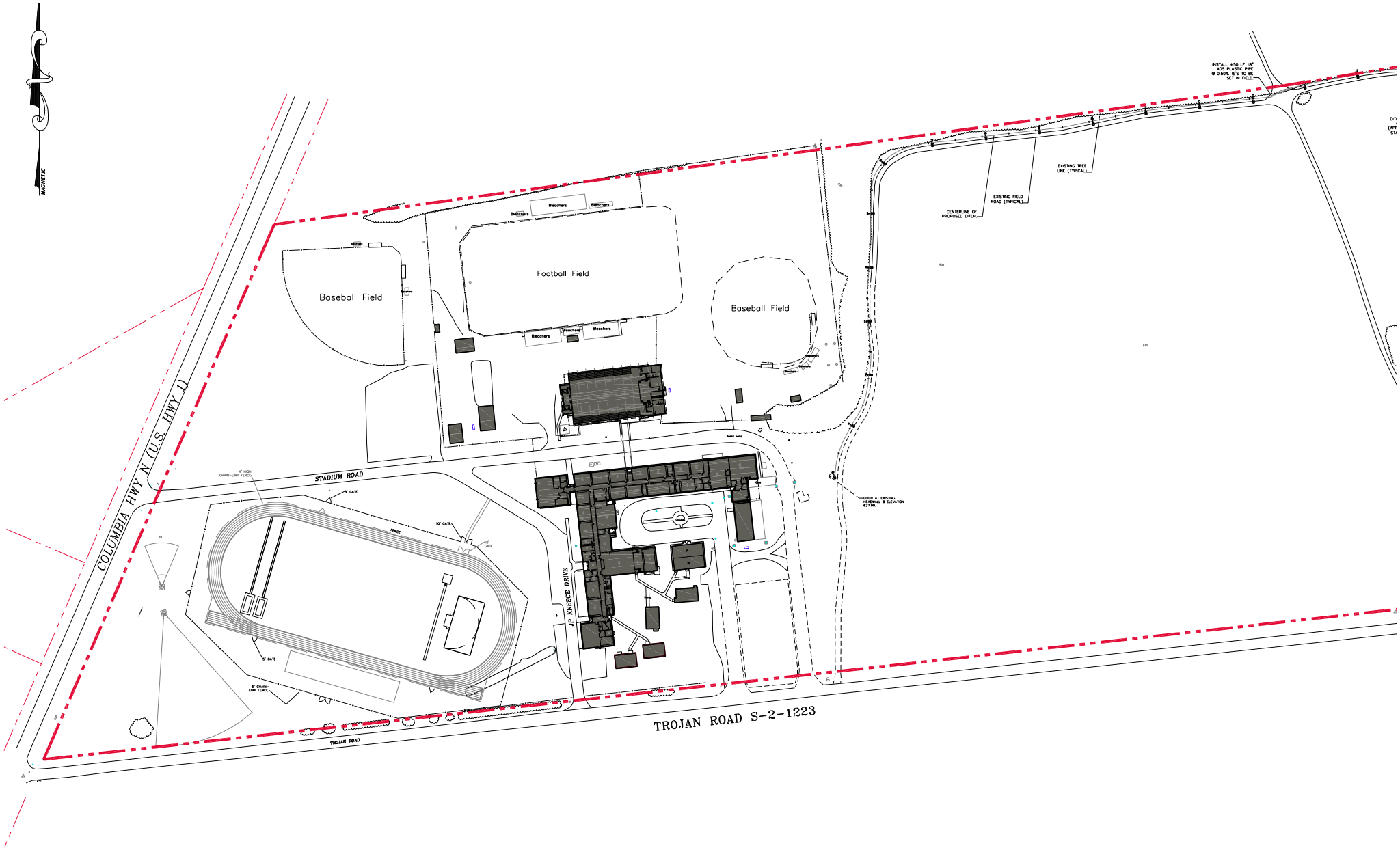
RIDGE SPRING-MONETTA K THRU 12 CAMPUS- MONETTA, SC

RSM - Phase One Program (6th, 7th, & 8th)

200 Students

16 Teachers and Staff

Space Name	#	Area Range	Total Area	Comments
GENERAL CLASSROOMS (Home Rooms)				
Grades 6-8	8	800 - 850	6,400 - 6,800	math, science, language arts, social studies
Subtotal	8		6,400 - 6,800	
RESOURCE/SUPPORT CLASSROOMS				
Resource Room	4	300 - 400	1,200 - 1,600	(Guidance / Spec. Ed. / Reading Inter. / Etc.)
Science Labs	2	1,600 - 1,800	3,200 - 3,600	(Labs are sized for future High School use)
Prep Room	1	300 - 400	300 - 400	
Subtotal			4,700 - 5,600	
TECHNOLOGY				
Accommodations Lab	1	800 - 1,000	800 - 1,000	(15 netbook computers)
Synergistics Lab (Math/Science)	1	1,000 - 1,400	1,000 - 1,400	includes sink and storage
Computer Lab	1	800 - 1,000	800 - 1,000	(Keyboarding / Computer Apps)
Subtotal			2,600 - 3,400	
ARTS EDUCATION		Shared with High School		
MEDIA CENTER		Shared with High School		(each middle school classroom has its own in-class library)
PHYSICAL EDUCATION		Shared with High School		
ADMINISTRATION				
Reception /Waiting	1	200 - 400	200 - 400	
Principal /Assistant Principal	1	120 - 175	120 - 175	
Secretary / Attendance	2	120 - 175	240 - 350	
Small Conference Rooms	1	200 - 200	200 - 200	
Record Storage / Vault	1	100 - 150	100 - 150	
Admin Workroom	1	120 175	120 - 175	
Teacher Planning/ Workroom	1	300 - 400	300 - 400	
Storage	1	60 - 100	60 - 100	
Staff Toilets	1	120 - 150	120 - 150	
Health/Sick Room	1	100 - 150	100 - 150	
Book Storage	1	400 - 800	400 - 800	
Subtotal			1,960 - 3,050	
FOOD SERVICE				
Dining (3 servings)	1	3,500 - 4,000	3,500 - 4,000	
Kitchen/Serving	1	2,500 - 3,000	2,500 - 3,000	
Subtotal			6,000 - 7,000	
PLANT OPERATIONS				
Janitor/Laundry /Storage	1	150 - 200	150 - 200	
General Storage	1	100 - 200	100 - 200	
Subtotal			250 - 400	
BUILDING NET AREA			21,910 - 26,250	
Gross Area (Circu., Mech, Walls, Toilets, Etc.)			8,764 - 10,500	
Gross Percentage			40% - 40%	
BUILDING TOTAL AREA			**30,674 - 36,750**	
SITE PROGRAM SPACES				
Car Parking (Visitors and Staff)			68 Spaces	required # of parkings spaces will vary pending County review
Bus Parking			-	
Car Stacking			900 lf	per SCDOT approval
Play Fields (80ft x 100ft)			1 Field	

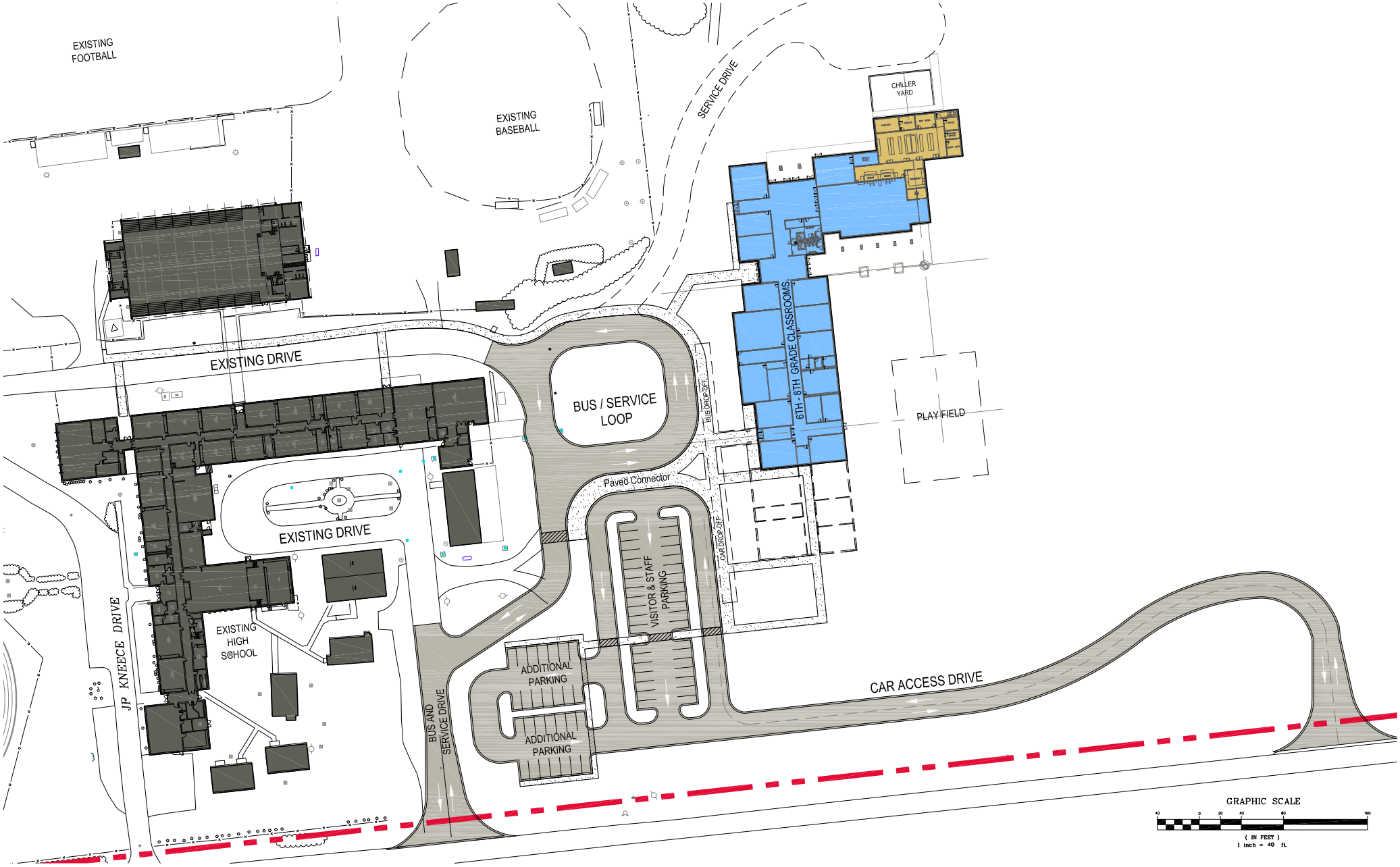


ALR Ashlin . Lee . Reid architecture

EXISTNG HIGH SCHOOL SITE

RIDGE SPRING-MONETTA K thru 12 CAMPUS

PROJECT No: 1120
MARCH 13, 2012



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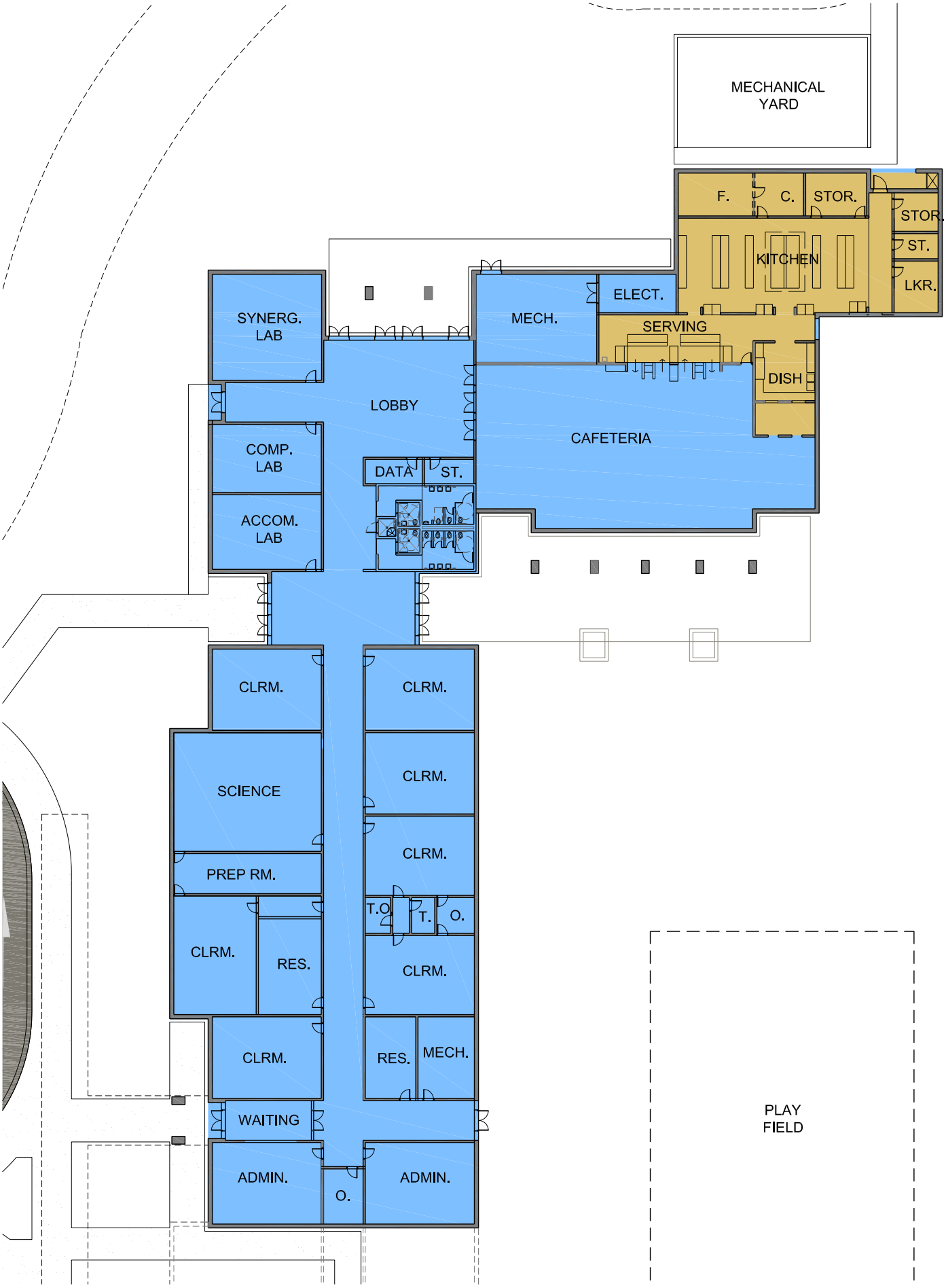
PHASE ONE - NEW 6th, 7th & 8th GRADE WING

RIDGE SPRING-MONETTA K thru 12 CAMPUS

PROJECT No: 1120
MARCH 13, 2012



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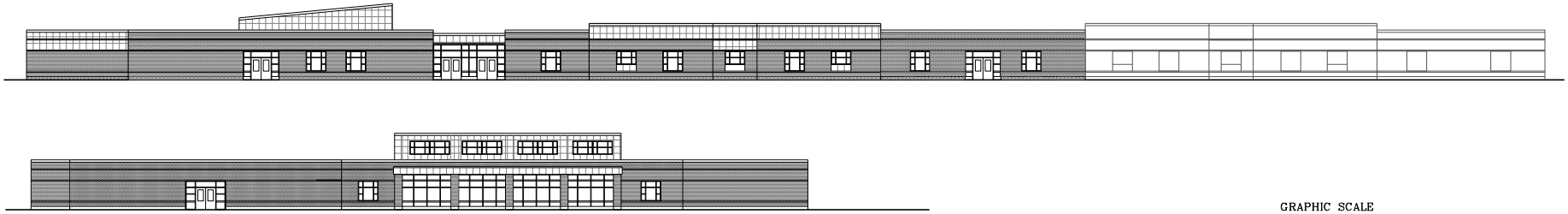
PHASE ONE - FLOOR PLAN

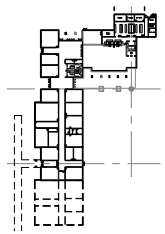
GRAPHIC SCALE

16 0 8 16 32 64

(IN FEET)

1 inch = 16 ft.

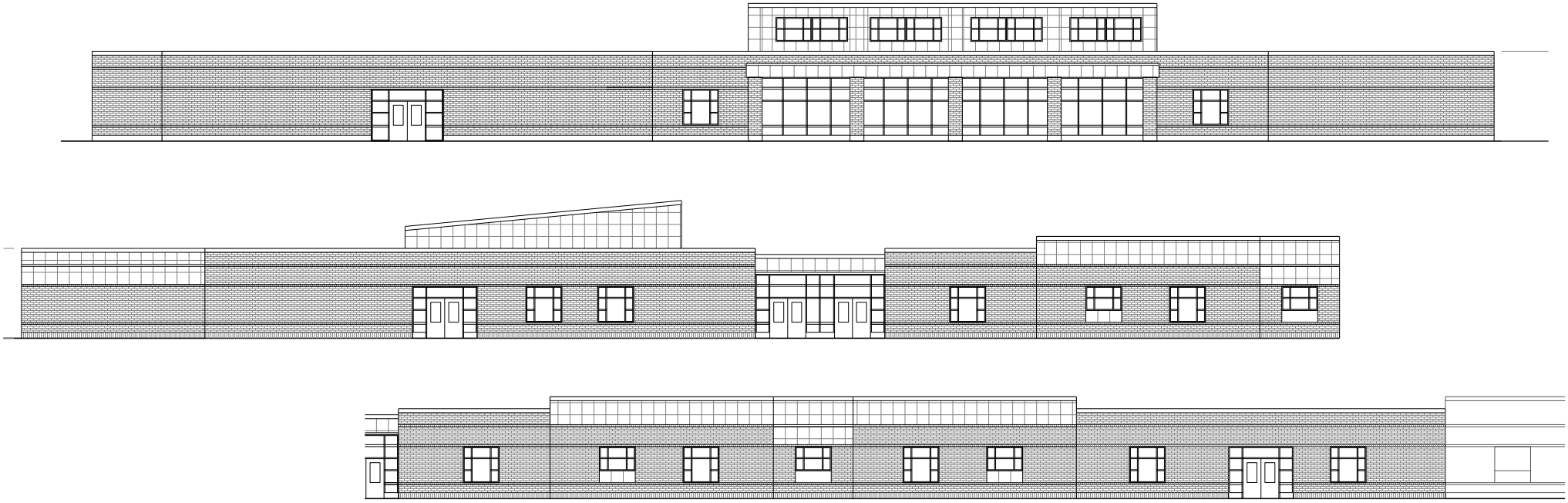




GRAPHIC SCALE

(IN FEET)
1 inch = 16 ft.

PHASE ONE - OVERALL BUILDING ELEVATIONS



GRAPHIC SCALE

(IN FEET)
1 inch = 8 ft.

PHASE ONE - ENLARGED ELEVATIONS

ALR Ashlin . Lee . Reid architecture

PHASE ONE - BUILDING ELEVATIONS

RIDGE SPRING-MONETTA K thru 12 CAMPUS

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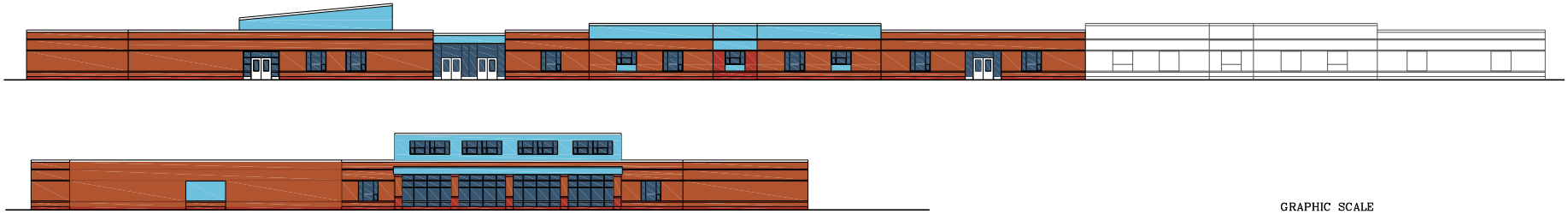
MARCH 13, 2012



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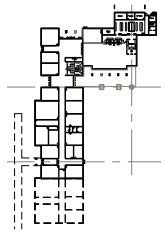

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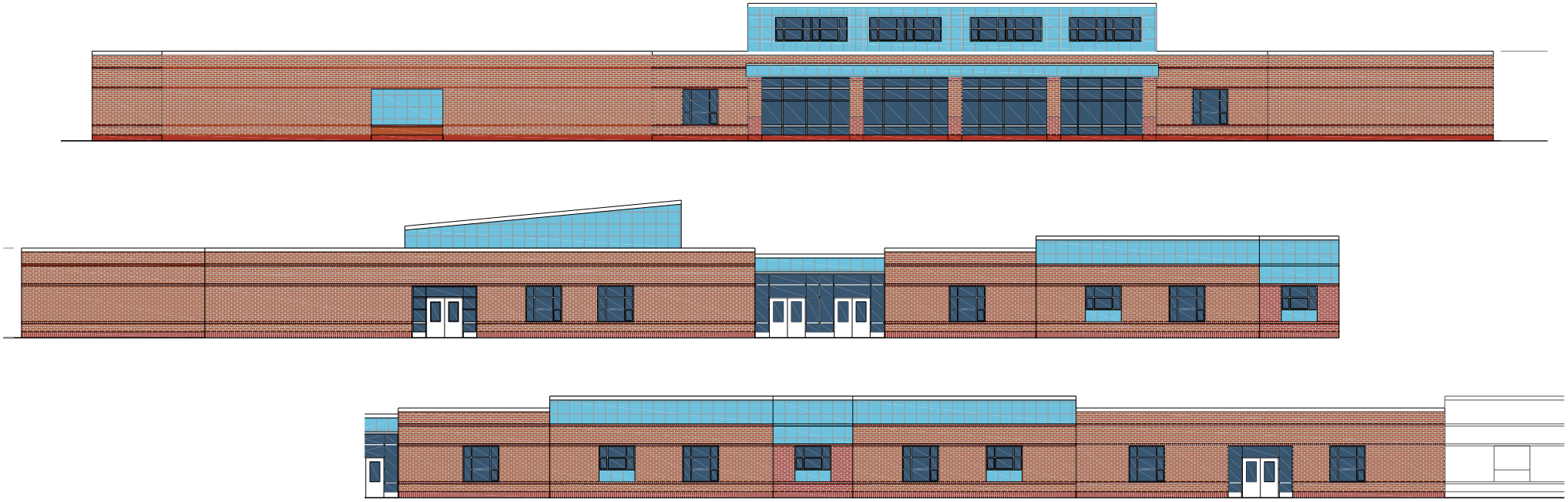


GRAPHIC SCALE

(IN FEET)
1 inch = 8 ft.

PHASE ONE - ENLARGED ELEVATIONS

ALR Ashlin . Lee . Reid architecture

PHASE ONE - BUILDING ELEVATIONS

RIDGE SPRING-MONETTA K thru 12 CAMPUS

PROJECT No: 1120
MARCH 13, 2012

AIKEN COUNTY PUBLIC SCHOOL DISTRICT

RIDGE SPRING-MONETTA K THRU 12 CAMPUS

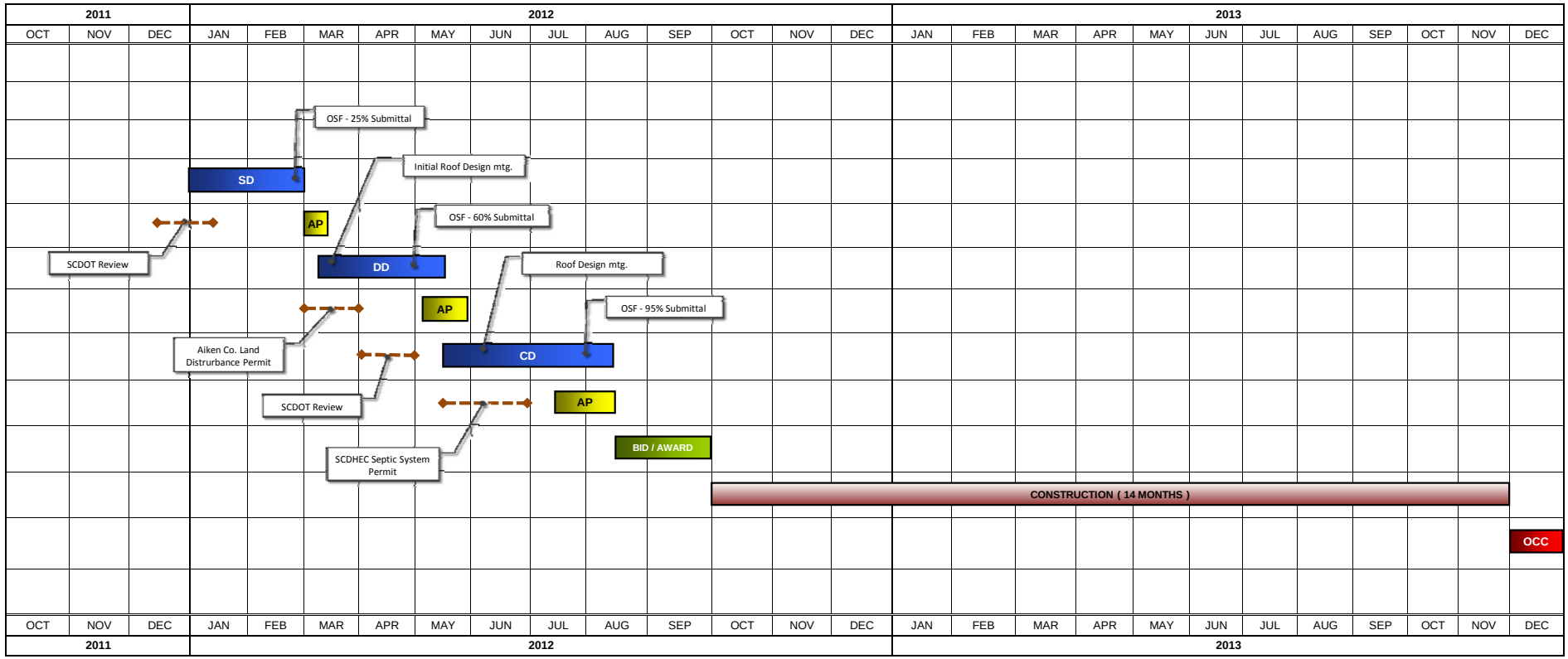
Statement of Probable Cost

Phase One - Schematic Design

					Total Project
SITEWORK					
	Sitework	13.0% of Building Sub-Total		$724,698	
	Sub-Total		$21.19 sf		**$724,698**
BUILDING		**34,200 sf**			
			$ / SF		
	General Construction		$100.00	$3,420,000	
	Plumbing		$9.00	$307,800	
	Fire Protection System		$5.00	$171,000	
	Mechanical		$28.00	$957,600	
	Electrical		$18.00	$615,600	
	Telecom / CATV / Data		$3.00	$102,600	
			$163.00		
	Sub-Total			$5,574,600	
BUILDING AND SITE			**$184.19 sf**		**$6,299,298**
CONTINGENCY					
	Building and Site	10.0%		$629,930	
CONSTRUCTION SUB-TOTAL					**$6,929,228**
NON - CONSTRUCTION					
	Soft Cost (Design Fees, Inspections, Surveying, Soils Report,Testing, FF&E, etc.)			$1,300,000	
PROJECT TOTAL (excluding Alternates)					**$8,229,228**
PROJECT BUDGET					$7,775,000
				-5.8% **Over Budget**	**($454,228)**

RIDGE SPRING / MONETTA - NEW CLASSROOM BUILDING

PRELIMINARY PROJECT SCHEDULE



DIVISION 1: GENERAL REQUIREMENTS

1. Summary
   a. Owner: **Aiken County Public Schools** (ACPS)

   b. Project Location: 10 J.P. Kneece Drive, Monetta, South Carolina

   c. Project Description:

      Phase One - A new Classroom Building at Ridge Spring-Monetta High School to accommodate the relocation of the 6th, 7th, and 8th students from the current RSM Middle School in Ridge Spring. The following spaces are to be included in building.

   d. (See the Program of Spaces included in this document.)

   e. The work includes the following materials and systems.
      i. Site clearing, excavating, grading.
      ii. Site storm sewer. Site sanitary sewer. Domestic water service. Domestic fire protection water service. Electrical power service. Gas service.
      iii. Concrete paving. Fences. Lawns and grasses. Trees and shrubs.
      iv. Concrete foundations and floor slabs.
      v. Structural steel framing. Steel joists. Steel roof deck.
      vi. Exterior Walls: Brick and concrete masonry cavity walls. (8” or 12" reinforced CMU load bearing walls, with asphaltic damproofing / air barrier, rigid insulation in the cavity, and 4" face brick or other masonry facing. Wall R value as required to meet the IBC -Energy Code.)
      vii. Interior Walls: 8” or 12” Concrete Masonry interior walls and partitions.
      viii. Direct Exterior Finish System.
      ix. 4-Ply Built-Up Roofing System.
      x. Standing Seam Metal Roof Panel System.
      xi. Aluminum windows. Aluminum Entrances and Storefront. Glazed Aluminum Curtain Walls.
      xii. Steel doors and frames.
      xiii. Ceramic tile. Vinyl floor tile. Rubber stair finish. Carpet.
      xiv. Acoustical ceiling panels. Stone window sills. Paint. Epoxy coatings.
      xv. Specialties, including: Marker boards and tack boards. Toilet compartments. Interior signs. Exterior signs. Metal Lockers. Protective walkway covers. Storage Shelving.
      xvi. Equipment, including: TV Equipment brackets.
      xvii. Furnishings, including: Plastic Laminate Casework. Science Casework
      xviii. Plumbing work.
      xix. Fire Protection
      xx. Heating, ventilating and air conditioning work.
      xxi. Electrical work.

xxii. Infrastructure for Fire Alarm System, Security systems, and Communication Systems and CATV Systems.

f. Bidding Requirements:
   i. Bidders will be required to submit sealed bids on a date and time to be established by the Owner.
   ii. Bidders will receive full sets of Contract Documents for a refundable deposit.
   iii. Bidders will be given access to Soils Reports and other reports that the Owner has commissioned, as well as the existing site survey.
   iv. Bidders will be given access to the site prior to the bid date. A site visit is not mandatory for Bidders.

g. Contracts:
   i. Project will be constructed under a combined single prime contract.

h. Work under other contracts:
   i. Fire Alarm, Security and Communications Package (Fire Alarm Sys, Intercom, Telephone, Data, CATV / Audiovisual, and CCTV / Security)

i. Owner Furnished Products:
   i. ?
   ii. ?

2. Allowances:
   a. Owner Preferred Mechanical Controls
   b. Unsuitable Soils
   c. Decorative Concrete Masonry Unit
   d. Face Brick
      i. Color ‘A’
      ii. Color ‘B’
      iii. Color ‘C’

3. Alternates:
   a. Owner Preferred Door Hardware
   b. Owner Preferred Mechanical Controls
   c. 4 Additional Classrooms

4. Unit Prices:
   a. Removal of Unsuitable Soils and Replace with Structural Fill
   b. Rock Excavation and Replacement

5. Temporary Facilities and Controls:
   a. Project Sign
   b. Field Office
   c. Utilities
   d. HVAC
   e. Lighting
   f. Roads
   g. Construction Fencing
   h. Erosion and Sediment Control
   i. Dewatering Facilities

6. Bonding and Insurance:
    a. Performance Bond
    b. Labor and Materials Bond
    c. Liability and Property Damage - limits to be determined by owner.

DIVISION 2: SITEWORK

1. Earthwork:
    a. Erosion Control and Tree protection measures.
    b. Tree Removal
    c. Stripping topsoil from building pad and stockpiling of topsoil.
    d. Preparing subgrades for slab on grade, walks, pavement, lawns and plantings.
    e. Excavating and backfilling for buildings and structures.
    f. Topsoil respreading.
2. Termite Control:
    a. Soil treatment
3. Strom Drainage and Sanitary Sewerage:
    a. Installation of and Tie-in to site utilities.
4. Paving:
    a. Hot-mix asphalt paving and overlays
    b. Concrete curbs and gutters, walkways, equipment pads, and loading dock apron.
5. Fences and Gates:
    a. Wrought Iron Fencing and Gates
    b. Galvanized steel chain link fabric and framework
6. Landscaping:
    a. Lawns and Grasses
    b. Trees and Shrubs

DIVISION 3: CONCRETE

1. Cast in Place Concrete:
    a. Foundations / Footings
    b. Slabs on Grade - Dependent upon soils report: 4" concrete slab on grade on 15 mil vapor retarder on 4" crushed stone on compacted subgrade
    c. Walks with tooled joints and broom finish concrete.
2. Cementitious Wood-fiber Deck
    a. Insulated, composite cementitious wood-fiber units

DIVISION 4: MASONRY

1. Mortar: Comply with ASTM C 270
    a. Exterior:
        i. Standard gray for brick and DCMU.
    b. Interior:
        i. Standard Gray Type S mortar for masonry below grade in contact with earth, exterior load bearing and non-load bearing walls and interior load bearing walls.

2. Cement Grout for concrete masonry assemblies: Comply with ASTM C 476.

3. Masonry:
    a. Block Type B Concrete Masonry Unit: Manufacturer's standard units 16" long x 8" high (nom.) (8” and 12” widths) with standard color and texture finish.
    b. Standard size brick for general field of exterior wall and decorative accent colors as indicated on drawings.
    c. Color selection by Owner / Architect. Three colors of brick - A, B, and C.
    d. Horizontal reinforcing to be hot-dip galvanized 16" o.c. ladder type with hook and eye for multi wythe and truss type for single wythe.

DIVISION 5: METALS

1. Structural Steel:
    a. Structural steel beams, columns, joist, and deck.
    b. Finish of structural steel and joist to be two coats of lead-iron oxide, oil alkyd.

2. Deck can be painted steel (ASTM A611) or galvanized steel (ASTM A946) with primer finish.

3. Miscellaneous Metals:
    a. Rails: vertical type pickets with post at 4'-0" o.c. min., galvanized exterior, with baked enamel finish

4. Roof drain leaders.

5. Metal Stairs
    a. Fabricated ship ladders

6. Architectural Joint Systems:

DIVISION 6: WOOD AND PLASTIC

1. Rough Carpentry:
    a. Treated wood blocking and shims.
    b. Sheathing
    c. Plywood backing panels

2. Interior Architectural Woodwork:
    a. Plastic Laminate- Faced Educational Casework:
        i. Casework / Cabinets
        ii. Counter Tops
    b. Interior standing and running trim.

DIVISION 7: THERMAL AND MOISTURE PROTECTION

1. Waterproofing:
    a. Rubberized asphalt sheet membrane by Carlisle Corporation or equal.
2. Dampproofing:

a. Cavity walls protected with equivalent to Sonneborn Hydrocide 200 or equal.

3. Building Insulation:
   a. Rigid board - extruded polystyrene insulation board, minimum 25 psi with R-value of 5, at exterior wall, roof assembly and under slab perimeters.
   b. Batt insulation - mineral-fiber blanket, foil faced per ASTM C665, Type II, Class A, R-19 at exterior wall.

4. Direct Exterior Finish System: (Direct Applied)
   a. Painted cementitious finish over ½" exterior cement board by Dryvit or equal.

5. Formed Metal:
   a. Downspouts, trim, flashing, shall be pre-finished aluminum with a min. thickness of .04 inches.
   b. Exposed metals and flashings shall have fluoropolymer finish equal to Kynar 500 in selected areas.

6. Insulated Metal Wall panels
   a. Insulated Steel Panels with interior steel face

7. Roof Assemblies:
   a. 4 Ply Built-up:
      i. The insulation system within the new low sloped roofing assembly will consist of tapered polyisocyanurate roof insulation with a perlite insulation cover board. The minimum average R-value to be provided will be 25. The roofing membrane 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 required to be provided for the low sloped roofing system.
   b. 20 Year Standing Seam Metal Roof Panels and Soffit Panels.
      i. The roofing system on the steep sloped roof areas will consist of architectural standing seam metal roofing system with polyisocyanurate roof insulation being the insulation system with a minimum R-value of 25. 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.
   c. The roofing assemblies will comply with 2006 IBC and ACPS requirements as well as Energy Star.

8. Roof Accessories:
   a. Roof Curbs
   b. Pipe portals and flashing.
   c. Equipment supports

9. Sealants:
   a. (Exterior) Building Joints - Silicone; color to match masonry units.
   b. (Interior) Caulks - Moving Joints and Wet Areas - Silicone and sanitary silicone where applicable. Non-Moving Joints - 1 part urethane.

DIVISION 8: DOORS AND WINDOWS

1. Metal Windows:

a. Heavy commercial grade 4" extruded aluminum storefront system. Windows shall be thermally broken with institutional hardware and fluoropolymer (Kynar 500) finish. Operable casement or slider window vents shall be integral to storefront system where indicated.
b. Glazing- 1" insulated low E glass
c. Window Sills: 3/4" stone.

2. Glazed Curtain Wall System: EFCO Series.
   a. Stick system installation.
   b. Glazing- 1" insulated low E glass (physically and thermally isolated from framing members)
   c. Glazing is Re-glazable from the exterior.

3. Exterior Door Frames:
   a. Hollow metal doors and frames as indicated.
   b. Comply with ANSI 250.8 and 250.4 (heavy duty and seamless)

4. Interior Doors & Frames:
   a. Solid core flush wood (quarter sawn oak veneer with sealed natural finish) and 16 gauge steel fully welded frames (painted finish).
   b. Hardware to be lever type handles with brushed chrome finish.

5. Interior Glazing System:
   a. Hollow metal frames to match interior door frames with 1/4 inch wire glass.

6. Rolling Grilles, Rolling Service Doors and Rolling Counter Doors:
   a. Located at Dining / Serving Area
   b. Cookson or equivalent.

DIVISION 9: FINISHES

1. Finish Schedule: (will be indicated on drawings)

2. Acoustical Ceiling System:
   a. Tile to be 24"x24" square edge, with suspension system.
   b. Fissured in typical non-wet areas. Vinyl-faced in kitchen areas. Membrane-faced in toilet areas.
   c. Install per manufacturer's recommendations and the requirements of site specific Seismic Classification.

3. Epoxy Coatings:
   a. All non-wet areas to be water base epoxy.

4. Wall Base:
   a. Quality of base to be equal to "Armstrong" complying with FS SS-W-40a, Type I installed per manufacturer's recommendations.
5. Tile:
   a. Thick set quarry tile floor and base in kitchen area.
   b. Thick set porcelain tile and base in gang toilets.
   c. Thick set terrazzo tile and base in corridors.
   d. Tile to be installed per TCA Handbook for each product specified.

e. Epoxy grout as recommended by manufacturer and TCA Handbook.

6. Carpet:
   a. 28 oz. looped pile, commercial grade carpet with inherent stain resistance and microbial resistant.

7. Sanitary Plastic Panels:
   a. Panel shall have textured finish and .090 niches in thickness, equivalent to Kemlite Fire-X Glasbord. Located in kitchen areas as indicated in drawings.

8. Acoustic Wall Panels:
   a. Back mounted wall panels with woven polyester fabric facing equivalent to AVL Systems AcousTech Wall Panel.
9. VCT:
   a. Armstrong Standard Excelon (Companion Square, Imperial Texture, and Multicolor) or equivalent in three-color pattern. Locations: classrooms, resource, art, work, storage, main wiring. See drawing for pattern layout.

10. Concrete Overlay:
    a. Decorative coating on concrete floors.

11. Sealed Concrete:
    a. Epoxy surface with non-slip wear surface on floor surface and base. Location: mechanical and electrical rooms and mezzanines.

12. Wall Assemblies:
    a. Typical Exterior Wall:
       i. 6” metal stud, 20 ga. min. with 5/8” gypsum board on interior face and ½” exterior gypsum board with brick or DCMU veneer.
       ii. 8” or 12” cmu with damp proofing, rigid insulation and brick or DCMU veneer. See drawing CS01.
    b. Typical Corridor and Group Toilets walls: 8” CMU with two coats min. block filler and two coats epoxy paint.
    c. Typical interior partitions to have 5/8” abuse resistant gypsum wall board both sides and finished with semi-gloss paint.
    d. Provide sound batts in all stud walls.
    e. Provide control joints above each door jamb and as recommended by abuse resistant wallboard manufacturer(s).

13. Painting:
    a. Exterior.
        i. Ferrous Metals – Two Coat Full Gloss, Acrylic Enamel Finish over a rust inhibiter primer
        ii. Zinc Coated Metals - Two Coat Full Gloss, Acrylic Enamel Finish over a galvanized metal primer.
    b. Interior
        i. Concrete - Two Coat Semi-Gloss, Acrylic Enamel Finish over a primer.
        ii. Concrete Masonry Units - Two Coat Semi-Gloss, Acrylic Enamel Finish over block filler.
        iii. Gypsum Board - Two Coat Low Luster, Acrylic Enamel Finish over a high build primer/finish.
        iv. Cementitious Wood-Fiber Deck, and Metal Trusses – One or Two Coat Flat Acrylic Finish over factory primed and field prime material as required.
        v. Ferrous Metals - One Coat Semi-Gloss, Alkyd Enamel Finish over an enamel undercoater and a primer.
        vi. Zinc Coated Metals - One Coat Semi-Gloss, Alkyd Enamel Finish over an enamel undercoater and a primer.
    c. Contractor shall submit color samples of all finishes prior to ordering and installation.

14. Colors:
    a. Contractor shall submit color samples of all finishes prior to ordering and installation.

DIVISION 10: SPECIALTIES

1. Chalkboards & Tack boards:
    a. Porcelain Enamel Marker boards shall be balanced; high-pressure laminate and thee ply construction. Boards will include marker tray and map clips.
    b. Tack boards shall be a single layer, ¼" thick, seamless, compressed fine grain, natural cork sheet with fabric facing.

2. Toilet Partitions and Doors:
    a. Toilet partitions shall be solid plastic, polymer resin with homogeneous color through out, institutional grade hardware and grab bars where indicated.

3. Science Casework:
    a. Solid Wood Cabinets
    b. Resin Counter Tops.

4. Metal Lockers:
    a. Single Tier Wardrobe Lockers for staff in kitchen area. DeBourgh Manufacturing or equivalent.
    b. All lockers will have solid metal door with ability to be secured with a pad lock.

5. Flagpoles:
    a. Clear anodized aluminum. Bartol or equivalent.
        i. State flag.
        ii. Country flag.

6. Fire Extinguishers:

a. Per code requirements in semi-recessed cabinet with break away access.
b. Multipurpose Dry-Chemical Type, UL rated 10 lb nominal capacity.

7. Louvers & Vents:
   a. Extruded aluminum equivalent to Airolite "KX827" with finish to match window finish.

8. Signage:
   a. Acrylic interior signage (one sign for each door).

9. Toilet Accessories:
   a. Handicapped grab bars
   b. Toilet paper dispenser
   c. Hand dryers
   d. Paper towel dispenser
   e. Soap dispenser

10. Television Brackets (wall mounted and ceiling mounted)

DIVISION 11: EQUIPMENT

1. Food Service / Kitchen Equipment

DIVISION 12: FURNISHINGS

Not Used

DIVISION 13: SPECIAL CONSTRUCTION

Not Used

DIVISION 14: CONVEYING SYSTEMS

Not Used

DIVISION 15: MECHANICAL SYSTEMS

HVAC

The new System consists of 2 air cooled chillers with electric VAV air handling units to serve the building configured in a 2-pipe hydronic piping arrangement .Controls will be a new system compatible with a DDC system. New kitchen hood, kitchen exhaust fan, make-up fans will be provided as required supporting the new plan. All HVAC Systems will be designed to meet the current IBC Codes, OSF requirements, and NFPA requirements.

PLUMBING

The new plumbing system consists of cast iron waste pipe with insulated copper water piping with a new service of domestic water supply provided for this new building. All new toilet groups are to be provided using flush valve fixtures. A new electric water heating system will be provided for group toilets with recirculation pumps to maintain desired water temperature. A new electric water heating system will be provided with storage tank and recirculation pumps to support the kitchen. The grease laden waste from the kitchen will flow thru a certified grease interceptor prior to discharge into the sanitary system .All kitchen fixtures provided for the kitchen will be stainless steel. All plumbing will be designed to meet the current IBC Codes, and OSF requirements.

FIRE PROTECTION

The new building addition will be designed with an NFPA-13 compliant sprinkler system which meets all of the requirements of the OSF Guidelines. The minimum Hazard of design will meet or exceed Ordinary Hazard / Group I. The Kitchen Exhaust Hood will be furnished with a wet chemical fire suppression system in accordance with code requirements.

DIVISION 16: ELECTRICAL SYSTEMS

SYSTEM DESCRIPTION

The electrical service to this building will be a new, 3 phase, 4 wire service coordinated with the local power company. The lighting system will be served with 277 volt power. The HVAC equipment serving this building will be served with 480 volt, 3-phase power. The 480/277 volt system will also be stepped down to a 208Y/120 volt system. This system will serve the receptacles, 120 volt lighting and miscellaneous equipment.

Electrical closets located throughout the building will provide electrical distribution throughout building. A separate set of closets, with 3” conduits interconnecting them, will provide CATV, telephone and computer systems distribution thought building.

An addressable fire alarm system will be installed in this facility. This system will comply with the requirements of the OSF. This system will also comply with current ANSI requirements for horns, strobes and device mounting heights. This system will be provided with an automatic dialer in order to notify local municipalities via a U.L. listed central monitoring station.

Raceway, box and cable tray provisions shall be provided for CATV, security, CCTV, telephone and computer systems. The cabling, jacks, cover plates, equipment, etc. for each of these systems shall be provided and installed under a separate contract.

CODES AND APPROVING AGENCIES

1. All work shall comply with local codes, the National Electrical Code and other applicable N.F.P.A. Standards, and requirements of the IBC as well as the OSF Design Guidelines.

2. Guidelines provided by the OSF will be utilized in planning the needs and designing the electrical system for this facility.

CONSTRUCTION DOCUMENTS

1. The Contractor shall be required to keep a set of contract drawings on the jobsite. This set of drawings will be used for marking all deviations from the contract drawings. These deviations will be marked in red ink on not less than a weekly basis. These drawings shall be used for no other purpose than to be marked for "Record" drawings.

MATERIALS OF CONSTRUCTION

1. Raceways and Conductors:

   a) Shall be rigid metal for runs subject to physical damage, EMT for most general circuiting. PVC shall be used underground and only where specifically noted on the drawings. All conduits shall be 1/2" minimum size. Elbows and bends in PVC runs shall be metal for sizes 1-1/2" and larger. All underground power feeders routed beyond the footprint of the building shall be encased in minimum of 3" of concrete.

   b) EMT fittings shall be compression gland type, of malleable steel. Connectors shall have insulated throats. Cast, set-screw, or indenter type fittings are not acceptable.

   c) All raceway shall be run concealed where possible. All runs shall be neat and square.

2. Outlet Boxes:

   a) Unless specifically noted or approved otherwise, boxes shall be of metal (steel or aluminum) as manufactured by Steel City, T & B, Raco, Appleton, or approved equivalent.

   b) Heavy wall conduits shall be attached with double locknuts. EMT shall be attached with connectors only.

   c) Boxes shall be installed using screws, bolts, Caddy bar straps, etc.

   d) Switch boxes shall be 46" AFF to center and 2" from edge of doorframe. Receptacles shall be 18" AFF to center, or as indicated on plans, mounted vertically. Unless noted otherwise on the drawings.

   e) All receptacles and switches shall be white in color. All trim plates shall be #302, nonmagnetic, stainless steel.

3. Supports:

   a) All equipment shall be adequately supported from structure.

   b) Inserts in masonry shall be lead or fiber in drilled holes, or cast in place.

   c) Only screws, bolts, etc. shall be used. No nails allowed.

   d) Raceway shall be supported from structure and properly secured. Supports shall be a maximum of 10' apart and a maximum of 3' from boxes and other terminations. Fixtures mounted in or on ceiling shall be supported from structure via 12 gauge steel wire (one at each corner of fluorescent troffer). Do not support raceway or fixtures from ceiling grid or ductwork. Use sheet metal screws to attach all four corners of all fluorescent troffers to the ceiling grid.

   e) Cable shall be supported every 4-1/2', or as required by NEC.

4. Conductors:

   a) All conductors shall be copper, and shall be manufactured by Pirrelli, Colonial, Triangle, Southwire, or approved equivalent.

   b) No. 10 AWG and smaller shall be solid, #8 AWG and larger shall be stranded. Phase conductors #10 AWG and smaller shall have insulation colored in manufacture, #8 AWG and larger shall use colored tape near each termination for marking. Neutral conductors #6 AWG and smaller shall have white or light gray insulation colored in manufacture, larger than #6 AWG shall use colored tape near each termination for marking. In no case, will painting of wire be acceptable.

   c) Insulation shall be type THWN or THHN for feeders and type THHN/THWN for branch circuits. Fixture taps shall be #12 THHN/THWN in flex with green, #12 AWG grounding conductor.

   d) Color code shall be black, red, blue, white (PH-A, PH-B, PH-C, neutral) for 120/208 volt, 3 phase, 4 wire systems, and brown, orange, yellow, light gray (PH-A, PH-B, PH-C, neutral) on 277/480 volt, 3 phase, 4 wire systems. Ground shall be green on all systems.

   e) Joints in #10 AWG and smaller to be made up with crimped connectors with insulating caps (no tape) or wirenuts (maximum of 3 conductors under any connector or wirenut). Larger wire shall use split bolts or bolted clamps.

   f) Circuit joints shall not be made up on terminals of devices. Devices shall be wired using pigtails.

   g) Wire within panel boards shall be neat and square, bunched, and tagged.

5. Wiring Methods:

a) No conduit shall contain more than one circuit of each phase (max. of 3 phase wires and one neutral).

b) All equipment shall be grounded per NEC. Conduits shall be bonded where they enter enclosures through concentric knockouts. All conduits, including fixture taps, shall include green grounding conductor, #12 minimum.

6. Painting:

a) Suitable finish coat shall be provided for all items of equipment. Panel covers, etc. shall be primed and enameled to blend with adjacent surfaces, or shall be manufacturer's standard color baked enamel finish, as directed by Architect.

7. Wiring Devices:

a) All wiring devices of any one general type (e.g. all duplex receptacles, all wall switches, etc.) shall be of the same manufacturer and shall match throughout.

b) Wiring devices and trim plates shall be as manufactured by Hubbell, Sierra, Leviton, P & S, Arrow, or approved equivalent.

c) Switches – Grounding type, with hex-head grounding screw, rated 20A, 120/277 volt, A.C. only. If required, lighted handle switches shall have neon lights of the correct voltage rating. All switches shall have quiet operating mechanisms without the use of mercury-switches. All switches shall be listed by an "approved" third party agency as approved for the voltage and amperage indicated.

d) Receptacles - duplex receptacles shall be of the grounding type, arranged for back and side wiring, with separate single or double grounding terminals. Receptacles shall be straight blade, rated 20A, 125 volt and the face configuration shall conform to the NEMA Standard No. WDI 101968, and shall be "approved" third party listed. Self-grounding or automatic type grounding receptacles are not acceptable in lieu of receptacles with separate grounding screw lugs and a direct, green insulated conductor connection to the equipment grounding system. Receptacles shall be heavy-duty, specification grade, mounted vertically. Receptacles mounted over counters, back-splashes, etc., may be mounted horizontally.

8. Switchboard, Panelboards and other Electrical Gear:

a) Electrical gear will be manufactured by Square D, Siemens, G.E. or Cutler-Hammer.

b) Where used, the main switchboard shall be dead front, full neutral, copper bus, circuit breaker type, front accessible only. The main circuit breaker shall be provided with ground-fault protection.

c) Where used, the main distribution panel board shall be dead front, full neutral, copper bus, circuit breaker type. Where needed, the main circuit breaker shall be provided with ground-fault protection.

d) Panel boards shall be dead front, full neutral, and circuit breaker type, installed in flush or surface mounted cabinets as indicated on the drawings. All bussing shall be copper and all breakers shall be bolt-on or I-line type. Panel boards shall be mounted so top of can is no more than 78 inches above finished floor.

e) Safety switches shall be NEMA type heavy duty, horsepower rated for 250 or 600 volts as required. Where fusible, these switches shall use time delay, dual element, non-renewable, cartridge-type fuses. Enclosures shall be NEMA 1 indoors and NEMA 3R outdoors unless otherwise indicated. Molded case circuit breakers shall be thermal-magnetic type, trip-free, having indication independent of handle positions. Multi-pole breakers shall be common trip. All circuit breakers shall be bolted in place. Breakers shall be calibrated at 40 degrees C, or ambient.

9. Lighting:

a) Lighting fixtures will be specified on construction documents with minimum of three equivalent manufacturers specified for each fixture type.

b) Interior lighting shall generally be provided by fluorescent fixtures with energy saving T-8 lamps and electronic ballasts. Fixtures shall be recessed throughout the building.

c) All related parts such as junction boxes, louvers, shields, stems, mounting flanges, etc., necessary to properly install fixture shall be provided.

d) All ballasts shall be UL labeled, ETL approved, ANSI C82 compliant, high power factor type with voltage and temperature characteristics suitable for use as indicated on plans. Electronic ballasts and T-8 lamps shall be used throughout.

e) Recessed fluorescent troffers shall be supported from structure with (4)-#12 gauge steel wires and secured to ceiling grid using one sheet-metal screw in each corner. Flex to troffer with (3)-#12 THHN (one green ground).

f) Exit signs and egress lighting shall be installed in corridors and other paths of egress where indicated on plans. These fixtures shall be provided with integral Ni-Cad battery back-up. Exit signs shall utilize energy saving L.E.D. technology.

10. Telephone, Data and CATV Systems:

a) Telephone, data and CATV outlets shall consist of a 4” square box with single gang ring. Cover plate, jack and cabling for telephone, data and CATV outlets will be provided and installed under a separate contract. Run 3/4” raceway from box and stub out above nearest corridor ceiling. Leave 100# test nylon pull cord in all empty raceways.

b) An 18” wide, center-hung, cable tray with cross rungs attached on 9” centers and turned up to a height of 4”, and provided with sweeping elbows and “tees”, shall be installed throughout building corridors to route cabling for telephone, data and CATV systems. Adequate sleeves shall be provided, as needed to route cable through fire/smoke-rated walls as well as other non-rated structures. Cable tray shall be supported from structure above with minimum ¼” threaded steel rods, or as recommended by manufacturer.

11. CCTV and Security Systems:

a) A system of conduits and boxes shall be provided and installed under this contract to support CCTV and Security System cabling and equipment. All devices, cabling, jacks, etc. for these systems shall be provided and installed under a separate contract.