WEST TEXAS VA HEALTHCARE SYSTEM

CLC PHASE 3 : 519-371

BIG SPRING, TEXAS



VA | U.S. Department of Veterans Affairs

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Revisions:	Date:

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PROFESSIONAL ENGINEER

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: COVER SHEET / SHEET INDEX	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: Big Spring, TX			Drawing Number: GI001
Issue Date: 06/28/2024	Checked: JOW	Drawn: KL	

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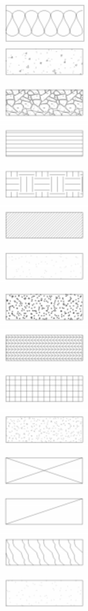
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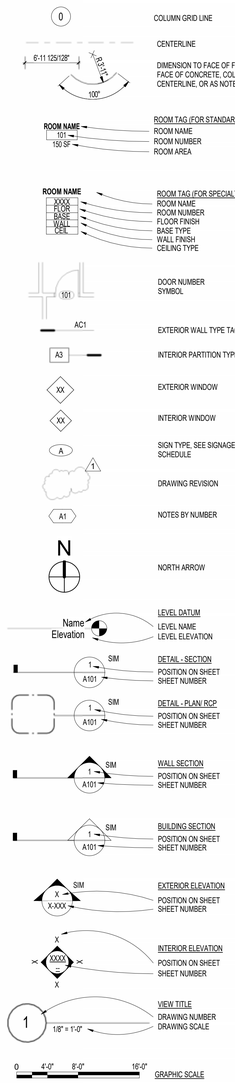
ABBREVIATIONS

ACT.	ACTUAL
ADJ.	ADJUSTABLE
A.F.F.	ABOVE FINISH FLOOR
A.F.S.	ABOVE FINISH SLAB
AGG.	AGGREGATE
AHJ.	AUTHORITY HAVING JURISDICTION
ALUM.	ALUMINUM
BLDG.	BUILDING
BK.	BRICK
BM.	BEAM
CAB.	CABINET
CPT.	CARPET
C.J.	CONTROL JOINT
℄	CENTERLINE
CG	CORNER GUARD
CLR.	CLEAR
CLG.	CEILING
COL.	COLUMN
CONC.	CONCRETE
COND.	CONDITION
CONT.	CONTINUOUS
C.T.	COUNTERTOP
DBL.	DOUBLE
DEMO.	DEMOLITION
DIA.	DIAMETER
DIM.	DIMENSION
DISP.	DISPENSER
DN.	DOWN
DWG.	DRAWING
E.W.C.	ELECTRIC WATER COOLER
EA.	EACH
E.J.	EXPANSION JOINT
EXP.	EXPANSION
E.W.	EACH WAY
EXT.	EXTERIOR
EXIST.	EXISTING
F.E.C.	FIRE EXTINGUISHER CABINET
F.D.	FINISH DIMENSION
F.D.V.B.	FIRE DEPARTMENT VALVE BOX
F.F.	FINISH FLOOR
FIN.	FINISH(ED)
FRT.	FIRE RETARDANT TREATED
G.I.	GALVANIZED IRON
G.B./GYP.BD.	GYPSUM BOARD
GA.	GAUGE
GALV.	GALVANIZED
GL.	GLASS
H.M.	HOLLOW METAL
H.S.	HORIZONTAL IN SPLASH
I.C.U.	INTENSIVE CARE UNIT
INT.	INTERIOR
INSUL.	INSULATION
I.T.C.	INSTALLED THIS CONTRACT
K.S.	KNEE SPACE
LAM.	LAMINATED
LAV.	LAVATORY
L.L.V.	LONG LEG VERTICAL
L.L.H.	LONG LEG HORIZONTAL
MANUF.	MANUFACTURER
MAX.	MAXIMUM
MECH.	MECHANICAL
MIN.	MINIMUM
M.O.	MASONRY OPENING
MTL./MET.	METAL
MNT.	MOUNTED
N/A	NOT APPLICABLE
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
N.I.C.	NOT IN CONTRACT
O.C.	ON CENTER
O.D.	OVERFLOW DRAIN
O.H/OPP.H.	OPPOSITE HAND
P.D.	PLAN DIMENSION
PLAS. LAM.	PLASTIC LAMINATE
P.T.	PORCELAIN TILE
P.T.D.	PAPER TOWEL DISPENSER
RB	RUBBER BASE
R./REV.	REVISED/REVERSE
R./RAD.	RADIUS
REINF.	REINFORCE
REF.	REFERENCE/REFER TO
REQ'D	REQUIRED
R.D.	ROOF DRAIN
RM.	ROOM
R.O.	ROUGH OPENING
SCHED.	SCHEDULED
SAB.	SOUND ATTENUATION BATTS
SHT.	SHEET
SIM.	SIMILAR
SL.	SLOPE
STL.	STEEL
S.S.	STAINLESS STEEL
S.S.V.	SOLID SURFACE VENEER
SUSP.	SUSPENDED
S.V.	SHEET VINYL
T.A.S.	TEXAS ACCESSIBILITY STANDARDS
T.B.	TACK BOARD
T.D.H.	TEXAS DEPARTMENT OF HEALTH
TEMP. OR (T.)	TEMPERED GLASS
THK.	THICK
TOIL.	TOILET
TYP.	TYPICAL
U.C.	UNDER COUNTER
UCR	UNDER COUNTER REFRIGERATOR
U.L.	UNDERWRITERS LABORATORIES
U.N.O.	UNLESS NOTED OTHERWISE
UR.	NEW URINAL
VCT.	VINYL COMPOSITION TILE
V.T.	VINYL TILE
VERT.	VERTICAL
W.C.	NEW WATER CLOSET
WDW.	WINDOW
WD.	WOOD
WH	WATER HEATER
W/	WITH
W/O	WITHOUT

MATERIALS LEGEND



DRAWING LEGEND



GENERAL NOTES

1. ALL WORK RELATING TO THIS CONSTRUCTION SHALL COMPLY WITH U.S. DEPARTMENT OF LABOR, THE OCCUPATIONAL SAFETY AND HEALTH STANDARDS AND ALL RELATED LOCAL AND FEDERAL BUILDING CODES AND ORDINANCES.
2. DO NOT SCALE THE DOCUMENTS.
3. ALL DIMENSIONS ARE TO BE FIELD VERIFIED AND BACK CHECKED FOR CORRECTNESS. IF ANY DEVIATIONS OR DISCREPANCIES OCCUR, CONTACT COR FOR VERIFICATION PRIOR TO PROCEEDING WITH THE WORK.
4. THE GENERAL CONTRACTOR IS TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS ON THE SITE PRIOR TO THE BEGINNING OF THE WORK AND ADVISE THE COR OF ANY AND ALL DISCREPANCIES.
5. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL CAREFULLY REVIEW THE DRAWINGS, SPECIFICATIONS DETAILS AND NOTES FOR INFORMATION REGARDING THE SCOPE OF WORK INTENDED PRIOR TO PROCEEDING WITH THE WORK.
6. THE GENERAL CONTRACTOR SHALL COORDINATE ALL BUILDING MANAGEMENT SYSTEMS, AND LOCKING HARDWARE WITH THE OWNER PRIOR TO INSTALLATION.
7. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL MECHANICAL, ELECTRICAL, AND PLUMBING PENETRATIONS REQUIRED BY THE WORK WHETHER EXPRESSLY NOTED IN THE DOCUMENTS OR NOT.
8. ALL WOOD INDICATED IN THESE DOCUMENTS IS TO BE TREATED FOR FIRE RETARDANCY UNLESS NOTED OTHERWISE.
9. FIRE SPRINKLER HEAD LOCATIONS ARE TO BE COORDINATED WITH LIGHTING, HVAC, AND CENTERED BOTH WAYS IN CEILING TILES, GYP. BD. REVEALS & CEILINGS, ETC.
10. THE COMPLETE SPRINKLER SYSTEM IS NOT SHOWN ON THESE DRAWINGS. THE CONTRACTOR IS ADVISED THAT SPECIAL CARE MUST BE TAKEN IN LAYING OUT THE SPRINKLER SYSTEM FOR A NEAT, ORDERLY AND ASTHETICALLY APPROPRIATE LAYOUT. COR'S DECISIONS SHALL BE FINAL IN ASTHETIC JUDGEMENT WITH RESPECT TO LOCATION OF HEADS. ADDITIONAL HEADS SHALL BE ADDED BY CONTRACTOR AS MAY BE REQUIRED TO SATISFY COR'S ASTHETIC JUDGEMENT. COR'S REVIEW OF HEAD LOCATIONS WILL OCCUR DURING SHOP DRAWING STAGE.
11. THE CONTRACTOR SHALL REVIEW THE CIVIL DOCUMENTS, THE SOILS REPORT, AND THESE DOCUMENTS (ALL IN THEIR ENTIRETY) TO INSURE THAT ALL REQUIRED EARTHWORK, PAVING, CURB, AND STRUCTURAL SLAB WORK IS FULLY COVERED IN THE SCOPE OF THE CONTRACTOR'S BID. THE CONTRACTOR SHALL FULLY COORDINATE ALL OF THE ABOVE REFERENCED WORK WITH THE OWNER'S REPRESENTATIVE. THE ARCHITECT, AND THE CIVIL ENGINEER TO INSURE THAT ALL WORK IS FULLY COORDINATED AND COMPLETED.
12. ALL MATERIALS SHALL BE INSTALLED ACCORDING TO INDUSTRY STANDARDS. ALL AGENCIES OR "STANDARD" RECOMMENDATIONS REFERENCED IN THE SPECIFICATIONS, OR MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES, WHICHEVER IS THE MOST STRINGENT, IN ORDER TO PROVIDE A COMPLETE AND HIGH QUALITY PROJECT.
13. THE CONTRACTOR REPRESENTS AND WARRANTS THAT IT HAS EXAMINED THE PLANS, DRAWINGS, SPECIFICATIONS AND ALL CONSTRUCTION CRITERIA OF THE OWNER AND HAS SATISFIED ITSELF THAT THE INFORMATION CONTAINED THEREIN IS SUFFICIENT TO FULLY AND COMPLETELY CONSTRUCT THE PROJECT.
14. IN THE EVENT OF A CONFLICT WITH THE CONSTRUCTION DOCUMENTS, THE MORE EXPENSIVE, GREATER QUALITY, AND LARGER SCOPE SHALL GOVERN.
15. ALL ELECTRICAL, TELEPHONE AND OTHER OUTLET LOCATIONS ARE TO BE COORDINATED WITH THE OWNER AND THE INTERIOR ELEVATIONS PRIOR TO INSTALLATION OF THE OUTLETS OR THE MILLWORK / CASEWORK.
16. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY WOOD AND METAL BLOCKING IN WALLS / PARTITIONS FOR THE MOUNTING OF EQUIPMENT, ACCESSORIES, CASEWORK, RAILS, ETC. THAT ARE PROVIDED BY THE CONTRACTOR AND ITEMS THAT ARE PROVIDED BY THE OWNER OR ONE OF THE OWNER'S VENDORS.

GENERAL PROJECT DESCRIPTION

THIS PROJECT SHALL CONSIST OF CONSTRUCTION OF AN ENTIRELY NEW BUILDING AND ASSOCIATED SITE WORK.

OWNER

WEST TEXAS VA HEALTHCARE SYSTEM

CONTRACT OFFICER REPRESENTATIVE

Mr. JOSHUA JUNKIN

ARCHITECT

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MECHANICAL, PLUMBING, AND ELECTRICAL ENGINEER

O'BRIEN ENGINEERING INC.

STRUCTURAL ENGINEER

PIERCE ENGINEERING

INTERIOR DESIGNER

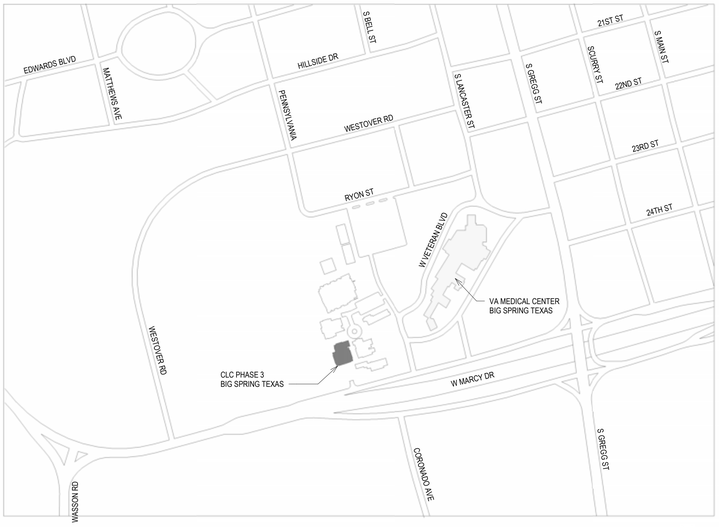
O'BRIEN ENGINEERING INC.

CIVIL ENGINEER

O'BRIEN ENGINEERING INC.

FIRE PROTECTION ENGINEER

SEBENCH ENGINEERING, INC



VICINITY MAP

NOT TO SCALE

N

Revisions:	Date:

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REGISTERED ARCHITECT JONGKYU LEE 22633 STATE OF TEXAS
04/25/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	VICINITY MAP, SYMBOLS AND NOTES
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	
	FULLY SPRINKLERED
Location	Big Spring, TX
Issue Date	06/28/2024
Checked	JOW
Drawn	KL
Drawing Number	GI002

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STATEMENT OF BID ITEMS (CLINS)

CLIN 0001: BASE BID: CONTRACTOR TO PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SUPERVISION, AND TESTING FOR NEW CONSTRUCTION OF CLC COTTAGE BUILDING DESCRIBED IN THE CONTRACT DOCUMENTS.

CLIN 0002: DEDUCTIVE ALTERNATE FOR CONTRACTOR TO REPLACE COMPOSITE WOOD CEILING (WHERE INDICATED) WITH GYPSUM BOARD CEILING WITH PAINT.

CLIN 0003: DEDUCTIVE ALTERNATE TO ELIMINATE PURCHASE AND INSTALLATION OF ELECTRIC FIREPLACE UNIT. ALL ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL SUPPORT AND COMPONENTS FOR FIREPLACE TO REMAIN AS SHOWN IN DESIGN TO BE LEFT FOR FUTURE ADDITION OF THE FIREPLACE UNIT BY OTHERS.

CLIN 0004: DEDUCTIVE ALTERNATE TO ELIMINATE MILLWORK, SINK, DISPOSAL, DISHWASHER, HOOD, COOKTOP, DATA OUTLETS, AND POWER OUTLETS IN THE KITCHEN WHERE INDICATED IN THE DRAWINGS. CONTRACTOR SHALL PROVIDE UTILITY CONNECTION STUBOUTS FOR ANY ELECTRICAL, COMMUNICATIONS OR PLUMBING DEVICES / FIXTURES ELIMINATED AS PART OF THIS DEDUCTIVE ALTERNATE.

CLIN 0005: DEDUCTIVE ALTERNATE TO ELIMINATE MILLWORK, MEDICAL GAS OUTLET, NURSE CALL, DATA OUTLET, AND POWER OUTLETS IN RESIDENT ROOMS. CONTRACTOR SHALL PROVIDE UTILITY CONNECTION STUBOUTS FOR ANY ELECTRICAL, COMMUNICATIONS OR PLUMBING DEVICES / FIXTURES ELIMINATED AS PART OF THIS DEDUCTIVE ALTERNATE.

CLIN 0006: DEDUCTIVE ALTERNATE TO ELIMINATE EXTERIOR PLANTERS, COLUMN BASES, AND TRELLIS. WHERE PLANTERS AND COLUMN BASES ARE ELIMINATED, REPLACE LOCATIONS WITH SIDEWALK.



2 BID ITEMS - REFLECTED CEILING PLAN
1/8" = 1'-0"



1 BID ITEMS - FLOOR PLAN
1/8" = 1'-0"

Revisions:	Date:

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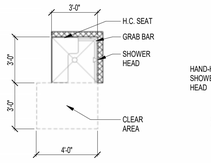
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04/28/2024

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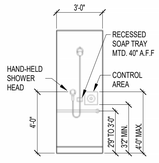
VA U.S. Department of Veterans Affairs

Drawing Title: SUMMARY OF DEDUCTIVE ALTERNATES	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: GI003
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

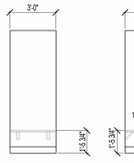
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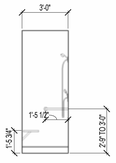
SHOWER PLAN



CONTROL WALL

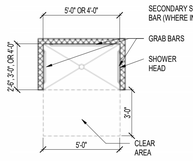


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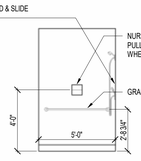


BACK WALL

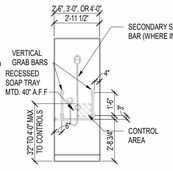
TRANSFER TYPE HDCP ACCESSIBLE SHOWER 36" X 36"



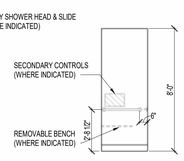
SHOWER PLAN



BACK WALL ELEVATION

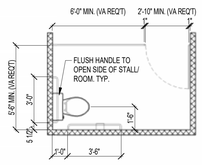


CONTROL WALL ELEVATION

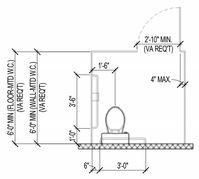


SIDE WALL ELEVATION

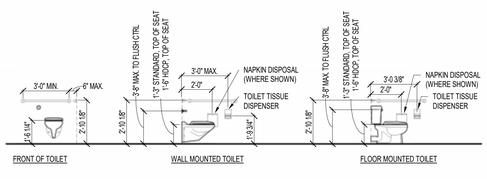
ROLL-IN HDCP ACCESSIBLE SHOWER (ACCEPTABLE MINIMUM SIZES: 48" X 48", 30" X 60" OR 36" X 60") (VA REQ'T)



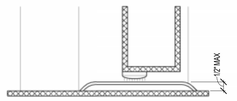
STANDARD HDCP TOILET STALL DIMENSIONS



STANDARD HDCP TOILET STALL DIMENSIONS

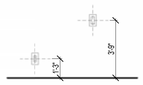


FRONT OF TOILET | WALL MOUNTED TOILET | FLOOR MOUNTED TOILET

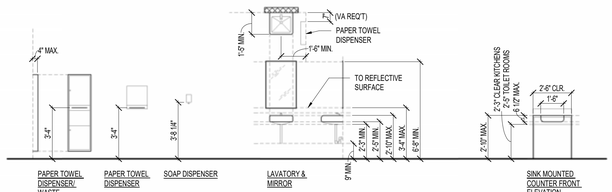


DOOR THRESHOLD DETAIL

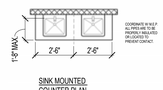
NOTE: ALL DOORS IN ALCOVES MUST COMPLY WITH THE CLEARANCE NOTED FOR FRONT APPROACHES.



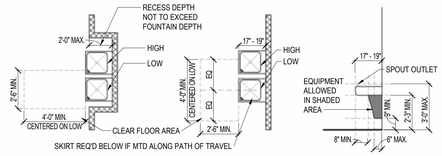
ELEC. / COMM. OUTLET | WALL SWITCH



PAPER TOWEL DISPENSER/ WASTE RECEPTACLE | PAPER TOWEL DISPENSER | SOAP DISPENSER | LAVATORY & MIRROR | SINK MOUNTED COUNTER FRONT ELEVATION

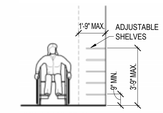


SINK MOUNTED COUNTER PLAN

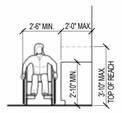


RECESSED PLAN | SURFACE PLAN | SIDE ELEVATION

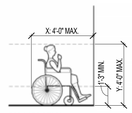
ELECTRIC WATER COOLER STANDARDS



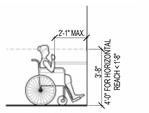
HIGH AND LOW REACH (ADJUSTABLE SHELVES)



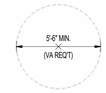
MAXIMUM SIDE REACH OVER AN OBSTRUCTION



FORWARD REACH



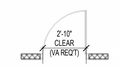
MAXIMUM FRONT REACH OVER AN OBSTRUCTION



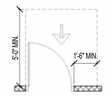
TURNING SPACE REQUIREMENT

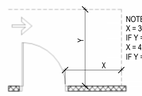


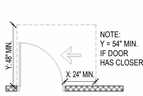
CLEAR FLOOR SPACE FOR WHEELCHAIR

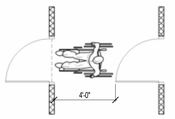


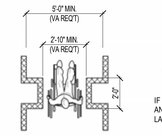
MIN. OPENING WIDTH



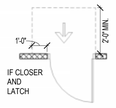


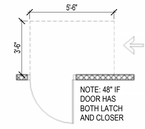


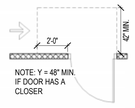


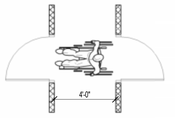


MAX. DOORWAY DEPTH

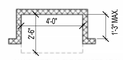




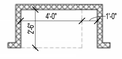


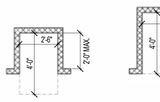


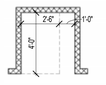
DOORWAY CLEARANCES: NOTE: PATIENT BEDROOM DOORS AT LEAST 44" WIDE ARE EXEMPT FROM THE REQUIREMENTS FOR SPACE OF THE LATCH SIDE OF THE DOOR

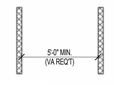


MANEUVERING CLEARANCES AT ALCOVES

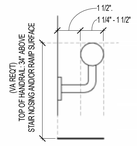




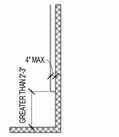




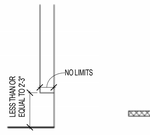
MINIMUM PASSAGE WIDTH



HANDRAIL DETAIL



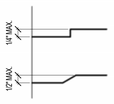
PROTRUSION LIMITS - PLAN



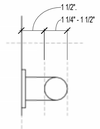
PROTRUSION LIMITS - SECTION



PATIENT DOORS ONLY



CHANGES IN LEVEL



GRAB BAR DETAIL

HDCP ACCESSIBLE AND STANDARD DIMENSIONS

ABBREVIATONS (ARCHITECTURAL ONLY)

A/C	AIR CONDITIONING	CL	CENTER LINE/ CLEARANCE	ELEV	ELEVATOR/ ELEVATION	FTG	FOOTING	INT	INTERIOR	MIR	MIRROR	PGBD	PEGBOARD	RESIL	RESILIENT	STC	SOUND TRANSMISSION COEFFICIENT	T/W	TOP OF WALL
ACT	ACOUSTICAL CEILING TILE	CLG	CEILING	ENAM	ENAMEL(ED)	FURR	FURRING	INTER	INTERSECTION/ INTERMEDIATE	MISC	MISCELLANEOUS	PH	PHASE/ PAN HEAD	RET	RETURN		(CLASS)	TYP	TYPICAL
AD	AREA DRAIN	CLR	CLEAR	EMER	EMERGENCY	FXD	FIXED	INV	INVERT	ML	METAL LATH/ MATCH LINE	PL	PLATE/ PROPERTY LINE	REV	REVERSE/ REVISED/ REVISION	STD	STANDARD		
ADB	AUTOMATIC DOOR BUTTON	CMT	CERAMIC MOSAIC TILE	ENCL	ENCLOSURE			ISO	ISOLATION CELL	MLP	METAL LATH AND PLASTER	PLAM	PLASTIC LAMINATE	RFG	ROOFING	STL	STEEL	UG	UNDERGROUND
ADD	ADDENDUM	CMU	CONCRETE MASONRY UNIT	ENGR	ENGINEER	GA	GAUGE/ GAGE	I.T.	INMATE TOILET	MMB	MEMBRANE	PLAS	PLASTER	RH	RIGHT HAND	STOR	STORAGE	UH	UNIT HEATER
ADDL	ADDITIONAL	CNTR	COUNTER	ENTR	ENTRANCE	GALV	GALVANIZED			MO	MASONRY OPENING	PLBG	PLUMBING	RHR	RIGHT HAND REVERSE	STRUC	STRUCTURAL	UL	UNDERWRITERS LABORATORIES, INC.
ADJ	ADJUSTABLE/ ADJACENT	CO	CLEAN OUT	EPFL	EPOXY FLOORING	GB	GRAB BAR	JAN	JANITOR	MOD	MODULAR/ MODIFIED/ MODICATION	PLYWD	PLYWOOD	RM	ROOM	SUBFL	SUBFLOOR(ING)	UNFIN	UNFINISHED
AFF	ABOVE FINISH FLOOR	COL	COLUMN	EPNT	EPOXY PAINT	GC	GENERAL CONTRACTOR	J.C.	JANITOR CLOSET	MP	MOVABLE PARTITION/ METAL PANEL	PNEU	PNEUMATIC	RND	ROUND	SUP	SUPPLY	UNO	UNLESS NOTED OTHERWISE
AGGR	AGGREGATE	COMB	COMBINATION/ COMBUSTIBLE	EQ	EQUAL	GEN	GENERAL/ GENERATOR	JST	JOIST	MR	MET RECESS, MOD RACK	PNL	PANEL	RO	ROUGH OPENING	SUPP	SUPPORT/ SUPPLEMENT(AL)	UR	URINAL
ALT	ALTERNATE/ ALTERERATION	COMP	COMPRESS(ED)/ COMPOSITE	EQUIP	EQUIPMENT	GL	GLASS/ GLAZING/ GLAZED	JT	JOINT	M&S	MIRROR & SHELF	PNT	PAINT(ED)	ROW	RIGHT OF WAY	SURF	SURFACE	UTIL	UTILITY
ALUM	ALUMINUM	CONC	CONCRETE	ES	ELECTRONIC SECURITY	GLAM	GLUE LAMINATED			MT	MOUNT (ED) (ING)	POL	POLISH(ED)	RS	RESILIENT SHEET	SUSP	SUSPEND(ED)	UV	UNIT VENTILATOR
AMT	AMOUNT	COND	CONDUIT/ CONDITION	EST	ESTIMATE(D)	GND	GROUND	KD	KNOCK OUT	MTR	MOTOR	PORT	PORTABLE	R&S	ROD AND SHELF	S.V.	SAFETY VESTIBULE		
ANCH	ANCHOR	CONF	CONFERENCE	ETC	ET CETERA	GWB	GYPSUM WALLBOARD	KP	KICK PLATE	MTL	METAL	PP	PUSH PLATE	RT	RESIDENT TILE	S&V	STAIN & VARNISH	VAP	VAPOR
ANDD	ANODIZED	CONN	CONNECT(ION)	EW	EACH WAY	GYP	GYPSUM			MUL	MULLION	PR	PAIR, PRINTER, COMPUTER PRINTER	RTN	RETURN	SWCG	SPECIAL WALL COATING	VAR	VARIABLE/ VARNISH/ VARIES
APPROX	APPROXIMATE(LY)	CONST	CONSTRUCTION	EWC	ELECTRIC WATER COOLER			LAB	LABORATORY			PREFAB	PREFABRICATE(D)			SYM	SYMMETRICAL	VB	VAPOR BARRIER
ARCH	ARCHITECTURAL	CONT	CONTINUE/ CONTINUOUS	EXAM	EXAMINATION/ EXAMINING	HA	HANDICAPPED ACCESSIBLE	LAM	LAMINATE	N	NORTH	PRELIM	PRELIMARY	SAB	SOUND ABSORPTION BATT	SYN	SYNTHETIC	V.C.	VIOLENT CELL
ARF	ABOVE REFERENCE FLOOR	CONTR	CONTRACTOR	EXC	EXCAVATED/ EXCAVATION	HB	HOSE BIBB	LAV	LAVATORY	NEG	NEGATIVE	PRESS	PRESSURE	SAN	SANITARY	SYS	SYSTEM	VEH	VEHICLE
ASPH	ASPHALT(IC)	COORD	COORDINATOR	EXH	EXHAUST	HC	HOSE CABINET/ HANDICAP/ HOLLOW CORE	LB(S)	LAG BOLT(S)/ POUND(S)	NIC	NOT IN CONTRACT	PROJ	PROJECT(ION)	SC	SOLID CORE			VENT	VENTILATION/ VENTILATE, VENTILATOR
ASST	ASSISTANT	CORR	CORRIDOR	EXIST(E)	EXISTING	H.C.S.D.	SINGLE OCCUPANT CELL	LBL	LABEL	NL	NIGHT LIGHT	PROP	PROPERTY	SCHED	SCHEDULE	T	TOP/ TREAD/ TOILET	VEN	VENEER
ATS	AUTOMATIC TRANSFER SWITCH	CPT	CARPET	EXP	EXPOSED/ EXPANSION	HCW	HOLLOW CORE WOOD	LF	LINEAL FOOT/ LINEAR FOOT	NO or #	NUMBER	PROT	PROTECT (IVE) (ION)	SCN	SCREEN	T&B	TOP & BOTTOM	VERT	VERTICAL
AUTO	AUTOMATIC	CSWK	CASEWORK	EXT	EXTERIOR	H/C WTR	HOT AND COLD WATER	LH	LEFT HAND	NOM	NOMINAL	PSF	POUNDS PER SQUARE FOOT	SCW	SOLID CORE WOOD	TB	TOWEL BAR	VEST	VESTIBULE
AUX	AUXILIARY	CT	CERAMIC TILE			HDBD	HARDBOARD	LHR	LEFT HAND REVERSE	NONCOM	NONCOMBUSTIBLE	PSI	POUNDS PER SQUARE INCH	SD	SOAP DISPENSER/ SOAP DISH	TBD	TO BE DETERMINED	VG	VERTICAL GRAIN
AV	AUDIO VISUAL	CTR	CENTER	FA	FIRE ALARM	HDCP	HANDICAPPED (ACCESSIBLE)	LIN	LINEAR	NRC	NOISE REDUCTION COEFFICIENT	PT	PORCELIN TILE	SECT	SECTION	TC	TOP OF CURB/ TOP OF CONCRETE	VOL	VOLUME
AVG	AVERAGE	CU	CLEAN UTILITY ROOM	FAB	FABRICATE/ FABRICATOR/ FABRIC	HDR	HEADER	LL	LIVE LOAD	NS	NON SLIP	PTD/R	COMBINATRION PAPER TOWEL	SET	SETTING	TD	TOWEL DISPENSER	VP	VENEER PLASTER
				FD	FLOOR DRAIN	HDWD	HEADWOOD	L&P	LATH & PLASTER	NTS	NOT TO SCALE		DISPENSER & RECEPTACLE	SF	SQUARE FEET	TEL	TELEPHONE		
BAL	BALANCE	D	DETENTION	FDC	FIRE DEPARTMENT CONNECTION	HDWR	HARDWARE	LT(G)	LIGHT(ING)			PTR	PAPER TOWL RECEPTACLE	SFC	SPECIAL FLOOR COATING	TEMP	TEMPERATURE/ TEMPERED/	W/	WITH
BB	BULLETIN BOARD	D.A.F.S	DIRECT APPLIED FINISH SYSTEM	FDN	FOUNDATION	HGT(HT)	HEIGHT	LW	LIGHTWEIGHT	OC	ON CENTER	PVC	POLYVINYL CHLORIDE	SFP	SPRAYED ON FIREPROOFING		TEMPORARY	WAIN	WAINSCOT
B/C	BOTTOM OF CURB	DBL	DOUBLE	FDPR	FIRE DAMPER	HM	HOLLOW METAL			OD	OUTSIDE DIAMETER (DIM.)	PVMT	PAVEMENT	SHR	SHOWER	TERR	TERRAZZO	WB	WHITE BOARD/ WOOD BASE
BD	BOARD	DE	DETENTION EQUIPMENT	FDV	FIRE DEPARTMENT VALVE	HR	HOUR	MACH	MACHINE	OFD	OVERFLOW DRAIN			SHT	SHEET	TG	TEMPERED GLASS	WC	WATER CLOSET
BL	BUILDING LINE	DEG	DEGREE(S)	FDVC	FIRE DEPT. VALVE CABINET	HS	HOOK STRIP/ HIGH STRENGTH	MAINT	MAINTENANCE	OFF	OFFICE	QT	QUARRY TILE	SK	SINK/ SKETCH	T&G	TONGUE AND GROOVE	WCG	WALL COVERING
BLDG	BUILDING	DEMO	DEMOLISH/ DEMOLITION	FE	FIRE EXTINGUISHER	HSKG	HOUSEKEEPING	MAS	MASONRY	OH	OVERHEAD/ OVERHANG	QTR	QUARTER	SIM	SIMILAR	THB	TEMPERED HARDBOARD	WD	WOOD
BLK	BLOCK(ING)	DEPT	DEPARTMENT	FEB	FIRE EXTINGUISHER BRACKET	HTR	HEATER	MAT	MATERIAL	OPER	OPERATING	QUAN	QUANTITY	SLR	SEALER	THERMO	THERMOSTAT(IC)	WDW	WINDOW
BM	BENCH MARK/BEAM	DET	DETAIL	FEC	FIRE EXTINGUISHER CAB.	HVAC	HEATING/ VENTILATION/ AIR CONDITIONING	MAX	MAXIMUM	OPH	OPPOSITE HAND			SM	SHEET METAL	THK	THICK(NESS)	WF	WIDE FLANGE (STEEL)
B.O.	BOTTOM OF	DF	DRINKING FOUNTAIN	FH	FIRE HYDRANT/ FUME HOOD/ FLAT HEAD	HWY	HIGHWAY	MBR	MEMBER	OPN(G)	OPEN (ING)	R	RADIUS/ RISER/ RESILIENT	SND	SANITARY NAPKIN DISPENSER	THRES	THRESHOLD	WG	WIRE GLASS/ WALL GRILL
BOT	BOTTOM	DIA	DIAMETER	FHC	FIRE HOSE CABINET	HYD	HYDRANT	MC	MEDICINE CABINET	OPP	OPPOSITE	RAD	RADIATOR/ RADIUS	SNT	SEALANT	THRU	THROUGH	WL	WATER LINE
BSMT	BASEMENT	DIAG	DIAGONAL	FHEC	FIRE HOSE & EXTINGUISHER CAB.			MCW	MINERAL CORE WOOD			RB	RESILIENT BASE	SNR	SANITARY NAPKIN RECEPTACLE	TJ	TELEPHONE JACK	W/O	WITHOUT
		DIM	DIMENSION	FIN	FINISH(ED)	ID	INSIDE DIAMETER (DIM.)	MDFB	MEDIUM DENSITY FIBER BOARD	PA	PUBLIC ADDRESS	RCWY	RACEWAY	S.O.	SINGLE OCCUPANCY CELL	TKBD	TACKBOARD	WP	WATERPROOF (ING)/ WORK POINT/ WEATHER
CAB	CABINET	DIV	DIVISION/ DIVIDER	FL	FLOOR LINE/ FLOOR	IE	THAT IS	MECH	MECHANNICAL	PAR	PARAGRAPH/ PARAPET	RD	ROOF DRAIN/ ROAD	SP	STANDPIPE/ SHEAR PLATE	TOL	TOILET		PROOF
CB	CATCH BASIN	DN	DOWN	FLASH	FLASHING	IG	INSULATING GLASS	MED	MEDICAL/ MEDIUM	PTN	PARTITION (S)	RE:	REFER/ REFERENCE	SPEC	SPECIFICATION/ SPECIFIED	T.O.M.	TOP OF MASONRY	WR	WATER RESISTANT/ WASTE RECEPTACLE
C/C	CENTER TO CENTER	D.D.	DOUBLE OCCUPANCY CELL	FLEX	FLEXIBLE	IMP	INSULATED METAL PANEL	MED.S.	MEDICAL STORAGE	PB	PANIC BOLT/ PUSH BUTTON	RECEP	RECEPTACLE/ RECEPTION	SPK	SPEAKER	TOP	TOPPING	WT	WEIGHT
CCTV	CLOSED CIRCUIT TV	D.U.	DIRTY UTILITY ROOM	FLR	FLOOR(ING)	IN	INCH	MET	METAL	PBD	PARTICLEBOARD	RECIRC	RECIRCULATION	SPL	SPECIAL	TOS	TOP OF STEEL		
CEMPL	CEMENT PLASTER	DWL	DOWEL	FLUOR	FLUORESCENT	INCAND	INCANDESCENT	MEZZ	MEZZANINE	PC	PRE-CAST	RECT	RECTANGULAR	SPR	SPRINKLER	TPD	TOILET PAPER DISPENSER	YD	YARD DRAIN
CER	CERAMIC	DWR	DRAWER	FOS	FACE OF STUD	INCL	INCLUDE(ING)	MFB	MINERAL FIBER BOARD	PED	PEDESTAL	RECVD	RECEIVED (ING)	SPNT	SPECIAL PAINT	TR	TREAD		
CG	CORNER GUARD			FP	FIREPROOF(ING)/ FULL PENETRATION	IND	INDUSTRIAL	MFR	MANUFACTURER) (ING)	PERF	PERFORATE (D)	REF	REFERENCE	SSK	SERVICE SINK	TRK	TRACK		
CH	COAT HOOK	EA	EACH	FRAM(G)	FRAMING	INFO	INFORMATION	MGR	MANAGER	PERIM	PERIMETER	REFR	REFRIGERATOR	S.T.	STAFF TOILET	T/S	TOP OF SLAB		
CHAN	CHANNEL	EB	EXPANSION BOLT	FRT	FIRE RETARDANT	ING	INSULATING GLASS	MH	MANHOLE	PERP	PERPENDICULAR	REG	REGULATOR/ REGLET/ REGISTER	ST	STREET/ STREAM	TV	TELEVISION		
CHKBD	CHALKBOARD	EJ	EXPANSION JOINT	FS	FULL SIZE/ FLOOR SINK	INSTL	INSTALLATION/ INSTALL	MIC	MICROPHONE	PFB	PREFABRICATE (D)	REINF	REINFORCE (D) (ING) (MENT)	SST	STAINLESS STEEL				
CIP	CAST-IN-PLACE (CONCRETE)	ELEC	ELECTRIC(AL)	FT	FOOT/ FEET	INSUL	INSULATE(D) (ING)	MIN	MINIMUM	PG	PLATE GLASS	REQ(D)	REQUIRE (D)	STA	STATION				
CJ	CONTROL JOINT																		

HDCP ACCESSIBILTY GENERAL NOTES

1. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES BETWEEN THE ARCHITECTURAL DRAWINGS AND THE INFORMATION GIVEN ON THIS SHEET.

2. DO NOT SCALE THESE DRAWINGS.

3. DIMENSIONS INDICATED ARE THE MINIMUM CLEAR DIMENSIONS REQUIRED BY THE UNIFORM FEDERAL ACCESSIBILITY STANDARDS (UFAS) AND THE BARRIER FREE DESIGN GUIDE SUPPLEMENT BY THE DEPARTMENT OF THE VA. THE CONTRACTOR IS RESPONSIBLE FOR LAYOUT OF BUILDING ELEMENTS TO ASSURE THAT DIMENSIONS SHOWN ARE PROVIDED.

4. NOT ALL CONDITIONS SHOWN ON THIS SHEET MAY BE REQUIRED BY THIS PROJECT. COMPARE THE REQUIREMENTS OF THE ARCHITECTURAL DRAWINGS WITH THIS SHEET FOR RELEVANCE OF INFORMATION.

5. REFERENCE ACCESSIBLE DIMENSIONS LEGEND FOR ACCESIBLE MOUNTING HEIGHTS OF ALL FIXTURES & ACCESSORIES LOCATED THROUGHOUT CONTRACT DOCUMENTS.

6. DIMENSIONS SHOWN ON INTERIOR ELEVATIONS AT WALLS ARE TO THE FINISHED SURFACE.

7. HANDICAP ACCESSIBLE SHOWERS ARE TO BE RECESSED INTO CONCRETE AT TRANSFER SHOWERS, WRAP AS REQUIRED TO HAVE NO MORE THAN 1/2" LIP AT EDGE OF SHOWER ENTRY (NO LIP AT ROLL-IN SHOWERS)

8. ALL EXPOSED PIPE UNDER SINKS ARE TO BE WRAPPED OR PROTECTED

Revisions:	Date:

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REGISTERED ARCHITECT BRIAN KEITH O'BRIEN 22633 STATE OF TEXAS
04/27/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: ACCESSIBILITY STANDARDS
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
Location: Big Spring, TX
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Checked: JOW
Drawn: KL

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COMMUNITY LIVING CENTER CODE SUMMARY

REFERENCES

1. International Code Council (ICC)
   a. International Building Code (IBC), 2021
   b. International Mechanical Code (IMC), 2018
   c. International Plumbing Code (IPC), 2021
   d. International Energy Conservation Code, 2021
2. National Fire Protection Agency (NFPA)
   a. NFPA 101 Life Safety Code, 2018
   b. NFPA National Fire Codes (except NFPA 900 & 5000)
   c. National Electrical Code (NEC), 2020
3. American Society of Mechanical Engineers (ASME)
   a. Safety Code for Elevators and Escalators (ASME A17.1)
   b. Boiler and Pressure Vessel Code (BPVC), 2021
   c. Code for Pressure Piping
4. American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE)
   a. Safety Standard for Refrigeration Systems - ASHRAE Standard 15, 2007
   b. Ventilation for Acceptable Indoor Quality - ASHRAE Standard 62.1, 2004
5. Architectural Barriers Act Accessibility Standards (ABAAS)
   a. including VA supplement, Barrier Free Design Guide (PG-18-13)
6. Building Code Requirements for Reinforced Concrete, American Concrete Institute and Commentary (ACI 318)
7. Manual of Steel Construction, Load and Resistance Factor Design Specifications for Structural Steel Buildings, American Institute of Steel Construction (AISC)
8. VA Seismic Design Requirements, H-18-8
9. Other Standards;
   a. VA Directives, Design Manuals, Master Specifications, Technical Information Library
   b. Occupational Safety and Health Administration (OSHA) Standards
   c. Energy Policy Act of 2005 (EPAct)
   d. Executive Order 13423: Strengthening Federal Environmental, Energy, and Transportation Management
   e. Federal Leadership in High Performance and Sustainable Buildings: Memorandum of Understanding (MOU)
   f. DOE Interim Final Rule: Energy Conservation Standards for New Federal, Commercial, and Multi-Family High-Rise Residential Buildings and New Low-Rise Residential Buildings, 10 CRT Parts 433, 434, and 435
   g. The Provisions for Construction and Safety Signs. Stated in the General Requirements Section 01010 of the VA Master Construction Specification

APPLICATION OF CODES

In accordance with the Department of Veterans Affairs Sixth Edition Fire Protection Design manual dated September 2011, the project is subject to the current edition of the International Building Code (IBC) and the National Fire Protection Agency (NFPA) 101 Life Safety Code. It is assumed that since the IBC has just recently released the 2021 IBC and that the current edition of the Life Safety Code is the 2018, the project will subject to the 2021 edition of IBC and the 2018 edition of the NFPA 101. The NFPA 101 controls over the IBC when regulations are covered in both. However, for Group I-2 or Institutional, the IBC controls for type of construction and location of building on site and the relationship to existing buildings. NFPA does not provide Type of Construction requirements for Institutional (Group I-2) occupancies.

ASSUMPTIONS

Per record drawings information provided by the VA, Building 28 is assumed to be Type V-A

OCCUPANCIES

Group I-2

Chapter 5 - General Building Heights and Areas

Incedental Uses (508.2)
   a. The following spaces must be designed to resist the passage of smoke: Furnace Rooms with equipment over 400,000 BTU, Boiler Rooms with equipment over 15 PSI and 10 HP, Laundry Rooms over 100 SF, Storage Rooms over 100 SF, and Waste/ Linen Collection Rooms over 100 SF.
   b. Extend partitiions to desk or to fire-resistive ceiling assembly. Doors shall have closers and undercuts are limited to 3/4." Ducts shall have smoke dampers.

Accessory Occupancies (508.3.1)
   a. Except as required by incedental use areas, accessory use areas are not required to be seperated provided area is not more than 10 percent of the area of the story in which it is located.
   b. Required Separation of Occupances (Table 508.3.3)
      1. Occupancy separation not required for incidental storage areas within Group I-2 if the area is less than 10% of the floor area, if the area is provided with sprinklers and is less than 3000 SF, or if the area is less than 1000 SF.

Chapter 6 - Classification of Occupancy and Hazard of Contents

Group I-2

Chapter 7 - Means of Egress

7.1.3 Separation of Means of Egress

7.1.3.1 Exit Access Corridors - Corridors serving an occupant load of 30 or more must be 1-hour rated. Does not apply to existing Institutional (I-2) Occupancies or within Institutional (I-2) Occupancies where the entire building is sprinklered.

7.1.3.2 Exits

7.1.3.2.1 Where egress is required to be seperated from other parts of the building, it must comply with this Section and Section 8.2
   a. Vertical exit enclosures: 1-hour up to three stories (levels) 2 hours thereafter.
   b. Rated exit enclosures must be supported by equivalent rated construction.
   c. One hour enclosure walls must be supported by equivalent construction.
   d. Openings into enclosure are limited to those necessary such as from normally occupied spaces or corridors
   e. Penetrations into enclosures are limited to the following:
      - Door Assemblies permitted by 7.1.3.2.1 (9)
      - Electrical conduit serving the exit enclosure
      - Required exit door openings
      - Ductwork and equipment necessary for independent stair pressurization
      - Water or steam piping necessary for the heating or cooling of the exit enclosure
      - Sprinkler piping
      - Standpipes
      - Existing penetrations protected in accordance with 8.3.5
      - Penetrations for fire alarm circuits, where the circuits are installed in metal conduit and the penetrations are protected in accordance with 8.3.5
   f. Membrane penetrations are permitted on the exit acces side of the exit enclosure

7.1.3.2.2 An exit enclosure is required to have a continuous protected path of travel to an exit discharge.
7.1.3.2.3 Exit enclosures may not be used for any other purpose except for compliant areas of refuge.

7.1.4 Interior Finish in Exit Enclosures

7.1.4.1 Interior Wall and Ceiling Finish - Class A or B
7.1.4.2 Interior Floor Finish and Exit Enclosures - Class II per Section 10.2

7.1.5 Headroom

7.1.5.1 Minimum headroom in Means of Egress:
New Construction: 7 ' 6"

7.2 Means of Egress Components

7.2.1 Door Openings

7.2.1.2.3.2 Minimum Door Leaf Width - 32"
7.2.1.3 Floor Level: Except for maximum 1/2" thresholds, provide level landings on each side of doors.
7.2.1.4.2 Door Leaf Swing Direction: Doors shall swing in the direction of travel where serving an occupant load of 50 or more. See 7.2.4.3.8.1 or 7.2.4.3.8.2 for exceptions for horizontal exits.
7.2.1.4.3 Door Leaf Encroachment: Shall not reduce the required width of a corridor or landing which means of egress in any position and may not reduce the required width by more than 7 inches when fully open.
7.2.1.5 Locks, Latches, and Alarm Devices (this section also contains provisions for special locking. Refer. Specs)
7.2.1.5.1 Must be readily operable from the egress side.
7.2.1.5.3 Locks shall not require any special knowledge or equipment to open.
7.2.1.7 Panic Hardware: Required on all doors in path of travel until egress from the buidling is accomplished.

7.3 Capacity of Means of Egress

7.3.1 Occupant Load

7.3.1.2 Occupant Load (Table 7.3.1.2)

Storage / Mechanical room:	1:300
Assembly (Unconcentrated):	1:15
Business:	1:150
Kitchen:	1:100
Institutional (Sleeping area):	1:120

7.3.3 Egress Capacity (Factors)
   a. Stairways: .3 times occupant load served equal width in inches, but not less than minimums
   b. Other: .2 times occupant load served equal width in inches, but not less than minimums

7.4 Number of Means of Egress

Generally: 1 - 500 occupants requires 2 exits
501 - 1000 occupants requires 3 exits
1001 and greater occupants requires 4 exits
Note: See electrical code for electrical rooms: Section 110.26 (C) and Section 110.33 (A)

7.5 Arrangement of Means of Egress

7.5.1.1.2 Exit access corridors must provide access to at least two approved exits - see exceptions
7.5.1.3.2 Exit separation must be equal to 1/2 the overall diagonal of the building or area served in non-sprinklered buildings
7.5.1.3.3 Exit separation must be equal to 1/3 the overall diagonal of the building or area served in sprinklered buildings

7.6 Measurement of Travel Distance to Exits

1. Along the centerline of the natural path of travel, starting from the most remote point subject to occupancy.
2. Curving around any corners or obstructions, with a 12" (305 mm) clearance therefrom
3. Terminating at one of the following:
   a. Center of the doorway
   b. Other point at which the exit begins

7.7 Illumination of the Means of Egress

10 footcandles at stairs
1 footcandle at other locations

7.9 Emergency Lighting

Provide as required by Chapter 38 and Chapter 39

7.10 Marking of Means of Egress

7.10.1.2 Provide exit signs as required by Chapter 38 and 39
7.10.1.3 Provide tactile exit signs at each exit door requiring a sign

Chapter 8 - Features of Fire Protection

1. Total combined glazing area in fire-rated window and door assemblies shall not exceed 25% of the area of the fire barrier that is in common with any room (8.3.3.10)
2. Table 8.3.4.2 Minimum Fire Protection ratings for Opening Protectives in Fire Resistance-Rated Assemblies

Table 8.3.4.2

COMPONENT	WALLS/ PARTITIONS (HR)	FIRE DOOR ASSEMBLY (HR)	FIRE WINDOW ASSEMBLY (HR)
Vertical Shafts (Including...	1	1	NP
Fire Barriers	1	3/4	3/4
	1/2	1/3	1/3
Horizontal Exits	2	1 1/2	NP
Exit Access Corridors	1	1/2	3/4
	1/2	1/3	1/3
Smoke Barriers	1	1/3	3/4
Smoke Partitions	1	1/3	1/3

3. Required fire resistance rating for the enclosure of floor opening shall be a minimum 1 hour fire barrier (8.6.5).

4. The opening between floors within the new building should be considered a communicating space in accordance with NFPA 101 8.6.6. Communicating spaces should comply with the following provisions.
   a. May connect up to three stories
   b. The lowest level must be a street level.
   c. Fires in the communicating space must be readily obvious
   d. Must be separated from other areas of the building by 1-hour fire barriers (NFPA 101 allows a smoke barrier [smoke-tight] instead of 1-hour fire barrier if the building is fully sprinklered)
   e. The communicating space must contain only ordinary hazards contents
   f. Egress capacity is sufficient to allow all the occupants of all levels within the communicating space to simultaneously egress the communicating space by considering it as a single floor area
   g. Each occupant within the space must have access to not less than one exit without traveling through the communicating space
   h. Occupants not within the communicating space must have access to at least one exit without entering the communicating space

Egress (Based on NFPA 101)
Chapter 38

New Buildings: Egress for new buildings shal comply with Section 38.2
38.2.1 In general, the means of egress shall comply with Chapter 7.

38.2.2 Means of Egress Components

38.2.2.2.1 Doors: Doors shall comply with 7.2.1
38.2.2.2.2 Locks comply with 7.2.1.2.5 are permitted on the main entrance door
38.2.2.3 Stairs: Stairs shall comply with Section 7.2.2
   a. Quantity per Section 7.3
   b. A minimum of two exits per story
   c. A minimum of two exits shall be accessible from every part of every story
38.2.4.2 A single exit is permitted when the common path of travel per
38.2.5.3 (100ft in sprinklered building) is not exceeded

38.2.5 Arrangement of Means of Egress

38.2.5.1 Arrangement must be in accordance with Section 7.5
38.2.5.2 Dead end corridors must comply with this Section:
   38.2.5.2.1 Maximum dead-end corridor in fully sprinklered buildings is 50'
   38.2.5.2.2 Maximum dead-end corridor in non-sprinklered buildings is 20'
38.2.5.3 Common path of travel limitations must comply with the following:
   38.2.5.3.1 Fully sprinklered building: 100'
   38.2.5.3.2 Tenant space with an occupant load of 30 or less: 100'
   38.2.5.3.3 Other: 75'

38.2.6 Travel Distance to Exits - Measurement to be in accordance with 706

Sprinklered building: 300'
Non-sprinklered building: 200'

38.2.7 Discharge from Exits: per section 7.8

38.2.8 Illumination of Egress: per section 7.8

38.2.9 Emergency Lighting of Mans of Egress: provide egress signs in accordance with 7.9 when any of the following conditions exists

a. The building is three or more stories in height
b. There are 50 or more occupants above or below the level of exit discharge
c. The building occupant is 300 or more

38.2.10 Marking of Means of Egress: provide egress signs in accordance with 7.10

8.2.2.3.2.5 Horizontal Exits: horizontal exits compling with 7.2.4 may be used as part of the Means of Egress

38.2.3 Capacity of Means of Egress

38.2.3.1 Must comply with Section 7.3
38.2.3.2 The clear width of corridors complying with an occupant load served of 50 or more must be at least 44" in width
38.2.3.3 Grade level (street) exits shall be of sufficent width to accommodate the grade level plus any floor level served by an open stair.

38.2.4 Number of Means of Egress: the number of Means of Egress shall comply with the following except as permitted by 38.2.4.2 - 38.2.4.4
(1) The number of means of egress shall be in accordance with Section 7.4.
(2) Not less than two separate exits shall be provided on every story.
(3) Not less than two separate exits shall be accessible from every part of every story.

Chapter 29 - Plumbing Systems

2901 General: refer to the National Standard Plumbing Code
   2901.1 Unisex toilet rooms are permitted to be used for the required count in assembly and mercantile occupancies
   2902.2 Where fixtures are required, separate facilities must be provided for each sex
      Exception 1: not required for dwelling and sleeping units
      Exception 2: not required in buildings or tenant spaces with a total occupant load, including employees, of 15 or less
   2902.3 The occupant load for determining the number or required fixtures shall be based on a load composed of 50% of each sex
   2902.4.1 Facilities shall not be located more than 1 story above or below the space required and not more than 500' in travel distance
      Exception: In factory occupancies, can exceed limites if approved by code official

Table 2902.1 Minimum Number of Required Plumbing Fixtures

CLASSIFICATION	OCCUPANCY	DESCRIPTION	WATER CLOSETS	LAVATORIES	BATHTUBS / SHOWERS	DRINKING FOUNTAINS	OTHER
INSTITUTIONAL	I-2	HOSPITALS, AMBULATORY NURSING HOME CARE RECIPIENT	1 PER ROOM	1 PER ROOM	1 PER 15	1 PER 100	1 Service Sink
		EMPLOYEES, OTHER THAN RESIDENTIAL CARE	1 PER 25	1 PER 35	-	1 PER 100	-
		VISITORS, OTHER THAN RESIDENTIAL CARE	1 PER 75	1 PER 100	-	1 PER 500	-

NOTE:
NOT ALL INFORMATION ON THIS SHEET NECESSARILY APPLIES TO THIS PROJECT

Revisions:	Date:

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STAMP
REGISTERED ARCHITECT KENGKYUTSE 22633 STATE OF TEXAS
06/25/2024

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: CODE SUMMARY	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: GI102
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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1 LIFE SAFETY PLAN
1/4" = 1'-0"

ACTUAL NORTH PLAN NORTH

LIFE SAFETY PLANS GENERAL NOTES

A. ALL PENETRATIONS MADE THROUGH RATED WALLS SHALL BE CONSTRUCTED AND SEALED AS REQUIRED TO MAINTAIN THE REQUIRED WALL RATING.
B. REFER TO PROJECT SPECIFICATION SHEETS FOR ADDITIONAL REQUIREMENTS.

CODE INFORMATION

BUILDING:	2018 INTERNATIONAL BUILDING CODE
ACCESSIBILITY:	UNIFORM FEDERAL ACCESSIBILITY STANDARDS
FIRE:	2018 INTERNATIONAL FIRE CODE 2018 NFPA 101
PLUMBING:	2018 INTERNATIONAL PLUMBING CODE
MECHANICAL:	2018 INTERNATIONAL MECHANICAL CODE
ELECTRICAL:	2017 NATIONAL ELECTRICAL CODE
ENERGY:	2018 INTERNATIONAL ENERGY CODE 2019 ASHRAE 90.1

OCCUPANCY CLASSIFICATIONS

GROUP I-2 - INSTITUTIONAL OCCUPANCY
HEALTHCARE (CH18 NFPA 101)

CONSTRUCTION TYPE

TYPE V-A CONSTRUCTION (IBC 602.2) - (FULLY SPRINKLED)

PROJECT AREA

9,014 SF

LIFE SAFETY SYMBOLS

XX	PATH OF TRAVEL (FOR CUMULATIVE DISTANCES REFER TO SCHEDULE)
	REFER TO ELECTRICAL DRAWINGS FOR EXIT LIGHTING. ILLUMINATION OF EXIT LIGHTING INDICATED FOR REFERENCE ONLY
FEC	FIRE EXTINGUISHER CABINET FIRE EXTINGUISHER BY OTHERS
FEC	WALL MOUNTED FIRE EXTINGUISHER - BY OTHERS
	EXIT DISCHARGE
	ONE HOUR FIRE RATED PARTITION
S	ONE HOUR FIRE/SMOKE RATED PARTITION
	TWO HOUR FIRE RATED PARTITION
SP	SMOKE PARTITION
	SMOKE COMPARTMENT 1 (SC1)
	SMOKE COMPARTMENT 2 (SC2)

ROOM OCCUPANCY

AREA OCCUPANCY KEY	OCCUPANT LOAD FACTOR	OCCUPANT LOAD
SMOKE COMPARTMENT 1 (SC1)		
STORAGE / MECHANICAL ROOM	300 SF	8
ASSEMBLY - UNCONCENTRATED	15 SF	50
BUSINESS	150 SF	6
KITCHEN	100 SF	4
		68
SMOKE COMPARTMENT 2 (SC2)		
STORAGE / MECHANICAL ROOM	300 SF	8
ASSEMBLY - UNCONCENTRATED	15 SF	12
INSTITUTIONAL - SLEEPING AREA	120 SF	30
BUSINESS	150 SF	9
		59
TOTAL		127

EXIT SUMMARY

SMOKE COMPARTMENT	HORIZONTAL EXIT WIDTH PER OCCUPANT SPRINKLED	EGRESS WIDTH REQUIRED
SC1	0.20"	14.6"
SC2	0.20"	12.6"

BUILDING EGRESS DOORS

EXIT	WIDTH EGRESS PROVIDED
EXIT #1	68"
EXIT #2	32"
EXIT #3	32"
EXIT #4	68"
EXIT #5	68"
TOTAL	268"

TRAVEL DISTANCE SCHEDULE

TRAVEL PATH	DISTANCE
1A	87' - 10"
1B	48' - 6"
1C	74' - 10"
1D	87' - 11"
1E	37' - 5"

FIRE EXTINGUISHER NOTE

A. FIRE EXTINGUISHER CABINETS SHALL BE INSTALLED BY CONTRACTOR IN ACCORDANCE WITH NFPA10: CLASS A HAZARDS (2-A).
B. ONLY FIRE EXTINGUISHER CABINETS SHALL BE PROVIDED BY GENERAL CONTRACTOR
C. FIRE EXTINGUISHER SHALL BE PROVIDED BY OTHERS

Revisions:	Date:

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REGISTERED ARCHITECT BONGKYU LEE 22633 STATE OF TEXAS
06/25/2024

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: LIFE SAFETY PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3		Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX		Building Number: 28
		Issue Date: 06/28/2024	Checked: JOW / Drawn: KL	Drawing Number: GI103

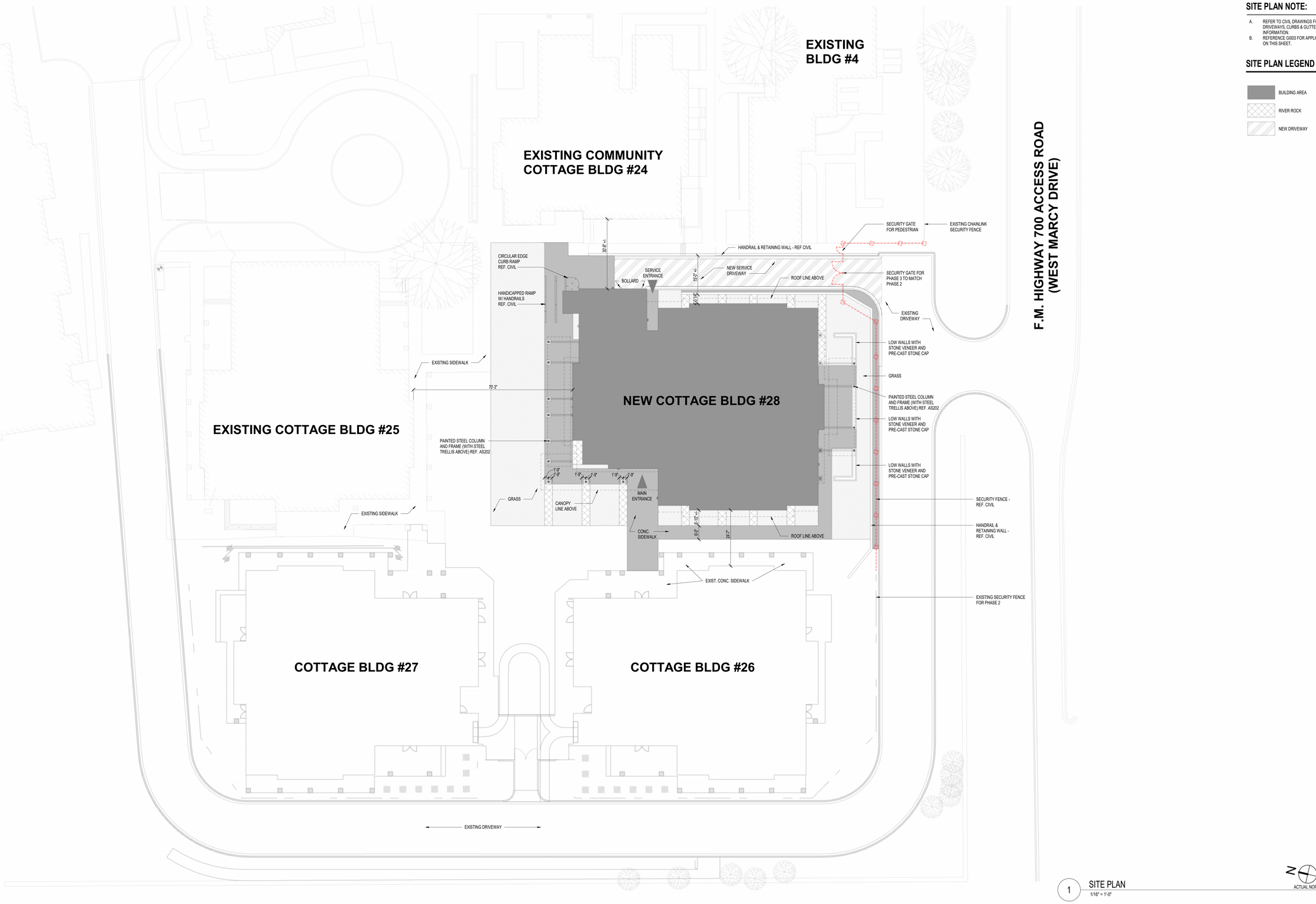
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SITE PLAN NOTE:

A. REFER TO CIVIL DRAWINGS FOR CONC. SIDEWALKS, DRIVEWAYS, CURBS & GUTTERS, FENCE, AND OTHER SITE INFORMATION.
B. REFERENCE GI003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

SITE PLAN LEGEND

BUILDING AREA
CONCRETE SIDEWALK
RIVER ROCK
GRASS LANDSCAPE
NEW DRIVEWAY



1 SITE PLAN
1/16" = 1'-0"

ACTUAL NORTH | PLAN NORTH

Revisions:	Date:

CONSULTANT

A/E:
O'Brien Engineering, Inc.,
2340 E. Trinity Mills Rd. Ste 220
Carrollton, TX 75006
972-233-2288
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OEI

ARCHITECT/ENGINEER OF RECORD

A/E:
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O'Brien Engineering, Inc., Managing Partner
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OEI - LBL

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REGISTERED ARCHITECT HYONGKYU LEE 22633 STATE OF TEXAS
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: SITE PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: GI104
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

Autodesk Docs://0498001.038 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt
6/25/2024 4:40:47 PM
VA FORM 08 - 6231

LEGEND:

- SIGN
- LIGHT POLE
- POWER POLE
- ELECTRIC MANHOLE
- FIRE HYDRANT
- TELECOMM MANHOLE
- SANITARY SEWER MANHOLE
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- ASPHALT PAVEMENT
- ROCK RIP-RAP

SHEET INDEX

SHEET ID	SHEET TITLE
C-001	SHEET INDEX
CS-101	EXISTING SITE PLAN
CU-101	EXISTING UTILITY PLAN
CD-101	DEMOLITION PLAN
CS-102	SITE PLAN
CG-101	GRADING PLAN
CU-102	UTILITY PLAN
CU-103	STORM SEWER PLAN
CG-103	DRAINAGE MAP
CG-104	STORM SEWER CALCS
CG-105	SWPPP PLAN
CS-200	RETAINING WALL PLAN - BUILDING
CS-201	RETAINING WALL PROFILE - BUILDING
CS-202	RETAINING WALL PLAN - DRIVEWAY
CS-203	RETAINING WALL PROFILE - DRIVEWAY
CS-501	PAVING DETAILS
CS-502	DRAINAGE DETAILS
CS-503	DRAINAGE DETAILS - TRENCH DRAIN
CS-504	UTILITY DETAILS
CS-505	MISC CIVIL DETAILS
CS-506	EROSION CONTROL DETAILS
CS-507	EROSION CONTROL DETAILS

SUMMARY OF ABBREVIATIONS AND DEFINITIONS

GENERAL TOPOGRAPHY & HORIZONTAL/ VERTICAL CONTROL

ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
B.C.	BACK OF CURB	P.C.	POINT OF CURVATURE
B.-B.	BACK TO BACK	P.I.	POINT OF INTERSECTION
B.F.R.	BARRIER-FREE RAMP	P.L.	PROPERTY LINE
C.	CENTERLINE	P.P. OR U.P.	POWER POLE OR UTILITY POLE
C.M.A.P.	CORRUGATED METAL ARCH PIPE	P.R.C.	POINT OF REVERSE CURVATURE
C.M.P.	CORRUGATED METAL PIPE	P.T.	POINT OF TANGENCY
C.I.	CAST IRON	P.V.C.	PLASTIC PIPE
C.O.	CLEANOUT	P.V.I.	POINT OF VERTICAL INTERSECTION
CONN.	CONNECTION	R.	RADIUS
CULV.	CULVERT	R.C.	REINFORCED CONCRETE
D.I.P.	DUCTILE IRON PIPE	R.C.P.	REINFORCED CONCRETE PIPE
EL.	ELEVATION	R.C.C.P.	REINF. CONCRETE CYLINDER PIPE
ELEC.	BURIED ELECTRICAL POWER LINE	R.O.W.	RIGHT OF WAY
ENC.	ENCASEMENT	SAN. SEW. OR S.S.	SANITARY SEWER
E.P.	EDGE OF PAVEMENT	S.H.	LAWN SPRINKLER HEAD
ESMT.	EASEMENT	S.	SURVEY LINE
F.-F.	FACE TO FACE	S.S.	SANITARY SEWER
F.H.	FIRE HYDRANT	S.S.M.H.	SANITARY SEWER MANHOLE
F.M.	SANITARY SEWER FORCE MAIN	ST. SEW.	STORM SEWER
F.L.	FLOW LINE	T.B.	TELEPHONE CABLE BOX
G.M.	GAS METER	T.C.	TOP OF CURB
G.V.	GAS VALVE	TEL.	BURIED TELEPHONE CABLE
GUT.	GUTTER	T.M.H.	TELEPHONE CABLE MANHOLE
HDWL.	HEADWALL	TO F.	TO FACE (OF CURB)
I.C.V.	IRRIGATION CONTROL VALVE BOX	TRANS.	ELECTRICAL TRANSFORMER
I.P.F. OR I.R.F.	IRON PIN (ROD) FOUND	T.V.	BURIED TELEVISION CABLE
L.L.	LANDSCAPING LIGHT	T.V.B.	CABLE TELEVISION BOX
L.P.	LIGHT POLE	U.G.C.M.	UNDERGROUND CABLE MARKER
L.S.	SANITARY SEWAGE LIFT STATION	U.P.M.	UNDERGROUND PIPELINE MARKER
L.S.T.	LANDSCAPING TIMBERS	V.C.	VERTICAL CURVE
M.B.	MAILBOX	W. OR W.L.	WATER LINE
M.B.G.F.	METAL BEAM GUARD FENCE	W.M.	WATER METER
M.H.	MANHOLE	W.V.	WATER VALVE

TREES & BUSHES

ABBREVIATION	DEFINITION
B.D.	BOIS D'ARC TREE
B.T.	BLACK THORN TREE
C.B.	CHINABERRY TREE
CDR.	CEDAR TREE
C.E.	CEDAR ELM TREE
CHIT.	CHITTAMWOOD TREE
C.M.	CRAPE MYRTLE TREE
C.P.	CHINESE PISTACHIO TREE
C.W.	COTTONWOOD TREE
CYP.	CYPRESS TREE
H.B.	HACKBERRY TREE
HICK.	HICKORY TREE
H.T.	HAWTHORNE TREE
JAP.	JAPONICA TREE
LIG.	LIGUSTRUM BUSH
L.O.	LIVE OAK TREE
LOC.	LOCUST TREE
MAG.	MAGNOLIA TREE
MAP.	MAPLE TREE
MSQ.	MESQUITE TREE
MIM.	MIMOSA TREE
MUL.	MULBERRY TREE
NAN.	NANDENA BUSH
PEC.	PECAN TREE
PER.	PERSIMMON TREE
PHOT.	RED TIPPED PHOTINIA BUSH
PIST.	CHINESE PISTACHIO TREE
R.B.	REDBUD TREE
R.O.	RED OAK TREE
S.G.	SWEET GUM TREE
SYC.	SYCAMORE TREE
T.T.	TICKLE TONGUE TREE
WIL.	WILLOW TREE

EXISTING DIMENSIONING/LABELING	*PROPOSED DIMENSIONING/LABELING*
MAIN STREET VOL. 1234, PG. 567 T.B.M. 1 CONCRETE RIP-RAP EXIST. 10' WATER ESMT.	*PROP. OFFICE BUILDING* *PROP. METER STATION* *PROP. CONCRETE RIP-RAP* *PROP. CONCRETE CURB* *PROP. 24' FIRE LANE*

Revisions:	Date:

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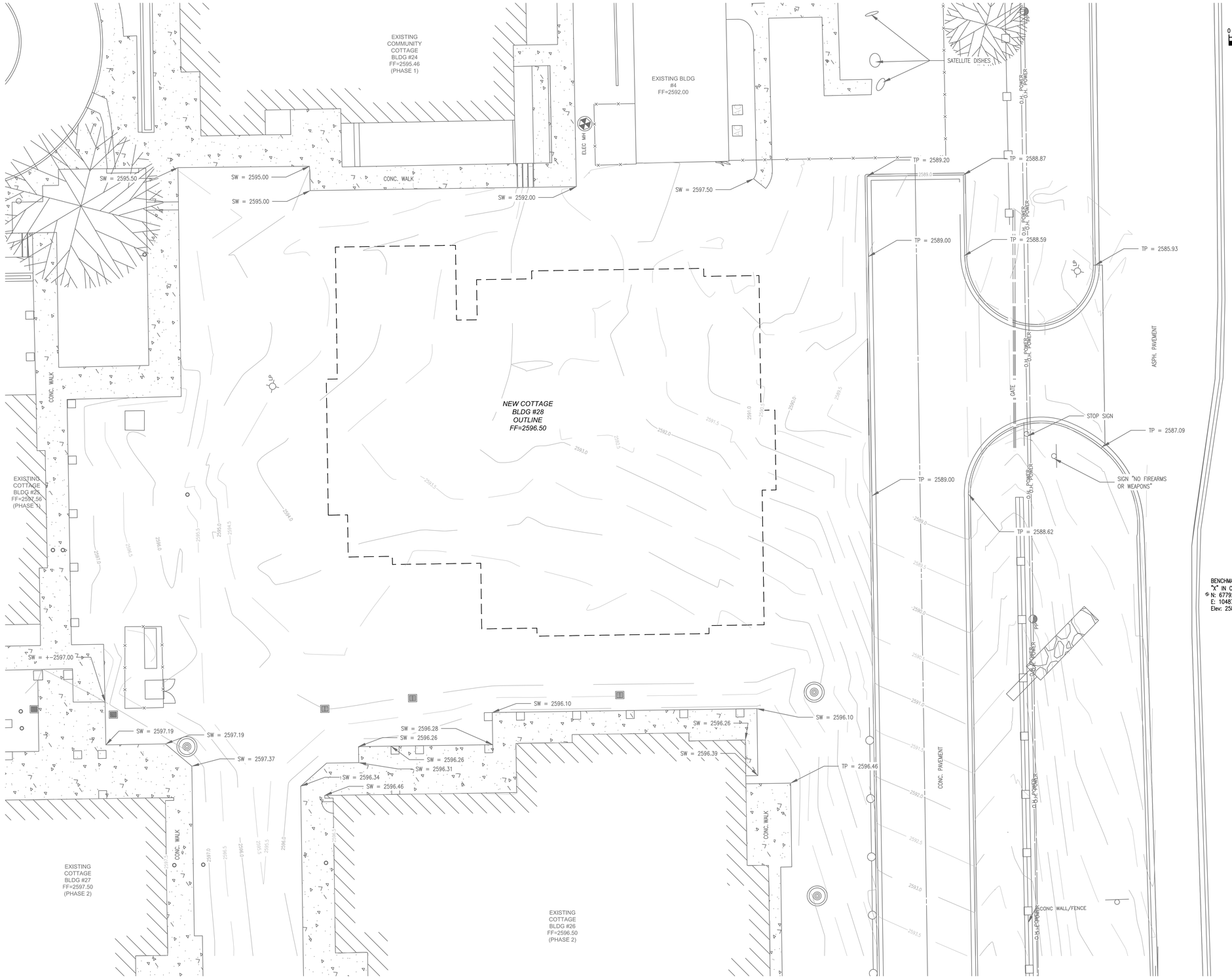
STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA | U.S. Department of Veterans Affairs

Drawing Title	INDEX SHEET
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
COR: Mr. JOSHUA JUNKIN	
Location	Big Spring, TX
Drawing Number	C-001
Issue Date	6/28/2024
Checked	CB
Drawn	BM

VA FORM 08 - 6231



0 10 20 30

HORIZONTAL SCALE IN FEET

BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION, COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6, ELEVATION = 2588.00 FEET.

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NOTES:

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Revisions:	Date:

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STATE OF TEXAS
CHARLES CRAIG BOND
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LICENSED
PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

COR: Mr. JOSHUA JUNKIN

Drawing Title: EXISTING SITE PLAN

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Location: Big Spring, TX

Issue Date: 6/28/2024

Checked: CB

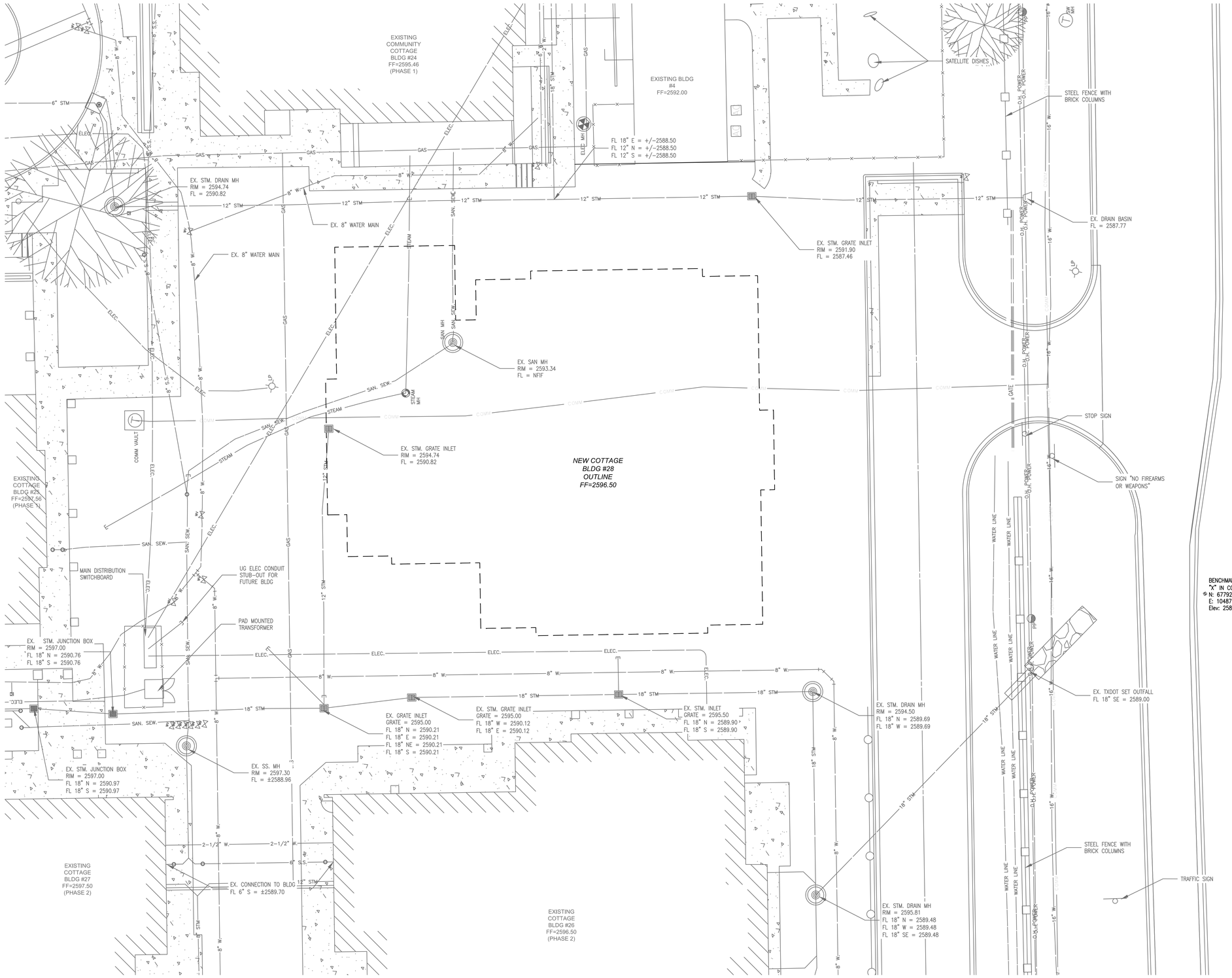
Drawn: BM

Project Number: 519-371

Building Number: 28

Drawing Number: CS-101

VA FORM 08 - 6231



0 10 20 30

HORIZONTAL SCALE IN FEET

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STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: EXISTING UTILITY PLAN

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 519-371

Building Number: 28

COR: Mr. JOSHUA JUNKIN

Location: Big Spring, TX

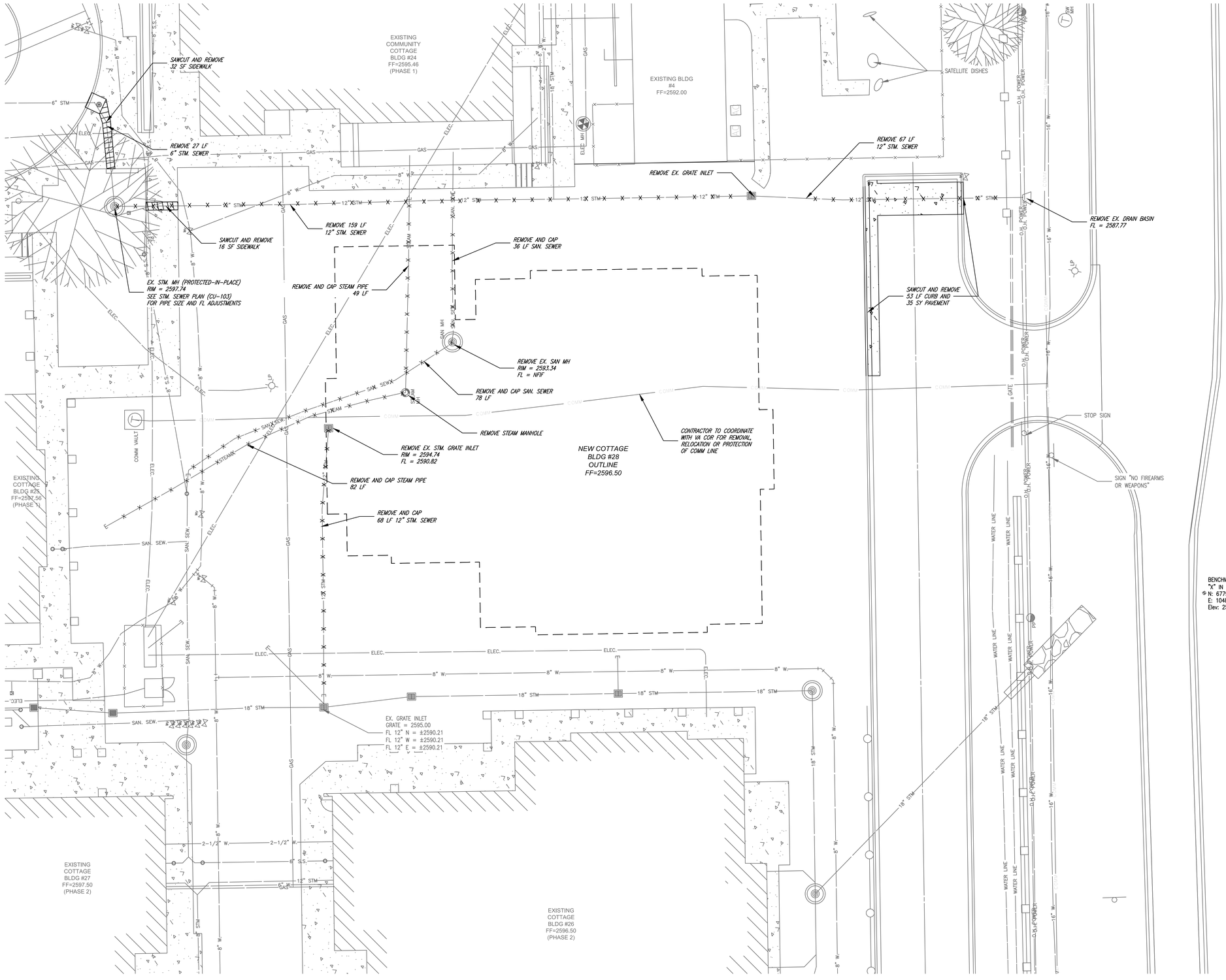
Issue Date: 6/28/2024

Checked: CB

Drawn: BM

Drawing Number: CU-101

VA FORM 08 - 6231



0 10 20 30

HORIZONTAL SCALE IN FEET

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3. LIMITS OF DEMOLITION REQUIRED IS SHOWN IN SCHEMATIC REPRESENTATION ONLY. LIMITS OF DEMOLITION TO BE VERIFIED IN FIELD BY CONTRACTOR.
4. ALL DEMOLISHED MATERIAL TO BE DISPOSED OF OFF-SITE BY CONTRACTOR.
5. CONTRACTOR SHALL PROTECT ALL SURFACE FEATURES, UNDERGROUND UTILITIES, AND THEIR APPURTENACNES THAT ARE NOT IDENTIFIED TO BE REMOVED. DAMAGES SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
6. CONTRACTOR TO COORDINATE WITH VA COR FOR REMOVAL, RELOCATION, OR PROTECTION OF COMM LINE.

Revisions:	Date:

CONSULTANT

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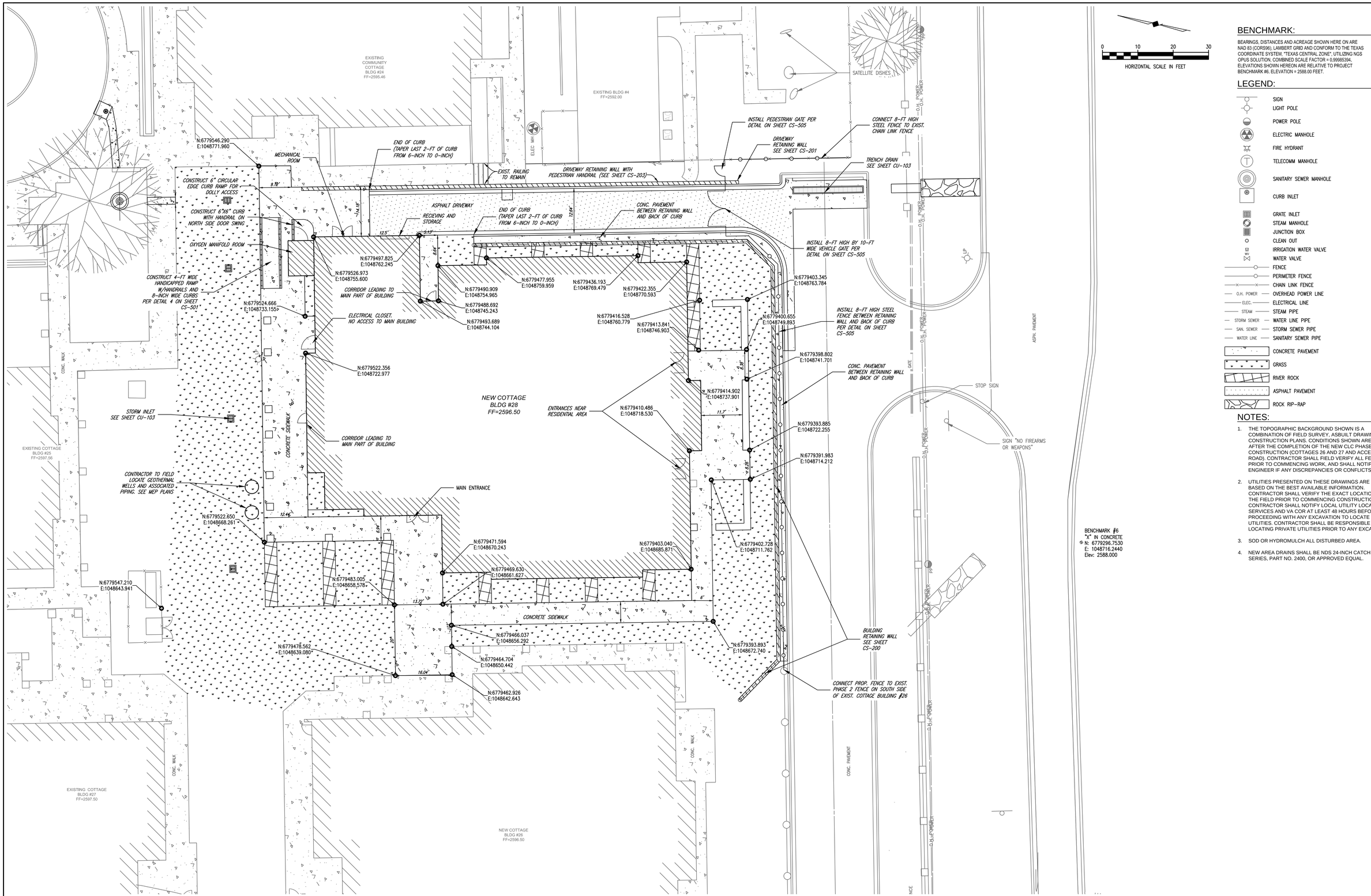
Office of Construction and Facilities Management

VA | U.S. Department of Veterans Affairs

Drawing Title: DEMOLITION PLAN	Phase: ISSUE FOR BID
COR: Mr. JOSHUA JUNKIN	

Project Title: CLC PHASE 3		Project Number: 519-371
		Building Number: 28
Location: Big Spring, TX		Drawing Number: CD-101
Issue Date: 6/28/2024	Checked: CB	Drawn: BM

VA FORM 08 - 6231



BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION. COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6. ELEVATION = 2588.00 FEET.

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3. SOD OR HYDROMULCH ALL DISTURBED AREA.
4. NEW AREA DRAINS SHALL BE NDS 24-INCH CATCH BASIN SERIES, PART NO. 2400, OR APPROVED EQUAL.

Revisions:	Date:

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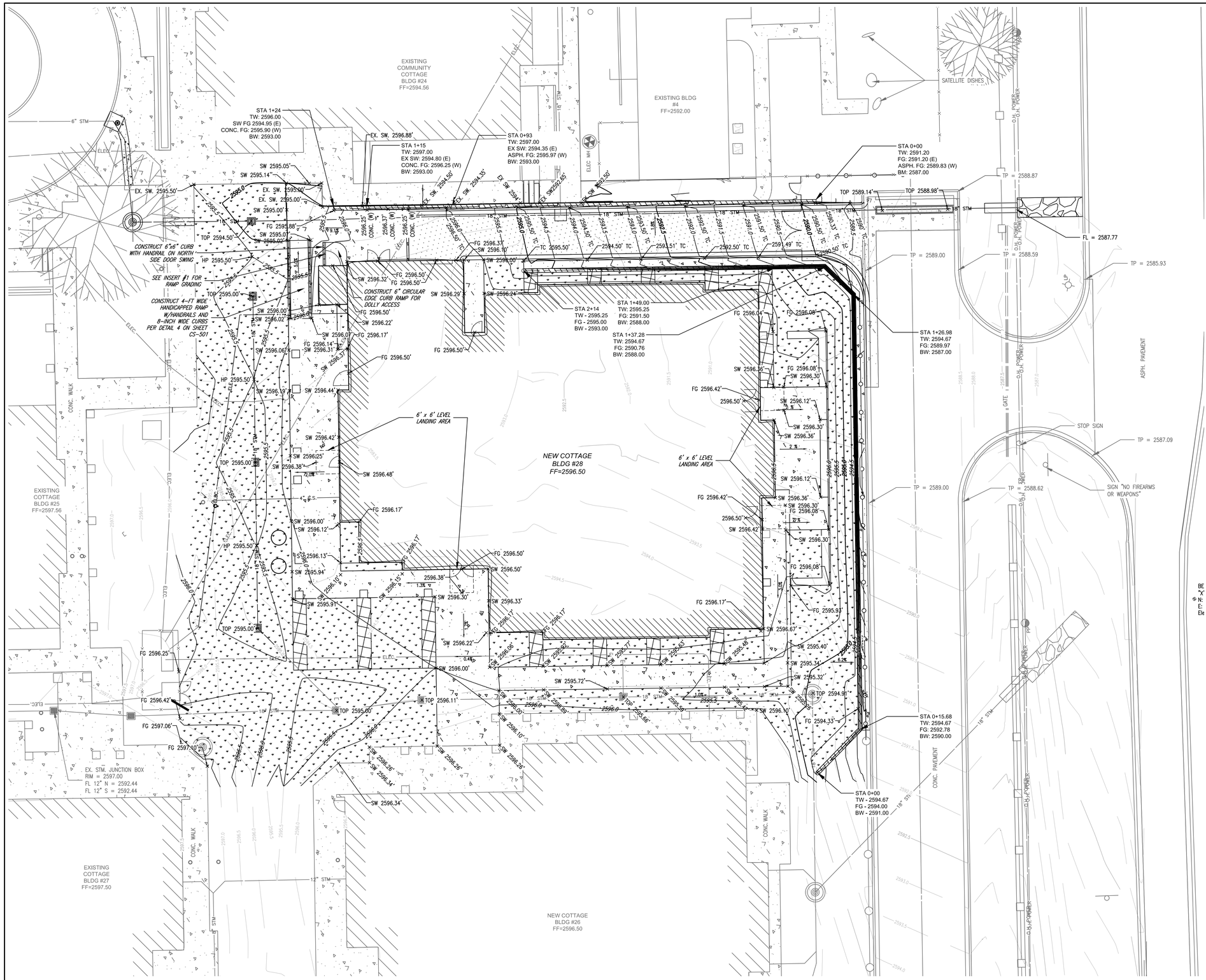
STATE OF TEXAS — CHARLES CRAIG BOND — 64804 — LICENSED PROFESSIONAL ENGINEER
06/28/2024

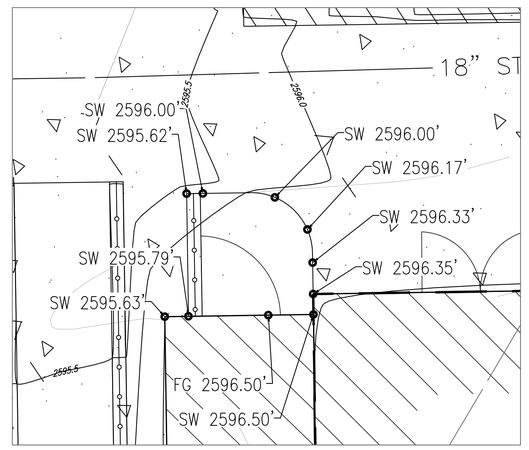
Office of Construction and Facilities Management

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Drawing Title	SITE PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
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COR: Mr. JOSHUA JUNKIN	
Location	Big Spring, TX
Issue Date	6/28/2024
Checked	CB
Drawn	BM
Drawing Number	CS-102

VA FORM 08 - 6231





INSERT #1 - OXYGEN MANIFOLD ROOM RAMP
SCALE: 1" = 3'

0 3 6 9
HORIZONTAL SCALE IN FEET

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HORIZONTAL SCALE IN FEET

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3. SOD OR HYDROMULCH ALL DISTURBED AREA.
4. NEW AREA DRAINS SHALL BE NDS 24-INCH CATCH BASIN SERIES, PART NO. 2400, OR APPROVED EQUAL.

Revisions:	Date:

CONSULTANT

A/E:
O'Brien Engineering, Inc.,
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2340 E. Trinity Mills Rd. Ste 220
Carrollton, TX 75006
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O'Brien Engineering, Inc., Managing Partner
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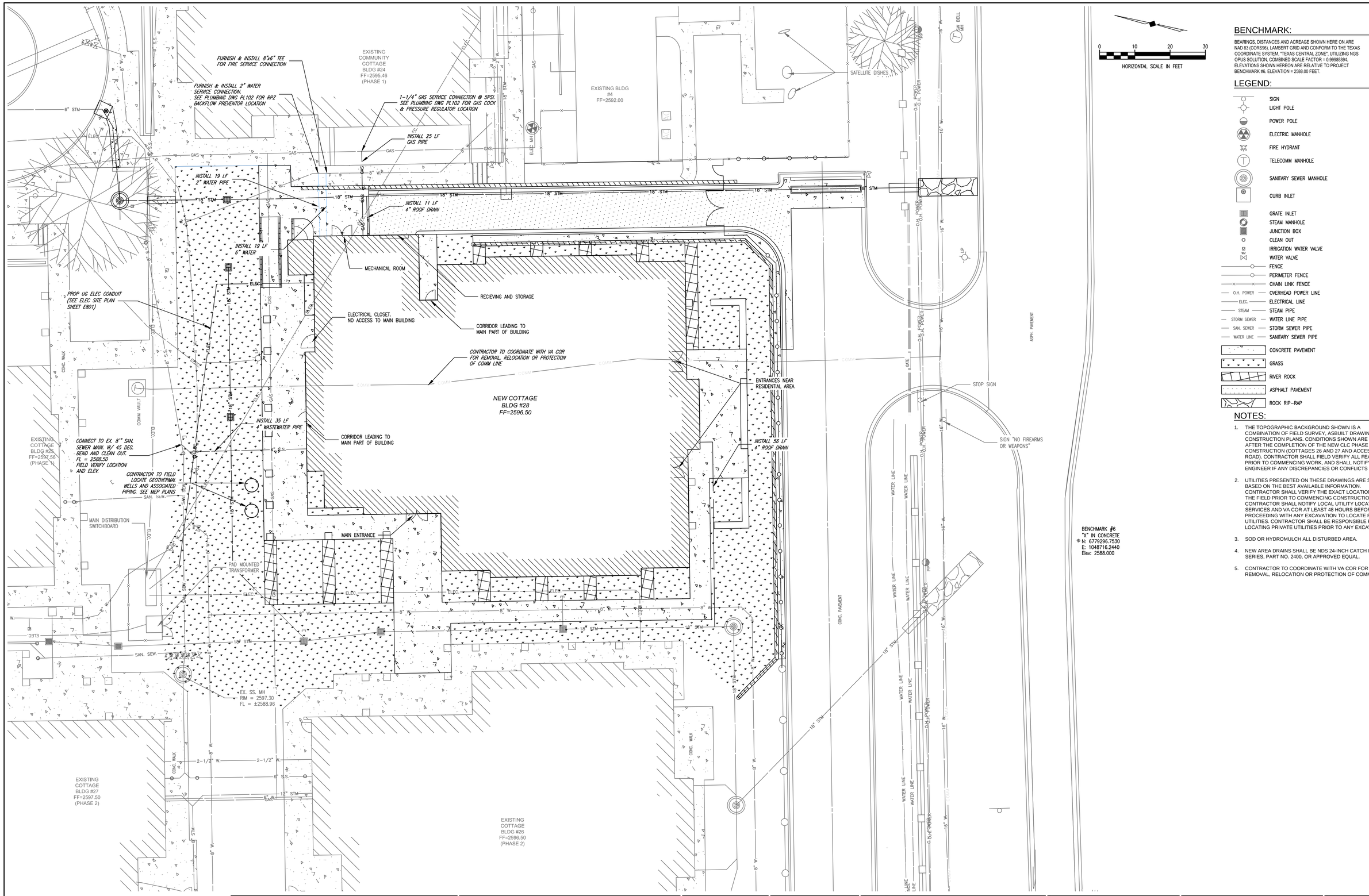
STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED
PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: GRADING PLAN
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
COR: Mr. JOSHUA JUNKIN
Location: Big Spring, TX
Drawing Number: CG-101
Issue Date: 6/28/2024
Checked: CB
Drawn: BM

VA FORM 08 - 6231



BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION. COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6. ELEVATION = 2588.00 FEET.

LEGEND:

- SIGN
- LIGHT POLE
- POWER POLE
- ELECTRIC MANHOLE
- FIRE HYDRANT
- TELECOMM MANHOLE
- SANITARY SEWER MANHOLE
- CURB INLET
- GRATE INLET
- STEAM MANHOLE
- JUNCTION BOX
- CLEAN OUT
- IRRIGATION WATER VALVE
- WATER VALVE
- FENCE
- PERIMETER FENCE
- CHAIN LINK FENCE
- O.H. POWER — OVERHEAD POWER LINE
- ELEC. — ELECTRICAL LINE
- STEAM — STEAM PIPE
- STORM SEWER — WATER LINE PIPE
- SAN. SEWER — STORM SEWER PIPE
- WATER LINE — SANITARY SEWER PIPE
- CONCRETE PAVEMENT
- GRASS
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- ASPHALT PAVEMENT
- ROCK RIP-RAP

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5. CONTRACTOR TO COORDINATE WITH VA COR FOR REMOVAL, RELOCATION OR PROTECTION OF COMM LINE

Revisions:	Date:

CONSULTANT

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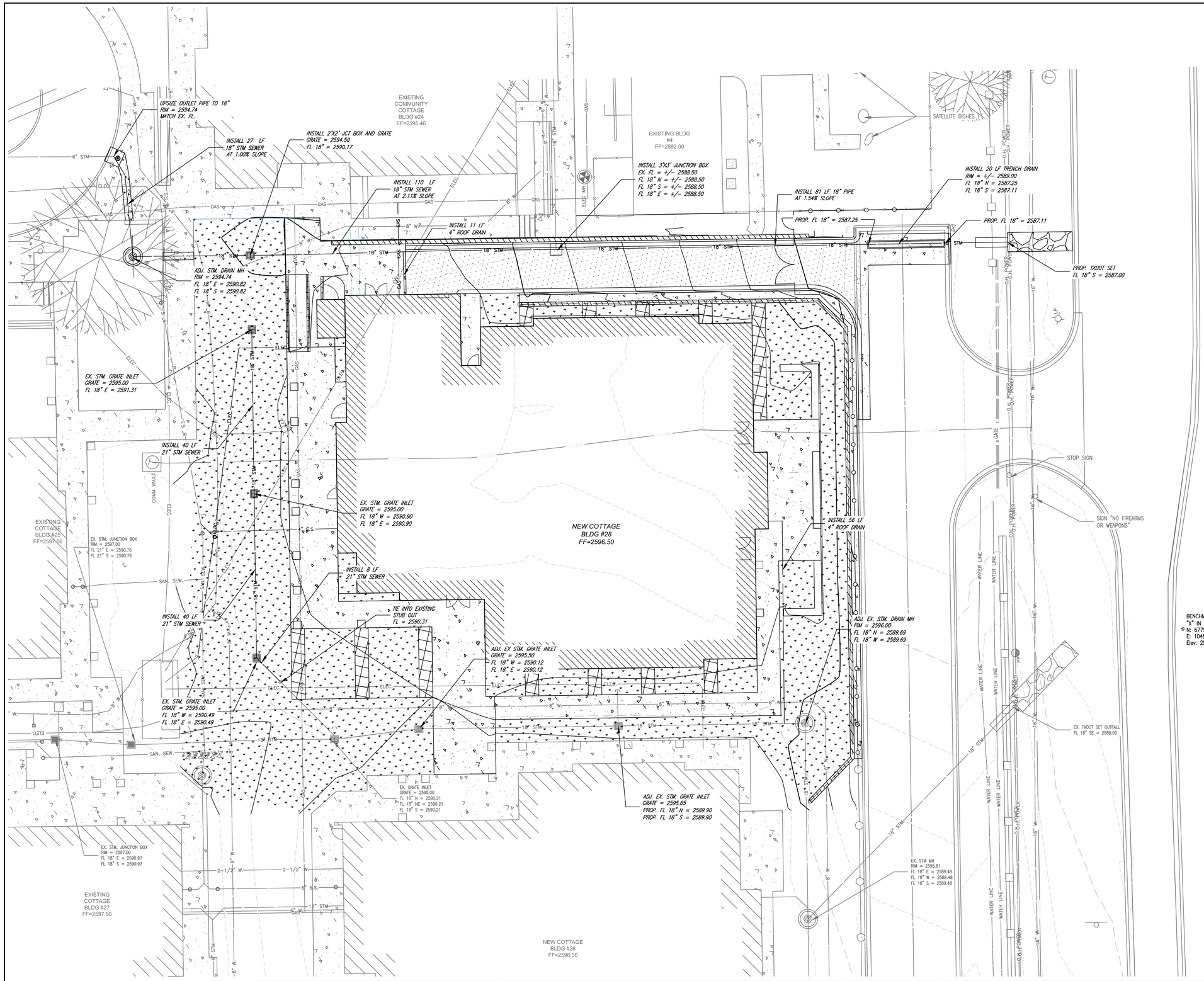
STATE OF TEXAS
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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	PROPOSED UTILITY PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
Location	Big Spring, TX
Drawing Number	CU-102
Issue Date	6/28/2024
Checked	CB
Drawn	BM
COR: Mr. JOSHUA JUNKIN	

VA FORM 08 - 6231



BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION. COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6. ELEVATION = 2588.00 FEET.

LEGEND:

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Revisions:	Date:

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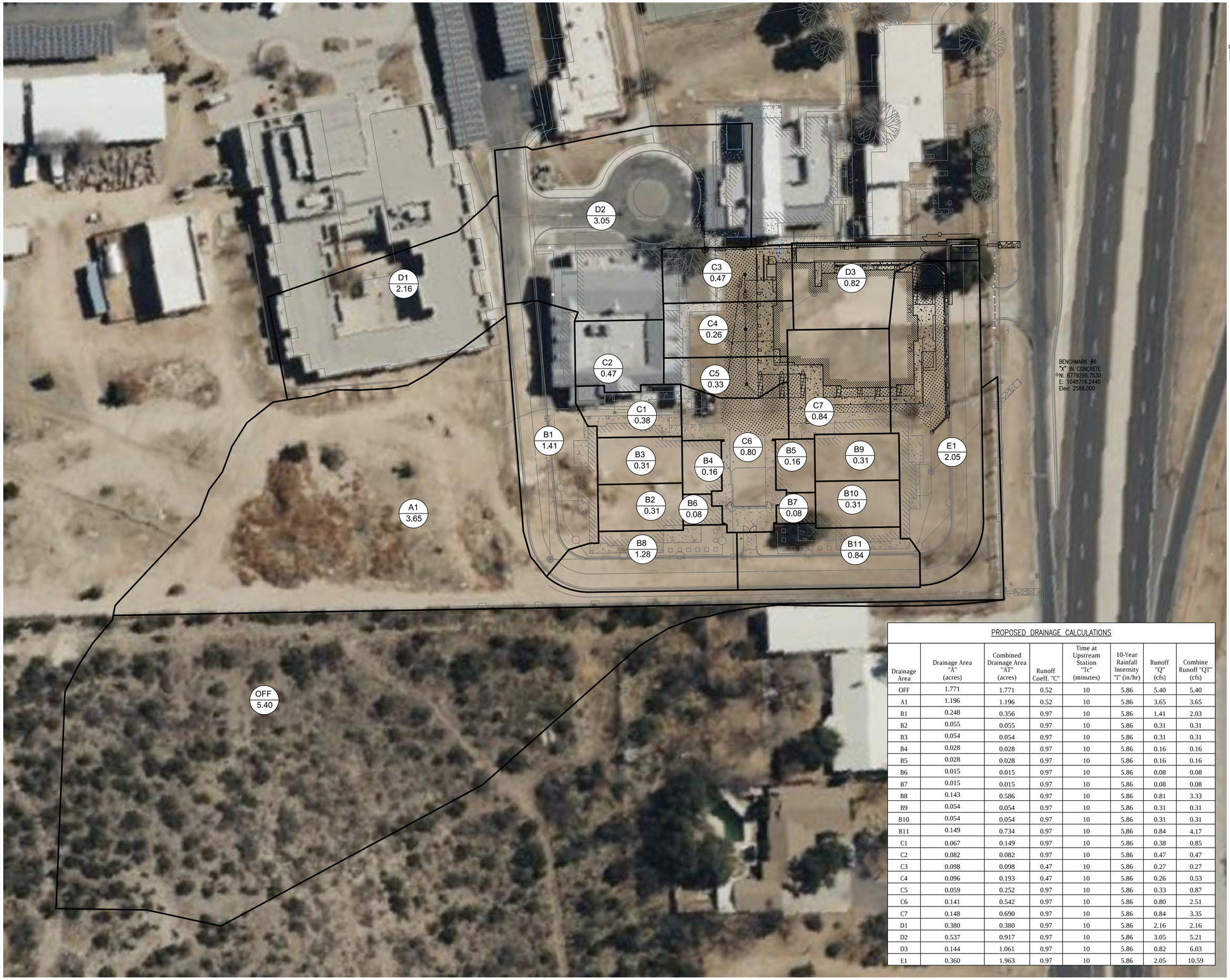
STATE OF TEXAS — CHARLES CRAIG BOND — 64804 — LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	STORM SEWER PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
COR: Mr. JOSHUA JUNKIN	
Location	Big Spring, TX
Issue Date	6/28/2024
Checked	CB
Drawn	BM
Drawing Number	CU-103

VA FORM 08 - 6231



0 30 60 90

HORIZONTAL SCALE IN FEET

BENCHMARK:

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- TELECOMM MANHOLE
- SANITARY SEWER MANHOLE
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- JUNCTION BOX
- CLEAN OUT
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PROPOSED DRAINAGE CALCULATIONS

Drainage Area	Drainage Area "A" (acres)	Combined Drainage Area "AT" (acres)	Runoff Coeff. "C"	Time at Upstream Station "Tc" (minutes)	10-Year Rainfall Intensity "I" (in/hr)	Runoff "Q" (cfs)	Combine Runoff "QT" (cfs)
OFF	1.771	1.771	0.52	10	5.86	5.40	5.40
A1	1.196	1.196	0.52	10	5.86	3.65	3.65
B1	0.248	0.356	0.97	10	5.86	1.41	2.03
B2	0.055	0.055	0.97	10	5.86	0.31	0.31
B3	0.054	0.054	0.97	10	5.86	0.31	0.31
B4	0.028	0.028	0.97	10	5.86	0.16	0.16
B5	0.028	0.028	0.97	10	5.86	0.16	0.16
B6	0.015	0.015	0.97	10	5.86	0.08	0.08
B7	0.015	0.015	0.97	10	5.86	0.08	0.08
B8	0.143	0.586	0.97	10	5.86	0.81	3.33
B9	0.054	0.054	0.97	10	5.86	0.31	0.31
B10	0.054	0.054	0.97	10	5.86	0.31	0.31
B11	0.149	0.734	0.97	10	5.86	0.84	4.17
C1	0.067	0.149	0.97	10	5.86	0.38	0.85
C2	0.082	0.082	0.97	10	5.86	0.47	0.47
C3	0.098	0.098	0.47	10	5.86	0.27	0.27
C4	0.096	0.193	0.47	10	5.86	0.26	0.53
C5	0.059	0.252	0.97	10	5.86	0.33	0.87
C6	0.141	0.542	0.97	10	5.86	0.80	2.51
C7	0.148	0.690	0.97	10	5.86	0.84	3.35
D1	0.380	0.380	0.97	10	5.86	2.16	2.16
D2	0.537	0.917	0.97	10	5.86	3.05	5.21
D3	0.144	1.061	0.97	10	5.86	0.82	6.03
E1	0.360	1.963	0.97	10	5.86	2.05	10.59

Revisions:	Date:

CONSULTANT

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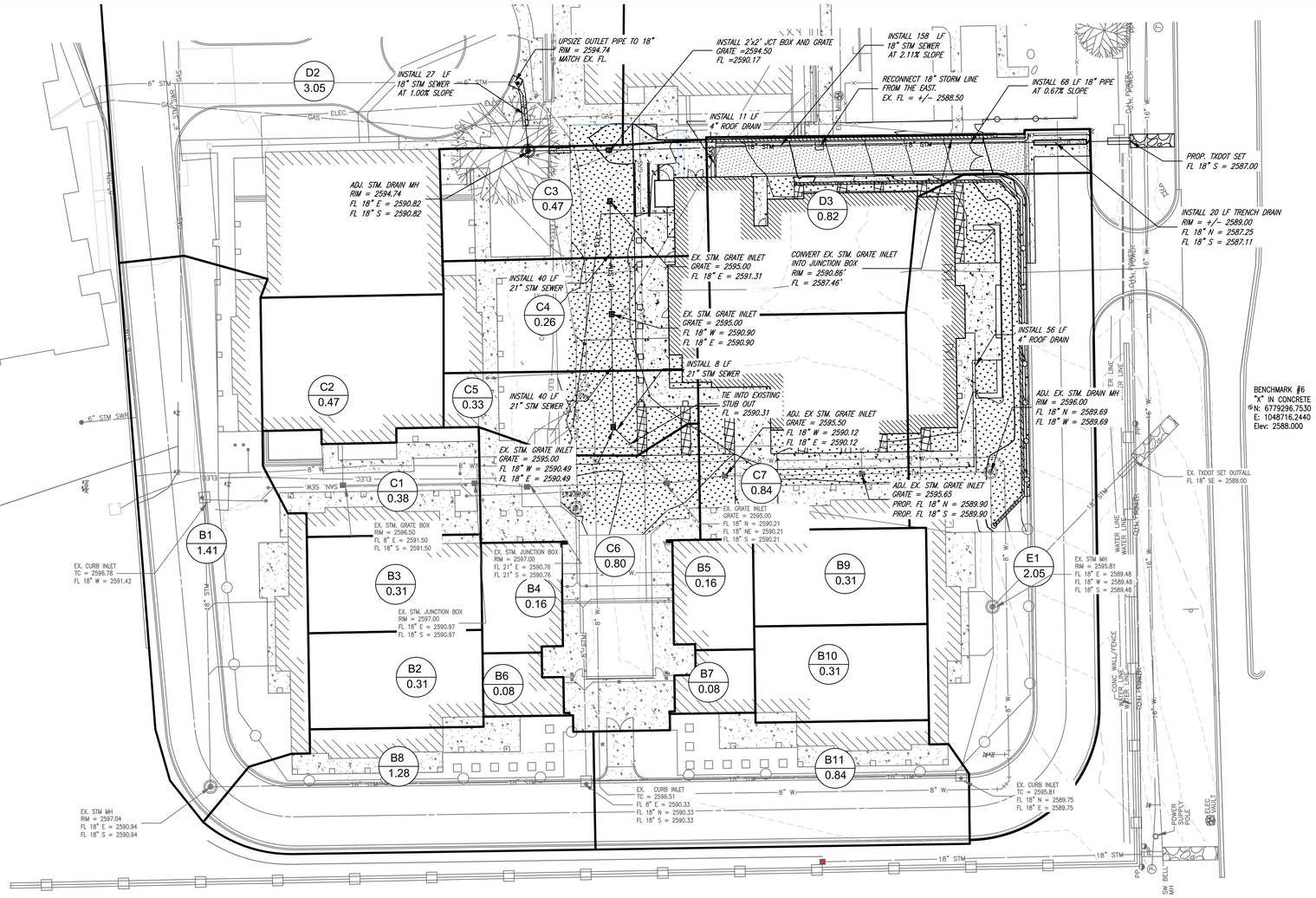
STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED
PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA | U.S. Department of Veterans Affairs

Drawing Title: DRAINAGE MAP
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
COR: Mr. JOSHUA JUNKIN
Location: Big Spring, TX
Drawing Number: CG-103
Issue Date: 6/28/2024
Checked: CB
Drawn: BM

VA FORM 08 - 6231



0 20 40 60

HORIZONTAL SCALE IN FEET

LEGEND:

- SIGN
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- POWER POLE
- ELECTRIC MANHOLE
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US Drainage Basins or MH	DS Basins or Manholes	Pipe Length L (ft)	DA	Incremental Drainage Area A (acres)	Total Drainage Area Atotal (acres)	Runoff Coefficient "C"	Rainfall Intensity I in/hr	Incremental Runoff Qi (cfs)	Inlet Carryover to Inlet	Inlet Carryover From Inlet	Total Runoff QTotal (cfs)	Diameter D (inches)	Manning's Coefficient "n"	Slope of Pipe Segment SA ft/ft	Pipe Capacity Full QC (cfs)	QA/QC	Design Velocity VD ft/s	Hydraulic Gradient	Friction Loss	HGL Upstream	HGL Downstream	V1(in)	V2(out)	V1/2g	V2/2g	Kj	K1V12/2g	Hk	Design HGL	US Elev	DS Elev	DS Top Elev
BM1	WYE-B3	41	B1+B3	0.302	0.302	0.97	5.08	1.488	0.000	0.000	1.488	18	0.01	0.00	0.82	1.82	0.84	0.00	0.01	2592.22	2592.22	0.00	0.84	0.00	0.01	2.00	0.000	0.100	2592.32	2591.39	2591.21	2598.00
WYE-B3	WYE-B2	24	B2	0.054	0.356	0.97	5.08	0.266	0.000	0.000	0.266	18	0.01	0.00	0.82	0.33	0.15	0.00	0.11	2592.12	2592.01	0.84	0.15	0.01	0.00	0.75	0.008	0.100	2592.22	2591.21	2591.11	2602.50
WYE-B2	BM2	182	B2	0.000	0.356	0.97	5.08	0.000	0.000	0.000	0.000	18	0.01	0.00	0.82	0.00	0.00	0.00	0.80	2591.91	2591.11	0.15	0.00	0.00	0.00	0.50	0.000	0.100	2592.01	2591.11	2590.31	2596.51
WYE-B45	WYE-B67	31	B4+B5	0.056	0.056	0.97	5.08	0.276	0.000	0.000	0.276	8	0.01	0.01	0.04	6.62	0.79	0.00	0.00	2591.21	2591.21	0.00	0.79	0.00	0.01	0.50	0.000	0.100	2591.31	2590.78	2590.55	2596.00
WYE-B67	BM2	32	B6+B7	0.030	0.086	0.97	5.08	0.148	0.000	0.000	0.148	8	0.01	0.01	0.04	3.55	0.42	0.00	0.00	2591.11	2591.11	0.79	0.42	0.01	0.00	0.50	0.005	0.100	2591.21	2590.55	2590.31	2596.51
BM2	BM3	132	B8	0.143	0.585	0.97	5.08	0.705	0.000	0.000	2.883	18	0.01	0.00	0.82	3.52	1.63	0.00	0.07	2591.01	2590.94	0.00	1.63	0.00	0.04	0.50	0.000	0.100	2591.11	2590.31	2589.73	2595.81
BM3	WYE-B10	48	B11	0.149	0.734	0.97	5.08	0.734	0.000	0.000	3.617	18	0.01	0.00	0.82	4.42	2.05	0.00	0.04	2590.84	2590.79	1.63	2.05	0.04	0.07	0.70	0.029	0.100	2590.94	2589.73	2589.51	2595.00
WYE-B10	BC-MH	13	B10	0.054	0.788	0.97	5.08	0.266	0.000	0.000	3.883	18	0.01	0.00	0.82	4.74	2.20	0.00	0.01	2590.66	2590.65	1.63	2.20	0.04	0.07	0.75	0.031	0.100	2590.76	2589.51	2589.46	2594.50
C1	C6	122	C1+C2	0.149	0.149	0.97	5.08	0.734	0.000	0.000	0.847	18	0.01	0.03	2.17	0.39	1.16	0.03	3.78	2596.22	2592.44	1.16	1.16	0.02	0.02	2.25	0.047	0.100	2596.32	2593.99	2590.21	2595.00
C3	C4	41	C3	0.098	0.098	0.47	5.08	0.234	0.000	0.000	0.234	18	0.01	0.01	1.23	0.19	0.13	0.01	0.41	2592.34	2591.93	0.13	0.13	0.00	0.00	0.50	0.000	0.100	2592.44	2591.31	2590.90	2595.00
C4	C5	41	C4	0.096	0.193	0.47	5.08	0.228	0.000	0.000	0.462	18	0.01	0.01	1.23	0.37	0.26	0.01	0.41	2591.83	2591.42	0.13	0.26	0.00	0.00	0.50	0.000	0.100	2591.93	2590.90	2590.49	2595.00
C5	C6	28	C5	0.059	0.252	0.47	5.08	0.141	0.000	0.000	0.602	18	0.01	0.01	1.23	0.49	0.34	0.01	0.28	2591.32	2591.04	0.26	0.34	0.00	0.00	1.25	0.001	0.100	2591.42	2590.49	2590.21	2596.50
C6	C7	73	C6	0.141	0.542	0.97	5.08	0.693	0.000	0.000	2.142	18	0.01	0.00	0.82	2.62	1.21	0.00	0.02	2590.94	2590.92	1.21	1.21	0.02	0.02	0.25	0.006	0.100	2591.04	2590.21	2589.89	2595.50
C7	C-MH	48	C7	0.148	0.690	0.97	5.08	0.728	0.000	0.000	2.871	18	0.01	0.00	0.82	3.51	1.62	0.00	0.03	2590.82	2590.79	1.21	1.62	0.02	0.04	0.25	0.006	0.100	2590.92	2589.89	2589.68	2594.50
C-MH	BC-MH	50	B9	0.054	0.744	0.97	5.08	0.266	0.000	0.000	3.665	18	0.01	0.00	0.82	4.48	2.07	0.00	0.04	2590.69	2590.65	1.62	2.07	0.04	0.07	0.25	0.010	0.100	2590.79	2589.68	2589.46	2595.82
BC-MH	OutfallB	70	-	0.000	1.532	0.97	5.08	0.000	0.000	0.000	7.548	18	0.01	0.00	0.82	9.22	4.27	0.00	0.27	2590.91	2590.65	2.07	4.27	0.07	0.28	0.25	0.017	0.267	2590.65	2589.46	2589.15	2592.00

Revisions:	Date:

CONSULTANT

A/E:
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Managing Venturer of OEI / LBL JV

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ARCHITECT/ENGINEER OF RECORD

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O'Brien Engineering, Inc., Managing Partner

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STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED PROFESSIONAL ENGINEER
06/28/2024

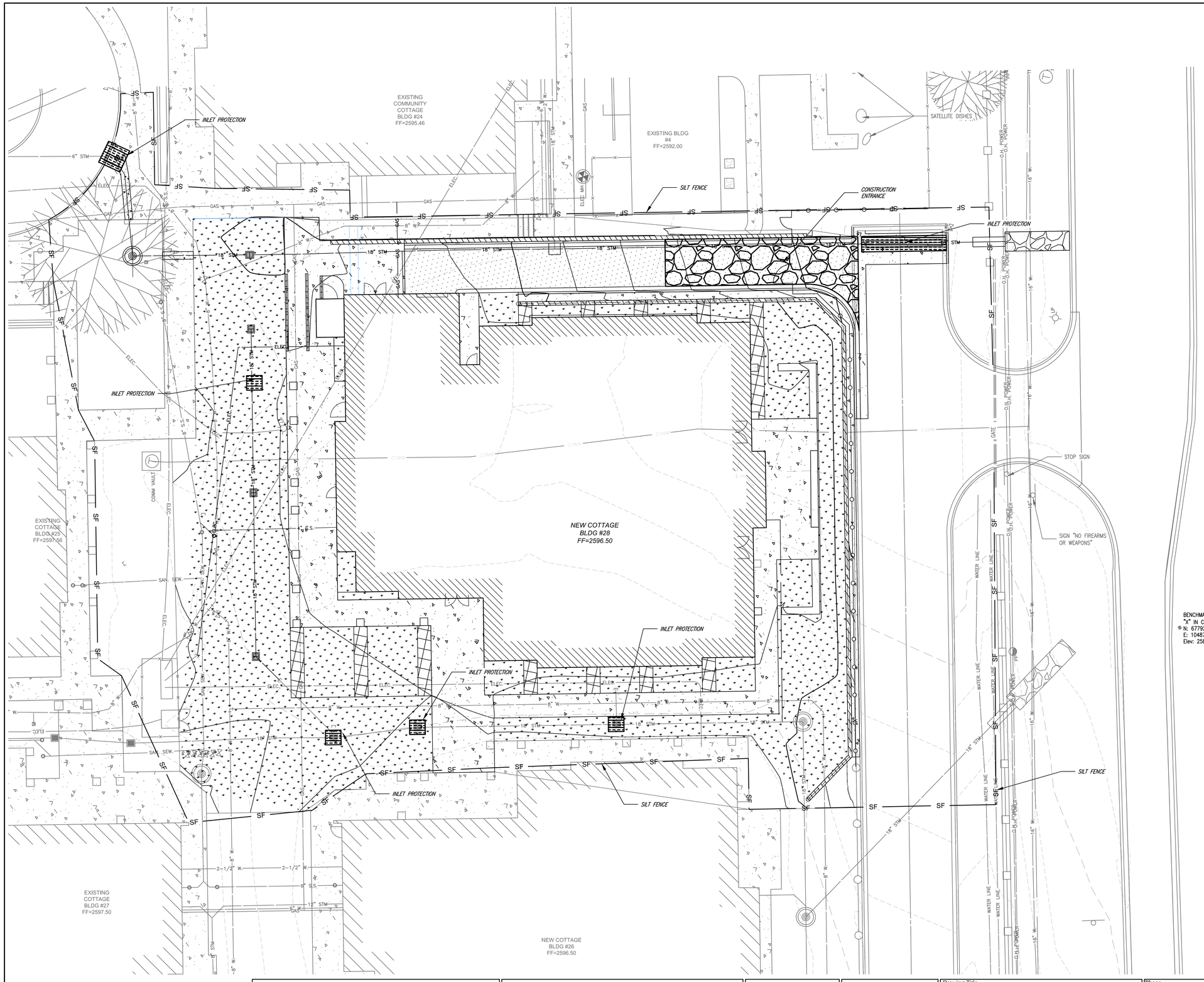
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: STORM SEWER CALCS	Phase: ISSUE FOR BID
COR: Mr. JOSHUA JUNKIN	

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: Big Spring, TX			Drawing Number: CG-104
Issue Date: 6/28/2024	Checked: CB	Drawn: BM	

VA FORM 08 - 6231



BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION. COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6. ELEVATION = 2588.00 FEET.

LEGEND:

- SIGN
- LIGHT POLE
- POWER POLE
- ELECTRIC MANHOLE
- FIRE HYDRANT
- TELECOMM MANHOLE
- SANITARY SEWER MANHOLE
- CURB INLET
- GRATE INLET
- STEAM MANHOLE
- JUNCTION BOX
- CLEAN OUT
- IRRIGATION WATER VALVE
- WATER VALVE
- FENCE
- PERIMETER FENCE
- CHAIN LINK FENCE
- O.H. POWER — OVERHEAD POWER LINE
- ELEC. — ELECTRICAL LINE
- STEAM — STEAM PIPE
- STORM SEWER — WATER LINE PIPE
- SAN. SEWER — STORM SEWER PIPE
- WATER LINE — SANITARY SEWER PIPE
- CONCRETE PAVEMENT
- GRASS
- RIVER ROCK
- ASPHALT PAVEMENT
- ROCK RIP-RAP

NOTES:

1. THE TOPOGRAPHIC BACKGROUND SHOWN IS A COMBINATION OF FIELD SURVEY, ASBUILT DRAWINGS, AND CONSTRUCTION PLANS. CONDITIONS SHOWN ARE ALSO AFTER THE COMPLETION OF THE NEW CLC PHASE 2 CONSTRUCTION (COTTAGES 26 AND 27 AND ACCESS ROAD). CONTRACTOR SHALL FIELD VERIFY ALL FEATURES PRIOR TO COMMENCING WORK, AND SHALL NOTIFY THE ENGINEER IF ANY DISCREPANCIES OR CONFLICTS EXIST.
2. UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY LOCAL UTILITY LOCATING SERVICES AND VA COR AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION TO LOCATE PUBLIC UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING PRIVATE UTILITIES PRIOR TO ANY EXCAVATION.
3. STORM SEWER IS DESIGNED FOR THE 10-YEAR 1-HOUR EVENT.
4. ALL STORM PIPES DISCHARGING FROM THE ROOFS INTO THE STORM SEWER SYSTEM SHALL BE 12" PIPE. ALTERNATIVELY, STORM PIPES DISCHARGING FROM THE ROOF CAN BE A MINIMUM 8" DIAMETER IF THEY DISCHARGE DIRECTLY ONTO THE EXISTING GROUND TO SHEET FLOW INTO THE STORM GRATE INLETS.

Revisions:	Date:

CONSULTANT

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STATE OF TEXAS
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64804
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PROFESSIONAL ENGINEER
06/28/2024

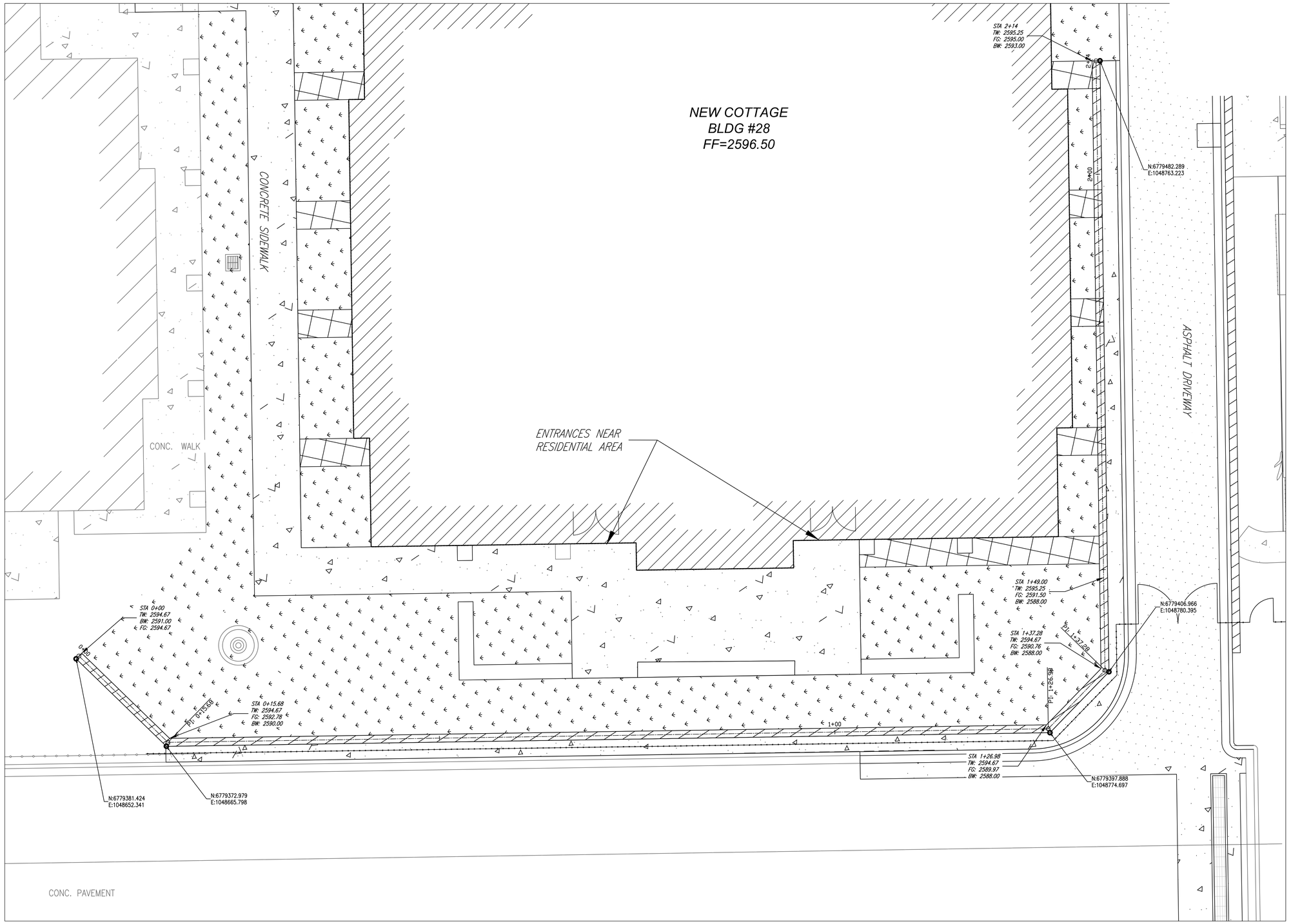
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: SWPPP PLAN	Phase: ISSUE FOR BID
COR: Mr. JOSHUA JUNKIN	

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: Big Spring, TX			Drawing Number: CG-105
Issue Date: 6/28/2024	Checked: CB	Drawn: BM	

VA FORM 08 - 6231



BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION. COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6. ELEVATION = 2588.00 FEET.

LEGEND:

- SIGN
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- POWER POLE
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- FIRE HYDRANT
- TELECOMM MANHOLE
- SANITARY SEWER MANHOLE
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NOTES:

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3. SOD OR HYDROMULCH ALL DISTURBED AREA.
4. NEW AREA DRAINS SHALL BE NDS 24-INCH CATCH BASIN SERIES, PART NO. 2400, OR APPROVED EQUAL.

Revisions:	Date:

CONSULTANT

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06/28/2024

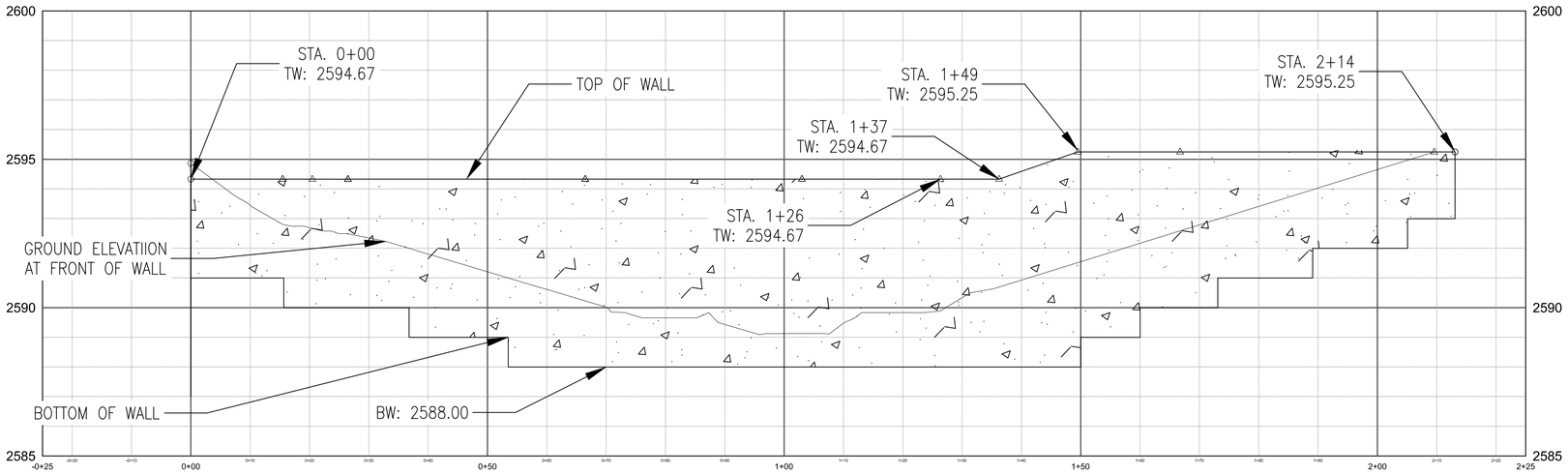
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: PROPOSED RETAINING WALL PLAN BUILDING	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
COR: Mr. JOSHUA JUNKIN		Location: Big Spring, TX	Building Number: 28
		Issue Date: 6/28/2024 · Checked: CB · Drawn: BM	Drawing Number: CS-200

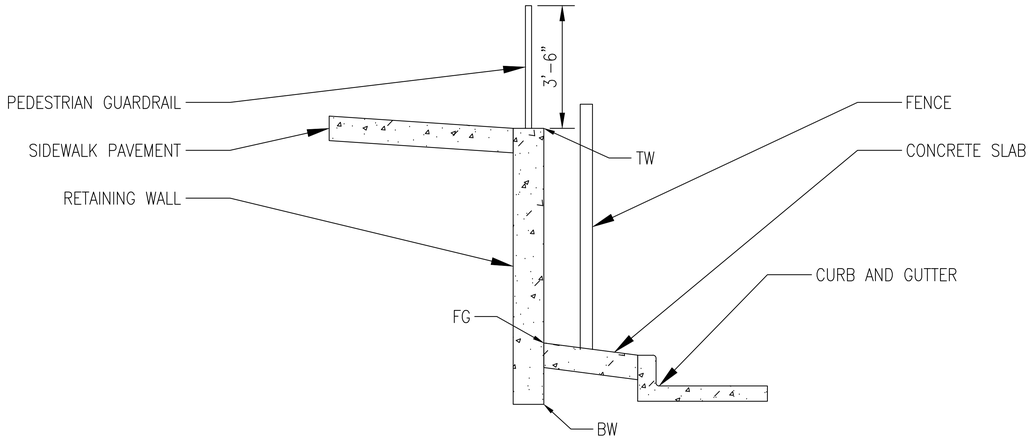
VA FORM 08 - 6231

RETAINING WALL PROFILE - BUILDING

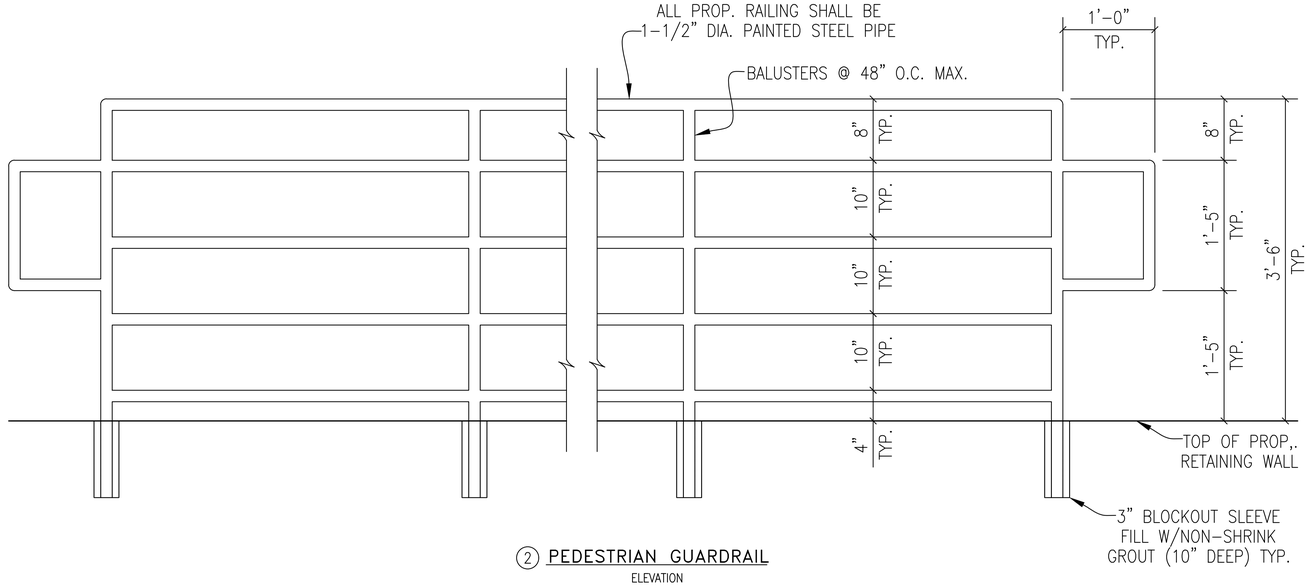


NOTES:

1. RETAINING WALL DETAIL & PROFILE ON THIS SHEET FOR GENERAL REFERENCE. REFER TO STRUCTURAL DETAILS ON SHEET S506 FOR FOOTING DEPTHS, FOOTING KEY DEPTHS, EXPANSION JOINTS AND CONSTRUCTION JOINTS.



① RETAINING WALL – BUILDING
SECTION
NO SCALE



② PEDESTRIAN GUARDRAIL
ELEVATION
NO SCALE

Revisions:	Date:

CONSULTANT

A/E:
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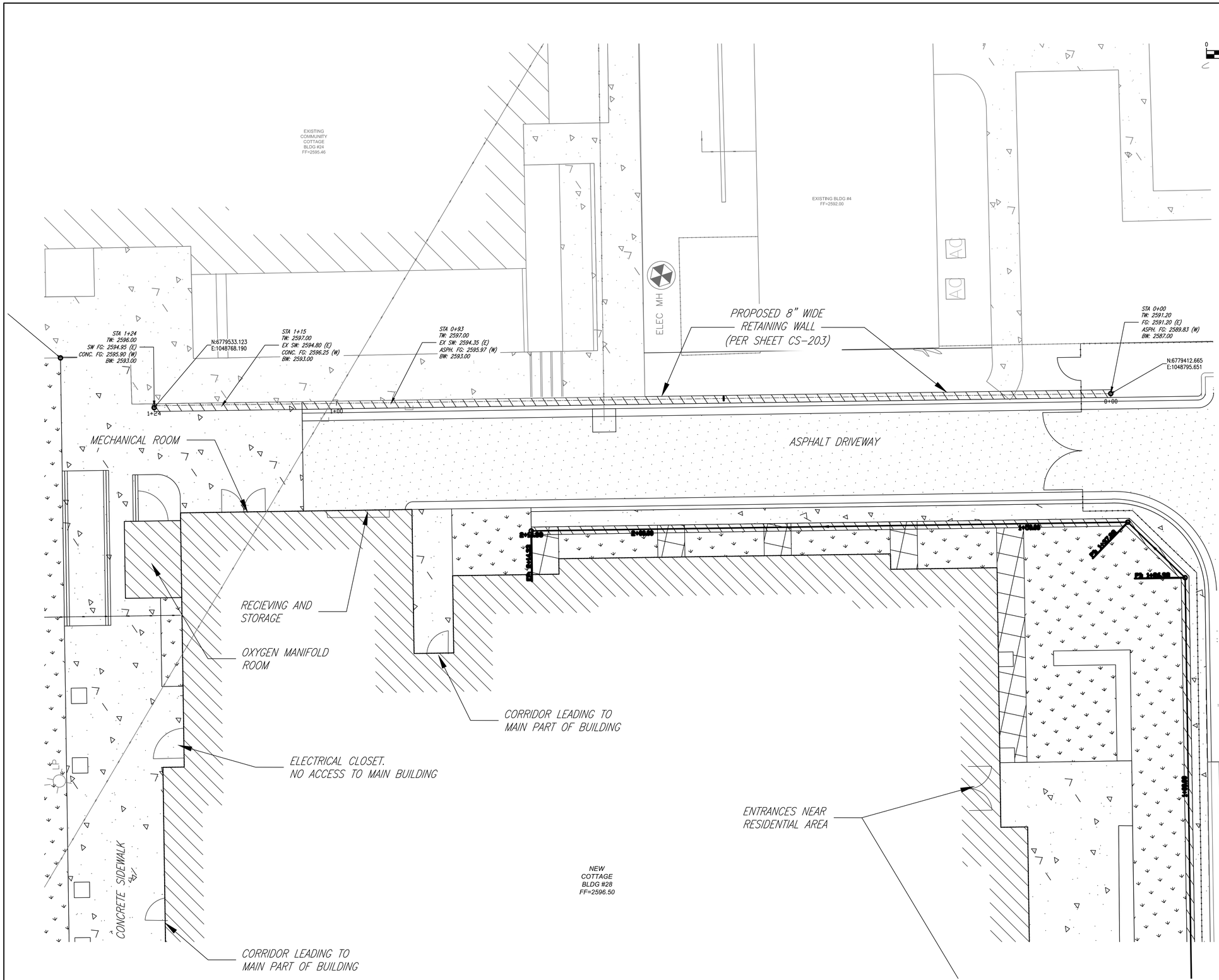
STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED
PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: PROPOSED RETAINING WALL PROFILE & SECTION - BUILDING	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
COR: Mr. JOSHUA JUNKIN			Building Number: 28
		Location: Big Spring, TX	Drawing Number: CS-201
		Issue Date: 6/28/2024 / Checked: CB / Drawn: BM	

VA FORM 08 - 6231



BENCHMARK:

BEARINGS, DISTANCES AND ACREAGE SHOWN HERE ON ARE NAD 83 (CORS96), LAMBERT GRID AND CONFORM TO THE TEXAS COORDINATE SYSTEM, "TEXAS CENTRAL ZONE", UTILIZING NGS OPUS SOLUTION. COMBINED SCALE FACTOR = 0.99985394. ELEVATIONS SHOWN HEREON ARE RELATIVE TO PROJECT BENCHMARK #6. ELEVATION = 2588.00 FEET.

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NOTES:

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4. NEW AREA DRAINS SHALL BE NDS 24-INCH CATCH BASIN SERIES, PART NO. 2400, OR APPROVED EQUAL.

Revisions:	Date:

CONSULTANT

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STATE OF TEXAS — REGISTERED — CHARLES CRAIG BOND — 64804 — LICENSED PROFESSIONAL ENGINEER
06/28/2024

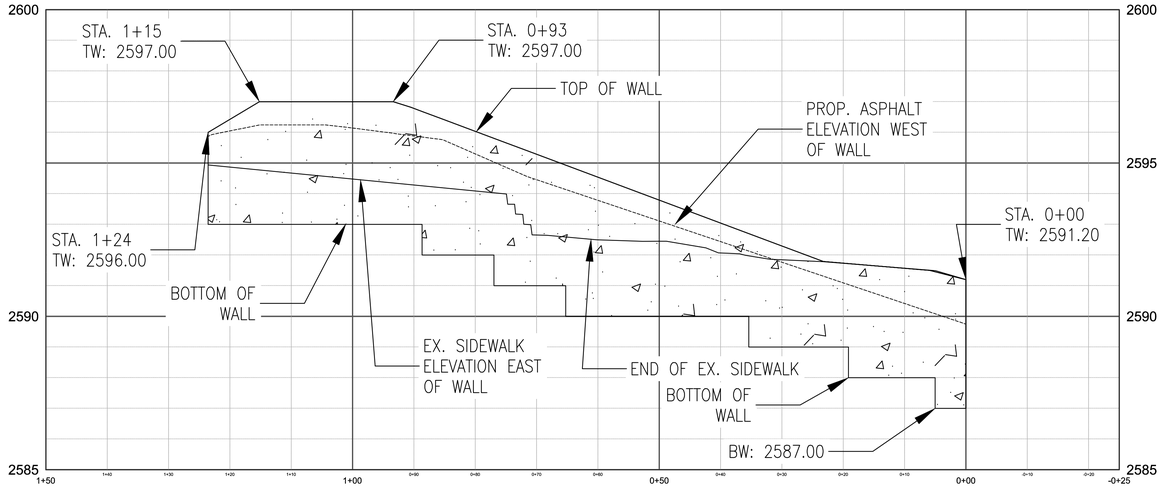
Office of Construction and Facilities Management

VA | U.S. Department of Veterans Affairs

Drawing Title	PROPOSED RETAINING WALL PLAN DRIVEWAY
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
COR: Mr. JOSHUA JUNKIN	
Location	Big Spring, TX
Drawing Number	CS-202
Issue Date	6/28/2024
Checked	CB
Drawn	BM

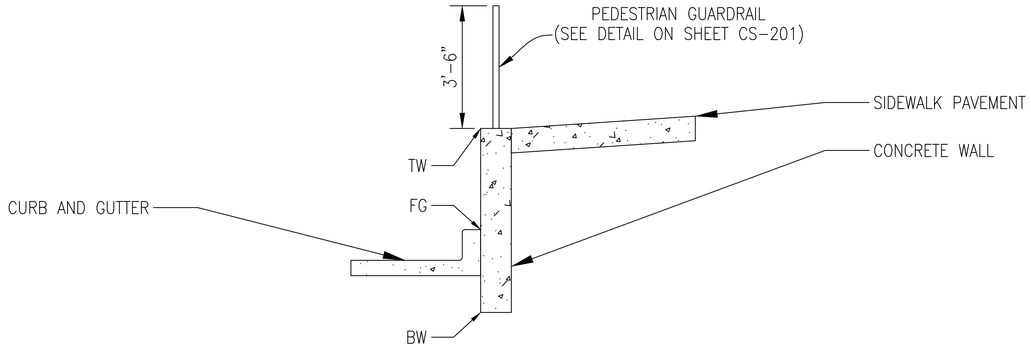
VA FORM 08 - 6231

RETAINING WALL PROFILE - DRIVEWAY

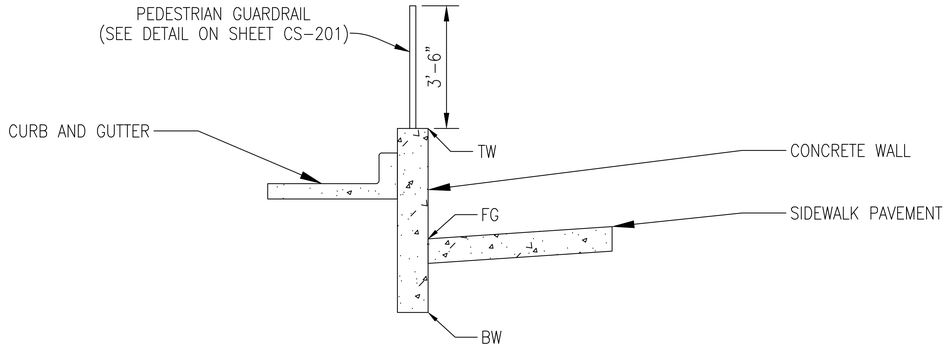


NOTES:

1. RETAINING WALL DETAIL & PROFILE ON THIS SHEET FOR GENERAL REFERENCE. REFER TO STRUCTURAL DETAILS ON SHEET S507 FOR FOOTING DEPTHS, FOOTING KEY DEPTHS, EXPANSION JOINTS AND CONSTRUCTION JOINTS.



① RETAINING WALL – DRIVEWAY
SECTION VIEW – 0+00 – 0+23
NO SCALE



② RETAINING WALL – DRIVEWAY
SECTION VIEW – 0+24 – 1+24
NO SCALE

Revisions:	Date:

CONSULTANT

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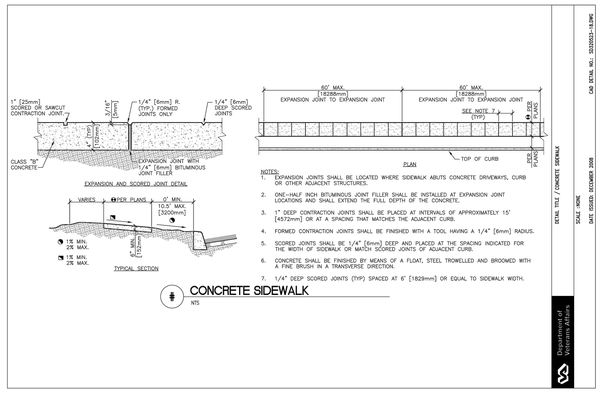
STATE OF TEXAS
CHARLES CRAIG BOND
64804
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06/28/2024

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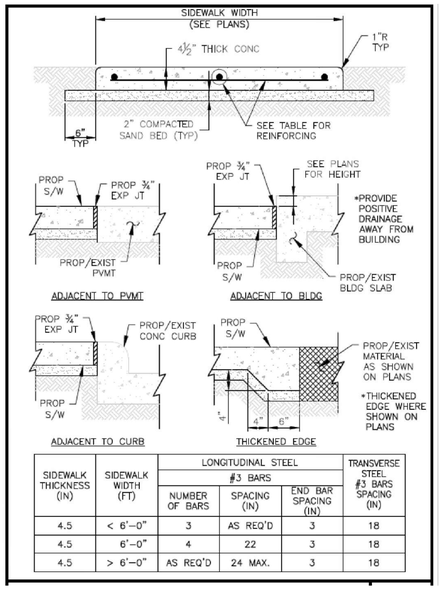
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Drawing Title: PROPOSED RETAINING WALL PROFILE & SECTION - DRIVEWAY	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
COR: Mr. JOSHUA JUNKIN			Building Number: 28
		Location: Big Spring, TX	Drawing Number: CS-203
		Issue Date: 6/28/2024 / Checked: CB / Drawn: BM	

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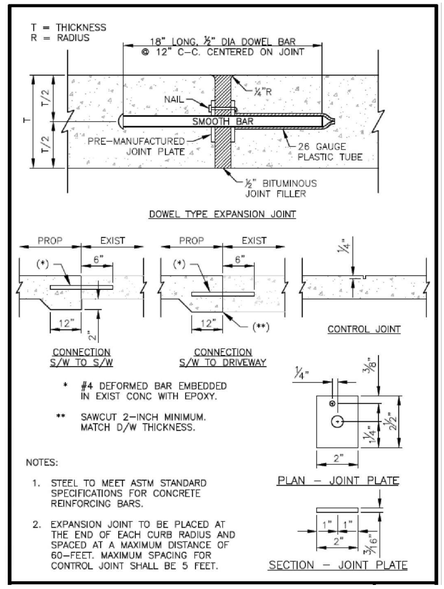


1 CONCRETE SIDEWALK
PLAN VIEW
NO SCALE

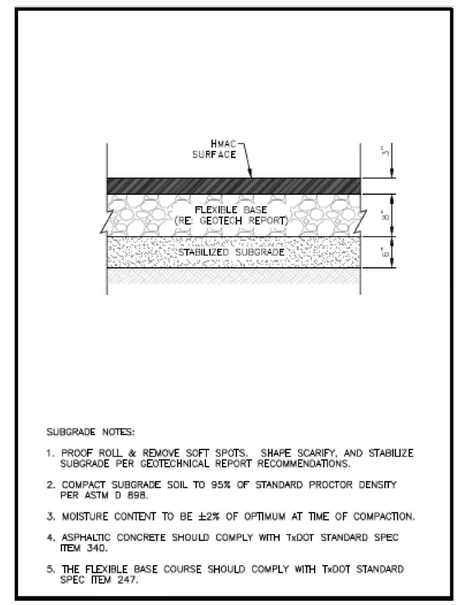


SIDEWALK THICKNESS (IN)	SIDEWALK WIDTH (FT)	LONGITUDINAL STEEL #3 BARS NUMBER OF BARS	LONGITUDINAL STEEL #3 BARS SPACING (IN)	LONGITUDINAL STEEL #3 BARS END BAR SPACING (IN)	TRANSVERSE STEEL #3 BARS SPACING (IN)
4.5	< 6'-0"	3	AS REQ'D	3	18
4.5	6'-0"	4	22	3	18
4.5	> 6'-0"	AS REQ'D	24 MAX.	3	18

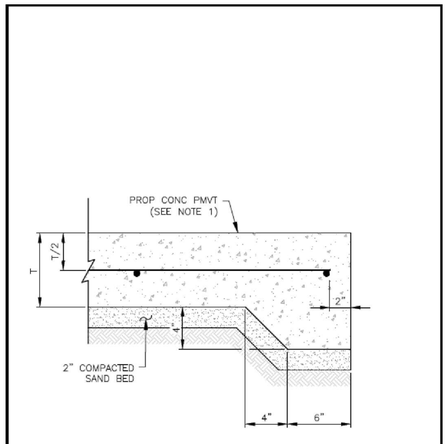
2 CONCRETE SIDEWALK
SECTION VIEWS
NO SCALE



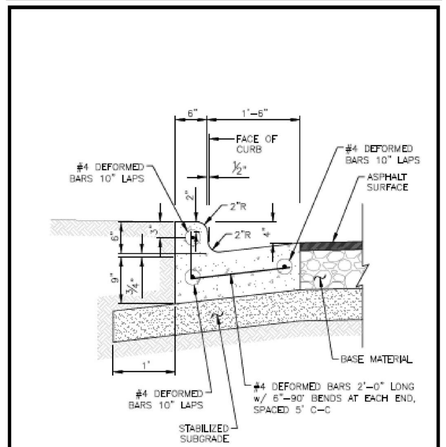
3 SIDEWALK JOINTS
DETAILS
NO SCALE



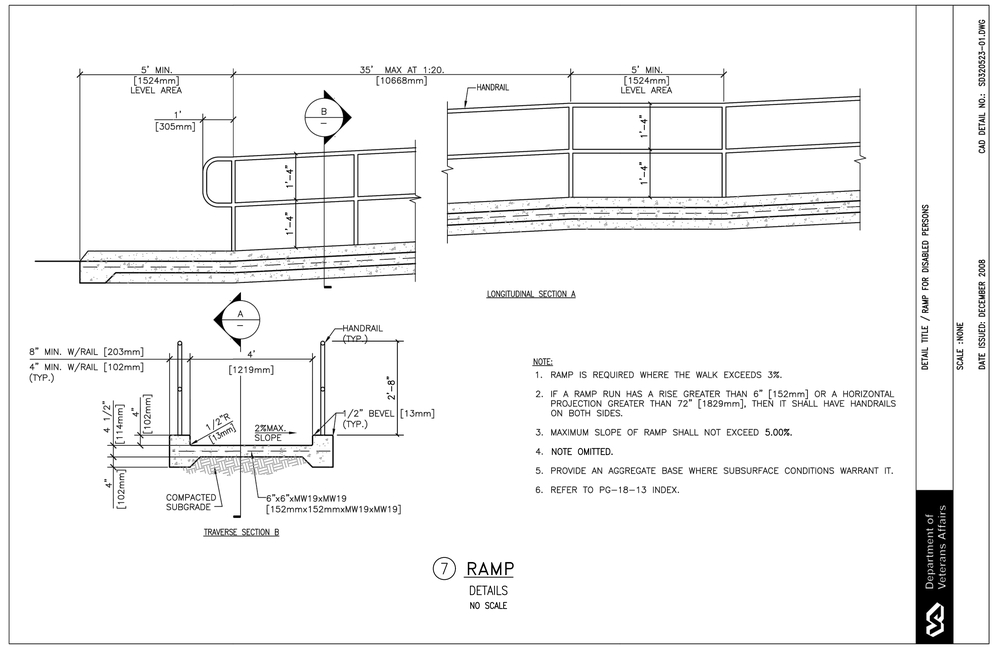
4 DRIVEWAY PAVEMENT SECTION
DETAILS
NO SCALE



5 STANDARD CONC. PAVING HEADER
DETAILS
NO SCALE



6 MONLITHIC CURB DETAIL
DETAILS
NO SCALE



7 RAMP
DETAILS
NO SCALE

Revisions:	Date:

CONSULTANT

A/E:
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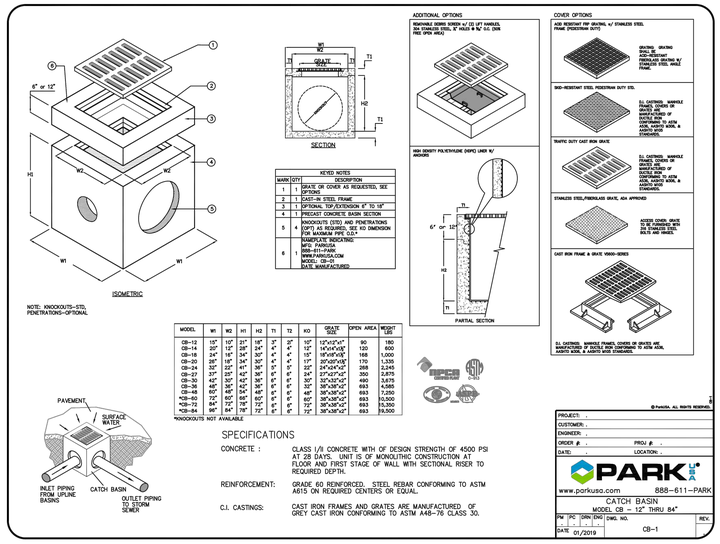
STAMP
STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: PAVING DETAILS
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
COR: Mr. JOSHUA JUNKIN
Location: Big Spring, TX
Issue Date: 6/28/2024
Checked: CB
Drawn: BM
Drawing Number: CS-501

VA FORM 08-6231



KEYED NOTES		
MARK	QTY	DESCRIPTION
1	1	GRATE OR COVER AS REQUESTED, SEE OPTIONS
2	1	EXIST–IN STEEL FRAME
3	1	OPTIONAL TOP/EXTENSION 6" TO 18"
4	1	PRECAST CONCRETE BASIN SECTION
5	4	KNOCKOUTS (STD) AND PENETRATIONS (OPT) AS REQUIRED, SEE KO DIMENSION FOR MAXIMUM PIPE O.D.*
6	1	NAMEPLATE INDICATING: MFG: PARKUSA 888–611–PARK WWW.PARKUSA.COM MODEL: CB–XX DATE MANUFACTURED

MODEL	W1	W2	H1	H2	T1	T2	KO	GRATE SIZE	OPEN AREA	WEIGHT LBS
CB–12	15"	15"	21"	18"	3"	3"	10"	12"x12"x6"	90	180
CB–18	21"	15"	27"	24"	4"	4"	10"	18"x18"x6"	168	1,000
CB–18	24"	18"	34"	30"	4"	4"	10"	18"x18"x6"	168	1,000
CB–20	28"	18"	34"	30"	6"	4"	11"	20"x20"x6"	170	1,335
CB–24	32"	22"	41"	36"	5"	5"	12"	24"x24"x6"	208	2,245
CB–27	37"	25"	42"	36"	6"	6"	24"	27"x27"x6"	350	2,875
CB–30	42"	30"	42"	36"	6"	6"	30"	30"x30"x6"	490	3,875
CB–36	48"	36"	42"	36"	6"	6"	32"	36"x36"x6"	693	4,585
CB–48	60"	48"	54"	48"	6"	6"	48"	36"x36"x6"	693	7,250
*CB–60	72"	60"	66"	60"	6"	6"	60"	36"x36"x6"	693	10,500
*CB–72	84"	72"	78"	72"	6"	6"	72"	36"x36"x6"	693	15,350
*CB–84	96"	84"	78"	72"	6"	6"	72"	36"x36"x6"	693	19,500

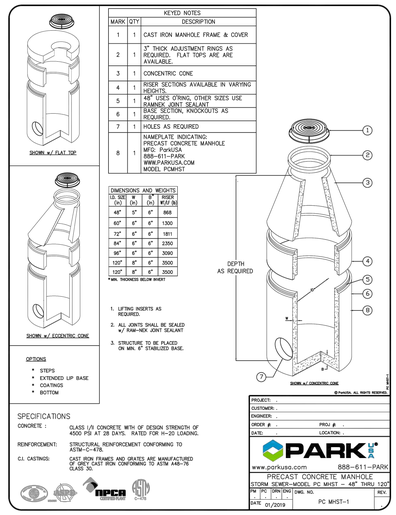
*KNOCKOUTS NOT AVAILABLE

PROJECT:	
CUSTOMER:	
ENGINEER:	
ORDER #:	PROJ #:
DATE:	LOCATION:

PM	PC	DRN	CHK	DWG. NO.	REV.
DATE 01/2019				CB–1	

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① GRATE STORM INLET
DETAILS
NO SCALE



KEYED NOTES		
MARK	QTY	DESCRIPTION
1	1	CAST IRON MANHOLE FRAME & COVER
2	1	3" THICK ADJUSTMENT RINGS AS REQUIRED. FLAT TOPS ARE ARE AVAILABLE.
3	1	CONCENTRIC CONE
4	1	RISER SECTIONS AVAILABLE IN VARYING HEIGHTS.
5	1	48" USE'S O'RING, OTHER SIZES USE RAMNEK JOINT SEALANT
6	1	BASE SECTION, KNOCKOUTS AS REQUIRED.
7	1	HOLES AS REQUIRED
8	1	NAMEPLATE INDICATING: PRECAST CONCRETE MANHOLE MFG: ParkUSA 888–611–PARK WWW.PARKUSA.COM MODEL PCMHST

DIMENSIONS AND WEIGHTS			
I.D. SIZE (in.)	W (in.)	T* (in.)	RISER W.I.* (lb)
48"	5"	6"	868
60"	6"	6"	1300
72"	6"	6"	1811
84"	6"	6"	2350
96"	6"	6"	3000
120"	8"	6"	3500
120"	8"	8"	3500

*MIN. THICKNESS SHOWN WHERE

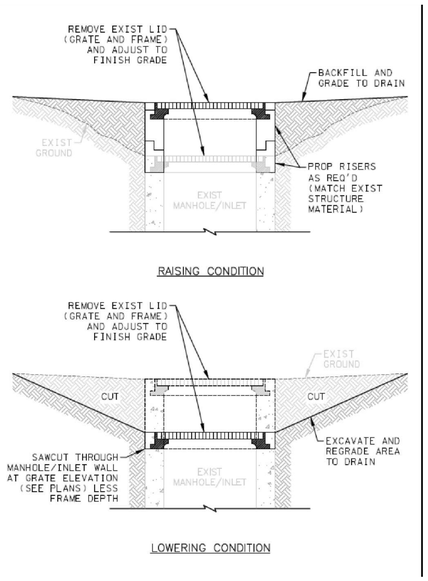
1. LIFTING INSERTS AS REQUIRED.
2. ALL JOINTS SHALL BE SEALED w/ RAM–NEK JOINT SEALANT
3. STRUCTURE TO BE PLACED ON MIN. 6" STABILIZED BASE.

PROJECT:	
CUSTOMER:	
ENGINEER:	
ORDER #:	PROJ #:
DATE:	LOCATION:

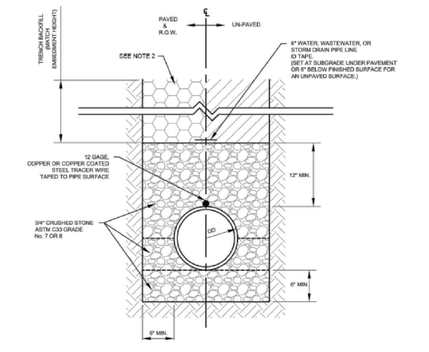
PM	PC	DRN	CHK	DWG. NO.	REV.
DATE 01/2019				PC MHST–1	

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② PRECAST CONCRETE MANHOLE
DETAILS
NO SCALE



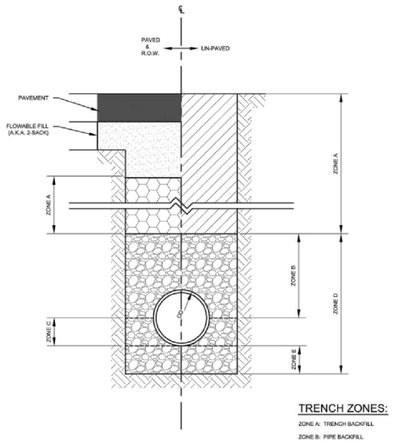
③ MANHOLE/INLET ADJUSTMENT
DETAILS
1" = 2'



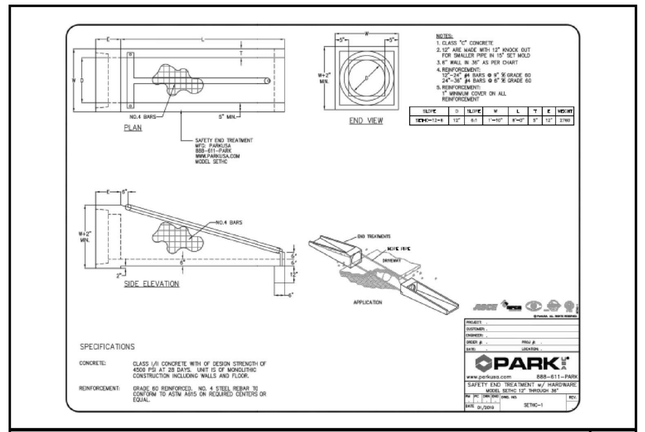
TRENCH BACKFILL NOTES

1. APPLIES TO ALL PIPE TYPES. (DUCTILE IRON, PVC, ETC.)
2. UTILIZE SELECT BACKFILL BENEATH ALL PAVED SURFACES. NATIVE MATERIAL BACKFILL CAN ONLY BE USED FOR UNPAVED TRENCH CONDITIONS IF BACKFILL MATERIAL IS ≤ 35LL AND PI IS BETWEEN 6 AND 15.
3. NATIVE MATERIAL TO BE EXISTING EXCAVATED SOIL FROM TRENCH WITH ALL MATERIAL BROKEN DOWN ≤ 2".
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6. PLACE LAYERS B, C, AND E FOUND ON DETAIL 2 AS SEPARATE LAYERS.
7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO VA STANDARDS AND SPECIFICATIONS.

④ STORM SEWER BEDDING AND BACKFILL
DETAIL "A"
NO SCALE



⑤ STORM SEWER BEDDING AND BACKFILL
DETAIL "A"
NO SCALE



SIZE/#	D	SLOPE	W	L	T	E	WEIGHT
SETHC**12–6	12"	6:1	1'–4"	8'–0"	6"	12"	276#

SAFETY END TREATMENT DETAIL
SCALE: NTS
7

⑥ SAFETY END TREATMENT
DETAILS
NO SCALE

Revisions:	Date:

CONSULTANT

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Managing Venturer of OEI / LBL JV
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ARCHITECT/ENGINEER OF RECORD

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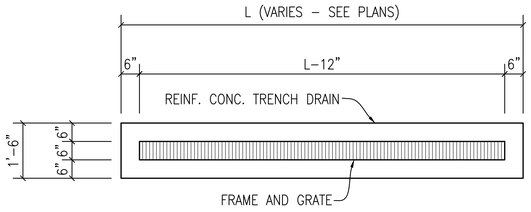
STATE OF TEXAS
CHARLES CRAIG BOND
64804
LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

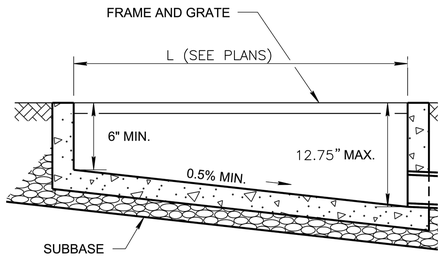
U.S. Department of Veterans Affairs

Drawing Title	DRAINAGE DETAILS
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
COR: Mr. JOSHUA JUNKIN	
Location	Big Spring, TX
Drawing Number	CS-502
Issue Date	6/28/2024
Checked	CB
Drawn	BM

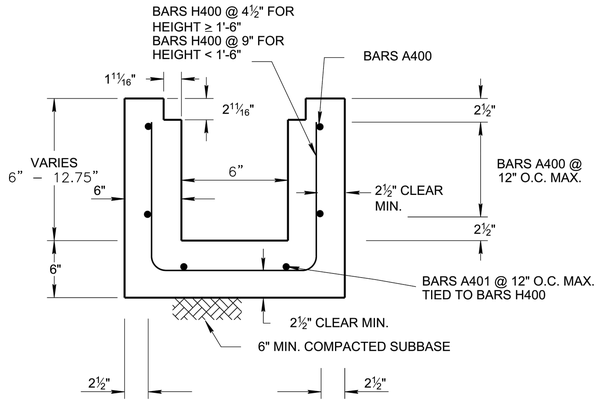
VA FORM 08 - 6231



① TRENCH DRAIN
PLAN
NO SCALE



② TRENCH DRAIN
LOGITUDINAL SECTION
NO SCALE



TYPICAL TRENCH CROSS SECTION

③ TRENCH DRAIN
TRANSVERSE SECTION
NO SCALE

TRENCH DRAIN NOTES

1) TRENCH DRAIN FRAMES SHALL BE PROVIDED WITH LUGS SPACED AT 12-INCHES ON CENTER LUG TYPE MAY VARY BY MANUFACTURER. LUGS SHALL BE PROVIDED WITH A HOLE THROUGH WHICH A NO. 3 REBAR MAY BE PLACED PRIOR TO POURING THE TRENCH WALLS.

2) GRATES SHALL BE SOLIDLY ATTACHED TO THE TRENCH DRAIN FRAMES BY MEANS OF STAINLESS STEEL BOLTS (3/8–16 x 2–3/4 INCHES) AND FLAT WASHERS AT EACH CORNER OF THE GRATE.

3) THE GENERAL INSTALLATION PROCEDURE FOR CAST–IN–PLACE TRENCH DRAINS SHALL BE AS FOLLOWS:

   A) SET REINFORCING STEEL.

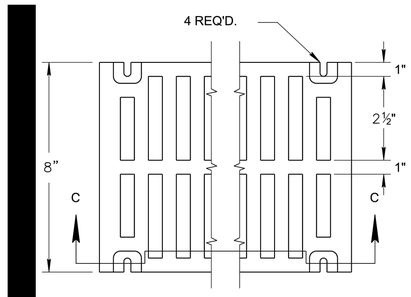
   B) FORM AND POUR TRENCH DRAIN BASE. INSTALL WATER STOP IN TRENCH DRAIN BASE IN LINE WITH CENTER OF TRENCH DRAIN WALLS.

   C) SET FORMS FOR TRENCH DRAIN WALLS.

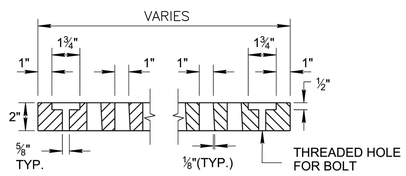
   D) SET TRENCH GRATES AND FRAMES INTO PLACE ON FORMS. GRATES MUST BE BOLTED TO THE FRAMES. INSERT SHORT SECTIONS OF NO. 3 REBAR AS NEEDED INTO THE FRAME LUGS.

   E) POUR TRENCH DRAIN WALLS.

4) TRENCH GRATE BASIS OF DESIGN SHALL BE A.D.A.–COMPLIANT, NEENAH TYPE P NARROW SLOT GRATE (5/16" MAX.).

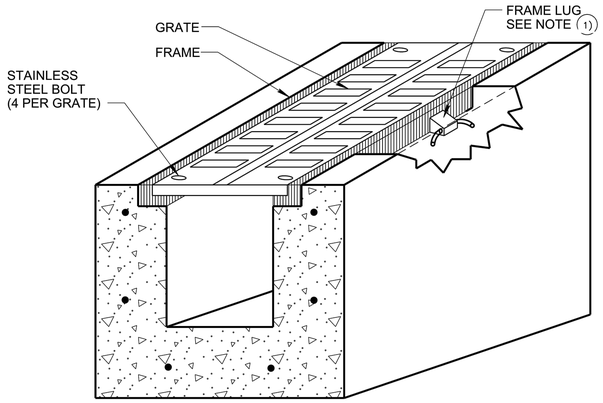


GRATE AND FRAME SHALL BE HEAVY DUTY AND CAPABLE OF SUPPORTING HS-20 LOADING



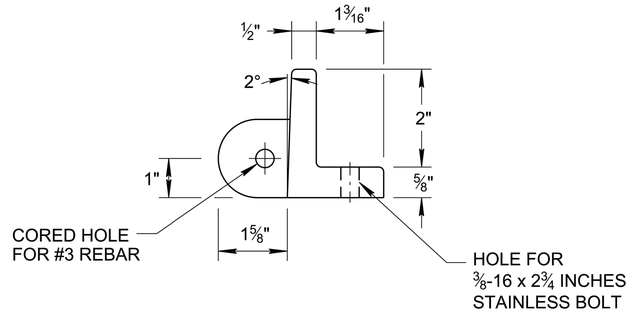
DETAIL OF SINGLE GRATE UNIT SECTION C-C

④ TRENCH DRAIN
SINGLE GRATE UNIT DETAIL
NO SCALE



PERSPECTIVE VIEW

⑤ TRENCH DRAIN
PERSPECTIVE VIEW
NO SCALE



FRAME DETAIL SHOWING LUG

SEE NOTE (E)

⑥ FRAME DETAIL SHOWING LUG
DETAILS
NO SCALE

Revisions:	Date:

CONSULTANT

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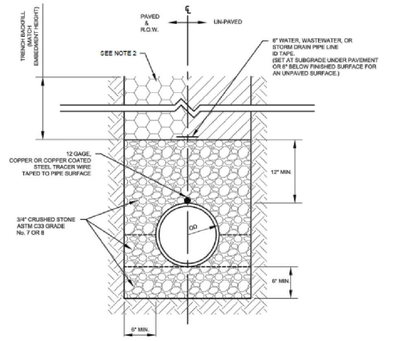
STATE OF TEXAS
CHARLES CRAIG BOND
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LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA | U.S. Department of Veterans Affairs

Drawing Title: DRAINAGE DETAILS TRENCH DRAIN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
COR: Mr. JOSHUA JUNKIN			Building Number: 28
		Location: Big Spring, TX	Drawing Number: CS-503
		Issue Date: 6/28/2024 / Checked: CB / Drawn: BM	

VA FORM 08-6231



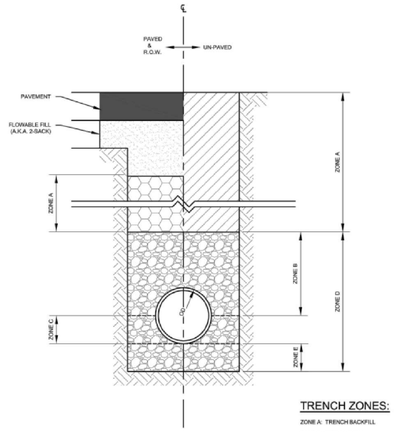
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7. MATERIALS AND CONSTRUCTION METHODS TO CONFORM TO VA STANDARDS AND SPECIFICATIONS.

① WATER AND SEWER BEDDING AND BACKFILL

DETAIL "A"

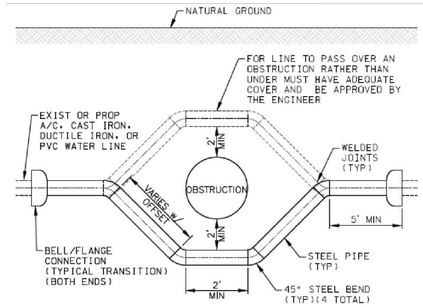
NO SCALE



② WATER AND SEWER BEDDING AND BACKFILL

DETAIL "A"

NO SCALE



NOTES:

1. MATERIALS AND COATINGS TO BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.
2. RESTRAIN EXISTING PIPING BEYOND STEEL SECTION AS REQUIRED TO PREVENT MOVEMENT.

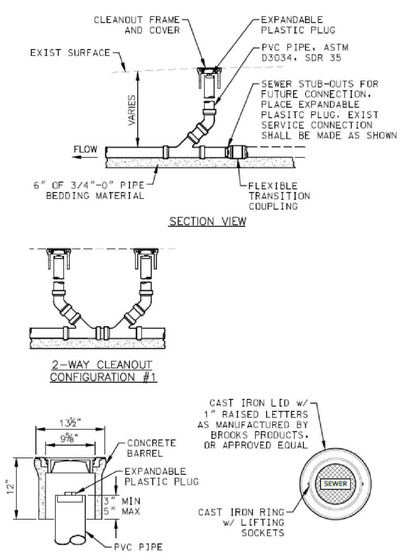
PIPE OFFSET ALTERNATIVES:

1. DUCTILE IRON PIPE WITH APPROVED RESTRAINED JOINTS.
2. PVC PIPE AND FITTINGS
   - A) PIPE–AWWA C900 DR 14, 200 PSI WITH INTEGRAL PVC RESTRAINED JOINT.
   - B) FITTINGS–DUCTILE IRON EPOXY LINED AND COATED, WITH ONE–BOLT TYPE RESTRAINT.
   - C) NOT ALLOWED FOR LESS THAN 4–FEET OR GREATER THAN 20–FEET OF COVER OR FOR DIAMETER GREATER THAN 12–INCHES.
3. ALL DUCTILE IRON AND PVC PRODUCTS MUST BE LISTED ON THE GOVERNING JURISDICTION OR ENTITY'S APPROVAL LIST.

③ WATER LINE OFFSET

DETAILS

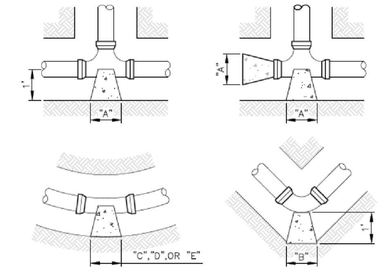
NO SCALE



④ CLEANOUT

DETAILS

NO SCALE



PIPE SIZE	"A" PLUGS AND TEES	"B" 90° BEND	"C" 45° BEND	"D" 22.5° BEND	"E" 11.25° BEND
6"	1'-6"	1'-6"	1'-6"	1'-0"	1'-0"
8"	1'-9"	2'-0"	1'-6"	1'-0"	1'-0"
10"	2'-0"	2'-3"	2'-0"	2'-0"	2'-0"
12"	2'-8"	3'-0"	2'-3"	2'-3"	2'-3"
16"	3'-6"	4'-3"	3'-0"	2'-6"	2'-6"
20"	4'-3"	5'-0"	4'-0"	3'-0"	2'-6"

NOTES:

1. HEIGHTS OF ALL BLOCKS SHALL BE EQUAL TO "A", "B", "C", "D", OR "E" DIMENSION CALLED FOR.
2. ALL CONCRETE TO BE POURED AGAINST FIRM UNDISTURBED SOIL, AND SHALL BE CLASS C 3,000 psi.
3. CONCRETE SHALL NOT CONTACT BOLTS OR ENDS OF MECHANICAL JOINT FITTINGS.
4. RESTRAINED JOINTS MAY BE USED IN LIEU OF THRUST BLOCKING.

⑤ CONCRETE THRUST BLOCK

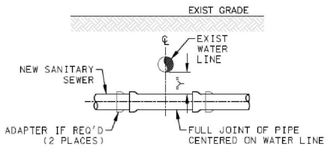
DETAILS

NO SCALE

SEWER LINE CROSSING BELOW WATER LINE WITHIN 2 FT SEPARATION		
GRAVITY SANITARY SEWER PIPE SIZE	PRESSURE–RATED PIPE SIZE & TYPE (NOTE 2)	ADAPTERS REQUIRED
6" TO 12" (ASTM D3034)	SAME SIZE ASTM D2241, SDR 26	ASTM D3034 TO D2665 (SEWER TO D.W.V.) ADAPTER COUPLING
15" (ASTM D3034)	14" LINED DUCTILE IRON OR AWWA C905, DR25	NONE REQUIRED
18" AND 24"	SAME SIZE AWWA C905, PRESSURE–RATED FRP, OR LINED DUCTILE IRON, MANHOLE TO MANHOLE	NONE REQUIRED

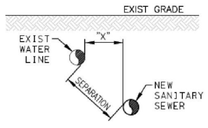
NOTES:

1. SANITARY SEWER MUST BE BELOW WATER LINE WHEREVER POSSIBLE. WHEN WATERLINE IS BELOW THE SANITARY SEWER PROVIDE MINIMUM 2 FT SEPARATION AND INSTALL PIPE SAME AS FOR SEWER BELOW WATER.
2. WHEN PRESSURE–RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 psi PRESSURE RATING.
3. ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFNES AT LEAST EQUAL TO THE ADJOINING SANITARY SEWER PIPE, AND USING RESILIENT GASKET OR SEAL MATERIAL. FLEXIBLE RUBBER "BOOT" TYPE ADAPTERS WILL NOT BE ACCEPTED.
4. INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
5. "Y" MUST ALWAYS BE GREATER THAN OR EQUAL 6".
6. "X" MUST BE GREATER THAN OR EQUAL TO 4 FT.
7. ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
8. SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE CONNECTIONS – REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.



INSTALLATION REQUIREMENTS
1. IF "Y" IS GREATER THAN 6" AND "Y" IS LESS THAN 2', USE MINIMUM 18 FT JOINT OF PRESSURE–RATED PIPE.
2. IF "Y" IS GREATER THAN 2' AND "Y" IS LESS THAN 9', USE GRAVITY SEWER PIPE IN CEMENT–STABILIZED SAND EMBEDMENT.
3. IF "Y" IS GREATER THAN 9', USE STANDARD EMBEDMENT AND NORMAL JOINT SPACING.

NEW SANITARY SEWER CROSSING EXISTING WATER LINE



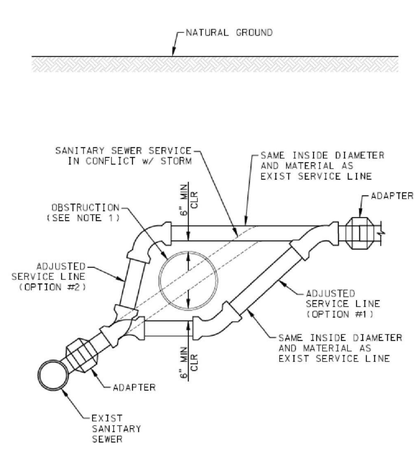
INSTALLATION REQUIREMENTS
1. IF "X" IS LESS THAN 9'AND SEPARATION IS LESS THAN 9', USE PRESSURE–RATED PIPE MH TO MH. "X" MUST BE AT LEAST 4 FT.
2. IF "X" IS GREATER THAN OR EQUAL TO 4' AND SEPARATION IS 9' OR GREATER, USE STANDARD PIPE AND EMBEDMENT.

NEW SANITARY SEWER PARALLEL TO EXISTING WATER LINE

④ SANITARY SEWER CORSSING OR PARALLEL TO WATER LINE

DETAILS

NO SCALE



NOTES:

1. MAINTAIN 6–INCH MINIMUM CLEARANCE BETWEEN SANITARY SEWER AND NON–WATER LINE CONFLICTS OR OBSTRUCTIONS.
2. FOR WATER LINE CONFLICTS AND OBSTRUCTIONS, PROVIDE CLEARANCES AND/OR PROTECTIONS AS OUTLINED IN THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) RULES AND REGULATIONS, CHAPTER 290, SECTION §290.44: WATER DISTRIBUTION.

⑦ SAN. SEWER ADJUSTMENT FOR CONFLICTS

DETAILS

NO SCALE

Revisions:	Date:

CONSULTANT

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Managing Venturer of OEI / LBL JV
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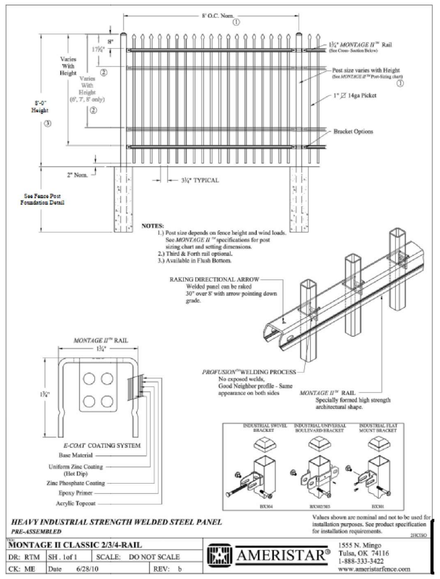
STATE OF TEXAS
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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: UTILITY DETAILS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
COR: Mr. JOSHUA JUNKIN			Building Number: 28
		Location: Big Spring, TX	Drawing Number: CS-504
		Issue Date: 6/28/2024 / Checked: CB / Drawn: BM	

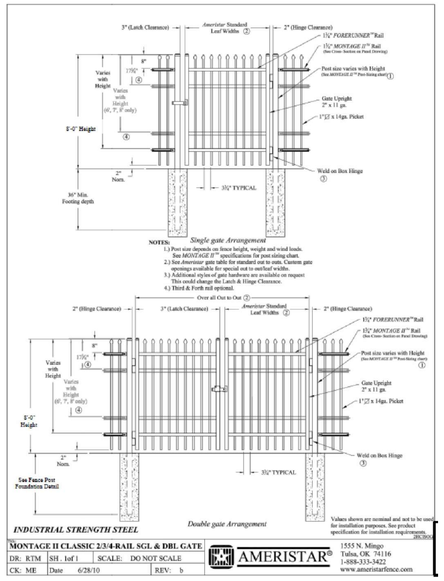
VA FORM 08 - 6231



① INDUSTRIAL STRENGTH FENCE & GATE

DETAILS (1 of 2)

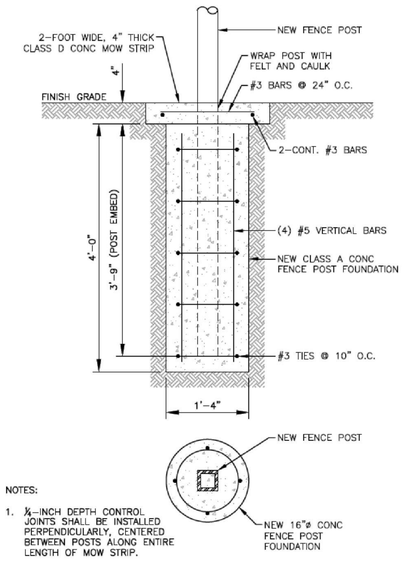
NO SCALE



② INDUSTRIAL STRENGTH FENCE & GATE

DETAILS (2 of 2)

NO SCALE



③ FENCE POST FOUNDATION & MOW STRIP

DETAILS

NO SCALE

Revisions:	Date:

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LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA | U.S. Department of Veterans Affairs

COR: Mr. JOSHUA JUNKIN

Drawing Title: MISC. CIVIL DETAILS

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Location: Big Spring, TX

Issue Date: 6/28/2024

Checked: CB

Drawn: BM

Project Number: 519-371

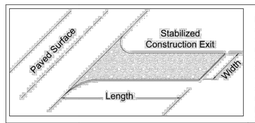
Building Number: 28

Drawing Number: CS-505

VA FORM 08 - 6231

3.11 Stabilized Construction Exit

Sediment Control



Description: A stabilized construction exit is a pad of crushed stone, recycled concrete or other rock material placed on geotextile filter cloth to dislodge soil and other debris from construction equipment and vehicle tires prior to exiting the construction site. The object is to minimize the tracking of soil onto public roadways where it will be suspended by stormwater runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Slope exit away from offsite paved surface
- Minimum width and length dependent on size of disturbed area, which correlates to traffic volume
- 6 inches minimum thickness of stone layer
- Stone of 3 to 5 inches in size
- Add a wheel cleaning system when inspections reveal the stabilized exit does not prevent tracking

ADVANTAGES / BENEFITS:

- Reduces tracking of soil onto public streets
- Directs traffic to a controlled access point
- Protects other sediment controls by limiting the area disturbed

DISADVANTAGES / LIMITATIONS:

- Effectiveness dependent on limiting ingress and egress to the stabilized exit
- A wheel washing system may also be required to remove clay soil from tires, particularly in wet conditions

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Replace rock when sediment in the void area between the rocks is visible on the surface
- Periodically re-grade and top dress with additional stone to maintain efficiency

TARGETED POLLUTANTS

- ◒ Sediment
- ○ Nutrients & Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

APPLICATIONS

Perimeter Control
Slope Protection
Sediment Barrier
Channel Protection
Temporary Stabilization
Final Stabilization
Waste Management
Housekeeping Practices

Fe=N/A

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ◒ Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Other Considerations:

- *None*

1 STABILIZED CONSTRUCTION ENTRANCE
DETAILS (1 of 3)
NO SCALE

Table 3.9 Minimum Exit Dimensions

Disturbed Area	*Min. Width of Exit*	*Min. Length of Exit*
< 1 Acre	15 feet	20 feet
≥ 1 Acre but < 5 Acres	25 feet	50 feet
≥ 5 Acres	30 feet	50 feet

- If a wheel cleaning system is used, the width of the stabilized exit may be reduced to funnel traffic into the system. Refer to *Section 3.16 Wheel Cleaning*.

3.11.4 Design Guidance and Specifications

Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction – North Central Texas Council of Governments, Section 201.10 Stabilized Construction Entrance and in the Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges (TxDOT 2004) Item 506.2.E and Item 506.4.C.5.

3.11.5 Inspection and Maintenance Requirements

Construction exits should be inspected regularly (at least as often as required by the TPDES Construction General Permit). The stabilized construction exit shall be maintained in a condition that prevents tracking or flow of sediment onto paved surfaces. Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the exit from diminishing. The rock shall be re-graded when ruts appear. Additional rock shall be added when soil is showing through the rock surface.

Additional controls are needed if inspections reveal a properly installed and maintained exit, but tracking of soil outside the construction area is still evident. Additional controls may be daily sweeping of all soil spilled, dropped, or tracked onto public rights-of-way or the installation of a wheel cleaning system.

3.11.6 Example Schematics

The following schematics are example applications of the construction control. They are intended to assist in understanding the control's design and function.

The schematics are **not for construction**. They may serve as a starting point for creating a construction detail, but they must be site adapted by the designer. In addition, dimensions and notes appropriate for the application must be added by the designer.

2 STABILIZED CONSTRUCTION ENTRANCE
DETAILS (2 of 3)
NO SCALE

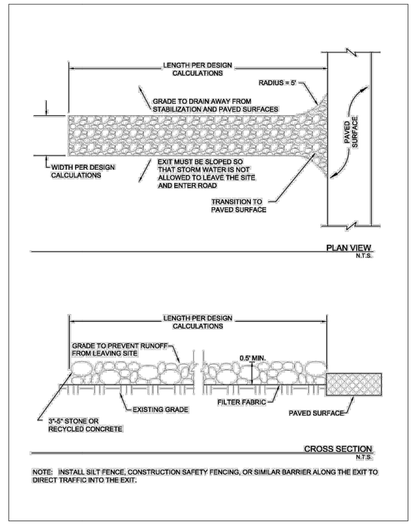
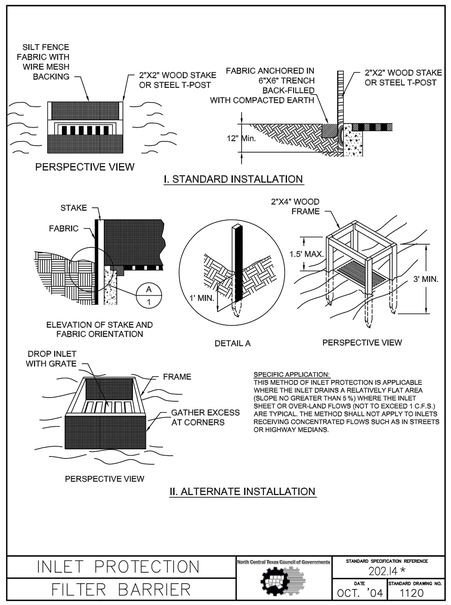


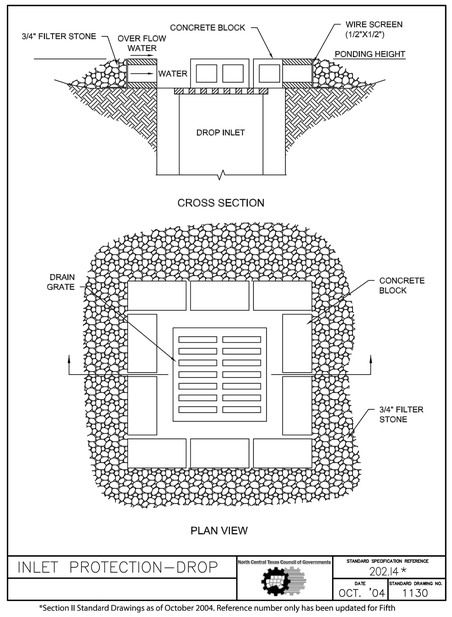
Figure 3.29 Schematics of Stabilized Construction Exit

3 STABILIZED CONSTRUCTION ENTRANCE
DETAILS (3 of 3)
NO SCALE



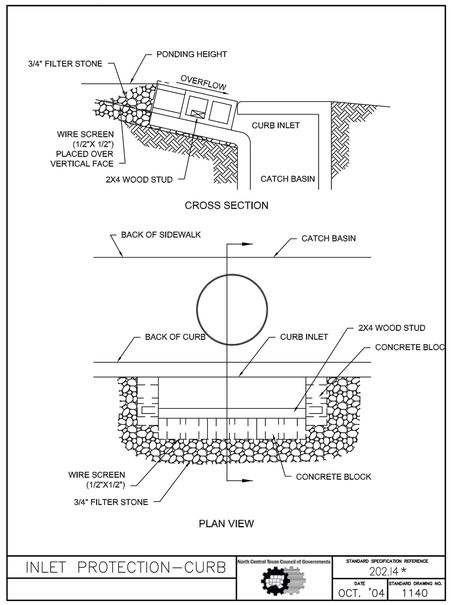
*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

4 INLET PROTECTION
DETAIL (1 of 4)
NO SCALE



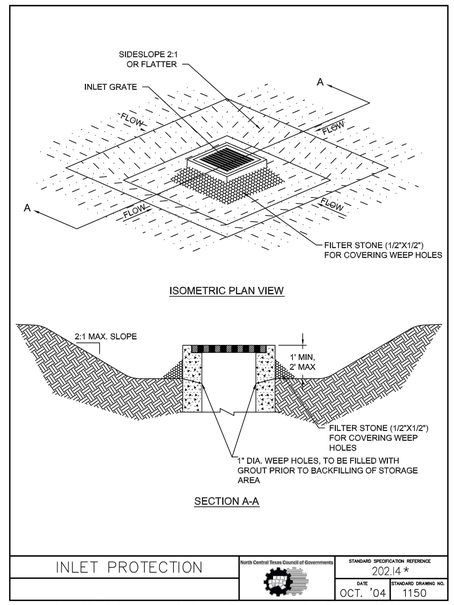
*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

5 INLET PROTECTION
DETAIL (2 of 4)
NO SCALE



*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

6 INLET PROTECTION
DETAIL (3 of 4)
NO SCALE



*Section II Standard Drawings as of October 2004. Reference number only has been updated for Fifth Edition Specifications. *Public Works Construction Standards North Central Texas, Fifth Edition.*

7 INLET PROTECTION
DETAIL (4 of 4)
NO SCALE

Revisions:	Date:

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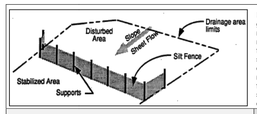
VA U.S. Department of Veterans Affairs

Drawing Title: EROSION CONTROL DETAILS
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
COR: Mr. JOSHUA JUNKIN
Location: Big Spring, TX
Drawing Number: CS-506
Issue Date: 6/28/2024
Checked: CB
Drawn: BM

VA FORM 08 - 6231

3.10 Silt Fence

Sediment Control



Description: A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between metal posts with the lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

KEY CONSIDERATIONS

DESIGN CRITERIA:

- Maximum drainage area of 0.25 acre per 100 linear feet of silt fence
- Maximum 200 feet distance of flow to silt fence; 50 feet if slope exceeds 10 percent
- Minimum fabric overlap of 3 feet at abutting ends; join fabric to prevent leakage
- Turn end of silt fence line upslope a minimum of 10 feet
- Install stone overflow structure at low points or spaced at approximately 300 feet if no apparent low point

ADVANTAGES / BENEFITS:

- Economical means to treat sheet flow
- Most effective with coarse to silty soil types

DISADVANTAGES / LIMITATIONS:

- Limited effectiveness with clay soils due to clogging
- Localized flooding due to minor ponding at the upslope side of the silt fence
- Not for use as check dams in swales or low areas subject to concentrated flow
- Not for use where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches
- Can fail structurally under heavy storm flows, creating maintenance problems and reducing effectiveness

MAINTENANCE REQUIREMENTS:

- Inspect regularly
- Repair undercutting, sags and other fence failures
- Remove sediment before it reaches half the height of the fence
- Repair or replace damaged or clogged filter fabric

APPLICATIONS

- **Perimeter Control**
- **Slope Protection**
- **Sediment Barrier**
- **Channel Protection**
- **Temporary Stabilization**
- **Final Stabilization**
- **Waste Management**
- **Housekeeping Practices**

Fe=0.50-0.75
(*Depends on soil type*)

IMPLEMENTATION CONSIDERATIONS

- ◒ Capital Costs
- ● Maintenance
- ○ Training
- ◒ Suitability for Slopes > 5%

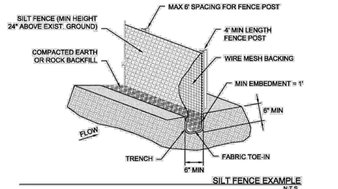
Other Considerations:

- *Effects of ponding or the redirection of flow onto adjacent areas and property*

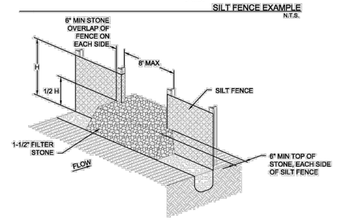
TARGETED POLLUTANTS

- ● Sediment
- ○ Nutrients & Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

1 SILT FENCE
DETAILS (1 of 2)
NO SCALE



SILT FENCE EXAMPLE
N.T.S.



STONE OVERFLOW STRUCTURE EXAMPLE
N.T.S.

NOTES: 1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL LOW POINTS AND AT A SPACING OF APPROXIMATELY 300 FT WHERE NO LOW POINT IS APPARENT.
2. DESIGNER SHALL ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.

Figure 3.28 Schematics of Silt Fence

2 SILT FENCE
DETAILS (2 of 2)
NO SCALE

Revisions:	Date:

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Office of Construction and Facilities Management

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COR: Mr. JOSHUA JUNKIN

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Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Location: Big Spring, TX
Issue Date: 6/28/2024
Checked: CB
Drawn: BM
Project Number: 519-371
Building Number: 28
Drawing Number: CS-507

VA FORM 08 - 6231

GENERAL

1. THE STRUCTURAL DESIGN IS IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE UNITED STATES DEPARTMENT OF VETERANS AFFAIRS AND THE FOLLOWING CODES AND MATERIAL STANDARDS:

   THE 2021 INTERNATIONAL BUILDING CODE (IBC)

   ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE

   ASCE/SEI 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

2. LOADS THAT HAVE BEEN USED IN THE STRUCTURAL DESIGN INCLUDE THE FOLLOWING:

   DEAD LOADS:

   DEAD LOADS ON ROOF HAVE BEEN CALCULATED TO INCLUDE ALL MATERIALS SHOWN ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS. MEP LOADS HAVE BEEN ESTIMATED TO BE 5 PSF.

   LIVE LOADS:

   ROOF. . . . . .20 PSF

   PRIVATE ROOMS . . . . . .40 PSF

   PUBLIC ROOMS . . . . . .100 PSF

   SNOW LOADS:

   Pg . . . . . 12 PSF

   Pf . . . . . 7.6 PSF

   Ce 0.9

   Ct 1.0

   Cs 1.0

   Is 1.0

   WIND LOADS:

   WIND PRESSURES IN ALL DIRECTIONS HAVE BEEN CALCULATED IN ACCORDANCE WITH CODE PROVISIONS FOR A BASIC ULTIMATE WIND SPEED OF 105 MPH (EXPOSURE C). THE ASD WIND SPEED IS TAKEN AS 81 MPH. THE BUILDING OCCUPANCY IS TAKEN AS CATEGORY II. THE BUILDING IS DESIGNED AS "ENCLOSED"AND HAS AN INTERNAL PRESSURE COEFFICIENT OF 0.18. GROSS ULTIMATE UPLIFT APPLIED TO THE ROOF COMPONENTS AND CLADDING SHALL BE AS SHOWN IN THE UPLIFT DIAGRAM, THAT LOAD SHALL BE UTILIZED IN APPROPRIATE LOAD COMBINATIONS REQUIRED BY THE 2021 IBC. DEAD LOADS MAY BE USED TO REDUCE UPLIFT AS DEEMED APPROPRIATE BY THE COMPONENT AND CLADDING ENGINEER AND LIMITED BY CODE PROVISIONS.

   SEISMIC LOADS:

   SEISMIC LOADS ARE RESISTED BY THE BUILDING'S LIGHT GAGE STEEL WALLS SHEATHED WITH STRUCTURAL PANELS AND FLAT STRAP BRACING RATED FOR SHEAR RESISTANCE.

   RISK CATEGORY II

   SEISMIC IMPORTANCE FACTOR (Ie) 1.0

   Ss 0.078g

   S1 . . . . . 0.024g

   SITE CLASS . . . . . "C"

   SDS 0.070g

   SD1 . . . . . .0.035g

   SEISMIC DESIGN CATEGORY . . . . . "A"

   DESIGN BASE SHEAR 12.2K

   SEISMIC RESPONSE COEFFICIENT (Cs) 0.01

   RESPONSE MODIFICATION COEFFICIENT (R) 6.5

   EQUIVALENT LATERAL FORCE PROCEDURE

3. SHOP DRAWINGS FOR THE STRUCTURAL WORK NOT DESIGNED AND DETAILED HEREIN SHALL BE SUBMITTED TO THE OWNER FOR REVIEW PRIOR TO COMMENCEMENT OF CONSTRUCTION. REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR OF FULL RESPONSIBILITY FOR CORRECT FABRICATION AND CONSTRUCTION OF THE WORK.

4. ANY DEVIATION FROM, ADDITION TO, SUBSTITUTION FOR, OR MODIFICATION TO THE STRUCTURES OR ANY PART OF THE STRUCTURES SHOWN ON THESE DRAWINGS SHALL BE SUBMITTED IN WRITING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS THAT ARE SUBMITTED FOR REVIEW DO NOT CONSTITUTE "IN-WRITING" UNLESS IT IS CLEARLY NOTED THAT SPECIFIC CHANGES ARE BEING SUGGESTED.

5. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS FOR ELEVATIONS NOT SHOWN AND FOR EXACT LOCATIONS AND DIMENSIONS OF ALL ARCHITECTURAL DETAILS. CONTRACTOR SHALL COMPARE ARCHITECTURAL DRAWINGS, FABRICATOR REQUIREMENTS FOR SPECIALTY ITEMS, AND STRUCTURAL DRAWINGS AND NOTIFY ENGINEER OF ANY DISCREPANCY.

6. THE CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS AT THE SITE AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS BEFORE PROCEEDING WITH THE WORK.

7. PRINCIPAL OPENINGS ARE SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR SLEEVES, CURBS, INSERTS AND SIMILAR DETAILS NOT SHOWN. SIZE AND LOCATION OF ALL OPENINGS SHALL BE VERIFIED BY THE CONTRACTOR, NO ROOFTOP EQUIPMENT SHALL BE SUPPORTED BY ROOF FRAMING EXCEPT AS SPECIFICALLY SHOWN ON THESE DRAWINGS.

8. THE STRUCTURAL DRAWINGS ARE NOT TO BE SCALED FOR DETERMINATION OF QUANTITIES, LENGTHS, OR FIT OF MATERIALS.

9. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURES. THEY DO NOT INDICATE THE METHODS OF CONSTRUCTION UNLESS SO STATED OR NOTED. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE WORKERS AND OTHER PERSONS DURING CONSTRUCTION.

10. THE CONTRACTOR SHALL PROVIDE TEMPORARY ERECTION BRACING AND SHORING OF ALL STRUCTURAL WORK AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONDITION WHICH, IN HIS OPINION, MIGHT ENDANGER THE STABILITY OF THE STRUCTURE OR CAUSE DISTRESS IN THE STRUCTURE.

11. CONSTRUCTION MATERIALS SHALL NOT BE STORED ON FLOORS OR ROOFS IN EXCESS OF THE DESIGN LIVE LOADS. IMPACT SHALL BE AVOIDED WHEN PLACING MATERIALS ON FLOORS OR ROOFS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENFORCE THESE REQUIREMENTS.

12. IF ANY INCONSISTENCIES OR DISCREPANCIES OCCUR WITHIN OR BETWEEN THE DRAWINGS AND SPECIFICATIONS, THE GREATER QUANTITY OF ITEMS SHOWN AND / OR THE MOST COSTLY PRODUCT OR INSTALLATION METHOD SHALL BE PROVIDED, UNLESS INSTRUCTED OTHERWISE BY THE ARCHITECT OR ENGINEER. IT SHALL BE DEEMED THAT THE CONTRACTOR BID AND INTENDS TO EXECUTE THE MORE STRINGENT OR HIGHER QUALITY REQUIREMENT WITHOUT ANY INCREASE TO THE CONTRACT SUM OR CONTRACT TIME.

CONCRETE

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE MOST RECENT EDITION OF ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE" AND SPECIFICATIONS SUBMITTED HEREIN. WHERE CONFLICTS ARISE, THE MORE STRINGENT CRITERIA SHALL GOVERN.

2. MILD STEEL REINFORCING BARS SHALL CONFORM TO ASTM A 615., GRADE 60.

3. MILD STEEL REINFORCEMENT AND ACCESSORIES SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH ACI SP66.

4. PORTLAND CEMENT SHALL BE A SINGLE BRAND CONFORMING TO ASTM C 150, TYPE I OR II.

5. NORMAL WEIGHT AGGREGATES SHALL CONFORM TO ASTM C 33. ALL CONCRETE SHALL USE NORMAL WEIGHT AGGREGATES, UNLESS NOTED OTHERWISE.

6. ALL ADDITIVES FOR AIR ENTRAINMENT, WATER REDUCTION, AND SET CONTROL SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS. THE USE OF CALCIUM CHLORIDE IS PROHIBITED.

7. MIXES SHALL BE DESIGNED TO PROVIDE CONCRETE WITH A COMPRESSIVE STRENGTH AT 28 DAYS (f'c) OF 4000 PSI.

8. THE MAXIMUM NOMINAL SIZE OF COARSE AGGREGATE SHALL BE 1".

9. CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED 3% TO 6%. AIR CONTENT SHALL BE CHECKED BY AN ACI APPROVED TESTER WITH AN AIR METER.

10. CONCRETE SLUMPS SHALL BE 4"(+/- 1").

11. MILD STEEL REINFORCEMENT SHALL BE PLACED AND SECURED IN ACCORDANCE WITH CRSI "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS".

12. CONCRETE PROTECTION FOR REINFORCEMENT SHALL BE 1 ½" FOR CONCRETE EXPOSED TO EARTH (BUT NOT CAST AGAINST) OR AIR AND 3" FOR CONCRETE CAST AGAINST EARTH.

13. THE TESTING LABORATORY SHALL BE NOTIFIED AFTER THE MILD STEEL REINFORCEMENT AND EMBEDS ARE POSITIONED PRIOR TO EACH CONCRETE PLACEMENT. NO CONCRETE SHALL BE PLACED UNTIL THESE ITEMS ARE CHECKED AND APPROVED BY THE TESTING LABORATORY.

14. EACH AREA OF CONCRETE WORK SHALL BE FINISHED AND CURED IN ACCORDANCE WITH THE SPECIFICATIONS. CHAMFERS SHALL BE PROVIDED AT ALL EXPOSED EDGES AND IN ACCORDANCE WITH THE ARCHITECTURAL DRAWINGS.

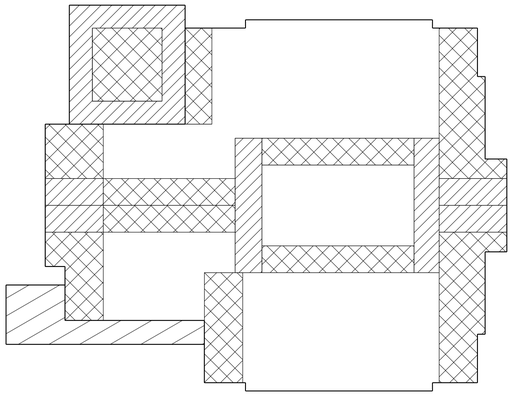
15. EMBEDDED ANCHORS SHALL BE COORDINATED WITH FABRICATORS AND THE ARCHITECTURAL DRAWINGS.

ABBREVIATIONS

ALT	ALTERNATE
BN	BOUNDARY NAIL
CLR	CLEAR
EF	EACH FACE
EN	EDGE NAIL
EQ	EQUAL
ES	EACH SIDE
EW	EACH WAY
EXT	EXTENSION
FN	FIELD NAIL
FND	FOUNDATION
FTG	FOOTING
OC	ON CENTER
OH	OPPOSITE HAND
SIM	SIMILAR
SPA	SPACES
STD	STANDARD
TOC	TOP OF CONCRETE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE

Development Length, Lap, and Hook Table

Size	Diameter (in)	Ld (in)	Lap (in)	90 Deg Hook (in)	180 Deg Hook (in)
#3	0.375	15	20	7	5
#4	0.500	19	25	9	6
#5	0.625	24	32	12	8
#6	0.750	29	38	14	9
#7	0.875	42	55	16	11
#8	1.000	48	63	18	12
#9	1.128	54	71	23	16
#10	1.270	61	80	26	18
#11	1.410	67	88	29	20
#14	1.693	81	-	38	28



GROSS UPLIFT DIAGRAM

STRUCTURAL STEEL

1. STRUCTURAL STEEL SHALL BE NEW STEEL AND SHALL CONFORM TO THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".

2. STRUCTURAL STEEL W-SHAPES SHALL CONFORM TO ASTM A992, UNLESS NOTED OTHERWISE. COLUMN BASE PLATES SHALL CONFORM TO ASTM A572 GRADE 50.OTHER ROLLED SHAPES AND PLATES SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.

3. HOLLOW STRUCTURAL SECTIONS SHALL CONFORM TO ASTM A500, GRADE B.

4. HEADED CONCRETE ANCHORS (HCA) SHALL CONFORM TO ASTM A108, HEADED ANCHORS.

5. ALL STRUCTURAL STEEL CONNECTIONS AND DETAILS SHALL CONFORM TO THE AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES", DATED 2010.

6. ALL CONNECTIONS NOT FULLY DETAILED ON DRAWINGS SHALL BE DESIGNED BY THE FABRICATOR. CONNECTION DESIGNS SHALL COMPLY WITH ALL APPLICABLE PROVISIONS OF THE LATEST EDITION OF THE AISC MANUAL WHERE DESIGN LOADS ARE NOT SHOWN. THE CONNECTION SHALL BE DESIGNED FOR ONE-HALF OF THE TOTAL UNIFORM LOAD TABULATED IN THE "FACTORED UNIFORM LOAD TABLES" IN THE AISC MANUAL FOR THE GIVEN BEAM, SPAN, AND GRADE OF STEEL SPECIFIED. EACH CONNECTION SHALL BE SHOWN IN DETAIL ON THE SHOP DRAWINGS AND SUBMITTED TO THE ENGINEER-OF-RECORD FOR REVIEW.

7. UNLESS NOTED OTHERWISE, ANCHOR RODS FOR CONNECTION OF COLUMN BASE PLATES TO CONCRETE FOUNDATION ELEMENTS SHALL CONFORM TO ASTM F1554, GRADE 36.

8. UNFINISHED THREADED FASTENERS SHALL CONFORM TO ASTM A307, GRADE A BOLTS AND NUTS WITH HEXAGONAL HEADS. UNFINISHED THREADED FASTENERS SHALL BE USED ONLY FOR BOLTED CONNECTIONS FOR TEMPORARY BRACING TO FACILITATE ERECTION.

9. BOLTED CONNECTIONS FOR PRIMARY MEMBERS SHALL CONFORM TO THE REQUIREMENTS OF THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", DATED AUGUST 1, 2014. UNLESS NOTED OTHERWISE, ALL PRIMARY CONNECTIONS WITH HIGH STRENGTH BOLTS SHALL USE ASTM A325 BOLTS AND HEAVY HEX NUTS TIGHTENED TO THE SNUG-TIGHT CONDITION.

10. WELDED CONSTRUCTION SHALL CONFORM TO AWS D-1.1, "STRUCTURAL WELDING CODE." WELDING PROCESSES AND OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS STANDARD QUALIFICATION PROCEDURE. ELECTRODES FOR FIELD AND SHOP WELDS SHALL BE E70, UNLESS NOTED OTHERWISE. ALL WELDS SHALL BE INSPECTED PER AWS STANDARDS. DEFICIENCIES SHALL BE CORRECTED.

11. STEEL MEMBERS SHALL NOT BE SPLICED EXCEPT WHERE SHOWN ON THE DRAWINGS.

12. ALL STEEL BEAMS SHALL BE ERECTED WITH NATURAL CAMBER UP.

13. ALL INTERIOR STEEL SHAPES, PLATES, AND PIPE SHALL BE PAINTED IN THE SHOP IN ACCORDANCE WITH THE SPECIFICATIONS. ALL BOLTED CONNECTIONS AND FIELD WELDS SHALL BE PAINTED AFTER ERECTION. ANY DAMAGE TO SHOP COATINGS SHALL BE TOUCHED UP AFTER ERECTION.

14. ALL EXTERIOR EXPOSED STEEL SHALL BE HOT-DIP GALVANIZED PER THE SPECIFICATIONS OR PAINTED WITH A CORROSION INHIBITING PAINT IN ACCORDANCE WITH THE ARCHITECT'S SPECIFICATIONS. ANY DAMAGE TO SHOP COATINGS SHALL BE TOUCHED UP AFTER ERECTION.

15. WELDS AT ARCHITECTURALLY EXPOSED STEEL SHALL BE GROUND SMOOTH.

COLD FORMED STEEL

1. LIGHT GAUGE STUDS, JOISTS, TRACK, CHANNELS, GIRTS, AND FURRING CHANNELS ARE DESIGNATED ON THE DRAWINGS USING THE STEEL STUD MANUFACTURER ASSOCIATION'S UNIVERSAL DESIGNATOR SYSTEM.

2. WITH EACH TYPE OF METAL FRAMING REQUIRED, PROVIDE MANUFACTURER'S STANDARD STEEL RUNNERS (TRACKS), BLOCKING LINTELS, CLIP ANGLES, SHOES, REINFORCEMENTS, FASTENERS, AND ACCESSORIES AS RECOMMENDED BY MANUFACTURER FOR APPLICATIONS INDICATED AS NEEDED TO PROVIDE A COMPLETE FRAMING SYSTEM.

3. FOR 43-MIL AND HEAVIER STUDS AND JOISTS, FABRICATE COMPONENTS OF STEEL SHEET CONFORMING TO ASTM A 653, STRUCTURAL QUALITY, WITH A MINIMUM YIELD POINT OF 50,000 PSI.

4. FOR 43-MIL AND HEAVIER TRACK, FABRICATE COMPONENTS OF STEEL SHEET CONFORMING TO ASTM A 653, STRUCTURAL QUALITY, WITH A MINIMUM YIELD POINT OF 50,000 PSI.

5. FOR 33-MIL AND LIGHTER STUDS, JOISTS, AND TRACK, FABRICATE COMPONENTS OF STEEL SHEET CONFORMING TO ASTM A 653, STRUCTURAL QUALITY, WITH A MINIMUM YIELD POINT OF 33,000 PSI.

6. ALL LIGHT GAUGE METAL FRAMING SHALL HAVE A G-60 GALVANIZED COATING MEETING THE REQUIREMENTS OF ASTM A 924.

7. INTERIOR PARTITION WALLS SHALL BE DESIGNED AND DETAILED BY THE FABRICATOR. WALLS SHALL BE CONNECTED TO THE UNDERSIDE OF ROOF FRAMING WITH VERTICALLY SLOTTED CONNECTIONS DESIGNED TO PREVENT TRANSFER OF GRAVITY LOADS FROM ROOF ABOVE INTO WALL SYSTEM. OTHER MEANS OF LATERALLY BRACING INTERIOR WALLS ARE ACCEPTABLE PROVIDED THE WALLS ARE STRUCTURALLY SOUND FOR SUCH BRACING METHODS. INTERIOR WALLS SHALL BE DESIGNED FOR A LATERAL LOAD OF AT LEAST 10 PSF.

GROSS UPLIFT (PSF)

		NEGATIVE		POSITIVE	
		<100 SF	>100 SF	<100 SF	>100 SF
ZONE	1	-44.5	-24.1	+15.9	+11.8
ZONE	2	-58.8	-24.1	+15.9	+11.8
ZONE	3	-77.1	-40.4	+15.9	+11.8
OVERHANG		-110.0	-110.0	-	-

PRESSURES SHOWN ARE NOMINAL PRESSURES. NOMINAL PRESSURES MAY BE REDUCED (ALLOWABLE STRESS) AS SHOWN IN APPROPRIATE LOAD COMBINATIONS AND APPLICABLE CODE REQUIREMENTS.

NEGATIVE PRESSURES ARE DIRECTED AWAY FROM THE SURFACE, POSITIVE PRESSURES ARE DIRECTED TOWARDS THE SURFACE.

EARTHWORK AND FOUNDATIONS

1. THE FOUNDATION DESIGN IS IN ACCORDANCE WITH A GEOTECHNICAL INVESTIGATION AND REPORT BY ENPROTEC/HIBBS AND TODD (REPORT NO. 22-8267) DATED MAY 31, 2022. ALL EARTHWORK SHALL BE BASED UPON THE GEOTECHNICAL REPORT.

2. FOUNDATION EXCAVATION SHALL INCLUDE ALL EXCAVATION WITHIN THE BUILDING FOOTPRINT AND IN THE ADJACENT AREA WITHIN 5 FEET OF THE BUILDING.

3. A QUALIFIED GEOTECHNICAL ENGINEER OR APPROVED INSPECTOR SHALL BE RETAINED BY THE OWNER TO OBSERVE ALL EARTHWORKING OPERATIONS AND THE REQUIRED TESTING FOR IMPLEMENTING THE RECOMMENDATIONS OF THE AFOREMENTIONED GEOTECHNICAL REPORT. THESE TESTS AND OBSERVATIONS SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

   - OBSERVATION AND TESTING DURING SITE PREPARATION AND GRADING

   - CONSULTATION AS REQUIRED DURING CONSTRUCTION

   - APPROVAL OF SELECT FILL MATERIAL

   - VERIFICATION THAT THE BUILDING PAD IS SUITABLE FOR CONSTRUCTION

   - VERIFICATION THAT THE FOOTING EXCAVATIONS ARE SUITABLE FOR CONSTRUCTION

4. ALL EXISTING VEGETATION BENEATH THE BUILDING AREA SUCH AS TREES, BRUSH, AND STUMPS SHALL BE REMOVED FROM THE SITE.

5. ANY SLOUGHED, LOOSE OR SOFT MATERIALS NEAR THE BASE OF THE FOUNDATION EXCAVATION SLOPES SHALL BE REMOVED. IN ADDITION, COMPACTED FILL SHALL BE "TIED-IN" WITH THE EXCAVATION SLOPES USING BENCHES AS NECESSARY.

6. ANY SOFT OR SPONGY AREAS OR ANY AREAS OF SUSPECTED EXISTING FILL WHICH WILL SUPPORT PROPOSED FILL MATERIAL, FUTURE STRUCTURES, OR PAVEMENT SHALL BE PROOF ROLLED. UNSTABLE AREAS IDENTIFIED BY PROOF ROLLING SHALL BE UNDERCUT TO A FIRM SUBGRADE. THE RESULTING VOID SHALL BE BACKFILLED WITH PROPERLY COMPACTED SELECT FILL MATERIAL. PROOF ROLLING SHALL BE PERFORMED USING A HEAVY PNEUMATIC TIRE ROLLER. AFTER PROOF ROLLING, THE NATIVE SOIL SHALL BE SCARIFIED AND COMPACTED TO A MINIMUM DEPTH OF 8" AND DENSITY OF AT LEAST 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 AT A MOISTURE CONTENT OF AT LEAST 2% ABOVE OPTIMUM.

7. ANY SOIL REQUIRED TO BRING THE BUILDING PAD TO GRADE SHALL BE SELECT FILL CLASSIFIED AS SC, GC, OR CL WITH A MAXIMUM LIQUID LIMIT OF 35 AND A PLASTICITY INDEX OF BETWEEN 5 AND 12. SELECT FILL SHALL BE COMPACTED TO A MINIMUM DENSITY OF 95% OF STANDARD PROCTOR MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698 AT A MOISTURE CONTENT OF AT LEAST OF 2% ABOVE OPTIMUM.

8. LOCATE ALL UTILITIES AND UNDERGROUND SERVICES PRIOR TO PERFORMING EXCAVATION OF ANY KIND.

9. THE GRADE BEAMS MAY BE TRENCHED IF STABLE SIDES OF TRENCHES CAN BE CUT INTO THE BUILDING PAD.

10. THE CONTRACTOR SHALL VERIFY THE SUBGRADE ELEVATIONS, FLATNESS AND LEVELNESS PRIOR TO PLACING THE FLOOR SLABS. THE CONTRACTOR SHALL PROVIDE A SUBGRADE WHICH RESULTS IN SLAB THICKNESSES (FOR EACH POUR STRIP) THAT DO NOT VARY IN THICKNESS BY MORE THAN 1/4 INCH.

11. PROVIDE A 10-MIL THICK POLYETHYLENE VAPOR BARRIER UNDER THE BUILDING SLABS.

12. JOINTS IN CONCRETE ABUTTING THE BUILDINGS SHALL BE THOROUGHLY SEALED TO PREVENT THE INFILTRATION OF SURFACE WATER.

13. ALL CAST-IN ANCHORAGE SHALL BE COORDINATED WITH FABRICATORS' REQUIREMENTS PRIOR TO POURING SLABS.

14. SLOPE FINAL GRADE AWAY FROM FOUNDATIONS TO PREVENT PONDING.

15. GRADE BEAMS ARE SIZED FOR A MAXIMUM ALLOWABLE BEARING PRESSURE OF 2.5 KSF.

WOOD/TIMBER

1. ALL WOOD AND TIMBER CONSTRUCTION SHALL CONFORM TO THE SPECIFICATIONS OF THE AITC.

2. SAWN LUMBER FRAMING MEMBERS SHALL BE VISUALLY GRADED NO. 2 SOUTHERN PINE. DIMENSIONS SHOWN ON THE PLANS ARE NOMINAL. ACTUAL DIMENSIONS ARE SOMEWHAT SMALLER.

3. GLU-LAM BEAMS SHALL BE ARCHITECTURALLY GRADED. GLU-LAM STRUCTURAL GRADE SHALL BE 24F-V4-1-7E. HIGHER GRADE LAMINATIONS SHALL BE ON BOTTOM.

4. LAMINATED VENEER LUMBER SHALL HAVE AN ALLOWABLE BENDING STRESS OF AT LEAST 2,900 PSI AND A MODULUS OF ELASTICITY OF 2,000,000 PSI (2.0 E).

5. ALL PLYWOOD AND OSB SHALL BEAR AN APA GRADE TRADEMARK STAMP.

6. ROOF SHEATHING SHALL BE SHEATHING GRADE OSB OR PLYWOOD PANELS. PANELS SHALL BE INSTALLED WITH A FACE GRADING ACROSS SUPPORTS CONTINUOUSLY OVER AT LEAST 2 SPANS. PANEL EDGES PERPENDICULAR TO FACE GRAIN SHALL BE STAGGERED. PANEL THICKNESS AND NAILING PATTERN SHALL BE AS SPECIFIED ON ROOF FRAMING PLAN. PANEL JOINTS THAT ARE PERPENDICULAR TO FRAMING SHALL BE BLOCKED WHERE SPECIFIED. OTHER PERPENDICULAR JOINTS SHALL BE CONNECTED WITH H-CLIPS.

7. EXCEPT WHERE SHOWN OTHERWISE, ALL CONNECTIONS OF WOOD FRAMING MEMBERS SHALL UTILIZE SIMPSON "STRONG TIE" CONNECTORS, OR APPROVED EQUAL. ALL CONNECTORS SHALL BE SIZED TO SUPPORT THE FULL CAPACITY OF THE MEMBERS BEING CONNECTED. CONNECTORS THAT ARE VISUALLY EXPOSED SHALL BE SUBJECT TO APPROVAL BY THE ARCHITECT.

8. THE ENDS OF WOOD FRAMING (HORIZONTAL) SHALL HAVE NOT LESS THAN 1-1/2" OF BEARING LENGTH ON WOOD OR STEEL, AND 3" ON CONCRETE MASONRY.

Revisions:	Date:

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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	STRUCTURAL NOTES
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL:	COR, Mr. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	BGP
Drawn	KBP
Drawing Number	S001

VA FORM 08 - 6231

CONCRETE MASONRY

1. REINFORCED CONCRETE MASONRY WALL CONSTRUCTION SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'm) OF 1500 PSI. THESE VALUES SHALL BE VERIFIED IN ACCORDANCE WITH NCMA TR 75B, "SPECIFICATIONS FOR THE DESIGN AND CONSTRUCTION OF LOAD BEARING MASONRY".

2. CONCRETE BLOCK SHALL BE NORMAL WEIGHT UNITS CONFORMING TO ASTM C 90, WITH A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 1900 PSI.

3. MORTAR SHALL CONFORM TO ASTM C 270 TYPE S. AGGREGATES FOR MORTAR SHALL CONFORM TO ASTM C 144. TYPE S MORTAR SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 1800 PSI AT 28 DAYS.

4. GROUT SHALL BE COARSE OR FINE GROUT CONFORMING TO ASTM C 476. AGGREGATES FOR GROUT SHALL CONFORM TO ASTM C 404. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 2500 PSI AT 28 DAYS.

5. BED JOINT THICKNESS SHALL NOT EXCEED 5/8".

6. BOND BEAMS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS, AND SHALL HAVE A MAXIMUM AGGREGATE SIZE OF ¾". MORTAR SHALL NOT BE USED AS A SUBSTITUTE FOR CONCRETE FILL IN BOND BEAMS. VERTICAL REINFORCEMENT SHALL BE CONTINUOUS THROUGH BOND BEAMS UNLESS NOTED OTHERWISE.

7. REINFORCING STEEL SHALL CONFORM TO ASTM A 615, GRADE 60.

8. PROVIDE ADDITIONAL VERTICAL REINFORCING BARS AT FIRST TWO CELLS ADJACENT TO ALL CMU WALL OPENINGS, AT ALL CMU WALL CORNERS, AND WHERE INDICATED ON THE STRUCTURAL AND ARCHITECTURAL DRAWINGS.

9. ALL CELLS CONTAINING REINFORCING BARS, BOLTS OR OTHER METAL ANCHORS SHALL BE GROUTED SOLID. ANY CELLS AT OR BELOW FINISHED GRADE SHALL BE GROUTED SOLID, WHETHER REINFORCED OR NOT.

10. REFERENCE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF VERTICAL CONTROL JOINTS. SPACING OF VERTICAL JOINTS SHALL NOT EXCEED 25'-0". JOINT REINFORCING SHALL NOT BE CONTINUOUS THROUGH VERTICAL CONTROL JOINTS. CONTROL JOINTS SHALL BE CONTRACTION OR EXPANSION JOINTS AS REQUIRED BY THE STRUCTURAL DRAWINGS.

11. HORIZONTAL JOINT REINFORCEMENT SHALL BE FACTORY-FABRICATED, TRUSS-TYPE 9 GA. OR HEAVIER WIRE CONFORMING TO ASTM A 82. EXCEPT WHERE NOTED OTHERWISE, PLACE REINFORCEMENT CONTINUOUSLY AT A MAXIMUM VERTICAL SPACING OF 16" OC.

12. MASONRY LINTELS OVER DOORWAY AND WINDOW OPENINGS SHALL BE COMPRISED OF LINTEL BLOCKS SPECIFICALLY CAST FOR USE AS LINTELS.

STEEL SPECIAL INSPECTIONS FOR WELDING PROCEDURES

1. PRIOR TO WELDING, THE FOLLOWING SHALL BE INSPECTED:

   - WELDING PROCEDURE SPECIFICATIONS
   - MANUFACTURER CERTIFICATIONS FOR WELDING CONSUMABLES
   - MATERIAL IDENTIFICATION (TYPE/GRADE)
   - VERIFICATION OF WELDER QUALIFICATIONS
   - FIT-UP OF GROOVE WELDS
     - JOINT PREPARATION
     - DIMENSIONS
     - CLEANLINESS
     - TACKING
     - BACKING TYPE AND FIT
   - CONFIGURATION AND FINISH OF ACCESS HOLES
   - FIT-UP OF FILLET WELDS
     - DIMENSIONS
     - CLEANLINESS
     - TACKING
   - WELDING EQUIPMENT

2. DURING WELDING, THE FOLLOWING SHALL BE INSPECTED:

   - USE OF QUALIFIED WELDERS
   - CONTROL AND HANDLING OF WELDING CONSUMABLES
     - PACKAGING
     - EXPOSURE CONTROL
   - NO WELDING OVER CRACKED TACK WELDS
   - ENVIRONMENTAL CONDITIONS
     - WIND SPEED WITHIN LIMITS
     - PRECIPITATION AND TEMPERATURE
   - WPS FOLLOWED
     - SETTINGS ON WELDING EQUIPMENT
     - TRAVEL SPEED
     - SELECTED WELDING MATERIALS
     - SHIELDING GAS TYPE/FLOW RATE
     - PREHEAT APPLIED
     - INTERPASS TEMPERATURE MAINTAINED
     - PROPER POSITION
   - WELDING TECHNIQUES
     - INTERPASS AND FINAL CLEANING
     - EACH PASS WITHIN PROFILE LIMITATIONS
     - EACH PASS MEETS QUALITY REQUIREMENTS

3. AFTER WELDING, THE FOLLOWING SHALL BE INSPECTED:

   - WELDS CLEANED
   - SIZE, LENGTH, AND LOCATION OF WELDS
   - WELDS MEET VISUAL ACCEPTANCE CRITERIA
     - CRACK PROHIBITION
     - WELD/BASE-METAL FUSION
     - CRATER CROSS SECTION
     - WELD PROFILES
     - WELD SIZE
     - UNDERCUT
     - POROSITY
   - ARC STRIKES
   - k-AREAS
   - BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)
   - REPAIR ACTIVITIES
   - DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER

STEEL SPECIAL INSPECTIONS FOR BOLTING PROCUDURES

1. PRIOR TO BOLTING, THE FOLLOWING SHALL BE INSPECTED:

   - MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS
   - FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS
   - PROPER FASTENERS SELECTED FOR THE JOINT DETAIL
   - PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL
   - CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS
   - PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED
   - PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS

2. DURING BOLTING, THE FOLLOWING SHALL BE INSPECTED:

   - FASTENER ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED
   - JOINT BROUGHT TO THE SNUG TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION
   - FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING
   - FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH A METHOD APPROVED BY THE RCSC AND PROGRESSING SYSTEMATICALLY FROM MOST RIGID POINT TOWARD FREE EDGES

3. AFTER BOLTING, THE FOLLOWING SHALL BE INSPECTED:

   - DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS

TABLE 1705.3 REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD[a]	IBC REFERENCE
1. Inspect reinforcement, including prestressing tendons, and verify placement.	—	X	ACI 318: Ch. 20, 25.2, 25.3, 26.6.1-26.6.3	—
2. Reinforcing bar welding: 1. a.Verify weldability of reinforcing bars other than ASTM A706; 2. b.Inspect single-pass fillet welds, maximum $^5/_{16}$"; and 3. c.Inspect all other welds.	— — X	X X —	AWS D1.4 ACI 318: 26.6.4	—
3. Inspect anchors cast in concrete.	—	X	ACI 318: 17.8.2	—
4. Inspect anchors post-installed in hardened concrete members.[b] 1. a.Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. 2. b.Mechanical anchors and adhesive anchors not defined in 4.a.	X —	— X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	—
5. Verify use of required design mix.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C31 ASTM C172 ACI 318: 26.5, 26.12	—
7. Inspect concrete and shotcrete placement for proper application techniques.	X	—	ACI 318: 26.5	—
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 26.5.3-26.5.5	—
9. Inspect prestressed concrete for: a. Application of prestressing forces; and b. Grouting of bonded prestressing tendons.	X X	— —	ACI 318: 26.10	—
10. Inspect erection of precast concrete members.	—	X	ACI 318: 26.9	—
11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to Seismic Design Category C, D, E or F, inspect such connections and reinforcement in the field for:			ACI 318: 26.13.1.3	—

Revisions:	Date:

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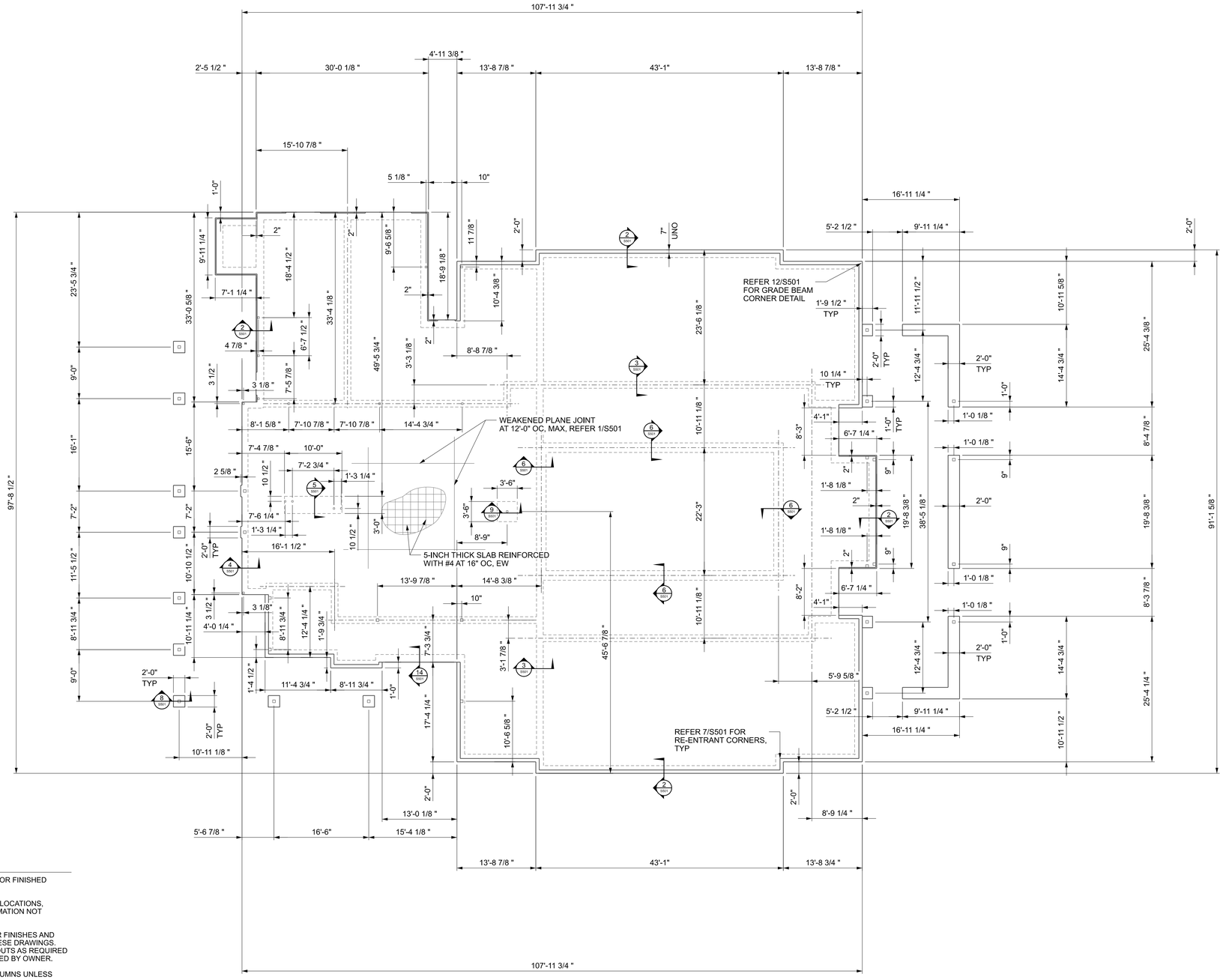
BRIAN G. PIERCE 94837 LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	STRUCTURAL NOTES AND INSPECTION REQUIREMENTS
Phase	ISS 95% DESIGN DEVELOPMENT
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL:	COR, Mr. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	BGP
Drawn	KBP
Drawing Number	S002

VA FORM 08 - 6231



NOTES:

1. REFER ARCHITECTURAL AND/OR CIVIL PLANS FOR FINISHED FLOOR ELEVATION.
2. REFER ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS, ELEVATIONS, DIMENSIONS, AND OTHER INFORMATION NOT SHOWN.
3. SLAB DEPRESSIONS TO ACCOMMODATE FLOOR FINISHES AND COVERINGS ARE NOT ACCOUNTED FOR ON THESE DRAWINGS. ADJUST TOP OF SLAB AND/OR CAST IN LEAVE-OUTS AS REQUIRED TO ALLOW FOR FLOOR COVERINGS AS SELECTED BY OWNER.
4. FOOTINGS SHALL BE CENTERED BENEATH COLUMNS UNLESS DIMENSIONED OTHERWISE.

1 S101 FOUNDATION PLAN

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

N ACTUAL NORTH N PLAN NORTH

Revisions:	Date:

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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: FOUNDATION PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S101
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

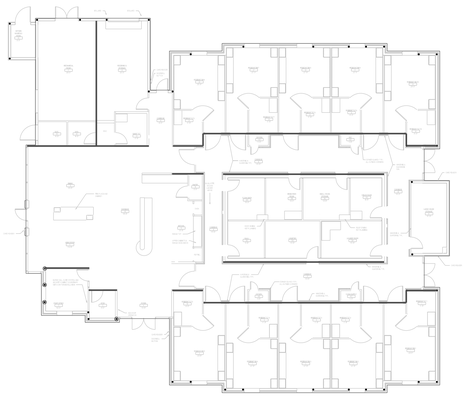
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KEY

BRACED WALL - FLAT STRAP EACH SIDE - FS400-54	
7/16" STRUCTURAL 1 GRADE OSB EDGE / FIELD = NO. 8 AT 6" OC	
7/16" STRUCTURAL 1 GRADE OSB EDGE / FIELD = NO. 8 AT 4" OC	
8-INCH CMU WALL GROUTED AND REINFORCED WITH #5 AT 8" OC, 9 GA LADDER REINFORCING EACH MORTAR JOINT	
HOLD-DOWN S/HDU4 - DOUBLE STUD EACH END	
HOLD-DOWN S/HDU9 - DOUBLE STUD EACH END	
COLLECTOR RAFTER	
GRID BUBBLE	X

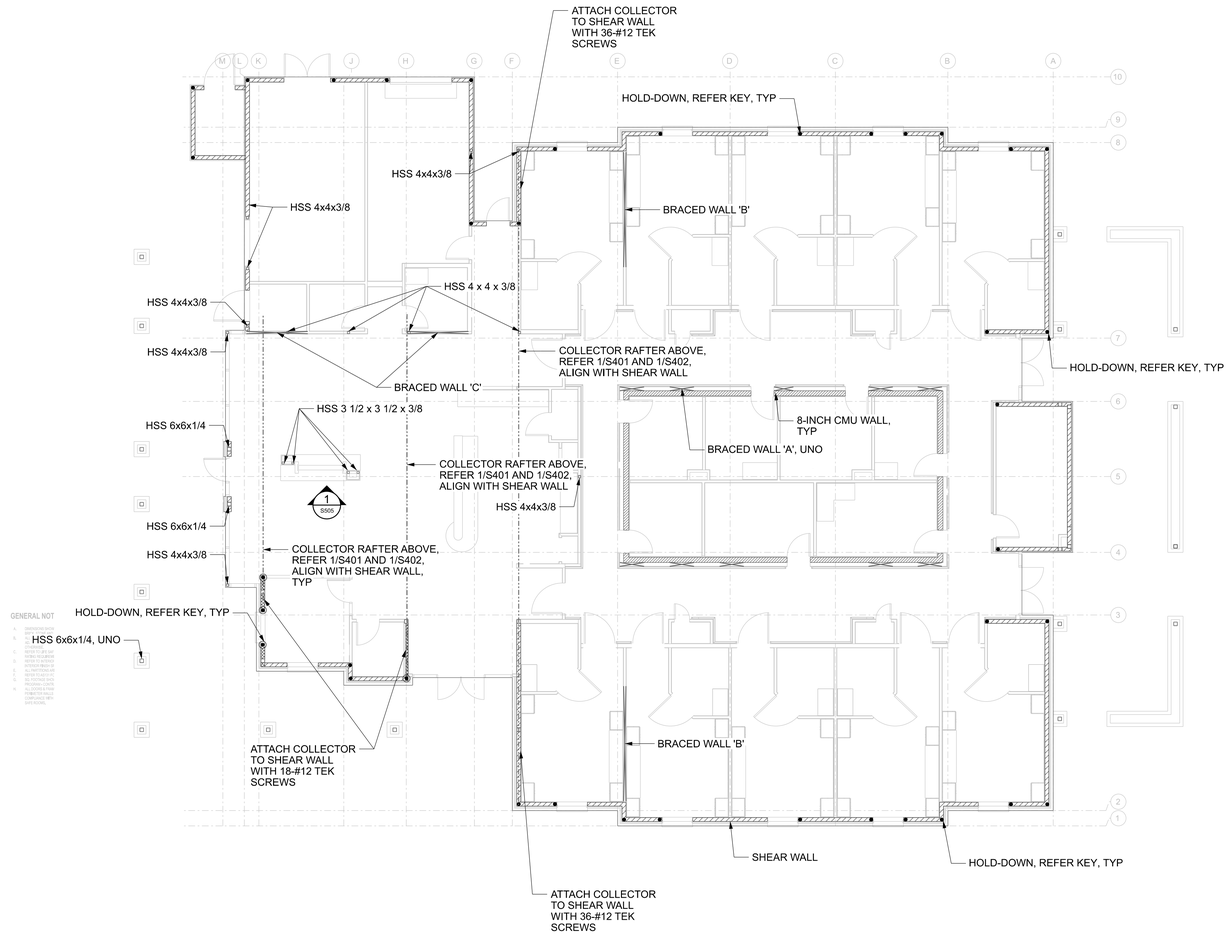
NOTES:

1. EXTERIOR WALLS SHALL CONSIST OF 600S162-43 WALL STUDS SPACED AT 16" OC. WALL TRACK SHALL BE 600T125-43. FLAT STRAP BRIDGING (BOTH SIDES EXCEPT ON SIDES WITH FULL SHEATHING) SHALL BE PROVIDED AT 4'-0" OC, MAX. REFER TO LOAD-BEARING WALL KEY FOR INTERIOR LOAD-BEARING WALLS.
2. REFER GENERAL NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
3. WALLS AND ELEMENTS NOT LOCATED ON THESE DRAWINGS SHALL BE LOCATED BY THE ARCHITECTURAL PLANS.
4. PROVIDE A MINIMUM OF 2 STUDS BENEATH ALL BEAMS UNLESS NOTED OTHERWISE.
5. PROVIDE HOLD-DOWNS BY SIMPSON OR APPROVED EQUAL WHERE INDICATED ON THESE DRAWINGS.
6. PROVIDE DOUBLE STUDS AT SHEAR WALL PANEL ENDS (AT EACH HOLD-DOWN), UNLESS NOTED OTHERWISE.
7. PROVIDE COLUMNS IN BRACED WALL PANEL ENDS AS REQUIRED. REFER DETAILS.
8. CONTRACTOR SHALL SUBMIT COMPLETE LIGHT GAGE STEEL FABRICATION DRAWINGS FOR ALL WALL STUDS, TRACK, BRIDGING, BRACING, HOLD-DOWNS, BOOTS, AND CONNECTIONS.
9. REFER SHEET S503 FOR WALL FRAMING DETAILS. REFER SHEET S504 FOR WALL BRACING DETAILS.



INTERIOR LOAD-BEARING WALL KEY

INTERIOR LOAD-BEARING WALL		
6" WALLS -	STUDS - 600S200-43 AT 16" OC TRACK - 600T125-43	
3 5/8" WALLS -	STUDS - 362S162-68 AT 16" OC TRACK - 362T125-68	



1 S102 BRACED WALL PLAN

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

ACTUAL NORTH PLAN NORTH

Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
Childress, TX 79201
940-937-8600
TX FIRM NO. F-9186
www.plerceengineering.net

ARCHITECT/ENGINEER OF RECORD

A/E:
OEI - LBL Joint Venture LLC
O'Brien Engineering, Inc., Managing Partner
2340 E. Trinity Mills Rd. Ste 220
Carrollton, TX 75006
972-233-2288
www.obrieneng.com

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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: BRACED WALL PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S102
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

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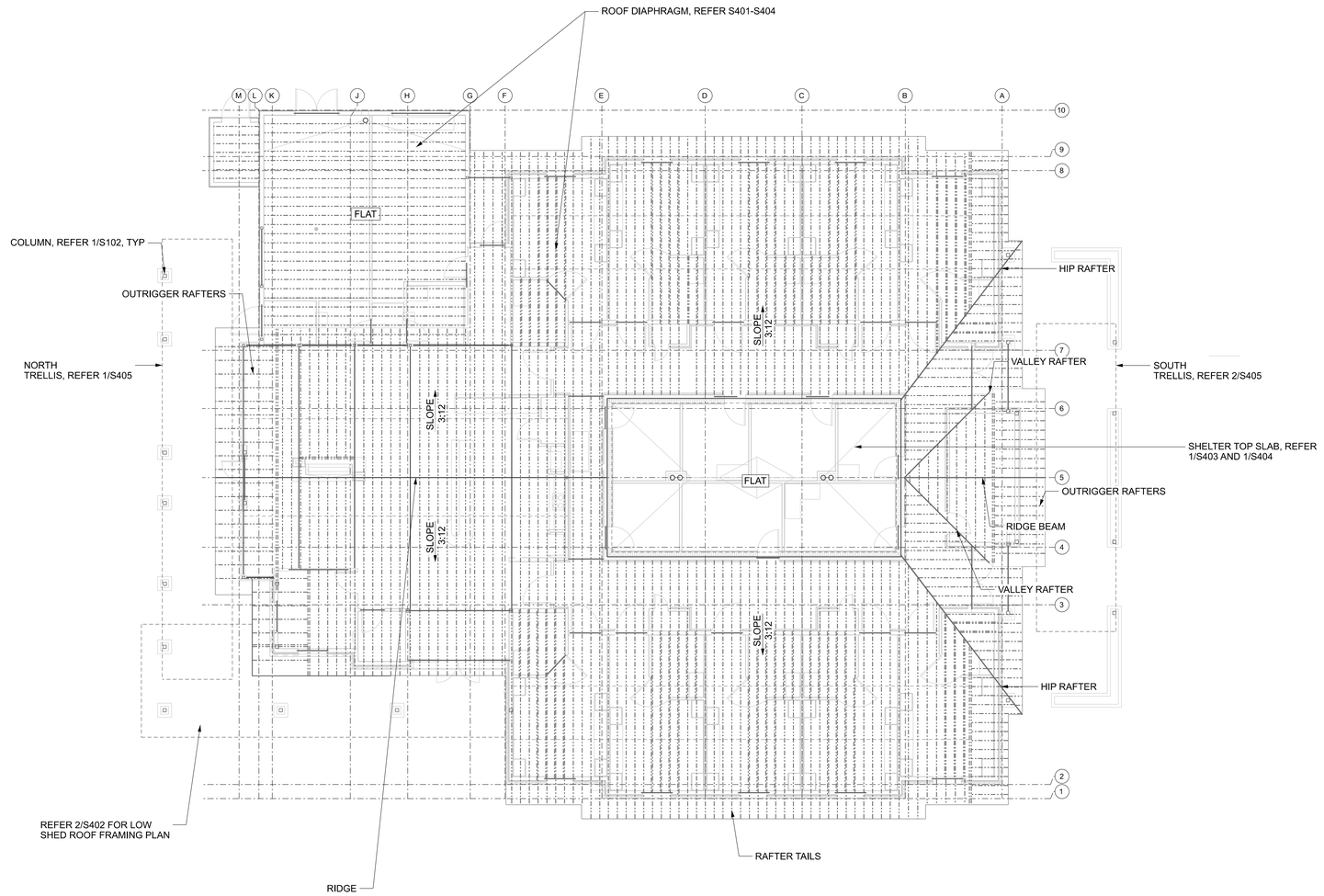
NOTES:

1. REFER ARCHITECTURAL DRAWINGS FOR INFORMATION NOT SHOWN.
2. REFER STRUCTURAL NOTES FOR ADDITIONAL REQUIREMENTS.
3. FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
4. HEADERS SHALL BE SUPPLIED ACROSS ALL DOORWAY OPENINGS. WHERE BEAMS ARE SHOWN AT ANTICIPATED HEADER LOCATIONS, NOMINAL HEADERS MAY BE PROVIDED, UNLESS HEADERS SUPPORT FRAMING NOT SUPPORTED BY BEAMS.
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7. SOLID BLOCKING SHALL BE PROVIDED OVER ALL WALLS BETWEEN RAFTERS. ROOF DIAPHRAGM SHALL BE CONNECTED TO BLOCKING WITH FASTENERS INDICATED (BOUNDARY).

KEY

GLU-LAM BEAM OR GLU-LAM RAFTER	———
LIGHT GAGE RAFTER	·—·—·
BRIDGING	- - -
STEEL BEAM	———
GRID BUBBLE	X

REFER S401, S402, S403 AND S404 FOR DETAILED ROOF FRAMING PLANS



1 S103 ROOF FRAMING PLAN
SCALE: 1/8"=1'-0"

N ACTUAL NORTH N PLAN NORTH

Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
Childress, TX 79201
940-937-8600
TX FIRM NO. F-9186
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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: ROOF FRAMING PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S103
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

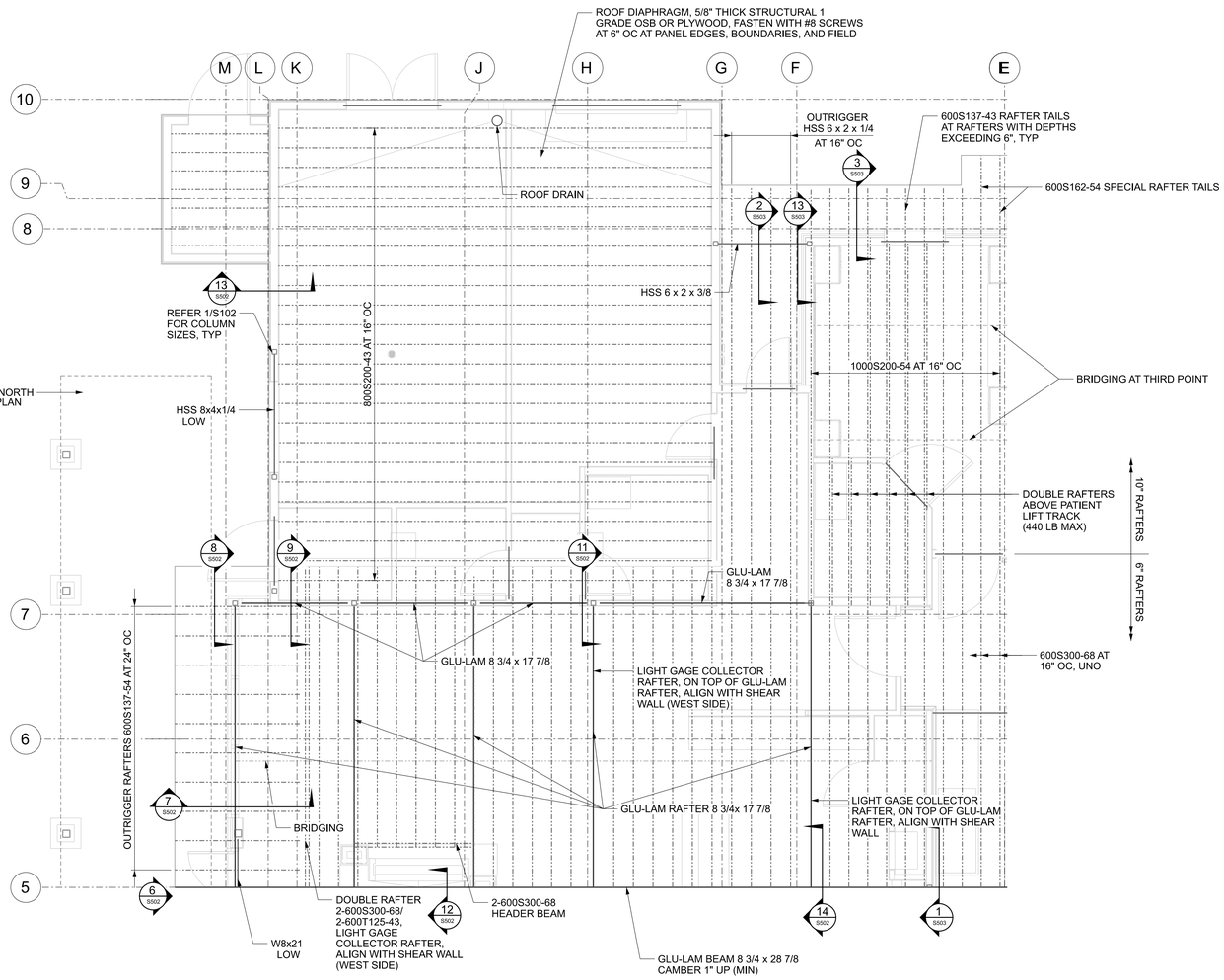
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NOTES:

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10. ADDITIONAL FRAMING, SUPPORTS, CONNECTIVE HARDWARE, AND FASTENERS SHALL BE IN ACCORDANCE WITH FABRICATOR'S RECOMMENDATIONS.
11. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR PATIENT LIFT TRACK SUPPORTS TO ENGINEER FOR REVIEW.

KEY

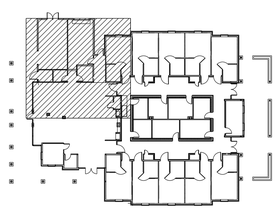
GLU-LAM BEAM OR GLU-LAM RAFTER	———
LIGHT GAGE RAFTER	- - - -
BRIDGING	- - - -
STEEL BEAM	———
GRID BUBBLE	(X)



1 S401 NORTHEAST DETAILED ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"

N ACTUAL NORTH N PLAN NORTH

LOCATION KEY



Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
Childress, TX 79201
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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: DETAILED ROOF FRAMING PLAN (1 OF 4)	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Building Number: 28
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	Drawing Number: S401

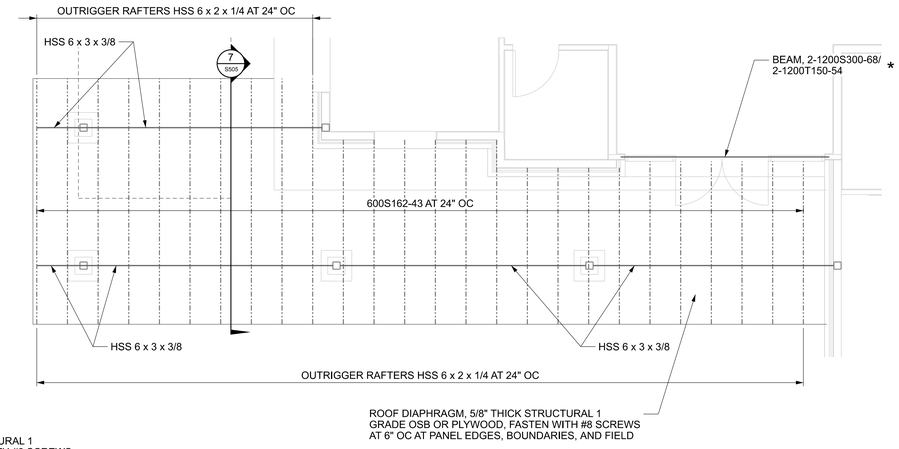
VA FORM 08 - 6231

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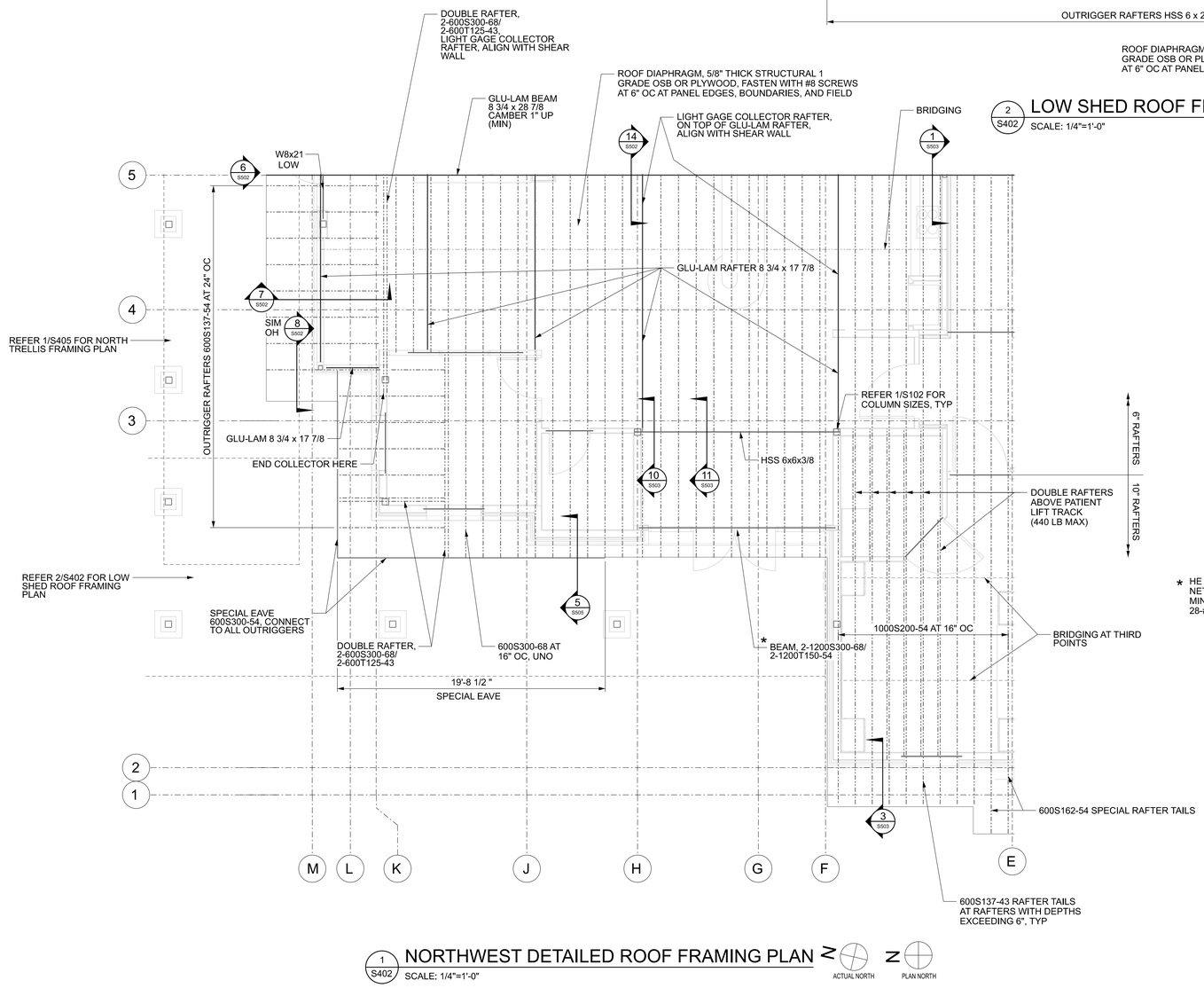
1. REFER ARCHITECTURAL DRAWINGS FOR INFORMATION NOT SHOWN.
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KEY

GLU-LAM BEAM OR GLU-LAM RAFTER	———
LIGHT GAGE RAFTER	·—·—·
BRIDGING	- - -
STEEL BEAM	———
GRID BUBBLE	(X)



2 S402 LOW SHED ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"



1 S402 NORTHWEST DETAILED ROOF FRAMING PLAN
SCALE: 1/4"=1'-0"
ACTUAL NORTH
PLAN NORTH

LOCATION KEY



Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	DETAILED ROOF FRAMING PLAN (2 OF 4)
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL:	COR, Mr. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	BGP
Drawn	KBP
Drawing Number	S402

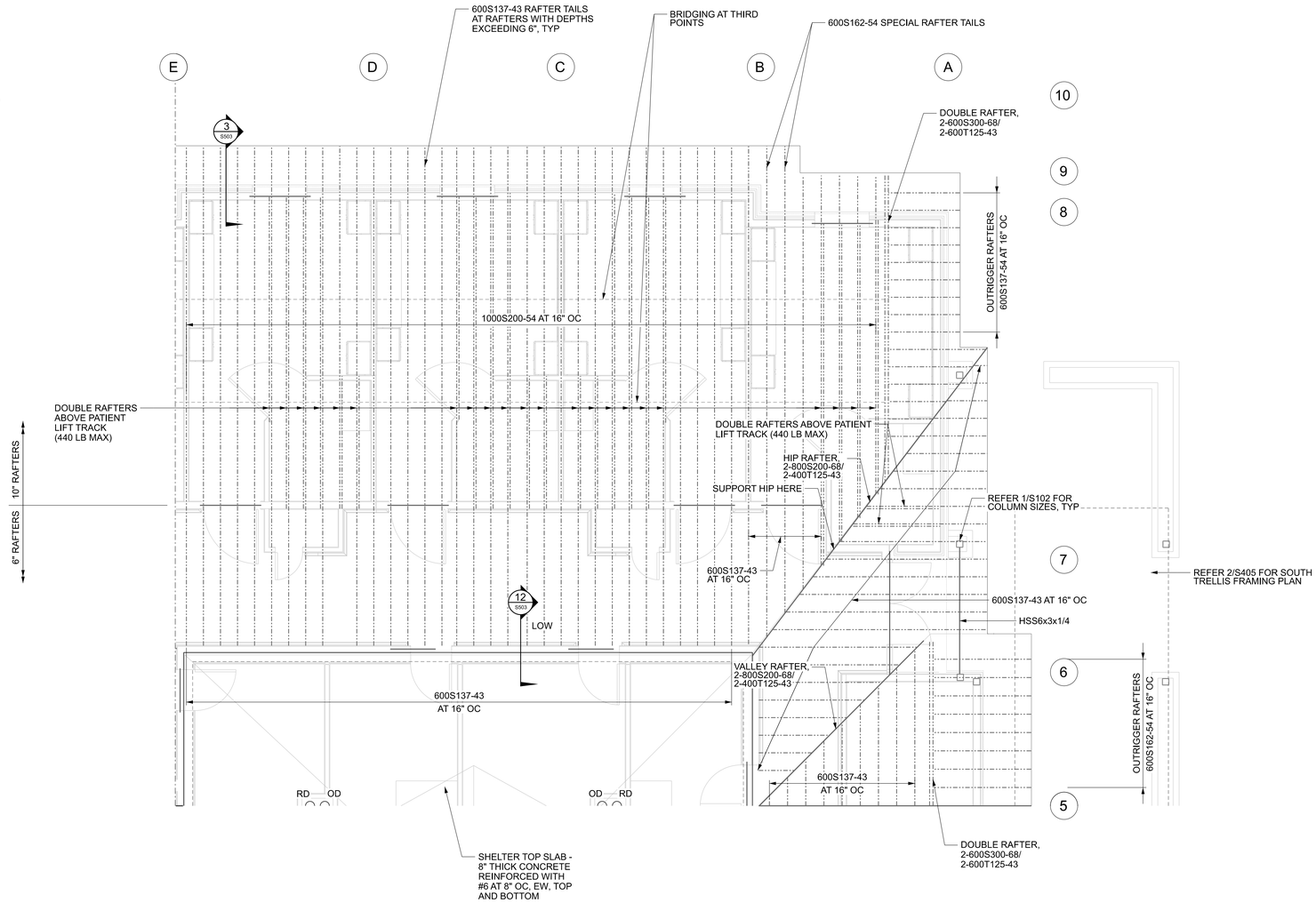
VA FORM 08 - 6231

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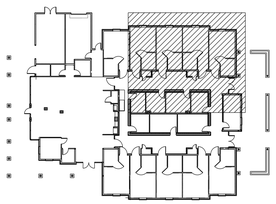
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KEY

LIGHT GAGE RAFTER	
BRIDGING	
STEEL BEAM	
GRID BUBBLE	X



LOCATION KEY



1/S403 SOUTHEAST DETAILED ROOF FRAMING PLAN

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

ACTUAL NORTH — PLAN NORTH

Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
Childress, TX 79201
940-937-8600
TX FIRM NO. F-9186
www.pierceengineering.net

ARCHITECT/ENGINEER OF RECORD

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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: DETAILED ROOF FRAMING PLAN (3 OF 4)	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Building Number: 28
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	Drawing Number: S403

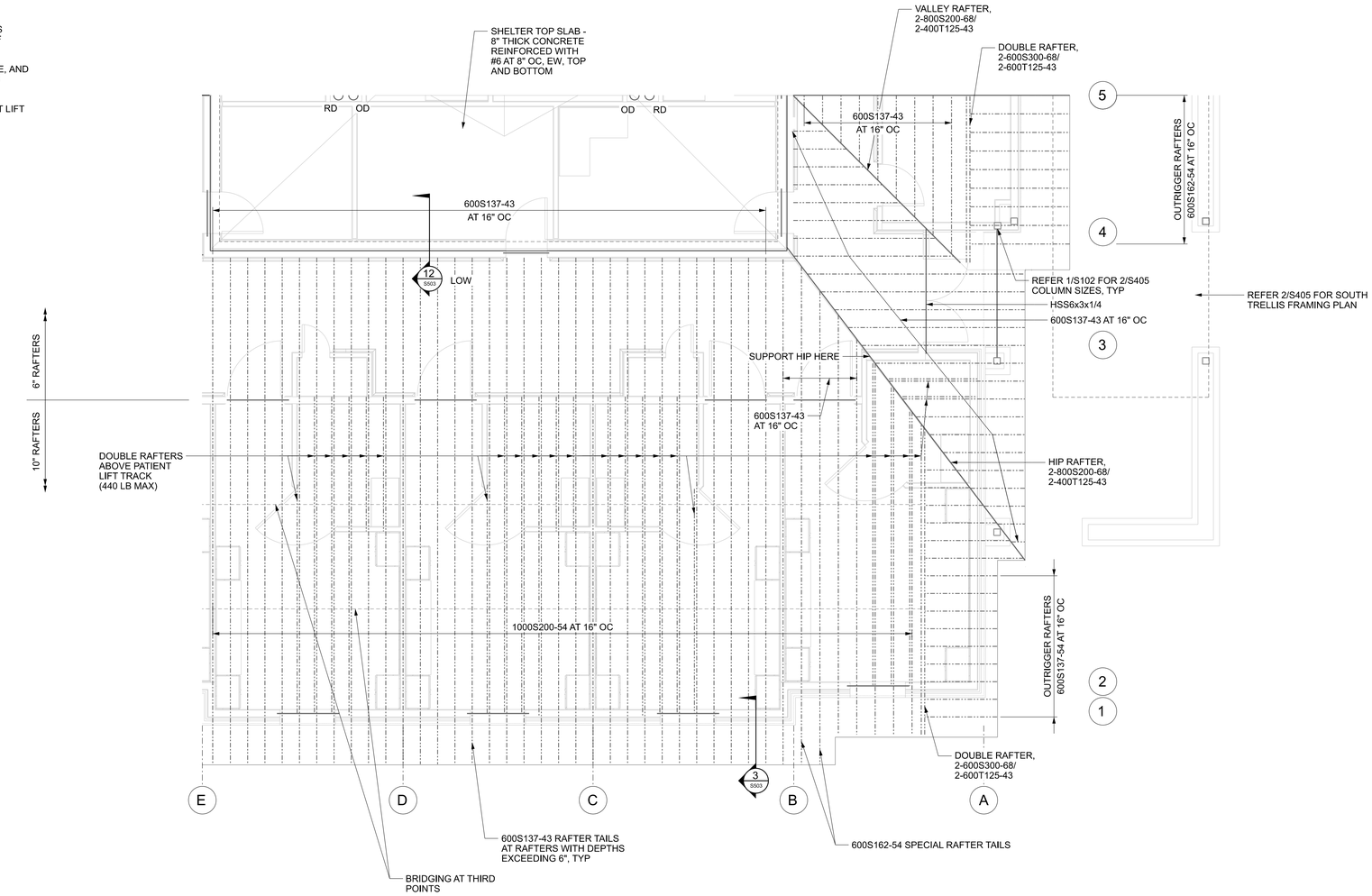
VA FORM 08 - 6231

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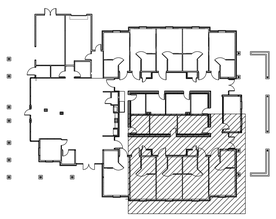
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KEY

LIGHT GAGE RAFTER	----·----
BRIDGING	- - - - -
STEEL BEAM	———
GRID BUBBLE	(X)



LOCATION KEY



1 S404 SOUTHWEST DETAILED ROOF FRAMING PLAN

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

N ACTUAL NORTH N PLAN NORTH

Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
Childress, TX 79201
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TX FIRM NO. F-9186
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06/28/2024

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Drawing Title: DETAILED ROOF FRAMING PLAN (4 OF 4)	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Building Number: 28
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	Drawing Number: S404

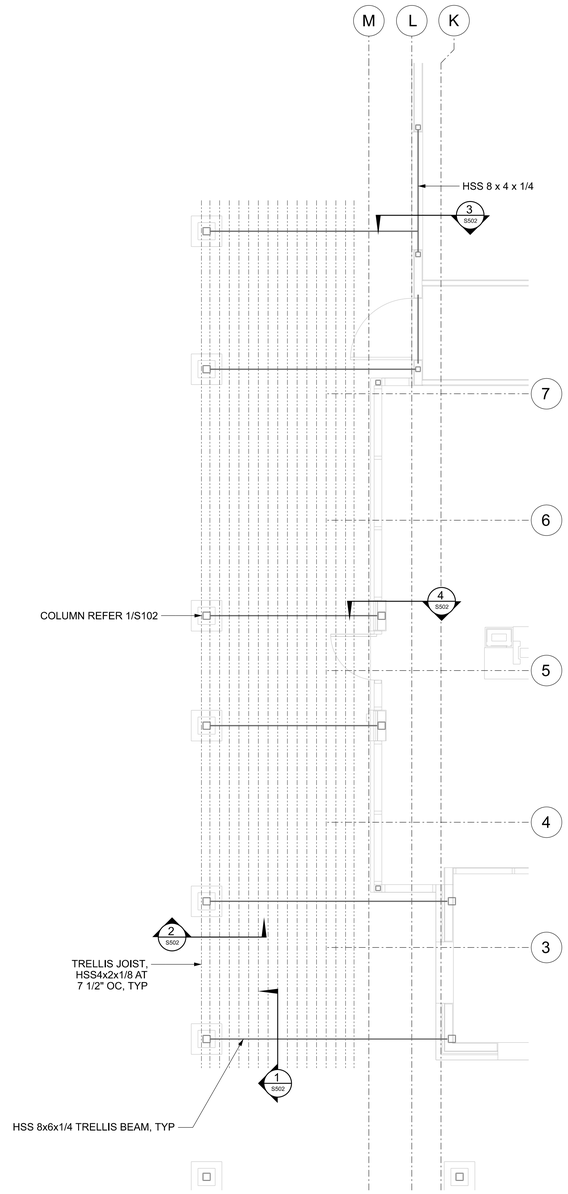
VA FORM 08 - 6231

NOTES:

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KEY

TRELLIS BEAM OR STEEL BEAM	———
TRELLIS JOIST	- - - -
GRID BUBBLE	(X)



1 S405 NORTH TRELLIS
SCALE: 1/4"=1'-0"

2 S405 SOUTH TRELLIS
SCALE: 1/4"=1'-0"

LOCATION KEY

Revisions:	Date:

CONSULTANT

Structural
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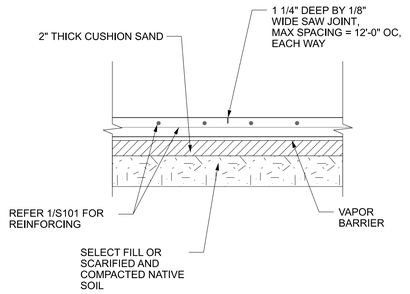
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06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

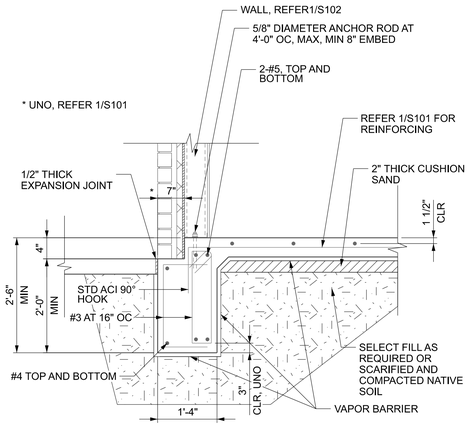
Drawing Title: TRELLIS FRAMING PLANS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S405
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

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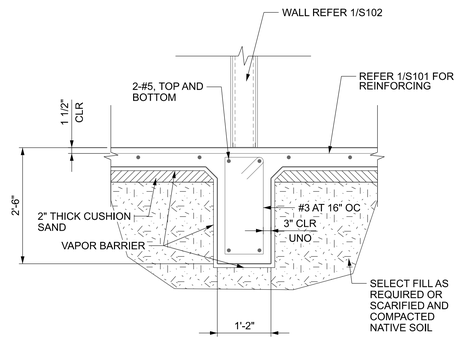


NOTE: SAW JOINTS SHALL BE CUT WITHIN 12 HOURS OF CONCRETE PLACEMENT.

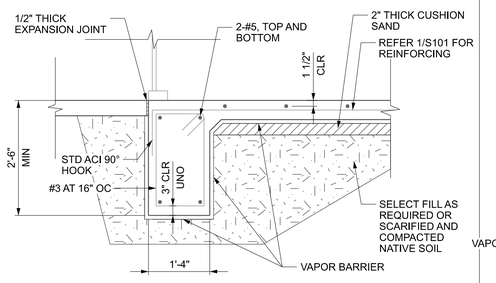
1 S501 **WEAKENED PLANE JOINT**
SCALE: 3/4"=1'-0"



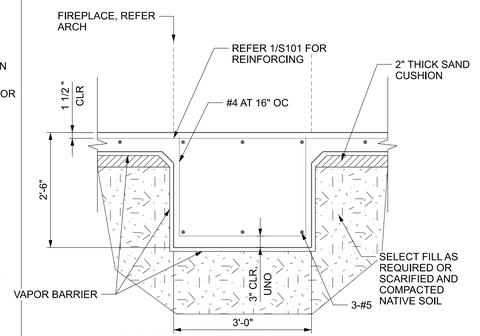
2 S501 **EXTERIOR GRADE BEAM**
SCALE: 3/4"=1'-0"



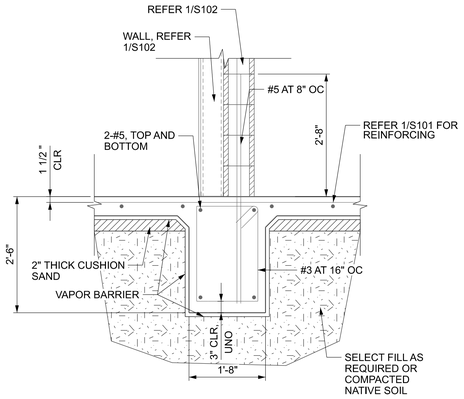
3 S501 **INTERIOR GRADE BEAM**
SCALE: 3/4"=1'-0"



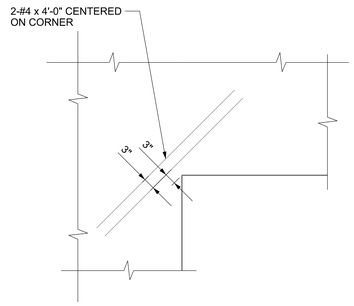
4 S501 **EXTERIOR GRADE BEAM**
SCALE: 3/4"=1'-0"



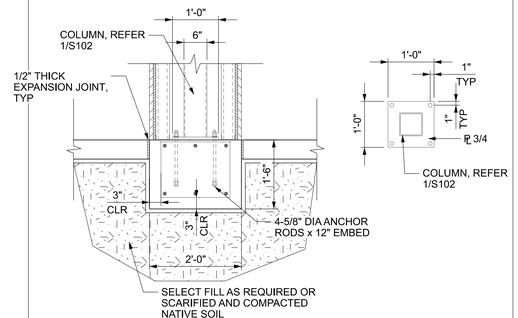
5 S501 **FIREPLACE FOOTING**
SCALE: 3/4"=1'-0"



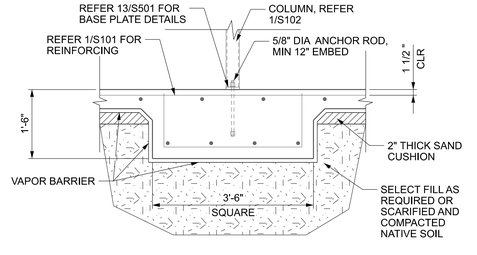
6 S501 **SHELTER FOOTING**
SCALE: 3/4"=1'-0"



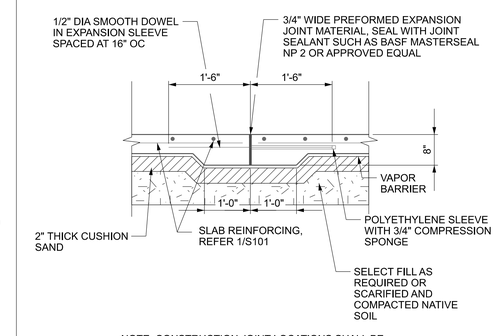
7 S501 **RE-ENTRANT CORNER DETAIL**
SCALE: 3/4"=1'-0"



8 S501 **FOOTING SECTION**
SCALE: 3/4"=1'-0"



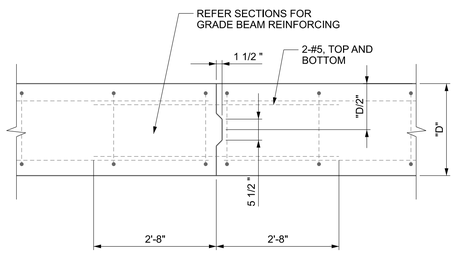
9 S501 **FOOTING SECTION**
SCALE: 3/4"=1'-0"



NOTE: CONSTRUCTION JOINT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT AND ENGINEER PRIOR TO CONSTRUCTION.

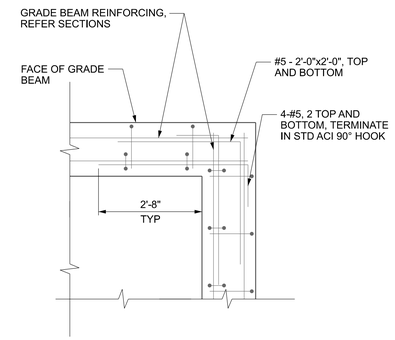
10 S501 **SLAB CONSTRUCTION JOINT**
SCALE: 3/4"=1'-0"

NOTE: BRICK LEDGE AND SLAB NOT SHOWN FOR CLARITY. REFER SECTIONS.

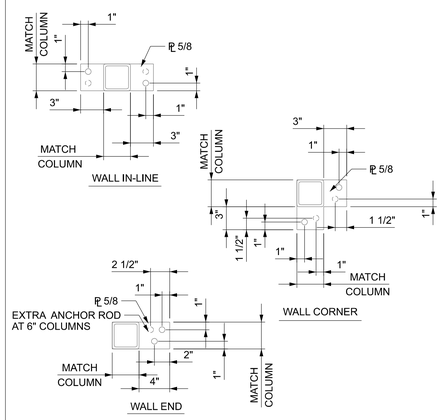


D = GRADE BEAM DEPTH

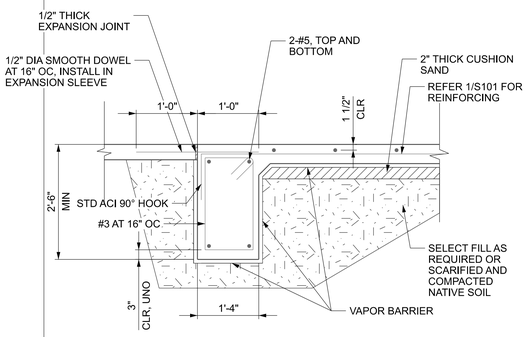
11 S501 **GRADE BEAM CONSTRUCTION JOINT**
SCALE: NTS



12 S501 **GRADE BEAM CORNER**
SCALE: NTS



13 S501 **BASE PLATE DETAILS**
SCALE: 1 1/2"=1'-0"



14 S501 **EXTERIOR GRADE BEAM**
SCALE: 3/4"=1'-0"

Revisions:	Date:

CONSULTANT

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06/28/2024

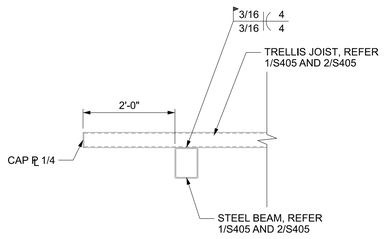
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

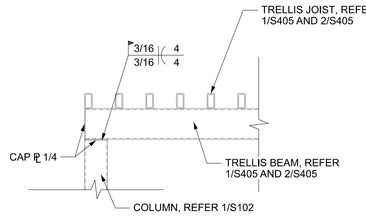
Drawing Title: FOUNDATION DETAILS	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: BIG SPRING, TX			Drawing Number: S501
Issue Date: 06/28/2024	Checked: BGP	Drawn: KBP	

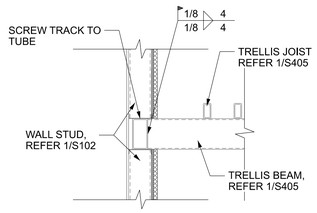
VA FORM 08 - 6231



1 S502 TRELLIS JOIST/BEAM CONNECTION
SCALE: 3/4"=1'-0"

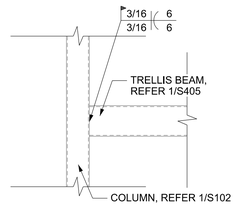


2 S502 TRELLIS BEAM/COLUMN CONNECTION
SCALE: 3/4"=1'-0"

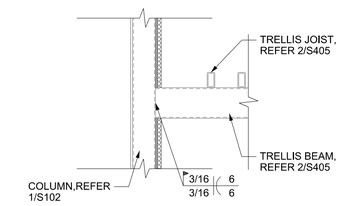


3 S502 TRELLIS BEAM/BEAM CONNECTION
SCALE: 3/4"=1'-0"

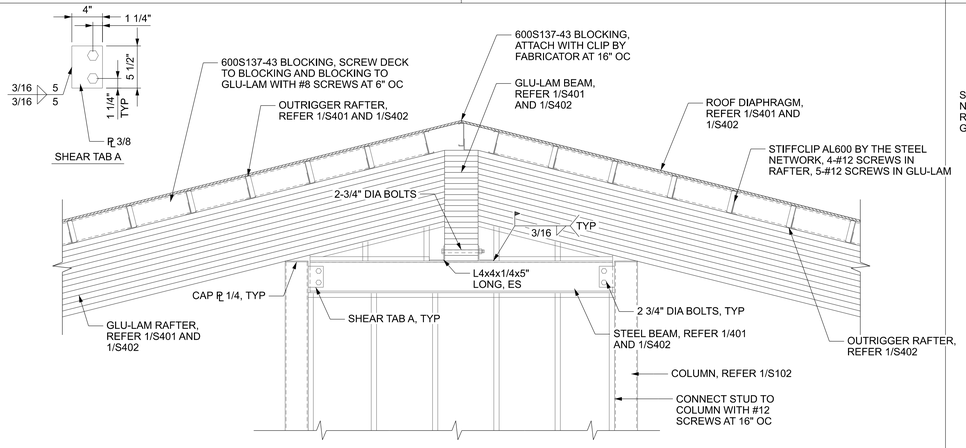
NOTE: STRUCTURAL ELEMENTS ONLY ARE SHOWN FOR CLARITY



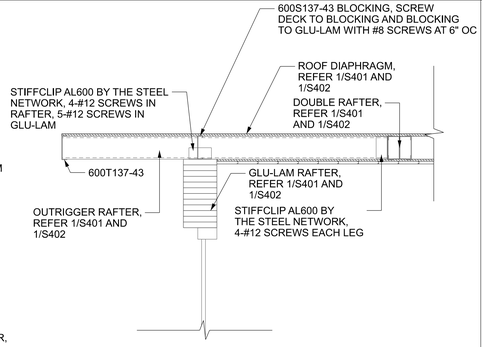
4 S502 TRELLIS BEAM/COLUMN CONNECTION
SCALE: 3/4"=1'-0"



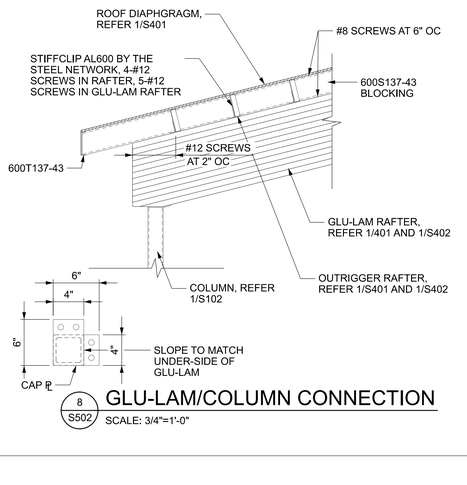
5 S502 TRELLIS BEAM/COLUMN CONNECTION
SCALE: 3/4"=1'-0"



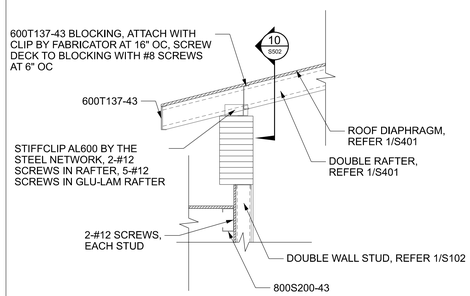
6 S502 RIDGE SUPPORT DETAIL
SCALE: 3/4"=1'-0"



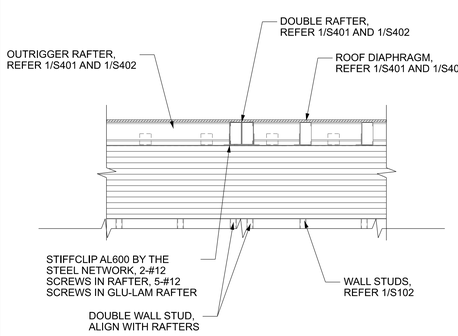
7 S502 OUTRIGGER/GLU-LAM CONNECTION
SCALE: 3/4"=1'-0"



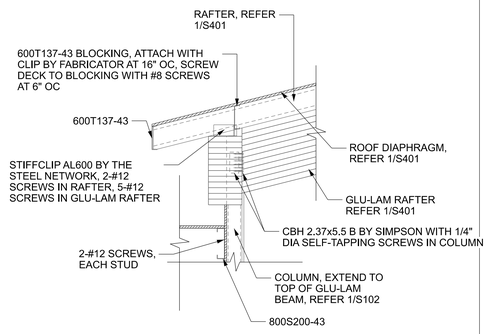
8 S502 GLU-LAM/COLUMN CONNECTION
SCALE: 3/4"=1'-0"



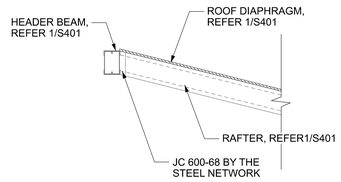
9 S502 DOUBLE RAFTER CONNECTION
SCALE: 3/4"=1'-0"



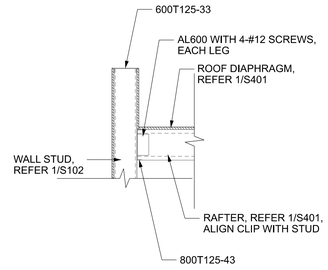
10 S502 DOUBLE RAFTER CONNECTION
SCALE: 3/4"=1'-0"



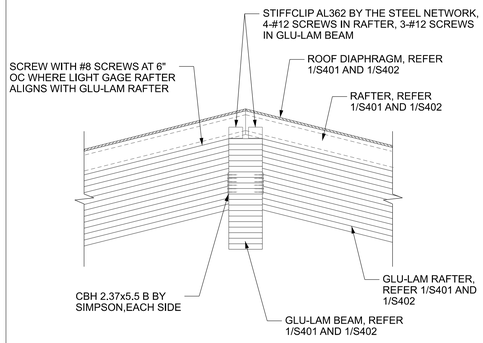
11 S502 GLU-LAM RAFTER CONNECTION
SCALE: 3/4"=1'-0"



12 S502 RAFTER/HEADER CONNECTION
SCALE: 3/4"=1'-0"



13 S502 RAFTER/WALL STUD CONNECTION
SCALE: 3/4"=1'-0"



14 S502 GLU-LAM RAFTER/GLU-LAM BEAM CONNECTION
SCALE: 3/4"=1'-0"

Revisions:	Date:

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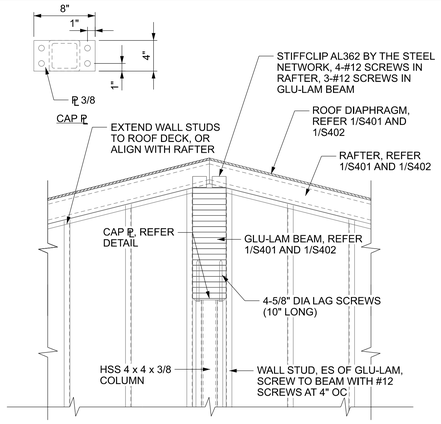
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06/28/2024

Office of Construction and Facilities Management

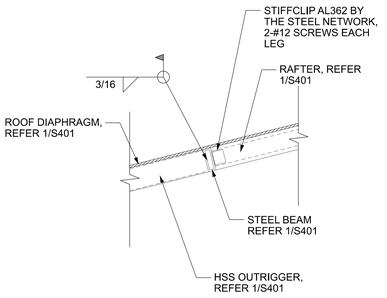
VA U.S. Department of Veterans Affairs

Drawing Title: FRAMING DETAILS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S502
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

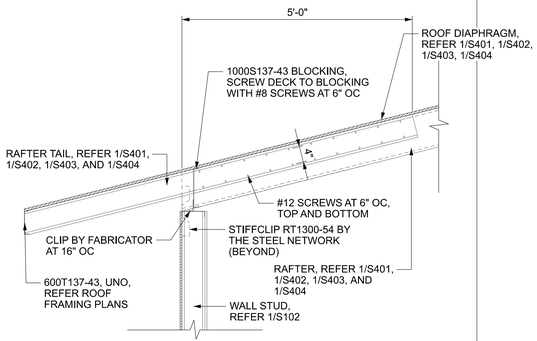
VA FORM 08 - 6231



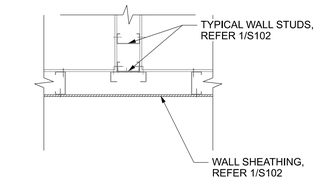
1 S503 **GLU-LAM BEAM/COLUMN CONNECTION**
SCALE: 3/4"=1'-0"



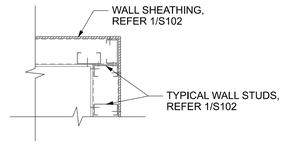
2 S503 **RAFTER/BEAM CONNECTION**
SCALE: 3/4"=1'-0"



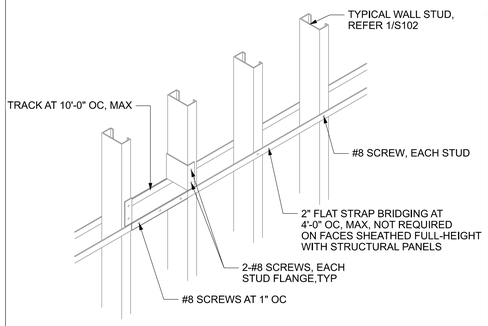
3 S503 **RAFTER/WALL CONNECTION**
SCALE: 3/4"=1'-0"



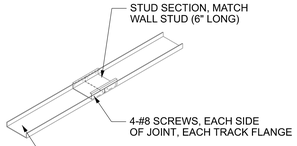
4 S503 **INSIDE CORNER DETAIL**
SCALE: NTS



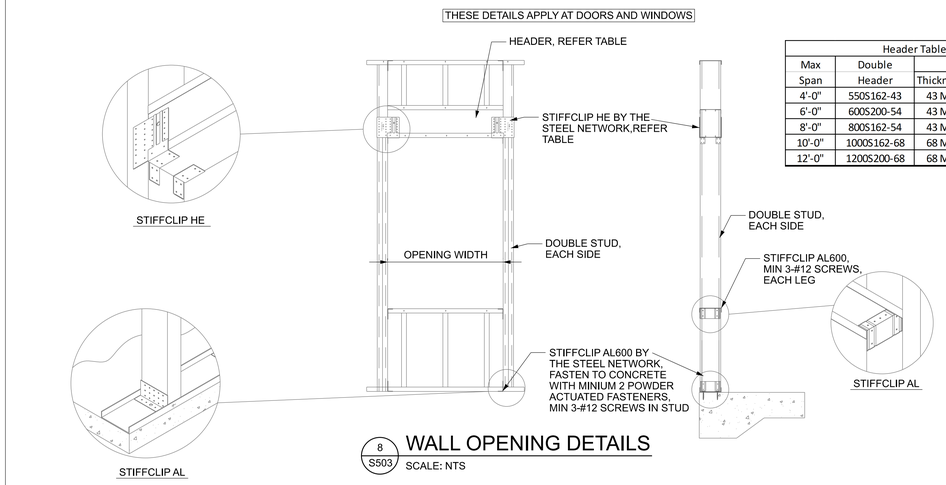
5 S503 **OUTSIDE CORNER DETAIL**
SCALE: NTS



6 S503 **WALL BRIDGING CONNECTION**
SCALE: NTS

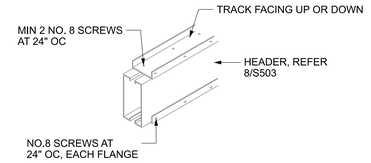


7 S503 **TRACK SPLICE DETAIL**
SCALE: NTS

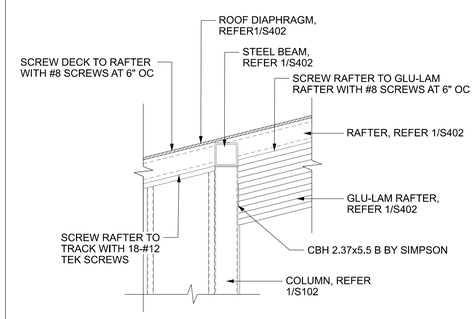


Header Table			
Max Span	Double Header	HE Clip Thickness	HE Clip #10 Screw/Clip
4'-0"	550S162-43	43 Mil	8
6'-0"	600S200-54	43 Mil	12
8'-0"	800S162-54	43 Mil	20
10'-0"	1000S162-68	68 Mil	20
12'-0"	1200S200-68	68 Mil	28

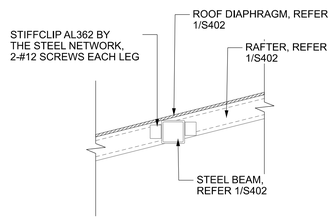
8 S503 **WALL OPENING DETAILS**
SCALE: NTS



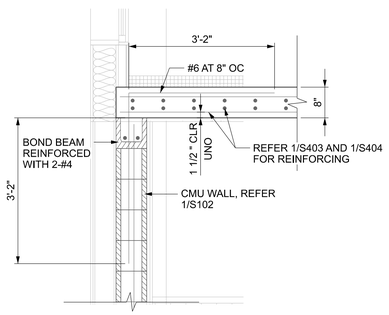
9 S503 **HEADER DETAIL**
SCALE: NTS



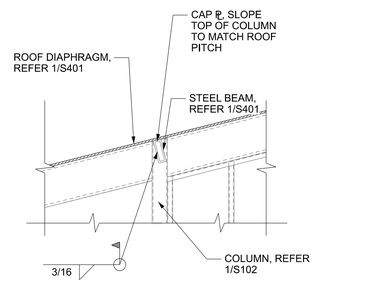
10 S503 **GLU-LAM/COLUMN CONNECTION**
SCALE: 3/4"=1'-0"



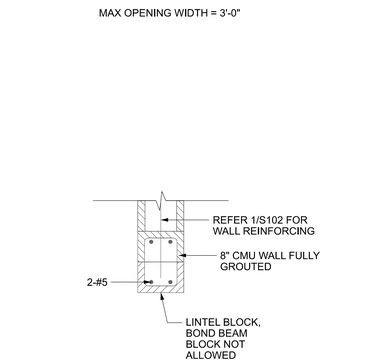
11 S503 **RAFTER/BEAM CONNECTION**
SCALE: 3/4"=1'-0"



12 S503 **SHELTER WALL DETAIL**
SCALE: 3/4"=1'-0"



13 S503 **BEAM/COLUMN CONNECTION**
SCALE: 3/4"=1'-0"



14 S503 **CMU LINTEL DETAIL**
SCALE: 3/4"=1'-0"

Revisions:	Date:

CONSULTANT

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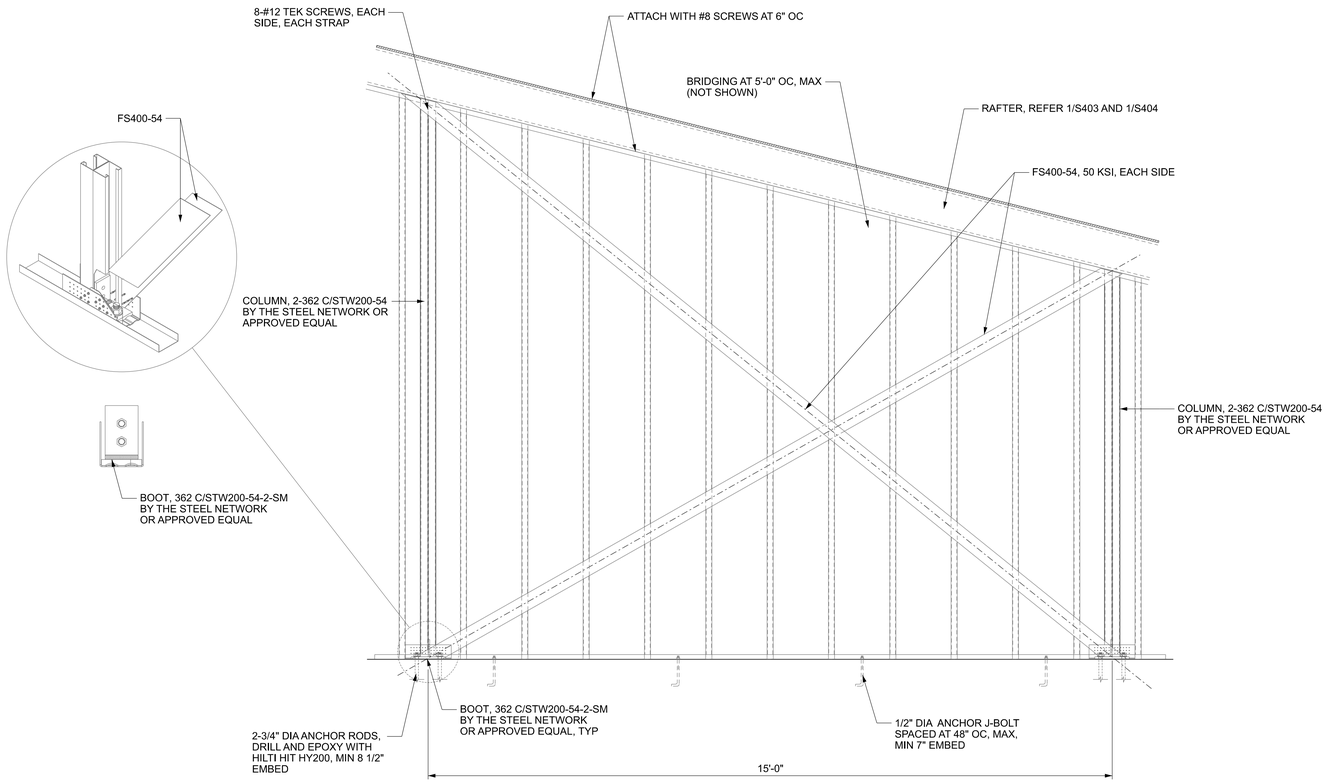
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06/28/2024

Office of Construction and Facilities Management

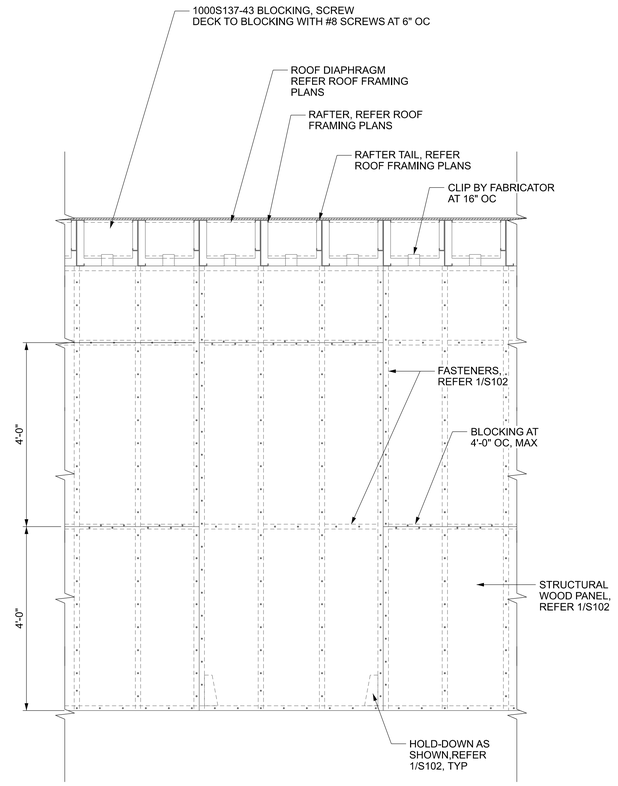
VA U.S. Department of Veterans Affairs

Drawing Title: FRAMING DETAILS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S503
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

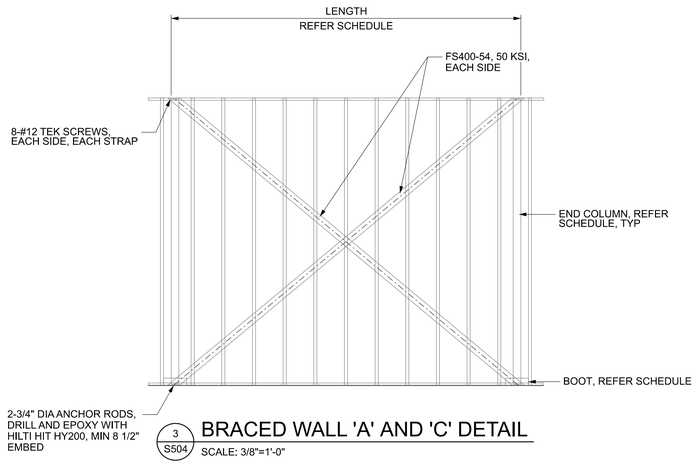
VA FORM 08 - 6231



1 S504 BRACED WALL 'B' DETAIL
SCALE: 3/4"=1'-0"



2 S504 SHEAR WALL DETAIL
SCALE: 3/4"=1'-0"



3 S504 BRACED WALL 'A' AND 'C' DETAIL
SCALE: 3/8"=1'-0"

Braced Wall Schedule					
Type	End Column	Boot	Column/Boot Connection	Length	Quantity
A	2-600C/STW250-54	SM	4 - 1/2" Dia Bolts (A325)	3'-2"	10
B	2-362C/STW200-54	SM	2 - 1/2" Dia Bolts (A325)	15'-0"	2
C	2-362C/STW200-54	SM	2 - 1/2" Dia Bolts (A325)	8'-0"	2

4 S504 WALL BRACING TABLE
SCALE: NTS

Revisions:	Date:

CONSULTANT

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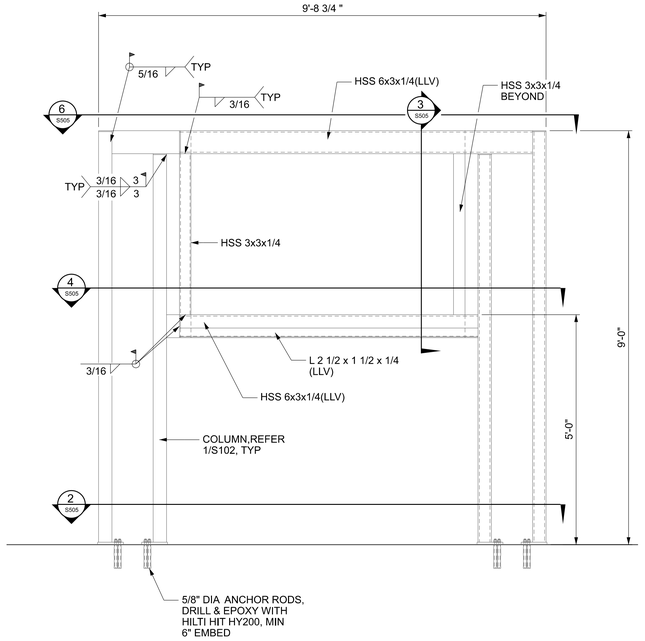
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06/28/2024

Office of Construction and Facilities Management

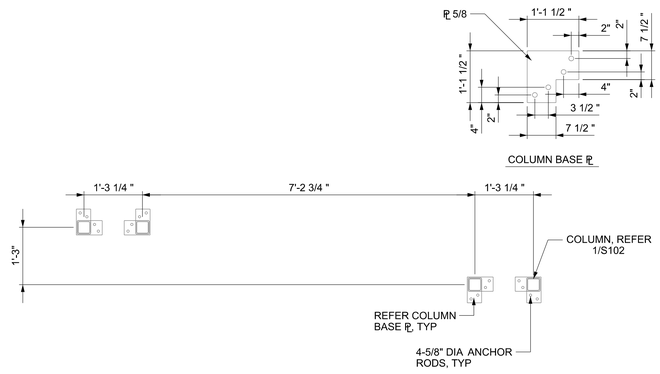
VA U.S. Department of Veterans Affairs

Drawing Title: WALL FRAMING DETAILS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S504
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

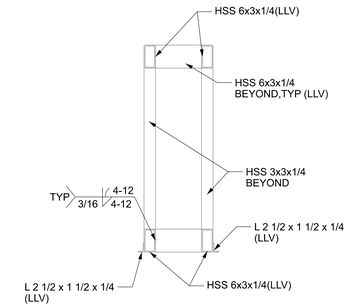
VA FORM 08 - 6231



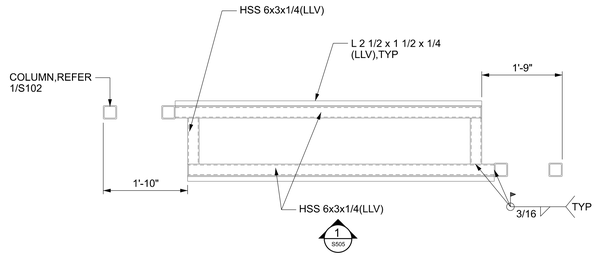
1 S505 FIREPLACE FRAMING ELEVATION
SCALE: 3/4"=1'-0"



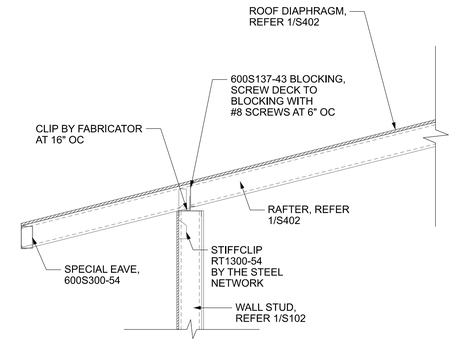
2 S505 FIREPLACE COLUMN BASE PLAN
SCALE: 3/4"=1'-0"



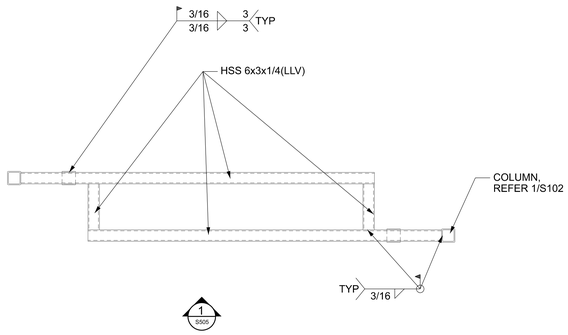
3 S505 FIREPLACE FRAMING SECTION
SCALE: 3/4"=1'-0"



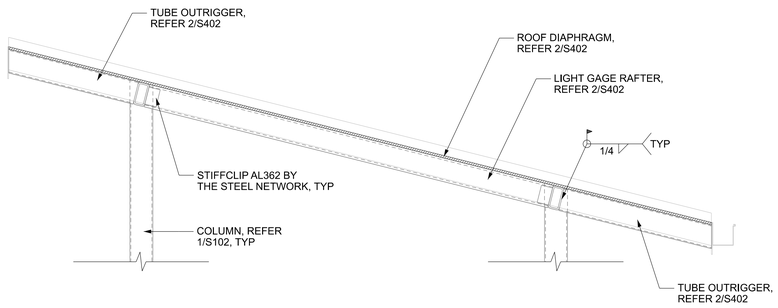
4 S505 FIREPLACE FRAMING HORIZONTAL SECTION
SCALE: 3/4"=1'-0"



5 S505 RAFTER/WALL CONNECTION
SCALE: 3/4"=1'-0"



6 S505 FIREPLACE FRAMING HORIZONTAL SECTION
SCALE: 3/4"=1'-0"



7 S505 LOW SHED ROOF FRAMING SECTION
SCALE: 3/4"=1'-0"

Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
132 N Main St.
Childress, TX 79201
940-937-8600
TX FIRM NO. F-9186
www.plerceengineering.net

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A/E:
OEI - LBL Joint Venture LLC
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Brian G. Pierce LICENSED PROFESSIONAL ENGINEER BRIAN G. PIERCE 94837 LICENSED PROFESSIONAL ENGINEER
06/28/2024

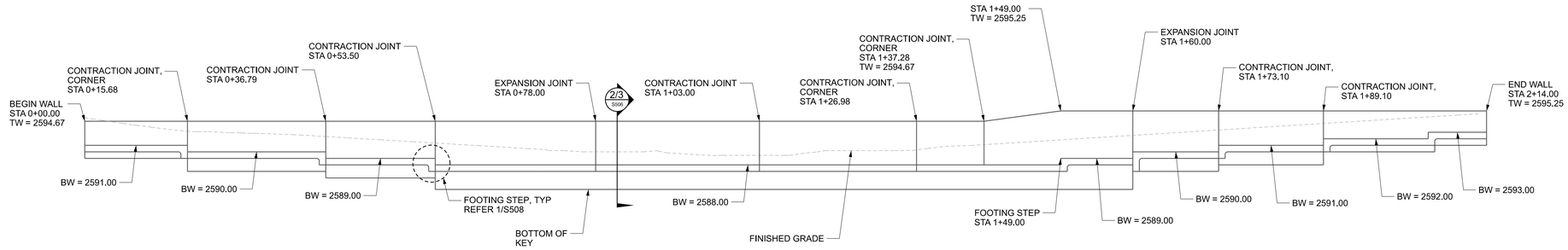
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: STRUCTURAL DETAILS	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

Project Title: CLC PHASE 3		Project Number: 519-371
		Building Number: 28
Location: BIG SPRING, TX		Drawing Number: S505
Issue Date: 06/28/2024	Checked: BGP	Drawn: KBP

VA FORM 08 - 6231

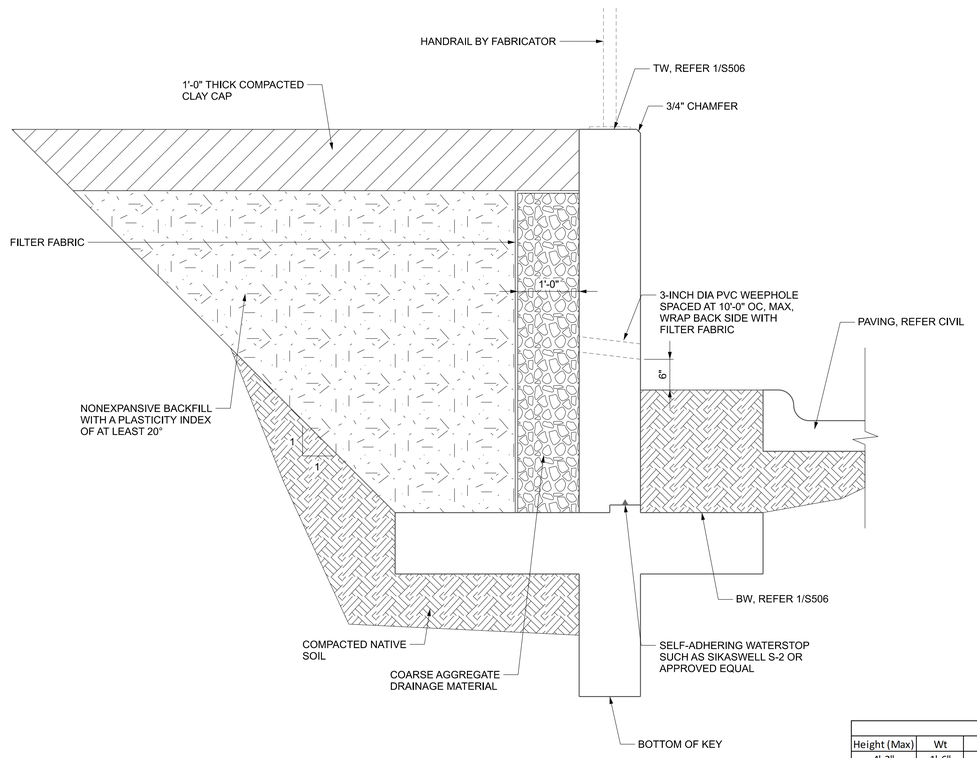


1 S506 BUILDING WALL ELEVATION

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

NOTES:

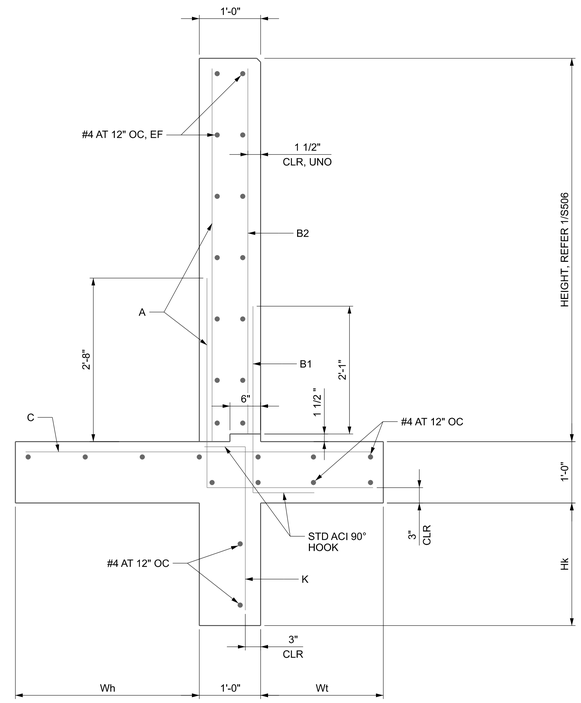
1. REFER STRUCTURAL NOTES (S001 AND S002) FOR ADDITIONAL REQUIREMENTS AND INFORMATION.
2. REFER CIVIL DRAWINGS FOR WALL ALIGNMENT, LOCATION, AND OTHER GEOMETRY NOT IDENTIFIED HEREIN. NOTIFY ENGINEER IN CASE OF DISCREPANCY.
3. REFER TO SHEET S508 FOR JOINT DETAILS.
4. HANDRAILS AND CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR TO WITHSTAND A LATERAL LOAD OF 50 PLF APPLIED TRANSVERSE TO THE PLANE OF THE RAILING.
5. CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS AND CALCULATIONS FOR HANDRAILS TO THE OWNER.



Building Retaining Wall Schedule								
Height (Max)	Wt	Wh	Hk	A	B1	B2	C	K
4'-3"	1'-6"	2'-0"	1'-0"	#4 at 12" OC	#4 at 12" OC	#4 at 24" OC	#4 at 12" OC	#4 at 12" OC
6'-3"	2'-0"	3'-0"	2'-0"	#4 at 12" OC	#4 at 12" OC	#4 at 24" OC	#4 at 12" OC	#4 at 12" OC
8'-3"	2'-6"	5'-0"	2'-9"	#5 at 9" OC	#4 at 9" OC	#4 at 18" OC	#5 at 9" OC	#4 at 9" OC

2 S506 BACKFILL AND EMBEDS

SCALE: 1"=1'-0"



3 S506 STRUCTURAL SECTION

SCALE: 1"=1'-0"

Revisions:	Date:

CONSULTANT

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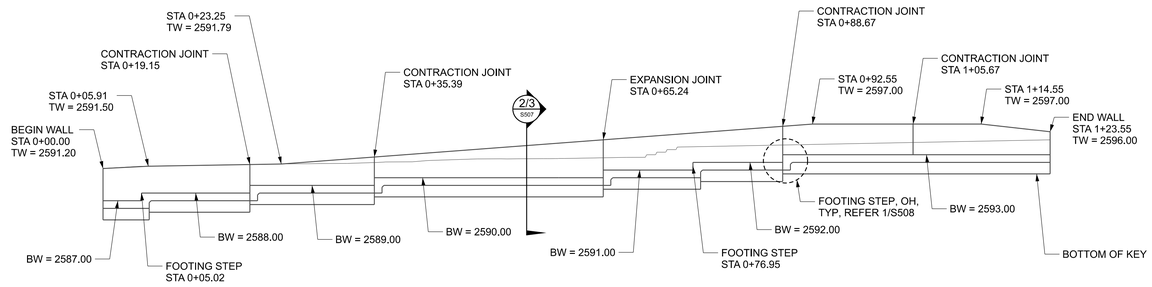
BRIAN G. PIERCE 94837 LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	STRUCTURAL DETAILS RETAINING WALL - BUILDING
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL:	COR, Mr. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	BGP
Drawn	KBP
Drawing Number	S506

VA FORM 08 - 6231

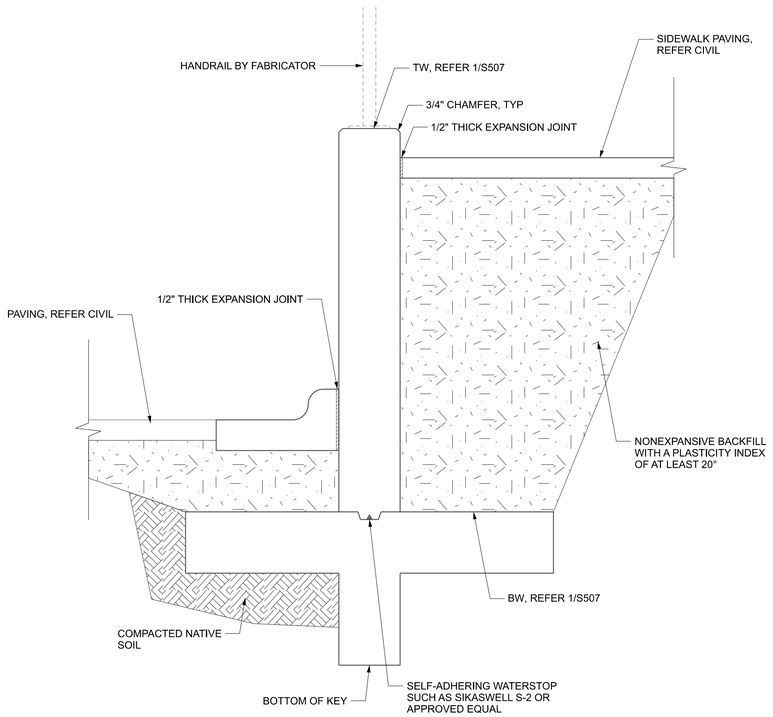


1 S507 **DRIVEWAY WALL ELEVATION**

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

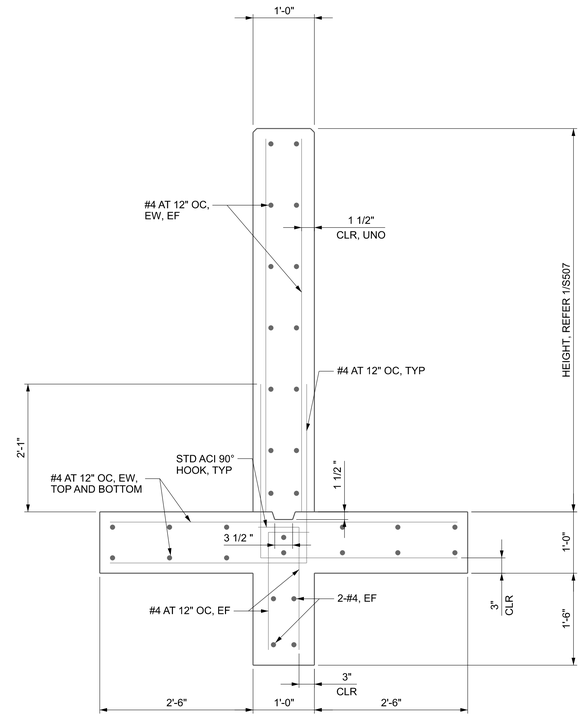
NOTES:

1. REFER STRUCTURAL NOTES (S001 AND S002) FOR ADDITIONAL REQUIREMENTS AND INFORMATION.
2. REFER CIVIL DRAWINGS FOR WALL ALIGNMENT, LOCATION, AND OTHER GEOMETRY NOT IDENTIFIED HEREIN. NOTIFY ENGINEER IN CASE OF DISCREPANCY.
3. REFER TO SHEET S508 FOR JOINT DETAILS.
4. HANDRAILS AND CONNECTIONS SHALL BE DESIGNED BY THE FABRICATOR TO WITHSTAND A LATERAL LOAD OF 50 PLF APPLIED TRANSVERSE TO THE PLANE OF THE RAILING.
5. CONTRACTOR SHALL SUBMIT COMPLETE SHOP DRAWINGS AND CALCULATIONS FOR HANDRAILS TO THE OWNER.



2 S507 **BACKFILL AND EMBEDS**

SCALE: 1"=1'-0"



3 S507 **STRUCTURAL SECTION**

SCALE: 1"=1'-0"

Revisions:	Date:

CONSULTANT

Structural
Pierce Engineering
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Childress, TX 79201
940-937-8600
TX FIRM NO. F-9186
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BRIAN G. PIERCE
94837
LICENSED
PROFESSIONAL
ENGINEER
06/28/2024

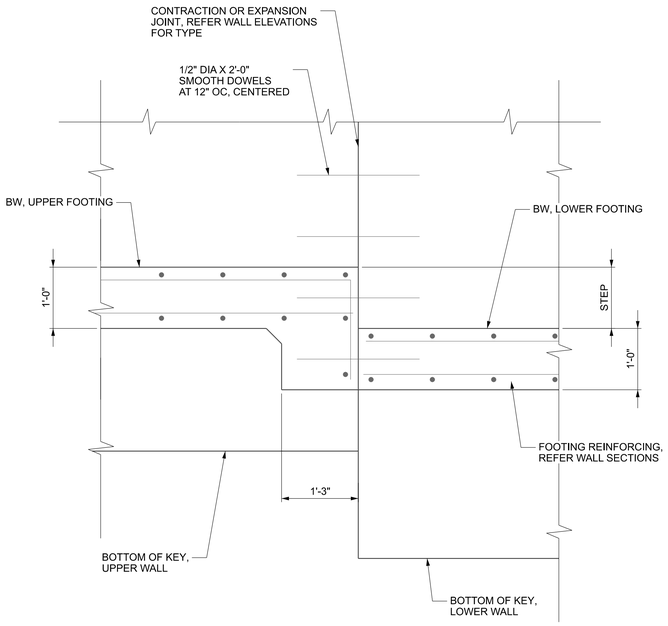
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: STRUCTURAL DETAILS RETAINING WALL - DRIVEWAY	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

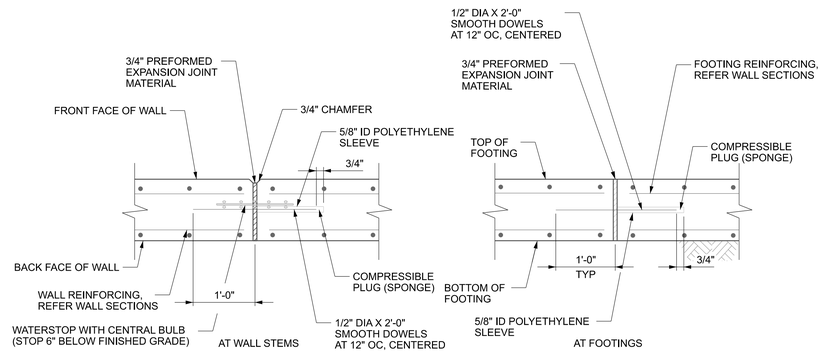
Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: BIG SPRING, TX			Drawing Number: S507
Issue Date: 06/28/2024	Checked: BGP	Drawn: KBP	

VA FORM 08 - 6231



1 S508 **FOOTING STEP DETAIL**

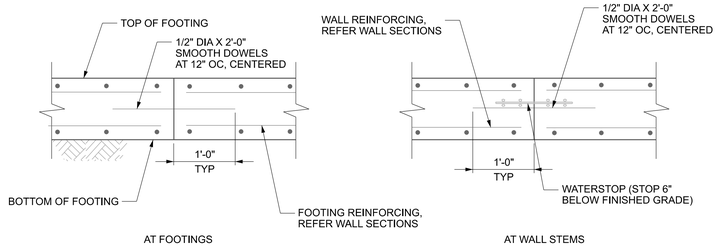
SCALE: 1"=1'-0"



2 S508 **EXPANSION JOINT**

SCALE: NTS

NOTE: REFER WALL ELEVATIONS FOR LOCATIONS.



3 S508 **CONTRACTION JOINT**

SCALE: 1"=1'-0"

NOTE: REFER WALL ELEVATIONS FOR LOCATIONS.

Revisions:	Date:

CONSULTANT

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BRIAN G. PIERCE 94837 LICENSED PROFESSIONAL ENGINEER
06/28/2024

Office of Construction and Facilities Management

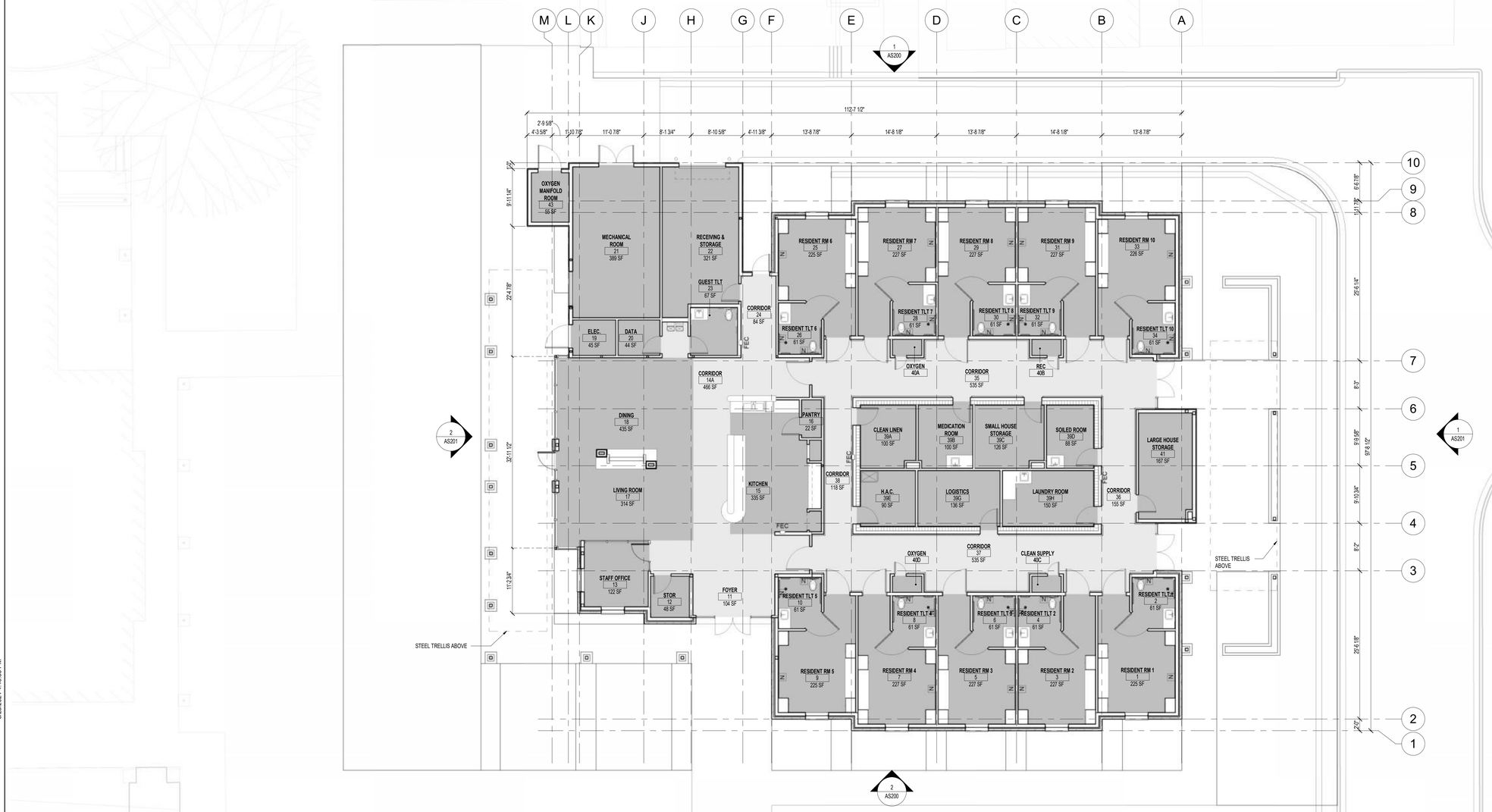
VA U.S. Department of Veterans Affairs

Drawing Title: STRUCTURAL DETAILS RETAINING WALLS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: S508
		Issue Date: 06/28/2024 / Checked: BGP / Drawn: KBP	

VA FORM 08 - 6231

GENERAL NOTES:

A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



Room Schedule					
Name	Room Code	Number	Area	VA Recommended Area	Phase II Area
CLEAN LINEN	STCL1	39A	100 SF	60 SF	100 SF
CLEAN SUPPLY	STCL4	40C	14 SF	0 SF	7 SF
DATA	TETR1	20	44 SF	20 SF	38 SF
DINING	PSDR3	18	435 SF	525 SF	415 SF
ELEC.	ELEC1	19	45 SF	0 SF	41 SF
FOYER	BSFY1	11	104 SF	80 SF	100 SF
GUEST TLT	TNPG1	23	67 SF	60 SF	55 SF
H.A.C.	BSHC1	39E	90 SF	60 SF	61 SF
KITCHEN	RHKN4	15	335 SF	360 SF	336 SF
LARGE HOUSE STORAGE	PSDN2	41	167 SF	80 SF	103 SF
LAUNDRY ROOM	LAU05	39H	150 SF	140 SF	92 SF
LIVING ROOM	PSLR3	17	314 SF	450 SF	285 SF
LOGISTICS	STCL1	39G	136 SF	120 SF	136 SF
MECHANICAL ROOM	MECH1	21	389 SF	0 SF	360 SF
MEDICATION ROOM	STGN2	39B	100 SF	100 SF	42 SF
OXYGEN	STGN2	40A	14 SF	0 SF	7 SF
OXYGEN	STGN2	40D	14 SF	0 SF	7 SF
OXYGEN MANIFOLD ROOM	CLHGM	43	55 SF	40 SF	
PANTRY	CSPY1	16	22 SF	80 SF	21 SF
REC	STGN2	40B	14 SF	0 SF	7 SF
RECEIVING & STORAGE	BSGR1	22	321 SF	480 SF	312 SF
RESIDENT RM 1	BSHM1	1	225 SF	230 SF	228 SF
RESIDENT RM 2	BSHM1	3	227 SF	230 SF	228 SF
RESIDENT RM 3	BSHM1	5	227 SF	230 SF	228 SF
RESIDENT RM 4	BSHM1	7	227 SF	230 SF	228 SF
RESIDENT RM 5	BSHM1	9	225 SF	230 SF	228 SF
RESIDENT RM 6	BSHM1	25	225 SF	230 SF	228 SF
RESIDENT RM 7	BSHM1	27	227 SF	230 SF	228 SF
RESIDENT RM 8	BSHM1	29	227 SF	230 SF	228 SF
RESIDENT RM 9	BSHM1	31	227 SF	230 SF	228 SF
RESIDENT RM 10	BSHM1	33	226 SF	230 SF	228 SF
RESIDENT TLT 1	TSPB1	2	61 SF	85 SF	60 SF
RESIDENT TLT 2	TSPB1	4	61 SF	85 SF	60 SF
RESIDENT TLT 3	TSPB1	6	61 SF	85 SF	60 SF
RESIDENT TLT 4	TSPB1	8	61 SF	85 SF	60 SF
RESIDENT TLT 5	TSPB1	10	61 SF	85 SF	60 SF
RESIDENT TLT 6	TSPB1	26	61 SF	85 SF	60 SF
RESIDENT TLT 7	TSPB1	28	61 SF	85 SF	60 SF
RESIDENT TLT 8	TSPB1	30	61 SF	85 SF	60 SF
RESIDENT TLT 9	TSPB1	32	61 SF	85 SF	60 SF
RESIDENT TLT 10	TSPB1	34	61 SF	85 SF	60 SF
SMALL HOUSE STORAGE	STMQ2	39C	126 SF	120 SF	42 SF
SOILED ROOM	CSUS3	39D	88 SF	80 SF	65 SF
STAFF OFFICE	OFF02	13	122 SF	100 SF	115 SF
STOR	STGN2	12	48 SF	0 SF	42 SF
TOTAL NET AREA			6,189 SF		
TOTAL GROSS AREA			9,014 SF		

1 OVERALL FLOOR PLAN
1/8" = 1'-0"

ACTUAL NORTH PLAN NORTH

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT DONGKYU LEE 22633 STATE OF TEXAS
04/25/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: OVERALL FLOOR PLAN
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: Big Spring, TX
Issue Date: 06/28/2024
Checked: JOW
Drawn: KL
Drawing Number: AS100

Autodesk Docs://0489001.008 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt
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GENERAL NOTES:

A. DIMENSIONS SHOWN ARE TO FACE OF GYPSUM BOARD, BRICK, STONE AND EIFS.
B. ALL DOOR FRAMES ARE TO BE INSTALLED 3" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS NOTED OTHERWISE.
C. REFER TO LIFE SAFETY DRAWINGS FOR FIRE / SMOKE RATING REQUIREMENTS.
D. REFER TO INTERIOR FINISH DRAWINGS FOR ADDITIONAL INTERIOR FINISH SPECIFIC INFORMATION.
E. ALL PARTITIONS ARE TYPE A3 UNLESS NOTED OTHERWISE.
F. REFER TO AS131 FOR TOILET ACCESSORIES.
G. SQ. FOOTAGE SHOWN WERE ESTIMATED BY SOFTWARE PROGRAM - CONTRACTOR TO VERIFY AS REQUIRED.
H. ALL DOORS & FRAMES LOCATED ON SAFE ROOM PERIMETER WALLS (DOORS 39AA TO 39HA) TO BE IN COMPLIANCE WITH ICC 500 & FEMA REQUIREMENTS FOR SAFE ROOMS.
I. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

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

ACTUAL NORTH / PLAN NORTH

Revisions:	Date:

CONSULTANT
A/E:
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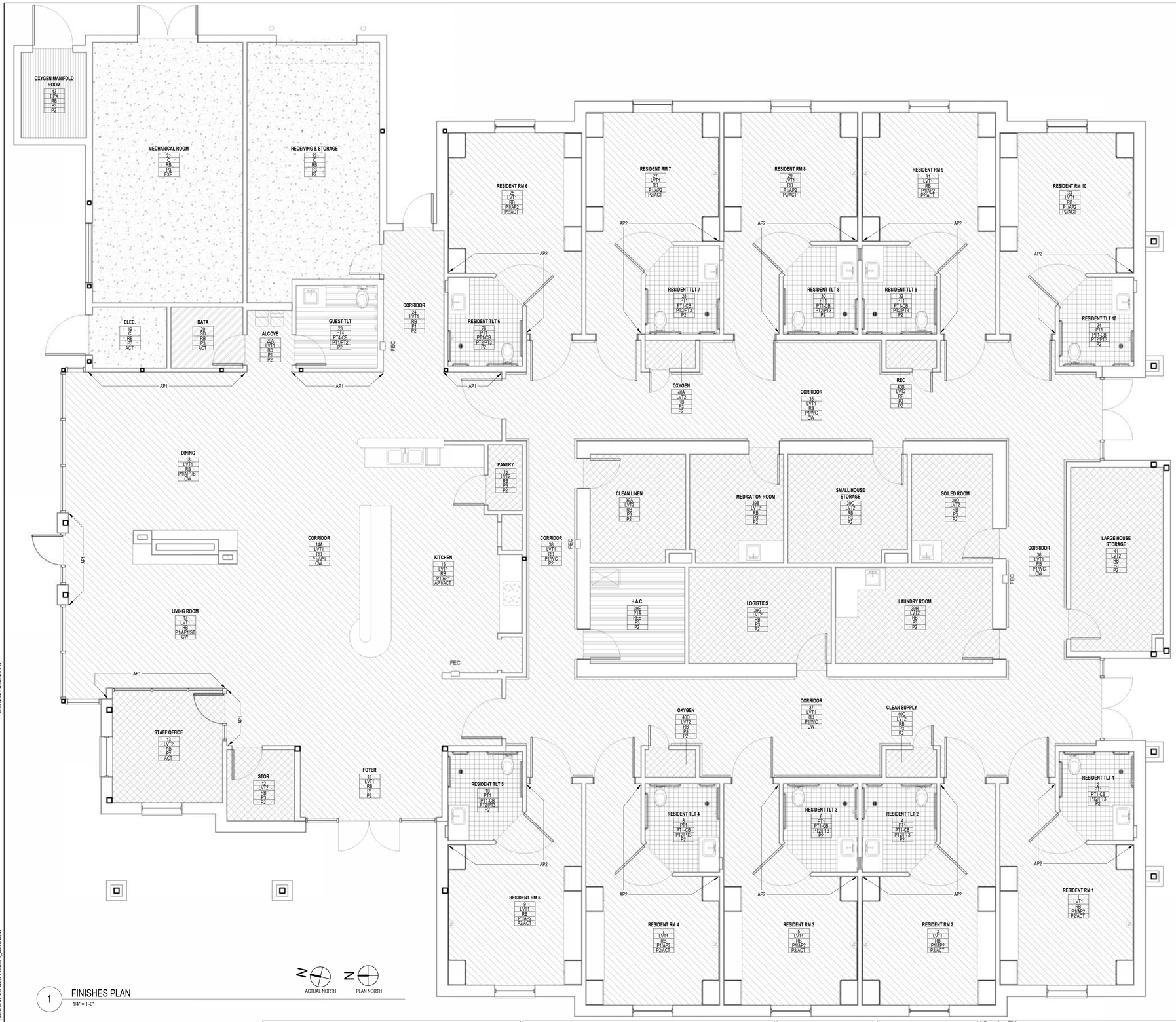
ARCHITECT/ENGINEER OF RECORD
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REGISTERED ARCHITECT HONGKYU LEE 22633 STATE OF TEXAS
06/28/2024

Office of Construction and Facilities Management
U.S. Department of Veterans Affairs

Drawing Title: FLOOR PLAN / DIMENSION	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN			Building Number: 28
	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS101
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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VA FORM 08 - 6231



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

GENERAL FINISH NOTES

A. SUPPLY & RETURN GRILLES TO BE FINISHED TO MATCH ADJACENT SURFACES.
B. ALL FLOORING CHANGES OCCUR AT THE CENTER OF DOOR LEAF (IN CLOSED POSITION), U.N.O. WHERE THERE IS NO DOOR. CHANGE OCCURS AT THE MID-POINT OF THE JAMB, U.N.O.
C. PAINT ALL INTERIOR & EXTERIOR, STRUCTURAL ITEMS EXPOSED TO VIEW.
D. GYPSUM BOARD CEILINGS AND WALLS TO HAVE SMOOTH FINISH TEXTURE.
E. PAINT ALL SIDES OF FURR DOWNS.
F. AT INTERIOR OF BUILDING, PAINT ALL EXPOSED STRUCTURE, PIPING, CONDUITS, OR DUCTWORK.
G. FINISHES SCHEDULED APPLY TO ALL SUBSTRATES EXCEPT FOR FACTORY FINISHED MATERIALS; SUCH AS GLAZED CMU; ALUMINUM STOREFRONT; ETC.
H. FINISHES SCHEDULED ARE DEFAULT FOR ROOMS, UNLESS NOTED OTHERWISE.
I. REFERENCE G003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET

FINISH SYMBOL LEGEND

ROOM NAME
ROOM #
- FLOOR FINISH
- BASE FINISH
- WALL FINISH
- CEILING FINISH

FINISH MATERIAL LIST

FINISH SCHEDULE		
Code	Description	Product Info
LVT1	LUXURY VINYL TILE	MNFR: ARMSTRONG STYLE: NATURAL CREATIONS FINISH: AVILA OAK MOROCCAN SAND (NA190)
LVT2	LUXURY VINYL TILE	MNFR: ARMSTRONG STYLE: NATURAL CREATIONS FINISH: BRACO PUTTY (NA332)
EXP	EXPOSED STRUCTURE	
SD	STATIC DISSIPATIVE	MNFR: ARMSTRONG STYLE: EXCELON SDT FINISH: MARBLE BEIGE
PT1 PT1-CB	PORCELAIN TILE PORCELAIN TILE BASE	MNFR: ARIZONA STYLE: TOUCH FINISH: SUNSET
PT2	PORCELAIN TILE	MNFR: ARIZONA STYLE: TOUCH FINISH: GLOW
PT3	PORCELAIN TILE	MNFR: ARIZONA STYLE: TOUCH FINISH: SUMMER
PT4 PT4-CB	PORCELAIN TILE PORCELAIN TILE BASE	MNFR: ARIZONA STYLE: PAVE FINISH: PAVE MOKA
ACT	ACOUSTIC CEILING TILE	MNFR: ARMSTRONG STYLE: ULTIMA 1910 24"X24" TILE IN PRELUDE COLOR: BLIZZRD WHITE
C	SEALED CONCRETE	
CG1	CORNER GUARD	MNFR: INPRO COLOR: 0260 CREME BRULEE
EPX	EPOXY FLOORING	

FINISH SCHEDULE		
Code	Description	Product Info
CW	COMPOSITE WOOD CEILING	MNFR: NEWTECHWOOD USA COLOR: BRAZILIAN IPE
RB	RUBBER BASE	MNFR: JOHNSONITE STYLE: TRADITIONAL DURACOVE 1/8" COLOR: 286 FORTUNE COOKIE
TS	TRANSITION STRIP	MNFR: SCHLUTER STYLE: DILEX-AHK FINISH: BRUSHED COPPER
WC	WALL COVER	MNFR: ARC-CON STYLE: VALOR COLOR: GOLDEN
P1	PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 7120 - DOLLOP OF CREAM
P2	PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 7562 - ROMAN COLUMN
P3	PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 7638 - JOGGING PATH
AP1	ACCENT PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 7539 - CORK WEDGE
AP2	ACCENT PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 6415 - HEARTS OF PALM
PL1	PLASTIC LAMINATE	MNFR: WILSONART COLOR: 10745-60 FONTHILL PEAR FINISH: MATTE FINISH
SS	SOLID SURFACE	MNFR: CORIAN COLOR: AURORA
P4	PAINT COLOR (DOOR FRAMES)	MNFR: SHERWIN-WILLIAMS COLOR: SW 0045 - ANTIQUARIAN BROWN

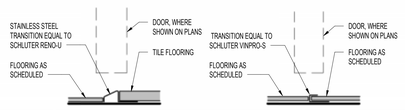
ROOM FINISH SCHEDULE

Name	Number	Room Code	Floor Finish	Base Finish	Wall Finish	Ceiling Finish
ALCOVE	20A	LOB04	LVT1	RB	P1	P2
CLEAN LINEN	39A	STCL1	LVT2	RB	P3	P2
CLEAN SUPPLY	40C	STCL4	LVT2	RB	P3	P2
CORRIDOR	14A	CRR01	LVT1	RB	P1/AP1	CW
CORRIDOR	24	CRR01	LVT1	RB	P1	P2
CORRIDOR	35	CRR01	LVT1	RB	P1/WC	CW
CORRIDOR	36	CRR01	LVT1	RB	P1/WC	CW
CORRIDOR	38	CRR01	LVT1	RB	P1/WC	P2
CORRIDOR	37	CRR01	LVT1	RB	P1/WC	CW
DATA	20	TETR1	SD	RB	P3	ACT
DINING	18	PSDR3	LVT1	RB	P1/AP1/ST	CW
ELEC.	19	ELEC1	C	RB	P3	ACT
FOYER	11	BSFY1	LVT1	RB	P1	P2
GUEST TLT	23	TNPG1	PT4	PT4-CB	PT1/PT2	P2
H.A.C.	39E	BSHC1	PT4	RES	P3	P2
KITCHEN	15	RHKN4	LVT1	RB	P1/AP1	AP1/ACT
LARGE HOUSE STORAGE	41	PSDN2	LVT2	RB	P3	P2
LAUNDRY ROOM	39H	LAU05	LVT2	RB	P3	P2
LIVING ROOM	17	PSLR3	LVT1	RB	P1/AP1/ST	CW
LOGISTICS	39G	STCL1	LVT2	RB	P3	P2
MECHANICAL ROOM	21	MECH1	C	RB	P3	EXP
MEDICATION ROOM	39B	STGN2	LVT2	RB	P3	P2
OXYGEN	40A	STGN2	LVT2	RB	P3	P2
OXYGEN	40D	STGN2	LVT2	RB	P3	P2
OXYGEN MANIFOLD ROOM	43	CLHOM	EPX	RB	P3	P2
PANTRY	16	CSPY1	LVT2	RB	P3	P2
REC	40B	STGN2	LVT2	RB	P3	P2
RECEIVING & STORAGE	22	BSGR1	C	RB	P3	P2
RESIDENT RM 1	1	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 2	3	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 3	5	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 4	7	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 5	9	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 6	25	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 7	27	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 8	29	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 9	31	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT RM 10	33	BSHM1	LVT1	RB	P1/AP2	P2/ACT
RESIDENT TLT 1	2	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 2	4	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 3	6	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 4	8	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 5	10	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 6	26	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 7	28	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 8	30	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 9	32	TSPB1	PT1	PT1-CB	PT2/PT3	P2
RESIDENT TLT 10	34	TSPB1	PT1	PT1-CB	PT2/PT3	P2
SMALL HOUSE STORAGE	39C	STMQ2	LVT2	RB	P3	P2
SOILED ROOM	39D	CSUS3	LVT2	RB	P3	P2
STAFF OFFICE	13	OFF02	LVT2	RB	P2	ACT
STOR	12	STGN2	LVT2	RB	P3	P2

FLOOR FINISH LEGEND

C · LVT1 · PT1 · SD
EPX · LVT2 · PT4

TYPICAL FLOORING TRANSITIONS:



Revisions:	Date:

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O'Brien Engineering, Inc.,
2340 E. Trinity Mills Rd. Ste 220
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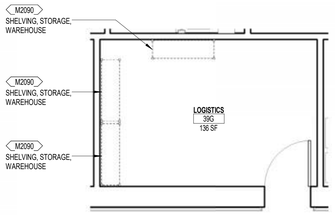
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04/25/2024

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: FINISH PLAN AND SCHEDULE
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: Big Spring, TX
Issue Date: 06/28/2024
Checked: JOW
Drawn: KL
Drawing Number: AS121

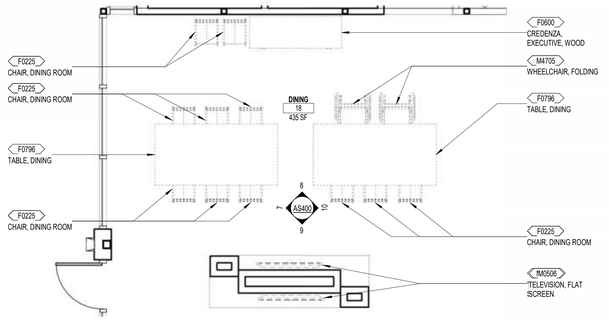
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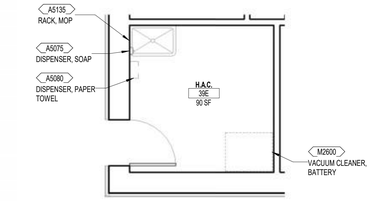
14 EQUIPMENT PLAN - LOGISTICS
1/4" = 1'-0"



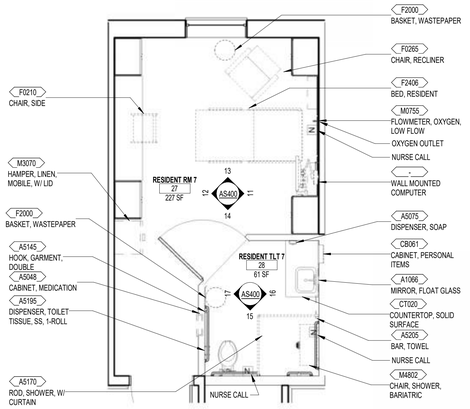
8 EQUIPMENT PLAN - CLEAN LINEN
1/4" = 1'-0"



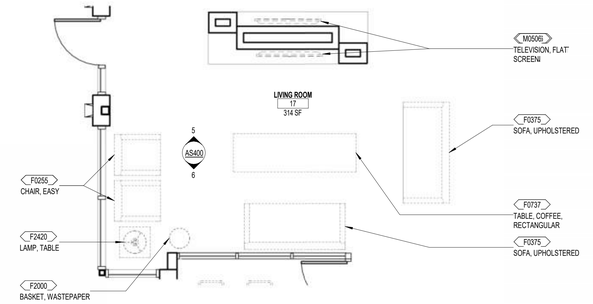
4 EQUIPMENT PLAN - DINING ROOM
1/4" = 1'-0"



12 EQUIPMENT PLAN - HAC
1/4" = 1'-0"



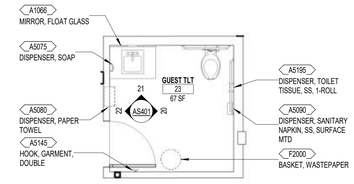
7 EQUIPMENT PLAN - RESIDENT RM
1/4" = 1'-0"



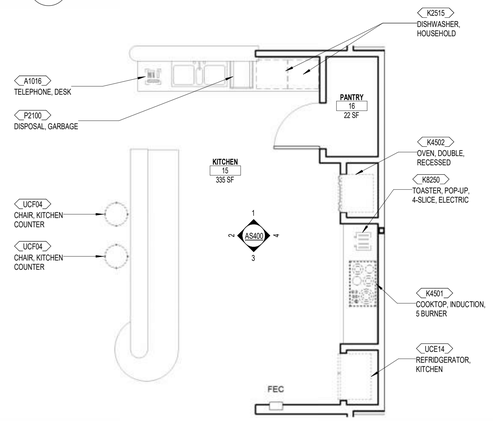
3 EQUIPMENT PLAN - LIVING ROOM
1/4" = 1'-0"



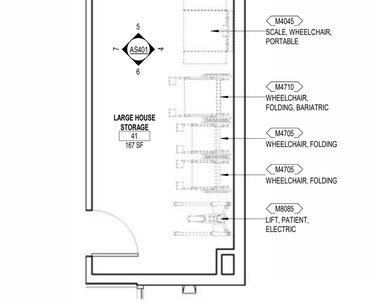
11 EQUIPMENT PLAN - SOILED ROOM
1/4" = 1'-0"



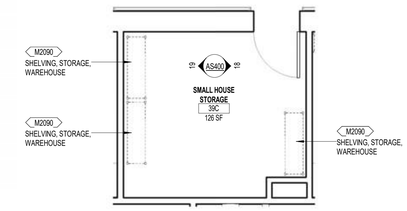
6 EQUIPMENT PLAN - GUEST TLT
1/4" = 1'-0"



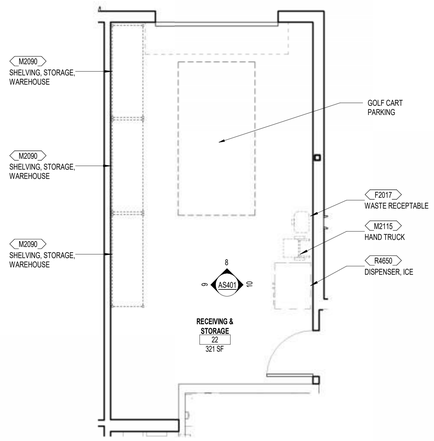
2 EQUIPMENT PLAN - KITCHEN
1/4" = 1'-0"



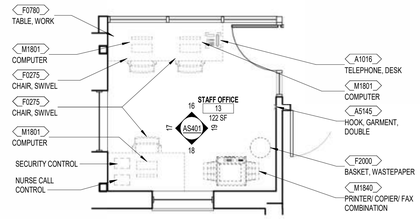
16 EQUIPMENT PLAN - LARGE HOUSE STORAGE
1/4" = 1'-0"



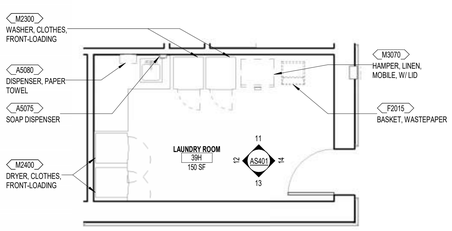
10 EQUIPMENT PLAN - SMALL HOUSE STORAGE
1/4" = 1'-0"



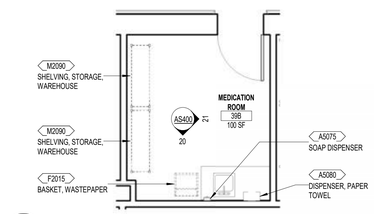
5 EQUIPMENT PLAN - RECIEVING/STORAGE
1/4" = 1'-0"



1 EQUIPMENT PLAN - STAFF OFFICE
1/4" = 1'-0"



15 EQUIPMENT PLAN - LAUNDRY ROOM
1/4" = 1'-0"



9 EQUIPMENT PLAN - MEDICATION ROOM
1/4" = 1'-0"

GENERAL NOTES:

A. EQUIPMENT AND FURNITURE ARE FURNISHED AND INSTALLED BY THE OWNER.
B. REFER AS421 & 422 FOR MILLWORK DETAILS
C. REFERENCE GI003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

EQUIPMENT LIST

JSN	NAME	QTY
LAUNDRY ROOM		
A5075	DISPENSER, SOAP	1
A5080	DISPENSER, PAPER TOWEL	1
F2015	BASKET, WASTEPAPER	1
M2300	WASHER, CLOTHES, FRONT-LOADING	2
M2400	DRYER, CLOTHES, FRONT-LOADING	2
M3070	HAMPER, LINEN, MOBILE, WITH LID	1
LARGE HOUSE STORAGE		
M4045	SCALE, WHEELCHAIR, PORTABLE	1
M4705	WHEELCHAIR, FOLDING	2
M4710	WHEELCHAIR, FOLDING, BARIATRIC	1
M8085	LIFE, PATIENT, ELECTRIC	1
RESIDENT ROOM		
A5048	CABINET, MEDICATION	1
A5212	BRACKET, TELEVISION, WALL MOUNT	1
A5220	BRACKET, TELEVISION, WALL BACKING	1
F2406	BED, RESIDENT	1
M0506	TELEVISION, FLAT SCREEN	1
M0755	FLOWEMETER, OXYGEN, LOW FLOW	1
M3070	HAMPER, LINEN, MOBILE, WITH LID	1
RESIDENT TLT		
A1066	MIRROR, FLOAT GLASS	1
A5075	DISPENSER, SOAP	1
A5110	GRAB BAR	2
A5145	HOOK, GARMENT, DOUBLE	1
A5170	ROD, SHOWER, WITH CURTAIN	1
A5195	DISPENSER, TOILET TISSUE	1
A5205	BAR, TOWEL	1
CB061	CABINET, PERSONAL ITEMS	1
F2000	BASKET, WASTEPAPER	1
M4802	CHAIR, SHOWER, BARIATRIC	1
GUEST TLT		
A1066	MIRROR, FLOAT GLASS	1
A5075	DISPENSER, SOAP	1
A5110	GRAB BAR	2
A5145	HOOK, GARMENT, DOUBLE	1
A5195	DISPENSER, TOILET TISSUE	1
A5205	BAR, TOWEL	1
A5080	DISPENSER, PAPER TOWEL	1
A5090	DISPENSER, SANITARY NAPKIN	1
MEDICATION ROOM		
A5075	DISPENSER, SOAP	1
A5080	DISPENSER, PAPER TOWEL	1
F2015	BASKET, WASTEPAPER	1
M2090	SHELVING, STORAGE, WAREHOUSE	2
LOGISTICS		
M2090	SHELVING, STORAGE, WAREHOUSE	3
LIVING ROOM		
A5212	BRACKET, TELEVISION, WALL BACKING	1
A5220	BRACKET, TELEVISION, WALL MOUNT	1
A6046	ARTWORK, DECORATIVE	1
M0430	PLAYER, DVD	1
M0506	TELEVISION, FLAT SCREEN	1
KITCHEN		
A1016	TELEPHONE, DESK	1
K2516	DISHWASHER	2
K4501	COOKTOP, INDUCTION, 6-BURNER	1
K4502	OVEN, DOUBLE, RECESSED	1
K8250	TOASTER, POP-UP, 4-SLICE, ELECTRIC	1
P2100	DISPOSAL, GARBAGE	1
UCE14	REFRIDGERATOR, KITCHEN	1
UCF04	CHAIR, KITCHEN COUNTER	2
RECIEVING/ STORAGE		
F0217	WASTE RECEPTABLE	1
M2090	SHELVING, STORAGE, WAREHOUSE	3
M2115	HAND TRUCK	1
R4650	DISPENSER, ICE	1
STAFF OFFICE		
A1016	TELEPHONE, DESK	1
A5145	HOOK, GARMENT, DOUBLE	1
F2000	BASKET, WASTEPAPER	1
M1801	COMPUTER	3
-	NURSE CALL CONTROL	1
-	SECURITY CONTROL	1
M1840	PRINTER / COPIER / FAX COMBINATION	1
F0275	CHAIR, SWIVEL	3
F0780	TABLE, WORK	2
SOILED ROOM		
M2090	SHELVING, STORAGE, WAREHOUSE	2

Revisions:	Date:

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OEI

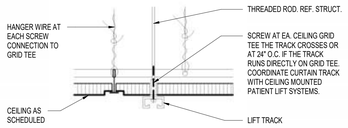
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OEI - LBL

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06/27/2024

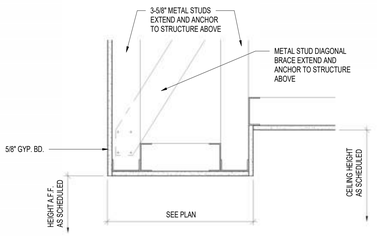
Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: EQUIPMENT PLAN / EQUIPMENT LIST
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: Big Spring, TX
Issue Date: 06/28/2024
Checked: JOW
Drawn: KL
Drawing Number: AS131

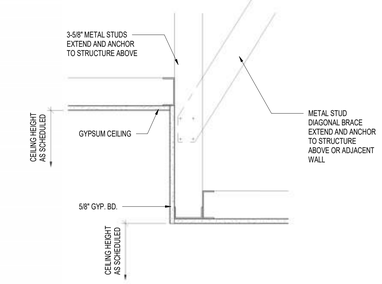
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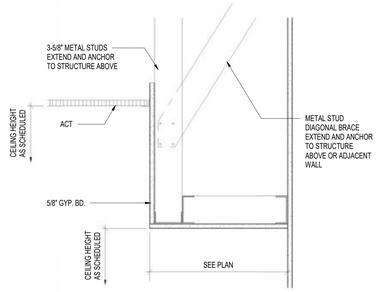
6 PATIENT LIFT TRACK
3" = 1'-0"



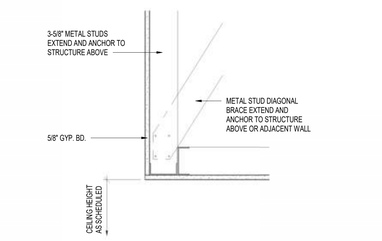
5 CLG SOFFIT
1 1/2" = 1'-0"



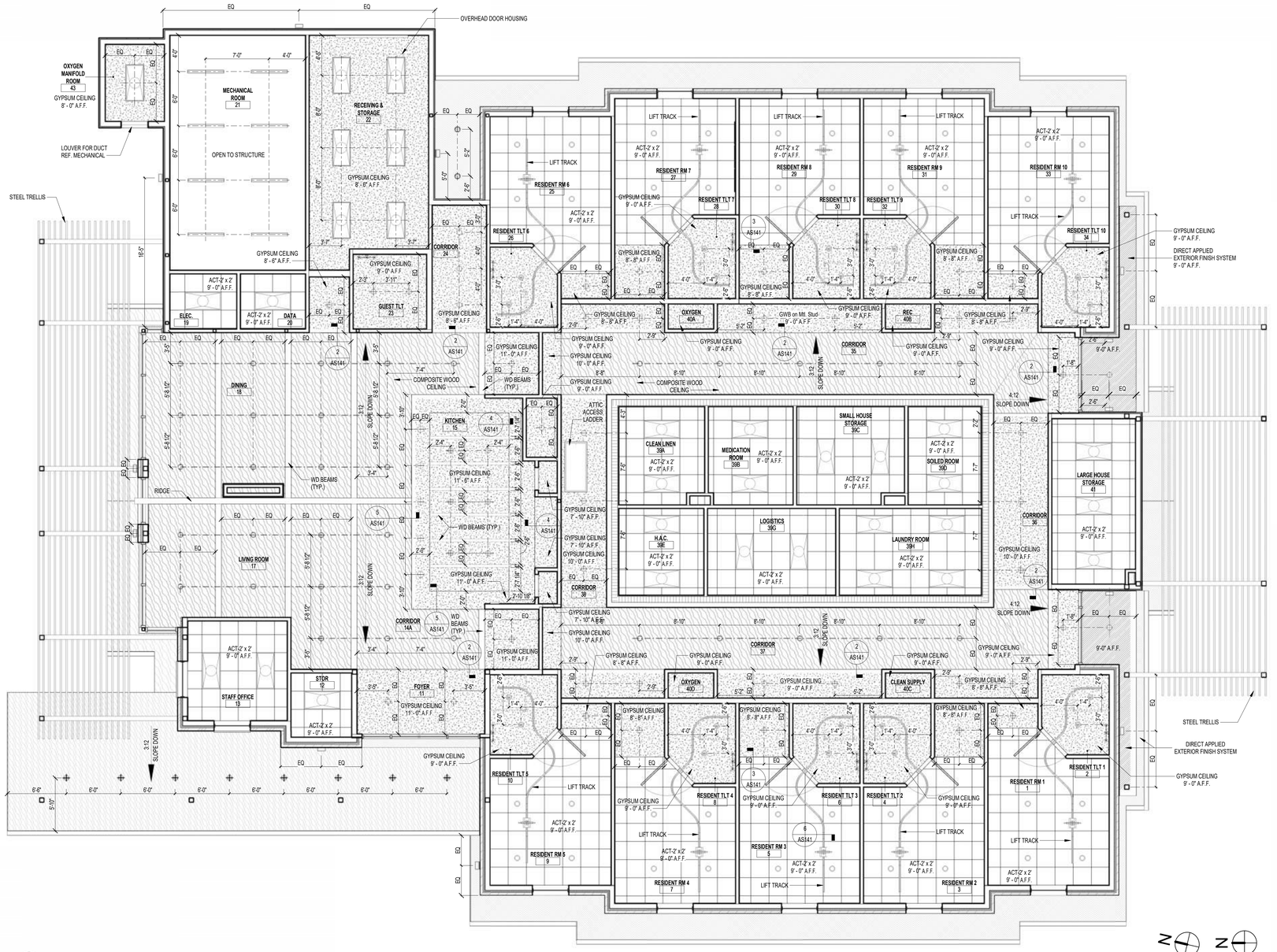
4 CLG SOFFIT FURRDOWN / GYPSUM CEILING
1 1/2" = 1'-0"



3 CLG SOFFIT FURRDOWN / ACT
1 1/2" = 1'-0"



2 CLG FURRDOWN
1 1/2" = 1'-0"



1 LEVEL 1 - REFLECTED CEILING PLAN
3/16" = 1'-0"

RCP FINISH LEGEND

* NOTE: PLEASE REFER TO ROOM FINISH SCHEDULE FOR ADDITIONAL ROOM NOTES.

ACT 1 - ACOUSTICAL CEILING TILE (24x24)
GYP - GYPSUM CEILING
CW - COMPOSITE WOOD CEILING
EXP - NO CEILING

REFLECTED CEILING PLAN NOTES:

A. FINISHED CEILING HEIGHT IS 9'-0" UNLESS NOTED OTHERWISE.
B. SUSPENDED CEILING TILES IN EACH ROOM ARE TO BE CONFIGURED SUCH THAT NO LESS THAN ONE-HALF A BORDER TILE EXISTS ADJACENT TO ANY ROOM WALL, UNLESS NOTED OTHERWISE.
C. CEILINGS IN ELECTRICAL ROOMS, TELEPHONE ROOMS, MECHANICAL ROOMS & OTHER SIMILAR SPACES ARE EXPOSED TO STRUCTURE ABOVE UNLESS NOTED OR SCHEDULED OTHERWISE.
D. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL EXIT LIGHTS AND LIGHT FIXTURE SPECIFIC INFORMATION.
E. REFER TO MECHANICAL DRAWINGS FOR DIFFUSER SPECIFIC INFORMATION.
F. REFERENCE G003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

GENERAL ACOUSTICAL NOTES

1. ALL STUD WALLS TO BE FILLED WITH 3" THICK SOUND ATTENUATION BLANKETS TO BOTTOM OF ROOF DECK EXCEPT AROUND & WITHIN SAFE ROOM TO PROVIDE A CONTINUOUS VERTICAL ACOUSTICAL ENVELOPE
2. ALL INTERIOR WALLS OF SPECIFIED ROOMS SHALL BE EXTENDED TO ROOF DECK ABOVE AND SEALED AIR-TIGHT, ALL ELECTRICAL BOXES IN THESE WALLS SHALL ALSO BE SEALED AIR-TIGHT.

REFLECTED CEILING PLAN LEGEND

CEILINGS

- ACOUSTICAL TILE CEILING (24X24)
- OPEN CEILING
- COMPOSITE WOOD CEILING
- GYPSUM CEILING - PAINTED
- DIRECT APPLIED EXTERIOR FINISH SYSTEM

LIGHTS (REFER E-SHEETS FOR SIZES)

- 2x4 RECESSED TROFFER (L1)
- WALL MOUNTED LIGHT FIXTURE (L5)
- SUSPENDED STRIP LIGHT FIXTURE (L2)
- OUTDOOR RECESSED DOWNLIGHT (L6)
- RECESSED DOWNLIGHT (L3)
- WET LOCATION RECESSED DOWNLIGHT (L7)
- PENDANT LIGHT FIXTURE (L4)
- WALL MOUNTED WALL PACK (L8)

MISCELLANEOUS

- CUBICLE CURTAIN TRACK

Revisions:	Date:

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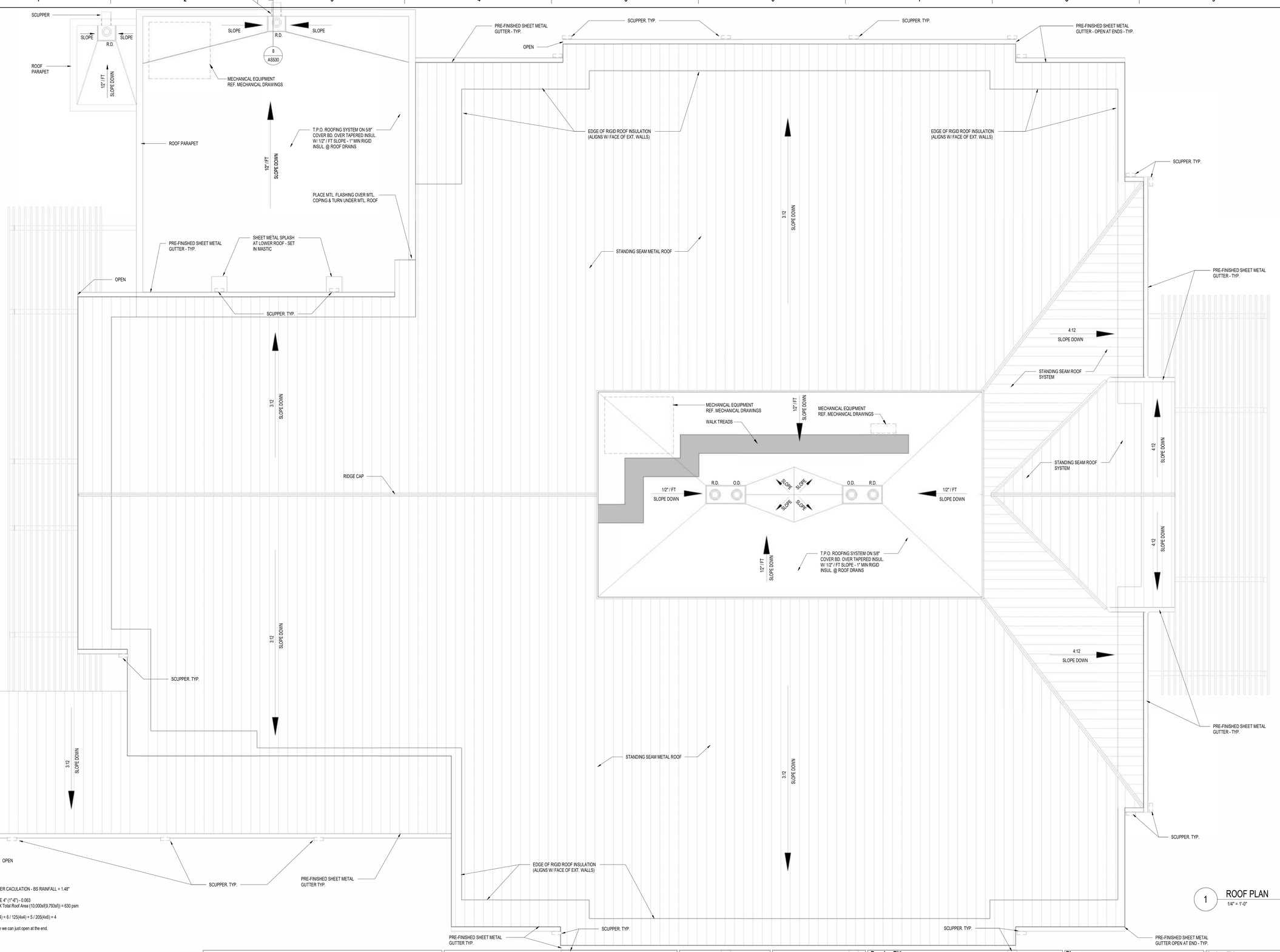
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06/28/2024

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U.S. Department of Veterans Affairs

Drawing Title: REFLECTED CEILING PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS141
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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ROOF PLAN GENERAL NOTES:

A. REFER TO MECHANICAL/ELECTRICAL DRAWINGS FOR INSTALLATION AND CURB DETAILS FOR MEP.
B. EQUIPMENT MOUNTED ON ROOF. NOT ALL ITEMS ARE NECESSARILY SHOWN ON THIS ROOF PLAN.
C. ALL CURBS MUST BE 1'-0" TALL MIN. ABOVE ROOF LEVEL.
D. PROVIDE WALK TREADS AROUND ROOF HATCH AND ROOF MOUNTED EQUIPMENT.
E. PROVIDE 2'-6" X 2'-6" SQUARE LEAD FLASHING OF 2 1/2" LBS/SF. MIN. PRIMED AND SET IN MASTIC AT ALL ROOF DRAINS AND OVERFLOW DRAINS PER NCRA RECOMMENDATIONS.
F. ALL MECHANICAL EQUIPMENT SHOWN ON THE ROOF PLAN IS SHOWN FOR COORDINATION. QUANTITIES AND EXACT LOCATION OF ALL EQUIPMENT SHALL BE PROPERLY COORDINATED PRIOR TO INSTALLATION AS REQUIRED AND FIELD VERIFIED.
G. ALL PIPE, VENTS THROUGH ROOF, CONDUIT, EQUIPMENT SUPPORT, BUILDING MAINTENANCE TIE, BACK ANCHOR PENETRATIONS SHALL BE FLASHED PER DETAIL, AND ROOFING MANUFACTURER'S WRITTEN AND DRAWN INSTRUCTIONS.
H. ALL GUTTERS AND SCUPPERS TO BE PRE-FINISHED SHEET METAL - LEAVE OPENING AT GUTTER END FOR DRAINAGE
I. REFERENCE G003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

ROOF PLAN SYMBOLS LEGEND

R.D. ROOF DRAIN
O.D. OVERFLOW DRAIN
DIRECTION OF DOWN SLOPE. MINIMUM SLOPE 1/2"/FT. TO DRAIN

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

ACTUAL NORTH | PLAN NORTH

Revisions:	Date:

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04/27/2024

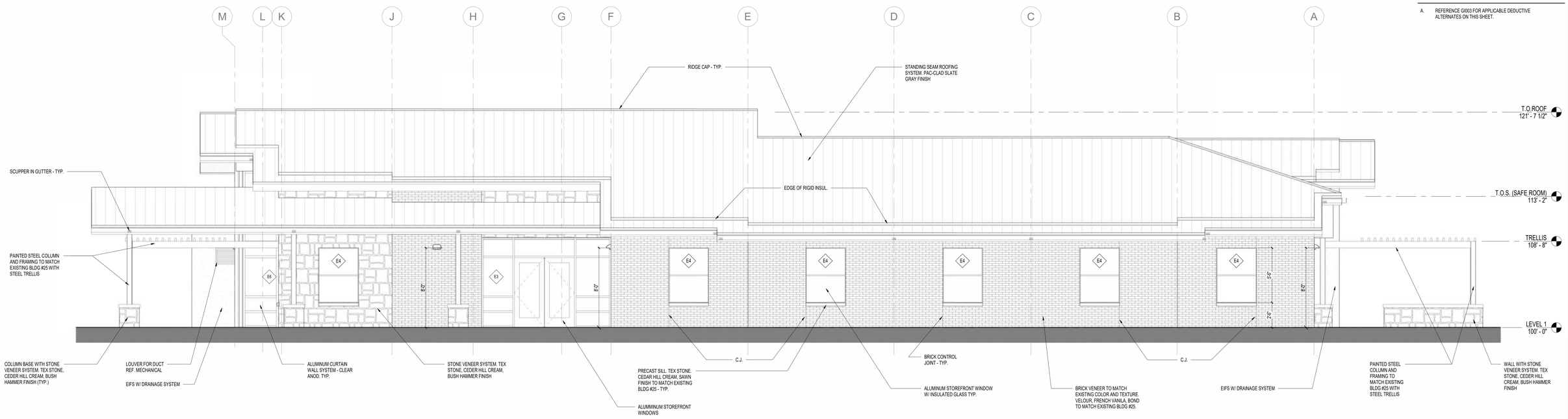
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Drawing Title: ROOF PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS151
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

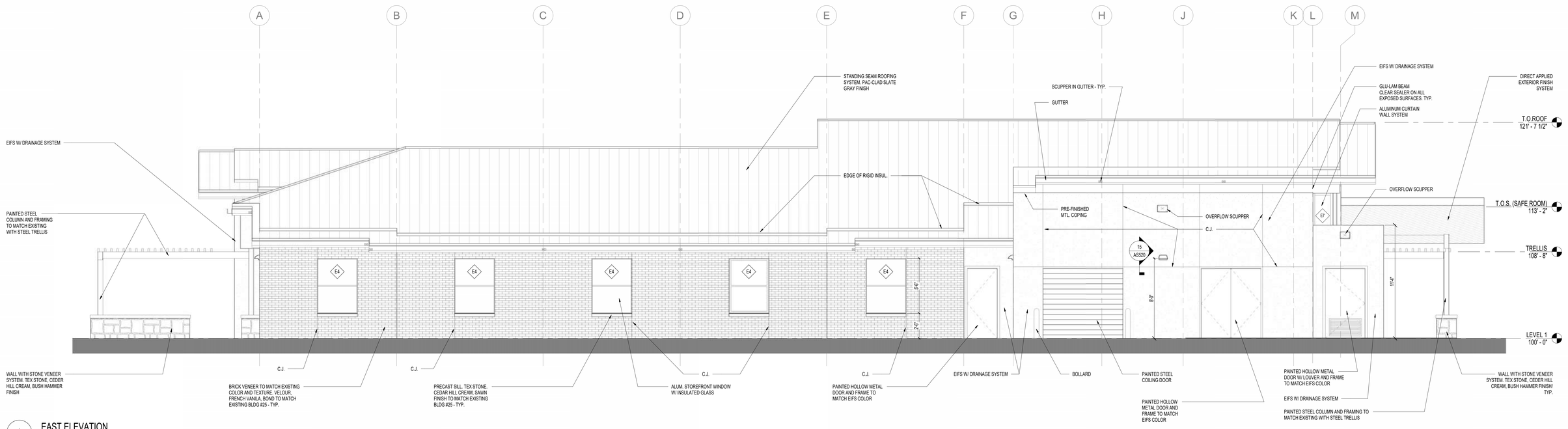
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VA FORM 08 - 6231

GENERAL NOTES:

A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



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



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

Revisions:	Date:

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REGISTERED ARCHITECT BRENDA KYLE JUNKIN 22623 STATE OF TEXAS
06/27/2024

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VA U.S. Department of Veterans Affairs

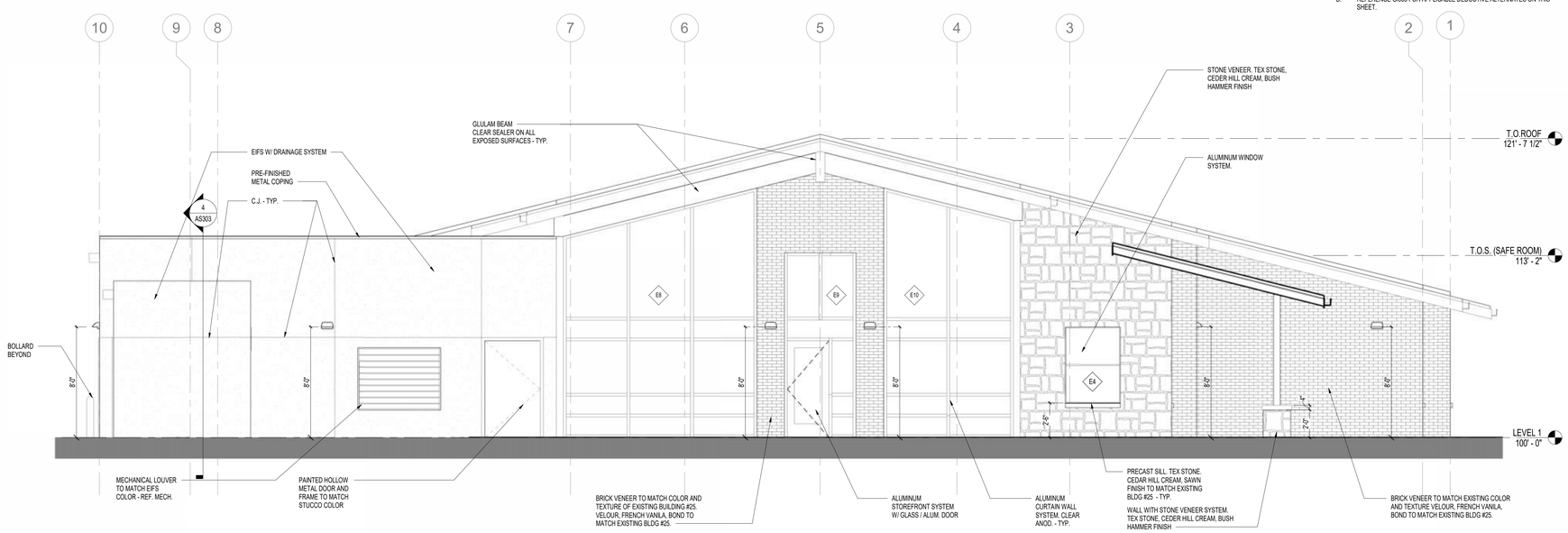
Drawing Title: EXTERIOR ELEVATIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Building Number: 28
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	Drawing Number: AS200

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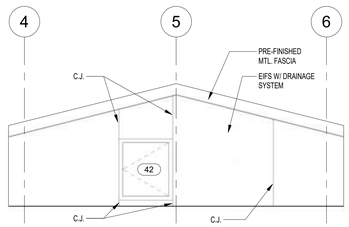
VA FORM 08 - 6231

GENERAL NOTE:

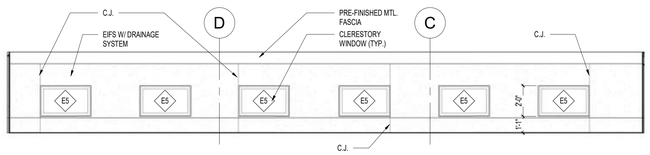
A. STEEL TRELLIS HAS BEEN OMITTED FOR CLARITY - REF. SHEET AS202
B. REFERENCE GI003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



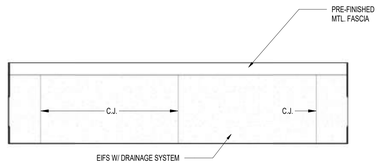
2 NORTH ELEVATION
1/4" = 1'-0"



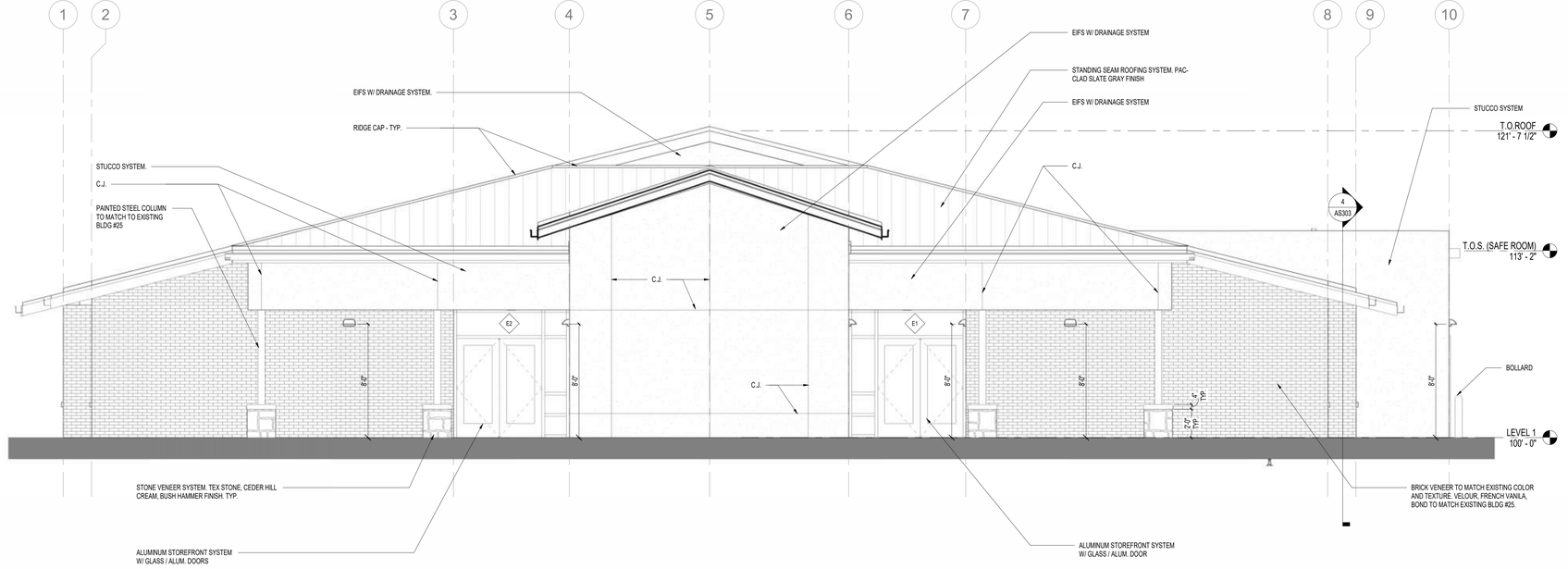
5 ROOF ACCESS ELEVATION (NORTH)
1/4" = 1'-0"



4 CLERESTORY WINDOWS ELEVATION (WEST & EAST)
1/4" = 1'-0"



3 WALL ELEVATION (SOUTH)
1/4" = 1'-0"



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

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REGISTERED ARCHITECT WONGKYU LEE 22633 STATE OF TEXAS
04/12/2024

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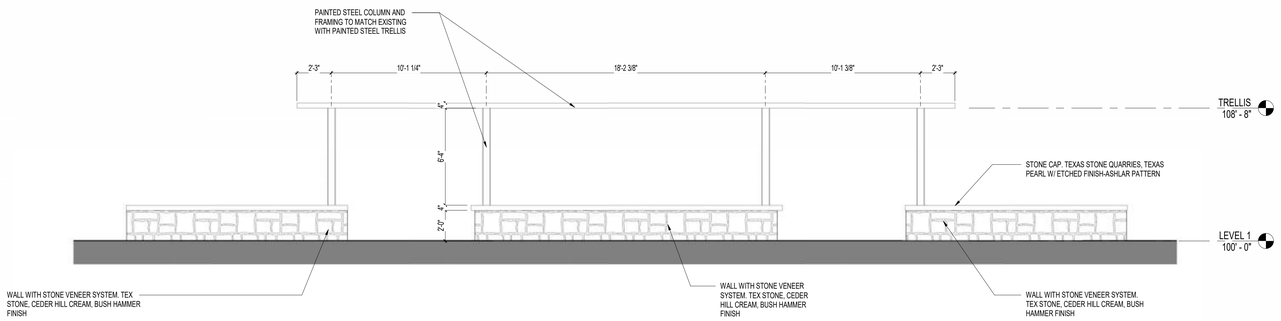
Drawing Title: EXTERIOR ELEVATIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS201
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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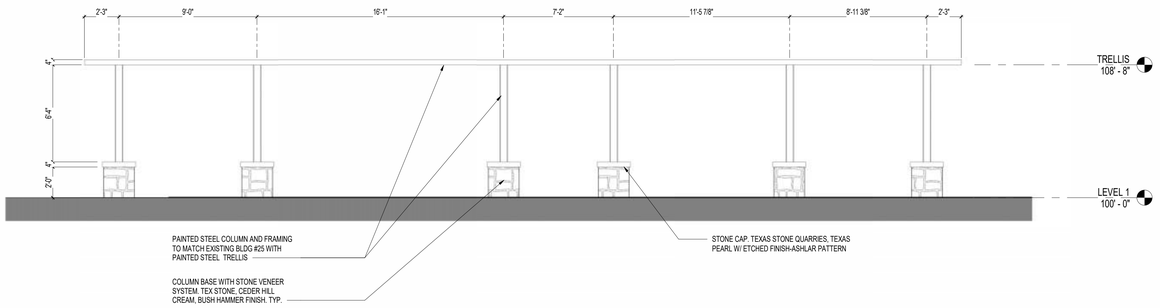
VA FORM 08 - 6231

GENERAL NOTES:

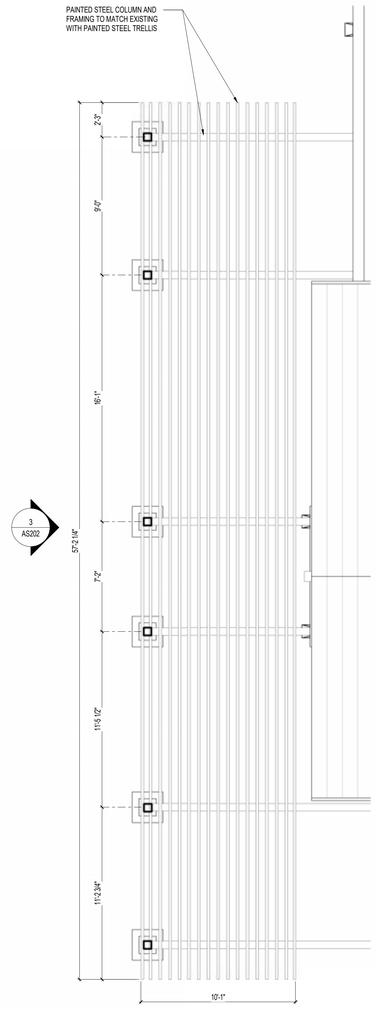
A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



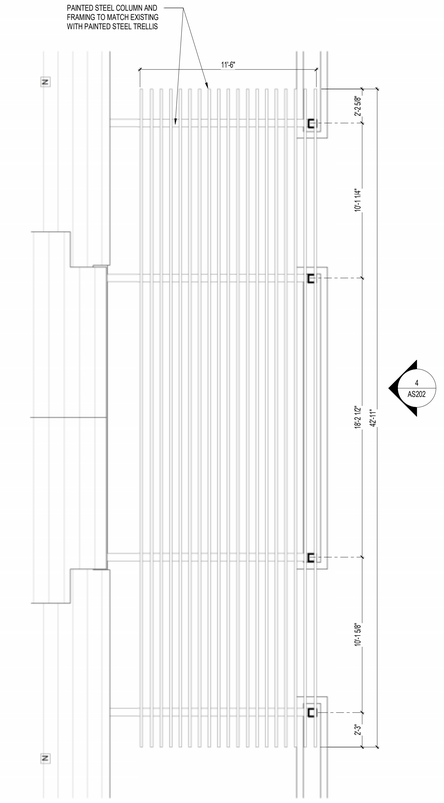
4 SOUTH ELEVATION - TRELLIS
1/4" = 1'-0"



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



2 ENLARGED PLAN - TRELLIS
1/4" = 1'-0"



1 ENLARGED PLAN - TRELLIS
1/4" = 1'-0"

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REGISTERED ARCHITECT HONGKYU LEE 22633 STATE OF TEXAS
04/25/2024

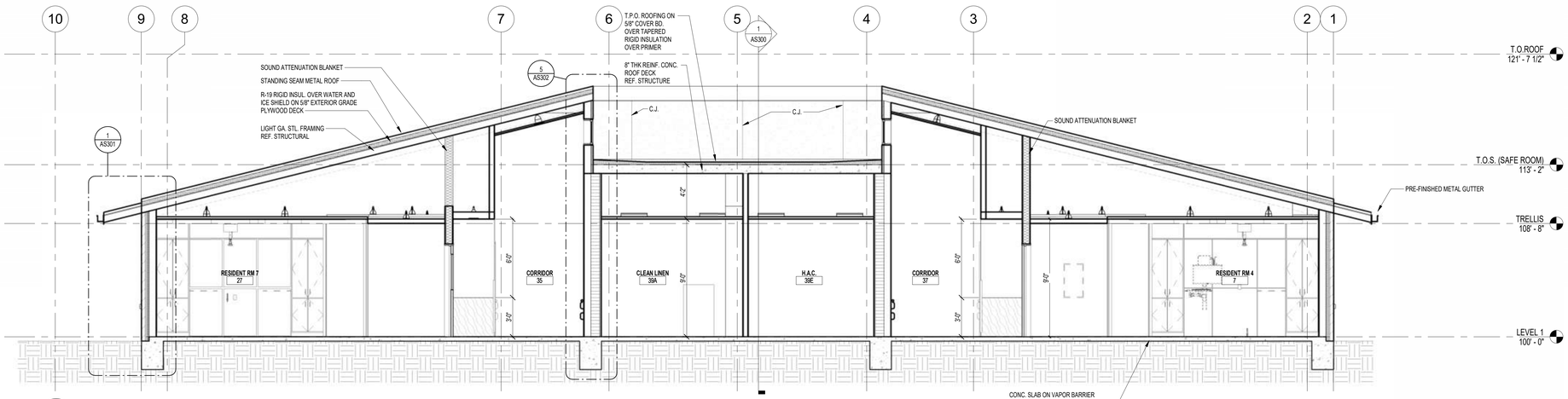
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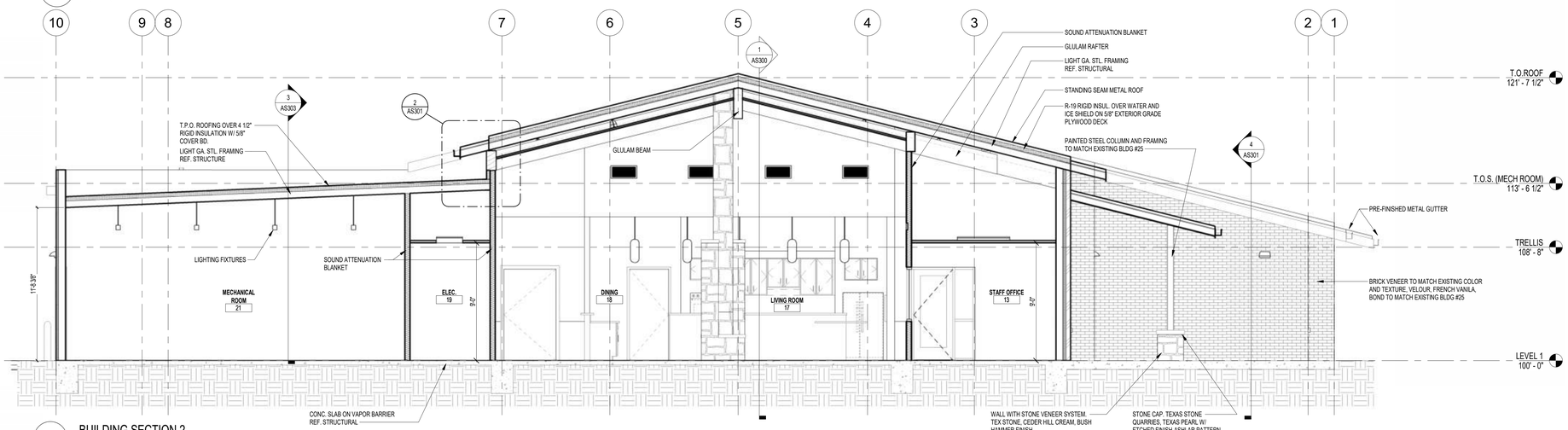
Drawing Title: TRELLIS PLANS AND ELEVATIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Building Number: 28
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	Drawing Number: AS202

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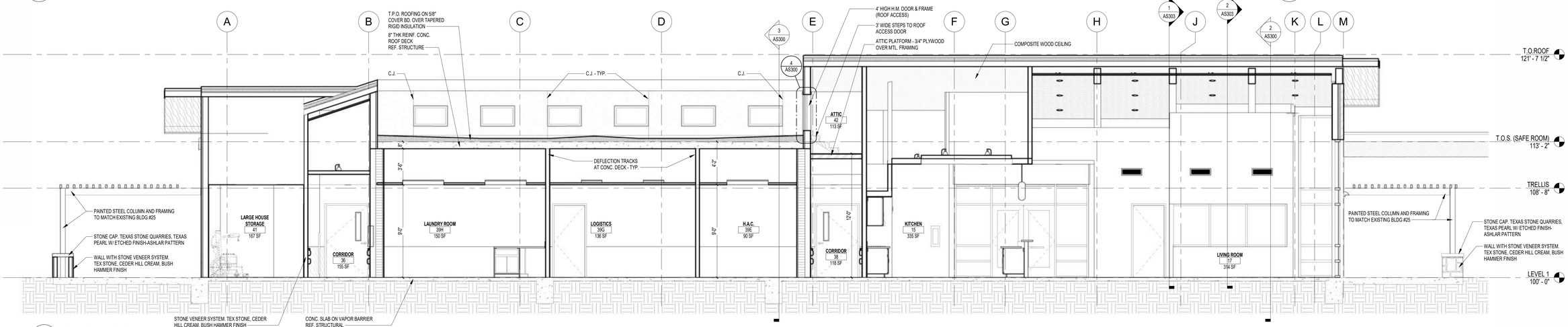
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3 BUILDING SECTION 3
1/4" = 1'-0"



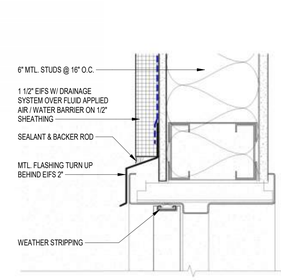
2 BUILDING SECTION 2
1/4" = 1'-0"

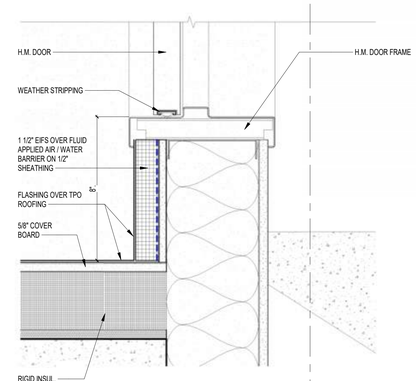


1 BUILDING SECTION 1
1/4" = 1'-0"

GENERAL NOTES:

A. FULL BATT. INSULATION IS REQUIRED IN ALL EXTERIOR STUD WALLS & MTL. ROOF FRAMING. NOT SHOWN IN BUILDING SECTIONS FOR CLARITY.
B. REFERENCE G1003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.





4 ROOF ACCESS DOOR DETAIL
3" = 1'-0"

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REGISTERED ARCHITECT JONGKYU LEE 22633 STATE OF TEXAS
04/12/2024

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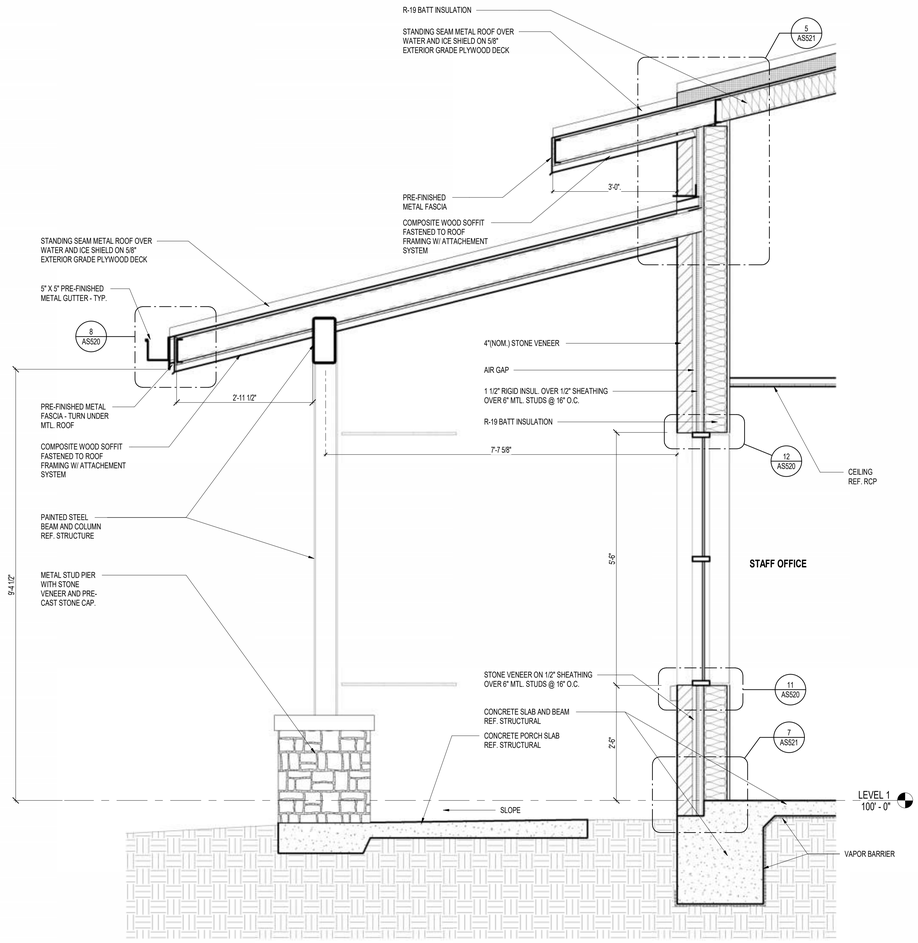
Drawing Title: BUILDING SECTIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS300
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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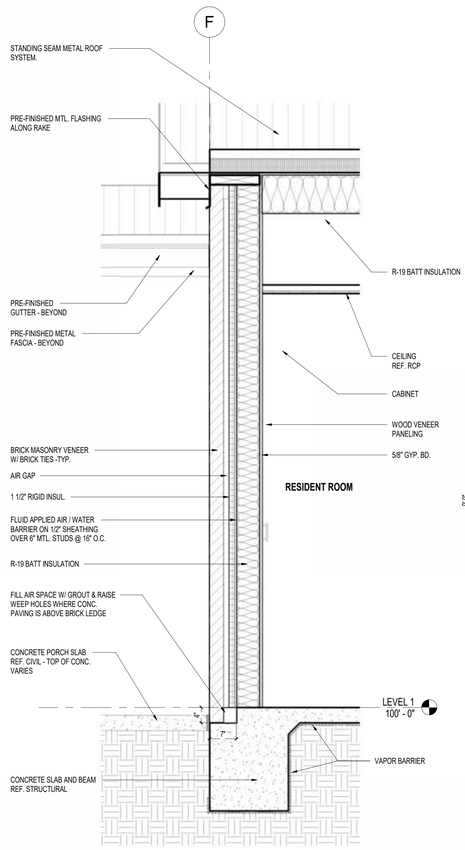
VA FORM 08 - 6231

GENERAL NOTES:

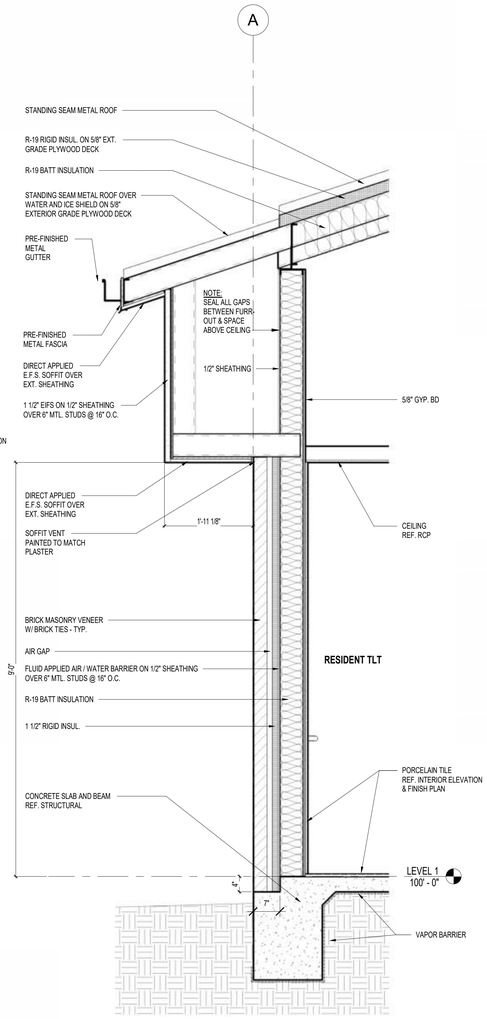
A. REFERENCE G003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



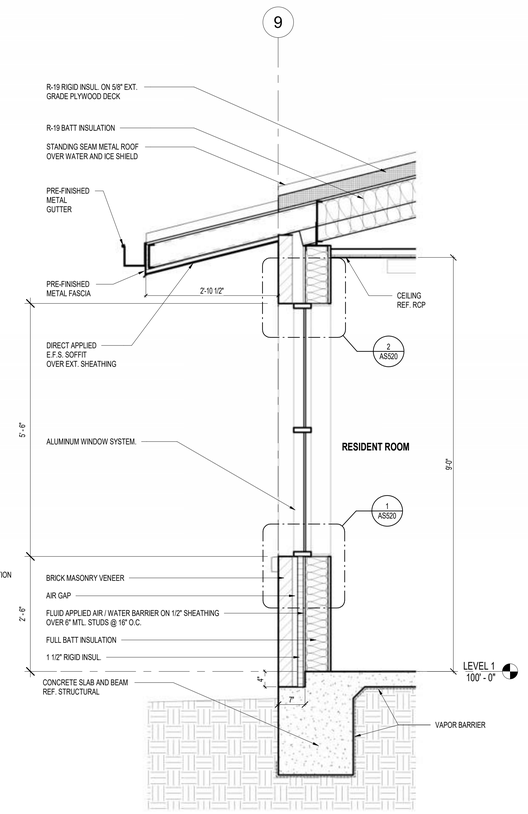
5 WALL SECTION - STONE VENEER WALL WITH LOWER CANOPY
3/4" = 1'-0"



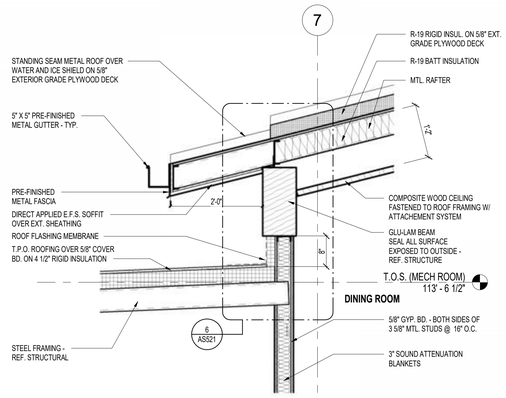
4 WALL SECTION - BRICK WALL @ ROOF RAKE
3/4" = 1'-0"



3 WALL SECTION - BRICK WALL (FURR OUT)
3/4" = 1'-0"



1 WALL SECTION - BRICK WALL WITH TYPICAL ROOF OVERHANG
3/4" = 1'-0"



2 WALL SECTION DETAIL
3/4" = 1'-0"

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REGISTERED ARCHITECT JONGKYU LEE 22633 STATE OF TEXAS
04/28/2024

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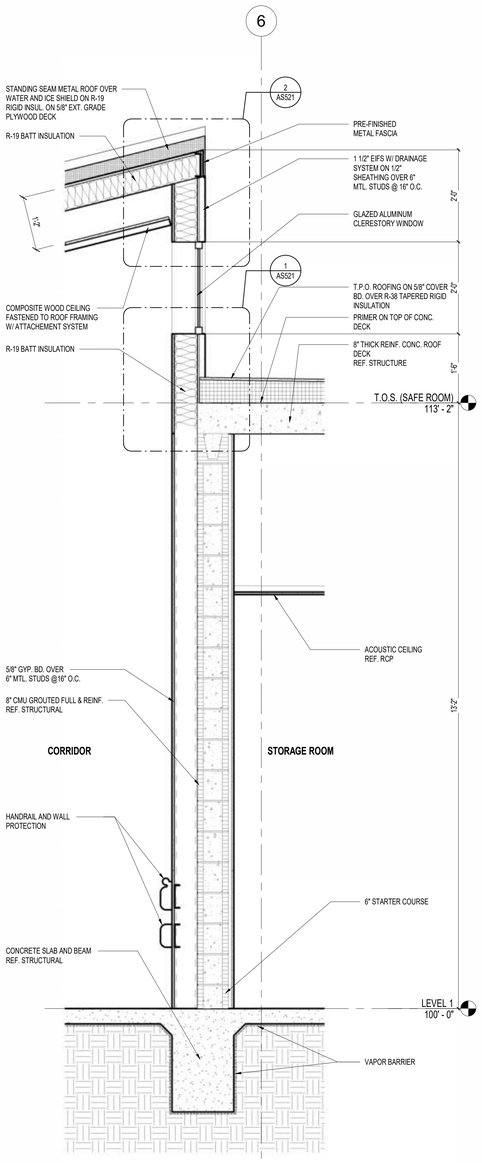
Drawing Title: WALL SECTIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS301
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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6/25/2024 4:42:04 PM

VA FORM 08 - 6231

GENERAL NOTES:

A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



5 WALL SECTION - SAFE ROOM ROOF AND CLERESTORY WINDOW
3/4" = 1'-0"

4 WALL SECTION - STUCCO
3/4" = 1'-0"

3 WALL SECTION
3/4" = 1'-0"

2 WALL SECTION- BRICK WALL AND GLAZED CURTAIN WALL
3/4" = 1'-0"

1 WALL SECTION - GLAZED CURTAIN WALL
3/4" = 1'-0"

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT KENDRICK V. LEE 22633 STATE OF TEXAS
06/28/2024

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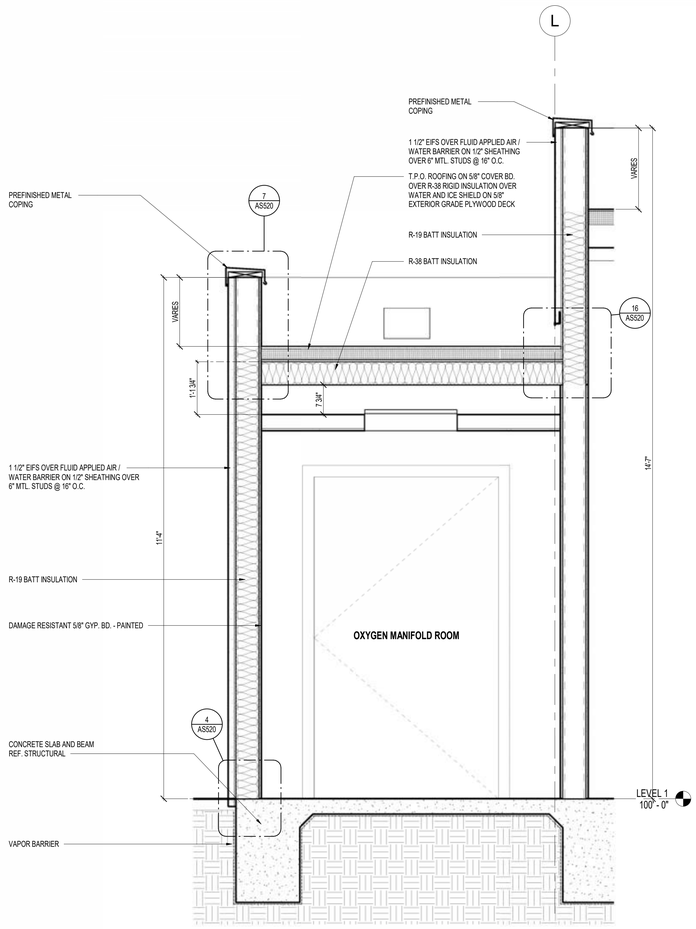
Drawing Title: WALL SECTIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS302
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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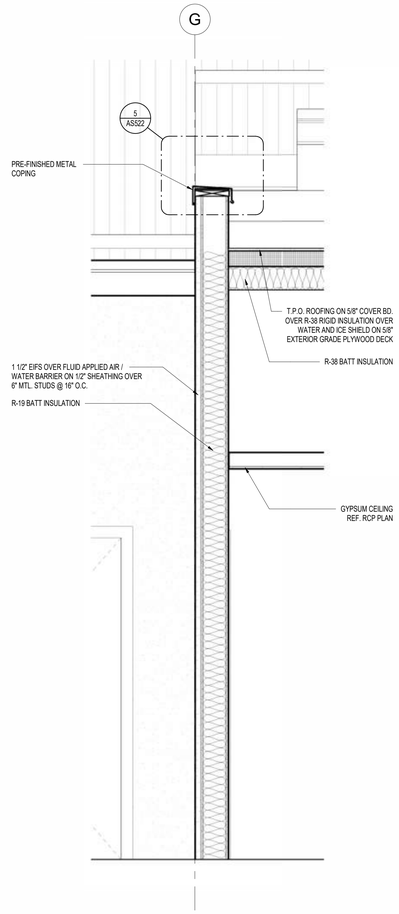
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GENERAL NOTES:

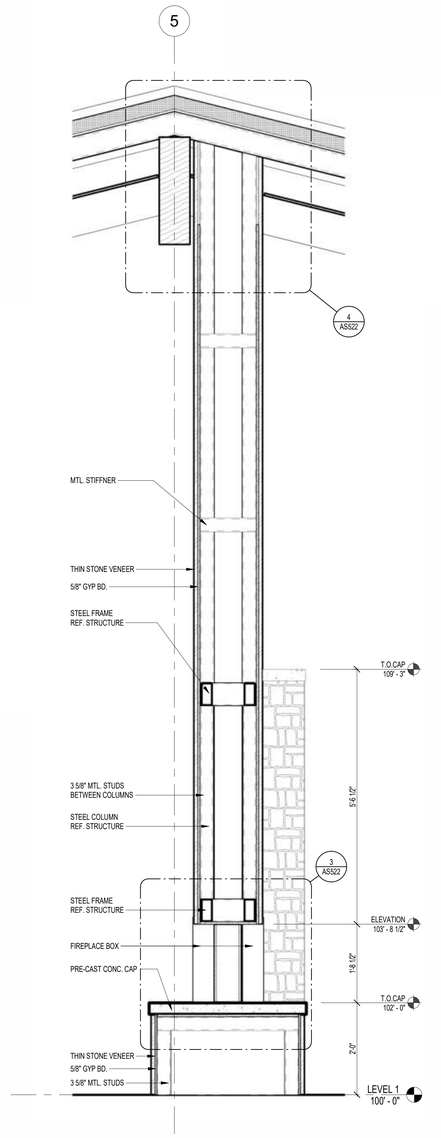
A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



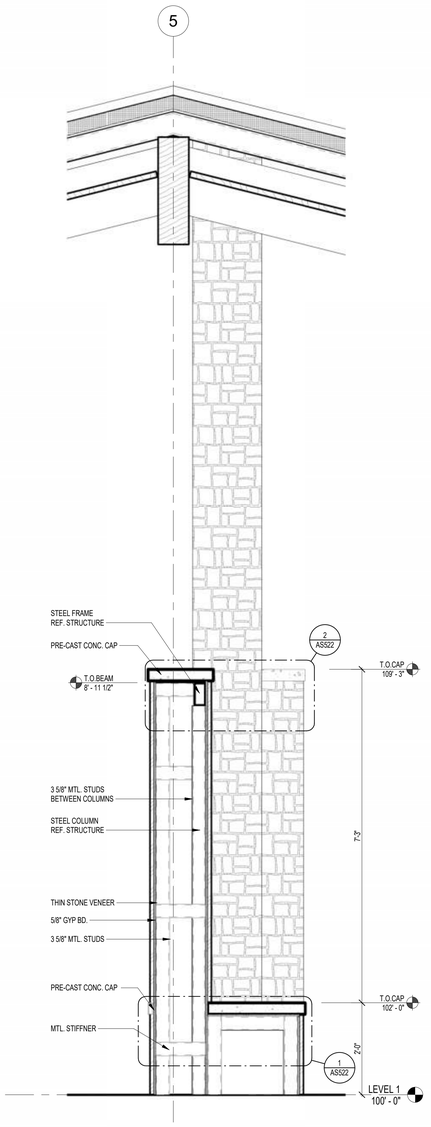
4 WALL SECTION - EIFS
3/4" = 1'-0"



3 WALL SECTION - EIFS
3/4" = 1'-0"



2 WALL SECTION - FIREPLACE 2
3/4" = 1'-0"



1 WALL SECTION - FIREPLACE
3/4" = 1'-0"

Revisions:	Date:

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REGISTERED ARCHITECT HONGKYU LEE 22633 STATE OF TEXAS
04/25/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: WALL SECTIONS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS303
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

Autodesk Docs://1486001.008 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt
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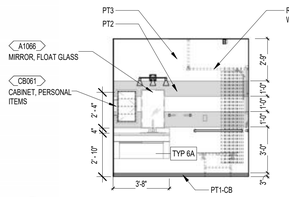
VA FORM 08 - 6231

GENERAL NOTE:

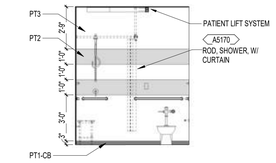
A. REFERENCE GI003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

FINISH MATERIAL LIST

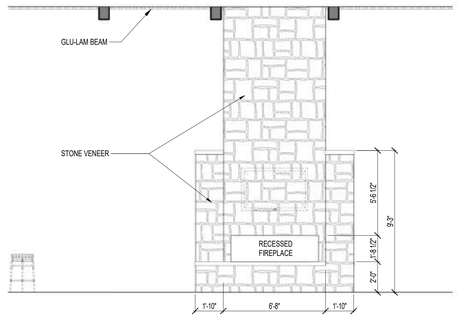
FINISH SCHEDULE		
Code	Description	Product Info
PT1 PT1-CB	PORCELAIN TILE PORCELAIN TILE BASE	MNFR: ARIZONA STYLE: TOUCH FINISH: SUNSET
PT2	PORCELAIN TILE	MNFR: ARIZONA STYLE: TOUCH FINISH: GLOW
PT3	PORCELAIN TILE	MNFR: ARIZONA STYLE: TOUCH FINISH: SUMMER
PT4 PT4-CB	PORCELAIN TILE PORCELAIN TILE BASE	MNFR: ARIZONA STYLE: PAVE FINISH: PAVE MOKA
CG1	CORNER GUARD	MNFR: INPRO COLOR: 0260 CREME BRULEE
RB	RUBBER BASE	MNFR: JOHNSONITE STYLE: TRADITIONAL DURACOVE 1/8" COLOR: 286 FORTUNE COOKIE
WC	WALL COVER	MNFR: ARC-CON STYLE: VALOR COLOR: GOLDEN
P1	PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 7120 - DOLLOP OF CREAM



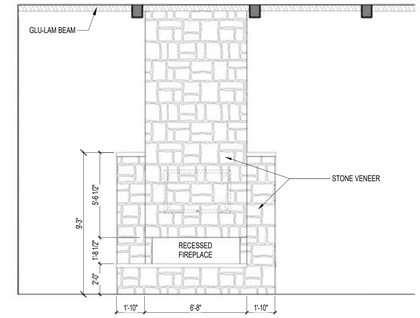
16 RESIDENT TLT
1/4" = 1'-0"



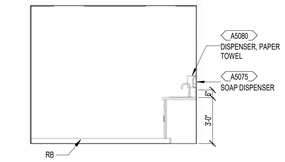
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1/4" = 1'-0"



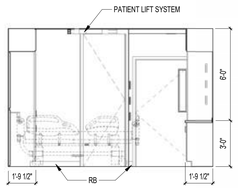
9 DINING ROOM
1/4" = 1'-0"



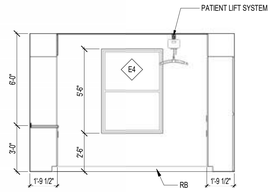
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1/4" = 1'-0"



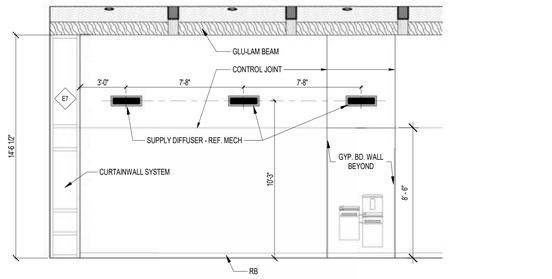
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1/4" = 1'-0"



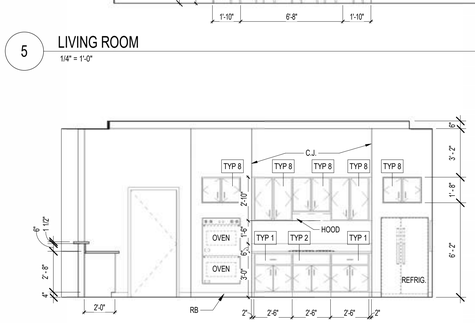
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1/4" = 1'-0"



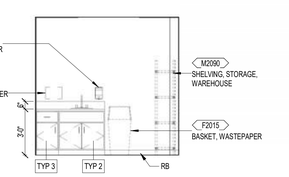
13 RESIDENT ROOM
1/4" = 1'-0"



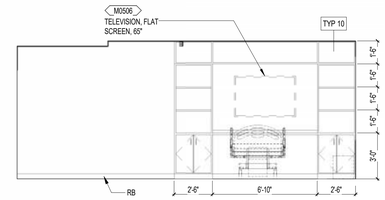
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1/4" = 1'-0"



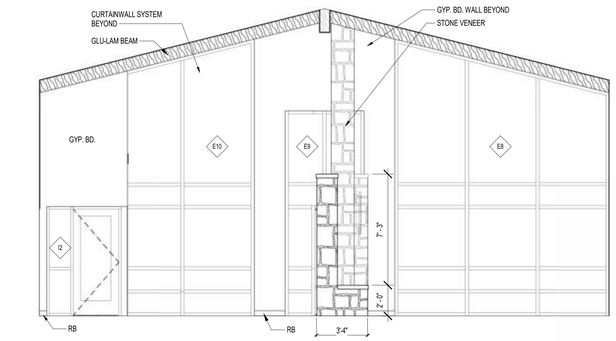
4 KITCHEN
1/4" = 1'-0"



20 MEDICATION ROOM
1/4" = 1'-0"

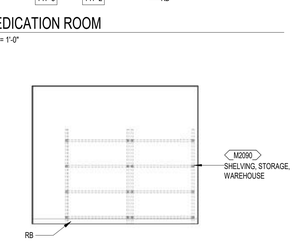


12 RESIDENT ROOM
1/4" = 1'-0"

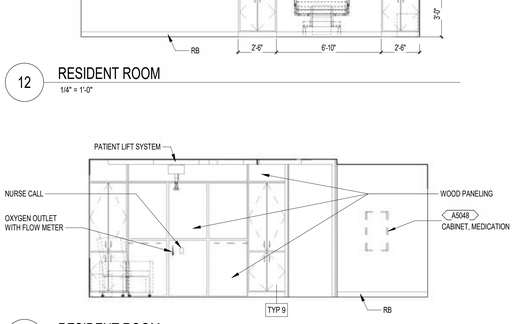


7 LIVING & DINING ROOM
1/4" = 1'-0"

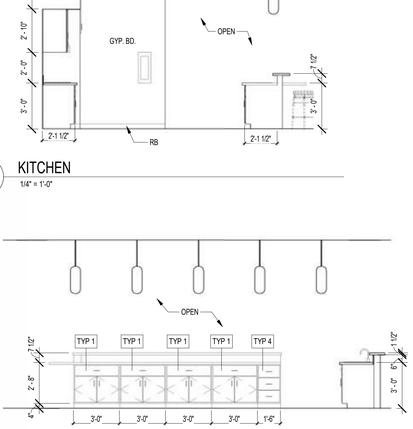
3 KITCHEN
1/4" = 1'-0"



19 SMALL HOUSE STORAGE
1/4" = 1'-0"

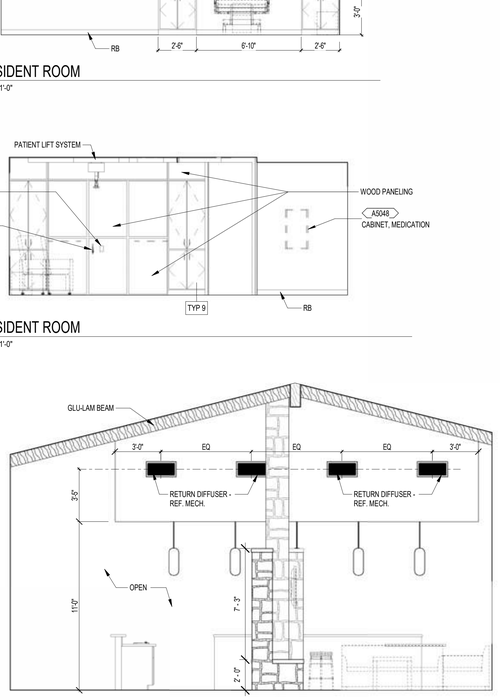


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1/4" = 1'-0"

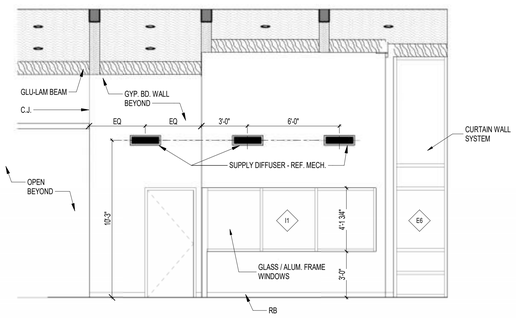


2 KITCHEN
1/4" = 1'-0"

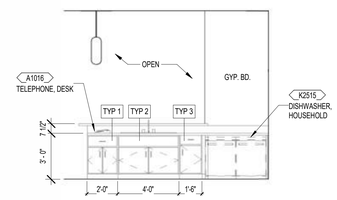
18 SMALL HOUSE STORAGE
1/4" = 1'-0"



10 DINING ROOM
1/4" = 1'-0"



6 LIVING ROOM
1/4" = 1'-0"



1 KITCHEN
1/4" = 1'-0"

Revisions:	Date:

CONSULTANT

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2340 E. Trinity Mills Rd. Ste 220
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ARCHITECT/ENGINEER OF RECORD

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O'Brien Engineering, Inc., Managing Partner
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Carrollton, TX 75006
972-233-2288
www.obrieneng.com

OEI - LBL

STAMP

REGISTERED ARCHITECT DONGKYU LEE 32623 STATE OF TEXAS
06/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: INTERIOR ELEVATIONS	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: Big Spring, TX			Drawing Number: AS400
Issue Date: 06/28/2024	Checked: JOW	Drawn: KL	

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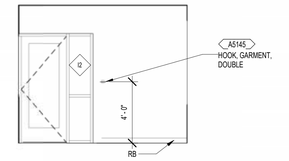
VA FORM 08 - 6231

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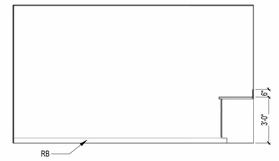
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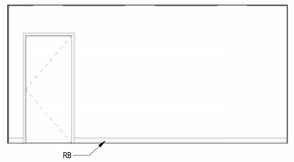
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WC	WALL COVER	MNFR: ARC-CON STYLE: VALOR COLOR: GOLDEN
P1	PAINT COLOR	MNFR: SHERWIN-WILLIAMS COLOR: SW 7120 - DOLLOP OF CREAM



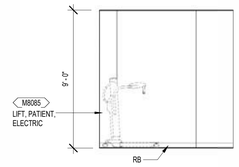
19 STAFF OFFICE
1/4" = 1'-0"



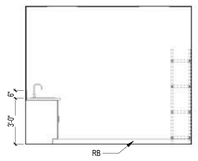
13 LAUNDRY
1/4" = 1'-0"



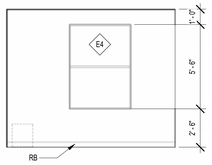
7 LARGE HOUSE STORAGE
1/4" = 1'-0"



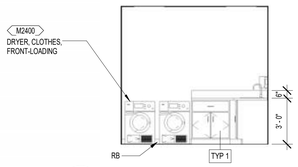
6 LARGE HOUSE STORAGE
1/4" = 1'-0"



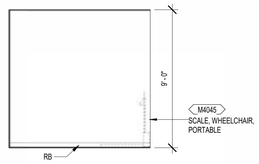
24 SOILED ROOM
1/4" = 1'-0"



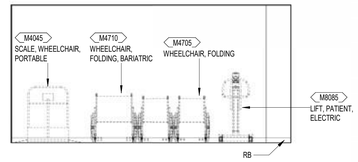
18 STAFF OFFICE
1/4" = 1'-0"



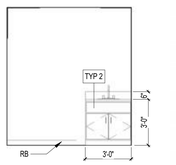
12 LAUNDRY
1/4" = 1'-0"



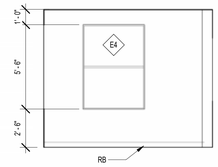
5 LARGE HOUSE STORAGE
1/4" = 1'-0"



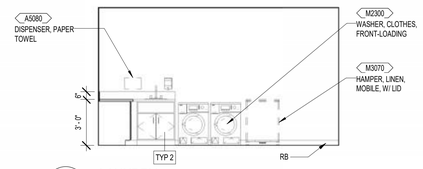
4 LARGE HOUSE STORAGE
1/4" = 1'-0"



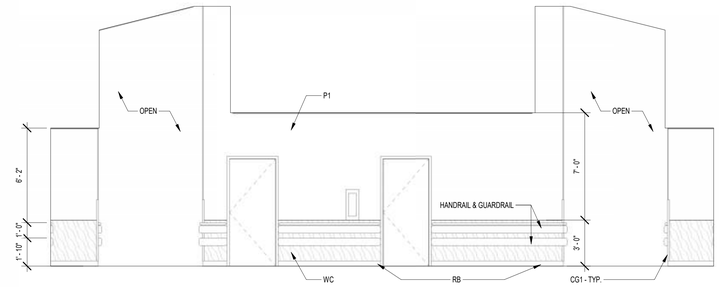
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1/4" = 1'-0"



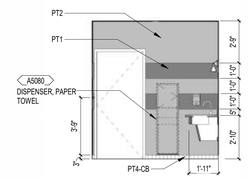
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1/4" = 1'-0"



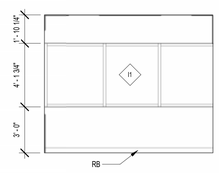
11 LAUNDRY
1/4" = 1'-0"



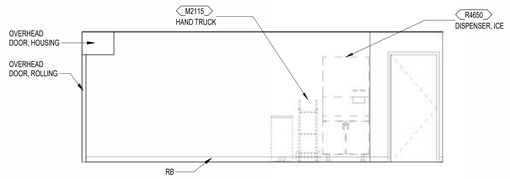
3 RESIDENT CORRIDOR
1/4" = 1'-0"



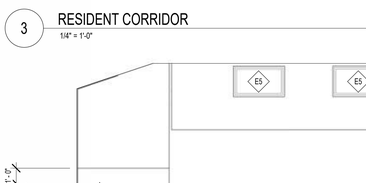
22 GUEST TOILET
1/4" = 1'-0"



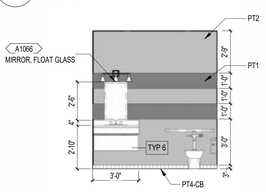
16 STAFF OFFICE
1/4" = 1'-0"



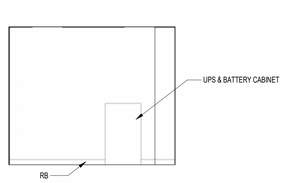
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1/4" = 1'-0"



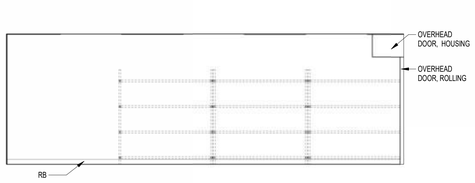
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1/4" = 1'-0"



21 GUEST TOILET
1/4" = 1'-0"

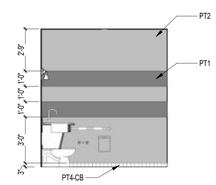


15 CLEAN LINEN
1/4" = 1'-0"

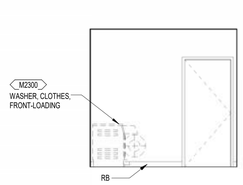


9 RECEIVING
1/4" = 1'-0"

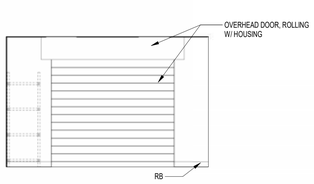
1 RESIDENT CORRIDOR
1/4" = 1'-0"



20 GUEST TOILET
1/4" = 1'-0"



14 LAUNDRY
1/4" = 1'-0"



8 RECEIVING
1/4" = 1'-0"

Revisions:	Date:

CONSULTANT

A/E:
O'Brien Engineering, Inc.,
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Carrollton, TX 75006
972-233-2288
www.obrieneng.com

OEI

ARCHITECT/ENGINEER OF RECORD

A/E:
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O'Brien Engineering, Inc., Managing Partner
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Carrollton, TX 75006
972-233-2288
www.obrieneng.com

OEI - LBL

STAMP

REGISTERED ARCHITECT HONGKYU KIM 22633 STATE OF TEXAS
04/28/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: INTERIOR ELEVATIONS	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: Big Spring, TX			Drawing Number: AS401
Issue Date: 06/28/2024	Checked: JOW	Drawn: KL	

Autodesk Docs://0498001.038 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt

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VA FORM 08 - 6231

PARTITION TYPES

	A	F	K
ALL PARTITIONS	STRUCTURE SEALANT - NO AIR LEAKAGE CLG A2 2 1/2" METAL STUDS 3 3/4" PARTITION WIDTH A3 3 5/8" METAL STUDS 4 7/8" PARTITION WIDTH A4 4" METAL STUDS 5 1/4" PARTITION WIDTH A6 6" METAL STUDS 7 1/4" PARTITION WIDTH A8 8" METAL STUDS 9 1/4" PARTITION WIDTH WIDTH FLR SEALANT	STRUCTURE CLG F2 2 1/2" METAL STUDS 3 1/8" PARTITION WIDTH F3 3 5/8" METAL STUDS 4 1/4" PARTITION WIDTH F6 6" METAL STUDS 6 5/8" PARTITION WIDTH FLR	STRUCTURE CLG K4 4" CMU & 6" METAL STUDS K6 6" CMU & 6" METAL STUDS K8 8" CMU & 6" METAL STUDS WIDTH PROVIDE 6" CMU STARTER COURSE FLR
DEFAULT	A3 **TYPICAL PARTITION** 5/8" GYPSUM BOARD EACH SIDE OF METAL STUDS	F3 **MISC NON RATED FURRING** 5/8" GYPSUM BOARD ON ONE SIDE OF METAL STUDS	K8 **5/8" GYPSUM BOARD EACH SIDE OF 6" METAL STUDS AND 8" CMU** 5/8" GYPSUM BOARD EACH SIDE (WITH 7/8" FURRING STRIP ON CMU SIDE)
PLAN GRAPHICS	NON-RATED SMOKE RESISTANT STC: 45 (49 W/ 3" SAB) 1-HOUR FIRE RATED STC: 45 (49 W/ 3" SAB) UL# 419 1-HOUR FIRE / SMOKE RATED STC: 45 (49 W/ 3" SAB) UL# 419	FURRING MISC FURRING @ NON RATED CHASES & FURR OUTS - NOTE THERE IS NO "X" WITHIN THE CHASE	NON-RATED SMOKE RESISTANT STC: 48 1-HOUR FIRE RATED UL# 905 - MIN. 7 5/8" WYTHE UL #906 - 5 5/8" WYTHE | STC: 48 2-HOUR FIRE RATED UL# 905 - MIN. 7 5/8" WYTHE UL #906 - 5 5/8" WYTHE | STC: 48 3-HOUR FIRE RATED UL# 904 | STC: 48
	A	**F**	**K**

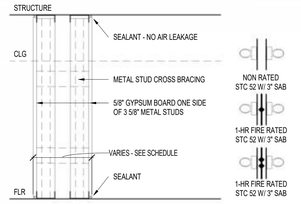
PARTITION NOTES

1. INTERIOR METAL STUD FRAMING TO BE 22 GAGE (MINIMUM) @ 16" O.C., U.N.O.
2. PROVIDE 20 GAGE DOUBLE STUDS @ EACH DOOR AND WINDOW / BORROWED LITE JAMB, UNLESS DETAILED OTHERWISE.
3. PROVIDE 16 GAGE METAL STRAP BLOCKING FOR ALL WALL MOUNTED ITEMS, UNLESS NOTED OR DETAILED OTHERWISE. EXTEND BLOCKING ACROSS 3 STUDS MINIMUM.
4. REFER TO FLOOR PLANS FOR LOCATIONS OF SMOKE AND / OR FIRE RATED PARTITIONS. REFER TO WALL PRIORITIY LEGEND FOR CONDITIONS WHERE FIRE RATED PARTITIONS INTERSECT OTHER PARTITIONS.
5. REFER TO THE GYPSUM BOARD SCHEDULE THIS SHEET FOR A DESCRIPTION OF THE TYPE OF GYPSUM BOARD PANELS TO BE USED.
   - REFER TO OTHER SCHEDULES AND DETAILS FOR INTERIOR FINISHES. PARTITION TYPES SHOWN THIS SHEET REFER TO BASE WALL ONLY.
6. INTERIOR PARTITIONS ARE DIMENSIONED FROM THE FACE OF GYPSUM BOARD.
7. FOR PARTITIONS THAT EXTEND TO STRUCTURE, THE "LINE OF STRUCTURE" AS SHOWN AT THE HEAD CONDITION OF EACH PARTITION TYPE IS DIAGRAMATIC ONLY AND DOES NOT INDICATE EXACT CONSTRUCTION CONDITIONS. TERMINATE RATED PARTITIONS AT THE UNDERSIDE OF STRUCTURAL DECK IN ORDER TO MAINTAIN RATING. PROVIDE APPROPRIATE DRYWALL FRAMING TO OFFSET AROUND STRUCTURE OR OTHER OBSTRUCTIONS SUCH AS PIPING OR DUCT WORK.
   - PARTITIONS MAY TERMINATE AT STRUCTURAL MEMBERS WITH A FIRE RATING GREATER THAN OR EQUAL TO THE PARTITION, PROVIDED THAT RATING IS CONTINUOUS TO THE STRUCTURAL DECK ABOVE.
   - NON-RATED PARTITIONS THAT EXTEND TO STRUCTURE SHALL TERMINATE AT UNDERSIDE OF STRUCTURAL DECK TO MAINTAIN A CONTINUOUS PLANE OF GYPSUM BOARD AS A BARRIER TO NOISE AND RESIST THE PASSAGE OF SMOKE..
8. ALL PARTITIONS EXTENDING TO STRUCTURE ABOVE SHALL TERMINATE WITH DEFLECTION TRACKS - SEE TYPICAL DETAILS THIS SHEET.
9. BRACE ALL GYPSUM BOARD PARTITIONS NOT EXTENDING TO STRUCTURE ABOVE.
10. IDENTIFY ALL RATED PARTITIONS WITH LABELS 6 INCHES ABOVE THE CEILING OR 10 FEET MAX. ABOVE THE FLOOR IF NO CEILING. USE 1 1/2" HIGH LETTERS, CLEARLY LEGIBLE & READABLE AGAINST A CONTRASTING BACKGROUND.
11. UL DESIGN NUMBERS REFER TO THE UL LLC FIRE, LATEST EDITION.
12. FIRE RATED PARTITIONS TO HAVE FIRESTOPPING SEALANT SYSTEMS INSTALLED AT HEAD, SILL, AND JUNCTURES WITH DISSIMILAR MATERIALS, ETC., AND AROUND ALL PENETRATIONS AND OPENINGS.
13. NON-RATED PARTITIONS TO HAVE ACOUSTICAL SEALANT INSTALLED AT HEAD, SILL, AND JUNCTURES WITH DISSIMILAR MATERIALS, ETC., AND AROUND ALL PENETRATIONS AND OPENINGS.
14. ALL STUD WALLS TO BE FILLED WITH 3" THK SOUND ATTENUATION BLANKETS TO BOTTOM OF ROOF DECK EXCEPT AROUND AND WITHIN SAFE ROOM.

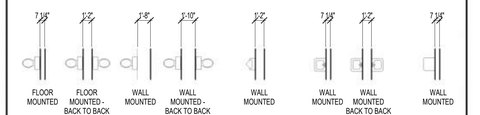
GYPSUM BOARD SCHEDULE

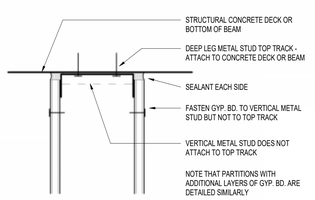
5/8" TYPE "X" GYPSUM BOARD	ALL PARTITIONS, UNO, OR NOTED OTHERWISE ON DRAWINGS
5/8" DAMAGE RESISTANT GYPSUM BOARD	USE WHERE IDENTIFIED ON PLANS
5/8" MOLD, WATER, ABUSE & FIRE RESISTANT (MWFA) GYPSUM BOARD	PRIORITY 1: PROVIDE BEHIND ALL WET WALL PARTITIONS W/ PLUMBING FIXTURES (WATER CLOSETS, URINALS, LAVATORIES, EWC'S, ETC) TO A HEIGHT OF 8' AFF AND 8' WIDE (CENTER ON FIXTURE)
5/8" FIBER CEMENT OR GP DENS SHIELD	PRIORITY 1: PARTITIONS EXPOSED DIRECTLY TO RUNNING WATER & SCHEDULED TO RECEIVE TILE. EXAMPLES: SHOWERS
5/8" MOISTURE RESISTANT (GREEN ROCK)	PRIORITY 2: USE AT ALL TOILET ROOMS, HOUSEKEEPING / JANITOR CLOSETS, AND SOILED UTILITY ROOMS. NOTE THAT PRIORITY 1 BOARDS TAKE PRECEDENT

PLUMBING CHASE SCHEDULE - MTL STUDS



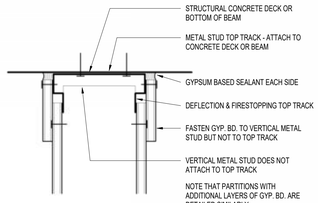
WATER CLOSETS	URINAL	LAVATORIES	EWC





DEFLECTION TRACK

NON RATED PARTITION @ BOTTOM OF CONCRETE DECK OR BEAM



DEFLECTION TRACK

RATED PARTITION @ BOTTOM OF CONCRETE DECK OR BEAM

TERMINATE ALL METAL STUD PARTITIONS EXTENDING TO THE STRUCTURAL DECK ABOVE W/ DEFLECTION TRACKS.

RATED DETAILS DRAWN THIS SHEET ARE BASED ON THE FIRETRAK SYSTEM - www.firetrak.com

ACCEPTABLE SUBSTITUTE: SLIPTRACK SYSTEM BY BRADY INNOVATIONS | CLARK DIETRICH - www.sliptrack.com

PARTITION DEFLECTION

Revisions:	Date:

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Drawing Title: PARTITION TYPES	Phase: ISSUE FOR BID
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED

Project Title: CLC PHASE 3			Project Number: 519-371
			Building Number: 28
Location: Big Spring, TX			Drawing Number: AS410
Issue Date: 06/28/2024	Checked: JOW	Drawn: KL	

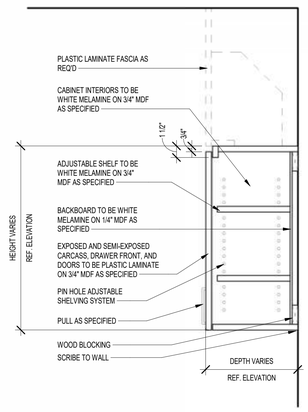
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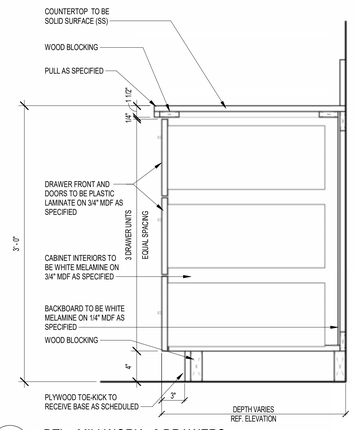
VA FORM 08 - 6231

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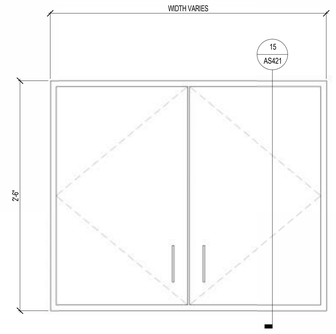
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B. REFERENCE G003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET



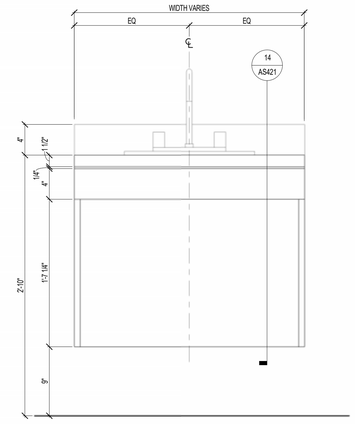
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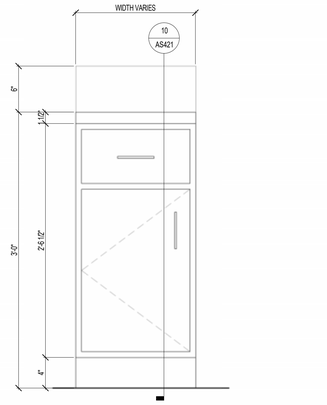
12 DTL - MILLWORK - 3 DRAWERS
1 1/2" = 1'-0"



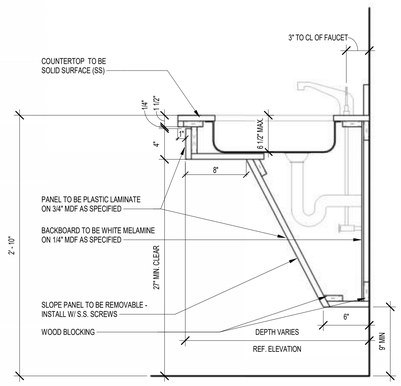
9 DTL - MILLWORK - TYP 8
1 1/2" = 1'-0"



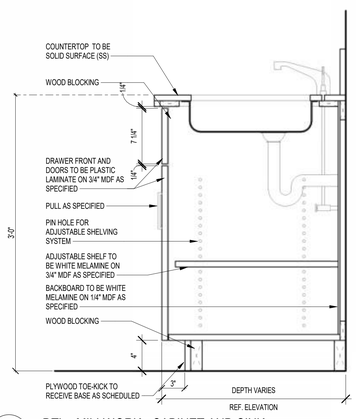
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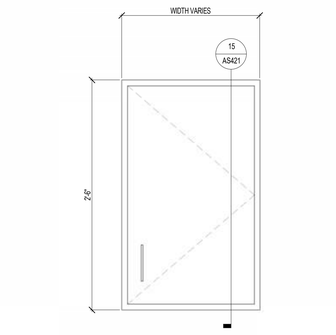
3 DTL - MILLWORK - TYP 3
1 1/2" = 1'-0"



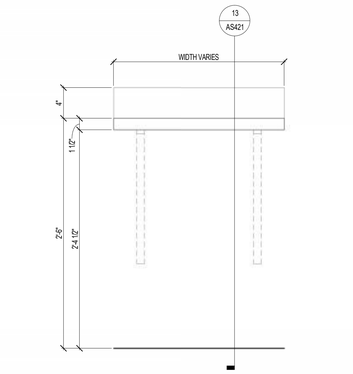
14 DTL - MILLWORK - SINK WITH APRON
1 1/2" = 1'-0"



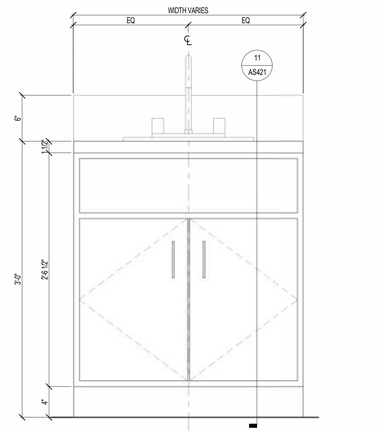
11 DTL - MILLWORK - CABINET AND SINK
1 1/2" = 1'-0"



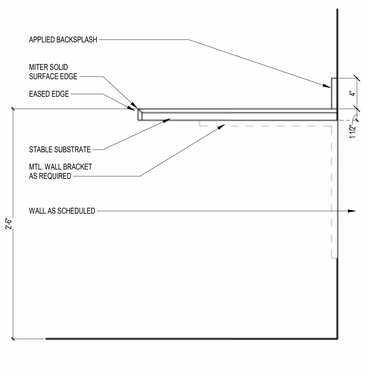
8 DTL - MILLWORK - TYP 7
1 1/2" = 1'-0"



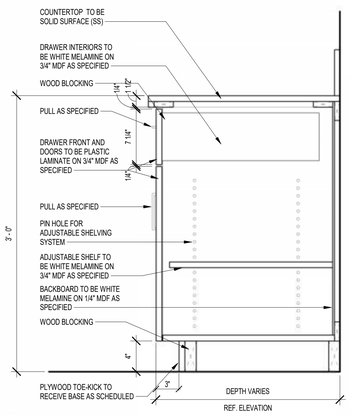
5 DTL - MILLWORK - TYP 5
1 1/2" = 1'-0"



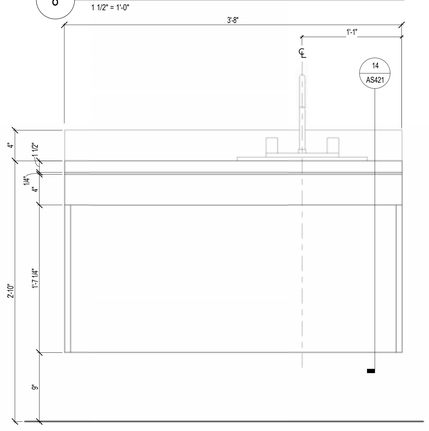
2 DTL - MILLWORK - TYP 2
1 1/2" = 1'-0"



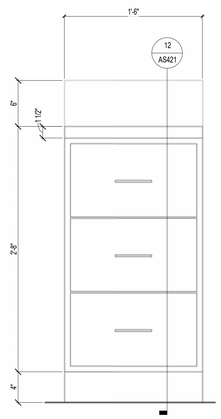
13 DTL - MILLWORK - WALL HUNG COUNTER
1 1/2" = 1'-0"



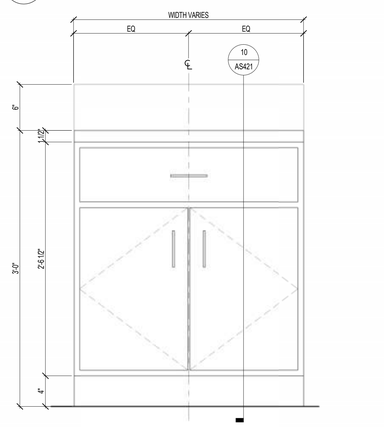
10 DTL - MILLWORK - CABINET AND DRAWER
1 1/2" = 1'-0"



7 DTL - MILLWORK - TYP 6A
1 1/2" = 1'-0"



4 DTL - MILLWORK - TYP 4
1 1/2" = 1'-0"



1 DTL - MILLWORK - TYP 1
1 1/2" = 1'-0"

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT HYUNGKYU LEE 22633 STATE OF TEXAS
06/28/2024

Office of Construction and Facilities Management

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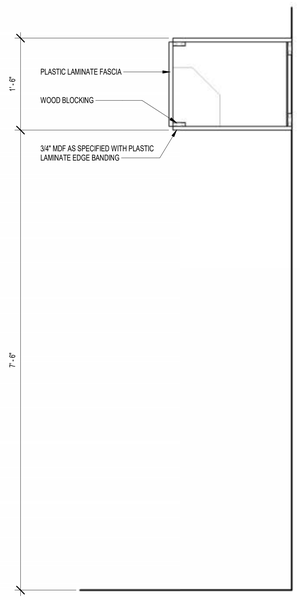
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			Building Number 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	**Location** Big Spring, TX	**Drawing Number** AS421
		Issue Date 06/28/2024 / **Checked** JOW / **Drawn** KL	

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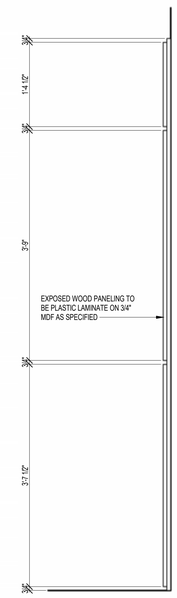
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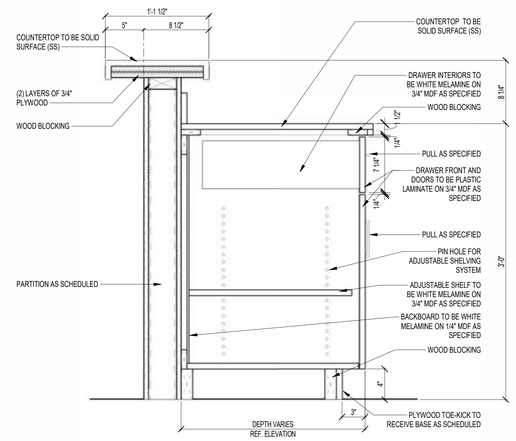
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B. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET



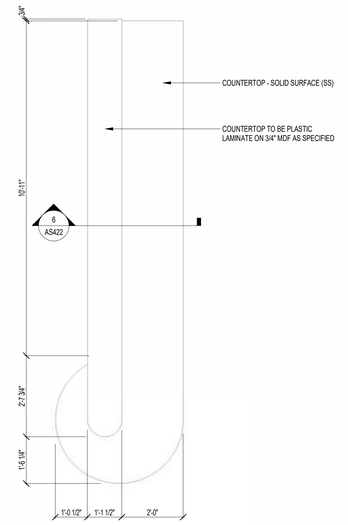
8 DTL - MILLWORK - WOOD PANELING & FASCIA
1" = 1'-0"



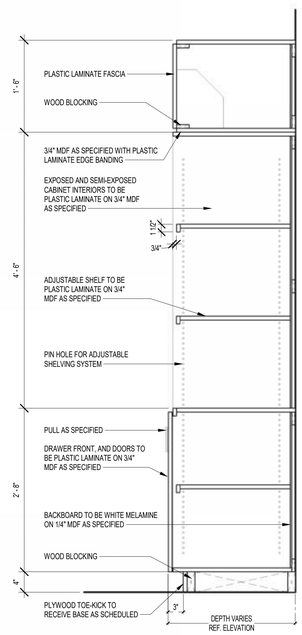
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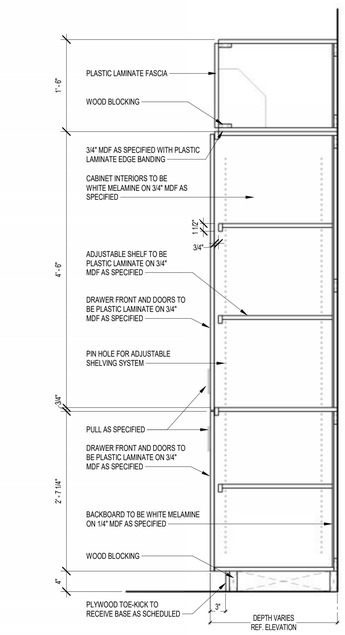
6 DTL - MILLWORK - COUNTERTOP
1 1/2" = 1'-0"



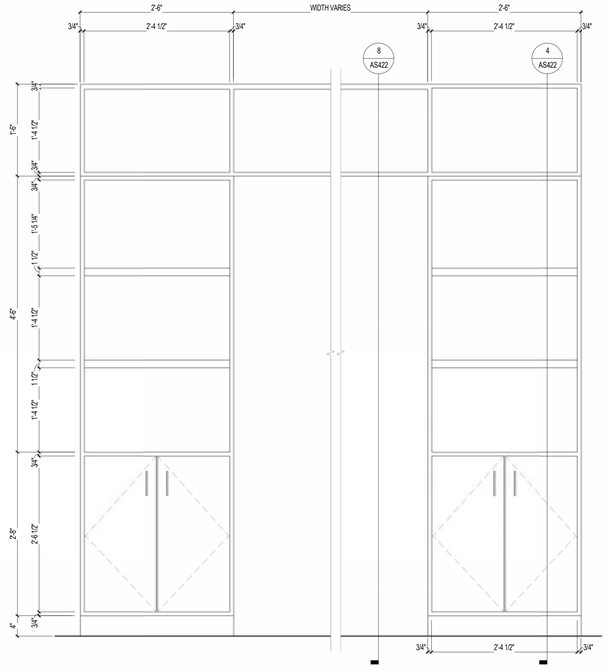
5 DTL - COUNTERTOP
1/2" = 1'-0"



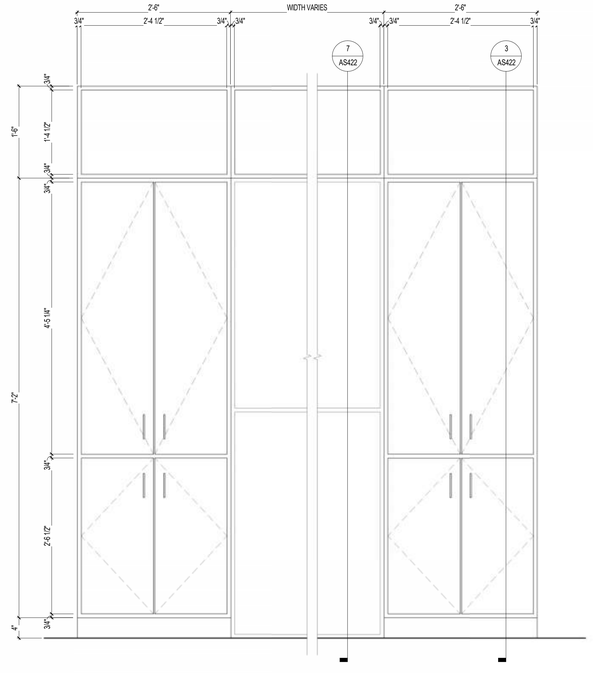
4 DTL - MILLWORK - OPEN WARDROBE AND DOORS
1" = 1'-0"



3 DTL - MILLWORK - WARDROBE AND DOORS
1" = 1'-0"



2 DTL - MILLWORK - TYP 10
1" = 1'-0"



1 DTL - MILLWORK - TYP 9
1" = 1'-0"

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT DONGKYU LEE 22623 STATE OF TEXAS
04/27/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

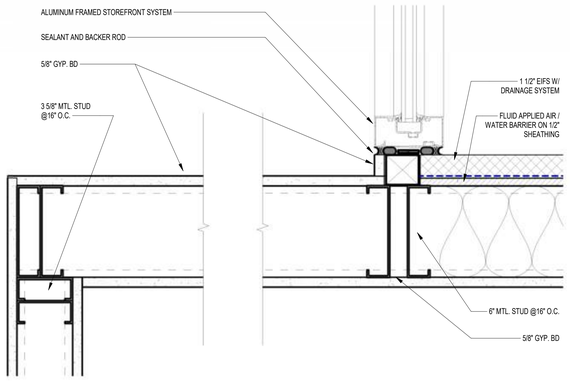
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				Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX		Drawing Number: AS422
		Issue Date: 06/28/2024	Checked: JOW	Drawn: KL

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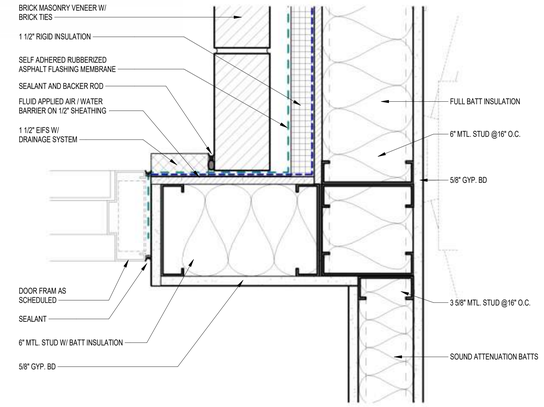
VA FORM 08 - 6231

GENERAL NOTES:

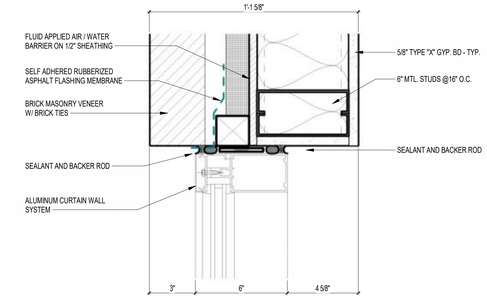
A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



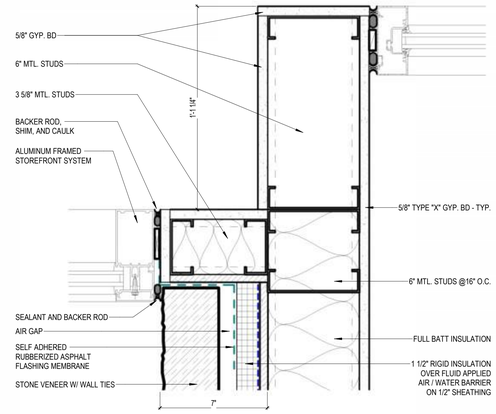
13 PLAN DETAIL - EIFS TO STOREFRONT
3" = 1'-0"



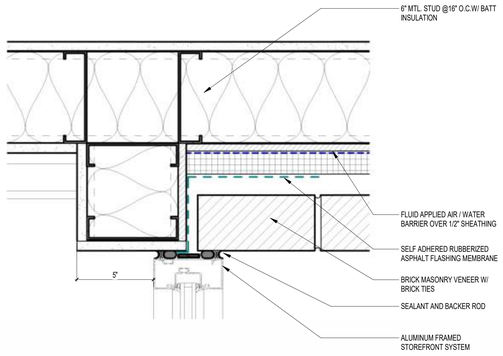
9 PLAN DETAIL - BRICK TO EIFS W/ DOOR JAMB
3" = 1'-0"



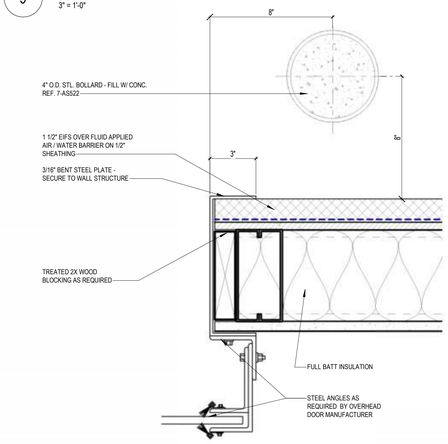
6 JAMB DETAIL - BRICK TO CURTAIN WALL
3" = 1'-0"



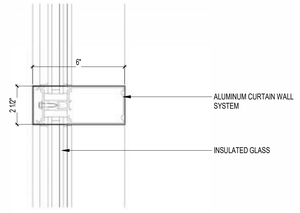
3 JAMB DETAIL - STONE TO STOREFRONT
3" = 1'-0"



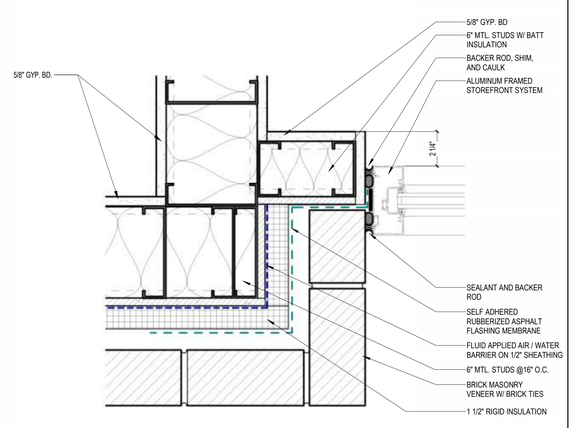
12 PLAN DETAIL - BRICK TO STOREFRONT
3" = 1'-0"



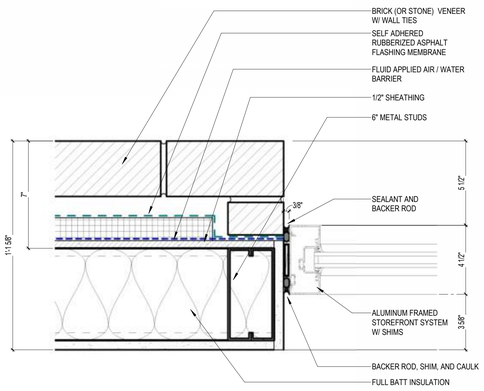
8 PLAN DETAIL - OVERHEAD DOOR JAMB
3" = 1'-0"



5 PLAN DETAIL - CURTAIN WALL
3" = 1'-0"

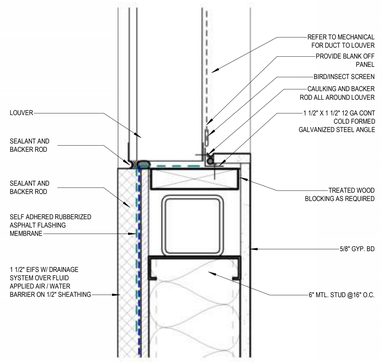


2 PLAN DETAIL - BRICK TO STOREFRONT
3" = 1'-0"

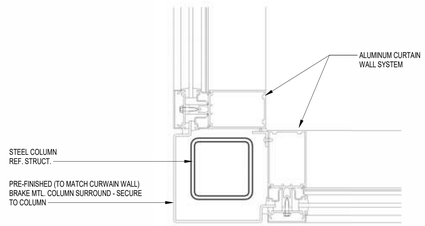


10 JAMB DETAIL - STONE TO STOREFRONT
3" = 1'-0"

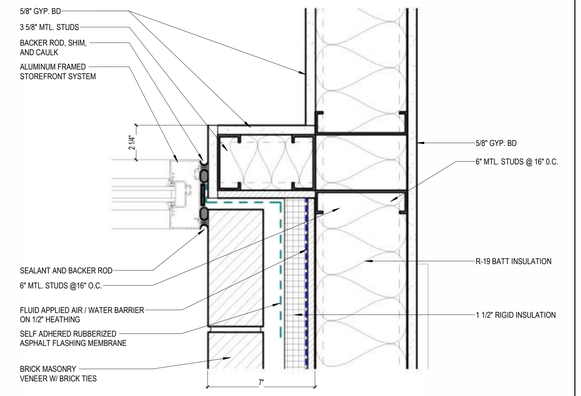
11 JAMB DETAIL - BRICK TO STOREFRONT
3" = 1'-0"



7 PLAN DETAIL - LOUVER JAMB
3" = 1'-0"



4 PLAN DETAIL - CURTAIN WALL
3" = 1'-0"



1 PLAN DETAIL - BRICK TO STOREFRONT
3" = 1'-0"

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT DONGKYU LEE 22623 STATE OF TEXAS
04/27/2024

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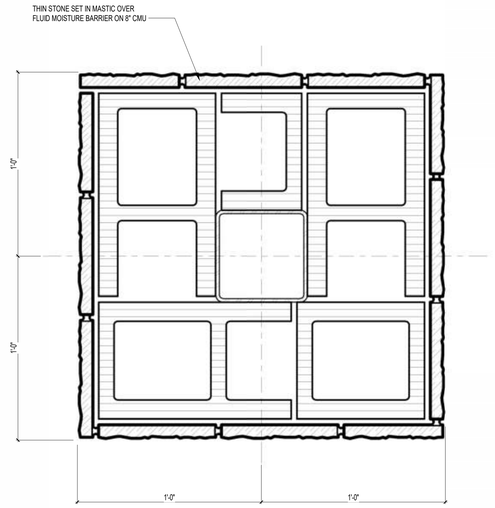
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				Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN		Location: Big Spring, TX		Drawing Number: AS510
	FULLY SPRINKLERED	Issue Date: 06/28/2024	Checked: JOW / Drawn: KL	

Autodesk Docs://b489001.008 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt
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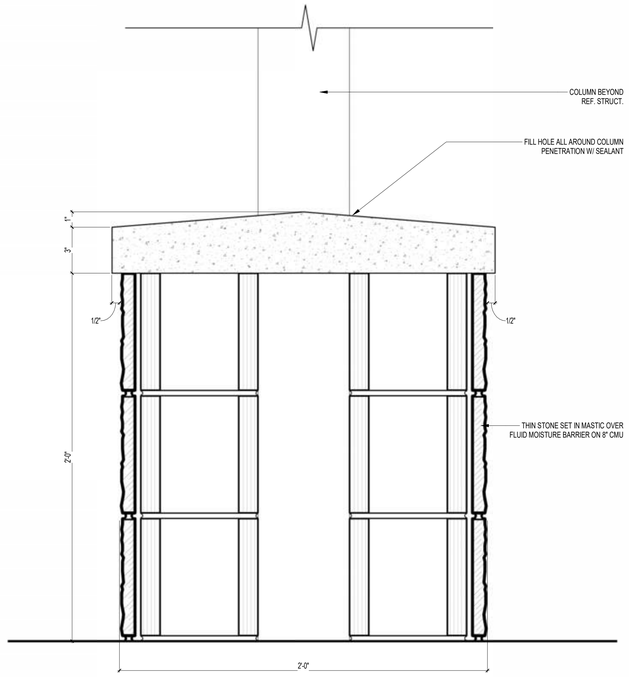
VA FORM 08 - 6231

GENERAL NOTES:

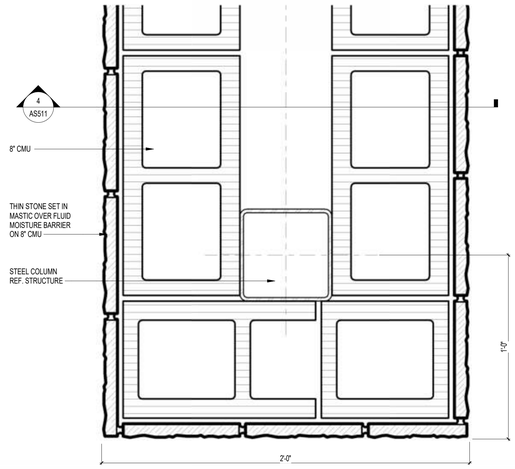
A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



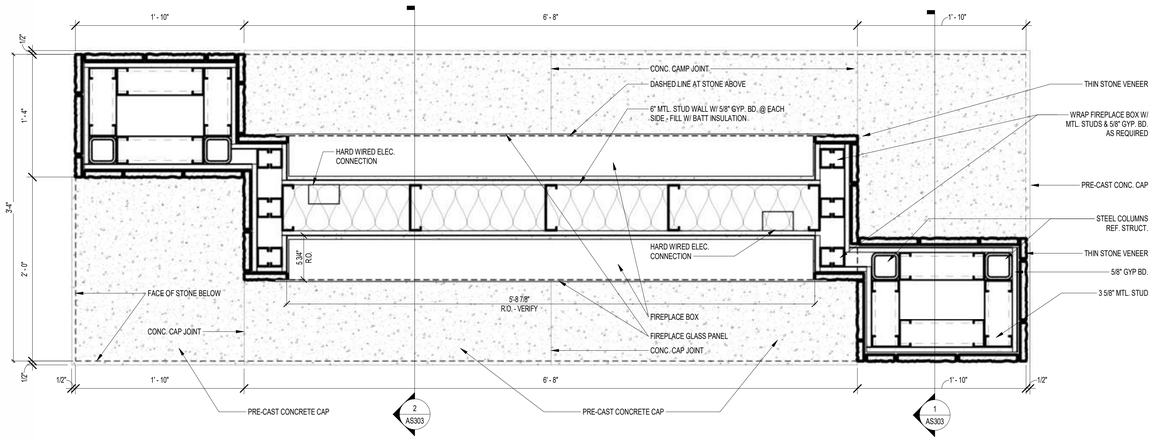
5 PLAN DETAIL - COLUMN BASE
3" = 1'-0"



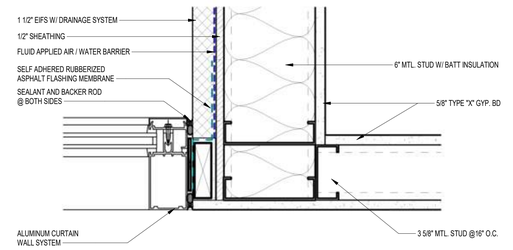
4 SECTION DETAIL
3" = 1'-0"



3 PLAN DETAIL
3" = 1'-0"



2 PLAN DETAIL - FIREPLACE
1 1/2" = 1'-0"



1 JAMB DETAIL - EIFS TO CURTAIN WALL
3" = 1'-0"

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT HYUNGKYU LEE 23637 STATE OF TEXAS

06/28/2024

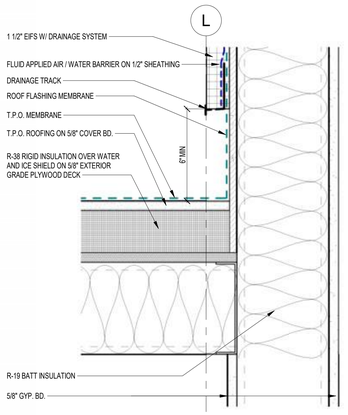
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

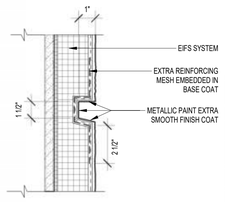
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APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS511
		Issue Date: 06/28/2024 · Checked: JOW · Drawn: KL	

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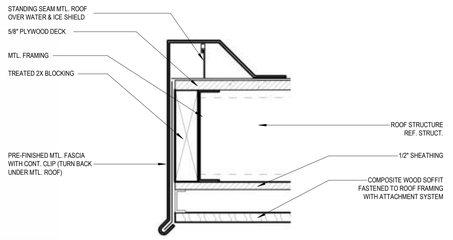
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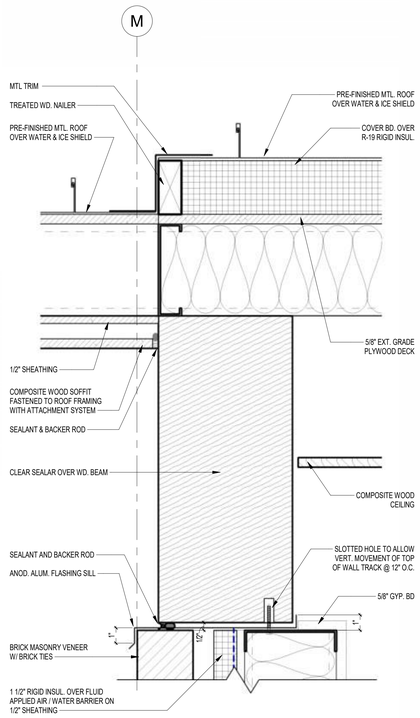
16 SECTION DETAIL - EIFS / ROOF
3" = 1'-0"



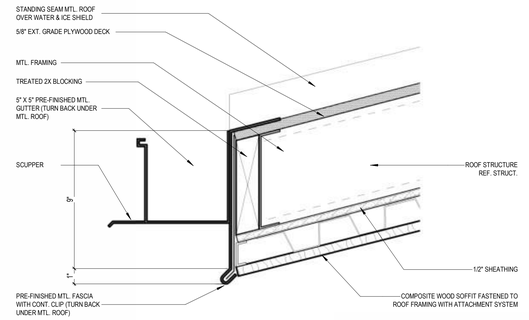
15 DETAIL - EIFS REVEAL
3" = 1'-0"



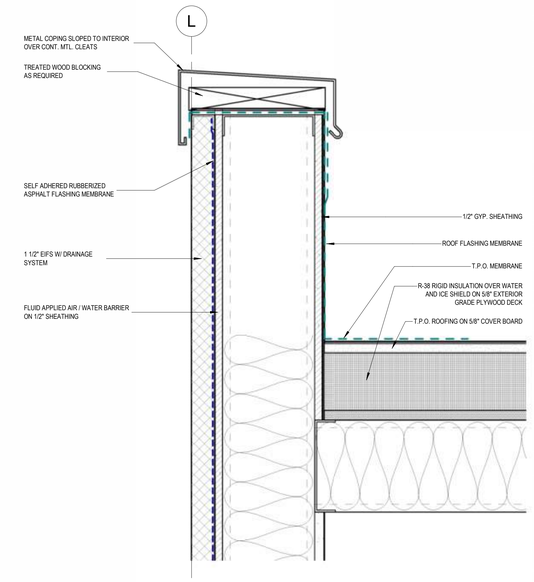
14 SECTION DETAIL - ROOF EDGE / METAL FASCIA
3" = 1'-0"



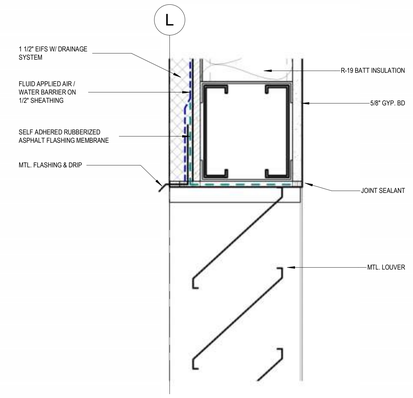
13 SECTION DETAIL - BRICK WALL AND GLULAM BEAM
3" = 1'-0"



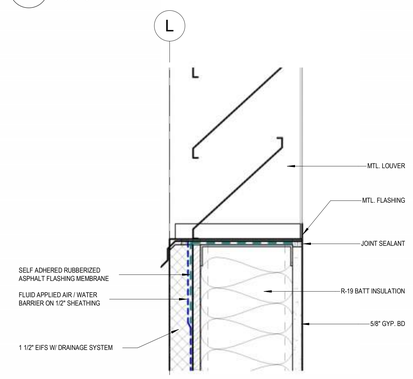
8 SECTION DETAIL - FASCIA / GUTTER
3" = 1'-0"



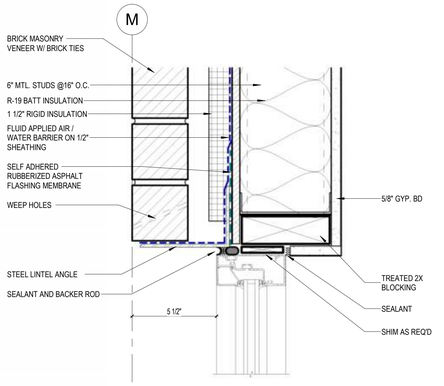
7 SECTION DETAIL - PARAPET
3" = 1'-0"



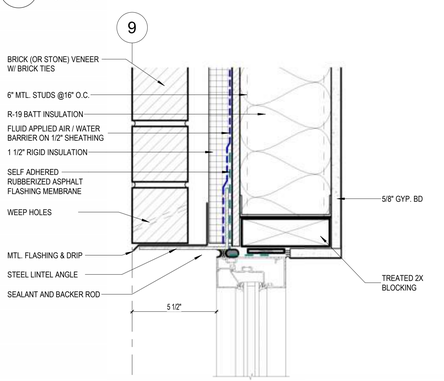
6 SECTION DETAIL - LOUVER HEAD
3" = 1'-0"



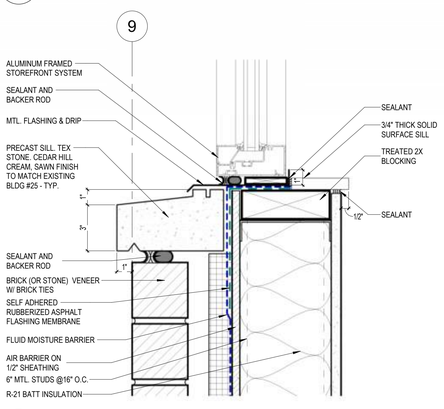
5 SECTION DETAIL - LOUVER SILL
3" = 1'-0"



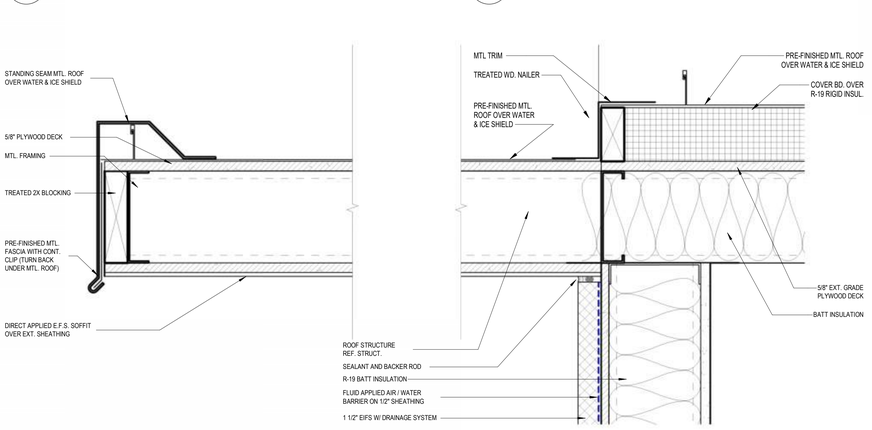
3 SECTION DETAIL - BRICK WALL AND GLAZED CURTAIN WALL
3" = 1'-0"



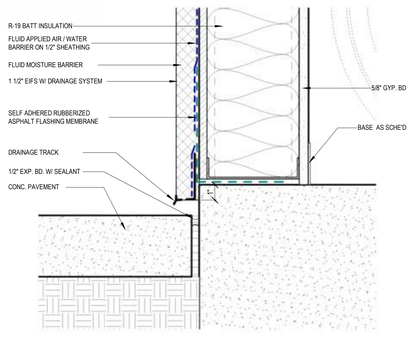
12 SECTION DETAIL - STOREFRONT HEAD AT STONE
3" = 1'-0"



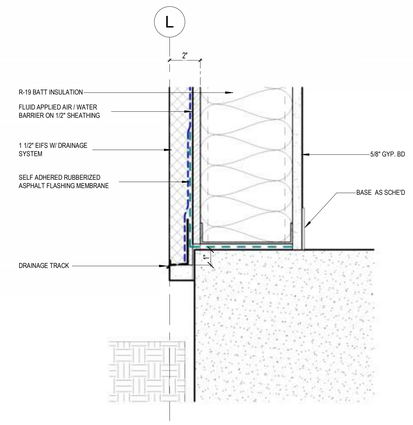
2 SECTION DETAIL - STOREFRONT HEAD AT BRICK
3" = 1'-0"



10 SECTION DETAIL - ROOF OVERHANG
3" = 1'-0"



9 SECTION DETAIL - BASE OF WALL - STUCCO
3" = 1'-0"



4 SECTION DETAIL - BASE OF WALL
3" = 1'-0"

11 SECTION DETAIL - CAST STONE SILL AT STONE
3" = 1'-0"

1 SECTION DETAIL - CAST STONE SILL AT BRICK
3" = 1'-0"

GENERAL NOTES:

A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT WONGKYU LEE 22633 STATE OF TEXAS
06/28/2024

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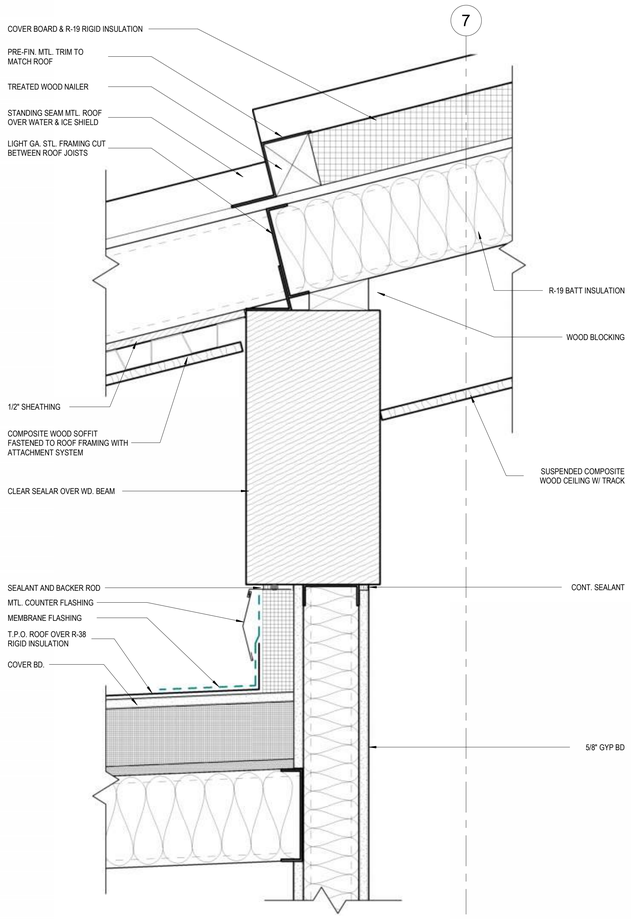
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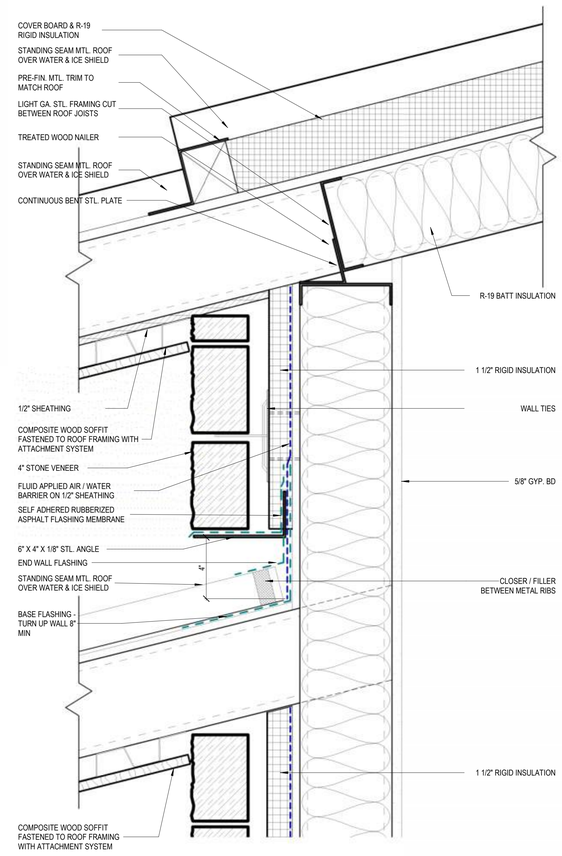
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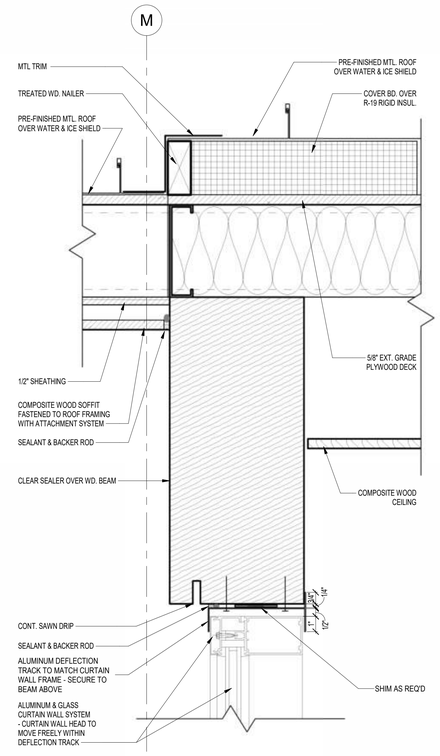
A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



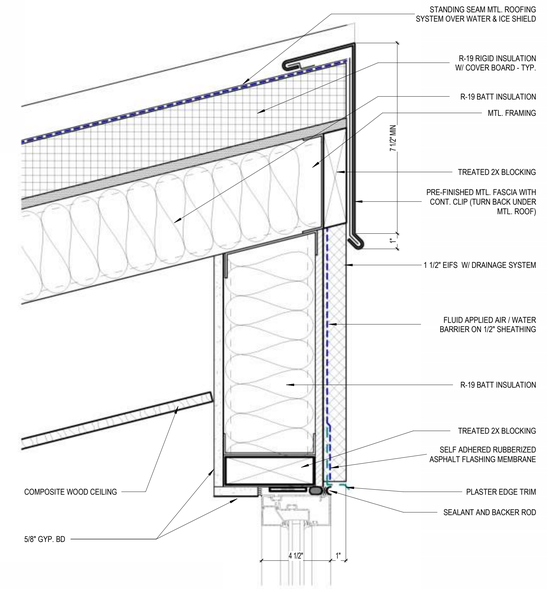
6 SECTION DETAIL - Callout 1
3" = 1'-0"



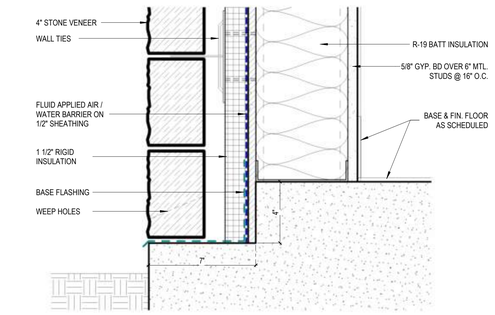
5 SECTION DETAIL - STONE VENEER WALL W/ LOWER CANOPY
3" = 1'-0"



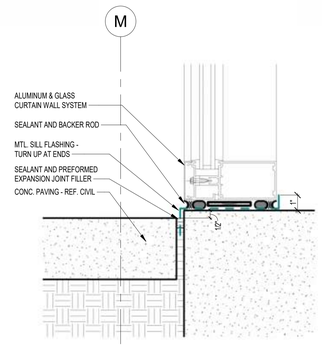
4 SECTION DETAIL - BEAM AT CURTAIN WALL
3" = 1'-0"



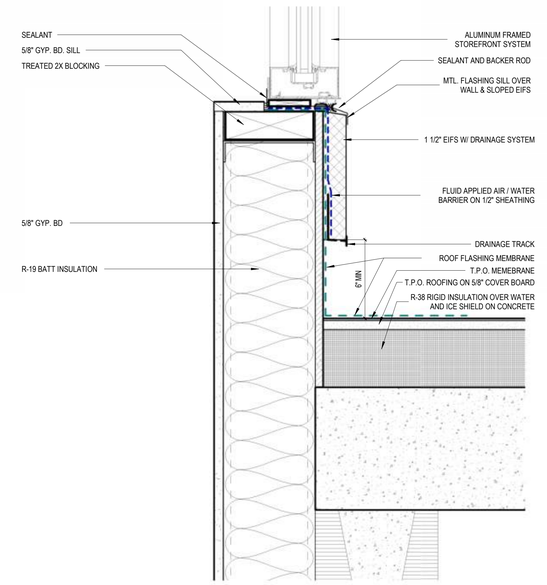
2 SECTION DETAIL - SAFE ROOM ROOF AND CLERESTORY WINDOW
3" = 1'-0"



7 SECTION DETAIL - WALL BASE
3" = 1'-0"



3 SECTION DETAIL - GLAZED CURTAIN WALL
3" = 1'-0"



1 SECTION DETAIL - SAFE ROOM ROOF AND CLERESTORY WINDOW
3" = 1'-0"

Revisions:	Date:

CONSULTANT

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REGISTERED ARCHITECT HYONGKYU LEE 22633 STATE OF TEXAS
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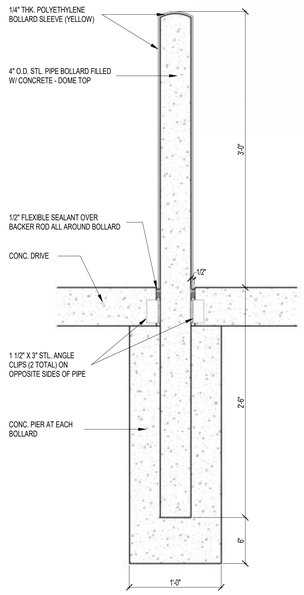
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Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: Big Spring, TX
Issue Date: 06/28/2024
Checked: JOW
Drawn: KL
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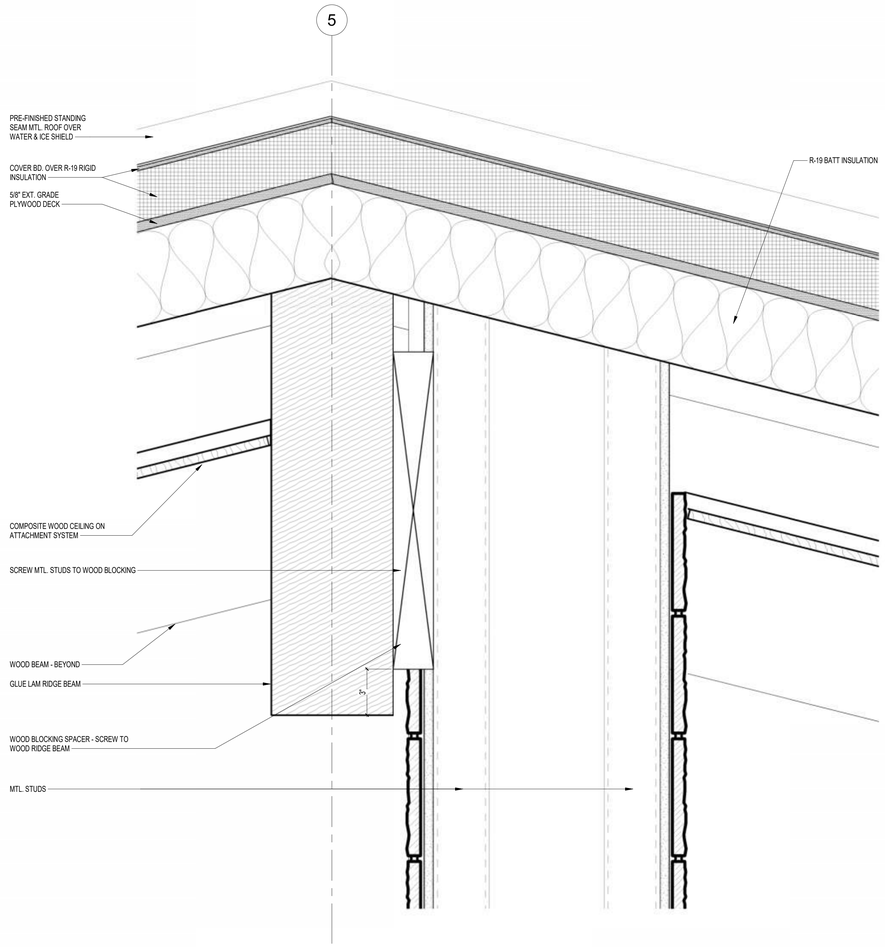
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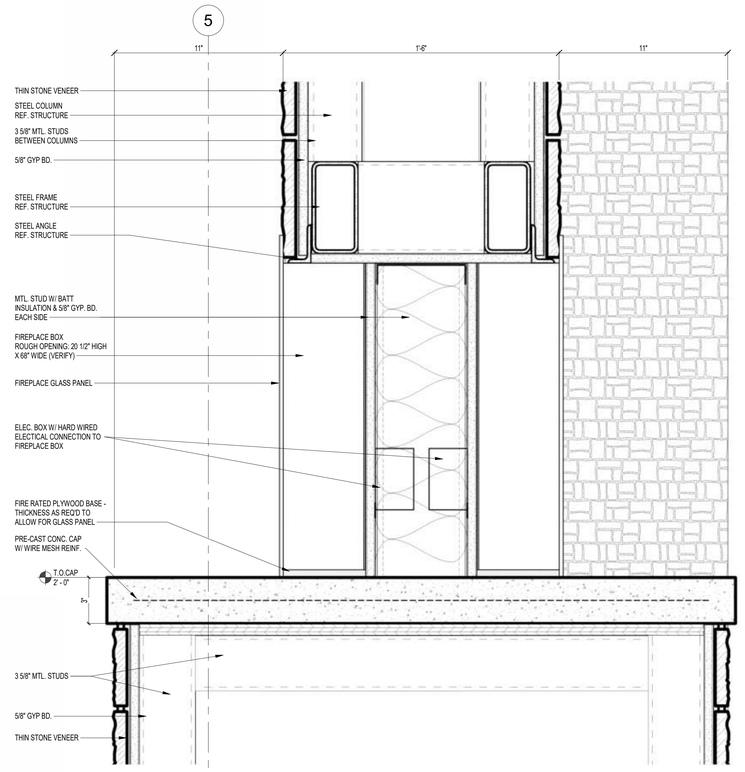
GENERAL NOTES:

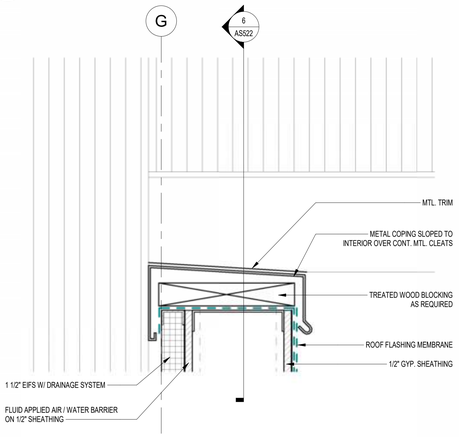
A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.



7 DETAIL - BOLLARD
1 1/2" = 1'-0"





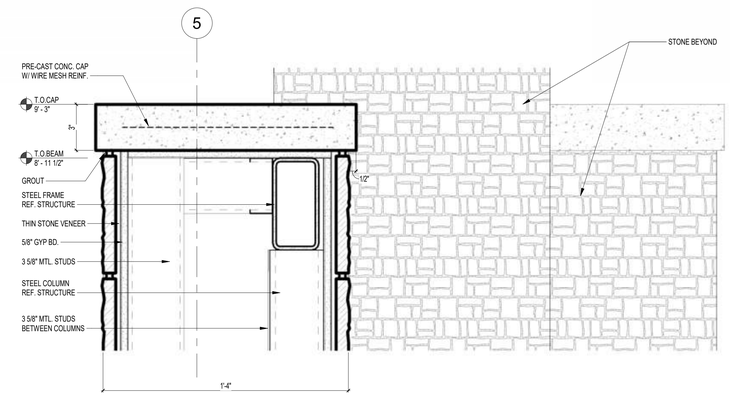


6 SECTION DETAIL - FASCIA WITH PARAPET
3" = 1'-0"

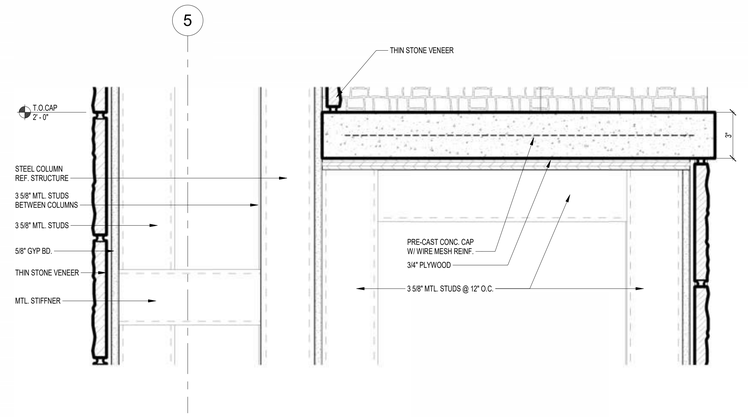
4 WALL SECTION - FIREPLACE
3" = 1'-0"

3 WALL SECTION - FIREPLACE
3" = 1'-0"

5 SECTION DETAIL - EIFS WITH PARAPET
3" = 1'-0"



2 WALL SECTION - FIREPLACE
3" = 1'-0"



1 WALL SECTION - FIREPLACE
3" = 1'-0"

Revisions:	Date:

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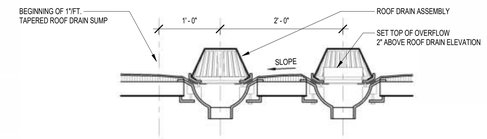
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06/28/2024

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

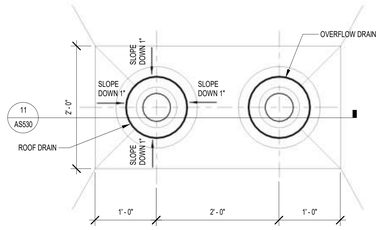
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			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS522
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

Autodesk Docs://0489001 008 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt
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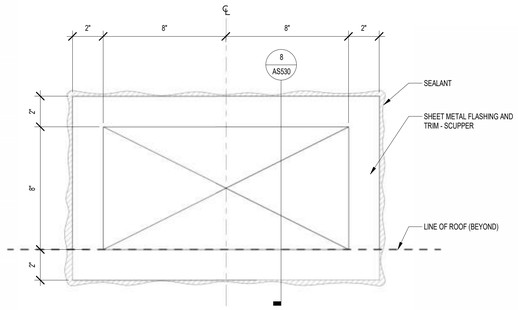
VA FORM 08 - 6231



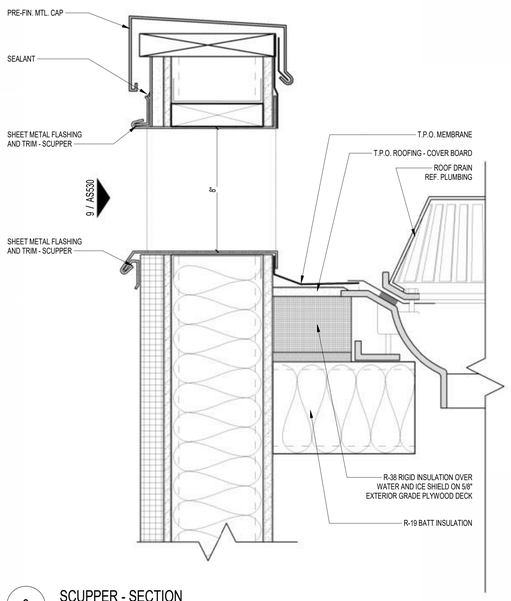
11 TYP. ROOF DRAIN SUMP - SECTION
1" = 1'-0"



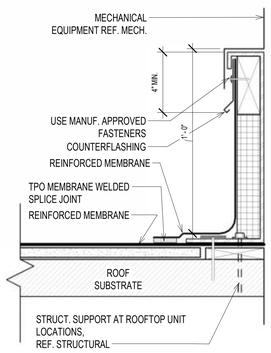
10 TYP. ROOF DRAIN SUMP - PLAN
1" = 1'-0"



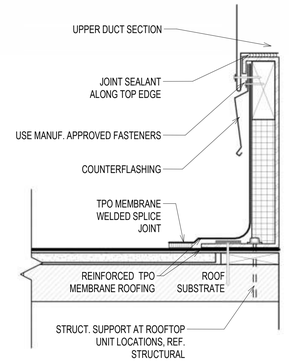
9 SCUPPER - ELEVATION
3" = 1'-0"



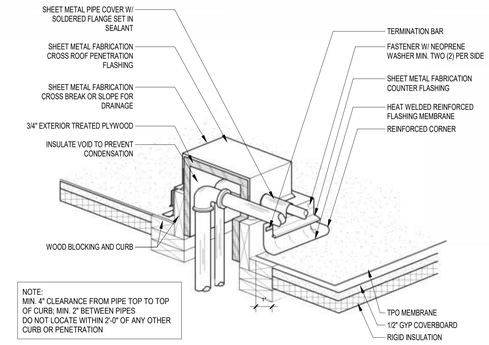
8 SCUPPER - SECTION
3" = 1'-0"



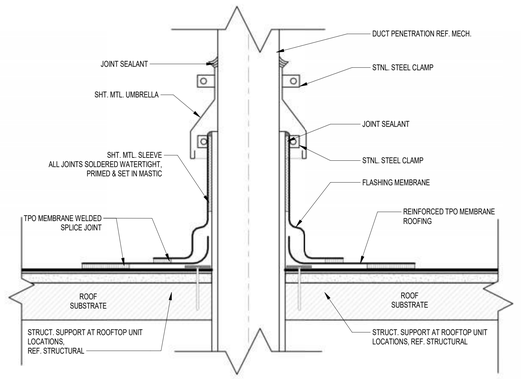
7 ROOF FLASHING - MECH. EQUIP.
3" = 1'-0"



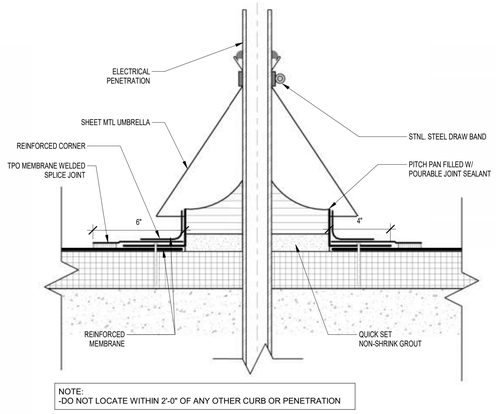
6 ROOF FLASHING - DUCT CURB
3" = 1'-0"



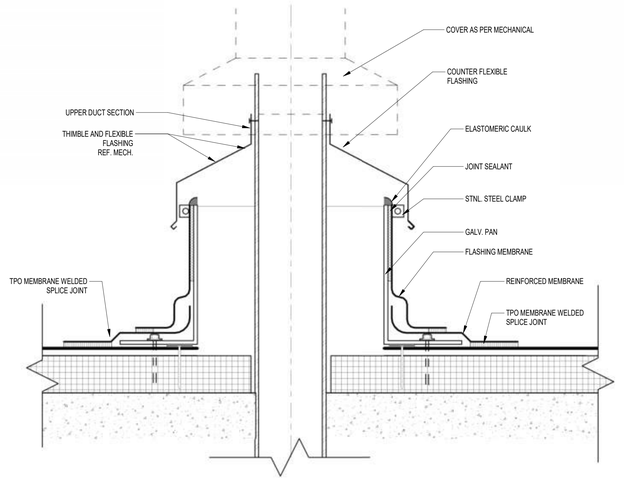
1 PIPE / CONDUIT PENETRATION DETAILS
3" = 1'-0"



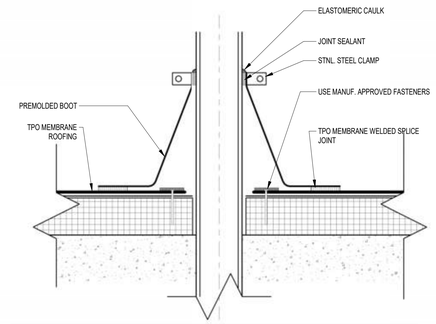
5 ROOF PENETRATION DETAIL - DUCT PIPE
3" = 1'-0"



2 ROOF PENETRATION DETAIL - ELECTRICAL
3" = 1'-0"



4 ROOF PENETRATION DETAIL - FLUE
3" = 1'-0"



3 ROOF PENETRATION DETAIL - PLUMBING STACK
3" = 1'-0"

Revisions:	Date:

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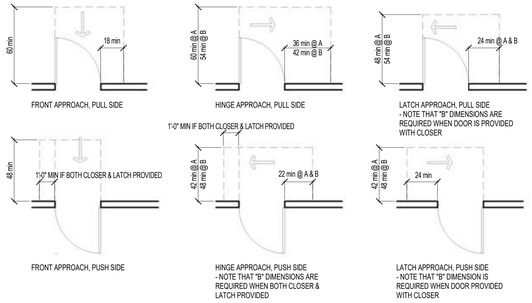
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REGISTERED ARCHITECT DONGKYU LEE 32633 STATE OF TEXAS
04/28/2024

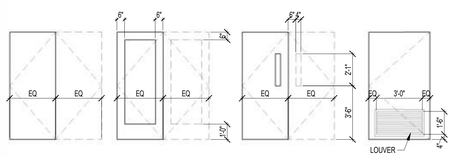
Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: ROOF DETAILS
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
Location: Big Spring, TX
FULLY SPRINKLERED
Issue Date: 06/28/2024
Checked: JOW
Drawn: KL
Drawing Number: AS530

Autodesk Docs://0489001.008 VABS CLC Phase 3/VABS CLC Phase 3_Centra.rvt
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VA FORM 08 - 6231



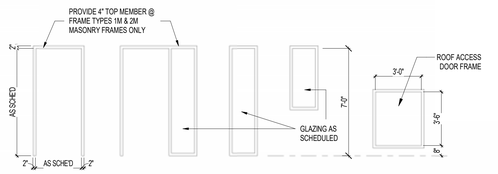
MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS & GATES



SINGLE & DOUBLE DOORS **F** FLUSH **G** GLASS **N** NARROW LITE **L** LOUVER

DOOR ELEVATIONS

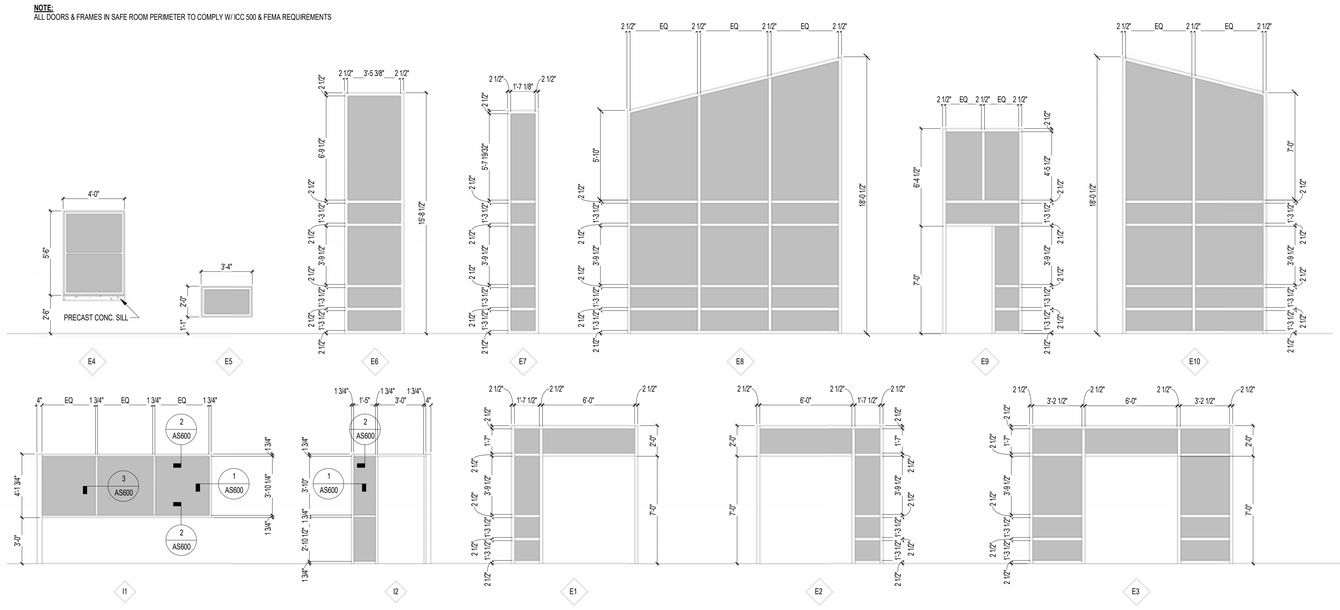
SIZES AS SCHEDULED



FRAME TYPE ELEVATIONS

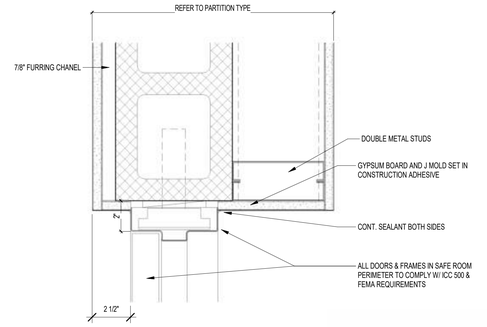
SIZES AS SCHEDULED

NOTE:
ALL DOORS & FRAMES IN SAFE ROOM PERIMETER TO COMPLY W/ ICC 500 & FEMA REQUIREMENTS

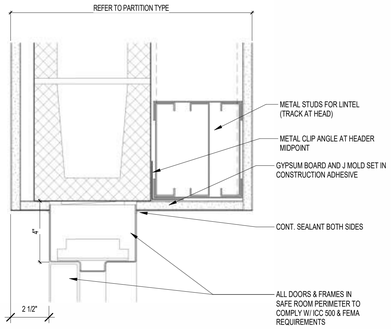


FRAME TYPE ELEVATIONS

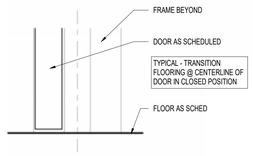
SCALE: 1/4" = 1' - 0"



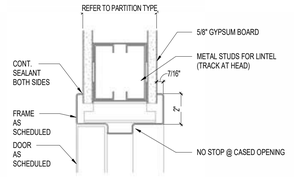
5 DOOR AT SAFE ROOM - JAMB
3" = 1'-0"



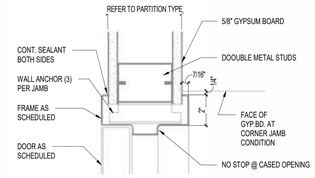
4 DOOR AT SAFE ROOM - HEAD
3" = 1'-0"



TYPICAL DOOR - SILL
3" = 1'-0"



TYPICAL DOOR - HEAD
3" = 1'-0"



TYPICAL DOOR - JAMB
3" = 1'-0"

GENERAL NOTES

A. TYPICAL DOOR DETAILS ARE SHOWN ON THIS SHEET. SEE FLOOR PLANS FOR SPECIALIZED PLAN DETAIL REFERENCES FOR ATYPICAL CONDITIONS.
B. DOOR FRAME THROAT DIMENSIONS: REFER TO FLOOR PLANS FOR THE APPLICABLE PARTITION T
C. REFER TO INTERIOR FINISH DRAWINGS FOR DOOR FINISH (I.E. TRANSPARENT OR PLAM CLAD, PAINTED, ETC.)

DOOR TYPES SCHEDULE NOTES

EXAMPLE OF DOOR ID ON PLAN



1233 - DOOR NO.
90 - FIRE RATING
F10 - DOOR TYPE
OPTIONAL SUFFIX
P - PANIC HARDWARE
C01 - HARDWARE SET (FIRST LETTER INDICATES FUNCTION)
E - ENTRANCE
S - STORAGE
C - CLASSROOM
O - OFFICE
P - PASSAGE
V - PRIVACY
X - MISCELLANEOUS

DOOR FRAME MATERIAL / TYPE
H.M. - HOLLOW METAL / STEEL
ALUMINUM
WOOD - WOOD OR PLAM CLAD AS NOTED
PLAM - PLASTIC LAMINATE CLAD
FIBERGLASS

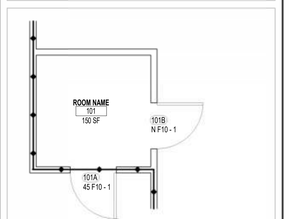
DOOR MATERIAL / TYPE
H.M. - HOLLOW METAL / STEEL
ALUMINUM
WOOD - WOOD OR PLAM CLAD AS NOTED
PLAM - PLASTIC LAMINATE CLAD
FIBERGLASS
GLASS
AL/GL - ALUMINUM & GLASS

FIRE RATING
0 - NO RATING
20 - 20 MINUTES
45 - 45 MINUTES
60 - 60 MINUTES
90 - 90 MINUTES
180 - 3 HOURS

DOOR GLAZING SCHEDULE
INTERIOR DOORS: 1/4" CLEAR TEMPERED GLASS EXCEPT:
- 1/4" LAMINATED CLEAR GLASS @ RATED DOORS
- 1/4" FIRE RATED CERAMIC GLASS WHERE NOTED
EXTERIOR DOORS: 1" INSULATED GLASS, TEMPERED WHERE REQUIRED.

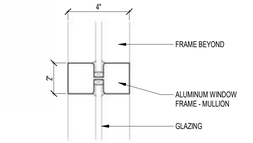
REFER TO BORROWED LITE ELEVATIONS FOR GLAZING TYPES.

EXAMPLE: DOOR TAG ON PLANS

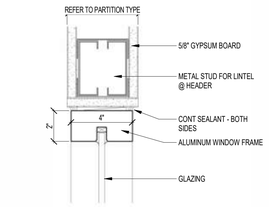


DOOR SCHEDULE

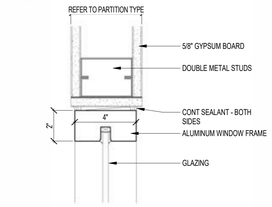
DOOR NUMBER	FROM ROOM	DOOR TYPE	DOORS WIDTH	DOORS HEIGHT	DOORS MATL	DOORS GLAZ	FRAME ELEV	FRAME MATL	FIRE RATING	HARDWARE	REMARKS
01	RESIDENT RM 1	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
02	RESIDENT TLT 1	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
03	RESIDENT RM 2	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
04	RESIDENT TLT 2	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
05	RESIDENT RM 3	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
06	RESIDENT TLT 3	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
07	RESIDENT RM 4	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
08	RESIDENT TLT 4	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
09	RESIDENT RM 5	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
10	RESIDENT TLT 5	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
11	FOYER	G	6' - 1"	7' - 0"	ALUM.	YES	-	ALUM.		15	
12	STOR	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.		08	
13	STAFF OFFICE	G	3' - 0"	7' - 0"	ALUM.	YES	-	ALUM.		14	
16	PANTRY	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.		04	
17	DINING	G	3' - 0"	7' - 0"	ALUM.	YES	-	ALUM.		16	
19	ELEC.	F	4' - 0"	7' - 0"	H.M.	NO	1	H.M.		06	
20	DATA	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.		07	
21	MECHANICAL ROOM	F	6' - 0"	7' - 0"	H.M.	NO	1	H.M.		05	
22A	RECEIVING & STORAGE	F	8' - 0"	7' - 0"	-	NO	1	H.M.		17	
22B	RECEIVING & STORAGE	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.		03	
23	GUEST TLT	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.		10	
24	CORRIDOR	F	3' - 0"	7' - 0"	H.M.	NO	1	H.M.		16	
25	RESIDENT RM 6	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
26	RESIDENT TLT 6	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
27	RESIDENT RM 7	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
28	RESIDENT TLT 7	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
29	RESIDENT RM 8	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
30	RESIDENT TLT 8	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
31	RESIDENT RM 9	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
32	RESIDENT TLT 9	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
33	RESIDENT RM 10	N	4' - 0"	7' - 0"	WOOD	YES	1	H.M.		01	
34	RESIDENT TLT 10	F	4' - 0"	9' - 0"	WOOD	NO	1	H.M.		02	
35A	CORRIDOR	F	4' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	13	
35B	CORRIDOR	G	6' - 0"	7' - 0"	ALUM.	YES	-	ALUM.		15	
37A	CORRIDOR	F	4' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	13	
37B	CORRIDOR	G	6' - 0"	7' - 0"	ALUM.	YES	-	ALUM.		15	
39A	CLEAN LINEN	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
39B	MEDICATION ROOM	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
39C	SMALL HOUSE STORAGE	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
39D	SOILED ROOM	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
39E	H.A.C.	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
39G	LOGISTICS	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
39H	LAUNDRY ROOM	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	09	ICC 500 / FEMA
40A	OXYGEN	F	2' - 0"	7' - 0"	WOOD	NO	1	H.M.		12	
40B	REC	F	2' - 0"	7' - 0"	WOOD	NO	1	H.M.		12	
40C	CLEAN SUPPLY	F	2' - 0"	7' - 0"	WOOD	NO	1	H.M.		12	
40D	OXYGEN	F	2' - 0"	7' - 0"	WOOD	NO	1	H.M.		12	
41	LARGE HOUSE STORAGE	F	3' - 0"	7' - 0"	WOOD	NO	1	H.M.	45 MIN.	11	
42	ATTIC	H	3' - 0"	3' - 6"	H.M.	NO	5	H.M.		18	
43	OXYGEN MANIFOLD ROOM	L	4' - 0"	7' - 0"	H.M.	NO	1	H.M.		05	



3 TYPICAL DOOR - HEAD
3" = 1'-0"



2 TYPICAL DOOR - HEAD
3" = 1'-0"



1 TYPICAL DOOR - HEAD
3" = 1'-0"

Revisions:	Date:

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REGISTERED ARCHITECT BRONGKYU LEE 22633 STATE OF TEXAS
06/28/2024

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: DOOR SCHEDULE, DOOR TYPES, & FRAME TYPES	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS600
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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GENERAL NOTES:

A. REFERENCE G003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

REF. 1/AS201 & 4/AS202 FOR THE FINISHES



4 PERSPECTIVE - SOUTH PATIO VIEW
1 1/2" = 1'-0"

REF. 2/AS200, 2/AS201 & 3/AS202 FOR THE FINISHES



2 PERSPECTIVE - FRONT PATIO VIEW

REF. 2/AS200 & 2/AS201 FOR THE FINISHES



3 PERSPECTIVE - MAIN ENTRANCE VIEW
1 1/2" = 1'-0"

REF. 1/AS151, 2/AS201 & 2/AS202 FOR THE FINISHES



1 PERSPECTIVE - AERIAL VIEW
1 1/2" = 1'-0"

Revisions:	Date:

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REGISTERED ARCHITECT
HONGKYU LEE
22633
STATE OF TEXAS
04/25/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: PERSPECTIVES - EXTERIOR	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS900
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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REF. 1&2/AS401 FOR THE FINISHES



4 PERSPECTIVE - PATIENT CORRIDOR VIEW
1 1/2" = 1'-0"

REF. 4, 5, 6/AS400 FOR THE FINISHES



2 PERSPECTIVE - KITCHEN VIEW
1 1/2" = 1'-0"

REF. 5, 6, 7, 8/AS400 FOR THE FINISHES



3 PERSPECTIVE - LIVING ROOM VIEW
1 1/2" = 1'-0"

REF. 3, 6, 7, 9/AS400 FOR THE FINISHES



1 PERSPECTIVE - DINING ROOM VIEW
1 1/2" = 1'-0"

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REGISTERED ARCHITECT DONGKYU LEE 22633 STATE OF TEXAS
04/25/2024

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VA U.S. Department of Veterans Affairs

Drawing Title: PERSPECTIVES - INTERIOR
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: Big Spring, TX
Issue Date: 06/28/2024
Checked: JOW
Drawn: KL
Drawing Number: AS901

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GENERAL NOTES:

A. REFERENCE G0003 FOR APPLICABLE DEDUCTIVE ALTERNATES ON THIS SHEET.

REF. 15, 16, 17/AS400 FOR THE FINISHES



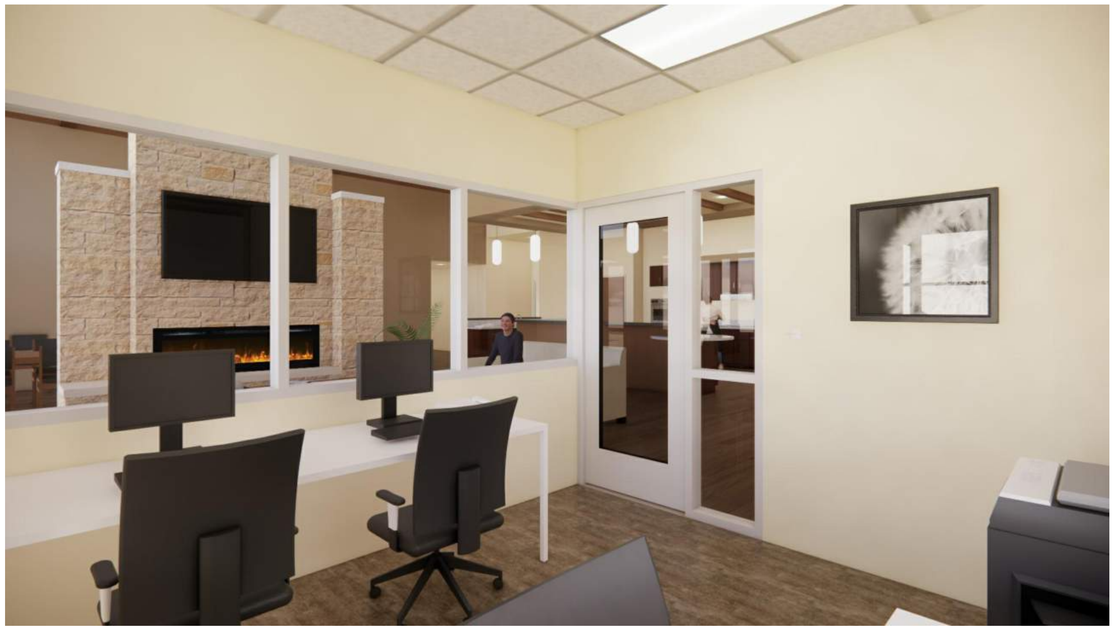
REF. 11, 12, 13, 14/AS400 FOR THE FINISHES



4 PERSPECTIVE - RESIDENT TOILET VIEW
1 1/2" = 1'-0"

2 PERSPECTIVE - RESIDENT ROOM FOOTWALL VIEW
1 1/2" = 1'-0"

REF. 16, 17, 18, 19/AS401 FOR THE FINISHES



REF. 11, 12, 13, 14/AS400 FOR THE FINISHES



3 PERSPECTIVE - STAFF OFFICE VIEW
1 1/2" = 1'-0"

1 PERSPECTIVE - RESIDENT ROOM HEADWALL VIEW
1 1/2" = 1'-0"

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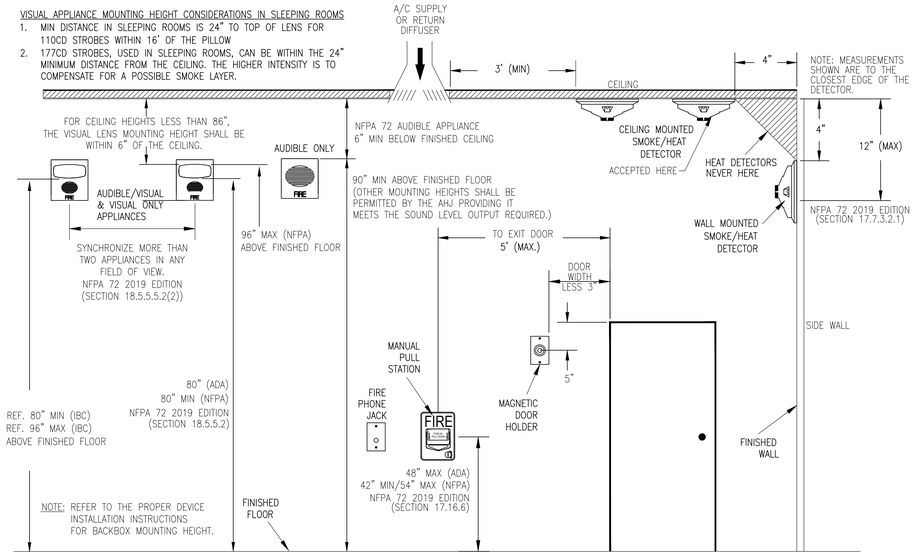
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Drawing Title: PERSPECTIVES - INTERIOR	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: AS902
		Issue Date: 06/28/2024 / Checked: JOW / Drawn: KL	

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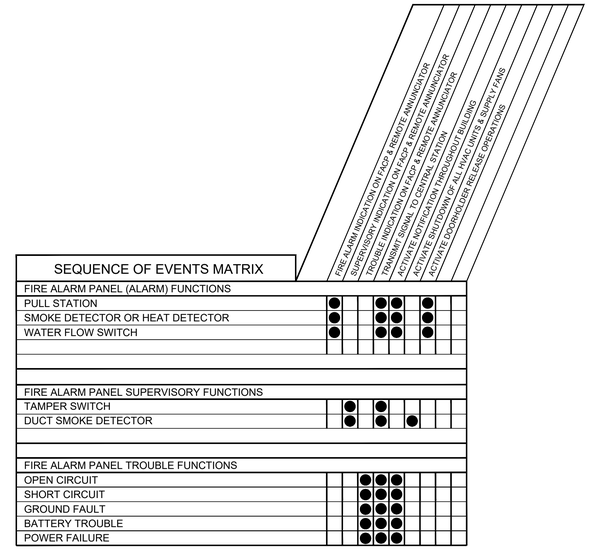
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DEVICE MOUNTING HEIGHTS (PER NFPA 72)



FIRE ALARM MOUNTING DETAIL

SCALE: NTS



SEQUENCE OF EVENTS MATRIX	FIRE ALARM INDICATION ON FACP & REMOTE ANNUNCIATOR	SUPERVISORY INDICATION ON FACP & REMOTE ANNUNCIATOR	TROUBLE INDICATION ON FACP & REMOTE ANNUNCIATOR	TRANSMIT SIGNAL TO CENTRAL STATION	ACTIVATE NOTIFICATION THROUGHOUT BUILDING	ACTIVATE SHUTDOWN OF ALL HVAC UNITS & SUPPLY FANS	ACTIVATE DOORHOLDER RELEASE OPERATIONS
FIRE ALARM PANEL (ALARM) FUNCTIONS							
PULL STATION	●			●	●	●	
SMOKE DETECTOR OR HEAT DETECTOR	●			●	●	●	
WATER FLOW SWITCH	●			●	●	●	
FIRE ALARM PANEL SUPERVISORY FUNCTIONS							
TAMPER SWITCH		●			●		
DUCT SMOKE DETECTOR		●			●	●	
FIRE ALARM PANEL TROUBLE FUNCTIONS							
OPEN CIRCUIT			●		●		
SHORT CIRCUIT			●		●		
GROUND FAULT			●		●		
BATTERY TROUBLE			●		●		
POWER FAILURE			●		●		

FIRE ALARM SEQUENCE OF EVENTS

SCALE: NTS

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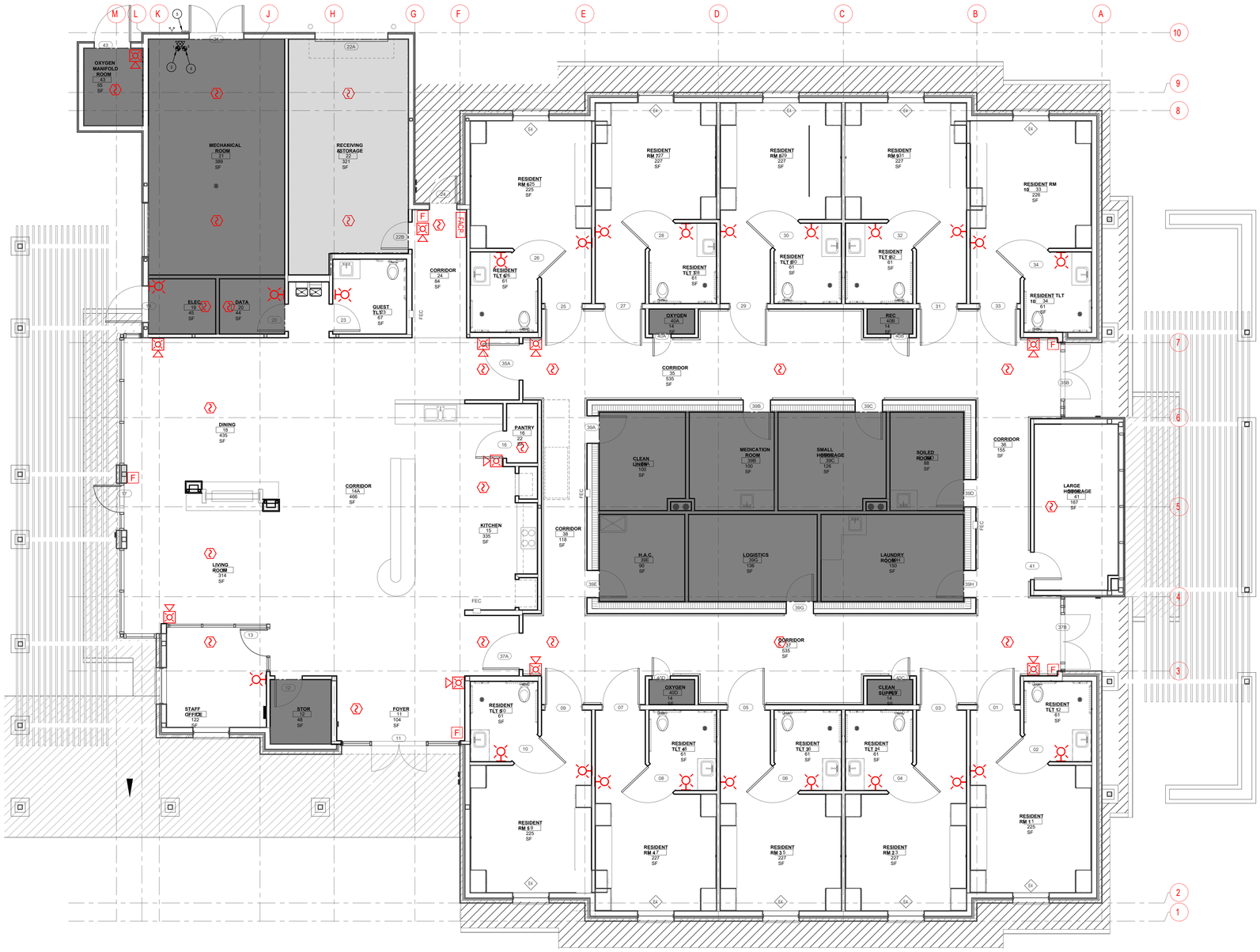
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Drawing Title: FIRE ALARM DETAILS	Phase: ISSUED FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVED: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Building Number: 28
		Issue Date: 6/28/24 / Checked: NAM / Drawn: RSG	Drawing Number: FA100

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1 LEVEL 1 - FIRE ALARM FLOOR PLAN
3/16" = 1'-0"

ACTUAL NORTH

PLAN NORTH

GENERAL NOTES:

INSTALL NEW FIRE ALARM SYSTEM AS SHOWN ON DRAWINGS. PROVIDE DEDICATED 120VAC CIRCUIT AND TRANSIENT SURGE SUPPRESSION AT EACH FIRE ALARM SYSTEM CONTROL EQUIPMENT LOCATION.

1. INSTALL NEW "SIEMENS" FIRE ALARM CONTROL PANEL PANEL LOCATED IN THE CORRIDOR 24.
2. CONNECT ALL FIRE ALARM SYSTEM DEVICES AND SPRINKLER SYSTEM DEVICES TO THE NEW FIRE ALARM CONTROL PANEL.
3. PROVIDE AND INSTALL REQUIRED DUCT SMOKE DETECTION, REMOTE LEDS/TEST STATIONS, AND FIRE SMOKE DAMPERS/SMOKE DAMPERS SMOKE DETECTION.
4. PROVIDE STROBE NOTIFICATION IN BOTH SLEEPING ROOMS AND ASSOCIATED BATHROOMS OF ALL UNITS.
5. PROVIDE 177cd STROBES IN SLEEPING ROOMS AND 15cd STROBES IN BATHROOMS OF ALL UNITS.
6. PROVIDE FIRE ALARM SYSTEM REMOTE ANNUNICATORS WHERE REQUIRED.
7. TRANSMIT FIRE ALARM SYSTEM SIGNALS OFFSITE USING A DIGITAL COMMUNICATOR. COORDINATE EXACT REQUIREMENTS WITH VA.

NOTE - THERE WILL BE A MASTER PANEL FOR ALL COTTAGES TO BE LOCATED IN BUILDING 25. FIBEROPTIC WILL BE RUN FROM THE MASTER PANEL TO BUILDING 7 FOR CONNECTION TO THE MAIN CAMPUS SYSTEM. THIS WORK IS NOT IN SCOPE, AND WILL BE COMPLETED IN A FUTURE PROJECT.

KEYED NOTES:

ALL NEW FIRE ALARM DEVICES SHALL BE 100% COMPATIBLE WITH THE EXISTING NETWORKED SIEMENS FIRE ALARM SYSTEM.

1. FIRE ALARM CONTROL PANEL.
2. FIRE ALARM REMOTE ANNUNCIATOR.
3. CONNECT FIRE ALARM SYSTEM TO SPRINKLER SYSTEM FLOW SWITCH(ES).
4. CONNECT FIRE ALARM SYSTEM TO SPRINKLER SYSTEM TAMPER SWITCH(ES).
5. CONNECT 24V FIRE SPRINKLER ALARM BELL TO FIRE ALARM SYSTEM. BELL TO BE ACTIVATED UPON FIRE SPRINKLER SYSTEM WATER FLOW.

INSTALL A DUCT SMOKE DETECTOR IN RETURN AIR DUCT OF AIR HANDLING UNIT. PROVIDE DUCT DETECTOR, HOUSING, SAMPLING TUBE, AND AUXILIARY RELAY TO BE USED TO SHUTDOWN THE UNIT UPON SENSING SMOKE AND CLOSE CORRESPONDING FIRE/SMOKE DAMPER. INSTALL A REMOTE TEST STATION IN THE CEILING NEAR THE DETECTOR. CONNECT DETECTOR TO FIRE ALARM SYSTEM. REFER TO MECHANICAL FLOOR PLAN FOR DETAILS.

CONNECT POWER TO SMOKE DAMPER THROUGH DUCT DETECTOR AUXILIARY RELAY.

INSTALL A DUCT SMOKE DETECTOR IN DUCT WITH SAMPLING TUBE AND AUXILIARY N.O. CONTACT TO CLOSE WHEN DETECTOR SENSES SMOKE TO OPERATE SMOKE DAMPER. PROVIDE DUCT DETECTOR, HOUSING, SAMPLING TUBE, AND AUXILIARY RELAY. CONNECT DETECTOR TO FIRE ALARM SYSTEM.

DEVICE LEGEND

SYMBOL	DESCRIPTION
FACP	FIRE ALARM CONTROL PANEL
◇	SMOKE DETECTOR
F	PULL STATION
	STROBE, WALL MT, RED
	HORN/STROBE, WALL MT, RED

Revisions:	Date:

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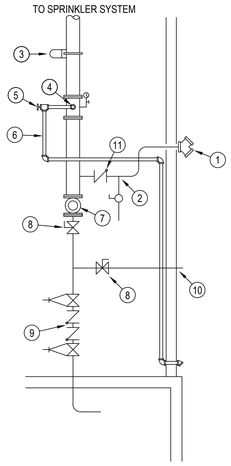
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Drawing Title: FIRE ALARM FLOOR PLAN	Phase: ISSUED FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVED: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Building Number: 28
		Issue Date: 6/28/24 / Checked: NAM / Drawn: RSG	Drawing Number: FA101

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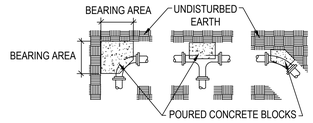
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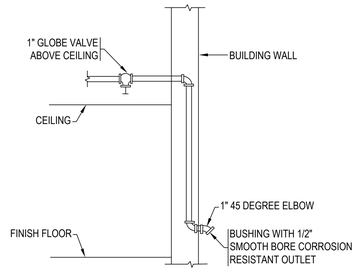
ITEM	DESCRIPTION
1	FIRE DEPARTMENT CONNECTION
2	BALL DRIP
3	WATER FLOW INDICATOR
4	TEE CONNECTION
5	MAIN DRAIN VALVE W/ RELIEF
6	MAIN (FLOW TEST LINE)
7	ALARM CHECK VALVE
8	BUTTERFLY VALVE W/ TAMPER SW
9	DOUBLE CHECK VALVE ASSEMBLY
10	BACKFLOW FORWARD FLOW TEST
11	SWING CHECK VALVE

SPRINKLER RISER DETAIL
NO SCALE — 1

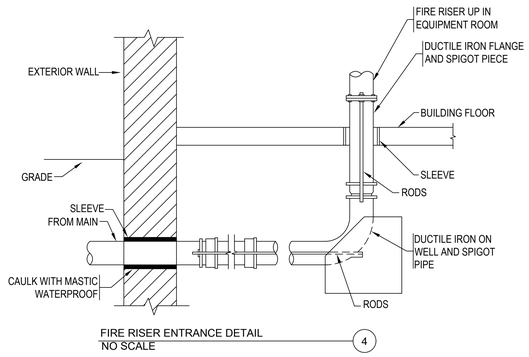


BEARING AREA OF BLOCK IN SQ. FT. (2000 P.S.F. SOIL)			
FITTING SIZES	TEE & END	90° BEND	45° BEND
4"	2.0	2.0	2.0
6"	4.0	5.0	3.0
8"	6.0	8.0	5.0
10"	9.0	13.0	7.0

THRUST BLOCK DETAIL
NO SCALE — 2



INSPECTOR'S SPRINKLER
SYSTEM TEST CONNECTION DETAIL
NO SCALE — 3



FIRE RISER ENTRANCE DETAIL
NO SCALE — 4

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Drawing Title: FIRE PROTECTION NOTES & DETAILS	Phase: ISSUED FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVED: COR, Mr. JOSHUA JUNKIN			Building Number: 28
	FULLY SPRINKLERED	Location: Big Spring, TX	Drawing Number: FP100
		Issue Date: 6/28/24 · Checked: NAM · Drawn: RSG	

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GENERAL NOTES:

1. COORDINATE ALL PIPING WITH ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL.
2. ROUTE ALL FIRE PROTECTION PIPING AS HIGH AS POSSIBLE AND COORDINATE WITH ALL TRADES PRIOR TO FABRICATION OR INSTALLATION.
3. ALL SPRINKLER HEADS IN FINISHED CEILINGS SHALL BE CONCEALED TYPE.
4. ALL SPRINKLER HEADS IN EXPOSED AREAS SHALL BE UPRIGHT TYPE.
5. BUILDING CONSTRUCTION IS TYPE V-B. NO SPRINKLER PROTECTION REQUIRED IN ATTIC OR COMBUSTIBLE CONCEALED SPACES.
6. AREAS SHOWN SHADED SHALL BE DESIGNED FOR ORDINARY HAZARD GROUP II IN ACCORDANCE WITH NFPA 13. SPRINKLER SPACING NOT TO EXCEED 130 SQ FT.
7. AREAS SHOWN NOT SHADED SHALL BE DESIGNED FOR LIGHT HAZARD OCCUPANCY IN ACCORDANCE WITH NFPA 13. SPRINKLERS SPACING NOT TO EXCEED 225 SQ FT.
8. OUTDOOR TRELLIS AREAS ARE CONSTRUCTED OF NON-COMBUSTIBLE STEEL. NO SPRINKLERS REQUIRED.

KEYED NOTES:

1. REFER TO CIVIL DRAWINGS FOR CONTINUATION.
2. 24V ALARM BELL.
3. FIRE DEPARTMENT CONNECTION.
4. FIRE RISER. REFER TO DETAIL 1 DRAWING FP100

INSPECTOR'S TEST DISCHARGE VALVE ABOVE GYP BOARD CEILING. PROVIDE 18X18 ACCESS DOOR IN CEILING TO ALLOW SERVICE TO VALVE. INSTALL CONTRACTOR TO COORDINATE LOCATION WITH OTHER TRADES.



1 LEVEL 1 - FIRE PROTECTION FLOOR PLAN
3/16" = 1'-0"

ACTUAL NORTH PLAN NORTH

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STATE OF MARYLAND — ROBERT GRIFFITH — 60138 — PROFESSIONAL ENGINEER — 06/28/2024

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Drawing Title: FIRE PROTECTION FLOOR PLAN	Phase: ISSUED FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
APPROVED: COR, Mr. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: Big Spring, TX	Building Number: 28
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GENERAL NOTES

1. **GENERAL REQUIREMENTS**
   A. **GENERAL**
      1. **SUBMITTALS**
         a. CONTRACTOR SHALL MAKE ALL NECESSARY FIELD MEASUREMENTS AND INVESTIGATIONS TO ASSURE THAT THE EQUIPMENT AND ASSEMBLIES WILL MEET CONTRACT REQUIREMENTS, AND ALL EQUIPMENT THAT REQUIRES REGULAR MAINTENANCE, CALIBRATION, ETC ARE ACCESSABLE FROM THE FLOOR OR PERMANENT WORK PLATFORM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL SUBMITTALS MEET SPECIFICATIONS AND REQUIREMENTS AND IT IS ASSUMED BY THAT ALL SUBMITTALS DO MEET SPECIFICATIONS UNLESS THE CONTRACTOR HAS REQUESTED A VARIANCE IN WRITING AND APPROVED PRIOR TO THE SUBMITTAL. IF AT ANY TIME DURING THE PROJECT IT IS FOUND THAT ANY ITEM DOES NOT MEET SPECIFICATIONS AND THERE WAS NO VARIANCE APPROVAL THE CONTRACTOR SHALL CORRECT AT NO ADDITIONAL COST OR TIME EVEN IF A SUBMITTAL WAS APPROVED.
         b. SUBMITTALS AND SHOP DRAWINGS FOR INTERDEPENDENT ITEMS, CONTAINING APPLICABLE DESCRIPTIVE INFORMATION, SHALL BE FURNISHED TOGETHER AND COMPLETE IN A GROUP. COORDINATE AND PROPERLY INTEGRATE MATERIALS AND EQUIPMENT IN EACH GROUP TO PROVIDE A COMPLETELY COMPATIBLE AND EFFICIENT INSTALLATION. FINAL REVIEW AND APPROVALS WILL BE MADE ONLY BY GROUPS.
      2. **COORDINATION/SHOP DRAWINGS:**
         a. SUBMIT COMPLETE CONSOLIDATED AND COORDINATED SHOP DRAWINGS FOR ALL NEW SYSTEMS.
         b. THE COORDINATION/SHOP DRAWINGS SHALL INCLUDE PLAN VIEWS, ELEVATIONS AND SECTIONS OF ALL SYSTEMS AND SHALL CLEARLY IDENTIFY AND DIMENSION THE PROPOSED LOCATIONS OF THE PRINCIPAL ITEMS OF EQUIPMENT. THE DRAWINGS SHALL CLEARLY SHOW LOCATIONS AND ADEQUATE CLEARANCE FOR ALL EQUIPMENT, PIPING, VALVES, CONTROL PANELS AND OTHER ITEMS. SHOW THE ACCESS MEANS FOR ALL ITEMS REQUIRING ACCESS FOR OPERATIONS AND MAINTENANCE. PROVIDE DETAILED COORDINATION/SHOP DRAWINGS OF ALL PIPING SYSTEMS. THE DRAWINGS SHOULD INCLUDE ALL LOCKOUT/TAGOUT POINTS FOR ALL ENERGY/HAZARD SOURCES FOR EACH PIECE OF EQUIPMENT. COORDINATE LOCKOUT/TAGOUT PROCEDURES AND PRACTICES WITH LOCAL AHJ REQUIREMENTS.
         c. DO NOT INSTALL EQUIPMENT FOUNDATIONS, EQUIPMENT OR PIPING UNTIL COORDINATION/SHOP DRAWINGS HAVE BEEN APPROVED.
      3. **QUALITY ASSURANCE:**
         a. ALL ITEMS SHALL BE APPLIED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. CONFLICTS BETWEEN THE MANUFACTURER'S INSTRUCTIONS AND THE CONTRACT DOCUMENTS SHALL BE REFERRED TO THE CLIENT PROJECT REPRESENTATIVE FOR RESOLUTION. PRINTED COPIES OR ELECTRONIC FILES OF MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE PROVIDED AT LEAST 10 WORKING DAYS PRIOR TO COMMENCING INSTALLATION OF ANY ITEM.
         b. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DOCUMENTS FOR RESOLUTION. FAILURE OF THE CONTRACTOR TO RESOLVE OR CALL ATTENTION TO ANY DISCREPANCIES OR DEFICIENCIES WILL RESULT IN THE CONTRACTOR CORRECTING AT NO ADDITIONAL COST OR TIME.
         c. COMPLETE LAYOUT DRAWINGS SHALL BE REQUIRED BY PARAGRAPH, SUBMITTALS. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE LAYOUT DRAWINGS HAVE BEEN APPROVED.
         d. AS-BUILT DRAWINGS:
            - THE INSTALLING CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF EACH COMPLETED PHASE FOR VERIFICATION; AND, SHALL PROVIDE THE COMPLETE SET AT THE TIME OF FINAL SYSTEMS CERTIFICATION TESTING.
            - THE AS-BUILT DRAWINGS SHALL INDICATE THE LOCATION AND TYPE OF ALL LOCKOUT/TAGOUT POINTS FOR ALL ENERGY SOURCES FOR ALL EQUIPMENT AND PUMPS TO INCLUDE BREAKER LOCATION AND NUMBERS, VALVE TAG NUMBERS, ETC. COORDINATE LOCKOUT/TAGOUT PROCEDURES AND PRACTICES WITH LOCAL VA REQUIREMENTS.
         e. JOB CONDITIONS: BUILDING WORKING ENVIRONMENT: MAINTAIN THE ARCHITECTURAL AND STRUCTURAL INTEGRITY OF THE BUILDING AND THE WORKING ENVIRONMENT AT ALL TIMES. MAINTAIN THE INTERIOR OF BUILDING AT 18 DEGREES C (65 DEGREES F) MINIMUM. LIMIT THE OPENING OF DOORS, WINDOWS OR OTHER ACCESS OPENINGS TO BRIEF PERIODS AS NECESSARY FOR RIGGING PURPOSES. STORM WATER OR GROUND WATER LEAKAGE IS PROHIBITED. PROVIDE DAILY CLEAN-UP OF CONSTRUCTION AND DEMOLITION DEBRIS ON ALL FLOOR SURFACES AND ON ALL EQUIPMENT BEING OPERATED BY BUILDING USERS/FACILITIES. MAINTAIN ALL EGRESS ROUTES AND SAFETY SYSTEMS/DEVICES.

   B. **PRODUCTS**
      1. **COMPATIBILITY OF RELATED EQUIPMENT: EQUIPMENT AND MATERIALS INSTALLED SHALL BE COMPATIBLE IN ALL RESPECTS WITH OTHER ITEMS BEING FURNISHED AND WITH EXISTING ITEMS SO THAT THE RESULT WILL BE A COMPLETE AND FULLY OPERATIONAL SYSTEM THAT CONFORMS TO CONTRACT REQUIREMENTS.**
      2. **SAFETY GUARDS: ALL EQUIPMENT SHALL HAVE MOVING PARTS PROTECTED FROM PERSONAL INJURY.**
      3. **ELECTRIC MOTORS, MOTOR CONTROL, CONTROL WIRING**
         a. ALL MATERIAL AND EQUIPMENT FURNISHED AND INSTALLATION METHODS USED SHALL CONFORM TO THE REQUIREMENTS OF GENERAL MOTOR REQUIREMENTS FOR PLUMBING EQUIPMENT; MOTOR CONTROLLERS; AND, LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES. ALL ELECTRICAL WIRING, CONDUIT, AND DEVICES NECESSARY FOR THE PROPER CONNECTION, PROTECTION AND OPERATION OF THE SYSTEMS SHALL BE PROVIDED. PREMIUM EFFICIENT MOTORS SHALL BE PROVIDED.
         b. WIRE AND CABLE MATERIALS SPECIFIED IN THE ELECTRICAL DIVISION OF THE SPECIFICATIONS SHALL BE MODIFIED AS FOLLOWS:
         c. WIRING MATERIAL LOCATED WHERE TEMPERATURES CAN EXCEED 71° C (160° F) SHALL BE STRANDED COPPER WITH TEFLON FEP INSULATION WITH JACKET. THIS INCLUDES WIRING ON THE BOILERS AND WATER HEATERS.
         d. OTHER WIRING AT BOILERS AND WATER HEATERS, AND TO CONTROL PANELS, SHALL BE NFPA 70 DESIGNATION THWN.
         e. SHIELDED CONDUCTORS OR WIRING IN SEPARATE CONDUITS FOR ALL INSTRUMENTATION AND CONTROL SYSTEMS SHALL BE PROVIDED WHERE RECOMMENDED BY MANUFACTURER OF EQUIPMENT.
      4. **VARIABLE SPEED MOTOR CONTROLLERS**
         a. THE COMBINATION OF CONTROLLER AND MOTOR SHALL BE PROVIDED BY THE RESPECTIVE PUMP MANUFACTURER AND SHALL BE RATED FOR 100 PERCENT OUTPUT PERFORMANCE. MULTIPLE UNITS OF THE SAME CLASS OF EQUIPMENT, I.E. PUMPS, SHALL BE PRODUCT OF A SINGLE MANUFACTURER.
         b. MOTORS SHALL BE PREMIUM EFFICIENT TYPE, "INVERTOR DUTY", AND BE APPROVED BY THE MOTOR CONTROLLER MANUFACTURER. THE CONTROLLER-MOTOR COMBINATION SHALL BE GUARANTEED TO PROVIDE FULL MOTOR NAMEPLATE HORSEPOWER IN VARIABLE FREQUENCY OPERATION. BOTH DRIVING AND DRIVEN MOTOR SHEAVES SHALL BE FIXED PITCH.
      5. **EQUIPMENT AND MATERIALS IDENTIFICATION**
         a. INTERIOR (INDOOR) EQUIPMENT: ENGRAVED NAMEPLATES, WITH LETTERS NOT LESS THAN 7 MM (3/16 INCH) HIGH OF BRASS WITH BLACK-FILLED LETTERS, OR RIGID BLACK PLASTIC WITH WHITE LETTERS SPECIFIED IN PAINTING SHALL BE PERMANENTLY FASTENED TO THE EQUIPMENT. UNIT COMPONENTS SUCH AS WATER HEATERS, TANKS, COILS, FILTERS, ETC. SHALL BE IDENTIFIED.
         b. EXTERIOR (OUTDOOR) EQUIPMENT: BRASS NAMEPLATES, WITH ENGRAVED BLACK FILLED LETTERS, NOT LESS THAN 7 MM (3/16 INCH) HIGH RIVETED OR BOLTED TO THE EQUIPMENT.
         c. CONTROL ITEMS: ALL TEMPERATURE, PRESSURE, AND CONTROLLERS SHALL BE LABELED AND THE COMPONENT'S FUNCTION IDENTIFIED. IDENTIFY AND LABEL EACH ITEM AS THEY APPEAR ON THE CONTROL DIAGRAMS.
      6. **VALVE TAGS AND LISTS:**
         a. PLUMBING: ALL VALVES SHALL BE PROVIDED WITH VALVE TAGS AND LISTED ON A VALVE LIST (FIXTURE STOPS NOT INCLUDED).
         b. VALVE TAGS: ENGRAVED BLACK FILLED NUMBERS AND LETTERS NOT LESS THAN 15 MM (1/2 INCH) HIGH FOR NUMBER DESIGNATION, AND NOT LESS THAN 8 MM (1/4 INCH) FOR SERVICE DESIGNATION ON 19 GAUGE, 40 MM (1-1/2 INCHES) ROUND BRASS DISC, ATTACHED WITH BRASS "S" HOOK OR BRASS CHAIN.
      7. **PIPE AND EQUIPMENT SUPPORTS AND RESTRAINTS**
         a. SUSPENDED EQUIPMENT SUPPORT AND RESTRAINTS MAY BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE (IBC). SUBMITTALS BASED ON THE INTERNATIONAL BUILDING CODE (IBC) REQUIREMENTS, OR BASED UPON OTHER RELEVANT STANDARDS IN THIS SECTIONS SHALL BE STAMPED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. THE SUPPORT SYSTEM OF SUSPENDED EQUIPMENT OVER 227 KG (500 POUNDS) SHALL BE SUBMITTED FOR APPROVAL IN ALL CASES. SEE SPECIFICATIONS FOR LATERAL FORCE DESIGN REQUIREMENTS.
         b. TYPE NUMBERS SPECIFIED: FOR MATERIALS, DESIGN, MANUFACTURE, SELECTION, APPLICATION, AND INSTALLATION REFER TO MSS SP-58. REFER TO METAL FABRICATIONS, FOR MISCELLANEOUS METAL SUPPORT MATERIALS AND PRIME COAT PAINTING.
         c. FOR ATTACHMENT TO CONCRETE CONSTRUCTION: CONCRETE INSERT: TYPE 18, MSS SP-58.
         d. FOR ATTACHMENT TO STEEL CONSTRUCTION: MSS SP-58.
         e. ATTACHMENT TO METAL PAN OR DECK: AS REQUIRED FOR MATERIALS SPECIFIED IN SECTION STEEL DECKING, SECTION COMPOSITE METAL DECKING OR PER METAL PAN OR DECK MANUFACTURER'S REQUIREMENTS.
         f. HANGER RODS: HOT-ROLLED STEEL, ASTM A36/A36M OR ASTM A575 FOR ALLOWABLE LOAD LISTED IN MSS SP-58. FOR PIPING, PROVIDE ADJUSTMENT MEANS FOR CONTROLLING LEVEL OR SLOPE. TYPES 13 OR 15 TURN-BUCKLES SHALL PROVIDE 40 MM (1-1/2 INCHES) MINIMUM OF ADJUSTMENT AND INCORPORATE LOCKNUTS. ALL-THREAD RODS ARE ACCEPTABLE.
         g. MULTIPLE (TRAPEZE) HANGERS: GALVANIZED, COLD FORMED, LIPPED STEEL CHANNEL HORIZONTAL MEMBER, NOT LESS THAN 43 MM BY 43 MM (1-5/8 INCHES BY 1-5/8 INCHES), 2.7 MM (NO. 12 GAUGE), DESIGNED TO ACCEPT SPECIAL SPRING HELD, HARDENED STEEL NUTS.
            - ALLOWABLE HANGER LOAD: MANUFACTURERS RATING LESS 91KG (200 POUNDS).
            - GUIDE INDIVIDUAL PIPES ON THE HORIZONTAL MEMBER OF EVERY OTHER TRAPEZE HANGER WITH 8 MM (1/4 INCH) U-BOLT FABRICATED FROM STEEL ROD. PROVIDE TYPE 40 INSULATION SHIELD, SECURED BY TWO 15 MM (1/2 INCH) GALVANIZED STEEL BANDS, OR INSULATED CALCIUM SILICATE SHIELD FOR INSULATED PIPING AT EACH HANGER.
         h. PIPE HANGERS AND SUPPORTS: (MSS SP-58), USE HANGERS SIZED TO ENCIRCLE INSULATION ON INSULATED PIPING. REFER TO SECTION 22 07 11, PLUMBING INSULATION FOR INSULATION THICKNESS. TO PROTECT INSULATION, PROVIDE TYPE 39 SADDLES FOR ROLLER TYPE SUPPORTS OR INSULATED CALCIUM SILICATE SHIELDS. PROVIDE TYPE 40 INSULATION SHIELD OR INSULATED CALCIUM SILICATE SHIELD AT ALL OTHER TYPES OF SUPPORTS AND HANGERS INCLUDING THOSE FOR INSULATED PIPING.
            - GENERAL TYPES (MSS SP-58):
            - STANDARD CLEVIS HANGER: TYPE 1; PROVIDE LOCKNUT.
            - RISER CLAMPS: TYPE 8.
            - WALL BRACKETS: TYPES 31, 32 OR 33.
            - ROLLER SUPPORTS: TYPE 41, 43, 44 AND 46.
            - SADDLE SUPPORT: TYPE 36, 37 OR 38.
            - TURNBUCKLE: TYPES 13 OR 15.
            - U-BOLT CLAMP: TYPE 24.
         i. COPPER TUBE:
            - HANGERS, CLAMPS AND OTHER SUPPORT MATERIAL IN CONTACT WITH TUBING SHALL BE PAINTED WITH COPPER COLORED EPOXY PAINT, COPPER-COATED, PLASTIC COATED OR TAPED WITH ISOLATION TAPE TO PREVENT ELECTROLYSIS.
            - FOR VERTICAL RUNS USE EPOXY PAINTED, COPPER-COATED OR PLASTIC COATED RISER CLAMPS.
            - FOR SUPPORTING TUBE TO STRUT: PROVIDE EPOXY PAINTED PIPE STRAPS FOR COPPER TUBE OR PLASTIC INSERTED VIBRATION ISOLATION CLAMPS.
            - INSULATED LINES: PROVIDE PRE-INSULATED CALCIUM SILICATE SHIELDS SIZED FOR COPPER TUBE.
         j. SPRING HANGERS ARE REQUIRED ON ALL PLUMBING SYSTEM PUMPS ONE HORSEPOWER AND GREATER.
         k. PLUMBING PIPING (OTHER THAN GENERAL TYPES):
            - HORIZONTAL PIPING: TYPE 1, 5, 7, 9, AND 10.
         l. CHROME PLATED PIPING: CHROME PLATED SUPPORTS.
         m. HANGERS AND SUPPORTS IN PIPE CHASE: PREFABRICATED SYSTEM ABS SELF-EXTINGUISHING MATERIAL, NOT SUBJECT TO ELECTROLYTIC ACTION, TO HOLD PIPING, PREVENT VIBRATION AND COMPENSATE FOR ALL STATIC AND OPERATIONAL CONDITIONS.
         n. BLOCKING, STAYS AND BRACING: ANGLE IRON OR PREFORMED METAL CHANNEL SHAPES, 1.3 MM (18 GAUGE) MINIMUM.
      8. **PIPE PENETRATIONS**
         a. PIPE PENETRATION SLEEVES SHALL BE INSTALLED FOR ALL PIPE OTHER THAN RECTANGULAR BLOCKED OUT FLOOR OPENINGS FOR RISERS IN MECHANICAL BAYS.
         b. PIPE PENETRATION SLEEVE MATERIALS SHALL COMPLY WITH ALL FIRESTOPPING REQUIREMENTS FOR EACH PENETRATION.
         c. TO PREVENT ACCIDENTAL LIQUID SPILLS FROM PASSING TO A LOWER LEVEL, PROVIDE THE FOLLOWING:
            - FOR SLEEVES: EXTEND SLEEVE 25 MM (1 INCH) ABOVE FINISHED FLOOR AND PROVIDE SEALANT FOR WATERTIGHT JOINT.
            - FOR BLOCKED OUT FLOOR OPENINGS: PROVIDE 40 MM (1-1/2 INCH) ANGLE SET IN SILICONE ADHESIVE AROUND OPENING.
            - FOR DRILLED PENETRATIONS: PROVIDE 40 MM (1-1/2 INCH) ANGLE RING OR SQUARE SET IN SILICONE ADHESIVE AROUND PENETRATION.
         d. PENETRATIONS ARE PROHIBITED THROUGH BEAMS OR RIBS, BUT MAY BE INSTALLED IN CONCRETE BEAM FLANGES, WITH STRUCTURAL ENGINEER PRIOR APPROVAL. ANY DEVIATION FROM THESE REQUIREMENTS MUST RECEIVE PRIOR APPROVAL.
         e. SHEET METAL, PLASTIC, OR MOISTURE RESISTANT FIBER SLEEVES SHALL BE PROVIDED FOR PIPE PASSING THROUGH FLOORS, INTERIOR WALLS, AND PARTITIONS, UNLESS BRASS OR STEEL PIPE SLEEVES ARE SPECIFICALLY CALLED FOR BELOW:
         f. CAST IRON OR ZINC COATED PIPE SLEEVES SHALL BE PROVIDED FOR PIPE PASSING THROUGH EXTERIOR WALLS BELOW GRADE. THE SPACE BETWEEN THE SLEEVE AND PIPE SHALL BE MADE WATERTIGHT WITH A MODULAR OR LINK RUBBER SEAL. THE LINK SEAL SHALL BE APPLIED AT BOTH ENDS OF THE SLEEVE.
         g. GALVANIZED STEEL OR AN ALTERNATE BLACK IRON PIPE WITH ASPHALT COATING SLEEVES SHALL BE FOR PIPE PASSING THROUGH CONCRETE BEAM FLANGES, EXCEPT WHERE BRASS PIPE SLEEVES ARE CALLED FOR. A GALVANIZED STEEL SLEEVE SHALL BE PROVIDED FOR PIPE PASSING THROUGH FLOOR OF MECHANICAL ROOMS, LAUNDRY WORK ROOMS, AND ANIMAL ROOMS ABOVE BASEMENT. EXCEPT IN MECHANICAL ROOMS, SLEEVES SHALL BE CONNECTED WITH A FLOOR PLATE.
         h. BRASS PIPE SLEEVES SHALL BE PROVIDED FOR PIPE PASSING THROUGH QUARRY TILE, TERRAZZO OR CERAMIC TILE FLOORS. THE SLEEVE SHALL BE CONNECTED WITH A FLOOR PLATE.
         i. SLEEVE CLEARANCE THROUGH FLOORS, WALLS, PARTITIONS, AND BEAM FLANGES SHALL BE 25 MM (1 INCH) GREATER IN DIAMETER THAN EXTERNAL DIAMETER OF PIPE. SLEEVE FOR PIPE WITH INSULATION SHALL BE LARGE ENOUGH TO ACCOMMODATE THE INSULATION PLUS 25 MM (1 INCH) IN DIAMETER. INTERIOR OPENINGS SHALL BE CAULKED TIGHT WITH FIRESTOPPING MATERIAL AND SEALANT TO PREVENT THE SPREAD OF FIRE, SMOKE, WATER AND GASES.
         j. SEALANT AND ADHESIVES: SHALL BE AS SPECIFIED IN JOINT SEALANTS. BIO-BASED MATERIALS SHALL BE UTILIZED WHEN POSSIBLE.
         k. PIPE PASSING THROUGH ROOF SHALL BE INSTALLED THROUGH A 4.9 KG PER SQUARE METER COPPER FLASHING WITH AN INTEGRAL SKIRT OR FLANGE. SKIRT OR FLANGE SHALL EXTEND NOT LESS THAN 200 MM (8 INCHES) FROM THE PIPE AND SET IN A SOLID COATING OF BITUMINOUS CEMENT. EXTEND FLASHING A MINIMUM OF 250 MM (10 INCHES) UP THE PIPE. PIPE PASSING THROUGH A WATERPROOFING MEMBRANE SHALL BE PROVIDED WITH A CLAMPING FLANGE. THE ANNULAR SPACE BETWEEN THE SLEEVE AND PIPE SHALL BE SEALED WATERTIGHT.
      9. WALL, FLOOR, CEILING PLATES
         a. MATERIAL AND TYPE: CHROME PLATED BRASS OR CHROME PLATED STEEL, ONE PIECE OR SPLIT TYPE WITH CONCEALED HINGE, WITH SET SCREW FOR FASTENING TO PIPE, OR SLEEVE. USE PLATES THAT FIT TIGHT AROUND PIPES, COVER OPENINGS AROUND PIPES AND COVER THE ENTIRE PIPE SLEEVE PROJECTION.
         b. LOCATIONS: USE WHERE PIPE PENETRATES FLOORS, WALLS AND CEILINGS IN EXPOSED LOCATIONS, IN FINISHED AREAS ONLY. WALL PLATES SHALL BE USED WHERE INSULATION ENDS ON EXPOSED WATER SUPPLY PIPE DROP FROM OVERHEAD. A WATERTIGHT JOINT SHALL BE PROVIDED IN SPACES WHERE BRASS OR STEEL PIPE SLEEVES ARE SPECIFIED.

   C. **EXECUTION**
      1. **INSTALLATION**
         a. LOCATION OF PIPING, SLEEVES, INSERTS, HANGERS, AND EQUIPMENT, ACCESS PROVISIONS SHALL BE COORDINATED WITH THE WORK OF ALL TRADES. PIPING, SLEEVES, INSERTS, HANGERS, AND EQUIPMENT SHALL BE LOCATED CLEAR OF WINDOWS, DOORS, OPENINGS, LIGHT OUTLETS, AND OTHER SERVICES AND UTILITIES. EQUIPMENT LAYOUT DRAWINGS SHALL BE PREPARED TO COORDINATE PROPER LOCATION AND PERSONNEL ACCESS OF ALL FACILITIES. THE DRAWINGS SHALL BE SUBMITTED FOR REVIEW.
         b. MANUFACTURER'S PUBLISHED RECOMMENDATIONS SHALL BE FOLLOWED FOR INSTALLATION METHODS NOT OTHERWISE SPECIFIED.
         c. OPERATING PERSONNEL ACCESS AND OBSERVATION PROVISIONS: ALL EQUIPMENT AND SYSTEMS SHALL BE ARRANGED TO PROVIDE CLEAR VIEW AND EASY ACCESS, WITHOUT USE OF PORTABLE LADDERS, FOR MAINTENANCE, TESTING AND OPERATION OF ALL DEVICES INCLUDING, BUT NOT LIMITED TO: ALL EQUIPMENT ITEMS, VALVES, BACKFLOW PREVENTERS, FILTERS, STRAINERS, TRANSMITTERS, SENSORS, METERS AND CONTROL DEVICES. ALL GAUGES AND INDICATORS SHALL BE CLEARLY VISIBLE BY PERSONNEL STANDING ON THE FLOOR OR ON PERMANENT PLATFORMS. MAINTENANCE AND OPERATING SPACE AND ACCESS PROVISIONS THAT ARE SHOWN IN THE DRAWINGS SHALL NOT BE CHANGED NOR REDUCED.
         d. STRUCTURAL SYSTEMS NECESSARY FOR PIPE AND EQUIPMENT SUPPORT SHALL BE COORDINATED TO PERMIT PROPER INSTALLATION.
         e. LOCATION OF PIPE SLEEVES, TRENCHES AND CHASES SHALL BE ACCURATELY COORDINATED WITH EQUIPMENT AND PIPING LOCATIONS.
         f. CUTTING HOLES:
            - HOLES SHALL BE LOCATED TO AVOID INTERFERENCE WITH STRUCTURAL MEMBERS SUCH AS BEAMS OR GRADE BEAMS. HOLES SHALL BE LAID OUT IN ADVANCE AND DRILLING DONE ONLY AFTER APPROVAL BY COR. IF THE CONTRACTOR CONSIDERS IT NECESSARY TO DRILL THROUGH STRUCTURAL MEMBERS, THIS MATTER SHALL BE REFERRED TO COR FOR APPROVAL.
            - WATERPROOF MEMBRANE SHALL NOT BE PENETRATED. PIPE FLOOR PENETRATION BLOCK OUTS SHALL BE PROVIDED OUTSIDE THE EXTENTS OF THE WATERPROOF MEMBRANE.
            - HOLES THROUGH CONCRETE AND MASONRY SHALL BE CUT BY ROTARY CORE DRILL. PNEUMATIC HAMMER, IMPACT ELECTRIC, AND HAND OR MANUAL HAMMER TYPE DRILL WILL NOT BE ALLOWED, EXCEPT AS PERMITTED WHERE WORKING AREA SPACE IS LIMITED.
         g. MINOR PIPING: GENERALLY, SMALL DIAMETER PIPE RUNS FROM DRIPS AND DRAINS, WATER COOLING, AND OTHER SERVICES ARE NOT SHOWN BUT MUST BE PROVIDED.
         h. PROTECTION AND CLEANING:
            - EQUIPMENT AND MATERIALS SHALL BE CAREFULLY HANDLED, PROPERLY STORED, AND ADEQUATELY PROTECTED TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS APPROVED. DAMAGED OR DEFECTIVE ITEMS IN THE OPINION OF THE CLIENT PROJECT REPRESENTATIVE, SHALL BE REPLACED AT NO ADDITIONAL COST OR TIME.
            - PROTECT ALL FINISHED PARTS OF EQUIPMENT, SUCH AS SHAFTS AND BEARINGS WHERE ACCESSIBLE, FROM RUST PRIOR TO OPERATION BY MEANS OF PROTECTIVE GREASE COATING AND WRAPPING. CLOSE PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION. PIPE OPENINGS, EQUIPMENT, AND PLUMBING FIXTURES SHALL BE TIGHTLY COVERED AGAINST DIRT OR MECHANICAL INJURY. AT COMPLETION OF ALL WORK THOROUGHLY CLEAN FIXTURES, EXPOSED MATERIALS AND EQUIPMENT.
         i. WORK IN BATHROOMS, RESTROOMS, HOUSEKEEPING CLOSETS: ALL PIPE PENETRATIONS BEHIND ESCUTCHEONS SHALL BE SEALED WITH PLUMBERS' PUTTY.
         j. SWITCHGEAR DRIP PROTECTION: EVERY EFFORT SHALL BE MADE TO ELIMINATE THE INSTALLATION OF PIPE ABOVE DATA EQUIPMENT, AND ELECTRICAL AND TELEPHONE SWITCHGEAR. IF THIS IS NOT POSSIBLE, ENCASE PIPE IN A SECOND PIPE WITH A MINIMUM OF JOINTS. DRAIN VALVE SHALL BE PROVIDED IN LOW POINT OF CASEMENT PIPE.
         k. INACCESSIBLE EQUIPMENT:
            - WHERE THE CLIENT REPRESENTATIVE DETERMINES THAT THE CONTRACTOR HAS INSTALLED EQUIPMENT NOT CONVENIENTLY ACCESSIBLE FOR OPERATION AND MAINTENANCE, EQUIPMENT SHALL BE REMOVED AND REINSTALLED OR REMEDIAL ACTION PERFORMED AS DIRECTED AT NO ADDITIONAL COST OR ADDITIONAL TIME.
            - THE TERM "CONVENIENTLY ACCESSIBLE" IS DEFINED AS CAPABLE OF BEING REACHED WITHOUT THE USE OF LADDERS, OR WITHOUT CLIMBING OR CRAWLING UNDER OR OVER OBSTACLES SUCH AS ELECTRICAL CONDUIT, MOTORS, FANS, PUMPS, BELT GUARDS, TRANSFORMERS, HIGH VOLTAGE LINES, PIPING, AND DUCTWORK.
      2. **PIPE EQUIPMENT AND SUPPORTS**
         a. WHERE HANGER SPACING DOES NOT CORRESPOND WITH JOIST OR RIB SPACING, USE STRUCTURAL STEEL CHANNELS SECURED DIRECTLY TO JOIST AND RIB STRUCTURE THAT WILL CORRESPOND TO THE REQUIRED HANGER SPACING, AND THEN SUSPEND THE EQUIPMENT AND PIPING FROM THE CHANNELS. HOLES SHALL BE DRILLED OR BURNED IN STRUCTURAL STEEL ONLY WITH THE PRIOR WRITTEN APPROVAL.
         b. THE USE OF CHAIN PIPE SUPPORTS, WIRE OR STRAP HANGERS; WOOD FOR BLOCKING, STAYS AND BRACING, OR HANGERS SUSPENDED FROM PIPING ABOVE SHALL NOT BE PERMITTED. RUSTY PRODUCTS SHALL BE REPLACED.
         c. HANGER RODS SHALL BE USED THAT ARE STRAIGHT AND VERTICAL. TURNBUCKLES FOR VERTICAL ADJUSTMENTS MAY BE OMITTED WHERE LIMITED SPACE PREVENTS USE. A MINIMUM OF 15 MM (1/2 INCH) CLEARANCE BETWEEN PIPE OR PIPING COVERING AND ADJACENT WORK SHALL BE PROVIDED.
         d. FOR HORIZONTAL AND VERTICAL PLUMBING PIPE SUPPORTS, REFER TO THE INTERNATIONAL PLUMBING CODE (IPC) AND THESE SPECIFICATIONS.
         e. OVERHEAD SUPPORTS:
            - THE BASIC STRUCTURAL SYSTEM OF THE BUILDING IS DESIGNED TO SUSTAIN THE LOADS IMPOSED BY EQUIPMENT AND PIPING TO BE SUPPORTED OVERHEAD.
            - PROVIDE STEEL STRUCTURAL MEMBERS, IN ADDITION TO THOSE SHOWN, OF ADEQUATE CAPABILITY TO SUPPORT THE IMPOSED LOADS, LOCATED IN ACCORDANCE WITH THE FINAL APPROVED LAYOUT OF EQUIPMENT AND PIPING.
            - TUBING AND CAPILLARY SYSTEMS SHALL BE SUPPORTED IN CHANNEL TROUGHS.
         f. FLOOR SUPPORTS:
            - PROVIDE CONCRETE BASES, CONCRETE ANCHOR BLOCKS AND PEDESTALS, AND STRUCTURAL STEEL SYSTEMS FOR SUPPORT OF EQUIPMENT AND PIPING. CONCRETE BASES AND STRUCTURAL SYSTEMS SHALL BE ANCHORED AND DOWELED TO RESIST FORCES UNDER OPERATING AND SEISMIC CONDITIONS (IF APPLICABLE) WITHOUT EXCESSIVE DISPLACEMENT OR STRUCTURAL FAILURE.
            - BASES AND SUPPORTS SHALL NOT BE LOCATED AND INSTALLED UNTIL EQUIPMENT MOUNTED THEREON HAS BEEN APPROVED. BASES SHALL BE SIZED TO MATCH EQUIPMENT MOUNTED THEREON PLUS 50 MM (2 INCH) EXCESS ON ALL EDGES. STRUCTURAL DRAWINGS SHALL BE REVIEWED FOR ADDITIONAL REQUIREMENTS. BASES SHALL BE NEATLY FINISHED AND SMOOTHED, SHALL HAVE CHAMFERED EDGES AT THE TOP, AND SHALL BE SUITABLE FOR PAINTING.
            - ALL EQUIPMENT SHALL BE SHIMMED, LEVELED, FIRMLY ANCHORED, AND GROUTED WITH EPOXY GROUT. ANCHOR BOLTS SHALL BE PLACED IN SLEEVES, ANCHORED TO THE BASES. FILL THE ANNULAR SPACE BETWEEN SLEEVES AND BOLTS WITH A GROUT MATERIAL TO PERMIT ALIGNMENT AND REALIGNMENT.
      3. **LUBRICATION**
         a. ALL EQUIPMENT AND DEVICES REQUIRING LUBRICATION SHALL BE LUBRICATED PRIOR TO INITIAL OPERATION. ALL DEVICES AND EQUIPMENT SHALL BE FIELD CHECKED FOR PROPER LUBRICATION.
         b. ALL LUBRICATION POINTS SHALL BE ACCESSIBLE WITHOUT DISASSEMBLING EQUIPMENT, EXCEPT TO REMOVE ACCESS PLATES.
      4. **CLEANING AND PAINTING**
         a. PRIOR TO FINAL INSPECTION AND ACCEPTANCE OF THE PLANT AND FACILITIES FOR BENEFICIAL USE, THE PLANT FACILITIES, EQUIPMENT AND SYSTEMS SHALL BE THOROUGHLY CLEANED AND PAINTED. REFER TO SECTION PAINTING.
            - CLEANING SHALL BE THOROUGH. SOLVENTS, CLEANING MATERIALS AND METHODS RECOMMENDED BY THE MANUFACTURERS SHALL BE USED FOR THE SPECIFIC TASKS. ALL RUST SHALL BE REMOVED PRIOR TO PAINTING AND FROM SURFACES TO REMAIN UNPAINTED. SCRATCHES, SCUFFS, AND ABRASIONS SHALL BE REPAIRED PRIOR TO APPLYING PRIME AND FINISH COATS.
            - THE FINAL RESULT SHALL BE A SMOOTH, EVEN-COLORED, EVEN-TEXTURED FACTORY FINISH ON ALL ITEMS. THE ENTIRE PIECE OF EQUIPMENT SHALL BE REPAINTED, IF NECESSARY, TO ACHIEVE THIS. LEAD BASED PAINTS SHALL NOT BE USED.
      6. **IDENTIFICATION SIGNS**
         a. LAMINATED PLASTIC SIGNS, WITH ENGRAVED LETTERING NOT LESS THAN 7 MM (3/16 INCH) HIGH, SHALL BE PROVIDED THAT DESIGNATES EQUIPMENT FUNCTION, FOR ALL EQUIPMENT, SWITCHES, MOTOR CONTROLLERS, RELAYS, METERS, CONTROL DEVICES, INCLUDING AUTOMATIC CONTROL VALVES. NOMENCLATURE AND IDENTIFICATION SYMBOLS SHALL CORRESPOND TO THAT USED IN MAINTENANCE MANUAL, AND IN DIAGRAMS SPECIFIED ELSEWHERE. ATTACH BY CHAIN, ADHESIVE, OR SCREWS.
         b. FACTORY BUILT EQUIPMENT: METAL PLATE, SECURELY ATTACHED, WITH NAME AND ADDRESS OF MANUFACTURER, SERIAL NUMBER, MODEL NUMBER, SIZE, AND PERFORMANCE DATA SHALL BE PLACED ON FACTORY-BUILT EQUIPMENT.
      7. **STARTUP**
         a. STARTUP OF EQUIPM

GENERAL NOTES

4. **GENERAL-DUTY VALVES FOR PLUMBING PIPING**
   A. **GENERAL**
      1. **DESCRIPTION**: GENERAL-DUTY VALVES FOR DOMESTIC WATER AND SEWER SYSTEMS: BALL VALVES BALANCING VALVES CHECK VALVES WATER PRESSURE REDUCING VALVES AND CONNECTIONS BACKFLOW PREVENTERS THERMOSTATIC MIXING VALVES. RE: SPECIFICATIONS.
      2. **SUBMITTALS**
         a. MANUFACTURERS LITERATURE AND DATA INCLUDING: FULL ITEM DESCRIPTION AND OPTIONAL FEATURES AND ACCESSORIES. INCLUDE DIMENSIONS, WEIGHTS, MATERIALS, APPLICATIONS, STANDARD COMPLIANCE, MODEL NUMBERS, SIZE, AND CAPACITY.
      3. **DELIVERY AND STORAGE**: VALVES SHALL BE PREPARED FOR STORAGE AS FOLLOWS:
         a. MAINTAIN VALVE END PROTECTION.
         b. STORE VALVES INDOORS AND MAINTAIN AT HIGHER THAN AMBIENT DEW POINT TEMPERATURE.
   B. **PRODUCTS**
      1. **SHUT-OFF VALVES**
         a. COLD, HOT AND RE-CIRCULATING HOT WATER:
         b. BALL, MSS SP-110, BALL VALVE SHALL BE FULL PORT THREE PIECE OR TWO PIECE WITH A UNION DESIGN WITH ADJUSTABLE STEM PACKAGE.
      2. **MANUAL BALANCING VALVES**
         a. HOT WATER RE-CIRCULATING MANUAL BALANCING VALVE SHALL BE OF BRONZE BODY, BRASS BALL CONSTRUCTION WITH GLASS AND CARBON FILLED TFE SEAT RINGS AND DESIGNED FOR POSITIVE SHUTOFF. THE MANUAL BALANCING VALVE SHALL HAVE DIFFERENTIAL PRESSURE READ-OUT PORTS ACROSS THE VALVE SEAT AREA.
         b. MANUAL BALANCING VALVES SHALL BE OF HEAVY DUTY CAST IRON FLANGED CONSTRUCTION WITH 861 KPA (125 PSIG) FLANGE CONNECTIONS. THE FLANGED MANUAL BALANCING VALVES SHALL HAVE EITHER A BRASS BALL WITH GLASS AND CARBON FILLED TFE SEAL RINGS OR FITTED WITH A BRONZE SEAT, REPLACEABLE BRONZE DISC WITH FROM SEAL INSERT AND STAINLESS STEEL STEM.
      3. **THERMOSTATIC BALANCING VALVES**
         a. THERMOSTATIC RECIRCULATION BALANCING VALVES FOR DOMESTIC HOT WATER AND DOMESTIC COLD WATER APPLICATION. THERMOSTATICALLY CONTROLLED, SPRING ACTUATED AUTOMATIC BALANCING VALVE TO VERY RECIRCULATION FLOW TO MAINTAIN CONSTANT RETURN TEMPERATURES. STAINLESS STEEL BODY, SPRING AND BRASS OR STAINLESS STEEL THERMAL ACTUATOR AND ACTUATOR CARRIER. PROVIDE WITH THREADED INLET, INTEGRAL OUTLET UNION AND STAINLESS STEEL CHECK VALVE.
      4. **CHECK VALVES**
         a. SHALL BE CLASS 125, BRONZE SWING CHECK VALVES WITH NON-METALLIC DISC SUITABLE FOR TYPE OF SERVICE. THE CHECK VALVE SHALL MEET MSS SP-80 TYPE 4 STANDARD. THE CHECK VALVE SHALL HAVE A Y PATTERN HORIZONTAL BODY DESIGN WITH BRONZE BODY MATERIAL CONFORMING TO ASTM B62, SOLDER JOINTS, AND PTFE OR TFE DISC.
      5. **WATER PRESSURE REDUCING VALVE AND CONNECTIONS**
         a. THE PRESSURE REDUCING VALVE SHALL CONSIST OF A BRONZE BODY AND BELL HOUSING, A SEPARATE ACCESS COVER FOR THE PLUNGER, AND A BOLT TO ADJUST THE DOWNSTREAM PRESSURE. THE PRESSURE REDUCING VALVE SHALL MEET ASSE 1003. THE ASSEMBLY SHALL BE OF THE BALANCED PISTON DESIGN AND SHALL REDUCE PRESSURE IN BOTH FLOW AND NO FLOW CONDITIONS.
         b. CONNECTIONS VALVES AND STRAINERS: SHUT OFF VALVES SHALL BE INSTALLED ON EACH SIDE OF REDUCING VALVE AND A BYPASS LINE EQUAL IN SIZE TO THE REGULATOR INLET PIPE SHALL BE INSTALLED WITH A NORMALLY CLOSED GLOBE VALVE. A STRAINER SHALL BE INSTALLED ON INLET SIDE OF, AND SAME SIZE AS PRESSURE REDUCING VALVE. A PRESSURE GAUGE SHALL BE INSTALLED ON THE INLET AND OUTLET OF THE VALVE.
      6. **BACKFLOW PREVENTERS**
         a. THE REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL BE ASSE LISTED 1013 WITH FULL PORT OS&Y POSITIVE-SEAL RESILIENT GATE VALVES AND AN INTEGRAL RELIEF MONITOR SWITCH. THE MAIN BODY AND ACCESS COVER SHALL BE EPOXY COATED DUCTILE IRON CONFORMING TO ASTM A536 GRADE 4. THE SEAT RING AND CHECK VALVE SHALL BE THE THERMOPLASTIC TYPE SUITED FOR WATER SERVICE. THE STEM SHALL BE STAINLESS STEEL CONFORMING TO ASTM A276/A276M. THE SEAT DISC SHALL BE THE ELASTOMER TYPE SUITED FOR WATER SERVICE. THE CHECKS AND THE RELIEF VALVE SHALL BE ACCESSIBLE FOR MAINTENANCE WITHOUT REMOVING THE DEVICE FROM THE LINE. AN EPOXY COATED WYE TYPE STRAINER WITH FLANGED CONNECTIONS SHALL BE INSTALLED ON THE INLET. REDUCED PRESSURE BACKFLOW PREVENTERS SHALL BE INSTALLED IN THE FOLLOWING APPLICATIONS:
            • REVERSE OSMOSIS WATER SYSTEMS, WATER MAKE UP TO HEATING SYSTEMS, CHILLED WATER SYSTEM, AND SIMILAR EQUIPMENT CONSUMING WATER; WATER SERVICE ENTRANCE FROM LOOP SYSTEM.
         b. THE DOUBLE CHECK PREVENTION ASSEMBLY SHALL BE ASSE LISTED 1001. THE MAIN BODY SHALL BE CAST BRONZE. THE SEAT DISC SHALL BE THE ELASTOMER TYPE SUITED FOR WATER SERVICE. THE DEVICE SHALL BE ACCESSIBLE FOR MAINTENANCE WITHOUT REMOVING THE DEVICE FROM THE SERVICE LINE. THE INSTALLATION SHALL NOT BE IN A CONCEALED OR INACCESSIBLE LOCATION OR WHERE THE VENTING OF WATER FROM THE DEVICE DURING NORMAL OPERATION IS DEEMED OBJECTIONABLE. ATMOSPHERIC VACUUM BREAKERS SHALL BE INSTALLED IN THE FOLLOWING APPLICATIONS:
            • HOSE BIBS AND SNAPS WITH THREADED OUTLETS DISPOSERS, SHOWERS (TELEPHONE/HANDHELD TYPE), HYDROTHERAPY UNITS, ALL KITCHEN EQUIPMENT, IF NOT PROTECTED BY AIR GAP, GLASSWARE WASHERS, SERVICE SINKS (INTEGRAL WITH FAUCET ONLY), LAUNDRY TUBS (INTEGRAL WITH FAUCET ONLY).
         c. THE HOSE CONNECTION VACUUM BREAKER SHALL BE ASSE LISTED 1011. THE MAIN BODY SHALL BE CAST BRASS WITH STAINLESS STEEL WORKING PARTS. THE DIAPHRAGM AND DISC SHALL BE THE ELASTOMER TYPE SUITED FOR WATER SERVICE. THE DEVICE SHALL PERMIT THE ATTACHMENT OF PORTABLE HOSES TO HOSE THREAD OUTLETS. HOSE CONNECTION VACUUM BREAKERS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS REQUIRING NON-CONTINUOUS PRESSURE: HOSE BIBBS AND WALL HYDRANTS.
         d. THE DOUBLE CHECK BACKFLOW PREVENTION ASSEMBLY SHALL BE ASSE LISTED 1015 AND SUPPLY WITH FULL PORT, OS&Y, POSITIVE-SEAL, RESILIENT GATE VALVES. THE MAIN BODY AND ACCESS COVER SHALL BE EPOXY COATED DUCTILE IRON CONFORMING TO ASTM A536 GRADE. THE SEAT RING AND CHECK VALVE SHALL BE THE THERMOPLASTIC TYPE SUITED FOR WATER SERVICE. THE STEM SHALL BE STAINLESS STEEL CONFORMING TO ASTM A276/A276M. THE SEAT DISC SHALL BE THE ELASTOMER TYPE SUITED FOR WATER SERVICE. THE FIRST AND SECOND CHECK VALVE SHALL BE ACCESSIBLE FOR MAINTENANCE WITHOUT REMOVING THE DEVICE FROM THE LINE. DOUBLE CHECK VALVES SHALL BE INSTALLED IN THE FOLLOWING LOCATION REQUIRING CONTINUOUS PRESSURE SUBJECT TO BACKPRESSURE AND BACKSIPHONAGE CONDITIONS: FOOD PROCESSING EQUIPMENT, LAUNDRY EQUIPMENT.
      7. **THERMOSTATIC MIXING VALVES**
         a. MASTER THERMOSTATIC WATER MIXING VALVES:
            • APPLICATION: TEMPERED WATER DISTRIBUTION FROM HOT WATER SOURCE COVERING A WIDE RANGE OF FLOW.
            • STANDARD: ASSE 1017.
            • PRESSURE RATING: 861 KPA (125 PSIG).
            • TYPE: EXPOSED-MOUNTING OR CABINET-TYPE, AS INDICATED, THERMOSTATICALLY CONTROLLED WATER MIXING VALVE.
            • CONNECTIONS: FLANGED OR THREADED UNION INLETS AND OUTLET.
         b. **HI-LO WATER-MIXING-VALVE ASSEMBLIES**:
         a. APPLICATION: TEMPERED WATER DISTRIBUTION FROM HOT WATER SOURCE COVERING A WIDE RANGE OF FLOW.
         b. DESCRIPTION: FACTORY-FABRICATED, CABINET-TYPE OR EXPOSED-MOUNTING, THERMOSTATICALLY CONTROLLED, WATER-MIXING-VALVE ASSEMBLY IN TWO-VALVE PARALLEL ARRANGEMENT INCLUDING PRESSURE REGULATORS, PRESSURE GAUGES AND THERMOMETER.
         c. LARGE-FLOW PARALLEL: MASTER THERMOSTATIC WATER MIXING VALVE AND DOWNSTREAM PRESSURE REGULATOR WITH PRESSURE GAUGES ON INLET AND OUTLET.
         d. SMALL-FLOW PARALLEL: MASTER THERMOSTATIC WATER MIXING VALVE.
         e. MASTER THERMOSTATIC MIXING VALVES: COMPLY WITH ASSE 1017.
         f. WATER REGULATOR(S): COMPLY WITH ASSE 1003. INCLUDE PRESSURE GAUGE ON INLET AND OUTLET.
         g. COMPONENT PRESSURE RATINGS: 861 KPA (125 PSIG) MINIMUM, UNLESS OTHERWISE INDICATED.
         h. CONNECTIONS: SOLDERED OR THREADED UNION INLETS AND OUTLET.
      8. **WATER TEMPERATURE LIMITING DEVICES**
         a. APPLICATION: SINGLE PLUMBING FIXTURE POINT-OF-USE SUCH AS SINKS OR LAVATORIES.
         b. STANDARD: ASSE 1070.
         c. PRESSURE RATING: 861 KPA (125 PSIG).
         d. TYPE: THERMOSTATICALLY CONTROLLED WATER MIXING VALVE SET AT 43 DEGREES C (110 DEGREES F).
         e. CONNECTIONS: THREADED UNION, COMPRESSION OR SOLDERED INLETS AND OUTLET.
   C. **EXECUTION**
      1. **EXAMINATION**
         a. VALVES SHALL BE OPERATED IN POSITIONS FROM FULLY OPEN TO FULLY CLOSED. GUIDES AND SEATS SHALL BE EXAMINED AND MADE ACCESSIBLE BY SUCH OPERATIONS.
         b. MATING FLANGE FACES SHALL BE EXAMINED FOR CONDITIONS THAT MIGHT CAUSE LEAKAGE. BOLTING SHALL BE CHECKED FOR PROPER SIZE, LENGTH, AND MATERIAL. GASKETS SHALL BE VERIFIED FOR PROPER SIZE AND THAT ITS MATERIAL COMPOSITION IS SUITABLE FOR SERVICE AND FREE FROM DEFECTS AND DAMAGE.
         c. DO NOT ATTEMPT TO REPAIR DEFECTIVE VALVES; REPLACE WITH NEW VALVES.
      2. **INSTALLATION**
         a. INSTALL VALVES WITH UNIONS OR FLANGES AT EACH PIECE OF EQUIPMENT ARRANGED TO ALLOW SERVICE, MAINTENANCE, AND EQUIPMENT REMOVAL WITHOUT SYSTEM SHUTDOWN.
         b. VALVES SHALL BE LOCATED FOR EASY ACCESS AND SHALL BE PROVIDE WITH SEPARATE SUPPORT. VALVES SHALL BE ACCESSIBLE WITH ACCESS DOORS WHEN INSTALLED INSIDE PARTITIONS OR ABOVE HARD CEILINGS.
         c. VALVES SHALL BE INSTALLED IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE.
         d. INSTALL BACKFLOW PREVENTERS IN EACH WATER SUPPLY TO MECHANICAL EQUIPMENT AND SYSTEMS AND TO OTHER EQUIPMENT AND WATER SYSTEMS THAT SHALL BE SOURCES OF CONTAMINATION. COMPLY WITH AUTHORITIES HAVING JURISDICTION. LOCATE BACKFLOW PREVENTERS IN SAME ROOM AS CONNECTED EQUIPMENT OR SYSTEM.
         e. INSTALL DRAIN FOR BACKFLOW PREVENTERS WITH ATMOSPHERIC-VENT DRAIN CONNECTION WITH AIR-GAP FITTING, FIXED AIR-GAP FITTING, OR EQUIVALENT POSITIVE PIPE SEPARATION OF AT LEAST TWO PIPE DIAMETERS IN DRAIN PIPING AND PIPE TO FLOOR DRAIN OR TO EXTERIOR. LOCATE AIR-GAP DEVICE ATTACHED TO OR UNDER BACKFLOW PREVENTER. SIMPLE AIR BREAKS ARE PROHIBITED FOR THIS APPLICATION.
      3. **LABELING AND IDENTIFYING**
         a. EQUIPMENT NAMEPLATES AND SIGNS: INSTALL ENGRAVED PLASTIC-LAMINATE EQUIPMENT NAMEPLATE OR SIGN ON OR NEAR EACH OF THE FOLLOWING:
            • CALIBRATED BALANCING VALVES.
            • MASTER, THERMOSTATIC, WATER MIXING VALVES.
            • MANIFOLD, THERMOSTATIC, WATER-MIXING-VALVE ASSEMBLIES.
      4. **STARTUP AND TESTING**: PERFORM TESTS AS RECOMMENDED BY PRODUCT MANUFACTURER AND LISTED STANDARDS AND UNDER ACTUAL OR SIMULATED OPERATING CONDITIONS AND PROVE FULL COMPLIANCE WITH DESIGN AND SPECIFIED REQUIREMENTS. TESTS OF THE VARIOUS ITEMS OF EQUIPMENT SHALL BE PERFORMED SIMULTANEOUSLY WITH THE SYSTEM OF WHICH EACH ITEM IS AN INTEGRAL PART.

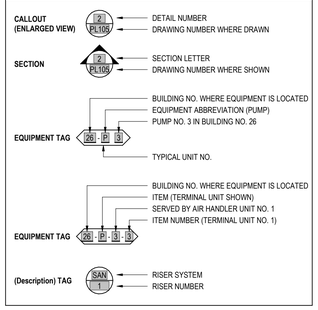
5. **PLUMBING INSULATION**
   A. **GENERAL**
      1. **DESCRIPTION**: FIELD APPLIED INSULATION FOR THERMAL EFFICIENCY AND CONDENSATION CONTROL FOR THE FOLLOWING:
         a. PLUMBING PIPING AND EQUIPMENT.
         b. ALL INSULATION SYSTEMS INSTALLED WITHIN SUPPLY, RETURN, EXHAUST, RELIEF AND VENTILATION AIR PLENUMS SHALL BE LIMITED TO UNINHABITED CRAWL SPACES, AREAS ABOVE A CEILING OR BELOW THE FLOOR, ATTIC SPACES, INTERIORS OF AIR CONDITIONED OR HEATING DUCTS, AND MECHANICAL EQUIPMENT ROOMS SHALL BE NONCOMBUSTIBLE OR SHALL BE LISTED AND LABELED AS HAVING A FLAME SPREAD INDEXES OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723. NOTE: ICC IMC, SECTION 602.2.1.
      2. **SUBMITTALS**
         a. ALL INFORMATION, CLEARLY PRESENTED, SHALL BE INCLUDED TO DETERMINE COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS AND ASTM DESIGNATION, FEDERAL AND MILITARY SPECIFICATIONS.
         b. INSULATION MATERIALS: SPECIFY EACH TYPE USED AND STATE SURFACE BURNING CHARACTERISTICS.
         c. INSULATION FACINGS AND JACKETS: EACH TYPE USED AND STATE SURFACE BURNING CHARACTERISTICS.
         d. INSULATION ACCESSORY MATERIALS: EACH TYPE USED.
         e. ALL INSULATION FITTINGS (EXCEPTION FLEXIBLE UNICELLULAR INSULATION) SHALL BE FABRICATED IN ACCORDANCE WITH ASTM C450 AND THE REFERENCED ADJUNCT TO ASTM C450.
         f. SUBMIT MANUFACTURER'S LITERATURE AND DATA UPDATED TO INCLUDE SUBMITTAL REVIEW COMMENTS AND ANY EQUIPMENT SUBSTITUTIONS.
      3. **STORAGE AND HANDLING OF MATERIAL**: STORE MATERIALS IN CLEAN AND DRY ENVIRONMENT, PIPE INSULATION JACKETS SHALL BE CLEAN AND UNMARRED. PLACE ADHESIVES IN ORIGINAL CONTAINERS. MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS AS REQUIRED BY PRINTED INSTRUCTIONS OF MANUFACTURERS OF ADHESIVES, MASTICS AND FINISHING CEMENTS.
   B. **PRODUCTS**: RE: SPECIFICATION FOR INSULATION AND INSULATION ACCESSORIES MATERIAL REQUIREMENTS
   C. **EXECUTION**
      1. **GENERAL REQUIREMENTS**
         a. EXCEPT FOR SPECIFIC EXCEPTIONS OR AS NOTED, INSULATE ALL SPECIFIED EQUIPMENT, AND PIPING (PIPE, FITTINGS, VALVES, ACCESSORIES). INSULATE EACH PIPE INDIVIDUALLY. DO NOT USE SCRAP PIECES OF INSULATION WHERE A FULL LENGTH SECTION WILL FIT.
         b. INSULATION MATERIALS SHALL BE INSTALLED WITH SMOOTH AND EVEN SURFACES, WITH JACKETS AND FACINGS DRAWN TIGHT AND SMOOTHLY CEMENTED DOWN AND SEALED AT ALL LAPS. INSULATION SHALL BE CONTINUOUS THROUGH ALL SLEEVES AND OPENINGS, EXCEPT AT FIRE DAMPERS AND DUCT HEATERS (NFPA 90A).
         c. VAPOR BARRIERS SHALL BE CONTINUOUS AND UNINTERRUPTED THROUGHOUT SYSTEMS WITH OPERATING TEMPERATURE 15 DEGREES C (60 DEGREES F) AND BELOW. LAP AND SEAL VAPOR BARRIER OVER ENDS AND EXPOSED EDGES OF INSULATION. ANCHORS, SUPPORTS AND OTHER METAL PROJECTIONS THROUGH INSULATION ON COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED FOR A MINIMUM LENGTH OF 150 MM (6 INCHES).
         d. INSTALL VAPOR STOPS WITH OPERATING TEMPERATURE 15 DEGREES C (60 DEGREES F) AND BELOW AT ALL INSULATION TERMINATIONS ON EITHER SIDE OF VALVES, PUMPS, FITTINGS, AND EQUIPMENT AND PARTICULARLY AT STRAIGHT LENGTHS EVERY 4.6 TO 6.1 METERS (APPROX. 15 TO 20 FEET) OF PIPE INSULATION. THE ANNULAR SPACE BETWEEN THE PIPE AND PIPE INSULATION OF APPROX. 25 MM (1 INCH) IN LENGTH AT EVERY VAPOR STOP SHALL BE SEALED WITH APPROPRIATE VAPOR BARRIER SEALANT. BIO-BASED MATERIALS SHALL BE UTILIZED WHEN POSSIBLE.
         e. CONSTRUCT INSULATION ON PARTS OF EQUIPMENT SUCH AS COLD WATER PUMPS AND HEAT EXCHANGERS THAT MUST BE OPENED PERIODICALLY FOR MAINTENANCE OR REPAIR, SO INSULATION CAN BE REMOVED AND REPLACED WITHOUT DAMAGE. INSTALL INSULATION WITH BOLTED 1MM THICK (20 GAGE) GALVANIZED STEEL OR ALUMINUM COVERS AS COMPLETE UNITS, OR IN SECTIONS, WITH ALL NECESSARY SUPPORTS, AND SPLIT TO COINCIDE WITH FLANGE/SPLIT OF THE EQUIPMENT. DO NOT INSULATE OVER EQUIPMENT NAMEPLATE DATA.
         f. INSULATION ON HOT PIPING AND EQUIPMENT SHALL BE TERMINATED SQUARE AT ITEMS NOT TO BE INSULATED, ACCESS OPENINGS AND NAMEPLATES. COVER ALL EXPOSED RAW INSULATION WITH WHITE SEALER COATING (CAUTION ABOUT COATING'S MAXIMUM TEMPERATURE LIMIT) OR JACKET MATERIAL.
         g. PROTECT ALL INSULATIONS OUTSIDE OF BUILDINGS WITH ALUMINUM JACKET USING LOCK JOINT OR OTHER APPROVED SYSTEM FOR A CONTINUOUS WEATHER TIGHT SYSTEM. ACCESS DOORS AND OTHER ITEMS REQUIRING MAINTENANCE OR ACCESS SHALL BE REMOVABLE AND SEALABLE.
         h. PLUMBING WORK NOT TO BE INSULATED UNLESS OTHERWISE NOTED:
            • PIPING AND VALVES OF FIRE PROTECTION SYSTEM.
            • CHROMIUM PLATED BRASS PIPING.
            • WATER PIPING IN CONTACT WITH EARTH.
            • DISTILLED WATER PIPING.
         i. APPLY INSULATION MATERIALS SUBJECT TO THE MANUFACTURER'S RECOMMENDED TEMPERATURE LIMITS. APPLY ADHESIVES, MASTIC AND COATINGS AT THE MANUFACTURER'S RECOMMENDED MINIMUM WET OR DRY FILM THICKNESS. BIO-BASED MATERIALS SHALL BE UTILIZED WHEN POSSIBLE.
         j. ELBOWS, FLANGES AND OTHER FITTINGS SHALL BE INSULATED WITH THE SAME MATERIAL AS IS USED ON THE PIPE STRAIGHTS. USE OF POLYURETHANE OR POLYISOCYANURATE SPRAY-FOAM TO FILL A PVC ELBOW JACKET IS PROHIBITED ON COLD APPLICATIONS.
         k. FIRESTOP PIPE INSULATION:
         l. PROVIDE FIRESTOPPING INSULATION AT FIRE AND SMOKE BARRIERS THROUGH PENETRATIONS. FIRESTOPPING INSULATION SHALL BE UL LISTED AS DEFINED IN SECTION 07 84 00, FIRESTOPPING.
         m. PIPE PENETRATIONS REQUIRING FIRE STOP INSULATION INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:
            • PIPE RISERS THROUGH FLOORS
            • PIPE CHASE WALLS AND FLOORS
            • SMOKE PARTITIONS
            • FIRE PARTITIONS
            • HOURLY RATED WALLS
         n. FREEZE PROTECTION OF ABOVE GRADE OUTDOOR PIPING (OVER HEAT TRACING TAPE): 20 MM (3/4 INCH) THICK INSULATION FOR ALL PIPE SIZES 75 MM (3 INCHES) AND SMALLER AND 25 MM (1 INCH) THICK INSULATION FOR LARGER PIPES. PROVIDE METAL JACKETS FOR ALL PIPE INSULATIONS. PROVIDE FREEZE PROTECTION FOR COLD WATER MAKE-UP PIPING AND EQUIPMENT WHERE INDICATED ON THE DRAWINGS AS DESCRIBED IN SECTION HYDRONIC PIPING (ELECTRICAL HEAT TRACING SYSTEMS).
         o. PROVIDE VAPOR BARRIER SYSTEMS AS FOLLOWS:
            • ALL PIPING EXPOSED TO OUTDOOR WEATHER.
            • ALL INTERIOR PIPING CONVEYING FLUIDS EXPOSED TO OUTDOOR AIR (I.E. IN ATTICS, VENTILATED (NOT AIR CONDITIONED) SPACES, ETC.) BELOW AMBIENT AIR TEMPERATURE IN HIGH HUMIDITY LOCATIONS.
         p. PROVIDE METAL JACKETS OVER INSULATION AS FOLLOWS:
            • ALL PLUMBING PIPING EXPOSED TO OUTDOOR WEATHER.
            • PIPING EXPOSED IN BUILDING, WITHIN 1829 MM (6 FEET) OF THE FLOOR, THAT CONNECTS TO STERILIZERS, KITCHEN AND LAUNDRY EQUIPMENT. JACKETS MAY BE APPLIED WITH POP RIVETS EXCEPT FOR COLD PIPE OR TUBING APPLICATIONS. PROVIDE ALUMINUM ANGLE RING ESCUTCHEONS AT WALL, CEILING OR FLOOR PENETRATIONS.
            • A 50 MM (2 INCH) JACKET OVERLAP IS REQUIRED AT LONGITUDINAL AND CIRCUMFERENTIAL JOINTS WITH THE OVERLAP AT THE BOTTOM.
         q. PROVIDE PVC JACKETS OVER INSULATION AS FOLLOWS:
            • PIPING EXPOSED IN BUILDING, WITHIN 1829 MM (6 FEET) OF THE FLOOR, ON PIPING THAT IS NOT PRECLUDED IN PREVIOUS SECTIONS.
            • A 50 MM (2 INCH) JACKET OVERLAP IS REQUIRED AT LONGITUDINAL AND CIRCUMFERENTIAL JOINTS WITH THE OVERLAP AT THE BOTTOM.
      2. **INSULATION INSTALLATION**
         a. MINERAL FIBER BOARD:
            • VAPOR RETARDER FACED BOARD: APPLY BOARD ON PINS SPACED NOT MORE THAN 300 MM (12 INCHES) ON CENTER EACH WAY, AND NOT LESS THAN 75 MM (3 INCHES) FROM EACH EDGE OF BOARD. IN ADDITION TO PINS, APPLY INSULATION BONDING ADHESIVE TO ENTIRE UNDERSIDE OF HORIZONTAL METAL SURFACES. (BIO-BASED MATERIALS SHALL BE UTILIZED WHEN POSSIBLE.) BUTT INSULATION EDGES TIGHTLY AND SEAL ALL JOINTS WITH LAPS AND BUTT STRIPS. AFTER APPLYING SPEED CLIPS CUT PINS OFF FLUSH AND APPLY VAPOR SEAL PATCHES OVER CLIPS.
            • COLD EQUIPMENT: 40 MM (1-1/2INCH) THICK INSULATION FACED WITH VAPOR RETARDER ASJ OR FSK. SEAL ALL FACINGS, LAPS, AND TERMINATION POINTS AND DO NOT USE STAPLES OR OTHER ATTACHMENTS THAT MAY PUNCTURE ASJ OR FSK.
            • HOT EQUIPMENT: 40 MM (1-1/2 INCH) THICK INSULATION FACED WITH UNSEALED ASJ OR FSK.
         b. MOLDED MINERAL FIBER PIPE AND TUBING COVERING:
            • FIT INSULATION TO PIPE, ALIGNING ALL LONGITUDINAL JOINTS. SEAL LONGITUDINAL JOINT LAPS AND CIRCUMFERENTIAL BUTT STRIPS BY RUBBING HARD WITH A NYLON SEALING TOOL TO ASSURE A POSITIVE SEAL. STAPLES MAY BE USED TO ASSIST IN SECURING INSULATION EXCEPT FOR COLD PIPING. SEAL ALL VAPOR RETARDER PENETRATIONS ON COLD PIPING WITH A GENEROUS APPLICATION OF VAPOR BARRIER MASTIC. PROVIDE CELLAR GLASS INSERTS AND INSTALL WITH METAL INSULATION SHIELDS AT OUTSIDE PIPE SUPPORTS. INSTALL FREEZE PROTECTION INSULATION OVER HEATING CABLE.
            • NOMINAL THICKNESS IN MILLIMETERS AND INCHES SPECIFIED IN THE SCHEDULE AT THE END OF THIS SECTION.
         c. FLEXIBLE ELASTOMERIC CELLULAR THERMAL INSULATION:
            • APPLY INSULATION AND FABRICATE FITTINGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND FINISH WITH TWO COATS OF WEATHER RESISTANT FINISH AS RECOMMENDED BY THE INSULATION MANUFACTURER. EXTERNAL VAPOR BARRIER JACKETING MAY BE REQUIRED FOR EXPECTED OR ANTICIPATED HIGH HUMIDITY EXPOSURES. SEE ASTM C1710.
         d. CALCIUM SILICATE:
            • MINIMUM THICKNESS IN MILLIMETER (INCHES) SPECIFIED BELOW FOR PIPING OTHER THAN IN BOILER PLANT.
         e. RE: INSULATION SCHEDULE: NOMINAL THICKNESS OF CALCIUM SILICATE INSULATION
         f. RE: INSULATION SCHEDULE: PIPE INSULATION THICKNESS MILLIMETERS (INCHES)

6. **FACILITY WATER DISTRIBUTION**
   A. **GENERAL**
      1. DESCRIPTION: DOMESTIC WATER SYSTEMS, INCLUDING PIPING, EQUIPMENT AND ALL NECESSARY ACCESSORIES AS DESIGNATED IN THIS SECTION.
   B. **PRODUCTS**: RE: SPECIFICATION FOR PIPE, PIPE FITTING, PIPE JOINING MATERIAL REQUIREMENTS
   C. **EXECUTION**
      1. **INSTALLATION**: GENERAL: COMPLY WITH THE INTERNATIONAL PLUMBING CODE AND THE FOLLOWING:
         a. INSTALL BRANCH PIPING FOR WATER FROM THE PIPING SYSTEM AND CONNECT TO ALL FIXTURES, VALVES, COCKS, OUTLETS, CASEWORK, CABINETS AND EQUIPMENT, INCLUDING THOSE FURNISHED BY THE GOVERNMENT OR SPECIFIED IN OTHER SECTIONS.
         b. ALL PIPE RUNS SHALL BE LAID OUT TO AVOID INTERFERENCE WITH OTHER WORK/TRADES.
         c. INSTALL UNION AND SHUT-OFF VALVE ON PRESSURE PIPING AT CONNECTIONS TO EQUIPMENT.
         d. PIPE HANGERS, SUPPORTS AND ACCESSORIES:
            • ALL PIPING SHALL BE SUPPORTED PER THE IPC, H-18-8 SEISMIC DESIGN HANDBOOK, MSS SP-58, AND SMACNA AS REQUIRED.
            • SHOP PAINTING AND PLATING: HANGERS, SUPPORTS, RODS, INSERTS AND ACCESSORIES USED FOR PIPE SUPPORTS SHALL BE SHOP COATED WITH ZINC CHROMATE PRIMER PAINT. ELECTROPLATED COPPER HANGER RODS, HANGERS AND ACCESSORIES MAY BE USED WITH COPPER TUBING.
            • FLOOR, WALL AND CEILING PLATES, SUPPORTS, HANGERS:
            • PIPE HANGERS: HEIGHT ADJUSTABLE CLEVIS TYPE
            • HANGERS AND SUPPORTS UTILIZED WITH INSULATED PIPE AND TUBING SHALL HAVE 180-DEGREE (MINIMUM) METAL PROTECTION SHIELD CENTERED ON AND WELDED TO THE HANGER AND SUPPORT. THE SHIELD THICKNESS AND LENGTH SHALL BE ENGINEERED AND SIZED FOR DISTRIBUTION OF LOADS TO PRECLUDE CRUSHING OF INSULATION WITHOUT BREAKING THE VAPOR BARRIER. THE SHIELD SHALL BE SIZED FOR THE INSULATION AND HAVE FLARED EDGES TO PROTECT VAPOR-RETARDANT JACKET FACING, TO PREVENT THE SHIELD FROM SLIDING OUT OF THE CLEVIS HANGER DURING PIPE MOVEMENT. CENTER-RIBBED SHIELDS SHALL BE USED.
         e. INSTALL CHROME PLATED CAST BRASS ESCUTCHEON WITH SET SCREW AT EACH WALL, FLOOR AND CEILING PENETRATION IN EXPOSED FINISHED LOCATIONS AND WITHIN CABINETS AND MILLWORK.
      2. **PENETRATIONS**:
         a. FIRESTOPPING: WHERE PIPES PASS THROUGH FIRE PARTITIONS, FIRE WALLS, SMOKE PARTITIONS, OR FLOORS, INSTALL A FIRE STOP THAT PROVIDES AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE, AND GASES AS SPECIFIED IN SECTION FIRESTOPPING. COMPLETELY FILL AND SEAL CLEARANCES BETWEEN RACEWAYS AND OPENINGS WITH THE FIRESTOPPING MATERIALS.
         b. WATERPROOFING: AT FLOOR PENETRATIONS, COMPLETELY SEAL CLEARANCES AROUND THE PIPE AND MAKE WATERTIGHT WITH SEALANT AS SPECIFIED IN SECTION JOINT SEALANTS. BIO-BASED MATERIALS SHALL BE UTILIZED WHEN POSSIBLE.
         c. ACOUSTICAL SEALANT: WHERE PIPES PASS THROUGH SOUND RATED WALLS, SEAL AROUND THE PIPE PENETRATION WITH AN ACOUSTICAL SEALANT THAT IS COMPLIANT WITH ASTM C919.
      3. **DOMESTIC WATER PIPING SHALL CONFORM TO THE FOLLOWING**:
         a. GRADE ALL LINES TO FACILITATE DRAINAGE. PROVIDE DRAIN VALVES AT BOTTOM OF RISERS AND ALL LOW POINTS IN SYSTEM. DESIGN DOMESTIC HOT AND COLD WATER CIRCULATING LINES WITH NO TRAPS.
         b. CONNECT BRANCH LINES AT BOTTOM OF MAIN SERVING FIXTURES BELOW AND PITCH DOWN SO THAT MAIN MAY BE DRAINED THROUGH FIXTURE. CONNECT BRANCH LINES TO TOP OF MAIN SERVING ONLY FIXTURES LOCATED ON FLOOR ABOVE.
      4. **TESTS**: GENERAL: TEST SYSTEM EITHER IN ITS ENTIRETY OR IN SECTIONS. SUBMIT TESTING PLAN TO COR 10 WORKING DAYS PRIOR TO TEST DATE.
      5. **STERILIZATION**: AFTER TESTS HAVE BEEN SUCCESSFULLY COMPLETED, THOROUGHLY FLUSH AND STERILIZE THE INTERIOR DOMESTIC WATER DISTRIBUTION SYSTEM IN ACCORDANCE WITH AWWA C651.

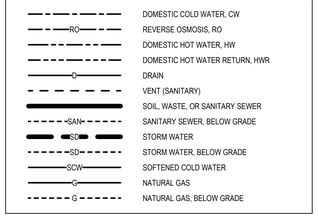
7. **DOMESTIC WATER PUMPS**
   A. **GENERAL**
      1. **DESCRIPTION**: HOT WATER CIRCULATING PUMP, HOT WATER RECIRCULATION PUMP.
      2. **SUBMITTALS**:
         a. MANUFACTURER'S LITERATURE AND DATA INCLUDING: FULL ITEM DESCRIPTION AND OPTIONAL FEATURES AND ACCESSORIES. INCLUDE DIMENSIONS, WEIGHTS, MATERIALS, APPLICATIONS, STANDARD COMPLIANCE, MODEL NUMBERS, SIZE, AND CAPACITY.
      3. **QUALITY ASSURANCE**
         a. AFTER COMPLETION OF BALANCING, PROVIDE REPLACEMENT OF IMPELLERS OR TRIM IMPELLERS TO PROVIDE SPECIFIED FLOW AT ACTUAL PUMPING HEAD; AS INSTALLED.
   B. **PRODUCTS**: RE: EQUIPMENT SCHEDULES, SPECIFICATIONS.
   C. **EXECUTION**
      1. STARTUP AND TESTING: MAKE TESTS AS RECOMMENDED BY PRODUCT MANUFACTURER AND LISTED STANDARDS AND UNDER ACTUAL OR SIMULATED OPERATING CONDITIONS AND PROVE FULL COMPLIANCE WITH DESIGN AND SPECIFIED REQUIREMENTS. TESTS OF THE VARIOUS ITEMS OF EQUIPMENT SHALL BE PERFORMED SIMULTANEOUSLY WITH THE SYSTEM OF WHICH EACH ITEM IS AN INTEGRAL PART.

8. **FACILITY SANITARY AND VENT PIPING**
   A. **GENERAL**
      1. **DESCRIPTION**: THIS SECTION PERTAINS TO SANITARY SEWER AND VENT SYSTEMS, INCLUDING PIPING, E

DRAWING SYMBOLS



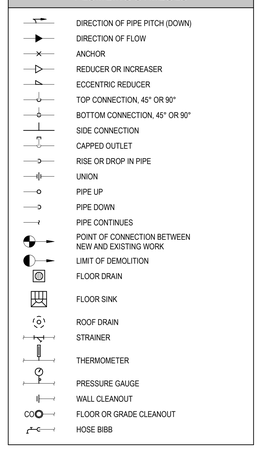
PLUMBING PIPING SYMBOLS



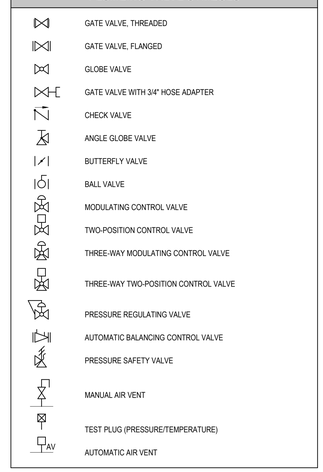
ABBREVIATIONS

ABS	ACRYLONITRILE BUTADIENE STYRENE
AC	ALTERNATING CURRENT
ACR	AIR CONDITIONING AND REFRIGERATION
A/E	ARCHITECT/ENGINEER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AG	AIR GAP
AI	ANALOG INPUT
AISI	AMERICAN IRON AND STEEL INSTITUTE
AO	ANALOG OUTPUT
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AIR CONDITIONING ENGINEERS
ASJ	ALL SERVICE JACKET
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
AWG	AMERICAN WIRE GAUGE
BACNET	BUILDING AUTOMATION AND CONTROL NETWORK
BAG	SILVER-COPPER-ZINC BRAZING ALLOY
BAS	BUILDING AUTOMATION SYSTEM
BCUP	SILVER-COPPER-PHOSPHORUS BRAZING ALLOY
BFP	REDUCED PRESSURE BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTU/H	BRITISH THERMAL UNIT PER HOUR
BSG	BOROSILICATE GLASS PIPE
C	CELSIUS
CD	COMPACT DISK
CDA	COPPER DEVELOPMENT ASSOCIATION
CGA	COMPRESSED GAS ASSOCIATION
CFM	CUBIC FEET PER MINUTE
CO	CLEANOUT
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CHLOROPRENE
CRS	CORROSION RESISTENT STEEL
CV	CONTROL VALVE
CXA	COMMISSIONING AGENT
DB	DECIBELS
DB(A)	DECIBELS (A WEIGHTED)
DDC	DIRECT DIGITAL CONTROL
DFU	DRAINAGE FIXTURE UNITS
DI	DIGITAL INPUT
DI	DEIONIZED WATER
DISS	DIAMETER INDEX SAFETY SYSTEM
DN	DIAMETER NOMINAL
DO	DIGITAL OUTPUT
DOE	DEPARTMENT OF ENERGY
DVD	DIGITAL VIDEO DISC
DW	DISHWASHER
DWG	DRAWING
DWV	DRAIN, WASTE AND VENT
ECC	ENGINEERING CONTROL CENTER AKA BAS
EL	ELEVATION
EPA	ENVIRONMENTAL PROTECTION AGENCY
EPACT	ENERGY POLICY ACT
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EPT	ETHYLENE PROPYLENE TERPOLYMER
ETO	ETHYLENE OXIDE
EX	EXISTING
F	FAHRENHEIT
FAR	FEDERAL ACQUISITION REGULATIONS
FCO	FLOOR CLEANOUT
FD	FLOOR DRAINS
FDC	FIRE DEPARTMENT (HOSE) CONNECTION
FNPT	FEMALE NATIONAL PIPE THREAD
FOP	FUEL OIL PUMP
FOR	FUEL OIL RETURN
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FPM	FLUOROELASTOMER POLYMER
FS	FLOW SWITCH
FSK	FOIL-SCRIM-KRAFT FACING
FSS	VA CONSTRUCTION & FACILITIES MANAGEMENT, FACILITIES STANDARDS SERVICE
FU	FIXTURE UNITS
GAL	GALLON
GCO	GRADE CLEANOUTS
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GRS	GAS REGULATOR STATION
GT	GREASE TRAP
GVTR	GAS VENT THROUGH ROOF
HEX	HEAT EXCHANGER
HG	MERCURY
HOA	HANDS-OFF-AUTOMATIC
HP	HORSEPOWER
HVE	HIGH VOLUME EVACUATION
HWCP	HOT WATER CIRCULATING PUMP
HYD	HYDRANT
HZ	HERTZ
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
INV	INVERT
IPC	INTERNATIONAL PLUMBING CODE
IPS	IRON PIPE SIZE
KG	KILOGRAM
KPA	KILOPASCAL
KW	KILOWATT
KWH	KILOWATT HOUR
LAV	LAVATORY
LB	POUND
LBS/HR	POUNDS PER HOUR
LNG	LIQUID NATURAL GAS
LMIN	LITERS PER MINUTE
LS	LITERS PER SECOND
M	METER
MA	MEDICAL AIR
MAV	MEDICAL AIR VENT
MAX	MAXIMUM
MBH	1,000 BTU PER HOUR
MER	MECHANICAL EQUIPMENT ROOM
MFG	MANUFACTURER
MG	MILLIGRAM
MG/L	MILLIGRAM PER LITER
ML	MILLILITER
MM	MILLIMETER
MIN	MINIMUM
MV	MEDICAL VACUUM
N2	NITROGEN
N2O	NITROUS OXIDE
NC	NORMALLY CLOSED
NF	OIL FREE DRY (NITROGEN)
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPTF	NATIONAL PIPE THREAD FEMALE
NPS	NOMINAL PIPE SIZE
NPT	NOMINAL PIPE THREAD
NTS	NOT TO SCALE
O2	OXYGEN
OC	ON CENTER
OCAMES	REPLACED BY HEFP
OD	OUTSIDE DIAMETER
OR	OPERATING ROOM
OSD	OPEN SIGHT DRAIN
OS&Y	OUTSIDE STEM & YOKE
OXY	OXYGEN
PA	PASCAL
PBPU	PREFABRICATED BEDSIDE PATIENT UNITS
PD	PRESSURE DROP OR DIFFERENCE
PDI	PLUMBING AND DRAINAGE INSTITUTE
PG	PRESSURE GAUGE
PH	POWER OF HYDROGEN
PID	PROPORTIONAL-INTEGRAL-DIFFERENTIAL
PLC	PROGRAMMABLE LOGIC CONTROLLERS
PP	POLYPROPYLENE
PPB	PARTS PER BILLION
PPM	PARTS PER MILLION
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE IN ATMOSPHERE
PSIG	POUNDS PER SQUARE IN GAUGE
PTFE	POLYTETRAFLUOROETHYLENE
PVC	POLYVINYL CHLORIDE
PVDF	POLYVINYLIDENE FLUORIDE
PW	POTABLE WATER
RAD	RADIANS
RD	ROOF DRAIN
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RTD	RESISTANCE TEMPERATURE DETECTORS
RTRP	REINFORCED THERMOSETTING RESIN PIPE
SAN	SANITARY
SCFM	STANDARD CUBIC FEET PER MINUTE
SDI	SILT DENSITY INDEX
SDMH	STORM DRAINAGE MANHOLE
SF	SQUARE FEET
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SPEC	SPECIFICATION
SPS	STERILE PROCESSING SERVICES
SQFT	SQUARE FEET
SS	STAINLESS STEEL
STD	STANDARD
SUS	SAYBOLT UNIVERSAL SECOND
SW	STORM WATER
SWP	STEAM WORKING PRESSURE
TCV	TEMPERATURE CONTROL VALVE
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TEFC	TOTALLY ENCLOSED FAN-COOLED
TEMP	TEMPERATURE
TFE	TETRAFLUOROETHYLENE
THERM	100,000 BTU
THHN	THERMOPLASTIC HIGH-HEAT RESISTANT NYLON COATED WIRE
THWN	THERMOPLASTIC HEAT & WATER RESISTANT NYLON COATED WIRE
TMV	THERMOSTATIC MIXING VALVE
T/P	TEMPERATURE AND PRESSURE
TP	TRAP PRIMER
TSTAT	THERMOSTAT
TYP	TYPICAL
USDA	U.S. DEPARTMENT OF AGRICULTURE
V	VOLT
VA	VETERANS ADMINISTRATION
VA CFM	VA CONSTRUCTION & FACILITIES MANAGEMENT
VA CFM CSS	VA CFM CONSULTING SUPPORT SERVICE
VAC	VACUUM
VAC	VOLTAGE IN ALTERNATING CURRENT
VAMC	VETERANS ADMINISTRATION MEDICAL CENTER
VA TIL	WWW.CFM.VA.GOV/TIL/INDEX.ASP
VHA	VETERANS HEALTH ADMINISTRATION
VSD	VARIABLE SPEED DRIVE
VTR	VENT THROUGH ROOF
W	WASTE
WAGD	WASTE ANESTHESIA GAS DISPOSAL
WC	WATER CLOSET
WCO	WALL CLEANOUT
WG	WATER GAUGE
WH	WALL HYDRANT
WOG	WATER, OIL, GAS
WPD	WATER PRESSURE DROP
WS	WASTE STACK
WSFU	WATER SUPPLY FIXTURE UNITS
YCO	YARD CLEANOUT
YH	YARD HYDRANT

PLUMBING SYMBOLS



PLUMBING VALVE SYMBOLS



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VA U.S. Department of Veterans Affairs

Drawing Title: PLUMBING SYMBOLS AND LEGENDS

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 519-371

Building Number: 28

APPROVING OFFICIAL:
COR: MR. JOSHUA JUNKIN

FULLY SPRINKLERED

Location: BIG SPRING, TX

Issue Date: 06/28/2024

Checked: LRL

Drawn: MJS

Drawing Number: P003

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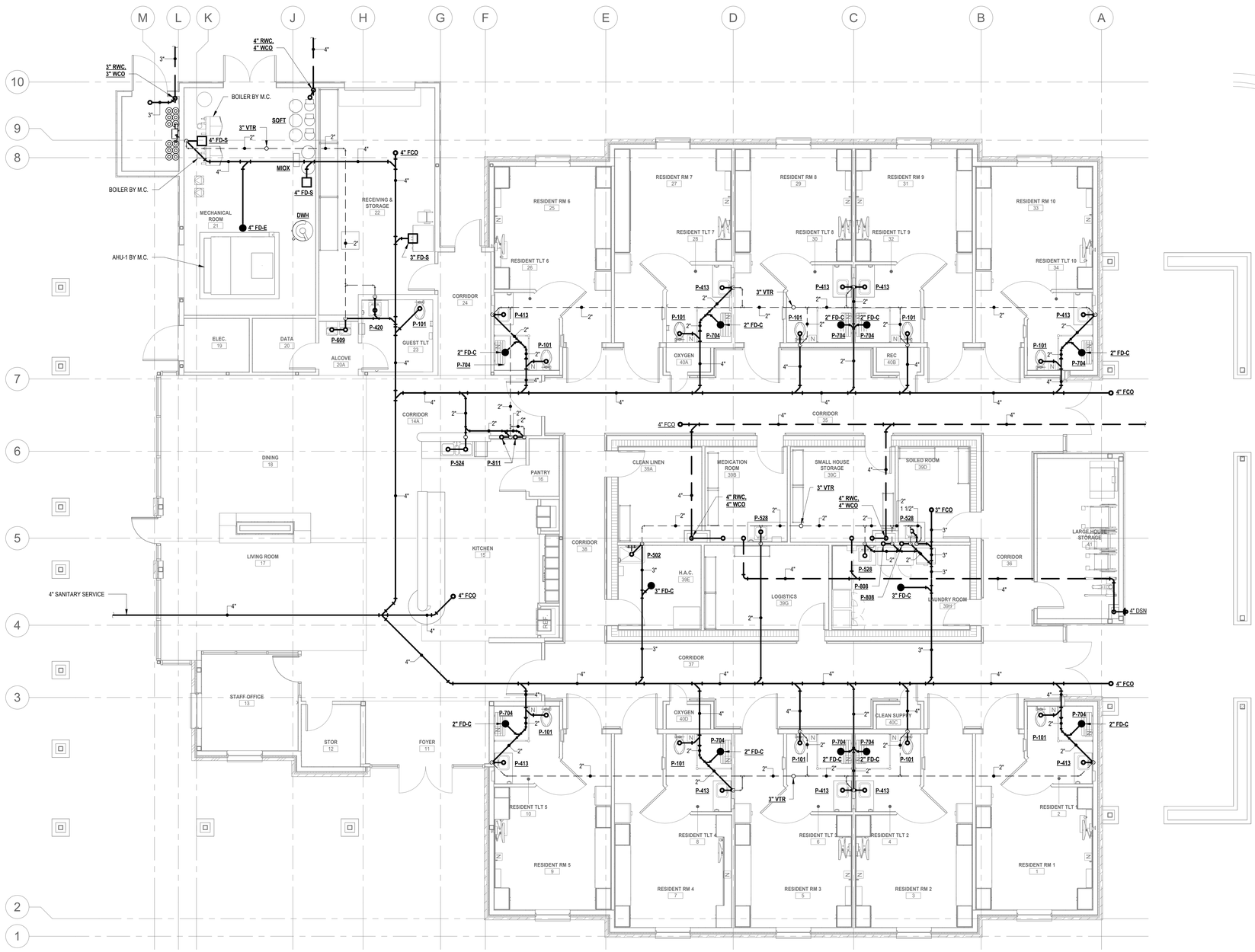
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PLUMBING INSTALLATION NOTES

1. COMPLETE LAYOUT DRAWINGS SHALL BE REQUIRED BY PARAGRAPH, SUBMITTALS. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE LAYOUT DRAWINGS HAVE BEEN APPROVED BY VA.
2. REFER TO SHEET PP601 FOR PLUMBING FIXTURE AND EQUIPMENT SCHEDULES. SIZES OF WASTE AND VENT CONNECTIONS TO INDIVIDUAL FIXTURES AND EQUIPMENT SHALL BE AS SPECIFIED ON THE SCHEDULES.
3. REFER TO ISOMETRIC DRAWING ON SHEET PP901 FOR ADDITIONAL PIPE SIZES AND INFORMATION.
4. ALL VENT PIPING SHOWN ON THIS SHEET SHALL BE RUN ABOVE CEILINGS IN AREAS WITH CEILINGS AND SHALL BE RUN AS HIGH AS POSSIBLE IN AREAS WITHOUT CEILINGS, UNLESS NOTED OTHERWISE. ALL WASTE PIPING SHOWN ON THIS SHEET SHALL BE RUN BELOW FLOORS, UNLESS NOTED OTHERWISE.

LEGEND

- NEW WASTE PIPING
- NEW VENT PIPING
- NEW STORM DRAIN PIPING



1 WASTE & VENT PLAN
3/16" = 1'-0"

PLAN TRUE

SCALE: 3/16" = 1'-0"

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Drawing Title: PLUMBING WASTE & VENT PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: PP101
		Issue Date: 06/28/2024 / Checked: LRL / Drawn: MJS	

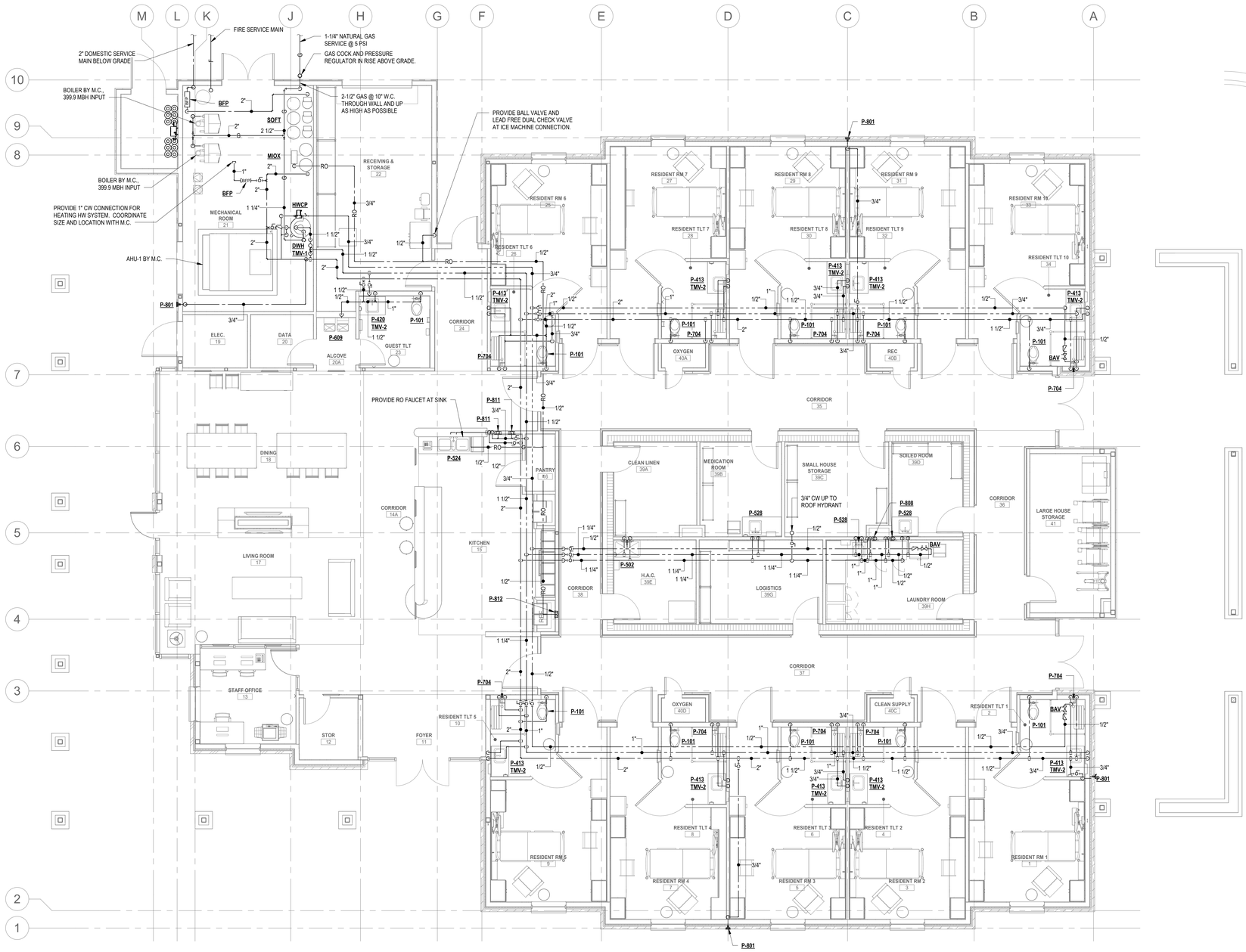
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PLUMBING INSTALLATION NOTES

1. COMPLETE LAYOUT DRAWINGS SHALL BE REQUIRED BY PARAGRAPH, SUBMITTALS. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE LAYOUT DRAWINGS HAVE BEEN APPROVED BY VA.
2. REFER TO SHEET PP601 FOR PLUMBING FIXTURE AND EQUIPMENT SCHEDULES. SIZES OF WATER SUPPLY CONNECTIONS TO INDIVIDUAL FIXTURES AND EQUIPMENT SHALL BE AS SPECIFIED ON THE SCHEDULES.
3. REFER TO ISOMETRIC DRAWINGS ON SHEETS PP902 AND PP903 FOR ADDITIONAL PIPE SIZES AND INFORMATION.
4. ALL WATER PIPING AND ALL NATURAL GAS PIPING SHOWN ON THIS SHEET SHALL BE RUN ABOVE CEILINGS IN AREAS WITH CEILINGS AND SHALL BE RUN AS HIGH AS POSSIBLE IN AREAS WITHOUT CEILINGS, UNLESS NOTED OTHERWISE.

LEGEND

- NEW COLD WATER PIPING
- RO NEW REVERSE OSMOSIS PIPING
- NEW HOT WATER PIPING
- NEW HOT WATER RETURN PIPING



1 WATER & GAS PLAN
3/16" = 1'-0"

PLAN TRUE

SCALE: 3/16" = 1'-0"

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			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: PP102
		Issue Date: 06/28/2024 / Checked: LRL / Drawn: MJS	

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PLUMBING INSTALLATION NOTES

1. COMPLETE LAYOUT DRAWINGS SHALL BE REQUIRED BY PARAGRAPH, SUBMITTALS. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE LAYOUT DRAWINGS HAVE BEEN APPROVED BY VA.
2. REFER TO ISOMETRIC DRAWING ON SHEET PP904 FOR ADDITIONAL PIPE SIZES AND INFORMATION.
3. ALL OXYGEN PIPING SHOWN ON THIS SHEET SHALL BE RUN ABOVE CEILINGS IN AREAS WITH CEILINGS AND SHALL BE RUN AS HIGH AS POSSIBLE IN AREAS WITHOUT CEILINGS, UNLESS NOTED OTHERWISE.

LEGEND

NEW OXYGEN PIPING



1 MED GAS PLAN
3/16" = 1'-0"

PLAN TRUE

SCALE: 3/16" = 1'-0"

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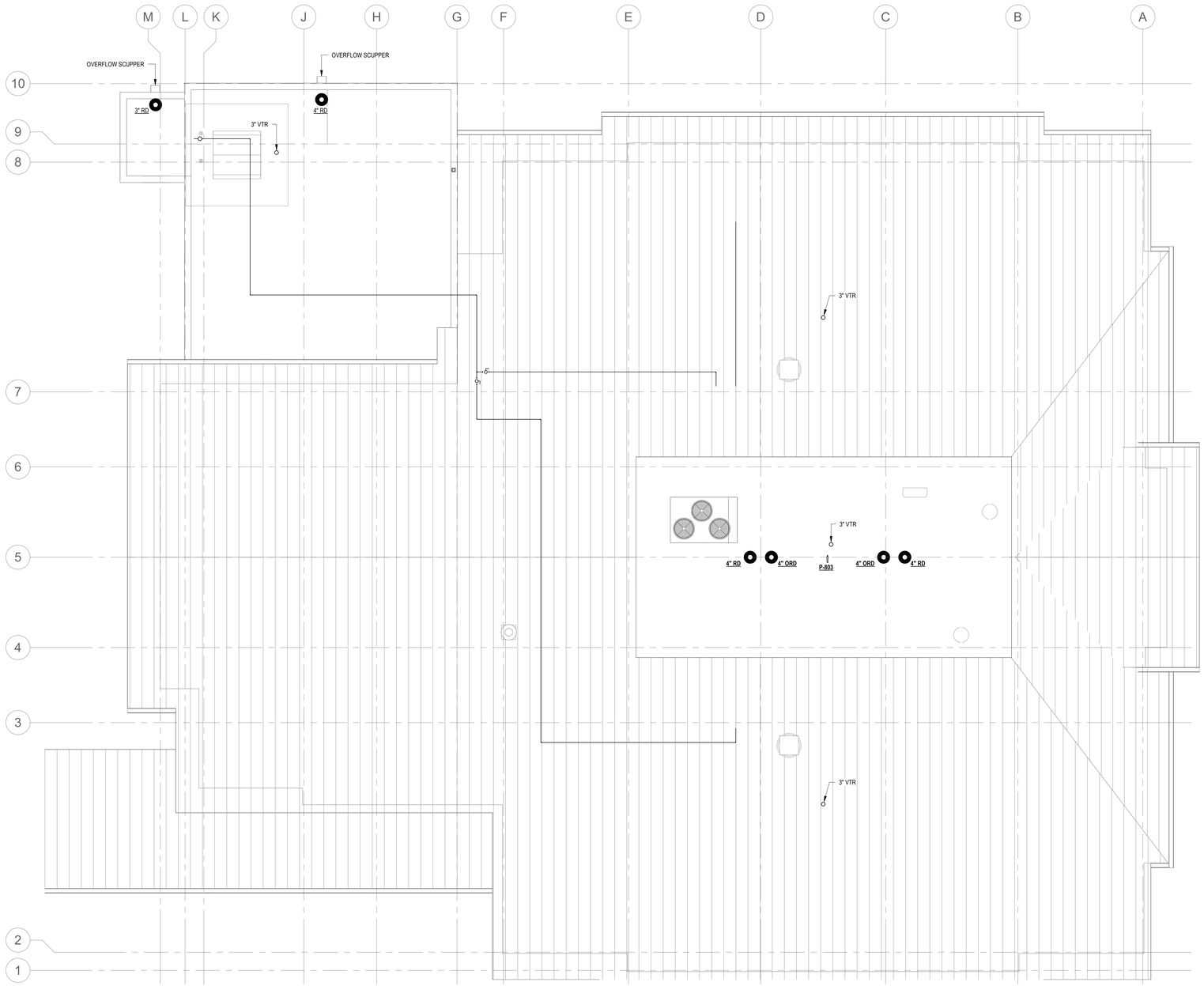
Drawing Title	PLUMBING MED GAS PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	
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Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	MJS
Drawing Number	PP103

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PLUMBING INSTALLATION NOTES

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2. REFER TO SHEET PP601 FOR PLUMBING FIXTURE AND EQUIPMENT SCHEDULES. SIZES OF WATER SUPPLY CONNECTIONS TO INDIVIDUAL FIXTURES AND EQUIPMENT SHALL BE AS SPECIFIED ON THE SCHEDULES.
3. REFER TO ISOMETRIC DRAWINGS ON SHEETS PP902 AND PP903 FOR ADDITIONAL PIPE SIZES AND INFORMATION.
4. ALL WATER PIPING AND ALL NATURAL GAS PIPING SHOWN ON THIS SHEET SHALL BE RUN ABOVE CEILINGS IN AREAS WITH CEILINGS AND SHALL BE RUN AS HIGH AS POSSIBLE IN AREAS WITHOUT CEILINGS, UNLESS NOTED OTHERWISE.



1 PLUMBING ROOF PLAN
3/16" = 1'-0"

PLAN TRUE

1' 3' 5' 7' 9'
0' 2' 4' 6' 8' 10' 15' 20' 25'
SCALE: 3/16" = 1'-0"

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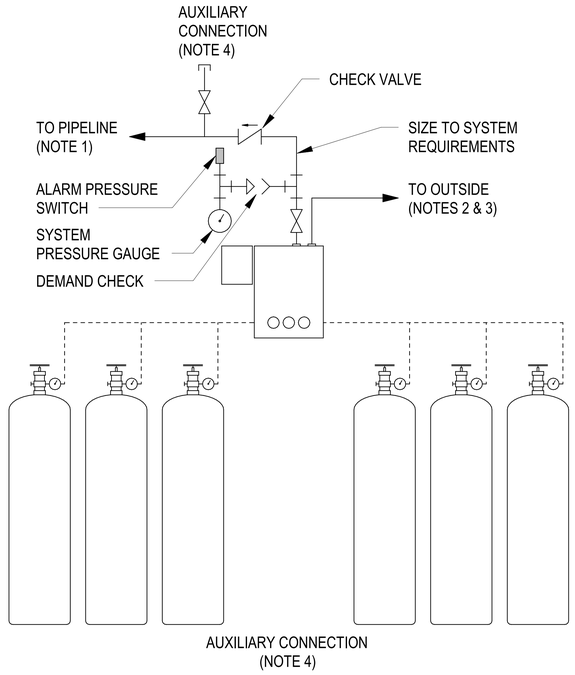
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Drawing Title: PLUMBING ROOF PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: PP104
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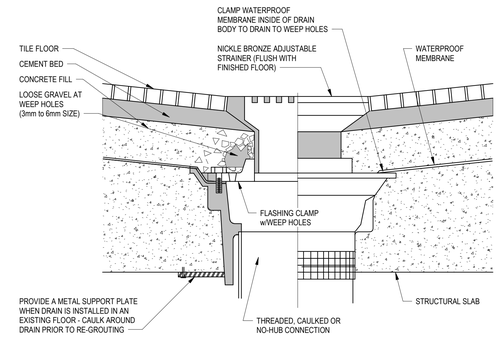
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1 CYLINDER MANIFOLD WITHOUT RESERVE
NTS

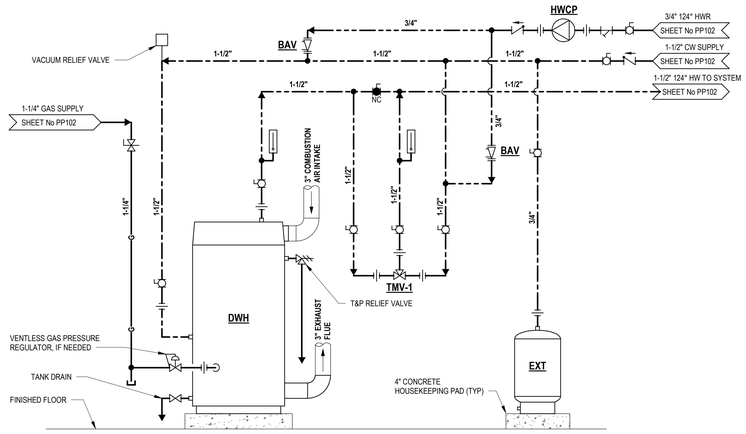
NOTES:

1. THE MAIN LINE SHUTOFF VALVE IS NOT ILLUSTRATED. UNDER NFPA 99 2005 AND LATER, A MAIN LINE SHUTOFF VALVE WHERE THE PIPELINE FIRST ENTERS THE BUILDING IS REQUIRED WHEN:
   A. THE SOURCE IS OUTSIDE THE BUILDING AND
   B. NOT PHYSICALLY AGAINST AN OUTSIDE WALL.
   - WHERE A MAIN LINE SHUTOFF VALVE IS PRESENT, THE DEMAND CHECK, ALARM PRESSURE SWITCH, PRESSURE GAUGE AND AUXILIARY CONNECTION ILLUSTRATED AT THE SOURCE VALVE MUST BE MOVED TO BE ON THE PATIENT SIDE OF THE MAIN LINE SHUTOFF VALVE.
2. RELIEF VALVE LINES MUST VENT TO OUTSIDE IN A LOCATION WHERE THERE IS NOT LIKELY TO BE ANY PROBLEM CAUSED IF THE VALVES DISCHARGE. PARTICULARLY, THE VENT SHALL BE AWAY FROM WHERE PEOPLE ARE LIKELY TO CONGREGATE OR PASS NEAR THE DISCHARGE POINT, OR WHERE THE GAS MIGHT NOT BE ABLE TO DISPERSE FREELY.
3. RELIEF VALVE PIPING SHALL BE 1/2" MINIMUM. IF THE PIPING RUNS LONGER THAN 50 FEET FROM MANIFOLD TO DISCHARGE, INCREASE THE PIPE SIZE TO 3/4". CROSS-SECTIONAL AREAS MUST BE EQUAL OR GREATER TO THE SUM OF INDIVIDUAL AREA. RELIEF VALVE LINES SHALL BE PIPED IN TYPE K COPPER.
4. ALL CRYOGENIC SOURCES MUST BE PROVIDED WITH AN AUXILIARY SOURCE CONNECTION FOR THE PURPOSES OF CONNECTING A TEMPORARY SUPPLY SYSTEM IN THE EVENT OF REPAIR, EXCHANGE OR EMERGENCIES. AUXILIARY CONNECTIONS MAY BE ANYWHERE ON THE PATIENT SIDE OF THE SOURCE VALVE (OR MAIN LINE VALVE IF PROVIDED), BUT SHOULD BE LOCATED WHERE THEY CAN BE CONVENIENTLY ACCESSED.



NOTE:
SLOPE MEMBRANE LINER 2% TO DRAIN.

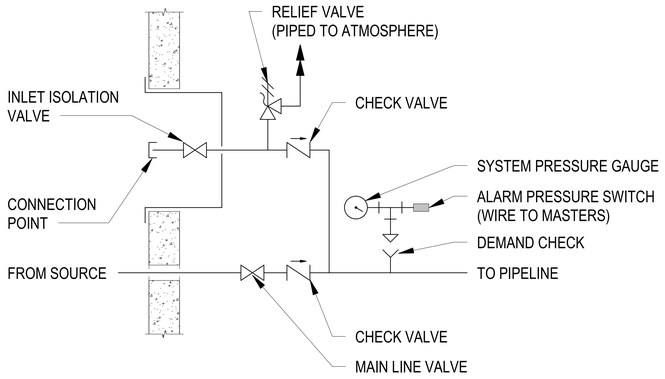
2 TYPE "C" FLOOR DRAIN DETAIL
NTS



NOTES:

1. WATER HEATER SET POINT TO BE 140° F MINIMUM.
2. PROVIDE HEAT TRAPS AS REQUIRED PER CODE, UNLESS WATER HEATER HAS INTEGRAL HEAT TRAPS.
3. WATER HEATER & RELATED COMPONENTS SHALL BE INSTALLED PER CODE & MANUFACTURER'S INSTRUCTIONS.
4. ROUTE ALL HORIZONTAL PIPING AS HIGH AS POSSIBLE IN EQUIPMENT ROOM TO ALLOW CLEARANCE FOR FUTURE MAINTENANCE/REPLACEMENT OF WATER HEATER.
5. EXTEND CONDENSATE DRAIN PIPING FROM WATER HEATER EXHAUST ELBOW TO FLOOR DRAIN AND PROVIDE CONDENSATE NEUTRALIZING KIT.
6. THERMOMETERS TO BE POSITIONED TO BE ABLE TO BE READ FROM FLOOR.
7. EXTEND RELIEF VALVE DISCHARGE PIPING, FULL SIZE OF OUTLET, TO FLOOR DRAIN.

4 DOMESTIC WATER HEATER PIPING SCHEMATIC
NTS



NOTE:
WHILE IT IS POSSIBLE TO PLACE THE RELIEF VALVE FOR THE EMERGENCY OXYGEN CONNECTION ON THE PATIENT SIDE OF THE CHECK VALVE, DOING THIS REQUIRES THE RELIEF VALVE TO BE PLACED ON A DEMAND CHECK FITTING. DUE TO FLOW RESTRICTIONS, THIS IS ***NOT*** ADVISED.

3 EMERGENCY OXYGEN INLET PIPING
NTS

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Drawing Title: PLUMBING DETAILS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: PP501
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PLUMBING FIXTURE SCHEDULE

TAG	FIXTURE TYPE	WASTE	VENT	COLD WATER	HOT WATER	DESCRIPTION
P-101	FLUSH VALVE WATER CLOSET ADA COMPLIANT	4"	2"	1"	-	FLOOR MOUNTED, FLOOR OUTLET, WHITE, VITREOUS CHINA, 12" ROUGH-IN, ELONGATED BOWL, 1-1/2" TOP SPUD, SIPHON JET FLUSH, 17" TO 19" SEAT HEIGHT; EXPOSED DIAPHRAGM TYPE FLUSH VALVE, POLISHED CHROME PLATED CAST BRASS, WITH METAL OSCILLATING NON-HOLD-OPEN HANDLE, 1.28 GALLONS PER FLUSH; SOLID PLASTIC SEAT, EXTRA HEAVY WEIGHT, OPEN FRONT, ELONGATED, LESS COVER, STAINLESS STEEL SELF-SUSTAINING CHECK HINGES, ANTIMICROBIAL.
P-413	LAVATORY ADA COMPLIANT	1-1/2"	1-1/2"	1/2"	1/2"	COUNTER MOUNTED, WHITE, VITREOUS CHINA, 19" ROUND, SELF-RIMMING, WITH OVERFLOW, FAUCET LEDGE WITH FAUCET HOLES ON 4" CENTERS; POLISHED CHROME PLATED CAST BRASS FAUCET, WITH GOOSENECK SPOUT AND WRIST BLADE HANDLES, MAX. FLOW RATE OF 1.5 GPM; POLISHED CHROME PLATED CAST BRASS OPEN GRID DRAIN, WITH 1-1/4" x 6" 17 GAUGE CHROME PLATED BRASS TAILPIECE; 1-1/4" x 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS P-TRAP; CHROME PLATED BRASS ANGLE SUPPLY STOPS WITH BRASS STEMS, LOOSE KEY, 1/2" IPS INLETS, 3/8" COMPRESSION OUTLETS, 12" CHROME PLATED FLEXIBLE SUPPLY RISERS. INCLUDE UNDERSINK PIPING COVERS, WITH P-TRAP COVER, AND TWO ANGLE VALVE AND SUPPLY COVERS.
P-420	LAVATORY ADA COMPLIANT	1-1/2"	1-1/2"	1/2"	1/2"	COUNTER MOUNTED, WHITE, VITREOUS CHINA, 19" ROUND, SELF-RIMMING, WITH OVERFLOW, FAUCET LEDGE WITH FAUCET HOLES ON 4" CENTERS; POLISHED CHROME PLATED CAST BRASS FAUCET, WITH GOOSENECK SPOUT, ELECTRONIC SENSOR OPERATED, BATTERY POWERED, MAX. FLOW RATE OF 0.5 GPM; POLISHED CHROME PLATED CAST BRASS OPEN GRID DRAIN, WITH 1-1/4" x 6" 17 GAUGE CHROME PLATED BRASS TAILPIECE; 1-1/4" x 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS P-TRAP; CHROME PLATED BRASS ANGLE SUPPLY STOPS WITH BRASS STEMS, LOOSE KEY, 1/2" IPS INLETS, 3/8" COMPRESSION OUTLETS, 12" CHROME PLATED FLEXIBLE SUPPLY RISERS. INCLUDE UNDERSINK PIPING COVERS, WITH P-TRAP COVER, AND TWO ANGLE VALVE AND SUPPLY COVERS.
P-502	MOP SINK	3"	2"	1/2"	1/2"	28" X 28" PRECAST TERRAZZO BASIN, WITH DROP FRONT, STAINLESS STEEL CAPS ON ALL CURBS, INTEGRAL DRAIN WITH FLAT STAINLESS STEEL STRAINER; WALL MOUNT SERVICE SINK FAUCET, CAST BRASS, ROUGH CHROME FINISH, WITH INTEGRAL SUPPLY STOPS, SPOUT WITH INTEGRAL VACUUM BREAKER, TOP BRACE, PAIL HOOK, AND 3/4" HOSE THREAD OUTLET. PROVIDE HOSE AND BRACKET, MOP HANGER, AND STAINLESS STEEL WALL GUARD PANELS. PROVIDE CHECK VALVES IN CW AND HW SUPPLIES, UNLESS FAUCET HAS INTEGRAL CHECK STOPS.
P-524	SINK	1-1/2"	1-1/2"	1/2"	1/2"	COUNTER TOP, MINIMUM 20 GAUGE STAINLESS STEEL, TWO COMPARTMENTS, SELF-RIMMING, 33" WIDE BY 22" FRONT TO REAR, SOUND DEADENED UNDERSIDE, FAUCET LEDGE WITH 4 FAUCET HOLES; POLISHED CHROME PLATED CAST BRASS FAUCET, 8" CENTERS, WITH SINGLE LEVER HANDLE, HOSE SPRAY, MAX. FLOW RATE OF 2.2 GPM; STAINLESS STEEL DRAIN, WITH REMOVABLE CUP STRAINER, 1-1/2" X 4" CHROME PLATED BRASS TAILPIECE; 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS P-TRAP; CHROME PLATED BRASS ANGLE SUPPLY STOPS WITH BRASS STEMS, LOOSE KEY, 1/2" IPS INLETS, 3/8" COMPRESSION OUTLETS, 12" CHROME PLATED FLEXIBLE SUPPLY RISERS.
P-528	SINK	1-1/2"	1-1/2"	1/2"	1/2"	COUNTER TOP, MINIMUM 20 GAUGE STAINLESS STEEL, ONE COMPARTMENT, SELF-RIMMING, 21" WIDE BY 22" FRONT TO REAR, SOUND DEADENED UNDERSIDE, FAUCET LEDGE WITH 3 FAUCET HOLES; POLISHED CHROME PLATED CAST BRASS FAUCET, 8" CENTERS, WITH GOOSENECK SPOUT AND WRIST BLADE HANDLES, MAX. FLOW RATE OF 2.2 GPM; STAINLESS STEEL DRAIN, WITH REMOVABLE CUP STRAINER, 1-1/2" X 4" CHROME PLATED BRASS TAILPIECE; 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS P-TRAP; CHROME PLATED BRASS ANGLE SUPPLY STOPS WITH BRASS STEMS, LOOSE KEY, 1/2" IPS INLETS, 3/8" COMPRESSION OUTLETS, 12" CHROME PLATED FLEXIBLE SUPPLY RISERS.
P-609	ELECTRIC WATER COOLER DUAL HEIGHT	1-1/2"	1-1/2"	1/2"	-	WALL MOUNTED, BARRIER-FREE, WITH BOTTLE FILLING STATION, SELF-CONTAINED, 8.0 GPH, PUSH BUTTON CONTROLS ON FRONT, ONE PIECE STAINLESS STEEL BOWLS WITH INTEGRAL DRAINS, FLEXIBLE BUBBLERS, RECESSED IN WALL REFRIGERATION SYSTEM, STAINLESS STEEL GRILLE, WALL MOUNTING BOX; 1-1/2" 17 GAUGE CHROME PLATED CAST BRASS P-TRAP; CHROME PLATED BRASS ANGLE SUPPLY STOP WITH BRASS STEM, LOOSE KEY, 1/2" IPS INLET, 3/8" COMPRESSION OUTLET. PROVIDE BI-LEVEL CONCEALED CHAIR CARRIER SYSTEM WITH VERTICAL STEEL PIPE SUPPORTS AND SUPPORT PLATES.
P-704	SHOWER STALL ADA COMPLIANT	2"	2"	1/2"	1/2"	COMBINATION TEMPERATURE AND PRESSURE-BALANCING MIXING SHOWER VALVE, WITH LEVER HANDLE, INTEGRAL SERVICE STOPS, DIVERTER WITH INTEGRAL VOLUME CONTROL, WALLHAND SHOWER WITH IN-LINE VACUUM BREAKER, FLEXIBLE 5' METAL HOSE, WALL CONNECTION AND FLANGE, 30" SLIDE BAR; CAST BRASS ADJUSTABLE SPRAY SHOWER HEAD WITH ARM AND FLANGE, POLISHED CHROME FINISH.
P-801	NON-FREEZE WALL HYDRANT	-	-	3/4"	-	ENCASED, ANTI-SIPHON, AUTOMATIC DRAINING, WITH INTEGRAL BACKFLOW PREVENTER, BRONZE CASING, ALL BRONZE INTERIOR PARTS, 3/4" HOSE CONNECTION, LOOSE KEY OPERATION. INCLUDE HYDRANT BOX WITH HINGED COVER AND OPERATING KEY LOCK, NICKEL BRONZE FINISH.
P-803	NON-FREEZE ROOF HYDRANT	-	-	3/4"	-	POST MOUNTED, ANTI-SIPHON, AUTOMATIC DRAINING, WITH INTEGRAL BACKFLOW PREVENTER, 3/4" HOSE CONNECTION.
P-808	WASHING MACHINE SUPPLY AND DRAIN UNIT	2"	2"	1/2"	1/2"	RECESSED, 16-GAGE STEEL BOX, WITH EPOXY FINISH, 2" DRAIN CONNECTION, AND 1/2" BALL TYPE SHUTOFF VALVES.
P-811	WATER SUPPLY AND DRAIN BOX UNIT	2"	2"	-	1/2"	RECESSED, 16-GAGE STEEL BOX, WITH EPOXY FINISH, 2" DRAIN CONNECTION, AND 1/2" BALL TYPE SHUTOFF VALVE.
P-812	WATER SUPPLY BOX UNIT	-	-	1/2"	-	RECESSED, 16-GAGE STEEL BOX, WITH EPOXY FINISH, 1/2" BALL TYPE SHUTOFF VALVE.

NOTES:
1. PROVIDE COMPLETE FIXTURES AND INCLUDE SUPPLIES, STOPS, VALVES, FAUCETS, DRAINS, TRAPS, TAILPIECES, ESCUTCHEONS, ETC. EXPOSED COPPER OR BRASS MATERIALS SHALL BE CHROME PLATED.
2. SEAL ALL EDGES OF PLUMBING FIXTURES IN CONTACT WITH FLOORS, WALLS, OR COUNTERTOPS USING SANITARY-TYPE, ONE-PART, MILDEW RESISTANT SILICONE SEALANT. MATCH SEALANT COLOR TO FIXTURE COLOR.

PLUMBING EQUIPMENT SCHEDULE

TAG	EQUIPMENT TYPE	WASTE	VENT	COLD WATER	HOT WATER	DESCRIPTION
FCO	FLOOR CLEANOUT	SEE PLANS	-	-	-	COATED CAST IRON BODY, WITH ADJUSTABLE ROUND SCORIATED NICKEL BRONZE TOP, BRONZE PLUG.
WCO	WALL CLEANOUT	SEE PLANS	-	-	-	COATED CAST IRON CLEANOUT TEE WITH NO-HUB CONNECTION, BRONZE PLUG, AND STAINLESS STEEL ROUND COVER WITH SECURING SCREW.
FD-C	FLOOR DRAIN - FINISHED FLOOR	SEE PLANS	SEE PLANS	-	-	CAST IRON BODY, BOTTOM OUTLET, COMBINATION MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS, 6" ROUND NICKEL BRONZE STRAINER, AND 1/2" TRAP PRIMER CONNECTION.
FD-E	FLOOR DRAIN - EQUIPMENT ROOMS	4"	2"	-	-	GALVANIZED CAST IRON BODY, BOTTOM OUTLET, SEEPAGE PAN AND COMBINATION MEMBRANE FLASHING CLAMP AND FRAME, 12" HEAVY DUTY SLOTTED CAST IRON GRATE WITH SEDIMENT BUCKET, AND 1/2" TRAP PRIMER CONNECTION.
FD-S	FLOOR SINK	SEE PLANS	SEE PLANS	-	-	12" SQUARE X 8" DEEP, BOTTOM OUTLET, TYPE 304 STAINLESS STEEL BODY, DOUBLE DRAINAGE FLANGE WITH WEEP HOLES, INTERNAL DOME STRAINER, HEAVY DUTY NON-TILTING LOOSE SET GRATE. PROVIDE CLAMPING DEVICE.
RD	ROOF DRAIN	4"	-	-	-	15" DIAMETER, BOTTOM OUTLET, COATED CAST IRON BODY, WITH CLAMPING DEVICE, GRAVEL STOP, ALUMINUM DOME.
ORD	OVERFLOW ROOF DRAIN	4"	-	-	-	15" DIAMETER, BOTTOM OUTLET, COATED CAST IRON BODY, WITH CLAMPING DEVICE, GRAVEL STOP, ALUMINUM DOME, INTEGRAL 2" WATER DAM.
DSN	DOWNSPOUT NOZZLE	4"	-	-	-	NICKEL BRONZE BODY WITH WALL FLANGE, AND THREADED, PVC SLIP-ON, OR NO-HUB INLET.
BFP	BACKFLOW PREVENTER	-	-	SEE PLANS	-	LEAD FREE BRONZE REDUCED PRESSURE ZONE ASSEMBLY, ASSE 1013 COMPLIANT, WITH QUARTER-TURN BALL VALVES AND STRAINER. PROVIDE AIR GAP FITTING FOR RELIEF OUTLET AND EXTEND DISCHARGE PIPING FULL SIZE TO EXTERIOR.
DWH	DOMESTIC WATER HEATER	-	-	1-1/2"	1-1/2"	COMMERCIAL, GAS-FIRED, CONDENSING, DIRECT VENT, 100 GALLON CAPACITY, 199,900 BTU/HR INPUT, 235 GPH @ 100°F RISE, GLASS-LINED STEEL TANK, WITH FACTORY INSTALLED TEMPERATURE AND PRESSURE RELIEF VALVE, AND DRAIN VALVE.
EXT	THERMAL EXPANSION TANK	-	-	3/4"	-	ASME CONSTRUCTION, STEEL TANK WITH FIXED DIAPHRAGM, STAINLESS STEEL SYSTEM CONNECTION, 58 PSI PRECHARGE, 150 PSI WORKING PRESSURE, 6.4 GALLONS.
TMV-1	MASTER THERMOSTATIC MIXING VALVE	-	-	1-1/2"	1-1/2"	ASSE 1017 COMPLIANT, 0.5 GPM MINIMUM FLOW, THERMOSTATIC MIXING VALVE WITH INTEGRAL CHECK STOPS, LEAD FREE, BRASS BODY, BRASS AND STAINLESS STEEL INTERNAL COMPONENTS. SET MIXING VALVE OUTLET TEMPERATURE TO 120° F.
TMV-2	THERMOSTATIC MIXING VALVE: POINT-OF-USE	-	-	1/2"	1/2"	ASSE 1070 COMPLIANT, 0.5 GPM MINIMUM FLOW, THERMOSTATIC WATER TEMPERATURE LIMITING VALVE WITH INTEGRAL CHECKS, LEAD FREE, BRASS BODY, BRASS AND STAINLESS STEEL INTERNAL COMPONENTS, DUAL STAINLESS STEEL STRAINERS, VANDAL-RESISTANT CAP/TEMPERATURE ADJUSTMENT HANDLE, 1/2" MALE NPT CONNECTIONS. SET MIXING VALVE OUTLET TEMPERATURE TO 110° F.
HWCP	HOT WATER CIRCULATING PUMP	-	-	-	3/4"	BRONZE BODY, 120V/1PH/60HZ, 1.10 AMPS, 125 WATTS. BALANCE TO APPROX. 3 GPM @ 15' HEAD. PROVIDE WITH AUTOMATIC TIMER, BUT SET TO "ON".
BAV	MANUAL BALANCING VALVE	-	-	-	SEE PLANS	CALIBRATED BALANCING UNIT WITH POSITIVE SHUT-OFF, LEAD FREE BRONZE BODY, BRASS BALL, TFE SEAT RINGS, TWO PRESSURE AND TEMPERATURE MEASURING POINTS, NPT OR SWEAT CONNECTIONS.
SOFT	WATER SOFTENER	-	-	2"	-	VERTICAL, DOWN FLOW, PRESSURE TYPE WITH AUTOMATIC CONTROLS TO OPERATE ON SODIUM CYCLE. AUTOMATIC ALTERNATING DUPLEX UNITS. DESIGNED FOR 690 KPA (100 PSIG) WORKING PRESSURE. ALL MATERIALS EXPOSED TO WATER SHALL BE CONSIDERED AS GENERALLY SAFE BY THE FOOD AND DRUG ADMINISTRATION (FDA). SYSTEM SHALL COMPLY WITH UL 979.
MIOX	MIXED OXIDANT GENERATOR	-	-	2"	-	ON-SITE, ON-DEMAND WATER TREATMENT SYSTEM, WITH CHEMICAL GENERATOR, OXIDANT TANK, AND REVERSE OSMOSIS SKID.

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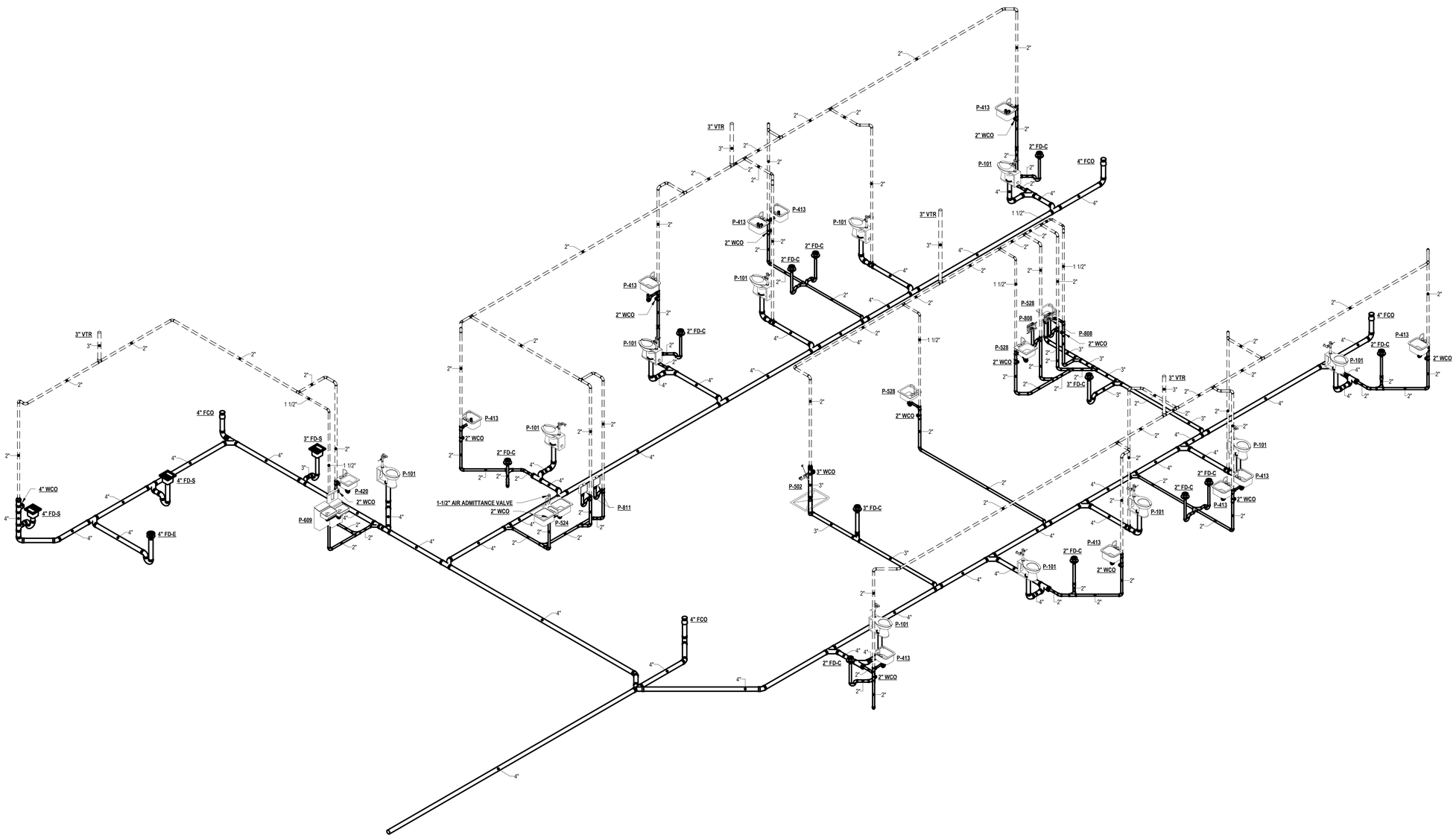
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Drawing Title: PLUMBING SCHEDULES
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
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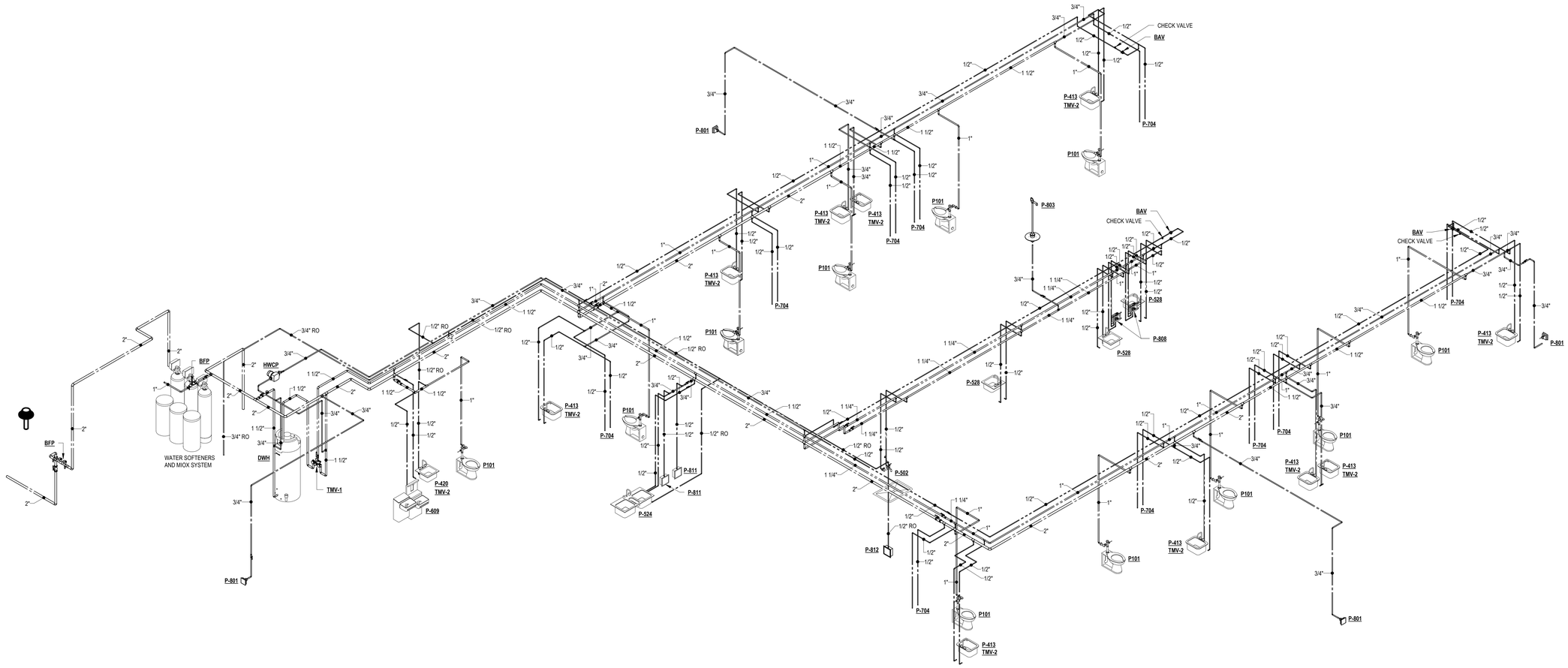
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				Building Number: 28
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Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 519-371

Building Number: 28

APPROVING OFFICIAL:
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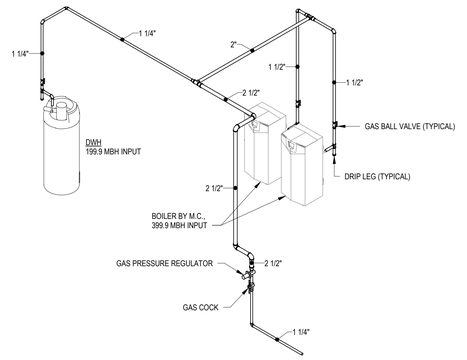
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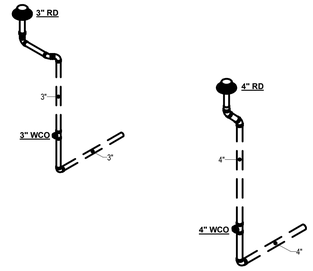
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2 STORM ISOMETRIC
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Drawing Title: NATURAL GAS AND STORM ISOMETRICS

APPROVING OFFICIAL:
COR: MR. JOSHUA JUNKIN

Phase: ISSUE FOR BID

FULLY SPRINKLERED

Project Title: CLC PHASE 3

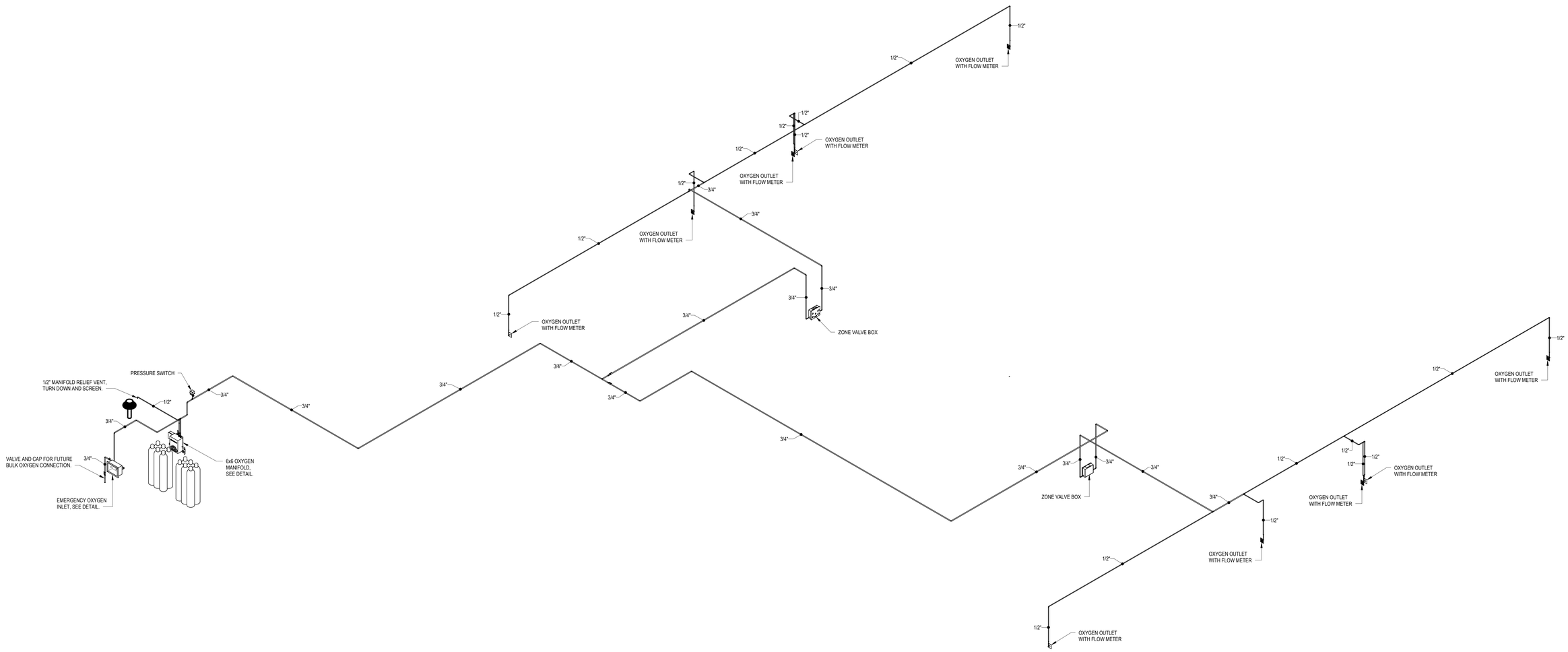
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COR: MR. JOSHUA JUNKIN

FULLY SPRINKLERED

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GENERAL NOTES

1. **GENERAL REQUIREMENTS**
   A. **GENERAL**
      1. **DESCRIPTION**: EXPOSED: PIPING, DUCTWORK, AND EQUIPMENT EXPOSED TO VIEW IN FINISHED ROOMS.
      2. **EXTERIOR**: PIPING, DUCTWORK, AND EQUIPMENT EXPOSED TO WEATHER BE IT TEMPERATURE, HUMIDITY, PRECIPITATION, WIND, OR SOLAR RADIATION.
      3. **SUBMITTALS**:
         a. CONTRACTOR SHALL MAKE ALL NECESSARY FIELD MEASUREMENTS AND INVESTIGATIONS TO ASSURE THAT THE EQUIPMENT AND ASSEMBLIES WILL MEET CONTRACT REQUIREMENTS, AND ALL EQUIPMENT THAT REQUIRES REGULAR MAINTENANCE, CALIBRATION, ETC ARE ACCESSIBLE FROM THE FLOOR OR PERMANENT WORK PLATFORM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE ALL SUBMITTALS MEET THE VA SPECIFICATIONS AND REQUIREMENTS AND IT IS ASSUMED THAT ALL SUBMITTALS MEET THE SPECIFICATIONS UNLESS THE CONTRACTOR HAS REQUESTED A VARIANCE IN WRITING AND APPROVED PRIOR TO THE SUBMITTAL. IF AT ANY TIME DURING THE PROJECT IT IS FOUND THAT ANY ITEM DOES NOT MEET SPECIFICATIONS AND THAT WAS NO VARIANCE APPROVAL THE CONTRACTOR SHALL CLIENT PROJECT REPRESENTATIVEREOT AT NO ADDITIONAL COST OR TIME EVEN IF A SUBMITTAL WAS APPROVED.
         b. COORDINATION/SHOP DRAWINGS:
            - SUBMIT COMPLETE CONSOLIDATED AND COORDINATED SHOP DRAWINGS FOR ALL NEW SYSTEMS, AND FOR EXISTING SYSTEMS THAT ARE IN THE SAME AREAS.
            - DO NOT INSTALL EQUIPMENT FOUNDATIONS, EQUIPMENT OR PIPING UNTIL COORDINATION/SHOP DRAWINGS HAVE BEEN APPROVED.
         c. IN ADDITION, FOR HVAC SYSTEMS, PROVIDE DETAILS OF THE FOLLOWING:
            - MECHANICAL EQUIPMENT ROOMS.
            - INTERSTITIAL SPACE.
            - HANGERS, INSERTS, SUPPORTS, AND BRACING.
            - PIPE SLEEVES.
            - DUCT OR EQUIPMENT PENETRATIONS OF FLOORS, WALLS, CEILINGS, OR ROOFS.
      4. **QUALITY ASSURANCE**
         a. MECHANICAL, ELECTRICAL AND ASSOCIATED SYSTEMS SHALL BE SAFE, RELIABLE, EFFICIENT, DURABLE, EASILY AND SAFELY OPERABLE AND MAINTAINABLE, EASILY AND SAFELY ACCESSIBLE, AND IN COMPLIANCE WITH APPLICABLE CODES AS SPECIFIED. THE SYSTEMS SHALL BE COMPRISED OF HIGH QUALITY INSTITUTIONAL-CLASS AND INDUSTRIAL-CLASS PRODUCTS OF MANUFACTURERS THAT ARE EXPERIENCED SPECIALISTS IN THE REQUIRED PRODUCT LINES. ALL CONSTRUCTION FIRMS AND PERSONNEL SHALL BE EXPERIENCED AND QUALIFIED SPECIALISTS IN INDUSTRIAL AND INSTITUTIONAL HVAC.
         b. REFER TO ALL OTHER SECTIONS FOR QUALITY ASSURANCE REQUIREMENTS FOR SYSTEMS AND EQUIPMENT SPECIFIED THEREIN.
         c. ALL ITEMS FURNISHED SHALL BE FREE FROM DEFECTS THAT WOULD ADVERSELY AFFECT THE PERFORMANCE, MAINTAINABILITY AND APPEARANCE OF INDIVIDUAL COMPONENTS AND OVERALL ASSEMBLY.
         d. THE PRODUCTS AND EXECUTION OF WORK SPECIFIED IN DIVISION 23 SHALL CONFORM TO THE REFERENCED CODES AND STANDARDS AS REQUIRED BY THE SPECIFICATIONS. LOCAL CODES AND AMENDMENTS SHALL BE ENFORCED, ALONG WITH REQUIREMENTS OF LOCAL UTILITY COMPANIES. THE MOST STRINGENT REQUIREMENTS OF THESE SPECIFICATIONS, LOCAL CODES, OR UTILITY COMPANY REQUIREMENTS SHALL ALWAYS APPLY. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF CLIENT PROJECT REPRESENTATIVE.
         e. MANUFACTURER'S RECOMMENDATIONS: WHERE INSTALLATION PROCEDURES OR ANY PART THEREOF ARE REQUIRED TO BE IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER OF MATERIAL BEING INSTALLED, PRINTED COPIES OF THESE RECOMMENDATIONS SHALL BE FURNISHED TO THE CLIENT PROJECT REPRESENTATIVE WITH SUBMITTALS. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED. FAILURE TO FURNISH THESE RECOMMENDATIONS CAN BE CAUSE FOR REJECTION OF THE MATERIAL AND REMOVAL BY THE CONTRACTOR AND NO ADDITIONAL COST OR TIME.
         f. REFER TO ALL OTHER SECTIONS FOR QUALITY ASSURANCE REQUIREMENTS FOR SYSTEMS AND EQUIPMENT SPECIFIED THEREIN.
      5. **EXECUTION (INSTALLATION, CONSTRUCTION) QUALITY**:
         a. APPLY AND INSTALL ALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER CONFLICTS BETWEEN THE MANUFACTURER'S INSTRUCTIONS AND THE CONTRACT DOCUMENTS TO THE CLIENT PROJECT REPRESENTATIVE FOR RESOLUTION. PROVIDE WRITTEN HARD COPIES AND COMPUTER FILES ON CD OR DVD OF MANUFACTURER'S INSTALLATION INSTRUCTIONS TO THE CLIENT PROJECT REPRESENTATIVE WITH SUBMITTALS PRIOR TO COMMENCING INSTALLATION OF ANY ITEM. INSTALLATION OF THE ITEM WILL NOT BE ALLOWED TO PROCEED UNTIL THE RECOMMENDATIONS ARE RECEIVED AND APPROVED. FAILURE TO FURNISH THESE RECOMMENDATIONS IS A CAUSE FOR REJECTION OF THE MATERIAL.
         b. ALL ITEMS THAT REQUIRE ACCESS, SUCH AS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE BY PERSONS STANDING AT FLOOR LEVEL, OR STANDING ON PERMANENT PLATFORMS, WITHOUT THE USE OF PORTABLE LADDERS. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO, ALL TYPES OF VALVES, FILTERS AND STRAINERS, TRANSMITTERS, CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DOCUMENTS TO CLIENT PROJECT REPRESENTATIVE FOR RESOLUTION. FAILURE OF THE CONTRACTOR TO RESOLVE OR POINT OUT ANY ISSUES WILL RESULT IN THE CONTRACTOR CLIENT PROJECT REPRESENTATIVEINCORRECTING AT ADDITIONAL COST OR TIME.
         c. COMPLETE COORDINATION/SHOP DRAWINGS SHALL BE REQUIRED IN ACCORDANCE WITH ARTICLE, SUBMITTALS. CONSTRUCTION WORK SHALL NOT START ON ANY SYSTEM UNTIL THE COORDINATION/SHOP DRAWINGS HAVE BEEN APPROVED.
         d. WORKMANSHIP/CRAFTSMANSHIP WILL BE OF THE HIGHEST QUALITY AND STANDARDS. THE CLIENT RESERVES THE RIGHT TO REJECT ANY WORK BASED ON POOR QUALITY OF WORKMANSHIP THIS WORK SHALL BE REMOVED AND DONE AGAIN AT NO ADDITIONAL COST OR TIME.
      6. **DELIVERY, STORAGE AND HANDLING**
         a. PROTECTION OF EQUIPMENT:
            - EQUIPMENT AND MATERIAL PLACED ON THE JOB SITE SHALL REMAIN IN THE CUSTODY OF THE CONTRACTOR UNTIL PHASED ACCEPTANCE, WHETHER OR NOT THE CONTRACTOR HAS BEEN REIMBURSED FOR THE EQUIPMENT AND MATERIAL. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PROTECTION OF SUCH EQUIPMENT AND MATERIAL AGAINST ANY DAMAGE OR THEFT.
            - LARGE EQUIPMENT SUCH AS BOILERS, CHILLERS, COOLING TOWERS, FANS, AND AIR HANDLING UNITS IF SHIPPED ON OPEN TRAILER TRUCKS SHALL BE COVERED WITH SHRINK OR PLASTICS OR WATER PROOF TARPAULINS THAT PROVIDE PROTECTION FROM EXPOSURE TO RAIN, ROAD SALTS AND OTHER TRANSIT HAZARDS. PROTECTION SHALL BE KEPT IN PLACE UNTIL EQUIPMENT IS MOVED INTO A BUILDING OR INSTALLED AS DESIGNED.
            - REPAIR DAMAGED EQUIPMENT IN FIRST CLASS, NEW OPERATING CONDITION AND APPEARANCE; OR REPLACE SAME AS DETERMINED AND DIRECTED BY THE CLIENT PROJECT REPRESENTATIVE. SUCH REPAIR OR REPLACEMENT SHALL BE AT NO ADDITIONAL COST OR TIME.
            - PROTECT INTERIORS OF NEW EQUIPMENT AND PIPING SYSTEMS AGAINST ENTRY OF FOREIGN MATTER. CLEAN BOTH INSIDE AND OUTSIDE BEFORE PAINTING OR PLACING EQUIPMENT IN OPERATION.
            - EXISTING EQUIPMENT AND PIPING BEING WORKED ON BY THE CONTRACTOR SHALL BE UNDER THE CUSTODY AND RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE PROTECTED AS REQUIRED FOR NEW WORK.
            - PROTECT PLASTIC PIPING AND TANKS FROM ULTRAVIOLET LIGHT (SUNLIGHT).
         b. CLEANLINESS OF PIPING AND EQUIPMENT SYSTEMS:
            - EXERCISE CARE IN STORAGE AND HANDLING OF EQUIPMENT AND PIPING MATERIAL TO BE INCLIENT PROJECT REPRESENTATIVEPORATED IN THE WORK. REMOVE DEBRIS ARISING FROM CUTTING, THREADING AND WELDING OF PIPING.
            - PIPING SYSTEMS SHALL BE FLUSHED, BLOWN OR PIGGED AS NECESSARY TO DELIVER CLEAN SYSTEMS.
      7. **ASBUILT – RECLIENT PROJECT REPRESENTATIVED DOCUMENTS**
         a. THE INSTALLING CONTRACTOR SHALL MAINTAIN AS-BUILT DRAWINGS OF EACH COMPLETED PHASE FOR VERIFICATION; AND SHALL PROVIDE THE COMPLETE SET AT THE TIME OF FINAL SYSTEMS CERTIFICATE TESTING.
         b. THE AS-BUILT DRAWINGS SHALL INDICATE THE LOCATION AND TYPE OF ALL LOCKOUT/TAGOUT POINTS FOR ALL ENERGY SOURCES FOR ALL EQUIPMENT AND PUMPS TO INCLUDE BREAKER LOCATION AND NUMBERS, VALVE TAG NUMBERS, ETC. COORDINATE LOCKOUT/TAGOUT PROCEDURES AND PRACTICES WITH LOCAL VA REQUIREMENTS.
      8. **GENERAL CONDITIONS**: BUILDING WORKING ENVIRONMENT: MAINTAIN THE ARCHITECTURAL AND STRUCTURAL INTEGRITY OF THE BUILDING AND THE WORKING ENVIRONMENT AT ALL TIMES. MAINTAIN THE INTERIOR OF BUILDING AT 18 DEGREES C (65 DEGREES F) MINIMUM. LIMIT THE OPENING OF DOORS, WINDOWS OR OTHER ACCESS OPENINGS TO BRIEF PERIODS AS NECESSARY FOR RIGGING PURPOSES. STORM WATER OR GROUND WATER LEAKAGE IS PROHIBITED. PROVIDE DAILY CLEAN-UP OF CONSTRUCTION AND DEMOLITION DEBRIS ON ALL FLOOR SURFACES AND ON ALL EQUIPMENT BEING OPERATED BY VA. MAINTAIN ALL EGRESS ROUTES AND SAFETY SYSTEMS/DEVICES.

   B. **PRODUCTS**
      1. **FACTORY ASSEMBLED PRODUCTS**
         a. PERFORMANCE AND WARRANTY OF ALL COMPONENTS THAT MAKE UP AN ASSEMBLED UNIT SHALL BE THE RESPONSIBILITY OF THE MANUFACTURER OF THE COMPLETED ASSEMBLY.
      2. **V-BELT DRIVES**: RE: SPECIFICATIONS
      3. **SYNCHRONOUS BELT DRIVES**: RE: SPECIFICATIONS
      4. **ELECTRICAL MOTORS**: RE: SPECIFICATIONS
      5. **VARIABLE SPEED MOTOR CONTROLLERS**: RE: SPECIFICATIONS
      6. THE COMBINATION OF CONTROLLER AND MOTOR SHALL BE PROVIDED BY THE MANUFACTURER OF THE DRIVEN EQUIPMENT, SUCH AS PUMPS AND FANS, AND SHALL BE RATED FOR 100 PERCENT OUTPUT PERFORMANCE. MULTIPLE UNITS OF THE SAME CLASS OF EQUIPMENT, I.E. AIR HANDLERS, FANS, PUMPS, SHALL BE PRODUCT OF A SINGLE MANUFACTURER.
      7. **FIRESTOPPING**: ARCH SPEC SECTION FIRESTOPPING SPECIFIES AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE AND GASES WHERE PENETRATIONS OCCUR FOR PIPING AND DUCTWORK. REFER TO SECTION HVAC AND BOILER PLANT INSULATION, FOR FIRESTOP PIPE AND DUCT INSULATION.

   C. **EXECUTION**
      1. **ARRANGEMENT AND INSTALLATION OF EQUIPMENT**
         a. LOCATION OF PIPING, SLEEVES, INSERTS, HANGERS, AND EQUIPMENT, ACCESS PROVISIONS SHALL BE COORDINATED WITH THE WORK OF ALL TRADES. THE COORDINATIONSHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW. LOCATE PIPING, SLEEVES, INSERTS, HANGERS, DUCTWORK AND EQUIPMENT CLEAR OF WINDOWS, DOORS, OPENINGS, LIGHT OUTLETS, AND OTHER SERVICES AND UTILITIES. EQUIPMENT COORDINATIONSHOP DRAWINGS SHALL BE PREPARED TO COORDINATE PROPER LOCATION AND PERSONNEL ACCESS OF ALL FACILITIES. THE DRAWINGS SHALL BE SUBMITTED FOR REVIEW. FOLLOW MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR INSTALLATION METHODS NOT OTHERWISE SPECIFIED.
         b. OPERATING PERSONNEL ACCESS AND OBSERVATION PROVISIONS: SELECT AND ARRANGE ALL EQUIPMENT AND SYSTEMS TO PROVIDE CLEAR VIEW AND EASY ACCESS, WITHOUT USE OF PORTABLE LADDERS, FOR MAINTENANCE AND OPERATION OF ALL DEVICES INCLUDING, BUT NOT LIMITED TO: ALL EQUIPMENT ITEMS, VALVES, FILTERS, STRAINERS, TRANSMITTERS, SENSORS, CONTROL DEVICES. ALL GAUGES AND INDICATORS SHALL BE CLEARLY VISIBLE BY PERSONNEL STANDING ON THE FLOOR OR ON PERMANENT PLATFORMS. DO NOT REDUCE OR CHANGE MAINTENANCE AND OPERATING SPACE AND ACCESS PROVISIONS THAT ARE SHOWN ON THE CONTRACT DOCUMENTS.
         c. EQUIPMENT AND PIPING SUPPORT: COORDINATE STRUCTURAL SYSTEMS NECESSARY FOR PIPE AND EQUIPMENT SUPPORT WITH PIPE AND EQUIPMENT LOCATIONS TO PERMIT PROPER INSTALLATION.
         d. LOCATION OF PIPE SLEEVES, TRENCHES AND CHASES SHALL BE ACCURATELY COORDINATED WITH EQUIPMENT AND PIPING LOCATIONS.
         e. CUTTING HOLES:
            - CUT HOLES THROUGH CONCRETE AND MASONRY BY ROTARY CLIENT PROJECT REPRESENTATIVEE DRILL PNEUMATIC HAMMER, IMPACT ELECTRIC, AND HAND OR MANUAL HAMMER TYPE DRILLS PROHIBITED, EXCEPT AS PERMITTED BY CLIENT PROJECT REPRESENTATIVE WHERE WORKING AREA SPACE IS LIMITED.
            - LOCATE HOLES TO AVOID INTERFERENCE WITH STRUCTURAL MEMBERS SUCH AS SLABS, COLUMNS, RIBS, BEAMS OR REINFORCING. HOLES SHALL BE LAID OUT IN ADVANCE AND DRILLING DONE ONLY AFTER APPROVAL BY CLIENT PROJECT REPRESENTATIVE. IF THE CONTRACTOR CONSIDERS IT NECESSARY TO DRILL THROUGH STRUCTURAL MEMBERS, THIS MATTER SHALL BE REFERRED TO CLIENT PROJECT REPRESENTATIVE FOR APPROVAL.
         f. DO NOT PENETRATE MEMBRANE WATERPROOFING.
         g. MINOR PIPING: GENERALLY, SMALL DIAMETER PIPE RUNS FROM DRIPS AND DRAINS, WATER COOLING, AND OTHER SERVICE ARE NOT SHOWN BUT MUST BE PROVIDED.
         h. PROTECTION CLEANING
            - EQUIPMENT AND MATERIALS SHALL BE CAREFULLY HANDLED. PROPERLY STORED, AND ADEQUATELY PROTECTED TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION, IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND AS APPROVED BY THE CLIENT PROJECT REPRESENTATIVE. DAMAGED OR DEFECTIVE ITEMS IN THE OPINION OF THE CLIENT PROJECT REPRESENTATIVE, SHALL BE REPLACED.
            - PROTECT ALL FINISHED PARTS OF EQUIPMENT, SUCH AS SHAFTS AND BEARINGS WHERE SUBJECT TO RUST, FROM RUST PRIOR TO OPERATION BY MEANS OF PROTECTIVE GREASE COATING AND WRAPPING. CLOSE PIPE OPENINGS WITH CAPS OR PLUGS DURING INSTALLATION. TIGHTLY COVER AND PROTECT FIXTURES AND EQUIPMENT AGAINST DIRT, CORROSION, AND MECHANICAL INJURY. AT COMPLETION OF ALL WORK THOROUGHLY CLEAN FIXTURES, EXPOSED MATERIALS AND EQUIPMENT.
         i. INSTALL GAUGES, THERMOMETERS, VALVES AND OTHER DEVICES WITH DUE REGARD FOR EASE IN READING OR OPERATING AND MAINTAINING SAID DEVICES. LOCATE AND POSITION THERMOMETERS AND GAUGES TO BE EASILY READ BY OPERATOR OR STAFF STANDING ON FLOOR OR WALKWAY PROVIDED. SERVICING SHALL NOT REQUIRE DISMANTLING ADJACENT EQUIPMENT OR PIPE WORK.
         j. SWITCHGEAR/ELECTRICAL EQUIPMENT DRIP PROTECTION: EVERY EFFORT SHALL BE MADE TO ELIMINATE THE INSTALLATION OF PIPE ABOVE ELECTRICAL AND DATA/TELEPHONE SWITCHGEAR. IF THIS IS NOT POSSIBLE, ENCASE PIPE IN A SECOND PIPE WITH A MINIMUM OF JOINTS. INSTALLATION OF PIPING, DUCTWORK, LEAK PROTECTION APPARATUS OR OTHER INSTALLATIONS FOREIGN TO THE ELECTRICAL INSTALLATION SHALL NOT BE LOCATED IN THE SPACE EQUAL TO THE WIDTH AND DEPTH OF THE EQUIPMENT AND EXTENDING FROM TO A HEIGHT OF 1.8 M (6 FEET) ABOVE THE EQUIPMENT OR TO CEILING STRUCTURE, WHICHEVER IS LOWER (NFPA 70).
      2. **PIPE AND EQUIPMENT SUPPORTS**
         a. USE OF CHAIN PIPE SUPPORTS; WIRE OR STRAP HANGERS; WOOD FOR BLOCKING, STAYS AND BRACING, OR HANGERS SUSPENDED FROM PIPING ABOVE ARE PROHIBITED. REPLACE OR THOROUGHLY CLEAN RUSTY PRODUCTS AND PAINT WITH ZINC PRIMER.
         b. HANGER RODS SHALL BE USED THAT ARE STRAIGHT AND VERTICAL. TURNBUCKLES FOR VERTICAL ADJUSTMENTS MAY BE OMITTED WHERE LIMITED SPACE PREVENTS USE. PROVIDE A MINIMUM OF 15 MM (1/2 INCH) CLEARANCE BETWEEN PIPE OR PIPING COVERING AND ADJACENT WORK.
         c. HVAC HORIZONTAL PIPE SUPPORT SPACING: REFER TO MSS SP-58. PROVIDE ADDITIONAL SUPPORTS AT VALVES, STRAINERS, IN-LINE PUMPS AND OTHER HEAVY COMPONENTS. PROVIDE A SUPPORT WITHIN ONE FOOT OF EACH ELBOW.
         d. HVAC VERTICAL PIPE SUPPORTS:
            - UP TO 150 MM (6 NOMINAL PIPE) 9 M (30 FEET) LONG, BOLT RISER CLAMPS TO THE PIPE BELOW COUPLINGS, OR WELDED TO THE PIPE AND RESTS SUPPORTS SECURELY ON THE BUILDING STRUCTURE.
            - VERTICAL PIPE LARGER THAN THE FOREGOING, SUPPORT ON BASE ELBOWS OR TEES, OR SUBSTANTIAL PIPE LEGS EXTENDING TO THE BUILDING STRUCTURE.
         e. FLOOR SUPPORTS:
            - PROVIDE CONCRETE BASES, CONCRETE ANCHOR BLOCKS AND PEDESTALS, AND STRUCTURAL STEEL SYSTEMS FOR SUPPORT OF EQUIPMENT AND PIPING. CONCRETE BASES AND STRUCTURAL SYSTEMS SHALL BE ANCHORED AND DOWELED TO RESIST FORCES UNDER OPERATING AND SEISMIC CONDITIONS (IF APPLICABLE) WITHOUT EXCESSIVE DISPLACEMENT OR STRUCTURAL FAILURE.
            - BASES AND SUPPORTS SHALL NOT BE LOCATED AND INSTALLED UNTIL EQUIPMENT MOUNTED THEREON HAS BEEN APPROVED. BASES SHALL BE SIZED TO MATCH EQUIPMENT MOUNTED THEREON PLUS 50 MM (2 INCH) EXCESS ON ALL SIDES. CHILLER FOUNDATIONS SHALL HAVE HORIZONTAL DIMENSIONS THAT EXCEED CHILLER BASE FRAME DIMENSIONS BY AT LEAST 150 MM (6 INCHES) ON ALL SIDES. STRUCTURAL CONTRACT DOCUMENTS SHALL BE REVIEWED FOR ADDITIONAL REQUIREMENTS. BASES SHALL BE NEATLY FINISHED AND SMOOTHED, SHALL HAVE CHAMFERED EDGES AT THE TOP, AND SHALL BE SUITABLE FOR PAINTING.
            - ALL EQUIPMENT SHALL BE SHIMMED, LEVELED, FIRMLY ANCHORED, AND GROUTED WITH EPOXY GROUT. ANCHOR BOLTS SHALL BE PLACED IN SLEEVES, ANCHORED TO THE BASES. FILL THE ANNULAR SPACE BETWEEN SLEEVES AND BOLTS WITH A GRANULAR MATERIAL TO PERMIT ALIGNMENT AND REALIGNMENT.
   3. **PAINT**
      a. PRIOR TO FINAL INSPECTION AND ACCEPTANCE OF THE PLANT AND FACILITIES FOR BENEFICIAL USE BY THE PLANT FACILITIES, EQUIPMENT AND SYSTEMS SHALL BE THOROUGHLY CLEANED AND PAINTED. REFER TO PAINTING SPECIFICATIONS.
   4. **MOTOR DRIVES**
      a. USE SYNCHRONOUS BELT DRIVES ONLY ON EQUIPMENT CONTROLLED BY SOFT STARTERS OR VARIABLE FREQUENCY DRIVE MOTOR CONTROLLERS WITHOUT A BYPASS CONTACTOR. USE V-BELT DRIVES ON ALL OTHER APPLICATIONS.
      b. ALL EQUIPMENT AND DEVICES REQUIRING LUBRICATION SHALL BE LUBRICATED PRIOR TO INITIAL OPERATION. FIELD-CHECK ALL DEVICES FOR PROPER LUBRICATION.
      c. STARTUP OF EQUIPMENT SHALL BE PERFORMED AS DESCRIBED IN EQUIPMENT SPECIFICATIONS. VIBRATION WITHIN SPECIFIED TOLERANCE SHALL BE VERIFIED PRIOR TO EXTENDED OPERATION. TEMPORARY USE OF EQUIPMENT IS SPECIFIED IN SECTION GENERAL REQUIREMENTS, ARTICLE, TEMPORARY USE OF MECHANICAL AND ELECTRICAL EQUIPMENT.

2. **GENERAL MOTOR REQUIREMENTS FOR HVAC AND STEAM GENERATION EQUIPMENT**
   A. **GENERAL**: FURNISHING, INSTALLATION AND CONNECTION OF MOTORS FOR HVAC AND STEAM GENERATION EQUIPMENT.
   B. **PRODUCTS**
      1. DESCRIPTION: ALL MATERIAL AND EQUIPMENT FURNISHED AND INSTALLATION METHODS SHALL CONFORM TO THE REQUIREMENTS OF SECTION MOTOR CONTROLLERS; AND SECTION LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES. PROVIDE ALL ELECTRICAL WIRING, CONDUIT, AND DEVICES NECESSARY FOR THE PROPER CONNECTION, PROTECTION AND OPERATION OF THE SYSTEMS. PROVIDE PREMIUM EFFICIENCY TYPE MOTORS. UNLESS OTHERWISE SPECIFIED FOR A PARTICULAR APPLICATION, USE ELECTRIC MOTORS WITH THE FOLLOWING REQUIREMENTS.
   C. **EXECUTION**
      1. **INSTALLATION**
         a. INSTALL MOTORS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, THE NEC, NEMA, AS SHOWN ON THE DRAWINGS AND/OR AS REQUIRED BY OTHER SECTIONS OF THESE SPECIFICATIONS.
3. **NOISE AND VIBRATION CONTROL FOR HVAC PIPING AND EQUIPMENT**
   A. **GENERAL**: APPLICATION OF NOISE CONTROL MEASURES, AND VIBRATION CONTROL TECHNIQUES TO BOILER PLANT ROTATING EQUIPMENT AND PARTS INCLUDING CHILLERS, COOLING TOWERS, BOILERS, PUMPS, FANS, COMPRESSORS, MOTORS AND STEAM TURBINES.
   B. **PRODUCTS**
      1. GENERAL REQUIREMENTS:
         a. TYPE OF ISOLATOR, BASE, AND MINIMUM STATIC DEFLECTION SHALL BE AS REQUIRED FOR EACH SPECIFIC EQUIPMENT APPLICATION AS RECOMMENDED BY ISOLATOR OR EQUIPMENT MANUFACTURER BUT SUBJECT TO MINIMUM REQUIREMENTS INDICATED HEREIN AND IN THE SCHEDULE ON THE DRAWINGS.
   C. **EXECUTION**
      a. **INSTALLATION**: INSPECTION AND ADJUSTMENTS: CHECK FOR VIBRATION AND NOISE TRANSMISSION THROUGH CONNECTIONS, PIPING, DUCTWORK, FOUNDATIONS, AND WALLS. ADJUST, REPAIR, OR REPLACE ISOLATORS AS REQUIRED TO REDUCE VIBRATION AND NOISE TRANSMISSIONS TO SPECIFIED LEVELS
      b. **ADJUSTING**: ADJUST VIBRATION ISOLATORS AFTER PIPING SYSTEMS ARE FILLED AND EQUIPMENT IS AT OPERATING WEIGHT.
4. **TESTING, ADJUSTING, AND BALANCING FOR HVAC**
   A. **GENERAL**
      1. DESCRIPTION
      2. RE: SPECIFICATIONS FOR TESTING, ADJUSTING, AND BALANCING (TAB) OF HEATING, VENTILATING AND AIR CONDITIONING (HVAC) SYSTEM(S) REQUIREMENTS.
      3. TAB INCLUDES THE FOLLOWING:
         a. BALANCING AIR AND WATER DISTRIBUTION SYSTEMS; ADJUSTMENT OF TOTAL SYSTEM TO PROVIDE DESIGN PERFORMANCE; AND TESTING PERFORMANCE OF EQUIPMENT AND AUTOMATIC CONTROLS.
      4. **HYDRONIC SYSTEMS**: INCLUDES CHILLED WATER, CONDENSER WATER, HEATING HOT WATER AND GLYCOL-WATER SYSTEMS.
      5. **AIR SYSTEMS**: INCLUDES ALL OUTSIDE AIR, SUPPLY AIR, RETURN AIR, EXHAUST AIR AND RELIEF AIR SYSTEMS.
      6. **TAB PROCEDURES**
         a. TAB SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENT OF THE STANDARD UNDER WHICH TAB AGENCY IS CERTIFIED BY EITHER AABC, TABB OR NEBB. BALANCING SHALL BE DONE PROPORTIONALLY TO ALL APPLICABLE SYSTEMS.
         b. GENERAL: DURING TAB ALL RELATED SYSTEM COMPONENTS SHALL BE IN FULL OPERATION. FAN AND PUMP ROTATION, MOTOR LOADS AND EQUIPMENT VIBRATION SHALL BE CHECKED AND CLIENT PROJECT REPRESENTATIVERECTED AS NECESSARY BEFORE PROCEEDING WITH TAB. SET CONTROLS AND/OR BLOCK OFF PARTS OF DISTRIBUTION SYSTEMS TO SIMULATE DESIGN OPERATION OF VARIABLE VOLUME AIR OR WATER SYSTEMS FOR TEST AND BALANCE WORK.
   B. **PRODUCT**
      1. PROVIDE PLASTIC PLUGS TO SEAL HOLES DRILLED IN DUCTWORK FOR TEST PURPOSES
      2. SEE SECTION HVAC AND BOILER PLANT INSULATION PROVIDE FOR REPAIR OF INSULATION REMOVED OR DAMAGED FOR TAB WORK.
   C. **EXECUTION**
      1. FOLLOWING APPROVAL OF TAB FINAL REPORT, THE SETTING OF ALL HVAC ADJUSTMENT DEVICES INCLUDING VALVES, SPLITTERS AND DAMPERS SHALL BE PERMANENTLY MARKED BY THE TAB SPECIALISTS SO THAT ADJUSTMENT CAN BE RESTORED IF DISTURBED AT ANY TIME. STYLE AND COLORS USED FOR MARKINGS SHALL BE COORDINATED PRIOR TO MARKING.
5. **HVAC AND BOILER PLANT INSULATION**
   A. **GENERAL**
      1. DESCRIPTION: FIELD APPLIED INSULATION FOR THERMAL EFFICIENCY AND CONDENSATION CONTROL FOR HVAC PIPING, DUCTWORK AND EQUIPMENT.
   B. **PRODUCTS**: RE: SPECIFICATIONS FOR INSULATION MATERIALS, INSULATION FACINGS AND JACKETS. INSULATION ACCESSORY MATERIALS.
   C. **EXECUTION**
      1. **GENERAL REQUIREMENTS**
         a. INSULATION MATERIALS SHALL BE INSTALLED IN A FIRST CLASS MANNER WITH SMOOTH AND EVEN SURFACES, WITH JACKETS AND FACINGS DRAWN TIGHT AND SMOOTHLY CEMENTED DOWN AT ALL LAPS. INSULATION SHALL BE CONTINUOUS THROUGH ALL SLEEVES AND OPENINGS, EXCEPT AT FIRE DAMPERS AND DUCT HEATERS (NFPA 90A). VAPOR RETARDERS SHALL BE CONTINUOUS AND UNINTERRUPTED THROUGHOUT SYSTEMS WITH LOW-TEMPERATURE AIR OPERATIONS (60 DEGREES F) AND BELOW. LAP AND SEAL VAPOR RETARDER OVER ENDS AND EXPOSED EDGES OF INSULATION. ANCHORS, SUPPORTS AND OTHER METAL PROJECTIONS THROUGH INSULATION ON COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED FOR A MINIMUM LENGTH OF 150 MM (6 INCHES).
         b. INSTALL VAPOR STOPS AT ALL INSULATION TERMINATIONS ON EITHER SIDE OF VALVES, PUMPS AND EQUIPMENT AND PARTICULARLY IN STRAIGHT LENGTHS OF PIPE INSULATION.
         c. CONSTRUCT INSULATION ON PARTS OF EQUIPMENT SUCH AS CHILLED WATER PUMPS AND HEADS OF CHILLERS SO THAT EQUIPMENT MAY BE READILY OPENED PERIODICALLY FOR MAINTENANCE OR REPAIR, NO INSULATION CAN BE REMOVED AND REPLACED WITHOUT DAMAGE. INSTALL INSULATION WITH BOLTED 1 MM THICK (20 GAGE) GALVANIZED STEEL OR ALUMINUM COVERS AS COMPLETE UNITS, OR IN SECTIONS, WITH ALL NECESSARY SUPPORTS, AND SPLIT TO COINCIDE WITH FLANGE/SPLIT OF THE EQUIPMENT.
         d. INSULATION ON HOT PIPING AND EQUIPMENT SHALL BE TERMINATED SQUARE AT ITEMS NOT TO BE INSULATED, ACCESS OPENINGS AND NAMEPLATES. COVER ALL EXPOSED RAW INSULATION WITH CANVAS OR JACKET MATERIAL.
         e. PROTECT ALL INSULATIONS OUTSIDE OF BUILDINGS WITH ALUMINUM JACKET USING LOCK JOINT OR OTHER APPROVED SYSTEM FOR A CONTINUOUS WEATHER TIGHT SYSTEM. ACCESS DOORS AND OTHER ITEMS REQUIRING MAINTENANCE OR ACCESS SHALL BE REMOVABLE AND SEALABLE.
6. **DIRECT-DIGITAL CONTROL SYSTEM FOR HVAC**
   A. **GENERAL**
      1. **DESCRIPTION**
         a. GENERAL CONTRACTOR SHALL PROVIDE DIRECT-DIGITAL CONTROL SYSTEM(S) AS INDICATED ON THE PROJECT DOCUMENTS, POINT LIST, INTEROPERABILITY TABLES, DRAWINGS AND AS DESCRIBED IN THESE SPECIFICATIONS. INCLUDE A COMPLETE AND WORKING DIRECT-DIGITAL CONTROL SYSTEM. INCLUDE ALL ENGINEERING, PROGRAMMING, COORDINATIONSETUP HARDWARE AND SOFTWARE, CONTROLS AND INSTALLATION MATERIALS, INSTALLATION LABOR, COMMISSIONING AND START-UP, TRAINING, FINAL PROJECT DOCUMENTATION AND WARRANTY. RE: SPECIFICATIONS.
         b. THE DIRECT-DIGITAL CONTROL SYSTEM(S) SHALL CONSIST OF HIGH-SPEED, PEER-TO-PEER NETWORK OF DDC CONTROLLERS. A CONTROL SYSTEM SERVER, ALL CONFIGURATION AND SETUP SOFTWARE AND HARDWARE DEVICES, AND AN ENGINEERING CONTROL CENTER. PROVIDE A GRAPHIC DISPLAY USING A STANDARD HTML 5 WEB BROWSER AND/OR JCI BUILDING CONTROLLERS TO ACCESS THE CONTROL SYSTEM GRAPHICS AND CHANGE ADJUSTABLE SETPOINTS WITH THE PROPER PASSWORD.
         c. ALL NEW BUILDING CONTROLLERS SHALL BE NATIVE BACNET. ALL NEW BACNET WORKSTATIONS, CONTROLLERS, DEVICES AND COMPONENTS SHALL BE LISTED BY BACNET TESTING LABORATORIES. ALL NEW BACNET WORKSTATIONS, CONTROLLERS, DEVICES AND COMPONENTS SHALL BE ACCESSIBLE USING A HTML5 WEB BROWSER INTERFACE. BROWSERS SHALL NOT REQUIRE THE USE OF AN EXTENSION OR ADD ON SOFTWARE IN ORDER TO ACCESS AFOREMENTIONED WORKSTATI

VA PIPING VALVE SYMBOLS

- GATE VALVE, THREADED
- GATE VALVE, FLANGED
- GATE VALVE, THREADED
- GATE VALVE, FLANGED
- GATE VALVE WITH 3/4" HOSE ADAPTER
- CHECK VALVE
- WYE STRAINER (WITH BALL VALVE & HOSE CONNECTION)
- WYE STRAINER(WITH VALVED DRAIN & QUICK-COUPLE HOSE CONNECTOR)
- FLEXIBLE CONNECTION
- ANGLE GLOBE VALVE
- BUTTERFLY VALVE
- BALL VALVE
- MODULATING CONTROL VALVE
- MODULATING BUTTERFLY VALVE
- TWO-POSITION CONTROL VALVE
- THREE-WAY MODULATING CONTROL VALVE
- THREE-WAY TWO-POSITION CONTROL VALVE
- PRESSURE REGULATING VALVE
- PRESSURE SAFETY VALVE
- AUTOMATIC BALANCING CONTROL VALVE
- WATER BALANCE DEVICE
- CIRCUIT SETTER VALVE
- GATE VALVE WITH GLOBE-VALVED BYPASS
- PLUG VALVE
- CONTROL VALVE (CV), FLOAT-OPERATED
- PRESSURE REDUCING VALVE (PRV)
- WATER LEVEL CONTROLLER
- FLOW METER

CONTROLS SYMBOLS

- T — ROOM THERMOSTAT/TRANSMITTER WALL MOUNT
- M — ROOM HUMIDISTAT (MOISTURE)/ TRANSMITTER - WALL MOUNT
- TT — TEMPERATURE TRANSMITTER
- TT — TEMPERATURE TRANSMITTER, AVERAGING ELEMENT
- MT — MOISTURE (HUMIDITY) TRANSMITTER
- PT — PRESSURE TRANSMITTER
- SPS — STATIC PRESSURE SENSOR
- FT — FLOW TRANSMITTER
- IT — CURRENT TRANSMITTER
- CT — CONDUCTIVITY TRANSMITTER
- SD — SMOKE DETECTOR
- PDT — PRESSURE DIFFERENTIAL TRANSMITTER
- PDS — PRESSURE DIFFERENTIAL SWITCH
- HS — HAND SWITCH (HAND-OFF-AUTO SWITCH)
- ZC — VALVE OR DAMPER POSITION CONTROLLER
- KR — LOCAL RECORDING TIME CLOCK (RUNTIME)
- TSL — TEMPERATURE SWITCH, LOW (FREEZESTAT)
- TSH — TEMPERATURE SWITCH, HIGH (FREEZESTAT)
- LC — LEVEL CONTROLLER
- LT — LEVEL TRANSMITTER
- PSH — PRESSURE SWITCH HIGH
- PSL — PRESSURE SWITCH LOW
- EPT — ELECTRONIC TO PNEUMATIC TRANSDUCER
- AT CO2 — CARBON DIOXIDE TRANSMITTER
- AT CO — CARBON MONOXIDE TRANSMITTER
- AT OC — OCCUPANCY SENSOR
- LTCP — LOCAL TEMPERATURE CONTROL PANEL
- HVAC — HVAC CONTROL PANEL
- VSMC — VARIABLE SPEED MOTOR CONTROLLER
- ECC — INTEGRATE CONTROL POINT ON REMOTE GRAPHICS WORKSTATION AT ENERGY CONTROL CENTER
- TC — TEMPERATURE CONTROLLER SEE SEQUENCE OF OPERATION
- PC — PRESSURE CONTROLLER SEE SEQUENCE OF OPERATION
- SC — SPEED CONTROLLER SEE SEQUENCE OF OPERATION
- FC — FLOW CONTROLLER SEE SEQUENCE OF OPERATION
- FSH — FLOW SWITCH HIGH
- FSL — FLOW SWITCH LOW
- KC — TIME CLOCK CONTROLLING EQUIPMENT ON A SCHEDULE

PIPING SYSTEMS

SYMBOL	DESCRIPTION:
S-60	HIGH PRESSURE STEAM (60 PSIG AND ABOVE)
CR-60	HIGH PRESSURE STEAM CONDENSATE RETURN
S-30	MEDIUM PRESSURE STEAM (16 PSIG THRU 59 PSIG)
CR-30	MEDIUM PRESSURE STEAM CONDENSATE RETURN
S-15	LOW PRESSURE STEAM (15 PSIG AND BELOW)
CR-15	LOW PRESSURE STEAM CONDENSATE RETURN
PC	CONDENSATE PUMP DISCHARGE
HWS	HOT WATER HEATING SUPPLY
HWR	HOT WATER HEATING RETURN
GHS	GLYCOL WATER HEATING SUPPLY
GHR	GLYCOL WATER HEATING RETURN
SWS	SOLAR WATER SUPPLY
SWR	SOLAR WATER RETURN
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RHG	REFRIGERANT HOT GAS
CWS	CONDENSER WATER SUPPLY (FROM TOWER)
CWR	CONDENSER WATER RETURN (TO TOWER)
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
GCS	CHILLED GLYCOL WATER SUPPLY
GCR	CHILLED GLYCOL WATER RETURN
MW	MAKE UP WATER
D	DRAIN LINE
V	VENT LINE
GRS	GLYCOL WATER RUN AROUND SUPPLY
GRR	GLYCOL WATER RUNAROUND RETURN
X	EXISTING PIPE TO BE REMOVED
FWPD	FEED WATER PUMP DISCHARGE
FWPS	FEED WATER PUMP SUCTION
VR	VACUUM CONDENSATE RETURN
TC	TUBE CLEANER WATER SUPPLY
BD	BOILER BLOWOFF
CBD	CONTINUOUS BLOWDOWN
BWS	BOILER WATER SAMPLE
FWS	FEEDWATER SAMPLE (FROM DEAERATOR)
CF	CHEMICAL FEED
A	COMPRESSED AIR
G	NATURAL GAS MAIN FUEL
G(I)	NATURAL GAS IGNITER FUEL
LPG(I)	LIQUID PETROLEUM GAS IGNITER FUEL
FOS	FUEL OIL SUPPLY
FOR	FUEL OIL RETURN
CW	COLD WATER (CITY WATER)
SW	SOFTENED WATER
HW	HOT WATER
RH	ROLLER TYPE HANGER
SH	VARIABLE SPRING TYPE HANGER (TYPE 51)*
SCH	SPRING CUSHION TYPE HANGER (TYPE 48 OR 49)*
	CLEVIS TYPE HANGER
TH	TRAPEZE HANGER (PROVIDE U-BOLT PIPE ATTACHMENT TO TRAPEZE EXCEPT WHERE RH IS INDICATED)
PS	FLOOR SUPPORTED PIPE STAND
RC	RISER CLAMP (TYPE 42)*
WB	WALL BRACKET (TYPE 31, 32, 33)*
CSH	CONSTANT SUPPORT HANGER (TYPE 54, 55, 56)*
SS	SLIDING SUPPORTS (TYPE 35)*

* *TYPE NUMBERS REFERS TO MANUFACTURER'S STANDARDIZATION SOCIETY STANDARD PRACTICE SP-58*

ABBREVIATIONS

A/E	ARCHITECT/ENGINEER
AHX	AIR TO AIR HEAT EXCHANGER
AAV	AUTOMATIC AIR VENT
AB	AIR BLENDER
ACC	AIR COOLED CONDENSER
ACCH	AIR COOLED CHILLER
ACCU	AIR COOLED CONDENSING UNIT
ACD	AUTOMATIC CONTROL DAMPER; MODULATING
ACD-TP	AUTOMATIC CONTROL DAMPER, TWO POSITION
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AF	AFTER FILTER
AFCV	AIR FLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AFW	AIR FOIL WHEEL (FAN)
AHU	AIR HANDLING UNIT
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
AQST	AQUASTAT
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
AS	AIR SEPARATOR
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AW	AIR WASH
AXF	AXIAL FLOW
B	BOILER
BD	BUTTERFLY DAMPER
BDD	BACKDRAFT DAMPER
BDR	BASEBOARD RADIATOR
BFP	BACKFLOW PREVENTOR
BFT	BOILER PLANT FIRE TUBE
BG	BOTTOM GRILLE
BHP	BRAKE HORSEPOWER
BHW	HOT WATER HEATING BOILER
BHX	BOILER BLOWDOWN HEAT EXCHANGER
BIW	BACKWARD INCLINED WHEEL (FAN)
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BMT	BONE MARROW TRANSPLANT
BR	BOTTOM OF REGISTER
BSC	BIOLOGICAL SAFETY CABINETS
BT	BLOWOFF TANK
BTC	BLOWOFF TANK CONTROL VALVE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWT	BOILER PLANT WATER TUBE
C	CENTIGRADE (CELSIUS)
CAV	CONSTANT AIR VOLUME
CC	COOLING COIL
CCD	COOLING COIL CONDENSATE DRAIN
CD	CEILING DIFFUSER
CD-1	CONSTRUCTION DOCUMENTS (SUBMISSION 1)
CD-2	CONSTRUCTION DOCUMENTS (SUBMISSION 2)
CENT	CENTRIFUGAL
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CFT	CUBIC FEET
CFP	CHEMICAL FEED PUMP
CG	CEILING GRILLE
CH	CHILLER
CHP	CHILLED WATER PUMP
CHW	CHILLER WATER
CHR	CHILLED WATER RETURN
CHS	CHILLED WATER SUPPLY
CI	CAST IRON
CM	CARBON MONOXIDE
CM	CUBIC METER
CMS	CUBIC METER PER SECOND
CO	CLEAN OUT
CO2	CARBON DIOXIDE
COMP	COMPRESSOR UNIT
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CR	CEILING REGISTER
CS	CONDENSATE STORAGE TANK
CSG	CLEAN STEAM GENERATOR
CT	COOLING TOWER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CV	CONSTANT VOLUME
CWCC	CHILLED WATER COOLING COIL
CWP	CONDENSER WATER PUMP
CWR	CONDENSER WATER RETURN (TO COOLING TOWER)
CWS	CONDENSER WATER SUPPLY (FROM COOLING TOWER)
D	DAMPER - AUTOMATIC
db	DRY BULB
DB	DECIBELS
DCW	DOMESTIC COLD WATER
DD-1	DESIGN DEVELOPMENT (SUBMISSION 1)
DD-2	DESIGN DEVELOPMENT (SUBMISSION 2)
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE
DF	DIFFUSER
DHW	DOMESTIC HOT WATER
DHWR	DOMESTIC HOT WATER RETURN
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEWPOINT TEMPERATURE
DP	DIFFUSER PLATE
DPA	DIFFERENTIAL PRESSURE ASSEMBLY
DPS	DIFFERENTIAL PRESSURE SENSOR
DX	DIRECT EXPANSION
DXCC	DIRECT EXPANSION COOLING COIL
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EVAPORATIVE COOLER
ECC	ENGINEERING CONTROL CENTER
ECU	EVAPORATIVE CONDENSING UNIT
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EGS	EMERGENCY GAS SHUTOFF
EGT	ENTERING GLYCOL TEMPERATURE
EH	EXHAUST HOOD
EJ	EXPANSION JOINT
EMD	END OF MAIN DRIP (STEAM)
ENT	ENTERING
ER	EXHAUST REGISTER
ERC	ELECTRIC REHEAT COIL
ERP	ELECTRIC RADIANT PANEL
ESP	EXTERNAL STATIC PRESSURE
ET	EXPANSION TANK
ETO	ETHYLENE OXIDE
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EX	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
FD/SD	COMBINATION FIRE/SMOKE DAMPER
FA	FREE AREA
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT (4 PIPE)
FCUC	FAN COIL UNIT COOLING ONLY
FCUH	FAN COIL UNIT HEATING ONLY
FCW	FORWARD CURVED WHEEL (FAN)
FD	FLOOR DRAIN
FD	FIRE DAMPER
FF	FINAL FILTER
FHX	FLUE GAS/FEEDWATER HEAT EXCHANGER
FM	FLOW METER
FOP	FUEL OIL PUMP
FOT	FUEL OIL TANK
FOHX	FUEL OIL HEAT EXCHANGER
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FPTU	FAN POWERED TERMINAL UNIT
FR	FLOOR REGISTER
FRP	FIBER REINFORCED POLYESTER
FS	FLOW SWITCH
FSTAT	FREEZESTAT
FT	FEET
FT3	CUBIC FEET
FT HD	FEET OF HEAD
FT WC	FEET OF WATER COLUMN
FT-LB	FOOT-POUND
FTR	FIN TUBE RADIATION
FV	FACE VELOCITY
G	GAUGE
GAL	GALLONS
GH	GRAVITY HOOD
GLWSHP	GROUND LOOP WATER SOURCE HEAT PUMP
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
GS	GALVANIZED STEEL
H	HUMIDIFIER
HAC	HOUSEKEEPING AND CLOSET
HB	HOSE BIBB
HC	HEATING COIL
HD	HOOD
HOA	HAND/OFF/AUTOMATIC
HP	HEAT PUMP
HP	HORSEPOWER
HDPT	HIGH PRESSURE DRIP TRAP
HPR	HIGH PRESSURE RETURN (STEAM)
HPS	HIGH PRESSURE SUPPLY (STEAM)
HRC	HEAT RECOVERY COIL
HRD	HEAT RECOVERY DEVICE
HRP	HYDRONIC RADIANT (CEILING) PANEL
HRW	HEAT RECOVERY WHEEL
HSTAT	HUMIDISTAT
HTM	HUMIDIFIER TERMINAL
HUM	HUMIDIFIER UNIT MOUNTED
HVU	HEATING AND VENTILATING UNIT
HW	HOT WATER
HWC	HOT WATER COIL
HWP	HEATING HOT WATER PUMP
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HWUH	HOT WATER UNIT HEATER
HVD	HOISTWAY VENT DAMPER
HX	HEAT EXCHANGER
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IBT	INVERTED BUCKET TRAP
ICF	IN-LINE CENTRIFUGAL FAN
ICU	INTENSIVE CARE UNIT
ID	INSIDE DIAMETER
IFP	INTEGRAL FACE AND BYPASS
IN	INCHES
IN HG	INCHES OF MERCURY
IN WC	INCHES WATER COLUMN
IN WG	INCH WATER GAUGE
IN-LB	INCH-POUND
IPLV	INTEGRATED PART LOAD VALUE
IRH	INFRARED HEATER
IS	INSECT SCREEN
IU	INDUCTION UNIT
IV	INLET VANES
J	(INTENTIONALLY LEFT BLANK)
L	LITER
L/h	LITERS PER HOUR (OR LITERS/HOUR)
L/m	LITERS PER MINUTE (OR LITERS/MINUTE)
L/s	LITERS PER SECOND (OR LITERS/SECOND)
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FEET
LGT	LEAVING GLYCOL TEMPERATURE
LH	LATENT HEAT
LPG	LIQUEFIED PETROLEUM GAS
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LLHX	LIQUID TO LIQUID HEAT EXCHANGER
LPS	LOW PRESSURE STEAM
LPSC	LOW PRESSURE STEAM (CLEAN)
LSD	LINEAR SLOT DIFFUSER
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LVG	LEAVING
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
M	METER, SI UNIT
M/S	METERS PER SECOND (OR METERS/SECOND)
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MIXING BOX
MBH	1000 BTUH
MCA	MINIMUM CIRCUIT AMPACITY
MER	MECHANICAL EQUIPMENT ROOM
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MH	MANHOLE
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MM	MILLIMETER
MOV	MOTOR OPERATED VALVE
MPR	MEDIUM PRESSURERETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MRI	MAGNETIC RESONANCE IMAGING
MTD	MEAN TEMPERATURE DIFFERENCE
MVD	MANUAL VOLUME DAMPER
MZ	MULTI-ZONE
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NGFM	NATURAL GAS FLOW METER
Nm	NEWTON METER
NO	NORMALLY OPEN
NOAA	NATIONAL OCEANIC & ATMPSHERIC ADMINISTRATION
NPLV	NON-STANDARD PART LOAD VALUE
NPSH	NET POSITIVE SUCTION HEAD
NPSHA	NET POSITIVE SUCTION HEAD AVAILABLE
NPSHR	NET POSITIVE SUCTION HEAD REQUIRED
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAD	OUTDOOR AIR DAMPER
OAG	OUTSIDE AIR GRILLE
OAI	OUTSIDE AIR INTAKE
OD	OUTSIDE DIAMETER
OFM	OIL FLOWMETER
OR	OPERATING ROOM
P	PUMP
Pa	PASCAL
PC	PUMPED CONDENSATE
PCF	POUNDS PER CUBIC FOOT (FEET)
PD	PRESSURE DROP
PEF	PROPELLER (TYPE) EXHAUST FAN
PF	PRE-FILTER
PG	PRESSURE GAUGE
PGW	PROPYLENE GLYCOL-WATER (SOLUTION)
PHC	PREHEAT COIL
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
PSS	PRIMARY SECONDARY SYSTEM
PSV	PRESSURE SAFETY VALVE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
R/E	RETURN OR EXHAUST
RA	RETURN AIR
RAD	RETURN AIR DAMPER
RAF	RADIO FREQUENCY
RAHX	ROTARY AIR HEAT EXCHANGER
RAT	RETURN AIR TEMPERATURE
RCCH	REMOTE CONDENSER CHILLER
RCU	RECIPROCATING CHILLER UNIT
RD	REFRIGERANT DISCHARGE
RDS	ROOM DATA SHEETS
REA	RELIEF AIR
RG	RETURN GRILLE
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPS
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
RV	RELIEF VALVE
SA	SUPPLY AIR
SAD	SOUND ATTENUATING DEVICE
SAT	SUPPLY AIR TEMPERATURE
SC	SHADING COEFFICIENT
SCFM	STANDARD CUBIC FEET PER MINUTE
SCI	SPINAL CODE INJURY
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SD	SUPPLY DIFFUSER
SD-1	SCHEMATIC DESIGN (SUBMISSION 1)
SD-2	SCHEMATIC DESIGN (SUBMISSION 2)
SDPR	SMOKE DAMPER
SDR	SMOKE DAMPER (RETURN)
SDS	SMOKE DAMPER (SUPPLY)
SEN	SENSIBLE HEAT
SF	SUPPLY FAN
SG	SUPPLY AIR GRILLE
SH	STEAM HUMIDIFIER
SHC	STEAM HEATING COIL
SI	SQUARE INCHES
SP	STATIC PRESSURE
SP GR	SPECIFIC GRAVITY
SPD	SUPPLY PROCESS AND DISTRIBUTION
SPRV	STEAM PRESSURE REDUCING VALVE
SPS	STATIC PRESSURE SENSOR
SQFT	SQUARE FEET
SR	SUPPLY AIR REGISTER
SS	STAINLESS STEEL
SSHX	STEAM TO STEAM HEAT EXCHANGER
SSR	SOLID SEPARATOR
ST	STEAM TRAP
SUH	STEAM UNIT HEATER
SV	STEAM PRESSURE REDUCING VALVE
SVS	STEAM VENT SILENCER
SW	SOFT WATER
SWHX	STEAM TO WATER HEAT EXCHANGER
T&PCV	TEMPERATURE AND PRESSURE CONTROL VALVE
TAB	TESTING, ADJUSTING, BALANCE
TD	TEMPERATURE DIFFERENCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TG	TRANSFER GRILLE
TP	TRAP
TR	TOP REGISTER
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TU	TERMINAL UNIT
TWU	THRU-WALL UNIT
UC	UNDERCUT
UC	UNIT COOLER
UH	UNIT HEATER
U	UNDERWRITERS LABORATORY
URV	UPBLAST UNIT VENTILATOR
V	VALVE
VAF	VANE-AXIAL FAN
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER (MANUAL, OPPOSED BLADE)
VFD	VARIABLE FREQUENCY DRIVE
VHA	VETERANS HEALTH ADMINISTRATION
VI	VIBRATION ISOLATOR
VP	VACUUM PUMP
VPS	VARIABLE PRIMARY SYSTEM
VR	VACUUM (STEAM CONDENSATE) RETURN
VSD	VARIABLE SPEED DRIVE
VUH	VERTICAL UNIT HEATER
W	WATTS
WAG	WASTE ANESTHESIA GAS
wb	WET-BULB (TEMPERATURE)
WC	WATER COOLED
WCCH	WATER COOLED CHILLER
WCCU	WATER COOLED CONDENSING UNIT
WCHP	WATER COOLED HEAT PUMPS
WCPU	WATER COOLED PACKAGED UNIT
WEF	WALL EXHAUST FAN
WF	WATER FILTER
WFCV	WATER FLOW CONTROL VALVE
WFM	WATER FLOWMETER
WFMD	WATER FLOW MEASURING DEVICE
WG	WATER GAUGE
WPD	WATER SIDE PRESSURE DROP
WSHP	WATER SOURCE HEAT PUMP
YR	YEAR

DRAWING SYMBOLS

- CALLOUT (ENLARGED VIEW): 2 / PP105 — DETAIL NUMBER; DRAWING NUMBER WHERE DRAWN
- SECTION: 2 / PP105 — SECTION LETTER; DRAWING NUMBER WHERE DRAWN
- EQUIPMENT TAG: 26 - P 2 — BUILDING NO. WHERE EQUIPMENT IS LOCATED; EQUIPMENT ABBREVIATION (PUMP); PUMP NO. 3 IN BUILDING NO. 26; TYPICAL UNIT NUMBER
- EQUIPMENT TAG: 26 - P 2 2 — BUILDING NO. WHERE EQUIPMENT IS LOCATED; ITEM (TERMINAL UNIT SHOWN); SERVED BY AIR HANDLER UNIT NO. 1; ITEM NUMBER (TERMINAL UNIT NO. 1)
- RISER TAG: SAN 1 — RISER SYSTEM; RISER NUMBER

DUCTWORK SYMBOLS

- UP DN — SUPPLY DUCT
- UP DN — EXHAUST DUCT
- UP DN — RETURN DUCT
- ROUND AND SQUARE 4-WAY CEILING DIFFUSERS
- SQUARE 3-WAY CEILING DIFFUSERS
- SQUARE 2-WAY CEILING DIFFUSERS
- SQUARE 1-WAY CEILING DIFFUSERS
- LINEAR SLOT DIFFUSER
- SUPPLY TOP REGISTER OR GRILLE (WALL TYPE)
- EXHAUST OR RETURN CEILING REGISTER OR GRILLE
- EXHAUST OR RETURN BOTTOM REGISTER OR GRILLE (WALL TYPE)
- EXHAUST OR RETURN REGISTER OR TOP GRILLE (WALL TYPE)
- VANED ELBOW & AIR SPLIT TYPE DUCT TAKE-OFF
- R — INCLINED RISE, IN DIRECTION OF AIR FLOW
- D — INCLINED DROP, IN DIRECTION OF AIR FLOW
- LIMIT OF DEMOLITION
- CONNECT NEW DUCT TO EXISTING DUCT
- FC — FLEXIBLE CONNECTION, EQUIPMENT, VIBRATION OR SEISMIC
- VANED ELBOW
- VANED ELBOW (SHORT RADIUS)
- STANDARD RADIUS ELBOW (LONG RADIUS)
- DUCT MOUNTED COIL (HOT WATER OR STEAM COIL)
- DUCT MOUNTED COIL (ELECTRIC)
- 10x8 — NEW DUCT (INSIDE DIMENSIONS: WIDTH x DEPTH)
- EXISTING DUCT TO REMAIN
- EXISTING DUCT TO BE REMOVED
- LOUVER (SPECIFIED IN ARCHITECTURAL SECTION)
- FLEXIBLE DUCTWORK (INSULATED)
- DUCT WITH SOUND LINING
- VD — MANUAL VOLUME DAMPER
- SD — SMOKE DAMPER
- FD — FIRE DAMPER
- FSD — FIRE SMOKE DAMPER
- BDD — BACK DRAFT DAMPER
- POINT OF CHANGE IN DUCT CONSTRUCTION BY STATIC PRESSURE CLASS. THE NUMBER ASSIGNS PRESSURE CLASS (IN. OF WATER) WHICH WILL ACCOMMODATE MAXIMUM OPERATING PRESSURE IN THE DUCT SUBSECTION. THE SYMBOL CONTINUES THE ASSIGNMENT UNTIL THE DUCT TERMINATES OR ANOTHER SYMBOL APPEARS. AN "N" SUPERSCRIPT INDICATES NEGATIVE PRESSURE.
- AUTOMATIC CONTROLLER DAMPER MODULATING
- AUTOMATIC CONTROLLER DAMPER TWO POSITION
- STAINLESS STEEL DUCT
- MANUAL SPLITTER DAMPER
- S SUPPLY — STANDARD BRANCH SUPPLY OR RETURN, NO SPLITTER (45° TAP)
- R RETURN

ISSUE FOR BID	06/28/2024
ISSUED FOR BID	10/23/2023
ISSUED FOR BID	04/21/2023
Revisions:	Date:

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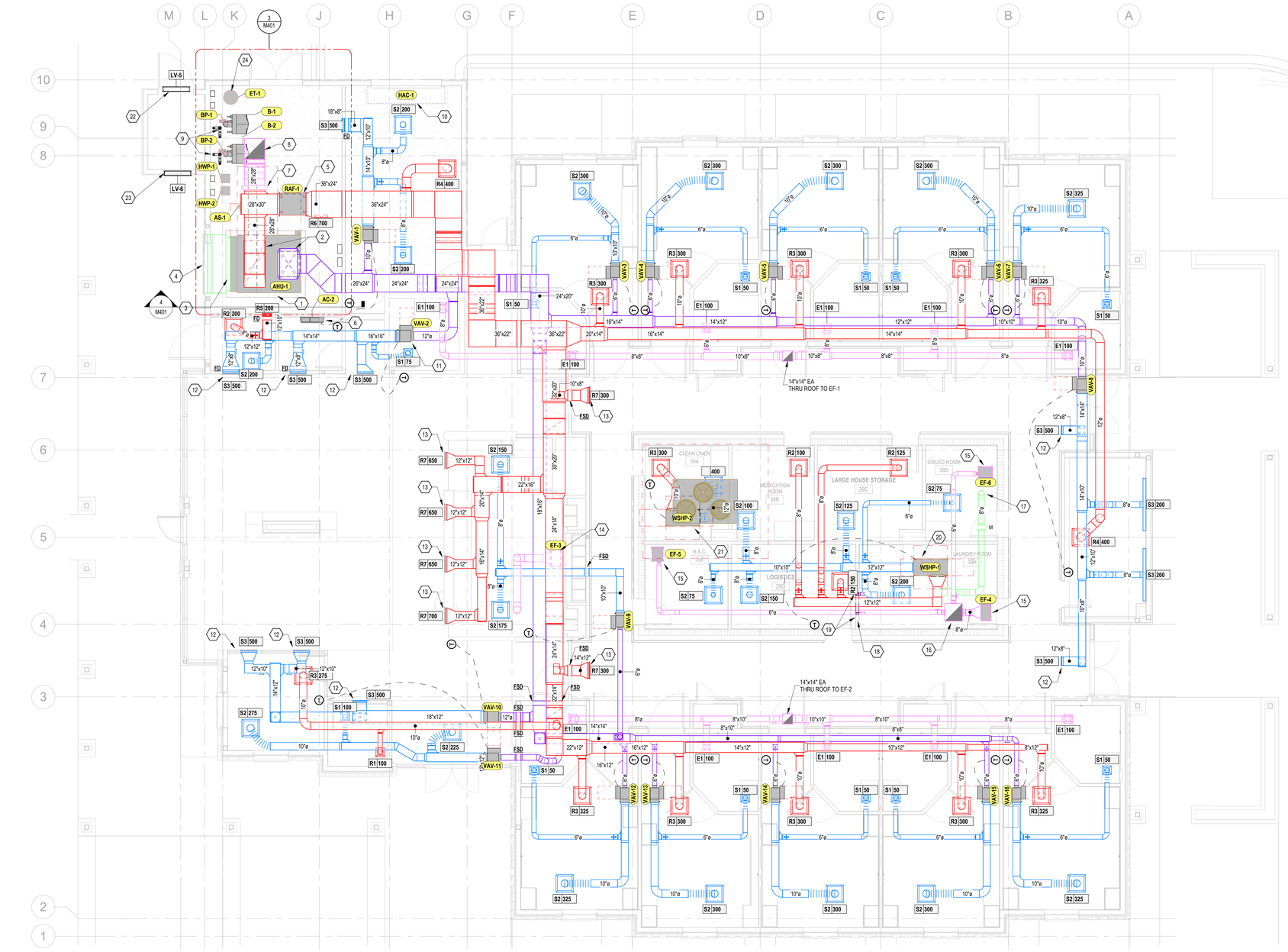
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL SYMBOLS & LEGENDS
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	674-201
Building Number	28
APPROVING OFFICIAL:	COR: MR. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	MM
Drawing Number	M002

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VA FORM 08 - 6231



1 LEVEL 1 HVAC DUCT PLAN
SCALE: 3/16" = 1'-0"

GENERAL NOTES

1. ALL DUCTWORK TO BE INSULATED. INTERIOR DUCTWORK REQUIRES MIN. R-6 INSULATION; REFERENCE SPECIFICATION #23 07 00 FOR DETAILS.
2. FOR HIGH WALL MINI-SPLIT UNIT, PROVIDE SECONDARY DRAIN PAIN WITH OVER FLOW SENSORS, MINIMUM 1" DEEP. ATTACH TO WALL BELOW UNIT.
3. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS. INSTALL TURNING VANES IN ALL 90 DEGREE RECTANGULAR DUCTWORK ELBOWS.
4. COORDINATE EXACT ROUTING OF ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION OF WORK.
5. MECHANICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION AND ROUTING OF DUCTWORK WITH REFLECTED CEILING PLANS AND ELECTRICAL LIGHTING LAYOUT.
6. ALL MECHANICAL EQUIPMENT REQUIRING ACCESS THAT IS LOCATED ABOVE GYP. BOARD OR OTHERWISE INACCESSIBLE CEILING SHALL BE PROVIDED WITH A CEILING ACCESS PANEL SUPPLIED AND INSTALLED BY THE GENERAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF THESE ACCESS PANELS WITH THE GENERAL CONTRACTOR.
7. ALL MEDIUM PRESSURE DUCT RUNOUTS TO INDIVIDUAL VAV BOXES SHALL BE THE SAME AS VAV BOX INLET SIZE UNLESS NOTED OTHERWISE. THE LOW PRESSURE DUCT IMMEDIATELY DOWNSTREAM OF THE VAV BOX SHALL BE THE SAME SIZE AS THE DISCHARGE OF THE VAV BOX UNLESS NOTED OTHERWISE. IF NOTED DIFFERENT THAN DISCHARGE, PROVIDE TRANSITION.
8. PROVIDE BALANCE DAMPERS IN SUPPLY, RETURN, AND EXHAUST DUCTS AT ALL TAKE-OFFS TO INDIVIDUAL DIFFUSERS, GRILLES, AND REGISTERS. IF A SINGLE DIFFUSER IS SERVED BY A DEDICATED VAV BOX THEN THE BALANCE DAMPER AT THE TAKE-OFF MAY BE OMITTED.
9. ALL DUCT DIMENSIONS SHOWN ARE NET CLEAR INSIDE DIMENSIONS. ALL DUCT RUNOUTS TO INDIVIDUAL DIFFUSERS, GRILLES AND REGISTERS SHALL BE THE SAME AS THE DIFFUSER, GRILLE, REGISTER NECK SIZE UNLESS NOTED OTHERWISE.
10. CONTRACTOR IS RESPONSIBLE FOR FIRE STOPPING AT ALL MECHANICAL PENETRATIONS OF FIRE AND SMOKE RATED STRUCTURES, FLOORS AND PARTITIONS. REF ARCH PLANS FOR LOCATION OF ALL RATED STRUCTURES.
11. PROVIDE FIRE AND SMOKE DAMPERS FOR ALL DUCT PENETRATIONS THRU FIRE AND SMOKE RATED ASSEMBLIES.
12. THERMOSTATS TO BE MOUNTED 48" AFF.

KEY NOTES

NO.	DESCRIPTION
1	PROVIDE AIR HANDLING UNIT EQUIPPED WITH VFD. INSTALL ON 4 INCH CONCRETE PAD.
2	TOP SUPPLY DISCHARGE AND RETURN AIR DUCT. PROVIDE WITH FLEX CONNECTIONS AND TRANSITION DUCT. SEE ELEVATION VIEW.
3	OUTSIDE AIR DUCT TO AHU.
4	72"X54" OSA DRAINABLE STATIONARY LOUVER.
5	INLINE RETURN AIR FAN, SUSPENDED FORM STRUCTURE. PROVIDE TRANSITION UPSTEAM AND DOWNSTREAM OF THE UNIT.
6	WALL MOUNTED (HIGH WALL) AIR CONDITIONING UNIT. INSTALL 7 FEET AFF. PROVIDE WITH CONDENSATE PUMP.
7	RELIEF AIR MOTORIZED DAMPER.
8	28"x28" RELIEF DUCT UP TO ROOF. CONNECT TO RELIEF HOOD.
9	PROVIDE FLUE VENT AND COMBUSTION AIR DUCT EXTENDED UP THRU ROOF, TERMINATING WITH MANFACTURER'S CONCENTRIC VENT KIT. REFER TO MANUFACTURER'S INSTRUCTIONS FOR SIZING AND MATERIAL.
10	HEATED AIR CURTAIN ABOVE ROLL-UP DOOR. REFER TO MANFACTURER'S INSTRAUCTIONS FOR INSTALLATION. INSTALL 1 INCH ABOVE DOOR.
11	VARIABLE VOLUME AIR TERMINAL UNIT SUSPENDED FROM STRUCTURE. PROVIDE REQUIRED SERVICE CLEARNCE IN FRONT OF CONTROL BOX. TYPICAL.
12	SIDE WALL SUPPLY DIFFUSER. INSTALL AT 10FT AFF.
13	SIDE WALL RETURN GRILLE. INSTALL 14FT AFF.
14	KITCHEN CEILING MOUNTED EXHAUST FAN. ROUTE 10" ROUND DUCT UP THRU ROOF AND TERMINATE WITH ROOF CAP.
15	CEILING MOUNTED EXHAUST FAN SUSPENDED FROM STRUCTURE. REFER TO SCHEDULE AND DETAILS.
16	ROUTE 10"X10" RECT. DUCT UP THRU ROOF. INSTALL FEMA/ICC 500 RATED LOUVER LV-2 IN CONCRETE ROOF. TERMINATE WITH ROOF CAP.
17	8" DA ROUND DUCT UP THRU ROOF. INSTALL LV-3 IN CONCRETE SLAB ROOF. TERMINATE WITH ROOF CAP. INSTALL MOTORIZED DAMPER AND BALANCING DAMPER IN AN ACCESSIBLE LOCATION.
18	ROUTE 4" DRYER EXHAUST ROUND DUCT UP THRU ROOF. INSTALL LV-4 IN CONCRETE ROOF. TERMINATE WITH ROOF CAP.
19	UL LISTED RECESSED DRYER VENT BOX.
20	WSHP-1: WATER SOURCE HEAT PUMP SUSPENDED FROM STRUCTURE. CONTRACTOR TO FURNUSH GEOTHERMAL WELL (BOREHOLE) SIZED BASED ON STORM SHELTER LOADS. PROVIDE ALL NECCESSARY FIELD EQUIPMENT INCLUDING PUMP, PIPING, EXPANSION TANK, AND CONTROLS. COORDINATE EXACT LOCATION OF BOREHOLE WITH CIVIL. COORDINATE WITH ELECTRICAL. REFER TO SPECIFICATIONS.
21	WSHP-1: WATER SOURCE HEAT PUMP SUSPENDED FROM STRUCTURE. CONTRACTOR TO FURNUSH GEOTHERMAL WELL (BOREHOLE) SIZED BASED ON STORM SHELTER LOADS. PROVIDE ALL NECCESSARY FIELD EQUIPMENT INCLUDING PUMP, PIPING, EXPANSION TANK, AND CONTROLS. COORDINATE EXACT LOCATION OF BOREHOLE WITH CIVIL. COORDINATE WITH ELECTRICAL. REFER TO SPECIFICATIONS.
22	36"x18" LOUVER ON THE DOOR, THE LOUVER SHALL LOCATE WITHIN 1" ABOVE THE FLOOR.
23	36"x18" LOUVER ON THE WALL, THE LOUVER SHALL LOCATE WITHIN 1" UNDER THE CEILING.
24	COORDINATE THE LOCATION OF THE EXPENSION TANK WITH FIRE PROTECTION RISER LOCATION.

STORM SHELTER REQUIREMENTS
COMMUNITY TYPE <50 OCCUPANT (MIN 2 HR)
ICC 500 2020

1. PENETRATIONS OF THE SHELTER ENVELOPE SHALL NOT DEGARDE THE STRUCTURAL INTEGRITY OF THE STORM SHELTER ENVELOPE.
2. PENETRATIONS LARGER THAN 3-1/2 SQUARE INCHES (RECTANGULAR) AND 2-1/16 INCHES (ROUND) SHALL BE PROTECTED.
3. MECHANICAL PENETRATIONS THRU THE SHELTER SHALL BE PROTECTED IN ACCORDANCE WITH ICC 500 SECTION 306.3.
4. ALL PENETREATIONS TO ADJACENT SPACES SHALL HAVE 2-HR RATED OUT OF WALL FIRE DAMPERS.
5. ALL INTAKE/EXHAUST LOUVERS SHALL BE STORM/FEMA RATED.

PLAN
TRUE
SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
ISSUED FOR BID	10/23/2023
ISSUED FOR BID	04/21/2023
Revisions:	Date:

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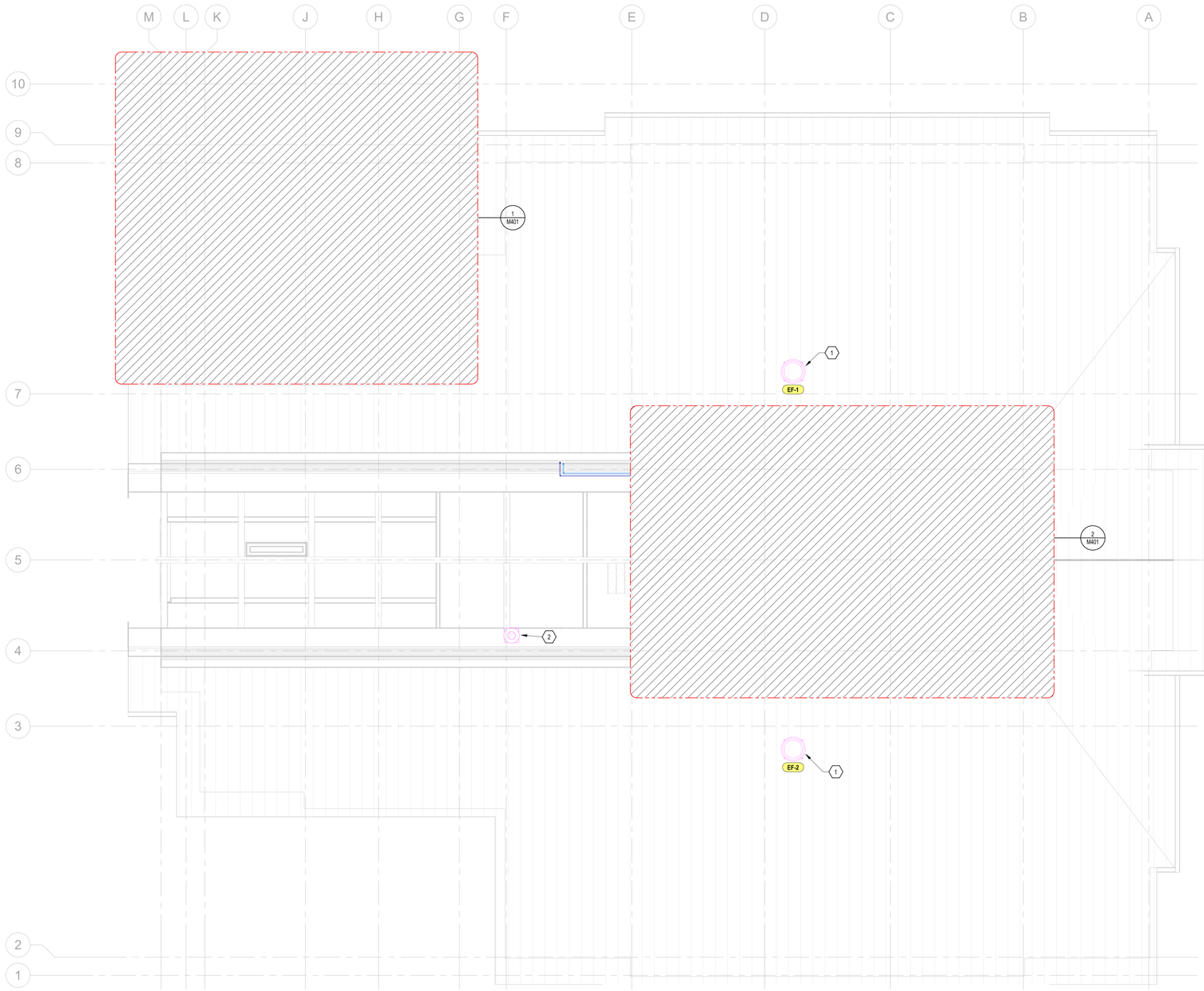
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Drawing Title: HVAC DUCT PLAN
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 674-201
Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN
Location: BIG SPRING, TX
FULLY SPRINKLERED
Issue Date: 06/28/2024
Checked: LRL
Drawn: MM
Drawing Number: MH101

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1 LEVEL 2 HVAC ROOF PLAN
SCALE: 3/16" = 1'-0"

KEY NOTES

NO.	DESCRIPTION
1	ROOF MOUNTED UPBLAST EXHAUST FAN. PROVIDE WITH ROOF CURB.
2	EF-3 ROOF CAP.

PLAN
TRUE
SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
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Revisions:	Date:

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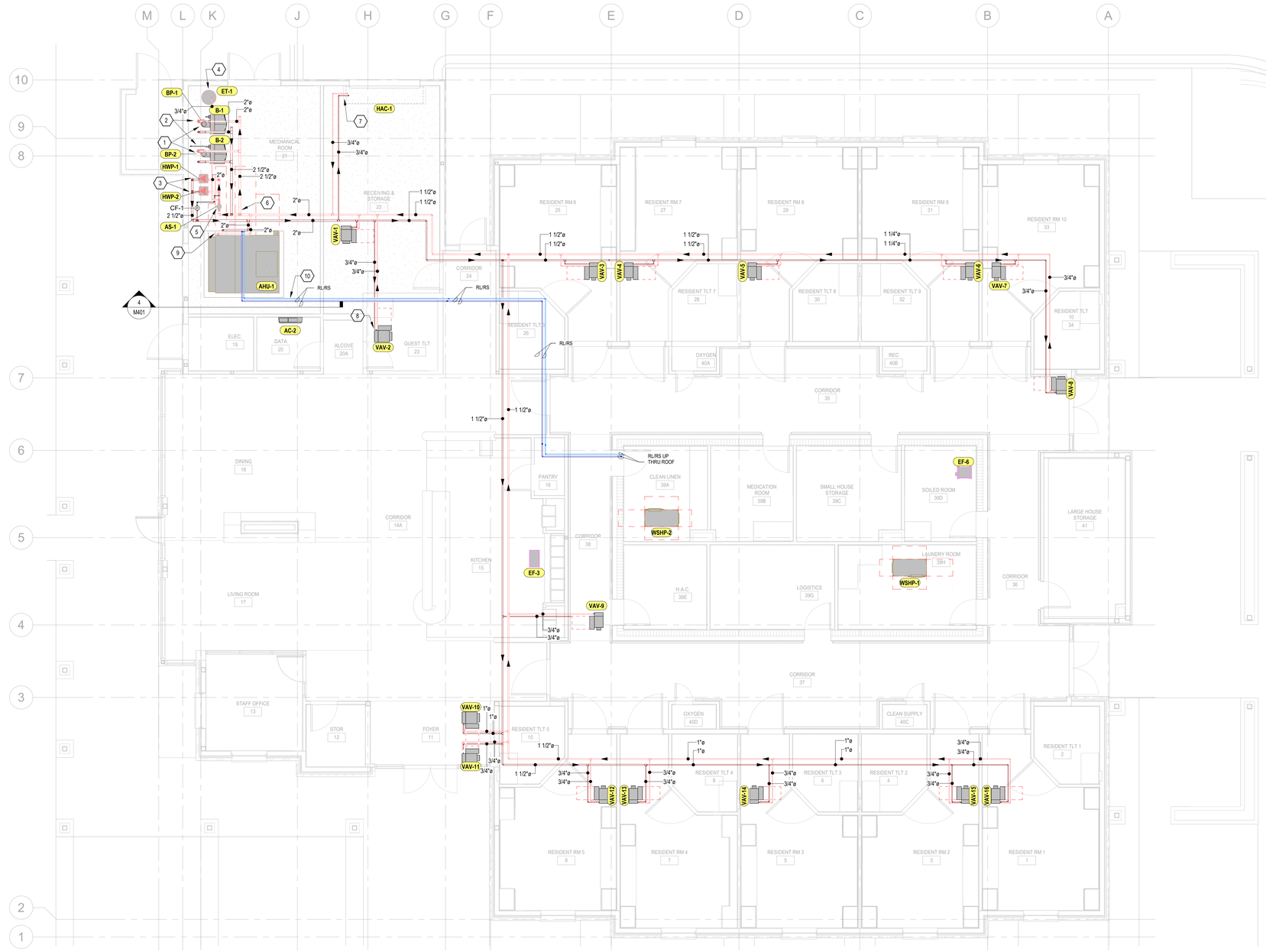
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Drawing Title: HVAC ROOF PLAN
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 674-201
Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: BIG SPRING, TX
Issue Date: 06/28/2024
Checked: LRL
Drawn: TEB
Drawing Number: MH102

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KEY NOTES

NO.	DESCRIPTION
1	PROVIDE HYDRONIC BOILER ON 4 INCH CONCRETE PAD. REFER TO HEATING HOT WATER FLOW DIAGRAM FOR ADDITIONAL INFORMATION ON PIPING SCHEMATIC. REFER TO BOILER DETAIL AND EQUIPEMENT SCHEDULE.
2	PROVIDE INLINE PUMP FOR BOILER PRIMARY LOOP, INSTALLED IN VERTICAL AND SUSPENDED FROM STRUCTURE. REFER TO DETAILS AND SCHEDULES.
3	END SUCTION BASED MOUNTED PUMPS FOR SECONDARY HEATING HOT WATER LOOP, ON 4" CONCRETE PAD. PROVIDE WITH VFD. REFR TO DETAILS AND SCHEDULES.
4	BLADDER TYPE EXPANSION TANK ON 4" CONCRETE PAD. REFER TO DETAILS AND SCHEDULES.
5	AIR SEPERATOR SUSPENDED FROM STRUCTURE.
6	CLOSELY SPACED TEES. MAX 12"
7	3/4" HWS&R TO HEATED AIR CURTAIN. REFER TO MANUFACTURER'S INSTALLATION.
8	PROVIDE VARIABLE VOLUME TERMINAL UNIT WITH HOT WATER COIL. SUPPORT UNIT FROM STRUCTURE. REFER RO DETAILS AND SCHEDULES. TYPICAL.
9/10	1 1/2" HWS&R FOR AIR HANDLING UNIT HOT WATER CONNECTION. REFER TO DETAILS.
10	REFRIGERANT PIPING. REFER TO MANUFACTURER'S INSTRUCTIONS FOR SIZING AND MAX. LENGTH TO CONDENSING UNIT.

1 LEVEL 1 HVAC PIPING PLAN

SCALE: 3/16" = 1'-0"

PLAN NORTH TRUE

SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
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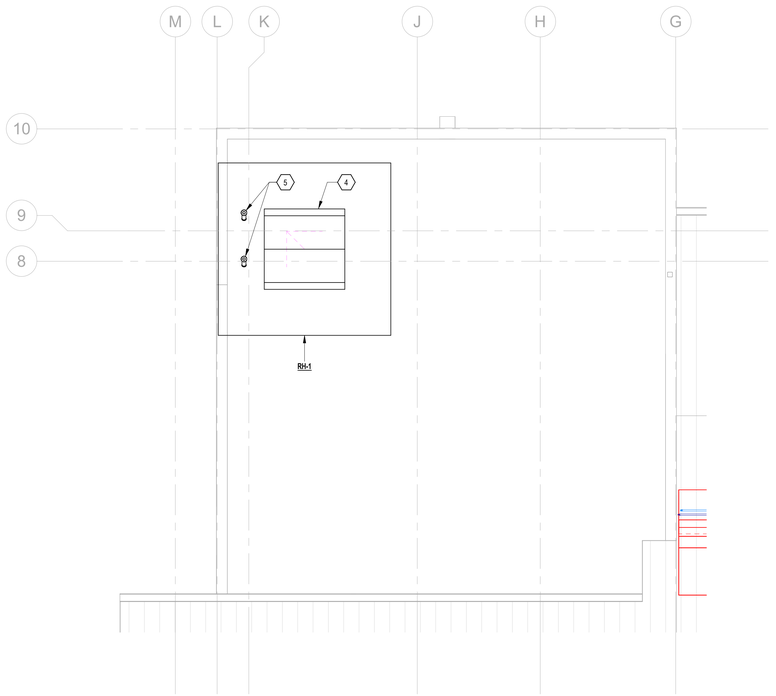
VA U.S. Department of Veterans Affairs

Drawing Title	HVAC PIPING PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	674-201
Building Number	28
APPROVING OFFICIAL:	COR: MR. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	MM
Drawing Number	MP101

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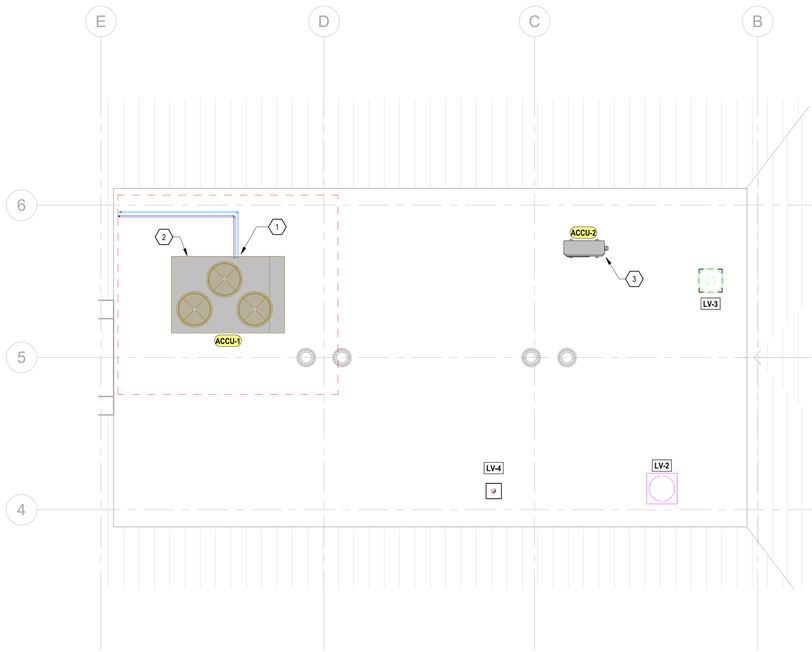


1 ENLARGED LEVEL 2 MECHANICAL ROOM ROOF PLAN

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

0' 1' 2' 3' 4' 5' 10' 15' 20'

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

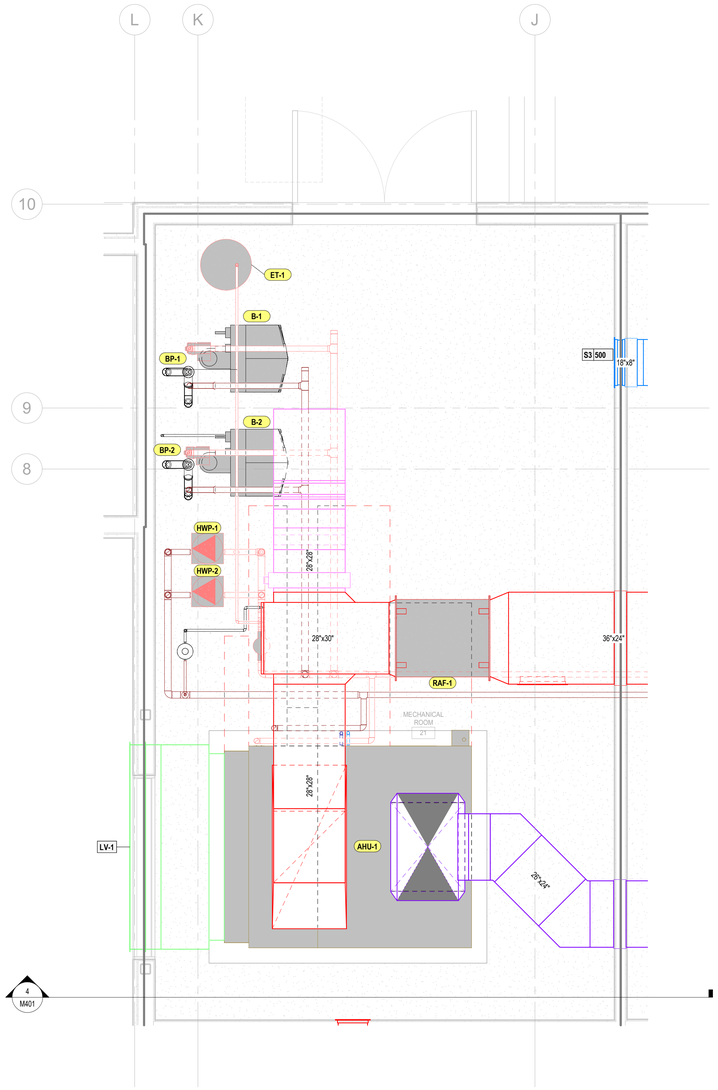


2 ENLARGED LEVEL 2 LOWER ROOF PLAN

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

0' 1' 2' 3' 4' 5' 10' 15' 20'

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



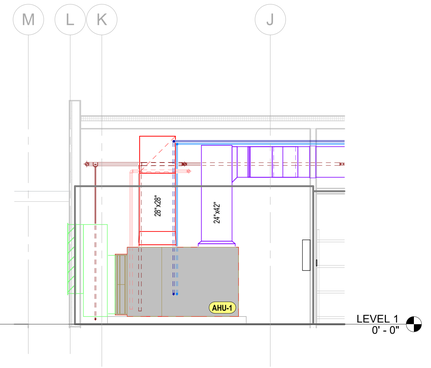
3 ENLARGED MECHANICAL ROOM PLAN

SCALE: 1/2" = 1'-0"

6" 1'-6" 2'-6" 3'-6" 4'-6"

0' 1'-0" 2'-0" 3'-0" 4'-0" 5'-0" 7'-6" 10'

SCALE: 1/2" = 1'-0"



4 MECHANICAL ROOM SECTION

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

0' 1' 2' 3' 4' 5' 10' 15' 20'

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

KEY NOTES

NO.	DESCRIPTION
1	REMOTE AIR COOLED CONDENSING UNIT. INSTALL LEVEL ON EQUIPMENT SUPPORT.
2	ROUTE LIQUID AND VAPOR TUBES THRU WALL DOWN IN ATTIC SPACE TO AHU DX COIL. SIZE REFRIGERANT LINES PER MANUFACTURER'S INSTRUCTIONS. PROVIDE INSULATION.
3	AIR COOLED CONDENSIGN UNIT SERVING IT ROOM WALL MOUNTED AC UNIT.
4	RELIEF AIR ROOF CAP.
5	3" CONCENTRIC VENT FROM BOILERS BELOW.

PLAN

N

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ISSUED FOR BID	10/23/2023
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Revisions:	Date:

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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: ENLARGED FLOOR PLANS

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 674-201

Building Number: 28

APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN

FULLY SPRINKLERED

Location: BIG SPRING, TX

Issue Date: 06/28/2024

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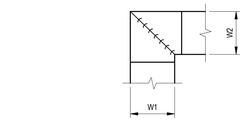
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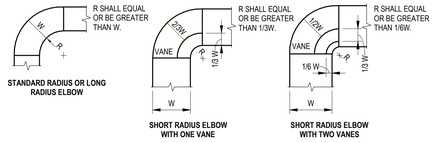
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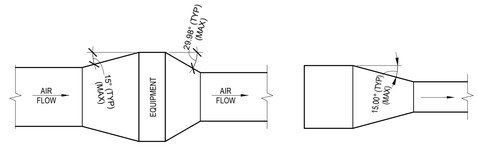
NOTES:
1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF "W" DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2" RADIUS, 1-1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN "W" EQUALS "W2" AND "W1" IS GREATER THAN 20" VANES SHALL BE DOUBLE VANE TYPE.

1 DUCTWORK SQUARE VANE ELBOWS
SCALE: NONE



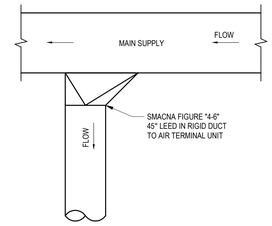
NOTES:
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

2 DUCTWORK RADIUS ELBOWS
SCALE: NONE



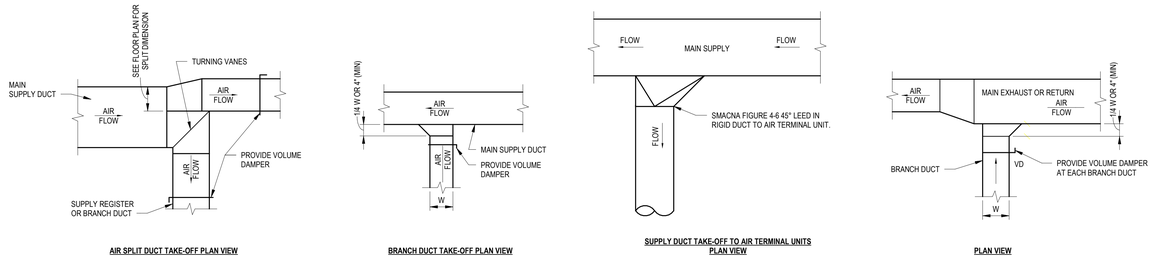
NOTE:
UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

3 DUCTWORK TRANSITIONS (WITH EQUIPMENT MOUNTED IN DUCT)
SCALE: NONE

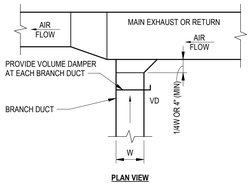


PLAN VIEW

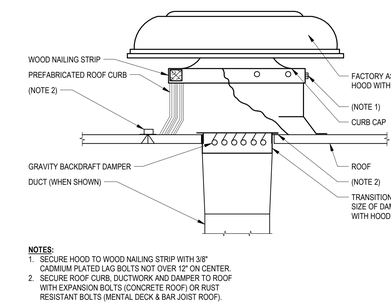
4 ALTERNATE SUPPLY DUCT TAKEOFF - AIR TERMINAL UNITS
SCALE: NONE



5 SUPPLY DUCTWORK TAKE-OFFS
SCALE: NONE



6 EXHAUST OR RETURN BRANCH DUCTWORK
SCALE: NONE



NOTES:
1. SECURE HOOD TO WOOD NAILING STRIP WITH 3/8" CADMIUM PLATED LAG BOLTS NOT OVER 12" ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (MENTAL DECK & BAR JOIST ROOF).

7 LOW SILHOUETTE RELIEF HOOD
SCALE: NONE

NOTES:
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

8 VOLUME DAMPER DETAIL
SCALE: NONE

HANGER STRAPS OR RODS			
MAX. DUCT Ø (in.)	QUANTITY/SIZE (in.)	MAX. LOAD (LBS)	MAX. SPACING (in.)
26	(1) 1 x 22 GA STRAP	260	144
36	(1) 1 x 18 GA STRAP	420	144
50	(1) 1 x 16 GA STRAP	700	144
60	(2) 3/8Ø RODS	1,320	144
84	(2) 1/2Ø RODS	2,500	144

NOTE:
TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

LOAD RATED FASTENERS
BAND OF SAME SIZE AS HANGER STRAP
50" Ø & UNDER
HANGER RODS
BAND
OVER 50"Ø

9 ROUND DUCT HANGERS
SCALE: NONE

NOTES:
1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 3/8" CADMIUM PLATED LAG BOLTS NOT OVER 12" ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
3. RUN ELECTRICAL LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

10 POWER TYPE ROOF VENTILATOR
SCALE: NONE

NOTES:
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
3. SEE SMACNA 2005, FIGURE 9-15.

11 ACCESS PANEL & DOOR DETAIL
SCALE: NONE

12 FLEXIBLE DUCT CONNECTIONS
SCALE: NONE

NOTES:
1. RIGID STRAIGHT TERMINAL UNIT INLET LENGTH SHALL BE A MINIMUM OF 3 TIMES THE DIAMETER OF INLET.
2. A FLEXIBLE AIR DUCT CONNECTOR IS NOT MANDATORY FOR INLET TO THIS BOX, BUT ALLOWED TO ACCOMMODATE MINOR OFFSETS. MAXIMUM LENGTH 3'-0".
3. A BRANCH DUCT SERVING AN INDIVIDUAL BOX MAY BE THE SAME SIZE AS THE BOX INLET, PROVIDED THE EQUIVALENT LENGTH OF THE BRANCH DUCT, AS SHOWN, DOES NOT EXCEED 10 FEET (3 METERS). FOR LONGER LENGTHS, INCREASE THE DUCT SIZE AND PROVIDE A DUCT TRANSITION TO MAINTAIN THE DUCT STATIC PRESSURE DROP AT OR BELOW 0.2"/100'.
4. FLEXIBLE AIR DUCT CONNECTORS, WHEN USED FROM TERMINAL UNIT SUPPLY AIR DUCT TO DIFFUSER, SHALL NOT EXCEED 5'-0". USE RIGID ELBOWS FOR CHANGE OF DIRECTION GREATER THAN 45°.
5. COMPONENT ARRANGEMENT MAY VARY BY MANUFACTURER. PROVIDE INSULATION W/VAPOR BARRIER FOR CONNECTING DUCT SECTIONS.
6. USE OF THE FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

13 DUCT CONNECTION - AIR TERMINAL UNITS
SCALE: NONE

NOTE:
THE USE OF FLEXIBLE AIR DUCT CONNECTORS ARE NOT PERMITTED FOR THE DEDICATED AHU SERVING THE SURGICAL SUITE.

14 FLEXIBLE AIR DUCT CONNECTOR
SCALE: NONE

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ISSUED FOR BID	10/23/2023
ISSUED FOR BID	04/21/2023
Revisions:	Date:

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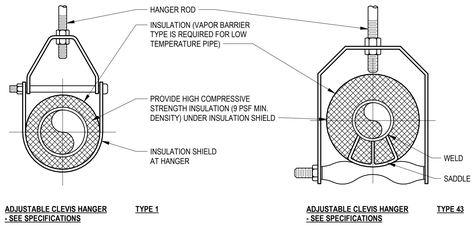
Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL DETAILS
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	674-201
Building Number	28
APPROVING OFFICIAL:	COR: MR. JOSHUA JUNKIN
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	MM
Drawing Number	M501

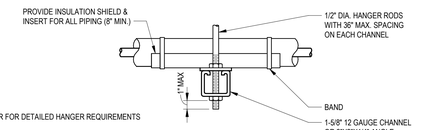
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ADJUSTABLE CLEVIS HANGER - SEE SPECIFICATIONS **TYPE 1**

ADJUSTABLE CLEVIS HANGER - SEE SPECIFICATIONS **TYPE 43**



NOTE:
SEE SPECIFER FOR DETAILED HANGER REQUIREMENTS

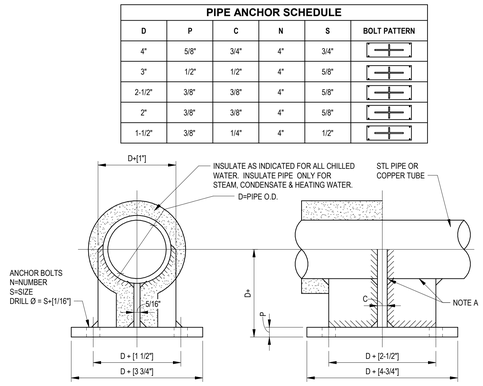
SIDE VIEW TRAPEZE HANGER FOR UP TO 1000 LB UNIFORM LOAD

MAXIMUM PIPE/TUBING SUPPORT SPACING

NOMINAL SIZE (in.)	THRU 3/4	1	1-1/4	1-1/2	2	2-1/2	3	4	5	6	8	10	12	14	16	18	20	24
PIPE (ft.)	7	7	7	9	10	11	12	14	16	17	19	22	23	25	27	28	30	32
TUBING (ft.)	7	6	7	8	8	9	10	12	13	14	16	-	-	-	-	-	-	-

NOTE: FOR TRAPEZE HANGER TAKE SPACING OF SMALLEST SIZE ON TRAPEZE.

1 PIPE HANGERS
SCALE: NONE

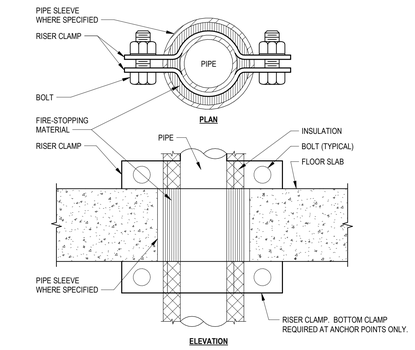


PIPE ANCHOR SCHEDULE

D	P	C	N	S	BOLT PATTERN
4"	5/8"	3/4"	4"	3/4"	
3"	1/2"	1/2"	4"	5/8"	
2-1/2"	3/8"	3/8"	4"	5/8"	
2"	3/8"	3/8"	4"	5/8"	
1-1/2"	3/8"	1/4"	4"	1/2"	

NOTE:
WHERE USED FOR COPPER TUBE OR PIPE, BRAZE TO FABRICATED STEEL ANCHOR.

2 SMALL PIPE ANCHOR (1-1/2" - 4")
SCALE: NONE

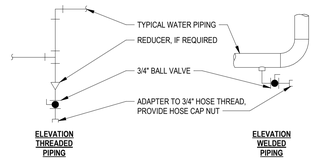


PLAN

ELEVATION

NOTES:
1. PROVIDE ANCHORS ONLY WHERE SHOWN ON DRAWINGS.
2. EXTEND SLEEVE ABOVE FLOOR WHERE SPECIFIED.

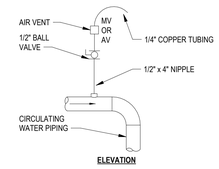
3 SUPPORT-ANCHOR FOR PIPE RISERS
SCALE: NONE



ELEVATION THREADED PIPING **ELEVATION WELDED PIPING**

TYPICAL CHILLED AND HOT WATER PIPING DRAIN VALVE CONNECTIONS

NOTES:
1. DRAIN ALL LOW POINTS AS INDICATED ABOVE.
2. WHERE SCALE POCKETS ARE SHOWN ON PIPE RISER DIAGRAMS AND/OR PLANS LOCATE DRAIN AT BOTTOM OF SCALE POCKET.

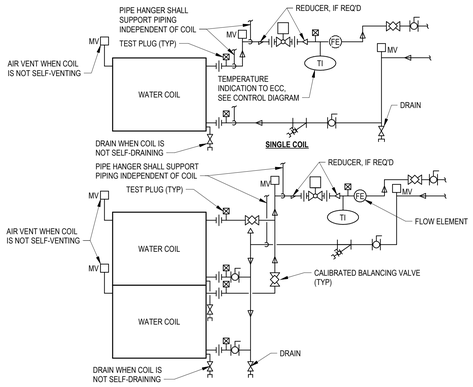


ELEVATION

TYPICAL MANUAL AIR VENT

NOTES:
1. VENT ALL HIGH POINTS INDICATED ABOVE.
2. IF AUTOMATIC AIR VENTS ARE USED, PIPE DISCHARGE TO DRAIN.

4 DRAIN VALVE & AIR VENT CONNECTIONS (HYDRONIC SYSTEMS)
SCALE: NONE

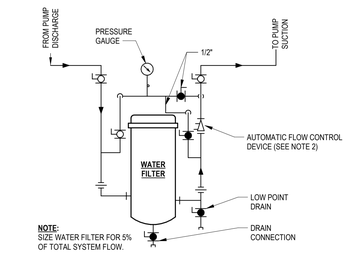


DOUBLE COIL

NOTES:
1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE. TYPE "H" FOR 4"Ø PIPE & SMALLER. TYPE "H-P" FOR 5"Ø PIPE & LARGER.
2. PIPING SHALL BE INSTALLED IN SUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS; NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALES, OR EQUIPMENT.
3. THE FLOW ELEMENT MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM AND DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

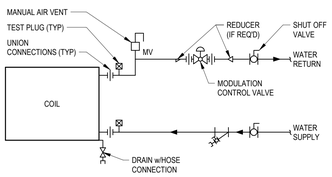
DESIGNER'S NOTE:
1. CONSIDER WHETHER WATER TEMPERATURE SENSOR AND FLOW ELEMENT ARE NECESSARY ON EVERY COIL. AS THIS CAN BECOME EXPENSIVE. OTHER CONTROL DEVICES (i.e., AIR SIDE TEMPERATURES AND AIR FLOW) MAY PROVIDE EQUALLY BENEFICIAL INFORMATION FOR TROUBLESHOOTING.
2. BALANCING VALVES MAYBE OMITTED IF REVERSE PIPING PROVIDED.

5 WATER COILS - PIPING CONNECTIONS
SCALE: NONE

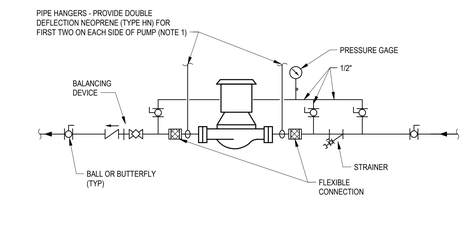


NOTE:
SIZE WATER FILTER FOR 5% OF TOTAL SYSTEM FLOW.

6 WATER FILTER - CLOSED LOOP HYDRONIC SYSTEM
SCALE: NONE

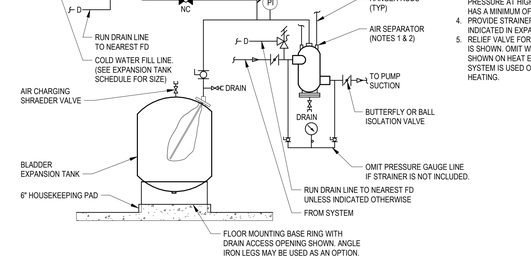


7 TERMINAL UNIT WATER COILS - PIPING CONNECTIONS
SCALE: NONE



NOTES:
1. SUPPORT PUMP FROM PIPING ONLY. DO NOT SUPPORT PUMP FROM MOTOR.

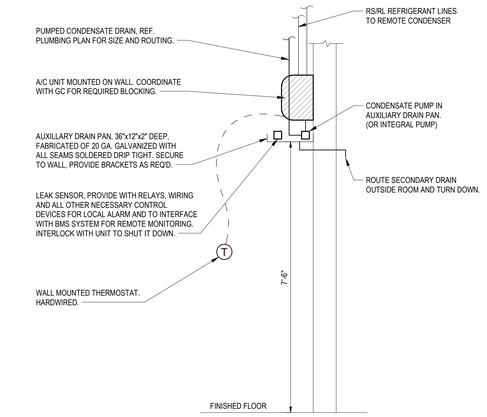
8 IN-LINE PUMPS - CONNECTIONS
SCALE: NONE



NOTES:
1. SEE EXPANSION TANK SYSTEM SCHEDULE FOR COMPONENT SIZES.
2. FOR HOT WATER SYSTEMS 2" AND SMALLER AND CHILLED WATER SYSTEMS USE IN-LINE AIR PURGER IN LIEU OF AIR SEPARATOR.
3. SET PRESSURE REDUCING VALVE SO PRESSURE AT HIGHEST POINT IN SYSTEM HAS A MINIMUM OF 4 PSIG.
4. PROVIDE STRAINER IN AIR SEPARATOR IF INDICATED IN EXPANSION TANK SCHEDULE.
5. RELIEF VALVE FOR CHILLED WATER SYSTEM IS SHOWN. OMIT WHEN RELIEF VALVE IS SHOWN ON HEAT EXCHANGER DETAIL AND SYSTEM IS USED ONLY FOR HOT WATER HEATING.

DESIGNER'S NOTE:
GATE VALVES SHALL BE INDICATED ON EITHER SIDE OF AIR SEPARATOR AS REQUIRED BY CLOSENESS OF VALVES SERVING ADJACENT EQUIPMENT. WHERE CHARGING OF TANK IS PROPOSED PROVIDE NECESSARY TAPPINGS. PROVIDE AND SHOW A LOW WATER ALARM ON CHARGED SYSTEMS TO INDICATE NO WATER IN TANK.

9 FLOOR-MOUNTED EXPANSION TANK - PIPING CONNECTIONS
SCALE: NONE



10 WALL-MOUNTED AC DETAIL
SCALE: NONE

Revisions:	Date:
ISSUE FOR BID	06/28/2024
ISSUED FOR BID	10/23/2023
ISSUED FOR BID	04/21/2023

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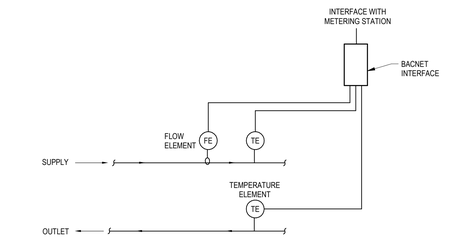
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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	MECHANICAL DETAILS
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	674-201
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	MM
Drawing Number	M502

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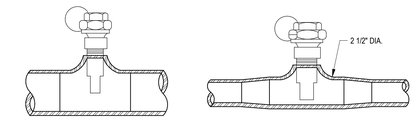


NOTE:
MAINTAIN UPSTREAM AND DOWNSTREAM DISTANCES RECOMMENDED BY METER MANUFACTURERS.

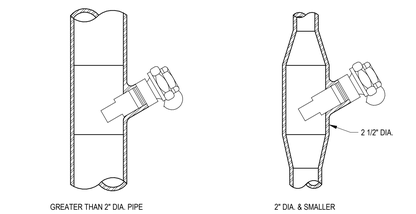
DESIGNER'S NOTE:
MODIFY DETAIL AS REQUIRED TO BE PROJECT SPECIFIC FOR THE TYPE OF METER BEING USED.

1 WATERFLOW MEASURING DEVICE DETAIL

SCALE: NONE



HORIZONTAL

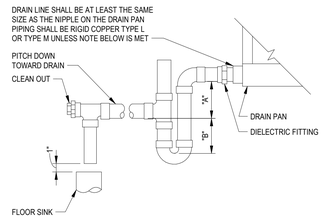


VERTICAL

NOTE:
PROVIDE THE APPROPRIATE WELL DEPTH TO HAVE
THE NECESSARY INSULATION STAND-OFF DISTANCE.

2 INSTALLATION OF THERMOMETER WELLS

SCALE: NONE



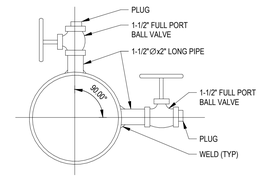
NOTE:
1. CPVC PIPE MAY BE USED ONLY IF APPROVED BY LOCAL VA AND IS INDOORS AND DOES NOT PASS THROUGH RATED BARRIERS.
2. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

UNIT TYPE	"A"	"B"
DRAW THRU	2" + "X"	"B"
BLOW THRU	1" (MIN)	"B"

** WHERE "X" = STATIC PRESSURE IN PAN*

3 AIR HANDLING UNIT DRAIN TRAP DETAIL

SCALE: NONE



NOTE:
1. PROVIDE IN CHILLED WATER MAIN AND IN CONDENSER WATER MAIN.
2. LOCATE PILOT TUBE TAPS 20 PIPE DIAMETERS DOWNSTREAM AND 10 PIPE DIAMETERS UPSTREAM FROM THE NEAREST PIPE FITTING.
3. EITHER TOP OR SIDE LOCATION. BOTH ARE NOT REQUIRED AT SAME LOCATION.

4 PITOT TEST CONNECTIONS

SCALE: NONE

Revisions:	Date:
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ISSUED FOR BID	04/21/2023

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Drawing Title	MECHANICAL DETAILS
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	674-201
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED
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AIR AND DIRT SEPARATOR SCHEDULE

TAG	LOCATION (ROOM) NO.	LOCATION (ROOM) NAME	SYSTEM/ SERVICE	SIZE (in.)	FLOW (GPM)	WATER PRESSURE DROP (FT)	WEIGHT (LBS)	NOTES
AS-1	21	MECHANICAL ROOM	HEATING HOT WATER	2 1/2"	140 GPM	3.00	63	1-6

NOTES:
1. CENTRIFUGAL TYPE WITH STRAINER.
2. CAST IRON BODY.
3. ASME CERTIFIED.
4. PROVIDE AUTOMATIC AIR SEPERATOR ANS DRAIN VALVE.
5. MAX WORKING PRESSURE 125 PSIG.
6. MAX OPERATING TEMPERATURE 350 °F.

EXPANSION TANK SCHEDULE

TAG	LOCATION (ROOM) NO.	LOCATION (ROOM) NAME	SYSTEM/ SERVICE	TYPE	SYSTEM VOLUME (APPROX)	SYSTEM TEMPERATURE RANGE (°F) MIN	SYSTEM TEMPERATURE RANGE (°F) MAX	VOLUME (GAL) TANK	VOLUME (GAL) ACCEPTANCE	WEIGHT (LBS)	NOTES
ET-1	21	MECHANICAL ROOM	HEATING HOT WATER	BLADDER	165.00 CF	50 °F	150 °F	10.00 CF	10.00 CF	123	1-5

NOTES:
1. DESIGNED AND CONSTRUCTED ACCORDING TO ASME SECTION VIII, DEV.1.
2. FULL ACCEPTANCE REPLACEABLE BUTYL BLADDER TYPE.
3. FACTORY PRE-CHARGED TO 12 PSI.
4. MAX WORKING PRESSURE 125 PSIG.
5. MAX DESIGN TEMPRATURE 240 °F.

HYDRONIC BOILER SCHEDULE

TAG	MFR	MODEL	TYPE	NATURAL GAS INFORMATION INPUT (MBH)	OUTPUT (MBH) HIGH	OUTPUT (MBH) LOW	EFF. (%)	MIN FLOW RATE	WATER CAP. (GAL)	FLOW (GPM)	PD (ft/h/d)	EWT	LWT	TURNDOWN RATIO	ELECTRICAL V/PH/Hz	ELECTRICAL AMP	VENT TYPE	VENT MAT'L	VENT SIZE	WEIGHT
B-1	LOCHINVAR	FTX400	CONDENSING	399	392	39.2	98	10	13	26	3	120	150	10	120/1/60	12	CONCENTRIC	PVC/CPVC/PP	4	542
B-2	LOCHINVAR	FTX400	CONDENSING	399	392	39.2	98	10	13	26	3	120	150	10	120/1/60	12	CONCENTRIC	PVC/CPVC/PP	4	542

NOTES:
1. PROVIDE WITH CONCENTRIC VERTICAL VENT KIT (CAT. IV). REFER TO MANUFACTURER'S INSTRUCTION FOR SIZING AND INSTALLTION.
2. REFER TO MANUFACTURER'S INSTRUCTION FOR SERVICE CLEARANCES.
3. PROVIDE WITH FACTORY CONDENSATE NEUTRALIZATION KIT.
4. VARIABLE-SPEED BOILER CIRCULATOR (BOILER PRIMARY LOOP PUMP).
5. WIRELESS OUTDOOR TEMPERATURE SENSOR.
6. ASME RELIEF VALVE.
7. CONNECT TO CAMPUS BMS.

PUMP SCHEDULE

TAG	LOCATION (ROOM) NO.	LOCATION (ROOM) NAME	SYSTEM/ SERVICE	TYPE	CIRCULATING FLUID FLOW (GPM)	CIRCULATING FLUID NPSH AVAILABLE	CIRCULATING FLUID HEAD	MOTOR NOMINAL HP	MOTOR RPM (MAX)	MOTOR V/PH/HZ	NOTES
BP-1	21	MECHANICAL ROOM	HEATING HOT WATER	IN-LINE	34	-	15	0.4	3350	120/1/60	1
BP-2	21	MECHANICAL ROOM	HEATING HOT WATER	IN-LINE	34	-	15	0.4	3350	120/1/60	1
HWP-1	21	MECHANICAL ROOM	HEATING HOT WATER	IN-LINE	26	10.4	45	1.5	3600	208/1/60	1,2
HWP-2	21	MECHANICAL ROOM	HEATING HOT WATER	IN-LINE	26	10.4	45	1.5	3600	208/1/60	1,2

NOTES:
1. PROVIDE WITH VFD.
2. PROVIDE WITH SUCTION DIFFUSER.

WATER SOURCE HEAT PUMP SCHEDULE

TAG	LOCATION (ROOM) NO.	LOCATION (ROOM) NAME	SYSTEM/ SERVICE	AIRFLOW (CFM) TOTAL	AIRFLOW (CFM) OUTSIDE	ESP ("WG)	COOLING EER	COOLING CAPACITY (MBH) TOTAL (MIN)	COOLING CAPACITY (MBH) SENSIBLE (MIN)	COOLING TEMPERATURE (°F) LVG AIR DB	COOLING TEMPERATURE (°F) LVG AIR WB	COOLING TEMPERATURE (°F) EWT	HEATING CAPACITY (BTUH)	HEATING TEMPERATURE DB (°F) EAT	HEATING TEMPERATURE DB (°F) LAT	CIRCULATING WATER FLOW (GPM)	CIRCULATING WATER WPD (ft)	AIR FILTER TYPE	MOTOR FAN HP	MOTOR V/PH/HZ	NOTES
WSHP-1	39H-1	LAUNDRY ROOM	STORM SHELTER	725	200	0.40 in-wg	13.6	27.0 Btu/h	17.0 Btu/h	59 °F	56 °F	52 °F	29.2 Btu/h	68 °F	101 °F	4 GPM	6.00	2" THROWAWAY	0.33	208/1/60	
WSHP-2	39A	CLEAN LINEN	STORM SHELTER	400	0	0.50 in-wg	13.6	12.7 Btu/h	9.2 Btu/h	59 °F	56 °F	52 °F	14.3 Btu/h	68 °F	100 °F	2 GPM	2.00	2" THROWAWAY	0.13	208/1/60	

NOTES:
1. PROVIDE WITH CONDENSATE PUMP AND SECONDARY DRAIN. INSTALL POINT LEAK DETECTOR.
2. ROUTE PRIMARY AND SECONDARY DRAIN PIPE, TYPE K COPPER, TO NEAREST FLOOR/HUB DRAIN OR MOP SINK.
3. CONNECT TO EXISTING BMS SYSTEM. UNIT SHALL BE COMPATIBLE WITH JOHNSONS CONTROLS. REF CONTROLS AND SEQUENCE OF OPERATION.
4. PROVIDE WITH DISCONNECT SWITCH, INSTALLED BY EC.
5. PROVIDE WITH PROGRAMMABLE TSTAT.
6. REF MANUFACTURER'S INSTRUCTIONS FOR UNIT INSTALLATION.
7. CONNECT CONDENSER WATER LINES TO GEOTHERMAL WELL PIPING.

AIR CURTAIN SCHEDULE

TAG	AREA SERVED NO.	AREA SERVED NAME	MFR	MODEL	UNIT SIZE (LxHxD) (in.)	AIRFLOW (MAX)	VELOCITY (MAX)	HEATING FLOW (GPM)	HEATING LOAD (MBH)	HEATING TEMP RISE (°F)	ELECTRICAL POWER V/PH/Hz	ELECTRICAL POWER AMPS (A)	ELECTRICAL POWER HP	NOTES
HAC-1	22	RECEIVING & STORAGE	AIRTECNICS	AIR CURTAIN ARIS P	98x8x12	2,400	1,800	7	66.0	26	115/1/60	4.8	1/6 (x2)	1-6

NOTES:
1. VARIABLE SPEED CONTROLLER.
2. LOW PROFILE AND ADJUSTABLE AIR VANE.
3. CORROSION RESISTANT AND RUST PROTECTIVE COATING.
4. PROVIDE DOOR LIMIT SWITCH AND THERMOSTAT.
5. PROVIDE FACTORY MOUNTING BRACKETS.
6. REF MANUFACTURER'S INSTRUCTIONS FOR UNIT INSTALLATION.

DX SPLIT AIR CONDITIONING UNIT (HIGH WALL) - INDOOR UNIT SCHEDULE

TAG	AREA SERVED (ROOM) NO.	AREA SERVED (ROOM) NAME	AIRFLOW (CFM)	REFRIGERANT	COOLING CAPACITY (BTU/H) MINIMUM	COOLING CAPACITY (BTU/H) MAXIMUM	COOLING SENSIBLE (BTU/H)	COOLING SEER	WEIGHT (lb)
AC-2	20	DATA	400-600	R-410	5,500	20,000	14,480	18.5	31

CONDENSING UNIT - OUTDOOR UNIT SCHEDULE

TAG	ELECTRICAL DATA MCA	ELECTRICAL DATA V/Ph/Hz	WEIGHT (lb)
ACCU-2	13.4	208/1/60	99

NOTES:
1. PROVIDE WITH INTEGRAL CONDENSATE PUMP AND SECONDARY DRAIN PAN. INSTALL POINT LEAK DETECTOR.
2. ROUTE PRIMARY AND SECONDARY DRAIN PIPE, TYPE K COPPER, TO NEAREST FLOOR/HUB DRAIN OR MOP SINK.
3. CONNECT TO EXISTING BMS SYSTEM. UNIT SHALL BE COMPATIBLE WITH JOHNSONS CONTROLS. REF CONTROLS AND SEQUENCE OF OPERATION.
4. PROVIDE WITH DISCONNECT SWITCH, INSTALLED BY EC.
5. PROVIDE WITH PROGRAMMABLE TSTAT.
6. REF MANUFACTURER'S INSTRUCTIONS FOR REFRIGERANT PIPE SIZING AND UNIT INSTALLATION.

LOUVER SCHEDULE

TAG	VELOCITY, MAXIMUM (FPM)	ICC/FEMA RATED	SIZE	FRAME STYLE	SYSTEM	MAT'L	FINISH	NOTES
LV-1			72"x54"x6"	SIDEWALL	OUTSIDE AIR - AHU	EXT. ALUMINUM	PAINT IN FIELD	1
LV-2	500	Yes	24"x24"x5 1/2"	ROOF - FLUSH	GENERAL EXHAUST	HEAVY GAUGE ALUMINUM	PAINT IN FIELD	1,2
LV-3	500	Yes	18"x18"x5 1/2"	ROOF - FLUSH	OUTSIDE AIR - WSHP	HEAVY GAUGE ALUMINUM	PAINT IN FIELD	1,2
LV-4	500	Yes	12"x12"x5 1/2"	ROOF - FLUSH	DRYER EXHAUST	HEAVY GAUGE ALUMINUM	PAINT IN FIELD	1,2
LV-5		No	36"x18"x6"	SIDEWALL	GENERAL INTAKE	EXT. ALUMINUM	PAINT IN FIELD	1
LV-6		No	36"x18"x6"	SIDEWALL	GENERAL EXHAUST	EXT. ALUMINUM	PAINT IN FIELD	1

NOTES:
1. PROVIDE WITH BIRD/INSECT SCREEN.
2. V-SHAPE BLADE. STORM SHELTER.

AIR HANDLING UNIT SCHEDULE

TAG	MFR	MODEL	AIRFLOW (CFM) SUPPLY	AIRFLOW (CFM) OUTSIDE	FAN DATA RPM	FAN DATA DRIVE	STATIC PRESSURE ("WG) EXT.	STATIC PRESSURE ("WG) TOTAL	MOTOR HP	MOTOR EFFICIENCY (%)	ELEC V/Ph/Hz	ELEC MCA	ELEC MOCP	DX COOLING COIL FACE VELOCITY (FPM)	CONDITIONS DRY BULB (°F) EAT	CONDITIONS DRY BULB (°F) LAT	CONDITIONS WET BULB (°F) EAT	CONDITIONS WET BULB (°F) LAT	CAPACITY SENSIBLE	CAPACITY TOTAL	HOT WATER COIL CAPACITY (MBTUH)	HOT WATER COIL FACE VELOCITY (FPM)	TEMPERATURE (°F) AIR EAT	TEMPERATURE (°F) AIR LAT	TEMPERATURE (°F) WATER EWT	TEMPERATURE (°F) WATER LWT	PD (ft/H2O)	WEIGHT (lb)	NOTES
AHU-1	TRANE	UCCCAH21B	10,000	2,000		DIRECT	2	3.96	15	90	208/3/60	27.5	45	500	80.0	55.7	67.0	54.7	266.1	380.3	390.4	500	60	96	150	120	1.2	1870	1-6

NOTES:
1. DIRECT DRIVE FANS WITH VIBRATION ISOLAITON. PROVIDE WITH VFD.
2. FACTORY MOUNTED SUPPLY AND RETURN DUCT SMOKE DETECTOR.
3. FACTORY MOUNTED NON-FUSED DISCONNECT SWITCH.
4. FACTORY MOUNTED FREEZESTAT.
5. FACTORY MOUNTED MOTORIZED OA AND RA DAMPERS.
6. MERV 8 PRE-FILTER - MERV 14 FINAL FILETR.

AIR COOLED CONDENSING UNIT SCHEDULE

TAG	MFR	MODEL	CAPACITY NOMINAL TONS	CAPACITY BTUH	WEIGHT (lb)	COMPRESSOR QTY	COMPRESSOR TYPE	COMPRESSOR RLA (EA)	COMPRESSOR STAGES (EA)	REFRIGERANT	FANS	UNIT ELECTRICAL V/PH/HZ	UNIT ELECTRICAL MCA	UNIT ELECTRICAL MOCP
ACCU-1	TRANE	TTA18043DAA	30	341,500	1,950	2	SCROLL	351	2	R-410	3	208/3/60	123	150

NOTES:
1. DUAL COMPRESSORS / DUAL CIRCUIT.
2. PROVIDE CONDENSER COIL HAIL GAURDS.
3. LOW AMBIENT TEMPERATURE KIT.
4. HOT GAS BYPASS.
5. FACTORY INSTALLED GFCI, POWERED BY EC.
6. FACTORY VIBRATION ISOLATOR.
7. PROVIDE FROSTAT.

VAV SCHEDULE

TAG	VAV UNIT INLET SIZE	AIRFLOW (CFM) DESIGN	AIRFLOW (CFM) MINIMUM	AIRFLOW (CFM) HEATING	APD (MAX) ("WG)	HOT WATER HEATING COIL TEMPERATURE (°F) AIR (DB) EAT (DB)	HOT WATER HEATING COIL TEMPERATURE (°F) AIR (DB) LAT (DB)	HOT WATER HEATING COIL TEMPERATURE (°F) WATER EWT	HOT WATER HEATING COIL TEMPERATURE (°F) WATER LWT	HOT WATER HEATING COIL CAPACITY (MBH)	HOT WATER HEATING COIL FLOW (GPM)	HOT WATER HEATING COIL PRESSURE DROP (MAX) (PSI)	NO. OF ROWS	NOISE CRITERIA (MAX)	ELECTRICAL POWER V/PH/Hz	NOTES
VAV-1	10"	900	300	450	0.3	55	90	150	120	14.1	0.9	5.00	2	30	120/1/60	1-5
VAV-2	12"	1,775	500	700	0.3	55	90	150	120	23.2	1.5	5.00	2	30	120/1/60	1-5
VAV-3	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-4	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-5	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-6	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-7	6"	375	125	200	0.3	55	90	150	120	7.5	0.5	5.00	2	30	120/1/60	1-5
VAV-8	10"	1,400	350	560	0.3	55	90	150	120	20.9	1.4	5.00	2	30	120/1/60	1-5
VAV-9	6"	325	100	150	0.3	55	90	150	120	10.6	0.7	5.00	2	30	120/1/60	1-5
VAV-10	12"	1,500	500	700	0.3	55	90	150	120	26.4	1.8	5.00	2	30	120/1/60	1-5
VAV-11	8"	600	200	300	0.3	55	90	150	120	8.1	0.5	5.00	2	30	120/1/60	1-5
VAV-12	6"	375	125	200	0.3	55	90	150	120	7.5	0.5	5.00	2	30	120/1/60	1-5
VAV-13	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-14	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-15	6"	350	100	175	0.3	55	90	150	120	6.9	0.5	5.00	2	30	120/1/60	1-5
VAV-16	6"	375	125	200	0.3	55	90	150	120	7.5	0.5	5.00	2	30	120/1/60	1-5

NOTES:
1. CONNECT TO EXISTING BMS (JOHNSON CONTROLS).
2. PROVIDE 1" FIBER FREE LINER.
3. REFER TO MANUFACTURER'S RECOMMANDATIONS FOR SERVICE CLEARNCE.
4. SEE FLOOR PLAN FOR LEFT AND RIGHT-HANDED CONTROL INSTALLATION.
5. PROVIDE CONTROL VALVE FOR HOT WATER COIL, REF DETAIL.

EXHAUST FAN SCHEDULE

TAG	SYSTEM/ SERVICE	AIRFLOW (CFM)	TSP ("WG)	FAN TYPE	FAN DRIVE	FAN RPM (MAX)	MOTOR HP	FLA	V/Ph/Hz	WEIGHT	NOTES
EF-1	PATIENT ROOM	600	0.75	ROOF MOUNTED	DIRECT	1725	1/4	2.85	120/1/60	43	1,2,3,5
EF-2	PATIENT ROOM	500	0.75	ROOF MOUNTED	DIRECT	1725	1/4	2.85	120/1/60	43	1,2,3,5
EF-3	KITCHEN	400	0.5	CEILING MOUNTED	DIRECT	1080	-	4.9	120/1/60	32	1,2,3,4,5,7
EF-4	LAUNDRY ROOM	250	0.5	CEILING MOUNTED	DIRECT	1350	-	1.42	120/1/60	24	1,2,3,4,5,8
EF-5	HAC	125	0.5	CEILING MOUNTED	DIRECT	900	-	0.46	120/1/60	24	1,2,3,4,5,7
EF-6	SOILED ROOM	125	0.5	CEILING MOUNTED	DIRECT	900	-	0.46	120/1/60	24	1,2,3,4,5
RAF-1	MECH ROOM	8,500	1.5	IN-LINE	DIRECT	1130	5	16.7	208/3/60	413	1,2,6

NOTES:
1. FACTORY UNIT MOUNTED DISCONNECT SWITCH.
2. FACTORY BACKDRAFT DAMPER.
3. PROVIDE FAN SPEED CONTRLLER.
4. PROVIDE ALUMINUM GRILL AND HANGING VIBRATION ISOLATOR.
5. PROVIDE PITCHED ROOF CURB AND CAP.
6. PROVIDE VFD.
7. CONTROLLED VIA WALL SWITCH.
8. INTERLOCKED WITH WSHP-1.

AIR DEVICE SCHEDULE

TAG	NC (MAX)	VOLUME CONTROL	SIZES FACE	SIZES NECK SIZE	FRAME STYLE	MATERIAL	FINISH	NOTES
Supply Air								
S1	30	Yes	12x12	SEE PLAN	LAY-IN	STEEL	OFF-WHITE ENAMEL	1-2
S2	30	Yes	24x24	SEE PLAN	LAY-IN	STEEL	OFF-WHITE ENAMEL	1-2
S3	30	Yes	22x6	SEE PLAN	LINEAR SLOT	STEEL	OFF-WHITE ENAMEL	1-2
Return Air								
R1	30	Yes	12x12	SEE PLAN	LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	1-2
R2	30	Yes	24x24	SEE PLAN	LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	1-2
R3	30	Yes	24x24	SEE PLAN	LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	1-2
R4	30	Yes	24x24	SEE PLAN	LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	1-2
R5	30	Yes	10x6	SEE PLAN	SIDEWALL	ALUMINUM	OFF-WHITE ENAMEL	1-2
R6	30	Yes	18x12	SEE PLAN	SIDEWALL	ALUMINUM	OFF-WHITE ENAMEL	1-2
R7	30	Yes	22x10	SEE PLAN	SIDEWALL	ALUMINUM	OFF-WHITE ENAMEL	1-2
Exhaust Air								
E1	30	Yes	12x12	SEE PLAN	LAY-IN	ALUMINUM	OFF-WHITE ENAMEL	1-2

NOTES:
1. COORDINATE COLOR WITH ARCH.

RELIEF AIR HOOD SCHEDULE

TAG	TAG	SYSTEM	AIRFLOW (CFM)	SERVICE & LOCATION	STATIC PRESSURE ("WG)	DIMENSIONS THROAT SIZE, LxW (in.)	DIMENSIONS OVERALL (in.) LENGTH	DIMENSIONS OVERALL (in.) WIDTH	DIMENSIONS BASE HEIGHT (in.)	MFR	MODEL	WEIGHT (APPROX)
RH-1	RH-1	BUILDING RELIEF	8,500	RELIEF / MECH ROOM ROOF	0.07 in-wg	42"x42"	60"	60"	23	Greenheck	FGR-42x42	159.00 lbf

NOTES:
1. LOW SILHOUETTE RECTANGULAT TYPE.
2. ALUMINUM CONSTRUCTION.
3. INTEGRAL CURB AND ALUMINUM INSECT/BIRD SCREEN.
4. PROVIDE WITH PITCHED ROOF CURB.
5. PROVIDE BACKDRAFT DAMPER.

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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

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Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 674-201

Building Number: 28

APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN

FULLY SPRINKLERED

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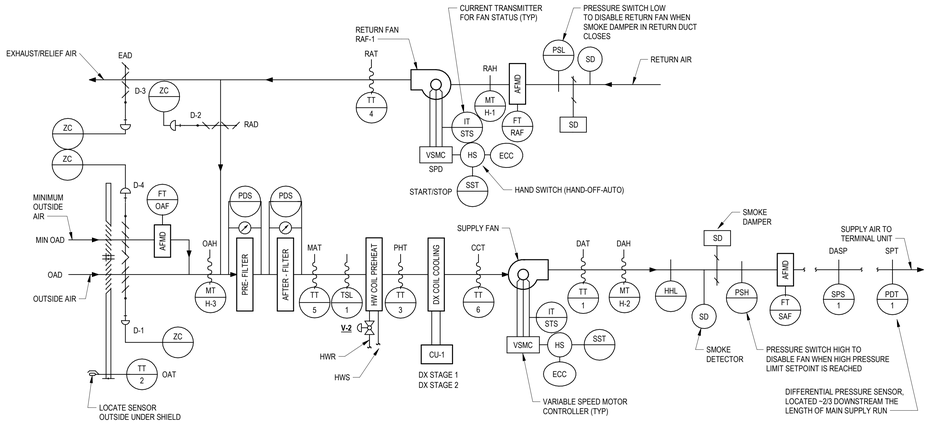
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VA FORM 08 - 6231



VARIABLE AIR VOLUME AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR CONTROL DIAGRAM

1 SCALE: NONE

SEQUENCE OF OPERATION FOR VARIABLE AIR VOLUME AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR

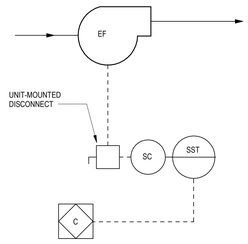
1. **GENERAL**
   a. UNIT IS NORMALLY STARTED AND STOPPED REMOTELY AT THE ECC. AHU-1 RUNS 24 HOURS A DAY - 7 DAYS A WEEK. H-O-A SWITCH SHALL BE KEPT IN THE "AUTO" POSITION. "HAND" AND "OFF" POSITIONS SHALL BE USED ONLY FOR MAINTENANCE. WHEN THE UNIT IS "OFF" D-1, D-3, SHALL BE FULLY CLOSED. WHEN THE UNIT IS "ON" D-1, SD-1 AND SD-2 SHALL BE FULLY OPEN. D-2 AND D-3 SHALL MODULATE IN ACCORDANCE WITH THE FOLLOWING SEQUENCE:
2. **TEMPERATURE CONTROL**
   a. SUPPLY AIR TEMPERATURE, SENSED BY TT-1, SHALL BE MAINTAINED AT SETPOINT VIA DIGITAL CONTROL PANEL BY DX STAGING OR D-2 AND D-3 OR V-2 IN SEQUENCE.
   b. WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY TT-2, IS ABOVE 75°F (ADJ) [23.8°C], THE DIGITAL CONTROL PANEL SHALL PREVENT THE MODULATION OF D-2 AND D-3 AND SHALL ASSUME THE MINIMUM OUTSIDE AIR POSITION (D-2 FULLY OPENED AND D-3 FULLY CLOSED). THE DIGITAL CONTROL PANEL SHALL STAGE DX TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY TT-1.
   c. WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY TT-2, IS BETWEEN 65°F [18.3° C] AND THE SUPPLY AIR TEMPERATURE SENSED BY TT-1, DAMPER D-2 SHALL FULLY CLOSE AND D1 AND D3 SHALL BE FULLY OPEN (MAXIMUM OUTSIDE AIR POSITION). THE DIGITAL CONTROL PANEL SHALL STAGE DX TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY TT-1.
   d. WHEN THE TEMPERATURE OF THE OUTSIDE AIR, SENSED BY TT-2, IS BELOW THE SUPPLY AIR TEMPERATURE, SENSED BY TT-1, DAMPERS D1, D-2 AND D-3 SHALL MODULATE TO MAINTAIN THE SCHEDULED SUPPLY AIR TEMPERATURE. IF D-2 IS OPEN AND D-3 IS CLOSED TO MINIMUM OUTSIDE AIR, V-2 SHALL MODULATE OPEN TO MAINTAIN THE SUPPLY AIR TEMPERATURE, SENSED BY TT-1.
3. **AIR FLOW CONTROL**
   A. THE SUPPLY AIR FLOW SHALL BE CONTROLLED BY THE DIGITAL CONTROL PANEL MODULATING THE SUPPLY FAN VARIABLE SPEED MOTOR CONTROLLER TO MAINTAIN 1.0" [25mm] OF DUCT STATIC PRESSURE (FIELD ADJUSTABLE), SENSED BY SPS-1. RESET STATIC PRESSURE BASED ON ACTUAL BUILDING LOAD BY POLLING ALL ATU.
   B. THE DIGITAL CONTROL PANEL, USING TOTAL SUPPLY AIR AND RETURN AIR FLOW SIGNALS, SHALL RESET THE RETURN AIR FAN VSMC TO MAINTAIN A CONSTANT AIR FLOW DIFFERENCE BETWEEN THE SUPPLY AIR AND THE RETURN AIR EQUAL TO MINIMUM OUTSIDE AIR.
   C. USING HIGH PRESSURE SENSOR PSH LOCATED AT THE SUPPLY FAN DISCHARGE, SHALL PREVENT THE SUPPLY FAN FROM DEVELOPING OVER 3" [75mm] OF STATIC PRESSURE (FIELD ADJUSTABLE). IF STATIC PRESSURE AT PSH DOES EXCEED 3" [75mm] THE SUPPLY AIR FAN SHALL STOP. PSH SHALL BE HARDWIRED TO THE SUPPLY FAN VSMC AND UNIT SHALL BE SHUTDOWN IN HAND, AUTO OR BYPASS MODE. PSH WILL REQUIRE MANUAL RESET AT THE DEVICE.
5. **FREEZE PROTECTION**
   A. IF THE AIR TEMPERATURE AS SENSED BY TT-3 FALLS BELOW 45°F [7°C], AN ALARM SIGNAL SHALL INDICATE AT THE DCP AND ECC. IF THIS TEMPERATURE FALLS BELOW 40°F [4.4°C], AS SENSED BY THE TSL THE SUPPLY AND RETURN FANS SHALL SHUT DOWN AND A CRITICAL ALARM SHALL INDICATE AT THE DIGITAL CONTROL PANEL AND ECC. TSL SHALL BE HARDWIRED TO THE SUPPLY FAN I/FD AND UNIT SHALL BE SHUTDOWN IN HAND, AUTO OR BYPASS MODE. TSL WILL REQUIRE MANUAL RESET AT THE DEVICE.
6. **AUTOMATIC SHUTDOWN/RESTART**
   A. WHEN SMOKE IS DETECTED BY DUCT SMOKE DETECTOR, SD, THE SUPPLY AND RETURN FANS SHALL SHUT "OFF" AND AN ALARM SIGNAL SHALL BE TRANSMITTED TO THE FIRE ALARM SYSTEM. ALL SMOKE DAMPERS IN THE SUPPLY AND RETURN DUCTS SHALL CLOSE.
   B. EXHAUST FANS SERVING AREA OF THE SUPPLY FAN SHALL CONTINUE TO RUN. SUPPLY AND RETURN FANS SHALL RESTART AND SMOKE DAMPERS SHALL OPEN WHEN FIRE ALARM CIRCUIT IS RESET.
7. **EMERGENCY CONSTANT SPEED OPERATION**
   A. UPON FAILURE OF THE VSMC, THE SUPPLY AND RETURN FANS SHALL BE STARTED/STOPPED MANUALLY AT THE DIGITAL CONTROL PANEL OR THE ECC THROUGH THE BY-PASS STARTER. FANS SHALL THEN BE OPERATED AT CONSTANT SPEED.

2 SCALE: NONE

SEQUENCE OF OPERATION FOR VARIABLE AIR VOLUME AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR

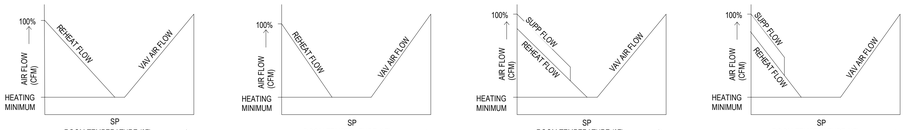
EXHAUST FANS (EF-1,2,6) SEQUENCE OF OPERATION:

1. WHEN BUILDING IS IN OCCUPIED MODE, THE UNIT SHALL RUN CONTINUOUSLY. WHEN BUILDING IS IN UNOCCUPIED MODE, THE FAN SHALL BE DE-ENERGIZED.
2. EXHAUST FANS TO BE INTERLOCKED WITH AHU-1.
3. ALARM IF FAN FAILS TO START OR FAILS DURING OPERATION.



EXHAUST FAN SCHEMATIC

3 SCALE: NONE



VAV BOX CONTROL SEQUENCE

NO DEADBAND

A. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSTION.
B. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT ADJUSTABLE TOLERANCE OF +/- 0.5°F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
C. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE

VAV BOX CONTROL SEQUENCE

W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS:
   - COOLING 75°F (ADJ)
   - HEATING 70°F (ADJ)
   - DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.
B. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
C. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT OF +/- 0.5° F . THE ADJUSTABLE TOLERANCE OF +/- 0.5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
D. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.

VAV BOX CONTROL SEQUENCE

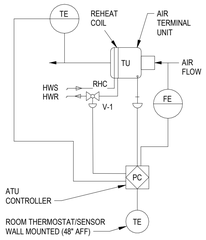
NO DEADBAND

A. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
B. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT OF +/- 0.5° F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
C. VALVE V-2 SHALL BE ENABLED WHEN OUTSIDE AIR FALLS BELOW 40° F (ADJ) AND VALVE V-1 HAS BEEN MODULATED OPEN ABOVE 30% (ADJ). VALVE V-2 SHALL MAINTAIN SET POINT 0.5° F. THE ADJUSTABLE TOLERANCE OF 0.5° F HAS BEEN SELECTED TO PREVENT HUNTING. THE REVERSE SHALL OCCUR ON A RISE IN SPACE TEMPARATURE.

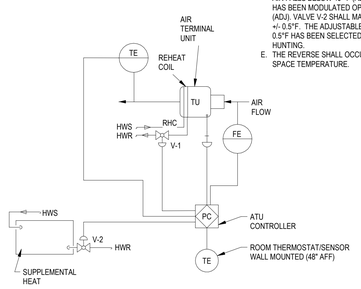
VAV BOX CONTROL SEQUENCE

W/DEADBAND

A. SET POINTS SHALL BE SET AS FOLLOWS:
   - COOLING 75°F (ADJ)
   - HEATING 70°F(ADJ)
   - DEADBAND OF 5° F BETWEEN HEATING AND COOLING SET POINTS WILL BE MAINTAINED.
B. UPON FALL IN SPACE TEMPERATURE THE VAV DAMPER WILL MODULATE TO MINIMUM POSITION.
C. UPON FURTHER DROP IN SPACE TEMPERATURE VALVE V-1 WILL MODULATE TO MAINTAIN SET POINT +/- 0.5°F. THE ADJUSTABLE TOLERANCE OF +/- 0.5°F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
D. VALVE V-2 SHALL BE ENABLED WHEN OUTSIDE AIR FALLS BELOW 40° F (ADJ) AND VALVE V-1 HAS BEEN MODULATED OPEN ABOVE 30% (ADJ). VALVE V-2 SHALL MAINTAIN SET POINT +/- 0.5°F. THE ADJUSTABLE TOLERANCE OF +/- 0.5°F HAS BEEN SELECTED TO PREVENT VALVE HUNTING.
E. THE REVERSE SHALL OCCUR ON THE RISE IN SPACE TEMPERATURE.



NO SUPPLEMENTAL HEATING



WITH SUPPLEMENTAL HEATING

4 SCALE: 12" = 1'-0"

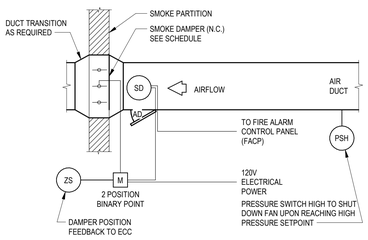
VAV AIR TERMINAL UNIT CONTROL DIAGRAM

JOB: VA BIG SPRING CLC BUILDING: 28			POINT LEGEND	SYSTEM OUTPUTS		SYSTEM INPUTS		SYSTEM SOFTWARE/CONTROL		PAGE:
				BINARY	ANALOG	BINARY	ANALOG	ALARM PROCESSING	APPLICATION/FUNCTION	
SYSTEM: VAV AIR HANDLING UNITS SYSTEM COMPONENT:	POINT ID DESIGNATION		ABBREVIATION							REMARKS
RETURN AIR TEMPERATURE	TT-RAT	AI	RAT	o		o			o	
RETURN AIR HUMIDITY	H-RAH	AI	RAH	o			o		o	
RETURN AIR FLOW (CFM)	FT-RAF	AI	RAF	o			o		o	
MIXED AIR TEMPERATURE	TT-MAT	AI	MAT	o		o			o	
PRE-HEAT TEMPERATURE	TT-PHT	AI	PHT	o		o			o	
COOLING COIL TEMPERATURE	TT-CCT	AI	CCT	o		o			o	
DISCHARGE AIR TEMPERATURE	TT-DAT	AI	DAT	o		o			o	
SUPPLY AIR STATIC PRESSURE	SP-DASP	AI	DASP	o			o		o	
DISCHARGE AIR HUMIDITY	H-DAH	AI	SAH	o			o		o	
SUPPLY AIR FLOW (CFM)	FT-SAF	AI	SAF	o			o		o	
OUTSIDE AIR TEMPERATURE	TT-OAT	AI	OAT			o			o	
OUTSIDE AIR HUMIDITY	H-OAH	AI	OAH	o			o		o	
SUPPLY FAN STATUS	SF	BI	SF-STS		o				o	
SUPPLY FAN VSMC ALARM	SF	BI	SF-ALA	o					o	
STATIC PRESSURE HIGH LIMIT	PSH	BI	PSH			o			o	
STATIC PRESSURE LOW LIMIT	PSL	BI	PSL			o			o	
RETURN FAN VSMC ALARM	RF	BI	RF-ALA	o					o	
DIFFERENTIAL PRESSURE SWITCH	PRE1	BI	PDS							
DIFFERENTIAL PRESSURE SWITCH	PRE2	BI	PDS							
SUPPLY FAN VSMC	SF-S	AO	SF-SPD		o				o	FULL COMMUNICATION
RETURN AIR DAMPER	ZC-RAD	AO	RAD		o				o	
MINIMUM OUTSIDE AIR DAMPER	ZC-OAD	AO	OAD		o				o	
PRE-HEAT VALVE V-2	V2-PH	AO	PHT-V1		o				o	
DX COOLING STAGE 1	DX-CLG	BO	CLG-S1		o				o	
DX COOLING STAGE 2	DX-CLG	BO	CLG-S2		o				o	
SUPPLY FAN START/STOP	SF-SST	BO	SAF	o					o	
RETURN FAN START/STOP	RF-SST	BO	RAF	o					o	
RETURN FAN VSMC	RF-S	AO	RAF-SPD		o				o	FULL COMMUNICATION
RETURN FAN STATUS	RF	BI	RF-STS						o	
OSA FLOW (CFM)	FT-OAF	AI	OAF	o			o		o	
HUMIDITY HIGH LIMIT	HHL	BI	HHL			o			o	
DIFFERENTIAL STATIC SENSOR	PDT-2/3	AI	SPT	o			o		o	
FREEZSTAT	TSL	BI	FRZ		o				o	

POINTS LIST FOR VAV AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR

5 SCALE: NONE

POINTS LIST FOR VAV AIR HANDLING UNIT WITH MINIMUM OUTSIDE AIR



NOTE:
UPON DETECTION OF SMOKE BY THE SMOKE DETECTOR, THE SMOKE DAMPER SHALL CLOSE & SEND AN ALARM TO THE ECC.

6 SCALE: NONE

SMOKE DAMPER CONTROL DIAGRAM

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ISSUED FOR BID	10/23/2023
ISSUED FOR BID	04/21/2023
Revisions:	Date:

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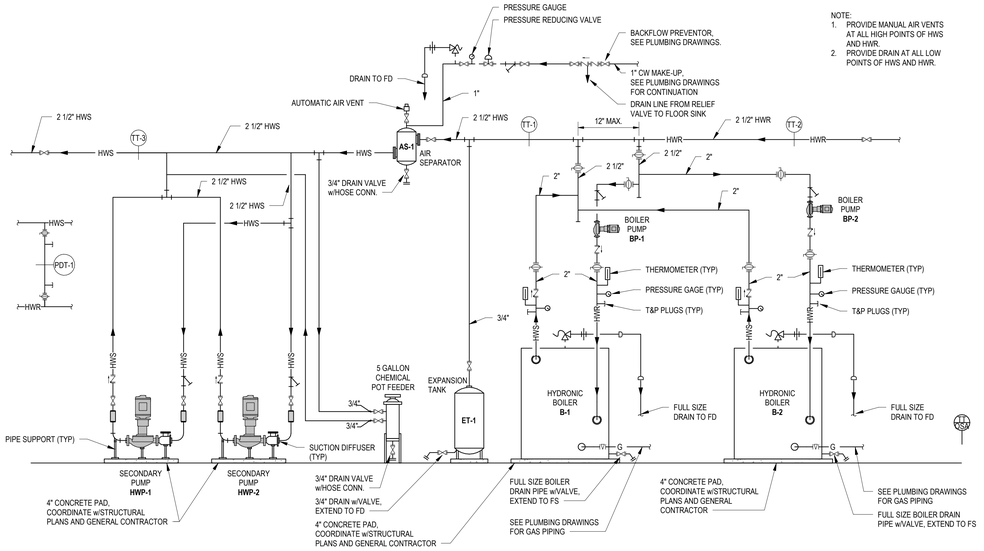
STATE OF TEXAS — Larry R. Mathis — 91464 — LICENSED PROFESSIONAL ENGINEER

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	HVAC CONTROLS
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	674-201
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	MM
Drawing Number	MI701

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NOTE:
1. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS OF HWS AND HWR.
2. PROVIDE DRAIN AT ALL LOW POINTS OF HWS AND HWR.

HOT WATER HYDRONIC BOILER SEQUENCE OF OPERATION
PRIMARY-SECONDARY HEATING HOT WATER SYSTEM

OBTAIN ALL INTERNAL POINTS FROM BOILER MASTER CONTROLLER.

ENABLE/DISABLE:
ECC SHALL PROVIDE A REMOTE ENABLE SIGNAL AND SETPOINT ADJUSTMENT. COMMUNICATION PROTOCOL SHALL BE COORDINATED WITH BOILER CONTROL INTEGRATION. HB-1,2 SHALL ENABLE AND DISABLE ACCORDING TO LEAD/LAG SCHEDULE (EQUAL RUN TIME OR CYCLE COUNT). ON A CALL FOR HEAT, HB-1 (LEAD BOILER) SHALL BE ENABLED. THE BOILER CONTROLLER SHALL STAGE ON ADDITIONAL BOILER BASED ON MAXIMUM FLOW THROUGH A BOILER AND THE SUPPLY HEADER TEMPERATURE SENSOR. TO PREVENT SHORT CYCLING, BOILERS SHALL HAVE USER DEFIABLE DELAY AND MIN. RUN TIME (ADJ.).

TEMPERATURE:
THE BOILER CONTROLLER SHALL SEQUENCE THE HB-1 & HB-2 AND BOILER PRIMARY PUMPS (BP-1 & BP-2) TO MAINTAIN THE PRIMARY HEATING HOT WATER SET POINT AS MEASURED BY THE HOT WATER SUPPLY TEMPERATURE SENSOR. THE HOT WATER TEMPERATURE SENSOR (BY BOILER MANUFACTURER) SHALL BE FURNISHED BY THE BOILER MANUFACTURER. THE HOT WATER TEMPERATURE SETPOINT SHALL RESET BASED ON OUTSIDE AIR TEMPERATURE (OSA SENSOR BY BOILER MANUFACTURER) AS SHOWN.

SAFETY/PROOFS AND OVERRIDES:
HB-1,2 ARE SUBJECT TO THEIR ALL OWN INTERNAL SAFETIES, SAFETY INTERLOCKS AND OVERRIDES.

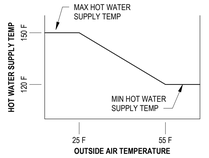
VARIABLE SECONDARY PUMPS (HWP-1,2)
PUMPS TO BE OPERATED BY BOILER CONTROLLER ON LEAD/LAG FASHION (SEQUENCE BASED ON EQUAL RUN TIME). HWP-1 (LEAD PUMP) SHALL START ON SLOW SPEED AND RAMP UP TO MAINTAIN DIFFERENTIAL PRESSURE SETPOINT AS MEASURED BY PDT-1 (SETPOINT BY TAB). ADDITIONAL PUMP SHALL STAGE ON TO MAINTAIN HOT WATER DIFFERENTIAL PRESSURE. WHEN HWP-1 IN FAILURE MODE, LAG PUMP (HWP-2) SHALL BE ENABLED.

INTERLOCKS:
BP-1,2 SHALL RUN WHEN ASSOCIATED BOILER ENABLED.

EMERGENCY-STOP SWITCH:
THE EMERGENCY STOP SWITCH SHALL SHUTDOWN THE BOILERS AND CLOSE THE MAIN GAS VALVE

ALARM SHALL BE PROVIDED TO ECC AS FOLLOWS:
- BOILER ALARM/FAULT AS DICTATED BY BOILER CONTROLLER (ALL INTERNAL AND EXTERNAL SAFETIES).
- HIGH PRIMARY HOT WATER SUPPLY TEMP (TT-1) IF GREATER THAN 170°F (ADJ.)
- LOW PRIMARY HOT WATER SUPPLY TEMP (TT-1) IF LESS THAN 100°F (ADJ.)
- BOILER RUNNING IN HAND
- BOILER RUNTIME EXCEEDED

HEATING HOT WATER SUPPLY TEMPERATURE RESET BASED ON OUTSIDE AIR TEMP



1 HEATING HOT WATER HYDRONIC BOILER SCHEMATIC
SCALE: NONE

POINTS LIST - PRIMARY HEATING HOT WATER PUMPS

REFERENCE	POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	INTEGRATION	TREND	GRAPHICS
	VFD CONTROL INTEGRATION/COMMUNICATION					●	●	●
	VFD CONTROL INTEGRATION/COMMUNICATION					●	●	●
	HEATING HOT WATER PUMP START/STOP				●		●	●
	HEATING HOT WATER PUMP START/STOP				●		●	●
	HEATING HOT WATER PUMP STATUS			●			●	●
	HEATING HOT WATER PUMP STATUS			●			●	●
	HEATING HOT WATER PUMP VFD SPEED		●				●	●
	HEATING HOT WATER PUMP VFD SPEED		●				●	●
	HEATING HOT WATER PUMP VFD FAULT			●			●	●
	HEATING HOT WATER PUMP VFD FAULT			●			●	●

POINTS LIST - SECONDARY HEATING HOT WATER PUMPS

REFERENCE	POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	INTEGRATION	TREND	GRAPHICS
-	VFD CONTROL INTEGRATION/COMMUNICATION							
-	VFD CONTROL INTEGRATION/COMMUNICATION					●	●	●
-	VFD CONTROL INTEGRATION/COMMUNICATION					●	●	●
-	HEATING HOT WATER PUMP START/STOP				●		●	●
-	HEATING HOT WATER PUMP START/STOP				●		●	●
-	HEATING HOT WATER PUMP STATUS			●			●	●
-	HEATING HOT WATER PUMP STATUS			●			●	●
-	HEATING HOT WATER PUMP VFD SPEED		●				●	●
-	HEATING HOT WATER PUMP VFD SPEED		●				●	●
-	HEATING HOT WATER PUMP VFD FAULT			●			●	●
-	HEATING HOT WATER PUMP VFD FAULT			●			●	●
-	HEATING HOT WATER PUMP VFD BYPASS							
-	HEATING HOT WATER PUMP VFD BYPASS	●						
PDT	HEATING HOT WATER PUMP DIFFERENTIAL PRESSURE						●	●

POINTS LIST - HYDRONIC BOILER

REFERENCE	POINT NAME	ANALOG INPUT	ANALOG OUTPUT	BINARY INPUT	BINARY OUTPUT	INTEGRATION	TREND	GRAPHICS
	BOILER(S) INTERNAL CONTROL INTEGRATION/COMMUNICATION					●	●	●
ES-1	BOIER SYSTEM EMERGENCY PUSHBUTTON			●			●	●
	BOILER ALARM			●			●	●
TT-1	TEMPERATURE SENSOR	●					●	●
TT-2	TEMPERATURE SENSOR	●					●	●
TT-3	TEMPERATURE SENSOR	●					●	●

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STATE OF TEXAS — Larry R. LaMantia — 91464 — LICENSED PROFESSIONAL ENGINEER

Office of Construction and Facilities Management
VA U.S. Department of Veterans Affairs

Drawing Title: MECHANICAL DIAGRAMS
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 674-201
Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: BIG SPRING, TX
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Checked: LRL
Drawn: MM
Drawing Number: MI702

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GENERAL LIGHTING NOTES

1. **GENERAL REQUIREMENTS**
   A. **GENERAL**
      1. **DESCRIPTION**: FURNISH AND INSTALL ELECTRICAL SYSTEMS, MATERIALS, EQUIPMENT, AND ACCESSORIES IN ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS. CAPACITIES AND RATINGS OF MOTORS, TRANSFORMERS, CONDUCTORS AND CABLE, SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, MOTOR CONTROL CENTERS, GENERATORS, AUTOMATIC TRANSFER SWITCHES, AND OTHER ITEMS AND ARRANGEMENTS FOR THE SPECIFIED ITEMS ARE SHOWN ON THE DRAWINGS.
      2. ELECTRICAL SERVICE ENTRANCE EQUIPMENT AND ARRANGEMENTS FOR TEMPORARY AND PERMANENT CONNECTIONS TO THE ELECTRIC UTILITY COMPANY'S SYSTEM SHALL CONFORM TO THE ELECTRIC UTILITY COMPANY'S REQUIREMENTS. COORDINATE FUSES, CIRCUIT BREAKERS AND RELAYS WITH THE ELECTRIC UTILITY COMPANY'S SYSTEM, AND OBTAIN ELECTRIC UTILITY COMPANY APPROVAL FOR SIZES AND SETTINGS OF THESE DEVICES.
      3. CONDUCTOR AMPACITIES SPECIFIED OR SHOWN ON THE DRAWINGS ARE BASED ON COPPER CONDUCTORS, WITH THE CONDUIT AND RACEWAYS SIZED PER NEC. ALUMINUM CONDUCTORS ARE PROHIBITED.
      4. THE LATEST INTERNATIONAL BUILDING CODE (IBC), UNDERWRITERS LABORATORIES, INC. (UL), INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE), AND NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) CODES AND STANDARDS ARE THE MINIMUM REQUIREMENTS FOR MATERIALS AND INSTALLATION.
      5. THE DRAWINGS AND SPECIFICATIONS SHALL GOVERN IN THOSE INSTANCES WHERE REQUIREMENTS ARE GREATER THAN THOSE STATED IN THE ABOVE CODES AND STANDARDS.
      6. TEST STANDARDS: ALL MATERIALS AND EQUIPMENT SHALL BE LISTED, LABELED, OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL) TO MEET UNDERWRITERS LABORATORIES, INC. (UL), STANDARDS WHERE TEST STANDARDS HAVE BEEN ESTABLISHED. MATERIALS AND EQUIPMENT WHICH ARE NOT COVERED BY UL STANDARDS WILL BE ACCEPTED, PROVIDING THAT MATERIALS AND EQUIPMENT ARE LISTED, LABELED, CERTIFIED OR OTHERWISE DETERMINED TO MEET THE SAFETY REQUIREMENTS OF A NRTL. MATERIALS AND EQUIPMENT WHICH NO NRTL ACCEPTS, CERTIFIES, LISTS, LABELS, OR DETERMINES TO BE SAFE, WILL BE CONSIDERED IF INSPECTED OR TESTED IN ACCORDANCE WITH NATIONAL INDUSTRIAL STANDARDS, SUCH AS ANSI, NEMA, AND NETA. EVIDENCE OF COMPLIANCE SHALL INCLUDE CERTIFIED TEST REPORTS AND DEFINITIVE SHOP DRAWINGS.
      7. MATERIALS AND EQUIPMENT PROTECTION: MATERIALS AND EQUIPMENT SHALL BE PROTECTED DURING SHIPMENT AND STORAGE AGAINST PHYSICAL DAMAGE, VERMIN, DIRT, CORROSIVE SUBSTANCES, FUMES, MOISTURE, COLD AND RAIN.
      8. WORK PERFORMANCE
         a. ALL ELECTRICAL WORK SHALL COMPLY WITH REQUIREMENTS OF THE LATEST NFPA 70 (NEC), NFPA 70B, NFPA 70E, NFPA 99, NFPA 110, OSHA PART 1910 SUBPART J – GENERAL ENVIRONMENTAL CONTROLS, OSHA PART 1910 SUBPART K – MEDICAL AND FIRST AID, AND OSHA PART 1910 SUBPART S – ELECTRICAL, IN ADDITION TO OTHER REFERENCES REQUIRED BY CONTRACT.
         b. JOB SITE SAFETY AND WORKER SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR.
         c. FOR WORK THAT AFFECTS EXISTING ELECTRICAL SYSTEMS, ARRANGE, PHASE AND PERFORM WORK TO ASSURE MINIMAL INTERFERENCE WITH NORMAL FUNCTIONING OF THE FACILITY. REFER TO ARTICLE OPERATIONS AND STORAGE AREAS UNDER SECTION GENERAL REQUIREMENTS.
         d. NEW WORK SHALL BE INSTALLED AND CONNECTED TO EXISTING WORK NEATLY, SAFELY AND PROFESSIONALLY. DISTURBED OR DAMAGED WORK SHALL BE REPLACED OR REPAIRED TO ITS PRIOR CONDITIONS, AS REQUIRED BY SECTION GENERAL REQUIREMENTS.
         e. COORDINATE LOCATION OF EQUIPMENT AND CONDUIT WITH OTHER TRADES TO MINIMIZE INTERFERENCE.
      9. EQUIPMENT INSTALLATION AND REQUIREMENTS:
         a. EQUIPMENT LOCATION SHALL BE AS CLOSE AS PRACTICAL TO LOCATIONS SHOWN ON THE DRAWINGS.
         b. WORKING CLEARANCES SHALL NOT BE LESS THAN SPECIFIED IN THE NEC.
         c. ELECTRICAL SERVICE ENTRANCE EQUIPMENT AND ARRANGEMENTS FOR TEMPORARY AND PERMANENT CONNECTIONS TO THE ELECTRIC UTILITY COMPANY'S SYSTEM SHALL CONFORM TO THE ELECTRIC UTILITY COMPANY'S REQUIREMENTS. COORDINATE FUSES, CIRCUIT BREAKERS AND RELAYS WITH THE ELECTRIC UTILITY COMPANY'S SYSTEM, AND OBTAIN ELECTRIC UTILITY COMPANY APPROVAL FOR SIZES AND SETTINGS OF THESE DEVICES.
      10. EQUIPMENT ID
         a. IN ADDITION TO THE REQUIREMENTS OF THE NEC, INSTALL AN IDENTIFICATION SIGN WHICH CLEARLY INDICATES INFORMATION REQUIRED FOR USE AND MAINTENANCE OF ITEMS SUCH AS SWITCHBOARDS AND SWITCHGEAR, PANELBOARDS, CABINETS, MOTOR CONTROLLERS, FUSED AND NON-FUSED SAFETY SWITCHES, GENERATORS, AUTOMATIC TRANSFER SWITCHES, SEPARATELY ENCLOSED CIRCUIT BREAKERS, INDIVIDUAL BREAKERS AND CONTROLLERS IN SWITCHBOARDS, SWITCHGEAR AND MOTOR CONTROL ASSEMBLIES, CONTROL DEVICES AND OTHER SIGNIFICANT EQUIPMENT.
         b. INSTALL ADHESIVE ARC FLASH WARNING LABELS ON ALL EQUIPMENT AS REQUIRED BY THE LATEST NFPA 70E. LABEL SHALL SHOW SPECIFIC AND CORRECT INFORMATION FOR SPECIFIC EQUIPMENT BASED ON ITS ARC FLASH CALCULATIONS.
   B. **SUBMITTALS**
      1. SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES IN APPROPRIATE SUBMITTAL PACKAGES.
      2. APPROVAL SHALL BE OBTAINED FOR ALL MATERIALS AND EQUIPMENT BEFORE DELIVERY TO THE JOB SITE. DELIVERY, STORAGE OR INSTALLATION OF MATERIALS AND EQUIPMENT WHICH HAS NOT HAD PRIOR APPROVAL WILL NOT BE PERMITTED.
      3. ALL SUBMITTALS SHALL INCLUDE SIX COPIES OF ADEQUATE DESCRIPTIVE LITERATURE, CATALOG CUTS, SHOP DRAWINGS, TEST REPORTS, CERTIFICATIONS, SAMPLES, AND OTHER DATA NECESSARY FOR THE TO ASCERTAIN THAT THE PROPOSED MATERIALS AND EQUIPMENT COMPLY WITH DRAWING AND SPECIFICATION REQUIREMENTS. CATALOG CUTS SUBMITTED FOR APPROVAL SHALL BE LEGIBLE AND CLEARLY IDENTIFY SPECIFIC MATERIALS AND EQUIPMENT BEING SUBMITTED.
      4. SUBMITTALS FOR INDIVIDUAL SYSTEMS AND EQUIPMENT ASSEMBLIES WHICH CONSIST OF MORE THAN ONE ITEM OR COMPONENT SHALL BE MADE FOR THE SYSTEM OR ASSEMBLY AS A WHOLE. PARTIAL SUBMITTALS WILL NOT BE CONSIDERED FOR APPROVAL.
      5. SUBMIT AS REQUIRED FOR SYSTEMS AND EQUIPMENT SPECIFIED IN THE TECHNICAL SECTIONS. FURNISH IN HARDCOVER BINDERS OR AN APPROVED EQUIVALENT.
      6. APPROVALS WILL BE BASED ON COMPLETE SUBMISSION OF SHOP DRAWINGS, MANUALS, TEST REPORTS, CERTIFICATIONS, AND SAMPLES AS APPLICABLE.
      7. WARRANTY
         a. ALL WORK PERFORMED AND ALL EQUIPMENT AND MATERIAL FURNISHED UNDER THIS DIVISION SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE OF THE ENTIRE INSTALLATION.

2. **LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**
   A. **GENERAL**
      1. **DESCRIPTION**: FURNISHING, INSTALLATION, CONNECTION, AND TESTING OF THE ELECTRICAL CONDUCTORS AND CABLES FOR USE IN ELECTRICAL SYSTEMS RATED 600 V AND BELOW, INDICATED AS CABLE(S), CONDUCTOR(S), WIRE, OR WIRING IN THIS SECTION.
      2. **SUBMITTALS**
         a. SHOP DRAWINGS: SUBMIT SUFFICIENT INFORMATION TO DEMONSTRATE COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS.
         b. SHOP DRAWINGS: ELECTRICAL RATINGS AND INSULATION TYPE FOR EACH CONDUCTOR AND CABLE.
         c. SUBMIT THE FOLLOWING DATA FOR APPROVAL: ELECTRICAL RATINGS AND INSULATION TYPE FOR EACH CONDUCTOR AND CABLE.
         d. SUBMIT THE FOLLOWING DATA FOR APPROVAL: SPLICING MATERIALS AND PULLING LUBRICANT.
   B. **PRODUCTS**
      1. **CONDUCTORS AND CABLES**
         a. CONDUCTORS AND CABLES SHALL BE IN ACCORDANCE WITH ASTM, NEMA, NFPA, UL, AS SPECIFIED, AND AS SHOWN ON THE DRAWINGS.
         b. ALL CONDUCTORS SHALL BE COPPER.
         c. SINGLE CONDUCTOR AND CABLE:
            - NO. 12 AWG: MINIMUM SIZE, EXCEPT WHERE SMALLER SIZES ARE SPECIFIED HEREIN OR SHOWN ON THE DRAWINGS.
            - NO. 8 AWG AND LARGER: STRANDED.
            - NO. 10 AWG AND SMALLER: SOLID, EXCEPT SHALL BE STRANDED FOR FINAL CONNECTION TO MOTORS, TRANSFORMERS, AND VIBRATING EQUIPMENT.
            - INSULATION: THHN-THWN AND XHHW-2. XHHW-2 SHALL BE USED FOR ISOLATED POWER SYSTEMS.
         d. COLOR CODE:
            - NO. 10 AWG AND SMALLER: SOLID COLOR INSULATION OR SOLID COLOR COATING.
            - NO. 8 AWG AND LARGER: COLOR-CODED USING ONE OF THE FOLLOWING METHODS:
            - SOLID COLOR INSULATION OR SOLID COLOR COATING.
            - STRIPES, BANDS, OR HASH MARKS OF COLOR SPECIFIED.
            - COLOR USING 19 MM (0.75 INCHES) WIDE TAPE.
         e. FOR MODIFICATIONS AND ADDITIONS TO EXISTING WIRING SYSTEMS, COLOR CODING SHALL CONFORM TO THE EXISTING WIRING SYSTEM.
         f. LIGHTING CIRCUIT "SWITCH LEGS", AND 3-WAY AND 4-WAY SWITCH "TRAVELING WIRES." SHALL HAVE COLOR CODING THAT IS UNIQUE AND DISTINCT (E.G., PINK AND PURPLE) FROM THE COLOR CODING INDICATED ABOVE. THE UNIQUE COLOR CODES SHALL BE SOLID AND IN ACCORDANCE WITH THE NEC. COORDINATE COLOR CODING IN THE FIELD CLIENT PROJECT REPRESENTATIVE.
         g. COLOR CODE FOR ISOLATED POWER SYSTEM WIRING SHALL BE IN ACCORDANCE WITH THE NEC.
            - 208/120V PHASE 480/277V
            - BLACK A BROWN
            - RED B ORANGE
            - BLUE C YELLOW
            - WHITE NEUTRAL GRAY*
            - * OR WHITE WITH COLORED (OTHER THAN GREEN) TRACER.
      2. **SPLICES**
         a. SPLICES SHALL BE IN ACCORDANCE WITH NEC AND UL.
         b. ABOVE GROUND SPLICES FOR NO. 10 AWG AND SMALLER:
            - SOLDERLESS, SCREW-ON, REUSABLE PRESSURE CABLE TYPE, WITH INTEGRAL INSULATION, APPROVED FOR COPPER AND ALUMINUM CONDUCTORS.
            - THE INTEGRAL INSULATOR SHALL HAVE A SKIRT TO COMPLETELY COVER THE STRIPPED CONDUCTORS.
            - THE NUMBER, SIZE, AND COMBINATION OF CONDUCTORS USED WITH THE CONNECTOR, AS LISTED ON THE MANUFACTURER'S PACKAGING, SHALL BE STRICTLY FOLLOWED.
         c. ABOVE GROUND SPLICES FOR NO. 8 AWG TO NO. 4/0 AWG:
            - COMPRESSION, HEX SCREW, OR BOLT CLAMP-TYPE OF HIGH CONDUCTIVITY AND CORROSION-RESISTANT MATERIAL, LISTED FOR USE WITH COPPER AND ALUMINUM CONDUCTORS.
            - INSULATE WITH MATERIALS APPROVED FOR THE PARTICULAR USE, LOCATION, VOLTAGE, AND TEMPERATURE. INSULATION LEVEL SHALL BE NOT LESS THAN THE INSULATION LEVEL OF THE CONDUCTORS BEING JOINED.
            - SPLICE AND INSULATION SHALL BE PRODUCT OF THE SAME MANUFACTURER.
            - ALL BOLTS, NUTS, AND WASHERS USED WITH SPLICES SHALL BE ZINC-PLATED STEEL.
      3. **CONNECTIONS**:
         a. MECHANICAL TYPE OF HIGH CONDUCTIVITY AND CORROSION-RESISTANT MATERIAL, LISTED FOR USE WITH COPPER AND ALUMINUM CONDUCTORS.
         b. LONG BARREL COMPRESSION TYPE OF HIGH CONDUCTIVITY AND CORROSION-RESISTANT MATERIAL, WITH MINIMUM OF TWO COMPRESSION INDENTS PER WIRE, LISTED FOR USE WITH COPPER AND ALUMINUM CONDUCTORS.
         c. ALL BOLTS, NUTS, AND WASHERS USED TO CONNECT CONNECTIONS AND TERMINATIONS TO BUS BARS OR OTHER TERMINATION POINTS SHALL BE ZINC-PLATED STEEL.
      4. **CONTROL WIRING**
         a. UNLESS OTHERWISE SPECIFIED ELSEWHERE IN THESE SPECIFICATIONS, CONTROL WIRING SHALL BE AS SPECIFIED HEREIN, EXCEPT THAT THE MINIMUM SIZE SHALL BE NOT LESS THAN NO. 14 AWG.
         b. CONTROL WIRING SHALL BE SIZED SUCH THAT THE VOLTAGE DROP UNDER IN-RUSH CONDITIONS DOES NOT ADVERSELY AFFECT OPERATION OF THE CONTROLS.
   C. **EXECUTION**
      1. **GENERAL**
         a. INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC, AS SHOWN ON THE DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS.
         b. INSTALL ALL CONDUCTORS IN RACEWAY SYSTEMS.
         c. SPLICE CONDUCTORS ONLY IN OUTLET BOXES, JUNCTION BOXES, PULLBOXES, MANHOLES, OR HANDHOLES.
         d. CONDUCTORS OF DIFFERENT SYSTEMS (E.G., 120 V AND 277 V) SHALL NOT BE INSTALLED IN THE SAME RACEWAY.
         e. INSTALL CABLE SUPPORTS FOR ALL VERTICAL FEEDERS IN ACCORDANCE WITH THE NEC. PROVIDE SPLIT WEDGE TYPE WHICH FIRMLY CLAMPS EACH INDIVIDUAL CABLE AND TIGHTENS DUE TO CABLE WEIGHT.
         f. IN PANELBOARDS, CABINETS, WIREWAYS, SWITCHES, ENCLOSURES, AND EQUIPMENT ASSEMBLIES, NEATLY FORM, TRAIN, AND TIE THE CONDUCTORS WITH NON-METALLIC TIES.
         g. FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND VIBRATING EQUIPMENT, STRANDED CONDUCTORS SHALL BE USED ONLY FROM THE LAST FIXED POINT OF CONNECTION TO THE MOTORS, TRANSFORMERS, OR VIBRATING EQUIPMENT.
         h. USE EXPANDING FOAM OR NON-HARDENING DUCT-SEAL TO SEAL CONDUITS ENTERING A BUILDING, AFTER INSTALLATION OF CONDUCTORS.
         i. NO MORE THAN THREE BRANCH CIRCUITS SHALL BE INSTALLED IN ANY ONE CONDUIT.
      2. **SPLICES AND TERMINATIONS INSTALLATION**: SPLICES AND TERMINATIONS SHALL BE MECHANICALLY AND ELECTRICALLY SECURE, AND TIGHTENED TO MANUFACTURER'S PUBLISHED TORQUE VALUES USING A TORQUE SCREWDRIVER OR WRENCH.
      3. **CONDUCTOR IDENTIFICATION**: WHEN USING COLORED TAPE TO IDENTIFY PHASE, NEUTRAL, AND GROUND CONDUCTORS LARGER THAN NO. 8 AWG, APPLY TAPE IN HALF-OVERLAPPING TURNS FOR A MINIMUM OF 75 MM (3 INCHES) FROM TERMINAL POINTS, AND IN JUNCTION BOXES, PULLBOXES, AND MANHOLES. APPLY THE LAST TWO LAPS OF TAPE WITH NO TENSION TO PREVENT POSSIBLE UNWINDING. WHERE CABLE MARKINGS ARE COVERED BY TAPE, APPLY TAGS TO CABLE, STATING SIZE AND INSULATION TYPE.
      4. **FEEDER CONDUCTOR IDENTIFICATION**: IN EACH INTERIOR PULLBOX AND EACH UNDERGROUND MANHOLE AND HANDHOLE, INSTALL BRASS TAGS ON ALL FEEDER CONDUCTORS TO CLEARLY DESIGNATE THEIR CIRCUIT IDENTIFICATION AND VOLTAGE. THE TAGS SHALL BE THE EMBOSSED TYPE, 40 MM (1-1/2 INCHES) IN DIAMETER AND 40 MILS THICK. ATTACH TAGS WITH PLASTIC TIES.
      5. **EXISTING CONDUCTORS**: UNLESS SPECIFICALLY INDICATED ON THE PLANS, EXISTING CONDUCTORS SHALL NOT BE REUSED.
      6. **CONTROL WIRING INSTALLATION**: INSTALL A SEPARATE POWER SUPPLY CIRCUIT FOR EACH SYSTEM, EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS.
      7. **ACCEPTANCE CHECKS AND TESTS**:
         a. AFTER INSTALLATION BUT BEFORE CONNECTION TO UTILIZATION DEVICES, SUCH AS FIXTURES, MOTORS, OR APPLIANCES, TEST CONDUCTORS PHASE-TO-PHASE AND PHASE-TO-GROUND RESISTANCE WITH AN INSULATION RESISTANCE TESTER. EXISTING CONDUCTORS TO BE REUSED SHALL ALSO BE TESTED.
         b. PERFORM PHASE ROTATION TEST ON ALL THREE-PHASE CIRCUITS

4. **RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS**
   A. **GENERAL**
      1. DESCRIPTION: FURNISHING, INSTALLATION, AND CONNECTION OF CONDUIT, FITTINGS, AND BOXES, TO FORM COMPLETE, COORDINATED, GROUNDED RACEWAY SYSTEMS. RACEWAYS ARE REQUIRED FOR ALL WIRING UNLESS SHOWN OR SPECIFIED OTHERWISE.
      2. THE TERM CONDUIT, AS USED IN THIS SPECIFICATION, SHALL MEAN ANY OR ALL OF THE RACEWAY TYPES SPECIFIED.
      3. SUBMITTALS
         a. SHOP DRAWINGS: SIZE AND LOCATION OF MAIN FEEDERS, SIZE AND LOCATION OF PANELS AND PULL-BOXES, LAYOUT OF REQUIRED CONDUIT PENETRATIONS THROUGH STRUCTURAL ELEMENTS, RACEWAY TYPES AND SIZES, CONDUIT BODIES, CONNECTORS AND FITTINGS, JUNCTION AND PULL BOXES, TYPES AND SIZES.
   B. **PRODUCTS**
      1. **MATERIALS**:
         a. CONDUIT SIZE: IN ACCORDANCE WITH THE NEC, BUT NOT LESS THAN 13 MM (0.5-INCH) UNLESS OTHERWISE SHOWN.
      2. **MATERIALS – CONDUIT**:
         a. SIZE: IN ACCORDANCE WITH THE NEC, BUT NOT LESS THAN 13 MM (0.5-INCH).
         b. RIGID STEEL CONDUIT (RMC): SHALL CONFORM TO UL 6 AND NEMA C80.1.
         c. RIGID INTERMEDIATE STEEL CONDUIT (IMC): SHALL CONFORM TO UL 1242 AND NEMA C80.6.
         d. ELECTRICAL METALLIC TUBING (EMT): SHALL CONFORM TO UL 797 AND NEMA C80.3. MAXIMUM SIZE NOT TO EXCEED 105 MM (4 INCHES) AND SHALL BE
         e. FLEXIBLE METAL CONDUIT: SHALL CONFORM TO UL 1.
         f. LIQUID-TIGHT FLEXIBLE METAL CONDUIT: SHALL CONFORM TO UL 360.
         g. DIRECT BURIAL PLASTIC CONDUIT: SHALL CONFORM TO UL 651 AND UL 651A, HEAVY WALL PVC OR HIGH DENSITY POLYETHYLENE (PE).
         h. SURFACE METAL RACEWAY: SHALL CONFORM TO UL 5.
      3. **MATERIALS – CONDUIT FITTINGS**
         a. RIGID STEEL AND INTERMEDIATE METALLIC CONDUIT FITTINGS: FITTINGS SHALL MEET THE REQUIREMENTS OF UL 514B AND NEMA FB1.
         b. FITTINGS SHALL MEET THE REQUIREMENTS OF UL 514B AND NEMA FB1.
         c. STANDARD THREADED COUPLINGS, LOCKNUTS, BUSHINGS, CONDUIT BODIES, AND ELBOWS: ONLY STEEL OR MALLEABLE IRON MATERIALS ARE ACCEPTABLE. INTEGRAL RETRACTABLE TYPE IMC COUPLINGS ARE ALSO ACCEPTABLE.
         d. LOCKNUTS: BONDING TYPE WITH SHARP EDGES FOR DIGGING INTO THE METAL WALL OF AN ENCLOSURE.
         e. BUSHINGS: METALLIC INSULATING TYPE, CONSISTING OF AN INSULATING INSERT, MOLDED OR LOCKED INTO THE METALLIC BODY OF THE FITTING. BUSHINGS MADE ENTIRELY OF METAL OR NONMETALLIC MATERIAL ARE NOT PERMITTED.
         f. ERICKSON (UNION-TYPE) AND SET SCREW TYPE COUPLINGS: APPROVED FOR USE IN CONCRETE ARE PERMITTED FOR USE TO COMPLETE A CONDUIT RUN WHERE CONDUIT IS INSTALLED IN CONCRETE. USE SET SCREWS OF CASE-HARDENED STEEL WITH HEX HEAD AND CUP POINT TO FIRMLY SEAT IN CONDUIT WALL FOR POSITIVE GROUND. TIGHTENING OF SET SCREWS WITH PLIERS IS PROHIBITED.
         g. SEALING FITTINGS: THREADED CAST IRON TYPE. USE CONTINUOUS DRAIN-TYPE SEALING FITTINGS TO PREVENT PASSAGE OF WATER VAPOR. IN CONCEALED WORK, INSTALL FITTINGS IN FLUSH STEEL BOXES WITH BLANK COVER PLATES HAVING THE SAME FINISHES AS THAT OF OTHER ELECTRICAL PLATES IN THE ROOM.
         h. ELECTRICAL METALLIC TUBING FITTINGS:
            - FITTINGS AND CONDUIT BODIES SHALL MEET THE REQUIREMENTS OF UL 514B, NEMA C80.3, AND NEMA FB1.
            - ONLY STEEL OR MALLEABLE IRON MATERIALS ARE ACCEPTABLE.
            - COMPRESSION COUPLINGS AND CONNECTORS: CONCRETE-TIGHT AND RAIN-TIGHT, WITH CONNECTORS HAVING INSULATED THROATS.
            - SETSCREW COUPLINGS AND CONNECTORS: USE SETSCREWS OF CASE-HARDENED STEEL WITH HEX HEAD AND CUP POINT, TO FIRMLY SEAT IN WALL OF CONDUIT FOR POSITIVE GROUNDING.
            - INDENT-TYPE CONNECTORS OR COUPLINGS ARE PROHIBITED.
            - DIE-CAST OR PRESSURE-CAST ZINC-ALLOY FITTINGS OR FITTINGS MADE OF "POT METAL" ARE PROHIBITED.
         i. FLEXIBLE METAL CONDUIT FITTINGS:
            - CONFORM TO UL 514B. ONLY STEEL OR MALLEABLE IRON MATERIALS ARE ACCEPTABLE.
            - CLAMP-TYPE, WITH INSULATED THROAT.
         j. LIQUID-TIGHT FLEXIBLE METAL CONDUIT FITTINGS:
            - FITTINGS SHALL MEET THE REQUIREMENTS OF UL 514B AND NEMA FB1.
            - ONLY STEEL OR MALLEABLE IRON MATERIALS ARE ACCEPTABLE.
            - FITTINGS MUST INCORPORATE A THREADED GROUNDING CONE, A STEEL OR PLASTIC COMPRESSION RING, AND A GLAND FOR TIGHTENING. CONNECTORS SHALL HAVE INSULATED THROATS.
         k. DIRECT BURIAL PLASTIC CONDUIT FITTINGS: FITTINGS SHALL MEET THE REQUIREMENTS OF UL 514C AND NEMA TC3.
         l. SURFACE METAL RACEWAY FITTINGS: AS RECOMMENDED BY THE RACEWAY MANUFACTURER. INCLUDE COUPLINGS, OFFSETS, ELBOWS, EXPANSION JOINTS, ADAPTERS, HOLD-DOWN STRAPS, END CAPS, CONDUIT ENTRY FITTINGS, ACCESSORIES, AND OTHER FITTINGS AS REQUIRED FOR COMPLETE SYSTEM.
      4. **CONDUIT SUPPORTS**
         a. PARTS AND HARDWARE: ZINC-COAT OR PROVIDE EQUIVALENT CORROSION PROTECTION.
         b. INDIVIDUAL CONDUIT HANGERS: DESIGNED FOR THE PURPOSE, HAVING A PRE-ASSEMBLED CLOSURE BOLT AND NUT, AND PROVISIONS FOR RECEIVING A HANGER ROD.
         c. MULTIPLE CONDUIT (TRAPEZE) HANGERS: NOT LESS THAN 38 MM X 38 MM (1.5 X 1.5 INCHES), 12-GAUGE STEEL, COLD-FORMED, LIPPED CHANNELS; WITH NOT LESS THAN 9 MM (0.375-INCH) DIAMETER STEEL HANGER RODS.
      5. **OUTLET, JUNCTION, AND PULL BOXES**:
         a. COMPLY WITH UL-50 AND UL-514A.
         b. RUSTPROOF CAST METAL WHERE REQUIRED BY THE NEC OR SHOWN ON DRAWINGS.
         c. SHEET METAL BOXES: GALVANIZED STEEL, EXCEPT WHERE SHOWN ON DRAWINGS.
   C. **EXECUTION**
      1. **PENETRATIONS**
         a. CUT HOLES THROUGH CONCRETE AND MASONRY IN NEW AND EXISTING STRUCTURES WITH A DIAMOND CORE DRILL OR CONCRETE SAW. PNEUMATIC HAMMERS, IMPACT ELECTRIC, HAND, OR MANUAL HAMMER-TYPE DRILLS ARE NOT ALLOWED, EXCEPT WHEN PERMITTED WHERE WORKING SPACE IS LIMITED.
         b. FIRESTOP: WHERE CONDUITS, WIREWAYS, AND OTHER ELECTRICAL RACEWAYS PASS THROUGH FIRE PARTITIONS, FIRE WALLS, SMOKE PARTITIONS, OR FLOORS, INSTALL A FIRE STOP THAT PROVIDES AN EFFECTIVE BARRIER AGAINST THE SPREAD OF FIRE, SMOKE AND GASES AS SPECIFIED IN SECTION FIRESTOPPING.
         c. WATERPROOFING: AT FLOOR, EXTERIOR WALL, AND ROOF CONDUIT PENETRATIONS, COMPLETELY SEAL THE GAP AROUND CONDUIT TO RENDER IT WATERTIGHT, AS SPECIFIED WITH APPROVED JOINT SEALANTS.
      2. **INSTALLATION**
         a. IN ACCORDANCE WITH NEC, NEMA, UL, AS SHOWN ON DRAWINGS, AND AS SPECIFIED HEREIN.
         b. INSTALL CONDUIT AS FOLLOWS:
            - IN COMPLETE MECHANICALLY AND ELECTRICALLY CONTINUOUS RUNS BEFORE PULLING IN CABLES OR WIRES.
            - UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN, INSTALLATION OF ALL CONDUITS SHALL BE CONCEALED WITHIN FINISHED WALLS, FLOORS, AND CEILINGS.
            - FLATTENED, DENTED, OR DEFORMED CONDUIT IS NOT PERMITTED. REMOVE AND REPLACE THE DAMAGED CONDUITS WITH NEW CONDUITS.
            - ASSURE CONDUIT INSTALLATION DOES NOT ENCROACH INTO THE CEILING HEIGHT HEAD ROOM, WALKWAYS, OR DOORWAYS.
            - CUT CONDUITS SQUARE, REAM, REMOVE BURRS, AND DRAW UP TIGHT.
            - DO NOT FASTEN TO SUSPENDED CEILINGS, SUSPENDED CEILING SUPPORTING MEMBERS, LIGHTING FIXTURES, OTHER CONDUITS, CABLE TRAY, BOXES, PIPING, OR DUCTS TO SUPPORT CONDUITS AND CONDUIT RUNS.
            - SUPPORT WITHIN 300 MM (12 INCHES) OF CHANGES OF DIRECTION, AND WITHIN 300 MM (12 INCHES) OF EACH ENCLOSURE TO WHICH CONNECTED.
            - CLOSE ENDS OF EMPTY CONDUITS WITH PLUGS OR CAPS AT THE ROUGH-IN STAGE UNTIL WIRES ARE PULLED IN, TO PREVENT ENTRY OF DEBRIS.
            - SECURE CONDUITS TO CABINETS, JUNCTION BOXES, PULL-BOXES, AND OUTLET BOXES WITH BONDING TYPE LOCKNUTS. FOR RIGID STEEL AND IMC CONDUIT INSTALLATIONS, PROVIDE A LOCKNUT ON THE INSIDE OF THE ENCLOSURE, MADE UP WRENCH TIGHT. DO NOT MAKE CONDUIT CONNECTIONS TO JUNCTION BOX COVERS.
            - CONDUIT BODIES SHALL ONLY BE USED FOR CHANGES IN DIRECTION, AND SHALL NOT CONTAIN SPLICES.
         c. CONDUIT BENDS: MAKE BENDS WITH STANDARD CONDUIT BENDING MACHINES. CONDUIT HICKEY MAY BE USED FOR SLIGHT OFFSETS AND FOR STRAIGHTENING STUBBED OUT CONDUITS, BENDING OF CONDUITS WITH A PIPE TEE OR VISE IS PROHIBITED.
         d. LAYOUT AND HOMERUNS: INSTALL CONDUIT WITH WIRING, INCLUDING HOMERUNS, AS SHOWN ON DRAWINGS.
      3. **CONCEALED WORK INSTALLATION**
         a. IN CONCRETE:
            - CONDUIT: RIGID STEEL, IMC, OR EMT. DO NOT INSTALL EMT IN CONCRETE SLABS THAT ARE IN CONTACT WITH SOIL, GRAVEL, OR VAPOR BARRIERS.
            - INSTALLATION OF CONDUIT IN CONCRETE THAT IS LESS THAN 75 MM (3 INCHES) THICK IS PROHIBITED.
         b. ABOVE FURRED OR SUSPENDED CEILINGS AND IN WALLS:
            - CONDUIT FOR CONDUCTORS 600 V AND BELOW: RIGID STEEL, IMC, OR EMT. MIXING DIFFERENT TYPES OF CONDUITS IN THE SAME SYSTEM IS PROHIBITED.
            - ALIGN AND RUN CONDUIT PARALLEL OR PERPENDICULAR TO THE BUILDING LINES.
            - CONNECT RECESSED LIGHTING FIXTURES TO CONDUIT RUNS WITH MAXIMUM 1.8 M (6 FEET) OF FLEXIBLE METAL CONDUIT EXTENDING FROM A JUNCTION BOX TO THE FIXTURE.
            - FOR CONDUITS RUNNING THROUGH METAL STUDS, LIMIT FIELD CUT HOLES TO NO MORE THAN 70% OF WEB DEPTH. SPACING BETWEEN HOLES SHALL BE AT LEAST 457 MM (18 INCHES). CUTS OR NOTCHES IN FLANGES OR RETURN LIPS SHALL NOT BE PERMITTED.
      4. **EXPOSED WORK INSTALLATION**
         a. UNLESS OTHERWISE INDICATED ON DRAWINGS, EXPOSED CONDUIT IS ONLY PERMITTED IN MECHANICAL AND ELECTRICAL ROOMS.
         b. CONDUIT FOR CONDUCTORS 600 V AND BELOW: RIGID STEEL, IMC OR EMT. MIXING DIFFERENT TYPES OF CONDUITS IN THE SYSTEM IS PROHIBITED.
         c. ALIGN AND RUN CONDUIT PARALLEL OR PERPENDICULAR TO THE BUILDING LINES.
         d. INSTALL HORIZONTAL RUNS CLOSE TO THE CEILING OR BEAMS AND SECURE WITH CONDUIT STRAPS.
      5. **WET OR DAMP LOCATIONS**
         a. USE RIGID STEEL OR IMC CONDUITS UNLESS AS SHOWN ON DRAWINGS.
         b. PROVIDE SEALING FITTINGS TO PREVENT PASSAGE OF WATER VAPOR WHERE CONDUITS PASS FROM WARM TO COLD LOCATIONS, I.E., REFRIGERATED SPACES, CONSTANT-TEMPERATURE ROOMS, AIR-CONDITIONED SPACES, BUILDING EXTERIOR WALLS, ROOFS, OR SIMILAR SPACES.
      6. **MOTORS AND VIBRATING EQUIPMENT**
         a. USE FLEXIBLE METAL CONDUIT FOR CONNECTIONS TO MOTORS AND OTHER ELECTRICAL EQUIPMENT SUBJECT TO MOVEMENT, VIBRATION, MISALIGNMENT, CRAMPED QUARTERS, OR NOISE TRANSMISSION.
         b. USE LIQUID-TIGHT FLEXIBLE METAL CONDUIT FOR INSTALLATION IN EXTERIOR LOCATIONS, MOISTURE OR HUMIDITY LADEN ATMOSPHERE, CORROSIVE ATMOSPHERE, WATER OR SPRAY WASH-DOWN OPERATIONS, INSIDE AIRSTREAM OF HVAC UNITS, AND LOCATIONS SUBJECT TO SEEPAGE OR DRIPPING OF OIL, GREASE, OR WATER.
         c. PROVIDE A GREEN EQUIPMENT GROUNDING CONDUCTOR WITH FLEXIBLE AND LIQUID-TIGHT FLEXIBLE METAL CONDUIT.
      7. **CONDUIT SUPPORTS**
         a. SUPPORT MULTIPLE CONDUIT RUNS WITH TRAPEZE HANGERS. USE TRAPEZE HANGERS THAT ARE DESIGNED TO SUPPORT A LOAD EQUAL TO OR GREATER THAN THE SUM OF THE WEIGHTS OF THE CONDUITS, WIRES, HANGER ITSELF, AND AN ADDITIONAL 90 KG (200 LBS). ATTACH EACH CONDUIT WITH U-BOL

GENERAL LIGHTING NOTES

5. **CORROSION INHIBITORS**: WHEN MAKING GROUNDING AND BONDING CONNECTIONS, APPLY A CORROSION INHIBITOR TO ALL CONTACT SURFACES. USE CORROSION INHIBITOR APPROPRIATE FOR PROTECTING A CONNECTION BETWEEN THE METALS USED.
6. **CONDUCTIVE PIPING**: BOND ALL CONDUCTIVE PIPING SYSTEMS, INTERIOR AND EXTERIOR, TO THE GROUNDING ELECTRODE SYSTEM. BONDING CONNECTIONS SHALL BE MADE AS CLOSE AS PRACTICAL TO THE EQUIPMENT GROUND BUS.
7. **LIGHTNING PROTECTION SYSTEM**: BOND THE LIGHTNING PROTECTION SYSTEM TO THE ELECTRICAL GROUNDING ELECTRODE SYSTEM.
8. **MAIN ELECTRICAL ROOM GROUNDING**: PROVIDE GROUND BUS BAR AND MOUNTING HARDWARE AT EACH MAIN ELECTRICAL ROOM WHERE INCOMING FEEDERS ARE TERMINATED, AS SHOWN ON THE DRAWINGS. CONNECT TO PIGTAIL EXTENSIONS OF THE BUILDING GROUNDING RING, AS SHOWN ON THE DRAWINGS.
9. **EXTERIOR LIGHT POLE**: PROVIDE 6.1 M (20 FEET) OF NO. 4 AWG BARE COPPER COILED AT BOTTOM OF POLE BASE EXCAVATION PRIOR TO POUR, PLUS ADDITIONAL UN-SPLICED LENGTH IN AND ABOVE FOUNDATION AS REQUIRED TO REACH POLE GROUND STUD.
10. **GROUND ROD INSTALLATAION**:
    a. FOR OUTDOOR INSTALLATIONS, DRIVE EACH ROD VERTICALLY IN THE EARTH, UNTIL TOP OF ROD IS 610 MM (24 INCHES) BELOW FINAL GRADE.
    b. FOR INDOOR INSTALLATIONS, LEAVE 100 MM (4 INCHES) OF EACH ROD EXPOSED.
    c. WHERE BURIED OR PERMANENTLY CONCEALED GROUND CONNECTIONS ARE REQUIRED, MAKE THE CONNECTIONS BY THE EXOTHERMIC PROCESS, TO FORM SOLID METAL JOINTS. MAKE ACCESSIBLE GROUND CONNECTIONS WITH MECHANICAL PRESSURE-TYPE GROUND CONNECTORS.

5. **LIGHTING CONTROLS**
   A. **GENERAL**
      1. **DESCRIPTION**: FURNISHING, INSTALLATION AND CONNECTION OF THE LIGHTING CONTROLS.
      2. **SUBMITTALS**
         a. SUBMIT THE FOLLOWING INFORMATION FOR EACH TYPE OF LIGHTING CONTROLS: MATERIAL AND CONSTRUCTION DETAILS, PHYSICAL DIMENSIONS AND DESCRIPTION, PHYSICAL DIMENSIONS AND DESCRIPTION, WIRING SCHEMATIC AND CONNECTION DIAGRAM, INSTALLATION DETAILS.
   B. **PRODUCTS**
      1. **ELECTRONIC TIME SWITCHES**: ELECTRONIC, SOLID-STATE PROGRAMMABLE UNITS WITH ALPHANUMERIC DISPLAY; COMPLYING WITH UL 916 AND OR 917.
      2. **OUTDOOR PHOTOELECTRIC SWITCHES**: SOLID STATE, WITH SPST, DPST DRY CONTACTS RATED FOR 1800 VA TUNGSTEN OR 1000 VA INDUCTIVE, COMPLYING WITH UL 773A.
      3. **TIMER SWITCHES**: DIGITAL SWITCHES WITH BACKLIT LCD DISPLAY, 120/277 VOLT RATED, FITTING AS A REPLACEMENT FOR STANDARD WALL SWITCHES.
      4. **CEILING-MOUNTED PHOTOELECTRIC SWITCHES**: SOLID-STATE, LIGHT-LEVEL SENSOR UNIT, WITH SEPARATE RELAY UNIT.
      5. **INDOOR OCCUPANCY SENSOR**: DUAL-TECHNOLOGY TYPE: CEILING MOUNTING; COMBINATION PIR AND ULTRASONIC DETECTION METHODS, FIELD-SELECTABLE.
         a. DETECTION COVERAGE SHALL BE SUFFICIENT TO PROVIDE COVERAGE AS REQUIRED BY SENSOR LOCATIONS SHOWN ON DRAWING.
      6. **LIGHTING CONTROL SYSTEM – DISTRIBUTIVE RELAY TYPE SYSTEM DESCRIPTION**
         a. THE LIGHTING CONTROL SYSTEM SHALL BE A NETWORK OF REMOTE RELAY MODULES CONNECTED TO A DIGITAL NETWORK VIA NETWORK HUBS AND CONTROLLED THROUGH A SYSTEM SERVER / CENTRAL STATION. LIGHTING DIGITAL NETWORK WITH THE SYSTEM SERVER. SYSTEM INCLUDES ALL ASSOCIATED CONTROL DEVICES CONNECT TO THE RELAY MODULES AND COMMUNICATE VIA THE NETWORK INTERFACES AND WIRING, HUBS, RELAY LIGHT OPERATION AND MONITORING AND REPORTING OF SYSTEM EVENTS AND COMPONENTS. SYSTEM SHALL UTILIZE DISTRIBUTED RELAYS MODULES, ALLOWING THESE RELAY MODULES TO BE LOCATED ABOVE ACCESSIBLE CEILINGS IN OR ADJACENT TO ROOMS THEY ARE CONTROLLING.
         b. SYSTEM SHALL INCLUDE SERVER / CENTRAL STATION WITH OPERATING SOFTWARE, DATA NETWORK, AND BACNET IP COMMUNICATION WITH OTHER SYSTEMS AS DESCRIBED. SYSTEM COMMUNICATION PROTOCOL SHALL BE COMPATIBLE WITH THE BUILDING AUTOMATION SYSTEM SPECIFIED IN SECTION 23 09 23, DIRECT DIGITAL CONTROL SYSTEM FOR HVAC.
         c. SYSTEM SERVER / CENTRAL STATION SHALL PROVIDE PROGRAMMABLE OPERATION OF LIGHTS CONNECTED VIA SYSTEM RELAYS AND CONTROLLED WITH SYSTEM DEVICES. SYSTEM SOFTWARE SHALL PROVIDE CONTROL OF RELAYS AND CONTROL DEVICES, TIME AND SEQUENCE SCHEDULING, TIMED OUT AND BLINK LIGHT OPERATION AND MONITORING AND REPORTING OF SYSTEM EVENTS AND COMPONENTS. INITIAL PROGRAMMING SHALL BE AS SHOWN ON PLANS AND SCHEDULES.
         d. RELAY MODULES: MOUNTED IN NEMA ENCLOSURE WITH PHYSICALLY SEPARATE 120/277 VOLT WIRING COMPARTMENT FROM LOW VOLTAGE CONTROL WIRING. PROVIDE LOW VOLTAGE DIGITAL COMMUNICATION TO CONTROL DEVICES AS SHOWN ON DRAWINGS AND SCHEDULES. SUPPLEMENTAL POWER PACKS SHALL BE PROVIDED AS REQUIRED FOR MULTIPLE CONTROL DEVICES. THIS EQUIPMENT SHALL BE IDENTIFIED IN SHOP DRAWING SUBMISSION.
         e. SINGLE-POLE RELAYS: MECHANICALLY HELD UNLESS OTHERWISE INDICATED; SPLIT-COIL, MOMENTARY-PULSED TYPE, RATED 20 A, 125 VOLT AC FOR TUNGSTEN FILAMENTS AND 20 A, 277 VOLT AC FOR ELECTRONIC BALLASTS, 50,000 CYCLES AT RATED CAPACITY.
         f. CONTROL DEVICES: ALL OCCUPANCY SENSORS (ULTRASONIC, IR AND DUAL TECHNOLOGY TYPE), PHOTOCELLS, SWITCHES AND TIMERS SHALL BE PROVIDED WITH SYSTEM AND DESIGNED TO OPERATE ON SYSTEM NETWORK. SUPPLEMENTAL POWER PACKS SHALL BE PROVIDED AS REQUIRED FOR MULTIPLE CONTROL DEVICES. THIS EQUIPMENT SHALL BE IDENTIFIED IN SHOP DRAWING SUBMISSION.
   C. **EXECUTION**
      1. **INSTALLATION**
         a. INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC, MANUFACTURER'S INSTRUCTIONS, AS SHOWN ON THE DRAWINGS, AND AS SPECIFIED.
         b. AIMING FOR WALL-MOUNTED AND CEILING-MOUNTED MOTION SENSOR SWITCHES SHALL BE PER MANUFACTURER'S RECOMMENDATIONS.
         c. LOCATE PHOTOELECTRIC SENSORS AS INDICATED AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ADJUST SENSOR FOR THE AVAILABLE LIGHT LEVEL AT THE TYPICAL WORK PLANE FOR THAT AREA.
      2. **ACCEPTANCE CHECKS AND TESTS**
         a. PERFORM IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
         b. UPON COMPLETION OF INSTALLATION, CONDUCT AN OPERATING TEST TO SHOW THAT EQUIPMENT OPERATES IN ACCORDANCE WITH REQUIREMENTS OF THIS SECTION.

6. **LOW VOLTAGE TRANSFORMERS**
   A. **GENERAL**
      1. **DESCRIPTION**: FURNISHING, INSTALLATION, CONNECTION, AND TESTING OF LOW-VOLTAGE DRY-TYPE GENERAL-PURPOSE TRANSFORMERS, INDICATED AS TRANSFORMERS IN THIS SECTION.
      2. **SUBMITTALS**
         a. INCLUDE ELECTRICAL RATINGS, DIMENSIONS, MOUNTING DETAILS, MATERIALS, REQUIRED CLEARANCES, TERMINATIONS, WEIGHT, TEMPERATURE RISE, WIRING AND CONNECTION DIAGRAMS, PLAN, FRONT, SIDE, AND REAR ELEVATIONS, ACCESSORIES, AND DEVICE NAMEPLATE DATA.
   B. **PRODUCTS**
      1. **TRANSFORMERS**
         a. UNLESS OTHERWISE SPECIFIED, TRANSFORMERS SHALL BE IN ACCORDANCE WITH NEMA, NFPA, UL AND AS SHOWN ON THE DRAWINGS.
         b. TRANSFORMERS SHALL HAVE THE FOLLOWING FEATURES:
            - SELF-COOLED BY NATURAL CONVECTION, ISOLATING WINDINGS, //INDOOR//AND OUTDOOR// DRY-TYPE.
            - AUTOTRANSFORMERS WILL NOT BE ACCEPTED, EXCEPT AS SPECIFICALLY ALLOWED FOR BUCK-BOOST APPLICATIONS.
            - 2. RATING AND WINDING CONNECTIONS SHALL BE AS SHOWN ON THE DRAWINGS.
            - 3. RATINGS SHOWN ON THE DRAWINGS ARE FOR CONTINUOUS DUTY WITHOUT THE USE OF COOLING FANS.
            - 4. COPPER WINDINGS.
         c. INSULATION SYSTEMS:
            - TRANSFORMERS 30 KVA AND LARGER: UL RATED 220 °C (428 °F) SYSTEM WITH AN AVERAGE MAXIMUM RISE BY RESISTANCE OF 150 °C (302 °F) IN A MAXIMUM AMBIENT OF 40 °C (104 °F).
            - TRANSFORMERS BELOW 30 KVA: SAME AS FOR 30 KVA AND LARGER OR UL RATED 185 °C (365 °F) SYSTEM WITH AN AVERAGE MAXIMUM RISE BY RESISTANCE OF 115 °C (239 °F) IN A MAXIMUM AMBIENT OF 40 °C (104 °F).
         d. IF NOT SHOWN ON DRAWINGS, NOMINAL IMPEDANCE SHALL BE AS PERMITTED BY NEMA.
         e. SINGLE PHASE TRANSFORMERS RATED 15 KVA THROUGH 25 KVA SHALL HAVE TWO 5% FULL CAPACITY TAPS BELOW NORMAL RATED PRIMARY VOLTAGE. ALL TRANSFORMERS RATED 30 KVA AND LARGER SHALL HAVE TWO 2.5% FULL CAPACITY TAPS ABOVE, AND FOUR 2.5% FULL CAPACITY TAPS BELOW NORMAL RATED PRIMARY VOLTAGE.
         f. CORE ASSEMBLIES SHALL BE GROUNDED TO THEIR ENCLOSURES WITH ADEQUATE FLEXIBLE GROUND STRAPS.
            - COMPRISED OF NOT LESS THAN CODE GAUGE STEEL.
            - OUTDOOR ENCLOSURES SHALL BE NEMA 3R.
         g. STANDARD NEMA FEATURES AND ACCESSORIES, INCLUDING GROUND PAD, LIFTING PROVISIONS, AND NAMEPLATE WITH THE WIRING DIAGRAM AND SOUND LEVEL INDICATED.
      2. **NONLINEAR TRANSFORMERS**
         a. NONLINEAR TRANSFORMERS SHALL BE AS SPECIFIED IN PARAGRAPH 2.1, WITH ADDITIONAL FEATURES AS SPECIFIED BELOW.
         b. TRANSFORMERS SHALL BE DESIGNED TO WITHSTAND THE OVERHEATING EFFECTS CAUSED BY HARMONICS RESULTING FROM NON-LINEAR (NON-SINUSOIDAL) LOADS.
         c. NEUTRAL RATING SHALL BE 200% OF RATED SECONDARY PHASE CURRENT.
         d. TRANSFORMERS WITH K FACTOR OF 13 SHALL BE PROVIDED, IF K FACTOR IS NOT SHOWN ON CONTRACT DRAWINGS.
   C. **EXECUTION**
      1. **INSTALLATION**
         a. INSTALLATION OF TRANSFORMERS SHALL BE IN ACCORDANCE WITH THE NEC, AS RECOMMENDED BY THE EQUIPMENT MANUFACTURER AND AS SHOWN ON THE DRAWINGS.
         b. ANCHOR TRANSFORMERS WITH RUSTPROOF BOLTS, NUTS, AND WASHERS, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, AND AS SHOWN ON DRAWINGS.
         c. EXTERIOR LOCATION: MOUNT TRANSFORMERS ON CONCRETE SLAB. UNLESS OTHERWISE INDICATED, THE SLAB SHALL BE AT LEAST 200 MM (8 INCHES) THICK, REINFORCED WITH A 150 BY 150 MM (6 BY 6 INCHES) NO. 6 MESH PLACED UNIFORMLY 100 MM (4 INCHES) FROM THE TOP OF THE SLAB. SLAB SHALL BE PLACED ON A 150 MM (6 INCHES) THICK, WELL-COMPACTED GRAVEL BASE. THE TOP OF THE CONCRETE SLAB SHALL BE APPROXIMATELY 100 MM (4 INCHES) ABOVE THE FINISHED GRADE. EDGES ABOVE GRADE SHALL HAVE 15 MM (1/2 INCH) CHAMFER. THE SLAB SHALL BE OF ADEQUATE SIZE TO PROJECT AT LEAST 200 MM (8 INCHES) BEYOND THE EQUIPMENT. PROVIDE CONDUIT TURN-UPS AND CABLE ENTRANCE SPACE REQUIRED BY THE EQUIPMENT TO BE MOUNTED. SEAL VOIDS AROUND CONDUIT OPENINGS IN SLAB WITH WATER- AND OIL-RESISTANT CAULKING OR SEALANT. CUT OFF AND BUSH CONDUITS 75 MM (3 INCHES) ABOVE SLAB SURFACE. CONCRETE WORK SHALL BE AS SPECIFIED IN SECTION CAST-IN-PLACE CONCRETE.
         d. INSTALL TRANSFORMERS WITH MANUFACTURER'S RECOMMENDED CLEARANCE FROM WALL AND ADJACENT EQUIPMENT FOR AIR CIRCULATION. MINIMUM CLEARANCE SHALL BE 150 MM (6 INCHES).

7. **LOW VOLTAGE SWITCHGEAR**
   A. **GENERAL**
      1. **DESCRIPTION**: FURNISHING, INSTALLATION, CONNECTION, AND TESTING OF LOW-VOLTAGE SWITCHGEAR, INDICATED AS SWITCHGEAR IN THIS SECTION.
      2. **SUBMITTALS**
         a. PRIOR TO FABRICATION OF SWITCHGEAR, SUBMIT THE FOLLOWING DATA FOR APPROVAL:
            - COMPLETE ELECTRICAL RATINGS, CIRCUIT BREAKER SIZES, INTERRUPTING RATINGS, SAFETY FEATURES, ACCESSORIES AND NAMEPLATE DATA.
            - SWITCHGEAR ONE LINE DIAGRAM, SHOWING AMPERE RATING, NUMBER OF BARS PER PHASE AND NEUTRAL IN EACH BUS RUN (HORIZONTAL AND VERTICAL), BUS SPACING, EQUIPMENT GROUND BUS, AND BUS MATERIAL.
            - PROVISIONS AND REQUIRED LOCATIONS FOR EXTERNAL CONDUIT AND WIRING ENTRANCES.

   B. **PRODUCTS**
      1. SHALL BE IN ACCORDANCE WITH IEEE, NEMA, NFPA, UL, AS SHOWN ON THE DRAWINGS
      2. SWITCHGEAR SHALL BE A COMPLETE, GROUNDED, CONTINUOUS-DUTY, INTEGRAL ASSEMBLY, METAL CLAD, DEAD-FRONT, DEAD-REAR, SELF-SUPPORTING, INDOOR TYPE SWITCHGEAR ASSEMBLY, TAMPERPROOF, WEATHERPROOF, OUTDOOR TYPE SWITCHGEAR ASSEMBLY WITH METAL HOUSING AND A WALK-IN PROTECTED AISLE AS DESIGNED. INCORPORATE DEVICES SHOWN ON THE DRAWINGS AND ALL RELATED COMPONENTS REQUIRED TO FULFILL OPERATIONAL AND FUNCTIONAL REQUIREMENTS.
      3. RATINGS SHALL NOT BE LESS THAN SHOWN ON THE DRAWINGS.
      4. COORDINATE ALL REQUIREMENTS WITH THE ELECTRIC UTILITY COMPANY SUPPLYING ELECTRICAL SERVICE TO THE SWITCHGEAR. THE INCOMING ELECTRIC UTILITY FEEDER AND REVENUE METERING INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF THE ELECTRIC UTILITY COMPANY //
      5. **CIRCUIT BREAKER COMPARTMENTS**: AN INDIVIDUAL COMPARTMENT SHALL BE SUPPLIED FOR EACH CIRCUIT BREAKER AND EACH FUTURE CIRCUIT BREAKER AS SHOWN ON THE DRAWINGS. COMPARTMENTS SHALL BE PROVIDED WITH ISOLATED WIREWAYS FOR CONTROL WIRING BETWEEN DEVICES.
      6. **AUXILIARY COMPARTMENTS**: COMPARTMENTS SHALL BE PROVIDED FOR AUXILIARIES, METERING, AND TRANSITION OR TERMINATION SECTIONS AS REQUIRED BY THE MANUFACTURER, AND AS SHOWN ON DRAWINGS. COMPARTMENTS SHALL BE PROVIDED WITH ISOLATED WIREWAYS FOR CONTROL WIRING BETWEEN DEVICES.
      7. **COMPARTMENT DOORS**: THE DOORS SHALL PERMIT CONVENIENT REMOVAL AND INTERCHANGING OF CIRCUIT BREAKERS BETWEEN COMPARTMENTS. THE DOORS SHALL BE CAPABLE OF A SWING APPROACHING
      8. **BUS BARS AND INTERCONNECTIONS**:
         a. PROVIDE COPPER PHASE AND NEUTRAL BUSES, FULLY RATED FOR THE AMPERAGE AS SHOWN ON THE DRAWINGS FOR THE ENTIRE LENGTH OF THE SWITCHGEAR. BUS LAMINATIONS SHALL HAVE A MINIMUM OF 6 MM (1/4 INCH) SPACING.
         b. THE BUS AND BUS COMPARTMENT SHALL BE DESIGNED SO THAT THE ACCEPTABLE NEMA STANDARD TEMPERATURE RISES ARE NOT EXCEEDED.
         c. INSTALL A COPPER GROUND BUS THE FULL LENGTH OF THE SWITCHGEAR ASSEMBLY.
         d. MAIN BONDING JUMPER: AN UN-INSULATED COPPER BUS, SIZE AS SHOWN ON DRAWINGS, SHALL INTERCONNECT THE NEUTRAL AND GROUND BUSES, WHEN THE SWITCHGEAR IS USED TO ESTABLISH THE SYSTEM COMMON GROUND POINT.
         e. ALL BOLTS, NUTS, AND WASHERS SHALL BE ZINC-PLATED STEEL. BOLTS SHALL BE TORQUED TO THE VALUES RECOMMENDED BY THE MANUFACTURER.
         f. MAKE PROVISIONS FOR FUTURE BUS EXTENSIONS BY MEANS OF BOLT HOLES OR OTHER APPROVED METHOD.
      9. **LOW VOLTAGE POWER CIRCUITS BREAKERS**
         a. GENERAL: CIRCUIT BREAKERS SHALL BE DEAD-FRONT, DRAWOUT, STORED ENERGY TYPE WITH SOLID STATE TRIP DEVICES. ARCING CONTACTS SHALL BE RENEWABLE.
         b. RATING: CIRCUIT BREAKERS SHALL BE 3 POLE, 600 VOLTS AC AND BELOW, 60 CYCLE WITH FRAME SIZE, TRIP RATING AND FUNCTIONS, AND SYSTEM VOLTAGE AS SHOWN ON DRAWINGS. BREAKERS SHALL HAVE 30 CYCLE SHORT TIME CURRENT RATINGS.
         c. DRAWOUT MOUNTING: PROVIDE A RACKING MECHANISM TO POSITION AND HOLD THE BREAKER IN THE CONNECTED, TEST, OR DISCONNECTED POSITION. PROVIDE AN INTERLOCK TO PREVENT MOVEMENT OF THE BREAKER INTO OR OUT OF THE CONNECTED POSITION UNLESS THE BREAKER IS TRIPPED OPEN.
         d. TRIP DEVICES: BREAKERS SHALL BE ELECTRICALLY AND MECHANICALLY TRIP FREE AND SHALL HAVE TRIP DEVICES IN EACH POLE. UNLESS OTHERWISE INDICATED ON DRAWINGS, EACH BREAKER SHALL HAVE OVERCURRENT AND SHORT-CIRCUIT, AND INTEGRAL GROUND FAULT TRIP DEVICES AS NOTED. TRIP DEVICES SHALL BE OF THE SOLID STATE TYPE WITH ADJUSTABLE PICK-UP SETTINGS, WITH BOTH LONG TIME AND SHORT TIME ELEMENTS, AND INTEGRAL TRIP UNIT TESTING PROVISIONS. DEVICES SHALL HAVE TIME-DELAY BAND ADJUSTMENT. LONG-TIME DELAY ELEMENT SHALL HAVE INVERSE TIME CHARACTERISTICS. MAIN CIRCUIT BREAKERS SHALL HAVE INSTANTANEOUS TRIP FUNCTION.
         e. PADLOCKING: PROVISIONS SHALL BE INCLUDED FOR PADLOCKING THE BREAKER IN THE OPEN POSITION.
         f. OPERATION: UNLESS OTHERWISE INDICATED HEREIN OR ON THE DRAWINGS, BREAKERS 1600 AMPERE FRAME SIZE AND LESS SHALL BE MANUALLY OPERATED. BREAKERS LARGER THAN 1600 AMPERE FRAME SIZE SHALL BE ELECTRICALLY OPERATED.
      10. **ELECTRIC UTILITY COMPANY EQUIPMENT**
          a. PROVIDE SEPARATE COMPARTMENT FOR ELECTRIC UTILITY COMPANY METERING EQUIPMENT AS SHOWN ON DRAWINGS.
      11. **METERING**
          a. REFER TO SECTION ADVANCED UTILITY METERING. REFER TO DRAWINGS FOR METER LOCATIONS.
          b. AS NECESSARY, PROVIDE COMPARTMENT WITH A FRONT HINGED DOOR TO PROVIDE SAFE ISOLATED ACCESS TO METERS AND ALL ASSOCIATED TERMINAL AND FUSE BLOCKS FOR MAINTENANCE, CALIBRATION, OR TESTING.
          c. PROVIDE CURRENT TRANSFORMERS FOR EACH METER. CURRENT TRANSFORMERS SHALL BE WIRED TO SHORTING-TYPE TERMINAL BLOCKS.
          d. PROVIDE VOLTAGE TRANSFORMERS INCLUDING PRIMARY FUSES AND SECONDARY PROTECTIVE DEVICES FOR METERING AS SHOWN ON THE DRAWINGS.
   C. **EXECUTION**
      1. **INSTALLATION**
         a. INSTALLATION SHALL BE IN ACCORDANCE WITH THE NEC, AS SHOWN ON THE DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS.
         b. ANCHOR SWITCHGEAR WITH RUSTPROOF BOLTS, NUTS, AND WASHERS NOT LESS THAN 13 MM (1/2 INCH) DIAMETER, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, AND AS SHOWN ON DRAWINGS.
         c. INTERIOR LOCATION: MOUNT SWITCHGEAR ON CONCRETE SLAB. UNLESS OTHERWISE INDICATED, THE SLAB SHALL BE AT LEAST 100 MM (4 INCHES) THICK. THE TOP OF THE CONCRETE SLAB SHALL BE APPROXIMATELY 100 MM (4 INCHES) ABOVE FINISHED FLOOR. EDGES ABOVE FLOOR SHALL HAVE 15 MM (1/2 INCH) CHAMFER. THE SLAB SHALL BE OF ADEQUATE SIZE TO PROJECT AT LEAST 100 MM (4 INCHES) BEYOND THE EQUIPMENT. PROVIDE CONDUIT TURN-UPS AND CABLE ENTRANCE SPACE REQUIRED BY THE EQUIPMENT TO BE MOUNTED. SEAL VOIDS AROUND CONDUIT OPENINGS IN SLAB WITH WATER- AND OIL-RESISTANT CAULKING OR SEALANT. CUT OFF AND BUSH CONDUITS 75 MM (3 INCHES) ABOVE SLAB SURFACE. CONCRETE WORK SHALL BE AS SPECIFIED IN SECTION CAST-IN-PLACE CONCRETE.

9. **PANELBOARDS**
   A. **GENERAL**
      1. **DESCRIPTION**: FURNISHING, INSTALLATION, AND CONNECTION OF PANELBOARDS.
      2. **SUBMITTALS**
         a. SUBMIT SUFFICIENT INFORMATION TO DEMONSTRATE COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS. INCLUDE ELECTRICAL RATINGS, DIMENSIONS, MOUNTING DETAILS, MATERIALS, REQUIRED CLEARANCES, TERMINATIONS, WEIGHT, CIRCUIT BREAKERS, WIRING AND CONNECTION DIAGRAMS, ACCESSORIES, AND NAMEPLATE DATA.
         b. SUBMIT SUFFICIENT INFORMATION TO DEMONSTRATE COMPLIANCE WITH DRAWINGS AND SPECIFICATIONS.
   B. **PRODUCTS**
      1. **GENERAL REQUIREMENTS**
         a. PANELBOARDS SHALL BE IN ACCORDANCE WITH NEC, NEMA, UL, AS SPECIFIED, AND AS SHOWN ON THE DRAWINGS.
         b. PANELBOARDS SHALL HAVE MAIN BREAKER OR MAIN LUGS, BUS SIZE, STAMPED, OR MACHINED METAL BRACES FOR CIRCUIT BREAKER MOUNTING SPACES, TOP OR BOTTOM FEED, FLUSH OR SURFACE MOUNTING, BRANCH CIRCUIT BREAKERS, AND ACCESSORIES AS SHOWN ON THE DRAWINGS.
         c. PANELBOARDS SHALL BE COMPLETELY FACTORY-ASSEMBLED WITH MOLDED CASE CIRCUIT BREAKERS AND INTEGRAL ACCESSORIES AS SHOWN ON THE DRAWINGS OR SPECIFIED HEREIN.
         d. NON-REDUCED SIZE COPPER BUS BARS, RIGIDLY SUPPORTED ON MOLDED INSULATORS, AND FABRICATED FOR BOLT-ON TYPE CIRCUIT BREAKERS.
         e. BUS BAR CONNECTIONS TO THE BRANCH CIRCUIT BREAKERS SHALL BE THE "DISTRIBUTED PHASE" OR "PHASE SEQUENCE" TYPE.
         f. MECHANICAL LUGS FURNISHED WITH PANELBOARDS SHALL BE CAST, STAMPED, OR MACHINED METAL ALLOYS LISTED FOR USE WITH THE CONDUCTORS TO WHICH THEY WILL BE CONNECTED.
         g. NEUTRAL BUS SHALL BE 200% RATED, MOUNTED ON INSULATED SUPPORTS.
         h. GROUNDING BUS BAR SHALL BE EQUIPPED WITH SCREWS OR LUGS FOR THE CONNECTION OF EQUIPMENT GROUNDING CONDUCTORS.
         i. BUS BARS SHALL BE BRACED FOR THE AVAILABLE SHORT-CIRCUIT CURRENT AS SHOWN ON THE DRAWINGS, BUT NOT BE LESS THAN 10,000 A SYMMETRICAL FOR 120/208 V AND 120/240 V PANELBOARDS, AND 14,000 A SYMMETRICAL FOR 277/480 V PANELBOARDS.
         j. IN TWO-SECTION PANELBOARDS, THE MAIN BUS IN EACH SECTION SHALL BE FULL SIZE. THE FIRST SECTION SHALL BE FURNISHED WITH SUBFEED LUGS ON THE LINE SIDE OF MAIN LUGS ONLY, OR THROUGH-FEED LUGS FOR MAIN BREAKER TYPE PANELBOARDS, AND HAVE FIELD-INSTALLED CABLE CONNECTIONS TO THE SECOND SECTION AS SHOWN ON THE DRAWINGS. PANELBOARD SECTIONS WITH TAPPED BUS OR CROSSOVER BUS ARE NOT ACCEPTABLE.
         k. SERIES-RATED PANELBOARDS ARE NOT PERMITTED.
      2. **ENCLOSURES**:
         a. PROVIDE GALVANIZED STEEL ENCLOSURES, WITH NEMA RATING AS SHOWN ON THE DRAWINGS OR AS REQUIRED FOR THE ENVIRONMENTAL CONDITIONS IN WHICH INSTALLED.
         b. ENCLOSURES SHALL NOT HAVE VENTILATING OPENINGS.
         c. ENCLOSURES MAY BE OF ONE-PIECE FORMED STEEL OR OF FORMED SHEET STEEL WITH END AND SIDE PANELS WELDED, RIVETED, OR BOLTED AS REQUIRED.
         d. PROVIDE MANUFACTURER'S STANDARD OPTION FOR PREPUNCHED KNOCKOUTS ON TOP AND BOTTOM ENDWALLS.
         e. INCLUDE REMOVABLE INNER DEAD FRONT COVER, INDEPENDENT OF THE PANELBOARD COVER.
      3. **TRIMS**.
         a. HINGED "DOOR-IN-DOOR" TYPE.
         b. INTERIOR HINGED DOOR WITH HAND-OPERATED LATCH OR LATCHES, AS REQUIRED TO PROVIDE ACCESS ONLY TO CIRCUIT BREAKER OPERATING HANDLES, NOT TO ENERGIZED PARTS.
         c. OUTER HINGED DOOR SHALL BE SECURELY MOUNTED TO THE PANELBOARD ENCLOSURE WITH FACTORY BOLTS, SCREWS, CLIPS, OR OTHER FASTENERS, REQUIRING A KEY OR TOOL FOR ENTRY. HAND-OPERATED LATCHES ARE NOT ACCEPTABLE.
         d. INNER AND OUTER DOORS SHALL OPEN LEFT TO RIGHT.
         e. TRIMS SHALL BE FLUSH OR SURFACE TYPE AS SHOWN ON THE DRAWINGS.
      4. **MOLDED CASE CIRCUIT BREAKERS**
         a. CIRCUIT BREAKERS SHALL BE PER UL, NEC, AS SHOWN ON THE DRAWINGS, AND AS SPECIFIED.
         b. CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE.
         c. CIRCUIT BREAKERS SHALL HAVE MINIMUM INTERRUPTING RATING AS REQUIRED TO WITHSTAND THE AVAILABLE FAULT CURRENT, BUT NOT LESS THAN:
            - 120/208 V PANELBOARD: 10,000 A SYMMETRICAL.
            - 120/240 V PANELBOARD: 10,000 A SYMMETRICAL.
            - 277/480 V PANELBOARD: 14,000 A SYMMETRICAL.
         d. CIRCUIT BREAKERS SHALL HAVE AUTOMATIC, TRIP FREE, NON-ADJUSTABLE, INVERSE TIME, AND INSTANTANEOUS MAGNETIC TRIPS FOR LESS THAN 400 A FRAME. CIRCUIT BREAKERS WITH 400 A FRAMES AND ABOVE SHALL HAVE MAGNETIC TRIP, ADJUSTABLE FROM 5X TO 10X.
      5. **CIRCUIT BREAKER FEATURES SHALL BE AS FOLLOWS**:
         a. A RUGGED, INTEGRAL HOUSING OF MOLDED INSULATING MATERIAL.
         b. SILVER ALLOY CONTACTS.
         c. ARC-QUENCHERS AND PHASE BARRIERS FOR EACH POLE.
         d. QUICK-MAKE, QUICK-BREAK, OPERATING MECHANISMS.
         e. A TRIP ELEMENT FOR EACH POLE, THERMAL MAGNETIC TYPE WITH LONG TIME DELAY AND INSTANTANEOUS CHARACTERISTICS, A COMMON TRIP BAR FOR ALL POLES AND A SINGLE OPERATOR.
         f. ELECTRICALLY AND MECHANICALLY TRIP FREE.
         g. AN OPERATING HANDLE WHICH INDICATES CLOSED, TRIPPED, AND OPEN POSITIONS.
         h. AN OVERLOAD ON ONE POLE OF A MULTI-POLE BREAKER SHALL AUTOMATICALLY CAUSE ALL THE POLES OF THE BREAKER TO OPEN.
         i. GROUND FAULT CURRENT INTERRUPTING BREAKERS, SHUNT TRIP BREAKERS, LIGHTING CONTROL BREAKERS (INCLUDING ACCESSORIES TO SWITCH LINE CURRENTS), OR OTHER ACCESSORY DEVICES OR FUNCTIONS SHALL BE PROVIDED WHERE SHOWN ON THE DRAWINGS.
   C. **EXECUTION**
      1. **INSTALLATION**
         a. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, THE NEC, AS SHOWN ON THE DRAWINGS, AND AS SPECIFIED.
         b. LOCATE PANELBOARDS SO THAT THE PRESENT AND FUTURE CONDUITS CAN BE CONVENIENTLY CONNECTED.
         c. INSTALL A PRINTED SCHEDULE OF CIRCUITS IN EACH PANELBOARD AFTER APPROVAL. SCHEDULES SHALL REFLECT FINAL LOAD DESCRIPTIONS, ROOM NUMBERS, AND ROOM NAMES CONNECTED TO EACH CIRCUIT BREAKER. SCHEDULES SHALL BE PRINTED ON THE PANELBOARD DIRECTORY CARDS AND BE INSTALLED IN THE APPROPRIATE PANELBOARDS.
         d. MOUNT PANELBOARDS SUCH THAT THE MAXIMUM HEIGHT OF THE TOP CIRCUIT BREAKER ABOVE THE FINISHED SLAB SHALL NOT EXCEED 1980 MM (78 INCHES).
         e. PROVIDE BLANK COVER FOR EACH UNUSED CIRCUIT BREAKER MOUNTING SPACE.
         f. PANELBOARD ENCLOSURES SHALL NOT BE USED FOR CONDUCTORS FEEDING THROUGH, SPLICED, OR TAPPING OFF TO OTHER ENCLOSURES OR DEVICES.

12. **WIRING DEVICES**
    A. **GENERAL**
       1. DESCRIPTION: FURNISHING, INSTALLATION, CONNECTION, AND TESTING OF WIRING DEVICES.
    B. **PRODUCTS**
       1. **RECEPTACLES**
          a. GENERAL: ALL RECEPTACLES SHALL COMPLY WITH NEMA, NFPA, UL, AND AS SHOWN ON THE DRAWINGS.
             - RECEPTACLES SHALL HAVE PROVISIONS FOR BACK WIRING WITH SEPARATE METAL CLAMP TYPE TERMINALS (FOUR MINIMUM) AND SIDE WIRING FROM FOUR CAPTIVELY HELD BINDING SCREWS.
          b. DUPLEX RECEPTACLES - HOSPITAL-GRADE: SHALL BE LISTED FOR HOSPITAL GRADE, SINGLE PHASE, 20 AMPERE, 120 VOLTS, 2-POLE, 3-WIRE, NEMA 5-20R, WITH BREAK-OFF FEATURE FOR TWO-CIRCUIT OPERATION.
             - SWITCHED DUPLEX RECEPTACLES SHALL BE WIRED SO THAT ONLY THE TOP RECEPTACLE IS SWITCHED. THE LOWER RECEPTACLE SHALL BE UNSWITCHED.
          c. DUPLEX RECEPTACLES ON EMERGENCY CIRCUIT:
             - IN ROOMS WITHOUT EMERGENCY POWERED GENERAL LIGHTING, THE EMERGENCY RECEPTACLES SHALL BE OF THE SELF-ILLUMINATED TYPE.
          d. GROUND FAULT CURRENT INTERRUPTER (GFCI) DUPLEX RECEPTACLES: SHALL BE AN INTEGRAL UNIT, HOSPITAL

ABBREVIATIONS

1PH	SINGLE PHASE
1P	SINGLE POLE
2/C	TWO-CONDUCTOR
3/C	THREE-CONDUCTOR
3PH	THREE-PHASE
4/C	FOUR-CONDUCTOR
4W	FOUR-WIRE
A/C UNIT	AIR CONDITIONING UNIT
A/E	ARCHITECT/ENGINEER
AAP	ALARM ANNUNICIATOR PANEL
AC	ALTERNATING CURRENT OR ARMORED CABLE
ACC	ACCESSIBLE
ADDL	ADDITIONAL
ADJ	ADJACENT, ADJOINING
AF	AMPERE FRAME OR AMP FUSE
AFC	ABOVE FINISHED COUNTER, AUTOMATIC FREQUENCY CONTROL, OR AVAILABLE FAULT CURRENT
AFCI	ARC-FAULT CURRENT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFIB	ARC FAULT CIRCUIT INTERRUPTER CIRCUIT BREAKER
AF/GF	ARC FAULT AND GROUND FAULT CIRCUIT INTERRUPTER
Ah	AMPERE HOUR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CAPACITY
ALT	ALTERNATE
AMB	AMBIENT
AMP	AMPERE
ARCH	ARCHITECT
ASC	AMPS SHORT CIRCUIT
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AV	AUDIO VISUAL
BAT	BATTERY
BD	BOARD
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BRK	RBREAKER
BYP	BYPASS
C	CONDUIT
CAB	CABINET (MOUNTED)
CALC	CALCULATE
CAP	CAPACITY
CAT	CATALOG
CATV	COMMUNITY ANTENNA TELEVISION
CCR	CONTROL CONTRACTOR
CCTV	CLOSED CIRCUIT TELEVISION
cd	CANDELA
CD	CONSTRUCTION DOCUMENTS
CF	CONTRACTOR FINISHED
CF/CI	CONTRACTOR FINISHED/CONTRACTOR INSTALLED
CFE	CONTRACTOR FINISHED EQUIPMENT
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CKT	CIRCUIT
CKT BRKR OR CB	CIRCUIT BREAKER
CLF	CURRENT LIMITING FUSE
CLG	CEILING
COAX	COAX CABLE
COMM	COMMUNICATION
COMPT	COMPARTMENT
CONC	CONCRETE
CONT	CONTINUE
CONTR	CONTRACTOR
COORD	COORDINATE
CPT	CONTROL POWER TRANSFORMER
CRI	COLOR RENDERING INDEX
CT	CURRENT TRANSFORMER
CTV	CABLE TELEVISION
CU	COPPER
CUR	CURRENT
dB	DECIBEL
DC	DIRECT CURRENT
DCP	DIMMER CONTROL PANEL
DEG C	DEGREES CELCIUS
DEG F	DEGREES FAHRENHEIT
DEMO	DEMOLITION
DIAG	DIAGRAM
DISC	DISCONNECT
DISTR PNL	DISTRIBUTION PANEL
DMR SW	DIMMER SWITCH
DPDT	DOUBLE POLE, DOUBLE THROW
DPST	DOUBLE POLE, SINGLE THROW
DRSW	DOOR SWITCH
DS	DISCONNECT SWITCH
DWG	DRAWING
EL	ELEVATION
ELEC	ELECTRIC OR ELECTRICAL
ELEV	ELEVATOR
EMER	EMERGENCY
EMI	ELECTROMAGNETIC INTERFERENCE
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EPO	EMERGENCY POWER OFF
EPRF	EXPLOSION PROOF
ESMT	EASEMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST OR (E)	EXISTING
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FC	FOOTCANDLE
FIXT	FIXTURE
FLA	FULL LOAD AMPS
FLUOR	FLUORESCENT
FP	FIRE PROTECTION
FSD	FIRE SMOKE DAMPER
FT	FEET OR FOOT
FU SW	FUSED SWITCH
FVNR	FULL VOTAGE NON-REVERSING
FVR	FULL VOLTAGE REVERSING
G	ELECTRICAL GROUND
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTER
GFIB	GROUND FAULT CIRCUIT INTERRUPTER VIA CIRCUIT BREAKER.
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HT	HEIGHT
HZ	HERTZ
IESNA	ILLUMINATION ENGINEERING SOCIETY OF NORTH AMERICA
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
IWH	INSTANTANEOUS WATER HEATER
J-BOX	JUNCTION BOX
kV	KILOVOLT
kVA	KILOVOLT AMPERE
kVAh	KILOVOLT AMPERE PER HOUR
kVAR	KILOVOLT AMPERE REACTIVE
kW	KILOWATT
kWh	KILOWATT HOUR
kWHM	KILOWATT HOUR METER
LED	LIGHT EMITTING DIODE
LF	LINEAR FEET (FOOT)
LP	LIGHT POLE
LPS	LOW PRESSURE SODIUM
LRA	LOCKED ROTOR AMPS
LT	LIGHT
LTG	LIGHTING
LTG PNL	LIGHTING PANEL
LTNG	LIGHTNING
LV	LOW VOLTAGE
MAX	MAXIMUM
MC	METAL-CLAD
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MD	MOTORIZED DAMPER
MECH	MECHANICAL
MH	MANHOLE
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MLA	MAIN LUGS ONLY
MT	MOUNT
MTD	MOUNTED
MTG	MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
MVA	MEGAVOLT-AMPERE
MW	MEGAWATT
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUT OR N	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OL	OVERLOAD
P	POLE
PB	PULL BOX
PEC	PHOTOELECTRIC CELL
PED	PEDESTAL
PEND	PENDANT
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE (PLASTIC)
PWR	POWER
RCP	REFLECTED CEILING PLAN
RE	RELOCATED EXISTING
REC	RECESSED
RECPT	RECEPTACLE
RM	ROOM
RMS	ROOT MEAN SQUARE
REQD	REQUIRED
SCC	SHORT CIRCUIT CAPACITY
SD	SMOKE DETECTOR
SF	SQUARE FOOT (FEET)
SHT	SHEET
SI	INTERNATIONAL SYSTEM OF UNITS
SPEC	SPECIFICATION
SPST	SINGLE POLE, SINGLE THROW
SURF	SURFACE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEL	TELEPHONE
TV	TELEVISION
TYP	TYPICAL
UFD	UNDERFLOOR DUCT
UGND	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UON	UNLESS OTHERWISE NOTED
USB	RECEPTACLE w/INTEGRATED UNIVERSAL SERIAL BUS
PORT	
UPS	UNINTERRUPTIBLE POWER SUPPLY
UTIL	UTILITY
V	VOLT
VA	VOLT AMPERE
VAR	VOLT AMPERE REACTIVE
VFD	VARIABLE FREQUENCY DRIVE
VOLT	VOLTAGE
W	WATT
WH	WATER HEATER
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER

COMMUNICATION SYMBOLS

- OUTLET, COMBINATION TELEPHONE/DATA COMMUNICATION
- —CATV— CABLE TELEVISION LINE (CATV)
- —CCTV— CLOSED CIRCUIT TELEVISION LINE = CCTV. MINIMUM 1" CONDUIT
- —FO— FIBEROPTICS LINE = FO
- —T— TELEPHONE LINE = T
- —I— INTERCOM LINE = I. MINIMUM 3/4" CONDUIT.
- —S— SOUND LINE = S
- —NC— NURSE CALL LINE = NC. MINIMUM 3/4" CONDUIT.
- —R— RADIO CONDUIT RUN, MINIMUM 3/4" CONDUIT.
- (C) TELECOMMUNICATIONS MANHOLE
- FLOOR RECEPTACLE, TELEPHONE
- (J) OUTLET TELEPHONE; LETTER INDICATES AS FOLLOWS: J = JACK TYPE W = WALL TYPE
- OUTLET DATA ONLY
- OUTLET; LETTER INDICATES AS FOLLOWS: A = AUDIO V = VIDEO I = INTERCOM
- (S)X SPEAKER, CEILING MOUNTED, "X" INDICATES THE TYPE, PROVIDE SCHEDULE ON LEGEND
- (S)X SPEAKER, WALL MOUNTED, "X" INDICATES THE TYPE, PROVIDE SCHEDULE ON LEGEND. MTD. 7'-6" AFF UNLESS OTHERWISE NOTED.
- R RADIO CHANNEL SELECTOR FACILITIES, MTD. 4'-6" AFF UNLESS OTHERWISE NOTED.
- RM SPEAKER PROGRAM SELECTOR SWITCH & VOLUME CONTROL MTD. 4'-6" AFF UNLESS OTHERWISE NOTED.
- M OUTLET, TELEVISION BLACK = 4 11/16" MASTER ANTENNA OUTLET BOX w/BLANK COVER, MTD 18" AFF UNLESS OTHERWISE NOTED. C = CAMERA (CCTV SYSTEM), 18" AFF. M = MONITOR (CCTV SYSTEM).
- NCS NURSE'S CALL MASTER STATION MTD ON NURSE'S COUNTER TOP UNLESS OTHERWISE NOTED.
- NCT NURSE CALL TERMINAL CABINET.
- N2 NURSE CALL STATION 2 = DUPLICATE FACILITIES FOR TWO BEDS (SEPARATE INDICATORS AT MASTER STATION) MTD 5'-0" AFF UNLESS OTHERWISE NOTED. D = DUTY STATION. MTD 5'-0" AFF UNLESS OTHERWISE NOTED E = MTD 6'-0" AFF FOR SHOWER LOCATION, MTD 4'-6" AFF FOR TUB LOCATION, & MTD 3'-0" AFF FOR TOILET LOCATION. P = PSYCHIATRIC CORRIDOR STATION WITH KEY SWITCH. S = AUDIO VISUAL WALL STATION (STAFF) MTD 5'-0" AFF UNLESS OTHERWISE NOTED. U = UTILITY CALL STATION, MTD 5'-0" AFF UNLESS OTHERWISE NOTED.
- 2(N) NURSE CALL STATION 2 = NURSE'S CALL DOME LIGHT (SUFFIX INDICATES NO. OF LAMP) MTD 6" ABOVE DOOR. D = CORRIDOR DOME LIGHT. I = AUXILIARY INTERSECTIONAL DOME LIGHT.
- TELEPHONE TERMINAL CABINET
- TTB TELEPHONE BACKBOARD (WALL MOUNTED)
- M R 3-POLE TWIST-LOCK RECEPTACLE FOR MICROPHONE, MTD 4'-6" AFF.
- REMOTE DICTATING OUTLET MTD 1'-6" AFF UNLESS OTHERWISE NOTED.
- INTERCOM STATION (REFER TO SPECS. FOR FUNCTIONAL OPERATION OF INSTRUMENT & TYPE REQUIRED.)
- I2 INTERCOM STAFF STATION.

NOTE:
1. FOR WHEELCHAIR PATIENT USE MOUNT TELEPHONE OUTLET 36" AFF TO BOTTOM OF OUTLET BOX.
2. DESK PHONES - MOUNT OUTLET 1'-6" AFF.
3. PAY PHONES - MOUNT OUTLET 4'-0" AFF.
4. HEIGHT OF TELECART OUTLETS SHALL BE AS INDICATED ON BEDWALLS OR PBPU DETAILS.
5. SEE VA BARRIER FREE DESIGN GUIDE (PG-18-13).

ELECTRICAL SYMBOLS

- 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) MOUNTED AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
- 20 AMP QUADRUPLEX RECEPTACLE (NEMA 5-20R) MOUNTED AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
- 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) MOUNTED ABOVE COUNTER. REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATION AND MOUNTING HEIGHT.
- 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R), RECESSED FLOOR MOUNTED. PROVIDE SQUARE BRUSHED NICKEL FINISH COVER PLATE WITH RECESS DEVICE. FLIP TOP COVER WITH NON-RECESS DEVICE WILL NOT BE ACCEPTED. FLOOR BOX SHALL BE LISTED FOR PROPOSED LOCATION AS REQUIRED.
- 20 AMP QUADRUPLEX RECEPTACLE (NEMA 5-20R), RECESSED FLOOR MOUNTED. PROVIDE SQUARE BRUSHED NICKEL FINISH COVER PLATE WITH RECESS DEVICES, FLIP TOP COVER WITH NON-RECESS DEVICES WILL NOT BE ACCEPTED. FLOOR BOX SHALL BE LISTED FOR PROPOSED LOCATION AS REQUIRED.
- 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R) AND COMMUNICATIONS DUAL SERVICE FLOOR BOX, RECESSED FLOOR MOUNTED. PROVIDE 1" CONDUIT SLEEVE WITH PULL STRING, STUB INTO ACCESSIBLE CEILING SPACE. PROVIDE SQUARE BRUSHED NICKEL FINISH COVER PLATE WITH RECESS DEVICES, FLIP TOP COVER WITH NON-RECESS DEVICES WILL NOT BE ACCEPTED. FLOOR BOX SHALL BE LISTED FOR PROPOSED LOCATION AS REQUIRED.
- 20 AMP QUADRUPLEX RECEPTACLE (NEMA 5-20R) AND COMMUNICATIONS DUAL SERVICE FLOOR BOX. RECESSED FLOOR MOUNTED. PROVIDE 1" CONDUIT SLEEVE WITH PULL STRING, STUB INTO ACCESSIBLE CEILING SPACE. PROVIDE SQUARE BRUSHED NICKEL FINISH COVER PLATE WITH RECESS DEVICES, FLIP TOP COVER WITH NON-RECESS DEVICES WILL NOT BE ACCEPTED. FLOOR BOX SHALL BE LISTED FOR PROPOSED LOCATION AS REQUIRED.
- 20 AMP DUPLEX RECEPTACLE (NEMA 5-20R), CEILING MOUNTED.
- 20 AMP QUADRUPLEX RECEPTACLE (NEMA 5-20R), CEILING MOUNTED.
- MULTI OUTLET HARD WIRED PLUG STRIP WITH USB CHARGING, 9" DEVICE SPACING, STEEL, ALUMINUM FINISH. MOUNT HIGH UP, UNDER COUNTER TOP UNLESS NOTED OTHERWISE. WIREMOLD 2000 SERIES OR EQUIVALENT WITH ALTERNATING DEVICES. LENGTH PER PLAN.
- NEMA SPECIAL PURPOSE POWER DEVICE, COORDINATE EXACT NEMA NUMBER DEVICE WITH EQUIPMENT PLUG UNLESS NOTED OTHERWISE.
- COMMUNICATIONS OUTLET. PROVIDE 1" CONDUIT SLEEVE WITH PULL STRING, STUB INTO ACCESSIBLE CEILING SPACE. MOUNT AT 18" A.F.F. TO CENTER OF OUTLET UNLESS NOTED OTHERWISE.
- COMMUNICATIONS OUTLET, CEILING MOUNTED.
- RECEPTACLE AND COMMUNICATIONS OUTLET. PROVIDE (2) 1" CONDUIT SLEEVES WITH CABLING, STUB INTO ACCESSIBLE CEILING SPACE. MOUNTING HEIGHT OF BOX WILL BE 18" UNLESS OTHERWISE SPECIFIED ON PLANS. PROVIDE FOUR GANG, RECESSED MOUNTED STEEL BOX WITH VOLTAGE DIVIDER AND OPTIONAL COVER PLATE. ARLINGTON TVBS613 OR EQUIVALENT.
- GFI GROUND FAULT CIRCUIT INTERRUPTER VIA RECEPTACLE.
- GFIB GROUND FAULT CIRCUIT INTERRUPTER VIA CIRCUIT BREAKER.
- TELEVISION OUTLET. PROVIDE 1" CONDUIT SLEEVE WITH PULL STRING, STUB INTO ACCESSIBLE CEILING SPACE. MOUNT AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
- TELEVISION OUTLET, CEILING MOUNTED.
- (J) JUNCTION BOX
- CR CARD READER
- KP KEYPAD
- IC INTERCOM
- DC WANDERGUARD DOOR CONTROLLER
- PROPOSED ROUTING OF LOW VOLTAGE WIRING FOR DIAGRAMMATIC PURPOSES ONLY.
- EMERGENCY EXIT SIGN, WALL MOUNTED. EXIT SIGN SHALL BE MOUNTED WITHIN 6'-8" ABOVE TOP OF EGRESS DOOR FRAME.
- EMERGENCY EXIT SIGN. FOR CEILING(S) WITH A HEIGHT LESS THAN OR EQUAL TO 6'-8" ABOVE TOP OF EGRESS DOOR FRAME, EXIT SIGN SHALL BE CEILING SURFACE MOUNTED. FOR CEILING(S) WITH A HEIGHT GREATER THAN 6'-8" ABOVE TOP OF EGRESS DOOR FRAME, EXIT SIGN SHALL BE CEILING SUSPENDED AT OR ABOVE THE LINE OF SIGHT.
- $ SINGLE POLE, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE.
- $3 3-WAY, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE.
- $D SINGLE POLE, 20 AMP, SWITCH WITH DIMMER. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE.
- $D SINGLE POLE SWITCH WITH 0-10V DIMMER. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE.
- $3D 3-WAY DIMMER, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE.
- $3D 3-WAY SWITCH WITH 0-10V DIMMER. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE.
- $OR LIGHTING CONTROL OVERRIDE SWITCH FOR MANUAL CONTROL OF ASSIGNED RELAY PANEL ZONES. MATCH SWITCH WITH RELAY PANEL SYSTEM PROVIDED. REFER TO OVERRIDE SWITCH SCHEDULE IN LIGHTING PLANS FOR ASSIGNED ZONES
- $M SINGLE POLE, 20 AMP, MOTION (PIR) ONLY SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED. SENSOR SWITCH "WSX" SERIES. PROVIDE DOUBLE POLE WHEN (2) CONTROLLED CIRCUITS.
- $MS SINGLE/DOUBLE RELAY, 20 AMP MOTION/SOUND SWITCH, PASSIVE (PIR) AND ULTRASONIC (US) DUAL TECHNOLOGY. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS NOTED OTHERWISE. SENSOR SWITCH "WSX-PDT" SERIES. PROVIDE DOUBLE POLE WHEN (2) CONTROLLED CIRCUITS.
- (M) SINGLE/DOUBE POLE LINE VOLTAGE MOTION SENSOR, PASSIVE (PIR) SENSORSWITCH "CMR" SERIES. PROVIDE DOUBLE POLE WHEN (2) CONTROLLED CIRCUITS.
- (MS) LINE VOLTAGE, MOTION/SOUND SENSOR, PASSIVE (PIR) AND ULTRASONIC (US) DUAL TECHNOLOGY. SENSORSWITCH "CMR-PDT" SERIES.
- (M)WP LINE VOLTAGE MOTION SENSOR, PASSIVE (PIR), WET LOCATION RATED ATLAS LIGHTING PRODUCTS "MS360WL" SERIES
- (M)LV LOW VOLTAGE MOTION SENSOR, PASSIVE (PIR) SENSORSWITCH "CM" SERIES.
- (MS)LV LOW VOLTAGE MOTION/SOUND SENSOR, PASSIVE (PIR) AND ULTRASONIC (US) DUAL TECHNOLOGY. SENSORSWITCH "CM-PDT" SERIES
- (PP) SELF CONTAINED, PLENUM RATED, DUAL CIRCUIT POWER PACK WITH 20 AMP RATING. SENSORSWITCH "PP" SERIES.
- ELECTRICAL PANELBOARD, SURFACE MOUNTED
- ELECTRICAL PANELBOARD, RECESSED MOUNTED
- FUSIBLE DISCONNECT SWITCH A = POLES, B= FRAME SIZE, C= FUSE RATING
- GROUNDING ELECTRODE AND CONDUCTOR SYSTEM
- TRANSFORMER
- TELEPHONE WOOD BACKBOARD
- (T) THERMOSTAT LOCATION. REFER TO MECHANICAL DRAWINGS FOR MOUNTING HEIGHT AND SPECIFICATIONS. PROVIDE JUNCTION BOX IN WALL BEHIND THERMOSTAT WITH 1" CONDUIT SLEEVE WITH PULL STRING, STUB INTO ACCESSIBLE CEILING SPACE. CONDUIT AND BOXES SHALL BE CONCEALED / RECESSED IN CONCRETE BLOCK (CMU) WALLS.
- COP CARBON MONOXIDE CONTROL PANEL (ELECTRICAL POWER REQUIRED). REFER TO MECHANICAL DRAWINGS FOR REQUIREMENTS AND SPECIFICATIONS.

USED FOR CLARITY PURPOSES AS FOLLOWS:
- TO CONNECT GROUPS OF MULTIPLE DEVICES/LIGHT FIXTURES IN DIFFERENT LOCATIONS TOGETHER ON THE SAME BRANCH CIRCUIT AS INDICATED.
- TO INDICATE BRANCH CIRCUIT USED IN DIFFERENT LOCATIONS, FOLLOW KEYNOTES AS INDICATED.

GENERAL FLOOR BOX NOTE:
- REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS AND FINAL LOCATIONS PRIOR TO ROUGH IN.

ISSUE FOR BID	06/28/2024
ISSUE FOR BID	10/23/2023
Revisions:	Date:

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OEI - LBL

STAMP

STATE OF TEXAS — SHAUN P. DORAN — 152013 — LICENSED PROFESSIONAL ENGINEER
06/26/2024

Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: ELECTRICAL LEGEND AND ABBREVIATIONS

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 519-371

Building Number: 28

APPROVING OFFICIAL:
COR: MR. JOSHUA JUNKIN

FULLY SPRINKLERED

Location: BIG SPRING, TX

Issue Date: 06/28/2024 | **Checked:** LRL | **Drawn:** JRM

Drawing Number: E003

VA FORM 08 - 6231

Autodesk Docs://0489001.008 VABS CLC Phase 3/0489001.008 VABS CLC ELEC R21.rvt
6/26/2024 12:56:29 PM

BRANCH CIRCUIT PANEL: P1B

VOLTAGE: 120/208 Wye
PHASE: 3 **WIRE:** 4
SUPPLY FROM: C2
ISCA:
NOTES:

BUSS RATING: 100
MAINS TYPE: MCB
MAINS RATING: 100 A
AIC RATING: 14kAIC

ENCLOSURE: NEMA 1
MOUNTING: SURFACE
LOCATION: ELEC. 19
NEW / EXISTING: New Construction

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	VA (PHASE A)		VA (PHASE B)		VA (PHASE C)		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	LIGHTING INTERIOR	20 A	1	1,024	0					1	20 A	Spare	2
3	LIGHTING INTERIOR	20 A	1			739	0			1	20 A	Spare	4
5									0	1	20 A	Spare	6
7	LIGHTING - CORRIDOR	20 A	1	1,288	0					1	20 A	Spare	8
9	LIGHTING - CORRIDOR	20 A	1			414	0			1	20 A	Spare	10
11	LIGHTING - EXTERIOR	20 A	1					713	0	1	20 A	Spare	12
13	Spare	20 A	1	0	0					1	20 A	Spare	14
15	Spare	20 A	1			0	0			1	20 A	Spare	16
17	Spare	20 A	1					0	0	1	20 A	Spare	18
19	Spare	20 A	1	0	0					1	20 A	Spare	20
21	Spare	20 A	1			0	0			1	20 A	Spare	22
23	Spare	20 A	1					0	0	1	20 A	Spare	24
25	Spare	20 A	1	0	0					1	20 A	Spare	26
27	Spare	20 A	1			0	0			1	20 A	Spare	28
29	Spare	20 A	1					0	0	1	20 A	Spare	30
			Total Load:	2.3 kVA		1.2 kVA		0.7 kVA					
			Total Amps:	20 A		10 A		6 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTAL LOAD	
Lighting - Dwelling Unit	187 VA	100.00%	187 VA	**TOTAL DIVERSIFIED AMPS**	14 A
MH - LIGHTING	3997 VA	125.00%	4996 VA	**TOTAL CONNECTED AMPS**	12 A
L	0 VA	0.00%	0 VA	**TOTAL DIVERSIFIED LOAD**	5.2 kVA
				TOTAL CONNECTED LOAD	4.2 kVA

BRANCH CIRCUIT PANEL: P2

VOLTAGE: 120/208 Wye
PHASE: 3 **WIRE:** 4
SUPPLY FROM: C2
ISCA:
NOTES:

BUSS RATING: 200
MAINS TYPE: MCB
MAINS RATING: 200 A
AIC RATING: 14kAIC

ENCLOSURE: NEMA 1
MOUNTING: SURFACE
LOCATION: CLEAN LINEN 39A
NEW / EXISTING: New Construction

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	VA (PHASE A)		VA (PHASE B)		VA (PHASE C)		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	RECEPT., LINEN	20 A	1	540	1,200					1	20 A	RECEPT., WASHER	2
3	RECEPT., SMALL HOUSE STORAGE	20 A	1			720	1,200			1	20 A	RECEPT., WASHER	4
5	RECEPT., LARGE HOUSE STORAGE	20 A	1					720	1,200	1	20 A	RECEPT., DRYER	6
7	RECEPT., SOILED RM	20 A	1	360	1,200					1	20 A	RECEPT., DRYER	8
9	RECEPT., LOGISTICS	20 A	1			720	180			1	20 A	RECEPT., LAUNDRY ROOM	10
11	RECEPT., H.A.C.	20 A	1					180	180	1	20 A	RECEPT., LAUNDRY ROOM	12
13	RECEPT., H.A.C.	20 A	1	180	170					1	20 A	EF-4	14
15	LIGHTING - INTERIOR	20 A	1			595	56			1	20 A	EF-5	16
17	GLP-1	20 A	2					0	56	1	20 A	EF-6	18
19				0	1,550					2	20 A	WSHP-1	20
21	GLP-2	20 A	2			0	1,550						22
23								0	1,550	2	20 A	WSHP-2	24
25	DWH	20 A	1	600	1,550								26
27	RECIRC PUMP	20 A	1			360	500			1	20 A	FIRE SMOKE DAMPER	28
29	RECEPT., MECHANICAL RM	20 A	1					360	500	1	20 A	FIRE SMOKE DAMPER	30
31	RECEPT., MECHANICAL RM	20 A	1	360	500					1	20 A	FIRE SMOKE DAMPER	32
33	RECEPT., MECHANICAL RM	20 A	1			360	500			1	20 A	FIRE SMOKE DAMPER	34
35	Spare	20 A	1					0	500	1	20 A	FIRE SMOKE DAMPER	36
37	Spare	20 A	1	0	500					1	20 A	FIRE SMOKE DAMPER	38
39	Spare	20 A	1			0	0			1	20 A	Spare	40
41	Spare	20 A	1					0	0	1	20 A	Spare	42
			Total Load:	8.7 kVA		6.7 kVA		5.2 kVA					
			Total Amps:	74 A		58 A		44 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTAL LOAD	
MH - EQUIPMENT	3000 VA	100.00%	3000 VA	**TOTAL DIVERSIFIED AMPS**	58 A
MH - LIGHTING	595 VA	125.00%	744 VA	**TOTAL CONNECTED AMPS**	57 A
MH - HVAC EQUIPMENT	7081 VA	100.00%	7081 VA	**TOTAL DIVERSIFIED LOAD**	20.8 kVA
MH - RECEPTACLE	9660 VA	100.00%	9660 VA	**TOTAL CONNECTED LOAD**	20.7 kVA
M	360 VA	100.00%	360 VA		

BRANCH CIRCUIT PANEL: MP

VOLTAGE: 120/208 Wye
PHASE: 3 **WIRE:** 4
SUPPLY FROM: C2
ISCA:
NOTES:

BUSS RATING: 225 A
MAINS TYPE: MCB
MAINS RATING: 225 A
AIC RATING: 14kAIC

ENCLOSURE: NEMA 1
MOUNTING: SURFACE
LOCATION: ELEC. 19
NEW / EXISTING: New Construction

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	VA (PHASE A)		VA (PHASE B)		VA (PHASE C)		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1				14,771	400					1	20 A	VAV 1-8	2
3	ACCU-1	150 A	3			14,771	400			1	20 A	VAV 9-16	4
5								14,771	342	1	20 A	EF-1	6
7	ACCU-2	20 A	2	1,394	342					1	20 A	EF-2	8
9						1,394	588			1	20 A	EF-3	10
11								3,302	1,440	1	20 A	B-1	12
13	AHU-1	45 A	3	3,302	1,440					1	20 A	B-2	14
15						3,302	600			1	20 A	BP-1,2	16
17								2,005	1,152	1	20 A	HAC-1	18
19	RAF-1	35 A	3	2,005	180					1	20 A	RECEPT., ROOF	20
21						2,005	180			1	20 A	RECEPT., ROOF	22
23	HWP-1	20 A	2					1,040	0	1	20 A	Spare	24
25				1,040	0					1	20 A	Spare	26
27	HWP-2	20 A	2			1,040	0			1	20 A	Spare	28
29								1,040	0	1	20 A	Spare	30
31	Spare	20 A	1	0	0					1	20 A	Spare	32
33	Spare	20 A	1			0	0			1	20 A	Spare	34
35	Spare	20 A	1					0	0	1	20 A	Spare	36
37	Spare	20 A	1	0	0					1	20 A	Spare	38
39	Spare	20 A	1			0	0			1	20 A	Spare	40
41	Spare	20 A	1					0	0	1	20 A	Spare	42
			Total Load:	24.9 kVA		24.3 kVA		25.1 kVA					
			Total Amps:	208 A		202 A		210 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTAL LOAD	
MH - EQUIPMENT	7640 VA	100.00%	7640 VA	**TOTAL DIVERSIFIED AMPS**	206 A
MH - HVAC EQUIPMENT	64860 VA	100.00%	64860 VA	**TOTAL CONNECTED AMPS**	206 A
MH - RECEPTACLE	360 VA	100.00%	360 VA	**TOTAL DIVERSIFIED LOAD**	74.2 kVA
M	1388 VA	100.00%	1388 VA	**TOTAL CONNECTED LOAD**	74.2 kVA

DISTRIBUTION PANEL: C2M

VOLTAGE: 120/208 Wye
PHASE: 3 **WIRE:** 4
SUPPLY FROM: EXISTIN MSB DP
ISCA:
NOTES:

BUSS RATING: 600 A
MAINS TYPE: MCB
MAINS RATING: 600 A
AIC RATING: 35kAIC

ENCLOSURE: NEMA 1
MOUNTING: SURFACE
LOCATION:
NEW / EXISTING: New Construction

TAG	LOAD NAME	FRAME	TRIP	POLES	LSIG	A	NOTES
1	PANEL C2	600 A	600 A	3		55.9	
2	Spare	20 A	20 A	1		0.0	--
3	Spare	20 A	20 A	1		0.0	--
4	Spare	20 A	20 A	1		0.0	--
5	Spare	20 A	20 A	1		0.0	--
6	Spare	20 A	20 A	1		0.0	--
7	Spare	20 A	20 A	1		0.0	--
8	Spare	20 A	20 A	1		0.0	--
9	Spare	20 A	20 A	1		0.0	--
10	Spare	20 A	20 A	1		0.0	--
11	Spare	20 A	20 A	1		0.0	--
12	Spare	20 A	20 A	1		0.0	--
						55.9	**TOTAL KVA PER PHASE**
						472	**TOTAL AMPS PER PHASE**

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTAL LOAD	
RECEPTACLE	37600 VA	63.30%	23800 VA	**TOTAL CONNECTED AMPS:**	452 A
LIGHTING	4592 VA	125.00%	5740 VA	**TOTAL DEMAND AMPS:**	417 A
HVAC	71941 VA	100.00%	71941 VA	**TOTAL CONNECTED KVA:**	162998 VA
EQUIPMENT	46940 VA	100.00%	46940 VA	**TOTAL DEMAND KVA:**	150346 VA
EV SERVICE EQUIPMENT					

DISTRIBUTION PANEL: C2

VOLTAGE: 120/208 Wye
PHASE: 3 **WIRE:** 4
SUPPLY FROM: C2M
ISCA: 21,661 A
NOTES:

BUSS RATING: 600 A
MAINS TYPE: MCB
MAINS RATING: 600 A
AIC RATING: 35kAIC

ENCLOSURE: NEMA 1
MOUNTING: SURFACE
LOCATION: ELEC. 19
NEW / EXISTING: New Construction

TAG	LOAD NAME	FRAME	TRIP	POLES	LSIG	A	B	C	NOTES
1	PANEL P1A	225 A	225 A	3		20.0	24.3	19.6	
2	PANEL P1B	100 A	100 A	3		2.3	1.2	0.7	
3	PANEL MP	225 A	225 A	3		24.9	24.3	25.1	
4	UPS-1 TO PANEL P2	150 A	150 A	3		8.7	6.7	5.2	
5	Spare	20 A	20 A	1		0.0			--
6	Spare	20 A	20 A	1		0.0			--
7	Spare	20 A	20 A	1		0.0			--
8	Spare	20 A	20 A	1		0.0			--
9	Spare	20 A	20 A	1		0.0			--
10	Spare	20 A	20 A	1		0.0			--
11	Spare	20 A	20 A	1		0.0			--
12	Spare	20 A	20 A	1		0.0			--
						55.9	56.4	50.7	**TOTAL KVA PER PHASE**
						472	477	422	**TOTAL AMPS PER PHASE**

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	DEMAND LOAD	PANEL TOTAL LOAD	
RECEPTACLE	37600 VA	63.30%	23800 VA	**TOTAL CONNECTED AMPS:**	452 A
LIGHTING	4592 VA	125.00%	5740 VA	**TOTAL DEMAND AMPS:**	417 A
HVAC	71941 VA	100.00%	71941 VA	**TOTAL CONNECTED KVA:**	162998 VA
EQUIPMENT	46940 VA	100.00%	46940 VA	**TOTAL DEMAND KVA:**	150346 VA
EV SERVICE EQUIPMENT					

BRANCH CIRCUIT PANEL: P1A

VOLTAGE: 120/208 Wye
PHASE: 3 **WIRE:** 4
SUPPLY FROM: C2
ISCA: 9,456 A
NOTES:

BUSS RATING: 225
MAINS TYPE: MCB
MAINS RATING: 225 A
AIC RATING: 14kAIC

ENCLOSURE: NEMA 1
MOUNTING: SURFACE
LOCATION: ELEC. 19
NEW / EXISTING: New Construction

CKT	CIRCUIT DESCRIPTION	TRIP	POLES	VA (PHASE A)		VA (PHASE B)		VA (PHASE C)		POLES	TRIP	CIRCUIT DESCRIPTION	CKT
1	RECEPT., RESIDENT RM 1	20 A	1	900	1,500					1	20 A	P-440 LIFT	2
3	RECEPT., RESIDENT RM 2	20 A	1			900	1,500			1	20 A	P-440 LIFT	4
5	RECEPT., RESIDENT RM 3	20 A	1					900	1,500	1	20 A	P-440 LIFT	6
7	RECEPT., RESIDENT RM 4	20 A	1	900	1,500					1	20 A	P-440 LIFT	8
9	RECEPT., RESIDENT RM 5	20 A	1			900	1,500			1	20 A	P-440 LIFT	10
11	RECEPT., RESIDENT RM 1-5	20 A	1					900	1,500	1	20 A	P-440 LIFT	12
13	RECEPT., MEDICATION RM	20 A	1	900	1,500					1	20 A	P-440 LIFT	14
15	RECEPT., RESIDENT RM 6	20 A	1			900	1,500			1	20 A	P-440 LIFT	16
17	RECEPT., RESIDENT RM 7	20 A	1					900	1,500	1	20 A	P-440 LIFT	18
19	RECEPT., RESIDENT RM 8	20 A	1	900	1,500					1	20 A	P-440 LIFT	20
21	RECEPT., RESIDENT RM 9	20 A	1			900	800			1	20 A	RECEPT., REFRIGERATOR	22
23	RECEPT., RESIDENT RM 10	20 A	1					900	180	1	20 A	RECEPT., KITCHEN	24
25	RECEPT., RESIDENT RM 6-10	20 A	1	1,080	4,700					2	45 A	FULGOR MILANO - INDUCTION COOKTOP	26
27	WALL MOUNT FOUNTAIN	20 A	1			180	4,700						28
29	RECEPT., STAFF OFFICE	20 A	1					900	500	1	20 A	HOOD RANGE	30
31	RECEPT., COPIER/FAX	20 A	1	180	180					1	20 A	RECEPT., KITCHEN	32
33	RECEPT., LIVING AND DINNEING RM	20 A	1			1,080	3,350			2	40 A	SAMSUNG NV51T5511D - DOUBLE OVEN	34
35	FIREPLACE	20 A	1					1,500	3,350				36
37	RECEPT., TELEVISION LIVING RM	20 A	1	360	1,200					1	20 A	DISHWASHER	38
39	RECEPT., RECEIVING & STORAGE	20 A	1			720	1,200			1	20 A	DISHWASHER	40
41	RECEPT., ICE MAKER	20 A	1					800	180	1	20 A	RECEPT., COFFEE	42
43	RECEPT., ELEC.	20 A	1	360	180					1	20 A	RECEPT., COFFEE	44
45	RECEPT., MECHANICAL RM	20 A	1			1,080	180			1	20 A	RECEPT., TELEPHONE	46
47	RECEPT., MECHANICAL RM	20 A	1					180	180	1	20 A	RECEPT., KITCHEN	48
49	RECEPT., DATA	20 A	1	360	180					1	20 A	RECEPT., KITCHEN	50
51	RECEPT., DATA	20 A	2			800	180			1	20 A	RECEPT., KITCHEN	52
53								800	1,080	1	20 A	RECEPT., HOUSKEEPING	54
55	RECEPT., DATA	20 A	1	360	1,080					1	20 A	RECEPT., HOUSKEEPING	56
57	RECEPT., DATA	20 A	2			800	900			1	20 A	RECEPT., EXTERIOR	58
59								800	1,080	1	20 A	RECEPT., EXTERIOR	60
61	RECEPT., DATA	20 A	1	180	0					1	20 A	Spare	62
63	RECEPT., DATA	20 A	1			180	0			1	20 A	Spare	64
65	Spare	20 A	1					0	0	1	20 A	Spare	66
67	Spare	20 A	1	0	0					1	20 A	Spare	68
69	Spare	20 A	1			0	0			1	20 A	Spare	70
71	Spare	20 A	1					0	0	1	20 A	Spare	72
73	Spare	20 A	1	0	0					1	20 A	Spare	74
75	Spare	20 A	1			0	0			1	20 A	Spare	76
77	Spare	20 A	1					0	0	1	20 A	Spare	78
79	Spare	20 A	1	0	0					1	20 A	Spare	80
81	Spare	20 A	1			0	0			1	20 A	Spare	82
83	Spare	20 A	1					0	0	1	20 A	Spare	84
			Total Load:	20.0 kVA		24.3 kVA		19.6 kVA					
			Total Amps:	167 A		203 A		164 A					

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	PANEL TOTAL LOAD	
MH - EQUIPMENT	36300 VA	100.00%	36300 VA	**TOTAL DIVERSIFIED AMPS**	153 A
MH - RECEPTACLE	27580 VA	68.13%	18790 VA	**TOTAL CONNECTED AMPS**	177 A
				TOTAL DIVERSIFIED LOAD	55.1 kVA
				TOTAL CONNECTED LOAD	63.9 kVA

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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title: ELECTRICAL SCHEDULE
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN
Location: BIG SPRING, TX
Issue Date: 06/28/2024
Checked: LRL
Drawn: JRM
Drawing Number: E601

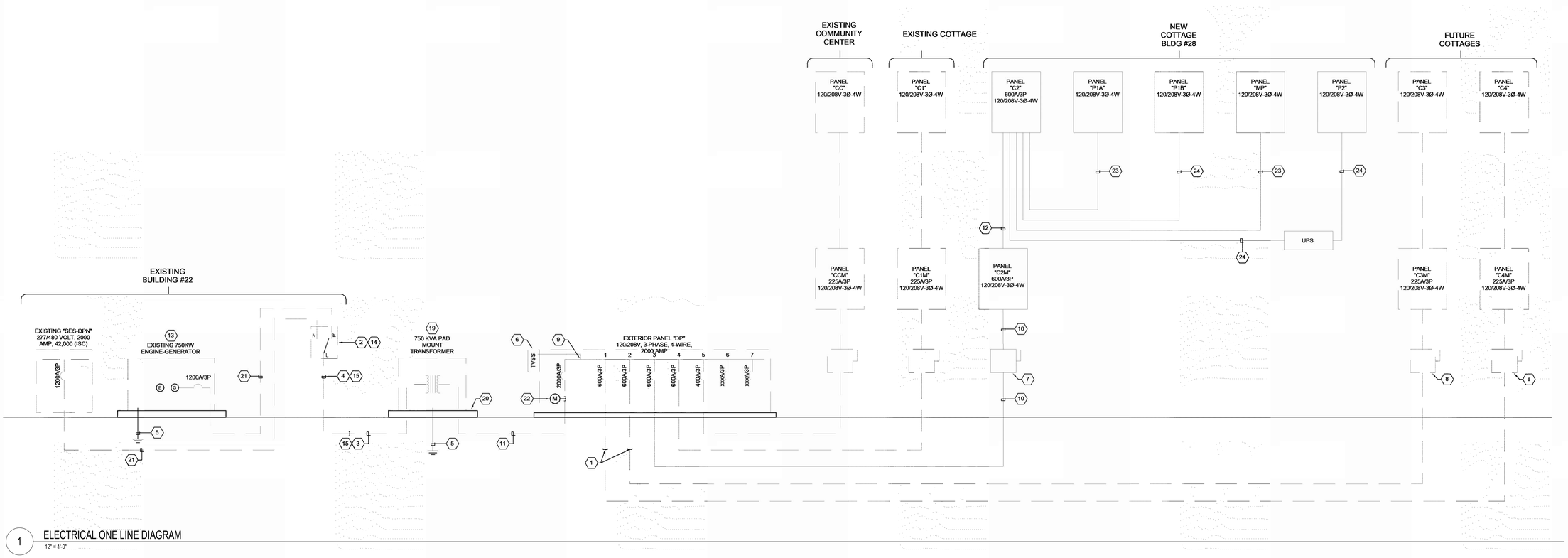
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KEYED NOTES

1. CONDUITS STUBBED-OUT FOR FUTURE BUILDINGS. REFER TO ELECTRICAL SITE PLAN-NEW, SHEET ES1, FOR LOCATION.
2. AUTOMATIC TRANSFER SWITCH, LOCATED IN BUILDING #22.
3. CONDUIT FROM NEW PADMOUNTED TRANSFORMER SHALL TERMINATE AT EXISTING DUCT BANK. CONDUCTORS SHALL EXTEND FROM NEW SWITCHBOARD TO AUTOMATIC TRANSFER SWITCH AT BUILDING #22. REFER TO ELECTRICAL SITE PLAN-NEW, SHEET ES1, FOR ADDITIONAL INFORMATION.
4. EXISTING DUCT BANK WITH NEW CONDUCTORS TO AUTOMATIC TRANSFER SWITCH.
5. REFER TO GROUNDING SYSTEM DIAGRAM THIS SHEET.
6. TRANSIENT VOLTAGE SURGE PROTECTION SYSTEM SHALL BE EQUAL TO CURRENT TECHNOLOGY #TG-125-120/208-3GY.
7. 208V-600A-3P-4W, PLUS SOLID NEUTRAL, FUSIBLE, RAINTIGHT, MAIN SERVICE DISCONNECT SWITCH. FUSE AT 600 AMPS.
8. FUTURE MAIN SERVICE DISCONNECT SWITCH.
9. SWITCHGEAR MANUFACTURER SHALL DRILL AND INSTALL #1/0 TAP LUGS.
10. (2) 3" CONDUITS EACH WITH (4) #350 KCMIL AND (1) #2/0 GROUND.
11. (5) 4" CONDUITS EACH WITH (4) #600 KCMIL AND (1) #3/0 GROUND.
12. (2) 3" CONDUITS EACH WITH (4) #350 KCMIL AND (1) #2/0 GROUND.
13. EXISTING ENGINE-GENERATOR, 750 KW, 937 KVA, 277/480V-3Ø-4W, RATED AT 2600 FEET IN ELEVATION AT 120 DEGREE AMBIENT CONDITIONS RATED.
14. EXISTING 277/480V-1200A AUTOMATIC TRANSFER SWITCH WITH BYPASS ISOLATION, 35K (15C) RATED.
15. (3) SETS (4) #600 KCMIL AND (1) #3/0 GROUND IN A 4" CONDUIT. (1) 4" SPARE CONDUIT FOR A TOTAL OF (3) 4" CONDUITS.
16. STANDBY GENERATOR 'G2' (LOW VOLTAGE POWER UNIT AT 480/277V-3Ø-4W) WITH LOCAL DISCONNECT PROVIDED ON UNIT. UNIT IS PRESENTLY INDICATED WITH RADIATOR ATTACHED TO UNIT AND INTERIOR MOUNTED MUFFLERS AND EXHAUST SYSTEM. EXHAUST SHALL BE WALL MOUNTED THROUGH THE WALL.
17. RELIANT SERIES INDOOR DIESEL FUEL DAY TANK, XXX GALLON, DUPLEX PUMP AT 1 HP, 480V-3Ø, TEFC, CONTROL PANEL, STARTERS, ALTERNATOR CONTROL UNIT; UNIT IS EXISTING. MAKE ALL REQUIRED CONNECTIONS TO NEW ENGINE-GENERATOR.
18. AUTOMATIC TRANSFER SWITCH "LIFE SAFETY" WITH ISOLATION BYPASS, NEMA 1, FRONT AND REAR ACCESSIBLE, SERVICE ENTRANCE RATED, APPROXIMATE SIZE IS 33"W x 36"D x 92"H.
19. NEW PADMOUNT TRANSFORMER 277/480 VOLT PRIMARY, 120/208 VOLT SECONDARY, 750 KVA.
20. 4" HIGH CONCRETE HOUSEKEEPING PAD. EXTEND 6" BEYOND TRANSFORMER FOOTPRINT ON ALL SIDES.
21. (3) 4" CONDUITS EACH WITH (4) #600 KCMIL AND (1) #3/0 GROUND.
22. PROVIDE AND INSTALL A CHECK METER INTEGRAL TO PANEL.
23. (2 1/2)" CONDUITS WITH (4) #4/0 AND (1) #4 GROUND THWN COPPER.
24. (2)" CONDUIT WITH (4) #3/0 AND (1) #6 GROUND THWN COPPER.



1 ELECTRICAL ONE LINE DIAGRAM
12" = 1'-0"

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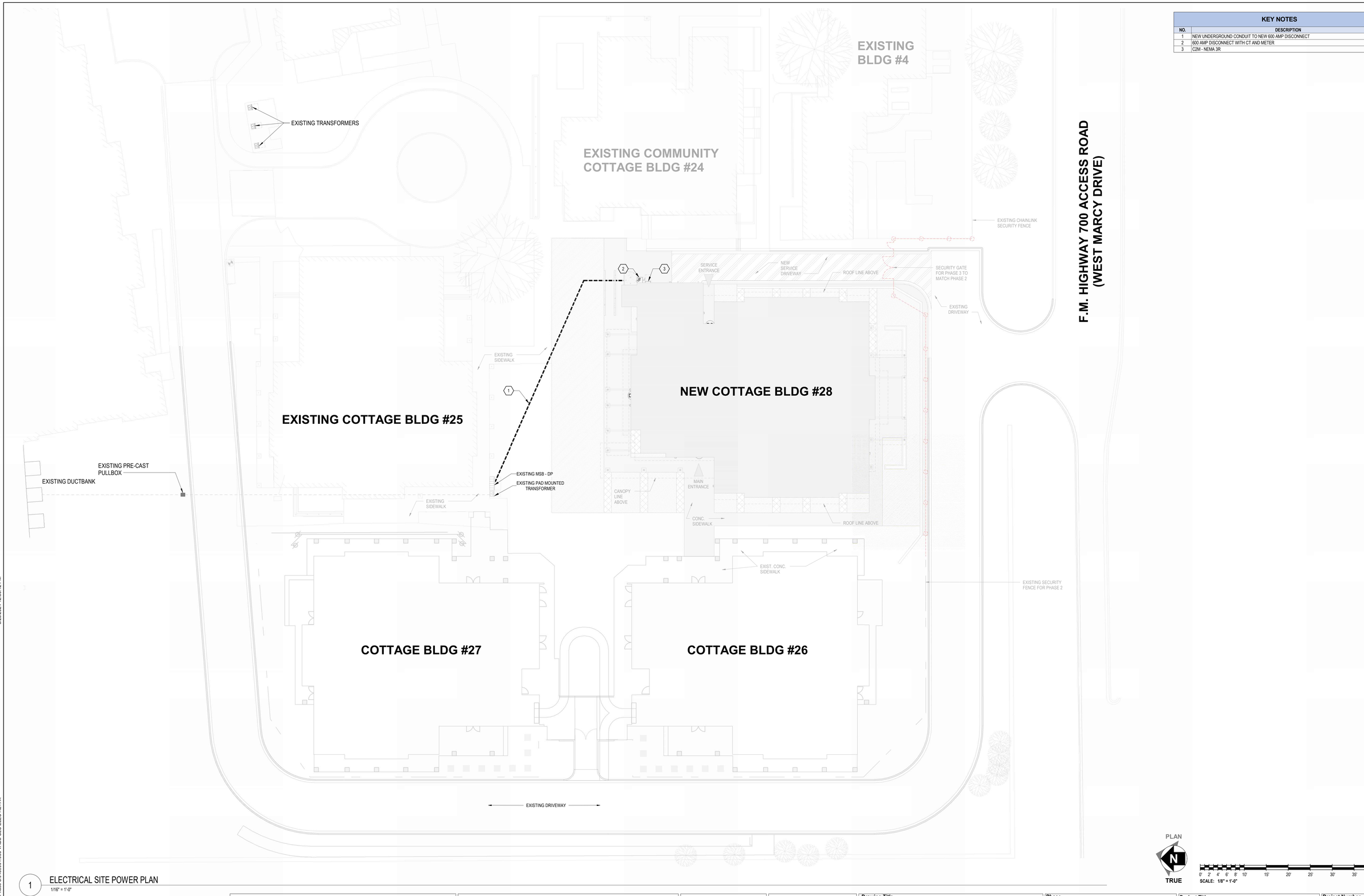
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Drawing Title: ELECTRICAL DIAGRAM	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: E602
		Issue Date: 06/28/2024 / Checked: LRL / Drawn: JRM	

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KEY NOTES	
NO.	DESCRIPTION
1	NEW UNDERGROUND CONDUIT TO NEW 600 AMP DISCONNECT
2	600 AMP DISCONNECT WITH CT AND METER
3	C2M - NEMA 3R



PLAN
TRUE
SCALE: 1/8" = 1'-0"
0' 2' 4' 6' 8' 10' 15' 20' 25' 30' 35' 40'

1 ELECTRICAL SITE POWER PLAN
1/16" = 1'-0"

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Drawing Title: ELECTRICAL SITE PLAN	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: E801
		Issue Date: 06/28/2024 / Checked: LRL / Drawn: JRM	

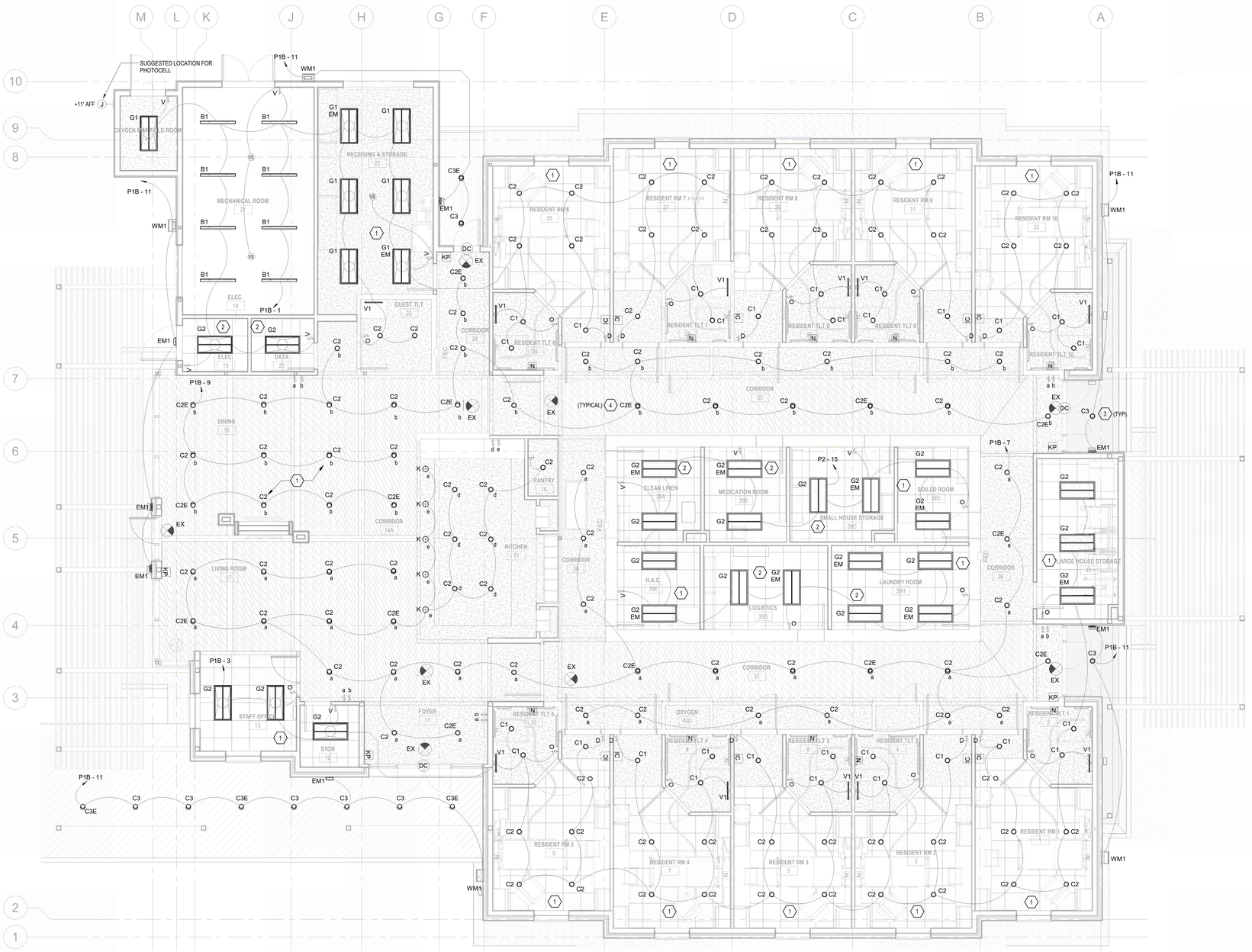
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GENERAL NOTES

1. COORDINATE LIGHT FIXTURE POSITIONS IN PATIENT ROOMS AND TOILET/SHOWERS WITH PATIENT LIFT INSTALLERS TO AVOID LIFT SUPPORTS AND FOR EASE OF LIGHT FIXTURE MAINTENANCE. SHOW CHANGES ON AS-BUILT DRAWINGS.
2. CONDUITS SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS AND CEILINGS.
3. NIGHT LIGHTS AND EXIT LIGHTS ARE ON ALL THE TIME AND WIRED AHEAD OF SWITCHES.
4. CORRIDOR LIGHTS WILL BE NIGHT LIGHTS, ON ALL THE TIME.

KEY NOTES

NO.	DESCRIPTION
1	COORDINATE LIGHT FIXTURE LOCATIONS WITH MECHANICAL INSTALLERS TO AVOID DUCT WORK, AND ILLUMINATE FRONT OF EQUIPMENT.
2	NOTIFY COR IF INSTALLER NOTICES IF LIGHTS INTERFERE WITH DUCT WORK OR ABOVE SHELVING.
3	ALL EXTERIOR LIGHTING FIXTURES SHALL BE CONTROLLED VIA COMBINATION OF PHOTOCELL AND ASTRONOMICAL TIMECLOCK. ELECTRICAL CONTRACTOR WILL COORDINATE EXACT LOCATION, INSTALLATION REQUIREMENTS, EQUIPMENT MANUFACTURER'S SPECIFICATIONS, AND PROGRAMMING, WITH MANUFACTURER, ARCHITECT, CLIENT, AND AUTHORITY HAVING JURISDICTION PRIOR TO BEGINNING ANY WORK
4	PROVIDE SLOPED CEILING ADAPTERS FOR DOWNLIGHTS INSTALLED IN SLOPED CEILINGS. COORDINATE WITH ARCHITECTURAL DRAWINGS.



1 LEVEL 1 LIGHTING PLAN
3/16" = 1'-0"

PLAN
N
TRUE
SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
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Revisions:	Date:

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Drawing Title	ELECTRICAL LIGHTING CEILING PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	JRM
Drawing Number	EL101

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LIGHTING CONTROL DEVICE SCHEDULE

MARK	CONTROL DEVICE DESCRIPTION	SEQUENCE OF OPERATIONS
1S	IN-WALL SWITCH INTEGRAL VACANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL SWITCHING CAPABILITY. SENSOR SHALL OPERATE IN VACANCY MODE.
1D	IN-WALL DIMMER (0-10V) INTEGRAL OCCUPANCY SENSOR	FIXTURES TO BE AUTO ON TO 50% / AUTO-OFF WITH MANUAL DIMMING CAPABILITY.
1T	IN-WALL DIMMER (LED+) INTEGRAL OCCUPANCY SENSOR	FIXTURES TO BE AUTO ON TO 50% / AUTO-OFF WITH MANUAL DIMMING CAPABILITY.
2S	IN-WALL SWITCH WIRELESS CEILING OCCUPANCY/VACANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL SWITCHING CAPABILITY. SENSOR SHALL OPERATE IN VACANCY MODE. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
2D	IN-WALL DIMMER (0-10V) WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
2T	IN-WALL DIMMER (LED+) WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE AUTO ON TO 50% / AUTO-OFF WITH MANUAL DIMMING CAPABILITY. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
3S	IN-WALL SWITCH WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL SWITCHING CAPABILITY FROM SWITCH OR KEYPAD. SENSOR SHALL OPERATE IN VACANCY MODE. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
3D	IN-WALL DIMMER (0-10V) WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM DIMMER OR KEYPAD. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
3T	IN-WALL DIMMER (LED+) WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM DIMMER OR KEYPAD. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
4S	SWITCHING POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL SWITCHING CAPABILITY FROM KEYPAD. SENSOR SHALL OPERATE IN VACANCY MODE. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
4D	DIMMING (0-10V) POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
4T	DIMMING (LED+) POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
4E	DIMMING (ECOSYSTEM) POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. FOR USE WITH LUTRON ECOSYSTEM DIGITALL ADDRESSABLE DRIVERS ONLY. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
5S	SWITCHING POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR WIRELESS DAYLIGHT SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. FIXTURES SHALL TURN OFF WITH AMBIENT DAYLIGHT. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
5D	DIMMING (0-10V) POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR WIRELESS DAYLIGHT SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. FIXTURES SHALL DIM WITH AMBIENT DAYLIGHT. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
5T	DIMMING (LED+) POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR WIRELESS DAYLIGHT SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. FIXTURES SHALL DIM WITH AMBIENT DAYLIGHT. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
5E	DIMMING (ECOSYSTEM) POWPAK WIRELESS KEYPAD WIRELESS CEILING OCCUPANCY SENSOR WIRELESS DAYLIGHT SENSOR	FIXTURES TO BE MANUAL-ON / AUTO-OFF WITH MANUAL DIMMING CAPABILITY FROM KEYPAD. FIXTURES SHALL DIM WITH AMBIENT DAYLIGHT. FOR USE WITH LUTRON ECOSYSTEM DIGITALL ADDRESSABLE DRIVERS ONLY. CONNECT DEVICES TO LUTRON VIVE HUB FOR TIMECLOCK CONTROL IS APPLICABLE.
HUB	VIVE HUB	HUB SHALL PROVIDE ASTRONOMICAL TIMECLOCK FOR ALL CONNECTED LIGHTING CONTROL DEVICES. IF PROJECT CONTAINS MORE THAN ONE HUB, THEY SHALL BE CONNECTED TO THE BUILDING INTERNET SYSTEM FOR CONNECTIVITY.
NOTES:	1. + AT END OF MARK DENOTES THAT ADDITIONA QUANTITY OF MATERIALS ARE NEEDED FOR THAT SPACE. REFER TO PLAN FOR ADDITIONAL KEYPADS/SENSORS IN THE SPACE. 2. CONFIRM FINISH COLOR FOR ALL DEVICES WITH ARCHITECT PRIOR TO PURCHASES.	

LIGHTING CONTROLS SCHEDULE

Control Type	Room Number	Type	Switch Control Area	Panel	Circuit Number	Count
		VACANCY SENSOR				1
1D	1	Dimmer	RESIDENT RM 1	P1B	3	1
1S	2	Occupancy Sensor	RESIDENT TLT 1	P1B	3	1
1D	3	Dimmer	RESIDENT RM 2	P1B	3	1
1S	4	Occupancy Sensor	RESIDENT TLT 2	P1B	3	1
1D	5	Dimmer	RESIDENT RM 3	P1B	3	1
1S	6	Occupancy Sensor	RESIDENT TLT 3	P1B	3	1
1D	7	Dimmer	RESIDENT RM 4	P1B	3	1
1S	8	Occupancy Sensor	RESIDENT TLT 4	P1B	3	1
1D	9	Dimmer	RESIDENT RM 5	P1B	3	1
1S	10	Occupancy Sensor	RESIDENT TLT 5	P1B	3	1
5S	11	Single Pole	FOYER	P1B	7	1
5S	11	Single Pole	FOYER	P1B	7	1
1S	12	VACANCY SENSOR	STOR	P1B	3	1
2S	13	Occupancy Sensor	STAFF OFFICE	P1B	3	1
2S	15	Single Pole	KITCHEN	P1B	7	1
2S	15	Single Pole	KITCHEN	P1B	7	1
1S	16	Single Pole	PANTRY	P1B	7	1
5S	17	Single Pole	LIVING ROOM	P1B	7	1
5S	17	Single Pole	LIVING ROOM	P1B	7	1
5S	18	Single Pole	DINING	P1B	9	1
5S	18	Single Pole	DINING	P1B	9	1
1S	19	VACANCY SENSOR	ELEC.	P1B	1	1
1S	20	VACANCY SENSOR	DATA	P1B	1	1
2S	21	VACANCY SENSOR	MECHANICAL ROOM	P1B	1	1
2D	21	VS - Ceiling	MECHANICAL ROOM	P1B	1	1
2D	21	VS - Ceiling	MECHANICAL ROOM	P1B	1	1
2S	22	VACANCY SENSOR	RECEIVING & STORAGE	P1B	1	1
2S	22	VS - Ceiling	RECEIVING & STORAGE	P1B	1	1
1S	23	Occupancy Sensor	GUEST TLT	P1B	1	1
1D	25	Dimmer	RESIDENT RM 6	P1B	1	1
1S	26	Occupancy Sensor	RESIDENT TLT 6	P1B	1	1
1D	27	Dimmer	RESIDENT RM 7	P1B	1	1
1S	28	Occupancy Sensor	RESIDENT TLT 7	P1B	1	1
1D	29	Dimmer	RESIDENT RM 8	P1B	1	1
1S	30	Occupancy Sensor	RESIDENT TLT 8	P1B	1	1
1D	31	Dimmer	RESIDENT RM 9	P1B	1	1
1S	32	Occupancy Sensor	RESIDENT TLT 9	P1B	1	1
1D	33	Dimmer	RESIDENT RM 10	P1B	1	1
1S	34	Occupancy Sensor	RESIDENT TLT 10	P1B	1	1
5S	35	Single Pole	CORRIDOR	P1B	9	1
5S	35	Single Pole	CORRIDOR	P1B	9	1
5S	37	Single Pole	CORRIDOR	P1B	7	1
5S	37	Single Pole	CORRIDOR	P1B	7	1
1S	39A	VACANCY SENSOR	CLEAN LINEN	P2	15	1
1S	39B	VACANCY SENSOR	MEDICATION ROOM	P2	15	1
1S	39C	VACANCY SENSOR	SMALL HOUSE STORAGE	P2	15	1
1S	39D	Occupancy Sensor	SOILED ROOM	P2	15	1
1S	39E	VACANCY SENSOR	H.A.C.	P2	15	1
1S	39G	Occupancy Sensor	LOGISTICS	P2	15	1
1S	39H	Occupancy Sensor	LAUNDRY ROOM	P2	15	1
1S	41	Occupancy Sensor	LARGE HOUSE STORAGE	P1B	3	1

LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	MODEL	LAMP	LUMENS	WATTAGE	COLOR TEMPERATURE	VOLTAGE	MOUNTING	NOTES
B1	4' STRIP FIXTURE WITH ROUNDED DIFFUSE ACRYLIC LENS AND 0-10V DIMMABLE DRIVER.	H.E. WILLIAMS 75R SERIES	LED	2,916	20 W	4000 K	120 V	SURFACE	2
C1	6" ROUND DOWNLIGHT WITH WIDE DISTRIBUTION, CLEAR SEMI-SPECULAR TRIM, AND 0-10V DIMMABLE DRIVER.	H.E. WILLIAMS 6DR SERIES	LED	1,014	9 W	4000 K	120 V	CEILING RECESSED	1,2
C2	6" ROUND DOWNLIGHT WITH WIDE DISTRIBUTION, CLEAR SEMI-SPECULAR TRIM, AND 0-10V DIMMABLE DRIVER.	H.E. WILLIAMS 6DR SERIES	LED	1,497	14 W	4000 K	120 V	CEILING RECESSED	1,2
C2E	6" ROUND DOWNLIGHT WITH WIDE DISTRIBUTION, CLEAR SEMI-SPECULAR TRIM, AND 0-10V DIMMABLE DRIVER. (WITH EMERGENCY BATTERY BACKUP)	H.E. WILLIAMS 6DR SERIES	LED	1,497	14 W	4000 K	120 V	CEILING RECESSED	1,2
C3	6" ROUND DOWNLIGHT WITH WIDE DISTRIBUTION, CLEAR SEMI-SPECULAR TRIM, AND 0-10V DIMMABLE DRIVER. (WITH IP65 RATED TRIM)	H.E. WILLIAMS 6DR SERIES	LED	1,014	9 W	4000 K	120 V	CEILING RECESSED	1,2
C3E	6" ROUND DOWNLIGHT WITH WIDE DISTRIBUTION, CLEAR SEMI-SPECULAR TRIM, AND 0-10V DIMMABLE DRIVER. (WITH IP65 RATED TRIM AND BATTERY BACKUP)	H.E. WILLIAMS 6DR SERIES	LED	1,014	9 W	4000 K	120 V	CEILING RECESSED	1,2
EM1	DIECAST ALUMINUM WET LOCATION EMERGENCY LIGHTING UNIT WITH INTEGRAL BATTERY AND PHOTOCELL AND SELF DIAGNOSTICS. EMERGENCY OPERATION	ISOLITE OWL # OWL-AM-8K-MB SERIES	LED	1,530	17 W	3000 K	120 V	WALL	1,2
G1	2'X4' TROFFER WITH FROSTED ACRYLIC LENS AND 0-10V DIMMABLE DRIVER. PROVIDE WITH RECESSED DRYWALL MOUNT KIT	H.E. WILLIAMS LT-2/4 SERIES	LED	5,202	37 W	4000 K	120 V	CEILING RECESSED	1,2
G1 EM	2'X4' TROFFER WITH FROSTED ACRYLIC LENS AND 0-10V DIMMABLE DRIVER. (WITH BATTERY BACKUP). PROVIDE WITH RECESSED DRYWALL MOUNT KIT	H.E. WILLIAMS LT-2/4 SERIES	LED	5,202	37 W	4000 K	120 V	CEILING RECESSED	1,2
G2	2'X4' TROFFER WITH FROSTED ACRYLIC LENS AND 0-10V DIMMABLE DRIVER.	H.E. WILLIAMS LT-2/4 SERIES	LED	5,202	37 W	4000 K	120 V	LAY-IN	1,2
G2 EM	2'X4' TROFFER WITH FROSTED ACRYLIC LENS AND 0-10V DIMMABLE DRIVER. (WITH BATTERY BACKUP)	H.E. WILLIAMS LT-2/4 SERIES	LED	5,202	37 W	4000 K	120 V	LAY-IN	1,2
K	WHITTINGTON PENDANT	WHITTINGTON	LED	1,014	150 W	4000 K	120 V		
V1	2' ROUNDED LINEAR VANITY FIXTURE WITH STEEL HOUSING, BRUSHED NICKEL POWDER COATED FINISH, AND DIFFUSE ACRYLIC DIFFUSER.	TERON INVO4 SERIES	LED	1,520	17 W	4000 K	120 V		
WM1	DIE CAST ALUMINUM WALL PACK WITH 0-10V DIMMABLE DRIVER.	ATLAS WLM SERIES	LED	5,699	62 W	4000 K	120 V	SURFACE	1,2

GENERAL NOTES:
- EMERGENCY FIXTURES INDICATED IN THIS SCHEDULE SHALL BE CAPABLE OF 90 MINUTE BATTERY BACK-UP OPERATION.
- PROVIDE COMPATIBLE EMERGENCY BATTERY PACK WITHOUT LAMPS (DUAL-LITE LM SERIES OR EQUAL) FOR ALL REMOTE HEAD TYPE EMERGENCY FIXTURES. INSTALL ON INTERIOR SIDE OF WALL AND LOCATE ABOVE ACCESSIBLE CEILING WHEN CEILINGS ARE PRESENT.
- COORDINATE EXACT LOCATION AND FINISH OPTIONS OF ALL EMERGENCY REMOTE TEST SWITCHES WITH ARCHITECT PRIOR TO ROUGH-IN AND CONNECT FOR OPERATION.
- CONTRACTOR IS RESPONSIBLE FOR SECURING ANY SUSPENDED LIGHT FIXTURE(S) WHICH SWAY OR MOVE DUE TO AIR PRODUCING MECHANICAL EQUIPMENT OR EXTERIOR WIND WITH RIGID SUPPORT(S).
- FINISHES OF ALL FIXTURES INDICATED IN THIS SCHEDULE SHALL MATCH THE FINISH ADJACENT TO THE CEILING/WALL THE FIXTURE IS MOUNTED IN/ON UNLESS NOTED OTHERWISE. PROVIDE CUSTOM COLOR FINISH IF FINISH REQUIRED IS NOT A STANDARD FIXTURE OPTION.
- ALL LINEAR FIXTURES INSTALLED IN A 4'x 4' CEILING SYSTEM SHALL BE MOUNTED SO THAT THE BOTTOM OF THE FIXTURE IS FLUSH WITH THE CEILING SYSTEM. REGRESSED MOUNTING OF FIXTURES SHALL NOT BE ACCEPTABLE. PROVIDE CREE CR-HDC MOUNTING CLIP KIT AS REQUIRED.

NOTES:
1. VERIFY CEILING TYPES PRIOR TO ORDERING FIXTURES.
2. VERIFY EXACT MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
3. MOUNT FIXTURE AT HEIGHT AS INDICATED (BOTTOM OF FIXTURE), COORDINATE WITH EQUIPMENT PRIOR TO ROUGH IN.

EMERGENCY LIGHTING FIXTURE SCHEDULE

TAG	DESCRIPTION	MODEL	LAMP	LUMENS	WATTAGE	COLOR TEMPERATURE	VOLTAGE	MOUNTING	NOTES
EX	EDGE-LIT EXIT SIGN WITH RED LETTERING, SINGLE FACE CLEAR BACKGROUND, DOUBLE FACE MIRRORED BACKGROUND, AND BATTERY BACKUP.	ISOLITE UEL SERIES	LED		2		120 V	-	1,2

GENERAL NOTES:
- EMERGENCY FIXTURES INDICATED IN THIS SCHEDULE SHALL BE CAPABLE OF 90 MINUTE BATTERY BACK-UP OPERATION.
- PROVIDE COMPATIBLE EMERGENCY BATTERY PACK WITHOUT LAMPS (DUAL-LITE LM SERIES OR EQUAL) FOR ALL REMOTE HEAD TYPE EMERGENCY FIXTURES. INSTALL ON INTERIOR SIDE OF WALL AND LOCATE ABOVE ACCESSIBLE CEILING WHEN CEILINGS ARE PRESENT.
- COORDINATE EXACT LOCATION AND FINISH OPTIONS OF ALL EMERGENCY REMOTE TEST SWITCHES WITH ARCHITECT PRIOR TO ROUGH-IN AND CONNECT FOR OPERATION.
- SUSPENDED EXIT SIGNS SHALL BE SUPPORTED WITH PAINTED STEMS AND CONCEALED MOUNTING PLATES BY PENDANT SYSTEMS OR EQUAL. (EXCEPTIONS TO THIS REQUIREMENT INCLUDE WAREHOUSE, STORAGE AND INDUSTRIAL SPACES.)
- EXIT SIGNS LOCATED AT STOREFRONT EXITS AND ADJACENT CEILING IS GREATER THAN 12' A.F.F. SHALL BE INSTALLED CENTERED ON HORIZONTAL MULLION OF THE STOREFRONT SYSTEM ABOVE THE DOORWAY. ALL WIRING SHALL BE CONCEALED WITHIN MULLIONS AND SIGN SHALL BE INSTALLED FLUSH. NO VISIBLE BACK BOXES SHALL BE ALLOWED.

NOTES:
1. VERIFY CEILING TYPES PRIOR TO ORDERING FIXTURES.
2. VERIFY EXACT MOUNTING HEIGHT WITH ARCHITECTURAL DRAWINGS.
3. MOUNT FIXTURE AT HEIGHT AS INDICATED (BOTTOM OF FIXTURE), COORDINATE WITH EQUIPMENT PRIOR TO ROUGH IN.
4. MOUNT FIXTURE AT HEIGHT AS INDICATED (CENTER OF FIXTURE), COORDINATE WITH EQUIPMENT PRIOR TO ROUGH IN.

ISSUE FOR BID	06/28/2024
ISSUE FOR BID	10/23/2023
Revisions:	Date:

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Office of Construction and Facilities Management

VA U.S. Department of Veterans Affairs

Drawing Title	ELECTRICAL LIGHTING SCHEDULE
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	
	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	JRM
Drawing Number	EL603

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GENERAL NOTES

1. CIRCUITS AND CONDUITS SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS AND CEILINGS.
2. GROUNDING SHALL BE IN ACCORDANCE WITH ARTICLES 250 AND 800 OF THE NATIONAL ELECTRICAL CODE.
3. GROUNDING CONDUCTORS SHALL BE #1/0 UNLESS OTHERWISE NOTED.
4. TELECOM GROUNDING CONDUCTORS SHALL BE #6.

KEY NOTES

NO.	DESCRIPTION
1	UPS AND CORRESPONDING BATTERIES WILL BE STACKED ON THE SAME RACK. COORDINATE EXACT INSTALLATION INSTRUCTIONS ACCORDING TO MANUFACTURERS SPECIFICATIONS PRIOR TO BEGGINING ANY WORK.
2	PROVIDE A NEMA 5-15P RECEPTACLE FOR THIS LOCATION. CONTRACTOR TO ABIDE BY MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS FOR INSTALLATION REQUIREMENTS. COORDINATE EXACT SPECIFICATIONS AND MATERIALS PRIOR TO BEGINNING ANY WORK.
3	BPS1253P-N1-00, 120/208Y VAC 125 AMP MAKE BEFORE BREAK EXTERNAL WRAP AROUND BYPASS AND 40KVA / 40KW 3 PHASE POWER CONDITIONER, VOLTAGE REGULATOR, & BATTERY BACKUP UPS. CONTRACTOR TO COORDINATE EXACT INSTALLATION REQUIREMENTS, SPECIFICATIONS AND INSTRUCTIONS PRIOR BEFOR BEGINNING ANY WORK.
4	INSTALL COMMON GROUND BAR FOR GROUNDING TELECOM GROUND BAR AND OTHER GROUNDED ITEMS. CONNECT TO DP GROUND BAR WITH 1/0 WIRE.
5	GROUND TELECOM ENTRANCE CONDUIT.
6	GROUND DOMESTIC WATER SERVICE.
7	GROUND NATURAL GAS SERVICE.
8	GROUND TELECOM BUS BAR TO GROUNDING SYSTEM.
9	GROUND FIRE / WATER SERVICE.
10	GROUND FOUNDATION REBAR NEAREST THE COMMON GROUND BAR.
11	DRIVE A GROUND ROD AND CONNECT TO DP GROUND BUS.

1 LEVEL 1 POWER PLAN
3/16" = 1'-0"

PLAN
N
TRUE
SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
ISSUE FOR BID	10/23/2023
Revisions:	Date:

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Drawing Title	ELECTRICAL POWER FLOOR PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	JRM
Drawing Number	EP101

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GENERAL NOTES

1. CIRCUITS AND CONDUITS SHALL RUN PARALLEL AND PERPENDICULAR TO WALLS AND CEILINGS.

KEY NOTES

NO.	DESCRIPTION
1	AC-2 IS POWERED THROUGH ACCU-2.
2	EQUIPMENT IS IN THE CEILING.
3	ELECTRICAL FAN TO BE SWITCHED THROUGH LIGHTING CIRCUIT



1 LEVEL 1 HVAC POWER PLAN
3/16" = 1'-0"

PLAN NORTH TRUE

SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
ISSUE FOR BID	10/23/2023
Revisions:	Date:

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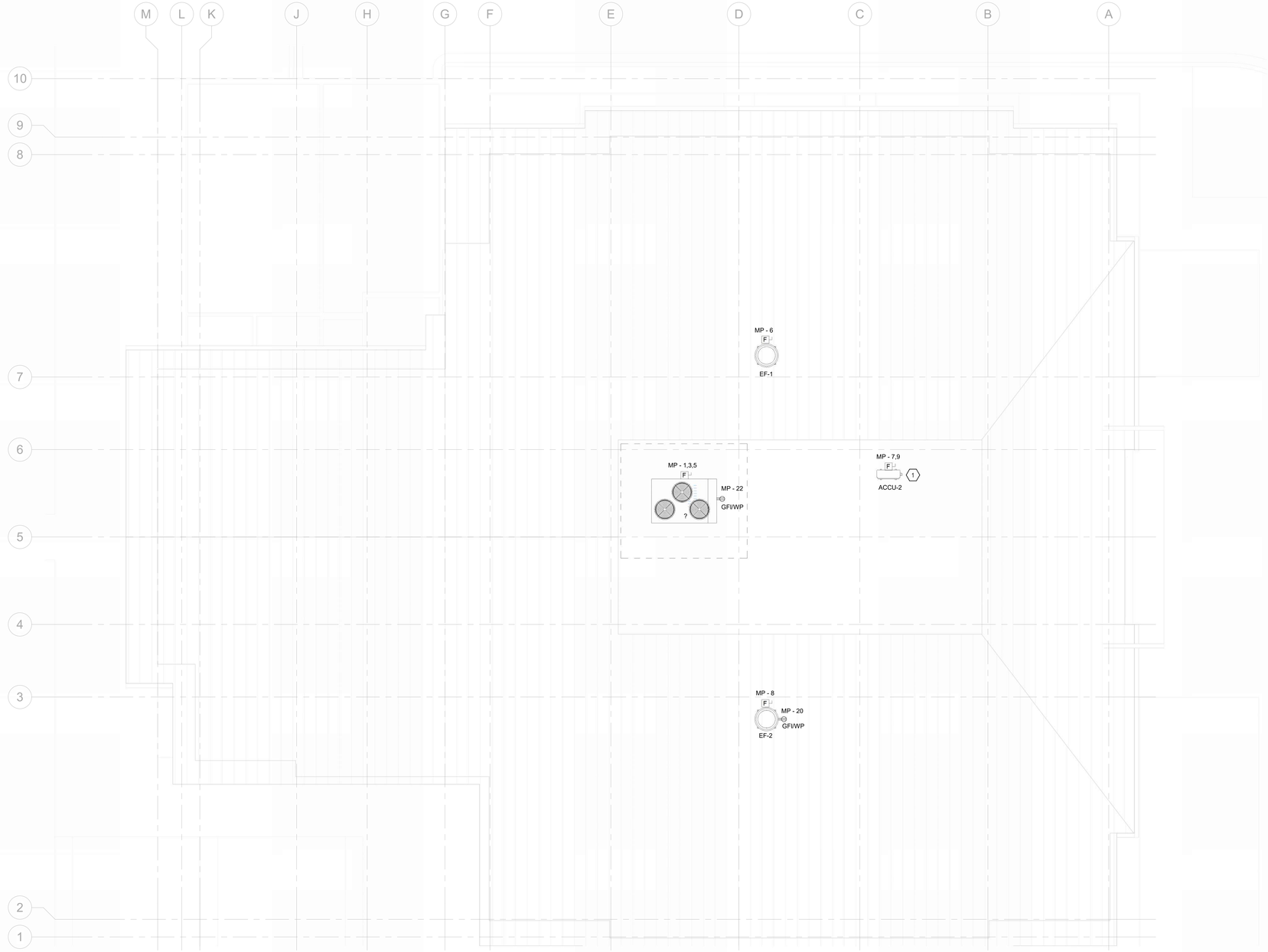
VA U.S. Department of Veterans Affairs

Drawing Title	ELECTRICAL HVAC POWER FLOOR PLAN
Phase	ISSUE FOR BID
Project Title	CLC PHASE 3
Project Number	519-371
Building Number	28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED
Location	BIG SPRING, TX
Issue Date	06/28/2024
Checked	LRL
Drawn	JRM
Drawing Number	EP102

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KEY NOTES	
NO.	DESCRIPTION
1	AC-2 IS POWERED THROUGH ACCU-2. SEE EP102.



1 ROOF POWER PLAN
3/16" = 1'-0"

PLAN
N
TRUE
0' 2' 4' 6' 8' 10' 15' 20' 25'
SCALE: 3/16" = 1'-0"

ISSUE FOR BID	06/28/2024
ISSUE FOR BID	10/23/2023
Revisions:	Date:

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Drawing Title: ELECTRICAL HVAC ROOF POWER FLOOR PLAN

Phase: ISSUE FOR BID

Project Title: CLC PHASE 3

Project Number: 519-371

Building Number: 28

APPROVING OFFICIAL:
COR: MR. JOSHUA JUNKIN

FULLY SPRINKLERED

Location: BIG SPRING, TX

Issue Date: 06/28/2024

Checked: LRL

Drawn: JRM

Drawing Number: EP103

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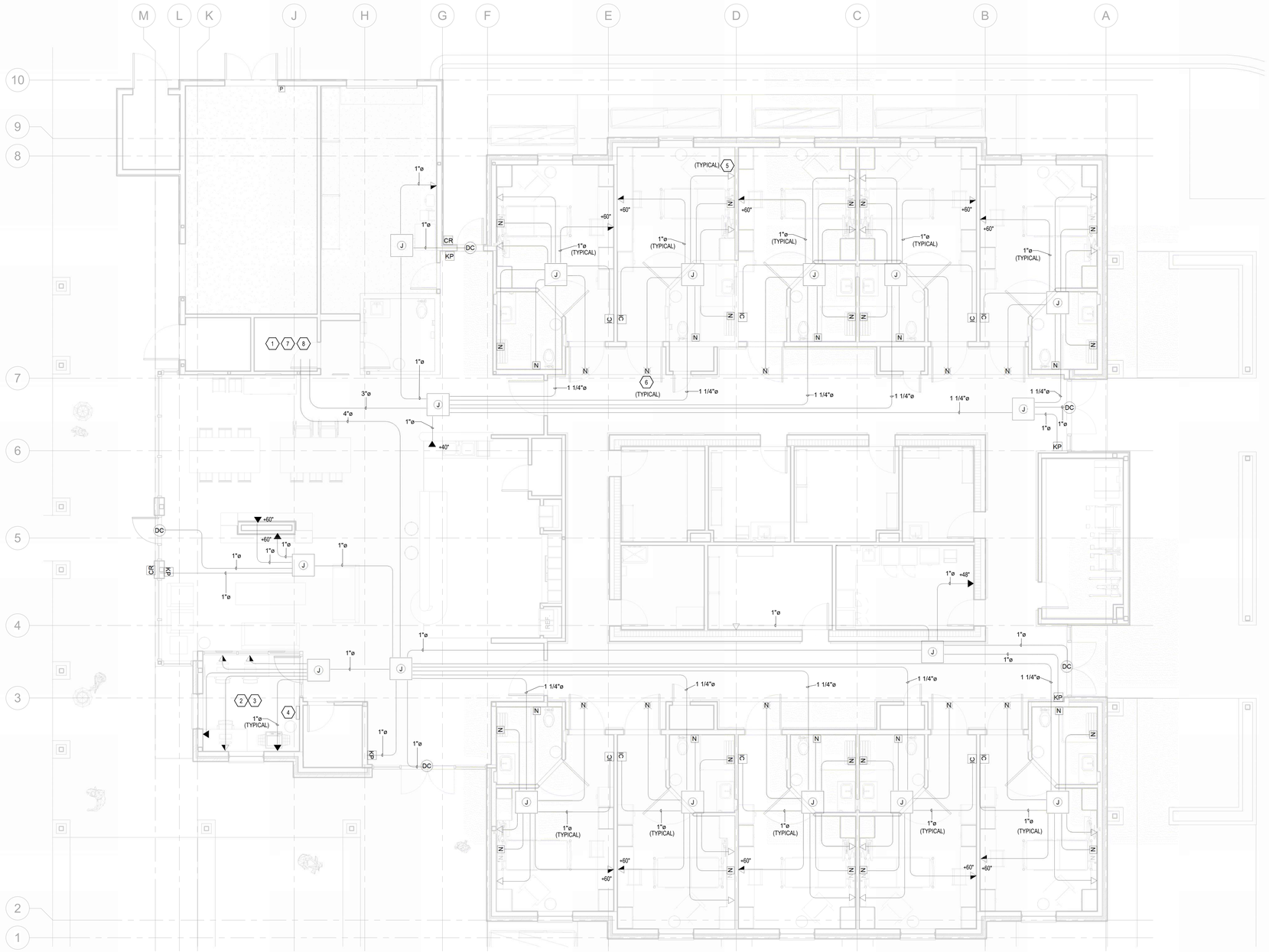
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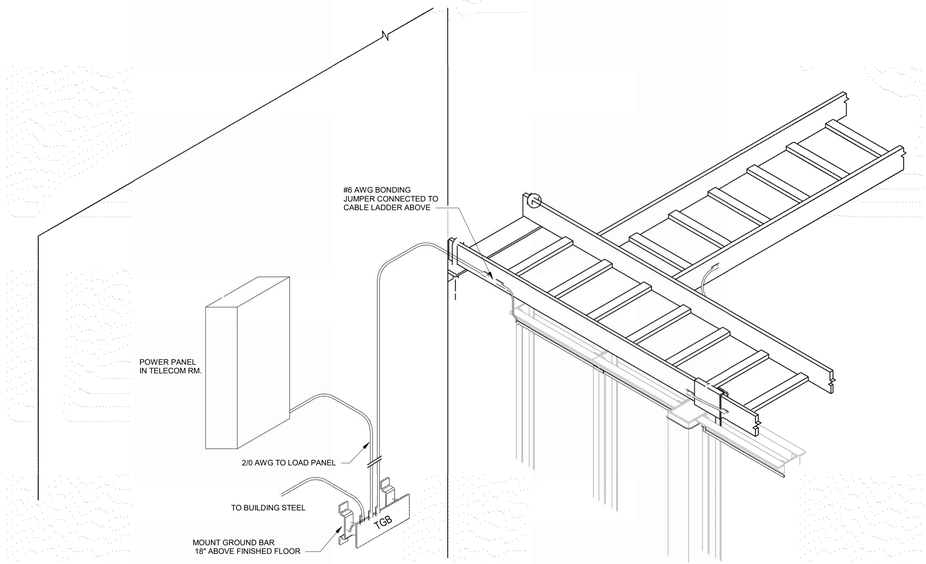
GENERAL NOTES

1. CIRCUITS AND CONDUITS SHALL BE ROUTED PARALLEL AND PERPENDICULAR TO WALLS AND CEILINGS.
2. CARD READERS AND OTHER ROOM ACCESS SECURITY SHALL BE COORDINATED WITH THE VA.
3. MINIMUM CONDUITS SIZE 1-1/2"

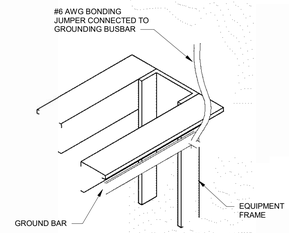
KEY NOTES

NO.	DESCRIPTION
1	RACK 1.
2	NURSE CALL CABINET COORDINATE DATA JACKS LOCATION WITH VA (EQUIPMENT INSTALLED BY OTHERS).
3	AUDIO SYSTEM CABINET COORDINATE DATA JACKS LOCATION WITH VA (EQUIPMENT INSTALLED BY OTHERS).
4	SECURITY CABINET. WILL CONTAIN, OTHER CONTROLLED ACCESS ENTRIES, AND WANDER-GUARD SYSTEMS COORDINATE DATA JACKS LOCATION WITH VA (EQUIPMENT INSTALLED BY OTHERS).
5	ROUTE DATA CABLES THROUGH CONDUIT WITH PULL STRING DOWN WALL TO DATA OUTLETS AND NURSE CALL BUTTONS.
6	ROUTE DATA CABLES THROUGH CONDUIT WITH PULL STRING TO NURSE CALL STROBE.
7	PROVIDE AND INSTALL A 4' X 8' X 3/4" FIRE RATED PLYWOOD BACKBOARD PAINTED WITH A COAT OF FIRE RATED PAINT, "OFF-WHITE", PRIOR TO MOUNTING ITEMS. COORDINATE EXACT LOCATION IN THE FIELD
8	PROVIDE AND INSTALL A 10" X 2" X 1/4" COPPER GROUND BAR WITH STAND-OFF INSULATORS, WITH A #4 AWG COPPER GROUND CONDUCTOR BACK TO BUILDING GROUND. COORDINATE EXACT LOCATION IN THE FIELD.

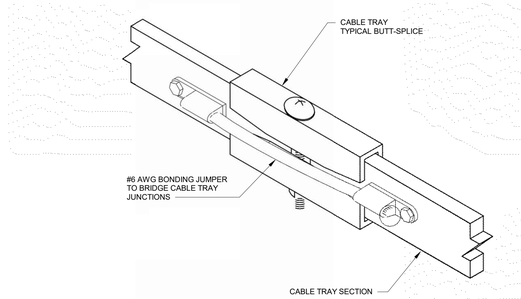

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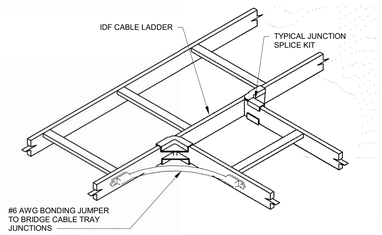
1 TELECOM ROOM GROUNDING OVERVIEW
NTS



2 RACK GROUNDING DETAIL
NTS



3 CABLE LADDER BONDING DETAIL
12" = 1'-0"



4 CABLE TRAY-LADDER BONDING DETAIL
12" = 1'-0"

ISSUE FOR BID	06/28/2024
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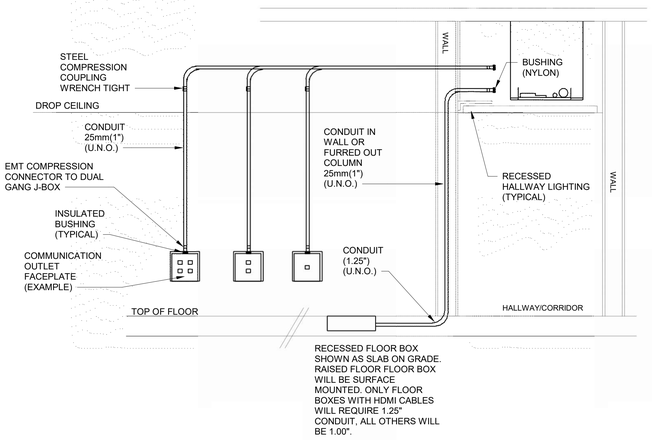
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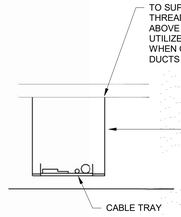
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Drawing Title: TELECOMMUNICATIONS DETAILS
Phase: ISSUE FOR BID
Project Title: CLC PHASE 3
Project Number: 519-371
Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN
FULLY SPRINKLERED
Location: BIG SPRING, TX
Issue Date: 06/28/2024
Checked: LRL
Drawn: JRM
Drawing Number: ET500

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RECOMMENDED TRAY CLEARANCES:

BELOW: 12" ABOVE LIGHTING; 6" OTHERWISE.
ABOVE: MINIMUM 6" BUT MORE IS BETTER.
SIDES: MINIMUM 6" BUT RECOMMEND 12" ON AT LEAST ONE SIDE OR THE OTHER AND AWAY FROM LIGHTING.

DETAIL NOTES:

1. STUB END OF CONDUIT TO CLOSEST CABLE TRAY OR J-HOOK PATHWAY.
2. TELECOMMUNICATION OUTLET BOXES SHALL BE SIZED TO FACEPLATE USED. INCLUDES 4" x 2.125" x 3.625" FOR SINGLE GANG AND 4-11/16" x 4-11/16" x 3.625" FOR DUAL GANG, IF APPLICABLE. DUAL GANG OUTLETS WILL BE REQUIRED IN LOCATIONS WHERE THERE ARE MORE THAN 6 CABLES TO BE INSTALLED.
3. ALL CONDUIT FOR HORIZONTAL TELECOMMUNICATIONS WIRING SHALL BE MINIMUM 1" IN OFFICE OR GENERAL WORKSTATION LOCATIONS. CONDUIT WILL BE 1.25" IN SPACES WHERE MORE THAN 6 CABLES WOULD BE RUN.
4. WALL OUTLETS SHALL BE ALIGNED WITH ADJACENT ELECTRICAL RECEPTACLE, AND LOCATED NO MORE THAN 12" FROM RECEPTACLE. INSTALL PLUMB AND LEVEL TO EACH OTHER.
5. FOR FLOOR BOX LOCATIONS, COORDINATE RACEWAY FOR TELECOMMUNICATION OUTLET(S) WITH ELECTRICAL RECEPTACLE LOCATIONS AND HOUSINGS.
6. DETAIL IS DIAGRAMMATIC OF GENERAL PROJECT CONDITIONS AND IS NOT NECESSARILY INCLUSIVE OF ALL POSSIBLE DISTRIBUTION REQUIREMENTS. CONSULT PROJECT SPECIFICATIONS AND BUILDING PLANS, WHICH INCLUDE ADDITIONAL INFORMATION ON PATHWAY REQUIREMENTS OR VARIANCES THAN ILLUSTRATED HEREIN.
7. ALL EMPTY CONDUITS WILL BE EQUIPPED WITH A PULL STRING.
8. BOND CONDUIT TO CABLE TRAY.

1 TELECOM GENERAL INSTALLATION DETAILS
NTS

DETAIL NOTES:

TABLES BASED UPON:

1.PLENUM RATED CATEGORY 6 CABLE DIA. (GENERIC MANUFACTURER CMP)

2.CONTRACTOR TO REVISE CABLE TRAY AND CONDUIT FILL QUANTITIES TO ACCOUNT FOR INCLUSION OTHER CABLE TYPES (BACKBONE VOICE, FIBER OPTIC. COAXIAL, ETC.) AS MAY BE INSTALLED AS PART OF THE PROJECT IN A PARTICULAR PORTION OF THE RACEWAY. CONTRACTOR TO MAINTAIN MAXIMUM FILL PERCENTAGE RATES CITED FOR PATHWAY TYPES NOTED ABOVE.

3.CONTRACTOR TO SUBMIT REVISED CABLE FILL TABLES BASED UPON ACTUAL CABLE DIA. FOR ENGINEER APPROVAL. CONTRACTOR-SUBMITTED TABLES TO INCLUDE ADDITIONAL CABLE TRAY OR CONDUIT SIZES NOT LISTED ABOVE CONTRACTOR ANTICIPATES UTILIZING ON PROJECT.

4.(*) CONTRACTOR TO OBSERVE MINIMUM CONDUIT SIZE REQUIREMENTS AS NOTED IN COMMUNICATION OUTLETS CONDUIT DETAIL.

5.FILL RATE OF 40% SHALL BE USED FOR CABLE TRAY SO AS TO PERMIT FUTURE CABLE GROWTH WITHIN PHYSICAL BOUNDARY OF TRAY.

6.ALL 4-INCH CONDUITS INSTALLED MUST INCLUDE (1) UNOCCUPIED SPARE AT BUILDING OCCUPANCY. INCLUDE IN THE QUANTITY ASSESSMENT NEEDED BASE ON THE FILL RATIOS BELOW.

CONTRACTOR TO FOLLOW 50% FILL RATE TABLE BELOW WHEN SIZING CABLE TRAY AND INSTALLING TELECOMMUNICATIONS CABLE(S) WITHIN TRAY.

CABLE TRAY SIZE (HxW):	2x6	2x8	2x12	2x18	4x8	4x12	4x18	4x24
4PR PLENUM CAT 6 FILL QTY.	195	266	408	621	532	816	1242	1668

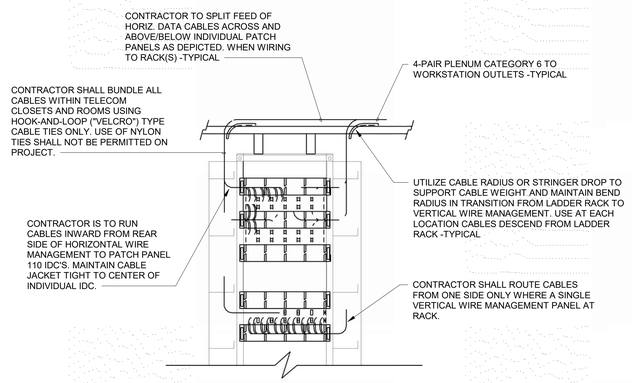
CONTRACTOR TO FOLLOW 40% FILL RATE TABLE BELOW WHEN SIZING CONDUIT. ASSUMES NO MORE THAN TWO LARGE RADIUS 90-DEGREE CONDUIT BENDS PER RUN.

CONDUIT SIZE:	1"	1.25"	1.5"	2"	2.5"	3"	3.5"	4"
4PR CAT 6 FILL QTY.	9	14	21	37	57	83	113	148

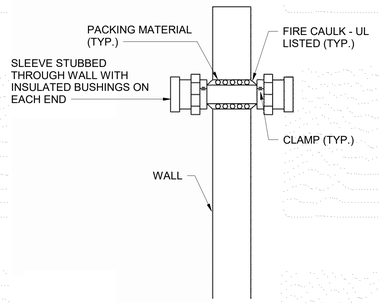
2 CABLE TRAY AND CONDUIT FILL RATIO TABLE
NTS

DETAIL NOTES:

A CONTRACTOR REQUEST TO VARY FROM METHODOLOGIES ILLUSTRATED BELOW MUST BE SUBMITTED IN WRITING FOR TELECOMMUNICATIONS ENGINEER'S APPROVAL. REQUEST MUST BE ACCOMPANIED BY LEGIBLE, DETAILED ILLUSTRATION AND PHOTO(S) OF PAST PROJECTS DEPICTING METHODOLOGY REQUESTED. NO DEVIATIONS ACCEPTED WITHOUT ENGINEER'S WRITTEN APPROVAL.



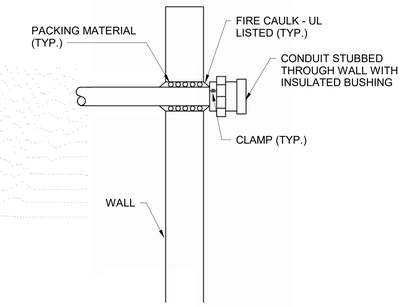
3 CABLE INSTALLATION GUIDELINES
12" = 1'-0"



4 CONDUIT SLEEVE WALL PENETRATION DETAIL
NTS

DETAIL NOTES:

1. ALL PENETRATIONS WILL BE REQUIRED TO BE FIRESTOPPED REGARDLESS OF WALL RATING.
2. ADHERE TO MANUFACTURER'S INSTALLATION RECOMMENDATIONS FOR BEST SUITED CAULKING MATERIAL TO MEET MINIMUM WALL RATINGS.



5 CONDUIT WALL PENETRATION DETAIL
12" = 1'-0"

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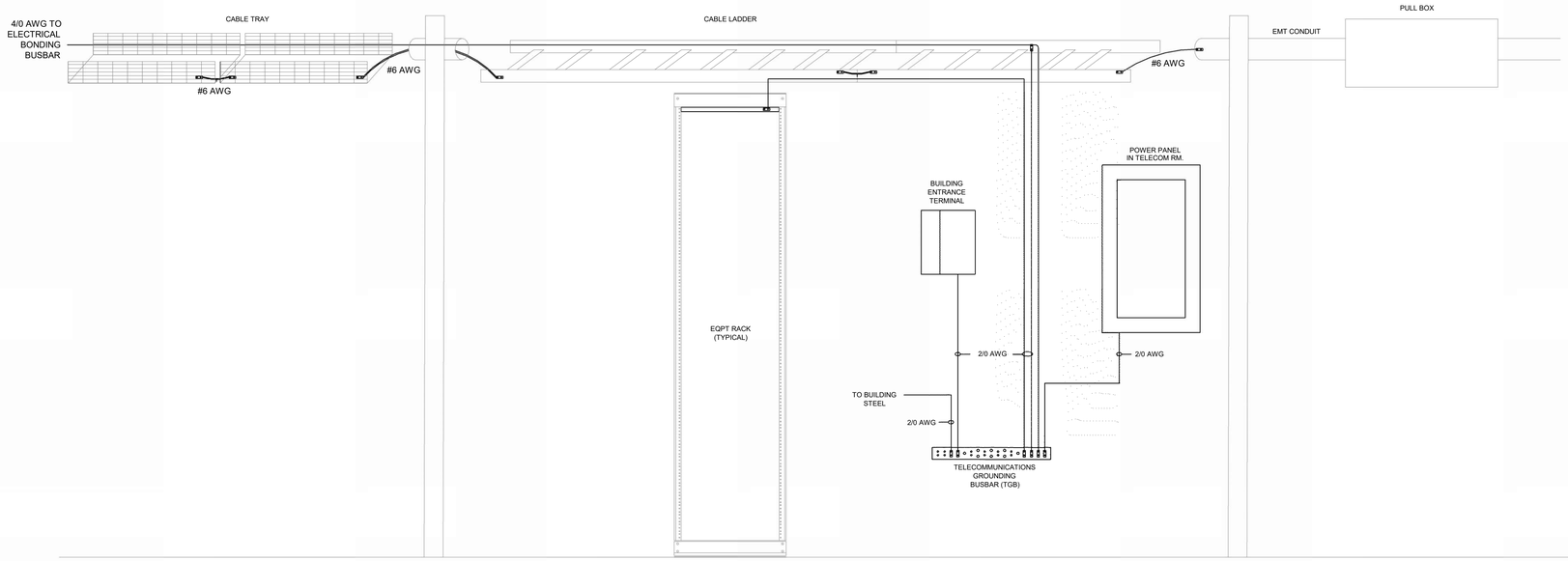
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Drawing Title: TELECOMMUNICATIONS DETAILS	Phase: ISSUE FOR BID	Project Title: CLC PHASE 3	Project Number: 519-371
			Building Number: 28
APPROVING OFFICIAL: COR: MR. JOSHUA JUNKIN	FULLY SPRINKLERED	Location: BIG SPRING, TX	Drawing Number: ET501
		Issue Date: 06/28/2024 / Checked: LRL / Drawn: JRM	

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GENERAL NOTES:

1. CONTRACTOR TO FOLLOW TIA-607-D FOR PROPER GROUNDING. RE-EVALUATE DISTANCES AFTER INSTALLATION AND ADJUST CONDUCTOR SIZING ACCORDINGLY.
2. CONTRACTOR IS TO DEFER TO THE VA ENTERPRISE FACILITY SUPPORT INFRASTRUCTURE STANDARDS GUIDE (VERSION 2.1 JUNE 11, 2018) FOR FURTHER CLARIFICATIONS OR DIRECTION.



1 TELECOM ROOM GROUNDING DIAGRAM
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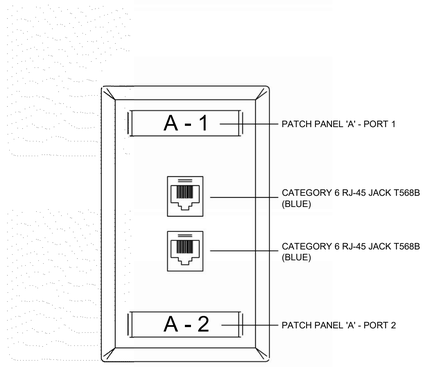
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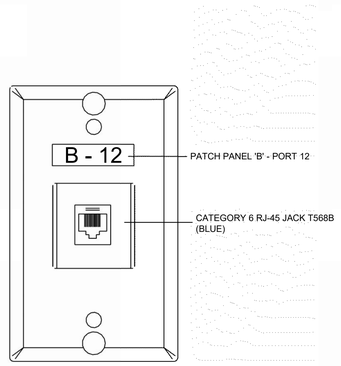
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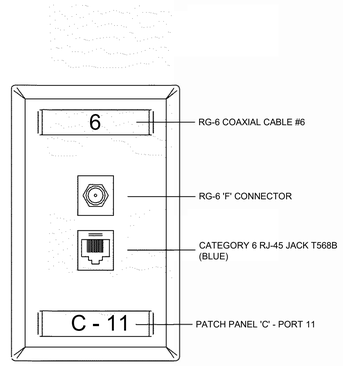
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1 STANDARD OUTLET DETAIL
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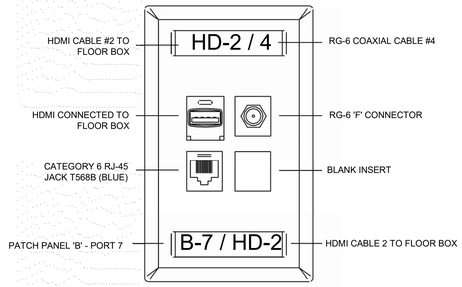
2 STANDARD PHONE OUTLET DETAIL
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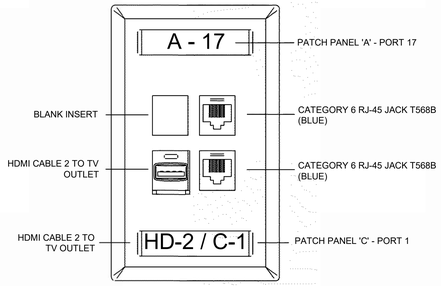
3 TV OUTLET DETAIL
NTS

GENERAL NOTES:

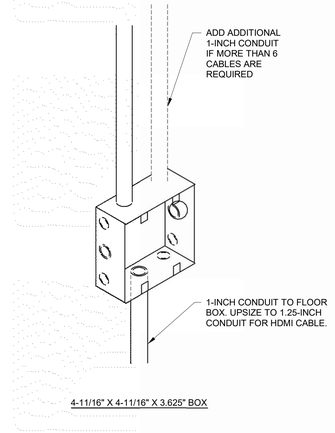
1. ALL TELECOM CONDUIT TO WALL OUTLETS WILL BE A MINIMUM 1" EMT CONDUIT EXTENDED TO CABLE TRAY. WALL OUTLETS WILL BE MOUNTED AT 16-INCHES TO THE TOP OF THE BOX TO MATCH ELECTRICAL BOXES UNLESS NOTED OTHERWISE. COORDINATE MOUNTING HEIGHT WITH OWNER.
2. PROVIDE DOUBLE GANG ELECTRICAL BOXES, MINIMUM STANDARD SIZE 4-11/16 INCHES SQUARE AND 2-1/8 INCHES DEEP WITH PLASTER RING FOR CONNECTION OF SINGLE GANG FACEPLATE. DESIGN OUTLET BOX FOR RECESS MOUNTING WITH THE FACEPLATE FLUSH WITH THE WALL SURFACE, AT THE SAME HEIGHT AS THE ELECTRICAL OUTLETS. LOCATE A QUADRUPLEX ELECTRICAL OUTLET WITHIN 6 INCHES (152 MM) OF ALL WORK AREA OUTLETS TO SERVE TELECOMMUNICATIONS LOADS ASSOCIATED WITH THAT OUTLET.
3. ALL COPPER HORIZONTAL CABLING WILL BE CATEGORY 6 UTP RATED FOR INSTALLATION ENVIRONMENT.
4. COAXIAL CABLING WILL BE RG-6 QUADSHIELD PLENUM RATED CABLE TERMINATED AT BOTH ENDS. LEAVE 20 FEET OF SLACK NEATLY COILED IN TELECOM ROOM.
5. TV OUTLETS WILL BE MOUNTED WITHIN 6-INCHES FROM ELECTRICAL OUTLET BEHIND TV MONITORS. COORDINATE MOUNTING LOCATION WITH OWNER.
6. CONTRACTOR TO FIELD VERIFY INSTALLATION CONDITIONS PRIOR TO INSTALLATION. REFERENCE SPECIFICATION 27 10 00 BUILDING TELECOMMUNICATIONS CABLING SYSTEM.
7. FACEPLATE COLORS TO MATCH ELECTRICAL FACEPLATE FINISHES IN SAME ROOM.
8. ALL CATEGORY 6 CABLES WILL BE TERMINATED ON PATCH PANELS AND TERMINATED IN T568B PIN-OUT CONFIGURATION.
9. INSTALLER TO MEET LATEST CNSSAM TEMPEST RED/BLACK INSTALLATION GUIDELINES FOR SEPARATION OF CLASSIFIED AND UNCLASSIFIED CABLING.
10. REFERENCE VA ENTERPRISE FACILITY IT SUPPORT INFRASTRUCTURE STANDARDS GUIDE FOR ADDITIONAL REQUIREMENTS.



4 TV OUTLET BEHIND MONITOR WITH HDMI CONNECTION
NTS



5 FLOOR BOX DETAIL
NTS



6 OUTLET BACK BOX DETAIL
12" = 1'-0"

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