

RENOVATIONS FOR:

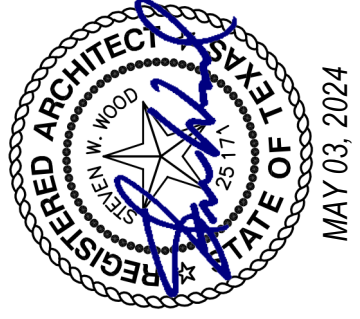
MIDWESTERN STATE UNIVERSITY

MCCULLOUGH ANNEX RENOVATION

3519 LOUIS J RODRIGUEZ DR.

BYSP architects

1005 Ninth Street - Suite 200 Wichita Falls, Texas 76301 (940) 761-2404
Member American Institute of Architects



SUMIT CONSULTANTS, INC.
MEP ENGINEER
1300 SUMMIT AVE. SUITE 500
FORT WORTH, TX. 76102
(817)-878-4242

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BID ALTERNATES

ALTERNATE NO. 1 - PROVIDE AND INSTALL LVT A IN LIEU OF SCHEDULE BASE BID POLISHED CONCRETE FOR THE FOLLOWING ROOMS: LOBBY 101, CLASSROOM 100.

CODE SUMMARY

TYPE	
OCCUPANCY TYPE	2015 IBC BUSINESS (B)
CONSTRUCTION TYPE	IBC TYPE V-B
SPRINKLER	NOT SPRINKLED
CONSTRUCTION AREA	2,384 SQ. FT.
BUILDING AREA	2,384 SQ. FT. TOTAL FACILITY SQ. FT.
APPLICABLE CODES:	
2015 INTERNATIONAL BUILDING CODE	
2015 INTERNATIONAL EXISTING BUILDING CODE	
2015 INTERNATIONAL MECHANICAL CODE	
2015 INTERNATIONAL PLUMBING CODE	
2015 INTERNATIONAL FIRE CODE	
2017 NATIONAL ELECTRIC CODE	
2006 INTERNATIONAL ENERGY CONSERVATION CODE	
2015 INTERNATIONAL FUEL GAS CODE	

PROJECT ADDRESS
McCULLOUGH ANNEX 3519 LOUIS J RODRIGUEZ DR. WICHITA FALLS, TX. 76308
PROJECT / OWNER
MIDWESTERN STATE UNIVERSITY 3410 TAFT BLVD. WICHITA FALLS, TX. 76308
ARCHITECT
BYSP ARCHITECTS 1005 9TH STREET, STE 200 WICHITA FALLS, TEXAS 76301 940-761-2404

MIDWESTERN STATE UNIVERSITY

MCCULLOUGH ANNEX RENOVATION

BYSP PROJECT # 23062 ISSUE DATE: 05/03/2024

REV	DATE	DESCRIPTION

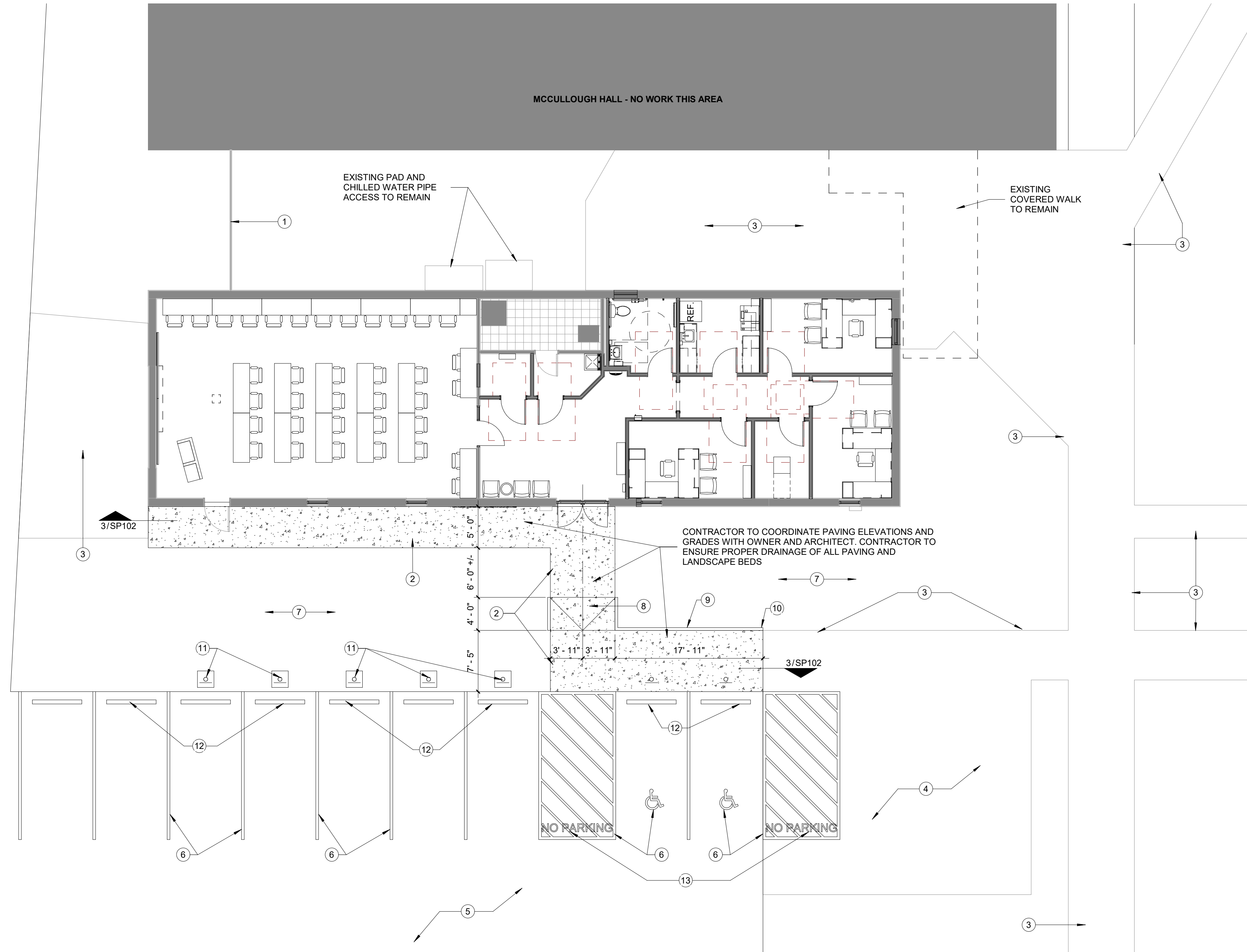
SET NO:

GENERAL NOTES:

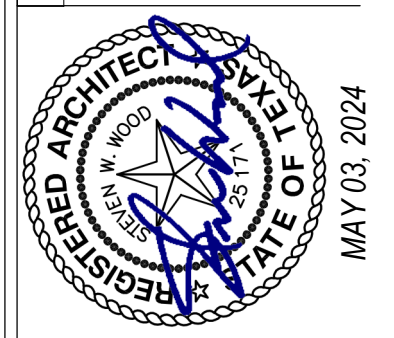
1. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS. THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR UNFORESEEN CONDITIONS AS SOON AS THEY ARE DISCOVERED.
2. ALL PARKING LOT DIMENSIONS ARE TO PAVEMENT SIDE OF CURB OR EDGE OF PAVING
3. COORDINATE LOCATION OF JOB SHACK AND CONSTRUCTION SIGN WITH ARCHITECT
4. REFER TO ARCHITECTURAL DEMO SHEET (AD101) FOR LIMITED SITE DEMO

KEY NOTES:

- ① EXISTING 6" WOOD PRIVACY FENCE TO REMAIN
- ② NEW SIDEWALK. REF 3/SP102 & 4/SP102
- ③ EXISTING SIDEWALK TO REMAIN, REDER DETAILS FOR CONNECTION TO NEW CONCRETE WALKS
- ④ EXISTING CONCRETE PAVING TO REMAIN
- ⑤ EXISTING ASPHALT PAVING TO REMAIN
- ⑥ PARKING STRIPING & HC SYMBOLS TO REMAIN, TYP.
- ⑦ DECOMPOSED GRANITE LANDSCAPING
- ⑧ HC RAMP, REF DETAILS 1/SP102 & 2/SP102
- ⑨ 6" CONCRETE CURB, REF DETAIL 5/SP102
- ⑩ SLOPE CURB DOWN TO MEET EXISTING PAVING LEVEL
- ⑪ EXISTING PARKING SIGNS TO REMAIN, TYP.
- ⑫ EXISTING WHEEL STOPS TO REMAIN, TYP.
- ⑬ 12" TALL LETTERING AS SHOWN



REV	DATE	DESCRIPTION



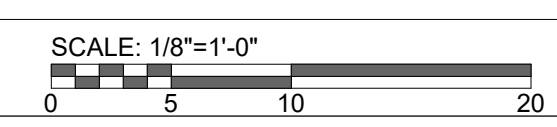
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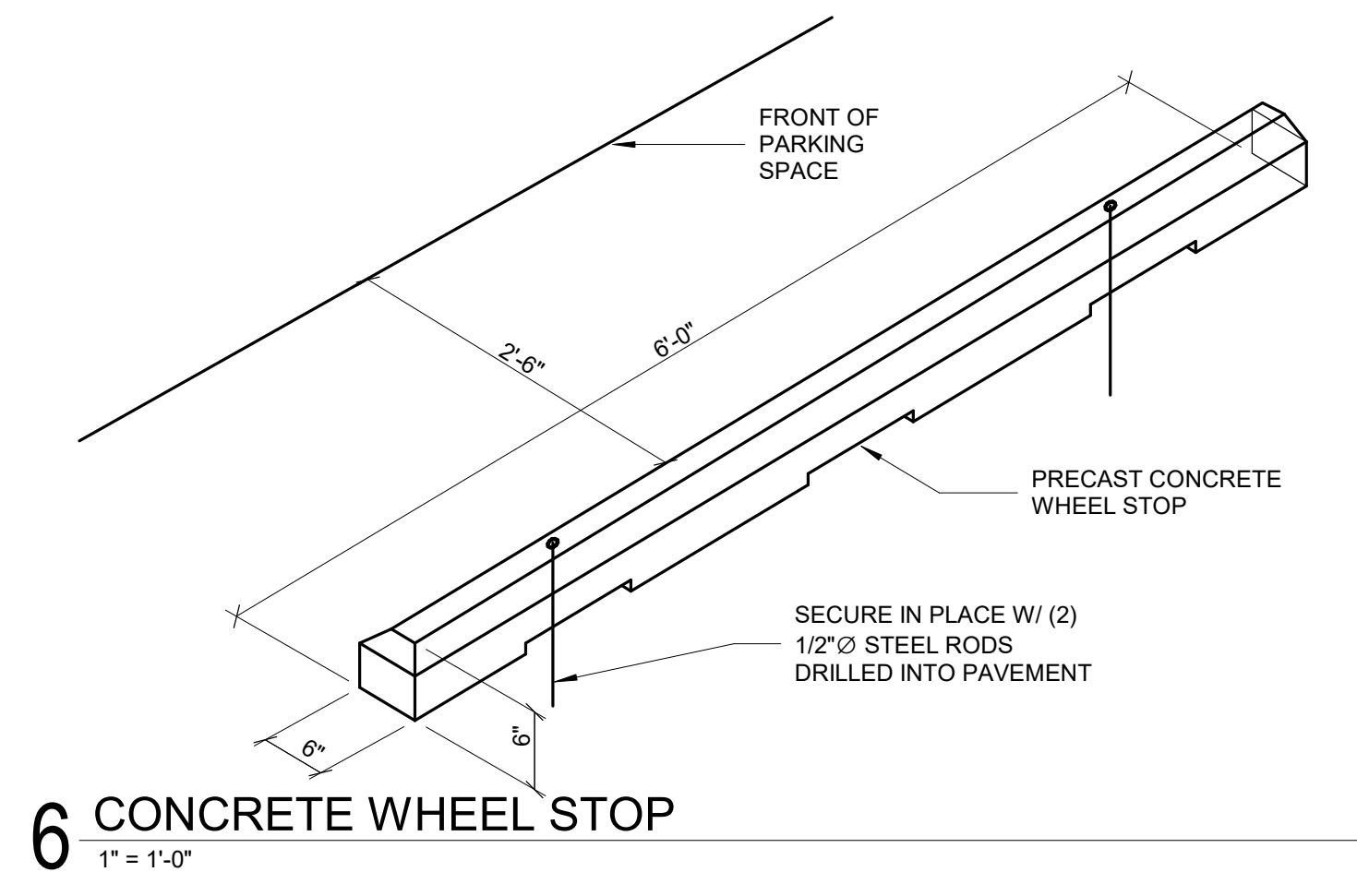
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CHECKED BY	SW
DATE	05.03.2024
PROJECT NO.	23062

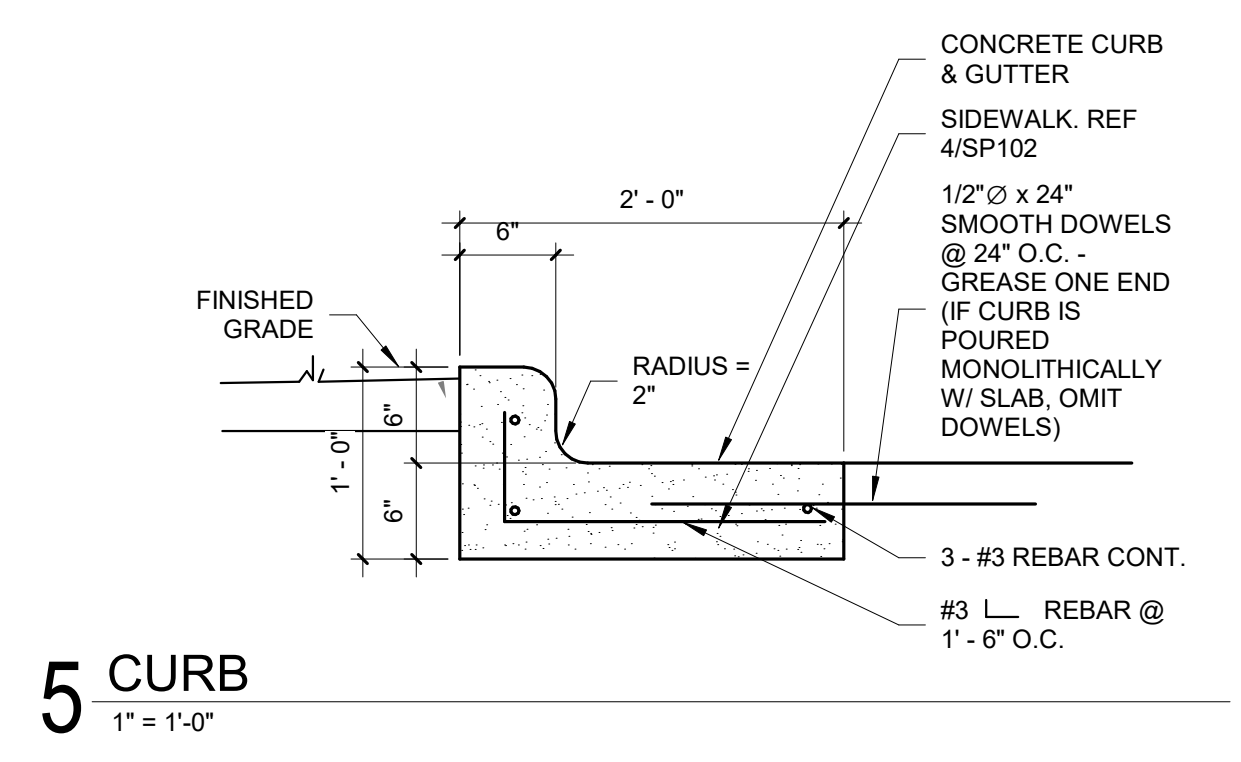
SITE PLAN
SP101

1 SITE PLAN
1/8" = 1'-0"

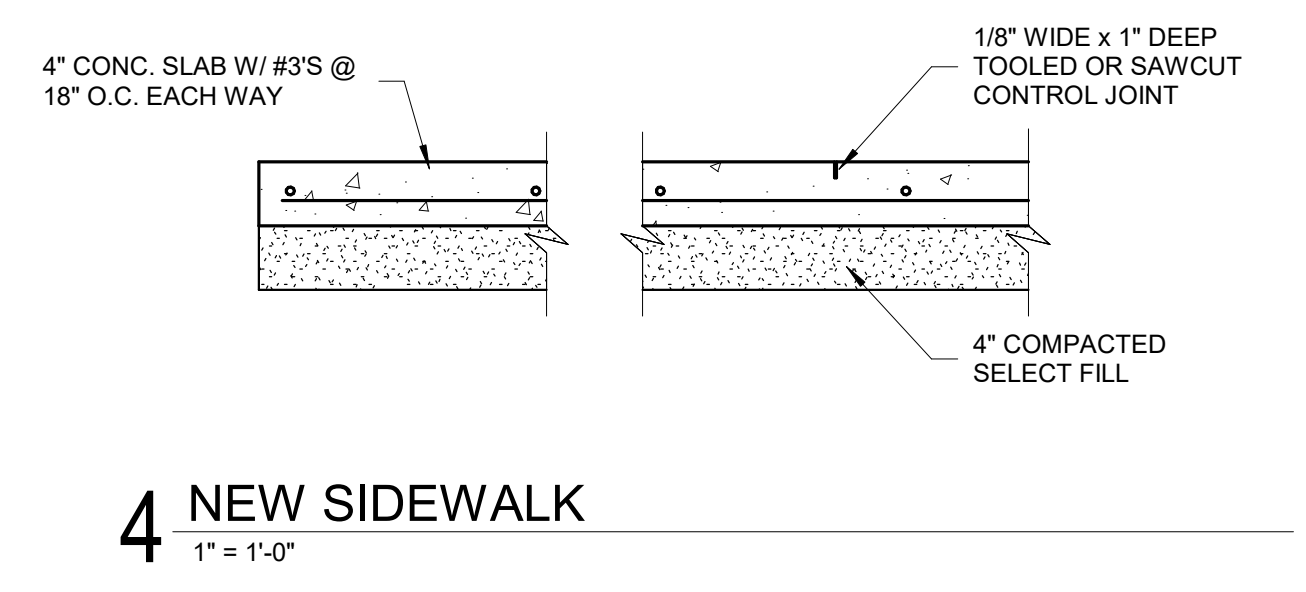




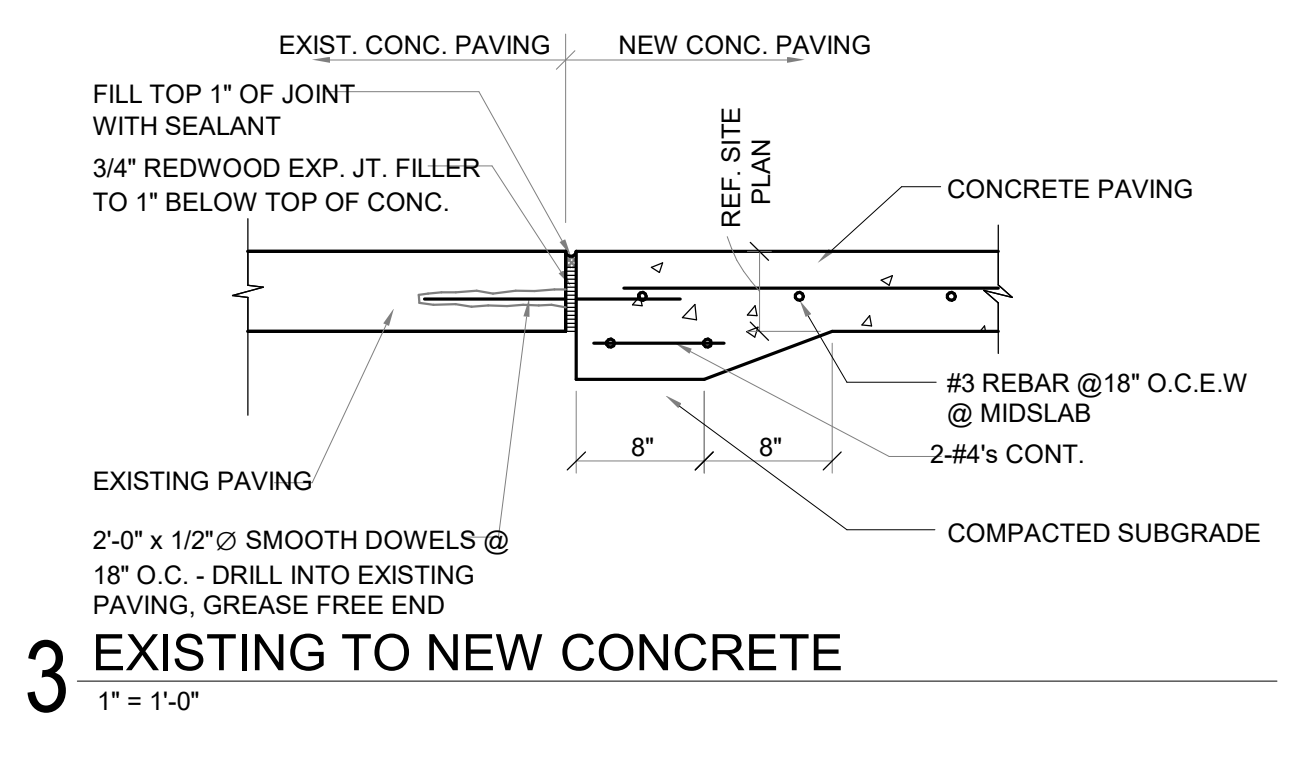
6 CONCRETE WHEEL STOP
1" = 1'-0"



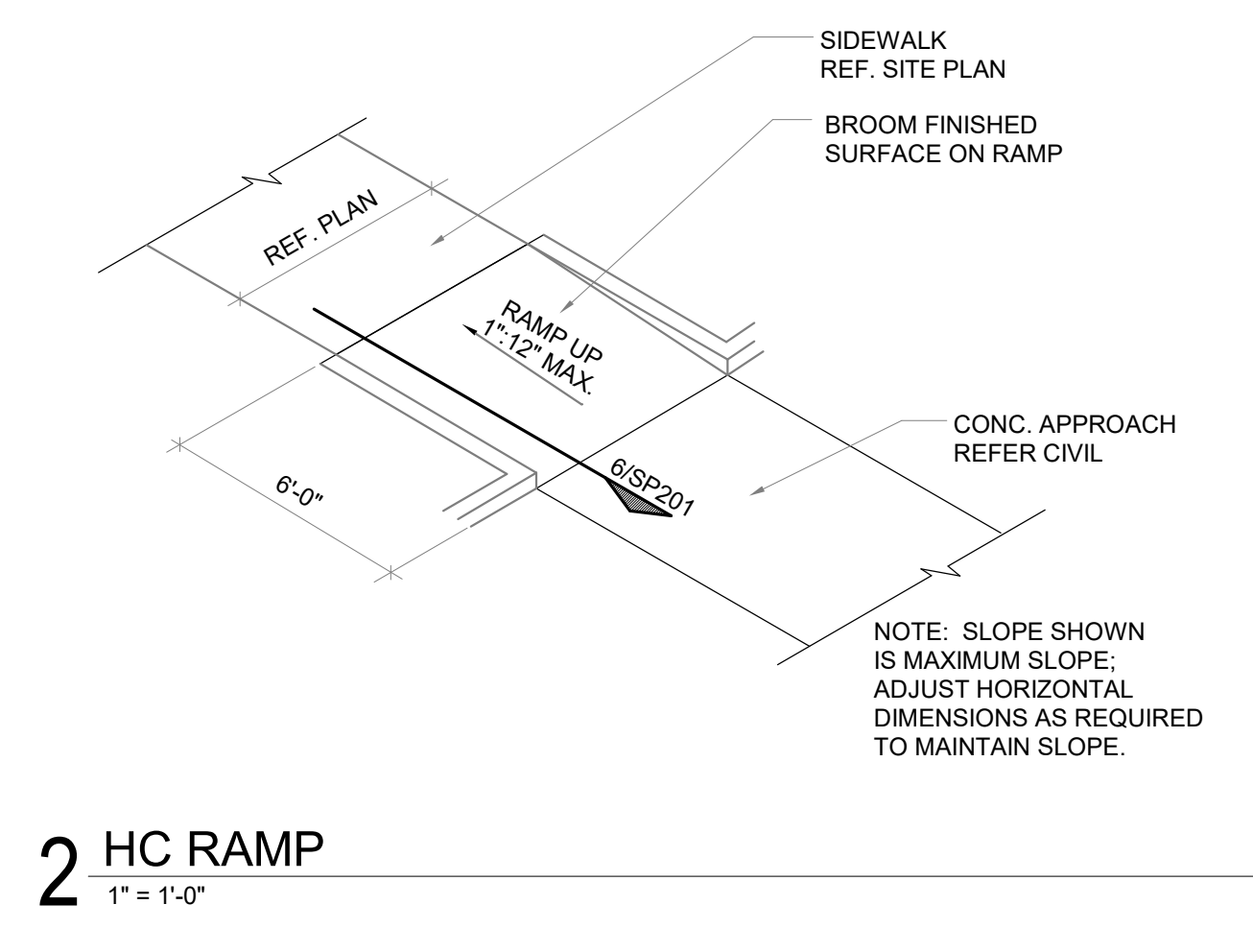
5 CURB
1" = 1'-0"



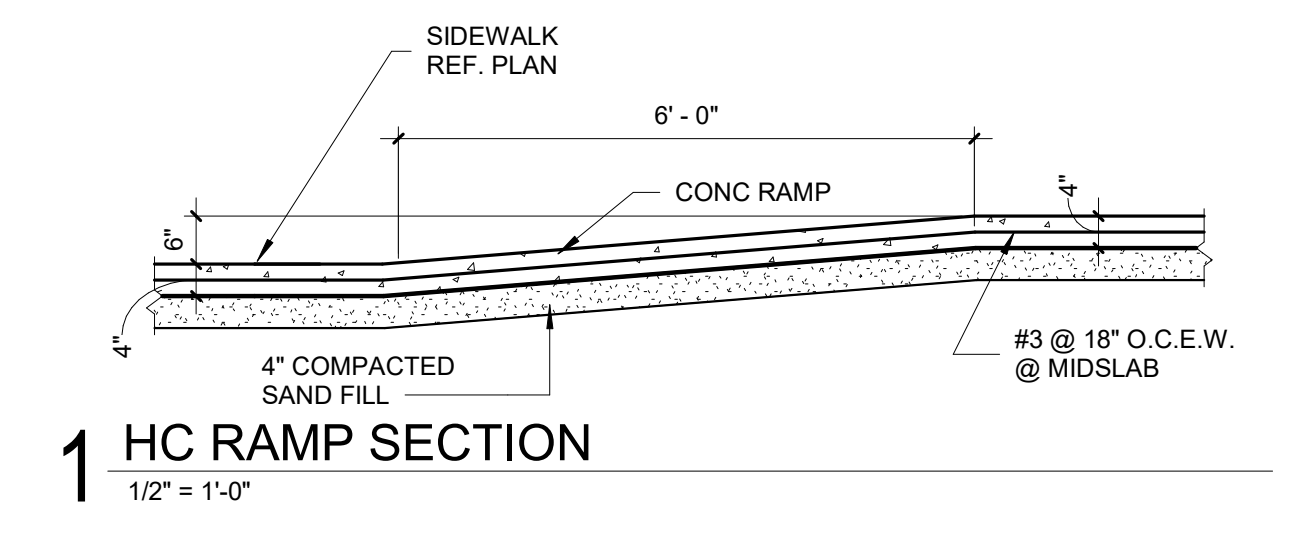
4 NEW SIDEWALK
1" = 1'-0"



3 EXISTING TO NEW CONCRETE
1" = 1'-0"

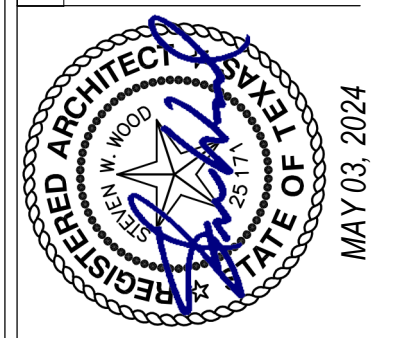


2 HC RAMP
1" = 1'-0"



1 HC RAMP SECTION
1/2" = 1'-0"

REV	DATE	DESCRIPTION



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SITE DETAILS
SP102

LEGEND

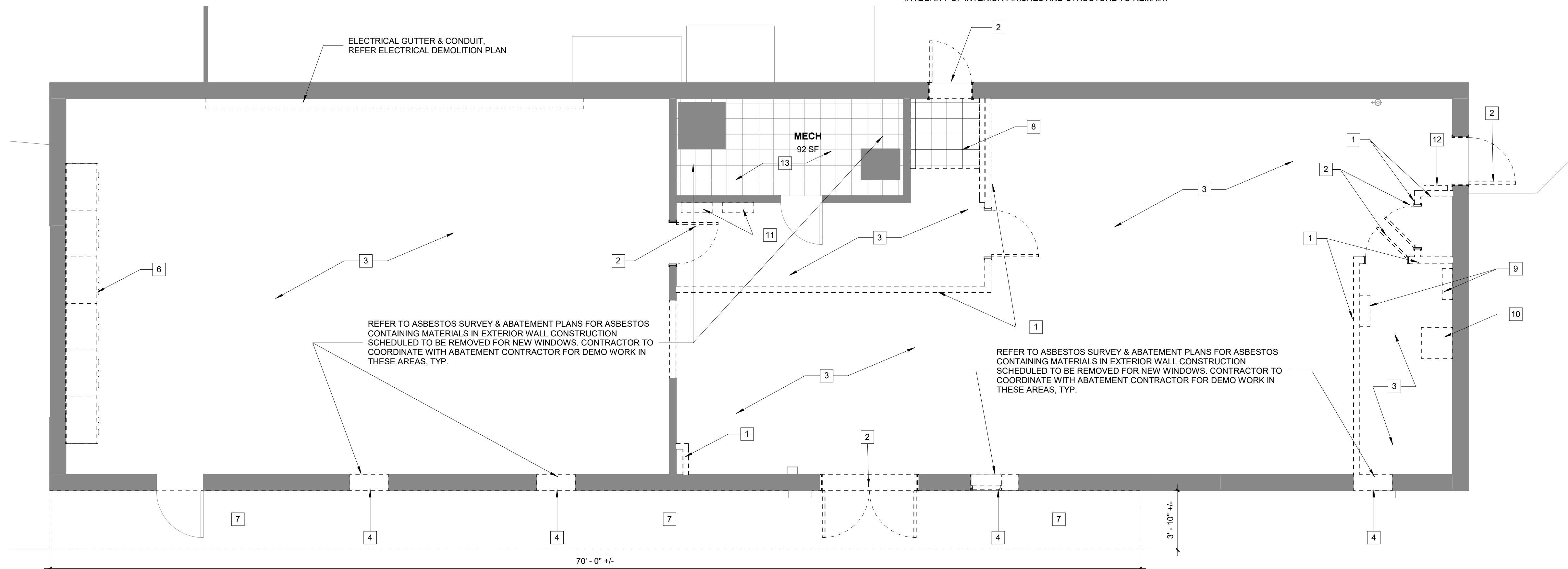
- EXISTING CONSTRUCTION TO REMAIN
- - - - - AREAS SCHEDULED FOR DEMOLITION
REFER DEMOLITION NOTES

GENERAL NOTES - DEMOLITION

1. CONTRACTOR SHALL VISIT THE SITE AND VERIFY EXISTING CONDITIONS. IF CONDITIONS OCCUR DIFFERENTLY THAN SHOWN NOTIFY ARCHITECT IMMEDIATELY.
2. REFER TO OWNER PROVIDED ASBESTOS SURVEY AND ABATEMENT PLANS FOR ASBESTOS CONTAINING MATERIALS PRIOR TO DEMOLITION. CONTRACTOR TO COORDINATE WITH ABATEMENT CONTRACTOR FOR ABATEMENT AND DEMO WORK.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PATCH AND REPAIR WORK CREATED BY NEW CONSTRUCTION & DEMOLITION SUCH THAT IT IS NOT READILY APPARENT THAT ITEMS HAVE BEEN REMOVED OR ADDED, MATCH FINAL FINISHES.
4. COORDINATE WITH OWNER FOR LOCATION OF TEMPORARY PARTITIONS AND DOORS FOR DUST CONTROL.
5. REFER TO PLUMBING & MECHANICAL DEMO PLANS FOR EXISTING PLUMBING & MECHANICAL UNDER CONCRETE FLOOR STRUCTURE TO BE REMOVED & FOR NEW PENETRATIONS TO ACCOMMODATE NEW PLUMBING AND MECHANICAL BELOW. CONTRACTOR SHALL NOT CORE THROUGH CONCRETE SLAB WITHOUT APPROVAL. CONTRACTOR SHALL NOT CORE THROUGH CONCRETE BEAMS OR JOISTS
6. REMOVE ALL EXISTING ACCESSORIES; PAMPHLET DISPENSERS, MARKER BOARDS, COAT RACKS, AND EXTINGUISHERS. COORDINATE W/ OWNER FOR STORAGE OR DISPOSAL.
7. PROTECT ALL SURFACES THAT REMAIN
8. CARE TO BE TAKEN TO PRESERVE INTEGRITY OF ALL STRUCTURAL WALLS, RATED WALLS, PARTITIONS, COLUMNS & CHASES; REPAIR ANY DAMAGE TO EXIST. WALLS MAINTAIN ALL RATINGS.
9. COORDINATE DEMOLITION / REROUTING OF MEP UTILITY SERVICES WITH OWNER. ANY WORK THAT DISRUPTS SERVICES IN AREAS NOT CONTAINED WITHIN THE WORK AREA SHALL REQUIRE OWNER APPROVAL IN ADVANCE OF SHUTDOWN. REFER TO MEP DRAWINGS.
10. COORDINATE DISPOSAL OR STORAGE OF ALL DEMOLISHED DOOR HARDWARE WITH OWNER. REF. DOOR SCHEDULE.
11. CONTRACTOR SHALL MAINTAIN A WEATHERPROOF EXTERIOR ENVELOPE AT ALL TIMES UNLESS A SPECIFIC AREA OF WORK IS IMMEDIATELY UNDER CONSTRUCTION OR DEMOLITION. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN THE INTEGRITY OF INTERIOR FINISHES AND STRUCTURE TO REMAIN.

DEMOLITION KEY NOTES

- 1 REMOVE GYP. BD. PARTITIONS COMPLETE WHERE SHOWN DASHED U.N.O., TYPICAL.
- 2 REMOVE EXISTING DOOR & FRAME COMPLETE WHERE SHOWN DASHED.
- 3 REMOVE SUSPENDED ACOUSTICAL CEILING TILE AND/OR GYP. CEILING COMPLETE. REFER TO RCP FOR LIMITS OF NEW CEILING CONSTRUCTION.
- 4 REMOVE FACE BRICK, BRICK TIES, AND AIR/VAPOR BARRIER ON EXTERNAL WALL. PREPARE EXISTING FRAMING FOR NEW GYP BOARD INSTALLATION. INTERIOR GYP, BD. AND FINISHES TO REMAIN.
- 5 REMOVE CARPET AND/OR TILE FLOORING, AND BASE COMPLETE.
- 6 REMOVE CASEWORK COMPLETE.
- 7 REMOVE CONCRETE SIDEWALK WHERE SHOWN
- 8 REMOVE RAISED FLOOR AT EXISTING CORRIDOR COMPLETE
- 9 REMOVE EXISTING CONTROL PANELS AND CONDUITS AND CHASE WALL BELOW PANELS, REF. ELEC. DEMO
- 10 REMOVE EXISTING IT RACK AND CONDUITS, REF. ELEC. DEMO
- 11 REMOVE EXISTING ELECTRICAL PANELS, FEEDS, AND CHASE WALL BELOW PANELS PER ELECTRICAL DEMO.
- 12 REMOVE EXISTING FIRE ALARM PANEL PER ELECTRICAL DEMO.
- 13 REMOVE EXISTING PLYWOOD FLOOR DECKING COMPLETE AT MECH. ROOM.

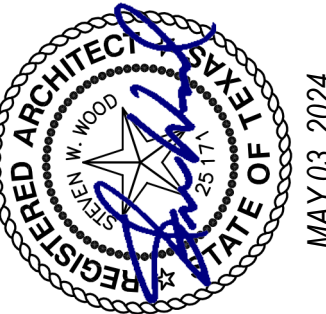


1 DEMOLITION PLAN
1/4" = 1'-0"

SCALE: 1/4"=1'-0"
0 5 10

DESCRIPTION

REV DATE



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DEMOLITION PLAN

AD101

FLOOR PLAN LEGEND

2B PARTITION REFERENCE MARKS. REF A402

X/XX INTERIOR ELEVATION MARKS

2 A301 SECTION & EXTERIOR ELEVATION MARKS

DOOR SCHEDULE MARK

A GLAZING SCHEDULE MARK

1 KEYNOTE MARK

EXISTING CONSTRUCTION TO REMAIN

STUD WALL - RE A/A401 U.N.O.

1 HR. FIRE RATED CONSTRUCTION - RE F/A401 U.N.O.

ACCESSIBLE CLEARANCE

EQUIPMENT (A) CONTRACTOR FURNISHED/CONTRACTOR INSTALLED (DEFAULT U.N.O.)

EQUIPMENT (B) OWNER FURNISHED/OWNER INSTALLED

WALL-HUNG CLOCK. REF MEP FOR DATA AND POWER.

FIRE EXTINGUISHER ON BRACKET (A)

RECESSED FIRE EXTINGUISHER CABINET (A)

PAPER TOWEL DISPENSER (B)

SOAP DISPENSER (B)

TOILET PAPER DISPENSER (B)

SANITARY NAPKIN DISPOSAL

WALL MOUNTED FRAMED MIRROR (A)

MOP/BROOM HOLDER

ROBE HOOK (A)

GB - GRAB BAR - 34" A.F.F. TO CENTER LENGTH OF BAR (INCHES)

MB-MARKER BOARD

MOUNTING HEIGHT FROM BOTTOM OF UNIT TO FINISH FLOOR (36" U.N.O.)

PARTITION NOTES

- A. ALL PARTITIONS SCHEDULED OR NOTED TO RECEIVE PORCELAIN WALL TILE SHALL HAVE WATER RESISTANT GYP. BD. IN LIEU OF STD.
- B. REFER 10/A102 FOR TYPICAL CONTROL JOINT LOCATIONS.

FINISHES CODE LIST

FLOOR/BASE	WALLS/WAINSCOT	CEILING
1 POLISHED CONCRETE W/ CLASS C LEVEL 3 FINISH TYP. W/ 4" RUBBER BASE	A TEXTURE & PAINT GWB	1 2x2 SUSPENDED ACOUSTICAL CEILING W/ GRID
2 LVT A / RESILIENT W/ 4" RUBBER BASE	B FRP PANELS, FULL HEIGHT ALL WALLS	2 -
3 PORCELAIN TILE / 6" PORCELAIN BULLNOSE TILE BASE U.N.O.	C FULL HEIGHT PORCELAIN TILE; REF INT. ELEVS. AND ENLARGED BATHROOM PLANS	3 EXISTING TO REMAIN
4 EXIST TO REMAIN; PATCH & REPAIR	D PATCH & REPAIR EXISTING GYP. BD. AT EXTERIOR WALLS AS REQUIRED. PAINT EXISTING SURFACES, TYP.	4 -
5 2 LAYERS 3/4" PLYWOOD DECKING, PAINTED	E EXISTING TO REMAIN	5 -
6 -	F -	6 -
7 -	G -	7 -

MATERIAL CODE LIST MARKER

GENERAL FINISHES NOTE:
 1. PATCH HOLES, REPAIR TEXTURE, & PAINT TO MATCH AT EXISTING WALLS TO REMAIN
 2. REFER TO RCP FOR CEILING HEIGHTS NOT SHOWN HERE.

ROOM NAME 107

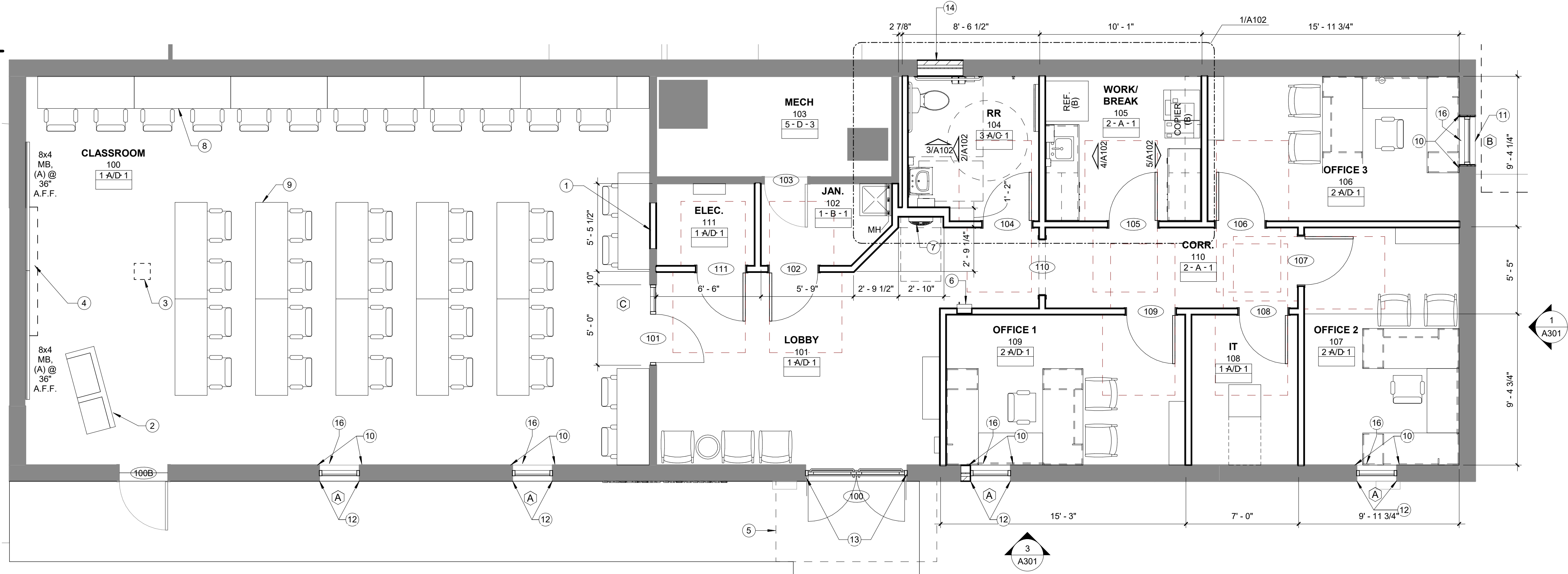
WALL FINISH
 CEILING FINISH
 FLOOR FINISH
 CEILING HEIGHT

KEY NOTES:

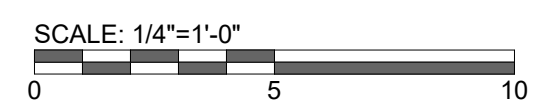
- INFILL EXISTING DOOR WITH 3 5/8" STUD WALL. TAPE, BED, TEXTURE, & PAINT
- INSTRUCTION PODIUM (B)
- CEILING MOUNTED VIDEO PROJECTOR (B)
- WALL MOUNTED, MOTORIZED PROJECTOR SCREEN
- PREFINISHED 5'-0" X 10'-0" ALUMINUM AWNING. CONTRACTOR TO PROVIDE ALL REQUIRED BLOCKING FOR PROPER ATTACHMENT TO EXISTING WALL CONSTRUCTION. REF SPECIFICATIONS
- FIRE EXTINGUISHER-CABINET SEMI-RECESSED.
- WATER BOTTLE FILL STATION; REF PLUMBING.
- 72" MOBILE WORKSTATION PROVIDED BY OWNER
- 72" MOBILE STUDENT TABLES PROVIDED BY OWNER
- PATCH & REPAIR INTERIOR AND EXTERIOR SURFACES AT NEW WINDOWS
- INFILL SPACE BELOW WINDOW WITH LIKE CONSTRUCTION. TOOTH-IN RECLAIMED BRICK OR OWNER PROVIDED FACE BRICK
- TOOTH-IN RECLAIMED FACE BRICK OR OWNER PROVIDED FACE BRICK AT ALL SIDES OF ALUMINUM WINDOWS, TYP.
- PATCH & REPAIR (TOOTH-IN) RECLAIMED FACE BRICK OR OWNER PROVIDED FACE BRICK AT ALL SIDES OF ALUMINUM ENTRANCE, TYP.
- INFILL EXISTING DOOR OPENING WITH LIKE CONSTRUCTION. TOOTH-IN RECLAIMED FACE BRICK OR OWNER PROVIDED FACE BRICK
- EXISTING SCUTTLE HOLE TO REMAIN FOR ACCESS TO CRAWLSPACE BELOW MECH. ROOM.
- PROVIDE ROLLER SHADES AS SPECIFIED

GENERAL NOTES:

- THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS. THE GENERAL CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR UNFORESEEN CONDITIONS AS SOON AS THEY ARE DISCOVERED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PATCH AND REPAIR WORK CREATED BY NEW CONSTRUCTION IN AREAS OF EXISTING CONSTRUCTION SUCH THAT IT IS NOT READILY APPARENT THAT ITEMS HAVE BEEN REMOVED OR ADDED.
- ALL WALL DIMENSIONS ARE TO FACE OF FRAMING MEMBERS OR FACE OF EXISTING CONSTRUCTION, CENTER LINE OF WINDOW, AND CENTER LINE OF COLUMNS. DOOR OPENING DIMENSIONS ARE TO EDGE OF OPENING. NOTIFY ARCHITECT IMMEDIATELY IF ANY DIMENSIONAL DISCREPANCIES OCCUR.
- CONTRACTOR TO PROVIDE IN-WALL BLOCKING FOR WALL MOUNTED RAILS, CASEWORK, & EQUIPMENT AS SHOWN OR AS REQUIRED FOR A COMPLETE INSTALLATION PER MFG'R'S RECOMMENDATION.
- PENETRATIONS IN FIRE RESISTIVE MEMBRANES SHALL BE PROTECTED IN A MANNER TO MAINTAIN THE INTEGRITY OF THE RATED ASSEMBLY, INCLUDING ALL PENETRATIONS THRU EXISTING CONCRETE FLOORS. SEAL ALL PENETRATIONS THRU EXISTING CONC FLOOR & ROOF DECK, INCLUDING EXISTING PENETRATIONS WHERE NEEDED.
- AT EXISTING ELEMENTS (SHAFTS, CHASES, RATED ROOMS), VERIFY THE WALL ASSEMBLY COMPLIES W/ THE FIRE/SMOKE RATING INDICATED. PATCH OPENINGS & PENETRATIONS AS REQUIRED TO MAINTAIN OR ACHIEVE RATING.
- REFER TO SHEET A102 FOR ENLARGED BATHROOM PLANS.
- OPENINGS IN FLOORS OR PRIORITY WALLS SHALL BE SEALED AT THE END OF EACH SHIFT BY MEANS OF PERMANENT OR TEMPORARY QUALIFIED MATERIAL FOR EACH RATING.
- ENSURE DOOR ACCESSIBLE CLEARANCES ARE MAINTAINED WITH ALL FIXTURES/EQUIPMENT INSTALLED
- PATCH AND REPAIR EXISTING RATED WALLS AS REQUIRED TO RETAIN FIRE-RATING/ SMOKE-RESISTANCE.



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



DESCRIPTION

REV DATE

REGISTERED ARCHITECT
 STATE OF TEXAS
 MAY 03, 2024

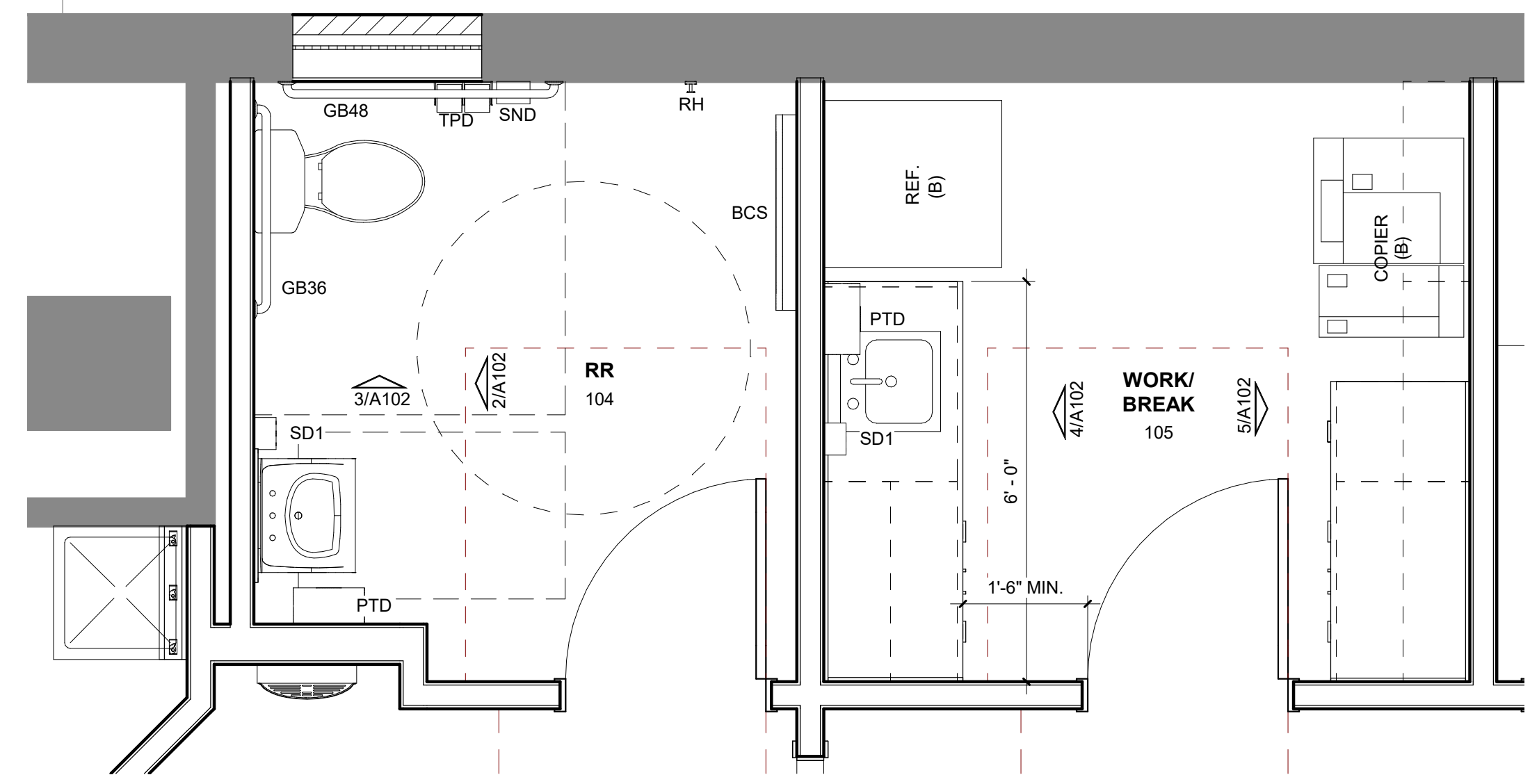
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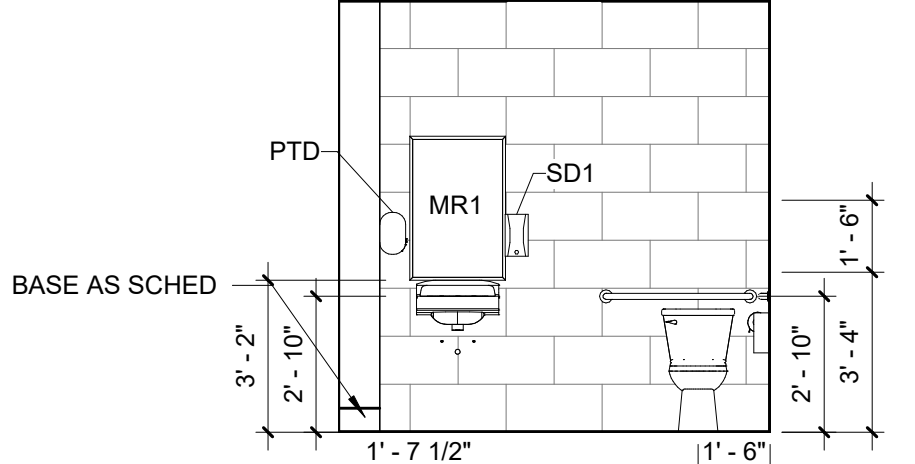
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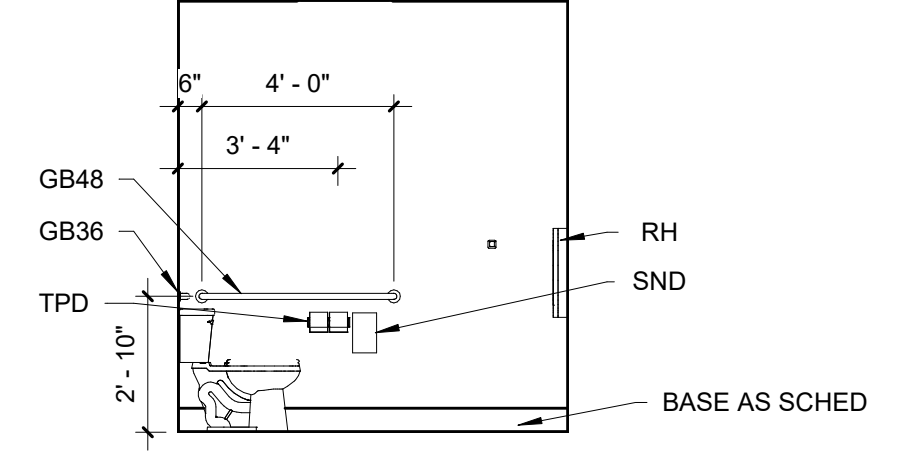
FLOOR PLAN
A101



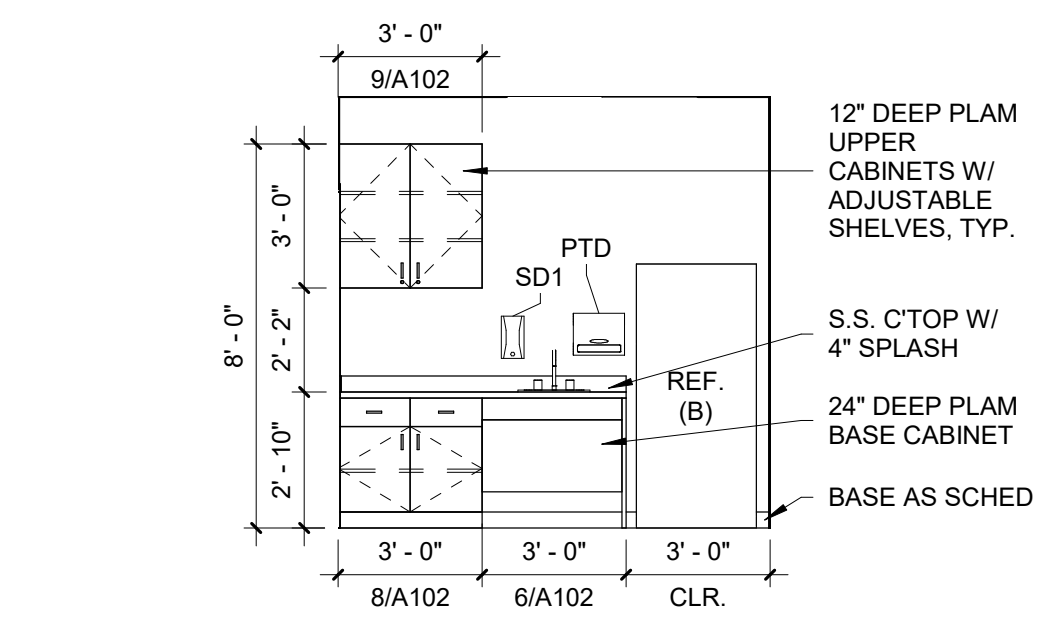
1 ENLARGED FLOOR PLAN
1/2" = 1'-0"
SCALE: 1/2" = 1'-0"



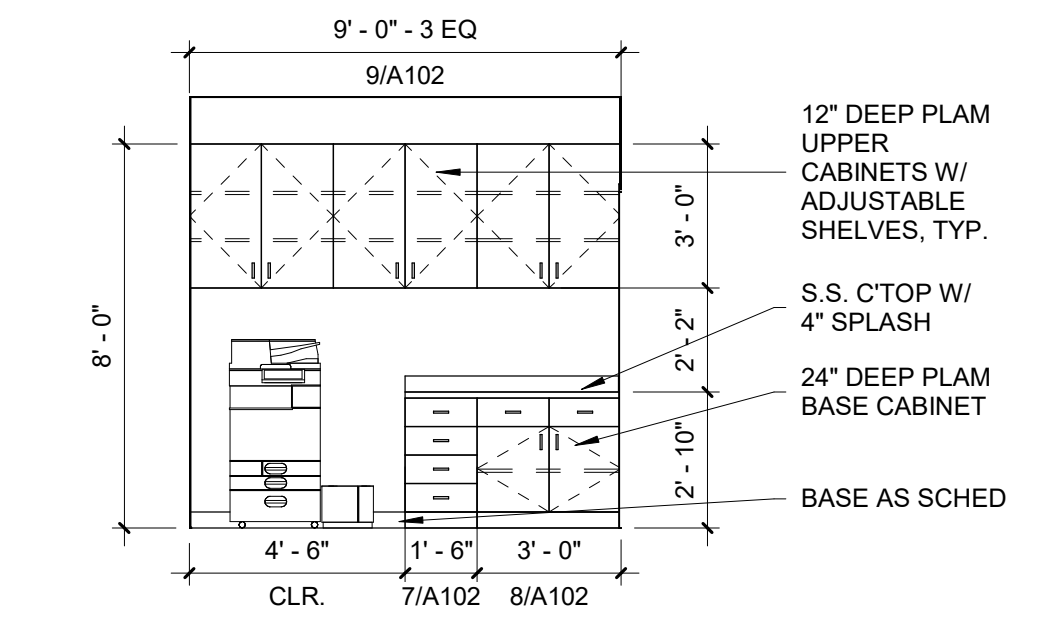
2 RESTROOM
1/4" = 1'-0"



3 RESTROOM
1/4" = 1'-0"



4 WORK/BREAK
1/4" = 1'-0"



5 WORK/BREAK
1/4" = 1'-0"

FLOOR PLAN LEGEND

- 2B PARTITION REFERENCE MARKS. REF A402
- XXX INTERIOR ELEVATION MARKS
- 2 A301 SECTION & EXTERIOR ELEVATION MARKS
- # DOOR SCHEDULE MARK
- A GLAZING SCHEDULE MARK
- 1 KEYNOTE MARK

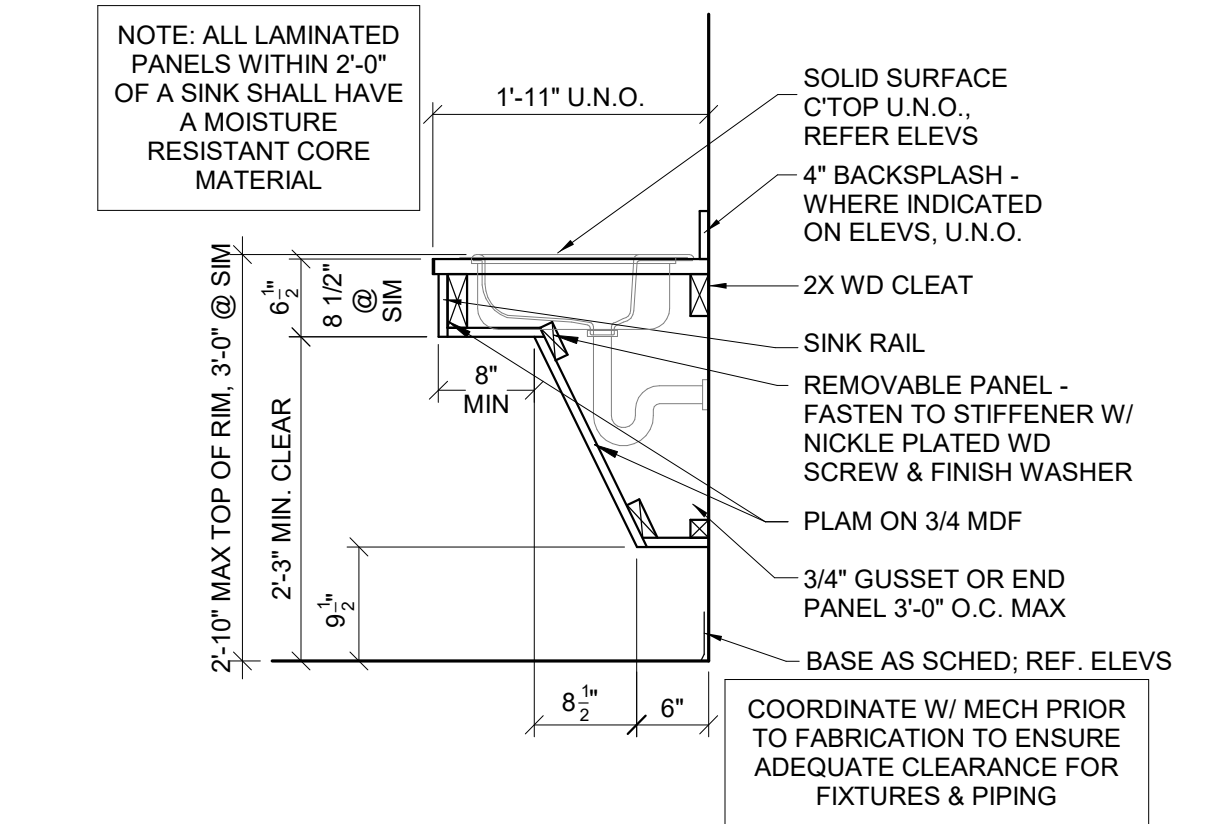
- EXISTING CONSTRUCTION TO REMAIN
- STUD WALL - RE A/A401 U.N.O.
- 1 HR. FIRE RATED CONSTRUCTION - RE F/A401 U.N.O.
- ACCESSIBLE CLEARANCE

- EQUIPMENT (A) CONTRACTOR FURNISHED/CONTRACTOR INSTALLED (DEFAULT U.N.O.)
- EQUIPMENT (B) OWNER FURNISHED/OWNER INSTALLED
- WALL-HUNG CLOCK. REF MEP FOR DATA AND POWER.
- FIRE EXTINGUISHER ON BRACKET (A)
- RECESSED FIRE EXTINGUISHER CABINET (A)
- PAPER TOWEL DISPENSER (B)
- SOAP DISPENSER (B)
- TOILET PAPER DISPENSER (B)
- SANITARY NAPKIN DISPOSAL
- WALL MOUNTED FRAMED MIRROR (A)
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- ROBE HOOK (A)
- GB - GRAB BAR - 34" A.F.F. TO CENTER LENGTH OF BAR (INCHES)

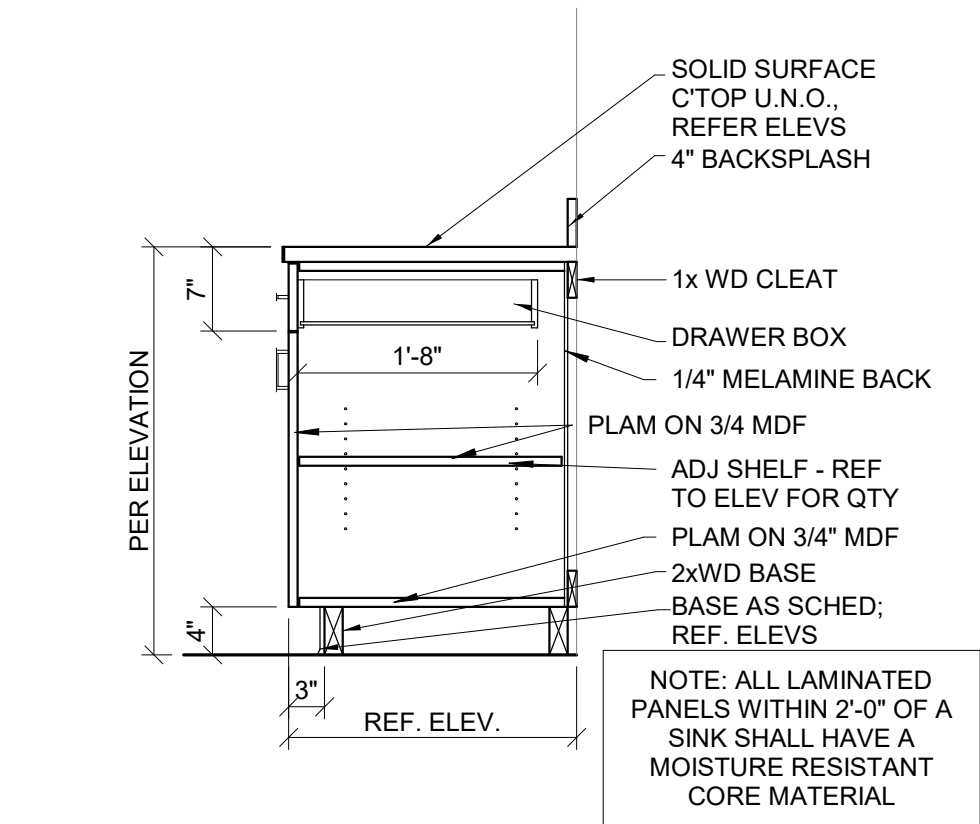
- HEIGHT (IN FEET)
- WIDTH (IN FEET)
- MB-MARKER BOARD
- MOUNTING HEIGHT FROM BOTTOM OF UNIT TO FINISH FLOOR (36" U.N.O.)

PARTITION NOTES

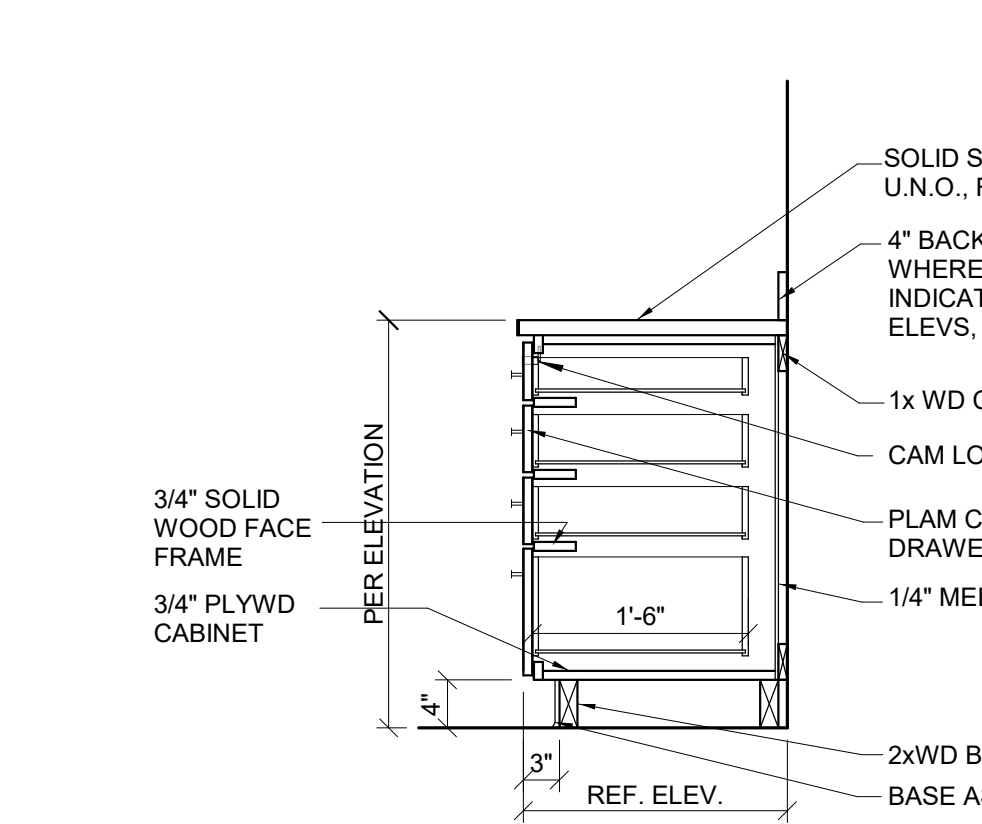
- A. ALL PARTITIONS SCHEDULED OR NOTED TO RECEIVE PORCELAIN WALL TILE SHALL HAVE WATER RESISTANT GYP. BD. IN LIEU OF STD.
- B. REFER 10/A102 FOR TYPICAL CONTROL JOINT LOCATIONS.



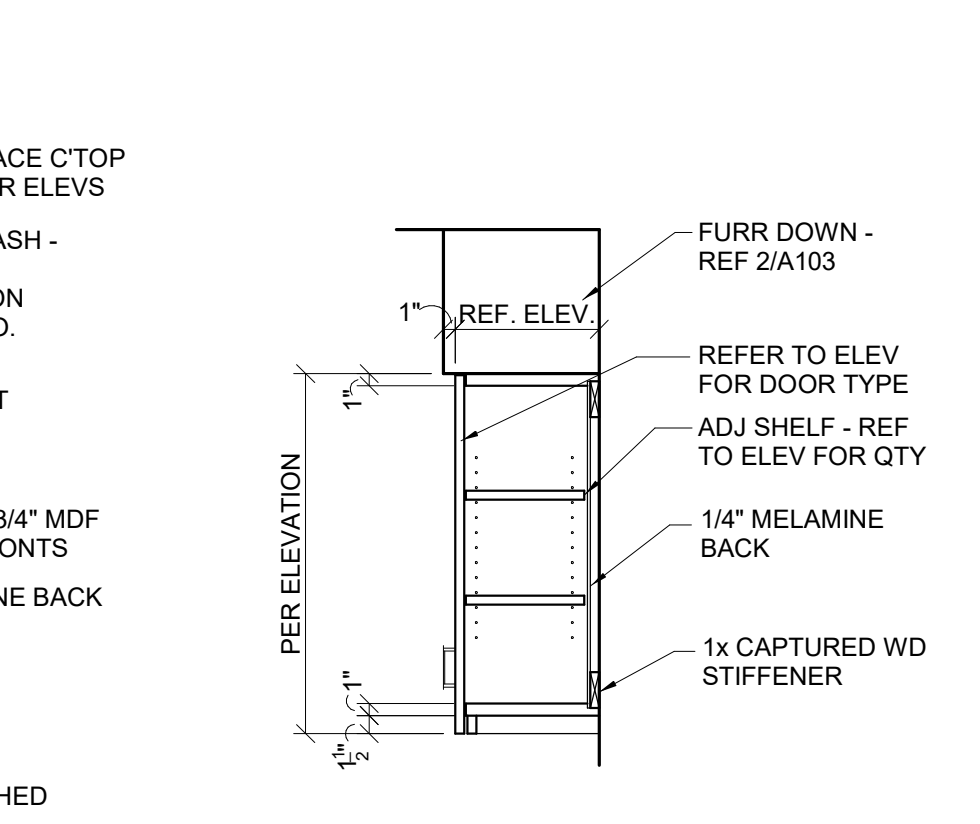
6 DETAIL
3/4" = 1'-0"



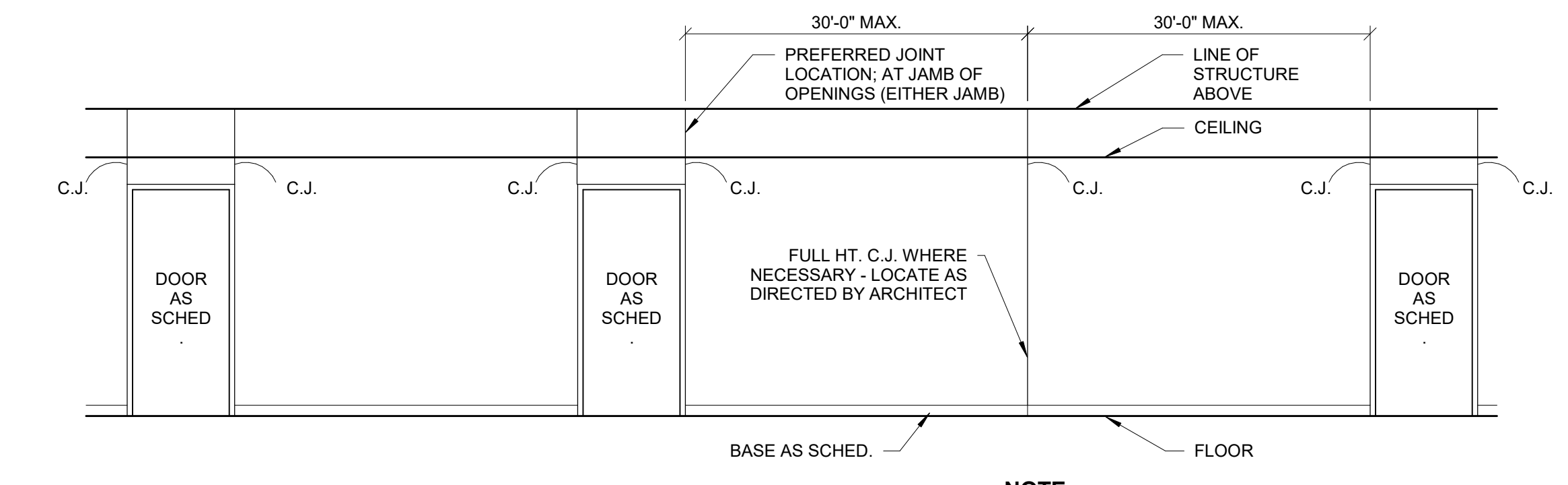
7 DETAIL
3/4" = 1'-0"



8 DETAIL
3/4" = 1'-0"



9 DETAIL
3/4" = 1'-0"



10 PARTITION CONTROL JOINT REQUIREMENTS
1/4" = 1'-0"
NOTE: ALL INTERIOR CONTROL JOINTS TO BE V-SHAPED FRY REGLETS; PAINTED TO MATCH WALL COLOR; U.N.O.

SPECIFIED ITEMS			FURNISHED / INSTALLED		
MARK	ITEM	SPECIFICATION	OFOI	OFCI	CFCI
TPD	TOILET PAPER DISPENSER			X	
PTD	PAPER TOWEL DISPENSER			X	
SD	SOAP DISPENSER			X	
GB36	GRAB BAR	GRAB BAR SPECIALISTS #1-GBS-1-14-SS (36" IN LENGTH, PEENED)			X
GB48	GRAB BAR	GRAB BAR SPECIALISTS #1-GBS-1-14-SS (48" IN LENGTH, PEENED)			X
RH	ROBE HOOK	BOBRICK B-2116, MOUNT @ 44" AFF			X
MR1	MIRROR	BOBRICK SERIES B-165 24X36 FRAMED MIRROR			X
SND	SANITARY NAPKIN DISPOSAL	BOBRICK B-270			X
BCS	BABY CHANGING STATION	KOALA KARE PRODUCTS #KB200-SS			X
MH	MOP HOLDER	BOBRICK B-223 24"			X

** OFOI - OWNER FURNISHED, OWNER INSTALLED; VERIFY PLBG, ELEC, BLOCKING, AND SPACE REQUIREMENTS WITH OWNER.
OFCI - OWNER FURNISHED, CONTRACTOR INSTALLED
CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
NOTE: ALL ITEMS TO BE AS SPECIFIED OR APPROVED EQUAL
CONFIRM TOILET ACCESSORY MOUNTING LOCATION W ARCH. PRIOR TO INSTALLATION

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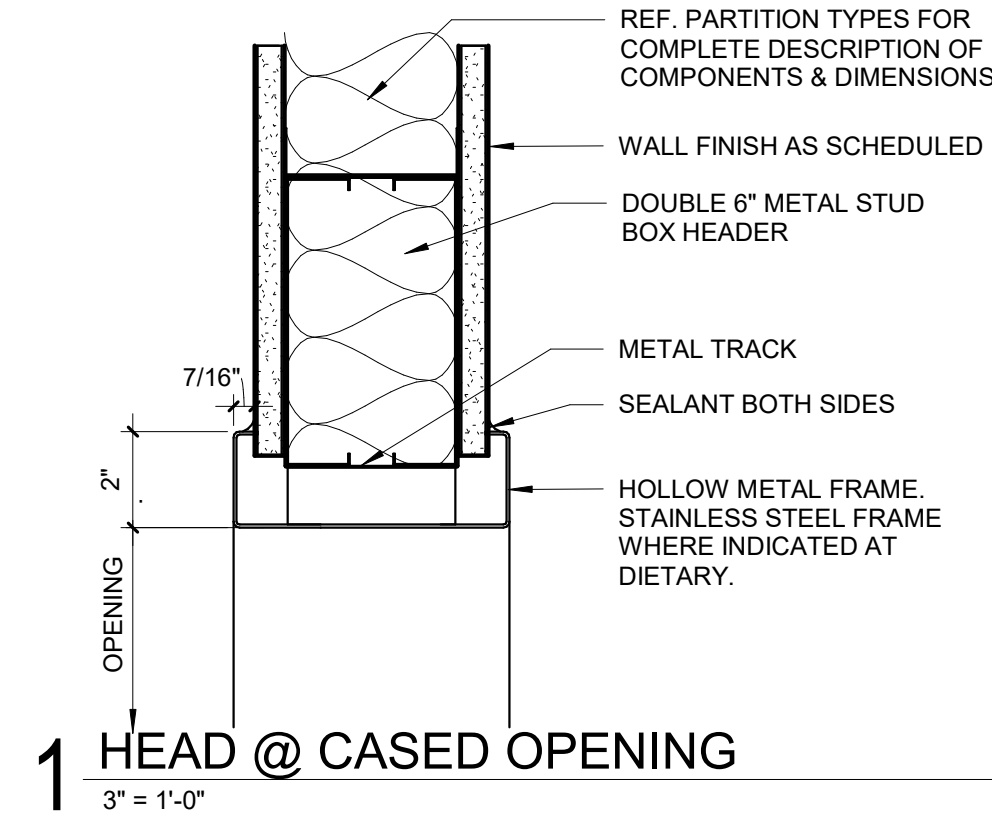
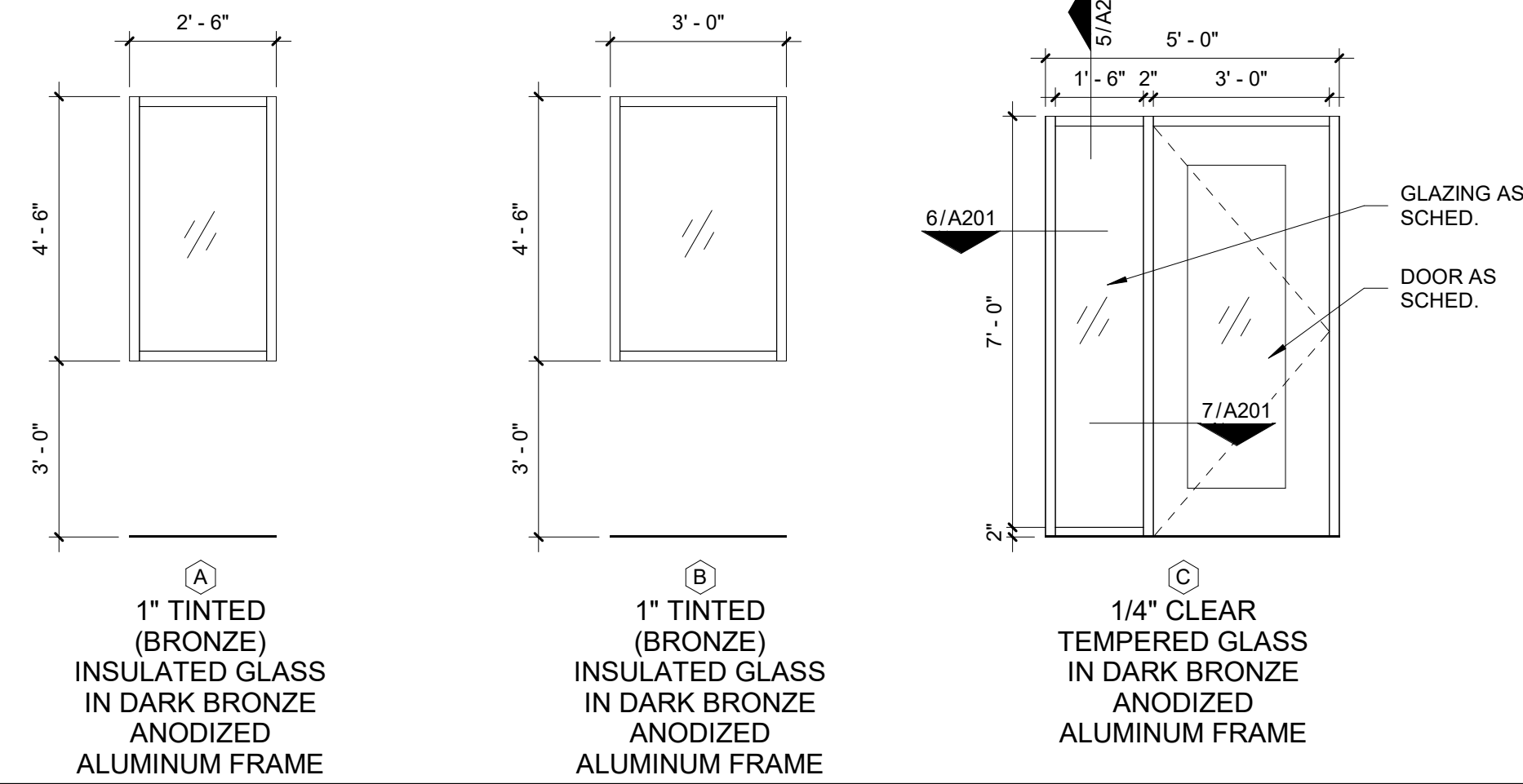
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PROJECT NO. 23062

ENLARGED PLANS & ELEVATIONS

A102

WINDOW SCHEDULE



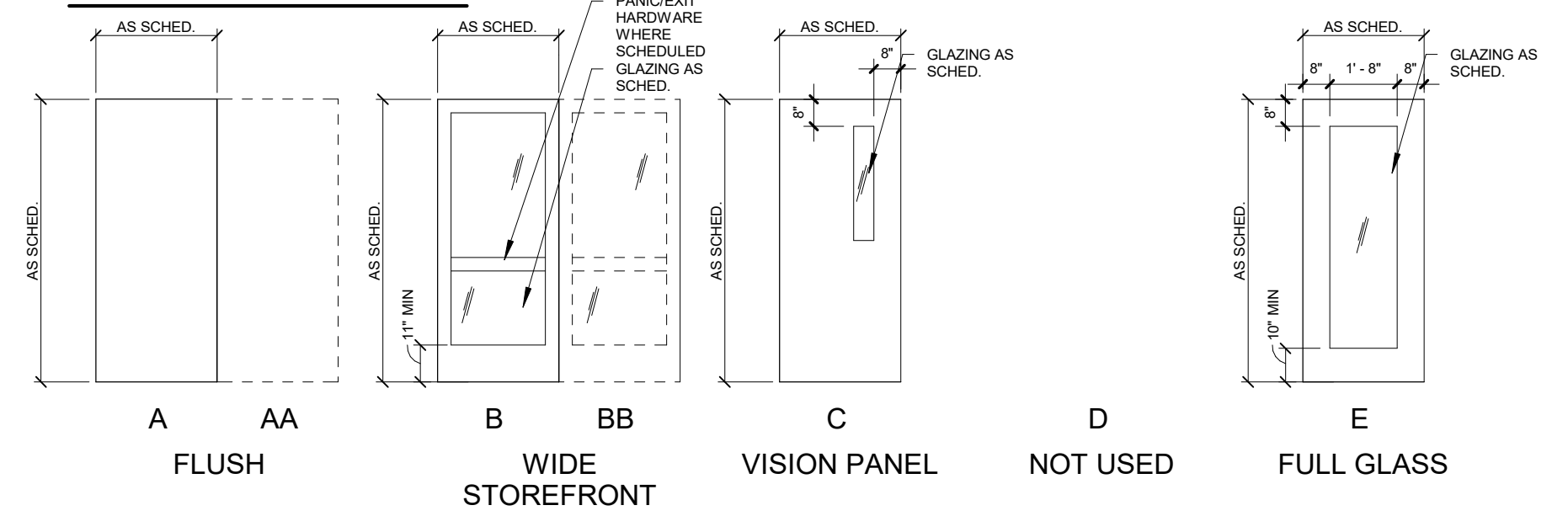
1 HEAD @ CASSED OPENING
3\"/>

DOOR SCHEDULE

DOOR MARK	ROOM NAME	DIMENSIONS			CONSTRUCTION			DETAILS			REMARKS (6)	HW SET	DOOR MARK
		DOOR WIDTH	DOOR HEIGHT	DOOR THICKNESS	DOOR TYPE (1)	CONSTRUCTION (2)	GLAZING (3)	FIRE RATING (4)	FRAME TYPE (5)	HEAD DETAIL			
100	LOBBY	6'-0"	7'-0"	1 3/4"	BB	AL	TSI	-	AL				100
100B	CLASSROOM	3'-0"	7'-0"	1 3/4"	A	HMI		-	HM	3/A201	4/A201		100B
101	CLASSROOM	3'-0"	7'-0"	1 3/4"	E	WD	TS		HM	3/A201	4/A201		101
102	LOBBY	3'-0"	7'-0"	1 3/4"	A	WD			HM	3/A201	4/A201		102
103	JAN.	2'-8"	7'-0"	1 3/4"	A	-	-	-	-	-	-	EXISTING DOOR & FRAME TO REMAIN	103
104	RR	3'-0"	7'-0"	1 3/4"	A	WD			HM	3/A201	4/A201		104
105	WORK/BREAK	3'-0"	7'-0"	1 3/4"	C	WD	TS		HM	3/A201	4/A201		105
106	OFFICE 3	3'-0"	7'-0"	1 3/4"	C	WD	TS		HM	3/A201	4/A201		106
107	OFFICE 2	3'-0"	7'-0"	1 3/4"	C	WD	TS		HM	3/A201	4/A201		107
108	IT	3'-0"	7'-0"	1 3/4"	A	WD			HM	3/A201	4/A201		108
109	OFFICE 1	3'-0"	7'-0"	1 3/4"	C	WD	TS		HM	3/A201	4/A201		109
110	CORR.	3'-6"	7'-0"						HM	1/A201	2/A201	C.O.	110
111	LOBBY	3'-0"	7'-0"	1 3/4"	A	WD			HM	3/A201	4/A201		111

DOOR NOTES

NOTE 1: DOOR TYPES



NOTE 2: DOOR CONSTRUCTION
SC - SOLID CORE WOOD W/ WD VENEER CLADDING
HM - HOLLOW METAL
HMI - HOLLOW METAL INSULATED
AL - ALUMINUM

NOTE 4: FIRE RATING
= FIRE RESISTANCE RATING IN MINUTES
S = RESISTS THE PASSAGE OF SMOKE
- = NO FIRE RATING

NOTE 6: REMARKS
A - ACCESS CONTROL
B - H.M. CASSED OPENING
E - EXISTING TO REMAIN

NOTE 3: GLASS TYPES

TS - 1/4" CLEAR TEMPERED GLASS
TSI - CLEAR TEMPERED INSULATED GLASS

NOTE 5: FRAME TYPES

HM - HOLLOW METAL
HMI - HOLLOW METAL INSULATED
AL - ALUMINUM
EX - EXISTING

2 JAMB @ CASSED OPENING
3\"/>

3 HEAD DETAIL
3\"/>

4 JAMB DETAIL
3\"/>

5 HEAD DETAIL
3\"/>

6 JAMB DETAIL
3\"/>

7 JAMB DETAIL
3\"/>

8 NON-RATED
1 1/2\"/>

PARTITION SUB-TYPE	STUD WIDTH	PARTITION THICKNESS
2	2 1/2" STUDS	3 3/4"
3	3 5/8" STUDS	4 7/8"
6	6" STUDS	7 1/4"
8	8" STUDS	9 1/4"



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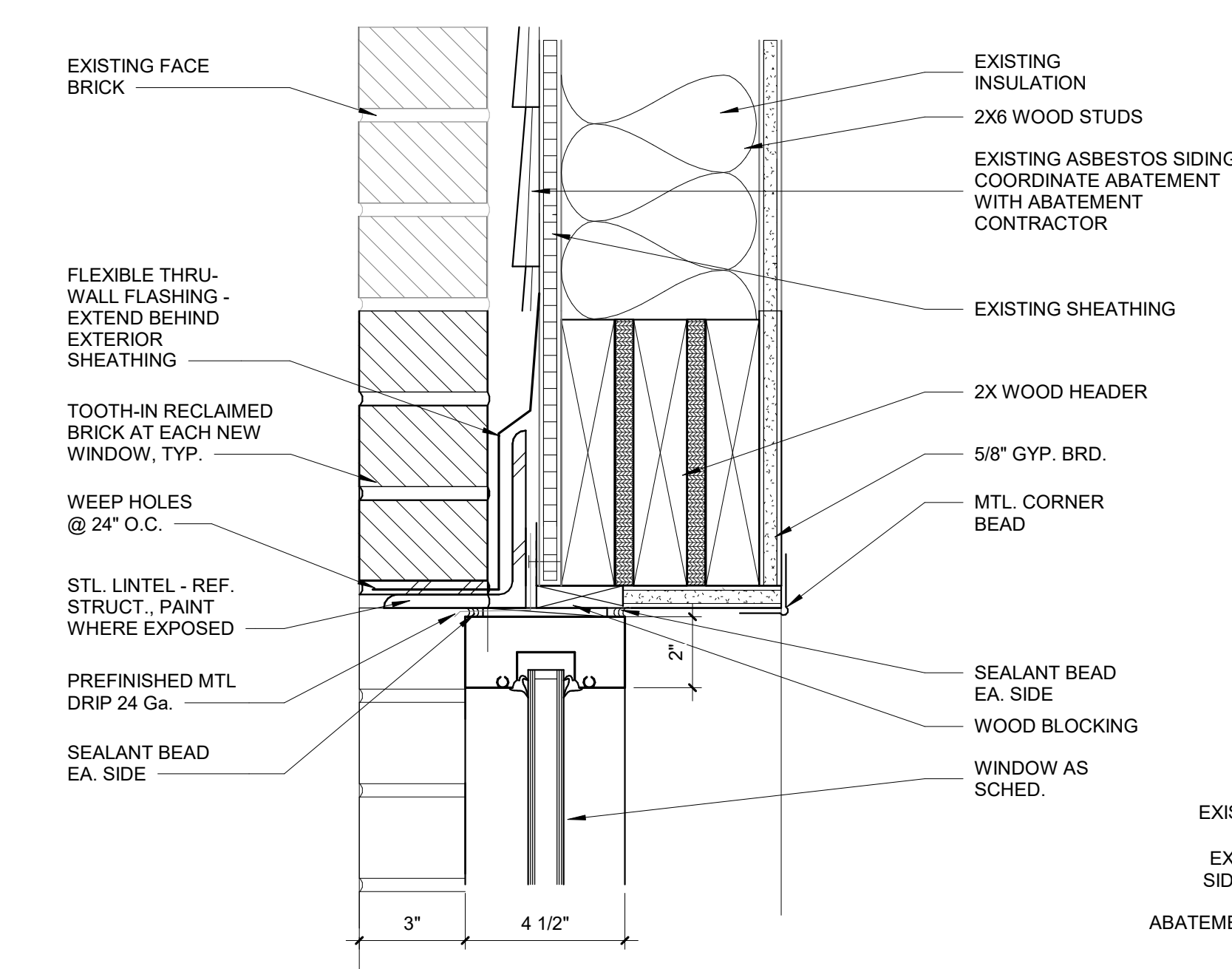
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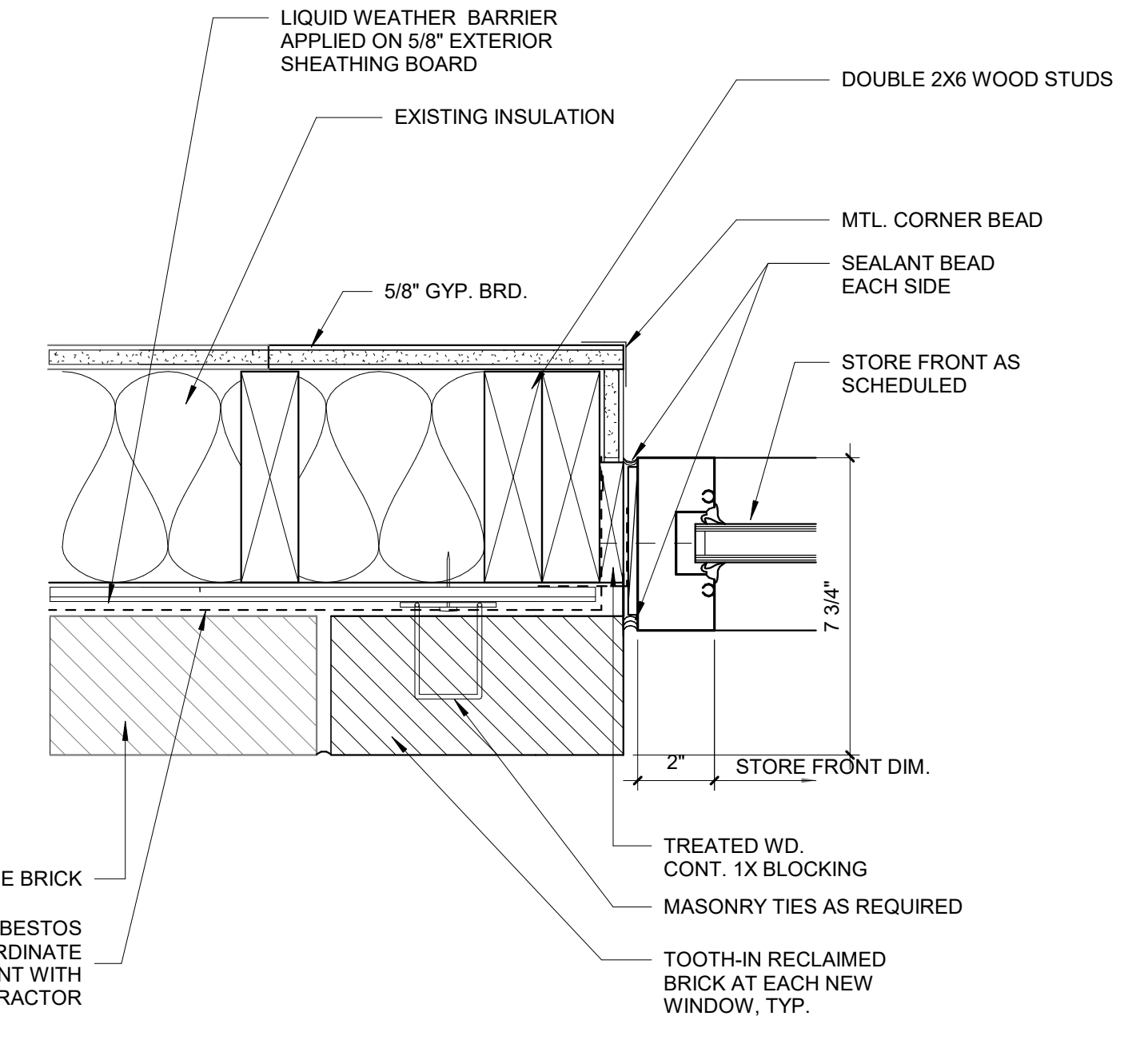
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DATE: 05.03.2024
PROJECT NO.: 23062

DOOR & WINDOW SCHEDULES

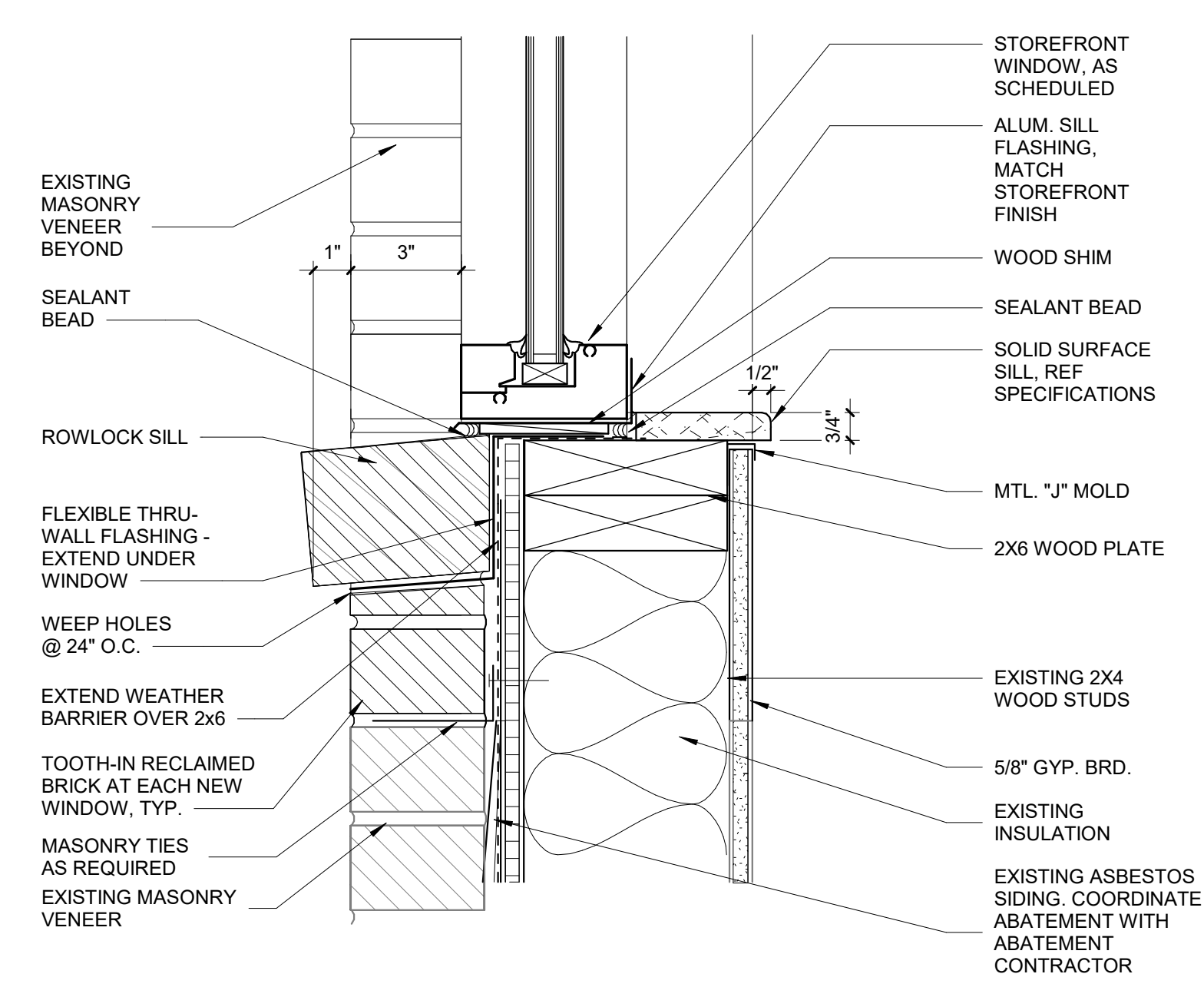
A201



1 WINDOW HEAD
3" = 1'-0"



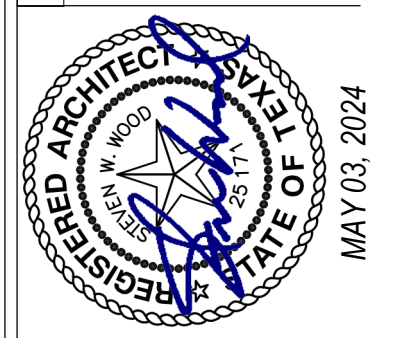
2 WINDOW JAMB
3" = 1'-0"



3 WINDOW SILL
3" = 1'-0"

CONTRACTOR TO VERIFY ALL EXISTING WALL CONDITIONS. TYP FOR DETAILS 1-3.

REV	DATE	DESCRIPTION



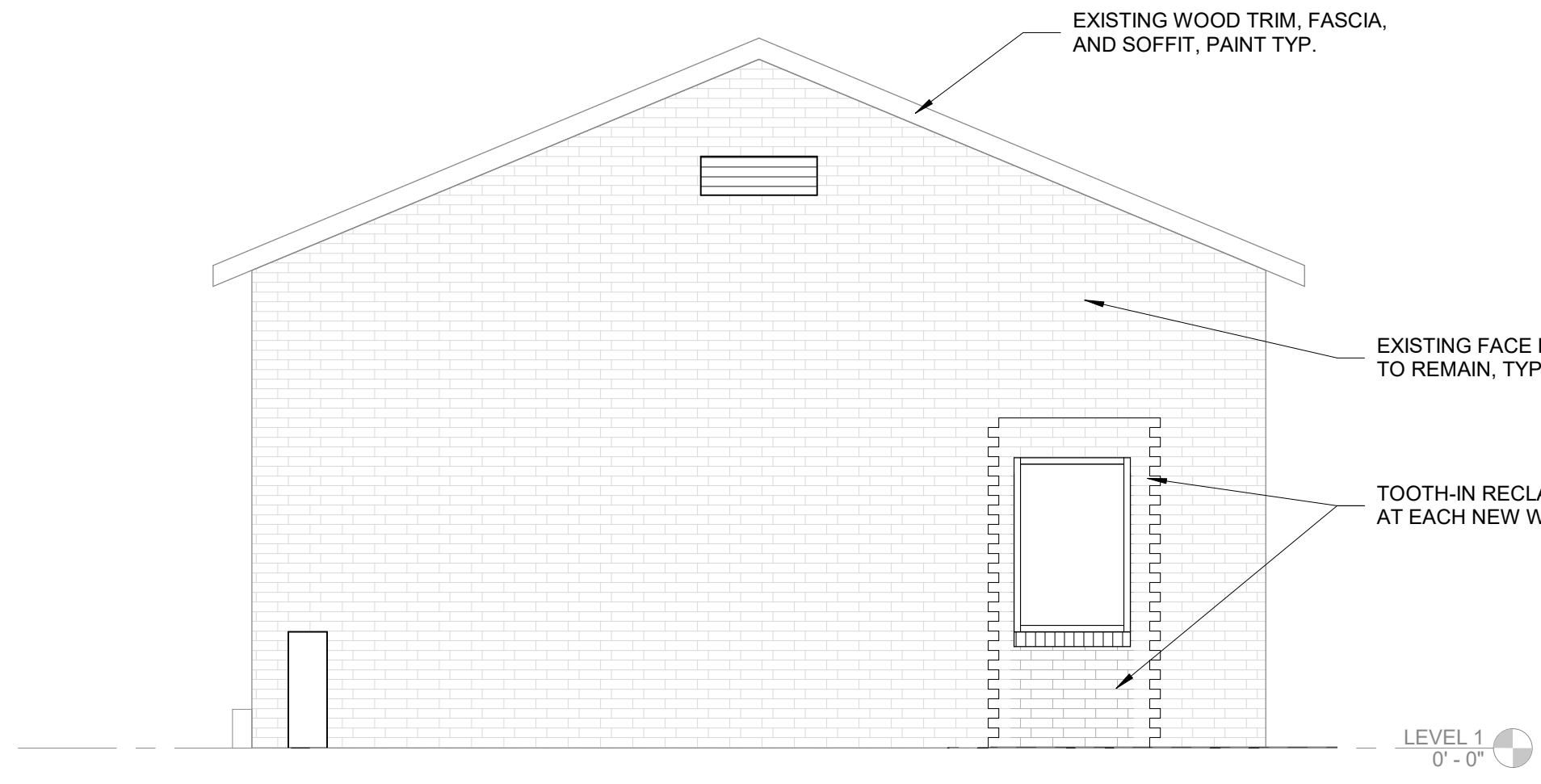
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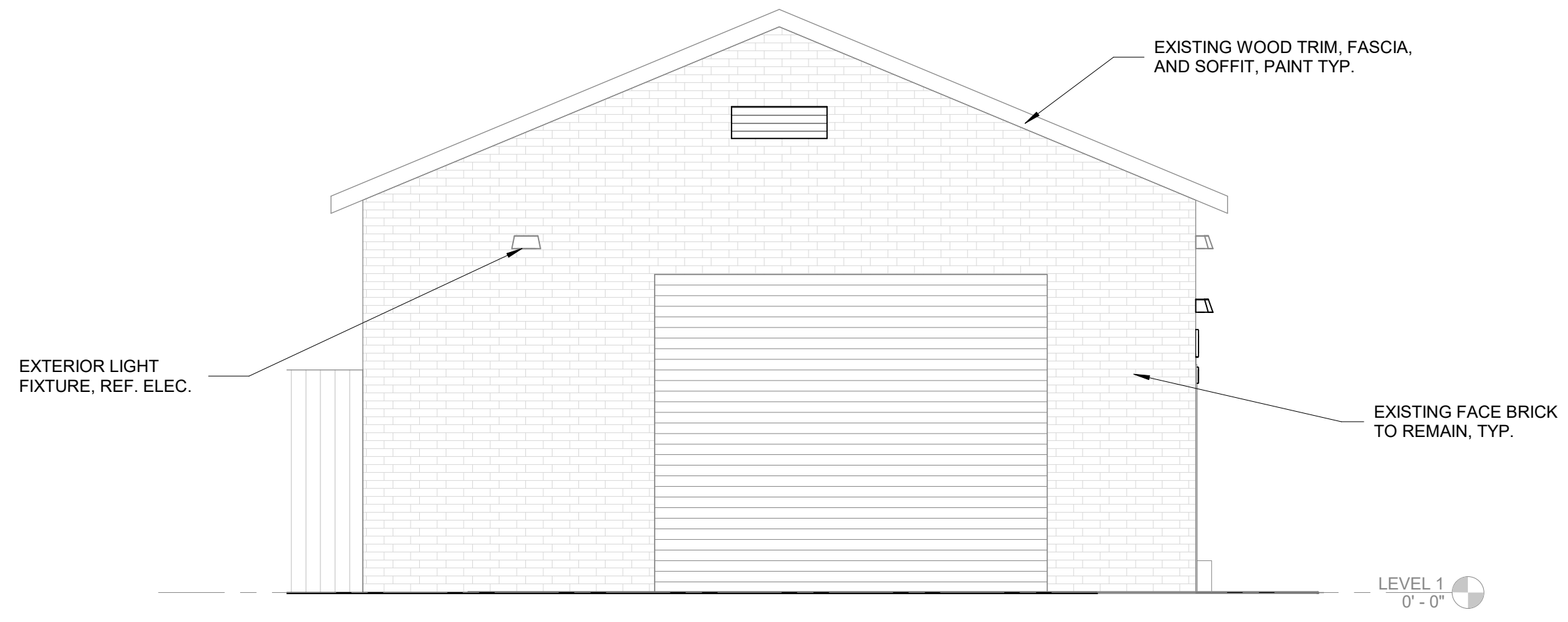
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PROJECT NO.	23062

DOOR & WINDOW DETAILS

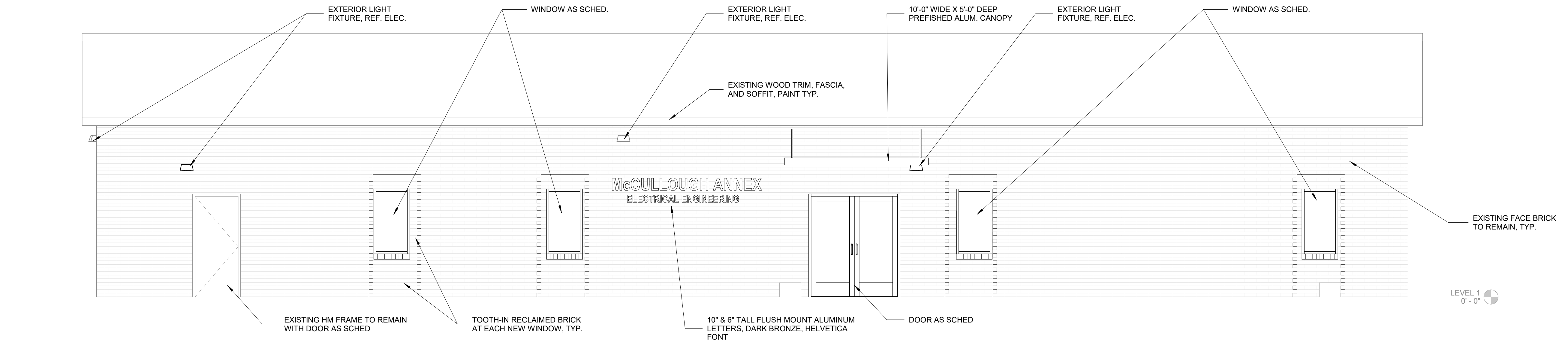
A202



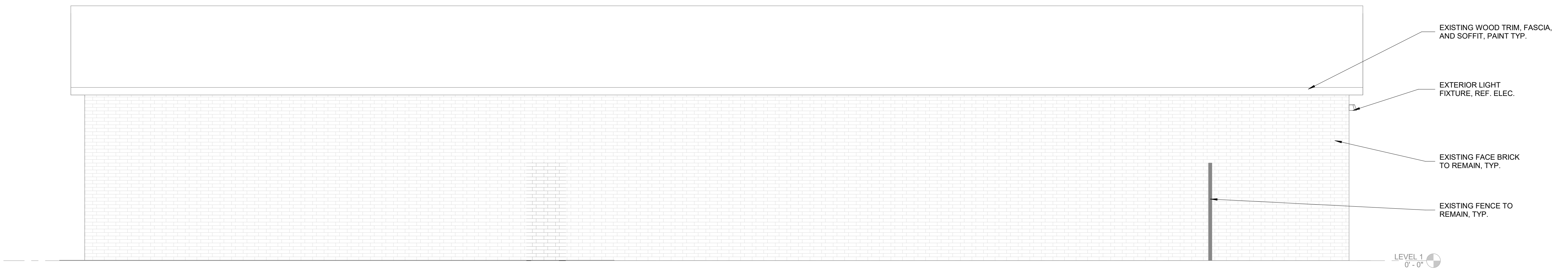
1 SOUTH ELEVATION
1/4" = 1'-0"



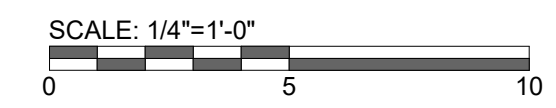
2 NORTH ELEVATION
1/4" = 1'-0"



3 WEST ELEVATION
1/4" = 1'-0"



4 EAST ELEVATION
1/4" = 1'-0"



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EXTERIOR ELEVATIONS
A301

MECHANICAL SYMBOLS AND ABBREVIATIONS

NOTE: ALL SYMBOLS AND ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS

SYMBOL	DESCRIPTION
	SUPPLY AIR DUCT UP (POSITIVE PRESSURE)
	RETURN AIR DUCT UP (NEGATIVE PRESSURE)
	EXHAUST AIR DUCT UP (NEGATIVE PRESSURE)
	SUPPLY AIR DUCT DN (POSITIVE PRESSURE)
	RETURN AIR DUCT DN (NEGATIVE PRESSURE)
	EXHAUST AIR DUCT DN (NEGATIVE PRESSURE)
	ROUND SUPPLY AIR DUCT UP (POSITIVE PRESSURE)
	ROUND RETURN AIR DUCT UP (NEGATIVE PRESSURE)
	ROUND EXHAUST AIR DUCT UP (NEGATIVE PRESSURE)
	ROUND SUPPLY AIR DUCT DN (POSITIVE PRESSURE)
	ROUND RETURN AIR DUCT DN (NEGATIVE PRESSURE)
	ROUND EXHAUST AIR DUCT DN (NEGATIVE PRESSURE)
	ARROW INDICATES DIRECTION OF AIR FLOW
	INDICATES SMACNA PRESSURE CLASS OF DUCT CONSTRUCTION
	CHANGE OF ELEVATION, RISE(UP) OR DROP (DN) IN DIRECTION OF ARROW
	ACCESS DOOR, BOTTOM (UNLESS OTHERWISE NOTED) SIZE AS NOTED OR SPECIFIED
	ACCESS DOOR, SIDE, SIZE AS NOTED OR SPECIFIED
	RECTANGULAR DUCT SQUARE ELBOW WITH TURNING VANES
	RECTANGULAR DUCT RADIUS ELBOW
	ROUND DUCT RADIUS ELBOW
	TRANSITION CONCENTRIC UNLESS TOP LEVEL(TOP LVL) OR BOTTOM LEVEL(BOT LVL) IS NOTED
	TRANSITION, RECTANGULAR TO ROUND CONCENTRIC UNLESS TOP LEVEL (TOP LVL) OR BOTTOM LEVEL (BOT LVL) IS NOTED
	DUCT FLEXIBLE CONNECTION
	SOUND ATTENUATOR
	SQUARE CEILING DIFFUSER (SUPPLY) (4-WAY UNLESS OTHERWISE INDICATED)
	SQUARE RETURN CEILING GRILLE
	SQUARE EXHAUST CEILING GRILLE
	THERMOSTAT, TEMP SENSOR, CARBON MONOXIDE SENSOR
	DUCT SPLITTER WITH DAMPER
	MOTORIZED DAMPER
	MANUAL VOLUME DAMPER
	FIRE DAMPER

BASIS OF MECHANICAL DESIGN

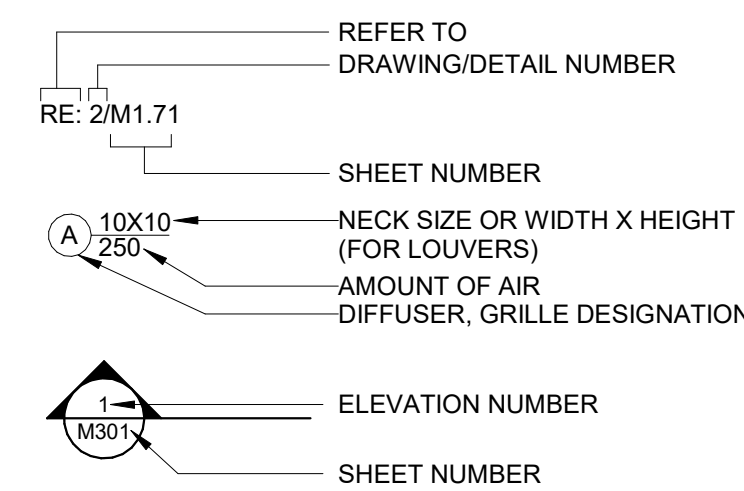
PRIMARY MECHANICAL CODES:
 MECHANICAL: 2015 INTERNATIONAL MECHANICAL CODE (WITH CITY AMENDMENTS).
 ENERGY: 2015 INTERNATIONAL ENERGY CODE (WITH CITY AMENDMENTS).

PROJECT DESIGN VALUES:
 OUTDOOR DESIGN TEMPERATURE (SUMMER): 99°F (DRYBULB), 77°F (WETBULB)
 AMBIENT TEMPERATURE AT CONDENSING UNITS: 105°F (DRYBULB, SUMMER)
 OUTDOOR DESIGN TEMPERATURE (WINTER): 22°F (DRYBULB)
 INDOOR DESIGN TEMPERATURE (SUMMER): 75°F (DRYBULB), 50% (RELATIVE HUMIDITY)
 INDOOR DESIGN TEMPERATURE (WINTER): 72°F (DRYBULB)
 OUTSIDE AIR REQUIREMENTS: PER IMC TABLE 403.3

ABBREVIATIONS

AD	ACCESS DOOR	L	LENGTH
A/C	AIR CONDITIONING UNIT	LAT	LEAVING AIR TEMPERATURE
AE	ARCHITECT/ENGINEER	LPC	LOW PRESSURE CONDENSATE
AFF	ABOVE FINISHED FLOOR	LPS	LOW PRESSURE STEAM
AFS	AIR FLOW SWITCH	LBS	POUNDS
AHU	AIR HANDLING UNIT	LRA	LOCKED ROTOR AMPS
APPROX	APPROXIMATE	LWT	LEAVING WATER TEMPERATURE
BHP	BRAKE HORSEPOWER	MAX	MAXIMUM
BTU	BRITISH THERMAL UNIT	MBH	1000 BRITISH THERMAL UNITS/HOUR
C/A	COMBUSTION AIR	MCA	MINIMUM CIRCUIT AMPACITY
CC	COOLING COIL	MFR	MANUFACTURER
CFH	CUBIC FEET PER HOUR	MIN	MINIMUM
CFM	CUBIC FEET PER MINUTE	N/A	NOT APPLICABLE
CLG	CEILING	N/O	NORMALLY OPEN
CU	CONDENSING UNIT	N/C	NORMALLY CLOSED
D	EQUIPMENT DRAIN	O/A	OUTSIDE AIR/FRESH AIR
DEG	DEGREES	QBD	OPPOSED BLADE DAMPER
DB	DRY BULB	O/C	ON CENTER
DN	DOWN	PEF	PURGE EXHAUST FAN
(E)	EXISTING	PH	PHASE
EAT	ENTERING AIR TEMPERATURE	PROVIDE	FURNISH AND INSTALL
E/A	EXHAUST AIR	PRV	PRESSURE REDUCING VALVE
EDH	ELECTRIC DUCT HEATER	PSI	POUNDS PER SQUARE INCH
EF	EXHAUST FAN	R/A	RETURN AIR
EQUIP	EQUIPMENT	RE:	REFERENCE, REFER
EWT	ENTERING WATER TEMPERATURE	RL	REFRIGERANT LIQUID
°F	DEGREES FARENHEIT	R/LA	RUNNING LOAD AMPS
FCU	FAN COIL UNIT	RM	ROOM
FD	FIRE DAMPER	RPM	REVOLUTIONS PER MINUTE
FLA	FULL LOAD AMPS	RS	REFRIGERANT SUCTION
F/LR	FLOOR	S/A	SUPPLY AIR
FPVAV	FAN POWERED VAV	SD	SMOKE DETECTOR
FSD	FIRE SMOKE DAMPER	SF	SQUARE FOOT, SUPPLY FAN
FT.	FOOT, FEET	SPECS	SPECIFICATIONS
FT. WG	FEET WATER GAUGE	T, TSTAT	THERMOSTAT, ROOM SENSOR
GA	U.S. GAUGE	T/A	TRANSFER AIR
GPM	GALLONS PER MINUTE	THRU	THROUGH
H	HEIGHT	TSP	TOTAL STATIC PRESSURE
HP	HORSEPOWER	TYP	TYPICAL
HPC	HIGH PRESSURE CONDENSATE	UL	UNDERWRITERS LABORATORIES, INC.
HPS	HIGH PRESSURE STEAM	UH	UNIT HEATER
HWR	HEATING WATER RETURN	V	VOLTS
HWS	HEATING WATER SUPPLY	VAV	VARIABLE VOLUME
HZ	HERTZ	VEL	VELOCITY
IN.	INCH, INCHES	VFD	VARIABLE FREQUENCY DRIVE
IN. WG	INCHES WATER GAUGE	WI	WITH
J-BOX	JUNCTION BOX	WB	WET BULB
kw	KILOWATTS	W/O	WITHOUT

DRAWING/DETAIL REFERENCE



MISCELLANEOUS

- ① DRAWING NOTE REFERENCE (I.E., NOTES BY SYMBOL)
- ➡ CONNECTION TO EXISTING

DEMOLITION WORK NOTES

GENERAL

- EXISTING WORK SHOWN ON PLANS IS FROM PREVIOUS ENGINEERING DOCUMENTS AND FIELD OBSERVATIONS. ACTUAL CONDITIONS MAY VARY; FIELD VERIFY EXISTING WORK AND MAKE MINOR ADJUSTMENTS NECESSARY TO COMPLETE WORK. IF EXISTING CONDITIONS PROHIBIT WORK, NOTIFY THE ARCHITECT FOR DIRECTION, AS REQUIRED.
- WHERE EXISTING EQUIPMENT OR DUCTWORK IS LOCATED SUCH THAT IT IS ALONG THE TOP OF NEW WALLS TO DECK, IT SHALL BE RELOCATED. COORDINATE SUCH WORK WITH OTHER TRADES. RELOCATED EQUIPMENT SHALL BE TO A LOCATION THAT ALLOWS ACCESS FOR PERIODIC SERVICING AND REPAIR.
- COORDINATE WITH ALL TRADES FOR REQUIRED CEILING REMOVAL IN EXISTING BUILDING. NOTIFY THE ARCHITECT AND OWNER PRIOR TO COMMENCING REMOVAL. REMOVE ONLY THAT PORTION OF THE CEILING NECESSARY TO ACCESS AND COMPLETE THE WORK. UPON COMPLETION OF THE ABOVE CEILING WORK, CEILING IS TO BE REINSTALLED. REPLACE ANY DAMAGED CEILING TILES WITH NEW TILES TO MATCH EXISTING.
- DEMOLITION SHALL EXTEND TO POINTS OF CONNECTION WITH LIVE SERVICES (PANELBOARDS, PIPING MAINS, ETC). DEMOLITION SHALL NOT PERMIT ABANDONMENT OF ANY PORTION OF ANY SYSTEM UNLESS SPECIFICALLY NOTED AS "ABANDON IN PLACE" OR "TO REMAIN".
- DEMOLITION SHALL INCLUDE EQUIPMENT, PIPING, DUCTWORK, SUPPORTS, FITTINGS, ACCESSORIES, CONTROLS, WIRING, CONDUIT, ETC. IN THEIR ENTIRETY UNLESS OTHERWISE NOTED.
- VERIFY THE CONDITION OF ALL EXISTING EQUIPMENT WITHIN THE PROJECT SCOPE, EXACT SIZES OF EXISTING DUCT AND PIPING, ETC BEFORE COMMENCING DEMOLITION WORK. REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL FIELD CONDITIONS TO ARCHITECT PRIOR TO THE COMMENCEMENT OF DEMOLITION WORK.
- PATCH OPENINGS IN WALLS TO MAINTAIN THE INTEGRITY OF THE WALL WHERE AIR DEVICES HAVE BEEN REMOVED. REFER TO ARCHITECTURAL DRAWINGS/SPECIFICATIONS FOR ADDITIONAL INSTRUCTIONS.
- THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO LOCATE AND PRESERVE UNDERGROUND UTILITIES.

EQUIPMENT

- THE OWNER HAS THE FIRST RIGHT-OF-REFUSAL FOR ALL DEMOLISHED EQUIPMENT. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND PROPER DISPOSAL OF ANY EQUIPMENT REFUSED BY THE OWNER.
- ALL REMOVED EQUIPMENT SHALL BE MAINTAINED IN GOOD CONDITION. REMOVED EQUIPMENT NOT INDICATED FOR RE-USE SHALL REMAIN THE PROPERTY OF THE OWNER. REMOVE THE EQUIPMENT AND DELIVER IT TO THE OWNER. SHOULD THE OWNER DECLINE THE POSSESSION OF THE REMOVED EQUIPMENT, IT SHALL BECOME THE PROPERTY OF THE CONTRACTOR FOR REMOVAL FROM SITE.
- WHEN ALL CONSTRUCTION IS COMPLETE INSTALL NEW, CLEAN PRE-/POST-FILTERS IN AIR UNITS SERVING THE RENOVATED AREAS. VERIFY CONDITION OF UNIT FILTER GAUGES AND REPAIR OR REPLACE IF FOUND TO BE DAMAGED OR NON-FUNCTIONAL.
- FOR ALL EQUIPMENT TO BE DEMOLISHED, RECLAIM REFRIGERANT PRIOR TO DEMO OR REMOVAL OF EQUIPMENT IN ACCORDANCE WITH LOCAL AHJ REQUIREMENTS AND US EPA REGULATIONS. REFRIGERANT RECLAIMER MUST BE CERTIFIED BY THE EPA.

DUCTWORK

- CAP AND SEAL AIR TIGHT ALL POINTS AT WHICH DUCTWORK IS REMOVED FROM DUCTWORK THAT WILL REMAIN. RE-INSULATE REMAINING DUCTWORK TO MAINTAIN VAPOR BARRIER.
- TAKE AIR FLOW READINGS ON EACH FAN INLET, OUTSIDE AIR INTAKE, AND SUPPLY AIR FAN DISCHARGE, PRIOR TO DEMOLITION WORK. RECORD AND SUBMIT TO ARCHITECT/ENGINEER.
- TAKE AIR READINGS OF ALL GRILLES, REGISTERS, AND DIFFUSERS IN PROJECT AREAS PRIOR TO DEMOLITION. RECORD AND SUBMIT TO ARCHITECT/ENGINEER.
- VERIFY CLEARANCE REQUIREMENTS AND INDICATE ROUTING OF NEW DUCTWORK BEFORE FABRICATION BEGINS AS RISES AND DROPS MAY BE NECESSARY DUE TO EXISTING FIELD CONDITIONS.

PIPING

- WHERE PIPING IS SHOWN TO BE DEMOLISHED, IT SHALL BE DEMOLISHED TO THE POINT OF ORIGIN AT THE NEAREST ACTIVE MAIN. INSTALL SHUT-OFF VALVE AND CAP FOR FUTURE CONNECTION.

CONTROLS

- DEMOLITION AND/OR RELOCATION OF CONTROLS FOR EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO:
 SPACE AND DUCT THERMOSTATS
 SPACE AND DUCT TEMPERATURE/HUMIDITY SENSORS;
 SMOKE DETECTORS, FIRE-STATS, FREEZE-STATS, AND OTHER SAFETY OR LIMITING DEVICES;
 RTU AND EXISTING CONTROL SYSTEMS CONTROL PANELS
- VERIFY CONDITION OF ALL EXISTING LIFE SAFETY DEVICES (FIRE DAMPERS, DUCT DETECTORS, ETC) THAT ARE TO REMAIN AND ARE WITHIN LIMITS OF CONSTRUCTION. REPAIR OR REPLACE IF FOUND TO BE DAMAGED OR NON-FUNCTIONAL.

DESCRIPTION

REV DATE



05/02/2024

CD SET

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 CHECKED BY CSL
 DATE 05/02/24
 PROJECT NO. 23062

MECHANICAL NOTES AND LEGENDS

M001

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 CONSULTANTS, INC.
 Texas BPE Registration # F-207
 1300 Summit Avenue Suite 500 Fort Worth, Texas 76102 Office 817.878.4242 www.summitmep.com
 4144 N. Central Expwy Suite 635 Dallas, Texas 75204 Office 214.420.9111

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GENERAL NOTES

- PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALL PERMITS, INSPECTIONS, LICENSES AND FEES. FURNISH ALL LABOR, EQUIPMENT, SUPPLIES, AND MATERIALS NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS.
- THE DRAWINGS AND SPECIFICATIONS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF PIPES, FIXTURES, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DO NOT SCALE THE DRAWINGS FOR DIMENSIONS. TAKE ALL DIMENSIONS, MEASUREMENTS, EQUIPMENT LOCATIONS, LEVELS, ETC. FROM THE ARCHITECTURAL DRAWINGS, FIELD MEASUREMENTS, AND FROM THE EQUIPMENT TO BE FURNISHED. PIPING MAY BE RELOCATED OR OFFSET FOR PROPER CLEARANCES OR TO AVOID CONFLICTS WITH OTHER TRADES. THE DESIGN INTENT (I.E. PITCHES, VELOCITIES, PRESSURE DROPS, VOLTAGE DROPS, ETC.) CANNOT BE GREATLY ALTERED WITHOUT THE APPROVAL OF THE ARCHITECT. THE COST OF THESE DEVIATIONS TO AVOID INTERFERENCE'S SHALL BE PART OF THE ORIGINAL CONTRACT BID.
- CONFER AND COOPERATE WITH ALL OTHER TRADES TO COORDINATE THEIR WORK. COORDINATION SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO, MATERIALS AND EQUIPMENT ROUTED IN CEILING AND WALL CAVITIES, EQUIPMENT ARRANGEMENT IN MECHANICAL SPACES, INCLUDING EQUIPMENT CLEARANCE REQUIREMENTS, ELEVATIONS AND DIMENSIONS OF STRUCTURAL MEMBERS AND OPENINGS, ETC. NOTIFY THE ARCHITECT OF ANY CONFLICTS.
- BASE FINAL INSTALLATION OF MATERIALS AND EQUIPMENT ON ACTUAL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE. FIELD MEASURE FOR MATERIALS AND EQUIPMENT REQUIRING EXACT FIT. NO EXTRAS WILL BE GIVEN FOR THE CONTRACTOR'S FAILURE TO FIELD COORDINATE.
- THE OWNER OR ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR FOR MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM THE WORK.
- LOCATE ALL EQUIPMENT THAT MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, VALVES, MOTORS, CONTROLLERS, SWITCHGEAR, AND DRAIN POINTS IF REQUIRED FOR BETTER ACCESSIBILITY. FURNISH ACCESS DOORS FOR THIS PURPOSE. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE ALLOWED TO PROVIDE FOR BETTER ACCESSIBILITY. ANY CHANGES SHALL BE APPROVED BY THE ARCHITECT AND CONSTRUCTION MANAGER/GENERAL CONTRACTOR PRIOR TO MAKING THE CHANGE.
- PROVIDE ACCESS DOORS, WALL OPENINGS, ROOF OPENINGS, OR ANY OTHER CONSTRUCTION REQUIREMENT NEEDED TO ACCOMMODATE THE MECHANICAL EQUIPMENT. LOCATIONS OF THESE OPENINGS SHALL BE SUBMITTED IN SUFFICIENT TIME TO BE INSTALLED IN THE NORMAL COURSE OF WORK.
- COORDINATE ELECTRICAL REQUIREMENTS OF APPROVED MECHANICAL EQUIPMENT WITH THE ELECTRICAL SUB-CONTRACTOR PRIOR TO THE PURCHASE AND INSTALLATION OF ANY ELECTRICAL EQUIPMENT, DEVICES, WIRING, OR CONDUIT.
- PROVIDE GENERAL CONTROL WIRING, THERMOSTATS, MOTORIZED DAMPERS AND CONDUIT ASSOCIATED WITH HVAC EQUIPMENT. COORDINATE THE LOCATION OF ALL THERMOSTATS, ROOM SENSORS, ETC. WITH THE ARCHITECT AND ALL OTHER TRADES PRIOR TO INSTALLATION. IF A CONFLICT WITH MILLWORK, LIGHT SWITCHES, WINDOWS, ETC. EXISTS, NOTIFY THE ARCHITECT OF THE POTENTIAL INTERFERENCE PRIOR TO INSTALLATION. INSTALL THERMOSTATS WITH PROTECTIVE LOCKING COVER, CENTERED AT 4'-0" ABOVE FINISHED FLOOR, UNLESS OTHERWISE INDICATED. COMPLY WITH THE PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE TEXAS ACCESSIBILITY'S STANDARD (TAS).
- ALL DIMENSIONS SHOWN ON THE DRAWINGS FOR DUCTWORK ARE NET INSIDE CLEAR DIMENSIONS. FOR RECTANGULAR DUCT, THE FIRST FIGURE OF THE DUCT SIZE INDICATES THE DIMENSION OF THE FACE SHOWN. VERIFY THAT THE DUCTWORK SPECIFIED WILL FIT IN THE SPACE AVAILABLE USING THE ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL DRAWINGS AS REFERENCE PRIOR TO FABRICATION AND INSTALLATION. ROUND DUCT OF EQUAL NET INSIDE CLEAR AREA MAY BE USED IN LIEU OF RECTANGULAR DUCT.
- PROVIDE TURNING VANES ON ALL RECTANGULAR SUPPLY, EXHAUST, AND RETURN DUCTWORK INCLUDING THE TOP AND BOTTOM OF VERTICAL DUCTS UNLESS OTHERWISE INDICATED.
- PROVIDE A LOCKING QUADRANT VOLUME DAMPER AT THE TAP OF EACH RUN-OUT TO DIFFUSERS FOR BALANCING PURPOSES, UNLESS OTHERWISE INDICATED. THE RUN-OUT DUCT SIZE IS THE SAME SIZE AS THE DIFFUSER OR GRILLE NECK SIZE, UNLESS OTHERWISE INDICATED.
- CEILING SPACE IS NEEDED AS A RETURN AIR PLENUM IN CERTAIN AREAS. FOLLOW ALL APPLICABLE CODES AS TO MATERIALS ALLOWED FOR USE IN AIR PLENUMS. COORDINATE ALL WORK TO PROVIDE FREE RETURN OF AIR FROM ALL LOCATIONS.
- REFER TO ARCHITECTURAL DRAWINGS FOR LOCATION OF ALL FIRE RATED WALLS AND CEILINGS. PROVIDE FIRE DAMPERS AND/OR COMBINATION FIRE/SMOKE DAMPERS IN DUCTWORK AT ALL LOCATIONS WHERE DUCTS PASS THROUGH FIRE RATED ASSEMBLY. MECHANICAL SUB-CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING FIRE AND FIRE/SMOKE DAMPERS. COORDINATE CONSTRUCTION REQUIREMENTS AND PROVISIONS FOR CONNECTIONS TO FIRE ALARM SYSTEM.
- ALL DUCTWORK SHALL BE SHEET METAL FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS. ALL DUCTWORK ON VAV SYSTEMS FROM AHU TO TERMINAL UNIT SHALL BE CONSTRUCTED TO 2.5" W.G. AND SEALED TO SMACNA CLASS A. DUCTWORK DOWN STREAM OF TERMINAL UNITS SHALL BE CONSTRUCTED TO 2" W.G. AND SEALED TO SMACNA CLASS C. ALL DUCTWORK ASSOCIATED WITH CONSTANT VOLUME SYSTEMS SHALL BE CONSTRUCTED TO 2" W.G. AND SEALED TO SMACNA CLASS A. SEAL ALL SEAMS WITH MASTIC SEALANT UL 181 LISTED FOR THE APPLICATION USED. SEALANT SHALL BE DESIGNED FOR USE ON METAL DUCT AND FLEXIBLE DUCT.
- ALL DUCTWORK SHALL BE SHEET METAL FABRICATED IN ACCORDANCE WITH SMACNA STANDARDS. SUPPLY AND RETURN DUCTWORK LOCATED OUTSIDE, EXPOSED TO AMBIENT CONDITIONS, SHALL BE INTERNALLY LINED WITH 2" DUCT LINER. DUCTWORK SHALL BE WELDED STAINLESS STEEL BREAK SHEET METAL IN A MANNER TO PREVENT STANDING WATER ON HORIZONTAL SURFACES. SEAL ALL SEAMS WITH MASTIC DESIGNED FOR USE ON METAL DUCT, GLASS FIBER DUCT BOARD, AND FLEXIBLE DUCT. MASTIC SHALL BE UL 181 LISTED FOR THE APPLICATION USED.
- LINER FOR DUCTWORK LOCATED OUTSIDE, EXPOSED TO AMBIENT CONDITIONS SHALL BE FOIL-FACED, SUITABLE FOR HEALTHCARE APPLICATION; OTHERWISE USE DOUBLE WALL CONSTRUCTION.
- ALL RECTANGULAR AND ROUND SUPPLY AND RETURN DUCTWORK LOCATED IN EXPOSED INTERIOR AREAS SHALL BE INTERNALLY LINED WITH DUCT LINER AND EXTERNALLY PAINTED. REFER TO ARCHITECT FOR COLOR SELECTION.
- INSTALL DX PIPING AS SPECIFIED, INCLUDING FILTER/DRYER, SIGHT GLASS, ISOLATION/CHARGING VALVES, AND ALL APPURTENANCES PER MANUFACTURER'S RECOMMENDATIONS. INSTALLATION SHALL BE ACCOMPLISHED IN A NEAT AND ORDERLY FASHION, AS APPROVED BY THE ENGINEER. COORDINATE FOR ROUTING OF DX PIPING, UP INSIDE OF WALLS, ETC. AS REQUIRED, TERMINATING AT AHU'S. PROVIDE BRACING/ISOLATION AS REQUIRED TO PREVENT VIBRATION OF DX PIPING INSIDE WALLS, ETC. SIZE, ROUTE, AND INSULATE DX PIPING PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATION REQUIREMENTS.
- PROVIDE VIBRATION ISOLATORS FOR MOTOR DRIVEN EQUIPMENT, UNLESS OTHERWISE NOTED. PROVIDE ISOLATION AS INDICATED OR AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
- SOME PIPES AND DUCTS SHOWN ON EACH FLOOR PLAN MAY BE SHOWN WITH AN OFFSET FOR CLARITY.
- SEAL ALL PIPE AND DUCT PENETRATIONS THROUGH FIRE RATED BUILDING ELEMENTS WITH AN APPROVED FIRE PROOFING MATERIAL.
- ALL EQUIPMENT SHALL HAVE IDENTIFICATION TAGS. TAGS SHALL BE PLASTIC LAMINATE, WHITE FACE WITH 1/2" TALL BLACK LETTERS. THE TAG SHALL MATCH THE UNIT DESIGNATIONS SHOWN ON THE SCHEDULES.
- EXPAND OR REDUCE DUCTS AT EQUIPMENT CONNECTIONS BASED ON THE EQUIPMENT PURCHASED, WITH TRANSITIONS NOT TO EXCEED 30 DEGREES. SIZES SHOWN ON SCHEDULES, ETC. ARE FOR GUIDANCE ONLY. ASPECT RATIO SHALL BE NO GREATER THAN 4:1, PER SMACNA'S GUIDELINES.
- ALL DUCTS WITH A DIMENSION GREATER THAN 12" PASSING THRU A NON-RATED WALL SHALL HAVE THE OPENING FRAMED IN WITH METAL STUDS. COORDINATE OPENING SIZE AND LOCATION WITH OTHER TRADES.
- PROVIDE ALL CEILING RETURN GRILLES WITH RETURN SOUND ATTENUATOR.
- PROVIDE HIGH POINT AIR VENTS AS SHOWN ON PLANS. WHERE PIPING ROUTING CREATES AIR TRAPS AIR VENTS SHALL BE INSTALLED ON EITHER SIDE OF TRAP.
- WHERE DAMPERS ARE LOCATED ABOVE HARD CEILINGS PROVIDE CONCEALED YOUNG REGULATORS. REGULATORS SHALL NOT BE LOCATED IN CORRIDORS, PATIENT CARE, OR TREATMENT AREAS. EACH REGULATOR SHALL BE LABELED PER THE SPECIFICATIONS.
- TEST AND BALANCE SHALL BE PERFORMED BY AN AABC LICENSED FIRM IN THE TESTING, ADJUSTING, AND BALANCING (TAB) BUSINESS FOR A MINIMUM OF 10 YEARS. AABC FIRM SHALL SUBMIT A REPORT TO THE ENGINEER OF RECORD INDICATING EQUIPMENT NAMEPLATE DATA, DESIGN PERFORMANCE, INITIAL TESTED PERFORMANCE, AND FINAL ADJUSTED PERFORMANCE. REPORT SHALL BE SUBMITTED IN A TIMELY FASHION PRIOR TO JOB CLOSE-OUT. TAB SHALL BE PERFORMED ON ALL NEW SYSTEMS SPECIFIED AND ON ALL EXISTING SYSTEMS MODIFIED AS PART OF THIS CONTRACT. TAB FIRM SHALL PERFORM A FUNCTIONAL PERFORMANCE TEST OF THE SYSTEM BASED ON THE CONTRACT DOCUMENTS HEREIN AND SHALL RELAY ALL DISCREPANCIES AND OUTSTANDING CONSTRUCTION ITEMS RELATING TO THE MECHANICAL EQUIPMENT AND PERFORMANCE TO THE ENGINEER OF RECORD.
- ALL EQUIPMENT LISTED TO UL508A OR UL1995 SHALL HAVE A SHORT CIRCUIT CURRENT RATING (SCCR) OF THE ASSEMBLY MEETING OR EXCEEDING THE RATING OF THE PANEL FROM WHICH IT IS POWERED. SCCR RATINGS MAY BE REDUCED BASED ON ACTUAL CALCULATIONS BASED ON ACTUAL CONSTRUCTION AND IN ACCORDANCE WITH NEC. RATING SHALL BE STAMPED ON EQUIPMENT AT THE FACTORY. REFER TO ELECTRICAL FOR ADDITIONAL INSTRUCTIONS.
- ALL HORIZONTAL FAN COIL UNITS SHALL BE PROVIDED WITH A STAINLESS STEEL AUXILIARY DRAIN PAN SLOPED IN THE DIRECTION OF THE DRAIN PER THE INTERNATIONAL MECHANICAL CODE AND LOCAL JURISDICTION (SECONDARY DRAIN PAN IN CASE THE MAIN DRAIN PAN FAILS). ALL VERTICAL FAN COIL UNITS SHALL BE PROVIDED WITH A CONDENSATE DRAIN LINE OVERFLOW SWITCH (SIMILAR TO THE EZ TRAP CONDENSATE OVERFLOW CUT-OFF SWITCH) THAT SHUTS THE UNIT OFF WHEN AN OVERFLOW CONDITION IS PRESENT.

MINI-SPLIT FAN COIL SCHEDULE

1. SIZE, ROUTE, INSULATE, AND PROVIDE APPURTENANCES FOR DX PIPING SYSTEMS, PER MANUFACTURER RECOMMENDATIONS.														
2. LISTED CAPACITIES ARE FOR THE FAN COIL UNIT AND CONDENSER UNIT COMBINATION. UNITS SHALL PERFORM TO LISTED CAPACITIES.														
3. PROVIDE FILTER DRYER AND SIGHT GLASS ON THE DX LINES.														
4. PROVIDE MOTOR RATED SWITCH AT AHU.														
5. PROVIDE WITH LOW AMBIENT KIT AND WALL MOUNTED THERMOSTAT.														
6. PROVIDE SINGLE POINT POWER CONNECTION FOR SPLIT SYSTEM.														
MARK	SERVES	ARRANGEMENT	UNIT CFM	HEATING CAP (MBH)	COOLING TOTAL CAP (MBH)	CONDENSATE PUMP				CONTROLS			MANUFACTURER MAKE AND MODEL	REMARKS
						POWER CONNECTION	AMPS (A)	HEAD (FT)	FLOW (GPM)	24HR/7DAY PROG. T-STAT	HUMIDISTAT	DDC		
MS-1	IT ROOM	WALL MOUNT	1730	25.6	24	V	0.25	10	1	X			LG LS24	1,2,3,4,5,6

CONDENSING UNIT SCHEDULE

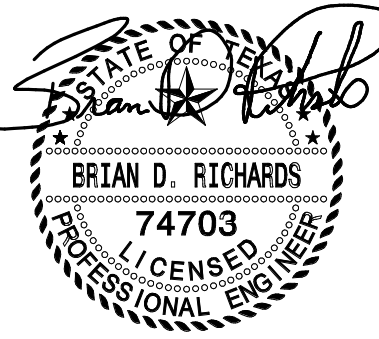
1. SIZE, ROUTE, INSULATE AND PROVIDE APPURTENANCES FOR DX PIPING SYSTEMS, PER MANUFACTURER RECOMMENDATIONS.														
2. FOR LONG DX LINE RUNS, USE MANUFACTURER'S RECOMMENDED LONG LINE INSTALLATION GUIDELINES.														
3. LISTED CAPACITIES ARE FOR THE AIR HANDLER UNIT AND CONDENSER UNIT COMBINATION. UNITS SHALL PERFORM TO LISTED CAPACITIES.														
4. LG IS THE BASIS FOR DESIGN. ACCEPTABLE ALTERNATE MANUFACTURER'S ARE: TRANE, CARRIER, AND YORK - NO EXCEPTIONS. CONTRACTOR IS RESPONSIBLE FOR VARIATIONS IN FIT AND ELECTRICAL SERVICE.														
5. PROVIDE FILTER DRYER AND SIGHT GLASS ON THE DX LINES.														
6. PROVIDE CONDENSING UNIT WITH HAIL GUARDS.														
7. PROVIDE SINGLE POINT POWER CONNECTION FOR SPLIT SYSTEM.														
MARK	SERVES	COMPRESSORS		CONDENSERS			POWER CONNECTIONS				MIN SEER (EER)	WEIGHT (LBS)	MANUFACTURER MAKE AND MODEL	REMARKS
		COMP QTY	REF. TYPE	COND NO. FANS	COND FAN FLA (EA)	O.D.D.B.	V	PH	MCA	MOCP				
CU-1	MS-1	1	R410A	1	0.4	105	208	1	19.0	30	15	136	LG LSU	1,2,3,4,5,6,7

EXHAUST FAN SCHEDULE

1. OR APPROVED EQUAL													
2. FAN TO RUN CONTINUOUSLY													
3. GREENHECK IS THE BASIS FOR DESIGN. ACCEPTABLE ALTERNATE MANUFACTURER'S ARE: LOREN COOK, TWIN CITY, AND CAPTIVEAIRE - NO EXCEPTIONS. CONTRACTOR IS RESPONSIBLE FOR VARIATIONS IN FIT AND ELECTRICAL SERVICE.													
4. PROVIDE A MOTORIZED BACKDRAFT DAMPER													
5. SUSPEND FROM STRUCTURE ABOVE, USE FAN MANUFACTURER'S HANGING VIBRATION ISOLATOR KIT													
6. PROVIDE FAN WITH INTEGRAL DISCONNECT													
7. IN-LINE FAN, CENTRIFUGAL													
8. SUSPENDED CEILING INSTALLATION													
9. CENTRIFUGAL FILTERED ROOF SUPPLY FAN, PROVIDE 2" WASHABLE FILTERS.													
10. SHALL BE TYPE 1 FAN WITH UL 762													
MARK	SERVES	UNIT CFM	FAN EXT. S.P.	FAN HP (WATTS)	V	PH	DRIVE	SONES	WEIGHT (LBS)	MANUFACTURER MAKE AND MODEL	REMARKS		
EF-1		170	0.5		120	1				GREENHECK	1,2,3,4,5,6,7,8,9,10		

AIR DEVICE SCHEDULE

1. UNITS SHALL BE FURNISHED WITH APPROPRIATE FRAMES, ETC. FOR MOUNTING IN RESPECTIVE CEILING/WALL TYPES AND CONDITIONS						
2. OFF-WHITE BAKED ENAMEL FINISH						
3. OR APPROVED EQUAL						
4. FOUR-WAY THROW UNLESS OTHERWISE INDICATED ON PLAN						
5. TRANSITION FROM BACK OF GRILLE TO DUCT SIZE SHOWN						
6. 18" X 18" FACE SIZE, FOR 24" X 24" LAY-IN MODULE SIZE						
7. PROVIDE ALUMINUM DIFFUSER/GRILLE, REFER TO PLANS FOR LOCATION						
8. PROVIDE INSULATED PLENUM BOX						
9. FOR 12" X 12" CEILING MODULE, USE FACTORY BLANKING LAY-IN PANEL. PANEL MAY NEED TO BE TRIMMED TO FIT.						
MARK	SERVES	FACE SIZE	TYPE	MOUNTING	MANUFACTURER AND MODEL	REMARKS
A	SUPPLY	24" X 24"	8" DIA	LAY-IN	TITUS OMNI	
B	RETURN	24" X 24"	22" X 22"	LAY-IN	TITUS PAR	
C	RETURN	12" X 24"	10" X 12"	LAY-IN	TITUS PAR	
D	EXHAUST	12" X 12"	8" DIA	LAY-IN	TITUS OMNI	
E	SUPPLY	24" X 24"	8" DIA	LAY-IN	TITUS OMNI	



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RENOVATION
MIDWESTERN STATE UNIVERSITY
3410 TAFT BLVD. WICHITA FALLS, TX

BYS Architects

1005 Ninth Street - Suite 200 Wichita Falls, Texas 76301 (940) 761-2404
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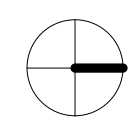
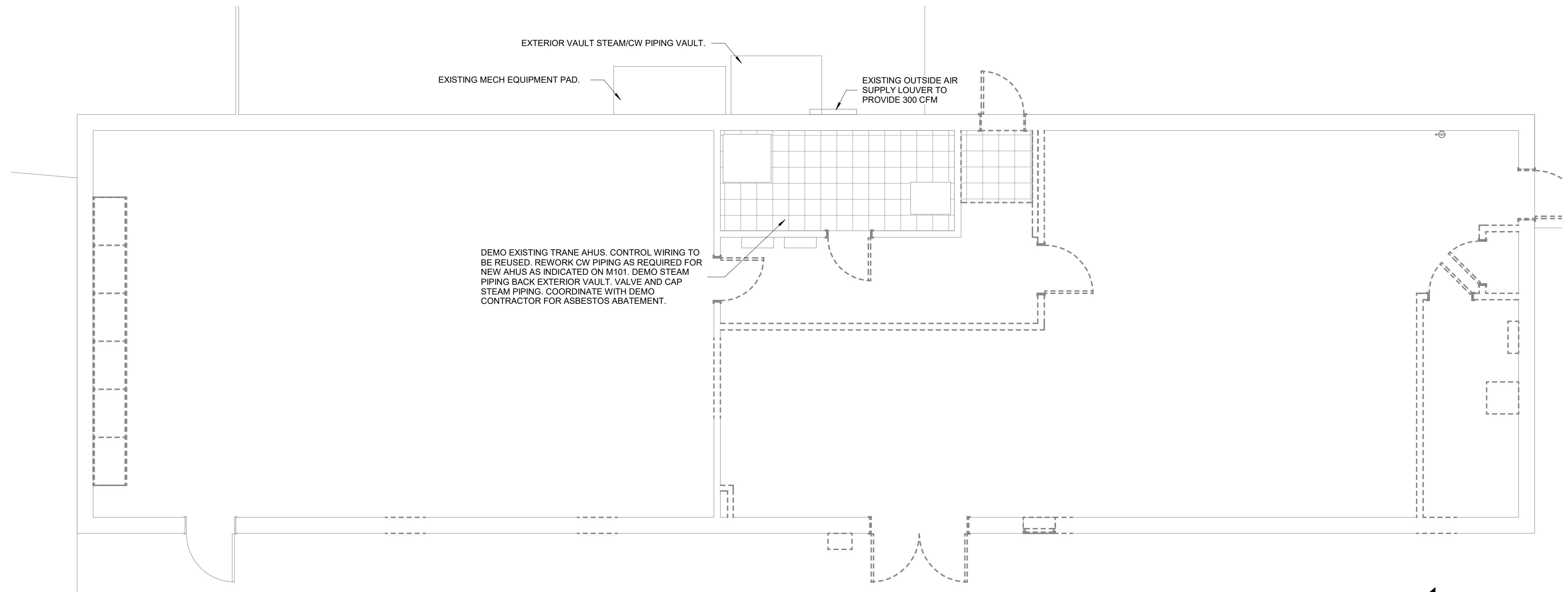
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MECHANICAL GENERAL NOTES AND SCHEDULES

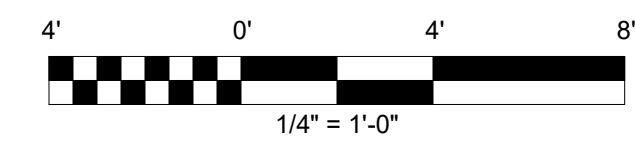
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Texas BPE Registration # F-207
1300 Summit Avenue Suite 500 Fort Worth, Texas 76102 Office 817.878.4242 www.summitmep.com
4144 N. Central Expwy Suite 635 Dallas, Texas 75204 Office 214.420.9111



1 MECHANICAL DEMO - LEVEL 1 FLOOR PLAN
1/4" = 1'-0"



Summit
CONSULTANTS, INC.
Texas BPE Registration # F-207

1300 Summit Avenue Suite 500
Fort Worth, Texas 76102
Office 817.878.4242
www.summitmep.com

4144 N. Central Expwy Suite 635
Dallas, Texas 75204
Office 214.420.9111

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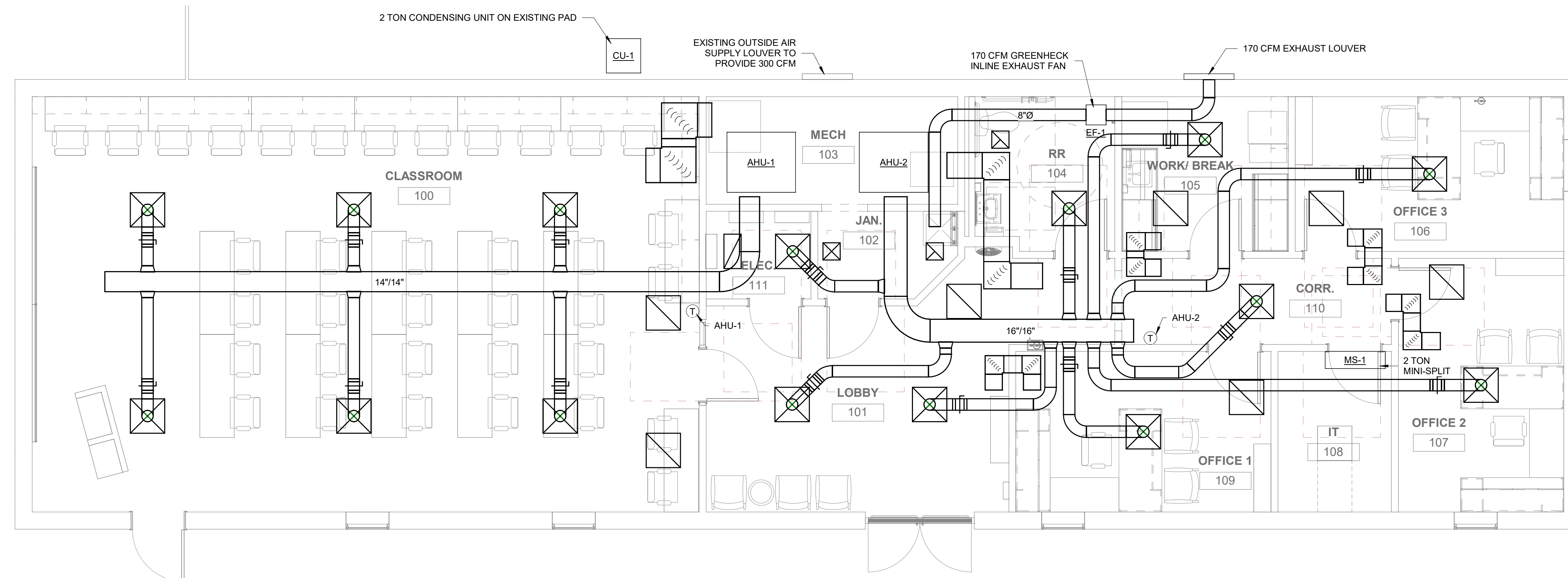
DEMOLITION PLAN

MD101

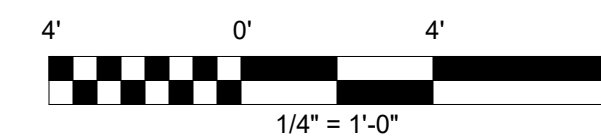
CHILLED WATER ELECTRIC HEAT AHU SCHEDULE

1. EXTERNAL STATIC PRESSURE ("WG") INCLUDES DUCTWORK, BALANCING DAMPERS AND AIR DEVICES ONLY.
2. TRANE IS THE BASIS FOR DESIGN. ACCEPTABLE ALTERNATE MANUFACTURER'S ARE: CARRIER AND YORK - NO EXCEPTIONS. CONTRACTOR IS RESPONSIBLE FOR VARIATIONS IN FIT AND ELECTRICAL SERVICE.
3. PROVIDE FILTER RACK, PLACE AND ORIENT FOR EASY FILTER ACCESS.
4. PROVIDE WITH SMOKE DETECTOR INTERLOCKED TO SUPPLY FAN AS REQUIRED BY CODE. (2000 CFM AND ABOVE).
5. DOES NOT INCLUDE FILTER OR UNIT LOSSES
6. MIN. 4 ROW COOLING COIL

MARK	ARRANGEMENT	SUPPLY FAN			POWER			ELEC HEATING				CHILLED WATER COOLING								WEIGHT (LBS)	MANUFACTURER MAKE AND MODEL	REMARKS					
		UNIT CFM	O/A CFM	FAN EXT. S.P.	SUPPLY FAN MOTOR HP	V	PH	HEATING OUTPUT (KW)	WINTER DESIGN D.B.	WINTER EAT D.B.	WINTER LAT D.B.	COOLING SENS CAP (MBH)	COOLING TOTAL CAP (MBH)	SUMMER DESIGN D.B.	SUMMER DESIGN W.B.	COOLING ENTERING D.B.	COOLING ENTERING W.B.	COOLING GPM	ENTERING WATER TEMP				LEAVING WATER TEMP	COOLING MAX. PD FT WG			
AHU-1	HORIZONTAL	900	160	1	0.6	208	1	5.9	95	74.4	95	29	36	102	77	79.8	65.1		48							TRANE BCVE	
AHU-2	HORIZONTAL	1350	120	1	0.6	208	1	9.7	95	72.2	95	36	45	102	77	77.4	63.8		48							TRANE BCVE	



1 MECHANICAL - LEVEL 1 FLOOR PLAN
1/4" = 1'-0"



Summit
CONSULTANTS, INC.
Texas BPE Registration # F-207
1300 Summit Avenue Suite 500 Fort Worth, Texas 76102 Office 817.878.4242 www.summitmep.com
4144 N. Central Expwy Suite 635 Dallas, Texas 75204 Office 214.420.9111

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BRIAN D. RICHARDS
74703
LICENSED PROFESSIONAL ENGINEER

MCCULLOUGH ANNEX
RENOVATION
MIDWESTERN STATE UNIVERSITY
3410 TAFT BLVD. WICHITA FALLS, TX

BYS Architects
1005 Ninth Street - Suite 200 Wichita Falls, Texas 76301 (940) 761-2404
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FLOOR PLAN
M101

1.1.1 GENERAL CONDITIONS

A. ALL WORK COVERED BY THIS SECTION OF THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE RESPECTIVE DRAWINGS, INFORMATION OF INSTRUCTIONS TO BIDDERS, GENERAL NOTES AND ALL SUPPLEMENTARY GENERAL CONDITIONS OF THESE SPECIFICATIONS.

B. BIDDERS SHALL DETERMINE THE CONTENTS OF A COMPLETE SET OF DRAWINGS AND SPECIFICATIONS AND BE AWARE THAT THEY MAY BE BIDDING FROM A PARTIAL SET OF DRAWINGS, APPLICABLE ONLY TO THE VARIOUS SEPARATE CONTRACT, SUBCONTRACTS OR TRADES AS MAY BE ISSUED FOR BIDDING PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL SUCH PARTS, AS PLUMBING, HEATING, VENTILATING AND AIR CONDITIONING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS. ALL DRAWINGS AND SPECIFICATIONS ARE ON FILE IN THE ARCHITECT'S OFFICE, AND EACH BIDDER SHALL THOROUGHLY ACQUAINT HIMSELF WITH ALL OF THE DETAILS OF THE COMPLETE SET OF DRAWINGS AND SPECIFICATIONS BEFORE SUBMITTING HIS BID. ALL DRAWINGS AND SPECIFICATIONS FORM A PART OF THE CONTRACT DOCUMENTS FOR EACH SEPARATE CONTRACT. THEY SHALL BE CONSIDERED AS BOUND THERewith IN THE EVENT PARTIAL SETS OF PLANS AND SPECIFICATIONS SHALL BE DEEMED EVIDENCE OF THE REVIEW AND EXAMINATION OF ALL DRAWINGS, SPECIFICATIONS AND ADDENDA ISSUED FOR THIS PROJECT. NO ALLOWANCES WILL BE MADE BECAUSE OF THE CONTRACTOR'S UNFAMILIARITY WITH ANY PORTION OF THE COMPLETE SET OF DOCUMENTS.

C. ALL MATERIALS AND EQUIPMENT SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA.

1.1.2 SCOPE

A. THE WORK INCLUDED UNDER THIS SPECIFICATION CONSISTS OF THE FURNISHING OF ALL LABOR, MATERIALS, TOOLS, TRANSPORTATION, SERVICES, ETC. WHICH ARE APPLICABLE AND NECESSARY TO COMPLETE THE INSTALLATION OF THE SYSTEMS SPECIFIED IN THE MECHANICAL ARCHITECTURAL, STRUCTURAL AND ELECTRICAL DRAWINGS, AS ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, OR AS DIRECTED BY THE ARCHITECT.

B. IN GENERAL, THE VARIOUS LINES AND DUCTS TO BE INSTALLED BY THE VARIOUS TRADES UNDER THIS SPECIFICATION SHALL BE RUN AS INDICATED, AS SPECIFIED HEREIN, AS REQUIRED BY PARTICULAR CONDITIONS AT THE SITE AND AS REQUIRED TO CONFORM TO THE GENERALLY ACCEPTED STANDARDS SO AS TO COMPLETE THE WORK IN A NEAT AND WORKMANLIKE MANNER. ALL WORK SHALL BE PERFORMED UNDER THE CLOSE SUPERVISION OF THE ARCHITECT. ALL WORK SHALL BE PARALLEL OR PERPENDICULAR TO THE LINES OF THE BUILDING UNLESS OTHERWISE NOTED.

C. THE CONSTRUCTION DETAILS FOR THE BUILDING ARE ILLUSTRATED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. EACH CONTRACTOR SHALL THOROUGHLY ACQUAINT HIMSELF WITH THE DETAILS BEFORE SUBMITTING HIS BID, AS NO ALLOWANCE WILL BE MADE FOR THE CONTRACTOR'S UNFAMILIARITY WITH THE CONSTRUCTION DETAILS. PLACE ALL INSERTS TO ACCOMMODATE THE ULTIMATE INSTALLATION OF PIPE HANGERS IN THE FORMS BEFORE CONCRETE IS POURED. SET SLEEVES IN PLACE IN FORMS BEFORE CONCRETE IS POURED, AND IN MASONRY WALLS WHILE THEY ARE UNDER CONSTRUCTION. ALL CONCEALED LINES SHALL BE INSTALLED AS REQUIRED BY THE PACE OF THE GENERAL CONSTRUCTION TO PRECEDE THAT GENERAL CONSTRUCTION.

1.1.3 INSPECTION OF SITE

A. THE CONTRACTORS SHALL VISIT THE SITE, VERIFY ALL EXISTING ITEMS SHOWN ON PLANS OR SPECIFIED, AND FAMILIARIZE HIMSELF WITH THE WORKING CONDITIONS, HAZARDS, EXISTING GRADES, ACTUAL FORMATIONS, SOIL CONDITIONS, AND LOCAL REQUIREMENTS INVOLVED, AND SUBMISSION OF BIDS SHALL BE DEEMED EVIDENCE OF SUCH VISIT. ALL PROPOSALS SHALL TAKE THE EXISTING CONDITIONS OF THE SITE AND EXISTING ITEMS SHOWN ON THE PLANS AND SPECIFICATIONS ON THE DRAWINGS SHALL NOT RELIEVE THE CONTRACTOR OF ANY RESPONSIBILITY.

1.1.4 UTILITIES, LOCATIONS AND ELEVATIONS

A. LOCATIONS AND ELEVATIONS OF THE VARIOUS UTILITIES INCLUDED WITHIN THE SCOPE OF THIS WORK HAVE BEEN OBTAINED FROM CITY AND/OR OTHER SUBSTANTIALLY RELIABLE SOURCES AND ARE INDICATED ON THE DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR SHALL OBTAIN A GENERAL GUIDE ONLY, WITHOUT GUARANTEE AS TO ACCURACY. THE CONTRACTORS SHALL EXAMINE THE SITE, SHALL VERIFY TO THEIR OWN SATISFACTION THE LOCATIONS, ELEVATIONS AND AVAILABILITY OF ALL UTILITIES AND SERVICES REQUIRED AND SHALL ADEQUATELY INFORM THEMSELVES AS TO THEIR RELATION TO THE WORK; THE SUBMISSION OF BIDS SHALL BE DEEMED EVIDENCE THEREOF.

1.1.5 CODE REQUIREMENTS

A. ALL WORK SHALL COMPLY WITH THE PROVISIONS OF THESE SPECIFICATIONS, AS ILLUSTRATED ON THE ACCOMPANYING DRAWINGS, OR AS DIRECTED BY THE ARCHITECT, AND SHALL SATISFY ALL APPLICABLE LOCAL CODES, ORDINANCES, OR REGULATIONS OF THE GOVERNING BODIES, AND ALL AUTHORITIES HAVING JURISDICTION OVER THE WORK, OR SERVICES THERETO. IN ALL CASES WHERE ALTERATIONS TO, OR DEVIATIONS FROM, THE DRAWINGS AND SPECIFICATIONS ARE REQUIRED BY THE AUTHORITY HAVING JURISDICTION, THE CONTRACTOR SHALL REPORT SAME IN WRITING TO THE ARCHITECT/ENGINEER AND SECURE HIS APPROVAL BEFORE PROCEEDING. UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL PROVIDE COMPLETE UTILITY SERVICE CONNECTIONS, AS DIRECTED AND SUBMIT, AS REQUIRED, ALL NECESSARY DRAWINGS; HE SHALL SECURE ALL PERMITS AND INSURANCE NECESSARY IN CONNECTION WITH HIS WORK AND PAY ALL LEGAL FEES ON ACCOUNT THEREOF. IN THE ABSENCE OF OTHER APPLICABLE LOCAL CODES ACCEPTABLE TO THE CURRENT ARCHITECT, THE NATIONAL ELECTRIC CODE, THE INTERNATIONAL PLUMBING CODE, INTERNATIONAL FUEL GAS CODE AND THE INTERNATIONAL MECHANICAL CODE SHALL APPLY TO THIS WORK.

1.1.6 RECORDS FOR THE OWNER

A. EACH CONTRACTOR SHALL OBTAIN AT HIS OWN EXPENSE A COMPLETE SET OF CONSTRUCTION DOCUMENTS ON WHICH HE SHALL KEEP AN ACCURATE RECORD OF THE INSTALLATION OF ALL MATERIALS AND SYSTEMS COVERED BY HIS CONTRACTUAL AGREEMENT. THE RECORD SHALL INDICATE THE LOCATION OF ALL EQUIPMENT AND THE ROUTING OF ALL SYSTEMS, ALL CONDUIT BURIED IN CONCRETE SLABS, WALLS, AND BELOW GRADE SHALL BE LOCATED BY DIMENSION UNLESS A SURFACE MOUNTED DEVICE IN EACH SPACE INDICATES THE LOCATION. THE CONTRACTOR SHALL OBTAIN AT HIS OWN EXPENSE ONE COMPLETE REPRODUCIBLE SET OF THE ORIGINAL DRAWINGS ON WHICH HE SHALL NEATLY TRANSFER HIS NOTATIONS AND DELIVER THESE DRAWINGS TO THE ENGINEER AT JOB COMPLETION BEFORE THE FINAL PAYMENT FOR DELIVERY TO THE OWNER.

B. IN ADDITION TO THE ABOVE, EACH CONTRACTOR SHALL ACCUMULATE DURING THE JOB PROGRESS THE FOLLOWING DATA IN DUPLICATE PREPARED IN A NEAT BROCHURE OR PACKET, FOLDER AND TURN OVER TO THE CONTRACTOR FOR CHECKING, BINDING AND SUBSEQUENT DELIVERY TO THE OWNER. THE CONTRACTOR SHALL INCLUDE IN HIS BID THE COST OF BINDING INTO A BOOK.

1. ALL WARRANTIES, GUARANTEES AND MANUFACTURER'S DIRECTIONS ON EQUIPMENT AND MATERIAL COVERED BY THE CONTRACT.

2. COPIES OF APPROVED SHOP DRAWINGS.

1.1.7 MATERIALS AND WORKMANSHIP

A. ALL MATERIALS, UNLESS OTHERWISE SPECIFIED, SHALL BE NEW, FREE FROM ANY DEFECTS AND OF THE BEST QUALITY OF THEIR RESPECTIVE KINDS. ALL LIKE MATERIALS USED SHALL BE OF THE SAME MANUFACTURER, MODEL AND QUALITY, UNLESS OTHERWISE SPECIFIED.

B. ALL MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT SHALL BE APPLIED, INSTALLED, CONNECTED, ERECTED, USED, CLEANED, ADJUSTED AND CONDITIONED AS RECOMMENDED BY THE MANUFACTURERS, OR ALL INDICATED IN THEIR PUBLISHED LITERATURE. UNLESS SPECIFICALLY INDICATED OTHERWISE, ALL WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY COMPETENT WORKMEN AND EXECUTED IN A NEAT AND WORKMANLIKE MANNER PROVIDING A THOROUGH AND COMPLETE INSTALLATION. WORK SHALL BE PROPERLY PROTECTED DURING CONSTRUCTION, INCLUDING THE SHIELDING OF SOFT OR FRAGILE MATERIALS AND THE TEMPORARY PLUGGING OF OPENING LINES DURING CONSTRUCTION. AT COMPLETION, THE INSTALLATION SHALL BE THOROUGHLY CLEANED, AND ALL TOOLS, EQUIPMENT, OBSTRUCTIONS OR DEBRIS PRESENT AS A RESULT OF THIS CONTRACT SHALL BE REMOVED FROM THE PREMISES.

1.1.8 STORAGE AND PROTECTION

A. PROVIDE ADEQUATE FACILITIES FOR ITEMS FURNISHED UNDER THESE SPECIFICATIONS WHICH ARE SUBJECT TO DAMAGE IF EXPOSED TO ELEMENTS. TAKE SUCH PRECAUTIONS AS NECESSARY TO PROPERLY PROTECT APPARATUS FROM DAMAGE. FAILURE TO COMPLY WITH THIS PROVISION WILL BE SUFFICIENT CAUSE FOR REJECTION OF THE PARTICULAR APPARATUS INVOLVED.

1.1.9 COOPERATION

A. ALL WORK UNDER THESE SPECIFICATIONS SHALL BE ACCOMPLISHED IN CONJUNCTION WITH OTHER TRADES ON THIS PROJECT IN A MANNER WHICH WILL ALLOW EACH TRADE ADEQUATE TIME AT THE PROPER STAGE OF CONSTRUCTION TO FULFILL HIS WORK.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROGRESS OF THE GENERAL CONSTRUCTION AND THE TIMELY INSTALLATION OF SLEEVES AND INSERTS, ETC., BEFORE CONCRETE IS PLACED SHALL BE THE RESPONSIBILITY OF THIS TRADE, AS WILL THE INSTALLATION OF THE REQUIRED SYSTEMS IN THEIR SEVERAL STAGES, AT THE PROPER TIME TO EXPEDITE THIS CONTRACT AND AVOID UNNECESSARY DETAILS IN THE PROGRESS OF OTHER CONTRACTS, AND MEET ALL REQUIREMENTS OF PROGRAM SCHEDULES AND ALL OTHER GENERAL CONTRACTORS.

C. SHOULD ANY QUESTION ARISE BETWEEN TRADES AS TO THE PLACING OF LINES, DUCTS, CONDUITS, FIXTURES OR EQUIPMENT, OR SHOULD IT APPEAR DESIRABLE TO REMOVE ANY GENERAL CONSTRUCTION WHICH WOULD AFFECT THE APPEARANCE OR STRENGTH OF THE STRUCTURE, REFERENCE SHALL BE MADE TO THE ARCHITECT FOR INSTRUCTIONS.

1.1.10 SCHEDULE OF MATERIAL AND EQUIPMENT

A. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A COMPLETE SCHEDULE OF MATERIAL AND EQUIPMENT WHICH IS TO BE INSTALLED UNDER THE CONTRACT. THE SCHEDULE SHALL BE SUBMITTED WITHIN 30 DAYS AFTER THE AWARD OF THIS CONTRACT AND PRIOR TO THE INSTALLATION OR FABRICATION OF ANY OF THE MATERIAL INVOLVED. THE SCHEDULE SHALL INCLUDE FOR MATERIALS THE MANUFACTURER'S NAME, CATALOG NUMBER, TYPE AND TRADE NAME; IN ADDITION, FOR EQUIPMENT, THE MANUFACTURER'S ENGINEERING DATA AND SPECIFICATION SHEET.

1.1.11 SHOP DRAWINGS AND SUBMITTALS

A. PROVIDE SUBMITTALS AND SHOP DRAWINGS FOR THE FOLLOWING EQUIPMENT AND LAYOUT:

1. DUCTWORK FABRICATION DETAILS AND LAYOUT AT 1/8" = 1'-0" OR 1/4" = 1'-0" SCALE.

2. MECHANICAL EQUIPMENT CUT SHEETS INCLUDING ALL PERFORMANCE CHARACTERISTICS, ACCESSORIES, DRAWINGS, WIRING DIAGRAMS, ETC. ACCESSORIES SHALL BE CLEARLY LABELED TO SHOW WHAT IS AND IS NOT BEING PROVIDED. EQUIPMENT SHALL NOT BE ORDERED UNTIL REVIEWED FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS BY THE ARCHITECT AND ENGINEER OF RECORD. THE CONTRACTOR SHALL ALLOW TWO (2) WEEKS FOR DESIGN TEAM REVIEW OF SUBMITTALS.

A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM. THE SYSTEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE ITEMS SHOWN ON THE DRAWINGS. EXACT LOCATIONS OF ITEMS SHALL BE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL OBTAIN PLANS AND MEASUREMENTS AT THE BUILDING AND IN COOPERATION WITH OTHER CONTRACTORS AND, IN ALL CASES, SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER OF RECORD. THE CONTRACTOR RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGE IN THE LOCATION OF ANY PART OF THIS WORK WITHOUT ADDITIONAL COST TO THE OWNER.

B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR AS NOTED IN ITEMS SHOWN ON THE CONTRACT DRAWINGS, SHOP DRAWINGS AND DESCRIPTIONS, THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR, WHICH WILL BE TRANSMITTED TO THE DESIGN TEAM - TO BE APPROVED BY THE ARCHITECT/ENGINEER. C. EXCEPTIONS AND INCONSISTENCIES IN PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION BEFORE BIDS ARE SUBMITTED; OTHERWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY CHANGES AND AN ADEQUATE NUMBER OF COPIES OF ANY SUCH PROPOSAL SHALL BE SUBMITTED TO THE ARCHITECT.

B. THE APPROVAL BY THE ARCHITECT OF ANY MATERIALS, CHANGES, DRAWINGS, ETC., SUBMITTED BY THE CONTRACTOR WILL BE CONSIDERED AS GENERAL ONLY AND TO AID THE CONTRACTOR IN EXPEDITING HIS WORK. SUCH APPROVAL AS MAY BE GIVEN DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM THE NECESSITY OF FURNISHING THE MATERIALS AND PERFORMING ALL WORK AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

1.1.14 LOCAL RESTRICTIONS

A. THE CONTRACTOR SHALL BECOME FAMILIAR WITH ALL RULES AND REGULATIONS OF THE CITY, COUNTY AND STATE, OR ANY OTHER AUTHORITY HAVING JURISDICTION OVER THIS PROJECT. IF IT IS THE CONTRACTOR'S OPINION THAT ANY WORK OR MATERIALS SHOWN ON THE DRAWINGS OR SPECIFICATIONS DO NOT COMPLY WITH THESE RULES AND REGULATIONS AS TO SIZE, TYPE, CAPACITY AND QUALITY, HE SHOULD MAKE IT KNOWN PRIOR TO THE SUBMISSION OF HIS BID, WHICH SHALL BE DEEMED EVIDENCE OF COMPLIANCE; OTHERWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE APPROVAL OF ALL WORK OR MATERIAL AND, IN THE EVENT THAT SUCH AUTHORITY SHOULD INDICATE DISAPPROVAL, HE SHALL CORRECT THE SAME WITH MATERIALS APPROVED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

1.1.15 ELECTRICAL WIRING

A. EXCEPT FOR SUCH ITEMS AS ARE NORMALLY WIRED UP AT THEIR POINT OF MANUFACTURE AND SO DELIVERED, AND UNLESS SPECIFICALLY NOTED TO THE CONTRARY HEREOF, THE ELECTRICAL CONTRACTOR WILL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ALL ELECTRICAL WORK FOR POWER SUPPLY. THIS DOES NOT RELIEVE THE CONTRACTOR OF ANY AND ALL LOW VOLTAGE ELECTRICAL WIRING, CONDUIT, ETC. SHOWN OR IMPLIED IN THESE DOCUMENTS. THIS CONTRACTOR SHALL ERECT ALL MOTORS IN PLACE READY FOR CONNECTIONS AND SHALL FURNISH WITH EACH SUCH MOTOR STARTER OF THE TYPE SPECIFIED AND DELIVER IT IN GOOD CONDITION TO THE ELECTRICAL CONTRACTOR AT THE JOB. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SUCH SYSTEMS, DIRECTED, FURNISHING SUPPORTING STRUCTURES WHERE NECESSARY. THE OWNER AND OTHER CONTRACTORS SHALL FURNISH WITH EACH ITEM REQUIRING ELECTRICAL CONNECTIONS, THE NECESSARY INSTRUCTIONS AND WIRING DIAGRAMS TO THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL REFER TO THE SPECIFICATIONS AND PLANS TO DETERMINE THE SCOPE OF THE WORK.

1.1.16 LARGE APPARATUS AND EQUIPMENT

A. SHOW TO BE FURNISHED OR INSTALLED UNDER THIS CONTRACT, AND WHICH MAY BE TOO LARGE TO BE MOVED INTO ITS FINAL POSITION THROUGH THE NORMAL BUILDING OPENINGS PLANNED, SHALL BE PLACED BY THIS CONTRACTOR IN ITS APPROXIMATE FINAL POSITION. THIS SHALL BE ACCOMPLISHED THROUGH COOPERATION AND COORDINATION WITH OTHER CONTRACTORS BEFORE ANY OBSTRUCTING STRUCTURE IS INSTALLED. ALL APPARATUS SHALL BE CRIBBED UP FROM THE FLOOR OR BY THIS SUBCONTRACTOR AND CARED FOR AS SPECIFIED UNDER "STORAGE AND PROTECTION" OR AS DIRECTED BY THE ARCHITECT.

1.1.17 CROSS CONNECTION AND INTERCONNECTIONS

A. NO PLUMBING FIXTURE, DEVICE OR PIPING SHALL BE INSTALLED WHICH WILL PROVIDE A CROSS CONNECTION OR INTERCONNECTION BETWEEN A DISTRIBUTING SUPPLY FOR DRINKING OR DOMESTIC USE AND A DISTRIBUTING SUPPLY FOR SUCH AS DRAINAGE SYSTEM OR A SOIL OR WASTE PIPE WHICH WILL PERMIT OR MAKE POSSIBLE THE BACKFLOW OF SEWAGE, POLLUTED WATER OR WASTE INTO THE WATER SUPPLY SYSTEM.

1.1.18 RESPONSIBILITY

A. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE SATISFACTORY AND COMPLETE EXECUTION OF ALL WORK INCLUDED. HE SHALL PRODUCE COMPLETE FINISHED OPERATING SYSTEMS AND PROVIDE ALL NECESSARY MATERIALS AND EQUIPMENT AS REQUIRED REGARDLESS OF WHETHER SUCH ITEM IS PARTICULARLY SPECIFIED OR INDICATED.

1.1.19 CLEAN UP

A. CLEAN UP TRASH AND DEBRIS CAUSED BY THE WORK OF THIS SECTION, KEEPING PREMISES, STREETS, SIDEWALKS AND ADJACENT AREAS CLEAN AND NEAT AT ALL TIMES. DISPOSE OF SUCH MATERIALS QUICKEST AND IN ACCORDANCE WITH LOCAL, STATE OR FEDERAL REGULATIONS. 1.1.20 EXCAVATION AND BACKFILLING

A. PROVIDE NECESSARY EXCAVATING AND BACKFILLING FOR THE INSTALLATION OF WORK SPECIFIED IN THIS DIVISION. TRENCHES FOR UNDERGROUND PIPING AND CONDUIT SHALL BE EXCAVATED TO REQUIRED DEPTHS WITH BELL HOLES PROVIDED AS NECESSARY TO INSURE UNIFORM BEARING. CARE SHOULD BE TAKEN NOT TO EXCAVATE AND REFILL BELOW THE REQUIRED BELOW DEPTH SHALL BE REFILLED WITH SAND OR GRAVEL FIRMLY COMPACTED. WHERE ROCK OR HARD OBJECTS ARE ENCOUNTERED, THEY SHALL BE EXCAVATED TO A DEPTH SIX INCHES (6") BELOW THE LOWERMOST PART OF THE PIPE AND REFILLED TO THE PIPE GRADE AS SPECIFIED. AFTER THE PIPE HAS BEEN INSTALLED, TESTED AND APPROVED, THE TRENCHES SHALL BE BACKFILLED IN GRADE WITH APPROVED MATERIAL, WELL TAMPED OR PUDDLED COMPACTLY IN PLACE. DO NOT PROCEED WITH BACKFILL OPERATIONS UNTIL THE ARCHITECT HAS SPECIFICALLY APPROVED SUCH PIPING.

A. THE DRAWINGS SHOW DIAGRAMMATICALLY THE LOCATIONS OF THE VARIOUS LINES, DUCTS, CONDUITS, FIXTURES AND EQUIPMENT AND THE METHOD OF CONNECTING AND CONTROLLING THEM. IT IS NOT INTENDED TO SHOW EVERY CONNECTION IN DETAIL AND ALL FITTINGS REQUIRED FOR A COMPLETE SYSTEM. THE SYSTEMS SHALL INCLUDE, BUT ARE NOT LIMITED TO, THE ITEMS SHOWN ON THE DRAWINGS. EXACT LOCATIONS OF ITEMS SHALL BE SHOWN ON THE DRAWINGS. THE CONTRACTOR SHALL OBTAIN PLANS AND MEASUREMENTS AT THE BUILDING AND IN COOPERATION WITH OTHER CONTRACTORS AND, IN ALL CASES, SHALL BE SUBJECT TO THE APPROVAL OF THE ARCHITECT/ENGINEER OF RECORD. THE CONTRACTOR RESERVES THE RIGHT TO MAKE ANY REASONABLE CHANGE IN THE LOCATION OF ANY PART OF THIS WORK WITHOUT ADDITIONAL COST TO THE OWNER.

B. SHOULD ANY CHANGES BE DEEMED NECESSARY BY THE CONTRACTOR AS NOTED IN ITEMS SHOWN ON THE CONTRACT DRAWINGS, SHOP DRAWINGS AND DESCRIPTIONS, THE REASON FOR THE PROPOSED CHANGES SHALL BE SUBMITTED TO THE GENERAL CONTRACTOR, WHICH WILL BE TRANSMITTED TO THE DESIGN TEAM - TO BE APPROVED BY THE ARCHITECT/ENGINEER. C. EXCEPTIONS AND INCONSISTENCIES IN PLANS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION BEFORE BIDS ARE SUBMITTED; OTHERWISE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY CHANGES AND AN ADEQUATE NUMBER OF COPIES OF ANY SUCH PROPOSAL SHALL BE SUBMITTED TO THE ARCHITECT.

D. THE CONTRACTOR SHALL LAY OUT HIS WORK MAINTAINING ALL LINES, GRADES AND DIMENSIONS ACCORDING TO THESE DRAWINGS WITH DUE CONSIDERATION FOR OTHER TRADES AND VERIFY ALL DIMENSIONS AT THE SITE PRIOR TO ANY FABRICATION OR INSTALLATION. SHOULD THE LAYOUT BE IMPRACTICAL, THE GENERAL CONTRACTOR SHALL BE NOTIFIED BEFORE ANY INSTALLATION OR FABRICATION, AND THE EXISTING CONDITIONS SHALL BE INVESTIGATED AND PROPER CHANGES EFFECTED WITHOUT ANY ADDITIONAL COST.

E. TITLES OF SECTIONS AND PARAGRAPHS IN THESE SPECIFICATIONS ARE INTRODUCED MERELY FOR CONVENIENCE AND ARE NOT TO BE CONSTRUED AS A CORRECT OR COMPLETE SEGREGATION TO TABULATION OF THE VARIOUS UNITS OF MATERIAL AND/OR WORK. THE ARCHITECT/ENGINEER DOES NOT ASSUME ANY RESPONSIBILITY, EITHER DIRECT OR IMPLIED, FOR OMISSIONS OR DUPLICATIONS BY THE CONTRACTOR DUE TO REAL OR ALLEGED ERROR IN THE ARRANGEMENT OF MATTER IN THE CONTRACT DOCUMENTS.

1.1.13 ARCHITECT'S APPROVAL

A. IN ANY STATEMENT UNDER THIS CONTRACT WHERE "APPROVAL" IS REQUIRED OR REQUESTED, IT IS UNDERSTOOD THAT SUCH APPROVAL MUST BE OBTAINED FROM THE ARCHITECT IN WRITING BEFORE PROCEEDING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING COPIES OF ANY SUCH PROPOSAL SHALL BE SUBMITTED TO THE ARCHITECT. B. THE APPROVAL BY THE ARCHITECT OF ANY MATERIALS, CHANGES, DRAWINGS, ETC., SUBMITTED BY THE CONTRACTOR WILL BE CONSIDERED AS GENERAL ONLY AND TO AID THE CONTRACTOR IN EXPEDITING HIS WORK. SUCH APPROVAL AS MAY BE GIVEN DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM THE NECESSITY OF FURNISHING THE MATERIALS AND PERFORMING ALL WORK AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

1.1.24 DIELECTRIC ISOLATION

A. WHEREVER COPPER, BRASS OR BRONZE PIPING SYSTEMS ARE CONNECTED TO STEEL OR IRON SYSTEMS, THIS CONNECTION SHALL BE MADE WITH DIELECTRIC ISOLATORS. THE DIELECTRIC ISOLATORS SHALL BE SO DESIGNED THAT NONFERROUS PIPING MATERIALS SHALL BE ISOLATED BY THE USE OF TEFLON OR NYLON ISOLATING MATERIALS MADE UP IN THE FORM OF SCREWED TYPE UNIONS OR INSULATING GASKETS AND BOLT SLEEVES AND WASHERS FOR STANDARD FLANGED CONNECTION. ALL DIELECTRIC ISOLATORS SHALL BE SELECTED FOR PRESSURES OF THE SYSTEMS INVOLVED. B. DIELECTRIC ISOLATORS SHALL BE EPDM, CRANE OR EQUAL.

1.1.25 PAINTING

A. UPON COMPLETION, CLEAN ALL PIPES AND EQUIPMENT BEFORE PAINTING. PAINTING OF MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING IS SPECIFIED IN ARCHITECTURAL, MECHANICAL, AND PLUMBING DOCUMENTS IF REQUIRED.

1.1.26 ACCESS DOORS

A. ACCESS DOORS ARE TO BE PROVIDED BY THE CONTRACTOR. THIS CONTRACTOR WILL CLOSELY COORDINATE LOCATIONS OF VALVES, ETC. IN ORDER TO HAVE ACCESS TO ALL CONCEALED PORTIONS OF THE SYSTEM. ALL ELECTRICAL WIRING AT 120V OR GREATER SHALL BE PROVIDED FOR COORDINATION OF ALL ACCESS DOORS, LOCATING SAME FOR INSTALLATION BY GENERAL CONTRACTOR. ACCESS DOOR LOCATIONS SHALL BE APPROVED BY THE ARCHITECT BEFORE INSTALLATION.

1.1.27 FLAME SPREAD PROPERTIES OF MATERIALS

A. ALL MATERIALS AND ADHESIVES USED FOR ACOUSTICAL LININGS AND INSULATION, JACKETS, TAPES, ETC. SHALL CONFORM TO ASTM E 84 AND/OR UL 723 MATERIALS FINISHES, ADHESIVES, ETC. FOR EACH SYSTEM, SHALL BE SUCH THAT WHEN COMPLETELY ASSEMBLED, THE TOTAL WILL NOT EXCEED 50 SMOKE DEVELOPED INDEX AND 25 FLAME SPREAD INDEX. MODIFICATIONS SHALL BE MADE TO INSULATING MATERIALS, ETC. AS REQUIRED TO COMPLY WITH ASTM E 84 OR UL 723.

1.1.28 GUARANTEE

A. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE IN TRIPPLICATE WARRANTING ALL MATERIALS, EQUIPMENT AND LABOR FURNISHED BY HIM TO BE FREE OF ALL DEFECTS OR PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. HE SHALL FURTHER GUARANTEE THAT ALL EQUIPMENT SHALL MEET THE CHARACTERISTICS, CAPACITIES AND WORKMANSHIP SPECIFIED AND WITHIN THE WARRANTY PERIOD, THE DEFECTS AND/OR EQUIPMENT WILL BE REPAIRED OR MADE GOOD WITHOUT COST TO THE OWNER. CONTRACTOR FURTHER AGREES TO CORRECT WARRANTY DEFICIENCIES WITHIN 48 HOURS CALLED. ALL APPARATUS SHALL BE CRIBBED UP FROM THE FLOOR OR BY THIS SUBCONTRACTOR AND CARED FOR AS SPECIFIED UNDER "STORAGE AND PROTECTION" OR AS DIRECTED BY THE ARCHITECT.

SECTION 4 - HEATING, VENTILATION AND AIR-CONDITIONING SYSTEMS

4.1.1 SCOPE

A. PROVIDE COMPLETE AIR SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST SYSTEMS, INCLUDING FANS, TERMINAL DEVICES AND OTHER COMPONENTS SPECIFIED HEREIN.

4.1.2 SUBMITTALS

A. SHOP DRAWINGS: SUBMIT COMPLETE SHOP DRAWINGS IN ACCORDANCE WITH SECTION 1.1.11. INDICATED MATERIALS, QUANTITIES, SIZES AND INSTALLATION DETAILS.

4.1.3 COORDINATION

A. INSTALL ALL MATERIALS AND EQUIPMENT AT PROPER TIME TO KEEP A PACE WITH GENERAL CONSTRUCTION AND THE WORK OF THE OTHER TRADES INVOLVED.

4.2.1 DUCTWORK

A. RIGID DUCTWORK: ALL AIR CONDITIONING AND EXHAUST DUCTWORK, PLENUM, CASINGS AND SHEET METAL, CONNECTIONS SHALL BE FABRICATED OF NEW JOINT-FORMING QUALITY GALVANIZED PRIME GRADE SHEETS.

A. RECTANGULAR LOW PRESSURE DUCTS: FABRICATE DUCTS, ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER CONSTRUCTION ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" AND COMPLYING WITH REQUIREMENTS FOR METAL THICKNESS, REINFORCING TYPES AND INTERVALS, THE ROD APPLICATIONS, JOINT TYPES AND INTERVALS. CROSS BREAK OR CROSS BEAD DUCT SIDES 19 INCHES AND LARGER AND 0.0359 IN. THICK OR LESS, MINIMUM DUCT WALL THICKNESS SHALL BE 0.0187 IN. THICK OR LESS, NOT EXCEED DEFLECTION LIMITS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE". FABRICATE RECTANGULAR DUCTS IN LENGTHS APPROPRIATE FOR REINFORCEMENT AND RIGIDITY CLASS REQUIRED FOR PRESSURE CLASS.

C. ROUND LOW PRESSURE DUCTS: SHALL BE "SNAP-LOK" AS MANUFACTURED BY UNITED SHEET METAL COMPANY OR EQUAL IN CONCEALED SPACES. ROUND DUCT SHALL BE SPIRAL SEAM WHEN EXPOSED. RECTANGULAR DUCTS OF GALVANIZED STEEL ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE". FABRICATE ELBOWS USING DIE-FORMED, GORED, PLEATED OR MITERED CONSTRUCTION. BEND RADIUS OF DIE FORMED, GORED, AND PLEATED ELBOWS SHALL BE 1-1/2 TIMES DUCT DIAMETER UNLESS INDICATED OTHERWISE.

D. FLEXIBLE CONNECTIONS, CONNECTIONS TO AIR CONDITIONING UNITS AND TO AIR HANDLING UNITS SHALL BE CONSTRUCTED WITH BELT DRIVE NEOPRENE COATED GLASS FABRIC WEIGHING NOT LESS THAN 30 OUNCES PER SQUARE YARD AND AT LEAST 1/16" THICK. E. CONSTRUCT AND INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE", UNLESS OTHERWISE INDICATED. INSTALL DUCTS WITH THE FEWEST POSSIBLE JOINTS. INSTALL FABRICATED FITTINGS FOR CHANGES IN DIRECTIONS, SIZE, AND SHAPE AND FOR CONNECTIONS TO OTHER TYPES OF DUCTS. F. AT THE CONTRACTOR'S OPTION, 2" INSULATED FLEXIBLE DUCT MAY BE USED FOR THE LAST 5 FEET (MAXIMUM LENGTH) EXTENDING TO AIR DEVICE WHEN INSTALLED PER MANUFACTURER'S INSTALLATION AND INSTRUCTIONS.

4.2.2 FILTERS

A. TYPE: 1. FILTERS SHALL BE 1" THROW AWAY TYPE AND SHALL BE FARR 30-30 FILTER SIMILAR TYPES BY CAMBRIDGE, MICROTRON OR MATCHED EQUAL. MAXIMUM VELOCITY THROUGH FILTER MEDIA SHALL BE 500 FPM.

4.2.3 AIR HANDLING UNITS

A. SPLIT SYSTEM AIR HANDLING UNITS SHALL CONSIST OF AN INDOOR FAN AND COIL, CONNECTED TO A REMOTE AIR-COOLED CONDENSING UNIT, ALONG WITH RELATED REFRIGERANT PIPING AND ACCESSORIES. FAN SECTION AND COOLING COIL SHALL BE A COMPANION UNIT WITH THE CONDENSING UNIT, RATED TO PRODUCE THE MINIMUM REFRIGERANT CAPACITY AS SCHEDULED ON THE DRAWINGS, TAKING INTO CONSIDERATION ALL CORRECTION FACTORS, ALTITUDE ADJUSTMENTS AND PIPING LOSSES. B. FAN COIL UNIT SHALL CONSIST OF A DIRECT-EXPANSION COOLING COIL, INSULATED DRAIN PAN, ELECTRIC HEATER, 240V MOTOR AND CENTRIFUGAL BLOWER ASSEMBLY, COMPLETELY FACTORY PRE-WIRED INCLUDING A 24V CONTROL CIRCUIT TRANSFORMER. UNIT SHALL BE LOW SILHOUETTE STYLE TYPE WITH COIL CABINET AND FAN SECTION NOT GREATER THAN 10" IN HEIGHT. C. FAN SHALL BE FORWARD CURVED WITH DOUBLE INLET, MOUNTED ON MOTOR SHAFT, DYNAMICALLY AND STATICALLY BALANCED. THE FAN SHALL DELIVER SCHEDULED CFM. THE MULTI-SPEED FAN MOTOR SHALL BE FACTORY LUBRICATED, HAVE INTERNAL OVERLOAD PROTECTION, BE RESILIENTLY MOUNTED AND SHALL NOT EXCEED 1 HP. FAN-MOTOR ASSEMBLY SHALL BE REMOVABLE FOR SERVICE.

D. CONDENSING UNITS SHALL BE CONSTRUCTED WITH ALUMINUM PLATE FINS MECHANICALLY BONDED TO NONFERROUS TUBING WITH JOINTS BRAZED. COIL SHALL HAVE FACTORY-INSTALLED REFRIGERANT METERING DEVICE AND REFRIGERANT LINE FITTINGS WHICH PERMIT MECHANICAL CONNECTIONS. UNITS SHALL BE PROVIDED WITH APPROPRIATE ACCESSORIES AND COMPONENTS FOR HEAT PUMP OPERATION. CONDENSATE PANS SHALL BE EQUIPPED WITH PRIMARY AND AUXILIARY DRAIN CONNECTIONS. E. COOLING CONTROL KIT SHALL CONTAIN 60VA-CONTROL CIRCUIT (24V) TRANSFORMER, INDOOR FAN RELAY, LINE VOLTAGE TERMINAL BLOCK AND LOW VOLTAGE TERMINAL STRIP. F. THERMOSTATS FOR AC UNITS SHALL BE LOW VOLTAGE WITH SUB-BASE "MANUAL" SWITCHING OVER FROM HEATING TO COOLING AND A FAN "ON" OR "AUTOMATIC" SWITCH.

4.2.4 AIR-COOLED CONDENSING UNITS

A. CONDENSING UNITS SHALL BE ASSEMBLED ON A HEAVY-GAUGE INTEGRAL STEEL BASE. UNITS WILL BE WEATHER PROOFED AND INCLUDE HERMETIC COMPRESSOR, CONDENSER COIL, FANS AND MOTORS, CONTROLS AND HOLDING CHARGE OF REFRIGERANT. UNITS HAVE REMOVABLE PANELS WHICH ALLOW ACCESS TO ALL CONTROLS AND MOTOR COMPONENTS.

B. UNIT FRAME ONE-PIECE WELDED ASSEMBLY OF HEAVY-GAUGE ZINC-COATED STEEL. EXTERIOR SURFACES WILL BE CLEANED, PHOSPHATIZED AND FINISHED WITH AN AIR-DRY ENAMEL FINISH.

C. DIRECT-DRIVE, HERMETIC SCROLL COMPRESSOR WITH INTEGRAL DOWNWARD EXHAUST. THE POSITION OF EACH BEARING AND CONNECTING ROD, AND WELL, SUCTION AND DISCHARGE VALVES, AND RUBBER-IN-SHAPE ISOLATORS. MOTORS WILL BE SUCTION GAS COOLED AND HAVE A VOLTAGE UTILIZATION RANGE PLUS OR MINUS 10 PERCENT OR NAMEPLATE VOLTAGE. TWO WINDING THERMOSTATS EMBEDDED BETWEEN THE THREE MOTOR WINDINGS WILL PROTECT AGAINST EXCESSIVE WINDING TEMPERATURES.

D. CONDENSER FAN AND MOTORS: DIRECT DRIVE FANS, STATICALLY AND DYNAMICALLY BALANCED, WITH STEEL BLADES AND ZINC-PLATED SHEET HUBS. MOTORS WITH PERMANENTLY LUBRICATED BALL BEARINGS, BUILT-IN CURRENT AND THERMAL OVERLOAD PROTECTION, AND WEATHER-RIGHT SLINGERS OVER BEARINGS.

E. CONDENSER COIL: AIR-COOLED, CONFIGURATED ALUMINUM FIN SECONDARY SURFACES MECHANICALLY BONDED TO PRIMARY SURFACE OF 3/8 INCH OD SEAMLESS COPPER TUBING. SUBCOOLING CIRCUITS WITH LIQUID ACCUMULATOR(S) STANDARD. FACTORY TESTING AT 450 PSIG AIR PRESSURE. VACUUM DEHYDRATED. F. CONDENSING UNITS SHALL BE FRAME, CARRIER, LENNOX, YORK OR APPROVED EQUAL.

4.2.5 ELECTRIC UNIT HEATERS

A. ELECTRIC UNIT HEATER CABINET SHALL BE CONSTRUCTED OF HEAVY GAUGE STEEL CASING, INDIVIDUAL ADJUSTABLE LOUVERS WITH 30 DEGREES DOWNWARD EXHAUST. THE POSITION OF EACH BEARING AND CONNECTING ROD, AND WELL, SUCTION AND DISCHARGE VALVES, AND RUBBER-IN-SHAPE ISOLATORS. MOTORS WILL BE SUCTION GAS COOLED AND HAVE A VOLTAGE UTILIZATION RANGE PLUS OR MINUS 10 PERCENT OR NAMEPLATE VOLTAGE. TWO WINDING THERMOSTATS EMBEDDED BETWEEN THE THREE MOTOR WINDINGS WILL PROTECT AGAINST EXCESSIVE WINDING TEMPERATURES.

B. FANS SHALL BE ALUMINUM, DIRECT DRIVE AND DESIGNED SPECIFICALLY FOR UNIT HEATER APPLICATION. PROTECT FANS BY MEANS OF A CORROSIVE RESISTANT MOUNTING BRACKET DESIGNED FOR EITHER CEILING OR WALL SWIVEL MOUNTING SHALL BE FURNISHED.

D. PROVIDE UNIT HEATER WITH A 24V CONTROL TRANSFORMER, THERMOSTAT, RELAYS AND OTHER CONTROL DEVICES AS NECESSARY FOR THE CONTROL OF THE UNIT. THERMOSTAT SHALL BE FACTORY WIRED INTERNALLY IN THE HEATER OR REMOTE MOUNTED ON A WALL AND SERVED BY A LOW VOLTAGE WIRING CONCEALED INSIDE CONDUIT AS INDICATED ON THE DRAWINGS.

E. MOTORS SHALL BE TOTALLY ENCLOSED, DESIGNED FOR CONTINUOUS OPERATION AND EQUIPPED WITH BUILT-IN THERMAL OVERLOAD PROTECTION. F. ELECTRIC UNIT HEATERS SHALL BE QMARK, BERKO, MARKEL, BRASCH OR APPROVED EQUAL.

4.2.6 EXHAUST FANS

A. EXHAUST FANS SHALL BE DIRECT DRIVE, FORWARD CURVED, CENTRIFUGAL BLOWER TYPE. FAN WHEEL AND SCROLL SHALL BE CONSTRUCTED OF GALVANIZED STEEL. FAN WHEEL SHALL BE DYNAMICALLY BALANCED. THE FAN HOUSING SHALL BE CONSTRUCTED OF GALVANIZED STEEL AND ACOUSTICALLY LINED FOR QUIET OPERATION. FAN HOUSING SHALL BE PROVIDED WITH MOUNTING LUGS FOR SUSPENSION ABOVE A CEILING. PROVIDE FAN WITH AN INTEGRAL ALUMINUM GRAVITY BACK-DRAFT DAMPER, WITH REMOVABLE BEARINGS TO PROVIDE A SAFETY DISCONNECT SWITCH MOUNTED TO THE EXTERIOR OF THE FAN ENCLOSURE. FANS SHALL BE A.M.C.A. RATED.

B. CEILING AND WALL EXHAUST FANS SHALL BE DIRECT DRIVE, FORWARD CURVED, CENTRIFUGAL BLOWER TYPE. FAN WHEEL AND SCROLL SHALL BE CONSTRUCTED OF GALVANIZED STEEL. FAN WHEEL SHALL BE DYNAMICALLY BALANCED. THE FAN HOUSING SHALL BE CONSTRUCTED OF GALVANIZED STEEL AND ACOUSTICALLY LINED FOR QUIET OPERATION. FAN HOUSING SHALL BE PROVIDED WITH MOUNTING LUGS FOR SUSPENSION ABOVE A CEILING. PROVIDE FAN WITH AN INTEGRAL ALUMINUM GRAVITY BACK-DRAFT DAMPER, WITH REMOVABLE BEARINGS TO PROVIDE A SAFETY DISCONNECT SWITCH MOUNTED TO THE FAN ENCLOSURE. FANS SHALL BE A.M.C.A. RATED.

C. ROOF MOUNTED DOWNBLAST EXHAUST FANS SHALL BE BELT DRIVE, FORWARD CURVED, CENTRIFUGAL BLOWER TYPE. FAN WHEEL AND SCROLL SHALL BE CONSTRUCTED OF ALUMINUM. FAN WHEEL SHALL BE DYNAMICALLY BALANCED. THE FAN HOUSING SHALL BE CONSTRUCTED OF ALUMINUM. TOP CAP SHALL BE PROVIDED WITH STAINLESS STEEL QUICK RELEASE HATCHES FOR ACCESS TO THE MOTOR AND FAN WHEEL. FAN HOUSING SHALL BE PROVIDED WITH LIFTING LUGS. PROVIDE FAN WITH A MOTORIZED BACK-DRAFT DAMPER TO BE INSTALLED IN THE INTAKE. THE MOTOR SHALL BE PROVIDED WITH REMOVABLE BEARINGS TO PROVIDE A SAFETY DISCONNECT SWITCH MOUNTED TO THE FAN ENCLOSURE. FANS SHALL BE A.M.C.A. RATED.

D. EXHAUST FANS SHALL BE LOREN COOK, GREENHECK, PENN, ACME, BROAN OR APPROVED EQUAL.

4.2.7 AIR DISTRIBUTION DEVICES

A. GRILLS AND REGISTERS SHALL BE FURNISHED WITH FRAME STYLES, WHICH LEAD TO OR ARE OUTDOORS. SCREENS SHALL BE 16 GAUGE, ONE-HALF INCH MESH IN REMOVABLE GALVANIZED FRAMES. B. WALL LOUVERS SHALL BE RUSKIN MODEL ELF6375DX RECESSED FRAME DOUBLE WEATHER STOP AND WITH BIRD SCREEN OR APPROVED SUBSTITUTION. C. FURNISH AND INSTALL SCREENS ON ALL DUCT, FAN OR OTHER MECHANICAL OPENINGS OR EQUIPMENT FURNISHED BY THIS CONTRACTOR, WHICH LEAD TO OR ARE OUTDOORS. SCREENS SHALL BE 16 GAUGE, ONE-HALF INCH MESH IN REMOVABLE GALVANIZED FRAMES.

4.3.1 REFRIGERANT PIPING

A. REFRIGERANT PIPING SHALL BE PRE-CHARGED TYPE "L" COPPER OR TYPE "L" HARD COPPER WITH WROUGHT SOLDER JOINT FITTINGS. B. CONDENSATE DRAIN PIPING SHALL BE TYPE "M" COPPER OR SCHEDULE 40 PVC, WHERE PERMITTED BY LOCAL CODE.

4.3.2 INSULATION

A. FIBROUS GLASS FLEXIBLE LINER THERMAL INSULATION: GLASS FIBERS BONDED WITH A THERMOSETTING RESIN. COMPLY WITH ASTM C 1071, TYPE I, ASTM G-21 AND G-22 WITH FACTORY APPLIED EDGE FINISH AND AIR VELOCITY RATING OF 5000

PLUMBING SYMBOLS AND ABBREVIATIONS

NOTE: ALL SYMBOLS AND ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS

GENERAL NOTES

- PERFORM ALL WORK IN ACCORDANCE WITH ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION. PROVIDE ALL PERMITS, INSPECTIONS, LICENSES AND FEES. FURNISH ALL LABOR, EQUIPMENT, SUPPLIES AND MATERIALS NECESSARY TO PROVIDE COMPLETE AND OPERATIONAL SYSTEMS.
- THE DRAWINGS AND SPECIFICATIONS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF PIPES, FIXTURES, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. DO NOT SCALE THE DRAWINGS FOR DIMENSIONS. TAKE ALL DIMENSIONS, MEASUREMENTS, EQUIPMENT LOCATIONS, LEVELS, ETC FROM THE ARCHITECTURAL DRAWINGS AND FROM THE EQUIPMENT TO BE FURNISHED. PIPING MAY BE RELOCATED OR OFFSET FOR PROPER CLEARANCES OR TO AVOID CONFLICTS WITH OTHER TRADES. THE DESIGN INTENT (I.E. PITCHES, VELOCITIES, PRESSURE DROPS, VOLTAGE DROPS, ETC) CANNOT BE GREATLY ALTERED WITHOUT THE APPROVAL OF THE ARCHITECT. THE COST OF THESE DEVIATIONS TO AVOID INTERFERENCE'S SHALL BE PART OF THE ORIGINAL CONTRACT BID.
- EACH SUBCONTRACTOR SHALL CONFER AND COOPERATE WITH ALL OTHER TRADES TO COORDINATE THEIR WORK. COORDINATION SHALL INCLUDE, BUT SHALL NOT BE LIMITED TO MATERIALS AND EQUIPMENT ROUTED IN CEILING AND WALL CAVITIES, EQUIPMENT ARRANGEMENT IN MECHANICAL SPACES, INCLUDING EQUIPMENT CLEARANCE REQUIREMENTS, ELEVATIONS AND DIMENSIONS OF STRUCTURAL MEMBERS AND OPENINGS, ETC. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY CONFLICTS.
- BASE FINAL INSTALLATION OF MATERIALS AND EQUIPMENT ON ACTUAL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE. FIELD MEASURE FOR MATERIALS AND EQUIPMENT REQUIRING EXACT FIT. NO EXTRAS WILL BE GIVEN FOR THE CONTRACTORS FAILURE TO FIELD COORDINATE.
- THE OWNER OR ENGINEER ARE NOT RESPONSIBLE FOR THE CONTRACTOR'S SAFETY PRECAUTIONS OR FOR MEANS, METHODS, TECHNIQUES, CONSTRUCTION SEQUENCES, OR PROCEDURES REQUIRED TO PERFORM THE WORK.
- THE CONTRACTOR SHALL LOCATE ALL EQUIPMENT THAT MUST BE SERVICED, OPERATED, OR MAINTAINED IN FULLY ACCESSIBLE POSITIONS. EQUIPMENT SHALL INCLUDE (BUT NOT LIMITED TO) VALVES, SHOCK ABSORBERS, TRAPS, CLEANOUTS, MOTORS, CONTROLLERS, SWITCHES, AND DRAIN POINTS IF REQUIRED FOR BETTER ACCESSIBILITY. FURNISH ACCESS DOORS FOR THIS PURPOSE. MINOR DEVIATIONS FROM THE DRAWINGS MAY BE ALLOWED TO PROVIDE FOR BETTER ACCESSIBILITY. ANY CHANGES SHALL BE APPROVED BY THE ARCHITECT AND CONSTRUCTION MANAGER/GENERAL CONTRACTOR PRIOR TO MAKING THE CHANGE.
- THE CONTRACTOR SHALL PROVIDE ACCESS DOORS, WALL OPENINGS, ROOF OPENINGS OR ANY OTHER CONSTRUCTION REQUIREMENT NEEDED TO ACCOMMODATE THE PLUMBING EQUIPMENT. LOCATIONS OF THESE OPENINGS SHALL BE SUBMITTED IN SUFFICIENT TIME TO BE INSTALLED IN THE NORMAL COURSE OF WORK.
- THE CONTRACTOR SHALL COORDINATE ELECTRICAL REQUIREMENTS OF PLUMBING EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO THE PURCHASE AND INSTALLATION OF ANY ELECTRICAL GEAR OR CONDUIT.
- PROVIDE VIBRATION ISOLATORS FOR MOTOR DRIVEN PLUMBING EQUIPMENT UNLESS NOTED OTHERWISE. PROVIDE ISOLATION AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER.
- THE CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL WALL CLEANOUTS, ACCESS DOORS, ETC WITH THE ARCHITECT AND ALL OTHER TRADES PRIOR TO INSTALLATION. IF A CONFLICT WITH MILLWORK, LIGHT SWITCHES, WINDOWS, ETC EXISTS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF THE POTENTIAL INTERFERENCE PRIOR TO INSTALLATION.
- PLUMBING VENTS THROUGH THE ROOF SHALL BE A MINIMUM OF 10 FEET FROM ALL OUTSIDE AIR INTAKES AND A MINIMUM OF 5 FEET FROM EXTERIOR PERIMETER WALLS.
- SOME PIPES SHOWN ON EACH FLOOR PLAN MAY BE SHOWN WITH AN OFFSET FOR CLARITY.
- PLUMBING FIXTURES AND TRIM OF LIKE KIND SHALL BE OF THE SAME MANUFACTURER THROUGHOUT THE PROJECT. TYPICAL CATEGORIES INCLUDE THE FOLLOWING:
 - A. WATER CLOSETS, LAVATORIES, URINALS
 - B. ELECTRIC WATER COOLERS, DRINKING FOUNTAINS
 - C. FAUCETS, MIXING VALVES
 - D. TAIL PIECE, FIXTURE TRAPS, ESCUTCHEONS, ARM EXTENSIONS, STRAINERS
 - E. FIXTURE CARRIERS, FLOOR DRAINS, FLOOR SINKS, ROOF DRAINS, OVERFLOW DRAINS
 - F. COUNTER TOP SINKS
- PROVIDE WATER HAMMER ARRESTERS BETWEEN THE NEXT TO LAST AND LAST FIXTURE AT EACH BATTERY OF PLUMBING FIXTURES IN ACCORDANCE WITH THE WATER HAMMER ARRESTER SCHEDULE AND THE PLUMBING AND DRAINAGE INSTITUTE STANDARD PDI-WH-201.
- ALL SANITARY WASTE PIPING WITHIN THE BUILDING ENVELOPE SHALL HAVE MINIMUM SLOPES AS REQUIRED BY THE LOCAL CODE AUTHORITY. CONTRACTOR SHALL VERIFY INVERT ELEVATIONS INDICATED ON FLOOR PLANS PRIOR TO INSTALLATION OF ANY SITE UTILITIES AND CONNECTION INTO EXISTING SERVICES.
- COMPLY WITH THE PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE TEXAS ACCESSIBILITY'S STANDARD (TAS). PLUMBING CONTRACTOR SHALL PROVIDE PLUMBING FIXTURES WITH FLUSH VALVE HANDLES LOCATED ON THE WIDE SIDE OF EACH STALL.
- SEAL ALL PIPE PENETRATIONS THROUGH FIRE RATED BUILDING ELEMENTS WITH AN APPROVED FIRE PROOFING MATERIAL.
- ALL FLOOR DRAIN AND FLOOR SINK TRAPS SHALL BE INSTALLED WITH LISTED TRAP GUARDS.
- CONTRACTOR SHALL PROVIDE AND INSTALL A MINIMUM HORIZONTAL LENGTH OF 10' OF 1" THICK PIPING INSULATION ON ALL STORM AND OVERFLOW PIPING WITHIN THE BUILD STARTING FROM EACH DRAIN BODY.
- CONTRACTOR SHALL PROVIDE AND INSTALL OF 1/2" THICK PIPING INSULATION ON ALL CONDENSATE PIPING WITHIN BUILDING ENVELOPE.

WATER HAMMER ARRESTER SCHEDULE

P.D.I. SIZE	A	B	C	D	E	F
FIXTURE UNITS	1-11	12-32	33-60	61-113	114-154	155-330

- NOTES:
- ALL WHA'S SHALL BE PISTON TYPE WITH EPDM O-RINGS, SIOUX CHIEF'S SERIES 650 OR EQUAL.
 - ALL WHA'S SHALL BE ANSISASSE 1010 2004 CERTIFIED AND APPROVED FOR INSTALLATION WITH NO ACCESS PANEL REQUIRED.
 - SIZE AND LOCATE WATER HAMMER ARRESTERS IN ACCORDANCE WITH PDI PAMPHLET PDI-WH-201.

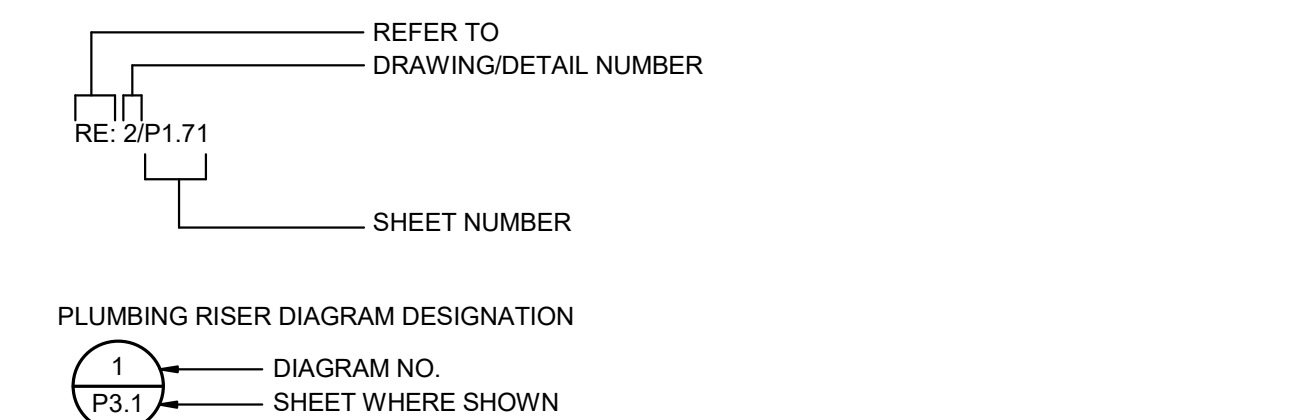
ABBREVIATIONS

A/E	ARCHITECT/ENGINEER	IN.	INCH, INCHES
AFF	ABOVE FINISHED FLOOR	J-BOX	JUNCTION BOX
AIR GAP	AIR GAP	KW	KILOWATT
AHU	AIR HANDLING UNIT	L	LENGTH
APPROX	APPROXIMATE	LB	POUNDS
AVB	ATMOSPHERIC VACUUM BREAKER	LRA	LOCKED ROTOR AMPS
BATT	BATTERY	MAX	MAXIMUM
BD	BUILDING DRAIN (BELOW FLOOR)	MCA	MINIMUM CIRCUIT AMPACITY
B.F.G.	BELOW FINISHED GRADE	MIN	MINIMUM
BS	BUILDING SEWER (OUTSIDE OF BLDG)	MSB	MOP SINK BASIN
CU	COPPER CONDENSING UNIT	N/A	NOT APPLICABLE
CW	DOMESTIC COLD WATER	NFFPA	NATIONAL FIRE PROTECTION ASSOCIATION
D	EQUIPMENT DRAIN	NFJWH	NON-FREEZE WALL HYDRANT
(D)	DEMOLISH	N/O,N/C	NORMALLY OPEN, NORMALLY CLOSED
DCO	TWO-WAY GRADE CLEANOUT	O/C	ON CENTER
DCV	DOUBLE CHECK VALVE	OFD	ROOF OVERFLOW DRAIN
DEG	DEGREES	PCO	PLUG CLEANOUT
DSN	DOWNSPOUT NOZZLE	PH	PHASE
(E)	EXISTING	PROVIDE	FURNISH AND INSTALL
EQUIP	EQUIPMENT	PSI	POUNDS PER SQUARE INCH
EWV	ELECTRIC WATER COOLER	RD	ROOF DRAIN
F	DEGREES FAHRENHEIT	RE:	REFERENCE, REFER
FCO	FLOOR CLEANOUT	RLA	RUNNING LOAD AMPS
FCU	FAN COIL UNIT	RM	ROOM
FD	FLOOR DRAIN	RPBFP	REDUCED PRESSURE PRINCIPLE
FS	FLOOR SINK	RPZ	REDUCED PRESSURE ZONE
FT.	FOOT, FEET	S	SINK
FVC	FIRE VALVE CABINET	SD	STORM DRAIN (BELOW FLOOR)
G	NATURAL GAS	ST	STORM WATER (ABOVE CEILING)
GCO	GRADE CLEANOUT	SSD	SUBSURFACE DRAIN
GWH	NATURAL GAS WATER HEATER	THRU	THROUGH
H	HEIGHT	TP	TRAP PRIMER
HB	HOSE BIBB	TYP	TYPICAL
HCVB	HOSE CONNECTION VACUUM BREAKER	U	URINAL
HP	HORSEPOWER	UL	UNDERWRITERS LABORATORIES, INC.
HW	DOMESTIC HOT WATER	V	VENTILATION
HWC	DOMESTIC HOT WATER CIRCULATION LOOP	VTR	SANITARY VENT THRU ROOF
HWR	DOMESTIC HOT WATER RETURN	WC	WATER CLOSET
HWTM	HOT WATER TEMPERATURE MAINTENANCE CABLE	WCO	WALL CLEANOUT
HZ	HERTZ	W/	WITH
IE	INVERT ELEVATION	W/O	WITHOUT

LINE TYPES

SYMBOL	DESCRIPTION
	SANITARY SEWER (ABOVE CEILING)
	SANITARY SEWER (BELOW FLOOR, BUILDING DRAIN)
	SANITARY SEWER (OUTSIDE OF BUILDING, BUILDING SEWER)
	GREASY WASTE (ABOVE CEILING)
	GREASY WASTE (BELOW FLOOR)
	EQUIPMENT DRAIN (ABOVE CEILING)
	STORM WATER PIPING (ABOVE CEILING)
	STORM WATER PIPING (BELOW FLOOR/GRADE)
	OVERFLOW DRAIN (ABOVE CEILING)
	SUBSURFACE DRAINAGE
	SANITARY VENT
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER CIRCULATION
	NATURAL GAS
	FIRE PROTECTION MAIN WATER SUPPLY
	STANDPIPE FIRE PROTECTION WATER
	AUTOMATIC FIRE SPRINKLER (WET)
	AUTOMATIC FIRE SPRINKLER (PRE-ACTION)
	AUTOMATIC FIRE SPRINKLER (DRY)
	COMPRESSED AIR
	DIRECTION OF FLOW
	DIRECTION OF PIPE SLOPE DOWN
	PIPE DEMOLITION

DRAWING/DETAIL REFERENCE



VALVES AND FITTINGS

SYMBOL	DESCRIPTION
	SHUT-OFF / ISOLATION VALVE
	BALL VALVE
	BUTTERFLY VALVE
	GLOBE VALVE
	PLUG VALVE / GAS COCK
	CHECK VALVE
	STRAINER
	CALIBRATED BALANCING VALVE
	GAS PRESSURE REGULATOR
	FLOW SWITCH
	UNION (DIELECTRIC)
	VALVE IN RISER
	END RISE (90° ELL)
	END DROP (90° ELL)
	RISE OR DROP
	TEE OUT OF TOP OF PIPE
	TEE OUT OF BOTTOM OF PIPE
	CAP ON END OF PIPE
	WALL CLEANOUT
	PLUG CLEANOUT
	TWO WAY CLEANOUT
	GRADE CLEANOUT
	NON-FREEZE WALL HYDRANT OR HOSE BIBB
	FLOOR DRAIN
	FLOOR CLEANOUT
	SANITARY WASTE (ABOVE FLOOR)
	SHUT-OFF / ISOLATION VALVE
	OS&Y GATE VALVE
	FIRE DEPARTMENT SIAMESE CONNECTION (WALL)
	FIRE DEPARTMENT SIAMESE CONNECTION (FREE STANDING)
	PRESSURE GAUGE
	ALARM CHECK VALVE
	DRY ALARM CHECK VALVE
	DRY ALARM CHECK VALVE WITH QUICK OPENING DEVICE
	DELUGE OR PRE-ACTION ALARM CHECK VALVE

BASIS OF PLUMBING DESIGN

PRIMARY CODES :
PLUMBING: 2015 INTERNATIONAL PLUMBING CODE (WITH CITY AMENDMENTS)

PROJECT DESIGN VALUES :

SANITARY SEWER AND VENT SYSTEM(s) :
TOTAL DRAINAGE FIXTURES UNITS = 10 DFU

DOMESTIC WATER SYSTEM(s) :
TOTAL WATER FIXTURE UNITS = 14 FU
PEAK DEMAND = 10 GPM

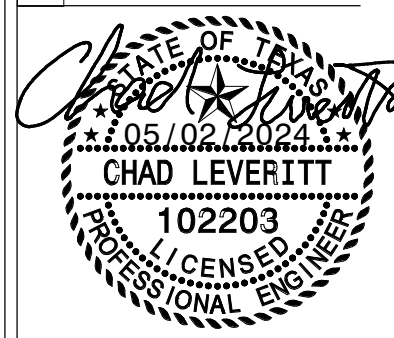
DOMESTIC HOT WATER SYSTEM(s) :
DOMESTIC HOT WATER TEMPERATURE = 125°F
TEMPERED DOMESTIC HOT WATER TEMPERATURE = 105°F
CIRCULATED DOMESTIC WATER SYSTEM

MISCELLANEOUS

- DRAWING NOTE REFERENCE (I.E., NOTES BY SYMBOL)
- CONNECTION INTO EXISTING

DESCRIPTION

REV DATE



CD SET

**MCCULLOUGH ANNEX
RENOVATION**
 MIDWESTERN STATE UNIVERSITY
 3410 TAFT BLVD. WICHITA FALLS, TX

BYS Architects
1005 Ninth Street - Suite 200 Wichita Falls, Texas 76301 (940) 761-2404
Member American Institute of Architects

DRAWN BY: BMJ

CHECKED BY: CSL

DATE: 05/02/24

PROJECT NO.: 23062

PLUMBING NOTES AND LEGEND

P001



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PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	ROUGH IN (MINIMUM)					MANUFACTURER AND MODEL NUMBER	ADA (TAS)
		W	V	CW	HW	E		
WC1	WATERCLOSET, ADA COMPLIANT, 1.28 GPF, HIGH PERFORMANCE FLUSHOMETER TANK, ELONGATED BOWL, 3" FLUSH VALVE, CLOSE-COUPLED TANK, VITREOUS CHINA, WHITE, 2 1/8" FULLY GLAZED TRAPWAY, 12" ROUGH-IN, ASME A112.19.2M (& 19.6M).	4"	2"	-	-	-	AMERICAN STANDARD, 215AA.104; KOHLER, K-3999; ZURN Z5555-K.	♿
	SUPPLY AND STOP, LOOSE KEY, CHROME PLATED BRASS VALVE AND CHROME PLATED COPPER RISER	-	-	1/2"	-	-	MCGUIRE, LFH2166CCLK; OR EQUAL IN T&S BRASS OR BRASSCRAFT	
	SEAT, EXTRA HEAVY WEIGHT, POSTURE MOLDED SOLID PLASTIC, ELONGATED, OPEN FRONT, LESS COVER, EXTERNAL CHECK HINGES, STAINLESS STEEL HINGE POSTS, WHITE	-	-	-	-	-	CHURCH 9500C; BEMIS, 1655C; OLSONITE, 95/SS	
L1	LAVATORY, 20"x18" VITREOUS CHINA WALL MOUNT, 4" CENTER FAUCET HOLES, FRONT OVERFLOW, CONCEALED ARM CARRIER SYSTEM, DECK MOUNTED FAUCET, INTEGRAL 4" BACKSPASH, ANSI A112.19.2	2"	1 1/2"	-	-	-	AMERICAN STANDARD, 0355.012; KOHLER, K-2005; ZURN, Z5364; SLOAN, SS-3003.	♿
	FAUCET, DECK MOUNT, CHROME PLATED BRASS, 4" INTEGRAL SPOUT, TWO-HANDLE, 1/4 TURN, 4" WRIST BLADE HANDLES, 4" CENTERS, NSF 61 COMPLIANT, ANSI A112.18.1M, 0.5 GPM MAX. FLOW RATE	-	-	1/2"	1/2"	-	CHICAGO FAUCETS, 802-V317E66XKABCP; T&S BRASS, B-0890-VF05; ZURN, Z81104-XL-27M.	
	SUPPLY AND STOPS, LOOSE KEY, CHROME PLATED BRASS VALVES AND CHROME PLATED COPPER RISERS	-	-	-	-	-	MCGUIRE, LFH2165CCLK; T&S BRASS, B-1305; OR BRASSCRAFT, OCR1912A	
	P-TRAP, CHROME PLATED CAST BRASS BODY WITH CLEANOUT, SEAMLESS WALL BEND, 17 GA.	-	-	-	-	-	MCGUIRE, 8902; BRASSCRAFT, 507; OR EQUAL IN T&S BRASS	
	OFFSET TAILPIECE AND STRAINER, CHROME PLATED CAST BRASS	-	-	-	-	-	MCGUIRE, 155WC; OR EQUAL IN T&S BRASS; OR BRASSCRAFT	
	FIXTURE CARRIER, CONCEALED ARMS, LEVELING AND SECURING SCREWS, UPRIGHTS, WELDED FEET	-	-	-	-	-	JOSAM, SERIES 17100, WATTS, CA-411; ZURN, Z1231; OR JR SMITH, 0700	
	THERMOSTATIC MIXING VALVE, 0.25 GPM MINIMUM FLOW, INTEGRAL INLET CHECK VALVES AND STRAINER, SET TEMPERATURE TO 105°, ASSE 1070.	-	-	1/2"	1/2"	-	WATTS, LFUSG-B; LEONARD, 170-LF; BRADLEY, S59-4000A; OR EQUAL	
S1	SINK, SINGLE COMPARTMENT, 19"x21"x5", SELF RIMMING, SEAMLESS #18 GAUGE TYPE 304 STAINLESS STEEL, FAUCET LEDGE, MINIMUM 1 3/4" VERTICAL AND HORIZONTAL RADIUS BASIN CORNERS, FULLY UNDERCOATED, ANSI A112.19.3M. DRAIN CENTERED IN REAR OF BASIN.	2"	1 1/2"	-	-	-	JUST, SL-ADA-1921-A-GR; ELKAY, LRAD221950.	♿
	FAUCET, DECK MOUNT, CHROME PLATED BRASS, 4" INTEGRAL SPOUT, TWO-HANDLE, 1/4 TURN, 2 1/2" LEVER HANDLES, 4" CENTERS, NSF 61 COMPLIANT, ANSI A112.18.1M, 0.5 GPM MAX. FLOW RATE	-	-	1/2"	1/2"	-	CHICAGO FAUCETS, 802-VE66XKABCP; T&S BRASS, B-0871-VF05; ZURN, Z81101-XL-27M.	
	SUPPLY AND STOP, LOOSE KEY, CHROME PLATED BRASS VALVES AND CHROME PLATED COPPER RISERS	-	-	1/2"	1/2"	-	MCGUIRE, LFH2165CCLK; OR EQUAL IN T&S BRASS OR BRASSCRAFT	
	P-TRAP, CHROME PLATED CAST BRASS BODY WITH CLEANOUT, SEAMLESS WALL BEND, 17 GA.	-	-	-	-	-	MCGUIRE, 8912; OR EQUAL IN T&S BRASS OR BRASSCRAFT	
	TAILPIECE AND FORGED STAINLESS STEEL BASKET STRAINER	-	-	-	-	-	JUST J-ADA-35; OR EQUAL IN MCGUIRE, T&S BRASS OR BRASSCRAFT	
MSB1	MOP SINK BASIN, ONE PIECE PRECAST TERRAZZO 24"x24"x12" (1 1/4" WALL THICKNESS WITH MINIMUM 9.75" INSIDE DEPTH) 6" DROP FRONT, STAINLESS STEEL EDGE CAPS ON ALL SIDES, CAST BRASS DRAIN WITH STAINLESS STEEL STRAINER.	3"	2"	-	-	-	FIAT, TSB3000; STERN-WILLIAMS, HL-1810; FLORESTONE, MODEL 92.	
	FAUCET, EXPOSED YOKE, WALL MOUNTED UTILITY FAUCET, VACUUM BREAKER, 6"THREADED SPOUT	-	-	3/4"	3/4"	-	CHICAGO, 540-LD897SGXKCCP; T&S BRASS, B-0665-BSTP; FIAT, 830-AA.	
	STAINLESS STEEL WALL GUARDS	-	-	-	-	-	FIAT, MSG2424; OR EQUAL.	
DF1	SINGLE STATION BOTTLE FILLER, INDOOR WALL MOUNTED, STAINLESS STEEL, MECHANICAL BOTTLE FILLER BUTTON. ANSI 117.1, NFS/ANSI 61.	2"	1 1/2"	-	-	-	ELKAY, EMASM; OR EQUAL IN HALSEY TAYLOR	♿
	SERVICE STOP WITH DIELECTRIC COUPLING	-	-	1/2"	-	-	REFER TO MANUFACTURER FOR REQUIREMENTS	
	P-TRAP, PVC, WHITE	-	-	-	-	-	DEARBORN BRASS, A9701BG; KEYSAN MOEM9100; OR EQUAL	
IMB1	REFRIGERATOR ICE MAKER CONNECTION BOX, 8"x8" RECESSED STAINLESS STEEL ENCLOSURE	-	-	1/2"	-	-	GUY GREY MODEL SSIB1; OR EQUAL	
FD1	FLOOR DRAIN, CAST IRON BODY, ANCHOR FLANGE, WEEPHOLES FOR DOUBLE DRAINAGE, 6" SQUARE STAINLESS STEEL FLAT STRAINER, ADJUSTABLE DRAIN HEAD W/ MACHINED INTEGRAL BODY THREADS, ASME A112.21.1	-	-	-	-	-	JOSAM, 30000-S; WATTS, FD-1100-M6; MIFAB, F1000-S; ZURN, Z415S.	
	INSTALL TRAP SEAL SYSTEM, ABS PLASTIC FRAME, SILICONE RUBBER FLAPPERS AND FOUR FLEXIBLE SEALING RIBS, UV RESISTANT, ASSE 1072.	-	-	-	-	-	JOSAM, 88240; MIFAB, MI-GARD; ZURN, Z1072.	
WCO	WALL CLEANOUT, CI BODY, RECESSED, THREADED BRASS PLUG, STAINLESS STEEL ACCESS COVER	-	-	-	-	-	JOSAM, 58600-PLG; MIFAB, C1460-RD; ZURN, Z1441; WATTS, CO-460-RD.	

- NOTES:**
- CONTRACTOR SHALL FURNISH AND INSTALL SUPPLIES, STOPS, TRAPS, TAILPIECES AND ALL APPURTENANCES NECESSARY FOR A COMPLETE INSTALLATION OF ALL FIXTURES.
 - ALL ADA ACCESSIBLE SINKS AND LAVATORIES SHALL BE EQUIPPED WITH TRUEBRO #103 UNDER SINK PROTECTIVE PIPE COVERS WHERE NOT CONCEALED BY MILLWORK.
 - COMPLY WITH THE PROVISIONS OF THE AMERICANS WITH DISABILITIES ACT (ADA) AND THE TEXAS ACCESSIBILITY'S STANDARD (TAS). PLUMBING CONTRACTOR SHALL PROVIDE PLUMBING FIXTURES WITH FLUSH VALVE HANDLES LOCATED ON THE WIDE SIDE OF EACH STALL OR ROOM.
 - FLOOR CLEANOUT ACCESS COVERS IN ALL FINISHED AREAS SHALL BE OF THE RECESSED TYPE TO ALLOW FOR INSERTION OF FINISHED FLOOR TREATMENT. TILE OR CARPET MARKER AS NECESSARY.
 - ABOVE THE FLOOR P-TRAPS ON LAVATORIES AND SINKS SHALL BE 17 GAUGE, CHROME PLATED BRASS. ACCEPTABLE MANUFACTURERS: MCGUIRE, T&S BRASS, OR BRASSCRAFT.
 - CONTRACTOR SHALL VERIFY FIXTURE SUPPLIES AND APPURTENANCES FOR EACH FIXTURE PRIOR TO BIDDING AND PURCHASING.
 - ALL FLOOR MOUNTED WATER CLOSETS SHALL HAVE 10" ROUGH-IN UNLESS OTHERWISE NOTED.
 - CONTRACTOR SHALL VERIFY PLUMBING FIXTURES PROVIDED COMPLY WITH HANDICAPPED ACCESSIBILITY STANDARDS INCLUDING HEIGHT AND CLEARANCE REQUIREMENTS.
 - ALL WATER CLOSET AND URINAL FLUSH VALVES SHALL INCLUDE CHROME PLATED CAST WALL FLANGE WITH SETSCREW AND COVER TUBE.
 - WATER CLOSETS AND URINALS INDICATED WITH SENSOR OPERATED FLUSH VALVES SHALL INCLUDE METAL COVER AND MANUAL OVERRIDE BUTTON.
 - LAVATORIES INDICATED WITH SENSOR OPERATED FAUCETS SHALL BE BATTERY OPERATED AND PROVIDED WITH A OF TEMPERING VALVE SET FOR 85°F.
 - PROVIDE NON-SHRINK GROUT BELOW ALL SHOWER ENCLOSURES AND SHOWER RECEPTORS AS RECOMMENDED BY THE MANUFACTURER.

PUMP SCHEDULE

MARK	SERVICE	TYPE	FLOWRATE (GPM)	TOTAL DYNAMIC HEAD (FEET)	SPEED (RPM)	EFFIC. (%)	ELECTRICAL CHARACTERISTICS				MANUFACTURER AND MODEL NUMBER	REMARKS
							HP	VOLTS	PHASE	HZ		
CP1	DOMESTIC HOT WATER CIRCULATION	INLINE, CENTRIFUGAL	2	6	1,750	65	1/25	115	1	60	GRUNDFOS, MODEL UP15-18-B5	(1)(2)(3)
① PROVIDE 7-DAY TIME CLOCK FOR OPERATION OF CIRCULATION PUMP (SET TO OPERATE BETWEEN 5:00 AM TO 9:00 PM, ADJUSTABLE).							② PUMPS SHALL BE RATED FOR CONTINUOUS OPERATION AT WATER TEMPERATURES OF WATER SYSTEM ③ OR EQUAL.					

THERMOSTATIC MIXING VALVE SCHEDULE

MARK	SERVICE	TYPE	FLOWRATE CAPACITY		PRESSURE DROP (PSIG)	INLET HOT WATER TEMPERATURE (°F)	INLET COLD WATER TEMPERATURE (°F)	LEAVING WATER TEMPERATURE (°F)	MANUFACTURER AND MODEL NUMBER	REMARKS
			HIGH (GPM)	LOW (GPM)						
TSMV1	TEMPERED HOT WATER	TEMPERING VALVE	13	1.0	1.67	125	53	120	LEONARD TM-26-LF	(1)
① PROVIDED WITH PAINTED, SURFACE MOUNT CABINET ASSEMBLY. VERIFY WITH ARCHITECTURAL SPECIFICATIONS FOR COLOR.										

DOMESTIC ELECTRIC WATER HEATER SCHEDULE

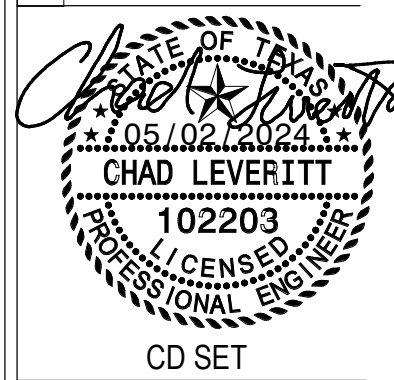
REMARKS LEGEND:
 1. TWO ELECTRIC HEATING ELEMENTS SET FOR NON-SIMULTANEOUS OPERATION.
 2. ADJUST STORAGE WATER TEMPERATURE IN ACCORDANCE WITH LOCAL ENERGY CODE REQUIREMENTS.
 3. OR EQUAL.

MARK	SERVICE	TYPE	STORAGE CAPACITY (GAL)	RECOVERY RATE (80 RISE) (GPH)	LEAVING WATER TEMPERATURE (°F)	ELECTRICAL CHARACTERISTICS				MANUFACTURER	MODEL NUMBER	REMARKS	
						# ELEMENTS	KW	VOLTS	PHASE				HZ
WH1	DOMESTIC HOT WATER	ELECTRIC TANK	10	23	125	1	4.5	208	1	60	A.O. SMITH	DEL-10	1, 2, 3

PLUMBING SPECIFICATIONS

- SCOPE OF WORK**
- FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES REQUIRED TO COMPLETE THE INSTALLATION OF THE WORK OF THIS SECTION AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN, INCLUDING ALL INCIDENTAL WORK NECESSARY TO MAKE IT COMPLETE, SATISFACTORY AND READY FOR OPERATION AND USE. INSTALLATION OF ALL EQUIPMENT SHALL COMPLY WITH THE APPLICABLE DIVISIONS OF THE LOCAL BUILDING AND SAFETY DEPARTMENT CODES.
 - ALL SEWER AND WATER PIPING SHALL BE PROPERLY TESTED AND DISINFECTED TO THE SATISFACTION OF THE ARCHITECT AND THE AUTHORITY HAVING JURISDICTION.
- DOMESTIC WATER PIPING AND FITTINGS**
- DOMESTIC (POTABLE) COLD WATER PIPING BELOW GROUND/SLAB SHALL BE SOFT COPPER TUBE, ASTM B 88, TYPE "L" COPPER WATER TUBE, ANNEALED TEMPER. FITTINGS SHALL BE ASME B16.18, CAST-COPPER-ALLOY OR ASME B16.22, WROUGHT-COPPER, SOLDER-JOINT FITTINGS. FITTINGS SHALL NOT BE USED UNDER THE BUILDING SLAB.
 - DOMESTIC (POTABLE) COLD AND HOT WATER PIPING ABOVE GROUND/SLAB SHALL BE HARD DRAWN COPPER TUBE, ASTM B88, TYPE "L" WATER TUBE, DRAWN TEMPER. FITTINGS SHALL BE CAST-COPPER-ALLOY, ASTM B16.18 OR WROUGHT-COPPER, ASTM B16.22 SOLDER JOINT FITTINGS. PROVIDE SHUTOFF VALVE ON EACH WATER SUPPLY TO EQUIPMENT AND ON EACH WATER SUPPLY TO PLUMBING FIXTURES WITHOUT SUPPLY STOPS. USE BALL VALVES FOR PIPING NPS 2 AND SMALLER.
- SANITARY SEWER AND GREASE WASTE PIPING SYSTEMS**
- WASTE PIPE BELOW GROUND/SLAB WITHIN 5'-0" OF THE BUILDING SHALL BE PVC PIPE, ASTM D 2665, SOLID-WALL DRAIN, WASTE, AND VENT. PVC SOCKET FITTINGS, ASTM D 2665, SOCKET TYPE, MADE TO ASTM D 3311, DRAIN, WASTE, AND VENT PATTERNS.
 - WASTE AND VENT PIPING ABOVE GROUND/SLAB AND IN RETURN AIR PLENUM SHALL BE CAST IRON SOIL PIPE, NO-HUB WITH STAINLESS STEEL COUPLINGS (ASTM A 888, ASTM C 1277, ASTM C 564).
- CONDENSATE DRAINAGE PIPING**
- ABOVEGROUND, CONDENSATE DRAINAGE PIPING: COPPER DWV TUBE: ASTM B 306, DRAINAGE TUBE, DRAWN TEMPER, COPPER DRAINAGE FITTINGS: ASME B16.23, CAST COPPER OR ASME B16.29, WROUGHT COPPER, SOLDER-JOINT FITTINGS.
- WATER HEATERS - ELECTRIC**
- ELECTRIC TANK TYPE WATER HEATERS: COMPLY WITH UL 174 FOR STORAGE TYPE ELECTRIC WATER HEATERS. STEEL STORAGE-TANK CONSTRUCTION, VERTICAL ARRANGEMENT. PRESSURE RATING: 150 PSIG. INTERIOR FINISH: COMPLY WITH NSF 61 BARRIER MATERIALS FOR POTABLE-WATER TANK LININGS, INCLUDING EXTENDING LINING MATERIAL INTO TAPPINGS. FACTORY-INSTALLED STORAGE-TANK APPURTENANCES INCLUDE:
 - ANODE ROD: REPLACEABLE MAGNESIUM.
 - DIP TUBE: PROVIDE UNLESS COLD-WATER INLET IS NEAR BOTTOM OF TANK.
 - DRAIN VALVE: ASSE 1005.
 - INSULATION: COMPLY WITH ASHRAE/IESNA 90.1 OR ASHRAE 90.2.
 - JACKET: STEEL WITH ENAMELED FINISH.
 - HEAT TRAP FITTINGS: INLET TYPE IN COLD-WATER INLET AND OUTLET TYPE IN HOT-WATER OUTLET.
 - HEATING ELEMENTS: TWO, ELECTRIC, SCREW-IN IMMERSION TYPE; WIRED FOR NON-SIMULTANEOUS OPERATION, UNLESS OTHERWISE INDICATED.
 - TEMPERATURE CONTROL: ADJUSTABLE THERMOSTAT FOR EACH ELEMENT.
 - SAFETY CONTROL: HIGH-TEMPERATURE-LIMIT CUTOFF DEVICE OR SYSTEM.
 - RELIEF VALVE: ASME RATED AND STAMPED AND COMPLYING WITH ASME PTC 25.3 FOR COMBINATION TEMPERATURE AND PRESSURE RELIEF VALVES. INCLUDE RELIEVING CAPACITY AT LEAST AS GREAT AS HEAT INPUT, AND INCLUDE PRESSURE SETTING LESS THAN WATER HEATER WORKING-PRESSURE RATING. SELECT RELIEF VALVE WITH SENSING ELEMENT THAT EXTENDS INTO STORAGE TANK.
 - INSTANTANEOUS ELECTRIC WATER HEATERS, THERMOSTAT-CONTROL: COMPLY WITH UL 499 FOR TANKLESS ELECTRIC (WATER HEATER) HEATING APPLIANCE. CONSTRUCTION SHALL INCLUDE:
 - COPPER PIPING OR TUBING COMPLYING WITH NSF 61 BARRIER MATERIALS FOR POTABLE WATER, WITHOUT STORAGE CAPACITY. PRESSURE RATING OF 150 PSIG. ELECTRICAL RESISTANCE HEATING SYSTEM. TEMPERATURE CONTROL SHALL BE THERMOSTATIC. PROVIDE WITH HIGH-TEMPERATURE-LIMIT CUTOFF DEVICE OR SYSTEM.
- INSULATION**
- MINERAL-FIBER, PIPE INSULATION: PREFORMED PIPE INSULATION COMPLYING WITH ASTM C 547, TYPE I, GRADE A, WITH ABSORBENT CLOTH FACTORY APPLIED TO THE ENTIRE INSIDE SURFACE OF PREFORMED PIPE INSULATION AND EXTENDED THROUGH THE LONGITUDINAL JOINT TO OUTSIDE SURFACE OF INSULATION UNDER INSULATION JACKET. FACTORY APPLY A WHITE, POLYMER, VAPOR-RETARDER JACKET WITH SELF-SEALING ADHESIVE TAPE SEAM AND EVAPORATION HOLES RUNNING CONTINUOUSLY ALONG THE LONGITUDINAL SEAM, EXPOSING THE ABSORBENT CLOTH. INSULATE ALL HOT WATER PIPING WITH 1" THICK PIPE INSULATION. ALL WATER PIPING INSTALLED IN EXTERIOR WALLS OR IN ATTIC SPACES SHALL BE INSTALLED TO THE HEATED SIDE OF THE WALL OR ATTIC INSULATION. ALL WATER PIPING SUBJECT TO FREEZING TEMPERATURES SHALL BE:
 - INSULATED SUFFICIENTLY TO PREVENT FREEZING OF PIPING; OR
 - WRAPPED WITH HEAT TAPE, THERMOSTATICALLY CONTROLLED, OF SUFFICIENT WATTAGE TO PREVENT FREEZING OF PIPING. PIPE INSULATION THICKNESS AS RECOMMENDED BY THE HEAT TAPE MANUFACTURER WITH FIBERGLASS INSULATION WITH UNIVERSAL JACKET.
 - CONDENSATE DRAINAGE PIPE INSULATION INSIDE THE BUILDING: 1/2" THICK FLEXIBLE ELASTOMERIC THERMAL INSULATION, CLOSED-CELL, SPONGE- OR EXPANDED-RUBBER MATERIALS. COMPLY WITH ASTM C 534
 - CONTRACTOR SHALL PROVIDE A MINIMUM HORIZONTAL LENGTH OF 10' OF 1" THICK PIPING INSULATION ON ALL STORM AND OVERFLOW PIPING WITHIN THE BUILD STARTING FROM EACH DRAIN BODY.
- EXECUTION OF PLUMBING SYSTEMS**
- THE CONTRACTOR SHALL FURNISH ALL PIPE SUPPORTS REQUIRED FOR EQUIPMENT AND MATERIALS. ALL HORIZONTAL RUNS OF PIPING SHALL BE SUPPORTED BY CLEVIS HANGERS, SPACED AS FOLLOWS:
 - COPPER PIPE: NPS 3/4 AND SMALLER: 60 INCHES WITH 3/8-INCH ROD.
 - COPPER PIPE: NPS 1 AND NPS 1-1/4: 72 INCHES WITH 3/8-INCH ROD.
 - COPPER PIPE: NPS 1-1/2 AND NPS 2: 96 INCHES WITH 3/8-INCH ROD.
 - CAST IRON SOIL PIPE: NPS 4 AND SMALLER: 60 INCHES WITH 5/8-INCH ROD.
 - CAST IRON SOIL PIPING: AT EACH JOINT.
 - ADDITIONAL SUPPORTS SHALL BE PROVIDED WHERE REQUIRED TO PREVENT SAGGING. HANGERS FOR COPPER PIPE SHALL HAVE NYLON INSULATED BUSHINGS OR PIPE SHALL BE WRAPPED WITH 15# FELT.
 - PURGE NEW PIPING AND PARTS OF EXISTING DOMESTIC WATER PIPING THAT HAVE BEEN ALTERED, EXTENDED, OR REPAIRED BEFORE USING. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY AUTHORITIES HAVING JURISDICTION OR, IF METHODS ARE NOT PRESCRIBED, USE PROCEDURES DESCRIBED IN EITHER AWWA C651 OR AWWA C652
 - TEST SANITARY DRAINAGE AND VENT PIPING ACCORDING TO PROCEDURES OF AUTHORITIES HAVING JURISDICTION.
 - TEST, INSPECT, AND PURGE NATURAL GAS PIPING ACCORDING TO NFPA 54 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
 - EACH PLUMBING VENT AND/OR SOIL STACK PROJECTING ABOVE THE ROOF SHALL BE FLASHED WITH STANDARD MANUFACTURED FLASHINGS. FLASHINGS SHALL BE SHEET METAL WITH RUBBER GASKETS. FLASHINGS SHALL EXTEND INTO ROOFING A MINIMUM OF 12" OR DISTANCE SPECIFIED BY LOCAL CODE. PAINT VENT PIPING EXPOSED ON ROOF BLACK OR AS DIRECTED BY THE ARCHITECT.
 - ALL FIXTURES SHALL BE COMPLETE WITH ALL NECESSARY TRIM AND APPURTENANCES. ALL EXPOSED METAL PARTS SHALL BE CHROME-PLATED BRASS.

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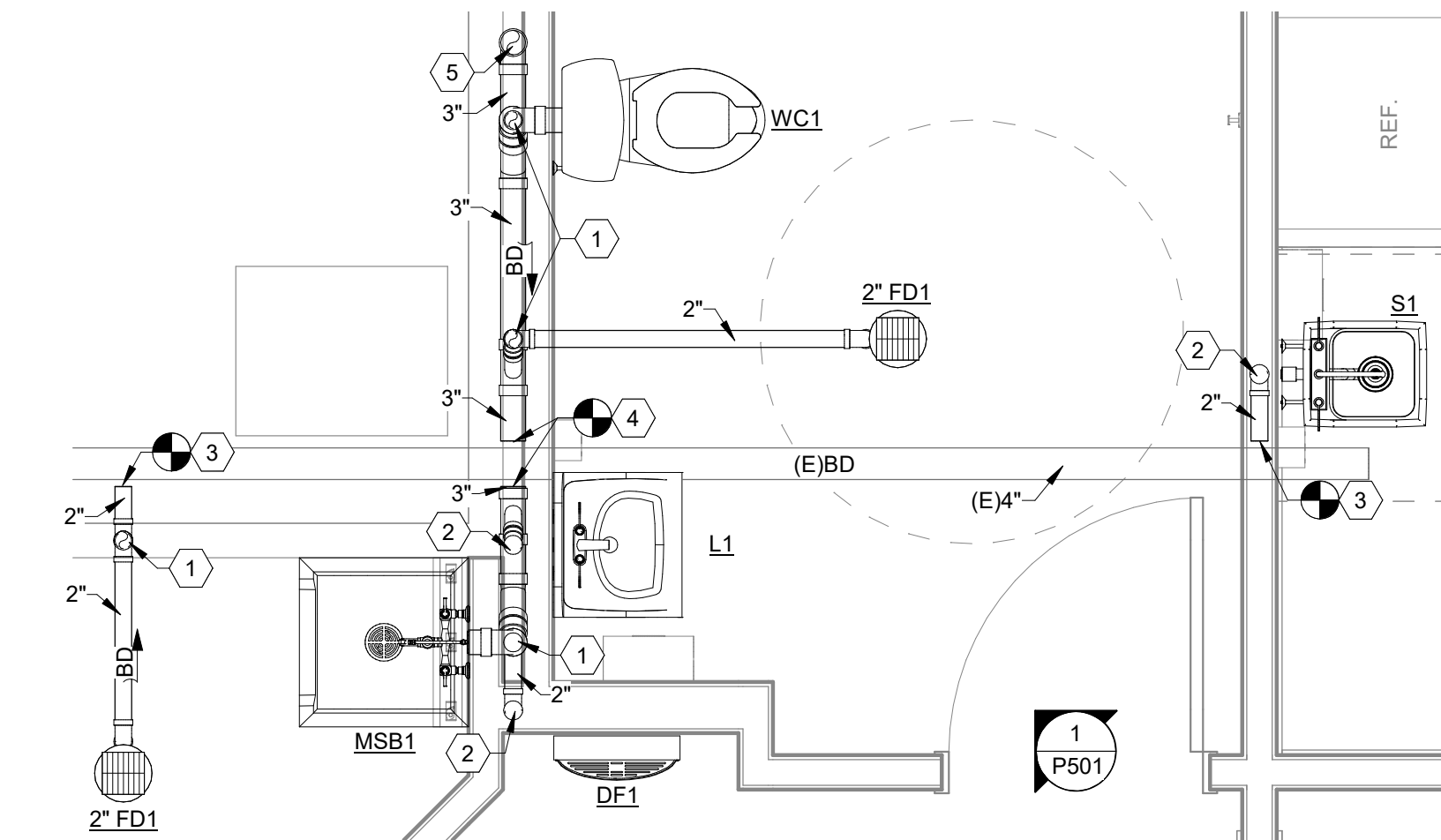
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 PLUMBING SCHEDULES AND SPECIFICATIONS

P002

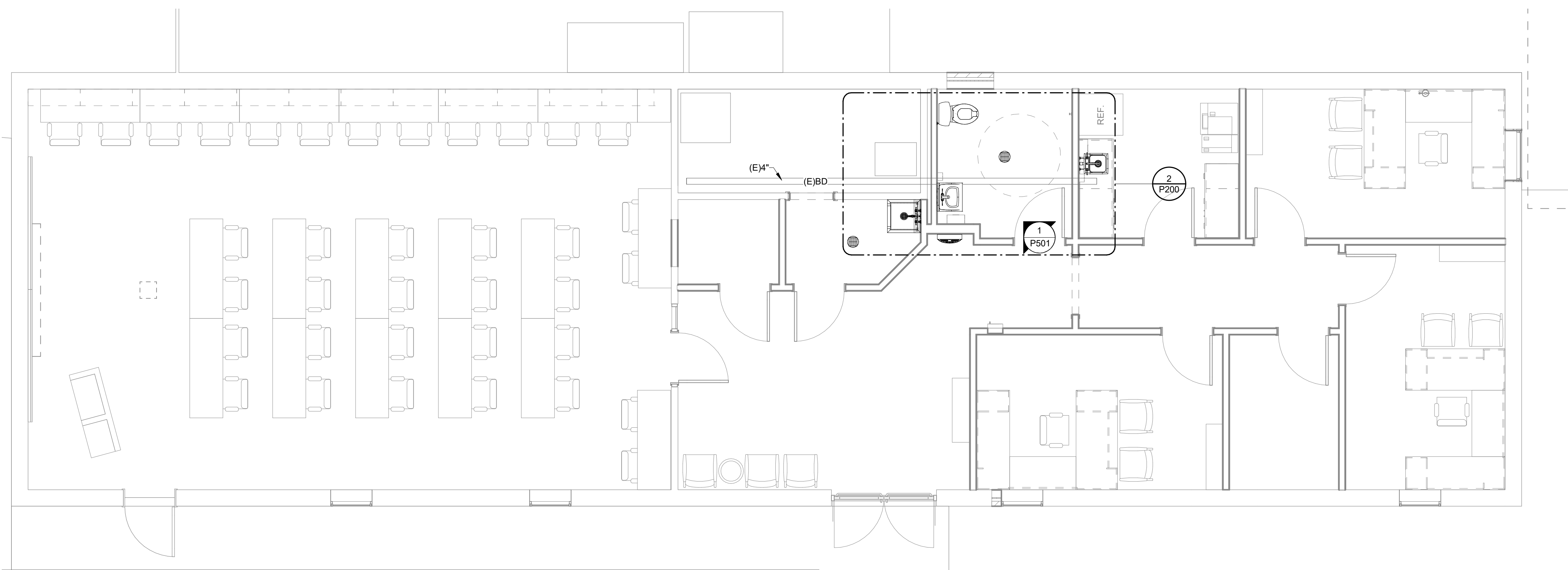
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2 ENLARGED UNDERFLOOR PLAN - PLUMBING
1/2" = 1'-0"

P200 NOTES BY SYMBOL	
NUMBER	NOTE
1	2" SANITARY VENT UP.
2	2" SANITARY SEWER UP.
3	CONNECT NEW 2" SANITARY SEWER TO EXISTING 4" SANITARY SEWER. CONTRACTOR TO VERIFY EXACT LOCATION AND DIRECTION OF FLOW.
4	CONNECT NEW 3" SANITARY SEWER TO EXISTING 4" SANITARY SEWER. CONTRACTOR TO VERIFY EXACT LOCATION AND DIRECTION OF FLOW.
5	3" SANITARY SEWER UP.

- | GENERAL NOTES | |
|---------------|--|
| 1. | SANITARY WASTE & VENT AND DOMESTIC HOT & COLD WATER SYSTEMS INDICATED ARE ESTIMATED LOCATIONS AND SIZES BASED UPON LIMITED SITE OBSERVATIONS. THE CONTRACTOR SHALL FIELD VERIFY AND LOCATE EACH EXISTING SYSTEM PRIOR TO WORK. NOTIFY ARCHITECT IF DISCREPANCIES ARE FOUND THAT PREVENT COMPLETION OF WORK INTENDED IN THESE CONSTRUCTION DOCUMENTS. |
| 2. | BEFORE CORE DRILLING EXISTING CONCRETE SLAB OR EXCAVATING FOR NEW PIPE INSTALLATION THE CONTRACTOR SHALL X-RAY EXISTING SLAB, FIELD VERIFY EACH EXISTING SYSTEM AND VERIFY FLOW LINE ELEVATIONS OF EXISTING SANITARY SEWER AND DETERMINE IF THE PROPOSED INVERT ELEVATIONS SHALL ALLOW FOR MINIMUM PIPE SLOPES PER APPLICABLE CODES. NEW SANITARY SEWER LINES SHALL NOT PENETRATE EXISTING CONCRETE GRADE BEAMS AT ANY POINT. IF DISCREPANCIES ARE FOUND, REPORT TO THE ARCHITECT/ENGINEER. PROVIDE AS-BUILT DRAWINGS UPON COMPLETION. |
| 3. | CORE DRILL EXISTING CONCRETE SLAB AS REQUIRED FOR THE INSTALLATION OF NEW UNDER FLOOR PIPING. COORDINATE CORING WITH STRUCTURAL. CONTRACTOR SHALL PATCH EXISTING CONCRETE SLAB AFTER INSTALLATION OF UNDER FLOOR PIPING TO MATCH EXISTING CONSTRUCTION. |



1 UNDERFLOOR PLAN - PLUMBING
1/4" = 1'-0"

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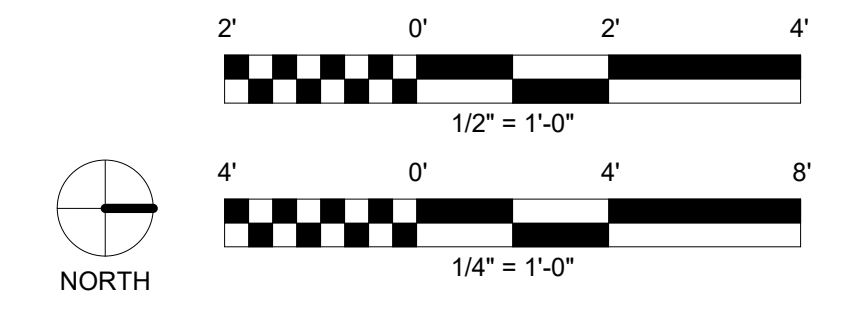
UNDERFLOOR PLAN - PLUMBING
P200

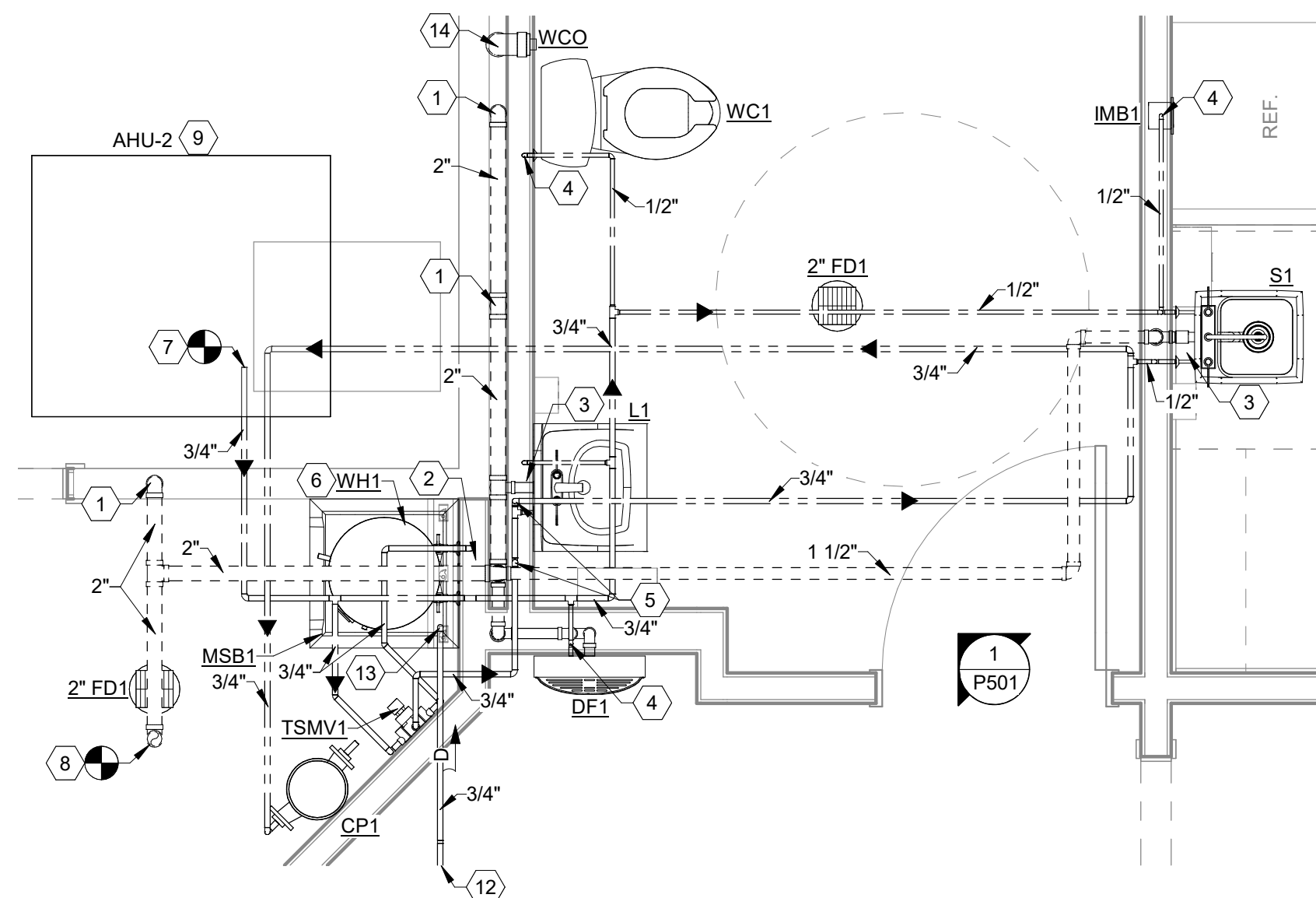
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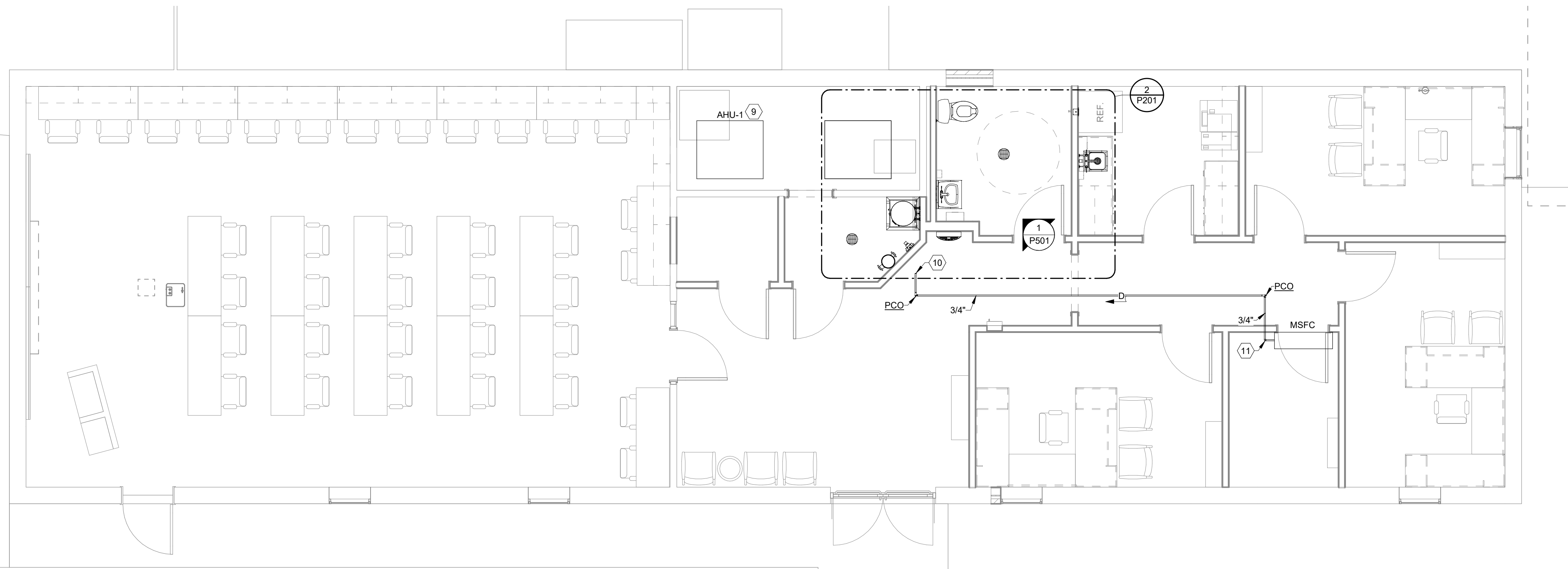
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2 ENLARGED FLOOR PLAN - PLUMBING
1/2" = 1'-0"



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

P201 NOTES BY SYMBOL	
NUMBER	NOTE
1	2" SANITARY VENT DOWN.
2	2" SANITARY VENT, AND 3/4" DOMESTIC HOT AND COLD WATER DOWN.
3	1 1/2" SANITARY VENT AND 1/2" DOMESTIC HOT AND COLD WATER DOWN.
4	1/2" DOMESTIC COLD WATER DOWN.
5	3/4" DOMESTIC HOT WATER DOWN.
6	WATER HEATER, REFER DETAIL 4/P501.
7	CONNECT 3/4" DOMESTIC COLD WATER TO EXISTING DOMESTIC COLD WATER. CONTRACTOR TO VERIFY EXACT LOCATION. POTENTIAL CONNECTIONS IN MECHANICAL ROOM AND NORTHEAST SIDE OF BUILDING. EXISTING RPZ STATUS UNKNOWN, REFER DETAIL 2/P501 IF NEEDED.
8	ROUTE 2" SANITARY VENT TO EXISTING VENT THRU ROOF. CONTRACTOR TO VERIFY EXACT LOCATION.
9	ROUTE 1" CONDENSATE FROM AHU TO EXISTING FLOOR DRAIN. REFER DETAIL 3/P501.
10	REFER 2/P201 FOR CONTINUATION.
11	3/4" CONDENSATE UP FROM INTEGRAL PUMP.
12	REFER 1/P201 FOR CONTINUATION.
13	3/4" CONDENSATE DOWN TO INDIRECT DISCHARGE TO MOP SINK.
14	3" SANITARY SEWER DOWN.

DESCRIPTION

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FLOOR PLAN - PLUMBING

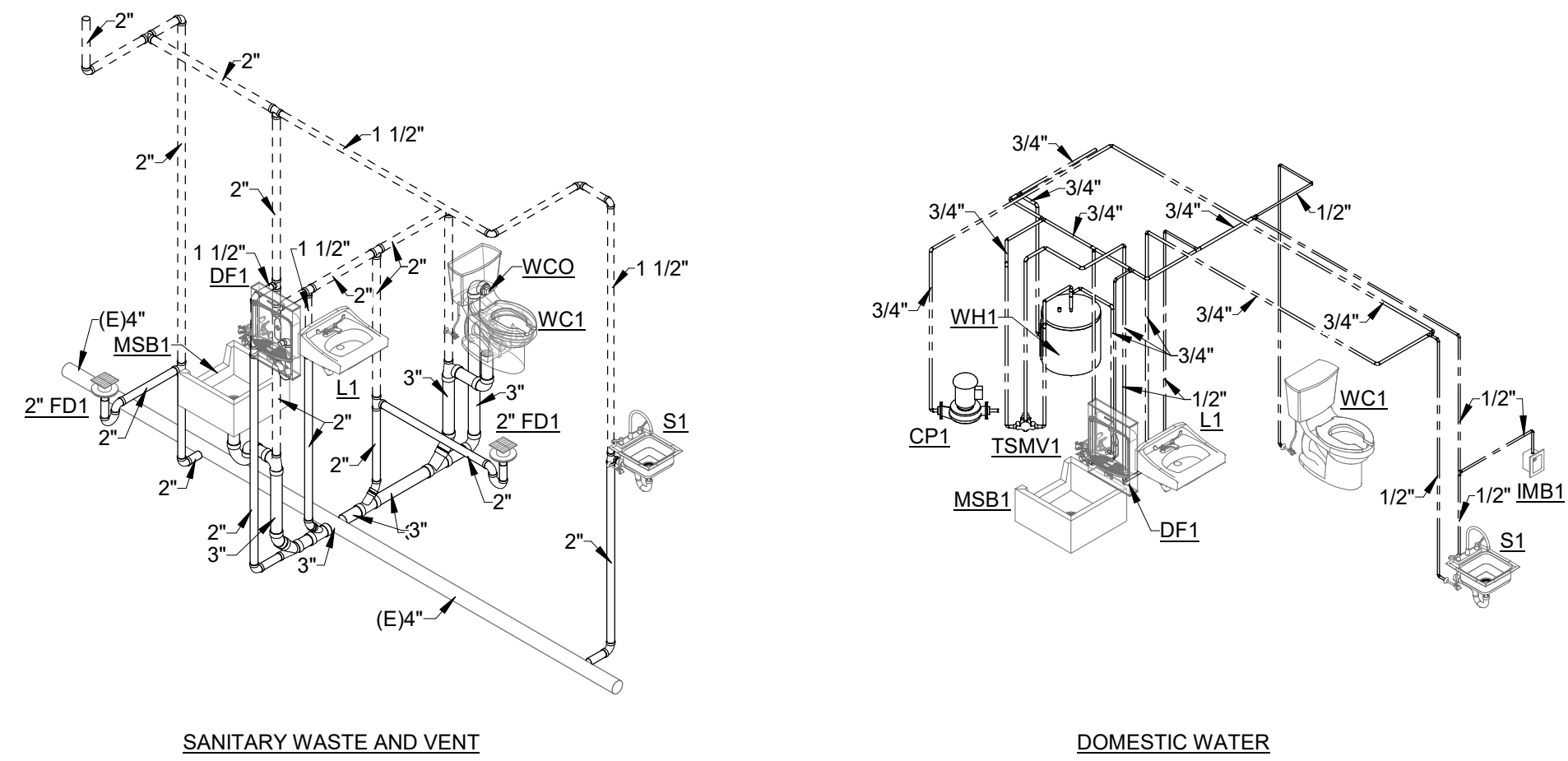
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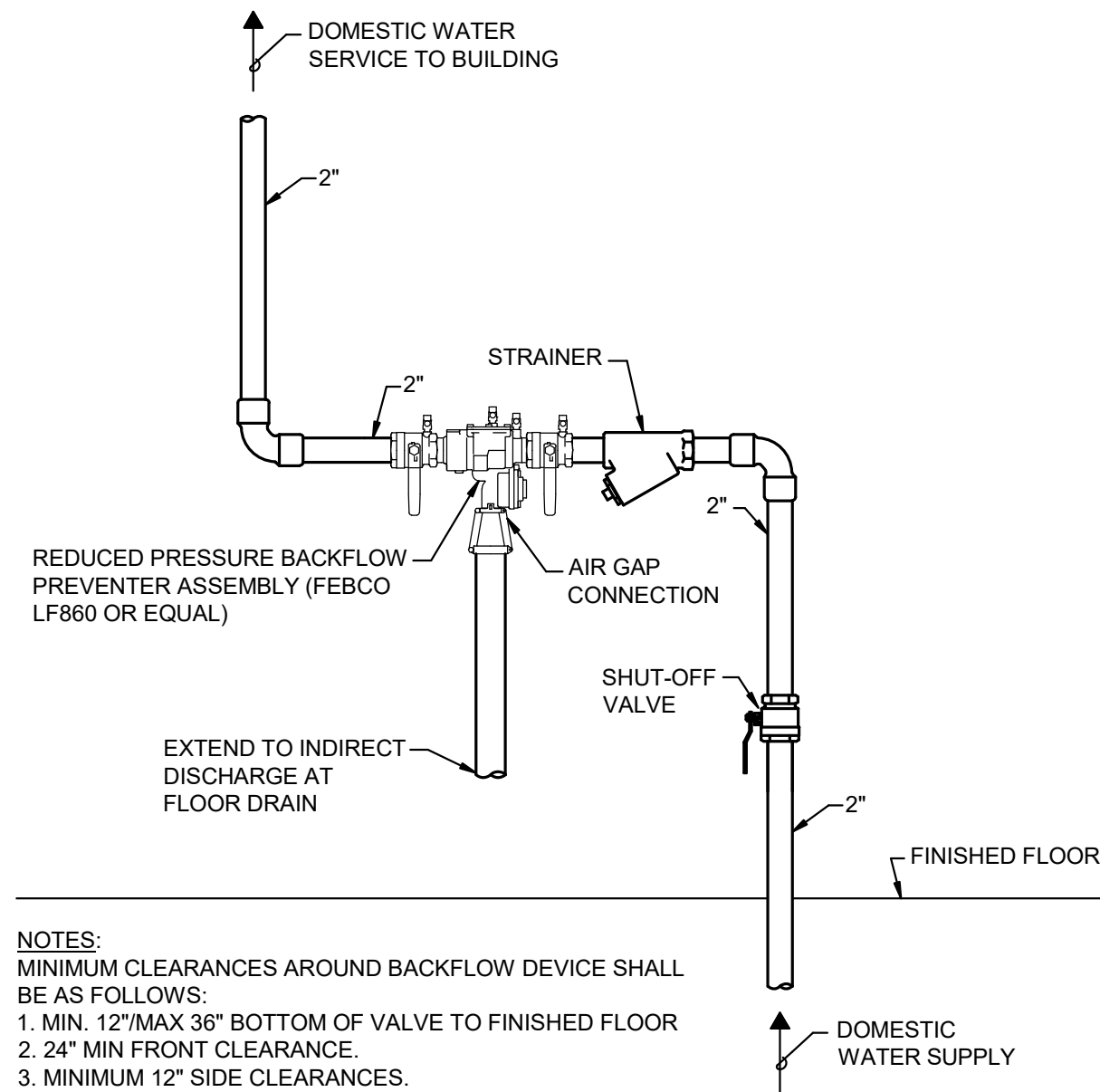
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 1/2" = 1'-0"
 4' 0' 4' 8'
 1/4" = 1'-0"
 NORTH

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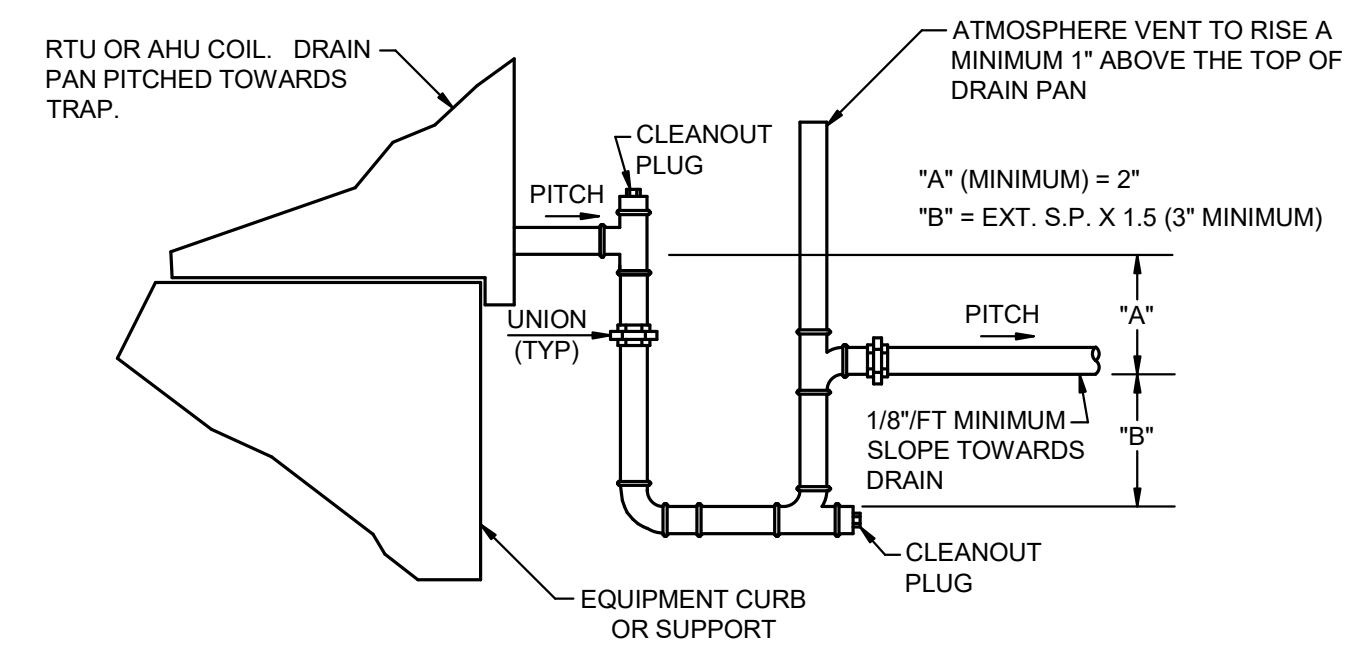
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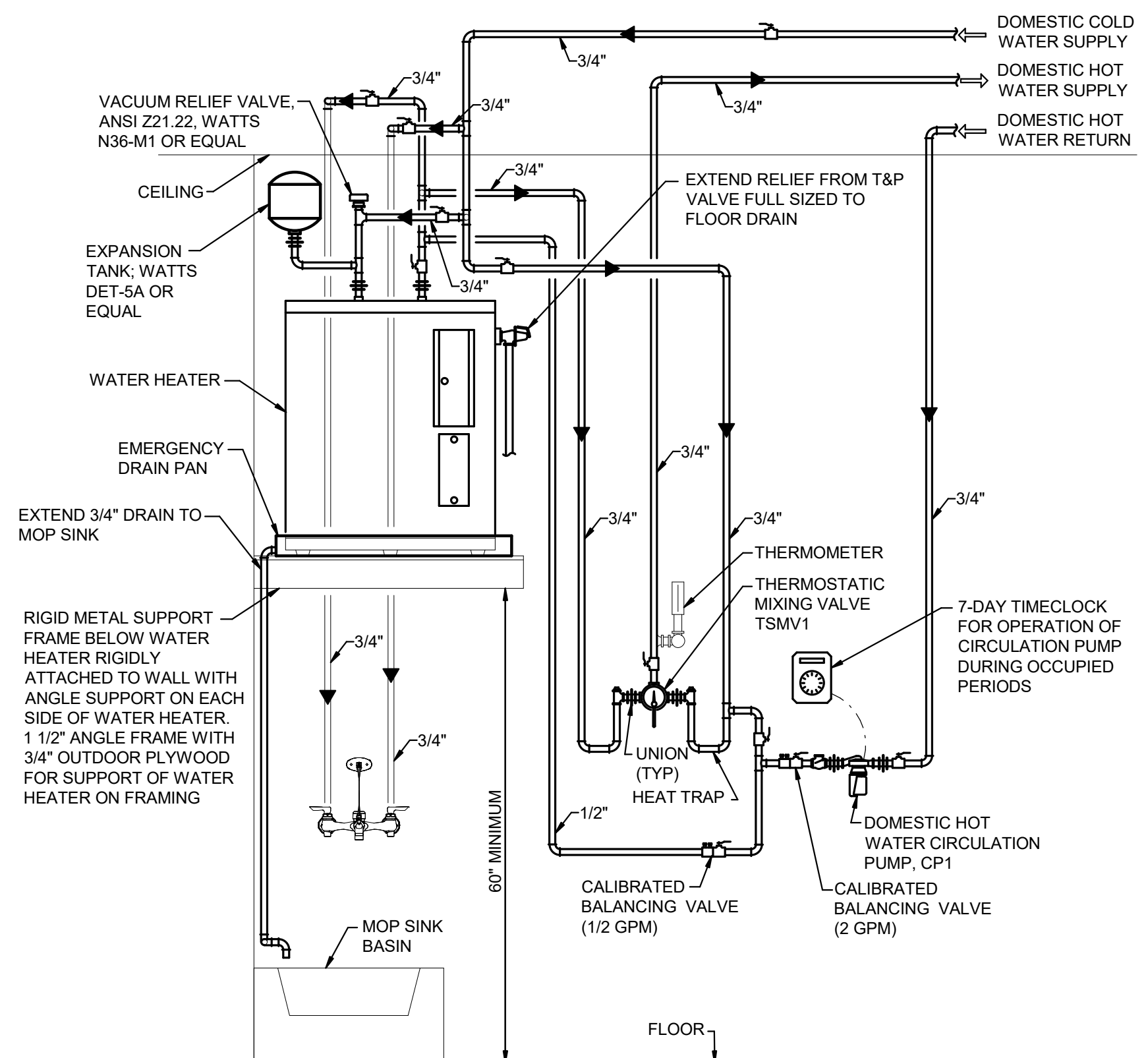
1 ISOMETRIC RISER DIAGRAM



2 REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER DETAIL
NO SCALE

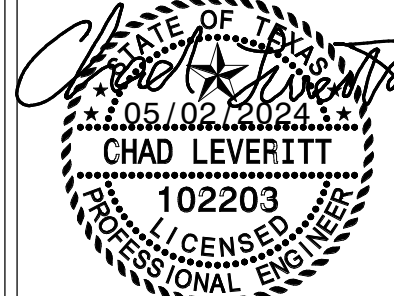


3 CONDENSATE DRAINAGE DETAIL
NO SCALE



4 SUSPENDED WATER HEATER DETAIL
NO SCALE

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PLUMBING RISER
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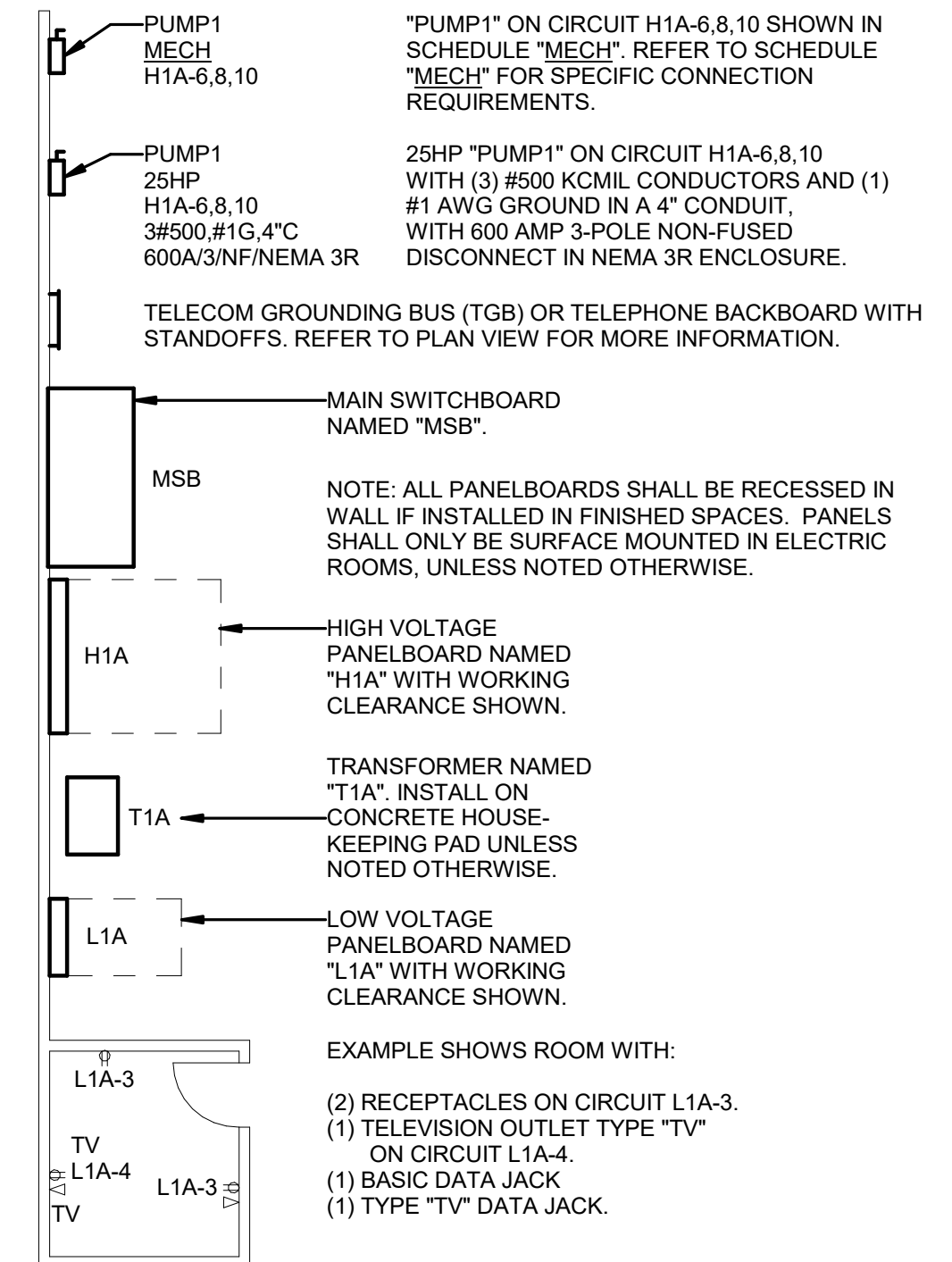
COMMON ABBREVIATIONS

NOTE: ALL ABBREVIATIONS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS.

20A1P	20 AMPS SINGLE POLE	MAX	MAXIMUM
A	AMPS	MCA	MINIMUM CIRCUIT AMPACITY
AFF	ABOVE FINISH FLOOR	MCB	MAIN CIRCUIT BREAKER
AFG	ABOVE FINISH GRADE	KCMIL	KILOMILL
AHJ	AUTHORITY HAVING JURISDICTION	MDP	MAIN DISTRIBUTION PANEL
AIC	AMPS INTERRUPTING CAPACITY	MIN	MINIMUM
AOR	ARCHITECT OF RECORD	MLO	MAIN LUGS ONLY
ATS	AUTOMATIC TRANSFER SWITCH	MOC	MAXIMUM OVERCURRENT PROTECTION
AVL	AUDIO VISUAL LIGHTING	MSB	MAIN SWITCH BOARD
BKR	CIRCUIT BREAKER	MTS	MANUAL TRANSFER SWITCH
BLDG	BUILDING	N/A	NOT APPLICABLE
C	CONDUIT	NEC	NATIONAL ELECTRICAL CODE
CB	CIRCUIT BREAKER	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	NO.	NUMBER
CKT	CIRCUIT	N/O	NORMALLY OPEN
DEG.	DEGREES	N/C	NORMALLY CLOSED
DEMO	DEMOLITION	O/C	ON CENTER
DISC	DISCONNECT	OC	OVERCURRENT PROTECTIVE DEVICE
DP	DISTRIBUTION PANEL	OF	OWNER FURNISHED CONTRACTOR INSTALLED
EA	EACH	PF	POWER FACTOR
EOR	ENGINEER OF RECORD	PH, ϕ	PHASE
EPO	EMERGENCY POWER OFF	RCPT	RECEPTACLE
EXST	EXISTING	REF.	REFERENCE, REFER TO
FAFP	FIRE ALARM ANNUNCIATION PANEL	RLA	RUNNING LOAD AMPS
FACP	FIRE ALARM CONTROL PANEL	SE	SERVICE ENTRANCE
FARA	FIRE ALARM REMOTE ANNUNCIATION PANEL	TR	TAMPER RESISTANT
FLA	FULL LOAD AMPS	TBD	TO BE DETERMINED
FVL	FIELD VERIFY LENGTH	TGB	TELECOM GROUNDING BUS
G.GND	GROUND	TYP	TYPICAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	U/F	UNDER FLOOR
GF	GROUND FAULT INTERRUPTER	U/G	UNDER GROUND
HP	HORSEPOWER	U/S	UNDER SLAB
HZ	HERTZ	UL	UNDERWRITERS LABORATORIES
IG	INTEGRATED EQUIPMENT RATING (AIC)	UNO	UNLESS NOTED OTHERWISE
IS	ISOLATED GROUND	UON	UNLESS OTHERWISE NOTED
KCMIL	1000 CIRCULAR MILLS	UPS	UNINTERRUPTIBLE POWER SUPPLY
KV	KILOVOLTS	V	VOLTS, VOLTAGE
KVA	KILOVOLT-AMPS	VA	VOLT-AMPS
KW	KILOWATT	W	WATTS, WATTAGE
L	LENGTH	WI	WITH
LRA	LOCKED ROTOR AMPS	W/O	WITHOUT
LTG	LIGHTING	WP	WEATHERPROOF, WALLPACK
		XFMR	TRANSFORMER

PLAN VIEW EXAMPLES

ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THE DRAWINGS. REFER TO DEVICE SYMBOL LEGENDS FOR ADDITIONAL POWER, DATA AND LIGHTING SYMBOLS.



ELECTRICAL GENERAL NOTES

- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR THE EXACT LOCATION OF ALL CEILING MOUNTED DEVICES.
- REFER TO ARCHITECTURAL INTERIOR ELEVATION DRAWINGS, WHERE THE ARCHITECT HAS DRAWN SUCH ELEVATIONS, FOR THE LOCATIONS OF ALL WALL MOUNTED DEVICES.
- COORDINATE THE EXACT LOCATION OF ALL THERMOSTATS, STARTERS, DISCONNECTS, ETC. AND COORDINATE ALL REQUIREMENTS FOR CONTROL AND POWER WIRING WITH THE MECHANICAL CONTRACTOR OR THE TRADE PROVIDING THE EQUIPMENT.
- ALL RECEPTACLE OUTLETS LOCATED WITHIN 6'-0" OF A WET BAR OR SINK SHALL BE GFI TYPE. ALL RECEPTACLE OUTLETS LOCATED OUTDOORS SHALL BE WP/GFI. ALL RECEPTACLES SERVING VENDING MACHINES AND ELECTRIC WATER COOLERS SHALL BE GFI TYPE.
- CONTRACTOR SHALL NOT UTILIZE SHARED NEUTRALS FOR ANY CIRCUIT WITH AFCI PROTECTION, AS SHARED NEUTRALS CAN CAUSE NUISANCE TRIPPING WITH AFCI PROTECTION.
- PROVIDE ACCESS DOORS IN WALLS AND CEILINGS WHERE ACCESS TO CONCEALED ELECTRICAL BOXES AND DEVICES IS REQUIRED. ALL ACCESS LOCATIONS ARE TO BE APPROVED BY ARCHITECT PRIOR TO INSTALL.
- INTEGRATED EQUIPMENT RATINGS (AIC) SHOWN ARE MINIMUMS. CONTRACTOR SHALL PROVIDE MANUFACTURER'S EQUAL OR NEXT HIGHER STANDARD RATINGS.
- ALL PULL CORD/WIRE PROVIDED FOR EMPTY RACEWAY/CONDUIT SYSTEMS SHALL HAVE A MINIMUM STRENGTH OF 200 LBS TENSILE STRENGTH. ALL EMPTY CONDUITS SHALL HAVE A PULL CORD.
- OUTLET BOXES SHALL NOT BE INSTALLED BACK TO BACK IN WALLS. A MINIMUM OF 6" SEPARATION BETWEEN BOXES SHALL BE MAINTAINED TO REDUCE SOUND TRANSMISSION.
- UNLESS OTHERWISE NOTED, FOR HOMERUNS HAVING A TOTAL LENGTH OF 100' TO 200', USE #10 CONDUCTORS; FOR HOMERUNS HAVING A TOTAL LENGTH OF 200' OR GREATER, USE #8 CONDUCTORS.
- COORDINATE THE REQUIREMENTS FOR OVERCURRENT PROTECTIVE DEVICE SIZE, DISCONNECT SWITCH SIZE, AND CONDUCTOR AND CONDUIT SIZES WITH THE REQUIREMENTS OF THE MECHANICAL EQUIPMENT THAT IS ACTUALLY TO BE INSTALLED, AND PROVIDE AND INSTALL ALL ELECTRICAL COMPONENTS AS REQUIRED. THE ELECTRICAL COMPONENT SIZING SHOWN ON THESE DRAWINGS IS BASED UPON THE REQUIREMENTS FOR THE SPECIFIED MECHANICAL EQUIPMENT AVAILABLE AT THE TIME OF DESIGN. VARIATIONS IN REQUIREMENTS MAY OCCUR AS A RESULT OF THE PROVISION OF OTHER MANUFACTURER'S EQUIPMENT OR IN CHANGES TO THE SPECIFIED EQUIPMENT. SUCH REVISED REQUIREMENTS ARE A PART OF THIS CONTRACT AND SHALL BE ACCOMMODATED WITHOUT ADDITIONAL CHARGE.
- FOR COORDINATION PURPOSES, DEVICES MAY BE MOVED A MAXIMUM DISTANCE OF FIVE FEET, PRIOR TO INSTALLATION, AT NO COST TO THE OWNER, UPON INSTRUCTION BY THE ARCHITECT OR ENGINEER.
- REFER TO SPECIFICATIONS AND ARCHITECTURAL DRAWINGS FOR FIRE CAULKING REQUIREMENTS. ALL PENETRATIONS THROUGH FIRE WALLS AND SMOKE BARRIERS SHALL BE SEALED IN ACCORDANCE WITH CODE REQUIREMENTS.
- ALL DEVICE PLATE COLORS TO BE AS SPECIFIED BY ARCHITECT.

CODE SUMMARY

GOVERNING CODES:

BUILDING	2015 INTERNATIONAL BUILDING CODE (IBC)
ELECTRICAL	2017 NATIONAL ELECTRICAL CODE (NEC)
FIRE	2015 INTERNATIONAL FIRE CODE (IFC)
LIFE SAFETY	2015 NFPA 101
ENERGY	2006 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
EXISTING	2015 INTERNATIONAL EXISTING BUILDING CODE

PLUS LOCAL AMENDMENTS BY THE AUTHORITY HAVING JURISDICTION (AHJ).

FIRE ALARM DESIGN GENERAL NOTES

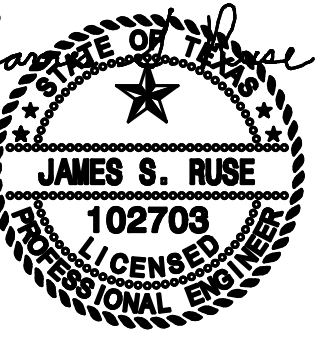
- DRAWINGS DO NOT SHOW EXACT PLACEMENT OF DEVICES. THIS IS A DELEGATED DESIGN PERFORMANCE SPECIFICATION FOR THE FIRE ALARM SYSTEM.
- THE CONTRACTOR SHALL EMPLOY A FIRE ALARM PLANNING SUPERINTENDENT, CERTIFIED OR LICENSED BY THE STATE FIRE MARSHAL'S OFFICE, TO DESIGN, FURNISH AND INSTALL A COMPLETE FIRE ALARM SYSTEM PER NFPA.
 - RELOCATE AND/OR EXTEND EXISTING FIRE ALARM EQUIPMENT INTO NEW SPACES AS REQUIRED FOR FULLY FUNCTIONAL SYSTEM.
 - EXISTING FIRE ALARM SYSTEM IS **KIDDE FX SERIES**.
 - EXISTING FACP AND DEVICES (DETECTORS, ALARMS, PULLS) TO BE EVALUATED FOR RE-USE.
- THE FIRE ALARM PLANNING SUPERINTENDENT SHALL PREPARE PERMIT DOCUMENTS, USING EXACT DEVICES TO BE PROVIDED BY THE MANUFACTURER.
- THE LICENSED FIRE ALARM DESIGNER SHALL ENSURE THAT HIS DESIGN MEETS ALL OF THE REQUIREMENTS OF NFPA, ADA, NEC, TAS AND ALL LOCAL CODES AND AMENDMENTS, AND THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
- CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS TO DETERMINE OCCUPANCY CLASSIFICATION AND OCCUPANT LOAD OF THE BUILDING.
- PROVIDE SMOKE DUCT DETECTORS FOR EACH AIR HANDLING UNIT EXCEEDING 2000 CFM. DETECTORS SHALL BE MONITORED BY MAIN FIRE ALARM PANEL PER LOCAL FIRE MARSHALL REQUIREMENTS.
- VERIFY FINAL LOCATION OF FIRE ALARM CONTROL PANEL WITH FIRE MARSHALL PRIOR TO INSTALLATION. VERIFY FINAL LOCATION OF FIRE ALARM ANNUNCIATOR AND/OR VOICE EVAC PANEL WITH OWNER AND FIRE MARSHALL PRIOR TO INSTALLATION.

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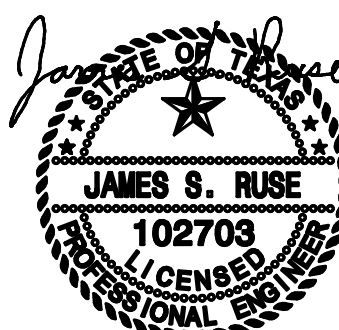
ELECTRICAL ABBREVIATIONS AND NOTES

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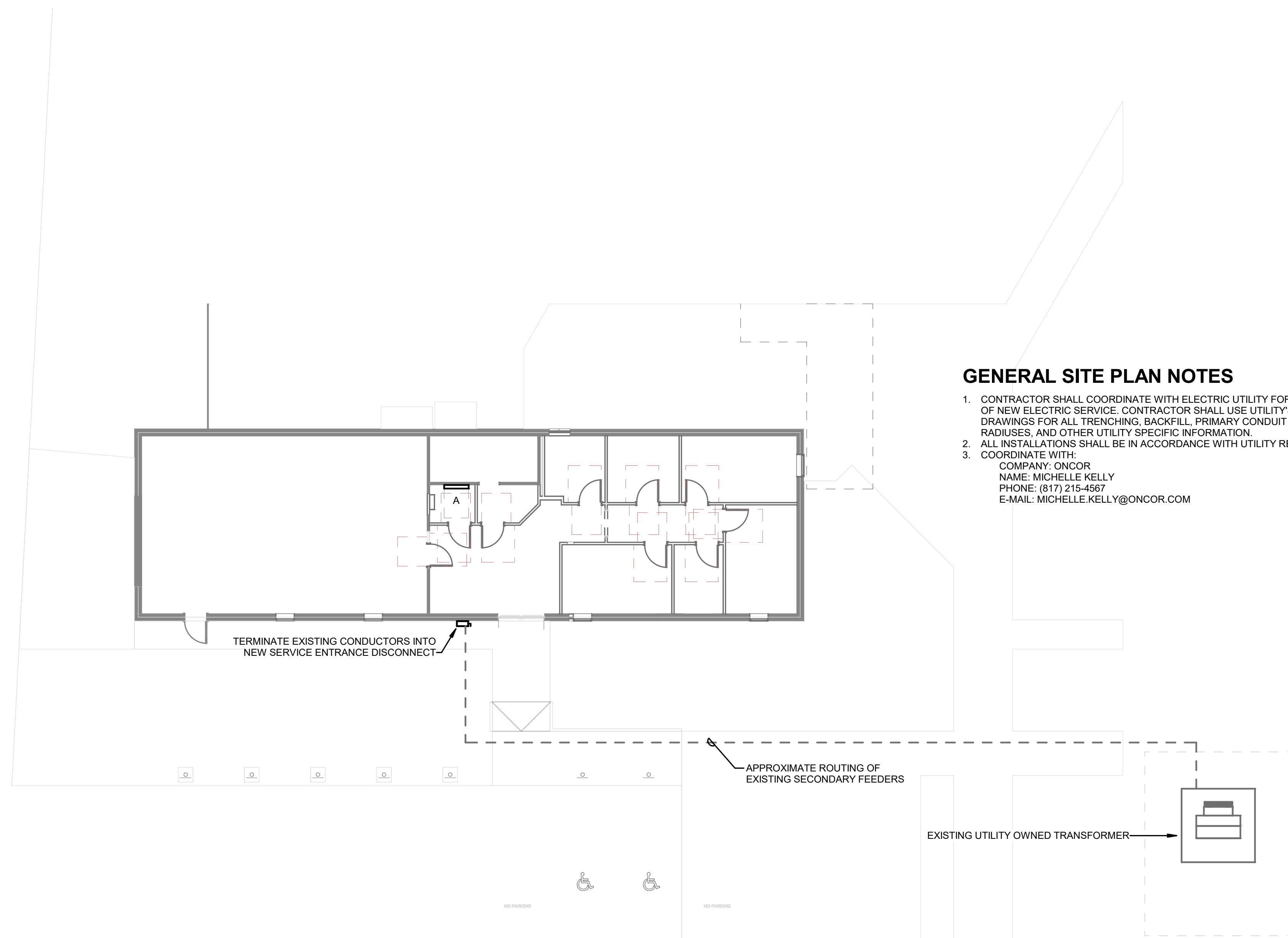
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ELECTRICAL SITE PLAN

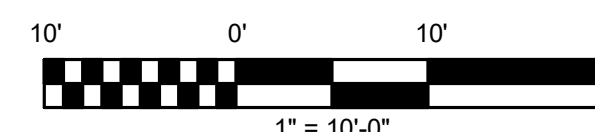
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GENERAL SITE PLAN NOTES

- CONTRACTOR SHALL COORDINATE WITH ELECTRIC UTILITY FOR ALL DETAILS OF NEW ELECTRIC SERVICE. CONTRACTOR SHALL USE UTILITY'S DETAIL DRAWINGS FOR ALL TRENCHING, BACKFILL, PRIMARY CONDUIT ROUTING, RADIUSES, AND OTHER UTILITY SPECIFIC INFORMATION.
- ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH UTILITY REQUIREMENTS.
- COORDINATE WITH:
COMPANY: ONCOR
NAME: MICHELLE KELLY
PHONE: (817) 215-4567
E-MAIL: MICHELLE.KELLY@ONCOR.COM

1 SITE PLAN
1" = 10'-0"



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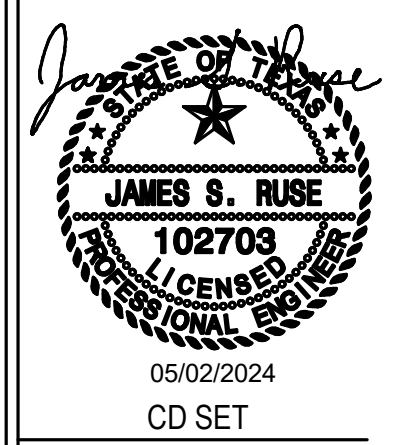
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POWER PLAN

E101

POWER SYMBOL LEGEND

TYPE	SYMBOL DESCRIPTION
A	STANDARD DUPLEX RECEPTACLE ABOVE COUNTER; REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION
A-USB	STANDARD DUPLEX RECEPTACLE WITH TYPE USB-A PORTS MOUNTED ABOVE COUNTER; REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION
AG	GFI DUPLEX RECEPTACLE ABOVE COUNTER; REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION
COPY	STANDARD DUPLEX RECEPTACLE FOR FLOOR COPIER AT 18" ABOVE FINISH FLOOR.
EF	POWER FOR EXHAUST FAN. PROVIDE 2#12, #12G WITH 3/4"C
EWC	GFI DUPLEX RECEPTACLE FOR ELECTRIC WATER COOLER, COORDINATE EXACT ELEVATION WITH INSTALLER OF WATER COOLER
FACP	POWER FOR FIRE ALARM CONTROL PANEL, CONFIRM FINAL LOCATION WITH ARCHITECT/OWNER.
G	GFI DUPLEX RECEPTACLE AT 18" ABOVE FINISH FLOOR, UNLESS NOTED OTHERWISE
G	STANDARD GFI QUADPLEX RECEPTACLE AT 18" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE
L6-20	PROVIDE NEMA L6-20 LOCKING RECEPTACLE FOR TEST BENCH. COORDINATE LOCATION REQUIREMENTS WITH OWNER/ARCHITECT.
MW	GFI DUPLEX RECEPTACLE ABOVE COUNTER FOR MICROWAVE, REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATION
PROJ	STANDARD DUPLEX RECEPTACLE FOR CEILING MOUNTED PROJECTOR.
RF	STANDARD DUPLEX RECEPTACLE FOR REFRIGERATOR AT 36". PROVIDE GFI BREAKER AT FEEDER PANEL.
SCREEN	POWER FOR MOTORIZED SCREEN, CONFIRM FINAL REQUIREMENTS AND LOCATION WITH INSTALLER PRIOR TO ROUGH-IN
USB	STANDARD DUPLEX RECEPTACLE WITH TYPE USB-A PORTS MOUNTED AT 18" ABOVE FINISH FLOOR, UNLESS NOTED OTHERWISE.
WP	WEATHER RESISTANT GFI DUPLEX RECEPTACLE IN NEMA 3R WHILE IN USE COVER.
	STANDARD DUPLEX RECEPTACLE AT 18" ABOVE FINISH FLOOR, UNLESS NOTED OTHERWISE.
	STANDARD QUADPLEX RECEPTACLE AT 18" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE
	MOTOR RATED SWITCH

GENERAL POWER NOTES

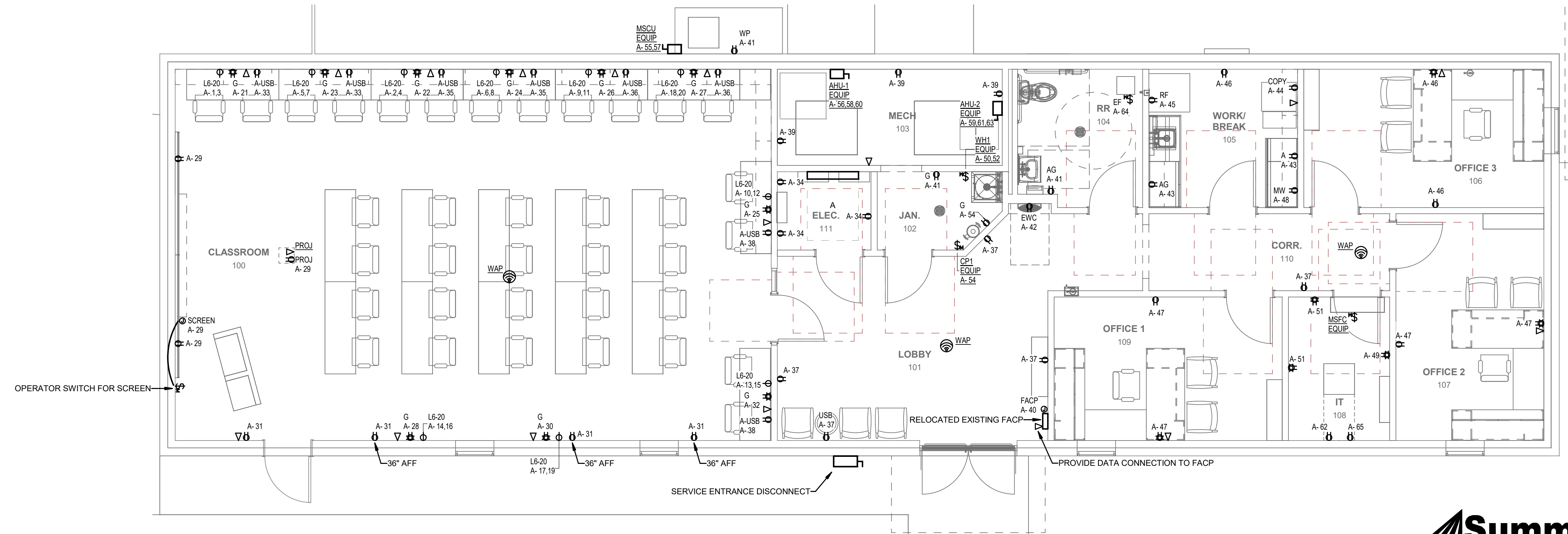
- PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE CAULKED TO MAINTAIN THE FIRE RATING OF THE WALL.
- ALL NEW RECEPTACLES LOCATED ON EXISTING MASONRY/CMU WALLS SHALL BE SURFACE MOUNTED. ALL NEW RECEPTACLES ON NEW WALLS SHALL BE RECESSED.
- EACH DATA CABLE SHALL BE LABELED IN FOUR PLACES. ON PATCH PANEL, ON CABLE 6" FROM END OF CABLE, AT WALL PLATE 6" FROM END OF CABLE AND ON WALL PLATE.
- CONTRACTOR SHALL INSTALL TAMPER-RESISTANT RECEPTACLES IN ALL LOCATIONS LISTED IN NEC 406.12. RECEPTACLES INSTALLED MORE THAN 66" AFF DO NOT NEED TO BE TAMPER-RESISTANT.

DATA SYMBOL LEGEND

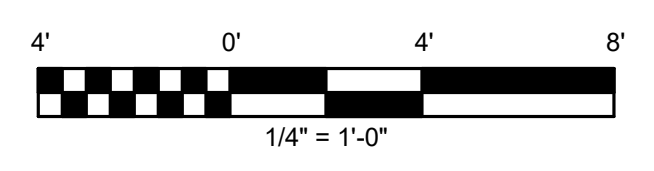
TYPE	SYMBOL DESCRIPTION
PROJ	PROVIDE SINGLE CAT-6 CABLE AND BISCUIT FOR PROJECTOR WITH 1"C TO ACCESSIBLE CEILING SPACE. ROUTE OVERHEAD TO I.T. ROOM AND COIL 30" OF CABLE IN CEILING.
WAP	PROVIDE WIRELESS ACCESS POINT WITH (2) CAT-6 CABLES TO ACCESSIBLE CEILING SPACE. ROUTE OVERHEAD TO I.T. ROOM AND COIL 30" OF CABLE IN CEILING. PROVIDE (2) HOLE BISCUIT MOUNTED IN CEILING SPACE.
	PROVIDE (2) CAT-6 CABLES AND DATA DUPLEX OUTLET WITH 1"C TO ACCESSIBLE CEILING SPACE. ROUTE OVERHEAD TO I.T. ROOM AND COIL 30" OF CABLE IN CEILING. MOUNT AT 18" AFF UNLESS NOTED OTHERWISE.

EQUIPMENT SCHEDULE (EQUIP)

EQ NAME	EQ DESC	FEEDER	VOLT	POLES	LOAD VA	CKT
AHU-1	AIR HANDLING UNIT	3#12, #12G, 3/4"C	208 V	3	180 VA	A-56,58,60
AHU-2	AIR HANDLING UNIT	3#12, #12G, 3/4"C	208 V	3	180 VA	A-59,61,63
CP1	CIRCULATION PUMP (1/25 HP)(120V)	2#12, #12G, 3/4"C	120 V	1	300 VA	A-54
MSCU	CONDENSING UNIT	2#12, #12G, 3/4"C	208 V	2	180 VA	A-55,57
MSFC	FAN COIL UNIT	FED THROUGH MSCU	120 V	1	0 VA	
WH1	WATER HEATER (4.5KW)(208V/1)	2#10, #10G, 3/4"C	208 V	2	4500 VA	A-50,52



1 POWER PLAN
1/4" = 1'-0"



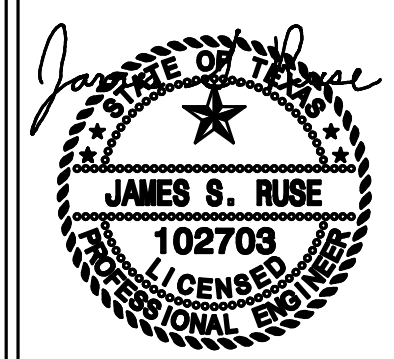
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LIGHTING DETAILS AND SCHEDULES

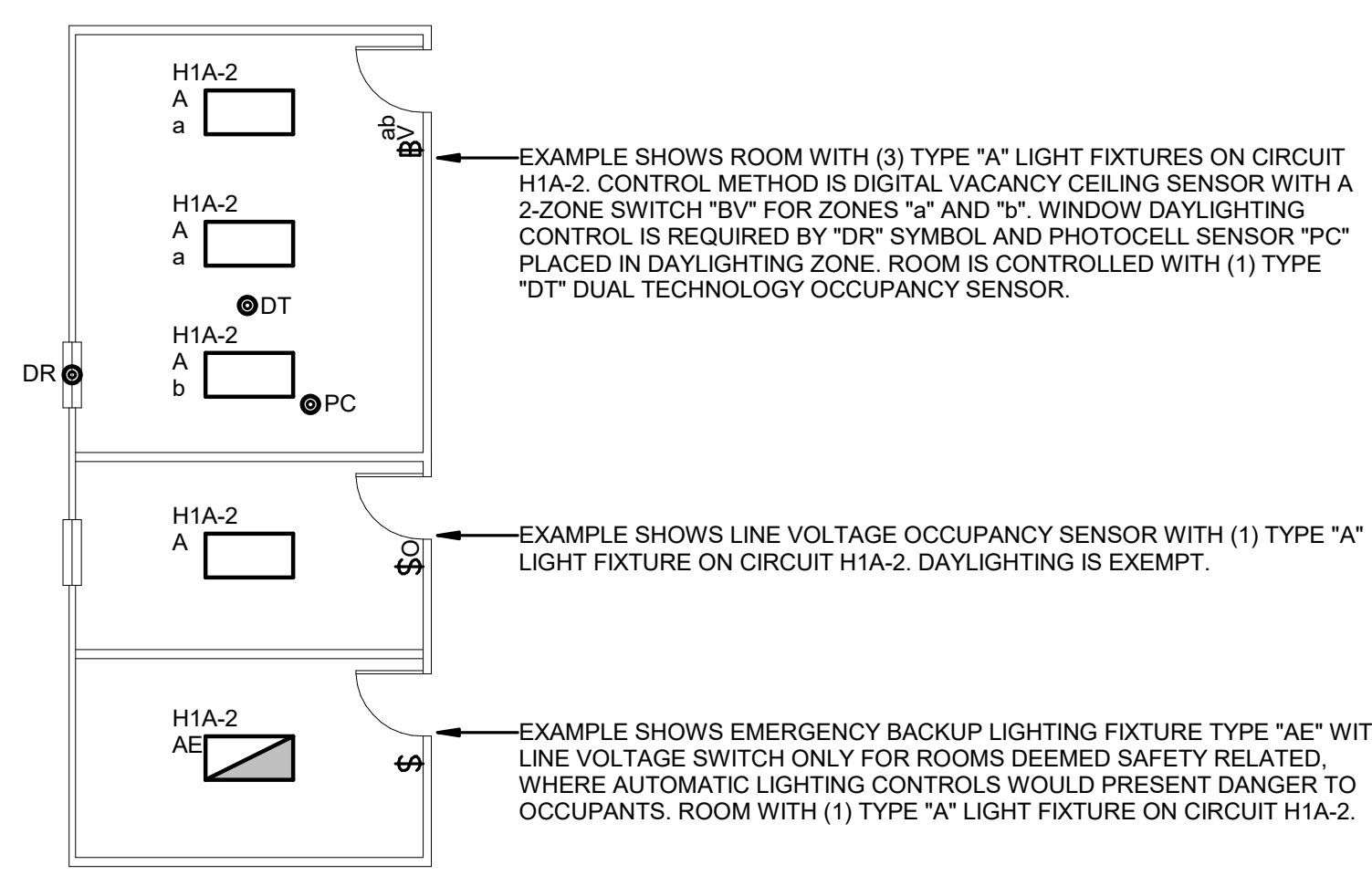
E200

GENERAL LIGHTING CONTROLS NOTES AND EXAMPLES

LIGHTING CONTROL GENERAL NOTES:

- SENSOR LOCATIONS ARE MINIMUMS. CONTRACTOR SHALL PROVIDE FOR A MINIMUM OF 10% ADDITIONAL DEVICES TO COVER DARK SPOTS DISCOVERED DURING CONSTRUCTION FROM FIELD INSTALLED OBSTRUCTIONS. CONTRACTOR SHALL ALSO ALLOW FOR A MOVE OF UP TO 5'-0" IN ANY DIRECTION FOR ALL SENSORS. AT NO ADDITIONAL COST TO THE OWNER. TO ALLOW FOR FIELD ADJUSTMENT OF SENSOR PLACEMENTS TO ACHIEVE OPTIMUM PERFORMANCE.
- INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
- CONTRACTOR SHALL PROVIDE A MINIMUM OF (2) SITE VISITS BY FACTORY TRAINED PERSONNEL TO ADJUST SENSORS AND TRAIN THE OWNER ON USE AND MAINTENANCE OF LIGHTING CONTROL COMPONENTS.
- AFTER COMMISSIONING LIGHTING CONTROLS, CONTRACTOR SHALL PROVIDE A WRITTEN TEST REPORT INDICATING THAT ALL LIGHTING CONTROL SYSTEMS HAVE BEEN COMMISSIONED, TESTED AND FOUND TO BE FUNCTIONING IN ACCORDANCE WITH CONTRACT DOCUMENT AND CODE REQUIREMENTS. CONTRACTOR SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. MANUFACTURER'S INSTRUCTIONS AND CODE REQUIREMENTS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH IECC SECTIONS C408.3.1.1/2 FOR THE APPLICABLE CONTROL TYPES.

GENERAL LIGHTING EXAMPLES:



LIGHTING FIXTURE SCHEDULE

SCHEDULE NOTES:
1. PROVIDE ALL MOUNTING HARDWARE AND ACCESSORIES REQUIRED FOR MOUNTING. REFER TO ARCHITECTURAL CEILING PLANS FOR CEILING TYPES.

TYPE	DESCRIPTION	MANUFACTURER	MODEL#	VOLT	LOAD VA	TEMP	LUMENS	COMMENTS
A	2X2 LAY-IN	RAB	EZPAN 2X2 30 D10	120 V	30 VA	3500K	3600	
AE	2X2 LAY-IN	RAB	EZPAN 2X2 30 D10 E2	120 V	30 VA	3500K	3600	PROVIDE BATTERY BACK UP.
WP	WALL PACK	RAB	WP2XFU 60 FA	120 V	60 VA	4000K	2300	PROVIDE BATTERY BACK UP.
X	EXIT SIGN, AC ONLY	LITHONIA	EDG X RMR EL	120 V	5 VA	NA	NA	SEE FLOORPLAN FOR NUMBER OF FACES. PROVIDE BATTERY BACKUP.
Z	UTILITY STRIP LIGHT	LITHONIA	ZL1D L48 5000LM FST MVOLT 40K 80CRI WH	120 V	41 VA	4000K	5000	

SWITCH SYMBOL LEGEND

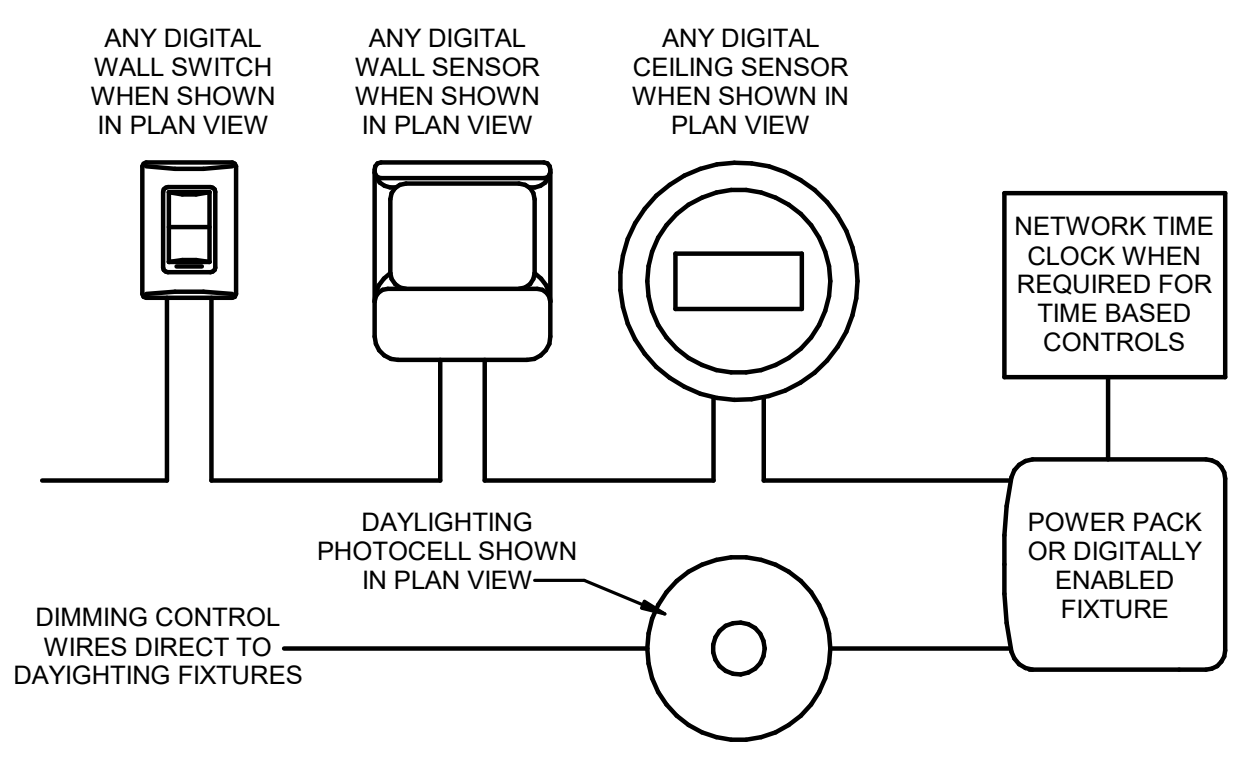
TYPE	SYMBOL DESCRIPTION
\$	LINE VOLTAGE TOGGLE SWITCH
DT	DUAL TECH OCCUPANCY SENSOR
B	DIGITAL 3-BUTTON PER ZONE (ON/OFF, RAISE, LOWER), PROGRAM TO AUTOMATIC 100% ON, AUTOMATIC OFF AFTER 30 MINUTES. DUAL TECHNOLOGY OCCUPANCY SENSORS AS SHOWN IN PLAN VIEW. LOWER CASE LETTERS ADJACENT TO SWITCH INDICATES ZONES.
O	DIGITAL BUTTON 3-BUTTON PER ZONE (ON/OFF, RAISE, LOWER), PROGRAM TO AUTOMATIC 50% ON, AUTOMATIC OFF AFTER 30 MINUTES. DUAL TECHNOLOGY OCCUPANCY SENSORS AS SHOWN IN PLAN VIEW. LOWER CASE LETTERS ADJACENT TO SWITCH INDICATES ZONES.
\$	WALL MOUNTED LINE VOLTAGE OCCUPANCY SENSOR, 3-BUTTON (ON/OFF, RAISE, LOWER) DIMMING SENSOR. PROGRAM TO AUTOMATIC 50% ON, AUTOMATIC OFF AFTER 30 MINUTES. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED.
V	WALL MOUNTED LINE VOLTAGE VACANCY SENSOR, 3-BUTTON (ON/OFF, RAISE, LOWER) DIMMING SENSOR. PROGRAM TO MANUAL 100% ON, AUTOMATIC OFF AFTER 30 MINUTES. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED.

DIGITAL LIGHTING CONTROLS NOTES AND DETAIL

DIGITAL LIGHTING CONTROLS GENERAL NOTES:

- ALL POWER PACKS TO BE MOUNTED ABOVE CEILING NEAREST THE FIRST WALL SWITCH SERVING THE ASSOCIATED ROOM. PLAN VIEW SHOWS QUANTITY OF ZONES REQUIRED MANUFACTURER MAY COMBINE POWER PACKS WHERE POSSIBLE INTO MULTI ZONE POWER PACKS.
- ALL EMERGENCY BATTERY PACK DECORATIVE FIXTURES ARE TO TURN ON/OFF WITH ASSOCIATED ROOM, BUT OVERRIDE TO ON IF POWER IS LOST. REFER TO EMERGENCY LIGHTING CONTROL DETAIL WHERE PROVIDED.
- ALL EXIT LIGHTING AND BATTERY PACK ONLY FIXTURES ARE TO BE WIRED TO UN-SWITCHED LEG OF CIRCUITS SHOWN FOR CONSTANT POWER.
- DETAIL IS GENERIC IN NATURE. PLAN VIEWS WILL INDICATE NUMBER OF ZONES, PROVIDE POWER PACK OR EQUIVALENT FOR EACH ZONE. PLAN VIEW WILL INDICATE LOCATION OF DIGITAL WALL SWITCHES WITH NUMBER OF BUTTONS REQUIRED. ACCEPTABLE MANUFACTURERS ARE WATT STOPPER, LUTRON AND ACUITY CONTROLS. OTHERS WILL BE CONSIDERED WITH PRE-APPROVAL PRIOR TO BIDDING.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING A FULLY FUNCTIONAL SYSTEM.
- ALL WIRING SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

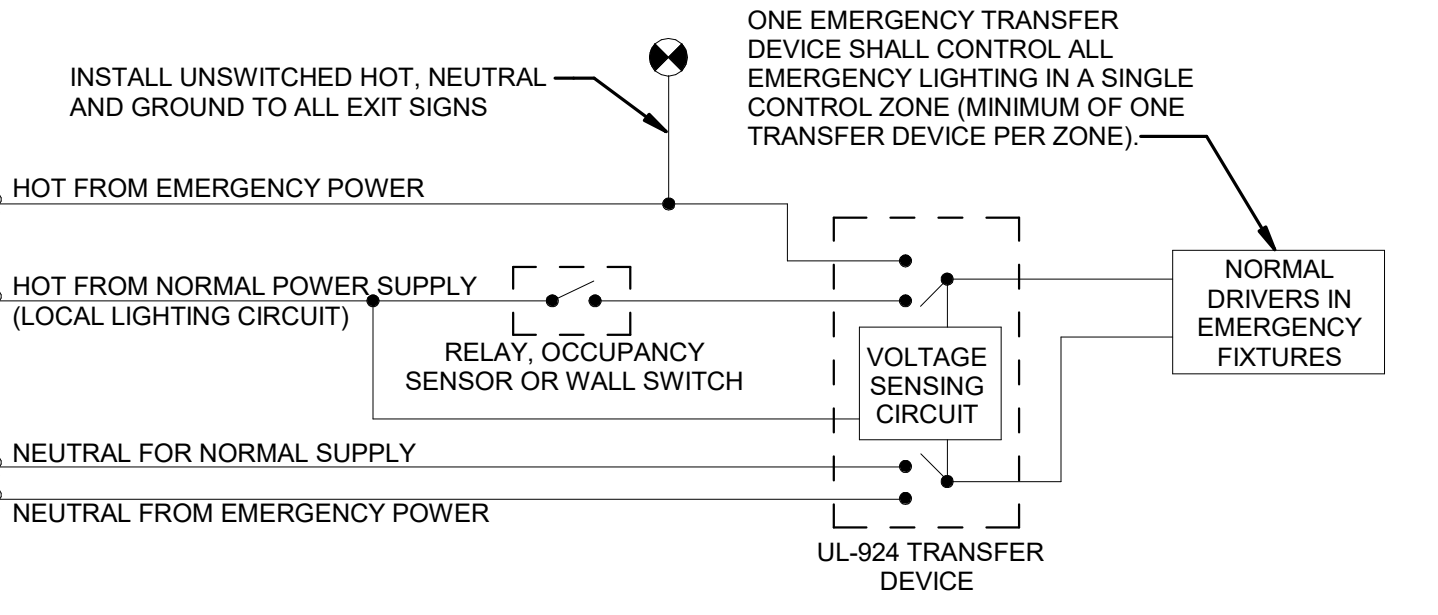
DIGITAL LIGHTING CONTROLS DETAIL:



2 LIGHTING CONTROLS DETAIL N.T.S.

EMERGENCY LIGHTING CONTROL NOTES:

- FOR CIRCUITS WITH DIMMED FIXTURES, TRANSFER DEVICE SHALL HAVE ADDITIONAL INTERNAL RELAY TO BREAK 0-10V DIMMING SIGNAL TO ENSURE DIMMED FIXTURES TURN ON WHEN NORMAL POWER FAILS. "LVS LIGHTING CONTROLS" MODEL "EPC-1-D" IS BASIS OF DESIGN FOR CIRCUITS WITH 0-10V DIMMING. SEE <http://www.lvscontrols.com/>
- BODINE 'BLCD-20B' IS THE BASIS OF DESIGN FOR CIRCUITS WITHOUT 0-10V DIMMING.



1 EMERGENCY LIGHTING CONTROL DETAIL N.T.S.

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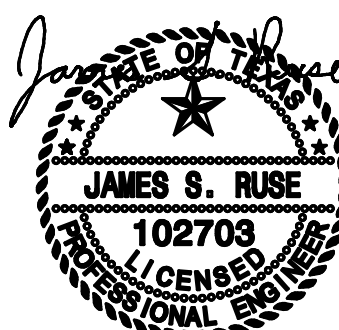
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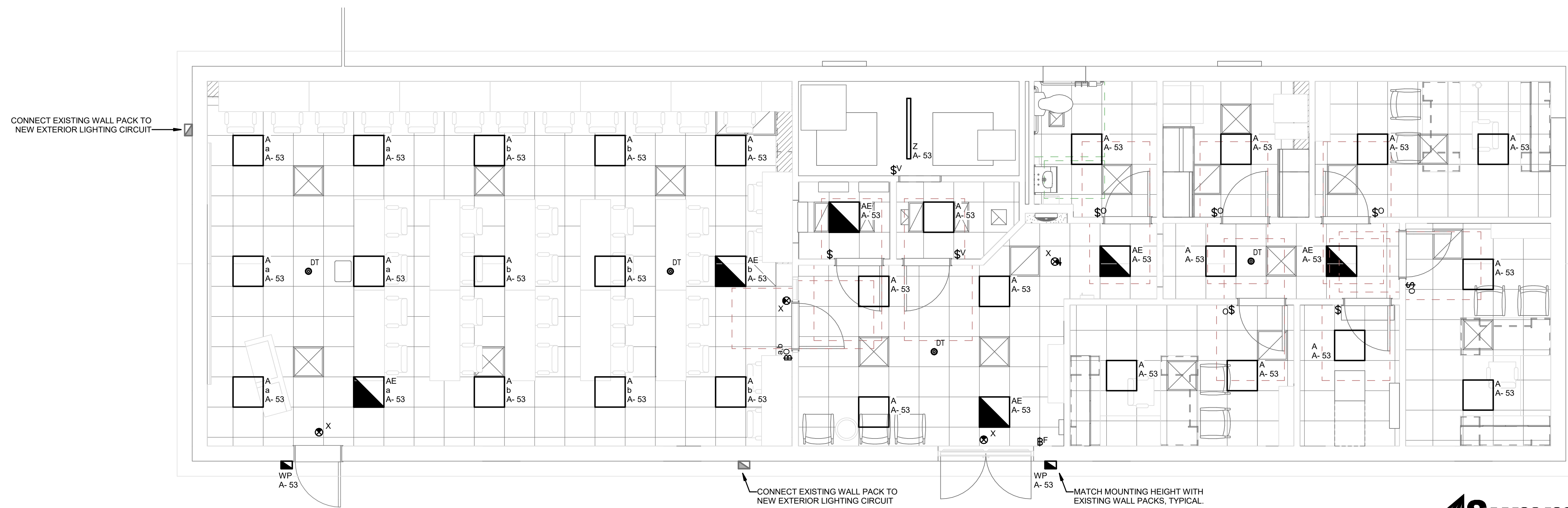
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LIGHTING PLAN

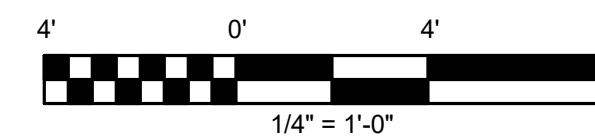
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GENERAL LIGHTING NOTES

1. ALL EXIT SIGNS SHALL BE CONNECTED TO AN UNSWITCHED LEG OF THE LOCAL EMERGENCY LIGHTING CIRCUIT.
2. ELECTRICAL CONTRACTOR SHALL SET ALL OCCUPANCY AND VACANCY SENSORS THROUGHOUT BUILDING IN ACCORDANCE WITH OCCUPANCY SENSOR SETTINGS SCHEDULE ON PLANS.
3. UNLESS NOTED OTHERWISE, EMERGENCY LIGHTING ON INVERTER SHALL BE SWITCHED WITH LOCAL LIGHTING VIA BODINE BLCD-20B TRANSFER DEVICE OR EQUIVALENT. REFER TO EMERGENCY LIGHTING DETAIL FOR ADDITIONAL INFORMATION.
4. ALL EXTERIOR FIXTURES AT EGRESS DOORS SHALL BE CONNECTED TO THE EMERGENCY EGRESS LIGHTING CIRCUIT FOR THAT BUILDING.
5. IN MECHANICAL ROOMS AND I.T. CLOSETS, ADJUST LIGHT FIXTURE LOCATIONS AS NECESSARY FOR DUCTWORK, EQUIPMENT, RACKS, ETC.



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

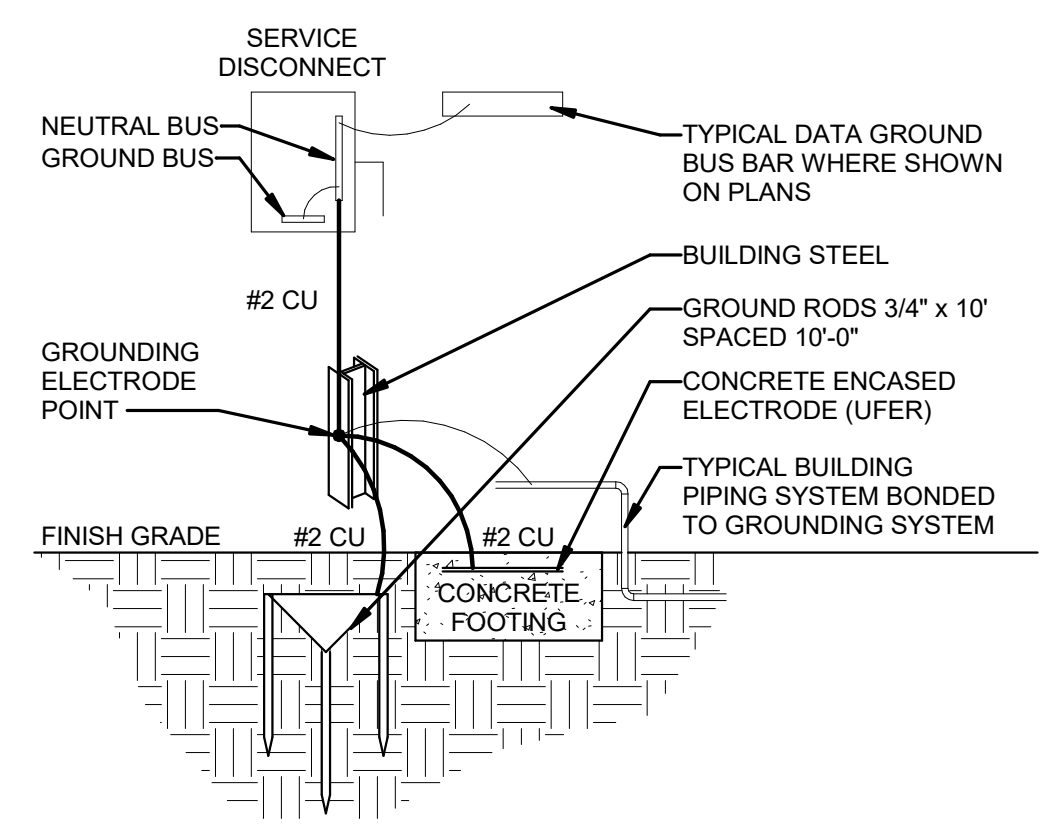


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Branch Panel: A																
Mounting: SURFACE				Volts: 120/208 Wye				A.I.C. Rating: 42,000 AIC								
Supply From: EXISTING UTILITY XFMR				Phases: 3				Mains Type: MLO								
Enclosure: NEMA 1				Wires: 4				Mains Rating: 225 A								
CKT	Circuit Description	BKR (A)	P	Load (A)	A	B	C	Load (A)	P	BKR (A)	Circuit Description	CKT				
1	Test Bench Receptacle	20	2	8	800	800				8	2	20	Test Bench Receptacle	2		
3														4		
5	Test Bench Receptacle	20	2	8						8	2	20	Test Bench Receptacle	6		
7					800	800								8		
9	Test Bench Receptacle	20	2	8						8	2	20	Test Bench Receptacle	10		
11														12		
13	Test Bench Receptacle	20	2	8	800	800				8	2	20	Test Bench Receptacle	14		
15														16		
17	Test Bench Receptacle	20	2	8						8	2	20	Test Bench Receptacle	18		
19					800	800								20		
21	Test Bench Quad	20	1	4						4	1	20	Test Bench Quad	22		
23	Test Bench Quad	20	1	4						4	1	20	Test Bench Quad	24		
25	Test Bench Quad	20	1	4	500	500				4	1	20	Test Bench Quad	26		
27	Test Bench Quad	20	1	4						4	1	20	Test Bench Quad	28		
29	Receptacle	20	1	6						4	1	20	Test Bench Quad	30		
31	Receptacle	20	1	6	720	500				4	1	20	Test Bench Quad	32		
33	Receptacle	20	1	8						5	1	20	Receptacle	34		
35	Receptacle	20	1	8						8	1	20	Receptacle	36		
37	Receptacle	20	1	8	900	1000				8	1	20	Receptacle	38		
39	Receptacle	20	1	4						3	1	20	FACP	40		
41	Receptacle	20	1	7						7	1	20	Water Cooler	42		
43	Breakroom Counter Receptacles	20	1	8	1000	500				4	1	20	Copier	44		
45	Refrigerator	20	1	7						6	1	20	Receptacle	46		
47	Receptacle	20	1	9						10	1	20	Microwave	48		
49	Receptacle	20	1	4	500	2250				22	2	30	WH1	50		
51	Receptacle	20	1	8										52		
53	Lighting	20	1	11						4	1	20	CP1	54		
55	MSCU	20	2	1	90	60								56		
57										0	3	20	AHU-1	58		
59														60		
61	AHU-2	20	3	0	60	180				2	1	20	IT ROOM	62		
63										3	1	20	EF	64		
65	IT ROOM	20	1	2						180	0	--	1	20	SPARE	66
67	SPARE	20	1	--	0	0				--	1	20	SPARE	68		
69	SPARE	20	1	--						--	1	20	SPARE	70		
71	SPARE	20	1	--						0	0	--	1	20	SPARE	72
73	SPARE	20	1	--	0	0				--	1	20	SPARE	74		
75	SPARE	20	1	--						--	1	20	SPARE	76		
77	SPARE	20	1	--						0	0	--	1	20	SPARE	78
79	SPARE	20	1	--	0	0				--	1	20	SPARE	80		
81	SPARE	20	1	--						--	1	20	SPARE	82		
83	SPARE	20	1	--						0	0	--	1	20	SPARE	84
Total Load:		15 kVA			14 kVA			15 kVA								
Total Amps:		127 A			121 A			126 A								
Load Classification		Connected Load	Demand Factor	Estimated Demand	Panel Totals											
Cooling		540 VA	100.00%	540 VA	Total Conn. Load: 45 kVA											
Lighting		1271 VA	100.00%	1271 VA	Total Conn. Amps: 124 A											
Motor		700 VA	100.00%	700 VA	Total Demand Load: 31 kVA											
Power		4980 VA	100.00%	4980 VA	Total Demand Amps: 87 A											
Receptacle		37140 VA	63.46%	23570 VA												



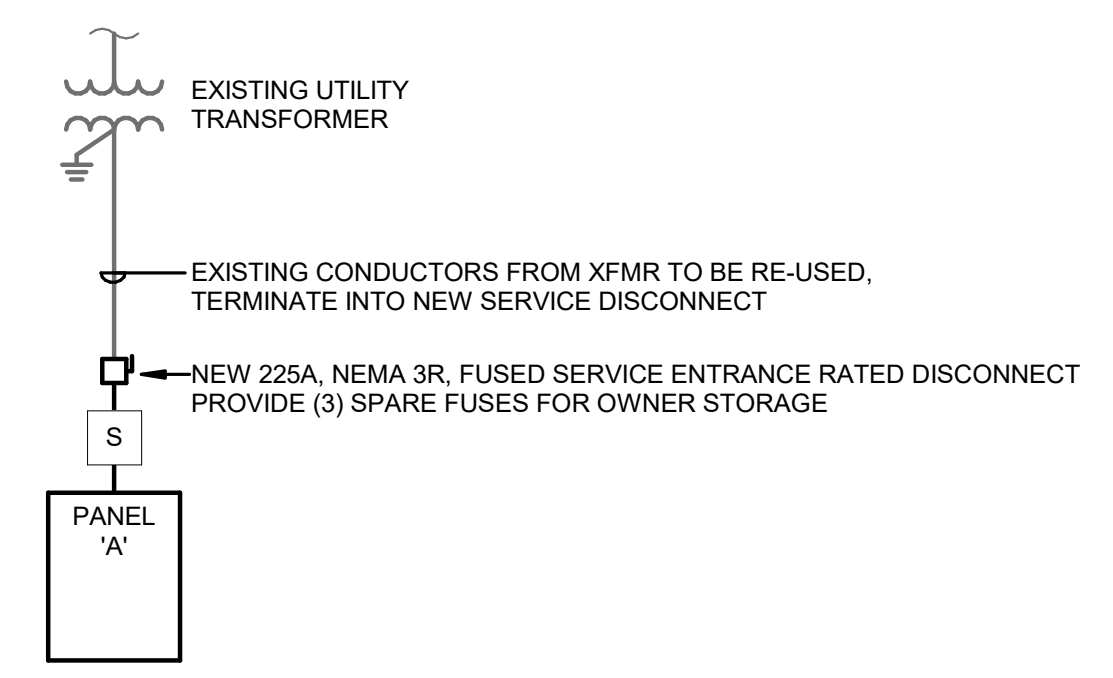
SERVICE ENTRANCE GROUNDING DETAIL NOTES:

- AT THE CONTRACTOR'S OPTION, ANY ONE OF THE THREE ALLOWED ELECTRODE SYSTEMS SHOWN MAY BE USED AS THE MAIN GROUNDING ELECTRODE POINT (BUILDING STEEL, GROUND RODS OR "UFER") WITH ALL OTHER ELECTRODES BONDED TO IT. THE EXAMPLE SHOWN USES BUILDING STEEL AS THE MAIN ELECTRODE POINT.
- THE GROUNDING ELECTRODE CONDUCTOR (GEC) SHALL BE SIZED IN ACCORDANCE WITH NEC TABLE 250.66. REFER TO FEEDER SCHEDULE.

2 SERVICE ENTRANCE GROUNDING DETAIL
N.T.S.

SINGLE LINE DIAGRAM NOTES

- CONTRACTOR SHALL PERFORM ARC FLASH STUDY USING DATA FOR THE SUPPLIED MANUFACTURER'S EQUIPMENT, AND PROVIDE AND INSTALL ARC FLASH LABELS ON ALL ELECTRICAL EQUIPMENT. LABELS SHALL INDICATE ARC FLASH PROTECTION REQUIREMENTS AND SHOCK PROTECTION REQUIREMENTS AND OTHER INFORMATION AS REQUIRED BY OSHA AND NFPA 70E. SERVICE EQUIPMENT SHALL BE MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT IN ACCORDANCE WITH NEC.
- CONTRACTOR SHALL ADJUST ALL BREAKER SETTINGS ON SITE TO MATCH SETTINGS SHOWN IN MANUFACTURER'S ARC FLASH STUDY.
- CONTRACTOR SHALL PROVIDE AND PERFORM COMPLETE OVERCURRENT PROTECTION COORDINATION STUDY IN ACCORDANCE WITH NEC REQUIREMENTS PRIOR TO PURCHASE OF EQUIPMENT AND PROVIDE STUDY WITH SWITCHBOARD AND PANELBOARD SUBMITTALS. CONTRACTOR SHALL SUBMIT COORDINATION STUDY TO CITY INSPECTOR UPON REQUEST, AND INCLUDE COORDINATION STUDY WITH SUBMITTALS.
- PROVIDE SERVICE ENTRANCE RATED LISTED CONNECTION SURGE PROTECTIVE DEVICE (SPD/ TVSS) WITH SURGE RATING AS RECOMMENDED BY MANUFACTURER FOR THE SERVICE SIZE SHOWN. DEVICE SHALL INCLUDE INTEGRAL DISCONNECT/FUSE MOUNTED TO SIDE OF SWITCHBOARD OR PANEL ENCLOSURE, CONNECTED TO BUS USING MANUFACTURER'S CABLE. CONDUCTORS SHALL BE ROUTED SO AS TO AVOID SHARP BENDS AND MINIMIZE LEAD LENGTHS.
- PER NEC 210.8(B), GFCI PROTECTION SHALL BE PROVIDED FOR ALL 20A TO 50A SINGLE PHASE RECEPTACLES RATED UP TO 150V TO GROUND AND 20A TO 100A THREE PHASE RECEPTACLES RATED UP TO 150V TO GROUND LOCATED IN INDOOR WET LOCATIONS, BATHROOMS, KITCHENS, AND WHERE WITHIN 6 FT OF ANY SINK, OR LOCATED OUTDOORS, ON ROOFTOPS, OR IN VEHICLE GARAGES AND SERVICE BAYS.
- INSTALL WALL-MOUNTED GROUND BAR ON INSULATED STANDOFFS LOCATED IN EACH IT ROOM, VERIFY EXACT LOCATION WITH IT PERSONNEL. GROUNDING CONDUCTOR SHALL BE CONTINUOUS AND UN-CUT ACROSS GROUND BAR, OR CONNECTIONS SHALL BE MADE BY EXOTHERMIC WELD.



1 SINGLE LINE DIAGRAM
N.T.S.

FEEDER & BREAKER SCHEDULE 3-PHASE 4-WIRE COPPER					
CIRCUIT AMPACITY	CIRCUIT BREAKER	CONDUCTOR SETS, QTY & SIZE	EQUIP. GROUND	CONDUIT	
NEC TABLE 310.15(B)(16)	NEC TABLE 240.4(B)	NEC TABLE 310.15(B)(16)	NEC TABLE 250.122		
20 A	20 A, 3P	1 SET OF 4	#12	#12 G	3/4"
30 A	25 A, 3P	1 SET OF 4	#10	#10 G	3/4"
30 A	30 A, 3P	1 SET OF 4	#10	#10 G	3/4"
40 A	35 A or 40 A, 3P	1 SET OF 4	#8	#10 G	1"
55 A	45 A or 50 A, 3P	1 SET OF 4	#6	#10 G	1"
70 A	60 A, 3P	1 SET OF 4	#4	#10 G	1-1/4"
70 A	70 A, 3P	1 SET OF 4	#4	#8 G	1-1/4"
85 A	80 A or 90 A, 3P	1 SET OF 4	#3	#8 G	1-1/4"
95 A	100 A, 3P	1 SET OF 4	#2	#8 G	1-1/2"
110 A	110 A, 3P	1 SET OF 4	#1	#6 G	2"
130 A	125 A, 3P	1 SET OF 4	#1	#6 G	2"
150 A	150 A, 3P	1 SET OF 4	#1/0	#6 G	2"
175 A	175 A, 3P	1 SET OF 4	#2/0	#6 G	2"
200 A	200 A, 3P	1 SET OF 4	#3/0	#6 G	2"
230 A	225 A, 3P	1 SET OF 4	#4/0	#4 G	2-1/2"
255 A	250 A, 3P	1 SET OF 4	#250	#4 G	3"
310 A	300 A, 3P	1 SET OF 4	#350	#4 G	3"
380 A	350 A, 3P	1 SET OF 4	#500	#3 G	4"
400 A	400 A, 3P	2 SETS OF 4	#3/0	#3 G	2"
460 A	450 A, 3P	2 SETS OF 4	#4/0	#2 G	2-1/2"
510 A	500 A, 3P	2 SETS OF 4	#250	#2 G	2-1/2"
620 A	600 A, 3P	2 SETS OF 4	#350	#1 G	3"
760 A	700 A, 3P	2 SETS OF 4	#500	#1/0 G	3"
855 A	800 A, 3P	3 SETS OF 4	#300	#1/0 G	2-1/2"
1,005 A	1,000 A, 3P	3 SETS OF 4	#400	#2/0 G	3"
1,240 A	1,200 A, 3P	4 SETS OF 4	#350	#3/0 G	3"
1,675 A	1,600 A, 3P	5 SETS OF 4	#400	#4/0 G	3"
2,010 A	2,000 A, 3P	6 SETS OF 4	#400	#250 G	3"
2,660 A	2,500 A, 3P	7 SETS OF 4	#500	#350 G	3"
3,040 A	3,000 A, 3P	8 SETS OF 4	#500	#400 G	3"
4,180 A	4,000 A, 3P	11 SETS OF 4	#500	#500 G	3"

NEC 250.66 GROUNDING ELECTRODE CONDUCTOR		FEEDER & BREAKER SCHEDULE NOTES:	
GEC FOR SERVICES, BUILDING FEEDERS AND SEPARATELY DERIVED SYSTEMS & SERVICES		1. WHERE [B] SYMBOL IS SHOWN, PROVIDE FEEDER ACCORDING TO THE "CIRCUIT BREAKER" COLUMN SHOWN ABOVE. FEEDER TO BE 4-WIRE PLUS GROUND UNLESS NOTED OTHERWISE.	
LARGEST CONDUCTOR OR EQUIVALENT AREA OF PARALLEL CONDUCTORS (COPPER)	GEC (CU)	2. USE TABLE 250.122 TO DETERMINE SIZE OF EQUIPMENT GROUNDING CONDUCTOR (EGC) FOR BRANCH CIRCUITS, RACEWAY, CONDUIT, MOTOR CIRCUITS, AND WHERE PARALLEL FEEDERS ARE RUN. USE TOTAL EQUIVALENT AREA OF PARALLELED CONDUCTORS FOR SIZING PARALLEL GECS.	
	14 - 2	#6 G	3. USE COMPRESSION LUGS FOR FEEDERS OVER 100A.
	1 - 1/0	#6 G	
	2/0 - 3/0	#4 G	
	3/0+ - 350	#2 G	
	351 - 600	#1/0 G	
601 - 1100	#2/0 G		
1100+	#3/0 G		
5. WHERE [S] SYMBOL IS SHOWN, PROVIDE SERVICE FEEDER WITH AMPACITY EQUAL TO OR GREATER THAN THAT OF THE SERVICE DISCONNECT, WITH NO EQUIPMENT GROUND CONDUCTOR.		4. USE TABLE 250.66 TO DETERMINE THE GROUNDING ELECTRODE CONDUCTOR (GEC) SIZE AT THE SERVICE ENTRANCE, AT EACH BUILDING OR STRUCTURE WHERE SUPPLIED BY A FEEDER(S), AT TRANSFORMERS, OR AT ANY OTHER SEPARATELY DERIVED SYSTEM.	

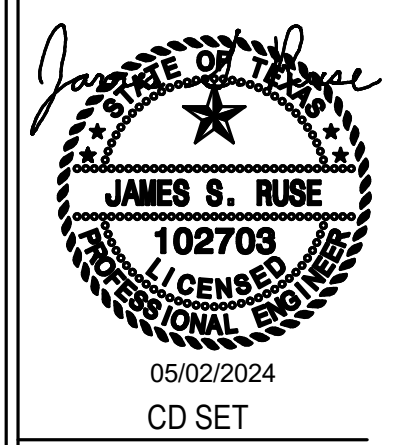
Summit
CONSULTANTS, INC.
Texas BPE Registration # F-207

1300 Summit Avenue Suite 500 Fort Worth, Texas 76102 Office 817.878.4242

4144 N. Central Expwy Suite 635 Dallas, Texas 75204 Office 214.420.9111

www.summitnep.com

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**MCCULLOUGH ANNEX
RENOVATION**
MIDWESTERN STATE UNIVERSITY
3410 TAFT BLVD. WICHITA FALLS, TX

BYSP Architects
1005 Ninth Street - Suite 200 Wichita Falls, Texas 76301 (840) 761-2404
Member American Institute of Architects

DRAWN BY: APB
CHECKED BY: JSR
DATE: 05/02/24
PROJECT NO.: 23062

ELECTRICAL SINGLE LINE DIAGRAM
E300

ELECTRICAL SPECIFICATIONS

CODES AND REGULATIONS

- CONFORM TO ALL APPLICABLE CODES AND REGULATIONS INCLUDING NATIONAL ELECTRICAL CODE, OBTAIN PERMITS AND PAY FEES AND INSPECTION COSTS.
- CONFORM TO ALL RULES AND REGULATIONS OF OSHA AS APPLIED TO CONSTRUCTION PROJECT.
- OBTAIN, BECOME FAMILIAR WITH AND COMPLY WITH ALL OWNER REQUIREMENTS.

SCOPE

- INCLUDE ALL LABOR, EQUIPMENT, TOOLS AND MATERIALS FOR ELECTRIC DISTRIBUTION, AS SHOWN ON DRAWINGS.
- EXTEND NEW POWER SERVICE TO THE BUILDING DISTRIBUTION AS SHOWN ON DRAWINGS. ANY INSTALLATION COSTS ASSESSED BY UTILITY COMPANIES FOR INCOMING SERVICE INSTALLATION SHALL BE INCLUDED IN BID AND PAID FOR BY THE ELECTRICAL CONTRACTOR.
- PERFORM ALL ELECTRICAL WORK, INCLUDING POWER WIRING FROM PANEL IN BUILDING AND WIRING OF OTHER ITEMS INDICATED.
- FURNISH AND INSTALL NEW LIGHTING, EMERGENCY AND EXIT LIGHTING AS INDICATED ON DRAWINGS.
- PROVIDE FACILITIES FOR A NEW TELEPHONE SERVICE WHERE SHOWN ON DRAWINGS.
- PROVIDE A FIRE ALARM SYSTEM AS SHOWN ON DRAWINGS.
- PROVIDE OTHER ELECTRICAL ITEMS INDICATED OR REQUIRED.

SHOP DRAWINGS SUBMITTALS

- THE CONTRACTOR SHALL SUBMIT THE SHOP DRAWINGS OF THE FOLLOWING EQUIPMENT THROUGH THE ARCHITECT TO THE ENGINEER AND THEN RESUBMITTED FOR FINAL APPROVAL IF NECESSARY:
 - WIRING DEVICES
 - WIRE AND CONDUIT
 - PANELBOARDS
 - SAFETY SWITCHES
 - CONTACTORS
 - TIME SWITCHES AND PHOTOCELLS
 - LIGHTING FIXTURES
 - LIGHTING SWITCHES AND SENSORS
 - LIGHTING CONTROL SYSTEM
 - FIRE ALARM SYSTEM
- ALL SUBMITTED SHOP DRAWINGS (MANUFACTURERS' EQUIPMENT DESCRIPTIVE SHEETS OR VENDORS' PREPARED DRAWINGS) SHALL HAVE THE GENERAL CONTRACTOR'S OR SUBCONTRACTOR'S "STAMP OF APPROVAL" INDICATING THAT THE ITEM SUBMITTED IS AS CALLED FOR ON THE PLANS AND SPECIFICATIONS, IS APPROVED BY THE GENERAL CONTRACTOR OR SUBCONTRACTOR, THE DATE OF APPROVAL AND INITIALED BY THE PERSON APPROVING THE SUBMITTAL AND THE NAME OF THE COMPANY SUBMITTING SAID EQUIPMENT FOR APPROVAL.
- ALL DESCRIPTIVE LITERATURE SHALL BE SUBMITTED WITH A COVER IDENTIFYING THE FOLLOWING:
 - NAME OF THE JOB
 - LOCATION OF THE JOB
 - ADDRESS, CITY AND STATE
 - NAME AND ADDRESS OF THE COMPANY SUBMITTING
 - DATE OF THE SUBMITTAL.
- EVERY EFFORT SHALL BE MADE IN CHECKING THE SHOP DRAWINGS TO DETECT AND CORRECT ALL ERRORS, OMISSIONS AND INACCURACIES. FAILURE TO DO THIS WILL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY FOR THE PROPER AND COMPLETE INSTALLATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

CONDUIT INSTALLATION

- ALL WIRING TO BE INSTALLED IN CONDUIT IN ACCORDANCE WITH THE N.E.C. SO THE REQUIRED CONDUCTORS MAY BE PULLED WITHOUT INJURY OR STRAIN. CONDUIT SHALL BE PROPERLY SUPPORTED.
- ALL CONDUITS TO BE CONCEALED IN BUILDING NEW CONSTRUCTION WHERE AVAILABLE.
- EXPOSED CONDUIT MAY BE RUN ON EXISTING MASONRY WALLS IN WORKROOMS. VERIFY ALL LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.
- INTERIOR WIRING TO BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) WITH SET SCREW TYPE COUPLINGS AND CONNECTORS. EMT IS NOT APPROVED FOR INSTALLATION IN CONCRETE SLABS OR UNDERGROUND.
- CONDUIT ON BUILDING EXTERIOR SHALL BE RIGID ALUMINUM OR GALVANIZED STEEL WITH WEATHER-TIGHT FITTINGS AND DEVICES.
- BURIED CONDUIT SHALL BE RIGID SCHEDULE 40 PVC WITH SOLVENT WELD FITTINGS. INSTALL CODE SIZED GROUND CONDUCTOR IN ALL PVC CONDUIT. PENETRATIONS OF FLOOR SLABS SHALL BE MADE WITH RIGID GALVANIZED STEEL. IN EQUIPMENT ROOMS OR WET LOCATIONS, THREE INCH HIGH CONCRETE CURBS SHALL ENCASE CONDUITS TO SURFACE PANELS OR DEVICES AT THE FLOOR LINE.
- NO CONDUIT TO BE RUN EXPOSED ON EXTERIOR OF BUILDING WALLS OR ON THE FLOORS.
- PROVIDE ALL PULL BOXES AND FITTINGS WHEREVER NECESSARY OR SHOWN. ALL STRAIGHT CONDUIT RUNS SHALL NOT EXCEED 100 FEET WITHOUT PULL BOX, NOT OVER 75 FEET FOR RUN WITH ONE RIGHT ANGLE BEND AND NOT OVER 50 FEET FOR RUN WITH TWO RIGHT ANGLES.
- ALL CONDUIT SHALL BE PROPERLY SUPPORTED IN ACCORDANCE WITH THE N.E.C. CONDUIT SHALL BE INDEPENDENTLY SUPPORTED FROM STRUCTURE AND NOT FROM DUCTWORK, CEILING HANGERS OR CEILING SUPPORT WIRES.
- FINAL CONNECTION TO LIGHT FIXTURES AND EQUIPMENT SHALL BE MADE WITH FLEXIBLE STEEL CONDUIT ("GREENFIELD" - 6' MAXIMUM LENGTH) IN DRY AREAS AND LIQUID TIGHT FLEXIBLE METALLIC CONDUIT ("SEALTITE") IN DAMP OR WET AREAS.
- ALL EMPTY CONDUITS ARE TO BE PROVIDED WITH PULL WIRES AND NYLON BUSHINGS AT BOTH ENDS.

TESTING AND PLACING IN SERVICE

- ANY MATERIAL OR EQUIPMENT FAILING A TEST SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
- MEASURE THE LOAD ON EACH PHASE OF THE MAIN SERVICE AND EACH PHASE OF EVERY FEEDER UNDER FULL LOAD CONDITIONS.
- MEASURE THE NO-LOAD AND FULL-LOAD VOLTAGES (PHASE TO PHASE, PHASE TO NEUTRAL AND PHASE TO GROUND) FOR EACH PHASE OF EACH SERVICE, OF EACH SEPARATELY DERIVED SYSTEM AND AT EACH PANELBOARD OR TRANSFORMER.
- MEASURE THE GROUND RESISTANCE OF THE MAIN SERVICE GROUNDING ELECTRODE AND THE GROUND RESISTANCE OF EACH SEPARATELY DERIVED SYSTEM'S GROUNDING ELECTRODE. ALL GROUNDS SHALL BE MEASURED TO BE 10 OHMS OR LESS.
- PERFORM INSULATION RESISTANCE TESTS ON ALL DRY TYPE TRANSFORMERS AND MOTORS.

QUALITY ASSURANCE

- ALL PRODUCTS SHALL BE NEW AND OF THE TYPE AND QUALITY SPECIFIED. WHERE MATERIALS, EQUIPMENT, APPARATUS OR OTHER PRODUCTS ARE SPECIFIED BY MANUFACTURER, BRAND NAME, TYPE OR CATALOG NUMBER, SUCH DESIGNATION SHALL ESTABLISH THE STANDARDS OF THE DESIRED QUALITY AND STYLE. IT IS THE INTENT OF THESE SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY OF MATERIALS AND EQUIPMENT INSTALLED.

WIRE & CABLE

- #12 AWG AND #10 AWG SOLID OR STRANDED CONDUCTOR COPPER, 600 VOLT, TYPE THWN, XHHW, OR THW (75 DEGREES C).
- #8 AWG TO AND INCLUDING #600 KCMIL AWG, STRANDED CONDUCTOR, COPPER, 600 VOLT, TYPE THWN, XHHW OR THW (75 DEGREES C).
- #14 AWG MAY BE USED FOR LOW VOLTAGE CONTROL WIRING ONLY.
- COLOR CODING SHALL BE USED FOR ALL WIRE AND CABLES IN ACCORDANCE WITH N.E.C. CODING STANDARDS. CONTROL CONDUCTORS SHALL BE CONTINUOUSLY COLOR CODED.
- JOINTS IN #10 AWG AND SMALLER WIRE SHALL BE MADE WITH "SCOTCH LOCKS" (OR EQUAL) AND BE INSULATED WITH SCOTCH #33 ELECTRICAL TAPE.
- JOINTS IN #8 AWG AND LARGER SHALL BE MADE WITH PRESSURE TYPE MECHANICAL CONNECTOR AND INSULATED WITH ELECTRICAL TAPE TO 200 PERCENT OF THE INSULATING VALUE OF THE CONDUCTOR.
- ALL BELOW GRADE LEVEL JOINTS SHALL BE MADE WITH BURNDY TYPE YSG COMPRESSION CONNECTORS AND SHRINK WRAP INSULATED.
- COLOR CODE CONDUCTORS (EXCEPT CONTROL AND INSTRUMENTATION CONDUCTORS) AS FOLLOWS:

208/120V	480/277V
PHASE A BLACK	BROWN
PHASE B RED	PURPLE
PHASE C BLUE	YELLOW
NEUTRAL WHITE	GRAY
GROUND GREEN	GREEN
- HIGH LEG OF HIGH LEG DELTA SYSTEMS SHALL BE ORANGE.
- #12 AND #10 CONDUCTORS SHALL HAVE CONTINUOUS INSULATION COLOR AS LISTED ABOVE.
- COLOR CODE CONDUCTORS LARGER THAN #12, WHICH DO NOT HAVE CONTINUOUS INSULATION, COLOR BY APPLICATION OF AT LEAST TWO LAPS OF COLORED TAPE ON EACH CONDUCTOR AT ALL POINTS OF ACCESS INCLUDING JUNCTION BOXES. COLOR TAPE SHALL BE THE EQUAL OF 3M PRODUCTS SCOTCH #33.
- INSULATION TYPE SHALL BE THIN OR THWN. THHN SHALL NOT BE USED IN WET OR DAMP LOCATIONS.
- FLEXIBLE CORD SHALL BE HEAVY DUTY TYPE SO WITH AN EQUIPMENT GROUND CONDUCTOR IN ADDITION TO THE CURRENT CARRYING CONDUCTORS.
- FORM AND TIE ALL WIRING IN PANELBOARDS.
- THERE SHALL BE NO WIRENUT JOINTS OR SPLICES MADE INSIDE SWITCHBOARDS/PANELBOARDS OR DISCONNECT SWITCHES.
- BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED LIMIT OF 2.5%

SWITCHES, SAFETY

- SAFETY SWITCHES SHALL BE HEAVY DUTY OF SIZE AND ELECTRICAL CHARACTERISTICS INDICATED, SURFACE MOUNTED, AMPERE RATINGS AS NOTED ON THE DRAWINGS, 60 HERTZ, THREE BLADES, INCORPORATING QUICK-MAKE, QUICK-BREAK TYPE SWITCHES.
- FUSES: UNLESS INDICATED ON THE DRAWINGS AS NON-FUSED TYPE, PROVIDE FUSE FOR SAFETY SWITCHES. FUSE TO BE TIME-DELAY, CURRENT-LIMITING U.L. CLASS RK1, AND HAVE AN INTERRUPTING RATING OF 200,000 RMS AMPERES SYMMETRICAL.
- DISCONNECTS FOR 120 VOLTS, SINGLE PHASE EQUIPMENT SHALL INCLUDE THERMAL OVERLOAD PROTECTION INTEGRAL WITH DISCONNECT FOR MOTORS OR WHERE REQUIRED BY CODE.
- SWITCHES INSTALLED IN OUTDOOR LOCATIONS SHALL BE WEATHERPROOF NEMA 3R.
- PROVIDE ENGRAVED NAMEPLATE FOR EACH DISCONNECT SWITCH INDICATING VOLTAGE, PHASE, LOAD SERVED, AND CIRCUIT ORIGIN. USE BLACK LETTERING ON A WHITE BACKGROUND.

LIGHTING AND POWER PANELBOARDS

- PROVIDE DEAD-FRONT SAFETY TYPE LIGHTING AND POWER PANELBOARDS AS INDICATED, WITH SWITCHING AND PROTECTIVE DEVICES IN QUANTITIES, RATINGS, TYPES AND ARRANGEMENT AS SHOWN, EQUIPPED WITH COPPER BUS BARS, FULL-SIZED NEUTRAL BAR, WITH BOLT-IN TYPE MOLDED CASE BRANCH CIRCUIT BREAKERS FOR EACH CIRCUIT, WITH TOGGLE HANDLES THAT INDICATE A TRIPPED POSITION, PROVIDE TYPED DIRECTORY.
- PROVIDE ENGRAVED NAMEPLATE FOR EACH PANELBOARD INDICATING VOLTAGE, PHASE, PANEL NAME, AND FEEDER ORIGIN.

GROUNDING

- ENTIRE POWER SYSTEM SHALL BE EFFECTIVELY GROUNDED, INCLUDING ALL EXPOSED NON-CURRENT CARRYING PARTS OF ELECTRICAL EQUIPMENT IN FULL ACCORDANCE WITH N.E.C. ARTICLE 250.
- A GREEN PIGTAIL SHALL BE INSTALLED FROM GROUNDING SLOTS WHERE RECEPTACLE ATTACHMENT BAR IS NOT IN DIRECT CONTACT WITH THE OUTLET BOX.

LIGHTING

- FURNISH AND INSTALL LIGHTING FIXTURES AS SHOWN AND SCHEDULED ON THE DRAWINGS.
- COORDINATE FIXTURE TYPE AND TRIM WITH CEILING CONSTRUCTION.
- ALL FIXTURES IN LAY-IN CEILING SHALL BE SUPPORTED FROM THE STRUCTURE INDEPENDENT OF THE CEILING SYSTEM AT ALL FOUR CORNERS AND ATTACHED WITH GRID CLIPS.

EMERGENCY LIGHTING AND EXIT SIGNS

- FURNISH AND INSTALL BATTERY POWERED EMERGENCY LIGHTS AND EXIT SIGNS AS SHOWN AND SCHEDULED ON THE DRAWINGS, UNLESS NOTED OTHERWISE.
- THE WIRING AND INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE N.E.C. AND NFPA LIFE SAFETY CODE.

TEMPORARY SERVICE

- THIS CONTRACTOR TO PROVIDE ALL TEMPORARY LIGHTING AND POWER AS REQUIRED FOR ALL TRADES.
- ALL TEMPORARY WIRING INSTALLED SHALL BE REMOVED BY THIS CONTRACTOR.

TELEPHONE SYSTEM

- ELECTRICAL CONTRACTOR TO PROVIDE DATA AND TELEPHONE SERVICE CONDUIT OR DUCT TO DATA RACK AND/OR TELEPHONE BOARD AS SHOWN ON PLANS. SERVICE CONDUIT SIZE AND QUANTITY SHALL BE AS DETERMINED BY LOCAL DATA AND/OR TELEPHONE COMPANY.
- CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUITS WITH PULL WIRES, OUTLET BOXES, METAL CABINETS AND PULL BOXES. PROVIDE A COMPLETE CONDUIT SYSTEM WITH PULL WIRE AS INDICATED ON DRAWINGS.
- PROVIDE 3/4" FIRE RETARDANT (TYPE X) PLYWOOD BACKBOARDS WHERE INDICATED ON DRAWINGS FOR USE BY DATA AND TELEPHONE SYSTEM. BACKBOARDS SHALL BE PAINTED BOTH SIDES WITH TWO COATS OF GRAY ENAMEL PAINT.
- PROVIDE #6 AWG COPPER WIRE IN 3/4" CONDUIT FROM BACKBOARD TO MAIN BUILDING GROUND.
- A CONDUIT RUN SHALL HAVE NOT MORE THAN THREE BENDS IN A RUN BETWEEN OUTLET BOXES OR BETWEEN OUTLET BOX AND A METAL CABINET OR PULL BOX. WHEN A RUN REQUIRES MORE THAN THREE BENDS, A PULL BOX OF SUITABLE SIZE SHALL BE PLACED IN SUITABLE LOCATION TO MEET THE ABOVE CONDITIONS.

AS-BUILT DRAWINGS

- SUBMIT TO THE ARCHITECT DRAWINGS SHOWING THE AS-BUILT CONDITIONS.

NAMEPLATES

- FURNISH AND MOUNT ON EACH PANELBOARD, SWITCHBOARD (INCLUDING BRANCH SWITCHES), LARGE JUNCTION BOX SAFETY SWITCH, STARTER, REMOTE CONTROL, PUSH BUTTON STATION AND ALL SIMILAR CONTROLS, A NAMEPLATE DESCRIPTIVE OF THE EQUIPMENT OR EQUIPMENT CONTROLLED.
- PROVIDE BLACK AND WHITE NAMEPLATES CONSTRUCTED FROM LAMINATED PHENOLIC WITH A BLACK CENTER CORE. LETTERS SHALL BE ENGRAVED IN THE PHENOLIC TO FORM BLACK LETTERS 3/8" HIGH ON A WHITE BACKGROUND. FASTEN THE NAMEPLATES WITH SCREWS AND AN ADHESIVE TYPE FASTENER.

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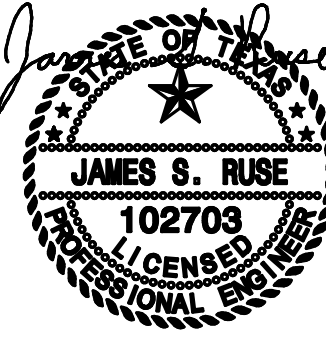
1300 Summit Avenue Suite 500 Fort Worth, Texas 76102 Office 817.878.4242 www.summitmep.com	4144 N. Central Expwy Suite 635 Dallas, Texas 75204 Office 214.420.9111
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DESCRIPTION

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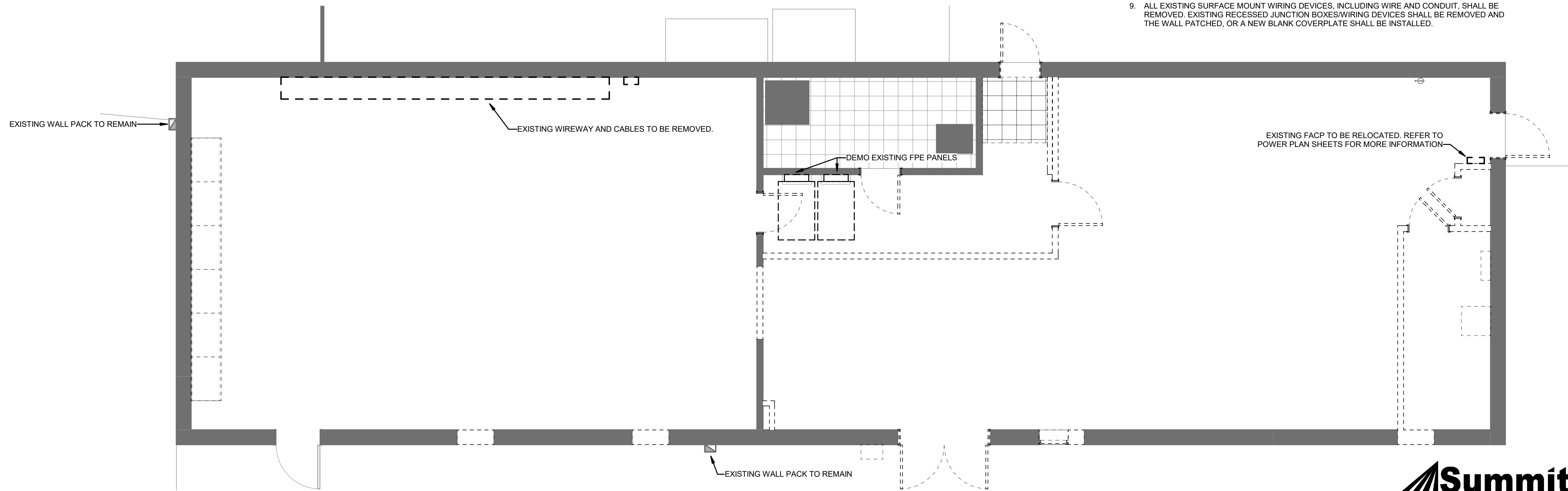
**MCCULLOUGH ANNEX
RENOVATION**
MIDWESTERN STATE UNIVERSITY
3410 TAFT BLVD. WICHITA FALLS, TX

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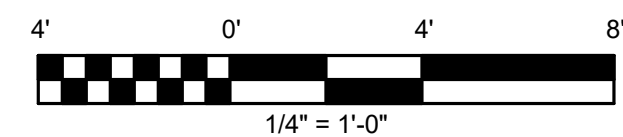
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ELECTRICAL SHEET
SPECIFICATIONS

E400



1 LEVEL 1- DEMO PLAN
1/4" = 1'-0"



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GENERAL DEMOLITION NOTES

1. REMOVE ALL ABANDONED SURFACE RACEWAYS AND JUNCTION BOXES. EXISTING ABANDONED RECESSED JUNCTION BOXES SHALL BE REMOVED AND THE WALL PATCHED, OR A NEW BLANK COVERPLATE SHALL BE INSTALLED.
2. ALL EXISTING FIRE ALARM SYSTEM NOTIFICATION AND DETECTION DEVICES SHALL BE REMOVED BY CONTRACTOR. EXISTING FACP SHALL REMAIN FOR RE-USE DURING CONSTRUCTION.
3. EXISTING LIGHTING SHALL BE REMOVED IN THE AREAS WHERE NEW LIGHTING IS TO BE INSTALLED. ANY LIGHTING NOT REMOVED SHALL BE RE-CONNECTED TO A LIGHTING CIRCUIT DURING CONSTRUCTION. REFER TO LIGHTING SHEETS FOR AREA OF WORK.
4. EXISTING PANELBOARDS WILL BE REPLACED BY NEW PANELBOARDS.
5. FOR ALL EXISTING EQUIPMENT THAT WILL REMAIN, EXISTING POWER CIRCUITS SHALL REMAIN AND SHALL BE RE-FED FROM A NEW PANEL OR AN EXISTING PANEL THAT WILL REMAIN.
6. REMOVE ALL CONNECTIONS FOR ALL EXISTING MECHANICAL AND PLUMBING EQUIPMENT.
7. NO CABLES, CONDUIT, OR EQUIPMENT SHALL BE ABANDONED ON SITE. CONTRACTOR TO REMOVE ALL CABLES, CONDUIT, AND EQUIPMENT FROM SITE.
8. EXISTING COMMUNICATION CABLES FROM CENTRAL UTILITY PLANT SHALL REMAIN FOR CONNECTION TO NEW MECHANICAL EQUIPMENT. COORDINATE WITH MECHANICAL CONTRACTOR.
9. ALL EXISTING SURFACE MOUNT WIRING DEVICES, INCLUDING WIRE AND CONDUIT, SHALL BE REMOVED. EXISTING RECESSED JUNCTION BOXES/WIRING DEVICES SHALL BE REMOVED AND THE WALL PATCHED, OR A NEW BLANK COVERPLATE SHALL BE INSTALLED.

REV	DATE	DESCRIPTION

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