rosstarrant architects

101 old lafayette avenue lexington, kentucky 40502 p.859.254.4018

NOT FOR CONSTRUCTION

PHASE A SITE PLAN
NEW RISE STEM ACADEMY FOR GIRLS PHASE 1 TREE CLEARING PACKAGE
FOR:
FAYETTE COUNTY PUBLIC SCHOOLS
2160 VERSAILLES ROAD, LEXINGTON, KY 40504

M.E.&P Engineer
CMTA, Inc.
220 Lexington Green Circle
Suite 600
Lexington, KY 40504
p 859.253.0892

Structural Engineer
Structural Design Group, Inc.
220 Great Circle Rd. Suite 106
Nashville, TN 37228
p 615.255.5537

Site/Civil Engineer:
Element Design
366 S Broadway,
Lexington, KY 40508
p 859.389.6533

BG# 23-547

Project No: 20045
Drawn By: Author
Rev'd By: Checker

SHEET RELEASE		
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SCHEMATIC DESIGN

SITE PLAN

DATE ISSUED:
12/11/2023

elementdesign
landscape architecture+civil engineering+planning
366 south broadway
lexington, ky. 40508
p. 859.389.6533
f. 859.389.6534
www.element-site.com

1018 east jefferson
louisville, ky. 40206
p. 302.489.4221

REVISIONS

#	DATE	DESCRIPTION

FIRST FLOOR PLAN
1/16" = 1'-0"

A1.1

DEPARTMENT LEGEND

- ADMINISTRATION
- KINDERGARTEN CLASSROOM
- ELEMENTARY SCHOOL CLASSROOM
- MIDDLE SCHOOL CLASSROOM
- FMD CLASSROOM
- RESOURCE CLASSROOM
- RESOURCE INTERVENTION CLASSROOM
- GIFTED AND TALENTED
- ENGLISH LEARNER
- MAKER SPACES
- ELEMENTARY SCHOOL SCIENCE LAB
- MIDDLE SCHOOL SCIENCE LAB
- WORLD LANGUAGE CLASSROOM
- MEDIA CENTER
- MUSIC (BAND/ORCHESTRA)
- PHYSICAL EDUCATION
- KITCHEN & CAFETERIA
- CUSTODIAL RECEIVING
- RESTROOMS, MECHANICAL, MISC. SPACES
- CIRCULATION

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FLOOR PLAN - FIRST FLOOR

NEW RISE STEM ACADEMY FOR GIRLS

FOR:

FAYETTE COUNTY PUBLIC SCHOOLS

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Project No:	20045
Drawn By:	AC / MH
Rev'd By:	SL

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SCHEMATIC DESIGN

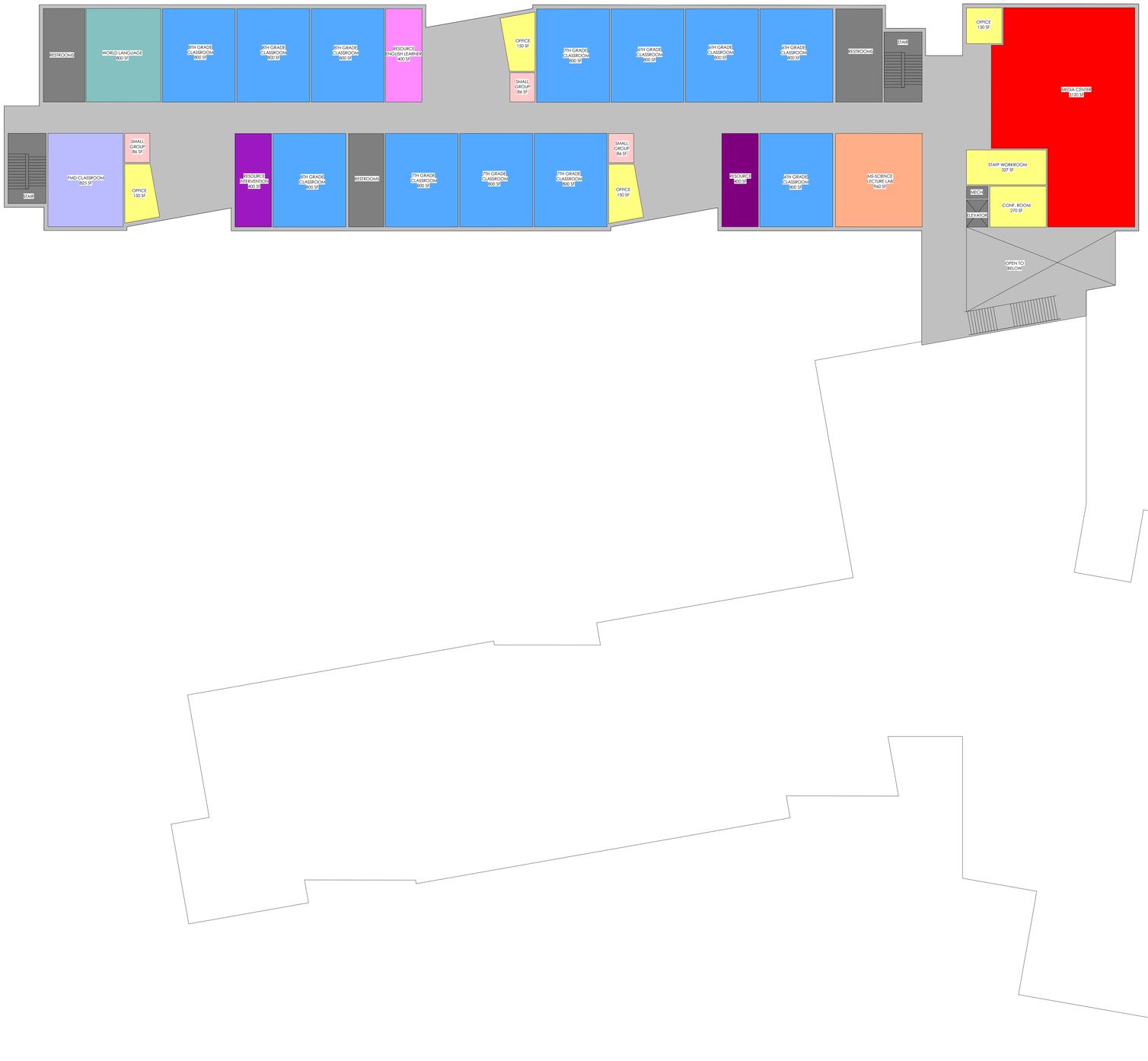
A1.1

FLOOR PLAN - FIRST FLOOR

DATE ISSUED:
12/11/2023

REVISIONS

#	DATE	DESCRIPTION



SECOND FLOOR PLAN
1/16" = 1'-0"

A
A1.1

DEPARTMENT LEGEND

- ADMINISTRATION
- KINDERGARTEN CLASSROOM
- ELEMENTARY SCHOOL CLASSROOM
- MIDDLE SCHOOL CLASSROOM
- FMD CLASSROOM
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- CIRCULATION

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FLOOR PLAN - SECOND FLOOR
NEW RISE STEM ACADEMY FOR GIRLS
FOR:
FAYETTE COUNTY PUBLIC SCHOOLS
2160 VERSAILLES ROAD, LEXINGTON, KY 40504

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BG#

Project No: 20045
Drawn By: AC / MH
Rev'd By: SL

SHEET RELEASE

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SCHEMATIC DESIGN

A1.2

FLOOR PLAN - SECOND FLOOR

DATE ISSUED:
12/11/2023

September 22, 2023 FCPS Rise STEM Academy for Girls

Model Derived from the K-12 KDE Standards for a K-8 900 Student Building

PROGRAM SPACE	***Discretionary/ Specials/Electives ***	NO. OF RMS.	AVG S.F. AREA EACH	TOTAL S.F. AREA	SUBTOTALS	Differences above or below KDE Model
GRADES K-8						
Standard Elem Classrooms @ 800 SF		20	800	16,000		
Standard MS Classrooms @ 750 SF		12	750	9,000		
					25,000	800
Special Education (Self-Contained)		1	825	825		
Spec ed Self-Cont (room added)		1	825	825	1,650	825
Resource Rooms @ 400	Both Elem & MS	6	400	2,400		
Intervention	(1) Elem (1) MS	2	400	800		
Gifted and Talented	(1) Elem (1) MS	2	200	400		
English Learners	(1) Elem (1) MS	2	400	800	4,400	1,600
Kindergarten (Like preschool w/toilet)		4	825	3,300	3,300	3,300
Science lecture lab (Nature Sudies)	*** Elem	1	900	900		-100
Science lecture lab (was 1625)	*** MS	1	1,000	1,000		-625
Elem Art (Maker Space)	*** Elem	1	1,200	1,200	1,200	400
MS Art (Maker's space)	*** MS	1	1,200	1,200		
Deduct for a Kiln room & Storage						
Elem ~~Music~~ Maker space (Digital Media)	*** Elem	1	1,200	1,200	1,200	400
MS Music (Band/Orchestra)	***MS	1	2,500	2,500	2,500	500
~~Elem computer~~ World Language	***MS	1	800	800		
MS/HS ~~computer~~/Maker space	***Elem	1	1,280	1,280		
Library/Media Center		1	5,225	5,225		
Deduct for typcial support spaces (Workroom, TV Studio, Storage)	*Deduct space for other uses as discussed*					
Kitchen (Deduct Support Spaces)		1	3,800	3,800	3,800	-
Cafeteria		1	6,200	6,200	6,200	-
Physical Education Total	*** Both Elem & MS*	1	12,400	12,400		
Middle School gym floor playing area, divider curtain, bleachers, locker rooms, PE office, PE storage						
Administrative Area (2,170 original)				-		
Reception & General Business Office		1	363	363		
Director		1	200	200		
Assistant Principal's Office		2	150	300		
Mental Health		2	150	300		
First Aid/Nurse		1	400	400		
Bookkeeper Office		1	100	100		
Instructional Coaches		2	150	300		
Records Room		1	150	150		
Staff Workroom		1	350	350		
Staff Toilets		-	50	-		
Bookstore / Concessions / Ice		1	150	150		
Guidance Office		2	150	300		
Second workroom		1	350	350		
Second Conference room		1	270	270		
SBDM Council Conference Room		1	270	270		
Mother's Room		1	50	50		
SRO office		1	150	150		
OT/PT		1	150	150		
Speech		2	200	400		
ACC and School Psych		1	200	200		
					4,753	2,583
Family Resource Area		1	750	750	750	450
Custodial Receiving		1	350	350	350	100
Locally Identified Career & Tech. Ed. Allowance (LICTE)		1	5,500	5,500		
Locally Identified Program Space Allowance (LIPA)		1	6,625	6,625		
Used LIPA & LICTE				*(10,233)*		
TOTAL PROGRAM NET AREA				**79,800**		
K-12 Efficiency Factor = 71%						
TOTAL BUILDING GROSS AREA				**112,394**		

FCPS New Rise STEM Academy for Girls
Project Narratives

General

This project will be the new home for the Rise STEM Academy for Girls previously housed in the former Linlee Elementary School. The 2-story building will accommodate the 900-student population serving grades K-8. The program is organized based on 21st century learning models, and focused on project-based learning, flexibility, and multiple scales of spaces for teaching, learning, collaboration and presentation of projects, both internally and to the larger community.

The project includes centralized maker spaces, classroom wings with distributed resource rooms, administrative offices, restrooms, and small group learning spaces. A larger breakout classroom will serve each of the grade levels, with direct access to outdoors for extended learning space. Additional first floor program includes Physical Education, Cafeteria / Kitchen, and Music. The second floor includes a media center, the 6-8 grade classrooms and associated elective classrooms.

The exterior walls will be insulated concrete form (ICF) construction with a combination of masonry veneer and metal wall panels on the exterior face and abuse-resistant gypsum board on the interior face. Structure will be a combination of load bearing ICF, CMU, and steel columns/beams, with steel joists, metal decking, and concrete floor slabs. Low-slope roofs will be 2-ply SBS modified bitumen over polyisocyanurate rigid insulation. Some areas will have high slope roofs which will be standing seam metal roof panels over polyisocyanurate rigid insulation. Corridor and classroom partition walls are to be CMU with a few walls between classrooms being metal studs and gypsum board to allow for future flexibility. Walls in the administrative offices are to be metal studs and gypsum board. Glazing systems are to be aluminum storefront and curtainwall with low solar heat gain glazing optimized for daylighting and energy efficiency.

Site Narrative: Element Design

The new Rise Stem Academy for Girls site will be located at 2160 Versailles Road, Lexington, KY. This is a beautiful site with rolling hills, wooded areas, and fence row trees. There is existing access to the site from Versailles Road to the north. The existing access road to the site will remain in the same location but will be modified to accommodate two-way bus traffic. An additional access road will be added for faculty, staff, and parent circulation from Mason Headley. The access road will be a one-way road with the entrance being across the street from Cardinal Hill Rehabilitation Hospital and the exit is located southward toward Duntreath exiting onto Mason Headley.

Due to the topography of the site and the large footprint of the building, there will be significant grading across the entire site. However, we are keeping this grading impact as tight as possible to maintain the treed buffer between the school and the neighbors along the Lane. Some small retaining walls will be necessary to make grade transitions and to provide accessible routes to the bus loop. Storm water will be detained in the lower elevations of the site. The existing pond is going to remain as part of the property because it is currently serving as detention for part of the property.

Site development includes a new parking lot, service area, entrance/drop-off plaza, bus and parent loop and play areas for all ages are in the rear of the building. The parking potentially includes permeable pavers in the parking stalls to address site run-off and water quality issues associated with the increase of impervious surfaces on site. The service area will house the dumpster station and exterior mechanical equipment, and provide service access to the building.

The back side of the building includes a large playground with swings and two play structures will be connected to the building with paved walks to several exits. The center between the two wings will be used for outdoor classroom and demonstration space along with garden space and places for some exterior science related projects.

Landscape development will include native shade, evergreen and ornamental trees as appropriate to frame views of the building and provide some areas of shade. More detailed landscape development will occur at select areas such as the building entrance and plaza space; plantings will be simple masses that maximize visual impact with minimal maintenance. At biofiltration areas and detention basin, special seed mixes will be used to create ‘no mow’ zones to maximize filtration benefit for water quality.

The site has readily available sewer, water and gas. The sanitary will exit the school via gravity sewer line. Storm sewer design will focus on balancing pre and post construction run-off and treating run-off from new impervious surfaces in accordance with LFUCG requirements. There will be a combination of manufactured treatment devices along with permeable pavement and biofiltration to help filter the runoff.

MEP Narratives: CMTA, Inc

Design Criteria - HVAC

1. The design of the HVAC systems will comply with the minimum requirements of the following standards:

   ADA – Americans with Disabilities ACT
   ASHRAE 62.1 – Indoor Air Quality
   Fayette County Public Schools Building Component Requirements August 2023
   International Energy Conservation Code 2012
   International Mechanical Code 2015

2. The design of HVAC systems with respect to noise and vibration control will be in accordance with ASHRAE standards. The following maximum sound levels will not be exceeded in the design or installation:

   Private offices, classrooms, and Resource rooms: NC 30-35
   Circulation areas, Labs NC 40-45

3. HVAC System: The HVAC system is a geothermal heat pump system, with the well field located to the plan north of the building in greenspace. Heat pumps will be placed in mechanical spaces for larger areas and above ceilings for classrooms. A dedicated outside air system will utilize VAV boxes to modulate the correct amount of outside air for spaces. Carbon Dioxide sensors will control the demand control ventilation system for each space.

4. Temperature, Humidity and Carbon Dioxide for classrooms, and administration spaces:

   a. Heating Season

      i. On a design day (0º F), system shall maintain 71º F in the occupied spaces.
      ii. No humidification is provided; therefore, no minimum humidity set point is provided.
      iii. System heating shall be available to -3º F per FCPS Building Component Requirement.

   b. Cooling Season

      i. On a design day (95 / 78º F DB/WB), system shall maintain 73º F in the occupied spaces.
      ii. Humidity – maximum relative humidity at 60% in the space.

5. Carbon Dioxide:

   a. Carbon Dioxide sensors will monitor carbon dioxide levels and control fresh air dissemination.

6. Data Rooms:

    a. Split DX units will provide cooling, so no pumps will be required to run in the unoccupied mode. Wall mounted units will be used to avoid equipment being located above the data racks and allow easier access for maintenance.

7. Temperature, Humidity and Carbon Dioxide for Corridors

    a. Heating Season

        i. On a design day (0º F), system shall maintain 64º F.
        ii. No humidification is provided; therefore, no minimum humidity set point is provided.
        iii. System heating shall be available to -3ºF per FCPS BCR.

    b. Cooling Season

        i. On a design day (95 / 78º F DB/WB), system shall maintain 78º F.
        ii. Humidity – maximum relative humidity is 60%.

    c. Carbon Dioxide

        i. No monitoring will be provided.

8. Control System Set points

    a. For the purposes of energy benchmarking, the following schedules and set points will be used (note: these values are copied from FCPS BCR)
        i. Summer setback temperature = 78º F.
        ii. Winter setback temperature = 65º F.
        iii. System start-up / stop time = 6:30 AM / 4:00 PM.

    b. Siemens or EMCOR Services will be the two allowed controls providers. This system will be connected to the FCPS DDC network.

9. Storm Shelter
    a. Mechanical means will be utilized to meet ventilation requirements for the storm shelter areas of the building. The fans will be located above ceilings or at exterior walls to be left exposed in the event of catastrophic weather events.

Design Criteria – Plumbing and Fire Protection

1. The design of the plumbing systems will comply with the minimum requirements of the following standards:

    ADA – Americans with Disabilities ACT

Fayette County Public Schools Building Component Requirements August 2023
International Energy Code 2012
International Mechanical Code 2015
Kentucky Plumbing Code, 2020

2. Plumbing Fixtures:

    a. Lavatories – manual single lever control, vandal resistant.
    b. Urinal – sensor flush valve with push button override. Hard wire power.
    c. Water Closet – manual flush valve, wall hung for students, floor mount for staff toilets.
    d. A water softener will be provided for the kitchen hot water system.

3. Domestic Water Temperatures:

    a. 140º F to the kitchen equipment as required.
    b. 110º F to all other hot water outlet locations.

4. Fire Protection

    a. 100% coverage wet type system per NFPA 13.

5. Storm Shelter
    a. The main water service will be placed within the mechanical room of the storm shelter area. A portion of the supply distribution piping serving areas that double as storm shelters will be run underground.

Design Criteria - Electrical

1. The design of the electrical systems will comply with the minimum requirements of the following standards:
    ADA – Americans with Disabilities ACT
    Fayette County Public Schools Building Component Requirements Revision April 2012
    International Energy Conservation Code 2012
    National Electrical Code 2017
    KETS
    Designed to be DOE Energy Star

2. Interior Lighting:
    a. Classrooms illuminated to KDE minimum standard.
    b. All interior fixtures will utilize LED source lighting.

3. Exterior Lighting:
    a. Parking lots will be illuminated to a sufficient level for use of security cameras (basis Sonitrol)
    b. Parking lots will utilize LED source lighting

4. Lighting Controls:
    a. Distributed programmable lighting controls with occupancy controls throughout the facility.

5. Technology:
    a. Fiber and Copper backbone between building demarks
    b. CAT 6 in conduit to cable tray for voice and data; CAT 6A for wireless access points
    c. Campus paging/intercom system
    d. Rough-in for Interactive Teaching System

6. Power Systems
    a. TVSS shall be installed on electrical power entrance gear
    b. Distributed sub-metering of electrical panels to provide real-time and trended energy consumption information
    c. New site pad mount transformer shall be provided for new electrical service.
    d. New interior Natural Gas generator shall be provided in mechanical courtyard area.

7. Emergency Powered Systems (Non-diesel generator):
    a. Egress lighting
    b. Fire Alarm control panel
    c. PA system
    d. Energy Management system
    e. Kitchen cooler freezer
    f. I.T. Closet

8. Storm Shelter
    a. The emergency generator will be placed inside the building and protected in accordance with ICC 500 requirements. The electrical distribution for the storm shelter(s) will be within the generator room or storm shelter.

HVAC LIFE CYCLE ANALYSIS - SUMMARY

System	**First Cost**	**Annual Est. Energy Cost**	**Annual Est. HVAC Maintenance Cost**	**30 Year Life Cycle Cost**
Geothermal Heat Pump	$7,3,06,000	$108,710	$20,232	$13,834,642

HVAC LIFE CYCLE ANALYSIS – ESTIMATED ANNUAL COSTS

The analysis assumes 3% annual escalation in maintenance costs with major equipment replacements in year 20. It assumes 5% annual escalation of energy costs.

YEAR	GSHP
1	$7,434,942
2	$7,567,753
3	$7,704,548
4	$7,845,447
5	$7,990,573
6	$8,140,053
7	$8,294,017
8	$8,452,599
9	$8,615,940
10	$8,784,180
11	$8,957,468
12	$9,135,955
13	$9,319,796
14	$9,509,152
15	$9,704,189
16	$9,905,077
17	$10,111,992
18	$10,325,114
19	$10,544,630
20	$11,164,884
21	$11,397,768
22	$11,637,639
23	$11,884,706
24	$12,139,185
25	$12,401,299
26	$12,671,275
27	$12,949,352
28	$13,235,770
29	$13,530,781
30	$13,834,642