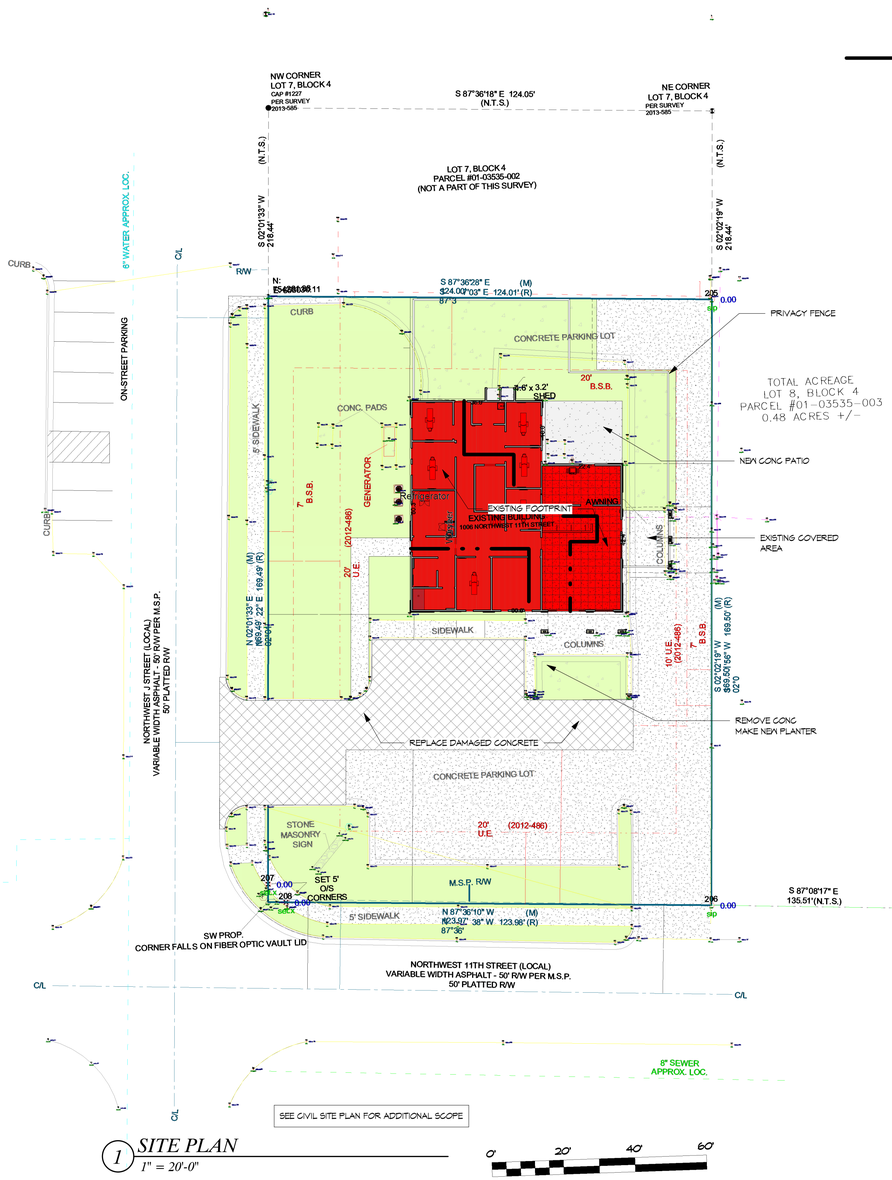
DENTAL

1006 NW 11th St,
BENTONVILLE, AR



1 SITE PLAN
1" = 20'-0"

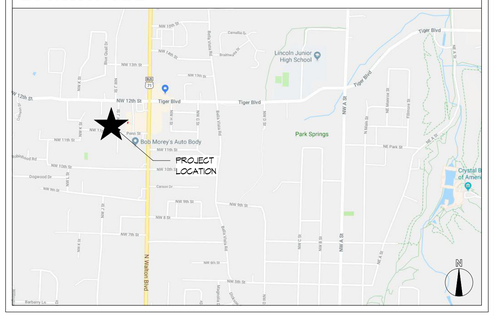
GENERAL NOTES:

1. CONTRACTOR IS TO INSPECT EXISTING CONDITIONS INCLUDING BUT NOT LIMITED TO, UNDERGROUND WATER MAINS, SEWER, TELEPHONE, AND ELECTRIC. WORK HERE UNDER ARE INDICATED ON DRAWINGS FOR DIAGRAMMATIC PURPOSES. NO GUARANTEE AS TO THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION. RESPONSIBILITY FOR SUCH ACCURACY AND COMPLETENESS IS DISCLAIMED. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR LOCATING UNDERGROUND INSTALLATIONS PRIOR TO EXCAVATING.
2. ALL DIMENSIONS ARE FROM FACE OF STUD, FACE OF CONC. OR CENTER LINE UNLESS NOTED OTHERWISE. DRAWINGS ARE NOT TO BE SCALED, DIMENSIONS SHALL BE IN WRITTEN INFORMATION ONLY. VERIFY DIMENSIONS PRIOR TO WORK. ALTERATIONS IN DIMENSIONS AFFECTING THE DESIGN SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PROMPTLY FOR A RESOLUTION.
3. NOT ALL MATERIALS AND ASSEMBLIES HAVE BEEN SPECIFIED. CONTRACTOR IS TO VERIFY ALL NON-SPECIFIED ITEMS WITH OWNER & ARCHITECT PRIOR TO EXECUTING ANY WORK INVOLVING THESE ITEMS.
4. IT IS THE CONTRACTORS RESPONSIBILITY TO SUBMIT SUBSTITUTIONS OR DEVIATIONS FROM THE CONTRACT DOCUMENTS TO THE ARCHITECT FOR APPROVAL. NON-APPROVED DEVIATIONS WILL HOLD THE ARCHITECTS AND CONSULTING ENGINEERS HARMLESS FOR SUCH ITEMS.
5. ALL WORK TO CONFORM TO APPLICABLE CODES. THE MOST STRINGENT CODE SHALL APPLY. DISCREPANCIES IN CODE AND CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECTS ATTENTION IMMEDIATELY AND RESOLVED BEFORE PROCEEDING.
6. ALL MATERIALS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND AS SUCH ALL SUBCONTRACTORS ARE TO INSURE THAT ALL MANUFACTURER'S WARRANTIES WILL BE HONORED.
7. ALL SUBCONTRACTORS ARE RESPONSIBLE FOR INSURING THEIR SAFETY AND OF THEIR PERSONNEL ON THE JOB SITE AT ALL TIMES. THEY SHALL CARRY WORKMAN'S COMPENSATION AND LIABILITY INSURANCE FOR THEMSELVES AND THEIR EMPLOYEES. SUBCONTRACTORS AND THEIR EMPLOYEES SHALL BE PERSONALLY RESPONSIBLE TO FOLLOW ALL OSHA RULES AND REGULATIONS.
8. GENERAL CONTRACTOR IS TO COORDINATE ALL MECH. ELECT. AND PLUMBING AND PROVIDE NECESSARY CONSTRUCTION TO FACILITATE SUCH WORK INCLUDING SUPPORTS, BLOCKING, ROUGH OPENINGS ETC.
9. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO REVIEW ARCHITECTURAL DRAWINGS BEFORE INSTALLATION OF MECH. ELECT OR SYSTEMS INSTALLATION, AND SHALL NOTIFY ARCHITECT IMMEDIATELY FOR ANY DISCREPANCIES. ANY WORK INSTALLED IN CONFLICT WITH THE CONTRACT DOCUMENTS SHALL BE CORRECTED BY THE GENERAL CONTRACTOR AT NO EXPENSE TO THE OWNER OR ARCHITECT.
10. ALL DRAWINGS, SPECIFICATIONS AND DESIGN OF THE FOLLOWING SYSTEMS ARE TO BE PROVIDED BY OTHERS AS REQUIRED. OWNER SHALL CONTRACT WITH OTHERS UNDER SEPARATE CONTRACTS.

   A. CIVIL ENGINEERING

SHEET INDEX

LOCATION MAP



PROJECT TEAM

Burris Architecture
820 Tiger Blvd, Suite 4, Bentonville, Ar 72712
479-319-6045

I HEREBY CERTIFY THAT THESE PLANS AND SPECIFICATION HAVE BEEN PREPARED BY ME, OR UNDER MY SUPERVISION. I FURTHER CERTIFY THAT TO THE BEST OF MY KNOWLEDGE THESE PLANS AND SPECIFICATIONS ARE AS REQUIRED BY LAW AND IN COMPLIANCE WITH THE ARKANSAS FIRE PREVENTION CODE FOR THE STATE OF ARKANSAS.

MEP

OMNI ENGINEERING
PO BOX 2106
LOWELL, AR 72745
(479) 696-7873

Registered Architect
David Paul Burris
No. 4116
Arkansas

Burris Architecture
820 Tiger Blvd, Suite 4, Bentonville, Ar 72712
479-319-6045

DENTAL
1006 NW 11th St,
BENTONVILLE, AR

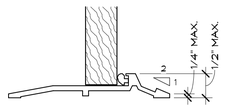
DATE 4-4-25
JOB NO. 25002
REVISIONS

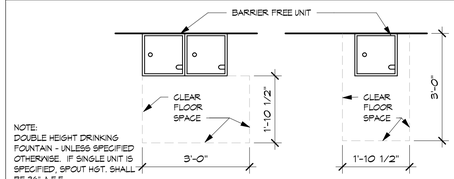
A0.0
COVER SHEET

MISC MOUNTING HEIGHTS

FIRE EXTINGUISHERS:	48" TO CENTERLINE OF CONTROLS
MARKER/TACK BOARDS:	36" TO BOTTOM
WALL MOUNTED TELEPHONES:	54" TO TOP OF PHONE
CLOSET/SHELF ROD:	54" TO TOP OF SHELF

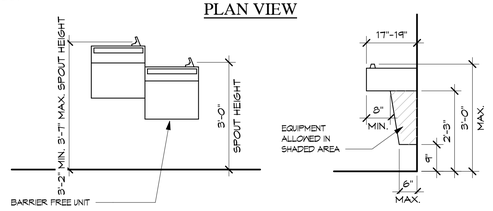
THRESHOLDS



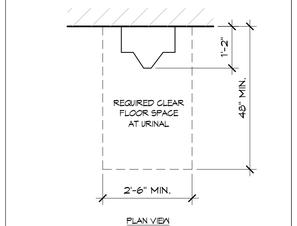


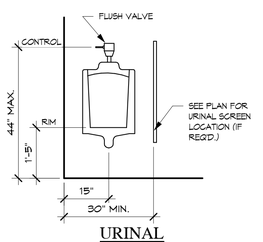
NOTE:
DOUBLE HEIGHT DRINKING FOUNTAIN - UNLESS SPECIFIED OTHERWISE. IF SINGLE UNIT IS SPECIFIED, SPOUT HGT. SHALL BE 36" A.F.F.

PLAN VIEW

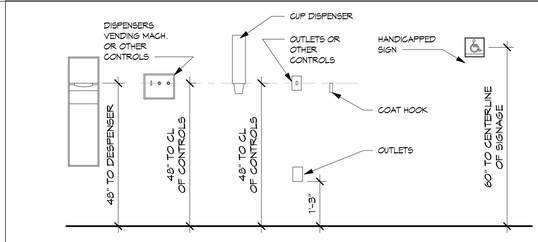


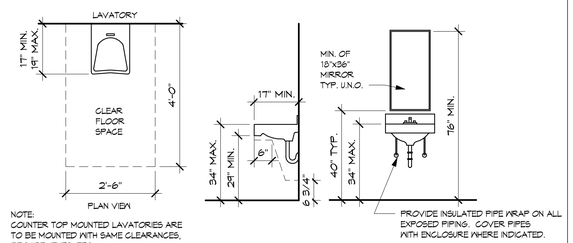
DRINKING FOUNTAIN REQUIREMENTS





URINAL REQUIREMENTS

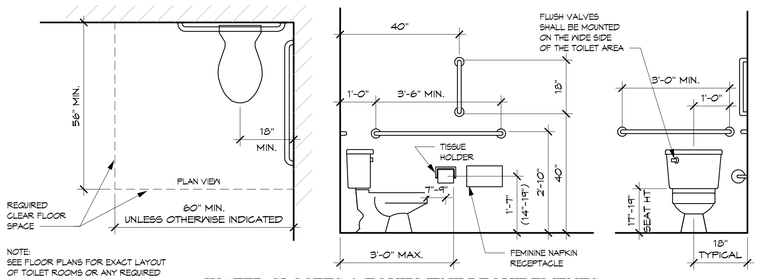




NOTE:
COUNTER TOP MOUNTED LAVATORIES ARE TO BE MOUNTED WITH SAME CLEARANCES, REQUIREMENTS, ETC.

PROVIDE INSULATED PIPE WRAP ON ALL EXPOSED PIPING. COVER PIPES WITH ENCLOSURE WHERE INDICATED.

LAVATORY & EQUIPMENT REQUIREMENTS



NOTE:
SEE FLOOR PLANS FOR EXACT LAYOUT OF TOILET ROOMS OR ANY REQUIRED TOILET ROOM STALLS.

WATER CLOSETS & EQUIPMENT REQUIREMENTS

MATERIALS LEGEND

EARTH	ROUGH CARPENTRY OR CONTINUOUS WOOD BLOCKING
COMPACTED GRANULAR FILL	NON-CONTINUOUS WOOD BLOCKING
CONCRETE	STEEL / OTHER METALS
MASONRY BLOCK	GLASS
FACE BRICK	RIGID INSULATION BOARD
LIMESTONE, SIMULATED STONE	GYPSUM BOARD
PLYWOOD, GLUE LAM	BATT INSULATION, BLOWN INSULATION
WOOD GRAIN	BATT INSULATION, STEEL & OTHER METALS

SYMBOLS LEGEND

NOTE: SYMBOLS SHOWN IN LEGENDS ARE TYPICAL AND ALL SYMBOLS MAY NOT OCCUR ON THIS PROJECT

1 / A1.0 — DETAIL REFERENCE. UPPER NUMBER INDICATES DETAIL NUMBER. LOWER NUMBER INDICATES SHEET NUMBER.

2 / 1 A1.0 3 / 4 — INTERIOR ELEVATION SYMBOL: OUTER NUMBER INDICATES ELEVATION NUMBER. INNER NUMBER INDICATES SHEET NUMBER.

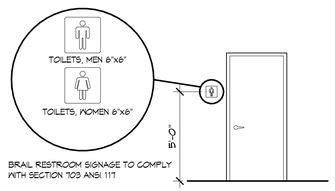
A — COLUMN GRID SYMBOL

ROOM NAME 100 — ROOM NAME AND ROOM NUMBER IS FOR REFERENCE TO SCHEDULES, NOTES, ETC.

G-1 — GENERAL NOTE SYMBOL

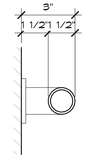
100 — DOOR SYMBOL

2 — WINDOW SYMBOL

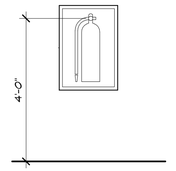


BRAIL RESTROOM SIGNAGE TO COMPLY WITH SECTION 703 ANSI 117

SIGNAGE ELEVATION



HANDRAIL (TYP)



FIRE EXTINGUISHER CABINETS

ABBREVIATIONS

A.B.	ANCHOR BOLT	DP	DAMP PROOFING
A/C	AIR CONDITIONING	DIAG	DIAGONAL
AC.T.	ACOUSTICAL TILE	DISP	DISPENSER
ADH.	ADHESIVE		
A.F.F.	ABOVE FINISH FLOOR		
AGG.	AGGREGATE		
ANOD	ANODIZED	DF	DRINKING FOUNTAIN
ADJ.	ADJUSTABLE	DIV.	DIVISION
ALUM.	ALUMINUM	DIA.	DIAMETER
ALT.	ALTERNATE	DN.	DOWN
ARCH.	ARCHITECT	DIM.	DIMENSION
AD	AREA DRAIN	DS	DOWN SPOUT
ASPH.	ASPHALT	DTL.	DETAIL
@	AT	DR.	DOOR
		DWR.	DRAWER
BSMT.	BASEMENT	DWG.	DRAWING
BRG.	BEARING	D	DEPTH
BD.	BOARD		
BIT.	BITUMINOUS		
BLDG.	BUILDING	EA.	EACH
BLK.	BLOCK	EW.	EACH WAY
BLK'G.	BLOCKING	EL.	ELEVATION
BM.	BEAM	EWC.	ELECTRIC WATER COOLER
B.M.	BENCH MARK	EQUIP.	EQUIPMENT
BOT.	BOTTOM	ELEV.	ELEVATOR
BS	BOTH SIDES		
BRK.	BREAK	HORIZ.	HORIZONTAL
BRZ.	BRONZE	H	HIGH
B.U.	BUILT-UP	HT.	HEIGHT
		HTG.	HEATING
CPT.	CARPET	HTR.	HEATER
CAB.	CABINET	HW	HOT WATER
CB	CATCH BASIN	HD	HEAD
CEM.	CEMENT	HDR.	HEADER
CER(T)	CERAMIC (TILE)	HC	HOLLOW CORE
CIR.	CIRCLE	HM	HOLLOW METAL
CLG.	CEILING	HB	HOSE BIBB
C.O.	CLEAN OUT	HVAC	HEATING, VENTILARTION & AIR CONDITIONING
		I.D.	I.D. DIAMETER
EXIST.	EXISTING	INSUL.	INSULATION
EXP.	EXPOSED	INT.	INTERIOR
EJ.	EXPANSION JOINT	INV.	INVERT
EXT.	EXTERIOR/EXTENSION	IHM	INSULATED HOLLOW METAL
EB	EXPANSION BOLT		
EQ.	EQUAL	JT.	JOINT
ELEC.	ELECTRIC(AL)	JST	JOIST
EP.	ELECTRICAL PANELBOARD		
EMER.	EMERGENCY	KO	KNOCKOUT
EIFS	EXTERIOR INSULATION FINISH SYSTEM	LAM	LAMINATE(D)
		LAV	LAVATORY
FLR.	FLOOR	LH	LEFT HAND
FIN.	FINISH(ED)	LT	LIGHT
FND	FOUNDATION	LWC	LIGHTWEIGHT CONCRETE
FFE	FINISHED FLOOR ELEVATION	LTL.	LINTEL
FE	FIRE EXTINGUISHER	LVR	LOUVER
FEC	FIRE EXTINGUISHER CABINET	L	LENGTH
FTG.	FOOTING	LP	LIGHT POLE
FLASH.	FLASHING		
F.CO.	FLOOR CLEAN OUT	MAS	MASONRY
FD	FLOOR DRAIN	MATL	MATERIAL
FLUOR.	FLUORESCENT	MAX.	MAXIMUM
		MH	MAN HOLE
GA.	GAUGE	MSNT.	MASONITE
GB	GRAB BAR		
GALV.	GALVANIZED	PP	POWER POLE
G.C.	GENERAL CONTRACTOR	QT.	QUARRY TILE
G.I.	GALVANIZED IRON		
GL	GLASS	R	RADIUS
GYP	GYPSUM	REF.	REFERENCE
GWB	GYPSUM WALL BOARD	REINF.	REINFORCE
G.S.	GRAVEL STOP	RCP	REINFORCED CONC. PIPE
		REQ'D.	REQ'D. REQUIRED
HDW.	HARDWARE	RA	RETURN AIR
HBD	HARDBOARD	RM.	
HDF	HANDICAPPED DRINKING	REV	REVISION(S)
		RH	RIGHT HAND
HM	HOLLOW METAL	ROW	RIGHT OF WAY
IHM	INSULATED HOLLOW METAL	RD	ROOF DRAIN
MANUF.	MANUFACTURED(ER)	RO	ROUGH OPENING
MASONT.	MASONITE	SAN.	SANITARY
MO	MASONRY OPENING	SCHED.	SCHEDULE
MECH.	MECHANIC(AL)	S.C.	SOLID CORE
MTL.	METAL	SECT.	SECTION
MISC	MISCELLANEOUS	SHT.	SHEET
MOD BIT	MODIFIED BITUMEN	SIM.	SIMILAR
MP	METAL PANEL(S)	SPEC.	SPECIFICATION
MIN.	MINIMUM	STD.	STANDARD
MB	MOISTURE BARRIER	STL.	STEEL
MTD.	MOUNTED	STOR.	STORAGE
MULL.	MULLION	STRUCT.	STRUCTURE
MEP.	MECHANICAL, ELECTRICAL & PLUMBING	SQ.	SQUARE
		SUSP.	SUSPENDED
MK.	MARK	SS	STAINLESS STEEL
NOM.	NOMINAL	STA	STATION
N.T.S.	NOT TO SCALE	SD	STORM DRAIN
NIC.	NOT IN CONTRACT	SYM	SYMMETRY(ICAL)
O.C.	ON CENTER	TEMP.	TEMPERATURE/TEMPORARY
O.D.	OUTSIDE DIAMETER	TEL	TELEPHONE
OHE	OVER HEAD ELECTRIC	TEMP	TEMPERED
OPNG.	OPENING	TH.	THICKNESS
		TLT.	TOILET
PNL.	PANEL	T & G	TONGUE AND GROOVE
PVMT	PAVEMENT	TOW	TOP OF WALL
PERF.	PERFORATE(D)	TOS	TOP OF STEEL
PLAS. LAM.	PLASTIC LAMINATE	TOM	TOP OF MASONRY
PL.	PLATE/PROPERTY LINE	TYP.	TYPICAL
PLBG.	PLUMBING	UNFIN.	UNFINISHED
PLYWD.	PLYWOOD	U.O.N.	UNLESS OTHERWISE NOTED
P.P.	POWER POLE	UGE	UNDERGROUND ELECTRIC
PR.	PAIR		
P.V.C.	POLYVINYL CHLORIDE	V.C.P.	VITRIFIED-CLAY-PIPE
PSF	POUNDS PER SQUARE FOOT	VEST.	VESTIBULE
PSI	POUNDS PER SQUARE INCH	VERT.	VERTICAL
PREFAB	PREFABRICATE(D)	VOL.	VOLUME
PRE FIN	PRE FINISHED	V.T.R.	VENT-THRU-ROOF
		VCT	VINYL COMPOSITION TILE
COL.	COLUMN	VB	VINYL BASE
CONC.	CONCRETE	VWC	VINYL WALL COVERING
CLR	CLEAR(ANCE)		
COMP	COMPOSITION	W/CT	W/SCOT
CONST.	CONSTRUCTION	WH	WALL HUNG
CMU	CONC. MASONRY UNIT	WC	WATER CLOSET
CONTR.	CONTRACTOR	WIN.	WINDOW
CONT.	CONTINUOUS OR CONTINUE	W.W.F.	WELDED WIRE FABRIC
CTR	COUNTER	W.P.	WEATHER PROOF
CJ	CONTROL JOINT	WT.	WEIGHT
CT	CURTAIN TRACK	WS	WATER STOP
C	CENTER LINE	W/	WITH
		W/O	WITHOUT
CW	COLD WATER	WD	WOOD
CMP	CORRUGATED METAL PIPE	W	WIDTH
CPP	CORRUGATED PLASTIC PIPE		

GENERAL NOTES

1. FIXTURE AND ACCESSORIES MOUNTING DETAILS AND REQUIREMENTS ARE TYPICAL AND APPLY TO REQUIRED ACCESSIBLE INSTALLATIONS ONLY. REFER TO PLANS FOR LOCATIONS AND TYPES OF LAYOUTS. EQUIPMENT SHOWN MAY OR MAY NOT APPEAR ON THIS PROJECT.
2. PROVIDE SOLID BLOCKING FOR ALL ACCESSORIES WHICH IS CAPABLE OF WITHSTANDING 250 LB. FORCE. (SHEAR AND BENDING). GRAB BARS SHALL NOT ROTATE. FASTENERS SHALL BE OF A TYPE TO WITHSTAND REQUIRED FORCE AND TO BE APPROPRIATE FOR WALL TYPE.
3. ALL EXTERIOR RAMPS SHALL HAVE A NONSKID FINISH AS SPECIFIED. ALL INTERIOR RAMPS SHALL HAVE FLOORING OF NONSKID MATERIAL. IF NO FINISH IS INDICATED ON THE DRAWINGS - PROVIDE RUBBER RADIAL TILE ON FINISH FLOOR SURFACE OF INTERIOR RAMPS.
4. ANY METAL FLOOR GRATINGS OR DRAINAGE GRATINGS IN AN ACCESSIBLE PATH SHALL HAVE SPACES NO GREATER THAN 1/2" WIDE IN ONE DIRECTION. LONG DIMENSION SHALL BE PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.

4-4-25
Registered Architect
David Paul Burris
No. 4116
Arkansas

Burris Architecture
820 Tiger Blvd, Suite 4, Bentonville, Ar 72712
479-319-6045

DENTAL
1006 NW 11th St,
BENTONVILLE, AR

DATE 4-4-25
JOB NO. 25002
REVISIONS

A0.1
STANDARDS

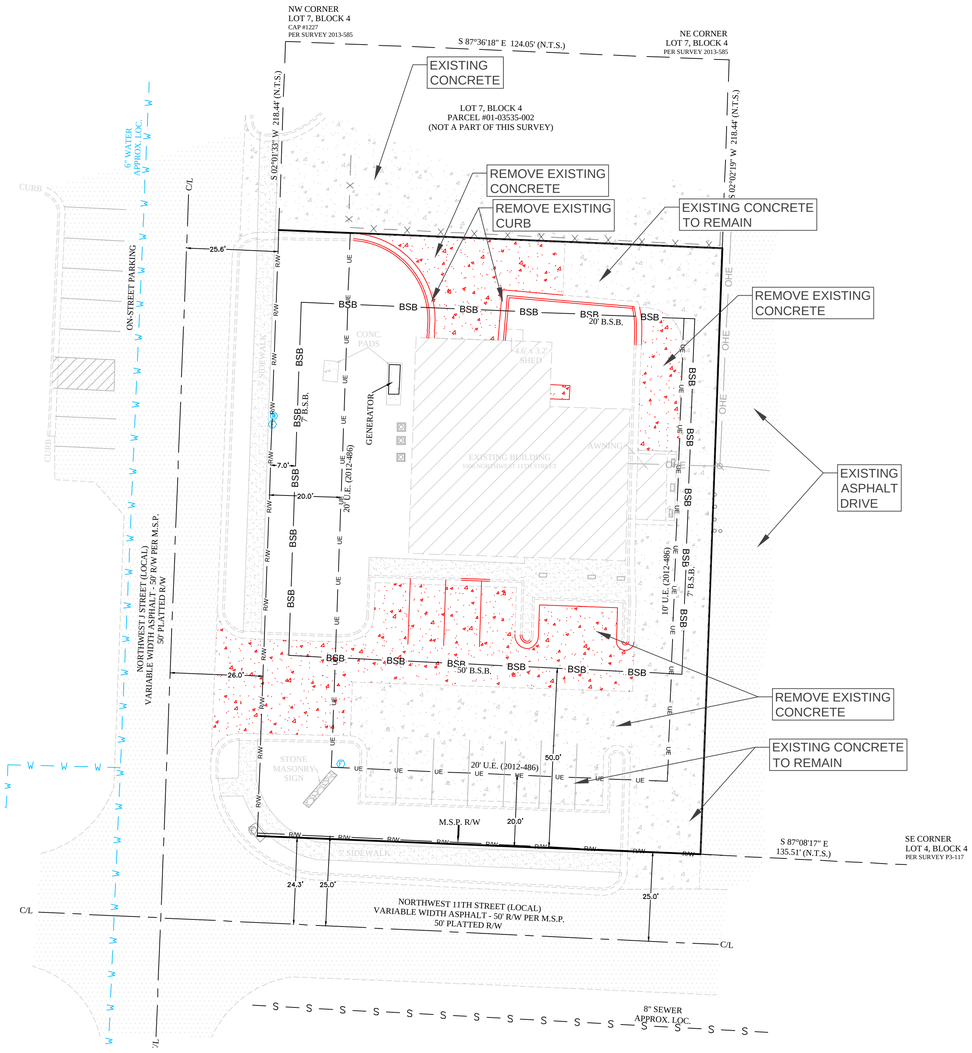
LEGEND

PROPOSED	EXISTING	DESCRIPTION
		ACCESS EASEMENT
		ASPHALT
		BUILDING
		CANOPY
		CENTERLINE
		CONCRETE
		CONTOURS (IDX)
		CONTOURS (INT)
		CURB & GUTTER
		DRAINAGE EASEMENT
		EASEMENT (UTILITY)
		ELECTRIC (UNDERGROUND)
		ELECTRIC (OVERHEAD)
		FENCE
		FIRE STRIPING
		FLOWLINE
		FORCEMAIN
		GAS MAIN
		GRAVEL
		GREENSPACE
		LANDSCAPE BUFER
		LIGHT
		POWER POLE
		PROPERTY LINE
		RETAINING WALL
		RIGHT OF WAY
		SANITARY SEWER MH
		SERVICE – SEWER
		SERVICE – WATER
		SEWER
		SIDEWALK
		SIGN
		SILT FENCE
		STORM BOX
		STORM PIPE
		TRUNCATED DOME
		WATER
		WETLANDS

CALL BEFORE YOU DIG! ARKANSAS ONE CALL 1-800-482-8998

N

0 20 40
GRAPHIC SCALE IN FEET



ENGINEER: G.B.
DRAWN BY: M.W. / B.W.

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9810
GEOFFREY H. BATES
04-04-2025

CERTIFICATE OF AUTHORIZATION
BATES & ASSOCIATES, INC.
#335
ARKANSAS ENGINEER

REVISIONS	DATE
Site Plan Submittal	04/04/25

11th STREET DENTIST
SITE DEVELOPMENT PLAN
EXISTING SITE AND DEMO PLAN
ROGERS, ARKANSAS

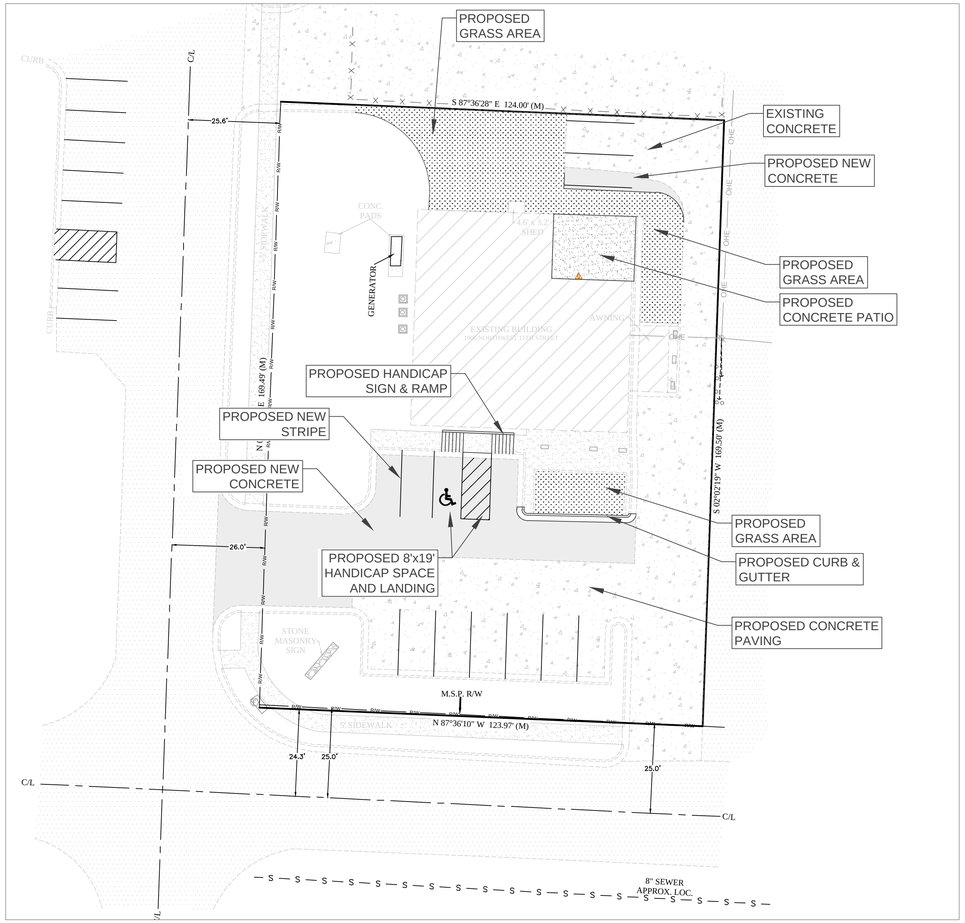
B A T E S
Engineers - Surveyors
7230 S Pleasant Ridge Dr / Fayetteville, AR 72704
PH: (479) 442-9350 / batesnwa.com

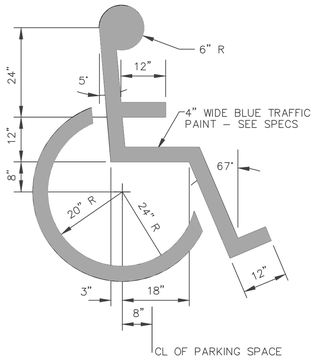
PROJECT NO. 23-228

DRAWING NO.
C1.0

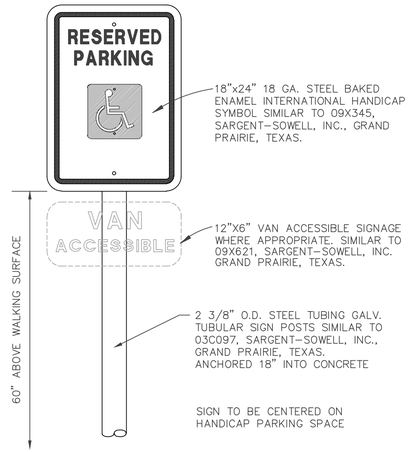
LEGEND

PROPOSED	EXISTING	DESCRIPTION
		ACCESS EASEMENT
		ASPHALT
		BUILDING
		CANOPY
		CENTERLINE
		CONCRETE
1318	1300	CONTOURS (DX)
1318	1300	CONTOURS (INT)
		CURB & GUTTER
		DRAINAGE EASEMENT
		EASEMENT (UTILITY)
		ELECTRIC (UNDERGROUND)
		ELECTRIC (OVERHEAD)
		FENCE
		FIRE STRIPING
		FLOWLINE
		FORCEMAIN
		GAS MAIN
		GRAVEL
		GREENSPACE
		LANDSCAPE BUFER
		LIGHT
		POWER POLE
		PROPERTY LINE
		RETAINING WALL
		RIGHT OF WAY
		SANITARY SEWER MH
		SERVICE – SEWER
		SERVICE – WATER
		SEWER
		SIDEWALK
		SIGN
		SILT FENCE
		STORM BOX
		STORM PIPE
		TRUNCATED DOME
		WATER
		WETLANDS



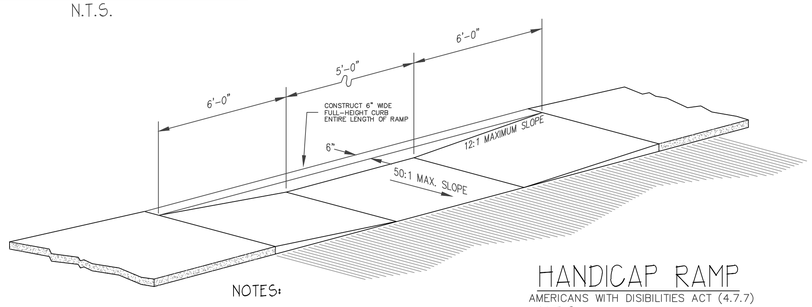


HANDICAP PAVEMENT SYMBOL
N.T.S.



AMERICANS WITH DISABILITIES ACT (4.6.4)

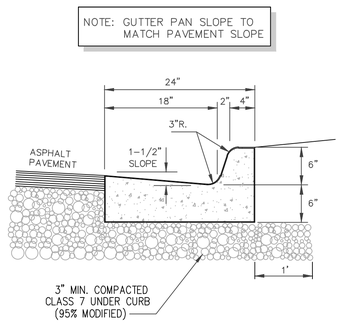
HANDICAP SIGN
N.T.S.



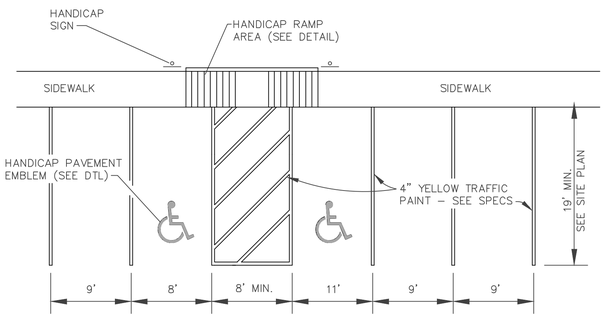
NOTES:

1. TYPICAL SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% MAXIMUM.
2. THE LENGTH OF THE RAMP SHALL BE SUCH THAT THE SLOPE DOES NOT EXCEED 12:1.
3. THE NORMAL GUTTER SHALL BE MAINTAINED THROUGH THE AREA OF THE RAMP.
4. THE MINIMUM THICKNESS FOR THE RAMP, WALK, & LANDING SHALL BE 4".

HANDICAP RAMP
AMERICANS WITH DISIBILITIES ACT (4.7.7)
N.T.S.



TYPICAL CURB SECTION
N.T.S.



TYP. PARKING STRIPING LAYOUT
N.T.S.

N

0 20 40
GRAPHIC SCALE IN FEET

CALL BEFORE YOU DIG! ARKANSAS ONE CALL 1-800-482-8998

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9810
JEFFREY H. BATES
04-04-2025
CERTIFICATE OF AUTHORIZATION
BATES & ASSOCIATES, INC.
#335
ARKANSAS ENGINEER

ENGINEER: G.B.
DRAWN BY: M.W. / B.W.

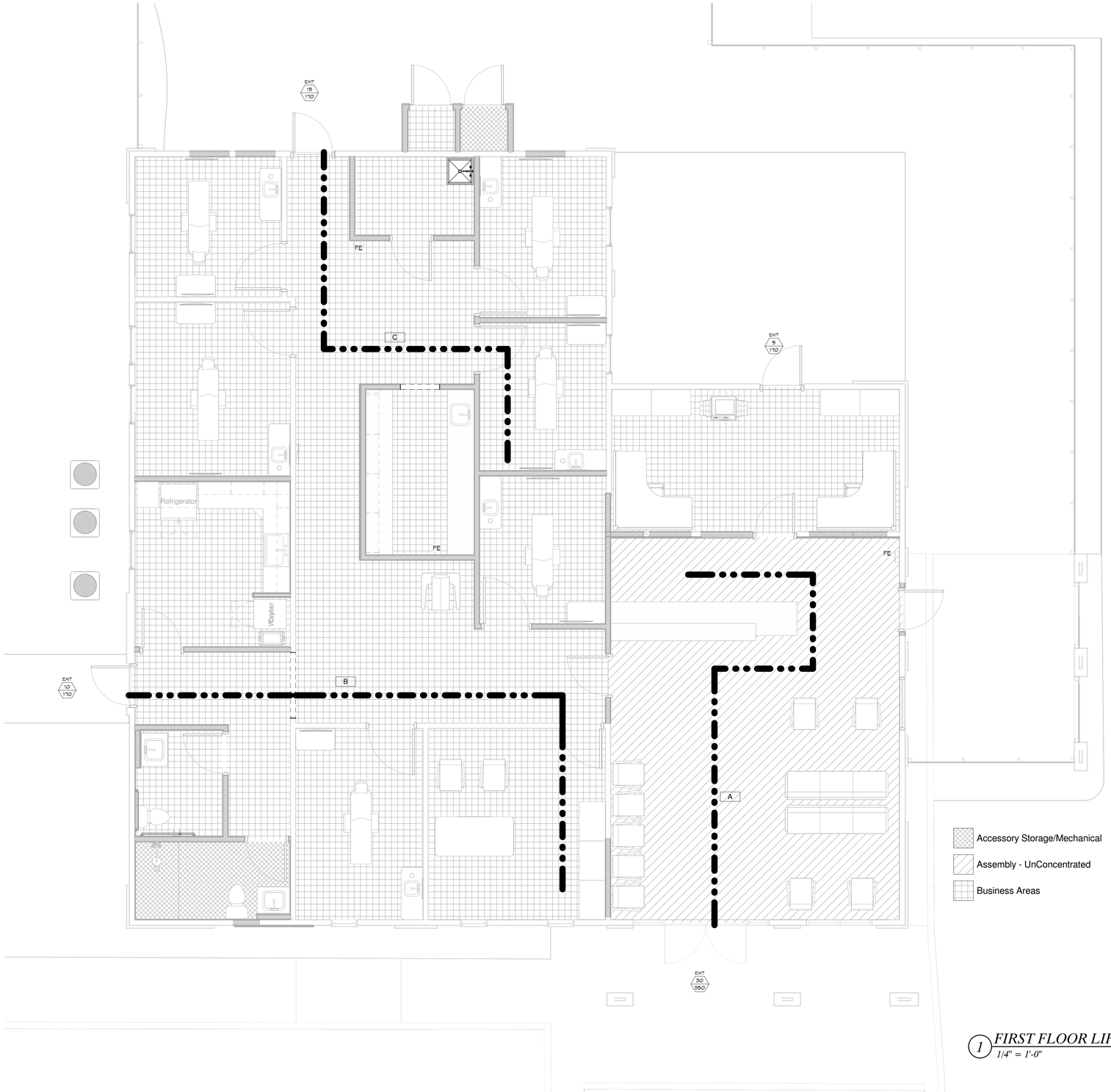
REVISIONS	DATE
Site Plan Submittal	04/04/25

11th STREET DENTIST
SITE DEVELOPMENT PLAN
EXISTING SITE AND DEMO PLAN
ROGERS, ARKANSAS

BATES
Engineers - Surveyors
7230 S Pleasant Ridge Dr / Fayetteville, AR 72704
PH: (479) 442-9350 / batesnwa.com

PROJECT NO. 23-228

DRAWING NO. C2.0



Accessory Storage/Mechanical

Assembly - UnConcentrated

Business Areas

1 *FIRST FLOOR LIFE SAFETY PLAN*
1/4" = 1'-0"

OCCUPANT LOAD BY SPACE

Room #	Room Name	Area	Occupancy Classification	FAPO	Total Occupants
FIRST FLOOR					
100	RECEPTION	632 SF	Assembly - unConcentrated	15 SF	42.16
101	OFFICE	197 SF	Business Areas	100 SF	1.97
102	EXAM	142 SF	Business Areas	100 SF	1.42
103	OPEN OFFICE	238 SF	Business Areas	100 SF	2.38
104	EXAM	119 SF	Business Areas	100 SF	1.19
105	SHOWER	69 SF	Accessory Storage/Mechanical	300 SF	0.23
106	BREAK	148 SF	Business Areas	100 SF	1.48
107	ADA	53 SF	Business Areas	100 SF	0.53
109	OP ROOM	157 SF	Business Areas	100 SF	1.57
110	OP ROOM	108 SF	Business Areas	100 SF	1.08
111	OP ROOM	109 SF	Business Areas	100 SF	1.09
112	OP ROOM	118 SF	Business Areas	100 SF	1.18
113	MECH	55 SF	Business Areas	100 SF	0.55
114	STER	104 SF	Business Areas	100 SF	1.04
115	GAS	11 SF	Business Areas	100 SF	0.11
116	HALL	241 SF	Business Areas	100 SF	2.41
117	HALL	106 SF	Business Areas	100 SF	1.06
118	HALL	248 SF	Business Areas	100 SF	2.48
119	COMP	11 SF	Accessory Storage/Mechanical	300 SF	0.04
					63.95

EGRESS DISTANCES	
Exit Path	Exit Path Distance
A	43' - 8"
B	47' - 10"
C	37' - 6"

LEGEND

FE = RECESSED FIRE EXTINGUISHER CABINET

DOOR EGRESS:

OCCUPANTS ACTUAL
OCCUPANTS ALLOWABLE

CODE SUMMARY

APPLICABLE CODES:
INCLUDED BUT NOT LIMITED TO, THE LATEST ADOPTED ADDITIONS OF THESE CODES AS AMENDED BY THE CITY OF BENTONVILLE AND THE STATE OF ARKANSAS

2021 Arkansas Fire Prevention Code Vol. I (2021 IFC w/ Arkansas Amendments)
2021 Arkansas Fire Prevention Code Vol. II - Commercial (2021 IBC w/ Arkansas Amendments)
2021 Arkansas Fire Prevention Code Vol. III - Residential (2021 IRC w/ Arkansas Amendments)
2018 Arkansas Plumbing Code (IPC)
2021 Arkansas Mechanical Code (IMC)
2020 National Electrical Code (NEC)
2018 Arkansas Fuel Gas Code (IFGC)
2014 Arkansas Energy Code (AEC)
2009 ANSI A117.1

THIS PROJECT IS A REMODEL TO AN EXISTING BUILDING. NO CHANGE OF OCCUPANCY TYPE

THE BUILDING IS NOT SPRINKLERED. THERE IS AN EXISTING FIRE ALARM SYSTEM.
UPGRADE FIRE ALARM FOR NEW LAYOUT. PLANS TO BE SUBMITTED TO AHJ BY FIRE ALARM DESIGN/INSTALLER

BUILDING DATA:
PROPOSED USE: DENTAL OFFICE
OCCUPANCY TYPE: B

CONSTRUCTION TYPE: 5B

ALLOWABLE AREA = 9,500 SF
ALLOWABLE HT/STORIES = 40' AND 1 STORY

ACTUAL AREA : 3,088 SF
ACTUAL HT/STORIES = 20' AND 1 STORY

OCCUPANCY = SEE CODE DIAGRAM

4/4/25
Registered Architect
David Paul Burris
No. 4116
Arkansas

Burris Architecture
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479-319-6045

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1006 NW 11th St,
BENTONVILLE, AR

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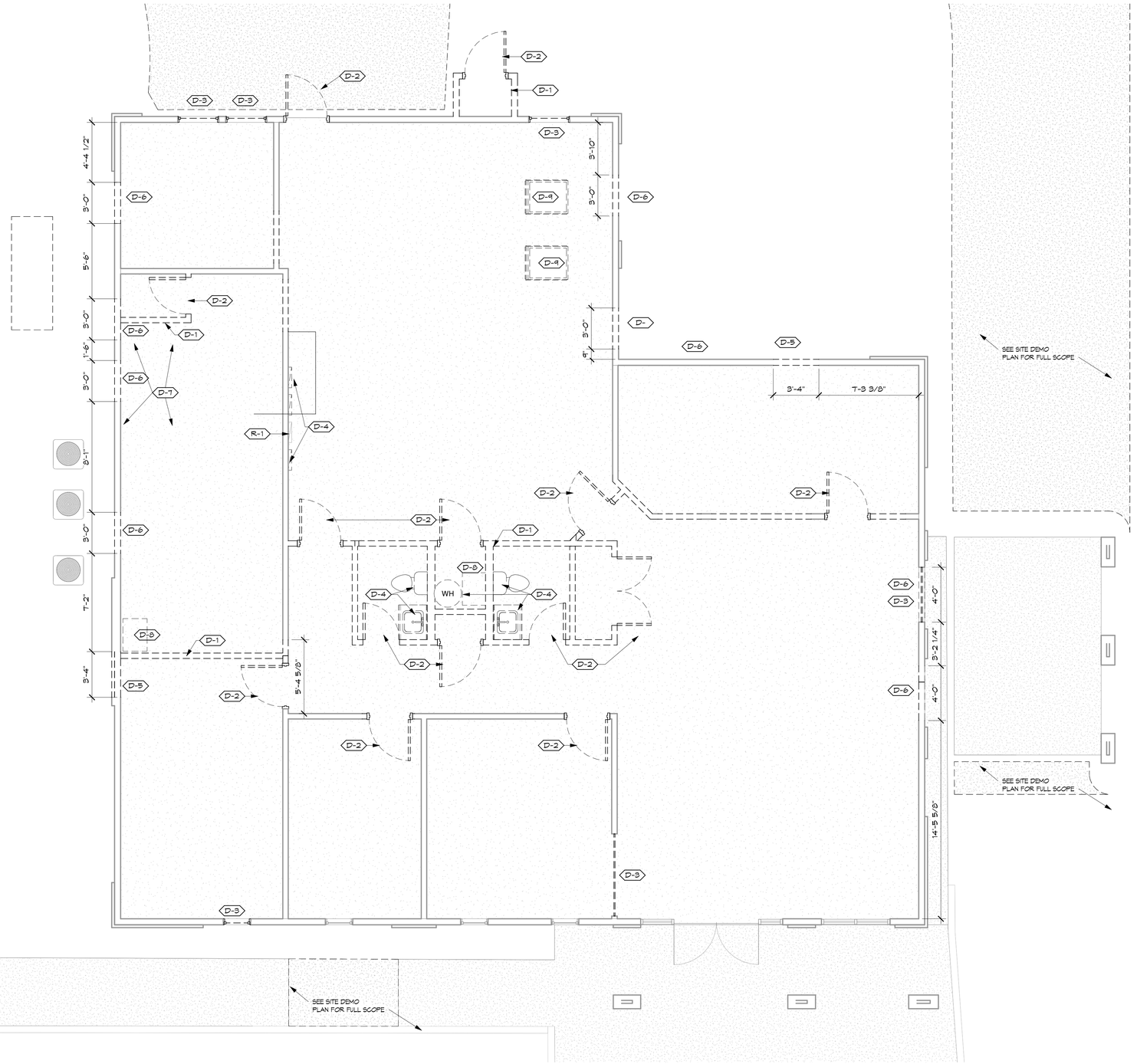
JOB NO. 25002

REVISIONS

A0.2
CODE FOOTPRINT



1 *FIRST FLOOR PLAN*
1/4" = 1'-0"

GENERAL DEMO NOTES

1. NOT ALL DEMOLITION IS DETAILED ON THIS SHEET, COORDINATE W/ ARCHITECT AND CONTACT UPON DISCOVERY OF EXISTING FEATURES NEEDING REMOVAL PRIOR TO BUILD BACK
2. CUT AND PATCH WITH CARE TO AVOID DAMAGE TO WORK, SAFETY HAZARDS, VIOLATION OF WARRANTY REQUIREMENTS, BUILDING CODE VIOLATIONS, OR MAINTENANCE PROBLEMS
3. SUB-CONTRACTORS TO INSPECT FIELD CONDITIONS TO IDENTIFY ALL WORK REQUIRED.
4. COORDINATE REMOVAL OF ITEMS WITH BUILD BACK PLAN FOR ALL DIMENSIONS AND LAYOUTS.
5. ALL FLOORING TO BE REMOVED AND PREPED FOR NEW FLOOR FINISHES
6. ALL TEXTURED CEILINGS TO BE SCRAPPED SMOOTH AND REFINISHED
7. SAW CUT OF FLOOR FOR SEWER AND DOMESTIC WATER IS NOT SHOWN ON THIS PLAN, SEE PLUMBING PLAN FOR SCOPE

DEMO KEYNOTES

R-1	EXISTING BUILDING SHELL
R-2	EXISTING ELECT PANEL TO REMAIN
D-1	DEMO PORTION OF EXISTING WALL AS REQUIRED
D-2	REMOVE EXISTING DOOR
D-3	REMOVE EXISTING WINDOW
D-4	REMOVE EXISTING UTILITY, CAP AS REQUIRED
D-5	REMOVE PORTION OF WALL FOR NEW DOOR OPENING
D-6	REMOVE PORTION OF WALL FOR NEW WINDOW OPENING
D-7	EXISTING PIT TO BE ABANDONED - FILL WITH GRAVEL AND CONCRETE TO MATCH EXTG FLOOR
D-8	HVAC UNIT TO BE RELOCATED, SEE MEP
D-9	SKYLIGHT TO BE REMOVED - PATCH TO MATCH EXTG CONST

LEGEND

EXISTING TO REMAIN

TO BE MOVED OR RELOCATED

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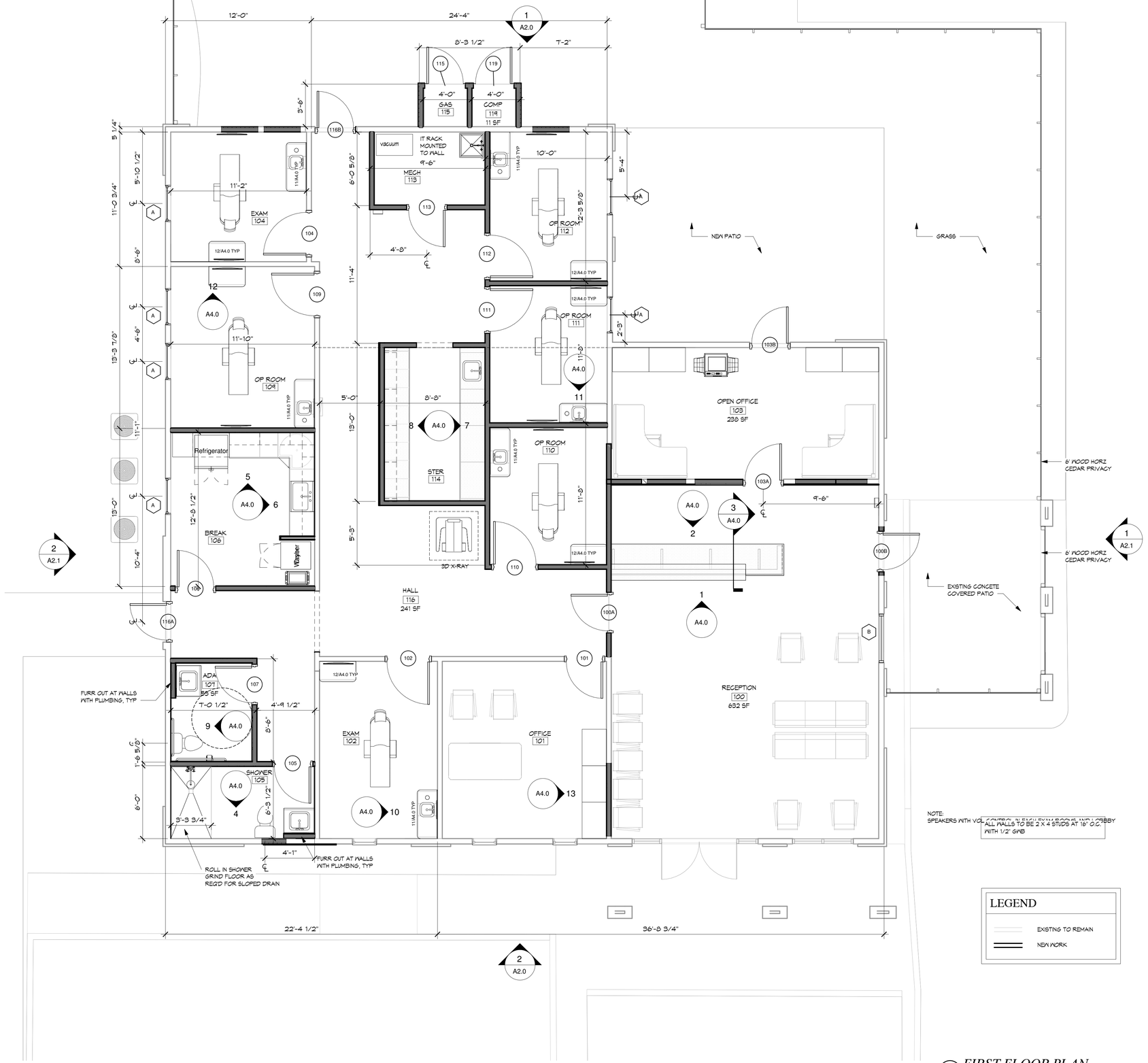
DEMO PLANS



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

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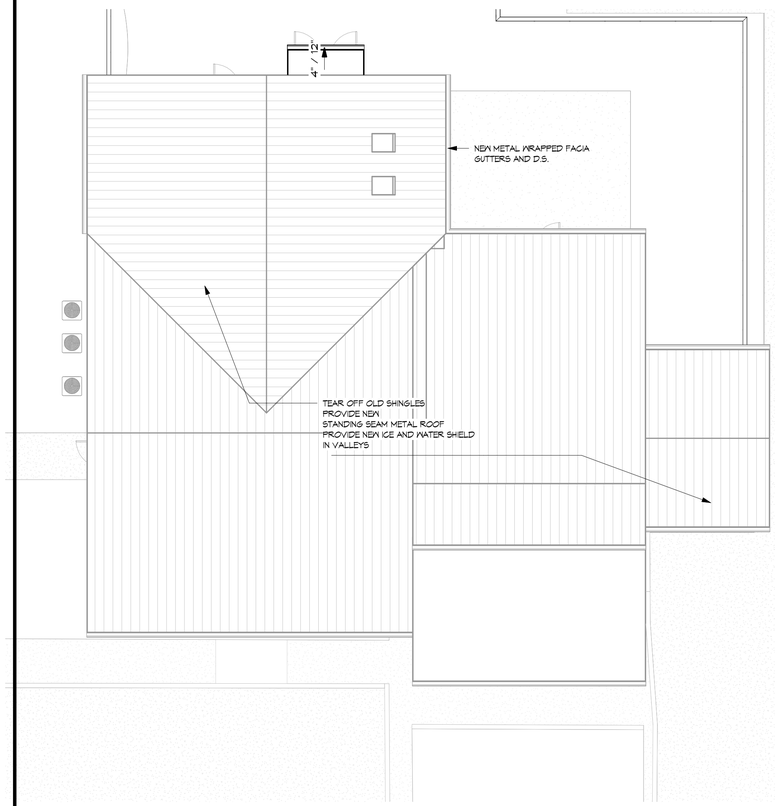
A1.0
FIRST FLOOR PLAN

CEILING LEGEND

ALL AREAS TO HAVE ADDITIONANL LAYER OF 5/8" GWB FOR 1 HOUR RATED ASSEMBLY

METAL SOFFIT



3 *ROOF PLAN*
1/8" = 1'-0"

1 *FIRST FLOOR RCP*
1/4" = 1'-0"

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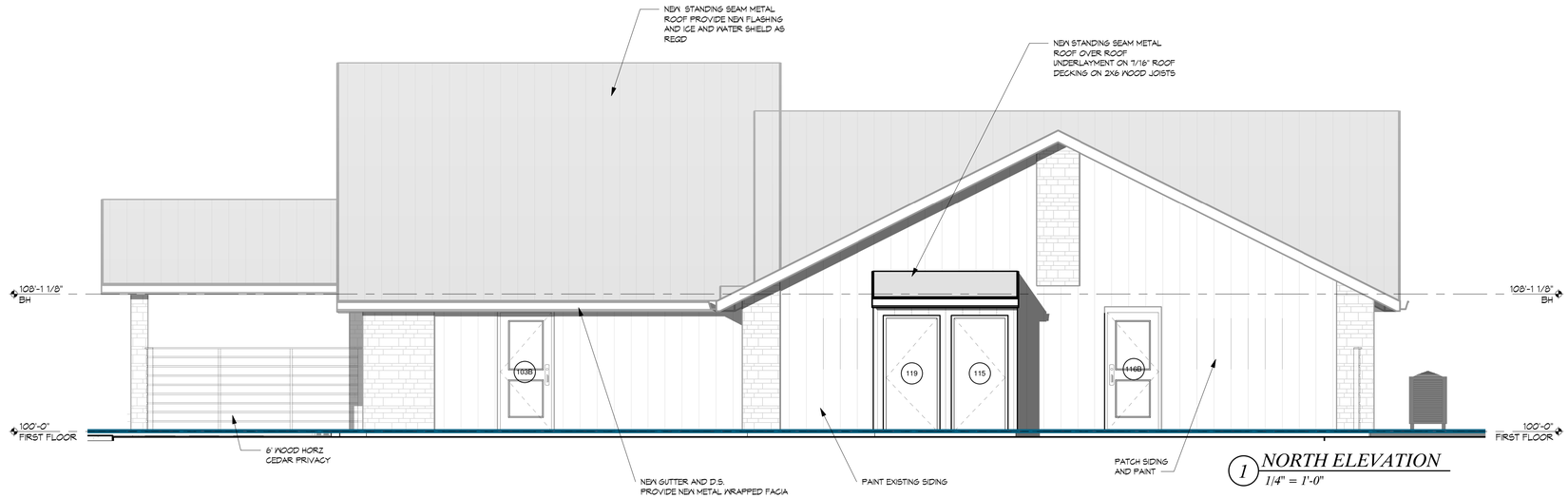
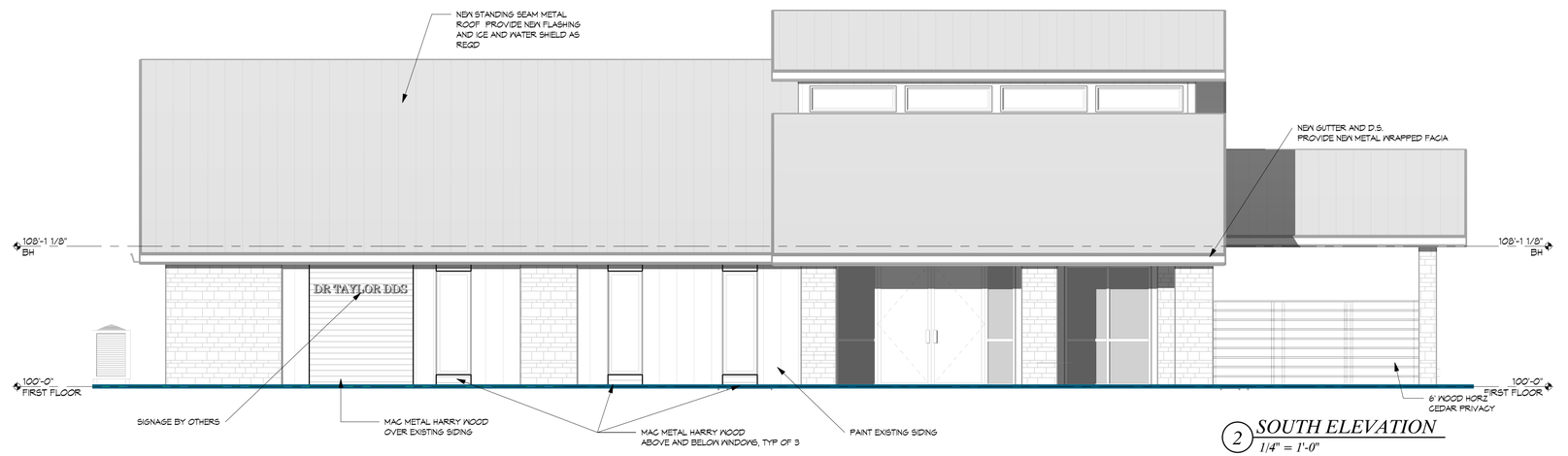
A1.1
RCP



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



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

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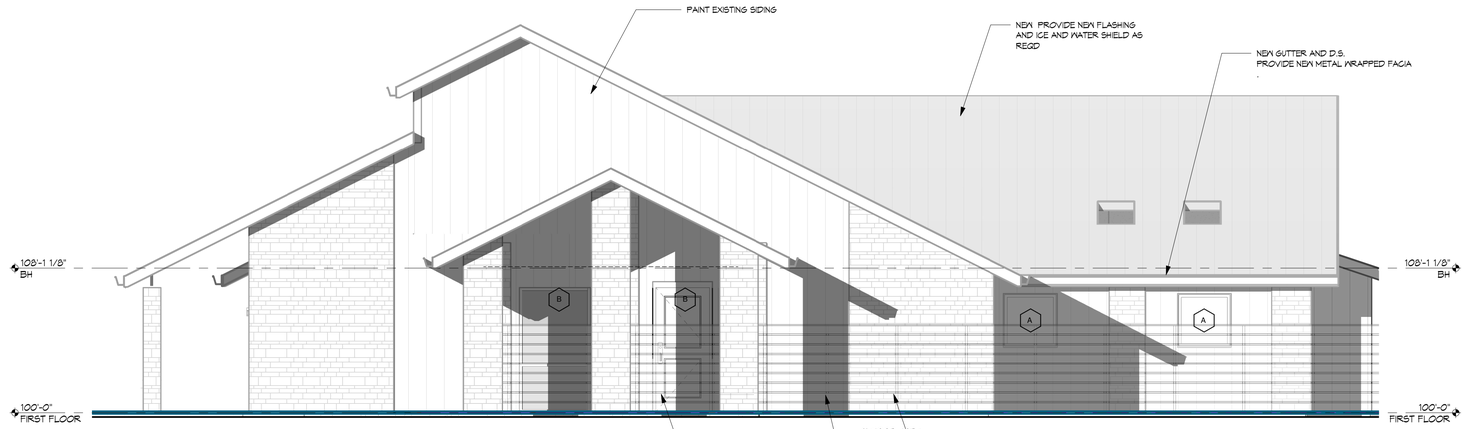
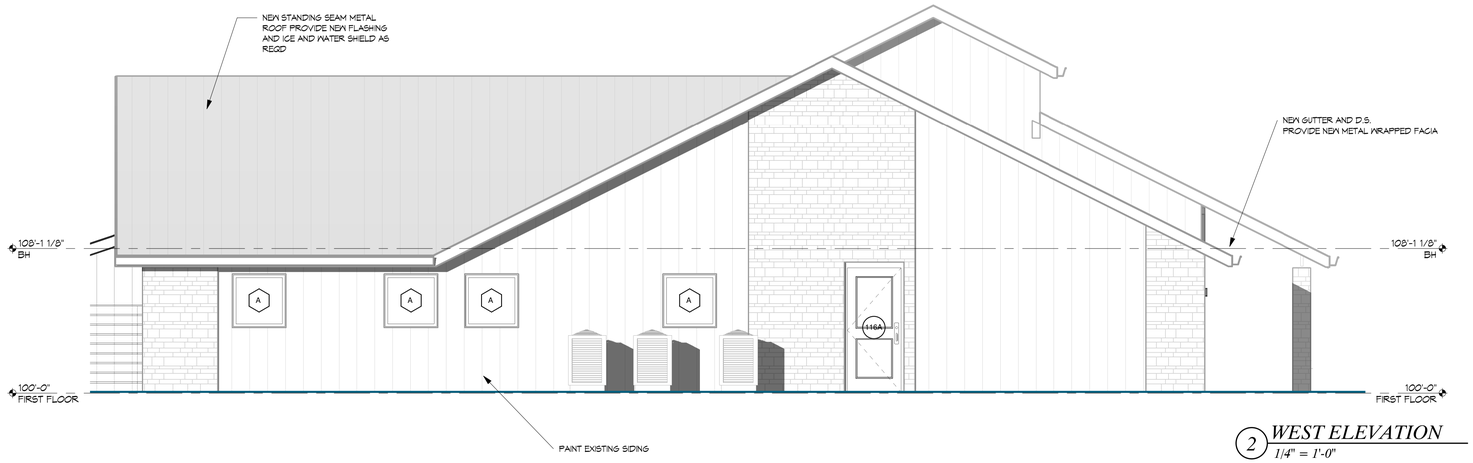
EXTERIOR ELEVATIONS



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



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

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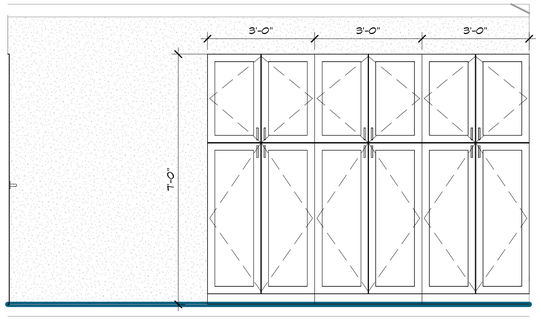
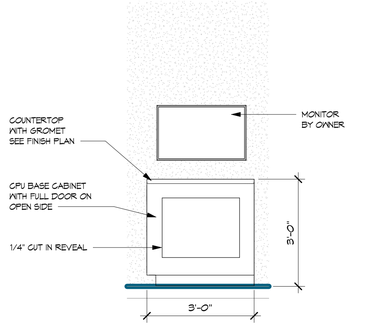
A2.1
EXTERIOR ELEVATIONS

MILLWORK GENERAL NOTES

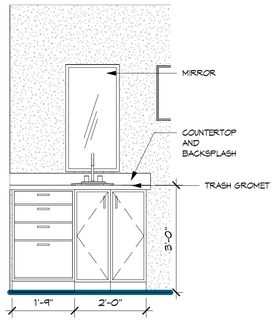
1. DISCLAIMER:
   CASEWORK SHOWN FOR DESIGN INTENT ONLY. VERIFY ALL FINAL CONSTRUCTION DETAILS INCLUDING BUT NOT LIMITED TO HINGES, PULLS, PANEL PROFILE, SLIDES, GUIDES, ACCESSORIES, FINISHES AND COUNTERTOP MATERIAL.



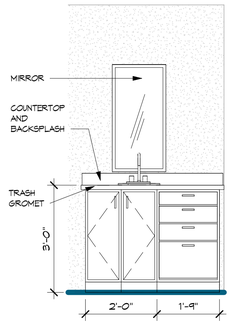
13 OFFICE 101
1/2" = 1'-0"



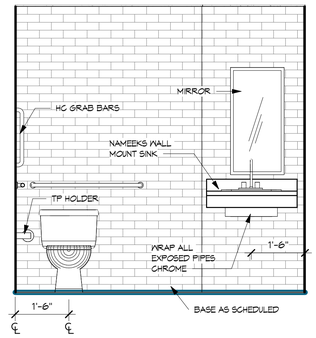
12 CPU CABINET
1/2" = 1'-0"
TYP ALL EXAM ROOMS



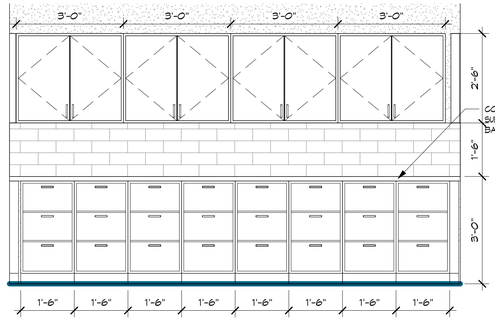
11 LH EXAM ELEVE
1/2" = 1'-0"
TYP



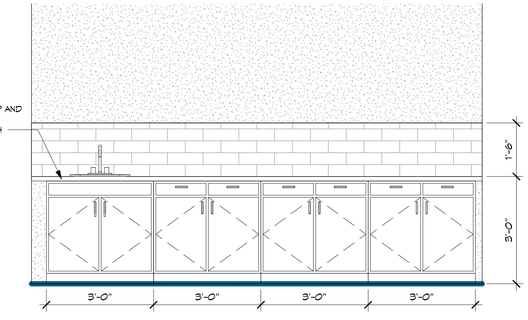
10 RH EXAM ELEVE
1/2" = 1'-0"
TYP



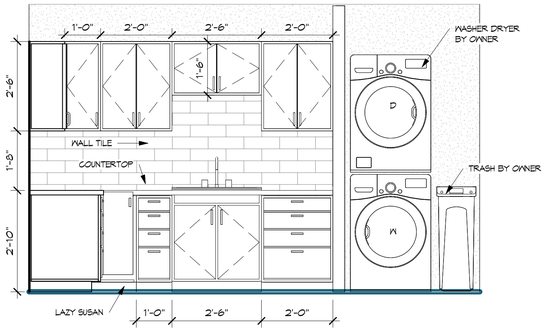
9 107 ADA
1/2" = 1'-0"



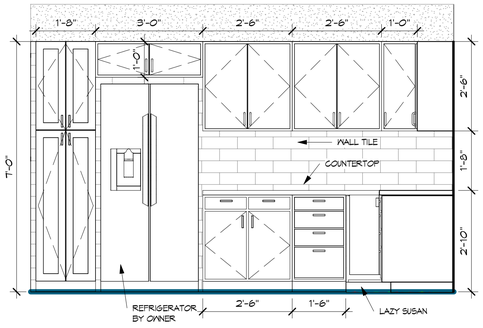
8 114 STER 2
1/2" = 1'-0"



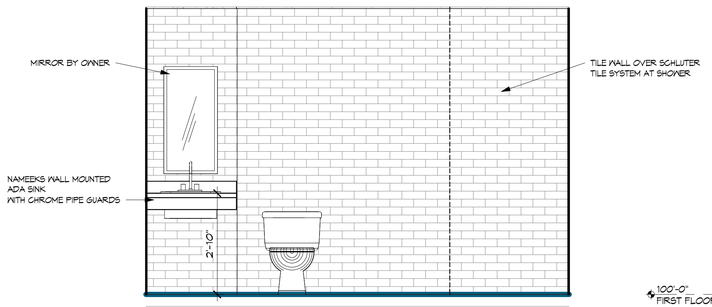
7 114 STER 1
1/2" = 1'-0"



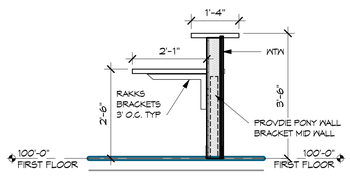
6 106 BREAK 2
1/2" = 1'-0"



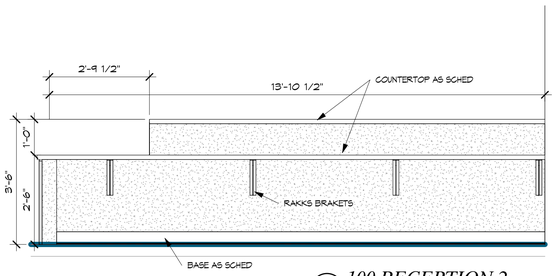
5 106 BREAK 1
1/2" = 1'-0"



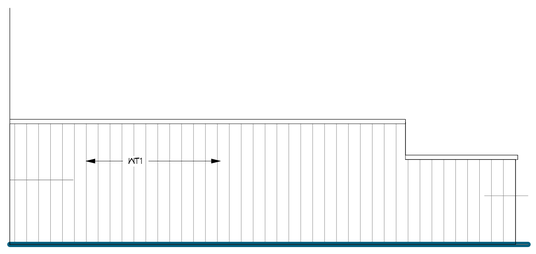
4 105 SHOWER
1/2" = 1'-0"



3 Section 1
1/2" = 1'-0"



2 100 RECEPTION 2
1/2" = 1'-0"



1 100 RECEPTION 1
1/2" = 1'-0"

4-4-25
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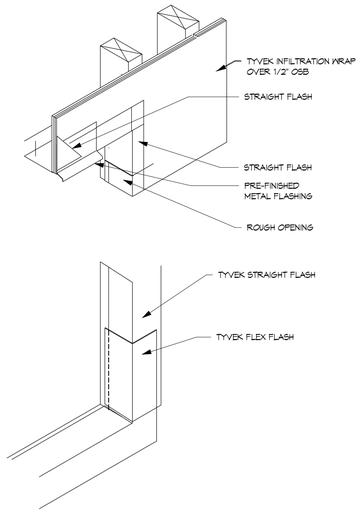
A4.0
MILLWORK ELEVATIONS

WATER INTRUSION NOTES:

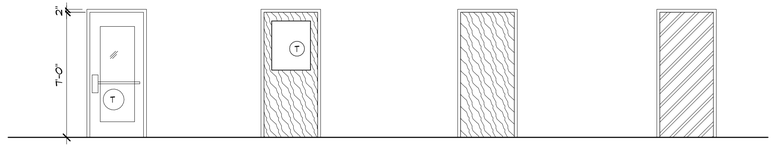
1. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF PREFABRICATED FLASHING FOR ALL CONNECTION CONDITIONS IN THE WEATHER RESISTANT BARRIER FOR REVIEW BY THE ARCHITECT. FAILURE TO OBTAIN AN APPROVED SET OF DETAIL SHOP DRAWINGS SHALL RELIEVE THE ARCHITECT OF ANY AND ALL LIABILITY REGARDING WEATHER RESISTANT BARRIER FLASHING AND CONDITIONS.
2. IT IS THE INTENT OF THESE DRAWINGS TO ILLUSTRATE THE MINIMUM REQUIREMENTS. MORE STRINGENT INSTRUCTIONS REQUIRED BY MANUFACTURERS, SUPPLIERS, OR INSTALLERS TO MAINTAIN GUARANTEES OR WARRANTEES SHALL BE COMPLETELY FOLLOWED.
3. WEATHER RESISTANT BARRIER SHALL BE INSTALLED PER MANUFACTURERS INSTALLATION INSTRUCTIONS AND ALL APPLICABLE CODES.
4. ALL WINDOWS AND DOORS SHALL BE PREMANUFACTURED ALUM FRAMES WITH GLAZING. ALL INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS OF THE MANUFACTURER SHALL BE COMPLETELY FOLLOWED.
5. SEALANTS USED SHALL BE COMPATIBLE WITH AND APPROVED BY THE MANUFACTURERS OF ALL MATERIALS AND PRODUCTS TO WHICH THESE SEALANTS ARE APPLIED. CONTRACTOR IS RESPONSIBLE FOR THE APPROPRIATE SELECTION OF THE PROPER TYPE OF SEALANT FOR THE INTENDED USE.



3 *WINDOW FLASHING DETAILS*
3" = 1'-0"

Door Schedule

MARK	DOOR WIDTH	DOOR HEIGHT	ELEVATION	DOOR FRAME TYPE	DOOR DOOR TYPE	HARDWARE SET	NOTES
100A	3'-0"	6'-8"	2	HM	SCN/GLASS	4	
100B	3'-0"	7'-0"	1	ALUM	ALUM/GLASS	1	
101	3'-0"	6'-8"	3	HM	SCN	2	
102	3'-8"	6'-8"	3	HM	SCN	4	
103A	3'-0"	6'-8"	2	HM	SCN/GLASS	4	
103B	3'-0"	7'-0"	1	ALUM	ALUM/GLASS	1	
104	3'-8"	6'-8"	3	HM	SCN	4	
105	3'-0"	6'-8"	3	HM	SCN	3	
106	3'-0"	6'-8"	2	HM	SCN/GLASS	4	
107	3'-0"	6'-8"	3	HM	SCN	3	
109	3'-8"	6'-8"	3	HM	SCN	4	
110	3'-8"	6'-8"	3	HM	SCN	4	
111	3'-8"	6'-8"	3	HM	SCN	4	
112	3'-8"	6'-8"	3	HM	SCN	4	
113	3'-0"	6'-8"	3	HM	SCN	4	
115	3'-0"	6'-8"	4	HM	IHM	5	
116A	3'-0"	7'-0"	1	ALUM	ALUM/GLASS	1	
116B	3'-0"	7'-0"	1	ALUM	ALUM/GLASS	1	
119	3'-0"	6'-8"	4	HM	IHM	5	



Door Type 1
ANODIZED ALUMINUM DOOR AND FRAME W/ TEMPERED INSULATED GLASS W/ A THERMAL BREAK

Door Type 2
STAIN GRADE SOLID CORE WOOD DOOR IN HOLLOW METAL FRAME:

Door Type 3
STAIN GRADE SOLID CORE WOOD DOOR IN HOLLOW METAL FRAME:

Door Type 4
INSULATED HOLLOW METAL DOOR IN HOLLOW METAL FRAME PAITNED

LOCK SETS:

SET 1 - KEYED, PUSH PAD EXIT DEVICE, CLOSER, HC ALUM. THRESHOLD

SET 2 - KEYED

SET 3 - PRIVACY

SET 4 - PASSAGE

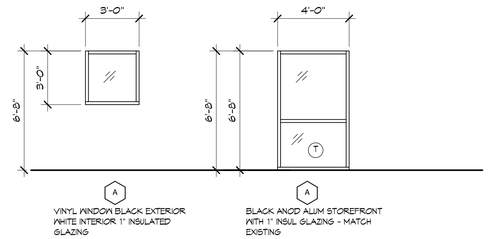
SET 5 - KEYED, DEADBOLT

NOTES:

1. ALL HARDWARE TO BE LEVER ACTION W/ A MATTE BLACK FINISH -
2. ALL CLOSERS TO MEET ADA REQUIREMENTS
3. ALL ALUM. DOOR FRAMES ARE TO BE ANODIZED ALUM. FINISH

NOTE: COMPLETE ALL HARDWARE WITH NECESSARY HARDWARE INCLUDING HINGES AND DOOR STOPS

1 *DOOR ELEVATIONS*
1/4" = 1'-0"



2 *WINDOW ELEVATIONS*
1/4" = 1'-0"

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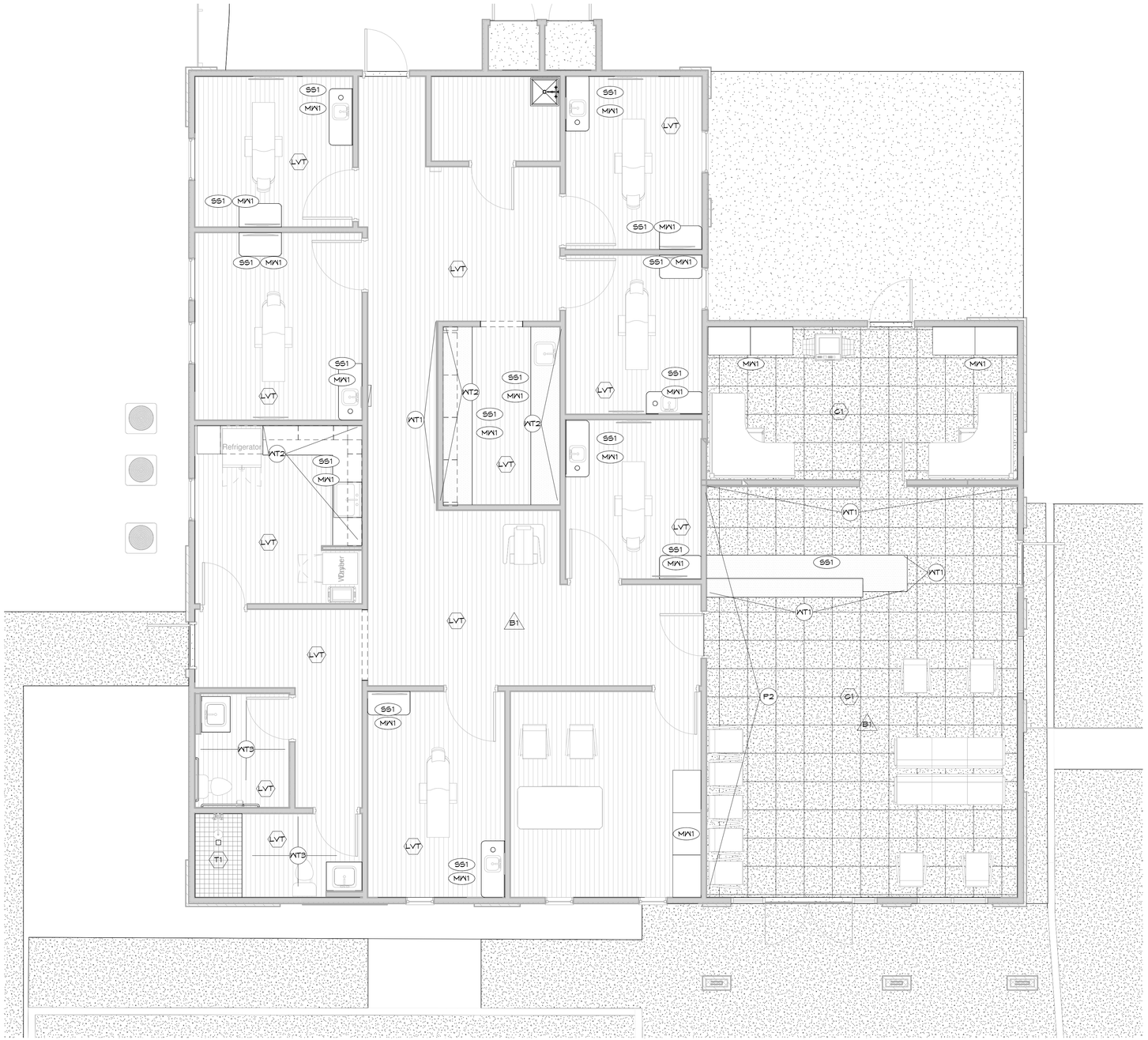
SCHEDULES



1 *FIRST FLOOR PLAN*
1/4" = 1'-0"

FINISH NOTES:

HEXAGON: INDICATES FLOOR FINISH MATERIAL

CIRCLE: INDICATES WALL/ CEILING FINISH MATERIAL

TRIANGLE: INDICATES WALL BASE MATERIAL

ELLIPSE: INDICATES WOOD VENEER, SOLID SURFACE, OR PLASTIC LAMINATE FINISH

WALL FINISH NOTES:

1. ALL PAINTED SURFACES SHALL HAVE A SMOOTH FINISH, USE 555 PRIMER WITH EGGSHELL PAINT UNLESS OTHERWISE NOTED. METAL (NON-ALUMINUM) SURFACES SHALL RECEIVE ALKYD ENAMEL SEMI-GLOSS FINISH.
2. CONTRACTOR SHALL SUPPLY ALL NECESSARY FINISHES AS REQUIRED BY THE PROJECT. CONTRACTOR IS RESPONSIBLE FOR QUANTITY, TAKEOFF, AND LABOR TO APPLY FINISHES. CONTRACTOR IS ALSO RESPONSIBLE FOR THE SUPPLY AND APPLICATION OF ALL PAINT AND STAIN REQUIRED BY THE PROJECT.
3. PAINT HM DOOR FRAMES TO MATCH COLOR OF ADJACENT WALL. (BOTH SIDES OF FRAME COULD BE DIFFERENT COLORS
4. ALL AREAS TO RECEIVE P1 UNLESS OTHERWISE NOTED.
5. PAINT TO BE LOW VOC - NON TOXIC PAINT, COLOR MATCH AS REQUIRED.
6. SEE INTERIOR ELEVATIONS FOR MORE FINISH DETAILS.

PAINT:

- P1 — OC 17 WHITE DOVE
- P2 — GREEN - COLOR TBD

WALL TREATMENTS

- WT1 — FRASHI STRATA 22MM - MEDUM WALNUT
- WT2 — TRINITY TILE PACIFIC HEIGHTS - WHITE 4X12
- WT3 — GREEN SUBWAY TILE - TBD

MILLWORK FINISHES:

- MW1 — PAINT GRADE - COLOR P2

COUNTERTOP:

- SS1 — SANTA MARGARITA 2CM QUARTZ - CITY WHITE

FLOOR FINISH NOTES:

1. ALL PRODUCTS SHALL BE AS SPECIFIED, NO SUBSTITUTIONS WILL BE ALLOWED WITHOUT PRIOR APPROVAL BY OWNER AND ARCHITECT.
2. PROVIDE SMOOTH TRANSITION WHERE CHANGE IN FLOOR MATERIALS OCCURS
3. ALL AREAS TO RECEIVE B1 UNLESS OTHERWISE NOTED ON THE SCHEDULE

FLOOR FINISHES:

CARPET

- C1 — J AND J TECHNIQUE TB04 - 3676 SAND

LVT

- LVT — J AND J LVT INTO THE WOODS RECHARGE VB054 - 1175 SERENITY

TILE

- T1 — HONED MOSAIC - PENNY TILE

BASE

- B1 — JOHNSONITE - EXHIBIT TA5 COLONIAL GREY

4/4/25
Registered Architect
David Paul Burris
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DATE 4-4-25
JOB NO. 25002
REVISIONS

A6.0
FINISH SCHEDULES

PLUMBING SEISMIC NOTES

1 GAS, HIGH-HAZARD AND FIRE PROTECTION PIPING SHALL BE SIESMIC SUPPORTED PER THE SPECIFICATIONS. OTHER PIPING IN BOILER AND MECHANICAL EQUIPMENT ROOMS THAT IS GREATER THAN 1" AND PIPING 2-1/2" AND LARGER THAT IS SUSPENDED MORE THAN 12" FROM POINT OF CONNECTION TO STRUCTURE SHALL BE BRACED IN TWO DIRECTIONS (90° OPPOSING) USING ROD OF SAME LOAD CHARACTERISTICS AS PRIMARY SUSPENSION ROD.

2 PIPING IN EQUIPMENT ROOMS THAT IS LESS THAN 2-1/2" DIAMETER SHALL BE TRANSVERSELY BRACED AT MAXIMUM 30'-0" ON CENTER. PIPING 16" OR LESS IN DIAMETER SHALL BE TRANSVERSELY BRACED AT MAXIMUM 40'-0" ON CENTER AND LONGITUDINALLY AT 80'-0" ON CENTER. PIPING LARGER THAN 16" DIAMETER SHALL BE TRANSVERSELY BRACED AT MAXIMUM 30'-0" ON CENTER AND LONGITUDINALLY AT 60'-0" ON CENTER. A TRANSVERSE BRACE SHALL ALSO BE PROVIDED WITHIN 10'-0" OR 15 PIPE DIAMETERS OF EACH CHANGE OF DIRECTION.

FINAL DOCUMENTATION

PROVIDE A ONE YEAR WARRANTY FOR ALL SYSTEMS, MATERIAL AND LABOR INCLUDINGTRANSPORTATION AND TRAVEL TIME.

PROVIDE INSTRUCTION TO OWNER'S PERSONNEL FOR ALL SYSTEMS AND EQUIPMENT ON SITE. THIS INSTRUCTION SHALL BE FOR A MINIMUM OF TWO HOURS.

CONTRACTOR SHALL PROVIDE A BOOK AT FINAL INVOICE WITH ALL WARRANTIES, INSTRUCTION

ADA NOTES

LIGHT SWITCHES, ELECTRICAL OUTLETS, AND OTHER ENVIRONMENTAL CONTROLS SHALL HAVE OPERABLE PARTS TO THE CONTROLS NO HIGHER THAN 48" AND NO LOWER THAN 15", A.F.F.

PLUMBING GENERAL NOTES

1 NOTES APPLY TO ALL PLUMBING SHEETS UON.

2 COORDINATE PIPE ROUTING AWAY FROM ELECTRICAL PANELS. DO NOT INSTALL PIPING OVER ELECTRICAL PANELS.

3 EXACT LOCATION OF ALL EQUIPMENT AND PIPING SHALL BE COORDINATED WITH OTHER TRADES. CEILING MOUNTED SPRINKLER, LIGHTING AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL REQUIREMENTS.

4 ALL WORK SHALL CONFORM TO THAT 2012 INTERNATIONAL PLUMBING CODE W/LATEST STATE AMENDMENTS AND ALL APPLICABLE LOCAL CODES.

5 CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL WORK WITH THAT OF OTHER TRADES, HVAC, STRUCTURAL, ETC. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING DETAILS AND DIMENSIONS. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES, DOCUMENTS AND SERVICES RELATED TO THE INSTALLATION OF THE WORK.

6 PROVIDE ALL MATERIALS FOR A COMPLETE INSTALLATION, IN ALL RESPECTS READY FOR INTENDED USE, AND IN STRICT ACCORDANCE WITH STATE AND LOCAL CODES, REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION (AHJ), AND MANUFACTURER'S RECOMMENDATIONS. OBTAIN AND PAY FOR ALL PERMITS REQUIRED BY THIS WORK.

7 REFER TO SPECIFICATIONS AND PLANS FOR ACCEPTABLE MANUFACTURERS AND MODELS OF PLUMBING FIXTURES AND EQUIPMENT, AND PROPER APPLICATIONS OF SAME.

9 CUTTING OF ROOF AND FLASHING OF PIPE CURBS, SANITARY VENT THROUGH ROOF, ETC., SHALL BE COORDINATED WITH AND PERFORMED BY THE ROOFING CONTRACTOR, AT THIS CONTRACTOR'S EXPENSE, TO MAINTAIN THE ROOF WARRANTY.

10 CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID AND FIELD VERIFY EXISTING CONDITIONS TO ENSURE THAT THE WORK REPRESENTED ON THESE DRAWINGS AND IN THESE SPECIFICATIONS CAN BE INSTALLED AS INDICATED. CONTRACTOR SHALL TAKE ALL INTERFERENCE INTO CONSIDERATION. PROVIDE ALL NECESSARY OFFSETS TO SUIT FIELD CONDITIONS AS REQUIRED.

11 CONTRACTOR SHALL COORDINATE ALL SANITARY SEWER, STORM DRAIN, FIRE AND DOMESTIC WATER LINES AND NATURAL GAS LINES WITH CIVIL DRAWINGS. SEE CIVIL DRAWINGS FOR CONTINUATION OF ALL UTILITY LINES.

12 DO NOT SCALE FLOOR PLANS FOR EXACT HORIZONTAL LOCATION OF PIPE ROUTING.

13 INFORMATION AND COMPONENTS SHOWN ON RISER DIAGRAMS OR DETAILS, BUT NOT SHOWN ON PLANS, AND VICE-VERSA, SHALL BE PROVIDED AS IF EXPRESSLY REQUIRED BY BOTH.

14 ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRIC RELATIONSHIPS OF EQUIPMENT AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, FITTING, OR COMPONENT. CONTRACTOR SHALL NOT SCALE DRAWINGS. EQUIPMENT SCHEDULES SHALL TAKE PRECEDENCE OVER CONFLICTING DRAWING INFORMATION. DRAWINGS SPECIFIC TO THIS DISCIPLINE DO NOT LIMIT THE RESPONSIBILITY OF WORK REQUIRED BY CONTRACT DOCUMENTS. REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, AND OTHER DRAWINGS FOR COMPLETE INFORMATION.

15 PROVIDE FIRE SEAL WHERE PIPES PENETRATE FIRE RATED ASSEMBLY.

16 DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW THE GENERAL NOTES AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY THE ARCHITECT OR OWNER'S CONSTRUCTION MANAGER OF ANY CONFLICTS OR DISCREPANCIES.

17 PLANS AND SPECIFICATIONS GOVERN WHERE THEY EXCEED CODE REQUIREMENTS.

18 PROVIDE TO THE ARCHITECT OR OWNER'S CONSTRUCTION MANAGER A COPY OF INSPECTION REPORTS AND APPROVAL CERTIFICATES FROM LOCAL AND STATE INSPECTIONS.

19 ALL WORK IS TO CONFORM TO THE LATEST EDITIONS OF THE AR. STATE PLUMBING CODE, AR. STATE GAS CODE, NFPA AND ALL LOCAL ORDINANCES.

21 MAKE ALL UTILITY CONNECTIONS AND INSTALLATIONS IN FULL ACCORDANCE WITH ALL UTILITY REGULATIONS. PROVIDE ALL ADDITIONAL APPURTENANCES AS REQUIRED BY THE UTILITY COMPANY. THE COMPLETED INSTALLATION SHALL BE IN ACCORDANCE WITH ALL APPLICABLE INDUSTRY STANDARDS OF GOOD PRACTICE AND SAFETY. AND THE MANUFACTURER'S STRICTEST RECOMMENDATIONS FOR EQUIPMENT AND PRODUCT APPLICATION AND INSTALLATION.

22 ALL SEWER PIPING BELOW SLAB TO BE 2" DIAMETER MINIMUM.

23 NO STRUCTURAL MEMBERS MAY BE CUT OR MODIFIED WITHOUT THE WRITTEN PERMISSION OF THE STRUCTURAL ENGINEER.

25 PROVIDE CLEANOUTS IN ALL SANITARY, STORM DRAINAGE & OVERFLOW LINES, WHETHER SHOWN OR NOT, AT INTERVALS NOT TO EXCEED 50 FEET, AT EACH DIRECTION 45 DEGREES AND GREATER, AND ON ALL VERTICAL RISERS AT A HEIGHT OF 30" A.F.F. AT THE BASE OF EACH STACK.

26 INSULATE ALL CONDENSATE LINES INSIDE BUILDING AS PER INSULATION REQUIREMENTS FOR COLD WATER LINE, IN SPECIFICATIONS.

27 SLOPE ALL SANITARY AND STORM LINES ARE 1/4" PER FOOT FOR PIPES LESS THAN 3" IN DIAMETER, AND NOT LESS THAN 1/8" PER FOOT FOR PIPES 3" AND LARGER. VERIFY INVERTS WITH SITE DRAWINGS AND COORDINATE INSTALLATION TO ASSURE PROPER FLOW.

28 SLEEVE AND SEAL ALL PIPE PENETRATIONS THRU RATED WALLS AND FLOORS. PIPE SLEEVES THROUGH FLOORS SHALL TERMINATE A MINIMUM OF 2" ABOVE FINISHED FLOOR. PLASTIC PIPING SHALL NOT BE USED TO PENETRATE FIRE RATED CONSTRUCTION.

30 ALL VENTS THROUGH ROOF SHALL BE PROVIDE WITH 6# LEAD FLASHING OR ELASTOMERIC FLASHING SYSTEM TO MAINTAIN ROOF WARRANTY.

32 PROVIDE A CONSTRUCTION RECORD SET OF "AS-BUILT" DOCUMENTS TO THE ARCHITECT OR OWNER'S CONSTRUCTION MANAGER REFLECTING ANY VARIANCES OF INSTALLED PIPING LOCATIONS OR EQUIPMENT CONTRARY TO THE CONSTRUCTION DOCUMENTS.

34 INSTALL VTR'S, EXHAUST FANS, AND FLUES A MINIMUM 5'FROM PARAPET OR OUTSIDE WALL AND 10'-0" MINIMUM FROM EQUIPMENT WITH OUTSIDE AIR INTAKE. VALVES SHALL BE LINE SIZE UNLESS OTHERWISE NOTED.

35 CLEAN FAUCET AERATORS AND PIPE STRAINERS PRIOR TO TURNING BUILDING OVER TO THE OWNER.

37 PIPING IS SHOWN IN ITS GENERAL LOCATION (UNLESS DIMENSIONED). EXACT LOCATION SHALL BE DETERMINED BY JOB CONDITIONS. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THEIR WORK WITH THAT OF OTHER TRADES & ARRANGE PIPING TO CLEAR STRUCTURAL MEMBERS & DUCTWORK. IF THE PLUMBING CONTRACTOR INSTALLS HIS WORK PRIOR TO COORDINATING WITH ALL OTHER TRADES OR AS TO CAUSE ANY INTERFERENCE WITH WORK OF OTHER TRADES, THEY SHALL MAKE THE NECESSARY CHANGES TO THE WORK OR CORRECT THE CONDITION WITHOUT EXTRA CHARGE. CONTRACTOR SHALL VERIFY LOCATIONS OF SEWER, WATER, GAS & ANY OTHER UTILITY CONNECTIONS FROM APPROVED SITE PLANS PRIOR TO BID. REROUTING UTILITIES FROM THAT SHOWN ON PLANS AT CONTRACTORS RISK. THE PLUMBING CONTRACTOR TO FURNISH ALL REQUIRED MATERIAL TO PROVIDE FOR THE PROPER INSTALLATION OF ALL PLUMBING EQUIPMENT. ANY OF THE CONFLICTS OR DISCREPANCES REGARDING WHAT IS REQUIRED AS TO WHAT IS INDICATED ON PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO BID & PRIOR TO CONSTRUCTION SO THIS CAN BE CLARIFIED. IF DISCREPANCIES ARE NOT BROUGHT TO THE ARCHITECTS ATTENTION PRIOR TO FINAL BIDS, THEN THE PLUMBING CONTRACTOR ACCEPTS THE DRAWINGS AS SUFFICIENT & CHANGE ORDERS DURING CONSTRUCTION WILL NOT BE CONSIDERED. IF INSTALLED DRAWINGS TO BE REVISED OR FORMAL ENGINEER'S APPROVAL THE PLUMBING CONTRACTOR SHALL PAY ALL COSTS INVOLVED IN DRAWING REVISIONS AND/OR ENGINEER'S DOCUMENTED CORRESPONDENCE GENERATION.

38 PROVIDE PRESSURE REDUCERS IN WATER SUPPLY LINES TO KEEP PRESSURE BELOW 70 PSI AT ALL OUTLETS. MINIMUM PRESSURE ACCEPTABLE AT WATER OUTLETS IS 15 PSI AT DIRECT SUPPLY FLUSH VALVES, AND 8 PSI AT ALL OTHER OUTLETS.

39 PROVIDE WATER HAMMER ARRESTORS IN BRANCH WATER LINES AS REQUIRED BY MANUFACTURE, GOOD PRACTICE OR MINIMUM OF ONE ARRESTOR FOR EACH FIXTURE OR BANK OF FIXTURES. AIR CHAMBERS SHALL NOT BE USED.

40 PROVIDE STOP VALVES AT EVERY FIXTURE ON BOTH HOT AND COLD WATER SUPPLY LINES. VALVES, ESCUTCHEONS, FITTINGS, ETC. SHALL BE CHROMIUM PLATED WHERE PIPING IS EXPOSED.

41 EACH FIXTURE OR GROUP OF FIXTURES SHALL BE PROVIDED WITH A SHUT OFF VALVE IN THE CEILING SPACE. PROVIDE AN ACCESS PANEL IN SOLID CEILINGS.

ABBREVIATIONS

Ø	ROUND	ID	INDIRECT
A	AIR	IET	INLINE EXPANSION TANK
AB	ABOVE BASE	INL	INLET
ABV	ABOVE	INSUL	INSULATION
AC	AIR CONDITIONING	INT	INTERIOR
ACOUS	ACOUSTICAL	INV	INVERT
AD	AREA DRAIN	INWG	INCHES WATER GAUGE
ADD	ADDENDUM	JOIST SPC	JOIST SPACE
ADDL	ADDITIONAL	JT	JOINT
AFF	ABOVE FINISHED FLOOR	LAB	LABORATORY
AG	ABOVE GROUND	LB	POUND
ALT	ALTERNATE	LB/HR	POUNDS PER HOUR
AP	ACCESS PANEL	LAT	LEAVING AIR TEMPERATURE
APPROX	APPROXIMATE	LF	LINEAL FOOT
ARCH	ARCHITECT/ARCHITECTURAL	LOC	LOCATION
AV	ACID RESISTANT VENT	LP	LOW PRESSURE
AW	ACID RESISTANT WASTE	LPG	LIQUEFIED PETROLEUM GAS
AUTO	AUTOMATIC	LR	LIQUID REFRIGERANT
BFF	BELOW FINISHED FLOOR	LS	LAWN SPRINKLER
BLDG	BUILDING	LVR	LOUVER
BLW	BELOW	LWT	LEAVING WATER TEMPERATURE
BM	BEAM	M/A	MIXED AIR
BO	BY OTHER	MAN	MANUAL
BOT	BOTTOM	MATL	MATERIAL
BSMT	BASEMENT	MAV	MANUAL AIR VENT
BTU	BRITISH THERMAL UNITS	MAX	MAXIMUM
BTUH	BRITISH THERMAL UNITS PER HOUR	MBD	MOTORIZED BYPASS DAMPER
BTWN	BETWEEN	MBH	ONE THOUSAND BTU PER HOUR
CAP	CAPACITY	MCF	ONE THOUSAND CUBIC FEET
CB	CATCH BASIN	MCW	MAKE-UP COLD WATER
CCW	COUNTER CLOCKWISE	MD	MOTORIZED DAMPER
CFCV	CONSTANT FLOW CONTROL VALVE	MECH	MECHANICAL
CFM	CUBIC FEET PER MINUTE	MFR	MANUFACTURER
CHW	CIRCULATING HOT WATER	MH	MANHOLE
CI	CAST IRON	MIN	MINIMUM
CLG	CEILING	MISC	MISCELLANEOUS
CLG	COOLING	MTR	MOTOR
CO	CLEAN OUT	MU/A	MAKE-UP/AIR
COL	COLUMN	NC	NOISE CRITERIA
COMB	COMBINATION	NC	NORMALLY CLOSED
CONC	CONCRETE	NIC	NOT IN CONTRACT
COND	CONDENSATE	NO	NUMBER
CONF	CONFERENCE	NO	NORMALLY OPEN
CONN	CONNECT	NOM	NOMINAL
CONST	CONSTRUCTION	NTS	NOT TO SCALE
CONT	CONTINUE/CONTINUATION	O	OXYGEN
CONTR	CONTRACT/CONTRACTOR	O/A	OUTSIDE AIR
COP	CLEANOUT PLUG	OC	ON CENTER
COORD	COORDINATE	OF	OVERFLOW
COTG	CLEANOUT TO GRADE	OPNG	OPENING
CTR	CENTER	ORD	OVERFLOW ROOF DRAIN
CUFT	CUBIC FEET	PD	PRESSURE DROP
CV	CHECK VALVE	PIV	POST INDICATOR VALVE
CW	COLD WATER	PLBG	PLUMBING
CW	CLOCKWISE	PR	PAIR
D	DEGREE	PREL	PRELIMINARY
DB	DRY BULB	PRESS	PRESSURE
DCOTG	DOUBLE CLEANOUT TO GRADE	PRIM	PRIMARY
DET	DETAIL	PRV	PRESSURE REDUCING VALVE
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIAG	DIAGONAL	PSIG	POUNDS PER SQUARE INCH GAUGE
DISCH	DISCHARGE	PW	POTABLE WATER
DIV	DIVISION	PWR	POWER
DI	DEIONIZED WATER	R	DUCT RISER
DMPR	DAMPER	R/A	RETURN AIR
DN	DOWN	RCP	RADIANT CEILING PANEL
DWG	DRAWING	RD	ROOF DRAIN
DW	DISTILLED WATER	REC	RECESSED
EA	EACH	RED	REDUCER
EAT	ENTERING AIR TEMPERATURE	REFR	REFRIGERATION
EL	ELBOW	RH	RELATIVE HUMIDITY
ELEC	ELECTRICAL	REQD	REQUIRED
ELEV	ELEVATION	REV	REVERSE
EP	EXPLOSION PROOF	RL/A	RELIEF AIR
EQ	EQUAL	RM	ROOM
EQUIP	EQUIPMENT	RPM	REVOLUTIONS PER MINUTE
EWC	ELECTRIC WATER COOLER	RW	RAIN WATER
EWT	ENTERING WATER TEMPERATURE	SF	SQUARE FOOT
E/A	EXHAUST AIR	S/A	SUPPLY AIR
EAH	EXHAUST HOOD	SAN	SANITARY
EXIST	EXISTING	SCHED	SCHEDULE
EXP	EXPANSION	SECT	SECTION
EXPJT	EXPANSION JOINT	SF	SQUARE FOOT
EXT	EXTERIOR	SD	SMOKE DAMPER
F	DEGREES FAHRENHEIT	SHT	SHEET
FCO	FLOOR CLEAN OUT	SIM	SIMILAR
FD	FLOOR DRAIN	SLV	SLEEVE
FD	FIRE DAMPER	SM	SURFACE MOUNT
FDV	FIRE DEPARTMENT VALVE	SP	STANDPIPE
FET	FREESTANDING EXPANSION TANK	SP	STATIC PRESSURE
FHC	FIRE HOSE CABINET	SPEC	SPECIFICATION
FL	FLOOR	SPS	STATIC PRESSURE STATION
FLG	FLANGE	SQ	SQUARE
FO	FUEL OIL	SR	SUCTION REFRIGERANT
FOV	FUEL OIL VENT	SSD	SOIL SUBDRAIN
FOR	FUEL OIL RETURN	SS	STAINLESS STEEL
FOS	FUEL OIL SUPPLY	STD	STANDARD
FPM	FEET PER MINUTE	STM	STEAM
FRP	FIBERGLASS REINFORCED PIPE	STRUCT	STRUCTURAL
FS	FULL SIZE	SUCT	SUCTION
FS	FLOOR SINK	SUSP	SUSPENDED
FT	FOOT/FEET	T	THERMOSTAT
FTG	FOOTING	TCP	TEMPERATURE CONTROL PANEL
FTR	FIN TUBE RADIATION	TD	TEMPERATURE DROP
FUT	FUTURE	TDR	TRENCH DRAIN
GA	GAGE/GAUGE	TEFC	TOTALLY ENCLOSED FAN COOLED
GAL	GALLON	TEMP	TEMPERATURE
GALV	GALVANIZED	TYP	TYPICAL
GC	GENERAL CONTRACTOR	UON	UNLESS OTHERWISE NOTED
GEN	GENERATOR	UG	UNDERGROUND
GENL	GENERAL	VAC	VACUUM
GPH	GALLONS PER MINUTE	V	VENT
GR	GRADE	VAV	VARIABLE AIR VOLUME
GW	GREASE WASTE	VENT	VENTILATION
HB	HOSE BIB	VOL	VOLUME
HD	HEAD	VTR	VENT THROUGH ROOF
HORZ	HORIZONTAL	W	WASTE
HP	HORSE POWER	WAGD	WASTE ANISTHETIC GAS DISPOSAL
HP	HIGH PRESSURE	WB	WET BULB
HTG	HEATING	WCO	WALL CLEAN OUT
HTR	HEATER	WH	WALL HYDRANT
HW	HOT WATER	YCO	YARD CLEANOUT
HYD	HYDRANT	2YCO	2-WAY YARD CLEANOUT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	GI	GREASE INTERCEPTOR
ACC	AIR COOLED CONDENSER	GRV	GRAVITY ROOF VENTILATOR
AFMS	AIR FLOW MEASURING STATION	H	HUMIDIFIER
AHU	AIR HANDLING UNIT	HWP	HEATING WATER PUMP
AS	AIR SEPARATOR	HX	HEAT EXCHANGER
B	BOILER	HPU	HEAT PUMP UNIT
CF	CABINET FAN	HRU	HEAT RECOVERY UNIT
CH	CHILLER	ILC	INLINE CENTRIFUGAL
CRU	CONDENSATE RETURN UNIT	PF	PROPELLER FAN
CT	COOLING TOWER	PRV	POWER ROOF VENTILATOR
CU	AIR COOLING CONDENSING UNIT	PWF	POWER WALL FAN
CUH	CABINET UNIT HEATER	RE	RETURN/EXHAUST FAN
CWP	CONDENSER WATER PUMP	RTU	ROOFTOP UNIT
CHWP	CHILLED WATER PUMP	SA	SHOCK ABSORBER
DBP	DOMESTIC WATER BOOSTER PUMP	SAT	SOUND ATTENUATOR
DC	DUCT MOUNTED COIL	SEP	SEWAGE EJECTOR PUMP
DCP	DOMESTIC WATER CIRCULATING PUMP	SF	SUPPLY FAN
EF	EXHAUST FAN	SP	SUMP PUMP
EDC	ELECTRIC DUCT COIL	UH	UNIT HEATER
ET	EXPANSION TANK	UV	UNIT VENTILATOR
EWH	ELECTRIC WATER HEATER	WFMS	WATER FLOW MEASURING STATION
FCU	FAN COIL UNIT	WH	WATER HEATER

PLUMBING AND PIPING SYMBOLS

2" — PIPE SIZE TAG (DIAMETER)

ABOVE GROUND PIPING

0" / 12" SLOPE — PIPE SLOPE TAG

BELOW GROUND PIPING

INVERT: -9' - 1" — PIPE INVERT ELEVATION TAG

(E) — EXISTING PIPE TAG

PIPING BEING DEMOLISHED

CHWR — CHILLED WATER RETURN

CHWS — CHILLED WATER SUPPLY

CD — CONDENSATE DRAINAGE

CWR — CONDENSER WATER RETURN

CWS — CONDENSER WATER SUPPLY

HWR — HEATING WATER RETURN

HWS — HEATING WATER SUPPLY

G — NATURAL GAS

PG — PROPANE GAS

REF-L — REFRIGERANT-LIQUID

REF-S — REFRIGERANT-SUCTION

REF-HG — REFRIGERANT-HOT GAS

STM — STEAM

CDR — CONDENSATE RETURN

CWV — COMBINATION WASTE & VENT

CA — COMPRESSED AIR

CW — DOMESTIC COLD WATER

H-CW — HARD COLD WATER

S-CW — SOFT COLD WATER

F-CW — FILTERED COLD WATER

RO — REVERSE OSMOSIS WATER

HW — HOT WATER

HW 140° — HOT WATER 140°

HW-R — HOT WATER RECIRCULATION

HW-R 140° — HOT WATER RECIRCULATION 140°

GV — GREASE VENT

GW — GREASE WASTE

DA — DENTAL AIR

OV — OIL VENT

OW — OIL WASTE

PD — PUMP DISCHARGE

V — SANITARY VENT

SS — SANITARY SEWER

F-DEW — FILTERED DENTAL EQUIPMENT WATER

N2O — NITRUOS OXIDE

O2 — OXYGEN

VL — VACUUM LINE

PIPE DROP
PIPE RISE
PIPE TEE
CAP

4" 4" 2" 4"
PLUG
REDUCING 45 DEGREE TEE
45 DEGREE TEE

PIPE ACCESSORY TAGS

2" DOM. WM — DOMESTIC WATER METER
2" BALANCING — BALANCING VALVE
2" SHUTOFF — 1/4 TURN BALL VALVE
2" CHECK — CHECK VALVE
2" TMV — 3-WAY MIXING VALVE
2" M-CNTRL — MOTORIZED CONTROL VALVE
2" 3-WAY CNTRL — 3 WAY MOTORIZED CONTROL VALVE
2" PRV — PRESSURE REDUCING VALVE
3/8" SOLENOID — REFRIGERANT SOLENOID VALVE
2" BUTTERFLY — BUTTERFLY VALVE

DRAIN TAGS

FLOOR DRAIN — 4" FD-1 — DRAIN SIZE, TYPE (SEE SCHEDULE)
FLOOR DRAIN — 4" FD-3P — "P" - INDICATES PRIMER CONNECTION
FLOOR SINK — 4" FS-4
HUB DRAIN — 4" FD-13 — 8 WFU — FIXTURE UNITS

4" AD-6 — AREA DRAIN
4" SD-29 — DECK DRAIN
4" SD-12 — FLOW CONTROL DRAIN
4" SD-15 — STORM DRAIN
ROOF AREA SERVED BY DRAIN — 6" SD-1 — 4000 SF
COMBINATION DRAINS

PLUMBING FIXTURE TAGS TYPE (SEE SCHEDULE)
FIXTURE UNITS — LAV-1A — 1.5 CWFU 1.5 HWFU
LAV-1A — 1 WFU
WATER CLOSET -WALL HUNG - ADA — WC-1A — WC-1
PIPE ACCESORY TAG — U-1
4" WCO — 4" WCO

PIPE ACCESSORIES

2" DCV — DOUBLE-CHECK VALVE
2" RPZ — BACKFLOW PREVENTER
4" FCO — FLOOR CLEANOUT
4" COP — CLEANOUT PLUG
4" WCO — WALL CLEANOUT
4" YCO — YARD CLEANOUT
4" DCO — DOUBLE CLEANOUT TO GRADE

HYDRANTS

HYD-1 — NON-FREEZE WALL
HYD-2 — INTERIOR WALL
HYD-3 — NON-FREEZE ROOF
HYD-4 — ROOF HYDRANT

WALL OUTLET BOXES

OB-1 — ICE MAKER WALL OUTLET BOX
OB-2 — WASHING MACHINE OUTLET BOX
OB-3 — CONDENSATE WALL OUTLET BOX

WATER HAMMER ARRESTORS

A — 1-11 WSFU
B — 12-32 WSFU
C — 33-60 WSFU
D — 61-113 WSFU

WHA FIXTURE TAG: WHA FIXTURE SIZE

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GENERAL PLUMBING SYMBOLS

1 — REVISION NUMBER SHOWN ON PLANS
POINT WHERE NEW CONNECTS TO EXISTING
1 / P0.1 — NUMBER OF DETAIL ON SHEET / NUMBER OF SHEET WHERE DETAIL APPEARS
1 — KEYNOTE
CONTINUATION SYMBOL — PIPE
OFFICE 101 — ROOM NAME AND NUMBER
ITEM TO BE DEMOLISHED
AREA NOT IN CONTRACT

* NOTE *
ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

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P0.1
PLUMBING LEGEND AND NOTES

1 P1.0 SUPPLY PLAN
1/4" = 1'-0"

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P1.0
PLUMBING SUPPLY PLAN

1 P1.1 WASTE PLAN
1/4" = 1'-0"

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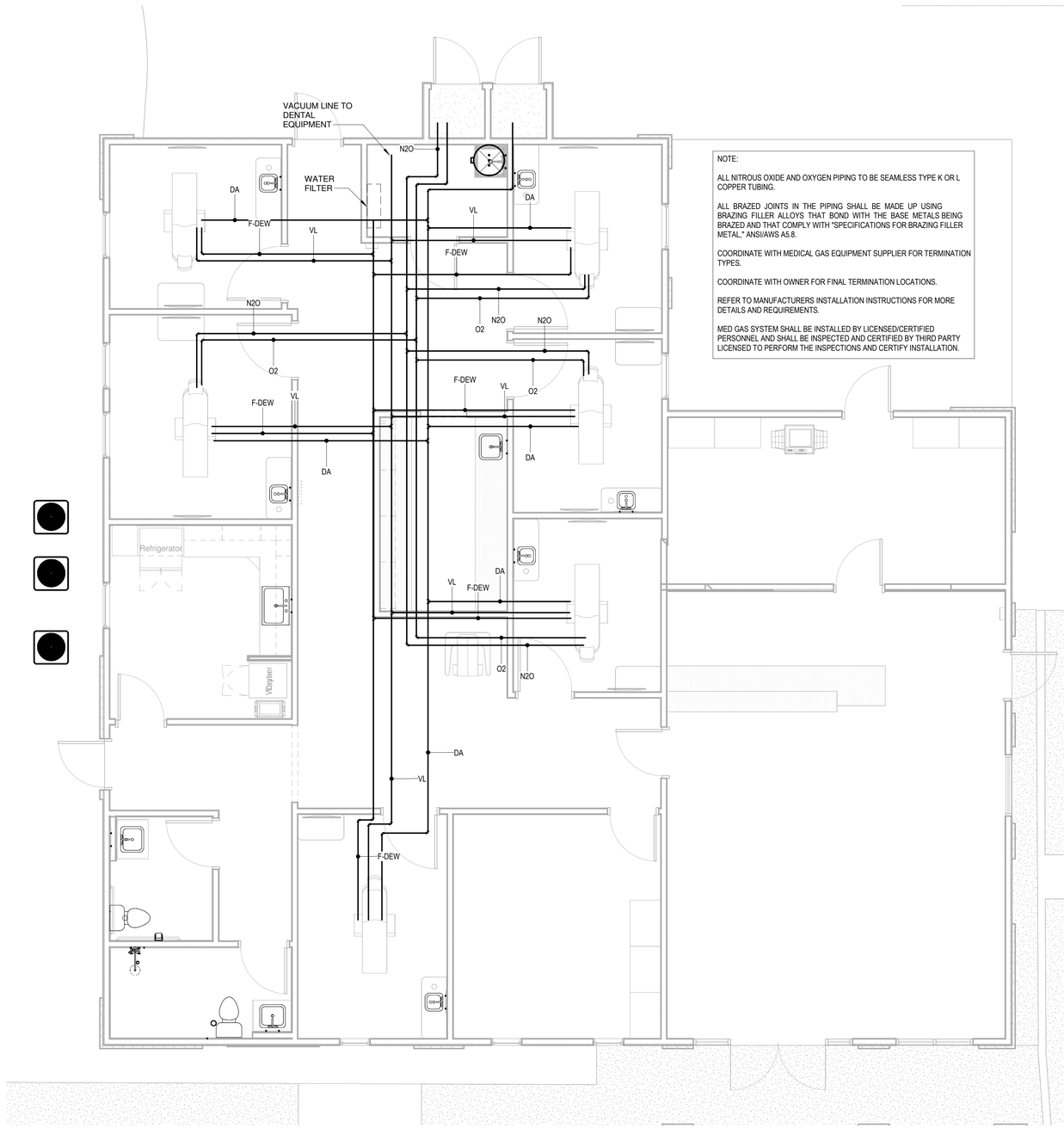
P1.1
PLUMBING WASTE PLAN

04/04/25

OMNI ENGINEERS
PO BOX 2106
LOWELL, AR 72745
479-696-7873



NOTE:

ALL NITROUS OXIDE AND OXYGEN PIPING TO BE SEAMLESS TYPE K OR L COPPER TUBING.

ALL BRAZED JOINTS IN THE PIPING SHALL BE MADE UP USING BRAZING FILLER ALLOYS THAT BOND WITH THE BASE METALS BEING BRAZED AND THAT COMPLY WITH "SPECIFICATIONS FOR BRAZING FILLER METAL," ANSI/AWS A5.8.

COORDINATE WITH MEDICAL GAS EQUIPMENT SUPPLIER FOR TERMINATION TYPES.

COORDINATE WITH OWNER FOR FINAL TERMINATION LOCATIONS.

REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS FOR MORE DETAILS AND REQUIREMENTS.

MED GAS SYSTEM SHALL BE INSTALLED BY LICENSED/CERTIFIED PERSONNEL AND SHALL BE INSPECTED AND CERTIFIED BY THIRD PARTY LICENSED TO PERFORM THE INSPECTIONS AND CERTIFY INSTALLATION.

1 / P1.2 DENTAL EQUIPMENT PLUMBING
1/4" = 1'-0"

DENTAL
1006 NW 11th St
BENTONVILLE, AR

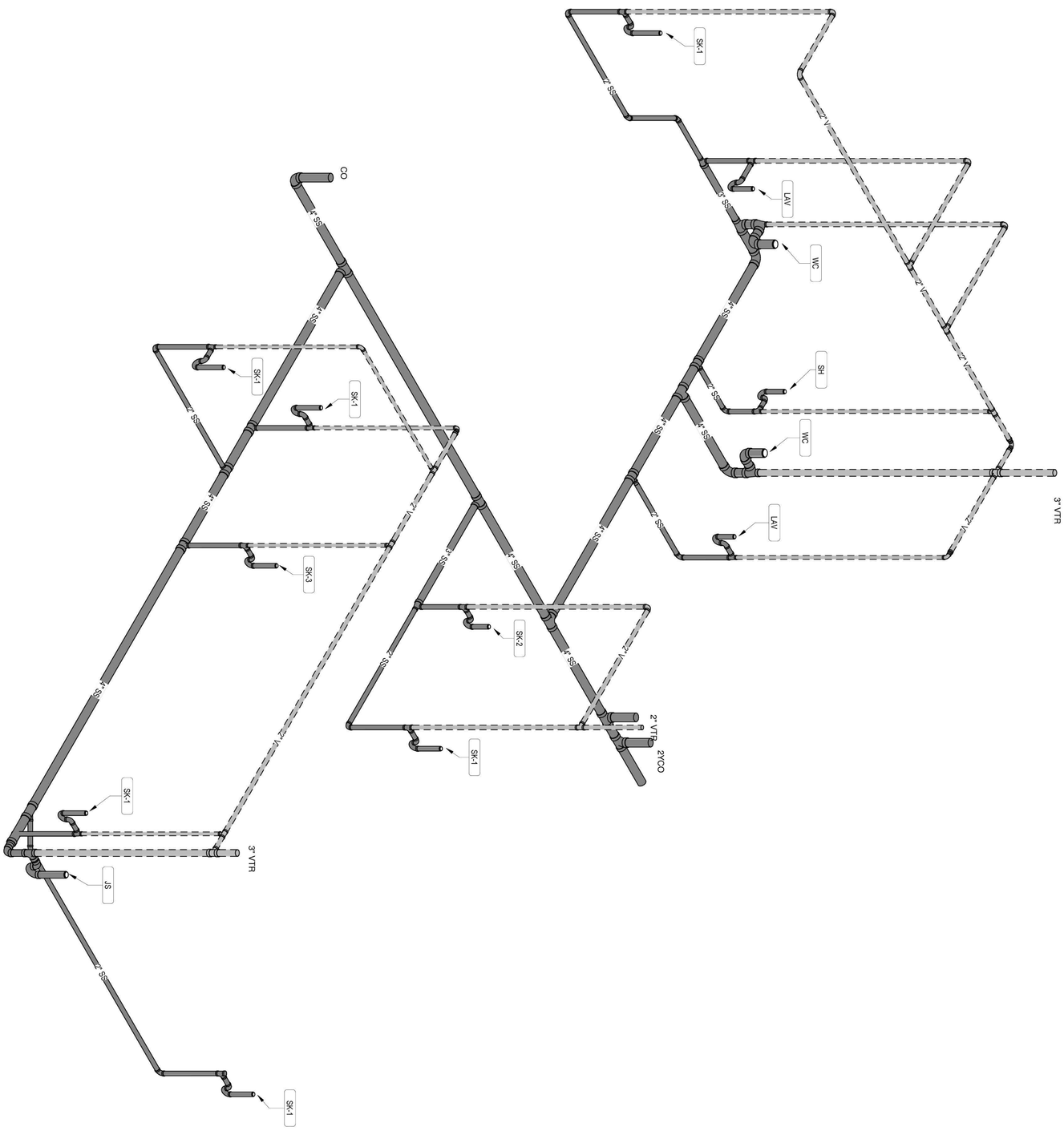
DATE 04/04/25

JOB NO. 25012

REVISIONS

P1.2
PLUMBING DENTAL EQUIPMENT PLAN

Burris Architecture
820 Tiger Blvd. Suite 4, Bentonville, Ar 72712
479-319-6045



ASSISTANT CERTIFICATE OF AUTHORIZATION
OMNI ENGINEERS
PO BOX 2082
LOWELL AR 72745
479-466-8823

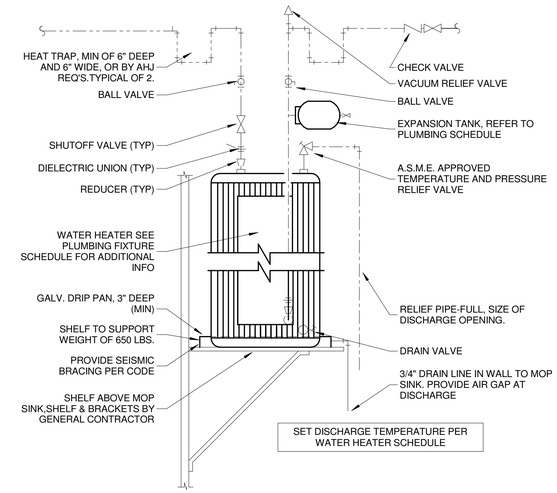
STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18019
JAMES M. BURRIS
04/04/25

Burris Architecture
820 Tiger Blvd, Suite 4, Bentonville, Ar 72712
479-319-6045

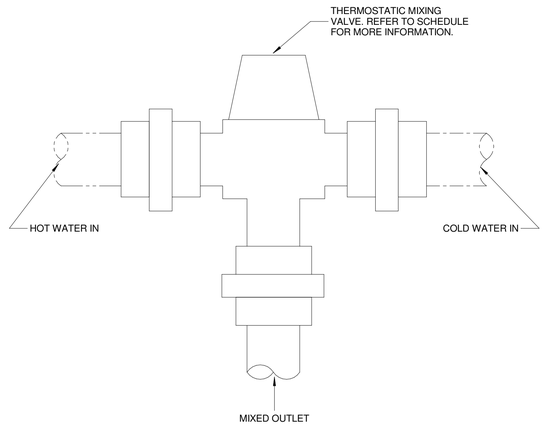
DENTAL
1006 NW 11th St
BENTONVILLE, AR

DATE 04/04/25
JOB NO. 25012
REVISIONS

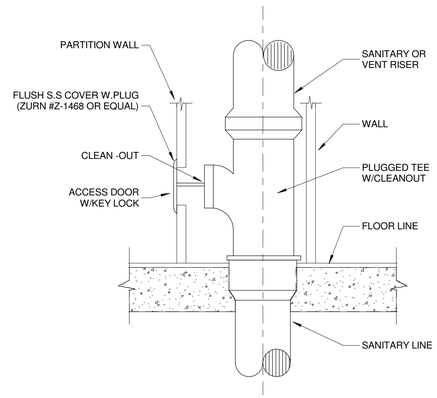
P1.3
WASTE RISER



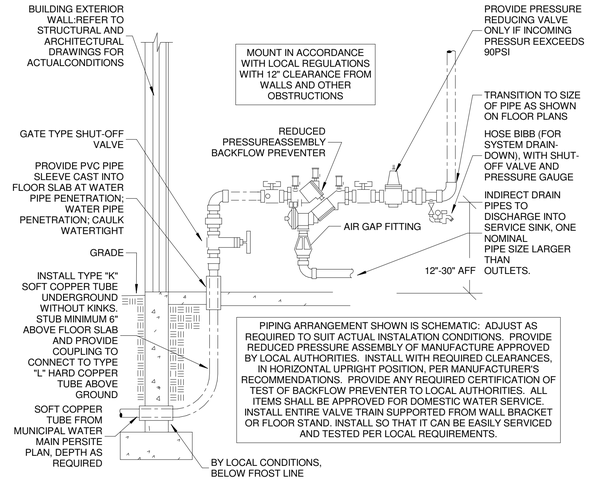
7 / P2.0 WATER HEATER- ELECTRIC - HEAVY DUTY SHELF
N.T.S.



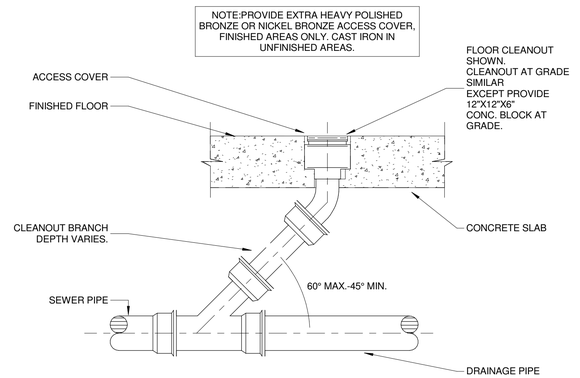
2 / P2.0 THERMOSTATIC MIXING VALVE
N.T.S.



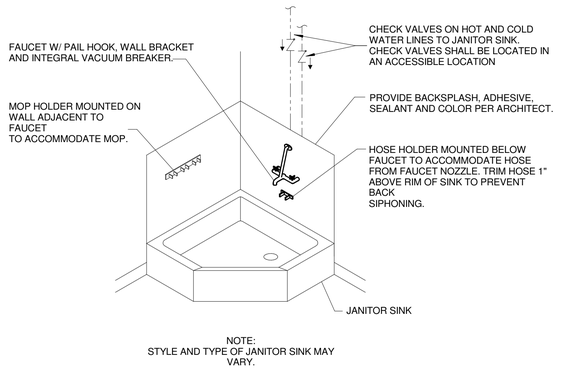
1 / P2.0 WALL AND STACK CLEANOUT
N.T.S.



6 / P2.0 DOMESTIC WATER SERVICE ENTRY
N.T.S.

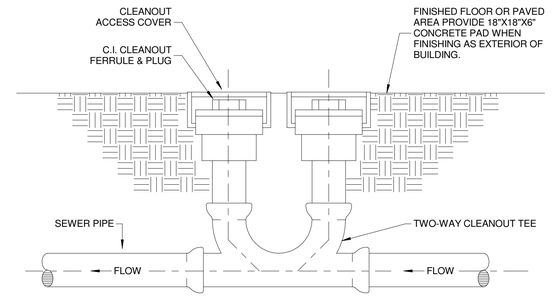


4 / P2.0 FLOOR CLEANOUT TO GRADE
N.T.S.



NOTE:
STYLE AND TYPE OF JANITOR SINK MAY VARY.

3 / P2.0 CORNER ANGLED JANITOR SINK
N.T.S.



5 / P2.0 DOUBLE YARD CLEANOUT TO GRADE
NOT TO SCALE:

CERTIFICATE OF AUTHORIZATION OMNI ENGINEERS No. 2748 ARKANSAS - ENGINEER

STATE OF ARKANSAS REGISTERED PROFESSIONAL ENGINEER No. 18039 CALEB MELTON
04/04/25

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P2.0
PLUMBING SCHEDULE AND DETAILS

PLUMBING SPECIFICATIONS

PLUMBING SPECIFICATIONS

DIVISION 15

15A: GENERAL

1.1 GENERAL REQUIREMENTS

·REQUIREMENTS UNDER DIVISION ONE AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS SHALL BE A PART OF THIS SECTION. THE CONTRACTOR SHALL BECOME THOROUGHLY ACQUAINTED WITH ITS CONTENTS AS TO REQUIREMENTS THAT AFFECT THIS DIVISION OR SECTION. THE WORK REQUIRED UNDER THIS SECTION INCLUDES MATERIAL, EQUIPMENT, APPLIANCES, TRANSPORTATION, SERVICES, AND LABOR REQUIRED TO COMPLETE THE ENTIRE SYSTEM AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

·THE SPECIFICATIONS AND DRAWINGS FOR THE PROJECTS ARE COMPLEMENTARY, AND PORTIONS OF THE WORK DESCRIBED IN ONE, SHALL BE PROVIDED AS IF DESCRIBED IN BOTH.IN THE EVENT OF DISCREPANCIES, NOTIFY THE ENGINEER AND/OR OWNER AND REQUEST CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK INVOLVED.

1.2 INSPECTION OF SITE

·PRIOR TO SUBMITTING BID, VISIT THE SITE OF THE PROPOSED WORK AND BECOME FULLY INFORMED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. FAILURE TO DO SO WILL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

1.3 MATERIAL AND WORKMANSHIP

·PROVIDE NEW MATERIAL, EQUIPMENT, AND APPARATUS UNDER THIS CONTRACT UNLESS OTHERWISE STATED HEREIN, OF BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE, AND FREE FROM ANY DEFECTS. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT NECESSARILY INTENDED TO DESIGNATE THE REQUIRED TRIM, WRITTEN DESCRIPTIONS OF THE TRIM GOVERN MODEL NUMBERS.

·WORK PERFORMED UNDER THIS CONTRACT SHALL PROVIDE A NEAT AND "WORKMANLIKE" APPEARANCE WHEN COMPLETED, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER. WORKMANSHIP SHALL BE THE FINEST POSSIBLE BY EXPERIENCED MECHANICS. INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES AND LAWS.

·THE COMPLETE INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY, NOISE LEVEL, ETC. ABNORMAL NOISE CAUSED BY RATTLING EQUIPMENT, PIPING, AND SQUEAKS IN ROTATING COMPONENTS WILL NOT BE ACCEPTABLE.IN GENERAL, MATERIALS AND EQUIPMENT SHALL BE OF COMMERCIAL SPECIFICATION GRADE IN QUALITY. LIGHT DUTY AND RESIDENTIAL TYPE EQUIPMENT WILL NOT BE ACCEPTED.

·REMOVE FROM THE PREMISES WASTE MATERIAL PRESENT AS A RESULT OF WORK, INCLUDING CARTONS, CRATING, PAPER, STICKERS, AND/OR EXCAVATION MATERIAL NOT USED IN BACKFILLING, ETC. CLEAN EQUIPMENT INSTALLED UNDER THIS CONTRACT TO PRESENT A NEAT AND CLEAN INSTALLATION AT THE TERMINATION OF THE WORK.

·REPAIR OR REPLACE PUBLIC AND PRIVATE PROPERTY DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT TO THE SATISFACTION OF AUTHORITIES AND REGULATIONS HAVING JURISDICTION.

1.4 COORDINATION

·COORDINATE WORK WITH THAT OF OTHER TRADES SO THAT THE VARIOUS COMPONENTS OF THE SYSTEMS WILL BE INSTALLED AT THE PROPER TIME, WILL FIT THE AVAILABLE SPACE, AND WILL ALLOW PROPER SERVICE ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER.

·UNLESS OTHERWISE INDICATED, THE GENERAL CONTRACTOR WILL PROVIDE CHASES AND OPENINGS IN BUILDING CONSTRUCTION REQUIRED FOR INSTALLATION OF THE SYSTEMS SPECIFIED HEREIN. THE CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH INFORMATION WHERE CHASES AND OPENINGS ARE REQUIRED, KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND EXECUTE WORK IN A MANNER AS TO NOT INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.

·FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALE DIMENSIONS. CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AT THE BUILDING, AS VARIATIONS MAY OCCUR. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ERRORS THAT COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND INSPECTION.

·PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.

1.5 ORDINANCES AND CODES

·WORK PERFORMED UNDER THIS CONTRACT SHALL, AT A MINIMUM, BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION. EQUIPMENT FURNISHED AND ASSOCIATED INSTALLATION WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN STRICT COMPLIANCE WITH CURRENT APPLICABLE CODES ADOPTED BY THE LOCAL AHJ INCLUDING ANY AMENDMENTS AND STANDARDS AS SET FORTH BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNDERWRITERS LABORATORIES (UL), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME), AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN SOCIETY OF TESTING MATERIALS (ASTM), AND OTHER NATIONAL STANDARDS AND CODES WHERE APPLICABLE.WHERE THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THEIR REFERENCED CODES, STANDARDS, ETC., THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.

·PROCURE AND PAY FOR PERMITS AND LICENSES REQUIRED FOR THE ACCOMPLISHMENT OF THE WORK HEREIN DESCRIBED. WHERE REQUIRED, OBTAIN, PAY FOR, AND FURNISH CERTIFICATES OF INSPECTION TO THE OWNER. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR VIOLATIONS OF THE LAW.

1.6 PROTECTION OF EQUIPMENT AND MATERIALS

·STORE AND PROTECT FROM DAMAGE EQUIPMENT AND MATERIALS DELIVERED TO JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE. EQUIPMENT AND MATERIAL THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITIES WILL BE REJECTED, AND CONTRACTOR IS OBLIGATED TO FURNISH NEW EQUIPMENT AND MATERIAL OF A LIKE KIND AS APPROVED BY OWNER.

·KEEP PREMISES CLEAN FROM FOREIGN MATERIAL CREATED DURING WORK PERFORMED UNDER THIS CONTRACT. PIPING, EQUIPMENT, ETC., SHALL HAVE A NEAT AND CLEAN APPEARANCE AT THE TERMINATION OF THE WORK.

·PLUG OR CAP OPEN ENDS OF PIPING SYSTEMS WHILE STORED OR INSTALLED DURING CONSTRUCTION WHEN NOT IN USE THE PREVENT THE ENTRANCE OF DEBRIS INTO THE SYSTEMS.

1.7 SUBSTITUTIONS

·THE BASE BID SHALL INCLUDE ONLY THE PRODUCTS FROM MANUFACTURERS SPECIFICALLY NAMED IN THE DRAWINGS AND SPECIFICATIONS.NO SUBSTITUTION WILL BE CONSIDERED PRIOR TO RECEIPT OF BIDS UNLESS WRITTEN REQUEST FOR APPROVAL TO BID HAS BEEN RECEIVED BY THE ENGINEER AT LEAST TEN CALENDAR DAYS PRIOR TO THE DATE FOR RECEIPT OF BIDS. EACH SUCH REQUEST SHALL INCLUDE THE NAME OF THE MATERIAL OR EQUIPMENT FOR WHICH IT IS TO BE SUBSTITUTED AND A COMPLETE DESCRIPTION OF THE PROPOSED SUBSTITUTE INCLUDING DRAWINGS, CUTS, PERFORMANCE AND TEST DATA AND OTHER INFORMATION NECESSARY FOR AN EVALUATION. A STATEMENT SETTING FORTH CHANGES IN OTHER MATERIALS, EQUIPMENT OR OTHER WORK THAT INCORPORATION OF THE SUBSTITUTE WOULD REQUIRE SHALL BE INCLUDED. THE BURDEN OF PROOF OF THE MERIT OF THE PROPOSED SUBSTITUTE IS UPON THE PROPOSER. THE ENGINEER'S DECISION OF APPROVAL OR DISAPPROVAL TO BID OF A PROPOSED SUBSTITUTION SHALL BE FINAL.

·THE TERMS "APPROVED", "APPROVED EQUAL", AND "EQUAL" REFER TO APPROVAL BY THE ENGINEER AS AN ACCEPTABLE ALTERNATE BID.NO SUBSTITUTIONS WILL BE CONSIDERED THAT ARE NOT BID AS AN ALTERNATE.NO MATERIAL SUBSTITUTIONS SHALL BE CONSIDERED FOR APPROVAL PRIOR TO AWARD OF CONTRACT.

·COORDINATE AND VERIFY WITH OTHER TRADES WHETHER OR NOT THE SUBSTITUTED EQUIPMENT CAN BE INSTALLED AS SHOWN ON THE CONSTRUCTION DRAWINGS WITHOUT MODIFICATION TO ASSOCIATED SYSTEMS OR ARCHITECTURAL OR ENGINEERING DESIGN. INCLUDE ADDITIONAL COSTS FOR ARCHITECTURAL AND ENGINEERING DESIGN FEES IN BID IF DRAWING MODIFICATIONS ARE REQUIRED BECAUSE OF SUBSTITUTED EQUIPMENT.

1.8 OPERATION AND MAINTENANCE INSTRUCTIONS

·COLLECT AND COMPILE A COMPLETE BROCHURE OF FIXTURES, MATERIALS, AND EQUIPMENT FURNISHED AND INSTALLED ON THIS PROJECT. INCLUDE OPERATIONAL AND MAINTENANCE INSTRUCTIONS, MANUFACTURER'S CATALOG SHEETS, WIRING DIAGRAMS, PARTS LISTS, APPROVED SHOP DRAWINGS, AND DESCRIPTIVE LITERATURE FURNISHED BY THE MANUFACTURER. INCLUDE AN INSIDE COVER SHEET THAT LISTS THE PROJECT NAME, DATE, OWNER, ARCHITECT, ENGINEER, GENERAL CONTRACTOR, SUBCONTRACTOR, AND AN INDEX OF CONTENTS.

·SUBMIT COPIES OF LITERATURE BOUND IN APPROVED BINDERS TO THE ARCHITECT AND OWNER AT THE TERMINATION OF THE WORK. PAPER CLIPS, STAPLES, RUBBER BANDS, AND MAILING ENVELOPES ARE NOT CONSIDERED APPROVED BINDERS. FINAL APPROVAL OF PLUMBING SYSTEMS WILL BE WITHHELD UNTIL THIS EQUIPMENT BROCHURE IS DEEMED COMPLETE BY THE ARCHITECT, ENGINEER, AND OWNER.

1.9 SPARE PARTS

·FURNISH TO OWNER, WITH RECEIPT, THE SPARE PARTS TO INCLUDE FAUCET WASHERS AND O-RINGS, FLUSHOMETER REPAIR KITS, AND WATER CLOSET TANK REPAIR KITS FOR THE FIXTURES FURNISHED FOR THIS PROJECT.

1.10 WARRANTIES

·WARRANT EACH SYSTEM AND EACH ELEMENT THEREOF AGAINST ALL DEFECTS DUE TO FAULTY WORKMANSHIP, DESIGN, OR MATERIAL FOR A PERIOD OF 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION, UNLESS SPECIFIC ITEMS ARE NOTED TO CARRY A LONGER WARRANTY IN THE CONSTRUCTION DOCUMENTS OR MANUFACTURER'S STANDARD WARRANTY EXCEEDS 12 MONTHS. REMEDY ALL DEFECTS, OCCURRING WITHIN THE WARRANTY PERIOD(S), AS STATED IN THE GENERAL CONDITIONS AND DIVISION 1.

·WARRANTIES SHALL INCLUDE LABOR AND MATERIAL. MAKE REPAIRS OR REPLACEMENTS WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.

·PERFORM THE REMEDIAL WORK PROMPTLY, UPON WRITTEN NOTICE FROM THE ENGINEER OR OWNER.

·AT THE TIME OF SUBSTANTIAL COMPLETION, DELIVER TO THE OWNER ALL WARRANTIES, IN WRITING AND PROPERLY EXECUTED, INCLUDING TERM LIMITS FOR WARRANTIES EXTENDING BEYOND THE ONE YEAR PERIOD, EACH WARRANTY INSTRUMENT BEING ADDRESSED TO THE OWNER AND STATING THE COMMENCEMENT DATE AND TERM.

1.11CUTTING AND PATCHING

·PERFORM CUTTING OF WALLS, FLOORS, CEILINGS, ETC. AS REQUIRED TO INSTALL WORK UNDER THIS SECTION. OBTAIN PERMISSION FROM THE ARCHITECT PRIOR TO CUTTING.DO NO CUT OR DISTURB STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL FROM THE ARCHITECT. CUT HOLES AS SMALL AS POSSIBLE. GENERAL CONTRACTOR SHALL PATCH WALLS, FLOORS, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. PATCHING SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION. REPAIR AND REFINISH AREAS DISTURBED BY WORK TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT.

1.12ROUGH-IN

·COORDINATE WITHOUT DELAY ROUGHING-IN WITH GENERAL CONSTRUCTION. CONCEAL PIPING AND CONDUIT ROUGH-IN EXCEPT IN UNFINISHED AREAS WHERE OTHERWISE SHOWN.

1.13STRUCTURAL STEEL

·STRUCTURAL STEEL USED FOR PIPE SUPPORTS, EQUIPMENT SUPPORTS, ETC., SHALL BE NEW, CLEAN, AND CONFORM TO ASTM DESIGNATION A-36.

·SUPPORT PLUMBING AND MECHANICAL EQUIPMENT AND PIPING FROM THE BUILDING STRUCTURE.DO NOT SUPPORT PLUMBING EQUIPMENT FROM CEILINGS, OTHER MECHANICAL OR ELECTRICAL COMPONENTS, AND OTHER NON-STRUCTURAL ELEMENTS.

1.14ACCESS DOORS

·PROVIDE ACCESS DOORS IN CEILINGS AND WALLS WHERE INDICATED OR REQUIRED FOR ACCESS TO CONCEALED VALVES AND EQUIPMENT INSTALLED UNDER THIS SECTION. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, ANCHOR STRAPS; MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION, AND COLOR BEFORE ORDERING.

1.15PENETRATIONS

·SEAL FLOOR, EXTERIOR WALL AND ROOF PENETRATIONS WATER AND WEATHER TIGHT WITH APPROPRIATE NON-SHRINK, NON-HARDENING COMMERCIAL CONSTRUCTION SEALANT. SEAL ROOF PENETRATIONS WITH FOUR POUND PER SQUARE FOOT LEAD FLASHING. PROVIDE A SLEEVE, AND SEAL NON-FIRE-RATED FLOOR AND WALL PENETRATIONS WITH FIBERGLASS PACKING AND SILICONE CAULK (FOR ACOUSTICAL INSULATION).

·COORDINATE FIRE RATING REQUIREMENTS AND LOCATIONS WITH THE ARCHITECT. SEAL PENETRATIONS OF FIRE-RATED ASSEMBLIES WITH 3M #CP-25 FIRE BARRIER CAULK (PROVIDE THICKNESS AND METHOD AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO MAINTAIN THE FIRE RESISTANCE RATING OF FIRE-RATED ASSEMBLIES.

·SEAL EXTERIOR WALL PENETRATIONS BELOW GRADE WITH CAST IRON WALL PIPES AND MODULAR MECHANICAL SLEEVE SEALS, MANUFACTURED BY THUNDERLINE/LINK SEAL, CALPICO, INC AND METRAFLEX.

·PROVIDE SLEEVES FOR HORIZONTAL PIPE PASSING THROUGH OR UNDER THE FOUNDATION. SLEEVES SHALL BE CAST IRON SOIL PIPE TWO NOMINAL PIPE SIZES LARGER THAT THE PIPE SERVED.

·PROVIDE SLEEVES FOR VERTICAL PIPE PASSING THROUGH SLAB ON GRADE. SLEEVES SHALL BE SCHEDULE 40 PVC PIPE, TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED. SEAL WATER-TIGHT WITH SILICONE CAULK.

15B: HEATING, VENTILATION, AND AIR CONDITIONING

REFERENCE MECHANICAL SPECIFICATIONS.

15C: PLUMBING

1.1MATERIALS

1.1.1DOMESTIC WATER PIPING

·ABOVE AND BELOW GRADE WATER PIPING SHALL BE PEX TUBING CONFORMING TO ASTM F877 CROSS-LINKED POLYETHYLENE TUBING HOT AND COLD-WATER DISTRIBUTION SYSTEMS, ASTM F876 CROSS-LINKED POLYETHYLENE TUBE, ASTM F1807 FITTING AND ASTM F2159 FITTINGS, COMPLY WITH NSF STANDARD 14 AND 61. PEX TUBING SHALL BE WATTS WATERPEX CROSS-LINKED POLYETHYLENE OR EQUAL. ALL PEX TUBING BELOW GRADE SHALL BE SLEEVED WITH PVC PIPE.

·FITTINGS SHALL BE MECHANICAL CRIMP FITTINGS IN COMPLIANCE WITH ASTM F1807 AND F2159. PEX FITTINGS SHALL BE WATTS BRASS CRIMPING FITTINGS USING EITHER WATTS COPPER CRIMPING OR STAINLESS STEEL CINCHCLAMP OR EQUAL, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

·ABOVE AND BELOW GRADE WATER PIPING SHALL BE TYPE "L" AND "M" HARD DRAWN SEAMLESS COPPER TUBING CONFORMING TO ASTM B88.

·COPPER UNIONS SHALL BE CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACE AND SOLDER-JOINT. JOINING MATERIAL SHALL BE ASTM B813 WATER-FLUSHABLE, LEAD-FREE FLUX ALLOY SOLDER.

1.1.2FILTERED WATER PIPING

·ABOVE AND BELOW GRADE FILTERED WATER PIPING SHALL BE CPVC TUBING CONFORMING TO ASTM D2846 AND CSA B137 CHLORINATED POLY (VINYL CHLORIDE) PLASTIC HOT AND COLD-WATER DISTRIBUTION SYSTEMS, ASTM D1784 RIGID AND CHLORINATED PVC COMPOUNDS, ASTM F493 SOLVENT CEMENTS, COMPLY WITH NSF STANDARD 14 AND 61. CPVC TUBING SHALL BE FLOWGUARD GOLD CPVC CTS OR EQUAL.

·FITTINGS SHALL BE SOCKET TYPE JOINTS IN COMPLIANCE WITH ASTM D2846 AND CSA B137. CPVC FITTINGS SHALL BE FLOWGUARD GOLD CPVC CTS FITTINGS OR EQUAL. JOINING MATERIAL SHALL BE ASTM F493 SOLVENT CEMENT, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

·ABOVE AND BELOW GRADE FILTERED WATER PIPING SHALL BE TYPE "L" AND "M" HARD DRAWN SEAMLESS COPPER TUBING CONFORMING TO ASTM B88.

·COPPER UNIONS SHALL BE CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACE AND SOLDER-JOINT. JOINING MATERIAL SHALL BE ASTM B813 WATER-FLUSHABLE, LEAD-FREE FLUX ALLOY SOLDER.

1.1.3SOIL, WASTE, AND VENT PIPING

·ABOVE AND BELOW GRADE SOIL, WASTE, AND VENT PIPING SHALL BE PVC PLASTIC, SCHEDULE 40 DWV PIPE CONFORMING TO ASTM D2665 WITH PLAIN ENDS. CELLULAR (FOAM) CORE PVC NOT ALLOWED. INSTALL PER ASTM D2665 AND ASTM D2321.

·FITTINGS SHALL BE PVC SOCKET-TYPE DWV PIPE FITTINGS; ASTM D2665 MADE TO ASTM D3311 DRAIN, WASTE, AND VENT PATTERNS.

·ABOVE AND BELOW GRADE SOIL, WASTE, AND VENT PIPING SHALL BE HUB-AND-SPIGOT CAST-IRON SOIL PIPE AND FITTINGS CONFORMING TO ASTM A74 WITH ASTM C564 RUBBER GASKETS. INSTALL CAST-IRON SOIL PIPING ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK" CHAPTER IV, "INSTALLATION OF CAST IRON SOIL PIPE AND FITTINGS".

·ABOVE GRADE SOIL, WASTE, AND VENT PIPING SHALL BE ALLOWED TO BE COPPER DRAINAGE TUBING CONFORMING TO ASTM B306 AT PLUMBING CONTRACTOR'S OPTION.

1.1.4INDIRECT AND CONDENSATE DRAIN LINES

·PROVIDE HARD DRAWN, TYPE "M" OR "L" COPPER PIPE FOR ALL CONDENSATE DRAIN PIPING FROM COOLER AND FREEZER EVAPORATORS. PROVIDE HEAT TRACE FOR ALL CONDENSATE DRAIN PIPING LOCATED IN FREEZERS, AND ROUTE TO FLOOR DRAIN IN BUILDING.

·PROVIDE PVC PIPE FOR ALL OTHER INDIRECT AND CONDENSATE DRAIN PIPING FROM HVAC, PLUMBING, AND BEVERAGE EQUIPMENT, AND ROUTE TO FLOOR DRAIN IN BUILDING.

1.1.5GAS PIPING

·GAS PIPING SHALL BE SCHEDULE 40 BLACK CARBON STEEL CONFORMING TO ASTM A53. PIPING 2" AND SMALLER SHALL BE WELDED OR THREADED WITH MALLEABLE IRON FITTINGS. PIPING 2-1/2" AND LARGER SHALL BE WELDED WITH BUTT-WELDED FITTINGS.

·FITTINGS SHALL CONFORM TO ASME B16.3, MALLEABLE IRON OR ASTM A234, FORGED STEEL WELDED TYPE.

·PROVIDE SHUT-OFF VALVE, DIRT LEG, AND UNION AT EACH ROOFTOP UNIT. PAINT ALL GAS PIPING EXPOSED TO WEATHER WITH ONE COAT OF PRIMER, AND TWO COATS OF RUST-PROOF PAINT. COLOR SHALL MATCH BUILDING COLORS. COORDINATE WITH OWNER'S CONSTRUCTION MANAGER.

·PROVIDE TREATED WOOD BLOCKING 6X6X12, 8'-0" OC MAX WITH GALVANIZED PIPE STRAP, 1 1/4" ZINC COATED LAG SCREWS, AND RUBBER WALK PAD ADHERED TO ROOF.

1.1.6FLASHING

·SHEET LEAD, 4 POUNDS PER SQUARE FOOT, MINIMUM.

1.2INSULATION

1.2.1DOMESTIC COLD WATER (WITHIN BUILDING)

·COPPER PIPING:1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTEED, OWENS-CORNING, OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS.)

·PEX TUBING:NO INSULATION REQUIRED.

·EXCEPTION: FOR NON-RECIRCULATING HOT WATER SYSTEM, PROVIDE 1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTEED, OWENS-CORNING, OR ARMSTRONG ON THE FIRST 8 FEET OF INLET PIPING AT WATER HEATER.

·CPVC TUBING: NO INSULATION REQUIRED.

1.2.21.2.2DOMESTIC HOT WATER

·COPPER PIPING:1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTEED, OWENS-CORNING, OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS.)

·PEX TUBING:1/2" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTEED, OWENS-CORNING, OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS.)

·FOR HOT WATER PIPING BEING SERVED BY SYSTEM WITH RECIRCULATING PUMP, PROVIDE 1" WALL ONE-PIECE FIBERGLASS COVERING HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 WITH FIRE RESISTANT JACKET WITH SELF-SEALING LAP TO PROVIDE A CONTINUOUS VAPOR BARRIER BY CERTAINTEED, OWENS-CORNING, OR ARMSTRONG. (SEE BELOW FOR PLUMBING FITTING INSULATION REQUIREMENTS.)

1.2.31.2.3INDIRECT AND CONDENSATE DRAIN PIPING (WITHIN BUILDING)

·COPPER PIPING: PROVIDE 1" FLEXIBLE UNICELLULAR INSULATION BY ARMACELL.

·PVC PIPING: NO INSULATION REQUIRED.

·FOR PIPING AT HANGERS, PROVIDE 8" LONG SECTIONS OF HIGH DENSITY, HIGH TEMPERATURE CALCIUM SILICATE BY JOHNS-MANVILLE, FIBERGLASS BY KNAUF, OR 8" LONG STYROFOAM BILLETS BY DOW. INSULATION SHALL BE CONTINUOUS ALONG THE PIPE SURFACE, EXCEPT AT VALVES, UNIONS, AND WHERE PIPING IS EXPOSED AT FIXTURES.

·FOR HOT AND COLD-WATER PIPING EXPOSED, CONCEALED IN WALLS, AND/OR INSTALLED INSIDE MASONRY UNITS OF WALLS, COVER FITTINGS WITH ZESTON, KNAUF, OR EQUAL ONE-PIECE PVC PREMOLDED INSULATING COVERS. FITTING COVERS, JACKETS, AND ADHESIVES SHALL NOT EXCEED FLAME SPREAD RATING OF 25 AND SMOKE DEVELOPMENT RATING OF 50 PER ASTM E84. AT ALL ELBOWS AND TEES, FILL VOIDS BETWEEN COVERS AND PIPING WITH FIBERGLASS INSULATION AND TAPE JOINTS. INSTALL PIPE INSULATION IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS. WHERE PREMOLDED INSULATING FITTINGS ARE NOT APPROVED BY LOCAL AUTHORITIES, MITER INSULATION AT FITTINGS.

1.2.4PIPING INSTALLATION

·GENERAL: CLEAN PIPE THOROUGHLY PRIOR TO INSTALLATION. REAM ENDS OF PIPE TO REMOVE BURRS. CUT PIPE ACCURATELY TO MEASUREMENTS TAKEN ON THE JOB. INSTALL WITH ADEQUATE CLEARANCE FOR INSTALLATION OF COVERINGS WHERE REQUIRED. PIPE SHALL NOT BE SPRUNG OR BENT. NEATLY ALIGN PIPE, CONNECT IT SECURELY, AND SUPPORT IT FROM THE BUILDING, AND SUPPORT IT FROM THE BUILDING STRUCTURE WITH HANGERS AS SPECIFIED BELOW. PROVIDE CHROME-PLATED ESCUTCHEONS ON PIPES PASSING THROUGH CEILINGS, FLOORS, OR WALLS OF FINISHED SPACES. RUN PIPES FREELY THROUGH FLOOR AND WALL PENETRATIONS USING PIPE SLEEVES. DO NOT GROUT IN PLACE UNLESS REQUIRED FOR STRUCTURAL FIRE INTEGRITY. INSTALL PIPE CONCEALED IN FINISHED SPACES WHEREVER POSSIBLE. USE A DIELECTRIC UNION WHERE FERROUS AND COPPER PIPE CONNECT. DIELECTRIC UNION SHALL HAVE A ZINC STEEL BODY, A THREADED NYLON INSERT, AND INSULATION PRESSURE GASKET. NO FERROUS METAL-TO-COPPER CONNECTION MADE WITHOUT INSULATING UNIONS WILL BE ALLOWED.

·HANGERS & SUPPORTS: PIPE HANGERS SHALL BE AS DESCRIBED IN THE SPECIFICATIONS BY B-LINE OR EQUAL BY ANVIL, MICHIGAN, TRUSCON, OR UNISTRUT. CONNECT HANGERS TO THE STRUCTURE WITH SIDE BEAM CONNECTORS AND ALL THREAD HANGER RODS. PROVIDE ENGINEERED SUPPORT STRUTS BETWEEN JOISTS AND OTHER STRUCTURAL MEMBERS AS REQUIRED TO PROVIDE A RIGID HANGING.

·DOMESTIC WATER: ARRANGE COLD, HOT, AND HOT WATER RECIRCULATION PIPING TO DRAIN AT THE LOWEST POINT IN EACH SYSTEM. INSTALL AT LEAST ONE PIPE UNION ADJACENT TO ALL SHUT-OFF VALVES, AT CONNECTION POINT OF EACH PIECE OF EQUIPMENT, AND ELSEWHERE IN THE SYSTEM WHERE REQUIRED TO ALLOW PROPER MAINTENANCE. PROVIDE UNIONS OF THE GROUND JOINT TYPE. MAKE ALLOWANCE FOR EXPANSION AND CONTRACTION WHERE REQUIRED BY THE INSTALLATION. WHERE WATER PIPING OCCURS IN EXTERIOR WALLS, HOLD PIPE AS CLOSE AS POSSIBLE TO THE INTERIOR FACE OF THE WALL AND INSTALL INSULATION BATT OR OTHER INSULATION (MINIMUM R-8) BETWEEN PIPING AND THE EXTERIOR WALL FACE.

1.3EXTERIOR UTILITY CONNECTIONS

·TERMINATE DOMESTIC WATER, STORM, AND SEWER LINES AT A POINT APPROXIMATELY FIVE FEET FROM THE BUILDING WALL, OR AS SHOWN ON THE DRAWINGS. MAKE CONNECTION TO THE VARIOUS SERVICES PROVIDED BY OTHERS AND COORDINATE CONNECTION REQUIREMENTS WITH CIVIL ENGINEER. VERIFY THAT INSTALLATION WILL TIE INTO THE VARIOUS SERVICE PROVIDED BY OTHERS AT THE INDICATED INVERT ELEVATION POINT PRIOR TO INSTALLATION. IF THE INSTALLATION WILL NOT TIE INTO THE INDICATED INVERT ELEVATION POINT WHILE MAINTAINING PROPER FALL, NOTIFY THE ARCHITECT AND CIVIL ENGINEER SO THAT AN ALTERNATIVE MAY BE DETERMINED.

·PROVIDE SERVICE PIPING AND ACCESSORIES REQUIRED TO COMPLETE UTILITY CONNECTIONS THAT ARE NOT FURNISHED BY THE SERVING UTILITY.

1.4TESTING AND INSPECTION

·UPON COMPLETION OF EACH PHASE OF THE INSTALLATION, TEST EACH SYSTEM IN CONFORMANCE WITH LOCAL CODE REQUIREMENTS AND AS NOTED BELOW. FURNISH LABOR AND EQUIPMENT REQUIRED TO TEST PLUMBING WORK INSTALLED UNDER THIS CONTRACT, AND ASSUME COSTS INVOLVED IN MAKING THE TESTS, AND REPAIRING AND/OR REPLACING DAMAGE RESULTING THEREFROM.

·NOTIFY THE ARCHITECT AND AUTHORITY HAVING JURISDICTION, THREE (3) WORKING DAYS PRIOR TO MAKING PLUMBING SYSTEM TESTS. LEAVE CONCEALED WORK UNCOVERED UNTIL THE REQUIRED TESTS HAVE BEEN COMPLETED, BUT IF NECESSARY DUE TO CONSTRUCTION PROCEDURE, TESTS ON PORTIONS OF THE WORK MAY BE MADE, AND WHEN SATISFACTORY, THE WORK MAY BE CONCEALED. TEST PIPING BEFORE INSULATION IS INSTALLED, AND BEFORE BACKFILL. PIPES, JOINTS, FLANGES, VALVE STEMS, ETC., SHALL BE LEAK TIGHT. REPAIR OR REPLACE SYSTEM DEFECTS WITH NEW MATERIALS. CAULKING OF DEFECTIVE JOINTS, CRACK OR HOLES WILL NOT BE PERMITTED. REPEAT TESTS AFTER DEFECTS HAVE BEEN ELIMINATED. MAKE TESTS IN THE PRESENCE OF THE ADMINISTRATIVE AUTHORITY AND/OR THE OWNER'S AUTHORIZED REPRESENTATIVE.

·WORK SHALL BE INSPECTED FOR COMPLIANCE WITH CODES, ORDINANCES, REGULATIONS, AND ADHERENCE TO CONTRACT DOCUMENTS. PLUMBING CONTRACTOR SHALL SUPPLY OWNER WITH SIGNED FORMS OR PROOF OF ACCEPTANCE BY THE LOCAL AUTHORITY BEFORE CONTINUING FROM ONE STAGE TO ANOTHER. FINAL APPROVAL SHALL BE OBTAINED BEFORE FINAL PAYMENT IS MADE ON THE CONTRACT.

1.5GUARANTEE

·THE WORK TO BE PERFORMED UNDER THIS CONTRACT SHALL INCLUDE THE FURNISHING, INSTALLATION, AND CONNECTION OF PLUMBING SYSTEMS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. BY SIGNING THE CONTRACT, THE PLUMBING CONTRACTOR ACKNOWLEDGES THAT HE HAS ACQUAINTED HIMSELF WITH THE SITE AND THE EXISTING CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED, AND THE DRAWINGS AND SPECIFICATIONS PERTAINING THERETO, AND HE INDICATES THAT HE WILL COMPLY WITH THE REQUIREMENTS AND INTENT OF PERTINENT DOCUMENTS IN THE PERFORMANCE OF THE WORK.

CERTIFICATE OF AUTHORIZATION
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No. 2748

No. 18039
CALEB MELTON
04/04/25

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DATE 04/04/25
JOB NO. 25012
REVISIONS

P3.0
PLUMBING SPECIFICATIONS

MECHANICAL SEISMIC NOTES

1 DUCTWORK 28" IN DIAMETER AND LARGER, AND SUSPENDED MORE THAN 12" FROM POINT OF CONNECTION TO STRUCTURE TO TOP OF DUCT SHALL BE BRACED IN TWO DIRECTIONS (90° OPPOSING) USING ROD OR STRAP OF SAME LOAD CHARACTERISTICS AS PRIMARY SUSPENSION ROD OR STRAP.

2 RECTANGULAR DUCTWORK WITH A CROSS-SECTIONAL AREA OF 6 SQ. FT. AND LARGER, AND SUSPENDED MORE THAN 12" FROM POINT OF CONNECTION TO STRUCTURE TO TOP OF DUCT SHALL BE BRACED IN TWO DIRECTIONS (90° OPPOSING) USING ROD OR STRAP OF SAME LOAD CHARACTERISTICS AS PRIMARY SUSPENSION ROD OR STRAP.

3 DUCTWORK SHALL HAVE TRANSVERSE BRACING AT MAXIMUM 30'-0" ON CENTER AND WITHIN 48" OF CHANGE IN DIRECTION AND LONGITUDINAL BRACING AT MAXIMUM 60'-0" ON CENTER.

4 CEILING DIFFUSERS AND GRILLES SHALL BE SECURED TO A STRUCTURAL ELEMENT USING A 12 GAUGE CEILING SUSPENSION WIRE.

DEFINITIONS

INDICATED: THE TERM "INDICATED" REFERS TO GRAPHIC REPRESENTATIONS, NOTES, OR SCHEDULES ON THE DRAWINGS, OTHER PARAGRAPHS OR SCHEDULES IN THE SPECIFICATIONS, AND SIMILAR REQUIREMENTS IN THE CONTRACT DOCUMENTS. WHERE TERMS SUCH AS "SHOWN", "NOTED", "SCHEDULED", AND "SPECIFIED" ARE USED, IT IS TO HELP THE READER LOCATE THE REFERENCE, NO LIMITATION ON LOCATION IS INTENDED.

DIRECTED: TERMS SUCH AS "DIRECTED", "REQUESTED", "AUTHORIZED", "SELECTED", "APPROVED", "REQUIRED", AND "PREMITTED" MEAN "DIRECTED BY THE ENGINEER", "REQUESTED BY THE ENGINEER", AND SIMILAR PHRASES.

APPROVED: THE TERM "APPROVED", WHERE USED IN CONJUNCTION WITH THE ENGINEER'S ACTION ON THE CONTRACTOR'S SUBMITTALS, APPLICATIONS, AND REQUESTS, IS LIMITED TO THE ENGINEER'S DUTIES AND RESPONSIBILITIES AS STATED IN GENERAL AND SUPPLEMENTARY CONDITIONS.

FURNISH: THE TERM "FURNISH" IS USED TO MEAN "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS.":

INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTIONS, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

PROVIDE: THE TERM "PROVIDE" MEAN "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."

INSTALLER: AN "INSTALLER" IS THE CONTRACTOR OR AN ENTITY ENGAGED BY THE CONTRACTOR, EITHER AS AN EMPLOYEE, SUBCONTRACTOR, OR SUB-SUBCONTRACTOR, FOR PERFORMANCE OF A PARTICULAR CONSTRUCTION ACTIVITY, INCLUDING INSTALLATION, ERECTION, APPLICATION, AND SIMILAR OPERATIONS. INSTALLERS ARE REQUIRED TO BE EXPERIENCED IN THE OPERATIONS THEY ARE ENGAGED TO PERFORM.

MECHANICAL GENERAL NOTES

1 NOTES APPLY TO ALL MECHANICAL SHEETS UON.

2 COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.

3 DURING INSTALLATION OF NEW WORK, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. REPAIR DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.

4 ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.

5 NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.

6 INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.

7 OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF.

8 COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT.

9 SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.

10 COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.

11 ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.

12 LOCATE AND SET THERMOSTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. INSTALL DEVICES WITH TOP OF DEVICE AT MAXIMUM 48" AFF TO MEET ADA REQUIREMENTS UNLESS NOTED OTHERWISE ON PLANS. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 16.

13 COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH PRESENTATION BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.

14 DUCTWORK CROSSING FIRE RATED WALLS OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.

15 PROVIDE FIRE OR FIRE/SMOKE DAMPERS, AS APPLICABLE, IN DUCTWORK AT CEILINGS AND WALLS AT LOCATIONS SHOWN ON THE PLANS. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. COORDINATE SLEEVE LENGTH WITH REQUIREMENTS OF INSTALLED LOCATION.

16 PROVIDE WALL OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO FIRE AND FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 10" BY 10" AND SHALL BE INSTALLED WITHIN 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 10" BY 10" ACCESS DOOR.

17 PROVIDE A MANUAL BALANCING DAMPER IN EACH BRANCH DUCT TAKEOFF FROM MAIN SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.

18 PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES.

19 BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.

20 RIGID DUCTWORK INSULATION: PROVIDE 3/4 LB DENSITY, 2" (R-5) THICK, INSULATION WRAP ON RIGID ROUND AND RECTANGULAR, CONCEALED, SUPPLY AND RETURN AIR DUCTS AND ON OUTSIDE AIR DUCTS. CONTRACTOR'S OPTION TO FURNISH AND INSTALL 1-1/2 LB DENSITY, 1-1/2" (R-5) THICK INTERNAL DUCT LINER ON RECTANGULAR SUPPLY AND RETURN AIR DUCTS IN LIEU OF DUCTWRAP. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS, INCREASE SHEET METAL SIZES ACCORDINGLY.

21 CONTRACTOR'S OPTION TO SUBSTITUTE ROUND DUCT OF EQUAL FREE AREA FOR RECTANGULAR DUCT AND VICE VERSA. DIMENSIONS OF RECTANGULAR DUCT MAY BE ADJUSTED AS NECESSARY TO INSTALL DUCT IN AVAILABLE SPACE AS LONG AS FREE AREA IS MAINTAINED.

22 PROVIDE THERMAFLEX TYPE G-KM, M-KE, FLEXMASTER TYPE 8, OR APPROVED EQUAL FLEXIBLE DUCTWORK. FLEXIBLE DUCTWORK SHALL BE LISTED UNDER UL 181 AS CLASS 1 AIR DUCT AND BE PROVIDED WITH INTEGRAL R-5, 3/4 LB DENSITY FIBERGLASS INSULATION. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING.

23 FOR ALL EXPOSED DUCTWORK, PROVIDE DUCT THAT IS SUITABLE FOR PAINTING. ENSURE THAT ALL EXPOSED DUCTWORK IS PROPERLY PREPARED AND READY FOR PAINTING. COORDINATE COLOR WITH ARCHITECT.

24 PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.

25 INSTALL EXPOSED PIPING AND DUCTWORK AS HIGH AS PRACTICAL IN ROOMS WITHOUT CEILINGS.

26 LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.

27 REFER TO PLUMBING SERIES DRAWINGS FOR GAS AND A.C. CONDENSATE DRAIN PIPING.

28 ADJUST PIPING AND DUCTWORK SIZES TO PROPERLY CONNECT TO MECHANICAL EQUIPMENT.

29 LOCATE EQUIPMENT REQUIRING ACCESS 2'-0" MAXIMUM ABOVE CEILING.

30 ALL ROOF MOUNTED EQUIPMENT SHALL BE A MINIMUM 10'-0" FROM EDGE OF ROOF.

31 FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.

32 IF HVAC CONTRACTOR DESIRES TO VALUE ENGINEER THE DUCT SYSTEM(S) DESIGN. THE HVAC CONTRACTOR SHALL BEAR ALL COSTS REQUIRED TO REVISE ALL AFFECTED CONSTRUCTION DOCUMENTS FOR RESUBMITTAL TO ALL APPROVING PARTIES. ANY DESIRE TO VALUE ENGINEER SHALL BE DOCUMENTED VIA A FORMAL R.F.I. DOCUMENT. HVAC CONTRACTOR TO COORDINATE PROPOSED CHANGES WITH ALL OTHER AFFCTED TRADES.

FINAL DOCUMENTATION

PROVIDE A ONE YEAR WARRANTY FOR ALL SYSTEMS, MATERIAL AND LABOR INCLUDINGTRANSPORTATION AND TRAVEL TIME.

PROVIDE INSTRUCTION TO OWNER'S PERSONNEL FOR ALL SYSTEMS AND EQUIPMENT ON SITE. THIS INSTRUCTION SHALL BE FOR A MINIMUM OF TWO HOURS.

CONTRACTOR SHALL PROVIDE A BOOK AT FINAL INVOICE WITH ALL WARRANTIES, INSTRUCTION

ADA NOTES

LIGHT SWITCHES, ELECTRICAL OUTLETS, AND OTHER ENVIRONMENTAL CONTROLS SHALL HAVE OPERABLE PARTS TO THE CONTROLS NO HIGHER THAN 48" AND NO LOWER THAN 15", A.F.F.

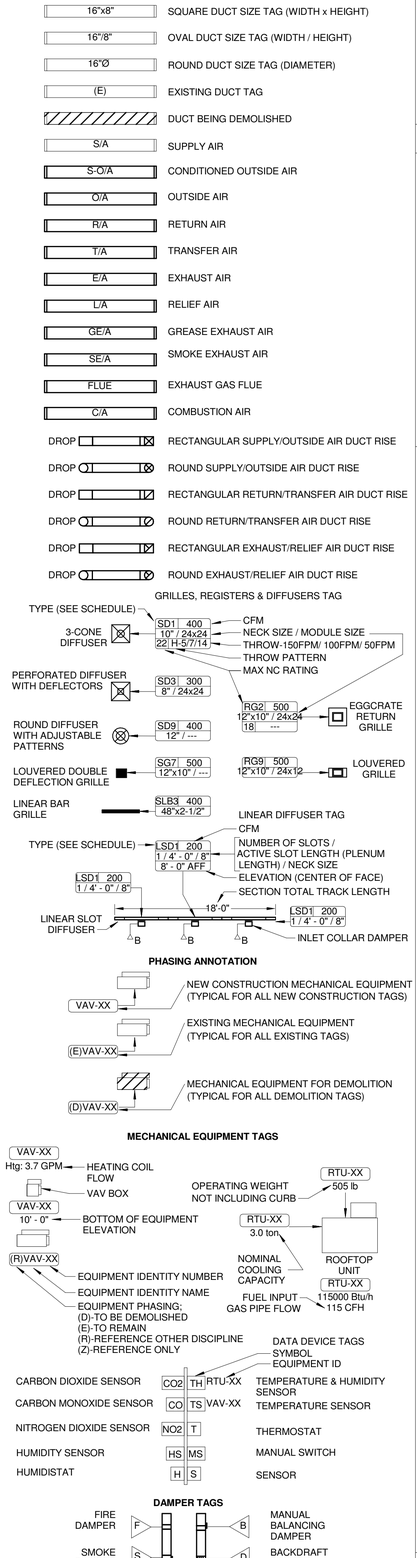
ABBREVIATIONS

&	AND	ID	INDIRECT
Ø	ROUND	IN	INCH
A	AIR	INL	INLET
AB	ABOVE BASE	INSUL	INSULATION
ABV	ABOVE	INT	INTERIOR
AC	AIR CONDITIONING	INV	INVERT
ACOUS	ACOUSTICAL	INWG	INCHES WATER GAUGE
AD	AREA DRAIN	JST SPC	JOIST SPACE
ADD	ADDENDUM	JT	JOINT
ADDL	ADDITIONAL	LAB	LABORATORY
AFF	ABOVE FINISHED FLOOR	LB	POUND
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	LB/HR	POUNDS PER HOUR
AG	ABOVE GROUND	LAT	LEAVING AIR TEMPERATURE
ALT	ALTERNATE	LF	LINEAL FOOT
ALUM	ALUMINUM	LOC	LOCATION
AP	ACCESS PANEL	LP	LOW PRESSURE
APPROX	APPROXIMATE	LPG	LIQUEFIED PETROLEUM GAS
ARCH	ARCHITECT/ARCHITECTURAL	LR	LIQUID REFRIGERANT
AV	ACID RESISTANT VENT	LS	LAWN SPRINKLER
AW	ACID RESISTANT WASTE	LVR	LOUVER
AUTO	AUTOMATIC	LWT	LEAVING WATER TEMPERATURE
BFF	BELOW FINISHED FLOOR	M/A	MIXED AIR
BLDG	BUILDING	MAN	MANUAL
BLW	BELOW	MATL	MATERIAL
BM	BEAM	MAV	MANUAL AIR VENT
BO	BY OTHER	MAX	MAXIMUM
BOT	BOTTOM	MBD	MOTORIZED BYPASS DAMPER
BSMT	BASEMENT	MBH	ONE THOUSAND BTU PER HOUR
BTU	BRITISH THERMAL UNITS	MCF	ONE THOUSAND CUBIC FEET
BTUH	BRITISH THERMAL UNITS PER HOUR	MCW	MAKE-UP COLD WATER
BTWN	BETWEEN	MD	MOTORIZED DAMPER
CAP	CAPACITY	MECH	MECHANICAL
CB	CATCH BASIN	MFR	MANUFACTURER
CCW	COUNTER CLOCKWISE	MH	MANHOLE
CFCV	CONSTANT FLOW CONTROL VALVE	MIN	MINIMUM
CFM	CUBIC FEET PER MINUTE	MISC	MISCELLANEOUS
CHW	CIRCULATING HOT WATER	MTR	MOTOR
CI	CAST IRON	MU/A	MAKE-UP/AIR
CLG	CEILING	N	NECK
CLG	COOLING	NC	NOISE CRITERIA
CO	CLEAN OUT	NC	NORMALLY CLOSED
COL	COLUMN	NIC	NOT IN CONTRACT
COMB	COMBINATION	NO	NUMBER
CONC	CONCRETE	NO	NORMALLY OPEN
COND	CONDENSATE	NOM	NOMINAL
CONF	CONFERENCE	NTS	NOT TO SCALE
CONN	CONNECT	O	OXYGEN
CONST	CONSTRUCTION	O/A	OUTSIDE AIR
CONT	CONTINUE/CONTINUATION	OC	ON CENTER
CONTR	CONTRACT/CONTRACTOR	OF	OVERFLOW
COORD	COORDINATE	OPNG	OPENING
CTR	CENTER	ORD	OVERFLOW ROOF DRAIN
CUFT	CUBIC FEET	PD	PRESSURE DROP
CV	CHECK VALVE	PIV	POST INDICATOR VALVE
CW	COLD WATER	PLBG	PLUMBING
CW	CLOCKWISE	PR	PAIR
D	DEGREE	PREL	PRELIMINARY
DB	DRY BULB	PRESS	PRESSURE
DET	DETAIL	PRIM	PRIMARY
DIA	DIAMETER	PRV	PRESSURE REDUCING VALVE
DIAG	DIAGONAL	PSI	POUNDS PER SQUARE INCH
DISCH	DISCHARGE	PSIG	POUNDS PER SQUARE INCH GAUGE
DIV	DIVISION	PW	POTABLE WATER
DI	DEIONIZED WATER	PWR	POWER
DMPR	DAMPER	R	DUCT RISER
DN	DOWN	R/A	RETURN AIR
DWG	DRAWING	RCP	RADIANT CEILING PANEL
DW	DISTILLED WATER	RD	ROOF DRAIN
EA	EACH	REC	RECESSED
EAT	ENTERING AIR TEMPERATURE	RED	REDUCER
EL	ELBOW	REFR	REFRIGERATION
ELEC	ELECTRICAL	RH	RELATIVE HUMIDITY
ELEV	ELEVATION	REQD	REQUIRED
EP	EXPLOSION PROOF	REV	REVERSE
EQ	EQUAL	RL/A	RELIEF AIR
EQUIP	EQUIPMENT	RM	ROOM
EWC	ELECTRIC WATER COOLER	RPM	REVOLUTIONS PER MINUTE
EWT	ENTERING WATER TEMPERATURE	RW	RAIN WATER
E/A	EXHAUST AIR	SF	SQUARE FOOT
EAH	EXHAUST HOOD	S/A	SUPPLY AIR
EXIST	EXISTING	SAN	SANITARY
EXP	EXPANSION	SCHED	SCHEDULE
EXPJT	EXPANSION JOINT	SECT	SECTION
EXT	EXTERIOR	SF	SQUARE FOOT
F	DEGREES FAHRENHEIT	SD	SMOKE DAMPER
FCO	FLOOR CLEAN OUT	SHT	SHEET
FD	FLOOR DRAIN	SIM	SIMILAR
FD	FIRE DAMPER	SLV	SLEEVE
FDV	FIRE DEPARTMENT VALVE	SM	SURFACE MOUNT
FHC	FIRE HOSE CABINET	SP	STANDPIPE
FL	FLOOR	SP	STATIC PRESSURE
FLEX	FLEXIBLE	SPEC	SPECIFICATION
FLG	FLANGE	SPS	STATIC PRESSURE STATION
FO	FUEL OIL	SQ	SQUARE
FOV	FUEL OIL VENT	SR	SUCTION REFRIGERANT
FOR	FUEL OIL RETURN	SSD	SOIL SUBDRAIN
FOS	FUEL OIL SUPPLY	SS	STAINLESS STEEL
FPM	FEET PER MINUTE	STD	STANDARD
FRP	FIBERGLASS REINFORCED PIPE	STM	STEAM
FS	FULL SIZE	STRUCT	STRUCTURAL
FS	FLOOR SINK	SUCT	SUCTION
FT	FOOT/FEET	SUSP	SUSPENDED
FTG	FOOTING	T	THERMOSTAT
FTR	FIN TUBE RADIATION	TCP	TEMPERATURE CONTROL PANEL
FUT	FUTURE	TD	TEMPERATURE DROP
GA	GAGE/GAUGE	TDR	TRENCH DRAIN
GAL	GALLON	TEMP	TEMPERATURE
GALV	GALVANIZED	TYP	TYPICAL
GC	GENERAL CONTRACTOR	UFD	UNDER FLOOR DUCT
GEN	GENERATOR	UG	UNDERGROUND
GENL	GENERAL	UON	UNLESS OTHERWISE NOTED
GPH	GALLONS PER MINUTE	VAC	VACUUM
GR	GRADE	V	VENT
GW	GREASE WASTE	VAV	VARIABLE AIR VOLUME
HB	HOSE BIB	VEL	VELOCITY
HD	HEAD	VENT	VENTILATION
HORZ	HORIZONTAL	VERT	VERTICAL
HP	HORSE POWER	VOL	VOLUME
HP	HIGH PRESSURE	VTR	VENT THROUGH ROOF
HTG	HEATING	W	WASTE
HTR	HEATER	WB	WET BULB
HW	HOT WATER	WCO	WALL CLEAN OUT
HYD	HYDRANT	WH	WALL HYDRANT

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	FP	FIRE PUMP
ACC	AIR COOLED CONDENSER	GI	GREASE INTERCEPTOR
AFMS	AIR FLOW MEASURING STATION	GRV	GRAVITY ROOF VENTILATOR
AHU	AIR HANDLING UNIT	H	HUMIDIFIER
AS	AIR SEPARATOR	HWP	HEATING WATER PUMP
B	BOILER	HX	HEAT EXCHANGER
CF	CABINET FAN	HPU	HEAT PUMP UNIT
CF	CHEMICAL FEEDER	HRU	HEAT RECOVERY UNIT
CFP	CHEMICAL FEEDER PUMP	ILC	INLINE CENTRIFUGAL
CH	CHILLER	PF	PROPELLER FAN
CRU	CONDENSATE RETURN UNIT	PRV	POWER ROOF VENTILATOR
CT	COOLING TOWER	PWF	POWER WALL FAN
CU	AIR COOLING CONDENSING UNIT	RE	RETURN/EXHAUST FAN
CUH	CABINET UNIT HEATER	RTU	ROOFTOP UNIT
CWP	CONDENSER WATER PUMP	SA	SHOCK ABSORBER
CHWP	CHILLED WATER PUMP	SAT	SOUND ATTENUATOR
DBP	DOMESTIC WATER BOOSTER PUMP	SEP	SEWAGE EJECTOR PUMP
DC	DUCT MOUNTED COIL	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EF	EXHAUST FAN	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	US	UTILITY SET
ET	EXPANSION TANK	UV	UNIT VENTILATOR
EWH	ELECTRIC WATER HEATER	WFMS	WATER FLOW MEASURING STATION
FCU	FAN COIL UNIT	WH	WATER HEATER

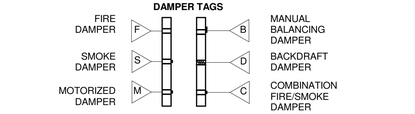
HVAC SYMBOLS



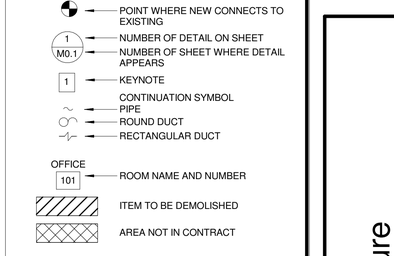
PHASING ANNOTATION

MECHANICAL EQUIPMENT TAGS

DAMPER TAGS



GENERAL MECHANICAL SYMBOLS



* NOTE *
ALL OF GENERAL NOTES ON THIS SHEET ARE TO BE APPLIED TO ALL OTHER DRAWINGS IN THIS SET.THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE USED IN THIS SET OF DRAWINGS.

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JOB NO. 25012
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M0.1
MECHANICAL TITLE SHEET

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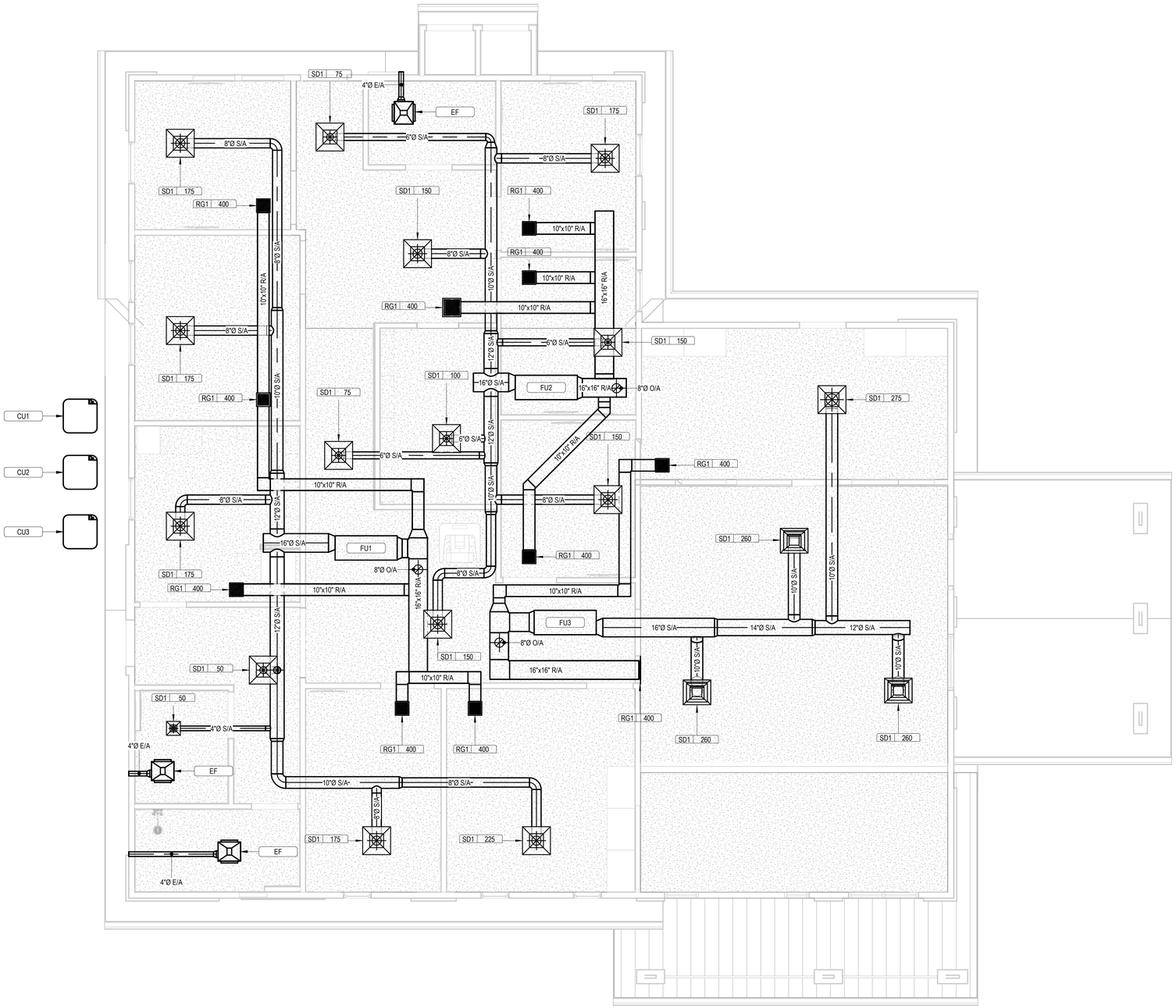
GENERAL NOTES

1 REFER TO 'M0.1' FPR MECHANICAL LEGEND AND NOTES, AND 'M2.0' FOR MECHANICAL SCHEDULES.



1 M1.0 HVAC PLAN
1/4" = 1'-0"

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M1.0
HVAC PLAN

EXHAUST FAN SCHEDULE

ID	MANUFACTURER	MODEL	AIRFLOW	RPM	DRIVE TYPE	TOTAL STATIC PRESSURE	MOTOR POWER	INLET SONES	UNIT WEIGHT	VOLT	PHASE	NOTES
EF	GREENHECK	SP-B110	70	729	DIRECT	.375 IN-WG.	80W	1.5	12 LB	115 V	1	A-D,1,2,5-7

NOTES
- A. DIVISION 16 CONTRACTOR TO PROVIDE DISCONNECT SWITCH.
- B. NOT USED
- C. INTERLOCK FAN OPERATION WITH LIGHTING CONTROLS.
- D. ROUTE EXHAUST TO ROOF AND MAINTIAN MINIMUM 10' CLEARANCE FROM ALL FRESH AIR INTAKES.

ACCESSORIES:
- 1 PROVIDE BACKDRAFT DAMPER.
- 2 PROVIDE MANUFACTURER'S ROOF JACK WITH ADAPTER.
- 3 PROVIDE SPUN ALUMINUM VEN CAP. COOK MODEL "PR" WITH ROOF CURB.
- 4 PROVIDE MANUFACTURER'S BRICK VENT.
- 5 PROVIDE MANUFACTURERE'S WHITE ALUMINUM GRILLE.
- 6 PROVIDE BIRD SCREEN.
- 7 PROVIDE ISOLATOR KIT.
- 8 PROVIDE MANUFACTURER'S WALL CAP.
- 9 PROVIDE GREASE COLLECTION CUP.
- 10 PROVIDE THERMOSTAT, SET TO 80°F.

GRILLES, REGISTERS, AND DIFFUSERS

ID	MANUFACTURER	MODEL	MATERIAL	NOISE CRITERIA	PRESSURE TOTAL	INSTALLATION TYPE	SPECIFICATION	NOTES
RG1	PRICE	80	ALUMINUM	30 MAX	0.10 in-wg	GYP/SIDEWALL	1/2"x1/2"x1/2" EGGCRATE GRID	C,E-G
SD1	PRICE	ASCD	ALUMINUM	30 MAX	0.10 in-wg	GYP	24"x24" HIGH PERFORMANCE 3-CONE DIFFUSER	A-F

NOTES
- A. NECK SIZE SHOWN ON DRAWINGS.
- B. BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
- C. BAKED ENAMEL FINISH, WHITE TO MATCH CEILING COLOR (IF DUCT MOUNTED, THEN PAINT SAME COLOR AS DUCTWORK).
- D. PROVIDE NECK ADAPTER FOR DUCT CONNECTION.
- E. FRAME TYPE TO MATCH CEILING CONSTRUCTION, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- F. ALUMINUM CONSTRUCTION.
- G. BLADES PARALLEL TO LONG DIMENSION.
- H. FACE SIZE VARIES WITH NECK SIZE.

AIR COOLED CONDENSING UNIT

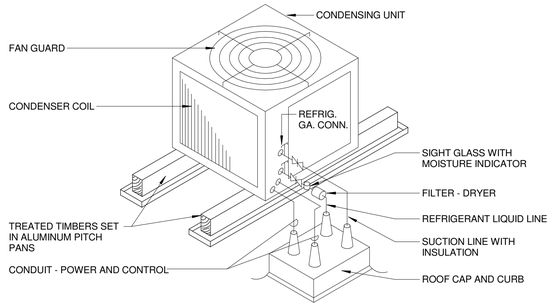
ID	MANUFACTURER	MODEL	NOMINAL TONS	COOLING CAPACITY (MBH)	REFRIGERANT TYPE	SEER	WEIGHT	ELECTRICAL				NOTES
								MCA	MOCP	VOLT	PHASE	
CU1,2,3	DAIKIN	DX14SA36	3	34.6	R-410A	14.5	162	18.6	30	230	1	A-H

NOTES
- A. PROVIDE LOW AMBIENT CONTROL TO 0°F.
- B. PROVIDE LIQUID LINE FILTER DRYER AND SIGHT GLASS. PROVIDE CONCRETE EQUIPMENT PAD PER SPECIFICATIONS.
- C. STARTERS FOR ALL MOTORS SHALL BE FURNISHED INTEGRAL WITH UNIT.
- D. ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT SWITCH.
- E. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
- F. COORDINATE WITH THE MANUFACTURER THE HORIZONTAL AND VERTICAL REFRIGERANT PIPE ROUTING TO DETERMINE PIPE SIZES FOR THE REFRIGERANT PIPING.
- G. MANUFACTURER SHALL PROVIDE DETAILED REFRIGERANT PIPING DIAGRAMS INCLUDING DIMENSIONAL DATA FOR ALL REFRIGERANT PIPING DEVICES. THE MANUFACTURER SHALL SIZE AND LOCATE THE ASSOCIATED REFRIGERANT TRAPS BASED ON THE ACTUAL ROUTING AND PROVIDE OTHER APPURTENANCES TO PROVIDE A FULLY FUNCTIONAL AND OPERATIONAL SYSTEM. COORDINATE WITH THE MANUFACTURER LOCATIONS FOR ALL REFRIGERANT PIPING DEVICES TO MAINTAIN SERVICEABILITY AND ACCESSIBILITY.
- H. PROVIDE HAIL/WEATHER GUARD.

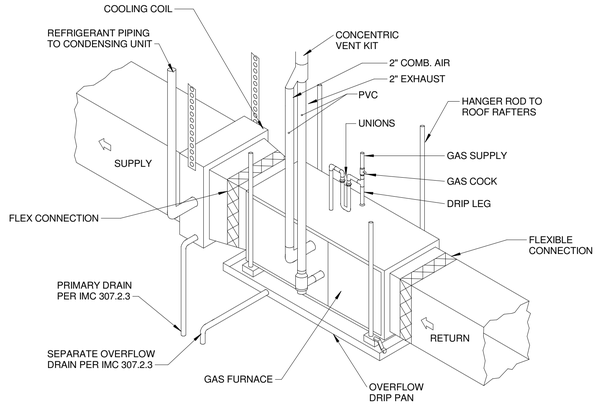
GAS-FIRED FURNACE UNIT SCHEDULE

ID	MANUFACTURER	MODEL	NOMINAL TONS	SUPPLY FAN TOTAL	OUTSIDE AIR FLOW	MBH INPUT	EFF %	UNIT WEIGHT	ELECTRICAL				NOTES
									MCA	MOCP	VOLT	PHASE	
FU1,2,3	DAIKIN	DM92SS0804CN	3	1200 CFM	100 CFM	80	92	137	11.7	15	115 V	1	A-K

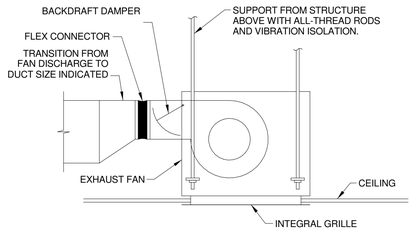
NOTES
- A. EQUIPMENT COMPONENTS SHALL BE THE SAME MANUFACTURER.
- B. PROVIDE WITH FLOAT SWITCH IN AUXILIARY DRAIN PAN TO SHUT OFF WHEN WATER IS PRESENT.
- C. PROVIDE UNIT WITH HORIZONTAL CONFIGURATION.
- D. PROVIDE FLEXIBLE DUCT CONNECTORS AT ALL CONNECTIONS.
- E. PROVIDE 1" PANEL THROWAWAY FILTER WITH EACH UNIT.
- F. OUTDOOR AMBIENT DESIGN TEMPERATURE 95°F.
- G. PROVIDE WITH PROGRAMMABLE 7-DAY THERMOSTAT WITH AUTOMATIC CHANGEOVER FROM COOLING/HEATING.
- H. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
- I. ROUTE FULL SIZED CONDENSATE LINE TO EXTERIOR AND TERMINATE IN AN APPROVED LOCATION BY AHJ.
- J. PROVIDE MANUFACTURER'S CONCENTRIC ROOF KIT FOR ROOF MOUNTING.
- K. PROVIDE SELF-REGULATING HEAT TAPE ON CONDENSATE LINE EQUIVALENT TO CHROMALOX SRL.



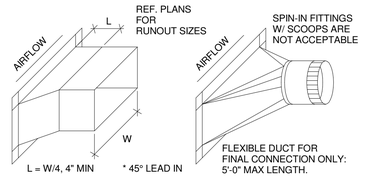
2 M2.0 Detail_M_CU-Generic-Rooftop Mtd.
SCALE: N.T.S.



1 M2.0 AHU-HORIZONTAL-GAS CONCENTRIC FLUE KIT
SCALE: N.T.S.

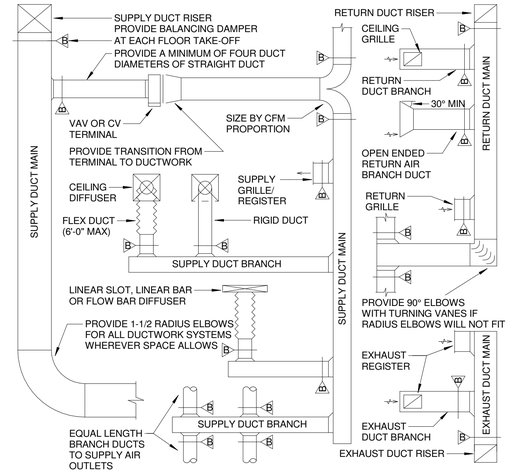


5 M2.0 Detail_M_Exhaust Fan-Ceiling-Side Discharge
N.T.S.



6 M2.0 BRANCH DUCT FITTING
N.T.S.

NOTES:
1. REFER TO HVAC FLOOR PLANS FOR DUCT SIZES
2. REFER TO SCHEDULES FOR GRILLES, REGISTERS, DIFFUSERS AND TERMINAL SIZES AND TYPES
3. PROVIDE A MANUAL TYPE BALANCING DAMPER FOR EACH SUPPLY OUTLET AND RETURN INLET
4. ALL DUCT RUNOUTS TO DIFFUSERS SHALL BE THE SAME SIZE AS DIFFUSER NECK SIZE, UNLESS OTHERWISE NOTED
5. FLEX DUCT WILL NOT BE ALLOWED ON RETURN OR EXHAUST DUCTWORK SYSTEMS
6. PROVIDE 12" AIR CUSHION AT THE END OF EACH SUPPLY MAIN AND BRANCH DUCT
7. INDIVIDUAL BRANCH BALANCING DAMPERS NOT REQUIRED FOR SUPPLY OR EXHAUST REGISTERS



4 M2.0 DUCTWORK INSTALLATION DIAGRAM
NO SCALE

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M2.0
MECHANICAL DETAILS

MECHANICAL SPECIFICATIONS

MECHANICAL SPECFIFCATIONS

DIVISION 15

15A: GENERAL

1.1 GENERAL REQUIREMENTS

REQUIREMENTS UNDER DIVISION ONE AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS SHALL BE A PART OF THIS SECTION. THE CONTRACTOR SHALL BECOME THOROUGHLY ACQUAINTED WITH ITS CONTENTS AS TO REQUIREMENTS THAT AFFECT THIS DIVISION OR SECTION. THE WORK REQUIRED UNDER THIS SECTION INCLUDES MATERIAL, EQUIPMENT, APPLIANCES, TRANSPORTATION, SERVICES, AND LABOR REQUIRED TO COMPLETE THE ENTIRE SYSTEM AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS.

THE SPECIFICATIONS AND DRAWINGS FOR THE PROJECTS ARE COMPLEMENTARY, AND PORTIONS OF THE WORK DESCRIBED IN ONE, SHALL BE PROVIDED AS IF DESCRIBED IN BOTH. IN THE EVENT OF DISCREPANCIES, NOTIFY THE ENGINEER AND/OR OWNER AND REQUEST CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK INVOLVED.

1.2 INSPECTION OF SITE

PRIOR TO SUBMITTING BID, VISIT THE SITE OF THE PROPOSED WORK AND BECOME FULLY INFORMED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. FAILURE TO DO SO WILL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

1.3 MATERIAL AND WORKMANSHIP

PROVIDE NEW MATERIAL, EQUIPMENT, AND APPARATUS UNDER THIS CONTRACT UNLESS OTHERWISE STATED HEREIN, OF BEST QUALITY NORMALLY USED FOR THE PURPOSE IN GOOD COMMERCIAL PRACTICE, AND FREE FROM ANY DEFECTS. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT NECESSARILY INTENDED TO DESIGNATE THE REQUIRED TRIM, WRITTEN DESCRIPTIONS OF THE TRIM GOVERN MODEL NUMBERS.

WORK PERFORMED UNDER THIS CONTRACT SHALL PROVIDE A NEAT AND "WORKMANLIKE" APPEARANCE WHEN COMPLETED, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER. WORKMANSHIP SHALL BE THE FINEST POSSIBLE BY EXPERIENCED MECHANICS. INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES AND LAWS.

THE COMPLETE INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY, NOISE LEVEL, ETC. ABNORMAL NOISE CAUSED BY RATTLING EQUIPMENT, PIPING, DUCTS, AIR DEVICES, AND SQUEAKS IN ROTATING COMPONENTS WILL NOT BE ACCEPTABLE. IN GENERAL, MATERIALS AND EQUIPMENT SHALL BE OF COMMERCIAL SPECIFICATION GRADE IN QUALITY. LIGHT DUTY AND RESIDENTIAL TYPE EQUIPMENT WILL NOT BE ACCEPTED.

REMOVE FROM THE PREMISES WASTE MATERIAL PRESENT AS A RESULT OF WORK, INCLUDING CARTONS, CRATING, PAPER, STICKERS, AND/OR EXCAVATION MATERIAL NOT USED IN BACKFILLING, ETC. CLEAN EQUIPMENT INSTALLED UNDER THIS CONTRACT TO PRESENT A NEAT AND CLEAN INSTALLATION AT THE TERMINATION OF THE WORK.

REPAIR OR REPLACE PUBLIC AND PRIVATE PROPERTY DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT TO THE SATISFACTION OF AUTHORITIES AND REGULATIONS HAVING JURISDICTION.

1.4 COORDINATION

COORDINATE WORK WITH THAT OF OTHER TRADES SO THAT THE VARIOUS COMPONENTS OF THE SYSTEMS WILL BE INSTALLED AT THE PROPER TIME, WILL FIT THE AVAILABLE SPACE, AND WILL ALLOW PROPER SERVICE ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER.

UNLESS OTHERWISE INDICATED, THE GENERAL CONTRACTOR WILL PROVIDE CHASES AND OPENINGS IN BUILDING CONSTRUCTION REQUIRED FOR INSTALLATION OF THE SYSTEMS SPECIFIED HEREIN. THE CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH INFORMATION WHERE CHASES AND OPENINGS ARE REQUIRED, KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND EXECUTE WORK IN A MANNER AS TO NOT INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.

FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALE DIMENSIONS. CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AT THE BUILDING, AS VARIATIONS MAY OCCUR. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ERRORS THAT COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND INSPECTION.

PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE SPECIFICATIONS OR SHOWN ON THE DRAWINGS ARE NOT INTENDED TO DESIGNATE THE REQUIRED TRIM.

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR DUCTWORK LAYOUT TO THE CONSTRUCTION MANAGER FOR OWNER APPROVAL PRIOR TO INSTALLATION.

1.5 ORDINANCES AND CODES

WORK PERFORMED UNDER THIS CONTRACT SHALL, AT A MINIMUM, BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE, AND LOCAL CODES HAVING JURISDICTION. EQUIPMENT FURNISHED AND ASSOCIATED INSTALLATION WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN STRICT COMPLIANCE WITH CURRENT APPLICABLE CODES ADOPTED BY THE LOCAL AHJ INCLUDING ANY AMENDMENTS AND STANDARDS AS SET FORTH BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNDERWRITERS LABORATORIES (UL), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME), AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN SOCIETY OF TESTING MATERIALS (ASTM), AND OTHER NATIONAL STANDARDS AND CODES WHERE APPLICABLE. WHERE THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THEIR REFERENCED CODES, STANDARDS, ETC., THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.

PROCURE AND PAY FOR PERMITS AND LICENSES REQUIRED FOR THE ACCOMPLISHMENT OF THE WORK HEREIN DESCRIBED. WHERE REQUIRED, OBTAIN, PAY FOR, AND FURNISH CERTIFICATES OF INSPECTION TO THE OWNER. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR VIOLATIONS OF THE LAW.

1.6 PROTECTION OF EQUIPMENT AND MATERIALS

STORE AND PROTECT FROM DAMAGE EQUIPMENT AND MATERIALS DELIVERED TO JOB SITE. COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE. EQUIPMENT AND MATERIAL THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITIES WILL BE REJECTED, AND CONTRACTOR IS OBLIGATED TO FURNISH NEW EQUIPMENT AND MATERIAL OF A LIKE KIND AS APPROVED BY OWNER.

KEEP PREMISES CLEAN FROM FOREIGN MATERIAL CREATED DURING WORK PERFORMED UNDER THIS CONTRACT. PIPING, EQUIPMENT, ETC., SHALL HAVE A NEAT AND CLEAN APPEARANCE AT THE TERMINATION OF THE WORK.

PLUG OR CAP OPEN ENDS OF DUCTWORK AND PIPING SYSTEMS WHILE STORED OR INSTALLED DURING CONSTRUCTION WHEN NOT IN USE THE PREVENT THE ENTRANCE OF DEBRIS INTO THE SYSTEMS.

1.7 SUBSTITUTIONS

THE BASE BID SHALL INCLUDE ONLY THE PRODUCTS FROM MANUFACTURERS SPECIFICALLY NAMED IN THE DRAWINGS AND SPECIFICATIONS. NO SUBSTITUTION WILL BE CONSIDERED PRIOR TO RECEIPT OF BIDS UNLESS WRITTEN REQUEST FOR APPROVAL TO BID HAS BEEN RECEIVED BY THE ENGINEER AT LEAST TEN CALENDAR DAYS PRIOR TO THE DATE FOR RECEIPT OF BIDS. EACH SUCH REQUEST SHALL INCLUDE THE NAME OF THE MATERIAL OR EQUIPMENT FOR WHICH IT IS TO BE SUBSTITUTED AND A COMPLETE DESCRIPTION OF THE PROPOSED SUBSTITUTE INCLUDING DRAWINGS, CUTS, PERFORMANCE AND TEST DATA AND OTHER INFORMATION NECESSARY FOR AN EVALUATION. A STATEMENT SETTING FORTH CHANGES IN OTHER MATERIALS, EQUIPMENT OR OTHER WORK THAT INCORPORATION OF THE SUBSTITUTE WOULD REQUIRE SHALL BE INCLUDED. THE BURDEN OF PROOF OF THE MERIT OF THE PROPOSED SUBSTITUTE IS UPON THE PROPOSER. THE ENGINEER'S DECISION OF APPROVAL OR DISAPPROVAL TO BID OF A PROPOSED SUBSTITUTION SHALL BE FINAL.

THE TERMS "APPROVED", "APPROVED EQUAL", AND "EQUAL" REFER TO APPROVAL BY THE ENGINEER AS AN ACCEPTABLE ALTERNATE BID. NO SUBSTITUTIONS WILL BE CONSIDERED THAT ARE NOT BID AS AN ALTERNATE. NO MATERIAL SUBSTITUTIONS SHALL BE CONSIDERED FOR APPROVAL PRIOR TO AWARD OF CONTRACT.

COORDINATE AND VERIFY WITH OTHER TRADES WHETHER OR NOT THE SUBSTITUTED EQUIPMENT CAN BE INSTALLED AS SHOWN ON THE CONSTRUCTION DRAWINGS WITHOUT MODIFICATION TO ASSOCIATED SYSTEMS OR ARCHITECTURAL OR ENGINEERING DESIGN. INCLUDE ADDITIONAL COSTS FOR ARCHITECTURAL AND ENGINEERING DESIGN FEES IN BID IF DRAWING MODIFICATIONS ARE REQUIRED BECAUSE OF SUBSTITUTED EQUIPMENT.

1.8 OPERATION AND MAINTENANCE INSTRUCTIONS

COLLECT AND COMPILE A COMPLETE BROCHURE OF FIXTURES, MATERIALS, AND EQUIPMENT FURNISHED AND INSTALLED ON THIS PROJECT. INCLUDE OPERATIONAL AND MAINTENANCE INSTRUCTIONS, MANUFACTURER'S CATALOG SHEETS, WIRING DIAGRAMS, PARTS LISTS, APPROVED SHOP DRAWINGS, AND DESCRIPTIVE LITERATURE FURNISHED BY THE MANUFACTURER. INCLUDE AN INSIDE COVER SHEET THAT LISTS THE PROJECT NAME, DATE, OWNER, ARCHITECT, ENGINEER, GENERAL CONTRACTOR, SUBCONTRACTOR, AND AN INDEX OF CONTENTS.

SUBMIT COPIES OF LITERATURE BOUND IN APPROVED BINDERS TO THE ARCHITECT AND OWNER AT THE TERMINATION OF THE WORK. PAPER CLIPS, STAPLES, RUBBER BANDS, AND MAILING ENVELOPES ARE NOT CONSIDERED APPROVED BINDERS. FINAL APPROVAL OF MECHANICAL SYSTEMS WILL BE WITHHELD UNTIL THIS EQUIPMENT BROCHURE IS DEEMED COMPLETE BY THE ARCHITECT, ENGINEER, AND OWNER.

1.9 SPARE PARTS

FURNISH TO OWNER, WITH RECEIPT, THE FOLLOWING SPARE PARTS FOR THE EQUIPMENT FURNISHED FOR THIS PROJECT:

ONE SET OF SPARE FILTERS OF EACH TYPE REQUIRED FOR EACH UNIT. IN ADDITION TO THE SPARE SET OF FILTERS, INSTALL NEW FILTERS PRIOR TO TESTING, ADJUSTING, AND BALANCING WORK AND BEFORE TURNING SYSTEM OVER TO OWNER.

FURNISH ONE COMPLETE SET OF BELTS FOR EACH FAN.

FURNISH THREE OPERATING KEYS FOR EACH TYPE OF AIR OUTLET AND INLET THAT REQUIRES THEM.

1.10 WARRANTIES

WARRANT EACH SYSTEM AND EACH ELEMENT THEREOF AGAINST ALL DEFECTS DUE TO FAULTY WORKMANSHIP, DESIGN, OR MATERIAL FOR A PERIOD OF 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION, UNLESS SPECIFIC ITEMS ARE NOTED TO CARRY A LONGER WARRANTY IN THE CONSTRUCTION DOCUMENTS OR MANUFACTURER'S STANDARD WARRANTY EXCEEDS 12 MONTHS. REMEDY ALL DEFECTS, OCCURRING WITHIN THE WARRANTY PERIOD(S), AS STATED IN THE GENERAL CONDITIONS AND DIVISION 1.

WARRANTIES SHALL INCLUDE LABOR AND MATERIAL. MAKE REPAIRS OR REPLACEMENTS WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.

PERFORM THE REMEDIAL WORK PROMPTLY, UPON WRITTEN NOTICE FROM THE ENGINEER OR OWNER.

AT THE TIME OF SUBSTANTIAL COMPLETION, DELIVER TO THE OWNER ALL WARRANTIES, IN WRITING AND PROPERLY EXECUTED, INCLUDING TERM LIMITS FOR WARRANTIES EXTENDING BEYOND THE ONE YEAR PERIOD, EACH WARRANTY INSTRUMENT BEING ADDRESSED TO THE OWNER AND STATING THE COMMENCEMENT DATE AND TERM.

1.11 CUTTING AND PATCHING

PERFORM CUTTING OF WALLS, FLOORS, CEILINGS, ETC. AS REQUIRED TO INSTALL WORK UNDER THIS SECTION. OBTAIN PERMISSION FROM THE ARCHITECT PRIOR TO CUTTING. DO NO CUT OR DISTURB STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL FROM THE ARCHITECT. CUT HOLES AS SMALL AS POSSIBLE. GENERAL CONTRACTOR SHALL PATCH WALLS, FLOORS, ETC. AS REQUIRED BY WORK UNDER THIS SECTION. PATCHING SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION. REPAIR AND REFINISH AREAS DISTURBED BY WORK TO THE CONDITION OF ADJOINING SURFACES IN A MANNER SATISFACTORY TO THE ARCHITECT.

1.12 ROUGH-IN

COORDINATE WITHOUT DELAY ROUGHING-IN WITH GENERAL CONSTRUCTION. CONCEAL PIPING AND CONDUIT ROUGH-IN EXCEPT IN UNFINISHED AREAS WHERE OTHERWISE SHOWN.

1.13 STRUCTURAL STEEL

STRUCTURAL STEEL USED FOR PIPE SUPPORTS, EQUIPMENT SUPPORTS, ETC., SHALL BE NEW, CLEAN, AND CONFORM TO ASTM DESIGNATION A-36.

SUPPORT PLUMBING AND MECHANICAL EQUIPMENT AND PIPING FROM THE BUILDING STRUCTURE. DO NOT SUPPORT PLUMBING EQUIPMENT FROM CEILINGS, OTHER MECHANICAL OR ELECTRICAL COMPONENTS, AND OTHER NON-STRUCTURAL ELEMENTS.

1.14 ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS AND WALLS WHERE INDICATED OR REQUIRED FOR ACCESS TO CONCEALED VALVES AND EQUIPMENT INSTALLED UNDER THIS SECTION. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, ANCHOR STRAPS; MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION, AND COLOR BEFORE ORDERING.

1.15 PENETRATIONS

SEAL FLOOR, EXTERIOR WALL AND ROOF PENETRATIONS WATER AND WEATHER TIGHT WITH APPROPRIATE NON-SHRINK, NON-HARDENING COMMERCIAL CONSTRUCTION SEALANT. SEAL ROOF PENETRATIONS WITH FOUR POUND PER SQUARE FOOT LEAD FLASHING. PROVIDE A SLEEVE, AND SEAL NON-FIRE-RATED FLOOR AND WALL PENETRATIONS WITH FIBERGLASS PACKING AND SILICONE CAULK (FOR ACOUSTICAL INSULATION).

COORDINATE FIRE RATING REQUIREMENTS AND LOCATIONS WITH THE ARCHITECT. SEAL PENETRATIONS OF FIRE-RATED ASSEMBLIES WITH 3M #CP-25 FIRE BARRIER CAULK (PROVIDE THICKNESS AND METHOD AS REQUIRED AND RECOMMENDED BY MANUFACTURER) TO MAINTAIN THE FIRE RESISTANCE RATING OF FIRE-RATED ASSEMBLIES.

SEAL EXTERIOR WALL PENETRATIONS BELOW GRADE WITH CAST IRON WALL PIPES AND MODULAR MECHANICAL SLEEVE SEALS, MANUFACTURED BY THUNDERLINE/LINK SEAL, CALPICO, INC AND METRAFLEX.

PROVIDE SLEEVES FOR HORIZONTAL PIPE PASSING THROUGH OR UNDER THE FOUNDATION. SLEEVES SHALL BE CAST IRON SOIL PIPE TWO NOMINAL PIPE SIZES LARGER THAT THE PIPE SERVED.

PROVIDE SLEEVES FOR VERTICAL PIPE PASSING THROUGH SLAB ON GRADE. SLEEVES SHALL BE SCHEDULE 40 PVC PIPE, TWO NOMINAL PIPE SIZES LARGER THAN THE PIPE SERVED. SEAL WATER-TIGHT WITH SILICONE CAULK.

15B: HEATING, VENTILATION, AND AIR CONDITIONING

1.1 DUCTWORK

CONTRACTOR SHALL PROVIDE ANY DUCTWORK NECESSARY FOR A COMPLETE INSTALLATION OF HVAC SYSTEMS (INCLUDING EXHAUST SYSTEMS). ALL DUCTWORK IDENTIFICATION AND INSTALLATION TO ADHERE TO ASHRAE AND SMACNA STANDARDS AND ALL GOVERNING CODES.

DUCTWORK SHALL BE A MINIMUM 26 GAUGE GALVANIZED STEEL SHEET METAL DUCTWORK.

SUPPLY DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR A TWO-INCH POSITIVE PRESSURE RATING AND SEAL CLASS B.

RETURN DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR A ONE-INCH NEGATIVE PRESSURE RATING AND SEAL CLASS C.

EXHAUST DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS FOR A ONE-INCH POSITIVE PRESSURE RATING AND SEAL CLASS C.

ROUND DUCT RUNS SHALL BE CONSTRUCTED OF METAL PIPE WITH EXTERNAL SLEEVE INSULATION.

DUCTWORK CONNECTIONS TO AIR DEVICES MUST BE MADE WITH HARDPIPE ELBOWS, COVERED WITH SLEEVE INSULATION. FLEX DUCT MUST NOT BE UTILIZED FOR A 90 DEGREE CONNECTION TO AN AIR DEVICE.

VOLUME/BALANCING DAMPERS SHALL BE PROVIDED IN ALL BRANCH DUCT TAKE-OFFS FROM THE MAIN TRUNKS, UNLESS NOTED OTHERWISE ON PLANS. LOCATE DAMPERS A MINIMUM OF 4'-0" AWAY FROM AIR DEVICES.
A MAXIMUM OF 5'-0" OF FLEX DUCT MAY BE USED FOR FINAL CONNECTION OF AIR DEVICES.

FLEX DUCT MUST BE PROPERLY SUPPORTED WITH ONE INCH STRAPS AND CUT TO PROPER LENGTH TO PREVENT SAGGING.

FLEX DUCT SHALL BE OWENS-CORNING FOIL-BACK HIGH QUALITY U/L APPROVED OR EQUAL. PLASTIC WRAPPED FLEX DUCT IS NOT ACCEPTABLE.

DUCTWORK SHALL BE CONNECTED TO FANS, FAN CASINGS, AND FAN PLENUMS BY MEANS OF FLEXIBLE CONNECTIONS.

MITERED ELBOWS 45 DEGREES AND GREATER SHALL HAVE SINGLE THICKNESS TURNING VANES OF SAME GAUGE AS DUCTWORK.

1.2 INSULATION

SUPPLY AND RETURN DUCTWORK INSIDE THE BUILDING SHALL BE INSULATED WITH 1.5" THICK ACOUSTICAL LINING WITH A MINIMUM R-VALUE OF 6 OR EXTERNALLY WRAPPED WITH 2" THICK GLASS FIBER DUCT WRAP.

SUPPLY AND RETURN DUCTWORK LOCATED OUTSIDE THE BUILDING SHALL BE INSULATED WITH 2" LINER WITH A MINIMUM R-VALUE OF 8 AND SEAL SEAMS WEATHER TIGHT.

DEDICATED OUTSIDE AIR SUPPLY AND RELIEF DUCTWORK INSIDE THE BUILDING SHALL BE INSULATED WITH 2" DUCT WRAP WITH A MINIMUM R-VALUE OF 6.

1.3 PIPING

REFER TO PLUMBING SPECIFICATIONS FOR GAS AND CONDENSATE PIPING SPECIFICATIONS.

1.4 FINAL TESTING AND ADJUSTMENTS

AIR BALANCE SHALL BE PERFORMED BY AN INDEPENDENT AIR BALANCE CONTRACTOR. BALANCE EACH SUPPLY, RETURN, OUTSIDE AIR DEVICE WITHIN 5% OF REQUIREMENTS AND FURNISH A REPORT TO THE CONSTRUCTION MANAGER. THE ENTIRE HVAC SYSTEM MUST BE FULLY OPERABLE, BALANCED, AND APPROVED BY OWNER'S REPRESENTATIVE ON THE DAY TENANT OPENS FOR BUSINESS.

ADJUST THERMOSTATS AND CONTROL DEVICES TO OPERATE AS INTENDED. ADJUST BURNERS, PUMPS, FANS, ETC. FOR PROPER AND EFFICIENT OPERATION. CERTIFY TO ARCHITECT THAT ADJUSTMENTS HAVE BEEN MADE AND THAT SYSTEM IS OPERATING SATISFACTORILY. CALIBRATE, SET AND ADJUST AUTOMATIC TEMPERATURE CONTROLS. CHECK PROPER SEQUENCING OF INTERLOCK SYSTEMS, AND OPERATION OF SAFETY CONTROLS.

VERIFY ECONOMIZER OPERATION PER MANUFACTURER PROCEDURE WHEN APPLICABLE.

1.5 AIR DEVICES

PROVIDE AIR DEVICES AS SCHEDULED ON THE DRAWINGS.

MAINTAIN NOISE LEVEL OF NC-30 OR LESS.

ALL AIR TERMINAL DEVICES SHALL BE INSTALLED AS SHOWN ON THE PLANS IN ORDER TO HANDLE THE DESIGNED AIR FLOW CAPACITIES WITH A MINIMUM AMOUNT OF NOISE AND STATIC PRESSURE.

PROVIDE AIR DEVICES WITH WHITE ENAMEL FINISH UNLESS NOTED OTHERWISE.

1.6 CONTROLS

COORDINATE LOCATIONS FOR THERMOSTATS AND SENSORS FOR ROUGH-IN.

SMOKE DETECTORS SHALL BE FACTORY INSTALLED AND SHALL DISABLE HVAC UNIT OPERATION UPON ACTIVATION.

1.7 ELECTRICAL WIRING

ALL PROVISIONS FOR LOW VOLTAGE WIRING SHALL BE PERFORMED BY THE CONTRACTOR UNLESS CODES OR LABOR SITUATIONS DO NOT PERMIT. IF THE CONTRACTOR CANNOT PERFORM LOW VOLTAGE WIRING, THE CONTRACTOR SHALL INFORM THE GENERAL CONTRACTOR, AS PART OF THE HVAC BID DOCUMENT, TO HAVE THE ELECTRICAL SUBCONTRACTOR INCLUDE THIS WORK IN THEIR BID.

ALL ELECTRICAL POWER WIRING TO INCLUDE FINAL CONNECTIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR'S ELECTRICAL SUBCONTRACTOR.

1.8 REMODEL WORK

REMOVE ALL UNUSED EQUIPMENT, DUCTWORK, PIPING AND ASSOCIATED SUPPORTS. CAP DUCTWORK AND PIPING AT MAINS AND SEAL AIR AND WATER TIGHT.

PROVIDE ITEMS OF HVAC SYSTEMS MODIFICATION REQUIRED BECAUSE OF BUILDING REMODELING, AS NOTED ON THE DRAWINGS OR NECESSARY FOR PROPER OPERATION. MATCH EXISTING MATERIALS AND CONSTRUCTION TECHNIQUES WHEN MODIFYING EXISTING SYSTEMS UNLESS SPECIFIED OTHERWISE. COORDINATE ADDITIONAL REQUIREMENTS WITH GENERAL CONTRACTOR AND ARCHITECT.

SEAL AIRTIGHT EXISTING DUCTWORK REQUIRED TO BE ABANDONED IN PLACE OR NOT IN USE AT THE TERMINATION OF THE WORK.

CAP AND SEAL WEATHERTIGHT EXISTING ROOF CURBS AND ROOF OPENINGS TO BE ABANDONED IN PLACE AS A RESULT OF EQUIPMENT REMOVAL.

CLEAN AND REBALANCE EXISTING DUCTWORK, DIFFUSERS, REGISTERS, AND GRILLES INTENDED FOR REUSE AS REQUIRED OR AS INDICATED ON DRAWINGS.

CLEAN AND REFURBISH EXISTING HVAC EQUIPMENT INTENDED FOR REUSE AS REQUIRED FOR PROPER OPERATION INCLUDING REPLACEMENT OF FILTERS, BELTS, MOTORS, REMOTE CONTROLS, AND SAFETY INTERLOCKS.

COMPLY WITH THE SCHEDULE OF OPERATIONS AS OUTLINED IN THE ARCHITECTURAL PORTIONS OF THIS SPECIFICATION. BUILDING SHALL BE IN CONTINUOUS OPERATION. ACCOMPLISH WORK REQUIRING INTERRUPTION OF BUILDING OPERATION AT A TIME WHEN THE BUILDING IS NOT IN OPERATION, AND ONLY WITH WRITTEN APPROVAL OF BUILDING OWNER AND/OR TENANT. COORDINATE INTERRUPTION OF BUILDING OPERATION WITH THE OWNER AND/OR TENANT A MINIMUM OF SEVEN DAYS IN ADVANCE OF WORK.

1.9 CONTRACTOR RESPONSIBILITIES

AFTER COMPLETION OF THE WORK DESCRIBED IN THIS SPECIFICATION AND SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL EXPOSED EQUIPMENT, REMOVING ALL LABELS AND STICKERS NOT CONTAINING OPERATION INSTRUCTION. CONTRACTOR SHALL REMOVE CRATING DEBRIS, LEAVING THE INSTALLATION FINISHED AND READY FOR OPERATION, INCLUDING CLEAN FILTERS IN AIR HANDLING UNITS.

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REVISIONS

M3.0
MECHANICAL SPECIFICATIONS

GENERAL LOW VOLTAGE NOTES

1. PROVIDE 4" WIDE X 4' TALL X 3/4" FIRE RATED, PAINTED CDX PLYWOOD BACKBOARD WHERE SHOWN ON DRAWINGS OR AS REQUIRED FOR TELEPHONE, CATV, ALARM SYSTEM EQUIPMENT, ETC. COORDINATE EXACT LOCATIONS(S) WITH RESPONSIBLE CONTRACTOR(S).
2. PROVIDE ROUGH-IN OF ALL BACK BOXES, CONDUITS (WITH BUSHINGS AND PULL STRINGS) AND OTHER WIRE WAYS AS REQUIRED FOR LOW VOLTAGE SYSTEMS. COORDINATE ALL REQUIRED LOCATIONS WITH OWNER AND RESPONSIBLE CONTRACTOR(S).
3. PROVIDE (1) ½" CONDUIT, AND 4" SQUARE BOX WITH SINGLE GANG DEVICE RING FOR ALL THERMOSTAT LOCATIONS INDICATED ON THE MECHANICAL DRAWINGS. ROUTE CONDUIT FROM BOX TO ACCESSIBLE CEILING CAVITY. PROVIDE PLASTIC BUSHINGS ON EXPOSED CONDUIT ENDS. PROVIDE PULL STRING IN ALL EMPTY CONDUIT SYSTEMS. COORDINATE EXACT LOCATIONS AND MOUNTING HEIGHTS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
4. REFER TO SITE UTILITIES PLAN AND COORDINATE ENTIRE INSTALLATION WITH CABLE TV SERVICE PROVIDER.
5. ALL CABLE USED IN UNDERGROUND APPLICATIONS SHALL BE RATED FOR WET LOCATIONS.
6. REFER TO SITE UTILITIES PLAN AND COORDINATE ENTIRE INSTALLATION WITH PHONE SERVICE PROVIDER.
7. PROVIDE ONE #6 COPPER INSULATED GROUND WIRE FROM THE ELECTRICAL SERVICE GROUND TO THE TELEPHONE EQUIPMENT BOARD. LEAVE 36" EXTRA WIRE AT FREE END.

GENERAL POWER NOTES

1. ALL RECEPTACLES INSTALLED IN RESTROOMS, OUTDOORS AREAS, AND KITCHENS SHALL HAVE GROUND-FAULT CIRCUIT INTERRUPTING PROTECTION AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.
2. PROVIDE POWER TO MECHANICAL, PLUMBING, AND ALL OTHER EQUIPMENT AS REQUIRED FOR PROPER OPERATION, COORDINATION, AND VERIFY EACH PIECE OF EQUIPMENT'S POWER/CONTROL REQUIREMENTS PRIOR TO ORDERING RELATED ELECTRONIC EQUIPMENT. REFER TO RELATED MECHANICAL, PLUMBING, AND OTHER RELATED DOCUMENTS FOR EQUIPMENT LOCATIONS AND CLEARANCES.
3. ALL RECEPTACLES LOCATED IN AREAS REQUIRING GROUND-FAULT CIRCUIT INTERRUPTION PROTECTION PER NEC-210 SHALL CONSIST OF A GFCI PROTECTED DEVICE, EVEN IF NOT SPECIFICALLY INDICATED IN THE DRAWINGS. THE GROUND-FAULT CIRCUIT INTERRUPTER SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION AS DEFINED IN THE NEC. ALL RECEPTACLES SUPPLIED THROUGH A GROUND-FAULT CIRCUIT INTERRUPTER SHALL BE MARKED "GFCI PROTECTED."

GENERAL LIGHTING NOTES

1. WHERE RECESSED LIGHTING FIXTURES ARE INDICATED IN A FIRE-RATED CEILING, PROVIDE A ONE HOUR RATED "TENT" FOR FIXTURE.
2. PROVIDE ALL MOUNTING AND SUPPORT HARDWARE FOR LIGHT FIXTURES TO MEET SPECIFIED MOUNTING HEIGHTS, REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT MOUNTING HEIGHTS OF FIXTURES.
3. CONNECT "UN-SWITCHED" HOT CONDUCTOR FROM CIRCUIT SERVING AREA LIGHTING TO EACH EXIT SIGN, EMERGENCY LIGHT, AND ANY FIXTURE DESIGNATED AS NIGHT LIGHT SERVING THE AREA. REFER TO EMERGENCY WIRING DIAGRAM.
4. COORDINATE ALL DEVICES AND WALL-MOUNTED LIGHT FIXTURE LOCATIONS WITH THE ARCHITECTURAL WALL FINISHES AND ELEVATIONS. EXACT LOCATION OF DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN.
5. ELECTRICAL CONTRACTOR SHALL VERIFY CHEVRON DIRECTIONS OF ALL EXIT SIGNS PRIOR TO ORDERING.
6. FOR BATTERY FED EMERGENCY LIGHTS: PROVIDE EMERGENCY BALLAST. PROVIDE "HOT" WIRE TO EMERGENCY BALLAST. SWITCH FIXTURE AS INDICATED ON PLANS.
7. COORDINATE AND PROVIDE DIMMER SWITCHES RATED FOR AND COMPATIBLE WITH INTENDED LIGHT FIXTURE(S) TO BE CONTROLLED. CIRCUITS CONTROLLED WITH LINE-VOLTAGE DIMMER SWITCHES SHALL NOT SHARE NEUTRAL CONDUCTORS.

GENERAL ELECTRICAL NOTES

1. DRAWINGS ARE DIAGRAMMATIC ONLY AND REPRESENT THE GENERAL SCOPE OF THE WORK. REVIEW ALL GENERAL NOTES, SPECIFICATIONS, AND PLANS FOR ADDITIONAL REQUIREMENTS THAT MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS.
2. SPECIAL ATTENTION SHALL BE GIVEN TO ALL RACEWAYS WITHIN FINISHED AREAS THAT ARE OPEN TO STRUCTURE. IN GENERAL, ALL RACEWAYS SHALL BE CONCEALED WITHIN WALLS, ABOVE CEILING, OR BELOW FLOOR SLABS. WHERE EXPOSED RACEWAYS ARE UNAVOIDABLE, THE BID SHALL INCLUDE ANY REASONABLE MEANS TO MINIMIZE IT. MAINTAIN A MINIMUM SPACING OF 1-1/2" FROM CONDUIT TO ROOF DECK; ATTACHMENT TO ROOF DECK OR JOIST WEBBINGS IS NOT ALLOWED. IN AREAS WHERE EXPOSED RACEWAYS ARE REQUIRED, INSTALL SYSTEMS SQUARE AND TIGHT TO STRUCTURE AND PAINT TO MATCH THE STRUCTURE PER ARCHITECT AND/OR OWNER SPECIFICATIONS. COORDINATE ALL EXPOSED RACEWAYS WITH ARCHITECT PRIOR TO CONSTRUCTION OF WALLS, ROOF DECK, AND FLOORS.
3. OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RESISTANT-RATED WALLS, PARTITIONS, FLOORS OR CEILINGS SHALL BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE RESISTANCE RATING. PROVIDE PENETRATION FIRE STOPPING WITH RATINGS DETERMINED PER ASTM E 8414 OR UL 1472. FIRE STOPPING SHALL NOT BE LESS THAN THE FIRE RESISTANCE RATING OF CONSTRUCTION PENETRATIONS.
4. FIELD MOUNTED DEVICES SUCH AS SWITCHES, MOTOR STARTERS, RECEPTACLES, ETC., ARE SHOWN IN THEIR APPROXIMATE LOCATION. SWITCH MOUNTING HEIGHT SHALL BE 48" ABOVE FINISHED FLOOR AND RECEPTACLE MOUNTING HEIGHT SHALL BE 18" ABOVE FINISHED FLOOR UON. REFER TO THE TYPICAL MOUNTING HEIGHT DETAIL.
5. INSTALL EQUIPMENT IN A MANNER SO AS TO REMAIN ACCESSIBLE WITH REASONABLE MEANS BY THE OWNER FOLLOWING COMPLETION OF WORK. EQUIPMENT ABOVE CEILING SHALL BE INSTALLED SUCH THAT IT MAY BE SAFELY ACCESSED FROM A STANDARD STEP LADDER OR PERSONNEL LIFT WITHOUT REMOVING OR DAMAGING THE CEILING STRUCTURE.
6. COORDINATE ALL CEILING MOUNTED ELECTRICAL ITEMS WITH OTHER DISCIPLINES, WITH CEILING, AND STRUCTURE. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN.
7. FIELD VERIFY LOCATIONS OF EXISTING ELECTRICAL EQUIPMENT, INCLUDING POWER POLES, TELEPHONE PEDESTALS, OVERHEAD AND UNDERGROUND FEEDERS, METERS, PANELS, DEVICES, ETC. PROVIDE FOR COORDINATION WITH EXISTING EQUIPMENT.
8. ROOM NAMES/NUMBERS SHOWN IN PANELBOARD SCHEDULES ARE PER ARCHITECTURAL FLOOR PLANS. CONTRACTOR SHALL PROVIDE FINALIZED PANELBOARD SCHEDULES AT COMPLETION OF PROJECT WITH OWNER PROVID3ED NAMES/NUMBERS.
9. CONDUCTORS FOR BRANCH CIRCUITS AS DEFINED IN ARTICLE 100, SHALL BE SIZED TO PREVENT A VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST LOAD, AND WHERE THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST LOAD DOES NOT EXCEED 5%.
10. ALL WORK IS TO BE PERFORMED IN STRICT COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE, STATE LAW, AND OTHER REGULATIONS GOVERNING WORK OF THIS NATURE.
11. THE CONTRACTOR IS RESPONSIBLE FOR ALL WORK, MATERIAL, AND LABOR TO SATISFY A COMPLETE AND WORKING SYSTEM WHETHER SPECIFIED OR IMPLIED.
12. CONTRACTOR TO CONFIRM EXACT LOCATION OF EXISTING AND NEW EQUIPMENT.
13. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL GROUNDING SYSTEMS (AS REQUIRED) IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE.

GENERAL ELECTRICAL NOTES (CONT.)

14. ALL ELECTRIC MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND U.L. OR EQUALLY LISTED.
15. SUBMIT THE OWNER CERTIFICATES OF INSPECTIONS IN DUPLICATE FROM AN APPROVED INSPECTION AGENCY UPON COMPLETION.
16. THE CONTRACTOR SHALL SECURE ALL PERMITS OR APPLICATIONS AND PAY ANY AND ALL FEES AS REQUIRED.
17. THE CONTRACTOR SHALL FURNISH ALL INSTRUMENTS AND QUALIFIED PERSONNEL OR FIRM TO PERFORM ALL REQUIRED TESTS.
18. NO EQUIPMENT SHALL BE ENERGIZED UNTIL ALL TEST AND ADJUSTMENTS HAVE BEEN MADE. THREE COPIES OF ALL TEST RESULTS SHALL BE DELIVERED TO THE OWNER.
19. ALL ELECTRICAL WORK SHALL BE COORDINATED WITH THE MECHANICAL WORK AS CALLED FOR IN MECHANICAL SPECIFICATIONS AND PLANS.
20. JUNCTION BOXES LOCATED ABOVE GRID CEILINGS SHALL BE LOCATED NO GREATER THAN 4-FEET ABOVE THE CEILING IN A LOCATION ACCESSIBLE VIA A LADDER FROM THE ROOM BELOW.
21. ALL WIRING DEVICE COVERPLATES SHALL INDICATE PANELBOARD AND CIRCUIT SERVING THE DEVICE. UTILIZE CLEAR VINYL (BLACK LETTERING) IDENTIFICATION LABELS MANUFACTURED BY 3M COMPANY (OR APPROVED EQUIVALENT).
22. THE TYPE OF CONDUIT SHALL BE AS FOLLOWS FOR ALL FEEDERS AND DISTRIBUTION CIRCUITS UNLESS OTHERWISE SPECIFIED:

    APPLICATION – TYPE OF CONDUIT

    BURIED IN CONCRETE OR OUTDOORS – PVC WITH RIGID GALVANIZED STEEL ELBOWS

    SERVICE ENTRANCE – GALVANIZED RIGID STEEL OR SERVICE UTILITY SPECIFICATIONS.
23. SEISMIC PROTECTION FOR ELECTRICAL SYSTEMS MUST MEET MINIMUM REQUIREMENTS OF ALL APPLICABLE CODES FOR BUILDINGS' CLASSIFIED SEISMIC USE GROUP AND SEISMIC DESIGN CATEGORY. ANY REQUIREMENTS FOR SEISMIC PROTECTION MEASURES TO BE APPLIED SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND/OR FEDERAL CODES AND WITH MANUFACTURER'S REQUIREMENTS, THE MOST STRINGENT SHALL APPLY.

    THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE TYPE AND LOCATION OF SEISMIC RESTRAINTS REQUIRED FOR THE VARIOUS SYSTEM'S ELEMENTS CONTAINED IN THE CONSTRUCTION. IF REQUIRED BY LOCAL, STATE, FEDERAL CODES, AND/OR THE AUTHORITY HAVING JURISDICTION (AHJ) THE CONTRACTOR SHALL SUBMIT DESCRIPTIVE CATALOG DATA OF SEISMIC RESTRAINTS, SHOP DRAWINGS SHOWING THE TYPES, LOCATIONS AND INSTALLATION DETAILS OF SEISMIC RESTRAINTS AND CALCULATIONS SHOWING THAT THE SEISMIC RESTRAINTS MEET THE SEISMIC REQUIREMENTS TO THE LOCAL AHJ FOR REVIEW AND APPROVAL. CALCULATIONS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER, LICENSED IN THE STATE OF THE PROJECT LOCATION AND EMPLOYED BY THE MANUFACTURER OF THE SEISMIC RESTRAINT PRODUCTS.
24. PROVIDE A MINIMUM OF (3) SPARE 1" CONDUITS FROM RECESSED PANELBOARD TO ACCESSIBLE CEILING SPACE.
25. UNLESS NOTED OTHERWISE, PROVIDE MINIMUM #8 AWG CONDUCTORS IN 1" CONDUIT(S) FOR ALL UNDERGROUND SITE POWER AND LIGHTING CIRCUITS. INCREASE CONDUCTOR AND RELATED CONDUIT SIZE AS NOTED OR OTHERWISE REQUIRED TO LIMIT VOLTAGE DROP TO LESS THAN 5% FOR THE ENTIRE LENGTH OF THE SYSTEM.
26. UNDERGROUND UTILITIES/FEEDERS/BRANCH CIRCUITS/ETC. SHALL NOT BE ROUTED THROUGH OR WITHIN 25 FEET OF ANY AREAS DEDICATED FOR FUTURE BUILDING ADDITION.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER	CATALOG SERIES	DESCRIPTION	LAMP	MOUNTING	VOLT	WATT
C	ENVISION	SLDSKR-5	5" DOWNLIGHT, ROUND	LED, 3500K	RECESSED	120 V	20 W
E1	---	---	EMERGENCY FIXTURE, 90 MINUTE BATTERY, BUGEYES, SELF DIAGNOSTIC	---	WALL	120 V	5 W
ER	---	---	REMOTE HEAD, WET	---	WALL	120 V	5 W
L	MERCURY	MLS2-DI-96-825-400-35K-ASO-BW	LINEAR PENDANT 8', 0-10V DIMMING, BLACK	LED, 3500K	AIR CRAFT CABLE	120 V	56 W
S	ENVISION	LED-WSC-UD-15W-5CCT-BL	WALL SCONCE	LED, 4000K	WALL	120 V	22 W
V	MODERN FORMS	WS-21718	VANITY, BLACK	LED, 3500K	WALL	120 V	16 W
X2	---	---	EXIT/EM LIGHT COMBO, 90 MINUTE BATTERY, SELF DIAGNOSTIC	---	UNIVERSAL	120 V	5 W

1. EC SHALL PROVIDE A SUBMITTAL PACKAGE INCLUDING CUTSHEETS FOR EACH FIXTURE.
2. EC SHALL PROVIDE ALL ACCESSORIES FOR A COMPLETE ASSEMBLY INCLUDING MOUNTING HARDWARE.
3. MOUNTING TYPE OF EACH FIXTURE SHALL BE COMPATIBLE WITH FIXTURE'S INSTALLATION SURFACE.
4. ALL FINISHES SHALL BE COORDINATED WITH ARCHITECT AND DOCUMENTED ON SUBMITTALS.

ELECTRICAL SYMBOLS AND LEGEND

- 2' x 4' LIGHTING FIXTURE
- 2' x 2' LIGHTING FIXTURE
- 1' x 4' LIGHTING FIXTURE
- STRIP LIGHTING FIXTURE
- DOWNLIGHT
- WALL MOUNTED LIGHTING FIXTURE
- PENDANT LIGHTING FIXTURE
- TRACK LIGHTING FIXTURE
- EMERGENCY EGRESS FIXTURE
- EXIT SIGN
- $ SINGLE POLE SWITCH
- $3 THREE WAY SWITCH
- $4 FOUR WAY SWITCH
- $OS OCCUPANCY SENSOR
- $D DIMMER SWITCH
- $OS/D OCCUPANCY SENSOR / DIMMER SWITCH
- $M MOTOR RATED SWITCH
- CEILING MOUNTED OCCUPANCY SENSOR
- WALL MOUNTED OCCUPANCY SENSOR
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE MOUNTED 8" ABOVE COUNTERTOP
- DUPLEX RECEPTACLE WITH USB CHARGING PORT
- QUADRUPLEX RECEPTACLE
- SPECIAL RECEPTACLE: VERIFY NEMA TYPE WITH DRAWINGS / MANUFACTURER
- RECEPTACLE WITH GFCI PROTECTION
- SIMPLEX RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- FLOOR BOX: HUBBEL 3SFBSS WITH 3SFBC COVER. ROUTE 1"C TO NEAREST ACCESSIBLE CEILING SPACE. ON FLOORS WITH ACCESSIBLE SPACE BELOW, USE POKE-THROUGH FLOOR BOX: HUBBELL PT2X2 SERIES.

  FLOOR BOX WITH DATA: LEGRAND WIREMOLD SERIES RFB4E-OG OR RFB6E-OG WITH EVOLUTION COVER. ROUTE (2) 1"C FOR DATA FROM FLOOR BOX TO NEAREST ACCESSIBLE CEILING SPACE. ON FLOORS WITH ACCESSIBLE SPACE BELOW, USE POKE-THROUGH STYLE FLOOR BOX: LEGRAND 6AT SERIES.

  TELEVISION: PROVIDE HUBBELL NSAV62M JUNCTION BOX (OR EQUAL) WITH 1/2" CONDUIT FOR POWER AND 1" CONDUIT WITH PULL STRINGS FOR A/V ROUTED TO ACCESSIBLE CEILING SPACE. PROVIDE CONNECTIONS FOR POWER, DATA, COAX, AND HDMI. MOUNT +60" AFF UNO. CONFIRM HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
- ELECTRICAL PANEL
- 4" x 4" JUNCTION BOX UON
- EQUIPMENT DISCONNECT: INTERIOR DISCONNECTS SHALL BE NEMA 1 TYPE. EXTERIOR DISCONNECTS SHALL BE NEMA 3R TYPE. SIZE AS INDICATED IN THE PLANS AND PER NAMEPLATE RATING.

  PHONE/DATA: PROVIDE 4" x 4", 30-1/4 CUBIC INCH BOX WITH (2) 3/4" CONDUITS WITH PULL STRINGS. ROUTE TO ACCESSIBLE CEILING SPACE. PROVIDE SINGLE GANG MUD RING WITH BLANK COVER PLATE. PROVIDE PLASTIC BUSHINGS ON EXPOSED CONDUIT ENDS. WIRING BY OTHERS.
- STROBE
- HORN / STROBE
- PULL STATION
- SMOKE DETECTOR

GENERAL ELECTRICAL SYMBOLS

- 1 — REVISION NUMBER SHOWN ON PLANS
- 1 / E1.0 — DETAIL NUMBER ON SHEET / SHEET NUMBER WHERE DETAIL APPEARS
- OFFICE 101 — ROOM NAME AND NUMBER

ABBREVIATIONS

1P	1 POLE (2P, 3P, 4P)	HP	HORSE POWER
Ø	PHASE	HVAC	HEATING, VENTILATING, AND AIR CONDITIONING
A/AMP	AMPERE		
AFF	ABOVE FINISHED FLOOR	IG	ISOLATED GROUND
AFG	ABOVE FINISHED GRADE	J-BOX	JUNCTION BOX
AFCI	ARC FAULT CIRCUIT INTERRUPTER	KVA	KILOVOLT-AMPERE
AHU	AIR HANDLING UNIT	KW	KILOWATT
ANN	ANNUNCIATOR	KWH	KILOWATT HOUR
ARCH	ARCHITECTURAL		
ATS	AUTOMATIC TRANSFER SWITCH	LC	LIGHTING CONTACTOR
A/V	AUDIO VISUAL		
AWG	AMERICA WIRE GUAGE	MCB	MAIN CIRCUIT BREAKER
BMS	BUILDING MANAGEMENT SYSTEM	MLO	MAIN LUGS ONLY
		MTR	MOTOR
C	CONDUIT	NEC	NATIONAL ELECTRICAL CODE
CATV	CABLE TELEVISION	NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
CB	CIRCUIT BREAKER		
CCTV	CLOSED CIRCUIT TELEVISION		
CT	CURRENT TRANSFORMER	NIC	NOT IN CONTRACT
CU	COPPER	NL	NIGHT LIGHT
		NLO	NEW LOCATION
DWG	DRAWING	NTS	NOT TO SCALE
		PC	PHOTO CELL
EC	ELECTRICAL CONTRACTOR	PF	POWER FACTOR
EF	EXHAUST FAN	PNL	PANEL
ELEC	ELECTRICAL	PVC	POLYVINYL CHLORIDE CONDUIT
EM	EMERGENCY		
EMT	ELECTRICAL METALLIC TUBING	R	RELOCATE
EWC	ELECTRIC WATER COOLER	RCPT	RECEPTACLE
		REF	REFER
EX	EXISTING	RTU	ROOFTOP UNIT
		SF	SQUARE FEET
FA	FIRE ALARM	SPEC	SPECIFICATION
FAAP	FIRE ALARM ANNUNCIATOR PANEL	TC	TIME CLOCK
		TV	TELEVISION
FACP	FIRE ALARM CONTROL PANEL	TYP	TYPICAL
		UC	UNDERCOUNTER
GC	GENERAL CONTRACTOR	UG	UNDERGROUND
GFI	GROUND FAULT CIRCUIT INTERRUPTER	UH	UNIT HEATER
		UON	UNLESS OTHERWISE NOTED
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	UTIL	UTILITY
GND	GROUND	V	VOLT
		VA	VOLTE-AMPERE
		WH	WATER HEATER
HP	HORSE POWER	WP	WEATHERPROOF
HVAC	HEATING, VENTILATING, AND AIR CONDITIONING	XFMR	TRANSFORMER

CERTIFICATE OF AUTHORIZATION — OMNI ENGINEERS — ARKANSAS - ENGINEER — No. 2744

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 18039 — CALEB MELTON

04/04/25

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DENTAL
1006 NW 11th St
BENTONVILLE, AR

DATE
03/14/25

JOB NO.
25059

REVISIONS

E1.0

ELECTRICAL LEGEND, LIGHTING FIXTURE SCHEDULE & NOTES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18039
CALEB MELTON
04/04/25

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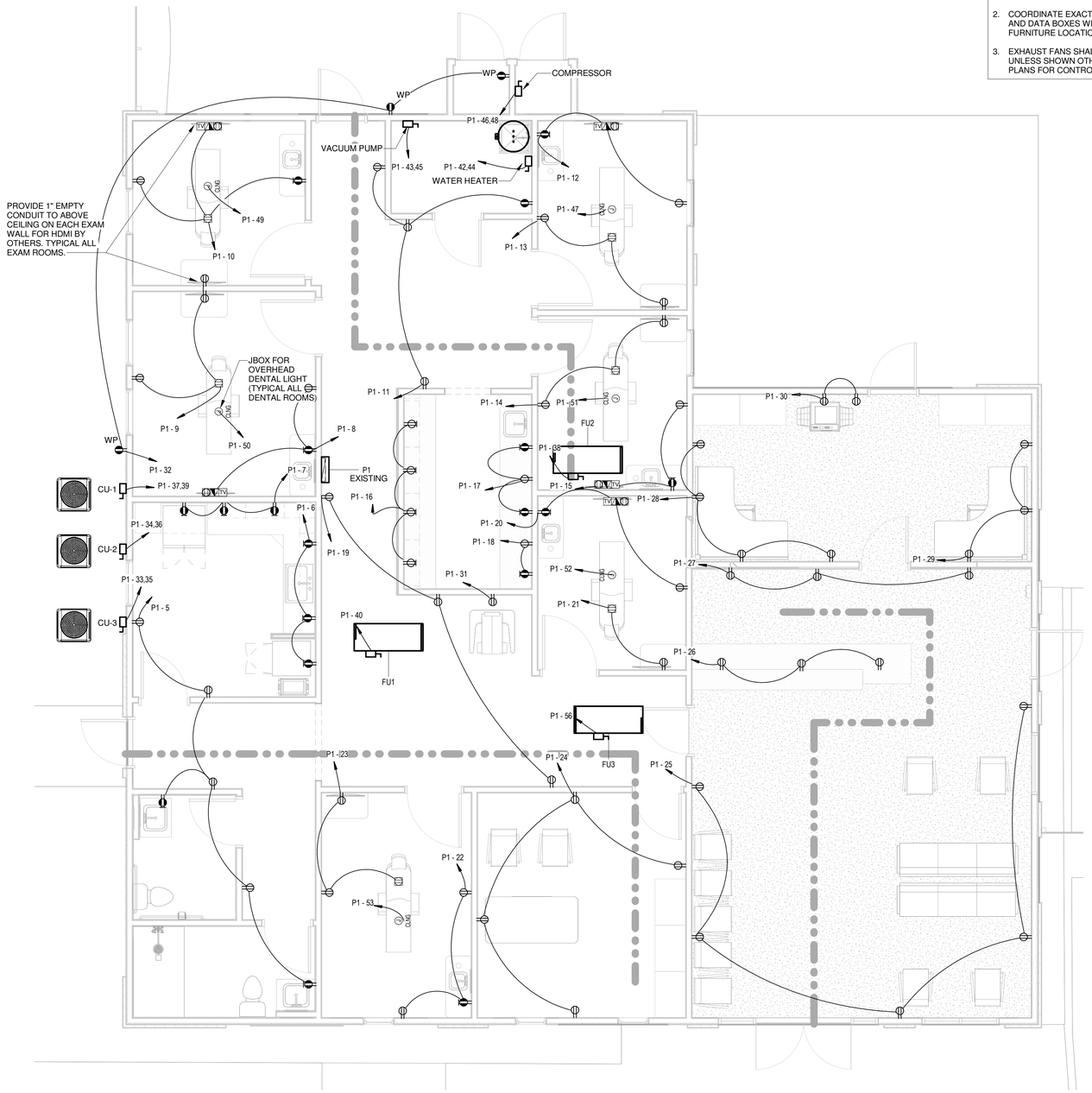
GENERAL NOTES

1. COORDINATE EXACT MOUNTING HEIGHT OF EACH ABOVE-COUNTER RECEPTACLE WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.
2. COORDINATE EXACT LOCATIONS OF RECEPTACLES AND DATA BOXES WITH OWNER AND FINAL FURNITURE LOCATIONS.
3. EXHAUST FANS SHALL BE CIRCUITED WITH LIGHTS UNLESS SHOWN OTHERWISE. REFER TO MECHANICAL PLANS FOR CONTROLS OF EXHAUST FANS.



1 E2.0 POWER PLAN
1/4" = 1'-0"

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JOB NO. 25059
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E2.0
POWER PLAN

1 E2.1 LIGHTING PLAN
1/4" = 1'-0"

CERTIFICATE OF AUTHORIZATION
OMNI ENGINEERS
No. 2744
ARKANSAS - ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
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E2.1
LIGHTING PLANS

PANELBOARD: P1 EXISTING

LOCATION: HALL 118
MOUNTING: SURFACE NEMA 1
MAIN DEVICE: MCB 200.0 A
BUS AMPS: 200A

VOLTAGE: 240/120 Single V. 1 ø 3 W.
A.I.C. RATING: FULLY
SPECIAL:

CKT	LOAD DESCRIPTION	WIRE	BKR	POLES	A		B		POLES	BKR	WIRE	LOAD DESCRIPTION	CKT
1	LITES	#12	20 A	1	414 VA	533 VA			1	20 A	#12	LITES	2
3	LITES	#12	20 A	1			619 VA	518 VA	1	20 A	#12	LITES	4
5	RCPT	#12	20 A	1	1080 VA	540 VA			1	20 A	#12	RCPT	6
7	RCPT	#12	20 A	1			540 VA	528 VA	1	20 A	#12	RCPT	8
9	RCPT	#12	20 A	1	706 VA	702 VA			1	20 A	#12	RCPT	10
11	RCPT	#12	20 A	1			720 VA	528 VA	1	20 A	#12	RCPT	12
13	RCPT	#12	20 A	1	528 VA	528 VA			1	20 A	#12	RCPT	14
15	RCPT	#12	20 A	1			528 VA	720 VA	1	20 A	#12	RCPT	16
17	RCPT	#12	20 A	1	540 VA	360 VA			1	20 A	#12	RCPT	18
19	RCPT	#12	20 A	1			540 VA	528 VA	1	20 A	#12	RCPT	20
21	RCPT	#12	20 A	1	351 VA	540 VA			1	20 A	#12	RCPT	22
23	RCPT	#12	20 A	1			528 VA	720 VA	1	20 A	#12	RCPT	24
25	RCPT	#12	20 A	1	900 VA	540 VA			1	20 A	#12	RCPT	26
27	RCPT	#12	20 A	1			540 VA	720 VA	1	20 A	#12	RCPT	28
29	RCPT	#12	20 A	1	540 VA	360 VA			1	20 A	#12	RCPT	30
31	RCPT	#12	20 A	1			180 VA	540 VA	1	20 A	#12	RCPT	32
33	CU	#10	30 A	2	1976 VA	1976 VA							34
35							1976 VA	1976 VA	2	30 A	#10	CU	36
37	CU	#10	30 A	2	1976 VA	1440 VA			1	20 A	#12	FU	38
39							1976 VA	1440 VA	1	20 A	#12	FU	40
41						2250 VA			2	30 A	#10	WATER HEATER	42
43	VACCUUM PUMP	#12	20 A	2			900 VA	2250 VA					44
45					900 VA	2500 VA			2	30 A	#10	COMPRESSOR	46
47	DENTAL LIGHT	#12	20 A	1			200 VA	2500 VA					48
49	DENTAL LIGHT	#12	20 A	1	200 VA	200 VA			1	20 A	#12	DENTAL LIGHT	50
51	DENTAL LIGHT	#12	20 A	1			200 VA	200 VA	1	20 A	#12	DENTAL LIGHT	52
53	DENTAL LIGHT	#12	20 A	1	200 VA								54
55								1440 VA	1	20 A	#12	FU	56
57													58
59													60
61													62
63													64
			TOTAL LOAD:		22615 VA		23942 VA						
			TOTAL AMPS:		188.5 A		199.5 A						

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTALS	
Other	1200 VA	100.00%	1200 VA		
MTR	27476 VA	104.55%	28726 VA	**TOTAL CONNECTED LOAD:**	46556 VA
RCPT	16025 VA	81.20%	13013 VA	**TOTAL ESTIMATED DEMAND:**	45288 VA
LITES	2071 VA	125.00%	2588 VA	**TOTAL CONNECTED CURRENT:**	194.0 A
				TOTAL ESTIMATED DEMAND CURRENT:	188.7 A

NOTES:

PANELBOARD NOTES (#)

1. TERMINATE GROUND ON ISOLATED GROUND BUS.
2. INSTALL LOCKING DEVICE FURNISHED WITH PANELBOARD (LOCK-OFF FOR MAINTENANCE).
3. INSTALL LOCKING DEVICE FURNISHED WITH PANELBOARD (LOCK-ON FOR CRITICAL LOAD).
4. GFI BREAKER FOR PERSONNEL PROTECTION (5MA).
5. GFI BREAKER FOR EQUIPMENT PROTECTION (30MA).
6. CONDUCTOR SIZE SHOWN IN PANEL SCHEDULE HAS BEEN INCREASED FOR VOLTAGE DROP. SIZE EQUIPMENT GROUND PROPORTIONALLY PER NEC.
7. REFER TO ONE-LINE DIAGRAM FOR AVAILABLE FAULT CURRENT INTERRUPT RATINGS.
8. REFER TO ONE LINE DIAGRAM FOR WIRE SIZES.
9. FACTOR WIRED TO LOAD.
10. THROUGH CONTROLLER. REFER TO LIGHTING CONTROLLER DETAIL.
11. ADD CIRCUIT BREAKER TO EXISTING PANEL.
12. 100% RATED CIRCUIT BREAKER.
13. MATCH AIC RATING OF SERVICING DEVICE.

EQUIPMENT LABEL

ALL SWITCHBOARDS AND PANELBOARDS SHALL HAVE A LABEL APPLIED TO WARN OF POTENTIAL ARC FLASH HAZARDS.

WARNING

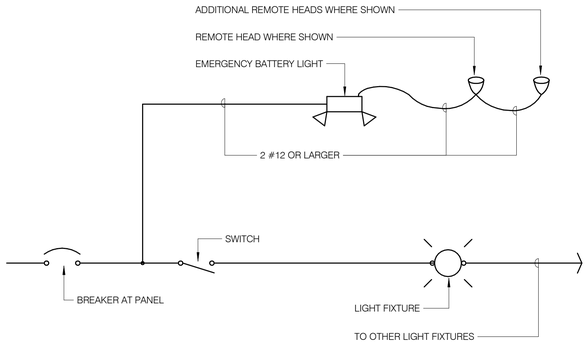
ARC FLASH AND SHOCK HAZARD. APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED.

NOTES:

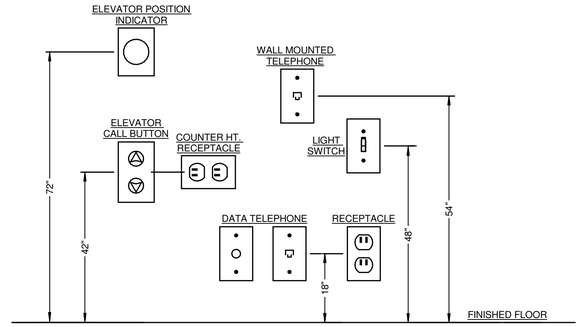
A. ALL SWITCHBOARDS AND PANELBOARD SHALL HAVE A COMMERCIALLY PRODUCED PERMANENT APPLIED LABEL, SIMILAR TO THE ABOVE, TO WARN OF POTENTIAL ARC FLASH HAZARDS IN ACCORDANCE WITH NEC 110.16 AND NFPA 70E.
B. LABELING MAY BE COMPLETED BY EQUIPMENT MANUFACTURER, EQUIPMENT VENDOR/SUPPLIER, OR THE CONTRACTOR. THE CONTRACTOR SHALL VERIFY THAT ALL SWITCHBOARDS AND PANELBOARDS ARE PROPERLY LABELED IN THE FIELD.

GENERAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL SERVICE AND METERING REQUIREMENTS WITH THE UTILITY COMPANY PRIOR TO BID AND SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AS REQUIRED BY THE SERVING UTILITY AS WELL AS COST INCURRED BY THE SERVING UTILITY.
2. ALL EQUIPMENT LISTED IN THE FAULT CURRENT SCHEDULE SHALL HAVE AN AIC RATING GREATER THAN OR EQUAL TO THE FAULT CURRENT SHOWN.
3. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE FAULT CURRENT AT THE SECONDARY OF THE TRANSFORMER WITH THE UTILITY COMPANY AND ADJUST THE ELECTRICAL PANEL AIC RATINGS TO THE NEXT HIGHER STANDARD RATING.
4. ALUMINUM SERVICE CONDUCTORS ARE NOT RECOMMENDED AND SHOULD ONLY BE USED WHERE ABSOLUTELY NECESSARY OR REQUIRED BY THE OWNER. CONTRACTOR TO CONTACT THE ENGINEER FOR SIZING. WHERE ALUMINUM CONDUCTORS ARE USED, THE OWNER SHALL PROVIDE ANNUAL MAINTENANCE OF ALL TERMINATIONS TO ENSURE SECURE CONNECTIONS. ALUMINUM WERE WILL EXPAND AND CONTRACT AND OVER TIME MAY BECOME BRITTLE. THE OWNER SHALL ASSUME RESPONSIBILITY FOR USING ALUMINUM CONDUCTORS WITHOUT PROPER INSTALLATION, CARE AND MAINTENANCE.
5. COORDINATE ALL SERVING AND METERING DETAILS INCLUDING ANY RELOCATION OF EXISTING UTILITY LINES WITH THE POWER COMPANY.
6. CONTRACTOR TO CONFIRM EXACT LOCATION OF METERS WITH ELECTRIC UTILITY.
7. PAY ANY POWER COMPANY FEES CHARGED TO OWNER FOR SERVICE AND UTILITY LINE WORK ASSOCIATED WITH THIS PROJECT. THESE COSTS SHALL BE INCLUDED IN BIDS.
8. FURNISH AND INSTALL MATERIALS FOR A TEMPORARY CONSTRUCTION SERVICE AS REQUIRED.
9. FURNISH AND/OR INSTALL ALL REQUIRED MATERIAL AND LABOR IN COMPLIANCE WITH POWER COMPANY REQUIREMENTS TO PROVIDE A COMPLETE ELECTRICAL SERVICE, INCLUDING TRENCHING AND BACK FILLING, PRIMARY CONDUIT, CONCRETE TRANSFORMER PAD, SECONDARY CONDUITS AND CABLES, C. T. CABINET, METERING AND GROUNDING SYSTEM.



2 E3.0 EMERGENCY LIGHTING WIRING DIAGRAM
1/4" = 1'-0"



NOTE:
VERIFY EXACT MOUNTING HEIGHTS WITH PROJECT REQUIREMENTS. DEVICES MAY OR MAY NOT APPLY TO THIS PROJECT. REFER TO PLANS

4 E3.0 MOUNTING HEIGHT DETAIL
NOT TO SCALE

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E3.0
ELECTRICAL RISER DIAGRAM

SECTION 26A GENERAL ELECTRICAL REQUIREMENTS

26A 1 GENERAL INSTRUCTIONS

26A 1-1 GENERAL REQUIREMENTS

REQUIREMENTS UNDER DIVISION 1 AND THE GENERAL AND SUPPLEMENTARY CONDITIONS OF THESE SPECIFICATIONS APPLY TO THIS SECTION AND DIVISION. WHERE THE REQUIREMENTS OF THIS SECTION AND DIVISION EXCEED THOSE OF DIVISION 1, THIS SECTION AND DIVISION TAKE PRECEDENCE. BECOME THOROUGHLY FAMILIAR WITH ALL THEIR CONTENTS AS TO REQUIREMENTS THAT AFFECT THIS DIVISION, SECTION OR BOTH. THE WORK REQUIRED UNDER THIS SECTION INCLUDES MATERIAL, EQUIPMENT, APPLIANCES, TRANSPORTATION, SERVICES, AND LABOR REQUIRED TO COMPLETE THE ENTIRE SYSTEM AS REQUIRED BY THE DRAWINGS AND SPECIFICATIONS, OR REASONABLY INFERRED TO BE NECESSARY TO FACILITATE EACH SYSTEM'S FUNCTIONING AS IMPLIED BY THE DESIGN AND THE EQUIPMENT SPECIFIED.

THE SPECIFICATIONS AND DRAWINGS FOR THE PROJECT ARE COMPLEMENTARY, AND PORTIONS OF THE WORK DESCRIBED IN ONE, SHALL BE PROVIDED AS IF DESCRIBED IN BOTH. IN THE EVENT OF DISCREPANCIES, NOTIFY THE ENGINEER AND REQUEST CLARIFICATION PRIOR TO PROCEEDING WITH THE WORK INVOLVED.

DRAWINGS ARE GRAPHIC REPRESENTATIONS OF THE WORK UPON WHICH THE CONTRACT IS BASED. THEY SHOW THE MATERIALS AND THEIR RELATIONSHIP TO ONE ANOTHER, INCLUDING SIZES, SHAPES, LOCATIONS, AND CONNECTIONS. THEY ALSO CONVEY THE SCOPE OF WORK, INDICATING THE INTENDED GENERAL ARRANGEMENT OF THE EQUIPMENT AND OTHER MATERIALS WITHOUT SHOWING ALL OF THE EXACT DETAILS AS TO ELEVATIONS, OFFSETS, CONTROL LINES, AND OTHER INSTALLATION REQUIREMENTS. USE THE DRAWINGS AS A GUIDE WHEN LAYING OUT THE WORK AND TO VERIFY THAT MATERIALS AND EQUIPMENT WILL FIT INTO THE DESIGNATED SPACES, AND WHICH, WHEN INSTALLED PER MANUFACTURERS' REQUIREMENTS, WILL ENSURE A COMPLETE, COORDINATED, SATISFACTORY AND PROPERLY OPERATING SYSTEM. DETERMINE EXACT LOCATIONS BY JOB MEASUREMENTS, BY CHECKING THE REQUIREMENTS OF OTHER TRADES, AND BY REVIEWING ALL CONTRACT DOCUMENTS. CORRECT ERRORS THAT COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND INSPECTION, AT NO ADDITIONAL COST TO THE OWNER.

SPECIFICATIONS DEFINE THE QUALITATIVE REQUIREMENTS FOR PRODUCTS, MATERIALS, AND WORKMANSHIP UPON WHICH THE CONTRACT IS BASED.

26A 1-2 DEFINITIONS

WHENEVER USED IN THESE SPECIFICATIONS OR DRAWINGS, THE FOLLOWING TERMS SHALL HAVE THE INDICATED MEANINGS:

FURNISH: "TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLING, INSTALLING, AND SIMILAR OPERATIONS."

INSTALL: "TO PERFORM ALL OPERATIONS AT THE PROJECT SITE, INCLUDING, BUT NOT LIMITED TO, AND AS REQUIRED: UNLOADING, UNPACKING, ASSEMBLING, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, TESTING, COMMISSIONING, STARTING UP AND SIMILAR OPERATIONS, COMPLETE, AND READY FOR THE INTENDED USE."

PROVIDE: "TO FURNISH AND INSTALL COMPLETE, AND READY FOR THE INTENDED USE."

FURNISHED BY OWNER (OR OWNER-FURNISHED) OR FURNISHED BY OTHERS: "AN ITEM FURNISHED BY THE OWNER OR UNDER OTHER DIVISIONS OR CONTRACTS, AND INSTALLED UNDER THE REQUIREMENTS OF THIS DIVISION, COMPLETE, AND READY FOR THE INTENDED USE, INCLUDING ALL ITEMS AND SERVICES INCIDENTAL TO THE WORK NECESSARY FOR PROPER INSTALLATION AND OPERATION. INCLUDE THE INSTALLATION UNDER THE WARRANTY REQUIRED BY THIS DIVISION.

ENGINEER: WHERE REFERENCED IN THIS DIVISION, "ENGINEER" IS THE ENGINEER OF RECORD AND THE DESIGN PROFESSIONAL FOR THE WORK UNDER THIS DIVISION, AND IS A CONSULTANT TO, AND AN AUTHORIZED REPRESENTATIVE OF, THE ARCHITECT, AS DEFINED IN THE GENERAL AND/OR SUPPLEMENTARY CONDITIONS. WHEN USED IN THIS DIVISION, IT MEANS INCREASED INVOLVEMENT BY, AND OBLIGATIONS TO, THE ENGINEER, IN ADDITION TO INVOLVEMENT BY, AND OBLIGATIONS TO, THE "ARCHITECT".

AHJ: THE LOCAL CODE AND/OR INSPECTION AGENCY (AUTHORITY) HAVING JURISDICTION OVER THE WORK.

NRTL: NATIONALLY RECOGNIZED TESTING LABORATORY, AS DEFINED AND LISTED BY OSHA IN 29 CFR 1910.7 (E.G., UL, ETL, CSA), AND ACCEPTABLE TO THE AHJ OVER THIS PROJECT.

THE TERMS "APPROVED EQUAL", "EQUIVALENT", OR "EQUAL" ARE USED SYNONYMOUSLY AND SHALL MEAN "ACCEPTED BY OR ACCEPTABLE TO THE ENGINEER AS EQUIVALENT TO THE ITEM OR MANUFACTURER SPECIFIED". THE TERM "APPROVED" SHALL MEAN LABELED, LISTED, CERTIFIED, OR ALL THREE, BY AN NRTL, AND ACCEPTABLE TO THE AHJ OVER THIS PROJECT.

26A 1-3 PRE-BID SITE VISIT

PRIOR TO SUBMITTING BID, VISIT THE SITE OF THE PROPOSED WORK AND BECOME FULLY INFORMED AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE DONE. FAILURE TO DO SO WILL NOT BE CONSIDERED SUFFICIENT JUSTIFICATION TO REQUEST OR OBTAIN EXTRA COMPENSATION OVER AND ABOVE THE CONTRACT PRICE.

26A 1-4 MATERIAL AND WORKMANSHIP

PROVIDE ALL MATERIAL AND EQUIPMENT NEW AND IN FIRST CLASS CONDITION. PROVIDE MARKINGS OR A NAMEPLATE FOR ALL MATERIAL AND EQUIPMENT IDENTIFYING THE MANUFACTURER AND PROVIDING SUFFICIENT REFERENCE TO ESTABLISH QUALITY, SIZE AND CAPACITY. IN GENERAL, PROVIDE THE FOLLOWING QUALITY GRADE(S) FOR ALL MATERIALS AND EQUIPMENT:

COMMERCIAL SPECIFICATION GRADE
WORK PERFORMED UNDER THIS CONTRACT SHALL PROVIDE A NEAT AND "WORKMANLIKE" APPEARANCE WHEN COMPLETED, TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER. WORKMANSHIP SHALL BE THE FINEST POSSIBLE BY EXPERIENCED MECHANICS OF THE PROPER TRADE.

THE COMPLETE INSTALLATION SHALL FUNCTION AS DESIGNED AND INTENDED WITH RESPECT TO EFFICIENCY, CAPACITY, NOISE LEVEL, ETC. ABNORMAL OR EXCESSIVE NOISE FROM EQUIPMENT, DEVICES OR OTHER SYSTEM COMPONENTS WILL NOT BE ACCEPTABLE.

REMOVE FROM THE PREMISES WASTE MATERIAL PRESENT AS A RESULT OF WORK. CLEAN EQUIPMENT INSTALLED UNDER THIS CONTRACT TO PRESENT A NEAT AND CLEAN INSTALLATION AT THE TERMINATION OF THE WORK.

REPAIR OR REPLACE PUBLIC AND PRIVATE PROPERTY DAMAGED AS A RESULT OF WORK PERFORMED UNDER THIS CONTRACT TO THE SATISFACTION OF AUTHORITIES AND REGULATIONS HAVING JURISDICTION.

26A 1-5 MANUFACTURERS

IN OTHER ARTICLES WHERE LISTS OF MANUFACTURERS ARE INTRODUCED, SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE MANUFACTURERS SPECIFIED.

WHERE A LIST IS PROVIDED, MANUFACTURERS LISTED ARE NOT IN ACCORDANCE WITH ANY RANKING OR PREFERENCE.
WHERE MANUFACTURERS ARE NOT LISTED, PROVIDE PRODUCTS SUBJECT TO COMPLIANCE WITH REQUIREMENTS FROM MANUFACTURERS THAT HAVE BEEN ACTIVELY INVOLVED IN MANUFACTURING THE SPECIFIED PRODUCT FOR NO LESS THAN 5 YEARS.

26A 1-6 COORDINATION

COORDINATE ALL WORK WITH OTHER DIVISIONS AND TRADES SO THAT THE VARIOUS COMPONENTS OF THE SYSTEMS WILL BE INSTALLED AT THE PROPER TIME, FIT THE AVAILABLE SPACE, AND WILL ALLOW PROPER SERVICE ACCESS TO THOSE ITEMS REQUIRING MAINTENANCE. REFER TO ALL OTHER DIVISION'S DRAWINGS, AND TO RELEVANT EQUIPMENT SUBMITTALS AND SHOP DRAWINGS TO DETERMINE THE EXTENT OF CLEAR SPACES. COMPONENTS WHICH ARE INSTALLED WITHOUT REGARD TO THE ABOVE SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER.

UNLESS OTHERWISE INDICATED, THE GENERAL CONTRACTOR WILL PROVIDE CHASES AND OPENINGS IN BUILDING CONSTRUCTION REQUIRED FOR INSTALLATION OF THE SYSTEMS SPECIFIED HEREIN. CONTRACTOR SHALL FURNISH THE GENERAL CONTRACTOR WITH INFORMATION WHERE CHASES AND OPENINGS ARE REQUIRED. MAKE ALL OFFSETS REQUIRED TO CLEAR EQUIPMENT, BEAMS AND OTHER STRUCTURAL MEMBERS, AND TO FACILITATE CONCEALING SYSTEM COMPONENTS IN THE MANNER ANTICIPATED IN THE DESIGN. KEEP INFORMED AS TO THE WORK OF OTHER TRADES ENGAGED IN THE CONSTRUCTION OF THE PROJECT, AND EXECUTE WORK IN A MANNER AS TO NOT INTERFERE WITH OR DELAY THE WORK OF OTHER TRADES.
FIGURED DIMENSIONS SHALL BE TAKEN IN PREFERENCE TO SCALE DIMENSIONS. CONTRACTOR SHALL TAKE HIS OWN MEASUREMENTS AT THE BUILDING, AS VARIATIONS MAY OCCUR. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ERRORS THAT COULD HAVE BEEN AVOIDED BY PROPER CHECKING AND INSPECTION.

PROVIDE MATERIALS WITH TRIM THAT WILL PROPERLY FIT THE TYPES OF CEILING, WALL, OR FLOOR FINISHES ACTUALLY INSTALLED. MODEL NUMBERS LISTED IN THE CONSTRUCTION DOCUMENTS ARE NOT NECESSARILY INTENDED TO DESIGNATE THE REQUIRED TRIM.

26A 1-7 ORDINANCES, CODES, AND STANDARDS

WORK PERFORMED UNDER THIS CONTRACT SHALL, AT A MINIMUM, BE IN CONFORMANCE WITH APPLICABLE NATIONAL, STATE AND LOCAL CODES HAVING JURISDICTION. EQUIPMENT FURNISHED AND ASSOCIATED INSTALLATION WORK PERFORMED UNDER THIS CONTRACT SHALL BE IN STRICT COMPLIANCE WITH CURRENT APPLICABLE CODES ADOPTED BY THE LOCAL AHJ INCLUDING ANY AMENDMENTS AND STANDARDS AS SET FORTH BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNDERWRITERS LABORATORIES (UL), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME), AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS (ASHRAE), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) AND OTHER NATIONAL STANDARDS AND CODES WHERE APPLICABLE. ADDITIONALLY, COMPLY WITH RULES AND REGULATIONS OF PUBLIC UTILITIES AND MUNICIPAL DEPARTMENTS AFFECTED BY CONNECTION OF SERVICES. WHERE THE CONTRACT DOCUMENTS EXCEED THE REQUIREMENTS OF THE REFERENCED CODES, STANDARDS, ETC., THE CONTRACT DOCUMENTS SHALL TAKE PRECEDENCE.

PROMPTLY BRING ALL CONFLICTS OBSERVED BETWEEN CODES, ORDINANCES, RULES, REGULATIONS, REFERENCED STANDARDS, AND THESE DOCUMENTS TO THE ENGINEER'S ATTENTION FOR FINAL RESOLUTION. CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY VIOLATION OF THE LAW.

PROCURE AND PAY FOR PERMITS AND LICENSES REQUIRED FOR THE ACCOMPLISHMENT OF THE WORK HEREIN DESCRIBED. WHERE REQUIRED, OBTAIN, PAY FOR AND FURNISH CERTIFICATES OF INSPECTION TO OWNER. CONTRACTOR WILL BE HELD RESPONSIBLE FOR VIOLATIONS OF THE LAW.

26A 1-8 PROTECTION OF EQUIPMENT AND MATERIALS

STORE AND PROTECT FROM DAMAGE EQUIPMENT AND MATERIALS DELIVERED TO JOB SITE, IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. FOR MATERIALS AND EQUIPMENT SUSCEPTIBLE TO CHANGING WEATHER CONDITIONS, DAMPNESS, OR TEMPERATURE VARIATIONS, STORE INSIDE IN CONDITIONED SPACES. FOR MATERIALS AND EQUIPMENT NOT SUSCEPTIBLE TO THESE CONDITIONS, COVER WITH WATERPROOF, TEAR-RESISTANT, HEAVY TARP OR POLYETHYLENE PLASTIC AS REQUIRED TO PROTECT FROM PLASTER, DIRT, PAINT, WATER, OR PHYSICAL DAMAGE. EQUIPMENT AND MATERIAL THAT HAS BEEN DAMAGED BY CONSTRUCTION ACTIVITIES WILL BE REJECTED, AND CONTRACTOR SHALL FURNISH NEW EQUIPMENT AND MATERIAL AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

KEEP PREMISES BROOM CLEAN FROM FOREIGN MATERIAL CREATED DURING WORK PERFORMED UNDER THIS CONTRACT. PIPING, EQUIPMENT, ETC. SHALL HAVE A NEAT AND CLEAN APPEARANCE AT THE TERMINATION OF THE WORK.

PLUG OR CAP OPEN ENDS OF CONDUITS WHILE STORED AND INSTALLED DURING CONSTRUCTION WHEN NOT IN USE TO PREVENT THE ENTRANCE OF DEBRIS INTO THE SYSTEMS.

26A 1-9 SUBSTITUTIONS

INCLUDE IN THE BASE BID THE PRODUCTS SPECIFICALLY NAMED IN THESE SPECIFICATIONS OR ON THE DRAWINGS. SUBMIT, IN THE FORM OF ALTERNATES, WITH BID, PRODUCTS OF ANY OTHER MANUFACTURERS FOR SIMILAR USE, PROVIDED THE DIFFERENCES IN COST, IF ANY, ARE INCLUDED FOR EACH PROPOSED ALTERNATE.

NO SUBSTITUTIONS WILL BE CONSIDERED WITH RECEIPT OF BIDS, UNLESS THE ARCHITECT AND ENGINEER HAVE RECEIVED FROM THE BIDDER A WRITTEN REQUEST FOR APPROVAL TO BID A SUBSTITUTION AT LEAST TEN CALENDAR DAYS PRIOR TO THE DATE FOR RECEIPT OF BIDS, AND HAVE APPROVED THE SUBSTITUTION REQUEST. INCLUDE, WITH EACH SUCH REQUEST, THE NAME OF THE MATERIAL OR EQUIPMENT FOR WHICH SUBSTITUTION IS BEING REQUESTED, AND A COMPLETE DESCRIPTION OF THE PROPOSED SUBSTITUTION, INCLUDING DRAWINGS, CUT SHEETS, PERFORMANCE AND TEST DATA, AND ALL OTHER INFORMATION NECESSARY FOR AN EVALUATION. INCLUDE ALSO A STATEMENT SETTING FORTH CHANGES IN OTHER MATERIALS, EQUIPMENT OR OTHER WORK THAT WOULD BE REQUIRED TO INCORPORATE THE SUBSTITUTION. THE BURDEN OF PROOF OF THE MERIT OF THE PROPOSED SUBSTITUTE IS UPON THE PROPOSER. THE PROPOSER OF ANY SUBSTITUTIONS SHALL COMPENSATE THE ENGINEER AT A RATE OF $150.00 PER HOUR FOR TIME SPENT EVALUATING PROPOSED SUBSTITUTIONS AND OR THE SUBSEQUENT REVISIONS TO THE DESIGN REQUIRED TO UTILIZE THE SUBSTITUTION.

THE ARCHITECT'S OR ENGINEER'S DECISION TO APPROVE OR DISAPPROVE A SUBSTITUTION IN A BID IS FINAL.

IF THE PROPOSED SUBSTITUTION IS APPROVED PRIOR TO RECEIPT OF BIDS, SUCH APPROVAL WILL BE STATED IN AN ADDENDUM. BIDDERS SHALL NOT RELY UPON APPROVALS MADE IN ANY OTHER MANNER, INCLUDING VERBAL.

NO SUBSTITUTIONS WILL BE CONSIDERED AFTER RECEIPT OF BIDS AND BEFORE AWARD OF THE CONTRACT.

NO SUBSTITUTIONS WILL BE CONSIDERED AFTER THE CONTRACT IS AWARDED UNLESS SPECIFICALLY PROVIDED IN THE CONTRACT DOCUMENTS.

26A 1-10 SUBMITTALS

ASSEMBLE AND SUBMIT TO THE ARCHITECT, FOR ENGINEER'S REVIEW, MANUFACTURERS' PRODUCT LITERATURE FOR MATERIAL AND EQUIPMENT TO BE FURNISHED, INSTALLED, OR BOTH, UNDER THIS DIVISION, INCLUDING SHOP DRAWINGS, MANUFACTURERS' PRODUCT DATA AND PERFORMANCE SHEETS, SAMPLES, AND OTHER SUBMITTALS REQUIRED BY THIS DIVISION. HIGHLIGHT, MARK, LIST OR INDICATE THE MATERIALS, PERFORMANCE CRITERIA AND ACCESSORIES THAT ARE BEING PROPOSED. PROVIDE THE NUMBER OF SUBMITTALS REQUIRED BY DIVISION 1; HOWEVER, AT A MINIMUM, SUBMIT TWO (2) SETS. BEFORE SUBMITTING, VERIFY THAT ALL MATERIALS AND EQUIPMENT SUBMITTED ARE MUTUALLY COMPATIBLE AND SUITABLE FOR THE INTENDED USE, FIT THE AVAILABLE SPACES, AND ALLOW AMPLE AND CODE-REQUIRED ROOM FOR ACCESS AND MAINTENANCE. SUBMITTALS SHALL CONTAIN THE FOLLOWING INFORMATION. SUBMITTALS NOT SO IDENTIFIED WILL BE RETURNED TO THE CONTRACTOR WITHOUT ACTION:

A. THE PROJECT NAME.
B. THE APPLICABLE SPECIFICATION SECTION AND PARAGRAPH.
C. THE SUBMITTAL DATE.
D. THE CONTRACTOR'S STAMP, WHICH SHALL CERTIFY THAT THE STAMPED DRAWINGS HAVE BEEN CHECKED BY THE CONTRACTOR, COMPLY WITH THE DRAWINGS AND SPECIFICATIONS, AND HAVE BEEN COORDINATED WITH OTHER TRADES.

SUBMITTALS AND SHOP DRAWINGS SHALL NOT CONTAIN OMNI ENGINEERS' FIRM NAME OR LOGO, NOR SHALL IT CONTAIN THE OMNI ENGINEERS' ENGINEERS' SEAL AND SIGNATURE. THEY SHALL NOT BE COPIES OF OMNI ENGINEERS' WORK PRODUCT.

TRANSMIT SUBMITTALS AS EARLY AS REQUIRED TO SUPPORT THE PROJECT SCHEDULE. ALLOW FOR TWO WEEKS ENGINEER REVIEW TIME, PLUS MAILING TIME, PLUS A DUPLICATION OF THIS TIME FOR RE-SUBMITTALS, IF REQUIRED. THE ENGINEER'S SUBMITTAL REVIEWS WILL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR ERRORS IN DIMENSIONS, DETAILS, SIZE OF MEMBERS, OR QUANTITIES; OR FOR OMITTING COMPONENTS OR FITTINGS; OR FOR NOT COORDINATING ITEMS WITH ACTUAL BUILDING CONDITIONS.

REFER TO DIVISION 1 FOR ACCEPTANCE OF ELECTRONIC SUBMITTALS FOR THIS PROJECT. FOR ELECTRONIC SUBMITTALS, CONTRACTOR SHALL SUBMIT THE DOCUMENTS IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN DIVISION 1. CONTRACTOR SHALL NOTIFY THE ARCHITECT AND ENGINEER THAT THE SHOP DRAWINGS HAVE BEEN POSTED. IF ELECTRONIC SUBMITTAL PROCEDURES ARE NOT DEFINED IN DIVISION 1, CONTRACTOR SHALL INCLUDE THE WEBSITE, USER NAME AND PASSWORD INFORMATION NEEDED TO ACCESS THE SUBMITTALS. FOR SUBMITTALS SENT BY E-MAIL, CONTRACTOR SHALL COPY THE ARCHITECT AND ENGINEER'S DESIGNATED REPRESENTATIVES. CONTRACTOR SHALL ALLOW THE ENGINEER REVIEW TIME AS SPECIFIED ABOVE IN THE CONSTRUCTION SCHEDULE. CONTRACTOR SHALL SUBMIT ONLY THE DOCUMENTS REQUIRED TO PURCHASE THE MATERIALS AND/OR EQUIPMENT IN THE ELECTRONIC SUBMITTAL AND SHALL CLEARLY INDICATE THE MATERIALS, PERFORMANCE CRITERIA AND ACCESSORIES BEING PROPOSED. GENERAL PRODUCT CATALOG DATA NOT SPECIFICALLY NOTED TO BE PART OF THE SPECIFIED PRODUCT WILL BE REJECTED AND RETURNED WITHOUT REVIEW.

26A 1-11 ELECTRONIC DRAWING FILES

IN PREPARATION OF SHOP DRAWINGS OR RECORD DRAWINGS, CONTRACTOR MAY, AS AN OPTION, OBTAIN ELECTRONIC DRAWING FILES IN REVIT, AUTOCAD, OR DXF FORMAT FROM THE ENGINEER FOR A FEE OF $200 FOR THE FIRST SHEET AND $100 PER SHEET FOR EACH ADDITIONAL SHEET. CONTACT THE ARCHITECT FOR WRITTEN AUTHORIZATION; AND, CONTACT THE ENGINEER TO OBTAIN THE NECESSARY RELEASE AGREEMENT FORM AND TO INDICATE THE DESIRED SHIPPING METHOD AND DRAWING FORMAT. IN ADDITION TO PAYMENT, ARCHITECT'S WRITTEN AUTHORIZATION AND ENGINEER'S RELEASE AGREEMENT FORM MUST BE RECEIVED BEFORE ELECTRONIC DRAWING FILES WILL BE SENT.

26A 1-12 OPERATION AND MAINTENANCE MANUALS

SUBMIT TO THE ARCHITECT, FOR ENGINEER'S REVIEW, COPIES EACH OF OPERATIONS AND MAINTENANCE INSTRUCTION MANUALS, APPROPRIATELY BOUND INTO MANUAL FORM INCLUDING APPROVED COPIES OF THE FOLLOWING, REVISED IF NECESSARY TO SHOW SYSTEM AND EQUIPMENT AS ACTUALLY INSTALLED. PAPER CLIPS, STAPLES, RUBBER BANDS, AND MAILING ENVELOPES ARE NOT CONSIDERED APPROVED BINDERS. PROVIDE THE NUMBER OF SUBMITTALS REQUIRED BY DIVISION 1; HOWEVER, AT A MINIMUM, SUBMIT TWO (2) SETS, AND INCLUDE, AT A MINIMUM, THE FOLLOWING INFORMATION:

A. COVER SHEET THAT LISTS THE PROJECT NAME, DATE, OWNER, ARCHITECT, CONSULTING ENGINEER, GENERAL CONTRACTOR, SUB-CONTRACTOR, AND AN INDEX OF CONTENTS.
B. MANUFACTURERS' CATALOGS AND PRODUCT DATA SHEETS
C. WIRING DIAGRAMS
D. OPERATION AND MAINTENANCE INSTRUCTIONS
E. PARTS LISTS
F. APPROVED SHOP DRAWINGS
G. TEST REPORTS AS DEFINED IN NETA ATS FOR THE SYSTEMS AND EQUIPMENT PROVIDED OR FURNISHED OR INSTALLED UNDER THIS CONTRACT.
H. NAMES, ADDRESSES, TELEPHONE NUMBERS, AND E-MAIL ADDRESSES OF LOCAL CONTACTS FOR WARRANTY SERVICES AND SPARE PARTS.

SUBMIT MANUALS PRIOR TO REQUESTING THE FINAL PUNCH LIST AND BEFORE ANY REQUESTS FOR SUBSTANTIAL COMPLETION. FINAL APPROVAL OF THIS DIVISION'S SYSTEMS INSTALLED UNDER THIS CONTRACT WILL BE WITHHELD UNTIL THIS EQUIPMENT BROCHURE IS RECEIVED AND DEEMED COMPLETE BY THE ARCHITECT AND ENGINEER.

PROVIDE "AS-BUILT" DRAWINGS (SEE DIVISION 1 AND GENERAL CONDITIONS).

26A 1-13 TRAINING

AT A TIME MUTUALLY AGREED UPON BETWEEN THE OWNER AND CONTRACTOR, PROVIDE THE SERVICES OF A FACTORY TRAINED AND AUTHORIZED REPRESENTATIVE TO TRAIN OWNER'S DESIGNATED PERSONNEL ON THE OPERATION AND MAINTENANCE OF THE EQUIPMENT PROVIDED FOR THIS PROJECT.

PROVIDE TRAINING TO INCLUDE BUT NOT BE LIMITED TO AN OVERVIEW OF THE SYSTEM AND/OR EQUIPMENT AS IT RELATES TO THE FACILITY AS A WHOLE; OPERATION AND MAINTENANCE PROCEDURES AND SCHEDULES RELATED TO STARTUP AND SHUTDOWN, TROUBLESHOOTING, SERVICING, PREVENTIVE MAINTENANCE AND APPROPRIATE OPERATOR INTERVENTION; AND REVIEW OF DATA INCLUDED IN THE OPERATION AND MAINTENANCE MANUALS.

SUBMIT A CERTIFICATION LETTER TO THE ARCHITECT STATING THAT THE OWNER'S DESIGNATED REPRESENTATIVE HAS BEEN TRAINED AS SPECIFIED HEREIN. LETTER SHALL INCLUDE DATE, TIME, ATTENDEES AND SUBJECT OF TRAINING. THE CONTRACTOR AND THE OWNER'S REPRESENTATIVE SHALL SIGN THE CERTIFICATION LETTER INDICATING AGREEMENT THAT THE TRAINING HAS BEEN PROVIDED.

SCHEDULE TRAINING WITH OWNER WITH AT LEAST 7 DAYS ADVANCE NOTICE.

26A 1-14 WARRANTIES

WARRANT EACH SYSTEM AND EACH ELEMENT THEREOF AGAINST ALL DEFECTS DUE TO FAULTY WORKMANSHIP, DESIGN OR MATERIAL FOR A PERIOD OF 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION, UNLESS SPECIFIC ITEMS ARE NOTED TO CARRY A LONGER WARRANTY IN THE CONSTRUCTION DOCUMENTS OR MANUFACTURER'S STANDARD WARRANTY EXCEEDS THIS DURATION. WARRANTIES SHALL INCLUDE LABOR AND MATERIAL. REMEDY ALL DEFECTS, OCCURRING WITHIN THE WARRANTY PERIOD(S), AS STATED IN THE GENERAL CONDITIONS AND DIVISION 1 WITHOUT ANY ADDITIONAL COSTS TO THE OWNER.

PERFORM ANY REQUIRED REMEDIAL WORK PROMPTLY, UPON WRITTEN NOTICE FROM THE ENGINEER OR OWNER.

AT THE TIME OF SUBSTANTIAL COMPLETION, DELIVER TO THE OWNER ALL WARRANTIES, IN WRITING AND PROPERLY EXECUTED, INCLUDING TERM LIMITS FOR WARRANTIES EXTENDING BEYOND THE REQUIRED PERIOD, EACH WARRANTY INSTRUMENT BEING ADDRESSED TO THE OWNER AND STATING THE COMMENCEMENT DATE AND TERM.

26A 2 ELECTRICAL WORK

26A 2-1 BUILDING OPERATION

COMPLY WITH THE SCHEDULE OF OPERATIONS AS OUTLINED IN THE ARCHITECTURAL PORTIONS OF THIS SPECIFICATION. BUILDING SHALL BE IN CONTINUOUS OPERATION. ACCOMPLISH WORK THAT REQUIRES INTERRUPTION OF BUILDING OPERATION AT A TIME WHEN THE BUILDING IS NOT IN OPERATION, AND ONLY WITH WRITTEN APPROVAL OF BUILDING OWNER AND/OR TENANT. COORDINATE INTERRUPTION OF BUILDING OPERATION WITH THE OWNER AND/OR TENANT A MINIMUM OF 7 DAYS IN ADVANCE OF WORK.

26A 2-2 EXCAVATION AND BACKFILLING

PERFORM EXCAVATION AND BACKFILL REQUIRED FOR INSTALLATION OF UNDERGROUND WORK UNDER THIS CONTRACT. TRENCHES SHALL BE OF SUFFICIENT WIDTH. CRIB OR BRACE TRENCHES TO PREVENT CAVE-IN OR SETTLEMENT. DO NOT EXCAVATE TRENCHES CLOSE TO COLUMNS AND WALLS OF BUILDING WITHOUT PRIOR CONSULTATION WITH THE ARCHITECT. USE PUMPING EQUIPMENT IF REQUIRED TO KEEP TRENCHES FREE OF WATER. BACKFILL TRENCHES IN MAXIMUM 6" LAYERS OF WELL-TAMPED DRY EARTH IN A MANNER TO PREVENT FUTURE SETTLEMENT.

EXCAVATION AS HEREIN SPECIFIED SHALL BE CLASSIFIED AS COMMON EXCAVATION. COMMON EXCAVATION SHALL COMPRISE THE SATISFACTORY REMOVAL AND DISPOSITION OF MATERIAL OF WHATEVER SUBSTANCES AND OF EVERY DESCRIPTION ENCOUNTERED, INCLUDING ROCK, IF ANY, WITHIN THE LIMITS OF THE WORK AS SPECIFIED AND SHOWN ON THE DRAWINGS. EXCAVATION SHALL BE PERFORMED TO THE LINES AND GRADES INDICATED ON THE DRAWINGS. EXCAVATED MATERIALS WHICH ARE CONSIDERED UNSUITABLE FOR BACKFILL, AND SURPLUS OF EXCAVATED MATERIAL WHICH IS NOT REQUIRED FOR BACKFILL, SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE AND RESPONSIBILITY, AND TO THE SATISFACTION OF THE ARCHITECT.

26A 2-3 COINCIDENTAL DAMAGE

REPAIR ALL STREETS, SIDEWALKS, DRIVES, PAVING, WALLS, FINISHES, AND OTHER FACILITIES DAMAGED IN THE COURSE OF THIS WORK. REPAIR MATERIALS SHALL MATCH EXISTING CONSTRUCTION AND OR CONFORM TO ALL REQUIREMENT IDENTIFIED IN OTHER DIVISIONS. ALL BACKFILLING AND REPAIRING SHALL MEET ALL REQUIREMENTS OF THE OWNER, CITY AND OTHERS HAVING JURISDICTION. REPAIR WORK SHALL BE THOROUGHLY FIRST CLASS.

26A 2-4 CUTTING AND PATCHING

FOLLOWING THE REQUIREMENTS IN DIVISION 1, CUT WALLS, FLOORS, CEILINGS, AND OTHER PORTIONS OF THE FACILITY AS REQUIRED TO PERFORM WORK UNDER THIS DIVISION. OBTAIN PERMISSION OF THE ARCHITECT, OWNER, OR BOTH, BEFORE DOING ANY CUTTING. CUT ALL HOLES AS SMALL AS POSSIBLE. PATCH WALLS, FLOORS, AND OTHER PORTIONS OF THE FACILITY AS REQUIRED BY WORK UNDER THIS DIVISION. ALL PATCHING SHALL BE THOROUGHLY FIRST CLASS AND SHALL MATCH THE ORIGINAL MATERIAL AND CONSTRUCTION, INCLUDING FIRE RATINGS IF APPLICABLE IN A MANNER SATISFACTORY TO THE ARCHITECT.

26A 2-5 ROUGH-IN

COORDINATE WITHOUT DELAY ALL ROUGHING-IN WITH OTHER DIVISIONS. CONCEAL ALL PIPING AND ROUGH-IN EXCEPT IN UNFINISHED AREAS AND WHERE OTHERWISE INDICATED IN THE CONSTRUCTION DOCUMENTS.

26A 2-6 SUPPORT SYSTEMS

STEEL SLOTTED SUPPORT SYSTEMS (SLOTTED CHANNEL): COMPLY WITH MFMA-3, FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY; 12-GAUGE, 1-5/8-INCH BY 1-5/8-INCH; COOPER B-LINE, ERICO INTERNATIONAL CORPORATION, HILTI, INC., POWER-STRUT, THOMAS & BETTS CORPORATION, UNISTRUT.

FINISHES:

A. METALLIC COATINGS: HOT-DIP GALVANIZED AFTER FABRICATION AND APPLIED ACCORDING TO MFMA-3.
B. NONMETALLIC COATINGS: MANUFACTURER'S STANDARD PVC, POLYURETHANE OR POLYESTER COATING APPLIED ACCORDING TO MFMA-3.
C. PAINTED COATINGS: MANUFACTURER'S STANDARD PAINTED COATING APPLIED ACCORDING TO MFMA-3.
D. STAINLESS STEEL: TYPE 304, PER ASTM A240.

ALUMINUM SLOTTED SUPPORT SYSTEMS (SLOTTED CHANNEL): COMPLY WITH MFMA-3, TYPE 6063-T6, PER ASTM B221; FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY; 12-GAUGE, 1-5/8-INCH BY 1-5/8-INCH; COOPER B-LINE, ERICO INTERNATIONAL CORPORATION, HILTI, INC., POWER-STRUT, THOMAS & BETTS CORPORATION, UNISTRUT.

FIELD FABRICATION:

A. WHERE FIELD CUTTING OF STANDARD LENGTHS OF CHANNEL ARE REQUIRED, MAKE CUTS STRAIGHT AND PERPENDICULAR TO MANUFACTURED SURFACES.
B. FOR FIELD-CUT OR DAMAGED SURFACES OF COATED CHANNELS, DRESS CUT ENDS, DAMAGED SURFACES, OR BOTH, WITH AN ABRASIVE MATERIAL (E.G., FILE, GRINDING STONE, OR SIMILAR) AND CLEANSER TO REMOVE OILS, RUST, SHARP EDGES AND SHARDS.
C. FOR CHANNEL WITH A FACTORY-APPLIED COATING, RE-FINISH CUT EDGES WITH A COATING COMPATIBLE WITH THE FACTORY FINISH AND AS RECOMMENDED BY THE MANUFACTURER (E.G., MANUFACTURER'S TOUCH-UP PAINT OR ZINC-RICH COLD-GALVANIZING COMPOUND, AS APPLICABLE).

26A 2-7 PENETRATIONS

COORDINATE SLEEVE SELECTION AND APPLICATION WITH SELECTION AND APPLICATION OF FIRE-STOPPING SPECIFIED IN DIVISION 7 SECTION "THROUGH-PENETRATION FIRESTOP SYSTEMS."

ROOFS:

A. COORDINATE ALL ROOF PENETRATIONS WITH ENGINEER, OWNER, AND AS APPLICABLE, THE ROOFING CONTRACTOR PROVIDING A ROOF WARRANTY.
B. KEEP ALL RACEWAY PENETRATIONS WITHIN MECHANICAL EQUIPMENT CURBS WHEREVER POSSIBLE. COORDINATE WITH ALL OTHER APPLICABLE DIVISION'S WORK.
C. FLASH AND COUNTERFLASH ALL OPENINGS THROUGH ROOF, AND/OR PROVIDE PRE-FABRICATED MOLDED SEALS COMPATIBLE WITH THE ROOF CONSTRUCTION INSTALLED, OR AS REQUIRED BY THE ENGINEER, OWNER, OR ROOFING CONTRACTOR. ALL ROOF PENETRATIONS SHALL BE LEAK-TIGHT AT THE TERMINATION OF THE WORK AND SHALL NOT VOID ANY NEW OR EXISTING ROOF WARRANTIES.

WALLS AND FLOORS:

SLEEVES FOR RACEWAYS AND CABLES

A. STEEL PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, GALVANIZED STEEL, PLAIN ENDS AND DRIP RINGS.
B. CAST-IRON PIPE SLEEVES: CAST OR FABRICATED "WALL PIPE," EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATERSTOP, UNLESS OTHERWISE INDICATED.

SLEEVES FOR RECTANGULAR OPENINGS: GALVANIZED SHEET STEEL WITH MINIMUM 0.138 INCH THICKNESS AND OF WIDTH AND LENGTH TO SUIT APPLICATION.

26A 2-8 FIRE-STOPPING THROUGH PENETRATIONS

FIRE-RESISTANT THROUGH PENETRATION SEALANTS: TWO-PART, FOAMED-IN-PLACE, SILICONE SEALANT FORMULATED FOR USE IN THROUGH-PENETRATION FIRE-STOPPING AROUND CABLES, RACEWAYS, AND CABLE TRAY PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS. SEALANTS AND ACCESSORIES SHALL HAVE FIRE-RESISTANCE RATINGS INDICATED, AS ESTABLISHED BY TESTING IDENTICAL ASSEMBLIES IN ACCORDANCE WITH ASTM E 814, BY UNDERWRITERS' LABORATORIES, INC., OR OTHER NRTL ACCEPTABLE TO AHJ.

ACCEPTABLE MANUFACTURERS:

A. HILTI, INC.
B. 3M CORP.
C. RECTORSEAL.
D. SPECIFY TECHNOLOGY INC.
E. UNITED STATES GYPSUM COMPANY.

SUBMITTALS

A. SUBMIT PRODUCT DATA, MANUFACTURER'S SPECIFICATIONS AND TECHNICAL DATA FOR EACH MATERIAL INCLUDING THE COMPOSITION AND LIMITATIONS, DOCUMENTATION OF UL FIRESTOP SYSTEMS TO BE USED AND MANUFACTURER'S INSTALLATION INSTRUCTIONS TO COMPLY WITH DIVISION 1.
B. MANUFACTURER'S ENGINEERING JUDGMENT IDENTIFICATION NUMBER AND DRAWING DETAILS WHEN NO UL SYSTEM IS AVAILABLE FOR AN APPLICATION. ENGINEERING JUDGMENT SHALL INCLUDE BOTH PROJECT NAME AND CONTRACTOR'S NAME WHO WILL INSTALL FIRESTOP SYSTEM AS DESCRIBED IN DRAWINGS.
C. SUBMIT MATERIAL SAFETY DATA SHEETS PROVIDED WITH PRODUCT DELIVERED TO JOB-SITE.

26A 2-9 CONCRETE BASES

PROVIDE CONCRETE BASES (E.G., HOUSEKEEPING PADS) FOR EQUIPMENT WHERE INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN. CONCRETE BASES SHALL HAVE CHAMFERED EDGES. SIZE OF BASE SHALL BE A MINIMUM OF 2 INCHES GREATER THAN THE FOOTPRINT OF THE EQUIPMENT THAT IT IS SUPPORTING.

CONSTRUCT EQUIPMENT BASES OF A MINIMUM 28-DAY, 4000-PSI CONCRETE CONFORMING TO AMERICAN CONCRETE INSTITUTE STANDARD BUILDING CODE FOR REINFORCED CONCRETE (ACI 318-99) AND THE LATEST APPLICABLE RECOMMENDATIONS OF THE ACI STANDARD PRACTICE MANUAL. CONCRETE SHALL BE COMPOSED OF CEMENT CONFORMING TO ASTM C 150 TYPE I, AGGREGATE CONFORMING TO ASTM C33, AND POTABLE WATER. EXPOSED EXTERIOR CONCRETE SHALL CONTAIN 5 TO 7 PERCENT AIR ENTRAINMENT.

UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE STRUCTURAL DRAWINGS, REINFORCE EQUIPMENT BASES WITH NO. 4 REINFORCING BARS CONFORMING TO ASTM A 615 OR 6X6 – W2.9 X W2.9 WELDED WIRE MESH CONFORMING TO ASTM A185. PLACE REINFORCING BARS 24 INCHES ON CENTER WITH A MINIMUM OF TWO BARS EACH DIRECTION.

PROVIDE GALVANIZED ANCHOR BOLTS FOR EQUIPMENT PLACED ON CONCRETE BASES OR ON CONCRETE SLABS. ANCHOR BOLTS SIZE, NUMBER AND PLACEMENT SHALL BE AS RECOMMENDED BY THE MANUFACTURER OF THE EQUIPMENT.

CONCRETE EQUIPMENT BASES SHALL HAVE A MINIMUM HEIGHT OF 4 INCHES AND SHALL BE POURED-IN-PLACE.

26A 2-10 ACCESS DOORS

PROVIDE ACCESS DOORS IN CEILINGS AND WALLS, WHERE INDICATED OR REQUIRED FOR ACCESS OR MAINTENANCE TO CONCEALED EQUIPMENT INSTALLED UNDER THIS SECTION. PROVIDE CONCEALED HINGES, SCREWDRIVER-TYPE LOCK, AND ANCHOR STRAPS.

MANUFACTURED BY MILCOR, ZURN, TITUS, OR EQUAL. OBTAIN ARCHITECT'S APPROVAL OF TYPE, SIZE, LOCATION AND COLOR BEFORE ORDERING.

26A 2-11 EQUIPMENT FURNISHED BY OTHERS

PROVIDE NECESSARY EQUIPMENT AND ACCESSORIES THAT ARE NOT PROVIDED BY THE EQUIPMENT SUPPLIER OR OWNER TO COMPLETE INSTALLATION OF EQUIPMENT FURNISHED BY OTHERS, IN LOCATIONS AS INDICATED ON THE DRAWINGS, SPECIFIED HEREIN, OR BOTH. EQUIPMENT AND ACCESSORIES NOT PROVIDED BY THE EQUIPMENT SUPPLIER MAY INCLUDE SUCH ITEMS AS FLEXIBLE CORDS AND PLUGS, AS REQUIRED FOR PROPER OPERATION OF THE COMPLETE SYSTEM, IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS.

BE RESPONSIBLE FOR CORRECT ROUGH-IN DIMENSIONS, AND VERIFY THEM WITH ENGINEER, OWNER'S REPRESENTATIVE, EQUIPMENT SUPPLIER, OR ALL THREE, PRIOR TO ROUGH-IN AND SERVICE INSTALLATIONS.

26A 2-12 CLEANING

IN ADDITION TO THE REQUIREMENTS OF DIVISION 1, REMOVE FROM THE PREMISES DIRT AND REFUSE RESULTING FROM THE PERFORMANCE OF THE ELECTRICAL WORK, AS REQUIRED, TO PREVENT ACCUMULATION. COOPERATE IN MAINTAINING REASONABLY CLEAN PREMISES AT ALL TIMES. IMMEDIATELY PRIOR TO FINAL INSPECTION, MAKE A FINAL CLEANUP OF DIRT AND REFUSE RESULTING FROM THE WORK. CLEAN ALL MATERIAL AND EQUIPMENT INSTALLED UNDER THIS DIVISION. REMOVE DIRT, DUST, PLASTER, STAINS AND FOREIGN MATTER FROM ALL SURFACES. TOUCH UP AND RESTORE ALL DAMAGED FINISHES TO THEIR ORIGINAL CONDITION.

26A 2-13 ADJUSTING, ALIGNING AND TESTING

ADJUST, ALIGN, AND TEST ALL ELECTRICAL EQUIPMENT ON THIS PROJECT PROVIDED UNDER THIS DIVISION AND ALL ELECTRICAL EQUIPMENT FURNISHED BY OTHERS FOR INSTALLATION OR WIRING UNDER THIS DIVISION, FOR PROPER OPERATION.

TEST ALL SYSTEMS AND EQUIPMENT ACCORDING TO THE REQUIREMENTS IN NETA ATS (LATEST EDITION) AND ALL ADDITIONAL REQUIREMENTS SPECIFIED IN FOLLOWING SECTIONS.

MAINTAIN THE FOLLOWING ON THE PROJECT PREMISES AT ALL TIMES: A TRUE RMS READING VOLTMETER, A TRUE RMS READING AMMETER, AND A MEGOHMMETER INSULATION RESISTANCE TESTER. PROVIDE TEST DATA READINGS AS REQUESTED OR AS REQUIRED BY THE ENGINEER.

26A 2-14 EQUIPMENT IDENTIFICATION

PROVIDE EQUIPMENT IDENTIFICATION NAMEPLATES: ON ALL PANELBOARDS, SWITCHES, STARTERS, DIMMERS, SWITCHES IN DISTRIBUTION PANELBOARDS AND SWITCHBOARDS AS WELL AS WHERE INDICATED ELSEWHERE IN THE CONSTRUCTION DOCUMENTS.

NAMEPLATES:

A. ENGRAVED, CONTRASTING COLOR, THREE-LAYER, LAMINATED PLASTIC INDICATING THE NAME OF THE EQUIPMENT, LOAD, OR CIRCUIT AS DESIGNATED ON THE DRAWINGS AND IN THE SPECIFICATIONS:
B. FIELD-APPLIED PERMANENT EPOXY ADHESIVE, COMPATIBLE WITH THE EQUIPMENT FINISH.
C. ATTACHMENT METHOD SHALL BE ACCEPTABLE TO THE MANUFACTURERS OF THE EQUIPMENT TO WHICH THE NAMEPLATES ARE BEING APPLIED.
D. COLOR: BLACK BACKGROUND WITH WHITE LETTERS FOR NORMAL POWER; RED BACKGROUND WITH WHITE LETTERS FOR EMERGENCY POWER. LETTER HEIGHT: ½ - INCH MINIMUM.

CERTIFICATE OF AUTHORIZATION
OMNI ENGINEERS
No. 2748
ARKANSAS - ENGINEER

No. 18039
CALEB MELTON
04/04/25

OMNI ENGINEERS
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DENTAL
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DATE 03/14/25
JOB NO. 25059
REVISIONS

E4.0
ELECTRICAL SPECIFICATIONS

CERTIFICATE OF AUTHORIZATION
OMNI ENGINEERS
No. 2748
ARKANSAS - ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 18039
CALEB MELTON
Caleb Melton
04/04/25

26A 2-15 SYSTEM START UP

PRIOR TO STARTING UP THE ELECTRICAL SYSTEMS:

A. CHECK ALL COMPONENTS AND DEVICES.
B. LUBRICATE ITEMS ACCORDINGLY.
C. TIGHTEN SCREWS AND BOLTS FOR CONNECTORS AND TERMINALS ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE-TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A AND UL 486B.
D. ADJUST TAPS ON EACH TRANSFORMER FOR RATED SECONDARY VOLTAGE WHEN THE TRANSFORMER IS AT MINIMUM LOAD.
E. CHECK AND RECORD BUILDING'S SERVICE ENTRANCE VOLTAGE, GROUNDING CONDITIONS, GROUNDING RESISTANCE, AND PROPER PHASING.
F. REPLACE ALL BURNED-OUT LAMPS AND LAMPS USED FOR TEMPORARY CONSTRUCTION LIGHTING IN PERMANENT LIGHT FIXTURES.
G. AFTER ALL SYSTEMS HAVE BEEN INSPECTED AND ADJUSTED, CONFIRM ALL OPERATING FEATURES REQUIRED BY THE DRAWINGS AND SPECIFICATIONS AND MAKE FINAL ADJUSTMENTS AS NECESSARY.

26A 4 ALTERNATES

PROVIDE ALL WORK CONTEMPLATED UNDER THE DIFFERENT ALTERNATES TO INCLUDE LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR AND INCIDENTAL TO THE COMPLETION OF WORK UNDER EACH PARTICULAR ALTERNATE. FURNISH SEPARATE BIDS FOR EACH ALTERNATE APPLICABLE TO CONTRACTOR'S PROPOSAL, STATING THE AMOUNT TO BE ADDED OR DEDUCTED FROM THE BASE BID IN CASE THE ALTERNATE IS ACCEPTED. COMPLY WITH APPLICABLE SECTIONS OF THE BASE SPECIFICATIONS FOR WORK REQUIRED BY THE ALTERNATE UNLESS OTHERWISE SPECIFIED. REFER TO THE ARCHITECTURAL PORTION OF THE SPECIFICATION.

END OF SECTION 26A

26B BASIC ELECTRICAL MATERIALS AND METHODS

26B 1 METHODS

26B 1-1 RACEWAYS

METALLIC CONDUIT AND TUBING:

A. ELECTRICAL METALLIC TUBING AND FITTINGS (EMT): ANSI C80.3, UL 797. REDUCED WALL EMT IS NOT ALLOWED.
B. FLEXIBLE METAL CONDUIT (FMC): ZINC-COATED STEEL OR ALUMINUM, UL 1. REDUCED-WALL FMC IS NOT ALLOWED.
C. INTERMEDIATE METAL CONDUIT (IMC): HOT-DIP GALVANIZED RIGID STEEL CONDUIT: ANSI C80.6, UL 1242.
D. LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC): FLEXIBLE STEEL CONDUIT WITH PVC JACKET: UL 360.
E. RIGID METAL CONDUIT (RMC): HOT-DIP GALVANIZED RIGID STEEL CONDUIT (GRS): ANSI C80.1, UL 6.
F. PLASTIC-COATED IMC, RMC, AND FITTINGS: NEMA RN 1, UL LISTED.
G. IMC AND RMC FITTINGS: NEMA FB 1; COMPATIBLE WITH CONDUIT TYPE AND MATERIAL, UL LISTED

NON-METALLIC CONDUIT AND TUBING:

A. RIGID NONMETALLIC CONDUIT (RNC): SCHEDULE 40 PVC, 90 DEG C RATED, NEMA TC-2, UL 651; FITTINGS: NEMA TC 3, TC 6; UL 514, COMPATIBLE WITH CONDUIT/TUBING TYPE AND MATERIAL, UL LISTED.
B. ELECTRICAL NONMETALLIC TUBING (ENT): NEMA TC 13, UL LISTED.
C. LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC): UL 1660.
D. ENT AND LFNC FITTINGS: COMPATIBLE WITH CONDUIT/TUBING TYPE AND MATERIAL, UL LISTED.

26B 1-2 RACEWAY INSTALLATION

ABOVE GROUND USE:

A. INSTALL ALL CIRCULAR RACEWAYS CONCEALED ABOVE SUSPENDED CEILINGS OR CONCEALED IN WALLS OR FLOORS WHEREVER POSSIBLE EXCEPT WHERE OTHERWISE INDICATED.
B. PROVIDE GRS FOR ALL CONDUITS RUN EXPOSED TO WEATHER, OR EXPOSED TO OTHER HAZARDOUS CONDITIONS.
C. ALL OTHER RACEWAY MAY BE EMT WHERE APPROVED BY LOCAL CODE. USE COMPRESSION TYPE FITTINGS FOR EMT, WITH ALL FITTINGS UL LISTED FOR THE ENVIRONMENT IN WHICH THEY ARE USED.

UNDERGROUND USE:

A. PROVIDE GRS INSTALLED BELOW GRADE WITH A CORROSION RESISTANT BONDED-PLASTIC OR APPROVED MASTIC COATING. THIS SHALL INCLUDE THE 90-DEGREE ELBOW BELOW GRADE AND THE ENTIRE VERTICAL TRANSITION TO ABOVE GRADE.
B. RNC CONDUIT MAY BE USED UNDERGROUND WHERE PERMITTED BY LOCAL CODE AND WHERE NOT SPECIFICALLY RESTRICTED BY THESE DOCUMENTS. WHEN USED, PROVIDE COATED GRS, AS SPECIFIED ABOVE, FOR ALL BENDS GREATER THAN 30 DEGREES, INCLUDING THE 90-DEGREE ELBOWS BELOW GRADE AND THE ENTIRE VERTICAL RISERS FOR TRANSITIONS FROM BELOW TO ABOVE GRADE OR ABOVE-SLAB.

EQUIPMENT CONNECTIONS:

A. USE FMC FOR FINAL CONNECTION TO EACH MOTOR AND TRANSFORMER, AND TO ANY DEVICE THAT WOULD OTHERWISE TRANSMIT MOTION, VIBRATION, OR NOISE. USE LFMC WHERE EXPOSED TO LIQUIDS, VAPORS OR SUNLIGHT, AND TO CONNECT TO KITCHEN AND FOOD SERVICE EQUIPMENT. PROVIDE ALL FMC AND LFMC WITH AN INSULATED BONDING CONDUCTOR.
B. USE ONLY METAL RACEWAYS FOR ALL POWER WIRING FROM THE OUTPUT OF VARIABLE FREQUENCY DRIVES TO THEIR RESPECTIVE MOTORS. ALL FEEDERS TO VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE IN EMT OR OTHER METALLIC CONDUIT. PVC OR FIBERGLASS IS NOT ALLOWED FOR FEEDERS TO VFDS.

GENERAL RACEWAY INSTALLATION REQUIREMENTS:

A. INSTALL RACEWAYS PARALLEL AND PERPENDICULAR TO BUILDING LINES.
B. INSTALL RACEWAYS TO REQUIREMENTS OF STRUCTURE AND TO REQUIREMENTS OF ALL OTHER WORK ON THE PROJECT; TO CLEAR ALL OPENINGS, DEPRESSIONS, PIPES, DUCTS, REINFORCING STEEL, AND OTHER IMMOVABLE OBSTACLES.
C. INSTALL RACEWAYS SET IN FORMS FOR CONCRETE STRUCTURE IN SUCH A MANNER THAT INSTALLATION WILL NOT AFFECT THE STRENGTH OF THE STRUCTURE.
D. EXCEPT WHERE APPROVED IN WRITING BY THE ENGINEER, INSTALL NO RACEWAY IN A SLAB-ON-GRADE. LOCATE RACEWAY IN GRANULAR FILL BELOW SLABS-ON-GRADE.
E. INSTALL RACEWAYS CONTINUOUS BETWEEN CONNECTIONS TO OUTLETS, BOXES AND CABINETS WITH A MINIMUM POSSIBLE NUMBER OF BENDS AND NOT MORE THAN THE EQUIVALENT OF FOUR 90-DEGREE BENDS BETWEEN CONNECTIONS. USE MANUFACTURED ELBOWS FOR ALL 45- AND 90-DEGREE BENDS, UNLESS APPROVED BY THE ENGINEER IN ADVANCE. MAKE OTHER BENDS SMOOTH AND EVEN AND WITHOUT FLATTENING RACEWAY OR FLAKING GALVANIZING OR ENAMEL. RADII OF BENDS SHALL BE AS LONG AS POSSIBLE AND NEVER SHORTER THAN THE CORRESPONDING TRADE ELBOW.
F. USE LONG RADIUS ELBOWS FOR ALL UNDERGROUND INSTALLATIONS, WHERE NECESSARY OR INDICATED.
G. SECURELY FASTEN RACEWAYS IN PLACE WITH APPROVED STRAPS, HANGERS AND STEEL SUPPORTS AS REQUIRED. ATTACH RACEWAY SUPPORTS TO THE BUILDING STRUCTURE. HANG SINGLE RACEWAYS FOR FEEDERS WITH MALLEABLE SPLIT RING HANGERS WITH ROD AND TURNBUCKLE SUSPENSION FROM INSERTS SPACED NOT OVER 10 FEET APART IN CONSTRUCTION ABOVE. CLAMP GROUPS OF HORIZONTAL FEEDER RACEWAYS TO STEEL CHANNELS THAT ARE SUSPENDED FROM INSERTS SPACED NOT OVER 10 FEET APART IN CONSTRUCTION ABOVE. SECURELY CLAMP VERTICAL FEEDER RACEWAYS TO STRUCTURAL STEEL MEMBERS ATTACHED TO STRUCTURE. INSTALL CABLE CLAMPS FOR SUPPORT OF VERTICAL FEEDERS WHERE REQUIRED. ADD RACEWAY SUPPORTS WITHIN 12 INCHES OF ALL BENDS, ON BOTH SIDES OF THE BENDS. DO NOT SUPPORT RACEWAYS FROM SUSPENDED CEILING COMPONENTS.
H. REAM RACEWAY ENDS, THOROUGHLY CLEAN RACEWAYS BEFORE INSTALLATION, AND KEEP CLEAN AFTER INSTALLATION. PLUG OR COVER OPENINGS AND BOXES AS REQUIRED TO KEEP RACEWAYS CLEAN DURING CONSTRUCTION AND FISH ALL RACEWAYS CLEAR OF OBSTRUCTIONS BEFORE PULLING CONDUCTORS. PROVIDE RACEWAYS OF AMPLE SIZE FOR PULLING OF WIRE AND NOT SMALLER THAN CODE REQUIREMENTS AND NOT LESS THAN 1/2-INCH IN SIZE, UNLESS INDICATED OTHERWISE ON DRAWINGS.
I. PROTECT ALL RACEWAY INSTALLATIONS AGAINST DAMAGE DURING CONSTRUCTION. REPAIR ALL RACEWAYS DAMAGED OR MOVED OUT OF LINE AFTER ROUGHING-IN TO MEET ENGINEER'S APPROVAL WITHOUT ADDITIONAL COST TO THE OWNER.
J. ALIGN AND INSTALL TRUE AND PLUMB ALL RACEWAY TERMINATIONS AT PANELBOARDS, SWITCHBOARDS, MOTOR CONTROL EQUIPMENT AND JUNCTION BOXES.
K. INSTALL APPROVED EXPANSION/DEFLECTION FITTINGS WHERE RACEWAYS PASS THROUGH (IF EMBEDDED) OR ACROSS (IF EXPOSED) EXPANSION JOINTS. ALSO WHEN USING RNC OR RAC IN EXPOSED ENVIRONMENTS IN ACCORDANCE WITH THE NEC AND EXPANSION/CONTRACTION PROPERTIES OF RNC OR RAC.
L. INSTALL A PULL WIRE IN EACH EMPTY RACEWAY THAT IS LEFT FOR INSTALLATION OF CONDUCTORS OR CABLES UNDER OTHER DIVISIONS OR CONTRACTS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 24 INCHES OF SLACK AT EACH END OF PULL WIRE.
M. MAKE ALL JOINTS AND CONNECTIONS IN A MANNER THAT WILL ENSURE MECHANICAL STRENGTH AND ELECTRICAL CONTINUITY.
N. RACEWAYS PENETRATING FREEZER AND COOLER WALLS:
    a. EFFECTIVELY SEAL RACEWAYS, BY INSTALLING A CONDUIT FITTING AT THE BOUNDARY OF THE TWO SPACES, AND FILLING IT WITH AN APPROVED PLIABLE MATERIAL, AFTER CONDUCTORS OR CABLES HAVE BEEN INSTALLED AND TESTED, WHENEVER:
        1. RACEWAYS PASS FROM NON-COOLED TO COOLED SPACES.
        2. RACEWAYS TRANSITION FROM OUTSIDE A FACILITY OR ENCLOSURE TO INSIDE, WHETHER BURIED OR EXPOSED.

26B 1-3 BUSHINGS AND LOCKNUTS

RIGIDLY TERMINATE CONDUITS ENTERING SHEET METAL ENCLOSURES TO THE ENCLOSURE WITH A BUSHING AND LOCKNUT ON THE INSIDE AND A LOCKNUT OR AN APPROVED HUB ON THE OUTSIDE. CONDUIT SHALL ENTER THE ENCLOSURE SQUARELY. PROVIDE BUSHINGS AND LOCKNUTS MADE OF GALVANIZED MALLEABLE IRON WITH SHARP, CLEAN-CUT THREADS. WHERE EMT ENTERS A BOX, PROVIDE APPROVED EMT COMPRESSION CONNECTORS. USE INSULATED, GROUNDING, OR COMBINATION, BUSHINGS WHEREVER CONNECTION IS SUBJECT TO VIBRATION OR MOISTURE, WHEN REQUIRED BY NFPA 70, OR BOTH.

26B 1-4 CONDUCTORS AND CABLES

CONDUCTOR MATERIAL: ANNEALED (SOFT) COPPER COMPLYING WITH ICEA S-95-658/NEMA WC70;

CONDUCTOR INSULATION TYPES: 90-DEGREE C-RATED, TYPE THHN/THWN-2 OR XHHW-2 COMPLYING WITH ICEA S-95-658/NEMA WC70.

A. SIZES OF CONDUCTORS AND CABLES INDICATED OR SPECIFIED ARE IN AMERICAN WIRE GAGE (AWG - BROWN AND SHARPE).
B. ALL FEEDER AND BRANCH CIRCUIT CONDUCTORS NO. 8 AWG AND LARGER: STRANDED.
C. ALL CONDUCTORS, NO. 10 AWG AND SMALLER: SOLID COPPER
D. ALL BRANCH CIRCUIT WIRING: NOT SMALLER THAN NO. 12 AWG. IF NO CONDUCTOR SIZE IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE CONDUCTORS AND CONDUIT SIZED PER NFPA 70 AND BASED ON THE INDICATED BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE (OCPD) RATING AND NUMBER OF POLES. WHERE NO CIRCUIT SIZE (I.E., CONDUCTORS AND OCPD) IS INDICATED ON THE DRAWINGS FOR A BRANCH CIRCUIT, PROVIDE THREE NO. 12 AWG CONDUCTORS, IN 1/2-INCH RACEWAY, AND A 20A CIRCUIT BREAKER.

CONTROL WIRING: STRANDED COPPER CONDUCTORS, 600V INSULATION, OF THE PROPER TYPE, SIZE AND NUMBER AS REQUIRED TO ACCOMPLISH SPECIFIED FUNCTION. MINIMUM SIZE: NO. 14 AWG, UNLESS NOTED OTHERWISE.

STRANDED FOR ALL FLEXIBLE CORDS AND CABLES, OR AS OTHERWISE INDICATED.

UNLESS INDICATED OTHERWISE, SPECIAL PURPOSE CONDUCTORS AND CABLES, SUCH AS LOW VOLTAGE CONTROL AND SHIELDED INSTRUMENT WIRING, SHALL BE AS RECOMMENDED BY THE SYSTEM EQUIPMENT MANUFACTURER.

TYPE MC CABLE: 600V, UNJACKETED; ANSI E119 AND E814, UL STANDARDS 44 OR 83 (AS APPLICABLE), AND 1569, NFPA 70 ARTICLE 330; ALUMINUM OR GALVANIZED STEEL INTERLOCKED ARMOR; THHN- OR XHHW-INSULATED CONDUCTORS; COLOR CODE: ICEA METHOD 1, WITH GREEN INSULATED GROUNDING CONDUCTOR

26B 1-5 INSTALLATION OF CONDUCTORS AND CABLES

INSTALL ALL WIRING IN APPROVED RACEWAY AND ENCLOSURES, EXCEPT WHERE SPECIFIED OR INDICATED, FOR LOW-VOLTAGE WIRING OR DIRECT-BURIED CABLES; OR, WHERE TYPE MC CABLE IS INDICATED, SPECIFIED AS ACCEPTABLE, OR BOTH.

SUPPORT ALL CONDUCTORS AND CABLES IN VERTICAL INSTALLATIONS, AS REQUIRED BY NFPA 70, BY INSTALLING CABLE SUPPORTS OR PLUG-TYPE CONDUIT RISER SUPPORTS, OR WIRE-MESH SAFETY GRIPS.

INSTALL ALL CONDUCTORS AND CABLE IN RACEWAYS CONTINUOUS WITHOUT TAPS OR SPLICES. SPLICE OR TAP ONLY IN APPROVED BOXES AND ENCLOSURES WITH APPROVED SOLDERLESS CONNECTORS, OR CRIMP CONNECTORS AND TERMINAL BLOCKS FOR CONTROL WIRING, AND KEEP TO THE MINIMUM REQUIRED. INSULATE ALL SPLICES, TAPS, AND JOINTS AS REQUIRED BY CODES.

ALL MATERIALS USED TO TERMINATE, SPLICE OR TAP CONDUCTORS: DESIGNED FOR, PROPERLY SIZED FOR, AND UL LISTED FOR THE SPECIFIC APPLICATION AND CONDUCTORS INVOLVED, AND INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, USING THE MANUFACTURER'S RECOMMENDED TOOLS.

WHERE WIRING IS INDICATED AS INSTALLED, BUT THE CONNECTION IS INDICATED "FUTURE" OR "BY OTHER DIVISION, TRADES, OR CONTRACTS", LEAVE A MINIMUM 3-FOOT "PIGTAIL" AT THE BOX, TAPE THE ENDS OF THE CONDUCTORS, AND COVER THE BOX.

THE NUMBER OF CONDUCTORS IN A SPECIFIC RACEWAY "HOME RUN" IS TYPICALLY INDICATED WITH CROSS LINES (TICK MARKS) ON EACH "CIRCUIT RUN" ON THE DRAWINGS. IN GENERAL, THE DIRECTION OF BRANCH CIRCUIT "HOME RUN" ROUTING IS INDICATED ON THE DRAWINGS, COMPLETE WITH CIRCUIT NUMBERS AND PANELBOARD DESIGNATION. CONTINUE ALL SUCH "HOME RUN" WIRING TO THE DESIGNATED PANELBOARD, AS THOUGH "CIRCUIT RUNS" WERE INDICATED IN THEIR ENTIRETY.

MULTI-WIRE BRANCH CIRCUITS (I.E., SHARED NEUTRAL) SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT THE BRANCH CIRCUIT ORIGINATES. MULTI-POLE BREAKERS OR 3 SINGLE POLE BREAKERS WITH A HANDLE TIE ARE TWO EXAMPLES.

WHEN MULTIPLE HOME RUNS ARE COMBINED INTO A SINGLE RACEWAY SUCH THAT THE NUMBER OF CONDUCTORS EXCEEDS FOUR (CONDUCTOR COUNT IS MADE UP OF ANY COMBINATION OF PHASE AND NEUTRAL CONDUCTORS), THE FOLLOWING RESTRICTIONS APPLY, WHICH ARE IN ADDITION TO THOSE IN NFPA 70:

NORMAL OR NON-ESSENTIAL CIRCUITS:

A. MAXIMUM OF 16 CONDUCTORS IN A SINGLE RACEWAY. FOR UP TO EIGHT CONDUCTORS IN A RACEWAY, MINIMUM RACEWAY SIZE: 3/4-INCH. FOR GREATER THAN EIGHT CONDUCTORS, MINIMUM RACEWAY SIZE: 1-INCH. DO NOT INSTALL ANY OTHER TYPE OF CIRCUIT IN THIS RACEWAY.
B. THE MINIMUM WIRE SIZE FOR ALL CONDUCTORS IN THIS RACEWAY: NO. 10 AWG.
C. ONLY 15A AND 20A BRANCH CIRCUIT HOMERUNS MAY BE COMBINED INTO ONE RACEWAY.

ISOLATED GROUND (IG) CIRCUITS:

A. THE ISOLATED GROUND CONDUCTOR OF EACH IG CIRCUIT SHALL BE CONTINUOUS (NO SPLICES) THE ENTIRE LENGTH OF THE CIRCUIT.
B. IG CIRCUITS SHALL BE PROVIDED WITH DEDICATED NEUTRALS, EQUIPMENT GROUNDS, AND ISOLATED GROUNDS AND ROUTED IN SEPARATE CONDUITS FROM OTHER CIRCUITS.

GFCI CIRCUITS:

A. DO NOT USE MULTI-CONDUCTOR CIRCUITS, WITH A SHARED NEUTRAL, FOR ANY GFCI CIRCUIT BREAKER OR RECEPTACLE CIRCUIT.
B. FOR BRANCH CIRCUITS FED FROM GFCI CIRCUIT BREAKERS, LIMIT THE ONE-WAY CONDUCTOR LENGTH TO 100 FEET BETWEEN THE PANELBOARD AND THE MOST REMOTE RECEPTACLE OR LOAD ON THE GFCI CIRCUIT.

EMERGENCY POWER CIRCUITS - INCLUDES ALL CIRCUITS COVERED UNDER ARTICLES 700, 701 AND 702.

A. MAXIMUM OF EIGHT CONDUCTORS IN A SINGLE RACEWAY. MINIMUM RACEWAY SIZE: 3/4-INCH. DO NOT INSTALL ANY OTHER TYPE OF CIRCUIT IN THIS RACEWAY.

PROPERLY IDENTIFY ALL TERMINAL BLOCKS AND WIRE TERMINALS FOR CONTROL WIRING WITH VINYL STICK-ON MARKERS OR EQUIVALENT. PROVIDE ENGINEER WITH A LIST OF PROPOSED IDENTIFYING NUMBERS FOR REVIEW PRIOR TO INSTALLING MARKERS.

PROVIDE AN EQUIPMENT-GROUNDING CONDUCTOR, OR BONDING JUMPER, AS APPLICABLE, IN ALL FEEDERS AND BRANCH CIRCUITS, SIZED IN ACCORDANCE WITH NFPA 70 TABLES 250.66 OR 250.122, AS APPLICABLE, UNLESS INDICATED AS LARGER ON THE DRAWINGS.

VOLTAGE DROP IN BRANCH CIRCUITS SHALL NOT EXCEED 3 PERCENT.

WIRING SHALL HAVE INSULATION OF THE PROPER COLOR TO MATCH COLOR CODE SYSTEM IN THE TABLE BELOW UNLESS THERE IS A COLOR SYSTEM CURRENTLY IN USE BY THE FACILITY, IN WHICH CASE THE COLORS ARE TO MATCH THE EXISTING SYSTEM. IN LARGER SIZES, WHERE PROPERLY COLORED INSULATION IS NOT AVAILABLE, USE VINYL PLASTIC ELECTRICAL TAPE OF THE APPROPRIATE COLOR AROUND EACH CONDUCTOR AT ALL TERMINATION POINTS, JUNCTION AND PULL BOXES.

240V AND UNDER – 208Y/120, 120/240, 120/208, 240D/120
PHASE A – BLACK, PHASE B – RED, PHASE C – BLUE, NEUTRAL – WHITE, EQUIPMENT GROUND GREEN, ISOLATED GROUND – GREEN W/YELLOW STRIPE.

480V AND 480Y/277V
PHASE A – BROWN, PHASE B – ORANGE, PHASE C – YELLOW, NEUTRAL – GRAY, EQUIPMENT GROUND – GREEN.

USE OF MC CABLE, MAY ONLY BE USED:

A. IN LIEU OF FLEXIBLE CONDUIT AND WIRING FROM LIGHT FIXTURES IN ACCESSIBLE CEILINGS TO JUNCTION BOXES (ATTACHED TO BUILDING STRUCTURE) ABOVE THE CEILING. PROVIDE CABLE WHIPS OF SUFFICIENT LENGTHS TO ALLOW FOR RELOCATING EACH LIGHT FIXTURE WITHIN A 5-FOOT RADIUS OF ITS INSTALLED LOCATION, BUT NOT EXCEEDING 6 FEET IN UNSUPPORTED LENGTHS.
B. FOR VERTICAL DROPS IN STUD WALLS.
C. IN LIEU OF EMT, ONLY FOR 15A AND 20A BRANCH CIRCUITS (WITH UP TO FOUR (4) CONDUCTORS, NOT INCLUDING GROUND CONDUCTOR), AND ONLY IN DRY CONCEALED LOCATIONS ABOVE GRADE, EXCEPT WHERE SPECIFICALLY NOT PERMITTED BY NFPA 70.

DO NOT USE MC CABLE FOR THE FOLLOWING:

A. HOMERUNS TO PANELBOARDS.
B. WHERE EXPOSED TO VIEW.
C. WHERE EXPOSED TO DAMAGE.
D. HAZARDOUS LOCATIONS.
E. WET LOCATIONS.
F. WHEN RESTRICTED OTHERWISE ABOVE, AND WHEN SPECIFICALLY DISALLOWED BY THE LOCAL AHJ, LANDLORD, OR BOTH.
G. CIRCUITS THAT CAN BE SUPPLIED BY AN EMERGENCY OR STANDBY POWER SOURCE.

26B 1-6 JUNCTION BOXES, PULL BOXES, CABINETS AND WIREWAYS

PROVIDE JUNCTION BOXES, PULL BOXES, CABINETS AND WIREWAYS WHEREVER NECESSARY FOR PROPER INSTALLATION OF VARIOUS ELECTRICAL SYSTEMS ACCORDING TO NFPA 70 AND WHERE INDICATED ON THE DRAWINGS. SIZE AS REQUIRED FOR THE SPECIFIC FUNCTION OR AS REQUIRED BY NFPA 70, WHICHEVER IS LARGER. CONSTRUCTION SHALL BE OF A NEMA DESIGN SUITABLE FOR THE ENVIRONMENT INSTALLED. JUNCTION BOXES INSTALLED BEHIND WALL CASES, AND IN OR ON OTHER DISPLAY FIXTURES, EXCEPT WHERE OTHERWISE SPECIFIED, SHALL BE 4-INCH SQUARE OR LARGER, WITH GALVANIZED COVERS.

26B 1-7 OUTLET BOXES

ALL OUTLETS INCLUDING LIGHT FIXTURE, SWITCH, RECEPTACLE, AND SIMILAR OUTLETS: NATIONAL ELECTRICAL, APPLETON, STEEL CITY, RACO, OR APPROVED EQUAL, GALVANIZED STEEL KNOCKOUT BOXES, SUITABLE IN DESIGN TO THE PURPOSE THEY SERVE AND THE SPACE THEY OCCUPY. SIZE AS REQUIRED FOR THE SPECIFIC FUNCTION OR AS REQUIRED BY NFPA 70, WHICHEVER IS LARGER. SET ALL OUTLET BOXES IN WALLS, COLUMNS, FLOORS, OR CEILINGS SO THEY ARE FLUSH WITH THE FINISHED SURFACE, ACCURATELY SET, AND RIGIDLY SECURED IN POSITION. PROVIDE PLASTER RINGS, EXTENSION RINGS AND/OR MASONRY RINGS AS REQUIRED FOR FLUSH MOUNTING. PROVIDE APPROVED CAST OUTLET BOXES, WITH HUBS AND WEATHERPROOF COVERS, IN ALL AREAS SUBJECT TO DAMP, WET, OR HARSH CONDITIONS.

26B 1-8 OUTLET LOCATIONS

COORDINATE LOCATIONS OF OUTLET BOXES. OUTLETS ARE ONLY APPROXIMATELY LOCATED ON THE SMALL SCALE DRAWINGS. USE GREAT CARE IN THE ACTUAL LOCATION BY CONSULTING THE VARIOUS LARGE SCALE DETAILED DRAWINGS USED BY OTHER DIVISION TRADES, AND BY SECURING DEFINITE LOCATIONS FROM THE ARCHITECT AND/OR ENGINEER.

26B 1-9 MOUNTING HEIGHTS

UNLESS NOTED OTHERWISE, INSTALL WIRING DEVICES AS INDICATED BELOW (NOTE: ALL DIMENSIONS ARE TO THE CENTER OF THE OUTLET BOX UNLESS NOTED OTHERWISE):

RECEPTACLES:

A. VERTICALLY ALIGNED WITH THE GROUND SLOT MOUNTED AT THE BOTTOM: 16 INCHES ABOVE FINISHED FLOOR.
B. HORIZONTALLY ALIGNED, WITH NEUTRAL SLOT MOUNTED AT THE TOP: 16 INCHES ABOVE FINISHED FLOOR.
C. FOR ABOVE COUNTERS: 6 INCHES ABOVE TOP OF COUNTER OR AS SPECIFIED BY OTHERS.
D. MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS AND JANITORS CLOSETS: 44 INCHES ABOVE FINISHED FLOOR, VERTICALLY ALIGNED.
E. GARAGES: 24 INCHES ABOVE FINISHED FLOOR, VERTICALLY ALIGNED.
F. WEATHERPROOF EXTERIOR RECEPTACLES: 24 INCHES ABOVE FINISHED GRADE OR AS INDICATED ON DRAWINGS, VERTICALLY ALIGNED.
G. GFCI RECEPTACLES: SAME AS GENERAL RECEPTACLES.
H. ISOLATED GROUND RECEPTACLES: SAME AS GENERAL RECEPTACLES
I. SPD RECEPTACLES: SAME AS GENERAL RECEPTACLES
J. CLOCK RECEPTACLES: 84 INCHES ABOVE FINISHED FLOOR OR AS SPECIFIED BY OTHERS.
K. CONCRETE BLOCK WALLS: DIMENSIONS ABOVE MAY BE ADJUSTED SLIGHTLY, AS REQUIRED TO COMPENSATE FOR VARIABLE JOINT DIMENSIONS, SUCH THAT BOTTOM OR TOP OF BOXES, AS APPLICABLE, ARE AT BLOCK JOINTS.

SWITCHES:

A. GENERAL: 46 INCHES ABOVE FINISHED FLOOR.
B. ABOVE COUNTERS: SAME AS FOR RECEPTACLES.
C. CONCRETE BLOCK WALLS: 40 INCHES ABOVE FINISHED FLOOR (DIMENSION MAY BE ADJUSTED SLIGHTLY, AS REQUIRED TO COMPENSATE FOR VARIABLE JOINT DIMENSIONS, SUCH THAT BOTTOM OF BOXES ARE AT BLOCK JOINTS).
D. WALLS WITH WAINSCOTING: 6 INCHES MINIMUM ABOVE WAINSCOTING, BUT NOT EXCEEDING 48 INCHES ABOVE FINISHED FLOOR.

TELEPHONE/DATA OUTLET BOXES:

A. GENERAL: MATCH MOUNTING HEIGHT OF ADJACENT WIRING DEVICE LISTED ABOVE.
B. WALL-MOUNTED TELEPHONE: 40 INCHES ABOVE FINISHED FLOOR.

FOR OTHER THAN WIRING DEVICES, REFER TO PARAGRAPHS, ARTICLES, SECTIONS, DIVISIONS, OR DRAWINGS TO OBTAIN MOUNTING HEIGHTS FOR SPECIFIC EQUIPMENT OR SYSTEMS.

26B 1-10 WIRING DEVICES

UNLESS NOTED OTHERWISE ON THE DRAWINGS WIRING DEVICES ARE 20A RATED DEVICES. WHERE 15A RATED DEVICES ARE INDICATED ON THE DRAWINGS OR REQUIRED FOR CIRCUIT RATING LIMITATIONS, PROVIDE WIRING DEVICES EQUIVALENT TO THOSE SPECIFIED FOR 20A, BUT RATED FOR 15A.

PROVIDE THE FOLLOWING WIRING DEVICES WHERE SHOWN ON DRAWINGS OR REQUIRED. MINOR CHANGES RELATIVE TO THE LOCATION OF ELECTRICAL EQUIPMENT MAY BE MADE TO COMPLY WITH STRUCTURAL AND BUILDING REQUIREMENTS AS DETERMINED IN THE COURSE OF CONSTRUCTION. PROVIDE ALL WIRING DEVICES OF THE SAME MANUFACTURER AND NOT MIXED ON THE PROJECT, TO THE MAXIMUM EXTENT POSSIBLE. PROVIDE COLOR OF TOGGLES AND RECEPTACLES AS REQUESTED BY THE ENGINEER:

DUPLEX CONVENIENCE RECEPTACLES: SPECIFICATION GRADE, NEMA 5-20R, 125V, 20A, GROUNDING TYPE, UL LISTED AND LABELED, NYLON FACE, SIDE AND BACK WIRED, SELF-GROUNDING, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

HOSPITAL GRADE STRAIGHT BLADE RECEPTACLES: NEMA 5-20R, 125V, 20A, GROUNDING TYPE, UL LISTED AND LABELED, NYLON FACE, SIDE AND BACK WIRED, SELF-GROUNDING, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

HOSPITAL GRADE STRAIGHT BLADE SAFETY TYPE, TAMPER-RESISTANT RECEPTACLES: NEMA 5-20R, 125V, 20A, GROUNDING TYPE, UL LISTED AND LABELED, NYLON FACE, SIDE AND BACK WIRED, SELF-GROUNDING, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

TWIST-LOCKING TYPE RECEPTACLES: NEMA L5-20R, 125V, 20A, GROUNDING TYPE, UL LISTED AND LABELED, NYLON FACE, SIDE AND BACK WIRED, SELF-GROUNDING, LEVITON 2310 OR APPROVED EQUIVALENT.

GROUND FAULT CIRCUIT INTERRUPTER TYPE RECEPTACLES: SPECIFICATION GRADE UL LISTED AND LABELED COMPLYING WITH UL 943, CLASS A AND NEMA WD-1-1.10, 125V, 20A, TRIP AT 4-6MA WITHIN 0.25 SECOND, AND FEED-THRU TYPE WITH INTEGRAL HEAVY DUTY NEMA 5-20R RECEPTACLE ARRANGED TO PROTECT RECEPTACLES DOWNSTREAM ON THE SAME CIRCUIT, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

ISOLATED GROUND RECEPTACLES: SPECIFICATION GRADE NEMA 5-20R NEMA L5-20R, 125V, 20A, GROUNDING TYPE, UL LISTED AND LABELED, NYLON FACE, SIDE AND BACK WIRED, FURNISHED WITH A GREEN PIGTAIL CONNECTED TO THE GROUNDING CONTACT, AND GROUNDING CONTACTS ELECTRICALLY ISOLATED FROM THE MOUNTING STRAP, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

TVSS RECEPTACLES: SPECIFICATION GRADE FOR 125V (150V MAXIMUM CONTINUOUS OPERATING VOLTAGE) SERVICE: NEMA 5-20R, 125V, 20A, SELF-GROUNDING TYPE, RFI/EMI NOISE FILTERING, UL LISTED 1449 SECOND EDITION (1998) & 489; EQUIPPED WITH LED INDICATOR(S) AND AUDIBLE ALARM, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

SUPPRESSION MODULE SHALL PROTECT NORMAL AND COMMON MODES, WITH THE FOLLOWING MODE CHARACTERISTICS, AND BE SUITABLE FOR ANSI/IEEE C62.41-1991 A, B INSTALLATIONS:

A. PEAK ENERGY 240 JOULES MINIMUM
B. PEAK CURRENT 13,000A MINIMUM
C. UL 3000A TEST 400V MINIMUM
D. RESPONSE TIME 5 NANO-SECONDS
E. SPECIAL WARRANTY: MANUFACTURER AGREES TO REPAIR OR REPLACE TVSS RECEPTACLES, OR REPLACEABLE SURGE MODULES (IF REMOVABLE), THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN 5 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

SPECIAL PURPOSE RECEPTACLES: GROUNDING TYPE, UL LISTED WITH NEMA CONFIGURATIONS AS IMPLIED ON THE DRAWINGS, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

SWITCHES: SPECIFICATION GRADE, RATED FOR 120/277V, 20A, BACK AND SIDE WIRED, AND UL LISTED AND LABELED, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

PILOT LIGHT SWITCHES: 20A, 1-POLE, 2-POLE, 3-WAY SWITCH WITH RED NEON LIGHTED HANDLE. TOGGLE SHALL BE ILLUMINATED WHEN THE SWITCH IS IN THE "ON" POSITION, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

LIGHTED HANDLE SWITCHES: 20A, 1-POLE, 3-WAY SWITCH WITH CLEAR NEON LIGHTED HANDLE. TOGGLE SHALL BE ILLUMINATED WHEN THE SWITCH IS IN THE "OFF" POSITION. MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

KEY OPERATED LIGHT SWITCHES: SAME AS STANDARD LIGHT SWITCHES EXCEPT TOGGLE HANDLE SHALL BE OPERATED BY A FACTORY PROVIDED KEY, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

SWITCHES FOR USE WITH MECHANICALLY-HELD, ELECTRICALLY-OPERATED LIGHTING CONTACTORS: SINGLE POLE, DOUBLE THROW, MOMENTARY, CENTER OFF SWITCH, RATED FOR 120/277V, AND UL LISTED AND LABELED, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

WALL BOX DIMMERS: SPECIFICATION GRADE SLIDER TYPE WALL BOX DIMMERS, UL LISTED AND LABELED, WITH RADIO FREQUENCY INTERFERENCE (RFI) FILTERS TO AVOID INTERFERENCE WITH ELECTRONIC EQUIPMENT, AND A MINIMUM WATTAGE AS INDICATED ON THE DRAWINGS OR AS REQUIRED FOR THE LOAD, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

DUAL VOLTAGE SWITCH RELAY; A NORMALLY-OPEN, ELECTRICALLY-HELD RELAY THAT ALLOWS A SINGLE-POLE SWITCH TO CONTROL LOADS OPERATING AT TWO DIFFERENT VOLTAGES (E.G., 120V AND 277V); LISTED TO UL STANDARD 916; INSTALLED IN A 2-GANG OUTLET BOX, WITH A VOLTAGE-SEPARATING BARRIER AND PLASTER RING MANUFACTURED BY LIGHTING CONTROLS AND DESIGNS (GR 2001 DV) OR APPROVED EQUIVALENT.

WALL SWITCH OCCUPANCY SENSORS: PASSIVE INFRARED TYPE, WALL BOX SWITCH, 120/277V, UP TO 20-MINUTE TIME DELAY, LIGHT LEVEL SENSOR, 180-DEGREE FIELD OF VIEW, SQUARE-FOOT COVERAGE AS REQUIRED FOR MINIMUM COVERAGE OF THE SPACE PER THE MANUFACTURER, UL LISTED AND LABELED, AND CONFORMS TO CALIFORNIA TITLE 24 ENERGY CODE, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

WALL SWITCH OCCUPANCY SENSORS: ADAPTIVE TECHNOLOGY TYPE, WALL BOX SWITCH, 120/277V, UP TO 20-MINUTE TIME DELAY, LIGHT LEVEL SENSOR, 180-DEGREE FIELD OF VIEW, SQUARE-FOOT COVERAGE AS REQUIRED FOR MINIMUM COVERAGE OF THE SPACE PER THE MANUFACTURER, UL LISTED AND LABELED, AND CONFORMS TO CALIFORNIA TITLE 24 ENERGY CODE, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

CEILING MOUNTED OCCUPANCY SENSORS: PASSIVE INFRARED TYPE, 120/277V, UP TO 20-MINUTE TIME DELAY, LIGHT LEVEL SENSOR, 360-DEGREE FIELD OF VIEW, SQUARE-FOOT COVERAGE AS REQUIRED FOR MINIMUM COVERAGE OF THE SPACE PER THE MANUFACTURER, UL LISTED AND LABELED, AND CONFORMS TO CALIFORNIA TITLE 24 ENERGY CODE, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

CEILING MOUNTED OCCUPANCY SENSORS: DUAL TECHNOLOGY TYPE, 120/277V, UP TO 20-MINUTE TIME DELAY, LIGHT LEVEL SENSOR, 360-DEGREE FIELD OF VIEW, SQUARE-FOOT COVERAGE AS REQUIRED FOR MINIMUM COVERAGE OF THE SPACE PER THE MANUFACTURER, UL LISTED AND LABELED, AND CONFORMS TO CALIFORNIA TITLE 24 ENERGY CODE, MANUFACTURED BY LEVITON OR APPROVED EQUIVALENT.

26B 1-11 SWITCH AND OUTLET COVER PLATES

SWITCH AND OUTLET PLATES: COLORED, SMOOTH NYLON; BY THE SAME MANUFACTURER AS THE WIRING DEVICES, WHEREVER POSSIBLE. VERIFY DESIRED MATERIALS AND COLORS WITH ARCHITECT AND/OR ENGINEER BEFORE INSTALLATION. SWITCH PLATES IN UNFINISHED ROOMS AND SPACES: STAMPED STEEL, CADMIUM PLATED. INSTALL GROUPS OF SWITCHES UNDER ONE GANGED-PLATE, USUALLY HORIZONTALLY; OR, WHERE REQUIRED BY DETAILS, VERTICALLY. SET ALL COVER PLATES PLUMB, PARALLEL, AND FINISHED FLUSH WITH THE WALL.

26B 1-12 WEATHERPROOF COVER PLATES

FOR EXTERIOR UNATTENDED, WET LOCATIONS OR OTHER LOCATIONS AS INDICATED: IN-USE NEMA 3R RECESSED OR FLUSH MOUNT, UL-LABELED PLATES MOLDED FROM A CLEAR HIGH IMPACT ULTRAVIOLET STABILIZED POLYCARBONATE MATERIAL FOR EASY VERIFICATION THAT CORDS ARE PLUGGED IN AND THAT THE GFCI IS FUNCTIONING. BACK BOX MUST BE SUITABLE FOR CONDUIT CONNECTING. COORDINATE BACK BOX WITH WALL DEPTH. INTERMATIC WP1000RC/HRC OR EQUAL.

FOR ATTENDED WET OR DAMP LOCATIONS: WEATHERPROOF COVER PLATES, UL-LISTED FOR WET LOCATIONS WITH COVER(S) CLOSED; DIE-CAST ALUMINUM OR TYPE 302 STAINLESS STEEL; SINGLE-COVER FOR SWITCHES AND VERTICALLY MOUNTED RECEPTACLES; DOUBLE-COVER FOR HORIZONTALLY MOUNTED RECEPTACLES; SELF-CLOSING COVERS.

COVER PLATES: BY THE SAME MANUFACTURER AS THE WIRING DEVICES; COMPLYING WITH NFPA 70 406.8 (A) OR (B) REQUIREMENTS FOR ATTENDED OR UNATTENDED USE AS APPLICABLE.

26B 2 ELECTRICAL SERVICE AND GROUNDING

26B 2-1 ELECTRICAL SERVICE

SEE DRAWINGS FOR TYPE, SIZE, VOLTAGE, PHASE, AND OTHER REQUIREMENTS.

PROVIDE, OR ARRANGE WITH THE SERVING UTILITY FOR INSTALLATION TO PROVIDE, A RECORDING VOLTMETER AT THE SERVICE POINT, ON THE FIRST DAY THE FACILITY IS OPEN FOR BUSINESS, FOR A 24-HOUR VOLTAGE TEST. IF VOLTAGE AND REGULATION ARE NOT WITHIN ACCEPTABLE LIMITS, ARRANGE WITH THE UTILITY FOR PROPER VOLTAGE. SUBMIT TO THE OWNER A REPORT OF MAXIMUM AND MINIMUM VOLTAGE AND A COPY OF THE RECORDING VOLTMETER CHART.

26B 2-2 CONNECTION TO SERVING UTILITIES

PROVIDE RACEWAYS, TERMINATIONS, METERING PROVISIONS, AND MISCELLANEOUS EQUIPMENT, AS REQUIRED, FOR ELECTRICAL AND TELEPHONE SERVICES FOR CONNECTION BY THE SERVING UTILITY, IN STRICT COMPLIANCE WITH THE REQUIREMENTS OF ALL APPLICABLE CODES AND OF THE SERVING UTILITY INVOLVED. VERIFY ALL SERVICE TERMINATIONS AND CONNECTION POINTS IN THE FIELD AND WORK IN CONJUNCTION WITH THE UTILITY INVOLVED IN THE INSTALLATION OF ALL SERVICES. PROVIDE ALL MATERIALS AND EQUIPMENT REQUIRED FOR COMPLETE UTILITY CONNECTION BUT NOT FURNISHED BY THE SERVING UTILITY. NOTIFY THE UTILITY COMPANIES INVOLVED WITHIN TWO WEEKS AFTER NOTICE TO PROCEED, OF ALL REQUIRED INFORMATION NECESSARY FOR THE UTILITY TO SUPPLY THE PROJECT WITHOUT DELAY. PAY ALL CHARGES OF THE SERVING UTILITY FOR THE ELECTRICAL SERVICE(S).

26B 2-3 GROUNDING

PERMANENTLY AND EFFECTIVELY GROUND AND BOND THE ELECTRICAL INSTALLATION IN A THOROUGH AND EFFICIENT MANNER, AND IN CONFORMANCE, AT A MINIMUM, WITH NFPA 70, OR THESE DOCUMENTS, WHERE THEY EXCEED CODE REQUIREMENTS. USE BARE OR INSULATED CONDUCTORS, AS SPECIFIED HEREIN, AND OTHER MATERIALS INDICATED ON THE DRAWINGS.

26B 3 DISTRIBUTION AND CONTROL EQUIPMENT

16B 3-2 SERVICE ENTRANCE SWITCH - FUSIBLE, 400A - 4000A

FUSIBLE SWITCH: SQUARE D TYPE BP BOLT-LOC OR EQUIVALENT BY SIEMENS, CUTLER-HAMMER, OR GENERAL ELECTRIC; NUMBER OF PHASES AND RATINGS OF SWITCH AND FUSES AS INDICATED ON THE DRAWINGS; PERMANENTLY LABELED AS SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT; INTEGRAL GROUND FAULT RELAY AND OPERATOR WHERE INDICATED OR REQUIRED BY NFPA 70; PROVISIONS FOR BOLT-IN FUSES AS APPROPRIATE FOR THE FUSES SPECIFIED; INTERLOCKED COVER AND AN ENGRAVED NAMEPLATE FOR IDENTIFICATION. PROVIDE WITH INTEGRAL AND SEPARATE NEUTRAL AND GROUND ASSEMBLIES, SUITABLE FOR THE SIZES OF CONDUCTORS INDICATED. DO NOT DOUBLE-LUG ANY TERMINATIONS NOT SPECIFICALLY LISTED AS SUITABLE FOR MORE THAN ONE CONDUCTOR. ENCLOSURE: FREE-STANDING SWITCHBOARD SECTION OF NEMA DESIGN SUITABLE FOR THE ENVIRONMENT IN WHICH INSTALLED OR AS INDICATED.

26B 3-3 SERVICE ENTRANCE CIRCUIT BREAKER – ENLCOSED, 100A – 6000A

ENCLOSED CIRCUIT BREAKER: SQUARE D MICRO-LOGIC AND THERMAL MAGNETIC TYPE OR EQUAL BY SIEMENS, CUTLER-HAMMER, OR GENERAL ELECTRIC; RATED AT 100% OF THE AMPERE SIZE INDICATED, NUMBER OF PHASES AND OTHER RATINGS AS INDICATED ON THE DRAWINGS; PERMANENTLY LABELED AS SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT; INTEGRAL GROUND FAULT RELAY AND OPERATOR WHERE INDICATED OR REQUIRED BY NFPA 70; INTERLOCKED COVER AND AN ENGRAVED NAMEPLATE FOR IDENTIFICATION. PROVIDE WITH INTEGRAL AND SEPARATE NEUTRAL AND GROUND ASSEMBLIES, SUITABLE FOR THE SIZES OF CONDUCTORS INDICATED. DO NOT DOUBLE-LUG ANY TERMINATIONS NOT SPECIFICALLY LISTED AS SUITABLE FOR MORE THAN ONE CONDUCTOR. ENCLOSURE: NEMA DESIGN SUITABLE FOR THE ENVIRONMENT IN WHICH INSTALLED OR AS INDICATED.

26B 3-7 GENERAL PURPOSE PANELBOARDS

PANELBOARDS: SQUARE D TYPE NQOD OR NF, AS APPLICABLE, BASED ON VOLTAGE AND AMPERE RATINGS AND REQUIRED SHORT-CIRCUIT INTERRUPTING RATINGS AS REQUIRED UNLESS OTHERWISE INDICATED ON THE DRAWINGS, OR APPROVED EQUAL BY SIEMENS, CUTLER HAMMER, OR GENERAL ELECTRIC; COMPLETE WITH BOLT-ON THERMAL MAGNETIC, MOLDED CASE CIRCUIT BREAKERS ASSEMBLED IN A DEAD-FRONT FINISHED CABINET CONTAINING A TYPEWRITTEN CARD DIRECTORY INDICATING EXACTLY WHAT EACH CIRCUIT BREAKER CONTROLS; MAIN CIRCUIT BREAKER SHALL BE RATED AT 100% OF THE AMPERE SIZE INDICATED, FULLY-RATED AND WITH THE INTEGRATED SHORT CIRCUIT CURRENT RATINGS AS REQUIRED. PLUG-IN TYPE BREAKERS WILL NOT BE ACCEPTABLE. ALL TWO AND THREE POLE BREAKERS: COMMON TRIP TYPE. BREAKERS USED AS SWITCHES FOR 120V OR 277V LIGHTING CIRCUITS: APPROVED FOR THE PURPOSE AND MARKED "SWD". BREAKERS USED FOR THE PROTECTION OF HVAC AND REFRIGERATION EQUIPMENT: HACR TYPE.

26B 3-8 CIRCUIT BREAKERS IN EXISTING PANELBOARDS

PROVIDE NEW CIRCUIT BREAKERS, FOR INSTALLATION IN EXISTING PANELBOARDS, OF THE SAME MANUFACTURER, TYPE AND SHORT CIRCUIT CURRENT INTERRUPTING RATINGS AS THE EXISTING PANELBOARD CIRCUIT BREAKERS. FEEDER CIRCUIT BREAKERS 800 AMPS AND LARGER AND ANY MAIN CIRCUIT BREAKER(S) SHALL BE RATED AT 100% OF THE AMPERE SIZE INDICATED.

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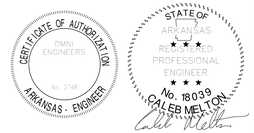
ELECTRICAL SPECIFICATIONS



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26B 3-11 DISCONNECT (SAFETY) SWITCHES

DISCONNECT (SAFETY) SWITCHES: SQUARE D, SIEMENS, CUTLER HAMMER, OR GENERAL ELECTRIC FUSED OR NON-FUSED (AS INDICATED ON DRAWINGS OR REQUIRED) NEMA KS1, HEAVY DUTY, EXTERNALLY OPERATED, VISIBLE-BLADE SAFETY SWITCHES; NEMA ENCLOSURE TYPE INDICATED ON THE DRAWINGS OR SUITABLE FOR THE ENVIRONMENT IN WHICH INSTALLED. BASED ON FUSIBLE SWITCH AND FUSE SIZES INDICATED, INCLUDE CLASS R, J, OR I FUSE PROVISIONS AS APPLICABLE.

WHERE INDICATED, PROVIDE FUSIBLE SWITCHES PERMANENTLY LABELED AS SUITABLE FOR USE AS SERVICE ENTRANCE EQUIPMENT, WITH INTEGRAL AND SEPARATE NEUTRAL AND GROUND ASSEMBLIES, SUITABLE FOR THE SIZES OF CONDUCTORS INDICATED. DO NOT DOUBLE-LUG ANY TERMINATIONS NOT SPECIFICALLY LISTED AS SUITABLE FOR MORE THAN ONE CONDUCTOR.

PROVIDE SWITCHES WHERE NOT FURNISHED WITH THE STARTING EQUIPMENT, AT ALL OTHER POINTS REQUIRED BY NFPA 70, AND WHERE INDICATED ON THE DRAWINGS.

26B 4 LIGHT FIXTURES, LAMPS AND BALLASTS

26B 4-1 LIGHT FIXTURE LOCATIONS

LIGHT FIXTURES SHOWN ON THE ELECTRICAL DRAWINGS REPRESENT GENERAL ARRANGEMENTS ONLY. REFER TO ARCHITECTURAL DRAWINGS FOR MORE EXACT LOCATIONS. COORDINATE LOCATION WITH ALL OTHER TRADES BEFORE INSTALLATION TO AVOID CONFLICTS. COORDINATE LIGHT FIXTURE LOCATIONS IN MECHANICAL ROOMS WITH FINAL INSTALLED PIPING AND DUCTWORK LAYOUTS.

26B 4-2 LIGHT FIXTURES

PROVIDE LIGHT FIXTURES AS SCHEDULED ON DRAWINGS, INCLUDING ALL LAMPS, ALL NECESSARY ACCESSORIES, MATERIAL AND LABOR TO SECURELY HANG, CLEAN, AND MAKE LIGHT FIXTURES COMPLETELY READY FOR USE. PROVIDE: ALL HANGERS, SUPPORTS, AND MISCELLANEOUS HARDWARE REQUIRED TO INSTALL LIGHT FIXTURES; PROPER TRIM TO FIT EACH CEILING CONDITION ACTUALLY ENCOUNTERED; ADDITIONAL TIE WIRES CONNECTED TO STRUCTURE TO CONFORM TO SEISMIC REQUIREMENTS WHERE REQUIRED BY THE APPLICABLE BUILDING CODE.

PACKAGING OF LIGHT FIXTURES WILL NOT BE ALLOWED. ONLY THOSE LUMINARES LISTED IN THE LIGHT FIXTURE SCHEDULE, OR APPROVED IN ACCORDANCE WITH SUBSTITUTIONS OF THESE SPECIFICATIONS, WILL BE ACCEPTED. WHERE THE LIGHT FIXTURE SCHEDULE INDICATES AN ALLOWANCE FOR A SPECIFIC LIGHT FIXTURE, THE PRICE IS A CONTRACTOR PRICE. INCLUDE ALL ADDITIONAL COSTS FOR FREIGHT, LAMPS, AND INSTALLATION OF LIGHT FIXTURE AND LAMPS.

INSTALL ALL LINEAR LIGHT FIXTURES LOCATED IN AREAS WITHOUT CEILINGS IMMEDIATELY BELOW THE ROOF-FRAMING MEMBERS, OR SUSPENDED FROM CHAIN HANGERS SUITABLE IN LENGTH TO PROVIDE THE INDICATED MOUNTING HEIGHT.

THROUGH WIRING OF RECESSED LIGHT FIXTURES, IN SUSPENDED CEILINGS, IS NOT PERMITTED. CONNECT EACH LIGHT FIXTURE BY A WHIP TO A JUNCTION BOX. PROVIDE CABLE WHIPS OF SUFFICIENT LENGTHS TO ALLOW FOR RELOCATING EACH LIGHT FIXTURE WITHIN A 5-FOOT RADIUS OF ITS INSTALLED LOCATION, BUT NOT EXCEEDING 6 FEET IN UNSUPPORTED LENGTHS.

26B 4-3 EMERGENCY LIGHTING UNITS AND EXIT SIGNS

DESCRIPTION: SELF-CONTAINED UNITS COMPLYING WITH UL 924.

BATTERY: SEALED, MAINTENANCE-FREE, LEAD-ACID TYPE. THE BATTERIES SHALL BE OF SUITABLE RATING AND CAPACITY TO SUPPLY AND MAINTAIN AT NOT LESS THAN 87 1/ 2 PERCENT OF THE NOMINAL BATTERY VOLTAGE FOR THE TOTAL LAMP LOAD ASSOCIATED WITH THE UNIT FOR A PERIOD OF AT LEAST 1 1/ 2 HOURS, OR THE UNIT EQUIPMENT SHALL SUPPLY AND MAINTAIN NOT LESS THAN 60 PERCENT OF THE INITIAL EMERGENCY ILLUMINATION FOR A PERIOD OF AT LEAST 1 1/ 2 HOURS.

CHARGER: FULLY AUTOMATIC, SOLID-STATE TYPE WITH SEALED TRANSFER RELAY.

OPERATION: RELAY AUTOMATICALLY TURNS LAMP ON WHEN POWER SUPPLY CIRCUIT VOLTAGE DROPS TO 80 PERCENT OF NOMINAL VOLTAGE OR BELOW. LAMP AUTOMATICALLY DISCONNECTS FROM BATTERY WHEN VOLTAGE APPROACHES DEEP-DISCHARGE LEVEL.

WHEN NORMAL VOLTAGE IS RESTORED, RELAY DISCONNECTS LAMPS FROM BATTERY, AND BATTERY IS AUTOMATICALLY RECHARGED AND FLOATED ON CHARGER.
TEST PUSH BUTTON: PUSH-TO-TEST TYPE, IN UNIT HOUSING, SIMULATES LOSS OF NORMAL POWER AND DEMONSTRATES UNIT OPERABILITY.

LED INDICATOR LIGHT: INDICATES NORMAL POWER ON. NORMAL GLOW INDICATES TRICKLE CHARGE; BRIGHT GLOW INDICATES CHARGING AT END OF DISCHARGE CYCLE.

INTEGRAL TIME-DELAY RELAY: HOLDS UNIT ON FOR FIXED INTERVAL OF 15 MINUTES WHEN POWER IS RESTORED AFTER AN OUTAGE.

INTEGRAL SELF-TEST: FACTORY-INSTALLED ELECTRONIC DEVICE AUTOMATICALLY INITIATES CODE-REQUIRED TEST OF UNIT EMERGENCY OPERATION AT REQUIRED INTERVALS. TEST FAILURE IS ANNUNCIATED BY AN INTEGRAL AUDIBLE ALARM AND FLASHING RED LED.

26B 4-4 LAMPS

PROVIDE LAMPS AS INDICATED ON THE DRAWINGS FOR ALL LIGHT FIXTURES; OR, IF NOT INDICATED, AS RECOMMENDED BY THE LIGHT FIXTURE MANUFACTURER. IN ALL CASES, LAMPS SHALL BE COMPATIBLE WITH THE SPECIFIED LIGHT FIXTURE. ACCEPTABLE LAMP MANUFACTURERS: GENERAL ELECTRIC, OSRAM/SYLVANIA, PHILIPS, OR VENTURE.

ALL FLUORESCENT LAMPS SHALL BE MINIMUM OF 4100 DEGREES K, WITH A MINIMUM COLOR-RENDERING INDEX OF 80, UNLESS NOTED OR DIRECTED OTHERWISE.

INCANDESCENT LAMPS: TYPE AND WATTAGE AS SHOWN ON THE DRAWINGS; RATED 130V UNLESS OTHERWISE SCHEDULED OR SPECIFIED.

26B 5 MISCELLANEOUS ELECTRICAL

26B 5-1 WIRING OF EQUIPMENT

PROVIDE ALL RACEWAYS AND POWER WIRING FOR ALL APPLICABLE DIVISIONS EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS, INCLUDING, BUT NOT LIMITED TO, PUMPS, WATER HEATERS, AND HVAC EQUIPMENT, AND ALL LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER OTHER DIVISIONS. CONNECT PER MANUFACTURERS' WIRING DIAGRAMS. COORDINATE WITH APPLICABLE DIVISIONS FOR DISCONNECTS FURNISHED WITH EQUIPMENT, AND PROVIDE ALL DISCONNECT SWITCHES AS REQUIRED. AFTER INSTALLING WIRING, VERIFY THAT EACH MOTOR LOAD HAS THE CORRECT PHASE ROTATION.

VERIFY THE ACTUAL "MAXIMUM OVERCURRENT PROTECTION" (MOCP) DEVICE RATINGS AND "MINIMUM CIRCUIT AMPACITY" (MCA) CONDUCTOR SIZING FOR MECHANICAL EQUIPMENT FROM THE EQUIPMENT NAMEPLATE. BASE ELECTRICAL INSTALLATIONS ON ACTUAL REQUIRED AMPERAGES, WHICH MAY VARY SOMEWHAT FROM THE CONDUCTOR AND EQUIPMENT SIZES SHOWN ON THE DRAWINGS; HOWEVER, IN NO CASE, REDUCE THE SIZE OF CONDUCTORS INDICATED ON THE DRAWINGS WITHOUT AUTHORIZATION FROM THE ENGINEER. PROVIDE PROPERLY SIZED ELECTRICAL WIRING AND EQUIPMENT WITHOUT EXTRA COST TO THE OWNER. NOTIFY THE ENGINEER OF ALL CHANGES REQUIRED IN THE ELECTRICAL INSTALLATION DUE TO EQUIPMENT VARIANCES SO THAT THE EFFECTS ON FEEDERS, BRANCH CIRCUITS, PANELBOARDS, FUSES AND CIRCUIT BREAKERS CAN BE CHECKED PRIOR TO PURCHASING AND INSTALLATION. BE RESPONSIBLE FOR COORDINATING WITH APPLICABLE DIVISIONS TO VERIFY THE ACTUAL AMPACITIES AND CORRECT SIZES OF ALL CONDUCTORS AND OVERCURRENT PROTECTIVE DEVICES FOR ALL EQUIPMENT, AND CORRECT OVERLOAD HEATERS FOR ALL MOTORS, WHEN STARTERS ARE PROVIDED UNDER DIVISION 26.

26B 5-2 WIRING OF THERMOSTATS, TIME AND TEMPERATURE CONTROLS

PROVIDE ALL RACEWAYS, POWER WIRING, AND LINE-VOLTAGE CONTROL AND INTERLOCK WIRING NOT PROVIDED UNDER OTHER DIVISIONS, FOR ALL THERMOSTATS, TEMPERATURE CONTROL DEVICES, AND CONTROLS, INCLUDING, BUT NOT LIMITED TO, NIGHT-STATS, WATER HEATER INTERLOCKS, TIME SWITCHES AND OVERRIDE TIMERS. SEE MECHANICAL DRAWINGS FOR LOCATIONS AND TEMPERATURE CONTROL DIAGRAMS. LOW-VOLTAGE CONDUCTORS FOR THERMOSTATS AND TEMPERATURE CONTROL SYSTEM MAY BE RUN EXPOSED ABOVE FINISHED ACCESSIBLE CEILINGS, IF APPROVED AND LISTED FOR THIS PURPOSE, BUT SHALL BE INSTALLED IN CONDUIT WITHIN WALLS AND WHERE EXPOSED IN THE WORK AREAS.

26B 5-3 TELEPHONE SYSTEM PROVISIONS

PROVIDE INCOMING TELEPHONE SERVICE RACEWAYS AS INDICATED ON DRAWINGS OR AS REQUIRED BY THE SERVING TELEPHONE COMPANY. PROVIDE 3/4-INCH THICK PLYWOOD BOARD, FIRE-RETARDANT-TREATED AND STAMPED FRT, SECURELY ANCHORED TO THE WALL, AT THE LOCATION AND OF THE SIZE AS INDICATED ON THE DRAWINGS.

PROVIDE FLUSH MOUNTED TELEPHONE OUTLET BOXES WITH ¾ -INCH EMT STUB-UP CONCEALED TO ACCESSIBLE CEILING SPACE AT LOCATIONS AS INDICATED ON THE DRAWINGS.

26B 5-4 DATA SYSTEM PROVISIONS

PROVIDE FLUSH MOUNTED DATA OUTLET BOXES WITH ¾ -INCH CONDUIT STUB-UP CONCEALED TO ACCESSIBLE CEILING SPACE AT LOCATIONS AS INDICATED ON THE DRAWINGS.

26B 5-5 TIME SWITCHES

TIME SWITCHES: ELECTRONIC DIGITAL ASTRONOMICAL, TYPE AS INDICATED, WITH MANUAL BYPASS SWITCH, NEMA ENCLOSURE SUITABLE FOR THE ENVIRONMENT INSTALLED; NUMBER AND TYPES OF CONTACTS, SEQUENCE, AND VOLTAGE AS INDICATED ON THE DRAWINGS, OR AS REQUIRED, BASED ON THE TIME SWITCH FUNCTION AND THE NUMBER OF BRANCH CIRCUITS OR CONTACTORS CONTROLLED. PROVIDE WIRING TO PHOTOCELLS, CONTACTORS, RELAYS OR OTHER CONTROL POINTS AS REQUIRED. MANUFACTURERS: INTERMATIC, PARAGON OR TORK.

26B 5-6 PHOTO CONTROL

THE PHOTO CONTROL SHALL:

A. PROVIDE AUTOMATIC SWITCHING FOR LIGHTING LOADS USING A THERMAL DESIGN WITH BUILT IN DELAY TO ENSURE THAT THE CONTROLLED LIGHTING DOES NOT SWITCH OFF DUE TO AMBIENT LIGHT OR LIGHTNING STRIKING THE PHOTOCELL.
B. HAVE A RATING BASED ON UL TESTING AT 50% POWER FACTOR FOR BALLAST LOADS, BE UL LISTED, AND MEET ALL APPLICABLE AGENCY REQUIREMENTS.
C. BE STEM-MOUNTING TYPE WITH ALL NECESSARY MOUNTING HARDWARE AND INSTRUCTIONS; HAVE A HOUSING CONSTRUCTED OF HIGH IMPACT POLY-CARBONATE; PHOTO CONTROL COMPONENTS CONSISTING OF A METAL FILM RESISTOR, DUAL TEMPERATURE COMPENSATING BI METAL BLADES, SNAP ACTION CONTACT BLADES, CHEMICALLY TREATED/POLYMER ENCAPSULATED CADMIUM SULFIDE PHOTOCELL AND SILVER ALLOY CONTACTS TO ENSURE RELIABLE 5 YEAR MANUFACTURER WARRANTED OPERATION. PHOTO CONTROL SHALL BE 100% FACTORY TESTED FOR FUNCTION WITHIN MANUFACTURER'S SPECIFIED LIGHT LEVELS.
D. BE FROM THE SAME MANUFACTURER OF AND TOTALLY COMPATIBLE WITH THE TIME SWITCHES SPECIFIED ABOVE.

22,000A AT 240V MAXIMUM

ENCLOSURES: NEMA RATED FOR ENVIRONMENT INSTALLED IN OR AS INDICATED ON THE DRAWINGS.

COIL VOLTAGE: 120V AC OR AS INDICATED ON THE DRAWINGS.

MECHANICALLY-HELD TYPE, CONTROL INTERFACE SHALL BE 2-WIRE INPUT MODULE WITH 3-WIRE OUTPUT OR AS INDICATED ON THE DRAWINGS; SQUARE D CLASS 8903 LX OR EQUIVALENT OF GENERAL ELECTRIC, SIEMENS, CUTLER HAMMER OR ASCO.

26B 5-9 MISCELLANEOUS EQUIPMENT AND CONNECTIONS

PROVIDE ALL WIRING AND CONNECTIONS TO EQUIPMENT FURNISHED BY OTHERS, INCLUDING, BUT NOT LIMITED TO, BAKERY EQUIPMENT, DELI EQUIPMENT, MEAT ROOM EQUIPMENT, KITCHEN EQUIPMENT, CHECKSTAND AND SCANNERS, EXHAUST HOOD FIRE EXTINGUISHING SYSTEM, ETC.

INSTALL SCAN SYSTEM ELECTRONIC COMMUNICATION CABLE IN UNDERFLOOR DUCT (CABLE PROVIDED BY OTHERS).

PROVIDE ALL RACEWAYS, WIRING AND RELATED CONNECTIONS OF DEVICES TO ENERGY MANAGEMENT SYSTEM THAT ARE NOT THE RESPONSIBILITY OF DIVISION 23.

ALL WIRING AND CONNECTIONS OF EXIT DOOR ALARMS.

END OF SECTION 26B

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ELECTRICAL SPECIFICATIONS