

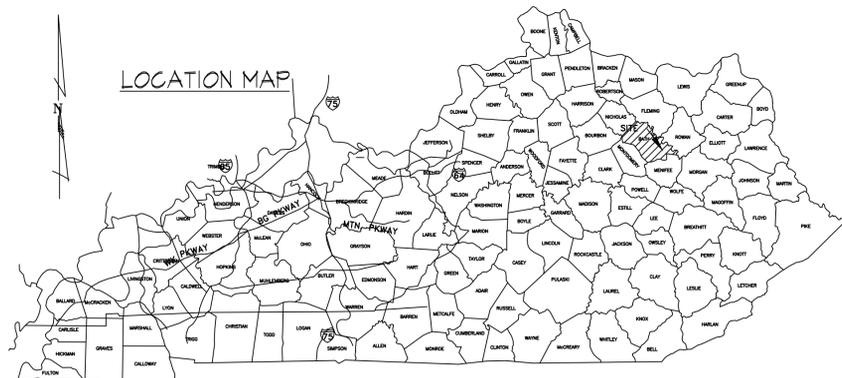
BATH COUNTY EMERGENCY MEDICAL SERVICES OWINGSVILLE, KENTUCKY

**CDBG: 21-015
CDBG-CV: 20C-181**

nsc Engineers
Architects
Planners
OF KENTUCKY, INC.

624 Wellington Way
Lexington, KY 40503
www.nselex.com

Phone: (859)223-5694
Fax: (859)223-2607



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CODE INFORMATION

Building Code: 2018 Kentucky Building Code, Third Edition

Project: Bath County Emergency Medical Services

Project Site Address: 78 Rowland Ave, Owingsville, KY 40360

Brief Description: EMS facility new construction, PEMB structure with metal stud and gypbd interior. Day Room, Kitchen, Offices/Storage, for 8 EMS Staff members. Garage for 4 Ambulance bays.

Use Group: Mixed Use Building - Group B Business & Group S-2 parking vehicles

423.3 Critical Emergency Operations: Internal Storm Shelter meeting the requirements for shelter design in ICC 500.

Heights and Areas: Table 504.3 Allowable Building Height in Feet above grade plane

Table 504.3 Construction Type II-B not sprinkled 55 feet allowed. 18.5 feet actual height.

Table 504.4 Allowable number of stories above grade plane 3 stories allowed. 1 story actual.

Table 506.2 Allowable Area Factor Type II-B (S1) 23,000 SF allowed. 5,655 SF actual.

Section 1004 Occupant Load:

Business Areas - 100 gross (based on 4,648 SF = 47 Occupants maximum)

Per Table 1006.2.1 Maximum Common Path of Egress Travel is 100 feet.

Two exits from Day Room / Quiet Rooms, additional exit to Garage, and Garage has separate exit as well.

SET NO.

DATE: FEBRUARY 2025



VICINITY MAP

PLAT OF A NON-BOUNDARY SURVEY WORK

1. THE INTENDED USE FOR THIS DRAWING IS TO SHOW THE SITE FOR THE PROPOSED CONSTRUCTION OF A NEW BATH COUNTY AMBULANCE SERVICE BUILDING NEAR OWINGSVILLE, BATH COUNTY KY.
2. THE WORK SHOWN HEREON WAS PERFORMED FOR TOPOGRAPHICAL INFORMATION AND EXISTING SITE UTILITIES, BUILDINGS AND ROADS ASSOCIATED WITH THIS EXISTING SITE. THIS GRAPHICAL REPRESENTATION DOES NOT REPRESENT A BOUNDARY SURVEY AND IS NOT INTENDED FOR LAND TRANSFER.
3. ALL WORK SHOWN HEREON WAS PERFORMED UNDER THE DIRECT SUPERVISION OF BILL ED CANNON, KY PROFESSIONAL LAND SUEVEYOR NO. 2130.

NOTES:

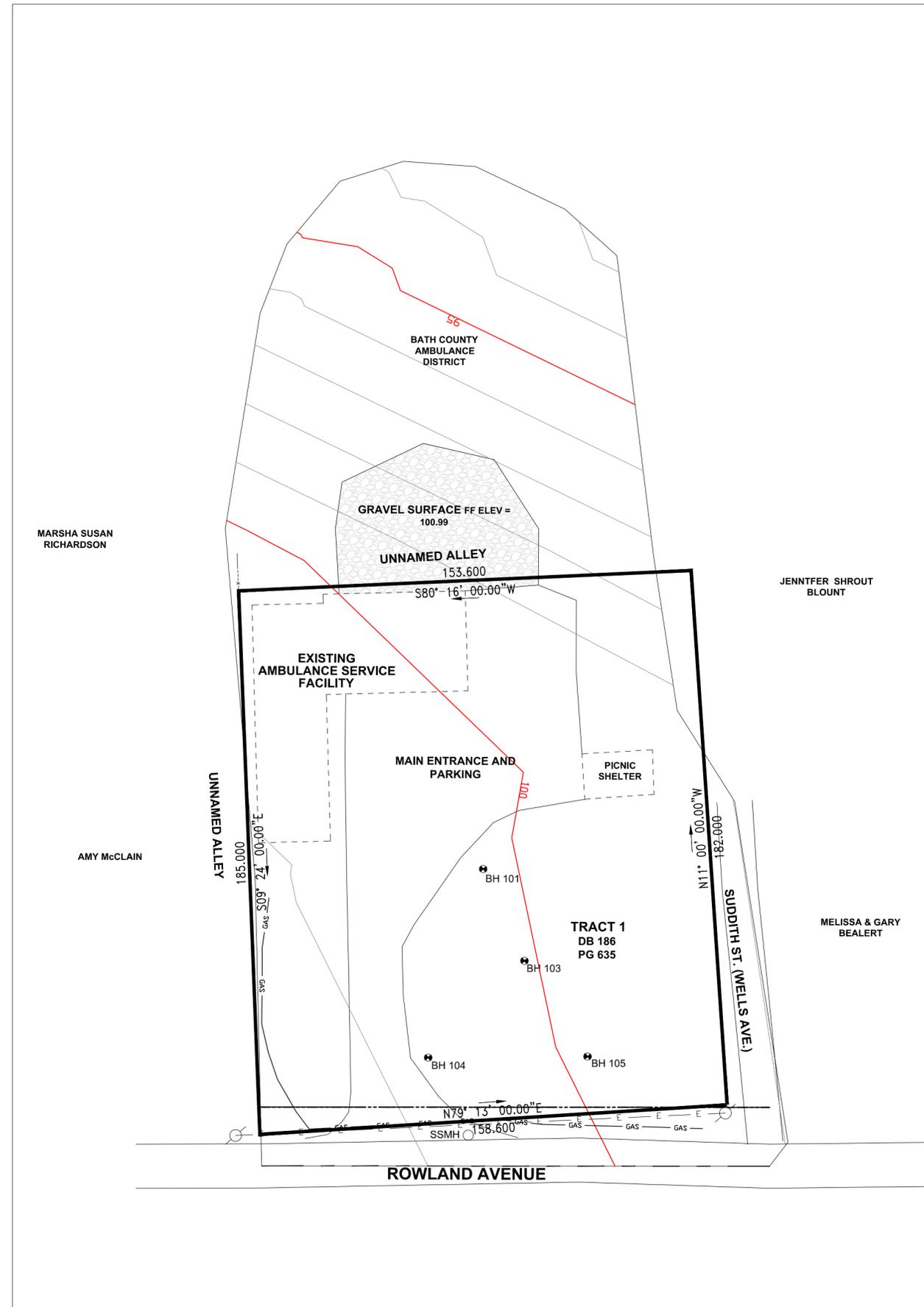
1. THIS DRAWING WAS CREATED AS REQUESTED BY THE MSE OF KY.
2. THE PURPOSE FOR THIS DRAWING IS TO GRAPHICALLY SHOW THE LOCATION FOR THE PROPOSED NEW BATH COUNTY AMBULANCE SERVICE WITH RELATIONSHIP TO THEIR EXISTING FACILITY ALONG WITH THE TOPOGRAPHY OF THE SITE.
3. THE METHODS USED TO CREATE THIS WORK PRODUCE CAME FROM ACTUAL FIELD LOCATIONS MADE AT THE SITE REFLECTED HEREON.
4. ALL WORK FOR THIS PROJECT WAS PERFORMED BETWEEN 8/11/22 AND 9/13/22.
5. THE MATHEMATICAL SCALE EMPLOYED IN THIS GRAPHICAL REPRESENTATION IS REFLECTED ON THIS DRAWING.
6. THE MATHEMATICAL PERCISION FOR THIS DRAWING REPRESENTS A CLOSED CONTROL LOOP WITHOUT ADJUSTMENT.
7. THE PROPERTY SHOWN HEREON IS SUBJECT TO ALL EASEMENTS AND RIGHTS-OF-WAY OF RECORD AND IN EXISTENCE.
8. SURVEY IS VALID ONLY IF PRINT HAS ORIGINAL SEAL AND SIGNATURE OF SURVEYOR.

SURVEYOR CERTIFICATION

I HEREBY CERTIFY THAT THE TRACT DEPICTED BY THIS PLAT IS ENCLOSED BY BOUNDARIES WHICH CONSIST OF TWO SIDES OF EXISTING PUBLIC ROADWAY RIGHTS OF WAY AND TWO EXISTING UNNAMED AND UNIMPROVED ALLEYS. THIS PLAT DOES NOT REPRESENT A NEW BOUNDARY SURVEY PER 201 KAR 18:150; NO NEW MONUMENTS WERE SET AS A RESULT OF FIELD ACTIVITIES. THIS PLAT IS NOT FOR RECORDING OR TRANSFER OF PROPERTY. THE PURPOSE IS TO INDICATE THE LOCATION OF A PROPOSED NEW STRUCTURE(S) ON SAID TRACT.

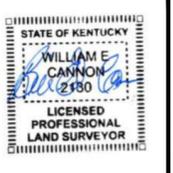
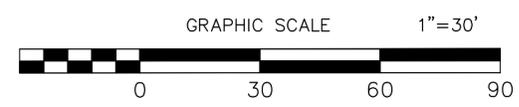
BILL ED CANNON, KY PLS NO. 2130

MARCH 20, 2023



LEGEND

- ⊕ BORING
- ⊙ SANITARY MANHOLE
- ⊕ POWER OR COMMUNICATION POLE
- E — E — E — ELECTRIC LINE
- GAS — GAS — GAS — GAS LINE



SITE LOCATIONS AND TOPOGRAPHY FOR THE BATH COUNTY AMBULANCE SERVICE NEAR OWINGSVILLE, KENTUCKY

PROJECT NO.	FILE NAME	BATH CO-EMS	DATE	REVISION	BY
	DESIGNED BY	BEC			
	DRAWN BY	JW			
	CHECKED BY	BEC			
	REVIEWED BY	BEC			
	DATE	3-20-23			
	SCALE	1" = 30'			

BILL ED CANNON
 Engineer (11715) / Surveyor (2130)
 Phone: (606)620-5161 / (859) 923-6010
 www.billedcannon@gmail.com
 116 N Poplar Avenue
 Corbin, KY 40301

DRAWING NO. **PS-1**
 SHEET OF

M:\arc\Bath County EMS\SitePlan_CO_SURVEY Drawing.DWG: 3/22/2023 3:04:19 PM DWG TO PDF.Plot3

MARSHA SUSAN
RICHARDSON
DB 231 PG224

AMY McCLAIN
DB244 PG371

BATH COUNTY
AMBULANCE
DISTRICT
DB186 PG635

JENNIFER SHROUT
BLOUNT
DB200 PG730

MELISSA & GARY
BEALERT
DB208 PG574

TRACT 1
DB186 PG635

UNNAMED ALLEY

SUDDITH ST. (WELLS AVE.)

ROWLAND AVENUE

EXISTING BUILDING AND
FOUNDATION
TO BE DEMOLISHED AND
REMOVED FROM SITE

EXISTING PAVEMENT
TO BE DEMOLISHED AND
REMOVED FROM SITE

PICNIC SHELTER AND
FOUNDATION
TO BE DEMOLISHED AND
REMOVED FROM SITE

EXISTING TOWER AND
FOUNDATION
TO BE DEMOLISHED AND
REMOVED FROM SITE

SSMH

- LEGEND
- ⊕ BORING
 - ⊙ SANITARY MANHOLE
 - ⊚ POWER OR COMMUNICATION POLE
 - - - - - ELECTRIC LINE
 - - - - - GAS LINE



EXISTING CONDITIONS AND DEMOLITION
BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

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PROJECT NO.	DESIGNED BY	DRAWN BY	CHECKED BY	REVIEWED BY	DATE	SCALE
	MSE	CRH	GAR	GAR	AUGUST 2024	1"=15'

MSE
OF KENTUCKY, INC.
Engineers
Architects
Planners

Phone: (859) 225-5894
Fax: (859) 225-2807
624 Wellington Way
Owingsville, KY 40203
www.mseofky.com

DRAWING NO.
C-1
SHEET OF



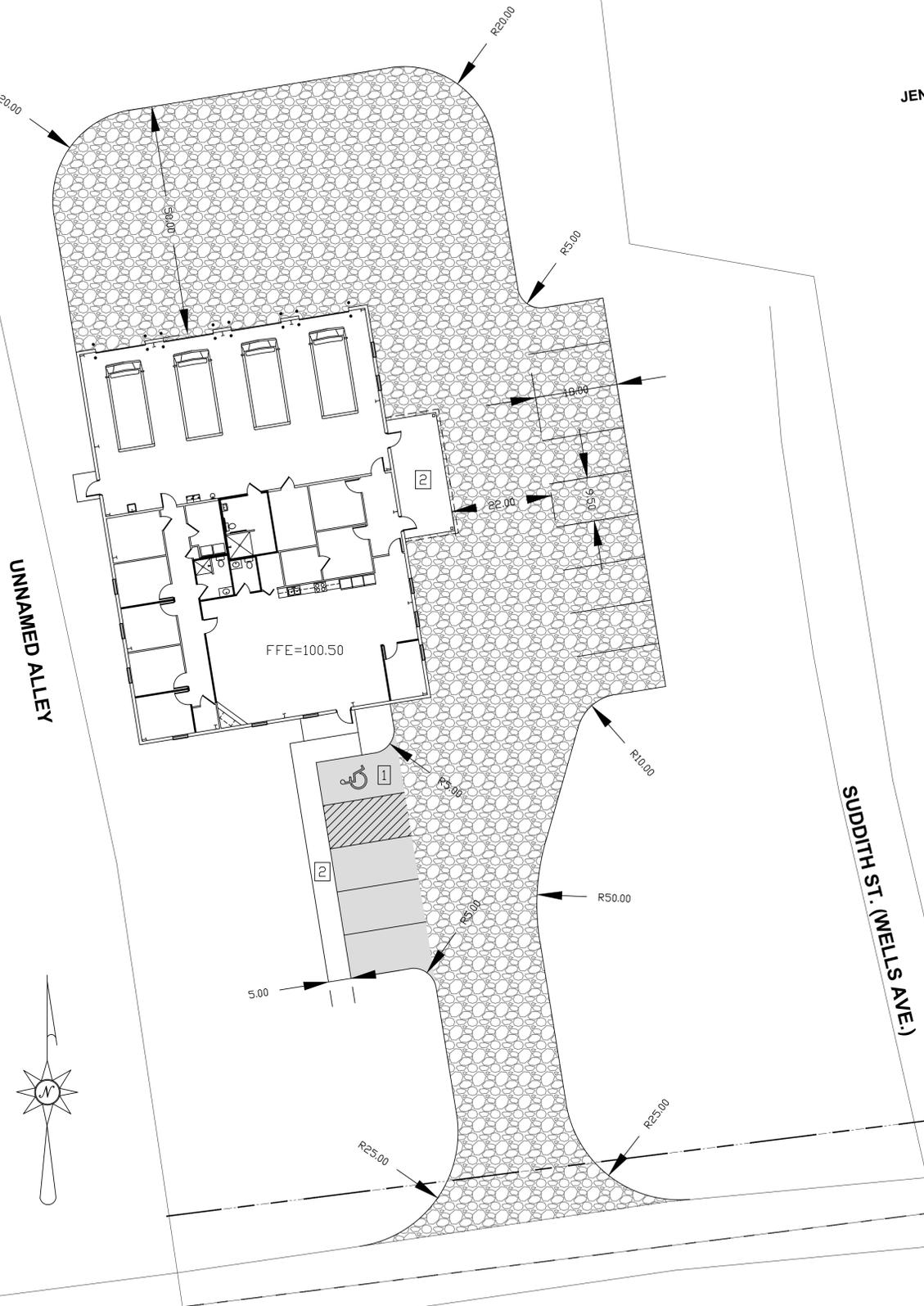
SITE LAYOUT
BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY

MARSHA SUSAN
 RICHARDSON
 DB 231 PG224

AMY McCLAIN
 DB244 PG371

JENNIFER SHROUT
 BLOUNT
 DB200 PG730

MELISSA & GARY
 BEALERT
 DB208 PG574



TAG NOTES

- 1 HANDICAP PARKING SEE SHEET D-1 DETAIL A
- 2 CONCRETE WALK SEE SHEET D-1 DETAIL B

■ LIGHT DUTY PAVEMENT SEE SHEET D-1 DETAIL C

■ GRAVEL DRIVE TO BE 10" TOTAL THICKNESS
 BOTTOM 6" TO BE #3 STONE
 TOP 4" TO BE DGA

PROJECT NO.	DESIGNED BY	DRAWN BY	CHECKED BY	REVIEWED BY	DATE	SCALE
	MSE	CRH	GAR	GAR	AUGUST 2024	1"=15'

**Engineers
 Architects
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**MSE
 OF KENTUCKY, INC.**

Phone: (859) 225-5894
 Fax: (859) 225-2807
 624 Wellington Way
 Bowling Green, KY 42303
 www.mseinc.com



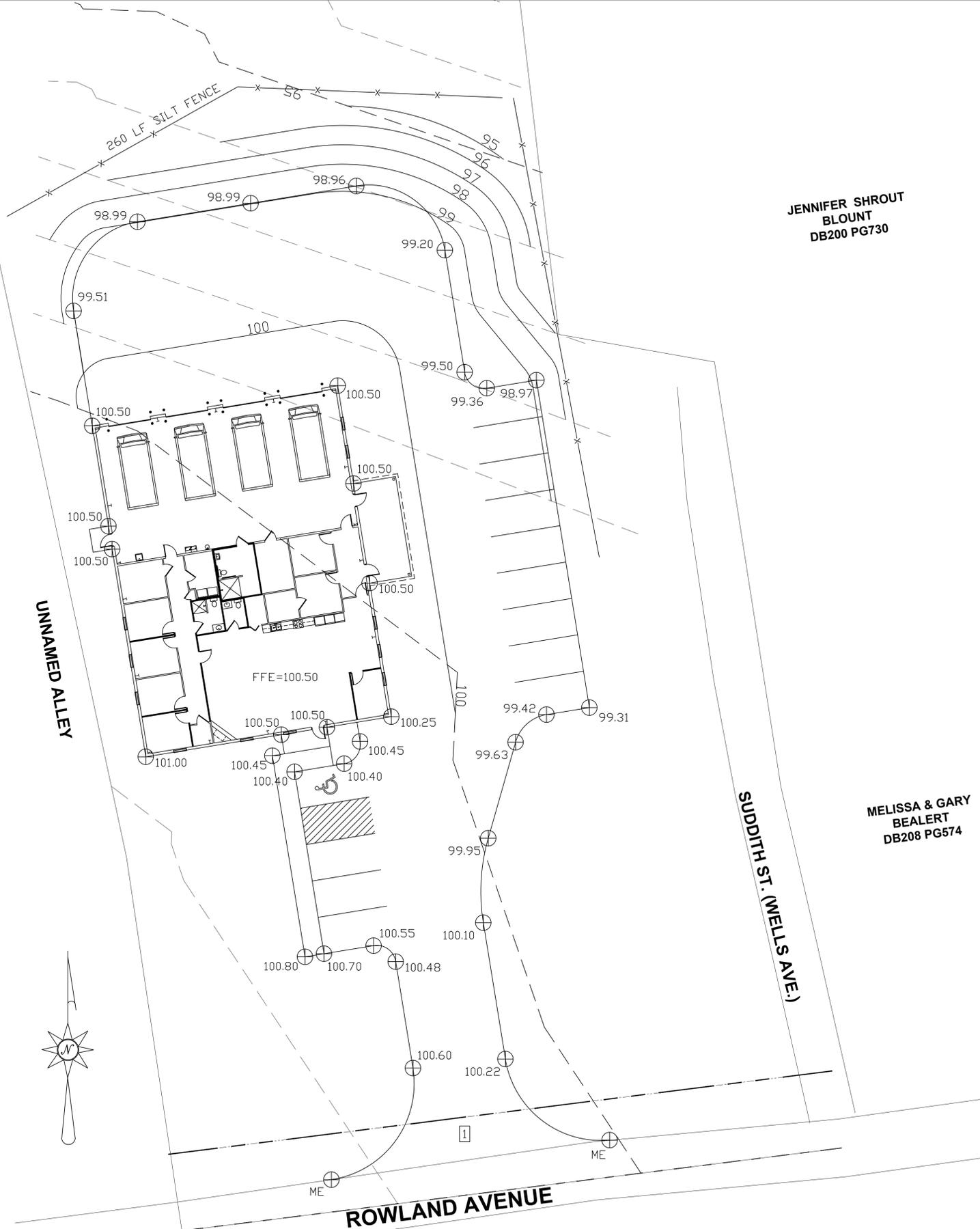
GRADING AND EROSION CONTROL
 BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY

MARSHA SUSAN
 RICHARDSON
 DB 231 PG224

AMY McCLAIN
 DB244 PG371

JENNIFER SHROUT
 BLOUNT
 DB200 PG730

MELISSA & GARY
 BEALERT
 DB208 PG574



TAG NOTES

- 1 CONSTRUCTION ENTRANCE SEE SHEET EC-1 DETAIL A
- SILT FENCE SEE SHEET EC-1 DETAIL B

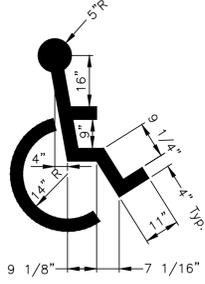
DATE	REVISION	BY

PROJECT NO.	DESIGNED BY MSE
DRAWN BY CRH	CHECKED BY GAR
REVIEWED BY GAR	DATE AUGUST 2024
SCALE AS NOTED	

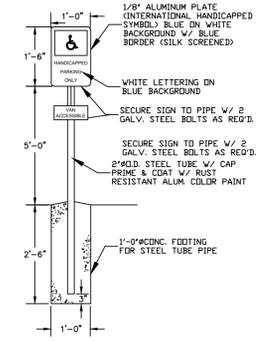
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 OF KENTUCKY, INC.
 Engineers
 Architects
 Planners

624 Wellington Way
 Owingsville, KY 40203
 www.nseinc.com

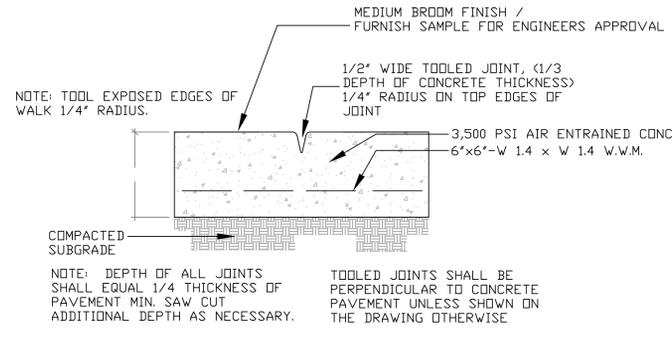
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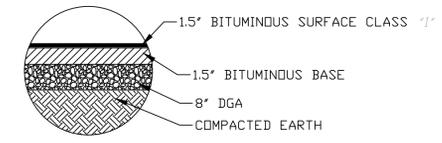
A
C-2 HANDICAP ACCESSIBILITY
PAVEMENT MARKING
NTS



A
C-2 HANDICAPPED VAN PARKING
SIGN
NTS



B
C-2 CONCRETE WALK / TOOLED
CONTROL JOINT
NTS



C
C-2 LIGHT DUTY PAVEMENT
NTS



SITE DETAILS
BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

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PROJECT NO.	
DESIGNED BY	MSE
DRAWN BY	CRH
CHECKED BY	GAR
REVIEWED BY	GAR
DATE	AUGUST 2024
SCALE	AS NOTED

MSE
OF KENTUCKY, INC.
Engineers
Architects
Planners

624 Wellington Way
Covington, KY 40203
www.mseinc.com

Phone: (859) 225-5894
Fax: (859) 225-2807

EROSION CONTROL NOTES:

THE EROSION CONTROL MEASURES NOTED BELOW ARE MINIMUMS AND DO NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY FOR COMPLIANCE WITH ANY AND ALL U.S. EPA, KENTUCKY DIVISION OF WATER AND/OR LOCAL REQUIREMENTS.

CONTRACTOR SHALL ESTABLISH EROSION CONTROL MEASURES BEFORE DISTURBING SITE.

ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED.

ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION, IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETED AND THE SITE IS STABILIZED.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT EROSION ONTO ADJACENT PROPERTY. ANY REMEDIAL MEASURES REQUIRED TO CORRECT DAMAGE CREATED BY EROSION SHALL BE AT THE CONTRACTOR'S EXPENSE.

TOPSOIL STOCKPILES THAT ARE NOT BEING UTILIZED FOR A PERIOD OF 14 DAYS TO BE SURROUNDED BY SILT FENCES, RE-SEEDED AND PLACED WHERE SOIL EROSION WOULD GO TO THE SEDIMENT BASIN.

SILT FENCES TO BE CLEANED OUT WHEN THEY BECOME ONE-THIRD FULL.

WHEN SEASONAL CONDITIONS PROHIBIT THE APPLICATION OF TEMPORARY OR PERMANENT SEEDING, NON-VEGETATIVE SOIL STABILIZATION PRACTICES SUCH AS MULCHING AND MATTING SHALL BE USED, UNTIL SUCH TIME AS CONDITIONS PERMIT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ALL STORM SEWERS CLEANED OF SILT AND DEBRIS AND FUNCTIONING PROPERLY.

ALL SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN DAYS AND AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF PRECIPITATION DURING ANY 24-HOUR PERIOD. A FIELD LOG OF INSPECTIONS SHALL BE MADE AND A COPY GIVEN TO THE OWNER.

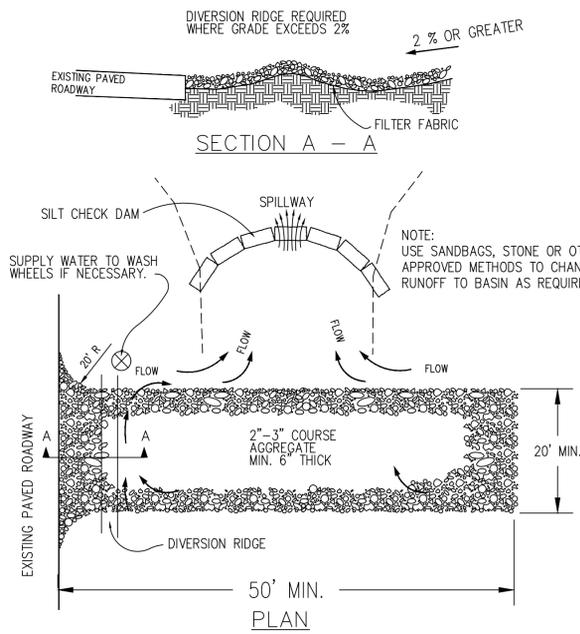
ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL SOIL STABILIZATION HAS BEEN OBTAINED.

CONTRACTOR SHALL PROVIDE A CONCRETE WASHOUT STRUCTURE OR AREA UPSTREAM OF THE DETENTION BASIN IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS. THE LOCATION OF THE CONCRETE WASHOUT STRUCTURE/AREA SHALL BE APPROVED BY THE ENGINEER AND DESIGNATED ON THE SWPPP.

STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NO MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PART OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED UNLESS THAT ACTIVITY IN THAT PORTION OF THE SITE WILL RESUME WITHIN 21 DAYS.

THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE TRACKING OF MUD ONTO PAVED ROADWAY FROM CONSTRUCTION AREAS. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

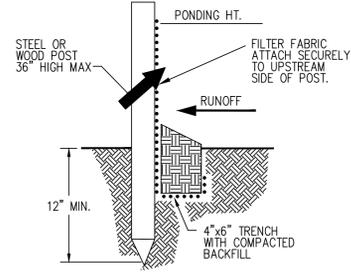
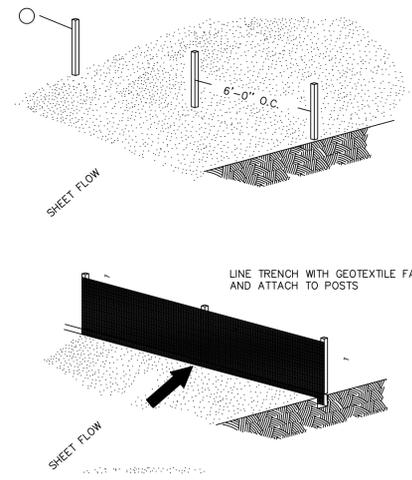
THE CONTRACTOR SHALL LIMIT ACCESS TO THE SITE TO THE CONSTRUCTION ENTRANCES. THE LOCATION OF THE CONSTRUCTION ENTRANCES SHALL BE APPROVED BY THE ENGINEER AND DESIGNATED ON THE SWPPP. THE CONTRACTOR SHALL INSTALL STONE SURFACE AT THE LOCATION WHERE CONSTRUCTION TRAFFIC LEAVES AND ENTERS THE SITE. THESE ACCESS POINTS SHALL BE MIN. 20' WIDE, 50' LONG, 0.5' DEEP AND USE NO 7 STONE OVER GEOTEXTILE FABRIC (SEE DETAILS THIS SHEET). THE CONTRACTOR IS RESPONSIBLE FOR KEEPING STREETS AND PARKING AREAS FREE FROM MUD, DIRT, DEBRIS, AND ROCK. DUST SHALL BE KEPT TO A MINIMUM BE UTILIZING SPRINKLING, CALCIUM CHLORIDE, VEGETATIVE COVER, SPRAY ON ADHESIVES OR OTHER APPROVED METHODS. THIS ENTRANCE SHALL BE MAINTAINED UNTIL THE PERMANENT ENTRANCE HAS BEEN CONSTRUCTED.



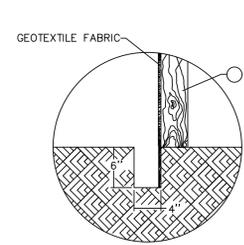
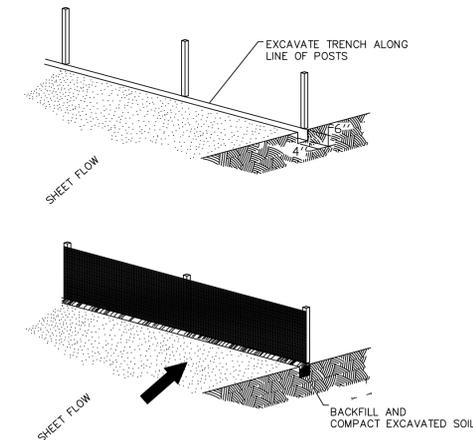
NOTES:
 1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT
 N.T.S. FILE: ENTRANCE

A C-3 CONSTRUCTION ENTRANCE
 N.T.S.



B C-3 SILT FENCE
 N.T.S.



- SEE STANDARD SPECIFICATIONS FOR POST SIZE, GEOTEXTILE FABRIC, WIRE STAPLES AND ALL OTHER PERTINENT INFORMATION.
- POSTS MAY BE WOODEN OR METAL T-SECTION. POSTS SHALL BE SET 1'-4" DEEP.
- 4. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
- 5. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
- 6. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.



EROSION CONTROL DETAILS
 BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

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PROJECT NO.	DESIGNED BY MSE
DRAWN BY CRH	CHECKED BY GAR
REVIEWED BY GAR	DATE AUGUST 2024
SCALE AS NOTED	

MSE
 OF KENTUCKY, INC.
 Engineers
 Architects
 Planners

624 Wellington Way
 Bowling Green, KY 42503
 www.mseinc.com

Phone: (859) 225-5894
 Fax: (859) 225-2807

STRUCTURAL QUALITY ASSURANCE PLAN

GENERAL

THE NEW STRUCTURE TO BE CONSTRUCTED IS ASSIGNED BY THE KENTUCKY BUILDING CODE, 2019 EDITION, TO SEISMIC USE GROUP AND SEISMIC DESIGN AS SPECIFIED. AS SUCH, THE BUILDING CODE MANDATES SPECIAL INSPECTION (SECTION 1704). SPECIAL INSPECTIONS FOR WIND RESISTANCE (SECTION 1705.11), SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE (SECTION 1705.12), STRUCTURAL OBSERVATION FOR SEISMIC RESISTANCE (SECTION 1704.6.1) AND STRUCTURAL OBSERVATIONS FOR WIND REQUIREMENTS (SECTION 1704.6.2). STRUCTURAL QUALITY ASSURANCE PLAN SPECIFICALLY IDENTIFIES THE RESPONSIBILITIES OF THE CONTRACTOR AND THE SPECIAL INSPECTOR IN PERFORMING THE REQUIRED TESTING AND INSPECTION OF THE STRUCTURAL WORK.

CONTRACTOR RESPONSIBILITIES

In accordance with Section 1704.4 of the Building Code, the Contractor shall submit to the Building Official and the Architect a written statement of responsibility that contains the following:

- Acknowledgement of awareness of the special requirements contained within this Structural Quality Assurance Plan.
- Acknowledgement that control shall be exercised to obtain conformance with the construction documents approved by the Building Official.
- Procedures for exercising control with the Contractor's organization, the method and frequency of reporting, and the distribution of reports.
- Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.

The Structural Testing / Inspection Agency that is to act as the Special Inspector will be hired by the Owner.

Contractor shall pay for any additional structural testing/inspection required for work or materials not complying with the Construction Documents due to negligence or nonconformance and shall pay for any additional structural testing/inspection required for his convenience.

The Contractor is responsible to ensure that the Special Inspector is present for all work requiring special inspection. Any work that requires special inspection and is performed without the Special Inspector being present is subject to being demolished and reconstructed.

The Contractor has the following responsibilities to the Special Inspector:

- Provide copy of Construction Documents to the Special Inspector.
- Notify the Special Inspector sufficiently in advance of operations to allow assignment of personnel and scheduling of tests.
- Cooperate with Special Inspector and provide access to work.
- Provide samples of materials to be tested in required quantities.
- Provide storage space for the Special Inspector's exclusive use, such as for storing and curing concrete testing samples.
- Provide labor to assist the Special Inspector in performing tests/inspections.

SOILS

The Special Inspector shall perform the following:

- Verify structural fill complies with specifications and the geotechnical report
- Observer proffrolling.
- Perform field density tests to verify compaction of structural fill. As a minimum, perform one test per lift for every 2500 square feet of fill placed.

LIGHT-GAGE METAL FRAMING

The Contractor shall perform the following:

- Trusses shall be manufactured and designed in accordance with the North American specifications for the design of cold-formed steel structural members AISI S100. Submit letter of compliance and calculations.
- Submit shop drawings signed and sealed by KY P.E.

The Special Inspector shall perform periodic inspections of the following:

- Visual inspection of ALL bearings and connections.
- Verify installation of bridging or braces.
- Verify connection for top and bottom chords.
- Verify reinforcement of members for concentrated loads.
- Verify proper bearing.
- Check all framing layout and confirm compliance with plans, specs, and shop drawings.
- Visually inspect truss layout and anchorage and confirm compliance with plans, specs, and shop drawings.
- Visually inspect all roof and wall sheathing attachments and confirm compliance with plans, specs, and shop drawings.

CAST-IN-PLACE CONCRETE

The Contractor shall perform the following:

- Establish concrete mix design proportions per ACI 318, Chapter 5. Submit 5 copies (minimum) of the concrete mix designs. Include the following:
 - Type and quantities of materials
 - Slump
 - Air content
 - Fresh unit weight
 - Aggregates sieve analysis
 - Design compressive strength
 - Location of placement in structure
 - Method of placement
 - Method of curing
 - Seven-day and 28-day compressive strengths

Submit a certification from each manufacturer or supplier stating that materials meet the requirements of the specified ASTM and ACI standards.

Submit certification that the ready-mixed concrete plant complies with the requirements of the National Ready Mix Concrete Association.

The Special Inspector shall perform the following:

- Verify quantity, location, and placement of reinforcing steel prior to concrete placement.
- Examine concrete in truck to verify that concrete appears properly mixed.
- Perform a slump test as deemed necessary for each concrete load. Record if water or admixtures are added to the concrete at the job site. Perform additional slump tests after job site adjustments.
- Mold four specimens per set for compressive strength testing; one set for each 50 cubic yards (or portion thereof) of each mix design in any one day. For each set set molded, record:
 - Slump
 - Air content
 - Unit weight
 - Temperature, ambient and concrete
 - Location of placement
 - Any pertinent information, such as addition of water, addition of admixtures, etc.

Perform one 7-day and two 28-day compressive strength tests. (Use one as a spare to be broken as directed by the Structural Engineer if compressive strengths do not appear adequate.)

- Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, concrete design compressive strength, location of concrete placement in structure, concrete mix proportions and materials, compressive breaking strength and type of break.

NON-SHRINK GROUT UNDER STEEL BASE PLATES

The Special Inspector shall perform the following:

- Compressive strength tests per ASTM C109.
- Number of Tests: One test for each ten bags of grout used or minimum of one test for each day of grouting.
- Cube Size: 2-inch x 2-inch.
- Test Schedule: One cube at 3 days, two cubes at 7 days, three cubes at 28 days.

CONCRETE MASONRY

Contractor shall perform the following:

- Submit a certification from each manufacturer or supplier stating that the following materials comply with the specified ASTM or ACI Standards:
 - Concrete masonry units.
 - Mortar materials: Portland cement, hydrated lime, and aggregates.
 - Grout materials: Portland cement and aggregates.
 - Joint reinforcement steel.
 - Reinforcing steel.

For reinforcing steel used in concrete masonry walls, submit certified mill test reports.

Special Inspector shall perform the following:

- Verify compressive strength of concrete masonry units, mortar, and coarse grout for every 5,000 sq. ft. of surface area (or portion thereof) as follows:
 - Three (3) concrete masonry units shall be tested in accordance with ASTM C140.
 - Six (6) mortar cube specimens shall be tested, three (3) at 7-days and three (3) at 28-days, in accordance with ASTM C109.
 - Four (4) coarse grout specimens shall be tested, two (2) at 7-days and two (2) at 28-days, in accordance with ASTM C-109.
 - In lieu of individual tests of masonry units, mortar, and grout, perform one (1) prism test (which consists of three prisms) in accordance with ASTM E447.
- Provide continuous inspection to verify compliance of the following:
 - Cleanliness of grout space prior to grouting.
 - Placement of grout in reinforced cells.
 - Preparation of required grout and mortar specimens.
 - Welding of reinforcing bars.
- Provide periodic inspection to verify compliance of the following:
 - Proportions of site-prepared mortar or grout.
 - Construction of mortar joints.
 - Quantity, size, location, and support of reinforcing steel.
 - Quantity, size, and placement of horizontal joint reinforcement.
 - Type, size and location of anchors.
 - Protection of masonry during cold or hot weather.

STRUCTURAL STEEL

The Contractor shall perform the following:

- The steel fabricator shall be AISC or AWS Certified, refer to Spec. 051200.
- Submit certified mill test reports for structural steel.
- Submit manufacturer's certificate of compliance for high-strength bolting and weld filler materials.

** If the fabricator is not certified, then the fabricator shall reimburse the owner for the costs of these tests.

The Special Inspector shall perform the following:

- Provide continuous inspection to verify compliance of the following:
 - Inspection of slip-critical connections, except periodic inspection may be performed when using torque control bolts (twist off)
 - Complete and partial penetration groove welds. Ultrasonically inspect 100% of the complete penetration welds.
 - Multi-pass fillet welds and single-pass fillet welds greater than 5/16".
- Provide periodic inspection to verify compliance of the following:
 - Material verification of high-strength bolts, nuts, and washers.
 - Material verification of structural steel.
 - Material verification of weld filler material.
 - Anchor bolt size, configuration, and embedment shall be verified prior to placement of concrete.
 - Visually inspect all field-welded connection. Visual inspection of welded joints includes periodic examination of fillet.
 - Verify stud shear connector spacing and location. Visually inspect welding of stud shear connectors.
- Weld Inspections
 - Weld inspections shall be in accordance with AWS D1.1.
 - Review and verify compliance of written welding procedures with AWS requirements.
 - Verify that welding procedures are being adhered to during field welding.
 - Verify welder qualifications.
 - Use all means necessary to determine the quality of welds. The inspector may use gamma ray, magnafuz, trapaning, sonics or any other aid to visual inspection that the Special Inspector may deem necessary to be assured of the adequacy of the welding.
 - Keep a systematic record of all welds that include, in addition to other required records, the identification marks of welders, a list of defective welds, and the manner of correcting defects.
- Boiling inspection and testing shall be in accordance with AISC Specifications for Structural Joints Using ASTM A325 or A490 Bolts.

SPECIAL INSPECTOR RESPONSIBILITIES

The Special Inspector shall maintain records of inspections in accordance with Section 1704.2.4 and shall distribute these records to the Architect and Structural Engineer on a weekly basis. At the conclusion of the project, the Special Inspector shall submit a final report including a written statement that the special inspections during construction have complied with this Structural Quality Assurance Plan and that any discrepancies noted during construction have been corrected.

SPECIAL INSPECTIONS PER CHAPTER 17 OF THE KENTUCKY BUILDING CODE - BUILDING

SECTION	ITEM	REQUIRED?		REMARKS
		YES	NO	
1704.2.5	FABRICATORS	X	—	STEEL FABRICATION SPECIAL INSPECTION IS REQUIRED IF THE FABRICATOR IS NOT A.I.S.C. OR AWS CERTIFIED
1704.6.1	STRUCTURAL OBSERVATION FOR SEISMIC REQUIREMENTS	—	X	SEISMIC DESIGN CATEGORY "C"
1704.6.2	STRUCTURAL OBSERVATION FOR WIND REQUIREMENTS	—	X	Vasd = 93mph.
1705.2	STEEL	X	—	PER AISC 360 & TABLE 1705.2.2
1705.3	CONCRETE	X	—	PER TABLE 1705.3
1705.4	MASONRY	X	—	LEVEL B TMS 402/ACI 530/ASCE 5 FOR MASONRY BRG. WALL FOUNDATIONS MEET EXCEPTION
1705.5	WOOD	—	X	NONE
1705.6	SOILS	X	—	PER SECTION 1705.6
1705.7	DRIVEN DEEP FOUNDATIONS	—	X	NONE
1705.8	CAST IN PLACE DEEP FOUNDATIONS	—	X	NONE
1705.9	HELICAL PILE FOUNDATIONS	—	X	NONE
1705.11.1	WIND - STRUCTURAL WOOD	—	X	Vasd OF 93MPH
1705.11.2	WIND - COLD FORMED STEEL FRAMING	—	X	Vasd OF 93MPH
1705.11.3	WIND - WIND RESISTING COMPONENTS	—	X	Vasd OF 93MPH
1705.12.1	SEISMIC - STRUCTURAL STEEL	—	X	SEISMIC DESIGN CATEGORY "C"
1705.12.2	SEISMIC - STRUCTURAL WOOD	—	X	NONE
1705.12.3	SEISMIC - COLD FORMED STEEL FRAMING	—	X	NONE
1705.12.4	DESIGNATED SEISMIC SYSTEMS	—	X	SEISMIC DESIGN CATEGORY "C"
1705.12.5	SEISMIC - ARCHITECTURAL COMPONENTS - INTERIOR/EXTERIOR NON-LOAD BEARING WALLS AND VENEER IN STRUCTURES	—	X	SEISMIC DESIGN CATEGORY "C"
1705.12.6	SEISMIC - MECHANICAL AND ELECTRICAL COMPONENTS	—	X	SEISMIC DESIGN CATEGORY "C"
1705.12.7	SEISMIC - STORAGE RACKS AND ACCESS FLOORS	—	X	NONE
1705.14	SPRAYED FIREPROOFING	—	X	NONE
1705.15	MASTIC & INTUMESCENT FIREPROOFING	—	X	NONE
1705.16	E.I.F.S.	—	X	NONE
1705.17	FIRE RESISTANT PENETRATIONS & JOINTS AND PERIMETER FIRE BARRIER SYSTEMS	—	X	RISK CATEGORY IV, NON-HIGH RISE SEE SECTION 1705.17.1
1705.18	SMOKE CONTROL	—	X	NONE

EARTHQUAKE DESIGN DATA - BUILDING

RISK CATEGORY	IV
IMPORTANCE FACTOR	1.5
S	0.193
S	0.081
SITE CLASS	C
S	0.167
S	0.081
SEISMIC DESIGN CATEGORY	C
BASIC SEISMIC-FORCE RESISTING SYSTEM	PEMB
DESIGN BASE SHEAR	0.01 x W (kips)
ANALYSIS PROCEDURE	ELFP

SNOW DESIGN DATA - BLDG.

GROUND SNOW LOAD (P)	15 PSF
MINIMUM SLOPED ROOF SNOW LOAD (P)	10 PSF
FLAT ROOF SNOW LOAD (P)	10 PSF
IMPORTANCE FACTOR	1.2
THERMAL FACTOR (C)	1.0
SNOW EXPOSURE FACTOR (C)	0.9

DESIGN LIVE LOADS - BLDG.

ROOF	20 PSF
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WIND DESIGN DATA - BLDG.

ULTIMATE DESIGN WIND SPEED (VuI)	120 MPH
NOMINAL WIND SPEED (Vasd)	93 MPH
RISK CATEGORY	IV
WIND PRESSURE CATEGORY	B
INTERNAL PRESSURE COEFFICIENT	+/- 0.18
COMPONENTS AND CLADDING [H<30 FT]	
EXPOSURE B	
ROOF 0 TO 7 DEGREES	(PSF)
INTERIOR ZONE	10.5 -25.9
END ZONE	10.5 -43.5
CORNER ZONE	10.5 -65.4
ROOF >7 TO 27 DEGREES	
INTERIOR ZONE	14.9 -23.7
END ZONE	14.9 -41.3
CORNER ZONE	14.9 -61.0
INTERIOR ZONE	23.7 -25.9
END ZONE	23.7 -30.3
CORNER ZONE	23.7 -30.3
WALLS	
INTERIOR ZONE	25.9 -28.1
END ZONE	25.9 -34.7

NOTE: NEGATIVE NUMBERS INDICATE A SUCTION/UPLIFT PRESSURE

POAGE ENGINEERS & ASSOCIATES
 880 Sparta Court
 Suite 200
 Lexington, KY 40504
 Phone: (859) 255-9034
 Fax: (859) 252-3130



BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY

DATE	REVISION	BY
7/4/25	A	

DESIGNER'S NOTES:
 The design professional warrants any and all responsibility and liability for problems which arise from failure to follow these plans, specifications and the design intent they convey.
 This document is subject matter considered confidential by MSE of Kentucky, Inc. and on which MSE of Kentucky, Inc. has property rights. Neither receipt nor possession hereof confers or transfers any rights in or to the design or any part thereof to any other party without the written permission of MSE of Kentucky, Inc.

PROJECT NO.	5071-02
DESIGNED BY	CSK
DRAWN BY	SRF (p24140)
CHECKED BY	CSK
REVIEWED BY	
DATE	JULY 30 2024
SCALE	AS NOTED

MSE OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 624 Wellington Way
 Lexington, KY 40503
 www.msexlex.com
 Phone: (859) 223-8694
 Fax: (859) 223-2607

DRAWING NO.
S-0
 SHEET OF

STRUCTURAL QUALITY ASSURANCE PLAN - STORM SHELTER

GENERAL

THE NEW STRUCTURE TO BE CONSTRUCTED IS ASSIGNED BY THE KENTUCKY BUILDING CODE, 2018 EDITION, TO SEISMIC USE GROUP AND SEISMIC DESIGN AS SPECIFIED. AS SUCH, THE BUILDING CODE MANDATES SPECIAL INSPECTION (SECTION 1704). SPECIAL INSPECTIONS FOR WIND RESISTANCE (SECTION 1705.11), SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE (SECTION 1705.12), STRUCTURAL OBSERVATION FOR SEISMIC RESISTANCE (SECTION 1704.6.1) AND STRUCTURAL OBSERVATIONS FOR WIND REQUIREMENTS (SECTION 1704.6.2), STRUCTURAL QUALITY ASSURANCE PLAN SPECIFICALLY IDENTIFIES THE RESPONSIBILITIES OF THE CONTRACTOR AND THE SPECIAL INSPECTOR IN PERFORMING THE REQUIRED TESTING AND INSPECTION OF THE STRUCTURAL WORK.

CONTRACTOR RESPONSIBILITIES

In accordance with Section 1704.4 of the Building Code, the Contractor shall submit to the Building Official and the Architect a written statement of responsibility that contains the following:

- 1) Acknowledgement of awareness of the special requirements contained within this Structural Quality Assurance Plan.
- 2) Acknowledgement that control shall be exercised to obtain conformance with the construction documents approved by the Building Official.
- 3) Procedures for exercising control with the Contractor's organization, the method and frequency of reporting, and the distribution of reports.
- 4) Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.

The Structural Testing / Inspection Agency that is to act as the Special Inspector will be hired by the Owner.

Contractor shall pay for any additional structural testing/inspection required for work or materials not complying with the Construction Documents due to negligence or nonconformance and shall pay for any additional structural testing/inspection required for his convenience.

The Contractor is responsible to ensure that the Special Inspector is present for all work requiring special inspection. Any work that requires special inspection and is performed without the Special Inspector being present is subject to being demolished and reconstructed.

The Contractor has the following responsibilities to the Special Inspector:

- 1) Provide copy of Construction Documents to the Special Inspector.
- 2) Notify the Special Inspector sufficiently in advance of operations to allow assignment of personnel and scheduling of tests.
- 3) Cooperate with Special Inspector and provide access to work.
- 4) Provide samples of materials to be tested in required quantities.
- 5) Provide storage space for the Special Inspector's exclusive use, such as for storing and curing concrete testing samples.
- 6) Provide labor to assist the Special Inspector in performing tests/inspections.

SPECIAL OBSERVER RESPONSIBILITIES

Structural Observations shall be performed by a registered professional engineer "specializing in structures" to conduct visual observations relating to the structural systems at significant stages of construction and at completion of the structural systems.

SPECIAL INSPECTOR RESPONSIBILITIES

The Special Inspector shall maintain records of inspections in accordance with Section 1704.2.4 and shall distribute these records to the Architect and Structural Engineer on a weekly basis. At the conclusion of the project, the Special Inspector shall submit a written statement that the special inspections during construction have complied with this Structural Quality Assurance Plan and that any discrepancies noted during construction have been corrected.

SOILS

The Special Inspector shall perform the following:

- 1) Verify structural fill complies with specifications and the geotechnical report
- 2) Observer proofrolling.
- 3) Perform field density tests to verify compaction of structural fill. As a minimum, perform one test per lift for every 2500 square feet of fill placed.

CAST-IN-PLACE CONCRETE

The Contractor shall perform the following:

1. Establish concrete mix design proportions per ACI 318, Chapter 5. Submit 5 copies (minimum) of the concrete mix designs. Include the following:
 - a. Type and quantities of materials
 - b. Slump
 - c. Air content
 - d. Fresh unit weight
 - e. Aggregates sieve analysis
 - f. Design compressive strength
 - g. Location of placement in structure
 - h. Method of placement
 - i. Method of curing
 - j. Seven-day and 28-day compressive strengths

2. Submit a certification from each manufacturer or supplier stating that materials meet the requirements of the specified ASTM and ACI standards.

3. Submit certification that the ready-mixed concrete plant complies with the requirements of the National Ready Mix Concrete Association.

The Special Inspector shall perform the following:

1. Verify quantity, location, and placement of reinforcing steel prior to concrete placement.
2. Examine concrete in truck to verify that concrete appears properly mixed.
3. Perform a slump test as deemed necessary for each concrete load. Record if water or admixtures are added to the concrete at the job site. Perform additional slump tests after job site adjustments.
4. Mold four specimens per set for compressive strength testing; one set for each 50 cubic yards (or portion thereof) of each mix design in any one day. For each set set molded, record:
 - a. Slump
 - b. Air content
 - c. Unit weight
 - d. Temperature, ambient and concrete
 - e. Location of placement
 - f. Any pertinent information, such as addition of water, addition of admixtures, etc.

5. Perform one 7-day and two 28-day compressive strength tests. (Use one as a spare to be broken as directed by the Structural Engineer if compressive strengths do not appear adequate.)

6. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, concrete design compressive strength, location of concrete placement in structure, concrete mix proportions and materials, compressive breaking strength and type of break.

The structural observer shall perform the following:

- 1) Shall confirm intent of the structural drawings relating to reinforcement placement and details.

The Contractor shall perform the following:

1. Submit a certification from each manufacturer or supplier stating that the following materials comply with the specified ASTM or ACI Standards:
 - a. Concrete masonry units.
 - b. Mortar materials: Portland cement, hydrated lime, and aggregates.
 - c. Grout materials: Portland cement and aggregates.
 - d. Joint reinforcement steel.
 - e. Reinforcing steel.

2. For reinforcing steel used in concrete masonry walls, submit certified mill test reports.

Special Inspector shall perform the following:

1. Verify compressive strength of concrete masonry units, mortar, and coarse grout for every 5,000 sq. ft. of surface area (or portion thereof) as follows:
 - a. Three (3) concrete masonry units shall be tested in accordance with ASTM C140.
 - b. Six (6) mortar cube specimens shall be tested, three (3) at 7-days and three (3) at 28-days, in accordance with ASTM C109.
 - c. Four (4) coarse grout specimens shall be tested, two (2) at 7-days and two (2) at 28-days, in accordance with ASTM C-109.
 - d. In lieu of individual tests of masonry units, mortar, and grout, perform one (1) prism test (which consists of three prisms) in accordance with ASTM E447.

2. Provide continuous inspection to verify compliance of the following:
 - a. Cleanliness of grout space prior to grouting.
 - b. Placement of grout in reinforced cells.
 - c. Preparation of required grout and mortar specimens.
 - d. Welding of reinforcing bars.

3. Provide periodic inspection to verify compliance of the following:
 - a. Proportions of site-prepared mortar or grout.
 - b. Construction of mortar joints.
 - c. Quantity, size, location, and support of reinforcing steel.
 - d. Quantity, size, and placement of horizontal joint reinforcement.
 - e. Type, size and location of anchors.
 - f. Protection of masonry during cold or hot weather.

4. Provide infrared images of wall to confirm grout placement.

The structural observer shall perform the following:

- 1) Shall confirm intent of the structural drawings relating to reinforcement placement and details.

The Contractor shall perform the following:

1. Submit a certification from each manufacturer or supplier stating that the following materials comply with the specified ASTM or ACI Standards:
 - a. Concrete masonry units.
 - b. Mortar materials: Portland cement, hydrated lime, and aggregates.
 - c. Grout materials: Portland cement and aggregates.
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 - c. Four (4) coarse grout specimens shall be tested, two (2) at 7-days and two (2) at 28-days, in accordance with ASTM C-109.
 - d. In lieu of individual tests of masonry units, mortar, and grout, perform one (1) prism test (which consists of three prisms) in accordance with ASTM E447.

2. Provide continuous inspection to verify compliance of the following:
 - a. Cleanliness of grout space prior to grouting.
 - b. Placement of grout in reinforced cells.
 - c. Preparation of required grout and mortar specimens.
 - d. Welding of reinforcing bars.

3. Provide periodic inspection to verify compliance of the following:
 - a. Proportions of site-prepared mortar or grout.
 - b. Construction of mortar joints.
 - c. Quantity, size, location, and support of reinforcing steel.
 - d. Quantity, size, and placement of horizontal joint reinforcement.
 - e. Type, size and location of anchors.
 - f. Protection of masonry during cold or hot weather.

4. Provide infrared images of wall to confirm grout placement.

The structural observer shall perform the following:

- 1) Shall confirm intent of the structural drawings relating to reinforcement placement and details.

SPECIAL INSPECTIONS PER CHAPTER 17 OF THE KENTUCKY BUILDING CODE - STORM SHELTER

SECTION	ITEM	REQUIRED?		REMARKS
		YES	NO	
1704.2.5	FABRICATORS	X		AISC CERTIFICATION IS EXEMPT
1704.6.1	STRUCTURAL OBSERVATION FOR SEISMIC REQUIREMENTS		X	SEISMIC DESIGN CATEGORY "C"
1704.6.2	STRUCTURAL OBSERVATION FOR WIND REQUIREMENTS			Vasd = 194 MPH
1705.2	STEEL	X		PER AISC 360 & TABLE 1705.2.2
1705.3	CONCRETE	X		PER TABLE 1705.3
1705.4	MASONRY	X		LEVEL C TMS 402/ACI 530/ASCE 5
1705.5	WOOD		X	NONE
1705.6	SOILS	X		PER SECTION 1705.6 AND TABLE 1705.6
1705.7	DRIVEN DEEP FOUNDATIONS		X	NONE
1705.8	CAST IN PLACE DEEP FOUNDATIONS		X	PER SECTION 1705.8 AND TABLE 1705.8
1705.9	HELICAL PILE FOUNDATIONS		X	NONE
1705.11.1	WIND - STRUCTURAL WOOD		X	NONE
1705.11.2	WIND - COLD FORMED STEEL FRAMING		X	NONE
1705.11.3	WIND - WIND RESISTING COMPONENTS	X		Vasd Of 194 MPH-PER SECTION 1705.11.3
1705.12.1	SEISMIC - STRUCTURAL STEEL		X	SEISMIC DESIGN CATEGORY "C"
1705.12.2	SEISMIC - STRUCTURAL WOOD		X	NONE
1705.12.3	SEISMIC - COLD FORMED STEEL FRAMING		X	NONE
1705.12.4	DESIGNATED SEISMIC SYSTEMS	X		SEISMIC DESIGN CATEGORY "C"
1705.12.5	SEISMIC - ARCHITECTURAL COMPONENTS - INTERIOR/EXTERIOR NON-LOAD BEARING WALLS AND VENEER IN STRUCTURES		X	SEISMIC DESIGN CATEGORY "C"
1705.12.6	SEISMIC - MECHANICAL AND ELECTRICAL COMPONENTS		X	SEISMIC DESIGN CATEGORY "C"
1705.12.7	SEISMIC - STORAGE RACKS AND ACCESS FLOORS		X	NONE
1705.14	SPRAYED FIREPROOFING		X	NONE
1705.15	MASTIC & INTUMESCENT FIREPROOFING		X	NONE
1705.16	E.I.F.S.		X	NONE
1705.17	FIRE RESISTANT PENETRATIONS & JOINTS		X	RISK CATEGORY IV-PER SECTION 1705.17
1705.18	SMOKE CONTROL	X		PER SECTION 1705.18

EARTHQUAKE DESIGN DATA-STORM SHELTER

RISK CATEGORY	IV
IMPORTANCE FACTOR	1.5
S _s	0.193
S ₁	0.081
SITE CLASS	C
S _s	0.167
S ₁	0.081
SEISMIC DESIGN CATEGORY	C
BASIC SEISMIC-FORCE RESISTING SYSTEM	INTERMEDIATE REINFORCED MASONRY SHEAR WALLS
DESIGN BASE SHEAR	0.01 x W (kips)
ANALYSIS PROCEDURE	ELFP

DESIGN LIVE LOADS-STORM SHELTER

CAP LOADING NON-EVENT	100 PSF
CAP LOADING EVENT	150 PSF

WIND DESIGN DATA-STORM SHELTER

ULTIMATE DESIGN WIND SPEED (Vult)	250 MPH
NOMINAL WIND SPEED (Vasd)	193 MPH
RISK CATEGORY	IV
WIND PRESSURE CATEGORY	C
INTERNAL PRESSURE COEFFICIENT	+/- 0.55
COMPONENTS AND CLADDING (H<30 FT (GCP))	
	Kzt 1.0
	Kd 1.0
	EXPOSURE C

	ROOF		
	CORNER	END	MIDDLE
<10 SF	116 -457.4	116 -320.8	116 -211.6
25 SF	110.6 -365	110.6 -282.8	110.6 -206.2
50 SF	106.5 -295	106.5 -254	106.5 -202.1
> 100 SF	102.4 -225.3	102.4 -225.3	102.4 -198

	WALL	
	<10 SF	> 10 SF
<10 SF	198 -210.3	182.8 -195.1
50 SF	200 SF	189.7 -182
> 500 SF	161.1 -173.4	

- NOTE: 1) NEGATIVE NUMBERS INDICATE A SUCTION/UPLIFT PRESSURE
2) LOADS SHOWN ARE FACTORED FOR LRFD

DESIGN CRITERIA-STORM SHELTER

- 1) ICC 500-14 COMPLIANT
- 2) COMMUNITY STORM SHELTER, REFER TO ARCHITECTURAL FOR ADDITIONAL INFORMATION
- 3) MWFRS INCLUDES: ALL EXTERIOR WALLS & FOOTINGS, ALL SLAB ANCHORING, AND REINFORCEMENT
- 4) ATMOSPHERIC PRESSURE CHANGE IN ACCORDANCE WITH ICC 500-14 SECTION 307.7
- 5) WALLS & CAP HAVE BEEN DESIGNED USING COMPONENTS PREVIOUSLY TESTED PER ICC 500 MISSILE TEST
- 6) THE STORM SHELTER HAS BEEN DESIGNED FOR COLLAPSE OF THE HOST BUILDING AND WITH INCREASED WIND EXPOSURE.
- 7) STORM SHELTER STRUCTURAL OBSERVATIONS TO BE PERFORMED BY A LICENSED DESIGN PROFESSIONAL WITH A MINIMUM OF 5 YEARS OF STRUCTURAL DESIGN EXPERIENCE.
- 8) AS REQUIRED BY ICC 500-2014 SECTION 107.3.3 EACH CONTRACTOR SHALL PROVIDE SUBMIT A WRITTEN STATEMENT ACKNOWLEDGING THERE ARE SPECIAL REQUIREMENTS FOR THE STORM SHELTER.
- 9) BEFORE CONSTRUCTION ON THE STORM SHELTER BEGINS - THERE WILL BE A PRECONSTRUCTION MEETING ON SITE WITH ALL INVOLVED CONTRACTORS.
- 10) STORM SHELTER STRUCTURAL OBSERVATIONS TO BE PERFORMED BY A LICENSED DESIGN PROFESSIONAL WITH A MINIMUM OF 5 YEARS OF STRUCTURAL DESIGN EXPERIENCE.
- 11) THE STORM SHELTER REQUIRES STRUCTURAL OBSERVATIONS IN ADDITION TO SPECIAL INSPECTIONS. THE CONTRACTOR SHALL COORDINATE THE SCHEDULING OF THE STRUCTURAL OBSERVATIONS PRIOR TO COVERING UP ANY WORK. AS PART OF THIS COORDINATION, THE CONTRACTOR SHALL PROVIDE A SIGN OFF SHEET FOR THE STRUCTURAL INSPECTOR AND OBSERVER TO CONFIRM THAT THE INSPECTIONS HAVE TAKEN BEFORE COVERING UP ANY WORK.

POAGE ENGINEERS & ASSOCIATES
880 Sparta Court
Suite 200
Lexington, KY 40504
Phone: (606) 255-9034
Fax: (606) 252-3130



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION

PROJECT NO. 5071-02
DESIGNED BY CSK
DRAWN BY SRF (p24-40)
CHECKED BY CSK
REVIEWED BY
DATE JULY 30 2024
SCALE AS NOTED

msc
OF KENTUCKY, INC.
Engineers
Architects
Planners
Phone: (606) 223-8694
Fax: (606) 223-8607
624 Wellington Way
Lexington, KY 40503
www.mslex.com

DRAWING NO.

S-0.1

SHEET OF

GENERAL

- Reference to standards or specifications of technical societies, organizations, or associations, or to codes of local/state authorities, means the latest standard, specification, or code adopted by the date shown on the Drawings, unless specifically noted otherwise.
- Material, workmanship, and design shall conform to the referenced Building Code.
- For dimensions not shown in the Structural Drawings, see the Architectural Drawings.
- Contractor responsibilities include, but are not limited to, the following:
 - Coordinate the Structural Documents with the Architectural, Mechanical, Electrical, Plumbing, and Civil Documents. Architect/Structural Engineer shall be notified of any discrepancy or omission.
 - The structure is stable only in its completed form. Temporary supports required for stability during all intermediate stages of construction shall be designed, furnished, and installed by the Contractor.
 - Contractor has sole responsibility for job site safety and complying with all health and safety precautions as required by any regulatory agency. In performing construction observation visits to the job site, for the Contractor's means, methods, sequences, techniques, or procedures in performing the work.
- Contractor shall field verify all existing conditions, elevations, and site conditions prior to construction and fabrication. Contractor shall immediately notify Structural Engineer of any existing conditions that are in conflict with the Structural Documents.

CONCRETE

- All concrete shall conform and be designed, mixed, placed, tested, and cured in accordance with the provisions of the ACI Manual of Concrete Practice, (current edition). Special care shall be taken in curing floors, stairs, walls, and other exposed surfaces in accordance with the specifications.
- All concrete shall develop 3,500 PSI compressive strength in 28 days.
 - W/C ratio, 0.45 for interior slabs and 0.46 for other concrete.
 - Flyash substitution is only permitted in slabs with a 15% max. content. Flyash substitution is NOT permitted in foundations.
 - Concrete structures and slabs exposed to freeze/thaw or subject to hydraulic pressure: air content 3% to 5%.
 - Other concrete, air content 2% to 4%
 - Slump limits (without a water reducer)
 - Ramps & sloping surfaces: no more than 3"
 - Reinforced foundations not less than 1" not more than 5"
 - Other concrete not less than 1" not more than 5"
- Dropping the concrete in excess of 10 feet, depositing in a large quantity at any point and running or working it along the forms, or any method tending to cause segregation or separation of the aggregates will not be permitted.

REINFORCEMENT STEEL

- Reinforcement steel shall have a minimum yield strength of 60,000 PSI and conform with material specifications for reinforcing bars, ASTM A615 thru A617; see manual of standard practice, Concrete Reinforcing Steel Institute.
- Welded wire fabric shall conform to ASTM A185.
- All rebars shall be securely tied and held in place with a minimum concrete protection cover to all steel as follows:

Walls, Columns, Beams, and Pilasters	1 1/2"
Slabs	3/4"
Footings	3"
- Reinforcing steel bends shall be made as per diagram, and/or in accordance with A.C.I. Code.
- Lap all splices as specifically called for, but at least 39 bar diameters for bars less than or equal to #6, and 48 bar diameters, for bars greater than #6, (always 12 in. minimum) unless noted otherwise. Lap all splices in masonry reinforcement a minimum of 48 bar diameters.

FOUNDATION DESIGN

- Foundations were designed using an assumed maximum earth bearing pressure of 2,000 PSF. In accordance with the geotechnical report prepared by CSI dated August 1, 2022. The contractor shall verify that field conditions comply with these recommendations. This verification shall be performed by Licensed Geotechnical Engineer.

GRADE SUPPORTED FLOOR SLABS

- The following features are required as part of grade support slab construction:
 - Keep the crushed stone moist, but not wet, immediately prior to slab concrete placement to minimize curling of the slab due to differential curing conditions between the top and bottom of the slab.
 - The Special Inspector shall review the actual subgrade conditions prior to slab construction and to make recommendations for any unsuitable conditions encountered.
 - Slab subgrade conditions are also considered earthwork areas; thus, the recommendations contained in the Earthwork section of the report apply.

STRUCTURAL STEEL

- Steel Shapes
 - W-Shapes: ASTM A992 (Grade 50)
 - Angles, Channels, Plates, UNO: ASTM A36
 - Square/Rectangular/Round Hollow Structural Sections (HSS): ASTM A500, Grade B
 - Structural steel exposed to weather shall be galvanized.
- Anchor Rods, Bolts, and Studs
 - Anchor Rods: ASTM F1554, Grade 36. Headed Rods or threaded rods with plate washer and heavy hex nut.
 - All bolts for structural steel joint fasteners shall be 3/4"Ø high strength structural bolts, ASTM A325, Torque Control (Tension Set), unless otherwise noted.
- Post-Installed Anchors: The procedure listed below are the design basis for these project. Installation of expansion anchors shall be in accordance with the ICC ES report and manufacturer's instructions for the particular anchor.
 - Expansion Anchors: Hilti Kwik Bolt TZ (ICC-ES ESR-1917), Simpson Strong-Tie Bolt Z (ICC-ES ESR-3037), or Power-Stud+ SD2 (ICC_ES ESR-2592). Minimum embedment = 6 times anchor diameter, UNO.
 - Adhesive Anchors
 - All-thread steel anchor conforming to ASTM A307, Grade A or ASTM A36, zinc plated in accordance with ASTM B633.
 - Adhesive conforming to Hilti Hilti HIT RE 500 SD (ICC-ES AC308), Simpson SET-XP Epoxy-Tie (ICC-ES ESR-2508), or Powers PE1000+ Epoxy Adhesive (ICC-ES ESR-2583), or Powers AC100+ Gold Adhesive (ICC_ES ESR-2582). Minimum embedment = 6 times anchor diameter, UNO.
 - For hollow concrete masonry, use screen tube approved by manufacturer and an adhesive conforming to Simpson Strong-Tie SET (ICC-ES ESR-1772).
 - Screw Anchors: Simpson Titan-HD (Concrete: ICC-ES ESR-2713; Grouted Masonry: ICC-ES ESR-1056) or Powers Wedge-Bolt+ (ICC-ES ESR-2526). Minimum Embedment = 6 times anchor diameter, UNO.
 - Substitutions will only be considered for products have a code report recognizing the product for the appropriate application. The substitution request shall be accompanied by calculations that demonstrate the substituted product is capable of achieving the equivalent performance values of the design-basis product.
- Structural steel shall be fabricated and erected according to the "Specification for Structural Steel Buildings" dated July 7, 2016 and the AISC "Code of Standard Practice for Steel Buildings and Bridges" dated June 15, 2016.
- Connections shall be detailed based on the design information provided in the Structural Documents
 - Standard Shear Connections: Details as bolted or welded double-angle, sible-plate, single-angle, or tee connections in accordance with the connection tables in the "Manual of Steel Construction", Thirteenth Edition.
 - Shear connections not defined in the AISC Manual shall be designed by an Engineer licensed in the project state. This design service shall be included in the Contractor's scope of services. Shop drawings of such connections shall be sealed by the Engineer.
 - Factored Design Forces/Reactions: As shown on the Structural Drawings or, if not shown, the factored design reaction shall be half of the "Maximum Total Uniform Load (LRFD)" tabulated in the "Manual of Steel Construction", Thirteenth Edition.
 - Steel connections not specifically detailed in the Structural Drawings shall be designed by the Contractor. This design service shall be included in the Contractor's scope of services. Shop drawings of such connections shall be sealed by an Engineer licensed in the project state.
- Shop Drawings: Submittal shall adequately depict structural members and connections.
- All structural steel shall be fabricated and erected in accordance with the latest OSHA regulations regarding steel erection.

CONCRETE MASONRY

- CMU Minimum Compressive Strength.
 - f_m = 3,000 psi for shelter
 - f_m = 2,000 psi elsewhere
- Mortar: Walls below grade
 - Type M
 Bearing Walls
 - Type M or S
- Coarse Grout: 3,000 psi. min. compressive strength conforming to ASTM C476.
 - Grout solid bond beams, reinforced CMU cores, and CMU cores and wall cavities below grade.
 - Masonry webs on each side of grouted cells shall be fully mortared.
- Horizontal Joint Reinforcement: Two (2) No. 9 gage longitudinal wires at 16" vertically, UNO. Provide accessories for corners, intersections, etc.
- Provide open bottom beam block units with 3" deep minimum web openings at horizontal reinforcement locations. A minimum clear space of one bar diameter shall be provided between the reinforcing bars and the face of masonry units.
- CMU has been designed assuming "running bond" placement. Do not use "stack bond" unless approved by Structural Engineer.
- Submit written construction procedures prior to the start of masonry construction.
- No chases, risers, conduits, or toothing of masonry shall occur in masonry walls within 18 inches of beam bearing centerline.
- Lap splices in reinforcing to be 48 bar diameters.
- In addition to spacing indicated on plans, provide vertical bars at all corners, ends, jamps, intersections and both sides of control joints.
- Extend all vertical reinforcement thru or into bond beams.
- Provide dowels from supporting member (footing, beam, or slab) for all reinforced walls same size, location and spacing as wall reinforcing.
- Vertical reinforcement shall be centered in cells of masonry unit, unless otherwise noted.
- Bar positioners shall be used to hold vertical and bond beam reinforcement in proper alignment.
- Vertical bars shall be held in position at top and bottom and at intervals not exceeding 200 bars diameters or 8 feet.
- Grouting of masonry lintels over openings shall be accomplished in one continuous operation.
- Grouting shall be stopped 1 1/2" below the top of a course to form a key at the pour joint.
- Grout all cells of concrete masonry units below grade or slab.
- Provide cleanout holes at least 3 inches in least dimension for grout pours over 5 feet in height.
 - At structurally reinforced walls provide cleanout holes at each structural vertical reinforcing bar.
 - Cleanout closures shall be braced to resist grout pressures.
- See architectural drawings for locations of vertical control joints.
- At vertical control joints, bond beam reinforcement and joint reinforcement shall be discontinuous. Provide two 3/4" diameter smooth dowels by 1'-4" across each control joint. Grease one end.
- Special Inspections are required for the masonry construction on this project. The inspections include but are not limited to continuous inspections during the grouting process. Refer to Chapter 17 of the Kentucky Building Code, current edition, for specific requirements.

NOTE TO CONTRACTOR:

The contractor shall coordinate the Structural Drawings with the Architectural, Mechanical, and Electrical Drawings and make certain all pipes, sleeves, ducts, inserts, and openings are located and in place before each concrete pour.

The Contractor shall verify all dimensions shown on the Structural Drawings with dimensions shown on the Architectural Drawings. The Contractor shall check and approve, with reasonable promptness, shop drawings and schedules for coordination of details, sizes, fitting tolerances, and dimensions. The Contractor shall stamp or sign these drawings and schedules with his approval and then submit them to the Architect for review.

POAGE ENGINEERS & ASSOCIATES
 880 Sparta Court
 Suite 200
 Lexington, KY 40504
 Phone: (859) 255-9034
 Fax: (859) 252-3130



BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY

DATE	BY	REVISION

PROJECT NO. 5071-02
 DESIGNED BY C&K
 DRAWN BY SRT (p24-40)
 CHECKED BY C&K
 REVIEWED BY
 DATE JULY 30 2024
 SCALE A5 NOTED

MSG OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 624 Wellington Way
 Lexington, KY 40503
 www.mslex.com
 Phone: (859) 223-5894
 Fax: (859) 223-2607

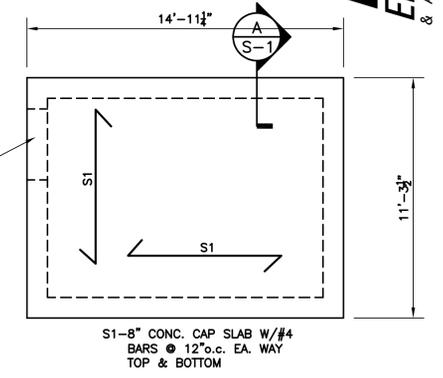
DRAWING NO.
 S-0.2
 SHEET OF



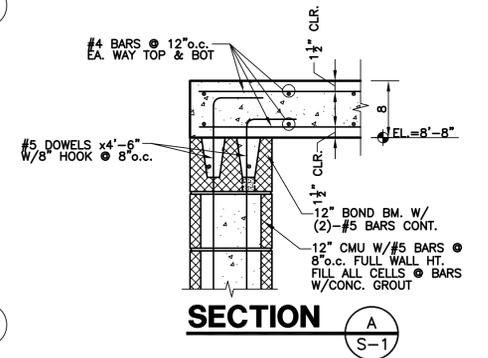
880 Sparta Court
Suite 200
Lexington, KY 40504
Phone: (859) 255-9034
Fax: (859) 252-3130

POAGE ENGINEERS & ASSOCIATES

BATH COUNTY EMS
OWINGSVILLE, KENTUCKY



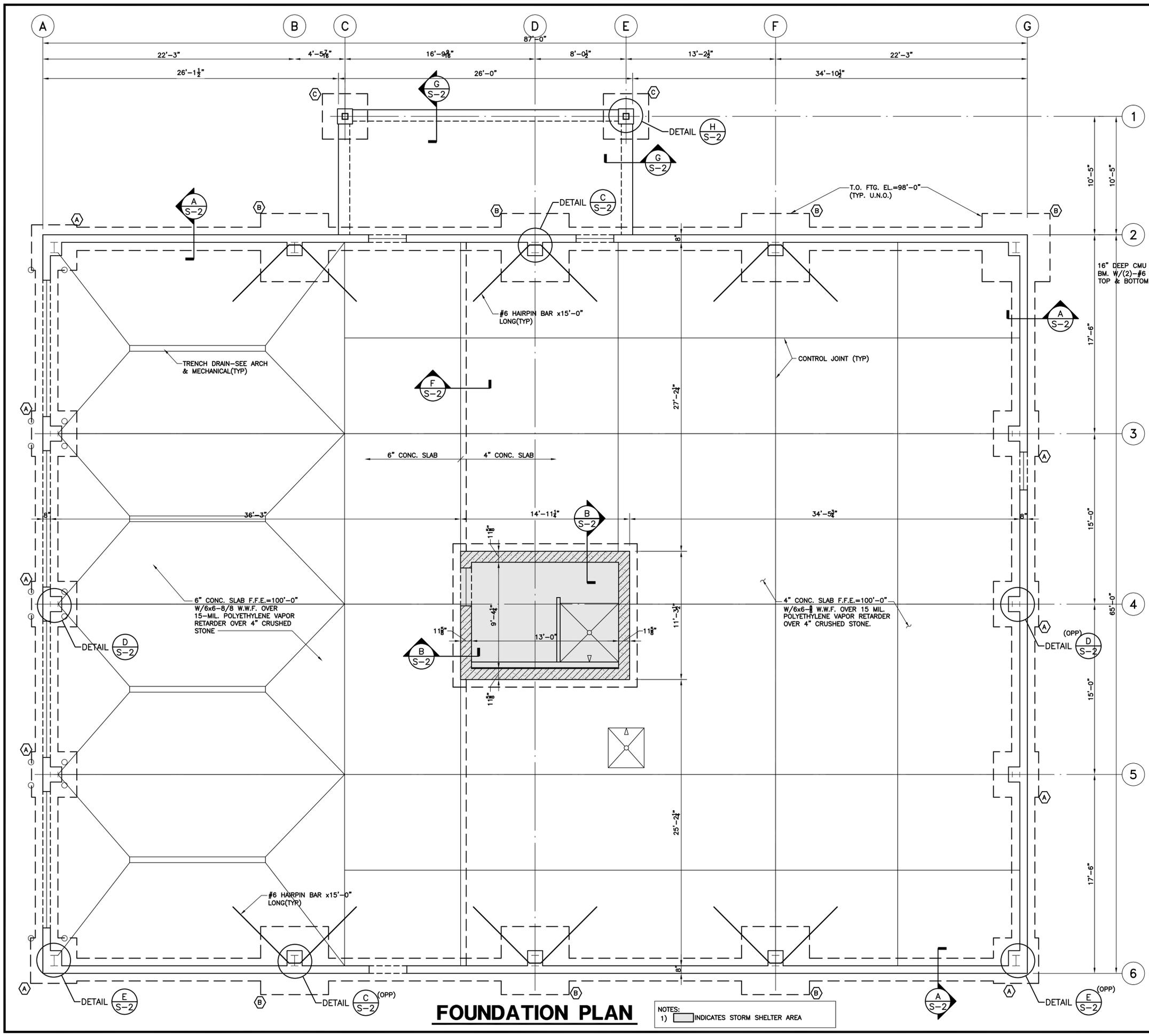
STORM SHELTER CAP PLAN



- NOTES:
- All footing and pier sizes shown are approximate and only for bidding purposes. Once final pre-engineered metal building (PEMB) anchor bolt layouts and reactions are submitted to Poage Engineers (Engineer of Record), footings and pier details will be reviewed and potentially revised based upon final reactions from the Pre-Engineered Metal Building engineer. No rebar shop drawings or footing excavation shall begin until final reactions are reviewed by Poage Engineers.
 - All building pad area (plus 5' beyond the building limits) shall be proof-rolled and any unsuitable soils/fill shall be undercut and removed. Refer to Geotechnical Report done by C.S.I. dated August 1, 2022.
 - Storm Shelter requires Structural Special Inspections. No work shall be done on the storm shelter until Pre-Storm Shelter inspection conference with the Special Inspection agency, Contractor and Poage Engineers.

- NOTES:
- DATUM ELEVATION (822.0') = 100'-0" ASSUMED.
 - CONTRACTOR SHALL COORDINATE FLOOR DRAINS AND ELECTRICAL CONDUITS WITH MECHANICAL, ELECTRICAL AND PLUMBING DRAWINGS NOT SHOWN ON THE STRUCTURAL DRAWINGS. ALL FLOOR DRAINS TO SLOPE 1/4" PER MINIMUM.
 - ALL DIMENSIONS SHOWN ARE TO FOUNDATION WALL.
 - REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS OF ALL INTERIOR NONLOAD-BEARING WALLS NOT LOCATED ON STRUCTURAL DRAWINGS.
 - ALL FOUNDATIONS SHALL BEAR DIRECTLY ON ROCK OR LEAN CONCRETE FILL TO ROCK.
 - THE WALL STEPS/BRICK LEDGES SHOWN ARE FOR BIDDING PURPOSES. FINAL ELEVATIONS ARE TO BE COORDINATED WITH ACTUAL GRADING CONDITIONS.

FOOTING SCHEDULE		
MARK	SIZE	REINFORCING STEEL
(A)	4'-0"x4'-0"x12"	5-#5 BARS EA. WAY
(B)	6'-0"x6'-0"x12"	7-#6 BARS EA. WAY
(C)	4'-0"x4'-0"x1'-6"	5-#5 BARS EA. WAY (TOP & BOT)



FOUNDATION PLAN

- NOTES:
- INDICATES STORM SHELTER AREA

DATE	REVISION

PROJECT NO. 5071-02
DESIGNED BY: C&K
DRAWN BY: SRT (p24/40)
CHECKED BY: C&K
DATE: JULY 30, 2024
SCALE: A5 NOTED

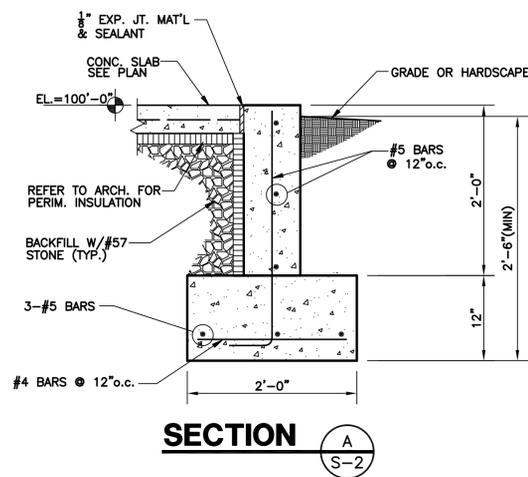
Engineers
Architects
Planners

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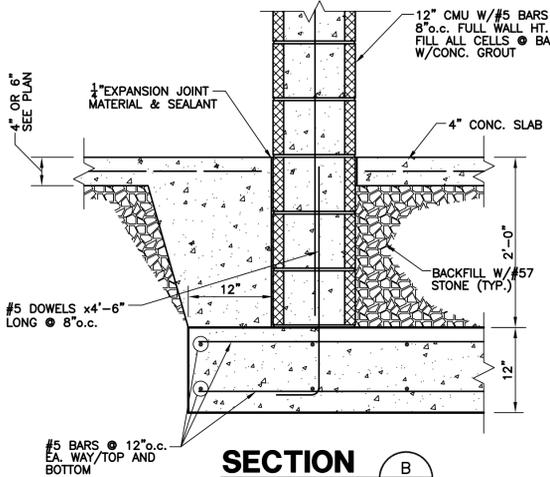
624 Wellington Way
Lexington, KY 40503
www.mslex.com
Phone: (859) 223-5894
Fax: (859) 223-2807

DRAWING NO.
S-1

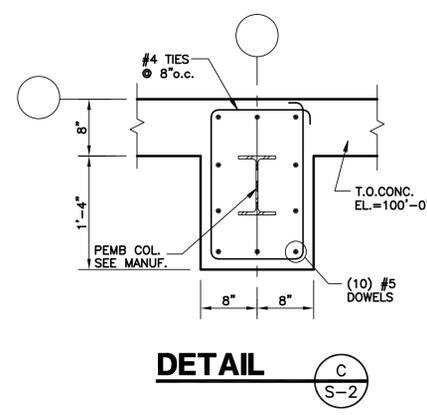
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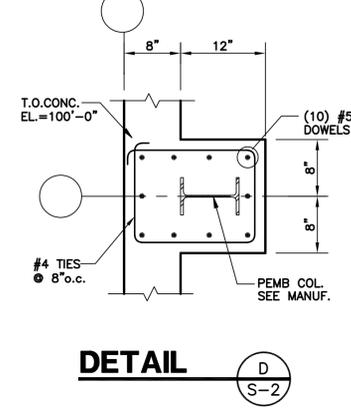
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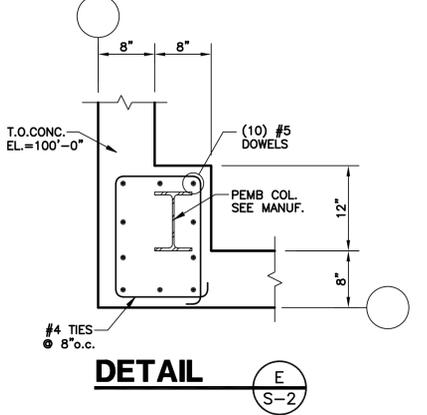
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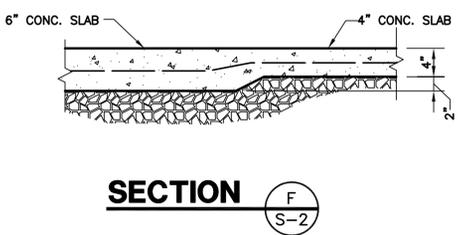
DETAIL C
S-2



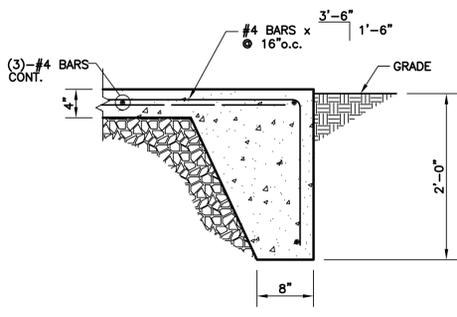
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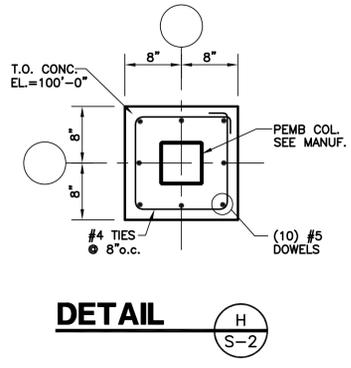
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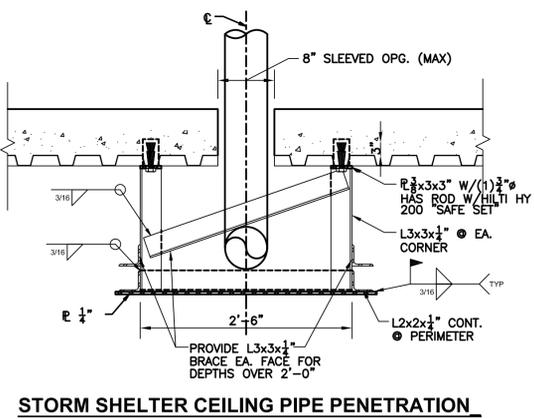
SECTION F
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SECTION G
S-2

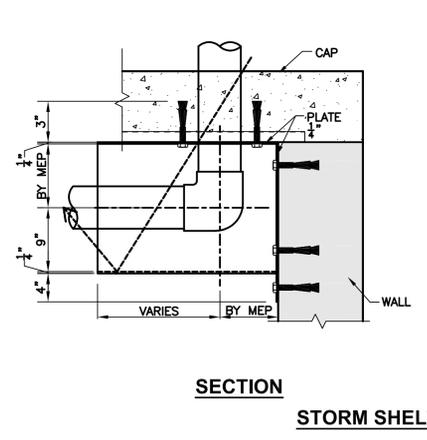


DETAIL H
S-2

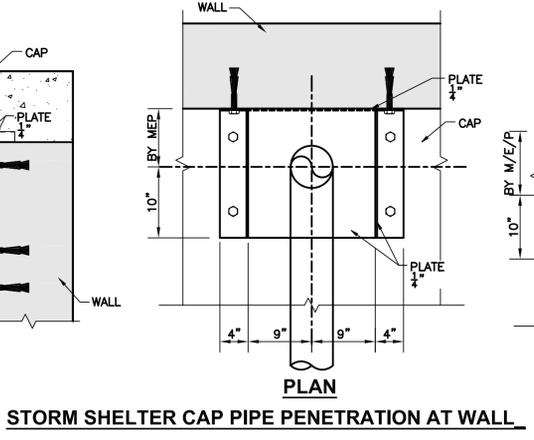


STORM SHELTER CEILING PIPE PENETRATION

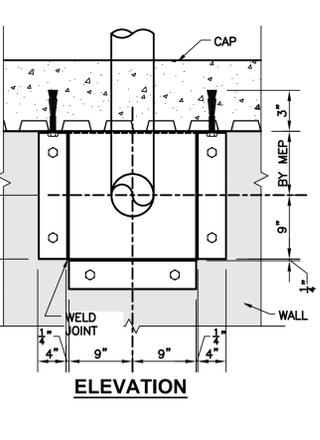
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SECTION

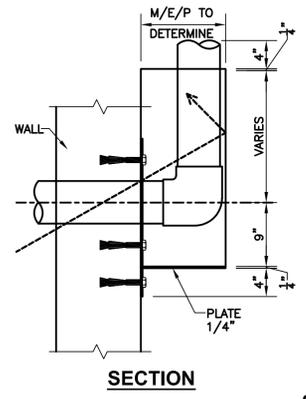


PLAN

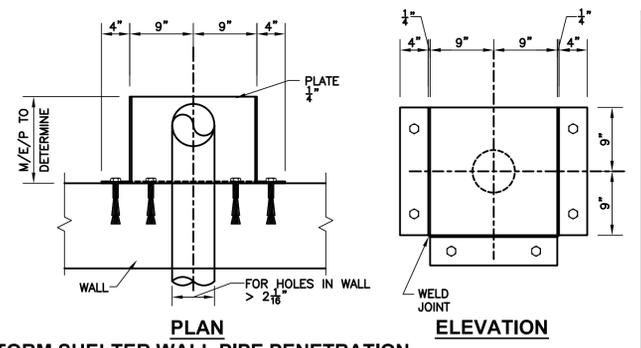


ELEVATION

NOTES: 1) THIS DETAIL APPLIES TO ALL PIPING/CONDUIT PENETRATIONS IN STORM SHELTER ENVELOPE- REFER TO M/E/P DRAWINGS.
2) CONDUITS MAY BE GROUPED TOGETHER PROVIDE THE PLATE SIZE TO A MAXIMUM OF 3'-0" SQUARE. QUANTITY OF ANCHORS TO BE ADJUSTED.



SECTION



PLAN
STORM SHELTER WALL PIPE PENETRATION
ELEVATION

NOTES: 1) THIS DETAIL APPLIES TO ALL PIPING/CONDUIT PENETRATIONS IN STORM SHELTER ENVELOPE- REFER TO M/E/P DRAWINGS.
2) CONDUITS MAY BE GROUPED TOGETHER PROVIDE THE PLATE SIZE TO A MAXIMUM OF 3'-0" SQUARE. QUANTITY OF ANCHORS TO BE ADJUSTED.

POAGE ENGINEERS & ASSOCIATES
880 Sparta Court
Suite 200
Lexington, KY 40504
Phone: (606) 255-9034
Fax: (606) 252-3130

BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

PROJECT NO. 5071-02
DESIGNED BY: CJK
DRAWN BY: SRT (p2440)
CHECKED BY: CJK
REVIEWED BY: CJK
DATE: JULY 30 2024
SCALE: AS NOTED

MSE OF KENTUCKY, INC.
Engineers
Architects
Planners
624 Wellington Way
Lexington, KY 40503
Phone: (606) 223-8694
Fax: (606) 223-8607
www.msex.com

DRAWING NO.
S-2
SHEET OF

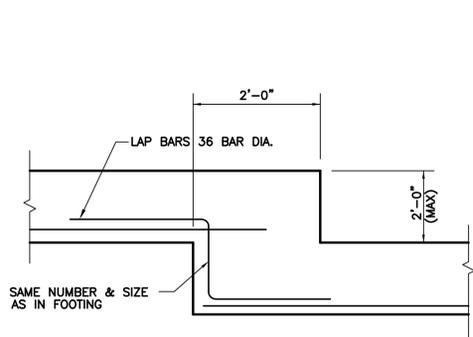


DATE	REVISION	BY

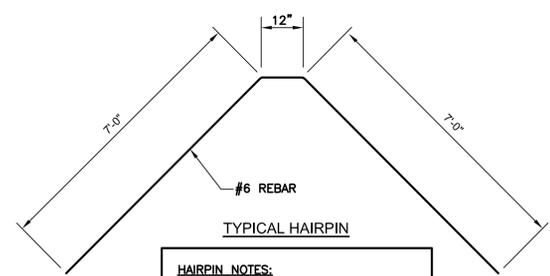
DESIGNED BY: CJK
 DRAWN BY: SRT (p24/40)
 CHECKED BY: CJK
 DATE: JULY 30 2024
 SCALE: AS NOTED

mse
 OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 624 Wellington Way
 Lexington, KY 40503
 Phone: (606) 223-6894
 Fax: (606) 223-6807
 www.mselex.com

DRAWING NO. S-3
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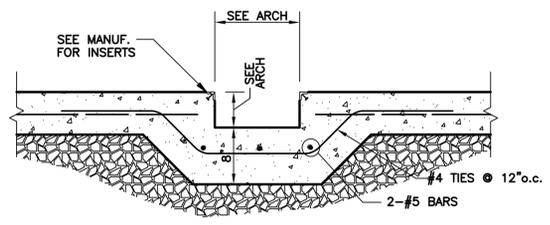


TYPICAL STEP FOOTING

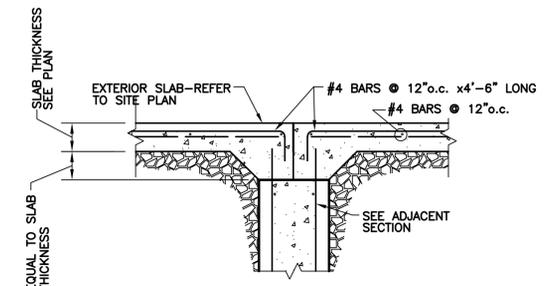


- HAIRPIN NOTES:**
- 1.) PROVIDE HAIRPIN IN A SINGLE BAR (DO NOT SPLICE LEGS)
 - 2.) INSTALL HAIRPINS BEHIND OUTER MOST COLUMN ANCHOR BOLT (NEAREST THE OUTMOST WALL)
 - 3.) CENTER HAIRPIN BAR IN SLAB

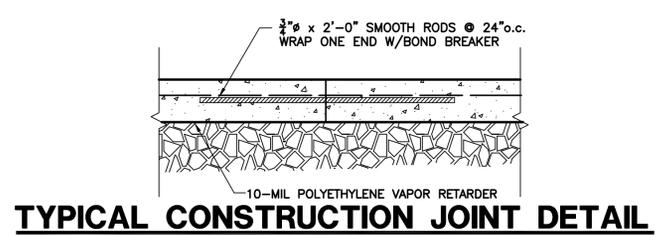
TYPICAL HAIRPIN DETAIL



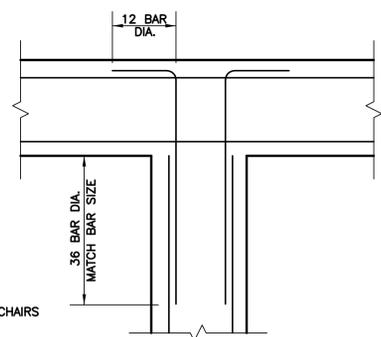
TYPICAL TRENCH DRAIN



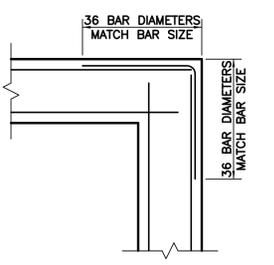
TYPICAL DOOR OPENING



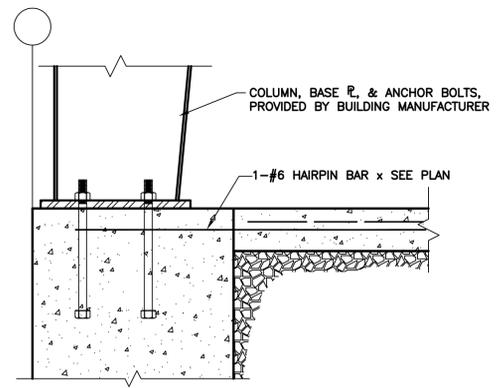
TYPICAL CONSTRUCTION JOINT DETAIL



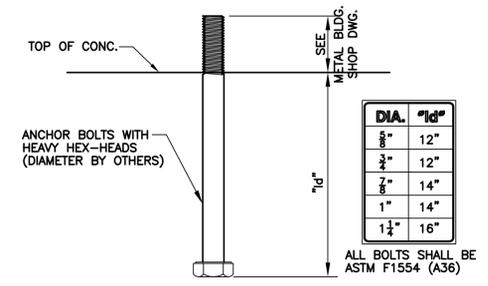
TYPICAL WALL INTERSECTION REINFORCING DETAIL



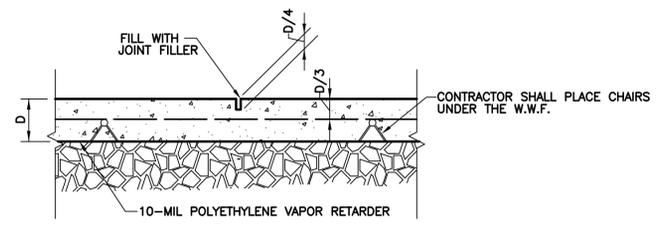
TYPICAL CORNER REINFORCING DETAIL



TYPICAL HAIRPIN CONNECTION



TYPICAL ANCHOR BOLT EMBEDMENT DETAIL



TYPICAL CONTROL JOINT DETAIL

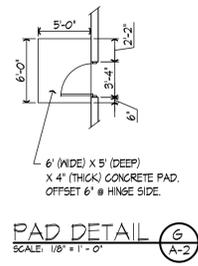
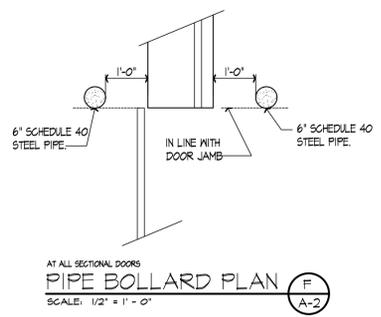
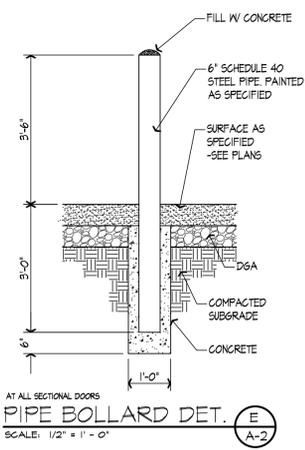
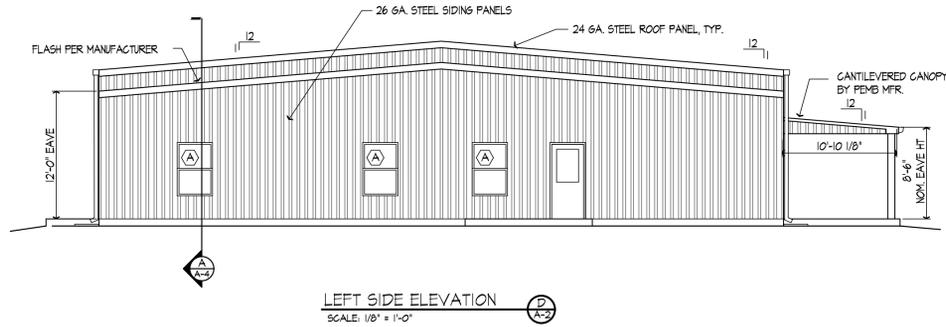
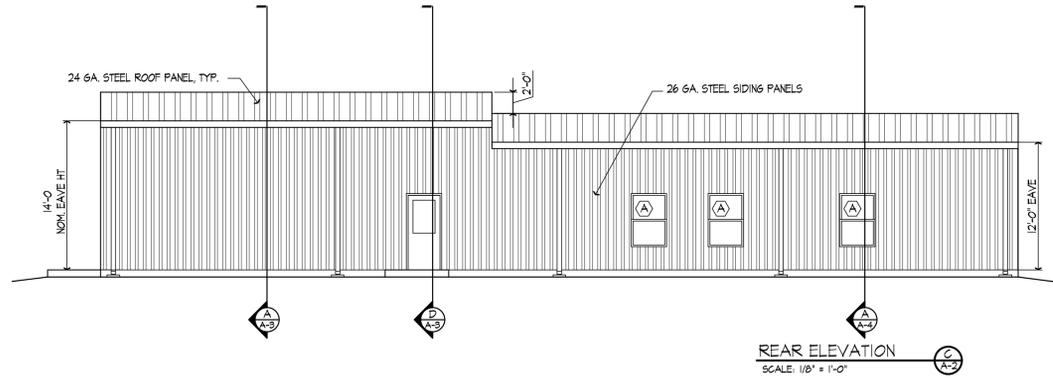
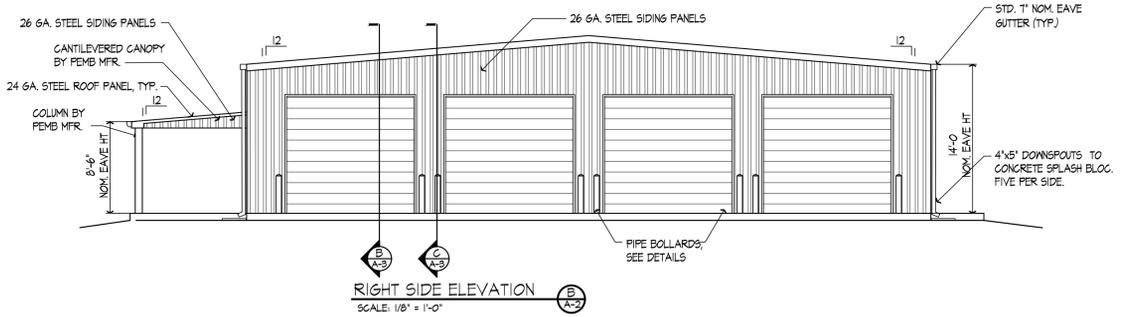
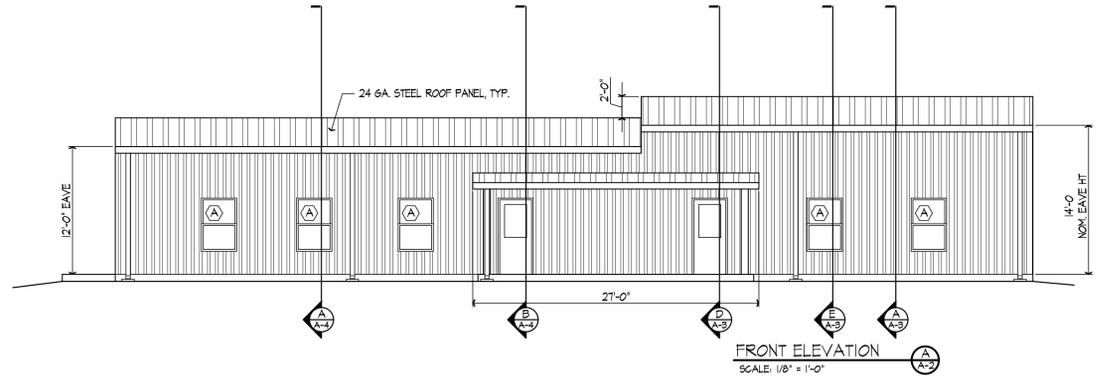


2/17/25

EXTERIOR BUILDING FINISHES

- WALL PANELS - 26 GA. STEEL SIDING PANELS, COLOR 'REGAL WHITE', KYNAR 500 FINISH, OR APPROVED EQUAL.
- ROOF PANELS - 24 GA. STEEL ROOF PANELS, 'MIDNIGHT BLACK'
- TRIM, GUTTERS AND DOWNSPOUTS - COLOR 'MIDNIGHT BLACK', OR APPROVED EQUAL.
- STEEL ROLLING DOORS/FRAMES - 'POLAR WHITE'
- EXTERIOR STEEL COLUMNS - PAINTED SEMI-GLOSS ENAMEL, MATCH MIDNIGHT BLACK
- HOLLOW METAL DOORS/FRAMES - PAINTED SEMI-GLOSS ENAMEL, MATCH REGAL WHITE

**BATH COUNTY EMS
OWINGSVILLE, KENTUCKY**



DATE	REVISION	BY

PROJECT NO.	5071-02
DESIGNED BY	BL/M5F
DRAWN BY	BL
CHECKED BY	M5F
REVIEWED BY	
DATE	JAN. 2025
SCALE	AS NOTED

**Engineers
Architects
Planners**

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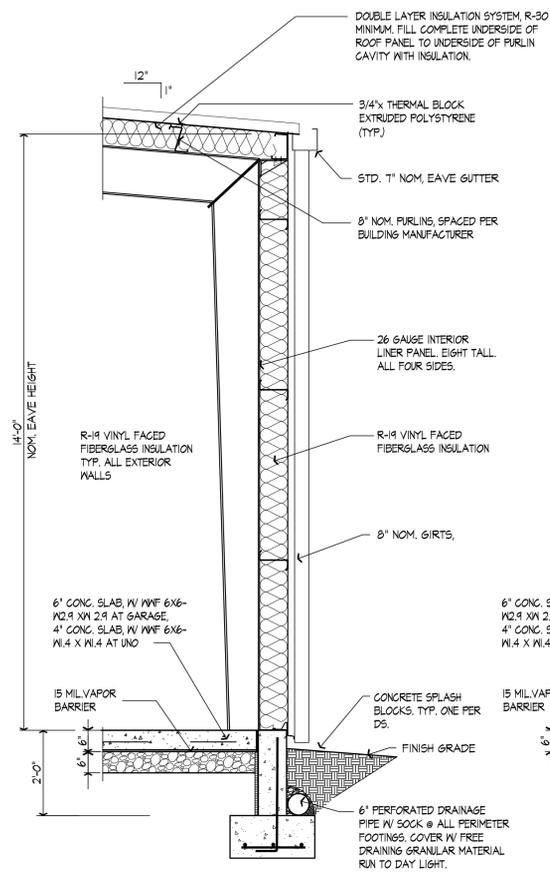
624 Wellington Way
Lexington, KY 40503
www.mselex.com

Phone: (859)223-5684
Fax: (859)223-2807

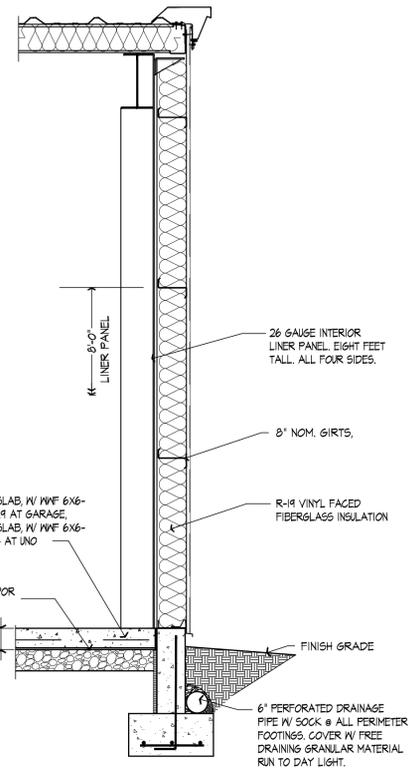


2/17/25

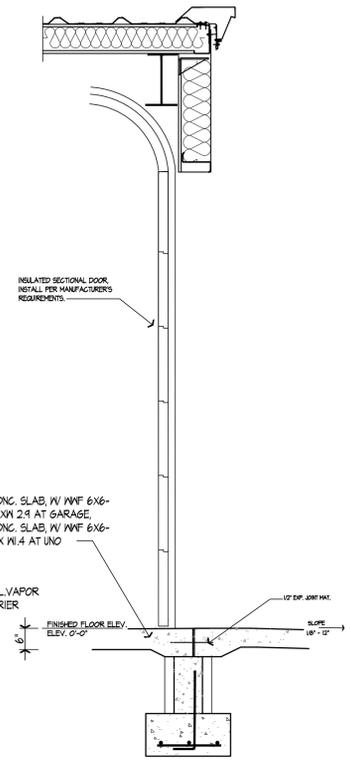
BATH COUNTY EMS
OWINGSVILLE, KENTUCKY



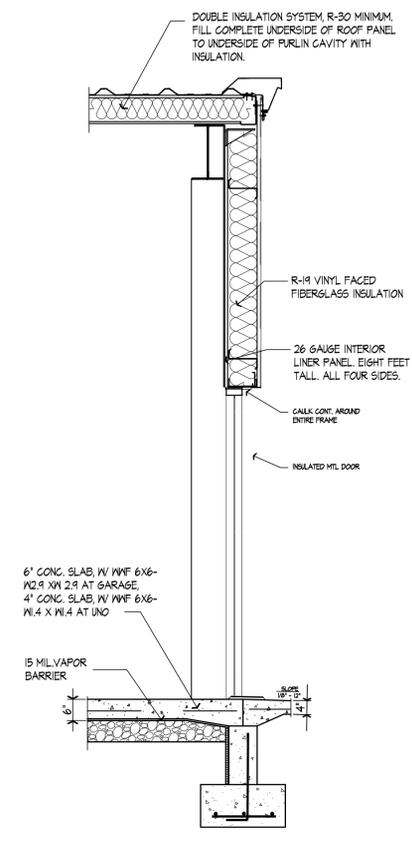
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SCALE: 1/2" = 1' - 0"
A
A-3



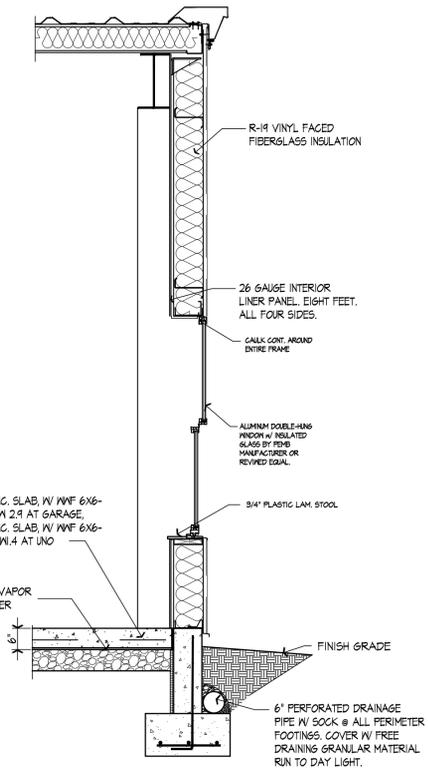
WALL SECTION - GABLE
SCALE: 1/2" = 1' - 0"
B
A-3



WALL SECTION - GABLE
SCALE: 1/2" = 1' - 0"
C
A-3



WALL SECTION - DOOR
SCALE: 1/2" = 1' - 0"
D
A-3



WALL SECTION - WINDOW
SCALE: 1/2" = 1' - 0"
E
A-3

DATE	REVISION	BY

DESIGN NOTES:
The design professional waves any and all responsibility and liability for problems which arise from failure to follow these plans, specifications and the design intent they convey.
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PROJECT NO.	5071-02
DESIGNED BY	BLL/MSF
DRAWN BY	BLL
CHECKED BY	MSF
REVIEWED BY	
DATE	JAN. 2025
SCALE	AS NOTED

MSE OF KENTUCKY, INC.
Engineers
Architects
Planners

624 Wellington Way
Lexington, KY 40503
www.mselex.com

Phone: (859)223-6684
Fax: (859)223-2897

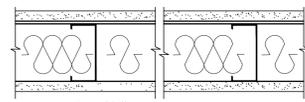


BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

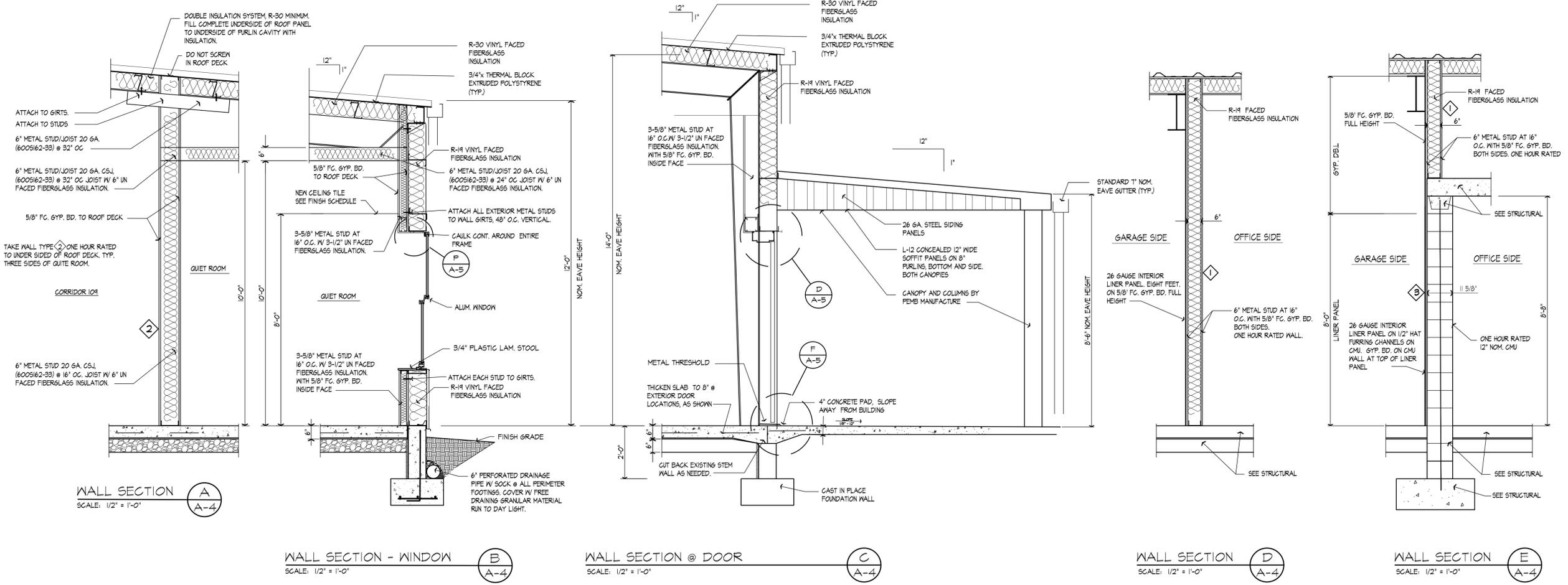
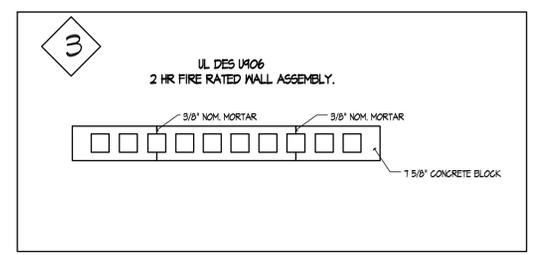
1-HOUR FIRE-RATED WALL ASSEMBLY
CONTINUOUS TO UNDERSIDE TO GYP. BD. CEILING

UL U451 STC Rating: 56 2

Construction Type: Gypsum Wallboard, Metal Studs One layer 5/8" type X gypsum wallboard or veneer base applied at right angles or parallel to each side of 3-5/8" 20 gauge metal studs, 24" o.c. with 1" type S drywall screws 8" o.c. to vertical edges and 12" o.c. to intermediate studs. Stagger joints 24" o.c. each side. 3" thermafiber SAFB. RC-1 channel on one side at 24" O.C.



Thickness: 4 7/8"
Approx Weight: 6 psf
Fire Test: FM WP-456-19-68
STC Rating: 56, RAL-TL-84-141



DATE	REVISION	BY

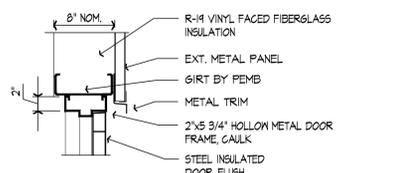
PROJECT NO. 5071-02	DESIGNED BY BILL/MSF
DRAWN BY BILL	CHECKED BY MSF
REVIEWED BY	DATE JAN. 2025
SCALE AS NOTED	

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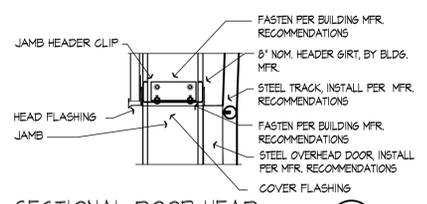
624 Wellington Way
Lexington, KY 40503
Phone: (859)223-5684
Fax: (859)223-2897
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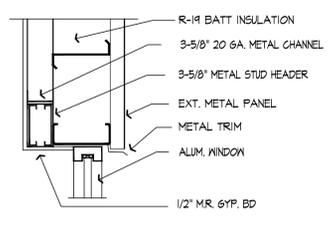
BATH COUNTY EMS
OWINGSVILLE, KENTUCKY



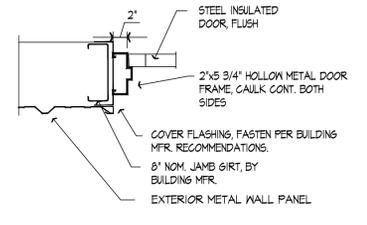
EXTERIOR DOOR HEAD
SCALE: 1" = 1'-0"



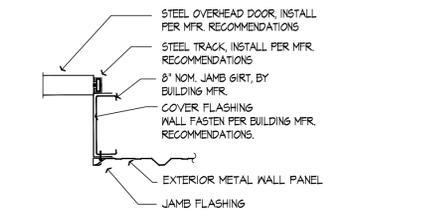
SECTIONAL DOOR HEAD
SCALE: 1" = 1'-0"



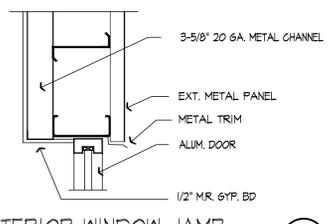
EXTERIOR WINDOW HEAD
SCALE: 1" = 1'-0"



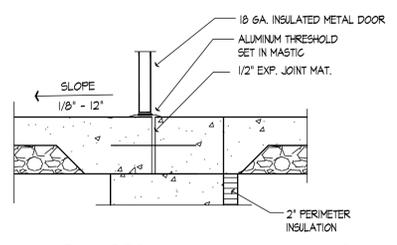
EXTERIOR DOOR JAMB
SCALE: 1" = 1'-0"



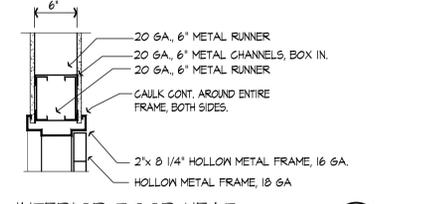
SECTIONAL DOOR JAMB
SCALE: 1" = 1'-0"



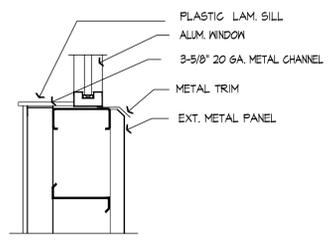
EXTERIOR WINDOW JAMB
SCALE: 1" = 1'-0"



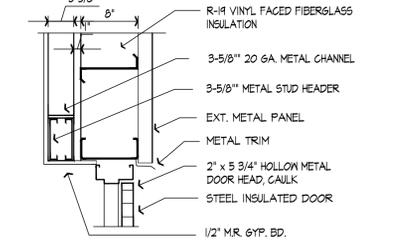
DOOR THRESHOLD
SCALE: 1" = 1'-0"



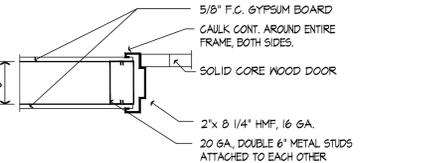
INTERIOR DOOR HEAD
SCALE: 1" = 1'-0"



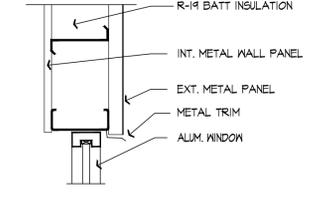
EXTERIOR WINDOW SILL
SCALE: 1" = 1'-0"



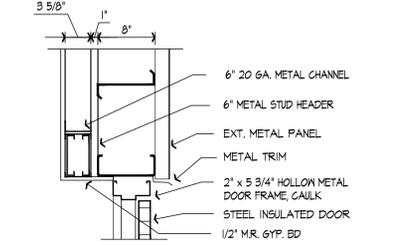
DOOR HEAD
SCALE: 1" = 1'-0"



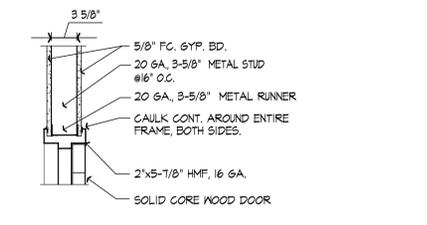
INTERIOR DOOR JAMB
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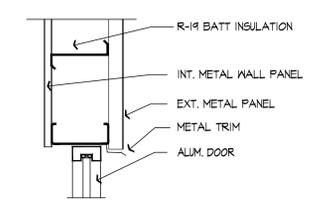
EXTERIOR WINDOW HEAD
SCALE: 1" = 1'-0"



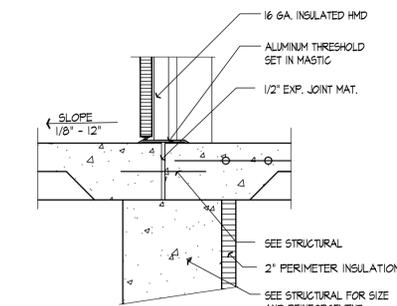
DOOR JAMB
SCALE: 1" = 1'-0"



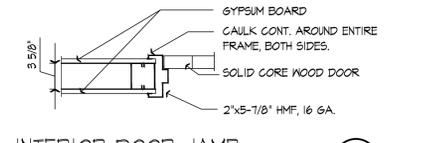
INTERIOR DOOR HEAD
SCALE: 1" = 1'-0"



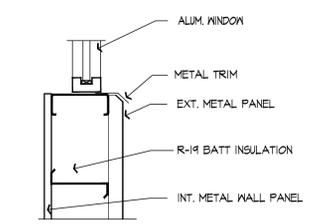
EXTERIOR WINDOW JAMB
SCALE: 1" = 1'-0"



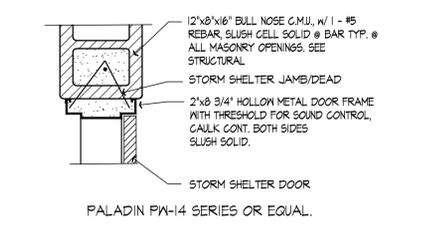
DOOR THRESHOLD
SCALE: 1" = 1'-0"



INTERIOR DOOR JAMB
SCALE: 1" = 1'-0"



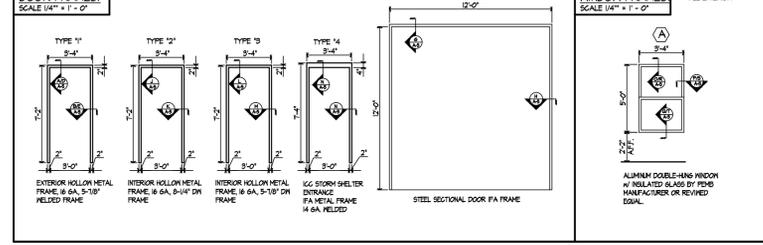
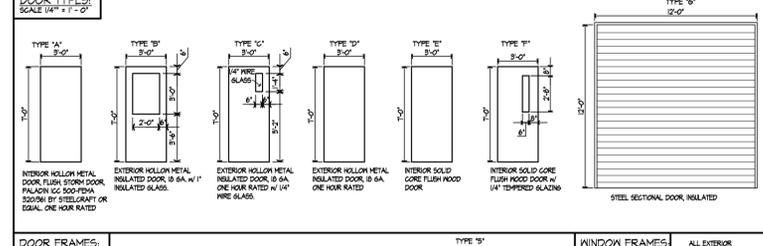
EXTERIOR WINDOW SILL
SCALE: 1" = 1'-0"



DOOR HEAD/JAMB @ CMU WALL
SCALE: 1" = 1'-0"

DOOR SCHEDULE SEE SPEC. SECTION 08110 FOR HARDWARE SETS

NO.	TYPE	MATERIAL	WIDTH	HEIGHT	THICK.	TYPE	HEAD	JAMB	SILL	REMARKS
1	B	STEEL SECT.	12'-0"	12'-0"	---	9	H	---	---	SEE SPECIFICATION
2	B	STEEL SECT.	12'-0"	12'-0"	---	9	H	---	---	SEE SPECIFICATION
3	B	STEEL SECT.	12'-0"	12'-0"	---	9	H	---	---	SEE SPECIFICATION
4	B	STEEL SECT.	12'-0"	12'-0"	---	9	H	---	---	SEE SPECIFICATION
5	B	HM INSUL.	3'-0"	7'-0"	1 3/4"	1	A	B	C	---
6	B	HM INSUL.	3'-0"	7'-0"	1 3/4"	1	D	E	F	---
7	B	HM INSUL.	3'-0"	7'-0"	1 3/4"	1	D	E	F	---
8	B	HM INSUL.	3'-0"	7'-0"	1 3/4"	1	A	B	C	---
9	C	HM INSUL.	3'-0"	7'-0"	1 3/4"	2	J	K	---	ONE RATED DOOR W/ CLOSER AND LOCK
10	A	HM INSUL.	3'-0"	7'-0"	1 3/4"	4	N	N	---	FEMA P681-15 # 1GG 800-14 IV CLOSER AND LOCK
11	D	HM INSUL.	3'-0"	7'-0"	1 3/4"	2	J	K	---	ONE RATED DOOR W/ CLOSER AND LOCK
12	C	HM INSUL.	3'-0"	7'-0"	1 3/4"	2	J	K	---	ONE RATED DOOR W/ CLOSER AND LOCK
13	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
14	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
15	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
16	F	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
17	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
18	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
19	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
20	F	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
21	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
22	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
23	D	SCM	3'-0"	7'-0"	1 3/4"	2	J	K	---	---
24	E	SCM	3'-0"	7'-0"	1 3/4"	2	J	K	---	---
25	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
26	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
27	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
28	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---
29	E	SCM	3'-0"	7'-0"	1 3/4"	3	L	M	---	---



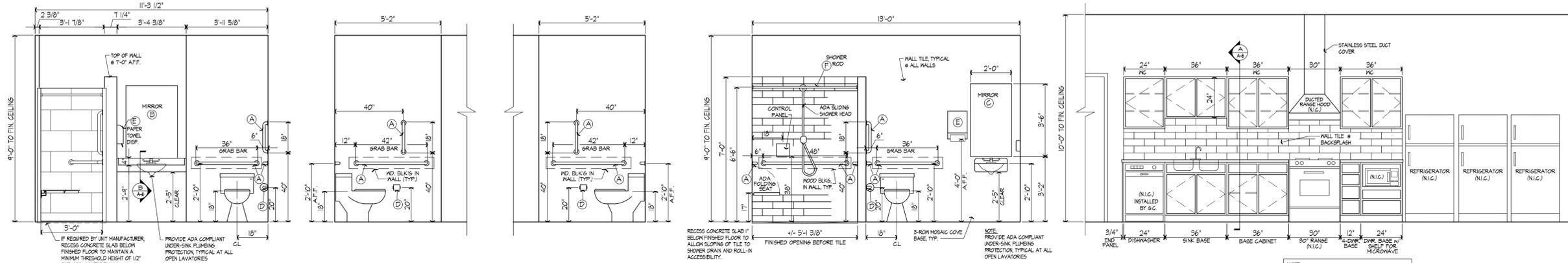
DATE: _____ BY: _____
REVISION: _____
PROJECT NO. 5071-02
DESIGNED BY: BILL/M5F
DRAWN BY: BILL
CHECKED BY: M5F
REVIEWED BY: _____
DATE: FEBRUARY 2025
SCALE: AS NOTED

MSE
OF KENTUCKY, INC.
Engineers
Architects
Planners
624 Wellington Way
Lexington, KY 40503
Phone: (859)223-5684
Fax: (859)223-2897
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DRAWING NO.
A-5
SHEET OF

INTERIOR ELEVATIONS

3/8" = 1'-0"



1 TOILET (118)

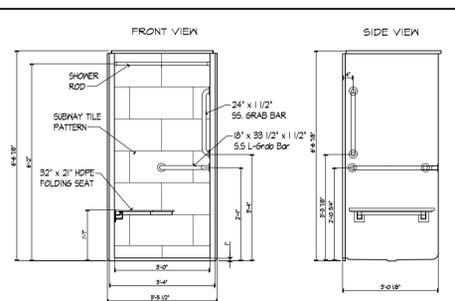
2 TOILET (118) (ADA toilet & accessories)

3 TOILET (119) (ADA toilet & accessories)

4 TOILET (119)

5 KITCHEN/DAYROOM (105)

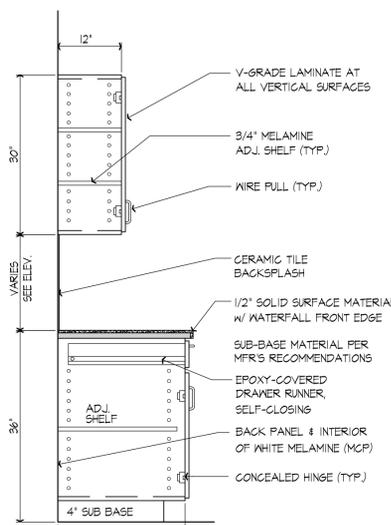
NOTE: OWNER TO PROVIDE KITCHEN APPLIANCES. G.C. TO PROVIDE ALL NECESSARY PLUMBING, VENTING, ELECTRICAL SERVICE AND CABINETRY OPENINGS, INCLUDING WATER HOOK-UP FOR ICE MAKERS AND COFFEE MAKERS.



Transfer Shower Stall

The shower enclosure shall be AFF model AFF2000 SF 7' RFR L-0 right. Finished surface shall be of a sanitary grade applied acrylic. Int. complies with ADA, ICC-ANSI A117.1, IBC-2015, ANSI Z341.2.

- 1) One 18" x 35 1/2" x 1 1/2" diameter stainless steel horizontal L-grab bar.
- 2) One 24" x 1 1/2" diameter stainless steel vertical grab bar on the valve wall both with 1/2" spigot clearance, mounted with stainless steel bolts, and secured from the rear with 3" x 3" x 1/8" gage metal mounting plates.
- 3) 32" x 20" recessed white HDPE fold up seat.
- 4) Molded recessed receiver flange on both sides.
- 5) Slatted tie trim.
- 6) One 1/2" diameter, 18 gage stainless steel curtain rod with receiver caps.
- 7) Full reinforced backing on walls.
- 8) Factory installed Armor Core Entry Base.
- 9) Threshold.
- 10) Recessed soap dish.



LAVATORY SECTION

SCALE: 3/4"=1'-0"

A-6

FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	WALLS & TRIM	MISC.	CLG.	CLG. HT.
100	AMBULANCE BAY		B-1	P-3		P-5	14'-0"
101	VESTIBULE	LVT-1	B-1	P-2		A-1	9'-0"
102	OFFICE	LVT-1	B-1	P-2		A-1	9'-0"
103	OFFICE	LVT-1	B-1	P-2		A-1	9'-0"
104	STORAGE	LVT-1	B-1	P-3		A-1	9'-0"
105	DAY ROOM	LVT-1	B-1	P-2	CT-1, D	L-2	10'-0"
106	STUDY	LVT-1	B-1	P-2		A-1	9'-0"
107	PANTRY	LVT-1	B-1	P-3		A-1	8'-0"
109	CORRIDOR	LVT-1	B-1	P-2		A-1	9'-0"
110	CLOSET	LVT-1	B-1	P-3		A-1	9'-0"
111	QUIET ROOM	LVT-1	B-1	P-4		A-2	8'-0"
112	QUIET ROOM	LVT-1	B-1	P-4		A-2	8'-0"
113	QUIET ROOM	LVT-1	B-1	P-4		A-2	8'-0"
114	QUIET ROOM	LVT-1	B-1	P-4		A-2	8'-0"
115	MECHANICAL / ELECTRICAL		B-1	P-3			9'-0"
116	LAUNDRY / UTILITY ROOM	LVT-1	B-1	P-3		A-1	9'-0"
117	LINEN CLOSET	LVT-1	B-1	P-3		A-1	8'-0"
118	TOILET	FT-1	B-1	P-3		A-1	9'-0"
119	TOILET/STORM SHELTER		B-1	P-3	CT-1, E	P-3	9'-0"
120	STORAGE		B-1	P-3		A-1	9'-0"

FINISH SPECIFICATIONS

FLOORS:
 VGT-1 Tarkett Vinyl Composition Tile
 "Fortale" VGT 117, Color 582 Ivory Tower, 12"x12"
 FT-1 Fortolabello America Tile
 "Portofino" Sunlight NAT, 12"x24"

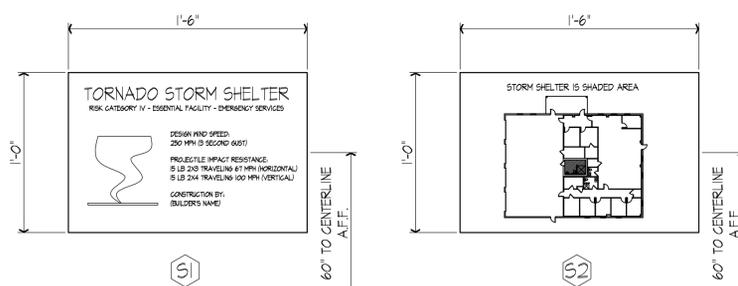
BASE:
 B-1 Tarkett Vinyl Wall Base
 4" cove base, Color - TAI Tannery WB

CEILING:
 A-1 Armstrong "Tine Pleasured"
 #1728, 24"x 24"x 5/8", Square Lay-in,
 White (WH) tiles with White grid
 A-2 Armstrong "Galia Privassure" (50 CAC)
 #6879, 24"x 24"x 1-3/4", Square Lay-in,
 White (WH) tiles with White grid

WALLS:
 P-1 Benjamin Moore #1055 Algonquin Trail
 P-2 Benjamin Moore #1053 Sierra Hills
 P-3 Benjamin Moore #1051 Lamskin
 P-4 Benjamin Moore #2121-50 Pike's Peak Gray
 P-5 Dry-Fall White (at exposed structural steel in Ambulance Bay)
 CT-1 Fortolabello America Tile
 "Krea 2.0", Color Arctic, matte, 4"x12"

PLASTIC LAMINATES/SOLID SURFACE:
 L-1 Wilsonart #11002K-51 Fisher Oak, Aligned Texture
 L-2 Formica #1264-58 Limestone
 L-3 Formica #1708-58 Flux Glaze
 55-1 Wilsonart Solid Surface #D3545L Designer White (OR EQUAL)

NOTES:
 A) All interior plastic laminated window stools to be finished with plastic laminate finish L-3.
 B) All interior metal doors and door frames to be painted with Finish P-1.
 C) All interior wood doors to be plain-sliced White Oak with factory finish stain.
 D) Ceramic tile at Dayroom backsplash between countertop and wall cabinets.
 E) Ceramic tile at Toilet/Storm Shelter 119 at shower area only, from floor to 7'-0" a.f.f.

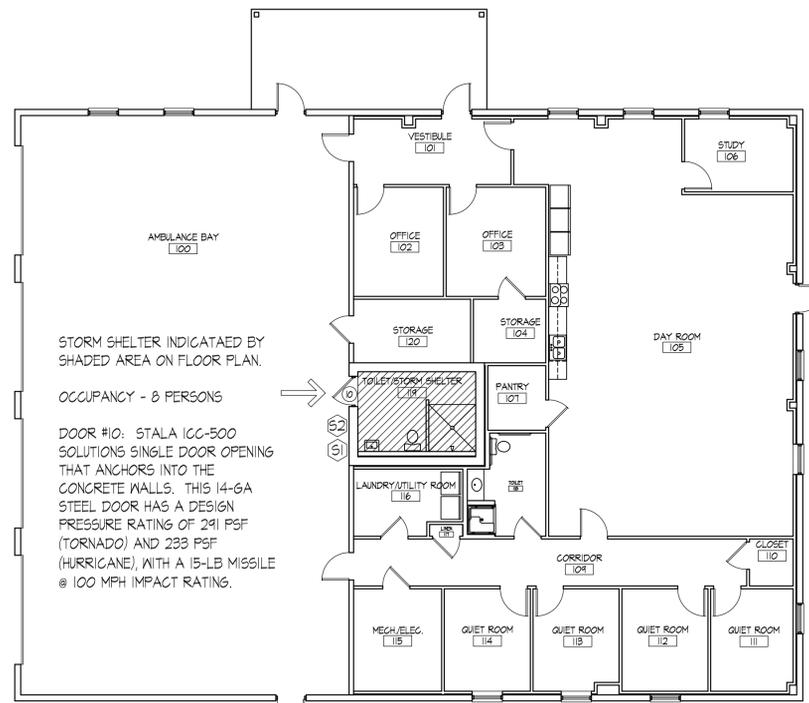


NOTE: STORM SIGNAGE IS IN ADDITION TO OTHER RESTROOM AND EXIT SIGNAGE AS DESCRIBED IN SPECIFICATION SECTION 10426 - IDENTIFYING DEVICES. ONE (1) OF EACH SIGN SHALL BE MOUNTED OUTSIDE THE STORM SHELTER AREA - 60" A.F.F. ADJACENT TO THE LATCH SIDE OF DOOR #10.

STORM SHELTER SIGNAGE

SCALE: 3"=1'-0"

A-6



STORM SHELTER INDICATED BY SHADED AREA ON FLOOR PLAN.

OCCUPANCY - 8 PERSONS

DOOR #10: STALA ICG-500 SOLUTIONS SINGLE DOOR OPENING THAT ANCHORS INTO THE CONCRETE WALLS. THIS 14-GA STEEL DOOR HAS A DESIGN PRESSURE RATING OF 291 PSF (TORNADO) AND 233 PSF (HURRICANE), WITH A 15-LB MISSILE @ 100 MPH IMPACT RATINGS.

STORM SHELTER PLAN

SCALE: 3"=1'-0"

A-6



BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY

PROJECT NO. 5071-02	DESIGNED BY: BLM/MSF	DRAWN BY: BLM	CHECKED BY: MSF	REVIEWED BY:	DATE: FEBRUARY 2025	SCALE: AS NOTED
DATE:	REVISION:	BY:				

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 Architects
 Planners

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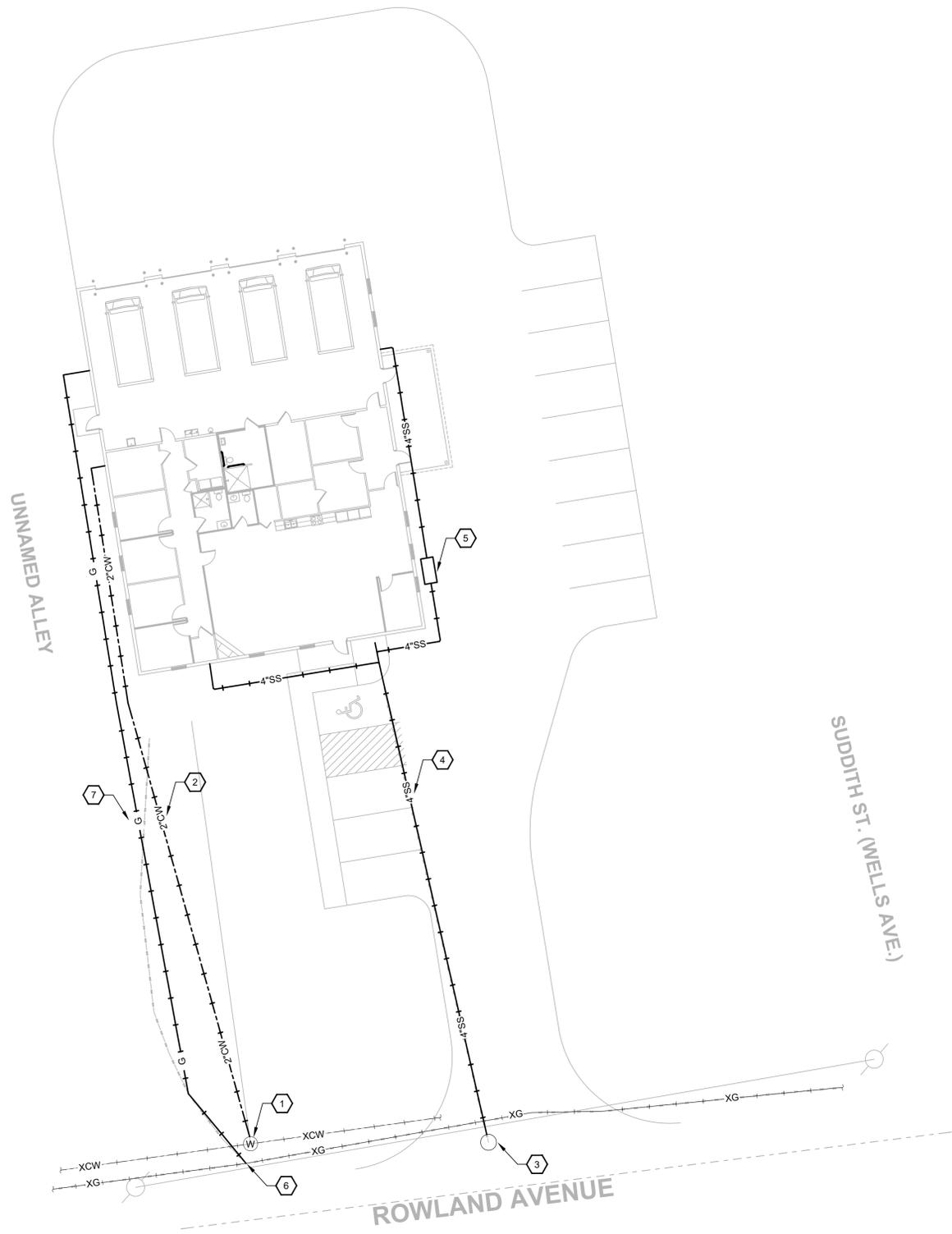
624 Wellington Way
 Lexington, KY 40503
 Phone: (609)223-6684
 Fax: (609)223-2897
 www.msex.com



EPPERSON ENGINEERING
 112 W. UNIVERSITY DR.
 SOMERSET, KY 42503
 EPPERSONENG.COM
 1-800-802-7885



BATH COUNTY EMS
 OWINGSVILLE, KENTUCKY



1 SITE PLAN - PLUMBING
 1/16" = 1'-0"

GENERAL NOTES

- REFER TO SHEET P0.
- REFER TO CIVIL SITE PLAN FOR ADDITIONAL SITE INFORMATION.
- MAINTAIN REQUIRED CLEARANCES BETWEEN SITE UTILITIES, PROPERTY LINES, ETC.
- ALL WORK SHALL BE COORDINATED WITH LOCAL UTILITY COMPANIES AND PERFORMED PER UTILITY COMPANY STANDARDS AND REQUIREMENTS.

SHEET NOTES ○

- NEW WATER METER BY UTILITY COMPANY, FIELD VERIFY EXACT LOCATION.
- PROVIDE 2" DOMESTIC WATER SERVICE FROM WATER METER TO BUILDING. WATER SERVICE TO BE BURIED MINIMUM 36" DEPTH. COORDINATE SERVICE ENTRANCE REQUIREMENTS WITH UTILITY COMPANY.
- EXISTING SANITARY SEWER MANHOLE, FIELD VERIFY EXACT LOCATION.
- PROVIDE 4" SANITARY SEWER FROM EXISTING MANHOLE TO BUILDING. COORDINATE SEWER SERVICE REQUIREMENTS WITH UTILITY COMPANY.
- PROVIDE BELOW GRADE OIL WATER SEPARATOR, SEE PLUMBING PLANS FOR ADDITIONAL INFORMATION.
- GAS SERVICE CONNECTION TO EXISTING UTILITY MAIN. COORDINATE GAS SERVICE TAP WITH UTILITY COMPANY.
- PROVIDE HIGH PRESSURE NATURAL GAS SERVICE TO METER LOOP ON BUILDING. COORDINATE SERVICE ENTRANCE REQUIREMENTS WITH UTILITY COMPANY.

DATE	REVISION	BY

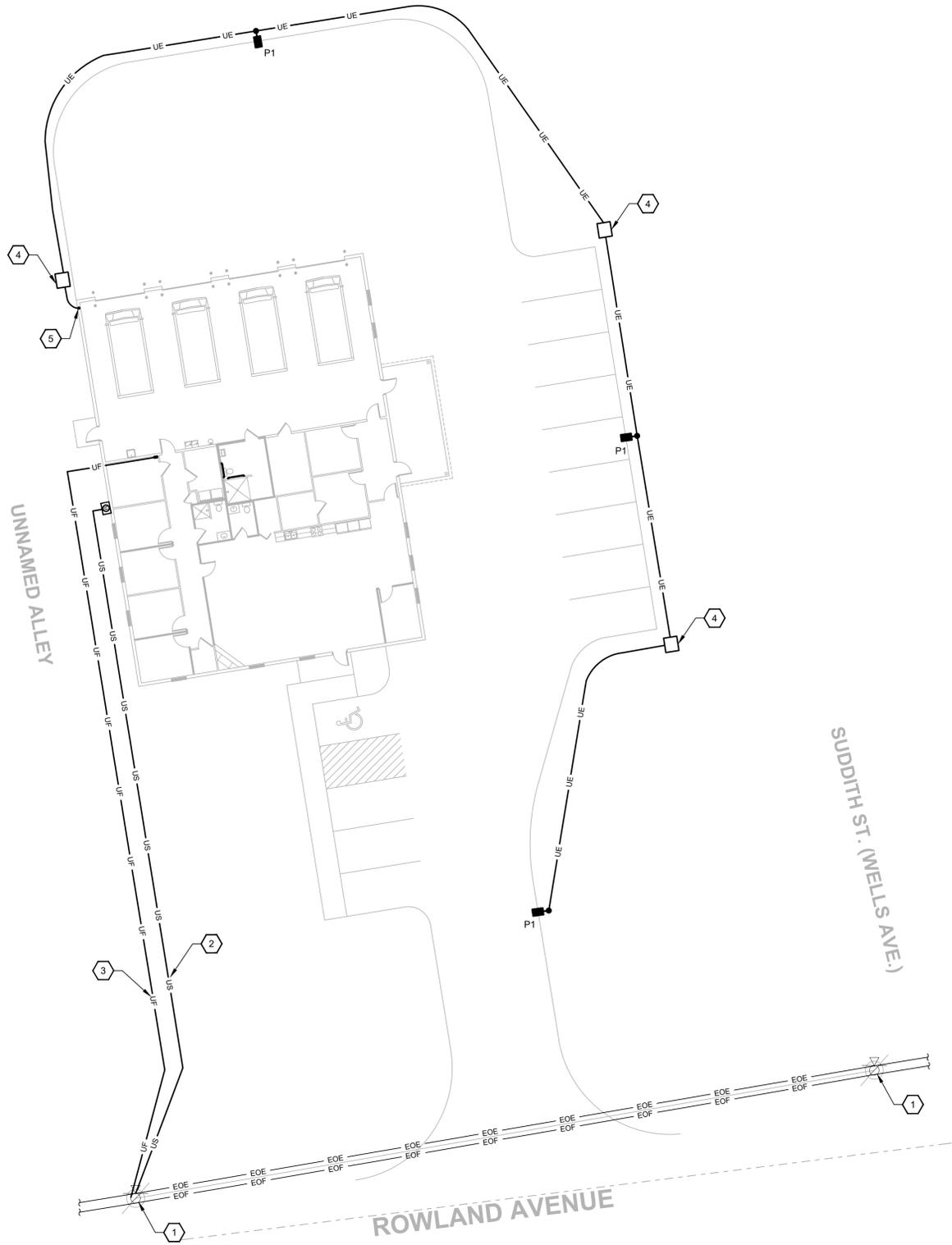
DESIGN COMMENTS:
 The design professional warrants any and all responsibility and liability for problems which arise from failure to follow these plans, specifications and the design intent they convey.
 THIS PROJECT IS SUBJECT TO ANY AND ALL CHANGES SUBJECT TO THE WRITTEN PERMISSION OF MSE OF KENTUCKY, INC. NO PART OF THIS PROJECT IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF MSE OF KENTUCKY, INC.

PROJECT NO. 5071-02
DESIGNED BY CE
DRAWN BY CE
CHECKED BY CE
REVIEWED BY CE
DATE FEBRUARY 2025
SCALE AS NOTED

MSE OF KENTUCKY, INC.
 Engineers
 Architects
 Planners

624 Wellington Way
 Lexington, KY 40503
 Phone: (859) 223-5894
 Fax: (859) 223-2807
 www.mselex.com

DRAWING NO.
SU1



1 SITE PLAN - ELECTRIC
1/16" = 1'-0"

EPPERSON ENGINEERING
112 W. UNIVERSITY DR.
SOMERSET, KY 42503
EPPERSONENG.COM
1-800-802-7885



GENERAL NOTES

- REFER TO SHEET E0.
- REFER TO POLE BASE DETAIL ON SHEET E5.1 FOR SITE LIGHTING SHOWN.
- CONTRACTOR SHALL UPSIZE WIRE AS NECESSARY TO ENSURE MAXIMUM 3% VOLTAGE DROP ON EXTERIOR BRANCH CIRCUITS.
- MAINTAIN REQUIRED CLEARANCES BETWEEN SITE UTILITIES, PROPERTY LINES, ETC.
- ALL WORK SHALL BE COORDINATED WITH LOCAL UTILITY COMPANIES AND PERFORMED PER UTILITY COMPANY STANDARDS AND REQUIREMENTS.

SHEET NOTES ○

- EXISTING UTILITY POLE WITH POLE MOUNTED TRANSFORMER.
- PROVIDE TWO (2) 3" CONDUITS WITH PULL STRINGS FROM UTILITY POLE TO METER BASE ON BUILDING FACADE. ALL WORK ASSOCIATED WITH ELECTRIC SERVICE ENTRANCE SHALL BE COORDINATED WITH POWER UTILITY COMPANY REQUIREMENTS.
- PROVIDE TWO (2) 2" CONDUITS WITH PULL STRING FROM UTILITY POLE TO MDF LOCATED INSIDE BUILDING. REFER TO SHEET E2 FOR ADDITIONAL INFORMATION. ALL WORK ASSOCIATED WITH TELECOMMUNICATION SERVICE ENTRANCE SHALL BE COORDINATED WITH OWNER PREFERRED TELECOM PROVIDER REQUIREMENTS.
- PROVIDE FLUSH IN-GRADE QUAZITE PULL BOX ENCLOSURE. ENCLOSURE LID TO BE LABELED "ELECTRIC".
- TURN UP INSIDE WALL AT APPROXIMATE LOCATION SHOWN AND ROUTE BACK TO ASSOCIATED PANEL. CONNECT TO UNSWITCHED EXTERIOR LIGHTING CIRCUIT P-48.

BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

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REVIEWED BY JE	DATE FEBRUARY 2025	SCALE AS NOTED

MSE OF KENTUCKY, INC.
Engineers
Architects
Planners
624 Wellington Way
Lexington, KY 40503
www.mselex.com
Phone: (859) 223-5894
Fax: (859) 223-2807

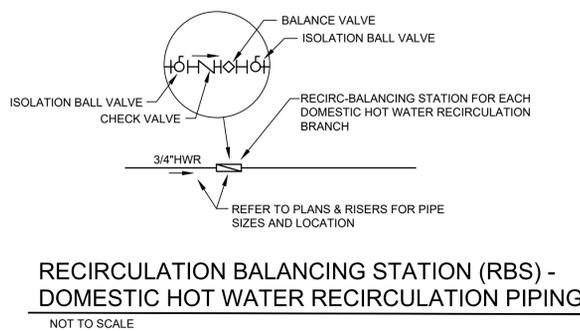
DRAWING NO.
SU2

PLUMBING LEGEND

PLUMBING SYMBOLS	
SYMBOL	DESCRIPTION
	PIPE DOWN
	PIPE UP
	TEE DOWN
	TEE UP
	CONTINUATION
	CAP
	HAMMER ARRESTOR
	BALANCING VALVE
	BALL VALVE
	BUTTERFLY VALVE
	ELECTRIC CONTROL VALVE
	PRESSURE REDUCING VALVE
	CHECK VALVE
	GATE VALVE
	PLUG VALVE
	REDUCER
	UNION
	VALVE IN VERTICAL
	PRESSURE GAUGE
	STRAINER
	FLOW INDICATOR
	CLEANOUT
	FLOOR CLEANOUT
	THERMOMETER
	FLOOR DRAIN
	P-TRAP
	FLOOR DRAIN GRATE
	SHEET NOTE
	EQUIPMENT TAG

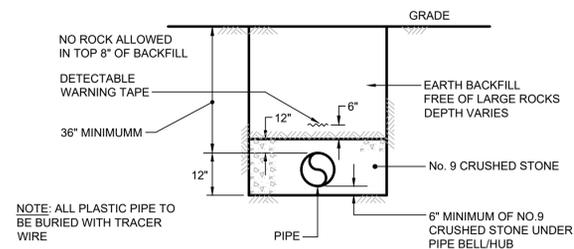
ABBREVIATIONS	
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BTU	BRITISH THERMAL UNIT
CO	CLEANOUT
CW	COLD WATER
ECO	EXTERIOR CLEANOUT
ET	EXPANSION TANK
ETP	ELECTRONIC TRAP PRIMER
EWV	ELECTRIC WATER COOLER
EWV	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GPM	GALLONS PER MINUTE
GWV	GAS WATER HEATER
HA	HAMMER ARRESTOR
HB	HOSE BIBB
HW	HOT WATER
LAV	LAVATORY
MB	MOP BASIN
MBH	1,000 BTU
MS	MOP SINK
OR	OPEN RECEPTACLE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
S	SINK
SS	SANITARY SEWER
TP	TRAP PRIMER
U	URINAL
V	VENT
VB	VACUUM BREAKER
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT

PLUMBING LINETYPES	
SYMBOL	DESCRIPTION
	UNDER SLAB COLD WATER PIPING WITH SIZE
	COLD WATER PIPING WITH SIZE
	HOT WATER PIPING WITH SIZE
	HOT WATER RETURN PIPING WITH SIZE
	UNDER SLAB SANITARY PIPING WITH SIZE
	UNDER SLAB VENT PIPING WITH SIZE
	VENT PIPING WITH SIZE
	UNDER SLAB GAS PIPING WITH SIZE (SLEEVED)
	GAS PIPING WITH SIZE



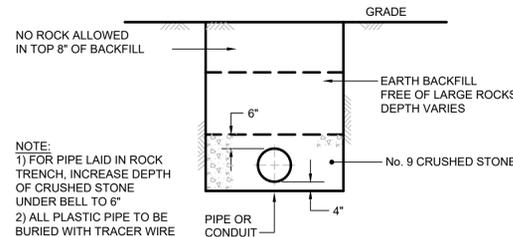
RECIRCULATION BALANCING STATION (RBS) - DOMESTIC HOT WATER RECIRCULATION PIPING

NOT TO SCALE



TRENCH DETAIL FOR NEW SLAB/PAVEMENT

NOT TO SCALE

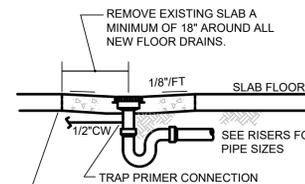


TRENCH DETAIL FOR EARTH COVER

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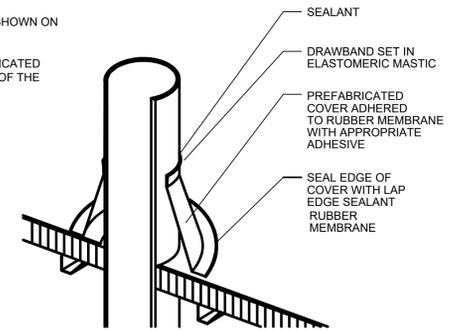
GENERAL NOTES - PLUMBING:

- CONSTRUCTION PHASING:** ALL WORK SHALL BE COORDINATED AND SCHEDULED WITH THE GENERAL CONTRACTOR, OTHER TRADES, THE OWNER, RELATED UTILITY COMPANIES SHALL COINCIDE WITH CONSTRUCTION PHASING PER THE ARCHITECTURAL DOCUMENTS. CONTACT THE ARCHITECT/ENGINEER IN THE EVENT OF A CONFLICT.
- NEW UTILITIES:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NEW UTILITY SERVICES AND COSTS UNDER THIS CONTRACT. COORDINATE AND SCHEDULE ALL RELATED WORK WITH THE UTILITY COMPANIES.
- MAINTAIN SITE UTILITIES:** THE CONTRACTOR SHALL MAINTAIN ALL EXISTING SITE UTILITIES AT ALL TIMES. THE CONTRACTOR SHALL WORK CONTINUOUSLY TO RESTORE ANY OUTAGE. SCHEDULED SHUT-DOWNS SHALL REQUIRE 48 HOUR PRIOR NOTIFICATION WITH OWNER. COORDINATE ALL RELATED WORK WITH THE OWNER AND THE UTILITY COMPANIES AS REQUIRED.
- VERIFY UTILITIES:** FIELD VERIFY THE LOCATIONS AND ELEVATIONS OF EXISTING UTILITIES WHERE REQUIRED FOR CONNECTIONS OF NEW WORK PRIOR TO CONSTRUCTION AND FABRICATION. DOCUMENT ON THE AS-BUILT DRAWINGS: THE TYPE, SIZE, MATERIAL, LOCATION AND INVERT ELEVATIONS OF ALL UTILITIES ENCOUNTERED. COORDINATE ALL RELATED WORK WITH ALL PARTIES INVOLVED. CONTACT THE ENGINEER IN THE EVENT OF A CONFLICT.
- UTILITY COORDINATION:** THE CONTRACTOR SHALL MEET WITH ALL ASSOCIATED UTILITY COMPANIES ON SITE PRIOR TO BEGINNING WORK TO DISCUSS SCOPE OF WORK. ANY REQUIRED REVISIONS/ALTERATIONS PERTAINING TO THE SCOPE OF WORK SHOWN ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OF RECORD.
- CONTACT B.U.D.:** THE EXISTING UTILITIES, EQUIPMENT, AND PIPING SHOWN ON THESE DRAWINGS ARE FROM RECORD DRAWINGS AND VISUAL INSPECTION OF THE SITE. THE NUMBER, LOCATION, SIZE, AND TYPE OF UTILITIES SHOWN ARE APPROXIMATE, AND THERE MAY BE OTHER UTILITIES NOT SHOWN. THE CONTRACTOR SHALL CONTACT ALL AFFECTED UTILITY COMPANIES AND KENTUCKY B.U.D. PRIOR TO BEGINNING EXCAVATION.
- PERMITS, TESTING, AND INSPECTIONS:** THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, TESTING AND SCHEDULES INSPECTIONS.
- REMOVAL OF EXISTING UTILITIES:** REMOVE UNUSED/ABANDONED EQUIPMENT, PIPING, ETC. AS NECESSARY TO INSTALL THE NEW WORK. CAP THE ENDS OF ALL LINES AND ABANDON IN PLACE.
- PATCHING AND REPAIRING:** PATCH AND REPAIR ALL AREAS WHERE WALLS, SLABS, PAVEMENT, CURBS, VEGETATION AND MATERIALS HAVE BEEN CUT, REMOVED, DISTURBED AND OR MODIFIED. MATCH EXISTING MATERIALS, RATINGS, AND FINISHES.
- CUTTING EXISTING MATERIALS:** CUTTING OF EXISTING PAVEMENT, SLABS, CONCRETE MASONRY, WALLS, ETC. SHALL BE SAW-CUT OR CORE DRILLED. NO "HAMMER DRILLING" WILL BE ALLOWED.
- ROOFING PENETRATIONS:** ALL ROOF PENETRATIONS SHALL BE IN COMPLIANCE WITH THE ROOFING MANUFACTURER'S GUIDELINES, THE AMERICAN ROOFING COUNCIL, AND MAINTAIN ALL WARRANTIES.
- WALL PENETRATIONS:** SEAL ALL PIPING PENETRATIONS THROUGH EXTERIOR WALLS WITH SILICONE SEALANT AS REQUIRED TO MAKE WATER/WEATHER TIGHT.
- EXISTING WALL OPENINGS:** EXISTING OPENINGS IN WALLS THAT ARE NOT BEING RE-USED SHALL BE PATCHED/CLOSED BY THE GENERAL CONTRACTOR.
- NEW OPENINGS:** NEW OPENINGS FOR PLUMBING PENETRATIONS THROUGH FIRE/SMOKE RATED WALLS, ASSEMBLIES AND SLABS SHALL BE BY THE GENERAL CONTRACTOR. THE PLUMBING CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH THE GENERAL CONTRACTOR AND OTHER TRADES.
- FIRE AND SMOKE STOPPING:** ALL PLUMBING PENETRATIONS THROUGH FIRE/SMOKE RATED WALLS, ASSEMBLIES AND SLABS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. THE PLUMBING CONTRACTOR SHALL COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS WITH THE GENERAL CONTRACTOR AND OTHER TRADES.
- INSULATION:** INSULATE ALL DOMESTIC HOT/COLD WATER, RECIRCULATION PIPING, AND ROOF LEADERS.
- HAMMER ARRESTOR:** ALL HAMMER ARRESTORS SHOWN ON FLOOR PLANS, BUT NOT ON RISERS OR VICE VERSA SHALL BE PROVIDED AND INSTALLED AS SHOWN ON BOTH.
- VALVES:** ALL VALVES SHOWN ON FLOOR PLANS, BUT NOT ON RISERS OR VICE VERSA, SHALL BE PROVIDED AND INSTALLED AS IF SHOWN ON BOTH.
- ELECTRICAL PANELS AND EQUIPMENT:** PLUMBING PIPING, SYSTEMS, AND EQUIPMENT SHALL BE INSTALLED TO MAINTAIN THE DEDICATED WORKING/ELECTRICAL SPACE ABOVE, BELOW, AND IN FRONT OF ELECTRICAL PANELS AND EQUIPMENT PER THE REQUIREMENTS OF THE N.E.C. (NATIONAL ELECTRIC CODE).



FLOOR DRAIN DETAIL - SLAB

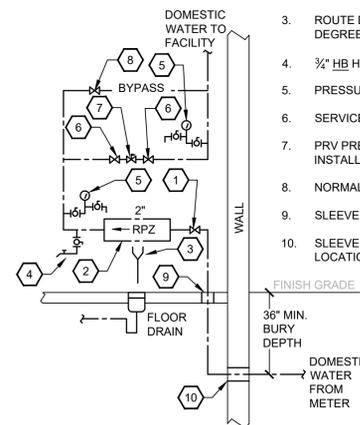
NOT TO SCALE



TYPICAL VENT THROUGH ROOF DETAIL

NOT TO SCALE

SET PRV TO LOWEST POSSIBLE SETTINGS TO OPERATE FARTHEST FIXTURES IN BUILDING. TEST AND RETRY TO FIND CORRECT PRESSURE SETTING.



DOMESTIC WATER SERVICE ENTRANCE RISER DETAIL

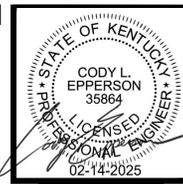
NOT TO SCALE

DETAIL NOTES

- MAIN DOMESTIC WATER SERVICE VALVE. EPOXY COATED NON-RISING STEM RESILIENT WEDGE GATE VALVE, SIZE OF WATER SERVICE.
- DOUBLE CHECK VALVE BACK FLOW PREVENTER, WITH OPTIONAL WYE STRAINER, AND OPTIONAL OS&Y GATE VALVES. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
- ROUTE DRAIN FUNNEL AND PIPING TO NEAREST FLOOR DRAIN. CUT DRAIN PIPING AT 60 DEGREE ANGLE.
- 3/4" HB HOSE BIBB AND SHUT-OFF VALVE FOR SYSTEM DRAIN DOWN.
- PRESSURE GAUGE WITH GAUGE PROTECTOR, SHUTOFF, AND BLEED VALVE.
- SERVICE SIZE OS&Y GATE VALE FOR PRV ISOLATION.
- PRV PRESSURE REDUCING VALVE WITH LOW FLOW BY-PASS AND EPOXY COATING. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.
- NORMALLY CLOSED OS&Y GATE VALVE FOR EMERGENCY BYPASS.
- SLEEVE WATER SERVICE THROUGH FLOOR SLAB.
- SLEEVE WATER SERVICE IN FOUNDATION WALL IF NECESSARY. COORDINATE LOCATION AND DEPTH WITH STRUCTURAL CONTRACTOR.

SHEET INDEX

SHEET NUMBER	SHEET TITLE
P0	PLUMBING LEGEND & NOTES
P1	SANITARY SEWER PLAN
P2	DOMESTIC WATER & GAS PLAN
P3.1	PLUMBING RISERS
P3.2	PLUMBING RISERS
P6.1	PLUMBING SCHEDULES
P6.2	PLUMBING SCHEDULES
P7	PLUMBING SPECIFICATIONS



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

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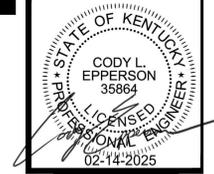
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Engineers
Architects
Planners

624 Wellington Way
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Phone: (859) 223-5894
Fax: (859) 223-2807
www.mse6ix.com

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P0



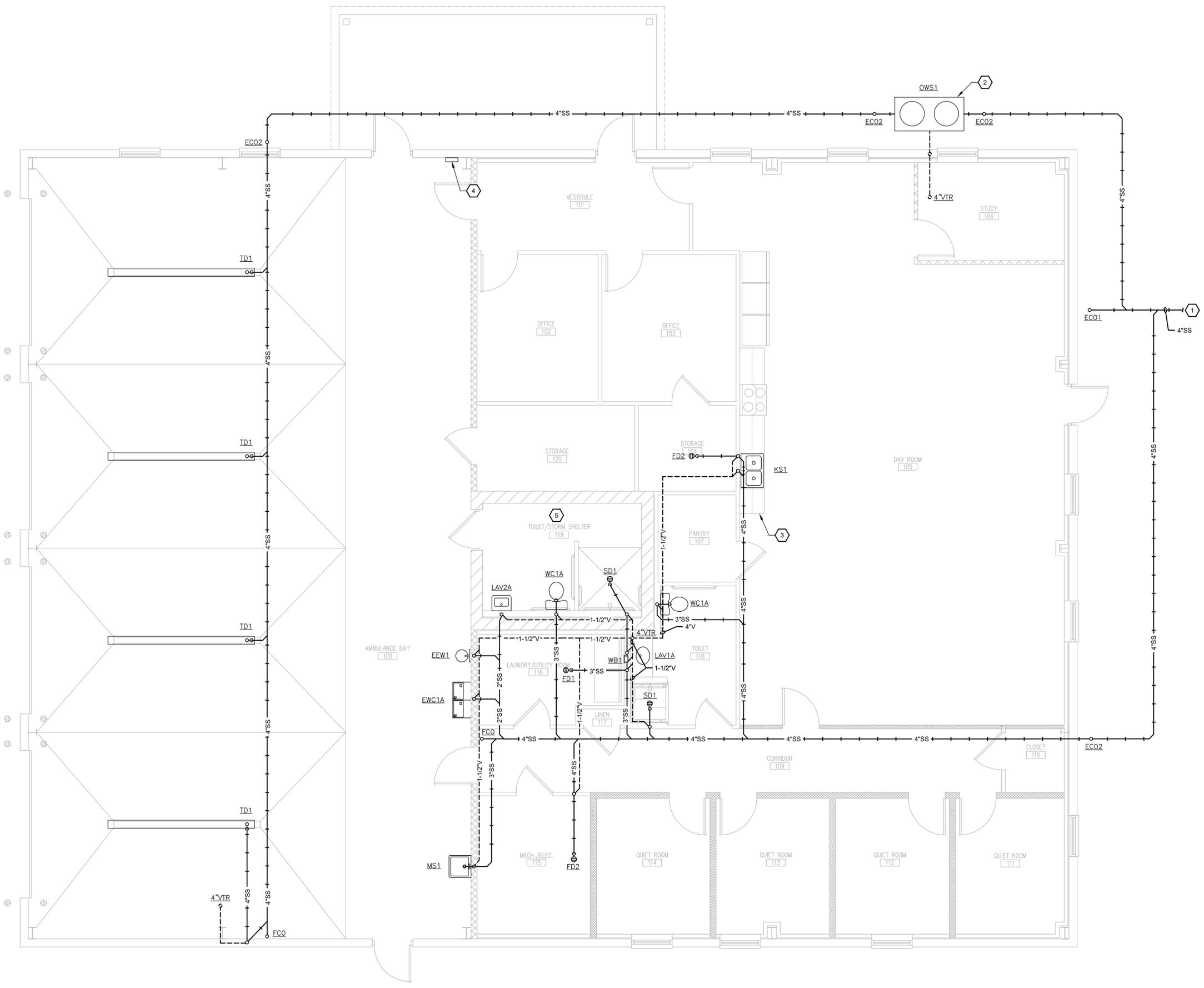
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GENERAL NOTES

1. REFER TO SHEET P0.
2. REFER TO SANITARY SEWER RISER ON SHEET P3.1 AND PLUMBING FIXTURE SCHEDULE ON SHEET P6.2 FOR PIPE SIZES NOT SHOWN.

SHEET NOTES

1. REFER TO SITE PLAN ON SHEET SU1 FOR CONTINUATION.
2. PROVIDE AND INSTALL UNDERGROUND 250 GALLON OIL WATER SEPARATOR PER MANUFACTURER'S INSTRUCTIONS. REFER TO SCHEDULE ON SHEET P6.1 FOR ADDITIONAL INFORMATION.
3. CONNECT DISHWASHER DRAIN INTO ADJACENT KITCHEN SINK DRAIN.
4. PROVIDE AND INSTALL OIL WATER SEPARATOR REMOTE ALARM PANEL PER MANUFACTURER'S INSTRUCTIONS. COORDINATE ROUGH-IN WITH ELECTRICAL CONTRACTOR.
5. SEAL AND PROTECT ALL WALL AND CEILING PENETRATIONS IN THIS SPACE IN ACCORDANCE WITH ICC-500 FOR STORM SHELTERS.



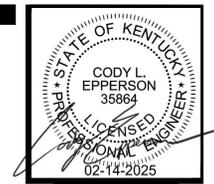
1 FLOOR PLAN - SANITARY SEWER
1/4" = 1'-0"

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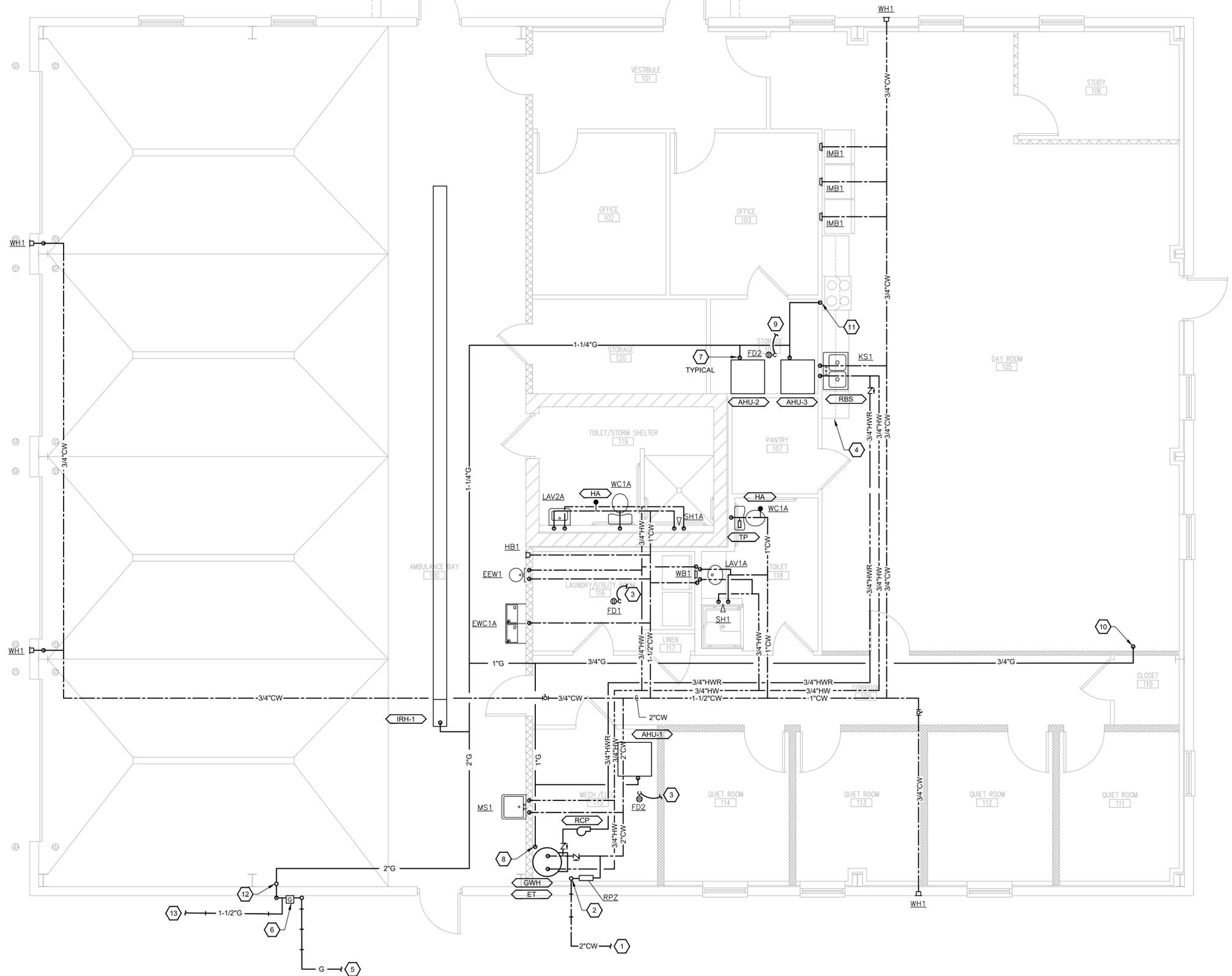
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MSE OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 Phone: (859) 223-5894
 Fax: (859) 223-2807
 624 Wellington Way
 Lexington, KY 40503
 www.mselex.com

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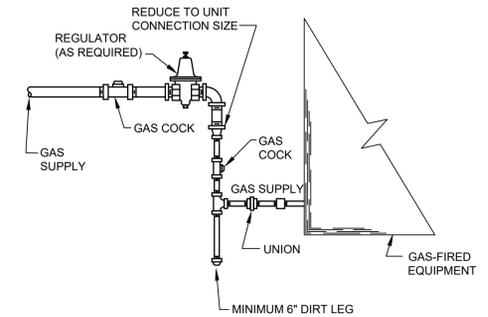


GENERAL NOTES

- REFER TO SHEET P0.
- REFER TO DOMESTIC WATER RISER ON SHEET P3.2 AND PLUMBING FIXTURE SCHEDULE ON SHEET P6.2 FOR PIPE SIZES NOT SHOWN.
- ALL HOT AND COLD WATER PIPING TO BE INSULATED WITH MINIMUM 1" INSULATION.
- REFER TO TYPICAL GAS CONNECTION DETAIL ON THIS SHEET.

SHEET NOTES

- PROVIDE 2" DOMESTIC WATER SERVICE TO BUILDING. REFER TO PLUMBING SITE PLAN ON SHEET SU1 FOR ADDITIONAL INFORMATION.
- STUB UP WATER SERVICE INSIDE BUILDING ENVELOPE AT APPROXIMATE LOCATION SHOWN WITH MAIN WATER SHUT OFF VALVE, PRV, ETC. CONTRACTOR SHALL ADJUST PRV TO LOWEST POSSIBLE SETTINGS TO CORRECTLY OPERATE FARTHEST FIXTURE(S) IN BUILDING. REFER TO DETAIL ON SHEET P0.
- PROVIDE 1/2" CW FROM NEARBY TRAP PRIMER IN TOILET ROOM 118 TO FLOOR DRAIN.
- PROVIDE 1/2" HW FROM KITCHEN SINK TO UNDERCOUNTER DISHWASHER. SHUT OFF SHALL BE LOCATED IN CABINETS BELOW KITCHEN SINK.
- PROVIDE NATURAL GAS SERVICE TO BUILDING. REFER TO PLUMBING SITE PLAN ON SHEET SU1 FOR ADDITIONAL INFORMATION.
- PROVIDE GAS METER LOOP ON BUILDING PER UTILITY COMPANY REQUIREMENTS WITH ASSOCIATED LOCKING GAS COCKS, TEST PORTS AND PRESSURE REGULATOR. GAS LINE ENTERING BUILDING SHALL HAVE PRESSURE OF 11" W.C.
- PROVIDE GAS CONNECTION TO HVAC EQUIPMENT. REFER TO TYPICAL GAS CONNECTION DETAIL ON THIS SHEET. COORDINATE CONNECTION LOCATION/SIZE WITH HVAC EQUIPMENT INSTALLER.
- PROVIDE 3/4" GAS CONNECTION TO WATER HEATER. REFER TO TYPICAL GAS CONNECTION DETAIL ON THIS SHEET.
- PROVIDE 1/2" CW FROM NEARBY TRAP PRIMER IN TOILET ROOM 108 TO FLOOR DRAIN.
- PROVIDE GAS CONNECTION TO VENTLESS FIREPLACE WITH KEYS GAS VALVE ON FACE OF ENCLOSURE. COORDINATE CONNECTION LOCATION/SIZE WITH FIREPLACE INSTALLER.
- PROVIDE 3/4" GAS CONNECTION TO COOKING RANGE. COORDINATE CONNECTION SIZE WITH RANGE SUPPLIER.
- PROVIDE 2" GAS PIPING TURNED UP INSIDE BUILDING TO ATTIC SPACE WITH MAIN SHUT OFF VALVE 48" AFF. CONTRACTOR SHALL PERMANENTLY LABEL VALVE 'MAIN GAS SHUT OFF'.
- PROVIDE GAS CONNECTION TO EXTERIOR GENERATOR. SEE SHEET E2. COORDINATE EXACT STUB-UP LOCATION IN CONCRETE PAD.



TYPICAL GAS-FIRED EQUIPMENT GAS PIPING CONNECTION DETAIL
NOT TO SCALE

CONNECTED GAS LOAD SCHEDULE				
EQUIPMENT	LOCATION	INPUT (kBtu) / EACH	QTY	TOTAL (kBtu)
IRH-1	AMBULANCE BAY	75	1	75
FIREPLACE	DAY ROOM	40	1	40
RANGE	DAY ROOM	100	1	100
GWH	MECH ROOM	80	1	80
AHU-1	MECH ROOM	40	1	40
AHU-2	STORAGE 104	40	1	40
AHU-3	STORAGE 104	100	1	100
GENERATOR	EXTERIOR	1063	1	1063
TOTAL CONNECTED LOAD:				1538

REMARKS:
1. COORDINATE LOCATIONS OF ALL MECHANICAL/ELECTRICAL EQUIPMENT WITH INSTALLATION CONTRACTOR.
2. VERIFY MINIMUM AND MAXIMUM GAS PRESSURE FOR EACH PIECE OF EQUIPMENT TO ENSURE APPROPRIATE GAS PRESSURE IS DELIVERED TO EACH APPLIANCE

1 FLOOR PLAN - DOMESTIC WATER & GAS
1/4" = 1'-0"

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DATE: FEBRUARY 2025 <td>SCALE: AS NOTED <td></td> </td>	SCALE: AS NOTED <td></td>	

Engineers
Architects
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624 Wellington Way
Lexington, KY 40503
Phone: (859) 223-5864
Fax: (859) 223-2807
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P2



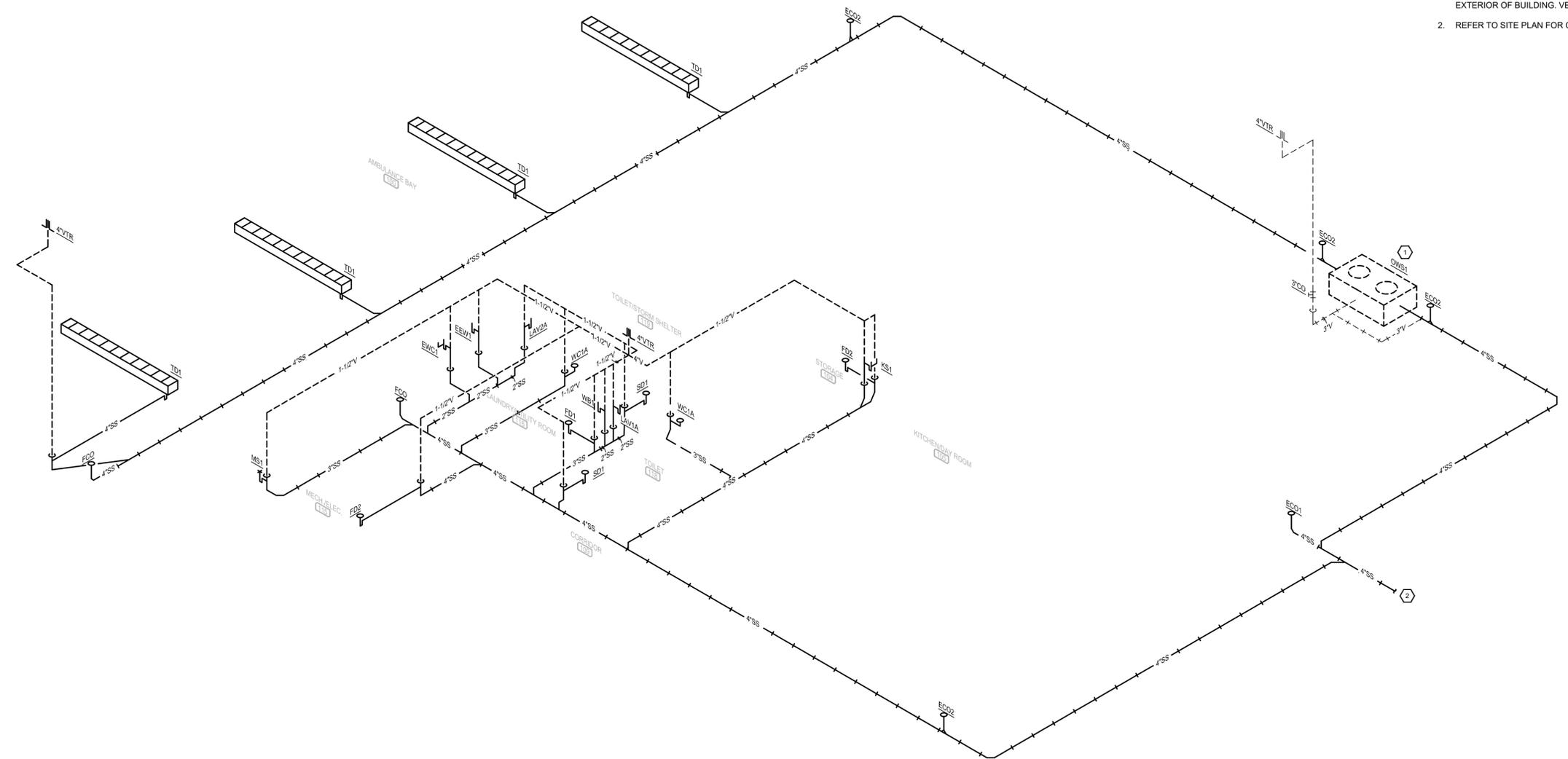
BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

GENERAL NOTES

- REFER TO SHEET P0.
- REFER TO PLUMBING FIXTURE SCHEDULE ON SHEET P6.2 FOR ADDITIONAL INFORMATION.

SHEET NOTES

- OIL WATER SEPARATOR TO BE INSTALLED FLUSH IN GRADE, EXTERIOR OF BUILDING. VENT PER KENTUCKY PLUMBING CODE.
- REFER TO SITE PLAN FOR CONTINUATION.



PLUMBING RISER - SANITARY SEWER

NOT TO SCALE

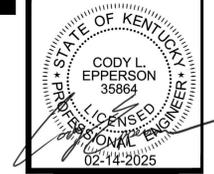
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624 Wellington Way
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www.mselex.com
Phone: (859) 223-5894
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P3.1



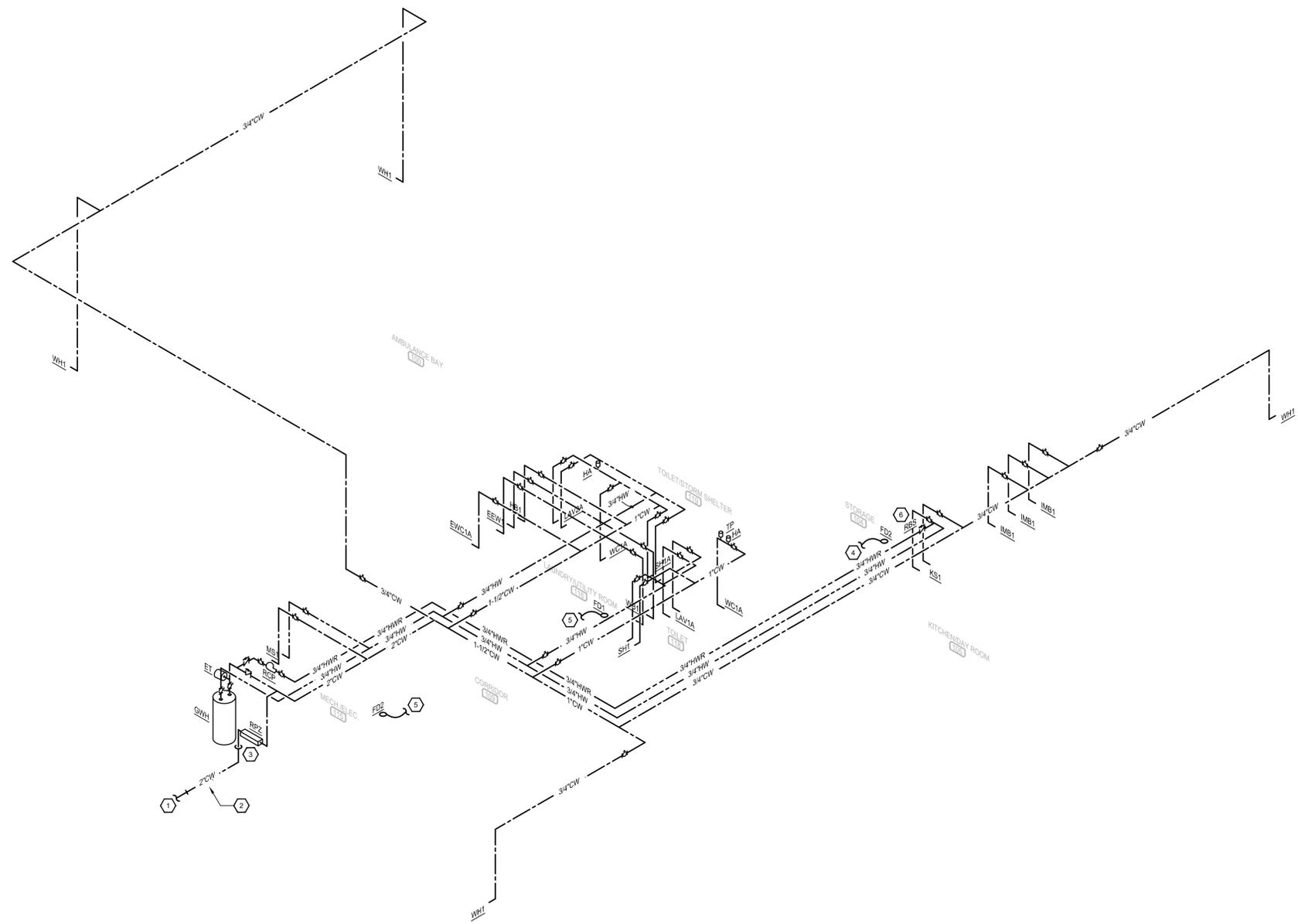
BATH COUNTY EMS
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GENERAL NOTES

1. REFER TO SHEET P0.
2. REFER TO PLUMBING FIXTURE SCHEDULE ON SHEET P6.2 FOR ADDITIONAL INFORMATION.
3. ALL HOT AND COLD WATER PIPING TO BE INSULATED WITH MINIMUM 1" INSULATION.

SHEET NOTES

1. NEW WATER SERVICE. REFER TO PLUMBING SITE PLAN FOR ADDITIONAL INFORMATION.
2. PROVIDE 2" DOMESTIC WATER SERVICE. WATER SERVICE TO BE BURIED AT A MINIMUM 36" DEPTH.
3. STUB UP WATER SERVICE INSIDE BUILDING ENVELOPE AS APPROXIMATE LOCATION SHOWN WITH MAIN WATER SHUT OFF VALVE, PRV, ETC.. CONTRACTOR SHALL ADJUST PRV TO LOWEST POSSIBLE SETTINGS TO CORRECTLY OPERATE FARTHEST FIXTURE(S) IN BUILDING. REFER TO DOMESTIC WATER SERVICE ENTRANCE RISER DETAIL ON SHEET P0 FOR ADDITIONAL INFORMATION.
4. PROVIDE 1/2"CW FROM NEARBY TRAP PRIMER IN TOILET ROOM 108 TO FLOOR DRAIN.
5. PROVIDE 1/2"CW FROM NEARBY TRAP PRIMER IN TOILET ROOM 118 TO FLOOR DRAIN.
6. PROVIDE HOT WATER RECIRCULATION BALANCING VALVE. REFER TO DETAIL ON SHEET P0 FOR ADDITIONAL INFORMATION.



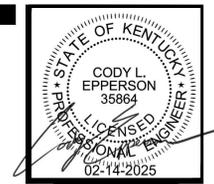
PLUMBING RISER - DOMESTIC WATER
NOT TO SCALE

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P3.2



WATER HAMMER ARRESTOR SCHEDULE						
MARK	MANUFACTURER	MODEL	LOCATION	PIPE SIZE (IN)	FIXTURE UNITS	NOTES
HA	ZURN SHOKTROL	100	SEE PLANS	3/4"	1-11	ALL

NOTES:
 1. SIZING PER PLUMBING DRAINAGE INSTITUTE (PDI) STANDARD PDI-WH201, LATEST EDITION
 2. ASSE 1010 CERTIFIED
 3. LEAD FREE

OTHER ACCEPTABLE MANUFACTURERS: SIOUX CHIEF, JOSAM

RECIRCULATION BALANCING STATION					
MARK	MANUFACTURER	MODEL	LOCATION	PIPE SIZE (IN)	NOTES
RBS	CIRCUIT SOLVER	CSUA-3/4-110-CV1	SEE PLANS	3/4	ALL

NOTES:
 1. INTEGRAL CHECK VALVE
 2. INTEGRAL ISOLATION BALL VALVES
 3. INTEGRAL 0.2 GPM BYPASS
 4. LEAD FREE

GAS WATER HEATER SCHEDULE												
MARK	MANUFACTURER	MODEL	LOCATION	TYPE	CAPACITY (GAL)	NATURAL GAS BTUH		INLET PRESSURE (IN. W.C.)	ELECTRICAL			NOTES
						INPUT	OUTPUT		VOLTAGE	MCA	MOCP	
GWH	AO SMITH	BTX-80	MECH ROOM	TANK	50	76,000	71,440	3.5 - 14	120	5	15	ALL

NOTES:
 1. CONDENSATE NEUTRALIZER KIT
 2. SIDEWALL VENTING
 3. PROVIDE ALL NECESSARY VALVES (CHECK, ISOLATION, ETC.) AS REQUIRED. PROVIDE SHUT-OFF VALVES AT INLET AND OUTLET.
 4. ADJUSTABLE TEMPERATURE CONTROL

OTHER MANUFACTURERS: BRADFORD WHITE, RHEEM

TRAP PRIMER SCHEDULE						
MARK	MANUFACTURER	MODEL	V / Ø / Hz	LOCATION	NUMBER OF PORTS	NOTES
TP	PRECISION PLUMBING PRODUCTS	PR-500	-	SEE PLANS	2	1

NOTES:
 1. INSTALL PER MANUFACTURER'S INSTRUCTION

OTHER ACCEPTABLE MANUFACTURERS: SIOUX CHIEF, ZURN

EXPANSION TANK SCHEDULE						
MARK	MANUFACTURER	MODEL	LOCATION	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	NOTES
ET	AMTROL	ST-12	GWH-1	4.4	3.2	ALL

NOTES:
 1. 150 PSIG PRESSURE RATING
 2. 200°F MAX OPERATING TEMPERATURE

OIL-WATER SEPERATOR SCHEDULE										
MARK	MANUFACTURER	MODEL	LOCATION	DIMENSIONS (LxWxH)	INLET/OUTLET (INCHES)	FLOW RATE (GPM)	TOTAL VOLUME (GALLONS)	OIL VOLUME (GALLONS)	WEIGHT (LBS)	NOTES
OWS1	STRIEM	OS-100	EXTERIOR (BELOW GRADE)	68" x 33" x 51.5"	4" / 4"	75	250	62.5	345	ALL

NOTES:
 1. INSTALL OIL WATER SEPERATOR OUTSIDE BUILDING; COORDINATE FINAL LOCATION WITH SITE
 2. HIGH DENSITY POLYMER CONSTRUCTION
 3. HIGHWAY RATED ACCESS COVERS
 4. ADJUSTABLE EXTENSION RISERS OF LENGTH REQUIRED
 5. INTEGRAL HIGH OIL FLOAT SWITCH AND REMOTE HIGH OIL ALARM PANEL

RECIRCULATION PUMP SCHEDULE													
MARK	MANUFACTURER	MODEL	LOCATION	FLOW (GPM)	MAX HEAD (FT)	MAX TEMP (°F)	CONNECTIONS		ELECTRICAL				NOTES
							INLET	OUTLET	HP	V / Ø / Hz	MCA	MOCP	
RCP	GRUNDFOS	UPS 15-55SFC	MECH RM	0-25	18	230	3/4"	3/4"	1/12	115/1/60	5.5	15	ALL

NOTES:
 1. THREE-SPEED DOMESTIC HOT WATER RECIRCULATION PUMP, WITH INTEGRAL CHECK VALVE
 2. IN-LINE MOUNT; LOCATE ADJACENT TO WATER HEATER
 3. PROVIDE ISOLATION BALL VALVES ON INLET AND OUTLET

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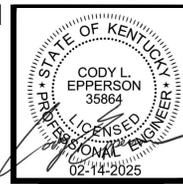
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PROJECT NO. 5071-02	DESIGNED BY CE	DRAWN BY CE	CHECKED BY CE	REVIEWED BY CE	DATE FEBRUARY 2025	SCALE AS NOTED
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MSE OF KENTUCKY, INC.
 Engineers
 Architects
 Planners

624 Wellington Way
 Lexington, KY 40503
 Phone: (859) 223-5894
 Fax: (859) 223-2807
 www.mselex.com

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PLUMBING FIXTURE SCHEDULE

MARK	MANUFACTURER	MODEL / TYPE	TRIM	CW	HW	TRAP	WASTE	VENT	MOUNTING TYPE / HEIGHT	REMARKS	OTHER ACCEPTABLE MANUFACTURERS
ECO1	JOSAM	55000 HEAVY DUTY ONE-WAY EXTERIOR CLEANOUT	COATED CAST IRON FINISH	-	-	-	4"	-	GROUND	COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN
ECO2	JOSAM	55000 HEAVY DUTY TWO-WAY EXTERIOR CLEANOUT	COATED CAST IRON FINISH	-	-	-	4"	-	GROUND	COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN
EEW1	ACORN	S0310-BF ADA BARRIER FREE PEDESTAL MOUNTED EYE WASH	TRIM: ET71-1 THERMOSTATIC MIXING VALVE	1/2"	1/2"	1-1/4"	1-1/4"	1-1/4"	PEDESTAL FLOOR SET	1/2" TEMPERED WATER FROM MIXING VALVE TO EYE WASH	BRADLEY, SPEAKMAN
EW1A	ELKAY	LZSTL8WSSK BI-LEVEL ADA ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION	TRIM: CARRIER, SUPPLY STOPS	1/2"	-	1-1/4"	1-1/4"	1-1/4"	WALL HUNG; REFER TO ARCHITECT DRAWINGS FOR MOUNTING HEIGHT	8 GPH OF CHILLED WATER; STAINLESS STEEL FINISH; FLEXIBLE SAFETY BUBBLER; FRONT AND SIDE BUBBLER PUSHBAR ACTIVATION; TOUCHLESS BOTTLE FILLER SENSOR ACTIVATION; LED FILTER STATUS	ACORN, OASIS
FCO	JOSAM	55000 HEAVY DUTY ONE-WAY INTERIOR FLOOR CLEANOUT	COATED CAST IRON FINISH	-	-	-	4"	-	FLUSH IN FLOOR	COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN
FD1	JOSAM	30003-7A FLOOR DRAIN	7" SATIN FINISH, BRONZE STRAINER	1/2"	-	3"	3"	1-1/2"	FLUSH IN FLOOR	1/2" TRAP PRIMER CONNECTION	ZURN, J.R. SMITH
FD2	JOSAM	30004-7A FLOOR DRAIN	7" SATIN FINISH, BRONZE STRAINER	1/2"	-	4"	4"	1-1/2"	FLUSH IN FLOOR	1/2" TRAP PRIMER CONNECTION	ZURN, J.R. SMITH
HB1	WOODFORD	24P-3/4" HOSE BIB, EXPOSED	ROUGH BRASS, METAL HANDLE	3/4"	-	-	-	-	WALL HUNG; 24"	COORDINATE DEPTH WITH WALL CONSTRUCTION; VACUUM BREAKER	WATTS, ZURN
IMB1	SIOUX CHIEF	696-G1000	QUARTER TURN BALL VALVE	1/2"	-	-	-	-	BOTTOM 48" AFF		GUY GRAY, OATEY
KS1	AMERICAN STANDARD	22SB.6252283S.075 KITCHEN SINK	FAUCET: AMERICAN STANDARD 7074300.075 TRIM: CHROME PLATED GRID DRAIN, SUPPLY STOPS	1/2"	1/2"	1-1/2"	1-1/2"	1-1/4"	COUNTER SET/DROP-IN	COORDINATE INSTALLATION WITH CASEWORK	SINK: ELKAY; FAUCET: DELTA
LAV1A	AMERICAN STANDARD	0476228 ADA LAVATORY WITH TOUCHLESS FAUCET	FAUCET: AMERICAN STANDARD 6055205.002, 605XTMV1070 1/2" THERMOSTATIC MIXING VALVE TRIM: CHROME PLATED GRID DRAIN, SUPPLY STOPS, ADA COMPLIANT INSULATION	1/2"	1/2"	1-1/4"	1-1/4"	1-1/4"	COUNTER SET/DROP-IN	COORDINATE INSTALLATION WITH CASEWORK	LAV: KOHLER, ZURN; FAUCET: KOHLER, SLOAN
LAV2A	AMERICAN STANDARD	902A.004EC ADA LAVATORY WITH TOUCHLESS FAUCET	FAUCET: AMERICAN STANDARD 6055205.002, 605XTMV1070 1/2" THERMOSTATIC MIXING VALVE TRIM: CHROME PLATED GRID DRAIN, SUPPLY STOPS, ADA COMPLIANT INSULATION	1/2"	1/2"	1-1/4"	1-1/4"	1-1/4"	WALL HUNG; RIM 34"	20" x 18" VITREOUS CHINA; FAUCER HOLES ON 4" CENTERS; BATTERY SENSOR FAUCET; PROVIDE WITH WALL CARRIER	LAV: KOHLER, ZURN; FAUCET: KOHLER, SLOAN
MS1	FIAT	TSB100 TERRAZZO MOP SINK	FAUCET: 830AA SERVICE SINK FAUCET WITH VACUUM BREAKER TRIM: 832AA HOSE AND HANGER, 889CC MOP HANGER, MSG STAINLESS STEEL WALL GUARDS	3/4"	3/4"	3"	3"	1-1/2"	FLOOR SET	24" X 24" X 12", STAINLESS STEEL CAPS ON ALL SIDES, ACCESSIBLE CHECK VALVES ON SUPPLIES	MUSTEE, PROFLO
RPZ	ZURN	2-975XL2 REDUCED PRESSURE BACKFLOW PREVENTER	OS&Y ISOLATION VALVES, STRAINER, AND FULL SIZE AIR GAP	2"	-	-	-	-	18" AFF TO CENTERLINE	ALL COMPONENTS SHALL BE APPROVED FOR USE IN POTABLE WATER SYSTEMS	WATTS, WILKINS
SD1	OATEY	SHOWER DRAIN	ROUND STAINLESS STEEL STRAINER	-	-	2"	2"	1-1/4"	FLUSH IN FLOOR	VERIFY FINAL LOCATION PRIOR TO ROUGH-IN	SIOUX CHIEF, ZURN
SH1	DELTA	R10700-UNWS ROUGH IN VALVE, MODEL T13H33SHOWER TRIM FOR DUAL SHOWER UNIT, ADA COMPLIANT	HEAD: 1.5 GPM MAX, POLISHED CHROME FINISH TRIM: PRESSURE BALANCING VALVE, HANDLES ADA COMPLIANT, HANDSHOWER WITH DUAL INTEGRAL CHECK VALVES IN SERIES, HANDSHOWER ADA COMPLIANT, POLISHED CHROME FINISH, PRESSURE BALANCE CARTRIDGE, 24" STAINLESS STEEL SLIDE BAR, SHOWERHEAD, ARM AND FLANGE, 70" LONG WHITE VINYL HANDSHOWER HOSE SEAT: WALL MOUNTED, FOLDABLE, WHITE IN COLOR, ADA SHOWER SEAT, SEACHROME MODEL #SLR-320225, INSTALL LOWERED SEAT 17"-19" AFF, COORDINATE SUFFICIENT IN-WALL BACKING MATERIAL DURING ROUGH-IN.	3/4"	3/4"	-	-	-	WALL HUNG	**REFER TO ARCHITECTURAL SHEET FOR COMPLETE SHOWER STALL FACTORY KIT SPECIFICATION AND LISTED ACCESSORIES TO BE PROVIDED, FREEDOM SHOWERS MODEL #APFQ3838BF1PRRF1.0, GRAB BARS, FOLD UP SEAT, CURTAIN ROD, REINFORCED BACKING, ARMOR CORE EASY BAE, 1" THRESHOLD, RECESSED SOAP DISH	DELTA, KOHLER
SH1A	DELTA	R10700-UNWS ROUGH IN VALVE, MODEL T13H33SHOWER TRIM FOR DUAL SHOWER UNIT, ADA COMPLIANT	HEAD: 1.5 GPM MAX, POLISHED CHROME FINISH TRIM: PRESSURE BALANCING VALVE, HANDLES ADA COMPLIANT, HANDSHOWER WITH DUAL INTEGRAL CHECK VALVES IN SERIES, HANDSHOWER ADA COMPLIANT, POLISHED CHROME FINISH, PRESSURE BALANCE CARTRIDGE, 24" STAINLESS STEEL SLIDE BAR, SHOWERHEAD, ARM AND FLANGE, 70" LONG WHITE VINYL HANDSHOWER HOSE SEAT: WALL MOUNTED, FOLDABLE, WHITE IN COLOR, ADA SHOWER SEAT, SEACHROME MODEL #SLR-320225, INSTALL LOWERED SEAT 17"-19" AFF, COORDINATE SUFFICIENT IN-WALL BACKING MATERIAL DURING ROUGH-IN.	3/4"	3/4"	-	-	-	WALL HUNG	ADJUSTABLE HOSE CONNECTORS, ADJUSTABLE SHOWER HEAD; PROVIDE REQUIRED GRAB BARS PER ARCHITECTURAL CALLOUTS	AMERICAN STANDARD, KOHLER
TD1	JOSAM	PRO-PLUS 200C, 8" INTERNAL WIDTH, POLYMER TRENCH DRAIN WITH DUCTILE IREON CLASS "C" GRATE	BOTTOM OUTLET, END CAPS, SLOPED CHANNEL, SUPPORT BRACKETS CAPABLE OF ACCEPTING REBAR	-	-	4"	4"	-	FLUSH IN FLOOR	INSTALL PER MANUFACTURERS INSTALLATION INSTRUCTIONS. COORDINATE ROUGH-IN WITH FLOOR CONSTRUCTION.	ZURN, WATTS
WB1	SIOUX CHIEF	688-G11 SERIES CLASSIC BOX	WASHER BOX WITH ARRESTORS, 1/4 TURN SUPPLY VALVES	1/2"	1/2"	2"	2"	1-1/4"	FLUSH WALL HUNG 48" AFF	COORDINATE LOCATION OF WASHING MACHINES WITH OWNER PRIOR TO ROUGH-IN TO ENSURE PLACEMENT BEHIND EQUIPMENT AND ACCESSIBILITY	OATEY
WC1A	AMERICAN STANDARD	3043.001 ADA WATER CLOSET	FLUSH VALVE: AMERICAN STANDARD 6065.161.002 SEAT: AMERICAN STANDARD 5901.100	1"	-	INTEGRAL	3"	1-1/2"	FLOOR SET; RIM 16-1/2"	ADA COMPLIANT, ELONGATED BOWL, TOP SPUD, 1.6G DC SENSOR FLUSH VALVE, HEAVY DUTY OPEN FRONT SEAT LESS COVER; PROVIDE REQUIRED GRAB BARS	WC: KOHLER, ZURN; FL: KOHLER, SLOAN
WH1	MURDOCK	M-3509QT NON-FREEZE BOX WALL HYDRANT	VARIATIONS: -CL CYLINDER LOCK, -W WATER COVER	3/4"	-	-	-	-	18" AFG	WITH INTEGRAL VACUUM BREAKER, QUARTER TURN FULL THROW, COORDINATE DEPTH WITH WALL CONSTRUCTION	WATTS, ZURN

BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

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MSE OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 Phone: (859) 223-5894
 Fax: (859) 223-2807
 624 Wellington Way
 Lexington, KY 40503
 www.mse6ex.com

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PLUMBING SPECIFICATIONS

GENERAL REQUIREMENTS

SCOPE:

FURNISH ALL LABOR, MATERIALS, EQUIPMENT, APPLIANCES AND NECESSARY INCIDENTALS FOR THE COMPLETE INSTALLATION OF ALL PLUMBING SHOWN ON THE DRAWINGS AND AS SPECIFIED.

A. WORK SPECIFIED IN THIS SECTION

- SANITARY DRAIN, WASTE AND VENT SYSTEMS.
- DOMESTIC HOT AND COLD WATER SYSTEMS.
- DOMESTIC WATER HEATERS.
- FURNISH AND SET ALL SLEEVED FOR PIPE PASSING THROUGH WALLS AND FLOORS.
- PIPE COVERING, INSULATION AND WRAPPING.
- EXCAVATION AND BACKFILL.
- ALL PLUMBING FIXTURES, WATER HEATERS, VALVES, AND OTHER MISCELLANEOUS ITEMS OR EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION.
- PROVIDE COLLARS AT FIRE RATED PENETRATIONS.

B. PROVISIONS FOR THIS SECTION APPLY TO ALL WORK SPECIFIED IN ALL SECTIONS UNDER DIVISION 22. ALL ITEMS INDICATED ON SITE, ARCHITECTURAL, MECHANICAL, OR PLUMBING DRAWINGS ARE TO BE PROVIDED COMPLETE FROM POINT OF CONNECTION TO FINISHED FIXTURE IN CONFORMANCE WITH ALL GOVERNING AUTHORITY REQUIREMENTS. NOTHING IN THESE DRAWINGS OR SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK IN VIOLATION OF GOVERNING CODES.

C. IN ADDITION, WORK IN DIVISION 22 IS GOVERNED BY THE PROVISIONS OF THE BIDDING REQUIREMENTS, CONTRACT FORMS, GENERAL CONDITIONS AND ALL SECTIONS UNDER DIVISION 1, GENERAL REQUIREMENTS.

- EXAMINATION OF PREMISES: VISIT THE SITE, VERIFY ALL MEASUREMENTS AND JOB CONDITIONS, AND PAY ALL COSTS NECESSARY TO PERFORM THE WORK. COORDINATE DIVISION OF FEE RESPONSIBILITIES WITH GENERAL CONTRACTOR.
- THE PLUMBING CONTRACTOR/COMPANY SHALL BE LICENSED AND HOLD A CURRENT CONTRACTING LICENSE AS A PLUMBING CONTRACTOR THAT HAS BEEN VALID FOR A MINIMUM OF TWO YEARS IN THE STATE WHERE THE PROJECT IS LOCATED.
- THE PLUMBING CONTRACTOR/COMPANY SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE INSTALLING COMMERCIAL PLUMBING SYSTEMS SIMILAR TO THOSE DESCRIBED IN THESE SPECIFICATIONS AND PROVIDE A LIST OF PREVIOUS PROJECTS, INCLUDING NAME OF PROJECT AND CONTACT PERSON NAMES AND PHONE NUMBERS.
- THE PLUMBING CONTRACTOR/COMPANY SHALL BE ABLE TO BOND WORK HE IS BIDDING TO PERFORM AND SHALL PROVIDE WRITTEN STATEMENT FROM THE BONDING AGENCY PROPOSED TO BE USED FOR THIS PROJECT A SEPARATE DOCUMENT IN ADDITION TO THE PLUMBING BID SUBMITTED IF REQUIRED BY THE GENERAL CONTRACTOR. THE BONDING AGENCY SHALL BE ONE HAVING A BEST'S INSURANCE RATING OF A OR A+.

D. CONTRACTOR IS RESPONSIBLE FOR RESULTS CAUSED BY DEVIATING FROM THE PLANS.

REGULATIONS, PERMITS, FEES, CHARGES, INSPECTIONS:

A. REGULATIONS: COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS. ALL MATERIALS AND WORK MUST COMPLY WITH LOCAL CONSTRUCTION, MECHANICAL, PLUMBING, ELECTRICAL AND FIRE CODES. AS A MINIMUM, COMPLY WITH THE FOLLOWING: IMC, IPC, IECC, NEC, NFPA CODES AND ALL LOCAL STATE AND CITY CODES.

B. IN ADDITION TO THE REQUIREMENTS OF ALL GOVERNING CODES, ORDINANCES AND AGENCIES, CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:

- 2018 KENTUCKY BUILDING CODE (BASED ON 2015 INTERNATIONAL BUILDING CODE)
- 2015 INTERNATIONAL BUILDING CODE
- 2015 INTERNATIONAL MECHANICAL CODE
- 2012 INTERNATIONAL ENERGY CONSERVATION CODE OR 2010 ASHRAE 90.1 REFER TO ARCHITECTURAL COVER SHEET.
- KENTUCKY STATE PLUMBING LAW, REGULATIONS & CODES (815 KAR CHAPTER 20)
- KENTUCKY STATE BOILER REGULATION (KRS 236, 815 KAR 15)

C. CURRENT CODES ADOPTED BY THE RESPECTIVE JURISDICTION WILL SUPERSEDE THE LISTED CODES.

D. FEES AND PERMITS: PAY ALL CONNECTION, INSTALLATION, USE, DEVELOPMENT, ETC., FEES AND/OR CHARGES. OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSES. COORDINATE DIVISION OF FEE RESPONSIBILITIES WITH THE GENERAL CONTRACTOR.

E. INSPECTIONS: ALL WORK MUST BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES. PRIOR TO FINAL APPROVAL, FURNISH THE ARCHITECT WITH CERTIFICATES OF INSPECTIONS AND APPROVALS BY THE LOCAL AUTHORITIES IN ACCORDANCE WITH DIVISION 1.

DRAWINGS AND SPECIFICATIONS:

- REFER TO DIVISION 1 FOR INFORMATION ON SUBMITTALS AND SHOP DRAWINGS.
- IF A CONFLICT EXISTS ON OR WITHIN THE DRAWINGS AND SPECIFICATIONS, ASSUME THE MOST EXPENSIVE FOR BIDDING PURPOSES, AND PROMPTLY NOTIFY THE ARCHITECT AND ENGINEER.

RECORD DRAWINGS: PROVIDE RECORD DRAWINGS FOR ALL WORK UNDER SECTIONS IN DIVISION 22. SEE DIVISION 1 FOR DETAILED REQUIREMENTS COVERING PREPARATION OF RECORD DRAWINGS.

WORK AND MATERIALS: UNLESS OTHERWISE SPECIFIED, ALL MATERIALS MUST BE NEW AND OF THE QUALITY SPECIFIED. THE WORKMANSHIP SHALL BE OF A QUALITY THAT IS ACCEPTABLE TO THE ARCHITECT AND IS EQUAL TO THE STANDARDS OF THE TRADES. CONTRACTOR MUST STAFF THE PROJECT WITH SUFFICIENT SKILLED WORKMEN, INCLUDING A FULLY QUALIFIED CONSTRUCTION SUPERINTENDENT, TOO COMPLETE THE WORK IN THE TIME ALLOTTED. THE SUPERINTENDENT MUST BE QUALIFIED TO SUPERVISE ALL OF THE WORK IN HIS WORK CATEGORY.

APPROVAL OF MATERIALS AND EQUIPMENT: REFER TO DIVISION 1 FOR DESCRIPTION OF MATERIAL AND EQUIPMENT FOR PRIOR APPROVALS AND SUBSTITUTIONS. MUST BE RECEIVED BY ENGINEER 10 DAYS PRIOR TO DUE DATE/ BID OPENING.

MAINTENANCE MANUAL:

- PRIOR TO COMPLETION OF THE PROJECT, COMPILER A COMPLETE EQUIPMENT AND MAINTENANCE MANUAL FOR ALL EQUIPMENT SUPPLIED UNDER SECTIONS OF DIVISION 22 AS DESCRIBED IN DIVISION 1.
- MANUALS SHALL BE BOUND IN A THREE-RING BINDER. A PRELIMINARY SUBMITTAL OF THE MANUAL SHALL BE MADE TO THE ARCHITECT 90 DAYS AFTER RECEIVING APPROVED SUBMITTALS. FINAL SUBMITTAL OF THE MANUAL SHALL BE MADE FOUR WEEKS PRIOR TO SUBSTANTIAL COMPLETION OF THE PROJECT.

EQUIPMENT PURCHASES: ARRANGE FOR PURCHASES AND DELIVERY OF ALL MATERIALS AND EQUIPMENT WITHIN 15 DAYS AFTER APPROVAL OF SUBMITTALS. COORDINATE WITH GENERAL CONTRACTOR.

COOPERATIVE WORK:

- CORRECT WITHOUT CHARGE ANY WORK REQUIRING ALTERATION DUE TO LACK OF PROPER SUPERVISION OR FAILURE TO MAKE PROPER PROVISIONS IN TIME. CORRECT WITHOUT CHARGE ANY DAMAGE TO ADJACENT WORK CAUSED BY THE ALTERATION. SEE DIVISION 1 FOR ADDITIONAL REQUIREMENTS.
- COOPERATIVE WORK INCLUDES:
 - GENERAL SUPERVISION AND RESPONSIBILITY FOR PROPER LOCATION, ROUGH-IN AND SIZE WORK RELATED TO DIVISION 22 BUT PROVIDED UNDER OTHER DIVISIONS OF THESE SPECIFICATIONS.
 - INSTALLATION OF SLEEVES, INSERTS AND ANCHOR BOLTS FOR WORK UNDER SECTIONS IN DIVISION 22.
 - ELECTRICAL WORK AS SPECIFIED HEREIN. REFER TO DIVISION 26 FOR REQUIREMENTS.
 - MECHANICAL WORK AS SPECIFIED HEREIN. REFER TO DIVISION 23 FOR REQUIREMENTS.

CONSTRUCTION FACILITIES:

- GENERAL: UNDER THIS DIVISION OF THE SPECIFICATIONS EXECUTE ALL WORK IN A MANNER TO PROVIDE A SAFE AND LAWFUL INGRESS AND EGRESS TO THE OWNER'S ESTABLISHMENT AND SUCH FACILITIES SHALL BE KEPT CLEAR OF MATERIAL OR EQUIPMENT AS DIRECTED BY THE ARCHITECT. REFER TO DIVISION 1 FOR ADDITIONAL REQUIREMENTS.
- FURNISH AND MAINTAIN FROM THE BEGINNING TO THE COMPLETION OF AL WORK ALL LAWFUL AND NECESSARY GUARDS, RAILINGS, FENCES, CANOPIES, LIGHTS, AND WARNING SIGNS. TAKE ALL NECESSARY PRECAUTIONS REQUIRED BY CITY AND STATE LAWS TO AVOID INJURY OR DAMAGE TO ANY AND ALL PERSONS AND PROPERTY.

GUARANTEE: GUARANTEE ALL MATERIAL, EQUIPMENT, AND WORKMANSHIP FOR ALL SECTIONS UNDER DIVISION 22 IN WRITING TO BE FREE FROM DEFECTS OF MATERIAL AND WORKMANSHIP FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE AS OUTLINED IN DIVISION 1. REPLACE WITHOUT CHARGE ANY MATERIAL OR EQUIPMENT PROVING DEFECTIVE DURING THIS PERIOD. THE GUARANTEE

SHALL INCLUDE PERFORMANCE OF THE EQUIPMENT UNDER ALL CONDITIONS OF LOAD, INSTALLING ANY ADDITIONAL ITEMS OF CONTROL AND/OR PROTECTIVE DEVICES AS REQUIRED.

ELECTRICAL WORK:

- ELECTRICAL WIRING, INCLUDING POWER WIRING AND CONTROL WIRING (EXCEPT AS OTHERWISE SPECIFIED UNDER AUTOMATIC TEMPERATURE CONTROLS), ALL RACEWAYS, WIRING, OUTLET AND JUNCTION BOXES, AND LABOR FOR INSTALLATION OF THE WIRING AND EQUIPMENT SHALL BE INCLUDED IN ELECTRICAL DIVISION 26 OF THE SPECIFICATIONS.

PRODUCT HANDLING:

- PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIAL OF THIS SECTION BEFORE, DURING, AND AFTER INSTALLATION.
- REPLACEMENTS: IN THE EVENT OF DAMAGE, IMMEDIATELY REPAIR ALL DAMAGED AND DEFECTIVE WORK TO THE APPROVAL OF THE ENGINEER, AT NOT ADDITIONAL COST TO THE OWNER.

SUBMITTALS:

- MANUFACTURER'S LITERATURE: WITHIN 35 DAYS AFTER AWARD OF CONTRACT AND BEFORE ANY MATERIALS OF THIS SECTION ARE DELIVERED TO THE JOB SITE SUBMIT COMPLETE BROCHURES OF ALL MATERIALS AND EQUIPMENT, PER DIVISION 1 OF THE SPECIFICATIONS.
- OTHER SUBMITTALS:
 - SHOP DRAWINGS: HANGERS AND SUPPORTS, PIPING INSULATION, VALVES, PUMPS, WATER HEATER, AND ALL PLUMBING FIXTURES.
- SETS IN BOUND BOOKLET FORM OF WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS AND BROCHURES FOR EQUIPMENT SPECIFIED IN THIS SECTION. FULLY INSTRUCT OWNERS OPERATING PERSONNEL.
- RECORD DRAWINGS: KEEP AN ACCURATE DIMENSIONED RECORD OF AS-BUILT LOCATIONS AND ELEVATIONS, AS REFERRED TO APPROVED BASE DATUM, OF BURIED CONCEALED.
- OPERATION AND MAINTENANCE INSTRUCTIONS: DELIVER TO ARCHITECT, SHOW COMPLETE LINES, MANHOLES, CLEANOUTS, VALVES, PLUGGED TEES, CAPPED ENDS, AND OF WORK WHICH IS INSTALLED DIFFERENT FROM SHOWN IN THE PLANS.

MISCELLANEOUS:

- EXAMINATION OF THE SITE: EXERCISE CARE IN EXAMINING THE SITE AND COORDINATE ALL WORK INDICATED ON THE DRAWINGS WITH EXISTING CONDITIONS. REPORT TO ARCHITECT IN WRITING CONDITIONS THAT WILL PREVENT PROPER PROVISIONS OF THIS WORK. VERIFY DEPTH AND LOCATIONS OF ALL SERVICE LINES WITH SERVICING COMPANIES HAVING JURISDICTION BEFORE EXCAVATING, BY SUBMISSION OF THE BID. THE CONTRACTOR WARRANTS THAT HE HAS FAMILIARIZED HIMSELF WITH THE EXISTING CONDITIONS AND WILL PERFORM ALL WORK AS REQUIRED FOR HOOKUP AND AS REQUIRED BY THE CONTRACT DOCUMENTS AT NO ADDITIONAL COST.
- PERMITS AND FEES: ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS AND FEE REQUIRED BY ALL GOVERNING AGENCIES.
- SERVICE CONNECTIONS: MAKE ALL NECESSARY ARRANGEMENTS WITH APPLICABLE UTILITY COMPANY FOR CONNECTION TO SERVICE LINES. PAY ALL FEES ASSOCIATED WITH WORK INCLUDING METERS, HOOKUP CHARGE AND UTILITY ASSESSMENT'S FEES.
- DRAWINGS: COORDINATE ALL SPACE REQUIREMENTS WITH OTHER TRADES, DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT, AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE.

PRODUCTS

GENERAL

- PIPE SLEEVES AND WRAPPING: PROVIDE POLISHED CHROMIUM PLATED AND BRASS SET SCREW FLANGES WHERE PLUMBING PIPING PASSES THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS IN FINISHED PORTIONS OF BUILDING INCLUDING FLANGES ON PIPES AT FIXTURES. ALL SLEEVES IN CONCRETE AND EXTERIOR WALLS SHALL BE 30 GA. GALVANIZED IRON ONE INCH O.D. LARGER THAN THE PIPE, CAULKED IF BELOW GRADE IN A MOISTURE PROOF MANNER. ALL PIPES PENETRATING THROUGH FIRE WALLS AND FLOORS SHALL BE PROPERLY SAFFED WITH DOW CORNING 3-6548 SILICONE RTV FOAM OR EQUAL. INSTALL PER MANUFACTURER'S DIRECTIONS.
- PIPE IDENTIFICATION:
 - PIPING IDENTIFICATION PER ANSI AND OSHA STANDARDS: EACH INDIVIDUAL PIPELINE SHALL BE MARKED FOR QUICK AND EASY IDENTIFICATION AS TO CONTENTS AND CHARACTER OF MATERIAL CARRIED IN THE PIPES BY SET ON SNA OR STR MARKER.
 - MARKERS SHALL BE INSTALLED AND SPACED AT NOT MORE THAN 20 FOOT INTERVALS AND SO LOCATED THAT MARKERS SHALL BE VISIBLE WHERE PIPING IS EXPOSED.
- ONE MARKER SHALL BE INSTALLED AT EACH SIDE OF VALVES, SPECIAL FITTINGS AND AT BRANCH TAKE-OFFS. IN FURRED SPACES INSTALL ONE BAND 2 FEET ABOVE FLOOR AND 19 INCHES BELOW CEILING LINE.
- MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE ASTM, ASME, AGA AND ASA STANDARDS.
- ALL GAS FIRED EQUIPMENT SHALL INCLUDE A LABEL INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE ALTITUDE WHERE IN THE PROJECT IS TO BE LOCATED (GREEN STICKER). THE APPLIANCE SHALL ALSO INCLUDE A COMPLIANCE STATEMENT INDICATING THAT THE APPLIANCE HAS BEEN ADJUSTED, MODIFIED OR RE-CALIBRATED FOR THE PROPER OPERATION AT THE ALTITUDE OF THE PROJECT AND SHALL BE LISTED CAPABLE FOR SUE WITH NATURAL GAS OR PROPANE GAS IF PROPANE IS LISTED ON THE DRAWINGS.

PIPE AND FITTING SCHEDULE:

PIPE AND FITTINGS:

- NO PIPE OF FOREIGN MANUFACTURER WILL BE ACCEPTABLE ON PROJECTS REQUIRED TO MEET THE BUY AMERICA ACT.
- ALL PIPING, FITTINGS, FLANGES, ETC. SHALL BE FREE FROM DEFECTS AND SHALL COMPLY WITH THE APPROPRIATE ASTM SPECIFICATIONS.
- BLACK STEEL PIPE: ASTM A53 ERW GRADE B, STANDARD WEIGHT (SCHEDULE 40) OR EXTRA STRONG (SCHEDULE 80) AS SPECIFIED.
- COPPER TUBING: ASTM B88, TYPE L OR K AS SPECIFIED.
- PVC PIPE AND FITTINGS: ASTM D1785 CLASS 150 WITH ATSM D 2564 SOLVENT CEMENT JOINT UNLESS OTHERWISE SPECIFIED. SCHEDULE 40. PVC PLASTIC PIPE FITTINGS: ASTM F 628, SCHEDULE 40.
- PEX-AL-HDPE DISTRIBUTION SYSTEM: ASTM F 1986 TUBING AND METAL-INSERT TYPE WITH COPPER OR STAINLESS-STEEL CRIMP RING AND MATCHING PEX-AL-HDPE TUBE DIMENSIONS. MANIFOLD: MULTIPLE-OUTLET, PLASTIC OR CORROSION-RESISTED-METAL ASSEMBLY COMPLYING WITH ASTM F 877: WITH PLASTIC OR CORROSION-RESISTANT-METAL VALVE FOR EACH OUTLET.
- PP PIPING AND FITTINGS: ASTM F 2389; CSA B137.11.
- ACRYLONITRILE BUTADIENE STYRENE (ABS) PLASTIC PIPE: ASTM D 2661, SCHEDULE 40, ASTM F 628 SCHEDULE 40. ABS PLASTIC PIPE FITTINGS: ASTM F 409, ACCESSIBLE AND REPLACEABLE, SOLVENT CEMENT AND THREADED TYPES, DRAIN PATTERN.
- CAST IRON SOIL PIPE AND FITTINGS: ASTM A74.
- WELDED BLACK STEEL FITTINGS: ASTM A234 GRADE B, 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING, OR OF WEIGHT OR SCHEDULE OF MATCHING PIPING.
- THREADED MALLEABLE IRON FITTINGS: ANSI B16.3, 150-POUND FOR STANDARD WEIGHT PIPING, 300-POUND FOR EXTRA STRONG PIPING, OR WEIGHT OR SCHEDULE OF MATCHING PIPING EITHER BLACK OR GALVANIZED TO MATCH PIPING.
- WELDED FLANGES: ASTM A181 GRADE B, 150-POUND FOR STANDARD WEIGHT, 300-POUND FOR EXTRA STRONG PIPING OR OF EQUAL WEIGHT OF CONNECTED EQUIPMENT.
- COPPER FITTINGS: WROUGHT COPPER, ANSI SPECIFICATION B16.22.
- BALL VALVES DOMESTIC WATER: BRONZE, FULLPORT, CLASS 150, THREADED. NIBCO T-585 OR EQUAL.
- PARTITION STOP VALVES: T&B B-0415, LOOSE KEY TYPE WITH WALL FLANGE.
- BALANCING COCKS 2 INCHES AND SMALLER SHALL BE ARMSTRONG, NIBCO, TACO OR WATTS.
- SOLDER: JOINTS IN COPPER PIPING ABOVE GRADE SHALL BE STAY SAFE SO SOLDER OR 95-5 SOLDER SHALL BE SILFOS OR SILVERFLOW FOR ALL REFRIGERANT PIPING JOINTS.
- CONDENSATE DRAINS SHALL BE TYPE L HARD COPPER TUBING WITH WROUGHT-COPPER FITTINGS (CAN'T BE USED FOR CONDENSING GAS-FIRED APPLICATIONS) OR PVC PIPE AND FITTINGS WHERE ALLOWED. A P-TRAP SHALL BE PROVIDED AT DRAINS.
- DOMESTIC HOT WATER, HOT WATER RETURN, AND COLD WATER PIPING SHALL BE TYPE L OR K HARD TEMPERED COPPER PIPE WITH WROUGHT-COPPER FITTINGS USING 95-5 SOLDER. PEX TUBE PIPING MAY BE USED IN LIEU OF COPPER ON SIZES 2-INCHES AND SMALLER, WHERE PIPING IS EXPOSED OUTSIDE PARTITIONS, USE TYPE L OR K HARD COPPER TUBING AND WROUGHT COPPER FITTINGS.

ROOF FLASHING: SANITARY VENT FLASHING: SEMCO 1100-3 OR 1100-5, WITH ONE-PIECE LEAD FLASHING AND COUNTERFLASHING SLEEVE.

PIPE SLEEVE: AT CONCRETE WALLS FOR FLOORS, ADJUST-TO-CRETE, PARAMOUNT, HOLE-OUT SPERZEL CRETEBLEVEE FLOOR SLEEVES SHALL EXTEND TO TOP OF CONCRETE CURBS FOR PIPING RISING THROUGH FLOORS. WALL SLEEVES SHALL BE FLUSH WITH FINISHED SURFACE, SLEEVES SHALL BE SIZED TO ALLOW 1/8 INCH CLEARANCE AROUND PIPE INSULATION. INSULATION AND COVERING SHALL BE CONTINUOUS THROUGH WALL AND FLOOR SLEEVES.

CLEANOUTS:

- FULL SIZE CLEANOUTS SHALL BE INSTALLED AT THE BASE OF EACH SOIL WASTE STACK. ALL OTHER CLEANOUTS SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND WHERE REQUIRED BY STATE, LOCAL, OR NATIONAL PLUMBING CODES.
- ALL CLEANOUTS SHALL BE INSTALLED IN LOCATIONS EASILY ACCESSIBLE FOR RODDING.

PIPE INSULATION:

- ALL DOMESTIC HOT WATER, HOT WATER RECIRCULATION AND COLD WATER PIPING SHALL BE COVERED WITH PIPE INSULATION. INSULATION THICKNESS SHALL BE 3/4 INCH FOR COLD WATER AND 1 INCH FOR HOT WATER, ADD ADDITIONAL INSULATION AS NECESSARY TO PREVENT FREEZING.
- INSULATE ALL PIPING UNDER LAVATORIES ACCESSIBLE TO PHYSICALLY HANDICAPPED WITH HOT WATER SUPPLY AND "P" TRAP PREFABRICATED INSULATION, HANDI LAV GUARD.

PIPE HANGERS:

- HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH
- PIPE 2 INCHES AND SMALLER: GRINNEL F69, PIPE 2-1/2 INCH AND LARGER: GRINNEL F65. CONCRETE INSERTS: GRINNEL 281 AND 282. RISER CLAMPS FOR COPPER PIPING: GRINNEL 261P, PLASTIC COATED. RISER CLAMPS FOR OTHER PIPING: GRINNEL 261.
- HANGER RODS SHALL CONFORM TO THE FOLLOWING: PIPE SIZE 2 INCH AND SMALLER: 3/8 INCH RODS. PIPE SIZE 2-1/2 INCH AND 3 INCH: 1/2 INCH RODS. PIPE SIZE 3 INCH AND LARGER: 5/8 INCH RODS.

PLUMBING FIXTURES:

- FIXTURES SHALL BE THE WATER SAVING TYPE WITH MAXIMUM USAGE OF 1.6 GALLONS PER FLUSH FOR WATER CLOSETS, 2.5 GALLONS PER MINUTE FOR SHOWERS, 3.0 GALLONS PER MINUTE FOR SERVICE SINKS, 1.0 GALLON PER FLUSH FOR URINALS, 0.5 GALLONS PER MINUTE FOR PUBLIC LAVATORIES, 2.2 GALLONS PER MINUTE FOR PRIVATE LAVATORIES AND 2.2 GALLONS PER MINUTE FOR SINKS.
- ALL FIXTURES SHALL BE CAULKED TO THE FLOOR OR WALL WITH WATER RESISTANT WHITE BUTYL RUBBER CAULKING COMPOUND. TRIM FOR SHALL MATCH IN DESIGN. SUPPLY FAUCETS SHALL HAVE RENEWABLE SEATS AND BARRELS.

PLUMBING EQUIPMENT

VALVES:

MANUFACTURER: WATTS, MILWAUKEE, CRANE, KENNEDY, STOCKHAM, MISSON, GRINNEL, KEYSTONE, OR NIBCO

PIPE HANGERS & SUPPORTS:

MANUFACTURER: GRINNEL, ELLEN, KIN-LINE, UNI-STRUT, F&S, B-LINE, MICHIGAN, OR PIPING TECHNOLOGY & PRODUCTS

INSULATION:

MANUFACTURER: /CERTANTEED, MANVILLE, PITTSBURGH, ARMSTRONG, LSP PRODUCTS, OR OWENS-CORNING

PLUMBING SUPPLY STOPS:

MANUFACTURER: EASTMAN, CRANE, KOHLER, WOLVERINE, MCGUIRE, BRASSCRAFT, EBC, ZURN

PRESSURE REDUCING VALVES:

MANUFACTURER: WATTS SERIES 223, ZURN OR WILKINS

P-TRAPS:

MANUFACTURER: AMERICAN STANDARD, KOHLER, MCGUIRE, BRASSCRAFT, DEARBORN, EBC

EXECUTION

SURFACE CONDITIONS:

- INSPECTIONS: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES. THE ORIGINAL DESIGN, AND REFERENCED STANDARDS.
- DISCREPANCIES:
 - IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER.
 - DO NOT PROCEED WITH INSTALLATION IN AREAS OF DISCREPANCY UNTIL ALL SUCH DISCREPANCIES HAVE BEEN FULLY RESOLVED. INTERFERENCES BETWEEN INSTALLED WORK OF VARIOUS TRADES DUE TO LACK OF COORDINATION SHALL BE RESOLVED BY THE ARCHITECT/ENGINEER WHOSE DECISION IS FINAL. RELOCATES OR OFFSET ANY WORK AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES AT NO EXTRA COST TO THE OWNER WHEN SO DIRECTED BY THE ARCHITECT.

VERIFICATION OF DIMENSIONS:

- SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE ONLY. BEFORE PROCEEDING WITH WORK, CAREFULLY CHECK AND VERIFY DIMENSIONS AT SITE, AND BE RESPONSIBLE FOR PROPERLY FITTING EQUIPMENT AND MATERIALS TOGETHER AND TO THE STRUCTURE IN SPACES PROVIDED.
- DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND MANY OFFSET, BENDS, SPECIAL FITTINGS AND EXACT LOCATIONS ARE NOT INDICATED. CAREFULLY STUDY DRAWINGS AND PREMISES IN ORDER TO DETERMINE BEST METHODS, EXACT LOCATIONS, ROUTES, BUILDING OBSTRUCTIONS, AND INSTALL APPARATUS AND EQUIPMENT IN AVAILABLE LOCATIONS. INSTALL APPARATUS AND EQUIPMENT IN MANNER AND IN LOCATIONS TO AVOID OBSTRUCTIONS, PRESERVE HEADROOM, AND KEEP OPENINGS AND PASSAGEWAY CLEAR.

LOCATION AND SPACE REQUIREMENTS:

- CONTRACTOR SHALL FULLY INFORM HIMSELF REGARDING PECULIARITIES AND LIMITATION OF SPACES AVAILABLE FOR INSTALLATION OF WORK UNDER THIS DIVISION. DRAWINGS INDICATE DESIRED LOCATION AND ARRANGEMENT OF PIPING, EQUIPMENT AND OTHER ITEMS AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. WORK SPECIFIED AND NOT CLEARLY DEFINED BY DRAWINGS SHALL BE INSTALLED AND ARRANGED IN A SATISFACTORY MANNER. IN ANY CASE AND AT ANY TIME A CHANGE IN LOCATION REQUIRED BY OBSTACLES OR THE INSTALLATION OF OTHER TRADES NOT SHOWN ON THE PLUMBING PLANS SHALL BE MADE BY CONTRACTOR WITHOUT ADDITIONAL CHARGE PROVIDED THE CHANGE IS ORDERED BEFORE WORK IS INSTALLED AN NO EXTRA MATERIALS ARE REQUIRED.
- VERIFY ALL SPACES, DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- OBTAIN ALL NECESSARY ROUGH IN DATA AND DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- MAINTAIN AMPLE HEADROOM CLEARANCES AND ACCESSIBILITY. MAINTAIN CEILING HEIGHTS.
- CONSTANTLY CHECK WORK OF OTHER TRADES TO PREVENT INTERFERENCE WITH THIS INSTALLATION.

CUTTING AND PATCHING: CUT WORK AND PATCH PER DIVISION 1 AS NECESSARY TO PROPERLY INSTALL NEW WORK. AS THE WORK PROGRESSES, COORDINATE NECESSARY OPENINGS, HOLES, CHASES, ETC., IN THEIR CORRECT LOCATION. IF THE REQUIRED OPENINGS, HOLES AND CHASES ARE NOT IN THEIR CORRECT LOCATIONS, MAKE THE NECESSARY CORRECTIONS AT NO COST TO THE OWNER. AVOID EXCESSIVE CUTTING AND DO NOT CUT STRUCTURAL MEMBERS WITHOUT THE CONSENT OF THE ARCHITECT. PATCHING BY GENERAL CONTRACTOR AT MECHANICAL PLUMBING OR FIRE PROTECTION CONTRACTOR'S EXPENSE. INCLUDE AS PART OF THE WORK UNDER THIS CONTRACT ALL STRUCTURAL FRAMING REQUIRED BY PENETRATIONS THROUGH THE ROOF AND NECESSARY STEEL TO SUPPORT DUCTS AND PIPES BETWEEN STRUCTURAL STEEL UNLESS SHOWN ON THE STRUCTURAL DRAWINGS.

CLOSING IN OF UNFINISHED WORK: COVER NO WORK UNTIL INSPECTED, TESTED, AND APPROVED. WHERE WORK IS COVERED BEFORE INSPECTION AND TESTING, UNCOVER IT, AND AFTER TESTED, INSPECTED, AND APPROVED, RESTORE ALL WORK TO ORIGINAL PROPER CONDITION.

EXCAVATION AND BACKFILL:

- PERFORM ALL NECESSARY EXCAVATION, SHORING AND BACKFILLING REQUIRED FOR THE PROPER LAYING OF ALL PIPES AND CONDUITS INSIDE THE BUILDING AND PREMISES, AND OUTSIDE AS MAY BE NECESSARY. CONFORM TO DIVISION 2 REQUIREMENTS. REMOVE AL EXCESS EXCAVATED MATERIAL FROM THE SITE OR DISPOSE OF ON SITE AS DIRECTED BY GENERAL CONTRACTOR.
- EXCAVATE ALL TRENCHES OPEN CUT, KEEP TRENCH BANKS AS NEARLY VERTICAL AS PRACTICABLE, AND SHEET AND BRACE TRENCHES WHERE REQUIRED FOR STABILITY AND SAFETY. EXCAVATE TRENCHES TRUE TO LINE AND MAKE BOTTOMS NOT LESS THAN 18" WIDE BUT NO TRENCH DEEPER THAN NECESSARY TO PROVIDE AMPLE WORK ROOM. GRADE TRENCH BOTTOMS ACCURATELY TO PROVIDE UNIFORM BEARING AND SUPPORT FOR EACH SECTION OF PIPE ON UNDISTURBED SOIL ALONG ITS ENTIRE LENGTH.

C. PROVIDE BACKFILLING AND COMPACTION IN ACCORDANCE WITH REQUIREMENT OF DIVISION 2 AND UNDER DIRECTION OF THE ARCHITECT AND THE OWNER'S TESTING FIRM TO THE REQUIRED DENSITY. MAKE THE FIRST 2" OF FILL IN 6" LAYERS, EACH THOROUGHLY COMPACTED AS DIRECTED, AND FREE FROM ROCKS, LARGE CLODS OF EARTH, LEAVES, BRANCHES, AND DEBRIS. COMPACT THE REST OF THE BACKFILL TO PREVENT SETTLEMENT AS DIRECTED, USING IN THE BACKFILL NO ROCKS LARGER THAN 4" IN DIAMETER, AND USING NO ROCKS AT ALL IN THE TOP 12".

ACCESSIBILITY:

- INSTALL VALVES, DAMPERS, THERMOMETERS, GAUGES, TRAPS, CLEANOUTS, CONTROL DEVICES OR OTHER SPECIALITIES REQUIRING READING, ADJUSTMENT, INSPECTION, REPAIRS, REMOVAL, OR REPLACEMENT CONVENIENTLY AND ACCESSIBLY THROUGHOUT THE FINISHED BUILDING. WHERE ANY OF THESE DEVICES ARE SHOWN ON THE CONTRACT DRAWINGS TO BE INSTALLED ABOVE ANY INACCESSIBLE CEILINGS, THE MECHANICAL CONTRACTOR SHALL FURNISH ACCESS DOORS OR PANELS AS REQUIRED.
- ALL ACCESS DOORS OR PANELS IN WALLS AND CEILINGS REQUIRED FOR ACCESS TO CONTROL DEVICES, TRAPS, VALVES AND SIMILAR DEVICES ARE TO BE FURNISHED AND INSTALLED AS PART OF THE WORK UNDER THIS SECTION. PROVIDE TYPE AS SPECIFIED UNDER DIVISION 8. ACCESS PANELS TO MATCH RATING AND FINISH OF ADJACENT SURROUNDINGS.
- PROVIDE DUCTS WHICH PIERCE A FIRE SEPARATION WITH FIRE DAMPERS OF SAME FIRE RATING AS THE SEPARATION.
- REFER TO DRAWINGS AND "FINISH SCHEDULE" FOR TYPE OF WALL AND CEILING IN EACH AREA AND FOR RATED CONSTRUCTION.
- COORDINATE WORK OF VARIOUS SECTIONS TO LOCATED VALVES, TRAPS, AND DAMPERS WITH OTHERS TO AVOID UNNECESSARY DUPLICATION OF ACCESS DOORS.

ROUGH FLASHINGS: FLASH AND COUNTERFLASH ALL PIPING, CONDUITS AND DUCTWORK PENETRATING ROOFING MEMBRANE WITH FLASHING PER ROOFING MANUFACTURER'S RECOMMENDATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILING OF DUCT AND PIPE PENETRATIONS THROUGH ROOF. EQUIPMENT ROUGH-IN:

- ROUGH-IN ALL EQUIPMENT AND FIXTURES AS DESIGNATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. THE DRAWINGS INDICATE ONLY THE APPROXIMATE LOCATION OF ROUGH-INS. THE EXACT ROUGH-IN LOCATIONS MUST BE DETERMINED FROM LARGE-SCALE CERTIFIED DRAWINGS. THE CONTRACTOR SHALL OBTAIN ALL CERTIFIED ROUGH-IN INFORMATION BEFORE PROGRESSING WITH ANY WORK FOR ROUGH-IN FINAL CONNECTIONS.
- BE RESPONSIBLE FOR PROVIDING ALL OUTLETS AND SERVICES OF PROPER SIZE AT THE REQUIRED LOCATIONS.
- MINOR CHANGES IN THE CONTRACT DRAWINGS SHALL BE ANTICIPATED AND PROVIDED FOR UNDER THIS DIVISION OF THE SPECIFICATIONS.
- ROUGH-IN ONLY (UNLESS OTHERWISE DESIGNATED ON THE DRAWINGS) SHALL INCLUDE THE FOLLOWING:
 - PLUMBING: PROVIDE ALL SERVICES DESIGNATED AND REQUIRED, INCLUDING WASTE AND WATER, VALVE AND CAP STUB-OUTS FOR WATER AND GAS. CAP ALL WASTE AND VENT OUTLETS.

OWNER-FURNISHED AND OTHER EQUIPMENT:

- ROUGH-IN ONLY FOR ALL OWNER-FURNISHED EQUIPMENT (SEE DIVISION 1) AND ALL EQUIPMENT FURNISHED UNDER OTHER SECTIONS OF THE SPECIFICATIONS, EXCEPT AS OTHERWISE SPECIFIED AND/OR NOTED ON THE DRAWINGS.
- PROVIDE ALL SERVICES DESIGNATED, VALVE AND CAP ALL PIPING, CAP ALL WASTE PIPING AND LEAVE IN A CLEAN ORDERLY MANNER.
- ROUGH-IN REQUIREMENTS SHALL BE AS OUTLINED IN THE PRECEDING PARAGRAPH TITLED "EQUIPMENT ROUGH-IN".

EQUIPMENT FINAL CONNECTIONS:

- PROVIDE ALL PIPING FINAL CONNECTIONS FOR ALL EQUIPMENT UNDER DIVISION 22 AS REQUIRED HEREIN SPECIFIED AND INDICATED ON THE DRAWINGS.
- PLUMBING: PROVIDE FINAL PLUMBING CONNECTIONS COMPLETE WITH SHUTOFF VALVES, RISERS, TRAPS, VACUUM BREAKERS AND INDIRECT WASTES FOR ALL EQUIPMENT FURNISHED AND INSTALLED UNDER OTHER SECTIONS OF THESE SPECIFICATIONS, EXCEPT AS OTHERWISE DESIGNATED. INCLUDE UNDER THE PLUMBING SECTION OF THE SPECIFICATIONS ARE THE FINAL CONNECTIONS TO THE FOLLOWING:
 - MISCELLANEOUS EQUIPMENT SPECIFIED TO BE FURNISHED AND INSTALLED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS.
 - COLD WATER MAKE-UP CONNECTIONS TO HYDRONIC EQUIPMENT,
 - KITCHEN EQUIPMENT, FURNISHED UNDER OTHER SECTIONS OF THE SPECIFICATIONS.

MACHINERY ACCESSORIES:

- APPLICATION: DO NOT INSTALL ANY EQUIPMENT IN AN APPLICATION NOT RECOMMENDED BY THE MANUFACTURER.
- INSTALLATION: ALIGN, LEVEL, AND ADJUST ALL EQUIPMENT FOR PROPER OPERATION. INSTALL SO CONNECTING AND DISCONNECTING OF PIPING AND ACCESSORIES CAN READILY BE DONE AND SO ALL PARTS ARE READILY ACCESSIBLE FOR INSPECTION, SERVICE, AND REPAIR. INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

PIPE AND EQUIPMENT SUPPORTS:

- WHERE SUPPORTS, FOUNDATIONS, STANDS, SUSPENDED PLATFORMS FOR MACHINERY, TANKS, OR OTHER EQUIPMENT ARE INDICATED OR SPECIFIED, PERFORM THE FOLLOWING:
 - LOCATE SUPPORT MEMBERS TO AVOID EQUIPMENT STRAINS AND INTERFERENCE WITH PIPING CONNECTIONS, TUBE PULLING OR OTHER MAINTENANCE OPERATIONS.
 - WHERE SADDLES ARE REQUIRED, USE CAST IRON OR WELDED STEEL SADDLES WITH CURVATURE TO FIT THE TANK SHELL.
 - MOUNT POWER-DRIVEN EQUIPMENT ON COMMON BASE WITH DRIVER.
- CONCRETE INSERTS: FURNISH AND INSTALL ALL CONCRETE INSERTS REQUIRED FOR ALL MATERIAL AND EQUIPMENT SPECIFIED AND/OR SHOWN ON THE DRAWINGS FOR DIVISION 22.
- CONCRETE FOUNDATIONS: WORK UNDER THIS SECTION INCLUDES COORDINATION OF CONSTRUCTION OF ALL CONCRETE FOUNDATIONS INDICATED OR REQUIRED FOR EQUIPMENT SPECIFIED HEREIN OR IN OTHER SECTIONS UNDER DIVISION 22. MATERIAL AND WORKMANSHIP SHALL BE DESCRIBED UNDER DIVISION 3.
- GROUT UNDER ALL EQUIPMENT AFTER LEVELING, FILLING COMPLETELY THE SPACE BETWEEN MACHINERY BED PLATE AND FOUNDATION SURFACE AS SPECIFIED IN DIVISION 3. FINISH EXPOSED SURFACE OF GROUT FOR A NEAT APPEARANCE.
- FLOOR STANDS: WHERE EQUIPMENT IS MOUNTED STANDARD OR ON LEGS, CONSTRUCT OF STRUCTURAL STEEL OR STEEL PIPE AND FITTINGS, CROSS-BRACE AND FASTEN WITH FLANGES OR PLATES BOLTED TO FLOOR.
- CELLING OR WALL SUPPORTS: USE SUSPENDED PLATFORM, STRAP HANGERS, BRACKET OR SHELF, WHICH EVER IS MOST SUITABLE FOR EQUIPMENT AND LOCATION. CONSTRUCT OF STRUCTURAL STEEL MEMBERS, STEEL PLATING, RODS OR PIPE AS REQUIRED. CROSS-BRACE AND FASTEN TO BUILDING STRUCTURE OR INSERTS IN AN APPROVED MANNER.
- STEEL WORK: NEATLY FABRICATE AND ERECT STEEL WORK WITH BURRS AND WELDING SPATTER GROUND OFF. PAINT AFTER FABRICATION WITH A RUST-INHIBITIVE PRIMER.

HANGER AND SUPPORTS:

- HOLD HORIZONTAL PIPE RUNS FIRMLY IN PLACE USING APPROVED STEEL AND IRON HANGERS, SUPPORTS, AND/OR PIPE REST UNLESS OTHERWISE INDICATED. SUSPEND HANGER RODS FROM CONCRETE INSERTS OR FROM APPROVED BRACKETS, CLAMPS OR CLIPS. HANG PIPES INDIVIDUALLY OR IN GROUPS IF SUPPORTING STRUCTURE IS ADEQUATE TO SUPPORT WEIGHT OF PIPING AND FLUID. EXCEPT FOR BURIED PIPING, HANG OR SUPPORT PIPE RUNS SO THAT THEY MAY EXPAND OR CONTRACT FREELY WITHOUT STRAIN TO PIPE OR EQUIPMENT.
 - HORIZONTAL STEEL PIPING: PROVIDE HANGERS OR SUPPORTS EVERY 10 FT. EXCEPT EVERY 8 FT. FOR PIPING 1-1/4 INCH AND SMALLER.
 - HORIZONTAL COPPER TUBING: FOR 2 INCH DIAMETER AND OVER, PROVIDE HANGERS EVERY 10 FEET. FOR 1-1/2 INCH DIAMETER AND SMALLER EVERY 6 FEET.
 - HORIZONTAL CAST-IRON NO-HUB PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH SIDE OF NO-HUB FITTINGS. PROVIDE ANTI-SEPARATION BRACING AT EACH 90 DEGREE CHANGE IN DIRECTION.
 - HORIZONTAL CAST IRON HUB AND SPIGOT PIPING: PROVIDE HANGERS OR SUPPORTS AT EACH HUB.
 - VERTICAL PIPING: SUPPORT AT FLOOR WITH IRON PIPE CLAMPS.

TEST:

- PERFORM TEST TO ARCHITECT'S SATISFACTION. MAKE TEST IN PRESENCE OF OWNER'S REPRESENTATIVE AND AT THE TIME SUITABLE TO HIM IF REQUESTED. FURNISH NECESSARY LABOR AND EQUIPMENT AND BEAR COST FOR TESTING. COST OF REPLACING AND/OR REPAIRING

DAMAGE RESULTING THEREFORE SHALL BE BORNE BY THIS CONTRACTOR, SHOULD THE CONTRACTOR REFUSE OR NEGLECT TO MAKE TEST NECESSARY TO SATISFY THE ARCHITECT THAT REQUIREMENT OF SPECIFICATIONS AND DRAWINGS ARE MET, SUCH TESTS MAY BE MADE BY AN INDEPENDENT TESTING COMPANY AND THE CONTRACTOR CHARGED FOR ALL EXPENSES.

B. HYDROSTATIC TEST: MAKE BY COMPLETELY FILLING PIPING SYSTEM WITH WATER AND ELIMINATING ACCUMULATIONS OF AIR SO THAT LE

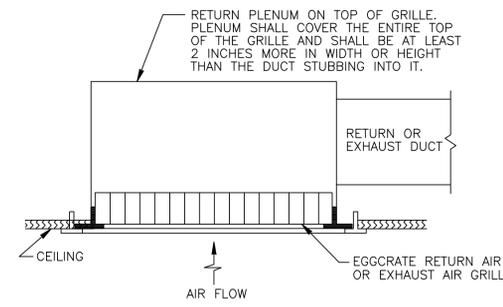
MECHANICAL LEGEND

HVAC	
SYMBOL	DESCRIPTION
	SUPPLY AIR DIFFUSER (4-WAY, 3-WAY, 2-WAY, 1-WAY)
	RETURN GRILLES
	EXHAUST GRILLES
	FLEXIBLE CONNECTION
	SUPPLY AIR DUCT (UP, DOWN)
	RETURN AIR DUCT (UP, DOWN)
	EXHAUST AIR DUCT (UP, DOWN)
	ROUND DUCT DOWN
	ROUND DUCT UP
	DUCT TRANSITION
	DUCT CHANGE IN ELEVATION; R= RISE, D= DROP
	MANUAL VOLUME CONTROL BALANCE DAMPER
	MOTORIZED DAMPER
	ELBOW WITH TURNING VANES
	ELBOW ROUND
	INDICATES AIR FLOW DIRECTION
	SENSOR
	THERMOSTAT
	AIR DEVICE (X-1) / AIRFLOW (CFM)
	EQUIPMENT IDENTIFICATION
	INDICATED TAG OR SHEET NOTE

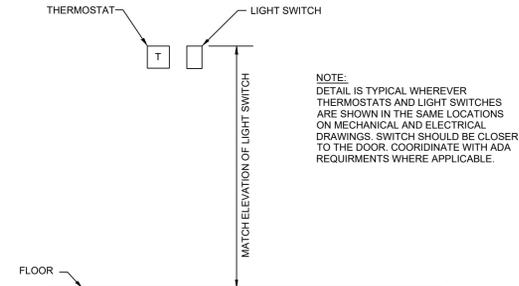
ABBREVIATIONS	
AHU-X	AIR HANDLING UNIT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CF-X	CEILING FAN
CFM	CUBIC FEET PER MINUTE
EF-X	EXHAUST FAN
EH-X	ELECTRIC HEATER
ESP	EXTERNAL STATIC PRESSURE
HP	HORSEPOWER
HP-X	HEAT PUMP UNIT
IRH-X	INFRARED RADIANT HEATER
KW	KILOWATT
L-X	LOUVER
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
R-X	RETURN AIR DEVICE
S-X	SUPPLY AIR DEVICE
SEF-X	SIDEWALL EXHAUST FAN
TG-X	TRANSFER GRILLE DEVICE

MECHANICAL NOTES

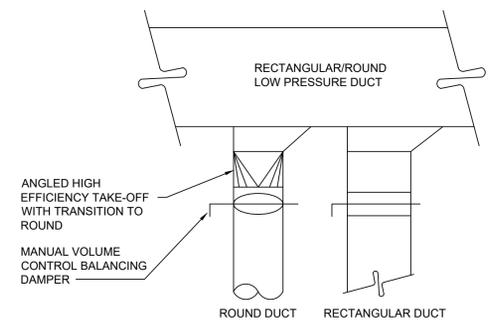
- REFER TO THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- ALL MECHANICAL WORK SHALL BE PERFORMED BY A LICENSED MECHANICAL CONTRACTOR.
- ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF DUCTWORK, PIPING, EQUIPMENT, AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, SEQUENCE, DEVICE, OPTION, FITTING, VALVE, OR COMPONENT. CONTRACTOR TO PROVIDE ANY ADDITIONAL DUCT OR PIPING OFFSETS AND/OR FITTINGS, INCLUDING DIVIDED DUCTS AND FLATTENED DUCTS, REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN CLEARANCES AS ENCOUNTERED IN THE FIELD.
- THE MECHANICAL CONTRACTOR SHALL COORDINATE ROUTING AND INSTALLATION OF MECHANICAL DUCTWORK, PIPING, AND EQUIPMENT WITH ALL OTHER DISCIPLINES AND TRADES INCLUDING BUT NOT LIMITED TO ARCHITECTURAL, PLUMBING, AND ELECTRICAL.
- REFER TO THE ENTIRE SET OF CONSTRUCTION DOCUMENTS FOR DETAILS OF INSTALLATION REQUIREMENTS. FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR COMPLETE, OPERATIONAL, AND FULLY FUNCTIONAL MECHANICAL SYSTEMS IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS, INCLUDING BUT NOT LIMITED TO THE KENTUCKY BUILDING CODE, ASHRAE, IMC, IECC, SMACNA, AND NFPA.
- THE EXACT LOCATIONS OF ALL EQUIPMENT, DUCTS, DIFFUSERS, ETC. SHALL BE COORDINATED WITH ALL OTHER TRADES. CEILING MOUNTED LIGHTING AND ELECTRICAL DEVICES TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL EQUIPMENT. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING GRID AND LIGHTING LAYOUT FOR COORDINATION OF FINAL DIFFUSER LOCATIONS.
- CONTRACTOR SHALL VISIT THE JOB SITE, FIELD VERIFY FIT, COORDINATE WITH OTHER TRADES, AND BECOME FAMILIAR WITH ALL PROJECT CONDITIONS PRIOR TO FABRICATING DUCTWORK. INSTALLING EQUIPMENT, ETC. NO ALLOWANCES OR CHANGE ORDERS WILL BE ALLOWED FOR LACK THEREOF.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR ALL PERMITS, TESTING, AND INSPECTIONS.
- THE ENTIRE MECHANICAL INSTALLATION SHALL BE AS REQUIRED TO MAINTAIN FIRE/SMOKE RATINGS AND/OR "UL" ASSEMBLY RATINGS AS REQUIRED BY THE CONTRACT DOCUMENTS AND AS SHOWN ON THE ARCHITECTURAL AND MECHANICAL DRAWINGS. SEAL AROUND ALL PENETRATIONS THROUGH ALL FIRE/SMOKE SEPARATIONS AND/OR "UL" RATED ASSEMBLIES. COORDINATE ALL PENETRATIONS WITH THE CONSTRUCTION MANAGER AND/OR GENERAL CONTRACTOR. PROVIDE ADDITIONAL FIRE DAMPERS, SMOKE DETECTORS, AND SMOKE DAMPERS (INCLUDING OF WIRING) AS REQUIRED FOR A FULLY FUNCTIONAL AND CODE COMPLIANT SYSTEM.
- ALL DUCTWORK, PIPING, AND MECHANICAL EQUIPMENT SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE. NO OTHER TRADES, I.E. ELECTRICAL, CEILING, PLUMBING, ETC., SHALL BE SUSPENDED, HUNG, OR SUPPORTED FROM MECHANICAL DUCTWORK OR MECHANICAL PIPING.
- ALL EXTERIOR BUILDING PENETRATIONS MUST BE COORDINATED WITH THE ARCHITECT AND SHALL BE FLASHED AND SEALED WEATHER-TIGHT. ALL MATERIALS AND COLORS MUST BE PRE-APPROVED BY THE ARCHITECT. NEW OPENINGS AND/OR PENETRATIONS FOR MECHANICAL ITEMS SHALL BE CUT, SLEEVED, ETC. BY THE MECHANICAL CONTRACTOR.
- ROUTE DUCTWORK AS HIGH AS POSSIBLE TO FACILITATE ACCESS TO ABOVE CEILING SPACE. COORDINATE ROUTING WITH OTHER SERVICES AND TRADES. PROVIDE ADDITIONAL DUCTWORK, OFFSETS, ETC. TO ACCOMMODATE FIELD CONDITIONS AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM AT NO ADDITIONAL COST. ADDITIONAL OFFSETS REQUIRE APPROVAL FROM THE ENGINEER. ROUTE DUCTWORK BETWEEN JOISTS WHERE POSSIBLE.
- ALL AIR DEVICES LOCATED ABOVE GYPBOARD OR HARD CEILINGS SHALL HAVE ACCESSIBLE BALANCING DAMPERS.
- ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
- PROVIDE AND INSTALL DUCT ACCESS DOORS FOR INSPECTION OF ALL INSTALLED FIRE DAMPERS AS DIRECTED BY SMACNA HVAC CONSTRUCTION STANDARDS.
- MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'-0". ALL FLEXIBLE DUCT SHALL CONFORM TO THE REQUIREMENTS OF UL 181 FLEXIBLE AIR DUCTS. SUPPORT TO ELIMINATE SAGGING AND KINKING. INSULATED FLEXIBLE DUCTS SHALL MEET MINIMUM R-VALUES REQUIRED BY ENERGY CODE.
- ALL HVAC EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. UTILIZE FACTORY FILTERS DURING CONSTRUCTION.
- THE MECHANICAL CONTRACTOR SHALL BALANCE SYSTEM TO AIR QUANTITIES INDICATED ON PLANS AND PROVIDE OWNERS REPRESENTATIVES WITH COMPLETE NEBB/AABC BALANCE REPORT. THE MECHANICAL CONTRACTOR SHALL PROVIDE AS MANY ADDITIONAL SITE VISITS BY THE LICENSED TAB CONTRACTOR AS REQUIRED BY THE ENGINEER FOR A COMPLETE AND FUNCTIONING AND APPROVED SYSTEM IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.
- ALL RECTANGULAR 90 DEG. AND 45 DEG. ELBOWS SHALL HAVE TURNING VANES.
- PROVIDE A MANUAL VOLUME DAMPER AT ALL BRANCH TAKE-OFFS ON SUPPLY, RETURN, AND OUTSIDE AIR DUCTWORK AT NO ADDITIONAL COST. PROVIDE A MAIN RETURN DAMPER UPSTREAM OF OUTSIDE AIR CONNECTIONS IN RETURN AIR PLENUM DESIGNS. COORDINATE ADDITIONAL MANUAL VOLUME DAMPER LOCATIONS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM WITH THE ENGINEER PRIOR TO ORDER, FABRICATION, OR INSTALLATION.
- ALL DUCT DIMENSIONS SHOWN ARE INTERIOR "CLEAR" DUCT DIMENSIONS.
- MAINTAIN 10'-0" MINIMUM CLEARANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST, PLUMBING VENTS, ETC. AND/OR AS REQUIRED BY IMC, WHICHEVER IS MORE STRINGENT.
- ALL CONTROL WIRING AND CONDUIT SHALL COMPLY WITH NEC. ANY WIRING ROUTED IN EXPOSED/OPEN CEILING AREAS, ABOVE INACCESSIBLE CEILINGS, OR THROUGH WALLS SHALL BE INSTALLED IN CONDUIT.
- MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND DRAWINGS FOR CONNECTIONS TO ALL HVAC EQUIPMENT.
- STRUCTURAL MEMBERS SHALL NOT BE CUT OR COMPROMISED IN ANY WAY.
- DO NOT BLOCK ACCESS TO HVAC OR ELECTRICAL EQUIPMENT. DO NOT INSTALL PIPING, DUCTWORK, OR EQUIPMENT OVER ELECTRICAL PANELS/SWITCHGEAR OR THE 42" CLEARANCE IN FRONT OF THESE ELECTRICAL ITEMS. COORDINATE ADDITIONAL REQUIREMENTS WITH NEC.
- MAINTAIN CLEARANCES AROUND ALL HVAC EQUIPMENT, DEVICES, CONTROLLERS, ETC. PER MANUFACTURER'S RECOMMENDATIONS.



1 CEILING RETURN DETAIL
NOT TO SCALE



2 THERMOSTAT MOUNTING DETAIL
NOT TO SCALE



3 LOW PRESSURE BRANCH TAKEOFF DETAIL
NOT TO SCALE

EPPERSON ENGINEERING
112 W. UNIVERSITY DR.
SOMERSET, KY 42503
EPPERSONENG.COM
1-800-802-7885

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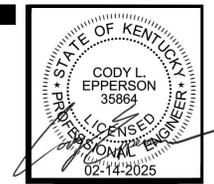
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DATE: FEBRUARY 2025	SCALE: AS NOTED			

MSE OF KENTUCKY, INC.
Engineers
Architects
Planners

624 Wellington Way
Lexington, KY 40503
Phone: (859) 223-5894
Fax: (859) 223-2807
www.msekb.com

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
M0	HVAC LEGEND & NOTES
M1	HVAC PLAN
M6.1	HVAC SCHEDULES
M6.2	HVAC SCHEDULES
M7	HVAC SPECIFICATIONS

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M0



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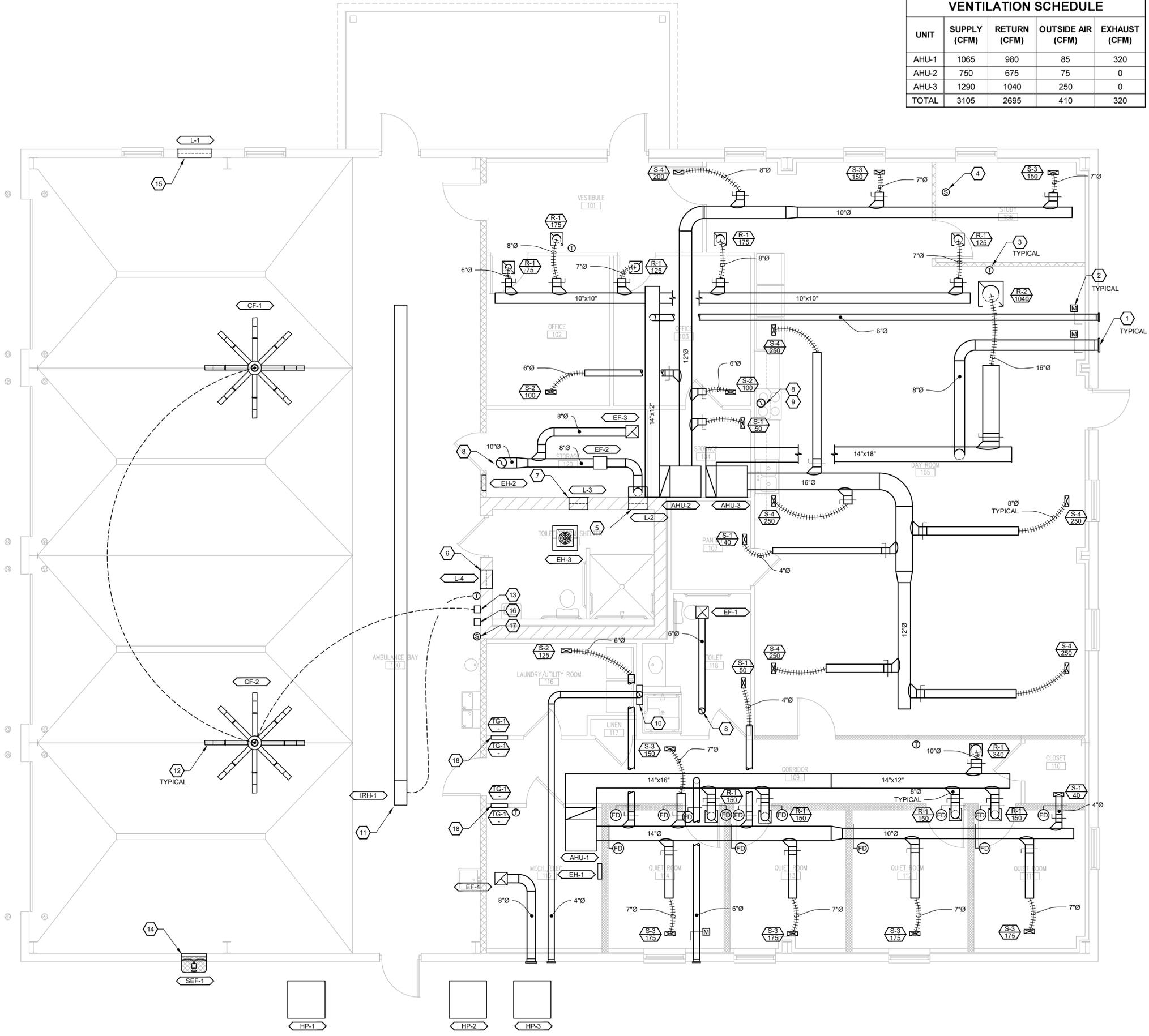
VENTILATION SCHEDULE				
UNIT	SUPPLY (CFM)	RETURN (CFM)	OUTSIDE AIR (CFM)	EXHAUST (CFM)
AHU-1	1065	980	85	320
AHU-2	750	675	75	0
AHU-3	1290	1040	250	0
TOTAL	3105	2695	410	320

GENERAL NOTES

- REFER TO SHEET M0.
- EXTERIOR HVAC EQUIPMENT SHOWN SHALL BE LOCATED ON POURED CONCRETE PAD.
- FURNACES TO BE VERTICAL UPFLOW TYPE, MOUNTED ON MINIMUM 18" TALL STANDS WITH 1" FILTER HOUSINGS.
- PROVIDE FLEXIBLE DUCT CONNECTOR ON SUPPLY SIDE OF EACH FURNACE.
- ALL REFRIGERANT PIPING AND CONTROL WIRING TO BE CONCEALED FROM VIEW (I.E. ROUTED INSIDE EXTERIOR WALLS TO ATTIC SPACE).
- ALL DUCT WORK AND EXHAUST FANS SHALL BE LOCATED IN ATTIC SPACE UNLESS OTHERWISE NOTED.
- CONDENSATE PIPING ASSOCIATED WITH INDOOR HVAC EQUIPMENT SHALL ROUTE TO FLOOR DRAIN LOCATED IN ROOM. REFER TO PLUMBING PLAN ON SHEET P1.
- PROVIDE HIGH EFFICIENCY TAKEOFFS (HETOS) FOR ALL SUPPLY BRANCH DUCTS.
- MAINTAIN A MINIMUM 10' CLEARANCE BETWEEN ALL BUILDING INTAKE OPENINGS AND EXHAUST OUTLETS.
- EACH FURNACE SHALL UTILIZE CONCENTRIC VENT KIT THROUGH ROOF.
- MAINTAIN RATINGS OF ALL WALLS AND CEILINGS PENETRATED. REFER TO ARCHITECTURAL SHEETS FOR ADDITIONAL INFORMATION.

SHEET NOTES

- PROVIDE HOODED WALL CAP WITH INSECT SCREEN, VERIFY COLOR/FINISH WITH ARCHITECT. WALL CAPS USED FOR EXHAUST SHALL HAVE INTEGRAL BACKDRAFT DAMPER. TYPICAL.
- PROVIDE OUTSIDE AIR DUCT WITH MOTORIZED DAMPER LOCATED DIRECTLY INSIDE BUILDING ENVELOPE AS INDICATED. DAMPER SHALL BE POWERED FROM FURNACE. CONTRACTOR SHALL UPSIZE LOW VOLTAGE TRANSFORMER AS NECESSARY. DAMPER OPERATION SHALL BE INTERLOCKED WITH BLOWER MOTOR TO OPEN WHEN BLOWER IS ACTIVATED. TYPICAL.
- PROVIDE WALL MOUNTED THERMOSTAT 48" AFF. ROUTE CONTROL WIRING CONCEALED BACK TO UNIT. TYPICAL.
- PROVIDE WALL MOUNTED WIRED TEMPERATURE SENSOR 48" AFF. SENSOR SHALL PAIR WITH ASSOCIATED THERMOSTAT FOR WEIGHTED TEMPERATURE AVERAGING OF AREAS SERVED. WEIGHTED AVERAGES SHALL BE AS FOLLOWS: THERMOSTAT = 50%, SENSOR = 50%.
- PROVIDE 18"x18" TORNADO IMPACT RESISTANT LOUVER ASSEMBLY IN CONCRETE WALL 6'-6" AFF WITH PLENUM BACK BOX FOR BATHROOM EXHAUST DUCT ROUTING TO ATTIC. COMPLETE TORNADO ASSEMBLY IS REQUIRED.
- PROVIDE 18"x18" TORNADO IMPACT RESISTANT SIGHT PROOF LOUVER ASSEMBLY IN CONCRETE WALL 1'-0" AFF TO BOTTOM OF LOUVER. COMPLETE TORNADO ASSEMBLY IS REQUIRED.
- PROVIDE 18"x18" TORNADO IMPACT RESISTANT SIGHT PROOF LOUVER ASSEMBLY IN CONCRETE WALL 6'-6" AFF TO BOTTOM OF LOUVER. COMPLETE TORNADO ASSEMBLY IS REQUIRED.
- ROUTE EXHAUST DUCT UP THROUGH ROOF AND TERMINATE AT HOODED ROOF CAP WITH INTEGRAL BACKDRAFT DAMPER AND INSECT SCREEN. COORDINATE COLOR/FINISH WITH ARCHITECT.
- PROVIDE STAINLESS STEEL DUCT COVER OVER PORTION OF EXHAUST DUCT BELOW CEILING. SEE ARCHITECTURAL SHEETS. COORDINATE EXHAUST DUCT SIZE/REQUIREMENTS WITH OWNER FURNISHED COOKING RANGE HOOD.
- PROVIDE RECESSED DRYER VENT BOX (DRYERBOX MODEL 425 OR EQUIVALENT). DRYER VENT SHALL BE ROUTED FROM DRYER BOX UP INSIDE WALL TO ATTIC SPACE AND TERMINATE AT EXTERIOR WALL CAP WITH BACKDRAFT DAMPER (NO BIRD OR INSECT SCREEN PERMITTED). COORDINATE EXACT EXHAUST REQUIREMENTS WITH OWNER PROVIDED DRYER.
- INSTALL HANGING GAS INFRARED TUBE HEATER PER MANUFACTURER'S INSTRUCTIONS. HEATER SHALL BE MOUNTED 12" AFF TO BOTTOM OF HEATER AND VENTED THROUGH ROOF.
- INSTALL HVLS FAN PER MANUFACTURER'S INSTRUCTIONS. FAN SHALL BE MOUNTED 12' AFF TO BOTTOM OF FAN BLADES.
- PROVIDE WALL MOUNTED HEAD-END CONTROLLER FOR HVLS FANS IN SPACE. FANS SHALL BE CONTROLLED TOGETHER.
- PROVIDE SIDEWALL EXHAUST FAN MOUNTED 10' AFF TO BOTTOM OF FAN. UNIT OPERATION SHALL BE INTERLOCKED WITH ASSOCIATED LOUVER IN SPACE (SEE NOTE 15) AND SHALL BE CONTROLLED VIA WALL MOUNTED HOA SWITCH. COORDINATE WITH ELECTRICAL CONTRACTOR. TYPICAL.
- PROVIDE INTAKE LOUVER WITH ELECTRONIC ACTUATOR MOUNTED 10' ABOVE FINISHED FLOOR TO BOTTOM OF LOUVER. REFER TO SCHEDULE ON SHEET M6.2 FOR ADDITIONAL INFORMATION.
- WALL MOUNTED HOA SWITCH SERVING SIDEWALL EXHAUST FAN AND ASSOCIATED INTAKE LOUVER BY ELECTRICAL CONTRACTOR.
- PROVIDE CARBON MONOXIDE/NITROGEN DIOXIDE DETECTOR (ARMSTRONG MODEL AMC-14VCS OR EQUIVALENT) FOR AUTOMATIC CONTROL OF EXHAUST FAN/LOUVER IN SPACE. DETECTOR TO BE MOUNTED 54" AFF. COORDINATE WITH ELECTRICAL CONTRACTOR.
- PROVIDE LOUVERED WALL TRANSFER GRILLE(S), ONE 12" ABOVE ROOM FLOOR AND ONE 12" BELOW ROOM CEILING.



1 FLOOR PLAN - HVAC
1/4" = 1'-0"

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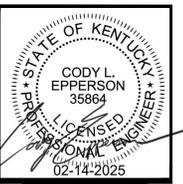
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Engineers
Architects
Planners

OF KENTUCKY, INC.
624 Wellington Way
Lexington, KY 40503
www.msekbx.com
Phone: (859) 223-5894
Fax: (859) 223-2807

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DUAL FUEL SPLIT SYSTEM SCHEDULE																	
MARK	MANUFACTURER	TYPE	MODEL	TONNAGE	COOLING		HEATING			EFFICIENCY				ELECTRICAL			NOTES
					COOLING STAGES	COOLING CAPACITY (MBH)	HEATING STAGES	HEATING CAPACITY (MBH)	AUXILIARY GAS HEAT (kBTU)	SEER2	EER2	HSPF2	AHRI #	V/Ø/Hz	MCA	MOCP	
OUTDOOR UNIT																	
HP-1	TRANE	HEAT PUMP	4TWR6024N1	2	2	24.6	2	24	-	16	12	7.8	208776063	240/1/60	15	25	1
HP-2	TRANE	HEAT PUMP	4TWR6024N1	2	2	24.6	2	24	-	16	12	7.8	208776063	240/1/60	15	25	1
HP-3	TRANE	HEAT PUMP	4TWR6048N1	4	2	45.5	2	49	-	16	11.7	7.5	208776758	240/1/60	28	45	1
INDOOR UNIT																	
AHU-1	TRANE	FURNACE/ COIL	S9X2B040U 4TXCB004DS3	*	-	*	2	*	40	*	*	*	*	120	8	15	2-7
AHU-2	TRANE	FURNACE/ COIL	S9X2B040U 4TXCB004DS3	*	-	*	2	*	40	*	*	*	*	120	8	15	2-8
AHU-3	TRANE	FURNACE/ COIL	S9X2B080U 4TXCB006DS3	*	-	*	2	*	80	*	*	*	*	120	9.5	15	2-7
NOTES: 1. PROVIDE WITH POURED CONCRETE PAD AND PUMP UPS 2. MOUNT VERTICAL ON MINIMUM 18" TALL STAND 3. PROVIDE 1" FILTER RACK AT BOTTOM SIDE OF FURNACE; PROVIDE 1" DISPOSABLE MERV-8 FILTER 4. FURNACE SHALL UTILIZE CONCENTRIC VENT THROUGH ROOF PER MANUFACTURER'S INSTRUCTIONS; COORDINATE ROOF PENETRATION WITH ROOFING CONTRACTOR 5. PROVIDE WITH PROGRAMMABLE WIFI THERMOSTAT 6. PROVIDE WIRED OUTSIDE AIR TEMPERATURE SENSOR FOR DUAL FUEL OPERATION 7. FURNACE OPERATION SHALL HAVE 2 CONTROL STAGES; 96% AFUE 8. PROVIDE REMOTE SENSOR AS INDICATED ON PLANS FOR ZONE TEMPERATURE AVERAGING; ROUTE CONTROL WIRING TO ASSOCIATED THERMOSTAT WARRANTY: 1-YEAR PART, 5-YEAR COMPRESSOR * = SEE ASSOCIATED HEAT PUMP / FURNACE / COIL FOR PAIRED SPLIT SYSTEM RATING OTHER ACCEPTABLE MANUFACTURERS: DAIKIN, CARRIER																	



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ELECTRIC HEATER SCHEDULE										
TAG	MANUFACTURER	MODEL	TYPE	CFM	BTUH	ELECTRICAL				NOTES:
						VOLTAGE	KW	FLA	MOCP	
EH-1,2	QMARK	CWH1101DSF	WALL - SEMI-RECESSED	65	3413	120	1	8.4	20	1-3
EH-3	QMARK	EFF1500	CEILING - SURFACE	150	5120	120	1.5	12.5	20	1,2,4
NOTES: 1. INTEGRAL FACTORY INSTALLED THERMOSTAT AND DISCONNECT. SET THERMOSTAT TO 60°F. 2. WHITE POWDER COAT TRIM 3. 1" SEMI-RECESSED MOUNTING FRAME 4. SURFACE MOUNT FRAME OTHER ACCEPTABLE MANUFACTURERS: MARKEL, REDDI										

EXHAUST FAN SCHEDULE													
MARK	MANUFACTURER	MODEL	TYPE	CFM	ESP (IN H2O)	SONES	DRIVE TYPE	MAX RPM	ELECTRICAL				NOTES
									V/Ø/Hz	HP	NAMEPLATE AMPS	MOCP	
EF-1	GREENHECK	SP-A125-QD	CEILING	120	0.125	<1	DIRECT	1100	115/1/60	FRAC	0.21	20	1-6
EF-2	GREENHECK	CSP-A250-QD	IN-LINE	240	0.125	1.5	DIRECT	1100	115/1/60	FRAC	0.21	20	1-6
EF-3	GREENHECK	SP-A200-QD	CEILING	200	0.125	3	DIRECT	900	115/1/60	FRAC	0.18	20	1-5,8
EF-4	GREENHECK	SP-A200-QD	CEILING	200	0.125	3	DIRECT	900	115/1/60	FRAC	0.18	20	1-5,7
NOTES: 1. PROVIDE WITH FACTORY MOUNTED UNIT DISCONNECT 2. PROVIDE WITH FACTORY MOUNTED SPEED CONTROL. ADJUST AS NECESSARY TO OBTAIN CFM INDICATED. 3. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER. 4. ROUTE EXHAUST DUCT TO ROOF CAP WITH INTEGRAL BACKDRAFT DAMPER AND INSECT SCREEN (SEE DRAWINGS) 5. SUPPORT FROM THE STRUCTURE, INCLUDE HANGING VIBRATION ISOLATION MOUNTING KIT 6. INTERLOCK OPERATION WITH LIGHTING OCCUPANCY SENSOR. COORDINATE WITH ELECTRICAL CONTRACTOR. 7. PROVIDE COOLING-ONLY LINE VOLTAGE THERMOSTAT IN SPACE FOR EXHAUST FAN CONTROL. SET THERMOSTAT TO 70°F. 8. PROVIDE WITH WALL MOUNTED SWITCH. COORDINATE WITH ELECTRICAL CONTRACTOR OTHER ACCEPTABLE MANUFACTURERS INCLUDE: COOK, PANASONIC													

HVAC INSULATION SCHEDULE			
TYPE	LOCATION	INSULATION R-VALUE	INSULATION MATERIAL
REFRIGERANT PIPING	INDOORS	3/4" THICK	ARMAFLEX
REFRIGERANT PIPING	OUTDOORS	3/4" THICK	ARMAFLEX (WITH UV PROTECTIVE COATING)
DUCTWORK	CONCEALED INDDOORS	R-4.2	FOIL BACK FIBERGLASS WRAP
DUCTWORK	CONCEALED (ATTIC)	R-8	FOIL BACK FIBERGLASS WRAP
DUCTWORK	EXPOSED INDDOORS	-	NONE
DUCTWORK	OUTDOORS	R-8	2" BOARD INSULATION W/ ALUMINUM METAL CLAD JACKETING
OUTSIDE AIR DUCTWORK	INDOORS	R-8	FOIL BACK FIBERGLASS WRAP
CONDENSATE PIPE	INDOORS	3/4" THICK	ARMAFLEX

DATE	REVISION	BY

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MSE
 OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 Phone: (859) 223-5894
 Fax: (859) 223-2807
 624 Wellington Way
 Lexington, KY 40503
 www.mselex.com

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AIR DEVICE SCHEDULE											
MARK	MANUFACTURER	MODEL	FRAME SIZE	MAX CFM	NECK SIZE	TYPE	AIR PATTERN	LOCATION & MOUNTING	MAX P.D. (IN WC)	MAX NC	NOTES
S-1	PRICE	640	4x10	100	4"Ø	MULTI SPLIT LOUVER	ADJUSTABLE	SURFACE MOUNT (CEILING)	0.05	< 20	1-4
S-2	PRICE	540	4x10	125	6"Ø	MULTI SPLIT LOUVER	ADJUSTABLE	SURFACE MOUNT (CEILING)	0.05	< 20	1-3
S-3	PRICE	540	4x12	175	7"Ø	MULTI SPLIT LOUVER	ADJUSTABLE	SURFACE MOUNT (CEILING)	0.05	< 20	1-3
S-4	PRICE	540	6x12	250	8"Ø	MULTI SPLIT LOUVER	ADJUSTABLE	SURFACE MOUNT (CEILING)	0.05	< 20	1-3
TG-1	PRICE	630	16X10	450		LOUVERED GRILLE, 3/4" SPACING	45 DEGREE	SURFACE MOUNT (WALL)	0.05	< 20	2,4
R-1	PRICE	80	12X12	630		EGG CRATE	0 DEGREE	SURFACE MOUNT (CEILING)	0.05	< 20	2,5
R-2	PRICE	80	24x24	2166		EGG CRATE	0 DEGREE	SURFACE MOUNT (CEILING)	0.05	< 20	2,5

NOTES:
1. PROVIDE WITH INSULATED BACK
2. PROVIDE WITH WHITE FINISH
3. PROVIDE WITH INTEGRATED DAMPER
4. ALUMINUM CONSTRUCTION
5. CONTRACTOR TO PROVIDE RETURN PLENUM BOX ON TOP/BEHIND GRILLE, PLENUM SHALL COVER THE ENTIRE GRILLE AND SHALL BE AT LEAST 2 INCHES MORE IN WIDTH OR HEIGHT THAN DUCT STUBBING INTO IT.

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: TITUS, KRUEGER

INFRARED HEATER SCHEDULE														
TAG	MANUFACTURER	MODEL	CONFIGURATION	LENGTH (FT)	FUEL	CAPACITY (BTUH)	STAGES	VENT SIZE	GAS PRESSURE (INCHES W.C.)	ELECTRICAL				NOTES
										VOLTAGE	KW	FLA	MOCP	
IRH-1	MODINE	IPT-75	STRAIGHT TUBE	40'	NATURAL GAS	75,000	2	4"	6.0 - 14.0	115/1/60	-	-	20	ALL

NOTES:
1. FURNISH WITH MANUAL SHUTOFF VALVE
2. FURNISH WITH HANGER KIT - CHAINS AND 'S' HOOKS
3. FURNISH WITH REMOTE WALL MOUNTED 24V THERMOSTAT, SET POINT SHALL BE 60°F
4. FURNISH WITH ALUMINIZED STEEL REFLECTOR AND END CAPS
5. FURNISH WITH NECESSARY VENT PIPING THROUGH ROOF

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: REZNOR, STERLING

SIDEWALL EXHAUST FAN SCHEDULE													
MARK	MANUFACTURER	MODEL	TYPE	CFM	ESP (IN WG)	SONES	DRIVE TYPE	RPM	ELECTRICAL				NOTES
									V/Ø/Hz	HP	MCA	MOCP	
SEF-1	GREENHECK	AER-20-03-0625-VG	SIDEWALL	1,800	0.125	6	DIRECT	684	120/1/60	1/4	4.8	15	ALL

NOTES:
1. PROVIDE WITH SHORT WALL HOUSING WITH OSHA GUARD
2. PROVIDE WITH REMOTE MOUNTED DIAL SPEED CONTROL (REFER TO PLANS FOR LOCATION)
3. PROVIDE WITH APPROPRIATE BACKDRAFT DAMPER
4. PROVIDE WITH 45 DEG. WEATHERHOOD WITH INTEGRAL INSECT SCREEN
5. PROVIDE WITH ALUMINUM PROPELLER

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: COOK, CARNES

LOUVER SCHEDULE											
MARK	MANUFACTURER	MODEL	INTAKE/ EXHAUST	SIZE (INCHES)			CFM	PRESSURE DROP (IN)	FREE AREA (SQ FT)	VELOCITY (FPM)	NOTES
				WIDTH	HEIGHT	DEPTH					
L-1	GREENHECK	EACA-601	INTAKE	33	33	6	1,800	0.05	3.17	700	ALL
L-2	GREENHECK	AFL-501	EXHAUST	18	18	5.5	250	0.05	0.75	400	1-3,7-9
L-3	GREENHECK	AFL-501	-	18	18	5.5	-	-	0.75	-	1-3,7-9
L-4	GREENHECK	AFL-501	-	18	18	5.5	-	-	0.75	-	1-3,7-9

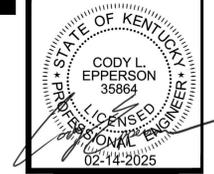
NOTES:
1. COLOR SELECTED BY ARCHITECT
2. ALUMINUM CONSTRUCTION
3. DRAINABLE BLADES
4. PROVIDE WITH INSECT SCREEN
5. PROVIDE WITH CONCEALED FACTORY MOTORIZED DAMPER
6. BLADE LINKAGE SHALL BE OUT OF AIRSTREAM (CONCEALED IN FRAME)
7. PROVIDE WITH FACTORY FLANGE FRAME
8. PROVIDE WITH MOUNTING ANGLES AS NEEDED
9. FEMA TORNADO LOUVER (ICC 500-20 TESTED)

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: UNITED ENERTECH, RUSKIN

HVLS FAN SCHEDULE										
TAG	MANUFACTURER	MODEL	DIAMETER	DRIVE	ELECTRICAL				NOTES	
					HP	VOLT/Ø/Hz	MCA	MOCP		
CF-1,2	GREENHECK	DC-5-8	8'	DIRECT	1/4	120/1/60	6.25	20	ALL	

NOTES:
1. COLOR SELECTION BY ARCHITECT
2. PROVIDE WITH UNIVERSAL MOUNTING HARDWARE AND DOWNTUBE
3. PROVIDE WITH SAFETY CABLE SECURED TO STRUCTURE, PROVIDE GUY WIRES NECESSARY FOR MODEL
4. AIR FOLDS MADE OF AIRCRAFT-GRADE ALUMINUM
5. PROVIDE WITH STANDARD TOUCHSCREEN WALL CONTROLLER (REFER TO PLANS FOR LOCATION)
6. PROVIDE WITH CAT5E CONTROL CABLE FOR DAISY CHAIN INTERCONNECTION OF FANS AND TO CONTROLLER

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: BAF, HUNTER



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

DESIGN DOCUMENTS:
The design professional warrants any and all responsibility and liability for problems which arise from failure to follow these plans, specifications and the design intent they convey.

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PROJECT NO. 5071-02	DESIGNED BY CE	DRAWN BY CE	CHECKED BY CE	REVIEWED BY CE	DATE FEBRUARY 2025	SCALE AS NOTED
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MSE OF KENTUCKY, INC.
Engineers
Architects
Planners

624 Wellington Way
Lexington, KY 40503
www.mse6ex.com

Phone: (859) 223-5894
Fax: (859) 223-2807

DRAWING NO.
M6.2

MECHANICAL SPECIFICATIONS

1. GENERAL REQUIREMENTS:

- 1.1. PROVISIONS OF THIS SECTION APPLY TO ALL WORK SPECIFIED IN ALL SECTIONS UNDER DIVISION 23.
- 1.2. IN ADDITION, WORK IN DIVISION 23 IS GOVERNED BY THE PROVISIONS OF THE BIDDING REQUIREMENTS, CONTRACT FORMS, GENERAL CONDITIONS, AND ALL SECTIONS UNDER DIVISION 1, GENERAL REQUIREMENTS.
- 1.3. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK EQUIPMENT, MATERIALS, AND LABOR TO SATISFY A COMPLETE WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.
- 1.4. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH CURRENT INTERNATIONAL MECHANICAL CODE, ALL LOCAL CODES, AND ALL OTHER REGULATION GOVERNING THE SCOPE OF WORK IN THIS PROJECT.
- 1.5. UNLESS OTHERWISE SPECIFIED, ALL EQUIPMENT AND MATERIALS MUST BE NEW AND OF THE QUALITY SPECIFIED. THE WORKMANSHIP SHALL BE OF A QUALITY AND NEATNESS THAT IS ACCEPTABLE TO THE ARCHITECT, ENGINEER, AND OWNER, AND IS GREATER THAN OR EQUAL TO STANDARDS OF THE TRADES. WORK NOT INSTALLED IN THIS MANNER SHALL BE REPAIRED, REMOVED, REPLACED, OR OTHERWISE REMEDIED AS DIRECTED BY THE ARCHITECT / ENGINEER AT THE CONTRACTOR'S EXPENSE.
- 1.6. THE MECHANICAL CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE WORK OF ALL OTHER TRADES, GENERAL TYPE CONSTRUCTION, AND THE RELATIONSHIP OF THE CONTRACTOR'S WORK TO OTHER SECTIONS AND TRADES.

2. EXAMINATION OF PREMISES:

- 2.1. MECHANICAL CONTRACTOR SHALL, BEFORE SUBMITTING ANY PROPOSAL, EXAMINE THE PROPOSED SITE AND SHALL DETERMINE THE CONDITIONS THAT MAY AFFECT THE WORK.
- 2.2. NO ALLOWANCE SHALL BE MADE DUE TO CONTRACTOR'S FAILURE TO MAKE SUCH EXAMINATION.
- 2.3. DO NOT SCALE DRAWINGS. FIELD VERIFY EXACT DIMENSIONS AND MEASUREMENTS

3. MECHANICAL CONTRACTOR

- 3.1. THE MECHANICAL CONTRACTOR/COMPANY SHALL BE LICENSED AND CERTIFIED IN THE STATE / LOCATION OF THE PROJECT FOR A MINIMUM OF TWO YEARS.
- 3.2. THE MECHANICAL CONTRACTOR/COMPANY SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE INSTALLING COMMERCIAL MECHANICAL SYSTEMS SIMILAR TO THOSE DESCRIBED IN THESE SPECIFICATIONS AND PROVIDE A LIST OF PREVIOUS COMPANY PROJECTS, INCLUDING NAME OF PROJECT AND CONTACT NAMES AND PHONE NUMBERS FOR REFERENCE.

4. PERMITS, INSPECTIONS, AND FEES

- 4.1. MECHANICAL CONTRACTOR SHALL OBTAIN AND PAY ALL FEES ASSOCIATED WITH OBTAINING ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED TO COMPLETE THIS PROJECT.
- 4.2. PROVIDE COPIES OF PERMITS TO THE GENERAL CONTRACTOR
- 4.3. SUBMIT COPIES OF INSPECTION RESULTS TO THE ENGINEER AND INCLUDE COPIES OF PASSED INSPECTIONS IN THE OPERATION AND MAINTENANCE MANUALS SUBMITTED BY THE CONTRACTOR UPON COMPLETION OF THE PROJECT.

5. WARRANTY AND GUARANTEE

- 5.1. MECHANICAL CONTRACTOR SHALL WARRANTY AND GUARANTEE FREE FROM DEFECTS FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION ALL EQUIPMENT AND MATERIAL INSTALLED AND/OR FURNISHED BY THE MECHANICAL CONTRACTOR. DEFECTS WHICH APPEAR DURING THAT ONE YEAR PERIOD SHALL BE CORRECTED AT THE EXPENSE OF MECHANICAL CONTRACTOR.
- 5.2. EQUIPMENT STANDARD WARRANTIES SHALL BE: 5 YEAR COMPRESSOR WARRANTY AND 1 YEAR PARTS WARRANTY, UNLESS OTHERWISE SPECIFIED.

6. DRAWINGS AND SPECIFICATIONS

- 6.1. CONTRACTOR SHALL REVIEW THE COMPLETE SET OF DRAWINGS, AS WORK PERTAINING TO THE MECHANICAL CONTRACTOR AND THAT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR MAY BE SHOWN ON OTHER DRAWING SHEETS OR IN OTHER SPECIFICATION SECTIONS.
- 6.2. IF ANY DISCREPANCIES OCCUR BETWEEN THE ACCOMPANYING DRAWINGS AND THE ASSOCIATED SPECIFICATIONS ASSUME THE MOST EXPENSIVE FOR BIDDING PURPOSES AND REPORT SUCH DISCREPANCIES TO THE ARCHITECT / ENGINEER IN A TIMELY MANNER TO ALLOW A WORKABLE SOLUTION TO BE FOUND.
- 6.3. NO ALLOWANCE OR EXTRA PAYMENT SHALL BE GIVEN FOR RELOCATION OF PIPING, DUCTWORK, CONDUIT, AND EQUIPMENT NOT INSTALLED PER THESE SPECIFICATIONS AND INSTRUCTIONS OR INSTALLED IN A MANNER NOT CONFORMING TO THE MANUFACTURER'S REQUIREMENTS OR SUGGESTIONS.

7. SUBMITTALS AND SHOP DRAWINGS:

- 7.1. SUBMITTALS AND SHOP DRAWINGS SHALL BE SUBMITTED BY THE MECHANICAL CONTRACTOR WITHIN 15 DAYS AFTER AWARDED THE PROJECT FOR ENGINEER REVIEW.
- 7.2. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR ALL HVAC EQUIPMENT, FANS, CONTROLS, HANGERS, INSULATION, GRDs, DUCTWORK, AND OTHER STANDARD ITEMS AS REQUIRED TO COMPILE A COMPLETE SUBMITTAL ON THIS PROJECT.
- 7.3. ALL EQUIPMENT AND MATERIAL SUBMITTED SHALL BE AS SPECIFIED ON THE DRAWINGS OR EQUAL AS APPROVED BY THE ENGINEER.

8. OPERATION AND MAINTENANCE MANUALS

- 8.1. UPON COMPLETION OF THE PROJECT, SUBMIT PHYSICAL SETS IN BOUND BOOKLET FORM OF ALL WRITTEN OPERATING INSTRUCTIONS AND MAINTENANCE REQUIREMENTS FOR ALL HVAC EQUIPMENT AND MATERIAL USED AND/OR INSTALLED ON THE PROJECT.
 - 8.2. PROVIDE A LISTING OF ALL HVAC EQUIPMENT ON THE PROJECT WITH THE FOLLOWING INFORMATION: EQUIPMENT IDENTIFICATION NUMBER FROM DRAWINGS, AREA SERVED, MODEL NUMBER, SERIAL NUMBER, AND FILTER SIZES.
 - 8.3. INCLUDE AIR BALANCE REPORT IN O&M MANUALS, WHEN APPLICABLE.
 - 8.4. COPIES OF INSPECTION RESULTS SHALL BE SUBMITTED WITH O&M MANUALS
 - 8.5. INCLUDE A LETTER OF GUARANTEE STARTING AT THE DATE OF SUBSTANTIAL COMPLETION.
- ## 9. INSTALLATION OF HVAC EQUIPMENT, MATERIALS, AND SYSTEMS:
- 9.1. COORDINATE HVAC EQUIPMENT AND MATERIALS INSTALLATION WITH ALL OTHER BUILDING COMPONENTS.
 - 9.2. FIELD VERIFY ALL DIMENSIONS AND MEASUREMENTS.
 - 9.3. COORDINATE LOCATION AND REQUIREMENTS OF CHASES, SLOTS, AND OPENINGS IN OTHER BUILDING COMPONENTS IN TIME FOR PREPARATION FOR SUCH WORK TO OCCUR WITHOUT HINDERING OR DELAYING THE WORK OF OTHER TRADES.
 - 9.4. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES, SLEEVES, AND OPENINGS

THAT ARE TO BE INSTALLED IN POURED IN PLACE CONCRETE, WALL OPENINGS, ROOF OPENINGS, AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONTRACTED.

- 9.5. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL HVAC EQUIPMENT AND MATERIAL AS HIGH AS POSSIBLE.
 - 9.6. INSTALL HVAC EQUIPMENT, PIPING, AND DUCTWORK IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. PROVIDE EQUIPMENT ACCESSORIES AS NECESSARY FOR PROPER OPERATION OR RECOMMENDED BY THE MANUFACTURER, EVEN IF SUCH ACCESSORIES ARE NOT SHOWN ON THE DRAWINGS OR MENTIONED IN THE SPECIFICATIONS.
 - 9.7. MECHANICAL CONTRACTOR TO PROVIDE NO LESS THAN THE MANUFACTURER'S MINIMUM RECOMMENDED CLEARANCES ON ALL EQUIPMENT. ALL ISSUES PERTAINING TO CLEARANCES SHALL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR, ARCHITECT, AND ENGINEER PRIOR TO INSTALLATION. INSTALLATION WITHOUT APPROVAL SHALL BE CORRECTED AT THE MECHANICAL CONTRACTOR'S EXPENSE.
 - 9.8. MECHANICAL CONTRACTOR SHALL INSTALL NEOPRENE ISOLATION BLOCKS OR SPRING VIBRATION ISOLATORS AS APPROVED BY EQUIPMENT MANUFACTURER ON ALL HVAC EQUIPMENT TO MINIMIZE NOISE AND VIBRATIONS.
- ## 10. PROTECTION OF EQUIPMENT AND MATERIALS:
- 10.1. UNLESS SPECIFIED OR REQUESTED BY OWNER IN WRITING, PERMANENT HVAC SYSTEMS SHALL NOT BE OPERATED DURING CONSTRUCTION.
 - 10.2. DURING CONSTRUCTION, ALL DUCTWORK AND PIPING SHALL BE CAPPED AND SEALED AT ALL TIMES AS TO PREVENT DIRT, DUST, AND DEBRIS FROM ENTERING DUCTWORK AND PIPING SYSTEM.

11. MECHANICAL PIPING:

- 11.1. REFRIGERANT PIPING
 - 11.1.1. DURING INSTALLATION OF REFRIGERANT PIPING, MECHANICAL CONTRACTOR SHALL FLOW NITROGEN THROUGH PIPING AT ALL TIMES WHEN BRAZING THE REFRIGERANT PIPING.
 - 11.1.2. REFRIGERANT PIPING SHALL BE LEAK TESTED WITH NITROGEN TO A PRESSURE OF NO LESS THAN 350 PSI OR AS DIRECTED BY THE EQUIPMENT MANUFACTURER, AND PERFORM A TRIPLE EVACUATION.
 - 11.1.3. REFRIGERANT PIPING SHALL BE INSULATED WITH A MINIMUM 3/4" THICK ARMAFLEX INSULATION.
 - 11.1.4. REFRIGERANT PIPING INSULATION INSTALLED OUTDOORS SHALL HAVE A UV PROTECTANT COATING.
 - 11.1.5. REFRIGERANT PIPING TO BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ROUTE IN A LINEAR FASHION FOLLOWING BUILDING STRUCTURAL CONTOURS.
 - 11.1.6. INSTALL ESCUTCHEONS AROUND ALL REFRIGERANT PIPING WHEN VISIBLY PENETRATING A WALL, FLOOR, OR PARTITION.
- 11.2. CONDENSATE PIPING
 - 11.2.1. ALL CONDENSATE PIPING SHALL BE CONSTRUCTED OF SCHEDULE 40 PVC OR AS SPECIFIED OTHERWISE.
 - 11.2.2. CONDENSATE PIPING SHALL BE INSTALLED AS TO HAVE A SLOPE OF NO LESS THAN 1/8" PER FOOT.
 - 11.2.3. UNLESS SPECIFIED OTHERWISE, ALL CONDENSATE PIPING SHALL BE EXTERNALLY INSULATED WITH A MINIMUM 3/4" THICK ARMAFLEX INSULATION.
 - 11.2.4. MECHANICAL CONTRACTOR SHALL INSTALL CONDENSATE SAFETY DEVICES IN ALL CONDENSATE DRAINS OF HVAC EQUIPMENT AS TO REDUCE RISK OF DAMAGE FROM CLOGGED CONDENSATE DRAINS.
 - 11.2.5. CONDENSATE PIPING TO BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
 - 11.2.6. INSTALL ESCUTCHEONS AROUND ALL CONDENSATE PIPING WHEN VISIBLY PENETRATING A WALL, FLOOR, OR PARTITION.
 - 11.2.7. WHEN A CONDENSATE PUMP IS USED, INSTALL PER MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.

12. IDENTIFICATION OF HVAC EQUIPMENT

- 12.1. ALL HVAC EQUIPMENT AND ASSOCIATED THERMOSTATS/SENSORS SHALL BE CLEARLY IDENTIFIED AND LABELED.
- 12.2. EQUIPMENT NAMEPLATES SHALL BE BLACK FACED FORMICA WITH WHITE ENGRAVED LETTERING. NAMEPLATE TEXT TO BE A MINIMUM OF 1/2" IN HEIGHT.
- 12.3. VALVE TAGS SHALL BE EMBOSSED BRASS OR ALUMINUM WITH A MINIMUM TEXT HEIGHT OF 3/8".
- 12.4. VALVE TAGS SHALL IDENTIFY AREA SERVED AND NORMAL VALVE POSITION.
- 12.5. PIPING LABELS SHALL INCLUDE PIPE SIZE, ARROW INDICATING FLOW DIRECTION, AND REFRIGERANT CIRCUIT LOCATION. PIPING LABELS SHALL HAVE TEXT SIZE AND INSTALLED IN ACCORDANCE WITH ASME A13.1 FOR PIPING.
- 12.6. ALL DUCTWORK SHALL BE CLEARLY LABELED AND IDENTIFIED: SUPPLY, RETURN, EXHAUST, OUTSIDE AIR

13. MECHANICAL WIRING AND ELECTRICAL REQUIREMENTS

- 13.1. ALL TEMPERATURE CONTROL WIRING, INTERLOCK WIRING, AND EQUIPMENT CONTROL WIRING FOR HVAC EQUIPMENT SHALL BE INCLUDED BY THE MECHANICAL CONTRACTOR UNLESS SPECIFICALLY NOTED OTHERWISE.
- 13.2. MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL CONTRACTOR REGARDING ALL EQUIPMENT HAVING ELECTRICAL REQUIREMENTS OF 120 VOLTS OR GREATER.
- 13.3. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL CONDUIT, WIRING, JUNCTION BOXES, AND DISCONNECTS ASSOCIATED WITH HVAC EQUIPMENT WITH ELECTRICAL REQUIREMENTS OF 120 VOLTS OR GREATER UNLESS PROVIDED AS AN INTEGRAL PART OF THE EQUIPMENT.
- 13.4. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL THERMOSTAT JUNCTION BOX, AND STUB-UP CONDUIT ABOVE CEILING WITH PULL STRING FOR ALL THERMOSTATS AND WALL MOUNTED CONTROL DEVICES. MECHANICAL CONTRACTOR TO COORDINATE LOCATION WITH ELECTRICAL CONTRACTOR.
- 13.5. MECHANICAL CONTRACTOR SHALL FURNISH, MOUNT, AND INSTALL ALL HVAC CONTROLS AS INDICATED ON PLANS UNLESS OTHERWISE NOTED.
- 13.6. ALL CONTROL WIRING INSTALLED IN AN EXPOSED LOCATION OR OUTDOORS SHALL BE INSTALLED IN NON-FLEXIBLE CONDUIT. CONDUIT TYPE PER NEC BASED ON LOCATION.
- 13.7. ALL LOW VOLTAGE CONTROL WIRING SHALL BE CONSTRUCTED PER MANUFACTURERS

REQUIREMENTS OR RECOMMENDATIONS.

14. DUCTWORK

- 14.1. DUCTWORK CONSTRUCTION
 - 14.1.1. UNLESS OTHERWISE SPECIFIED, ALL DUCTWORK SHALL BE OF SHEET METAL CONSTRUCTION.
 - 14.1.2. DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA SPECIFICATIONS.
 - 14.1.3. ALL DUCTWORK SIZES SHOWN ON DRAWINGS ARE INTERNAL DIMENSIONS AND DO NOT TAKE INTO ACCOUNT ANY INTERNAL LINERS OR INSULATION.
 - 14.1.4. ALL DUCT JOINTS ARE TO BE SEALED WITH A SUITABLE COMMERCIAL GRADE DUCT SEALER.
 - 14.1.5. ALL OUTSIDE AIR DUCTS SHALL BE INSTALLED WITH A MOTORIZED LOW-LEAK DAMPER THAT IS INTERLOCKED WITH UNIT FAN. DAMPER SHALL BE CLOSED AT ALL TIMES FAN IS NOT OPERATING.
 - 14.2. DUCTWORK INSULATION
 - 14.2.1. ALL DUCTWORK INSULATION SHALL HAVE A COMPOSITE FIRE AND SMOKE RATING AS TESTED UNDER ASTM E-84, NFPA 255, AND UL 723 NOT EXCEEDING FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50.
 - 14.2.2. DUCTS INSTALLED IN AN UNCONDITIONED SPACE INTERNAL TO THE BUILDING ENVELOPE SHALL BE EXTERNALLY INSULATED WITH MINIMUM R-6.0 INSULATION VALUE.
 - 14.2.3. DUCTS INSTALLED WITHIN THE BUILDING ENVELOPE AND IN A CONCEALED SPACE, SHALL BE EXTERNALLY INSULATED WITH 1" INSULATION WITH A MINIMUM OF R-4.2 INSULATION VALUE.
 - 14.2.4. DUCTS INSTALLED IN OUTDOOR LOCATIONS SHALL BE EXTERNALLY INSULATED WITH 2" RIGID FOAM BOARD INSULATION WITH A MINIMUM INSULATION VALUE OF R-8.0 AND SHALL BE WRAPPED WITH A WEATHER RESISTANT ALUMINUM METAL CLAD JACKETING.
 - 14.2.5. UNLESS SPECIFIED OTHERWISE, DUCTS INSTALLED IN EXPOSED AREAS ARE NOT REQUIRED TO BE INSULATED.
 - 14.2.6. ALL OUTSIDE AIR DUCTWORK SHALL BE INSULATED WITH MINIMUM R-8.0 INSULATION VALUE.
 - 14.2.7. ALL RECTANGULAR DUCT INSULATION SHALL MEET MINIMUM R-VALUES REQUIRED BY THE IECC.
 - 14.2.8. ALL SHEET METAL DUCT SHALL BE EXTERNALLY INSULATED ONLY, NO INTERNAL/DUCT LINER INSULATION PERMITTED.
 - 14.3. FLEXIBLE DUCTWORK
 - 14.3.1. FLEXIBLE DUCTWORK SHALL HAVE A COMPOSITE FIRE AND SMOKE RATING AS TESTED UNDER ASTM E-84, NFPA 255, AND UL 723 NOT EXCEEDING FLAME SPREAD OF 25 AND SMOKE DEVELOPED OF 50.
 - 14.3.2. FLEXIBLE DUCTWORK SHALL BE INSTALLED IN LENGTHS NOT TO EXCEED 5 FEET UNLESS SPECIFIED OTHERWISE.
 - 14.3.3. FLEXIBLE DUCTWORK SHALL BE SUPPORTED PER MANUFACTURER'S INSTRUCTIONS NOT TO EXCEED EVERY 4 FEET TO ELIMINATE SAGGING.
 - 14.3.4. INSTALLED FLEXIBLE DUCTS SHALL MEET MINIMUM R-VALUES REQUIRED BY THE IECC.
- ## 15. HANGERS AND SUPPORTS
- 15.1. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" CHAPTER 5, "HANGERS AND SUPPORTS".
 - 15.2. HANGER SPACING SHALL COMPLY WITH SMACNA'S SPECIFICATIONS
 - 15.3. SUPPORT ALL HVAC EQUIPMENT, DUCTWORK, AND PIPING FROM BUILDING STRUCTURE.
 - 15.4. ALL HANGERS EXPOSED TO VIEW SHALL BE CONSTRUCTED OF THREADED ROD AND ANGLE OR CHANNEL SUPPORTS.
 - 15.5. HANG ITEMS FROM TOP MEMBER OF JOISTS OR PROVIDE ADDITIONAL STRUCTURE TO SPAN BETWEEN TOP MEMBERS IF NEEDED.
 - 15.6. DO NOT USE METAL DECKING FOR SUSPENSION OF PIPING, DUCTWORK, OR EQUIPMENT.

16. FIRESTOPPING:

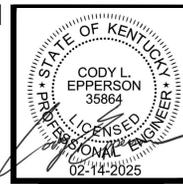
- 16.1. PROVIDE SEALS FOR ANY OPENING THROUGH WALLS, FLOORS, OR CEILINGS USED AS PASSAGE FOR MECHANICAL COMPONENTS SUCH AS PIPING OR DUCTWORK.
- 16.2. PROVIDE FIRE STOPPING SEALING TO MATCH OR EXCEED FIRE RESISTANT RATING OF PENETRATED WALLS, PARTITIONS, CEILINGS, OR FLOORS.
- 16.3. FIRE STOPPING SEALANT SHALL BE INSTALLED TO FILL OPENINGS AROUND MECHANICAL SERVICES PENETRATING FLOORS AND WALLS TO PROVIDE FIRE-STOPS WITH FIRE RESISTANT RATINGS INDICATED FOR FLOOR, WALL, CEILING, OR PARTITION ASSEMBLY IN WHICH PENETRATION OCCURS. COMPLY WITH INSTALLATION REQUIREMENTS ESTABLISHED BY THE MANUFACTURER AND THE TESTING AGENCY.

17. COORDINATION BETWEEN TRADES

- 17.1. EXAMINE ALL DRAWINGS AND SPECIFICATIONS PERTAINING TO THE PROJECT BEFORE SUBMITTING ANY PROPOSAL OR PERFORMING ANY WORK.
- 17.2. COOPERATE WITH ALL OTHER CONTRACTORS IN LOCATING PIPING, DUCTWORK, CONDUIT, OPENINGS, CHASES, AND EQUIPMENT IN ORDER TO AVOID CONFLICT WITH ANY OTHER CONTRACTOR'S WORK.
- 17.3. GIVE SPECIAL ATTENTION TO POINTS WHERE DUCTS OR PIPING MUST CROSS OTHER DUCTS OR PIPING, AND WHERE DUCTS, PIPING, AND CONDUIT MUST FIT INTO WALLS AND COLUMNS.
- 17.4. MAKE KNOWN TO OTHER TRADES THE INTENDED POSITIONING OF MATERIALS AND EQUIPMENT, AND INTENDED ORDER OF THE WORK.

18. TESTING AND BALANCING

- 18.1. UPON THE COMPLETION OF THE HVAC EQUIPMENT AND DUCTWORK, AIR BALANCE SHALL BE PERFORMED BY A NEBB/AABC CERTIFIED TESTING AND BALANCING AGENCY.
- 18.2. SYSTEM TO BE BALANCED TO THE SPECIFIED CFM VALUES ON DRAWINGS.
- 18.3. AABC TESTING AND BALANCING CONTRACTOR TO VERIFY ALL UNIT INFORMATION AND CORRECT CONTROL OPERATION.
- 18.4. SUBMIT COMPLETE TESTING AND BALANCE REPORT TO ENGINEER UPON COMPLETION. INCLUDE REPORT IN CLOSEOUT DOCUMENTS.



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

PROJECT NO. 5071-02	DESIGNED BY CE	DRAWN BY CE	CHECKED BY CE	REVIEWED BY CE	DATE FEBRUARY 2025	SCALE AS NOTED
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MSE
OF KENTUCKY, INC.

Engineers
Architects
Planners

624 Wellington Way
Lexington, KY 40503
www.mselex.com

Phone: (859) 223-5864
Fax: (859) 223-2607

DRAWING NO.
M7

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	RECESSED LUMINAIRE
	WALL BRACKET STRIP LUMINAIRE (NORMAL & EMERGENCY)
	INDUSTRIAL STRIP LUMINAIRE
	SURFACE OR PENDANT STRIP LUMINAIRE (NORMAL & EMERGENCY)
	DOWNLIGHT LUMINAIRE
	SURFACE OR PENDANT MOUNTED LUMINAIRE
	WALL MOUNTED LUMINAIRE (NORMAL & EMERGENCY)
	EMERGENCY LUMINAIRE
	REMOTE HEAD EMERGENCY LUMINAIRE (SINGLE & TWIN)
	COMBINATION EXIT SIGN EMERGENCY LUMINAIRE (WALL & CEILING)
	EXIT SIGN - SINGLE FACE (WALL & CEILING)
	EXIT SIGN - DOUBLE FACE (WALL & CEILING)
	LIGHTING CONTROL TAG - 'X' INDICATES LIGHTING CONTROL RISER NUMBER ASSOCIATED WITH ROOM/AREA
	LIGHT SWITCH - 'X' INDICATES THE FOLLOWING TYPES: 3 - 3 WAY, 4 - 4 WAY, K - KEY OPERATED, D - DIMMER, OS - LINE VOLTAGE OCCUPANCY SENSOR, L - LOW VOLTAGE, M - MANUAL MOTOR STARTER W/ HANDLE GUARD KIT AND PADLOCK. SEE LIGHTING CONTROL RISER SHEETS FOR ADDITIONAL TYPES
	BATTERY PACK
	OCCUPANCY/VACANCY SENSOR (CEILING)
	LIGHTING CONTACTOR, MECHANICALLY-HELD AND POLES AS REQUIRED
	TIME CLOCK
	PHOTOCELL

SYMBOL	DESCRIPTION
	TAMPER RESISTANT DUPLEX RECEPTACLE - 'X' INDICATES THE FOLLOWING: C - ABOVE COUNTER, CM - CEILING MOUNTED, E - EMERGENCY, G - GROUND FAULT CIRCUIT INTERRUPTER, GB - BLANK FACE GROUND FAULT CIRCUIT INTERRUPTER, IG - ISOLATED GROUND, P - PLUG LOAD CONTROL, S - CONTAINS INTEGRAL SURGE PROTECTION, WP - WEATHER PROOF, USB - CONTAINS USB PORT(S). (NOTE: 'X' NOTATION DESCRIPTIONS TYPICAL FOR ALL RECEPTACLE TYPES)
	TAMPER RESISTANT QUADRUPLEX RECEPTACLE
	TAMPER RESISTANT SINGLE RECEPTACLE
	TAMPER RESISTANT SPECIAL PURPOSE RECEPTACLE
	TAMPER RESISTANT FLOOR MOUNTED OR RECESSED RECEPTACLE(S) AND COVERPLATE; SEE DRAWINGS FOR QUANTITY REQUIRED
	COMBINATION FLOOR BOX WITH QUANTITY OF TAMPER RESISTANT DUPLEX RECEPTACLES AND RJ45 DATA JACKS/UTP CABLES AS NOTED ON DRAWINGS.
	CONDUIT TURNED DOWN
	CONDUIT TURNED UP
	CONDUIT WITH END CAP
	EQUIPMENT CONNECTION
	CIRCUIT CONTINUATION
	CIRCUIT HOMERUN TO ELECTRICAL DISTRIBUTION BOARD (SWITCHBOARD, PANELBOARD, ETC.). THE NUMBER OF TICK MARKS INDICATE QUANTITY OF PHASE AND NEUTRAL CONDUCTORS. LONG TICK MARKS REPRESENT PHASE (UNGROUND) CONDUCTORS. SHORT TICK MARKS REPRESENT NEUTRAL (GROUND) CONDUCTORS. A GROUNDING CONDUCTOR IS NOT SHOWN AS A TICK MARK HOWEVER SHALL BE INSTALLED WITH ALL CIRCUITS. TICK MARKS AND CONDUCTOR SIZES ARE ONLY SHOWN ON THE HOMERUN. INSTALL THE REQUIRED QUANTITY AND SIZE OF CONDUCTORS TO EACH DEVICE ON THE SAME CIRCUIT AS INDICATED ON THE DRAWINGS. IF CONDUCTOR SIZES NOT SHOWN ON HOMERUN, THE FOLLOWING IS REQUIRED: MINIMUM CONDUCTOR SIZE = #12 MINIMUM CONDUIT SIZE = 3/4 INCH CIRCUIT NOTATION EXAMPLE: #10 = (3) #10 PHASE CONDUCTORS AND (1) #10 NEUTRAL CONDUCTOR #10G = (1) #10 GROUNDING CONDUCTOR 3/4" = CONDUIT SIZE P-1 = DISTRIBUTION BOARD "P" - STARTING POLE POSITION IN BOARD
	SURFACE MOUNTED PANELBOARD (DISTRIBUTION & BRANCH CIRCUIT); 'X' INDICATES IDENTIFICATION
	FLUSH MOUNTED PANELBOARD (BRANCH CIRCUIT); 'X' INDICATES IDENTIFICATION
	ELECTRICAL METER
	GROUND ROD
	EMERGENCY SHUT-OFF BUTTON
	JUNCTION BOX
	DISCONNECT SWITCH (SIZE/POLES/NEMA - INDICATED ON DRAWINGS)
	DISCONNECT SWITCH WITH ENCLOSED FUSE(S) OR CIRCUIT BREAKER (SIZE/POLES/FUSING/NEMA - INDICATED ON DRAWINGS)
	VARIABLE FREQUENCY DRIVE
	ELECTRIC MOTOR

SYMBOL	DESCRIPTION
	VOICE/DATA OUTLET WITH QUANTITY OF RJ45 JACK(S) AND UTP CABLE(S) AS INDICATED - #V#D REPRESENTS THE NUMBER OF VOICE JACKS AND CABLES, #D REPRESENTS THE NUMBER OF DATA JACKS AND CABLES (NOTE: #V#D NOTATION DESCRIBED ABOVE TYPICAL FOR ALL COMMUNICATION OUTLETS); C - ABOVE COUNTER, CG - CEILING MOUNTED
	DATA OUTLET FOR WIRELESS ACCESS POINT WITH TWO RJ45 DATA JACKS AND TWO UTP CABLES (WALL & CEILING)

ABBREVIATIONS	
1Ø	1-PHASE
+X'	INDICATES MOUNTING HEIGHT TO BOTTOM OF DEVICE
C	DEVICE TO BE INSTALLED 4 INCHES ABOVE COUNTER/TABLE BACKSPLASH TO BOTTOM OF DEVICE
SPD	SURGE PROTECTION DEVICE
W	DEVICE TO BE INSTALLED 42" ABOVE FLOOR TO BOTTOM OF DEVICE
WP	PROVIDE DEVICE WITH VERTICALLY MOUNTED WEATHERPROOF COVER. RECEPTACLES TO BE WEATHER-RESISTANT TYPE AND PROVIDED WITH A CAST ALUMINUM, EXTRA DUTY, WHILE-IN-USE COVER

ELECTRICAL DEVICE MOUNTING HEIGHTS	
COMMUNICATION / MULTIMEDIA OUTLETS	16 INCHES TO BOTTOM
INTERIOR RECEPTACLES	16 INCHES TO BOTTOM
EXTERIOR RECEPTACLES	24 INCHES TO BOTTOM
SWITCHES	48 INCHES TO TOP

NOTE: MOUNTING HEIGHTS UNLESS OTHERWISE NOTED ON DRAWINGS

ELECTRICAL NOTES

GENERAL

- WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER, PER INDUSTRY STANDARD, AND TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
- WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES, STANDARDS AND ORDINANCES.
- ALL MATERIALS USED IN THE INSTALLATION SHALL BE U.L. APPROVED AND NEW.
- DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOF, ETC.
- DETAILS ARE SHOWN ON DIFFERENT SHEETS. THE CONTRACTOR SHALL REFER TO THOSE DETAILS WHETHER OR NOT CALLED IN REFERENCE NOTES.
- CONTRACTOR SHALL NOTIFY AND COOPERATE WITH OTHER TRADES SUCH THAT NO DUCTS, PIPING, OR EQUIPMENT FOREIGN TO THE OPERATION OF THE ELECTRICAL EQUIPMENT SHALL BE PERMITTED TO BE INSTALLED IN, ENTER, OR PASS THROUGH ELECTRICAL ROOMS OR SPACES, OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN OTHER AREAS.
- NO WIRING SHALL RUN IN DUCT WORK.
- THE MINIMUM SIZE OF THE CONDUCTORS ARE TO BE #12 AWG THHN COPPER, UNLESS INDICATED OTHERWISE ON THE DRAWINGS. STRANDED CONDUCTORS ARE NOT ALLOWED IN THE CONDUCTORS SMALLER THAN #10 AWG.
- USE EPOXY ANCHORS TO SUPPORT THE ELECTRICAL EQUIPMENT. EXPANSION ANCHOR BOLTS ARE NOT ACCEPTED.
- THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING AND OTHER DRAWINGS PRIOR TO BID.
- CONTRACTOR SHALL REVIEW ALL ARCHITECT'S ELEVATIONS, SECTIONS AND FLOOR PLANS PRIOR TO ROUGH-IN OF ELECTRICAL JUNCTION BOXES.
- ALL JUNCTION BOXES SHALL HAVE MINIMUM DEPTH OF 2-1/8" UNLESS OTHERWISE SPECIFIED. SECURE ALL JUNCTION BOXES AS SHOWN IN THE DETAILS. FURNISH AND INSTALL PROPER PLASTER RINGS.
- REFER TO ARCHITECTURAL CABINET CASEWORK ELEVATION DRAWINGS FOR CLARIFICATION ON MOUNTING AND PLACEMENT OF ALL RACEWAY, RECEPTACLES, AND SWITCHES.
- MANY DEVICE MOUNTING LOCATIONS ARE DEPENDENT ON MILLWORK LOCATIONS. COORDINATE ALL APPLICABLE LOCATIONS WITH MILLWORK INSTALLER PRIOR TO BEGINNING WORK.
- LIGHT SWITCHES INSTALLED ADJACENT TO EACH OTHER, SHALL BE GANGED TOGETHER WITH ONE PIECE COVER PLATE.
- CONSULT ARCHITECTS REFLECTED CEILING PLANS FOR COORDINATION.
- CONTRACTOR SHALL MEET WITH THE CEILING AND MECHANICAL CONTRACTORS TO COORDINATE LOCATIONS, CLEARANCES, CEILING TYPES, AND ROUGH-IN REQUIREMENTS OF ALL LIGHTING FIXTURES PRIOR TO DUCT, PIPING, AND CEILING INSTALLATIONS.
- CONTRACTOR SHALL MEET WITH MECHANICAL CONTRACTORS TO COORDINATE LOCATIONS, CLEARANCES, AND REQUIREMENTS OF MECHANICAL EQUIPMENT CONNECTIONS PRIOR TO INSTALLATIONS.
- CONNECT ALL EMERGENCY LIGHT FIXTURES, NIGHT LIGHTS, EGRESS LIGHTS, AND EXIT SIGNS TO UNSWITCHED CONDUCTOR(S).
- THE CONTRACTOR SHALL TERMINATE THE ELECTRICAL CONNECTIONS TO ALL THE EQUIPMENT BY PROVIDING THE NECESSARY MALE/FEMALE CONNECTOR, RECEPTACLE, PLUG, ETC.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE MADE AS PER MANUFACTURERS WRITTEN INSTRUCTIONS AND APPROVED WIRING DIAGRAMS AND DETAILS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE ALL THE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED. THE CONTRACTOR SHALL VERIFY ALL ELECTRICAL LOADS (VOLTAGE, PHASE, CONNECTION REQUIREMENTS, ETC.) OF EQUIPMENT FURNISHED UNDER OTHER DIVISIONS WITH APPROVED SHOP DRAWINGS PRIOR TO BEGINNING ROUGH-IN.
- VERIFY EXACT LOCATION(S) OF ALL EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- AT THE END OF THE JOB, PROVIDE BLANK COVER PLATES TO MATCH THE OTHER COVER PLATES FOR ALL JUNCTION BOXES WHERE DEVICES HAVE NOT YET BEEN INSTALLED.

LIGHTING

- THE CONTRACTOR SHALL INSTALL THE REQUIRED NUMBER OF CONDUCTORS BETWEEN SWITCHES, LIGHT FIXTURES AND ASSOCIATED DEVICES FOR A COMPLETE AND WORKING SYSTEM. PROVIDE SINGLE-LEVEL OR DUAL-LEVEL SWITCHING, THREE-WAY SWITCHING OR OTHER SWITCHING METHOD AS INDICATED ON THE DRAWINGS.
- INSTALL AN UNSWITCHED CONDUCTOR TO ALL, EXIT SIGNS, EMERGENCY LIGHTS AND ALL OTHER FIXTURES USED FOR EMERGENCY ILLUMINATION AND SUPPLIED WITH INTEGRAL OR EXTERNAL BATTERIES.

SITE UTILITIES

- THE CONTRACTOR SHALL MEET WITH ALL ASSOCIATED UTILITY COMPANIES ON SITE PRIOR TO BEGINNING WORK TO DISCUSS SCOPE OF WORK. ANY REQUIRED REVISIONS/ALTERATIONS PERTAINING TO THE SCOPE OF WORK SHOWN ON THE DRAWINGS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER OF RECORD.



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

PROJECT NO. 5071-02

DESIGNED BY	JE
DRAWN BY	JE
CHECKED BY	JE
REVIEWED BY	JE

DATE: FEBRUARY 2025
SCALE: AS NOTED

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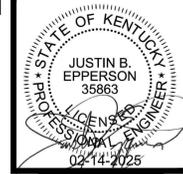
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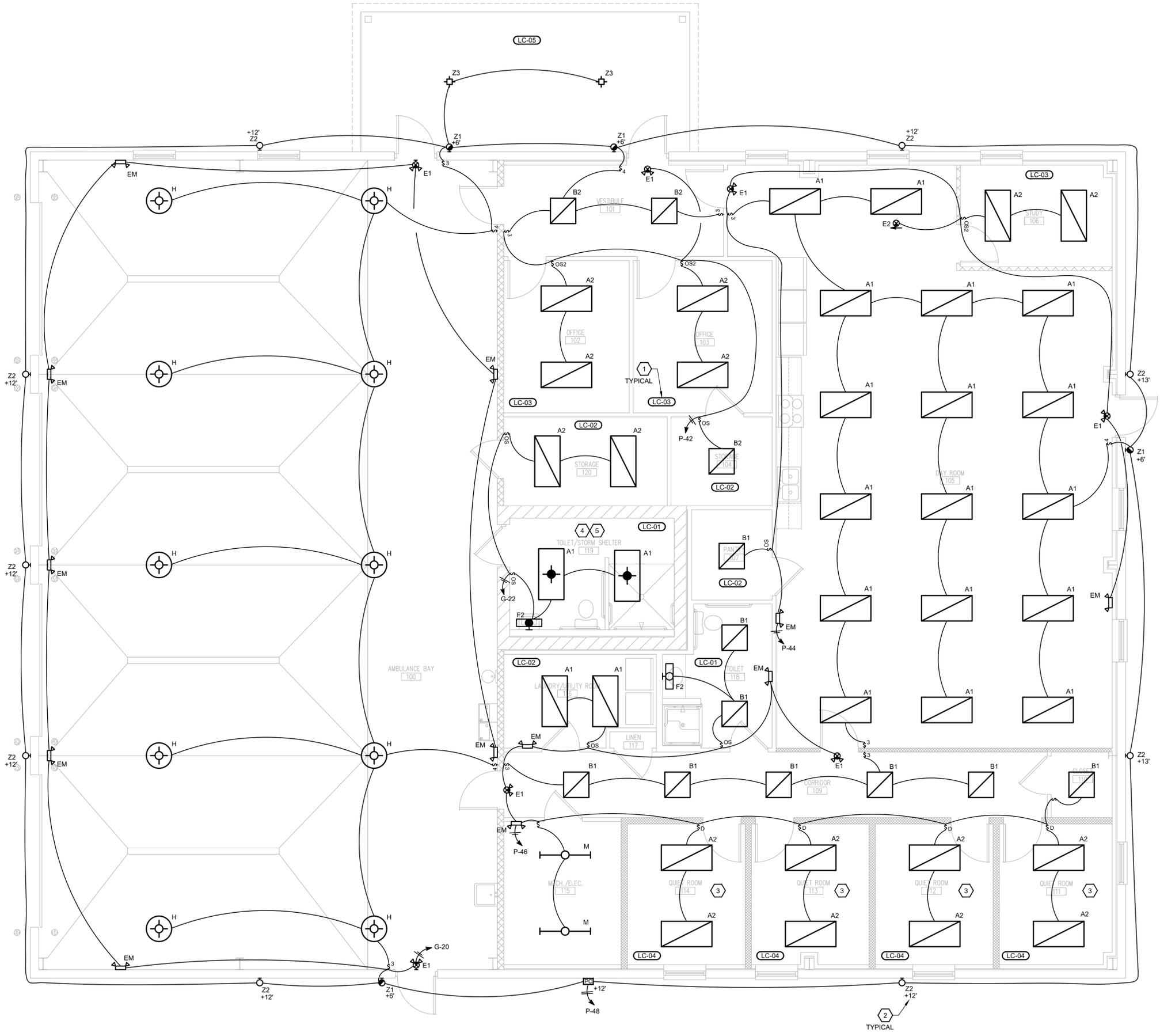
Phone: (859) 223-5894
Fax: (859) 223-2807

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
E0	ELECTRICAL LEGEND & NOTES
E1	LIGHTING PLAN
E2	POWER & SYSTEMS PLAN
E5.1	ELECTRICAL DETAILS
E5.2	ELECTRICAL DETAILS
E6	ELECTRICAL SCHEDULES
E7	ELECTRICAL SPECIFICATIONS

DRAWING NO.
E0



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY



GENERAL NOTES

- REFER TO SHEET E0.
- ALL TYPE 'EM' EMERGENCY LIGHT FIXTURES TO BE MOUNTED 7'-6" ABOVE FINISHED FLOOR TO BOTTOM OF LIGHT FIXTURE.
- ALL TYPE 'H' LIGHT FIXTURES TO BE MOUNTED 12" ABOVE FINISHED FLOOR TO BOTTOM OF LIGHT FIXTURE.
- MAINTAIN RATINGS OF ALL WALLS AND CEILINGS PENETRATED.
- DIMMING CONDUCTORS NOT SHOWN ON FLOOR PLAN. REFER TO LIGHTING CONTROL RISERS ON SHEET E5.1 FOR ADDITIONAL INFORMATION.

SHEET NOTES

- INDICATES LIGHTING CONTROL RISER ASSOCIATED WITH AREA. SEE DETAILS ON SHEET E5 FOR ADDITIONAL INFORMATION. TYPICAL.
- INDICATES MOUNTING HEIGHT ABOVE GRADE/FINISHED FLOOR TO BOTTOM OF LIGHT FIXTURE. TYPICAL.
- IN ADDITION TO LIGHTING SHOWN, CONTRACTOR SHALL ALSO PROVIDE ONE (1) NIGHTSTAND LAMP FOR ROOM. LAMP SHALL INCLUDE ADA ROCKER SWITCH, CONVENIENCE OUTLET, AND USB OUTLET IN BASE (STIFFEL MODEL# TL-6678-SN-115-01TR OR EQUIVALENT).
- EMERGENCY LIGHT FIXTURES IN ROOM TO BE FED FROM UPSTREAM EMERGENCY INVERTER (ISOLITE E3MINI-125-LC-MB-EB OR EQUIVALENT) FOR MINIMUM 2 HOUR BACKUP. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH ICC-500 STORM SHELTER.
- SEAL AND PROTECT ALL WALL AND CEILING PENETRATIONS IN THIS SPACE IN ACCORDANCE WITH ICC-500 FOR STORM SHELTERS.

1 FLOOR PLAN - LIGHTING
1/4" = 1'-0"

DATE	REVISION	BY

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Phone: (859) 223-5894
Fax: (859) 223-2807
624 Wellington Way
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DRAWING NO.
E1



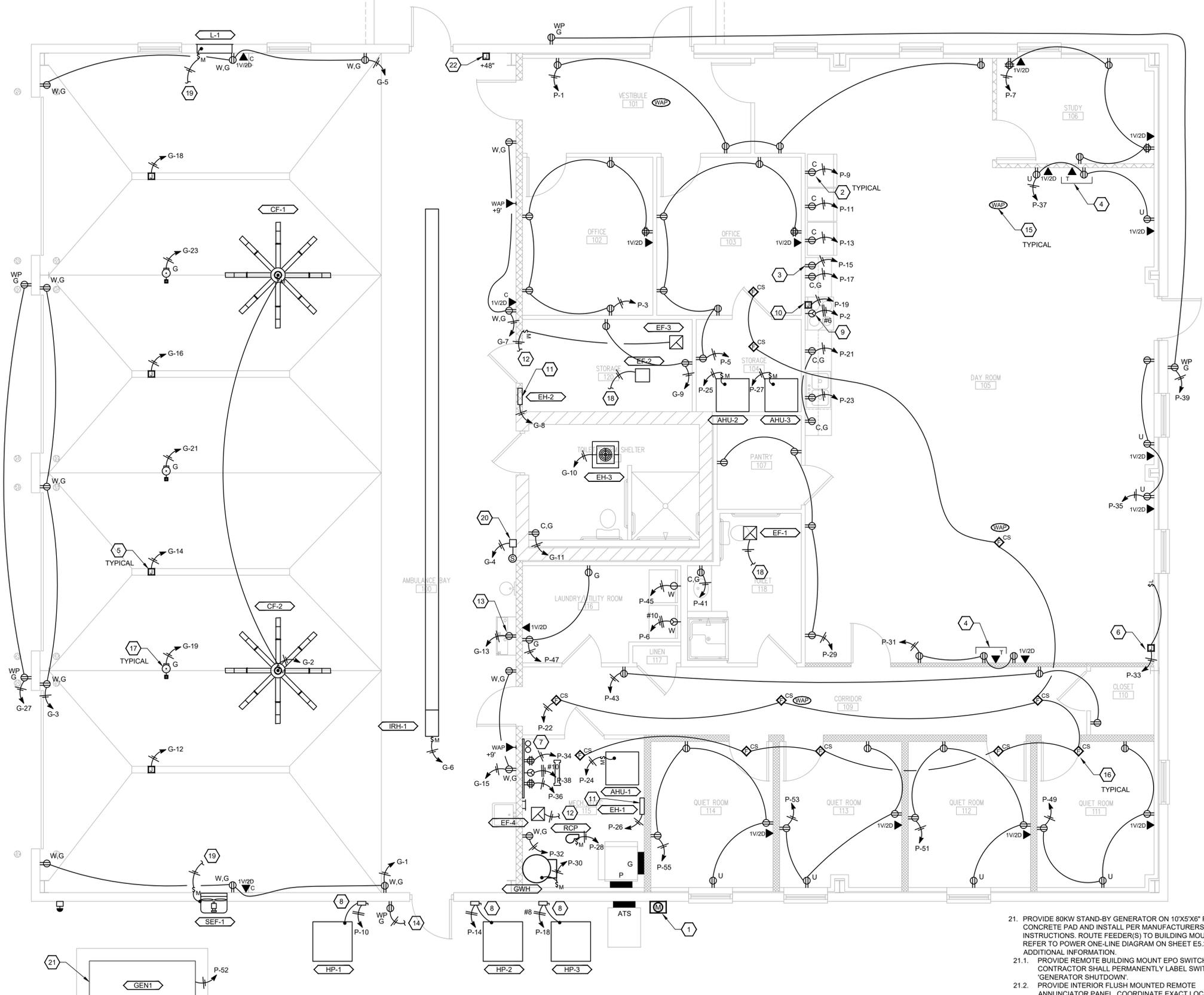
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GENERAL NOTES

- REFER TO SHEET E0.
- MAINTAIN RATINGS OF ALL WALLS AND CEILINGS PENETRATED.
- COORDINATE ALL ELECTRICAL CONNECTIONS TO MECHANICAL AND PLUMBING EQUIPMENT WITH EQUIPMENT INSTALLER.
- ALL DEVICES TO BE FLUSH MOUNTED UNLESS OTHERWISE NOTED; NO EXPOSED WIRING OR SURFACE RACEWAY PERMITTED.
- RECEPTACLE AND COMMUNICATION DEVICE LOCATIONS HAVE BEEN COORDINATED WITH FURNITURE LAYOUT. REFER TO ARCHITECTURAL SHEETS FOR ADDITIONAL INFORMATION.
- USB RECEPTACLES SHOWN SHALL HAVE ONE 20A DUPLEX RECEPTACLE AND BOTH TYPE A AND TYPE C USB PORTS (HUBBELL SNAP20UACX OR EQUIVALENT).

SHEET NOTES

- PROVIDE SERVICE ENTRANCE METER BASE ENCLOSURE ON BUILDING FACADE. COORDINATE REQUIREMENTS WITH LOCAL POWER UTILITY COMPANY.
- PROVIDE DEDICATED CIRCUIT AND RECEPTACLE FOR REFRIGERATOR WITH GFCI PROTECTION AT THE CIRCUIT BREAKER. RECEPTACLE TO BE MOUNTED AT SAME HEIGHT AS NEARBY COUNTERTOP RECEPTACLES. TYPICAL.
- PROVIDE DEDICATED CIRCUIT AND RECEPTACLE FOR UNDERCOUNTER MICROWAVE WITH GFCI PROTECTION AT THE CIRCUIT BREAKER. MICROWAVE TO BE LOCATED ON SHELF WITHIN CABINETS. COORDINATE EXACT RECEPTACLE LOCATION WITH CABINETS CONSTRUCTION PRIOR TO ROUGH-IN FOR COMPLETE CONCEALMENT.
- PROVIDE RECEPTACLE AND MULTIMEDIA OUTLET FOR OWNER-FURNISHED WALL MOUNTED TV. COORDINATE LOCATION AND HEIGHT WITH ASSOCIATED MOUNTING BRACKETS PRIOR TO ROUGH-IN FOR COMPLETE CONCEALMENT BEHIND DISPLAY. MULTIMEDIA OUTLET SHALL HAVE ONE (1) CAT6 DATA PORT AND (1) HDMI PORT. PROVIDE HDMI CABLE FROM OUTLET BEHIND TV TO HDMI ONLY OUTLET MOUNTED DIRECTLY BELOW TV AT 18" AFF.
- PROVIDE DEDICATED CIRCUIT FOR OVERHEAD DOOR. COORDINATE WIRING REQUIREMENTS WITH INSTALLER.
- PROVIDE DEDICATED CIRCUIT FOR FIREPLACE WITH REMOTE 60 MINUTE WALL MOUNTED TIMER SWITCH. COORDINATE INSTALLATION WITH FIREPLACE INSTALLER.
- PROVIDE THE FOLLOWING FOR THE MDF COMMUNICATION EQUIPMENT:
 - TWO (2) 2" CONDUITS STUBBED UP INSIDE ROOM FOR COMMUNICATION SERVICE ENTRANCE PATHWAY(S). SEE SITE PLAN FOR ADDITIONAL INFORMATION
 - ONE (1) TWO POST COMMUNICATION RACK
 - ONE (1) 5' FIRE RATED 3/4" MOUNTING BACKBOARD 24" AFF
 - PROVIDE GROUND BAR WITH MINIMUM #6 INSULATED BONDING CONDUCTORS TO THE COMMUNICATION RACK(S) AND TELEPHONE/DATA TV SERVICE ENTRANCE(S). CONTRACTOR SHALL INSTALL A MINIMUM #4 INSULATED GROUNDING CONDUCTOR IN CONDUIT FROM GROUND BAR TO THE ELECTRICAL SERVICE GROUNDING SYSTEM.
 - TWO (2) DEDICATED 20A CIRCUITS WITH QUADRUPLUX RECEPTACLES
 - ONE (1) DEDICATED CIRCUIT WITH 2#10, 1#10G, 3/4"C. VERIFY REQUIRED RECEPTACLE CONFIGURATION WITH OWNER UPS EQUIPMENT
- PROVIDE 60A/2P, 240V, NEMA-3R NON-FUSED DISCONNECT SWITCH AND LFMC CONNECTION TO OUTDOOR HVAC EQUIPMENT. COORDINATE EXACT DISCONNECT SWITCH LOCATION WITH HVAC INSTALLER.
- PROVIDE 240V, 50A, NEMA 14-50R OVEN RECEPTACLE. CIRCUIT SHALL BE #6, 1#10G, 1"C.
- PROVIDE ELECTRICAL CONNECTION TO RANGE HOOD. COORDINATE EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS.
- PROVIDE CONNECTION TO RECESSED ELECTRIC WALL HEATER SERVING ROOM.
- PROVIDE CONNECTION TO EXHAUST FAN FROM UNSWITCHED LIGHTING CIRCUIT SERVING ROOM, DISCONNECT SWITCH FURNISHED WITH UNIT.
- PROVIDE DEDICATED CIRCUIT AND RECEPTACLE FOR ELECTRIC WATER COOLER WITH GFCI PROTECTION AT THE CIRCUIT BREAKER. COORDINATE LOCATION WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN FOR CONCEALMENT BEHIND EQUIPMENT.
- CONNECT TO EXTERIOR RECEPTACLE CIRCUIT G-27.
- PROVIDE ROUGH-IN FOR WIRELESS ACCESS POINT AT THIS LOCATION WITH 1-CAT6 NETWORK CONNECTION FROM COMMUNICATION RACK; CONTRACTOR TO PROVIDE APPROPRIATE CONNECTOR(S) WITH CONCEALED CONNECTION BEHIND DEVICE. TYPICAL.
- PROVIDE CEILING MOUNTED COMBINATION CARBON MONOXIDE/SMOKE DETECTOR WITH INTEGRAL BATTERY BACKUP.
- PROVIDE CORD REEL WITH 20A GFCI PROTECTED RECEPTACLE. COORDINATE LOCATION AND RECEPTACLE CONFIGURATION WITH OWNER FOR TRUCK CONNECTION.
- PROVIDE CONNECTION TO EXHAUST FAN FROM SWITCHED LIGHTING CIRCUIT SERVING RESTROOM. FAN SHALL OPERATE WITH RESTROOM LIGHTS.
- ROUTE CIRCUIT THROUGH HOA SWITCH, SEE NOTE 20.
- PROVIDE WALL MOUNTED HOA SWITCH FOR SIDEWALL EXHAUST FAN AND ASSOCIATED LOUVER CONTROL. REFER TO DETAIL ON SHEET E5.2 FOR ADDITIONAL INFORMATION.



1 FLOOR PLAN - POWER & SYSTEMS
1/4" = 1'-0"

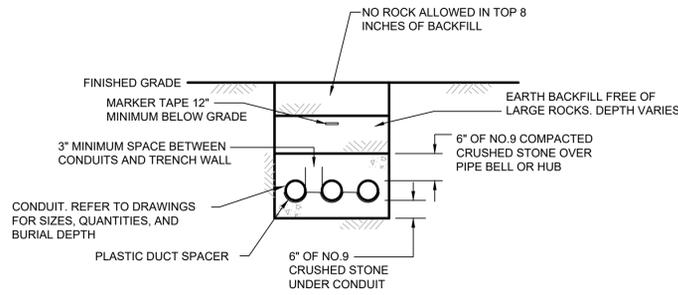
- PROVIDE 80KW STAND-BY GENERATOR ON 10'X5'X6" POURED CONCRETE PAD AND INSTALL PER MANUFACTURERS INSTRUCTIONS. ROUTE FEEDER(S) TO BUILDING MOUNT ATS. REFER TO POWER ONE-LINE DIAGRAM ON SHEET E5.2 FOR ADDITIONAL INFORMATION.
- PROVIDE REMOTE BUILDING MOUNT EPO SWITCH. CONTRACTOR SHALL PERMANENTLY LABEL SWITCH 'GENERATOR SHUTDOWN'.
- PROVIDE INTERIOR FLUSH MOUNTED REMOTE ANNUNCIATOR PANEL. COORDINATE EXACT LOCATION OF ANNUNCIATOR PANEL WITH OWNER PRIOR TO ROUGH-IN. PROVIDE DEDICATED 20A CIRCUIT FOR BATTERY CHARGER.
- PROVIDE 120V CONNECTION TO OIL/WATER SEPARATOR PANEL UPSTREAM OF GFCI PROTECTION.

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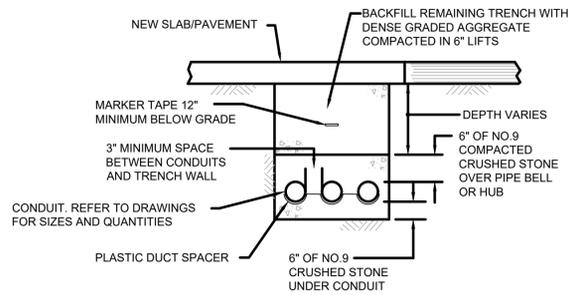
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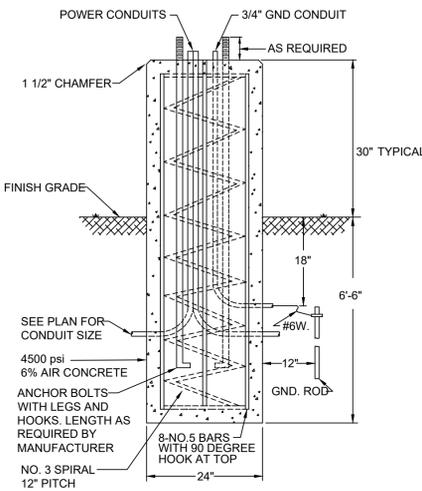
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Lexington, KY 40503
www.msekb.com
Phone: (859) 223-5894
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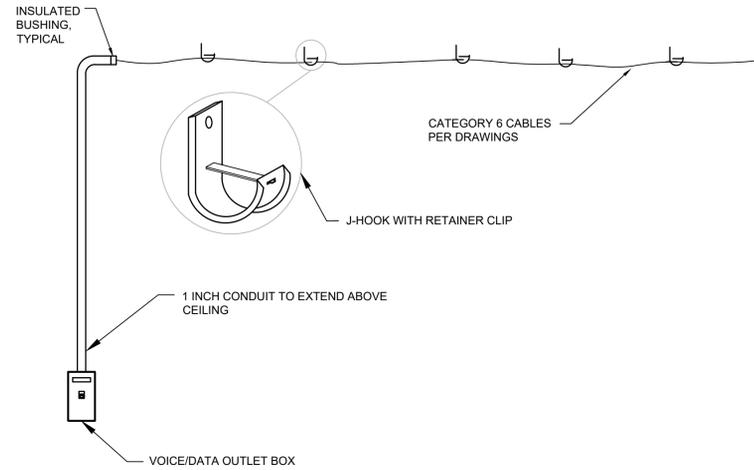
1 TRENCH DETAIL FOR EARTH COVER
NOT TO SCALE



2 TRENCH DETAIL FOR NEW SLAB/PAVEMENT
NOT TO SCALE



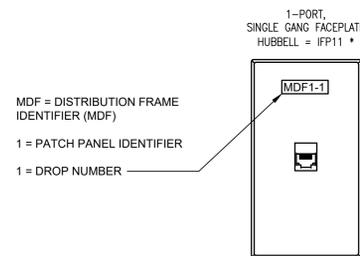
3 TALL POLE BASE DETAIL
NOT TO SCALE



GENERAL NOTES:

- ALL VOICE AND DATA CABLING SHALL BE CONCEALED FROM VIEW (I.E. ROUTED THROUGH ATTIC SPACE AND DOWN INSIDE FINISHED WALLS TO OUTLET BOX).
- ALL CABLING INCLUDING VOICE, DATA, SECURITY CAMERA, SPEAKER, HVAC CONTROLS, AV, ETC. SHALL BE ROUTED IN THE MANNER SHOWN.
- PROVIDE A COMPLETE UNINTERRUPTED PATHWAY BETWEEN ALL HEADEND EQUIPMENT AND OUTLETS AS SHOWN IN THE DIAGRAM. ANY CABLES THAT PENETRATE A WALL SHALL BE INSTALLED IN A CONDUIT SLEEVE.
- CABLE STRAPS SHALL BE REUSABLE BLACK VELCRO CABLE WRAPS. NO ZIP TIES WILL BE PERMITTED.

4 TYPICAL CABLE DISTRIBUTION RISER DIAGRAM
NOT TO SCALE



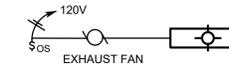
GENERAL NOTES:

- THIS LABEL INDICATES THAT THIS CABLE ORIGINATES FROM PATCH PANEL 1 IN THE MAIN DISTRIBUTION FRAME.
- QUANTITY OF CATEGORY 6 JACKS AND CABLES PER OUTLET AS INDICATED ON DRAWINGS.
- EACH PATCH PANEL SHALL BE LABELED IN ASCENDING ORDER STARTING AT THE TOP OF THE RACK.
- PATCH PANEL TERMINATIONS SHALL BE LABELED WITH THE SAME LABELING SCHEME.
- LABEL THE CABLE ONE INCH BEHIND THE CONNECTORS ON BOTH THE ROOM AND RACK SIDES. LABELS SHALL BE MACHINE GENERATED AND SELF LAMINATING. PATCH CORDS OVER 2 FEET IN LENGTH SHALL BE LABELED AT EACH END.
- ALL PATCH CABLES AND WORK STATION CABLES SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. WORK STATION CABLES SHALL BE MINIMUM 5' LONG.
- ALL PATCHING AND/OR CROSS CONNECTION SHALL BE PERFORMED BY THE CONTRACTOR.

5 VOICE/DATA OUTLET INSTALLATION DETAIL
NOT TO SCALE



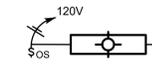
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ZONE CONTROL

- AUTO ON BY OCCUPANCY SENSOR
- AUTO OFF AFTER NO OCCUPANCY DETECTED FOR 30 MINUTES.

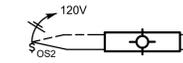
LC-01 RESTROOM - LIGHTING AND FAN CONTROL RISER



ZONE CONTROL

- MANUAL ON/OFF
- AUTO OFF AFTER NO OCCUPANCY DETECTED FOR 30 MINUTES.

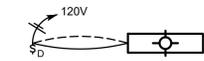
LC-02 STORAGE/UTILITY ROOM - LIGHTING CONTROL RISER



ZONE CONTROL

- MANUAL ON/OFF
- MANUAL RAISE/LOWER
- AUTO OFF AFTER NO OCCUPANCY DETECTED FOR 30 MINUTES

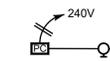
LC-03 PRIVATE OFFICE/STUDY - LIGHTING CONTROL RISER



ZONE CONTROL

- MANUAL ON/OFF
- MANUAL RAISE/LOWER

LC-04 QUIET ROOM - LIGHTING CONTROL RISER



ZONE CONTROL

- AUTO ON/OFF BY PHOTOCELL

LC-05 EXTERIOR - LIGHTING CONTROL RISER

LIGHT CONTROL RISER LEGEND

SYMBOL	DESCRIPTION
OS	ON/OFF WITH INTEGRAL OCCUPANCY SENSOR (SENSOR SWITCH 'WSX PDT' OR EQUAL)
OS2	ON/OFF, RAISE/LOWER, WITH INTEGRAL OCCUPANCY SENSOR (SENSOR SWITCH 'WSXA PDT E2 D SA')
D	ON/OFF, RAISE/LOWER (SENSOR SWITCH 'SPDMRD EZ')
-----	2#18 DIMMING CONDUCTOR CABLE
PC	PHOTOCELL

DATE	REVISION	BY

PROJECT NO. 5071-02

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CHECKED BY	JE

REVIEWED BY	JE

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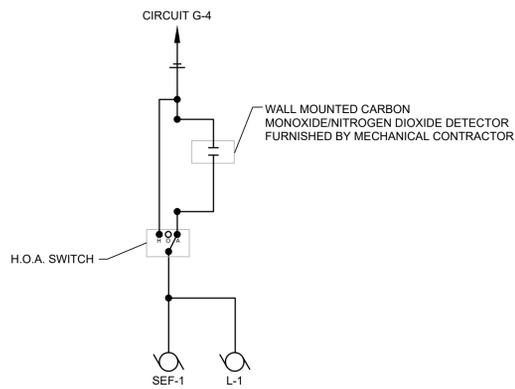
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624 Wellington Way
Lexington, KY 40503
www.mselex.com

Phone: (859) 223-5894
Fax: (859) 223-2807

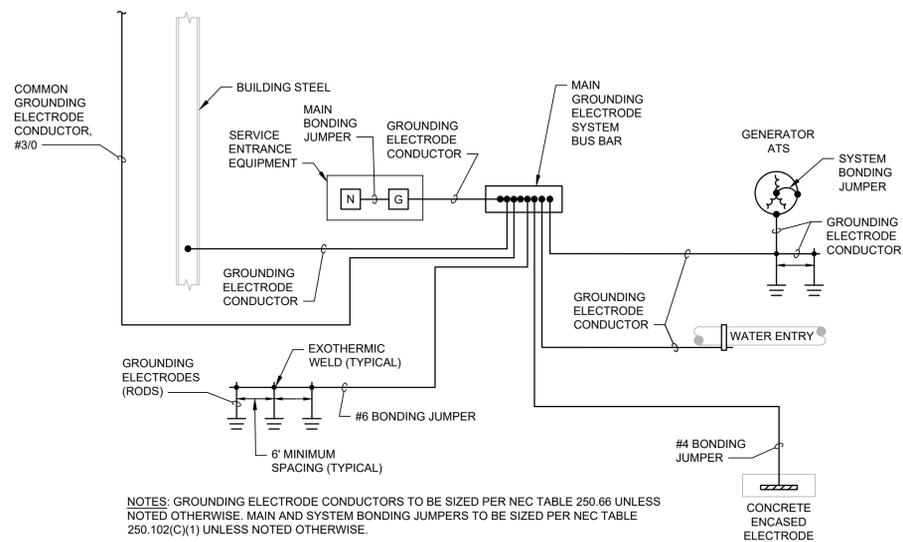
DRAWING NO.

E5.1



SEF-1/L-1 CONTROL

NOT TO SCALE



NOTES: GROUNDING ELECTRODE CONDUCTORS TO BE SIZED PER NEC TABLE 250.66 UNLESS NOTED OTHERWISE. MAIN AND SYSTEM BONDING JUMPERS TO BE SIZED PER NEC TABLE 250.102(C)(1) UNLESS NOTED OTHERWISE.

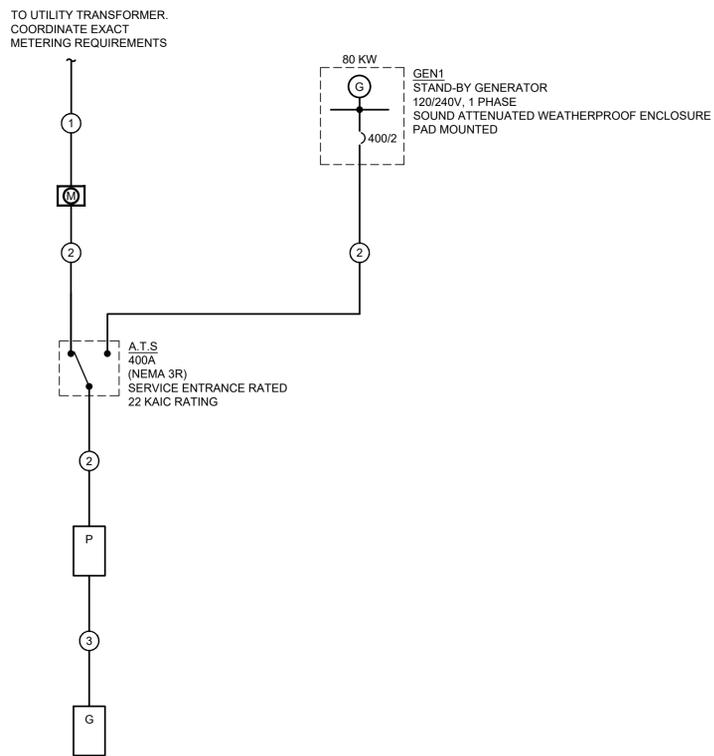
ELECTRICAL SYSTEM GROUNDING DETAIL

NOT TO SCALE

- NOTES**
- CONTRACTOR TO DETERMINE A.I.C RATING OF PANELBOARDS/CIRCUIT BREAKERS/DISCONNECT SWITCHES BASED ON SERVICE ENTRANCE CHARACTERISTICS; CONTRACTOR SHALL LABEL SERVICE ENTRANCE EQUIPMENT WITH MAXIMUM AVAILABLE FAULT CURRENT.
 - FEEDERS SHOWN ARE FOR COPPER WIRING.
 - METERING EQUIPMENT SHALL BE INSTALLED PER UTILITY COMPANY STANDARDS AND REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH LOCAL UTILITY.

ONE LINE SCHEDULE

1	2 SETS [3" C]
2	2 SETS [3#3/0, 1#3G, 2-1/2" C]
3	3#1, 1#8G, 1-1/2" C



POWER ONE-LINE DIAGRAM

NOT TO SCALE



EPPERSON ENGINEERING
 112 W. UNIVERSITY DR.
 SOMERSET, KY 42503
 EPPERSONENG.COM
 1-606-802-7885



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 OWINGSVILLE, KENTUCKY

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MSE
OF KENTUCKY, INC.
 Engineers
 Architects
 Planners
 Phone: (859) 223-5894
 Fax: (859) 223-2807
 624 Wellington Way
 Lexington, KY 40503
 www.mselex.com

DRAWING NO.

E5.2



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

LIGHT FIXTURE SCHEDULE											
FIXTURE TYPE	DESCRIPTION	MOUNTING	VOLTAGE	LAMPS						MANUFACTURER/MODEL NUMBER	NOTES
				TYPE	LUMENS	WATTS	DIMMING	CRI	COLOR TEMP		
A1	2'x4' FLAT PANEL TROFFER. SELECTABLE WATTAGE AND CCT.	RECESSED	MVOLT	LED	4,200	30	0-10V DIM TO 1%	≥80	4000K	TOPAZ PL24 50W PCTS D	1, 3, 5
A2	2'x4' FLAT PANEL TROFFER. SELECTABLE WATTAGE AND CCT.	RECESSED	MVOLT	LED	5,600	40	0-10V DIM TO 1%	≥80	4000K	TOPAZ PL24 50W PCTS D	1, 5
B1	2'x2' FLAT PANEL TROFFER. SELECTABLE WATTAGE AND CCT.	RECESSED	MVOLT	LED	4,200	30	0-10V DIM TO 1%	≥80	4000K	TOPAZ PL22 35W PCTS D	1, 5
B2	2'x2' FLAT PANEL TROFFER. SELECTABLE WATTAGE AND CCT.	RECESSED	MVOLT	LED	4,725	35	0-10V DIM TO 1%	≥80	4000K	TOPAZ PL22 35W PCTS D	1, 5
E1	EMERGENCY EXIT SIGN, 90 MINUTE EMERGENCY BATTERY, ADJUSTABLE TWIN HEADS, REMOTE CAPABLE, SELF DIAGNOSTICS, TEST BUTTON WITH STATUS INDICATOR, DAMP LOCATION LISTED, UNIVERSAL MOUNTING. FIELD SELECTABLE RED/GREEN LETTERS. FIELD SELECTABLE SINGLE OR DOUBLE SIDED.	SURFACE	MVOLT	LED	193	4	N/A	N/A	N/A	NICOR ECL1 20 UNV WH S 2 R	1, 2
E2	EMERGENCY EXIT SIGN, 90 MINUTE EMERGENCY BATTERY, SELF DIAGNOSTICS, TEST BUTTON WITH STATUS INDICATOR, DAMP LOCATION LISTED, UNIVERSAL MOUNTING. FIELD SELECTABLE RED/GREEN LETTERS. FIELD SELECTABLE SINGLE OR DOUBLE SIDED.	SURFACE	MVOLT	LED	N/A	1	N/A	N/A	N/A	NICOR EXL1 20 UNV WH S 2	1, 2
EM	EMERGENCY LIGHT, 90 MINUTE EMERGENCY BATTERY, ADJUSTABLE TWIN HEADS, SELF DIAGNOSTICS, TEST BUTTON WITH STATUS INDICATOR, DAMP LOCATION LISTED, UNIVERSAL MOUNTING	SURFACE	MVOLT	LED	203	2.5	N/A	≥70	N/A	NICOR EML3 10 UNV WH SD	1
F2	VANITY WALL SCONCE. BRUSHED NICKEL FINISH. WHITE ALABASTER SWIRLED GLASS DIFFUSER, 2' LENGTH.	SURFACE	MVOLT	LED	1,860	23	N/A	≥80	4000K	NICOR 32103 LED NK 40K	1, 4
H	ROUND FORM FACTOR HIGH BAY. SELECTABLE WATTAGE AND CCT. IP65 RATED. ALUMINUM ALLOY CONSTRUCTION, POLYCARBONATE LENS, INCLUDES J-HOOK, 3' SAFETY CABLE, AND 6' POWER CORD. PROVIDE WITH JBOX KIT ACCESSORY. FIXTURE TO HAVE WHITE COLOR/FINISH.	PENDANT	MVOLT	LED	22,900	100	N/A	≥80	4000K	TOPAZ HBC 150W PCTS WH	1, 5
M	4' LINEAR STRIP LIGHT, SLIM DESIGN, SEMI-CIRCULAR FROSTED LENS, STEEL CONSTRUCTION, UNIVERSAL MOUNTING. SELECTABLE WATTAGE AND CCT. PROVIDE WITH AIRCRAFT CABLE HANGING ACCESSORY KIT. FIXTURE TO HAVE WHITE COLOR/FINISH.	SUSPENDED	MVOLT	LED	6,647	45	N/A	≥80	4000K	NICOR LSL 1 4 45S U S 8	1, 5
P1	POLE MOUNTED AREA LIGHT FIXTURE. TYPE 3 DISTRIBUTION. IP65 RATED. INTEGRAL SURGE PROTECTION. SELECTABLE WATTAGE AND CCT. PROVIDE WITH REQUIRED POLE MOUNTING ACCESSORIES, FIELD INTERCHANGEABLE OPTIC LENS, GLARE/HOUSE SHIELD AND PHOTOCELL. PROVIDE 25' SQUARE 4" POLE AND 3' CONCRETE POLE BASE. FIXTURE AND POLE TO HAVE BRONZE COLOR/FINISH.	POLE	MVOLT	LED	40,796	311	N/A	≥80	5000K	NICOR OAL 3 300S UNV S BZ 3 (POLE) NICOR OPL4 1 SQ 25 X BZ	1, 5
Z1	EMERGENCY OUTDOOR TEAR DROP LIGHT FIXTURE. 90 MINUTE EMERGENCY BATTERY. IP65 RATED. DIE-CAST ALUMINUM BODY. INTEGRAL PHOTOCELL TO BE BYPASSED DURING INSTALLATION (DIP SWITCH) TO ALLOW FOR CONTROL FROM SWITCHED CIRCUIT. FIXTURE TO HAVE BRONZE COLOR/FINISH.	SURFACE	MVOLT	LED	1,158	13.4	N/A	≥70	5000K	NICOR EOT 1 MV 5K BZ P S	1
Z2	WALLPACK LIGHT FIXTURE. TYPE 4 DISTRIBUTION. IP65 RATED. ALUMINUM HOUSING, GLASS LENS. SELECTABLE WATTAGE AND CCT. PROVIDE WITH REQUIRED MOUNTING ACCESSORIES. INTEGRAL PHOTOCELL TO BE BYPASSED DURING INSTALLATION. FIXTURE TO HAVE BRONZE COLOR/FINISH.	SURFACE	MVOLT	LED	11,200	80	N/A	≥80	5000K	TOPAZ WP 80W PCTS BZ PC	1, 5
Z3	CANOPY LIGHT FIXTURE. TYPE 5 DISTRIBUTION. IP65 RATED. DIE-CAST ALUMINUM HOUSING. PRISMATIC FROSTED LENS. SELECTABLE WATTAGE AND CCT. PROVIDE WITH REQUIRED MOUNTING ACCESSORIES. INTEGRAL PHOTOCELL TO BE BYPASSED DURING INSTALLATION. FIXTURE TO HAVE WHITE COLOR/FINISH.	SURFACE	MVOLT	LED	5,638	45	N/A	≥70	5000K	NICOR OUC 4 075S UNV S WH	1, 5

GENERAL
ALL LIGHT FIXTURES TO MEET THE FOLLOWING CRITERIA UNLESS OTHERWISE NOTED:
- MINIMUM 5 YEAR WARRANTY
- RATED L70/50,000HR LIFE
- UL LISTED

- NOTES**
- ARCHITECT TO SELECT COLOR/FINISH (ANY COLOR MENTIONED IN DESCRIPTION OR MODEL NUMBER IS FOR DESIGN COORDINATION ONLY).
 - SINGLE OR DOUBLE FACE AND DIRECTIONAL ARROWS AS INDICATED ON DRAWINGS; CENTER ABOVE DOOR WHERE APPLICABLE
 - FOR THE TWO INSTANCES OF THIS FIXTURE TYPE LOCATED IN TOILET/STORM SHELTER 119 PROVIDE SURFACE MOUNT FRAME KIT/ACCESSORY.
 - CENTER VANITY FIXTURE ABOVE MIRROR, COORDINATE WITH ARCHITECTURAL ELEVATIONS.
 - FIXTURE HAS ADJUSTABLE LUMEN OUTPUT, SELECT OUTPUT WATTAGE INDICATED ON SCHEDULE.

GENERATOR SCHEDULE												
MARK	MANUFACTURER	MODEL	DIMENSIONS	RATED KW	VOLTS	PHASE	HERTZ	CIRCUIT BREAKER	FUEL TYPE	INLET PRESSURE (IN W.C.)	STANDBY RATED	NOTES
GEN1	GENERAC	RG-080	38"W X 97"L X 49"H	80	240	1	60	400A	NATURAL GAS	3.5 - 14	YES	ALL

- NOTES:**
- PROVIDE WITH 6" CONCRETE PAD (10' X 5')
 - PROVIDE WITH 1" CONDUIT TO REMOTE ANNUNCIATOR PANEL
 - PROVIDE WITH 1" CONDUIT FOR BATTERY CHARGER
 - PROVIDE WITH REMOTE ANNUNCIATOR PANEL, COORDINATE EXACT LOCATION WITH OWNER, PANEL SHALL BE IN REGULARLY OCCUPIED SPACE
 - PROVIDE WITH REMOTE EPO SWITCH, REFER TO PLANS FOR LOCATION
 - SOUND ATTENUATED ENCLOSURE
 - WEATHER PROTECTIVE ENCLOSURE
 - 5-YEAR LIMITED WARRANTY
- OTHER MANUFACTURERS: KOHLER, CUMMINS

PANEL 'P'											
BRANCH CIRCUIT PANELBOARD											
VOLTAGE		1 PHASE	POLES	MAIN AMPS		MAIN TYPE		A. I. RATING		MOUNTING SURFACE	
120/240		3 WIRE	60	400		MCB		22,000		SURFACE	
POLE NO.	BREAKER TRIP	P	LOAD SERVED	PHASE LOADS			LOAD SERVED	BREAKER TRIP	P	POLE NO.	
				KVA	A	B	KVA				
1	20	1	REC: 101 VEST, 105 CORR	0.7	5.7		5.0	RANGE			
3	20	1	REC: 102 OFFICE	1.1			6.1	5.0			
5	20	1	REC: 103 OFFICE, 104 STOR	1.3	3.8		2.5	DRYER		30	2
7	20	1	REC: 106 STUDY	1.1			3.6	2.5			
9	20G	1	REC: 105 REFRIGERATOR	1.0	2.5		1.5	HP-1		20	2
11	20G	1	REC: 105 REFRIGERATOR	1.0	2.5		1.5	HP-1			
13	20G	1	REC: 105 REFRIGERATOR	1.0	2.5		1.5	HP-2		20	2
15	20G	1	REC: 105 MICROWAVE	1.0			2.5	1.5			
17	20	1	REC: 105 COUNTERTOP	1.5	4.5		3.0	HP-3		40	2
19	20	1	105 RANGE HOOD	0.5			3.5	3.0			
21	20	1	REC: 105 COUNTERTOP	1.5	2.0		0.5	SMOKE/CO DETECTORS		20	1
23	20G	1	REC: DISHWASHER	1.0			1.5	0.5	AHU-1	15	1
25	15	1	AHU-2	0.5	1.5		1.0	EH-1		20	1
27	15	1	AHU-3	0.5			1.0	0.5	RCP	20	1
29	20	1	REC: 105, REC: 107	0.5	0.7		0.2	GVH		20	1
31	20	1	REC: 105	0.5			0.9	0.4	REC: 115 MECH/ELEC	20	1
33	20	1	FIREPLACE 105 (FUT.)	0.2	1.2		1.0	REC: 115 MDF		20	1
35	20	1	REC: 105	0.5			1.5	1.0	REC: 115 MDF	20	1
37	20	1	REC: 105	0.5	2.5		2.0	REC: 115 MDF		30	2
39	20	1	REC: EXTERIOR	0.4			2.4	2.0			
41	20	1	REC: 108 TOILET, 118 TOILET	0.4	0.9		0.5	LTG: 101-104		20	1
43	20	1	REC: 109, REC: 110	0.5			2.0	1.5	LTG: 105-108, EF-1	20	1
45	20G	1	REC: 116 WASHER	0.5	1.5		1.0	LTG: 109-118/EF-2/EF-5		20	1
47	20	1	REC: 116 LAUNDRY	0.4			1.4	1.0	LTG: EXTERIOR	20	2
49	20A	1	REC: 111 QUIET RM.	0.7	1.7		1.0				
51	20A	1	REC: 112 QUIET RM.	0.7			1.0	0.3	GEN BATTERY CHARGER	20	1
53	20A	1	REC: 113 QUIET RM.	0.7	0.9		0.2	GEN ANNUNCIATOR (NOTE 5)		20	1
55	20A	1	REC: 114 QUIET RM.	0.7			0.7	0.0	SPACE		
57			SPACE	0.0	8.4		8.4	PANEL 'G'		100	2
59			SPACE	0.0			7.9	7.9			
PHASE TOTALS:				40.4	38.5		TOTAL:	78.908	KVA		60

- NOTES:**
- EATON 'PRL' OR EQUIVALENT
 - SERVICE ENTRANCE RATED
 - PROVIDE WITH EXTERNAL SURGE PROTECTOR
 - CONTRACTOR TO FIELD VERIFY EXACT A.I. RATING REQUIRED BASED ON SERVICE ENTRANCE CHARACTERISTICS
 - VERIFY LOCATION WITH OWNER

- ABBREVIATIONS:**
- G - GFCI BREAKER
 - A - AFCI BREAKER
 - L - LOCKOUT BREAKER
 - S - SHUNT TRIP BREAKER
 - C - COMBINATION GFCI/AFCI BREAKER
 - MCB - MAIN CIRCUIT BREAKER
 - MLO - MAIN LUG ONLY

PANEL 'G'											
BRANCH CIRCUIT PANELBOARD											
VOLTAGE		1 PHASE	POLES	MAIN AMPS		MAIN TYPE		A. I. RATING		MOUNTING SURFACE	
120/240		3 WIRE	42	100		MLO		10,000		SURFACE	
POLE NO.	BREAKER TRIP	P	LOAD SERVED	PHASE LOADS			LOAD SERVED	BREAKER TRIP	P	POLE NO.	
				KVA	A	B	KVA				
1	20	1	REC: AMBULANCE BAY	0.5	1.7		1.2	CF-1/CF-2		20	1
3	20	1	REC: AMBULANCE BAY	0.5			1.1	0.6	SEF-1/L-1	20	1
5	20	1	REC: AMBULANCE BAY	0.5	0.8		0.3	IRH-1		20	1
7	20	1	REC: AMBULANCE BAY	0.4			1.4	1.0	EH-2	20	1
9	20	1	REC: 120 STORAGE	0.4	1.9		1.5	EH-3		20	1
11	20	1	REC: RR	0.2			1.2	1.0	OVERHEAD OPERATOR	20	1
13	20G	1	REC: EWC	1.0	2.0		1.0	OVERHEAD OPERATOR		20	1
15	20	1	REC: AMBULANCE BAY	0.4			1.4	1.0	OVERHEAD OPERATOR	20	1
17	20	1	SPARE	0.0	1.0		1.0	OVERHEAD OPERATOR		20	1
19	20	1	REC: CORD REEL	0.5			2.0	1.5	LTS: AMBULANCE BAY	20	1
21	20	1	REC: CORD REEL	0.5	1.0		0.5	LTS: RR/SHELTER, EF-3,4		20	1
23	20	1	REC: CORD REEL	0.5			0.5	0.0	SPARE	20	1
25	20	1	SPARE	0.0	0.0		0.0	SPARE		20	1
27	20	1	REC: EXTERIOR	0.4			0.4	0.0	SPARE	20	1
29	20	1	SPARE	0.0	0.0		0.0	SPARE		20	1
31	20	1	SPARE	0.0			0.0	0.0	SPACE		
33	20	1	SPARE	0.0	0.0		0.0	SPACE			
35			SPACE	0.0	0.0		0.0	SPACE			
37			SPACE	0.0	0.0		0.0	SPACE			
39			SPACE	0.0	0.0		0.0	SPACE			
41			SPACE	0.0	0.0		0.0	SPACE			
PHASE TOTALS:				8.4	7.9		TOTAL:	16.348	KVA		42

- NOTES:**
- EATON 'PRL' OR EQUIVALENT
 - CONTRACTOR TO FIELD VERIFY EXACT A.I. RATING REQUIRED BASED ON SERVICE ENTRANCE CHARACTERISTICS

- ABBREVIATIONS:**
- G - GFCI BREAKER
 - A - AFCI BREAKER
 - L - LOCKOUT BREAKER
 - S - SHUNT TRIP BREAKER
 - C - COMBINATION GFCI/AFCI BREAKER
 - MCB - MAIN CIRCUIT BREAKER
 - MLO - MAIN LUG ONLY

DATE	BY	REVISION
PROJECT NO. 5071-02	DESIGNED BY JE	AS NOTED
	DRAWN BY JE	
	CHECKED BY JE	
	REVIEWED BY JE	
	DATE FEBRUARY 2025	

mse
OF KENTUCKY, INC.
Engineers
Architects
Planners
624 Wellington Way
Lexington, KY 40503
Phone: (859) 223-5894
Fax: (859) 223-2807
www.mselex.com

ELECTRICAL SPECIFICATIONS

GENERAL PROVISIONS

1. REFERENCE
 - a. THE INSTRUCTION TO BIDDERS, GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, ALTERNATES, ADDENDA, CONTRACT DRAWINGS AND SPECIFICATIONS AS SET FORTH IN THE FORTHGOING PAGES ARE HEREBY INCORPORATED INTO AND BECOME A PART OF THE SPECIFICATIONS FOR WORK UNDER THIS TITLE.
 - b. ALL SPECIFICATIONS UNDER THIS DIVISION TITLE ARE DIRECTED TO AND ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR, UNLESS OTHER TRADES OR PERSONS ARE SPECIFICALLY MENTIONED, "ELECTRICAL CONTRACTOR" IS INFERRED AND INTENDED.
2. EXISTING SITE CONDITIONS
 - a. THE CONTRACTOR SHALL VISIT THE SITE OF THE WORK AND BECOME FAMILIAR WITH THE CONDITIONS AFFECTING THE INSTALLATION. SUBMISSION OF BID SHALL PURPOSE KNOWLEDGE OF SUCH CONDITIONS AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED WHERE EXTRA LABOR OR MATERIALS ARE REQUIRED BECAUSE OF IGNORANCE OF THESE CONDITIONS.
3. ELECTRICAL CONTRACTOR
 - a. THE ELECTRICAL CONTRACTOR/COMPANY SHALL BE LICENSED AND CERTIFIED IN THE STATE / LOCATION OF THE PROJECT FOR A MINIMUM OF TWO YEARS.
 - b. THE ELECTRICAL CONTRACTOR/COMPANY SHALL HAVE A MINIMUM OF FIVE YEARS EXPERIENCE INSTALLING COMMERCIAL ELECTRICAL SYSTEMS SIMILAR TO THOSE DESCRIBED IN THESE SPECIFICATIONS AND PROVIDE A LIST OF PREVIOUS COMPANY PROJECTS, INCLUDING NAME OF PROJECT AND CONTACT NAMES AND PHONE NUMBERS FOR REFERENCE.
4. CONTRACT DRAWINGS
 - a. THE DRAWINGS ACCOMPANYING THESE SPECIFICATIONS ARE COMPLEMENTARY TO EACH OTHER AND WHAT IS CALLED FOR BY ONE SHALL BE AS IF CALLED FOR BY BOTH. IF IN ANY INSTANCE CONFLICTING STATEMENTS OCCUR, THE CONTRACTOR SHALL INCLUDE THE MORE EXPENSIVE OF THE TWO.
 - b. CONSULT ALL CONTRACT DRAWINGS (ARCHITECTURAL, MECHANICAL AND ALL OTHERS) WHICH MAY AFFECT THE LOCATION OF EQUIPMENT, CONDUIT AND WIRING AND MAKE MINOR ADJUSTMENTS IN LOCATIONS TO SECURE COORDINATION.
 - c. IT IS THE PURPOSE OF THE ELECTRICAL DRAWINGS TO INDICATE THE APPROXIMATE LOCATION OF ALL EQUIPMENT, OUTLETS, ETC. ASCERTAIN EXACT LOCATIONS AND ARRANGE WORK ACCORDINGLY.
 - d. WIRING LAYOUT IS SCHEMATIC AND EXACT LOCATIONS SHALL BE DETERMINED BY FIELD CONDITIONS.
 - e. INCLUDE ALL LABOR, MATERIAL, EQUIPMENT, SERVICES AND PERMITS NECESSARY FOR THE PROPER COMPLETION OF ALL ELECTRIC WORK SHOWN. ITEMS OMITTED, BUT NECESSARY, TO MAKE THE ELECTRICAL SYSTEM COMPLETE AND WORKABLE SHALL BE UNDERSTOOD TO FORM PART OF THE WORK.
5. PERMITS AND INSPECTIONS
 - a. SECURE AND PAY PERMITS AND INSPECTIONS REQUIRED FOR THE ELECTRICAL WORK.
6. JOB-SITE COPY OF DOCUMENTS
 - a. MAINTAIN AT THE SITE ONE COPY OF ALL DRAWINGS, SPECIFICATIONS, ADDENDA, APPROVED SHOP DRAWINGS, CHANGE ORDERS AND OTHER MODIFICATIONS, IN GOOD ORDER AND MARKED TO RECORD ALL CHANGES AS A PERMANENT RECORD OF THE INSTALLATION AS CONSTRUCTED. THE DRAWINGS MARKED TO RECORD ALL CHANGES MADE DURING CONSTRUCTION SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE FOR THE OWNER UPON COMPLETION OF THE WORK.
7. MANUFACTURER'S DRAWINGS
 - 7.1. SUBMITTALS AND SHOP DRAWINGS SHALL BE SUBMITTED BY THE ELECTRICAL CONTRACTOR WITHIN 15 DAYS AFTER AWARDED THE PROJECT FOR ENGINEER REVIEW.
 - 7.2. ALL EQUIPMENT AND MATERIAL SUBMITTED SHALL BE AS SPECIFIED ON THE DRAWINGS OR EQUAL AS APPROVED BY THE ENGINEER.
 - 7.3. THE ITEMS, TYPES OF SUBMITTALS AND RELATED MATERIAL (IF ANY) CALLED FOR ARE INDICATED BELOW:
SHOP DRAWING LOG ITEMS - SUBMITTALS REQUESTED:
HANGERS AND SUPPORTS
ELECTRICAL POWER CONDUCTORS AND CABLES
RACEWAY AND BOXES
LIGHTING CONTROLS
WIRING DEVICES
ENCLOSED SWITCHES AND CIRCUIT BREAKERS
LIGHT FIXTURES
PANELBOARDS
8. OPERATION AND MAINTENANCE MANUALS
 - 8.1. UPON COMPLETION OF THE PROJECT, SUBMIT PHYSICAL SETS IN BOUND BOOKLET FORM OF ALL WRITTEN OPERATING INSTRUCTIONS AND MAINTENANCE REQUIREMENTS FOR ALL ELECTRICAL EQUIPMENT AND MATERIAL USED AND/OR INSTALLED ON THE PROJECT.
 - 8.2. COPIES OF INSPECTION RESULTS SHALL BE SUBMITTED WITH O&M MANUALS
 - 8.3. INCLUDE A LETTER OF GUARANTEE STARTING AT THE DATE OF SUBSTANTIAL COMPLETION.
9. GUARANTEES
 - a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEFECTS, REPAIRS AND REPLACEMENTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF SUBSTANTIAL COMPLETION AS DETERMINED BY THE OWNER'S REPRESENTATIVE. PRODUCT GUARANTEES GREATER THAN ONE (1) YEAR SHALL BE REGISTERED AND OR TRANSFERRED TO THE OWNER FOR THE FULL BENEFIT/EXTENT OF THE MANUFACTURER'S WARRANTY.
 - b. OPERATION PRIOR TO COMPLETION: WHEN ANY MECHANICAL OR ELECTRICAL EQUIPMENT IS OPERATED DURING CONSTRUCTION THE WARRANTY PERIOD SHALL NOT COMMENCE UNTIL THE EQUIPMENT IS OPERATED BY THE OWNER. PROPERLY CLEAN AND ADJUST THE EQUIPMENT AND COMPLETE ALL PUNCH LIST ITEMS BEFORE FINAL ACCEPTANCE BY THE OWNER. THE DATE OF ACCEPTANCE AND THE START OF THE WARRANTY MAY NOT BE THE SAME DATE.
10. SHUTDOWNS AND INTERRUPTIONS
 - a. THE EXISTING ELECTRICAL AND TELEPHONE/INTERNET SERVICE, AND ALL EXISTING COMMUNICATION, FIRE ALARM, SECURITY SYSTEMS, ORIGINATING WITHIN THE SPACE OR PASSING THROUGH THE SPACE, SERVING OTHER AREAS OF THE BUILDING SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION PERIOD. ANY SERVICE SHUTDOWNS THAT MAY BE REQUIRED SHALL BE SCHEDULED THROUGH THE OWNER AND SHALL BE DONE AT A TIME DIRECTED BY THE OWNER. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR THESE SHUTDOWN PERIODS EVEN THOUGH PREMIUM-TIME WORK MAY BE REQUIRED. PROVIDE TEMPORARY SERVICE TO EQUIPMENT OR SYSTEMS THAT CANNOT BE SHUTDOWN, AS DETERMINED BY THE OWNER.
 - b. PROVIDE A MINIMUM OF ONE WEEK'S NOTICE TO THE OWNER BEFORE ANY SERVICE SHUTDOWN IS SCHEDULED.
 - c. CONTRACTOR SHALL PROVIDE TEMPORARY ELECTRIC SERVICE AND TEMPORARY LIGHTING THROUGHOUT BUILDING DURING CONSTRUCTION PERIOD.
11. LISTINGS
 - a. EQUIPMENT AND MATERIALS USED ON THIS PROJECT SHALL BE NEW AND U.L. LABELED FOR THE APPLICATION.

WORK INCLUDED

1. INSTALLATION, MATERIALS, AND WORKMANSHIP
 - a. FURNISH AND INSTALL ALL NECESSARY ANCHORS, SUPPORTS, STRAPS, BOXES, FITTINGS, AND OTHER SIMILAR APPARATUS NOT INDICATED ON THE DRAWINGS BUT WHICH ARE REQUIRED FOR A COMPLETE AND PROPERLY INSTALLED SYSTEM CONSISTENT WITH THE ARCHITECTURAL TREATMENT OF THE BUILDING.
 - b. THE ELECTRICAL CONTRACTOR, IN SO FAR AS THE WORK IS CONCERNED, SHALL AT ALL TIMES KEEP THE PREMISES IN A NEAT AND ORDERLY CONDITION, AND AT THE COMPLETION OF THE WORK, SHALL PROPERLY CLEAN UP AND CART AWAY DEBRIS AND EXCESS MATERIALS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF DUMPSTER & REFUSED DISPOSAL AS REQUIRED FOR ELECTRICAL WORK.
 - c. ALL MATERIALS SHALL BE NEW AND UNDETERIORATED AND OF QUALITY NOT LESS THAN THE MINIMUM SPECIFIED.
2. COORDINATION OF PLANS AND SPECIFICATIONS
 - a. CONTACT THE OWNER'S REPRESENTATIVE IMMEDIATELY IF THERE IS ANY QUESTION REGARDING THE MEANING OR INTENT OF EITHER PLANS OR SPECIFICATIONS, OR UPON NOTICING ANY DISCREPANCIES OR OMISSIONS IN EITHER PLANS OR

SPECIFICATIONS

CUTTING AND PATCHING

- a. DO ALL CUTTING AND PATCHING IN EXISTING CONSTRUCTION AS NECESSARY FOR INSTALLATION OF THIS WORK. HAVE CUTTING DONE BY SKILLED MECHANICS AS CAREFULLY AS POSSIBLE AND WITH AS LITTLE DAMAGE AS POSSIBLE.
- b. DETERMINE IF ANY STRUCTURAL ELEMENTS SUCH AS REBAR OR POST TENSION CABLES, EXIST IN FLOORS, WALLS OR ROOFS BY INSPECTION COORDINATED WITH THE LANDLORDS TENANT COORDINATOR OR STRUCTURAL ENGINEER AND BY USE OF X-RAY WHEN REQUIRED PRIOR TO ANY CUTTING OR CORE DRILLING. IF SUCH ELEMENTS EXIST, REPORT THIS IMMEDIATELY TO THE ARCHITECT AND LANDLORD'S TENANT COORDINATOR FOR RESOLUTION PRIOR TO CUTTING OR DRILLING.
- c. ALL ELECTRICAL EQUIPMENT SHALL BE KEPT DRY AND CLEAN DURING THE CONSTRUCTION PERIOD. INTERIOR OF ALL ENCLOSURES SHALL BE CLEANED OF DIRT AND DEBRIS BEFORE INSTALLING TRIM OR COVERS.
- d. ALL FINISHED SURFACES OF EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE THOROUGHLY CLEANED OF DIRT AND ALL SCRATCHED OR DAMAGED SURFACES SHALL BE TOUCHED UP WITH MATCHING MATERIAL BEFORE FINAL ACCEPTANCE OF THE WORK.
- e. WHEN ALL WORK IS COMPLETED AND ALL WORK HAS BEEN SATISFACTORILY TESTED AND ACCEPTED BY THE OWNER'S REPRESENTATIVE, ALL CONDUIT AND OTHER EXPOSED SURFACES SHALL BE THOROUGHLY CLEANED.

CODES AND FEES

1. CODES:

- a. WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF LOCAL AND STATE CODES. AS WELL AS THE LATEST STATE ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE, AS INTERPRETED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- b. BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORKS INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

2. FEES:

- a. OBTAIN AND PAY FOR ANY AND ALL PERMITS AND INSPECTIONS REQUIRED BY ALL LAWS AND REGULATIONS AND PUBLIC AUTHORITY HAVING JURISDICTION.

TEST AND INSPECTIONS

1. OBTAIN ALL INSPECTIONS REQUIRED BY ALL LAWS, ORDINANCES, RULES, REGULATIONS, OR PUBLIC AUTHORITY HAVING JURISDICTION AND OBTAIN CERTIFICATES OF SUCH INSPECTIONS AND SUBMIT SAME TO THE OWNER'S REPRESENTATIVE. PAY ALL FEES, CHARGES, AND OTHER EXPENSES IN CONNECTION THEREIN. OBTAIN OCCUPANCY PERMIT AS REQUIRED BY OWNER. FINAL PAYMENT SHALL NOT BE MADE UNTIL OCCUPANCY PERMIT IS OBTAINED.
2. WORK SHALL BE UNACCEPTABLE WHEN FOUND TO BE DEFECTIVE OR CONTRARY TO THE PLANS SPECIFICATIONS, CODES SPECIFIED OR ACCEPTED STANDARDS OF GOOD WORKMANSHIP.
3. THE CONTRACTOR SHALL PROMPTLY CORRECT ALL WORK FOUND UNACCEPTABLE BY THE OWNER'S REPRESENTATIVE WHETHER OBSERVED BEFORE OR AFTER SUBSTANTIAL COMPLETION AND WHETHER OR NOT FABRICATED, INSTALLED OR COMPLETED. THE CONTRACTOR SHALL BEAR ALL COSTS OF CORRECTING SUCH UNACCEPTABLE WORK, INCLUDING COMPENSATION FOR THE OWNER'S REPRESENTATIVE ADDITIONAL SERVICES MADE NECESSARY THEREBY.

CONDUIT

1. FURNISH AND INSTALL ALL CONDUITS, BOXES, FITTINGS, ETC., FOR A COMPLETE RACEWAY SYSTEM.
2. RIGID OR INTERMEDIATE GRADE GALVANIZED STEEL CONDUIT IN WET LOCATIONS, CONCRETE, EXTERIOR MASONRY WALLS AND EXPOSED LOCATIONS SUBJECT TO DAMAGE.
3. GALVANIZED STEEL ELECTRICAL METALLIC TUBING IN DRY LOCATIONS, INTERIOR PARTITIONS, AND CEILING SPACE.
4. FLEXIBLE METAL CONDUIT FOR FINAL CONNECTIONS TO TRANSFORMERS, MOTORS AND EQUIPMENT. LIQUID TIGHT FLEXIBLE METAL CONDUIT IN WET AND DAMP LOCATIONS.
5. FLEXIBLE METALLIC TUBING FROM OUTLET BOX TO RECESSED LIGHT FIXTURES IN SUSPENDED CEILINGS, SIX FOOT MAXIMUM LENGTH.
6. SCHEDULE 40 PVC RIGID NON-METALLIC CONDUIT BURIED BELOW GROUND FLOOR SLAB AND FOR EXTERIOR UNDERGROUND.
7. RACEWAYS SHALL BE SIZED IN ACCORDANCE WITH N.E.C. MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH.
8. CONDUIT FITTINGS FOR RIGID CONDUIT SHALL BE THREADED CAST FERROUS ALLOY WITH GASKETS AND COVERS WHERE REQUIRED CONDUIT FITTINGS FOR EMT TO BE SET SCREW TYPE. LOCKNUTS SHALL BE OF THE BONDING TYPE WHICH BITE INTO THE METAL OF THE BOX. BUSHINGS SHALL BE OF THE INSULATING TYPE.
9. METAL CONDUITS SHALL BE COUPLED AND SECURED TO ALL BOXES IN A MANNER THAT PROVIDES AN ELECTRICALLY CONTINUOUS GROUND PATH FROM POINT OF SERVICE TO ALL OUTLETS.
10. RIGID CONDUITS SHALL BE TERMINATED IN SHEET STEEL WITH DOUBLE LOCKNUTS AND AN INSULATING BUSHING. EMPTY CONDUITS STUBBED SHALL BE THREADED AND CAPPED.
11. NYLON PULL STRING SHALL BE INSTALLED IN ALL EMPTY CONDUITS.
12. CONDUIT ROUTING INDICATED ON THE DRAWINGS IS DIAGRAMMATIC ONLY AND IS NOT NECESSARILY THE INTENDED ACTUAL CONDUIT RUN. CONTRACTOR SHALL CHECK AND BE RESPONSIBLE FOR THE ACTUAL INSTALLATION WITH REGARD TO AVAILABLE SPACE AND SHALL COOPERATE WITH OTHER TRADES.
13. ALL CONDUITS SHALL BE SIZED AND INSTALLED SO THAT THE REQUIRED NUMBER OF CONDUCTORS MAY BE PULLED IN WITHOUT INJURY OR STRAIN.
14. CONDUIT RUNS SHALL BE LOCATED TO AVOID EQUIPMENT AND ACCESS TO EQUIPMENT OF OTHER TRADES.
15. CONDUITS SHALL BE CONTINUOUS AND SECURED TO ALL BOXES IN SUCH A MANNER THAT EACH CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS FROM THE POINT OF SERVICE TO ALL OUTLET BOXES. RUN CONDUITS CONCEALED UNLESS OTHERWISE INDICATED. WHERE IT IS NOT POSSIBLE TO INSTALL CONCEALED CONDUIT, PERMISSION MUST BE OBTAINED FROM THE ARCHITECT TO RUN SURFACE WIREMOLD OR CONDUIT. THE ROUTING AND ELEVATION OF SUCH SURFACE MOUNTED RACEWAYS MUST BE COORDINATED WITH THE ARCHITECT BEFORE INSTALLATION. EXPOSED RACEWAYS SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO STRUCTURAL MEMBERS AND SHALL BE PAINTED TO MATCH ADJACENT FINISHES.
16. ENDS OF EACH CONDUIT SHALL BE CAPPED WITH AN APPROVED CAP OR DISC TO PREVENT THE ENTRANCE OF FOREIGN MATERIALS DURING CONSTRUCTION.
17. CONDUITS THAT PASS THROUGH FIRE OR SMOKE RATED WALLS, CEILINGS, OR DECKS SHALL BE INSTALLED SO AS TO MAINTAIN THE FIRE OR SMOKE RATING.
18. EXPANSION FITTINGS SHALL BE INSTALLED AT ALL POINTS WHERE CONDUITS CROSS BUILDING EXPANSION JOINTS.
19. CONDUIT ENTRIES INTO BUILDING SHALL BE MADE WATERTIGHT. ALL UNDERGROUND JOINTS SHALL BE SEALED.
20. EXTERIOR UNDERGROUND CONDUITS SHALL BE INSTALLED 36 INCHES MINIMUM BELOW FINISHED GRADE.

BUSHINGS AND CONNECTORS

1. WHERE RIGID OR INTERMEDIATE METAL CONDUIT ENTERS A BOX, SECURE THE CONDUIT TO THE BOX WITH A LOCKNUT ON THE OUTSIDE AND INSIDE. PROVIDE BUSHINGS FOR CONDUIT TERMINALS AT BOXES. FOR CONDUCTORS THRU #8 AWG BUSHINGS SHALL BE GALVANIZED, NON-INSULATING TYPE, AND FOR CONDUCTORS LARGER THAN #8 AWG BUSHINGS ARE TO BE INSULATING TYPE. IF THE CONDUIT FITTING PROVIDES EQUIVALENT PROTECTION OF THE CONDUCTORS, THE BUSHING MAY BE ELIMINATED.

HANGERS AND SUPPORTS

1. CONDUIT SUPPORTS SHALL BE ATTACHED TO BUILDING STRUCTURAL MEMBERS ONLY BY ONE AND TWO-WHOLE STRAPS AND/OR SUITABLE CLAMPS OR HANGERS, AND NOT TO ANY BUILDING SUB SYSTEMS SUCH AS SUSPENDED CEILINGS, MECHANICAL DUCTS OR PIPES. DO NOT USE PERFORATED STRAP-TYPE HANGER, WIRE TIES, OR PLUMBERS STRAP.
2. IN NO CASE SHALL CONDUIT BE ATTACHED OR SUPPORTED FROM ADJOINING PIPE OR INSTALLED IN SUCH A MANNER AS TO PREVENT THE READY REMOVAL OF OTHER PIPE FOR REPAIRS.
3. PROVIDE ANGLE IRON FRAMES AND SUPPORTS FOR JUNCTION BOXES AND CABINETS TO PREVENT STRAIN ON ENTERING CONDUITS. GROUP EXPOSED CONDUITS TOGETHER. CONDUIT PENETRATIONS IN CEILINGS SHALL BE TIGHT TO THE CONDUIT AND SEALED.

4. SUPPORT RIGID STEEL, IMC, AND EMT RACEWAYS AT MAX TEEN FEET INTERVALS AND WITHING THREE FEET OF OUTLET AND JUNCTION BOXES, CABINETS, OR FITTINGS. SUPPORT WITHING 12" OF EACH CHANGE IN DIRECTION. USE ONE-HOLE MALLEABLE IRON CLAMPS. SUPPORT MULTIPLE RUNS ON GALVANIZED UNISTRUT.

WIRE AND CABLE

1. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE U.L. LABELED, 98% CONDUCTIVITY COPPER-STRAPPED AT 2 FT. INTERVALS WITH CONDUCTOR SIZE AND INSULATION TYPE.
2. FEEDER CIRCUIT CONDUCTORS SHALL BE TYPE "XHHW-2" OR "THHN", 600 VOLT. STRANDED COPPER, 90 DEGREE C RATED.
3. BRANCH CIRCUIT CONDUCTORS SHALL BE TYPE "THWN/THHN-2", 600 VOLT, 90 DEGREE C, COPPER. WIRE SIZES #8 AWG AND LARGER SHALL BE STRANDED, BRANCH CIRCUIT CONDUCTORS SMALLER THAN SIZE #8 AWG SHALL BE SOLID. BRANCH CIRCUIT CONDUCTORS SHALL ALSO BE PERMISSIBLE TO BE TYPE "MC" THHN-2, 600 VOLT, 90 DEGREE C, COPPER WITH INSULATED GREEN GROUND WIRE ENCLOSED IN AN ALUMINUM OR GALVANIZED STEEL ARMOR "CONDUIT" THAT IS APPROVED FOR EXPOSED OR CONCEALED APPLICATIONS.
4. MINIMUM WIRE SIZE SHALL BE #12 AWG OR LARGER AS REQUIRED TO LIMIT VOLTAGE DROP AT FURTHEST OUTLET TO 3%.
5. CONNECTIONS ARE TO BE MADE USING PRESSURE TYPE TERMINALS.
6. THE FOLLOWING COLOR CODE SHALL BE USED:
120/208V, 3-PHASE: BLACK, RED, BLUE, NEUTRAL WHITE, GROUND GREEN
277/480V, 3-PHASE: BROWN, ORANGE, YELLOW, NEUTRAL GREY, GROUND GREEN
7. CONDUCTORS NO. 10 AWG OR SMALLER SHALL HAVE INSULATION COLORED AS NOTED ABOVE
 - a. AT EACH TERMINAL
 - b. AT EACH CONDUIT ENTRANCE
 - c. AT INTERVALS NOT MORE THAN 12 INCHES APART IN ALL BOXES, PANEL TUBS, SWITCHBOARDS, ETC.
9. ALL BRANCH CIRCUITS SHALL BE MARKED IN THE PANEL BOARDS GUTTERS. MARKERS SHALL INDICATE CORRESPONDING BRANCH-CIRCUIT NUMBERS.
10. EACH BRANCH CIRCUIT REQUIRING A NEUTRAL SHALL BE FURNISHED WITH A SEPARATE INDIVIDUAL NEUTRAL CONDUCTOR
11. INSULATION RESISTANCE TESTS SHALL BE MADE ON THE ELECTRICAL SYSTEM WITH AN APPROVED MEGOHMMETER.
12. AFTER INSTALLATION, TEST FOR GROUNDS, SHORT CIRCUITS AND PROPER FUNCTION OF EACH SYSTEM RELATED WIRING. FAULTS IN THE INSTALLATION SHALL BE CORRECTED.
13. INSTALLATION:
 - a. PULL WIRE AND CABLES USING WIRE PULLING LUBRICANT RATED FOR USE WITH WIRE AND CABLES.
 - b. COLOR CODE WIRE AND CABLE FOR CIRCUITS AS CALLED FOR IN THE NATIONAL ELECTRICAL CODE. COLOR CODING OF FEEDERS SHALL BE BY MEANS OF COLORED TAPE AT TERMINALS.
 - c. INDIVIDUAL BRANCH CIRCUITS ARE SHOWN ON THE DRAWINGS FOR CLARITY. LIGHTING AND RECEPTACLE CIRCUITS MAY BE GROUPED FOR HOMERUNS, SO LONG AS CONDUCTOR AMPACITIES ARE DERATED PER N.E.C. REQUIREMENTS. NEUTRAL CONDUCTORS IN RECEPTACLE CIRCUITS SERVING DATA EQUIPMENT LOADS SHALL NOT BE SHARED.
 - d. WIRING FROM LEGALLY REQUIRED EMERGENCY AND STANDBY POWER GENERATION SOURCES SHALL BE KEPT INDEPENDENT OF EACH OTHER AND INDEPENDENT OF ALL OTHER BRANCH CIRCUITS WIRING, AND SHALL NOT ENTER THE SAME RACEWAY, CABLE, BOX, OR CABINET WITH OTHER WIRING, UNLESS SPECIFICALLY ALLOWED BY THE N.E.C.

BOXES AND PLATES

1. FURNISH AND INSTALL ALL OUTLET, JUNCTION, AND PULL BOXES AS INDICATED ON THE DRAWINGS AND AS NECESSARY TO INSTALL THE REQUIRED CONDUIT AND WIRING IN A NEAT AND WORKMANLIKE MANNER.
 2. PULL BOXES AND JUNCTION BOXES SHALL BE GALVANIZED AND OF THE CORRECT SIZE AND GAUGE, SIZED IN ACCORDANCE WITH CODE REQUIREMENTS AND SHALL BE U.L. LABELED.
 3. BOXES AT EXTERIOR AREAS TO BE WATERTIGHT AND DUST-TIGHT WITH GASKETED COVERS.
 4. ALL BOXES FOR EXPOSED WORK IN FINISHED SPACES SHALL BE "FS" TYPE WITH THREADED HUBS WITH RIGID CONDUIT RISER (DEEP WIRE MOLD BOXES).
 5. ALL BOXES SHALL BE RIGIDLY SUPPORTED INDEPENDENT OF THE CONDUIT SYSTEM. ALL BOXES SHALL BE SQUARE BOXES MINIMUM WITH RAISED COVERS SUITABLE FOR THE WALL MATERIAL. BOXES CAST INTO MASONRY OR CONCRETE ARE CONSIDERED TO BE RIGIDLY SUPPORTED.
 6. FLOOR BOXES:
 - a. DESCRIPTION: FLOOR BOXES COMPATIBLE WITH FLOOR BOX SERVICE FITTINGS PROVIDED IN ACCORDANCE WITH THE WIRING DEVICES SECTION OF THIS SPECIFICATION; WITH PARTITIONS TO SEPARATE MULTIPLE SERVICES; FURNISHED WITH ALL COMPONENTS, ADAPTERS, AND TRIMS REQUIRED FOR COMPLETE INSTALLATION.
 - b. USE CAST IRON OR NONMETALLIC FLOOR BOXES WITHIN SLAB ON GRADE.
 - c. USE SHEET-STEEL, CAST-IRON, OR NONMETALLIC FLOOR BOXES WITHIN SLAB ABOVE GRADE.
 - d. METALLIC FLOOR BOXES; FULLY ADJUSTABLE (WITH INTEGRAL MEANS FOR LEVELING ADJUSTMENT PRIOR TO AND AFTER CONCRETE POUR).
 - e. MANUFACTURER; SAME AS MANUFACTURER OF FLOOR BOX SERVICE FITTINGS.
7. UNDERGROUND BOXES/ENCLOSURES:
 - a. DESCRIPTION: IN-GROUND, OPEN BOTTOM BOXES FURNISHED WITH FLUSH, NON-SKID COVERS WITH TEXT INDICATING TYPE OF SERVICE AND STAINLESS-STEEL TAMPER RESISTANT COVER BOLTS.
 - b. COVER TEXT: AS INDICATED ON DRAWINGS.
 - c. SIZE: AS INDICATED ON DRAWINGS.
 - d. DEPTH: AS REQUIRED TO EXCEED BELOW FROST LINE TO PREVENT FROST UPHEAVAL, BUT NOT LESS THAN 12 INCHES.
 - e. APPLICATION:
 - e.a. SIDEWALKS AND LANDSCAPED AREAS (SUBJECT ONLY TO OCCASIONAL NON-DELIBERATE VEHICULAR TRAFFIC); USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 8 LOADING RATING.
 - e.b. PARKING LOTS (SUBJECT ONLY TO OCCASIONAL NON-DELIBERATE VEHICULAR TRAFFIC); USE POLYMER CONCRETE OR COMPOSITE ENCLOSURE WITH MINIMUM SCTE 77, TIER 15 LOAD RATING.
 - e.c. DO NOT USE POLYMER CONCRETE ENCLOSURES IN AREAS SUBJECT TO DELIBERATE VEHICULAR TRAFFIC SUCH AS STREETS AND HIGHWAYS.
 - e.f. COMPOSITE UNDERGROUND BOXES/ENCLOSURES: COMPLY WITH SCTE 77

WIRING DEVICES

1. WIRING DEVICES SHALL BE SIMILAR TO THOSE LISTED BELOW AND OF SPECIFIED AMPERAGE. OTHER SPECIAL PURPOSE DEVICES SHALL BE AS SPECIFIED ON THE DRAWINGS.
2. DUPLEX GROUNDING TYPE RECEPTACLE - 20 AMP, 125 VOLTS
 - a. HUBBELL 5352
 - b. ARROW HART 5352
3. SINGLE POLE SWITCHES - 20 AMP, 120 VOLT
4. WEATHERPROOF RECEPTABLES - 20 AMP, 125 VOLT - NEMA 5-20R
 - a. HUBBELL 5352 WITH 5205 COVER INTERMATIC GUARDIAN
 - b. 1 SERIES, NEMA 3R COVER
 - c. ARROW HART 5352 WITH 4500 COVER
5. GFCI RECEPTACLE - 20 AMP, 125 VOLT - NEMA 5-20R
 - a. HUBBELL GF 5262 WITH MATCHING NYLON COVER PLATE OR WO-26 W.P. COVER.
6. GROUND ALL RECEPTABLES IN ACCORDANCE WITH ARTICLE 250.146 OF NEC AND AS INDICATED IN THE GROUNDING SECTION OF THIS SPECIFICATION.

DISCONNECT SWITCHES

1. PROVIDE MOTOR DRIVEN EQUIPMENT WITH PROPERLY SIZED AND RATED DISCONNECT SWITCHES TO COMPLY WITH N.E.C. REQUIREMENTS, WHETHER OR NOT INDICATED ON THE

DRAWINGS

2. DISCONNECT SWITCHES SHALL BE MANUFACTURED BY SQUARE D OR BY APPROVED ALTERNATE MANUFACTURERS: GENERAL ELECTRIC, WESTINGHOUSE OR SIEMENS.

IDENTIFICATION

1. PROVIDE NAMEPLATES ON PANELBOARDS, DISTRIBUTION EQUIPMENT, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES, AND CONTROL DEVICES. UNLESS OTHERWISE INDICATED ON THE DRAWINGS, LETTERING SHALL INCLUDE THE NAME OR DESIGNATION OF THE EQUIPMENT, HOMERPOWER, VOLTAGE RATING AND SERVICE DESIGNATION.
 2. IDENTIFICATION NAMEPLATES SHALL BE PLASTIC, BLACK IN COLOR, WITH THE ENGRAVED WHITE LETTERS. LETTERS SHALL BE A MINIMUM OF 1/4" HIGH. PLATES SHALL BE DRILLED ON EACH END FOR SHEET METAL SCREW ATTACHMENT. NO "DYMO" OR SIMILAR TYPE PAPER LABELS WILL BE ALLOWED.
 3. PANEL BOARD DIRECTORY: A TYPED CIRCUIT DIRECTORY SHALL BE PROVIDED INDICATING LOCAL AREA SERVED AND LOCATION FOR EACH BRANCH CIRCUIT.
- ### GROUNDING
1. ALL FEEDERS AND BRANCH CIRCUITS OVER 100 VOLTS SHALL INCLUDE A GROUNDING CONDUCTORS SIZED IN ACCORDANCE WITH NEC TABLE 250-122, EXCEPT NOT BE SMALLER THAN #12 FOR POWER AND LIGHTING CIRCUITS AND #14 FOR CONTROL CIRCUITS. ALL GROUND CONDUCTORS SHALL BE GREEN, OR AS SPECIFIED UNDER THE WIRE AND CABLE SECTION OF THIS SPECIFICATION.
 2. ALL GROUND CLAMPS SHALL BE PENN-UNION "GPL" TYPE OR SIMILAR BY O.Z. OR BURNDY.
 3. CONDUIT FOR SOLITARY GROUND CONDUCTORS SHALL BE RIGID SCHEDULE 40 PVC NON-METALLIC ELECTRICAL CONDUIT WITH U.L. LABEL. SOLITARY GROUND CONDUCTORS SHALL NOT BE PLACED THROUGH METALLIC SLEEVES OR CONDUITS AND SHALL NOT BE COMPLETELY ENCIRCLED BY METALLIC HANGERS OR SUPPORTS.
 4. THE GROUND CONDUCTOR SHALL BE CONNECTED TO THE NEUTRAL IN ONLY TWO LOCATIONS - ON THE SUPPLY SIDE OF THE SERVICE DISCONNECT MEANS PER NEC-250-24 AND ON SEPARATELY DERIVED SYSTEMS PER NEC 250-30.
 5. AT EACH RECEPTACLE BOX, THE GROUND CONDUCTOR SHALL ENTER AND CONNECT, WITH NORMAL WIRING CONNECTOR, TO: 1) THE GROUND PIGTAIL TO RECEPTACLE; 2) THE GROUND PIGTAIL TO THE BOX GROUND SCREW; AND 3) THE OUTGOING GROUND CONDUCTOR TO NEXT DEVICE. IF NOT AT END OF RUN, METAL TO METAL CONTACT BETWEEN THE DEVICE YOKE AND THE OUTLET BOX IS NOT ACCEPTABLE AS A BOND FOR EITHER SURFACE MOUNTED BOXES OR FLUSH TYPE BOXES.
 6. CONDUIT SYSTEM SHALL BE ELECTRICALLY CONTINUOUS. ALL LOCK NUTS SHALL CUT THROUGH ENAMELED OR PAINTED SURFACES ON ENCLOSURES. WHERE ENCLOSURES AND NON-CURRENT CARRYING METALS ARE ISOLATED FROM THE CONDUIT SYSTEM, USE BONDING JUMPERS WITH APPROVED CLAMPS, WHERE REDUCING WASHERS ARE USED AND WHERE CONCENTRIC OR ECCENTRIC KNOCKOUTS ARE NOT COMPLETELY REMOVED BONDING BUSHINGS SHALL BE REQUIRED.
 7. THE GROUNDING CONDUCTOR FOR BRANCH CIRCUITS FEEDING ISOLATED GROUND RECEPTABLES SHALL BE CONNECTED ONLY AT THE ISOLATED GROUND RECEPTACLE GROUND TERMINALS, AND AT THE GROUND BUS OF THE SERVING PANEL.
 8. A GROUND CONTINUITY TEST SHALL BE MADE ON THE ENTIRE GROUNDING SYSTEM FROM THE SERVICE TO EVERY OUTLET.

LIGHTING FIXTURES

1. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING FIXTURES AS INDICATED IN FIXTURE SCHEDULE SHOWN ON DRAWINGS, AND SPECIFIED HEREIN.
2. NEUTRAL ASSEMBLY SHALL HAVE INDIVIDUAL ANTI-TURN SOLDERLESS TERMINALS, SIMILAR TO SQUARE-D TYPE PK, FOR CONNECTION OF ULTIMATE NUMBER OF NEUTRAL WIRES. SHEET METAL TERMINAL STRIPS AND CONNECTIONS WILL BE REJECTED.
3. ALL LIGHTING FIXTURES INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE FURNISHED COMPLETE WITH ALL NECESSARY COMPONENTS, PARTS, HANGER KITS, DRIVERS, ADAPTERS, STEMS, CABLES AND ACCESSORIES REQUIRED FOR INSTALLATION AS SHOWN ON DRAWINGS.
4. ANY LIGHTING FIXTURES SCRATCHED, BENT, CRACKED, OR IN ANY WAY DAMAGED BEFORE ACCEPTANCE BY OWNER SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
5. ALL LIGHTING FIXTURES SHALL BE IN WORKING ORDER AT THE TIME OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER.
6. ALL LIGHTING FIXTURES ARE TO BE GROUNDING ON THE INTERIOR OF THE FIXTURE HOUSING, ON CLEAN BARE METAL (FREE OF PAINT), BY USE OF PIGTAIL AND FASTENED BY A SCREW USED FOR NO OTHER PURPOSE.

TELEPHONE/DATA SYSTEMS

1. SUMMARY
 - a. INCLUDES BUT NOT LIMITED TO
 - aa. FURNISH AND INSTALL BUILDING TELEPHONE AND COMPUTER NETWORK RACEWAY AND CABLE SYSTEM AS DESCRIBED IN CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, RACEWAY, OUTLETS, MODULAR JACKS, DEVICE PLATES, CABLES, PUNCH DOWN BLOCKS, PATCH PANELS, EQUIPMENT CABINETS, CABLE TRAY, GROUNDING AND OTHER MISCELLANEOUS ITEMS REQUIRED FOR A COMPLETE WORKING SYSTEM.
2. COMPONENTS
 - a. TELEPHONE/DATA OUTLETS SHALL BE PROVIDED WITH SINGLE OR DOUBLE DEVICE BOX, AS REQUIRED FOR OUTLET INDICATED.
 - b. BUILDING TELEPHONE AND COMPUTER NETWORK SYSTEM CABLE:
 - b.a. 23 GAUGE, SOLID TINNED COPPER, FOUR TWISTED PAIRS, CATEGORY 6
 - b.b. USE PLENUM-RATED CABLE IN CEILINGS AND AREAS USED FOR PLENUM AIR RETURN
 - c. TELEPHONE TERMINATION BLOCKS
 - c.a. UL VERIFIED CATEGORY 6110 TERMINATION WITH TIN LEAN PLATED IDC
 - d. TELEPHONE/NETWORK JACKS
 - d.a. WALL JACKS
 - d.a.a. CAT6 - HUBBELL HX16 OR ALTERNATE MANUFACTURER WITH EQUIVALENT PERFORMANCE STANDARD.
 - d.b. PLATES
 - d.b.a. HUBBELL - JFP SERIES (PORT QUANTITY AS REQUIRED, COLOR BY ARCHITECT FROM MANUFACTURERS FULL LINE)
 - d.c. CONNECTOR BLOCKS FOR CATEGORY 6 AND UTP CABLING: TYPE 110 INSULATION DISPLACEMENT CONNECTORS; CAPACITY SUFFICIENT FOR CABLES TO BE TERMINATED PLUS 25 PERCENT SPARE CAPACITY.
3. INSTALLATION
 - a. TERMINATE CABLES AT EACH OUTLET WITH SPECIFIED MODULAR JACK ASSEMBLY.
 - b. TERMINATE CABLES ON PUNCH DOWN BLOCKS OR PATCH PANELS AT TERMINAL BOARD.
 - c. PROVIDE TYPED LABELS AT ALL JACKS CORRESPONDING TO TYPED NUMBERING SYSTEM AT TERMINAL STRIP.
 - d. ALL EQUIPMENT MOUNTED ON EQUIPMENT ROOM WALLS SHALL BE ATTACHED TO 1/2" PLYWOOD BOARDS, PAINTED WITH FIRE RESISTANT PAINT.
4. QUALITY ASSURANCE
 - a. COMPLY WITH APPLICABLE PORTIONS OF NEC, ANSII/EIA/TIA 568 AS TO TYPE PRODUCTS USED AND INSTALLATION OF COMPONENTS. PROVIDE PRODUCTS AND MATERIAL WHICH HAVE BEEN UL-LISTED AND LABELED.

FIRE AND SMOKE INTEGRITY

1. SEAL BUILDING OPENINGS THROUGHOUT, CAUSED BY INSTALLATION OF ALL TYPES OF ELECTRICAL EQUIPMENT (CONDUIT, CABLE/WIRE, PANELS, ETC.) WHERE OPENINGS ARE IN FLOORS OR FIRE RATED WALLS CONFIGURE THE PENETRATION IN CONFORMANCE WITH UL LISTED CRITERIA. INSURE FIRE AND SMOKE BARRIER INTEGRITY THROUGHOUT. WHERE INTUMESCENT SEALER/CAULKING IS REQUIRED USE MATERIALS OF 3M OR DOW CORNING.

POWER AND LIGHTING PANELS

1. FURNISH AND INSTALL, AS SCHEDULED AND SHOWN ON THE DRAWINGS, POWER PANELS FOR OPERATION ON VOLTAGES INDICATED.
2. BRANCH CIRCUIT PANEL BOARDS SHALL BE DEAD-FRONT CIRCUIT BREAKER TYPE, WITH VOLTAGE, AMPERAGE, MAIN CIRCUIT BREAKER OR MAIN LUGS ONLY, AS NOTED ON DRAWINGS. ALL PANEL BOARDS SHALL BE PROVIDED WITH SOLID NEUTRALS AND GROUNDING BUS WITH LUGS.
3. CIRCUIT BREAKERS SHALL BE THERMAL MAGNETIC, MOLDED CASE, BOLT-ON TYPE, WITH QUANTITY, AMPERAGE, AND POLES AS NOTED ON THE PANEL SCHEDULES. SHORT CIRCUIT INTERRUPTING CAPACITY SHALL BE AS NOTED ON THE DRAWINGS. TWO AND THREE POLE BREAKERS SHALL BE COMMON TRIP. AUTOMATIC TRIPPING SHALL BE INDICATED BY THE OPERATING HANDLE ASSUMING A MID-POSITION BETWEEN ON AND OFF. PROVIDE HACR BREAKERS AS REQUIRED BY ALL HVAC EQUIPMENT AND MANUFACTURERS.

4. PANEL BOARD ENCLOSURES SHALL BE GENERAL PURPOSE, SURFACE OR FLUSH-MOUNTED AS NOTED ON DRAWINGS, WITH GALVANIZED BACKBOX AND PAINTED FRONT WITH LOCKABLE DOOR. A GLAZED DIRECTORY FRAME SHALL BE PROVIDED INSIDE THE DOOR AND SHALL BE OF SUFFICIENT SIZE TO GIVE DESCRIPTION OF EACH CIRCUIT. ALL SECTIONS OF MULTI-SECTION PANELS SHALL BE SAME SIZE.
5. TWO KYS SHALL BE PROVIDED WITH EACH PANEL, AND ALL PANELS SHALL BE KEYPED ALIKE.
6. SCREW FASTENED HANDLE LOCK-ON DEVICES SHALL BE PROVIDED ON BRANCH CIRCUIT BREAKERS FOR EMERGENCY, EXIT, SECURITY AND NIGHT LIGHTS.
7. BRANCH CIRCUIT PANELBOARDS SHALL BE SQUARE-D, TYPE 'NQ', 120/208 VOLT 3-PHASE, 4-WIRE OR TYPE 'NF', 277/480V, 3-PHASE, 4-WIRE. DISTRIBUTION PANELBOARDS SHALL BE SQUARE-D, TYPE 'LINE. REFER TO PANEL SCHEDULES FOR PANEL SPECIFICS. EQUIVALENT ALTERNATE MANUFACTURERS: CUTLER HAMMER, GENERAL ELECTRIC, OR SIEMENS.
8. ALL LIGHTING AND APPLIANCE PANELBOARDS SHALL HAVE A LAMINATED TYPE-WRITTEN CIRCUIT DIRECTORY THAT SHALL SHOW LOADING AS CONNECTED DURING CONSTRUCTION.
9. THE BRANCH CIRCUIT NUMBERS USED ON THE DRAWINGS SHALL BE APPLIED FOR THE CONSTRUCTION. HOWEVER, AT THE COMPLETION OF THE WORK, CIRCUIT NUMBER ADJUSTMENTS SHALL BE MADE AS REQUIRED TO PROVIDE BALANCED PHASE LOADING ON EACH PANELBOARD.
10. FLUSH/RECESSED MOUNTED PANELBOARDS SHALL BE INSTALLED WITH A MINIMUM OF THREE EMPTY 1/2" CONDUITS STUBBED UP TO THE NEAREST ACCESSIBLE CEILING SPACE FOR CONVENIENT FUTURE EXPANSION.

FUSES

1. FURNISH AND INSTALL A COMPLETE SET OF FUSES THROUGHOUT FOR FUSIBLE EQUIPMENT IN THE PROJECT. FUSES SHALL BE AS MANUFACTURED BY BUSMAN, GOULD OR LITTELFUSE.
2. PROVIDE FUSES OF THE SAME MANUFACTURER THROUGHOUT. FUSES SHALL BE U.L. LISTED, CURRENT LIMITING AND HAVE AN INTERRUPTING RATING OF 100,000 RMS AMPERES SYMMETRICAL.
 - a. FUSES RATED 601 TO 6000 AMPERES SHALL BE TIME-DELAY, CURRENT-LIMITING, U.L. LISTED, NEMA CLASS L.
 - b. FUSES RATED 600 AMPERES AND LESS SERVING PANEL BOARDS SHALL BE UL CLASS C. RK-1 DUAL ELEMENT (UNLESS NOTED OTHERWISE).
 - c. FUSES RATED 600 AMPERES AND LESS SERVING MOTOR CIRCUITS SHALL BE UL CLASS RK-5 DUAL-ELEMENT TIME DELAY.



BATH COUNTY EMS
OWINGSVILLE, KENTUCKY

DATE	REVISION	BY

PROJECT NO. 5071-02
DESIGNED BY JIE
DRAWN BY JIE
CHECKED BY JIE
REVIEWED BY JIE
DATE FEBRUARY 2025
SCALE AS NOTED

DESIGN DOCUMENTS:
The design professional reviews any and all responsibility and liability for problems which arise from failure to follow these plans, specifications and the design intent they convey.

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Engineers
Architects
Planners

624 Wellington Way
Lexington, KY 40503
www.msekbx.com

Phone: (859)223-5894
Fax: (859)223-2607

DRAWING NO.
E7