TAYLOR MILL ELEMENTARY RENOVATION Project No. 25-073

SCHEMATIC DESIGN NARRATIVE

2025.11.14

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Addressee
Kenton County School District
1055 Eaton Drive
Fort Wright, KY 41017

Submitted By
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EXECUTIVE SUMMARY:

The proposed renovation of Taylor Mill Elementary School includes interior updates to the entire building. Architectural scopes include classroom, restroom, corridor, media center and gymnasium finishes & equipment/fixtures; door, marker/tackboard, and cubby/cabinet replacement; full kitchen remodel including replacement of exhaust hoods and walk-in cooler/freezer, elevator modernization; new roofing with increased insulation for energy savings; a new awning/canopy at cafeteria door; replacement of miscellaneous playground equipment and miscellaneous concrete sidewalk replacement at playfield.

CODE COMPLIANCE + ACCESSIBILITY:

The renovation will be designed to meet the following Kentucky and local building codes and accessibility requirements.

Applicable building codes:

- 2018 Kentucky Building Code
- 2015 International Existing Building Code
- 2015 Kentucky Mechanical Code
- NFPA 70 2023 National Electrical Code
- NFPA 72 National Fire Alarm & Signaling Code
- Kentucky State Plumbing Code
- Commercial Energy Conservation Code 2012 of Kentucky
- NFPA 13 Kentucky Fire Sprinkler Code 2013

Cited References:

- ICC A117.1: Accessible and Usable Buildings and Facilities 2017
- ASHRAE Standard 62.1 – 2010
- ASHRAE Standard 90.1 – 2010

PROJECT SCOPE: (MEP Scope noted separately)

Civil:

- Repave sidewalk to playground and replace steps from rear drive to play field.

Architecture | Interior:

- General/Miscellaneous
  - Replace flooring throughout except where MCT has been recently installed
  - Paint all walls, hard ceilings, HM and wood door frames, and HM doors.
  - Replace ACT ceilings only as required for MEP scopes of work.
  - New doors throughout. Frames are to remain unless noted otherwise.
  - Replace drinking fountains with new fountains/bottle fillers.
  - Replace tackboards and display rails in corridors. Replace markerboards and tackboards in classrooms.
  - Provide manually operated window shades at exterior windows.
  - New interior room/door signage throughout building

- Main Office
  - Replace laminate at reception area millwork
  - New finishes

- Classrooms
  - At classrooms in original 1950 section, remove existing built-in classroom storage system in its entirety, including non-structural partition walls, doors, door hardware, shelving, countertops and cabinets. Construct new partition walls between classrooms.
  - Provide new student cubbies / cabinets and teacher storage in all classrooms.
  - Replace chalkboards, markerboards, and tackboards in 1950 section with new markerboards and tackboards.
  - At classrooms in remaining areas of building replace finishes and marker/tackboards

- Restrooms
  - 1985 & 1999 restrooms to be remodeled with new finishes, toilet partitions, and accessories
  - 1950 section restrooms:
    - Chase wall to be removed and new chase wall built.
    - Replace toilet partitions, accessories, and hand dryers.
    - Install new ceramic tile on walls and floors.
    - Install new plumbing fixtures.
  - Upgrade Nurse restroom to make it ADA compliant.
  - Construct new single user ADA boys bathroom in Nurse room accessed from Cafeteria

- Kitchen
  - Replace quarry tile floor and cove base
  - Replace gypsum board/plaster ceiling with vinyl faced suspended ceiling panels
  - Replace both the walk-in cooler & freezer, exhaust hoods, and ice machine
  - Enlarge exterior door to 42".
  - Upgrade restroom to be ADA compliant
  - Modify dishwashing area to provide tray drop-off window

- Gymnasium
  - Existing scoreboard to remain.
  - Remove existing height adjustable basketball goals and associated equipment. Install new retractable basketball goals with wireless controls.

- Demo existing concrete bleachers if possible and install new power operated telescoping stands with handrails & guards. If demolition is not feasible, upgrade concrete bleachers with handrails and extruded plastic seats.
- Remove existing gym wall pads & install new gym pads in existing locations. Provide cutouts for existing outlets and controls.
- Install new retractable divider curtain with wireless control.
- Install new retractable archery net with wireless control.
- Remove ACT ceiling and install new acoustic panels on roof deck
- Paint walls, deck, and acoustic panels.
- Replace poured rubber floor. Extend court striping as much as possible.
- Install new sound system.
- Remove recessed lighting in stage floor and patch. Refinish stage wood floor
- Replace FRONT stage curtains. Rear curtains have been replaced

Architecture | Exterior:

- Overlay additional roof insulation, install new SBS Modified Bit roof over entire roof; full tear-off at any locations identified as having wet insulation.
- Replace roof drains.
- Replace the storefront at the main entrance.
- Replace exterior doors and frames
- Add new overhang / canopy at the Cafeteria exterior door to prevent water infiltration thru door.
- Recaulk brick expansion joints and tuckpoint as needed
- Replace preschool playground equipment and provide shade structure
- Replace two swing sets, climbing pole, and basketball poles/backboards at main playground
- Address poor drainage issues at preschool playground
- Replace concrete steps to field and sidewalk to playground. Provide sidewalk from playground to existing shelter

MECHANICAL HVAC DESIGN

A. Summary

The mechanical design encompasses all work associated with the renovation of the existing school building. The scope of the mechanical system includes the following major components:

- Air Cooled Chillers
- Boilers
- Pumps
- Roof Top Units (RTU)
- Indoor Air Handling Units (AHU)
- Makeup Air Unit
- Fan Powered VAVs (FPB)
- Variable Air Volume boxes (VAV)
- Exhaust fans
- Unit Ventilators
- Cabinet Heaters
- Radiant Ceiling Panels
- Split Systems
- Thermostats
- Radiant Baseboard Heaters

Along with the above-mentioned items, the scope includes all associated ductwork, piping, accessories and controls associated with these items.

B. Codes and Standards

1. ASHRAE Standard 62.1 – 2013
2. ASHRAE Standard 15 – 2013
3. ASHRAE Standard 90.1 – 2010
4. 2018 Kentucky Building Code (IBC 2015 with amendments)
5. 2015 Kentucky Mechanical Code (IMC 2015 with amendments)

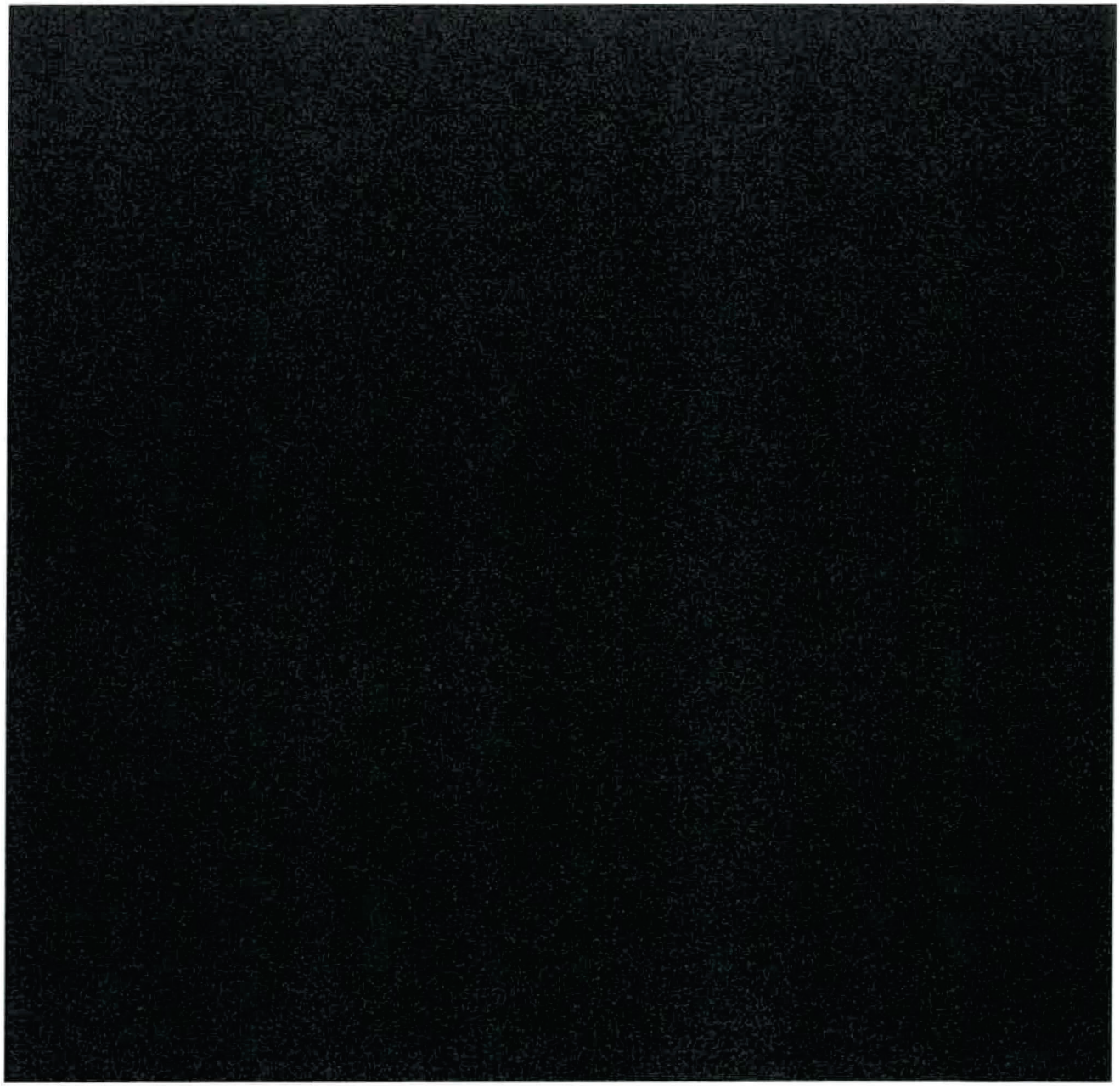
C. Design Parameters

1. Outdoor Design Conditions
   a. Heating: 5.3° F DB
   b. Cooling: 91.4° F DB / 74.1°F WB

2. Occupied Indoor Design Conditions
   a. Heating: 70° F DB
   b. Cooling: 75° F DB

3. Non-Occupied Indoor Design Conditions
   a. Heating: 60° F DB
   b. Cooling: 80° F DB

D. Zoning Map Building image redacted for safety)



BASEMENT ZONE

E. Existing Equipment

1. Administration area
    a. The administration area is served by 18-ton rooftop unit (RTU-2) equipped with DX cooling and hot water heating coils. The RTU-2 appears to be in good condition and was replaced in recent years. Conditioned air from the RTU is distributed to individual administrative rooms via terminal VAV boxes with hot water reheat. Each room has

independent thermostat control. Although the RTU has been replaced, the downstream ductwork and terminal units are original and have not been upgraded. In addition to this equipment, there is one cabinet unit heater located in the administration corridor and another in the vestibule; both are equipped with hot water coils.

2. Cafeteria
    a. The Cafeteria is served by a 22-ton single zone roof top unit (RTU-1) with a DX cooling coil and hot water heating coil. The RTU is located on the roof above the cafeteria area and directly serves the space below. This space is controlled by a single thermostat. Existing radiant baseboard strips are installed along the window perimeter which serve the perimeter window load.

3. Kitchen Area
    a. The kitchen is served by a combination of Makeup Air Unit with hot water reheat and (2) 3-ton Split systems placed at multiple locations in the kitchen area. The makeup air unit provides about 4600 cfm of makeup air to the kitchen hoods. Other mechanical equipment in the area includes a hot water unit heater, baseboard radiator heater and multiple circulation fans which are used to condition the space.
    b. The dishwashing room is served by the cafeteria RTU (RTU-1) for conditioning and makeup air requirements. A dedicated exhaust fan EF-13 is connected to the dishwasher.
    c. (2) Supply air fans and (2) hood exhaust fans are original to the building which supports the kitchen hood operation. In addition to this, a roof mounted exhaust fan (EF-11) is serving the dry storage room, and a ceiling mounted fan (EF-10) is serving the restroom.

4. Gym area
    a. The Gym area is served by a 42-ton Roof Top Unit (RTU-3) with chilled water and hot water coil. The supply-air to the gym is delivered by only three high-mounted sidewall grilles (3450 cfm each), while return grilles are placed at the base of the stage and along the side of the seating area. It was brought to our attention that there are noise issues in the gym which is due to current layout of air supply distribution. The school does not run the unit while the gym is in use, leading to comfort issues. The existing RTU is controlled by two thermostats.

5. Classroom Wing – Area A
    a. The Classroom Wing – Area A (including the music room) is served by 64-ton Air Handling Unit (AHU-1) with chilled water and hot water coil located in the basement mechanical room. The AHU serves each classroom/room with a fan powered box equipped with terminal reheat. The ceiling plenum is currently being utilized for AHU return. During our survey, we observed that the classroom partitions do not extend up to the deck, and no transfer grilles were present between them. Each classroom in this wing has its own relief hood (exception: preschool rooms). The air circulation in the corridor is minimal, with only a single diffuser serving the entire wing.
    b. The restrooms are served by radiant ceiling panels and dedicated exhaust fans (EF-1,2 & 3).
    c. Ceiling mounted hot water cabinet unit heater is serving the vestibule.

6. Classroom Wing – Area B
    a. Each classroom in this wing is served by an individual 4.5-ton 4 pipe Unit Ventilator controlled by its own thermostat. The wing consists of about 19-unit ventilators in total. The chilled water and hot water piping distribution runs along the first-floor corridor and supplies the second-floor unit ventilators via floor penetration. The condensate piping from the unit is routed through the exterior wall to the outside. It has been brought to our

attention that this arrangement is causing issues, as the exposed pipes are being struck and damaged from time to time. For relief air, each classroom consists of shafts which terminate with relief hood. The ventilation in the corridor is minimal and is not compliant with current codes.

b. The restrooms in this wing are served by radiant ceiling panels and two dedicated roof top exhaust fans (EF-9 & EF-6).
c. The Cabinet Unit Heaters are serving the stairs, vestibule and the corridors.

7. Media Center Wing
    a. The media center wing is served by a 35-ton Air Handling Unit (AHU-2) equipped with hot water and chilled water coils, located in the basement mechanical room. The AHU delivers air to each room through a fan-powered box equipped with terminal reheat and each room is controlled by a separate thermostat. The media center features a double-height ceiling, and it was noted that performing maintenance—such as filter replacement—on its three fan-powered box is cumbersome due to its elevated location.
    b. Media center restroom is served with a ceiling exhaust fan (EF-7) and FMD restroom is served with a ceiling exhaust fan (EF-5).

8. Computer Room
    a. The computer room is served by a 1.5-ton split system and appears to have a dedicated ceiling mounted exhaust fan. We were informed that the unit is undersized and is unable to adequately handle the high heating loads.

9. Basement electrical room
    a. The basement electrical room is currently supplied by an existing VAV box located in the corridor, which also serves the corridor. We were informed that the unit is unable to adequately handle the high heating loads that exist in the electric room.

10. Basement Hydronic Equipment room
    a. Heating hot water equipment room: The room consists of (2) 3820 Mbh Gas-Fired Hot Water Boilers which provide hot water for the entire building. These boilers share a common flue gas exhaust with the domestic water heater in the building. The boilers are arranged in a primary-secondary arrangement with one inline primary pump for each boiler and two inline secondary pumps which serve the building .During the survey it was noticed that only one secondary pump currently exists in the building. Both primary and secondary pumps are constant volume, and the flow is controlled by a combination of two-way valves and three-way valves at the terminal units. This kind of system has poor control and inefficient pump operation. Other hydronic heating infrastructure in the room includes (4) expansion tanks, (1) air separator and a shot feeder.

       For conditioning and combustion air, a constant-volume inline fan supplies combustion air to the space, and a hot water unit heater is used for temperature control. It has been brought to our attention that elevated temperatures are being observed in the plant room, which is causing thermal issues in the space directly above. It appears that the original louvers used for ventilation were blocked off due to a previous building addition and no measures were added to keep the room properly ventilated.

    b. Chilled water equipment room: The cooling system consists of (2) 112-tons Air cooled chillers (ACC-1 & 2) located outside the building. The chillers distribute chilled water to the building through a constant primary and variable secondary arrangement. The pumps located in the basement chilled water room consist of (2) inline primary pumps and (1) inline secondary pump with a VFD. Flow control in the terminal units is primarily

achieved using two-way valves, with a few instances of three-way valves. Other hydronic chilled water infrastructure in the room includes an expansion tank, an air separator and a shot feeder.

11. Elevator machine room
    The elevator machine room, located in the basement, contains elevator machinery and control panel. It is currently ventilated by an inline exhaust fan that is controlled by a thermostat. The exhaust fan is original to the building.

12. Basement other areas
    The other spaces with mechanical equipment include the utility room and room 003. The utility room is served by a hot water radiant ceiling panel which provides heating to the space. Room 003 is served by a VAV with hot water reheat which is located in the adjacent room.

F. New Equipment

1. Administration area
    a. The existing 18-ton Roof Top Unit (RTU-2) was recently installed and will be reused. However, new roof curb will be provided to support the roof replacement. New chilled water piping stubs will be provided to support future DX to chilled water RTU conversion. The downstream ductwork and air terminals will be reused and only be replaced in spaces where ceiling rework is expected. VAV's and thermostats will be replaced throughout this area. Existing reheat piping will be reused. Both cabinet heaters will be replaced. The vestibule cabinet heater will be upsized to provide sufficient capacity since the existing unit is undersized. Hot water piping and connections will be replaced.
    b. The recently replaced EF-4 will be reused, and the existing ductwork will remain but diffusers will be replaced.

2. Cafeteria
    a. The existing 22-ton RTU-1 and the hydronic baseboard heaters will be replaced. The cafeteria will be provided with a new roof top unit with chilled water and hot water coils and will be sized to the new loads. All piping, accessories and valves will be replaced. The thermostat will be replaced. A new CO2 sensor will be provided for demand control which would maximize energy savings. Existing ceiling conditions will be evaluated during design development, and new fan coil units with linear terminal diffusers will be installed along the window perimeter. This set up would provide a clean aesthetic while effectively addressing perimeter loads.

3. Kitchen area
    a. The two 3-ton Split system and the existing Makeup air unit will be replaced with a new dedicated Outdoor Air unit with hot water and chilled water coil. This will be designed to provide conditioning as well as makeup for the space and will be sized as per new requirements. All piping, valves and accessories will be replaced. Perimeter radiator heater and cabinet unit heater will be replaced. Circulation fans will be demolished. All thermostats will be replaced.
    b. Existing hood supply (SF-1 & SF-2) and exhaust (EF-14A & EF-14B) will be replaced. New exhaust infrastructure will be provided as per the new hood layout.
    c. Restroom ceiling exhaust fan (EF-10), ductwork and diffusers will be replaced.

4. Gym area
    a. The existing 42-ton Roof Top Unit (RTU-3) and associated air distribution system will be removed and replaced with a new RTU equipped with chilled water and hot water coils,

sized to meet the new load requirements. New spiral duct work with multiple outlets will be designed to be installed at high elevation in space, which would improve the airflow distribution and resolve the noise concerns. All valves and piping accessories will be replaced in kind. The thermostat to the roof top unit will be replaced. A new CO2 sensor would be provided for demand control. This will not only maintain the ventilation requirements but also maximize energy savings.

5. Classroom Wing – Area A
    a. The 64-ton Air Handling Unit (AHU-1) with chilled water and hot water coil serving the Classroom wing – Area A will be replaced. All fan powered boxes (FPB) will be replaced along with all associated accessories, piping and duct work. Additional air devices will be added to the corridor to improve air circulation and meet the latest ventilation code.
    b. The exhaust fans (EF-1,2 & 3) have recently been replaced. The existing exhaust fans and ductwork will be reused, while all diffusers will be replaced.
    c. Ceiling mounted hot water Cabinet Unit Heater will be replaced in kind and all its hot water piping and accessories will be replaced.
    d. Relief air hoods will be reconfigured and replaced to accommodate the new roof installation. The design team will also be looking at strategies to utilize this relief air for a new energy recovery system.

6. Classroom Wing – Area B
    a. Each Unit Ventilator will be replaced. This will require a new thermostat, valves and piping accessories, and piping connections for all 19 units. The above-ceiling space in this wing is constrained by deep structural I-beams identified during the survey, limiting the placement of additional HVAC infrastructure. Multiple terminal unit configurations are under evaluation, and as the design progresses, these will be coordinated to address these spatial constraints and resolve the condensate piping stub-out issue. The new equipment will incorporate economizer capability to ensure compliance with current code requirement, and existing outdoor louvers sizing will be analyzed and replaced if needed. To improve air distribution and comply with current ventilation code requirements, additional airflow devices will be incorporated into the corridor.
    b. The exhaust fans (EF-9 & EF-6) have been recently replaced. The existing exhaust fans and ductwork will be reused, while all diffusers will be replaced. Radiant ceiling panels will be replaced with new hot water ceiling mounted cabinet unit heaters.
    c. The Cabinet Unit Heaters on the stairs and the corridor will be replaced. New hot water piping and accessories will be provided.
    d. Relief air hoods will be reconfigured and replaced to accommodate the new roof installation. The design team will also be looking at strategies to utilize this relief air for a new energy recovery system.

7. Media Wing
    a. The Media Center's 35-ton AHU will be replaced with a new unit with hot water and chilled water coil. All downstream fan powered boxes with reheat will be replaced. The new terminal units will be strategically located to minimize noise and will be filter free to reduce maintenance requirements. All valves and piping accessories will be replaced. All thermostats in the wing will be replaced. CO2 sensors will be provided in the media center to maximize energy savings.
    b. Both media center exhaust fans (EF-5 & EF-7), ductwork and diffusers will be replaced.

8. Plant Equipment
    a. Replace the (2) Gas-Fired Hot Water Boilers located in the basement with more efficient condensing boilers. Replace the (2) inline primary pumps and (2) inline secondary pumps

serving the building. Existing three-way control valves will be replaced throughout the building. All hot water piping will be replaced in the building. There is an existing chimney from the basement up through the building. New flues for the condensing boilers will be routed up through the chimney. Existing combustion-air inline fan will be replaced with new design. All hydronic accessories including 4 expansion tanks, air separator and a shot feeder will be replaced.

Existing unit heater will be replaced. New cooling equipment will be provided to condition and address the temperature concerns in the space.

b. The (2) 112-ton Air Cooled Chillers and the 2 primary and 1 secondary inline pump will be replaced. New chillers, pumps, and piping will be upsized to accommodate the additional loads resulting from the conversion of RTU-1 and RTU-2 (future use) from DX systems to chilled water systems. N+1 redundancy will be provided for the secondary pumps. All chilled water piping, accessories and fittings will be replaced. VFD will be replaced. Air separator will be replaced.

9. Elevator machine room
    a. The inline exhaust fan CAF-1 serving the elevator machine room is original to the building and will be replaced with a new split-system sized to handle the new elevator machine heating load.

10. Computer Room
    a. The 1.5-ton split system and the exhaust fan serving the computer room will be replaced. Addition of new electrical/IT infrastructure will be analyzed in space, and a new split system will be sized accordingly.

11. Basement electrical room
    a. The existing VAV box serving the basement electrical room is original to the building and shall be replaced. The design will provide a separate system to the basement corridor and the basement electrical room and will be sized to the updated loads in the electrical room.

12. Basement other areas
    a. Radiant ceiling panel will be replaced with a cabinet unit heater. All VAV boxes and associated ductwork have exceeded their industry-recommended service life and will be replaced.

13. HVAC Controls
    a. For all demolished items all controls, wiring and accessories will be replaced. Apart from this, new controls will be provided for the recently replaced exhaust fans tying them into the building's BAS system.

G. HVAC Testing and Balancing

a. All motors, bearings, etc., shall be checked and lubricated as required. All automatic, pressure regulating and control valves shall be adjusted. Excessive noise or vibration shall be eliminated.
    i. Thermometers and gauges shall be checked for accuracy. If instruments are proven defective, they shall be replaced.
    ii. System balancing, where required, shall be performed only by persons skilled in this work. The system shall be balanced as often as necessary to obtain desired system operation and results.
    iii. Room air flow needs to be +/- 10% and meet all required air flows and space pressure relationships.

iv. The contractor shall perform and be responsible for lubrication of all equipment prior to operation. Equipment damaged by failure to perform proper lubrication shall be repaired at their expense.

v. For the purpose of placing the heating, ventilating and air conditioning system in operation according to design conditions and certifying same, final testing and balancing shall be performed in complete accordance with AABC or NEBB standards for field measurements and instrumentation form no. 81266, volume one, for air and hydronic systems as published by the associated air balance council. The contractor shall procure the services of an independent company, approved by the engineer, that specializes in and whose business is to balance and test mechanical systems. The company shall be equipped and have the qualified technical personnel as required by AABC or NEBB.

H. Controls

a. All new controls shall be open, non-proprietary, and fully compatible for integration with the existing Siemens BAS. The contractor shall install and provide updated graphics and sequences for the new systems and ensure connection to the existing building front end. The contractor shall verify the existing BAS infrastructure and identify all necessary components for complete and seamless integration. Network communication protocols used throughout the DDC system shall be open to the Owner and available for use by other companies for future modifications. The sole and native protocol for the DDC system shall be ASHRAE 135 (BACnet). Gateways shall not be required except for integrating HVAC equipment and other building systems that do not use ASHRAE 135. If gateways are used, they shall connect to the DDC system using ASHRAE 135 and support project object properties and read/write services as indicated by the interoperability schedule. All operator workstations, controllers, and network devices shall be tested and listed by BACnet Testing Laboratories (BTL).

I. Distribution Components

a. Ductwork and insulation – Ductwork shall be sized at .08" W.C. per foot for low pressure supply and exhaust, and .06" W.C. per foot for return and shall be fabricated and installed in accordance with the recommended methods outlined in the latest edition of SMACNA's duct manual and sheet metal construction for low velocity ventilating and air conditioning systems.

i. Ductwork, plenums and other appurtenances shall be constructed of one of the following: Steel sheets, zinc coated, Federal Specification 00-S-775, Type I, Class E & ASTM A93-59T with G-90 zinc coating.

ii. Insulated flexible duct: Owens/Corning or approved equivalent, one (1) inch thick fiberglass insulation; flexible liner with aluminum pigment vinyl vapor barrier facing. Insulated flexible duct shall not exceed 6'-0". Flex duct shall not be permitted to pass through walls, floors, or ceilings.

iii. Access doors in ductwork: Where required for serving equipment, fabricated according to SMACNA recommendations; provide access door in duct adjacent to all dampers for the purpose of determining position and allowing manual reset.

iv. Volume dampers: Ruskin, Air Balance, Louvers and Dampers, Titus or approved equivalent. Dampers shall be sized and shaped for the duct in which they are installed. Provide permanent mark on dial regulator to mark air balance point.

v. External insulation (for low velocity rectangular supply air, low velocity round supply air, high velocity supply air, return air and outside air ductwork): Owens/Corning, FRK-25, series ED-75 or approved equivalent, 2.2" thick fiberglass duct wrap, factory laminated to a reinforced foil kraft vapor barrier facing (FRK) with a 2" stapling flange at one edge. Flame spread 24, smoke developed 50, vapor barrier performance 0.02 perms per inch. K factor shall not exceed .30 at 75-degree mean temperature.

vi. Fire dampers shall be constructed and tested in accordance with U.L. safety standard 555. Each fire damper shall have a fire protection rating as required by fire wall. Damper shall have a 165F fusible link, and shall include a U.L. label in accordance with established U.L. labeling procedures. Fire damper shall be equipped for vertical or horizontal installation as required by the location shown. Fire dampers shall be installed in wall and floor openings utilizing 16-gauge minimum steel sleeves, angles, other materials, and practices required to provide an installation equivalent to that utilized by the manufacturer when dampers where tested at U.L.

vii. Where walls go to deck an air transfer will be provided to the plenum space on the other side of the wall. The transfer will include a grille, a minimum of two elbows, and a duct liner from the grill and a minimum of two feet past the first elbow.

b. Piping and Insulation - All piping shall be sized at a maximum head loss of 4'/100 ft for supply and return piping.

i. Hot-water heating piping and chilled water piping, NPS 2" and smaller, shall be Type L drawn-temper copper tubing, wrought-copper fittings, and soldered, or pressure-seal joints.

ii. Hot-water heating piping and chilled water piping, NPS 2-1/2 and larger shall be Schedule 40 steel pipe, wrought-steel fittings and wrought-cast or forged-steel flanges and flange fittings, and welded and flanged joints.

iii. Makeup-water piping installed aboveground shall be the Type L, drawn-temper copper tubing, wrought-copper fittings, and soldered joints.

iv. Piping Installation: Install piping in concealed locations unless otherwise indicated and except in equipment rooms and service areas. Install piping indicated to be exposed and piping in equipment rooms and service areas, at right angles or parallel to building walls. Install drains, consisting of a tee fitting, NPS 3/4 ball valve, and short NPS 3/4 threaded nipple with cap, at low points in piping system mains and elsewhere as required for system drainage.

v. Install unions in piping, NPS 2 and smaller, adjacent to valves, at final connections of equipment. Install flanges in piping, NPS 2-1/2 and larger. Install shutoff valve immediately upstream of each dielectric fitting. Install sleeves for piping penetrations of walls, ceilings, and floors. Install sleeve seals for piping penetrations of concrete walls and slabs. Install escutcheons for piping penetrations of walls, ceilings, and floors.

vi. Piping Insulation – Insulate per ASHRAE 90.1 – 2010 requirements.

c. Hanger and Supports - Piping support must account for expansion and contraction, vibration, dead load of piping and its contents, and seismic-bracing requirements.

i. Install the following pipe attachments:

1. Adjustable steel clevis hangers for individual horizontal piping less than 20 feet long.
2. Adjustable roller hangers for individual horizontal piping 20 feet or longer.
3. Pipe Roller: MSS SP-58, Type 44 for multiple horizontal piping 20 feet or longer, supported on a trapeze.

4. Provide copper-clad hangers and supports for hangers and supports in direct contact with copper pipe.

ii. Install hangers for steel piping with the following maximum spacing and minimum rod sizes:
   1. NPS 3 and Larger: Maximum span, 12 feet.

iii. Install hangers for drawn-temper copper piping with the following maximum spacing and minimum rod sizes:
   1. NPS 3/4: Maximum span, 5 feet; minimum rod size, 1/4 inch.
   2. NPS 1: Maximum span, 6 feet; minimum rod size, 1/4 inch.
   3. NPS 1-1/4: Maximum span, 7 feet; minimum rod size, 3/8 inch.
   4. NPS 1-1/2: Maximum span, 8 feet; minimum rod size, 3/8 inch.
   5. NPS 2: Maximum span, 8 feet; minimum rod size, 3/8 inch.
   6. NPS 2-1/2: Maximum span, 9 feet; minimum rod size, 3/8 inch.

d. Duct work and pipe labels - Shall be coordinated and provided as per the schools preference.

ELECTRICAL

Applicable Governing Criteria

1. 2018 Kentucky Building Code, Fourth Edition
2. NFPA 70 2023 National Electrical Code
3. 2012 International Energy Conservation Code
4. Illuminating Engineering Society of North America Handbook, 10th Edition
5. American National Standard Institute (ANSI)
6. IEEE-C2 National Electrical Safety Code
7. IEEE Institute of Electrical and Electronic Engineers
8. IEEE 142 Recommended Practice for Grounding of Industrial and Commercial Power Systems
9. NFPA 70E 2015 Standard for Electrical Safety in the Workplace
10. NFPA 780 2014 Standard for the Installation of Lightning Protection Systems
11. National Fire Protection Association (NFPA)
12. National Electrical Manufacturers Association (NEMA)
13. Any additional applicable Local and State Codes – Latest Approved Editions

A. Electrical Distribution

a. The existing electrical service for the school is sized at 1600-amp, 480Y/277 volt, 3-phase, 4-wire.
b. Project scope also includes replacement of existing HVAC equipment. It is anticipated that the existing service is sufficient to support planned HVAC improvements. This will be confirmed as the HVAC design progresses. Where required, the existing distribution infrastructure will be reworked to support the HVAC equipment replacement and other planned scopes for the project.
c. The main switchboard, distribution panels, and branch panels appear to have been installed during the last major renovation in 2000, or earlier, and will be replaced in this project. This existing equipment is approaching the end of its expected useful life.
    i. New panelboards will be door-in-door style with copper bussing and will have 35% spare capacity for future growth. The minimum general panelboard bus rating will be 225A and have a minimum 42 breaker spaces. Panelboards will be located in electrical rooms and back-of-house spaces on each floor.
    ii. Lamacoid labels will be provided for all electrical distribution equipment.

B. Electrical Facility Power

a. The 1600-amp main switchboard, HDP, provides power to a 1200-amp, 208Y/120 volt, 3-phase, 4-wire distribution panel, LDP, through a 500kVA transformer. There is a surge protection device on the main switchboard.
    i. 480Y/277V panels are fed from HDP and provide power for lighting, specialty equipment, and mechanical equipment.
    ii. 208Y/120V panels are fed from LDP and provide power for receptacles, fire alarm circuits, and classrooms.

C. Electrical Emergency Power

a. There is no generator or central emergency system for the building; there are no changes anticipated for this system.

D. Electrical Lighting

a. All existing lighting fixtures and controls will be replaced throughout the entire building.
b. The new lighting layout will be designed according to Illuminating Engineering Society of North America (IESNA) recommendations. The lighting power densities and lighting controls will be designed to meet the requirements of the applicable energy code.
c. All new lighting will be LED lighting to reduce maintenance costs and to provide energy savings. All indoor luminaires will be 3500 Kelvin correlated color temperature. Exterior lighting is anticipated to be 4000 Kelvin and will match existing to remain lighting.
d. Emergency egress lighting throughout the facility will be powered by integral battery packs for each fixture. Code required egress corridor lighting will be connected as night lights to operate 24/7. Other egress lighting will be equipped with an integral automatic transfer relay to allow local control during normal operation.

E. Electrical Luminaires

a. Emboss and CMTA will coordinate selecting lighting fixtures and establishing the design intent for the lighting system. This includes specifying fixture types, layouts, and aesthetic considerations to ensure that lighting aligns with the architectural vision and functional requirements of the spaces. CMTA will complete photometric calculations across all areas to verify that target lighting levels are achieved according to design standards and occupant needs.

b. Exterior: Building egress points will have emergency illumination from recessed soffit lights when applicable or building mounted LED wall packs. These luminaires will be 1-for-1 replacements.
c. Stairwells: Lighting in the stairwell spaces will consist of LED recessed linear and/or wall-mounted direct/indirect fixtures with integral occupancy sensors. These fixtures will be bi-level, dimming to 50% when unoccupied and operating at 100% full brightness when occupied.
d. Exterior parking lot lighting will be a 1-for-1 replacement and will consist of new 20'-0" pole mounted led lights on existing 24" concrete pole base. This applies to lighting in the bus lane only.
    i. Exterior parking lot lighting was recently replaced as part of the parking lot repaving project. These outdoor lighting assemblies are existing to remain.
e. Exit signs will be die cast aluminum connected to battery-backup emergency power, Lithonia TLE or equal. Ceiling or wall-mounted as necessary for the installation location.

F. Electrical Lighting Controls

a. All lighting in educational spaces will be provided with 0-10V dimming control, occupancy sensors, and daylight sensors (in rooms with large windows). Manual controls will be wall-mounted; occupancy sensors will be located per manufacturers' recommendations for intended coverage areas.
b. The building lighting will have automatic shutoff controls based on occupancy and time of day. After hours lighting will be occupancy-controlled in corridors. Acuity Lighting Controls as basis of design.
c. Lobby and corridors will be connected to time-of-day controls via lighting relay panels. Time of day schedule will be provided by the BAS system. These areas will have local switching and override capability. This system will interface with the facility energy management system for ease of reporting, programming, and scheduling.
d. Classrooms, admin space, and small support rooms will be provided with standalone dual-technology occupancy or vacancy sensors. Select areas will be provided with an input/output module for reporting of occupancy status to the mechanical BAS system if required for demand control ventilation.
e. Daylight harvesting and multi-level control of lighting will be provided in all spaces as required in accordance with energy code.

G. Electrical General Materials

a. Conductors for 480V through 120V circuits will be copper THWN/THHN thermoplastic insulated. Color code will follow industry standards. Each circuit will have a dedicated neutral conductor.
b. Conductors will be sized to limit voltage drop to 2% for feeders and 3% for branch circuits. Minimum wire size will be #12 AWG.
c. All wiring to mechanical equipment will be copper.

H. Electrical Conduit

a. All power wiring will be installed in conduit. Minimum size will be ¾" conduit, except communications which is discussed under that section. Supports will be installed per NEC.
b. EMT will be utilized for general purpose locations within the building. Fittings will be compression type for ¾" to 2 ½" and double setscrew type for 3" and larger.
c. Rigid steel conduits will be utilized in above-grade exterior locations, in mechanical spaces, and in other areas exposed to physical damage.
d. Schedule 40 PVC will be used below slab and in any area necessary for corrosion resistance. No conduit will be installed within slabs.
e. All interior conduits will be concealed except for mechanical and other unfinished spaces where appropriate.
f. Exposed conduits in finished areas shall be painted black or to match adjacent walls.
g. MC cable will be allowed for final equipment connections.

I. Electrical Devices

a. General use duplex receptacles will be 20 amperes, 125 volts, and tamper-resistant, as required per NEC.
b. General use light switches will be 20 amperes, 277 volts or low voltage type as necessary for the control system. Low-voltage switches will be equipped with multi-zone and dimming control.
c. Floor boxes will be provided in select seating and collaboration spaces where wall power connections are not feasible. All floor boxes and poke-throughs to be Legrand Evolution series, or equal.
d. All outlet covers will be labeled with panel number and circuit number. The inside of outlet box covers will also be labeled with panel and circuit.
e. Quantity and Spacing
    i. All rooms or spaces will have at least one duplex receptacle.
    ii. Classrooms:
        1. General purpose: minimum four duplex receptacles (one per wall minimum).
        2. Technology: one double duplex for each student computer station, one double duplex for teacher computer, one double duplex for video/audio equipment, one double duplex receptacle for video projector, one simplex receptacle for charging cart, and two duplex receptacles with two USB charging receptacles each).
    iii. Storage: One near door.
    iv. Corridors: Approximately 30 feet apart.
    v. Offices: Four general purpose duplex receptacles (one on each wall), one double duplex for a computer station, and one duplex receptacle with two USB charging receptacles above counter level at desk.
f. Ground fault circuit interrupting (GFCI) receptacles shall be provided within 6 feet of all sinks, at exterior locations, and at other wet locations per NEC.
    i. All exterior receptacles will be provided with a weatherproof while-in-use die-cast cover.
g. Receptacle Circuits: Branch circuit loading per Code. Generally, a circuit or multiple circuits are provided to serve receptacles within a single room. Dedicated circuits will be provided as required (e.g. circuit serving charging cart receptacle).
h. A maximum of four computers shall be on a single 20-amp, 120-volt branch circuit.

J. Electrical Fire Alarm

a. The facility is currently served by an outdated manual and automatic fire alarm system. In accordance with the Kentucky Fire Code, Life Safety Code, National Fire Alarm and Signaling Code, the facility will be provided with a new emergency voice/fire alarm communication system.
b. New fire alarm devices will be installed throughout the building.
c. All fire alarm cabling will be installed in a dedicated conduit system.
d. Wire guards will be installed on fire alarm devices in gymnasium and locker rooms for protection.

K. Electrical Lightning Protection

a. Section includes lightning protection systems for structures and any roof top mounted equipment.
b. The electrical contractor shall provide the necessary materials and services to provide a complete lightning protection system. There is currently no lightning protection system in place for the building.
c. This work shall include, but not limited to conductors, air terminals, connectors, splicers, ground rods, rod clamps, ground plates, bonding plates, and surge arrestors.
d. Connections to the existing building lightning protection system.
e. Provide a UL Master label for the complete overall system.

L. Electrical Emergency Response Radio System

a. Provide allowance for an emergency responder radio system (ERRS). This will need to be tested before construction.
b. The need for a distributed antenna system to amplify signal for first responder communications equipment is to be evaluated with the local Fire Department as progress continues. At time of submission of the SD package, the cost estimate should include costs for a full system throughout the building.
c. Amplifiers shall be located in telecommunications closets.
d. System main antenna located on roof with other communications antennas.
e. System distributed antennas located at approximately 200 feet spacing throughout the building.
f. Per all applicable national, state and local codes.
g. System necessity based on post-construction testing by Contractor with assistance of local Authorities.
h. Cost of system material and installation will be in project budget as an allowance, exact amount of which to be determined during the GMP Phase.

M. Electrical Low Voltage Systems (Rough-in Only)

a. CMTA's scope of the work is to provide pathways for all low voltage systems. All other work designed by others. Rough data backboxes and pathways for all other low voltage systems based on the technology drawings designed by others.
b. Telecomm rooms, cable trays, pathways, conduit, devices, cabling, terminations and testing will be provided. Racks, switches, patch panels, telecom room ladder tray, and UPS equipment will be furnished / designed by others.
c. Combination telephone/data wall outlets will be provided throughout the facility for wired equipment needs. Cabling paths will consist of backbox with 1" conduit to above accessible ceiling, a J-Hook pathway within rooms, and wire basket cable tray in corridors.
d. IDF and MDF rooms will have fire-retardant plywood backboards on all walls. Two 4" sleeves will connect between each telecom room. Where telecom rooms are vertically adjacent, EZ Path 44+ system pathways will be utilized.

INFORMATION TECHNOLOGY, SYSTEMS, AND SECURITY

A. STRUCTURED CABLING SYSTEM

1. There is (1) existing MDF closet in this building. The MDF closet is located centrally within the building. The scope for this project entails potentially expanding the MDF closet or taking over an adjacent space to phase the project.

2. The Fire Alarm Control panel is within the existing MDF room and will need to be replaced with a new voice fire alarm system.

3. All existing door access, cameras, intercom devices, and network devices will be refed with Category 6 cabling, the devices are to remain.

4. The clocks within the building are outdated and non-centralized. New clocks will be provided to KCSD's standards; battery powered and wirelessly controlled with the transmitter located in the new MDF room location.

5. The sound system in the gymnasium is to be replaced with new. The headend equipment located behind the stage is also to be replaced. Provide (4) wireless microphones within the gym. A new projector and projection screen is also to be provided within the gymnasium.

6. All DAS equipment is to be demolished in its entirety.

7. The new data network within the building shall consist of Category 6 cabling to each voice/data outlet. Voice/Data cables shall originate from ER/TR Telecom rooms connected to each other via Fiber Optic Backbone cabling. Any required voice public safety copper circuits like Fax machines, fire alarm dialer, burglar alarm dialer, emergency phones or Elevator phones shall be supported by multi-pair copper backbone cabling between telecom closets.

8. Within any new telecom closets, provide 2-post Equipment racks as required to support horizontal and backbone cabling. Provide ¾ inch 4'x 8' fire treated/painted plywood to surround walls of the telecom closets. Provide minimum 12-inch ladder rack from entrance point of the cabling conduits to over top of the equipment racks. Terminate data cabling on patch panels and voice cabling (non-VoIP) on 110 punch blocks. Provided grounding busbars and ground all equipment racks, ladder racking, etc.

9. Terminate data outlets on labeled wall plates with keystone terminal outlets.

10. Test and label all horizontal and backbone cables per BICSI standards.

11. Where Voice/Data drop locations are required, the contractor will provide all rough-in's, faceplates, cabling paths, cabling and patch panels for all data and communication systems. Provide conduit risers/sleeves with firestopping where penetrations are required.

12. Stub-out conduit size will be 1'' and cabling paths will consist of cable tray and J-hook assemblies on 48'' centers.

13. A typical data outlet will consist of 2 data outlets terminated to a wall plate as described above. Typical Voice/Data Outlet locations are as follows:

a. (2) data outlets in each office, classroom, meeting room, conference room, breakout, or admin/shared office spaces. Within admin/shared offices spaces provide quantity of outlets per the expected number of working occupants of the space.

b. Provide a data drop to any systems that require interfacing with the voice/data network. This shall include, but is not limited to Printer/Fax machines, Emergency phones, Building Automation Systems (BAS), Fire Alarm Control Panels (FACP), Elevator phones, AV headend systems, Access control Systems, Intrusion detections Systems, etc.

c. Provide a data drop to all IP camera locations.

d. Provide data outlets to expand the building wide Wireless Access Point (WAP) system. WAP coverage shall be available throughout the facility spaced out a maximum of 50 feet apart between WAPs. Provide 2 data outlets and cabling to each WAP location. In addition to coverage throughout the facility, provide (1) WAP per 50 individuals within any gathering space where such quantities might exist.

B. OVERHEAD PAGING/INTERCOM SYSTEM

1. Expand building wide overhead paging/intercom system for voice announcements and office communications.

C. AV SYSTEMS

1. Provide rough-in for Local Audio/Video systems to be coordinated with the owner.

D. SECURITY ACCESS CONTROL

1. Expand the existing RS2 access control system to support each new access-controlled door at the facility. Provide rough-in at each access-controlled door location for card reader, door position switch, request to exit device and electronic locking hardware. Provide new licenses, intelligent controller panel and additional card reader and I/O panels as required to support all the doors. Mount head-end equipment within Telecom closets and provide multi-port door power supplies. Coordinate setup and programming with the owner. In addition, provide a door video intercom system with door stations located at strategic locations at the facility. Interface with the access control system for remote door release.

2. Provide access control at new doors including major entrances/exits to the building, all telecom room doors, electrical room doors and mechanical room doors. Provide at any spaces that house significantly valuable and large quantities of technology as well as any areas that handle and store monetary transactions.

3. Provide duress alarm buttons located at strategic locations for quick notification in the event of an emergency.

E. VIDEO SURVEILLANCE

1. Expand existing IP Video Surveillance system along with interior cameras and exterior cameras for monitoring entrances/exits, corridors and commons-spaces throughout the facility, elevators, and at exterior locations to cover pathways around the building. Provide all licensing and storage costs (1Tb per camera) required to support this new system.

F. ERRCS SYSTEM

1. An allowance will be provided for the testing and addition of an ERRCS (Emergency Responder Radio Communication System) DAS system

PLUMBING AND FIRE PROTECTION SYSTEMS

A. Plumbing Scope

1. This project includes all work related to the renovation of the existing school building.

   a. The group restrooms from the original building construction are getting reworked in their entirety and will be provided with new plumbing fixtures, floor drains, and piping as required.

   b. Student sinks throughout the building will be verified and installed as metered faucets.

   c. Water coolers without bottle fillers will be replaced with water coolers with bottle fillers.

   d. The roof drains will be replaced in all the areas that the roof is being replaced. Overflow roof drains will need to be added to the building to meet current codes.

   e. The floor sinks/drains in the kitchen will be replaced.

   f. The domestic water heater and associated mixing valve will be replaced, and a second redundant heater will be added as backup. Piping to the heaters will be rerouted as required for installation.

   g. The existing backflow and PRV to the building will be replaced and a second backflow device will be added for redundancy purposes.

   h. A sump pump will be added to the elevator pit.

   i. Sanitary piping above restroom 142 shall be replaced in its entirety due to various leaking issues. Restroom 142 will also get all new fixtures and the shower will be removed.

   j. The hot water to the kitchen will be investigated to ensure proper hot water delivery.

   k. Mop sinks throughout the building will be replaced due to age.

   l. A new restroom is being added to the nursing station.

B. Codes and Standards

6. ASHRAE Standard 90.1 – 2010
7. 2018 Kentucky Building Code (IBC 2015 with amendments)
8. Kentucky State Plumbing Code
9. Commercial Energy Conservation Code 2012 of Kentucky (IECC 2012)
10. Kentucky Fire Sprinkler Code 2013 (NFPA 13, 2013)

C. Domestic Cold Water System

1. Piping material for all domestic water service piping shall be type "L" copper pipe and fittings above floor and type "K" copper pipe and fittings below floor where under slab water piping is required. All fittings for copper piping are to be soldered.

2. The domestic water distribution system piping will be provided with broad, local and individual fixture shut off valves throughout the new building for complete control of these systems. Water hammer arresters will be provided to relieve the system of shocking and movement due to quick closing valve operations.
3. The entire length of the cold water piping will be provided with 1" insulation to control condensation on the pipes.
4. The maximum velocity for cold water in piping is to be 8 ft/sec.

D. Domestic Hot Water System
1. The domestic hot water system is to be recirculated within the code minimum lengths to each plumbing fixture with hot water.
2. Hot water and hot water return piping will be provided with 1" insulation on pipe sizes ½" – 1 ½", and 1 ½" insulation on pipes 2" and greater to minimize heat loss.
3. The maximum velocity for hot water in piping is to be 5 ft/sec.

E. Building Sanitary Waste and Vent Systems
1. Each plumbing fixture, floor drain or other equipment requiring plumbing drain connections will be provided with sanitary waste and vent piping in accordance with the State of Kentucky Plumbing Code. Sanitary vent piping will be gathered and routed through the roof to atmosphere. There will be multiple vent to roof locations in the building. Sanitary waste piping will be gathered and routed to the building exterior at a point which will be coordinated with the surrounding exterior sanitary sewer system.
2. Sanitary cleanouts shall be installed at 50 feet on center up to 4" diameter and 100 feet on center for 6" diameter and above, and at changes in direction of 90 degrees or more, at the bottom of vertical risers and as the sewer exits the building.
3. Piping materials for sanitary waste and vent piping will be extra heavy hub and spigot cast iron piping below grade, and no hub cast iron piping above grade. All no hub cast iron piping will be joined using 4 and 6 band heavy duty couplings. Vent piping above grade will be no hub cast iron.

F. Building Storm Sewer System
1. Storm water will be removed from the roof of the building through a network of roof drains. Overflow drains with 2" high water dams will be provided for each roof drain shown on the architectural roof plan. All overflow drain piping will be piped separate from the primary roof drain system and terminate at a point through the building exterior wall in site of maintenance personnel on the ground for visual verification of potential primary roof drain failure in accordance with the State of Kentucky Plumbing Code.
2. The primary interior roof drain system will be gathered together within the building and routed to the exterior. The final exit location will be coordinated with the site storm sewer system. The under floor storm water piping will terminate at a cleanout located at 5'-0" from building foundation wall.
3. Piping materials for storm sewer piping will be extra heavy hub and spigot cast iron piping below grade, and no hub cast iron piping above grade. All no hub cast iron piping will be joined using 4 and 6 band heavy duty couplings.
4. Storm sewer cleanouts shall be installed at 50 feet on center up to 4" diameter and 100 feet on center for 6" diameter and above, and at changes in direction of 90 degrees or more, at the bottom of vertical risers and as the storm sewer exits the building.

G. Natural Gas Piping System
1. Natural gas service will be provided to any new HVAC equipment that requires gas.
    a. If required based on loads of the building, the service meter may need to be upgraded.

b. Material for natural gas piping shall be schedule 40 black steel, threaded for pipe sizes 3/4 to 2 inch.

H. Plumbing Fixtures

1. Water closets for this project will be white, vitreous china; wall hung for regular and handicapped accessibility.
   a. Flush valves for water closets will be automatic type, battery.
2. Urinals for this project will be white, vitreous china, wall hung for regular and handicapped accessibility.
   a. Flush valves for urinals will be automatic type, battery.
3. Lavatories for this project will be white, vitreous china; wall hung for regular and handicapped accessibility.
   a. Faucets for lavatories will be meter operation (push button).
5. Electric water coolers will be stainless steel, automatic, hi-low style with single chiller unit and bottle filler and mounted for regular and handicapped accessibility.
6. Mop basins will be floor mounted, molded stone, 24" x 24" with stainless steel splash guards and dropped front lip. Mop basins to include accessories such as mop hook, caulking and rubber hose.
   a. Faucets for mop basins will be all brass construction, 8" centersets, integral vacuum breaker, and wall mounted with threaded hose connection.
8. Staff breakroom sinks shall be undermount stainless steel with gooseneck faucets with wrist blade handles.
10. All plumbing fixtures and trim designed or designated for use by the handicapped shall meet the Americans with Disabilities Act guidelines.

I. General Plumbing Systems Information/Plumbing Specialties

1. Floor drains will be provided in all restroom groups. Floor drains will be provided with trap seals.
2. New cast iron roof drains on the roofs without scuppers will be combination primary / secondary, with a 2" overflow dam on the secondary drain. New roof drains on the roofs with scuppers and on the canopies will be a cast iron primary drain only.
3. Hose bibs will be provided in the main restroom groups.
4. Art room sinks will be regular and handicapped accessible and will have solids traps included at each sink. The trap shall be accessible for cleaning.
5. Piping shall be identified in mechanical rooms, unfinished spaces without ceilings, above suspended lay-in acoustical ceilings for the type of service and the direction of flow. Equipment shall be identified with name plates.
6. Operations and maintenance manuals for data and materials shall include the following:
   a. Operating & Maintenance (O & M) Manuals
   b. All required warranty certificates
   c. A letter from the general contractor stating the start date and duration of all warranty items
   d. The name and phone numbers of the general contractor's point of contact for all warranty repairs
   e. A list with contact information of the warranty providers for all systems and equipment

K. Wet Pipe Fire Protection Sprinkler System

1. The building is to be fully sprinklered.
2. New sprinklers are required on the 1st and second group restrooms that are not currently sprinklered. These shall be fed off of the existing system.

3. New sprinklers will be provided in the Restrooms and anywhere there are new ceilings. The system will be modified as needed to maintain complete sprinkler coverage of the building in accordance with NFPA 13.
4. The gym ceiling is being removed which will require rework of the existing sprinkler system.
5. New sprinklers are to be "semi recessed" type, painted white.