BUCKMAN ST. BRANCH - 2025 RENOVATIONS

FIRST HARRISON BANK 130 S BUCKMAN ST. SHEPHERDSVILLE, KY 40165



DESIGN TEAM

ARCHITECT/ENGINEER

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130 S BUCKMAN ST. SHEPHERDSVILLE, KY 40165 DRAWING INDEX

GENERA

6001 COVER SHEET

G101 FIRST FLOOR CODE COMPLIANCE PLAN

STRUCTURAL GENERAL

SG001 STRUCTURAL GENERAL NOTES
SG002 STATEMENT OF SPECIAL INSPECTIONS
SG003 TYPICAL STRUCTURAL DETAILS

STRUCTURAL FOUN

S101 FOUNDATION PLANS201 ROOF FRAMING PLAN

S201 ROOF FRAMING PLAN

ARCHITECTURAL GENERAL
AG001 GENERAL ARCHITECTURAL NOTES, INTERIOR PARTITION TYPES, MISC.
DETAILS

ARCHITECTURAL DEMOLITION AD101 DEMOLITION PLAN

AD101 DEMOLITION PLAN
AD102 ROOF DEMOLITION PLAN
AD301 EXTERIOR DEMOLITION ELEVATIONS

AD302 EXTERIOR DEMOLITION ELEVATIONS

ARCHITECTURAL

A101 ARCHITECTURAL PLAN

102 ROOF PLAN 201 REFLECTED CEILING PLAN

01 EXTERIOR ELEVATIONS

A302 EXTERIOR ELEVATIONS
A311 BUILDING SECTIONS AND DETAILS

312 BUILDING SECTIONS AND DETAILS 401 ENLARGED TOILET ROOM PLANS, BARRIER-FREE DETAILS, TYPICAL

MOUNTING HEIGHTS, ETC.

A501 DOOR AND FRAME ELEVATIONS + SCHEDULES

A701 3D VIEWS

INTERIORS

I101 FINISH PLANI301 INTERIOR ELEVATIONS

PLUMBING

P001 PLUMBING - NOTES AND RISERSP101 WASTE AND VENT PLANP102 DOMESTIC WATER PLAN

NATURAL GAS PLAN

MECHANICAL
MO01 MECHA

M001 MECHANICAL GENERAL NOTES AND LEGEND M101 MECHANICAL PLAN

M601 MECHANICAL SCHEDULES

M801 MECHANICAL SPECIFICATIONS
M802 MECHANICAL SPECIFICATIONS

ELECTRICAL SITE

ES100 ELECTRICAL SITE PLAN

ELECTRICAL

E 101 LIGHTING PLAN E 102 POWER PLAN

E 103 ELECTRICAL SCHEDULES AND RISER







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ECT TITLE CKMAN ST. BRANCH -5 RENOVATIONS

DATE

2012 INTERNATIONAL ENERGY CONSERVATION CODE 2020 KENTUCKY STATE PLUMBING CODE (KENTUCKY STATE PLUMBING LAW, REGULATIONS, AND CODE 815 KAR CHP 207 2015 INTERNATIONAL MECHANICAL CODE 2012 NATIONAL FUEL GAS CODE (MODEL CODE: NFPA 54: NATIONAL FUEL GAS CODE, 2012 EDITION) 2017 NATIONAL ELECTRICAL CODE (NFPA 70) 2012 NFPA 1 FIRE PREVENTION CODE (AS DIRECTED BY 815 KAR

10:60 KENTUCKY STANDARDS OF SAFETY) 2015 INTERNATIONAL FIRE CODE (WHERE SPECIFICALLY REFERENCED

FIRE-RATING KEY

DESIGNATION

COORDINATE ALL REQUIRED DAMPERS WITH MECHANICAL.

<u>RATING</u>

3 HOUR

2 HOUR FIRE WALL - 706

2 HOUR FIRE PARTITION - 708 2

2 HOUR FIRE BARRIER - 707 2

1 HOUR FIRE PARTITION - 708 3

1 HOUR FIRE BARRIER - 707 3

SMOKE RESISTANT

. ALL PENETRATIONS THROUGH A FIRE OR SMOKE RATED PARTITION SHOULD BE

CONTINUOUS STRUCTURE ABOVE WITH A U.L. RATED SYSTEM OR ASSEMBLY.

5. FIRE-RATED WALLS ENDING INTO AN ACOUSTICAL DECK MUST HAVE THE FLUTES

FOR MASONRY WALLS THE MASON SHALL FILL VOIDS AND FIRE SPRAY WITH UL LISTED

FILLED, REFER TO 'TOP OF WALL DETAIL AT ACOUSTIC DECK' SHOWN ON THIS

3. WOOD BLOCKING IN FIRE-RATED PARTITIONS SHALL BE NON-COMBUSTIBLE

2. THE TOPS OF ALL FIRE RATED PARTITIONS SHALL BE SEALED TO THE

SEALED WITH AN APPROVED U.L. RATED PRODUCT.

4. REFER TO SPECIFICATION U.L. RATING INFORMATION.

FOR STUD WALLS USE FIRE SAFING AND FIRE CAULK.

APPLICABLE CODES (KENTUCKY) - 2025

TREATED WOOD.

BUILDING:

ENERGY:

PLUMBING:

MECHANICAL:

FUEL GAS:

ELECTRICAL:

FIRE CODE

FIRE PREVENTION

<u>PRIORITY</u>

BY BODY OF KBC) PROJECT AREA TOTAL FINISHED PROJECT 3138 SF

CODE COMPLIANCE KEY

FIRE SAFETY SYMBOLS

CLASSROOM -

20

SMOKE EVACUATION

AOOOA

T.D. - 100' - 0"

P.T.D. - 200' - 0",

FIRE SAFETY SYMBOLS

FE

- ROOM NAME AND ROOM NUMBER

— TRAVEL DISTANCE TO EGRESS DOOR (T.D.)

- PERMITTED MAXIMUM TRAVEL DISTANCE PER

SECONDARY EGRESS EXIT

HORIZONTAL EGRESS

------ ROOM AREA

--- OCCUPANT LOAD

— DIRECTION OF EGRESS

CONDITION (P.T.D.)

DIRECTION OF EGRESS

EXISTING FIRE EXTINGUISHER

FIRE EXTINGUISHER CABINET

FIRE EXTINGUISHER

RECESSED CABINET

KNOX BOX

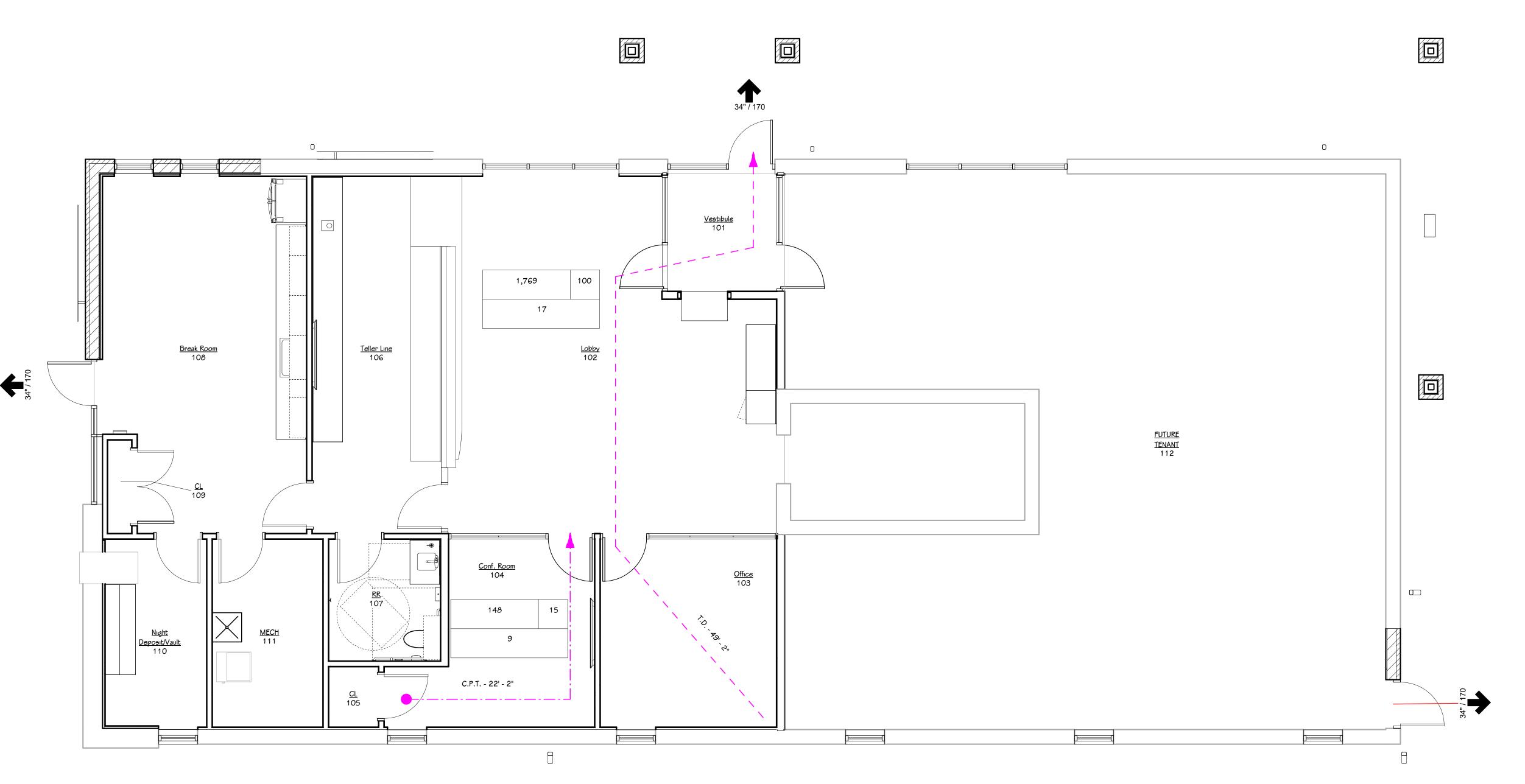
EXISTING FIRE EXTINGUISHER CABINET

AUTOMATED EXTERNAL DEFIBRILLATOR (AED)

----- COMMON PATH OF TRAVEL (C.P.T.)

400 20 OCCUPANT LOAD FACTOR

Code Summary Code References A-2 / B / M Occupancies KBC 303, 394, 309 BUILDING OCCUPANCIES (NON-SEPARATED USE): CONSTRUCTION TYPE: KBC, 602 SPRINKLER: KBC, 903 NON-SPRINKLERED KBC, TABLE 1017.2 (ACTUAL TRAVEL DISTANCE MAX. ALLOWABLE TRAVEL DISTANCE LENGTHS INDICATED ON PLANS) COMMON PATH OF EGRESS DISTANCE (MAX) KBC, TABLE 1006.2.1 (ACTUAL COMMON PATH LENGTHS INDICATED ON PLANS) MAX DEAD END CORRIDOR LENGTH KBC, 1020.4 KBC, TABLE 504.3 \$ 504.4 ALLOWABLE HEIGHT 1 STORY OR 40'-0" (A-2 OCCUPANCY, MOST RESTRICTIVE) ACTUAL HEIGHT 1 STORY ALLOWABLE AREA CALCULATION: 6,000 S.F. BASIC ALLOWABLE AREA PER FLOOR: KBC, TABLE 506.2 (A-2 OCCUPANCY = MOST RESTRICTIVE) 3,138 S.F. EXISTING BUILDING AREA: 305 S.F. EXISTING CANOPY AREA: 888 S.F. PROPOSED CANOPIES AREA: 4,331 S.F. TOTAL BUILDING + CANOPIES AREA:



COLOR. IF THIS TEXT APPEARS IN BLACK AND WHITE, IT IS PLOTTED INCORRECTLY. DISCARD AND OBTAIN AN ACCURATE DRAWING

THIS DRAWING SHEET IS INTENDED TO BE PLOTTED IN 📗 🗖

ANCHORAGE DIMENSION TABLE

USE THIS TABLE FOR AG15 GRADE GO REINFORCING WHEN CONCRETE CLEAR COVER AND CLEAR SPACING IS AT LEAST d. AND CODE MINIMUM STIRRUPS ARE PROVIDED OR IF MINIMUM STIRRUPS ARE NOT PROVIDED, CLEAR SPACING IS AT LEAST 2d.

(4000 PSI CONCRETE)		(3000 PSI CONCRETE)				
	DEVELOPM	IENT LENGTH	LENGTH DEVELOPME		ENT LENGTH	
BAR SIZE	TOP BARS	OTHER BARS	BAR SIZE	TOP BARS	OTHER BARS	
#3	15"	12"	#3	18"	14"	
#4	20"	16"	#4	23"	18"	
#5	25"	19"	#5	29"	22"	
#6	30"	23"	#6	35"	27"	
#7	44"	34"	#7	50"	39"	
#8	50"	38"	#8	57"	44"	
#9	56"	43"	#9	65"	50"	
#10	63"	49"	#10	73"	56"	
#11	70	54"	#11	81"	62"	

NOTES:

- LAP LENGTHS SHALL BE 1.3 TIMES DEVELOPMENT LENGTH.
- FOR EPOXY COATED REINFORCING MULTIPLY THE TABLE VALUES ABOVE BY 1.5.
 (MC) DENOTES MECHANICAL COUPLER DEVELOPING 125% OF THE BAR YIELD STRENGTH.
- NO OTHER SPLICE WILL BE ACCEPTED.

 WHEN LAPPING TWO DIFFERENT SIZE BARS, USE THE LAP DIMENSION OF THE SMALLER BAR OR THE ANCHORAGE DIMENSION OF THE LARGER BARS. USE WHICHEVER DIMENSION IS LAPCER.
- TOP BARS SHALL BE DEFINED AS BEAM AND SLAB HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE TOP REINFORCEMENT. HORIZONTAL REINFORCING IN WALLS SHALL BE CONSIDERED TOP BARS.

MASONRY MINIMUM LAP SPLICE SCHEDULE					
BAR SIZE	LAP LENGTH FOR BARS CENTERED IN CMU THICKNESS	LAP LENGTH FOR BARS EACH FACE OF CMU WALL (2 1/2" CLEAR MASONRY COVER)			
<u>#3</u>	<u>12"</u>	<u>12"</u>			
<u>#4</u>	<u>13"</u>	<u>18"</u>			
<u>#5</u>	<u>20"</u>	<u>28"</u>			
<u>#6</u>	<u>38"</u>	<u>52"</u>			
<u>#7</u>	<u>52"</u>	<u>70"</u>			
<u>#8</u>	<u>79"</u>	<u>105"</u>			

MECHANICAL COUPLERS DEVELOPING 125% OF THE BAR YIELD STRENGTH ARE PERMITTED AT ANY SPLICE LOCATION AT CONTRACTOR'S OPTION.

CONCRETE REINFORCING CLEAR COVER REQUIR	EMENT
CONCRETE CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND CONCRETE EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	3"
#5 BAR AND SMALLER	1-1/2"
#6 BAR AND LARGER	2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, JOISTS, AND WALLS (NOT LARGER THAN #11 BAR)	3/4"
BEAMS, COLUMNS, PIERS	1-1/2"

NOTE:
CLEAR COVER DIMENSIONS LISTED ARE CODE-REQUIRED MINIMUMS. PROVIDE GREATER
COVER WHERE SPECIFICALLY REQUIRED BY DETAILS.

MISCELLANEOUS LINTEL (ML) SCHEDULE
(FOR LINTELS NOT OTHERWISE SHOWN OR NOTED)
BLOCK LINTELS - 8" BEARING EACH END
3'-0" WIDE AND LESS USE 8" DP. BOND BEAM WITH (2) #5 BOT.
OLAH MUDE TO THOUMED LICE ACTION DONO DEAMAMITH (O) HE TOD

- 3'-1" WIDE TO 7'-0" WIDE USE 16" DP. BOND BEAM WITH (2) #5 TOP & BOTTOM.
 7'-1" WIDE TO 11'-0" WIDE USE 16" DP. BOND BEAM WITH (2) #6 TOP & BOT.
- STEEL LINTELS

 PROVIDE ONE ANGLE FOR EVERY FOUR INCHES OF WIDTH
- PROVIDE ONE ANGLE FOR EVERY FOL
- 8" WALL = 2 ANGLES 12"WALL = 3 ANGLES
- 14"WALL = 3 ANGLES
- 4'-0" WIDE AND LESS USE ANGLE 4x3 1/2x5/16 W/ 8" BRG. EA. END 4'-1" WIDE TO 6'-0" USE ANGLE 5x3 1/2x5/16 W/ 8" BRG. EA. END 6'-1" WIDE TO 9'-0" USE ANGLE 6x3 1/2x5/16 W/ 8" BRG. EA. END
- 9'-1" WIDE TO 11'-0" USE ANGLE 6x3 1/2x3/8 W/ 12" BRG. EA. END
- PROVIDE STAINLESS OR GALVANIZED STEEL WHERE LINTELS ARE EXPOSED TO WEATHER, COORDINATE WITH ARCHITECTURAL DRAWINGS & DETAILS

<u>CONCRETE</u>

- ALL CONCRETE SHALL COMPLY TO THE FOLLOWING STANDARDS:
 A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4,000 PSI.
 MAXIMUM WATER/CEMENTITIOUS MATERIALS RATIO: 0.50
- DEDUCATES CHALL BE AC FOLLOWS

PROVISIONS OF ACI 315 AND ACI 318.

2. REINFORCING STEEL SHALL BE AS FOLLOWS:
STIRRUPS AND

TIE5	ASTM A615
GRADE 60	
ALL OTHER	
REINFORCING	ASTM A615
GRADE 60	
WELDED WIRE	
FABRIC*	A
STM A185	
* WELDED WIRE FABRIC FOR USE IN ELEVATED SLABS ON METAL DECK SHAI	LL BE SUPPLIED IN

FLAT SHEETS, NOT ROLLS. ROLLS OF WELDED WIRE FABRIC PROVIDED FOR THIS PURPOSE WILL BE REJECTED AND RETURNED TO SUPPLIER.

3. PROVIDE BAR SUPPORTS AND SPACERS IN ACCORDANCE WITH ACI DETAILING MANUAL. ALL

BAR SUPPORTS IN AREAS WHERE CONCRETE WILL BE EXPOSED SHALL HAVE PLASTIC FEET.

OFF OF THE GROUND. AT ALL OTHER LOCATIONS, CHAIRS OR STANDEES SHALL BE USED.

4. DETAILING, FABRICATION AND PLACING OF REINFORCING SHALL CONFORM TO APPLICABLE

PRECAST CONCRETE (fc'=3000psi) BLOCKS 3"x3"x3" SHALL BE USED TO SUPPORT REINFORCING

5. SLABS, FOUNDATION WALLS AND FOOTINGS SHALL HAVE NO HORIZONTAL JOINTS. ANY STOP IN CONCRETE WORK MUST BE MADE WITH VERTICAL KEYED BULKHEADS. ALL REINFORCEMENT SHALL CONTINUE THROUGH JOINTS.

6. BEFORE PLACING CONCRETE, THE CONTRACTOR SHALL NOTIFY ALL SUBCONTRACTORS TO BE SURE ALL SLEEVES, CONDUIT, CHASES, ETC. ARE PROPERLY INSTALLED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AS SOON AS PRACTICAL, BUT AT LEAST 24 HOURS PRIOR TO PLACING CONCRETE TO ALLOW FOR INSPECTION OF REINFORCING AND EMBEDDED ITEMS.

7. MATERIALS SHALL COMPLY WITH REQUIREMENTS OF DESIGNATED SPECIFICATIONS OF AMERICAN SOCIETY FOR TESTING AND MATERIALS, 1916 RACE STREET, PHILADELPHIA, PENNSYLVANIA.

8. CONSTRUCTION PROCEDURES SHALL COMPLY WITH RECOMMENDATIONS SET FORTH IN DESIGNATED STANDARDS OF AMERICAN CONCRETE INSTITUTE, P.O. BOX 9094, FARMINGTON HILLS, MICHIGAN 48333.

ARCHITECT/ENGINEER. AIR-ENTRAINING ADMIXTURES SHALL CONFORM TO ASTM C260.

9. ADMIXTURE OTHER THAN AIR-ENTRAINING SHALL NOT BE USED WITHOUT APPROVAL OF THE

10. CURING COMPOUND SHALL CONFORM TO FEDERAL SPECIFICATION TT-C800A, AND A.S.T.M. C309. THE MATERIAL SHALL BE EQUAL TO SONNEBORN KUR-N-SEAL, MASTERSEAL, BY MASTER BUILDERS, OR CLEAR SEAL, BY W.R. GRACE.

11.ALL REINFORCING SPLICES SHALL BE CLASS B TENSION LAP SPLICE.

12.5PREAD BARS AROUND SMALL OPENINGS AND SLEEVES IN SLABS AND WALLS WHERE POSSIBLE AND WHERE BAR SPACING WILL NOT EXCEED 1.5 TIMES THE NORMAL SPACING. DISCONTINUE BARS AT LARGE OPENINGS WHERE NECESSARY AND PROVIDE AN AREA OF REINFORCEMENT EQUAL TO THE INTERRUPTED REINFORCEMENT, DISTRIBUTING ONE-HALF OF THIS REINFORCEMENT EACH SIDE OF THE OPENING (CLASS B TENSION LAP SPLICED). HOLES LARGER THAN 12 INCHES IN ANY DIRECTION SHALL HAVE (1)#5x5'-O" DIAGONAL BAR IN BOTH FACES AT EACH CORNER.

13.PIER REINFORCEMENT SHALL BE DOWELED TO THE FOOTING. PROVIDE DOWELS EQUAL IN SIZE, NUMBER AND GRADE TO THE PIER REINFORCEMENT UNLESS OTHERWISE INDICATED. DOWELS SHALL BE HOOKED 90 DEGREES AT THE BOTTOM LEVEL OF FOOTING REINFORCEMENT. DOWELS SHALL BE LAPPED WITH THE PIER REINFORCEMENT.

14.PIER REINFORCEMENT SHALL BE THE SAME SIZE, NUMBER AND GRADE AS THE COLUMN/PILASTER REINFORCING, UNLESS OTHERWISE NOTED.

15.ALL VERTICAL CONCRETE SURFACES SHALL BE FORMED. HOWEVER, VERTICAL SURFACES OF FOOTINGS AND GRADE BEAMS MAY BE EARTH-FORMED IF THE SOIL IS SUFFICIENTLY STIFF TO PREVENT CAVE-INS.

16. REINFORCING BARS SHALL BE IN PLACE AND SECURED PRIOR TO POURING CONCRETE. "STICKING" OF REINFORCING AFTER CONCRETE IS PLACED IS PROHIBITED.

17. REINFORCING BAR SHOP DRAWINGS SHALL SHOW NUMBER, SIZE AND LOCATION OF BARS,

18.ALL CONCRETE SLABS SUPPORTED BY SOIL OR GRANULAR SUB-BASE SHALL CONTAIN CONTROL JOINTS AND CONSTRUCTION JOINTS, AT SPACING AS NOTED. SAW-CUT JOINTS SHALL BE INSTALLED AS SOON AS THE CONCRETE IS HARD ENOUGH TO WITHSTAND SAWING WITHOUT RAVELLING JOINT EDGES OR DISLODGING COARSE AGGREGATE PARTICLES. LIGHTWEIGHT EARLY-CUT SAWS SHALL BE USED. CONTRACTOR SHALL SUBMIT CONSTRUCTION AND CONTROL JOINT LAYOUT FOR APPROVAL PRIOR TO PLACING CONCRETE SLABS.

MISCELLANEOUS

AS WELL AS LAP LENGTH AND CLEAR COVER.

1. MATERIAL FOR USE AS VAPOR BARRIER BENEATH CONCRETE SLABS ON GRADE SHALL BE 15 MIL POLYETHYLENE SHEETS, COMPLYING WITH ASTM D-2103. SHEETS SHALL BE LAPPED A MINIMUM OF 6" AT ALL EDGES. SPECIAL CARE SHALL BE TAKEN TO PREVENT PUNCTURING SHEETS PRIOR TO PLACEMENT OF SLABS.

2. NO CHANGE IN SIZE OF STRUCTURAL ELEMENTS OR MODIFICATION THEREOF SHALL BE MADE, NOR ARE ANY OPENINGS OR SLEEVES THROUGH ANY STRUCTURAL ELEMENTS PERMITTED, UNLESS DETAILED ON THE DRAWINGS.

3. CONSULT ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATION, SIZES AND EXTENT OF CHASES, INSERTS, RECESSES, REGELETS, FINISHES, DEPRESSIONS, ETC. NOT SHOWN ON THE STRUCTURAL DRAWINGS.

4. ALL WELDED WIRE FABRIC IN SLABS ON GRADE AND ELEVATED SLABS SHALL BE SUPPORTED BY CHAIRS, BOLSTERS, OR OTHER APPROVED SUPPORTING DEVICES. "PULLING-UP" OF MESH AFTER CONCRETE HAS BEEN PLACED IS NOT ACCEPTABLE.

CONTRACTOR RESPONSIBILITIES

1. MATERIAL, WORKMANSHIP, AND DESIGN SHALL CONFORM TO THE REFERENCED BUILDING

2. COORDINATE STRUCTURAL DOCUMENTS WITH THE ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DOCUMENTS. ARCHITECT/STRUCTURAL ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCY OR OMISSION.

3. VERIFY THE DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK. ANY DISCREPANCY BETWEEN SUCH DETAILS AND DIMENSIONS AS MAY OCCUR SHALL BE REPORTED TO THE ARCHITECT/ENGINEER FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.

4. NOTIFY, IN WRITING, THE STRUCTURAL ENGINEER OF CONDITIONS ENCOUNTERED IN THE FIELD CONTRADICTORY TO THOSE SHOWN IN THE STRUCTURAL DOCUMENTS.

5. CONTRACTOR HAS SOLE RESPONSIBILITY FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION.

6. CONTRACTOR HAS SOLE RESPONSIBILITY FOR THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING, TEMPORARY SUPPORTS, ETC.

7. CONTRACTOR HAS SOLE RESPONSIBILITY TO COMPLY WITH ALL OSHA SAFETY REGULATIONS.

8. LAYOUT BUILDING AS INDICATED ON THE DRAWINGS, INFORMING ARCHITECT OF ANY DISCREPANCIES. THE LICENSED ENGINEER / SURVEYOR SHALL LAYOUT ALL NEW BUILDING

9. TESTING AND INSPECTIONS BY CONTRACTOR.

FOUNDATIONS AND COLUMNS LINES.

10. DUE TO THE NATURE OF THE WORK, ALL DIMENSIONS AND/OR EXISTING DETAILS SHOWN ON THE DRAWINGS THAT WILL IN ANY WAY AFFECT THE WORK SHALL BE FIELD CHECKED PRIOR TO FABRICATION OF ANY MATERIALS. FIELD CHECKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. IF THERE IS ANY QUESTION AS TO THE INTENT OF THE WORK INDICATED, THE CONTRACTOR SHALL CLEAR THE QUESTION WITH THE ARCHITECT/ENGINEER BEFORE PROCEEDING.

11. THE CONTRACTOR SHALL BE AWARE THAT THE WORK INVOLVES ADDITIONS TO AN EXISTING FACILITY THAT WILL REMAIN IN OPERATION DURING CONSTRUCTION. IT IS THEREFORE MANDATORY THAT WORK WILL IN ANY WAY AFFECT THE NORMAL OPERATION OF THE FACILITY BE COORDINATED WITH THE OWNER.

12. REVIEW OF SUBMITTALS OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK ALL SUBMITTALS AND SHOP DRAWINGS BEFORE SUBMITTING TO THE STRUCTURAL ENGINEER. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS.

STRUCTURAL STEEL

1. ALL ROLLED STEEL PLATES, SHAPES (EXCLUDING WIDE FLANGE SHAPES), BARS AND MISCELLANEOUS ITEMS SHALL BE STRUCTURAL QUALITY CARBON STEEL COMPLYING WITH ASTM A36 (MINIMUM YIELD 36,000 PSI). WIDE FLANGE SHAPES SHALL BE STRUCTURAL QUALITY CARBON STEEL COMPLYING WITH ASTM A992 (MINIMUM YIELD 50,000 PSI).

2. HOLLOW STRUCTURAL SECTIONS (HSS) SHALL COMPLY WITH ASTM A500, GRADE B
(MINIMUM YIELD 46 KSI FOR SQUARE AND RECTANGULAR SECTIONS AND 42 KSI FOR ROUND
SECTIONS)

3. ALL BOLTED CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER ASTM F1852, TYPE 1

4. ANCHOR RODS SHALL COMPLY WITH ASTM F1554, GRADE 36.

5. EXPANSION ANCHORS SHALL BE HILTI CARBON STEEL KWIK BOLT 3 (KB3) ANCHOR MANUFACTURED BY HILTI FASTENING SYSTEMS, OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH THE SUPPLIER'S RECOMMENDATIONS.

TWIST-OFF-TYPE TENSION-CONTROL BOLTS IN BEARING-TYPE CONNECTIONS.

6. ADHESIVE ANCHORS SHALL CONSIST OF AN HAS-E STEEL ANCHOR ROD WITH THE HIT HY200 ADHESIVE (HIT HY70 ADHESIVE FOR MASONRY CONSTRUCTION WITH VOIDS) SUPPLIED BY HILTI FASTENING SYSTEMS, OR APPROVED EQUAL. INSTALL IN ACCORDANCE WITH THE SUPPLIER'S RECOMMENDATIONS.

7. WELDED HEADED STUDS TO BE USED AS CONCRETE ANCHORS OR SHEAR STUDS SHALL BE LOW CARBON STEEL SOLID FLUXED STUDS COMPLYING WITH ASTM A-108, WITH A MINIMUM Fu=60KSI. STUDS SHALL BE AUTOMATICALLY END WELDED. THE SPECIFIED LENGTH IS THE AFTER WELD LENGTH (AWL).

8. DEFORMED BAR ANCHORS (DBA): LOW CARBON STEEL PER ASTM A496(Fu=80KSI), SHALL BE AUTOMATICALLY END WELDED.

9. ALL WELDING SHALL BE PERFORMED BY WELDERS CERTIFIED TO PERFORM EACH TYPE OF WELD REQUIRED. ALL WELDS AND WELDING PROCEDURES SHALL COMPLY WITH AWS D1.1, USING E70XX ELECTRODES UNLESS NOTED OTHERWISE. ALL WELDS SHALL BE INSPECTED.

10.WELD SIZES NOT SHOWN ON DESIGN DRAWINGS SHALL BE MINIMUM SIZE REQUIRED BY AWS D1.1 (LATEST EDITION) ACCORDING TO THE MATERIAL THICKNESS BEING WELDED. ALL WELDS SHALL BE PRE-QUALIFIED PER AWS D1.1 (LATEST EDITION).

11.STEEL FRAMEWORK SHALL NOT BE ASSUMED STRUCTURALLY STABLE UNTIL ALL MEMBERS ARE IN PLACE AND CONNECTIONS ARE INSTALLED. ANY USE OF THE PARTIALLY ERECTED FRAMEWORK FOR TEMPORARY SUPPORT OF ANY KIND SHALL BE DONE ONLY AT THE CONTRACTOR'S RISK.

SPECIFICATIONS AND STANDARDS, EXCEPT AS OTHERWISE SHOWN OR SPECIFIED HEREIN.

A. A.I.S.C. "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

B. A.I.S.C. "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS."

C. A.I.S.C. "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS."

D. AWS "STRUCTURAL WELDING CODE."

13.ALL CONNECTIONS NOT INDICATED ON THE DESIGN DRAWINGS SHALL BE DESIGNED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE STRUCTURAL STEEL IS TO BE ERECTED. RETAINED BY THE STEEL FABRICATOR. ALL CALCULATIONS AND SHOP DRAWINGS

12. COMPLY WITH THE PROVISIONS OF THE LATEST EDITIONS OF THE FOLLOWING CODES,

STRUCTURAL ENGINEER LICENSED IN THE STATE WHERE STRUCTURAL STEEL IS TO BE ERECTED, RETAINED BY THE STEEL FABRICATOR. ALL CALCULATIONS AND SHOP DRAWINGS SHALL BE DULY STAMPED AND SIGNED BY THE LICENSED STRUCTURAL ENGINEER AND SUBMITTED FOR REVIEW BY THE ARCHITECT. STAMPING AND SIGNING OF SHOP DRAWINGS SHALL BE FOR THE EXCLUSIVE PURPOSE OF CERTIFYING THAT THE CONNECTIONS ARE DETAILED AS PER THE DESIGN PERFORMED BY THE LICENSED STRUCTURAL ENGINEER. FAILURE TO SUBMIT STAMPED AND SIGNED CALCULATIONS AND STAMPED AND SIGNED SHOP DRAWINGS SHALL BE SUFFICIENT CAUSE FOR REJECTION OF SHOP DRAWINGS. THE CONTRACTOR SHALL BE LIABLE FOR THE DIMENSION, FIT, TOLERANCES, FABRICATION AND ERECTION.

14. SIMPLE SPAN CONNECTIONS FOR BEAMS SHALL CONSIST OF STANDARD DOUBLE-ANGLE BOLTED AND/OR WELDED CONNECTIONS, AND SHALL BE DESIGNED FOR ONE-HALF THE BEAM LOAD CAPACITY AS GIVEN IN AISC TABLE 3-6 "MAXIMUM TOTAL UNIFORM LOAD" (AISC MANUAL, 14TH EDITION).

15.LENGTH OF CONNECTION ANGLES FOR BEAM-TO-COLUMN OR BEAM-TO-BEAM CONNECTIONS SHALL BE THE LARGEST STANDARD LENGTH LESS THAN OR EQUAL TO THE "T" DIMENSION OF THE BEAM. STANDARD LENGTHS AND AVAILABLE STRENGTH OF CONNECTION ANGLES ARE FOUND IN "A.I.S.C. MANUAL OF STEEL CONSTRUCTION" (14TH EDITION), TABLES 10-1 THRU 10-3.

16.PROVIDE VERTICAL WEB STIFFENERS ON EACH SIDE OF WEB OF BEAM AT ALL POINTS SUBJECTED TO CONCENTRATED LOADS, SUCH AS COLUMN RESTING ON BEAM AND BEAM FRAMING INTO A BEAM. THE STIFFENERS SHALL EXTEND TO FULL DEPTH OF BEAM AND THE BOUNDARY OF FLANGE WITH MINIMUM THICKNESS OF 3/8". (UNLESS NOTED OTHERWISE).

17. ANY CAMBER EXISTING IN BEAMS SHALL BE TURNED POSITIVE UPWARD.

18.BURNING OF HOLES IN STRUCTURAL STEEL IS NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.

19. MAINTAIN WORK IN A SAFE AND STABLE CONDITION DURING ERECTION. PROVIDE TEMPORARY SHORING AND BRACING MEMBERS AS REQUIRED, WITH CONNECTIONS OF SUFFICIENT STRENGTH TO BEAR IMPOSED LOADS. REMOVE TEMPORARY MEMBERS AND CONNECTIONS WHEN PERMANENT MEMBERS ARE IN PLACE AND FINAL CONNECTIONS ARE MADE. PROVIDE TEMPORARY GUY LINES TO ACHIEVE PROPER ALIGNMENT AND STABILITY OF THE STRUCTURE AS ERECTION PROCEEDS.



JCKMAN ST. BRANCH

130 S BUCKM SHEPHERDS\

DATE APRIL 30, 2025

GENERAL NOTES REGARDING SPECIAL INSPECTIONS AND TESTS

- 1. SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS BY THE BUILDING OFFICIAL THAT ARE IDENTIFIED IN SECTION 110 OF THE KENTUCKY BUILDING CODE. SPECIAL INSPECTIONS DO NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE CONTRACT DOCUMENTS.
- 2. CONTINUOUS SPECIAL INSPECTION IS DEFINED AS SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT CONTINUOUSLY WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.
- 3. PERIODIC SPECIAL INSPECTION IS DEFINED AS SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED. THE FREQUENCY OF THESE SPECIAL INSPECTION TASKS SHALL BE ADEQUATE TO DETERMINE THAT WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
- 4. WHERE A SPECIAL INSPECTION TASK IS NOTED AS "OBSERVE," THE SPECIAL INSPECTOR SHALL OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS. THE FREQUENCY OF THESE SPECIAL INSPECTION TASKS SHALL BE ADEQUATE TO DETERMINE THAT THE WORK HAS BEEN PERFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
- 5. WHERE A SPECIAL INSPECTION TASK IS NOTED AS "PERFORM," THE TASK SHALL BE PERFORMED FOR EACH MEMBER, JOINT, OR ELEMENT PRIOR TO FINAL ACCEPTANCE.
- 6. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON EMPLOYED OR RETAINED BY AN APPROVED AGENCY AND APPROVED BY THE BUILDING OFFICIAL AS HAVING THE COMPETENCE NECESSARY TO INSPECT A PARTICULAR TYPE OF CONSTRUCTION REQUIRING SPECIAL INSPECTION.
- 7. THE PERIOD OF TIME BETWEEN SPECIAL INSPECTIONS CAN VARY GREATLY DEPENDING ON THE TYPE OF INSPECTION DONE, THE PACE OF CONSTRUCTION, THE QUALITY OF WORKMANSHIP, AND OTHER FACTORS. IT IS THE RESPONSIBILITY OF THE SPECIAL INSPECTOR TO PROVIDE INSPECTIONS AT AN APPROPRIATE FREQUENCY AND AT APPROPRIATE TIMES DURING CONSTRUCTION. THE SPECIAL INSPECTOR MUST HAVE ADEQUATE EXPERIENCE AND EXHIBIT PROFESSIONAL JUDGEMENT IN DETERMINING THE TIMING AND FREQUENCY OF INSPECTIONS.
- 8. PRIOR TO THE START OF CONSTRUCTION, THE APPROVED SPECIAL INSPECTION AGENCY SHALL SUBMIT WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING THE COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE SPECIAL INSPECTIONS AND TESTS DURING CONSTRUCTION.
- 9. THE CONSTRUCTION OR WORK FOR WHICH SPECIAL INSPECTION OR TESTING IS REQUIRED SHALL REMAIN ACCESSIBLE AND EXPOSED FOR SPECIAL INSPECTION OR TESTING PURPOSES UNTIL COMPLETION OF REQUIRED SPECIAL INSPECTIONS OR TESTS. SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS, INCLUDING CONTRACTOR'S RESPONSIBILITY TO PROVIDE ACCESS FOR SPECIAL INSPECTIONS AND CONTRACTOR'S RESPONSIBILITY TO PROVIDE DUE NOTICE TO SPECIAL INSPECTOR PRIOR TO THE TIME THAT SPECIAL INSPECTION IS REQUIRED.
- 10. SPECIAL INSPECTION AGENCY SHALL KEEP RECORDS OF SPECIAL INSPECTIONS AND TESTS AND SHALL SUBMIT REPORTS OF SPECIAL INSPECTIONS AND TESTS TO THE BUILDING OFFICIAL AND TO THE ENGINEER. REPORTS SHALL INDICATE THAT WORK INSPECTED OR TESTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE ENGINEER PRIOR TO THE COMPLETION OF THAT PHASE OF THE WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND TESTS, AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS AND TESTS, SHALL BE SUBMITTED TO THE BUILDING OFFICIAL.
- 11. WHERE SPECIAL INSPECTION OF STRUCTURAL MEMBERS OR ASSEMBLIES IS BEING CONDUCTED ON THE PREMISES OF A FABRICATOR'S SHOP, SPECIAL INSPECTION OF THE FABRICATED ITEMS SHALL BE PERFORMED DURING FABRICATION.
- 12. SPECIAL INSPECTIONS DURING FABRICATION ARE NOT REQUIRED WHERE THE WORK IS DONE ON THE PREMISES OF A FABRICATOR REGISTERED AND APPROVED BY THE BUILDING OFFICIAL TO PERFORM SUCH WORK WITHOUT SPECIAL INSPECTION. UPON THE COMPLETION OF FABRICATION, THE APPROVED FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE TO THE OWNER OR THE OWNER'S AUTHORIZED AGENT FOR SUBMITTAL TO THE BUILDING OFFICIAL STATING THAT THE WORK WAS PERFORMED IN COMPLIANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.
- 13. REFER TO THE CODE SECTIONS REFERENCED IN THE HEADER OF EACH TABLE ON THIS SHEET FOR TESTING AND INSPECTION CRITERIA.
- 14. REFER TO PROJECT SPECIFICATIONS FOR ADDITIONAL TESTING AND INSPECTION CRITERIA.

REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS (KBC SECTION 1705.6)				
SPECIAL INSPECTION TASK	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION		
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	Ξ	X		
VERIFY EXCAVATIONS ARE EXTENDED TO THE PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	Ξ	<u>X</u>		
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	=	X		
4. VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	=		
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	Ξ	X		
	,			

		CONTINUOUS SPECIAL	PERIODIC SPECIAL
	SPECIAL INSPECTION TASK	INSPECTION	INSPECTION
1.	INSPECT REINFORCEMENT AND VERIFY PLACEMENT.	=	<u>X</u>
2.	REINFORCING BAR WELDING (PERMITTED ONLY WHEN SPECIFICALLY SHOWN IN THE DETAILS OR WITH PERMISSION IN WRITING BY THE ENGINEER):		
	A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706	=	<u>X</u>
	B. INSPECT SINGLE-PASS FILLET WELDS UP TO AND INCLUDING 5/16"	=	<u>X</u>
	C. INSPECT ALL OTHER WELDS	<u>X</u>	Ξ
3.	INSPECT ANCHORS CAST IN CONCRETE	=	<u>X</u>
4.	INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE		
	A. ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	X	Ξ
	B. ALL OTHER ANCHORS POST-INSTALLED IN HARDENED CONCRETE	=	X
5.	VERIFY USE OF REQUIRED DESIGN MIX.	=	<u>X</u>
6.	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	=
7.	INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	Ξ
8.	VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	=	<u>X</u>
9.	INSPECT PRESTRESSED CONCRETE FOR APPLICATION OF PRESTRESSING FORCES.	<u>X</u>	=
10	. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	=	<u>X</u>
1 1	. VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	=	<u>X</u>
12	. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF CONCRETE MEMBER BEING FORMED.	=	X

EXCEPTIONS - THE ABOVE SPECIAL INSPECTIONS AND TESTS SHALL NOT BE REQUIRED FOR THE FOLLOWING BUILDING ELEMENTS:

1. ISOLATED SPREAD FOOTINGS OF BUILDINGS THREE STORIES OR LESS ABOVE GRADE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK.

2. NONSTRUCTURAL SLABS SUPPORTED DIRECTLY ON THE GROUND.

REQUIRED SPECIAL INSPECTIONS PRIOR TO WELDING OF STRUCTURAL STEEL (AISC 360 N5.4)

PERFORM	<u>OBSERVE</u>
	<u>X</u>
<u>X</u>	<u>-</u>
X	<u>=</u>
=	<u>X</u>
=	<u>X</u>
=	X
=	<u>X</u>
	V
=	<u>X</u>
	= X X X = = = = = = = = = = = = = = = =

REQUIRED SPECIAL INSPECTIONS DURING WELDING OF STRUCTURAL STEEL (AISC 360 N5.4)

		00000
SPECIAL INSPECTION TASK	PERFORM	<u>OBSERVE</u>
CONTROL AND HANDLING OF WELDING CONSUMABLES		
A. PACKAGING	=	X
B. EXPOSURE CONTROL		
2. NO WELDING OVER CRACKED TACK WELDS	=	X
3. ENVIRONMENTAL CONDITIONS		
A. WIND SPEED WITHIN LIMITS	=	X
B. PRECIPITATION AND TEMPERATURE		
4. WPS FOLLOWED		
A. SETTINGS ON WELDING EQUIPMENT		
B. TRAVEL SPEED		
C. SELECTED WELDING MATERIALS		V
D. SHIELDING GAS TYPE/FLOW RATE	=	<u>X</u>
E. PREHEAT APPLIED		
F. INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.)		
G. PROPER POSITION (F, V, H, OH)		
5. WELDING TECHNIQUES		
A. INTERPASS AND FINAL CLEANING		
B. EACH PASS WITHIN PROFILE LIMITATIONS	=	<u>X</u>
C. EACH PASS MEETS QUALITY REQUIREMENTS		
6. PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	x	=

REQUIRED SPECIAL INSPECTIONS AFTER WELDING OF STRUCTURAL STEEL (AISC 360 N5.4)		
SPECIAL INSPECTION TASK	<u>PERFORM</u>	<u>OBSERVE</u>
. WELDS CLEANED	=	<u>X</u>
2. SIZE, LENGTH, AND LOCATION OF WELDS	X	Ξ
3. WELDS MEET VISUAL ACCEPTANCE CRITERIA		
A. CRACK PROHIBITION		
B. WELD/BASE-METAL FUSION		
C. CRATER CROSS SECTION	v	
D. WELD PROFILES	<u>X</u>	Ξ
E. WELD SIZE		
F. UNDERCUT		
G. POROSITY		
4. ARC STRIKES	X	Ξ
5. k-AREA	X	Ξ
6. WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES	X	Ξ
7. BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	X	Ξ
8. REPAIR ACTIVITIES	X	Ξ
9. DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	<u>X</u>	Ξ
10. NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	Ξ	<u>X</u>

REQUIRED NONDESTRUCTIVE TESTING OF WELDED JOINTS IN STRUCTURAL STEEL (AISC 360 N5.5)

TESTING TASK

- 1. ULTRASONIC TESTING OF COMPLETE-JOINT-PENETRATION (CJP) GROOVE WELDS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN BUTT, T- AND CORNER JOINTS, IN MATERIAL 5/16" THICK OR GREATER
- A. ULTRASONIC TESTING SHALL BE PERFORMED ON 10% OF SUCH WELDS IN STRUCTURES IN RISK CATEGORY II
- B. ULTRASONIC TESTING SHALL BE PERFORMED ON 100% OF SUCH WELDS IN STRUCTURES IN RISK CATEGORY III OR IV
- C. REFER TO AISC 360 SECTION N5.5 FOR CONDITIONS WHERE THE RATE OF ULTRASONIC TESTING IS PERMITTED TO BE REDUCED
- D. REFER TO AISC 360 SECTION N5.5 FOR CONDITIONS WHERE THE RATE OF ULTRASONIC TESTING IS REQUIRED TO BE INCREASED

REQUIRED SPECIAL INSPECTIONS PRIOR TO BOLTING OF STRUCTURAL STEEL (AISC 360 N5.6)

SPECIAL INSPECTION TASK	<u>PERFORM</u>	<u>OBSERVE</u>
1. MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	<u>X</u>	Ξ
2. FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	=	<u>X</u>
3. CORRECT FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	Ξ	<u>X</u>
4. CORRECT BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	Ξ	X
5. CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	=	X
6. PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED (REQUIRED ONLY FOR PRETENSIONED OR SLIP-CRITICAL JOINTS)	Ξ	X
7. PROTECTED STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	=	X

REQUIRED SPECIAL INSPECTIONS DURING BOLTING OF STRUCTURAL STEEL (AISC 360 N5.6)

PERFORM	OBSERVE
<u> </u>	
=	<u>X</u>
=	X
=	X
=	X
	<u>PERFORM</u> = = = =

REQUIRED SPECIAL INSPECTIONS AFTER BOLTING OF STRUCTURAL STEEL (AISC 360 N5.6)							
SPECIAL INSPECTION TASK	PERFORM	<u>OBSERVE</u>					

OTHER REQUIRED SPECIAL INSPECTIONS OF STRUCTURAL STEEL (AISC 360 N5.7 AND N5.8)

- 1. VISUALLY INSPECT EXPOSED CUT SURFACES OF GALVANIZED STRUCTURAL STEEL MAIN MEMBERS AND EXPOSED CORNERS OF RECTANGULAR HSS FOR CRACKS SUBSEQUENT TO GALVANIZING.
- 2. DURING PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL, VERIFY AND DOCUMENT THE DIAMETER, GRADE, TYPE AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM, AND THE EXTENT OR DEPTH OF EMBEDMENT INTO THE CONCRETE PRIOR TO PLACEMENT OF CONCRETE.
- 3. INSPECT THE FABRICATED STEEL OR ERECTED STEEL FRAME, AS APPLICABLE, TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE CONSTRUCTION DOCUMENTS. THIS INCLUDES SUCH ITEMS AS BRACES, STIFFENERS, MEMBER LOCATIONS, AND THE CORRECT APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

REQUIRED SPECIAL INSPECTIONS AND TESTS OF MASONRY CONSTRUCTION (KBC SECTION 1705.4 AND TMS 402-13 LEVEL B QUALITY ASSURANCE)

TESTING TASK

1. VERIFICATION OF SLUMP FLOW AND VISUAL STABILITY INDEX (VSI) AS DELIVERED TO THE PROJECT SITE IN ACCORDANCE WITH TMS 602-13 ARTICLE 1.5 B.1.b.3 FOR SELF-CONSOLIDATING GROUT.

2. VERIFICATION OF I'M IN ACCORDANCE WITH TMS 602-13 ARTICLE 1.4 B PRIOR TO CONSTRUCTION.

SPECIAL INSPECTION TASK	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIA INSPECTION
1. VERIFY COMPLIANCE WITH THE APPROVED SUBMITTALS	=	<u>X</u>
2. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
A. PROPORTIONS OF SITE-PREPARED MORTAR	=	<u>X</u>
B. CONSTRUCTION OF MORTAR JOINTS	=	<u>X</u>
C. LOCATION OF REINFORCEMENT AND CONNECTORS	=	<u>X</u>
3. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:		
A. GROUT SPACE	=	<u>X</u>
B. GRADE, TYPE, AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	=	<u>X</u>
C. PLACEMENT OF REINFORCEMENT AND CONNECTORS	=	<u>X</u>
D. PROPORTIONS OF SITE-PREPARED GROUT	=	<u>X</u>
E. CONSTRUCTION OF MORTAR JOINTS	=	<u>X</u>
4. VERIFY DURING CONSTRUCTION:		
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	=	<u>X</u>
B. TYPE, SIZE, AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	=	X
C. WELDING OF REINFORCEMENT (PERMITTED ONLY WHEN SPECIFICALLY SHOWN IN THE DETAILS OR WITH PERMISSION IN WRITING BY THE ENGINEER)	X	Ξ
D. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	=	<u>X</u>
E. PLACEMENT OF GROUT IS IN COMPLIANCE	X	=
5. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	=	<u>X</u>

REQUIRED SPECIAL INSPECTIONS AND TESTS OF WOOD CONSTRUCTION (KBC SECTION 1705.5)								
SPECIAL INSPECTION TASK	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION						
1. PERFORM SPECIAL INSPECTIONS OF PREFABRICATED WOOD STRUCTURAL ELEMENTS AND ASSEMBLIES SUCH AS METAL-PLATE-CONNECTED WOOD TRUSSES AND PANELIZED WALLS DURING FABRICATION IN ACCORDANCE WITH KBC SECTION 1704.2.5	-	x						
2. WHERE METAL-PLATE-CONNECTED WOOD TRUSSES SPAN 60 FEET OR GREATER, VERIFY THAT THE TEMPORARY INSTALLATION RESTRAINT/BRACING AND THE PERMANENT INDIVIDUAL TRUSS MEMBER RESTRAINT/BRACING ARE INSTALLED IN	-	Х						

ACCORDANCE WITH THE APPROVED TRUSS SUBMITTAL PACKAGE

CMU WALL- MATCH WALL

WITDH AND REINFORCING

- Bond beam lintel

_ _ COORD. W/ARCH'L.

CLOSURE ANGLE

4x3x1/4" LLH

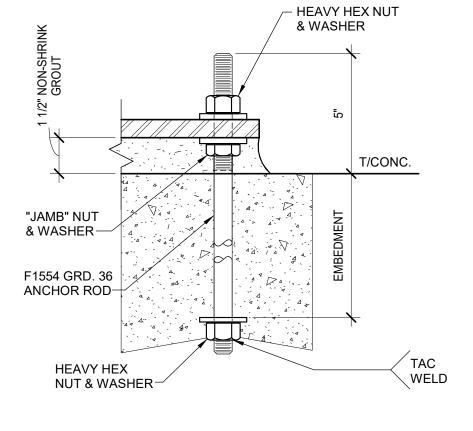
CONTROL JOINT @

WALL CORNERS

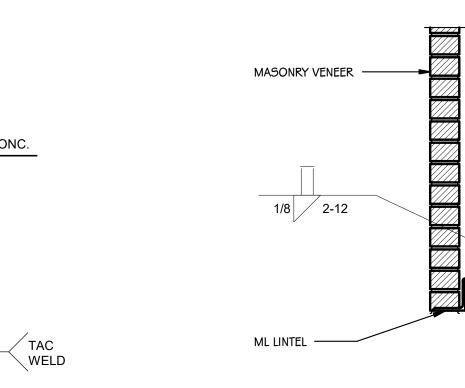
TYPICAL SLAB ON GRADE CONTROL JOINT DETAIL

1/2" DIA. x 4'-0" LG. SMOOTH DOWEL @ 16"o.c.

CONT. 2X4 KEYWAY







#4 x 5'-0"

@ MIDDLE OF SLAB -

CONTROL JOINT @ WALL CORNERS —

TYPICAL WALL CORNER

− #4 @ MIDDLE OF SLAB *─*

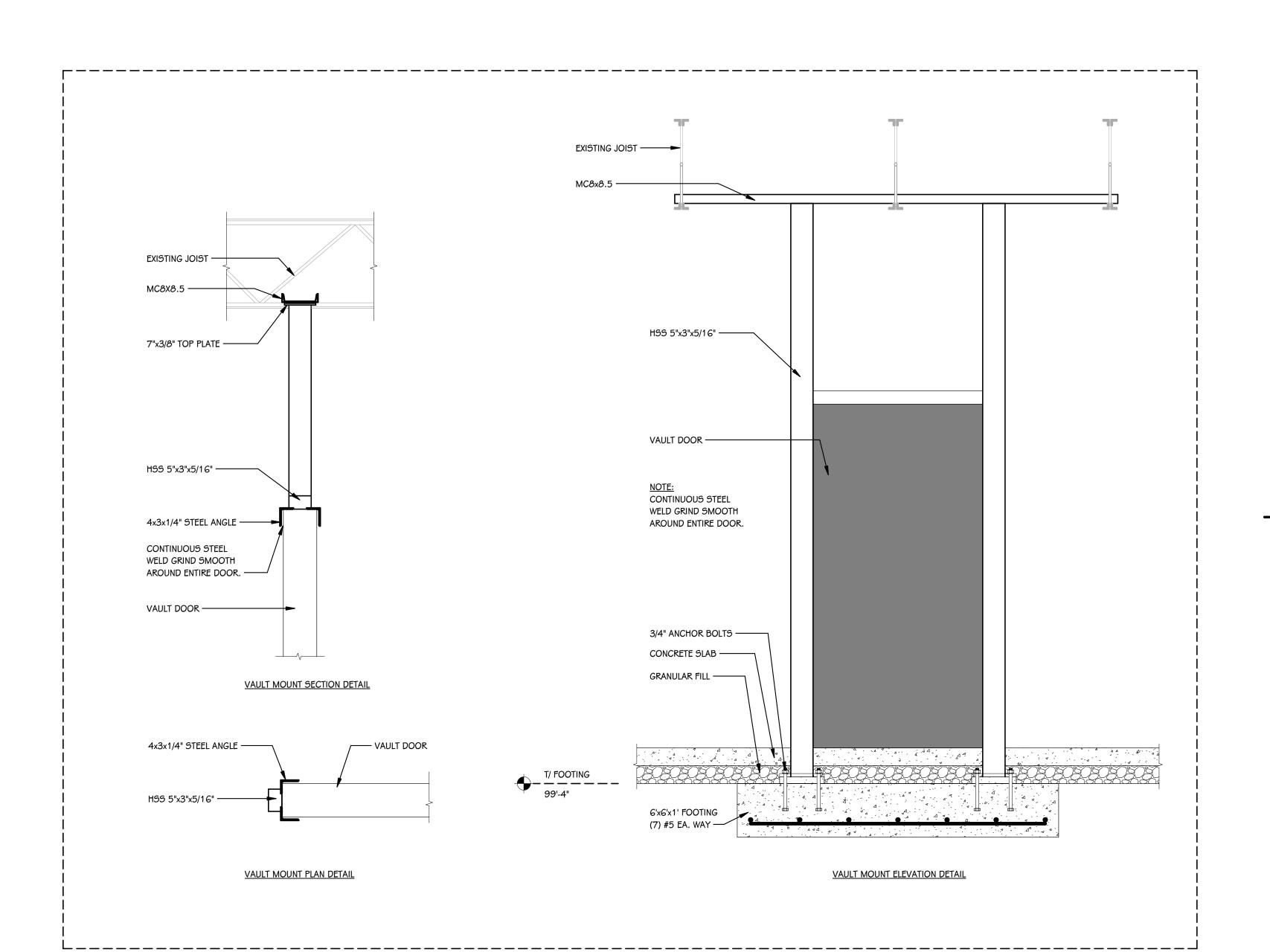
TYPICAL INTERIOR DOOR OPENING

TYPICAL SLAB ON GRADE

CONSTRUCTION JOINT DETAIL

CONC. SLAB -

TYPICAL LINTEL SCALE: 1" = 1'-0



CONCRETE WALL OR CMU
 OR GRADE BEAM- SEE PLAN

SEE ARCH'L. DRAWINGS FOR PERIMETER INSUL. AND OTHER ASSOCIATED DETAILS

COORD. w/ THRESHOLD OR WINDOW WALL SILL

EXT. CONC.

FOUNDATION

UNLESS DETAILED OTHERWISE

SELF ADHERED

BOND BREAKER -

CONCRETE SLAB ON GRADE- SEE PLAN FOR ADD'L. INFO. ——

PRESSURE SENSITIVE TAPE @ JOINTS —

T/ SLAB EL.
SEE PLAN

MIN. 6" LAP @ JOINTS —

GRANULAR FILL

POLY VAPOR BARRIER

SCALE: 3/4" = 1'-0

TYP. WALL/SLAB EDGE

- #4 @ 16"o.c.

TYPICAL THICKENED

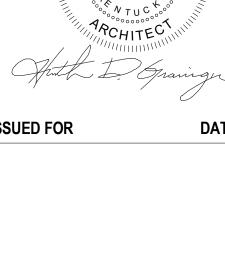
CONTINUE TOP HORIZ. REINF. BAR FROM FDN.

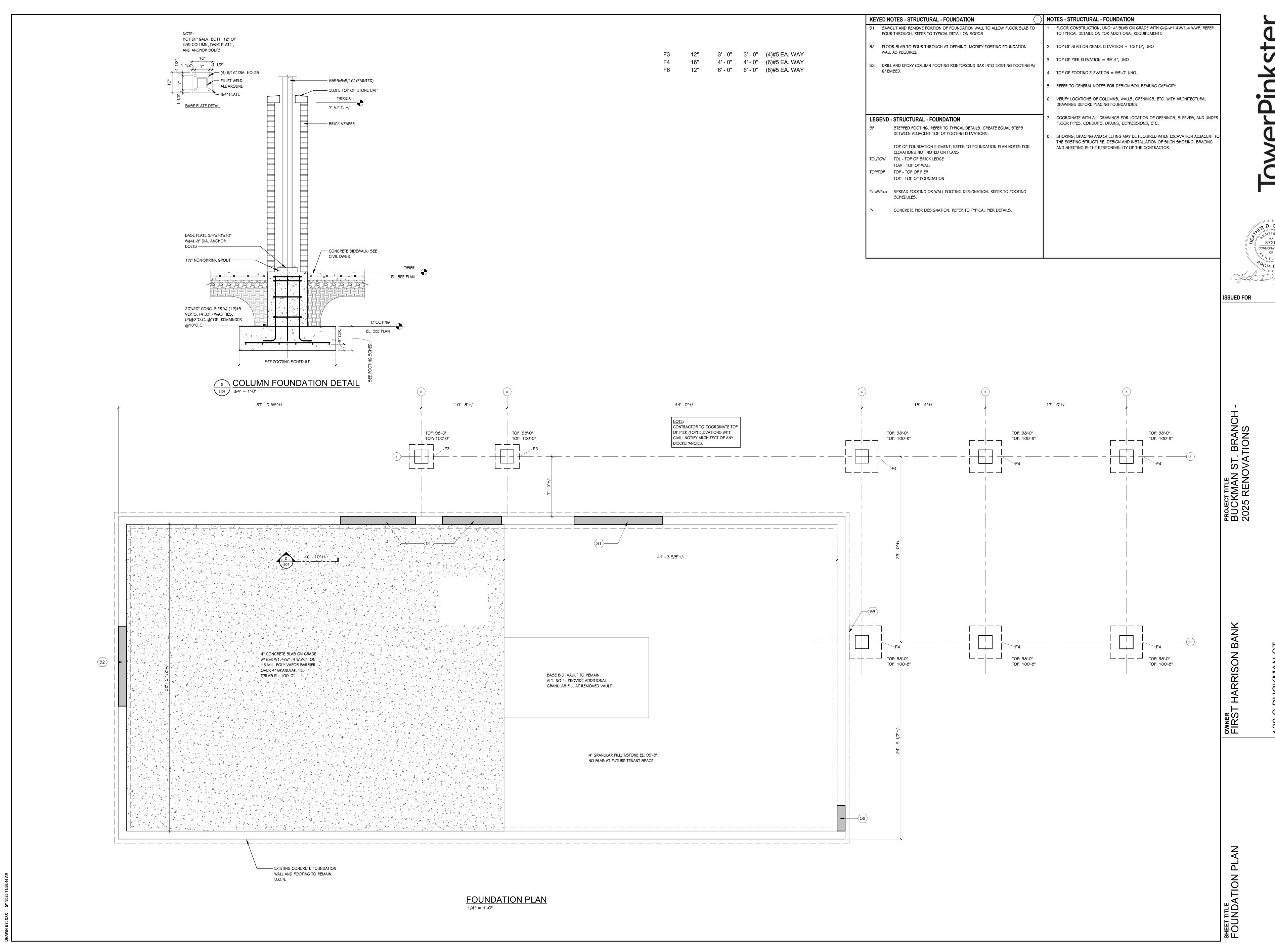
WALL BEYOND-

SEE PLAN FOR FOUNDATION WALL DETAIL

SCALE: 1" = 1'-0"







1 REFER TO PLAN FOR TOS ELEVATIONS

REINFORCED MASONRY DESIGNATED THUS: MWx. REFER TO TYPICAL DETAILS FOR MASONRY WALL CONSTRUCTION. MASONRY WALLS SHALL BE MW_, UNO

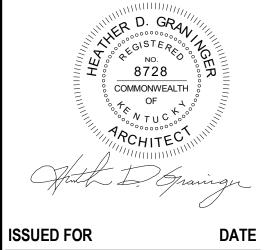
3 ALL MASONRY WALLS TO EXTEND TO UNDERSIDE OF ROOF DECK, UNO. REFER TO TYPICAL DETAILS

4 REFER TO ARCHITECTURAL DRAWINGS FOR INTERIOR WALL DIMENSIONS

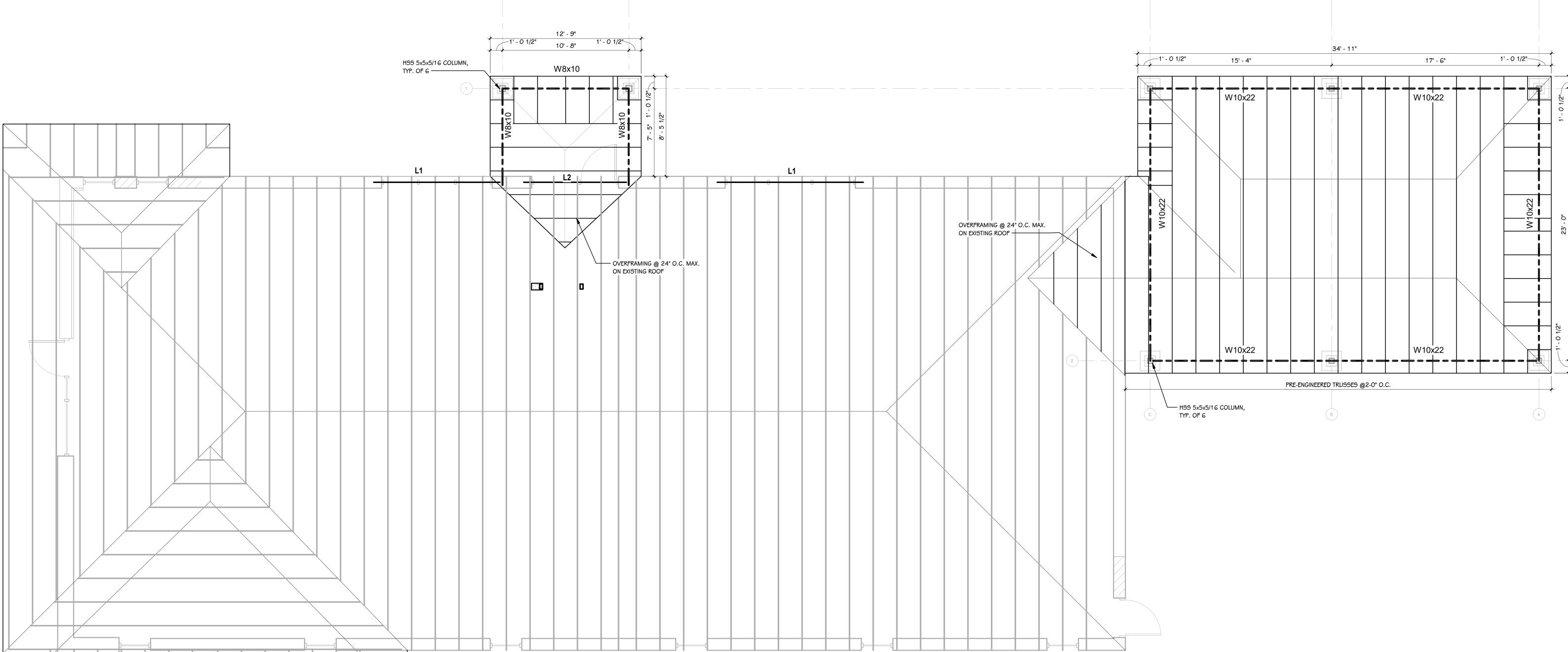
ALL OPENINGS IN MASONRY WALLS WIDER THAN 8" REQUIRE LINTELS. FOR LINTELS NOT SHOWN ON PLANS REFER TO LINTEL SCHEDULE FOR SIZE, COORDINATE LOCATIONS AND OPENING WIDTHS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS

LINTEL SCHEDULE:

L1: W8x18 W/ 11-1/2" WIDE x 3/8" CONTINUOUS BOTTOM PLATE L2: W8x10 W/ 11/12" WIDE x 3/8" CONTINOUS BOTTOM PLATE



ROOF FRAMING PLAN
1/4" = 1'-0"



TYPICAL SYMBOLS AND REFERENCES

T- ROOM NUMBER

— DETAIL NUMBER

1" = O'-1"

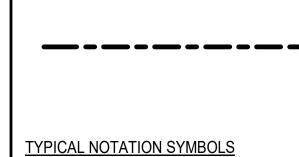
DETAIL TITLE

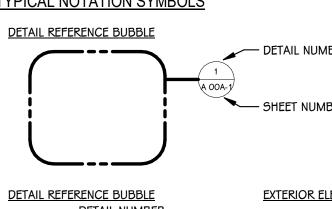
ROOM IDENTIFICATION TAG

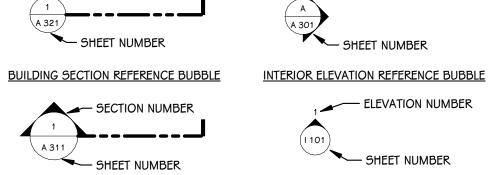
ROOM NAME

1001

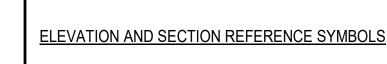
DETAIL TITLE







ELEVATION TAG FOR EXTERIOR



ELEVATION 100'-0" ELEVATIONS AND BUILDING SECTIONS THE OWNER RESERVES THE RIGHT TO REMOVE ANY ITEM FROM THE PROJECT PRIOR TO

2 ALL EXISTING CONDITIONS SHOULD BE FIELD VERIFIED BEFORE WORK BEGINS. **ELEVATION TAG - NEW** DIMENSIONS GIVEN ARE ACTUAL AND ARE TO THE FACE OF MASONRY UNITS OR TO THE

DETAILS SHOWN ILLUSTRATE DESIGN INTENT, NOT ALL POSSIBLE CONDITIONS. FOR CONDITIONS NOT SHOWN, USE DETAILS CLOSEST TO CONDITION IN QUESTION.

EXTEND ALL INTERIOR WALL PARTITIONS FROM FLOOR TO STRUCTURE/DECK ABOVE UNLESS NOTED OR DETAILED OTHERWISE.

WITHIN BUILDING INTERIOR PROVIDE BULLNOSE BLOCK IN CMU WALL ASSEMBLIES AT ALL EXPOSED OUTSIDE CORNERS, INCLUDING WINDOW AND DOOR JAMBS, UNLESS NOTES OR DETAILED OTHERWISE. PROVIDE SQUARE CORNERS AT ALL LOCATIONS FINISHED WITH WALL TILE, REFER TO FINISH PLANS (1100 SHEETS) FOR LOCATIONS.

TOOTH-IN MASONRY AT NEW OPENINGS IN EXISTING WALLS.

GENERAL NOTES - ARCHITECTURAL - PARTITIONS

REFER TO CODE COMPLIANCE PLANS FOR LOCATIONS OF SMOKE AND FIRE-RATED

ALL PARTITIONS EXTEND TO BOTTOM OF STRUCTURE, UNLESS NOTED OTHERWISE.

TYPE IS DIAGRAMMATIC ONLY AND DOES NOT INDICATE EXACT CONSTRUCTION

LINE OF STRUCTURE/DECK AS SHOWN AT THE HEAD CONDITION OF EACH PARTITION

CONDITIONS. TERMINATE RATED PARTITIONS AT UNDERSIDE OF STRUCTURAL DECK TO

MAINTAIN RATING. PROVIDE APPROPRIATE FRAMING AND GYPSUM BOARD TO OFFSET

PARTITIONS MAY TERMINATE AT STRUCTURAL MEMBERS WITH A RATING GREATER THAN

OR EQUAL THE PARTITION, PROVIDED THAT RATING IS CONTINUOUS TO STRUCTURAL

NON-RATED PARTITIONS THAT EXTEND TO STRUCTURE SHALL TERMINATE AT UNDERSIDE OF STRUCTURAL DECK TO MAINTAIN A CONTINUOUS PLANE OF GYPSUM BOARD AS A

ALL PARTITIONS EXTENDING TO STRUCTURE ABOVE SHALL TERMINATE WITH DEFLECTION

ALL GYPSUM BOARD PARTITIONS NOT EXTENDING TO THE STRUCTURE MUST BE

UL DESIGN NUMBERS REFER TO THE FIRE RESISTANCE DIRECTORY; UNDERWRITERS

MISCELLANEOUS NON-RATED CHASES TO BE 5/8" GYPSUM BOARD ON 3 5/8" METAL

MISCELLANEOUS FURRING AROUND COLUMNS TO BE 5/8" GYPSUM BOARD ON 11/2"

FIRE-RATED PARTITIONS TO HAVE FIRE-STOPPING SEALANTS AT HEAD, SILL JUNCTURE WITH DISSIMILAR MATERIALS, ETC. AND AROUND ALL PENETRATIONS AND OPENINGS.

3 CONSTRUCT ALL PARTITIONS WITH SOUND ATTENUATION BATTS WITH THE FOLLOWING

LARGER METAL STUD - 3" THICKNESS. UNLESS NOTED OTHERWISE.

GENERAL NOTES - ARCHITECTURAL - NEW CONSTRUCTION

COMMENCEMENT OF CONTRACTED DEMOLITION WORK.

FACE OF STUD FRAMING, UNLESS NOTED OTHERWISE.

PARTITION STUD KEY - METAL, CH, AND WOOD

2"x8"

PARTITION TYPE TAG (REFER TO FLOOR PLANS) PARTITION TYPE NUMBER —

WOOD STUD/FURRING

DESIGNATION SIZE

W

SOUND BATT THICKNESS: 2 1/2" OR LESS METAL STUD - 1 1/2" THICKNESS, 3 5/8" OR

STUD SIZE DESIGNATION

- FIRE RATING, IF REQUIRED

TRACK - REFER TO INTERIOR PARTITION TYPE DETAIL ON THIS SHEET.

STUD FRAMING AT 16" O.C., UNLESS NOTED OTHERWISE.

AROUND STRUCTURE OR OTHER OBSTRUCTIONS, SUCH AS PIPING OR DUCTWORK.

NOT ALL WALL TYPES MAY BE USED ON PROJECT.

NOISE, SMOKE OR OTHER TYPE OF BARRIER.

LABORATORY, LATEST EDITION.

STUDS, UNLESS NOTED OTHERWISE.

DECK ABOVE.

TOOTH-IN NEW MASONRY INFILL INTO EXISTING OPENINGS AT ALL BULLNOSE BLOCK LOCATIONS.

9 STUD WALLS SPANNING OVER 12'-0" IN HEIGHT SHALL BE A MINIMUM OF 20 GAGE.

10 DOORS ARE TO BE 4" FROM CORNER OF ROOM, UNLESS NOTED OR DIMENSIONED

FIRESTOP ALL INTERCONNECTIONS BETWEEN VERTICAL AND HORIZONTAL SPACES AND CONCEALED WALL SPACES AT CEILING, FLOOR AND ROOF LEVELS.

2 FIRESEAL ALL PENETRATIONS, SUCH AS, PIPES, DUCTS, CONDUITS, ETC. THROUGH FIRE AND/OR SMOKE RATED ASSEMBLIES.

14 PAINT ALL ELECTRICAL PANEL COVERS AND ACCESS PANELS TO MATCH ADJACENT

13 FOR CONTROL JOINT (C.J.) LOCATIONS REFER TO EXTERIOR ELEVATIONS AND/OR FLOOR

FINISHES. USING OIL-BASED PAINT, NOT LATEX WALL PAINT.

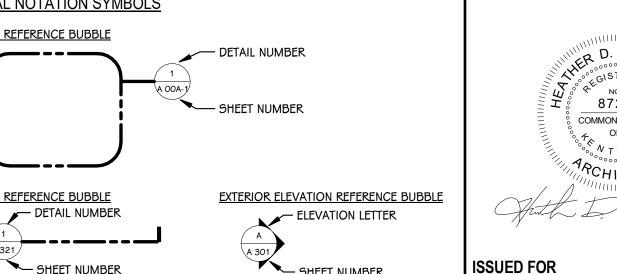
PROVIDE WOOD BLOCKING IN WALLS THAT REQUIRE WALL MOUNTED EQUIPMENT OR ACCESSORIES. COORDINATE WITH EQUIPMENT OR ACCESSORY MANUFACTURER. PROVIDE ALL ASSOCIATED CURBS FOR ROOF TOP EQUIPMENT AND MECHANICAL ROOF

TOP UNITS. LARGE VOIDS BELOW THE AIR HANDLING UNITS SHALL BE FILLED WITH

INSULATION AS SPECIFIED FOR NOISE CONTROL.

' ALL EXISTING ROOF TOP PENETRATIONS BEING REMOVED REQUIRE ROOF PATCHING TO MATCH EXISTING ADJACENT.

18 AT AREAS THAT REQUIRE DEMOLITION OF ADJACENT MATERIALS OR FINISHES FOR THE INSTALLATION OF NEW WORK, THE DISTURBED ITEMS (INTENDED TO BE E.T.R.) SHALL BE PATCHED OR RESTORED TO ORIGINAL CONDITION.



ROOM NAMES AND NUMBERS ON PLANS ARE

FOR CONSTRUCTION PURPOSES ONLY.

COORDINATE WITH OWNER REGARDING

4 SHEET NUMBER

ELEVATION TAG - EXISTING

100'-0" ELEVATION TAG FOR FLOOR PLANS AND REFLECTED CEILING PLANS REFLECTED CEILING PLANS

FINISH FLOOR

ELEVATION TAG FOR EXTERIOR

ELEVATIONS AND BUILDING SECTIONS

100'-0" ELEVATION TAG FOR FLOOR PLANS AND REFLECTED CEILING PLANS

WORKING POINT LAYOUT TAG DISTANCE IN THE "Y" DIRECTION FROM THE "X" BASE LINE 100'-0" : 100'-0"

———— DISTANCE IN THE "X" DIRECTION FROM THE "Y" BASE LINE

BORROWED LIGHT AND DOOR IDENTIFICATION

ELEVATION NUMBER

- DOOR NUMBER - CORRESPONDS TO THE ROOM NUMBER

LETTER DESIGNATES MORE THAN ONE IN ROOM

<u>SYMBOLS</u>

BARRIER-FREE REVISION IDENTIFIER (ADDENDUM AND BULLETIN)

COLUMN BUBBLE AND LINE

LIST OF ABBREVIATIONS

ACOUSTICAL PANEL CEILING ABOVE FINISH FLOOR ALUMINUM ANODIZED COLD FORMED METAL FRAMING CONC CONCRETE DCMU DECORATIVE CONCRETE MASONRY UNIT FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET FIRE RESISTANT TREATED FIELD VERIFY

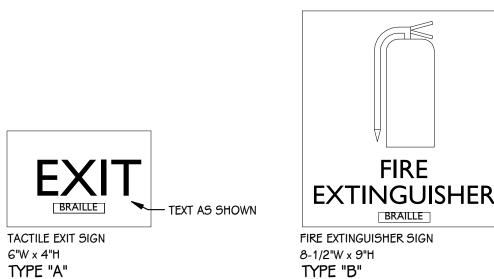
GYP BD GYPSUM BOARD HOLLOW METAL LAMINATED VENEER LUMBER MCM METAL COMPOSITE MATERIAL WALL PANEL OC ON CENTER

PRESERVATIVE TREATED STAINLESS STEEL SOLID SURFACE MATERIAL TYPICAL VERIFY IN FIELD

TYP

EXTERIOR INSULATION AND FINISH SYSTEM

WOOD



Typical Interior Signage Elevations

Interior Signage Mounting

full size plot scale: 1/2" = 1'-0"

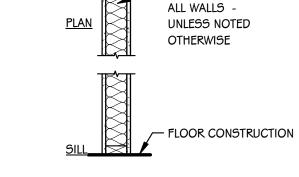
LATCH SIDE OF

DOOR

full size plot scale: 3"=1'-0"



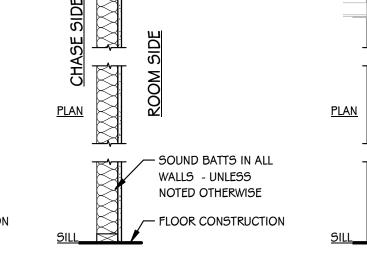




WOOD STUD WALL

DECK ABOVE

- SOUND BATTS IN



14_ WOOD STUDS @ 16" O.C. WITH 5/8" GYPSUM BOARD BOTH SIDES; (1 HOUR FIRE) U.L. ASSEMBLY U305 WHERE NOTED ON PLANS

15_ WOOD STUDS @ 16" O.C. WITH 5/8" GYPSUM BOARD ON ROOM SIDE -BRACE WALL @ 4'-0" O.C. MAXIMUM.

17_ WOOD STUDS @ 16" O.C. WITH 5/8" GYPSUM BOARD BOTH SIDES

— FLOOR CONSTRUCTION

— STRUCTURE /

DECK ABOVE

WOOD STUD CHASE WALL WOOD STUD WALL

INTERIOR PARTITION TYPES 3/4" = 1'-0"

NOTE: REFER TO WOOD PARTITION STUD KEY ON THIS SHEET FOR STUD/FURRING SIZE DESIGNATION SUFFIXES IN PLACE OF INDICATED UNDERSCORE

 ROUNDED CONCRETE TOP. 4 ← 6" Ø X 28.57 LB./FT/ STEEL PIPE FILL W/ CONCRETE PAINTED FINISH. SAFETY YELLOW __ 1" CANT - 1/2" COMPRESSIVE FILLER PAVING ----- 30" Ø CONCRETE PIER STEEL PIPE SLEEVING - (2) #6 BAR ANCHORS 2'-0" LONG - WELD TO PIPE - 10x10x1/4" THICK PLATE WELDED ALL AROUND

2' - 6"

17 COMPLETELY REMOVE WALLCOVERING AND BASE FROM ENTIRE WALL.

15 COMPLETELY REMOVE CONCRETE LID ABOVE SECURE STORAGE ROOM.

4 REMOVE GROUTED CMU PARTITION WALL IN ITS ENTIRETY. (INCLUDING, BUT NOT

LIMITED TO: DOORS, FRAMES, HARDWARE, WINDOWS, WALL BASE, AND ALL SURFACE

18 COMPLETELY REMOVE CONCRETE FLOOR SLAB IN ITS ENTIRETY THROUGHOUT ENTIRE BUILDING, EXCEPT AT THE VAULT TO REMAIN IN BASE BID SCOPE OF WORK.

COMPLETELY REMOVE ALL DUCTWORK BURIED BELOW THE FLOOR SLAB.

19 COMPLETELY REMOVE STEEL PIPE RAILING.

20 COMPLETELY REMOVE STEEL BOLLARD.

KEYED NOTES - DEMOLITION

EXTERIOR COMPONENTS

SALVAGED BRICK.

INFORMATION.

MOUNTED ITEMS).

COMPLETELY REMOVE ALUMINUM STOREFRONT FRAME SYSTEM, GLAZING, DOOR WITH

COMPLETELY REMOVE DRIVE-UP CANOPY IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED

ALL ASSOCIATED HARDWARE, INTERIOR SILL, AND WINDOW BLINDS (AS APPLICABLE).

COMPLETELY REMOVE WINDOW, INTERIOR SILL, AND WINDOW BLINDS; PREP FOR

COMPLETELY REMOVE PNEUMATIC TUBE SYSTEM. INCLUDES ALL INTERIOR AND

COMPLETELY REMOVE DRIVE-UP WINDOW, PASS-THRU DRAWER, AND PORTION OF

DISCONNECT AND COMPLETELY REMOVE ATM AND GRANITE PANEL BELOW. PATCH

DISCONNECT AND REMOVE WALL MOUNTED LIGHT FIXTURES. PATCH BRICK VENEER W/

BASE BID - CONCRETE VAULT TO REMAIN. REMOVE INTERIOR PARTITION WALL, SAFE DEPOSIT BOXES, AND SHELVING. COMPLETELY REMOVE CARPET, RESILIENT FLOORING,

O EXISTING NIGHT DEPOSIT EQUIPMENT AND SUPPORT BASE TO REMAIN; PROTECT

REMOVE PORTION OF EXTERIOR CMU/BRICK VENEER WALL ASSEMBLY FOR INSTALLATION OF NEW OPENING; REFER TO DRAWING A101 FOR ADDITIONAL

MASTIC AND BASE FROM ENTIRE ROOM. PREP FOR NEW FINISHES.

ALTERNATE NO. 1 - REMOVE CONCRETE VAULT IN ITS ENTIRETY.

CMU/BRICK VENEER WALL ASSEMBLY FOR NEW ENLARGED OPENING; REFER TO

INSTALLATION OF NEW WINDOW IN SAME OPENING.

TO: COLUMNS, ROOF STRUCTURE, AND SOFFITS.

DRAWING A101 FOR ADDITIONAL INFORMATION.

BRICK VENEER W/ SALVAGED BRICK.

THROUGHOUT CONSTRUCTION.

GENERAL NOTES - ARCHITECTURAL - DEMOLITION

REQUIREMENTS OF DEMOLITION WITHIN SCOPE OF WORK.

SEE SPECIFICATIONS SECTION 02 41 19-SELECTIVE DEMOLITION FOR FURTHER

21 COMPLETELY REMOVE PARTIAL HEIGHT STUD WALL

22 COMPLETELY REMOVE CASEWORK (BASE CABINETS, TALL CABINETS, AND/OR WALL CABINETS AS APPLICABLE)

23 DISCONNECT AND REMOVE ALL PLUMBING FIXTURES IN ROOM.

REMOVE WALL COVERING AND GYPSUM BOARD FROM THIS WALL; EXISTING WOOD FURRING TO REMAIN

COMPLETELY REMOVE METAL WALL PANELS, SHEATHING, AND BATT INSULATION. EXISTING SUPPORT FRAMING FOR OVERHANG TO REMAIIN.

26 COMPLETELY REMOVE SOFFIT PANELS AND BATT INSULATION.

7 BASE BID: CAREFULLY REMOVE VAULT DOOR; SALVAGE FOR REINSTALLATION AT NEW

28 CAREFULLY REMOVE SIGNAGE AND RETURN TO OWNER.

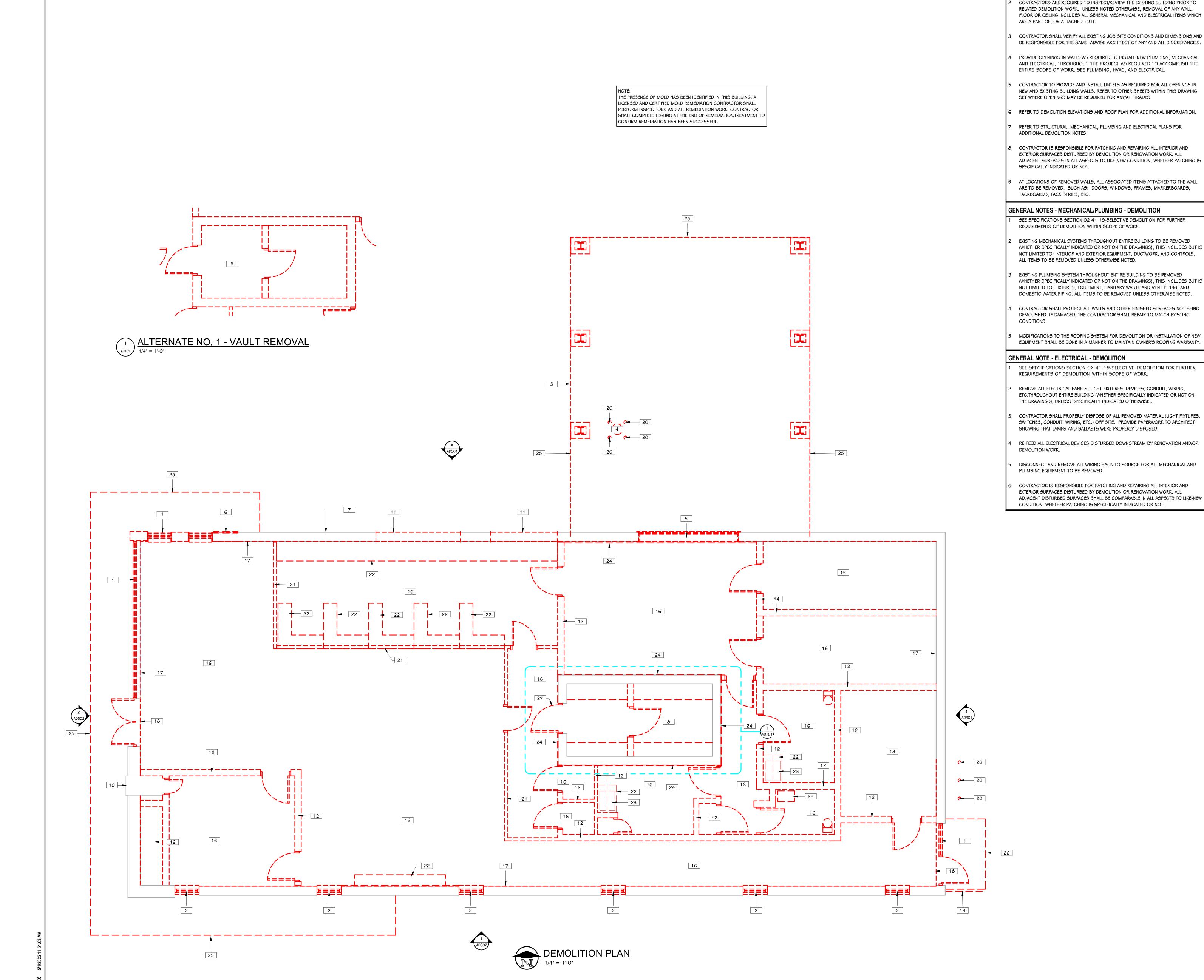
29 COMPLETELY REMOVE ENTRANCE CANOPY IN ITS ENTIRETY, INCLUDING BUT NOT

LIMITED TO: SUPPORT STRUCTURE, PANELS, AND SOFFIT.

30 REMOVE BRICK ROWLOCK SILL IN ITS ENTIRETY AT AREA OF NEW WALL INFILL.

REMOVE STUD PARTITION WALL IN ITS ENTIRETY. (INCLUDING, BUT NOT LIMITED TO: DOORS, FRAMES, HARDWARE, WINDOWS, WALL BASE, AND ALL SURFACE MOUNTED 13 COMPLETELY REMOVE SUSPENDED LATH AND PLASTER CEILING FROM ENTIRE ROOM.

THIS DRAWING SHEET IS INTENDED TO BE PLOTTED IN COLOR. IF THIS TEXT APPEARS IN BLACK AND WHITE, IT IS PLOTTED INCORRECTLY. DISCARD AND OBTAIN **AN ACCURATE DRAWING**



AN ACCURATE DRAWING

1 EAST DEMO ELEVATION
1/4" = 1'-O"

bottom of truss 113' - 6 3/4" bottom of truss 113' - 6 3/4" 7/EX. FOOTING 98' - 0"

- COMPLETELY REMOVE ALUMINUM STOREFRONT FRAME SYSTEM, GLAZING, DOOR WITH ALL ASSOCIATED HARDWARE, INTERIOR SILL, AND WINDOW BLINDS (AS APPLICABLE).
- COMPLETELY REMOVE WINDOW, INTERIOR SILL, AND WINDOW BLINDS; PREP FOR INSTALLATION OF NEW WINDOW IN SAME OPENING.
 - COMPLETELY REMOVE DRIVE-UP CANOPY IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED
 - TO: COLUMNS, ROOF STRUCTURE, AND SOFFITS.
- COMPLETELY REMOVE PNEUMATIC TUBE SYSTEM. INCLUDES ALL INTERIOR AND EXTERIOR COMPONENTS
- COMPLETELY REMOVE DRIVE-UP WINDOW, PASS-THRU DRAWER, AND PORTION OF CMU/BRICK VENEER WALL ASSEMBLY FOR NEW ENLARGED OPENING; REFER TO DRAWING A101 FOR ADDITIONAL INFORMATION.
- DISCONNECT AND COMPLETELY REMOVE ATM AND GRANITE PANEL BELOW. PATCH BRICK VENEER W/ SALVAGED BRICK.
- DISCONNECT AND REMOVE WALL MOUNTED LIGHT FIXTURES. PATCH BRICK VENEER W/
- BASE BID CONCRETE VAULT TO REMAIN. REMOVE INTERIOR PARTITION WALL, SAFE DEPOSIT BOXES, AND SHELVING. COMPLETELY REMOVE CARPET, RESILIENT FLOORING, MASTIC AND BASE FROM ENTIRE ROOM. PREP FOR NEW FINISHES.
- 9 ALTERNATE NO. 1 REMOVE CONCRETE VAULT IN ITS ENTIRETY.
- 10 EXISTING NIGHT DEPOSIT EQUIPMENT AND SUPPORT BASE TO REMAIN; PROTECT THROUGHOUT CONSTRUCTION.
- REMOVE PORTION OF EXTERIOR CMU/BRICK VENEER WALL ASSEMBLY FOR INSTALLATION OF NEW OPENING; REFER TO DRAWING A101 FOR ADDITIONAL
- 13 COMPLETELY REMOVE SUSPENDED LATH AND PLASTER CEILING FROM ENTIRE ROOM.
- 4 REMOVE GROUTED CMU PARTITION WALL IN ITS ENTIRETY. (INCLUDING, BUT NOT LIMITED TO: DOORS, FRAMES, HARDWARE, WINDOWS, WALL BASE, AND ALL SURFACE MOUNTED ITEMS).
- 15 COMPLETELY REMOVE CONCRETE LID ABOVE SECURE STORAGE ROOM.
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- 22 COMPLETELY REMOVE CASEWORK (BASE CABINETS, TALL CABINETS, AND/OR WALL CABINETS AS APPLICABLE)
- 23 DISCONNECT AND REMOVE ALL PLUMBING FIXTURES IN ROOM.
- 24 REMOVE WALL COVERING AND GYPSUM BOARD FROM THIS WALL; EXISTING WOOD FURRING TO REMAIN
- 25 COMPLETELY REMOVE METAL WALL PANELS, SHEATHING, AND BATT INSULATION. EXISTING SUPPORT FRAMING FOR OVERHANG TO REMAIIN.
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- BASE BID: CAREFULLY REMOVE VAULT DOOR; SALVAGE FOR REINSTALLATION AT NEW
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- 29 COMPLETELY REMOVE ENTRANCE CANOPY IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED TO: SUPPORT STRUCTURE, PANELS, AND SOFFIT.
- 30 REMOVE BRICK ROWLOCK SILL IN ITS ENTIRETY AT AREA OF NEW WALL INFILL.

ISSUED FOR

AD301 24-220.000

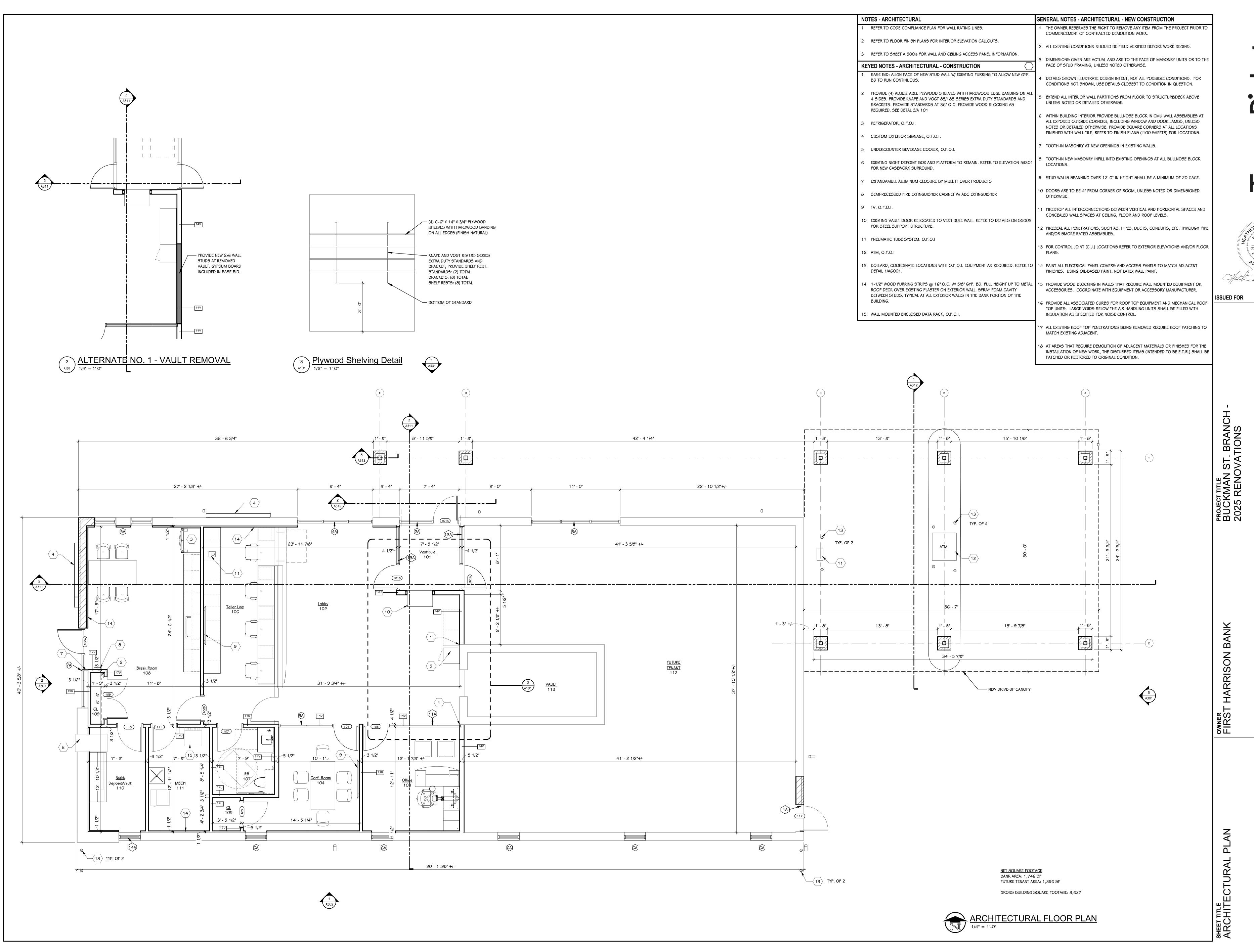
- ALL ASSOCIATED HARDWARE, INTERIOR SILL, AND WINDOW BLINDS (AS APPLICABLE).
- COMPLETELY REMOVE WINDOW, INTERIOR SILL, AND WINDOW BLINDS; PREP FOR INSTALLATION OF NEW WINDOW IN SAME OPENING.
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- DISCONNECT AND COMPLETELY REMOVE ATM AND GRANITE PANEL BELOW. PATCH
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- BASE BID CONCRETE VAULT TO REMAIN. REMOVE INTERIOR PARTITION WALL, SAFE DEPOSIT BOXES, AND SHELVING. COMPLETELY REMOVE CARPET, RESILIENT FLOORING,
- 10 EXISTING NIGHT DEPOSIT EQUIPMENT AND SUPPORT BASE TO REMAIN; PROTECT
- REMOVE PORTION OF EXTERIOR CMU/BRICK VENEER WALL ASSEMBLY FOR INSTALLATION OF NEW OPENING; REFER TO DRAWING A101 FOR ADDITIONAL
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- 30 REMOVE BRICK ROWLOCK SILL IN ITS ENTIRETY AT AREA OF NEW WALL INFILL.

AD302 24-220.000

THIS DRAWING SHEET IS INTENDED TO BE PLOTTED IN COLOR. IF THIS TEXT APPEARS IN BLACK AND WHITE, IT IS PLOTTED INCORRECTLY. DISCARD AND OBTAIN AN ACCURATE DRAWING



— FULLY ADHERED ROOF MEMBRANE

SLOPE 3:12

— ATTIC VENT, TYP. OF 4

W/ TAPERED INSULATION AT LOW

SLOPE ROOF AREA.

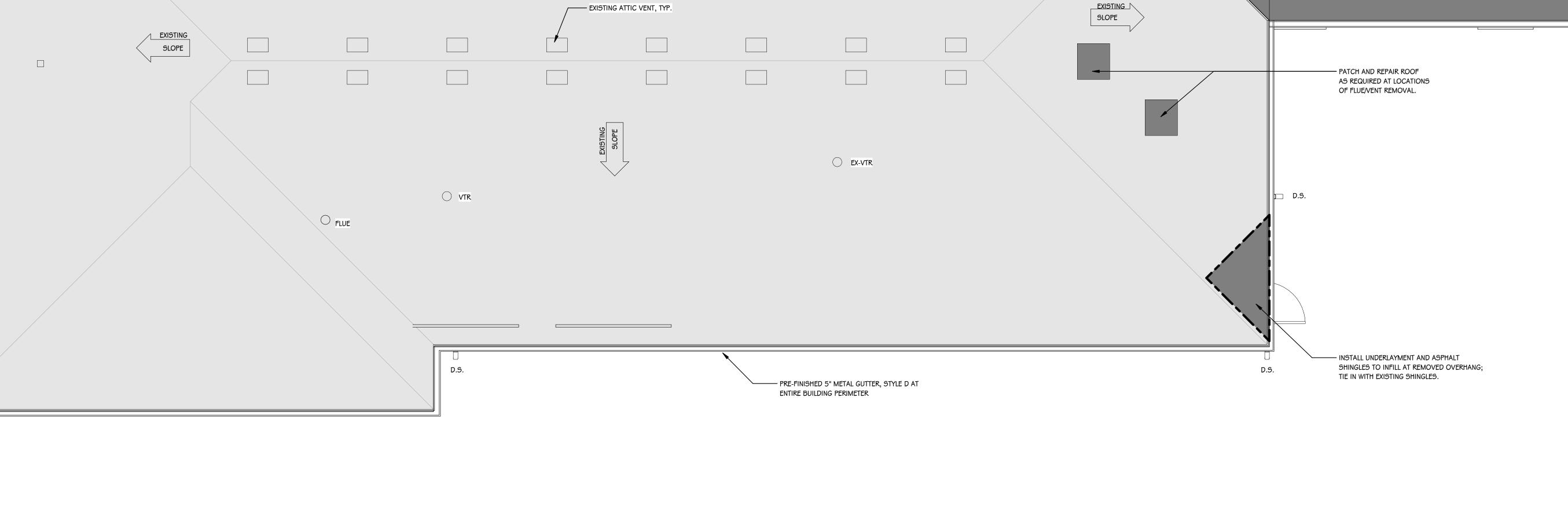
INSTALL UNDERLAYMENT AND ASPHALT

EXISTING SHINGLES. ——

— INSTALL UNDERLAYMENT AND ASPHALT SHINGLES TO INFILL AT REMOVED DRIVE UP CANOPY; TIE IN WITH EXISTING SHINGLES.

SHINGLES AT NEW CANOPY; TIE IN WITH

ISSUED FOR

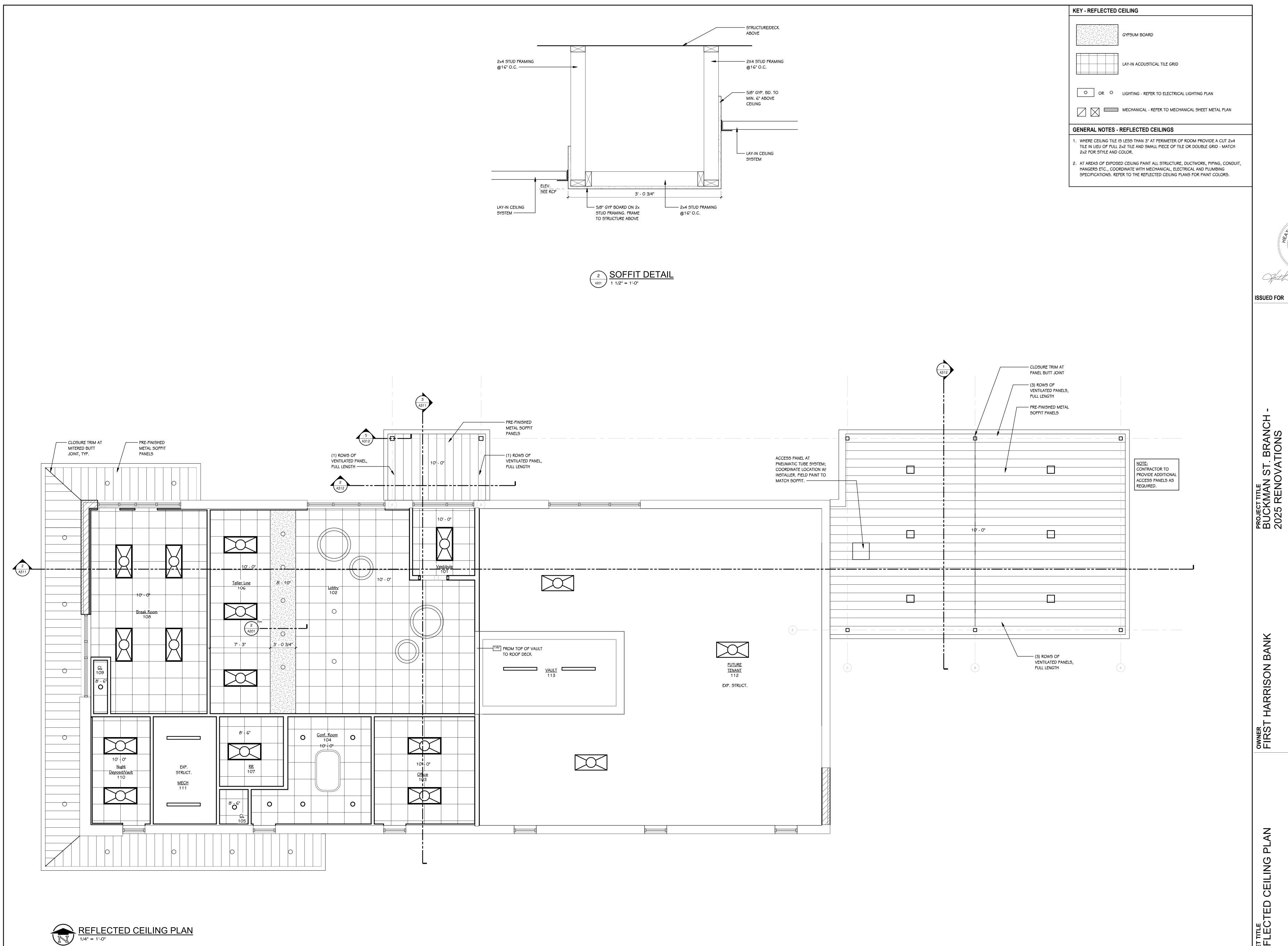


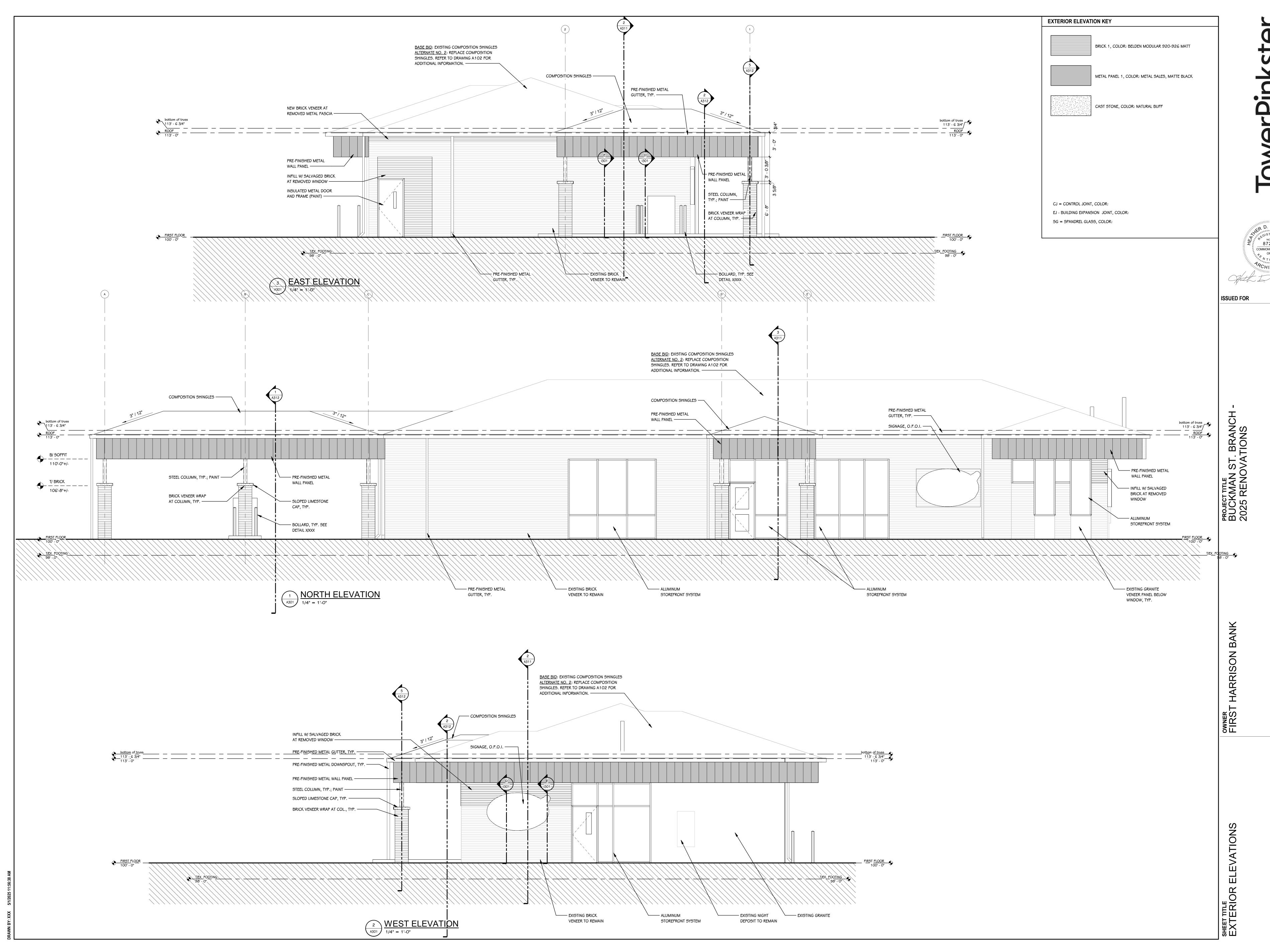
- VENTILATED RIDGE CAO

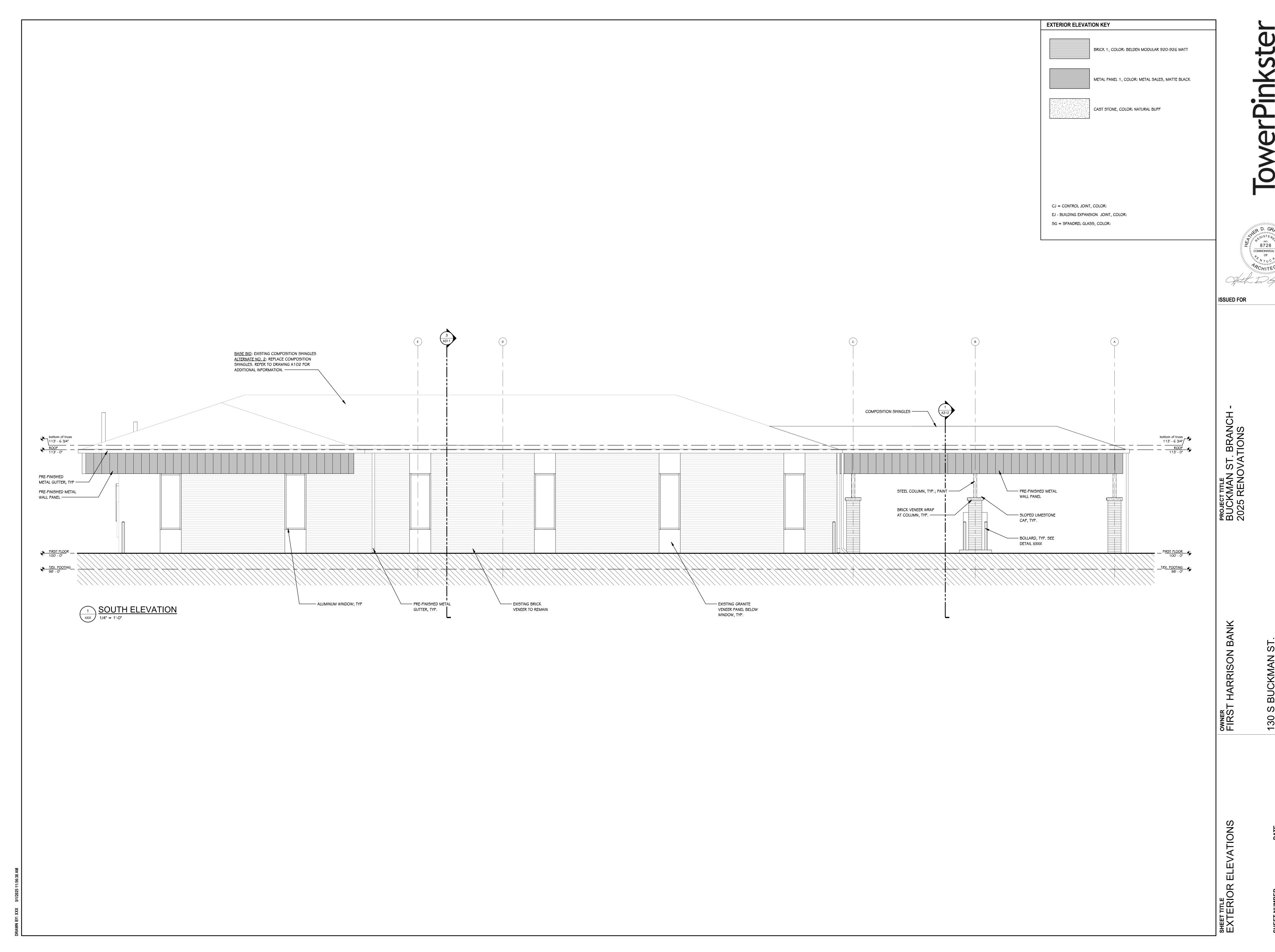
EXISTING ATTIC VENT, TYP.

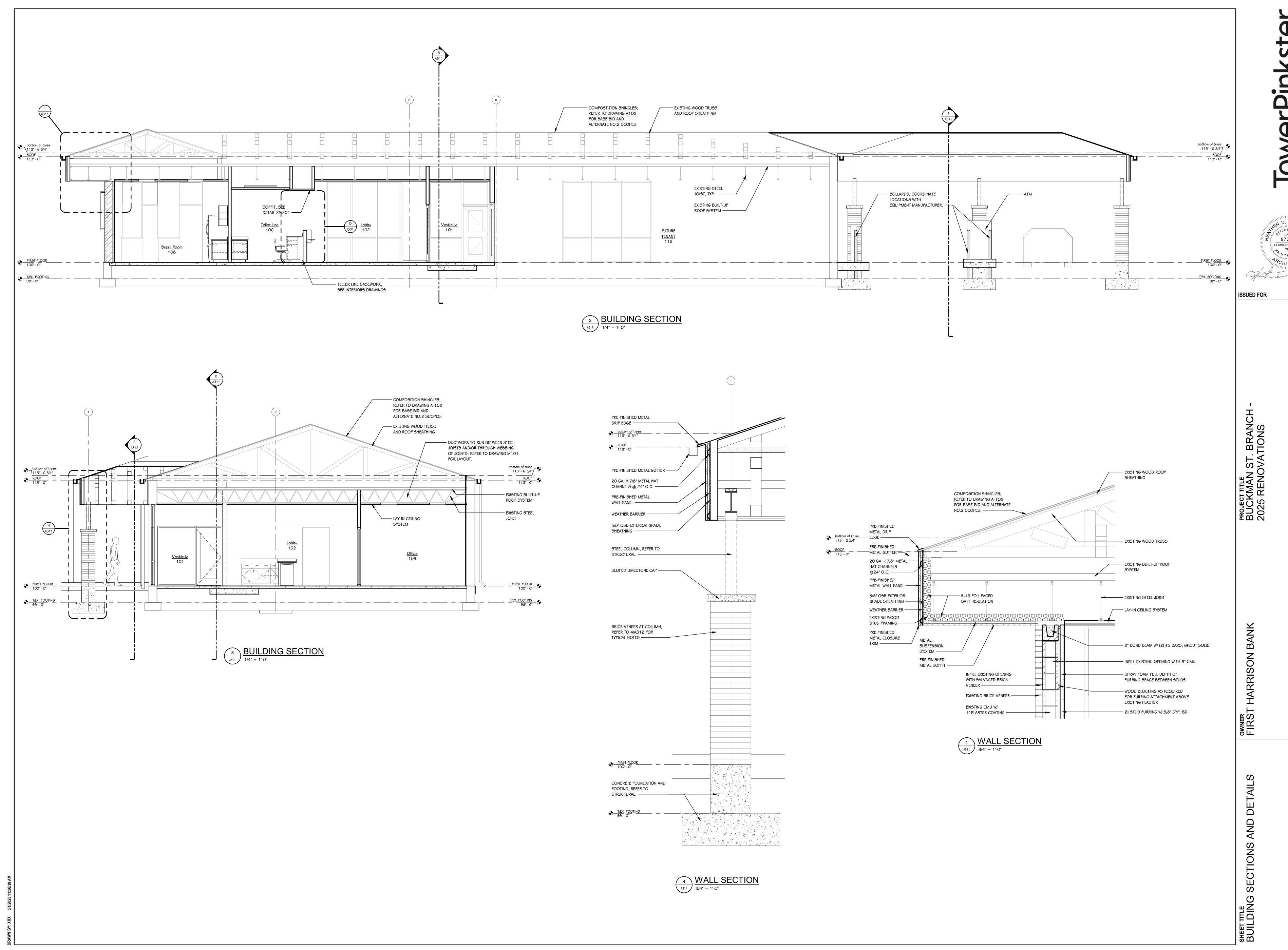
INSTALL UNDERLAYMENT AND ASPHALT SHINGLES AT NEW CANOPY; TIE IN WITH

EXISTING SHINGLES. —

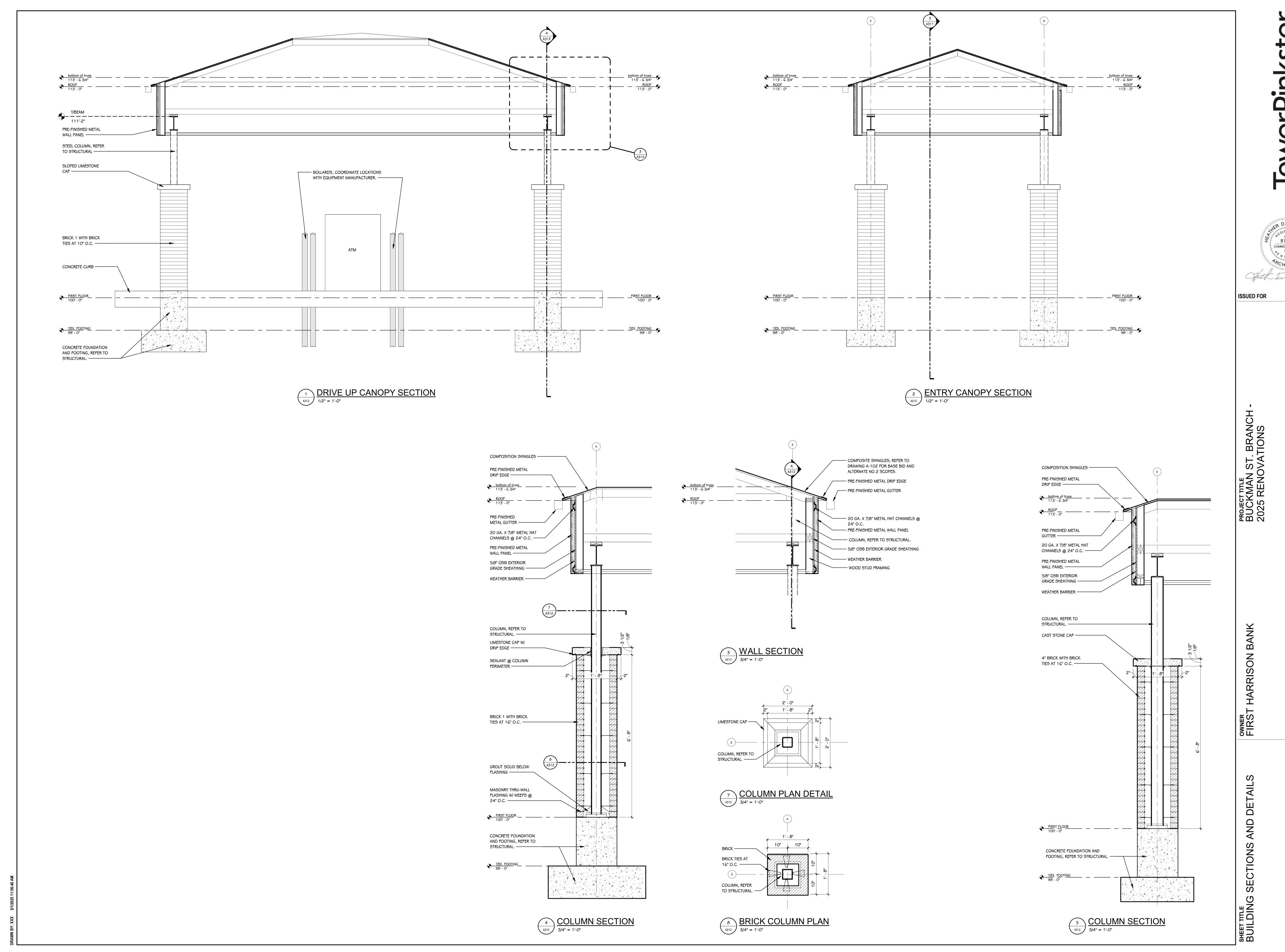








130 S BUCKMAN ST. SHEPHERDSVILLE, K 40165



130 S BUCKMAN ST. SHEPHERDSVILLE, K 40165

A312
24-220.000

DOOR SWING

12 SOAP DISPENSER. O.F.C.I

NOTES - TOILET ACCESSORY

= CONTRACTOR INSTALLED.

GENERIC PLUMBING FIXTURES ARE SHOWN. REFER TO PLUMBING DRAWINGS AND

SPECIFICATIONS FOR FIXTURE TYPES, MANUFACTURERS AND MOUNTING HEIGHTS.

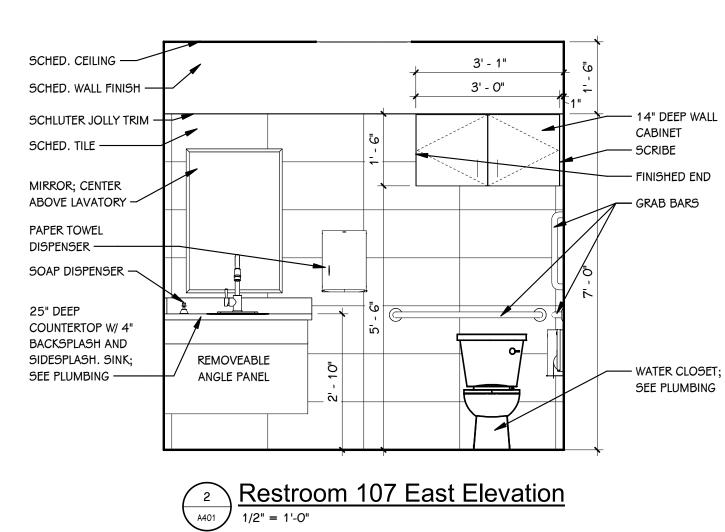
CODE REQUIRED INTERIOR SIGNAGE - INCLUDES MINIMUM REQUIRED SIGN TYPES

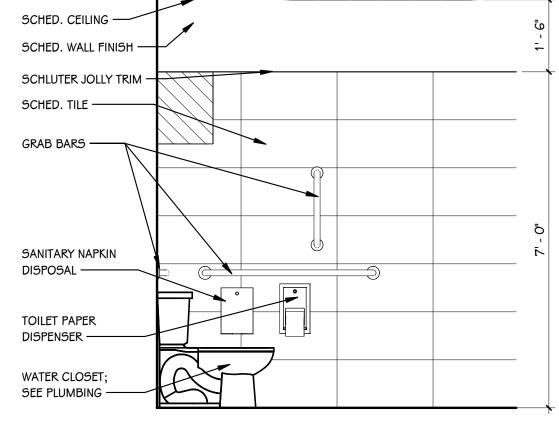
REQUIRED FOR OCCUPANCY AS DICTATED BY IBC, IFC, AND NFPA. COORDINATE WITH ANY OWNER-PROVIDED SIGNAGE.

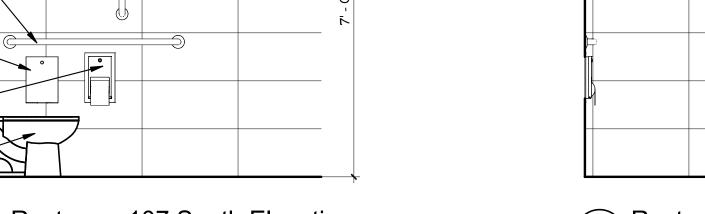
ISSUED FOR

A401 24-220.000









SCHED. CEILING -

SCHED. WALL FINISH -

SCHLUTER JOLLY TRIM -

SCHED. TILE ----

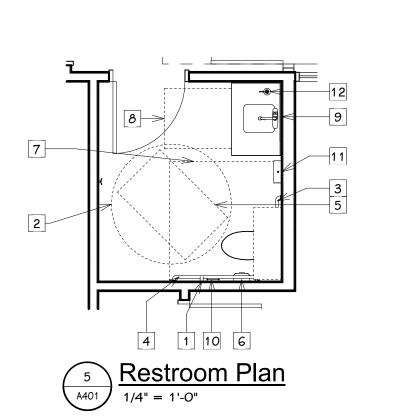
COAT HOOK ---

Restroom 107 South Elevation

1/2" = 1'-0"

Restroom 107 West Elevation

1/2" = 1'-0"



Restroom 107 North Elevation

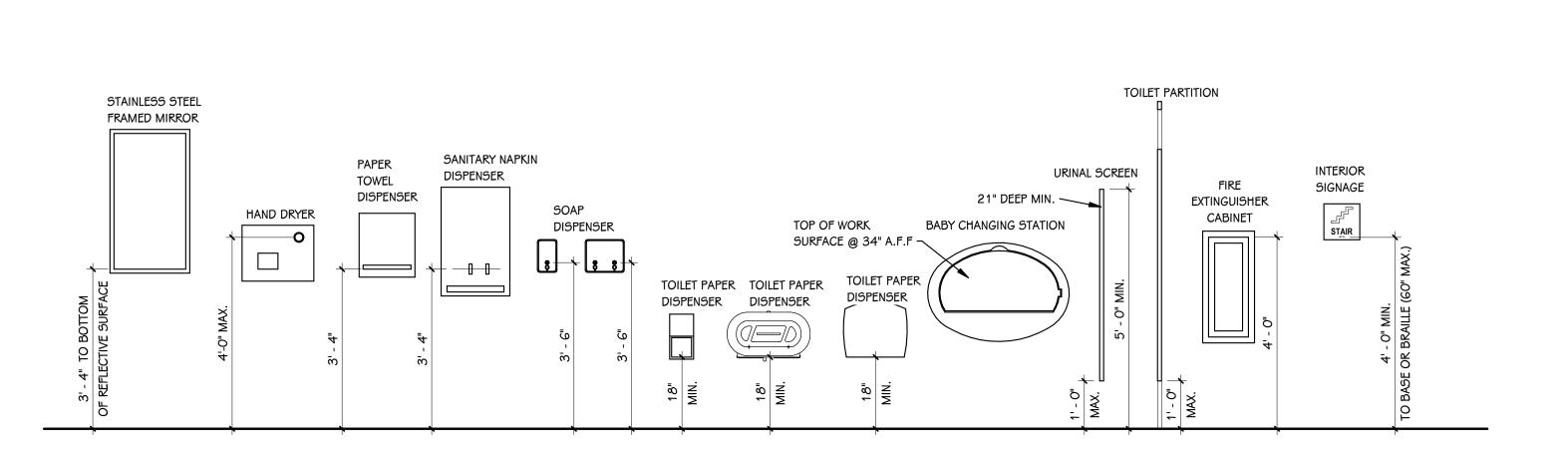
1/2" = 1'-0"

SCHED. CEILING -

SCHED. WALL FINISH -

SCHLUTER JOLLY TRIM -

SCHED. TILE -



TYPICAL MOUNTING HEIGHTS

1/2" = 1'-O"

FLUSH HANDLE TO BE LOCATED ON OPEN SIDE OF STALL FROM FINISHED

COORDINATE GRAB

BAR HEIGHT WITH
FLUSH VALVE MAX. HEIGHT 36"

24" MIN.

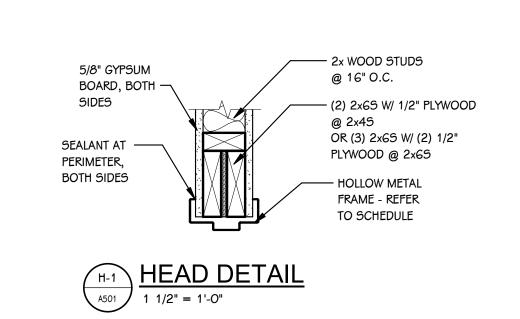
1' - 4" MIN 1' - 6" MAX

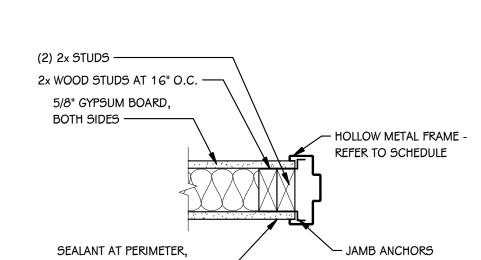
130 S BUCKMAN ST. SHEPHERDSVILLE, P 40165

OWNER FIRST HARRISON BANK

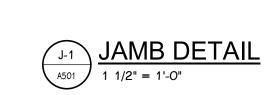
WD 3' - 0" 7' - 2" Deposit/Va



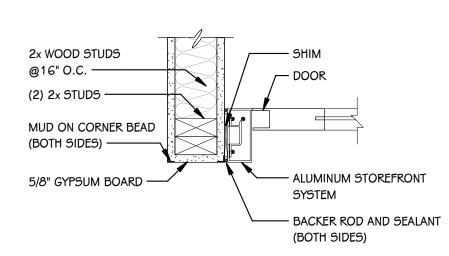


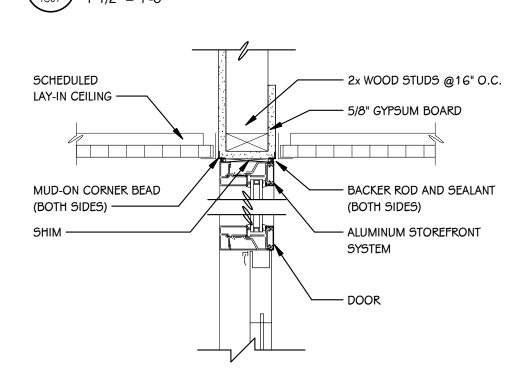


MIN. (3) PER JAMB



BOTH SIDES -



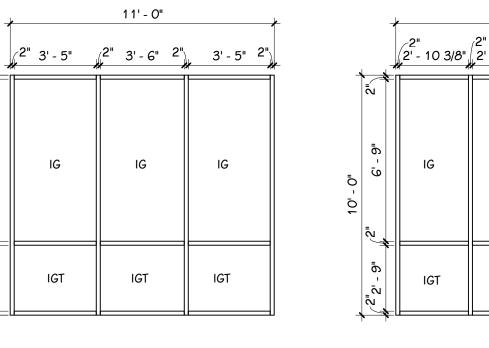


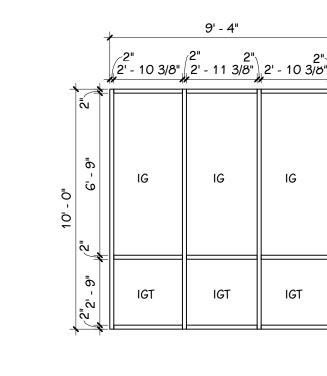
A501 ALUMINUM DOOR HEAD
1 1/2" = 1'-0"

3
A501

HOLLOW METAL FRAMES

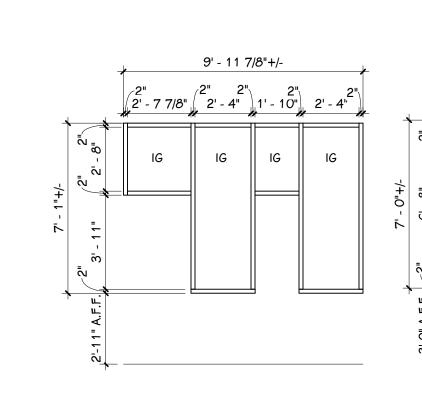
1/4" = 1'-0"

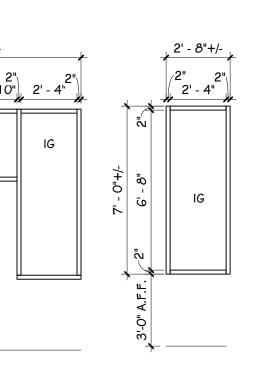


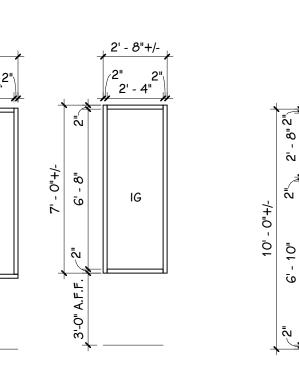


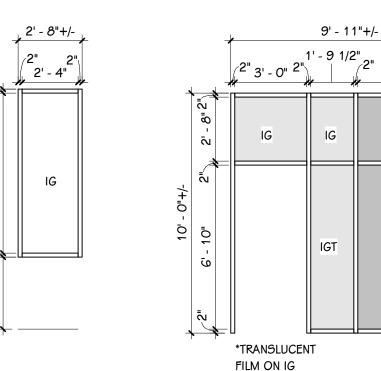
BG

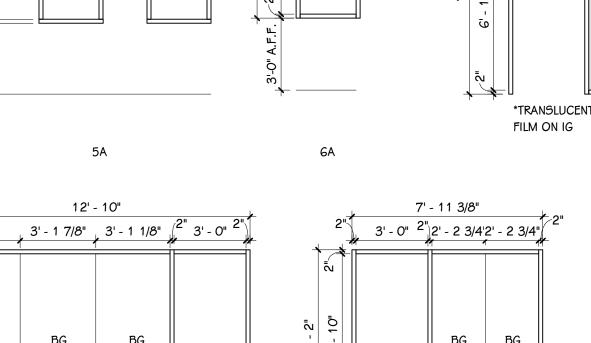
CLEAR ANODIZED

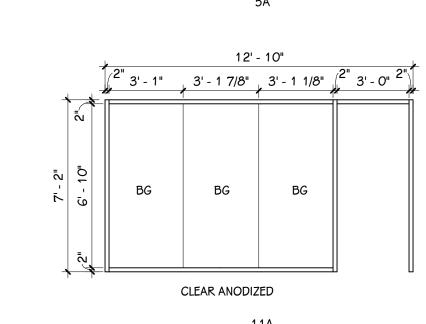


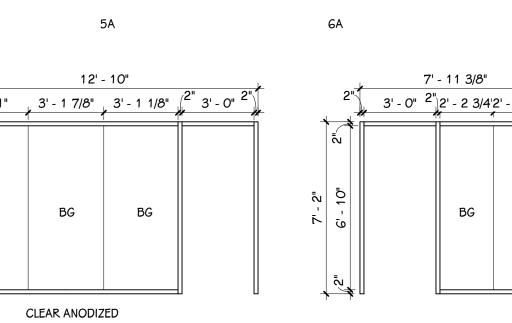


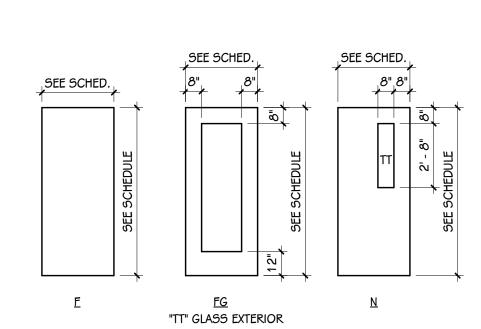








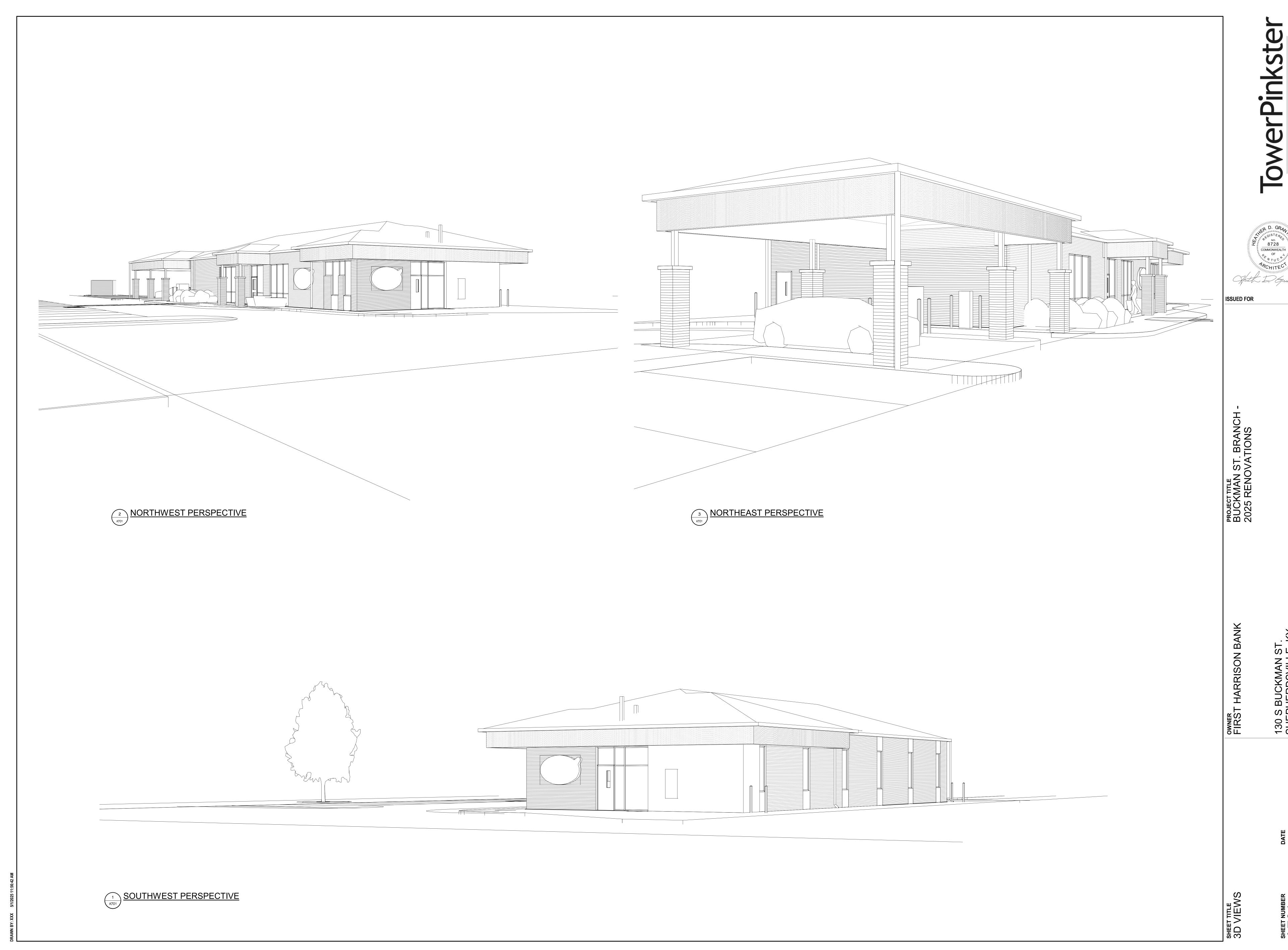


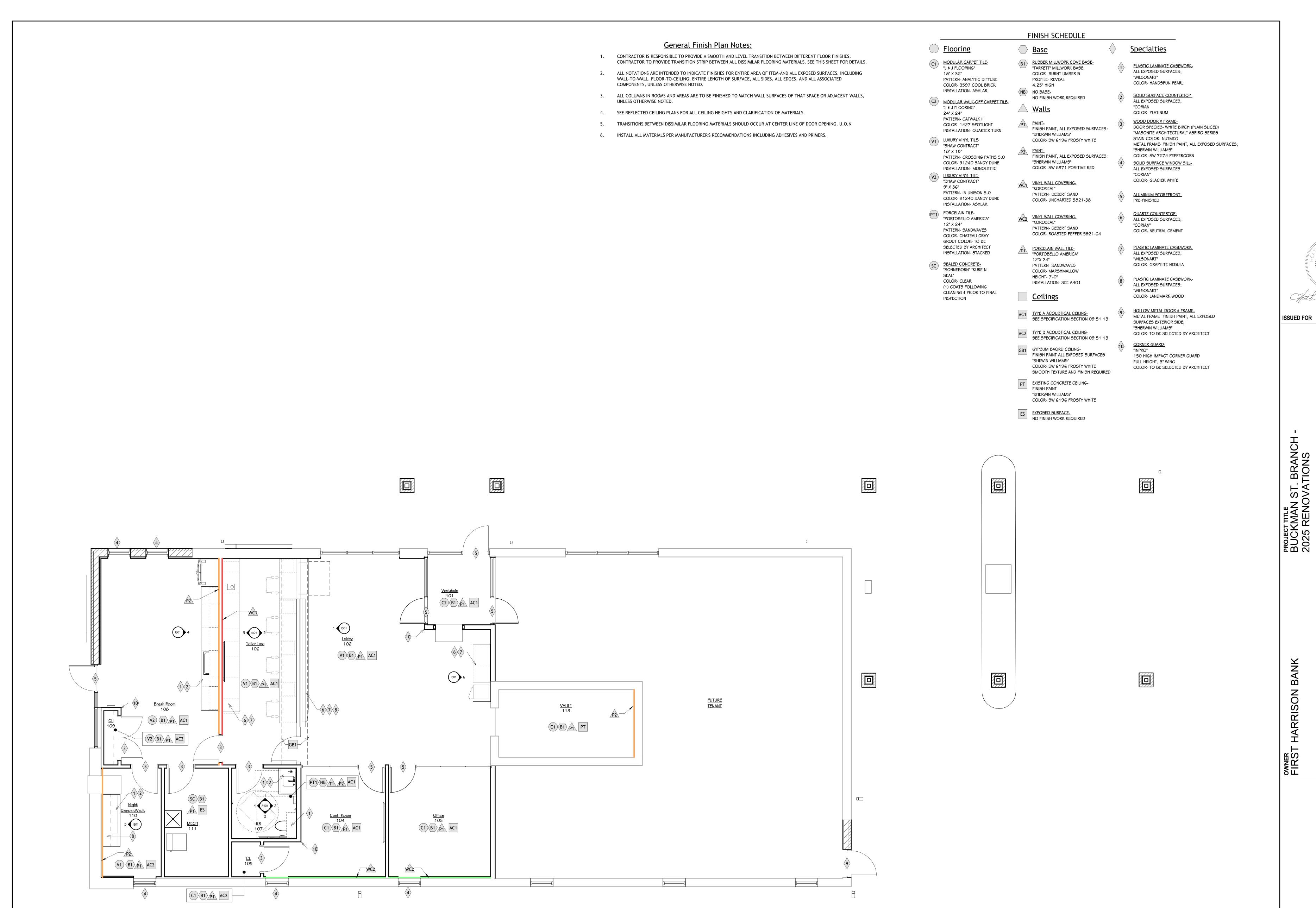


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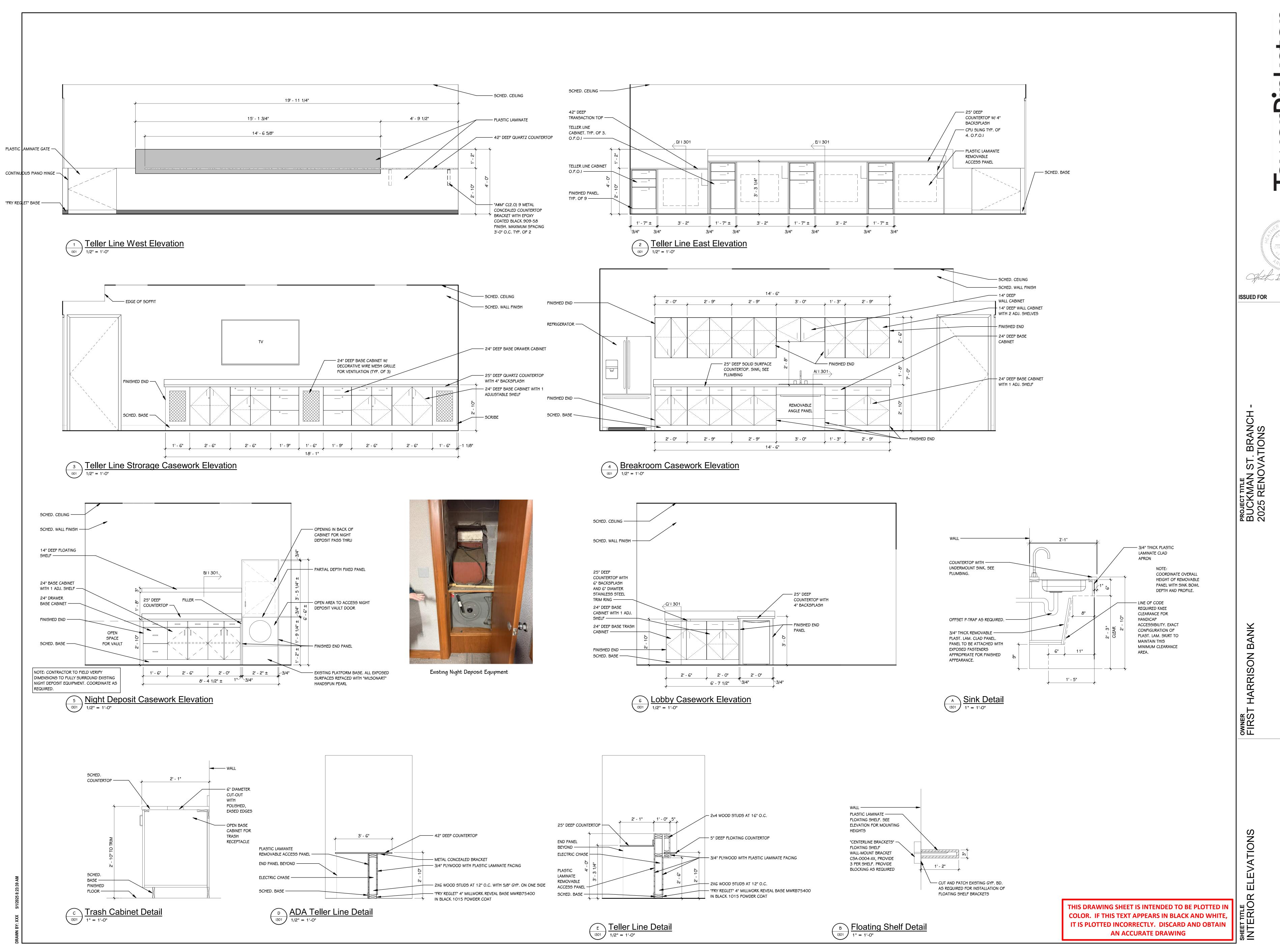


FINISH PLAN

1/4" = 1'-0"

THIS DRAWING SHEET IS INTENDED TO BE PLOTTED IN COLOR. IF THIS TEXT APPEARS IN BLACK AND WHITE, IT IS PLOTTED INCORRECTLY. DISCARD AND OBTAIN AN ACCURATE DRAWING

130 S BUCKMAN ST. SHEPHERDSVILLE, K 40165



130 S BUCKMAN ST. SHEPHERDSVILLE, K 40165

SHEET NUMBER | 301 | 24-220.000

REVIEW AND ACTIONS. 50. IN THE EVENT THERE IS A NEW GAS SERVICE AND METER ALLOWED AT THE BUILDING, PROVIDE REQUIRED ITEMS FOR SAME FOR LG&E TO INSTALL NEW

49. GAS USAGE HAS BEEN PROVIDED TO MR. JASON OWENS, GAS LOCATOR FOR

30. THERE SHALL BE A NEW 3/4" DOMESTIC WATER METER INSTALLED, WITH A NEW

WITH PAPER WORK AS REQUIRED SUPPLIED TO GOVERNING AGENCIES AS

INSTALLATION OF THE NEW 34" WATER METER AND ALL RELATED FEES FROM

NOTATIONS OF PLUMBING CHANGES AS THEY OCCUR. THIS IS IN ORDER TO

PROVIDE AT THE END OF THE PROJECT "RECORD DRAWINGS" TO BE TURNED

PRIOR TO PERFORMANCES OF SAME.COMPENSATION SHALL NOT BE PROVIDED

34. FLOOR DRAINS, HUB DRAIN AND OPEN RECEPTACLES SHALL BE FITTED WITH A

35. UPON COMPLETION OF THE PROJECT PROVIDE 1" BRASS TAG ON A BEADED

36. CONNECTION OF OWNER SUPPLIED APPLIANCES SHALL NOT BE APT OF

CHAIN ON ALL VALVES IN WATER SYSTEM. PROVIDE OWNER WITH A VALVE

PLUMBING SCOPE. ELECTRICAL CONNECTION AND POWER TO PLUMBING EQUIP

ALIMENT SHALL BE CODE APPROVED CONNECTION BY LICENSED INDIVIDUAL.

DRILL, BREAK AND REMOVE CONCRETE OR PAVEMENT AS MAY BE REQUIRED

GRILLAGE, TO ALLOW FOR RESTORATION OF SURFACES BY OTHERS. DO NOT BACKFILL TRENCHES WITH FROZEN MATERIALS. MECHANICALLY TAMP AS MAY

BE NECESSARY FOR PREVENTION OF SETTLEMENT. SIX INCHES OF STONE

40. PLUMBING DRAWINGS ARE DIAGRAMMATIC IN NATURE. PROVIDE ALL OFFSETS

41. EXERCISE CAUTION TO PREVENT THE INSTALLATION OF WASTE OR WATER

43. PLUMBING CONTRACTOR SHALL PROVIDE TO CASE WORK CONTRACTOR,

FIXTURES TO BE MOUNTED OR SEALED O IN COUNTERTOP OPENINGS.

PIPING OVER HEAD OF ANY ELECTRICAL IF POSSIBLE.

AND BENDS TO PROVIDE A COMPLETE AND OPERABLE PLUMBING SYSTEM.

42. NO PIPING SHALL BE INSTALLED WHERE THERE IS A POSSIBILITY OF FREEZING.

44. WASTE, VENT AND WATER PIPING SHALL BE PROVIDE WITH PROPER SLOPE AS

45. IN THE VENT THERE MAY BE ROCK ENCOUNTERED, CONSULT WITH GENERAL

46. PLUMBING CONTRACTOR SHALL VISIT SITE TO VIEW EXISTING CONDITIONS OF

47. CONDENSATE PIPING FOR HVAC SHALL BE BY OTHERS AND PLUMBER SHALL

48. COORDINATE ANY LG&E NATURAL GAS ALTERATIONS OR ADDITIONS ON THE

PROJECT. THERE IS A MORATORIUM ON THE ADDITIONAL OF ANY GAS TO A

PROJECT, AND ALL NATURAL GAS IS SUBJECT TO L G & E APPROVALS. LOAD

CONTRACTOR AS TO PROCESS FOR REMOVAL AND DISPOSAL.

MAKE WASTE OPENINGS AVAILABLE FOR SAME.

37. PLUMBING CONTRACTOR SHALL LAYOUT AND COORDINATE, SCRIBE CUT, CORE

38. BACKFILL OF EXCAVATION SHALL BE TO SUB GRADE WITH CLEAN SHARP

39. DO NOT SCALE DRAWINGS FOR ROUGH INS. REFER TO DIMENSIONED

TRAP PRIME PER CODE. PROVIDE PAIN TABLE LOCKING ACCESS PANEL FOR

OVER TO OWNER FOR FUTURE REFERENCE. THESE MAY BE ELECTRONIC OR

32. PLUMBING CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS ON SITE WITH

33. ANY CHANGES IN ORIGINAL CONTRACT DHAL BE AGREED UPON IN WRITING

FOR WORK PERFORMED WITH OUT AUTHORIZATION.

ADEQUATE SIZE DRAIN TO BE SAFE WASTED. RPZ SHALL BE TESTED, CERTIFIED

 $1-\frac{1}{4}$ " RPZ AND DOMESTIC WATER SERVICE TO THE BUILDING. THERMAL

EXPANSION TANK ON WATER J HEATER PER CODE. RPZ SHALL HAVE

31. PLUMBING CONTRACTOR SHALL PROVIDE AN "ADD ALTERNATE", FOR

LOUISVILLE WATER CO.

MAINTENANCE OF THE VALVE.

CHART AS TO LOCATIONS.

FOR THE PLUMBING.

DOCUMENTS FOR SAME.

CODE MAY REQUIRE.

SLIP OF PROPOSED

THE PROJECT.

BENEATH ALL PIPING IN TRENCHES.

HARD COPY.

SERVICE. USE THE TRENCH AS MUCH AS POSSIBLE TO ALLOW FOR INSTALLATION OF THE NEW 1 ¼" DOMESTIC WATER SERVICE.

51. SPOILS FOR PROJECT EXCAVATION SHALL BE PLACED IN DUMPSTER PROVIDED FOR THAT PURPOSE ON SITE.

52. ANY NATURAL GAS SIPPING ON SITE SHALL MEET LG&E INSPECTIONS AND TESTING REGULATIONS. PIPING SHALL BE SCHEDULE 40 BLACK WITH 150 # BLACK MALLEABLE FITTINGS AND AGA APPROVED GAS VALVES. IF THE INSTALLING PLUMBING CONTRACTOR HOLD CERTIFICATION, MEGA-PRESS FITTINGS MAY BE USED FOR THE GAS HOUSE LINE, INSTALLED PER MANUFACTURER'S INSTRUCTIONS.

53. THERE SHALL BE NO UNIONS IN ANY SYSTEM INSTALLED IN A CONCEALED

NATURE. 54. ALL GAS APPLIANCES SHALL HAVE A LINE SIZE 4" LONG BLACK NIPPLE AND CAP AS A DRIP LEG.

55. INSTALL GAS VALVES AT ALL EQUIPMENT CONNECTIONS.

56. CLEANOUT OR TEST TEES SHALL BE INSTALLED AL POINTS OF CONNECTION TO

EXISTING SYSTEMS, IF THAT OCCURS.

57. ALL PIPING SYSTEMS SHALL BE TESTED AN PROVEN SOUND AND LEAK-FREE

PRIOR TO CONCEALMENT OR COVERING OF SAME. 58. ANY DISRUPTION OR PENETRATION OF FIRE RATED AREA SHALL BE RESTORED TO ORIGINAL RATING UPON COMPLETION.

59. PLUMBING PLANS, COPIES, SUBMITTAL AND ANY RELATED FEES FOR PLUMBING APPROVAL BY THE GOVERNING AGENCIES SHALL BE PAID FOR AND PROVIDED BY OTHERS.

PLUMBING NOTES:

SCOPE OF THE PLUMBING OR THE PROJECT IS RENOVATION OF A GUTTED BANK BUILDING FOR A NEW BANK BRANCH OFFICES AND PROPOSED TENANT LEASE SPACE. PIPING AND FLOORING AND EQUIPMENT ON INTERIOR SHALL BE REMOVED AND DISPOSED BY OTHERS.

PLUMBING FIXTURES:

ADA HEIGHT -FLOOR SET- PRESSURE ASSISTED - TANK TYPE -

SEAL - BRASS CLOSET BOLTS, NUTS AND WASHERS SET -

KOHLER K-2000 20.25"X16" WHITE CHINA UNDERMOUNT ADA

LAVATORY - AMERICAN STANDARD COLONY PRO SINGLE CONTROL

WHITE TOILET -WHITE OPEN FRONT SEAT LESS COVER - WAX RING

CHROME ANGLE COMPRESSION STOP AND ESCUTCHEON - BRAIDED

STAINLESS SUPPLY. PROVIDE TANK LEVER ON "WIDE SIDE" OF ADA

THE FOLLOWING ITEMS AND/OR FIXTURES SHALL BE PROVIDED AND INSTALLED BY

EXPOSED METAL PARTS.

THE PLUMBING CONTRACTOR, STANDARD CHROME FINISH SHALL BE THE NORM FOR

PLUMBING SHALL INCLUDE A 1" VALVE WATER LINE AND A 4" SANITARY WASTE OPENING IN THE PROPOSED TENANT SPACE, WITH A 4" PLUMBING VENT OPENING FOR TENANT SPACE. PLUMBING DESIGN AND SUBMITTAL FOR NEW TENANT PLUMBING SHALL BE PROVIDED AS LEASE MAY BE GENERATED. THIS IS

3. ALL PLUMBING WORK SHALL CONFORM TO ALL CODES, RULES AND REGULATION IN PLACE AT TIME OF CONSTRUCTION.

4. ALL PLUMBING WORK SHALL BE INSTALLED BY LICENSED PROFESSIONALS, PERMITTED AND INSPECTED BY OFFICIALS HAVING JURISDICTION OF THE PROJECT. THERE MAY BE THE REQUIREMENT FOR ALL CONTRACTORS TO BE

NOT A PART OF THIS SCOPE IN THE PROJECT.

REGISTERED AND LICENSED FOR THE PROJECT. ROOF PENETRATIONS SHALL BE FLASHED AND COORDINATED TO BE WATERTIGHT, WITH THE ROOFING CONTRACTOR. FLASHING AS MAY BE REQUIRED SHALL BE PROVIDED BY RESPECTIVE CONTRACTOR REQUIRING SERVICE AND

INSTALLATION OF SAME. THERE SHALL BE NO ROOF PENETRATIONS THAT WOULD VOID OWNER'S WARRANTY. BEAR IN MIND THERE IS AN A ORIGINAL ROOF AND ANOTHER ROOF ON WOOD CONSTRUCTION OVER THAT.

OF 1/2" PIPING TO A FIXTURE. IF LONGER INCREASE ON PIPE SIZE. . PIPING SHALL BE INSULATED WITH 34" WALL FLEXIBLE PIPE INSULATION, INSTALL AS RECOMMENDED BY MANUFACTURER. ADHERE TO CODES AS TO

. WATER DISTRIBUTION PIPING ABOVE AND BELOW GRADE SHALL BE PEX OR

EQUAL FLEXIBLE TUBING, WITH FITTINGS AND VALVES TO MATCH.ADHERE TO

ALL APPROVED INSTALLATION METHODS AND CODES. MAXIMUM 3 FT BRANCH

8. INSTALL HANGERS AND SUPPORTS COMPATIBLE WITH MATERIALS BEING SUPPORTED, INSTALL PER MANUFACTURER'S DIRECTIONS AND CODES. 9. INSTALL STUD GUARDS AS MAY BE REQUIRED BY CODE.

REQUIRED FLAME SPREAD OF PIPE INSULATION.

SOUND AND LEAK FREE.

10. THERE SHALL BE NO DRILLING OF SUPPORT STRUCTURE MEMBERS, WITHOUT WRITTEN PERMISSION FROM ARCHITECT.

I. ALL PENETRATIONS SHALL BE PROPERLY FIRE AND SMOKE CAULKED. ANY PENETRATION THROUGH AN EXISTING RATED STRUCTURE SHALL BE RETURNED

TO ORIGINAL PROTECTIVE RATING UPON COMPLETION. 12. ALL PLUMBING MATERIALS SHALL BE OF NEW AND BEST QUALITY.

13. ALL PIPING SYSTEMS SHALL BE TESTED AND INSPECTED PRIOR TO COVERING OF SAME, ALL PER CODES. IN THE EVENT THE TESTING PROCEDURE SHOULD FIND A LEAK OR DEFICIENCY, REMOVE AND REPAIR PIPING AND RETEST UNTIL

14. EQUIPMENT AND FITTINGS OR GAUGES FOR THESE TEST SHALL BE PROVIDED BY PLUMBING CONTRACTOR.

15. ALL NE WATER PIPING SYSTEMS SHALL BE SANITIZED WITH A CHLORINE SOLID TION PER CODE. ENSURE FLUSHING OF PIPING OF ALL SANITIZING MATERIALS, PRIOR TO COMMISSIONING TO USE.

16. PRIOR TO CONNECTION TO ANY SYSTEM, PLUMBING CONTRACTOR SHALL VERIFY INVERT, AND ADEQUATE OPERATING PRESSURES OF ANY EXISTING UTILITY SYSTEMS.

17. PROVIDE PROPER SLOPE FOR ALL NEW SANITARY PIPING SYSTEMS. 18. IF THERE IS FOUND TO BE THE NEED AFTER INVESTIGATION, PLUMBING

CONTRACTOR SHALL PROVIDE ALTERNATE PRICING FOR FLUSHING OR POWER JETTING EXISTING SANITARY SEWER, PRIOR TO CONNECTION TO SAME. 19. MAINTAIN NOTES ON A SET OF DOCUMENTS ON SITE THAT WILL BECOME

"RECORD DRAWINGS" OF ANY CHANGE OR DISCREPANCY IN PLUMBING DOCUMENTS THAT MAY BE ENCOUNTERED. 20. ALL PIPING SHALL BE INSTALLED IN A NEAT AND WORKMAN LIKE MANNER.

CONCEALED WHERE POSSIBLE. CHASES OR SOFFITS TO BE PROVIDED BY GENERAL CONTRACTOR AS MAY BE REQUIRED.

21. PROJECT IS LOCATED IN A VISIBLE PUBLIC AREA. THUS CONTRACTORS EMPLOYEES SHOULD CONDUCT THEMSELVES ACCORDINGLY. CONFINE YOUR ACTIONS TO THE AREA OF CONSTRUCTION.

22. ALL FIXTURES FOR THE PLUMBING SYSTEM SHALL BE FITTED WITH, PROVIDED BY PLUMBING CONTRACTOR, STOPS, BRAIDED SUPPLIES, 17 GAUGE CHROME P TRAPS WITH CLEANOUT, TEMPERING VALVES, AS MAY BE REQUIRED FOR A COMPLETE AND OPERABLE PLUMBING SYSTEM.

23. PROPER FIXTURE SUPPORT OR BLOCKING IN WALLS FOR HANGERS SHALL BE PROVIDED BY GENERAL CONTRACTOR WITH PLUMBERS DIRECTIONS AS TO

MEASUREMENTS FOR SAME. 24. FREER TO FIXTURE CATALOG DATA FOR ROUGH IN MEASUREMENTS. DO NOT SCALE DRAWING. REFER TO DIMENSIONED DRAWINGS FOR ALLOCATED SPACE

FOR FIXTURES. 25. PLUMBING CONTRACTOR SHALL PROVIDE ELECTRONICS FIXTURE SUBMITTALS FOR

REVIEW AND APPROVALS. FIXTURE SELECTIONS SHALL BE BY OWNER/OWNER'S AGENT. ONCE REVIEWED AND APPROVED, THERE SHALL BE A SET PROVIDED ON SITE FOR ALL PARTIES USE. 26. PLUMBING CONTRACTOR SHALL PROVIDE A 4" CLEANOUT TO GRADE OR ACCESS

ACCESS PANEL IF REQUIRED SHALL COMPLY WITH RATING OF STRUCTURE WHERE CLEANOUT IS INSTALLED. 27. NEW WASTE PIPING BELOW GRADE SHALL BE SCHEDULE 40 DWV PER CODE. WITH SOLVENT WELD FITTINGS. ABOVE GRADE WASTE AND VENT SHALL BE THE

PANEL AS NEEDED ATY POINTS OF CONNECTION TO EXISTING WASTE OR VENTS.

SAME, ALL INSTALLED PER ALL REGULATIONS AND CODES.

28. THERE SHALL BE NO NON-METALLIC PIPING IN PLENUM RATED SPACES.

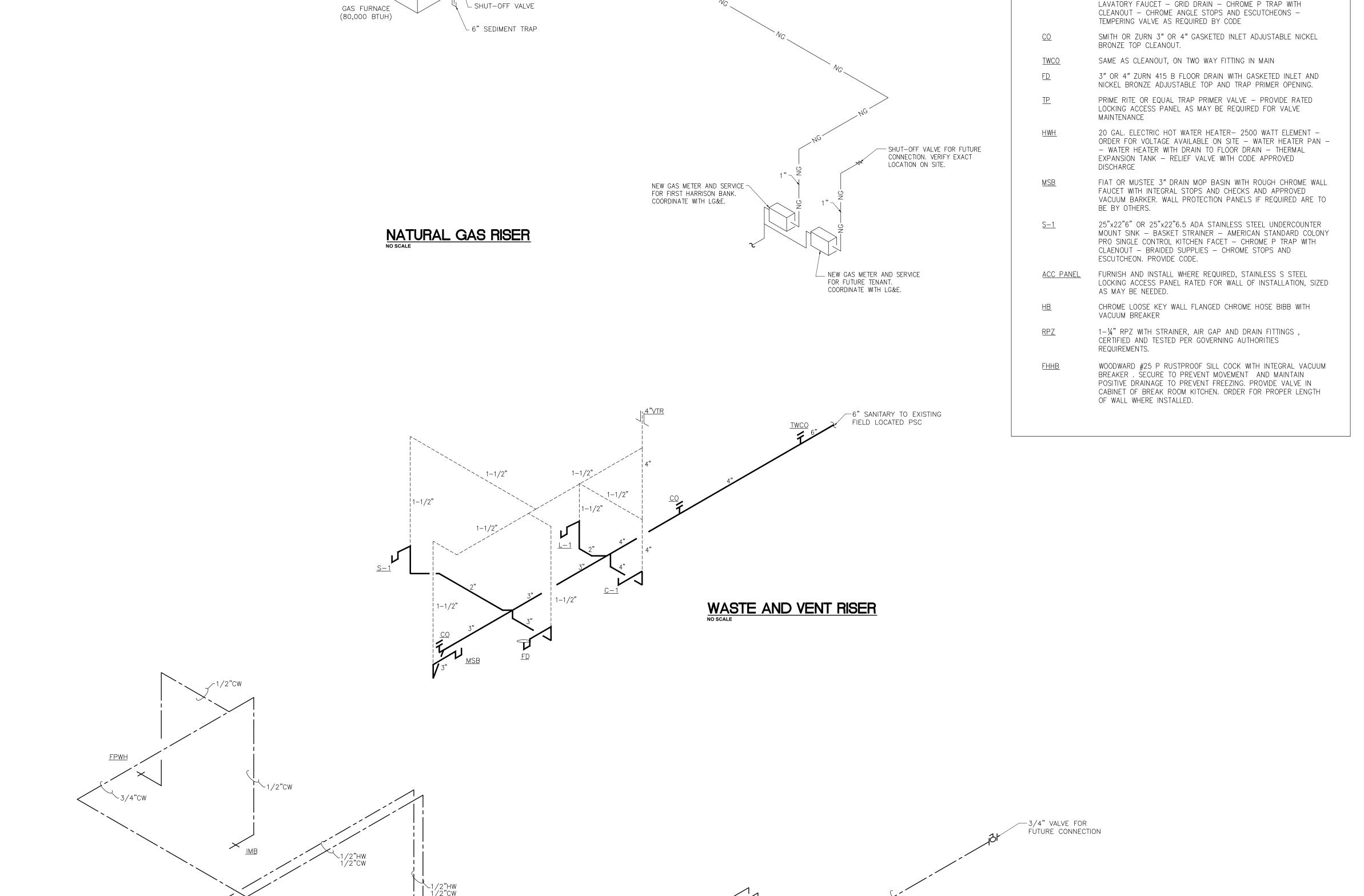
29. PROVIDE A THERMOMETER ON OUTLET OF HOT WATER AT WATER HEATER.

-1-1/4" DOMESTIC WATER TO NEW 3/4" WATER METER. SHARE EXACT LOCATION W/ NEW GAS SERVICE IF ALLOWED

BY LG&E.

~1-1/4"CW

DOMESTIC WATER RISER



3/4"HW-/ 3/4"CW

~1/2"CW

~1−1/4"CW

1-1/4"CW

3/4"HW 0 3/4"CW

EXTEND T&P RELIEF VALVE FULL SIZE TO FLOOR DRAIN AND

1 PLUMBING PLAN - WASTE AND VENT 1/4" = 1'-0"

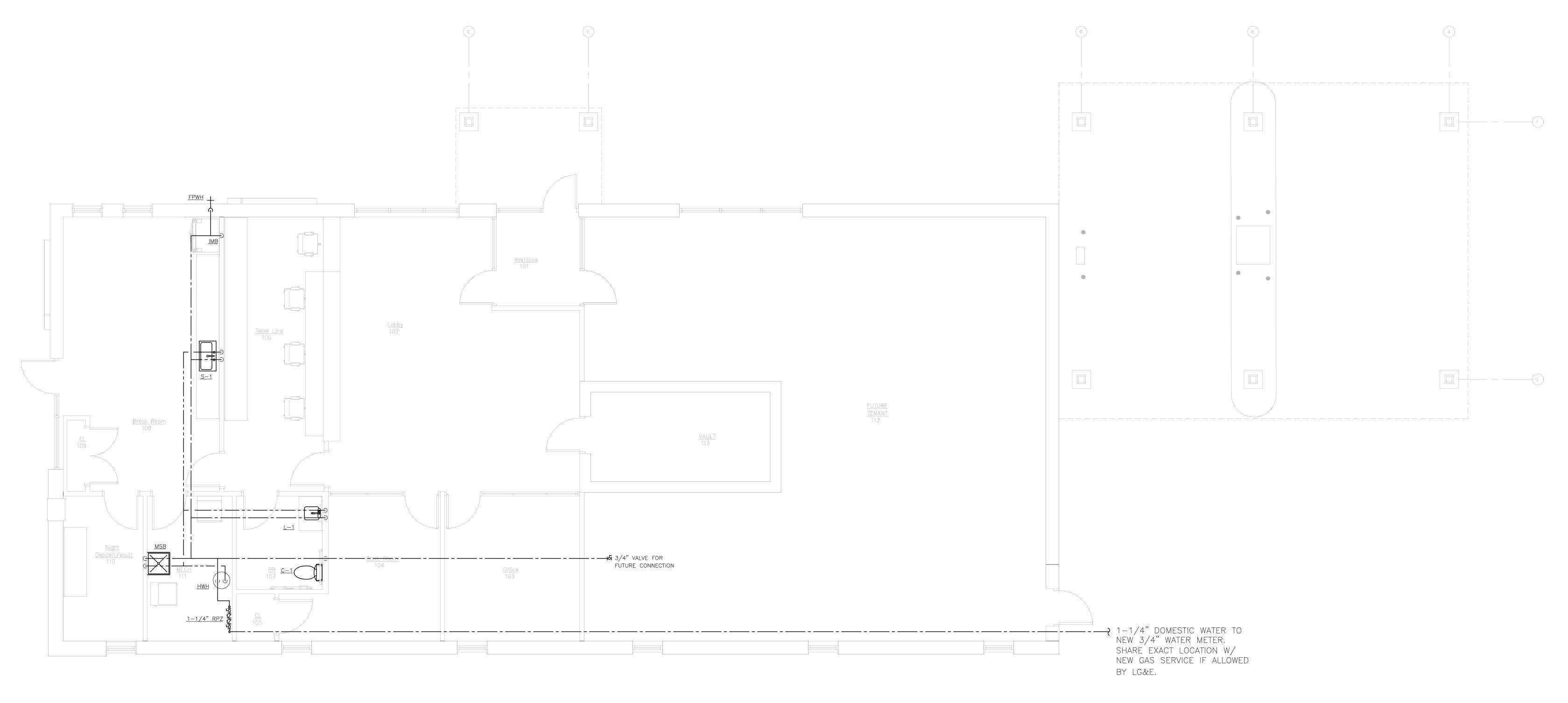
OWNER
FIRST HARRISON BANK





OWNER FIRST HARRISON BANK





Conf. Room 104

NEW GAS METER AND SERVICE FOR FIRST HARRISON BANK. COORDINATE WITH LG&E.

SHUT-OFF VALVE FOR FUTURE CONNECTION. VERIFY EXACT LOCATION ON SITE.

NEW GAS METER AND SERVICE FOR FUTURE TENANT. COORDINATE WITH LG&E.

1 PLUMBING PLAN - NATURAL GAS PLAN 1/4" = 1'-0"

GAS FURNACE (80,000 BTUH)

GENERAL NOTES:

- A. REFER TO SPECIFICATIONS AND THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- B. ALL MECHANICAL WORK SHALL BE PERFORMED BY A LICENSED MECHANICAL CONTRACTOR.
- . ALL WORK SHALL BE COORDINATED AND SCHEDULED WITH THE CONSTRUCTION MANAGER (CM) OR GENERAL CONTRACTOR (GC), OTHER TRADES, THE OWNER, AND RELATED UTILITY COMPANIES. ALL WORK SHALL COINCIDE WITH THE CONSTRUCTION PHASING PER THE CONTRACT DOCUMENTS OR CONSTRUCTION DOCUMENTS AND/OR AS MODIFIED BY THE CM/GC AND APPROVED BY THE OWNER AND DESIGN TEAM. THE MECHANICAL CONTRACTOR SHALL COORDINATE AND DEVELOP A PHASING PLAN WHERE ONE IS NOT EXPLICITLY SHOWN AND SHALL ENSURE THAT SAID PHASING PLAN IS APPROVED PRIOR TO PROCEEDING WITH WORK. ANY AND ALL DEMOLITION SHALL NOT PERMIT INTERRUPTION OF SERVICE IN AN OCCUPIED BUILDING UNLESS COORDINATED AND APPROVED.
- ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF DUCTWORK, PIPING, EQUIPMENT, AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, SEQUENCE, DEVICE, OPTION, FITTING, VALVE, OR COMPONENT. CONTRACTOR TO PROVIDE ANY ADDITIONAL DUCT OR PIPING OFFSETS AND/OR FITTINGS, INCLUDING DIVIDED DUCTS AND FLATTENED DUCTS, REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN CLEARANCES AS ENCOUNTERED IN THE FIELD.
- THE MECHANICAL CONTRACTOR SHALL OBTAIN A COPY OF THE ENTIRE SET OF CONTRACT DOCUMENTS PRIOR TO BID AND SHALL COORDINATE ROUTING AND INSTALLATION OF MECHANICAL DUCTWORK, PIPING, AND EQUIPMENT WITH ALL OTHER DISCIPLINES AND TRADES INCLUDING BUT NOT LIMITED TO CIVIL, ARCHITECTURAL, STRUCTURAL, FIRE SUPPRESSION, PLUMBING, AND ELECTRICAL.
- REFER TO THE ENTIRE SET OF CONTRACT DOCUMENTS FOR DETAILS OF CONSTRUCTION AND INSTALLATION REQUIREMENTS. FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR COMPLETION AND OPERATION OF A FULLY FUNCTIONAL MECHANICAL SYSTEM AND IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING BUT NOT LIMITED TO BUILDING CODE, ASHRAE, IMC, IECC, SMACNA, AND NFPA.
- THE EXACT LOCATIONS OF ALL EQUIPMENT, DUCTS, DIFFUSERS, ETC. SHALL BE COORDINATED WITH ALL OTHER TRADES. CEILING MOUNTED LIGHTING AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL EQUIPMENT. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING GRID AND LIGHTING LAYOUT FOR COORDINATION OF FINAL DIFFUSER LOCATIONS.
- H. THE MECHANICAL DRAWINGS REFLECT A "BASIS OF DESIGN" HVAC SYSTEM THAT HAS BEEN DESIGNED AROUND SPECIFIC PRODUCTS/MANUFACTURER'S (SEE SCHEDULES). THE SELECTION OF A "BASIS OF DESIGN" HAS INFLUENCED THE DESIGNS OF OTHER TRADES (ELECTRICAL, STRUCTURAL, ETC.), THE CONTRACTOR MAY USE "NON-BASIS OF DESIGN" PRODUCTS/MANUFACTURER'S AS PERMITTED BY THE SPECIFICATIONS AND/OR CONTRACT DOCUMENTS. COORDINATION OF ALL MODIFICATIONS TO EACH DISCIPLINE WHICH RESULT FROM THE USE OF "NON-BASIS OF DESIGN" EQUIPMENT OR MATERIALS SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. IF "NON-BASIS OF DESIGN" MANUFACTURERS, SIZES, OR MODEL NUMBERS ARE BID, SUBMITTED, OR INSTALLED; IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND ALL OF HIS OR HER SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES PRIOR TO BID. ALL COSTS OF ALL TRADES ASSOCIATED WITH THE USE OF "NON-BASIS OF DESIGN" EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND SHALL BE INCLUDED IN THE BID. SUBSEQUENTLY, ANY ADDITIONAL COST BORE BY THE ENGINEER (MECHANICAL, ELECTRICAL, ETC) TO ACCOMMODATE "NON-BASIS OF DESIGN" EQUIPMENT SHALL BE BORE BY THE CONTRACTOR AND PAID TO THE ENGINEER OF RECORD DURING SUBMITTALS.
- NON-BASIS OF DESIGN EQUIPMENT OR MATERIALS AS ALLOWED BY THE SPECIFICATIONS AND/OR CONTRACT DOCUMENTS, WHICH ARE INSTALLED AND SUBSEQUENTLY VIEWED UNSATISFACTORY BY THE OWNER AND/OR ENGINEER WITHIN THE WARRANTY PERIOD, SHALL BE REMOVED COMPLETELY BY THE CONTRACTOR AND REPLACED WITH THE ORIGINAL DESIGN OR CORRECTED AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.
- 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 WILL BE MADE FOR LACK THEREOF.
- . THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR ALL PERMITS, TESTING, AND INSPECTIONS.
- THE ENTIRE MECHANICAL INSTALLATION SHALL BE AS REQUIRED TO MAINTAIN FIRE/SMOKE RATINGS AND/OR "UL" ASSEMBLY RATINGS AS REQUIRED BY THE CONTRACT DOCUMENTS AND AS SHOWN ON THE ARCHITECTURAL. 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.
- M. 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.
- N. ALL 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. ALL OPENINGS SHALL BE CORE DRILLED OR SAW-CUT. NO "HAMMER <u>DRILLING</u>" WILL BE ALLOWED.

- O. 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.
- P. ALL AIR DEVICES LOCATED ABOVE GYPBOARD OR HARD CEILINGS SHALL HAVE ACCESSIBLE BALANCING DAMPERS.
- Q. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS.
- R. PROVIDE AND INSTALL DUCT ACCESS DOORS FOR INSPECTION OF ALL INSTALLED FIRE DAMPERS AS DIRECTED BY SMACNA HVAC CONSTRUCTION STANDARDS.
- S. 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 THE
- T. ALL HVAC EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. UTILIZE FACTORY FILTERS DURING CONSTRUCTION.
- U. 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.
- V. PROVIDE A MANUAL VOLUME DAMPER AT ALL BRANCH TAKE-OFFS ON SUPPLY AND RETURN. COORDINATE ADDITIONAL MANUAL VOLUME DAMPER LOCATIONS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM WITH THE ENGINEER PRIOR TO ORDER, FABRICATION, OR INSTALLATION.
- W. ALL DUCT DIMENSIONS SHOWN ARE INTERIOR "CLEAR" DUCT
- X. MAINTAIN 10'-0" MINIMUM CLEARANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST, PLUMBING VENTS, ETC. AND/OR AS REQUIRED BY THE BUILDING CODE, WHICHEVER IS MORE STRINGENT.
- Y. MAINTAIN 10'-0" MINIMUM CLEARANCE FROM EDGE OF ROOFTOP EQUIPMENT TO ROOF EDGE UNLESS RAILING OR PARAPET OF SUFFICIENT HEIGHT IS TO BE PROVIDED IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING BUT NOT LIMITED TO: IBC, IMC, LOCAL CODES, OSHA GUIDELINES (WHERE APPLICABLE). REFER TO ARCHITECTURAL.
- Z. ALL CONTROL WIRING AND CONDUIT SHALL COMPLY WITH NEC.
- AA. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND DRAWINGS FOR CONNECTIONS AND LOCATION OF ALL EQUIPMENT.
- AB. CONTRACTOR SHALL PROVIDE ADDITIONAL OFFSETS OR BENDS IN PIPING AS REQUIRED TO ALLOW FOR EXPANSION AND CONTRACTION DUE TO TEMPERATURE CHANGES AND DIFFERENCES IN THE AMBIENT TEMPERATURE WHEN PIPING AND EQUIPMENT IS INSTALLED.
- AC. ALL ROOF PENETRATIONS SHALL BE IN COMPLIANCE WITH THE ROOFING MANUFACTURER'S GUIDELINES AND THE AMERICAN ROOFING COUNCIL. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AS NECESSARY TO MAINTAIN ALL WARRANTIES.
- AD. STRUCTURAL MEMBERS SHALL NOT BE CUT OR COMPROMISED IN ANY
- AE. DO NOT BLOCK ACCESS TO HVAC OR ELECTRICAL EQUIPMENT. DO NOT INSTALL PIPING, DUCTWORK, OR EQUIPMENT OVER ELECTRICAL PANELS/SWITCHGEAR OR THE 30" x 42" (W x D) CLEARANCE IN FRONT OF THESE ELECTRICAL ITEMS. COORDINATE ADDITIONAL REQUIREMENTS WITH NEC.

ABBREVIATIONS

ABOVE FINISHED FLOOR AMPERE ARCH ARCHITECT BHP BRAKE HORSEPOWER BTU BRITISH THERMAL UNIT BTUH BTU PER HOUR CFM CUBIC FEET PER MINUTE DB DRY BULB TEMPERATURE DEG DEGREE DDC DIRECT DIGITAL CONTROL DIA DIAMETER DIM DIMENSION DP DIFFERENTIAL PRESSURE EXHAUST AIR EΑ EAT ENTERING AIR TEMPERATURE ELECTRONIC COMMUTATED MOTOR ECM ELEC ELECTRICAL EXTERNAL STATIC PRESSURE ESP EXISTING EX FAHRENHEIT FLA FULL LOAD AMPS FLEX FLEXIBLE FT FEET FT-HD FEET HEAD G GAS GΑ GAUGE GAL GALLONS GALV GALVANIZED GENERAL CONTRACTOR GPM GALLONS PER MINUTE HDHEAD HP HORSEPOWER ΗZ HERTZ (FREQUENCY, CYCLES PER SECOND) INCHES ΚW KILOWATT LENGTH LAT LEAVING AIR TEMPERATURE MAX MAXIMUM THOUSAND BTUH MCA MINIMUM CIRCUIT AMPS MECH MECHANICAL MIN MINIMUM N/A NOT APPLICABLE NC NOISE CRITERIA NUMBER NOM NOMINAL NTS NOT TO SCALE OUTSIDE AIR OA PD PRESSURE DROP PHASE PVC POLYVINYL CHLORIDE RETURN AIR RPM REVOLUTIONS PER MINUTE SEN SENSIBLE SHC SENSIBLE HEAT CAPACITY STATIC PRESSURE SPECS **SPECIFICATIONS** SQ SQUARE SF SQUARE FEET SUP SUPPLY TEMPERATURE TEMP **TEMPERATURE** TSTAT **THERMOSTAT** 12,000 BTUH COOLING CAPACITY TON TYP TYPICAL VOLTS (ELECTRICAL) WET BULB TEMPERATURE EXHAUST AIR EXHAUST GRILLE FD FIRE DAMPER (W/ ACCESS DOOR) MOTOR OPERATED DAMPER MUA MAKE-UP AIR OA OUTSIDE AIR OBD OPPOSED BLADE DAMPER RA RETURN AIR RETURN GRILLE SUPPLY AIR

SUPPLY GRILLE

EXHAUST FAN

ROOF TOP UNIT

MAKE-UP AIR UNIT

VOLUME DAMPER

DIRECT DIGITAL CONTROL

TOTAL STATIC PRESSURE (IN. WG)

MINIMUM EFFICIENCY REPORTING VALUE

TSP

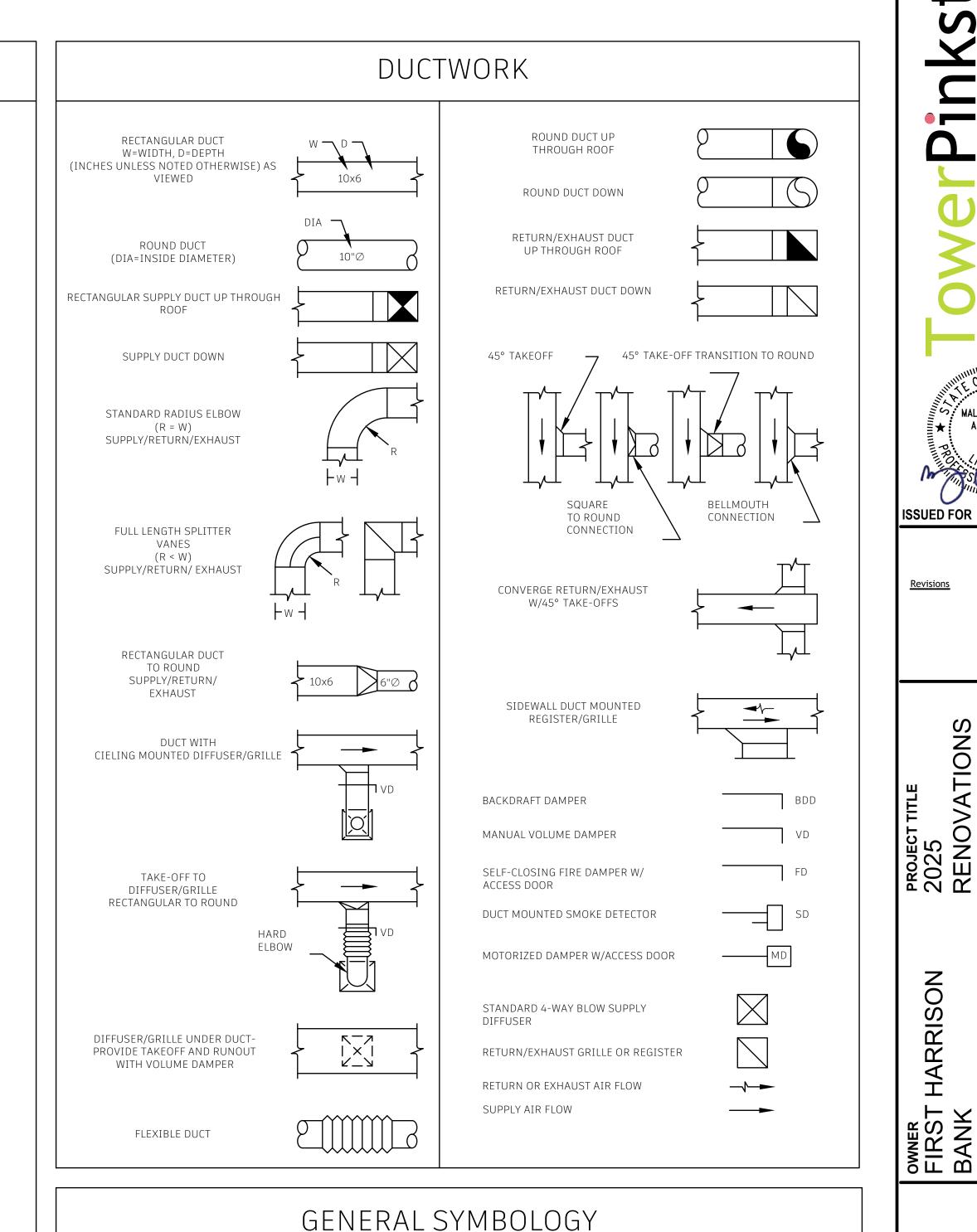
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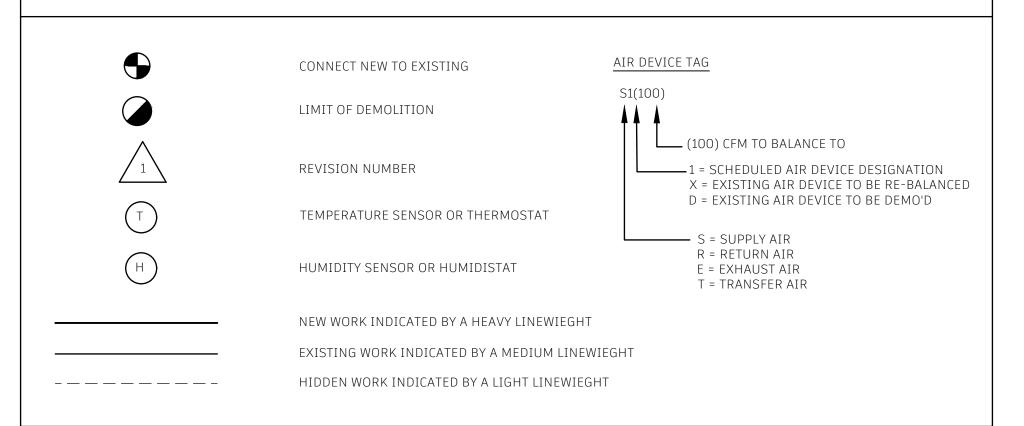
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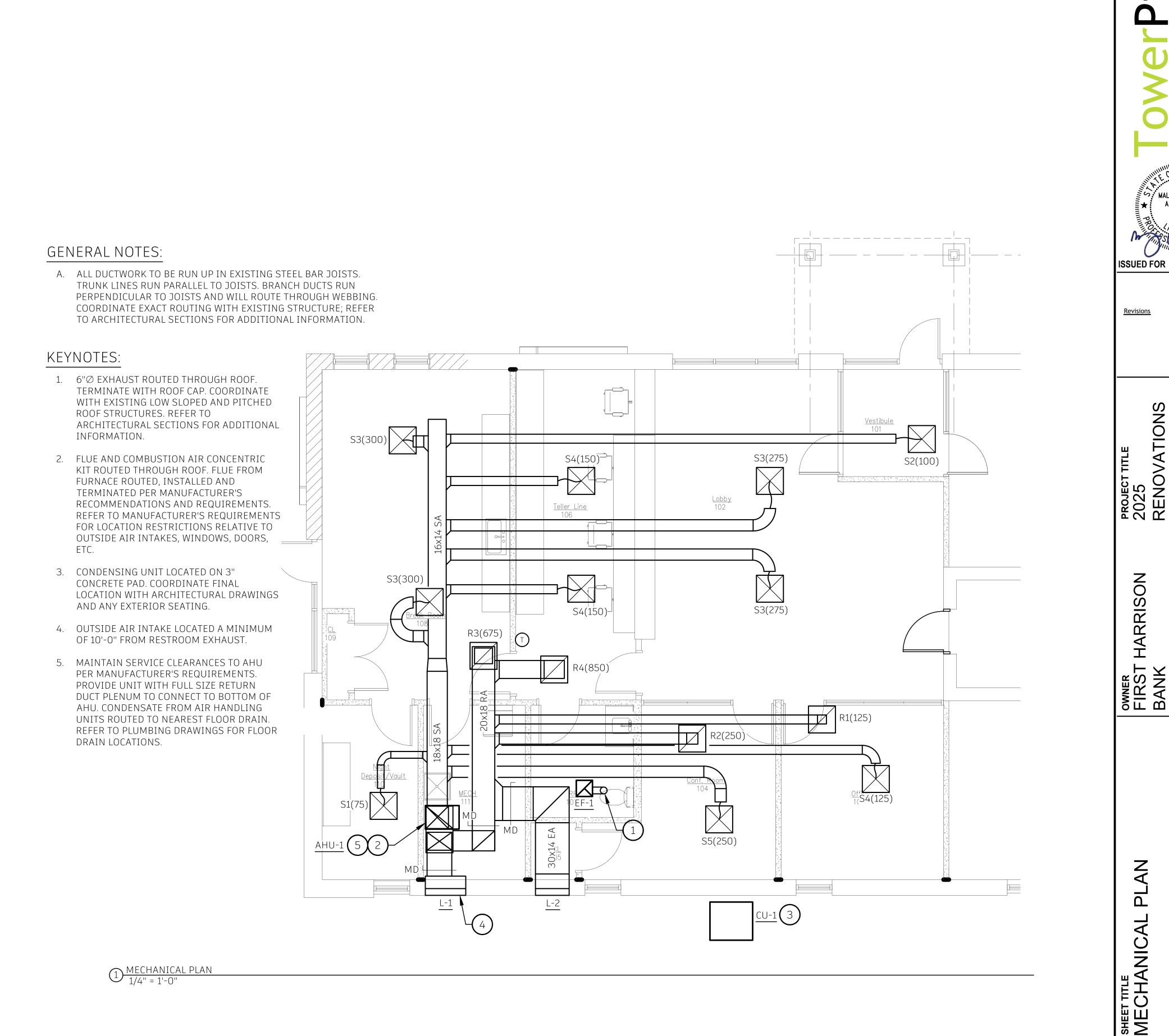
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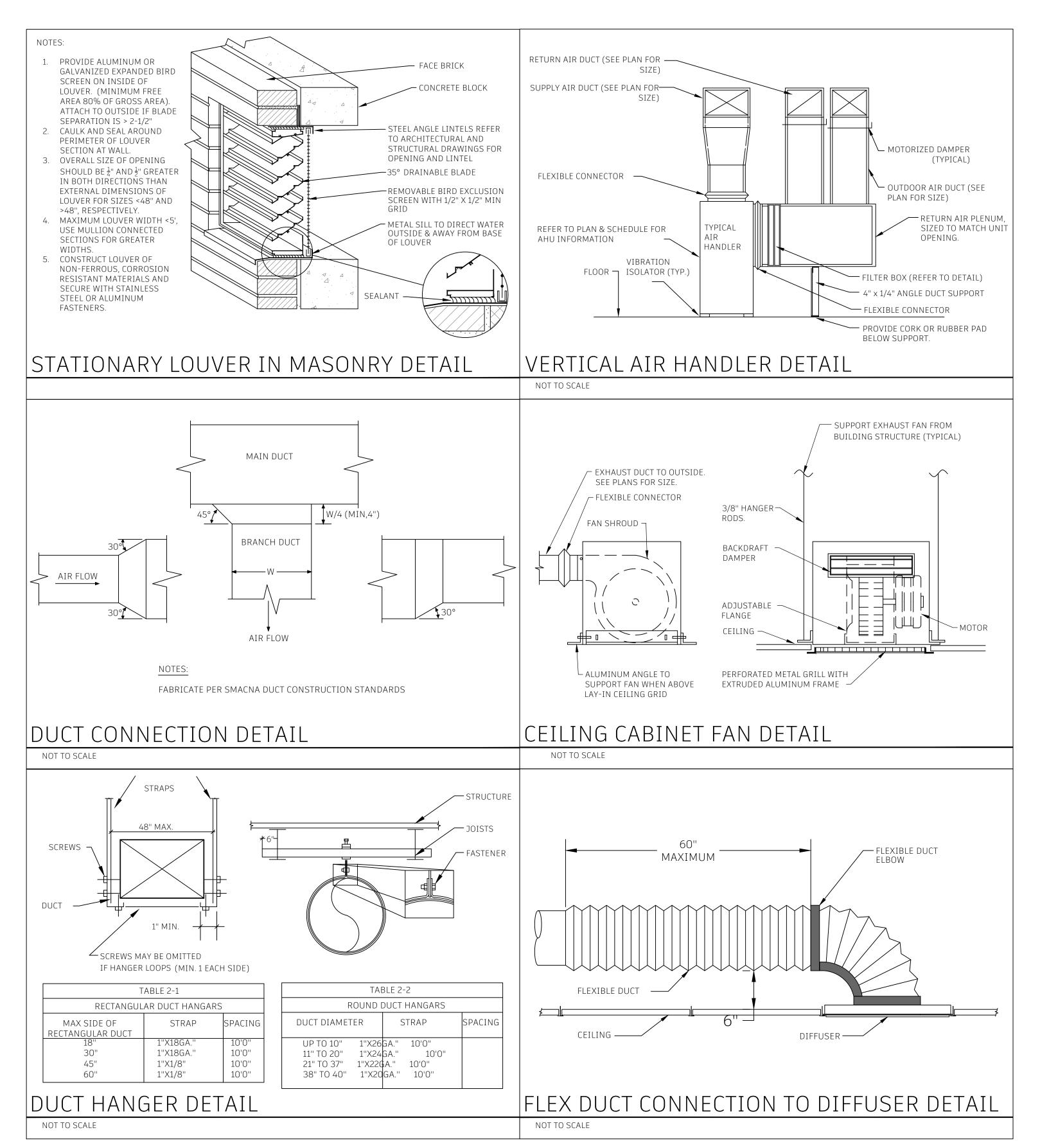


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AIR DEVICE SCHEDULE										
MARK	MANUFACTURER MODEL MAX CFM MODULE MOU		MOUNTING	DUCT RUN OUT SIZE	REMARKS					
S-1	PRICE	SCDA	75	24X24	LAY-IN	6"Ø	ALL			
S-2	PRICE	SCDA	200	24X24	LAY-IN / SURFACE	8"Ø	ALL			
S-3	PRICE	SCDA	300	24X24	LAY-IN	10"Ø	ALL			
S-4	PRICE	VPD	150	24X24	LAY-IN	8"Ø	ALL			
S-5	PRICE	VPD	250	24X24	LAY-IN	10"Ø	ALL			
R-1	PRICE	80	200	24X24	LAY-IN	8x8	1,2,5,6			
R-2	PRICE	80	300	24X24	LAY-IN	10x10	1,2,5,6			
R-3	PRICE	80	675	24X24	LAY-IN	16x14	1,2,5,6			
D_/,	DDICE	80	850	2/1/2/1	1 AV-1NI	19716	1256			

REMARKS:

- 1. PROVIDE WITH WHITE FINISH
- 2. COORDINATE AIR DEVICE LOCATIONS WITH REFLECTED CEILING PLANS PRIOR TO INSTALLATION. LIGHTING HAS PRIORITY OVER HVAC.
- PROVIDE SQUARE TO ROUND ADAPTER AS REQUIRED.
- 4. PROVIDE WITH INSULATED BACK.
- 5. N.C. SHALL NOT EXCEED 20.
- 6. PROVIDE WITH APPROPRIATE ACCESSORIES FOR MOUNTING TYPE INDICATED. REFER TO RCP FOR CEILING TYPE.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: TITUS, NAILOR. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

	EXHAUST FAN SCHEDULE										
MADK	ARK MANUFACTURER MODEL	CEM	ESP DF	DRIVE	RPM		ELECT	RICAL		REMARKS	
MAKK		NOFACIONER MODEL CA	(I	(IN H20) T	TYPE	KPIVI	V/Ø/Hz	WATTS	MCA	MOCP	KLMAKKS
EF-1	GREENHECK	SP-A90	75	0.25	DIRECT	900	115/1/60	15	0.2	15	ALL
REMARKS:		100		•							

- . PROVIDE WITH UNIT MOUNTED DISCONNECT
- PROVIDE WITH UNIT MOUNTED SPEED CONTROL
- B. PROVIDE WITH APPROPRIATE BACKDRAFT DAMPER . EXHAUST FAN TO OPERATE WITH LIGHTING CONTROL.
- 5. SUPPORT FROM THE STRUCTURE WITH VIBRATION ISOLATION HARDWARE.
- 5. TERMINATE WITH ROOF CAP.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: CARNES, COOK. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

	LOUVER SCHEDULE										
MARK	ARK MANUFACTURER MODEL	MODEL	INTAKE /		SIZE		(J-M	PRESSURE	FREE AREA	VELOCITY	REMARKS
IVIARK	MANUFACIURER	MODEL	RELIEF	WIDTH	HEIGHT	DEPTH		DROP (IN)	(SQ FT)	(FPM)	REMARKS
L-1	GREENHECK	ESD-635	INTAKE	36	24	6	2000	0.07	2.8	702	ALL
L-2	GREENHECK	ESD-635	EXHAUST	36	24	6	2000	0.08	2.8	791	ALL
DEMADKS.											

- 1. LOUVER COLOR SELECTED BY ARCHITECT
- 2. COORDINATE LOCATION WITH LIGHTS, STRUCTURE, ETC.
- 3. ALUMINUM CONSTRUCTION WITH DRAINABLE BLADES
- 4. MAXIMUM NC LEVEL OF 25
- 5. PROVIDE BIRD AND INSECT SCREEN
- 6. PROVIDE WITH MOTORIZED DAMPER AND ACTUATOR.
- OTHER ACCEPTABLE MANUFACTURERS INCLUDE: RUSKIN. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

	VE	ENTILATIO	N SCHEDULE -	PER 2015 IN	TERNATION	AL MECHANIO	CAL CODE		
MARK	AREA SERVED	AREA (SQ FT)	ROOM TYPE	CFM/SQ FT	NO. OF OCCUPANTS	CFM/PERSON	EA MAKEUP (CFM)	TOTAL OA REQUIRED (CFM)	TOTAL OA PROVIDED (CFM)
	101 VESTIBULE	62	MAIN ENTRY LOBBY	0.06	2	5	=:	4	
	102 LOBBY	500	MAIN ENTRY LOBBY	0.06	10	5	53	30	
	103 OFFICE	156	OFFICE	0.06	4	5	52	29	
	104 CONFERENCE	148	CONFERENCE ROOM	0.06	10	5	ES.	59	
AHU-1 / HP-1	106 TELLER	217	OFFICE	0.06	4	5	28	33	240
	107 RESTROOM	62	TOILET ROOM	=	9	22	75	2	
	108 BREAKROOM	342	CONFERENCE ROOM	0.06	10	5	48	71	1
	110 NIGHT DEPOSIT	92	STORAGE	0.12	-	-	=1	11	
	111 MECH	97	-	-		·	±x	-	

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SPLIT SYSTEM SCHEDULE SENS. COOLING NATURAL GAS HEATING ELECTRICAL - AHU ELECTRICAL - CU SUPPLY FAN NOMINAL MANUFACTURER MODEL (COIL / FURANCE / HP) INPUT OUTPUT UPPLY AIRFLOW OUTSIDE AIR ESP SEER CAPACITY @ CAPACITY @ REMARKS TONNAGE MCA MOCP V/Ø/Hz MCA MOCP V/Ø/Hz (MBH) (MBH) 95/75F (BTU/hr) 95/75F (BTU/hr CTM60C5CGS1 / Z9ES080C20SMPS1 / XC360E3S11 2,000 240 0.75 13.4 80 AHU-1 / CU-1 14.6 20 208/3/60 40

- 1. FURNISH WITH WIRED REMOTE 7-DAY PROGRAMMABLE THERMOSTAT
- PROVIDE WITH INSULATED, DOUBLE WALL GALVANIZED OR STAINLESS STEEL DRAIN PAN.
- B. PROVIDE WITH INTEGRAL DISCONNECT. 4. SINGLE POINT POWER CONNECTION.
- 5. PROVIDE WITH WATER-LEVEL MONITORING DEVICE (FLOAT SWITCH). DEVICE SHALL BE INSTALLED INSIDE THE PRIMARY DRAIN PAN AND SHALL BE INTERLOCKED TO SHUT DOWN UNIT.
- b. PROVIDE LIQUID LINE SPECIALTIES INCLUDING FILTER DRIER, SIGHT GLASS, TXV, SOLENOID VALVE, 24V 1ph CONTROL WIRE BY CONTROLS CONTRACTOR.
- 7. PROVIDE WITH 2" FILTER.
- 8. PROVIDE WITH ECONOMIZER CAPABILITIES WITH MOTORIZED DAMPERS ON OUTSIDE AIR, RELIEF AIR, AND RETURN AIR DUCTWORK.
- REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. OTHER ACCEPTABLE MANUFACTURERS INCLUDE: DAIKIN, TRANE, AAON, JCI, CARRIER

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MALLORY L. I ANDERSON 36770 **ISSUED FOR**

Revisions

T HARRISON

SHEET TITLE
MECHANICAL
SCHEDULES

- A. THIS SECTION COVERS THE GENERAL ARRANGEMENT OF THE MECHANICAL SYSTEMS AND RELATED ITEMS TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
- B. THE GENERAL AND SPECIAL CONDITIONS AND ALL OTHER CONTRACT DOCUMENTS ARE APPLICABLE TO WORK UNDER THIS SECTION OF THE SPECIFICATIONS. ALL THE WORK UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE GOVERNED BY ANY ALTERNATES
- C. THE MECHANICAL CONTRACTOR, HEREIN REFERRED TO AS "CONTRACTOR" UNLESS NOTED OTHERWISE, SHALL FAMILIARIZE HIMSELF WITH THE WORK OF ALL OTHER TRADES, GENERAL TYPE CONSTRUCTION AND THE RELATIONSHIP OF HIS WORK TO OTHER SECTIONS. HE SHALL EXAMINE ALL WORKING DRAWINGS, SPECIFICATIONS AND CONDITIONS AFFECTING HIS WORK. THE CONTRACTOR SHALL VISIT THE PREMISES AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL DETAILS OF THE WORK AND WORKING CONDITIONS, VERIFY ALL DIMENSIONS IN THE FIELD AND ADVISE THE ENGINEER OF ANY DISCREPANCY BEFORE

AND UNIT PRICES CALLED FOR IN THE FORM OF PROPOSAL INSOFAR AS THEY AFFECT THIS PORTION OF THE WORK.

- D. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND PIPING AT THE COMPLETION OF THE WORK AND MAKING ANY MINOR CONNECTION CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND
- E. THE CONTRACTOR SHALL PERFORM ALL NECESSARY TEMPORARY WORK DURING CONSTRUCTION.
- F. WORK UNDER THIS SECTION SHALL CONFORM TO ALL GOVERNING CODES, ORDINANCES AND REGULATIONS OF THE CITY, COUNTY
- G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERRORS IN FABRICATION, FOR THE CORRECT FITTING, INSTALLATION AND ERECTION OF THE VARIOUS MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS.
- H. ANY MATERIALS, LABOR, EQUIPMENT, OR SERVICES NOT MENTIONED SPECIFICALLY HEREIN WHICH MAY BE NECESSARY TO COMPLETE ANY PART OF THE MEP/FP SYSTEMS IN A SUBSTANTIAL MANNER AND IN COMPLIANCE WITH THE REQUIREMENTS STATED, IMPLIED, OR INTENDED IN THE PLANS AND/OR SPECIFICATIONS, SHALL BE INCLUDED IN THE BID AS PART OF THIS

I. THE CONTRACTOR SHALL HOLD HARMLESS AND INDEMNIFY THE ENGINEER, ARCHITECT, EMPLOYEES, OFFICERS, AGENTS AND CONSULTANTS FROM ALL CLAIMS, LOSS, DAMAGE, ACTIONS, CAUSES OF ACTIONS, EXPENSE AND/OR LIABILITY RESULTING FROM BROUGHT FOR, OR ON ACCOUNT OF ANY PERSONAL INJURY OR PROPERTY DAMAGE RECEIVED OR SUSTAINED BY ANY PERSON, PERSONS, (INCLUDING THIRD PARTIES), OR ANY PROPERTY GROWING OUT OF, OCCURRING, OR ATTRIBUTABLE TO ANY WORK PERFORMED UNDER OR RELATED TO THIS CONTRACT, RESULTING IN WHOLE OR IN PART FROM THE NEGLIGENCE OF THE CONTRACTOR, ANY SUB-CONTRACTOR, ANY EMPLOYEE, AGENT OR REPRESENTATIVE.

- A. THIS BRANCH OF THE WORK INCLUDES COORDINATION WITH ALL REASONABLE UTILITY COMPANIES; AGENCY REVIEW FEES AND ALL INSPECTION FEES: ALL LABOR, MATERIALS, TOOLS, EXCAVATION AND BACKFILL AND ALL EQUIPMENT NECESSARY FOR THE INSTALLATION OF ALL HEATING, VENTILATING AND AIR CONDITIONING, SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS AND/OR AS REQUIRED FOR COMPLETE AND OPERATING SYSTEMS. THE WORK SHALL INCLUDE STARTING, BALANCING, AND THE NECESSARY AND REQUIRED TESTS TO INSURE THE PROPER OPERATION OF THE COMPLETE SYSTEM.
- . IN GENERAL (AS A MINIMUM) ALL MATERIALS AND EQUIPMENT MUST BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS: AND PROVIDED WITH ALL REQUIRED CONTROLS. INTERNAL FUSING. RELAYS. PIPING CONNECTIONS, ELECTRICAL CONNECTIONS, DUCTWORK CONNECTIONS, ETC., TO PROVIDE FOR COMPLETE AND OPERABLE SYSTEMS.
- THE ARCHITECT AND ENGINEER DO NOT DEFINE THE SCOPE OF INDIVIDUAL TRADES, SUB-CONTRACTORS, MATERIAL SUPPLIERS AND VENDORS. ANY SHEET NUMBERING SYSTEM OR SPECIFICATION NUMBERING SYSTEM USED WHICH IDENTIFIES DISCIPLINES IS SOLELY FOR THE ARCHITECT AND ENGINEER'S CONVENIENCE AND IS NOT INTENDED TO DEFINE A SUB-CONTRACTOR'S SCOPE OF WORK. INFORMATION REGARDING INDIVIDUAL TRADES, SUB-CONTRACTORS, MATERIAL SUPPLIERS AND VENDORS MAY BE DETAILED, DESCRIBED, AND INDICATED AT DIFFERENT LOCATIONS THROUGHOUT THE CONTRACT DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO REQUESTS FOR CHANGE ORDERS FOR FAILURE TO OBTAIN AND REVIEW THE COMPLETE SET OF CONTRACT DOCUMENTS WHEN PREPARING BIDS, PRICES, AND QUOTATIONS. UNLESS STATED OTHERWISE, THE SUBDIVISION AND ASSIGNMENT OF WORK UNDER THE VARIOUS SECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR HOLDING THE PRIME
- D. IT IS THE RESPONSIBILITY OF THE BIDDER TO COMPLETELY REVIEW THE CONTRACT DOCUMENTS. ANY INTERPRETATION AS TO DESIGN INTENT OR SCOPE SHALL BE PROVIDED BY THE ENGINEER / ARCHITECT. SHOULD AN INTERPRETATION BE REQUIRED, THE BIDDER SHALL REQUEST A CLARIFICATION NOT LESS THAN TEN (10) DAYS PRIOR TO THE SUBMISSION OF THE PROPOSAL SO THAT THE CONDITION MAY BE CLARIFIED BY ADDENDUM. IN THE EVENT OF ANY CONFLICT, DISCREPANCY, OR INCONSISTENCY DEVELOPS; THE INTERPRETATION OF THE ENGINEER SHALL BE FINAL.
- E. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE OF ANY MATERIALS OR APPARATUS BELIEVED INADEQUATE OR UNSUITABLE; IN VIOLATION OF LAWS, ORDINANCES, CODES, RULES, OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION; AND ANY NECESSARY ITEMS OF WORK OMITTED A MINIMUM OF TEN (10) DAYS PRIOR TO BID. IN THE ABSENCE OF SUCH WRITTEN NOTICE AND BY THE ACT OF SUBMITTING A BID, IT SHALL BE UNDERSTOOD THAT THE CONTRACTOR HAS INCLUDED THE COST OF ALL REQUIRED ITEMS IN THE BID, AND THAT WILL BE RESPONSIBLE FOR THE APPROVED SATISFACTORY FUNCTIONING OF THE ENTIRE SYSTEM WITHOUT EXTRA COMPENSATIONS.

F. AS-BUILT DRAWING

- THE CONTRACTOR SHALL DELIVER TO THE ENGINEER AT THE COMPLETION OF THE WORK, ONE (1) PRINT OF "AS-BUILT" DRAWINGS, SHOWING LEGIBLY AND ACCURATELY, PLUMBING AND PIPING SYSTEMS WITH EQUIPMENT LOCATIONS SHOWN AS ACTUALLY INSTALLED. CHANGES IN ORIGINAL PLANS SHALL BE NEATLY SHOWN IN RED PENCIL. EACH PRINT SHALL BE SIGNED BY THE SUB-CONTRACTOR WHO HAS DONE THE WORK.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL RETAIN A SET OF BLUE LINE DRAWINGS ON THE SITE FOR RECORDING ALL CHANGES. THESE DRAWINGS SHALL BE AVAILABLE FOR INSPECTION BY THE ENGINEER.
- OPERATION AND MAINTENANCE DATA: SUBMIT (3) SETS OF OPERATING AND MAINTENANCE MANUALS PRIOR TO THE COMPLETION OF THE PROJECT. PROVIDE ON-SITE DEMONSTRATION OF ALL SYSTEMS TO OWNER AFTER SYSTEMS ARE FULLY OPERATIONAL. 0&M MANUALS SHALL INCLUDE ALL COMPONENTS (DIFFUSERS, VALVES, ETC.) AS WELL AS SYSTEM PARTS AND ROUTINE MAINTENANCE REQUIREMENTS WITH RECOMMENDED INTERVALS FOR ALL MOVING EQUIPMENT AND CONTROLS

B DRAWINGS AND SPECIFICATIONS

- A. CONTRACT DRAWINGS FOR WORK UNDER THIS SECTION ARE IN PART DIAGRAMMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT, PIPING AND THE APPROXIMATE SIZE AND LOCATION OF EQUIPMENT AND OUTLETS. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN LAYING OUT HIS WORK AND SHALL VERIFY SPACES IN WHICH HIS WORK WILL BE INSTALLED, INDICATING TO THE ENGINEER WHERE ANY CONFLICTS OR OVERLAPPING OF SYSTEMS OCCUR, ANY ITEM OF WORK NOT CLEARLY INCLUDED. SPECIFIED AND/OR SHOWN, ERRORS OR CONFLICT BETWEEN PLANS (MECHANICAL, ARCHITECTURAL, STRUCTURAL OR ELECTRICAL), SPECIFICATIONS, CODES AND FIELD CONDITIONS, SHALL BE CLARIFIED BY A WRITTEN REQUEST TO THE ARCHITECT BY THE BIDDER BEFORE BIDDING; OTHERWISE, THE BIDDER SHALL, AT HIS OWN EXPENSE, SUPPLY THE PROPER LABOR AND MATERIALS TO INCLUDE THESE ITEMS OF WORK AND TO MAKE GOOD ANY DAMAGES OR DEFECTS IN HIS WORK CAUSED BY SUCH ERROR, OMISSION OR CONFLICT. UNDER NO CIRCUMSTANCES SHALL A CONTRACTOR SCALE THE DRAWINGS FOR THE LOCATION OF EQUIPMENT AND WORK.
- B. IN THE EVENT THERE IS A CONFLICT WITHIN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. IF A CLARIFICATION IS NOT GIVEN, THE CONTRACTOR SHALL BID THE MORE STRINGENT OF THE TWO
- SHOULD CONFLICT, OVERLAP OR DUPLICATION OF WORK BETWEEN THE VARIOUS TRADES BECOME EVIDENT, THIS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER. NEITHER TRADE SHALL ASSUME TO BE RELIEVED OF THE WORK WHICH IS SPECIFIED UNDER THEIR BRANCH UNTIL INSTRUCTIONS IN WRITING ARE RECEIVED FROM THE ENGINEER.
- WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, PROPOSED DEPARTURES SHALL BE SUBMITTED WITH DETAILED DRAWINGS TO THE ENGINEER FOR APPROVAL BEFORE ANY OF THE PROPOSED WORK IS COMMENCED. ALL APPROVED DEPARTURES SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.
- E. THE DRAWINGS AND THE SPECIFICATIONS ARE INTENDED TO INDICATE COMPLETE AND WORKING SYSTEMS, UNLESS SPECIFICALLY INDICATED TO THE CONTRARY. THE WORK INCLUDES THE FURNISHING, INSTALLING, AND CONNECTING OF A COMPLETE WORKING INSTALLATION IN EACH CASE TO THE FULL EXTENT SET FORTH IN THE DRAWINGS AND HEREIN SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE FUNCTIONING SYSTEM, UNLESS SPECIFICALLY NOTED OTHERWISE.
- F. THE DRAWINGS AND SPECIFICATIONS CONSTITUTE THE CONTRACT DOCUMENTS AND SHALL BE CONSIDERED AS COOPERATIVE. WORK AND MATERIAL INCLUDED IN EITHER, THOUGH NOT MENTIONED IN BOTH, SHALL BE A PART OF THE WORK TO BE ACCOMPLISHED AND SHALL BE CARRIED OUT COMPLETELY IN AS THOROUGH MANNER AS IF COVERED BY BOTH. ALL ITEMS SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATIONS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED THAT IT WILL BE PROVIDED AND/OR INSTALLED BY OTHERS. IN THE EVENT THERE IS A CONFLICT WITHIN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. IF A CLARIFICATION IS NOT GIVEN, THE CONTRACTOR SHALL BID THE MORE STRINGENT OF THE TWO REQUIREMENTS.
- G. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES THAT MAY BE REQUIRED. THE CONTRACTOR SHALL CAREFULLY INVESTIGATE THE STRUCTURAL AND FINISH CONDITIONS AFFECTING ALL HIS WORK AND SHALL ARRANGE SUCH WORK, ACCORDINGLY, FURNISHING SUCH FITTINGS, PIPE, TRAPS, VALVES AND ACCESSORIES AS MAY BE REQUIRED TO MAKE A FUNCTIONAL INSTALLATION AT NO ADDITIONAL COST TO THE OWNER..
- H. EACH CONTRACTOR SHALL REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR THE GENERAL CONSTRUCTION OF THE BUILDING, FOR FLOOR AND CEILING HEIGHTS, FOR LOCATION OF WALLS, PARTITIONS, BEAMS ETC., AND SHALL BE GUIDED ACCORDINGLY FOR THE SETTING OF ALL SLEEVES AND EQUIPMENT.
- I. UNDER NO CIRCUMSTANCES SHALL A CONTRACTOR SCALE THE DRAWINGS FOR THE LOCATIONS OF EQUIPMENT AND WORK.
- J. COORDINATION: CONFER WITH ALL OTHER TRADES RELATIVE TO LOCATION OF ALL APPARATUS AND EQUIPMENT TO BE INSTALLED AND SELECT LOCATIONS SO AS NOT TO CONFLICT WITH OR HINDER THE PROGRESS OF THE WORK OF OTHER SECTIONS. WORK INSTALLED THAT CREATES INTERFERENCE OR RESTRICTS ACCESS REQUIRED BY CODE (INCLUDING CLEARANCES TO ELECTRICAL COMPONENTS) OR TO CONDUCT MAINTENANCE AND/OR ADJUSTMENTS SHALL BE MODIFIED AT ADDITIONAL COST TO THE OWNER.

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K. CODES, STANDARDS, AUTHORITIES AND PERMITS: CODES, LAWS AND ORDINANCES PROVIDE A BASIS FOR THE MINIMUM INSTALLATION CRITERIA. THESE DRAWINGS AND SPECIFICATIONS ILLUSTRATE THE SCOPE REQUIRED FOR THIS PROJECT, WHICH MAY EXCEED MINIMUM CODE, LAW AND STANDARDS CRITERIA. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACKCHARGES AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION AS REQUIRED FOR THE EXECUTION OF ALL WORK ASSOCIATED WITH THIS PROJECT. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF: 1) THE STATE BUILDING, ELECTRICAL, MECHANICAL, AND ENERGY CODES, 2) SMACNA, NFPA, ANSI/ASHRAE, ASME, UL, AND NEMA STANDARDS, 3) ALL OTHER APPLICABLE CODES, REGULATIONS, STANDARDS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENT AND OTHER AUTHORITIES HAVING JURISDICTION, AND 4) APPLICABLE BASE BUILDING STANDARDS AND

1.4 EXAMINATION OF SIT

- A. BIDDERS SHALL VISIT THE SITE BEFORE SUBMITTING PROPOSALS TO SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF THE WORK AND ANY DIFFICULTIES ATTENDING TO THE EXECUTION.
- B. THE SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, MATERIALS, ETC., REQUIRED FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE, WILL NOT BE RECOGNIZED.

- A. ALL CUTTING AND PATCHING REQUIRED IN CONNECTION WITH THE INSTALLATION OF THIS WORK, AND WORK DUE TO ERRORS, DEFECTIVE WORK, ILL-TIMED WORK, OR TARDINESS IN PROPERLY DESIGNATING SIZE AND LOCATION IN SUFFICIENT TIME OR BY FAILURE TO NOTIFY OTHER TRADES, SHALL BE DONE UNDER THIS SECTION, BUT ONLY IN THE MANNER DIRECTED BY THE ENGINEER SO AS TO PREVENT OR MINIMIZE DAMAGE TO INSTALLED WORK. DAMAGE AS A RESULT OF CUTTING FOR INSTALLATION. SHALL BE REPAIRED BY MECHANICS SKILLED IN THE TRADE INVOLVED, AT NO ADDITIONAL EXPENSE TO THE OWNER.
- B. NO CUTTING OF STRUCTURAL MEMBERS WILL BE PERMITTED, EXCEPT WHEN PRIOR PERMISSION OF THE ENGINEER HAS BEEN OBTAINED. THIS WORK MUST CONFORM IN EVERY RESPECT TO THE SURROUNDING FINISH AND TO THE QUALITY OF WORKMANSHIP AND MATERIALS USED.
- C. PIERCING OF ANY WATERPROOFING OR ROOFING SHALL BE DONE ONLY BY THE TRADE INVOLVED. AFTER THE PART PIERCING THE WATERPROOFING HAS BEEN SET IN PLACE, THE OPENING MADE FOR THIS PURPOSE SHALL BE FILLED AND MADE ABSOLUTELY WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.
- D. SEE SECTION: 230517 SLEEVING, CUTTING, PATCHING AND REPAIRING MECHANICAL

1.6 FIRE AND SMOKE-STOPPIN

- A. FIRE-STOPPING AND SMOKE-STOPPING SHALL BE PROVIDED AROUND ALL PIPING AND DUCTWORK PENETRATIONS OF FIRE RATED AND/OR SMOKE-RATED FLOORS, WALLS, CEILINGS, OR OTHER BARRIERS.
- B. THE MATERIALS USED SHALL BE UL 263 OR UL 1479 CLASSIFIED AND MEET ASTM E814 STANDARDS AND BE RATED FOR ASSEMBLIES WHERE APPLIED.
- C. CLEAN SURFACES TO BE IN CONTACT WITH PENETRATION SEAL MATERIALS, OF DIRT, GREASE, OIL, LOOSE MATERIALS, RUST, OR OTHER SUBSTANCES THAT MAY AFFECT PROPER FITTING, ADHESION, OR THE REQUIRED FIRE RESISTANCE.
- D. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
- E. SEAL HOLES OR VOIDS MAY BE PENETRATIONS TO ENSURE AN EFFECTIVE FIRE AND/OR SMOKE BARRIER.
- F. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECT TO TRAFFIC
- G. STOP INSULATION FLUSH WITH WALL ON INSULATED PIPE AND SEAL EDGES.
- H. ALL EXPOSED PIPING PASSING THROUGH FLOORS, CEILINGS AND WALLS IN FINISHED AREAS SHALL BE FITTED WITH A CHROME PLATED ESCUTCHEON OF SUFFICIENT OUTSIDE DIAMETER TO AMPLY COVER THE SLEEVED OPENING AND AD INSIDE DIAMETER TO CLOSELY FIT THE PIPE AROUND WHICH IT IS INSTALLED.
- GALVANIZED SHEET METAL COLLARS SHALL BE PROVIDED AROUND ALL DUCTS, EQUIPMENT, ETC., EXPOSED IN FINISHED AREAS. WHERE SUCH OPENINGS ARE FINISHED AND THE SPACE AROUND THE UNIT IS SMALL, THE COLLAR MAY BE OMITTED WITH THE APPROVAL OF THE ARCHITECT.

- A. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL OTHER ACCESS PANELS NEEDED FOR ACCESS TO VALVES, OPEN RECEPTACLES, VENTS, FIRE DAMPERS, MECHANICAL UNITS, ETC., IN INACCESSIBLE LOCATIONS INSTALLED UNDER THIS DIVISION OF THE WORK.
- B. ACCESS PANELS SHALL HAVE A MINIMUM SIZE OF 12" X 12" AND SHALL BE CENTERED BENEATH EQUIPMENT FOR ACCESSIBILITY AND MAINTENANCE. ACCESS PANELS MUST BE OF ADEQUATE SIZE TO SERVICE, OBSERVE, REMOVE, AND MAINTAIN EQUIPMENT.
- C. ACCESS PANELS SHALL BE EQUAL TO THE TYPES SPECIFIED UNDER THE ARCHITECTURAL SPECIFICATIONS. AS A MINIMUM THE ACCESS PANELS SHALL BE EQUIVALENT TO ACUDOR PRODUCTS, CENDREX, INC., MIFAB, INC., LANE-AIRE MANUFACTURING, 14 GAUGE WITH VANDAL PROOF LOCK AND FRAME AS SELECTED BY ARCHITECT. ACCESS PANELS SHALL BE FIRE RATED WHEN INSTALLED IN FIRE RATED CONSTRUCTION.
- D. ACCESS PANELS SHALL HAVE A PRIMED WHITE FINISH.

E. CEILING TYPES

- 1. IN AREAS WITH SUSPENDED ACOUSTICAL TILE CEILINGS (INSTALLED ON EXPOSED METAL GRID SUSPENSION SYSTEM SO THAT THE TILE MAY BE READILY REMOVED), EQUIPMENT, VALVES, ETC., INSTALL ABOVE THESE CEILINGS WILL BE CONSIDERED
- 2. ALL PLASTERED CEILINGS OR CEILINGS HAVING CONCEALED SPLINE TYPE OF SUSPENSION SYSTEM WILL BE CONSIDERED AS NOT REMOVABLE FOR ACCESSIBILITY TO EQUIPMENT; THEREFORE, ACCESS PANELS WILL BE REQUIRED.
- 3. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR THE TYPES OF CEILINGS THROUGHOUT THE BUILDING. F. ACCESS PANELS SHALL BE INSTALLED BY SUB-CONTRACTOR SPECIALIZED IN ACCESS PANEL INSTALLATION.

- A. ALL EQUIPMENT SHALL BE WARRANTED FOR A PERIOD OF AT LEAST ONE (1) YEAR FROM THE DATE OF INSTALL, AS EVIDENCED BY DATE OF SUBSTANTIAL COMPLETION FOR THE ENTIRE PROJECT
- 1.10 SAFETY PRECAUTIONS: LIFE SAFETY AND ACCIDENT PREVENTION SHALL BE A PRIMARY CONSIDERATION. COMPLY WITH ALL OF THE SAFETY REQUIREMENTS OF THE OWNER AND OSHA THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. FURNISH, PLACE AND MAINTAIN PROPER GUARDS AND ANY OTHER NECESSARY CONSTRUCTION REQUIRED TO SECURE SAFETY OF LIFE AND

SECTION 23 05 17 - SLEEVING, CUTTING, PATCHING AND REPAIRING FOR MECHANICAL

SPRING TENSION OR SET SCREW THAT COMPLETELY COVERS OPENING.

A. THIS SECTION INCLUDES REQUIREMENTS FOR THE MECHANICAL CONTRACTOR RELATED TO SLEEVING, CUTTING, PATCHING, AND REPAIRING ASSOCIATED WITH MECHANICAL WORK.

1.2 WORK INCLUDED

A. SLEEVES AND ESCUTCHEONS

PART 2 - PRODUCTS

- A. CAST-IRON WALL PIPES: CAST OR FABRICATED OF CAST OR DUCTILE IRON AND EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATER STOP UNLESS OTHERWISE INDICATED.
- B. GALVANIZED-STEEL WALL PIPES: ASTM A 53/A 53M, SCHEDULE 40, WITH PLAIN ENDS AND WELDED STEEL COLLAR; ZINC COATED.
- C. GALVANIZED-STEEL-PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, ZINC COATED, WITH PLAIN ENDS.
- D. PVC-PIPE SLEEVES: ASTM D 1785, SCHEDULE 40.
- E. GALVANIZED-STEEL-SHEET SLEEVES: 0.0239-INCH MINIMUM THICKNESS, ROUND TUBE CLOSED WITH LONGITUDINAL JOINT.

A. ESCUTCHEONS SHALL BE BEATON AND CALDWELL; CARPENTER AND PATTERSON; FEE AND MASON OR APPROVED EQUIVALENT. CHROMIUM-PLATED IRON OR CHROMIUM-PLATED BRASS, EITHER ONE PIECE OR SPLIT PATTERNS, HELD IN PLACE BY INTERNAL

- A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS, SLEEVES, TRENCHES, ETC., THAT HE MAY REQUIRE OR CREATE BY DEMOLITION IN FLOORS, ROOFS, CEILINGS, WALLS, ETC., AND SHALL COORDINATE ALL SUCH WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES. COORDINATE WITH THE GENERAL CONTRACTOR, ANY OPENINGS WHICH HE IS TO PROVIDE BEFORE SUBMITTING A BID PROPOSAL IN ORDER TO AVOID CONFLICT AND DISAGREEMENT DURING CONSTRUCTION. IMPROPERLY LOCATED OPENINGS SHALL BE REWORKED AT THE EXPENSE OF THE CONTRACTOR.
- B. THE CONTRACTOR SHALL PLAN HIS WORK AHEAD AND SHALL PLACE SLEEVES, FRAMES OR FORMS THROUGH THE WALLS, FLOORS, AND CEILINGS DURING THE INITIAL CONSTRUCTION, WHERE IT IS NECESSARY FOR PIPING, DUCTWORK, CONDUIT, ETC., TO GO THROUGHOUT: HOWEVER, WHEN THIS IS NOT DONE. THE CONTRACTOR SHALL DO ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF HIS WORK, OR HE SHALL PAY OTHER TRADES FOR DOING THIS WORK WHEN SO DIRECTED BY THE ENGINEER. ANY DAMAGE CAUSED TO THE BUILDINGS BY THE WORKMEN OF THE RESPONSIBLE CONTRACTOR MUST BE CORRECTED OR RECTIFIED BY HIM AT HIS OWN EXPENSE
- C. THE CONTRACTOR SHALL NOTIFY OTHER TRADES IN DUE TIME WHERE HE WILL REQUIRE OPENINGS OR CHASES IN NEW CONCRETE OR MASONRY. HE SHALL SET ALL CONCRETE INSERTS AND SLEEVES FOR HIS WORK. FAILING TO DO THIS, HE SHALL CUT OPENINGS FOR HIS WORK AND PATCH SAME AS REQUIRED AT HIS OWN EXPENSE.
- D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHORING, BRACING, SUPPORTING, ETC., ANY EXISTING AND/OR NEW CONSTRUCTION TO GUARD AGAINST CRACKING, SETTLING, COLLAPSING, DISPLACING, OR WEAKENING WHILE OPENINGS ARE BEING MADE. ANY DAMAGE OCCURRING TO THE EXISTING AND/OR NEW STRUCTURES, DUE TO FAILURE TO EXERCISE PROPER PRECAUTIONS OR DUE TO ACTION OF THE ELEMENTS SHALL BE PROMPTLY AND PROPERLY MADE GOOD TO THE SATISFACTION OF
- E. ALL WORK IMPROPERLY DONE OR NOT DONE AT ALL AS REQUIRED BY THE MECHANICAL TRADES IN THIS SECTION, WILL BE PERFORMED BY THE CONTRACTOR AT THE DIRECTION OF THE TRADE WHOSE WORK IS AFFECTED.

- A. INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS, PARTITIONS, ROOFS, AND WALLS.
- B. FOR SLEEVES THAT WILL HAVE SLEEVE-SEAL SYSTEM INSTALLED, SELECT SLEEVES OF SIZE LARGE ENOUGH TO PROVIDE 1-INCH ANNULAR CLEAR SPACE BETWEEN PIPING AND CONCRETE SLABS AND WALLS.
- 1. SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES. C. INSTALL SLEEVES IN CONCRETE FLOORS, CONCRETE ROOF SLABS, AND CONCRETE WALLS AS NEW SLABS AND WALLS ARE
- 1. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES. a. EXCEPTION: EXTEND SLEEVES INSTALLED IN FLOORS OF MECHANICAL EQUIPMENT AREAS OR OTHER WET AREAS 2 INCHES ABOVE FINISHED FLOOR LEVEL

- 2. USING GROUT, SEAL THE SPACE OUTSIDE OF SLEEVES IN SLABS AND WALLS WITHOUT SLEEVE-SEAL SYSTEM.
- D. INSTALL SLEEVES FOR PIPES PASSING THROUGH INTERIOR PARTITIONS.
- 1. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES.
- 2. INSTALL SLEEVES THAT ARE LARGE ENOUGH TO PROVIDE 1/4-INCH (6.4-MM) ANNULAR CLEAR SPACE BETWEEN SLEEVE AND
- PIPE OR PIPE INSULATION. 3. SEAL ANNULAR SPACE BETWEEN SLEEVE AND PIPING OR PIPING INSULATION; USE JOINT SEALANTS APPROPRIATE FOR SIZE,
- DEPTH, AND LOCATION OF JOINT.
- E. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS.
- F. PIPES PASSING THROUGH WATERPROOFING MEMBRANES: PIPES PASSING THROUGH FLOOR WATERPROOFING MEMBRANE SHALL BE INSTALLED THROUGH A 4-POUND LEAD-FLASHING SLEEVE, OR A 0.032-INCH THICK ALUMINUM SLEEVE, EACH WITH AN INTEGRAL SKIRT OR FLANGE. FLASHING SLEEVE SHALL BE SUITABLY FORMED, AND THE SKIRT OF FLANGE SHALL EXTEND NOT LESS THAN 8 INCHES FROM THE PIPE AND SHALL SET OVER THE FLOOR MEMBRANE IN A TROWELED COATING OF BITUMINOUS CEMENT. THE FLASHING SLEEVE SHALL EXTEND UP THE PIPE A MINIMUM OF 1 INCH ABOVE THE FLOOR. THE ANNULAR SPACE BETWEEN THE FLASHING SLEEVE AND THE METAL-JACKET-COVERED INSULATION SHALL BE SEALED. AT THE CONTRACTOR'S OPTION, PIPES PASSING THROUGH FLOOR WATERPROOFING MEMBRANE MAY BE INSTALLED THROUGH A CAST IRON SLEEVE WITH CAULKING RECESS, ANCHOR LUGS, FLASHING CLAMP DEVICE, AND A PRESSURE RING WITH BRASS BOLTS. WATERPROOFING MEMBRANE SHALL BE CLAMPED INTO SPACE AND SEALANT SHALL BE PLACED IN THE CAULKING RECESS
- G. PIPES PASSING THROUGH ROOF: PIPES PASSING THROUGH THE ROOF SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS. ANY PENETRATION IN ROOF SHALL BE APPROVED BY THE ROOFING MANUFACTURER.
- H. OPENINGS FOR DUCTWORK, FIXTURES, EQUIPMENT, ETC. THROUGH FLOORS, WALLS, CEILING, AND ROOFS, SHALL BE LOCATED AND SIZED BY THE CONTRACTOR UNDER THIS DIVISION WHO SHALL PROVIDE AND SET NECESSARY LINTELS, SLEEVES, AND SHEET METAL FORMS FOR ALL SUCH OPENINGS.
- I. GALVANIZED SHEET METAL COLLARS SHALL BE PROVIDED AROUND ALL DUCTS, EQUIPMENT, ETC., EXPOSED IN FINISHED AREAS. WHERE SUCH OPENINGS AND FINISHED AND THE SPACE AROUND THE PENETRATION IS SMALL, THE COLLAR MAY BE OMITTED WITH THE APPROVAL OF THE ARCHITECT/ENGINEER.

3.3 ESCUTCHEONS

A. ESCUTCHEONS SHALL BE PROVIDED AT ALL FINISHED SURFACES WHERE EXPOSED PIPING, BARE OR INSULATED, PASSES THROUGH FLOORS, WALLS, OR CEILINGS. ESCUTCHEONS SHALL BE FASTENED SECURELY TO PIPE SLEEVES OR TO EXTENSIONS OF SLEEVES WITHOUT ANY PART OF SLEEVES BEING VISIBLE. WHERE SLEEVES PROJECT SLIGHTLY FROM FLOORS, SPECIAL DEEP-TYPE ESCUTCHEONS SHALL BE USED.

3.4 <u>CUTTING</u>

- A. ALL RECTANGULAR OR SPECIAL SHAPED OPENINGS IN PLASTER, STUCCO, OR SIMILAR MATERIALS, INCLUDING GYPSUM BOARD, SHALL BE FRAMED BY MEANS OF PLASTER FRAMES, CASING BEADS, WOOD OR METAL ANGLE MEMBERS AS REQUIRED. THE INTENT OF THIS REQUIREMENT IS TO PROVIDE SMOOTH EVEN TERMINATION OF WALL, FLOOR, AND CEILING FINISHES AS WELL AS TO PROVIDE A FASTENING MEANS FOR GRILLES, DIFFUSERS, LIGHTING FIXTURES, ETC.
- B. ALL TRADES SHALL COORDINATE ALL OPENINGS IN MASONRY WALLS WITH THE GENERAL CONTRACTOR, AND, UNLESS OTHERWISE INDICATED ON THE ARCHITECTURAL DRAWINGS, SHALL PROVIDE LINTELS FOR ALL OPENINGS REQUIRED FOR THE PLUMBING
- C. NO CUTTING IS TO BE DONE AT POINTS OR IN A MANNER THAT WILL WEAKEN THE STRUCTURE AND UNNECESSARY CUTTING MUST BE AVOIDED. IF IN DOUBT, CONTACT THE ENGINEER.
- D. PIPE OPENINGS IN SLABS AND WALLS SHALL BE CUT WITH CORE DRILL. HAMMER DEVICES WILL NOT BE PERMITTED. EDGES OF TRENCHES AND LARGE OPENINGS SHALL BE SCRIBE CUT WITH A MASONRY SAW.
- E. OPENINGS IN METAL BUILDING WALLS SHALL BE MADE IN STRICT ACCORD WITH BUILDING SUPPLIERS RECOMMENDATIONS.

- A. PATCHING AND REPAIRING MADE NECESSARY BY WORK PERFORMED UNDER THIS DIVISION SHALL BE INCLUDED AS PART OF THE WORK AND SHALL BE DONE BY SKILLED MECHANICS OF THE TRADE OR TRADES FOR WORK CUT OR DAMAGED, IN STRICT ACCORDANCE WITH THE PROVISIONS HEREIN BEFORE SPECIFIED FOR WORK OF LIKE TYPE TO MATCH ADJACENT SURFACES AND IN A MANNER ACCEPTABLE TO THE ENGINEER
- B. WHERE PORTIONS OF EXISTING LAWNS, SHRUBS, PAVING, ETC. ARE DISTURBED FOR INSTALLATION OR WORK OF THIS DIVISION, SUCH ITEMS SHALL BE REPAIRED AND/OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
- C. WHERE THE INSTALLATION OR REMOVAL OF PIPING, ETC. REQUIRES OR CREATES THE PENETRATION OF FIRE OR SMOKED RATED WALLS, CEILINGS OR FLOORS, THE SPACE AROUND SUCH PIPE, ETC., SHALL BE TIGHTLY FILLED WITH AN APPROVED NON-COMBUSTIBLE FIRE INSULATING MATERIAL SATISFACTORY TO MAINTAIN THE RATING INTEGRITY OF THE WALL, FLOOR OR
- D. PIPING PASSING THROUGH FLOORS, CEILINGS, AND WALLS IN FINISHED AREAS, UNLESS OTHERWISE SPECIFIED, SHALL BE FITTED WITH CHROME PLATED BRASS ESCUTCHEONS OF SUFFICIENT OUTSIDE DIAMETER TO AMPLY COVER THE SLEEVED OPENINGS AND AN INSIDE DIAMETER TO CLOSELY FIT THE PIPE AROUND WHICH IT IS INSTALLED.
- E. WHERE PIPES PASS THROUGH EXTERIOR WALLS, THE WALL OPENINGS SHALL BE SEALED AIR AND WATERTIGHT. THIS SHALL INCLUDE SEALING ON BOTH SIDES OF THE WALL TO ENSURE AIR AND WATER DOES NOT ENTER OR EXIT THE WALL CAVITY. THIS IS ESPECIALLY CRITICAL ON EXTERIOR WALLS WHERE THE WALL CAVITY MAY BE VENTED TO THE EXTERIOR.

SECTION 23 05 29 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMEN

PART 1- GENERAL

- A. PIPE AND EQUIPMENT HANGERS, SUPPORTS, AND ASSOCIATED ANCHORS
- A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

A THIS SPECIFICATION SHALL APPLY FOR THE DESIGN AND FABRICATION OF ALL HANGERS, SUPPORTS, ANCHORS AND GUIDES WHERE PIPING DESIGN IS SUCH THAT EXCEPTIONS TO THIS SPECIFICATION ARE NECESSARY, THE SYSTEM SHALL BE IDENTIFIED, AND THE EXCEPTIONS APPROVED BY ENGINEER PRIOR TO INSTALLATION.

1.4 STRUCTURE A. THIS SECTION IS INTENDED TO COVER THE STRUCTURAL REQUIREMENTS OF THE PIPING AND EQUIPMENT. IT IS NOT INTENDED TO IMPLY THAT THE BUILDING STRUCTURE WILL SUPPORT THE LOADS IMPOSED. THE CONTRACTOR SHALL REVIEW THE

STRUCTURAL DRAWINGS FOR WHERE LOADS CAN BE APPLIED, WHAT LOAD CAN BE SUPPORTED AND WHAT STRUCTURAL

REINFORCING IS REQUIRED. SPECIFIC QUESTIONS CAN BE DIRECTED TO THE STRUCTURAL ENGINEER PRIOR TO BIDDING.

- A. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE ANSI CODE FOR PRESSURE PIPING B31.1.0, AND MSS STANDARD PRACTICE SP-58, SP-69 AND SP-89 EXCEPT AS SUPPLEMENTED OR MODIFIED BY THE REQUIREMENTS OF THIS
- B. DESIGNS GENERALLY ACCEPTED AS EXEMPLIFYING GOOD ENGINEERING PRACTICE, USING STOCK OR PRODUCTION PARTS, SHALL
- BE UTILIZED WHEREVER POSSIBLE. C. ACCURATE WEIGHT BALANCE CALCULATIONS SHALL BE MADE TO DETERMINE THE REQUIRED SUPPORTING FORCE AT EACH HANGER
- LOCATION AND THE PIPE WEIGHT LOAD AT EACH FOUIPMENT CONNECTION D. PIPE HANGERS SHALL BE CAPABLE OF SUPPORTING THE PIPE IN ALL CONDITIONS OF OPERATION. THEY SHALL ALLOW FREE EXPANSION AND CONTRACTION OF THE PIPING, AND PREVENT EXCESSIVE STRESS RESULTING FROM TRANSFERRED WEIGHT BEING
- INDUCED INTO THE PIPE OR CONNECTED EQUIPMENT. E. WHERE POSSIBLE, STEEL STRUCTURAL ATTACHMENTS SHALL BE BEAM CLAMPS. OTHER ATTACHMENTS SHALL BE AS SCHEDULED.
- F. ALL RIGID HANGERS SHALL PROVIDE A MEANS OF VERTICAL ADJUSTMENT AFTER ERECTION.
- G. HANGER RODS SHALL BE SUBJECT TO TENSILE LOADING ONLY. AT HANGER LOCATIONS WHERE LATERAL OR AXIAL MOVEMENT IS ANTICIPATED, SUITABLE SUPPORT SHALL BE PROVIDED TO ELIMINATE SWING AND ALLOW FOR EXPANSION.
- H. WHERE HORIZONTAL PIPING MOVEMENTS ARE GREATER THAN 1/2 INCH, OR WHERE THE HANGER LOAD ANGULARITY FROM THE VERTICAL IS GREATER THAN 4 DEGREES FROM THE COLD TO HOT POSITION OF THE PIPE, THE HANGER ROD TO STRUCTURAL ATTACHMENT SHALL BE BY USE OF ANVIL FIG. 47 AND FIG. 299 OR THE HANGER ROD AND STRUCTURAL ATTACHMENTS SHALL BE OFFSET IN SUCH MANNER THAT THE ROD IS VERTICAL IN THE HOT POSITION.
- I. CONTRACTOR TO FABRICATE AND PROVIDE ADDITIONAL STRUCTURAL SUPPORT AS REQUIRED TO PREVENT SWAY WHERE HANGER ROD LENGTHS EXCEED 48" IN LENGTH.
- J. HANGERS SHALL BE DESIGNED SO THAT THEY CANNOT BECOME DISENGAGED BY MOVEMENTS OF THE SUPPORTED PIPE. K. ALL PIPING AND EQUIPMENT SHALL BE BRACED AND SECURED TO PREVENT SWAY AND MOVEMENT IN ALL AXES.
- L. HANGERS SHALL BE SPACED IN ACCORDANCE WITH ANSI B31.1.0
- M. WHERE PRACTICAL, RISER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CONNECTED HORIZONTAL PIPING. 1. PIPE SUPPORT ATTACHMENTS TO THE RISER PIPING SHALL BE RISER CLAMP LUGS. WELDED ATTACHMENTS SHALL BE OF
- MATERIAL COMPARABLE TO THAT OF THE PIPE AND DESIGNED IN ACCORDANCE WITH ANSI B31.1 CODES. N. SUPPORTS, GUIDES AND ANCHORS SHALL BE SO DESIGNED THAT EXCESSIVE HEAT WILL NOT BE TRANSMITTED TO THE BUILDING STEEL. THE TEMPERATURE OF SUPPORT PARTS SHALL BE BASED ON A TEMPERATURE GRADIENT OF 100 DEGREES F PER INCH DISTANCE FROM THE OUTSIDE SURFACE OF THE PIPE.

PART 2 - PRODUCTS

A. ANVIL, ELCEN, MASON INDUSTRIES, ADVANCED THERMAL, FEE & MASON, PIPING SPECIALTIES, MIRO INDUSTRIES.

- A. INSULATION-INSERT MATERIAL FOR COLD PIPING: ASTM C552, TYPE II CELLULAR GLASS WITH 100-PSI MINIMUM COMPRESSIVE STRENGTH AND VAPOR BARRIER.
- B. INSULATION-INSERT MATERIAL FOR HOT PIPING: WATER-REPELLENT-TREATED, ASTM C533, TYPE I CALCIUM SILICATE WITH 100-PSI MINIMUM COMPRESSIVE STRENGTH.
- C. FOR TRAPEZE OR CLAMPED SYSTEMS: INSERT AND SHIELD SHALL COVER ENTIRE CIRCUMFERENCE OF PIPE.
- D. FOR CLEVIS OR BAND HANGERS: INSERT AND SHIELD SHALL COVER LOWER 180 DEGREES OF PIPE. E. INSERT LENGTH: EXTEND 2 INCHES BEYOND SHEET METAL SHIELD FOR PIPING OPERATING BELOW AMBIENT AIR TEMPERATURE.

F. SHIELDS FOR COPPER PIPE SHALL UTILIZE SHEET LEAD.

A. INSERTS: MALLEABLE IRON CASE OR GALVANIZED STEEL SHELL AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT, TOP SLOT FOR REINFORCING RODS, LUGS FOR ATTACHING TO FORMS; SIZE INSERTS TO SUIT THREADED HANGER

2.4 METAL PIPE HANGERS AND SUPPORTS

- A. CARBON-STEEL PIPE HANGERS AND SUPPORTS: 1. DESCRIPTION: MSS SP-58, TYPES 1 THROUGH 58, FACTORY-FABRICATED COMPONENTS.
- 2. GALVANIZED METALLIC COATINGS: PRE-GALVANIZED, HOT DIP GALVANIZED, OR ELECTRO-GALVANIZED.
- 3. NONMETALLIC COATINGS: PLASTIC COATED, OR EPOXY POWDER COATED.
- 4. PADDED HANGERS: HANGER WITH FIBERGLASS OR OTHER PIPE INSULATION PAD OR CUSHION TO SUPPORT BEARING SURFACE OF PIPING.
- 5. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF CARBON STEEL.
- B. COPPER PIPE AND TUBE HANGERS:
- 1. DESCRIPTION: MSS SP-58, TYPES 1 THROUGH 58, COPPER-PLATED STEEL, FACTORY-FABRICATED COMPONENTS. 2. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF COPPER-PLATED STEEL.
- 2.5 TRAPEZE PIPE HANGERS A. DESCRIPTION: MSS SP-58, TYPE 59, SHOP- OR FIELD-FABRICATED PIPE-SUPPORT ASSEMBLY MADE FROM STRUCTURAL

CARBON-STEEL SHAPES WITH MSS SP-58 CARBON-STEEL HANGER RODS, NUTS, SADDLES, AND U-BOLTS.

2.6 METAL FRAMING SYSTEMS

A. MFMA MANUFACTURER METAL FRAMING SYSTEMS: 1. DESCRIPTION: SHOP- OR FIELD-FABRICATED, PIPE-SUPPORT ASSEMBLY MADE OF STEEL CHANNELS, ACCESSORIES, FITTINGS,

5. CHANNEL NUTS: FORMED OR STAMPED NUTS OR OTHER DEVICES DESIGNED TO FIT INTO CHANNEL SLOT AND, WHEN

- AND OTHER COMPONENTS FOR SUPPORTING MULTIPLE PARALLEL PIPES. 2. STANDARD: COMPLY WITH MFMA-4 FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY.
- 3. CHANNELS: CONTINUOUS SLOTTED CARBON-STEEL CHANNEL WITHIN TURNED LIPS.
- 4. CHANNEL WIDTH: SELECTED FOR APPLICABLE LOAD CRITERIA.
- TIGHTENED, PREVENT SLIPPING ALONG CHANNEL.

6. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF GALVANIZED STEEL. 7. METALLIC COATING: PRE-GALVANIZED G90 (Z275).

2. C-CLAMPS WILL NOT BE PERMITTED UNLESS RETAINER IS PROVIDED

1. BEAM CLAMPS SHALL HAVE MALLEABLE IRON JAWS, STEEL BOLT OR TIE ROD, NUTS, AND JAMB NUTS.

A. DESCRIPTION: WELDED, SHOP- OR FIELD-FABRICATED EQUIPMENT SUPPORT MADE FROM STRUCTURAL CARBON-STEEL SHAPES..

PART 3 - EXECUTION

- A. PROVIDE INSERTS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS AND SIDES OF REINFORCED CONCRETE
- B. WHERE CONCRETE SLABS FORM FINISHED CEILING, PROVIDE INSERTS TO BE FLUSH WITH SLAB SURFACE.

3.2 PIPE HANGERS AND SUPPORTS

- A. COMPLY WITH MSS SP-58 FOR PIPE-HANGER SELECTIONS AND APPLICATIONS.
- B. USE HANGERS AND SUPPORTS WITH GALVANIZED METALLIC COATINGS FOR PIPING AND EQUIPMENT THAT WILL NOT HAVE FIELD-APPLIED FINISH.
- WITH COPPER TUBING. D. USE CARBON-STEEL PIPE HANGERS AND SUPPORTS AND METAL FRAMING SYSTEMS AND ATTACHMENTS FOR GENERAL SERVICE

NOMINAL PIPE SIZESINGLE ROD DIAMETERTHICKNESS OF INSULATION SHIELDMAXIMUM SPACING FERROUS PIPINGCOPPER TUBINGHDPE

C. USE NONMETALLIC COATINGS ON ATTACHMENTS FOR ELECTROLYTIC PROTECTION WHERE ATTACHMENTS ARE IN DIRECT CONTACT

E. USE COPPER-PLATED PIPE HANGERS AND COPPER ATTACHMENTS FOR COPPER PIPING AND TUBING.

F. USE THERMAL-HANGER SHIELD INSERTS FOR INSULATED PIPING AND TUBING.

- G. INSTALL HANGERS TO PROVIDE MINIMUM 1/2 INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
- H. PLACE A HANGER WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW. I. PROVIDE HANGERS WITH 1-1/2-INCH MINIMUM VERTICAL ADJUSTMENT.

PIPING3/4" & UNDER3/8"16 GAUGE6'5'2.5'1"3/8"16 GAUGE7'6'3'1 1/43/8"16 GAUGE8'8'4'1 1/23/8"16 GAUGE9'8'4'

- J. PROVIDE ADDITIONAL STRUCTURAL SUPPORT WHERE REQUIRED TO PREVENT PIPE MOVEMENT AND SWAY. K. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.
- L. SUPPORT PIPING AS FOLLOWS:

SECTION 23 31 13 - DUCTWORK AND DUCTWORK INSULATION

- 1.1 WORK INCLUDED A. LOW PRESSURE DUCTS, INSULATION, AND DUCT CLEANING
- 1.2 ACTION SUBMITTALS

A. SHOP DRAWINGS: FOR EACH: DUCTWORK, DUCTWORK INSULATIONS, DUCTWORK HANGERS.

2.1 ACCEPTABLE MANUFACTURERS

- A. C&R SHEET METAL, DUCTMATE, DUCTSOX CORPORATION, EASTERN SHEET METAL, EURO-AIRE, FABRICAIR, FLEXMASTERUSA, KE FIBERTEC, LINDAB, NORDFAB, PRIHODA, TURNKEY OR HAMLIN.
- A. GENERAL: NON-COMBUSTIBLE OR CONFORMING TO REQUIREMENTS FOR CLASS 1 AIR DUCT MATERIALS, OR UL 181. B. ALL DUCT MATERIAL AND COVERING SHALL HAVE A FLAME SPREAD RATING OF 24 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.

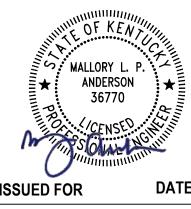
C. STEEL DUCTS: ASTM A653/A653M GALVANIZED STEEL SHEET, LOCK FORMING QUALITY, HAVING ZINC COATING OF 1.25 OZ. PER SQ.

- FT. FOR EACH SIDE IN CONFORMANCE WITH ASTM G90.
- 1. SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR DUCTS CONNECTED TO FAN COIL UNITS, FURNACES, HEAT PUMPS, VARIABLE AIR VOLUME BOX (VAV BOX OUTLET TO GRILLE, REGISTER, DIFFUSER) AND TERMINAL UNITS:
- a. PRESSURE CLASS (LOW PRESSURE): POSITIVE 2-INCH WG. b. MINIMUM SMACNA SEAL CLASS: C
- c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 16.
- d. SMACNA LEAKAGE CLASS FOR ROUND AND FLAT OVAL: 8 2. SUPPLY DUCTS CONNECTED TO CONSTANT-VOLUME AND VARIABLE-VOLUME AIR-HANDLING UNITS (AIR HANDLING UNIT TO
- a. PRESSURE CLASS (MEDIUM PRESSURE): POSITIVE 3-INCH WG.
- b. MINIMUM SMACNA SEAL CLASS: B. c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 8.
- d. SMACNA LEAKAGE CLASS FOR ROUND AND FLAT OVAL: 4. 3. ALL OTHER DUCTS NOT LISTED ABOVE:
- a. PRESSURE CLASS (LOW PRESSURE): POSITIVE 2-INCH WG.
- b. MINIMUM SMACNA SEAL CLASS: C. c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 16.
- d. SMACNA LEAKAGE CLASS FOR ROUND AND FLAT OVAL: 8. FLEXIBLE DUCTS: INTERLOCKING SPIRAL OF GALVANIZED STEEL, OR FABRIC SUPPORTED ON HELICALLY WOUND SPRING STEEL WIRE RATED TO 2 INCHES WG POSITIVE AND 1.5 INCHES WG NEGATIVE FOR LOW PRESSURE DUCTS AND 15 INCHES POSITIVE OR NEGATIVE FOR MEDIUM HIGH-PRESSURE DUCTS. FLEXIBLE DUCTS SHALL CONFORM TO UL 181. MAXIMUM LENGTH PER RUN
- F. INSULATED FLEXIBLE DUCT: FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENCLOSED BY SEAMLESS ALUMINUM PIGMENTED PLASTIC VAPOR BARRIER JACKET; MAXIMUM 0.23 K VALUE AT 75 DEGREES F. MAXIMUM LENGTH PER RUN
- G. STAINLESS STEEL DUCTS: ASTM A480/A480M, TYPE 304.
- H. FASTENERS: RIVETS, BOLTS, OR SHEET METAL SCREWS.
- I. SEALANT: NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH MATING MATERIALS; LIQUID USED ALONG OR WITH TAPE, OR HEAVY MASTIC

HANGER ROD: STEEL, GALVANIZED; THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUSLY THREADED. STAINLESS STEEL FOR STAINLESS STEEL DUCT.

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ANIC

- B. EXTERNAL (CHOOSE ONE OF THE FOLLOWING):
- 1. FLEXIBLE OR RIGID GLASS FIBER; ASTM C1290 AND C1136 ALL-SERVICE DUCT WRAP; K VALUE OF .27 AT 75 DEGREES F AND
- A MINIMUM INSTALLED R-VALUE OF R-6. PROVIDE WITH FOIL SCRIM FACING. 2. REFLECTIX (OR EQUAL) R-6.0 INSULATION HAVING TWO LAYERS OF ALUMINUM FOIL WITH POLYETHYLENE BONDED FOR STRENGTH, AND TWO INNER LAYERS OF INSULATED BUBBLES; 5/16" THICK; 1.25 OZ./SQ. FT. FLAME AND SMOKE 25/50.
- C. INSULATION MATERIAL AND JACKETS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.
- D. ADHESIVES: WATERPROOF FIRE-RETARDANT TAPE.
- E. LAGGING ADHESIVES: FIRE RESISTIVE TO ASTM E84, NFPA 255, UL723.
- F. IMPALE ANCHORS: GALVANIZED STEEL, 12- GAGE, SPOT WELDED OR SELF-ADHESIVE PAD. NO ANCHORS SHALL PENETRATE
- G. JOINT TAPE: GLASS FIBER CLOTH, OPEN MESH.
- H. TIE WIRE: ANNEALED STEEL, 16-GAGE.

A. ALL DUCT HANGERS IN DIRECT CONTACT WITH GALVANIZED DUCT SHALL BE GALVANIZED STEEL B. ALL DUCT HANGERS IN DIRECT CONTACT WITH STAINLESS STEEL DUCTS SHALL BE STAINLESS STEEL.

SMOOTH BLACK MATTED AIR SIDE SURFACE FOR MAXIMUM 5000 FPM AIR VELOCITY.

- A. FABRICATE AND SUPPORT IN COMPLETE ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE AND ASHRAE HANDBOOKS LATEST EDITIONS, EXCEPT AS INDICATED. PROVIDE DUCT MATERIAL, GAGES, REINFORCING, AND SEALING FOR OPERATION PRESSURES INDICATED.
- B. SIZE ROUND DUCTS INSTALLED IN PLACE OF RECTANGULAR DUCTS IN ACCORDANCE WITH ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY WRITTEN
- C. CONSTRUCT T'S, BENDS, AND ELBOWS WITH A RADIUS OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES. WHERE ACOUSTICAL LINING
- IS INDICATED, PROVIDE TURNING VANES OF PERFORATED METAL WITH GLASS FIBER INSULATION FILL D. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE. DIVERGENCE UPSTREAM
- OF EQUIPMENT SHALL NOT EXCEED 30 DEGREES; CONVERGENCE DOWNSTREAM SHALL NOT EXCEED 30 DEGREES.
- E. PROVIDE EASEMENTS WHERE LOW PRESSURE DUCTWORK CONFLICTS WITH PIPING AND STRUCTURE. WHERE EASEMENTS EXCEED 10 PERCENT DUCT AREA, SPLIT INTO TWO DUCTS MAINTAINING ORIGINAL DUCT AREA.
- F. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS OR ADHESIVE PLUS SHEET METAL SCREWS
- G. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCH AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW

- A. PROVIDE ENGINEERED OPENINGS IN DUCTWORK WHERE REQUIRED TO ACCOMMODATE THERMOMETERS AND CONTROLLERS. PROVIDE PILOT TUBE OPENINGS WHERE REQUIRED FOR TESTING OF SYSTEMS, COMPLETE WITH METAL CAN WITH SPRING DEVICE OR SCREW TO ENSURE AGAINST AIR LEAKAGE. WHERE OPENINGS ARE PROVIDED IN INSULATED DUCTWORK, INSTALL INSULATION MATERIAL INSIDE A METAL RING AND MAINTAIN VAPOR BARRIER WHERE APPLICABLE.
- B. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES. C. PROVIDE RESIDUE TRAPS IN KITCHEN HOOD EXHAUST DUCTS AT BASE OF VERTICAL RISERS WITH PROVISIONS FOR
- CLEANOUT. USE STAINLESS STEEL FOR DUCTWORK EXPOSED TO VIEW AND STAINLESS STEEL OR GALVANIZED STEEL FOR
- D. DURING CONSTRUCTION, PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.
- E. CLEAN DUCT SYSTEM AND FORCE AIR AT HIGH VELOCITY THROUGH DUCT TO REMOVE ACCUMULATED DUST. TO OBTAIN SUFFICIENT AIR, CLEAN HALF THE SYSTEM AT A TIME. PROTECT EQUIPMENT WHICH MAY BE HARMED BY EXCESSIVE DIRT WITH TEMPORARY FILTERS, OR BYPASS DURING CLEANING.
- F. SPACE BETWEEN DUCT AND FLOOR OR MASONRY WALL OPENINGS SHALL BE SEALED WITH FIRE RATED CAULK.
- G. VERIFY ALL FIELD CONDITIONS BEFORE FABRICATION OF DUCTWORK TO AVOID INSTALLATION CONFLICTS. NOTIFY ENGINEER OF ANY CONFLICT AREAS
- H. DO NOT CHANGE THE DESIGNED PATH OF DUCTWORK, ADD EXCESSIVE TURNS OR OFFSETS, OR CHANGE DUCT SIZES WITHOUT FIRST CONSULTING THE ENGINEER.

- A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. EXTERIOR INSULATION APPLICATION
- 1. SECURE INSULATION WITH VAPOR BARRIER WITH WIRES AND SEAL JACKET JOINTS WITH VAPOR BARRIER ADHESIVE OR
- 2. SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE. 3. CONTINUE INSULATION WITH VAPOR BARRIER THOUGH PENETRATIONS.
- C. INSULATION SCHEDULE
- 1. SUPPLY AND OUTSIDE AIR DUCTWORK SHALL BE INSULATED WITH EXTERNAL INSULATION AS NOTED BELOW.
- 2. EXTERNALLY INSULATED DUCTWORK SHALL BE INSULATED USING ONE OF THE FOLLOWING METHODS:
- a. DUCTWORK SHALL BE EXTERNALLY INSULATED WITH REFLECTIX (OR EQUAL) R-6.0 INSULATION HAVING TWO LAYERS OF ALUMINUM FOIL WITH POLYETHYLENE BONDED FOR STRENGTH, AND TWO INNER LAYERS OF INSULATED BUBBLES; 5/16" THICK; 1.25 OZ./SQ. FT. FLAME AND SMOKE 25/50.
- a) DUCTWORK MAY ALSO BE INSULATED WITH FIBERGLASS INSULATION, MAINTAINING THE INSULATION VALUE OF R-6.0, IN LIEU OF REFLECTIX INSULATION.
- 3. INSULATION MUST BE INSTALLED IN STRICT ACCORDANCE WITH INSULATION MANUFACTURER'S REQUIREMENTS. PROVIDE SPACERS, PINS, BANDS AND ADHESIVE AS REQUIRED. SPECIAL CARE MUST BE TAKEN ON LARGE DUCTWORK TO PREVENT SAGGING OF INSULATION AWAY FROM DUCTWORK.
- 4. INTERIOR EXHAUST DUCT SHALL NOT REQUIRE INSULATION
- 5. COMBUSTION AIR DUCT SHALL HAVE 11/2 INCH EXTERNAL INSULATION.
- 6. WHERE DUCT IS SCHEDULED TO BE INSULATED (EITHER EXTERNALLY OR INTERNALLY) HEREIN AND SHOWN TO BE ROUTED IN AN AREA THAT WILL BE EXPOSED BASED ON ARCHITECTURAL DRAWINGS, THE CONTRACTOR SHALL PROVIDE DOUBLE-WALL DUCT CONFORMING WITH THE SPECIFICATIONS PROVIDED HEREIN.
- ALL DUCTWORK INSULATION MUST CONFORM TO THE MINIMUM REQUIREMENTS OF ASHRAE 90.1 (CURRENT EDITION) AND INTERNATIONAL ENERGY CONSERVATION CODE (CURRENT EDITION) UNLESS OTHERWISE SPECIFIED IN THIS

- A. DUCT HANGERS MAY BE DIRECTLY ATTACHED TO DUCTS. DUCTS SHALL BE HUNG BY ANGLES OR STRAPS AS LISTED IN THE FOLLOWING SCHEDULE. RODS, STRAPS OR ANGLES MAY BE USED IN TRAPEZE HANGERS. HANGERS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE, EXCEPT THAT THERE SHALL BE NO LESS THAN ONE SET OF HANGERS FOR EACH SECTION OF DUCTWORK. WHERE ELBOWS OR TEES ARE INSTALLED FOR CHANGES IN DIRECTION, HANGERS SHALL BE PROVIDED. NO DUCTWORK SHALL REST ON THE BUILDING STRUCTURAL SYSTEM. NO DUCTWORK SHALL BE SUPPORTED BY SUSPENDED CEILING SYSTEMS. ALL DUCTWORK MUST BE INDEPENDENTLY SUPPORTED FROM BUILDING STRUCTURAL SYSTEM.
- ALL HANGERS SHALL BE SUFFICIENTLY ACROSS-BRACED TO ELIMINATE, IN THE OPINION OF THE ARCHITECT, EXCESSIVE SWAY. WHEREVER DUCTWORK CONTAINS FILTER SECTIONS, COILS, FANS OR OTHER HEAVY EQUIPMENT (EXCLUDING REGISTERS, GRILLES, DIFFUSERS, SPLITTER DAMPERS, ETC.) SUCH EQUIPMENT SHALL BE HUNG INDEPENDENTLY OF THE DUCTWORK, WITH RODS OR ANGLES OF SIZES ADEQUATE TO SUPPORT THE LOAD.

- A. THE TEST APPARATUS SHALL CONSIST OF:
- 1. A SOURCE OF HIGH PRESSURE AIR A PORTABLE ROTARY BLOWER OR A TANK TYPE VACUUM CLEANER.
- A FLOW MEASURING DEVICE ORIFICE ASSEMBLY CONSISTING OF STRAIGHTENING VANES AND AN ORIFICE PLATE MOUNTED IN A STRAIGHT TUBE WITH PROPERLY LOCATED PRESSURE TAPS. EACH ORIFICE ASSEMBLY IS ACCURATELY CALIBRATED WITH ITS OWN CALIBRATION CURVE. PRESSURE AND FLOW READINGS SHALL BE TAKEN WITH U-TUBE MANOMETERS OR EQUIVALENT GAUGE.

B. TEST PROCEDURES

- 1. CLOSE OFF AND SEAL ALL OPENINGS IN THE DUCT SECTION TO BE TESTED. CONNECT THE TEST APPARATUS TO THE DUCT
- BY MEANS OF A SECTION OF FLEXIBLE DUCT. 2. START THE BLOWER WITH ITS CONTROL DAMPER CLOSED.

Notice

The Architect/Engineer does not define the scope of individua trades, subcontractors, material suppliers, or vendors. Any sheet numbering system used which identifies disciplines is solely for the Architect/Engineer's convenience, and is not intended to define a subcontractor's scope of work. Information regarding individual trades, subcontractors, material suppliers, and vendors may be detailed, described and indicated at different locations throughout these documents. No consideration will be given to requests for change orders for failure to obtain and review the complete set of drawings and specifications when preparing bids, prices, and quotations.

- 3. GRADUALLY OPEN THE INLET DAMPER UNTIL THE DUCT PRESSURE REACHES 25 PERCENT IN EXCESS OF DESIGNED DUCT OPERATING PRESSURE INDICATED.
- 4. SURVEY ALL JOINTS FOR AUDIBLE LEAKS. REPAIR EACH LEAK AFTER SHUTTING DOWN BLOWER. DO NOT APPLY A RETEST UNTIL SEALANTS HAVE SET.
- 5. IF MEASURED LEAKAGE EXCEEDS 1 PERCENT OF TOTAL DESIGN FLOW, LOCATE AND SEAL LEAKAGE
- 6. AFTER ALL AUDIBLE LEAKS HAVE BEEN SEALED, THE REMAINING LEAKAGE SHOULD BE MEASURED WITH THE ORIFICE SECTION OF THE TEST APPARATUS AS FOLLOWS:
- a. START BLOWER AND OPEN DAMPER UNTIL PRESSURE IN DUCT REACHES 25% IN EXCESS OF DESIGNED DUCT
- b. READ THE PRESSURE DIFFERENTIAL ACROSS THE ORIFICE ON MANOMETER TO DETERMINE LEAKAGE.
- TOTAL ALLOWABLE LEAKAGE SHOULD NOT EXCEED ONE (1) PERCENT OF THE TOTAL SYSTEM DESIGN AIR FLOW RATE. WHEN PARTIAL SECTIONS OF THE DUCT SYSTEM ARE TESTED, THE SUMMATION OF THE LEAKAGE FOR ALL SECTIONS SHALL NOT EXCEED THE TOTAL ALLOWABLE LEAKAGE.
- 7. PROVIDE DUCT LEAK TESTING REPORT

ECTION 23 33 00 - DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED

VOLUME CONTROL DAMPERS, BACKDRAFT DAMPERS, AIR TURNING DEVICES, FLEXIBLE DUCT CONNECTORS,

SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT SPECIFIED.

PART 2 - PRODUCTS

- A. ACCEPTABLE MANUFACTURER: UNITED ENERTECH, AIR BALANCE, AMERICAN WARMING, ARROW, CESCO, CREATIVE METALS, NAILOR, RUSKIN, VENT PRODUCTS, AND WHIZ AIR.
- B. FABRICATE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, AND AS INDICATED.
- C. FABRICATE SPLITTER DAMPERS OF MATERIAL SAME GAGE AS DUCT TO 24 INCHES SIZE IN EITHER DIRECTION AND TWO GAGES HEAVER FOR SIZES OVER 24 INCHES.
- D. FABRICATE SPLITTER DAMPERS TO STREAMLINE SHAPE. SECURE BLADE WITH CONTINUOUS HINGE OR ROD. OPERATE WITH MINIMUM 1/4-INCH DIAMETER ROD IN SELF ALIGNING, UNIVERSAL JOINT ACTION FLANGED BUSHING WITH SET SCREW.
- E. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12 INCH.
- F. FABRICATE MULTI-BLADE DAMPER OF OPPOSED BLADE PATTERN WITH MAXIMUM BLADE SIZES 12 X 72 INCHES. ASSEMBLE CENTER AND EDGE CRIMPED BLADES IN PRIME COATED OR GALVANIZED CHANNEL FRAME WITH SUITABLE HARDWARE.
- G. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS. ON MULTIPLE BLADE DAMPERS, PROVIDE OIL-IMPREGNATED NYLON OR SINTERED BRONZE BEARINGS.
- H. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS. WHERE ROD LENGTHS EXCEED 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.
- I. WHERE DUCTWORK IS REQUIRED TO HAVE EXTERNAL INSULATION WRAP APPLIED, DAMPERS SHALL BE PROVIDED WITH 2" STAND-OFF (MINIMUM) TO ALLOW FULL RANGE OF MOTION OF DAMPER HANDLE WITHOUT DAMAGE TO SURROUNDING

2.3 BACKDRAFT DAMPERS

- A. ACCEPTABLE MANUFACTURERS
- 1. UNITED ENERTECH, AIR BALANCE, ARROW, CESCO, NAILOR, RUSKIN, AND VENT PRODUCTS.
- B. GRAVITY BACKDRAFT DAMPERS, SIZE 18 X 18 INCHES OR SMALLER, FURNISHED WITH AIR MOVING EQUIPMENT, MAY BE AIR MOVING EQUIPMENT MANUFACTURERS STANDARD CONSTRUCTION.
- C. FABRICATE MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS OF 16 GAGE GALVANIZED STEEL, WITH CENTER PIVOTED BLADES OF MAXIMUM 6-INCH WIDTH, WITH FELT OR FLEXIBLE VINYL SEALED EDGES, LINKED TOGETHER IN RATTLE-FREE MANNER WITH 90 DEGREE STOP, STEEL BALL BEARINGS, AND PLATED STEEL PIVOT PIN; ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.

2.4 AIR TURNING DEVICE

- A. ACCEPTABLE MANUFACTURERS
- 1. DUCTMATE INDUSTRIES, DURO-DYNE, METALAIRE, SEMCO, WARD INDUSTRIES.
- B. MULTI-BLADE DEVICE WITH BLADES ALIGNED IN SHORT DIMENSION; STEEL OR ALUMINUM CONSTRUCTION; WITH INDIVIDUALLY ADJUSTABLE BLADES, MOUNTING STRAPS. PROVIDE IN ALL SQUARE TURNS.

2.5 FLEXIBLE DUCT CONNECTORS

- A. ACCEPTABLE MANUFACTURERS
- 1. DUCTMATE INDUSTRIES, DURO-DYNE, VENT FABRICS, WARD INDUSTRIES.
- B. FABRICATE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, AND AS INDICATED.
- C. UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90A, MINIMUM DENSITY 20 OZ PER SQUARE YARD, APPROXIMATELY 6 INCHES WIDE, CRIMPED INTO METAL EDGING STRIF

- 3.1 INSTALLATION
- A. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. PROVIDE BALANCING DAMPERS AT POINTS ON LOW PRESSURE SUPPLY. RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. USE SPLITTER DAMPERS WHERE REQUIRED.
- C. PROVIDE BACKDRAFT DAMPERS ON EXHAUST FANS OR EXHAUST DUCTS NEAREST TO OUTSIDE AND WHERE INDICATED.
- D. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT

SECTION 23 34 23 - POWER VENTILATORS

PART 1 - GENERAL

- 1.1 WORK INCLUDED
- A. CEILING EXHAUST FANS
- 1.2 ACTION SUBMITTALS
- A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

2.1 ACCEPTABLE MANUFACTURERS

A. MANUFACTURERS: CARNES COMPANY, GREENHECK FAN CORPORATION, LOREN COOK COMPANY

- PROVIDE ALL FANS WITH DISCONNECT.
- B. PROVIDE ALL FANS WITH MOTOR STARTERS. SEE SECTION 230100 FOR DETAILS.
- C. INTEGRAL PHASE RELAY SHALL BE PROVIDED AS A PART OF ALL THREE PHASE MOTOR STARTERS. RELAY SHALL SHUT MOTOR DOWN ON PHASE LOSS OR PHASE UNBALANCE AND AUTOMATICALLY RESET WHEN NORMAL PHASING IS RESTORED. PHASE FAILURE RELAY SHALL HAVE ADJUSTABLE RESTART TIME CAPABILITIES. MECHANICAL CONTRACTOR SHALL COORDINATE STAGGERED RESTART TIMES AS REQUIRED.
- D. SEE DRAWINGS OR SPECIFICATION SECTION 230900 INSTRUMENTATION AND CONTROLS FOR HVAC FOR CONTROL OF FANS.

A. CENTRIFUGAL FAN UNIT: V-BELT OR DIRECT DRIVE AS SPECIFIED, WITH GALVANIZED STEEL HOUSING LINED WITH 1/2-INCH ACOUSTIC INSULATION RESILIENT MOUNTED MOTOR, GRAVITY BACKDRAFT DAMPER IN DISCHARGE.

B. DISCONNECT SWITCH: FACTORY WIRED, NON-FUSIBLE, IN HOUSING FOR THERMAL OVERLOAD PROTECTED MOTOR AND WALL

- MOUNTED MULTIPLE SPEED SWITCH/SOLID STATE SPEED CONTROLLER.
- C. GRILLE: MOLDED WHITE PLASTIC OR ALUMINUM WITH BAKED WHITE ENAMEL FINISH.

D. SHEAVES: CAST IRON OR STEEL, DYNAMICALLY BALANCED, BORED TO FIT SHAFTS AND KEYED, VARIABLE AND ADJUSTABLE PITCH MOTOR SHEAVES SELECTED SO REQUIRED RPM IS OBTAINED WITH SHEAVES SET AT MID-POSITION, FAN SHAFT WITH SELF-ALIGNING PRE-LUBRICATED BALL BEARINGS.

3.1 INSTALLATION

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. INSTALL EQUIPMENT IN A MANNER TO PROVIDE REQUIRED CLEARANCES FOR PROPER OPERATION AND MAINTENANCE

SECTION 23 37 13 - AIR DISTRIBUTION DEVICES

1.1 WORK INCLUDED

A. DIFFUSERS, REGISTERS/GRILLES, LOUVERS

1.2 ACTION SUBMITTALS

A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

PART 2 - PRODUCTS

- 2.1 ACCEPTABLE MANUFACTURERS
- A. MANUFACTURER LISTED IN SCHEDULE IS FOR DESIGN SELECTION ONLY.
- B. REGISTERS, GRILLES, AND DIFFUSERS: PRICE, NAILOR, TITUS
- C. LOUVERS: GREENHECK, RUSKIN

- A. SQUARE, STAMPED, MULTICORE TYPE DIFFUSER TO DISCHARGE AIR IN FIXED 360-DEGREE PATTERN, OR ADJUSTABLE PATTERN
- B. PROVIDE FOR SURFACE MOUNT AND INVERTED T-BAR WHERE SHOWN. IN PLASTER CEILINGS, PROVIDE PLASTER FRAME AND
- C. FABRICATE OF ALUMINUM WITH BAKED ENAMEL FINISH.
- D. PROVIDE RADIAL OPPOSED BLADES DAMPER ADJUSTABLE FROM DIFFUSER FACE FOR SURFACE MOUNTED UNIT WHERE

2.3 CEILING GRID CORE EXHAUST AND RETURN REGISTERS/GRILLES

- A. FIXED GRILLES OF 1/2 X 1/2 X 1-INCH LOUVERS. B. FABRICATE MARGIN FRAME WITH COUNTERSUNK SCREW MOUNTING OR LAY-IN FRAME FOR SUSPENDED GRID CEILINGS AS
- SHOWN IN SCHEDULE ON DRAWINGS.
- C. FABRICATE OF ALUMINUM WITH FACTORY CLEAR LACQUER FINISH. D. WHERE SCHEDULED PROVIDE INTEGRAL, GANG-OPERATED OPPOSED BLADE DAMPERS WITH REMOVABLE KEY OPERATOR,
- E. ALL LOUVER-FACED GRILLES SHALL BE PROVIDED WITH PATTERN CONTROLLER BLADES UNLESS SCHEDULED OTHERWISE ON THE DRAWINGS.

- A. PROVIDE LOUVERS WITH BLADES ON 37.5- OR 45-DEGREE SLOPE, HEAVY CHANNEL FRAME, BIRD SCREEN WITH 1/2 INCH SQUARE MESH FOR EXHAUST AND 3/4 INCH FOR INTAKE.
- B. FABRICATE OF EXTRUDED ALUMINUM, WELDED ASSEMBLY WITH FACTORY BAKE-ENAMEL FINISH.

C. FURNISH WITH REQUIRED FLANGE TO MATCH INSTALLATION REQUIRED.

- A. FURNISH AND INSTALL WHERE SHOWN ON DRAWINGS ALL REGISTERS, GRILLES, DIFFUSERS AND LOUVERS IN ACCORDANCE
- WITH THE TABULATION IN THE SCHEDULE ON DRAWINGS. B. PROVIDE ACCESSORIES AND MODIFICATIONS AS INDICATED IN SCHEDULE NOTES.
- C. INSTALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- D. INSTALL IN LOCATIONS AS SHOWN ON DRAWINGS. ITEMS HAVE BEEN LOCATED AS SHOWN TO PROVIDE MAXIMUM PERFORMANCE. COORDINATE WITH ARCHITECTURAL FEATURES AND NOTIFY ARCHITECT/ENGINEER OF ANY CONFLICTS
- E. INSTALL DIFFUSERS TO DUCTWORK WITH AIR TIGHT CONNECTION.
- F. PROVIDE ACCESSIBLE BALANCING DAMPERS ON DUCT TAKE-OFF TO DIFFUSERS, AND GRILLES AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, OR GRILLE AND REGISTER.

SECTION 23 54 16.13 - GAS-FIRED FURNACES

A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

PART 1- GENERAL 1.1 SUMMARY

A. SECTION INCLUDES:

1. GAS-FIRED, NONCONDENSING CONDENSING FURNACES AND ACCESSORIES COMPLETE WITH CONTROLS, AIR FILTERS.

A. SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE THE FOLLOWING COMPONENTS OF FURNACES THAT FAIL

- IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD: 1. WARRANTY PERIOD, COMMENCING ON DATE OF SUBSTANTIAL COMPLETION:
 - a. FURNACE HEAT EXCHANGER: 20 YEARS.
- b. INTEGRATED IGNITION AND BLOWER CONTROL CIRCUIT BOARD: FIVE YEARS. c. DRAFT-INDUCER MOTOR: FIVE YEARS.

d. REFRIGERATION COMPRESSORS: 5 YEARS.

e. EVAPORATOR AND CONDENSER COILS: FIVE YEARS.

A. CABINET: STEEL.

- 2.1 ACCEPTABLE MANUFACTURERS
- A. DAIKIN, AAON, JCI, TRANE, CARRIER, FRASER JOHNSTON, BRYANT 2.2 GAS-FIRED FURNACES, CONDENSING

CABINET INTERIOR AROUND HEAT EXCHANGER SHALL BE FACTORY-INSTALLED INSULATION 2. LIFT-OUT PANELS SHALL EXPOSE BURNERS AND ALL OTHER ITEMS REQUIRING ACCESS FOR MAINTENANCE.

- 3. FACTORY PAINT EXTERNAL CABINETS IN MANUFACTURER'S STANDARD COLOR 4. AIRSTREAM SURFACES: SURFACES IN CONTACT WITH THE AIRSTREAM SHALL COMPLY WITH REQUIREMENTS IN ASHRAE
- B. FAN: CENTRIFUGAL, FACTORY BALANCED, RESILIENT MOUNTED, DIRECT DRIVE.
- 1. SPECIAL MOTOR FEATURES: MULTI-TAPPED, MULTISPEED WITH INTERNAL THERMAL PROTECTION AND PERMANENT
- 2. SPECIAL MOTOR FEATURES: ELECTRONICALLY CONTROLLED MOTOR (ECM) CONTROLLED BY INTEGRATED
- FURNACE/BLOWER CONTROL. C. TYPE OF GAS: NATURAL.
- D. HEAT EXCHANGER:

PRIMARY: STAINLESS STEEL

- SECONDARY: STAINLESS STEEL. E. BURNER: 1. GAS VALVE: 100 PERCENT SAFETY MODULATING MAIN GAS VALVE, MAIN SHUTOFF VALVE, PRESSURE REGULATOR, SAFETY
- PILOT WITH ELECTRONIC FLAME SENSOR, LIMIT CONTROL, TRANSFORMER, AND COMBINATION IGNITION/FAN TIMER
- 2. IGNITION: ELECTRIC PILOT IGNITION, WITH HOT-SURFACE IGNITER OR ELECTRIC SPARK IGNITION
- F. GAS-BURNER SAFETY CONTROLS 1. ELECTRONIC FLAME SENSOR: PREVENTS GAS VALVE FROM OPENING UNTIL PILOT FLAME IS PROVEN; STOPS GAS FLOW ON
- 2. FLAME ROLLOUT SWITCH: INSTALLED ON BURNER BOX; PREVENTS BURNER OPERATION. 3. LIMIT CONTROL: FIXED STOP AT MAXIMUM PERMISSIBLE SETTING; DE-ENERGIZES BURNER ON EXCESSIVE BONNET
- G. COMBUSTION-AIR INDUCER: CENTRIFUGAL FAN WITH THERMALLY PROTECTED MOTOR AND SLEEVE BEARINGS PRE-PURGES HEAT EXCHANGER AND VENTS COMBUSTION PRODUCTS; PRESSURE SWITCH PREVENTS FURNACE OPERATION IF COMBUSTION-AIR INLET OR FLUE OUTLET IS BLOCKED.
- AND FAN-OFF TIMING; TERMINALS FOR CONNECTION TO ACCESSORIES.

B. SOLID-STATE THERMOSTAT: WALL-MOUNTED, PROGRAMMABLE, MICROPROCESSOR-BASED UNIT WITH AUTOMATIC SWITCHING

FROM HEATING TO COOLING, PREFERENTIAL RATE CONTROL, SEVEN-DAY PROGRAMMABILITY WITH MINIMUM OF FOUR

H. FURNACE CONTROLS: SOLID-STATE BOARD INTEGRATES IGNITION, HEAT, COOLING, AND FAN SPEEDS; ADJUSTABLE FAN-ON

- 1. COMBINATION COMBUSTION-AIR INTAKE AND VENT: PVC PLASTIC FITTING TO COMBINE COMBUSTION-AIR INLET AND VENT THROUGH OUTSIDE WALL OR ROOF AS SPECIFIED.
- 2. CPVC PLASTIC VENT MATERIALS: SCHEDULE 40, COMPLYING WITH ASTM F 441/F 441M.

3. PVC PLASTIC VENT MATERIALS: SCHEDULE 40, COMPLYING WITH ASTM D 1785.

TEMPERATURE; AUTOMATIC RESET.

A. CONTROLS SHALL COMPLY WITH REQUIREMENTS IN ASHRAE/IES 90.1, "CONTROLS."

TEMPERATURE PRESETS PER DAY AND BATTERY BACKUP PROTECTION AGAINST POWER FAILURE FOR PROGRAM SETTINGS.

B. DISPOSABLE PANEL FILTERS:

THICKNESS: 2 INCH.

- A. GENERAL REQUIREMENTS FOR AIR FILTRATION SECTION:
- COMPLY WITH NFPA 90A.

2. MINIMUM MERV ACCORDING TO ASHRAE 52.2.

1. FACTORY-FABRICATED, VISCOUS-COATED, FLAT-PANEL TYPE.

- 3. FILTER-HOLDING FRAMES: ARRANGED FOR FLAT OR ANGULAR ORIENTATION, WITH ACCESS DOORS ON BOTH SIDES OF UNIT. FILTERS SHALL BE REMOVABLE FROM ONE SIDE OR LIFTED OUT FROM ACCESS PLENUM.
- 3. MEDIA: INTERLACED GLASS FIBERS SPRAYED WITH NONFLAMMABLE ADHESIVE AND ANTIMICROBIAL AGENT

- A. INSTALL GAS-FIRED FURNACES AND ASSOCIATED FUEL AND VENT FEATURES AND SYSTEMS ACCORDING TO NFPA 54.
- B. BASE-MOUNTED UNITS: SECURE UNITS TO SUBSTRATE. PROVIDE OPTIONAL BOTTOM CLOSURE BASE IF REQUIRED BY

INSTALLATION CONDITIONS. ANCHOR FURNACE TO SUBSTRATE TO RESIST CODE-REQUIRED SEISMIC ACCELERATION.

A. SECTION INCLUDES SPLIT-SYSTEM AIR-CONDITIONING UNITS CONSISTING OF SEPARATE EVAPORATOR-FAN AND COMPRESSOR-CONDENSER COMPONENTS AND REFRIGERANT PIPING AND CONTROLS

- A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

- A. SPECIAL WARRANTY FROM SUB-CONTRACTOR: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF SPLIT-SYSTEM AIR-CONDITIONING UNITS THAT FAIL IN MATERIALS OR WORKMANSHIP
- WITHIN SPECIFIED WARRANTY PERIOD. WARRANTY PERIOD:
- a. FOR COMPRESSOR: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION. b. FOR PARTS: ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION

c. FOR LABOR: ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION

A. DAIKIN, AAON, JCI, TRANE, CARRIER, FRASER JOHNSTON, BRYANT

- 2.1 ACCEPTABLE MANUFACTURERS

 - AIRFLOW: UP-FLOW/HORIZONTAL/MULTI-POSITION
 - SERVICING, AND INSULATION ON BACK OF PANEL.
 - 3. INSULATION: FACED, GLASS-FIBER DUCT LINER.

A. EVAPORATOR-FAN COMPONENTS:

4. CONDENSATE DRAIN PANS: a. FABRICATED WITH TWO PERCENT SLOPE IN AT LEAST TWO PLANES TO COLLECT CONDENSATE FROM COOLING COILS (INCLUDING COIL PIPING CONNECTIONS, COIL HEADERS, AND RETURN BENDS) AND TO DIRECT WATER TOWARD

2. CHASSIS: PRE-PAINTED ENAMEL HEAVY GAUGE GALVANIZED STEEL WITH FLANGED EDGES, REMOVABLE PANELS FOR

- b. DRAIN CONNECTION: LOCATED AT LOWEST POINT OF PAN AND SIZED TO PREVENT OVERFLOW. TERMINATE WITH THREADED NIPPLE ON ONE END OF PAN.

a) LENGTH: EXTEND DRAIN PAN DOWNSTREAM FROM LEAVING FACE TO COMPLY WITH ASHRAE 62.1.

- 5. REFRIGERANT COIL: COPPER TUBE, WITH MECHANICALLY BONDED ALUMINUM FINS AND THERMAL-EXPANSION VALVE. COMPLY WITH ARI 206/110. 6. ELECTRIC COIL: HELICAL, NICKEL-CHROME, RESISTANCE-WIRE HEATING ELEMENTS; WITH REFRACTORY CERAMIC SUPPORT BUSHINGS, AUTOMATIC-RESET THERMAL CUTOUT, BUILT-IN MAGNETIC CONTACTORS, MANUAL-RESET
- THERMAL CUTOUT, AIRFLOW PROVING DEVICE, AND ONE-TIME FUSES IN TERMINAL BOX FOR OVERCURRENT

7. DIRECT DRIVE FAN: STATICALLY AND DYNAMICALLY BALANCED BEFORE INSTALLATION, RESILIENTLY MOUNTED MOTOR,

- 8. FAN MOTORS: COMPLY WITH NEMA DESIGNATION, TEMPERATURE RATING, SERVICE FACTOR, ENCLOSURE TYPE, AND EFFICIENCY REQUIREMENTS. MULTITAPPED, MULTISPEED WITH INTERNAL THERMAL PROTECTION AND PERMANENT LUBRICATION. PERMANENTLY LUBRICATED, BALL-BEARING MOTORS WITH BUILT-IN THERMAL-OVERLOAD PROTECTION. WIRING TERMINATIONS: CONNECT MOTOR TO CHASSIS WIRING WITH PLUG CONNECTION
- REMOVABLE PANELS FOR ACCESS TO CONTROLS, WEEP HOLES FOR WATER DRAINAGE, AND MOUNTING HOLES IN BASE. PROVIDE BRASS SERVICE VALVES, FITTINGS, AND GAGE PORTS ON EXTERIOR OF CASING. PROVIDE COIL PROTECTION PANELS COMPRESSOR: HERMETICALLY SEALED WITH CRANKCASE HEATER AND MOUNTED ON VIBRATION ISOLATION DEVICE. COMPRESSOR MOTOR SHALL HAVE THERMAL- AND CURRENT-SENSITIVE OVERLOAD DEVICES, START CAPACITOR, RELAY, AND

A. AIR-COOLED, COMPRESSOR CONDENSER COMPONENTS: CASING: STEEL, FINISHED WITH BAKED ENAMEL IN COLOR, WITH

MECHANICALLY BONDED ALUMINUM FINS AND LIQUID SUBCOOLER. COMPLY WITH ARI 206/110 1. FAN: ALUMINUM-PROPELLER TYPE, DIRECTLY CONNECTED TO MOTOR

C. AUTOMATIC-RESET TIMER TO PREVENT RAPID CYCLING OF COMPRESSOR

TO SUPPORTS WITH REMOVABLE, CADMIUM-PLATED FASTENERS.

HIGH- AND LOW-PRESSURE SWITCHES.

2. MOTOR: PERMANENTLY LUBRICATED, WITH INTEGRAL THERMAL-OVERLOAD PROTECTION.

c. PAN-TOP SURFACE COATING: ASPHALTIC WATERPROOFING COMPOUND

EASILY REMOVABLE FOR SERVICE, TIME DELAY FAN RELAY.

- 4. HIGH-CAPACITY LIQUID AIR DRIER
 - 5. LOW AMBIENT KIT: PERMITS OPERATION DOWN TO 45 DEG F.

A. CONTROL EQUIPMENT AND SEQUENCE OF OPERATION ARE SPECIFIED IN SECTION 230900 "INSTRUMENTATION AND

SET-POINT TEMPERATURE, TIME SETTING, OPERATING MODE, AND FAN SPEED, FAN-SPEED SELECTION INCLUDING AUTO

- B. THERMOSTAT: TO CONTROL COMPRESSOR AND EVAPORATOR FAN, WITH THE FOLLOWING FEATURES: COMPRESSOR TIME DELAY. 7-DAY/24-HOUR TIME CONTROL OF SYSTEM STOP AND START. LIQUID-CRYSTAL DISPLAY INDICATING TEMPERATURE,
- E. REFRIGERANT LINE KITS: ANNEALED-COPPER SUCTION AND LIQUID LINES FACTORY CLEANED, DRIED, PRESSURIZED WITH NITROGEN, SEALED, AND WITH SUCTION LINE INSULATED. PROVIDE IN STANDARD LENGTHS FOR INSTALLATION WITHOUT JOINTS, EXCEPT AT EQUIPMENT CONNECTIONS.
- 1. THIS PIPING SHALL BE CAPPED THROUGHOUT THE CONSTRUCTION TO PREVENT ANY FOREIGN MATERIALS FROM ENTERING THE PIPING. FITTINGS SHALL BE WROUGHT COPPER SOLDER JOINT TYPE. DRY NITROGEN SHALL BE BLED THROUGH PIPING WHILE JOINTS ARE BEING BRAZED. JOINTS SHALL BE AS FOLLOWS: COPPER TO BRASS - SILVER

2. JOINTS: COPPER TUBING CONNECTIONS SHALL BE MADE UP WITH 95/5 TIN ANTIMONY SOLDER OR SILFOS, IN

WROUGHT COPPER. JOINTS: ASTM B32, SOLDER, GRADE 95TA OR GROOVED JOINTS WITH EPDM GASKETS. CONDENSATE DRAIN

3. REFRIGERANT PIPING INSULATION: ARMSTRONG ARMAFLEX INSULATION 1/2" THICK WITH FITTINGS COVERED WITH MITERED SECTIONS OF INSULATION AND SEALED WITH ARMAFLEX 520 ADHESIVE. ALL INSULATION ON OUTDOOR INSTALLATION SHALL BE ADDITIONALLY PROTECTED WITH TWO (2) COATS OF ARMAFLEX WB PIGMENTED ACRYLIC LATEX FINISH. COMPLY WITH ASTM C 534/C 534M, TYPE I. F. CONDENSATE DRAIN PIPING: COPPER TUBING: ASTM B88, TYPE L, M OR DWV HARD DRAWN. FITTINGS: ANSI/ASME B16.18 BRONZE SAND CASTINGS, ANSI B16.22 WROUGHT COPPER, ANSI/ASME B16.23 CAST BRASS, OR ANSI/ASME B16.29 SOLDER

ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OR AS SPECIFIED HEREINAFTER.

PIPING INSULATION: FLEXIBLE ELASTOMERIC INSULATION: 1/2" CLOSED-CELL, SPONGE- OR EXPANDED-RUBBER MATERIALS.

COMPLY WITH ASTM C534, TYPE I FOR TUBULAR MATERIALS.

D. EQUIPMENT MOUNTING

TO ALLOW ACCESS TO UNIT.

D. CONDENSATE OVERFLOW SWITCH

A. INSTALL UNITS' LEVEL AND PLUMB. B. INSTALL EVAPORATOR-FAN COMPONENTS USING MANUFACTURER'S STANDARD MOUNTING DEVICES SECURELY FASTENED TO

C. INSTALL ROOF-MOUNTED, COMPRESSOR-CONDENSER COMPONENTS ON EQUIPMENT SUPPORTS AS SPECIFIED. ANCHOR UNITS

E. INSTALL AND CONNECT PRE-CHARGED REFRIGERANT TUBING TO COMPONENT'S QUICK-CONNECT FITTINGS. INSTALL TUBING

1. INSTALL GROUND-MOUNTED, COMPRESSOR-CONDENSER COMPONENTS ON CAST-IN-PLACE CONCRETE EQUIPMENT

Tower Pinkster Titus Associates, Inc.

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MALLORY L.

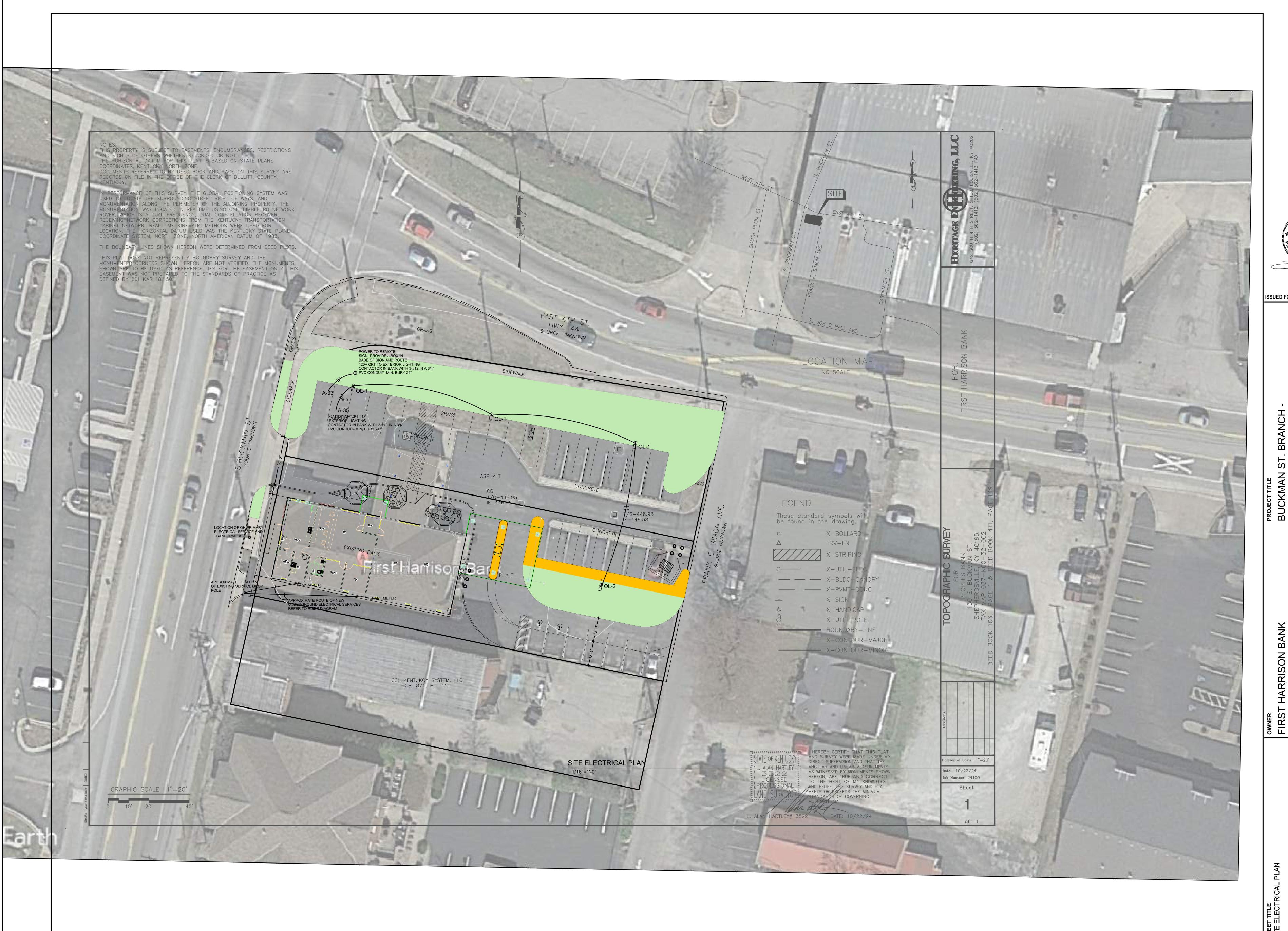
ANDERSON

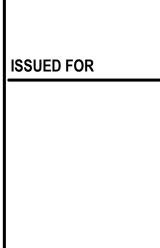
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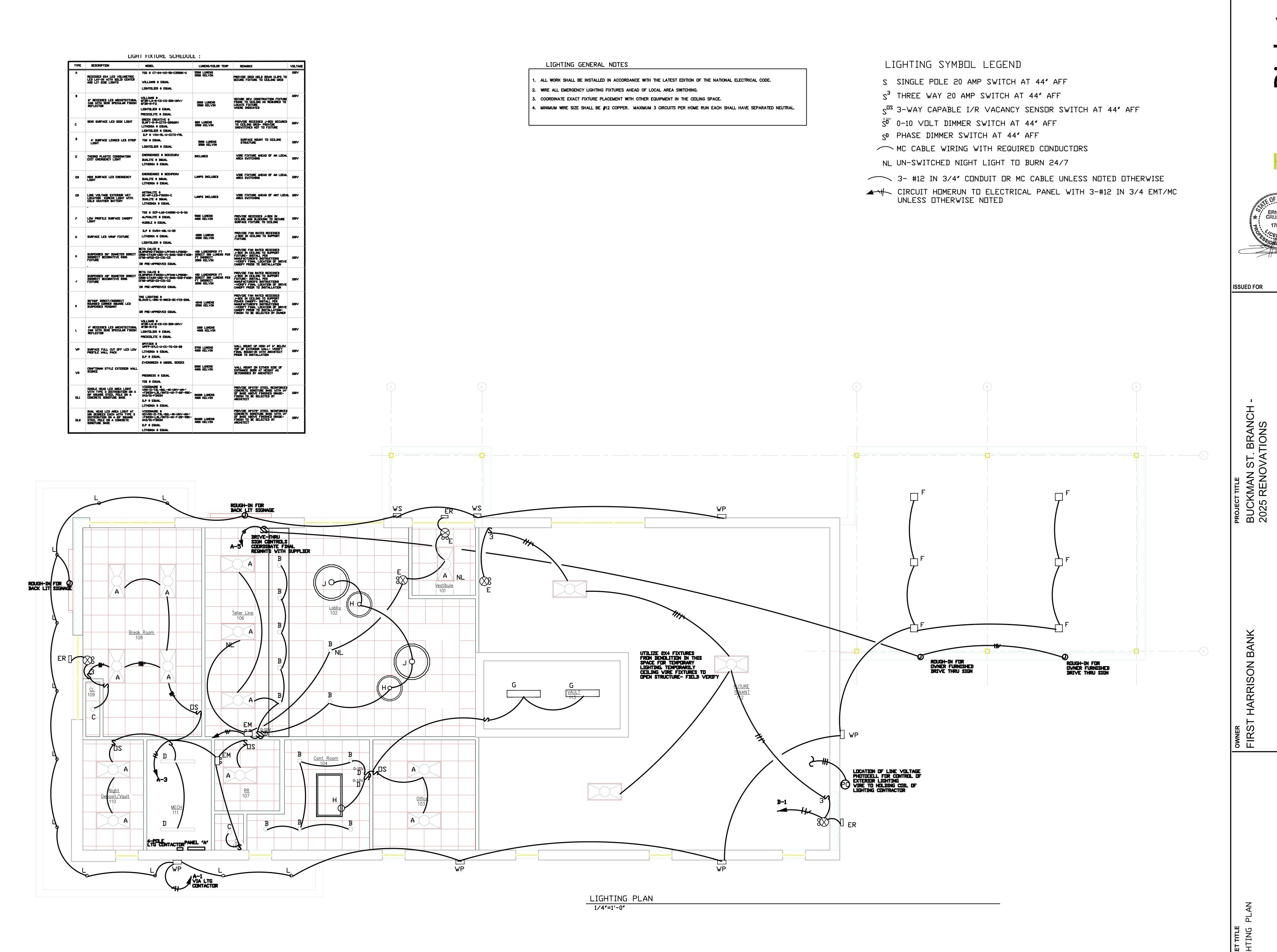
SSUED FOR

CONTACTOR. COMPRESSOR TYPE: SCROLL. TWO-SPEED COMPRESSOR MOTOR WITH MANUAL-RESET HIGH-PRESSURE SWITCH AND AUTOMATIC-RESET LOW-PRESSURE SWITCH. REFRIGERANT: R-410A. REFRIGERANT COIL: COPPER TUBE, WITH

ANG FIC







POWER SYMBOL LEGEND

- ₩ DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER HEIGHT
- QUADRAPLEX RECEPTACLE AT 15" A.F.F. UNLESS NOTED OTHERWISE
- ∇ DATA DUTLET WITCH 3/4" CONDUIT STUB TO ACCESSIBLE POINT ABOVE CEILING AND (2) CAT 6 PLENUM RATED CABLES FROM DUTLET TO IT RACK WITH 10" OF SLACK AT RACK
- COMBINATION DATA/POWER FLUSH FLOOR BOX -COORDINATE WITH FLOOR TYPE
- AC ABOVE COUNTER MOUNTING OF DEVICE
- UC UNDER CABINET RED DEDICATED RECEPTACLE
- GFI GROUND FAULT TYPE RECEPTACLE
- MW MICROWAVE RECEPTACLE ABOVE COUNTER
- WP WEATHERPROOF IN USE COVER FOR RECEPTACLE DEVICE
- √TV J-BOX FOR LOW VOLTAGE WIRING AT 68' AFF FOR TV DUTLET
- JUNCTION BOX ROUGH-IN COORDINATE WITH EQUIP. SUPPLIER
- 5 FRACTIONAL HORSEPOWER MOTOR DISCONNECT SWITCH 120 VOLT
- CIRCUIT HOMERUN 3-#12 IN 3/4" MC.
- DISCONNECT SWITCH SIZED PER LOAD SERVED- NEMA 3R WHERE OUTDOORS

GENERAL POWER NOTES

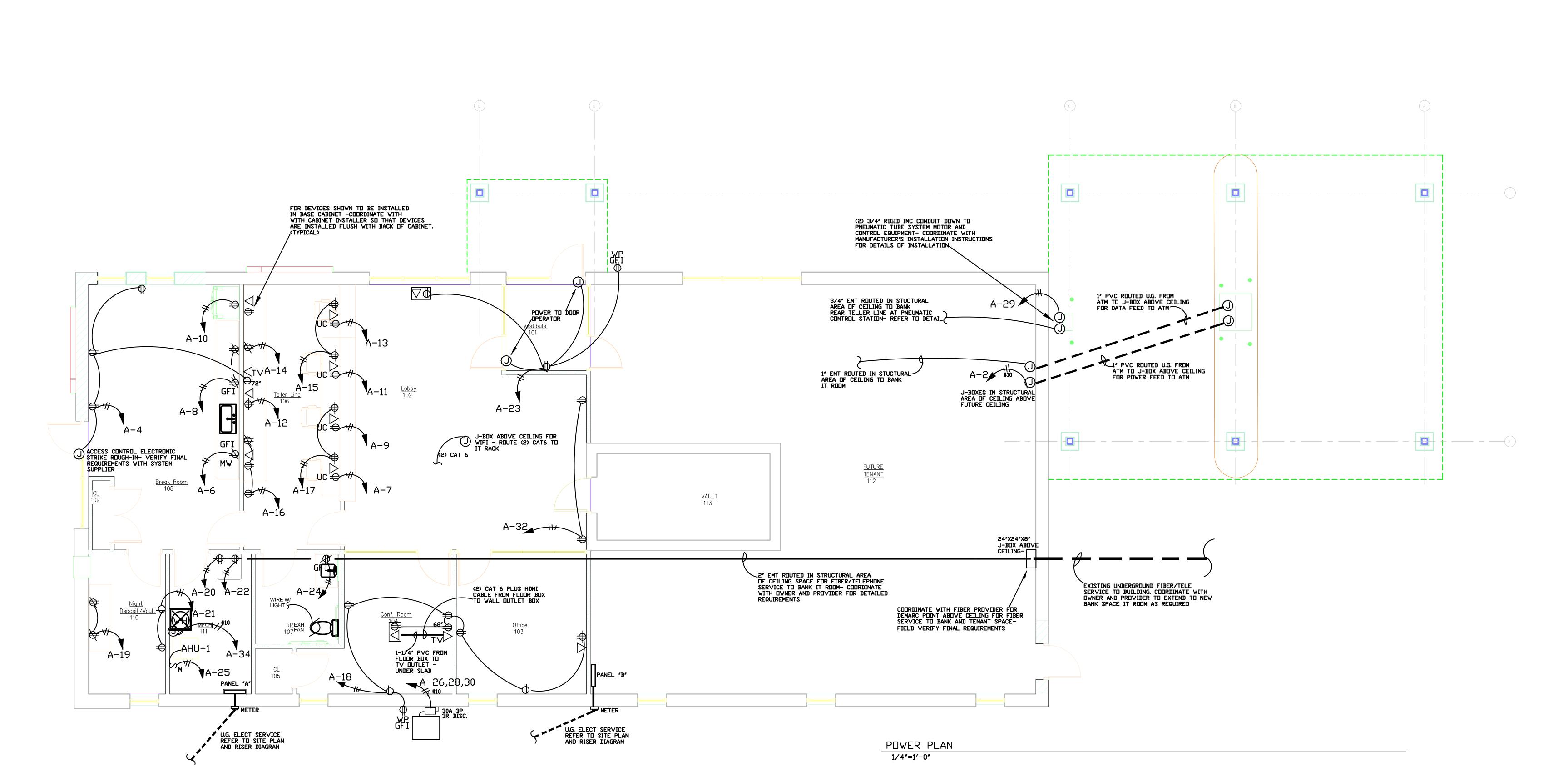
ASSOCIATED WITH HVAC EQUIPMENT.

1. ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE. 2. MINIMUM WIRE SIZE SHALL BE #12 COPPER. COORDINATE WITH EQUIPMENT ACTUAL WIRE SIZES BASED ON EQUIPMENT NAME PLATE RATINGS.

3. ALL EXPOSED CONDUIT BELOW 10' SHALL BE EMT TYPE. MC CABLE ALLOWED ABOVE CEILINGS AND IN STRUCTURAL AREA OF CEILINGS. SCHEDULE 40 PVC FOR U.G. CONDUIT. 4. COORDINATE WITH MECHANICAL CONTRACTOR FOR REQUIRED CONTROL WIRING

5. PROVIDE PANELBOARD CIRCUIT DIRECTORIES WHICH MATCH FIELD WIRING/CIRCUITING FOR EACH POWER DISTRIBUTION PANEL.

6. COORDINATE FINAL PLACEMENT OF ALL DEVICES WITH CASEWORK AND OWNER. VERIFY FINAL LOCATIONS FOR CASEWORK MOUNTED DEVICE WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.



ISSUED FOR

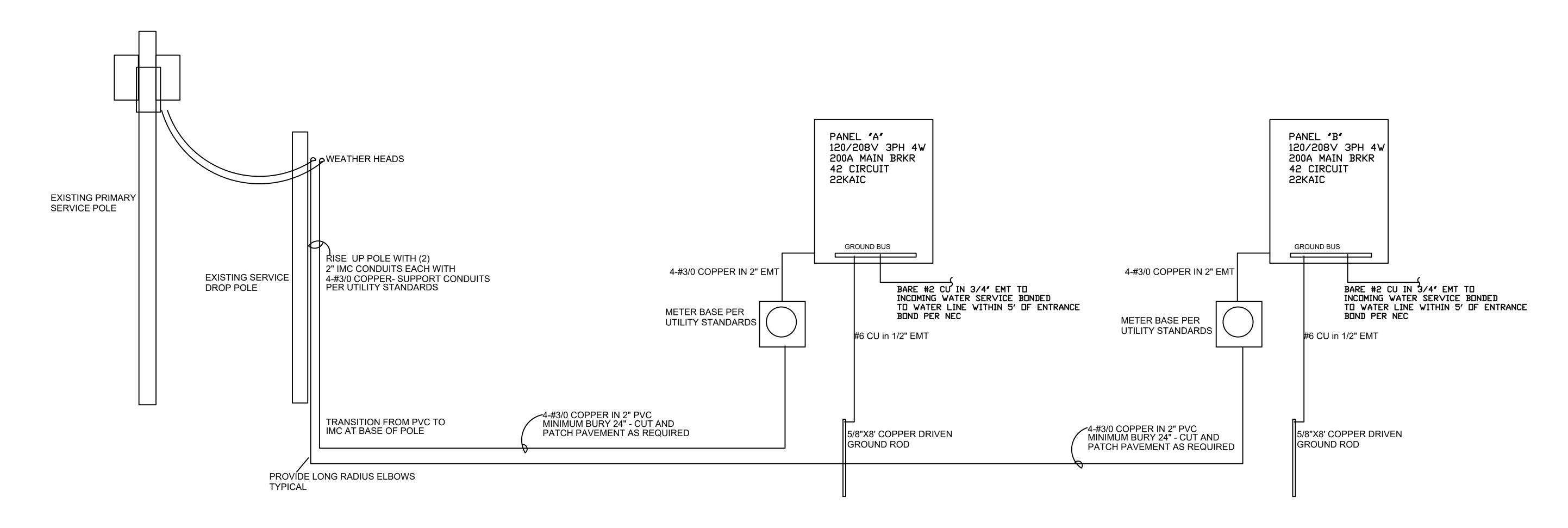
HARRISON BANK

DATE APRIL

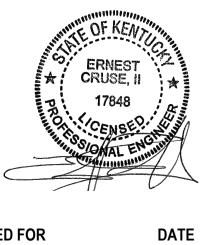
SHEET TIT POWER

"A" 120/208	∨ 3 PH 4	-W 20	0 A B	JS 20	DOA MA	IN BREAK	ER 22KAIC
LOAD DESCRIPTION	FEEDER	CB/ POLE	CIRC. NO.	CIRC. ND.	CB/ POLE	FEEDER	LOAD DESCRIPTION
BLDG EXT. LIGHTING	#12	20 1P	1	2	30 1P	#10	DRIVE THRU ATM
BLDG INTERIOR LTS	#12	20 1P	3	4	20 1P	#12	BRKRM RECEPTS
DRIVE THRU SIGN	#12	20 1P	5	6	20 1P	#12	BRKRM MICROWAVE RECP
TELLER DED. RED RECP	#12	20 1P	7	8	20 1P	#12	BRKRM COOUNTER RECP
TELLER DED. RED RECP	#12	20 1P	9	10	20 1P	#12	BRKRM FRIG CKT
TELLER DED. RED RECP	#12	20 1P	11	12	20 1P	#12	CASH MACH RECEPT
TELLER DED, RED RECP	#12	20 1P	13	14	20 1P	#12	REAR TELLER LINE RECP
TELLER CNTR RECPS	#12	20 1P	15	16	20 1P	#12	REAR TELLER LINE RECP
TELLER CNTR RECPS	#12	20 1P	17	18	20 1P	#12	OFF/CONF RM RECP
NIGHT DEP RECPS	#12	20 1P	19	20	20 1P	#12	IT RACK RECPT
NIGHT DEP RECPS	#12	20 1P	21	22	20 1P	#12	IT RACK RECPT
LOBBY/VEST RECPS	#12	20 1P	23	24	20 1P	#12	RR/EXT RECPTS
AHU	#12	20 1P	25	26	30 3P	#10	COND UNIT
SITE SIGNAGE	#12	20 1P	27	28		#10	
PNEUMATIC TUBE	#12	20 1P	29	30		#10	
LOBBY/TELLER LTG	#12	20 1P	31	32	20 1P	#12	LOBBY RECEPTS
SITE SIGN CKT	#12	20 1P	33	34	30 1P	#10	WATER HEATER CKT
SITE LIGHTING	#10	20 1P	35	36			
SPARE		20 1P	37	38			
SPARE		20 1P	39	40			
SPARE		20 1P	41	42			

"B" 120/208	V 3 PH 4					IN BREAK	ER 2	2KAIC
LOAD DESCRIPTION	FEEDER	CB/ POLE	CIRC. N□.	CIRC. N□.	CB/ POLE	FEEDER	LOAD	DESCRIPTION
LIGHTING CKT	#12	20 1P	1	2				
			3	4				
			5	6				
			7	8				
			9	10				
			11	12				
			13	14				
			15	16				
			17	18				
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			31	32				
			33	34				
			35	36				
			37	38				
			39	40				
			41	42				







OWNER FIRST HARRISON BANK 130 S. BUCKMAN ST. SHEPHERDSVILLE, KY 40165