



Office of the Vice President
and Chief Financial Officer

Procurement Services

<https://procurement.ufl.edu/>

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January 13, 2020

ADDENDUM #1 to the University of Florida ITN20JL-131 Plant Growth Chambers for IFAS Plant Science Departments scheduled to open on **January 24, 2020 3:00 PM** at the University of Florida, Elmore Hall Conference Room, Radio Road, Gainesville, Florida.

This addendum shall be considered part of the Contract Documents for the above mentioned **ITN20JL-131** as though it had been issued at the same time and incorporated integrally therewith. Where provisions of the following supplementary data differ from those of the original document, this addendum shall govern and take precedence. All other terms, conditions, and regulations will apply.

This addendum consists of:

- Responses to technical questions/ inquiries that were due January 9, 2020 at 5:00pm
- 50% completed design drawings of the facility

Sincerely,

Jennifer Leckerling, Procurement Agent III
Procurement Services

Please acknowledge receipt of Addendum #1 by signing below, and returning this addendum with your proposal. Failure to include addendum with your proposal may result in rejection.

Signature

Company Name

Company Address

City/State/Zip

Responses to technical questions/ inquiries that were due January 9, 2020 at 5:00pm for UF's ITN20JL-131 Plant Growth Chambers for IFAS Plant Science Departments

Q1. Are alternative additive humidification methods acceptable such as Centrifugal Atomizing Humidifiers or Ultrasonic Humidifiers for the 64sqft growth chambers?

A1. Yes

Q2. Are higher light intensities acceptable in the 120sqft growth chambers to ensure integrity of light uniformity?

A2. Yes

Q3. Please confirm R-448A refrigerant with a GWP of 1387 is acceptable to use as a substitution rather than R-449A refrigerant with GWP 1397 (as outlined in the specifications).

A3. Yes

Q4. Will the building where the chambers are scheduled to be installed be a conditioned space (air temperature and humidity)?

A4. Yes. UF anticipates a maintained temperature of 75 degrees F and 50% RH.

Q5. Will chambers be required to duct to a central facility exhaust system?

A5. Yes

Q6. Would common walls be an option considered to conserve space and reduce costs? Example: 2x 120sqft chambers could share common wall, 4x 64ft chambers could share common wall(s).

A6. Yes

Q7. Specs for both walk in rooms and reach in chambers call for a 12" touchscreen. Will an exception for a 10" touchscreen be acceptable?

A7. Yes

Q8. For the walk-in rooms, will each room require an insulated floor with drain?

A8. Yes

Q9. Regarding the spray nozzle humidity system the specs call out stainless steel piping system/materials. Lab grade plastic is similarly durable and offers better ease for any future field modifications. Is this acceptable?

A9. Plastic tubing is acceptable however, UF requests that both piping materials be quoted with pricing for comparison.

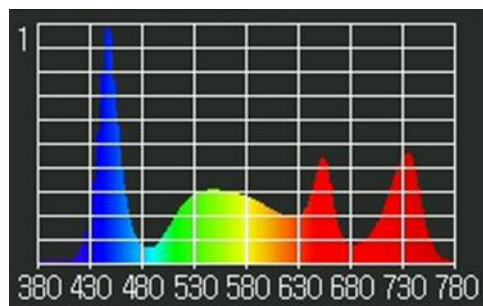
Q10. Will a chamber with the exterior dimensions of 100.5" W X 40.6" D X 111.1" H and a depth of 40.6" be acceptable? The depth includes a control box which adds 4" to the external depth. Realistically, the chamber depth is 36".

A10. Yes

Q11. Regarding the reach-in chambers, will alternate reach-in chamber refrigerants be acceptable as long as the GWP is at or under 1397?

A11. Yes

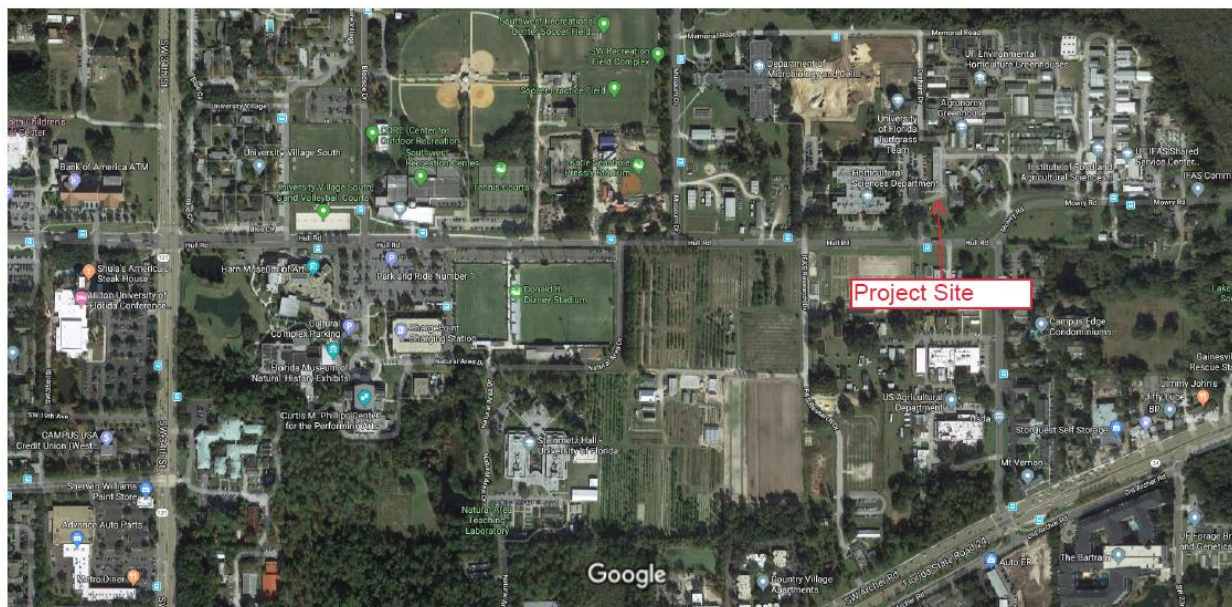
Q12. Is SciBrite® Four-Color Tile lighting acceptable to quote?



A12. SciBrite® Four-Color Tile lighting is acceptable.

Q13. What is the actual location of the installation?

A13. University of Florida
IFAS Building # 711
2464 Hull Road
Gainesville, FL 32611



Q14. Will all walk-ins and reach-ins be located in the same location?

A14. Yes

Q15. Are there drawings of the facility available?

A15. Yes drawings are attached. The drawings are 50% design and the awarded vendor will receive the completed drawings.

Q16. Will there be access to a loading dock?

A16. There is no loading dock in the building. There is plenty of available asphalted area to off-load with fork truck into the building via doors.

Q17. Will the installations be on the first floor? If no, is there access to a freight or service elevator? Are elevator measurements available?

A17. All installation is on the first floor

Q18. What are the dimensions of the smallest door between the unloading point and final installation location?

A18. The roll up door opening is 8'x8' and the smallest doorway has a 6' wide x 8' high opening

Q19. Will the water-cooled condensing units be self-contained or will they need to be remote, water-cooled condensing units? If remote, where will these units be located from the chambers?

A19. Self-contained and installed on top of the equipment.

Q20. If an insulated floor with drain is available, will there be access to facility drains?

A20. Yes, a common trench drain is provided for any and all drainage requirements.

Q21. Will there be full access to electrical and Ethernet connections?

A21. Yes, electrical power will be provided via individual conduit drops to the units and individual ethernet connects to the controls panel.

Q22. Will enclosure panels be required around the walk-in chambers?

A22. Enclosure panels are required if there is exposed equipment under the chambers.

Q23. Will there be any requirements on the need for union or prevailing wages for installation?

A23. This is not a requirement for this purchase.

Q24. What company was the basis of design for the specs?

A24. The University of Florida based their specifications on the needs of seven principle investigators in IFAS Plant Science Department.

Q25. Which Vendors are approved to submit a bid?

A25. Vendors that meet or exceed the specifications listed in the ITN document may submit a bid.

Q26. Will the award decision be made according to price?

A26. No, evaluation criteria are included in the solicitation document section 2.1. All proposals will be evaluated according to those criteria and further discussions to determine actual design/ specifications will then occur.

UF IFAS Building 711 Headhouse Renovation

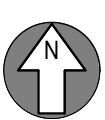
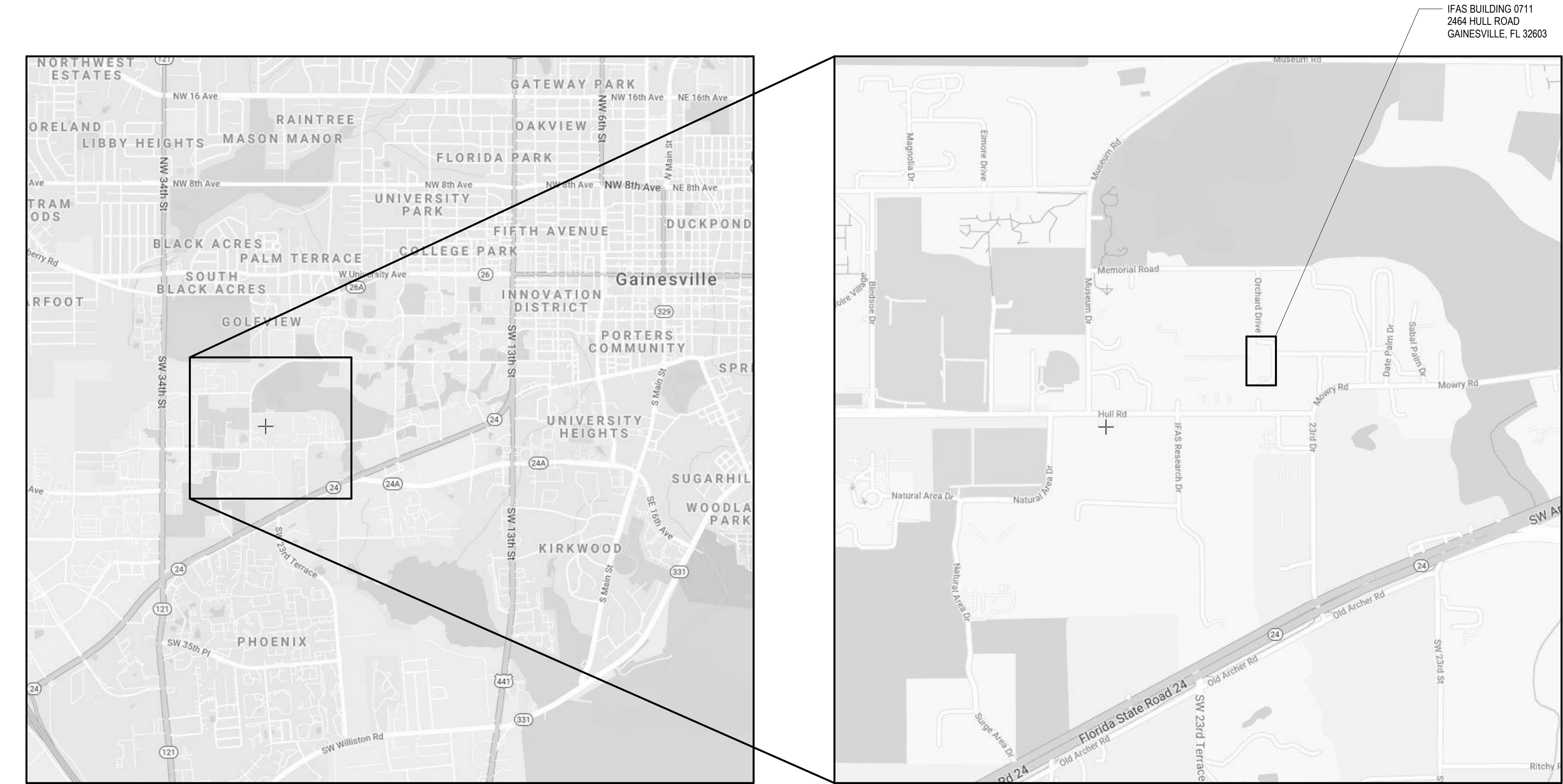
IFAS Building 711



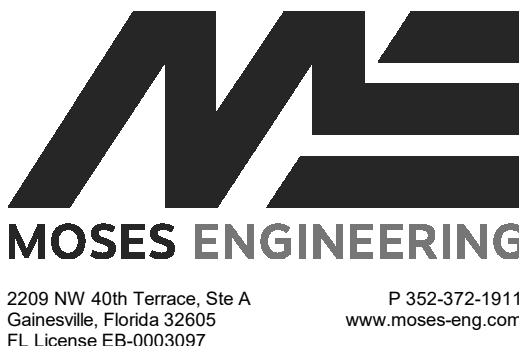
50% Construction Documents
11/26/19
Moses Project #19162

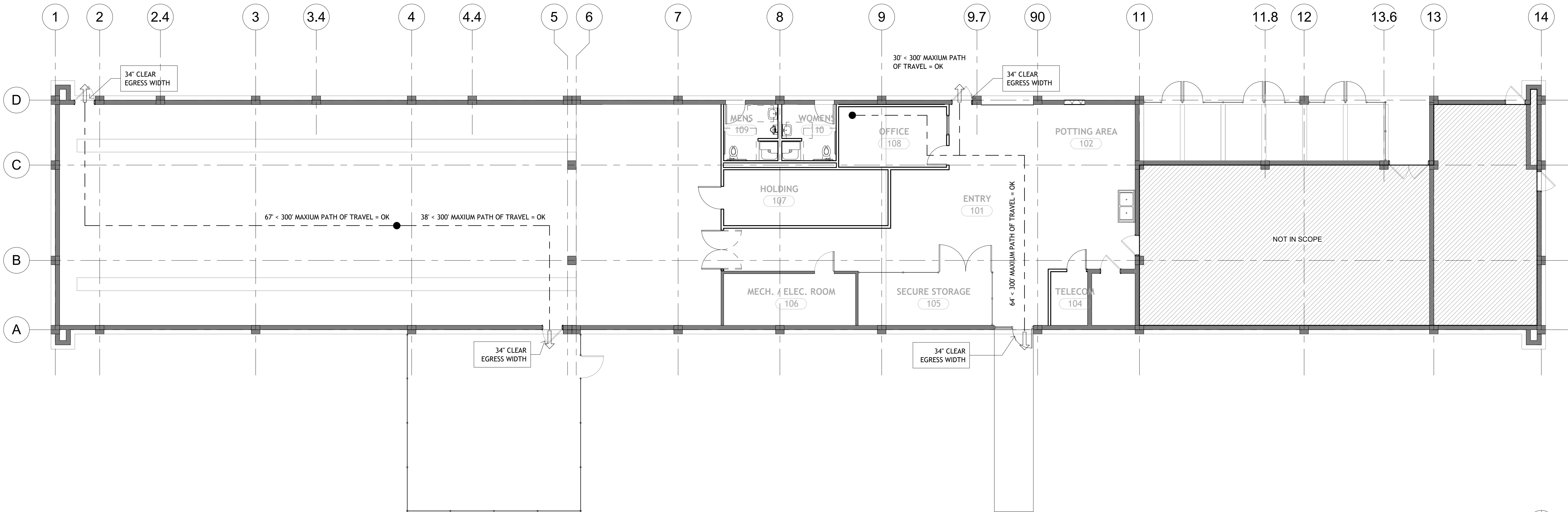
Sheet List

Sheet Number	Sheet Name
G001	COVER PAGE
LS100	LIFE SAFETY BUILDING SUMMARY AND FLOOR PLAN
A101	ARCHITECTURAL PHASE 1 - DEMOLITION & RENOVATION FLOOR PLANS
A102	ARCHITECTURAL PHASE 2 - DEMOLITION & RENOVATION FLOOR PLANS
A103	ARCHITECTURAL PHASE 3 - DEMOLITION & RENOVATION FLOOR PLANS
A104	ARCHITECTURAL PHASE 4 - DEMOLITION & RENOVATION FLOOR PLANS
A105	ARCHITECTURAL PHASE 4 - RENOVATION REFLECTED CEILING PLAN
A106	ARCHITECTURAL ENLARGED PLANS & INTERIOR ELEVATIONS
A107	ARCHITECTURAL OPENING SCHEDULE AND OPENING TYPE ELEVATIONS
A108	ARCHITECTURAL INTERIOR PARTITION TYPES
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M002	SCHEDULES
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M102	FLOOR PLAN PHASE 2
M103	FLOOR PLAN PHASE 3
M104	FLOOR PLAN PHASE 4
M201	DETAILS
IC001	LEGEND, ABBREVIATIONS, CODES AND STANDARDS
IC101	CONTROLS DIAGRAMS
P001	LEGEND, ABBREVIATIONS, CODES AND STANDARDS
P101	FLOOR PLAN PHASE 1
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P103	FLOOR PLAN PHASE 3
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P201	ENLARGED FLOOR PLAN
E001	LEGEND, ABBREVIATIONS, CODES AND STANDARDS
E010	SITE PLAN
E101	FLOOR PLAN PHASE 1
E102	FLOOR PLAN PHASE 2
E103	FLOOR PLAN PHASE 3
E104	FLOOR PLAN PHASE 4
E105	FLOOR PLAN LIGHTING
E201	DETAILS
E202	DETAILS
E301	SINGLE LINE
T001	LEGEND, ABBREVIATIONS, FLOOR PLAN, RESPONSIBILITIES & COORDINATION



Location Map: University of Florida IFAS Building 0711





3 LIFE SAFETY FLOOR PLAN
1/8" = 1'-0"

EXISTING BUILDING CODE SUMMARY: BLDG 0711

OCCUPANCY CLASSIFICATION	"U" OCCUPANCY
EXISTING CONSTRUCTION TYPE	BUILDING TYPE II - B
FIRE SUPPRESSION SYSTEM	NON-SPRINKLERED
PORTABLE FIRE EXTINGUISHERS	PROVIDE 75 FT. MAX.

PROJECT SQUARE FOOTAGE

HEADHOUSE	8,000 SQFT
PROJECT AREA = 6,340 SQFT	

OCCUPANT LOAD

HEADHOUSE	OCCUPANT LOAD CALCULATION $8,000 / 300 = 27$
TOTAL OCC. LOAD = 27	

EGRESS REQUIREMENTS

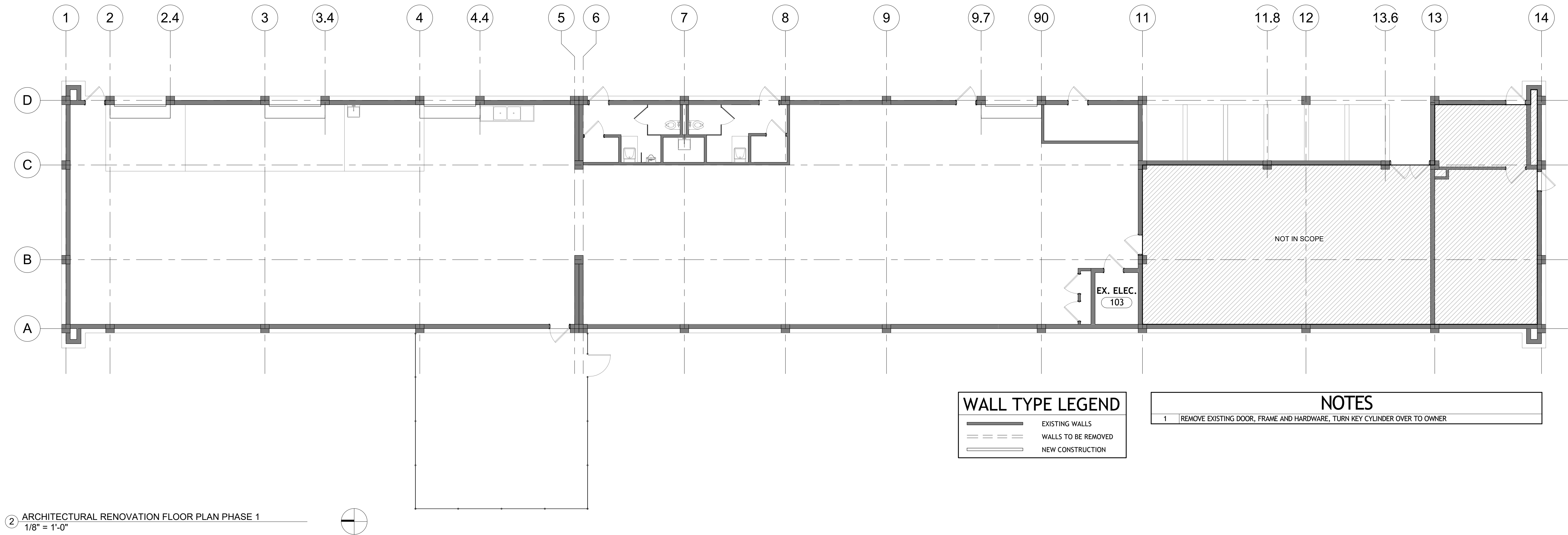
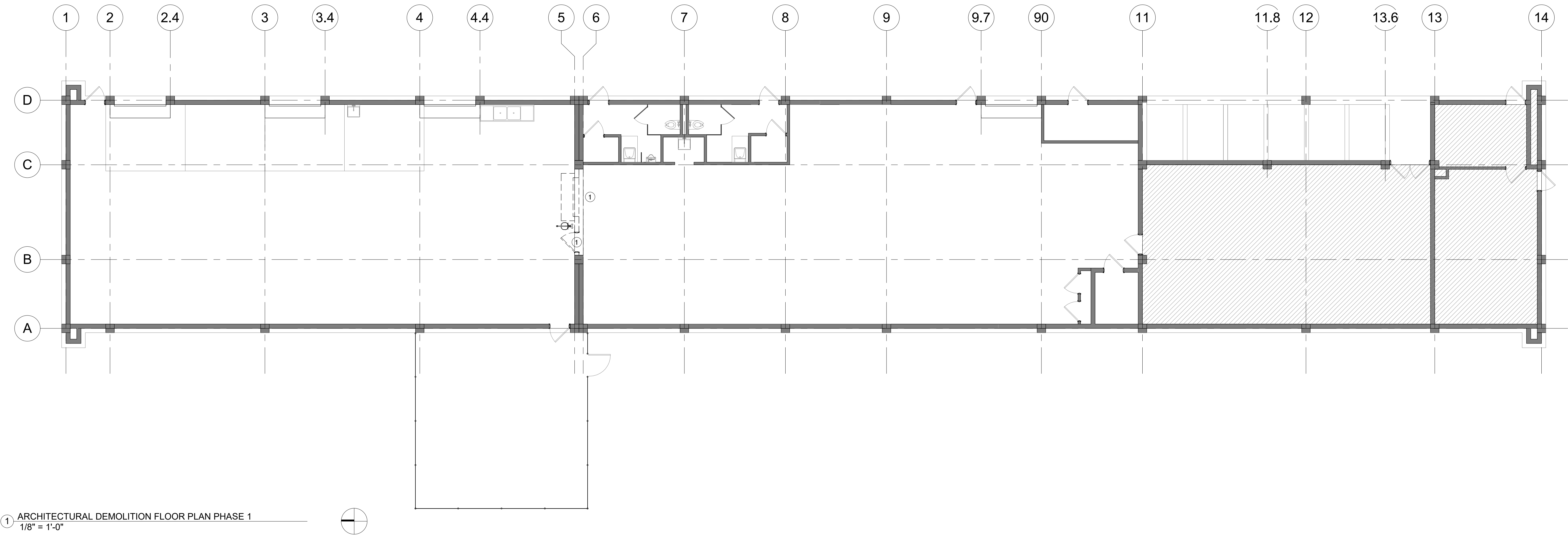
MINIMUM CORRIDOR WIDTH	27 OCC. X 0.2 INCH = 6" (44" MIN.)
MAXIMUM TRAVEL DISTANCE	300' (NON-SPRINKLERED)
COMMON PATH OF TRAVEL	100' (NON-SPRINKLERED)
MAXIMUM DEAD END CORRIDOR	20' (NON-SPRINKLERED)

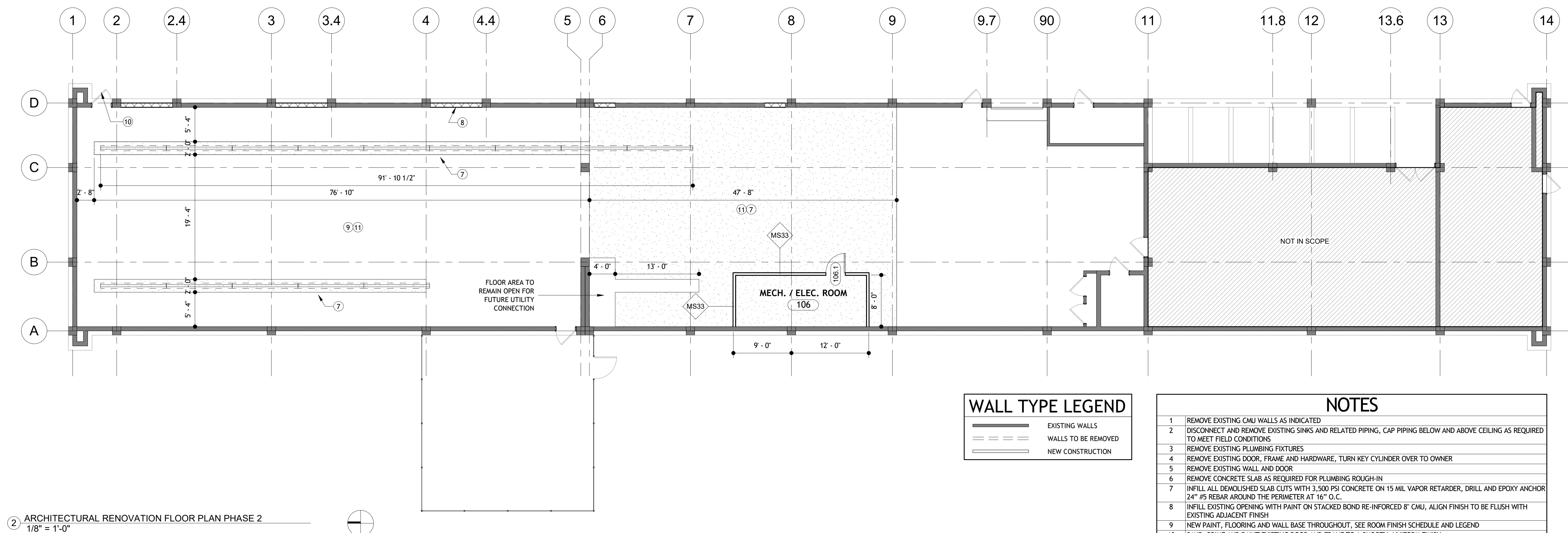
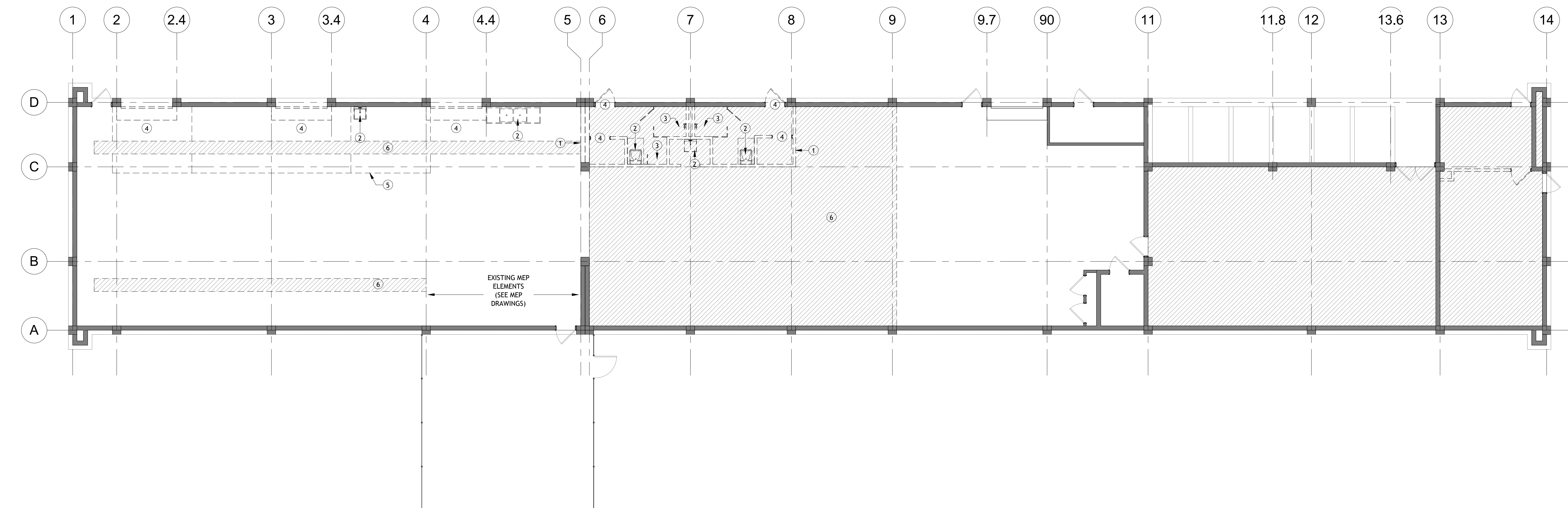
CODE REFERENCE

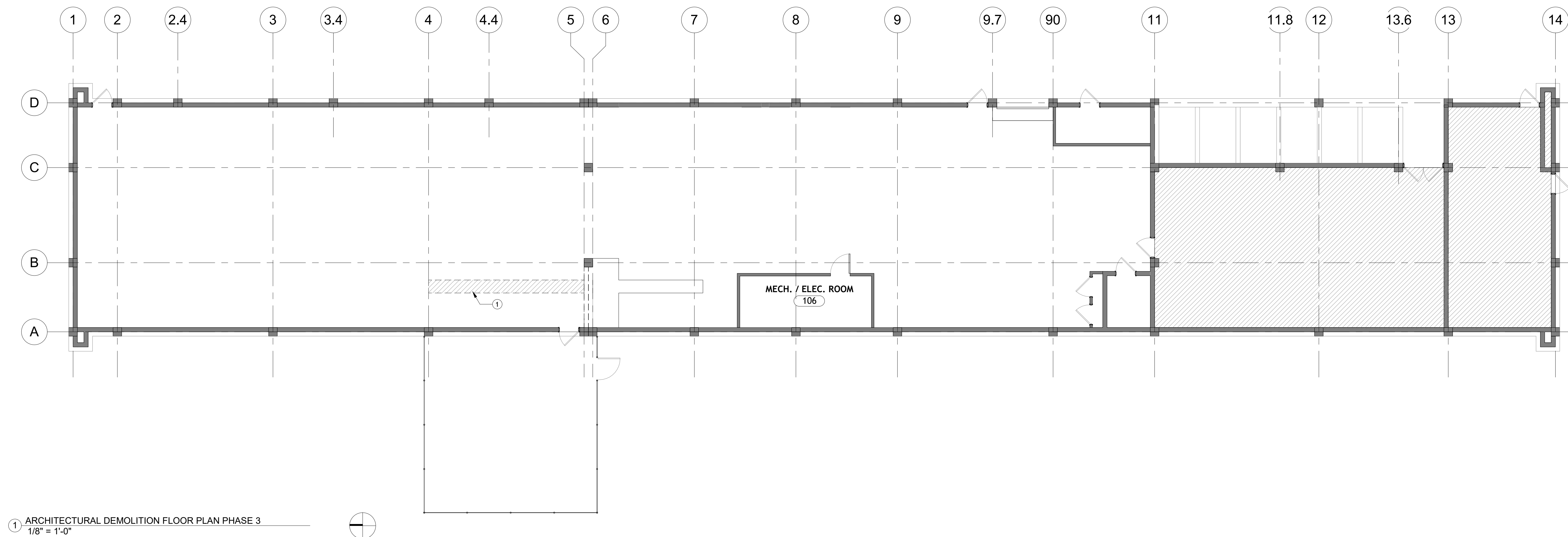
ALL UNIVERSITY OF FLORIDA DESIGN AND CONSTRUCTION STANDARDS
FFPC FLORIDA FIRE PREVENTION CODE 5th EDITION - 2014
NFPA 1 FIRE CODE - 2012
NFPA 101 LIFE SAFETY CODE - 2012
NFPA 10 STANDARD FOR PORTABLE FIRE EXTINGUISHERS - 2010
NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS - 2010
NFPA 70 NATIONAL ELECTRICAL CODES - 2011
NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE - 2010
NFPA 90A INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS - 2012
FBC FLORIDA BUILDING CODE, BUILDING - 2014
FBC FLORIDA BUILDING CODE, EXISTING BUILDING - 2014
FBC FLORIDA BUILDING CODE, MECHANICAL - 2014
FBC FLORIDA BUILDING CODE, PLUMBING - 2014
FLORIDA ADMINISTRATIVE CODE (FAC) AND FLORIDA STATUTES AS AMENDED, INCLUDING BUT NOT LIMITED TO:
A. STATE OF FLORIDA ENERGY CONSERVATION CODE (FLEET ANALYSIS PROGRAM)
B. RULES AND REGULATIONS OF THE STATE FIRE MARSHAL (TITLE 4A)
C. RULES AND REGULATIONS OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

LIFE SAFETY LEGEND

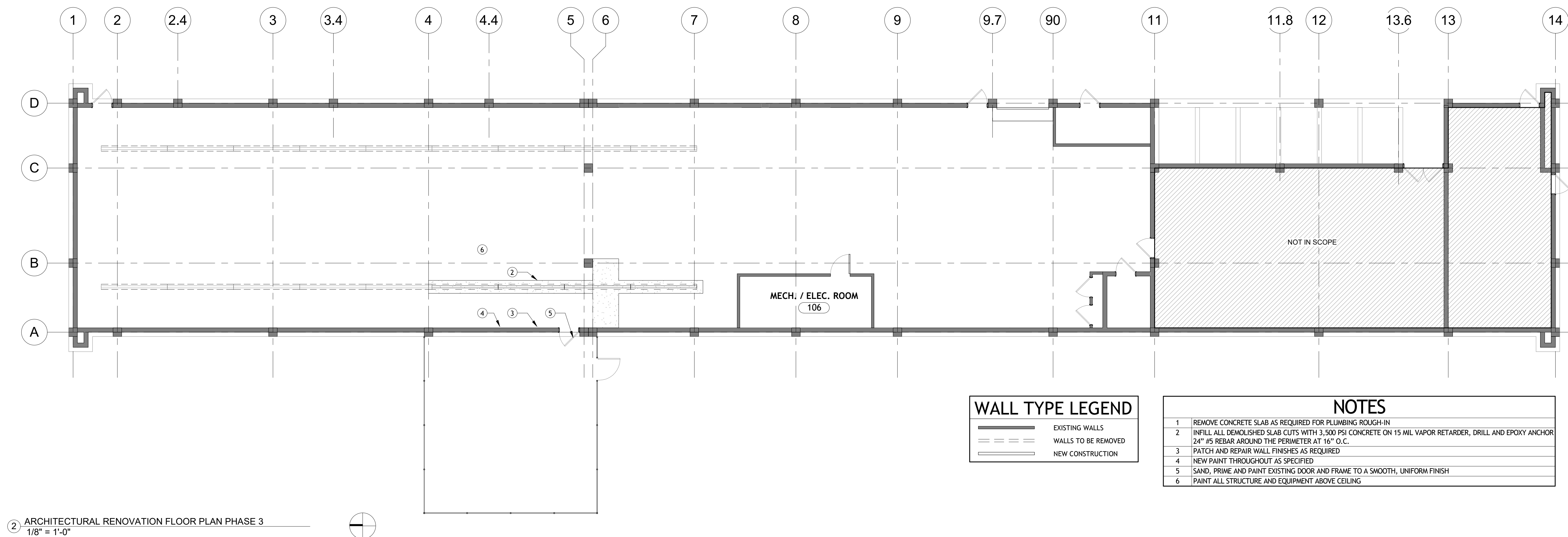
	EGRESS EXIT	F.E.C.	FIRE EXTINGUISHER CABINET
	PATH OF TRAVEL	F.E.	WALL MOUNTED FIRE EXTINGUISHERS
	1HR FIRE RATING		EXIT SIGN
	2HR FIRE RATING		TACTILE EXIT SIGNAGE PER FBCB (2017) & NFPA 101(2017) 6TH EDITION









1 ARCHITECTURAL DEMOLITION FLOOR PLAN PHASE 3
1/8" = 1'-0"

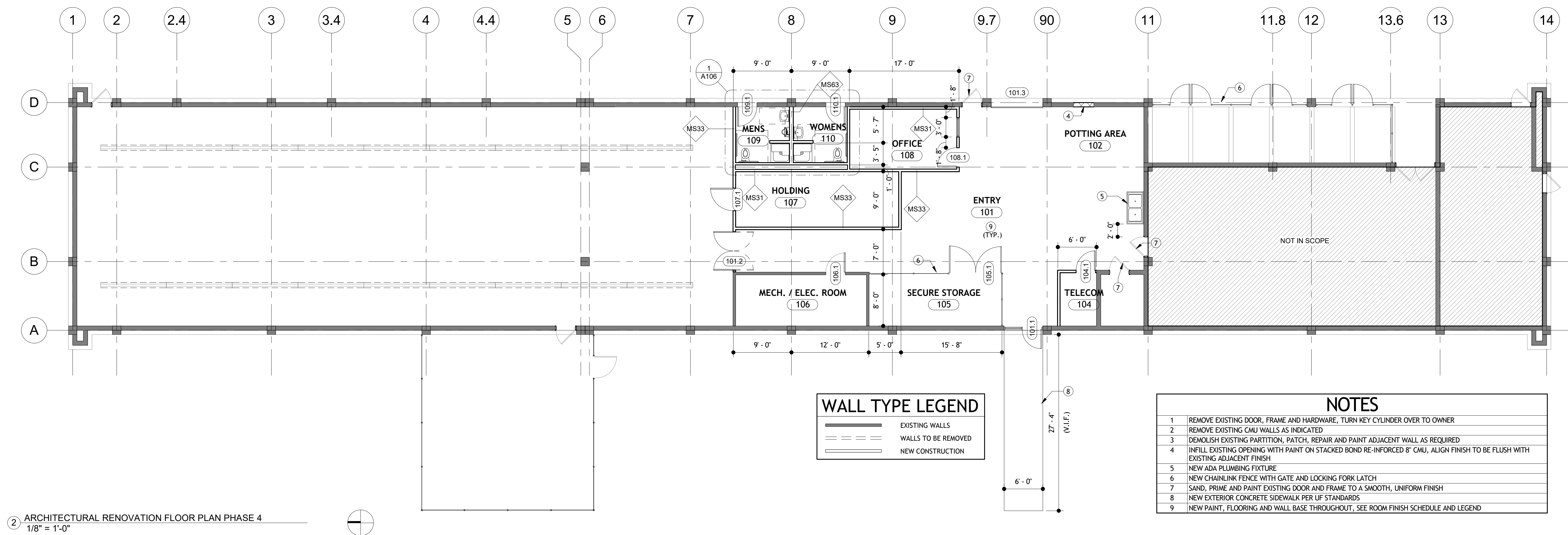
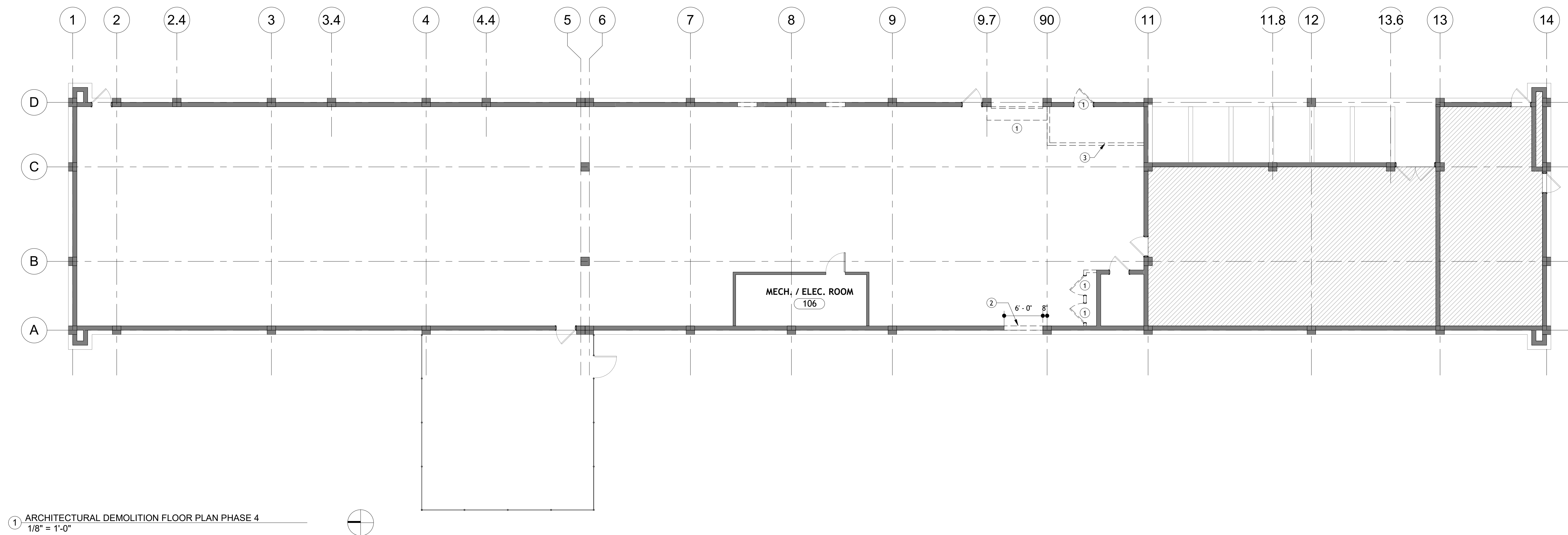


2 ARCHITECTURAL RENOVATION FLOOR PLAN PHASE 3
1/8" = 1'-0"

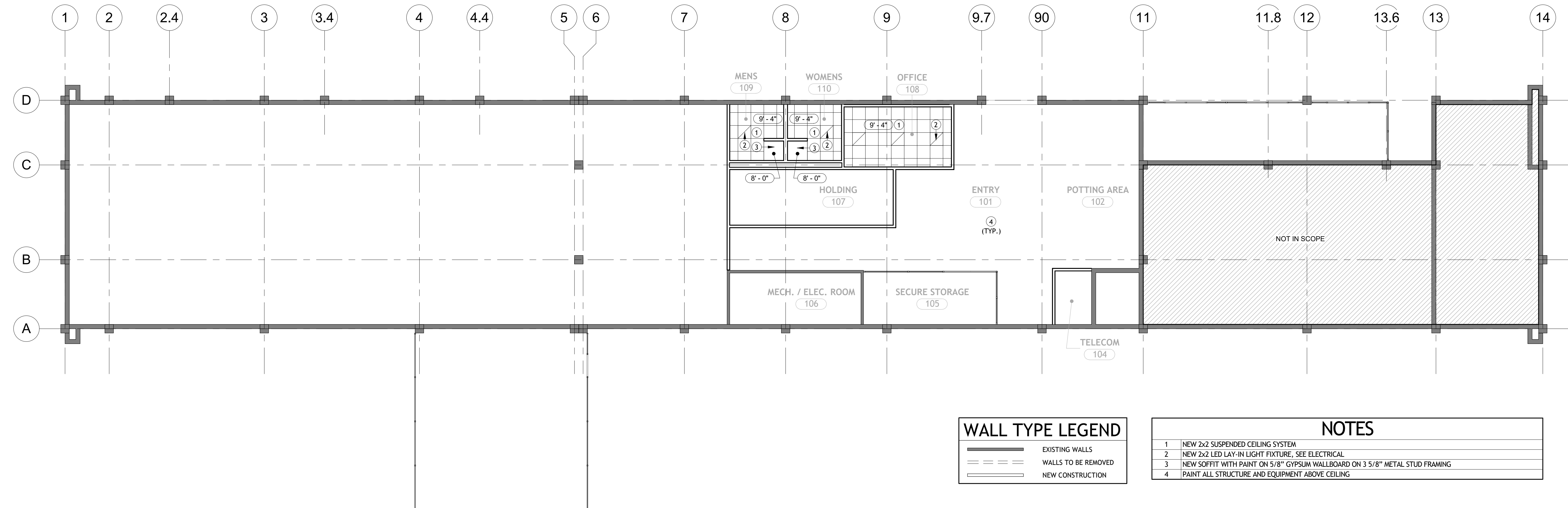
WALL TYPE LEGEND

	EXISTING WALLS
	WALLS TO BE REMOVED
	NEW CONSTRUCTION

NOTES	
1	REMOVE CONCRETE SLAB AS REQUIRED FOR PLUMBING ROUGH-IN
2	INFILL ALL DEMOLISHED SLAB CUTS WITH 3,500 PSI CONCRETE ON 15 MIL VAPOR RETARDER, DRILL AND EPOXY ANCHOR #5 REBAR AROUND THE PERIMETER AT 16" O.C.
3	PATCH AND REPAIR WALL FINISHES AS REQUIRED
4	NEW PAINT THROUGHOUT AS SPECIFIED
5	SAND, PRIME AND PAINT EXISTING DOOR AND FRAME TO A SMOOTH, UNIFORM FINISH
6	PAINT ALL STRUCTURE AND EQUIPMENT ABOVE CEILING



BM 360/IFAS 19051 Head House 711 RenovationMUG-FAS-BG-DG-711-ARCH-R20.rvt



1 ARCHITECTURAL RENOVATION REFLECTED CEILING PLAN
1/8" = 1'-0"

WALL TYPE LEGEND	
	EXISTING WALLS
	WALLS TO BE REMOVED
	NEW CONSTRUCTION

NOTES	
1	NEW 2x2 SUSPENDED CEILING SYSTEM
2	NEW 2x2 LED LAY-IN LIGHT FIXTURE, SEE ELECTRICAL
3	NEW SOFFIT WITH PAINT ON 5/8" GYPSUM WALLBOARD ON 3 5/8" METAL STUD FRAMING
4	PAINT ALL STRUCTURE AND EQUIPMENT ABOVE CEILING

REFLECTED CEILING PLAN LEGEND			
	2X2 CEILING GRID		EXIT SIGN
	2X2 LAY-IN LIGHT FIXTURE (UNLESS NOTED OTHERWISE)		SUPPLY DIFFUSERS
	RECESSED DOWNLIGHT		RETURN GRILLE
	SPRINKLER HEAD		EXHAUST FAN

Project Name:
UF IFAS Building 711
Headhouse Renovation

Submittal:
50% CONSTRUCTION
DOCUMENTS

Seal:

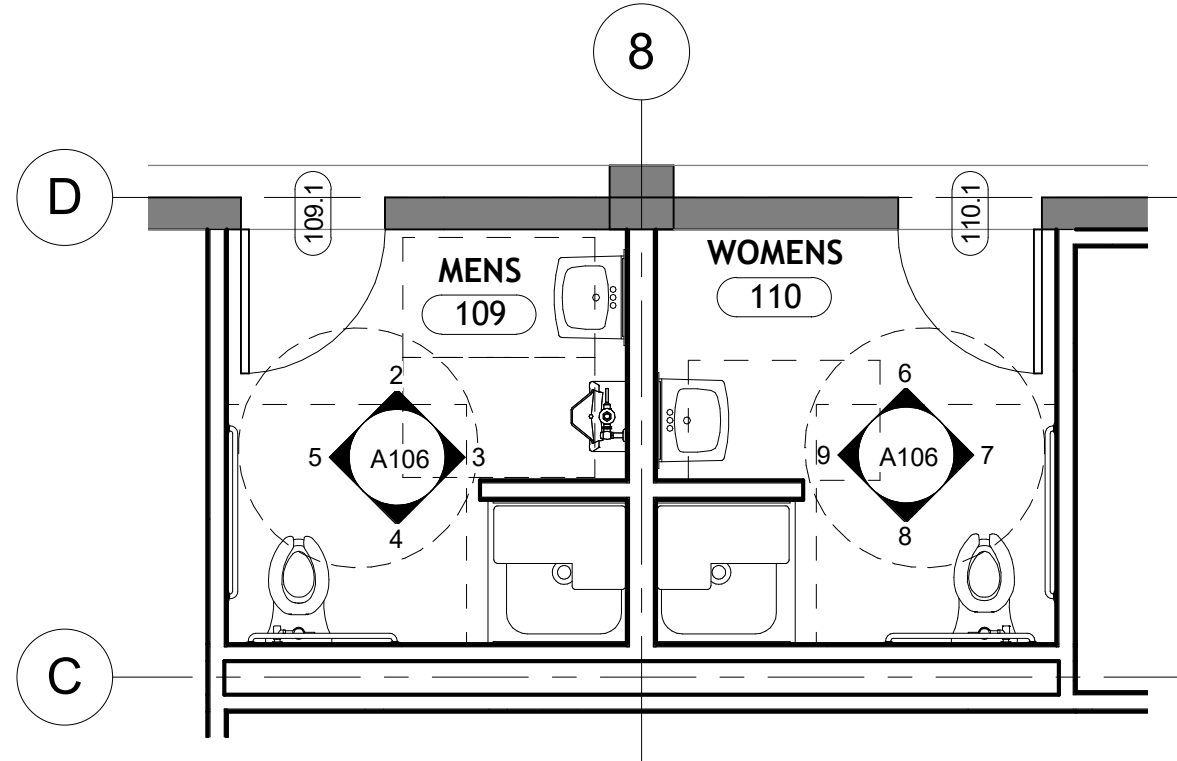
MJG Project #:	19041
Drafted By:	Author
Checked By:	Checker
Date:	11.25.19

No.	Revision Description	Date
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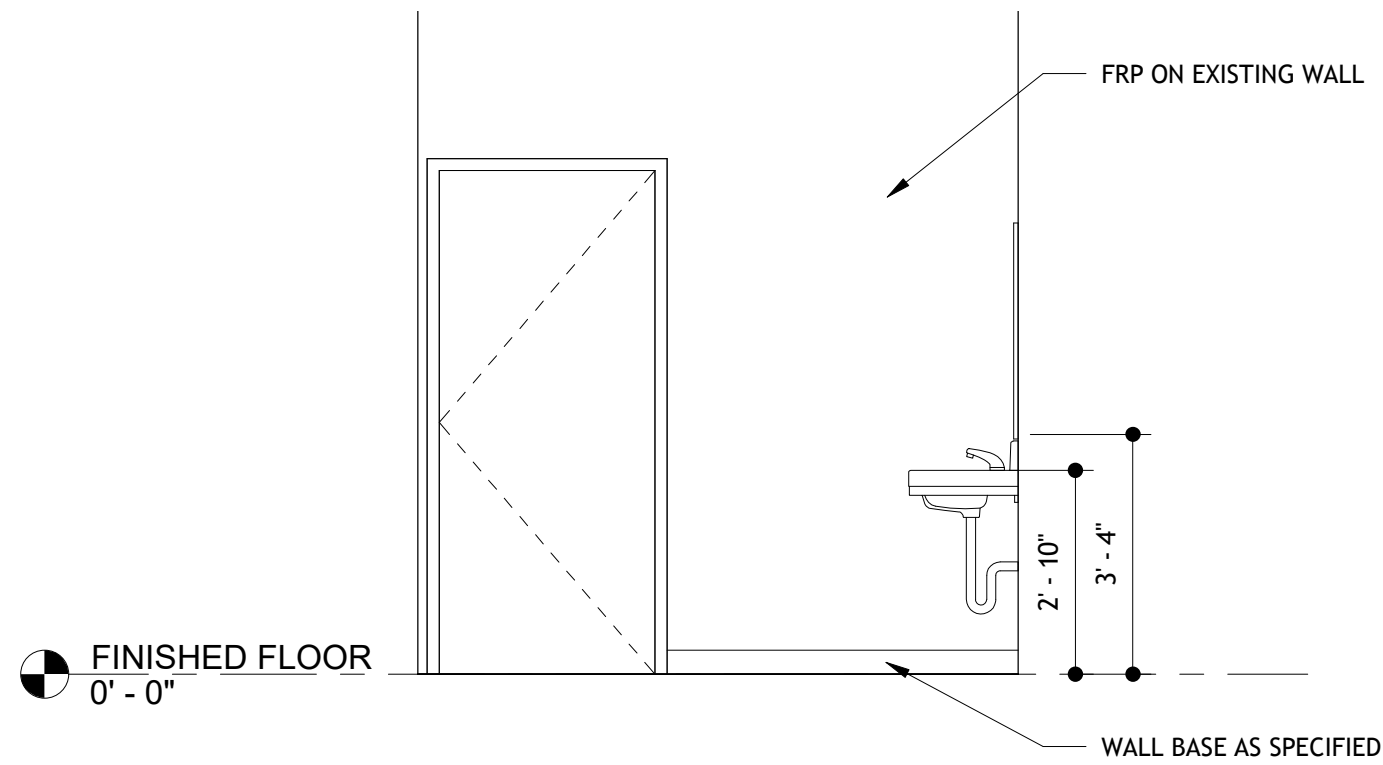
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ARCHITECTURAL PHASE 4 - RENOVATION
REFLECTED CEILING PLAN

Sheet #:
A105

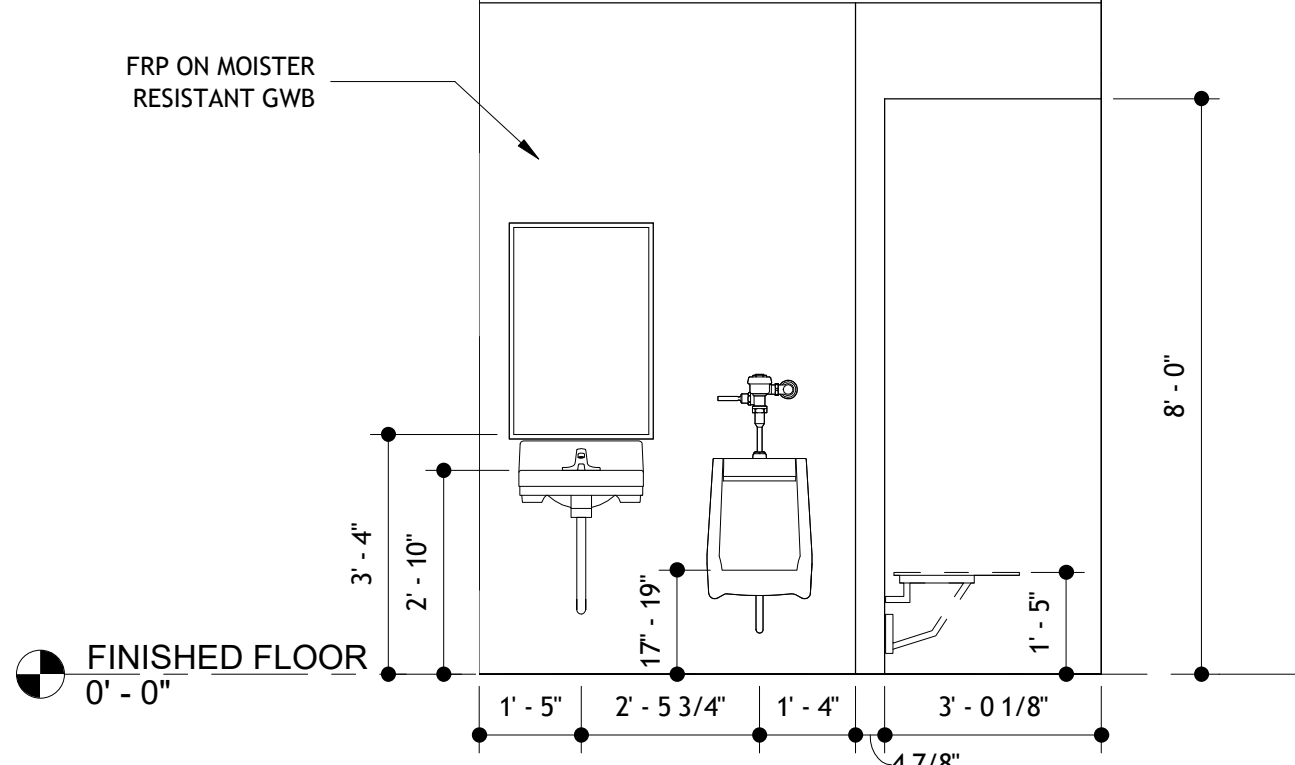
ROOM FINISH SCHEDULE						
NUMBER	NAME	FLOOR	WALL BASE	WALL FINISH	CEILING	COMMENTS
101	ENTRY	SEALED CONCRETE	RUBBER	PAINT	PAINT ON EXPOSED STRUCTURE	
102	POTTING AREA	SEALED CONCRETE	RUBBER	PAINT	PAINT ON EXPOSED STRUCTURE	
104	TELECOM	SEALED CONCRETE	N/A	PAINT	PAINT ON EXPOSED STRUCTURE	
105	SECURE STORAGE	SEALED CONCRETE	RUBBER	PAINT	PAINT ON EXPOSED STRUCTURE	
106	MECH. / ELEC. ROOM	SEALED CONCRETE	N/A	PAINT	PAINT ON EXPOSED STRUCTURE	
107	HOLDING	SEALED CONCRETE	RUBBER	PAINT	PAINT ON EXPOSED STRUCTURE	
108	OFFICE	VCT	RUBBER	PAINT	2X2 ACT	
109	MENS	SEALED CONCRETE	RUBBER	FRP	2X2 ACT	PROVIDE PAINT ON GWB AT SHOWER
110	WOMENS	SEALED CONCRETE	RUBBER	FRP	2X2 ACT	PROVIDE PAINT ON GWB AT SHOWER



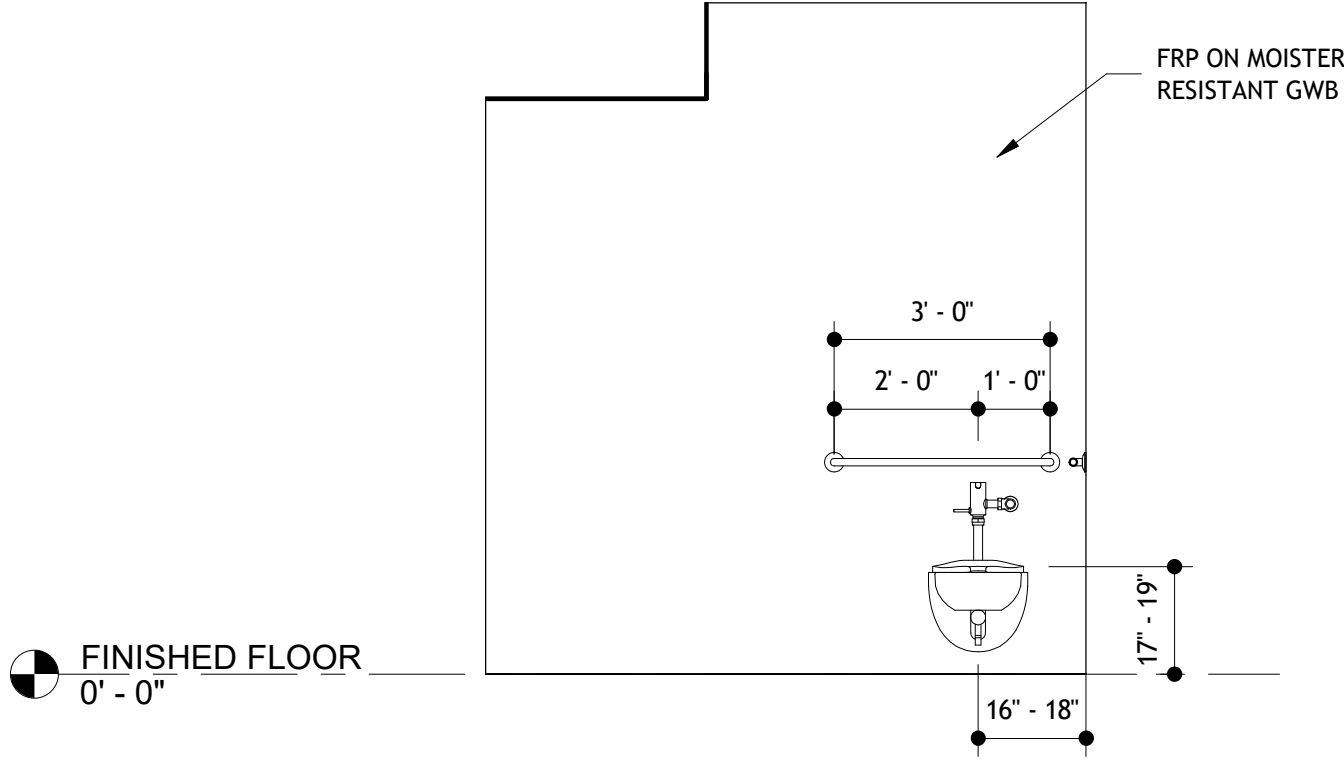
1 ARCHITECTURAL ENLARGED RESTROOM FLOOR PLAN
1/4" = 1'-0"



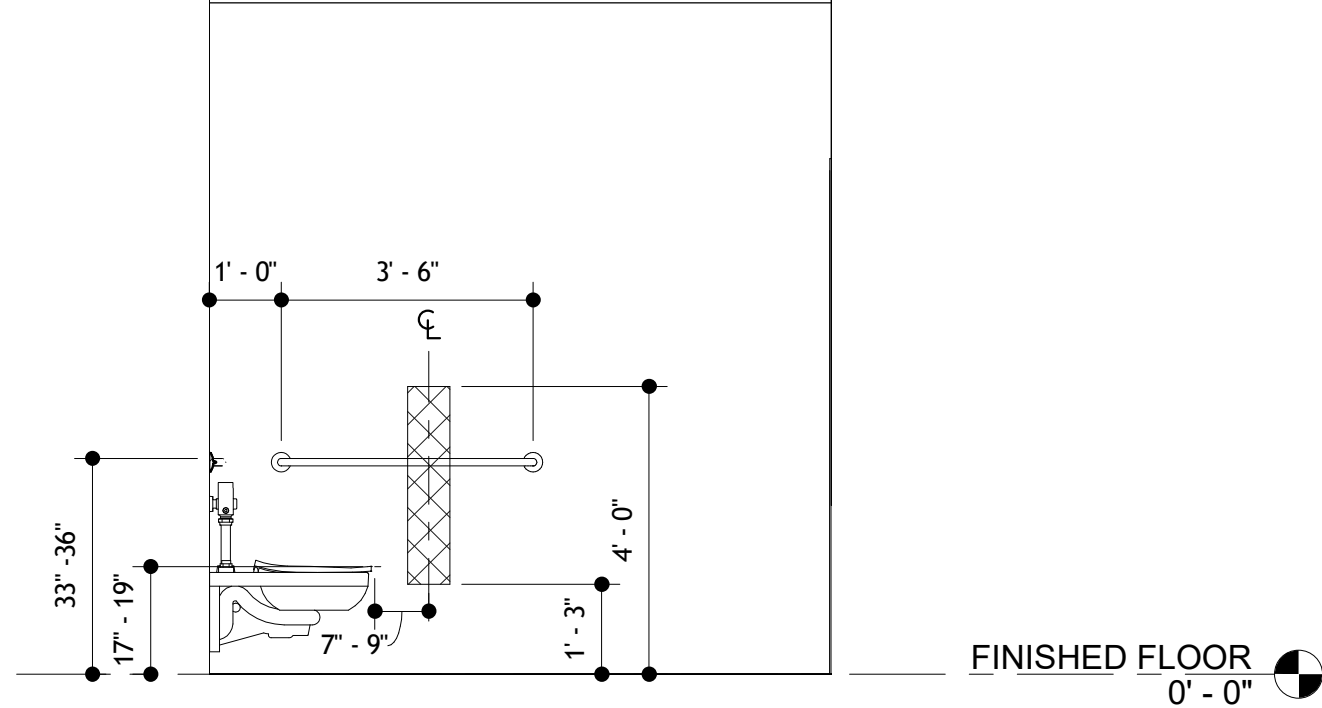
2 MENS 109 EAST INTERIOR ELEVATION
3/8" = 1'-0"



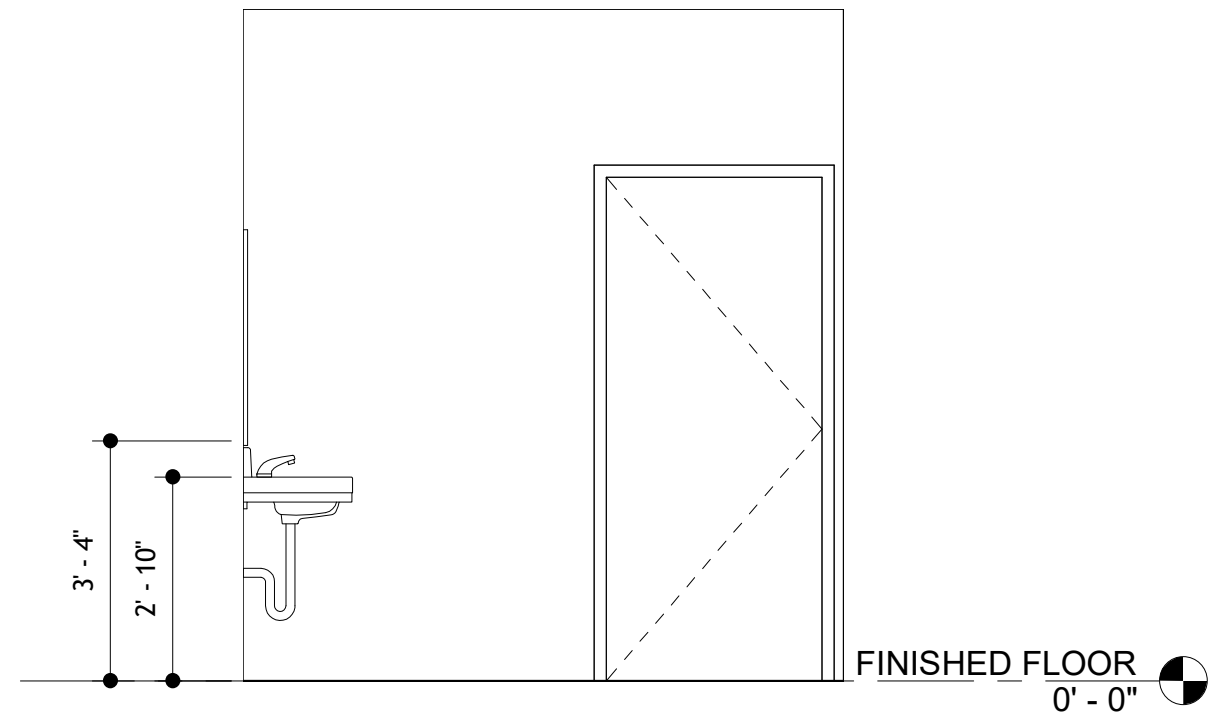
3 MENS 109 SOUTH INTERIOR ELEVATION
3/8" = 1'-0"



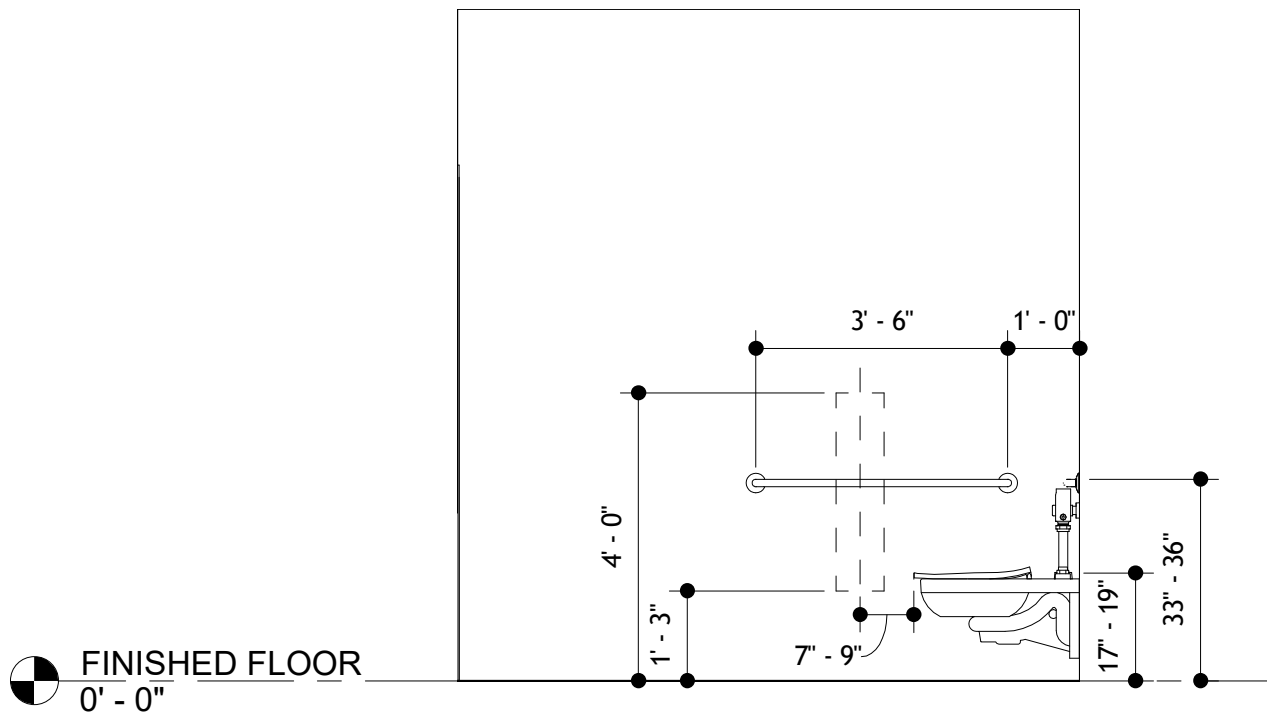
4 MENS 109 WEST INTERIOR ELEVATION
3/8" = 1'-0"



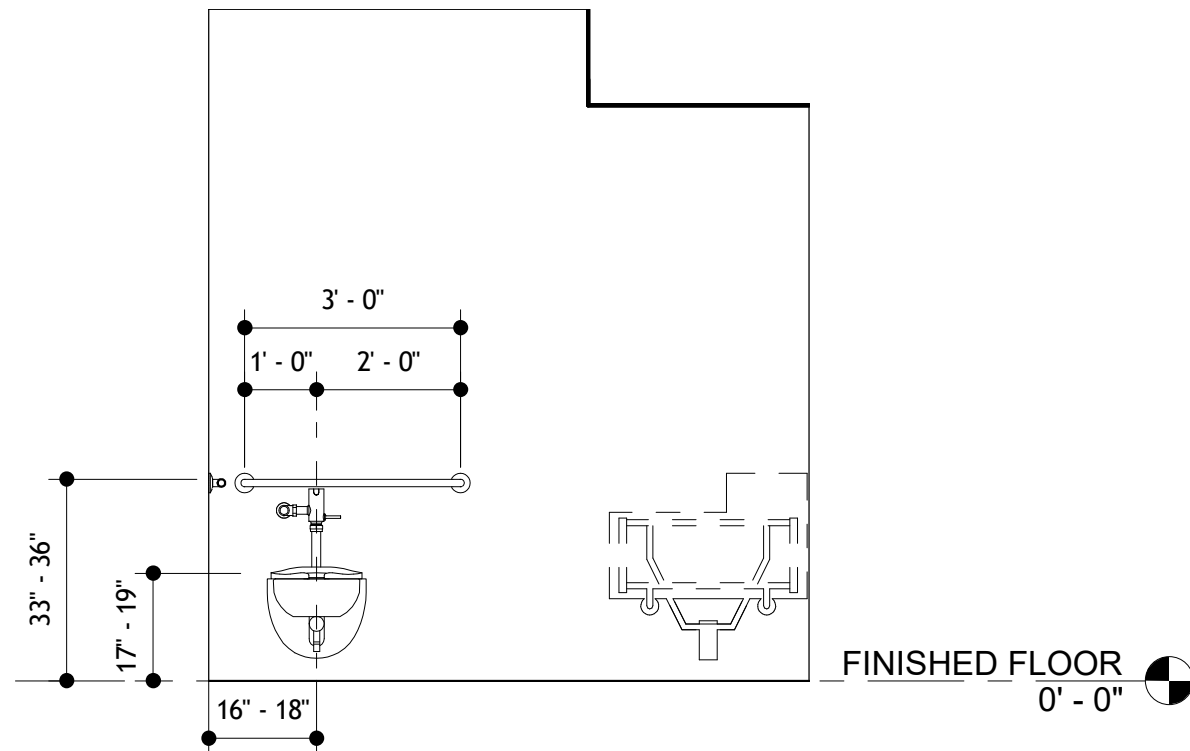
5 MENS 109 NORTH INTERIOR ELEVATION
3/8" = 1'-0"



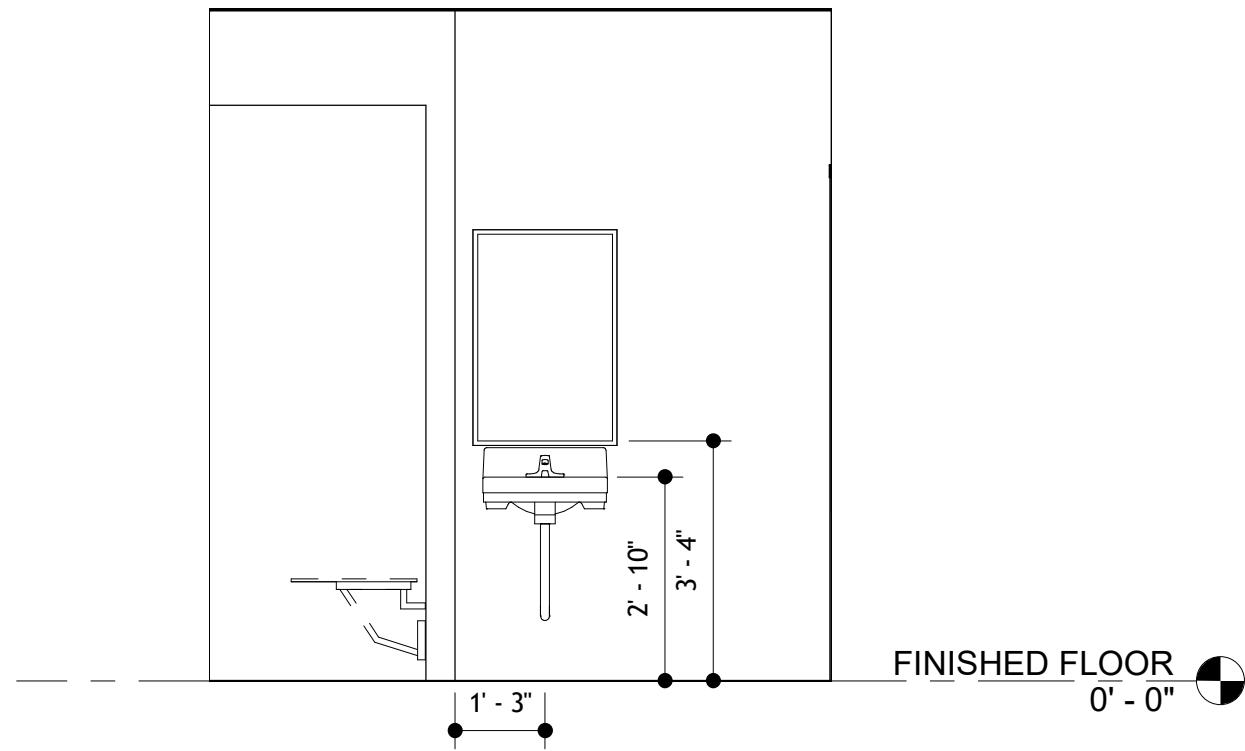
6 WOMENS 110 EAST INTERIOR ELEVATION
3/8" = 1'-0"



7 WOMENS 110 SOUTH INTERIOR ELEVATION
3/8" = 1'-0"



8 WOMENS 110 WEST INTERIOR ELEVATION
3/8" = 1'-0"



9 WOMENS 110 NORTH INTERIOR ELEVATION
3/8" = 1'-0"

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submittal:

50% CONSTRUCTION DOCUMENTS

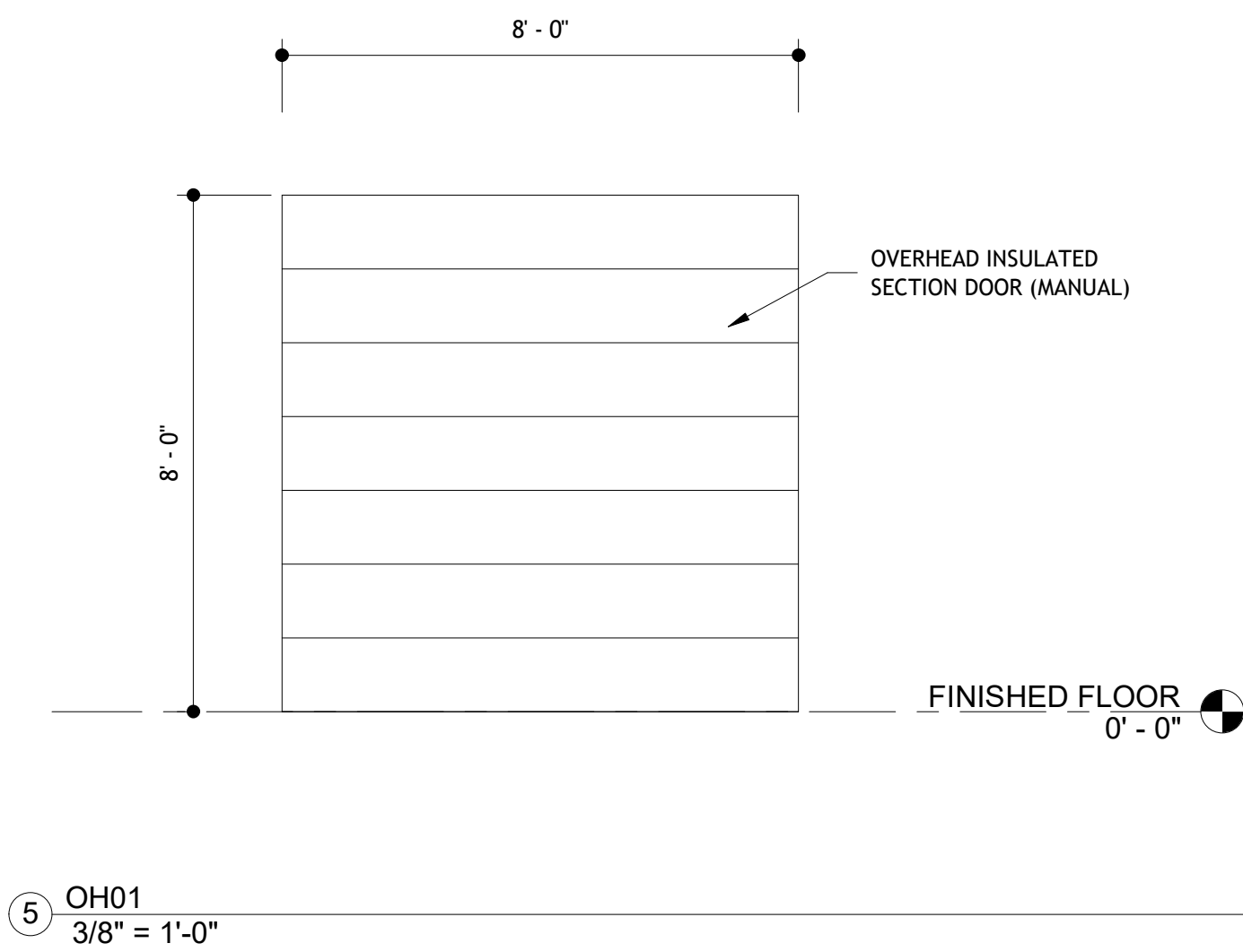
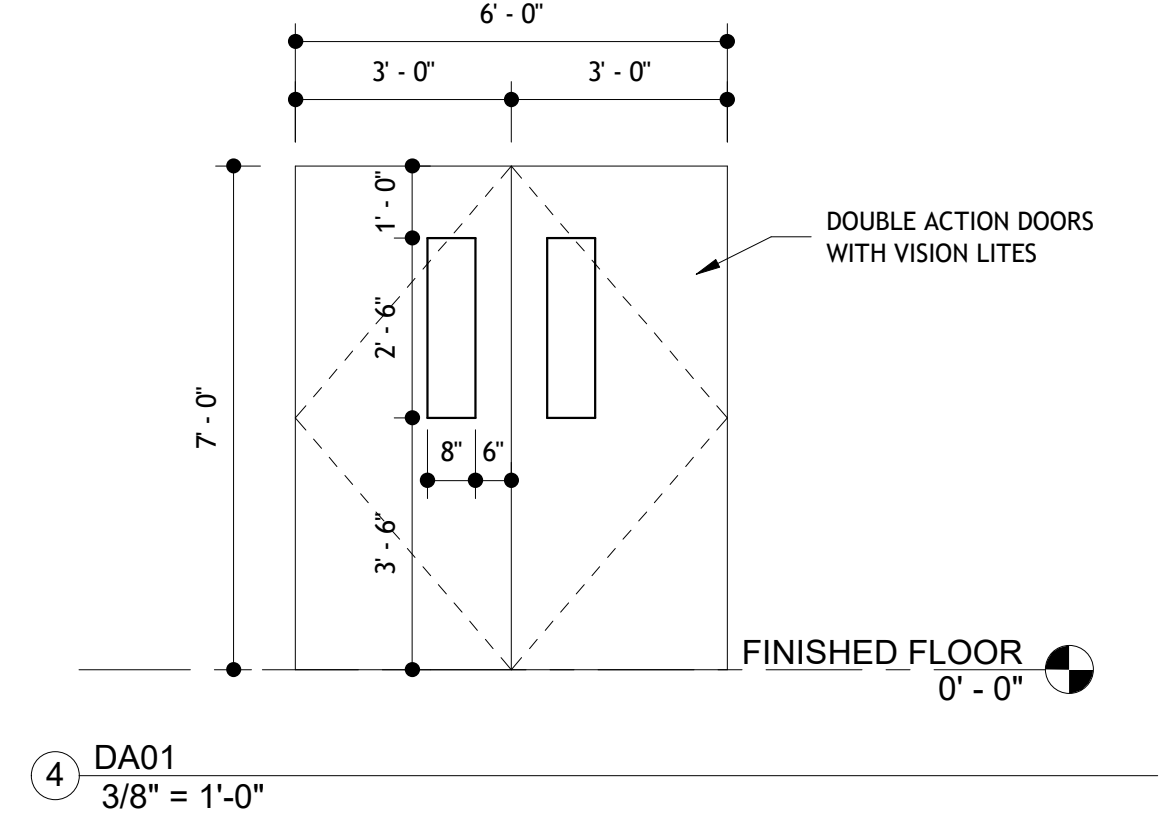
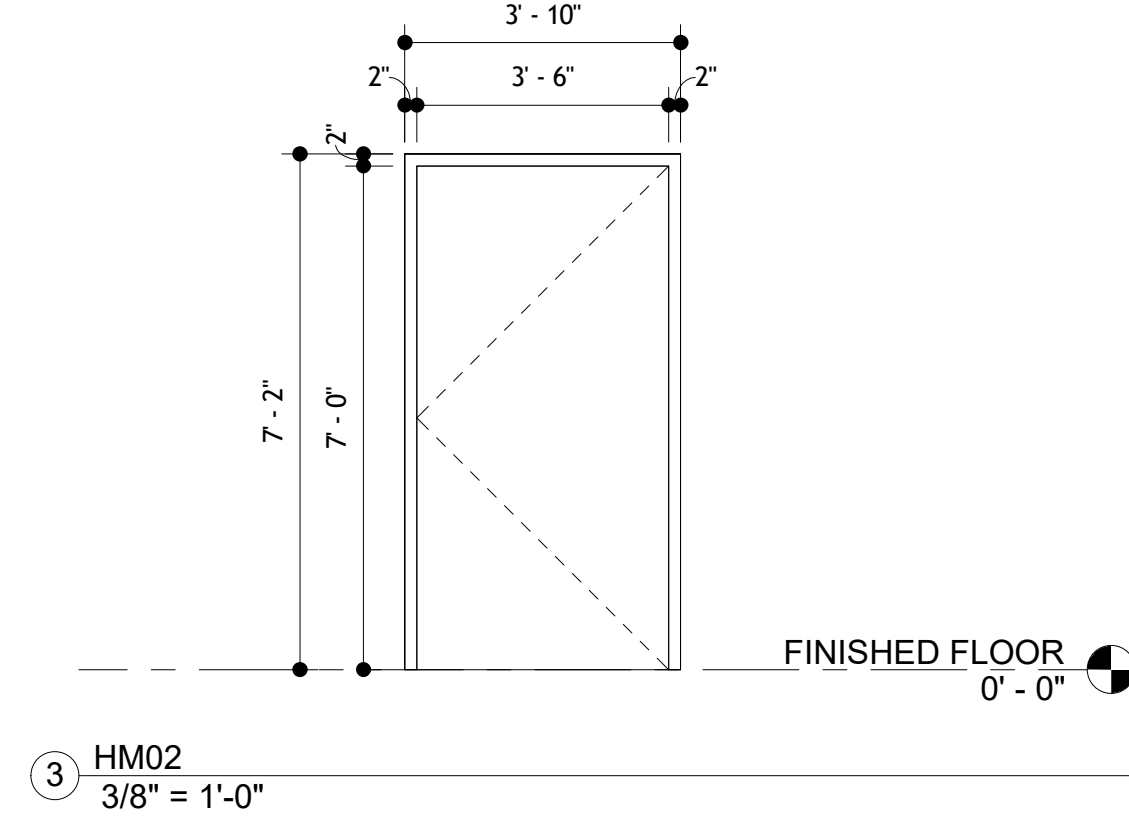
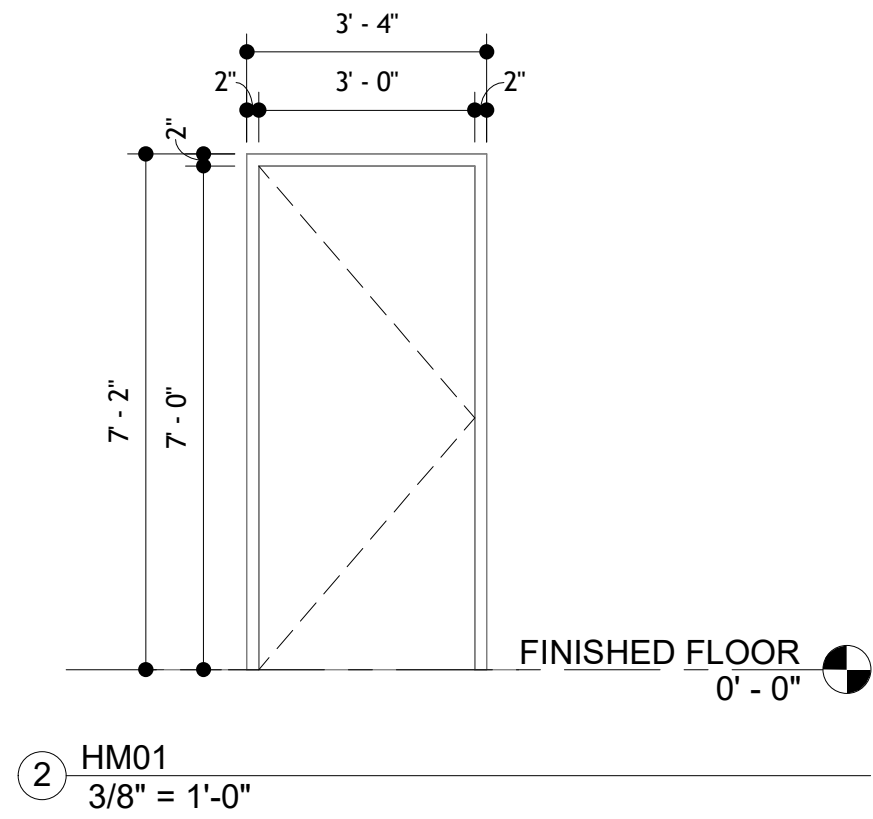
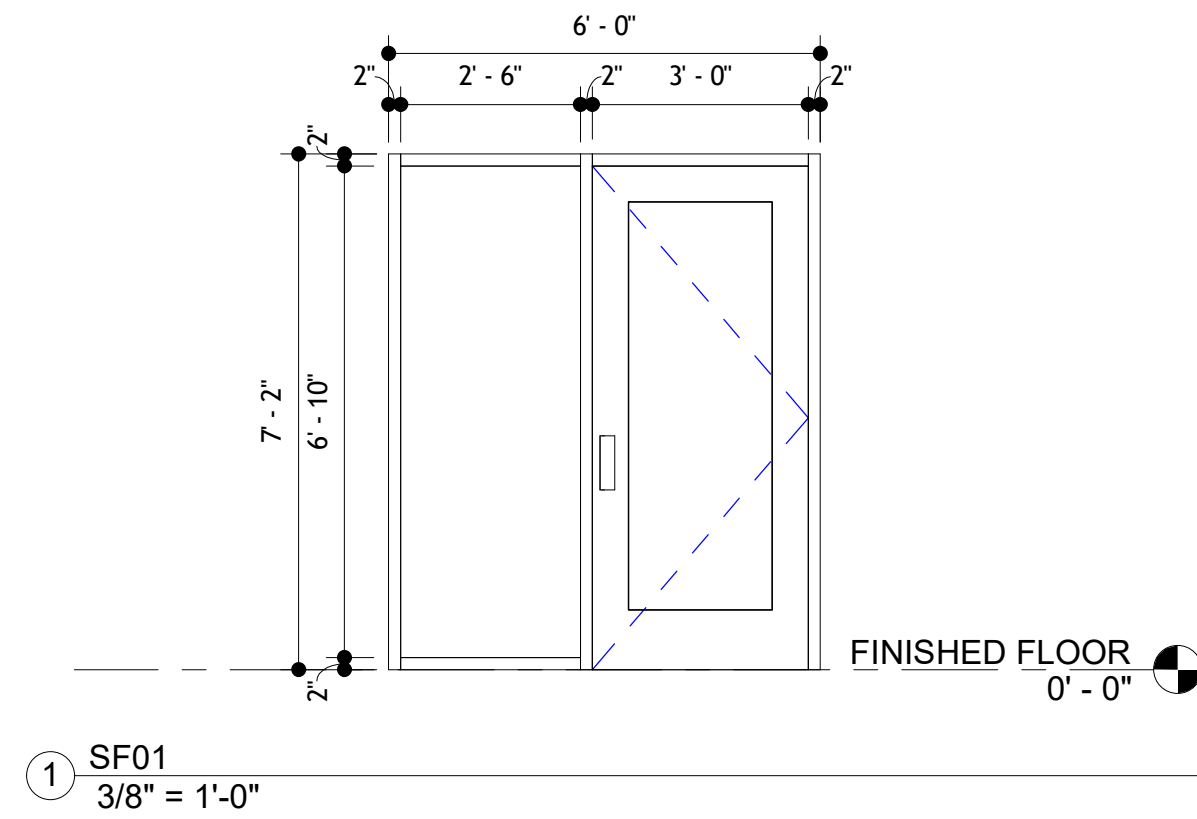
Seal:

MJG Project #:	19041
Drafted By:	Author
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Date:	11/25/19

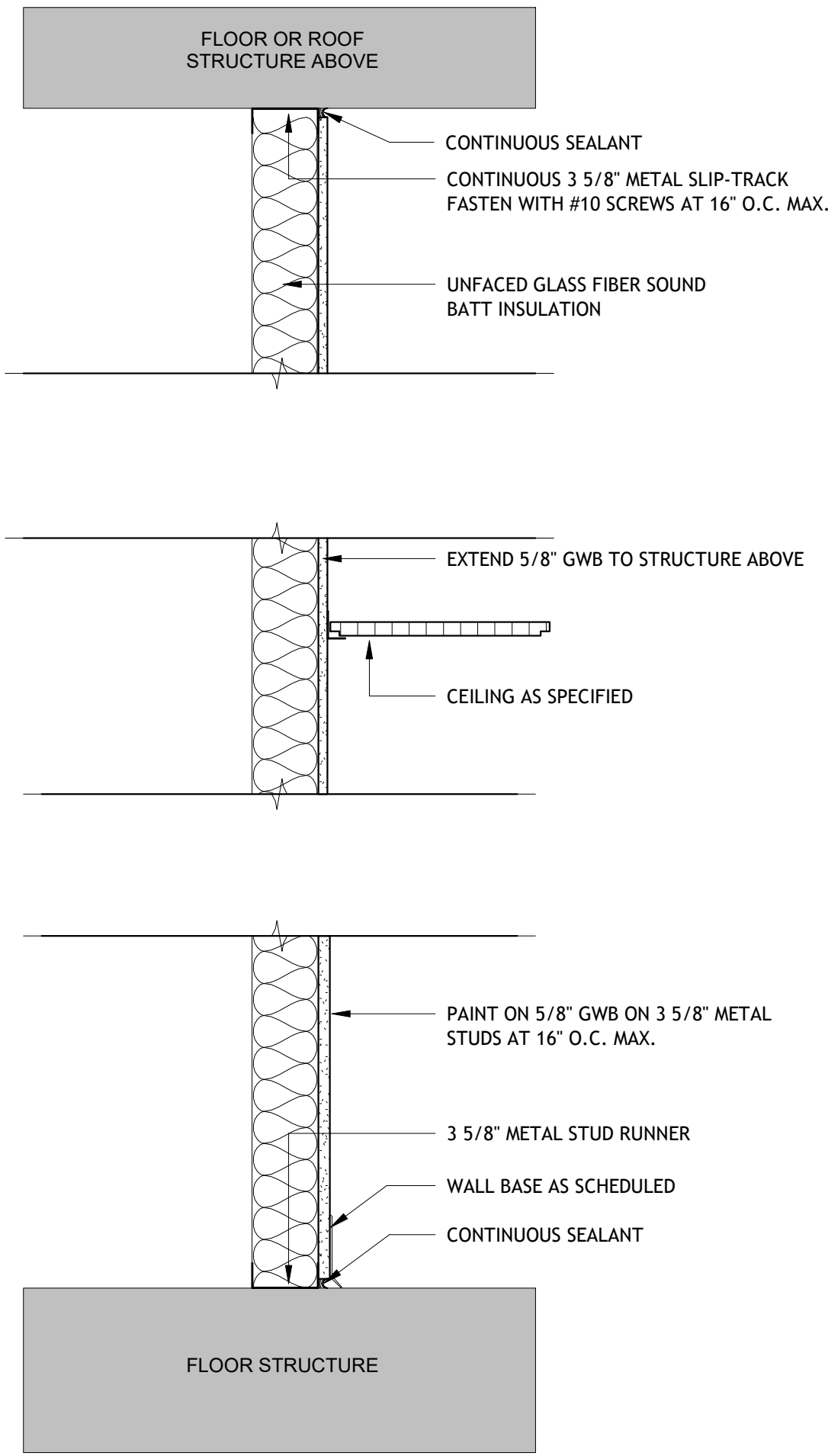
Sheet Title:
ARCHITECTURAL OPENING SCHEDULE AND
OPENING TYPE ELEVATIONS

Sheet #: A107

OPENING SCHEDULE						
NUMBER	WIDTH	HEIGHT	OPENING TYPE	DOOR	FRAME	NOTES
101.1	3'-0"	7'-0"	SF01	ALUMINUM STOREFRONT	ALUMINUM STOREFRONT	
101.2	6'-0"	7'-0"	DA01	FRP	STEEL	
101.3	8'-0"	8'-0"	OH01	STEEL	STEEL	
104.1	3'-0"	7'-0"	HM01	FLUSH WOOD	HOLLOW METAL	
105.1	4'-0"	8'-0"	-	CHAINLINK GATE	CHAINLINK POSTS	
106.1	3'-0"	7'-0"	HM01	FLUSH WOOD	HOLLOW METAL	
107.1	3'-6"	7'-0"	HM02	FLUSH WOOD	HOLLOW METAL	
108.1	3'-0"	7'-0"	HM01	FLUSH WOOD	HOLLOW METAL	
109.1	3'-0"	7'-0"	HM01	FLUSH METAL	HOLLOW METAL	
110.1	3'-0"	7'-0"	HM01	FLUSH METAL	HOLLOW METAL	

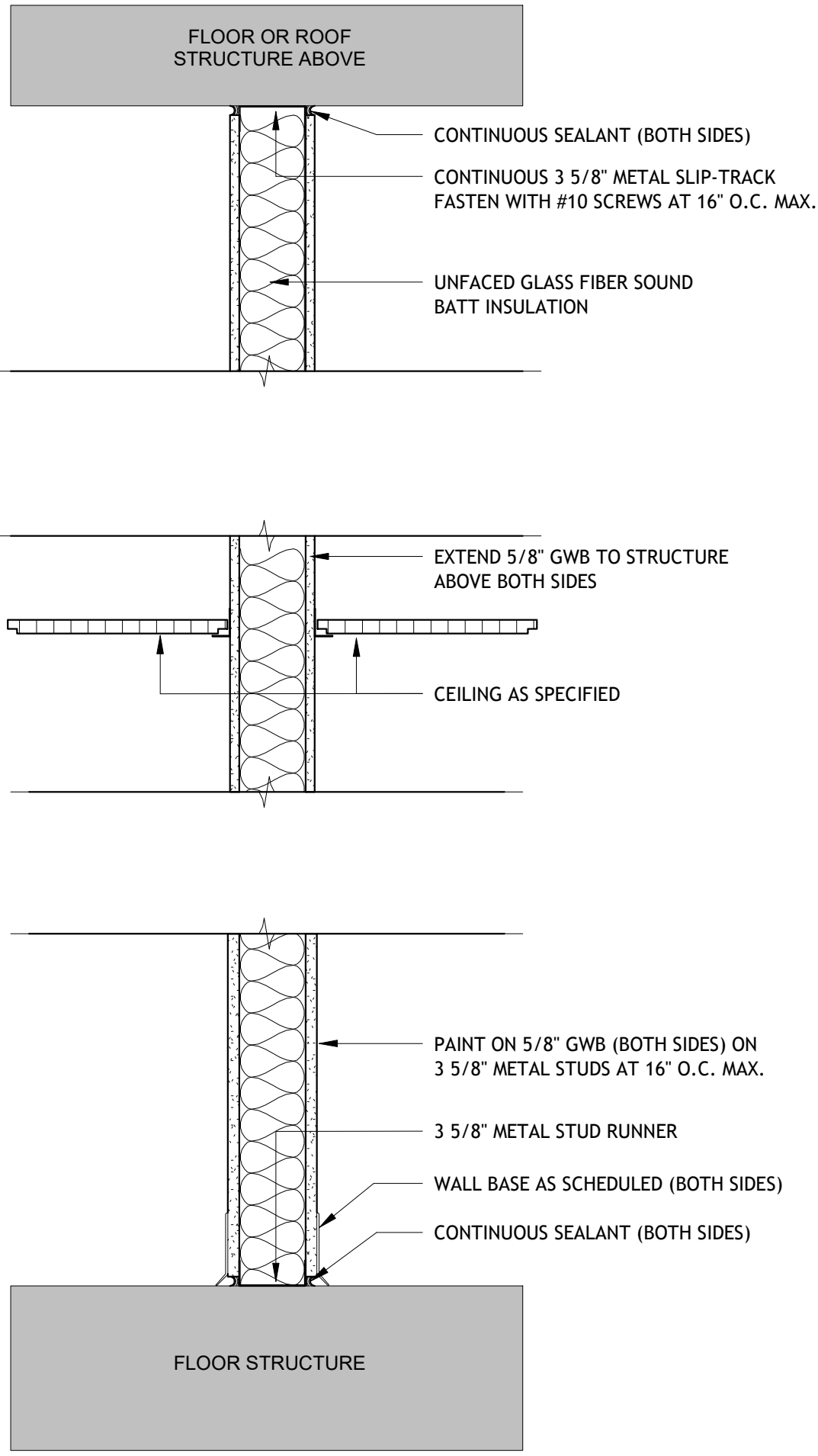


BM 360/IFAS 19051 Head House 711 RenovationMUG-FAS-BLDG-711-ARCH-R20.rvt



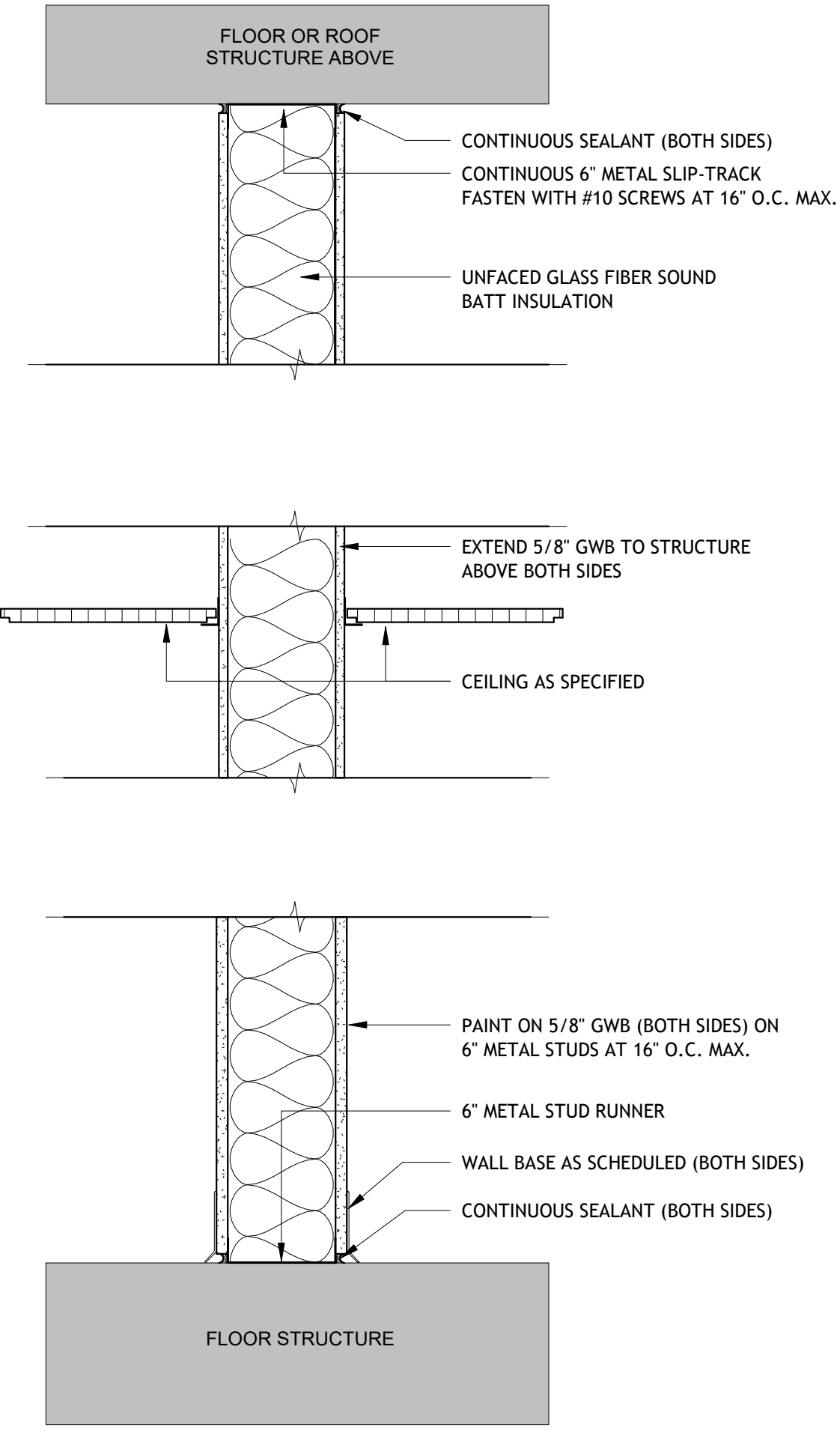
MS32

① INTERIOR PARTITION TYPE - MS32
1 1/2" = 1'-0"



MS33

② INTERIOR PARTITION TYPE - MS33
1 1/2" = 1'-0"



MS63

③ INTERIOR PARTITION TYPE - MS63
1 1/2" = 1'-0"

NOTES:

1. PROVIDE MOISTURE RESISTANT GWB AT ALL TOILET ROOM AND WET WALLS
2. PROVIDE FRP AT ALL TOILET ROOM WALLS FROM FLOOR TO CEILING
3. ALL HEAD, JAMB, AND SILL FRAMING SHALL BE 16 GA. (54 MILL)

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submittal:

50% CONSTRUCTION
DOCUMENTS

Seal:

MJG Project #:	19041	
Drafted By:	Author	
Checked By:	Checker	
Date:	11.25.19	
No.	Revision Description	Date

Sheet Title:

ARCHITECTURAL INTERIOR PARTITION TYPES

Sheet #:

A108

BM 360/IFAS' 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4

MECHANICAL LEGEND

(UNABRIDGED)

	2408CDX CEILING DIFFUSER: "X" = TYPE AS NOTED IN SPECS "24" = FACE SIZE, "08" = NECK DIAMETER 4-WAY THROW OR AS SHOWN ON PLANS
	24X24RGX CEILING RETURN: SIZE AND TYPE SHOWN "X" = TYPE AS NOTED IN SPECS PROVIDE ADAPTOR AS REQUIRED
	24X24EGX CEILING EXHAUST: SIZE AND TYPE SHOWN "X" = TYPE AS NOTED IN SPECS PROVIDE ADAPTOR AS REQUIRED
	DUCT-MOUNTED SMOKE DETECTOR W/ ACCESS PANEL
	UNIT SYMBOL WITH UNIT NUMBER
	EXISTING DUCTWORK/PIPING TO REMAIN
	EXISTING DUCTWORK/PIPING TO BE REMOVED
	BALANCING DAMPER
	MOTORIZED DAMPER
	GRAVITY DAMPER
	FIRE DAMPER
	FIRE & SMOKE DAMPER
	SMOKE DAMPER
	AIRFLOW MEASURING STATION
	AIRTROL FITTING
	AUTOMATIC AIR VENT WITH VALVE
	AUTOMATIC BALANCING VALVE
	BACKFLOW PREVENTER
	VALVE. SEE SPECIFICATIONS FOR TYPE.
	CALIBRATED BALANCING VALVE
	CHECK VALVE
	CONCENTRIC REDUCER
	CONNECT TO EXISTING
	DOOR GRILLE
	ECCENTRIC REDUCER
	FILL VALVE
	FLEXIBLE PIPE CONNECTION
	PRESSURE GAUGE
	PRESSURE OR TEMPERATURE TEST PORT
	INLINE STRAINER
	INLINE STRAINER WITH BLOWDOWN VALVE WITH THREADED CONNECTION AND CAP
	PIPE DOWN
	PIPE UP
	PLUG VALVE
	PRESSURE REDUCING VALVE
	RELIEF VALVE
	SPEED CONTROLLER
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	THERMOMETER
	THERMOMETER WELL
	ROOM HUMIDISTAT
	ROOM THERMOSTAT
	UNION; DIELECTRIC WATERWAY (SEE SPECIFICATIONS)
	VENTURI FLOW METER
	WATER METER

MECHANICAL ABBREVIATIONS

(UNABRIDGED)

A	AMPS; AREA	HHW	HEATING HOT WATER
AAV	AUTOMATIC AIR VENT	HHP	HEATING HOT WATER PUMP
ABV CLG	ABOVE FINISHED CEILING	HHWR	HEATING HOT WATER RETURN
AC	AIR CONDITIONING UNIT	HHWS	HEATING HOT WATER SUPPLY
ACH	AIR CHANGE PER HOUR	HP	HEAT PUMP; HORSEPOWER
AFF	ABOVE FINISHED FLOOR	HPS	HEAT PRESSURE SYSTEM
AHU	AIR HANDLING UNIT	HR	HOUR
AM	AIRFLOW MONITOR	HX	HEAT EXCHANGER
AMS	AIRFLOW MEASURING STATION	ID	INSIDE DIAMETER
AL	ALUMINUM	IN. WG	INCHES OF WATER, GAUGE
AP	ACCESS PANEL	KW	KILOWATTS
AH	ATOMIZING HUMIDIFIER	KWH	KILOWATT HOUR
AS	AIR SEPARATOR	LAT	LEAVING AIR TEMPERATURE
BD	BALANCING DAMPER	LB	POUND
BFF	BELOW FINISHED FLOOR	LD	LINEAR DIFFUSER
BFP	BACKFLOW PREVENTER	LPS	LOW PRESSURE STEAM
BTU	BRITISH THERMAL UNITS	LVG	LEAVING
BTUH	BTU PER HOUR	LWT	LEAVING WATER TEMPERATURE
B	BOILER	MAX	MAXIMUM
C	CONDENSATE	MBH	THOUSANDS OF BTUS
CAC	CONTROL AIR COMPRESSOR	MCF	THOUSANDS OF CUBIC FEET
CB	CHILLED BEAM	MD	MOTORIZED DAMPER
CD	CEILING DIFFUSER	MIN	MINUTE; MINIMUM
CF	CUBIC FEET	NC	NORMALLY CLOSED
CFH	CUBIC FEET PER HOUR	NO	NOT IN CONTRACT
CFM	CUBIC FEET PER MINUTE	NO	NORMALLY OPEN, NUMBER
CBWP	CHILLED BEAM WATER PUMP	NTS	NOT TO SCALE
CBWS	CHILLED BEAM WATER SUPPLY	OA	OUTDOOR AIR
CBWR	CHILLED BEAM WATER RETURN	OAL	OUTDOOR AIR LOUVER
CH	CHILLER	OC	ON CENTER
CHW	CHILLED WATER	OD	OUTSIDE DIAMETER
CHWP	CHILLED WATER PUMP	P	PUMP
CHWR	CHILLED WATER RETURN	PCW	PROCESS COOLING WATER
CHWS	CHILLED WATER SUPPLY	PCWP	PROCESS COOLING WATER PUMP
CO	CLEANOUT	PCWR	PROCESS COOLING WATER RETURN
CR	CONDENSATE RETURN (STEAM)	PCWS	PROCESS COOLING WATER SUPPLY
CSR	CURRENT SENSING RELAY	PH	PHASE
CS	CURRENT SENSING (AMPS)	PRESS	PRESSURE
CT	COOLING TOWER; COMPRESSION TANK	PRV	PRESSURE REDUCING VALVE
CU	CONDENSING UNIT; COPPER	PSI	POUNDS PER SQUARE INCH
CV	COEFFICIENT OF VALVE	PT	PRESSURE TREATED
DB	DRY BULB	PVC	POLYVINYL CHLORIDE
DC	DUST COLLECTOR	R	RADIUS
DDC	DIRECT DIGITAL CONTROLS	RA	RETURN AIR
DEFL	DEFLECTION	RD	ROUND DIFFUSER
DG	DOOR GRILLE	RAG	RETURN AIR GRILLE
DIA	DIAMETER	RH	RELATIVE HUMIDITY
DS	DUCT SILENCER	RHEAT	REHEAT COIL
DTW	DUAL TEMPER WATER	RL	REFRIGERANT LIQUID
DTWR	DUAL TEMPER WATER RETURN	RP	REDUCED PRESSURE
DTWS	DUAL TEMPER WATER SUPPLY	RPM	REVOLUTIONS PER MINUTE
EA	EACH	RAR	RETURN AIR REGISTER
EAT	ENTERING AIR TEMPERATURE	RS	REFRIGERANT SUCTION
EDH	ELECTRIC DUCT HEATER	RV	ROOF VENT
EF	EXHAUST FAN	SA	SUPPLY AIR
EG	EXHAUST GRILLE	SAR, SR	SUPPLY AIR REGISTER
EH	EXHAUST HOOD	SCR	SILICON CONTROLLED RECTIFIER
ENT	ENTERING	SD	SMOKE DAMPER
ER	EXHAUST REGISTER	SF	SQUARE FEET, SUPPLY FAN
ESP	EXTERNAL STATIC PRESSURE	SG	SOFFIT GRILLE
EV	EXHAUST VALVE	SIM	SIMILAR
EWT	ENTERING WATER TEMPERATURE	SP	STATIC PRESSURE
EXST.X, EX	EXISTING	SPEC	SPECIFICATION
EXH	EXHAUST	SR	SIDEWALL REGISTER
"F	DEGREES FAHRENHEIT	SS	STAINLESS STEEL
FBC	FLORIDA BUILDING CODE	STD	STANDARD
FCU	FAN COIL UNIT	STL	STEEL
FD	FIRE DAMPER, FLOOR DRAIN	STM	STEAM
FEV	FUME EXHAUST VALVE	SV	SUPPLY VALVE
FG	FILTER GRILLE	TEMP	TEMPERATURE
FH	FUME HOOD	TG	TRANSFER GRILLE; TEMPERATURE GAUGE
FMS	FLOW MEASURING STATION	TSP	TOTAL STATIC PRESSURE
FO	FLAT OVAL	TYP	TYPICAL
FBM	FEET PER MINUTE	UC	UNDERCUT DOOR - 3/4"
FRP	FIBERGLASS REINFORCED PLASTIC	UG	UNDERGROUND
FSC	FAN SPEED CONTROLLER	UH	UNIT HEATER
FT	FEET	V	VOLTS
FT WG	FEET OF WATER, GAUGE	VAV	VARIABLE AIR VOLUME
FTU	FAN TERMINAL UNIT	VFD	VARIABLE FREQUENCY DRIVE
GA	GAUGE	VFM	VENTURI FLOW METER
GAL	GALLONS	VLV	VALVE
GALV	GALVANIZED	VRF	VARIABLE REFRIGERANT FLOW
GEV	GENERAL EXHAUST VALVE	VRV	VARIABLE REFRIGERANT VOLUME
GPH	GALLONS PER HOUR	VVU	VARIABLE VOLUME UNIT
GPM	GALLONS PER MINUTE	WB	WET BULB
HG	HOT GAS	WPD	WATER PRESSURE DROP

DIVISION 23 CODES & STANDARDS

GENERAL

1. THE WORK COVERED BY THIS DIVISION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT AND MATERIALS AND PERFORMING ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF THE MECHANICAL WORK AS HEREIN CALLED FOR AND SHOWN ON THE DRAWINGS.

CODES

1. ALL WORK UNDER DIVISION 23 SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CODES LISTED HEREIN. THE DESIGN HAS BEEN BASED ON THE REQUIREMENTS OF THESE CODES; AND WHILE IT IS NOT THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT ALL WORK CALLED FOR COMPLIES WITH THESE CODES, HE SHALL BE RESPONSIBLE FOR CALLING TO THE ARCHITECT/ENGINEER'S ATTENTION ANY DRAWINGS OR SPECIFICATIONS THAT ARE NOT IN CONFORMANCE WITH THESE OR OTHER CODES PRIOR TO ORDERING EQUIPMENT OR INSTALLING WORK.
2. COMPLY WITH REGULATIONS AND CODES OF UTILITY SUPPLIERS.
3. WHERE NO SPECIFIC METHOD OR FORM OF CONSTRUCTION IS CALLED FOR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL COMPLY WITH CODE REQUIREMENTS WHEN CARRYING OUT SUCH WORK.
4. WHERE CODE CONFLICT EXISTS, GENERALLY THE MOST RESTRICTIVE REQUIREMENT APPLIES. COMPLY WITH CURRENT CODE EDITION, UNLESS NOTED.
5. ADDITIONAL CODES OR STANDARDS APPLYING TO A SPECIFIC PART OF THE WORK MAY BE INCLUDED IN THAT SECTION. THE FOLLOWING CODES GOVERN THE WORK:
 - A. FLORIDA BUILDING CODE - BUILDING - SIXTH EDITION (2017).
 - B. FLORIDA BUILDING CODE - MECHANICAL - SIXTH EDITION (2017).
 - C. FLORIDA BUILDING CODE - ENERGY CONSERVATION - SIXTH EDITION (2017).
 - D. FLORIDA BUILDING CODE - FUEL GAS - SIXTH EDITION (2017).
 - E. FLORIDA BUILDING CODE - TEST PROTOCOLS FOR HIGH VELOCITY HURRICANE ZONES - SIXTH EDITION (2017).
 - F. NATIONAL ELECTRIC CODE (NFPA 70) - 2014.
 - G. INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS (NFPA 90A) - 2015.
 - H. INSTALLATION OF SPRINKLER SYSTEMS (NFPA 13) - 2013.
 - I. FLORIDA FIRE PREVENTION CODE - 2017
 - a. FIRE CODE (NFPA 1) - 2015 FLORIDA EDITION
 - b. LIFE SAFETY CODE (NFPA 101) - 2015 FLORIDA EDITION

STANDARDS

1. ALL DIVISION 23 MATERIALS, INSTALLATION AND SYSTEMS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS, INCLUDING THE LATEST ADDENDA AND AMMENDMENTS, TO THE EXTENT REFERENCED:
 - A. UNDERWRITERS' LABORATORIES (UL)
 - B. AMERICAN NATIONAL STANDARDS INSTITUTION (ANSI)
 - C. AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
 - D. NATIONAL FIRE PROTECTION (NFPA)
 - E. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
 - F. AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
 - G. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
 - H. AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE)
 - I. AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)
 - J. STANDARDS OF THE HYDRONIC INSTITUTE (IBR)

MECHANICAL GENERAL NOTES

THE FOLLOWING NOTES ARE TO DEMONSTRATE MINIMUM MECHANICAL CODE COMPLIANCE ONLY. CONTRACTOR IS RESPONSIBLE FOR THE FULL WRITTEN SPECIFICATIONS. IF ANY INCONSISTENCIES ARE PRESENT, THE FULL WRITTEN SPECIFICATIONS PREVAIL.

AIR DISTRIBUTION:

1. VERIFY COLLAR SIZES ON ALL EQUIPMENT INLETS AND OUTLETS. TRANSITION DUCTWORK AS NECESSARY. EXTERNALLY INSULATE TRANSITIONS AT EQUIPMENT CONNECTIONS.
2. PROVIDE DUCT FLEX CONNECTIONS FOR ALL UNITS. EXTERNALLY INSULATE FLEXIBLE CONNECTIONS.
3. ALL EXHAUST DUCTWORK RUNOUTS SHALL BE RIGID DUCT.
4. DUCT SIZES ARE SHEET METAL SIZES. NO DUCTWORK SHALL RUN PARALLEL WITH AND OVER WALLS.
5. CONTRACTOR SHALL VERIFY CLEARANCE SPACE AVAILABLE, OFFSETS REQUIRED, STRUCTURAL OPENINGS, AND WORK BY OTHER TRADES PRIOR TO FABRICATION OF DUCTWORK. SUBMIT SHOP DRAWINGS ON DUCTWORK LAYOUT. COORDINATE WITH ROOF TRUSSES/STRUCTURE. PRESSURE TEST ALL DUCTWORK FOR LEAKS. SEE SPECIFICATIONS. RETURN AND EXHAUST DUCT SHALL BE TESTED UNDER NEGATIVE PRESSURE.

EQUIPMENT:

1. PROVIDE FULL SIZE PVC CONDENSATE DRAINS FROM ALL UNITS TO DISPOSAL POINT INDICATED ON THE DRAWINGS.
2. PROVIDE A TRAP ON ALL CONDENSATE DRAIN OUTLETS. SLOPE ALL CONDENSATE DRAIN PIPING -1/8" INCH PER FOOT.
3. CONTRACTOR SHALL INSTALL ALL EQUIPMENT, PIPING, AND DUCTWORK SUCH THAT MANUFACTURER'S RECOMMENDED CLEARANCES ARE MET FOR ALL ACCESS PANELS, MOTORS, FANS, BELTS, FILTERS AND AIR INTAKES.
4. PROVIDE VIBRATION ISOLATORS FOR ALL UNITS. SEE SPECIFICATIONS AND DETAILS.
5. PROVIDE ACCESS PANELS IN ALL NON-ACCESSIBLE CONSTRUCTIONS (INCLUDING CEILING, WALLS, ETC) SIZED AND LOCATED AS REQUIRED TO PROVIDE PROPER SERVICE ACCESS IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATION FOR ALL HVAC EQUIPMENT INCLUDING DAMPERS AND VALVES.
6. ALL HVAC EQUIPMENT TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND UNDER SUPERVISION OF MANUFACTURER'S REPRESENTATIVE.

CONTROLS:

1. MAINTAIN A MINIMUM OF 3'-6" SEPARATION FROM THE HVAC CONTROL WIRING AND OTHER DATA, TV, OR PHONE WIRING TO PREVENT ANY INTERFERENCE.
2. ALL LOW VOLTAGE CONTROL WIRING SHALL COMPLY WITH SPEC AND IN ACCORDANCE WITH ELECTRICAL SPEC REQUIREMENTS.
3. PROVIDE ALL SOFTWARE, PROGRAMMING, GRAPHICS, AND RELATED INTERFACE TO MONITOR THE HVAC SYSTEM VIA INTERNET LOGIN.

GENERAL:

1. PRIOR TO COMMENCING ANY WORK, THE CONTRACTOR SHALL SATISFY HER/HIMSELF AS TO THE ACCURACY OF ALL DATA AS INDICATED IN THESE PLANS AND SPECIFICATIONS AND/OR AS PROVIDED BY THE OWNER. SHOULD THE CONTRACTOR DISCOVER ANY INACCURACIES, ERRORS, OR OMISSIONS IN THE DATA, SHE SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN ORDER THAT PROPER ADJUSTMENTS CAN BE ANTICIPATED AND ORDERED.
2. COMMENCEMENT BY THE CONTRACTOR OF ANY WORK SHALL BE HELD AS AN ACCEPTANCE OF THE DATA BY HER/HIM AFTER WHICH TIME THE CONTRACTOR HAS NO CLAIM AGAINST THE OWNER RESULTING FROM ALLEGED ERRORS, OMISSIONS, OR INACCURACIES OF THE SAID DATA.
3. ALL MATERIALS AND EQUIPMENT SHALL BE INSTALLED AND COMPLETED IN A FIRST-CLASS WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE BEST MODERN METHODS AND PRACTICE. ANY MATERIALS INSTALLED WHICH DO NOT PRESENT AN ORDERLY AND REASONABLY NEAT AND/OR WORKMANLIKE APPEARANCE, OR DO NOT ALLOW ADEQUATE SPACE FOR MAINTENANCE, SHALL BE REMOVED AND REPLACED WHEN SO DIRECTED BY THE ARCHITECT/ENGINEER.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT ALL EQUIPMENT AND DEVICES THAT MAY REQUIRE MAINTENANCE AND OPERATION ARE MADE EASILY ACCESSIBLE, REGARDLESS OF THE DIAGRAMMATIC LOCATION SHOWN ON THE DRAWINGS.
5. THE CONTRACTOR SHALL PROTECT EQUIPMENT AND MATERIAL AT ALL TIMES. HE SHALL REPLACE ALL EQUIPMENT AND MATERIAL WHICH ARE DAMAGED AS A RESULT OF INADEQUATE PROTECTION.
6. THOROUGHLY CLEAN ALL EXPOSED PARTS OF APPARATUS AND EQUIPMENT AND REMOVE ALL OIL AND GREASE SPOTS. REPAINT OR TOUCH UP AS REQUIRED TO LOOK LIKE NEW. DURING PROGRESS OF WORK, CONTRACTOR IS TO CAREFULLY CLEAN UP AND LEAVE PREMISES AND ALL PORTIONS OF BUILDING FREE FROM DEBRIS AND IN A CLEAN AND SAFE CONDITION.
7. DURING THE PROGRESS OF THE WORK, THE CONTRACTOR SHALL RECORD ON THEIR FIELD SET OF DRAWINGS (AS-BUILTS) THE EXACT LOCATION, AS INSTALLED, OF ALL PIPING, DUCTWORK, EQUIPMENT, AND OTHER SYSTEMS WHICH ARE NOT INSTALLED EXACTLY AS SHOWN ON THE CONTRACT DOCUMENTS.

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submittal:

50% Construction
Documents

Seal:

SAMUEL R. FRASIER PE - 0069949		
Moses Project #:	19162	
Drafted By:	RLB	
Checked By:	WW	
Date:	11/26/19	
No.	Revision Description	Date

Sheet Title:
LEGEND, ABBREVIATIONS, CODES AND
STANDARDS

Sheet #:
M001

BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4

100% OUTDOOR AIR UNIT SCHEDULE	
AIR HANDLING UNIT MARK	OUA-1
MANUFACTURER	DESERT AIRE
AIR HANDLING UNIT MODEL	
EER	
DESIGN CONDITIONS	
SUMMER OUTDOOR DB/WB (°F)	95/78
SUMMER INDOOR DB/WB (°F)	75/62
WINTER OUTDOOR (°F)	25
WINTER INDOOR (°F)	70
SUPPLY AIR (CFM)	3,300
TOTAL COOLING CAPACITY (BTUH)	
SENSIBLE COOLING CAPACITY (BTUH)	
AIR LEAVING COOLING COIL DB/WB (°F)	52/52
AIR LEAVING HEAT PIPE DB/WB (°F)	68/60
HOT GAS BYPASS CAPACITY (BTUH)	220,000
HOT GAS REHEAT ENT (°F)	52
HOT GAS REHEAT LVG (°F)	86.3
CONDENSING SECTION	
COMPRESSOR TYPE	-
COMPRESSOR VOLTS-PHASE	480-3
HOT GAS BYPASS	YES
SUCTION LINE SIZE (IN)	(1)
LIQUID LINE SIZE (IN)	(1)
HOT GAS BYPASS LINE SIZE (IN)	(1)
HOT GAS REHEAT LINE SIZE (IN)	(1)
SUPPORT	SLAB
EVAPORATOR SECTION	
EXTERNAL STATIC PRESSURE (IN WG)	1.2
FAN VOLTS - PHASE	480-3
FAN MOTOR (HP)	1.5
SUPPORT	FLOOR
ELECTRIC HEATING SECTION (NON-SIMULTANEOUS)	
LOCATION	UNIT
VOLTS-PHASE	480-3
CAPACITY (KW)	50
STAGES	SCR
SCHEDULE NOTES	
SCHEDULE NOTES	
(1) REFRIGERANT PIPE SIZING PER MANUFACTURER RECOMMENDATIONS	
(2) PROVIDE HEAT PIPE WITH AHU	

EXHAUST FAN SCHEDULE

MARK	EF-1	EF-2	EF-3	EF-4
MANUFACTURER	COOK	COOK	COOK	COOK
MODEL	190C17D	GC-148	GC-148	120C13D
TYPE	ROOF	ROOF	ROOF	ROOF
DRIVE	VFD	FSC	VFD	VFD
AIRFLOW (CFM)	2780	70	70	1000
TSP (IN WG)	0.5	0.5	0.5	0.25
MOTOR SECTION				
VOLTS-PHASE	120-1	120-1	120-1	120-1
BHP/HP	1.5	1.5	1.5	0.25
DRIVE TYPE	DIRECT	DIRECT	DIRECT	DIRECT
MOTOR SPEED (RPM)	1725	1075	1075	1300
SOUND DATA (DB)				
63 HZ	84	52	52	68
125 HZ	77	54	54	71
250 HZ	79	56	56	76
500 HZ	74	51	51	67
1000 HZ	70	47	47	63
2000 HZ	68	37	37	61
4000 HZ	65	33	33	54
8000 HZ	61	53	53	48
SONES	14.4	2	2	9.5
SCHEDULE NOTES	(1) (2) (3) (4) (5) (6)	(1) (2) (3) (4) (5) (6)	(1) (2) (3) (4) (5) (6)	(1) (2) (3) (4) (5) (6)
SCHEDULE NOTES				
(1) PROVIDE DISCONNECT				
(2) PROVIDE TOP ANGULAR DOWN DISCHARGE				
(3) PROVIDE BIRD SCREEN				
(4) PROVIDE ROOF CURB				
(5) PROVIDE THERMAL OVERLOAD				
(6) DIRECT DRIVE				

VRF INDOOR UNIT SCHEDULE (CU-1 SYSTEM)

MANUFACTURER	LG	LG	LG	LG	LG
UNIT TYPE	VRF	VRF	VRF	VRF	VRF
AIR CONDITIONER MARK	AC-1	AC-2	AC-3	AC-4	AC-5
AIR CONDITIONER MODEL	ARNU243TNA4	ARNU243TNA4	ARNU243TNA4	ARNU243TNA4	ARNU763B8A4
AIR CONDITIONER UNIT TYPE	CEILING	CEILING	CEILING	CEILING	DUCTED CEILING
ASSOCIATED CU / HR #	CASSETTE CU-1 / HR-1	CASSETTE CU-1 / HR-1	CASSETTE CU-1 / HR-1	CASSETTE CU-1 / HR-1	HIGH STATIC CONCEALED CU-1 / HR-1
DESIGN CONDITIONS					
SUMMER OUTDOOR TEMP DB/WB (°F)	95/80	95/80	95/80	95/80	95/80
SUMMER INDOOR TEMP DB/WB (°F)	75/65	75/65	75/65	75/65	75/65
WINTER OUTDOOR TEMP (°F)	28	28	28	28	28
WINTER INDOOR (°F)	68	68	68	68	68
TOTAL AIR (CFM)	742	742	742	742	1,900
OUTSIDE AIR (CFM)	CODE REQ	CODE REQ	CODE REQ	CODE REQ	CODE REQ
NOMINAL COOLING CAPACITY (BTUH)	24,200	24,200	24,200	24,200	76,400
AIR ENTERING COOLING COIL DB/WB (°F)	75/63	75/63	75/63	75/63	75/63
NOMINAL HEATING CAPACITY (BTUH)	27,300	27,300	27,300	27,300	86,000
EVAPORATOR SECTION					
ELECTRICAL CHAR (V-PHASE)	208-1	208-1	208-1	208-1	208-1
UNIT AMPACITY (MCA)					
SCHEDULE NOTES					

VRF CONDENSING UNIT SCHEDULE	
MARK	CU-1
MANUFACTURER	LG
MODEL	ARWB144BAS4
TYPE	VRF
LOCATION	HEAT RECOVERY
SERVICE	BUILDING EXTERIOR
NUMBER OF COMPRESSORS	1
UNIT AMPACITY (MCA)	36
VOLTS-PHASE	208-3
EER	12.3
HEATING COP	3.75
PERFORMANCE	
SUMMER OUTDOOR TEMP (F)	110
WINTER OUTDOOR TEMP (F)	25
MINIMUM COOLING CAPACITY (BTUH)	144,000
MINIMUM HEATING CAPACITY (BTUH)	162,000
REFRIGERANT PIPING	
SUCTION LINE SIZE (IN)	(1)
LIQUID LINE SIZE (IN)	(1)
SCHEDULE NOTES	
SCHEDULE NOTES	
(1) SIZE REFRIGERANT PIPING PER MANUFACTURER'S RECOMMENDATION.	

HEAT RECOVERY UNIT SCHEDULE	
MARK	HR-1
MANUFACTURER	LG
MODEL	PRHR063A
SERVICE	CU-1 BUILDING 1
MIN. NUMBER OF PORTS	6
UNIT CURRENT (FLA)	0.09
ELECTRICAL CHAR (V-PHASE)	208-1

CONDENSER WATER PUMP SCHEDULE

MARK	CP-1	CP-2
MANUFACTURER	BG	BG
MODEL	3BD	3BD
TYPE	END-SUCTION	END-SUCTION
PUMP CAPACITY (GPM)	510	510
DISCHARGE PRESSURE (PSI)	30	30
MOTOR SECTION (EACH MOTOR)		
MOTOR SIZE (HP)	15	15
SPEED (RPM)	1800	1800
VOLTS-PHASE	480-3	480-3
SCHEDULE NOTES	(1)	(1)
SCHEDULE NOTES		
(1) SINGLE POINT ELECTRICAL CONNECTION		

Project Name:

UF IFAS Building 711
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Submittal:

50% Construction
Documents

Seal:

SAMUEL R. FRASIER		
PE - 0069949		
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Moses Project #:		19162
Drafted By:		RLB
Checked By:		WW
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Sheet Title:
SCHEDULES

Sheet #:
M002

Project Name:

**UF IFAS Building 711
Headhouse Renovation**

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Documents**

Seal:

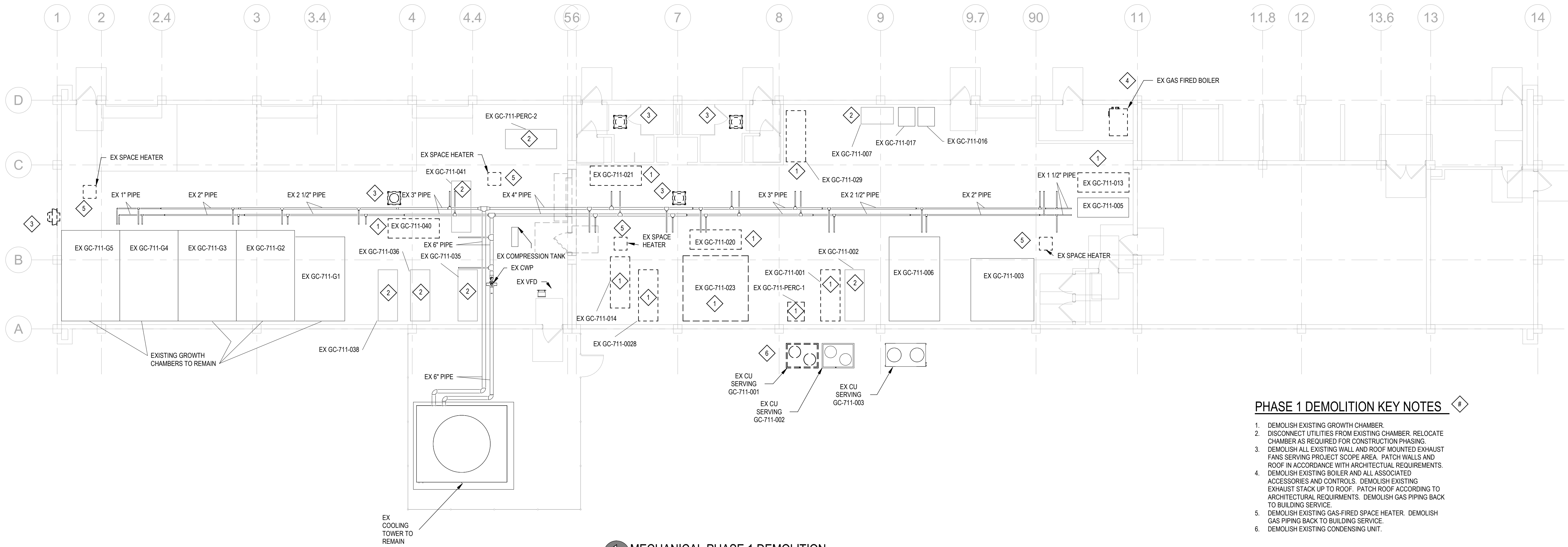
SAMUEL R. FRASIER
PE - 0069949

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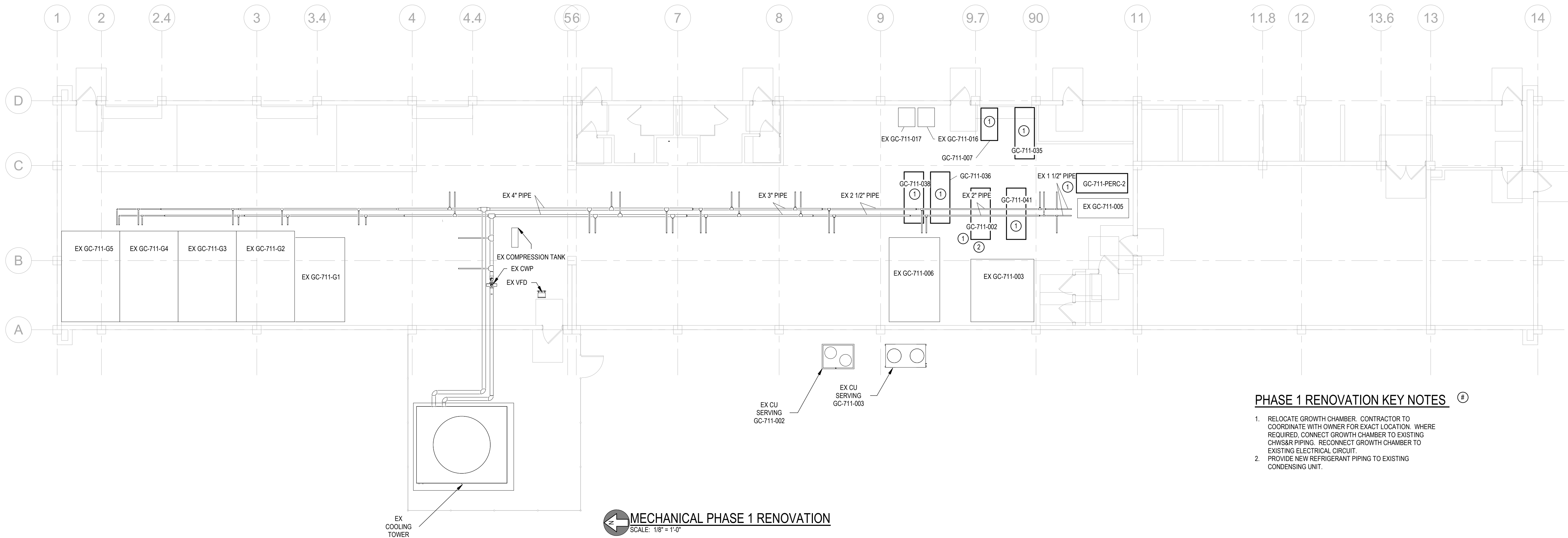
Sheet Title:
FLOOR PLAN PHASE 1

Sheet #:
M101



PHASE 1 DEMOLITION KEY NOTES #

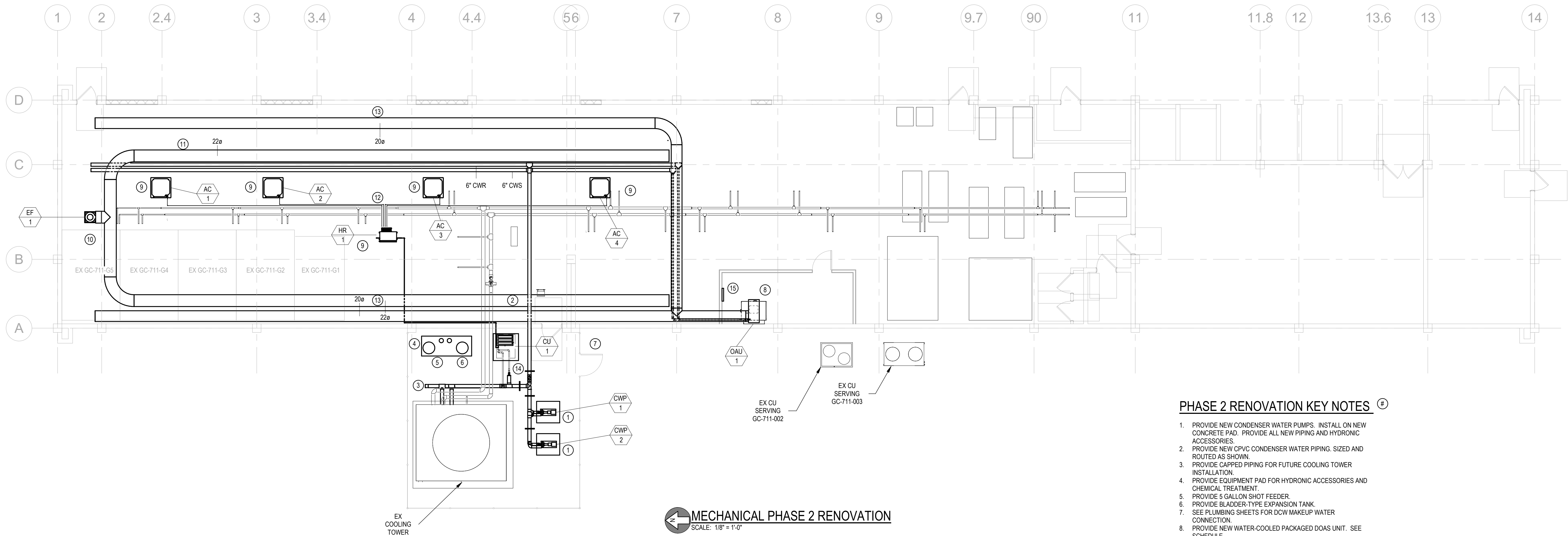
1. DEMOLISH EXISTING GROWTH CHAMBER.
2. DISCONNECT UTILITIES FROM EXISTING CHAMBER. RELOCATE CHAMBER AS REQUIRED FOR CONSTRUCTION PHASING.
3. DEMOLISH ALL EXISTING WALL AND ROOF MOUNTED EXHAUST FANS SERVING PROJECT SCOPE AREA. PATCH WALLS AND ROOF IN ACCORDANCE WITH ARCHITECTURAL REQUIREMENTS.
4. DEMOLISH EXISTING BOILER AND ALL ASSOCIATED ACCESSORIES AND CONTROLS. DEMOLISH EXISTING EXHAUST STACK UP TO ROOF. PATCH ROOF ACCORDING TO ARCHITECTURAL REQUIREMENTS. DEMOLISH GAS PIPING BACK TO BUILDING SERVICE.
5. DEMOLISH EXISTING GAS-FIRED SPACE HEATER. DEMOLISH GAS PIPING BACK TO BUILDING SERVICE.
6. DEMOLISH EXISTING CONDENSING UNIT.



PHASE 1 RENOVATION KEY NOTES #

1. RELOCATE GROWTH CHAMBER. CONTRACTOR TO COORDINATE WITH OWNER FOR EXACT LOCATION. WHERE REQUIRED, CONNECT GROWTH CHAMBER TO EXISTING CHW&R PIPING. RECONNECT GROWTH CHAMBER TO EXISTING ELECTRICAL CIRCUIT.
2. PROVIDE NEW REFRIGERANT PIPING TO EXISTING CONDENSING UNIT.

BM 360/IFAS' 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4



MECHANICAL PHASE 2 RENOVATION
SCALE: 1/8" = 1'-0"

PHASE 2 RENOVATION KEY NOTES

1. PROVIDE NEW CONDENSER WATER PUMPS. INSTALL ON NEW CONCRETE PAD. PROVIDE ALL NEW PIPING AND HYDRONIC ACCESSORIES.
2. PROVIDE NEW CPVC CONDENSER WATER PIPING. SIZED AND ROUTED AS SHOWN.
3. PROVIDE CAPPED PIPING FOR FUTURE COOLING TOWER INSTALLATION.
4. PROVIDE EQUIPMENT PAD FOR HYDRONIC ACCESSORIES AND CHEMICAL TREATMENT.
5. PROVIDE 5 GALLON SHOT FEEDER.
6. PROVIDE BLADDER-TYPE EXPANSION TANK.
7. SEE PLUMBING SHEETS FOR DCW MAKEUP WATER CONNECTION.
8. PROVIDE NEW WATER-COOLED PACKAGED DOAS UNIT. SEE SCHEDULE.
9. PROVIDE NEW VRF EQUIPMENT. SEE SCHEDULE.
10. PROVIDE NEW EXHAUST FAN. SEE SCHEDULE.
11. PROVIDE EXHAUST DUCTWORK SIZED AND ROUTED AS SHOWN.
12. PROVIDE NEW REFRIGERANT PIPING ROUTED APPROXIMATELY AS SHOWN. SEE MANUFACTURE'S RECOMMENDATION FOR SIZING.
13. PROVIDE SUPPLY AIR DUCTWORK SIZED AND ROUTED AS SHOWN.
14. PROVIDE HOUSEKEEPING PAD.
15. PROVIDE DCW MAKEUP WATER STATION. SEE DETAIL.

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Sheet Title:
FLOOR PLAN PHASE 2

Sheet #:
M102

UF IFAS Building 711
Headhouse Renovation

50% Construction Documents

SAMUEL R. FRASIER
PE - 0069949

Drafted By: RLB

Date: 11/26/19

[illegible]

Sheet #: M103



1. RELOCATE CHAMBER AND CONNECT TO NEW UTILITIES. SEE RENOVATION PLAN FOR APPROXIMATE LOCATION. CONTRACTOR TO COORDINATE WITH OWNER FOR EXACT LOCATION.
2. DEMOLISH ALL EXISTING CONDENSER WATER PIPING BACK TO EXISTING COOLING TOWER.
3. REMOVE AND RELOCATE EXISTING CONDENSING UNIT. SEE RENOVATION PLAN FOR APPROXIMATE LOCATION.
4. DEMOLISH EXISTING CHILLED WATER PUMP AND ASSOCIATED HYDRONIC ACCESSORIES. RETURN VFD TO OWNER.



1. PROVIDE NEW PAD AND RELOCATE CONDENSING UNIT TO APPROXIMATE LOCATION. COORDINATE WITH CONDENSING UNIT MANUFACTURER FOR ALL UTILITY REQUIREMENTS.
2. RELOCATE GROWTH CHAMBERS TO APPROXIMATE LOCATIONS AND CONNECT ALL GROWTH CHAMBERS TO NEW UTILITIES. COORDINATE WITH OWNER FOR FINAL LOCATION.

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submital:

50% Construction
Documents

Seal:

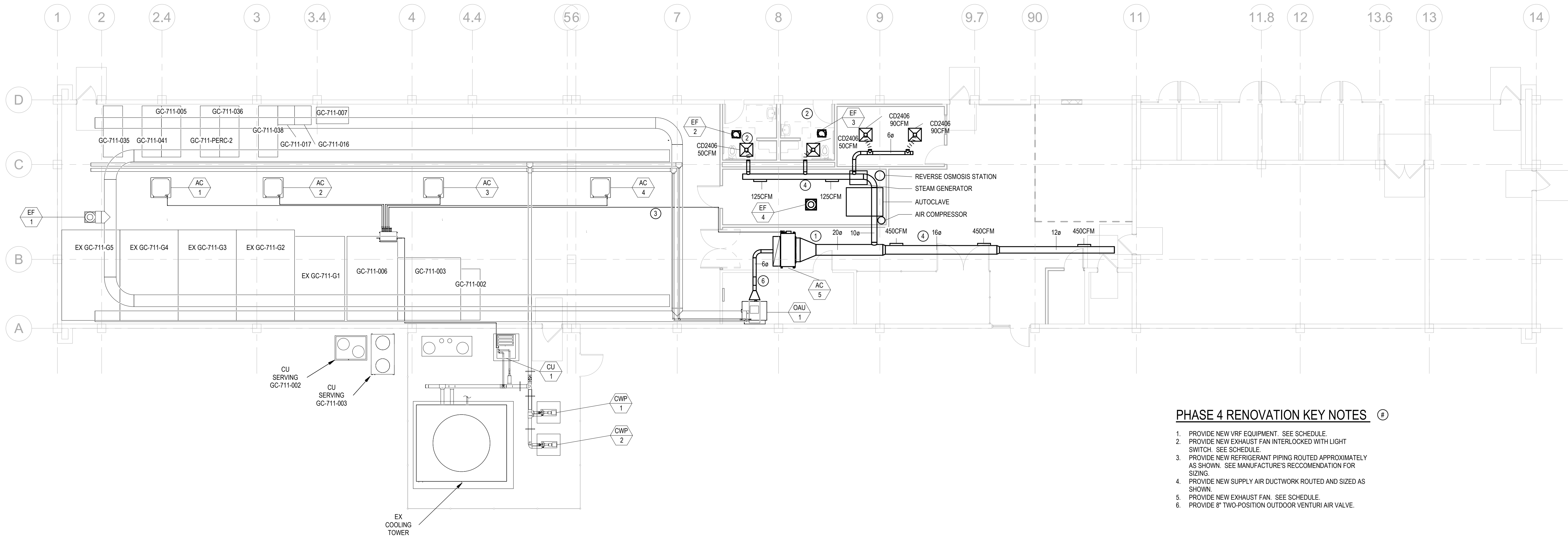
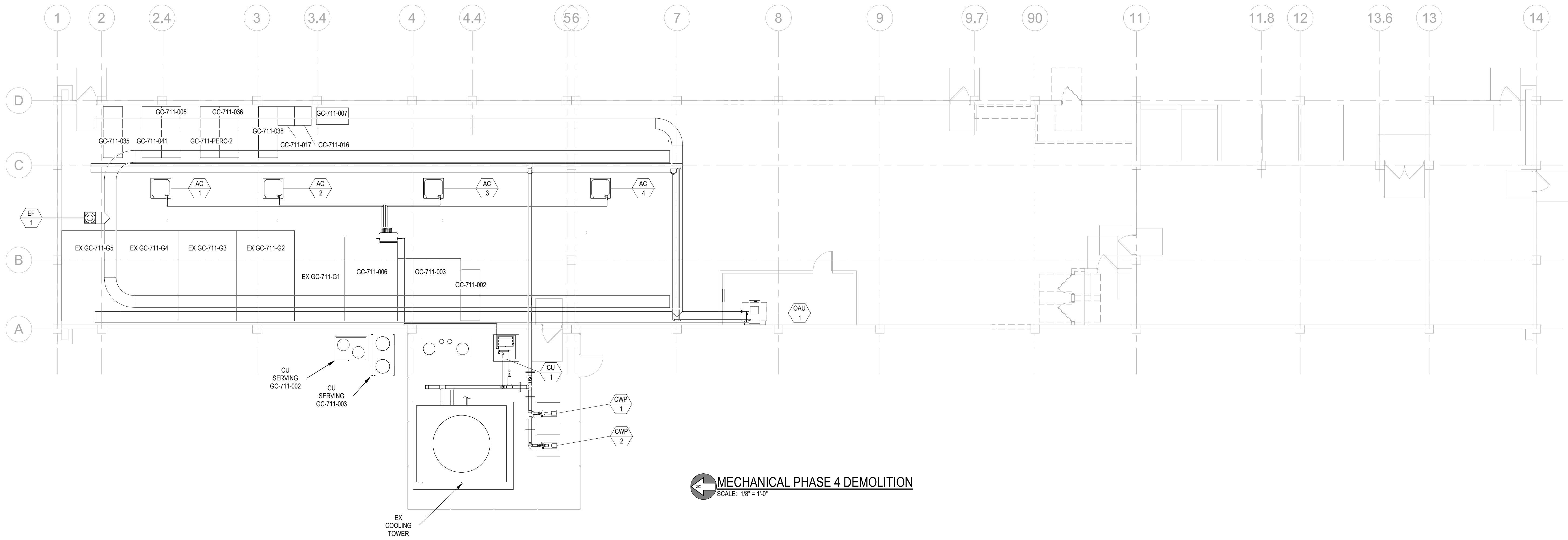
SAMUEL R. FRASIER
PE - 0069949

Moses Project #:	19162
Drafted By:	RLB
Checked By:	WW
Date:	11/26/19

No.	Revision Description	Date
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Sheet Title:
FLOOR PLAN PHASE 4

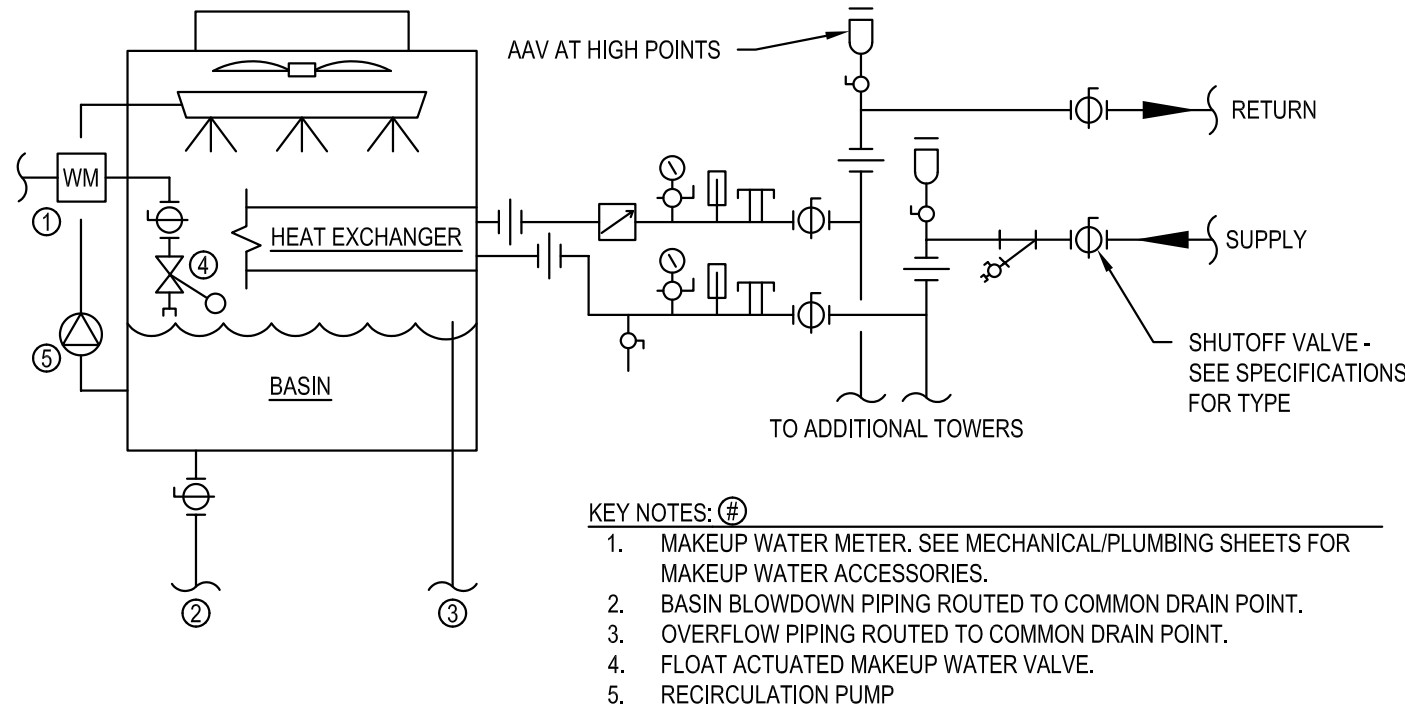
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M104



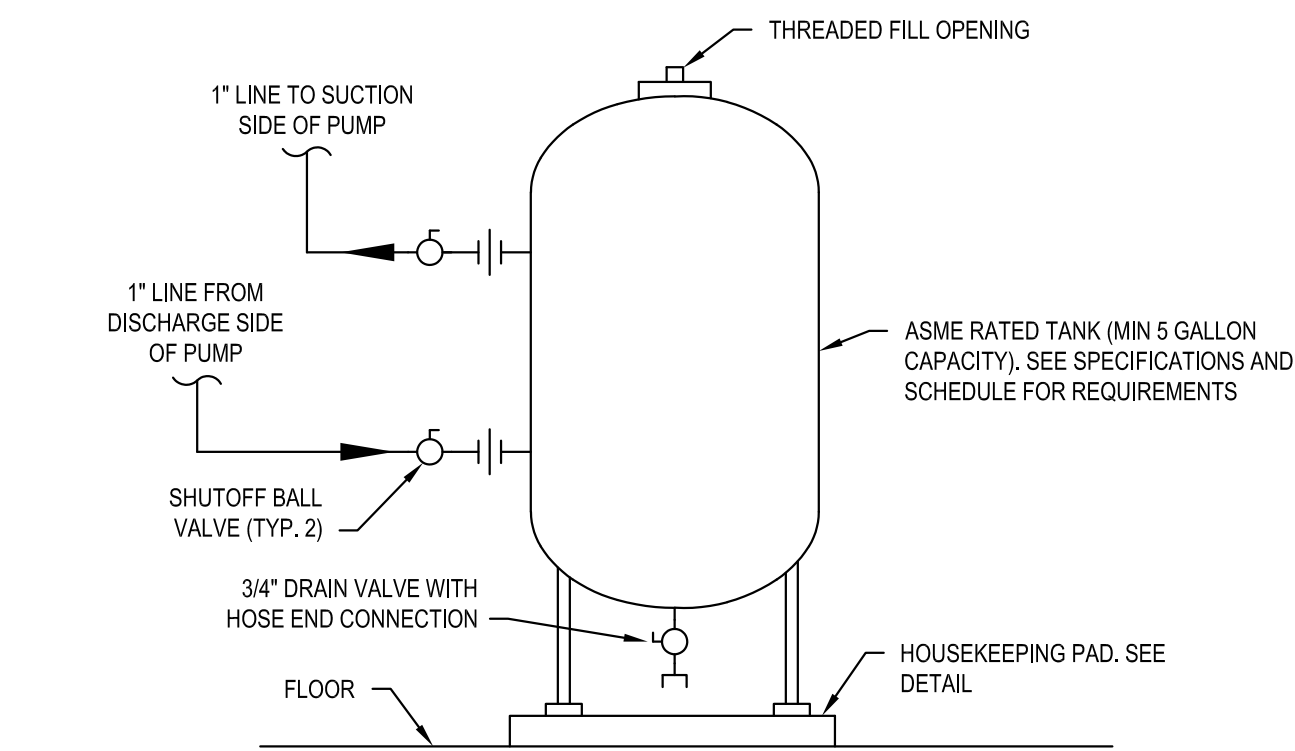
PHASE 4 RENOVATION KEY NOTES (F)

1. PROVIDE NEW VRF EQUIPMENT. SEE SCHEDULE.
2. PROVIDE NEW EXHAUST FAN INTERLOCKED WITH LIGHT SWITCH. SEE SCHEDULE.
3. PROVIDE NEW REFRIGERANT PIPING ROUTED APPROXIMATELY AS SHOWN. SEE MANUFACTURE'S RECOMMENDATION FOR SIZING.
4. PROVIDE NEW SUPPLY AIR DUCTWORK ROUTED AND SIZED AS SHOWN.
5. PROVIDE NEW EXHAUST FAN. SEE SCHEDULE.
6. PROVIDE 8" TWO-POSITION OUTDOOR VENTURI AIR VALVE.

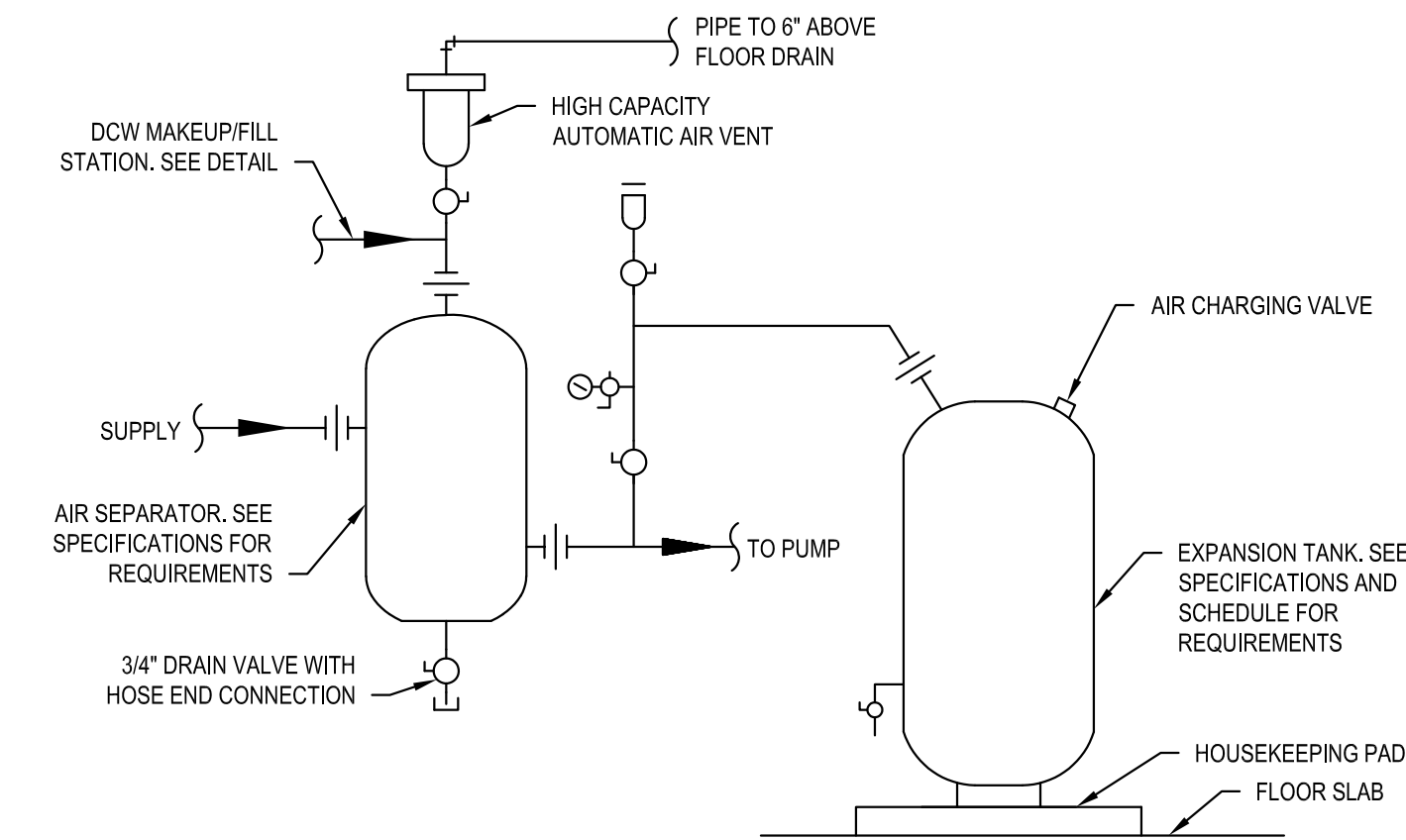
BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4



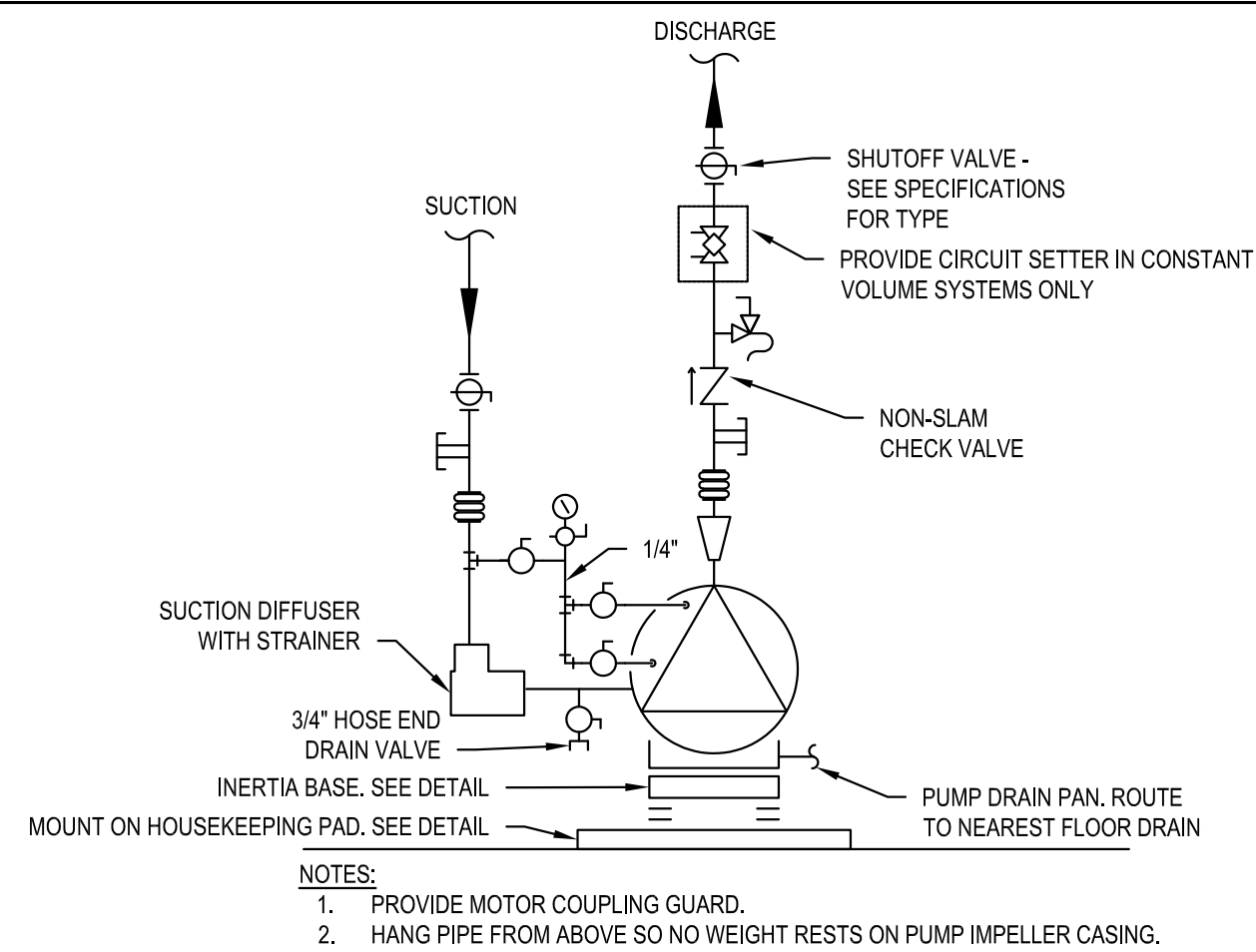
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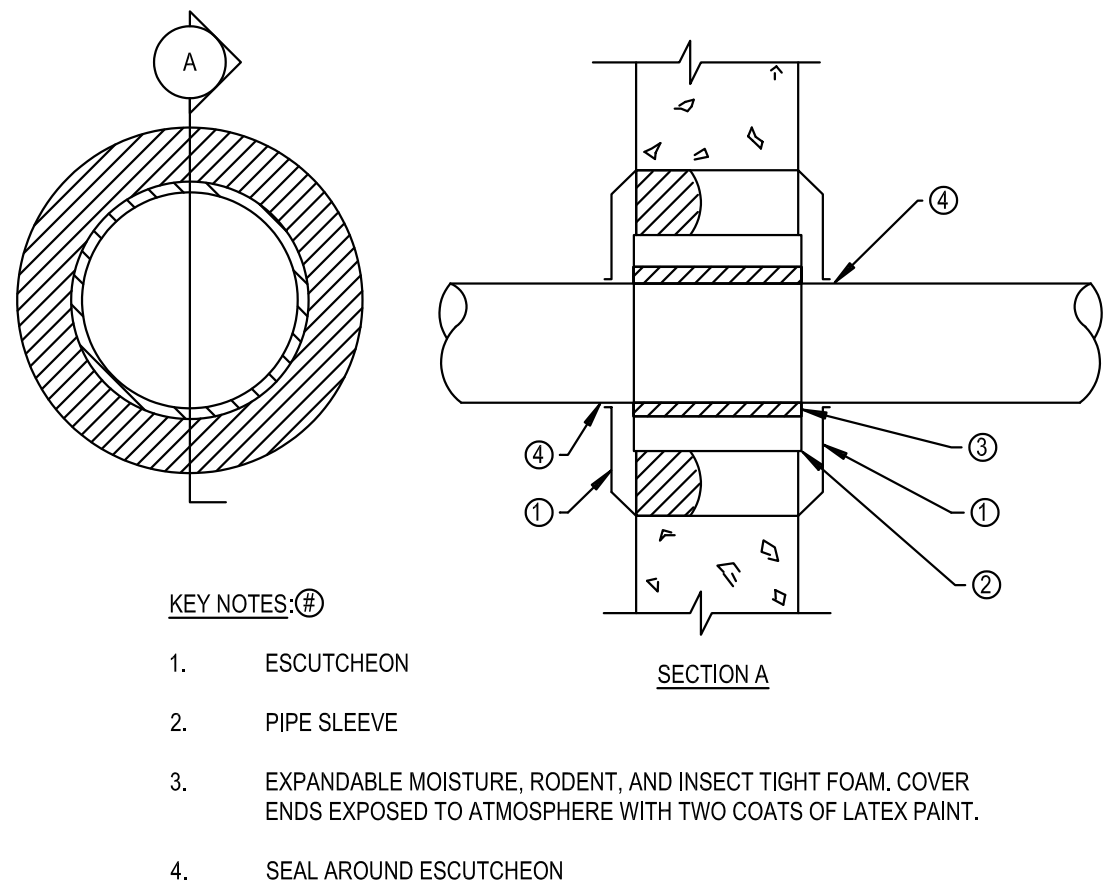
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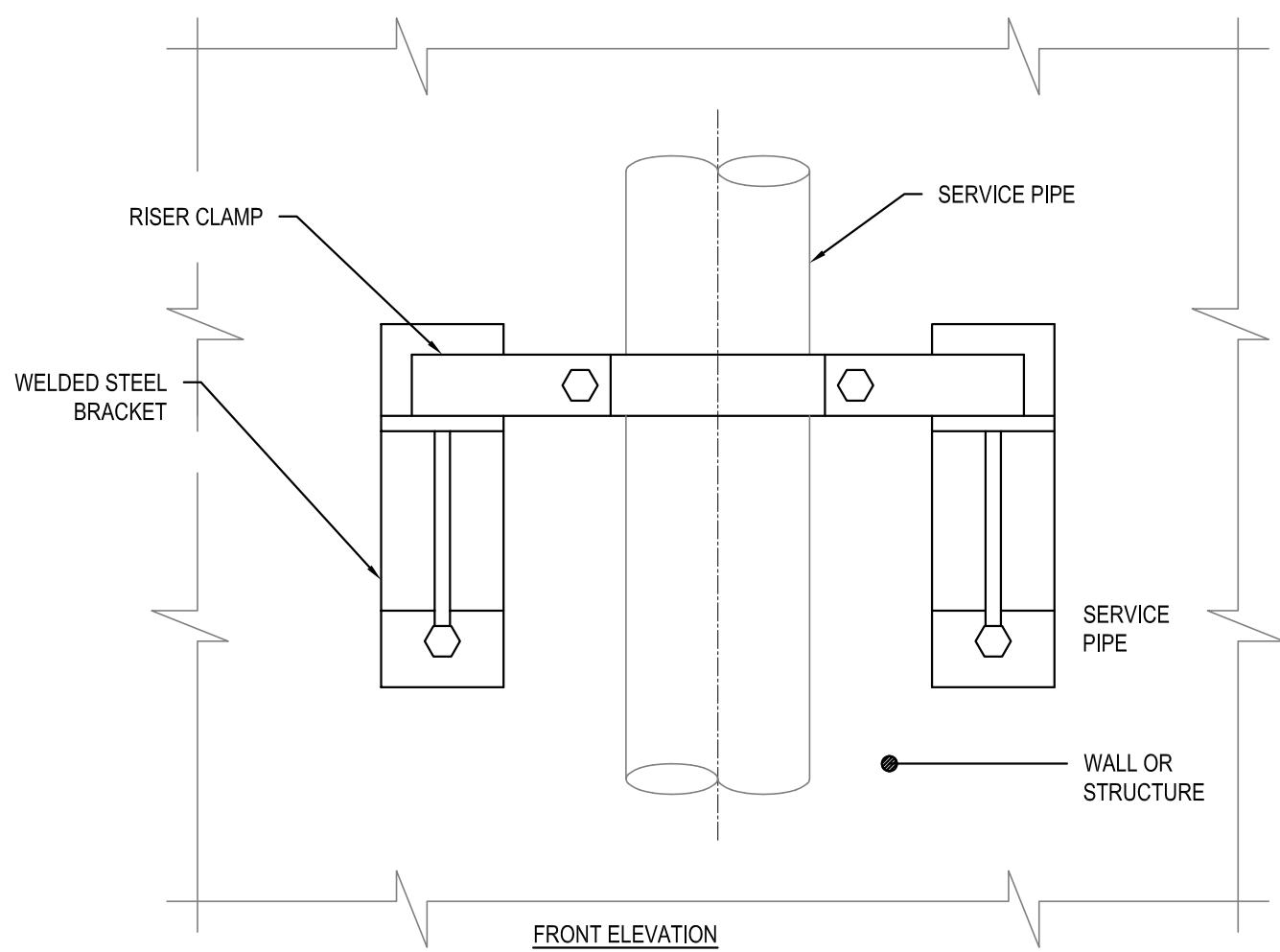
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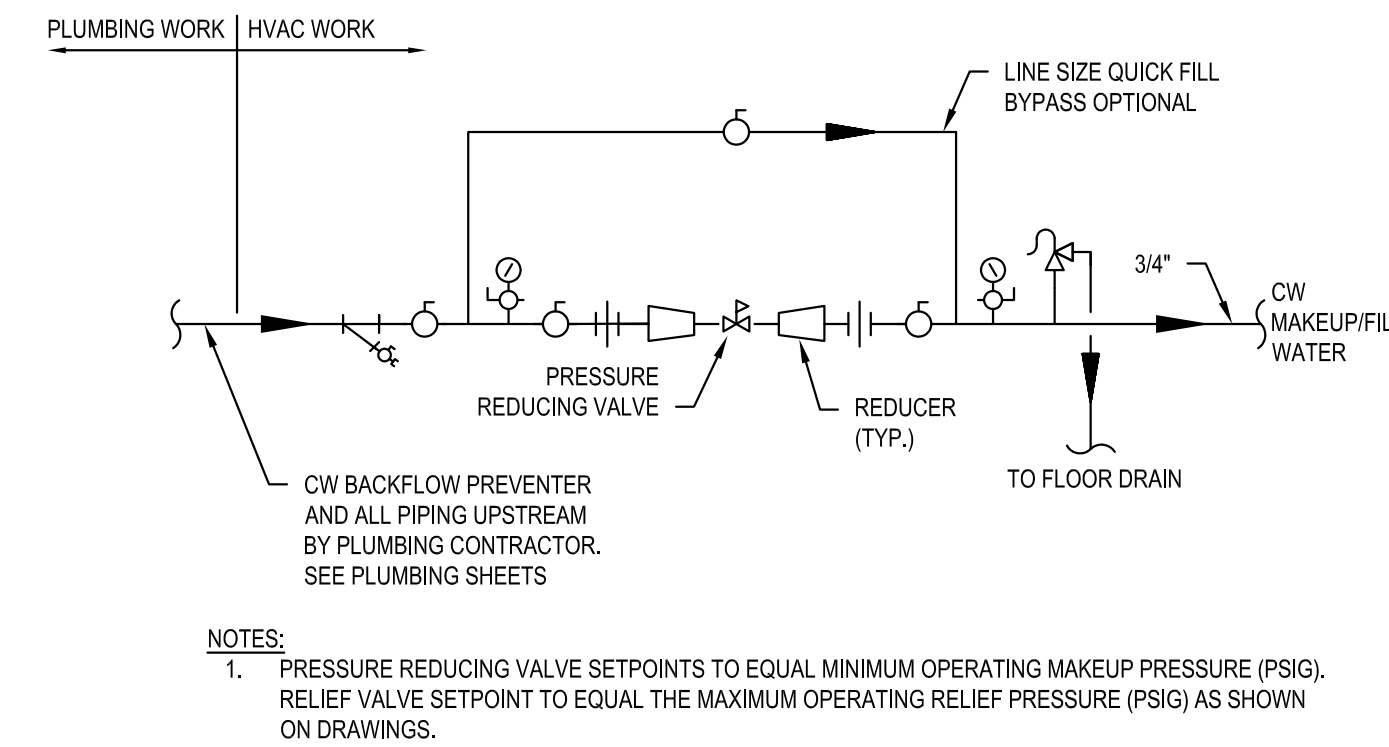
PUMP DIAGRAM - BASE MOUNTED END SUCTION
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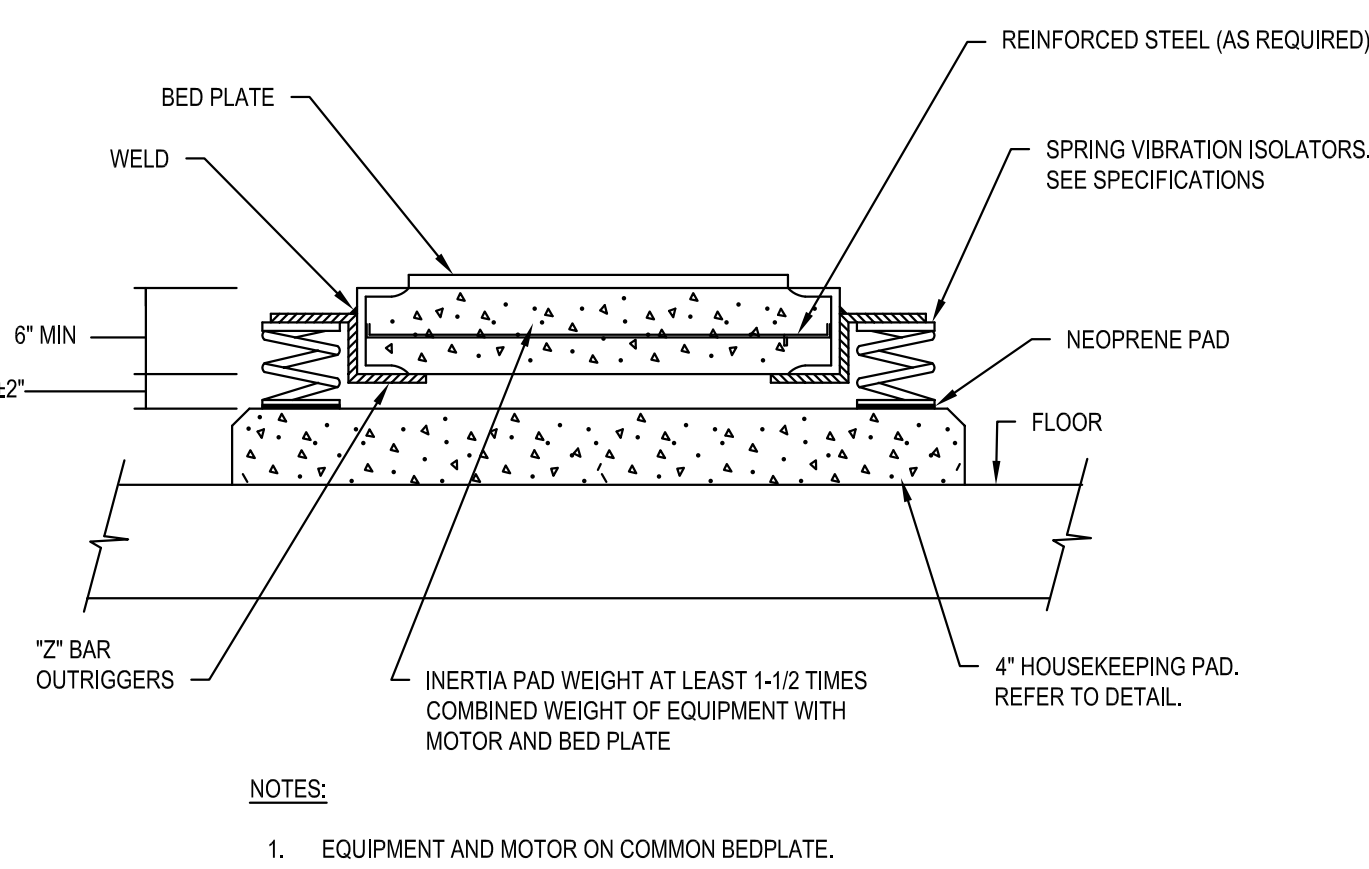
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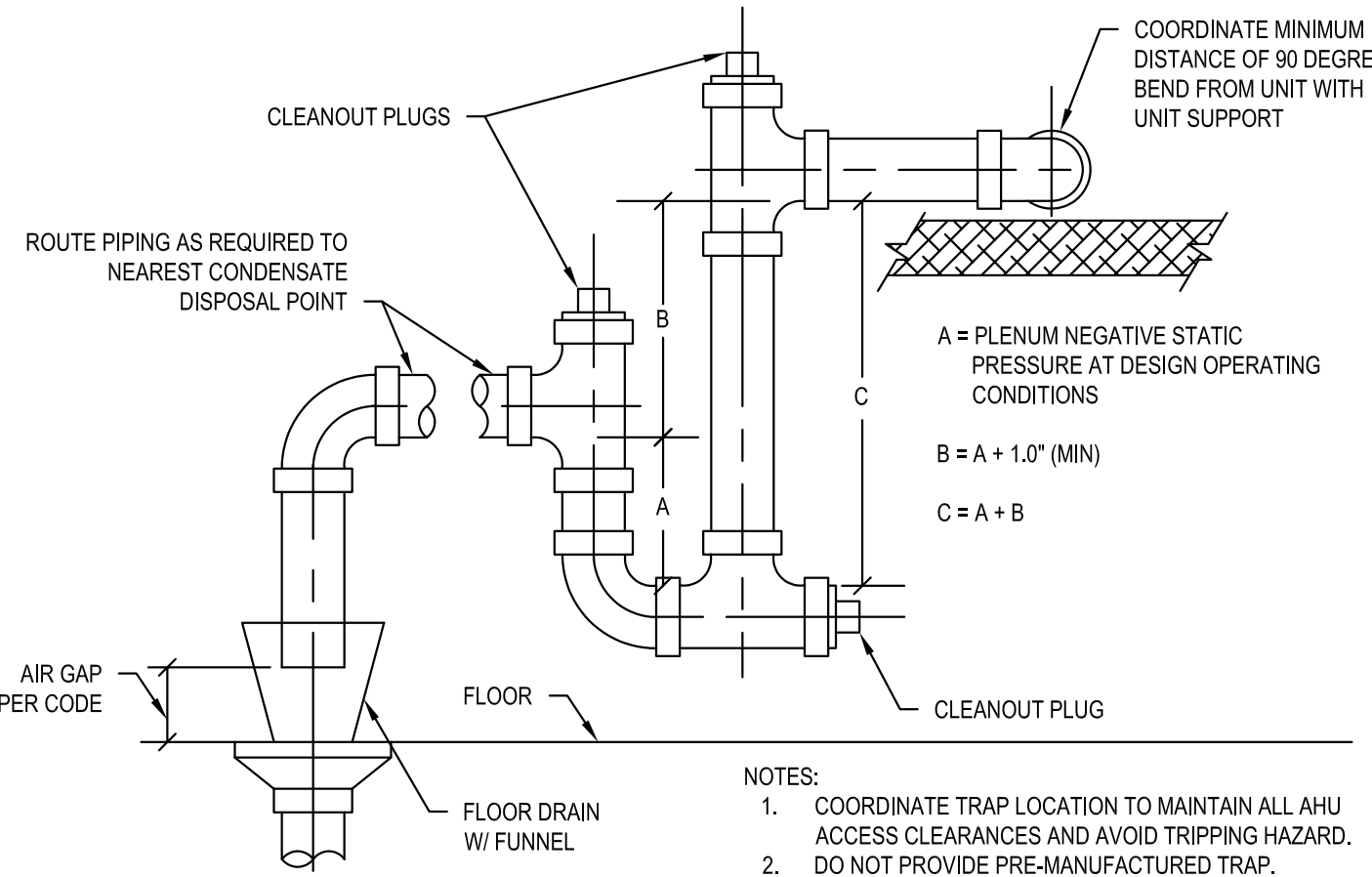
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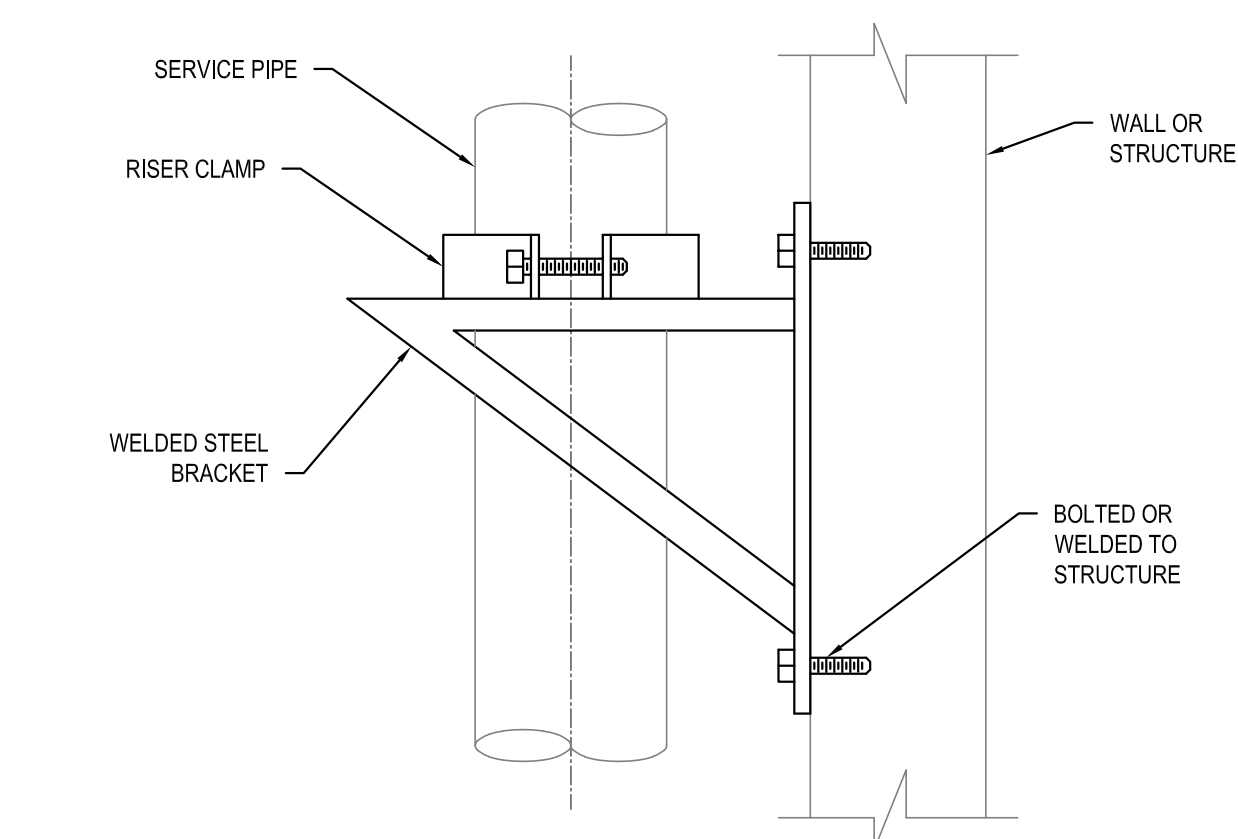
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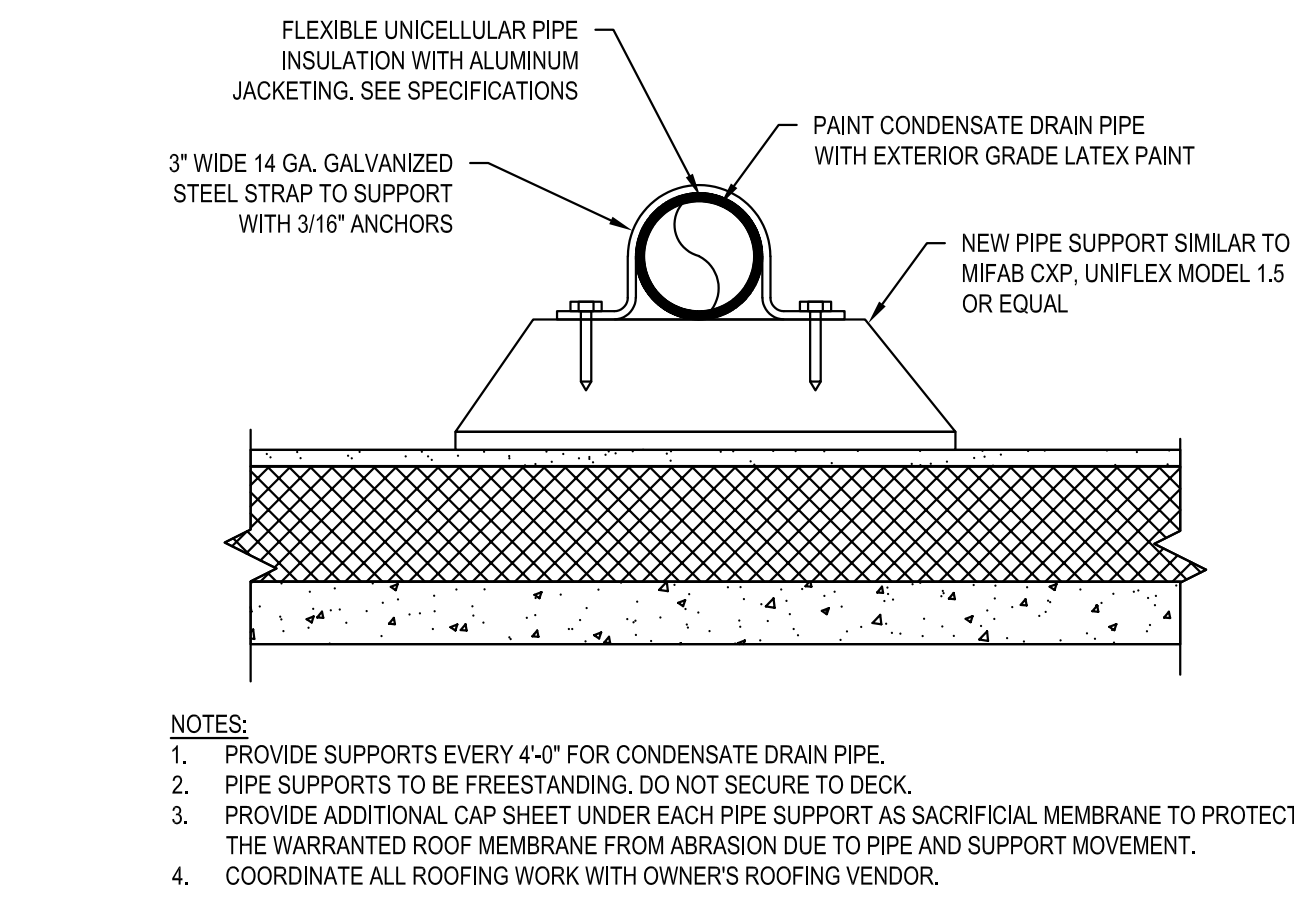
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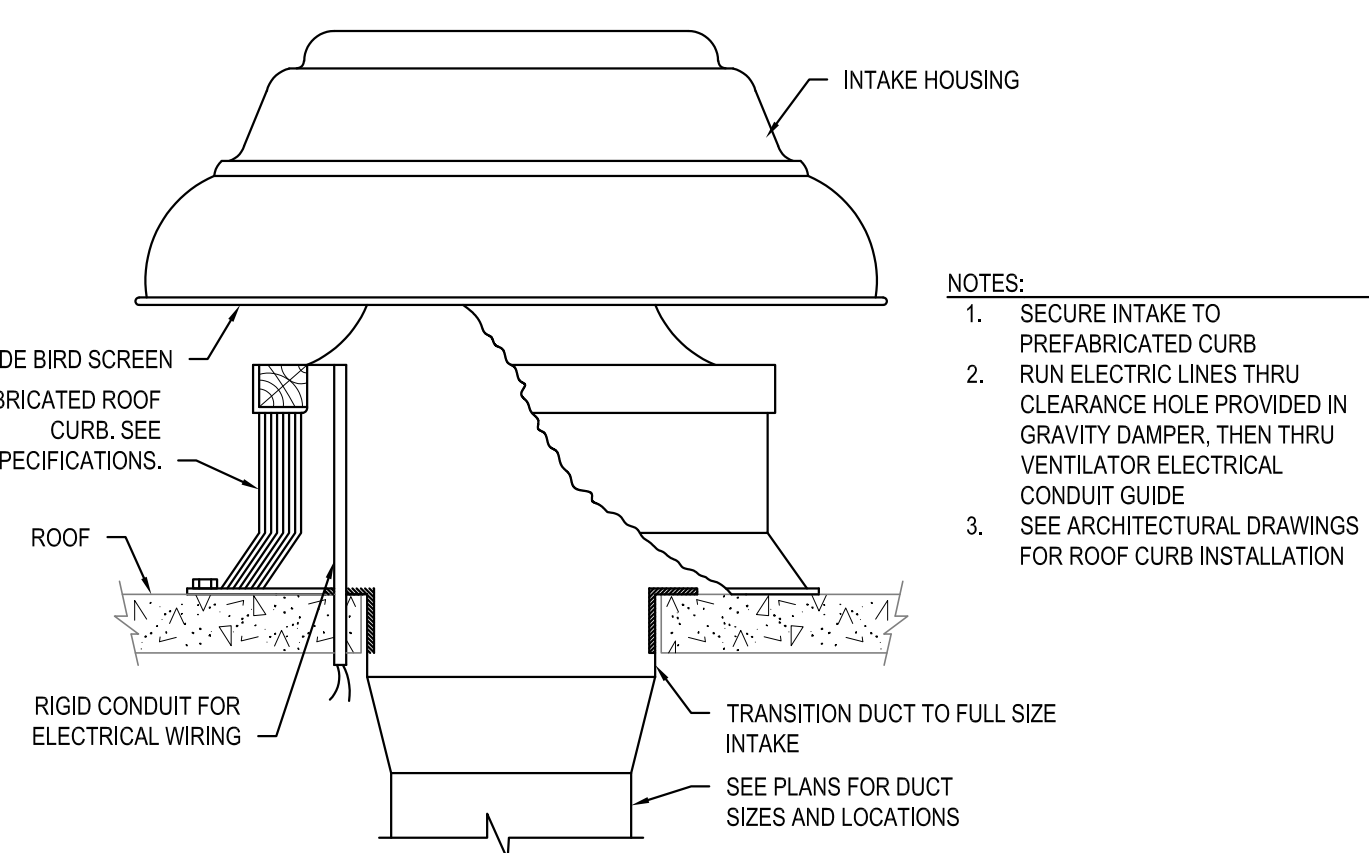
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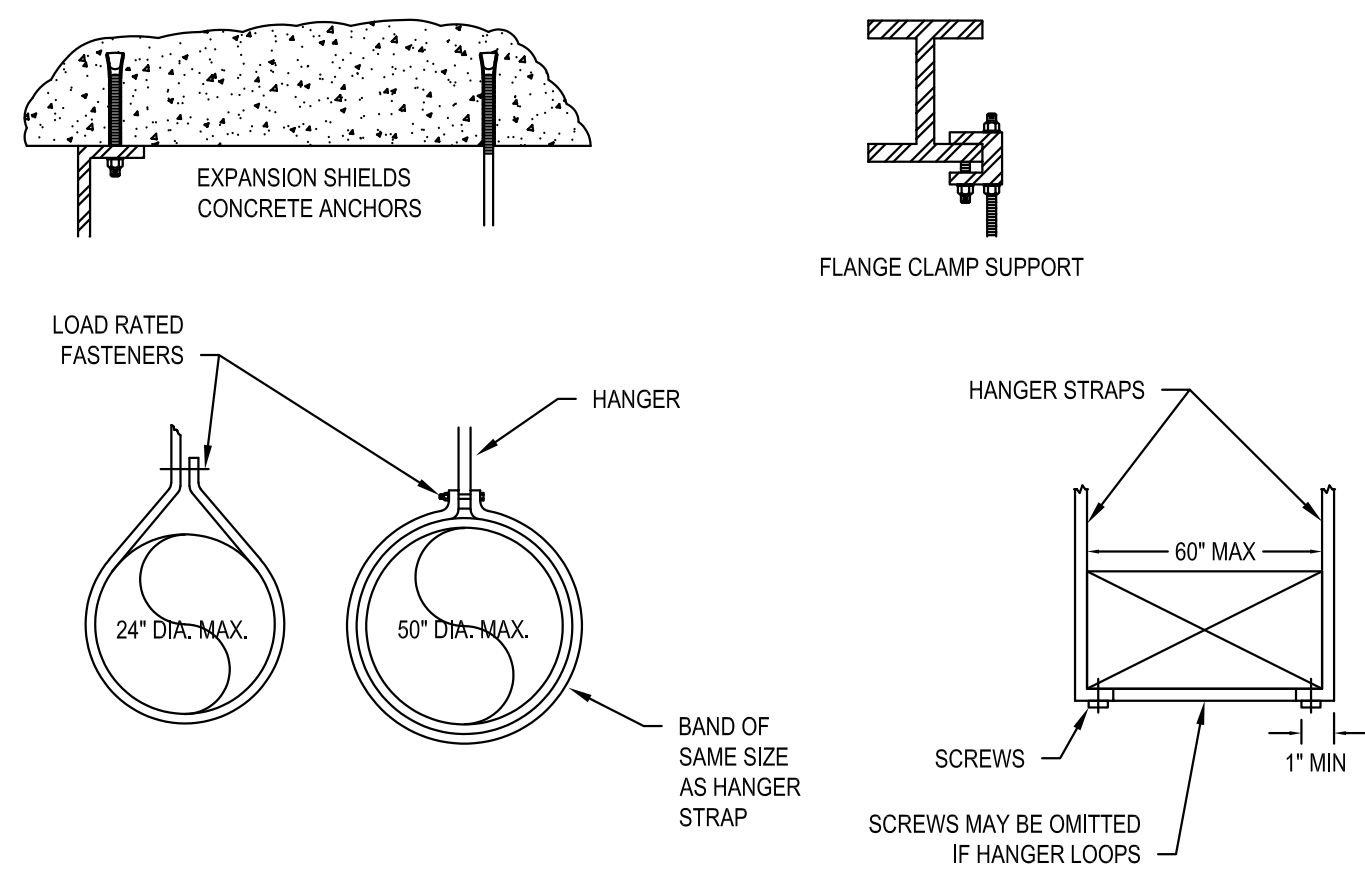
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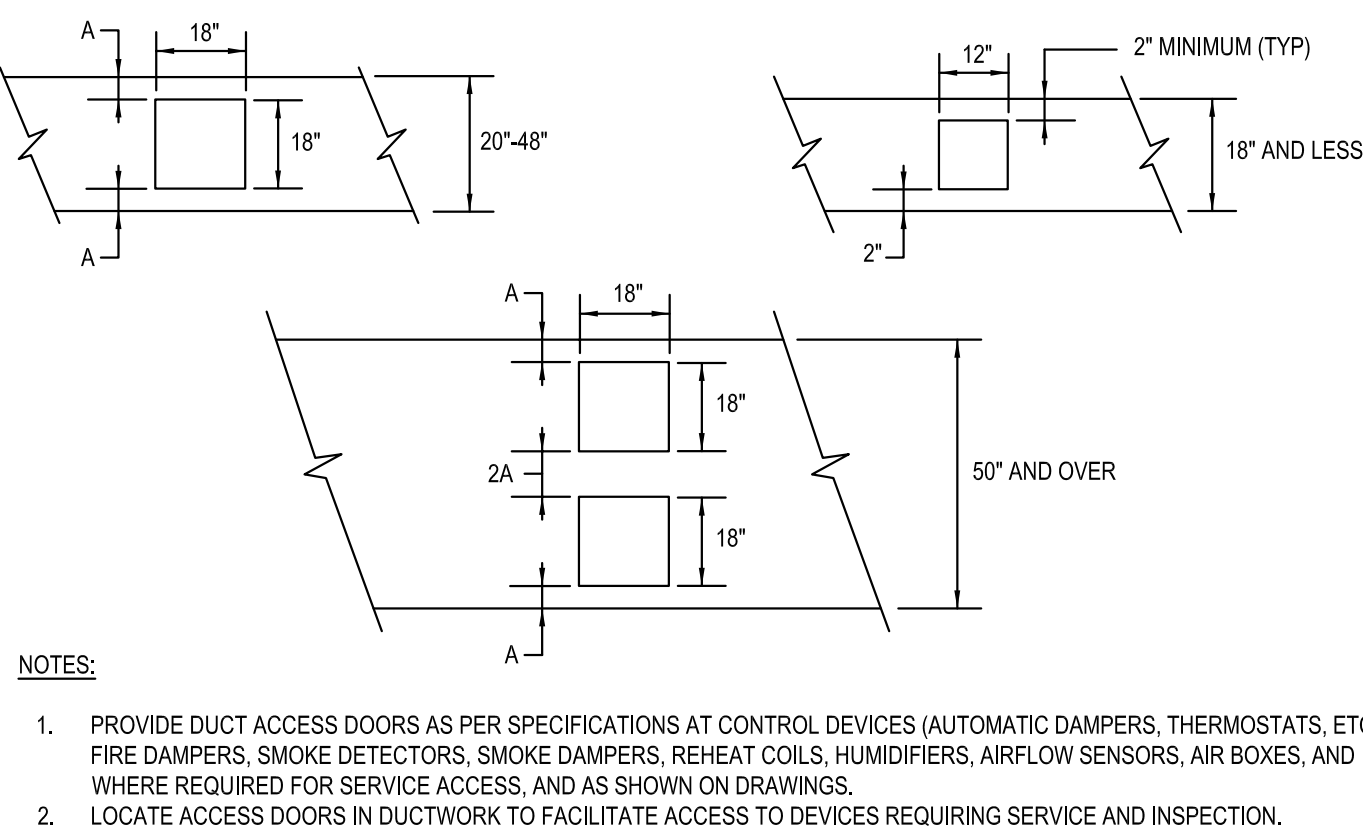
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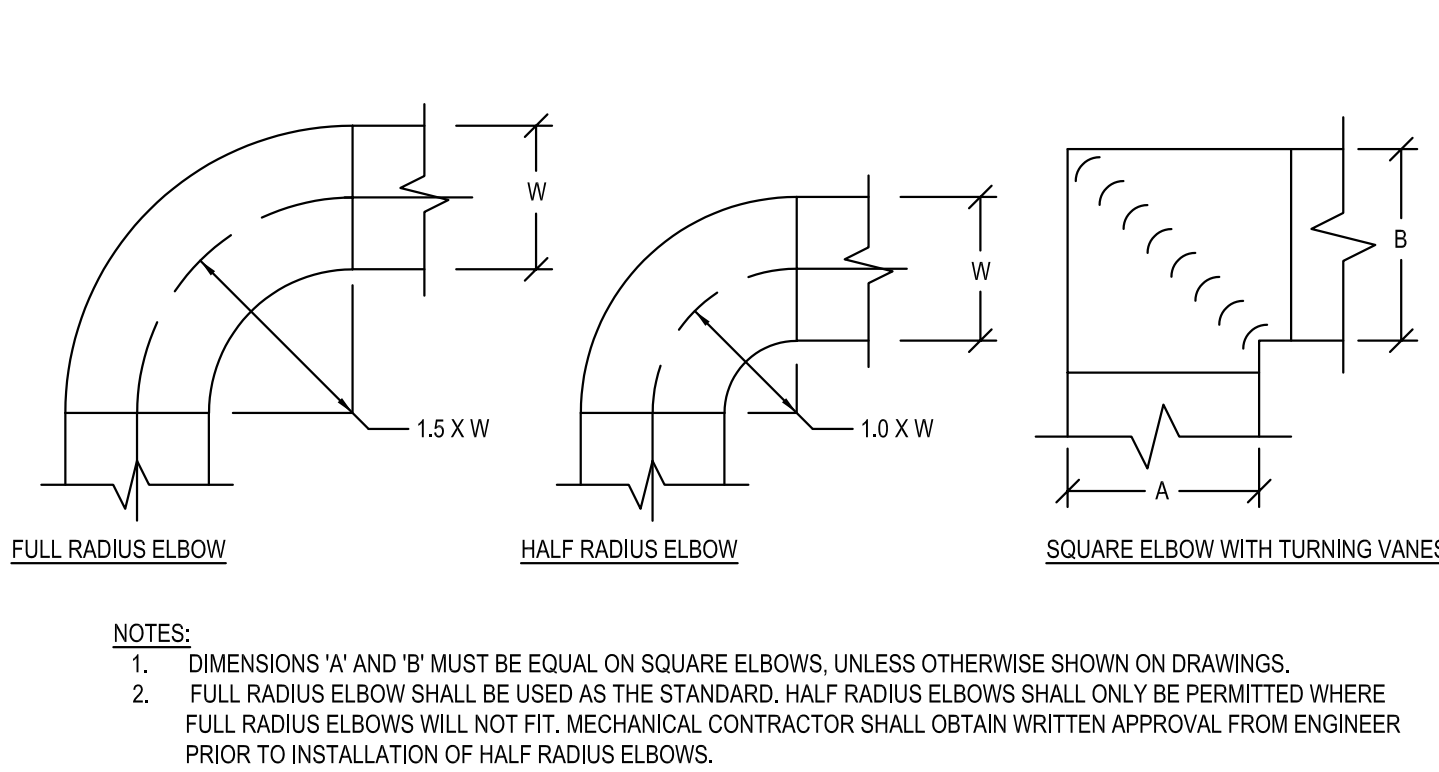
ROOF MOUNTED EXHAUST FAN DETAIL
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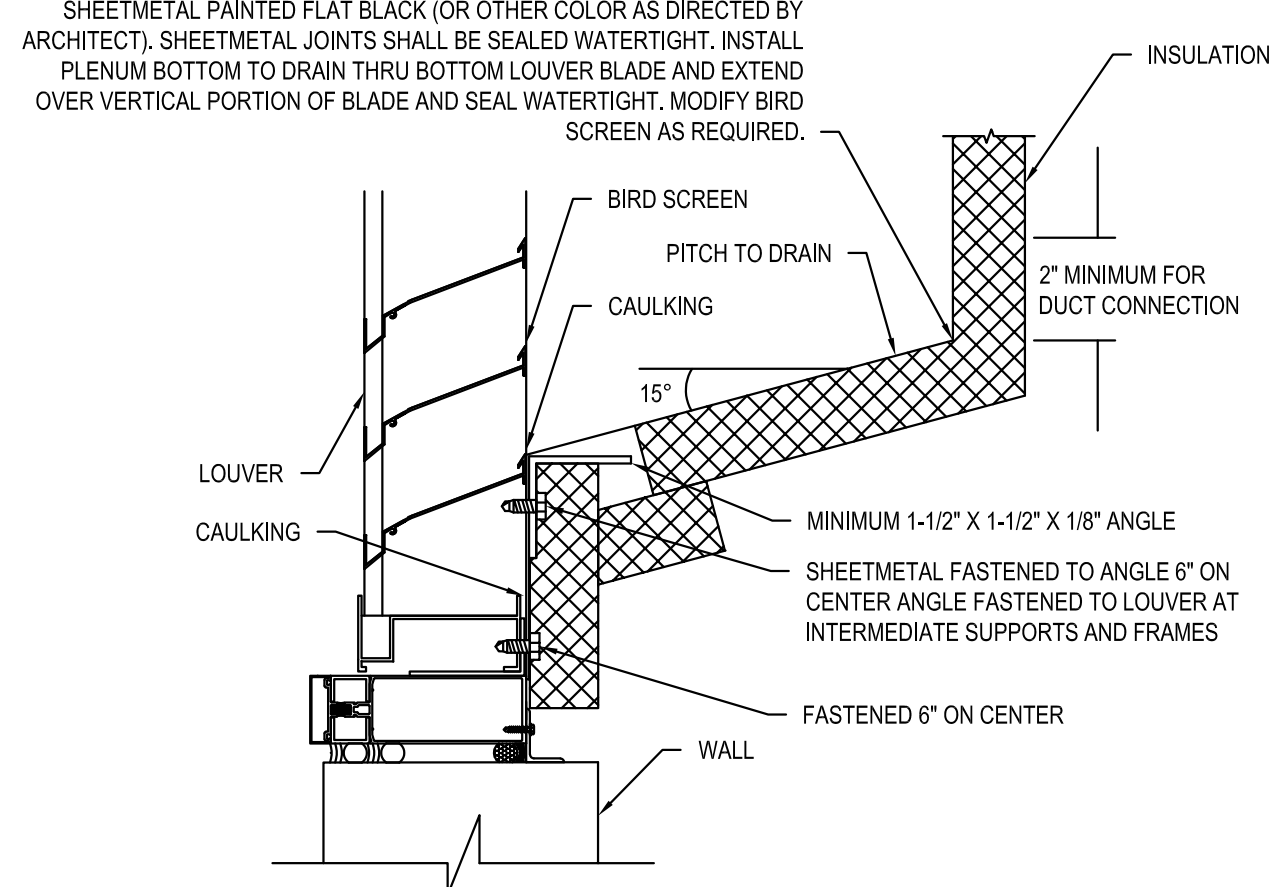
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DUCTWORK ACCESS DOORS DETAIL
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DUCTWORK ELBOW DETAIL
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PLENUM/LOUVER CONNECTION DETAIL
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BM 360/IFAS' 19051 Head House 711 Head House 711 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4


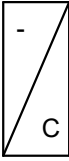

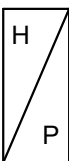



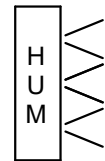

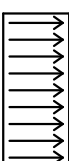

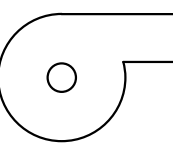


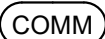
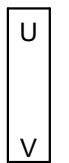
































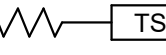
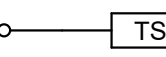
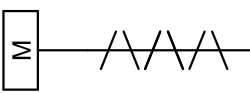
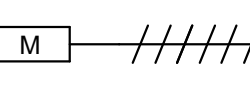
GENERAL NOTES

- THESE GENERAL NOTES APPLY TO ALL CONTROL DIAGRAMS AND SEQUENCES AS WELL AS WORK RELATED TO THE HVAC CONTROLS INDICATED ON OTHER DRAWINGS.
- THE DIAGRAMS, POINTS LISTS, AND CONTROL SEQUENCES DESCRIBE THE REQUIRED SEQUENTIAL OPERATIONS OF SYSTEMS AND MAJOR COMPONENTS. THEY DO NOT DEFINE IN DETAIL THE OPERATION OF MINOR COMPONENTS, RELAYS, SWITCHES, OR OTHER SMALL DEVICES REQUIRED FOR THE PROPER FUNCTIONING OF THE CONTROL SYSTEM. INCORPORATE ALL SUCH ITEMS IN ORDER TO PROVIDE PROPER OPERATION OF CONTROL COMPONENTS AND EQUIPMENT TO SATISFY THE SEQUENCE OF OPERATION.
- THE SEQUENCES OF OPERATION DESCRIBE CHANGES IN CONTROL FUNCTIONS AS OPERATING CONDITIONS VARY IN A PARTICULAR MANNER, SUCH AS RISING ROOM TEMPERATURE. UNLESS OTHERWISE STATED, THE SEQUENCES SHALL BE REVERSED WHEN THE OPERATING CONDITIONS REVERSE, SUCH AS WHEN THE RISING ROOM TEMPERATURE BEGINS TO FALL.
- CONTROL DEVICE SETPOINTS SHALL BE MANUALLY ADJUSTABLE OVER THEIR ENTIRE CONTROL RANGE. SETPOINTS MAY BE FACTORY SET, BUT SHALL BE FIELD ADJUSTABLE. SPECIFIED SETPOINTS SHALL TAKE PRECEDENCE OVER FACTORY SETTINGS.
- WHERE THE CONTROL SEQUENCES INDICATES AN AUTOMATIC RESET PROCEDURE, THE SETPOINT SHALL INDICATE THE NORMAL START-UP CONDITION AND MINIMUM / MAXIMUM SETTINGS.
- TEMPERATURE, AIRFLOWS, PRESSURES, AND SIMILAR DATA SHOWN ON CONTROL DIAGRAMS ARE NOMINAL VALUES SO THAT TYPICAL DIAGRAMS MAY BE USED. SEE EQUIPMENT SCHEDULES FOR DATA DIRECTLY APPLICABLE TO INDIVIDUAL EQUIPMENT ITEMS. WHERE NOTED, VALUES SHALL BE FIELD MEASURED OR CALCULATED IN ACCORDANCE WITH THE PROCEDURE INDICATED.
- HAND - OFF - AUTOMATIC SWITCHES (HOA) SHALL HAVE THEIR OPERATING POSITION MONITORED. SHOULD THE SWITCH BE MOVED TO THE HAND POSITION, AN ALARM SHALL BE INDICATED GIVING THE UNIT IDENTIFICATION, THE TIME, AND THE MESSAGE "IN THE MANUAL ON POSITION".
- BAS SHALL PROVIDE TIME DELAYS ON RESTART ON EMERGENCY POWER AND RESTORATION OF NORMAL POWER SO THAT ALL MOTORS DO NOT ATTEMPT TO START AT THE SAME TIME.
- LOCATE THERMOSTATS AND OTHER DEVICES REQUIRING OCCUPANCY MONITORING OR ADJUSTMENT AT AN ELEVATION 4'-0" ABOVE FINISHED FLOOR, IN ACCORDANCE WITH ADA REGULATIONS.
- ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. INTERFACE EQUIPMENT AND WIRING SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- CEILING ACCESS PANELS AND DUCT ACCESS PANELS SHALL BE PROVIDED, WHERE REQUIRED, TO SERVICE DAMPERS, HEATERS, VALVES, AND OTHER CONCEALED EQUIPMENT.
- CONTROL SYSTEM SUPPLIER SHALL PROVIDE ALL WIRING AND CONDUIT REQUIRED FOR THE INSTALLATION OF THE CONTROL SYSTEM. WIRING, CONDUIT, AND RELATED EQUIPMENT SHALL COMPLY WITH THE PROVISIONS OF DIVISION 26, 27, AND 28. WORK SHALL INCLUDE ALL POWER AND CONTROL WIRING NEEDED FOR INTER-CONNECTIONS OF EQUIPMENT, REMOTE SENSORS AND DEVICES, INCLUDING SMOKE DAMPERS AND MOTOR OPERATED DAMPERS.
- CONTROL SYSTEM SUPPLIER SHALL WIRE FROM POWER SOURCES INDICATED ON THE ELECTRICAL DRAWINGS. CIRCUITS PROVIDED FOR THE CONTROL SYSTEM SHALL BE DEDICATED 120 VOLT, 20 AMP, 60 HZ UNLESS OTHERWISE INDICATED. POWER CIRCUITS WILL BE PROVIDED BY DIVISION 26 TO THE TERMINAL POWER POINTS INDICATED. CIRCUITS WILL BE TERMINATED IN MECHANICAL EQUIPMENT ROOMS OR ELECTRICAL ROOMS UNLESS OTHERWISE INDICATED. COORDINATE FINAL CONNECTION POINT LOCATION WITH DIVISION 26.
- SMOKE DETECTORS, REMOTE TEST, RESET, AND FIRE ALARM INDICATORS SHALL BE FURNISHED AND WIRED BY THE DIVISION 26 CONTRACTOR.
- THE CONTROL SEQUENCE SHALL BE ACCOMPLISHED BY THE DIRECT DIGITAL CONTROL SYSTEM. ALL VALVE AND DAMPER OPERATORS SHALL BE ELECTRONIC TYPE UNDER DIRECT DIGITAL CONTROL.
- VARIABLE FREQUENCY DRIVES SHALL INTERFACE WITH THE BAS AS SPECIFIED WITHIN THE SPECIFICATIONS AND INCLUDE THE REQUIRED INPUT, OUTPUT, AND ALARM DATA.
- ALARM SETPOINTS ARE INDICATED IN THE CONTROL DRAWING POINTS LISTS. ALL ALARM SETPOINTS SHALL BE FULLY ADJUSTABLE BY THE BAS OPERATOR AND BE COORDINATED WITH THE OWNER.
- ALL BAS CONDUIT RACEWAY SYSTEMS SHALL BE WHITE.
- FOR ANY ADJUSTMENTS MADE TO THE BUILDING AUTOMATION SYSTEMS, THE CONTROLLER FACTORY DEFAULT VALUES SHALL MATCH THE FINAL FIELD ADJUSTED SETTINGS.
- CONTROL WIRING AND POWER WIRING FEEDS TO VFDS SHALL NOT BE RAN IN THE SAME CONDUIT.
- ALL INSTRUMENTATION ASSOCIATED WITH A SPECIFIC SYSTEM CONTROL SHALL BE CONNECTED TO ASSOCIATED CONTROLLER AND SHALL NOT BE CONNECTED TO REMOTE CONTROLLER. THIS IS TO ENSURE STANDALONE OPERATION.

CONTROLS ABBREVIATIONS

AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
BAS	BUILDING AUTOMATION SYSTEM
BLU	BUILDING LEVEL CONTROLLER
BTU	BRITISH THERMAL UNIT
CBWR	CHILLED BEAM WATER RETURN
CBWS	CHILLED BEAM WATER SUPPLY
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CO	CLEANOUT
CO2	CARBON DIOXIDE
COMM	COMMUNICATION
COND	CONDENSATE
CSR	CURRENT SENSING RELAY
DDC	DIRECT DIGITAL CONTROLS
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
DP	DIFFERENTIAL PRESSURE
EA	EACH
EBMS	ENTERPRISE BUILDING MANAGEMENT SYSTEM
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
EH	ELECTRIC HEAT
ES	END SWITCH
EV	EXHAUST VALVE
EXH	EXHAUST
°F	DEGREES FAHRENHEIT
F/A	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FAIL CLOSE UPON LOSS OF POWER SOURCE
FCU	FAN COIL UNIT
FEV	FUME EXHAUST VALVE
FM	FLOW METER
FMS	FLOW MEASURING STATION
FO	FAIL OPEN UPON LOSS OF POWER SOURCE
FS	FLOAT SWITCH
FT	FEET
FTL	FAIL TO LAST POSITION UPON LOSS OF POWER SOURCE
FTU	FAN TERMINAL UNIT
FZ	FREEZESTAT
GEV	GENERAL EXHAUST VALVE
GPM	GALLONS PER MINUTE
H	HUMIDISTAT
HHW	HEATING HOT WATER
HHWP	HEATING HOT WATER PUMP
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HS	HUMIDITY SENSOR
HX	HEAT EXCHANGER
IN	INCHES
IN. WG	INCHES OF WATER, GAUGE
KW	KILOWATTS
KWH	KILOWATT HOUR
LL	LOW LIMIT
MA	MIXED AIR
MD	MOTORIZED DAMPER
MIN	MINUTE; MINIMUM
NC	NORMALLY CLOSED UPON LOSS OF CONTROL SIGNAL
NO	NORMALLY OPEN UPON LOSS OF CONTROL SIGNAL
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OS	OCCUPANCY SENSOR
P	PUMP
PCW	PROCESS COOLING WATER
PCWP	PROCESS COOLING WATER PUMP
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PRV	PRESSURE REDUCING VALVE
PS	PRESSURE SENSOR
PSI	POUNDS PER SQUARE INCH
RA	RETURN AIR
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RPM	REVOLUTIONS PER MINUTE
RR	RETURN AIR REGISTER
RV	ROOF VENT
SA	SUPPLY AIR
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DAMPER
SF	SQUARE FEET; SUPPLY FAN
SP	STATIC PRESSURE
SV	SUPPLY VALVE
T	THERMOSTAT
TS	TEMPERATURE SENSOR
TX	TRANSFORMER
TYP	TYPICAL
UV	ULTRAVIOLET
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE

CONTROLS LEGEND

	AIR MONITORING SENSOR		COIL (C - COOLING; H - HEATING HOT WATER; EH - ELECTRIC HEATING)
	ANALOG INPUT		HEAT PIPE
	ANALOG OUTPUT		FILTER BANK
	DIGITAL INPUT		DUCT HUMIDIFIER
	DIGITAL OUTPUT		AIR FLOW MONITORING STATION
	PRESSURE INDICATOR		AHU SINGLE FAN
	CURRENT SENSING RELAY		AHU FAN ARRAY - SEE AHU SCHEDULE FOR QUANTITY
	BAS BAS COMMUNICATION LINK		ULTRAVIOLET LIGHT
	DUCT SMOKE DETECTOR		STARTER
	DIFFERENTIAL PRESSURE TRANSMITTER / SWITCH		TEST PORT
	DAMPER END SWITCH		CHECK VALVE
	VARIABLE FREQUENCY DRIVE		LIGHT INDICATOR (X = BLUE/YELLOW/WHITE)
	HUMIDITY SENSOR		THREE WAY CONTROL VALVE
	STATIC PRESSURE SENSOR		TWO WAY CONTROL VALVE
	MOTORIZED ACTUATOR (ELECTRIC)		MOTORIZED VOLUME CONTROL DAMPER
	TEMPERATURE SENSOR		
	LOW PRESSURE SAFETY		
	CONDENSATION MONITOR		
	HIGH PRESSURE LIMIT		
	LOW PRESSURE LIMIT		
	HUMIDITY HIGH LIMIT		
	LOW LIMIT SAFETY (FREEZESTAT)		
	CONDENSATE LEVEL ALARM		
	CARBON DIOXIDE SENSOR		
	SILICON CONTROLLED RECTIFIER		
	THERMOSTAT WITH LOCAL ADJUSTMENT		
	FLOAT SWITCH		
	PRESSURE SENSOR		
	FLUID FLOW METER		
	REHEAT COIL		
	REVOLUTION PER MINUTE		
	OCCUPANCY SENSOR		
	HARDWARE INTERLOCK		
	TEMPERATURE SENSOR (AVERAGING)		
	TEMPERATURE SENSOR (POINT)		
	MOTORIZED OPPOSED BLADE DAMPER		
	MOTORIZED PARALLEL BLADE DAMPER		

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submitted:

50% Construction
Documents

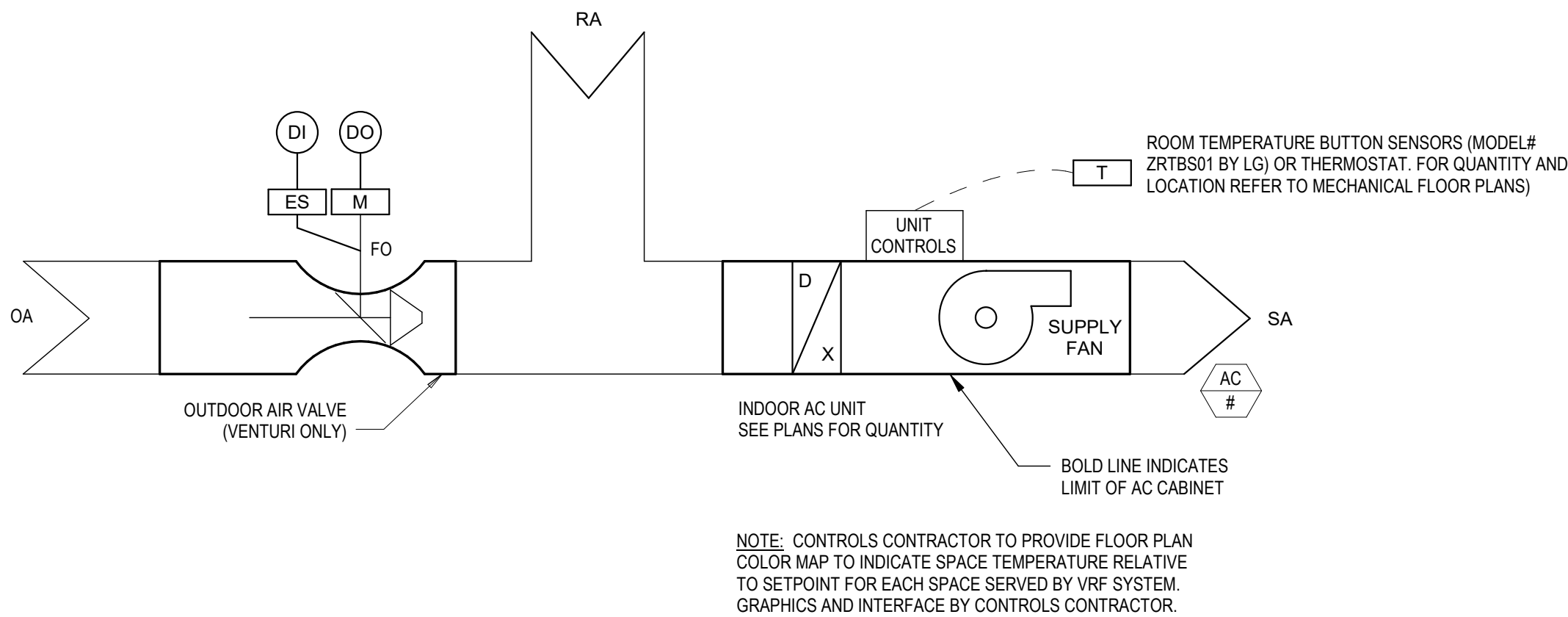
Seal:

SAMUEL R. FRASIER PE - 0069949		
Moses Project #:	19162	
Drafted By:	WPW	
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Sheet Title:
LEGEND, ABBREVIATIONS, CODES AND
STANDARDS

Sheet #:
IC001

BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4



VRF INDOOR UNIT SEQUENCE OF OPERATIONS:

PROVIDE HEATING OR COOLING TO EACH TEMPERATURE ZONE INDEPENDENT OF OTHER ZONES IN THE BUILDING. THE SYSTEM SHALL PROVIDE USER ADJUSTABLE FAN SPEED, HEATING OR COOLING MODE, AND SETPOINT ADJUSTMENT WITHIN THE TEMPERATURE RANGE SPECIFIED.

- ON/OFF CONTROL:** THE INDOOR UNITS CAN BE COMMANDED ON/OFF EITHER BY A SCHEDULE IN THE CENTRALIZED CONTROLLER OR BY THE BAS. IF ALL INDOOR UNITS ARE OFF FOR CU-1 AND CU-2 SYSTEMS, THEN THE OUTDOOR UNIT (OAU-1) SHALL TURN OFF. IF ALL INDOOR UNITS ARE OFF FOR CU-3 SYSTEM, THEN THE OUTDOOR UNIT (OAU-2) SHALL TURN OFF.
- SPACE TEMPERATURE CONTROL:** THE INDOOR UNIT SHALL MODULATE THE DX COIL TO MAINTAIN THE TEMPERATURE SETPOINT VIA THE INDOOR UNIT'S INTERNAL CONTROLS. THE SETPOINT IS ADJUSTABLE AT THE ROOM CONTROLLER BY THE OCCUPANT (WHEREEVER APPLICABLE), CENTRALIZED CONTROLLER, OR THROUGH A BAS INTERFACE. THE TEMPERATURE SETPOINT RANGE SHALL ONLY BE ADJUSTABLE AT THE CENTRALIZED CONTROLLER. COOLING: 74 DEG F (ADJ), HEATING: 70 DEG F (ADJ).

OUTDOOR AIR VALVE (2-POSITION) SEQUENCE OF OPERATIONS:

EACH VALVE SHOULD BE MONITORED FOR INDIVIDUAL STATUS. ALL VALVES MAYBE CONTROLLED FROM ONE DIGITAL OUTPUT POINT IN ACCORDANCE TO THE FOLLOWING SCHEDULE:

OCCUPIED MODE: 6:00 AM TO 6:00 PM
UNOCCUPIED MODE: 6:00 PM TO 6:00 AM

- OCCUPIED MODE:** THE OUTDOOR AIR VALVE SHALL MODULATE OPEN (SET BY TAB CONTRACTOR) TO ACHIEVE DESIGN MAX AIRFLOW (SEE MECHANICAL SCHEDULE FOR AIRFLOW VALUES).
- UNOCCUPIED MODE:** THE OUTDOOR AIR VALVE SHALL MODULATE CLOSE TO ACHIEVE DESIGN MIN AIRFLOW (SEE MECHANICAL SCHEDULE FOR AIRFLOW VALUES).

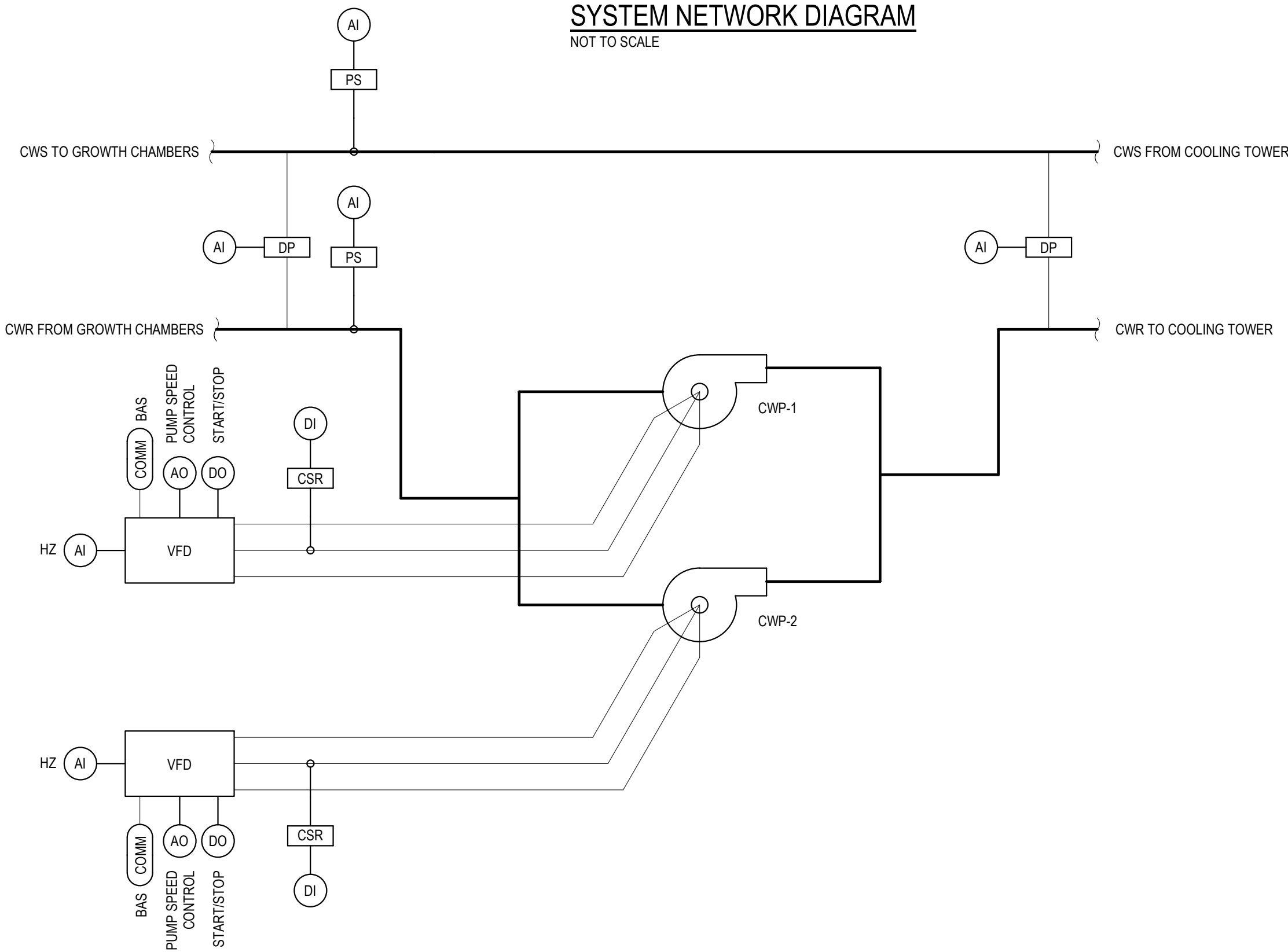
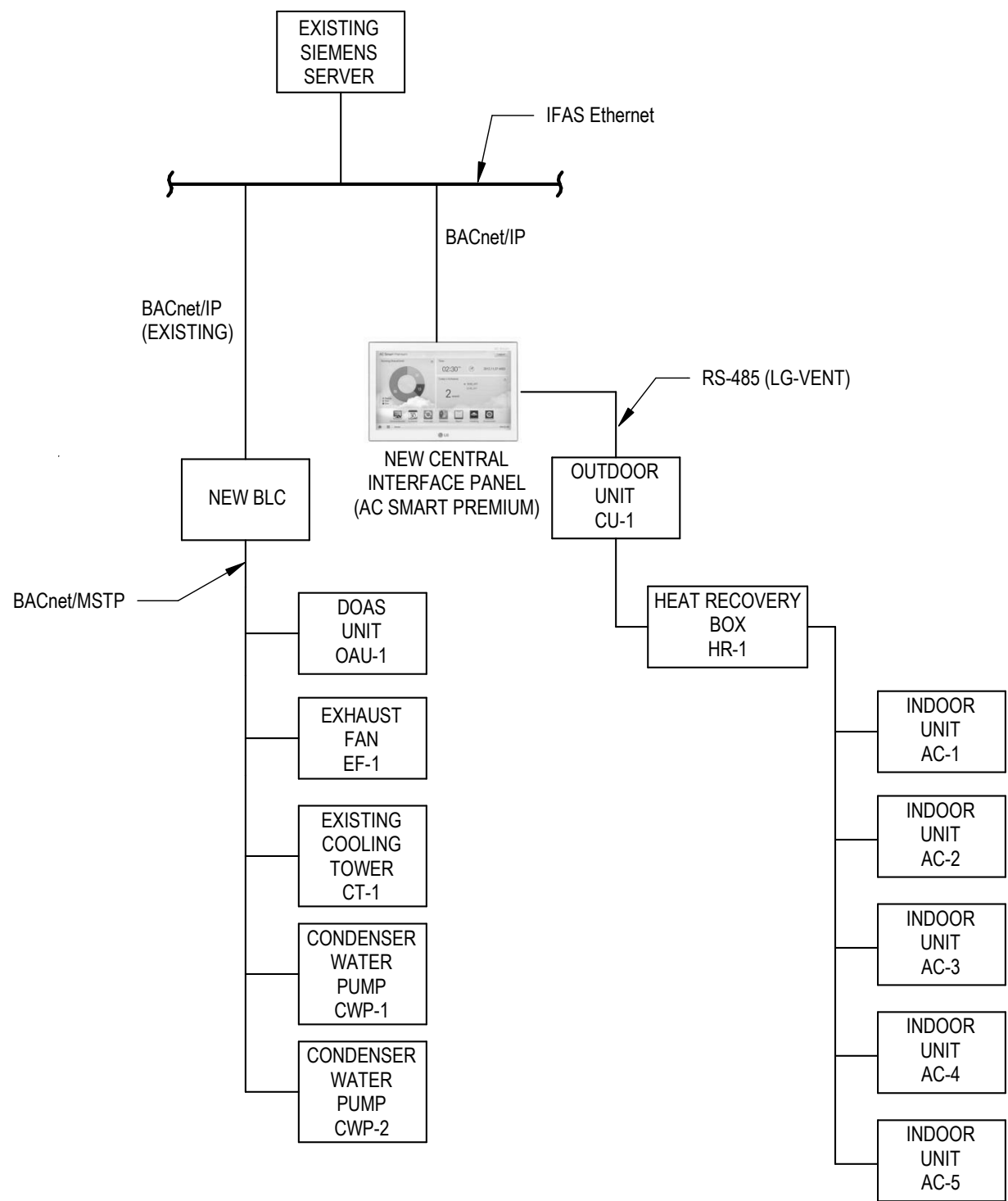
GRAPHICAL USER INTERFACE POINTS (ALL OTHER INTEGRATED POINTS SHALL BE RETRIEVABLE BY BAS)

INDOOR UNIT POINTS LIST:

- ON/OFF COMMAND (READ/WRITE)
- OPERATION MODE COMMAND (READ/WRITE)
- FAN SPEED COMMAND (READ/WRITE)
- SET UPPER TEMPERATURE COMMAND (READ/WRITE)
- SET LOWER TEMPERATURE COMMAND (READ/WRITE)
- OCCUPANCY COMMAND (READ/WRITE)
- SET TEMPERATURE STATUS (READ ONLY)
- OPERATION MODE STATUS (READ ONLY)
- SET UPPER TEMPERATURE STATUS (READ ONLY)
- SET LOWER TEMPERATURE STATUS (READ ONLY)
- FILTER SIGN STATUS (READ ONLY)
- ON/OFF STATUS (READ ONLY)
- FAN LOCK STATUS (READ ONLY)
- FAN SPEED STATUS (READ ONLY)
- OCCUPANCY STATUS (READ ONLY)
- SET ROOM TEMPERATURE (READ ONLY)
- ROOM TEMPERATURE (READ ONLY)
- ALARM (READ ONLY)
- ERROR CODE WITH TABLE (READ ONLY)

OUTDOOR UNIT POINTS LIST:

- COMPRESSOR OPERATION STATUS (READ ONLY)
- REFRIGENT TYPE (READ ONLY)
- INVERTER FAN 1 FREQUENCY (READ ONLY)
- HIGH PRESSURE (READ ONLY)
- LOW PRESSURE (READ ONLY)
- SUCTION TEMPERATURE (READ ONLY)
- LIQUID PIPE TEMPERATURE (READ ONLY)
- HEAT EXCHANGER TEMPERATURE (READ ONLY)
- OUTDOOR EEV (READ ONLY)
- SUBCOOL EEV (READ ONLY)
- HOT GAS VALVE (READ ONLY)
- INVERTER DISCHARGE TEMPERATURE (READ ONLY)
- OUTDOOR TEMPERATURE (READ ONLY)
- OPERATION MODE (READ ONLY)



CONDENSER WATER PUMPING SEQUENCE OF OPERATIONS:

PROVIDE THE FOLLOWING FOR CHILLED WATER PUMPING SYSTEMS:

- APPROPRIATE TEMPERATURE, FLOW AND PRESSURE SENSORS.
- DIFFERENTIAL PRESSURE SENSORS FOR PUMP CONTROL.
- SYSTEM ENABLE/DISABLE SHALL BE DETERMINED BY BUILDING OCCUPANCY SCHEDULE AND AHU STATUS.

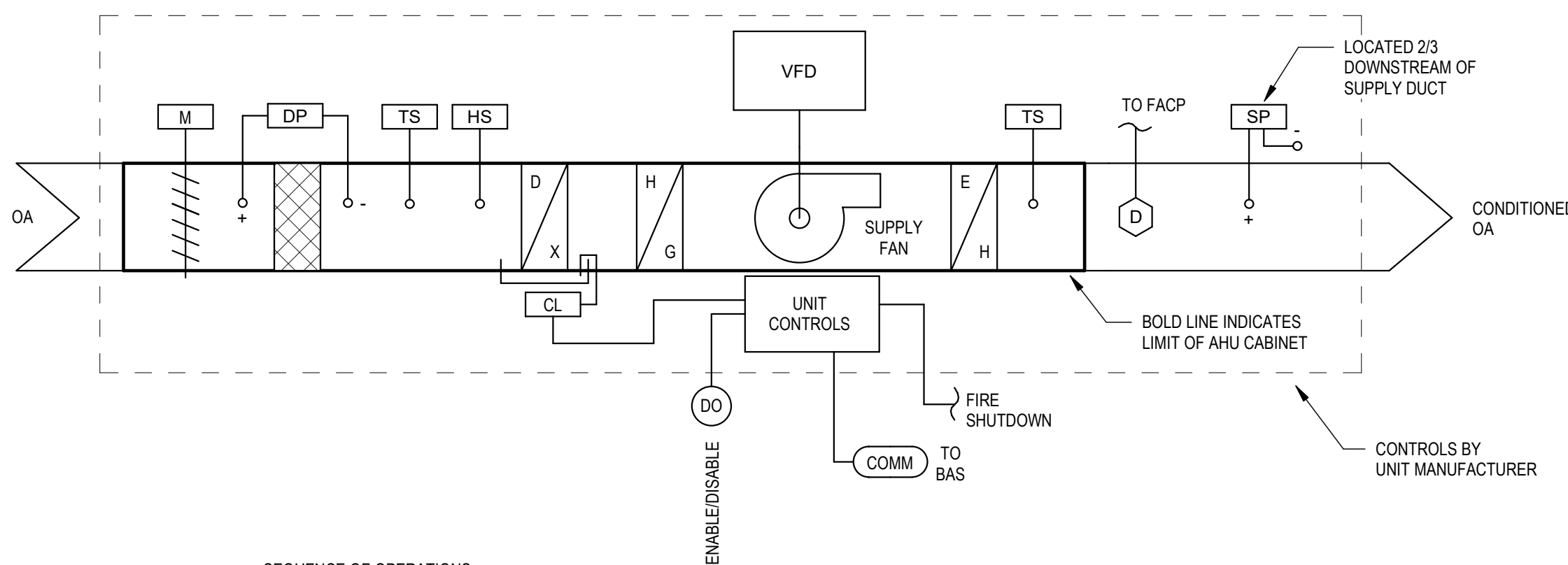
START-STOP SEQUENCE: UPON STARTUP ENABLE PUMP CONTROL. UPON SHUTDOWN, DISABLE ALL PUMP CONTROL. THIS SEQUENCE SHALL BE FUNCTIONAL FOR ANY REASON THE PUMP STARTS-STOPS IN ANY MODE OF OPERATION (ALL H-O-A MODES, ALL VFD MODES, ALL AUTOMATIC AND SAFETY FUNCTIONS, AND LOCAL MANUAL START-STOP).

PUMP CONTROL (LEAD/STANDBY EACH PUMP SIZED AT 100%):

- ONCE ENABLED THE PUMP SPEED SHALL BE MODULATED TO MAINTAIN THE CALCULATED DIFFERENTIAL PRESSURE SETPOINT.
- SOFTWARE LEAD/STANDBY PUMP CONTROL FUNCTION SHALL ALLOW EITHER OF THE CHILLED WATER PUMPS TO ACT AS THE LEAD PUMP, WHILE DESIGNATING THE OTHER PUMP AS A STANDBY PUMP.
- DIFFERENTIAL PRESSURE RESET CONTROL: THE BAS SHALL CONTINUOUSLY POLL THE VALVE POSITION OF ALL AIR CHILLED WATER COILS. THE BAS SHALL RESET DIFFERENTIAL PRESSURE SET-POINT UP OR DOWN TO CONTINUALLY RESET THE SYSTEM DIFFERENTIAL PRESSURE SETPOINT FOR OPTIMUM PERFORMANCE. SPECIFIC PARAMETERS AND TESTING PARAMETERS SHALL BE ESTABLISHED BY EOR. WHEN TWO REMOTE DIFFERENTIAL PRESSURE SENSORS ARE USED, CONTROL TO THE SENSOR THAT IS FARTHEST FROM SETPOINT.
- IN THE EVENT REMOTE DIFFERENTIAL PRESSURE SENSORS BECOME UNRELIABLE, UTILIZE LOCAL DIFFERENTIAL PRESSURE FOR PUMP CONTROL TAKING INTO CONSIDERATION THE ADJUSTED SETPOINT.
- ALARM ON PUMP FAILURE DETECTED VIA CURRENT SENSING SWITCH. UPON FAILURE OF THE LEAD PUMP, THE STANDBY PUMP SHALL START AUTOMATICALLY. THE BAS SHALL MAINTAIN A START COMMAND AT THE LEAD PUMP AND RESUME CONTROL WHEN THE LEAD PUMP HAS RETURNED TO NORMAL OPERATION.
- LEAD PUMP DESIGNATION SHALL BE ROTATED WEEKLY (ADJ) IN ACCORDANCE WITH THE BAS SCHEDULE.

PUMP ROTATION: UPON SIGNAL FROM THE BAS TO ROTATE THE PUMPS, EXECUTE THE FOLLOWING SEQUENCE:

- INITIATE ROTATION IN ACCORDANCE WITH A BAS SCHEDULE OR BY MANUAL INITIATION.
- WHILE THE CURRENT LEAD PUMP IS STILL ACTIVE START THE STANDBY PUMP AND DESIGNATE AS THE NEW LEAD PUMP.
- UPON PROOF OF NEW STANDBY PUMP RUNNING STATUS VIA CURRENT SENSING RELAY, COMMAND THE NEWLY DESIGNATED STANDBY PUMP TO OFF.
- MAINTAIN DIFFERENTIAL PRESSURE CONTROL WITH THE NEW LEAD PUMP.



SEQUENCE OF OPERATIONS:

SENSOR CONTROL DEFINITIONS AND LOCATION (BY UNIT MANUFACTURER):

- INTAKE AIR TEMPERATURE AND HUMIDITY SENSOR:** A TEMPERATURE AND HUMIDITY SENSOR WILL BE LOCATED BEFORE THE EVAPORATOR COIL. THE SENSOR FEEDS BACK TO THE UNIT MICROPROCESSOR FOR ACTUATION OF THE COMPRESSOR IN CONDITIONS THAT REQUIRE HEATING, COOLING, OR DEHUMIDIFICATION.
- SUPPLY AIR TEMPERATURE SENSOR:** THE SUPPLY AIR SENSOR WILL BE LOCATED IN THE SUPPLY AIR DUCTWORK. THIS SENSOR CONTROLS MODULATING HEATING AND COOLING OUTPUT AND CONTROLS COMPRESSOR OPERATION IN CONJUNCTION WITH THE INTAKE AIR SENSORS.

OUTDOOR DAMPER CONTROL (BY UNIT MANUFACTURER):

- OPEN DAMPER UPON CALL TO START AND CLOSE DAMPER UPON CALL TO STOP.

OCCUPIED COOLING AND DEHUMIDIFICATION COMPRESSOR CONTROL (BY UNIT MANUFACTURER):

- OCCUPIED COOLING COMPRESSOR COMMAND:** DURING OCCUPIED MODE THE INTAKE AIR TEMPERATURE SENSOR IS COMPARED TO THE SUPPLY AIR TEMPERATURE SET POINT. IF THE INTAKE AIR IS GREATER THAN THE SUPPLY AIR TEMPERATURE SET POINT PLUS THE PROGRAMMED DEAD BAND, THE COMPRESSORS WILL START ON A CALL FOR COOLING. UNITS CONTAINING MULTIPLE STAGES OF COOLING WILL HAVE THE SUBSEQUENT STAGES COMMANDED AS THE INTAKE AIR RISES ABOVE THE SUPPLY AIR TEMPERATURE SET POINT BY A FACTORY PROGRAMMED VALUE DEPENDING ON THE NUMBER OF STAGES AVAILABLE, THE UNIT DESIGN AIRFLOW, AND THE UNIT COOLING CAPACITY.
- OCCUPIED DEHUMIDIFICATION COMPRESSOR COMMAND:** DURING OCCUPIED MODE THE INTAKE AIR TEMPERATURE SENSOR AND HUMIDITY SENSOR IS COMPARED TO THE UNIT SUPPLY AIR DEWPOINT SET POINT. IF THE INTAKE AIR IS GREATER THAN THE DEWPOINT SET POINT, THE COMPRESSORS WILL START ON A CALL FOR DEHUMIDIFICATION. UNITS CONTAINING MULTIPLE COMPRESSOR STAGES WILL HAVE THE SUBSEQUENT STAGES COMMANDED AS THE INTAKE AIR ENTHALPY RISES ABOVE THE DEWPOINT SET POINT BY A FACTORY PROGRAMMED VALUE DEPENDING ON THE NUMBER OF STAGES AVAILABLE, THE UNIT DESIGN AIRFLOW, AND THE UNIT DEHUMIDIFICATION CAPACITY.

AIR REHEAT AND HEATING SEQUENCING (BY UNIT MANUFACTURER):

- VAPOR COMPRESSION CYCLE REHEAT:** WHEN COMPRESSOR(S) ARE OPERATIONAL AIR REHEATING IS ACCOMPLISHED BY MEANS OF THE HOT GAS REFRIGERANT DISCHARGED FROM THE COMPRESSOR WHICH FEEDS A HOT GAS REHEAT CONDENSER COIL (HGRH) IN THE AIR STREAM. THE HGRH UTILIZES THE ENERGY IN THE REFRIGERANT THAT PASSES THROUGH FOR AIR HEATING. THE HGRH CONTROL VALVE IS MODULATED BY THE UNIT'S MICROPROCESSOR TO CONTROL HEAT OUTPUT AS BASED ON THE TEMPERATURE CONTROL OPTION SELECTED.
- HEATING MODE OPERATION:** IN HEATING MODE THE UNIT CONTROLLER WILL ACTIVATE THE AUXILIARY HEATER. THE AUXILIARY HEATER CAPACITY IS MODULATED BY THE UNIT MICROPROCESSOR TO CONTROL HEAT OUTPUT AS BASED ON THE TEMPERATURE CONTROL OPTION SELECTED. IF UNIT IS EQUIPPED WITH AN INTERNAL AUXILIARY HEATING OPTION, THE INTERNAL HEATER WILL BE COMMANDED BY THE UNIT CONTROLS. IF NO AUXILIARY HEATER OPTION HAS BEEN SELECTED FOR FACTORY INSTALLATION, A 0-10 VDC SIGNAL AND BINARY CONTACT CLOSURE IS PROVIDED FOR CONNECTION TO FIELD INSTALLED HEATING DEVICES. SUPPLY AIR TEMPERATURE SENSOR MUST BE INSTALLED DOWNSTREAM FROM FIELD INSTALLED HEATER.

OCCUPIED MODE CONTROL (BY UNIT MANUFACTURER):

THE UNIT WILL SWITCH BETWEEN OCCUPIED AND UNOCCUPIED MODE THROUGH ANY OF THREE METHODS:

- CONTROLLER TIME SCHEDULE:** UNIT IS EQUIPPED WITH ON-BOARD REAL-TIME CLOCK AND SCHEDULING CAPABILITY. 7-DAY INDEPENDENT SCHEDULING AND HOLIDAY SCHEDULED ARE AVAILABLE. TEMPORARY OCCUPANCY OVERRIDE IS AVAILABLE THROUGH THE UNIT DISPLAY OR ZONE SENSOR/DISPLAY (WHEN EQUIPPED).
- BINARY CONTACT CLOSURE (BY OTHERS):** TERMINAL POINTS ARE PROVIDED AT THE UNIT LOW VOLTAGE TERMINAL BLOCK TO ACTIVATE OCCUPANCY. A SWITCH OR OTHER CONTACT CLOSURE WILL COMMAND THE UNIT INTO OCCUPIED MODE WHEN CLOSED. OPENING THE CONTACT CLOSURE WILL COMMAND UNIT INTO UNOCCUPIED MODE.

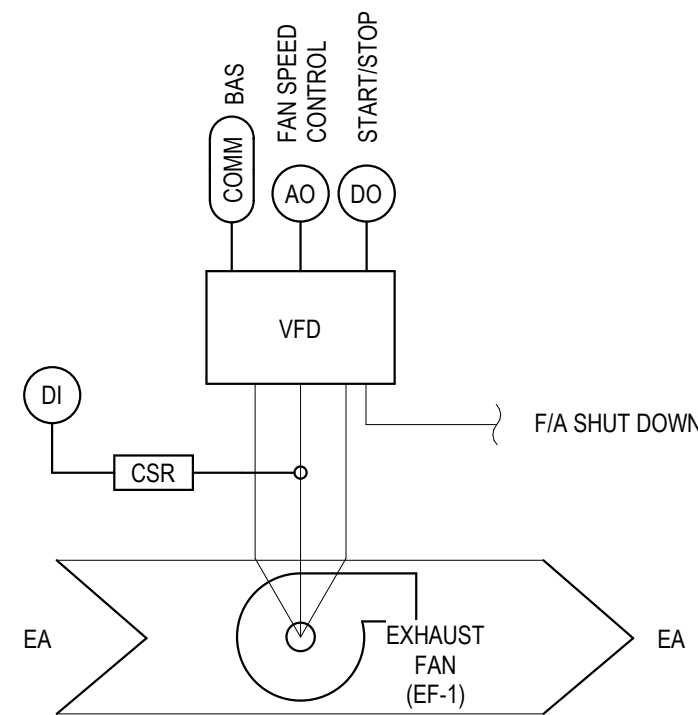
STATIC PRESSURE CONTROL (BY UNIT MANUFACTURER): ENABLE STATIC PRESSURE CONTROL LOOP UPON PROOF OF FAN START. DISABLE STATIC PRESSURE CONTROL UPON PROOF OF FAN STOP. REDUCE THE FAN SPEED UPON INCREASE IN STATIC PRESSURE AND INCREASE FAN SPEED UPON DECREASE IN STATIC PRESSURE.

FIRE SHUTDOWN (BY UNIT MANUFACTURER): TERMINAL POINTS ARE AVAILABLE FOR A BINARY CONTACT CLOSURE BY OTHERS TO CONTROL UNIT SHUTDOWN BY SMOKE DETECTOR OR OTHER SIMILAR DEVICE. AN OPEN CONTACT IN THE 24 VAC CIRCUIT WILL DEACTIVATE MOTORS, FANS AND COMPRESSORS.

GRAPHICAL USER INTERFACE POINTS (ALL OTHER INTEGRATED POINTS SHALL BE RETRIEVABLE BY BAS)

UNIT POINTS LIST:

- NETWORK OCCUPIED INPUT (READ/WRITE)
- OCCUPIED STATUS (READ ONLY)
- ALARM ACTIVE STATUS (READ ONLY)
- AIRFLOW STATUS (READ ONLY)
- SUPPLY FAN STATUS (READ ONLY)
- COMPRESSOR #1 STATUS (READ ONLY)
- COMPRESSOR #2 STATUS (READ ONLY)
- CONDENSER FAN #1 STATUS (READ ONLY)
- CONDENSER FAN #2 STATUS (READ ONLY)
- REMOTE RESET COMMAND (READ/WRITE)
- SUCTION PRESSURE (READ ONLY)
- DISCHARGE PRESSURE (READ ONLY)
- INTAKE AIR RELATIVE HUMIDITY (READ ONLY)
- INTAKE AIR TEMPERATURE (READ ONLY)
- INTAKE AIR DEWPOINT (READ ONLY)
- SUPPLY AIR TEMPERATURE (READ ONLY)
- SUPPLY FAN SPEED COMMAND (READ ONLY)
- AUXILIARY HEATING (READ ONLY)
- OUTSIDE AIR DAMPER (READ ONLY)
- SUPPLY AIR SETPOINT (READ/WRITE)
- UNIT STATUS (READ ONLY)
- ERROR CODE WITH TABLE (READ ONLY)



EXHAUST FAN SEQUENCE OF OPERATION:

EF-1 SHALL BE INTERLOCKED WITH THE 100% OUTSIDE AIR SPLIT DX UNIT (OAU-1). IT WILL TURN ON UPON PROOF OF UNIT START AND WILL TURN OFF UPON PROOF OF UNIT SHUTDOWN.

EF-1 SHALL BE CONTROLLED VIA STATIC PRESSURE CONTROL. LOCATE STATIC PRESSURE SENSOR IN DUCTWORK 2/3 DOWNSTREAM OF EXHAUST FAN.

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submitted:

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PE - 0069949

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CONTROLS DIAGRAMS





























Sheet #:
IC101

PLUMBING LEGEND







PIPE FITTINGS:

		SANITARY ELBOW
		SANITARY LONG SWEEP ELBOW
		SANITARY CAP
		SANITARY TRANSITION
		SANITARY DOUBLE TEE
		SANITARY LONG SWEEP DOUBLE TEE
		SANITARY TEE
		SANITARY TEE WITH 8TH BEND
		SANITARY TEE WITH 8TH DOUBLE BEND
		SANITARY P-TRAP
		COPPER ELBOW
		COPPER TEE
		COPPER CROSS
		COPPER TRANSITION
		COPPER COUPLING/CAP
		STEEL THREADED ELBOW
		STEEL THREADED TEE
		STEEL THREADED CROSS
		STEEL THREADED TRANSITION
		STEEL THREADED CAP

PLUMBING VALVES

		BALL VALVE
		BALANCING VALVE
		CHECK VALVE
		GATE VALVE
		BACKFLOW PREVENTER
		FLOOR DRAIN
		CLOSET FLANGE
		SHEET REFERENCE CALL OUT
		ELEVATION
		CONNECT TO EXISTING
		SECTION CALL OUT
		SHEET NOTE CALL OUT
		DEMOLITION NOTE CALL OUT
		REVISION LABEL

PIPE TYPES

		DEMOLITION PIPING
		EXISTING PIPING
		NEW PIPING

ABBREVIATIONS

ABV	CLG ABOVE FINISHED CEILING	MAX	MAXIMUM
AD	AREA DRAIN	MBH	THOUSANDS OF BTU'S
AFF	ABOVE FINISHED FLOOR	MCF	THOUSANDS OF CUBIC FEET
AP	ACCESS PANEL	MH	MANHOLE
AV	ACID VENT	MIN	MINUTE; MINIMUM
AW	ACID WASTE	MR	MOP RECEPTOR
BFP	BACKFLOW PREVENTER	MV	MEDICAL VACUUM
BTU	BRITISH THERMAL UNITS	N2	NITROGEN
BTUH	BTU PER HOUR	N2O	NITROUS OXIDE
B	BOILER	NC	NORMALLY CLOSED
CA	COMPRESSED AIR	NG	NATURAL GAS
CB	CATCH BASIN	NIC	NOT IN CONTRACT
CFH	CUBIC FEET PER HOUR	NO	NORMALLY OPEN, NUMBER
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CI	CAST IRON	O2	OXYGEN
CO	CLEANOUT	OC	ON CENTER
CTG	CLEANOUT TO GRADE	OD	OUTSIDE DIAMETER
OWV	COMBINATION WASTE VENT	P	PUMP
D	INDIRECT DRAIN	PH ∅	PHASE
DCW	DOMESTIC COLD WATER	PRESS	PRESSURE
DHW	DOMESTIC HOT WATER	PRV	PRESSURE REDUCING VALVE
DHR	DOMESTIC HOT WATER RETURN	PSI	POUNDS PER SQUARE INCH
DI	DEIONIZED	PVC	POLYVINYLCHLORIDE
DIA ∅	DIAMETER	RD	ROOF DRAIN
DM	DEMINERALIZED	RL	RAIN LEADER
EA	EACH	RPBFP	REDUCED PRESSURE BACKFLOW PREVENTOR
ELEV	ELEVATION	RPM	REVOLUTIONS PER MINUTE
EWC	ELECTRIC WATER COOLER	RW	RAINWATER
EX	EXISTING TO REMAIN	SAN	SANITARY
°F	DEGREES FARENHEIT	SF	SQUARE FEET
FCO	FLOOR CLEANOUT	SIM	SIMILAR
FD	FLOOR DRAIN	SK	SINK
FH	FUME HOOD	SPEC	SPECIFICATION
FT	FEET	SS	SANITARY SEWER, STAINLESS STEEL
FT WG	FEET OF WATER, GAUGE	SSD	SITE STORM DRAIN
GA	GAUGE	STD	STANDARD
GAL	GALLONS	ST	STORM
GALV	GALVANIZED	STL	STEEL
GPH	GALLONS PER HOUR	SW	SOFT WATER
GPM	GALLONS PER MINUTE	TEMP	TEMPERATURE
HB	HOSE BIBB	TP	TRAP PRIMER
HP	HORSEPOWER	TS	TEMPERED WATER
HPW	HIGH PURITY WATER	TYP	TYPICAL
HR	HOUR	UG	UNDERGROUND
HW	HEADWALL	UR	URINAL
ID	INSIDE DIAMETER	V	VENT
IN	INCHES	VFD	VARIABLE FREQUENCY DRIVE
IN WG	INCHES OF WATER, GAUGE	VFM	VENTURI FLOW METER
INV	INVERT	VYB	VALVE-IN-YARD-BOX
KW	KILOWATTS	VLV	VALVE
KWH	KILOWATT HOUR	W	WASTE OR SOIL
LAV, L	LAVATORY	WC	WATER CLOSET
LA	LABORATORY AIR	WCO	WALL CLEANOUT
LV	LABORATORY VENT	WH	WALL HYDRANT
LW	LABORATORY WASTE	WHAX	WATER HAMMER ARRESTOR, 'X' - PDI SIZE
LVAC	LABORATORY VACUUM	X	EXISTING TO BE REMOVED

DIVISION 22 CODES & STANDARDS

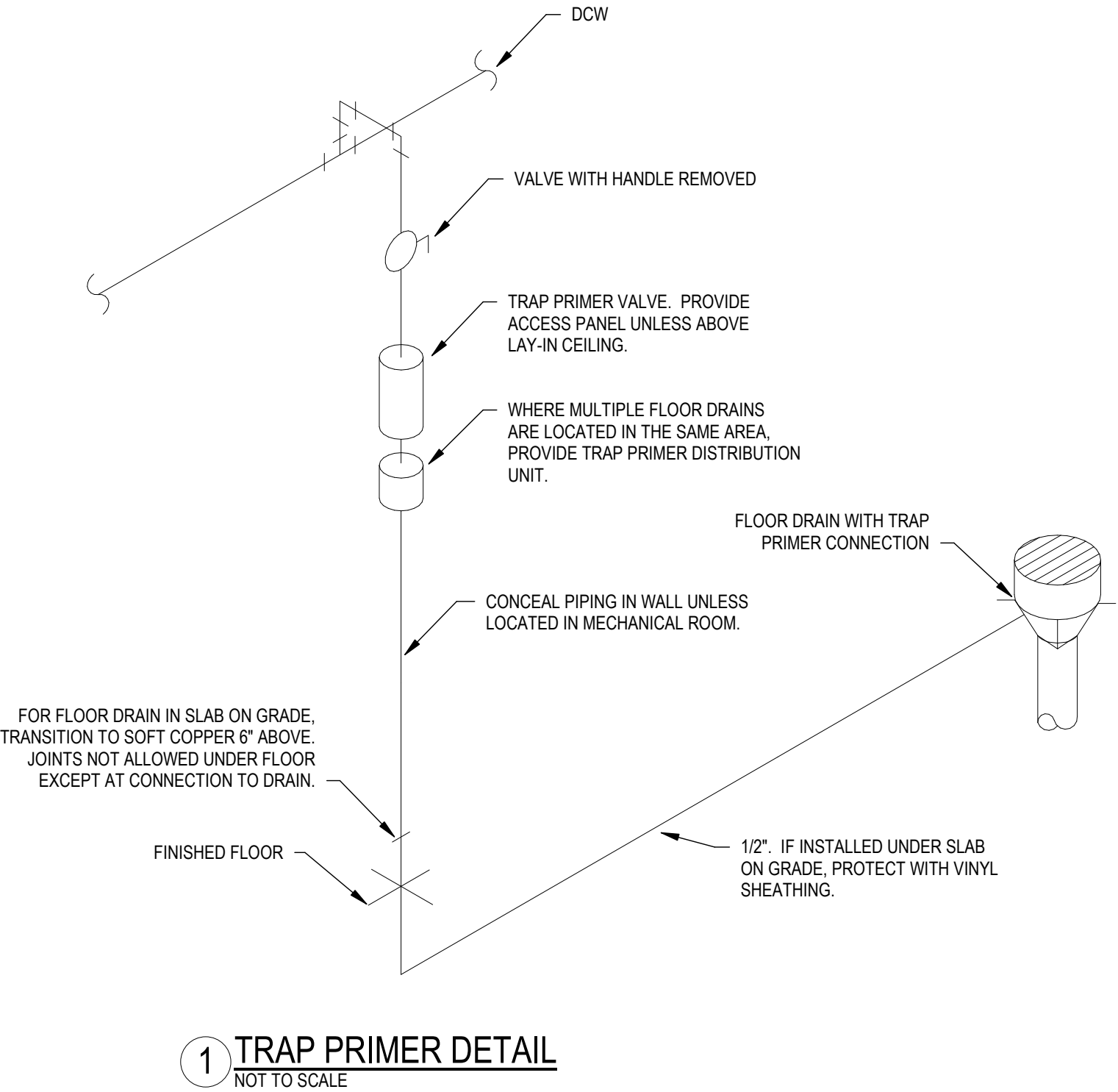
1. **GENERAL**
1.1. THE WORK COVERED BY THIS DIVISION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT AND MATERIALS AND PERFORMING ALL OPERATIONS NECESSARY FOR THE INSTALLATION OF THE MECHANICAL WORK AS HEREIN CALLED FOR AND SHOWN ON THE DRAWINGS.
2. **CODES**
2.1. ALL WORK UNDER DIVISION 22 SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CODES LISTED HEREIN. THE DESIGN HAS BEEN BASED ON THE REQUIREMENTS OF THESE CODES, AND WHILE IT IS NOT THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT ALL WORK CALLED FOR COMPLIES WITH THESE CODES, HE SHALL BE RESPONSIBLE FOR CALLING TO THE ARCHITECT/ENGINEER'S ATTENTION ANY DRAWINGS OR SPECIFICATIONS THAT ARE NOT IN CONFORMANCE WITH THESE OR OTHER CODES PRIOR TO ORDERING EQUIPMENT OR INSTALLING WORK.
2.2. COMPLY WITH REGULATIONS AND CODES OF UTILITY SUPPLIERS.
2.3. WHERE NO SPECIFIC METHOD OR FORM OF CONSTRUCTION IS CALLED FOR IN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL COMPLY WITH CODE REQUIREMENTS WHEN CARRYING OUT SUCH WORK.
2.4. WHERE CODE CONFLICT EXISTS, GENERALLY THE MOST RESTRICTIVE REQUIREMENT APPLIES. COMPLY WITH CURRENT CODE EDITION, UNLESS NOTED.
2.5. ADDITIONAL CODES OR STANDARDS APPLYING TO A SPECIFIC PART OF THE WORK MAY BE INCLUDED IN THAT SECTION.
2.6. THE FOLLOWING CODES GOVERN THE WORK:
2.6.1. FLORIDA BUILDING CODE - BUILDING - SIXTH EDITION (2017).
2.6.2. FLORIDA BUILDING CODE - PLUMBING - SIXTH EDITION (2017).
2.6.3. FLORIDA BUILDING CODE - MECHANICAL - SIXTH EDITION (2017).
2.6.4. FLORIDA BUILDING CODE - FUEL GAS - SIXTH EDITION (2017).
2.6.5. FLORIDA BUILDING CODE - TEST PROTOCOLS FOR HIGH VELOCITY HURRICANE ZONES - SIXTH EDITION (2017).
2.6.6. FLORIDA FIRE PREVENTION CODE - 2017
A. FIRE CODE (NFPA 1) - 2015 FLORIDA EDITION
B. LIFE SAFETY CODE (NFPA 101) - 2015 FLORIDA EDITION
2.6.7. NATIONAL ELECTRIC CODE (NFPA 70) - 2014.
2.6.8. INSTALLATION OF AIR CONDITIONING AND VENTILATION SYSTEMS (NFPA 90A) - 2015.
2.6.9. INSTALLATION OF SPRINKLER SYSTEMS (NFPA 13) - 2013.
3. **STANDARDS**
3.1. ALL DIVISION 22 MATERIALS, INSTALLATION AND SYSTEMS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS, INCLUDING THE LATEST ADDENDA AND AMMENDMENTS, TO THE EXTENT REFERENCED.
3.1.1. UNDERWRITERS' LABORATORIES (UL)
3.1.2. AMERICAN NATIONAL STANDARDS INSTITUTION (ANSI)
3.1.3. AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
3.1.4. NATIONAL FIRE PROTECTION (NFPA)
3.1.5. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
3.1.6. AIR CONDITIONING AND REFRIGERATION INSTITUTE (ARI)
3.1.7. SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION (SMACNA)
3.1.8. AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE)
3.1.9. AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA)
3.1.10. STANDARDS OF THE HYDRONIC INSTITUTE (IBR)

GENERAL NOTE:

EXISTING PIPING HAS BEEN INCLUDED FROM EXISTING BUILDING DRAWINGS AND IS UNVERIFIED. CONTRACTOR TO VERIFY ALL POINTS OF CONNECTION BEFORE FABRICATION OF NEW PIPING.

PLUMBING FIXTURE SCHEDULE

TYPE MARK	DCW	DHW	SAN	VENT	ELECTRICAL	GPM/GPF	FAUCET/FLUSH VALVE	REMARKS
WC-2	1 1/2"	-	4"	2"	-	1.28 GPF	-	-
L-9	1/2"	1/2"	2"	2"	-	0.35 GPM	-	-
SH-2	1/2"	1/2"	2"	2"	-	-	-	-
EWH-1	-	-	-	-	-	-	-	-



Project Name:

**UF IFAS Building 711
Headhouse Renovation**

Submital:

**50% Construction
Documents**

SRIKANTH SUNKARI PE - 0056039		
Moses Project #:	19162	
Drafted By:	PAC	
Checked By:	SS	
Date:	11/26/19	
No.	Revision Description	Date

Sheet Title:

LEGEND, ABBREVIATIONS, CODES AND STANDARDS

Sheet #:

P001

Project Name:
**UF IFAS Building 711
Headhouse Renovation**

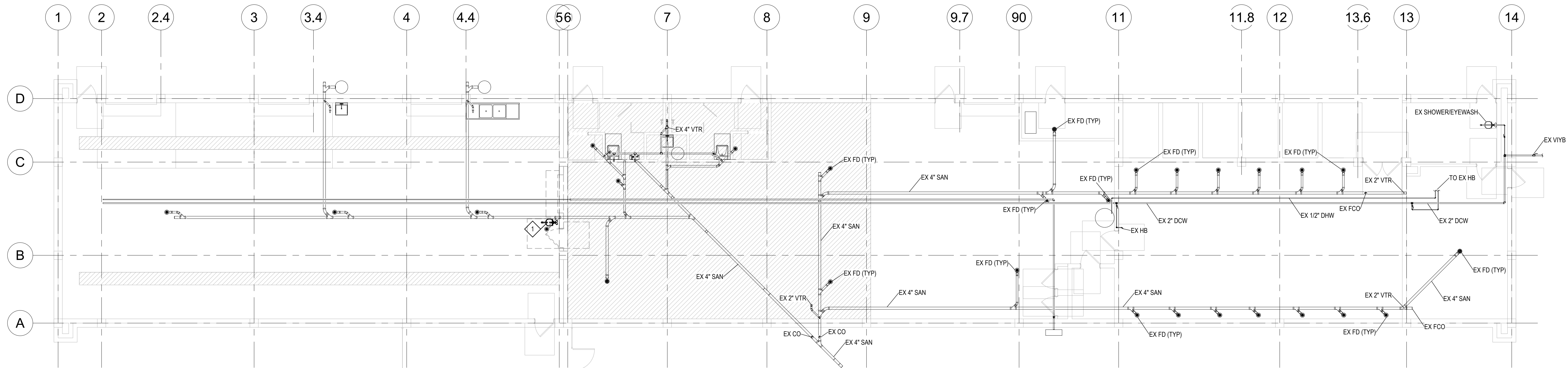
Submital:
**50% Construction
Documents**

Seal:

SRIKANTH SUNKARI
PE - 0056039
Moses Project #: 19162
Drafted By: PAC
Checked By: SS
Date: 11/26/19
No. Revision Description Date

Sheet Title:
FLOOR PLAN PHASE 1

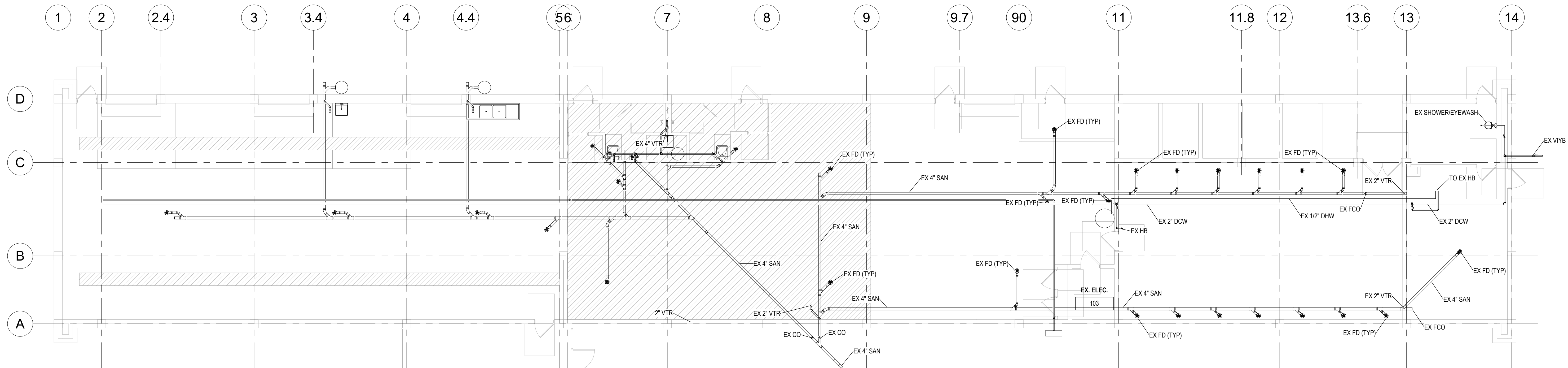
Sheet #:
P101



DEMOLITION KEY NOTES #

1. DISCONNECT AND REMOVE EXISTING COMBINATION EYEWASH AND SHOWER STATION AND ALL RELATED PIPING (DCW). CAP DCW PIPING ABOVE CEILING CLOSE TO MAIN.

1 PLUMBING PHASE 1 DEMOLITION
SCALE: 1/8" = 1'-0"



2 PLUMBING PHASE 1 RENOVATION
SCALE: 1/8" = 1'-0"

Project Name:
**UF IFAS Building 711
Headhouse Renovation**

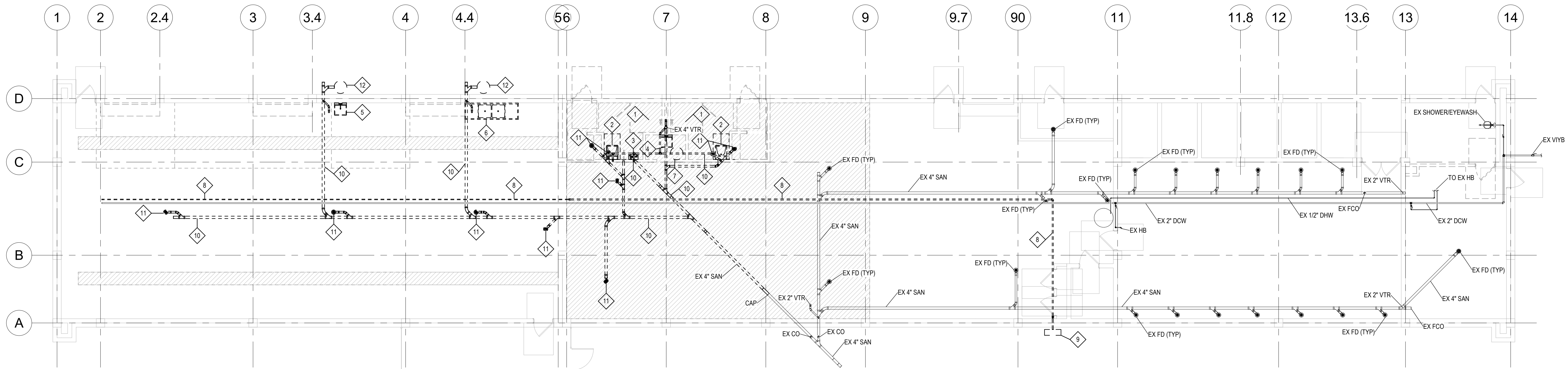
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Documents**

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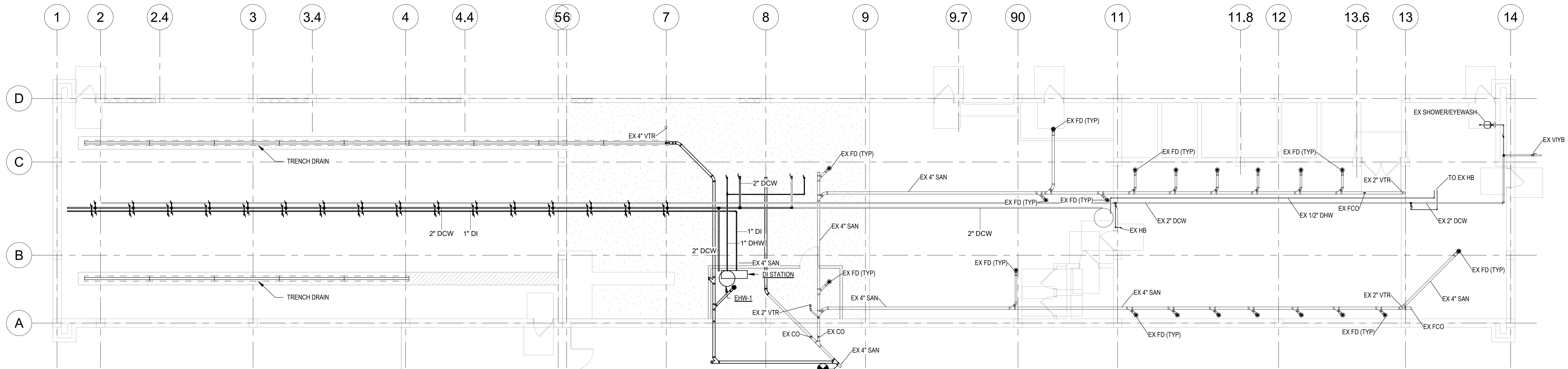
SRIKANTH SUNKARI PE - 0056039		
Moses Project #:	19162	
Drafted By:	PAC	
Checked By:	SS	
Date:	11/26/19	
No.	Revision Description	Date

Sheet Title:
FLOOR PLAN PHASE 2

Sheet #:
P102



1 PLUMBING PHASE 2 DEMOLITION
SCALE: 1/8" = 1'-0"



2 PLUMBING PHASE 2 RENOVATION
SCALE: 1/8" = 1'-0"

Project Name:

**UF IFAS Building 711
Headhouse Renovation**

Submittal:

**50% Construction
Documents**

Seal:

SRIKANTH SUNKARI
PE - 0056039

Moses Project #: 19162

Drafted By: PAC

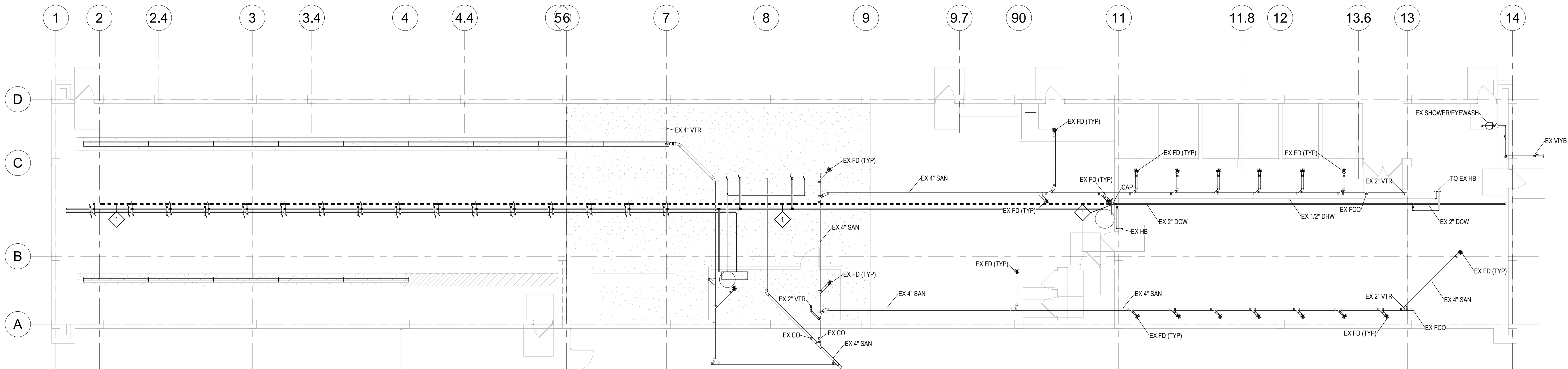
Checked By: SS

Date: 11/26/19

No.	Revision Description	Date
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Sheet Title:
FLOOR PLAN PHASE 3

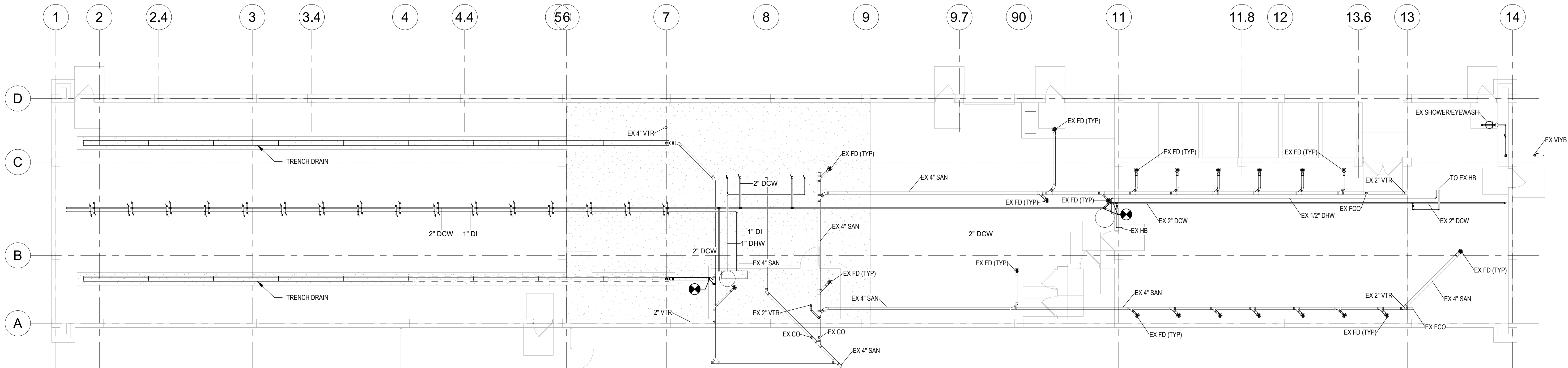
Sheet #:
P103



DEMOLITION KEY NOTES

1. DISCONNECT AND REMOVE EXISTING DOMESTIC COLD WATER PIPE AND FITTINGS.

1 PLUMBING PHASE 3 DEMOLITION
SCALE: 1/8" = 1'-0"



2 PLUMBING PHASE 3 RENOVATION
SCALE: 1/8" = 1'-0"

Project Name:

**UF IFAS Building 711
Headhouse Renovation**

Submital:

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Documents**

Seal:

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PE - 0056039

Moses Project #: 19162

Drafted By: PAC

Checked By: SS

Date: 11/26/19

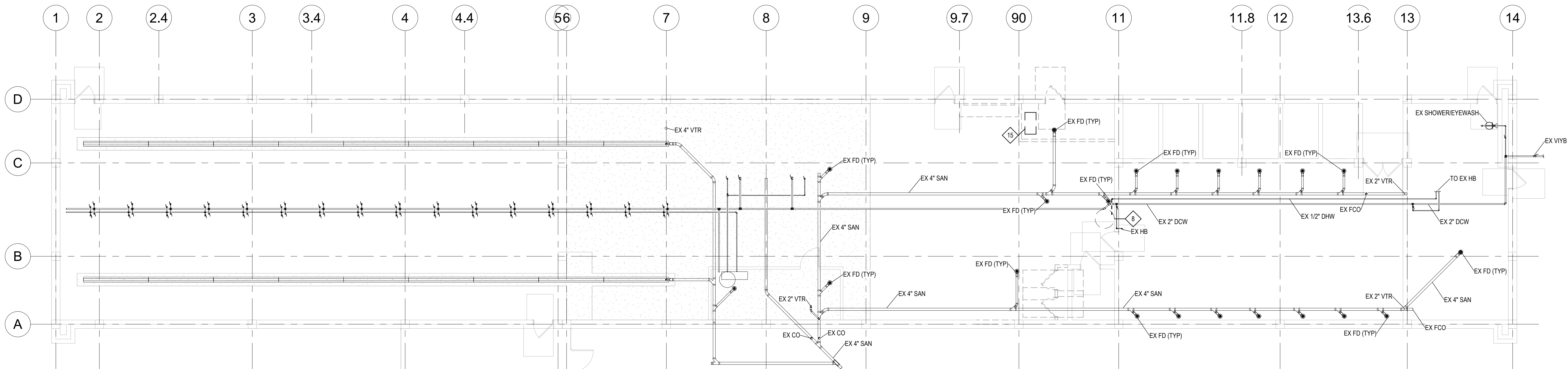
No.	Revision Description	Date
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Sheet Title:

FLOOR PLAN PHASE 4

Sheet #:

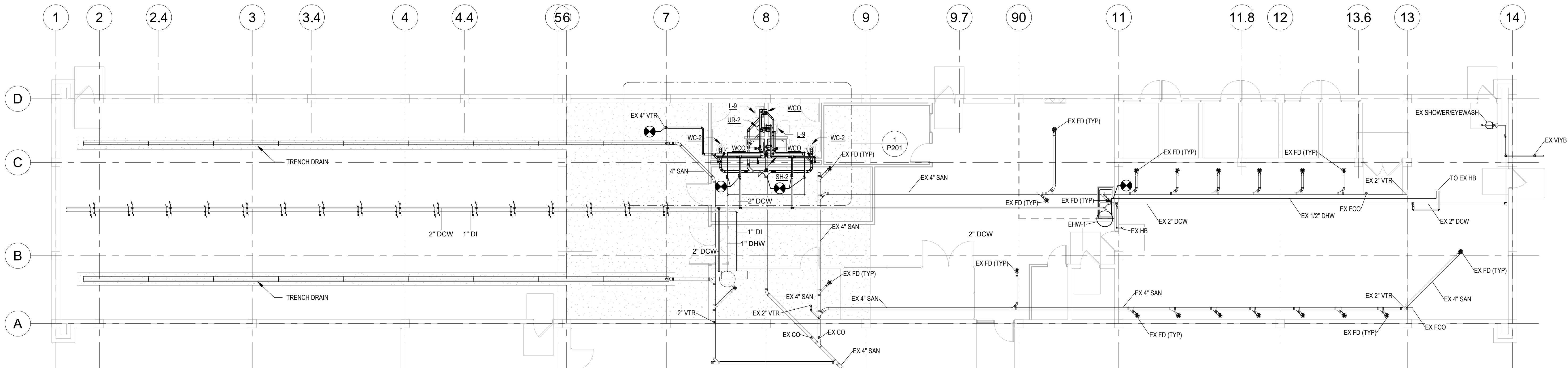
P104



DEMOLITION KEY NOTES

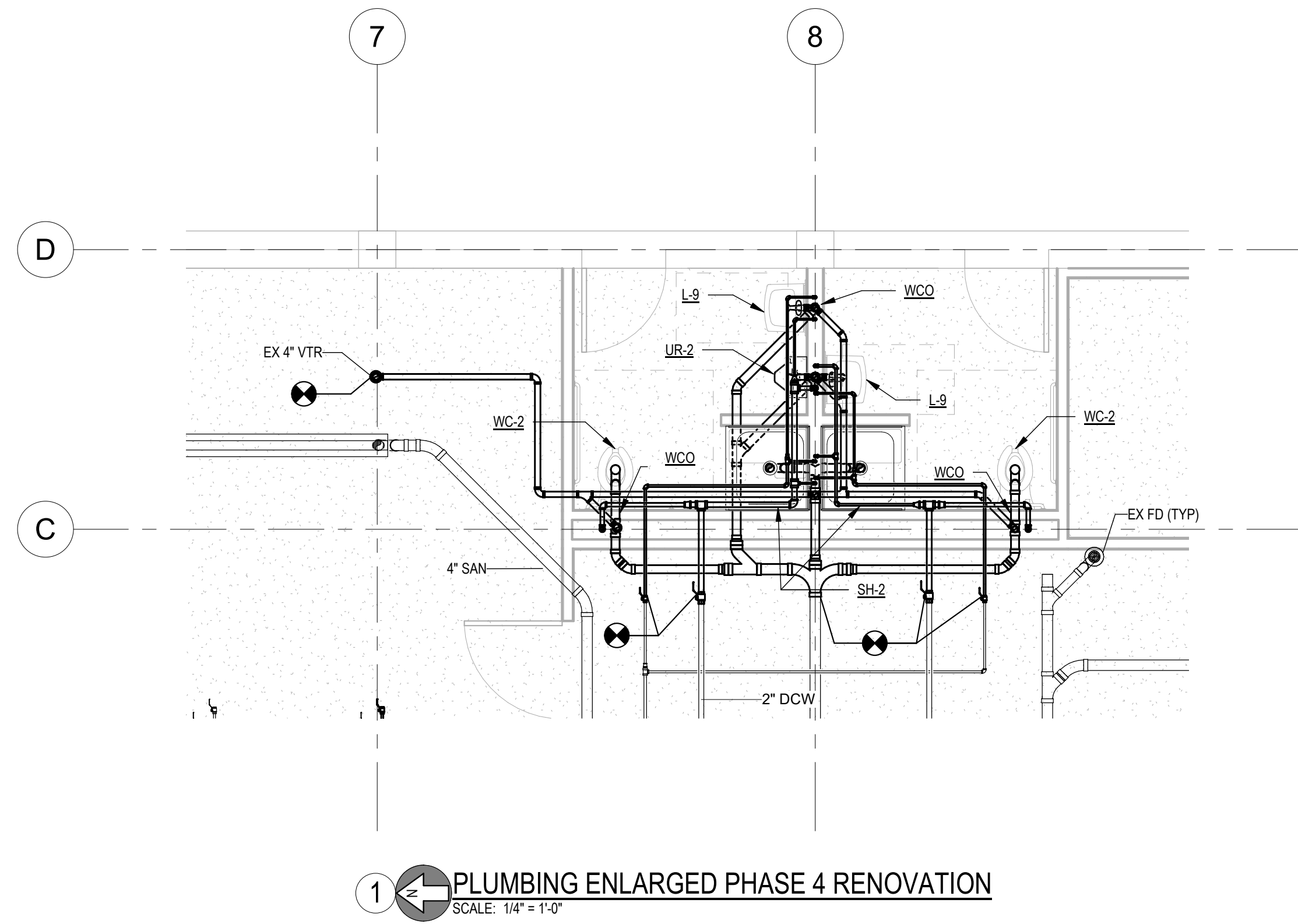
1. DISCONNECT AND REMOVE EXISTING WATER HEATER AND ALL RELATED PIPING (DCW AND DHW). CAP DCW PIPING ABOVE CEILING CLOSE TO MAIN. CAP DHW AT SOUTH WALL PENETRATION.
2. DISCONNECT AND REMOVE EXISTING AIR COMPRESSOR AND ALL RELATED PIPING.

1 PLUMBING PHASE 4 DEMOLITION
SCALE: 1/8" = 1'-0"



2 PLUMBING PHASE 4 RENOVATION
SCALE: 1/8" = 1'-0"

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Project Name:
**UF IFAS Building 711
Headhouse Renovation**

Submittal:
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Sheet Title:
ENLARGED FLOOR PLAN

Sheet #:
P201

BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4

GENERAL DEMOLITION NOTES

1. PROVIDE MATERIALS AND LABOR AS NECESSARY TO:

A. REMOVE ALL ELECTRICAL ITEMS INDICATED TO BE REMOVED OR DEMOLISHED.

B. REMOVE, STORE, CLEAN, AND REINSTALL ALL ELECTRICAL ITEMS INDICATED AS EXISTING TO BE RELOCATED OR REINSTALLED.

C. MAINTAIN IN SERVICE - TO THE ORIGINAL CONDITION, TO THE SATISFACTION OF THE OWNER AND THE ENGINEER - ANY ELECTRICAL ITEMS OUTSIDE OF THE RENOVATION AREA WHICH ARE SERVED BY OR SUPPLIED BY ELECTRICAL ITEMS WITHIN THE RENOVATION AREA.

D. PERFORM ELECTRICAL DEMOLITION NECESSARY TO ACCOMMODATE ARCHITECTURAL WORK SPECIFIED ON DEMOLITION SHEET. COORDINATE EXACT REQUIREMENTS WITH ARCHITECTURAL DOCUMENTS AND FIELD CONDITIONS PRIOR TO BID.

E. REPAIR OR TO REPLACE - TO THE ORIGINAL CONDITION & TO THE SATISFACTION OF THE OWNER AND THE ENGINEER - ANY EXISTING DEVICES, FINISHES, SURFACES, OR EQUIPMENT TO REMAIN WHICH IS DAMAGED DURING DEMOLITION OR CONSTRUCTION WITH NO CHANGE TO THE CONTRACT AMOUNT OR TIME SCHEDULE.
2. DO NOT DISTURB ANY OTHER ELECTRICAL ITEMS EXCEPT AS NECESSARY TO ACCOMMODATE OTHER WORK SPECIFIED.

3. ALL EXISTING DEVICES & EQUIPMENT SHALL BE CONSIDERED TO BE EXISTING TO REMAIN UNLESS SPECIFICALLY INDICATED OTHERWISE.

4. REMOVE ALL UNUSED CONDUCTORS BACK TO SOURCE OR TO THE FIRST JUNCTION POINT SUPPLYING EXISTING OR NEW LOADS TO REMAIN.

5. ALL EXPOSED UNUSED CONDUIT SHALL BE REMOVED. ALL UNUSED CONCEALED CONDUIT SHALL BE ABANDONED IN PLACE AFTER INSTALLING A PULL-STRING.

6. DEVICES SHOWN INSIDE THE RENOVATION AREA ARE NOT INTENDED TO REPRESENT ALL DEVICES WITHIN SPACE. ADDITIONAL DEMOLITION WORK MAY BE REQUIRED FOR INSTALLING NEW WORK. CONTRACTOR SHALL ASSUME ADDITIONAL ITEMS NOT INDICATED ARE PRESENT AND SHALL THOROUGHLY INSPECT PROJECT AREA PRIOR TO BIDDING.

7. DEMOLITION SHALL INCLUDE ANY REMOVAL AND REPLACEMENT OF EXISTING MATERIALS TO MAKE PROVISION FOR NEW FINISHES IF REQUIRED TO ACCOMMODATE WORK BY OTHER DIVISIONS OF THIS CONTRACT.

LEGEND

GENERAL WIRING DEVICES:

\$

SINGLE POLE LIGHTING SWITCH. MOUNT 48" AFF TO TOP UNLESS NOTED OTHERWISE.

Ⓛ

DUPLEX RECEPTACLE NEMA 5-20R. MOUNT 18" AFF UNLESS NOTED OTHERWISE. VERIFY DUPLEX MOUNTING REQUIREMENTS WITH ARCHITECTURAL DRAWINGS PRIOR TO ROUGH-IN. ALL GFI DEVICES AND DEVICES IN DAMP AND WET LOCATIONS SHALL BE WEATHER-RESISTANT "WR" TYPE.

SITE EQUIPMENT:

HH2

HANDHOLE. SEE DETAIL. TAG INDICATES TYPE.

TRANSFORMER

PAD-MOUNTED TRANSFORMER.

LIGHTING CONTROL EQUIPMENT:

SA

WALL MOUNTED LIGHT CONTROL STATION. MOUNT 48" AFF TO TOP UNO. LETTERNUMBER INDICATES AS FOLLOWS:
S4 - LOW VOLTAGE BUTTON SWITCH, # INDICATES QTY OF BUTTONS/ZONES.
D4 - LOW VOLTAGE BUTTON DIMMER SWITCH, # INDICATES QTY OF BUTTONS/ZONES.
O2 - LINE VOLTAGE OCCUPANCY/VACANY SENSOR (DUAL TECHNOLOGY) SWITCH, # INDICATES QTY OF BUTTONS. PROGRAM FOR MANUAL ON, AUTO OFF.

DT

CEILING OR PENDANT MOUNTED LOW VOLTAGE 360° OCCUPANCY/VACANCY OR DAYLIGHT SENSOR. LETTERS INDICATE AS FOLLOWS:
DT - DUAL TECHNOLOGY.
DL - DAYLIGHT SENSOR.

RC

ROOM CONTROLLER.

H22

TYPICAL LIGHT FIXTURE SYMBOLS. LETTERS & SHADING INDICATE AS FOLLOWS:

H22

FIXTURE TAG. SEE LIGHTING FIXTURE SCHEDULE FOR DESCRIPTIONS. TEXT INDICATES AS FOLLOWS:
a - ZONE OF CONTROL
DL - DIMMED BY DAYLIGHT SENSOR
247 - ON CONTINUOUSLY FOR SECURITY (NOT SWITCHED).
EM - FIXTURE HAS A BATTERY PACK OR GTD AND IS EMERGENCY.
1/2 SHADED - FIXTURE HAS A BATTERY PACK OR GTD AND IS EMERGENCY.

DISTRIBUTION & POWER EQUIPMENT:

2P1A

PANELBOARD.

T

TRANSFORMER.

TPA

VARIABLE FREQUENCY DRIVE W/INTEGRAL DISCONNECT. FURNISHED BY MECHANICAL, INSTALLED BY ELECTRICAL.

SW

HEAVY DUTY SAFETY SWITCH.

MISCELLANEOUS EQUIPMENT:

Ⓢ

ELECTRICAL CONNECTION TO EQUIPMENT. VERIFY LOCATION WITH EQUIPMENT PROVIDER.

FIRE ALARM SYSTEM:

D

DUCT MOUNTED SAMPLE TUBE TYPE SMOKE DETECTOR. PROVIDED BY ELEC, INSTALLED BY MECH AND CONNECTED BY ELEC.

R

ADDRESSABLE RELAY. SUBSCRIPT INDICATES AS FOLLOWS:
AHU - AHU SHUTDOWN.

OTHER:

C

CIRCUIT RUN CONCEALED ABOVE CEILING OR IN WALL.

2P2.9

HOMERUN TO PANELBOARD. UNDERLINED TEXT INDICATES PANEL & CIRCUIT DESIGNATION.

AHU

MECHANICAL EQUIPMENT IDENTIFICATION TAG. SEE MECHANICAL EQUIPMENT ELECTRICAL SCHEDULE.

1

KEY NOTE TAG.

2P1A

BOLD UNDERLINED TEXT ADJACENT TO PLAN SYMBOL INDICATES ELECTRICAL EQUIPMENT IDENTIFICATION TAG. TYPICAL FOR PANELS, LIGHT FIXTURES, FLOORBOXES, TRANSFORMERS, ETC.

LEADER

LEADER.

CODES AND STANDARDS

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THESE CODES:

1. FLORIDA BUILDING CODE (FBC)

A. BUILDING - 2017 6TH EDITION

B. TEST PROTOCOLS FOR HIGH VELOCITY HURRICANE ZONES - 2017 6TH EDITION

2. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

A. NATIONAL ELECTRIC CODE (NFPA 70) - 2014

B. NATIONAL FIRE ALARM CODE (NFPA 72) - 2013

3. FLORIDA FIRE PREVENTION CODE - 2017

A. FIRE CODE (NFPA 1) - 2015 FLORIDA EDITION

B. LIFE SAFETY CODE (NFPA 101) - 2015 FLORIDA EDITION

ALL SYSTEMS SHALL MEET THE REQUIREMENTS OF THE FOLLOWING STANDARDS:

1. AMERICAN NATIONAL STANDARD INSTITUTES (ANSI)

2. ILLUMINATING ENGINEERING SOCIETY (IES)

3. INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

4. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONS (NEMA)

5. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

6. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)

7. UNDERWRITERS LABORATORIES, INC. (UL)

8. OWNER'S CONSTRUCTION STANDARDS

ABBREVIATIONS

A	AMPS
AC	ABOVE COUNTER
ACS	ACCESS CONTROL SYSTEM
AF	AMP FRAME
AFB	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ARCH	ARCHITECT OR ARCHITECTURAL
AT	AMP TR
ATS	AUTOMATIC TRANSFER SWITCH
ATU	AIR TERMINAL UNIT
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BJ	BONDING JUMPER
BKR	CIRCUIT BREAKER
BLDG	BUILDING
BOD	BASIS OF DESIGN
C	CONDUIT
CB, CB	CIRCUIT BREAKER
CL	CURRENT LIMITING
CL	CENTERLINE
CLG	CEILING
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DEMO	DEMOLISH
EC	ELECTRICAL CONTRACTOR
EGC	EQUIPMENT GROUNDING CONDUCTOR
ELEC	ELECTRICAL
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EF	EXHAUST FAN
EX	EXISTING TO REMAIN
EXT	EXTERIOR
EWC	ELECTRIC WATER COOLER
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
FMC	FLEXIBLE METAL CONDUIT
FACP	FIRE ALARM SYSTEM CONTROL PANEL
FU	FUSE
FA, FIA	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FSS	FUSED SAFETY SWITCH
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
G	GROUND (OR GFI FOR RECEPTACLE SUBSCRIPT)
GC	GENERAL CONTRACTOR
GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
HH	HANDHOLE
HOA	HAND-OFF-AUTOMATIC
HP	HEAT PUMP OR HORSEPOWER
HVAC	HEATING, VENTILATION & AIR-CONDITIONING
IS	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
JB, JBOX	JUNCTION BOX
K	KILO
KAIC	KILO-AMPERE INTERRUPTING CAPABILITY
KMIL	THOUSAND CIRCULAR MILS
LCP	LIGHTING CONTROL PANEL
LTG	LIGHTING
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCE	MAIN COMMUNICATIONS EQUIPMENT ROOM
MCN	THOUSAND CIRCULAR MILS
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MNT	MOUNTING HEIGHT
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
N1	NEMA 1
N3R	NEMA 3R
N/A, NA	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NESC	NATIONAL ELECTRICAL SAFETY CODE
N, NEU	NEUTRAL
OCPD	OVERCURRENT PROTECTION DEVICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OH	OVERHEAD
OHE	OVERHEAD ELECTRIC
OHP	OVERHEAD PRIMARY
OHS	OVERHEAD SECONDARY
P	POLE OR PHASE
PBD	PANELBOARD
PF	POWER FACTOR
PNL	PANELBOARD
PT	POTENTIAL TRANSFORMER
PWR	POWER
RCP	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RGS	RIGID GALVANIZED STEEL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT
RVSS	REDUCED VOLTAGE SOLID STATE
SA	SURGE ARRESTER
SCA	SHORT CIRCUIT AMPS
SCCA	SHORT CIRCUIT CURRENT RATING
SF	SUPPLY FAN
SPD	SURGE PROTECTIVE DEVICE
SPEC	SPECIFICATION
SS	SAFETY SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TR	TELECOMMUNICATIONS ROOM
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TX	TRANSFORMER
TYP	TYPICAL
UFR	UNDERFLOOR RACEWAY
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UGP	UNDERGROUND PRIMARY
UGS	UNDERGROUND SECONDARY
UL	UNDERWRITERS' LABORATORIES
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERES
VAR	VOLT-AMPERES REACTIVE
VAV	VARIABLE AIR VOLUME UNIT
W	WATTS OR WIRE
WAO	WORK AREA OUTLET
WP	WEATHERPROOF
WSR	WITHSTAND RATING
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
Ø	PHASE
72°	DEGREES
Δ	DELTA
Ω	OHMS

ME

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www.moses-eng.com

Project Name:

UF IFAS Building 711
Headhouse Renovation

Submittal:

50% Construction
Documents

Seal:

MARK R. AKIN PE - 0058242		
Moses Project #:	19162	
Drafted By:	MAI	
Checked By:	MRA	
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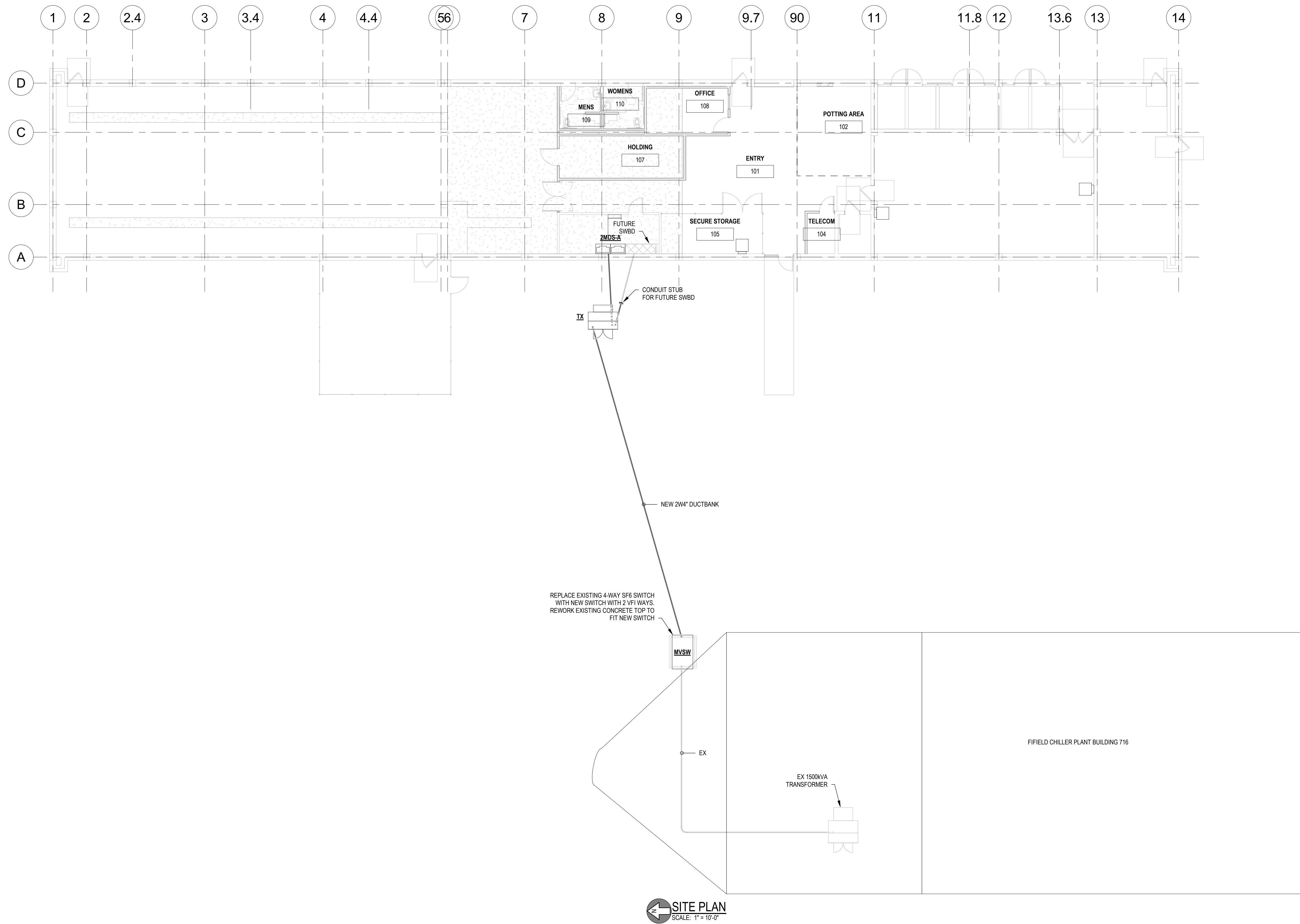
LEGEND, ABBREVIATIONS, CODES AND
STANDARDS

Sheet #:

E001

30

BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP.v4



SITE PLAN
SCALE: 1" = 10'-0"

Project Name:
**UF IFAS Building 711
Headhouse Renovation**

Submittal:
**50% Construction
Documents**

Seal:

MARK R. AKIN PE - 0059242		
Moses Project #:	19162	
Drafted By:	MAI	
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Sheet Title:
SITE PLAN

Sheet #:
E010

Project Name:
**UF IFAS Building 711
Headhouse Renovation**

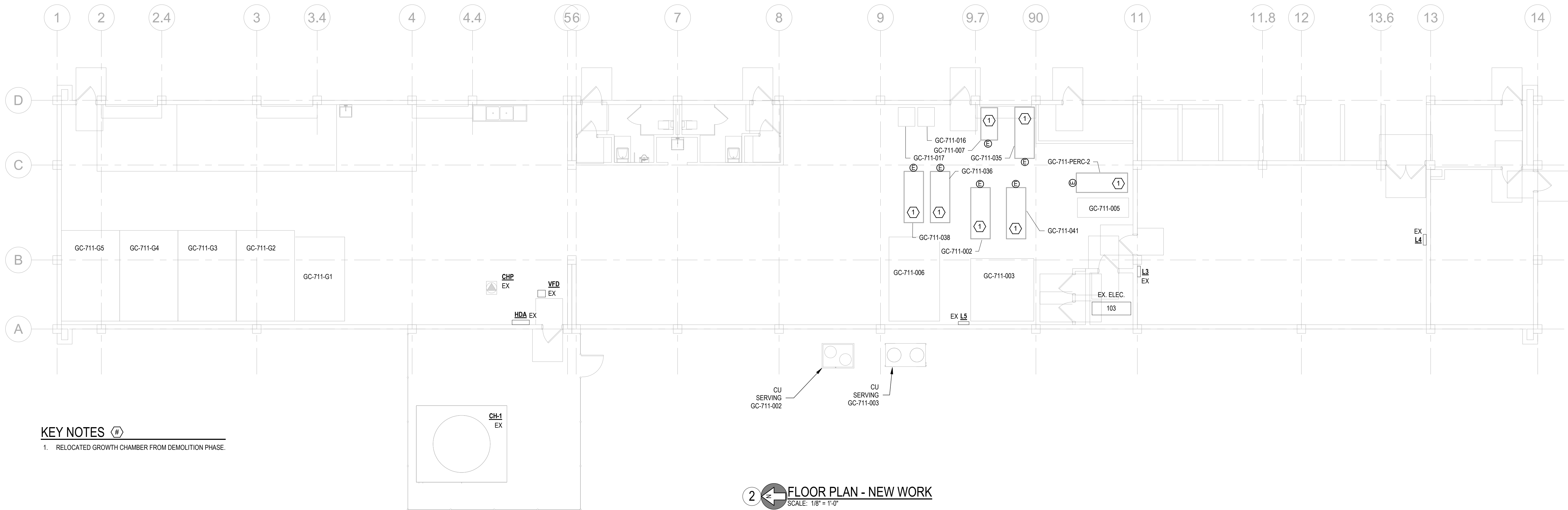
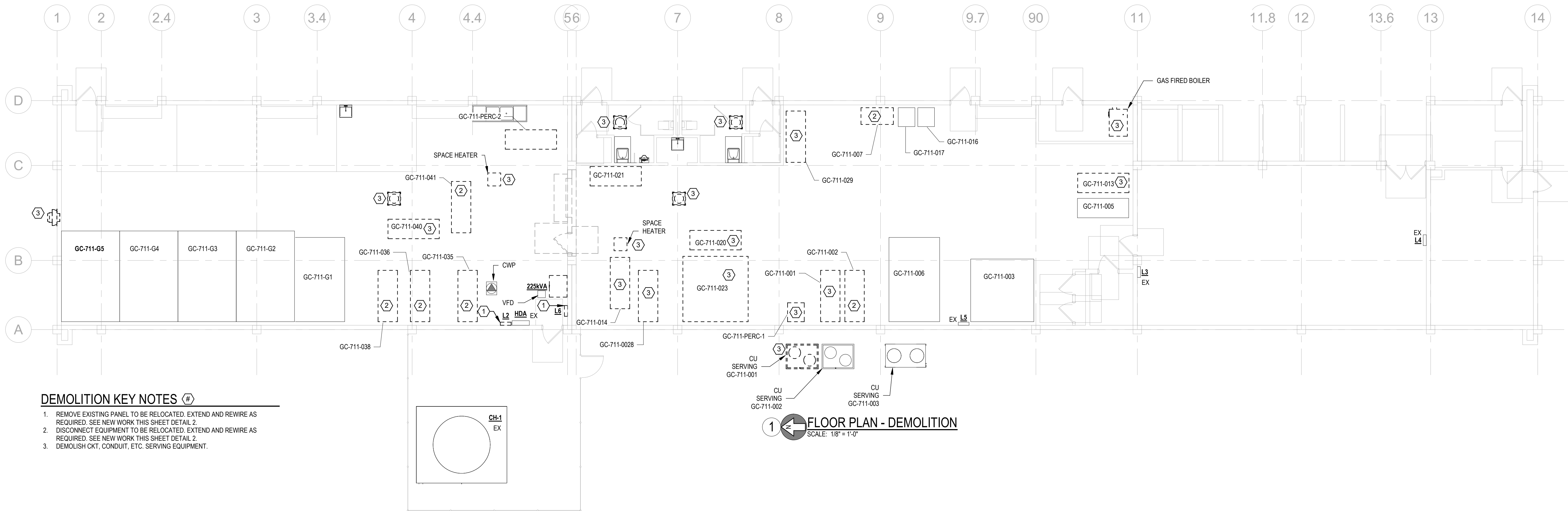
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Documents**

Seal:

MARK R. AKIN
PE - 0059242
Moses Project #: 19162
Drafted By: MAI
Checked By: MRA
Date: 11/26/19
No. Revision Description Date

Sheet Title:
FLOOR PLAN PHASE 1

Sheet #:
E101



Project Name:
**UF IFAS Building 711
Headhouse Renovation**

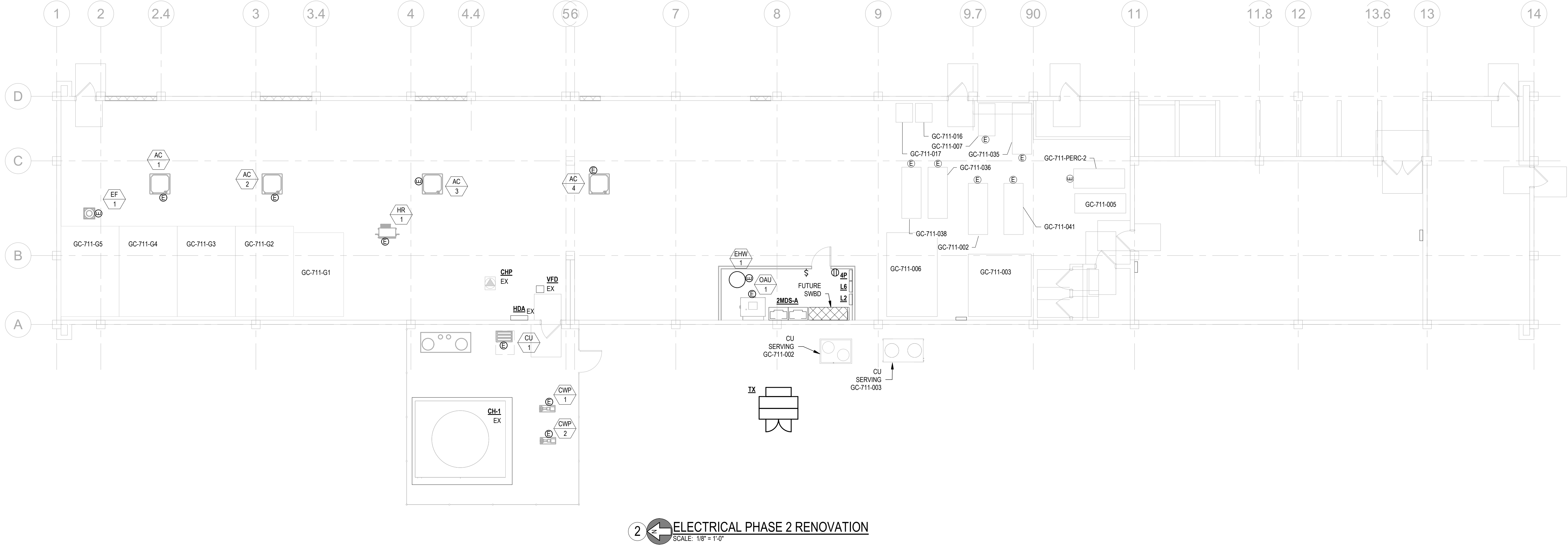
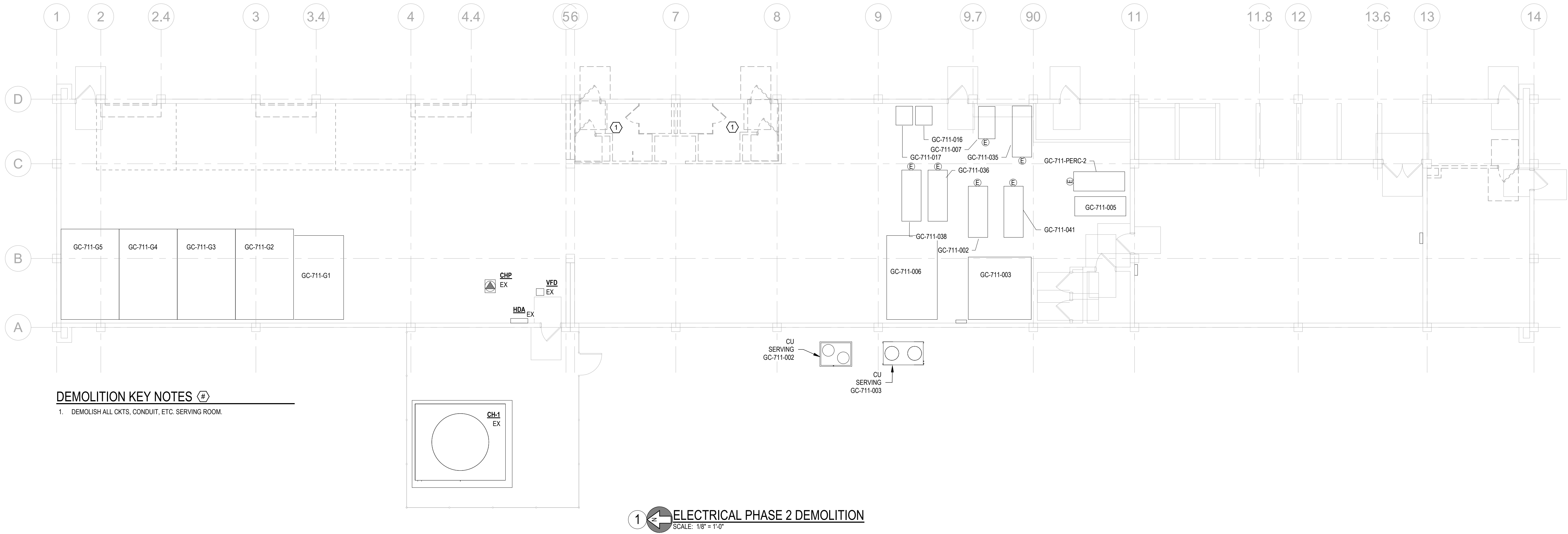
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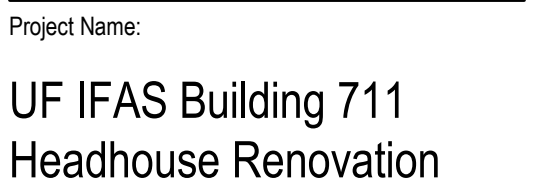
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Moses Project #:		19162
Drafted By:		MAI
Checked By:		MRA
Date:		11/26/19
No.	Revision Description	Date

Sheet Title:
FLOOR PLAN PHASE 2

Sheet #:
E102







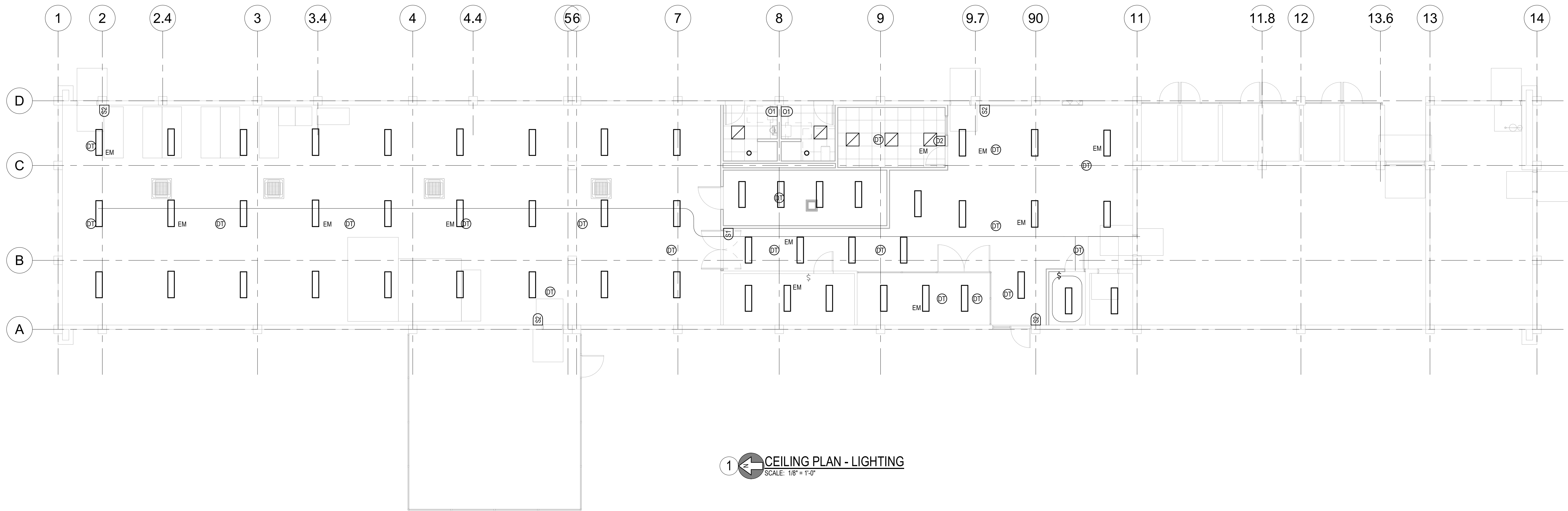
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Sheet Title:
FLOOR PLAN PHASE 4

35



BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP.v4



Project Name:
**UF IFAS Building 711
Headhouse Renovation**

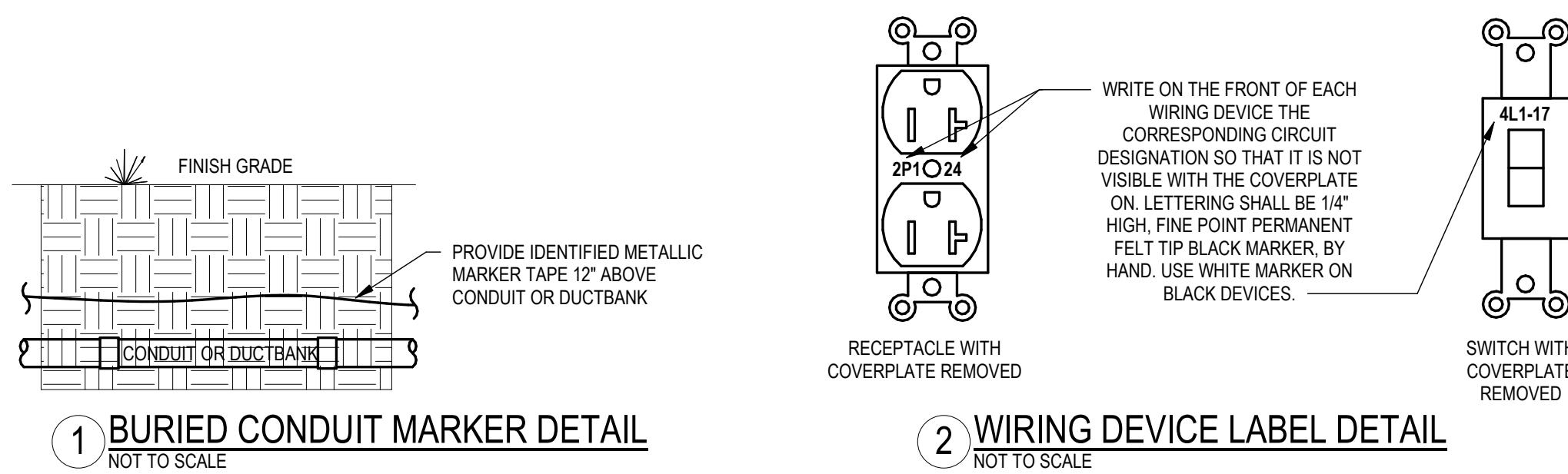
Submittal:
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Documents**

Seal:

MARK R. AKIN PE - 0059242		
Moses Project #:	19162	
Drafted By:	MAI	
Checked By:	MRA	
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No.	Revision Description	Date

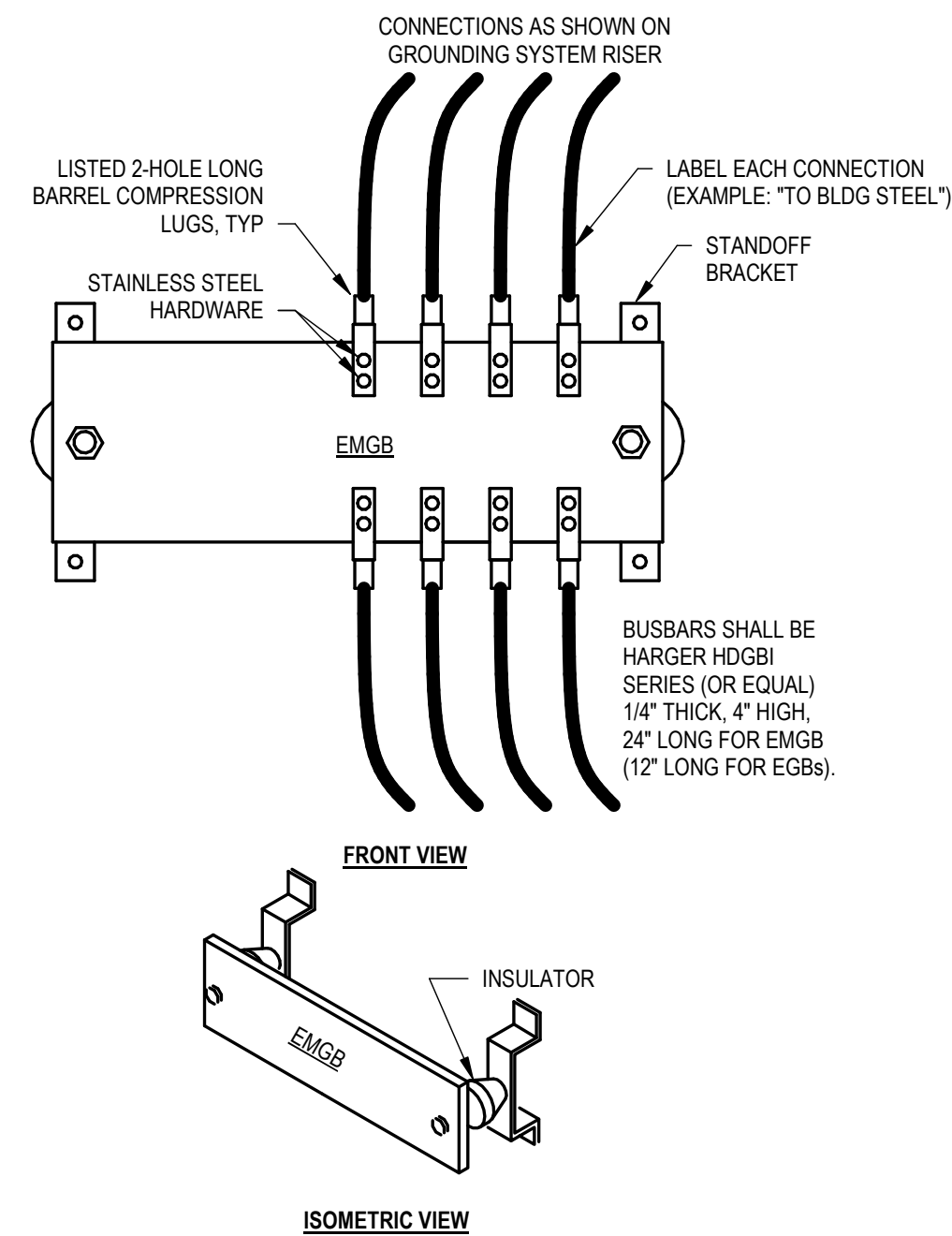
Sheet Title:
FLOOR PLAN LIGHTING

Sheet #:
E105

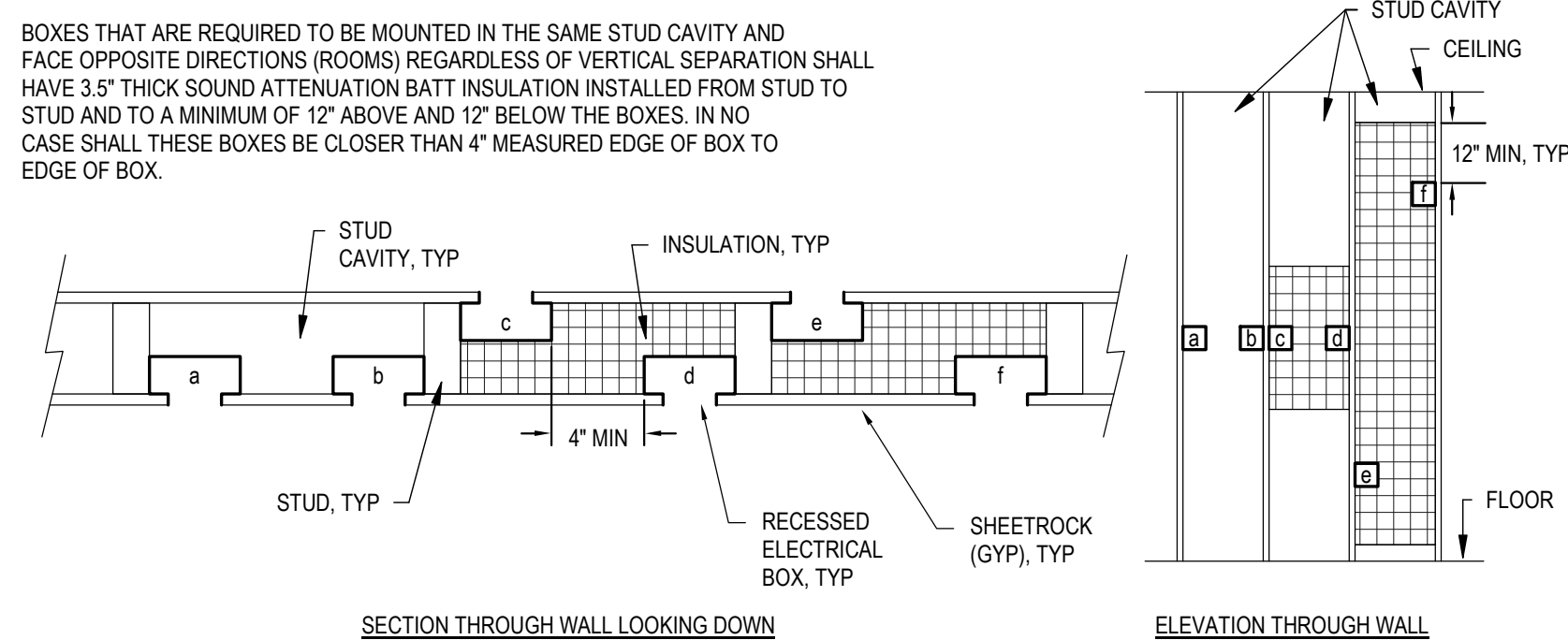


1 BURIED CONDUIT MARKER DETAIL
NOT TO SCALE

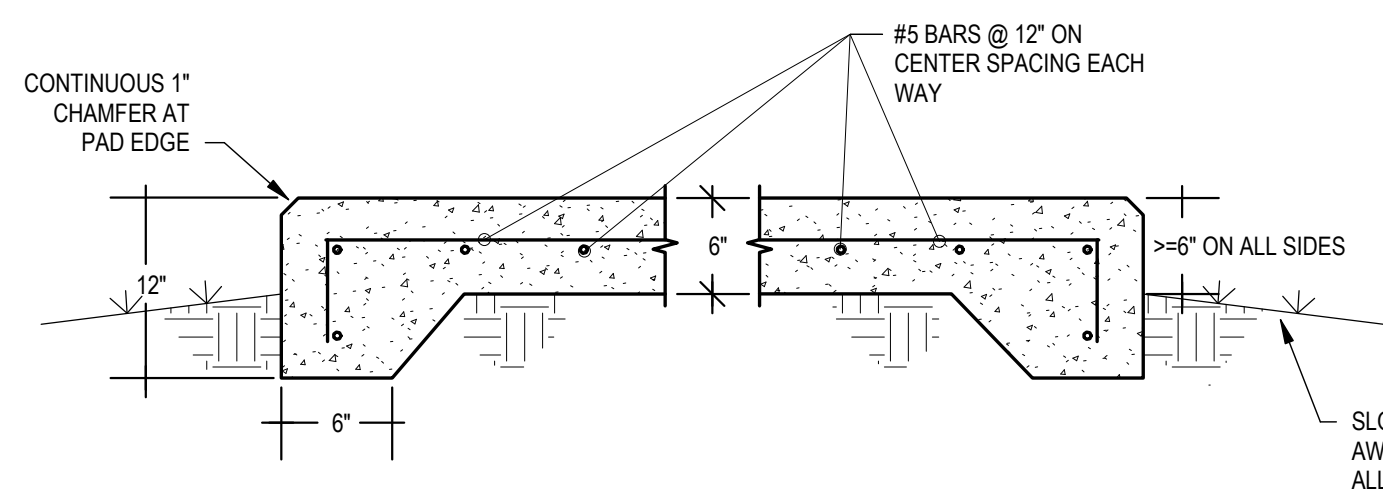
2 WIRING DEVICE LABEL DETAIL
NOT TO SCALE



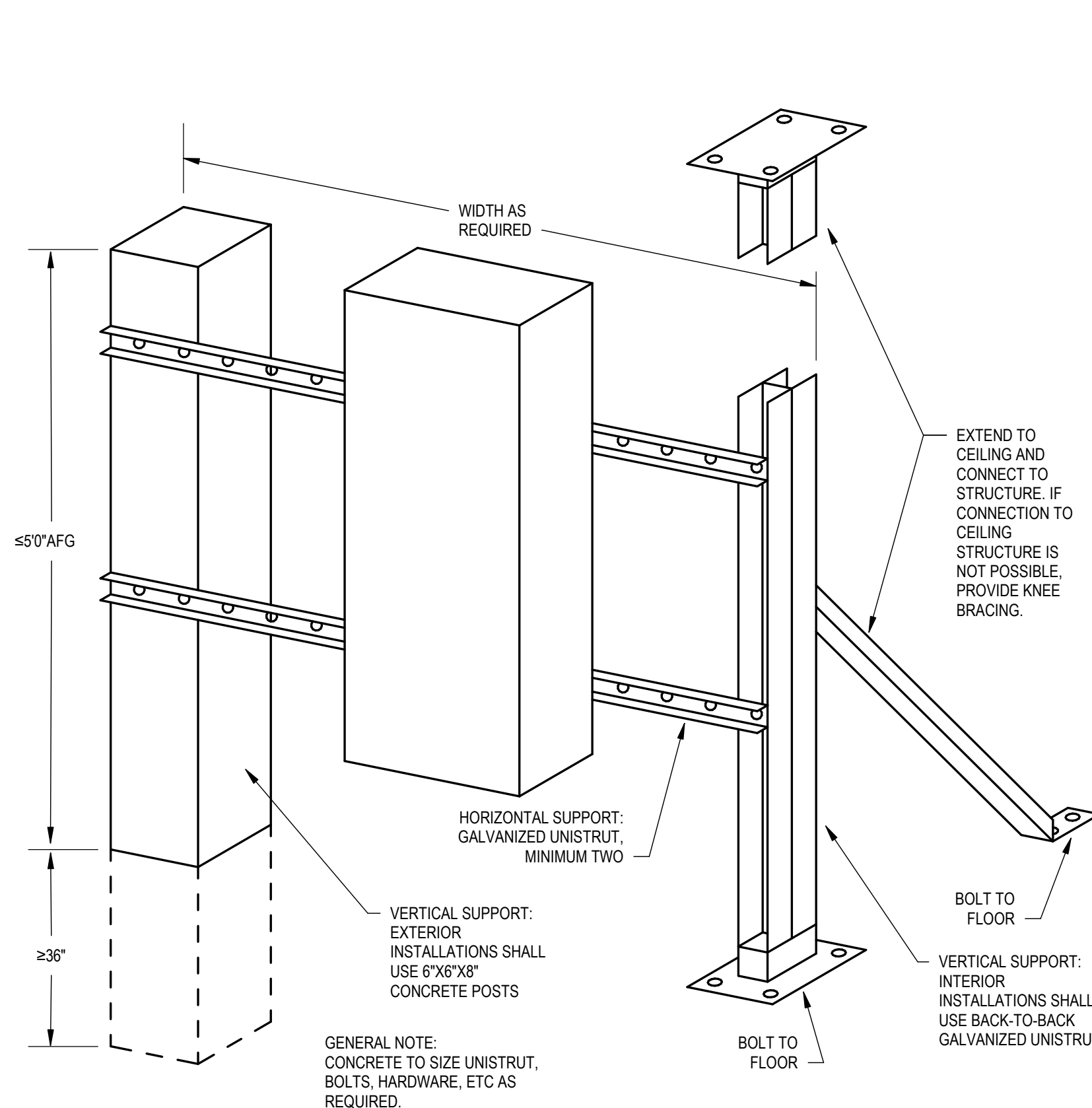
3 ELECTRICAL MAIN GROUNDING BUSBAR DETAIL
NOT TO SCALE



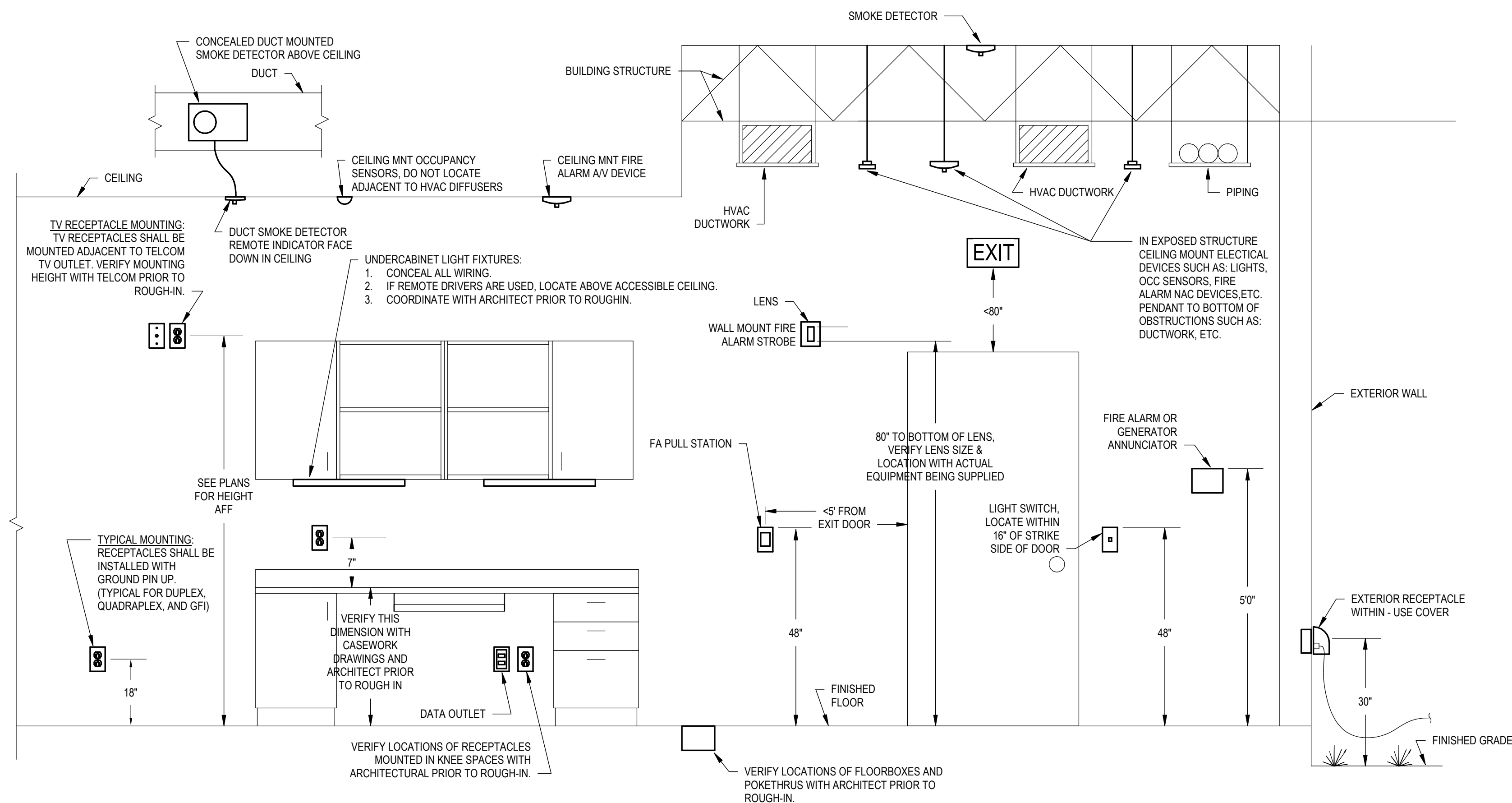
4 COVERPLATE LABEL DETAIL - HOSPITALS
NOT TO SCALE



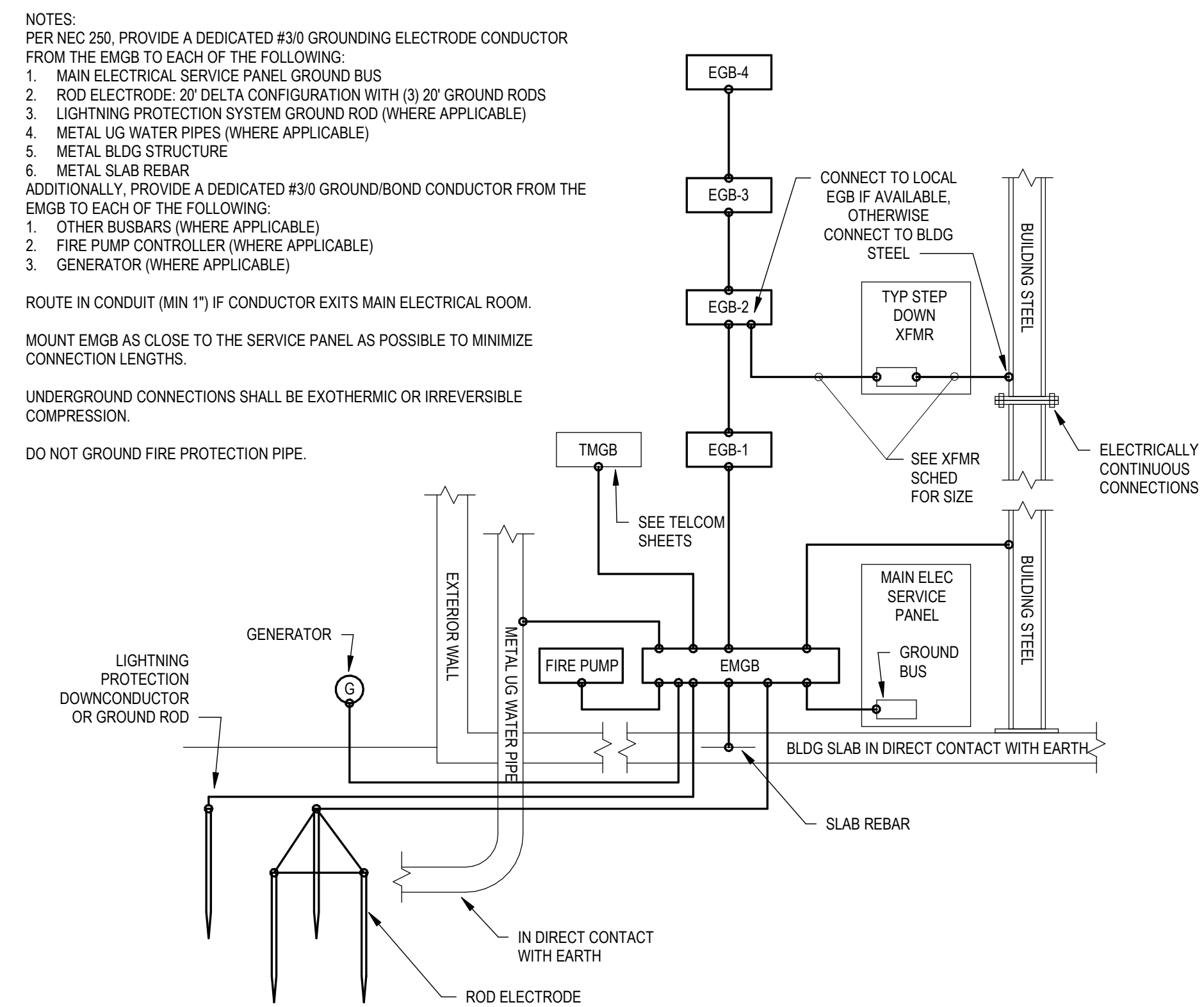
5 PAD-MOUNT TRANSFORMER PAD DETAIL - UF
NOT TO SCALE



6 TYPICAL ELECTRIC LOCK W/READER (SINGLE DOOR SIMILAR)
NOT TO SCALE



7 TYPICAL DEVICE MOUNTING DETAIL
NOT TO SCALE



8 GROUNDING BUSBAR SYSTEM RISER
NOT TO SCALE

Project Name:
**UF IFAS Building 711
Headhouse Renovation**

Submital:
**50% Construction
Documents**

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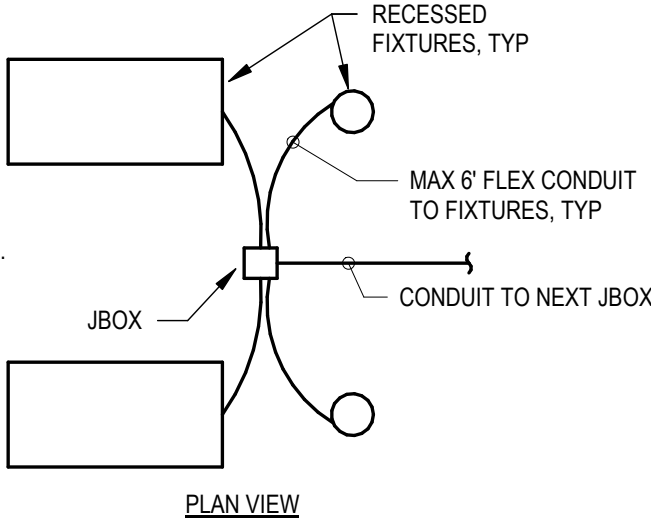
MARK R. AKIN PE - 0059242		
Moses Project #:		19162
Drafted By:		MAI
Checked By:		MRA
Date:		11/26/19
No.	Revision Description	Date

Sheet Title:
DETAILS

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E201

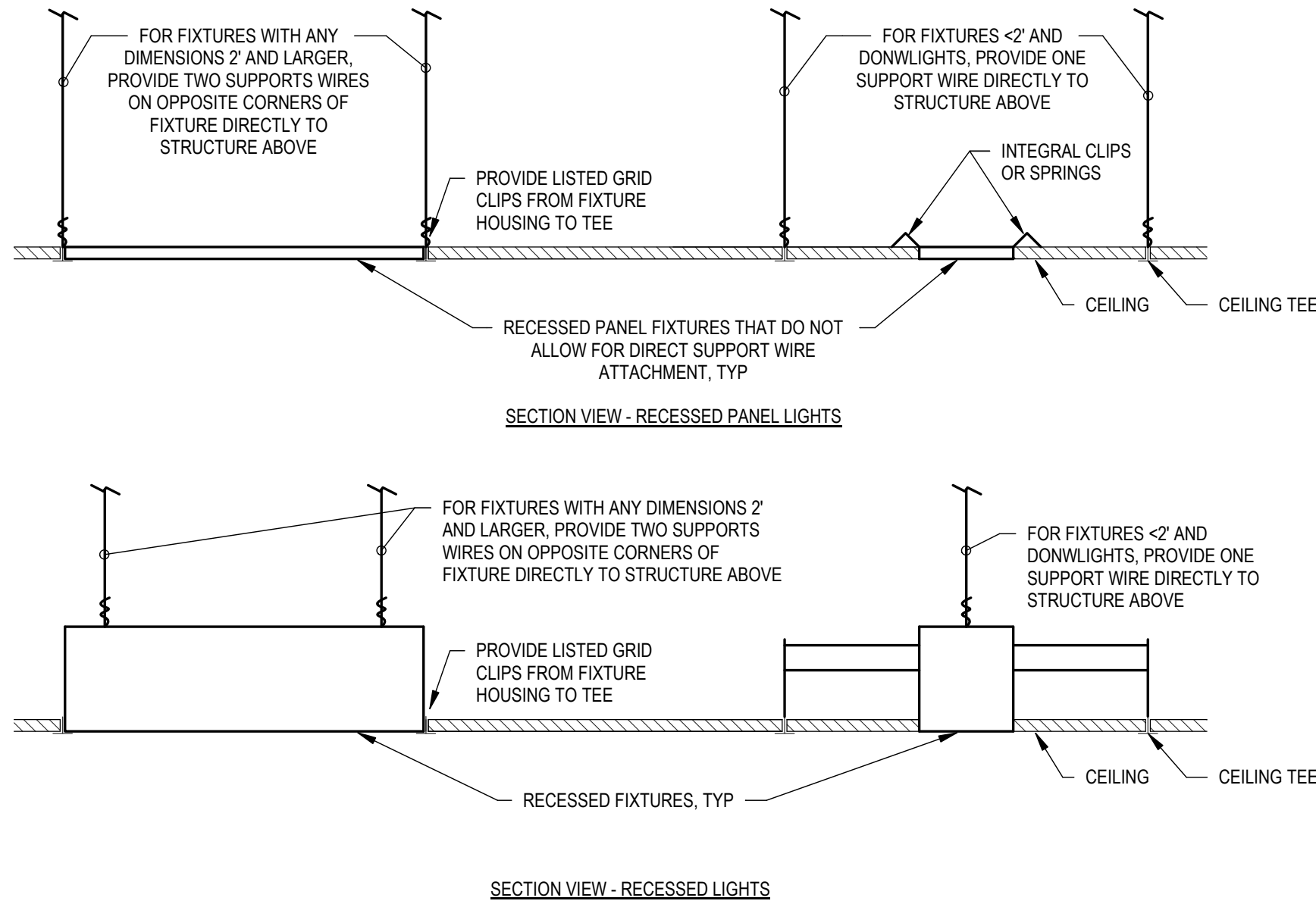
BM 360/IFAS 19051 Head House 711 Renovation19162 IFAS Bldg 711 Headhouse Growth Chamber Renovations MEP v4

- NOTES:
1. CIRCUITING SHOWN ON PLANS IS DIAGRAMMATIC.
 2. DO NOT RUN CONDUIT DIRECTLY FROM FIXTURE TO FIXTURE.
 3. JBOXES SHALL BE ACCESSIBLE.
 4. SUPPORT FIXTURES DIRECTLY FROM STRUCTURE.



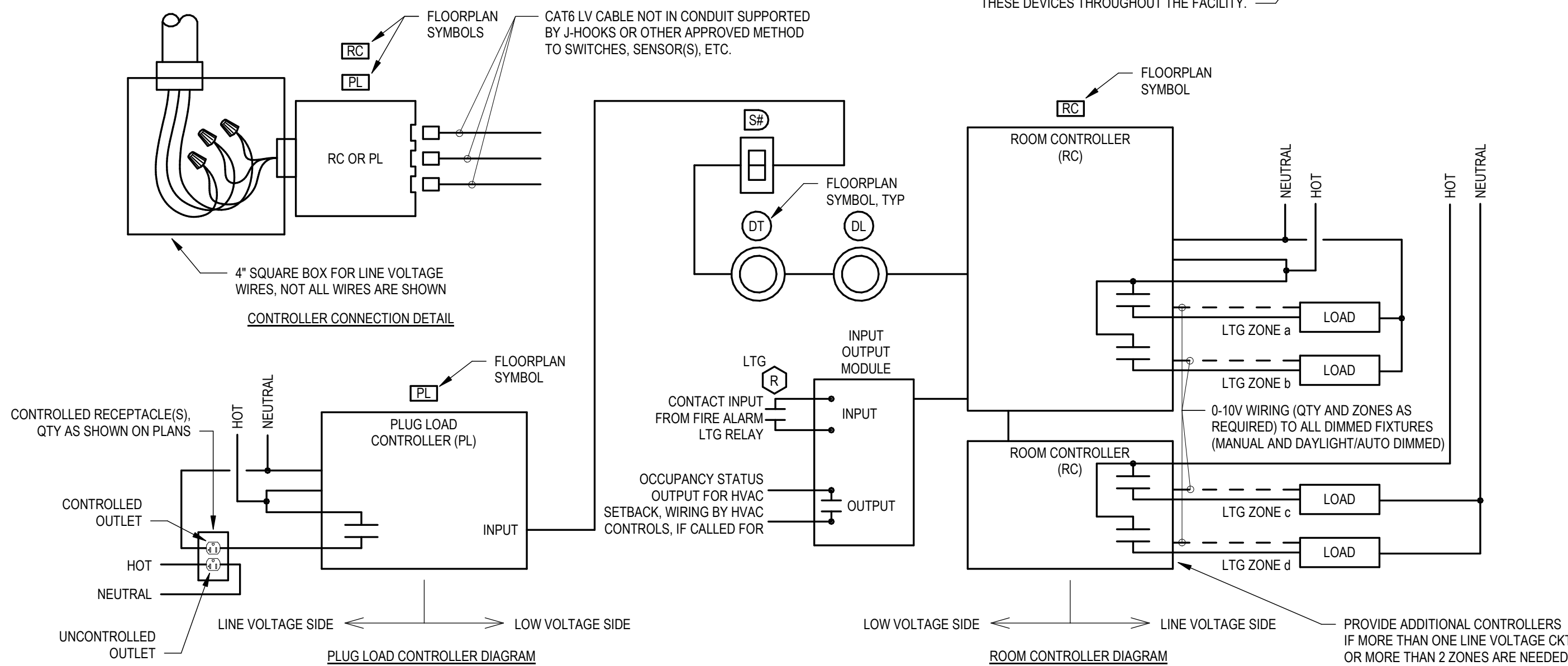
1 RECESSED LIGHT FIXTURE CONDUIT CONNECTIONS DIAGRAM

NOT TO SCALE



2 RECESSED LIGHT FIXTURE INSTALLATION DIAGRAM

NOT TO SCALE



GENERAL NOTES:

1. THIS DIAGRAM IS NOT INTENDED TO SHOW THE ACTUAL QTY OF DEVICES. SEE PLANS FOR DEVICE QTY.
2. NOT ALL INSTANCES WILL REQUIRE ALL CONNECTIONS AND DEVICES SHOWN.
3. PROVIDE INPUT OUTPUT MODULE IF REQUIRED BY F/A OR HVAC, SEE F/A SHEETS AND MECHANICAL (OR IC) SHEETS FOR QTY REQUIRED.
4. VERIFY WIRING CONFIGURATION WITH ACTUAL SENSORS, CONTROLLERS & DEVICES BEING SUPPLIED. PROVIDE MANUFACTURER'S RECOMMENDED LV CABLING.
5. WHERE MORE THAN ONE LINE VOLTAGE CKT IS REQUIRED, PROVIDE ADDITIONAL CONTROLLERS AS REQUIRED. SEE PLANS.
6. WHERE MORE THAN TWO ZONES ARE REQUIRED, PROVIDE ADDITIONAL CONTROLLERS AS REQUIRED. SEE PLANS.
7. LIGHTING SPECIFICALLY CALLED OUT ON THE PLANS AS 24/7 SHALL NOT BE CONTROLLED BY THIS SYSTEM.
8. 0-10V DIM WIRING: PROVIDE AS REQUIRED FROM CONTROLLERS TO ALL DIMMED LIGHT FIXTURES (MANUAL & DAYLIGHT DIMMED).
9. IF RC/PL IS LOCATED ABOVE CEILING, PROVIDE A DYMO TYPE LABEL ON BOTTOM OF CEILING INDICATING LOCATION.
10. BASIS OF DESIGN IS WATTSTOPPER DLM.
 1. NON DIMMED: LMRC-100 SERIES. QTY AS REQUIRED FOR # OF ZONES.
 2. DIMMED: LMRC-200 SERIES. QTY AS REQUIRED FOR # OF ZONES.
 3. FOR MANUAL DIMMED ZONES ALSO PROVIDE ONE DIMMER SWITCH ADJACENT TO ZONE SWITCHES. SEE SWITCH DETAIL.

SEQUENCE OF OPERATIONS:

BASIC ROOM WITH "AUTO-ON" (FOR USE IN SPACES WITH MULTIPLE ZONES):

1. IF PROVIDED WITH FIRE ALARM LTG RELAY: LIGHTS SHALL TURN ON TO 100% AND STAY ON DURING A FIRE ALARM CONDITION (PER 2015 NFPA 101 7.8.1.2.2(5)).
2. WITH LIGHTS OFF, LIGHTS SHALL AUTOMATICALLY TURN ON TO NO MORE THAN 50% WHEN SENSORS DETECT OCCUPANCY (PER 2017 FBC C405.2.2.2).
3. LIGHTS SHALL REQUIRE MANUAL CONTROL TO TURN ON TO MORE THAN 50%.
4. ALL LIGHTS SHALL AUTOMATICALLY TURN OFF AFTER 20 MINUTE TIME DELAY OF NOT SENSING OCCUPANCY.

HALLWAYS, RESTROOMS, LOBBIES, ETC WITH NO LOCAL SWITCHES:

1. IF PROVIDED WITH FIRE ALARM LTG RELAY: LIGHTS SHALL TURN ON TO 100% AND STAY ON DURING A FIRE ALARM CONDITION (PER 2015 NFPA 101 7.8.1.2.2(5)).
2. WITH LIGHTS OFF, LIGHTS SHALL AUTOMATICALLY TURN ON TO 100% WHEN SENSORS DETECT OCCUPANCY.
3. ALL LIGHTS SHALL AUTOMATICALLY TURN OFF AFTER 20 MINUTE TIME DELAY OF NOT SENSING OCCUPANCY.

PLUG LOAD CONTROLLER:

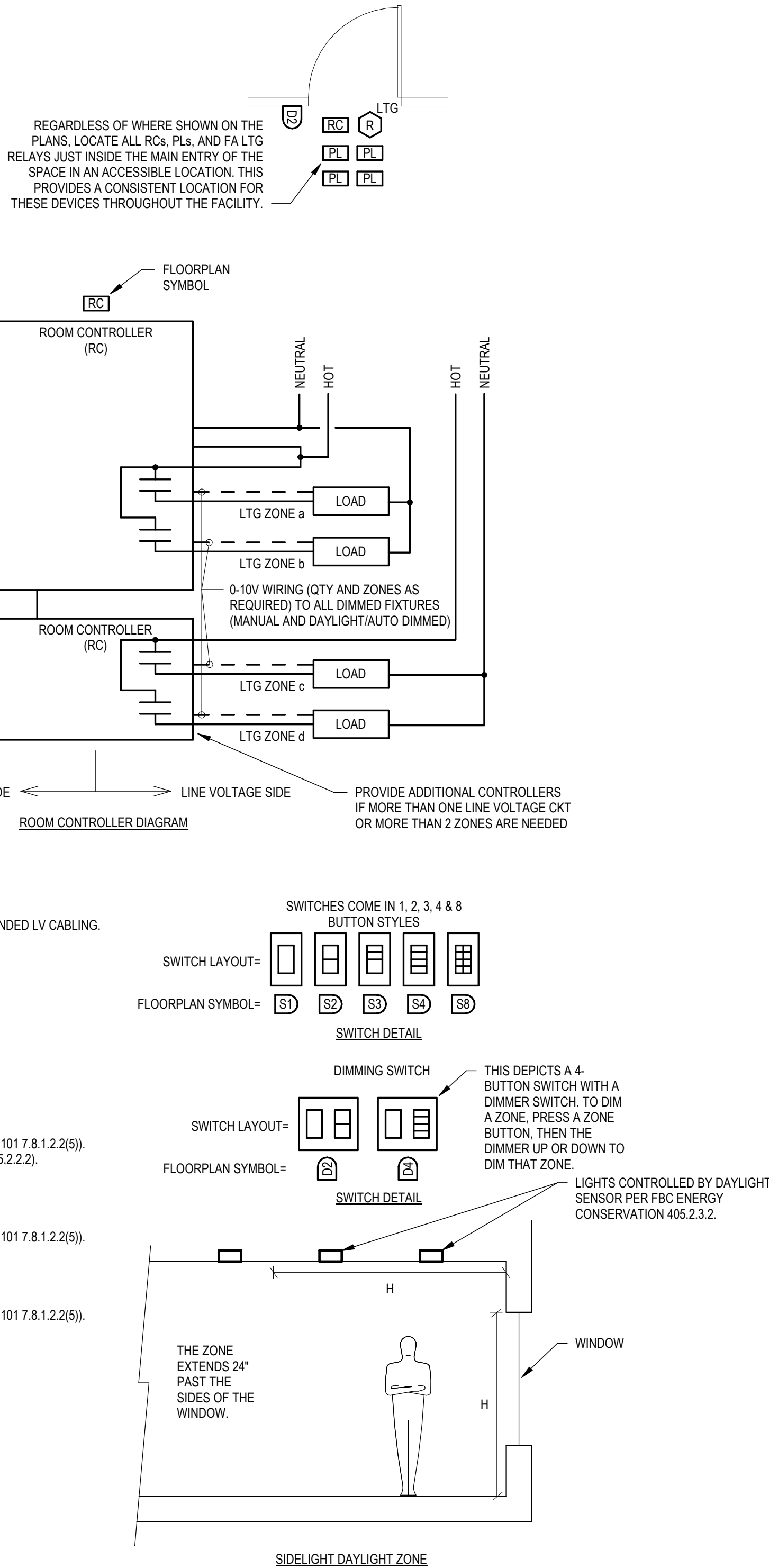
1. CONTROLLED OUTLETS SHALL AUTOMATICALLY TURN ON WHEN SENSORS DETECT OCCUPANCY.
2. CONTROLLED OUTLETS SHALL AUTOMATICALLY TURN OFF AFTER 20 MINUTE TIME DELAY OF NOT SENSING OCCUPANCY.

DAYLIGHT SENSOR:

1. WITH LIGHTS ON (E.G. OCCUPANCY SENSORS ARE IN OCCUPIED STATE) LIGHTS AUTOMATICALLY DIM AS ENOUGH DAYLIGHT ENTERS SPACE.
2. WITH LIGHTS OFF DAYLIGHT SENSORS ARE INACTIVE.

3 ROOM CONTROLLER CONNECTION DIAGRAM

NOT TO SCALE



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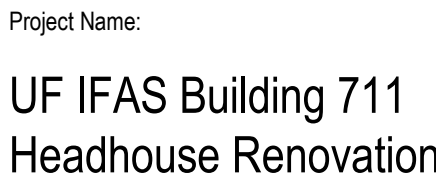
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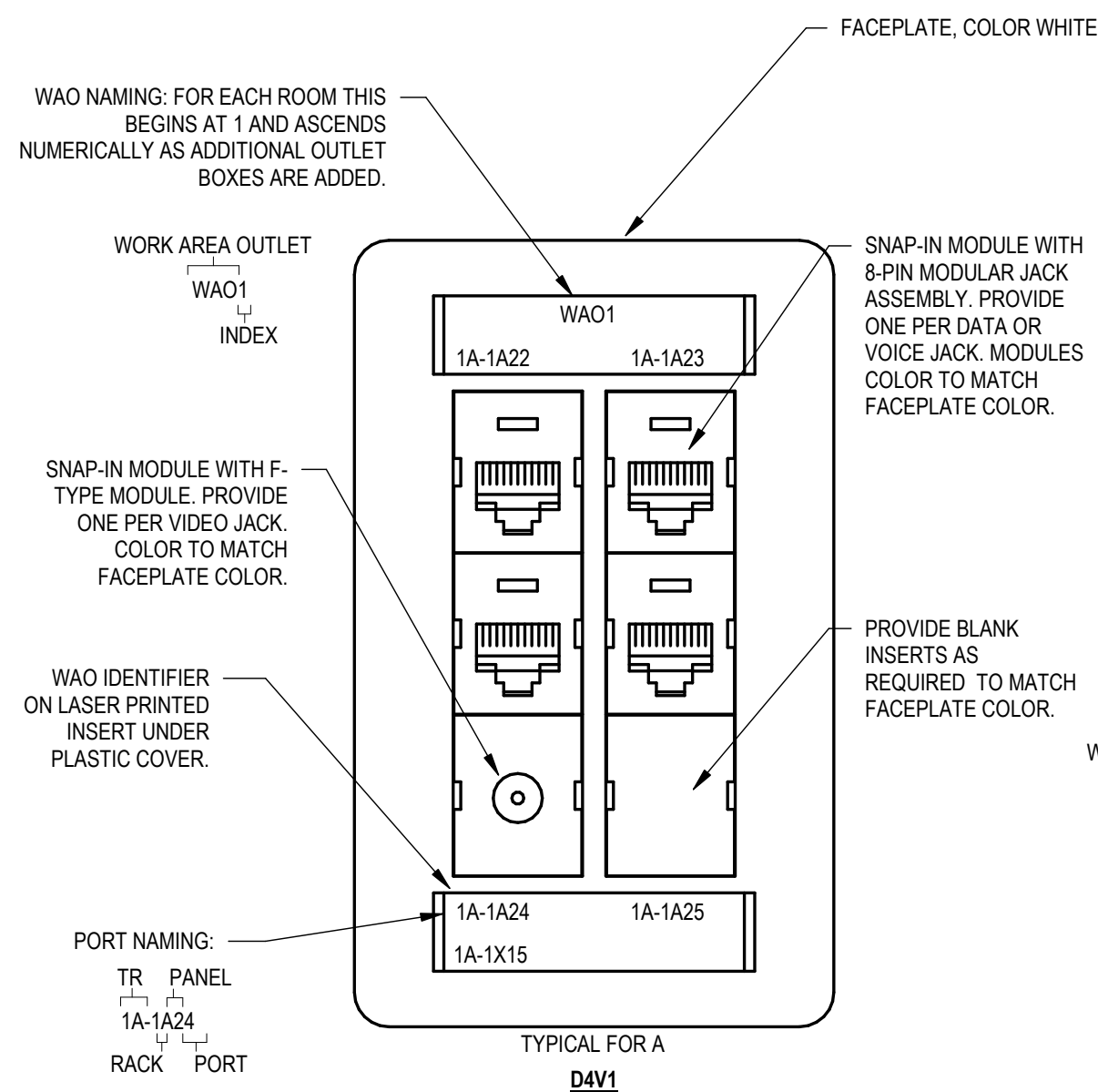
DISCONNECT ABREVIATIONS: SS = SAFETY SWITCH, FS = FUSED SAFETY SWITCH, CB = SERVING CB, TS = TOGGLE SWITCH, TSM = MOTOR RATED TS, CBP = CORD & PLUG, RELV = ELEV DISC = SPECIAL ELEVATOR DISCONNECT
STARTER ABREVIATIONS: RELV = MOTOR RATED POWER RELAY, PNYR = PNYR MAGNETIC MOTOR STARTER WIDISCONNECTION, RVSS = REDUCED VOLTAGE SOLID STATE MOTOR WIDISCONNECTION, VFD = VARIABLE FREQUENCY DRIVE WIDISCONNECTION
OTHER ABREVIATIONS: N1 = NEMA 1 ENCLOSURE, N3R = NEMA 3R ENCLOSURE, N4X = NEMA 4X STAINLESS STEEL ENCLOSURE, WP = WEATHERPROOF, 600 = 600 3 POLE, ELEC = BY ELECTRICAL, MECH = BY MECHANICAL, EQUIP = BY EQUIPMENT
OCPD, CONDUIT, WIRE, DISCONNECT, STARTER, ETC SIZES/RATINGS INDICATED ARE FOR THE BASIS OF DESIGN EQUIPMENT. EXACT SIZES/RATINGS SHALL BE PROVIDED THAT MATCH THE INSTALLED MECHANICAL EQUIPMENT REQUIREMENTS.
SIZE ALL MOTOR STARTERS AND OVERLOADS AS REQUIRED FOR EQUIPMENT BEING POWERED.

1. TYPE ANY PROJECT SPECIFIC NOTES HERE

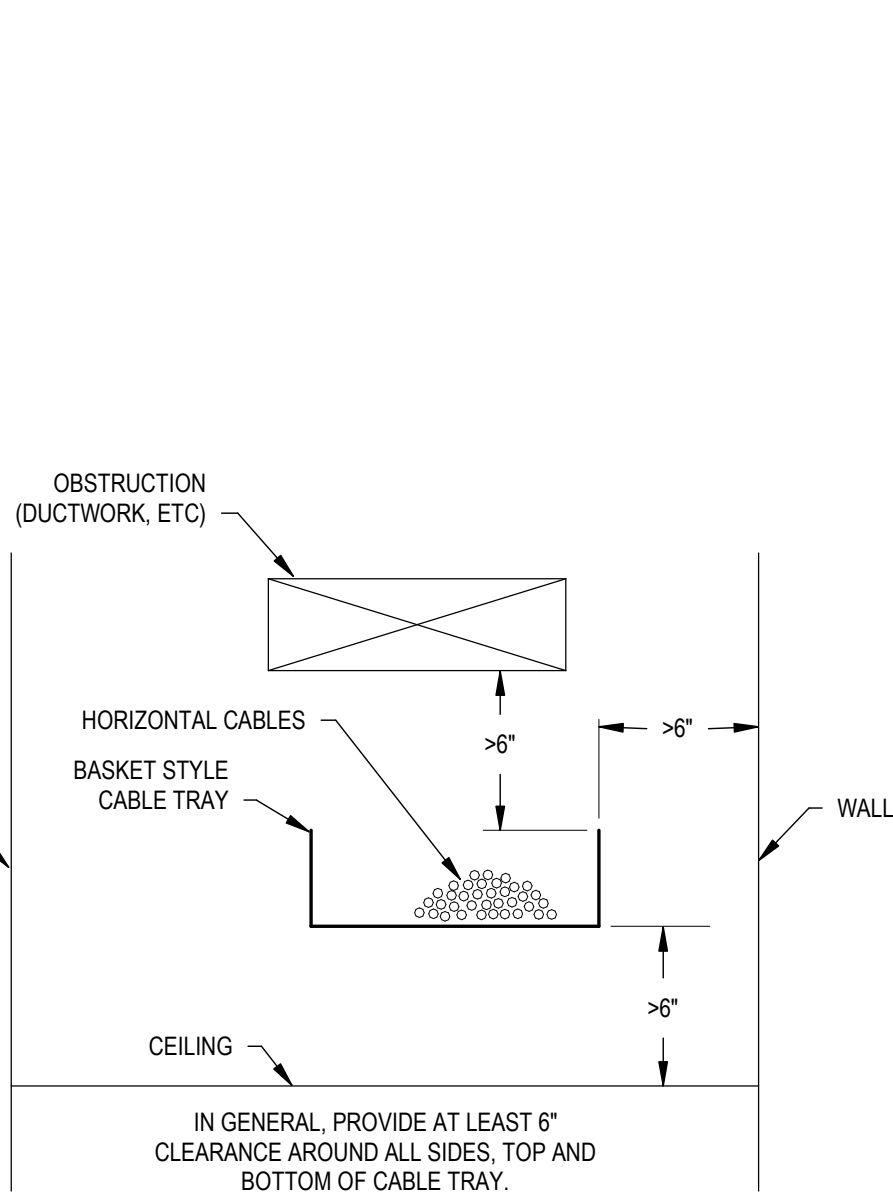


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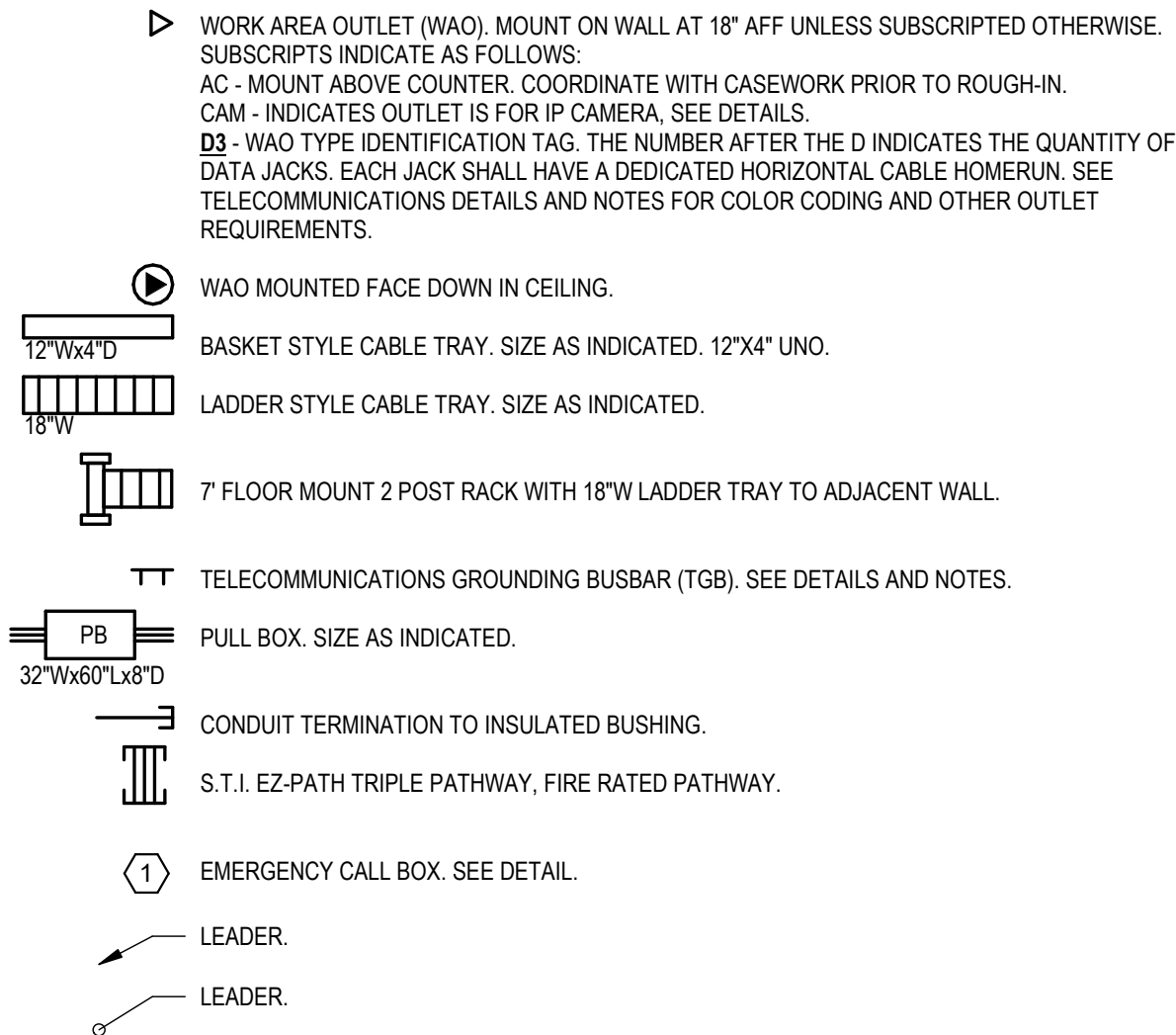


1 WAO FACEPLATE DETAIL
NOT TO SCALE



3 CABLE TRAY CLEARANCE DETAIL
NOT TO SCALE

TELECOMMUNICATIONS LEGEND



TELCOM CONDUIT SIZE

THE MINIMUM SIZE CONDUIT IS 1". THE CONTRACTOR SHALL INCREASE SIZE AS REQUIRED FOR CONDUIT FILL BASED ON 40% MAX FILL RATIO AND THE QTY OF CABLES INTENDED TO BE PULLED INTO THE CONDUIT.

THE FOLLOWING IS BASED ON 0.23" OUTSIDE DIAMETER (OD) CABLES AND EMT CONDUIT:

EMT SIZE	MAX QTY (0.23" OD)
0.5"	2
0.75"	5
1"	8
1.25"	14
1.5"	19
2"	32
2.5"	56
3"	85
3.5"	111
4"	142

FOR EXAMPLE, IF THE PLANS SHOW A D12 OUTLET THE CONTRACTOR MUST PROVIDE ONE 1.25" CONDUIT OR TWO 1" CONDUITS. 0.5" AND 0.75" CONDUITS SHOWN FOR REFERENCE ONLY.

RESPONSIBILITIES & COORDINATION NOTE

THIS LIST IS NOT COMPREHENSIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL REQUIREMENTS SHOWN ON THE DRAWINGS AND/OR REQUIRED TO PROVIDE A COMPLETE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FULL COORDINATION WITH UF'S SCSC THROUGHOUT THE COURSE OF THE PROJECT.

RESPONSIBLE ENTITY DEFINITIONS ARE AS FOLLOWS:
OWNER = UF OR ITS SELECTED STRUCTURED CABLING SYSTEM CONTRACTOR (SCSC)
SP = SERVICE PROVIDER (COX, AT&T, ETC)
EC = ELECTRICAL CONTRACTOR

ITEM	RESPONSIBLE ENTITY
1. EXTERIOR WORK:	
A. CONDUIT (EXCEPT AS PER 1.2 BELOW)	OWNER
B. CONDUIT TO 5' OUTSIDE BLDG	EC
C. CABLES	OWNER AND/OR SP
D. PULLBOXES, MANHOLES, ETC	OWNER
E. EMERGENCY CALL BOXES	OWNER
2. INTERIOR WORK:	
A. RACEWAYS (INCL. FIRE-STOPPING):	
a. BACKBONE CONDUIT & BOXES	EC
b. WAO BOXES AND CONDUIT	EC
c. HORIZONTAL CABLE TRAY	EC
B. TELCOM ROOM BUILDOUT	
a. BACKBOARDS	OWNER
b. PERIMETER CABLE TRAY	OWNER
c. RACKS W/VERTICAL WIRE MGMT	OWNER
d. CABLE TRAY TO RACKS FROM WALL	OWNER
C. CABLING:	
a. BACKBONE CABLING:	
1. CABLE (INCL. FIRE-STOPPING)	OWNER
2. PANELS	OWNER
3. TERMINATIONS & TESTING	OWNER
4. LABELING & WARRANTY	OWNER
b. HORIZONTAL CABLING:	
1. CABLE (INCL. FIRE-STOPPING)	OWNER
2. WAOS	OWNER
3. PATCHPANELS	OWNER
4. TERMINATION	OWNER
5. TESTING	OWNER
6. LABELING	OWNER
7. CABLE MGMT	OWNER
8. WARRANTY	OWNER
c. PATCH CABLES	OWNER
D. GROUNDING:	
a. BUSBARS	EC
b. BACKBONE RACEWAY (INCL. FIRE-STOPPING)	EC
c. BACKBONE CABLE (INCL. FIRE-STOPPING)	EC
d. IN TELCOM ROOMS:	
1. BONDS TO RACKS	OWNER
2. BONDS TO BACKBONE RACEWAYS	OWNER
3. BONDS TO PERIMETER TRAY	OWNER
4. BONDS TO OTHER EQUIPMENT	OWNER
E. ELECTRONICS:	
a. WAPS	OWNER
b. SWITCHES	OWNER
c. ROUTERS	OWNER
d. PHONE SYSTEM & PHONES	OWNER
e. SERVERS	OWNER
F. FINAL CLEANING	OWNER

ABBREVIATIONS

A	AMPS
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
BLDG	BUILDING
C	CONDUIT
C/L	CENTERLINE
CLG	CEILING
CU	COPPER
EC	ELECTRICAL CONTRACTOR
EF	ENTRANCE FACILITY
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EX	EXISTING TO REMAIN
EMT	ELECTRICAL METALLIC TUBING
FACP	FIRE ALARM SYSTEM CONTROL PANEL
FLR	FLOOR
GND	GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
IP	INTERNET PROTOCOL
JB	JUNCTION BOX
MCE	MAIN COMMUNICATIONS EQUIPMENT ROOM
MM	MULTIMODE
MNS	MASS NOTIFICATION SYSTEM
MNT	MOUNTING HEIGHT
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
OFOI	OWNER FURNISHED OWNER INSTALLED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
RM	ROOM
RGS	RIGID GALVANIZED STEEL CONDUIT
RNC	RIGID NON-METALLIC CONDUIT
SCSC	STRUCTURED CABLING SYSTEM CONTRACTOR
S/M	SINGLEMODE
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TR	TELECOMMUNICATIONS ROOM
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TYP	TYPICAL
UFR	UNDERFLOOR RACEWAY
UL	UNDERWRITERS' LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLT
VA	VOLT-AMPERES
W	WATTS
WAO	WORK AREA OUTLET
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF

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LEGEND, ABBREVIATIONS, FLOOR PLAN,
RESPONSIBILITIES & COORDINATION

Sheet #:

T001

5 FLOOR PLAN - NEW WORK - TELECOM
SCALE: 1/8" = 1'-0"

