# ROWAN COUNTY SENIOR CITIZENS CENTER

MOREHEAD, KENTUCKY

CDBG # 22-050







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

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



**CODE INFORMATION: <u>Building Code:</u>** 2018 Kentucky Building Code, Third Edition **Project:** Rowan County Senior Citizens Center

**Project Site Address:** Clearfield Street, Morehead, KY 40351 **Brief Description:** Senior Citizens Center, Brick exterior with wood and metal stud framing, wood roof trusses, with asphalt shingle roof. Large Community Room, Kitchen, Fitness Room and Offices.

**Use Group:** Business Group A-3 and B, Business Area

**<u>Heights and Areas:</u>** Table 504.3 Allowable Building Height in Feet above grade plane Table 504.3 Construction Type VB not sprinkled. 22.5 feet actual height. Table 504.4 Allowable number of stories above grade plane 1 stories allowed. 1 story actual. Table 506.2 Allowable Area Factor Type VB 6,000 SF allowed. 5,794 SF actual.

Section 1004 Occupant Load:

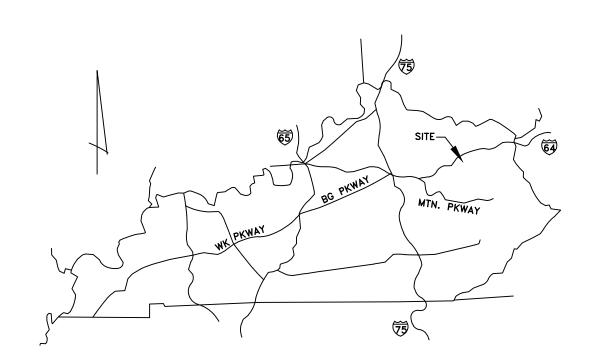
Business Areas - 100 gross (based on 3,394 SF = 34 Occupants) Assembly Group A-3 - 15 net (based on 2,400 SF = 160 Occupants) Per Table 1006.2.1 Maximum Common Path of Egress Travel is 75 feet.

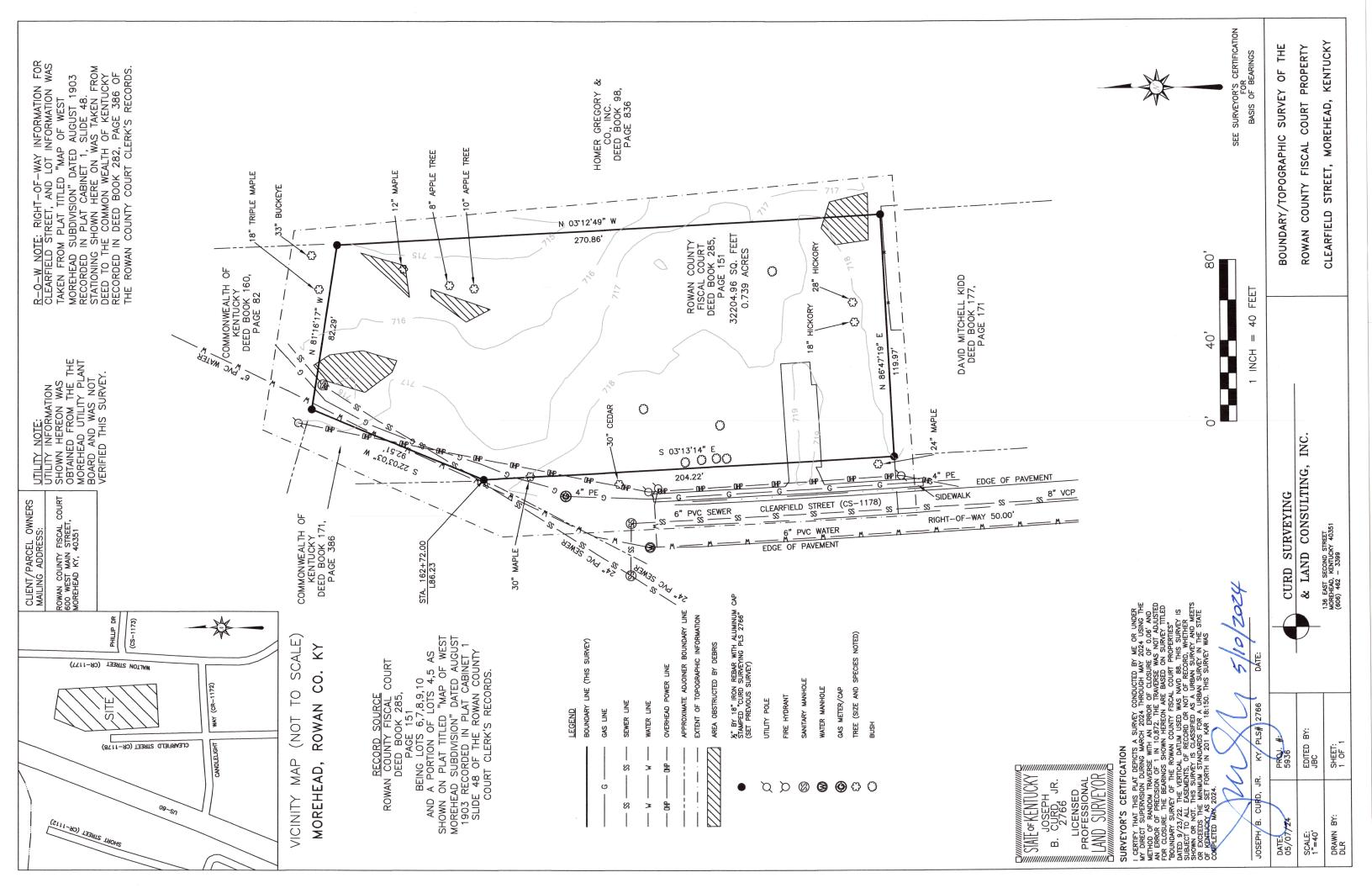
DATE: NOVEMBER 2024

Ε	SURVEY	/PLAT	 	 	 	 	 PS-	- :

STRUCTURAL NOTES. FOUNDATION PLAN. S-1 ROOF FRAMING PLAN. S-2 FOUNDATION DETAILS. FRAMING DETAILS. S-3 FRAMING DETAILS. S-4  FLOOR PLAN. EXTERIOR ELEVATIONS. ROOF PLAN AND TRUSS. WALL SECTIONS. WALL SECTIONS. DOOR & WINDOW DETAILS. A-5 DOOR & WINDOW DETAILS. A-6 INTERIOR ELEVATIONS. A-7 FINISH SCHEDULE & DETAILS. A-8  PLUMBING SITE PLAN. SU1 ELECTRICAL SITE PLAN. SU2  PLUMBING LEGEND & NOTES. PO SANITARY SEWER PLAN. P1 DOMESTIC WATER & GAS PLAN. P2 SANITARY SEWER RISER. P3. DOMESTIC WATER RISER. P3. PLUMBING SCHEDULES. P6. PLUMBING SCHEDULES. P6. PLUMBING SPECIFICATIONS. P7  HVAC LEGEND & NOTES. M0 HVAC PLAN. RADON MITIGATION PLAN. M1 RADON MITIGATION PLAN. M2 HVAC SCHEDULES. M6. HVAC SCHEDULES. M6 HVAC SPECIFICATIONS. M7  ELECTRICAL LEGEND & NOTES. E0 LIGHTING PLAN. E1 POWER & SYSTEMS PLAN. E2 ELECTRICAL DETAILS. E5 ELECTRICAL SCHEDULES. E6 ELECTRICAL SPECIFICATIONS. E7	TORM SEWER DETAILS	C-1 C-2 C-3 D-1 D-2
EXTERIOR ELEVATIONS	OUNDATION PLANS OOF FRAMING PLANS OUNDATION DETAILSS	5-1 5-2 5-3
PLUMBING LEGEND & NOTES	XTERIOR ELEVATIONS	4-2 4-3 4-4 4-5 4-6 4-7
SANITARY SEWER PLAN		
HVAC PLAN	ANITARY SEWER PLANFOMESTIC WATER & GAS PLAN	P1 P3. P3. P6.
LIGHTING PLAN	VAC PLAN	м1 м2 м6. м6.
	IGHTING PLANE OWER & SYSTEMS PLANE LECTRICAL DETAILSE LECTRICAL SCHEDULESE	=1 =2 =5 =6

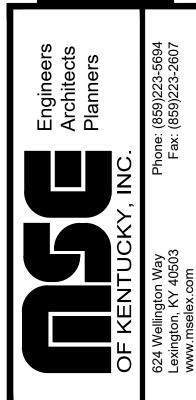
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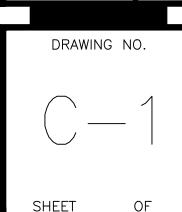






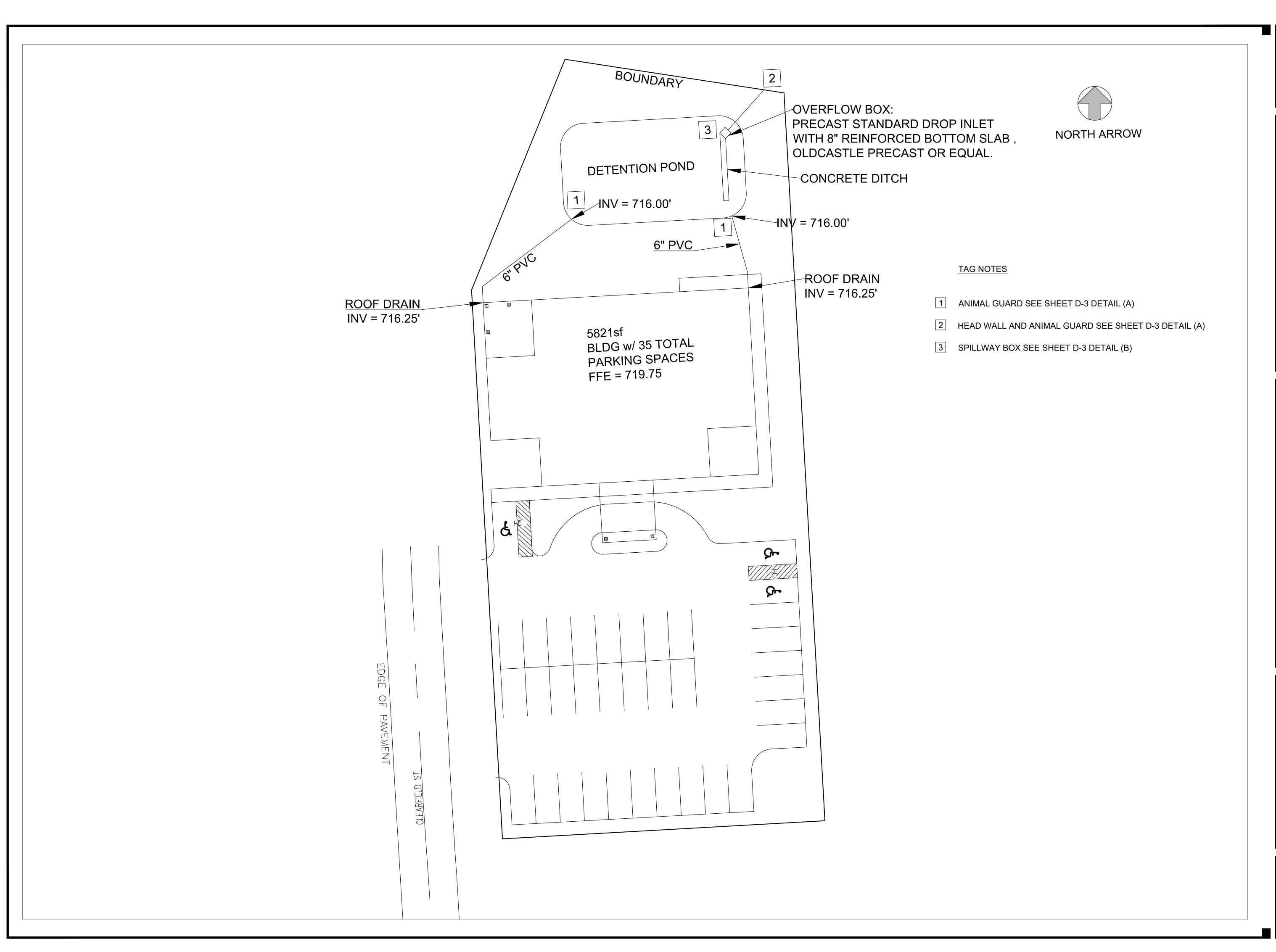
SENIOR CENTER AD, KENTUCKY ROWAN







CENTER SENIOR ROWAN CO. SI Morehead, GRADING





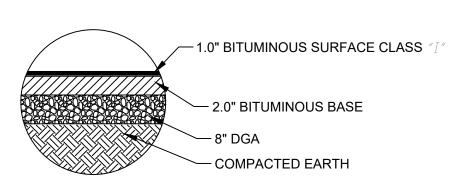
SENIOR CENTER AD, KENTUCKY

ROWAN

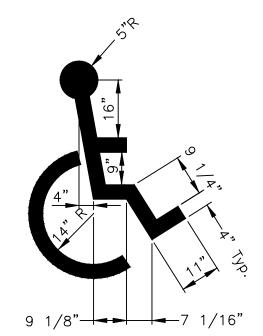


CUT ADDITIONAL DEPTH AS NECESSARY. DRAWING OTHERWISE A CONCRETE WALK / TOOLED C-1 CONTROL JOINT

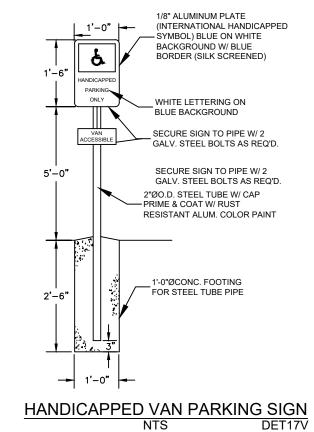
1/4 THICKNESS OF PAVEMENT MIN. SAW







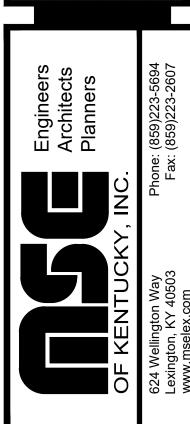


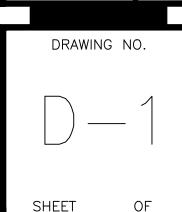


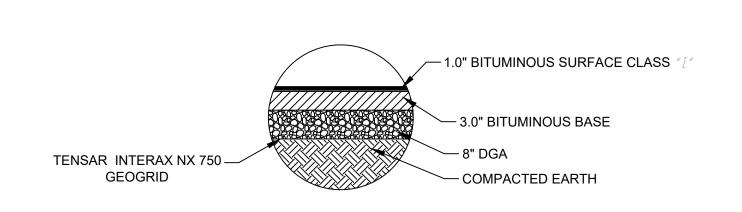




DATE REVISION BY	ECT NO.	MED BY MCF		CRH	BY GAR	WED BY GAR COPYRIGHT <b>©</b>	OCTOBER 2024 This document discloses subject matter considered confidential by MSE of Kentucky, Inc. and on which MSE of Kentucky, Inc. has properly rights. Neither receipt nor possession thereof confers or transfer any	Ignis to reproduce the document or any part thereor, or to discusse any information contained therein to
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## **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.

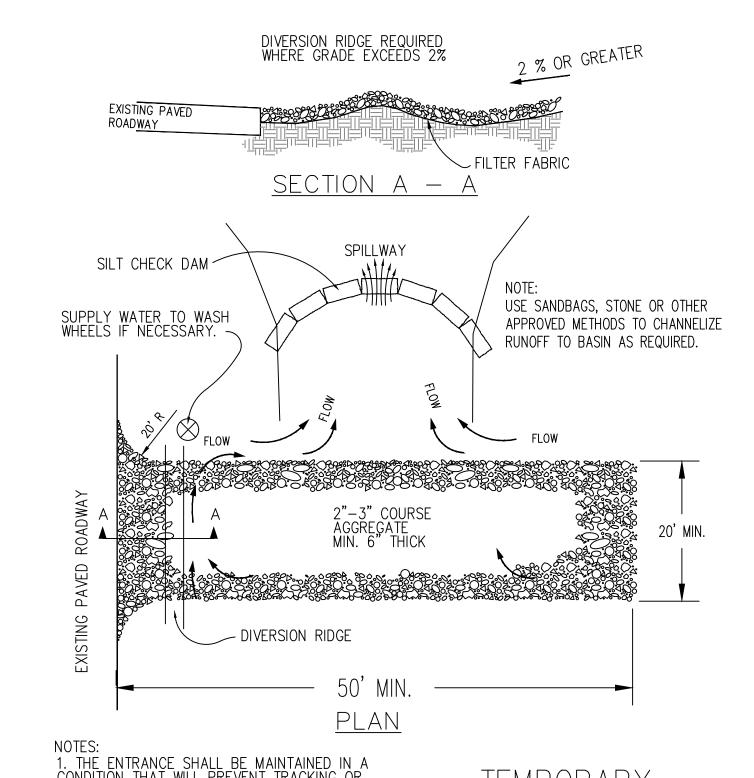
ALL SEDIMENT CONTROL FEATURES SHALL BE MAINTAINED UNTIL FINAL SOIL STABILIZATION HAS BEEN OBTAINED.

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.

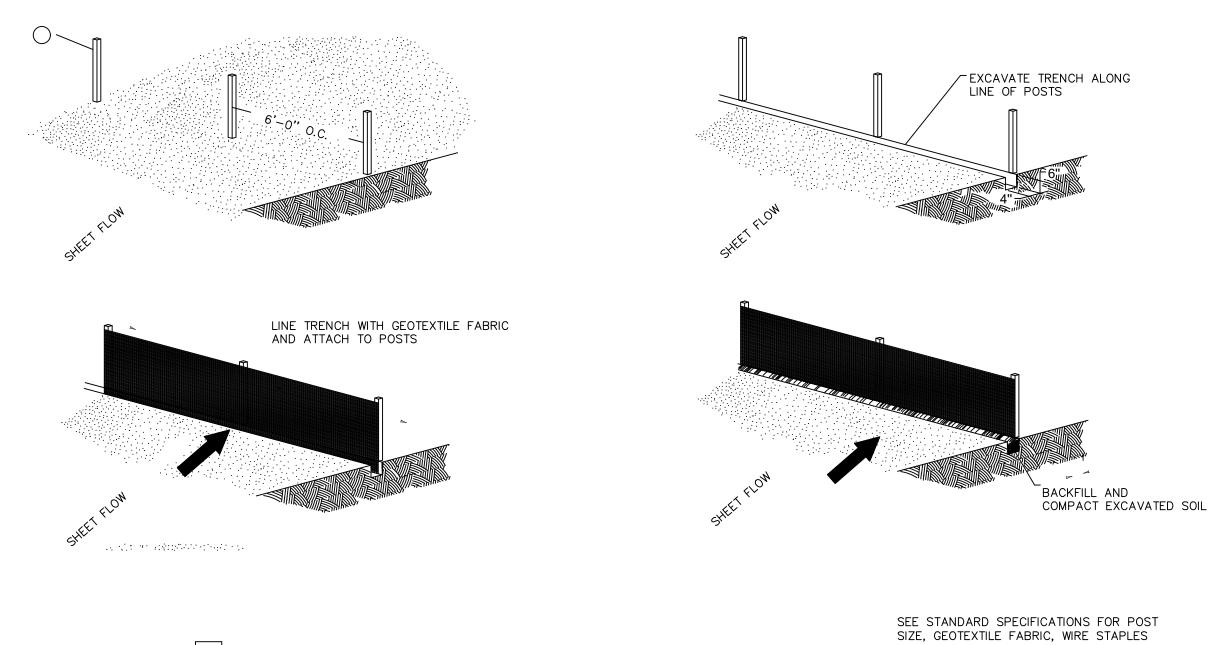
STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT NO MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PART OF THE SITE HAS TEMPORARILY OR PERMANENTLY CEASED UNLESS THAT ACTIVITY IN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



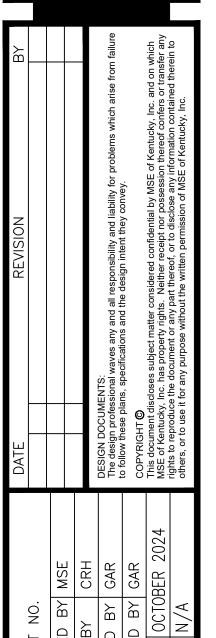




GEOTEXTILE FABRIC-

B SILT FENCE





AND ALL OTHER PERTINENT INFORMATION.

POSTS SHALL BE SET 1'-4" DEEP.

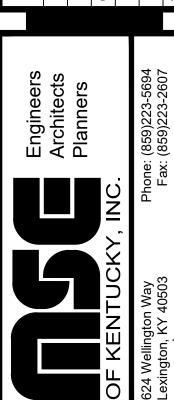
SEDIMENT WHEN NECESSARY.

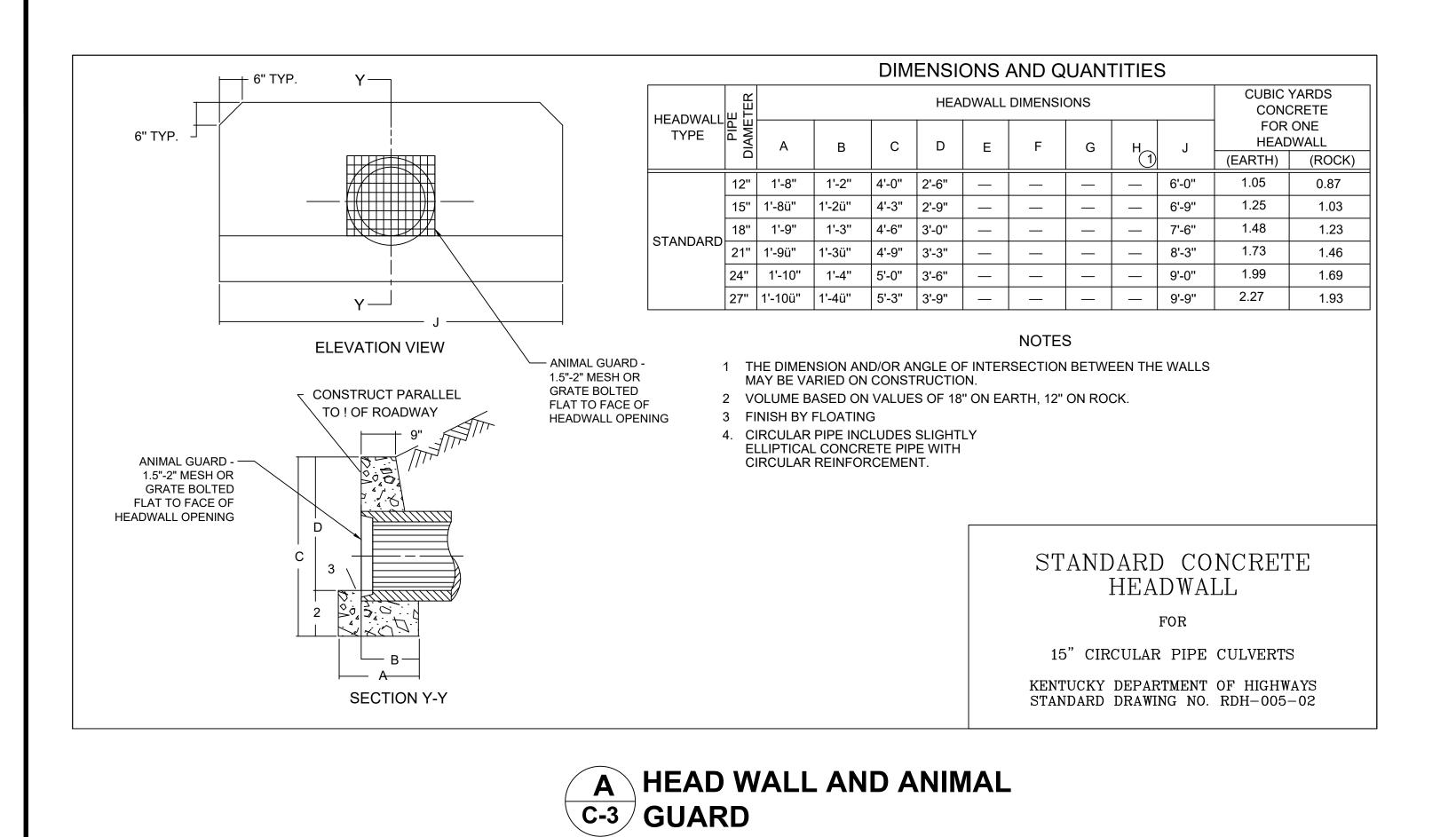
POSTS MAY BE WOODEN OR METAL T-SECTION.

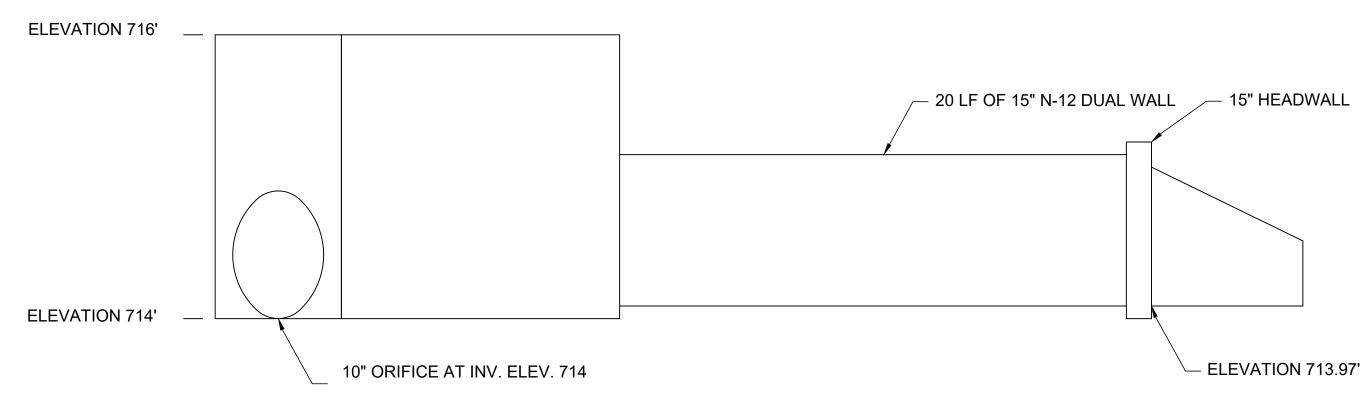
INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE

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.







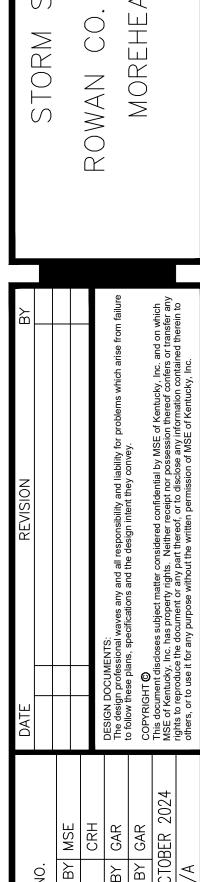


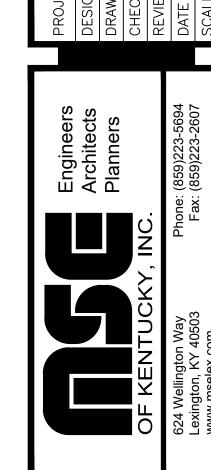


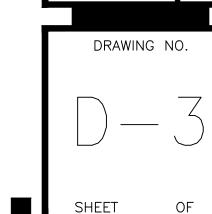
ENIOR CENTER Kentucky

SENIOR

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# STRUCTURAL QUALITY ASSURANCE PLAN

#### <u>GENERAL</u>

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

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

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

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.

2) Notify the Special Inspector sufficiently in advance of operations to allow assignment of pérsonnél 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 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 corrécted.

The Special Inspector shall perform the following:

1) Verify structural fill complies with specifications and the geotechnical report. 2) Perform field density tests to verify compaction of structural fill. As a minimum,

3) Confirm all footings bear on earth & any shallow rock to be undercut a minimum of 24" below bottom of footing elevation. back fill per geotech. report

1.0

0.184

0.079

0.159

0.079

0.0244xW

0.0244

6.5

ELFP

LIGHT-FRAMED WALLS SHEATHED WITH WOOD

STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE

4) Contractor shall undercut entire building pad (and 5' beyond building) as required to remove all of the existing fill and replace with properly engineered fill. See Geotech for borings. For bidding purposes assume 3 feet deep undercutting for entire building pad (and 5' beyond). No foundations or slab areas shall bear on

EARTHQUAKE DESIGN DATA

OCCUPANCY CATEGORY

IMPORTANCE FACTOR

SEISMIC DESIGN CATEGORY

DESIGN BASE SHEAR

ANALYSIS PROCEDURE

BASIC SEISMIC-FORCE RESISTING SYSTEM

SEISMIC RESPONSE COEFFICIENT (Cs)

RESPONSE MODIFICATION FACTOR

SITE CLASS

pérform 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. <u>A</u>ir content . Fresh unit weight
- e. Aggregates sieve analysis . Design compressive strength
- . Location of placement in structure . 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

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

a. Slump b. Air content

c. Unit weight
d. Temperature, ambient and concrete

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

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.

CONCRETE MASONRY

Contractor shall perform the following:

SNOW DESIGN DATA

GROUND SNOW LOAD (Pq)

FLAT ROOF SNOW LOAD (Pf)

SNOW EXPOSURE FACTOR (C.)

DESIGN LIVE LOADS

IMPORTANCE FACTOR (Is)

THERMAL FACTOR (Ct)

SLAB ON GRADE

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.

. 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

15 PSF

1.0

1.1

0.90

20 PSF

100 PSF

10.9 PSF

#### WOOD CONSTRUCTION

WIND DESIGN DATA

ULTIMATE DESIGN WIND SPEED (V. 11)

NOMINAL DESIGN WIND SPEED (Vasd)

INTERNAL PRESSURE COEFFICIENT

ROOF 0 TO 7 DEGREES

INTERIOR ZONE

CORNER ZONE

INTERIOR ZONE

INTERIOR ZONE

INTERIOR ZONE

END ZONE

ROOF >7 TO 27 DEGREES

END ZONE

END ZONE CORNER ZONE

END ZONE CORNER ZONE

WALLS

COMPONENTS AND CLADDING [H<30 FT]

WIND EXPOSURE CATEGORY

RISK CATEGORY

plans, specs, and shop drawings.

1. Check all wood framing layout and confirm compliance with plans, specs, and shop 2. Visually inspect truss layout and anchorage and confirm compliance with plans, specs, 3. Visually inspect all roof and wall sheathing attachments and confirm compliance with

115 MPH

89 MPH

+/- 0.18

EXPOSURE C

13.5 -33.3

13.5 -55.8

13.5 -84.1

13.7 -21.8 19.1 -30.5

13.7 -37.9 19.1 -50.0

13.7 -56.0 19.1 -78.4

21.8 -23.8 30.5 -33.3 21.8 -27.8 30.5 -38.9

21.8 -27.8 30.5 -38.9

23.8 -25.8 33.3 -36.1

23.8 -31.9 33.3 -44.6

EXPOSURE B

(PSF)

9.7 -23.8

9.7 -39.9

9.7 -60.1

# **GENERAL NOTES:**

<u>SECTION</u>

1705.2

1705.3

1705.4

1705.5

1705.6

1705.7

1705.8

1705.9

1705.11.1

1705.11.2

1705.11.3

1705.12.1

1705.12.2

1705.12.3

1705.12.4

1705.12.7

1705.14

1705.15

1705.16

1705.17

1705.18

FABRICATORS

REQUIREMENTS

STEEL

WOOD

SOILS

CONCRETE

MASONRY

DRIVEN DEEP FOUNDATIONS

HELICAL PILE FOUNDATIONS

WIND - STRUCTURAL WOOD

SEISMIC - STRUCTURAL STEEL

SEISMIC - STRUCTURAL WOOD

DESIGNATED SEISMIC SYSTEMS

AND VENEER IN STRUCTURES

SPRAYED FIREPROOFING

COMPONENTS

**FIREPROOFING** 

SMOKE CONTROL

E.I.F.S.

CAST IN PLACE DEEP FOUNDATIONS

WIND - COLD FORMED STEEL FRAMING

SEISMIC - COLD FORMED STEEL FRAMING

SEISMIC - ARCHITECTURAL COMPONENTS -

SEISMIC - MECHANICAL AND ELECTRICAL

FIRE RESISTANT PENETRATIONS & JOINTS

INTERIOR/EXTERIOR NON-LOAD BEARING WALLS

SEISMIC - STORAGE RACKS AND ACCESS FLOORS

WIND - WIND RESISTING COMPONENTS

STRUCTURAL OBSERVATION FOR SEISMIC

STRUCTURAL OBSERVATION FOR WIND REQUIREMENTS

 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.

SPECIAL INSPECTIONS PER CHAPTER 17 OF THE

KENTUCKY BUILDING CODE

<u>REQUIRED?</u>

<u>YES NO</u>

\_\_\_\_\_ X\_\_

\_\_\_\_\_ X\_\_

\_\_\_\_\_ X\_\_

\_\_\_\_ X\_\_

**REMARKS** 

FABRICATION OF WOOD TRUSSES

SEISMIC DESIGN CATEGORY "B"

PER AISC 360 & TABLE 1705.2.2

LEVEL B TMS 402/ACI 530/ASCE 5

SEISMIC DESIGN CATEGORY "B"

NONE

PER SECTION 1705.12.2

PER SECTION 1704.2.5

PER TABLE 1705.3

PER TABLE 1705.6

Vasd = 89mph.

PER SECTION 1704.2.5

2. All concrete shall develop 3,500 PSI compressive strength in 28 days.

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

4. 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

Welded wire fabric shall conform to ASTM A185. 6. 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—— $1\frac{1}{2}$ 

Reinforcing steel bends shall be made as per diagram, and/or in accordance with A.C.I. Code.

8. Lap all splices as specifically called for, but at least 38 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:

9. Foundations were designed using a maximum earth bearing pressure of 3,000 PSF. This value shall be field verified.

## SHALLOW FOUNDATIONS ON SOIL:

10. Any soils can lose strength if they become wet, so the foundation sub grades must be protected from exposure to water. Foundation construction the following procedures.

A. For soils that will remain exposed overnight or for an extended period of time, place a "lean" concrete mud-mat over the bearing areas. The concrete should be at least 4 inches thick. Flowable fill concrete or low-strength concrete is suitable for this cover, as conditions allow;

## B. Disturbed soil must be removed prior to foundation concrete placement.

C. Foundation bearing conditions must be benched level. D. Areas loosened by excavation operations must be recompacted prior to reinforcing steel placement.

E. Loose soil, debris, and excess surface water must be removed from the bearing surface prior to concrete placement.

F. The Special Inspector shall observe all

foundation excavations and provide recommendations for treatment of any unsuitable conditions encountered.

G. The bearing conditions of foundation soils (stiff or better residual soil) shall be checked by means of portable dynamic cone penetration (DCP) testing at the direction of the special inspector.

GRADE SUPPORTED FLOOR SLABS 14. The following features are required as part of grade support

slab construction:

A. 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.

B. The Special Inspector shall review the actual subgrade conditions prior to slab construction and to make recommendations for any unsuitable conditions encountered.

C. Slab subgrade conditions are also considered earthwork areas; thus, the recommendations contained in the Earthwork section of the report apply.

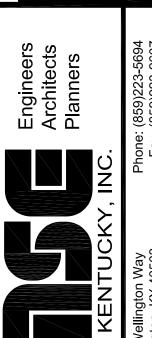
## NOTE TO CONTRACTOR:

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.

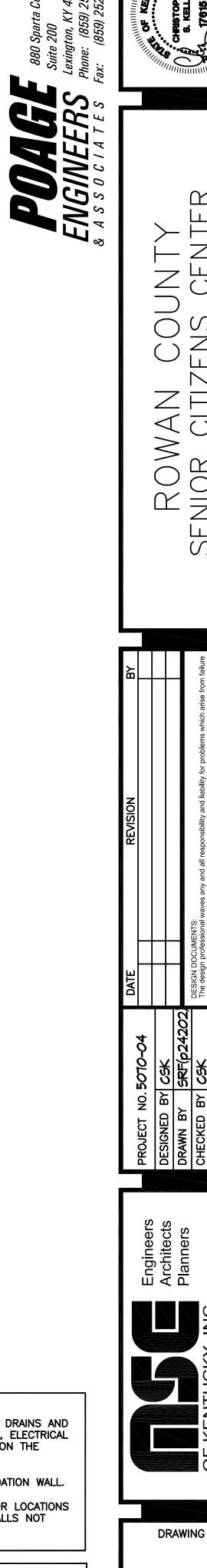
The Contractor shall check and approve, with reasonable promptness, shop drawings and schedules for coordination of details, sizes, fitting tolerances, and dimensions. The Contractor shall stamp or sign these drawings and schedules with his approval and then submit them to the Architect for review.

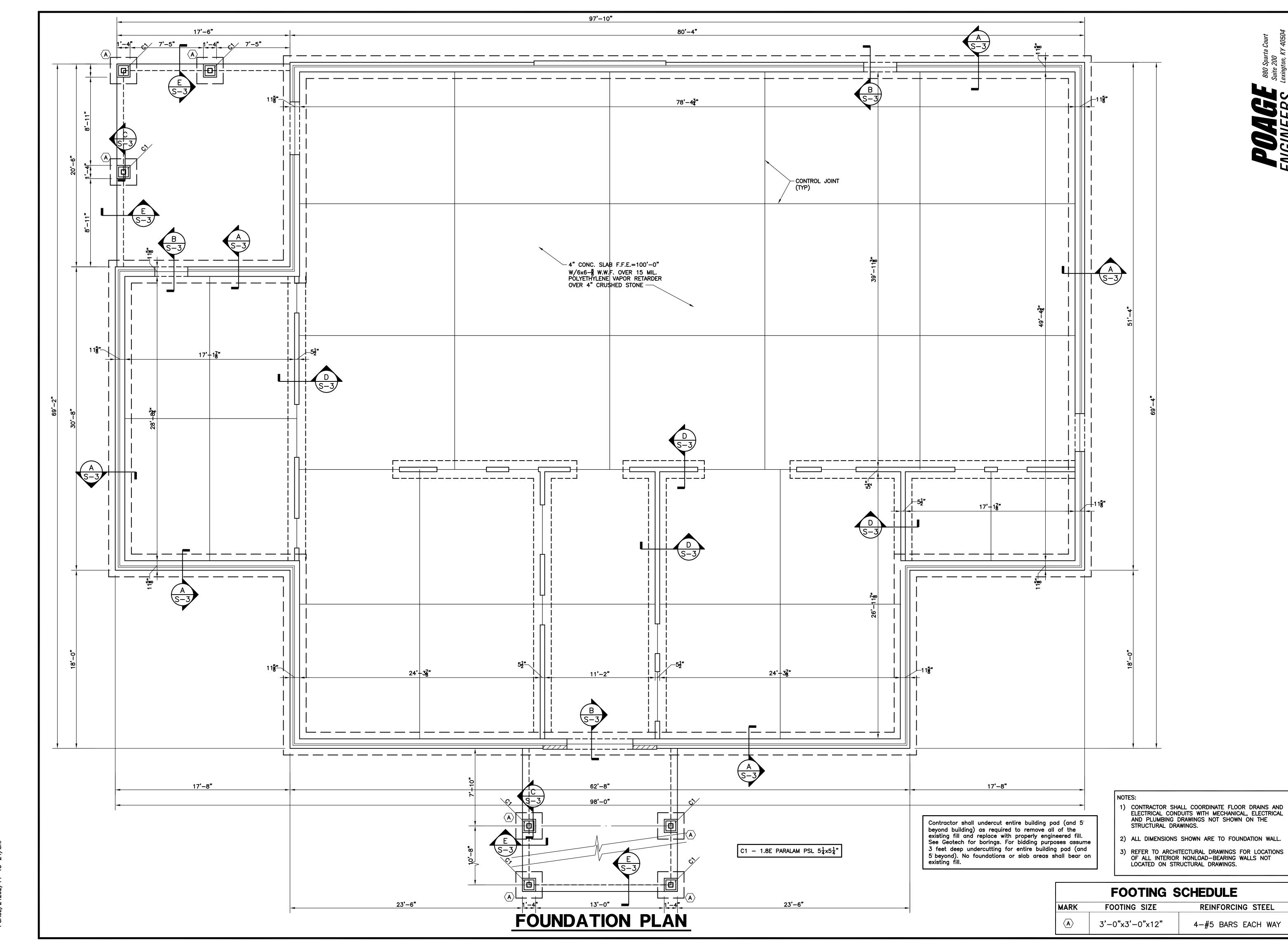
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		DATE REVISION BY
PROJECT	PROJECT NO. 5010-04	
DESIGNED	PY CG/	
JESIGIALD	۱	
 DRAWN BY	SRF(p24202)	
CHECKED	BY CSK	DESIGN DOCUMENTS:  The design professional waves any and all responsibility and liability for problems which arise from failure
REVIEWED BY	ВУ	to rollow these plans, specifications and the design intent they convey. COPYRIGHT ©
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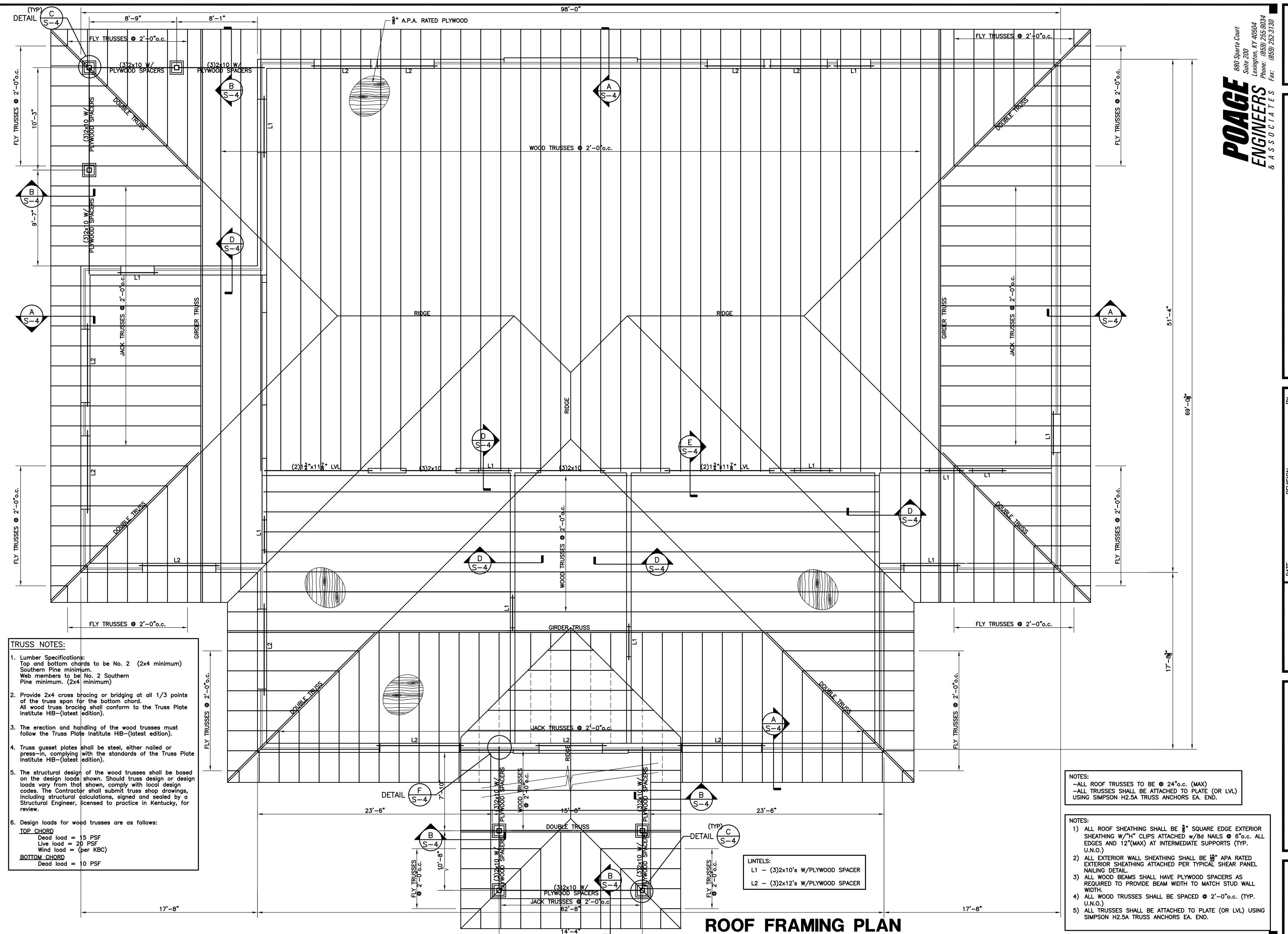


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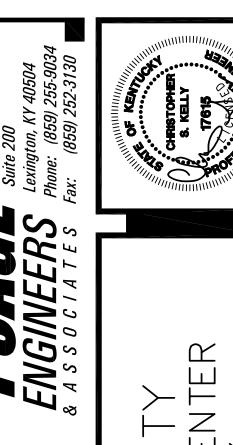




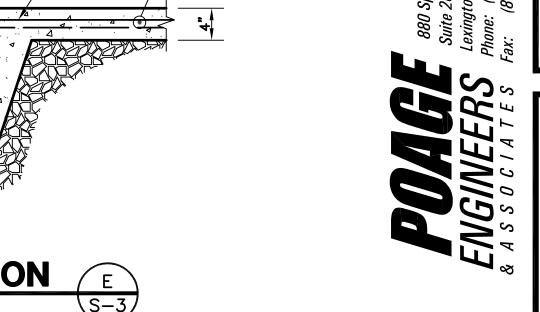
DRAWING NO.



DRAWING NO.



-(3)-#4 BARS CONT.



36"

-3-BARS(SEE SECTIONS FOR SIZE) ONE EACH CELL - FILL ALL CELLS O BARS w/CONC. GROUT FULL WALL HT.

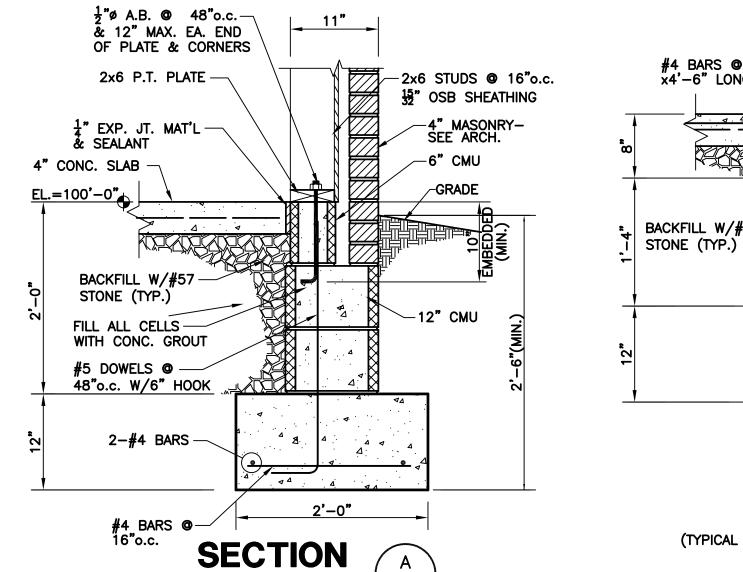
PREFAB TEES
(ALL SIZES & COMBINATIONS)

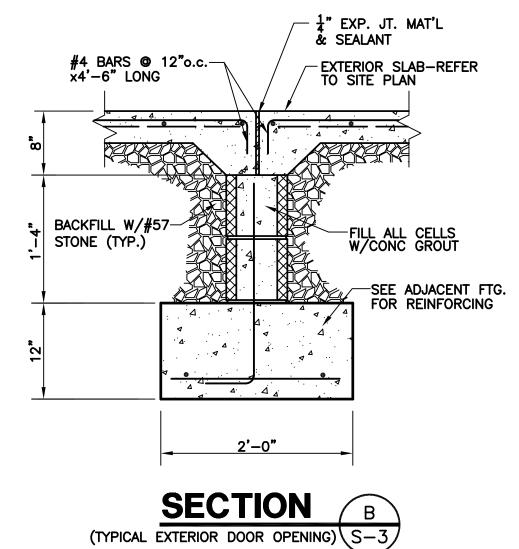
TYPICAL EXTERIOR

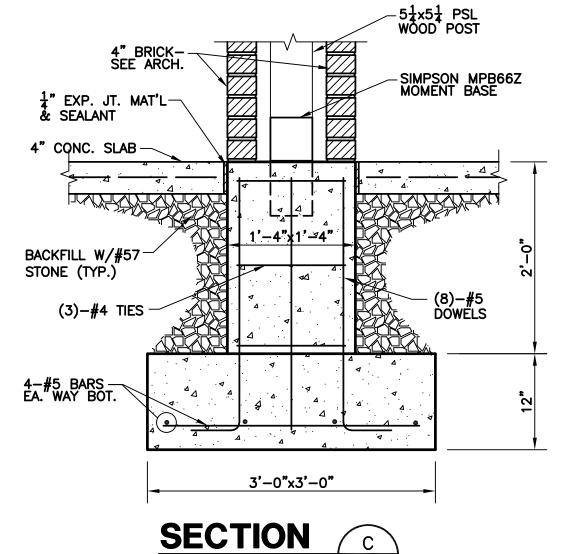
**MASONRY CORNER** 

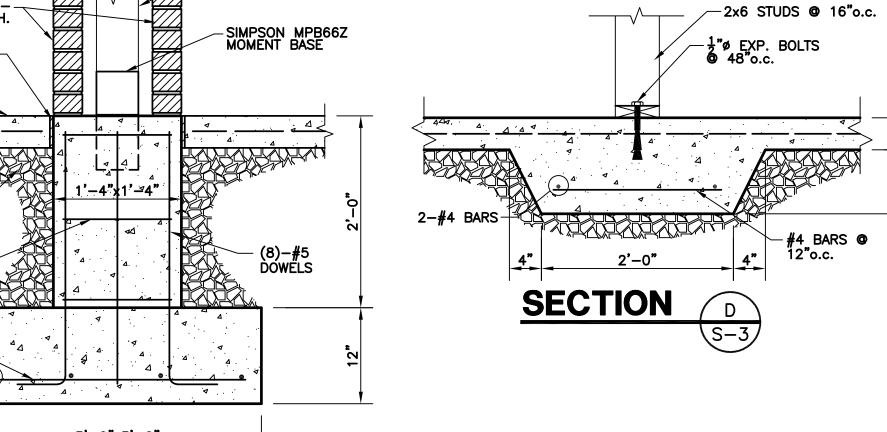
REINFORCEMENT DETAIL

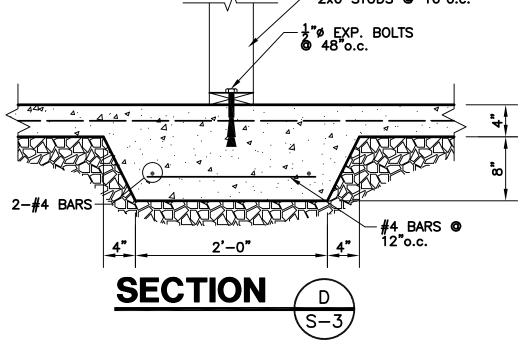
8" OR 12" -CMU SEE PLAN

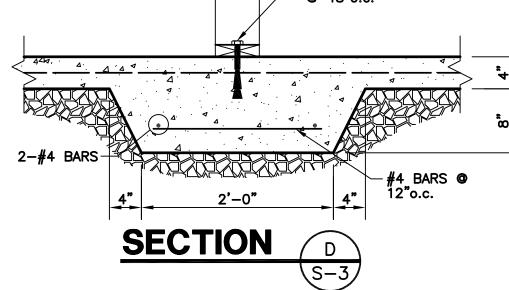


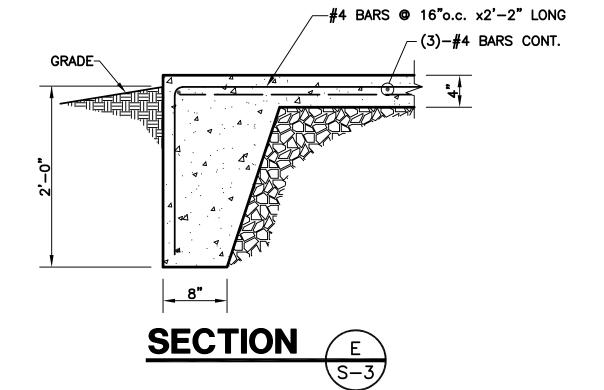




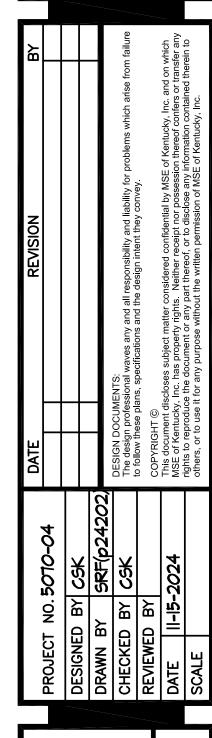


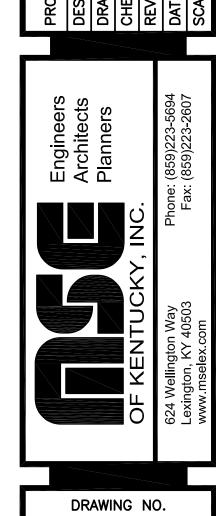


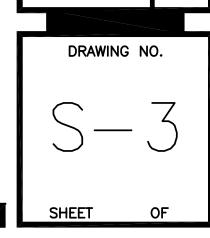


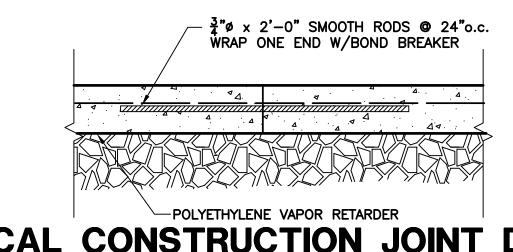




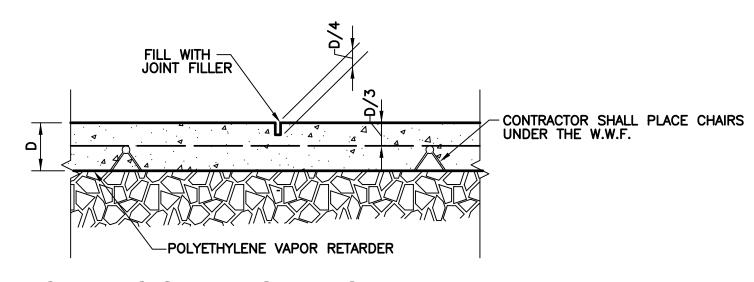




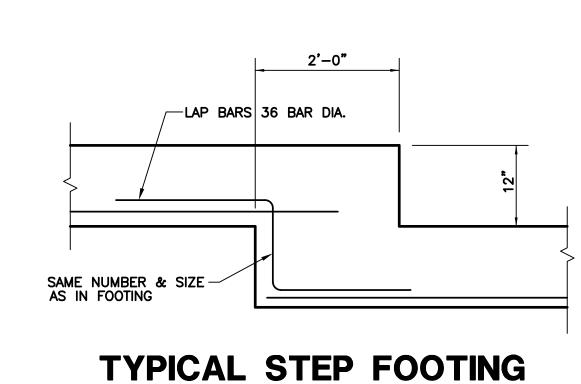




# TYPICAL CONSTRUCTION JOINT DETAIL





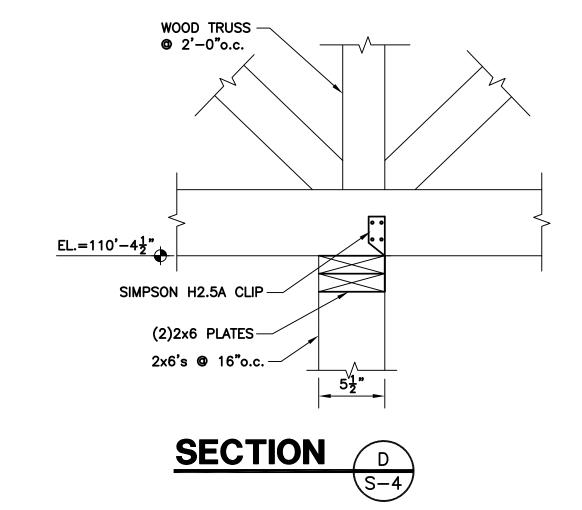


TYPICAL STEP FOOTING









(3) 2x10—

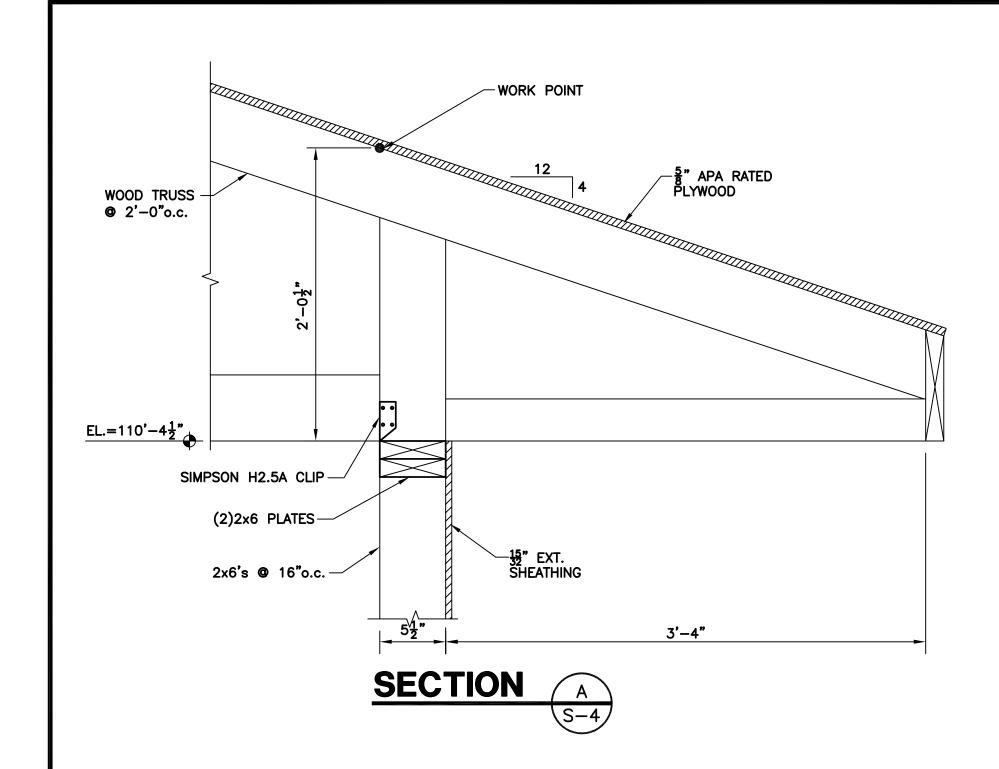
SIMPSON ECCLQ— POST CAP

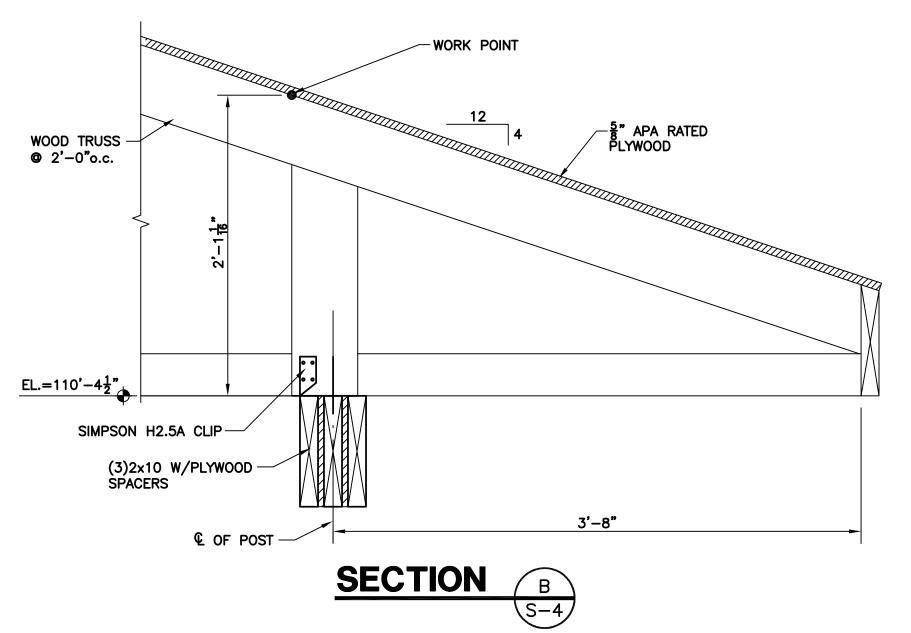
WOOD POST-

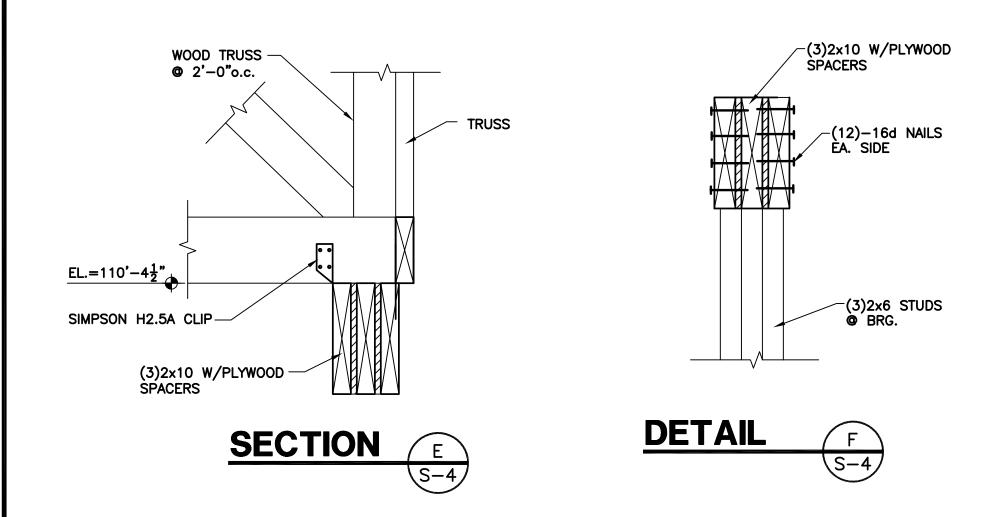
**DETAIL** 

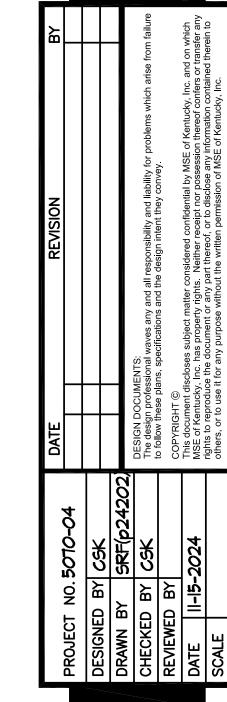
EL.=110'-4½"

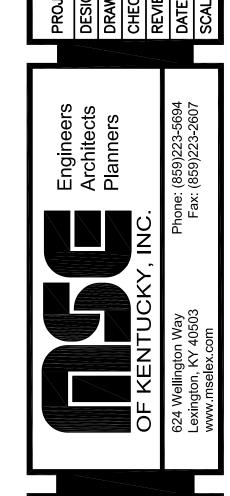
\_(3) 2x10

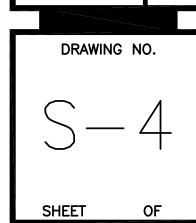


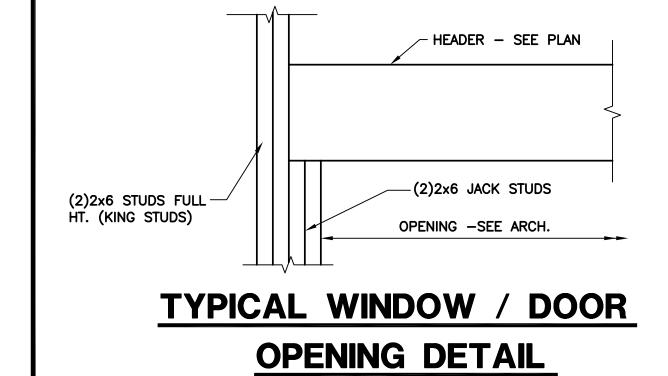


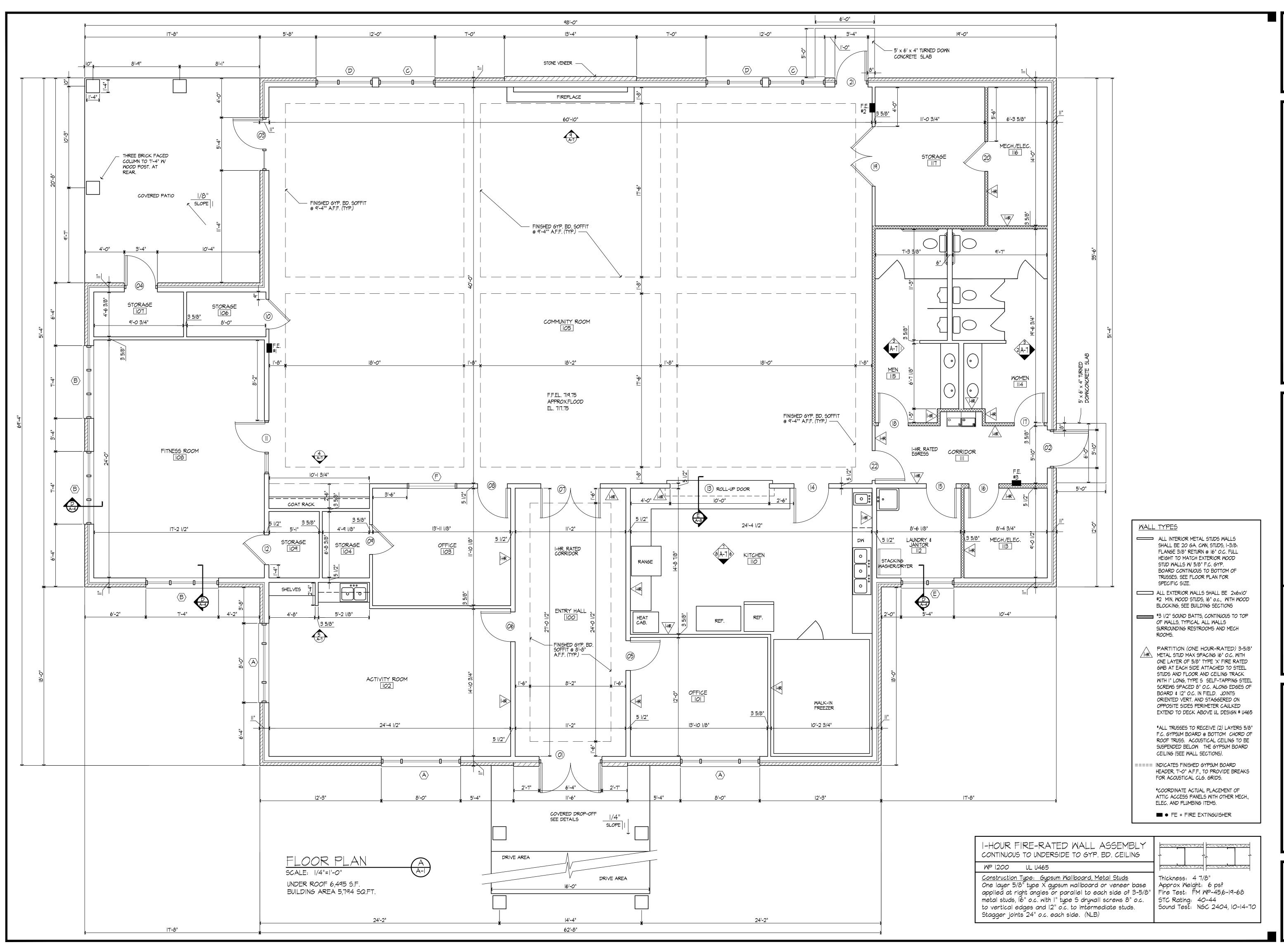














SENIOR CITIZENS CENTE MOREHEAD, KENTUCKY

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PROJECT NO. 5070-04

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DRAWN BY BLL

CHECKED BY MSF

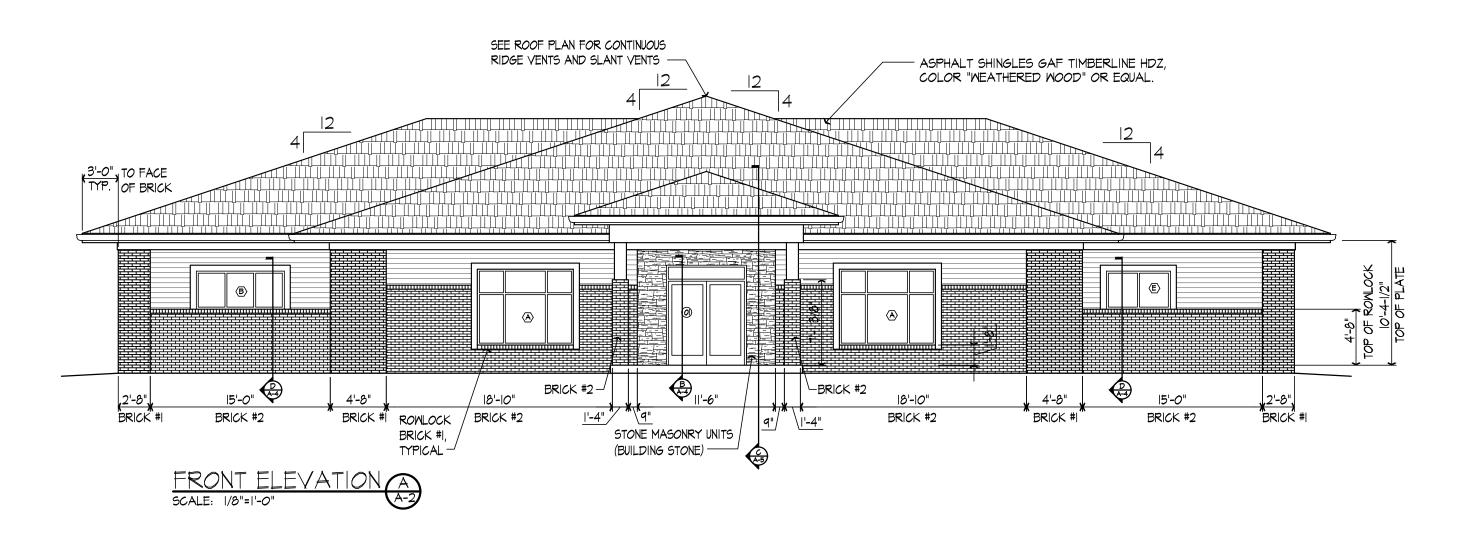
REVIEWED BY

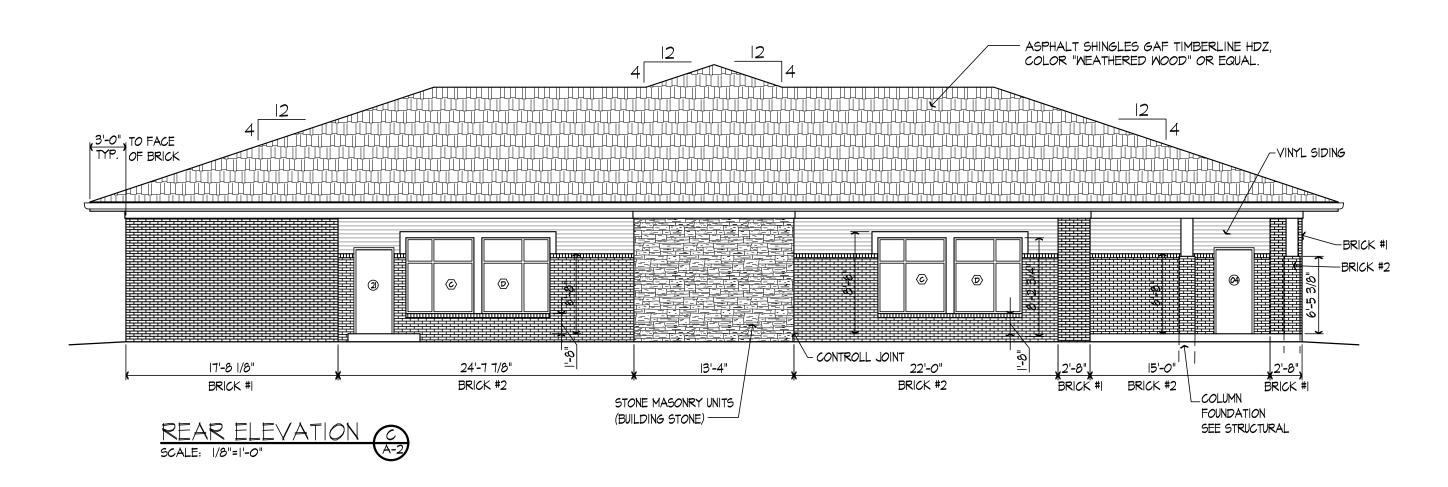
Architects
Planners
, INC.
Phone: (859)223-5694
Eax: (859)223-5607

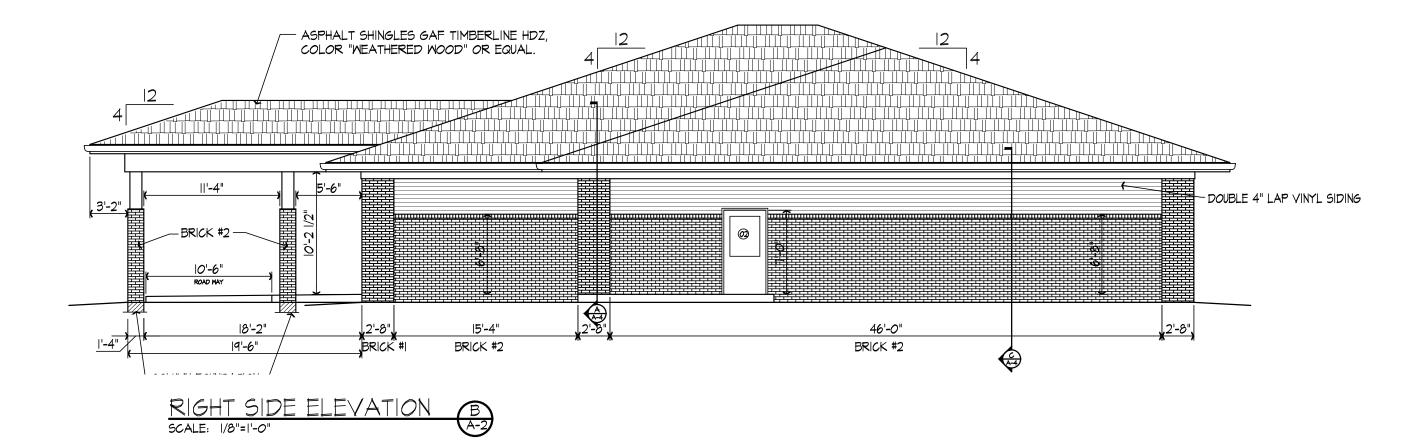
OF KENTUCKY, INC.
624 Wellington Way Phone: (8 Lexington, KY 40503 Fax: (8

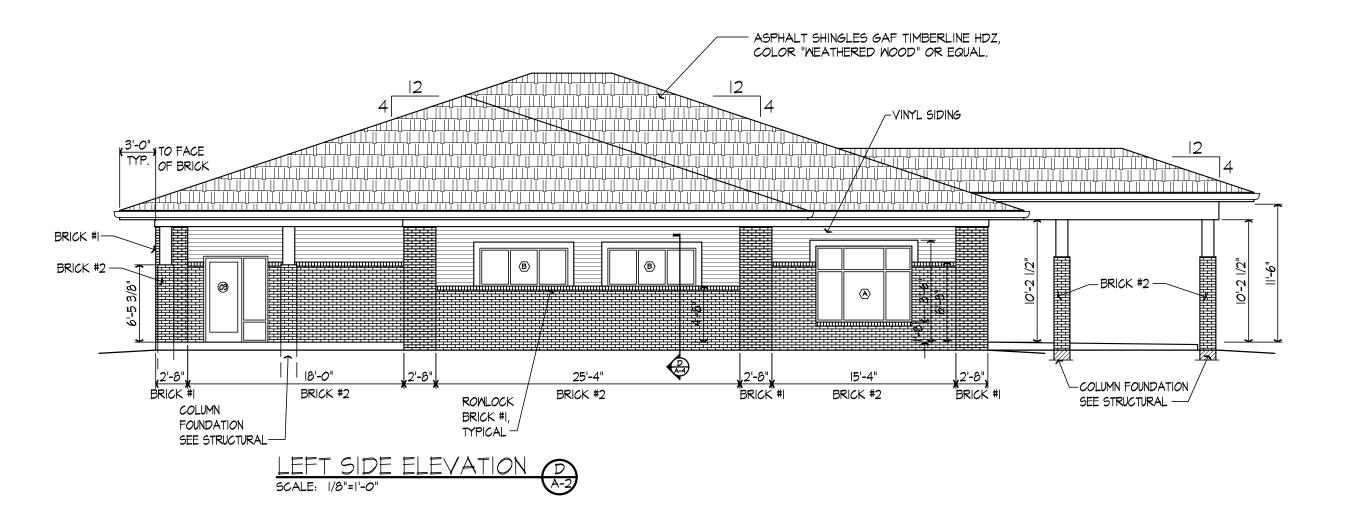
DRAWING NO.

**A-1** 









## EXTERIOR FINISHES:

- ALL GUTTERS, DOWNSPOUTS, PRE-FINISHED VINYL COATED ALUMINUM EXTERIOR TRIM, VINYL SOFFITS AND ASSOCIATED TRIM SHALL BE THE COLOR "DESERT SAND" BY ALCOA OR EQUAL.
- ASPHALT SHINGLES "GAF TIMBERLINE HDZ", COLOR "WEATHERED WOOD" OR EQUAL.
- TOP OF COLUMNS SHALL BE WRAPPED IN VINYL COATED ALUMINUM IN SAME COLOR AS BUILDING FASCIA
- ALL WINDOW AND DOOR GLAZING SHALL BE SOLARBRONZE
- ALL ALUMINUM WINDOWS AND DOOR FRAMES TO BE <u>DARK BRONZE</u>
- HOLLOW METAL DOORS AND FRAMES PAINTED TO MATCH "DARK BRONZE" ALUMINUM DOORS
- BRICK #I (RUNNING BOND & ROWLOCKS): MODULAR SIZE FACE BRICK, TYPE FBX, BELDEN BRICK "691-693 SMOOTH" WITH Flamingo BRIXMENT #C-224 MORTAR
- BRICK #2 (RUNNING BOND & COLUMNS)
  MODULAR SIZE FACE BRICK, TYPE FBX,
  BELDEN BRICK "LANDMARK GRAY VELOUR"
  WITH Flamingo BRIXMENT #M-10 MORTAR
- STONE MASONRY UNITS (FULL-BED STONE):
   ARRISCRAFT "SMOKY MOUNTAIN OLD COUNTRY"
   W/ Flamingo BRIXMENT #TENNESSEE BUFF MORTAR



ENIOR CITIZENS CENTER
MOREHEAD, KENTUCKY

5010-04	
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フトレーン	
BLL	
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Engineers
Architects
Planners
JCKY, INC.

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

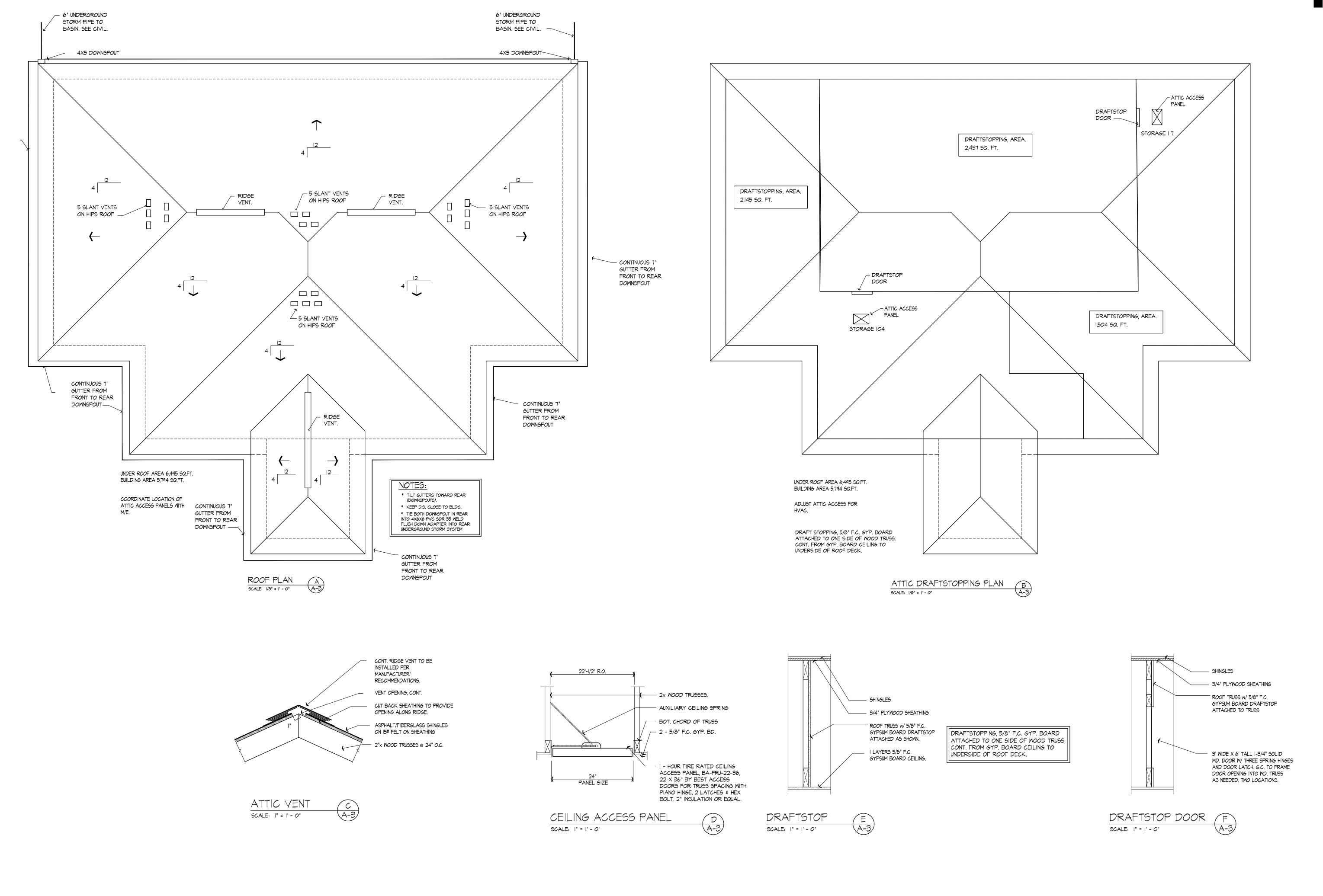
OF KENTUCKY, INC.

624 Wellington Way
Lexington, KY 40503
Fa

DRAWING NO.

**A-2** 

SHEET C





SENIOR CITIZENS CENTER

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PROJECT NO. 5070-04

DESIGNED BY BLL/MSF

DRAWN BY BLL

CHECKED BY MSF

REVIEWED BY

DATE NOVEMBER 2024

Engineers
Architects
Architects
Planners
F KENTUCKY, INC.

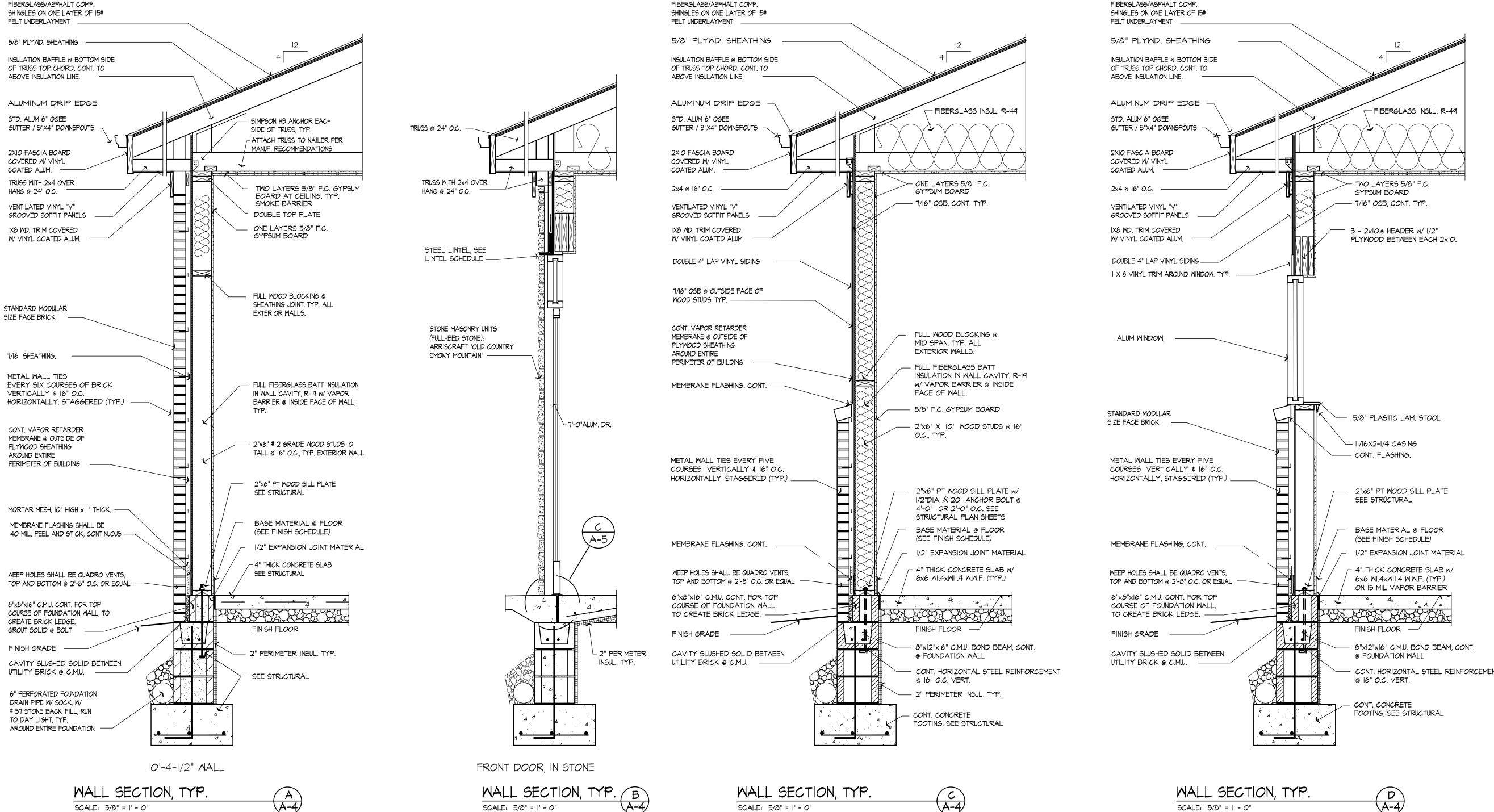
Wellington Way
Wellington Way
Fax: (859)223-2607
W.mselex.com

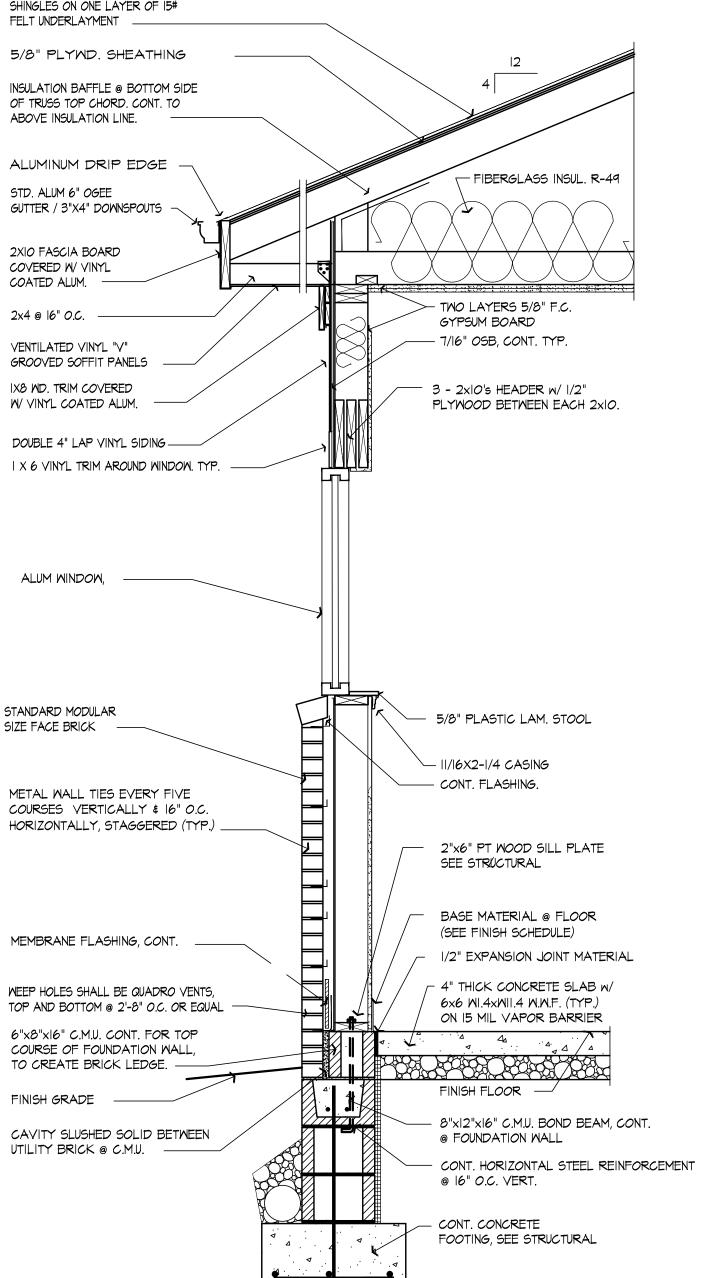
DRAWING NO.

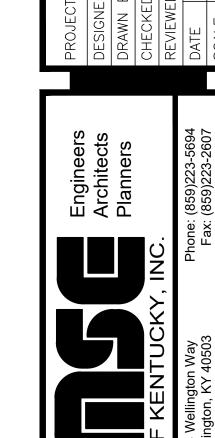
**A-3** 

SHEET (

四三







DRAWING NO.

FOUR BRICK FACED 1/4", 2% COLUMN TO 7'-4" W SLOPE |

EDGE OF CONCRETE SLAB

ASPHALT DRIVE

GRASS AREA

ROOF OVER HANG

WALL SECTION, TYP.

SCALE: 5/8" = 1' - 0"

1/2 OR 5/8" PLYMOOD WITH EXTENDING GLUE -

- 2×10 WOOD JOIST @24" O.C.

FIRECODE CORE GYPSUM PANELS. —

I HOUR RATED FLOOR/ CEILING -

- I HOUR RATED WALLS -

I-HR RATED EGRESS.

SCALE 5/8" = 1' - 0"

TWO LAYERS 5/8" SHEETROCK

- FIBERGLASS INSUL. R-49

BOTTOMICHIBIRIDFOF TRUSS

\_\_\_ 2X6 WOOD TOP PLATES

— 2X6 WOOD STUD @16"

5/8" F.C. GYPSUM BOARD,

EACH SIDE, FULL HEIGHT

2X6 PT WOOD STUD

FINISH FLOOR

PLATEMECHANICALLY

ANCHORED TO CONCRETE

SLAB @ 24" O.C. (MIN.), TYP.

\_\_\_\_ TOP OF CONCRETE SLAB

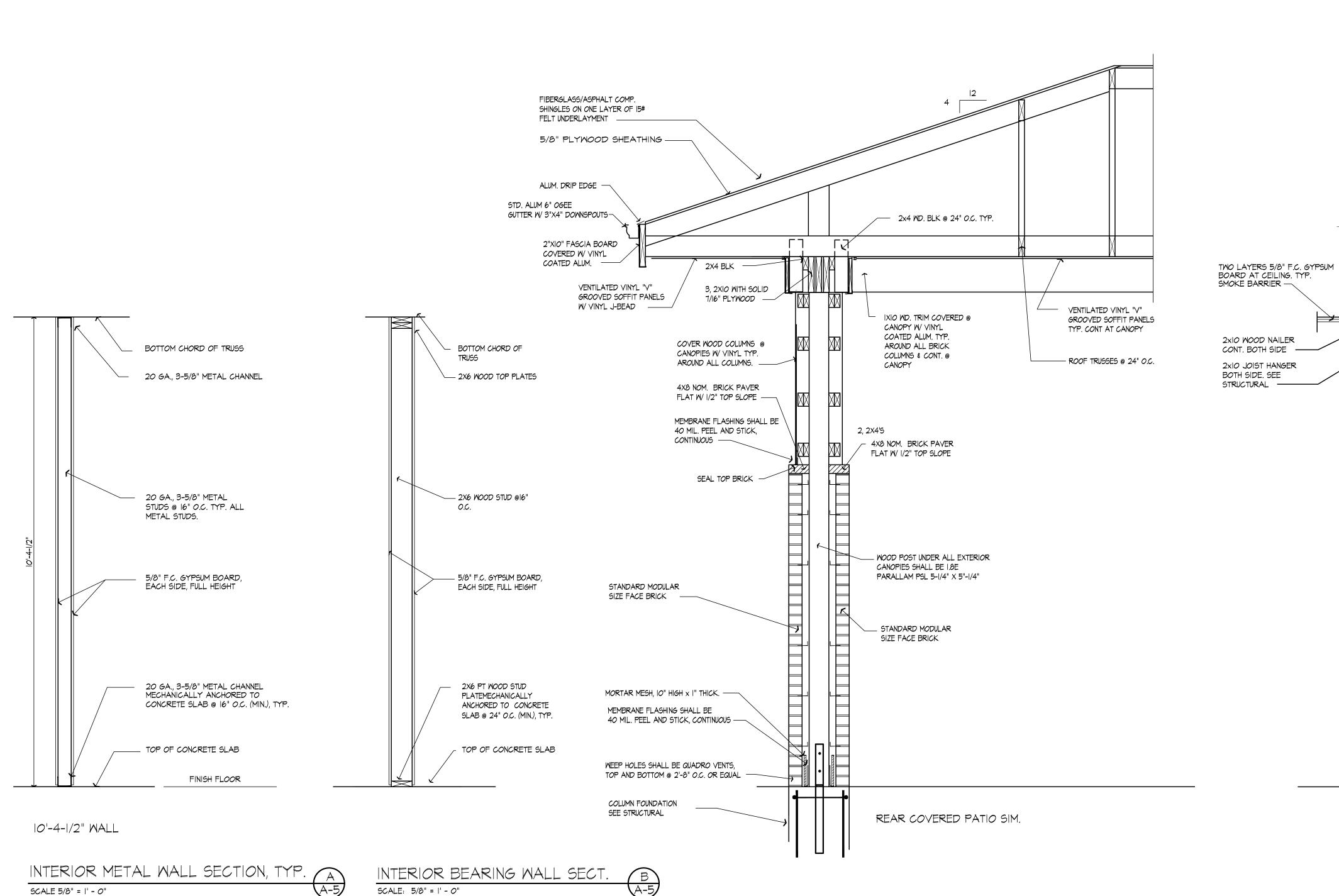
TRUSSE S @ 24" O.C.

DRAWING NO. **A-5** 

SHEET

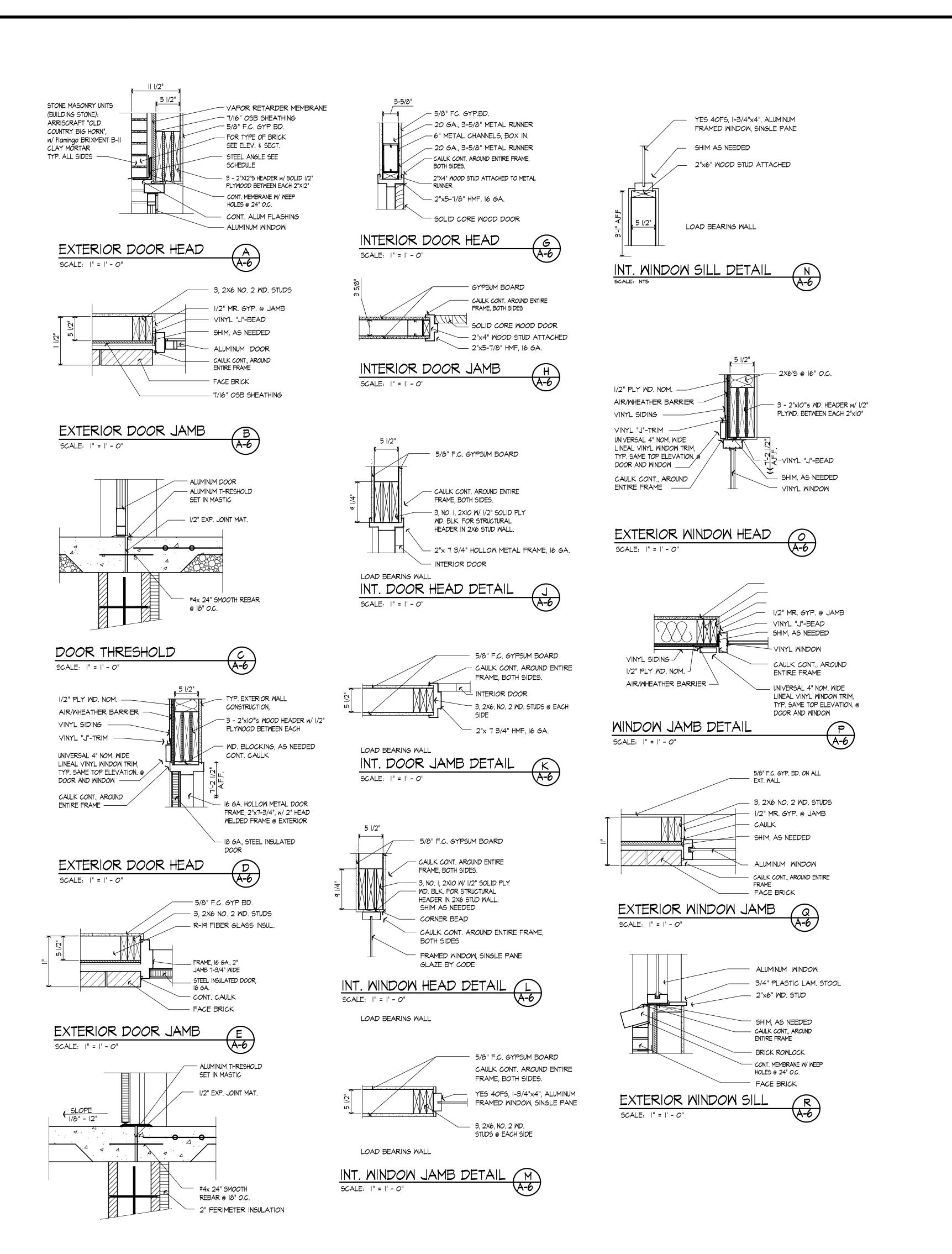
Dimensional Lumber 1 Hour Fire-Rated Construction **Construction Detail** | Test Number • two layers 5/8" Sheetrock Firecode Core GA-FC-5406 clg. wt. 5 gypsum panels, − 2 x 10 wood joists 24" o.c. RC-2601 - face layer joints finished - floor: 1/2" plywood with extending glue Also for roof-ceilings, including trusses

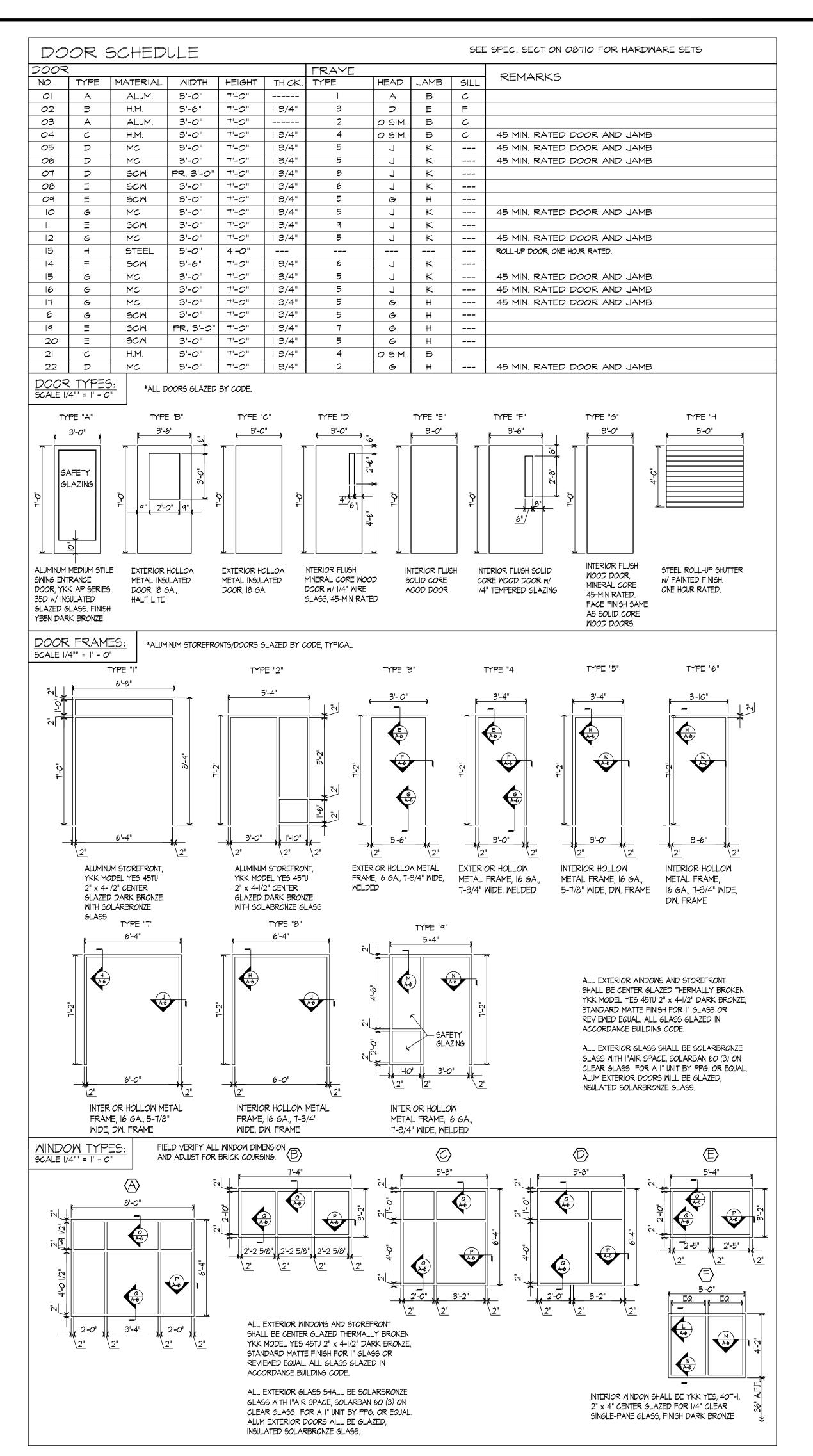
I HOUR RATED FLOOR/ CEILING



TYP. BRICK/VINYL SIDING COLUMNS

SCALE 5/8" = 1' - 0"





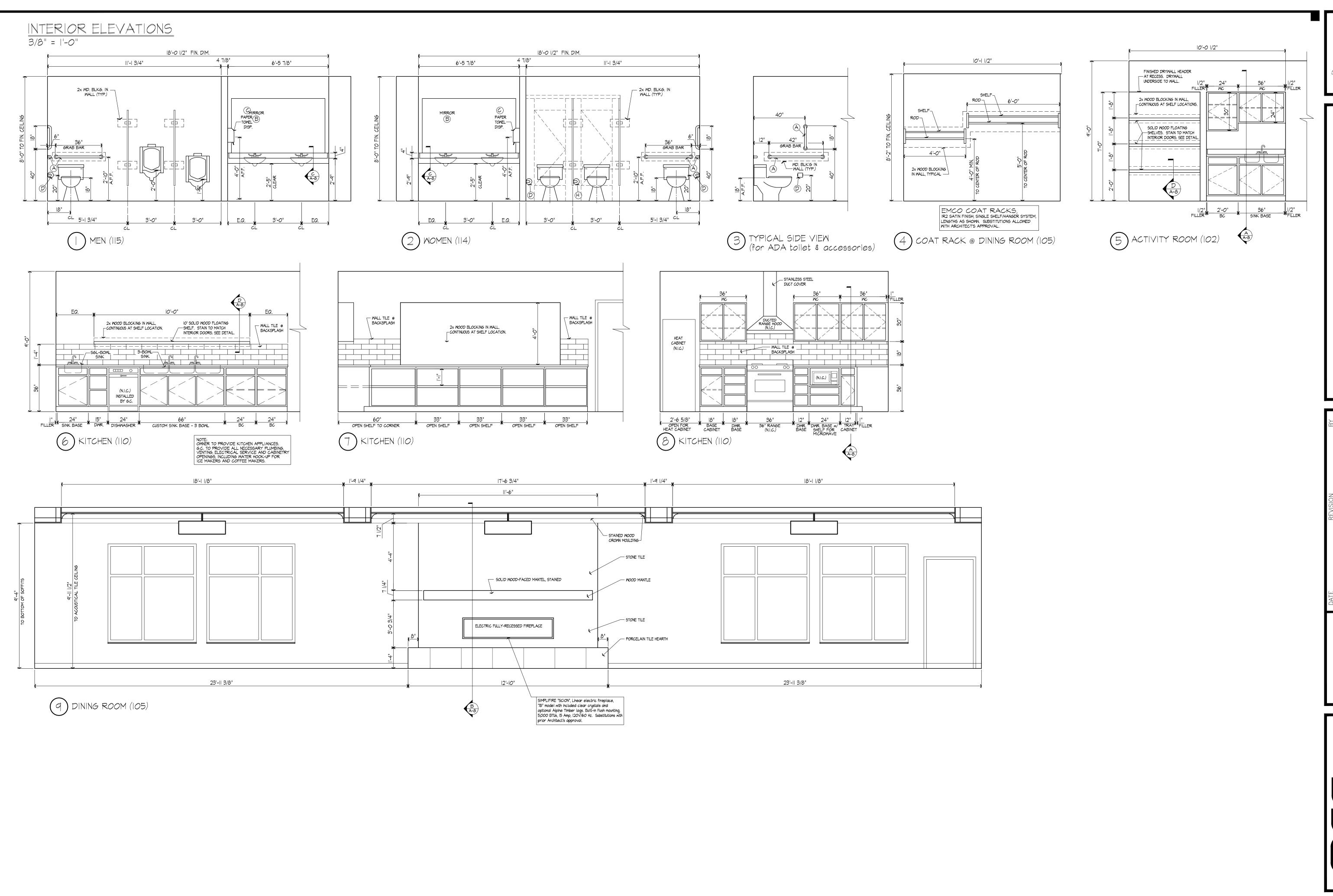






A-6

SHEET



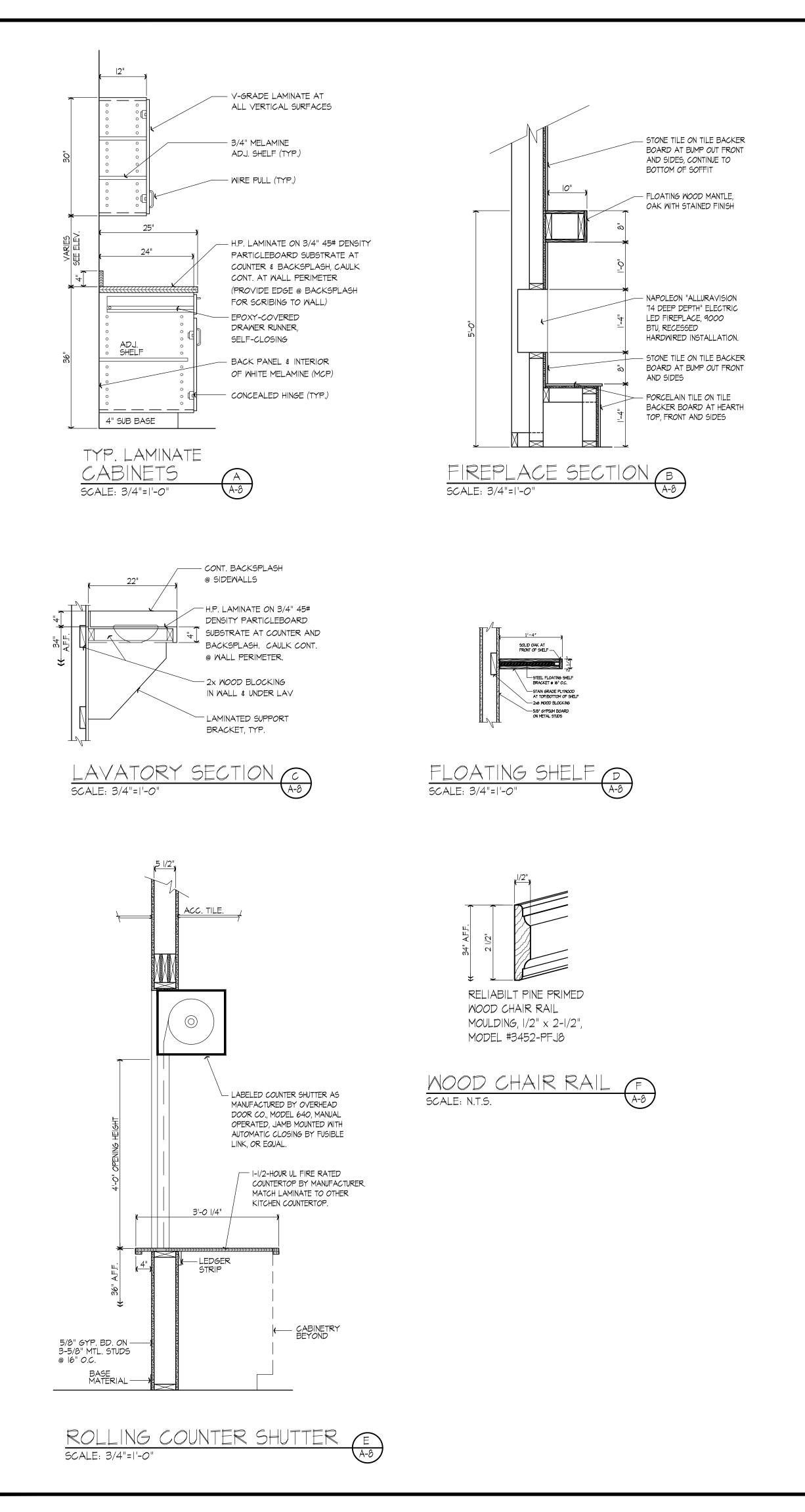


SENIOR CITIZENS CENTE

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DRAWING NO.



FINISH SPECIFICATIONS

VCT-1 Tarkett - Vinyl Composition Tile

VCT-2 Tarkett - Vinyl Composition Tile

VCT-3 Tarkett - Vinyl Composition Tile

VCT-4 Tarkett - Vinyl Composition Tile

(Add Alternate for areas with VCT) LVT-I Tarkett Commercial Luxury Vinyl Plank

PLMD 3523 LM,  $6" \times 48"$ 

B-1 Tarkett Vinyl Wall Base

See Detail F/A-8.

D) Painted finish ABOVE chair rail. E) Painted finish BELOW chair rail.

F) Plastic Laminate window stools to be finish L-1.

"VCT 11" - Color 582 Ivory Tower, 12" x 12"

"VCT ||" - Color 504 Copper, |2" x |2"

"VCT 11" - Color 572 Cloudy, 12" x 12"

V-1 Tarkett Commercial Vinyl Sheet Flooring

"VCT 11" - Color 527 Military Tan, 12" × 12"

"iD Latitude - Wood" - Color Laurel Oak,

4" vinyl cové base, Color - 22 Pearl

"Granit Safe.T - 21153" - Color 507 Light Sand

A) Tile pattern using all colors of VCT in this area. See detail G/A-8.

B) All interior trim and door frames to be painted with finish P-1, semi-gloss enamel.

C) Wood chair rail mounted 34" a.f.f. to be painted with finish P-1, Interior Latex Semi-gloss enamel.

P-I Benjamin Moore #CSP-220 Lace Handkerchief (Trim)

P-3 Benjamin Moore #1565 Mount Saint Anne (Activity Room)

P-6 Benjamin Moore #CSP-745 Mystic Lake (below chair rail) P-7 Benjamin Moore #CSP-225 Gallery Buff (above chair rail)

P-8 Benjamin Moore #2121-70 Chantilly Lace (ceilings,soffits)

L-1 Formica #9312-NG Planked Urban Oak (Kitchen cabinets) L-2 Formica # 7267-58 Concrete Stone (Lavatory tops)

L-3 Formica #7264-58 Lime Stone (Kitchen countertops)

P-5 Benjamin Moore #CSP-730 Picnic Basket (Restrooms & Fitness)

"Highland Lake" - Color Snow GLOSSY, Pressed Edge, 4"  $\times$  12"

P-4 Benjamin Moore #OC-14 Natural Cream (Office, Utility)

P-2 Benjamin Moore #1227 Nutmeg (Entry Hall)

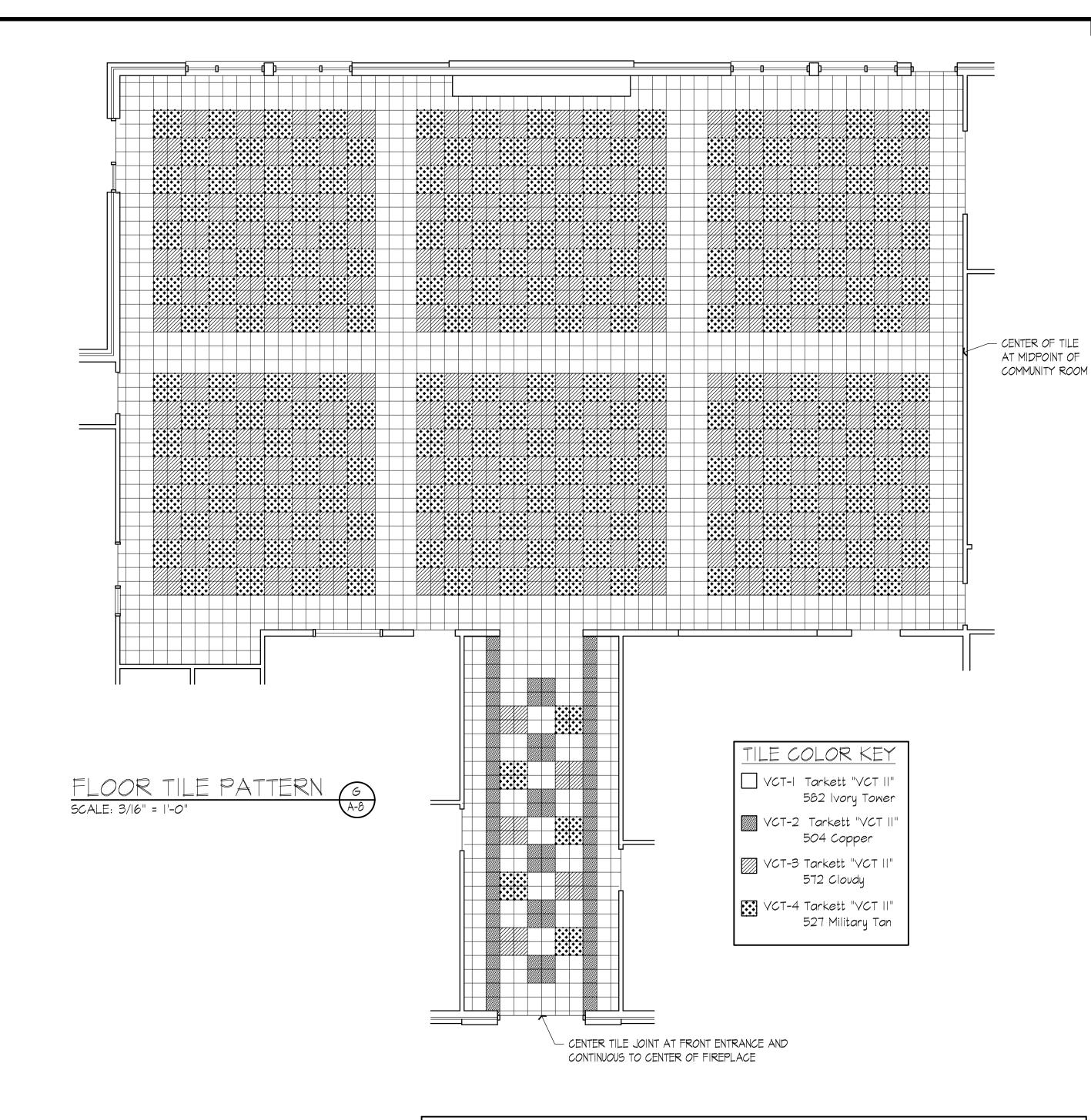
T-l Portobello America Ceramic Wall Tile

A-1 Armstrong "Fine Fissured" #1728, 24"x 24"x 5/8", Square Lay-In,

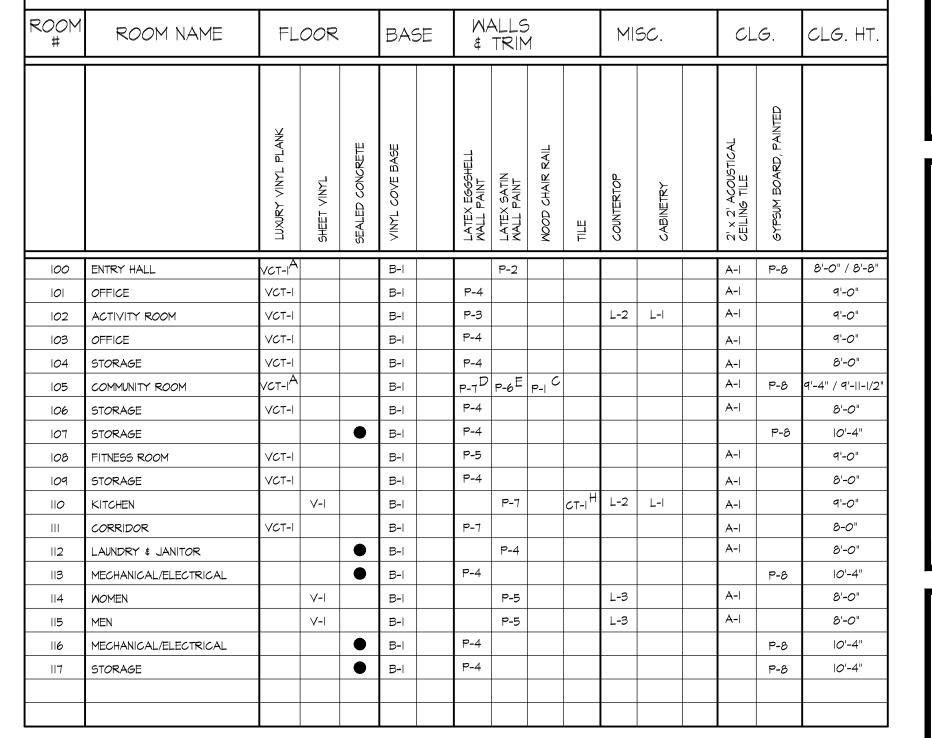
White (WH) with White grid.

T-2 Hearth

PLASTIC LAMINATES:



ROOM #	ROOM NAME	FL	00R		BAS	BE	<b>N</b> ≠	ALLS TRIM	1		MIS	SC.	CL	G.	CLG. HT.
		LUXURY VINYL PLANK	SHEET VINYL	SEALED CONCRETE	VINYL COVE BASE		LATEX EGGSHELL MALL PAINT	LATEX SATIN MALL PAINT	MOOD CHAIR RAIL	TILE	COUNTERTOP	CABINETRY	2' x 2' ACOUSTICAL CEILING TILE	GYPSUM BOARD, PAINTED	
100	ENTRY HALL	VCT-1 <sup>A</sup>			B-I			P-2					A-I	P-8	8'-0" / 8'-8"
101	OFFICE	VCT-I			B-I		P-4						A-I		9'-0"
102	ACTIVITY ROOM	VCT-I			B-I		P-3				L-2	L-I	A-I		9'-0"
103	OFFICE	VCT-I			B-I		P-4						A-I		9'-0"
104	STORAGE	VCT-I			B-I		P-4						A-I		8'-0"
105	COMMUNITY ROOM	VСТ-1 <sup>А</sup>			B-I		P-7 D	P-6 <sup>E</sup>	P-1 C				A-I	P-8	9'-4" / 9'-11-1/2"
106	STORAGE	VCT-I			B-I		P-4						A-I		8'-0"
107	STORAGE			•	B-I		P-4							P-8	10'-4"
108	FITNESS ROOM	VCT-I			B-I		P-5						A-I		9'-0"
109	STORAGE	VCT-I			B-I		P-4						A-I		8'-0"
110	KITCHEN		V-I		B-I			P-7		CT-1 H	L-2	L-I	A-I		9'-0"
Ш	CORRIDOR	VCT-I			B-I		P-7						A-I		8-0"
II2	LAUNDRY & JANITOR			•	B-I			P-4					A-I		8'-0"
II3	MECHANICAL/ELECTRICAL			•	B-I		P-4							P-8	10'-4"
114	MOMEN		V-I		B-I			P-5			L-3		A-I		8'-0"
II5	MEN		V-I		B-I			P-5			L-3		A-I		8'-0"
	MECHANICAL/ELECTRICAL			•	B-I		P-4							P-8	10'-4"
116															



DRAWING NO. SHEET

12-5-24

CEN CEN

ROENIOF



# **EPPERSON ENGINEERING**

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

#### **GENERAL NOTES**

- 1. REFER TO SHEET P0.
- WHERE DOMESTIC WATER SERVICE CROSSES SANITARY SEWER, WATER SERVICE SHALL BE SLEEVED A MINIMUM OF 5' ON EACH SIDE OF INTERSECTION AND SEALED AT EACH END. WATER SHALL BE A MINIMUM 18" ABOVE TOP OF SEWER PIPE.

#### SHEET NOTES 🔾

- NEW 2" WATER SERVICE UTILITY TAP. COORDINATE TAP WITH LOCAL WATER UTILITY COMPANY. ALL TAP FEES, PERMITS, UTILITY COST, ETC. TO BE RESPONSIBILITY OF CONTRACTOR.
- NEW 2" WATER METER AT APPROXIMATELY THIS LOCATION.
   COORDINATE LOCATION AND INSTALLATION WITH LOCAL WATER
   COMPANY UTILITY. METER SHALL BE LOCATED IN GRASSY AREA.
- 3. NEW 2" WATER SERVICE TO BUILDING, 30" MINIMUM BURY, PROVIDE WITH TRACER WIRE.
- 4. DOMESTIC WATER SERVICE TO TURN UP INSIDE BUILDING ENVELOPE AT APPROXIMATELY THIS LOCATION. REFER TO DOMESTIC WATER PIPING PLAN ON SHEET P2 FOR EXACT ENTRY POINT. REFER TO WATER SERVICE ENTRANCE DETAIL ON SHEET P0 FOR ADDITIONAL INFORMATION.
- 5. NEW 4" SANITARY SEWER SERVICE CONNECTION TO EXISTING 6"
  UTILITY MAIN AT EXISTING MANHOLE. COORDINATE SEWER
  SERVICE TAP WITH UTILITY COMPANY. ALL TAP FEES, PERMITS,
  UTILITY COST, ETC. TO BE RESPONSIBILITY OF CONTRACTOR.
- 6. NEW 4" SEWER SERVICE TO BUILDING.
- 7. SANITARY SEWER PIPING TO EXIT BUILDING AT APPROXIMATELY THIS LOCATION. REFER TO SANITARY SEWER PIPING PLAN ON SHEET P1 FOR EXACT EXIT POINT.
- 8. NEW GAS SERVICE CONNECTION TO EXISTING GAS UTILITY MAIN. COORDINATE GAS SERVICE TAP WITH UTILITY COMPANY. ALL TAP FEES, PERMITS, UTILITY COST, ETC. TO BE RESPONSIBILITY OF CONTRACTOR.
- UTILITY NATURAL GAS SERVICE TO ROUTE TO METER LOOP ON EXTERIOR OF BUILDING.
- 10. PROVIDE NATURAL GAS METER LOOP AT APPROXIMATELY THIS LOCATION. INSTALL METER LOOP, BYPASS LOOP, LOCKING GAS VALVES, ETC. PER GAS COMPANY REQUIREMENTS. GAS SERVICE ENTERING BUILDING SHALL BE 2", REGULATOR SHALL BE CAPABLE OF HANDLING 560MBTU AT 7"-10"W.C. (LONGEST LENGTH APPROXIMATELY 150'). REFER TO SHEET P2 FOR EXACT GAS SERVICE ENTRANCE LOCATION.
- DEMOLITION SCOPE EXISTING PORTION OF WATER LINE AT APPROXIMATELY THIS LOCATION TO BE DEMOLISHED BACK TO SOURCE. COORDINATE WITH UTILITY COMPANY.

UTILITY CONTACT INFORMATION

GAS, WATER, SEWER MOREHEAD UTILITY PLANT BOARD (MUPB) 135 S. WILSON AVENUE, MOREHEAD, KY 40351 OFFICE: (606)-784-5538

KENNY CORNETT KCORNETT@MUPB.COM



## "KY BUD" BEFORE YOU DIG: (811)

UNDERGROUND UTILITY LOCATIONS WERE DETERMINED FROM SITE SURVEY AND VISUAL INSPECTION OF THE PROPERTY AND SHOULD BE CONSIDERED APPROXIMATE ONLY. CONTACT ALL INDIVIDUAL UTILITY COMPANIES AND "KY BUD" PRIOR TO BEGINNING ANY EXCAVATION.



NOVEMBER 2024

DATE

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DF KENTUCKY, INC.

24 Wellington Way Phone:

Exington, KY 40503 Fax:

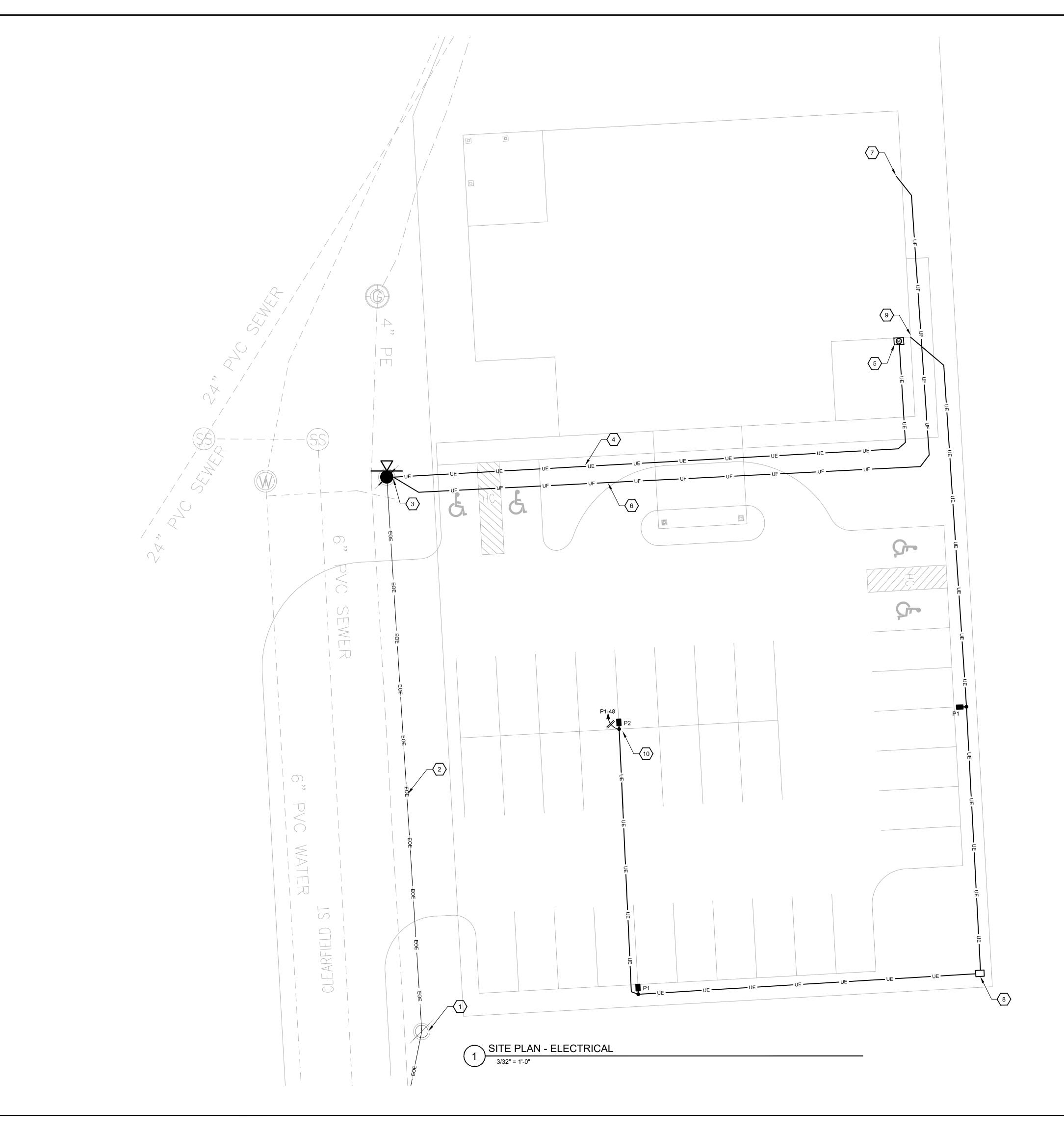
DRAWING NO.

SU1



DRAWING NO.

SU2



## GENERAL NOTES

1. REFER TO SHEET E0.

## SHEET NOTES 🔘

- EXISTING UTILITY POLE.
- 2. EXISTING OVERHEAD ELECTRIC UTILITY LINE.
- NEW UTILITY POLE WITH SINGLE PHASE POLE MOUNTED TRANSFORMER. COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY.

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- 4. PROVIDE (1) 4" CONDUIT WITH PULL STRING, 36" MINIMUM BURY. ROUTE CONDUIT FROM UTILITY POLE TO METER BASE ON BUILDING UTILIZING LONG RADIUS SWEEPS. COORDINATE CONDUIT SIZE AND TYPE WITH LOCAL ELECTRIC UTILITY COMPANY. PROVIDE ADDITIONAL RISER CONDUITS AT POLE AS NEEDED.
- 5. PROVIDE 240V, 400AMP ELECTRICAL METER BASE/LOAD CENTER COMBO. REFER TO POWER ONE-LINE DIAGRAM ON SHEET E5. COORDINATE INSTALLATION REQUIREMENTS WITH LOCAL ELECTRIC UTILITY COMPANY METERING DEPARTMENT.
- 6. PROVIDE TWO (2) 2" CONDUITS WITH PULL STRING, 36" MINIMUM BURY, FROM UTILITY POLE TO MDF LOCATED INSIDE BUILDING. UTILIZE LONG SWEEPS. REFER TO SHEET E2 FOR ADDITIONAL INFORMATION. ALL WORK ASSOCIATED WITH TELECOMMUNICATION SERVICE ENTRANCE SHALL BE COORDINATED WITH OWNER PREFERRED TELECOM PROVIDER'S REQUIREMENTS.
- APPROXIMATE LOCATION OF MDF IN NEW BUILDING. REFER TO SHEET E2 FOR EXACT LOCATION OF STUB UP.
- 8. PROVIDE FLUSH IN-GRADE QUAZITE PULL BOX ENCLOSURE. ENCLOSURE LID TO BE LABELED "ELECTRIC".
- 9. TURN UP INSIDE WALL AT APPROXIMATE LOCATION SHOWN.
- CONNECT TO EXTERIOR LIGHTING CIRCUIT P1-48.
- 10. LIGHT POLE BASE SHALL BE LOCATED AT INTERSECTION OF PARKING SPACE LINES AS SHOWN.

OFFICE: (502)-589-1444

UTILITY CONTACT INFORMATI

ELECTRIC
KENTUCKY UTILITIES (KU)
138 NORTH BLAIR AVENUE, MOREHEAD, KY 40351

JAMIE PLANCK JAMIE.PLANCK@LGE-KU.COM



# "KY BUD" BEFORE YOU DIG: (811)

UNDERGROUND UTILITY LOCATIONS WERE DETERMINED FROM SITE SURVEY AND VISUAL INSPECTION OF THE PROPERTY AND SHOULD BE CONSIDERED APPROXIMATE ONLY. CONTACT ALL INDIVIDUAL UTILITY COMPANIES AND "KY BUD" PRIOR TO BEGINNING ANY EXCAVATION.

## PLUMBING LEGEND

LOMBING	BLLGLIND
PLUMBING S	SYMBOLS
SYMBOL	DESCRIPTION
——э	PIPE DOWN
<b></b> 0	PIPE UP
	TEE DOWN
<b></b>	TEE UP
<b>─</b>	CONTINUATION
<del></del> -	CAP
•	HAMMER ARRESTOR
ŀģι	BALANCING VALVE
ιδι	BALL VALVE
=	BUTTERFLY VALVE
N N	ELECTRIC CONTROL VALVE
Ø	PRESSURE REDUCING VALVE
7	CHECK VALVE
×	GATE VALVE
ا∳ا	PLUG VALVE
<b>&gt;</b>	REDUCER
IļI	UNION
₩	VALVE IN VERTICAL
q	PRESSURE GAUGE
片	STRAINER
끕	FLOW INDICATOR
<b>—</b> a	CLEANOUT
-0	FLOOR CLEANOUT
Ф	THERMOMETER
Фс	FLOOR DRAIN
oc	P-TRAP
Φ	FLOOR DRAIN GRATE
<u> </u>	SHEET NOTE
⟨XX-XX⟩	EQUIPMENT TAG

ABBRI	EVIATIONS
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BTU	BRITISH THERMAL UNIT
СО	CLEANOUT
CW	COLD WATER
ECO	EXTERIOR CLEANOUT
ET	EXPANSION TANK
ETP	ELECTRONIC TRAP PRIMER
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
GPM	GALLONS PER MINUTE
GWH	GAS WATER HEATER
НА	HAMMER ARRESTOR
НВ	HOSE BIBB
HW	HOT WATER
LAV	LAVATORY
МВ	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 DESCRIPTION SYMBOL DETAIL NOTES UNDER SLAB COLD WATER PIPING WITH SIZE ----1"CW ------MAIN DOMESTIC WATER SERVICE VALVE. EPOXY COATED NON-RISING STEM COLD WATER PIPING WITH SIZE RESILIENT WEDGE GATE VALVE, SIZE OF WATER SERVICE. 2. DOUBLE CHECK VALVE BACK FLOW PREVENTER, WITH OPTIONAL WYE HOT WATER PIPING WITH SIZE SET <u>PRV</u> TO LOWEST POSSIBLE SETTINGS TO STRAINER, AND OPTIONAL OS&Y GATE VALVES. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. UNDER SLAB SANITARY PIPING WITH SIZE OPERATE FLUSH VALVES TEST AND RETRY TO FIND ROUTE DRAIN FUNNEL AND PIPING TO NEAREST FLOOR DRAIN. CUT DRAIN SANITARY PIPING WITH SIZE PIPING AT 60 DEGREE ANGLE. DOMESTIC UNDER SLAB VENT PIPING WITH SIZE ----- 1"V ------WATER TO, 4. 3/4" HB HOSE BIBB AND SHUT-OFF VALVE FOR SYSTEM DRAIN DOWN. FACILITY VENT PIPING WITH SIZE PRESSURE GAUGE WITH GAUGE PROTECTER, SHUTOFF, AND BLEED VALVE. UNDER SLAB GAS PIPING WITH SIZE (SLEEVED) SERVICE SIZE OS&Y GATE VALE FOR PRV ISOLATION. PRV PRESSURE REDUCING VALVE WITH LOW FLOW BY-PASS AND EPOXY GAS PIPING WITH SIZE COATING. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. NORMALLY CLOSED OS&Y GATE VALVE FOR EMERGENCY BYPASS.

#### GRADE NO ROCK ALLOWED IN TOP 8" OF BACKFILL — EARTH BACKFILL FREE OF LARGE ROCKS DEPTH VARIES NOTE: 1) FOR PIPE LAID IN ROCK No. 9 CRUSHED STONE TRENCH, INCREASE DEPTH OF CRUSHED STONE UNDER BELL TO 6" 2) ALL PLASTIC PIPE TO BE BURIED WITH TRACER WIRE CONDUIT-

## TRENCH DETAIL FOR EARTH COVER

# NOT TO SCALE

## **GENERAL NOTES - PLUMBING:**

- 1. 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.
- 2. 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.
- 3. 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.
- 4. <u>VERIFY UTILITIES:</u> 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.
- 5. 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.
- 6. PERMITS, TESTING, AND INSPECTIONS: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS, TESTING AND SCHEDULES INSPECTIONS.
- 7. 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.
- 8. 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.
- 9. 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.
- 10. ROOFING PENETRATIONS: ALL ROOF PENETRATIONS SHALL BE IN COMPLIANCE WITH THE ROOFING MANUFACTURER'S GUIDELINES, THE AMERICAN ROOFING COUNCIL, AND MAINTAIN ALL WARRANTIES.
- 11. WALL PENETRATIONS: SEAL ALL PIPING PENETRATIONS THROUGH EXTERIOR WALLS WITH SILICONE SEALANT AS REQUIRED TO MAKE WATER/WEATHER TIGHT.
- 12. EXISTING WALL OPENINGS: EXISTING OPENINGS IN WALLS THAT ARE NOT BEING RE-USED SHALL BE PATCHED/CLOSED BY THE GENERAL CONTRACTOR.
- 13. 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
- 14. 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.
- 15. INSULATION: INSULATE ALL DOMESTIC HOT/COLD WATER, RECIRCULATION PIPING, AND ROOF LEADERS.
- 16. 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.
- 17. VALVES: ALL VALVES SHOWN ON FLOOR PLANS, BUT NOT ON RISERS OR VICE VERSA, SHALL BE PROVIDED AND INSTALLED AS IF SHOWN ON BOTH.
- 18. 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).

BALANCE VALVE

BRANCH

- REFER TO PLANS & RISERS FOR PIPE

SIZES AND LOCATION

ISOLATION BALL VALVE

RECIRC-BALANCING STATION FOR EACH

DOMESTIC HOT WATER RECIRCULATION

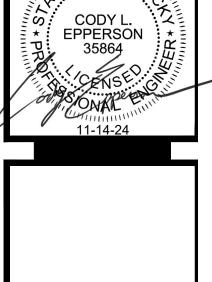
GRADE

6" MINIMUM OF NO.9

PIPE BELL/HUB

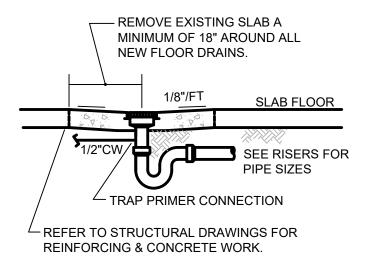
CRUSHED STONE UNDER



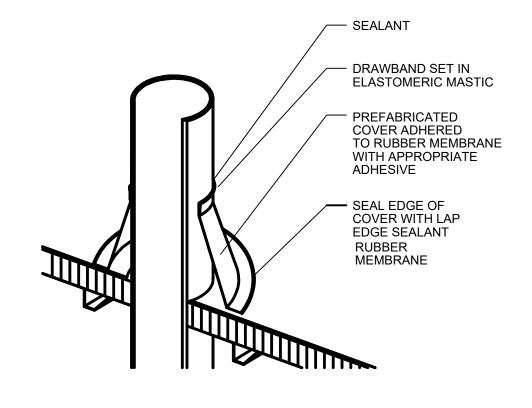


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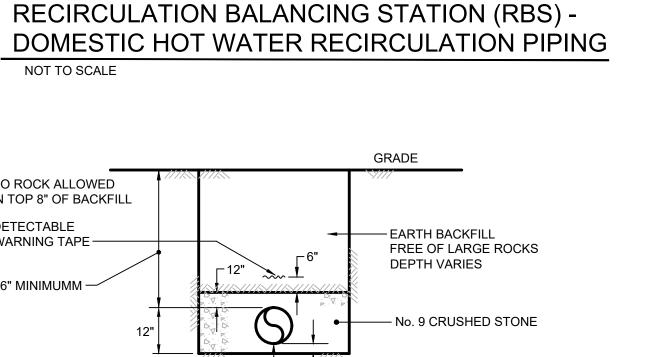
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## FLOOR DRAIN DETAIL - SLAB NOT TO SCALE

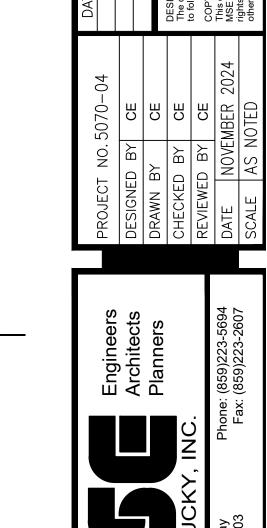






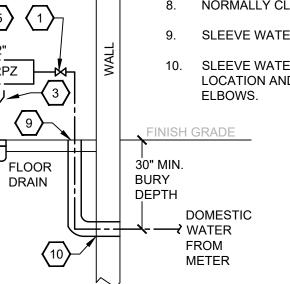
SHEET NUMBER	SHEET TITLE
P0	PLUMBING LEGEND & NOTES
P1	SANITARY SEWER PLAN
P2	DOMESTIC WATER & GAS PLAN
P3.1	SANITARY SEWER RISER
P3.2	DOMESTIC WATER RISER
P6.1	PLUMBING SCHEDULES
P6.2	PLUMBING SCHEDULES
P7	PLUMBING SPECIFICATIONS

SHEET INDEX



DRAWING NO. P0

- SLEEVE WATER SERVICE THROUGH FLOOR SLAB.
- 10. SLEEVE WATER SERVICE IN FOUNDATION WALL IF NECESSARY. COORDINATE LOCATION AND DEPTH WITH STRUCTURAL CONTRACTOR. USE LONG SWEEPING



## DOMESTIC WATER SERVICE ENTRANCE RISER DETAIL

NOT TO SCALE

CORRECT PRESSURE

SETTING.

TRENCH DETAIL FOR NEW SLAB/PAVEMENT NOT TO SCALE

ISOLATION BALL VALVE -

NO ROCK ALLOWED

DETECTABLE

WARNING TAPE -

36" MINIMUMM -

NOTE: ALL PLASTIC PIPE TO

BE BURIED WITH TRACER

IN TOP 8" OF BACKFILL

CHECK VALVE

1/2"HWR

# **EPPERSON ENGINEERING**

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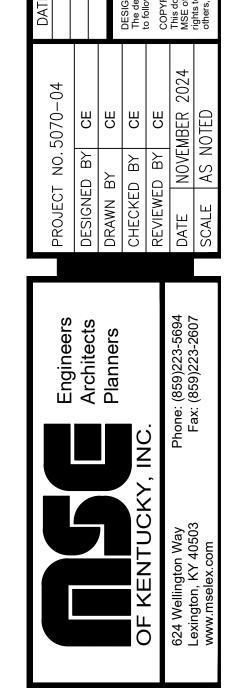
## **GENERAL NOTES**

- REFER TO SHEET P0.
- REFER TO SANITARY SEWER RISER ON SHEET P3.1 AND PLUMBING FIXTURE SCHEDULE ON SHEET P6.1 FOR PIPE SIZES NOT SHOWN.
- 3. ENSURE PLUMBING VENTS THROUGH ROOF ARE MINIMUM 10' FROM ALL BUILDING OUTSIDE AIR INTAKES. COORDINATE WITH MECHANICAL CONTRACTOR.

- 2. PROVIDE BELOW SINK GREASE TRAP 'GT1' AND INSTALL PER MANUFACTURER'S INSTRUCTIONS AND LOCAL CODES. SEE SCHEDULE ON SHEET P6.2 FOR ADDITIONAL INFORMATION. GREASE TRAP SHALL SERVE THREE-COMPARTMENT SINK 'S3'.
- TIE DISHWASHER DRAIN INTO NEARBY 'S1' SINK DRAIN PER MANUFACTURER'S INSTRUCTIONS.

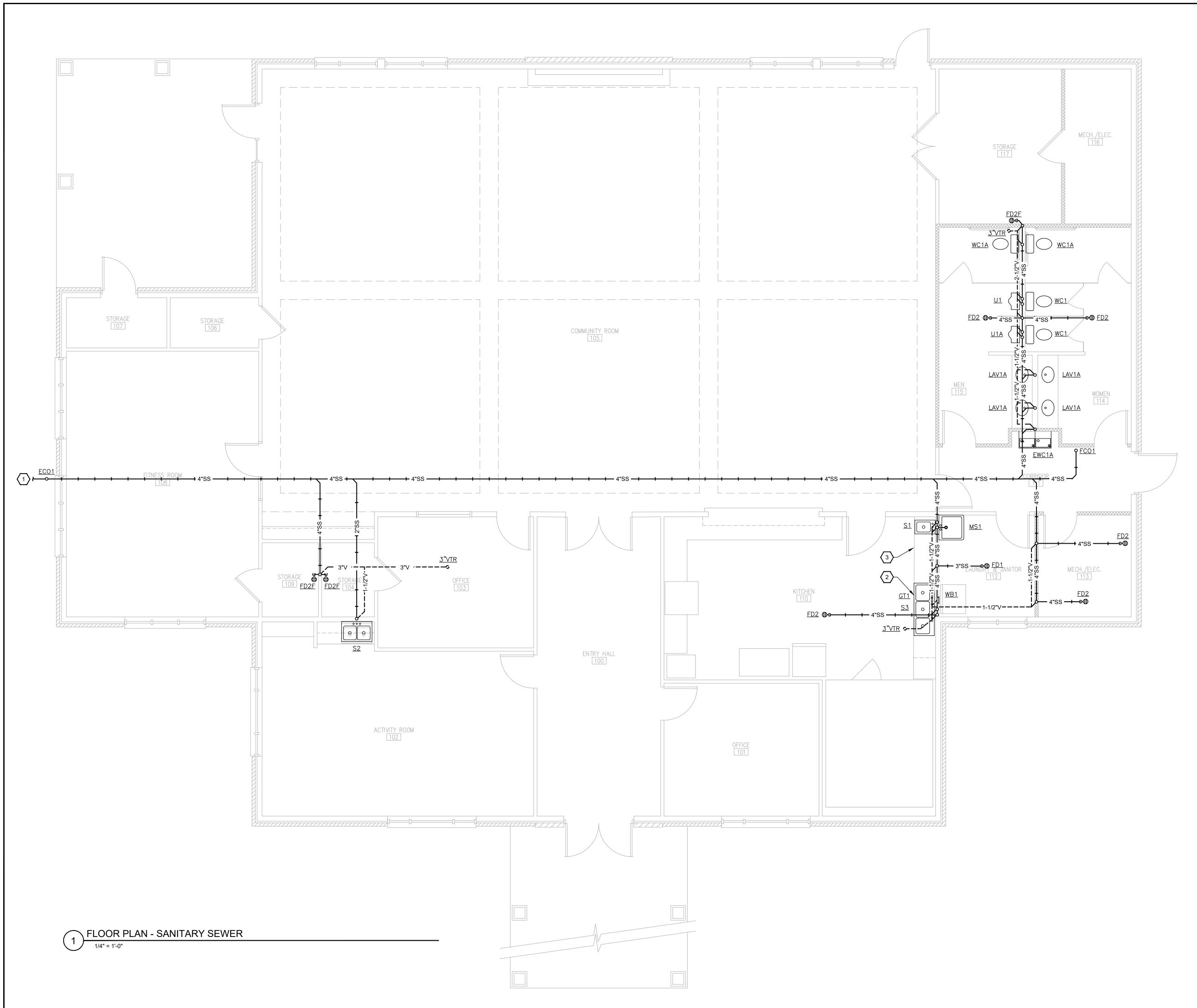
## SHEET NOTES ○

- 1. REFER TO SITE PLAN ON SHEET SU1 FOR CONTINUATION.



DRAWING NO.

P1



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(kBTU) / QTY TOTAL (kBTU)

100

100

100

560

EACH

40

40

100

100

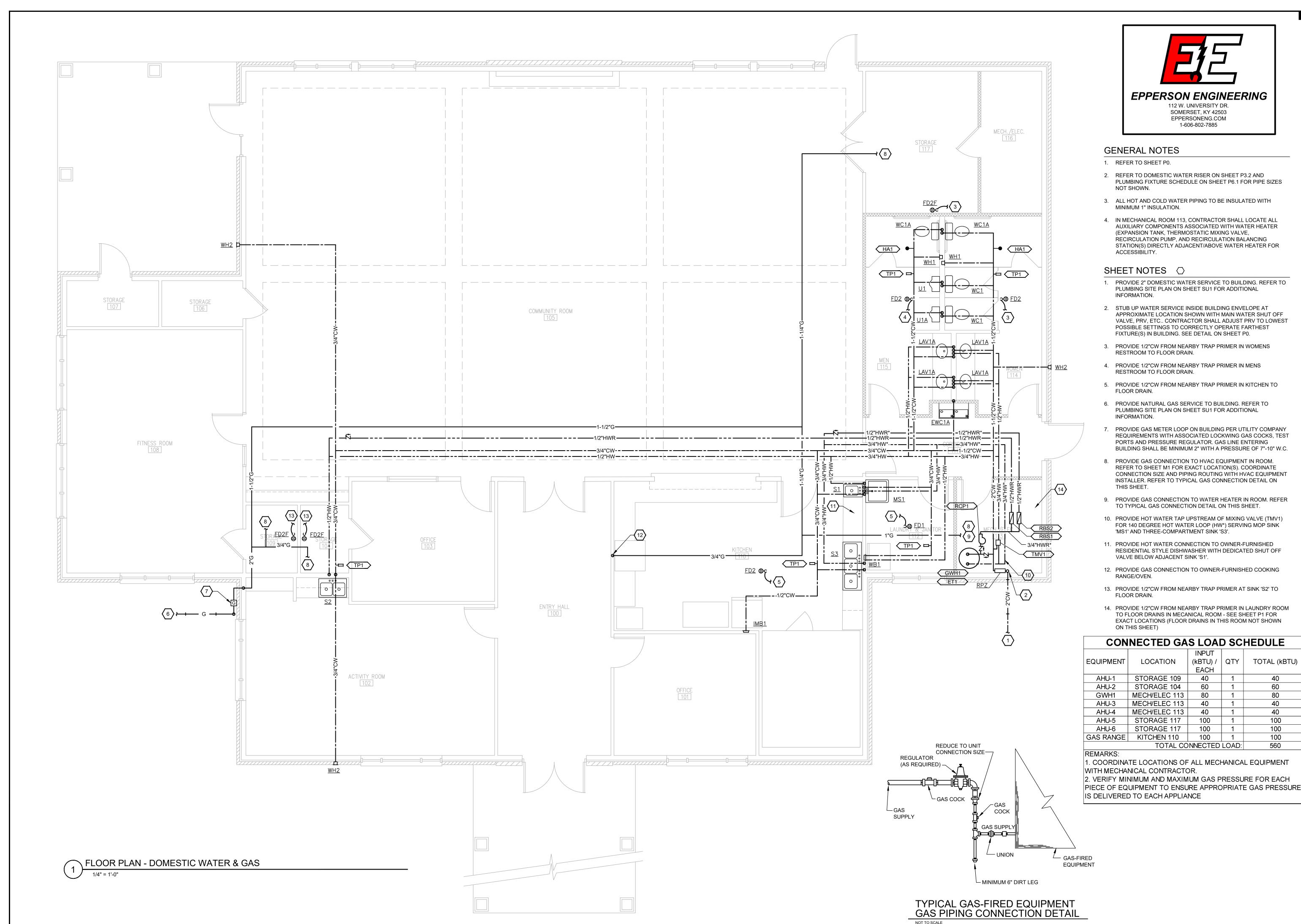
100

TOTAL CONNECTED LOAD:

40

DRAWING NO.

P2



# ROWAN COUNTY Senior citizens center morehead, kentucky

CODY L. EPPERSON 35864

# SHEET NOTES 🔾

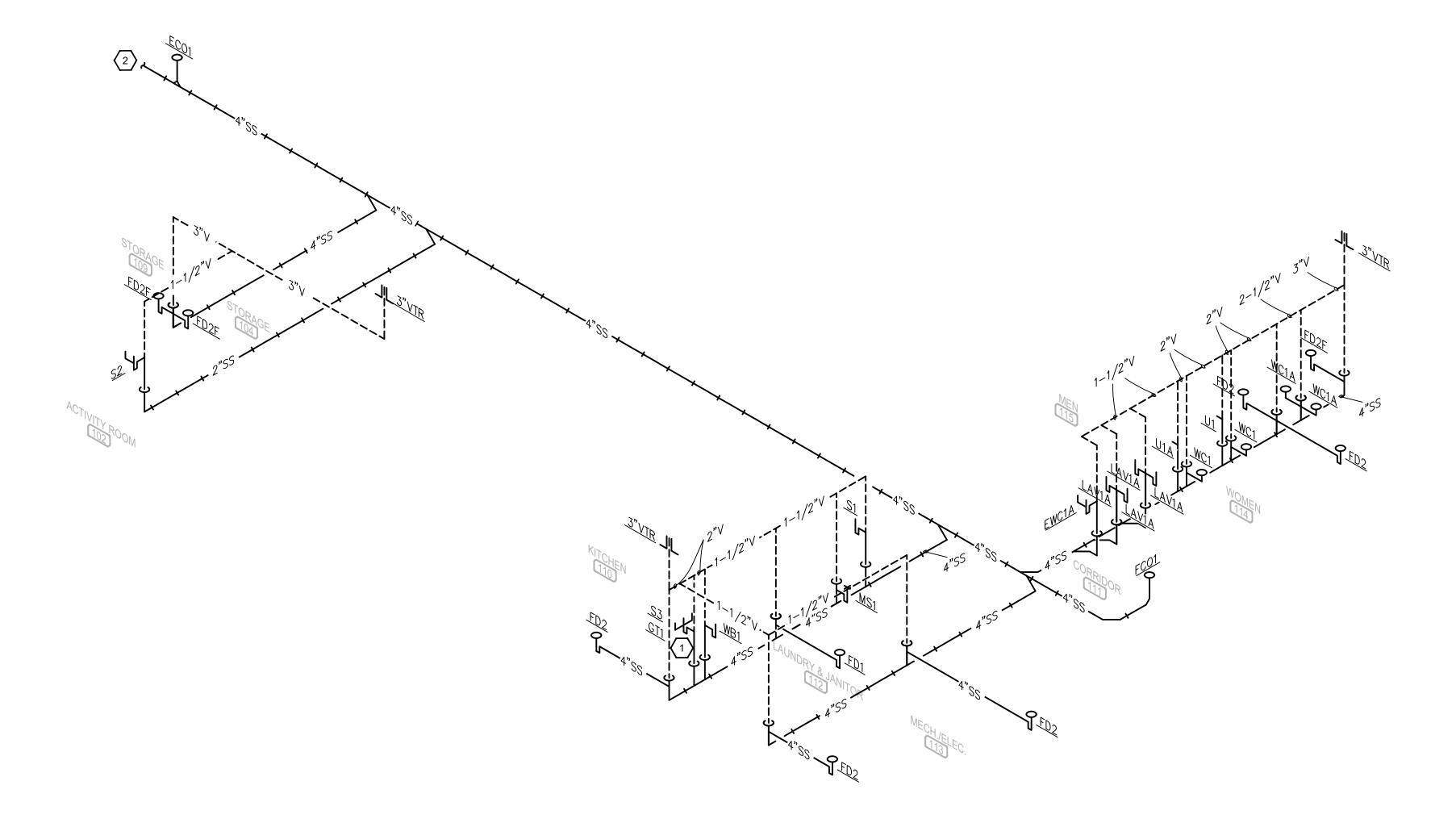
**GENERAL NOTES** 

1. REFER TO SHEET P0.

1. GREASE TRAP 'GT1' TO BE INSTALLED BELOW THREE
COMPARTMENT SINK 'S3'. REFER TO GREASE TRAP SCHEDULE
FOR ADDITIONAL INFORMATION. VENT PER KENTUCKY PLUMBING
CODE.

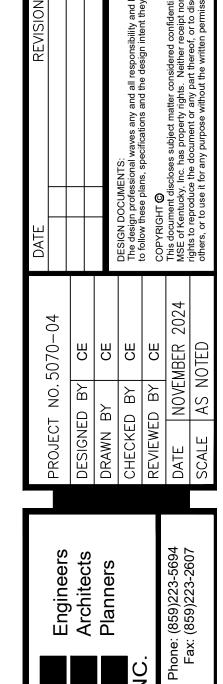
 REFER TO PLUMBING FIXTURE SCHEDULE ON SHEET P6.1 FOR ADDITIONAL INFORMATION.

2. REFER TO SITE PLAN FOR CONTINUATION.



PLUMBING RISER - SANITARY SEWER

NOT TO SCALE



DRAWING NO.

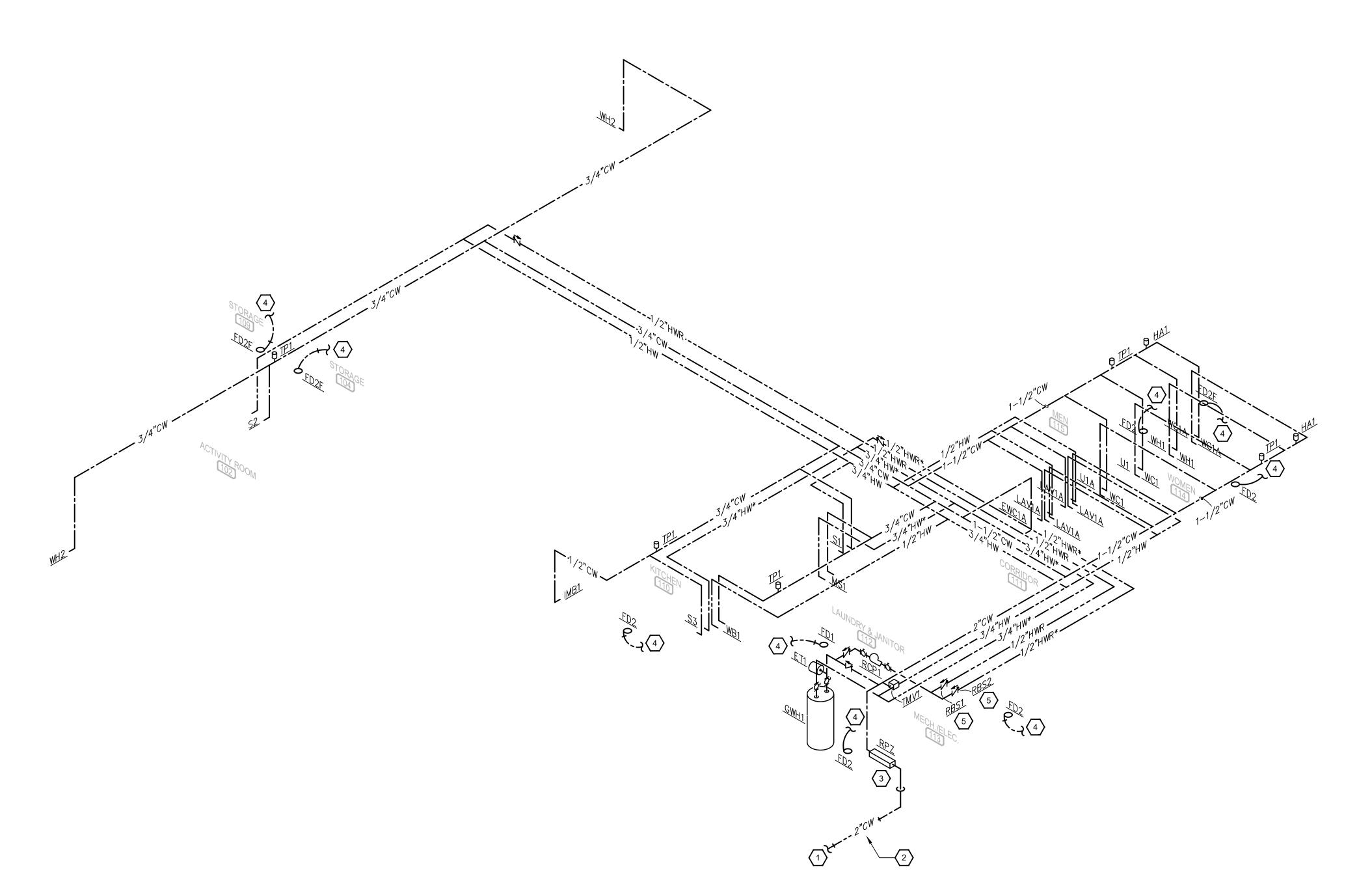
P3.1

⊘ CODY L. ★ EPPERSON

11-14-24

DRAWING NO.

P3.2



PLUMBING RISER - DOMESTIC WATER

NOT TO SCALE

## **GENERAL NOTES**

- 1. REFER TO SHEET P0.
- 2. REFER TO PLUMBING FIXTURE SCHEDULE ON SHEET P6.1 FOR ADDITIONAL INFORMATION.
- ALL HOT AND COLD WATER PIPING TO BE INSULATED WITH MINIMUM 1" INSULATION.
- 4. IN MECHANICAL ROOM 113, CONTRACTOR SHALL LOCATE ALL AUXILIARY COMPONENTS ASSOCIATED WITH WATER HEATER (EXPANSION TANK, THERMOSTATIC MIXING VALVE, RECIRCULATION PUMP, AND RECIRCULATION BALANCING STATION(S) DIRECTLY ADJACENT/ABOVE WATER HEATER FOR ACCESSIBILITY.

# SHEET NOTES 🔘

- NEW WATER SERVICE. REFER TO PLUMBING SITE PLAN FOR ADDITIONAL INFORMATION.
- PROVIDE 2" DOMESTIC WATER SERVICE. WATER SERVICE TO BE BURIED AT A MINIMUM 30" 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 PO FOR ADDITIONAL INFORMATION.
- 4. PROVIDE 1/2"CW FROM NEARBY TRAP PRIMER TO FLOOR DRAIN.
- 5. PROVIDE HOT WATER RECIRCULATION BALANCING VALVE. REFER TO DETAIL ON SHEET P0 FOR ADDITIONAL INFORMATION AND SCHEDULE ON SHEET P6.2.

CODY L.

EPPERSON
35864

11-14-24

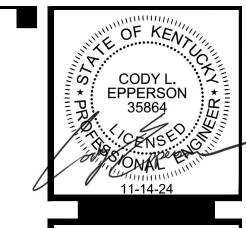
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DATE REVISION				DESIGN DOCUMENTS: The design professional waves any and all responsibility and liability for problems which arise from failure	COPYRIGHT ©	This document discloses subject matter considered confidential by MSE of Kentucky, Inc. and on which MSE of Kentucky, Inc. has property rights. Neither receipt nor possession thereof confers or transfer any	rights to reproduce the document or any part thereof, or to disclose any information contained therein to others, or to use it for any purpose without the written permission of MSE of Kentucky, Inc.
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Engineers Architects Planners
JE KENTUCKY, INC.

DRAWING NO.

P6.1

			PLUM	BING	FIXTL	JRE S	CHED	ULE			
MARK	MANFACTURER	MODEL / TYPE	TRIM	CW	HW	TRAP	WASTE	VENT	MOUNTING TYPE / HEIGHT	REMARKS	OTHER ACCEPTABLE MANUFACTURERS
ECO1	JOSAM	55000-Y HEAVY DUTY EXTERIOR CLEANOUT	COATED CAST IRON FINISH	-	-	-	4"	-	GROUND	COLOR/FINISH SHALL BE SELECTED BY ARCHITECT.	WADE, ZURN
EWC1A		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 BOTTLER FILLER SENSOR ACTIVATION; LED FILTER STATUS	ACORN, OASIS
FCO1	JOSAM	55000-1-Y INTERIOR CLEANOUT	COATED CAST IRON BODY, WITH SATIN FINISH NIKALOY TOP	-	-	-	4"	-	FLUSH IN FLOOR	COORDINATE FLOOR TYPE WITH ARCHITECTURAL DRAWINGS, 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
FD2F	JOSAM	30004-7A FLOOR DRAIN WITH FUNNEL	7" SATIN FINISH, BRONZE STRAINER	1/2"	-	4"	4"	1-1/2"	FLUSH IN FLOOR	1/2" TRAP PRIMER CONNECTION	ZURN, J.R. SMITH
IMB1	SIOUX CHIEF	696-G1000	QUARTER TURN BALL VALVE	1/2"	-	-	-	-	BOTTOM 48" AFF		GUY GRAY, OATEY
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, BATTERY INCLUDED	LAV: KOHLER, ZURN; <u>FAUCET</u> : KOHLER, SLOAN
MS1	FIAT	TSB100 TERRAZZO MOP SINK	FAUCET: FIAT 830AA WITH VACUUM BREAKER TRIM: 832AA HOSE AND HOSE BREACKET, 889CC MOP HANGER, MSG 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, ELKAY, ZURN
RPZ	1 /11/2/1	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, ZURN, FEBCO
S1		DI-1-5 SINGLE COMPARTMENT STAINLESS STEEL SINK; OVERALL DIMENSIONS 13x19	FAUCET: DECK MOUNT GOOSENECK TRIM: REMOVABLE DRAIN BASKET	1/2"	1/2"	1-1/2"	1-1/2"	1-1/4"	COUNTER SET/DROP-IN	COORDINATE INSTALLATION WITH CASEWORK	T&S, REGENCY
S2		20DB.8332283S.075 DOUBLE BOWL SINK, OVERALL DIMENSIONS 33x22	FAUCET: AMERICAN STANDARD 7077300.075, 605XTMV1070 1/2" THERMOSTATIC MIXING VALVE TRIM: CHROME PLATED GRID DRAINS	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
S3	ADVANCE TABCO	DI-3-1410 THREE COMPARTMENT STAINLESS STEEL SINK; OVERALL DIMENSIONS 50x21	FAUCETS: TWO (2) DECK MOUNT DUAL HANDLE FAUCETS WITH 8" SWING SPOUTS TRIM: REMOVABLE DRAIN BASKETS	3/4"	3/4"	2"	2"	1-1/2"	COUNTER SET/DROP-IN	COORDINATE INSTALLATION WITH CASEWORK	T&S, REGENCY
U1	AMERICAN STANDARD	6590.001 URINAL	FLUSH VALVE: AMERICAN STANDARD 6045SM.101	3/4"	-	INTEGRAL	. 2"	1-1/2"	<u>Wall Hung</u> : LIP 24"	3/4" TOP SPUD, 1GPF, BATTERY INCLUDED	ZURN, SLOAN, KOHLER, CRANE
U1A	AMERICAN STANDARD	6590.001 URINAL	FLUSH VALVE: AMERICAN STANDARD 6045SM.101	3/4"	-	INTEGRAL	. 2"	1-1/2"	WALL HUNG: LIP 17"	3/4" TOP SPUD, 1GPF, BATTERY INCLUDED	ZURN, SLOAN, KOHLER, CRANE
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"	<u>WALL HUNG</u> (FLUSH), 48" AFF	COORDINATE LOCATION OF WASHING MACHINE WITH OWNER PRIOR TO ROUGH-IN TO ENSURE PLACEMENT BEHIND EQUIPMENT AND ACCESSIBILITY	OATEY
WC1	AMERICAN STANDARD	2234.001 WATER CLOSET	FLUSH VALVE: AMERICAN STANDARD 6065.161.002 SEAT: AMERICAN STANDARD 5901.100	1"	-	INTEGRAL	. 3"	1-1/2"	FLOOR SET: RIM 15"	ELONGATED BOWL, TOP SPUD, 1.6G DC SENSOR FLUSH VALVE, HEAVY DUTY OPEN FRONT SEAT LESS COVER, BATTERY INCLUDED	ZURN, SLOAN, KOHLER, CRANE
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, BATTERY INCLUDED	ZURN, SLOAN, KOHLER, CRANE
WH1	MURDOCK	M-3615T NON-FREEZE WALL HYDRANT	VARIATIONS: T HANDLE	3/4"	-	-	-	-	18"AFF	WITH INTEGRAL VACUUM BREAKER, QUARTER TURN FULL THROW, COORDINATE DEPTH WITH WALL CONSTRUCTION	WOODFORD, ZURN, MIFAB
WH2	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	WOODFORD, ZURN, MIFAB



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Engineers Architects Planners	, INC.	Phone: (859)223-5694 Fax: (859)223-2607
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P6.2	2

DRAWING NO.

GAS WATER HEATER SCHEDULE												
MARK	MANUFACTURER	MODEL	LOCATION	TYPE	CAPACITY		AL GAS TUH)	INLET PRESSURE	ELE	CTRICAI	<u> </u>	NOTES
					(GAL)	INPUT	OUTPUT	(W.C.)	VOLTAGE	MCA	MOCP	
GWH1	AO SMITH	BTX-80	MECH/ELEC 113	TANK	50	76,000	71,440	7-14	120	5	15	ALL

1. INSTALL IN DRAIN PAN

2. PROVIDE WITH CONDENSATE NEUTRALIZER; AFTER NEUTRALIZER, ROUTE CONDENSATE TO NEARBY FLOOR DRAIN

3. PROVIDE AND INSTALL ROOF CONCENTRIC VENT PER MANUFACTURER'S INSTRUCTIONS. ENSURE REQUIRED CLEARANCES ARE MAINTAINED. 4. PROVIDE ALL NECESSARY VALVES (CHECK, ISOLATION, ETC.) AS REQUIRED. PROVIDE SHUT-OFF VALVES AT INLET AND OUTLET.

5. 3/4" NPT GAS CONNECTION, 3/4" WATER INLET, 3/4" WATER OUTLET

6. INTEGRAL TEMPERATURE CONTROLLER; SET WATER TEMPERATURE TO 140°F; PROVIDE TEMPERATURE GAUGE ON OUTLET

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: BRADFORD WHITE, RHEEM

	THERMOSTATIC MIXING VALVE SCHEDULE										
MARK	MANUFACTURER	MODEL	LOCATION	FLOW RANGE	FLOW AT 5 PSID	OUTLET	CONNE	ECTIONS	NOTES		
				(GPM)	DROP	TEMP °F	INLET	OUTLET			
TMV1	TMV1 ACORN MV17-2 GWH1 0.1 - 45 15 100 - 160 3/4" 3/4"										

1. PROVIDE BRASS LOCKABLE BALL VALVES AT INLET CONNECTIONS

2. ASSE 1017 COMPLIANT, LEAD FREE, SOLID BRASS MASTER MIXING VALVE WITH INTEGRAL CARTRIDGE STYLE CHECKS AND SCREENS

3. ADJUSTABLE TEMPERATURE CONTROL, SET AT 110°F, PROVIDE TEMPERATURE GAUGE WITH PETCOCK AT OUTLET

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: WATTS

	TRAP PRIMER SCHEDULE											
MARK	MANUFACTURER	MODEL	V / Ø / Hz	LOCATION	NUMBER OF PORTS	NOTES						
TP1	PRECISION PLUMBING PRODUCTS	PR-500	-	SEE PLANS	2	1						

1. INSTALL PER MANUFACTURER'S INSTRUCTION

OTHER ACCEPTABLE MANUFACTURERS: SIOUX CHIEF, ZURN

	WATER HAMMER ARRESTOR SCHEDULE											
MARK	MANUFACTURER	MODEL	LOCATION	PIPE SIZE (IN)	FIXTURE UNITS	NOTES						
HA1	ZURN SHOKTROL	200	SEE PLANS	3/4"	12-32	ALL						

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 PUMP SCHEDULE													
	MANUICACTURER	MODEL	LOCATION	FLOW	MAX	MAX	CONNE	CTIONS		ELECT	RICAL		NOTES
MARK	MANUFACTURER	MODEL	LOCATION	(GPM)	HEAD (FT)	TEMP (°F)	INLET	OUTLET	HP	V / Ø / Hz	MCA	МОСР	NOTES
RCP1	GRUNDFOS	UPS15-58FC	GWH1	0-17	19.5	230	3/4"	3/4"	FRAC.	115/1/60	1	15	ALL

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

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: TACO

	GREASE TRAP SCHEDULE												
MARK	MANUFACTURER	MODEL	LOCATION	DIMENSIONS (LxWxD)	INLET/OUTLET (INCHES)	LIQUID CAPACITY (GAL)	GREASE CAPACITY (LBS)	NOTES					
GT1	ZURN	GT2702-15	BELOW THREE COMPARTMENT SINK 'S3'	23" x 19.5" x 13"	2"/2"	10.2	30	ALL					

1. INSTALL GREASE TRAP PER MANUFACTURERS INSTALLATION INSTRUCTIONS AND LOCAL CODES

2. POLYETHYLENE CONSTRUCTION

3. REMOVABLE FLOW DIFFUSING BAFFLES AND EXTERNAL VENTED FLOW CONTROL DEVICE

	EXPANSION TANK SCHEDULE											
				TANK	ACCEPTANCE							
MARK	MANUFACTURER	MODEL	LOCATION	VOLUME	VOLUME	NOTES						
				(GAL)	(GAL)							
ET1	AMTROL	ST-5	GWH1	2	0.9	ALL						
					1							

1. 150 PSIG PRESSURE RATING

2. 200°F MAX OPERATING TEMPERATURE

3. 3/4" NPTM CONNECTION

4. NON ASME

	RECIRCULA	TION BALANC	ING STA	ATION	
MARK	MANUFACTURER	MODEL	LOCATION	PIPE SIZE (IN)	NOTES
RBS1	CIRCUIT SOLVER	CSUA-1/2-110-CV1	GWH1	1/2	ALL
RBS2	CIRCUIT SOLVER	CSUA-1/2-140-CV1	GWH1	1/2	ALL

1. INTEGRAL CHECK VALVE ON OUTLET

2. INTEGRAL ISOLATION BALL VALVES 3. INTEGRAL 0.2 GPM BYPASS

4. LEAD FREE

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

- a. SANITARY DRAIN, WASTE AND VENT SYSTEMS.
- b. DOMESTIC HOT AND COLD WATER SYSTEMS.
- c. DOMESTIC WATER HEATERS.
- d. FURNISH AND SET ALL SLEEVED FOR PIPE PASSING THROUGH WALLS AND FLOORS.
- e. PIPE COVERING, INSULATION AND WRAPPING.
- f. EXCAVATION AND BACKFILL.
- g. ALL PLUMBING FIXTURES, WATER HEATERS, VALVES, AND OTHER MISCELLANEOUS ITEMS OR EQUIPMENT REQUIRED FOR A COMPLETE INSTALLATION.
- h. 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.
- a. 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.
- b. 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.
- c. 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.
- d. 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:
- a. 2018 KENTUCKY BUILDING CODE (BASED ON 2015 INTERNATIONAL BUILDING CODE)b. 2015 INTERNATIONAL BUILDING CODE
- c. 2015 INTERNATIONAL MECHANICAL CODE
- d. 2012 INTERNATIONAL ENERGY CONSERVATION CODE OR 2010 ASHRAE 90.1 REFER TO ARCHITECTURAL COVER SHEET.
- e. KENTUCKY STATE PLUMBING LAW, REGULATIONS & CODES (815 KAR CHAPTER 20)
- f. KENTUCKY STATE BOILER REGULATION (KRS 236, 815 KAR 15)
  C. CURRENT CODES ADOPTED BY THE RESPECTIVE JURISDICTION WILL SUPERSEDE THE LISTED
- 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:

- A. REFER TO DIVISION 1 FOR INFORMATION ON SUBMITTALS AND SHOP DRAWINGS.
- B. 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.

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.

- A. PRIOR TO COMPLETION OF THE PROJECT, COMPILE A COMPLETE EQUIPMENT AND MAINTENANCE MANUAL FOR ALL EQUIPMENT SUPPLIED UNDER SECTIONS OF DIVISION 22 AS DESCRIBED IN DIVISION 1.
- B. 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:

MAINTENANCE MANUAL:

- A. 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.
- B. COOPERATIVE WORK INCLUDES:
- a. GENERAL SUPERVISION AND RESPONSIBILITY FOR PROPER LOCATION, ROUGH-IN AND SIZE WORK RELATED TO DIVISION 22 BUT PROVIDED UNDER OTHER DIVISIONS OF THESE SPECIFICATIONS.
- b. INSTALLATION OF SLEEVES, INSERTS AND ANCHOR BOLTS FOR WORK UNDER SECTIONS IN DIVISION 22.
- c. ELECTRICAL WORK AS SPECIFIED HEREIN. REFER TO DIVISION 26 FOR REQUIREMENTS.
  d. MECHANICAL WORK AS SPECIFIED HEREIN. REFER TO DIVISION 23 FOR REQUIREMENTS.

## CONSTRUCTION FACILITIES:

- A. 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.
- B. 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:
- A. 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:

- A. PROTECTION: TAKE ALL PRECAUTIONS NECESSARY TO PROTECT THE MATERIAL OF THIS SECTION BEFORE, DURING, AND AFTER INSTALLATION.
- B. 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:

- A. 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.

  B. OTHER SUBMITTALS:
  - a. SHOP DRAWINGS: HANGERS AND SUPPORTS, PIPING INSULATION, VALVES, PUMPS, WATER HEATER. AND ALL PLUMBING FIXTURES.
- C. SETS IN BOUND BOOKLET FORM OF WRITTEN OPERATING AND MAINTENANCE INSTRUCTIONS AND BROCHURES FOR EQUIPMENT SPECIFIED IN THIS SECTION. FULLY INSTRUCT OWNERS OPERATING PERSONNEL.
- ELEVATIONS, AS REFERRED TO APPROVED BASE DATUM, OF BURIED CONCEALED.

  E. 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.

D. RECORD DRAWINGS: KEEP AN ACCURATE DIMENSIONED RECORD OF AS-BUILT LOCATIONS AND

#### MISCELLANEOUS:

- A. 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.
- B. PERMITS AND FEES: ARRANGE AND PAY FOR ALL PERMITS, INSPECTIONS AND FEE REQUIRED BY ALL GOVERNING AGENCIES.
- C. 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 ASSESSMENTS FEES.
- D. 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**

- A. PIPE SLEEVES AND WRAPPING: PROVIDE POLISHED CHROMIUM PLATED AND BRASS SET SCREW FLANGES WHERE PLUMBING PIPING PASS 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 20 GA. GALVANIZED IRON ONE INCH O.D. LARGER THAN THE PIPE, CAULKED IF BELOW GRADE IN A MOISTURE PROOF MANNER. ALL PIPES PENETRATING THOUGH FIRE WALLS AND FLOORS SHALL BE PROPERLY SAFED WITH DOW CORNING 3=6548 SILICONE RTV FOAM OR EQUAL. INSTALL PER MANUFACTURER'S DIRECTIONS. B. PIPE IDENTIFICATION:
  - a. 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.
- b. 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.
- C. 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.
- D. MATERIALS: MATERIALS WHEN NOT OTHERWISE DEFINITELY SPECIFIED SHALL CONFORM TO THE APPLICABLE ASTM, ASME, AGA AND ASA STANDARDS.
- E. 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:
- A. NO PIPE OF FOREIGN MANUFACTURER WILL BE ACCEPTABLE ON PROJECTS REQUIRED TO MEET THE BUY AMERICA ACT.
- B. ALL PIPING, FITTINGS, FLANGES, ETC. SHALL BE FREE FROM DEFECTS AND SHALL COMPLY WITH THE APPROPRIATE ASTM SPECIFICATIONS.C. BLACK STEEL PIPE: ASTM A53 ERW GRADE B, STANDARD WEIGHT (SCHEDULE 40) OR EXTRA
- STRONG (SCHEDULE 80) AS SPECIFIED.

  D. COPPER TUBING: ASTM B88, TYPE L OR K AS SPECIFIED.
- E. 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.
- F. 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.
- G. PP PIPING AND FITTINGS: ASTM F 2389; CSA B137.11.
- H. 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.
- I. CAST IRON SOIL PIPE AND FITTINGS: ASTM A74.
- J. 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
- K. 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.
- L. WELDED FLANGES: ASTM A181 GRADE B, 150-POUND FOR STANDARD WEIGHT, 300-POUND FOR EXTRA STRONG PIPING OR OF EQUAL WEIGHT OF CONNECTED EQUIPMENT.M.COPPER FITTINGS: WROUGHT COPPER, ANSI SPECIFICATION B16.22.
- N. BALL VALVES DOMESTIC WATER: BRONZE, FULLPORT, CLASS 150, THREADED. NIBCO T-585 OR
- O. PARTITION STOP VALVES: T&S B-0415, LOOSE KEY TYPE WITH WALL FLANGE.
- P. BALANCING COCKS 2 INCHES AND SMALLER SHALL BE ARMSTRONG, NIBCO, TACO OR WATTS.

  Q. SOLDER: JOINTS IN COPPER PIPING ABOVE GRADE SHALL BE STAY SAFE 50 SOLDER OR 95-5 SOLDER SHALL BE SILFOS OR SILVERFLOW FOR ALL REFRIGERANT PIPING JOINTS.
- R. 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.
- S. 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-CREATE, PARAMOUNT, HOLE-OUT SPERZEL CRETESLEEVE 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 ½ INCH CLEARANCE AROUND PIPE INSULATION. INSULATION AND COVERING SHALL BE CONTINUOUS THROUGH WALL AND FLOOR SLEEVES.

- A. 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.
- B. ALL CLEANOUTS SHALL BE INSTALLED IN LOCATIONS EASILY ACCESSIBLE FOR RODDING.

#### PIPE INSULATION:

- A. 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.
- B. INSULATE ALL PIPING UNDER LAVATORIES ACCESSIBLE TO PHYSICALLY HANDICAPPED WITH HOT WATER SUPPLY AND "P" TRAP PREFABRICATED INSULATION, HANDI LAV GUARD.
- PIPE HANGERS:

  A. HANGERS SHALL BE SUPPLIED WITH FACTORY INSTALLED ISOLATION AND DI-CHROMATE FINISH
- B. 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.
   C. 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: ½ INCH RODS. PIPE SIZE 3 INCH AND LARGER: 5/8 INCH

# RODS. PLUMBING FIXTURES:

- A. 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.
- B. 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

MANUFACTURER: WATTS, MILWAUKEE, CRANE, KENNEDY, STOCKHAM, MISSON, GRINNELL, KEYSTONE, OR NIBCO
PIPE HANGERS & SUPPORTS:

MANUFACTURER: GRINNELL, ELCEN, KIN-LINE, UNI-STRUT, F&S, B-LINE, MICHIGAN, OR PIPING TECHNOLOGY & PRODUCTS
INSULATION:

MANUFACTURER: /CERTAINTEED, 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

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

# EXECUTION SURFACE CONDITIONS

- A. INSPECTIONS: ALL PLUMBING SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL GOVERNING AUTHORITIES. THE ORIGINAL DESIGN, AND REFERENCED STANDARDS.
- a. IN THE EVENT OF DISCREPANCY, IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER.
  b. 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:

- A. 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
- B. 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.

## AND KEEP OPENINGS AND PASSAG

- A. CONTACTOR 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.

  B. VERIFY ALL SPACES, DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- C. OBTAIN ALL NECESSARY ROUGH IN DATA AND DIMENSIONS FOR ALL FIXTURES, EQUIPMENT, OR OWNER-FURNISHED EQUIPMENT AND EQUIPMENT FURNISHED UNDER OTHER SECTIONS.
- D. MAINTAIN AMPLE HEADROOM CLEARANCES AND ACCESSIBILITY. MAINTAIN CEILING HEIGHTS.E. 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 A PART OF HE 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
- 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:

  A. 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
- B. 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 WIDER 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:

AS THE SEPARATION.

- A. INSTALL VALVES, DAMPERS, THERMOMETERS, GAUGES, TRAPS, CLEANOUTS, CONTROL DEVICES OR OTHER SPECIALTIES 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.
- B. 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.
- C. PROVIDE DUCTS WHICH PIERCE A FIRE SEPARATION WITH FIRE DAMPERS OF SAME FIRE RATING
- D. REFER TO DRAWINGS AND "FINISH SCHEDULE" FOR TYPE OF WALL AND CEILING IN EACH AREA AND FOR RATED CONSTRUCTION.
- E. COORDINATE WORK OF VARIOUS SECTIONS TO LOCATED VALVES, TRAPS, AND DAMPERS WITH OTHERS TO AVOID UNNECESSARY DUPLICATION OF ACCESS DOORS.
- ROOF 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. FOUJPMENT ROUGH-IN:
- A. 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.
- PROGRESSING WITH ANY WORK FOR ROUGH-IN FINAL CONNECTIONS.

  B. BE RESPONSIBLE FOR PROVIDING ALL OUTLETS AND SERVICES OF PROPER SIZE AT THE REQUIRED
- C. MINOR CHANGES IN THE CONTRACT DRAWINGS SHALL BE ANTICIPATED AND PROVIDED FOR UNDER THIS DIVISION OF THE SPECIFICATIONS.D. ROUGH-IN ONLY (UNLESS OTHERWISE DESIGNATED ON THE DRAWINGS) SHALL INCLUDE THE
- FOLLOWING:

  a. 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

## OWNER-FURNISHED AND OTHER EQUIPMENT:

- A. 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.
- B. PROVIDE ALL SERVICES DESIGNATED, VALVE AND CAP ALL PIPING, CAP ALL WASTE PIPING AND LEAVE IN A CLEAN ORDERLY MANNER.
- C. ROUGH-IN REQUIREMENTS SHALL BE AS OUTLINED IN THE PRECEDING PARAGRAPH TITLED "EQUIPMENT ROUGH-IN".

#### EQUIPMENT FINAL CONNECTIONS:

- A. PROVIDE ALL PIPING FINAL CONNECTIONS FOR ALL EQUIPMENT UNDER DIVISION 22 AS REQUIRED HEREIN SPECIFIED AND INDICATED ON THE DRAWINGS.
- B. 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:
- a. MISCELLANEOUS EQUIPMENT SPECIFIED TO BE FURNISHED AND INSTALLED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS.
- c. KITCHEN EQUIPMENT, FURNISHED UNDER OTHER SECTIONS OF THE SPECIFICATIONS.

b. COLD WATER MAKE-UP CONNECTIONS TO HYDRONIC EQUIPMENT,

MACHINERY ACCESSORIES:

A. APPLICATION: DO NOT INSTALL ANY EQUIPMENT IN AN APPLICATION NOT RECOMMENDED BY THE MANUFACTURER.

B. 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.

EACH HUB.

- PIPE AND EQUIPMENT SUPPORTS:

  A. WHERE SUPPORTS, FOUNDATIONS, STANDS, SUSPENDED PLATFORMS FOR MACHINERY, TANKS,
- OR OTHER EQUIPMENT ARE INDICATED OR SPECIFIED, PERFORM THE FOLLOWING:

  a. LOCATE SUPPORT MEMBERS TO AVOID EQUIPMENT STRAINS AND INTERFERENCE WITH
- PIPING CONNECTIONS, TUBE PULLING OR OTHER MAINTENANCE OPERATIONS.

  b. WHERE SADDLES ARE REQUIRED, USE CAST IRON OR WELDED STEEL SADDLES WITH
- CURVATURE TO FIT THE TANK SHELL.

  c. MOUNT POWER-DRIVEN EQUIPMENT ON COMMON BASE WITH DRIVER.
- B. CONCRETE INSERTS: FURNISH AND INSTALL ALL CONCRETE INSERTS REQUIRED FOR ALL MATERIAL AND EQUIPMENT SPECIFIED AND/OR SHOWN ON THE DRAWINGS FOR DIVISION 22.
   C. CONCRETE FOUNDATIONS: WORK UNDER THIS SECTION INCLUDES COORDINATION OF CONSTRUCTION OF ALL CONCRETE FOUNDATIONS INDICTED OR REQUIRED FOR EQUIPMENT SPECIFIED HEREIN OR IN OTHER SECTIONS UNDER DIVISION 22. MATERIAL AND WORKMANSHIP
- SHALL BE DESCRIBED UNDER DIVISION 3.

  D. 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.

  E. 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.
- F. CEILING OR WALL SUPPORTS: USE SUSPENDED PLATFORM, STRAP HANGERS, BRACKET OR SHELF, WHICHEVER IS MOST SUITABLE FOR EQUIPMENT AND LOCATION. CONSTRUCT OF STRUCTURAL STEEL MEMBERS, STEEL PLATES, RODS OR PIPE AS REQUIRED. CROSS-BRACE AND FASTEN TO BUILDING STRUCTURE OR INSERTS IN AN APPROVED MANNER.
- G. 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:
- A. 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.
- a. HORIZONTAL STEEL PIPING: PROVIDE HANGERS OR SUPPORTS EVERY 10 FT. EXCEPT EVERY 8 FT. FOR PIPING 1-1/4 INCH AND SMALLER.
  b. 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.

  c. 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

d. HORIZONTAL CAST IRON HUB AND SPIGOT PIPING: PROVIDE HANGERS OR SUPPORTS AT

e. VERTICAL PIPING: SUPPORT AT FLOOR WITH IRON PIPE CLAMPS.
TEST:

A. 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 LEAKAGE, NO MATTER HOW SMALL, WILL BE

APPARENT ON TESTING GAUGE IMMEDIATELY. MAINTAIN PRESSURE UNTIL PIPE UNDER TEST

HAS BEEN EXAMINED, BUT IN NO CASE LESS THAN 24 HOURS. TEST SYSTEM AT THE FOLLOWING

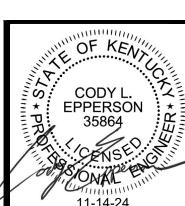
a. SYSTEM:

THE NEW TEST

- i. DOMESTIC COLD WATER, TEST PRESSURE: 150 PSIGii. DOMESTIC HOT WATER. TEST PRESSURE: 150 PSIG
- C. SANITARY DRAIN, WASTE, VENT SYSTEMS TEST: BEFORE INSTALLATION OF FIXTURES, CAP END OF SYSTEM AND FILL LINES WITH WATER TO 10 FEET ABOVE THE SECTION BEING TESTED. (INCLUDING BENDS) AND ALLOW TO STAND FOR AT LEAST FIFTEEN (15) MINUTES BEFORE INSPECTION STARTS. MAKE TEST IN SECTIONS IF NECESSARY OR CONVENIENT. HOWEVER, INCLUDE INTERCONNECTIONS BETWEEN NEW SECTIONS AND PREVIOUSLY TESTED SECTION IN
- D. ROOF DRAINAGE SYSTEM: TEST AS SPECIFIED FOR SANITARY SYSTEM.
- E. GAS SYSTEMS: TEST WITH COMPRESSED AIR AT 10 PSI FOR SIX HOURS OR LONGER AS DIRECTED TO PROVIDE A TIGHT SEAL WITHOUT LEAKS. USE PRESSURE RECORDER TO RECORD PRESSURE OF ALL LINES FOR DURATION OF TEST.

#### F. REPAIR ALL LEAKS AND RETEST AS REQUIRED.

- A. PROVIDE CLEANOUTS WHERE INDICATED AND REQUIRED. UNLESS OTHERWISE INDICATED, CLEANOUTS SHALL BE ACCESSIBLE WITH EXTENSIONS TO GRADE TO OUTSIDE OF BUILDINGS, OR TO FLOORS ABOVE AS INDICATED OR REQUIRED. DO NOT LOCATED CLEANOUTS IN PUBLIC LOBBIES AND PUBLIC CORRIDORS UNLESS APPROVED BY ARCHITECT.
- B. MEMBRANES: WHERE WATERPROOFING MEMBRANE OCCURS UNDER FLOOR, BRING MEMBRANE TO CLEANOUT WITHOUT PUNCTURING AND PERMANENTLY ANCHOR TO INTEGRAL ANCHORING FLANGE WITH HEAVY CAST-IRON CLAMPING COLLAR AND RUSTPROOF BOLTS.
- C. COVERS: SET CLEANOUT COVERS WITH ALL FINISHED WALL, FLOOR OR GRADE. IN ALL CASES SECURELY ANCHOR BY MEANS OF INTEGRAL LUGS AND BOLTS. WHERE SURFACING MATERIAL SUCH AS RESILIENT COVERINGS IS SPECIFIED, ASCERTAIN THICKNESS BEING USED AND SET CLEANOUT TOP SO FINISHED FLOOR IS SMOOTH.
- D. USE ACORN 3500 THREAD COMPOUND.



SENIOR CITIZENS CENTER

DATE

REVISION

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DATE

DATE

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Engineers
Architects
Architects
Planners
KENTUCKY, INC.
Phone: (859)223-5694

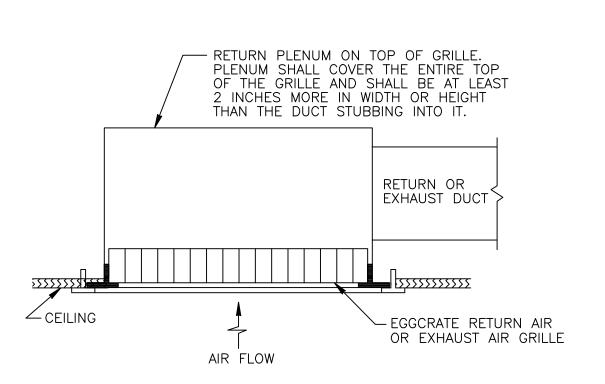
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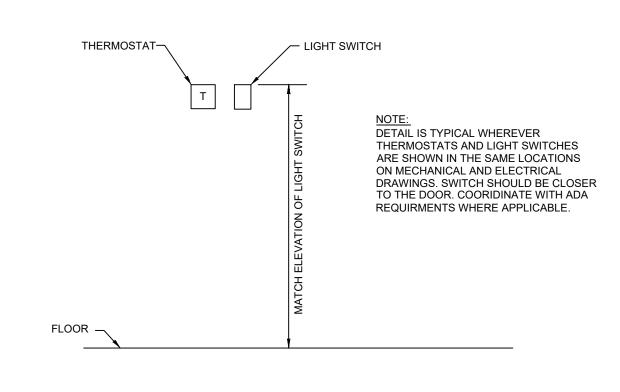
P7

# 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)
$\circ$	ROUND DUCT DOWN
(5)	ROUND DUCT UP
	DUCT TRANSITION
	DUCT CHANGE IN ELEVATION; R= RISE, D= DROP
<del></del>	MANUAL VOLUME CONTROL BALANCE DAMPER
	MOTORIZED DAMPER
	ELBOW WITH TURNING VANES
	ELBOW ROUND
	INDICATES AIR FLOW DIRECTION
<b>©</b>	SENSOR
•	THERMOSTAT
X-1 CFM	AIR DEVICE (X-1) / AIRFLOW (CFM)
⟨XX-XX⟩	EQUIPMENT IDENTIFICATION
$\langle\!$	INDICATED TAG OR SHEET NOTE

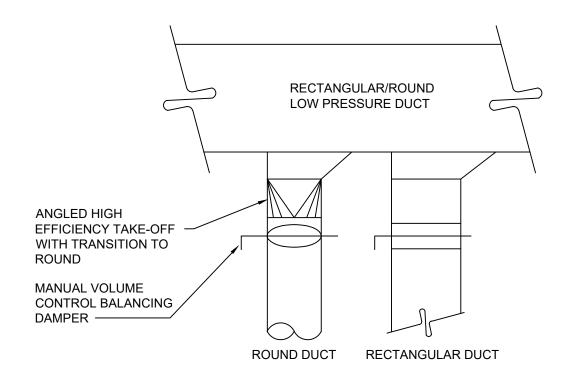
ABBRE	EVIATIONS
AHU-X	AIR HANDLING UNIT
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNITS PER HOUR
CFM	CUBIC FEET PER MINUTE
EF-X	EXHAUST FAN
EH-X	ELECTRIC HEATER
ESP	EXTERNAL STATIC PRESSURE
HP	HORSEPOWER
HP-X	HEAT PUMP UNIT
KW	KILOWATT
МВН	THOUSAND BRITISH THERMAL UNITS PER HOUR
R-X	RETURN AIR DEVICE
S-X	SUPPLY AIR DEVICE







## THERMOSTAT MOUNTING DETAIL





# MECHANICAL NOTES

- 1. REFER TO THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 2. ALL MECHANICAL WORK SHALL BE PERFORMED BY A LICENSED MECHANICAL CONTRACTOR.
- 3. 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
- 4. THE MECHANICAL CONTRACTOR SHALL COORDINATE ROUTING 25. STRUCTURAL MEMBERS SHALL NOT BE CUT OR COMPROMISED AND INSTALLATION OF MECHANICAL DUCTWORK, PIPING, AND EQUIPMENT WITH ALL OTHER DISCIPLINES AND TRADES INCLUDING BUT NOT LIMITED TO ARCHITECTURAL, PLUMBING, AND ELECTRICAL.
- 5. 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.
- 6. 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.
- 7. 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.
- 8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR ALL PERMITS, TESTING, AND
- 9. 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 (INCLUSIVE OF WIRING) AS REQUIRED FOR A FULLY FUNCTIONAL AND CODE COMPLIANT SYSTEM.
- 10. 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.
- 11. 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.
- 12. 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.
- 13. ALL AIR DEVICES LOCATED ABOVE GYPBOARD OR HARD CEILINGS SHALL HAVE ACCESSIBLE BALANCING DAMPERS.
- 14. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
- 15. PROVIDE AND INSTALL DUCT ACCESS DOORS FOR INSPECTION OF ALL INSTALLED FIRE DAMPERS AS DIRECTED BY SMACNA HVAC CONSTRUCTION STANDARDS.
- 16. 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.
- 17. ALL HVAC EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. UTILIZE FACTORY FILTERS DURING CONSTRUCTION.
- 18. 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.
- 19. ALL RECTANGULAR 90 DEG. AND 45 DEG. ELBOWS SHALL HAVE TURNING VANES.
- 20. 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.

- 21. ALL DUCT DIMENSIONS SHOWN ARE INTERIOR "CLEAR" DUCT
- 22. MAINTAIN 10'-0" MINIMUM CLEARANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST, PLUMBING VENTS, ETC. AND/OR AS REQUIRED BY IMC, WHICHEVER IS MORE STRINGENT.
- 23. 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.
- 24. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND DRAWINGS FOR CONNECTIONS TO ALL HVAC EQUIPMENT.
- IN ANY WAY.
- 26. 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.
- 27. MAINTAIN CLEARANCES AROUND ALL HVAC EQUIPMENT, DEVICES, CONTROLLERS, ETC. PER MANUFACTURER'S RECOMMENDATIONS.



**EPPERSON ENGINEERING** 112 W. UNIVERSITY DR.

SHEET INDEX

**HVAC PLAN** 

HVAC LEGEND & NOTES

RADON MITIGATION PLAN

**HVAC SCHEDULES** 

HVAC SCHEDULES

**HVAC SPECIFICATIONS** 

SHEET NUMBER | SHEET TITLE

M0

M1

M6.1

M6.2

M7

SOMERSET, KY 42503

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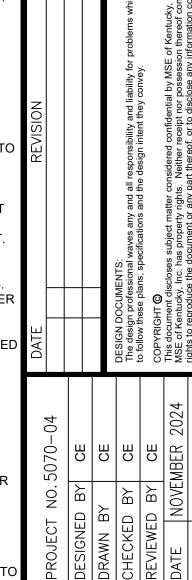
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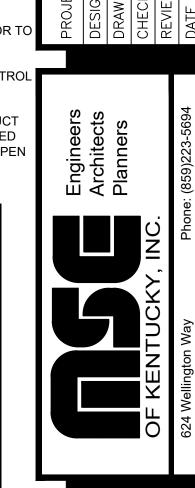


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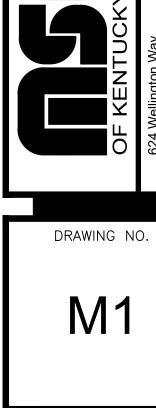


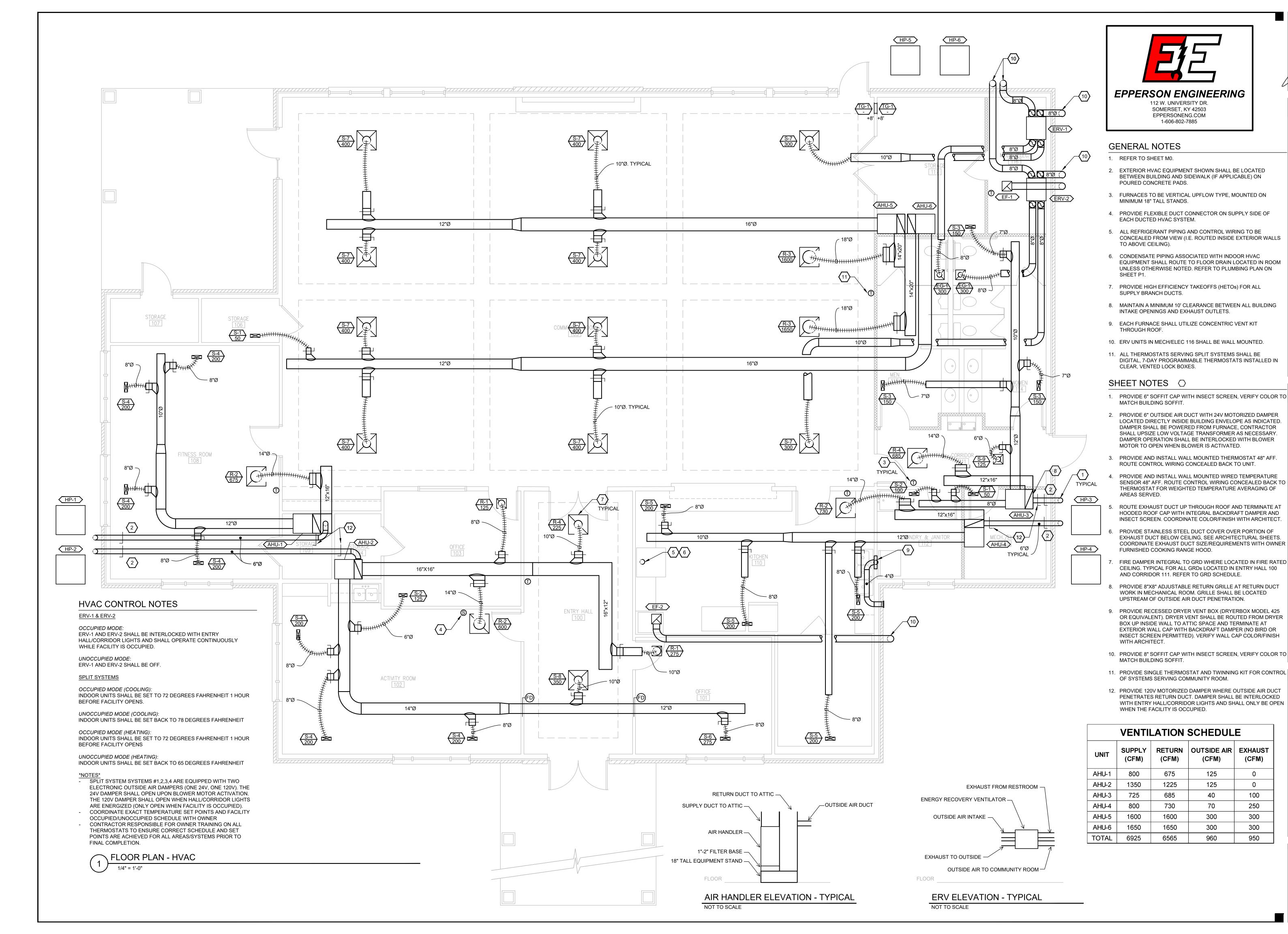
RETURN OUTSIDE AIR EXHAUST

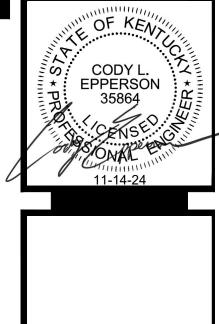
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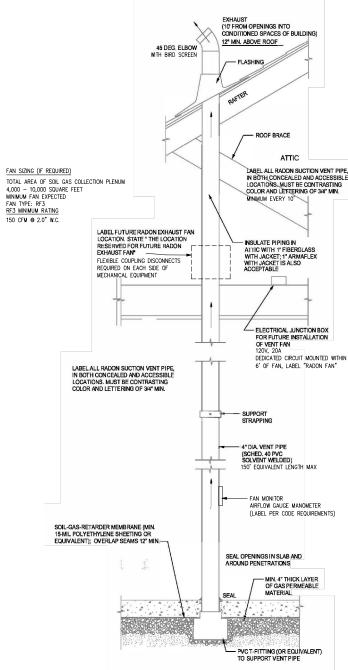


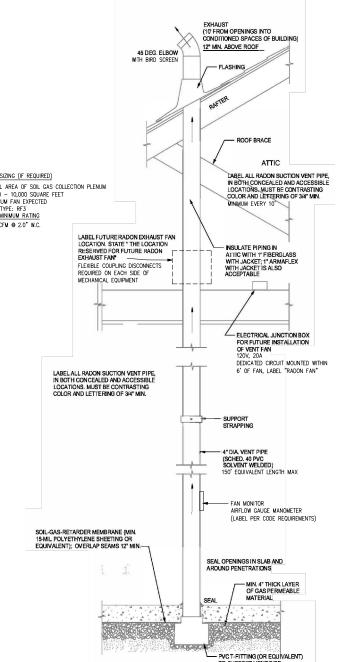






- 2. WORK TO BE COMPLETED SHALL FOLLOW THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY RADON STANDARDS OF
- 3. PROVIDE FIRE STOPPING AS NEEDED AT ALL RATED FIRE ASSEMBLY PENETRATIONS. REFER TO ARCHITECTURAL SHEETS
- 4. ALL EXHAUST PIPING SHALL BE PITCHED (MINIMUM 1/8" PER FOOT) FROM EXHAUST LOCATION AT ROOF BACK TO INLET BELOW SLAB AT SOIL GAS COLLECTION PLENUM.
- 5. ALL EXHAUST PIPING SHALL BE INSULATED WITH A MINIMUM VALUE
- 6. ALL WORK ASSOCIATED WITH RADON MITIGATION SYSTEM SHALL BE PERFORMED BY A CERTIFIED CONTRACTOR AUTHORIZED BY THE STATE OF KENTUCKY TO CONDUCT RADON MEASUREMENT, MITIGATION, OR LABORATORY ANALYSIS PER KRS 211.9101 -
- 7. SCOPE OF WORK OUTLINED ON THIS PAGE IS FOR BIDDING PURPOSES ONLY. A QUALIFIED RADON MITIGATION PROFESSIONAL SHALL BE RESPONSIBLE FOR DESIGN, IMPLEMENTATION, AND TESTING OF A FUNCTIONING SYSTEM AS PER REQUIREMENTS OUTLINED IN ANIS/AARST CC-1000, LATEST VERSION.
- 8. REFER TO SHEET M1 FOR INFORMATION REGARDING BUILDING HVAC DESIGN, SYSTEM TYPE, SYSTEM ZONED AREAS, AND
- 9. AFTER INSTALLATION AND TESTING PROVIDE AN OPERATION, MAINTENANCE AND MONITORING PLAN AS WELL AS AN O&M MANUAL. ENSURE SYSTEM DESCRIPTION, LAYOUT DRAWING, AND
- 10. ALL OPENINGS AND PENETRATIONS IN THE TOP OF SOIL GAS COLLECTION PLENUM SHALL BE SEALED AGAINST AIR LEAKAGE, INCLUDES PLUMBING, MECHANICAL, ELECTRICAL AND STRUCTURAL PENETRATIONS OPEN TO SOIL. CAULKING SEALANT SHALL BE USED TO SEAL PENETRATIONS COMPLIANT WITH ASTM C920 CLASS 25 OR HIGHER OR EQUIVALENT.
- 11. PERMANENT CLOSURE SHALL BE PROVIDED FOR ALL CONCRETE JOINTS AROUND SLAB PERIMETER AND AT ALL EXPANSION OR CONTRACTION JOINTS VIA AN EXPANSION JOINT MATERIAL AND CAULKING SEALANT COMPLIANT WITH ASTM C920 CLASS 25 OR
- . OUTLINED AREA INDICATES BUILDING FOUNDATION FOOTPRINT. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR
- 2. EXCAVATE A 8" DEEP, 36" DIAMETER SUCTION PIT FOR SUCTION PIPE TEE TO BE EMBEDDED INTO. UTILIZE AGGREGATE GAS PERMEABLE BACKFILL LAYER BELOW BUILDING SLAB TO FILL PIT.
- 3. 4" PVC EXHAUST PIPE. PIPE TO ROUTE SURFACE MOUNT ON WALL UP INTO ATTIC AND THROUGH ROOF. LOCATE AIRFLOW GAUGE MANOMETER ON PIPE AT THIS LOCATION INSIDE ROOM. LABEL PER CODE REQUIREMENTS.
- 4. RADON MITIGATION SYSTEM TEST PORT. TEST PORT SHALL BE 3/4" IN SIZE AND PVC CONSTRUCTION. PIPE SHALL ROUTE BELOW SLAB INTO PERMEABLE BACKFILL LAYER. SEAL PENETRATION. PROVIDE CAP FOR PIPE AND LABEL "RADON TEST PORT".
- 5. OUTLINED AREA INDICATES PROPOSED SECOND SUCTION HOLE LOCATION AND VENT SYSTEM (IF NEEDED).
- 6. ROUTE RADON EXHAUST PIPE IN ATTIC AND TURN UP THROUGH ROOF. ROOF PENETRATION SHALL BE AT NON-FRONT FACING ROOF







					DUAL	FUEL SE	LII SYS	I EINI SCI	HEDULE								
					cod	DLING		HEATING			EFFIC	CIENCY		El	ECTRICAL	<u>L</u>	
MARK	MANUFACTURER	TYPE	MODEL	TONNAGE	COOLING STAGES	COOLING CAPACITY @95°F (MBH)	HEATING STAGES	HEATING CAPACITY @17°F (MBH)	AUXILIARY GAS HEAT (kBTU)	SEER2	EER2	HSPF2	AHRI #	V/Ø/Hz	MCA	МОСР	NOTES
OUTDOOR UNI	Т																
HP-1	TRANE	HEAT PUMP	4TWR6024N1	2	2	24.6	2	15.2	-	16	12	7.8	208776063	240/1/60	15	25	1,9
HP-2	TRANE	HEAT PUMP	4TWR6036N1	3	2	35	2	21.4	-	16	12	7.5	208776449	240/1/60	20	35	1
HP-3	TRANE	HEAT PUMP	4TWR6024N1	2	2	24.6	2	15.2	-	16	12	7.8	208776063	240/1/60	15	25	1
HP-4	TRANE	HEAT PUMP	4TWR6024N1	2	2	24.6	2	15.2	-	16	12	7.8	208776063	240/1/60	15	25	1,9
HP-5	TRANE	HEAT PUMP	4TWR6048N1	4	2	46.5	2	30.8	-	16	12	7.8	208776786	240/1/60	28	45	1,9,10
HP-6	TRANE	HEAT PUMP	4TWR6048N1	4	2	46.5	2	30.8	-	16	12	7.8	208776786	240/1/60	28	45	1,9,10
INDOOR UNIT																	
AHU-1	TRANE	FURNACE/ COIL	S9X2B040U 4TXCB004DS3	*	-	*	2	*	40	*	*	*	*	120	8.8	15	2-7
AHU-2	TRANE	FURNACE/ COIL	S9X2B060U 4TXCB004DS3	*	-	*	2	*	60	*	*	*	*	120	10.3	15	2-8
AHU-3	TRANE	FURNACE/ COIL	S9X2B040U 4TXCB004DS3	*	-	*	2	*	40	*	*	*	*	120	8.8	15	2-7
AHU-4	TRANE	FURNACE/ COIL	S9X2B040U 4TXCB004DS3	*	-	*	2	*	40	*	*	*	*	120	8.8	15	2-7
AHU-5	TRANE	FURNACE/ COIL	S9X2C100U 4TXCC009DS3	*	-	*	2	*	100	*	*	*	*	120	13.3	15	2-7,10
AHU-6	TRANE	FURNACE/ COIL	S9X2C100U 4TXCC009DS3	*	-	*	2	*	100	*	*	*	*	120	13.3	15	2-7,10

- 1. INSTALL ON POURED CONCRETE EQUIPMENT PAD AND 4" 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 7-DAY PROGRAMMABLE THERMOSTAT IN CLEAR KEYED LOCK BOX
- 6. FURNACE OPERATION SHALL HAVE 2 CONTROL STAGES; 95+% AFUE
- 7. PROVIDE WIRED OUTSIDE AIR TEMPERATURE SENSOR FOR DUAL FUEL OPERATION
- 8. PROVIDE WITH WIRED REMOTE SENSOR AS INDICATED ON PLANS FOR TEMPERATURE AVERAGING OF SPACES SERVED
- 9. PROVIDE WITH LOW AMBIENT COOLING CAPABILITY
- 10. PROVIDE TWINNING KIT FOR HP-5/AHU-5 AND HP-6/AHU-6. SYSTEMS SHALL OPERATE TOGETHER AND BE CONTROLLED BY SINGLE THEMRMOSTAT.

WARRANTY: 1-YEAR PART, 5-YEAR COMPRESSOR

\* = SEE ASSOCIATED HEAT PUMP / FURNACE / COIL FOR <u>PAIRED</u> SPLIT SYSTEM RATING

OTHER ACCEPTABLE MANUFACTURERS: DAIKIN, CARRIER

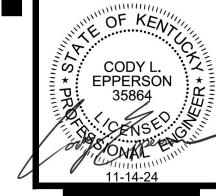
						AIR DEVICE SCHEDULE					
MARK	MANUFACTURER	MODEL	FRAME SIZE	MAX CFM	BOOT/NECK SIZE	TYPE	AIR PATTERN	LOCATION & MOUNTING	MAX P.D. (IN WC)	MAX NC	NOTES
S-1	PRICE	540	4x10	130	4"Ø	MULTI LOUVER (3/4" SPACING)	ADJUSTABLE	GYP CEILING	0.05	< 20	1,2
S-2	PRICE	540	4x10	130	6"Ø	MULTI LOUVER (3/4" SPACING)	ADJUSTABLE	GYP CEILING	0.05	< 20	1,2
S-3	PRICE	640	4x12	210	7"Ø	MULTI LOUVER (3/4" SPACING)	ADJUSTABLE	GYP CEILING	0.05	< 20	1-3
S-4	PRICE	540	4x12	210	8"Ø	MULTI LOUVER (3/4" SPACING)	ADJUSTABLE	GYP CEILING	0.05	< 20	1-2
S-5	PRICE	640	4x12	210	8"Ø	MULTI LOUVER (3/4" SPACING)	ADJUSTABLE	GYP CEILING	0.05	< 20	1-3
S-6	PRICE	540	6x14	275	8"Ø	MULTI LOUVER (3/4" SPACING)	ADJUSTABLE	GYP CEILING	0.05	< 20	1-2
S-7	PRICE	SPD	24x24	400	10"Ø	SQUARE PLAQUE	4-WAY	LAY-IN CEILING	0.05	< 20	1-2
S-8	PRICE	SPD-FR	24x24	400	10"Ø	SQUARE PLAQUE W/ FIRE DAMPER	4-WAY	GYP CEILING	0.05	< 20	1-2
S-9	PRICE	SPD-FR	12x12	150	6"Ø	SQUARE PLAQUE W/ FIRE DAMPER	4-WAY	GYP CEILING	0.05	< 20	1-2
TG-1	PRICE	530	16x8	350	-	LOUVERED GRILLE (3/4" SPACING)	45 DEGREE	WALL	0.05	< 20	2
EG-1	PRICE	80	12x12	630	8"Ø	EGG CRATE	0 DEGREE	GYP CEILING	0.05	< 20	1-4
R-1	PRICE	80	12X12	700	VARIES - SEE PLANS	EGG CRATE	0 DEGREE	GYP CEILING	0.05	< 20	1-4
R-2	PRICE	80	24x24	2100	14"Ø	EGG CRATE	0 DEGREE	GYP CEILING	0.05	< 20	1-4
R-3	PRICE	80	24x24	2100	18"Ø	EGG CRATE	0 DEGREE	LAY-IN CEILING	0.05	< 20	1-4
R-4	PRICE	80-FR	24x24	2100	VARIES - SEE PLANS	EGG CRATE W/ FIRE DAMPER	0 DEGREE	GYP CEILING	0.05	< 20	1-4

- 1. PROVIDE WITH INSULATED BACK
- 2. PROVIDE WITH WHITE FINISH 3. ALUMINUM CONSTRUCTION
- 4. 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.

\*PROVIDE RADIAL OPPOSED DAMPER WHEN SUPPLY DIFFUSER IS LOCATED IN AREAS WITH INACCESSIBLE CEILINGS - REFER TO ARCHITECTURAL PLANS. TYPICAL. \*PROVIDE PLASTER FRAMES WHEN RECESSED GRILLE/DIFFUSER IS LOCATED IN GYP WALL/CEILING - REFER TO ARCHITECTURAL PLANS. TYPICAL.

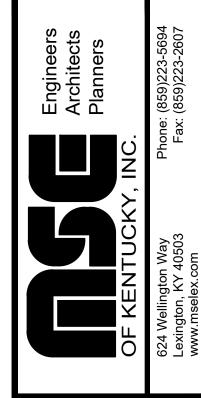
OTHER ACCEPTABLE MANUFACTURERS INCLUDE: TITUS, KRUEGER

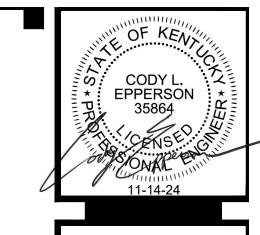




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	OF KENTUCKY, INC.	524 Wellington Way -exington, KY 40503

DRAWING NO.

					EXHAUS	T FAN S	CHEDUL	.E					
					ESP		DRIVE		ELECTRIC		CTRICAL		
MARK	MANUFACTURER	MODEL TYF	TYPE	TYPE CFM	(IN H20)	SONES	TYPE		V/Ø/Hz	HP	NAMEPLATE AMPS	МОСР	NOTES
EF-1	GREENHECK	SP-A110-QD	CEILING	100	0.125	1.5	DIRECT	950	115/1/60	FRAC.	0.18	20	1-6
EF-2	GREENHECK	SP-A250-QD	CEILING	250	0.125	3	DIRECT	1000	115/1/60	FRAC.	0.5	20	1-5,7

- 1. PROVIDE WITH FACTORY MOUNTED UNIT DISCONNECT
- 2. PROVIDW WITH FACTORY MOUNTED SPEED CONTROL. ADJUST AS NECESSARY TO OBTAIN CFM INDICATED.
- 3. PROVIDE WITH INTEGRAL BACKDRAFT DAMPER.
- 4. PROVIDE SQUARE TO ROUND ADAPTER; PROVIDE WITH EXTERIOR SOFFIT CAP WITH INTEGRAL INSECT SCREEN (SEE DRAWINGS)
- 5. SUPPORT FROM THE STRUCTURE, INCLUDE HANGING VIBRATION ISOLATION MOUNTING KIT
- 6. PROVIDE NON-PROGRAMMABLE, COOLING ONLY, LINE VOLTAGE, DIGITAL THERMOSTAT FOR CONTROL. SET THERMOSTAT TO 70°F. COORDINATE WITH ELECTRICAL CONTRACTOR. 7. FAN SHALL BE CONTROLLED BY WALL SWITCH IN ROOM. SWITCH SHALL BE LOCATED ADJACENT TO LIGHT SWITCH SERVING SPACE. COORDINATE WITH ELECTRICAL CONTRACTOR.

OTHER ACCEPTABLE MANUFACTURERS INCLUDE: COOK, PANASONIC

	ERV SCHEDULE										
MARK	MANUFACTURER	MODEL	WEIGHT (LBS)	CFM	SENSIBLE EFFECTIVENESS	V/Ø/Hz	HP	ECTRICAL NAMEPLATE AMPS	МОСР	NOTES	
ERV-1,2	TRANE	EERVR300	82	300	70%	115/1/60	1/4	3.3	15	ALL	

- 1. CABINET SHALL HAVE 1" FIBERGLASS INSULATION
- 2. ERV SHALL RUN CONTINUOUSLY WHILE FACILITY IS OCCUPIED. UNIT SHALL BE POWERED BY SWITCHED CORRDIOR LIGHTING CIRCUIT.
- 3. PROVIDE WITH TWO MERV-8 FILTERS
- 4. PROVIDE EXTERIOR SOFFIT CAPS WITH INTEGRAL INSECT SCREENS (SEE DRAWINGS FOR SIZE REQUIREMENTS)
- 5. PROVIDE ROUND DUCT CONNECTORS AS NECESSARY (SEE DRAWINGS FOR SIZE REQUIREMENTS)
- 6. WALL MOUNT, INCLUDE VIBRATION ISOLATORS
- 7. WARRANTY: 5 YEAR PART, 1 YEAR LABOR

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 (ATTIC)	R-8	FOIL BACK FIBERGLASS WRAP						
OUTSIDE AIR DUCTWORK	INDOORS	R-8	FOIL BACK FIBERGLASS WRAP						
CONDENSATE PIPE	INDOORS	3/4" THICK	ARMAFLEX						

- 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. <u>MECHANICAL CONTRACTOR</u>
- 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 CONTRUCTED.
- 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 <sup>3</sup>/<sub>4</sub>" THICK ARMAFLEX INSULATION.
- COATING.
- 11.1.5. REFRIGERANT PIPING TO BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. ROUTE IN A LINEAR FASHION FOLLOWING BUILDING STRUCTURAL CONTOURS.

11.1.4. REFRIGERANT PIPING INSULATION INSTALLED OUTDOORS SHALL HAVE A UV PROTECTANT

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  $\frac{1}{4}$ " 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 PARTION.
- 11.2.7. WHEN A CONDENSATE PUMP IS USED, INSTALL PER MANUFACTURERS INSTRUCTIONS AND RECOMMENDATIONS.

## 12. <u>IDENTIFICATION OF HVAC EQUIPMENT</u>

- 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  $\frac{1}{2}$ " IN HEIGHT.
- 12.3. VALVE TAGS SHALL BE EMBOSSED BRASS OR ALUMINUM WITH A MINIMUM TEXT HEIGHT OF  $\frac{1}{2}$ ".
- 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 MANUFACTURER'S

REQUIREMENTS OR RECOMMENDATIONS.

#### 14. <u>DUCTWORK</u>

#### 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.
- 14.1.5. 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.

14.1.4. ALL DUCT JOINTS ARE TO BE SEALED WITH A SUITABLE COMMERCIAL GRADE DUCT SEALER.

#### 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

HANGERS AND SUPPORTS

- 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.
- 15.1. 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
- 15.2. 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 FUR 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.

CODY L.

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SENIOR CITIZENS CENTER Morehead, Kentucky

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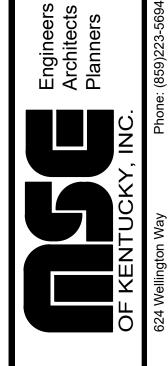
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DESIGN DOCUMENTS:

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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DRAWING NO.

M7

# ELECTRICAL LEGEND

LIGHTING	
SYMBOL	DESCRIPTION
<b>∠</b> ×	RECESSED LUMINAIRE
<u> </u>	WALL BRACKET STRIP LUMINAIRE
<b>⊢</b> ⊶X	INDUSTRIAL STRIP LUMINAIRE
<b>□</b>	SURFACE OR PENDANT STRIP LUMINAIRE
<b>⊘</b> <sup>X</sup>	DOWNLIGHT LUMINAIRE
ф <sup>X</sup>	SURFACE OR PENDANT MOUNTED LUMINAIRE
Q <sup>X</sup>	WALL MOUNTED LUMINAIRE (NORMAL & EMERGENCY)
<b>←</b> ×	EMERGENCY LUMINAIRE
<b>y</b> <sup>X</sup> 44 <sup>X</sup>	REMOTE HEAD EMERGENCY LUMINAIRE (SINGLE & TWIN)
<b>₩</b> x <b>₩</b> x	COMBINATION EXIT SIGN EMERGENCY LUMINAIRE (WALL & CEILING)
<b>⊗</b> x <b>⊗</b> x	EXIT SIGN - SINGLE FACE (WALL & CEILING)
<b>⊕</b> x <b>⊕</b> x	EXIT SIGN - DOUBLE FACE (WALL & CEILING)
(LC-X)	LIGHTING CONTROL TAG - 'X' INDICATES LIGHTING CONTROL RISER NUMBER ASSOCIATED WITH ROOM/AREA
\$ <sup>×</sup>	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
ВР	BATTERY PACK
<b>©</b>	OCCUPANCY/VACANCY SENSOR (CEILING)
O	LIGHTING CONTACTOR; MECHANICALLY-HELD AND POLES AS REQUIRED
тс	TIME CLOCK
PC	PHOTOCELL

POWER	T
SYMBOL	DESCRIPTION
φ <sup>x</sup>	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
φ <sup>x</sup>	TAMPER RESISTANT SINGLE RECEPTACLE
φ <sup>x</sup>	TAMPER RESISTANT SPECIAL PURPOSE RECEPTACLE
₽×	TAMPER RESISTANT FLOOR MOUNTED OR RECESSED RECEPTACLE(S) AND COVERPLATE; SEE DRAWINGS FOR QUANTITY REQUIRED
<b>▼</b> ⊜ <sup>×</sup>	COMBINATION FLOOR BOX WITH QUANTITY OF TAMPER RESISTANT DUPLEX RECEPTACLES AND RJ45 DATA JACKS/UTP CABLES AS NOTED ON DRAWINGS.
с	CONDUIT TURNED DOWN
o	CONDUIT TURNED UP
E	CONDUIT WITH END CAP
•	EQUIPMENT CONNECTION
<b></b>	CIRCUIT CONTINUATION
4#10, 1#10G, 3/4" P-1	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 (UNGROUNDED) CONDUCTORS. SHORT TICK MARKS REPRESENT NEUTRAL (GROUNDED) 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:  4#10 = (3) #10 PHASE CONDUCTORS AND (1) #10 NEUTRAL CONDUCTOR  1#10G = (1) #10 GROUNDING CONDUCTOR  3/4"C = 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
<b>(M)</b>	ELECTRICAL METER
•	GROUND ROD
£	EMERGENCY SHUT-OFF BUTTON
IJ	JUNCTION BOX
<del>-</del>	DISCONNECT SWITCH (SIZE/POLES/NEMA - INDICATED ON DRAWINGS)
4	DISCONNECT SWITCH WITH ENCLOSED FUSE(S) OR CIRCUIT BREAKER (SIZE/POLES/FUSING/NEMA - INDICATED ON DRAWINGS)
VFD	VARIABLE FREQUENCY DRIVE
<i>\O</i>	ELECTRIC MOTOR

SYSTEMS	
SYMBOL	DESCRIPTION
# <u>V</u> /#D	VOICE/DATA OUTLET WITH QUANTITY OF RJ45 JACK(S) AND UTP CABLE(S) AS INDICATED - #V 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
WAP WAP	DATA OUTLET FOR WIRELESS ACCESS POINT WITH TWO RJ45 DATA JACKS AND TWO UTP CABLES (WALL & CEILING)
▼	SINGLE HDMI OUTLET FOR DISPLAY CONNECTIVITY. PROVIDE HDMI CABLE BETWEEN DISPLAY AND USER INPUT AS INDICATED ON PLAN.
(AP)	ACCESS POINT WITH ELECTRIFIED DOOR HARDWARE
A	AUTO DOOR OPERATOR PRESS PLATE
	SYMBOL #V/#D

ABBRE	VIATIONS
1Ø	1-PHASE
+X'	INDICATES MOUNTING HEIGHT TO BOTTOM OF DEVICE
С	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 OTHER	WISE NOTED ON DRAWINGS

# **ELECTRICAL NOTES**

## GENERAL

- 1. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER, PER INDUSTRY STANDARD, AND TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
- 2. WORK, MATERIALS, AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES, STANDARDS AND ORDINANCES.
- 3. ALL MATERIALS USED IN THE INSTALLATION SHALL BE U.L. APPROVED AND NEW.
- 4. DO NOT PENETRATE STRUCTURAL ELEMENTS OF FLOORS, WALLS, CEILINGS, ROOF, ETC.
- 5. DETAILS ARE SHOWN ON DIFFERENT SHEETS. THE CONTRACTOR SHALL REFER TO THOSE DETAILS WHETHER OR NOT CALLED IN REFERENCE NOTES.
- 6. 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 THOROUGH ELECTRICAL ROOMS OR SPACES, OR ABOVE OR BELOW ELECTRICAL EQUIPMENT IN OTHER AREAS.
- 7. NO WIRING SHALL RUN IN DUCT WORK.
- 8. 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.
- 10. THE CONTRACTOR SHALL REVIEW AND COORDINATE WITH ARCHITECTURAL, CIVIL, STRUCTURAL, MECHANICAL, PLUMBING AND OTHER DRAWINGS PRIOR TO
- 11. CONTRACTOR SHALL REVIEW ALL ARCHITECT'S ELEVATIONS, SECTIONS AND FLOOR PLANS PRIOR TO ROUGH-IN OF ELECTRICAL JUNCTION BOXES.
- 12. 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.
- 13. REFER TO ARCHITECTURAL CABINET CASEWORK ELEVATION DRAWINGS FOR CLARIFICATION ON MOUNTING AND PLACEMENT OF ALL RACEWAY, RECEPTACLES, AND SWITCHES.
- 14. MANY DEVICE MOUNTING LOCATIONS ARE DEPENDENT ON MILLWORK LOCATIONS. COORDINATE ALL APPLICABLE LOCATIONS WITH MILLWORK INSTALLER PRIOR TO BEGINNING WORK.
- 15. LIGHT SWITCHES INSTALLED ADJACENT TO EACH OTHER, SHALL BE GANGED TOGETHER WITH ONE PIECE COVER PLATE.
- 16. CONSULT ARCHITECTS REFLECTED CEILING PLANS FOR COORDINATION.
- 17. 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.
- 18. CONTRACTOR SHALL MEET WITH MECHANICAL CONTRACTORS TO COORDINATE LOCATIONS, CLEARANCES, AND REQUIREMENTS OF MECHANICAL EQUIPMENT CONNECTIONS PRIOR TO INSTALLATIONS.
- 19. CONNECT ALL EMERGENCY LIGHT FIXTURES, NIGHT LIGHTS, EGRESS LIGHTS, AND EXIT SIGNS TO UNSWITCHED CONDUCTOR(S).
- 20. THE CONTRACTOR SHALL TERMINATE THE ELECTRICAL CONNECTIONS TO ALL THE EQUIPMENT BY PROVIDING THE NECESSARY MALE/FEMALE CONNECTOR, RECEPTACLE, PLUG, ETC.
- 21. 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.
- 22. VERIFY EXACT LOCATION(S) OF ALL EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- 23. 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

- 1. 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.
- 2. 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.

July 1	OF KEN	Chi
AS * PROMINE	JUSTIN B. EPPERSON 35863	<b>文</b> *
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ROWAN COUNTY Nor Citizens center

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DEAMING NO.

SHEET INDEX

LIGHTING PLAN

ELECTRICAL LEGEND & NOTES

POWER & SYSTEMS PLAN

ELECTRICAL SCHEDULES

ELECTRICAL SPECIFICATIONS

ELECTRICAL DETAILS

SHEET NUMBER | SHEET TITLE

E0

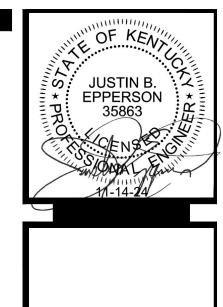
E1

E5

E6

E7

E0



# **EPPERSON ENGINEERING**

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

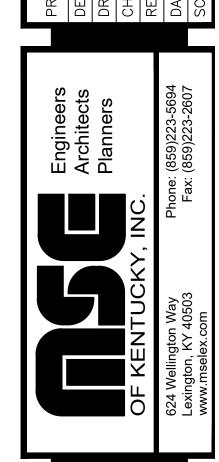
#### **GENERAL NOTES**

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

## SHEET NOTES 🔘

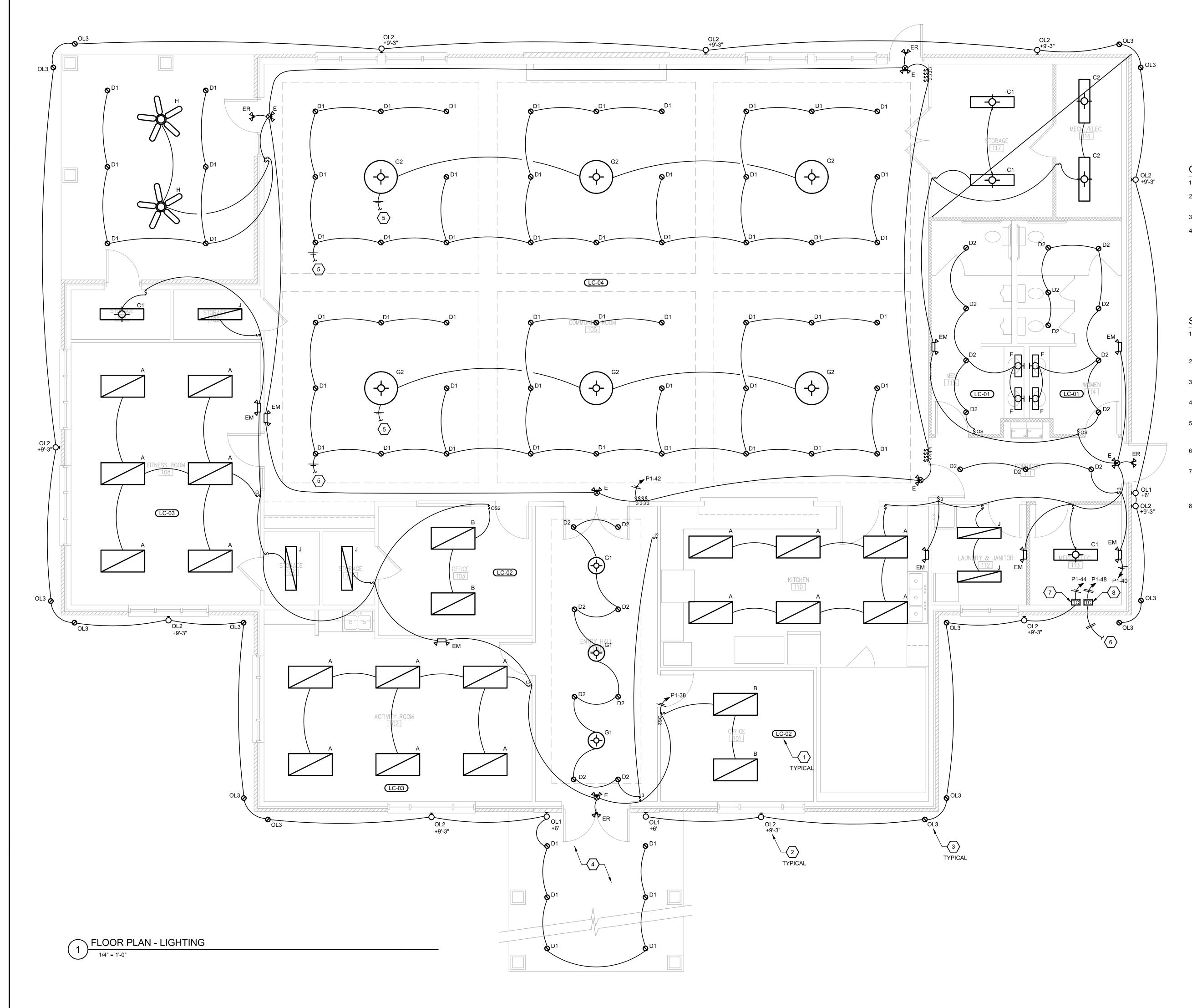
- INDICATES LIGHTING CONTROL RISER ASSOCIATED WITH ROOM/AREA. SEE DETAILS ON SHEET E5 FOR ADDITIONAL INFORMATION. TYPICAL.
- 2. INDICATES MOUNTING HEIGHT ABOVE GRADE/FINISHED FLOOR TO BOTTOM OF LIGHT FIXTURE. TYPICAL.
- 3. LIGHT FIXTURE MOUNTED IN SOFFIT. TYPICAL FOR TYPE 'OL3' LIGHT FIXTURES SHOWN. TYPICAL.
- 4. LIGHT FIXTURES MOUNTED IN DRIVE-THRU CANOPY. CENTER LIGHT FIXTURES SHOWN WITH EQUAL SPACING, FIELD VERIFY.
- REFER TO LIGHTING CONTROL DETAIL FOR ADDITIONAL INFORMATION.
- PARKING LOT POLES, REFER TO SITE PLAN.
- TIME CLOCK WITH MANUAL OVERRIDE FOR CONTROL OF BUILDING EXTERIOR LIGHTING CIRCUIT. LOCATE TIME CLOCK
- 8. ROUTE CIRCUIT THROUGH 240V, 20A, DPST 7-DAY MECHANICAL TIME CLOCK WITH MANUAL OVERRIDE FOR CONTROL OF

- 5. CONNECT LIGHTING ZONE TO ASSOCIATED SWITCHING IN ROOM,
- 6. TIME CLOCK CONTROLLED CIRCUIT P1-48 CONTINUED TO
- 7. ROUTE CIRCUIT THROUGH 120V, 20A, SPST 7-DAY MECHANICAL ADJACENT TO PANEL.
- PARKING LOT LIGHTING CIRCUIT. LOCATE TIME CLOCK ADJACENT



DRAWING NO.

E1



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DRAWING NO.



## **EPPERSON ENGINEERING**

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

#### **GENERAL NOTES**

- REFER TO SHEET E0.
- 2. MAINTAIN RATINGS OF ALL WALLS AND CEILINGS PENETRATED
- COORDINATE ALL ELECTRICAL CONNECTIONS TO MECHANICAL AND PLUMBING EQUIPMENT WITH EQUIPMENT INSTALLER.
- 4. ALL DEVICES TO BE FLUSH MOUNTED UNLESS OTHERWISE NOTED; NO EXPOSED WIRING OR SURFACE RACEWAY PERMITTED.

#### SHEET NOTES ○

- 1. PROVIDE SERVICE ENTRANCE METER BASE ENCLOSURE ON BUILDING FACADE. COORDINATE REQUIREMENTS WITH LOCAL POWER UTILITY COMPANY. REFER TO POWER ONE-LINE DIAGRAM
- 2. 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.
- UNDERCOUNTER MICROWAVE WITH GFCI PROTECTION AT THE CIRCUIT BREAKER. MICROWAVE TO BE LOCATED ON SHELF WITHIN LOWER CABINETS. COORDINATE EXACT RECEPTACLE LOCATION WITH CABINETRY CONSTRUCTION PRIOR TO ROUGH-IN FOR COMPLETE CONCEALMENT.
- 4. 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 OUTELT BEHIND TV TO HDMI ONLY OUTLET MOUNTED BELOW TV AT 18" AFF AS INDICATED ON PLAN.
- 5. PROVIDE DEDICATED CIRCUIT FOR FIREPLACE WITH REMOTE 60 MINUTE WALL MOUNTED TIMER SWITCH. COORDINATE
- ACCESS CONTROL SYSTEM DOOR ACCESS POINT/POWER SUPPLY ABOVE ACCESSIBLE CEILING AT THIS LOCATION. PROVIDE 120V CIRCUIT AND CAT6 DATA DROP FROM IT CLOSET TO THIS LOCATION. ALL PANELS SHALL BE CONCEALED FROM
- 7. PROVIDE TWO (2) 2" CONDUITS STUBBED UP INSIDE ROOM FOR COMMUNICATION SERVICE ENTRANCE PATHWAY(S), SEE SITE
- PROVIDE DEDICATED CIRCUIT AND QUADRUPLEX RECEPTACLE FOR MDF COMMUNICATION EQUIPMENT. COORDINATE ROUGH-IN
- 10. PROVIDE 4' FIRE RATED MOUNTING BACKBOARD FOR COMMUNICATION EQUIPMENT. BACKBOARD SHALL BE MOUNTED APPROXIMATELY 24" AFF.
- 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.
- 12. 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. TYPICAL.
- 13. PROVIDE TOGGLE SWITCH DISCONNECT AND CONNECTION TO WATER HEATER.
- 14. PROVIDE TOGGLE SWITCH DISCONNECT AND CONNECTION TO HVAC EQUIPMENT. TYPICAL.
- 15. PROVIDE CONNECTION TO EXHAUST FAN FROM UNSWITCHED ROOM LIGHTING CIRCUIT. FAN SHALL OPERATE FROM DEDICATED SWITCH (ADJACENT TO LIGHT SWITCH) IN ROOM, COORDINATE WITH HVAC INSTALLER.
- 16. 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.
- 17. CONNECT TO EXTERIOR RECEPTACLE CIRCUIT P1-18.
- 18. PROVIDE 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.
- 19. PROVIDE CEILING MOUNTED CARBON MONOXIDE DETECTOR WITH INTEGRAL BATTERY BACKUP. TYPICAL.
- 20. CONNECT TO CARBON MONOXIDE DETECTOR CIRCUIT P1-36.
- 21. CONNECT TO SWITCHED LIGHTING CIRCUIT SERVING ENTRY HAL 100. UNIT SHALL OPERATE WITH LIGHTS IN THIS AREA.
- 22. PROVIDE SIMPLEX RECEPTACLE FOR GAS OVEN/RANGE.

AROUND HVAC EQUIPMENT IN ROOM.

SWITCH FURNISHED WITH UNIT.

REQUIREMENTS WITH FREEZER INSTALLER.

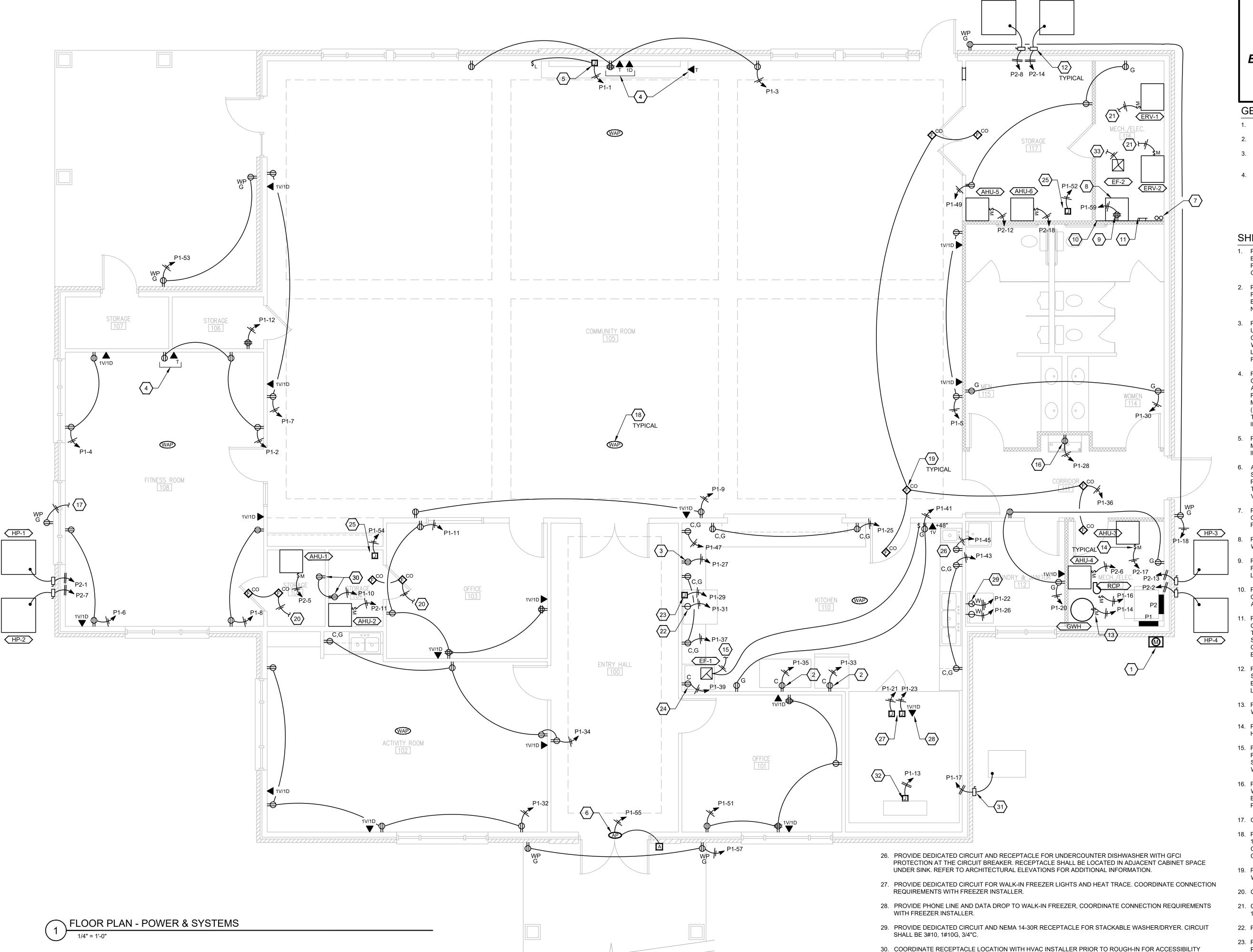
31. PROVIDE 240V, 30A, NEMA 3R, NON-FUSED DISCONNECT SWITCH, COORDINATE EXACT LOCATION OF WALK-IN

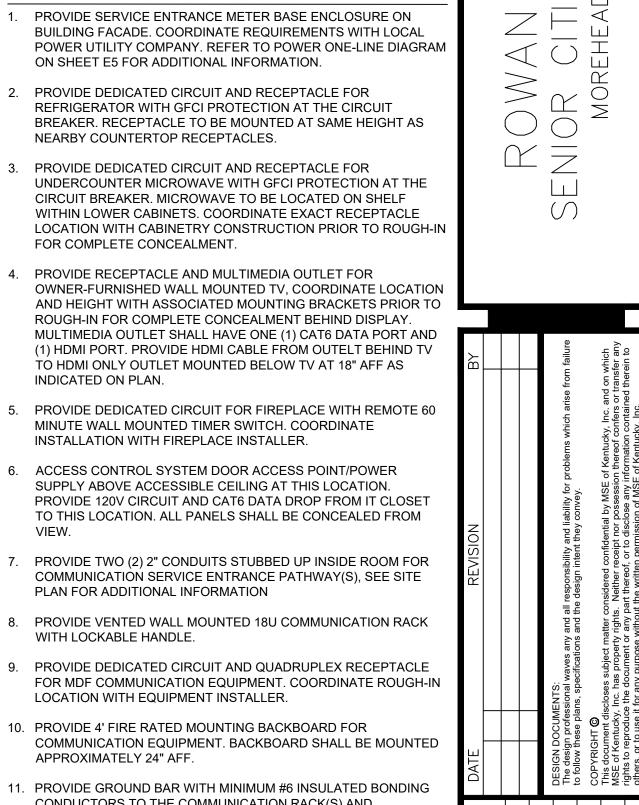
FREEZER CONDENSER WITH FREEZER INSTALLER. LOCATION SHOWN FOR REFERENCE ONLY.

32. PROVIDE DEDICATED CIRCUIT FOR WALK-IN FREEZER EVAPORATOR, COORDINATE CONNECTION

33. PROVIDE CONNECTION TO EXHAUST FAN FROM UNSWITCHED LIGHTING CIRCUIT IN ROOM, DISCONNECT

- 23. PROVIDE ELECTRICAL CONNECTION TO OWNER-FURNISHED RANGE HOOD. COORDINATE EXACT LOCATION WITH ARCHITECTURAL ELEVATIONS AND HOOD INSTALLER.
- 24. PROVIDE DEDICATED CIRCUIT AND RECEPTACLE FOR "HEATED CABINET" KITCHEN EQUIPMENT WITH GFCI PROTECTION AT THE CIRCUIT BREAKER.
- 25. PROVIDE DEDICATED CIRCUIT TO RADON FAN IN ATTIC (IF APPLICABLE). COORDINATE EXACT LOCATION WITH RADON CONTRACTOR.



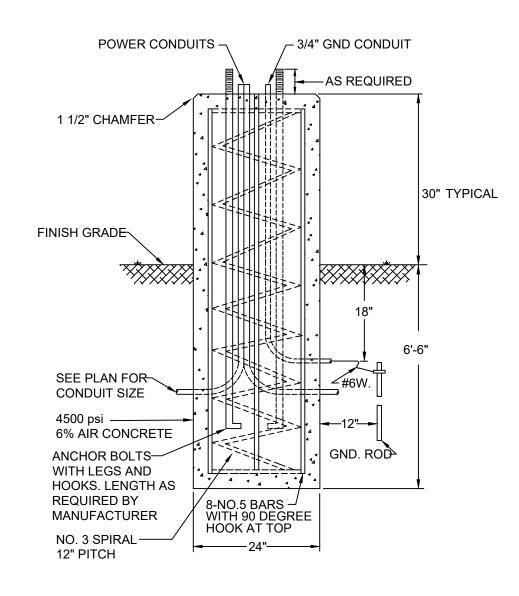


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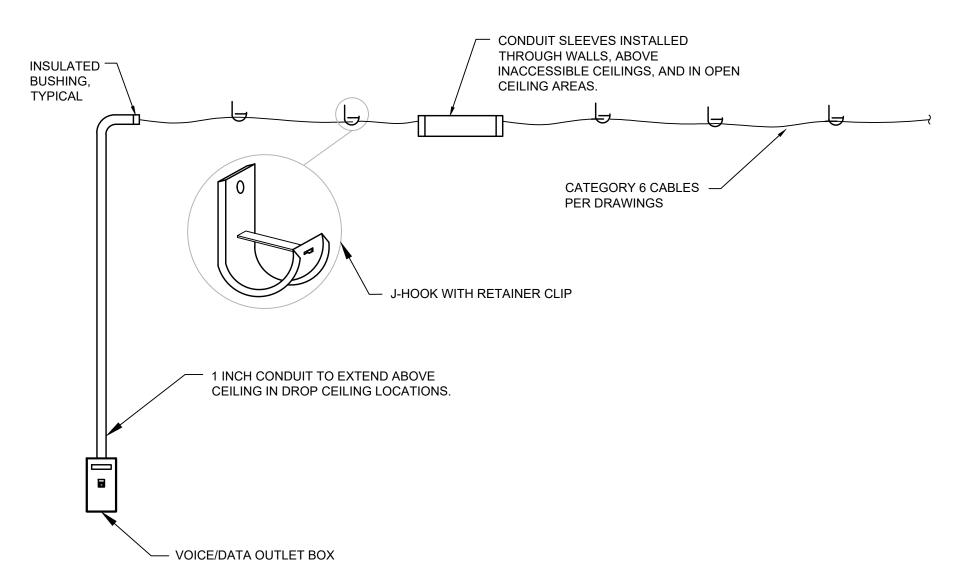
# TRENCH DETAIL FOR EARTH COVER

BACKFILL REMAINING TRENCH WITH NEW SLAB/PAVEMENT DENSE GRADED AGGREGATE COMPACTED IN 6" LIFTS MARKER TAPE 12" — DEPTH VARIES MINIMUM BELOW GRADE 6" OF NO.9 3" MINIMUM SPACE COMPACTED BETWEEN CONDUITS **CRUSHED STONE** AND TRENCH WALL OVER PIPE BELL OR HUB CONDUIT. REFER TO DRAWINGS -FOR SIZES AND QUANTITIES PLASTIC DUCT SPACER 6" OF NO.9 — **CRUSHED STONE** UNDER CONDUIT

#### TRENCH DETAIL FOR NEW SLAB/PAVEMENT NOT TO SCALE



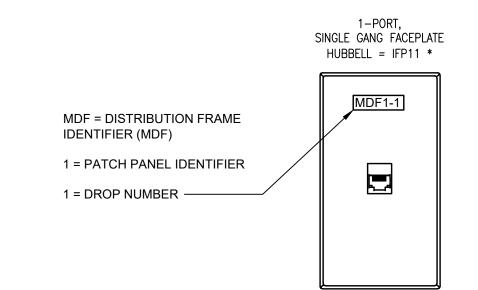
TALL POLE BASE DETAIL NOT TO SCALE



## **GENERAL NOTES:**

- ALL VOICE AND DATA CABLING SHALL BE RUN ABOVE 4. THE FINISHED FLOOR.
- ALL CABLING INCLUDING VOICE, DATA, SECURITY CAMERA, SPEAKER, HVAC CONTROLS, A/V, ETC. SHALL BE ROUTED IN THE MANNER SHOWN. NO CABLING SHALL BE ROUTED THROUGH TRUSSES OR SUPPORTED BY CEILING GRID WIRE TIES OR LIGHT FIXTURE WIRE TIES.
- PROVIDE A COMPLETE UNINTERRUPTED PATHWAY BETWEEN ALL HEADEND EQUIPMENT AND OUTLETS AS SHOWN IN THE DIAGRAM. CONDUIT SLEEVES SHALL BE SIZED TO NOT EXCEED 40% CAPACITY. 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.
- 5. EQUIPMENT ORIENTATION (FROM TOP TO BOTTOM) SHALL BE: PATCH PANEL, SWITCH, PATCH PANEL, SWITCH, ETC.
- 6. ALL LOW-VOLTAGE CABLING ROUTED THRU EXPOSED CEILING AREAS OR IN INACCESSIBLE AREAS ARE TO BE INSTALLED IN EMT CONDUIT. NO EXCEPTIONS.

## TYPICAL CABLE DISTRIBUTION RISER DIAGRAM



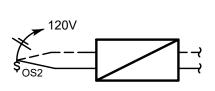
# **GENERAL NOTES:**

- THIS LABEL INDICATES THAT THIS CABLE ORIGINATES FROM PATCH PANEL 1 IN THE MAIN DISTRIBUTION FRAME.
- 2. QUANTITY OF CATEGORY 6 JACKS AND CABLES PER OUTLET AS INDICATED ON DRAWINGS.
- 3. EACH PATCH PANEL SHALL BE LABELED IN ASCENDING ORDER STARTING AT THE TOP OF THE
- 4. PATCH PANEL TERMINATIONS SHALL BE LABELED WITH THE SAME LABELING SCHEME.
- 5. 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.
- 6. ALL PATCH CABLES AND WORK STATION CABLES SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. WORK STATION CABLES SHALL BE MINIMUM 5' LONG.
- 7. ALL PATCHING AND/OR CROSS CONNECTION SHALL BE PERFORMED BY THE CONTRACTOR.

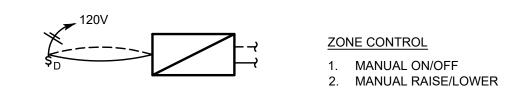
## VOICE/DATA OUTLET INSTALLATION DETAIL

#### ZONE CONTROL

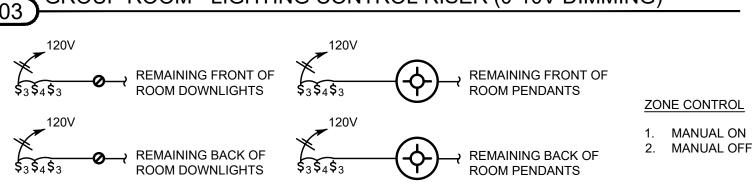
- AUTO ON BY OCCUPANCY SENSOR 2. AUTO OFF AFTER NO OCCUPANCY DETECTED FOR 30 MINUTES.
- GANG RESTROOM LIGHTING CONTROL RISER



- ZONE CONTROL
- 1. MANUAL ON/OFF 2. MANUAL RAISE/LOWER
- 3. AUTO OFF AFTER NO OCCUPANCY DETECTED FOR 30 MINUTES
- PRIVATE OFFICE LIGHTING CONTROL RISER (0-10V DIMMING)



# GROUP ROOM - LIGHTING CONTROL RISER (0-10V DIMMING)



# **COMMUNITY ROOM - LIGHTING CONTROL RISER**

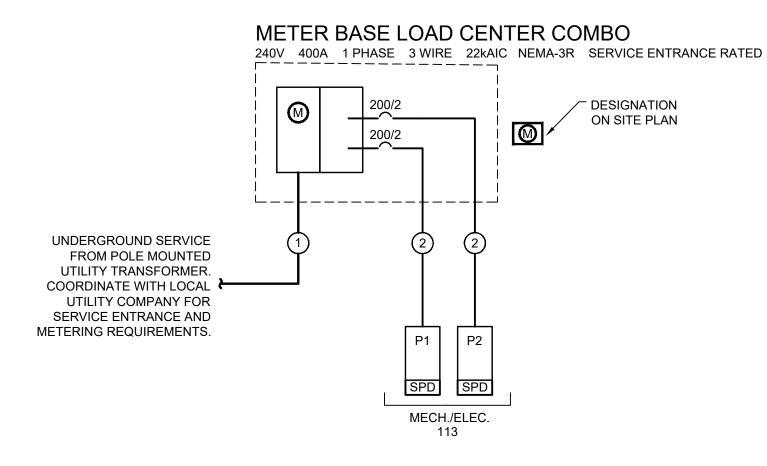
LIGHT C	ONTROL RISER LEGEND
SYMBOL	DESCRIPTION
\$ <sup>OS</sup>	ON/OFF WITH INTEGRAL OCCUPANCY SENSOR (SENSOR SWITCH 'WSX PDT' OR EQUAL)
\$ <sup>OS2</sup>	ON/OFF, RAISE/LOWER, WITH INTEGRAL OCCUPANCY SENSOR (SENSOR SWITCH 'WSXA PDT EZ D SA')
\$ <sup>D</sup>	ON/OFF, RAISE/LOWER (SENSOR SWITCH 'sPODMRD EZ')
	2#18 DIMMING CONDUCTOR CABLE

# # ONE LINE SCHEDULE

1 | 1 SET (3#500, 4"C) 2 | 3#3/0, 1#6G, 2-1/2"C

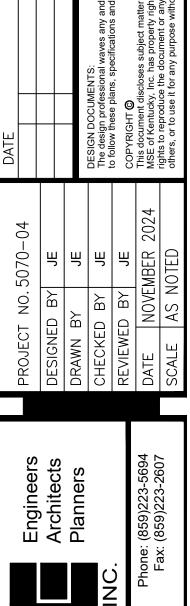
# NOTES

- CONTRACTOR TO DETERMINE A.I.C AND/OR SCCR RATING OF PANELBOARDS, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES BASED ON SERVICE ENTRANCE CHARACTERISTICS; CONTRACTOR SHALL LABEL SERVICE ENTRANCE EQUIPMENT WITH MAXIMUM AVAILABLE FAULT CURRENTS.
  - FEEDERS SHOWN ARE FOR COPPER WIRING.
- SERVICE DISCONNECT SIDE OF METER BASE SHALL BE LABELED WITH "MAIN SERVICE DISCONNECT LOCATED UNDER COVER" STICKER.
- LABEL SERVICE DISCONENCT BREAKERS ACCORDINGLY "PANEL 1 AND "PANEL 2".
- COORDINATE ALL METERING EQUIPMENT WITH UTILITY COMPANY PRIOR TO INSTALLATION.



POWER ONE-LINE DIAGRAM

NOT TO SCALE



1: POLE	OLTAGI 20/240	_			-	MAL	EL 'P	L				
1: POLE		_		Е	BRANCH	CIRCU	IT PANE	LBOAR	D			
POLE	20/2/0	VOLTAGE 1 PHASE POLES MAIN AMPS						MAIN TYPE A. I. RATING MOUNTING				
_	20/240		3 WIRE	60	20	0	M	MCB 22,000 SURFA				CE
	BREA	KER	LOAF	SERVED		PHASE	LOADS		LOAD SERVED	BREA	KER	POLE
NO.	TRIP	Р	LOAL	JOLIVED	KVA	Α	В	KVA	LOAD SLIVED	TRIP	Р	NO.
1	20	1	FIREPLACE	105 COMMUNITY	0.5	1.0		0.5	REC. 108 FITNESS	20	1	2
3	20	1		COMMUNITY	0.7		1.1	0.4	REC. 108 FITNESS	20	1	4
5	20	1	- 1	COMMUNITY	0.4	0.7		0.4	REC. 108 FITNESS	20	1	6
7	20	1		OMMUNITY, 106	0.4		0.7	0.4	REC. 108 FITNESS	20	1	8
9	20	1		COMMUNITY	0.4	0.7		0.4	REC. 104, 109 STORAGE	20	1	10
11	20	1	REC. 103 (	1.1		1.3	0.2	REC. SOUND SYSTEM (FUTURE)	20	1	12	
13	20	2	WALK-IN FREE	ZER (EVAPORATOR)	1.1	1.6		0.5	GWH, 113	20	1	14
15	,-	-		1.1		1.6	0.5	RCP, 113	20	1	16	
17	20	2	WALK-IN FREE	ZER (CONDESNER)	1.2	1.6		0.4	REC. EXTERIOR	20	1	18
19	-	-		-	1.2		1.7	0.5	REC. 111,112,113	20	1	20
21	20	1		ZER HEAT TRACE	0.5	3.0		2.5	DRYER, 112	30	2	22
23	20	1		REEZER LTS.	0.5		3.0	2.5	-	-	-	24
25	20	1	REC. 110 k	0.4	1.4		1.0	WASHER 112	20G	1	26	
27	20G	1	REC. MICROV	1.0		2.0	1.0	EWC, 111	20G	1	28	
29	20	_1_	RANGE HOO	0.3	0.6		0.4	REC. BATH 114,115	20	_1	30	
31	20	1	OVEN/RANG	1.6	4.0	2.3	0.7	REC. 102 ACTIVITY	20	1	32	
33 35	20G 20G	1	REC. 110 KI	0.6	1.3	0.0	0.7	REC. 102 ACTIVITY, 100  CARBON MONOXIDE DETECTORS	20	1	34 36	
37	200	<u>1</u>		TCHEN REFRIG. KITCHEN CNTR.	0.6	1.4	0.9	0.3	LTS. 100-104,106-109	20 20	1	38
39	20G	1		CHEN WARM CAB.	2.0	1.4	2.9	0.8	LTS. 110-117	20	1	40
41	20	1	REC. 110 k		0.4	2.0	2.0	1.7	LTS. 105, BACK PATIO	20	1	42
43	20	1		KITCHEN CNTR.	0.4	2.0	0.8	0.4	LTS. BUILDING EXTERIOR	20	1	44
45	20G	1		DISHWASHER	1.0	1.4		0.4	SPARE	20	1	46
47	20	1		OFFEE MAKER	0.5		0.8	0.3	LTS. PARKING LOT	20	2	48
49	20	1	REC. 116,1	117	0.4	0.7		0.3	-	-	-1	50
51	20	1	REC. 101 (	OFFICE	1.1		1.3	0.3	RADON FAN, 117	20	1	52
53	20	1	REC. COVE	RED PATIO EXT.	0.4	0.6		0.3	RADON FAN, 104	20	1	54
55	20	1	POWERED	FRONT DOOR	0.3		0.3	0.0	SPARE	20	1	56
57	20	1	REC. FROM	NT ENTRY EXT.	0.4	0.4		0.0	SPARE	20	1	58
59	20	1	REC. 116 N		0.4		0.4	0.0	SPARE	20	1	60
			F	PHASE TOTALS:		18.3	20.9		TOTAL: 39.276	KVA		
OTES	<b>3</b> :							VIATIO				
				RANCE RATED				CI BREA				
				OTECTION DEVIC				O BREA				
				VERIFY REQUIR								
				RING SHOP DRAV	WING RE	VIEW			P BREAKER			
OF A	ANY RE	QUIRE	D CHANGE	8					ION GFCI/AFCI BREAKER			
									RCUIT BREAKER IG ONLY			

	PANEL 'P2'												
	BRANCH CIRCUIT PANELBOARD												
V	OLTAGE		1 PHASE	POLES	MAIN	AMPS	MAIN	TYPE	A. I. RATING	N	IOUNTI	NG	
120/240 3 WIRE 30 200					0	M	CB	22,000	5	SURFA	CE		
POLE BREAKER LOAD SERVED PHASE						LOADS		LOAD SERVED	BRE	AKER	POLE		
NO.	D. TRIP P LOAD SERVED KVA A					В	KVA	EOAD SERVED	TRIP	Р	NO.		
1	25	2	HP-1		1.8	3.6		1.8	HP-4	25	2	2	
3	-	-		-	1.8		3.6	1.8		-	-	4	
5	20		AHU-1, 109	STORAGE	8.0	1.5		8.0	AHU-4, 113	20	1	6	
7	35	2	HP-2	2.4		5.8	3.4	HP-5	45	2	8		
9	-	-		-	2.4	5.8		3.4		-	-	10	
11	20	1	AHU-2, 104 STORAGE 0.8				1.5	8.0	AHU-5, 117 STORAGE	20	1	12	
13	25	2	HP-3		1.8	5.2		3.4	HP-6	45	2	14	
15	-	-	- 1.8				5.2	3.4	-	-	-	16	
17	20	1	AHU-3, 113 0.8 1.5					8.0	AHU-6, 117 STORAGE	20	1	18	
19	-	-	SPACE 0.0				0.0	0.0	SPACE	-	-	20	
21	-	-	SPACE		0.0	0.0		0.0	SPACE	-		22	
23	-	_	SPACE		0.0		0.0	0.0	SPACE	_		24	
25	-	-	SPACE		0.0	0.0		0.0	SPACE	-	-	26	
27	-	-	SPACE		0.0		0.0	0.0	SPACE	-	-	28	
29	-	-	SPACE		0.0	0.0		0.0	SPACE	-	-	30	
PHASE TOTALS: 17.6						16.1		TOTAL: 33.62	KVA				
						ABBREVIATIONS:							
1. PANEL TO BE SERVICE ENTRANCE RATED						G - GFCI BREAKER							
2. PANEL TO HAVE SURGE PROTECTION DEVICE						A - AFCI BREAKER							
3. CONTRACTOR SHALL FIELD VERIFY REQUIRED A.I. RATING						L - LOCKOUT BREAKER							
AND	AND NOTFIY ENGINEER DURING SHOP DRAWING REVIEW						ALL ACTION OF THE COURSE OF TH						
OF A	NY RE	QUIRE	D CHANGE:	S			C - CO	MBINAT	ION GFCI/AFCI BREAKER				
							MCB -	MAIN CI	RCUIT BREAKER				
							MLO - I	MAIN LU	G ONLY				

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			LIGH	IT FIX	TURE S	CHED	ULE				
FIXTURE	DESCRIPTION	MOUNTING VOLTAGE LAMPS							MANUFACTURER/MODEL NUMBER	NOTES	
TYPE A	2'x4' FLAT PANEL WITH POLYCARBONATE FROSTED DIFFUSER. FIELD SELECTABLE CCT AND LUMEN OUTPUT. SET TO MEDIUM OUTPUT.	RECESSED	MVOLT	TYPE LED	5,029	WATTS 43	DIMMING 0-10V	CRI ≥80	3500K	NICOR: TGLS-2-24-U LITHONIA EQUAL COOPER EQUAL	5
В	2'x4' FLAT PANEL WITH POLYCARBONATE FROSTED DIFFUSER. FIELD SELECTABLE CCT AND LUMEN OUTPUT. SET TO HIGH OUTPUT.	SURFACE	MVOLT	LED	5,949	52.1	0-10V	≥80	3500K	NICOR: TGLS-2-24-U LITHONIA EQUAL COOPER EQUAL	5
C1	LINEAR UTILITY WRAP FIXTURE WITH STEEL HOUSING AND FROSTED DIFFUSER FIELD SELECTABLE CCT AND LUMEN OUTPUT. SET TO MEDIUM OUTPUT.	SURFACE	MVOLT	LED	4,779	39.6	N/A	≥80	3500K	NICOR: WPC-3-4-48WS-U-S-8-WH LITHONIA EQUAL COOPER EQUAL	5,8
C2	LINEAR UTILITY WRAP FIXTURE WITH STEEL HOUSING AND FROSTED DIFFUSER. FIELD SELECTABLE CCT AND LUMEN OUTPUT. SET TO STANDARD OUTPUT.	SURFACE	MVOLT	LED	3,862	31	N/A	≥80	3500K	NICOR: WPC-3-4-48WS-U-S-8-WH LITHONIA EQUAL COOPER EQUAL	5,8
D1	6" LED MODULAR DOWNLIGHT, ROUND FORM FACTOR; WHITE FLANGE, FIELD ADJUSTABLE OPTIC, SET TO 60 DEGREES. FIELD SELECTABLE CCT AND LUMEN OUTPUT. WET LOCATION RATED.	RECESSED	MVOLT	LED	2,578	24.2	0-10V	≥90	3500K	NICOR: CDG6-38S-U-S-9-CL-WH-MD LITHONIA EQUAL COOPER EQUAL	5
D2	6" LED MODULAR DOWNLIGHT, ROUND FORM FACTOR; WHITE FLANGE, FIELD ADJUSTABLE OPTIC, SET TO 60 DEGREES. FIELD SELECTABLE CCT AND LUMEN OUTPUT. WET LOCATION RATED.	RECESSED	MVOLT	LED	1,284	11.5	0-10V	≥90	3500K	NICOR: CDG6-38S-U-S-9-CL-WH-MD LITHONIA EQUAL COOPER EQUAL	5,9
E	EXIT SIGN COMBO, NICAD BATTERY BACKUP FOR 90 MINUTES, INTEGRAL TEST SWITCH, LED INDICATOR, REMOTE HEAD CAPACITY OF TWO HEADS, RED/GREEN FIELD SELECTABLE LETTERS. WHITE HOUSING.	CEILING	MVOLT	LED	193	4	N/A	N/A	NI/A	NICOR: ECL1-20-UNV-WH-S-2-R SURE-LITES EQUAL MAXLITE EQUAL	1,3
EM	TWO-HEAD EMERGENCY EGRESS LIGHT WITH BATTERY BACKUP FOR 90 MINUTES, INTEGRAL TEST SWITCH, LED INDICATOR, AIMABLE OPTICS, WHITE HOUSING.	WALL	MVOLT	LED	203	2.5	N/A	N/A	N/A	NICOR: EML3-10-UNV-WH-SD SURE-LITES EQUAL MAXLITE EQUAL	-
ER	TWIN, REMOTE HEAD, EMERGENCY EGRESS LIGHT, TO BE POWERED FROM ADJCENT EXIT SIGN TYPE "E", WEATHERPROOF HOUSING, GRAY COLOR.	WALL	LOW	LED	202	3	N/A	N/A	N/A	NICOR: ECL120RHWP2 SURE-LITES EQUAL MAXLITE EQUAL	1,3
F	2' LENGTH VANITY WALL SCONCE, NICKEL FINISH WITH WHITE ALABASTER SWIRLED GLASS LENS.	WALL	MVOLT	LED	1,860	23	N/A	≥80	4000K	NICOR: 32103 LITHONIA EQUAL COOPER EQUAL	1,2
G1	DECORATIVE 18" DIAMETER DRUM STYLE FABRIC PENDANT, WHITE LINEN SHADE, OIL RUBBED BRONZE, ACRYLIC BOTTOM, PERFORATED TOP, 15" HEIGHT, TWO MEDIUM BASE LAMP SOCKETS, PROVIDE WITH QTY:2 LED LAMPS. TOPAZ MODEL #LA19-12W-930-D-33 (EACH LAMP, 12W, 1,100 LUMENS).	PENDANT	120	LED	2,200	24	LINE VOLTAGE	≥90		LITE TOPS: SF-A921-115-01-1003OB-18DIA LITHONIA EQUAL COOPER EQUAL	1,6,9
G2	DECORATIVE 36" DIAMETER DRUM STYLE FABRIC PENDANT, WHITE LINEN SHADE, OIL RUBBED BRONZE, ACRYLIC BOTTOM, PERFORATED TOP, 16" HEIGHT, TWO MEDIUM BASE LAMP SOCKETS, PROVIDE WITH QTY:3 LED LAMPS. TOPAZ MODEL #LA19-12W-930-D-33 (EACH LAMP, 12W, 1,100 LUMENS).	PENDANT	120	LED	3,300	36	LINE VOLTAGE	≥90		LITE TOPS: SF-A921-115-01-1003OB-36DIA LITHONIA EQUAL COOPER EQUAL	1,6
Н	CEILING FAN, 52" DIAMETER, 6 BLADE, REVERSE SWITCH, PROVIDE WITH 3-SPEED CONTROLLER. SET TO DOWNDRAFT (COUNTERCLOCKWISE ROTATION) FOR MAXIMUM COOLING EFFECT, WEIGHT 22.3 LBS, MATTE SILVER FINISH.	PENDANT	120	N/A	N/A	55	N/A	N/A		HUNTER KENNICOTT 52": MODEL#51179 OR EQUAL	1,7
J	1'x4' FLAT PANEL WITH POLYCARBONATE FROSTED DIFFUSER. FIELD SELECTABLE CCT AND LUMEN OUTPUT. SET TO MEDIUM OUTPUT.	RECESSED	MVOLT	LED	3,438	29.8	0-10V	≥80	3500K	NICOR: TGLS-2-14-U LITHONIA EQUAL COOPER EQUAL	5
OL1	OUTDOOR ARCHITECTURAL WALL SCONCE, DIE FORMED COLD ROLLED STEEL, POWDER COAT FINISH, NO BUILT IN PHOTOCELL, INTEGRATED LED MODULE, 12"H X 10"W X 4"D, ADA COMPLIANT.	WALL	120	LED	1,380	15	N/A	≥80	4000K	NICOR: 3-4331D-05-L-LED-BK-L-40K LITHONIA EQUAL COOPER EQUAL	1
OL2	TRADITIONAL WALL PACK WITH FIELD SELECTABLE CCT, DIE-CAST ALUMINUM HOUSING, POWDERCOAT PAINT, GLASS LENS, NO INTEGRAL PHOTOCELL.	WALL	MVOLT	LED	7,213	54.9	N/A	≥80	4000K	NICOR: OWG3-060-MV-S-BZ LITHONIA EQUAL COOPER EQUAL	1
OL3	6" LED WAFER DOWNLIGHT FOR EXTERIOR SOFFIT, ROUND FORM FACTOR, WET LOCATION LISTED, CAST ALUMINUM HOUSING REMOTE DRIVER, PROVIDE WITH 10' CABLE EXTENSION.	RECESSED	120	LED	940	11.8	N/A	≥90	40001/	NICOR: REL6-1-120-4K-RD-WH LITHONIA EQUAL COOPER EQUAL	1
P1	AREA/ROADWAY LIGHT FIXTURE WITH DIE CAST ALUMINUM LOW PROFILE HOUSING. FIELD INTERCHANGEBALE LENSES IN TYPE II, III, IV, AND V DISTRIBUTIONS (TYPE III TO BE UTILIZED), WET LOCATION LISTED, PROVIDE WITH STRAIGHT POLE MOUNTING ARM ACCESSORY, GLARE SHIELD ACCESSORY, AND 25' SQUARE 4" STEEL POLE POWDER COATED BRONZE, INCLUDE MOUNTING HARDWARE.	POLE	MVOLT	LED	27,532	201	N/A	≥80	5000K	NICOR: OAL-3-200-UNV-5K-BZ-3 LITHONIA EQUAL COOPER EQUAL POLE: NICOR OPL4-1-SQ-25-A-BZ OR EQUAL	1,4
P2	AREA/ROADWAY LIGHT FIXTURE WITH DIE CAST ALUMINUM LOW PROFILE HOUSING. FIELD INTERCHANGEBALE LENSES IN TYPE II, III, IV, AND V DISTRIBUTIONS (TYPE IV TO BE UTILIZED), WET LOCATION LISTED, PROVIDE WITH STRAIGHT POLE MOUNTING ARM ACCESSORY, GLARE SHIELD ACCESSORY, AND 25' SQUARE 4" STEEL POLE POWDER COATED BRONZE, INCLUDE MOUNTING HARDWARE.	POLE	MVOLT	LED	27,506	201	N/A	≥80	5000K	NICOR: OAL-3-200-UNV-5K-BZ-4 LITHONIA EQUAL COOPER EQUAL POLE: NICOR OPL4-1-SQ-25-A-BZ OR EQUAL	1,4

-OWNER PREFERRED LIGHT FIXTURES SHOWN AS BASIS OF DESIGN

-ALL LIGHT FIXTURES TO MEET THE FOLLOWING CRITERIA UNLESS OTHERWISE NOTED: MINIMUM 5 YEAR WARRANTY; UL LISTED

-ANY LIGHT FIXTURE COLOR/FINISH NOTED IN SCHEDULE ARE FOR DESIGN INTENT ONLY, ARCHITECT SHALL SELECT FINAL COLOR/FINISH PRIOR TO ORDERING

1. ARCHITECT TO VERIFY COLOR/FINISH

2. CENTER ABOVE VANITY MIRROR, COORDINATE WITH ARCHITECTURAL ELEVATIONS

4. PROVIDE WITH 25' SQUARE POLE AND CONCRETE POLE BASE. REFER TO TYPICAL POLE BASE DETAIL ON SHEET E5 FOR ADDITIONAL INFORMATION

5. FIXTURE HAS ADJUSTABLE LUMEN OUTPUT AND CCT; SELECT OUTPUT WATTAGE AND CCT INDICATED ON SCHEDULE TO MEET LUMENS

6. LED LAMPS SHALL BE PROVIDED SEPERATE FROM FIXTURE. REFER TO FIXTURE DESCRIPTION FOR LAMP INFORMATION 7. THREE SPEED WALL CONTROLLER PROVIDED WITH FAN

8. PROVIDE WITH SURFACE MOUNTING KIT

9. PROVIDE WITH FIRE RATED BACK BOX IN ENTRY HALL 100 AND CORRIDOR 111

DATE REVISION					DESIGN DOCUMEN I S: The design professional waves any and all responsibility and liability for problems which arise from failure	COPYRIGHT ©	This document discloses subject matter considered confidential by MSE of Kentucky, Inc. and on which MSE of Kentucky, Inc. has properly rights. Neither receipt nor possession thereof confers or transfer any	rights to reproduce the document of any part thereof, or to disclose any information contained therein to others, or to use it for any purpose without the written permission of MSE of Kentucky, Inc.
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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.

#### 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

SUBMITTALS AND SHOP DRAWINGS SHALL BE SUBMITTED BY THE ELECTRICAL CONTRACTOR WITHIN 15 DAYS AFTER AWARDED THE PROJECT FOR ENGINEER

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

INCLUDE A LETTER OF GUARANTEE STARTING AT THE DATE OF SUBSTANTIAL COMPLETION.

## GUARANTEES

a. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEFECTS, REPAIRS AND 11. NYLON PULL STRING SHALL BE INSTALLED IN ALL EMPTY CONDUITS. 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.

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 APPARATUSES 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, INSOFAR 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

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 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

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.

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**

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.

WORK SHALL BE UNACCEPTABLE WHEN FOUND TO BE DEFECTIVE OR CONTRARY TO THE PLANS SPECIFICATIONS, CODES SPECIFIED OR ACCEPTED STANDARDS OF GOOD

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.

# 1. FURNISH AND INSTALL ALL CONDUITS, BOXES, FITTINGS, ETC., FOR A COMPLETE RACEWAY

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

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. 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

10. RIGID CONDUITS SHALL BE TERMINATED IN SHEET STEEL WITH DOUBLE LOCKNUTS AND AN INSULATING BUSHING. EMPTY CONDUITS STUBBED SHALL BE THREADED AND CAPPED.

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.

. CONDUIT RUNS SHALL BE LOCATED TO AVOID EQUIPMENT AND ACCESS TO EQUIPMENT OF

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.

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

**BUSHINGS AND CONNECTORS** 

JOINTS SHALL BE SEALED. 20. EXTERIOR UNDERGROUND CONDUITS SHALL BE INSTALLED 36 INCHES MINIMUM BELOW

FINISHED GRADE.

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.

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.

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 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 WITHIN 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-STAMPED 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.

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

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.

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 CONDUCTORS NO. 10 AWG OR SMALLER SHALL HAVE INSULATION COLORED AS NOTED

CONDUCTORS NO. 8 AWG OR LARGER SHALL HAVE INSULATION COLORED AS NOTED ABOVE OR COLORED TAPE, MINIMUM SIZE ½". WRAPPED TWICE AROUND AT THE **FOLLOWING POINTS:** 

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.

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.

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.

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. 1. 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 4" 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

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

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.

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 EXTEND 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. f. COMPOSITE UNDERGROUND BOXES/ENCLOSURES: COMPLY WITH SCTE 77

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. I SERIES, NEMA 3R COVER

b. ARROW HART 5352 SINGLE POLE SWITCHES - 20 AMP, 120 VOLT

4. WEATHERPROOF RECEPTACLES - 20 AMP, 125 VOLT - NEMA 5-20R a. HUBBELL 5352 WITH 5205 COVER INTERMATIC GUARDIAN

c. ARROW HART 5352 WITH 4500 COVER GFCI RECEPTACLE - 20 AMP, 125 VOLT - NEMA 5-20R

INDICTED IN THE GROUNDING SECTION OF THIS SPECIFICATION. PROVIDE MOTOR DRIVEN EQUIPMENT WITH PROPERLY SIZED AND RATED DISCONNECT

SWITCHES TO COMPLY WITH N.E.C. REQUIREMENTS, WHETHER OR NOT INDICATED ON THE

GROUND ALL RECEPTACLES IN ACCORDANCE WITH ARTICLE 250.146 OF NEC AND AS

a. HUBBELL GF 5262 WITH MATCHING NYLON COVER PLATE OR WO-26 W.P. COVER.

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

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, HORSEPOWER, 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 ¼" HIGH. PLATES SHALL BE DRILLED ON EACH END FOR SHEET METAL SCREW ATTACHMENT. NO "DYMO" OR SIMILAR TYPE PAPER

3. PANEL BOARD DIRECTORY: A TYPED CIRCUIT DIRECTORY SHALL BE PROVIDED INDICATING LOCAL AREA SERVED AND LOCATION FOR EACH BRANCH CIRCUIT

#### 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.

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. THE GROUNDING CONDUCTOR FOR BRANCH CIRCUITS FEEDING ISOLATED GROUND RECEPTACLES 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.

1. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING FIXTURES AS INDICATED IN FIXTURE SCHEDULE SHOWN ON DRAWINGS, AND SPECIFIED HEREIN. 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

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 GROUNDED 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

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

# 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

COMPLETE WORKING SYSTEM.

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 HXJ6 OR ALTERNATE MANUFACTURER WITH EQUIVALENT PERFORMANCE STANDARD.

d.b.a. HUBBELL - IFP 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.

a. TERMINATE CABLES AT EACH OUTLET WITH SPECIFIED MODULAR JACK ASSEMBLY

b. TERMINATE CABLES ON PUNCH DOWN BLOCKS OR PATCH PANELS AT TERMINAL c. PROVIDE TYPED LABELS AT ALL JACKS CORRESPONDING TO TYPED NUMBERING

d. ALL EQUIPMENT MOUNTED ON EQUIPMENT ROOM WALLS SHALL BE ATTACHED TO 3/41 PLYWOOD BOARDS, PAINTED WITH FIRE RESISTANT PAINT.

SYSTEM AT TERMINAL STRIP.

a. COMPLY WITH APPLICABLE PORTIONS OF NEC, ANSI/EIA/TIA 568 AS TO TYPE PRODUCTS USED AND INSTALLATION OF COMPONENTS. PROVIDE PRODUCTS AND MATERIAL WHICH HAVE BEEN UL-LISTED AND LABELED.

## 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.

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. 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

BREAKERS AS REQUIRED BY ALL HVAC EQUIPMENT AND MANUFACTURERS.

OPERATING HANDLE ASSUMING A MID-POSITION BETWEEN ON AND OFF. PROVIDE HACR

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 KEYS SHALL BE PROVIDED WITH EACH PANEL, AND ALL PANELS SHALL BE KEYED ALIKE. SCREW FASTENED HANDLE LOCK-ON DEVICES SHALL BE PROVIDED ON BRANCH CIRCUIT BREAKERS FOR EMERGENCY, EXIT, SECURITY AND NIGHT LIGHTS.

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 I-LINE. REFER TO PANEL SCHEDULES FOR PANEL SPECIFICS. EQUIVALENT ALTERNATE MANUFACTURERS: CUTLER HAMMER, GENERAL ELECTRIC, OR SIEMENS.

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

FLUSH/RECESSED MOUNTED PANELBOARDS SHALL BE INSTALLED WITH A MINIMUM OF THREE EMPTY ¾'' CONDUITS STUBBED UP TO THE NEAREST ACCESSIBLE CEILING SPACE FOR CONVENIENT FUTURE EXPANSION.

EACH PANELBOARD.

 FURNISH AND INSTALL A COMPLETE SET OF FUSES THROUGHOUT FOR FUSIBLE EQUIPMENT IN THE PROJECT. FUSES SHALL BE AS MANUFACTURED BY BUSMAN, GOULD OR LITTLEFUSE.

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

a. FUSES RATED 601 TO 6000 AMPERES SHALL BE TIME-DELAY, CURRENT-LIMITING, U.L. LISTED, NEMA CLASS L

RK-1 DUAL ELEMENT (UNLESS NOTED OTHERWISE).

b. FUSES RATED 600 AMPERES AND LESS SERVING PANEL BOARDS SHALL BE UL CLASS C.

c. FUSES RATED 600 AMPERES AND LESS SERVING MOTOR CIRCUITS SHALL BE UL CLASS RK-5 DUAL-ELEMENT TIME DELAY.

**EPPERSON** 

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