US Army Corps
of Engineers®
Omaha District

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
ISSUE DATE: 01/20/2023

THIS PROJECT WAS DESIGNED BY THE OMAHA DISTRICT OF THE US ARMY CORPS OF ENGINEERS. THE INITIALS OR SIGNATURES AND REGISTRATION DESIGNATIONS OF INDIVIDUALS APPEAR ON THESE PROJECT DOCUMENTS WITHIN THE SCOPE OF THEIR EMPLOYMENT AS REQUIRED BY ER 1110-1-8152

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF DRAWINGS IN THIS SET.

CHIEF, GEOTECHNICAL ENGINEERING & SCIENCES BRANCH DATE	SUBMITTED BY: RA CHIEF: ARCH. / INTER. SECTION	US Army Corps of Engineers Omaha District
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	SUBMITTED BY: PE CHIEF: ELEC. SECTION	
CHIEF, DESIGN BRANCH DATE	SUBMITTED BY: PE CHIEF: MECH. SECTION	
	SUBMITTED BY: PE CHIEF: STRUCT. SECTION	
CHIEF, HYDROLOGIC ENGINEERING BRANCH DATE	SUBMITTED BY: PE CHIEF: GEOT. / DAM SAFETY SECTION	
	SUBMITTED BY: PE CHIEF: FUELS SECTION	
CHIEF, ENGINEERING DIVISION, P.E. DATE	SUBMITTED BY: CADD PROJECT COORD.	

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MARK	DESCRIPTION	DATE

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

COVER SHEET

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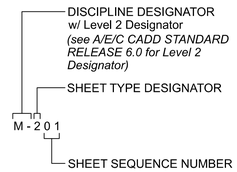

2. DISCIPLINE DESIGNATORS:

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H	HAZARDOUS MATERIALS
V	SURVEY / MAPPING
B	GEOTECHNICAL
C	CIVIL
L	LANDSCAPE
S	STRUCTURAL
A	ARCHITECTURAL
I	INTERIORS
Q	EQUIPMENT
F	FIRE PROTECTION
P	PLUMBING
D	PROCESS
M	MECHANICAL
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R	RESOURCE

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ABBREVIATIONS

L	ANGLE
A/C	AIR CONDITIONING
A/C UNIT	AIR CONDITIONING UNIT
AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ACC	ACCESSIBLE
ACI	AMERICAN CONCRETE INSTITUTE
ACR	ACRYLIC PLASTIC
ACS DR	ACCESS DOOR
ACS PNL	ACCESS PANEL
ACSR	ALUMINUM CABLE STEEL REINFORCED
ACST	ACOUSTIC
ACT	ACOUSTICAL CEILING TILE
ADDM	ADDENDUM
ADH	ADHESIVE
ADJ	ADJACENT, ADJOINING, ADJUSTABLE
ADO	AUTOMATIC DOOR OPERATOR
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
AHR	ANCHOR
AHU	AIR HANDLING UNIT
AI	AREA INLET
AIC	AMPERE INTERRUPTING CAPACITY
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
A.L.	ACTIVE LEAF
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMP	AMPERE
ANOD	ANODIZE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPD	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECT
ARI	AMERICAN REFRIGERATION INSTITUTE
ASB	ASBESTOS
ASC	ABOVE SUSPENDED CEILING
ASPH	ASPHALT
ATC	ACOUSTICAL TILE CEILING
AUTO	AUTOMATIC
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
AWT	ACOUSTICAL WALL TREATMENT
BB	BULLETIN BOARD
BC	BOOKCASE
BD	BOARD
BDRY	BOUNDARY
BEJ	BRICK EXPANSION JOINT
BEV	BEVEL
BITUM	BITUMINOUS
BJT	BED JOINT
BL	BUILDING LINE
BLDG	BUILDING
BLW	BELOW
BM	BENCHMARK
BO	BOTTOM OF
BOT	BOTTOM
BP	BACK PLASTER(ED)
BRCG	BRACING
BRDG	BRIDGING
BRG	BEARING
BRG PL	BEARING PLATE
BRK	BRICK
BRKT	BRACKET
BRZ	BRONZE
BS	BOTH SIDES
BSMT	BASEMENT
Btu	BRITISH THERMAL UNIT
BtuH	BTU PER HOUR
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
BW	BOTH WAYS
CAB	CABINET
CAP	CAPACITY
CB	CATCH BASIN
CCT	CUBICLE CURTAIN TRACK
CCTV	CLOSED CIRCUIT TELEVISION
CE	COVER ELEVATION
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CER	CERAMIC
CFI	CONDUCTIVE FLOORING
CFLG	COUNTERFLASHING
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CH BD	CHALKBOARD
CHFR	CHAMFER
CHIM	CHIMNEY
CHK	CHECK
CHR PL	CHROME PLATED
CI	CAST IRON
CI	CURB INLET
CIP	CAST-IN-PLACE
CIRC	CIRCULAR
CJ	CONTROL JOINT
CJ	CONSTRUCTION JOINT
CKT	CIRCUIT
CKT BRKR	CIRCUIT BREAKER
CL	CENTER LINE
CLG	CEILING
CLG HT	CEILING HEIGHT
CLGL	CLEAR GLASS
CLL	CONTRACT LIMIT LINE
CLO	CLOSET
CLOS	CLOSURE
CLR	CLEAR(ANCE)
CLWG	CLEAR WIRED GLASS
cm	CENTIMETER(S)
CMP	CORRUGATED METAL PIPE
CMPST	COMPOSITE
CMU	CONCRETE MASONRY UNIT
CND	CONDUIT
CNL	CONDUCTIVE NEOPRENE LATEX
CNR	CORNER
CNTR	COUNTER
CO	CLEANOUT
CO2	CARBON DIOXIDE
COL	COLUMN
COM	COMMON
COMB	COMBUSTION
COMPT	COMPARTMENT
CONC	CONCRETE
CONN	CONNECT
CONSTR	CONSTRUCTION
CONT	CONTINUE
CONTR	CONTRACTOR
CORR	CORRIDOR
COV	COVER
CPRS	COMPRESSIBLE
CPT	CARPET
CRCMF	CIRCUMFERENCE
CRES	CORROSIVE RESISTANT STEEL
CRG	CROSS GRAIN
CRS	COURSE(S)
CS	CAST STONE
CSK	COUNTERSUNK
CSMT	CASEMENT
CT	CERAMIC TILE
CT	CURRENT TRANSFORMER
C TO C	CENTER TO CENTER
CTR	CENTER
CU	CONDENSING UNIT
Cu	COPPER
CU FT	CUBIC FEET
CUH	CABINET UNIT HEATER
CU YD	CUBIC YARDS
CV	CEILING VENT
CVH	CONDUCTIVE VINYL HOMOGENEOUS (SHEET TYPE)
CW	COLD WATER
CYL	CYLINDER
d	PENNY (AS IN NAIL - 10D)
DAT	DATUM
DB	DRY BULB
DBL	DOUBLE
DBL ACT DR	DOUBLE ACTING DOOR
DCJ	DOWELED CONTROL JOINT
DCJT	DUMMY CONTROL JOINT
DEG	DEGREE
DEMO	DEMOLITION
DEPR	DEPRESSION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DH	DOUBLE HUNG
DH	DUCT HEATER
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISC	DISCONNECT
DISP	DISPENSER
DISTR PNL	DISTRIBUTION PANEL
DIV	DIVISION
DL	DEAD LOAD
DMPF	DAMPPROOFING
DMPR	DAMPER
DMT	DEMOUNTABLE
DN	DOWN
DR	DOOR
DR	DRAIN
DRB	DRAINBOARD
DR CL	DOOR CLOSER
DS	DOUBLE STRENGTH (GLASS)
DS	DOWNSPOUT
DT	DRAIN TILE
DVTL	DOVETAIL
DWG	DRAWING
DWLS	DOWELS
DWR	DRAWER
DWTR	DUMBWAITER
DX	DIRECT EXPANSION
E	EAST
EA	EACH
EAT	ENTERING AIR TEMPERATURE
EF	EACH FACE
EJ	EXPANSION JOINT
EL	ELEVATION - GRADE OR BUILDING
ELEC	ELECTRIC
EM	EXPANDED METAL
EMD	ESTIMATED MAXIMUM DEMAND
EMER	EMERGENCY
ENCL	ENCLOSE(URE)
ENTR	ENTRANCE, ENTERING
EP	ELECTRICAL PANELBOARD
EPRF	EXPLOSION PROOF
EPY	EPOXY COATING
EQ	EQUAL
EQUIP	EQUIPMENT
ESCAL	ESCALATOR
EST	ESTIMATE(D)
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXH A	EXHAUST AIR
EXST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXP BT	EXPANSION BOLT
EXT	EXTERIOR
F	FAHRENHEIT
FA	FIRE ALARM
FA	FRESH AIR
FAC	FIRE APPARATUS CLOSET
FAI	FRESH AIR INTAKE
F BRK	FIRE BRICK
FC	FOOT CANDLE
FC BRK	FACE BRICK
FCG	FACING
FCJ	FLOOR CONSTRUCTION JOINT
FCO	FLOOR CLEANOUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FDMPR	FIRE DAMPER
FDTN	FOUNDATION
FE	FIRE EXTINGUISHER
FEB	FIRE EXTINGUISHER BRACKET
FEC	FIRE EXTINGUISHER CABINET
FF	FACTORY FINISH
FGL	FIBERGLASS
FH	FIRE HYDRANT
FH	FLAT HEAD
FHC	FIRE HOSE CABINET
FHMS	FLAT HEAD MACHINE SCREW
FHR	FIRE HOSE RACK
FHS	FIRE HOSE STATION
FHWS	FLAT HEAD WOOD SCREW
FIG	FIGURE
FIN	FINISH
FIN FLR	FINISH FLOOR
FIXT	FIXTURE
FJT	FLUSH JOINT
FLASH	FLASHING
FLR	FLOOR
FLEX	FLEXIBLE
FLG	FLOORING
FLR PL	FLOOR PLATE
FLUOR	FLUORESCENT
FN	FENCE
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FP	FIRE PARTITION
FP	FIREPROOF
FPM	FEET PER MINUTE
FR	FIRE RESISTANT
FR	FRAME
FRG	FORGED
FRMG	FRAMING
FRT	FIRE-RETARDANT
FS	FULL SIZE
FSTNR	FASTEN(ER)
FT	FEET
FTG	FOOTING
FURG	FURRING
FUT	FUTURE
FW	FIRE WATER
FWC	FABRIC WALL COVERING
G	NATURAL GAS
GA	GAGE
GAL	GALLON(S)
GALV	GALVANIZED
GALV STL	GALVANIZED STEEL
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERAL
GF	GROUND FACE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFE	GOVERNMENT-FURNISHED EQUIPMENT
GFE/CI	GOVERNMENT-FURNISHED EQUIPMENT CONTRACTOR INSTALLED
GI	GALVANIZED IRON
GIP	GALVANIZED IRON PIPE
GKT	GASKET(ED)
GL	GLASS
GL BLK	GLASS BLOCK
GLF	GLASS FIBER
GLZ	GLAZING
GLZ CMU	GLAZED CONCRETE MASONRY UNITS
G	GROUND
GOVT	GOVERNMENT
GPM	GALLONS PER MINUTE
GPT	GYPSUM TILE
GRAN	GRANITE
GR LN	GRADE LINE
GRTG	GRATING
GST	GLAZED STRUCTURAL TILE
GSU	GLAZED STRUCTURAL UNITS
GT	GROUT
GWT	GLAZED WALL TILE
GYP	GYPSUM
GYP BD	GYPSUM BOARD
GYP PLAS	GYPSUM PLASTER
HB	HOSE BIBB
HC	HOLLOW CORE
HCD	HALON CONTAINMENT DAMPER
HCP	HANDICAPPED
HD	HEAD
HD	HEAVY DUTY
HDBD	HARDBOARD
HD JT	HEAD JOINT
HDR	HEADER
HDW	HARDWARE
HDWD	HARDWOOD
HES	HIGH EARLY-STRENGTH CEMENT
HEX	HEXAGON
HH	HANDHOLE
HK	HOOK(S)
HM	HOLLOW METAL
HNDRL	HANDRAIL
HORIZ	HORIZONTAL
HP	HIGH PRESSURE
HP	HORSEPOWER
HPT	HIGH POINT
HR	HOUR
HS	HIGH STRENGTH
HSGYP	HIGH-STRENGTH GYPSUM PLASTER
HSKPG	HOUSEKEEPING
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HYDR	HYDRAULIC
Hz	HERTZ
IC	INTERCOM
ID	INSIDE DIAMETER
IESNA	ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA
ILK	INTERLOCK
IN	INCH
INCIN	INCINERATOR
INCL	INCLUDED
INSF	INSULATING FILL
INSUL	INSULATION
INT	INTERIOR
INTM	INTERMEDIATE
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
I.P.S.	INSIDE PIPE SIZE
JAN CLO	JANITOR'S CLOSET
J-BOX	JUNCTION BOX
JCT	JUNCTION
JST	JOIST
JT	JOINT
KIP	KILOPOUND (1000 POUNDS)
KIT	KITCHEN
KOP	KNOCKOUT PANEL
KPL	KICKPLATE
kV	KILOVOLTS
kVA	KILOVOLT AMPERES
kVAR	KILOVOLT AMPERES REACTIVE
kW	KILOWATT
KWY	KEYWAY
LAB	LABORATORY
LAD	LADDER
LAM	LAMINATE
LAT	LEAVING AIR TEMPERATURE
LAU	LAUNDRY
LAV	LAVATORY
LB	LAG BOLT
LB	POUND
LBL	LABEL
LBR	LUMBER
LC	LIGHT CONTROL
LD	LOAD
LDG	LOADING
LG	LENGTH
LH	LEFT HAND(ED)
LIN	LINEAR
LKR	LOCKER
LL	LIVE LOAD
LLD	LEAD-LINED DOOR
LM	LUMEN
LMST	LIMESTONE
LNTL	LINTEL
LONG	LONGITUDINAL
LP	LIGHTPROOF
LPD	LIGHTPROOF DOOR
LPL	LIGHTPROOF LOUVER
LPT	LOW POINT
LR	LIVING ROOM
LS	LAWN SPRINKLER
LT	LIGHT
LT WT	LIGHTWEIGHT
LTG	LIGHTING
LTNG	LIGHTNING
LVR	LOUVER
LWC	LIGHTWEIGHT CONCRETE
LWT	LEAVING WATER TEMPERATURE
m	METER(S)
M&B	MATCHED AND BEADED
MACH	MACHINE
MAS	MASONRY
MATL	MATERIAL(S)
MAX	MAXIMUM
MB	MACHINE BOLTS
MBR	MEMBER
MC	MEDICINE CABINET
MCJ	MASONRY CONTROL JOINT
MCO	METAL-CASED OPENING
MDS	METAL DIVIDER STRIP
MECH	MECHANICAL
MECH RM	MECHANICAL ROOM
MED	MEDIUM
MEMB	MEMBRANE
MES	METAL EDGE STRIP
MFD	METAL FLOOR DECKING
MFG	MANUFACTURING
MFR	MANUFACTURER
MG	MOTOR GENERATOR
MGT	MATTE-GLAZED TILE
MH	MANHOLE
MI	MALLEABLE IRON
MIN	MINIMUM
MIRR	MIRROR
MISC	MISCELLANEOUS
ML	METAL LATH
ML	MONOLITHIC
MLDG	MOULDING
MLWK	MILLWORK
mm	MILLIMETER(S)
MNIC	MATERIAL NOT IN CONTRACT (INSTALLATION BY CONTRACTOR)
MO	MASONRY OPENING
MOD	MODULAR
MOD.	MODIFIED
MOT	MOTOR
MP	MOVABLE PARTITION
MR	MOP RECEPTOR
MRB	MARBLE BASE
MRD	METAL ROOF DECKING
MS	MACHINE SCREWS
MT	METAL THRESHOLD
MT	MOUNT
MTD	MOUNTED
MTFR	METAL FURRING
MTL	METAL
MVBL	MOVABLE
MULL	MULLION
N	NORTH
NAT	NATURAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NI	NICKEL
NIC	NOT IN CONTRACT
NL	NAILABLE
N.L.	NEOPRENE LATEX
NM	NONMETALLIC
NO	NORMALLY OPEN
NO	NUMBER
NOM	NOMINAL
NR	NOISE REDUCTION
NRC	NOISE REDUCTION COEFFICIENT
N"REQD	NOT REQUIRED
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBSC	OBSCURE
OBW	OBSERVATION WINDOW
OC	ON CENTER
OCEW	ON CENTER EACH WAY
OD	OUTSIDE DIAMETER
OFC	OFFICE
OGL	OBSCURE GLASS
OH	OVERHEAD
OHMS	OVALHEAD MACHINE SCREW
OHWS	OVALHEAD WOOD SCREW
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OPQ	OPAQUE
OPS	OPERATIONS
OS & Y	OUTSIDE SCREW AND YOKE
OWGL	OBSCURE WIRED GLASS
P	POLE
PA	PUBLIC ADDRESS
PAR	PARALLEL
PB	PANIC BAR
PBD	PARTICLE BOARD
PBS	PUSH BUTTON STATION
PC	PIECE
PCC	PRECAST CONCRETE
PCF	POUNDS PER CUBIC FOOT
PCP	CEMENT PLASTER (PORTLAND)
PD	PAVEMENT DRAIN
PED	PEDESTAL
PERF	PERFORATE(D)
PERIM	PERIMETER
PH	PHASE
PHAR	PHARMACY
PI	POINT OF INTERSECTION
PIPU	PREFAB ISOLATION POWER UNIT
PIV	POST INDICATING VALVE
PL	PLATE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLAT	PLATFORM
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PLG	PILING
PL GL	PLATE GLASS
PLYWD	PLYWOOD
PNL	PANEL
PT	PAINT(ED)
POL	POLISHED
PORC	PORCELAIN
PORT	PORTABLE
PPGL	POLISHED PLATE GLASS
PPM	PARTS PER MILLION
PR	PAIR
PREFAB	PREFABRICATE(D)
PREFIN	PREFINISHED
PREFMD	PREFORMED
PRKG	PARKING
PROJ	PROJECT
PRV	PRESSURE-REGULATING VALVE
PS	PIPE SPACE
P.S.	PRESSED STEEL
PS CONC	PRESTRESSED CONCRETE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PNEUMATIC TUBE
PT.	POINT
PT CONC	POST-TENSIONED CONCRETE
PTD	PAPER TOWEL DISPENSER
PTN	PARTITION
PTR	PAPER TOWEL RECEPTACLE
PV	PAVED
PVC	POLYVINYL CHLORIDE
PVG	PAVING
PW	PASS WINDOW
QT	QUARRY TILE
QT.	QUART
QTR	QUARTER
1/4 RND	QUARTER ROUND
QTY	QUANTITY
R	RADIUS
R	RANGE
R	RISER
RA	RETURN AIR
RAB	RABBETED
RA GR	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
RB	RUBBER BASE, RESILIENT BASE
RBL	RUBBLE STONE
RBR	RUBBER
RC	REMOTE CONTROL
RCP	REINFORCED CONCRETE PIPE
RCVR	RECEIVER
RD	ROOF DRAIN
RDG INS	RIGID INSULATION
RECPT	RECEPTACLE
REC ROOM	RECREATION ROOM
RECT	RECTIFIER
REF	REFERENCE
REFL	REFLECT
REFR	REFRIGERATION
REG	REGISTER
REGL	REGLET
REINF	REINFORCE
REM	REMOVE(ABLE)
REQD	REQUIRED
RESIL	RESILIENT
RET	RETURN
REV	REVISION
RFG	ROOFING
RH	RELATIVE HUMIDITY
RH	RIGHT HAND
RH	ROOF HATCH
RK	RACK
RLG	RAILING
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RP	RETRACTABLE PARTITION
RPM	REVOLUTIONS PER MINUTE
RPRT	RAISED PATTERN RUBBER TILE
RTF	RUBBER TILE FLOOR
RVS	REVERSE
RVT	RIVET
RWC	RAINWATER CONDUCTOR
S	SOUTH
SA	SUPPLY AIR
SB	SPLASH BLOCK
S.B.	SECURITY BARS
SC	SOLID CORE
SCHED	SCHEDULE
SCRN	SCREEN
SCT	STRUCTURAL CLAY TILE
SD	STORM DRAIN
SDI	STEEL DOOR INSTITUTE
SECT	SECTION
SEQ	SEQUENCE
SFGL	SAFETY GLASS
SFTU	STRUCTURAL FACING TILE UNIT
SFU	STRUCTURAL FACING UNIT
SG	SHEET GLASS
SHLDR	SHOULDER
SHT	SHEET
SHTHG	SHEATHING
SHV	SHELVING
SIM	SIMILAR
SJI	STEEL JOIST INSTITUTE
SKLT	SKYLIGHT
SLNT	SEALANT
SLV	SLEEVE
SM	SHEET METAL
SMS	SHEET METAL SCREWS
SOV	SHUT OFF VALVE
SPC	SPACER
SPCL	SPECIAL
SPD	SOUNDPROOF DOOR
SPEC	SPECIFICATION
SPF	SOUNDPROOF
SP FIN	SPECIAL FINISH
SPH	SPACE HEATER
SPKR	SPEAKER
SQ	SQUARE
SQHD	SQUARE HEAD
S&R	SHELF AND ROD
SS	SERVICE SINK
SS	STANDING SEAM (ROOF)
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STG	SEATING
STL	STEEL
STOR	STORAGE
ST PR	STATIC PRESSURE
STR	STRINGER
STRUCT	STRUCTURAL
STWY	STAIRWAY
SUB FL	SUBFLOOR
SUSP	SUSPENDED
SV	SHEET VINYL
SW	SWITCH
SWBD	SWITCHBOARD
SYMM	SYMMETRICAL
SYNTH	SYNTHETIC
SYS	SYSTEM
T	TREAD
TAN	TANGENT
TB	TOWEL BAR
TC	TERRA COTTA
TEL	TELEPHONE
TEMP	TEMPERATURE
TEMP	TEMPORARY
TER	TERRAZZO
TERM	TERMINAL
T&G	TONGUE AND GROOVE
TGL	TOGGLE
TH	TRUSS HEAD
THK	THICK(NESS)
THRES	THRESHOLD
TK BD	TACKBOARD
TKS	TACKSTRIP
TO	TOP OF
TOL	TOLERANCE
TOPO	TOPOGRAPHY
TOS	TOP OF SLAB
TOS	TOP OF STEEL
TOW	TOP OF WALL
TPD	TOILET PAPER DISPENSER
TPTN	TOILET PARTITION
TRANS	TRANSOM
TRANS	TRANSVERSE
TSTAT	THERMOSTAT
TV	TELEVISION
TYP	TYPICAL
UC	UNIT COOLER
UGND	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UPS	UNINTERRUPTABLE POWER SUPPLY
UR	URINAL
UTIL	UTILITY
UV	UNIT VENTILATOR
V	VOLT
VAR	VARNISH
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VCT	VITRIFIED CLAY TILE
VD	VAULT DOOR
VENT	VENTILATOR(TION)
VERT	VERTICAL
VEST	VESTIBULE
VF	VINYL FABRIC
VG	VERTICAL GRAIN
VH	VINYL HOMOGENEOUS
VJ	V-JOINT(ED)
VNR	VENEER
VOL	VOLUME
VR	VAPOR RETARDER
VRM	VERMICULITE
VS	VENT STACK
V.T.	VOLTAGE TRANSFORMER
VTR	VENT THRU ROOF
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
WB	WET BULB
WBL	WOOD BLOCKING
WC	WATER CLOSET
W/C	WHEELCHAIR
WCO	WOOD-CASED OPENING
WD	WOOD
WD	WOOD DOOR
WDSP	WASTE DISPOSER
WDW	WINDOW
WF	WIDE FLANGE
WGL	WIRED GLASS
WH	WALL HUNG
WH	WATER HEATER
WHB	WHEEL BUMPER
WHM	WATT-HOUR METER
WI	WROUGHT IRON
WKSH	WORK SHOP
WM	WIRE MESH
W/O	WITHOUT
WP	WATERPROOF(ING)
WP	WEATHERPROOF
WP	WORKING POINT
WR	WASTE RECEPTACLE
WRB	WARDROBE
WS	WATERSTOP
W.S.	WASTE STACK
WSCT	WAINSCOT
WT	WEIGHT
WTH	WIDTH
W/W	WALL TO WALL
WWF	WELDED WIRE FABRIC
WWM	WELDED WIRE MESH
WWR	WELDED WIRE REINFORCEMENT
XFMR	TRANSFORMER
YD	YARD
YD	YARD DRAIN

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ABBREVIATIONS

SHEET ID
G-004

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ARCHITECTURAL LEGEND

- CONCRETE/ PRECAST CONCRETE
- SOIL
- SAND, EIFS FINISH COAT, OR CEMENT PLASTER
- BRICK
- CMU
- STONE
- FIBERGLASS BATT INSULATION
- FIBERGLASS SEMI RIGID INSULATION
- MINERAL WOOL SEMI RIGID INSULATION
- EXPANDED POLYSTYRENE RIGID INSULATION
- EXTRUDED POLYSTYRENE RIGID INSULATION
- POLYISOCYANURATE RIGID INSULATION
- GYPSUM WALL BOARD
- EXTERIOR GYPSUM SHEATHING
- EXTERIOR CEMENT BOARD
- COATED GLASS MAT WATER RESISTANT GWB
- PLYWOOD
- COVER BOARD

CIVIL LEGEND

EXISTING	NEW	
		BUILDINGS
		ROADS
		CURB & GUTTER
		WALKS
		RAILROAD
12	12	CONTOURS
+ 77.2	+ 77.2	SPOT GRADE ELEVATIONS
		DIRECTION OF DRAINAGE
		CULVERT
SD	SD	STORM DRAIN
		SUBDRAIN
		SUBDRAIN OUTLET LINE
W	W	WATER LINE
FW	FW	FIRE WATER LINE
S	S	SANITARY SEWER
FM	FM	FORCE MAIN
FW	FW	FIRE PROTECTION WATER LINE
WD	WD	WASTE DRAIN
△OR	△OR	SUBDRAIN FLUSHING & OBSERVATION RISER
○	●	MANHOLE SELF EXPLANATORY DEPENDING ON TYPE OF UTILITY LINE
		CURB INLET
		AREA INLET
		FIRE HYDRANT
		GATE VALVE & VALVE BOX OR SERVICE STOP & BOX
PIV	PIV	POST INDICATOR VALVE
DH-2	DH-2	DRILL HOLE
MW-1	MW-2	MONITORING WELL
△		CONTROL POINT
MT	MT	PROPERTY LINE MONUMENT

FENCES

EXISTING	NEW	
XX	XX	CHAIN LINK SECURITY
X	X	BARBED WIRE
○	●	WOVEN WIRE
□	■	WOOD

HEATING

- HPS — HIGH PRESSURE STEAM
- MPS — MEDIUM PRESSURE STEAM
- LPS — LOW PRESSURE STEAM
- HPC — HIGH PRESSURE CONDENSATE
- MPC — MEDIUM PRESSURE CONDENSATE
- LPC — LOW PRESSURE CONDENSATE
- PC — PUMPED CONDENSATE
- FW — FEED WATER
- HTWS — HIGH TEMPERATURE WATER SUPPLY
- HTWR — HIGH TEMPERATURE WATER RETURN
- HWS — HOT WATER HEATING SUPPLY
- HWR — HOT WATER HEATING RETURN
- GHWS — GLYCOL HOT WATER HEATING SUPPLY
- GHWR — GLYCOL HOT WATER HEATING RETURN
- BBD — BOILER BLOW-DOWN
- FOG — FUEL OIL GAGE LINE
- FOS — FUEL OIL SUPPLY
- FOF — FUEL OIL FILL
- FOR — FUEL OIL RETURN
- FOV — FUEL OIL TANK VENT
- G — GAS
- F & T TRAP
- THERMODYNAMIC TRAP
- BUCKET TRAP
- THERMOSTATIC TRAP
- F — FLOAT TRAP

MISCELLANEOUS PIPING

- A — COMPRESSED AIR
- VAC — VACUUM
- F — FIRE LINE
- F — UNDERSLAB FIRE LINE
- FC — FOAM CONCENTRATE FOR AFFF SYSTEMS

VALVES & FITTINGS

- GLOBE VALVE
- O, S, & Y GATE VALVE W/TAMPER SWITCH
- GATE VALVE
- WAFER CHECK VALVE
- HOSE GATE VALVE
- PLUG VALVE OR BALANCING COCK
- NEEDLE VALVE
- STRAINER
- RELIEF VALVE
- MOTOR OPERATED VALVE
- TEMPERATURE REGULATING VALVE
- SOLENOID VALVE
- PRESSURE REDUCING VALVE
- FLOAT VALVE
- BUTTERFLY VALVE
- BALL VALVE
- CALIBRATED BRONZE BALANCING VALVE OR AUTOMATIC BALANCING VALVE AS INDICATED
- PA — ANCHOR
- EXPANSION JOINT, SLIDING
- EXPANSION JOINT, BELLOWS
- ELBOW DOWN
- ELBOW UP
- TEE DOWN
- TEE UP
- CAP
- UNION
- PIPE INCREASER OR DECREASER
- FLANGE
- BLIND FLANGE

MECHANICAL LEGEND

DUCTWORK

- 20 x 12 SG / 700 CFM — SUPPLY GRILLE (SG)
- 20 x 12 RG / 700 CFM — RETURN (RG) OR EXHAUST (EG) GRILLE (NOTE AT FLR. OR CLG.)
- 20 x 12 SR / 700 CFM — SUPPLY REGISTER (SR) (A GRILLE + INTEGRAL VOL. CONTROL)
- 20 x 12 GR / 700 CFM — EXHAUST OR RETURN AIR INLET CEILING (INDICATE TYPE)
- 20 Ø / 700 CFM — SUPPLY OUTLET, CEILING ROUND (TYPE AS SPECIFIED) INDICATE FLOW DIRECTION
- 12 x 12 / 700 CFM — SUPPLY OUTLET, CEILING, RECTANGULAR (TYPE AS SPECIFIED) INDICATE FLOW DIRECTION
- OPPOSED BLADE DAMPERS
- PARALLEL BLADE DAMPERS
- DG 12 x 6 — DOOR GRILLE
- UNIT HEATER (VERTICAL)
- UNIT HEATER (HORIZONTAL)
- POWER OR GRAVITY ROOF VENTILATOR-EXHAUST (ERV)
- POWER OR GRAVITY ROOF VENTILATOR-SUPPLY (SRV)
- POINT OF CHANGE IN DUCT CONSTRUCTION (BY STATIC PRESSURE CLASS)
- 20 x 12 — DUCT (1ST FIGURE, SIDE SHOWN 2ND FIGURE, SIDE NOT SHOWN)
- ACOUSTICAL LINING DUCT DIMENSIONS FOR NET FREE AREA
- DIRECTION OF FLOW
- DUCT SECTION (SUPPLY)
- DUCT SECTION (EXHAUST OR RETURN)
- R — INCLINED RISE (R) OR DROP (D) ARROW IN DIRECTION OF AIR FLOW
- TRANSITIONS: GIVE SIZES. NOTE F.O.T. FLAT ON TOP OR F.O.B. FLAT ON BOTTOM IF APPLICABLE
- STANDARD BRANCH FOR SUPPLY & RETURN (NO SPLITTER)
- SPLITTER DAMPER
- VD — VOLUME DAMPER MANUAL OPERATION
- SEC. MOD — AUTOMATIC DAMPERS MOTOR OPERATED
- OR AD — ACCESS DOOR (AD) ACCESS PANEL (AP)
- FD AD — FIRE DAMPER: SHOW ◀ VERTICAL POS. SHOW ◆ HORIZ. POS.
- AD SD — SMOKE DAMPER
- TURNING VANES
- FLEXIBLE DUCT
- FLEXIBLE CONNECTION

PLUMBING

- DCW — DOMESTIC COLD WATER
- DHW — DOMESTIC HOT WATER
- DHWR — DOMESTIC HOT WATER RECIRC.
- SS — SANITARY
- V — VENT
- NG — NATURAL GAS
- FPWH — FREEZEPROOF WALL HYDRANT
- HB — HOSE BIBB
- FCO — FLOOR CLEANOUT
- WCO — WALL CLEANOUT
- FD — FLOOR DRAIN
- FD — FLOOR DRAIN

REFRIGERATION

- RL — REFRIGERANT LIQUID
- RD — REFRIGERANT DISCHARGE (HOT GAS)
- RS — REFRIGERANT SUCTION
- CWS — CHILLED WATER SUPPLY
- CWR — CHILLED WATER RETURN
- C — CONDENSER WATER SUPPLY
- CR — CONDENSER WATER RETURN
- REFRIGERANT STRAINER
- THERMOSTATIC EXPANSION VALVE
- CHWS — CHILLED-HOT WATER SUPPLY
- CHWR — CHILLED-HOT WATER RETURN
- GCWS — GLYCOL CHILLED WATER SUPPLY
- GCWR — GLYCOL CHILLED WATER RETURN
- COND — CONDENSATE DRAIN LINE

TEMPERATURE CONTROLS

SEE TEMPERATURE CONTROL DRAWINGS FOR ADDITIONAL LEGEND

- (T) THERMOSTAT
- (OA) OUTDOOR AIR THERMOSTAT OR SENSOR (AS INDICATED)
- (S) TEMPERATURE SENSOR
- (N) NIGHT THERMOSTAT
- (PB) MANUAL OVER-RIDE SWITCH
- (E) EMCS SENSOR
- (P) PRESSURE SENSOR
- (H) HUMIDITY SENSOR

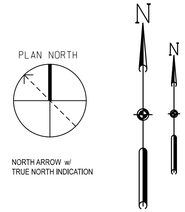
FIRE RATED WALL SYMBOLS:

- ◆ 1 HR FIRE
- ◆◆ 2 HR FIRE
- ◆◆◆ 3 HR FIRE
- ◆◆◆◆ 4 HR FIRE
- ◆S 1 HR FIRE/SMOKE WALL
- ◆◆S 2 HR FIRE/SMOKE WALL
- ◆◆◆S 3 HR FIRE/SMOKE WALL
- ◆◆◆◆S 4 HR FIRE/SMOKE WALL

GENERAL NOTES:

1. THESE LEGENDS ARE COMPOSED OF STANDARD SYMBOLS AND ARE PERTINENT TO THE CONDITIONS ON THIS SET OF DRAWINGS TO THE EXTENT APPLICABLE.
2. ADDITIONAL LEGENDS AND/OR ANOTHER LEGEND SHEET MAY APPEAR IN THIS SET OF DRAWINGS TO INDICATE SPECIFIC CONDITIONS IN LIEU OF SYMBOLS SHOWN ON THIS SHEET.
3. EXISTING FACILITIES TO BE REMOVED ARE INDICATED BY USE OF THESE SYMBOLS AND HATCHED THUSLY. ////////

STANDARD NORTH ARROWS



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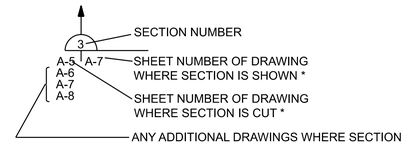
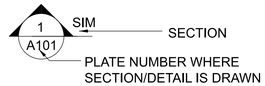
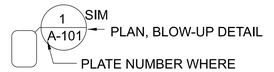


* SHEET NUMBERS OMITTED IF SECTION IS CUT AND DETAILED ON SAME DRAWING.





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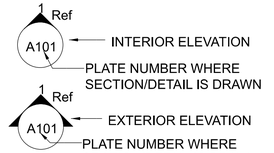
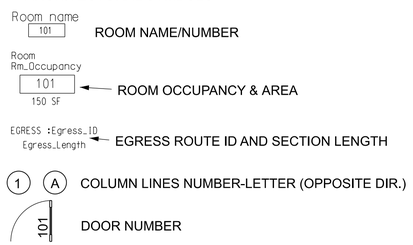


ARCHITECTURAL SYMBOLS



US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

DESIGNED BY: M. HOFFMAN
DRAWN BY: M. HOFFMAN
CHECKED BY: M. HOFFMAN
SUBMITTED BY: M. HOFFMAN
SIZE: ANSI D
FILENAME: FCDRG-005.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

LEGEND

SHEET ID
G-005

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EXTERIOR ELECTRICAL LEGEND

EXIST	NEW	
○ 40'-4	● #2 40'-4	POLE, NO., LENGTH, AND CLASS AS INDICATED
6M	6M 12 MT	DOWN GUY AND ANCHOR. STRENGTH IN LBS. INDICATED (ANCHOR STRENGTH IS BASED ON HOLDING POWER IN CLASS 7 SOIL) "MT" INDICATES TWIN EYE ANCHOR ROD
	II	POLE MOUNTED ROADWAY OR AREA LIGHTING INSTALLATION, WATTS AS INDICATED, ROMAN NUMERAL INDICATES IES TYPE DISTRIBUTION
		POLE MOUNTED FLOODLIGHTING INSTALLATION. ARROWS INDICATE NO. OF LUMINAIRES AND APPROX. HORIZ. AIMING
4-#6 ACSR OHS	2#6 OHS WP	OVERHEAD POWERLINE-SECONDARY OR SERVICE DROP NO., SIZE AND TYPE OF CONDUCTOR AND LINE VOLTAGE AS INDICATED.
3#1 13.8KV OHP	OHP 3#1	OVERHEAD POWERLINE-PRIMARY DISTRIBUTION. NO., SIZE, AND TYPE OF CONDUCTORS AND LINE VOLTAGE AS INDICATED
OHC	OHC	OVERHEAD COMMUNICATIONS LINE
SL 1#6	AFL 1-#6 CWC	SERIES STREET LIGHT AND AIRFIELD LIGHTING CIRCUIT RESPECTIVELY. NO., SIZE AND TYPE OF WIRE AS INDICATED.
4#8, TYPE USE DBP	DBP	DIRECT BURIED LINE. THE LETTER "P" DESIGNATES PRIMARY POWER (#8 MIN. IF SINGLE-CONDUCTOR CABLES ARE USED), "S" SECONDARY POWER (LOW VOLTAGE), "C" A COMMUNICATIONS TYPE LINE. NUMBER, SIZE, AND TYPE OF CABLE AS INDICATED
DBS	DBS	
DBC	DBC	
4P	4P	UNDERGROUND DUCT LINE, CONCRETE ENCASED (SEE SPECS). NUMERAL INDICATES QUANTITY OF DUCTS (4" MIN. IF NOT IDENTIFIED). LETTER "P" INDICATES ELECTRICAL POWER LINE, "C" A COMMUNICATIONS TYPE LINE). NO., SIZE AND VOLTAGE OF CABLE AS INDICATED OR PER CROSS SECTION DETAIL
4P/2C	3-#3,15 KV 1-#3 600V +3 SPARE	
2C	2C	
UG	* UG	UNDERGROUND DISTRIBUTION-MISC. CONFIGURATIONS. NO. AND SIZE OF CONDUCTORS AND RACEWAY AS DESCRIBED (*) OR DETAILED
PB#4	HH#2 MH#4 A	PULLBOX, HANDHOLE OR MANHOLE. NO., AND TYPE AS INDICATED
EV	EV	UNDERGROUND ELECTRICAL EQUIPMENT VAULT (POWER OR CONTROLS)
EP	EP	ELECTRICAL EQUIPMENT IN PAD MOUNTED CABINET OR EQUIPMENT ASSEMBLY
△	10 ▲	INDIVIDUAL TRANSFORMER FOR OVERHEAD OR FENCED APPLICATONS. ANSI VOLTAGE CONFIGURATION AS INDICATED, SINGLE NUMERAL IF PRESENT DESIGNATES KVA RATING
△	75 ▲	CONCRETE PAD MOUNTED TRANSFORMER INSTALLATION ANSI (C84.1) VOLTAGE CONFIGURATION AS INDICATED.
PE	PE	PHOTOELECTRIC CONTROL RELAY
R	R	AERIAL AUTOMATIC RECLOSER.
SS	SS	AERIAL AUTO SECTIONALIZER
#4 G		GROUNDING SYSTEM. ELECTRODE AND CONDUCTOR (COUNTERPOISE) (BARE COPPER) SIZE AS INDICATED
2" C		LIMITS OF CONDUIT CASING OR SLEEVE
		CAPPED CONDUIT

ELECTRICAL POWER DIAGRAM LEGEND

LVP 400A	DRAWOUT TYPE CIRCUIT BREAKER ASSEMBLY ("LVP" INDICATES LOW VOLTAGE POWER CB, "IC" INDICATES INSULATED CASE, "MC" INDICATES MOLDED CASE CB TYPE). SIZE AS INDICATED.
	DRAWOUT FUSE ASSEMBLY
3P 20 A	MOLDED CASE CIRCUIT BREAKER, FIXED TRIP. THREE POLE UNLESS DESIGNATED '1P' OR '2P'.
1600AF 1200AT	MOLDED CASE CIRCUIT BREAKER OF A GIVEN FRAME SIZE WITH ADJUSTABLE TRIP SETTINGS.
	FUSED CUTOUT OR FUSED SWITCH ASSEMBLY. VOLTAGE RATING AND SIZE AS INDICATED
	FUSE-POWER AND CONTROL APPLICATIONS RESPECTIVELY, SIZE AS INDICATED
50A 9KV	SURGE ARRESTOR - VOLTAGE RATING AND CLASS AS INDICATED
5	POWER FACTOR CORRECTION CAPACITOR - NUMBER DENOTES KVAR RATING
SS	GROUND CONNECTION - TO STANDARD ROD TYPE ELECTRODE, TO NEAREST STRUCTURAL STEEL (#6 MIN. CONDUCTOR IF NOT SHOWN)
	CONTROL INTERFACE OR OPERATING RELATIONSHIP BETWEEN 2 OR MORE DEVICES (KEY INTERLOCK BETWEEN BREAKERS, RELAY/CONTACTOR, ETC.)
1000	BUS NUMBER FOR ANALYSIS AND REFERENCE ONLY

1600A FB FB	FEEDER TYPE BUS DUCT (FB) OR METAL-ENCLOSED BUS ASSEMBLIES (HIGH OR MEDIUM VOLTAGE). (CU BUS IF NOT IDENTIFIED). AMPACITY AS INDICATED
	SEPARABLE CONNECTOR IN PRIMARY DISTRIBUTION LINE (ELBOW TERMINATOR AND BUSHING COMBINATION)- LOADBREAK AND NON-LOADBREAK STYLES RESPECTIVELY
KWH	KILOWATT-HOUR METER (WH IS WATT-HOUR METER)
1200:5 (3)	CURRENT TRANSFORMER (CT). SECOND NUMERAL OF TRANSFORMATION RATIO IDENTIFIES NOMINAL CURRENT OF METERING/ACCESSORY CIRCUIT. NUMERAL IN PARENTHESIS INDICATES QUANTITY OF CT'S
(3) 480 120	VOLTAGE (POTENTIAL) TRANSFORMER (VT/PT), DRAWOUT AND NON-DRAWOUT. QUANTITY AND VOLTAGE RATING AS INDICATED
	POWER & DISTRIBUTION TRANSFORMER, RATED kVA, VOLTAGE, CONNECTIONS, COOLING CLASS AND TYPE AS INDICATED.
	TRANSFORMER DELTA CONNECTION DESIGNATION WHEN USED BY A TRANSFORMER SYMBOL.
	TRANSFORMER GROUNDED-WYE CONNECTION DESIGNATION WHEN USED BY A TRANSFORMER SYMBOL, DIRECT GROUNDED AND RESISTOR GROUNDED RESPECTIVELY. IF THE GROUND SYMBOL IS MISSING, THEN IT IS AN UNGROUNDED OR FLOATING WYE CONNECTION.
AS A VS V	AMMETER AND VOLTMETER WITH PHASE SELECTOR SWITCH
GFI #2 400 AT 0.3 s	GROUND FAULT INTERRUPTING EQUIPMENT (SEE SPECS) WITH TRIP SETTING AT DESIGNATED TIME DELAY INTERLOCKING CONTROL AS INDICATED
52 27B3 50N 51N	SENSOR, DEVICE OR APPARATUS (ELECTRICAL OR ELECTROMECHANICAL); NUMERAL IDENTIFIES TYPE OR FUNCTION PER ANSI/IEEE C37.2

INTERIOR ELECTRICAL LEGEND

	EXISTING AND NEW, RESPECTIVELY
A	INCANDESCENT OR H.I.D. LUMINAIRE LESS THEN 2' X 2' IN SIZE - LETTER IDENTIFIES CORRESPONDING SWITCH
+7'	WALL FIXTURE - MOUNTING HEIGHT INDICATED (TO FIXTURE ℄)
	FLUORESCENT OR HID LUMINAIRE 2' x 2' OR LARGER IN SIZE (THE OUTLET SYMBOL WILL NORMALLY BE OMITTED IN CONTINUOUS ROW CONFIGURATIONS)
	CEILING EXIT LIGHT. ARROWS IDENTIFY DIRECTION OF EGRESS
	WALL EXIT LIGHT - MOUNTING HEIGHT INDICATED (TO ℄), ARROWS IDENTIFY DIRECTION OF EGRESS
	LIGHTING CONTACTOR - NO. OF POLES, CURRENT AND VOLTAGE RATINGS AS INDICATED
EPS	EMERGENCY POWER SYSTEM FOR EGRESS LIGHTING - BATTERY INVERTER SET (OR FORWARD TRANSFER UPS), RATINGS AND PHYSICAL SIZE AS INDICATED
	BATTERY OPERATED EMERGENCY LIGHT SET, NO. OF LUMINAIRE HEADS AS INDICATED
E E OR E	FEEDER, DEVICE OR FIXTURE, AND FLUORESCENT TYPE FIXTURE, RESP. SUPPLIED FROM AN EMERGENCY CIRCUIT. THE SHADED PORTION OF THE FLUORESCENT SYMBOL INDICATES 2 LAMPS OF A 3 OR 4 LAMP FIXTURE ARE SUPPLIED FROM EMERGENCY POWER. A 1-LAMP OR 2-LAMP FIXTURE WILL BE SHOWN SHADED OR UNSHADED WITH THE 'E' ANNOTATION
J J D	JUNCTION BOX, 4" SQUARE UNLESS NOTED OTHERWISE. CEILING AND WALL MOUNT TYPES INDICATED.
	DIMMING CONTROL FOR LIGHTING
S_{TO}	MANUAL STARTER WITH THERMAL OVERLOADS (MOTOR RATED SWITCH)
S	SINGLE POLE SWITCH
S_2	DOUBLE POLE SINGLE THROW SWITCH
S_3	THREE WAY SWITCH
S_4	FOUR WAY SWITCH
S_P	SINGLE POLE SWITCH WITH PILOT LIGHT
S_T	TIMER OPERATED SWITCH
S_K	KEY OPERATED SWITCH
S_{MC}	MOMENTARY CONTACT SWITCH
	4'-0" UP LETTERS A, B, C, ETC. WHERE USED, IDENTIFY SWITCHED FIXTURES
20A	2P,3W GROUNDING TYPE RECEPTACLE - 125V, CONVENTIONAL DUPLEX & SIMPLEX "SW" INDICATES SPLIT WIRED, CO= CLOCKOUTLET, FO= FAN OUTLET, IG= ISOLATED GROUND TYPE OUTLETS, NEMA 5-XX SERIES. DEFAULT SIZE IS 15A. SEE NOTE 8.
X"	RECEPTACLE STRIP ASSEMBLY - DUPLEX NEMA 5-15 RECEPTACLES SPACED AT INTERVAL INDICATED (SEE FLOOR PLANS) IN SURFACE MOUNTED RACEWAY. WALL MOUNTED AT 4 FT. AFF, CONSECUTIVE PHASE CONNECTIONS (IN 3Ø APPLICATIONS) UNLESS NOTED OTHERWISE

NOTE 5

3/4HP	ELECTRIC WATER COOLER (DRINKING WATER DISPENSER) SIZE AS NOTED
SM SM R	INDIVIDUAL FLOOR OUTLET ASSEMBLY.'SM' DENOTES SURFACE MOUNTED TYPE (ABOVE FLOOR SERVICE FITTING), 'R' DENOTES RECESSED (FLUSH MOUNTED) TYPE, SEE SPECS
	RELOCATIBLE SERVICE POST ASSEMBLY - LENGTH AS REQUIRED TO EXTEND ABOVE SUSPENDED CEILING. SEE NOTE 8.
	TELEPHONE OUTLET, SINGLE AND DUPLEX JACK CONFIGURATIONS (8 PIN JACKS). SEE SPECS. SYMBOL SYMBOL WITHOUT LEG(S) REQUIRES DUPLEX JACKS. A SQUARE AROUND THE DEVICE INDICATE IT IS FLOOR MOUNTED. HL=HOTLINE TELEPHONE, P= PUBLIC TELEPHONE, SEE NOTE 8.
12" X 4" CT	CABLE TRAY FOR COMMUNICATIONS AND DATA PROCESSING, DIMENSIONS AS INDICATED (W X D)
TTB-2 TTC#4 36X24X6	TELEPHONE TERMINAL BOARD (PLYWOOD BACKBOARD); TELEPHONE TERMINAL CABINET, SIZE AS INDICATED
UF UF P CO 3" 7"	MULTIOUTLET CONFIGURATION IN UNDERFLOOR DUCT SYSTEM (SEE SPECS.). OPEN CIRCLE DENOTES BLANK INSERT LOCATION, SOLID DENOTES A DEVICE INSTALLATION; 'P' INDICATES A POWER DUCT WITH DUPLEX RECEPTACLES (NEMA 5-15), 'C' DENOTES COMMUNICATIONS DUCT W/BUSHED FITTING; FIGURES IDENTIFY NOMINAL WIDTH; UFD IDENTIFIES A SECTION OF FEEDER DUCT (NO INSERTS).
UFD UFD	
EF-3 M 2HP	MOTOR - USE AND SIZE AS INDICATED
#3 2S	MOTOR CONTROLLER - MAGNETIC OR AS INDICATED, UPPER NUMERAL DESIGNATES NEMA SIZE; LOWER LETTER, IF USED, INDICATES; 'R' - REVERSING TYPE, '2S' - TWO SPEED TYPE, 'FV'- FULL VOLTAGE TYPE (DEFAULT IF NOT INDICATED), 'RV' - REDUCED VOLTAGE TYPE, 'AT' - AUTO TRANSFORMER TYPE, 'PW" - PART WINDING TYPE.
	COMBINATION STARTER W/EXTERNALLY OPERATED DISCONNECT
	DISCONNECT SWITCH, SIZE AND TYPE AS INDICATED (OR 3P, 240V, 30A MIN)
	PUSHBUTTON CONTROL STATION - 1, 2, OR 3 BUTTONS "EPO" = EMERGENCY POWER OFF.
S_{HOA} 2P SS	SELECTOR SWITCH (SEPARATE FROM STARTER)- 2 POSITION OR 3 POSITION AS INDICATED. IF NOT SPECIFIED ELSEWHERE, LEGEND PLATE DESIGNATIONS WILL BE 'ON-OFF' AND 'MAN-OFF-AUTO' (OR 'H.O.A.)
T	THERMOSTAT - SEE MECH. SPECS, 5'-0" UP
MCC-2	MOTOR CONTROL CENTER, FREE STANDING W/NO. OF 20" WIDE (MIN) VERTICAL SECTIONS INDICATED. SEE DIAGRAM AND/OR SCHEDULE FOR SIZES, RATINGS, AND LOADS
LP2 B	LIGHTING AND APPLIANCE TYPE PANELBOARD - FLUSH MOUNTED AND SURFACE MOUNTED TYPES, SEE CORRESPONDING PANEL SCHEDULE. OPEN SYMBOL INDICATES EXISTING
	DISTRIBUTION TYPE PANEL
MSB MSG	MAIN SWITCH BOARD OR MAIN SWITCH GEAR (ABBREVIATED OR SPELLED OUT), SEE FLOOR PLANS AND DIAGRAMS FOR DIMENSIONS, CLEARANCES, AND ELECTRICAL RATINGS
FB 400A 30A 30/25	BUS DUCT ASSEMBLY WITH PLUG-IN POWER BOX CAPABILITY AT 2' INTERVALS, CURRENT RATING AS INDICATED. OPEN CIRCLE REPRESENTS A POSITION WITH BLANK COVER ONLY, SOLID CIRCLE A PLUG IN BOX WITH BREAKER OR SWITCH (SEE SPECS). RECEPT. SYMBOL IDENTIFIES A BOX WITH RECEPTACLE ATTACHED (FIGURES INDICATE RATING OF RECEPT AND OVERCURRENT DEVICE.
LP-2,4,6	BRANCH CIRCUIT AND FEEDER WIRING. LONG, SHORT, SINGLE DOT AND DOUBLE DOT HASH MARKS REPRESENT PHASE CONDUCTOR, NEUTRAL, EQUIPMENT GROUND, AND ISOLATED EQUIPMENT GROUND RESPECTIVELY (AS APPLICABLE). ARROWS AND LETTER/NUMERALS IDENTIFY HOME-RUN CIRCUITS. IF HASH MARKS ARE OMITTED BETWEEN HOME-RUNS, TRANSITION SEGMENTS, AND END-OF-LINE DEVICES, REQUIRED QUANITY IS UNDERSTOOD TO APPLY TO ALL UNMARKED INTERVENING SEGMENTS. A CIRCUIT WITHOUT ANY DESIGNATION INDICATES THE CIRCUIT IS TWO-WIRE (MIN #12 IN 1/2"C).
CO	CONDUIT ONLY - NO CONDUCTORS, PULL WIRE IF OVER 50'
UF	COMM OR POWER FEEDER INSTALLED UNDER FLOOR SLAB IN COATED R.S. CONDUIT UNLESS INDICATED OTHERWISE
	LIGHT LINE - EXISTING, OR BY OTHER TRADES
	HEAVY LINE - NEW ELECTRICAL WORK
	FUTURE WORK OR ELECTRICAL ITEM REPEATED FOR CLARITY (TO LIGHTING SHEET FROM POWER OR COMM DWG., ACROSS MATCH LINES, ETC.)
X XR	EXISTING EQUIPMENT; EXISTING EQUIPMENT AS RELOCATED (NEW LOCATION)
G	GENERATOR OR GENERATOR CONNECTION.
	STATIC GROUND ROD
	GROUND TEST WELL

FCP FCP	FIRE ALARM CONTROL PANEL, (SEE SPECS)
FAA FAA	FIRE ALARM ANNUNCIATION PROVISIONS, W/OR W/O GRAPHIC REPRESENTATION, SEE SPECS
FST FST	FIRE ALARM SIGNAL TRANSMITTING (WITH ANTENNA FOR FM RADIO TYPE), SEE SPECS
F	MANUAL FIRE ALARM STATION - 4'-0" A.F.F.
H CO F	ABORT STATION. "F"= FIRE; "H"=HALON; "CO"=CARBON DIOXIDE
F F F F M	FIRE ALARM WARNING DEVICE - BELL, CHIME, HORN AND MASS NOTIFICATION, 6'-8" A.F.F.
F	FIRE ALARM WARNING DEVICE, VISIBLE ONLY - FLASHING LIGHT, CEILING MOUNTED AND WALL MOUNTED (6'-8" A.F.F.) RESPECTIVELY
M F F F F ©	F.A. WARNING DEVICE, COMBINED AUDIBLE AND VISIBLE - FLASHING LIGHT WITH A MASS NOTIFICATION, HORN, BELL, OR CHIME - 6'-8" A.F.F.
CR	HEAT DETECTOR - UNDIFFERENTIATED SYMBOL INDICATES FIXED TEMPERATURE OR COMBINATION F.T. AND RATE OF RISE TYPE, SEE SPECS; 'CR' INDICATES COMPENSATED RATE ("RATE ANTICIPATION") TYPE WITH TUBULAR SENSING ELEMENT REQUIRED
I D P	SMOKE DETECTOR. THE LETTER 'I' OR 'P', IF PRESENT, STIPULATES IONIZATION OR PHOTOELECTRIC TYPE. 'D' STIPULATES A DUCT TYPE SMOKE DETECTOR. WHERE DUCT DETECTORS ARE SHOWN IN PAIRS, LOCATIONS ARE IN SUPPLY AND RETURN DUCTS, A SINGLE DETECTOR WOULD BE INSTALLED IN THE SUPPLY DUCT IF THE LOCATION IS NOT OTHERWISE INDICATED.
OSY SV TS WFI	FIRE ALARM CONTACTS AT SOLENOID (OS & Y) VALVE, TAMPER SWITCH, ALARM CHECK VALVES, WATER FLOW INDICATOR AND FLOW SWITCH, SEE MECH. SPECS
	24-INCH LIGHTNING AIR TERMINAL.
	60-INCH LIGHTNING AIR TERMINAL.
	LIGHTNING PROTECTION MAIN CONDUCTOR

NOTES:

1. WHERE MORE THAN ONE SYMBOL FORMAT IS SHOWN, THE PREFERRED FORM IS SHOWN FIRST.

2. SUPPLEMENTAL ELECTRICAL LEGENDS MAY APPEAR IN THIS SET OF DRAWINGS TO ESTABLISH SYMBOLS FOR ITEMS NOT COVERED BY THIS SHEET OR TO INDICATE SPECIFIC CONDITIONS IN LIEU OF SYMBOLS SHOWN ON THIS SHEET.

3. NOT USED.

4. EXISTING ITEMS ARE DESIGNATED BY A THIN LINE OR AN OPEN SYMBOL; NEW ITEMS WITH A THICK LINE OR CLOSED (FILLED-IN) SYMBOL.

5. ELECTRIC LIGHT FIXTURES ARE IDENTIFIED BY EITHER OR BOTH OF THE FOLLOWING METHODS:

234B1 (A) INDICATES FIXTURE TYPE, PER FIXTURE SCHEDULE, FOR ENTIRE ROOM OR AREA WHEN ADJACENT TO THE ROOM NAME OR NUMBER DESIGNATION OR FOR SINGLE FIXTURE WHEN ADJACENT TO THE FIXTURE SYMBOL.

(K) (B) CAPITAL LETTER OR FIXTURE DESIGNATION INSIDE OR ADJACENT TO SYMBOL INDICATES FIXTURE TYPE FOR EACH FIXTURE PER FIXTURE SCHEDULE.

6. SIZES OF WIRE AND CABLE ARE BASED ON COPPER CONDUCTORS UNLESS INDICATED OTHERWISE.

7. LETTERS SUCH AS "WP", "EP" ADJACENT TO ANY SYMBOL INDICATE SPECIAL CONSTRUCTION IS REQUIRED. SEE ABBREVIATIONS SHEET FOR DEFINITIONS.

8. ALL RECEPTACLE AND COMMUNICATION OUTLETS SHALL BE MOUNTED 15 - INCHES A.F.F. AS MEASURED TO THE BOTTOM OF THE OUTLET BOX, UNLESS INDICATED OTHERWISE.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	S. LINDGREN
DRAWN BY:	S. LINDGREN
CHECKED BY:	M. HOFFMAN
SUBMITTED BY:	S. LINDGREN
SUPERVISED BY:	S. LINDGREN
ANSI D	
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
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FILE NUMBER:	
FILENAME:	FCDRG-006.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL LEGEND

SHEET ID
G-006

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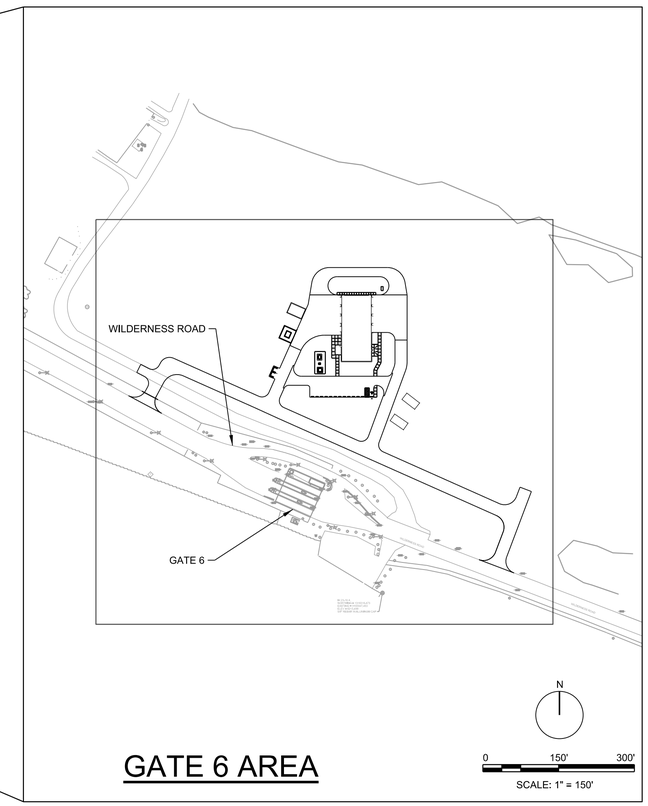

NOTES:

1. CONTRACTORS ARE REQUIRED TO ENTER AND EXIT FORT CARSON INSTALLATION THROUGH GATE 6. GATE 19 CAN BE USED AS AN ALTERNATIVE ENTRANCE DURING OFF HOURS.
2. SEE SPECIFICATION 01 30 00.24 FOR FURTHER DETAILS ON ACCESS REQUIREMENTS / GUIDELINES.
3. COORDINATE WITH CONTRACTING OFFICER ON FINAL LOCATION OF CONTRACTOR STAGING AND STORAGE AREAS. REFERENCE SPECIFICATION 00 72 01 REGARDING DAMAGES TO GOVERNMENT PROPERTY.
4. SEE SITE ELECTRICAL DRAWINGS FOR ADDITIONAL WORK OUTSIDE LIMITS OF GRADING SHOWN BELOW.
5. TREE REMOVALS RESULTING IN SALEABLE LUMBER SHALL BE DROPPED OFF NEAR GATE 3 AS SHOWN ON WIKERSHAM BLVD. SEE LP101 AND LP103 FOR ADDITIONAL INFORMATION ON TREE REMOVALS.

US Army Corps of Engineers®

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SOLICITATION NO.:	W9128F23R0016
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CHECKED BY:	W.C. DAVENPORT
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SIZE:	ANSI D
FILENAME:	FCDRGI101.dgn

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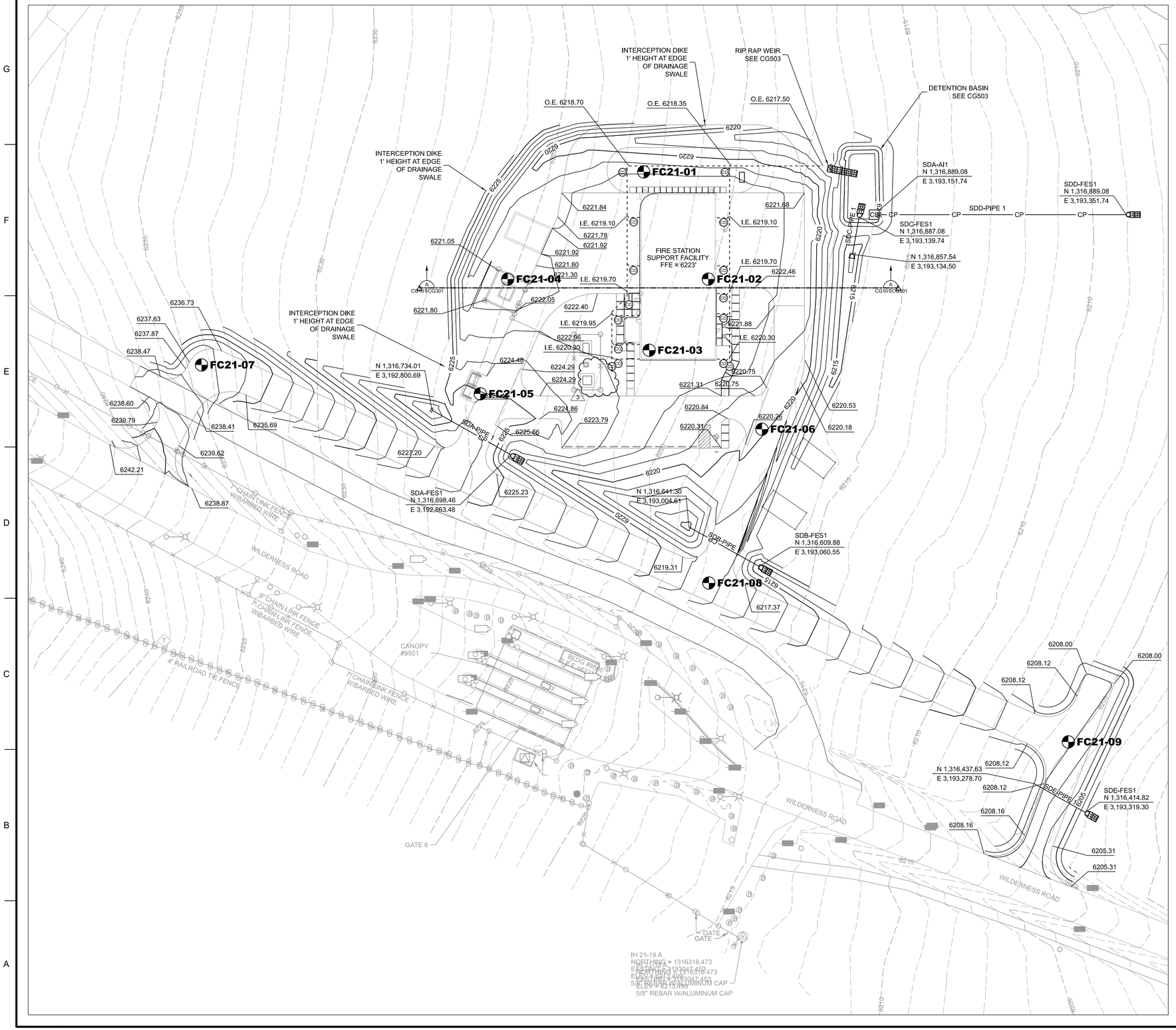
1616 CAPITOL AVE
OMAHA, NE 68102

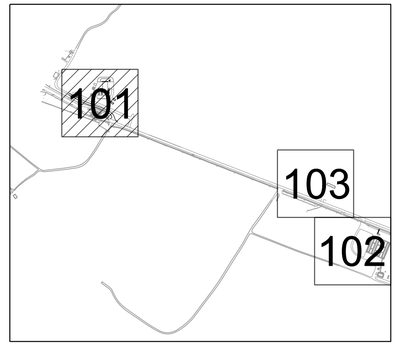
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

PROJECT LOCATION PLAN

SHEET ID

GI101





N

KEYPLAN SCALE: 1" = 1000'

SOIL BORING COORDINATES:

BORING	NORTHING	EASTING	DEPTH (FT)
FC21-01	1316934.02	3192967.78	23.7
FC21-02	1316844.83	3193021.24	25.0
FC21-03	1316778.17	3192970.65	24.7
FC21-04	1316837.46	3192862.61	24.7
FC21-05	1316746.27	3192843.89	14.9
FC21-06	1316707.86	3193065.92	10.0
FC21-07	1316727.91	3192726.44	10.0
FC21-08	1316596.48	3193025.66	10.0
FC21-09	1316471.82	3193305.42	9.4

LEGEND:

FC21-01 APPROXIMATE SOIL BORING LOCATION

NOTES:

1. SEE SHEET B-301 FOR SOIL BORING LOGS.
2. COORDINATE SYSTEM: COLORADO CENTERAL (0502), DATUM: DAVD88, NAD83.

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: R. SISK
DRAWN BY: R. SISK
CHECKED BY: C. FRITZSCH
SUBMITTED BY: K. HALL
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILENAME: FCDRB-101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

SOIL BORING LOCATION PLAN

SHEET ID

B-101

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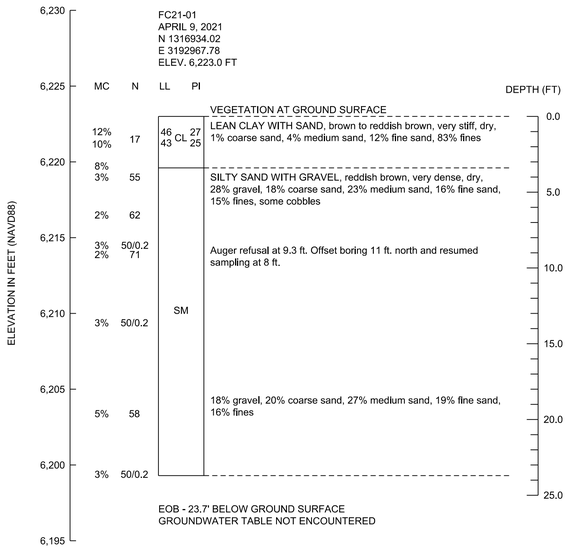

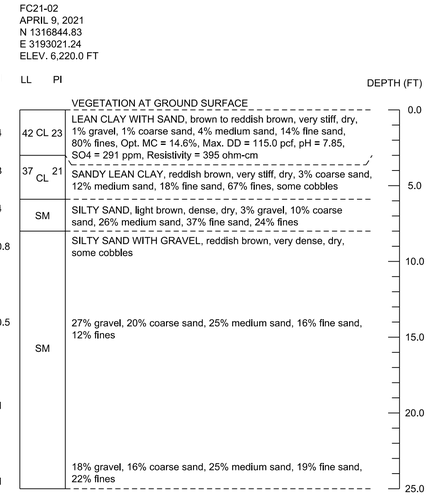

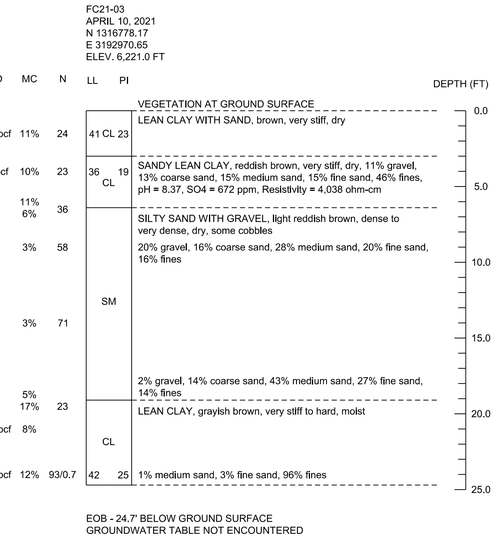

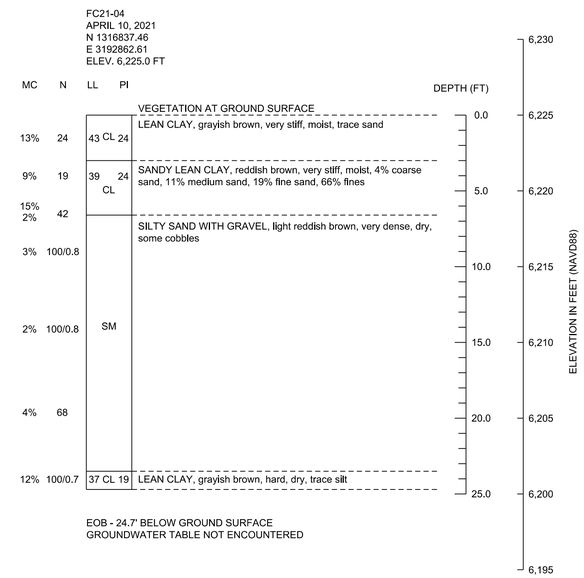

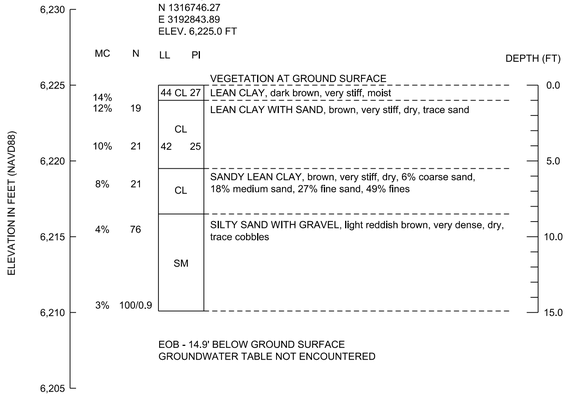

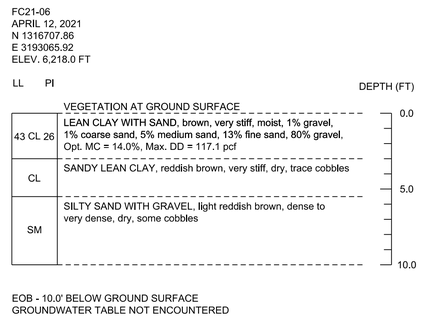

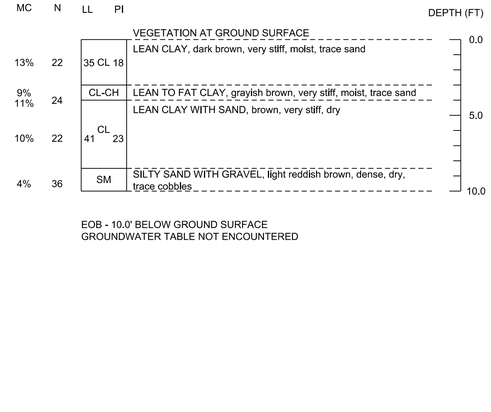

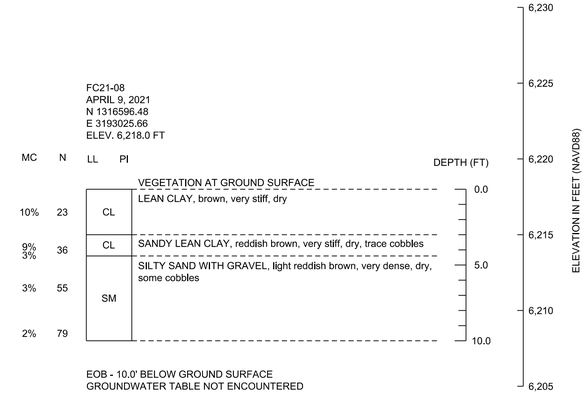

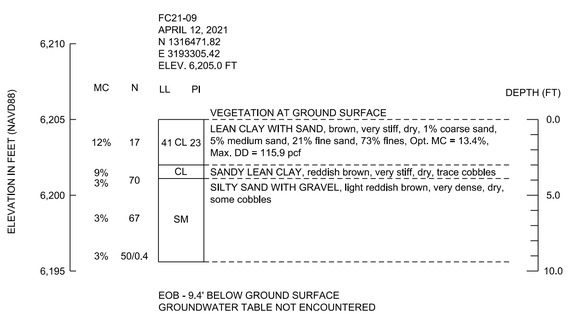

BORING LEGEND

FC21-01	BORING NUMBER
APRIL 9, 2021	DATE BORING COMPLETED
N 1316934.02 E 3192967.78	UNITED STATES STATE PLANE COORDINATES. US SURVEY FEET, ZONE 0502, COLORADO CENTRAL
ELEV. 6,223.0 ft.	TOP OF BORING ELEVATION ROUNDED TO NEAREST FOOT (NAVD88)
MC	NATURAL MOISTURE CONTENT IN PERCENT (ASTM D2216)
DD	DRY DENSITY (UNIT WEIGHT) IN POUNDS PER CUBIC FOOT (ASTM D2937)
LL	LIQUID LIMIT (ASTM D4318)
PI	PLASTICITY INDEX (ASTM D4318)
N	STANDARD PENETRATION BLOW COUNT. NUMBER OF BLOWS FOR A 140-POUND WEIGHTDROPPING 30 INCHES TO DRIVE A 2-INCHOUTSIDE DIAMETER SAMPLER 1 FOOT.
% fines	PERCENT OF SOIL BY DRY WEIGHT PASSING THE NO. 200 SIEVE (ASTM D422 / C136)
Opt. MC	OPTIMUM MOISTURE CONTENT FROM MODIFIED PROCTOR COMPACTION TEST (ASTM D1557)
Max. DD	MAXIMUM DRY DENSITY FROM MODIFIED PROCTOR COMPACTION TEST (ASTM D1557)
pH	pH VALUE FROM LAB ANALYSIS (ASTM G51)
SO4	WATER SOLUBLE SULFATE FROM LAB ANALYSIS (ASTM C1580)
ppm	PARTS PER MILLION
Resistivity	SOIL RESISTIVITY FROM LAB ANALYSIS (ASTM G57)
EOB	END OF BORING

BORING NOTES

1. THE DESCRIPTIONS AT THE RIGHT OF THE LOGS ARE THE RESULTS OF FIELD AND LABORATORY DATA. THE TERMS "DRY", "MOIST", "WET", ETC., ARE FIELD DESCRIPTIONS MADE BY THE INSPECTOR IN THE FIELD AT THE TIME OF DRILLING. SEE "MC" ON THE CONDENSED LOG OF BORINGS FOR LABORATORY DETERMINATION OF MOISTURE CONTENTS FOR THE SOIL. LABORATORY CLASSIFICATIONS ARE IN ACCORDANCE WITH ASTM D 2487.
2. THE LOGS FURNISHED REPRESENT THE TYPES OF SOIL ENCOUNTERED AT THEIR RESPECTIVE LOCATIONS AND THE WATER LEVEL ENCOUNTERED AT THAT TIME. THE BORING LOGS ARE CONSIDERED REPRESENTATIVE OF THE SOILS WHICH WERE ENCOUNTERED AT THAT LOCATION; HOWEVER, THE WATER LEVEL RECORDED CAN FLUCTUATE APPRECIABLY AT DIFFERENT SEASONS OF THE YEAR OR FROM YEAR TO YEAR DEPENDING LARGELY ON CLIMATIC CONDITIONS. THE CONTRACTOR SHOULD IDENTIFY GROUND WATER CONDITIONS PRIOR TO THE TIME OF CONSTRUCTION.
3. CLAY SOILS WITH PLASTICITY INDEX (PI) GREATER THAN 20 WERE ENCOUNTERED IN THE BORINGS. THESE SOILS ARE KNOWN TO HAVE MODERATE TO HIGH SWELL POTENTIAL UPON WETTING.
4. SANDY CLAY SOILS WITH LOW MOISTURE CONTENTS AND LOW IN-SITU DENSITIES WERE ENCOUNTERED IN THE BORINGS. THESE SOILS ARE KNOWN TO COLLAPSE UPON WETTING.
5. REFUSAL (N=50+) IS DEFINED AS A CUMULATIVE BLOW COUNT EXCEEDING 50 IN ANY SIX INCH INTERVAL OF THE STANDARD PENETRATION TEST (SPT). ONCE REFUSAL IS ENCOUNTERED, THE SPT IS DISCONTINUED.
6. THE BORING LOGS INDICATED THAT SOILS EXCEEDING SPT BLOW COUNTS OF 50 OVER A SIX-INCH INTERVAL WERE ENCOUNTERED. COBBLES WERE NOTED ON THE FIELD LOGS AND ARE NOTED ON THIS SHEET WHERE ENCOUNTERED. COBBLES ARE EXPECTED TO BE ENCOUNTERED AT RANDOM DEPTHS ACROSS THE PROJECT SITE.
7. FOR SOIL BORING LOCATIONS, SEE SHEET B-101.
8. COORDINATE SYSTEM: COLORADO CENTRAL STATE PLANE (0502) DATUM: NAVD88, NAD83

US Army Corps of Engineers®

DATE	DESCRIPTION	MARK

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

DESIGNED BY: R. SISK
DRAWN BY: R. SISK
CHECKED BY: C. FRITZSCH
SUBMITTED BY: K. HALL
SIZE: ANSI D
FILENAME: FCDRB-301.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

SOIL BORING LOGS

SHEET ID
B-301

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SURVEY NOTES

1) *GRID COORDINATES ARE REFLECTED IN US SURVEY FEET AND REFER TO THE NORTH AMERICAN DATUM of 1983 (NAD 83) STATE PLANE COORDINATE SYSTEM FOR: COLORADO CENTRAL (0502). THEY ARE BASED ON CONTROL POINT FOUNTAIN.*

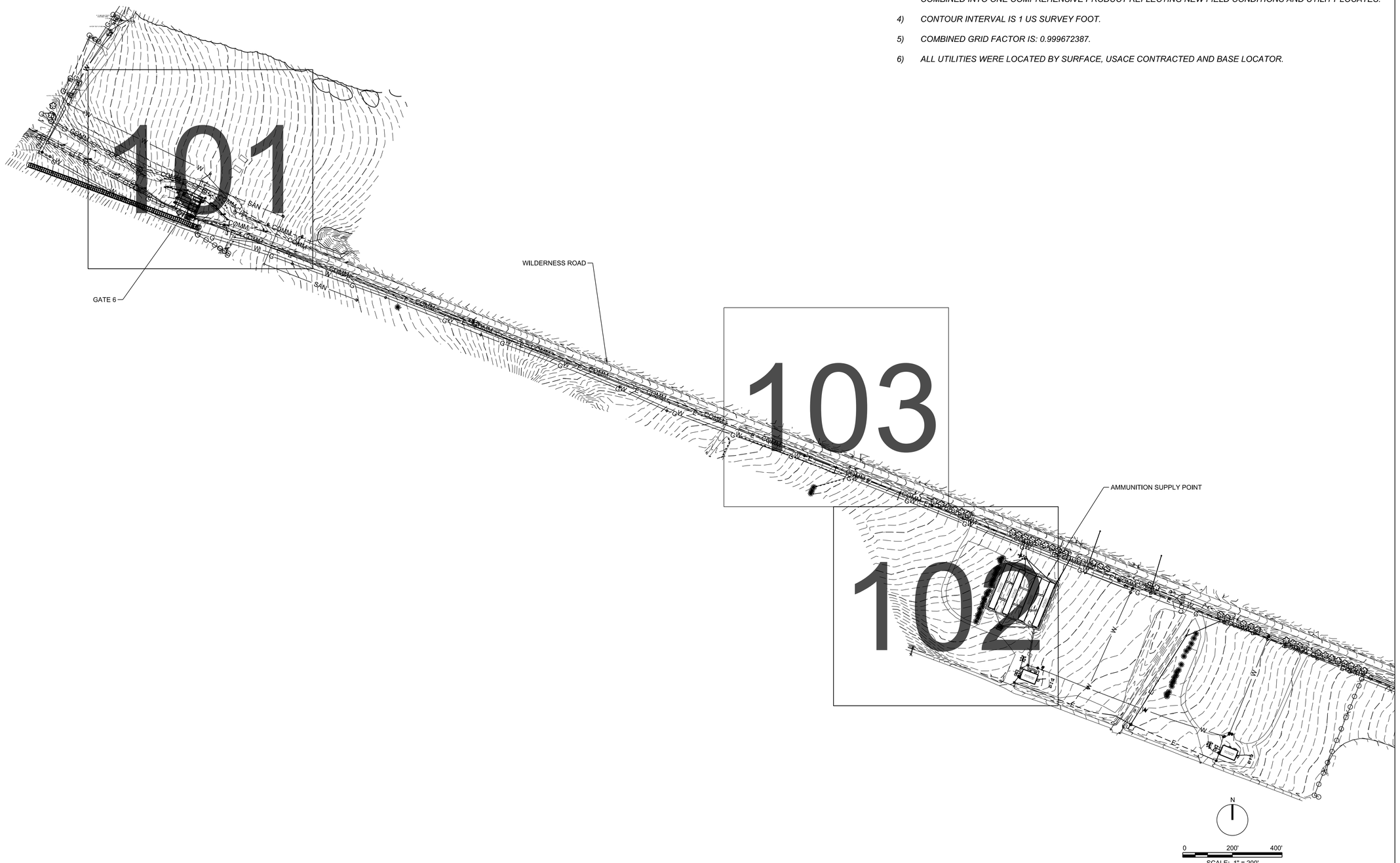
2) *ELEVATIONS ARE REFLECTED IN US SURVEY FEET AND REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). THEY ARE BASED ON CONTROL POINT FOUNTAIN.*

3) *TOPOGRAPHY IS DERIVED FROM GPS/RTK SURVEY METHODS. FIELD SURVEY DATES: MARCH 2019 AND JANUARY 2021. THE TWO SETS OF SURVEY DATA WERE COMBINED INTO ONE COMPREHENSIVE PRODUCT REFLECTING NEW FIELD CONDITIONS AND UTILITY LOCATES.*

4) *CONTOUR INTERVAL IS 1 US SURVEY FOOT.*

5) *COMBINED GRID FACTOR IS: 0.999672387.*

6) *ALL UTILITIES WERE LOCATED BY SURFACE, USACE CONTRACTED AND BASE LOCATOR.*



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MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
CHECKED BY:	W. C. DAVENPORT
SUBMITTED BY:	W. C. DAVENPORT
SIZE:	ANSI D
FILENAME:	FCDRVF100.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EXISTING CONDITIONS OVERVIEW

SHEET ID

VF100

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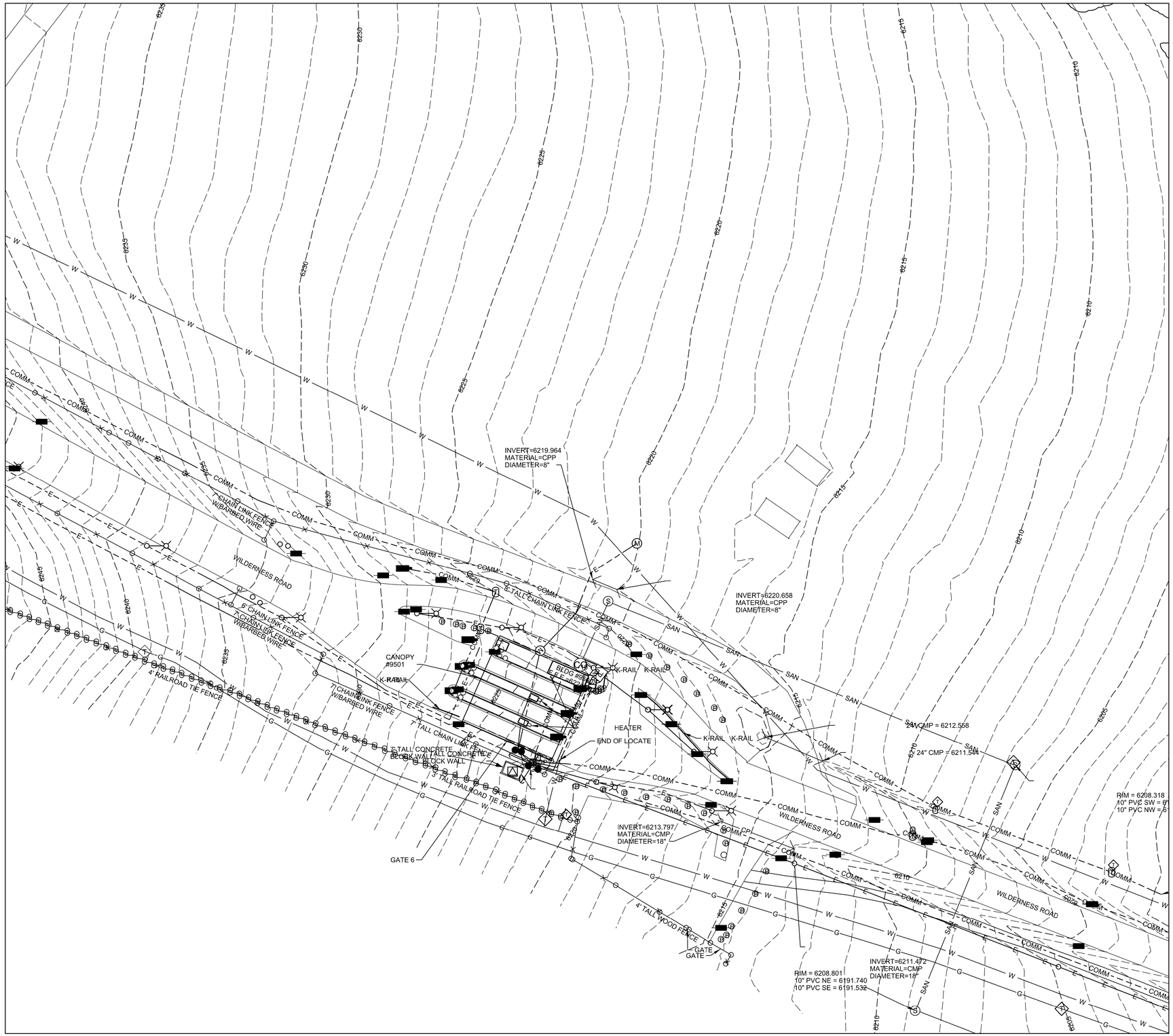

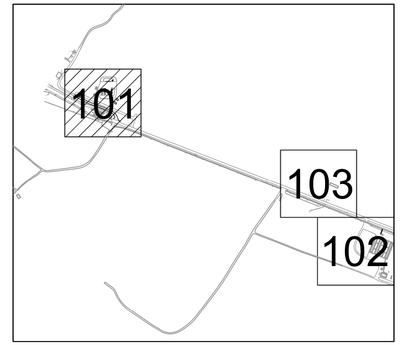

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. FOR SURVEY LEGEND, SEE SHEET G-005.

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W. C. DAVENPORT
SUBMITTED BY: W. C. DAVENPORT
SIZE: ANSI D
FILENAME: FCDRVF101.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EXISTING CONDITIONS
AREA 101

SHEET ID

VF101

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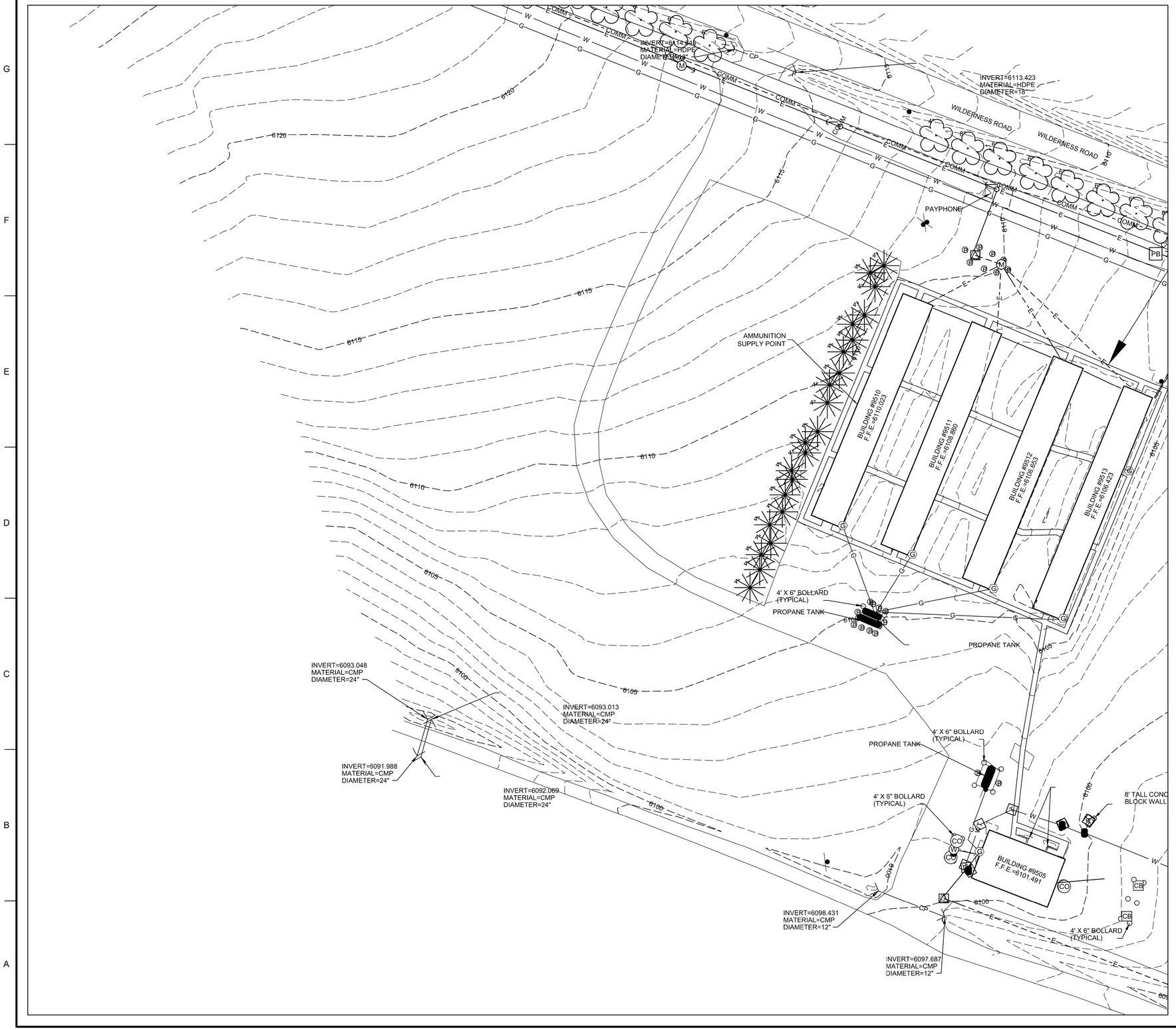

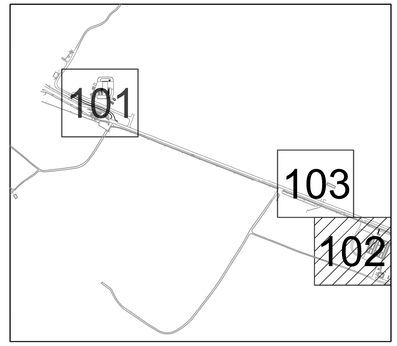

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. FOR SURVEY LEGEND, SEE SHEET G-005.

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
CHECKED BY:	W. C. DAVENPORT
SUBMITTED BY:	W. C. DAVENPORT
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ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILENAME:	FCDRVF102.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
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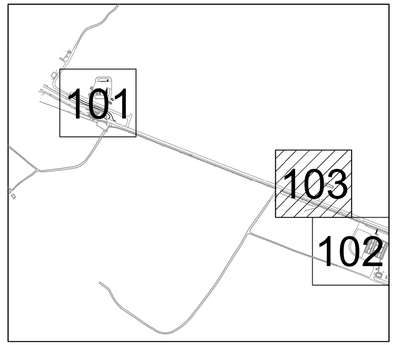
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EXISTING CONDITIONS AREA 102

SHEET ID

VF102



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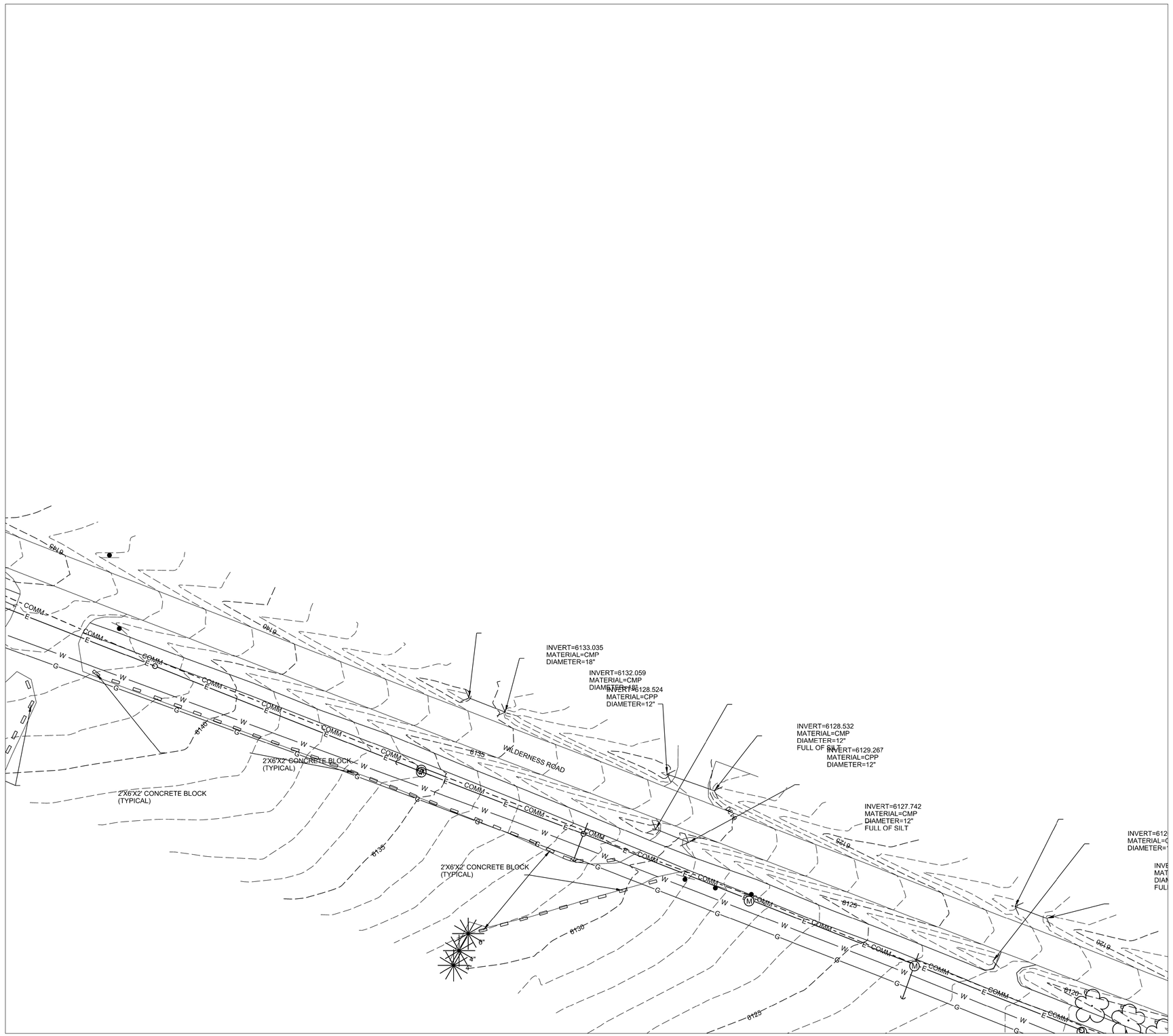
KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. FOR SURVEY LEGEND, SEE SHEET G-005.



N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILENAME:	FCDRVF103.dgn

DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
CHECKED BY:	W. C. DAVENPORT
SUBMITTED BY:	W. C. DAVENPORT
SIZE:	ANSI D

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FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EXISTING CONDITIONS
AREA 103

SHEET ID

VF103

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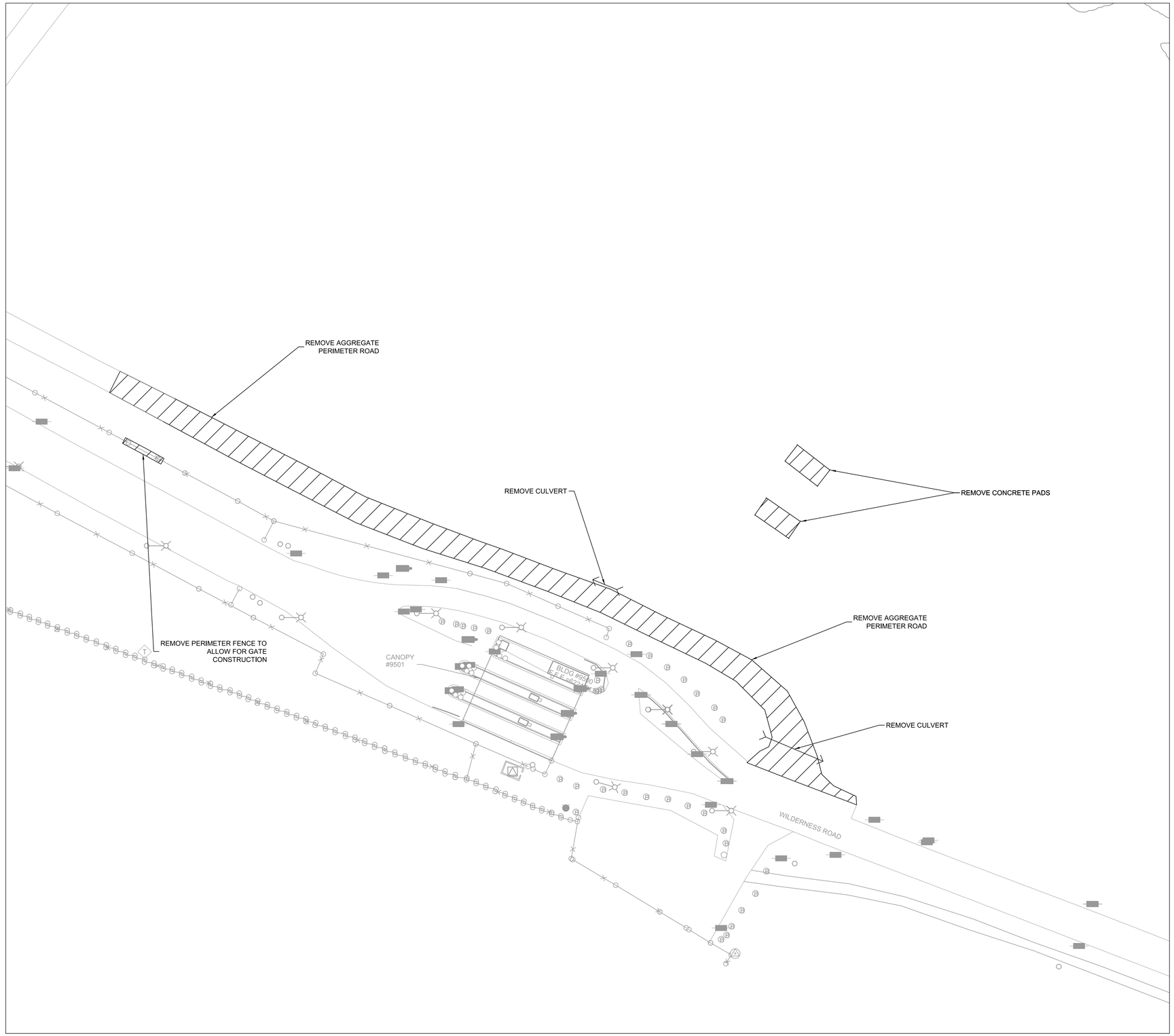

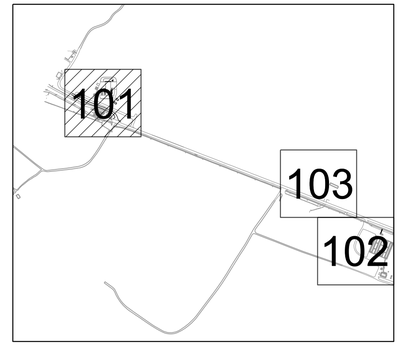

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KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. ALL REMOVED ITEMS NOT TO BE RELOCATED OR REUSED SHALL BE REMOVED FROM GOVERNMENT PROPERTY. STOCKPILING OF REMOVED MATERIALS WILL NOT BE PERMITTED ON GOVERNMENT PROPERTY.
2. CONTRACTOR SHALL COORDINATE LOCATION OF ANY OFFICE TRAILERS, PARKING AREAS, STAGING AREAS, AND LAYDOWN AREAS WITH THE CONTRACTING OFFICER REPRESENTATIVE.
3. UNLESS OTHERWISE INDICATED, UTILITIES, PAVEMENTS, LANDSCAPING, AND SITE FEATURES TO REMAIN SHALL NOT BE DISTURBED.
4. PAVEMENT REMOVAL INTERFACE WITH PAVEMENT TO REMAIN SHALL BE FACILITATED BY A FULL-DEPTH SAW CUT.

N

0 40' 80'

SCALE: 1" = 40'

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SOLICITATION NO.:	W9128F23R0016
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FILENAME:	FCDRCD101.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

DEMOLITION PLAN AREA 101

SHEET ID

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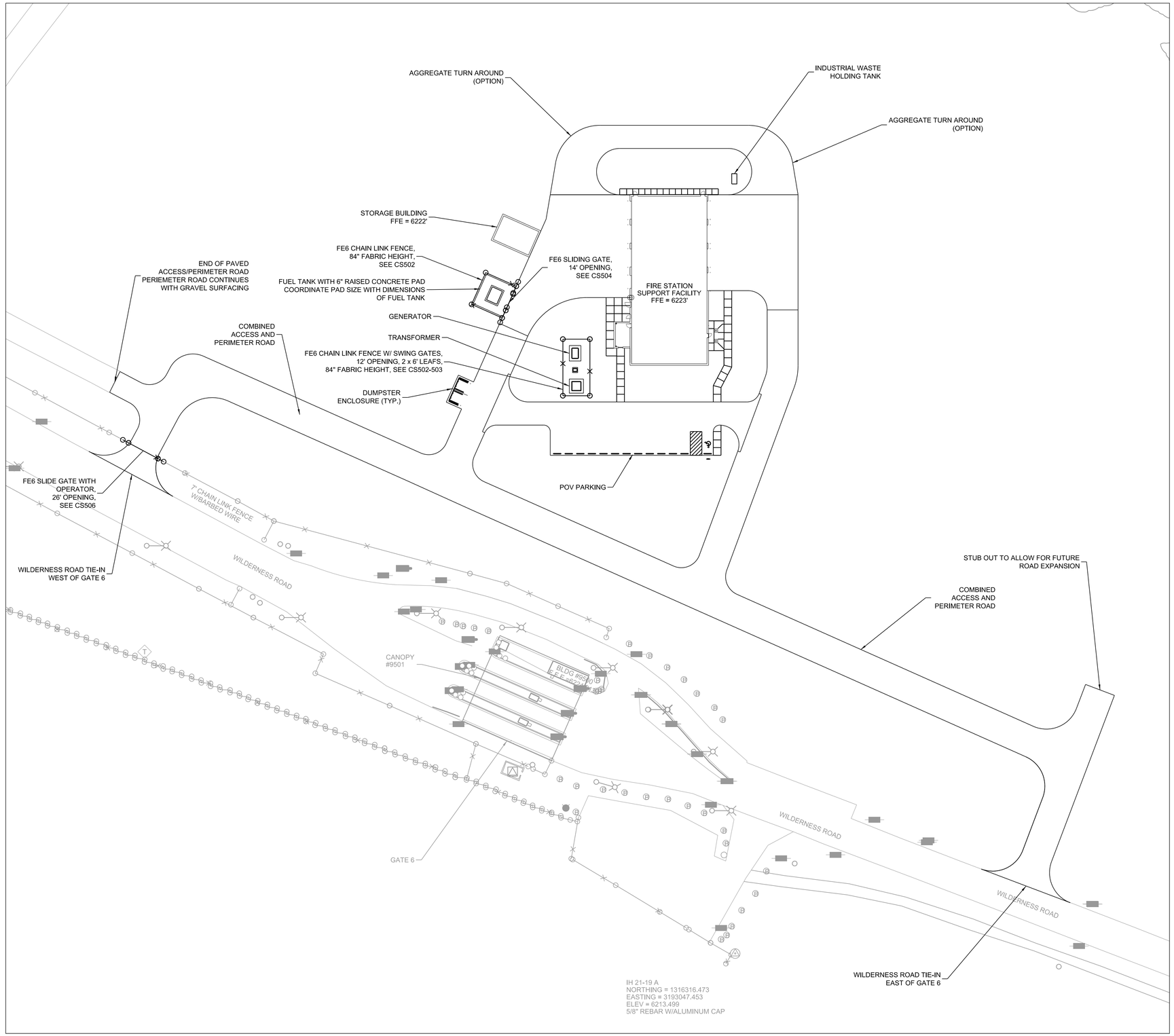

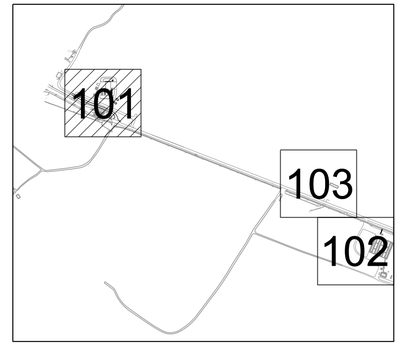

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KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE PAVING PLANS (CP SERIES) FOR PAVING TYPES AND AREAS.
2. SEE SHEET CS502 FOR FENCE DETAILS.
3. SEE SHEET CS503-CS504 FOR FENCE GATE DETAILS.

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	D. FECHNER
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CHECKED BY:	W. C. DAVENPORT
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SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILENAME:	FCDRCS101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

SITE PLAN AREA 101

SHEET ID

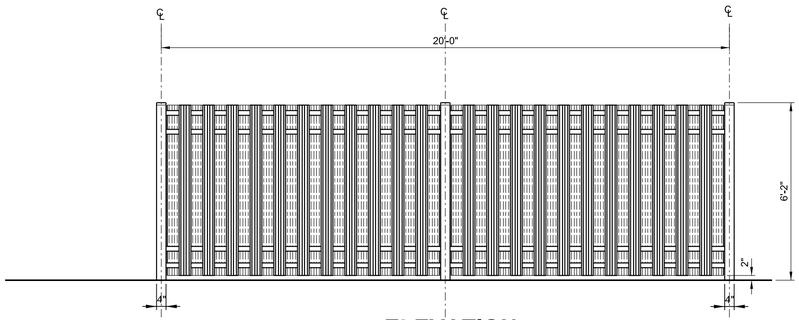
CS101

GENERAL NOTES:

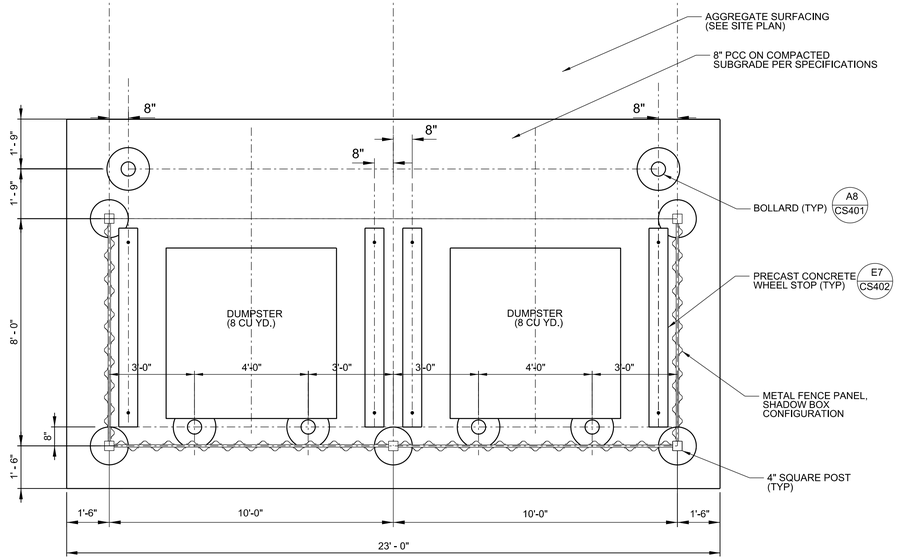
1. BASIS OF DESIGN IS A SCREEN WALL SYSTEM PROVIDED BY BASTEEL PERIMETER SYSTEMS OR APPROVED EQUAL.

2.SCREEN PANEL WALLS TO BE ROLLED FORMED PANEL IN "SHADOW BOX", ALTERNATING PATTERN, FINISH TO BE STANDARD G-90 GALVANIZED PANELS AND POSTS GALVANIZED TO ASTM F1043 TYPE B SPECIFICATIONS. PANELS, POSTS, RAILS AND HARDWARE SHALL BE POWDER COATED FINISHED COLOR : MATCH EXTERIOR METAL PANELING OF FIRE STATION, CONTRACTOR SHALL PROVIDE A SHOP DRAWING AND COLOR SAMPLE PRIOR TO ORDING FENCING MATERIALS.

3. SCREEN PANEL WALLS SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS, PROVIDE SHOP DRAWINGS PRIOR TO ANY PANEL INSTALLATION.

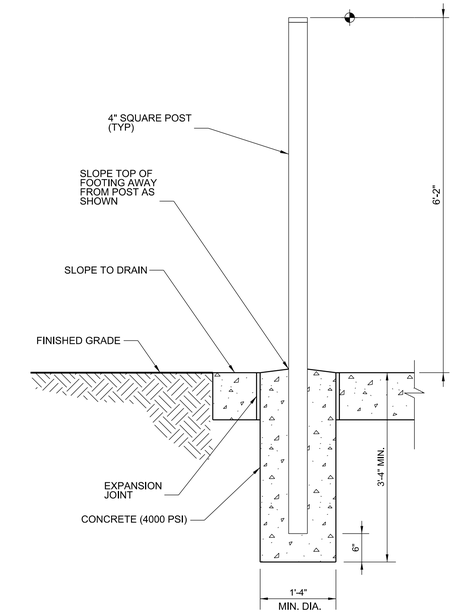


ELEVATION

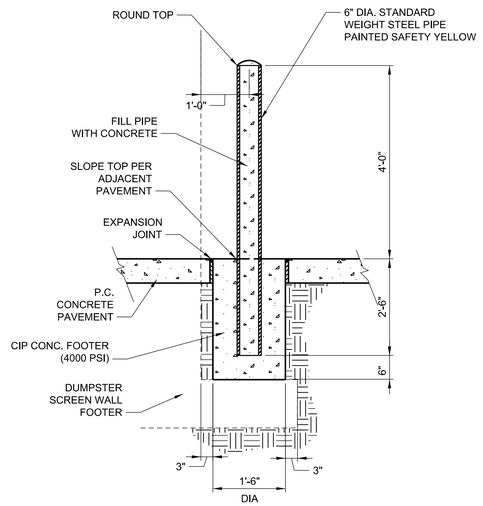


PLAN

A1 TRASH DUMPSTER SCREEN WALL
SCALE: NTS



E8 TRASH DUMPSTER SCREEN WALL - WALL SECTION
SCALE: NTS



NOTE:
STEEL PIPE FOR PIPE GUARDS SHALL CONFORM TO SECTION 05 50 13 MISCELLANEOUS METAL FABRICATIONS OF THE SPECIFICATIONS.

A8 PIPE BOLLARD DETAIL
SCALE: NTS

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MARK	DESCRIPTION	DATE

DESIGNED BY: D. FECHNER	ISSUE DATE: 01/20/2023
DRAWN BY: D. FECHNER	SOLICITATION NO.: W9128F23R0016
CHECKED BY: W.C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W.C. DAVENPORT	FILE NUMBER:
SIZE: ANSI D	FILENAME: FCDRCS401.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

DUMPSTER ENCLOSURE DETAILS

SHEET ID
CS401

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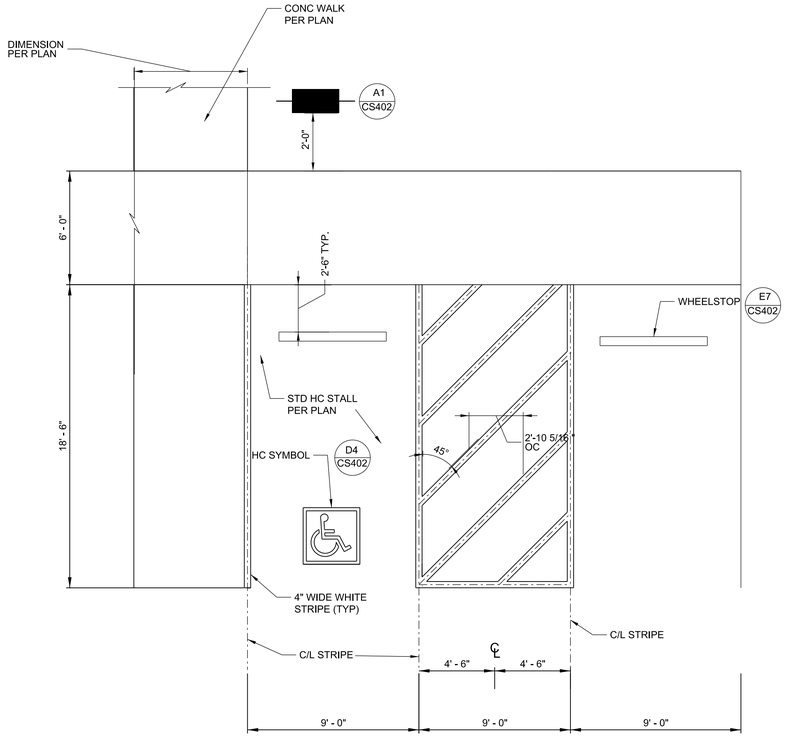
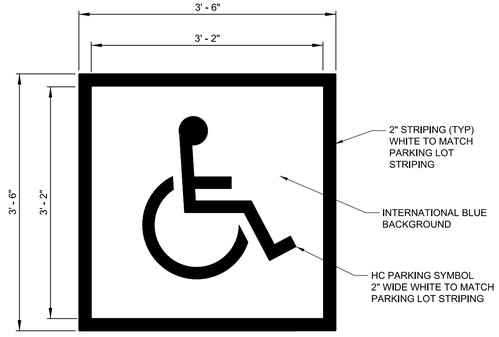


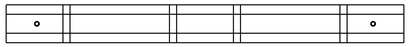
D1 ENLARGEMENT PLAN - HANDICAP PARKING STALL LAYOUT

SCALE: NTS

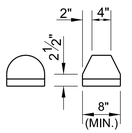


D4 ENLARGEMENT PLAN - HANDICAP PARKING SYMBOL

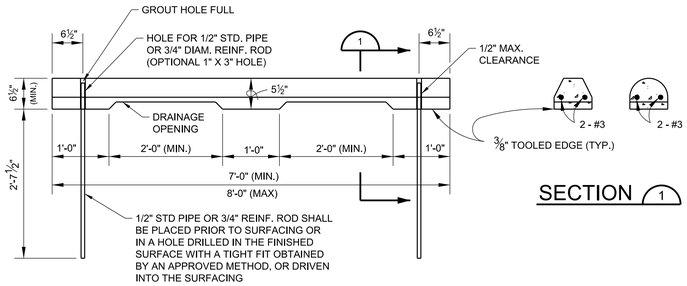
SCALE: NTS



PLAN



END VIEWS



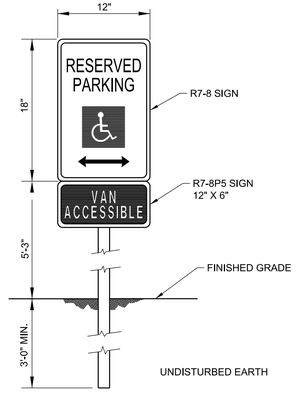
ELEVATION

SECTION 1

NOTE:
MINOR DEVIATIONS OF A MANUFACTURER'S STANDARD PRODUCT FROM THE CROSS SECTIONS, HOLES, AND DRAINAGE OPENINGS SHOWN ARE ACCEPTABLE.

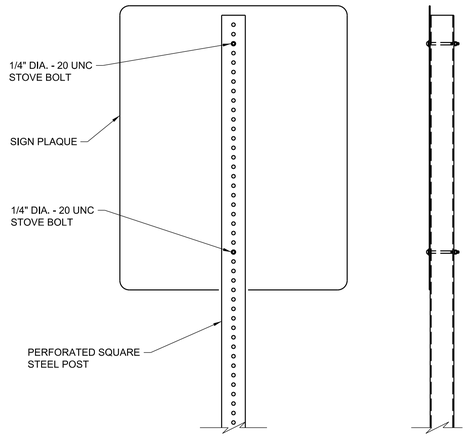
E7 PRECAST CONC. WHEEL STOP DETAIL

SCALE: NTS



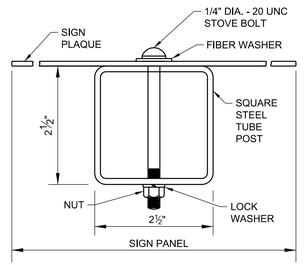
A1 HANDICAP PARKING SIGN DETAIL

SCALE: NTS



A4 SIGN PANEL ATTACHMENT DETAILS

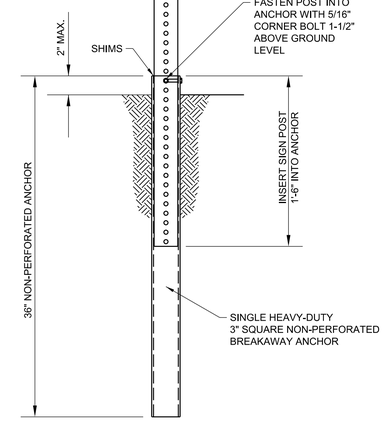
SCALE: NTS



B6 TYPICAL SQUARE TUBE POST SECTION

SCALE: NTS

NOTES:
1. SIGN PANELS SHALL BE SINGLE SHEET ALUMINUM, 0.080" MINIMUM THICKNESS.
2. SIGN PANELS SHALL BE FASTENED DIRECTLY TO THE POST. FASTEN TO SQUARE TUBE POSTS WITH TWO 1/4" DIA.-20 UNC STOVE BOLTS.
3. A FIBER WASHER SHALL BE PLACED BETWEEN THE BOLT HEAD AND THE FACE OF THE SIGN PANEL.
4. STEEL POSTS SHALL BE 12-GAUGE PERFORATED STEEL TUBING. HOLES SHALL BE APPROXIMATELY 7/16" DIAMETER SPACED APPROXIMATELY 1" ON CENTERS.



E4 SIGN POST ANCHOR DETAILS

SCALE: NTS

NOTES:
1. A MINIMUM OF 2 SHIMS ARE REQURED PER INSTALLATION TO FILL GAP BETWEEN SIGN POST AND ANCHOR.
2. INSERT BOLT HEAD FROM OPPOSITE SIDE OF EXPECTED IMPACT. INSERT DRIVE RIVET INTO OPPOSITE SIDE FOR ADDITIONAL STABILITY.

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SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCS402.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ACCESSIBLE PARKING DETAILS

SHEET ID
CS402

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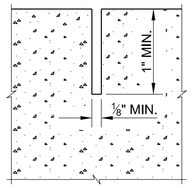
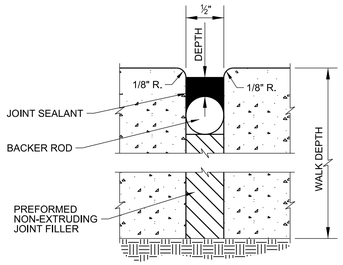


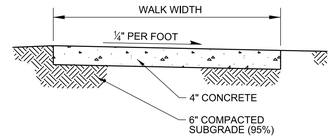
SAWED
CONTRACTION JOINT



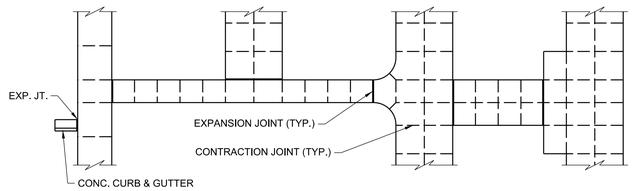
EXPANSION JOINT

NOTES:
1. DEPTH OF SEALANT SHALL BE AS RECOMMENDED BY THE MANUFACTURER.

D2 SIDEWALK JOINT DETAILS
SCALE: NTS



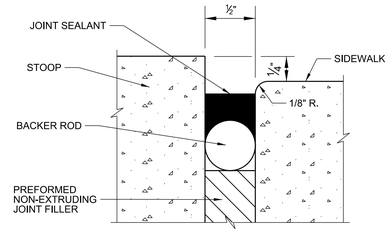
F5 CONCRETE WALK TYPICAL SECTION
SCALE: NTS



D5 TYPICAL SIDEWALK JOINT LAYOUT PLAN
SCALE: NTS

JOINT SPACING FOR STRAIGHT RUNS			
WALK WIDTH	CONTRACTION JOINT SPACING		EXPANSION JOINT SPACING
	TRANSVERSE	LONGITUDINAL	
4'	4'	NOT REQUIRED	40' MAX.
6'	6'	NOT REQUIRED	42' MAX.
8'	4'	4'	40' MAX.
10'	5'	5'	40' MAX.
12'	6'	6'	42' MAX.

NOTES:
1. TRANSVERSE EXPANSION JOINTS SHALL BE CONTINOUS THROUGH BOTH WALK AND CURB WHERE WALK ABUTS CONCRETE CURB AND GUTTER.
2. EXPANSION JOINTS SHALL NOT BE REQUIRED BETWEEN CURBS THAT ABUT THE SIDEWALK LONGITUDINALLY.



C9 SIDEWALK-STOOP INTERFACE DETAIL
SCALE: NTS

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FILENAME:	FCDRCS501.dgn

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OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
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PN101464 (FY23)

SIDEWALK DETAILS

SHEET ID

CS501

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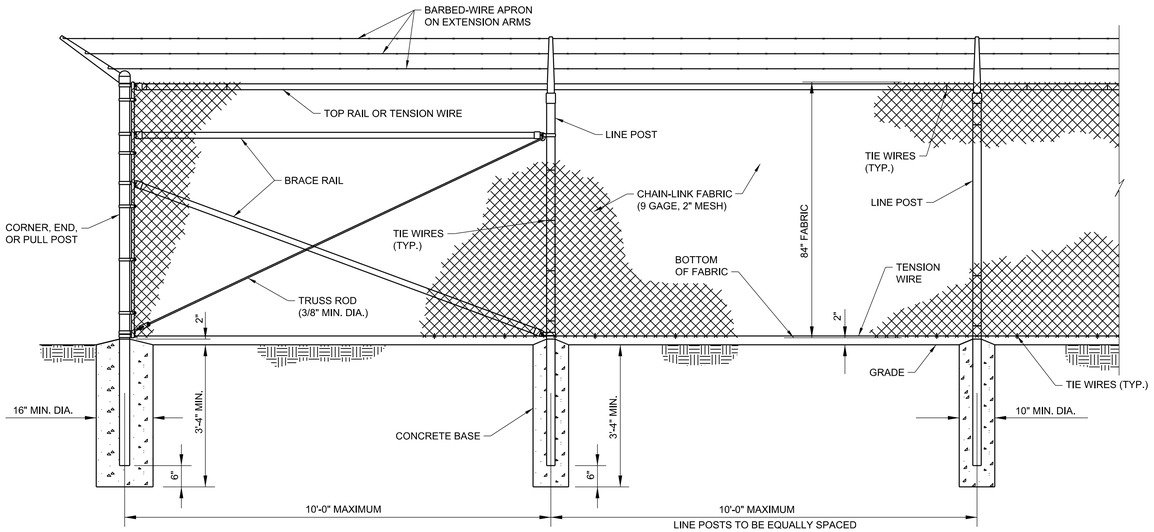
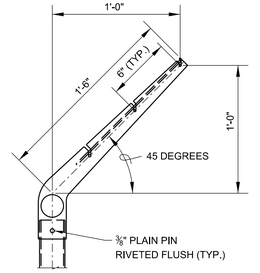
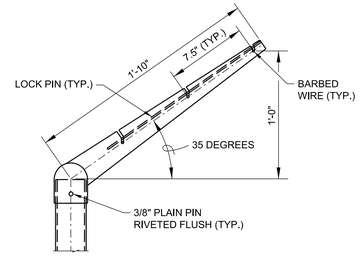


E2 FE6 CHAIN-LINK SECURITY FENCE DETAIL
SCALE: NTS

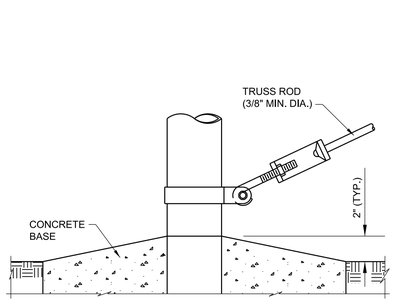


LINE POST

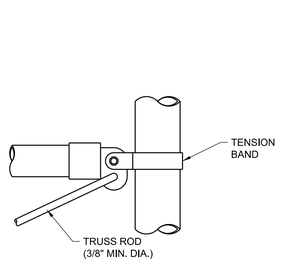


CORNER POST

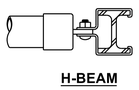
E7 EXTENSION ARM DETAILS
SCALE: NTS



TRUSS ROD AND BAND

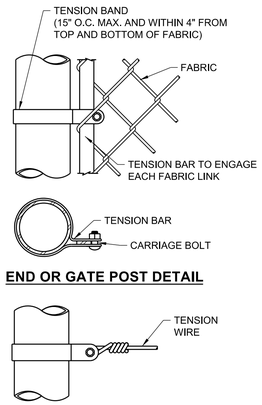


ROUND POST



H-BEAM

BRACE RAIL CLAMP DETAILS

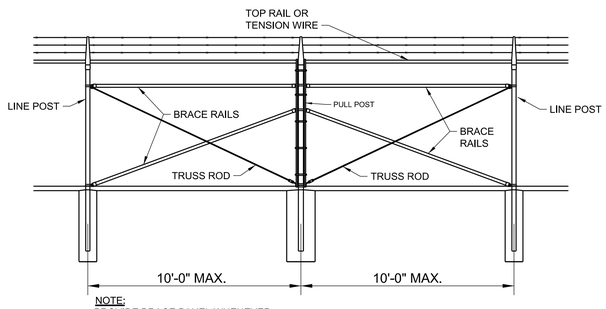


END OR GATE POST DETAIL

TENSION BAND DETAIL

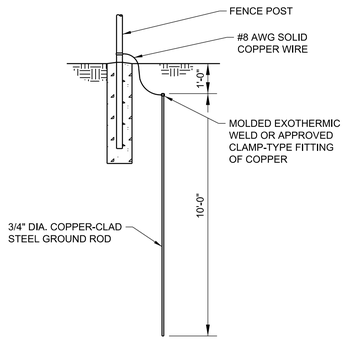
C1 FASTENING DETAILS
SCALE: NTS

STEEL POST SCHEDULE			
USE AND SECTION	MINIMUM OUTSIDE DIMENSIONS (NOMINAL)		
	FABRIC LESS THAN 72"	FABRIC 72" TO 96"	FABRIC OVER 96"
CORNER, END & PULL POSTS			
TUBULAR - ROUND	2.375" O.D.	2.875" O.D.	4.00" O.D.
TUBULAR - SQUARE	2.00" SQ.	2.50" SQ.	3.00" SQ.
C-SECTION (ROLL-FORMED)	3.50" x 3.50"	3.50" x 3.50"	———
LINE POSTS			
TUBULAR - ROUND	1.90" O.D.	2.375" O.D.	2.875" O.D.
H-SECTION	2.25" x 1.70"	2.25" x 1.70"	2.25" x 1.70"
C-SECTION (ROLL-FORMED)	1.875" x 1.625"	2.25" x 1.70"	———
TOP, BOTTOM & BRACE RAILS			
TUBULAR - ROUND	1.66" O.D.		
TUBULAR - SQUARE	1.50" O.D.		
H-SECTION	1.625" x 1.50"		
C-SECTION (ROLL-FORMED)	1.625" x 1.25"		

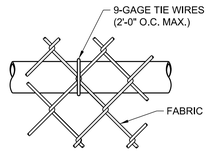


NOTE:
PROVIDE BRACE PANEL WHENEVER
STRAIGHT RUNS EXCEED 500 FEET.

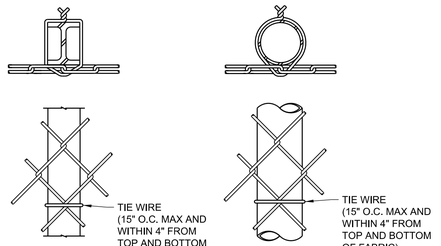
A1 BRACE PANEL DETAIL
SCALE: NTS



A4 GROUNDING DETAIL
SCALE: NTS



TOP OR BRACE RAIL ATTACHMENT



H-BEAM **ROUND POST**

A6 LINE POST ATTACHMENTS
SCALE: NTS

NOTES:
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT METHOD OF INSTALLATION TO ONE MANUFACTURER.
2. WIRE TIES, RAILS, POSTS, AND BRACES SHALL BE CONSTRUCTED ON THE SECURE SIDE OF THE FENCE ALIGNMENT. CHAIN-LINK FABRIC SHALL BE PLACED ON THE OPPOSITE SIDE OF THE SECURE AREA.
3. C-SECTION POSTS SHALL BE INSTALLED SO THAT THE VOID INSIDE THE POST IS COMPLETELY FILLED WITH CONCRETE UP TO THE TOP OF THE FOUNDATION.

FENCE LEGEND:
TYPE FE5 - CHAIN-LINK FENCE WITHOUT BARBED-WIRE APRON
TYPE FE6 - CHAIN-LINK FENCE W/BARBED-WIRE ON SINGLE OUTRIGGER
TYPE FE7 - CHAIN-LINK FENCE W/BARBED-WIRE ON DOUBLE OUTRIGGER
TYPE FE8 - CHAIN-LINK FENCE W/BARBED-WIRE AND BARBED-TAPE ON DOUBLE OUTRIGGER
TR - FENCE WITH TOP RAIL AND TENSION WIRE AT BOTTOM
TBR - FENCE WITH TOP AND BOTTOM RAILS
TWB - TENSION WIRE TOP AND BOTTOM
TWBR - FENCE WITH TOP TENSION WIRE AND BOTTOM RAIL
FINAL NUMBER IS FABRIC WIDTH IN INCHES

EXAMPLES:
FE6-TR-72 - CHAIN-LINK SECURITY FENCE WITH BARBED-WIRE ON SINGLE OUTRIGGER, TOP RAIL, AND 72 INCH FABRIC WIDTH.
FE5-TWB-48 - CHAIN-LINK SECURITY FENCE WITH NO APRON, TOP AND BOTTOM TENSION WIRE, AND 48 INCH FABRIC WIDTH.

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ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
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FILE NAME: FCDRCS502.dgn

U.S. ARMY CORPS OF ENGINEERS
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OMAHA, NE 68102

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FE6 CHAIN-LINK SECURITY FENCE DETAILS

SHEET ID
CS502

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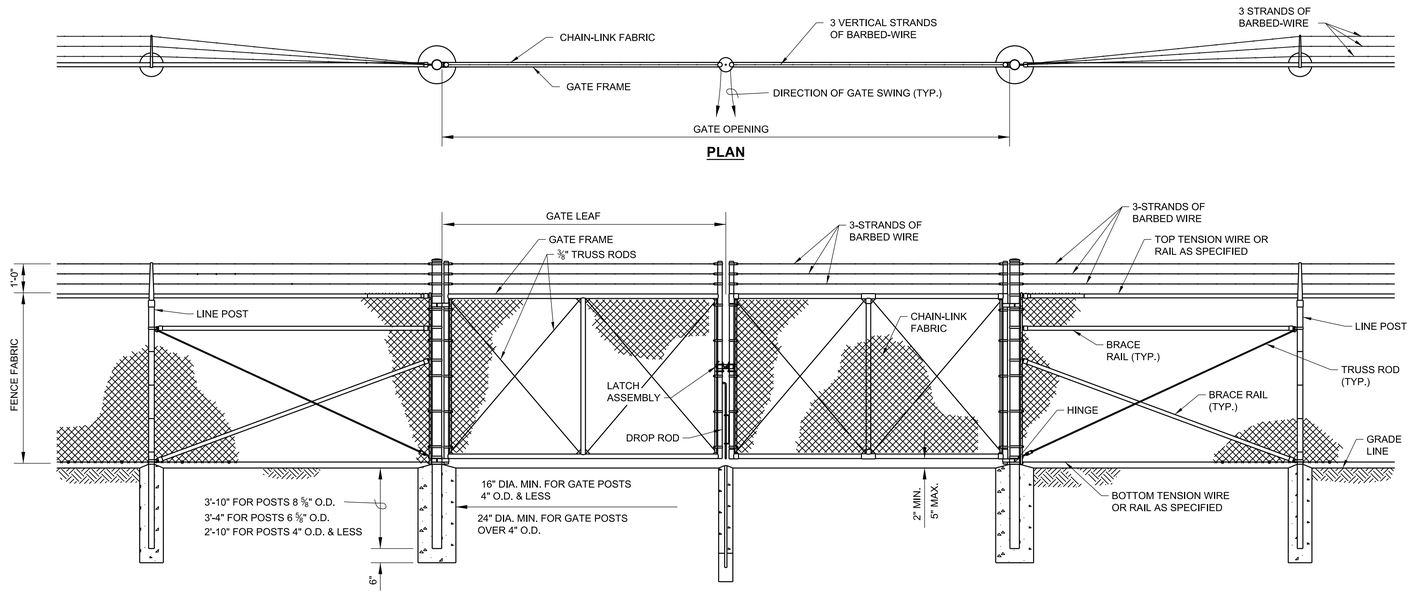
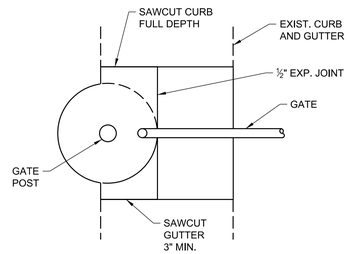
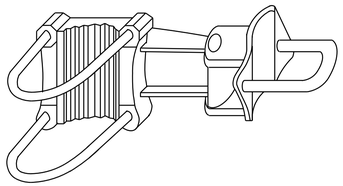


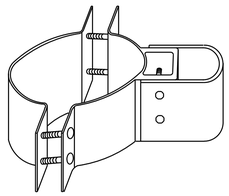
F5 DOUBLE SWING GATE (TYPE FE6 FENCE)
SCALE: NTS



PLAN

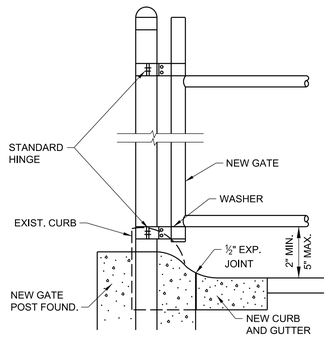


OFFSET HINGE

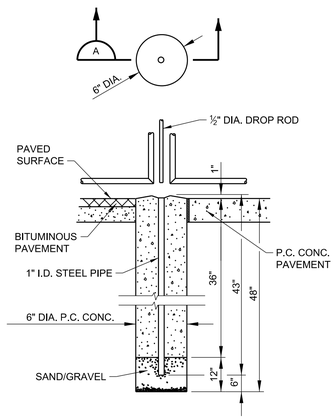


STANDARD HINGE

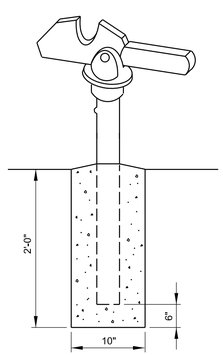
GATE POST SCHEDULE	
GATE LEAF WIDTH (NOMINAL)	OUTSIDE DIMENSION (NOMINAL)
6' OR LESS	2.875" O.D. 2.5" SQ.
MORE THAN 6' TO 13'	4.0" O.D.
MORE THAN 13' TO 18'	6.625" O.D.
MORE THAN 18'	8.625" O.D.



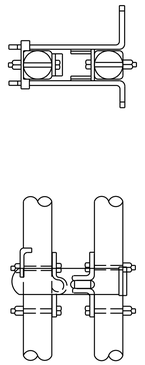
SECTION
GATE POST DETAIL
AT CURB AND GUTTER



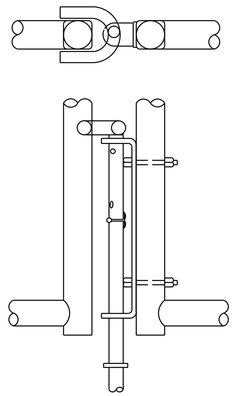
SECTION A
DROP ROD FOUNDATION



GATE KEEPER
(TO HOLD GATE OPEN)



LATCH ASSEMBLY



DROP ROD ASSEMBLY

NOTES:
1. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT METHOD OF INSTALLATION TO ONE MANUFACTURER.
2. SWING GATES SHALL BE CONSTRUCTED WITH DROP RODS, PADLOCKS, LATCH ASSEMBLY AND GATE KEEPERS EXCEPT AS NOTED.
3. ALL GATE FRAMES SHALL BE A MINIMUM OF 1.90" NOMINAL (ROUND) OR 2.00" NOMINAL (SQUARE). GATE FRAMES SHALL BE WELDED CONSTRUCTION OR SHALL BE ASSEMBLED USING HEAVY FITTINGS. AT CONSTRACTOR'S OPTION, A WELDED HORIZONTAL BRACE MAY BE USED IN LIEU OF TRUSS RODS TO BRACE ALL WELDED GATE FRAMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER RIGID CONSTRUCTION OF ALL GATES SUPPLIED.
4. GATES SHALL BE DESIGNATED AS FOLLOWS:
   FENCE TYPE - FE5, FE6, ETC.
   FENCE HEIGHT - INCHES
   TYPE OPENING - SO (SINGLE)
   - DO (DOUBLE)
   HINGE - RA (STANDARD)
   - HO (OFFSET)
   OPENING - FEET (CLEAR OPENING BETWEEN GATE POSTS)
   EXAMPLES: FE6-84-DO-RA-24
   FE5-48-SO-HD-6

F5 SWING GATE DETAILS
SCALE: NTS

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
SUBMITTED BY: W.C. DAVENPORT
SIZE: ANSI D
FILENAME: FCDRCS503.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

FE6 CHAIN-LINK SECURITY FENCE DETAILS

SHEET ID
CS503

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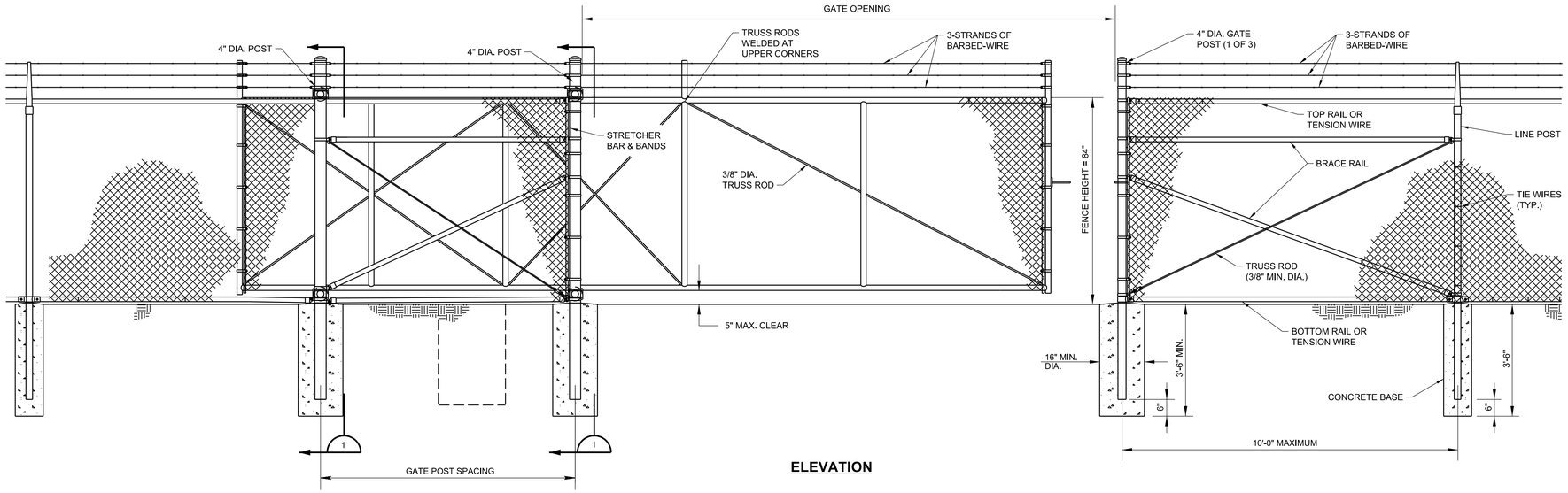

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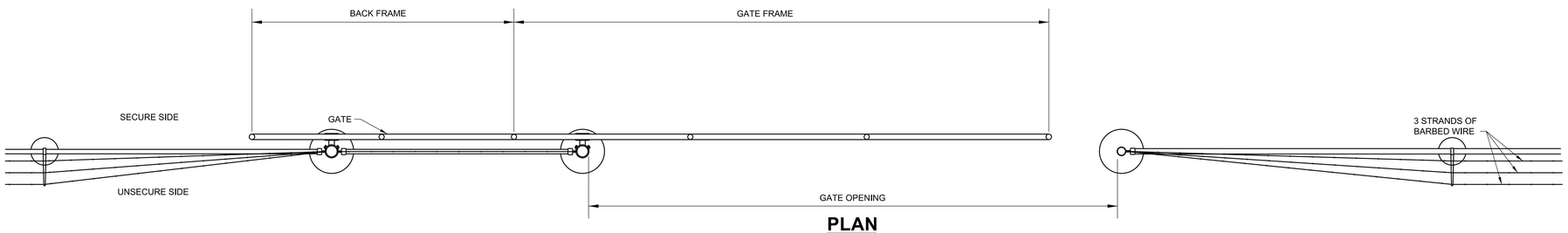
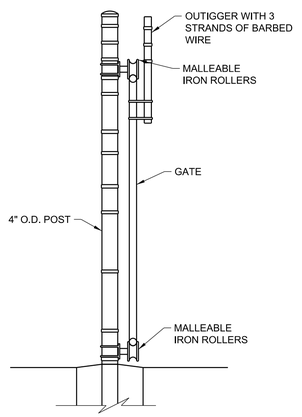


PLAN

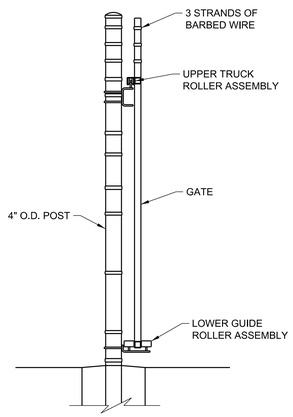
F5 SLIDE GATE DETAILS

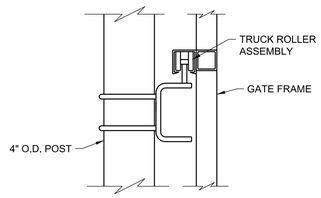
SCALE: NTS



PLAN

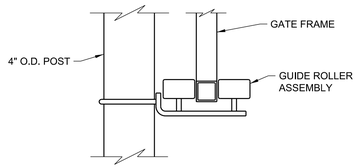
SECTION 1





UPPER TRUCK ROLLER ASSEMBLY

NO SCALE



LOWER GUIDE ROLLER ASSEMBLY

NO SCALE

NOTES:

1. CANTILEVERED SLIDE GATES SHALL CONFORM TO ASTM F1184.
2. GATE FRAMES SHALL BE EITHER ZINC-COATED STEEL OR ALUMINUM ALLOY.
3. ROLLERS SHALL BE EITHER INTERNAL OR EXTERNAL.
4. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF GATE SECTIONS AND METHODS OF INSTALLATION.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
D. FECHNER	01/20/2023
DRAWN BY:	SOLICITATION NO.:
D. FECHNER	W9128F23R0016
CHECKED BY:	CONTRACT NO.:
W.C. DAVENPORT	
SUBMITTED BY:	FILE NUMBER:
W.C. DAVENPORT	
SIZE: FILENAME:	
ANSI D	FCDRCS504.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

FE6 CHAIN-LINK SECURITY FENCE DETAILS

SHEET ID

CS504

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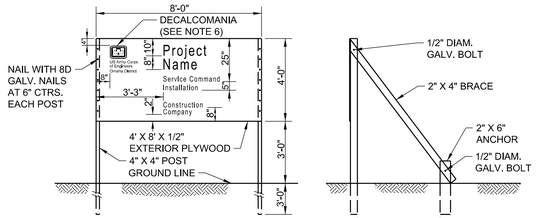
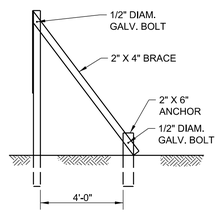


FRONT VIEW



END VIEW

NOTES:

1. POSTS SHALL BE S4S.
2. PLYWOOD SHALL BE EXTERIOR TYPE, A-C GRADE.
3. BEFORE PAINTING, SURFACE SHALL BE CLEAN, DRY, FREE OF GREASE AND SANDED.
4. PAINT WITH ONE EXTERIOR OIL PRIME COAT AND EXTERIOR TYPE ALKYD, CONFORMING TO MASTER PAINTERS INSTITUTE MPI-9, MPI GLOSS LEVEL 6. COLOR SHALL MATCH BENJAMIN MOORE 1559 ARTIC SHADOWS.
5. PROJECT NAME LETTERS SHALL BE 6" HIGH. ALL OTHER LETTERS SHALL BE 3" HIGH. ALL LETTERING SHALL BE WHITE ENAMEL ON GREY BACKGROUND.
6. DECALOMANIA FOR CORPS OF ENGINEERS INSIGNIA WILL BE FURNISHED BY THE CONTRACTOR
7. LETTERING STYLE SHALL BE EITHER HELIOS EXTRA BOLD CONDENSED, HELIOS BOLD II, HELVETICA BLACK ROMAN, OR HELVETICA BOLD ROMAN.

U.S. ARMY INSTALLATION PROJECT SIGN DETAILS

NO SCALE

US Army Corps of Engineers®

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SIZE:	FILENAME:
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U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

MISC. SITE DETAILS

SHEET ID

CS505

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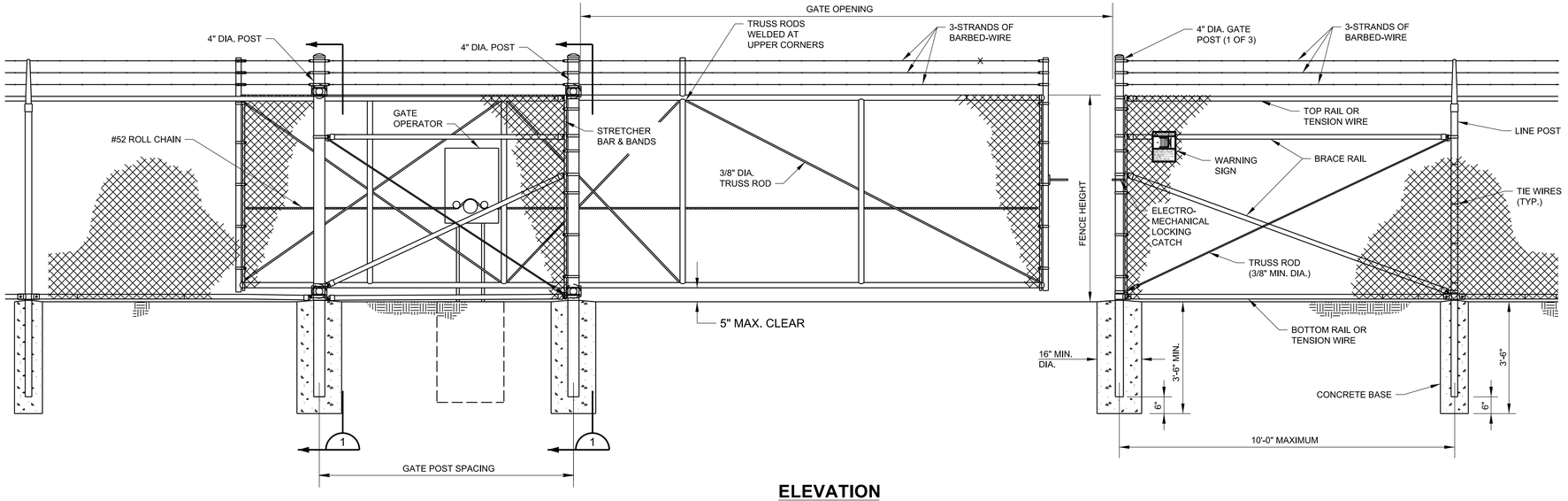

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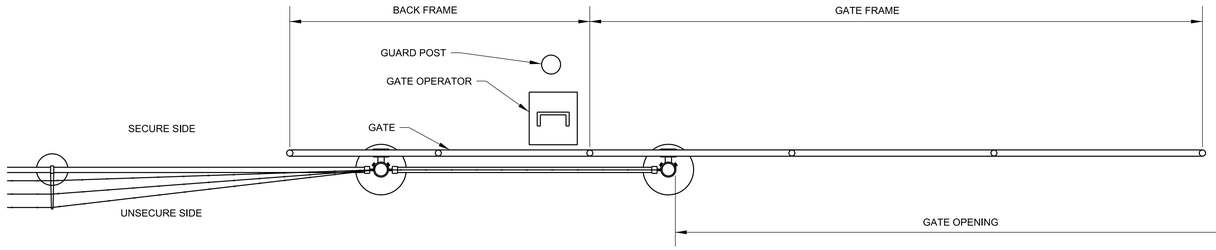

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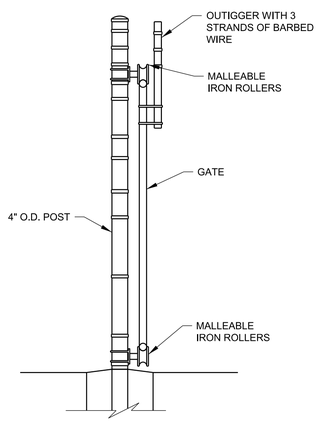
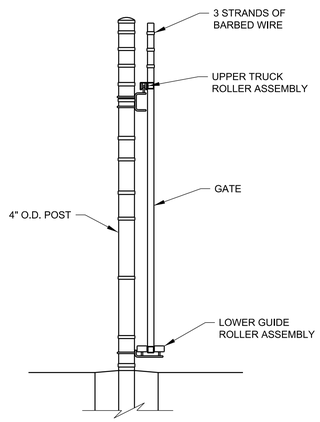
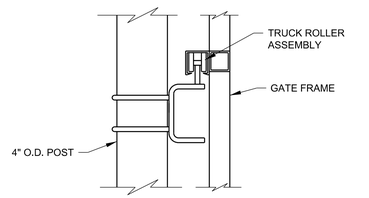
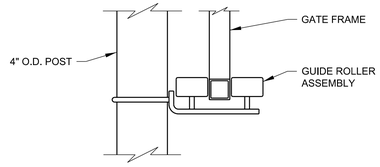




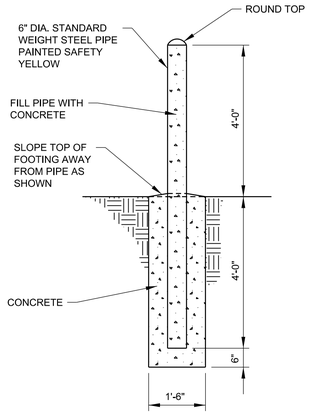
PLAN
SECTION 1



UPPER TRUCK ROLLER ASSEMBLY
NO SCALE



LOWER GUIDE ROLLER ASSEMBLY
NO SCALE



PIPE GUARD DETAIL
NO SCALE

WARNING SIGN DETAIL
NO SCALE

NOTES:
1. CANTILEVERED SLIDE GATES SHALL CONFORM TO ASTM F1184.
2. GATE FRAMES SHALL BE EITHER ZINC-COATED STEEL OR ALUMINUM ALLOY.
3. ROLLERS SHALL BE EITHER INTERNAL OR EXTERNAL.
4. DETAILS SHOWN ARE TO CLARIFY REQUIREMENTS AND ARE NOT INTENDED TO LIMIT OTHER TYPES OF GATE SECTIONS AND METHODS OF INSTALLATION.
5. WARNING SIGNS SHOWN SHALL BE INSTALLED ON EACH SIDE OF FENCE FABRIC.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
SUBMITTED BY: W.C. DAVENPORT
SIZE: ANSI D
FILE NAME: FCDRCS506.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

FE6 SLIDE GATE WITH OPERATOR DETAILS

SHEET ID
CS506

...\FC\FCDR\40000 Design Products\CAD_BIM_Sheets\FCDRCS506
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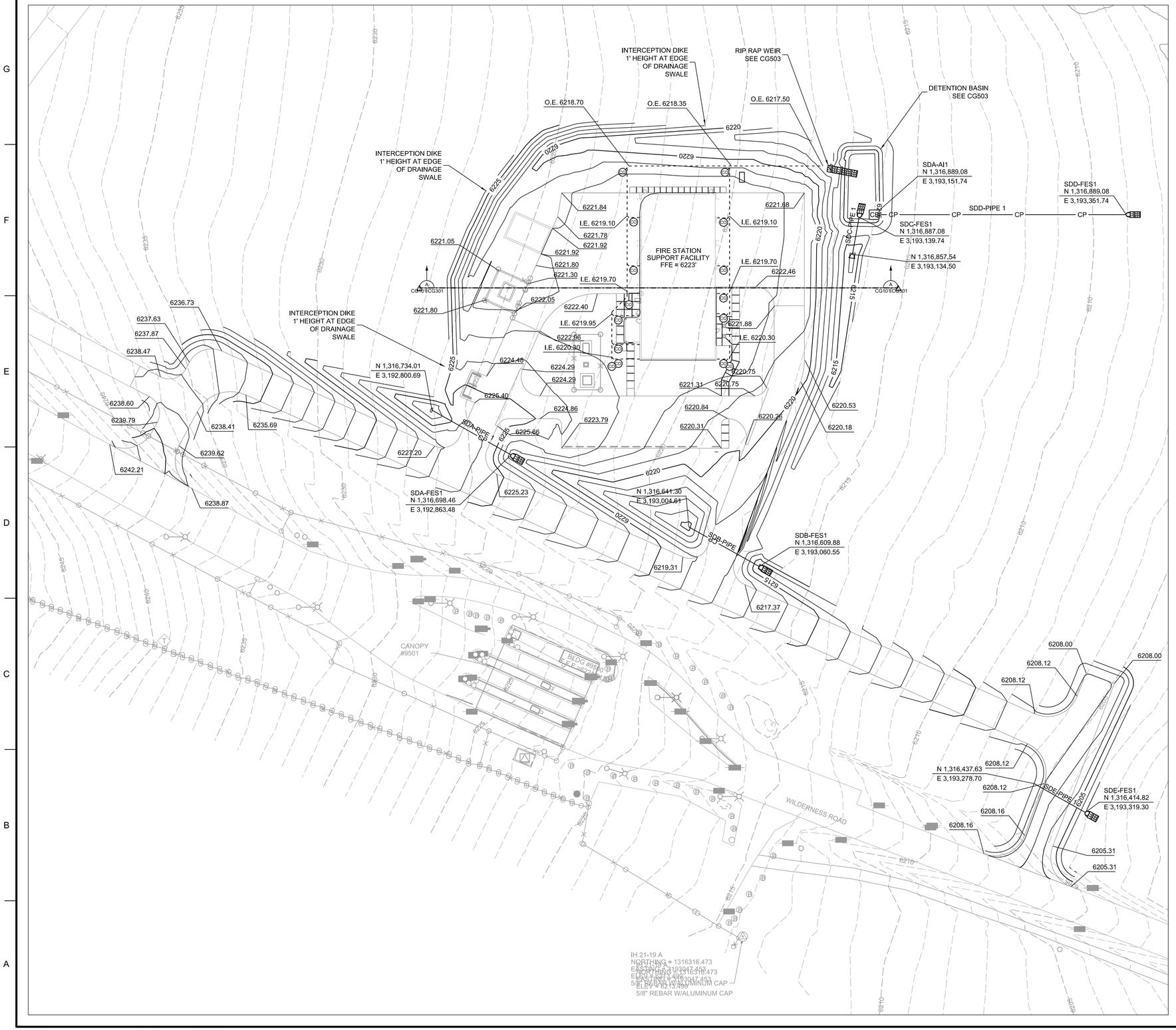

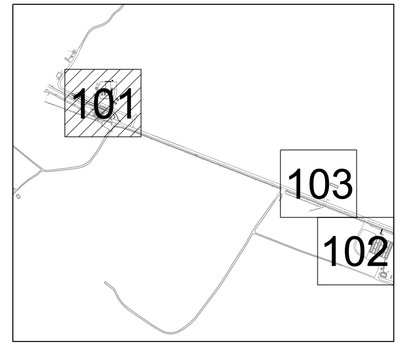

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE CG201 - CG202 FOR STORM DRAIN PROFILES
2. SEE CG501 - CG506 FOR STORM AND DETENTION BASIN DETAILS.
3. SEE CG507 FOR ROOF DRAIN DETAILS
4. ALL FLARED END SECTIONS (FES) SHALL BE REINFORCED CONCRETE WITH SCOUR PADS TO DIMENSIONS SHOWN ON CP502.
5. OVER EXCAVATION OF EXISTING SOILS WILL BE REQUIRED BENEATH BUILDING FOUNDATION. SEE STRUCTURAL SHEET S-001 FOR DETAILS.
6. COBBLES ARE EXPECTED TO BE ENCOUNTERED IN EXCAVATION AT DEPTHS NEAR THE SURFACE TO 12' DEEP (AND BELOW). COBBLE CONTENT OF EXISTING SOILS IN NEARBY PROJECT AREAS RANGE UP TO APPROXIMATELY 30% BY VOLUME.

LEGEND

- EXISTING MAJOR CONTOUR (6385)
- EXISTING MINOR CONTOUR
- NEW MAJOR CONTOUR (6385)
- NEW MINOR CONTOUR
- SPOT ELEVATION (6385.00)
- STORM DRAIN PIPE (CP)
- ROOF DRAIN LINE
- STORM DRAIN MANHOLE (D)
- TYPE "A" STORM DRAIN INLET (CB)
- FLARED END SECTION (FES)
- RIP RAP WEIR / SCOUR HOLE
- ROOF DRAIN LINE CLEAN OUT (CO)

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W. C. DAVENPORT
SUBMITTED BY: W. C. DAVENPORT
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCG101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

GRADING PLAN
AREA 101

SHEET ID

CG101

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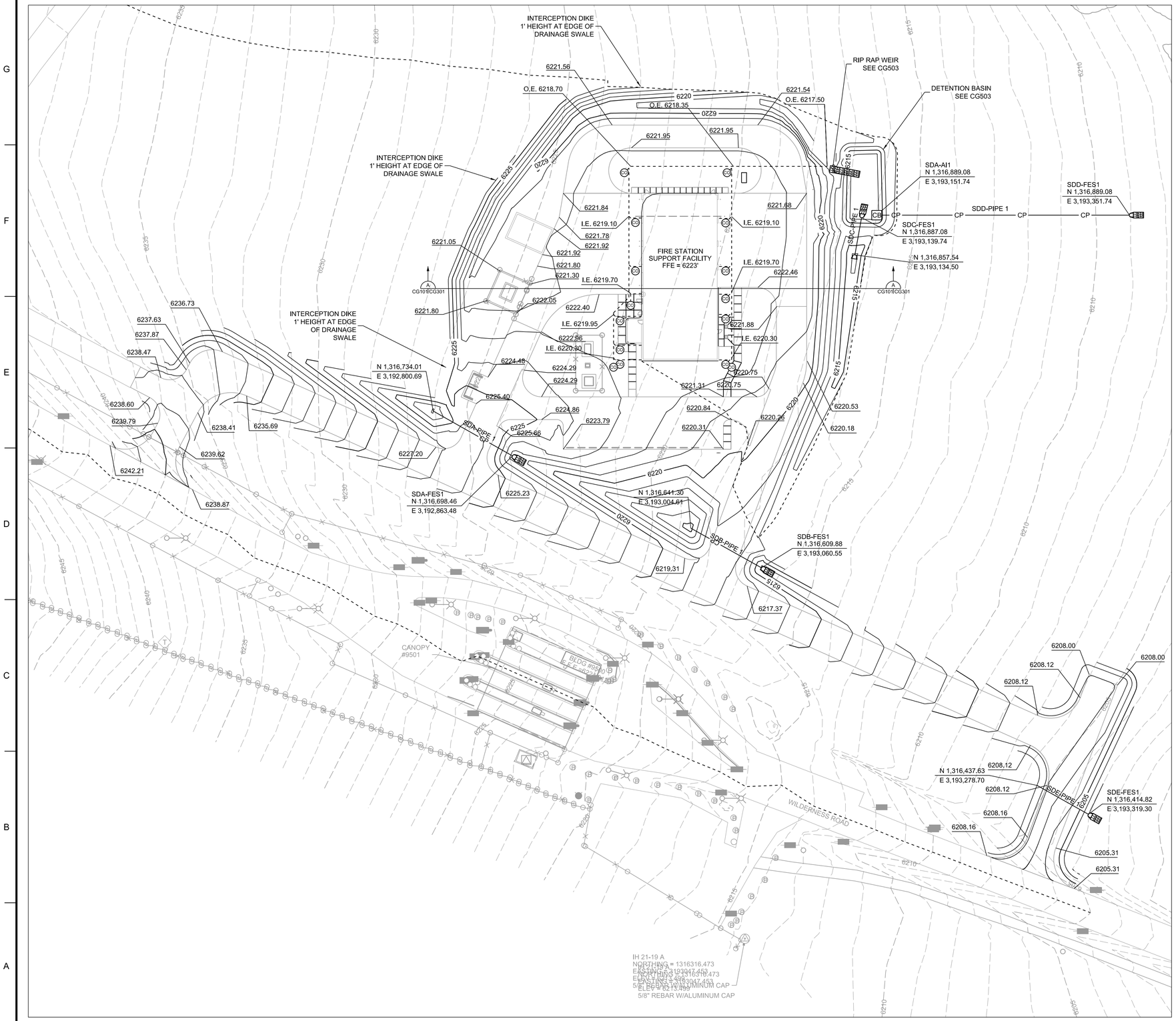

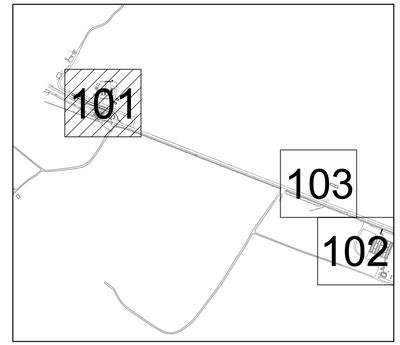

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE CG201 - CG202 FOR STORM DRAIN PROFILES
2. SEE CG501 - CG506 FOR STORM AND DETENTION BASIN DETAILS.
3. SEE CG507 FOR ROOF DRAIN DETAILS
4. ALL FLARED END SECTIONS (FES) SHALL BE REINFORCED CONCRETE WITH SCOUR PADS TO DIMENSIONS SHOWN ON CP502.
5. OVER EXCAVATION OF EXISTING SOILS WILL BE REQUIRED BENEATH BUILDING FOUNDATION. SEE STRUCTURAL SHEET S-001 FOR DETAILS.
6. COBBLES ARE EXPECTED TO BE ENCOUNTERED IN EXCAVATION AT DEPTHS NEAR THE SURFACE TO 12' DEEP (AND BELOW). COBBLE CONTENT OF EXISTING SOILS IN NEARBY PROJECT AREAS RANGE UP TO APPROXIMATELY 30% BY VOLUME.

LEGEND

- 6385 — EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- 6385 — NEW MAJOR CONTOUR
- NEW MINOR CONTOUR
- 6385.00 — SPOT ELEVATION
- CP — STORM DRAIN PIPE
- ROOF DRAIN LINE
- (D) — STORM DRAIN MANHOLE
- CB — TYPE "A" STORM DRAIN INLET
- FLARED END SECTION (FES)
- RIP RAP WEIR / SCOUR HOLE
- CO — ROOF DRAIN LINE CLEAN OUT

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

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D. FECHNER	01/20/2023
DRAWN BY:	SOLICITATION NO.:
D. FECHNER	W9128F23R0016
CHECKED BY:	CONTRACT NO.:
W. C. DAVENPORT	
SUBMITTED BY:	FILE NUMBER:
W. C. DAVENPORT	
SIZE: FILENAME:	
ANSI D FCDRCG101A.dgn	

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

GRADING PLAN
AREA 101
TURN AROUND OPTION

SHEET ID

CG101A

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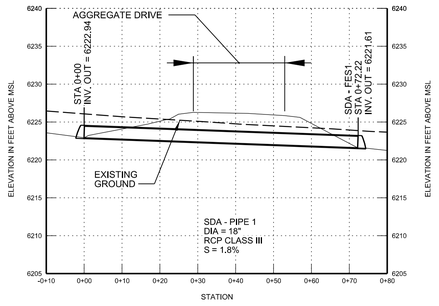
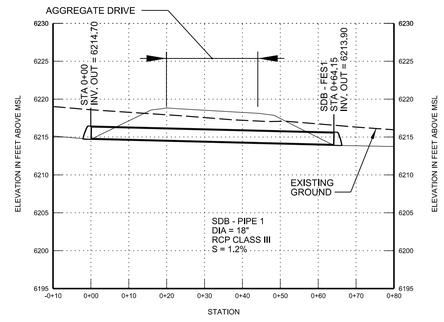


SD **STORM DRAIN A - PIPE 1**



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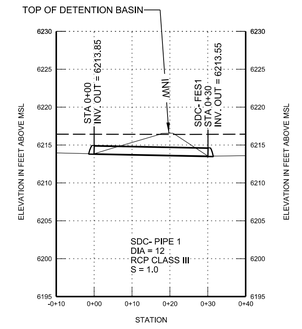

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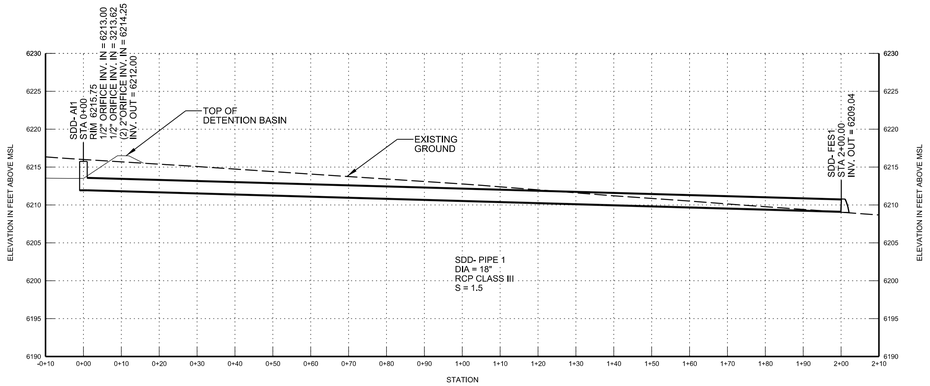

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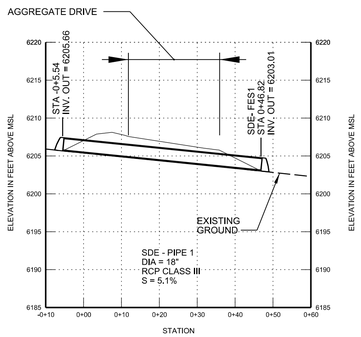

SD **STORM DRAIN E - PIPE 1**

0 5' 10'
VERTICAL SCALE: 1" = 5'-0"
0 10' 20'
HORIZONTAL SCALE: 1" = 10'-0"

US Army Corps of Engineers®

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DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
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SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCG201.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

STORM DRAIN PROFILES

SHEET ID
CG201

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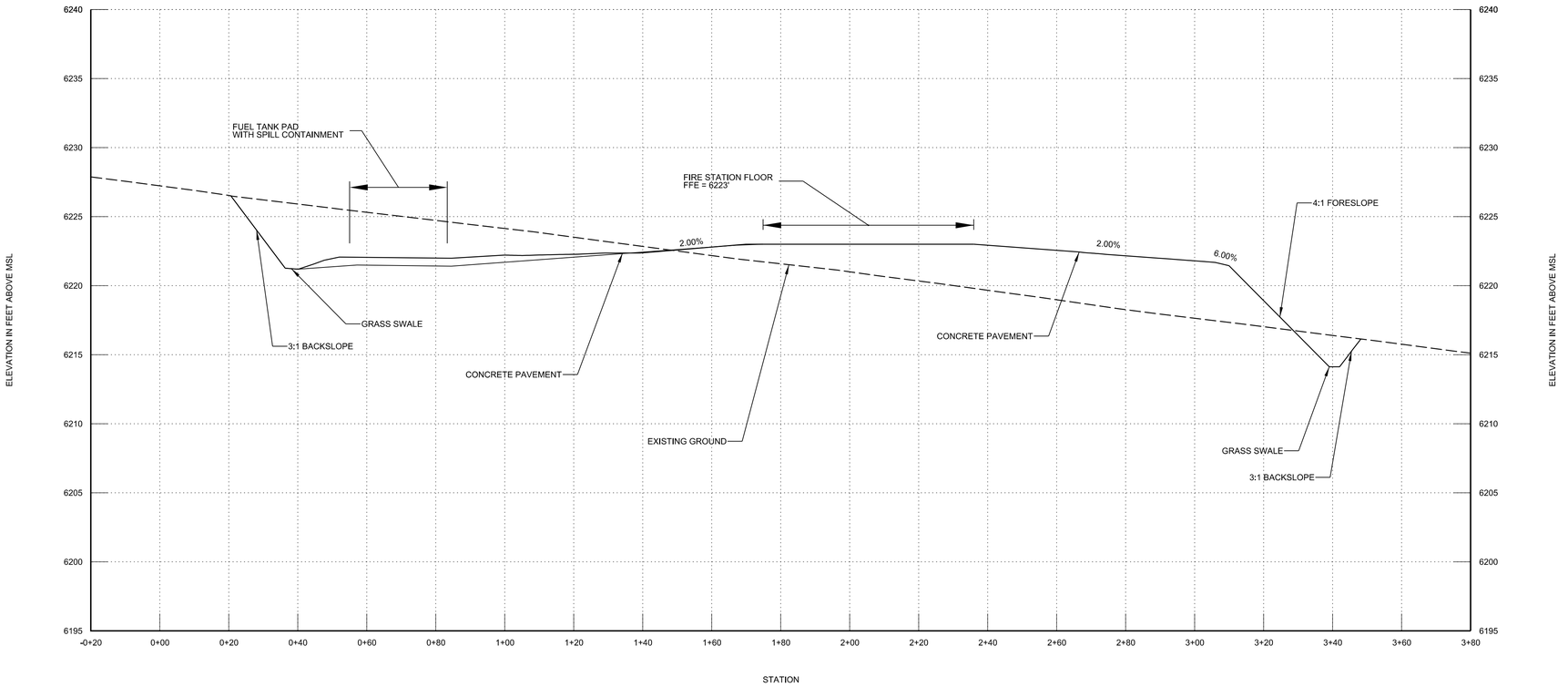

SECTION A
CG101 CG301

0 5' 10'
VERTICAL SCALE: 1" = 5'-0"
0 20' 40'
HORIZONTAL SCALE: 1" = 20'-0"

US Army Corps of Engineers®

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DESIGNED BY: D. FECHNER	ISSUE DATE: 01/20/2023
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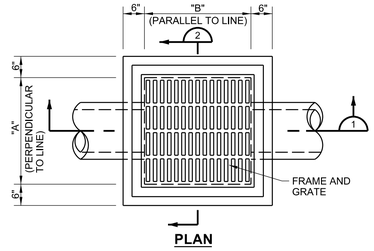
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

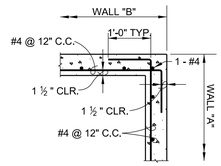
SITE CROSS SECTIONS

SHEET ID

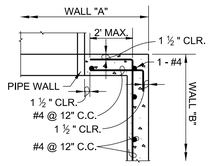
CG301



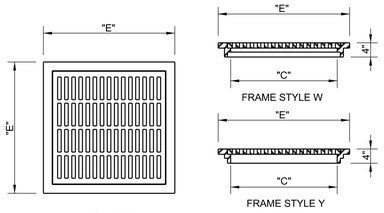
PLAN



TYPICAL ABOVE PIPES
SECTION 3



TYPICAL AT PIPES
SECTION 4

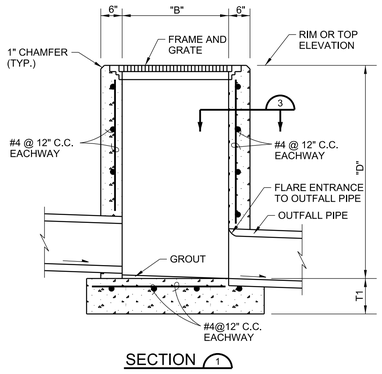


FRAME AND GRATE DETAILS

NO SCALE

CAST IRON FRAME AND GRATE						
DIMENSIONS				FRAME STYLE	MINIMUM WEIGHT OF FRAME AND GRATE	MINIMUM GRATE WATERWAY OPENING
A	B	C	E			
24"	24"	22"	28"	W	300 LBS	1.8 SF
30"	30"	30"	37"	Y	450 LBS	2.5 SF
37½"	37½"	36"	42"	W	665 LBS	3.0 SF

STRUCTURE SCHEDULE			
AREA INLET	DIMENSIONS IN FEET		
	A	B	D
SDA-AI1	2	2	4.75



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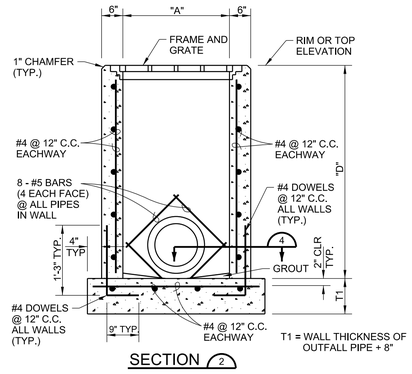

SECTION 2

TYPE "A" AREA INLET DETAILS

NO SCALE

NOTES:
1. VARIABLE DIMENSIONS (A,B,& D) FOR STRUCTURES ARE SHOWN ON THE STRUCTURE SCHEDULE. A, B, C, AND E DIMENSIONS MAY VARY FROM THOSE SHOWN SLIGHTLY TO ACCOMODATE MANUFACTURER'S STANDARD FRAME AND GRATES.
2. FOR SIZE OF GRATE AND FRAME, SEE DETAIL ON THIS SHEET. TYPE W OR Y FRAME STYLE MAY BE USED FOR ALL STRUCTURES.
3. STANDARD CONSTRUCTION SHALL BE PRECAST OR CAST IN PLACE REINFORCED CONCRETE.
4. THE GROUT SHALL BE LIMITED TO THAT REQUIRED TO PREVENT STANDING WATER. WHERE PIPES HAVE NEARLY THE SAME INVERT ELEVATION, GROUT SHALL TAPER FROM THE SIDES TOWARDS THE FLOWLINE BETWEEN PIPES WITH NO GROUT PLACED ALONG THE 3 INCHES EACH SIDE OF THE FLOWLINE.
5. REINFORCING STEEL FY = 60 KSI.
6. THE MINIMUM CLEAR COVER OF CONCRETE OVER REINFORCING STEEL SHALL BE 3" FOR CONCRETE PLACED DIRECTLY AGAINST THE SOIL.

NO DUMPING PLACARD

NOTES:
1. AFFIX THIS PLACARD TO EACH MANHOLE, AREA INLET, AND CURB INLET TO BE CONSTRUCTED UNDER THIS CONTRACT.
2. DETAIL SHALL NOT RESTRICT THE FLOW OF WATER INTO ANY DRAINAGE STRUCTURE.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
SUBMITTED BY: W.C. DAVENPORT
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCG501.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

TYPE "A" AREA INLET DETAILS

SHEET ID

CG501

...\FC\FCDR\40000 Design Products\CAD_BIM_Sheets\FCDRCG501
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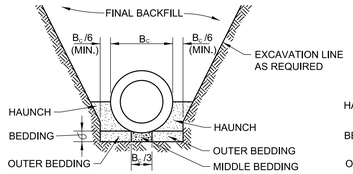
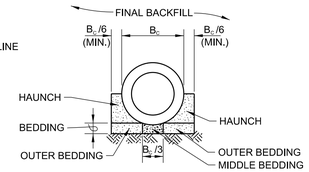
GENERAL NOTES:

1. EXCAVATION AND TRENCHING SHALL BE IN ACCORDANCE WITH SECTION 01400 SPECIAL SAFETY REQUIREMENTS OF THE SPECIFICATIONS.
2. CONCRETE PIPES SHALL BE PROTECTED BY A MINIMUM OF 3 FEET OF COVER PRIOR TO PERMITTING HEAVY CONSTRUCTION EQUIPMENT TO PASS OVER THEM DURING CONSTRUCTION.
3. MINIMUM COVER FOR CONSTRUCTION LOADS OVER CORRUGATED STEEL PIPES SHALL BE AS SPECIFIED IN SECTION 26, DIVISION II OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES.
4. MINIMUM COVER FOR CONSTRUCTION LOADS OVER PLASTIC PIPES SHALL BE AS SPECIFIED IN ASTM D 2321.



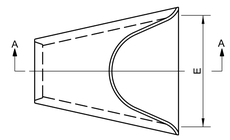
TRENCH INSTALLATIONS



EMBANKMENT INSTALLATIONS

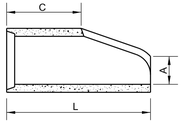
CONCRETE CIRCULAR PIPE BEDDING DETAILS

NO SCALE

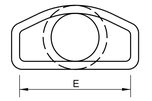


PLAN

REINFORCED CONCRETE ROUND PIPE				
PIPE DIAM. (INCHES)	DIMENSIONS IN INCHES			
	A	C	L	E
12	4	48	72	24
15	6	48	73	30
18	10	48	78	36
24	10	48	78	48
30	14	36	96	60
36	18	36	96	72
42	24	36	96	78
48	28	24	96	84
54	30	36	96	90
60	36	36	96	96
72	34	20	96	108



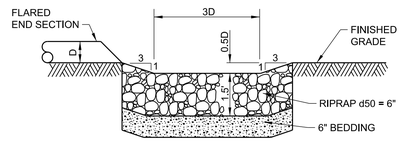
SECTION A-A



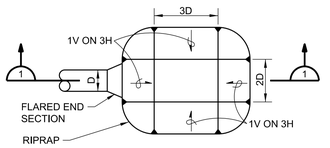
END VIEW

END SECTION FOR REINFORCED CONCRETE CIRCULAR PIPE

NO SCALE



SECTION 1



SCOUR HOLE AT CULVERT OR STORM DRAIN OUTLET

PREFORMED SCOUR HOLE DETAILS

NO SCALE

FLARED END SECTION	DIMENSIONS (FEET)
	D
SDA-FES1	2
SDB-FES1	2
SDE-FES1	1.5

US Army Corps of Engineers®

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CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCG502.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

STORM DRAIN DETAILS

SHEET ID

CG502

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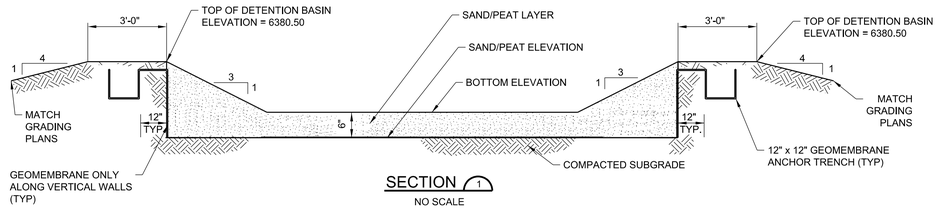

SECTION 1

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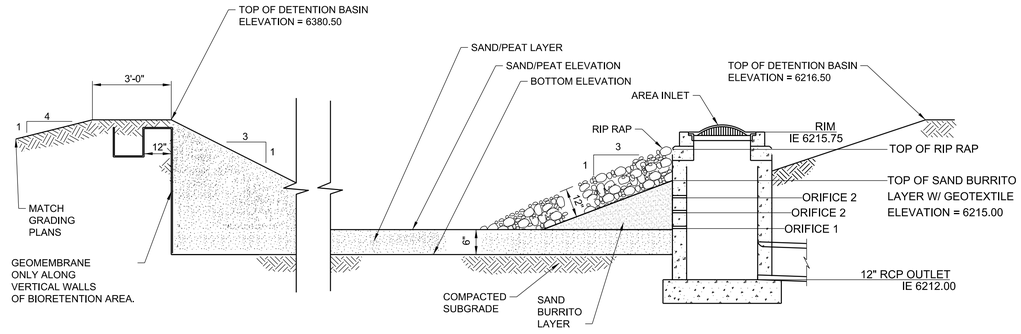
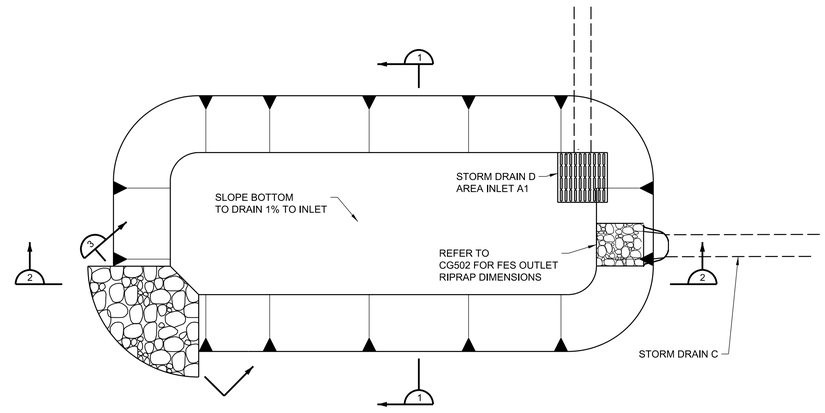


SECTION 2

DETENTION BASIN DETAILS

NO SCALE



PLAN VIEW (TYP)

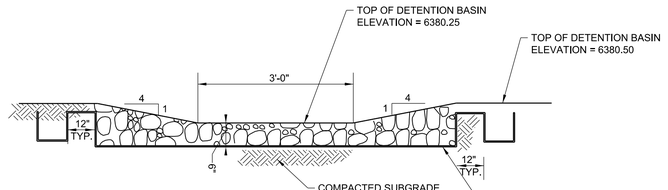
NOTES

1. SAND/PEAT LAYER SHALL CONSIST OF A MIXTURE OF 2/3 SAND AND 1/3 PEAT. SAND SHALL CONFORM AT ASTM C33.
2. GEOTEXTILE SHALL BE NON-WOVEN AND SHALL CONFORM TO AASHTO M288. GEOTEXTILE SHALL MEET THE REQUIREMENTS FOR A SUBSURFACE DRAINAGE GEOTEXTILE (CLASS 2). GEOTEXTILE BURRITO BETWEEN SAND/PEAT LAYER, RIP RAP AND STRUCTURE SHALL HAVE AN AOS OF 70 TO 100. FOLD THE GEOTEXTILE ENDS WHERE LAPPING OCCURS TO PREVENT MIGRATION OF SILT INTO THE SAND.
3. GEOMEMBRANE SHALL CONSIST OF PVC, LLDPE OR HDPE AND SHALL HAVE A MINIMUM THICKNESS OF 40 MIL. THE CONTRACTOR SHALL SUBMIT A SAMPLE AND MANUFACTURER'S DATA SHEET TO THE CONTRACTING OFFICER'S REPRESENTATIVE AT LEAST 30 DAYS PRIOR TO INSTALLATION OF THE GEOMEMBRANE.
4. RIP RAP SHALL CONFORM TO SECTION 506 "RIP RAP" OF THE CDOT. 12-INCH THICK RIP RAP SHALL MEET THE GRADATION REQUIREMENTS FOR 6-INCH, d50 STONE SIZE.
5. SLOPE THE SAND BURITTO AND RIP RAP IN BOTH LONGITUDINAL AND TRANSVERSE DIRECTIONS FROM THE ORIFICES AND FACE OF STRUCTURE TO FINISHED GRADE OF DETENTION BASIN.
6. MATCH GRADE WHERE WEIR CROSSES TOP OF DETENTION BASIN. TERMINATE WEIR RIP RAP AT BOTTOM OF SLOPE EACH SIDE.

ORIFICE DESCRIPTION

NOTE: SDC-AI1 SHALL HAVE .50" DIA. ROUND ORIFICES ON THE BASIN SIDE OF THE INLET AS FOLLOWS:

NUMBER	ELEVATION	SIZE
1	6213.00	(1) 1/2" DIA. HOLE
2	6213.62	(1) 1/2" DIA. HOLE
3	6214.25	(2) 1/2" DIA. HOLES SPACED 6" O.C.



SECTION 3

NO SCALE

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DRAWN BY:	D. FECHNER
CHECKED BY:	W.C. DAVENPORT
SUBMITTED BY:	W.C. DAVENPORT
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILE NAME:	FCDRCG503.dgn

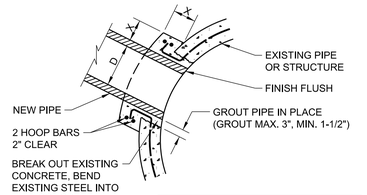
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

STORM DRAIN DETAILS

SHEET ID

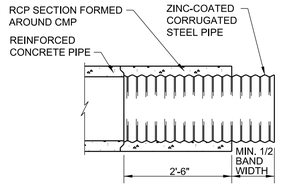
CG503



D	X	HOOP BARS
18" OR SMALLER	6"	#3
LARGER THAN 18"	9"	#4

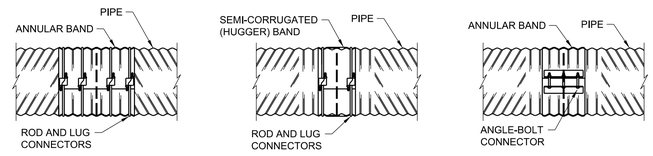
PIPE TAP DETAIL

NO SCALE



RCP TO CMP ADAPTOR DETAIL

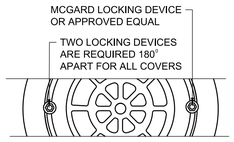
NO SCALE



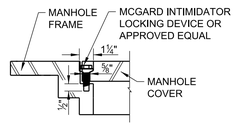
(WITH ROD AND LUGS) ANNULAR BAND | **(HUGGER BAND) SEMI-CORRUGATED BAND** | **(WITH ANGLE-BOLT) ANNULAR BAND**

CORRUGATED METAL PIPE COUPLING BAND DETAILS

NO SCALE



PLAN

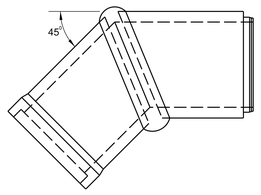


ENLARGED ELEVATION

NOTE:
MANHOLES SHALL BE MANPROOFED WHERE INDICATED. DIMENSIONS SHOWN ARE FOR MCGARD LOCKING DEVICE. ACTUAL DIMENSIONS SHALL CONFORM TO MANUFACTURER'S RECOMMENDATIONS. NO LESS THAN 2 MASTER KEYS PER MANHOLE COVER SHALL BE FURNISHED TO THE CONTRACTING OFFICER.

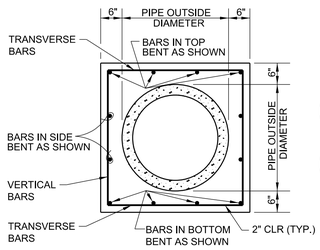
MANPROOFING DETAILS

NO SCALE

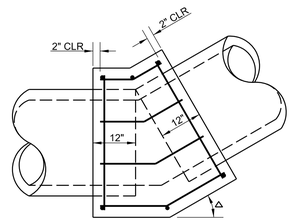


RCP ELBOW DETAIL

NO SCALE



END ELEVATION

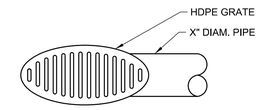


SIDE ELEVATION

CONCRETE COLLAR DETAILS

NO SCALE

SCHEDULE OF BARS FOR COLLAR					
SIZE OF PIPE	BAR SIZE	NUMBER OF BARS			
		TRANS-VERT	TOP	ONE SIDE	BOTTOM
12"	NO. 4	12	4	2	4
15"	NO. 4	12	4	2	4
18"	NO. 4	12	4	2	4
21"	NO. 4	12	4	2	4
24"	NO. 4	12	4	2	4
27"	NO. 4	12	4	2	5
30"	NO. 4	12	4	2	5
36"	NO. 4	12	4	2	5
42"	NO. 4	12	5	3	6
48"	NO. 4	12	5	3	6
54"	NO. 4	12	5	3	6
60"	NO. 4	12	5	3	6



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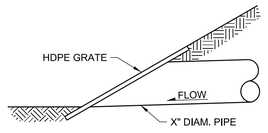

PROFILE

MITERED DRAIN DETAIL

NO SCALE

NOTE:
MITERED DRAIN SHALL BE AS MANUFACTERED BY MITERED DRAIN INC. (707- 620-0606) OR AN APPROVED EQUAL.

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
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FILE NUMBER:

DESIGNED BY: D. FECHNER
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CHECKED BY: W.C. DAVENPORT
SUBMITTED BY:
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ANSI D
FILE NAME: FCDRCG504.dgn

U.S. ARMY CORPS OF ENGINEERS
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FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

STORM DRAIN DETAILS

SHEET ID
CG504

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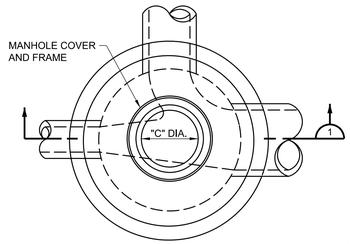

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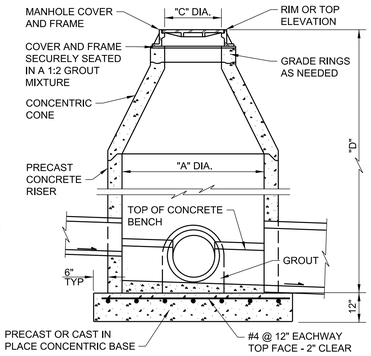
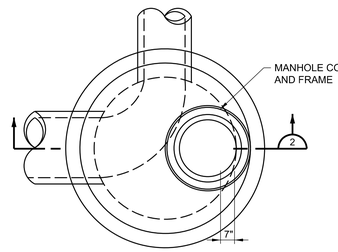


SECTION 1

TYPICAL PRECAST CONCENTRIC MANHOLE DETAILS

NO SCALE



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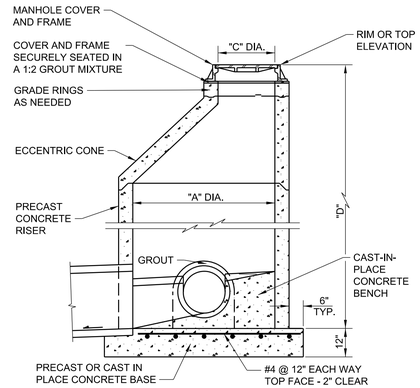
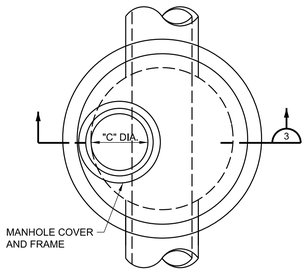


SECTION 2

TYPICAL PRECAST ECCENTRIC MANHOLE DETAILS

NO SCALE



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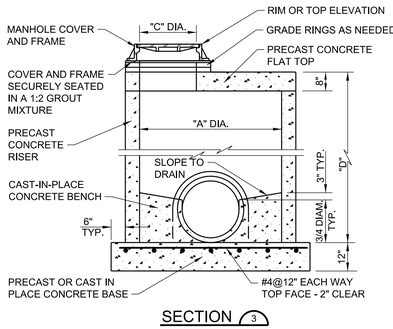
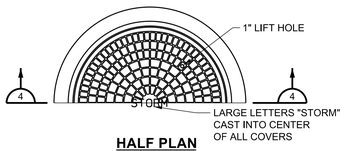


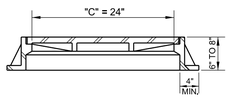
SECTION 3

TYPICAL PRECAST SHALLOW MANHOLE DETAILS

NO SCALE



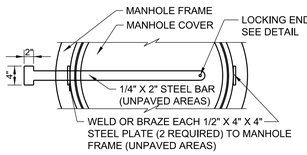
HALF PLAN



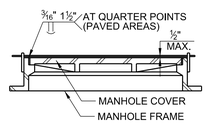
SECTION 4

MANHOLE COVER AND FRAME

NO SCALE



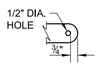
PLAN



SECTION

MANPROOFING DETAILS

NO SCALE



LOCKING END

STEEL PLATE

STRUCTURE SCHEDULE					
MANHOLE	DIMENSIONS				
	A	B	C	D	
x	x	x	x	x	

NOTES:

1. VARIABLE DIMENSIONS (A,B,C & D) FOR STRUCTURES ARE SHOWN ON THE STORM DRAIN STRUCTURE SCHEDULE.
2. UNLESS OTHERWISE INDICATED, MANHOLES 12 FEET DEEP AND LESS MAY HAVE CONCENTRIC OR ECCENTRIC CONES. MANHOLES WITH A DEPTH GREATER THAN 12 FEET SHALL HAVE ECCENTRIC CONES ONLY. SHALLOW MANHOLES SHALL BE USED WHERE THE DEPTH OF THE MANHOLE IS LESS THAN THE OUTSIDE DIAMETER OF THE OUTFALL PIPE PLUS 4 FEET.
3. THICKNESS AND REINFORCING FOR PRECAST CONCRETE MANHOLE WALLS AND REINFORCING FOR PRECAST CONCRETE FLAT TOPS ARE NOT SHOWN BUT SHALL CONFORM TO THE SPECIFICATIONS.
4. MANHOLE BASE SLABS MAY BE PRECAST OR CAST IN PLACE CONCRETE. THICKNESS AND REINFORCING OF CAST-IN-PLACE BASES SHALL BE AS INDICATED. THICKNESS AND REINFORCING OF PRECAST BASES SHALL BE AS SPECIFIED.
5. ALL PIPE ENTRIES INTO THE BASE OF MANHOLES SHALL BE CONNECTED BY OPEN CHANNELS FORMED USING CAST-IN-PLACE CONCRETE BENCHES. CHANNELS SHALL BE ADJUSTED FOR PIPE SIZE, SHAPE, SLOPE, AND DIRECTION OF FLOW. THE INVERT CHANNELS SHALL BE SMOOTH AND SEMICIRULAR IN SHAPE CONFORMING TO THE INSIDE OF THE ADJACENT PIPE SECTION. CHANGES IN DIRECTION OF FLOW SHALL BE MADE WITH A SMOOTH CURVE OF AS LARGE A RADIUS AS THE SIZE OF THE MANHOLE WILL PERMIT. CHANGES IN SIZE AND GRADE OF THE CHANNELS SHALL BE MADE GRADUALLY AND EVENLY.
6. MANHOLE COVER AND FRAME SHALL BE NEENAH R-1575 OR APPROVED EQUAL. ALTERNATE DESIGNS SHALL CONFORM TO THE DIMENSIONS INDICATED. COVER AND FRAME SHALL HAVE A COMBINED WEIGHT OF NOT LESS THAN 400 POUNDS.
7. MANHOLES SHALL BE MANPROOFED WHERE INDICATED. MANHOLES LOCATED IN NON-PAVED AREAS SHALL BE PROVIDED WITH A STRAP IRON LOCK. STEEL BAR FOR STRAP IRON LOCK SHALL BE GALVANIZED WITH A MINIMUM OF 2.0 OZ. OF ZINC PER SQ. FT. FILE OR GRIND ALL SHARP EDGES OR CORNERS OF BAR AND PLATES. PADLOCKS FOR STRAP IRON LOCKS SHALL BE PROVIDED BY THE GOVERNMENT. MANHOLES LOCATED IN PAVED AREAS SHALL HAVE COVERS TACK WELDED TO FRAMES AT QUARTER POINTS.

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ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
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DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
SUBMITTED BY: W.C. DAVENPORT
SIZE: ANSI D
FILE NAME: FCDRCG505.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

MANHOLE DETAILS

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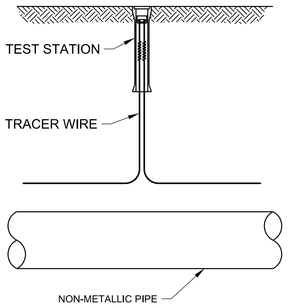
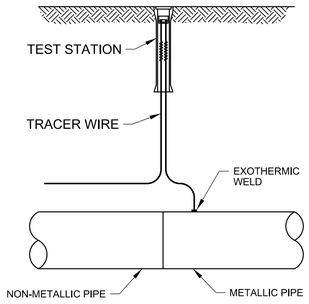


F1 INTERMEDIATE TEST STATION

SCALE: NTS

NOTE:

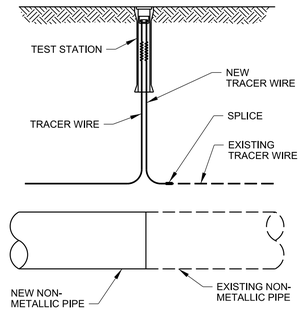
TEST STATIONS SHALL BE INSTALLED AT INTERVALS NOT TO EXCEED 400 FEET ALONG NON-METALLIC UTILITY LINES.



F3 TEST STATION AT PIPE CONNECTION

SCALE: NTS

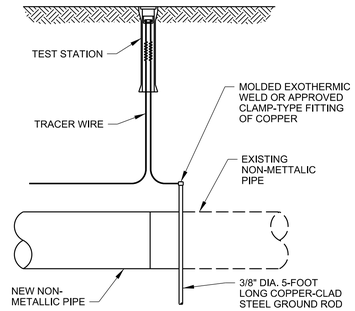
NOTE:
TEST STATION SHALL BE INSTALLED WHERE NEW NON-METALLIC PIPE IS CONNECTED TO A METALLIC PIPE.



F5 TEST STATION AT PIPE CONNECTION

SCALE: NTS

NOTE:
TEST STATION SHALL BE INSTALLED WHERE NEW NON-METALLIC PIPE IS CONNECTED TO AN EXISTING NON-METALLIC PIPE WITH TRACER WIRE.



F7 TEST STATION AT PIPE CONNECTION

SCALE: NTS

NOTE:
TEST STATION SHALL BE INSTALLED WHERE NEW NON-METALLIC PIPE IS CONNECTED TO AN EXISTING NON-METALLIC PIPE WITHOUT TRACER WIRE.

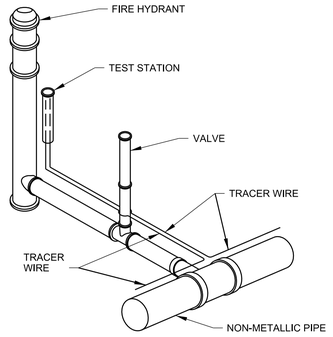
GENERAL NOTES:

1) TRACER WIRE SHALL BE INSTALLED ABOVE ALL NEW NON-METALLIC UTILITY LINES. TRACER WIRE SHALL BE INSTALLED 6 INCHES ABOVE GAS LINES. TRACER WIRE SHALL BE PLACED ON TOP OF PIPE AND SECURED WITH DUCT TAPE EVERY 3 FEET FOR ALL OTHER UTILITY LINES. TRACER WIRE DOES NOT HAVE TO BE INSTALLED ON TOP OF NEW CULVERTS. PROTECT UNDERGROUND UTILITY TRACER WIRES WITH 1 LB ANODE FOR EVERY 400 FEET OF WIRE.

2) TRACER WIRE SHALL BE INSULATED STRANDED OR SINGLE STRAND, SOLID COPPER 6 AWG FOR GAS LINES AND 12 AWG FOR ALL OTHER UTILITY LINES. WIRE SHALL BE TYPE TW, RHW, RHW-2, THHW, THW, XHHW-2 OR HMWPE (WET LOCATIONS). WIRE INSULATION COLOR SHALL MATCH MARKING TAPE COLOR FOR EACH TYPE OF UTILITY.

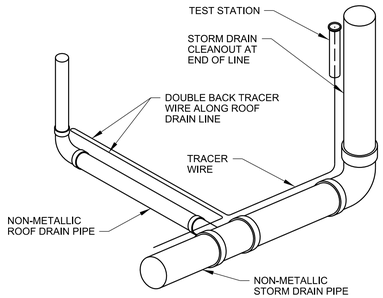
3) THE CONTRACTOR SHALL TEST THE TRACER WIRE FOR CONTINUITY AFTER PLACING THE FIRST LIFT OF BACKFILL MATERIAL OVER THE WIRE. ANY DISCONTINUITIES IN THE WIRE SHALL BE REPAIRED PRIOR TO COMPLETING BACKFILL ABOVE THE UTILITY.

4) SEE SECTION 31 00 00 "EARTHWORK" FOR ADDITIONAL REQUIREMENTS.



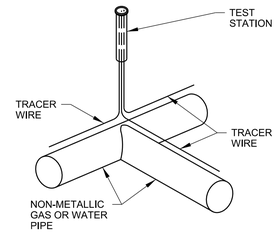
D1 TEST STATION AT FIRE HYDRANT

SCALE: NTS



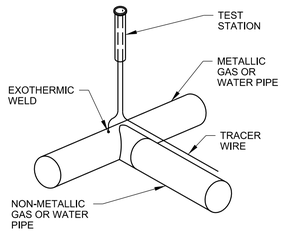
D3 TRACER WIRE AT ROOF DRAIN

SCALE: NTS



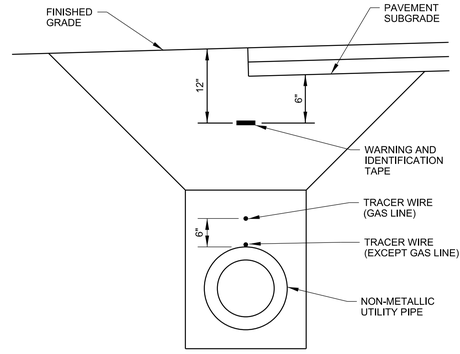
D5 TEST STATION AT TEE

SCALE: NTS



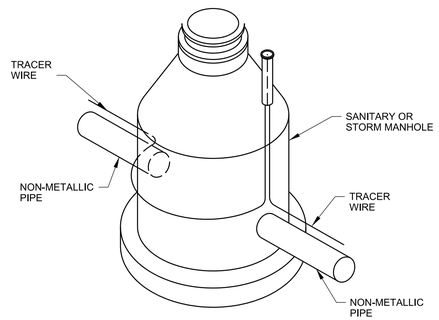
D7 TEST STATION AT TEE

SCALE: NTS



D9 TRACER WIRE INSTALLATION

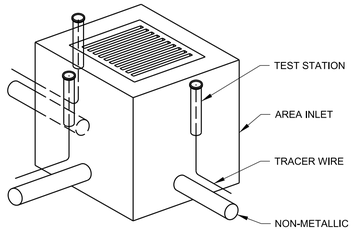
SCALE: NTS



A1 TEST STATION AT MANHOLE

SCALE: NTS

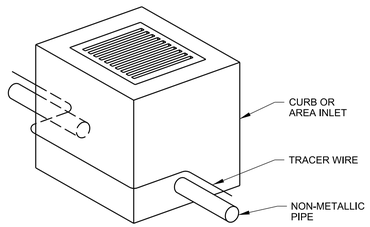
NOTE:
A TEST STATION SHALL BE INSTALLED FOR EACH NON-METALLIC PIPE ENTERING SANITARY SEWER OR STORM DRAIN MANHOLES.



A3 TEST STATION AT INLET

SCALE: NTS

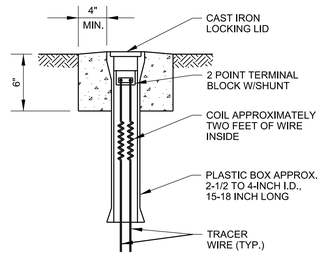
NOTE:
A TEST STATION SHALL BE INSTALLED FOR EACH NON-METALLIC PIPE ENTERING THE INLET.



B5 TRACER WIRE AT INLET

SCALE: NTS

NOTE:
IF 2 NON-METALLIC PIPES ARE ENTERING A STORM DRAIN CURB OR AREA INLET, TRACER WIRE SHALL BE CONTINUOUS AROUND INLET AND TEST STATIONS ARE NOT REQUIRED. TEST STATIONS ARE NOT REQUIRED AT STORM DRAIN LINE CLEANOUTS, EXCEPT AT THE END OF THE LINE.



B7 TEST STATION DETAIL

SCALE: NTS

NOTES:
1) TEST STATIONS WITH 3 WIRES SHALL HAVE 4 POINT BLOCK W/O SHUNT.
2) TEST STATION LID SHALL BE MARKED "TEST" OR "TEST STATION". TEST STATIONS SHALL BE ONE OF THE FOLLOWING PRODUCTS OR AN APPROVED EQUAL:

C.P. MINI BOX OR GLENN 4 TEST STATION
C.P. TEST SERVICES
PHONE 610-367-5062

2 INCH CATHODIC TEST STATION
HANDLEY INDUSTRIES
PHONE 800-870-5088

TEST STATION LOCATIONS:

1. TEST STATIONS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS ALONG NON-METALLIC SANITARY SEWERS OR FORCE MAINS:
   - AT EACH BUILDING SEWER CLEANOUT
   - AT EACH SANITARY SEWER MANHOLE
   - AT EACH SEWER FORCE MAIN LIFT STATION (AT DISCHARGE POINT)
   - AT EVERY 400 LINEAR FEET OF EACH FORCE MAIN
2. TEST STATIONS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS ALONG NON-METALLIC WATER LINES:
   - 5 FEET FROM BUILDING
   - CONNECTIONS TO EXISTING WATERLINES
   - ABRUPT CHANGES IN DIRECTION
   - 400-FOOT MAXIMUM INTERVALS ALONG WATERLINE
   - FIRE HYDRANTS
3. TEST STATIONS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS ALONG NON-METALLIC STORM DRAIN LINES:
   -MANHOLES
   -FLARED END SECTION OR HEADWALL
   -AREA OR CURB INLETS WITH 3 OR MORE PIPES
   -INLETS AND CLEANOUTS AT END OF LINE
4. TEST STATIONS SHALL BE INSTALLED AT THE FOLLOWING LOCATIONS ALONG NON-METALLIC GAS LINES:
   -5 FEET FROM BUILDING
   -CONNECTIONS TO EXISTING GAS LINES
   -ABRUPT CHANGES IN DIRECTION
   -400-FOOT MAXIMUM INTERVALS ALONG GAS LINE

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D. FECHNER	01/20/2023
DRAWN BY:	SOLICITATION NO.:
D. FECHNER	W9128F23R0016
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SUBMITTED BY:	FILE NUMBER:
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SIZE: ANSI D	FILENAME: FCDRCG506.dgn

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OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
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UTILITY TRACER WIRE INSTALLATION DETAILS

SHEET ID

CG506

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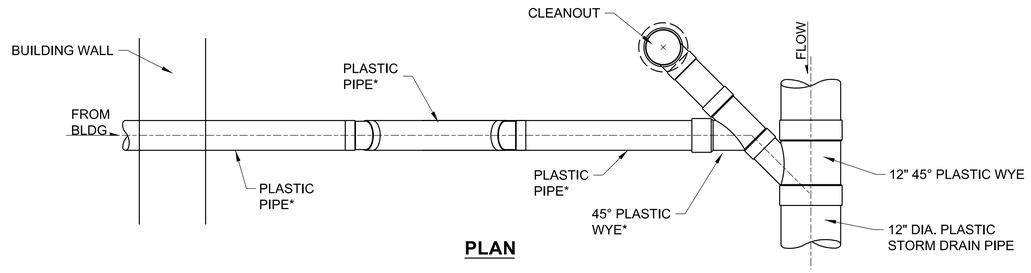

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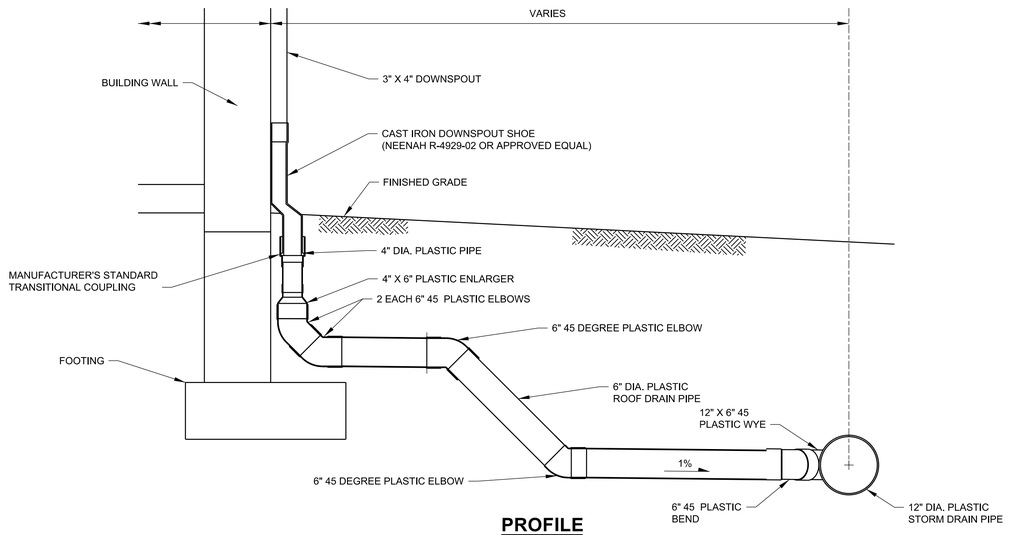
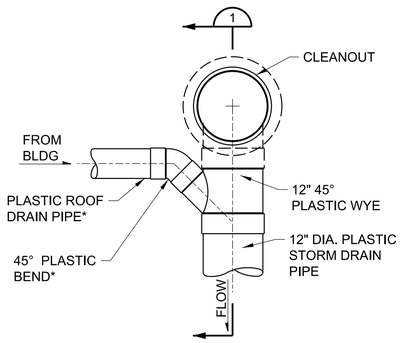


PROFILE

TYPICAL ROOF DRAIN DETAILS

NO SCALE

*COORDINATE ROOF DRAIN PIPE SIZE COMING FROM BUILDING WITH THE PLUMBING PLANS.



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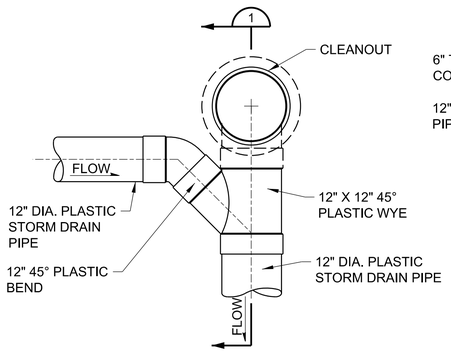

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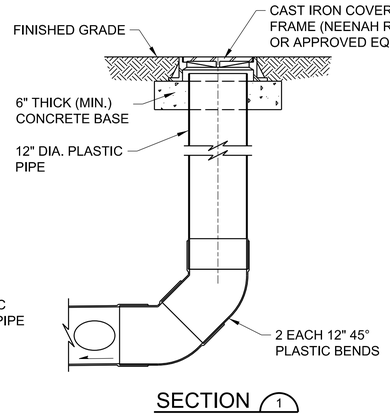


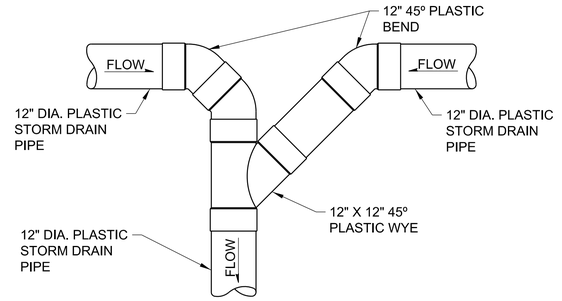
SECTION 1

ROOF STORM DRAIN CLEANOUT DETAIL

NO SCALE

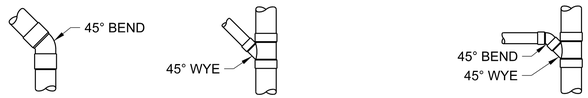
*COORDINATE ROOF DRAIN PIPE SIZE COMING FROM BUILDING WITH THE PLUMBING PLANS.

NOTES:
1. ROOF STORM DRAIN CLEANOUTS SHALL BE INSTALLED AT THE END OF STORM DRAIN LINES AND AT EACH 90 DEGREE TURN IN STORM DRAIN LINES AS INDICATED.



ROOF STORM DRAIN "T" CONNECTION DETAIL

NO SCALE



45 DEGREE TURN **45 DEGREE CONNECTION** **90 DEGREE CONNECTION**

TYPICAL ROOF DRAIN DETAILS

NO SCALE

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OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
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PN101464 (FY23)

ROOF DRAIN DETAILS

SHEET ID

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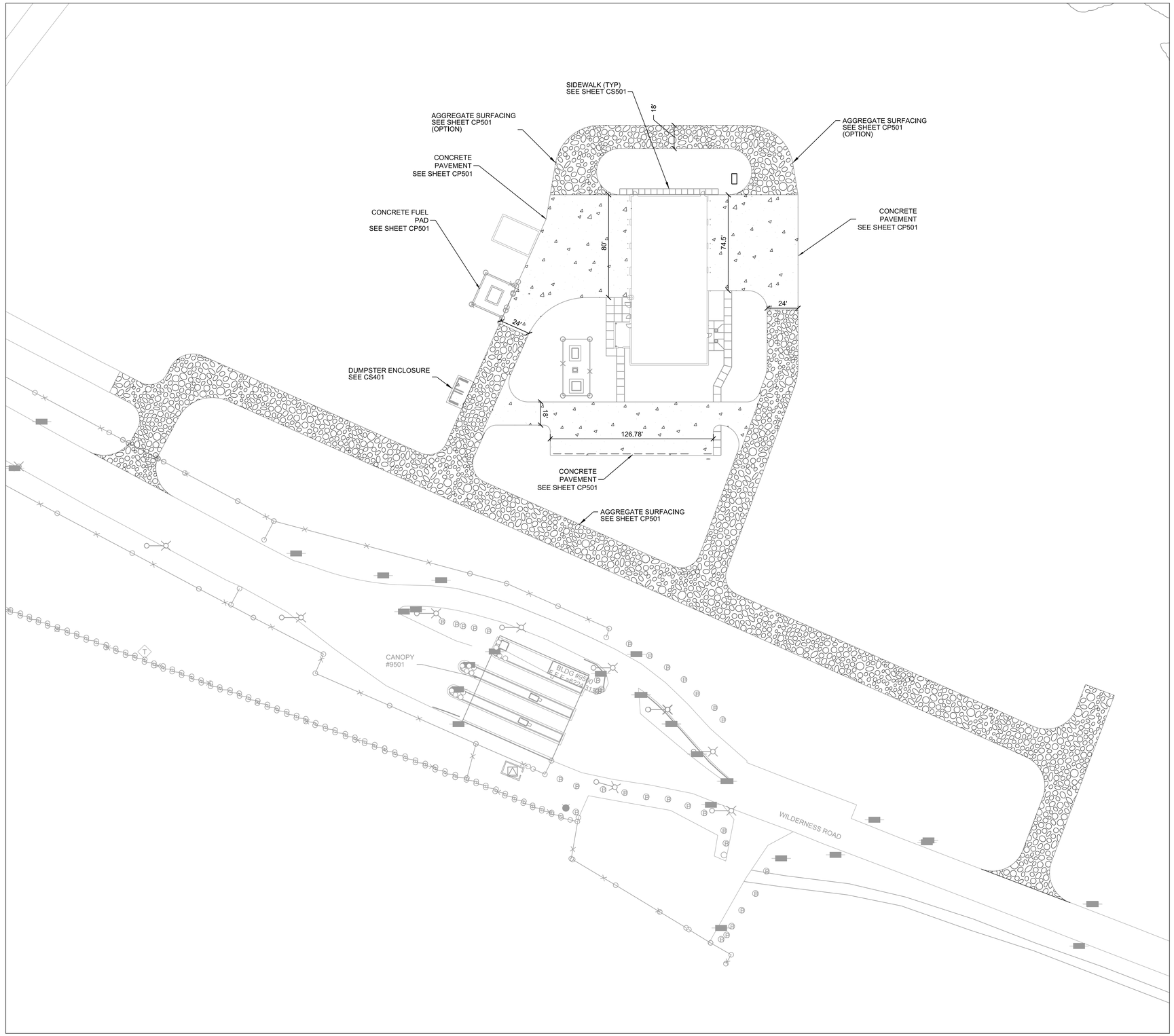

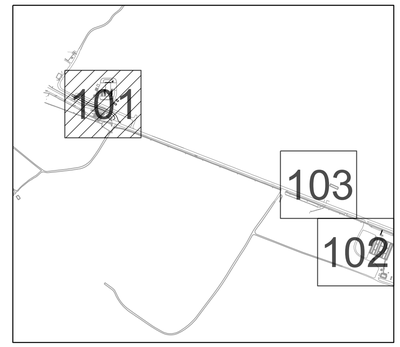

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KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE CP401 FOR CONCRETE PAVING JOINT PLAN
2. SEE CP501 - CP502 FOR PAVING DETAILS
3. SEE CS501 FOR SIDEWALK DETAILS

N

0 40' 80'

SCALE: 1" = 40'

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SUBMITTED BY:	FILE NUMBER:
W.C. DAVENPORT	
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1616 CAPITOL AVE
OMAHA, NE 68102

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PN101464 (FY23)

PAVING PLAN
AREA 101

SHEET ID

CP101

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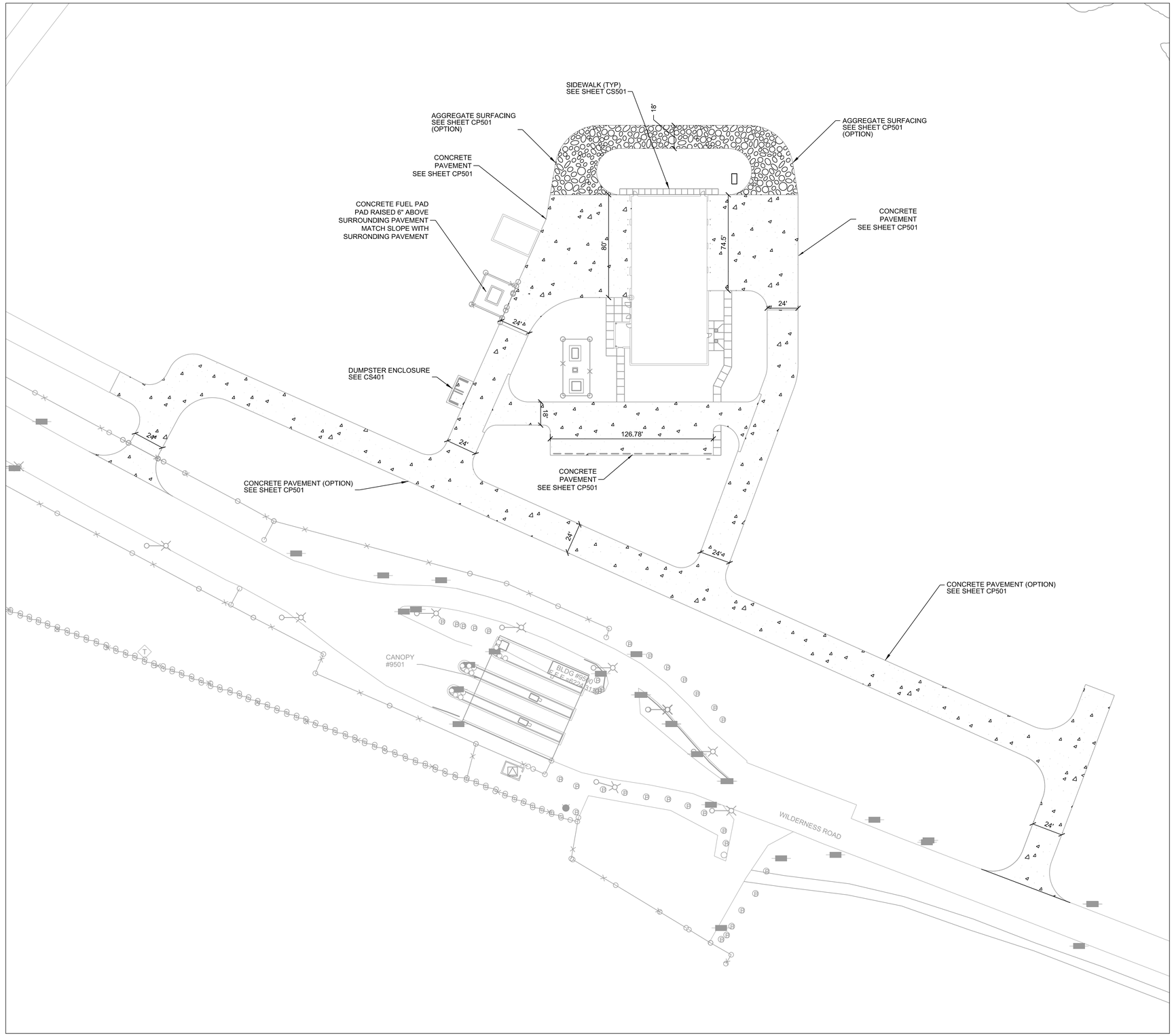

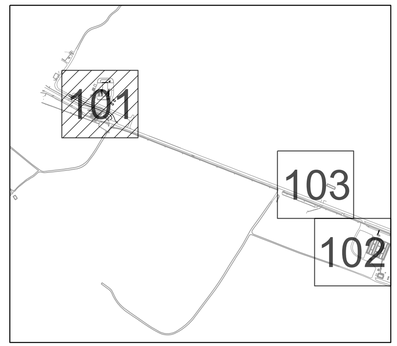

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KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE CP401 FOR CONCRETE PAVING JOINT PLAN
2. SEE CP501 - CP502 FOR PAVING DETAILS
3. SEE CS501 FOR SIDEWALK DETAILS

N

0 40' 80'

SCALE: 1" = 40'

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PAVING PLAN
AREA 101
PAVING OPTION

SHEET ID

CP101A

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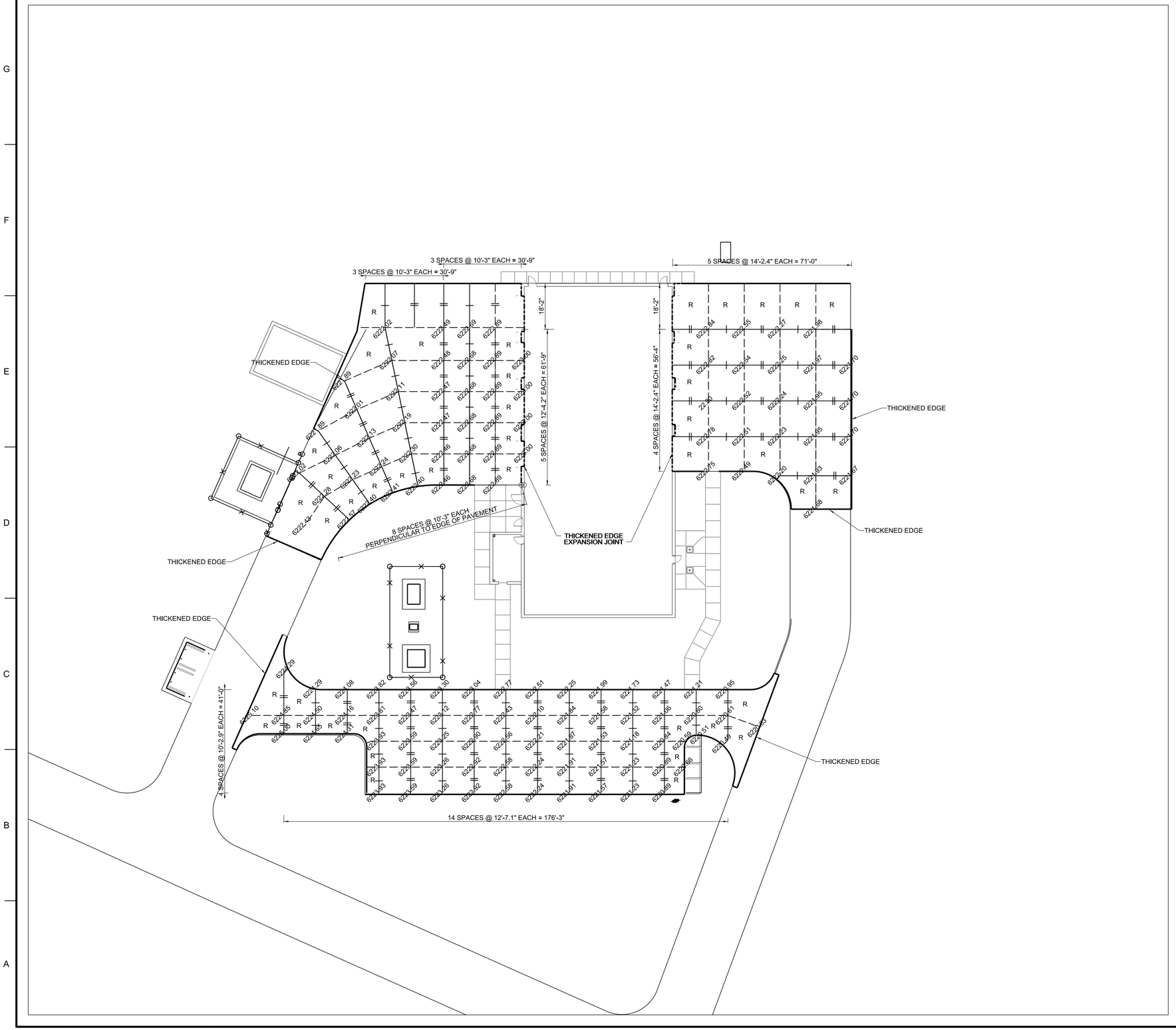

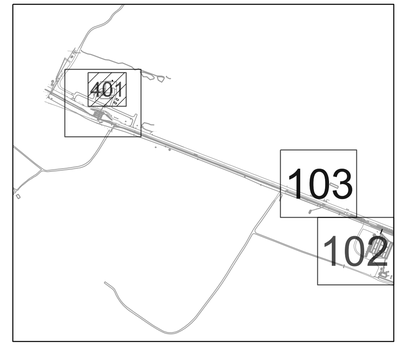

N

KEYPLAN SCALE: 1" = 1000'

LEGEND

- CONTRACTION JOINT (WITHOUT TIE BARS) OR CONSTRUCTION JOINT (DOWELLED)
- CONSTRUCTION JOINT (DOWELED)
- CONTRACTION JOINT (WITH TIEBARS) OR CONSTRUCTION JOINT (WITH TIEBARS)
- THICKENED EDGE EXPANSION JOINT
- THICKENED EDGE
- R — SLAB REINFORCED WITH 4 X 4 - W1.4 X W1.4 OR 6 X 6 - W2.9 X W2.9 WELDED WIRE FABRIC
- 94.15 — FINISHED GRADE SPOT ELEVATION

N

0 20' 40'

SCALE: 1" = 10'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
CHECKED BY:	W.C. DAVENPORT
SUBMITTED BY:	W.C. DAVENPORT
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILE NAME:	FCDRCP401.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

JOINT PLAN AREA 401

SHEET ID

CP401

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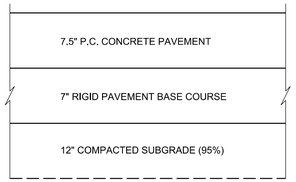
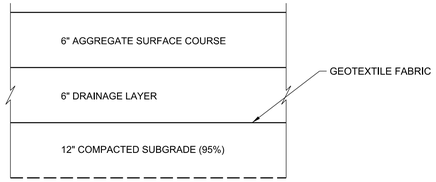


(ACCESS DRIVE AND PARKING) CONCRETE PAVEMENT SECTION

NO SCALE

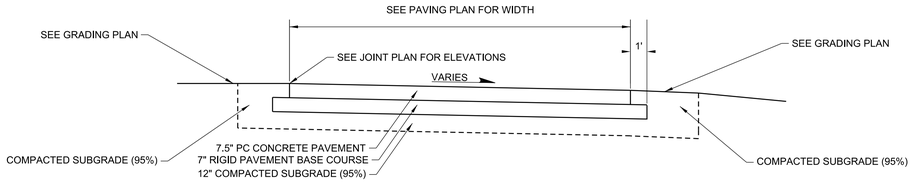
NOTE:
1) SEE SPECIFICATION 32 13 13.06 FOR CONCRETE PAVEMENT REQUIREMENTS.
2) SEE SPECIFICATION 32 11 20 FOR BASE COURSE REQUIREMENTS.



(PARKING AND ACCESS DRIVE) AGGREGATE PAVEMENT SECTION

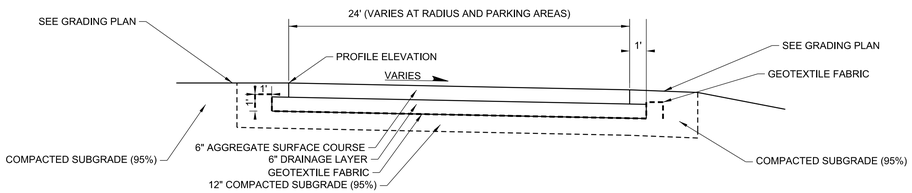
NO SCALE

NOTE:
1) SEE SPECIFICATION 32 15 00 FOR SURFACE COURSE GRADATION AND ADDITIONAL REQUIREMENTS.
2) SEE SPECIFICATION 32 11 23.23 FOR DRAINAGE LAYER REQUIREMENTS.
3) SEE SPECIFICATION 31 05 19 FOR GEOTEXTILE REQUIREMENTS.



CONCRETE DRIVE (TYPICAL PAVEMENT SECTION)

NO SCALE



AGGREGATE DRIVE (TYPICAL PAVEMENT SECTION)

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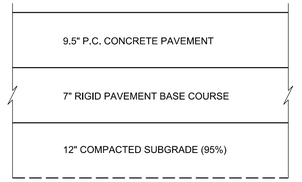
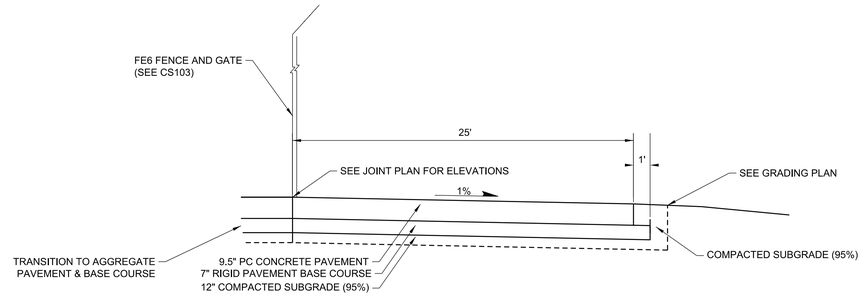


(FUELING PAD) CONCRETE PAVEMENT SECTION

NO SCALE

NOTE:
1) SEE SPECIFICATION 32 13 13.06 FOR CONCRETE PAVEMENT REQUIREMENTS.
2) SEE SPECIFICATION 32 11 20 FOR BASE COURSE REQUIREMENTS.



CONCRETE FUELING PAD (TYPICAL PAVEMENT SECTION)

NO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
D. FECHNER	01/20/2023
DRAWN BY:	SOLICITATION NO.:
D. FECHNER	W9128F23R0016
CHECKED BY:	CONTRACT NO.:
W.C. DAVENPORT	
SUBMITTED BY:	FILE NUMBER:
W.C. DAVENPORT	
SIZE:	FILENAME:
ANSI D	FCDRCP501.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

PAVING DETAILS

SHEET ID

CP501

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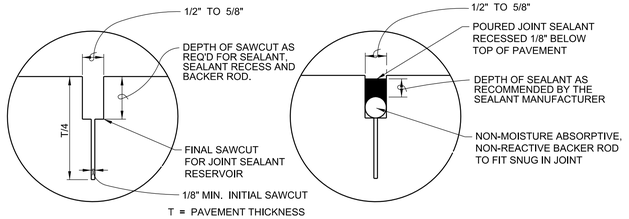
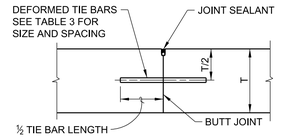


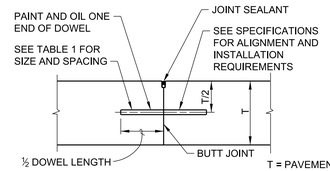
SAWCUT **COMPLETED SAWCUT JOINT**

CONTRACTION JOINT SEALANT DETAILS (SAWED TYPE)

NO SCALE



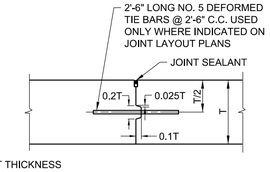
TRANSVERSE OR LONGITUDINAL TIED JOINT



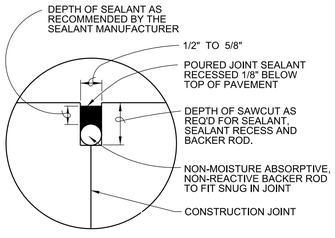
TRANSVERSE OR LONGITUDINAL DOWELED JOINT

CONSTRUCTION JOINT DETAILS

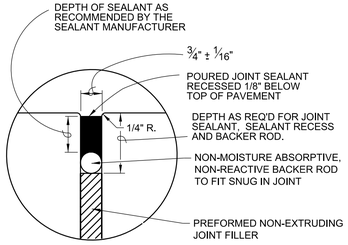
NO SCALE



LONGITUDINAL KEYED JOINT



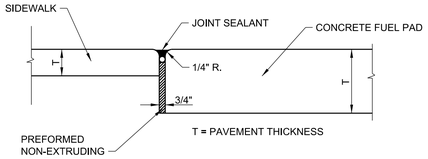
COMPLETED CONSTRUCTION JOINT SEALANT DETAIL



COMPLETED EXPANSION JOINT SEALANT DETAIL

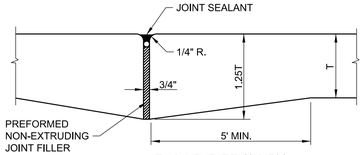
POURED JOINT SEALANT DETAILS

NO SCALE



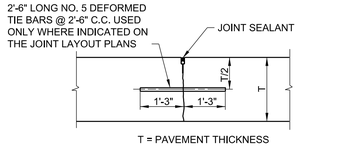
EXPANSION JOINT AT FUEL PAD

NO SCALE



THICKENED EDGE EXPANSION JOINT

NO SCALE

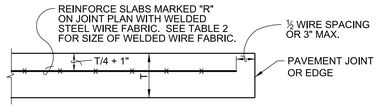


DUMMY GROOVE CONTRACTION JOINT

NO SCALE

TABLE 1			
PAVEMENT THICKNESS	MAXIMUM DOWEL SPACING	MINIMUM DOWEL LENGTH	MINIMUM DOWEL DIAMETER
LESS THAN 8"	12"	16"	3/4"
8" To 11"	12"	16"	1"
12" To 15"	15"	20"	1-1/4"

TABLE 2		
PAVEMENT THICKNESS (INCHES)	MINIMUM REQUIRED AREA OF STEEL (SQ. INCHES/FOOT)	WELDED WIRE FABRIC
6	0.036	4x4-W1.4xW1.4 6x6-W2.0xW2.0
7	0.042	4x4-W1.4xW1.4 6x6-W2.9xW2.9
8	0.048	4x4-W2.0xW2.0 6x6-W2.9xW2.9
9	0.054	4x4-W2.0xW2.0 6x6-W2.9xW2.9
10	0.060	4x4-W2.9xW2.9 6x6-W4.0xW4.0
11	0.066	4x4-W2.9xW2.9 6x6-W4.0xW4.0
12	0.072	4x4-W2.9xW2.9 6x6-W4.0xW4.0
13	0.078	4x4-W2.9xW2.9 6x6-W4.0xW4.0



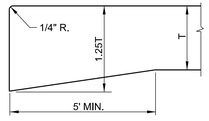
SLAB REINFORCING DETAIL

NO SCALE

NOTE:
WELDED WIRE FABRIC SHALL BE OVERLAPPED FOR A DISTANCE EQUAL TO AT LEAST ONE SPACING OF THE WIRE IN THE FABRIC OR 32 WIRE DIAMETERS, WHICHEVER IS GREATER. THE WIRES IN THE LAP SHALL BE WIRED OR OTHERWISE SECURELY FASTENED TO PREVENT SEPARATION DURING CONCRETE PLACEMENT.

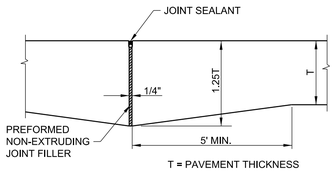
TABLE 3			
PAVEMENT THICKNESS	MAXIMUM TIE BAR SPACING	MINIMUM TIE BAR LENGTH	MINIMUM TIE BAR SIZE
LESS THAN 8"	12"	30"	NO. 6
8" To 11"	12"	30"	NO. 8

NOTE:
SLABS MARKED "R" ON THE JOINT LAYOUT PLAN SHALL BE REINFORCED WITH STEEL WELDED WIRE FABRIC OF THE SIZES SHOWN IN TABLE 2. OTHER WWF SIZES MAY BE USED PROVIDED THE STEEL AREA (SQUARE INCHES PER FOOT) IN THE LONGITUDINAL AND TRANSVERSE DIRECTIONS IS EQUAL TO OR EXCEEDS THAT SHOWN IN TABLE 2.



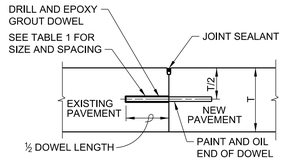
THICKENED EDGE

NO SCALE



THICKENED EDGE SLIP JOINT

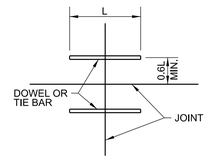
NO SCALE



DOWELED JOINT BETWEEN NEW AND EXISTING PAVEMENT

NO SCALE

NOTE:
HOLES APPROXIMATELY 1/8 INCH GREATER IN DIAMETER THAN THE DOWEL SHALL BE DRILLED IN THE EXISTING CONCRETE AND THE DOWELS SHALL BE BONDED IN THE DRILLED HOLES USING AN EPOXY RESIN GROUT.



DOWEL AND TIE BAR LOCATION DETAIL

NO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
CHECKED BY:	W.C. DAVENPORT
SUBMITTED BY:	W.C. DAVENPORT
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILE NAME:	FCDRCP502.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

JOINT DETAILS

SHEET ID

CP502

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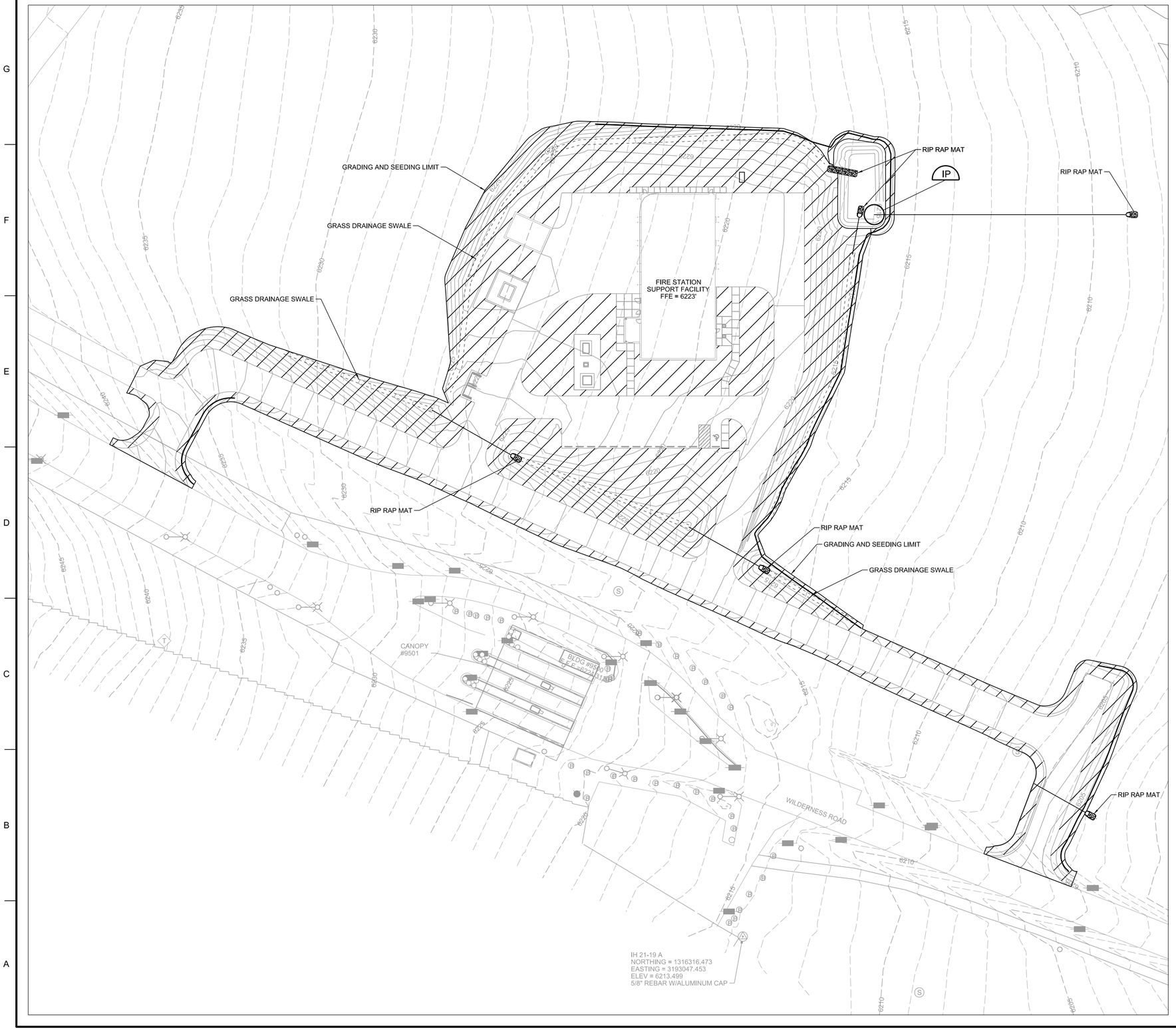

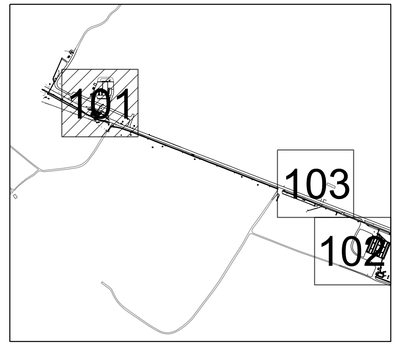

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE SPECIFICATION 32 92 19 FOR SEEDING REQUIREMENTS.
2. SEE SPECIFICATION 32 93 00 FOR WEED CONTROL FABRIC AND EDGING REQUIREMENTS.

LEGEND

EROSION CONTROL MAT AND FIELD MIX SEEDING

GRASS DRAINAGE SWALE

RIP RAP MAT

SF — SILT FENCE

IP — INLET PROTECTION

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE
	AM #0003 - GENERAL REVISIONS	9/8/2021
	AM #0002 - GENERAL REVISIONS	9/3/2021

DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
SUBMITTED BY: W.C. DAVENPORT
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCE101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EROSION CONTROL PLAN AREA 101

SHEET ID

CE101

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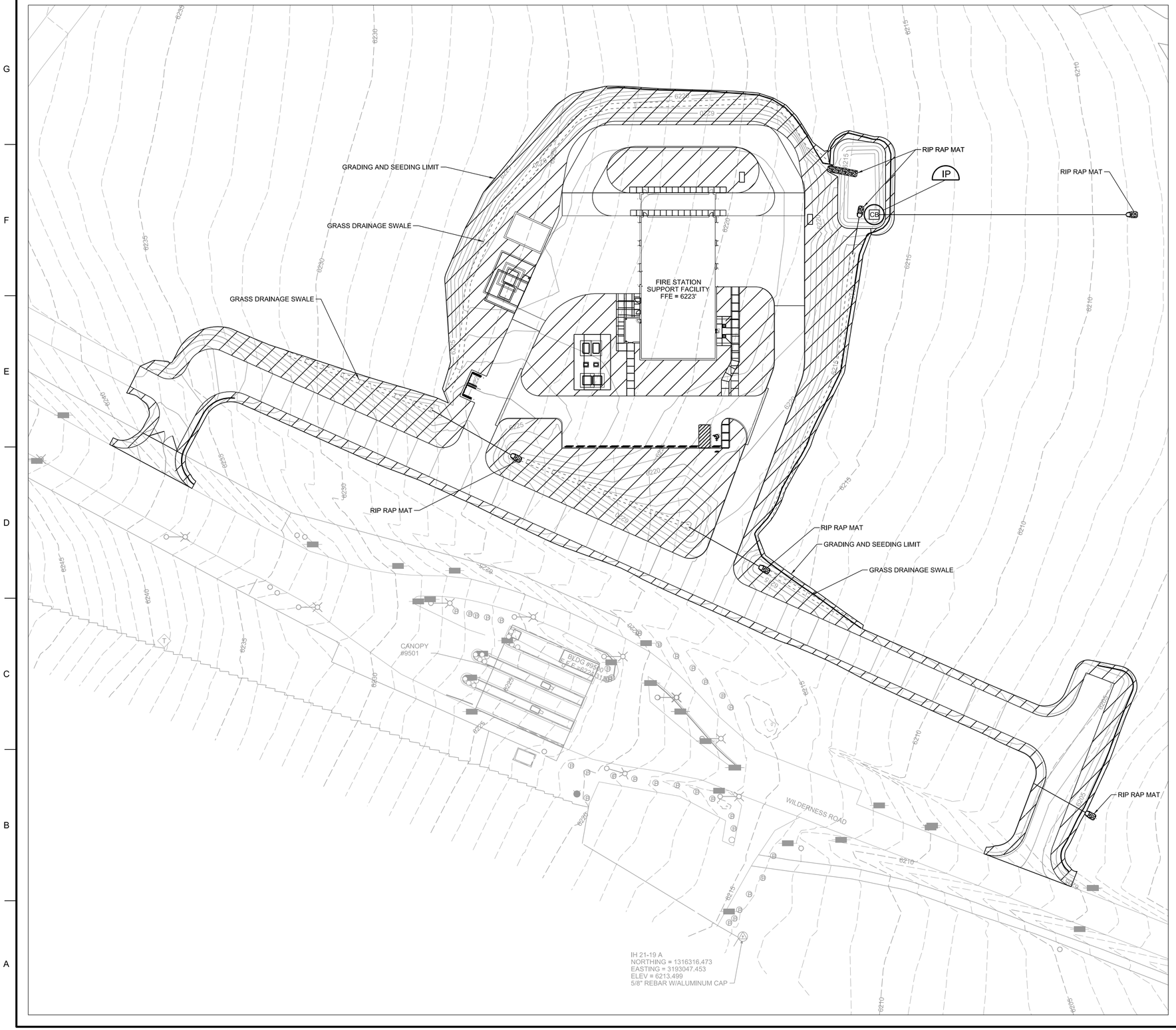

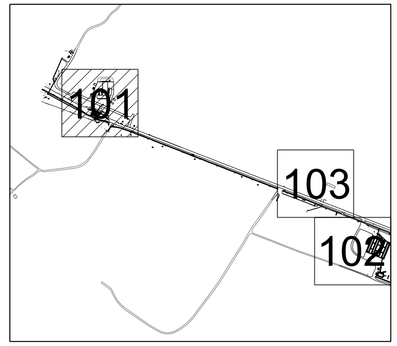

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KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. SEE SPECIFICATION 32 92 19 FOR SEEDING REQUIREMENTS.
2. SEE SPECIFICATION 32 93 00 FOR WEED CONTROL FABRIC AND EDGING REQUIREMENTS.

LEGEND

EROSION CONTROL MAT AND FIELD MIX SEEDING

GRASS DRAINAGE SWALE

RIP RAP MAT

SF — SILT FENCE

IP — INLET PROTECTION

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. FECHNER
DRAWN BY: D. FECHNER
CHECKED BY: W.C. DAVENPORT
SUBMITTED BY: W.C. DAVENPORT
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDRCE101A.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EROSION CONTROL PLAN
AREA 101
TURN AROUND OPTION

SHEET ID

CE101A

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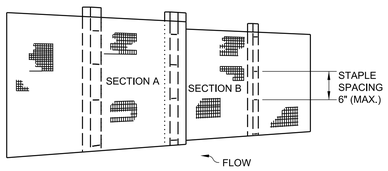
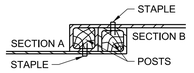


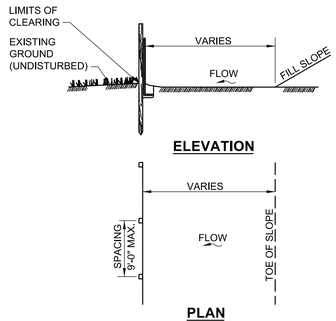
ELEVATION



PLAN

SILT FENCE INSTALLATION DETAILS

NO SCALE



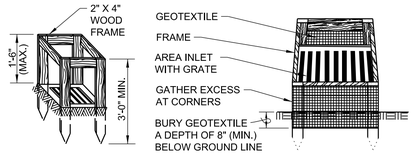
ELEVATION

PLAN

SILT FENCE INSTALLATION AT TOE OF FILL

NO SCALE

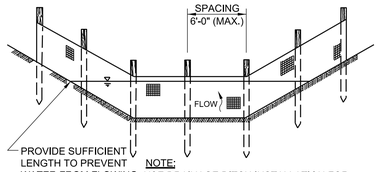
SILT FENCE NOTES:
1. POST SPACING SHOWN IS TYPICAL FOR SILT FENCE WITH SUPPORT MESH. SUPPORT MESH IS NOT REQUIRED FOR SILT FENCE AT TOE OF FILL IF POST SPACING IS 6 FEET MAXIMUM.



SILT FENCE AREA INLET PROTECTION

NO SCALE

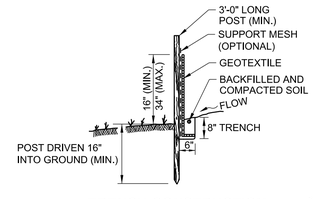
INLET PROTECTION NOTES:
1. FOR GRAVEL FILTERS USE 2 TO 3 INCH DIAMETER COARSE AGGREGATE.
2. USE WIRE MESH WITH 1/2 X 1/2 INCH OPENINGS.
3. USE TYPE A INLET PROTECTION IN SUMP LOCATIONS ONLY.
4. USE TYPE B INLET PROTECTION ONLY IN SUMP LOCATIONS WHERE HEAVY CONCENTRATED FLOWS ARE NOT EXPECTED. DO NOT USE WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE INCONVENIENCE OR DAMAGE.



NOTE:
USE DRAINAGE DITCH INSTALLATION FOR LOW FLOW CONDITIONS ONLY WHEN SPECIFIED ON EROSION CONTROL PLAN.

SILT FENCE INSTALLATION IN A DRAINAGE DITCH

NO SCALE

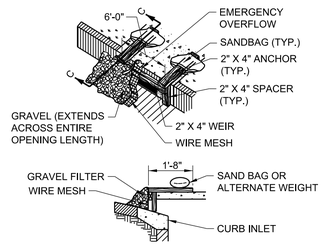


TRENCH CONSTRUCTION **SOIL SLICING CONSTRUCTION**

SILT FENCE INSTALLATION DETAIL

NO SCALE

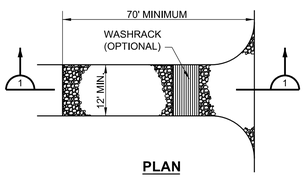
SILT FENCE NOTES:
1. SILT FENCE MAY BE INSTALLED USING EITHER TRENCH OR SOIL SLICING CONSTRUCTION METHOD.
2. WHEN ASSEMBLING SILT FENCE ON-SITE, COMPACT THE BACKFILL SOIL IMMEDIATELY NEXT TO THE SILT FENCE GEOTEXTILE. COMPACT THE UPSTREAM SIDE FIRST, AND THEN THE DOWNSTREAM SIDE. WHEN INSTALLING PRE-ASSEMBLED SILT FENCE, CARE SHALL BE TAKEN TO SUFFICIENTLY COMPACT SOIL ADJACENT TO THE INSTALLED GEOTEXTILE AND POSTS. THE SOIL ADJACENT TO THE BURIED SILT FENCE GEOTEXTILE SHALL BE COMPACTED TO ACHIEVE NO LESS THAN 50% OF ITS ORIGINAL INSITU DENSITY.



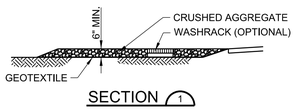
SECTION C-C

WOODEN WEIR CURB INLET PROTECTION (TYPE E)

NO SCALE



PLAN

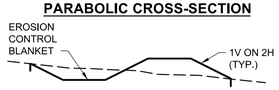


SECTION 1

STONE CONSTRUCTION ENTRANCE

NO SCALE

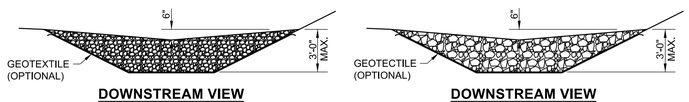
PARABOLIC CROSS-SECTION



TRAPEZOIDAL CROSS-SECTION

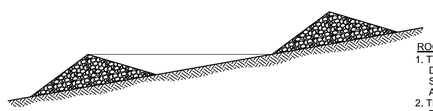
INTERCEPTOR DIKE AND SWALE

NO SCALE



DOWNSTREAM VIEW **DOWNSTREAM VIEW**

TYPE 1 **TYPE 2**

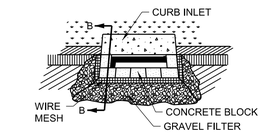


PROFILE VIEW

ROCK CHECK DAM DETAILS

NO SCALE

ROCK CHECK DAM NOTES:
1. TYPE 1 ROCK CHECK DAMS SHALL BE USED WHEN THE UPSTREAM DRAINAGE AREA IS LESS THAN 2 ACRES. TYPE 2 ROCK CHECK DAMS SHALL BE USED WHEN THE UPSTREAM DRAINAGE AREA IS 2 TO 10 ACRES.
2. THE MAXIMUM SPACING BETWEEN THE DAMS SHOULD BE SUCH THAT THE TOE OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM.
3. FOR ADDED STABILITY, THE BASE OF THE CHECK DAM CAN BE KEYED INTO THE SOIL APPROXIMATELY 6 INCHES. GEOTEXTILE MAY BE USED UNDER THE STONE TO PROVIDE A STABLE FOUNDATION AND TO FACILITATE THE REMOVAL OF THE STONE.



SECTION B-B

BLOCK AND GRAVEL CURB INLET PROTECTION (TYPE D)

NO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
CHECKED BY:	W.C. DAVENPORT
SUBMITTED BY:	W.C. DAVENPORT
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILE NAME:	FCDRCE501.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EROSION CONTROL DETAILS

SHEET ID

CE501

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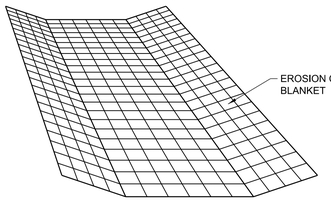

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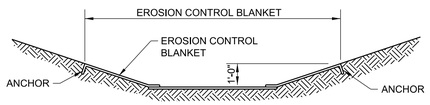
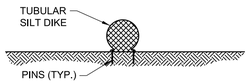


SECTION

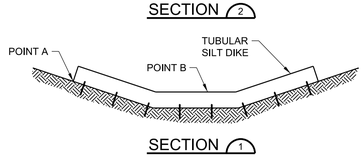
EROSION CONTROL BLANKET DITCH LINING

NO SCALE

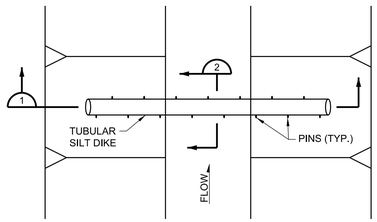
NOTES:
1. INSTALLATION OF EROSION CONTROL BLANKET SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.



SECTION 2



SECTION 1

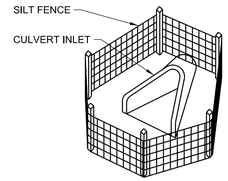


PLAN

TUBULAR SILT DIKE DETAILS

NO SCALE

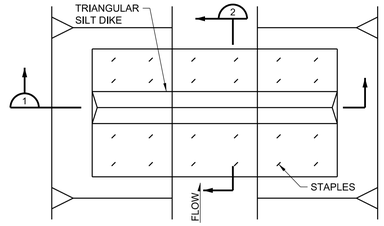
NOTES:
1. TUBULAR SILT DIKE SHALL CONSIST OF STRAW OR FIBERS ENCASED IN AN OUTSIDE OPEN WEAVE CONTAINMENT FABRIC.
2. TUBULAR SILT DIKE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. POINT A SHALL BE HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE CHECKS AND NOT AROUND THE ENDS.



CULVERT INLET PROTECTION DETAIL

NO SCALE

NOTES:
1. THE HEIGHT OF THE SILT FENCE (IN FRONT OF THE CULVERT OPENING) SHALL BE A MINIMUM OF 16 INCHES AND SHALL NOT EXCEED 34 INCHES.
2. GEOTEXTILE FABRIC SHALL BE EXTRA STRENGTH.
3. MAXIMUM SPACING OF STAKES SHALL BE 3 FEET.
4. THE PLACEMENT OF SILT FENCE SHALL BE APPROXIMATELY 6 FEET FROM THE CULVERT IN THE DIRECTION OF INCOMING FLOW, CREATING A "HORSESHOE" SHAPE.

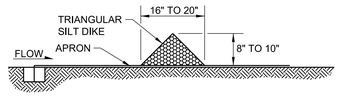


PLAN

TRIANGULAR SILT DIKE DETAILS

NO SCALE

NOTES:
1. TRIANGULAR SILT DIKE SHALL CONSIST OF GEOTEXTILE COVERED URETHANE TRIANGULAR SHAPED CORE WITH GEOTEXTILE APRONS
2. TRIANGULAR SILT DIKE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
3. POINT A SHALL BE HIGHER THAN POINT B TO ENSURE THAT WATER FLOWS OVER THE CHECKS AND NOT AROUND THE ENDS.



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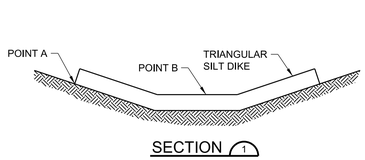

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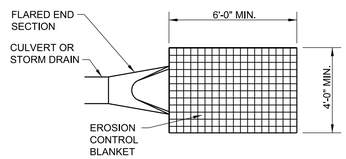
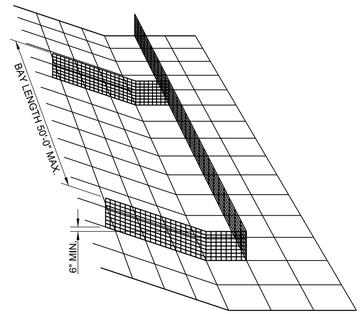


EROSION CONTROL BLANKET DETAIL

NO SCALE

NOTE:
AN EROSION CONTROL BLANKET SHALL BE INSTALLED AT THE OUTLET OF ALL NEW CULVERTS AND STORM DRAINS WHICH DO NOT OTHERWISE HAVE A RIPRAP BLANKET.



SILT FENCE INSTALLATION AT TOE OF FILL

NO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
D. FECHNER	01/20/2023
DRAWN BY:	SOLICITATION NO.:
D. FECHNER	W9128F23R0016
CHECKED BY:	CONTRACT NO.:
W.C. DAVENPORT	
SUBMITTED BY:	FILE NUMBER:
W.C. DAVENPORT	
SIZE:	FILENAME:
ANSI D	FCDRCE502.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

EROSION CONTROL DETAILS

SHEET ID

CE502

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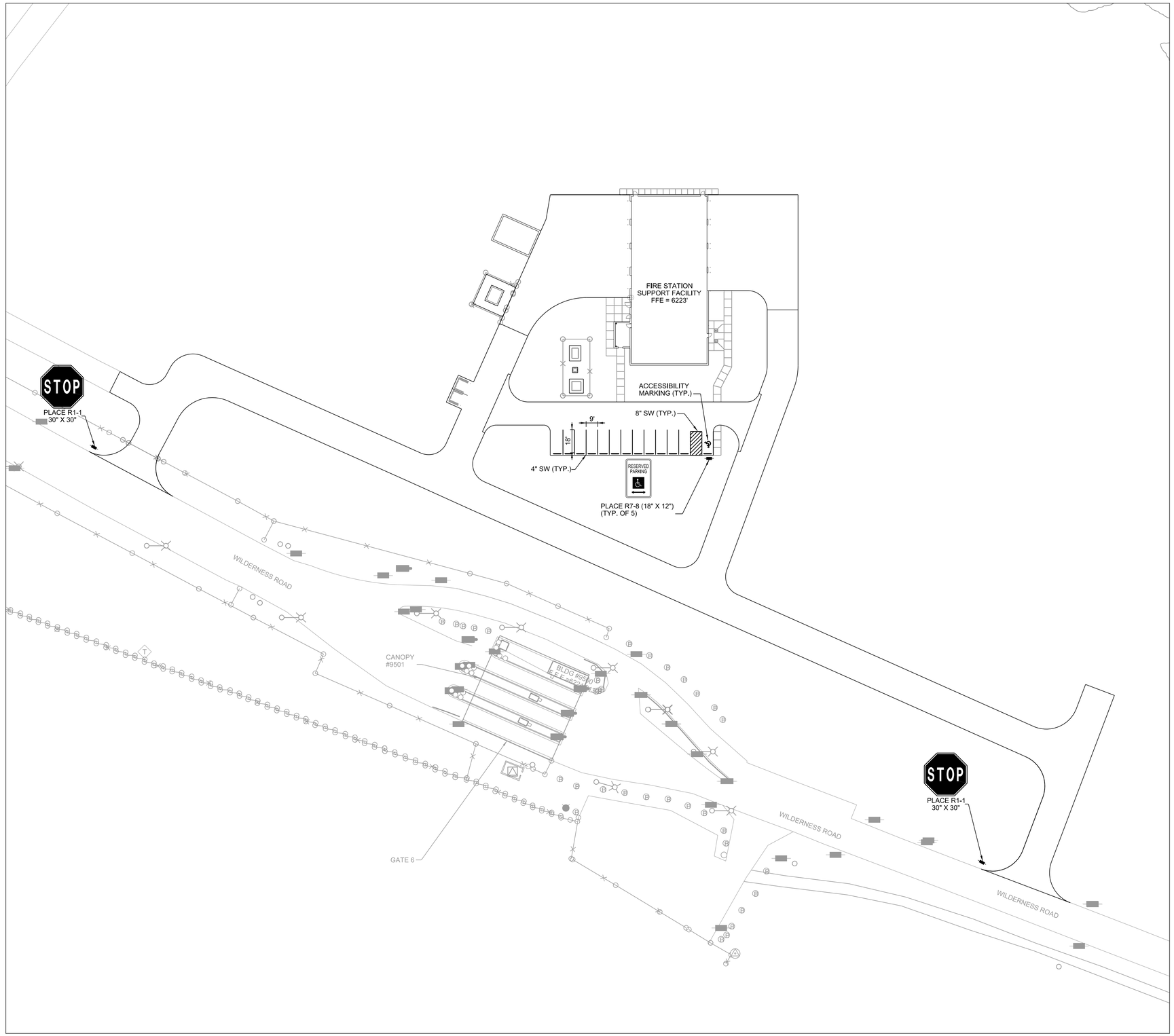

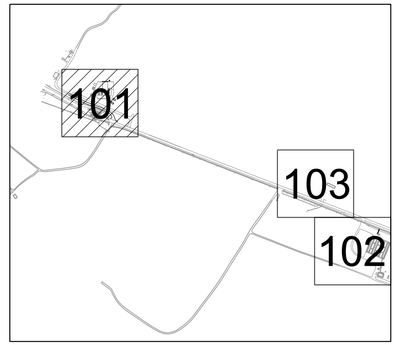

N

KEYPLAN SCALE: 1" = 1000'

4"SW 4" SOLID WHITE LINE
8"SW 8" SOLID WHITE LINE

SEE SHEET CT501 FOR SIGNAGE AND STRIPING DETAILS

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE
		9/8/2021

DESIGNED BY: D. FECHNER	ISSUE DATE: 01/20/2023
DRAWN BY: D. FECHNER	SOLICITATION NO.: W9128F23R0016
CHECKED BY: W. C. DAVENPORT	CONTRACT NO.:
SUBMITTED BY: W. C. DAVENPORT	FILE NUMBER:
SIZE: ANSI D	FILENAME: FCDRCT101.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

SIGNAGE AND STRIPING PLAN AREA 101

SHEET ID

CT101

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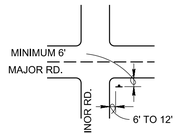
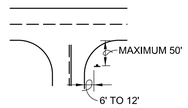


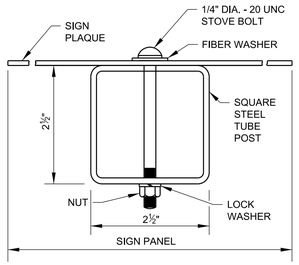
MINOR CROSSROADS



WIDE THROAT INTERSECTION

TYPICAL LOCATION FOR STOP SIGNS AND YIELD SIGNS

NO SCALE

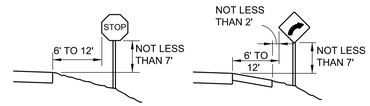


TYPICAL SQUARE TUBE POST SECTION

NO SCALE

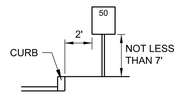
NOTES:

1. SIGN PANELS SHALL BE SINGLE SHEET ALUMINUM, 0.080" MINIMUM THICKNESS.
2. SIGN PANELS SHALL BE FASTENED DIRECTLY TO THE POST. FASTEN TO SQUARE TUBE POSTS WITH TWO 1/4" DIA.-20 UNC STOVE BOLTS.
3. A FIBER WASHER SHALL BE PLACED BETWEEN THE BOLT HEAD AND THE FACE OF THE SIGN PANEL.
4. STEEL POSTS SHALL BE 12-GAUGE PERFORATED STEEL TUBING. HOLES SHALL BE APPROXIMATELY 7/16" DIAMETER SPACED APPROXIMATELY 1" ON CENTERS.

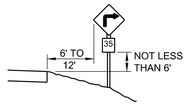


ROADSIDE SIGN

ROADSIDE SIGN



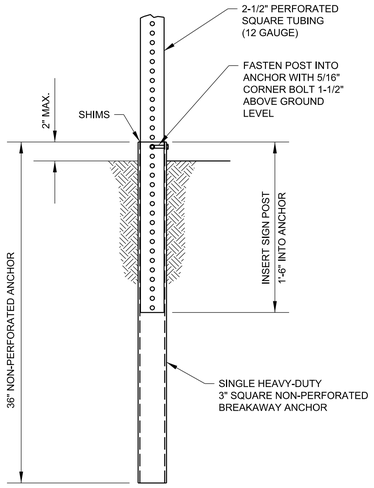
ROADSIDE SIGN



WARNING SIGN WITH ADVISORY SPEED PLATE

HEIGHT AND LATERAL LOCATION OF SIGNS-TYPICAL INSTALLATION

NO SCALE

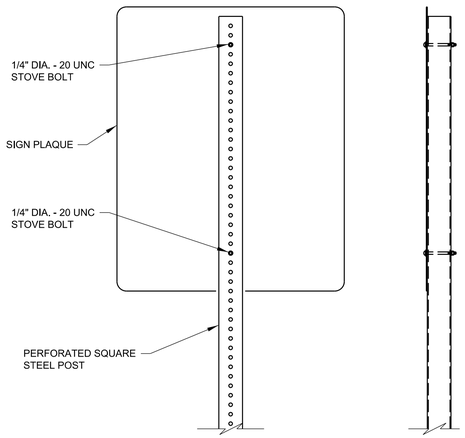


SIGN POST ANCHOR DETAILS

NO SCALE

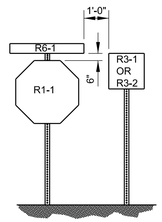
NOTES:

1. A MINIMUM OF 2 SHIMS ARE REQUIRED PER INSTALLATION TO FILL GAP BETWEEN SIGN POST AND ANCHOR.
2. INSERT BOLT HEAD FROM OPPOSITE SIDE OF EXPECTED IMPACT. INSERT DRIVE RIVET INTO OPPOSITE SIDE FOR ADDITIONAL STABILITY.



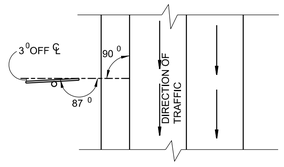
SIGN PANEL ATTACHMENT DETAILS

NO SCALE



CLEARANCE REQUIREMENT

NO SCALE

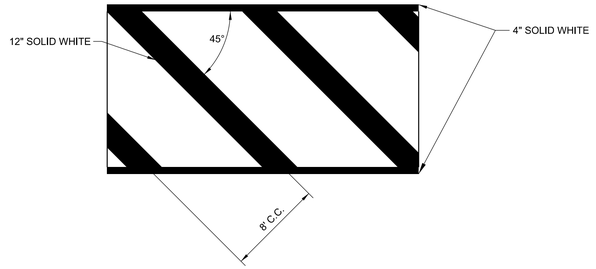


NOTE:

SIGN SHALL BE POSITIONED TO ELIMINATE OR MINIMIZE SPECULAR REFLECTION DUE TO THE NUMEROUS VARIATIONS IN ROAD CURVES AND GRADES, A GENERAL RULE IS NOT ALWAYS APPLICABLE.

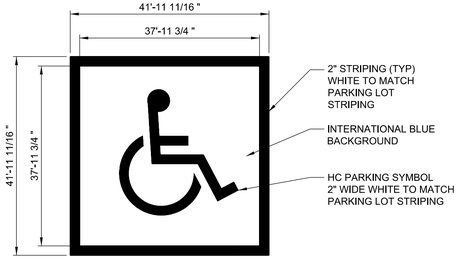
TYPICAL DETAIL OF SIGN POSITIONING

NO SCALE



HANDICAP STALL MARKINGS

NO SCALE



ACCESSIBILITY MARKING

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY:	D. FECHNER
DRAWN BY:	D. FECHNER
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FIRE STATION SUPPORT FACILITY (GATE 6)
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SIGNAGE AND STRIPING DETAILS

SHEET ID

CT501

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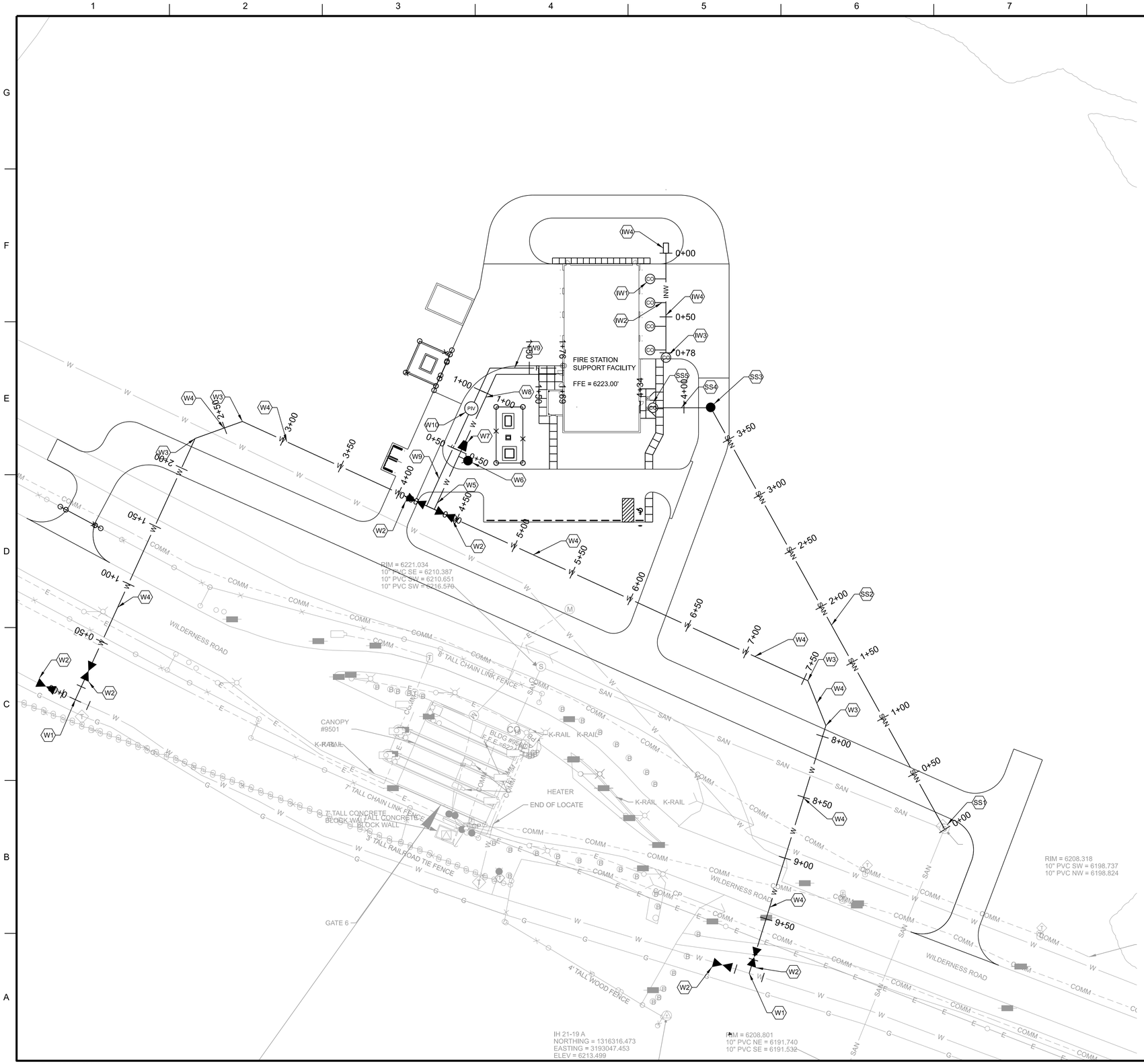

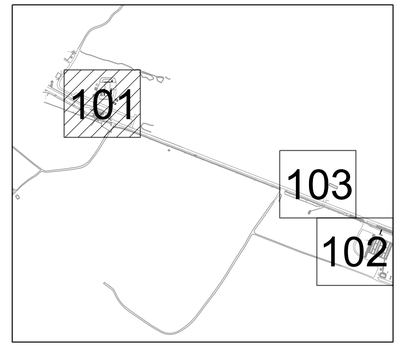

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTE:

1. COBBLES ARE EXPECTED TO BE ENCOUNTERED IN EXCAVATION AT DEPTHS NEAR THE SURFACE TO 12' DEEP (AND BELOW). COBBLE CONTENT OF EXISTING SOILS IN NEARBY PROJECT AREAS RANGE UP TO APPROXIMATELY 30% BY VOLUME.

KEYED NOTES:

W1 10" X 10" X 10" CUT-IN TEE
W2 10" GATE VALVE. SEE VALVE DETAILS ON SHEET CU501
W3 10" X 45º BEND
W4 10" WATER
W5 6" WATER
W6 FIRE HYDRANT ASSEMBLY. SEE DETAILS ON SHEET CU502
W7 6" X 3" REDUCER
W8 3" WATER. SEE PLUMBING FOR CONTINUATION
W9 8" FIRE WATER. SEE FIRE SUPPRESSION FOR CONTINUATION
W10 8" POST INDICATOR VALVE. SEE DETAIL B2/CU502

SS1 CONNECT TO EXISTING SSMH. ADJUST RIM TO FINISHED GRADE. SEE SCHEDULE
SS2 8" SANITARY SEWER. APPROX. 375 L.F. AT 3.0% SLOPE.
SS3 SSMH #1. DROP MANHOLE. SEE DETAIL A2/CU503. SEE SCHEDULE.
SS4 4" SANITARY SEWER. APPROX. 50 L.F. AT 2.0% SLOPE.
SS5 4" TWO-WAY CLEANOUT. SEE DETAIL B3/CU504. SEE SCHEDULE AND PLUMBING FOR CONTINUATION.

IW1 4" TWO-WAY CLEANOUT (TYPICAL OF 4). SEE DETAIL B3/CU504. SEE PLUMBING FOR CONTINUATION.
IW2 4" INDUSTRIAL WASTE (TYPICAL OF 4). APPROX 10 L.F. EACH AT 2% SLOPE.
IW3 6" CLEANOUT. SEE DETAIL B7/CU504. ELIMINATE WYE BRANCH. SEE SCHEDULE.
IW4 6" INDUSTRIAL WASTE. APPROX. 80 L.F. AT 2% SLOPE.
IW5 500 GALLON INDUSTRIAL WASTE HOLDING TANK. SEE SPECS.

SANITARY SEWER SCHEDULE

STRUCTURE	STATION	RIM ELEV.	INVERT ELEV.
4" TWO-WAY CLEANOUT (BUILDING CONNECTION)	4 + 30	6222.50	IN (W) = 6217.71 OUT (E) = 6217.71
SSMH #1	3 + 78	6221.25	4" IN (W) UPPER= 6216.65 4" IN (W) LOWER=6210.42 OUT (SE) = 6210.08
EXISTING SSMH	0 + 00	6208.32 (EXISTING: ADJUST TO FINISHED GRADE)	IN (NW) = 6198.83 (NEW) IN (NW) = 6198.82 OUT (SW) = 6198.74

INDUSTRIAL WASTE SCHEDULE

STRUCTURE	STATION	RIM ELEV.	INVERT ELEV.
4" TWO-WAY CLEANOUTS (4 EA.) (TRENCH DRAIN CONNECTIONS)	VARIES	6222.50	IN (W) = 6217.71 OUT (E) = 6217.71
6" CLEANOUT	0 + 80	6222.50	OUT (N) = 6216.00
500 GALLON HOLDING TANK	0 + 00	6222.00	IN (S) = 6214.00

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

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DRAWN BY:	D. ERICKSON
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SUBMITTED BY:	T. OWENS
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FILE NUMBER:	
FILENAME:	FCDRCU1101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

UTILITY PLAN
AREA 101

SHEET ID

CU101

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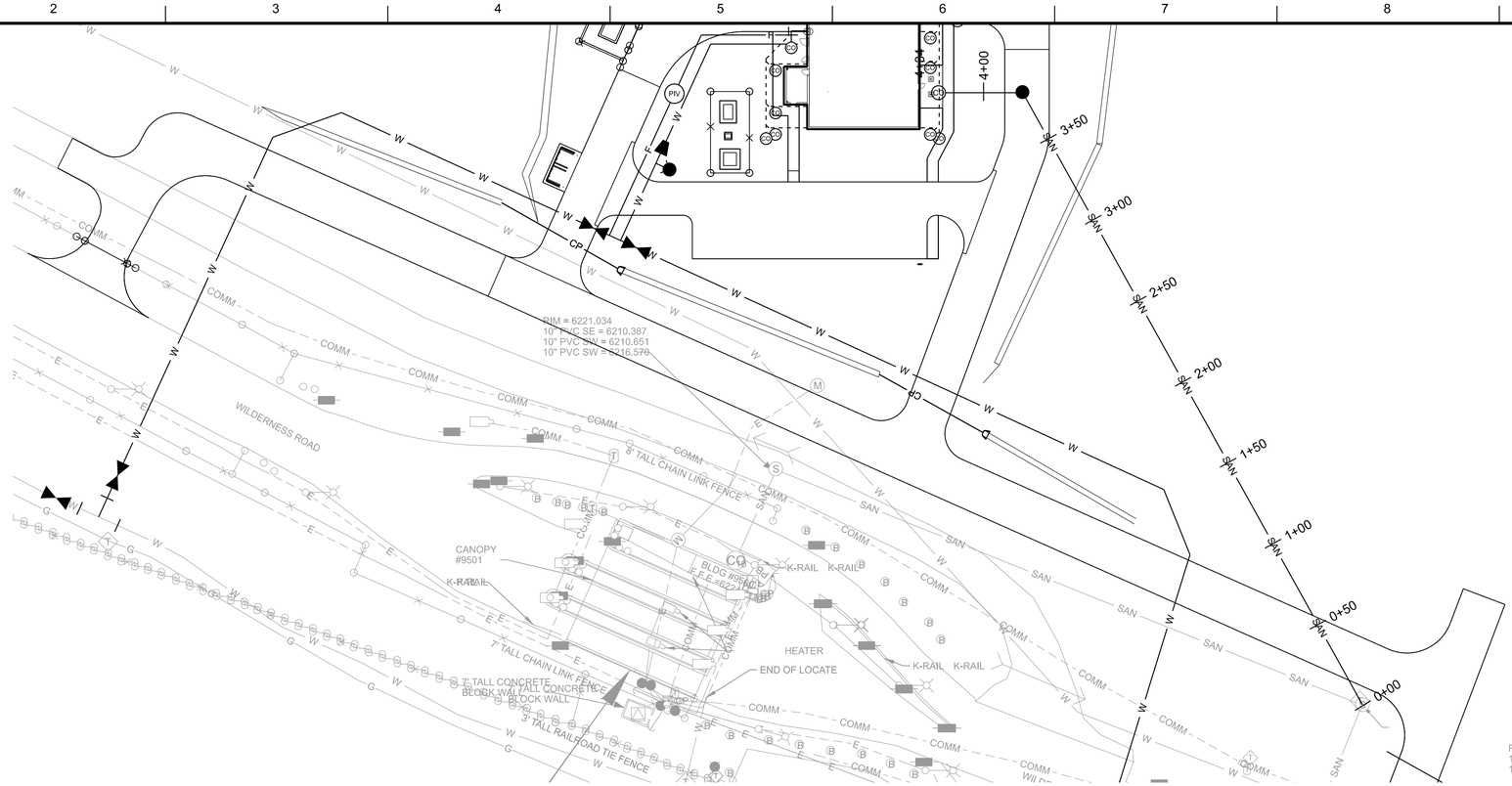
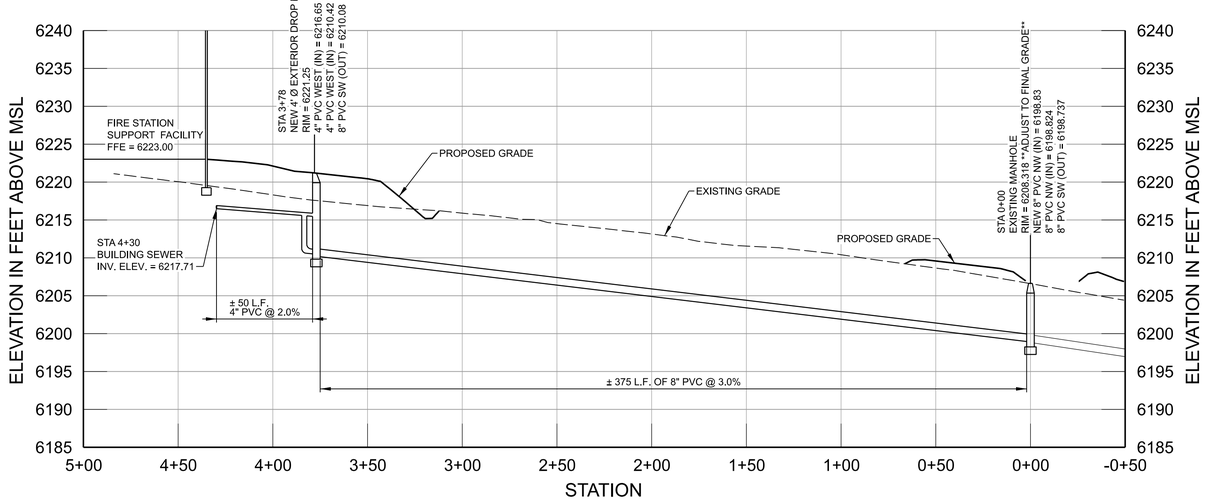


NORTH

0 40' 80'

SCALE: 1" = 40'-0"



SANITARY SEWER

A2 SANITARY SEWER PLAN AND PROFILE

4:1 VERTICAL EXAGGERATION

0 40' 80'

HORIZ. SCALE: 1" = 40'-0"

0 10' 20'

VERT. SCALE: 1" = 10'-0"

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FILENAME:	FCDRCU201.dgn

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OMAHA, NE 68102

FORT CARSON, COLORADO
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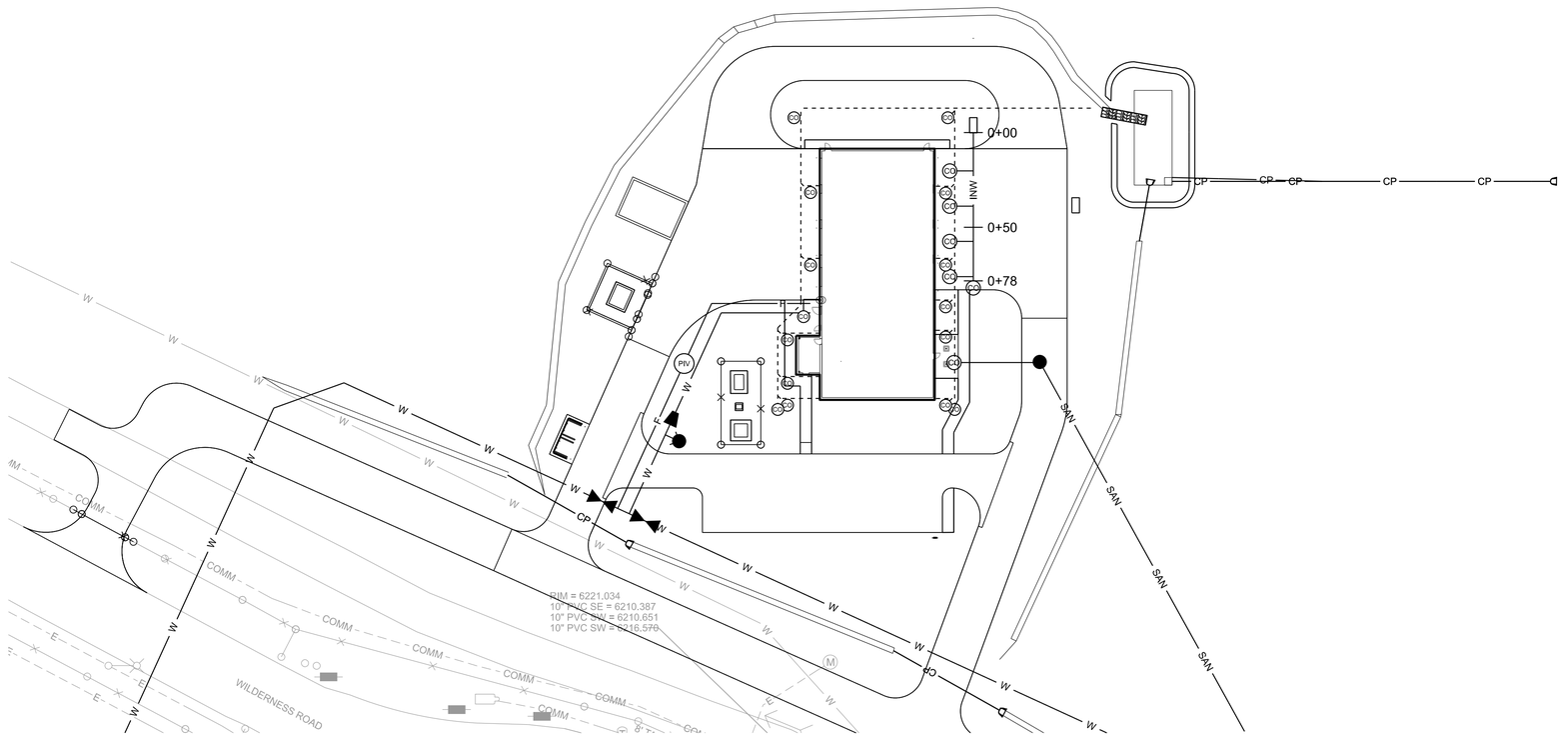
PN101464 (FY23)

SANITARY SEWER
PLAN AND PROFILE

SHEET ID

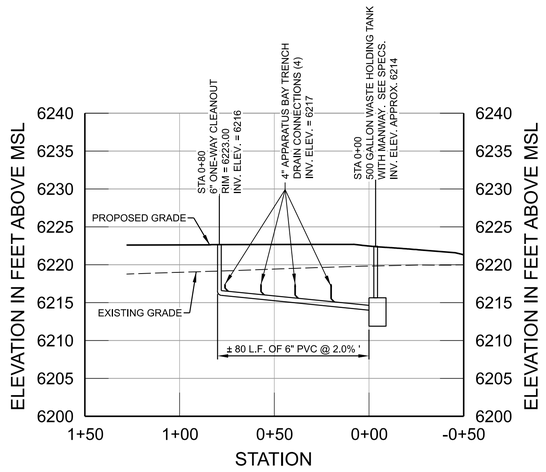
CU201



NORTH

0 40' 80'

SCALE: 1" = 40'-0"



INDUSTRIAL WASTE

A2 INDUSTRIAL WASTE PLAN AND PROFILE

4:1 VERTICAL EXAGGERATION

0 40' 80'

HORIZ. SCALE: 1" = 40'-0"

0 10' 20'

VERT. SCALE: 1" = 10'-0"

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FILE NUMBER:	
FILENAME:	FCDRCU202.dgn

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INDUSTRIAL WASTE
PLAN AND PROFILE

SHEET ID

CU202

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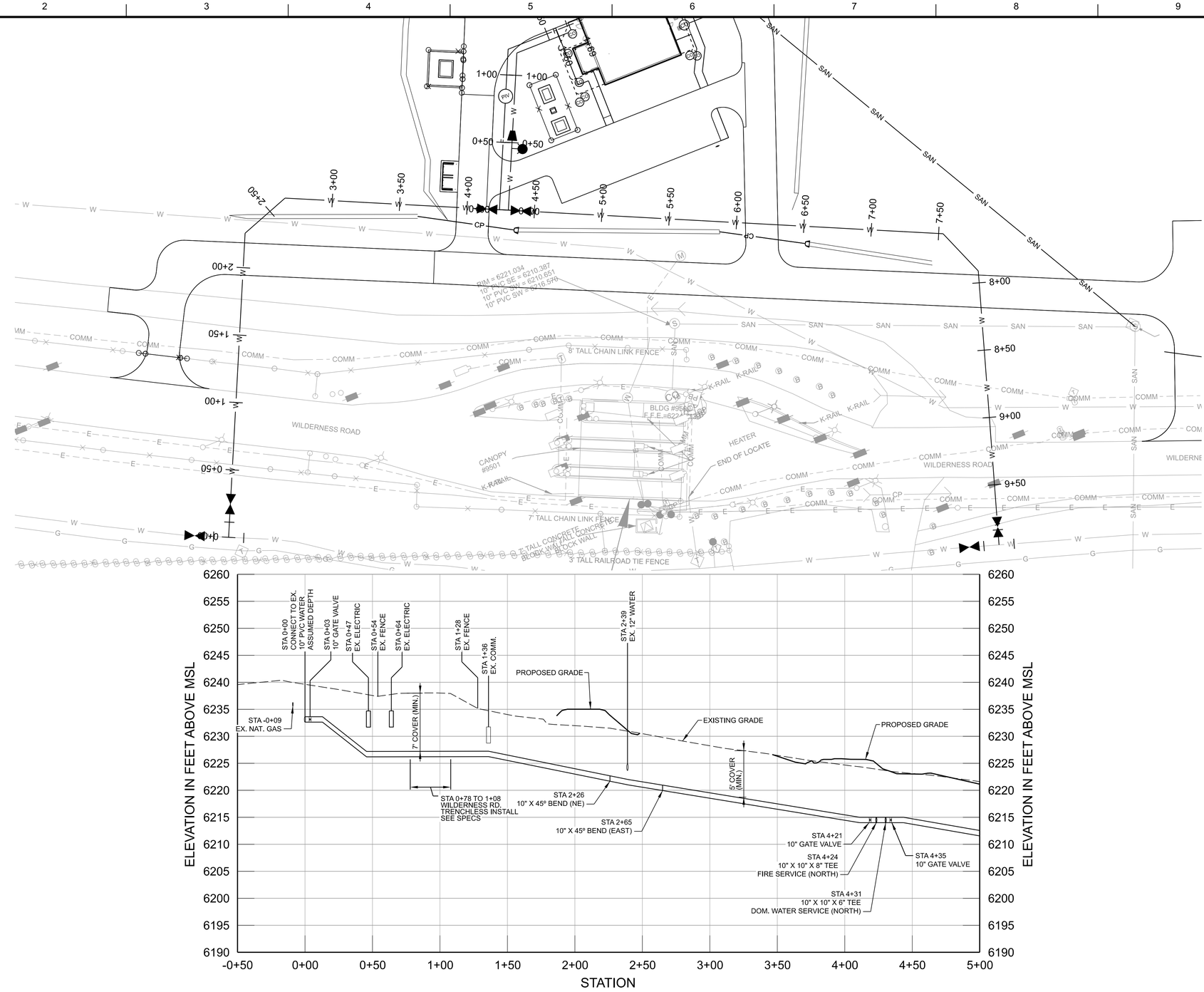

A2 WATER LOOP PLAN AND PROFILE

4:1 VERTICAL EXAGGERATION

HORIZ. SCALE: 1" = 40'-0" (0, 40', 80')

VERT. SCALE: 1" = 10'-0" (0, 10', 20')

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FILENAME:	FCDRCU203.dgn

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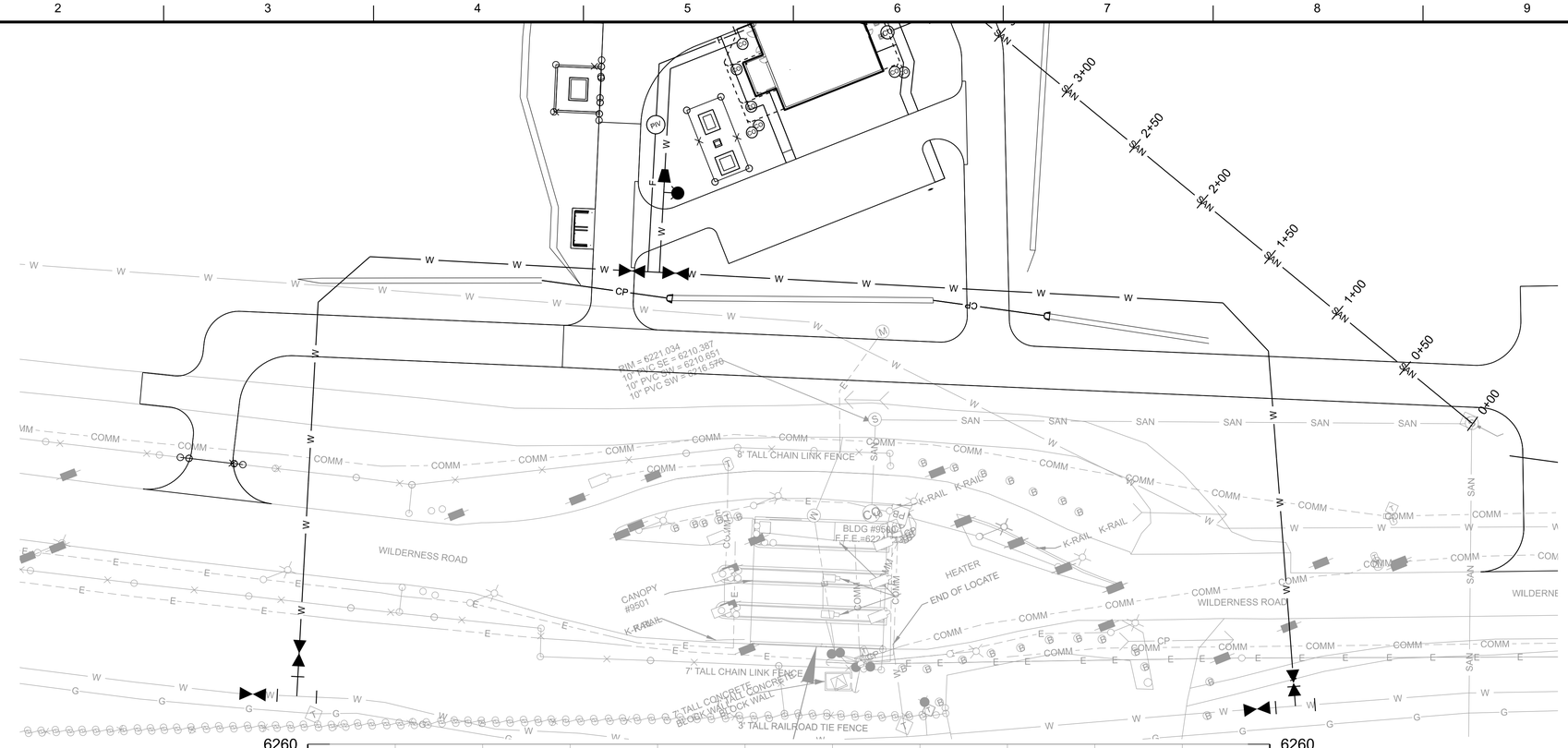
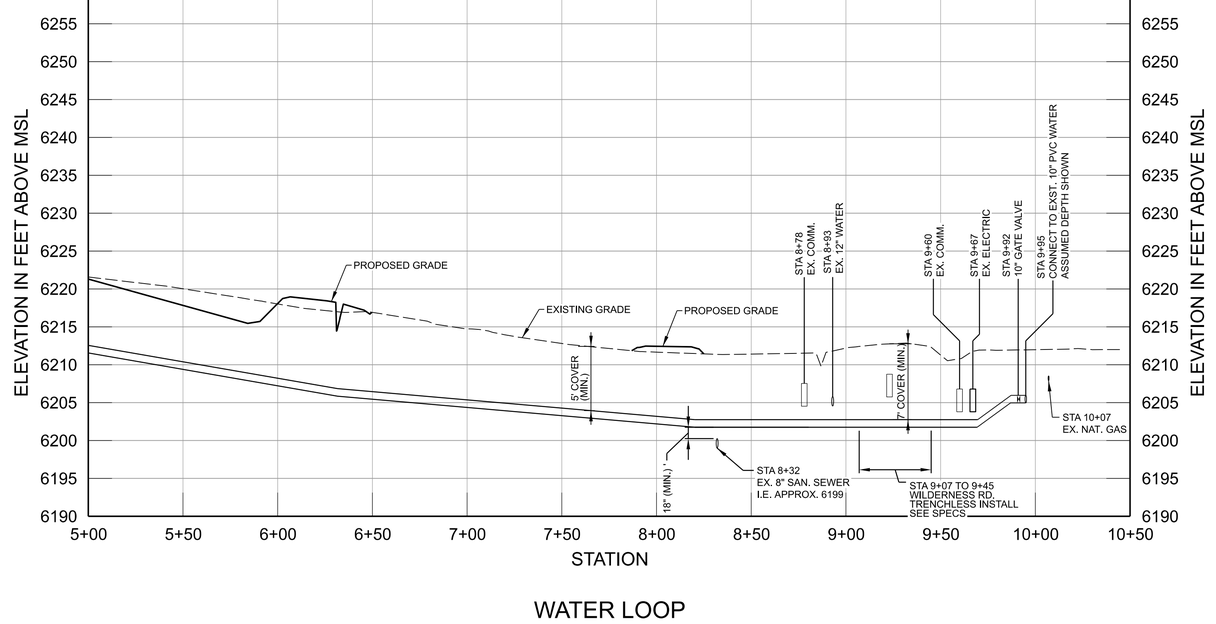
PN101464 (FY23)

WATER LOOP
PLAN AND PROFILE
STA 0+00 TO STA 5+00

SHEET ID

CU203





WATER LOOP

A2 WATER LOOP PLAN AND PROFILE

4:1 VERTICAL EXAGGERATION

HORIZ. SCALE: 1" = 40'-0" (0, 40', 80')

VERT. SCALE: 1" = 10'-0" (0, 10', 20')

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D. ERICKSON	W9128F23R0016
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T. OWENS	
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WATER LOOP
PLAN AND PROFILE
STA 5+00 TO STA 9+95

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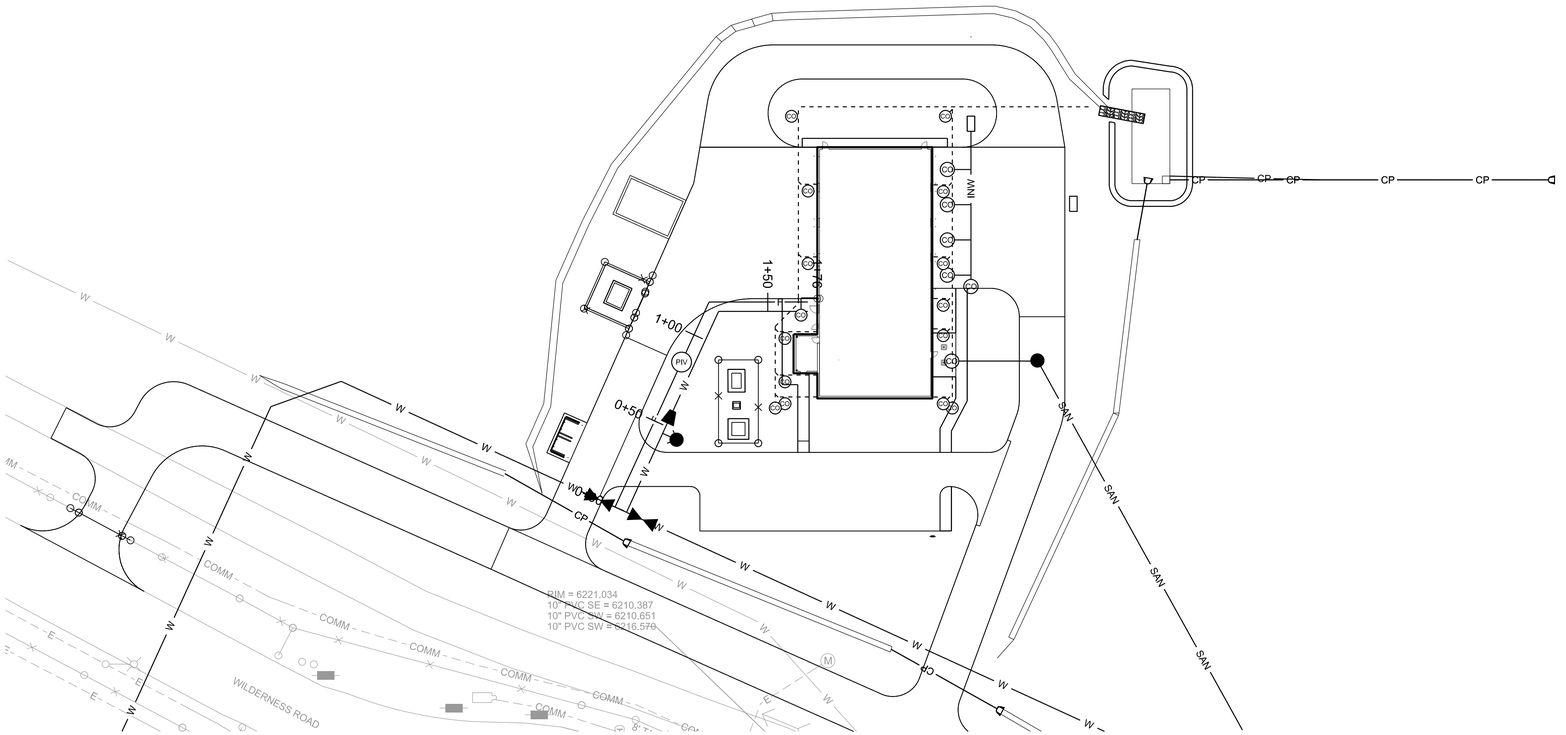

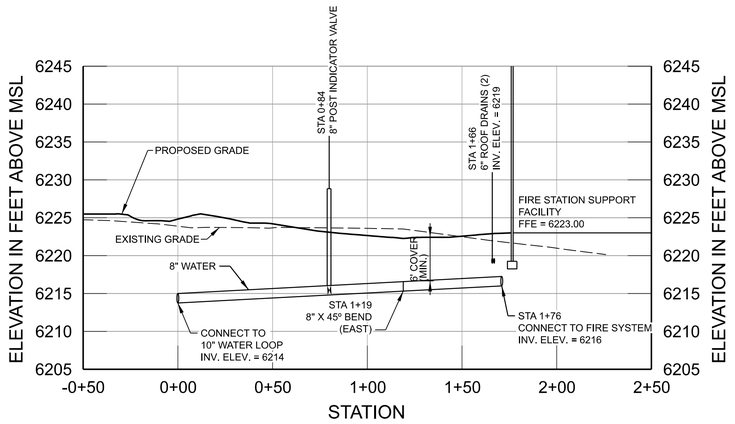

FIRE WATER

A2 FIRE WATER PLAN AND PROFILE

4:1 VERTICAL EXAGGERATION

HORIZ. SCALE: 1" = 40'-0"

VERT. SCALE: 1" = 10'-0"

NORTH

SCALE: 1" = 40'-0"

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FILE NUMBER:	
FILENAME:	FCDRCU205.dgn

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PN101464 (FY23)

FIRE WATER
PLAN AND PROFILE

SHEET ID

CU205

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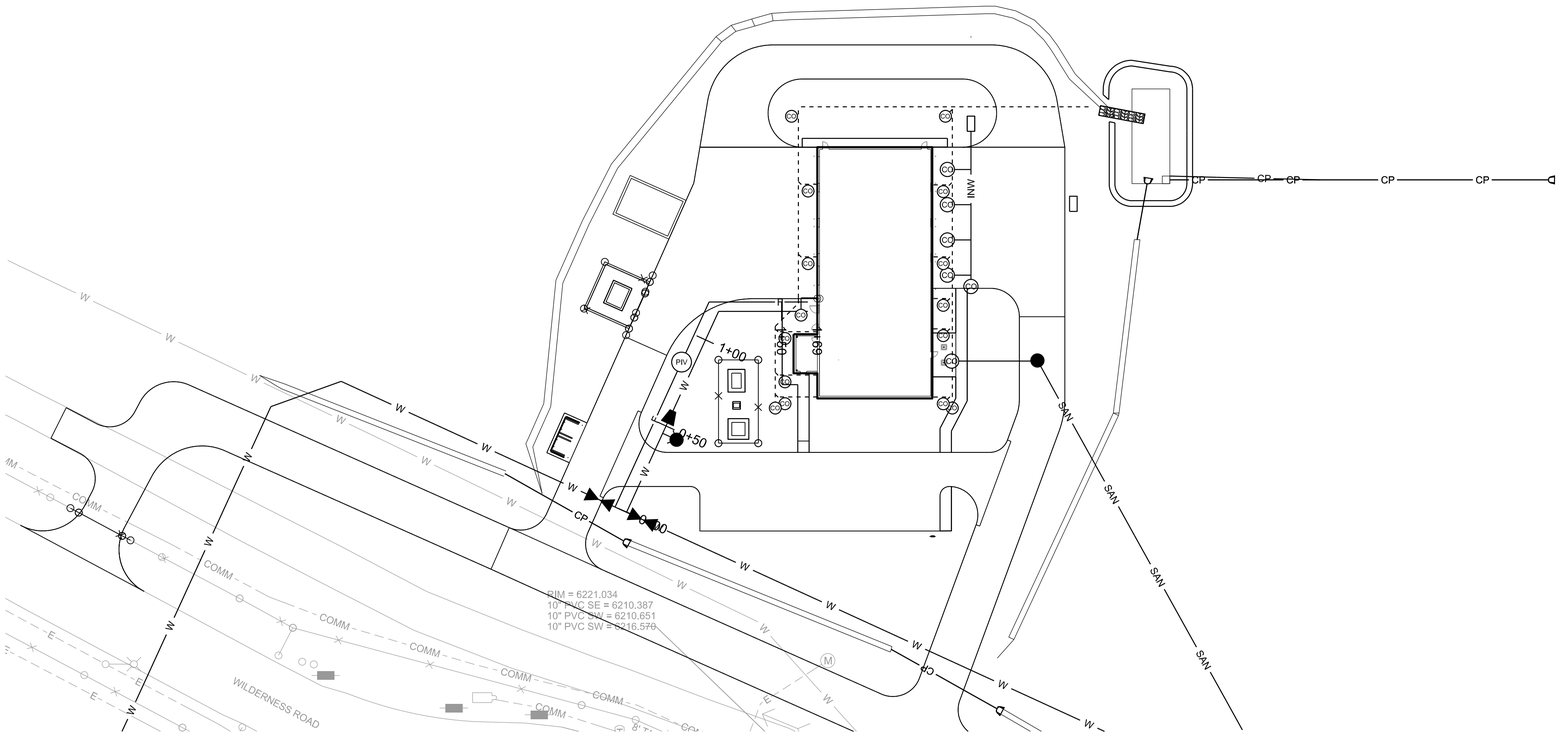
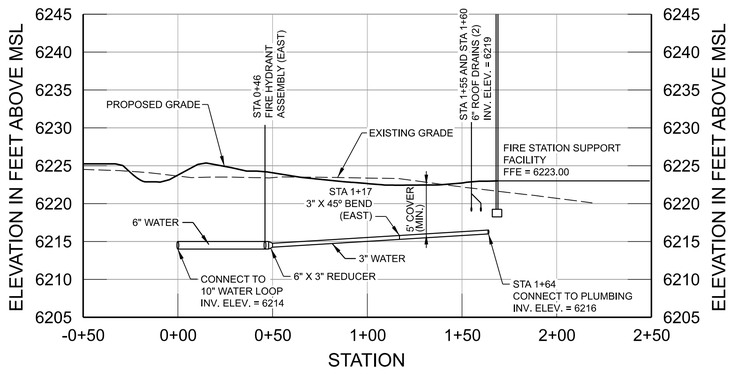


NORTH

0 40' 80'

SCALE: 1" = 40'-0"



DOMESTIC WATER

A2 DOMESTIC WATER PLAN AND PROFILE

4:1 VERTICAL EXAGGERATION

0 40' 80'

HORIZ. SCALE: 1" = 40'-0"

0 10' 20'

VERT. SCALE: 1" = 10'-0"

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CONTRACT NO.:	
FILE NUMBER:	
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FIRE STATION SUPPORT FACILITY (GATE 6)
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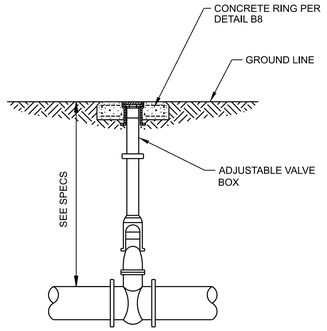
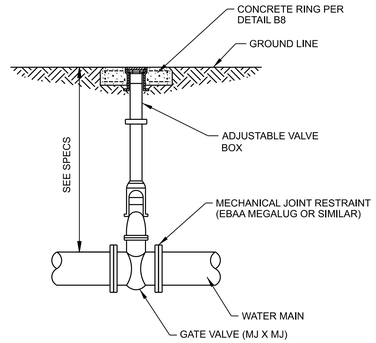
DOMESTIC WATER
PLAN AND PROFILE

SHEET ID

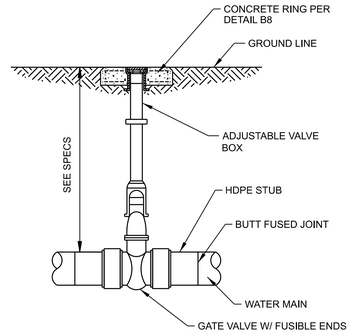
CU206



E3 VALVE SETTING
SCALE: NTS

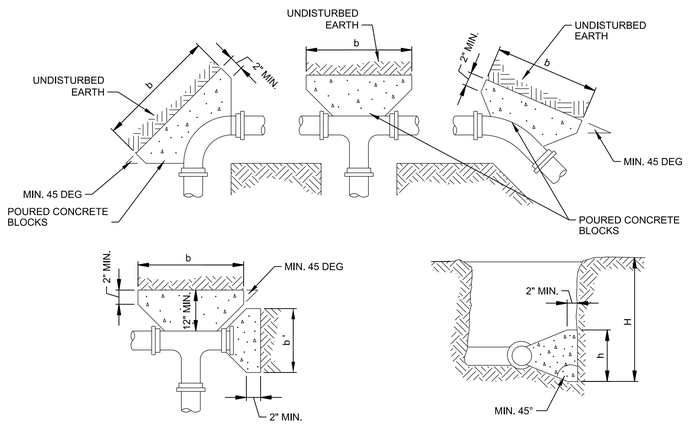


MECHANICAL JOINT GATE VALVE



GATE VALVE WITH HDPE ENDS

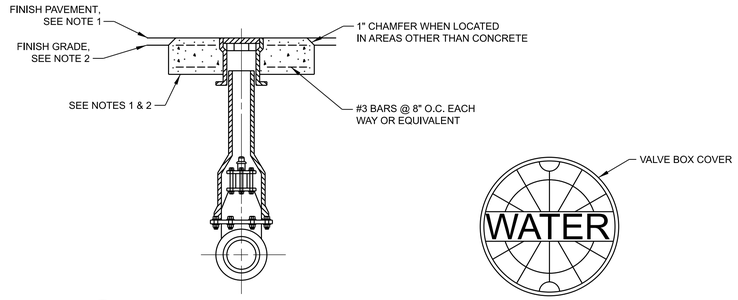
E7 TYPICAL GATE VALVE TO PIPE CONNECTION
SCALE: NTS



B2 THRUST BLOCKING
SCALE: NTS

NOTES:
1. PLACE 4 MIL POLYETHYLENE BETWEEN CONCRETE AND FITTING (CONCRETE SHALL NOT INTERFERE WITH JOINT.)
2. MINIMUM CONCRETE THICKNESS SHALL BE 12 INCHES.
3. THE HORIZONTAL DIMENSION (b) OF THE BEARING AREA SHALL BE BETWEEN 1.0 AND 2.0 TIMES THE VERTICAL DIMENSION (h). (h <= b <= 2h)
4. THE VERTICAL DIMENSION (h) OF THE BEARING AREA SHALL BE EQUAL TO ONE-HALF THE TOTAL DEPTH (H) TO THE BOTTOM OF THE THRUST BLOCK BUT NOT LESS THAN THE OUTSIDE DIAMETER (DO) OF THE FITTING (DO < h <= H/2).
5. THRUST BLOCK ORIENTATION SHALL BE SUCH THAT THE CENTER OF THE FITTING CORRESPONDS WITH THE CENTER OF THE THRUST BLOCK.
6. THE MINIMUM ALLOWABLE ANGLE (EITHER VERTICAL OR HORIZONTAL) SHALL BE 45 DEGREES.

BEARING AREA OF BLOCK IN SQ. FT. (b X h)					
FITTING SIZES	TEE AND END	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
3" HDPE	N/A	NOT REQUIRED FOR BUTT FUSED JOINTS			
4" HDPE	N/A	NOT REQUIRED FOR BUTT FUSED JOINTS			
8" HDPE	8.4	11.9	6.4	3.3	1.65
10" HDPE	12.6	17.8	9.7	4.9	2.47
6" PVC	5.4	7.6	4.1	2.1	1.06
8" PVC	9.3	13.1	7.1	3.6	1.82



B7 VALVE BOX
SCALE: NTS

NOTES:

1. WHERE VALVES ARE LOCATED IN ROADS, SIDEWALKS, OR OTHER PAVED AREAS, CAST AROUND THE TOP OF EACH VALVE BOX A CONCRETE RING 3'-0" DIAMETER x 8" THICK.

2. WHEN PLACED IN A NON-PAVED AREA, CAST AROUND THE TOP OF EACH VALVE BOX A CONCRETE RING 18" IN DIAMETER x 4" THICK, FLUSH WITH THE VALVE BOX LID. EXTEND THE CONCRETE RING NOT MORE THAN 1-INCH ABOVE THE FINISHED GRADE.

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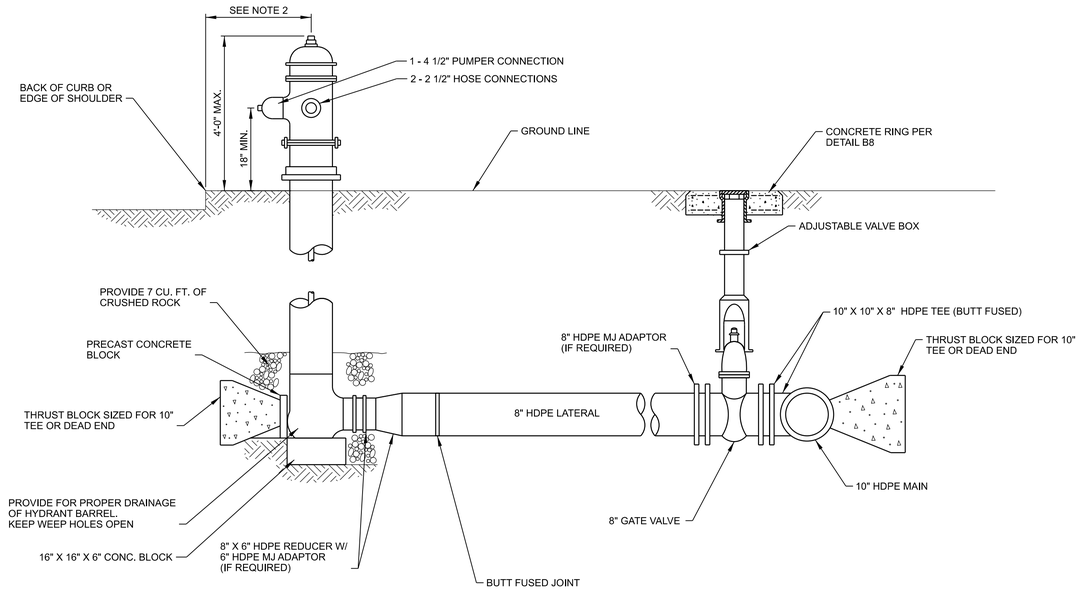
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

WATER UTILITY DETAILS
SHEET 1 OF 2

SHEET ID
CU501



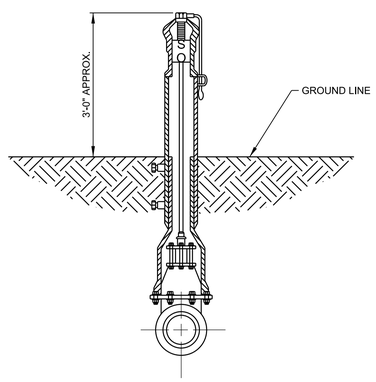
D6 FIRE HYDRANT SETTING: HDPE PIPE

SCALE: NTS

NOTES:

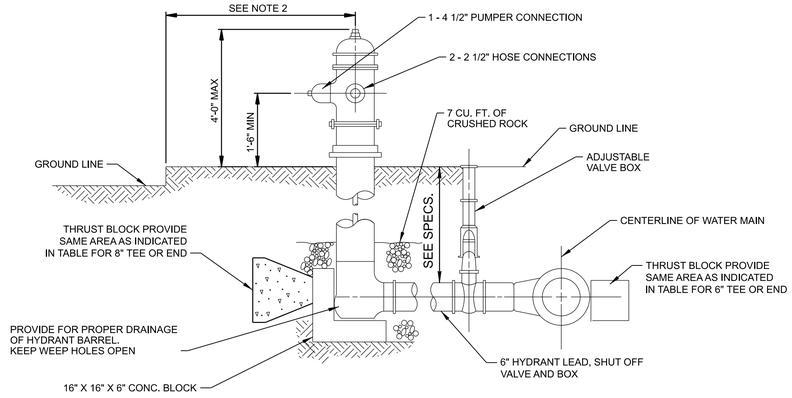
1. COORDINATE WITH THE CONTRACTING OFFICER'S REPRESENTATIVE FOR HYDRANT NUMBER ASSIGNMENT.

2. A = 7'-0" FROM BACK OF PAVEMENT WHERE NO CURB EXISTS OR 4'-0" FROM BACK OF CURB.



B2 POST INDICATOR VALVE

SCALE: NTS



B6 FIRE HYDRANT SETTING: PVC PIPE

SCALE: NTS

NOTES:

1. COORDINATE WITH THE CONTRACTING OFFICER'S REPRESENTATIVE FOR HYDRANT NUMBER ASSIGNMENT.

2. A = 7'-0" FROM BACK OF PAVEMENT WHERE NO CURB EXISTS OR 4'-0" FROM BACK OF CURB.

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OMAHA, NE 68102

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WATER UTILITY DETAILS
SHEET 2 OF 2

SHEET ID

CU502

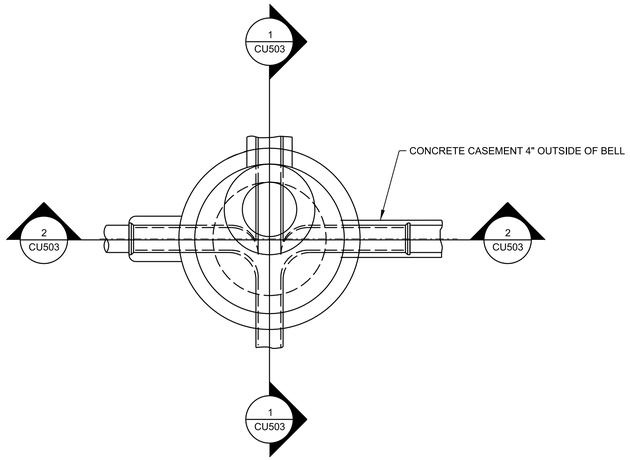
STANDARD MANHOLE NOTES:

1. INSIDE DIAMETER OF MANHOLES SHALL BE 4'-0" FOR PIPE THROUGH 24". MANHOLES DEEPER THAN 12' SHALL BE 5'-0" INSIDE DIAMETER.

2. ANY MATERIAL EXCAVATED BENEATH PIPE ENTERING OR LEAVING MANHOLES SHALL BE REPLACED WITH CONCRETE. SUCH CONCRETE FILL SHALL EXTEND OF THE CENTER OF THE PIPE FOR A DISTANCE OF AT LEAST 3'-0" FROM THE FACE OF THE MANHOLE AND SHALL TERMINATE AT A BELL.

3. FITTINGS FOR DROP MANHOLE CONNECTION MAY BE OF STANDARD SEWER PIPE MATERIALS OTHER THAN THAT OF THE INCOMING PIPE IF APPROVED TRANSITION IS PROVIDED.

4. 16-GAUGE STEEL FORMS MAY BE USED AT DROP MANHOLE CONNECTIONS WHEN STANDARD FITTINGS ARE NOT READILY AVAILABLE.



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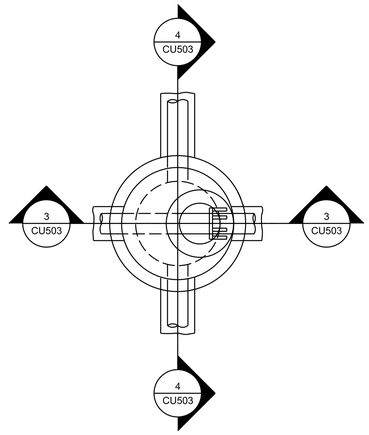

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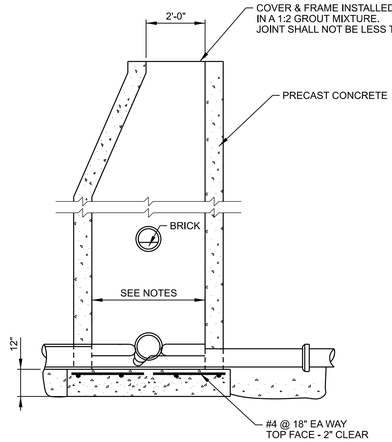

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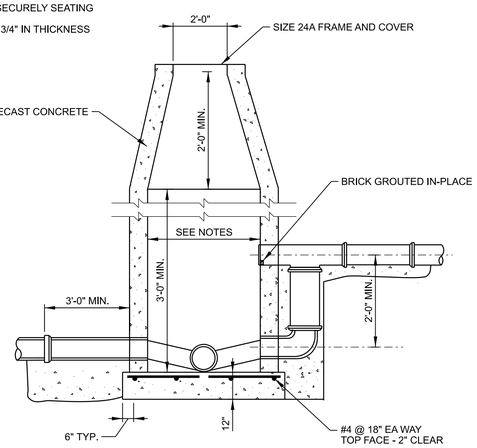


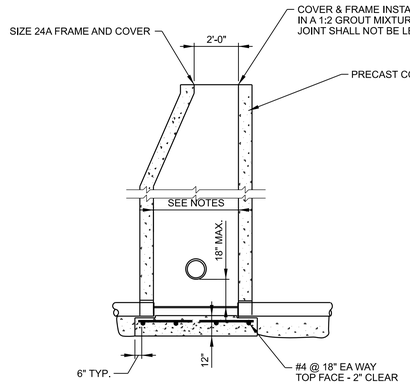
SECTION 2

A2 TYPICAL PRECAST ECCENTRIC DROP MANHOLE

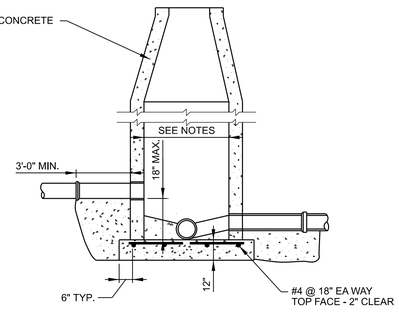
SCALE: NTS

NOTES:

1. NO STEPS, RUNGS OR LADDERS SHALL BE PROVIDED.
2. MANHOLES 12' DEEP AND LESS SHALL BE 4' DIAMETER. MANHOLES DEEPER THAN 12' SHALL BE 5' DIAMETER.



SECTION 3



SECTION 4

A7 TYPICAL PRECAST ECCENTRIC MANHOLE

SCALE: NTS

NOTES:

1. NO STEPS, RUNGS OR LADDERS SHALL BE PROVIDED.
2. MANHOLES 12' DEEP AND LESS SHALL BE 4' DIAMETER. MANHOLES DEEPER THAN 12' SHALL BE 5' DIAMETER.

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DRAWN BY: D. ERICKSON
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ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILENAME: FCDRCU503.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

WASTEWATER DETAILS
SHEET 1 OF 2

SHEET ID
CU503

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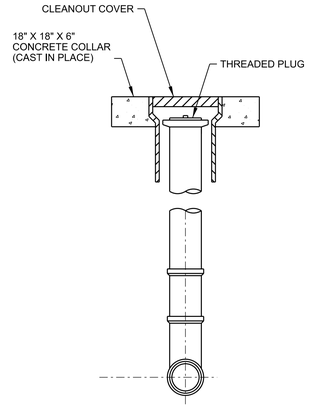

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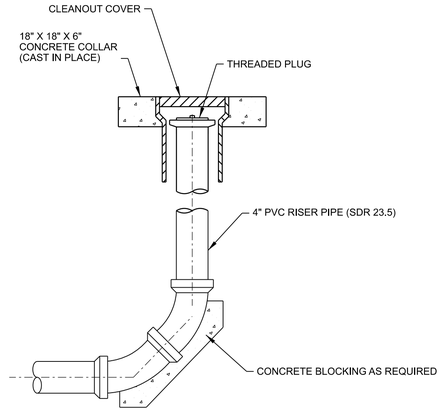

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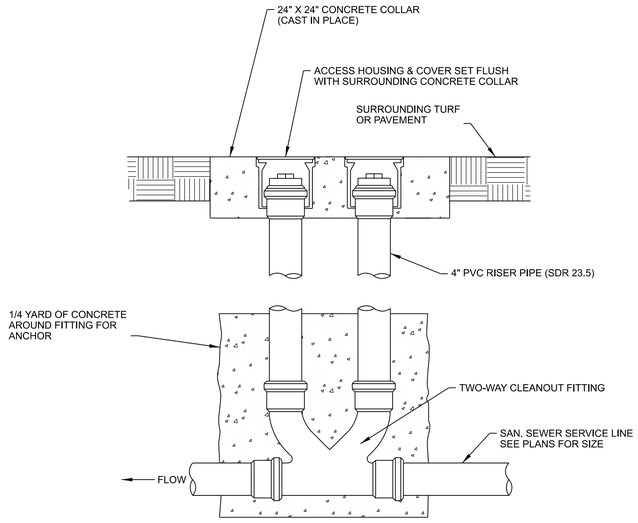
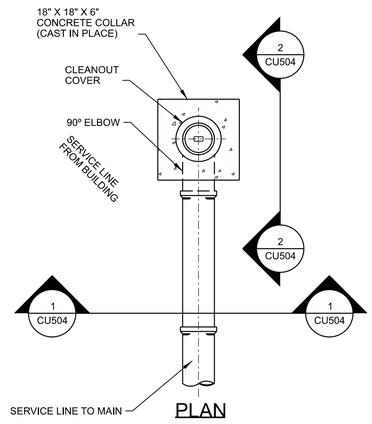
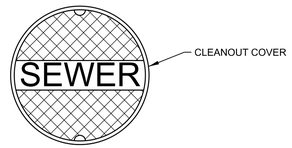


B3 TWO-WAY CLEANOUT

SCALE: NTS



PLAN



B7 INDUSTRIAL WASTE CLEANOUT

SCALE: NTS

NOTE:

1. PIPES AND FITTINGS SHALL BE SIZED PER PLANS.

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ISSUE DATE: 01/20/2023
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DESIGNED BY: D. ERICKSON
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CHECKED BY: T. OWENS
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SIZE: ANSI D
FILENAME: FCDRCU504.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

WASTEWATER DETAILS
SHEET 2 OF 2

SHEET ID

CU504

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CLEARANCE MATRIX FOR TYPICAL FORT CARSON UNDERGROUND UTILITIES

All separations shown are the clear horizontal distance between two objects measured surface to surface (All dimensions are in feet)

TYPE OF UTILITY	Potable Water	Non-Potable Water	Wastewater	Storm Sewer	Gas Main	Gas Service	Primary Electric	Secondary Electric	Communication Lines
Potable Water		10	10	10	6	3	10	10	10
Non-Potable Water	10		10	10	6	3	10	10	10
Wastewater	10	10		5	6	3	10	5	5
Storm Sewer	10	10	5		6	3	10	5	5
Gas Main	6	6	6	6		3	6	6	6
Gas Service	3	3	3	3	3		3	1	1
Primary Electric	10	10	10	10	6	3		1	1
Secondary Electric	10	10	5	5	6	1	1		1
Communication Lines	10	10	5	5	6	1	1	1	

CLEARANCE MATRIX FOR TYPICAL FORT CARSON UNDERGROUND UTILITY CROSSINGS

All separations shown are the clear vertical distance between two objects measured surface to surface (All dimensions are in feet)

TYPE OF UTILITY	Potable Water	Non-Potable Water	Wastewater	Storm Sewer	Gas Main	Gas Service	Primary Electric	Secondary Electric	Communication Lines
Potable Water		1.5	1.5	1.5	1	1	1	1	1
Non-Potable Water	1.5		1.5	1.5	1	1	1	1	1
Wastewater	1.5	1.5		1.5	1	1	1	1	1
Storm Sewer	1.5	1.5	1.5		1	1	1	1	1
Gas Main	1	1	1	1		1	1	1	1
Gas Service	1	1	1	1	1		1	1	1
Primary Electric	1	1	1	1	1	1		1	1
Secondary Electric	1	1	1	1	1	1	1		1
Communication Lines	1	1	1	1	1	1	1	1	

Any deviations from the above clearances must be approved by the DPW, Operations and Maintenance Division

** Note: A potable water service line (Less than 3-inch Diameter) may be placed in a common trench with non-potable water/sewer building service under the following condition.

"The water service must be placed on a solid shelf excavated at one side of the common trench a minimum 1-foot over and above the top of the sewer pipe or non-potable water pipe plus 1-foot lateral separation."

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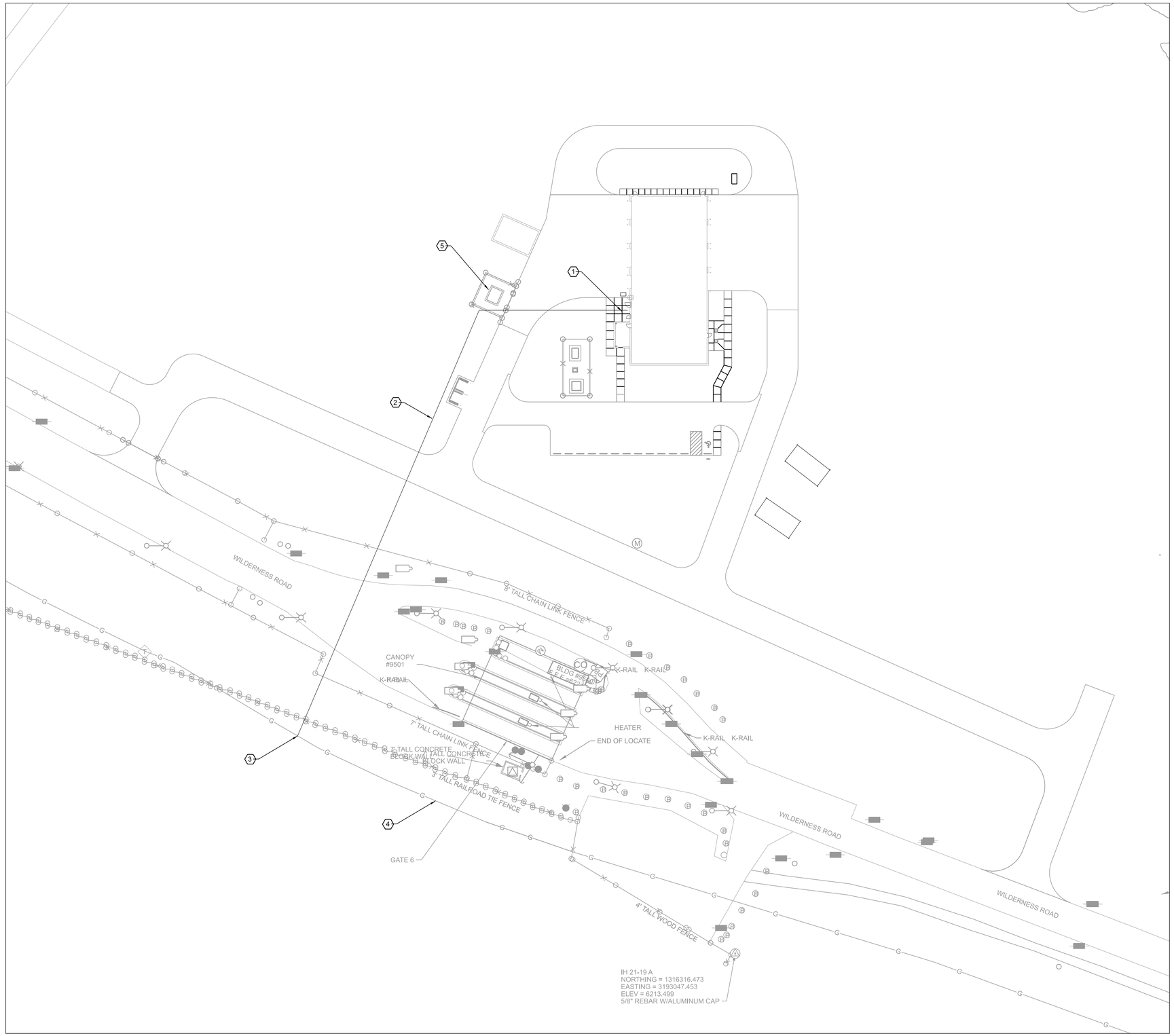
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILENAME: FCDRCU600.dgn

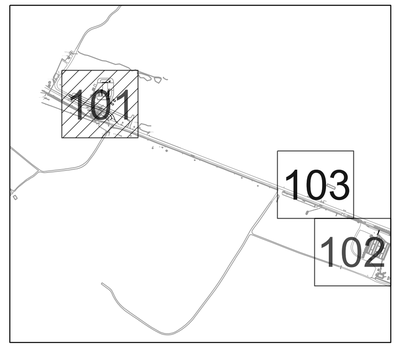
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

FORT CARSON UNDERGROUND UTILITY MATRIX

SHEET ID
CU600





N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. NEW NATURAL GAS SERVICE LINE ROUTED UNDER EXISTING PAVED ROADS SHALL BE INSTALLED BY DIRECTIONAL DRILLING.

KEYNOTES:

1. PROVIDE A NATURAL GAS SERVICE ENTRANCE, SEE DETAIL A3 ON SHEET M-503.
2. NEW 1-1/2" BURIED NATURAL GAS SERVICE LINE.
3. CONNECTION OF NEW NATURAL GAS SERVICE LINE TO EXISTING NATURAL GAS MAIN. PROVIDE AN ISOLATION VALVE WITH VALVE BOX AT GRADE.
4. EXISTING 12" HP (50 PSIG) NATURAL GAS LINE
5. 1,000 GALLON DOUBLE WALL UL-2085 RATED FUEL TANK WITH THE FOLLOWING. SEE SPECS FOR MORE DETAIL AND ADDITIONAL REQUIREMENTS.
   - TANK MANUFACTURER STANDARD STEP LADDER WITH PLATFORM
   - TANK MOUNTED PUMP W/ METER, DIGITAL REGISTER, FILTER, HOSE AND NOZZLE ASSEMBLY
   - INTERSTITIAL MONITOR
   - OVERSPILL BUCKET WITH LOCKABLE CAP FOR FILLING OPERATIONS
   - 4" PRIMARY AND SECONDARY TANK EMERGENCY VENTS
   - 1000 GALLON CLOCK GAUGE

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MARK	DESCRIPTION	DATE

DESIGNED BY:	T. WEEDER
DRAWN BY:	T. WEEDER
CHECKED BY:	J. SWERCZEK
SUBMITTED BY:	J. SWERCZEK
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILENAME:	FCDRMS101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

MECHANICAL SITE PLAN
AREA 101

SHEET ID

MS101

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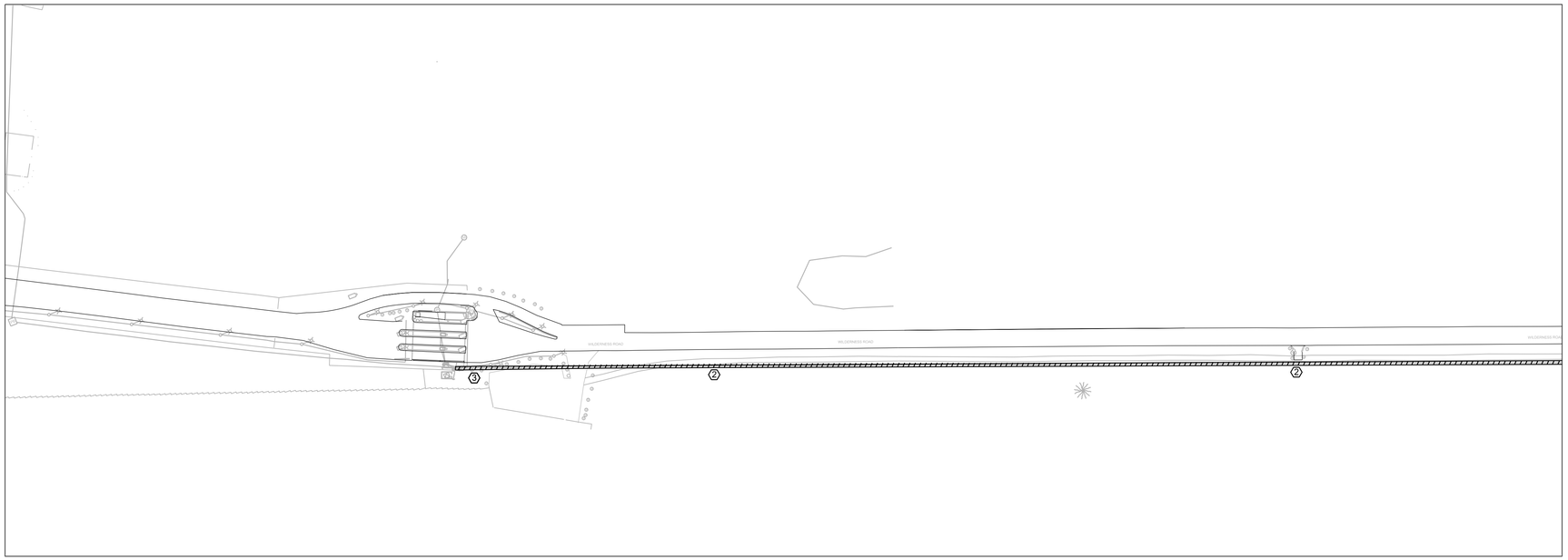

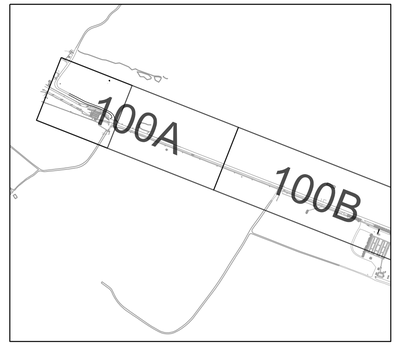

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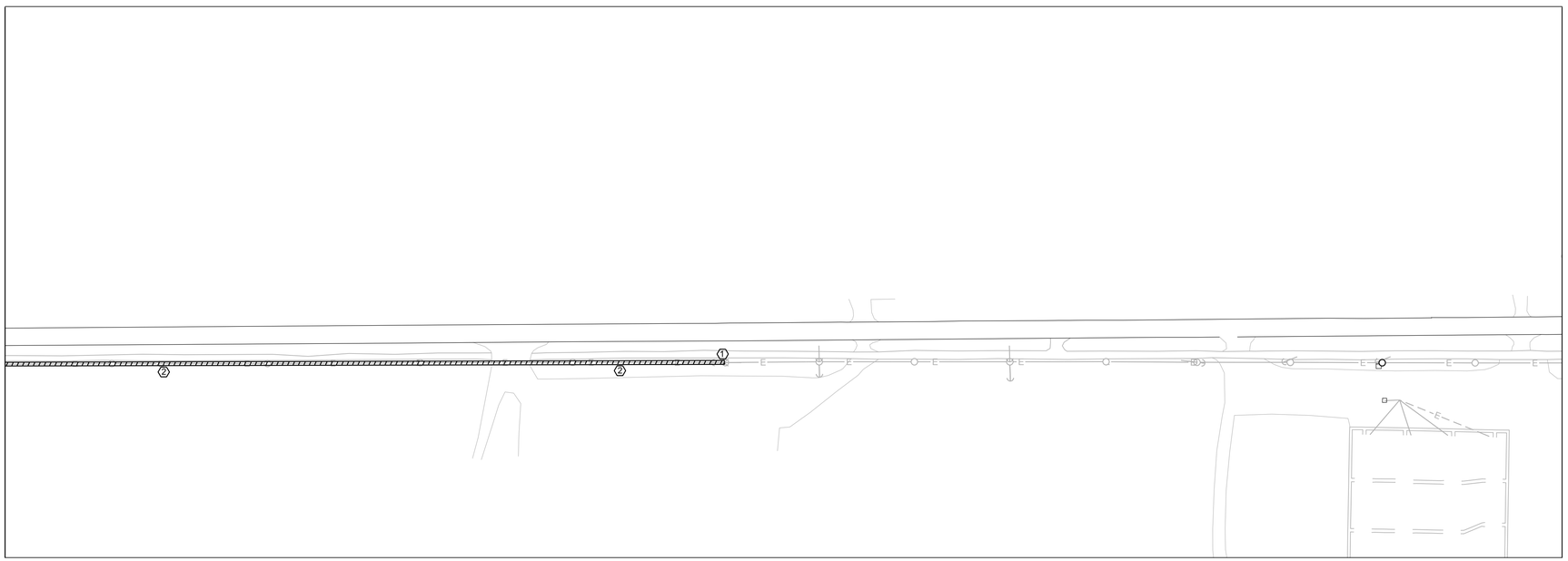
KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:
1. DEMO SHEET SHALL BE USED WITH BASE OPTION. FOR BID OPTION, SEE ED100A.



KEYED NOTES:
1. EXISTING 3 PHASE POWER POLE TO REMAIN.

2. REMOVE EXISTING SINGLE PHASE POWER LINE AND POLES.

3. FOR OUTAGES LASTING LONGER THAN A FEW HOURS, PROVIDE TEMPORARY GENERATOR POWER. COORDINATE WITH FORT CARSON DPW FOR PLANNED OUTAGES A MINIMUM OF 2 WEEKS PRIOR TO OUTAGE OCCURING.

N

0 100' 200'

SCALE: 1" = 100'

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SUBMITTED BY: S. LINDGREN	FILE NUMBER:
SIZE: ANSI D	FILENAME: FCDRED100.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL DEMO PLAN
BASE OPTION

SHEET ID

ED100

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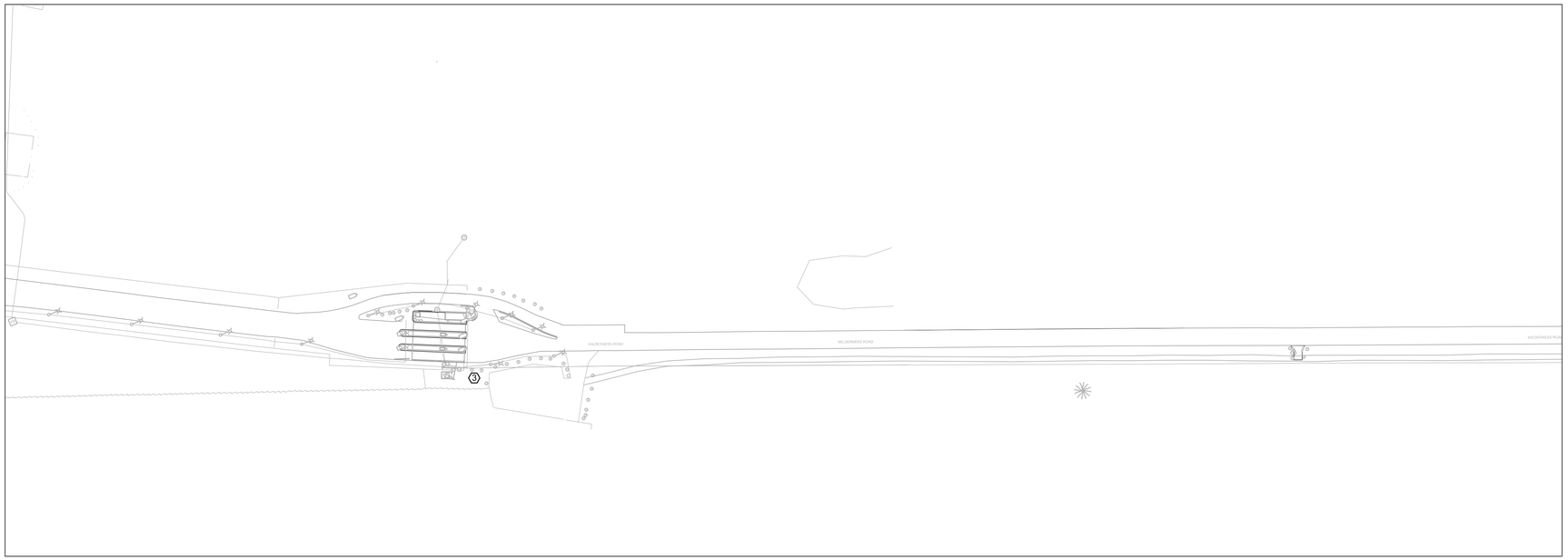
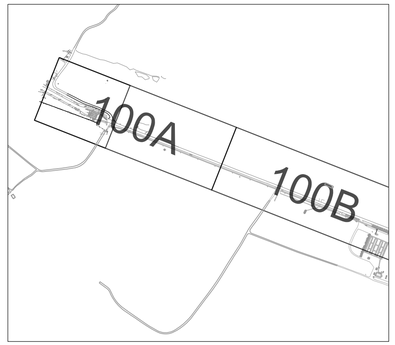
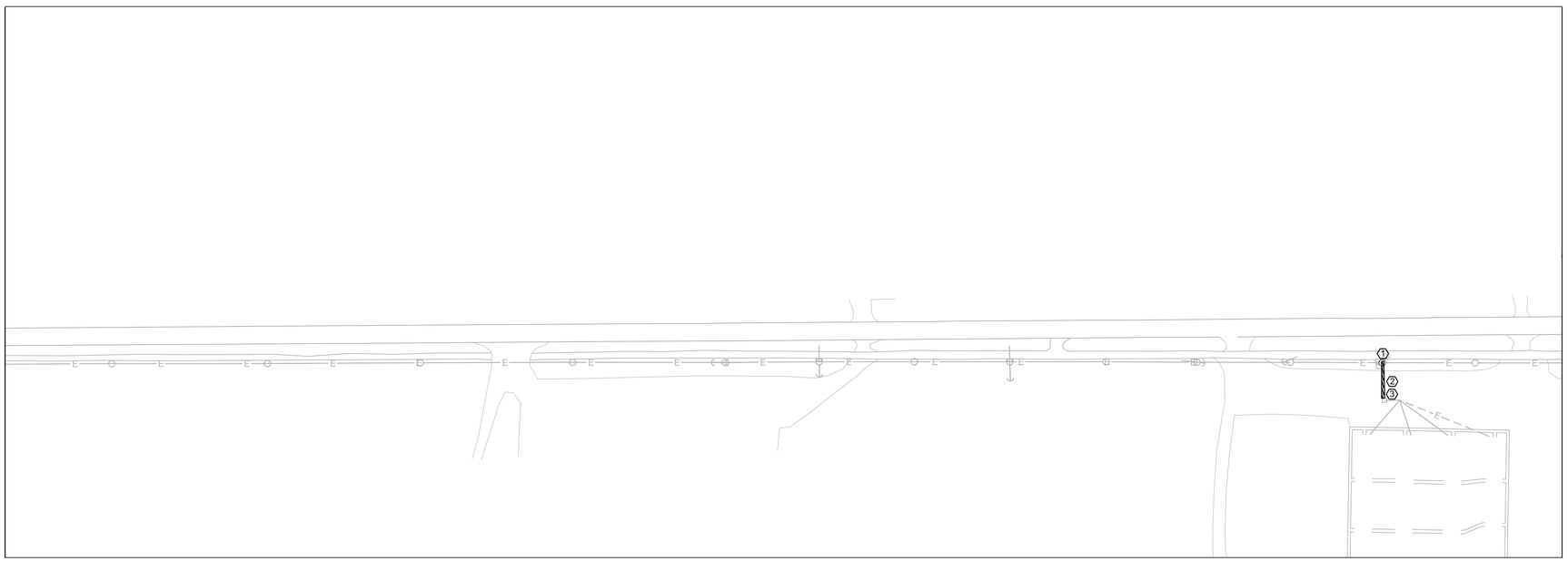




N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:
1. DEMO SHEET SHALL BE USED WITH BID OPTION. FOR BASE OPTION, SEE ED100.



KEYED NOTES:
1. REMOVE EXISTING POLE.

2. REMOVE CONDUIT TO EXISTING TRANSFORMER.

3. FOR OUTAGES LASTING LINGER THAN A FEW HOURS, PROVIDE TEMPORARY GENERATOR POWER. COORDINATE WITH FORT CARSON DPW FOR PLANNED OUTAGES A MINIMUM OF 2 WEEKS PRIOR TO OUTAGE OCCURRING.

N

0 100' 200'

SCALE: 1" = 100'

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%

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SIZE: ANSI D	FILENAME: FCDRED1000A.dgn

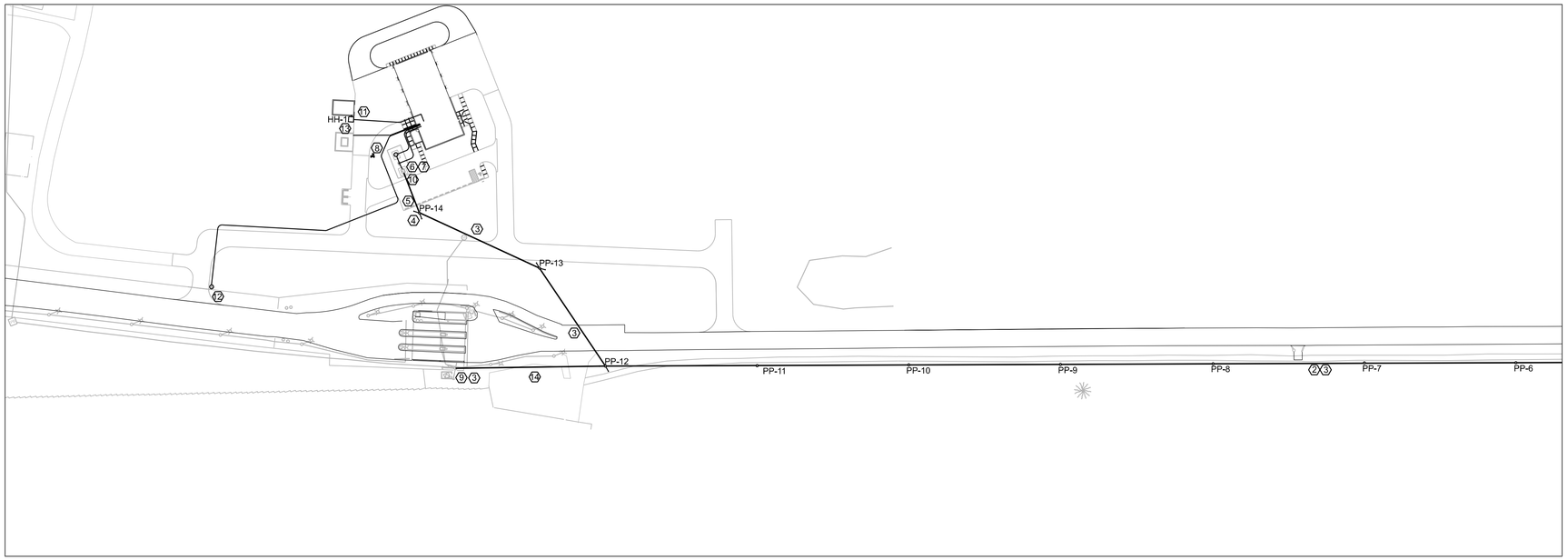
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

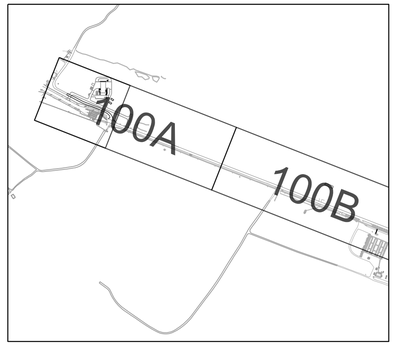
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL DEMO PLAN
BID OPTION

SHEET ID

ED100A





N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. PROVIDE AERIAL MARKER BALLS ALONG NEW OVERHEAD POWER LINES. MARKERS SHALL BE PLACED IN THE CENTER OF THE SPAN BETWEEN EACH POLE.

(#) KEYED NOTES:

1. EXISTING OVERHEAD POWER POLE. CONNECT NEW THREE PHASE POWER AT THIS POLE.

2. NEW THREE PHASE OVERHEAD LINES WITH NEUTRAL. PROVIDE NEW POWER POLES APPROXIMATELY EVERY 220 FEET.

3. NEW THREE PHASE ACSR TURKEY (6:1) WITH NEUTRAL OVERHEAD LINES.

4. NEW 40-3 OVERHEAD TO UNDERGROUND TRANSITION POLE. SEE SHEET ES503 FOR DETAILS.

5. NEW THREE PHASE UNDERGROUND FEED TO TRANSFORMER.

6. LOCATE TRANSFORMER 25' MINIMUM FROM FACILITY. SEE SHEET ES402.

7. LOCATE EQUIPMENT 5' MINIMUM FROM OTHER EQUIPMENT.

8. APPROXIMATE LOCATION OF PIV. SEE CIVIL SHEETS.

9. RECONNECT NEW OVERHEAD POWER LINE TO EXISTING POLE FEEDING GATE 6 TRANSFORMER AND WATER TANK.

10. PROVIDE HOUSEKEEPING PADS (GENERATOR, TRANSFORMER, ACS, ECT.) PER MANUFACTURERS RECOMMENDATIONS.

11. IF STORAGE BUILDING IS NOT AWARDED AS A BID OPTION, PROVIDE CONDUIT TO HANDHOLE, AND PROVIDE PANEL E2-6 WITH A SPARE.

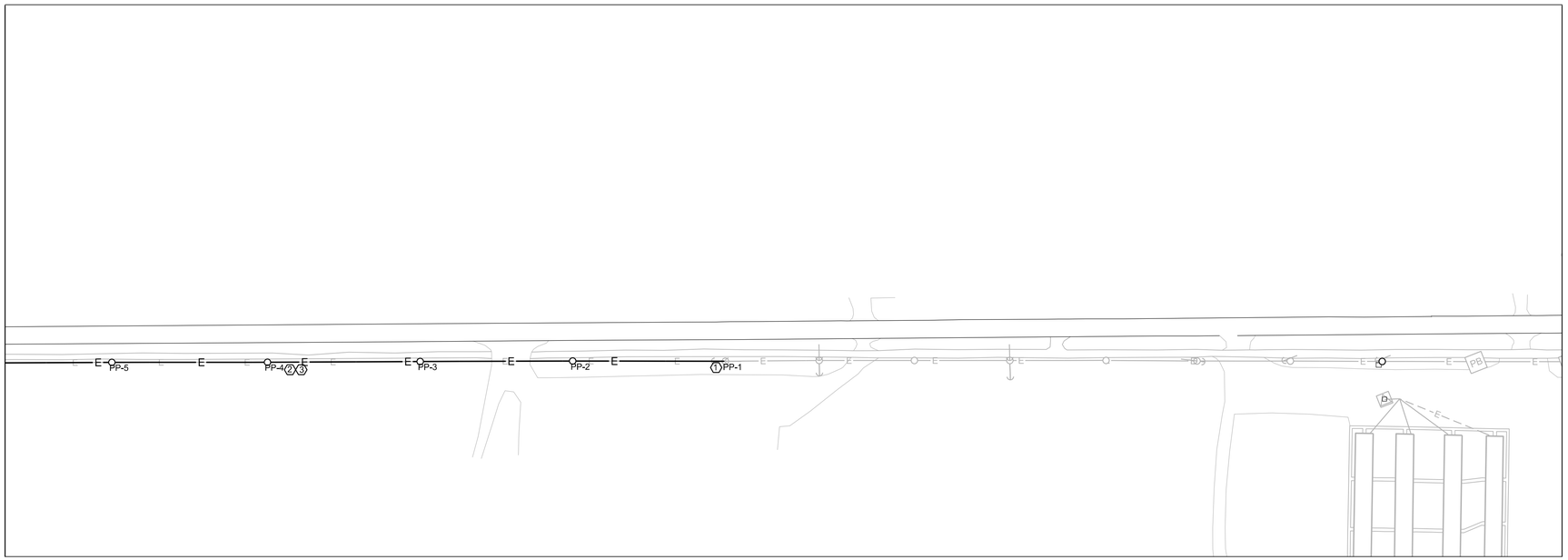
12. PROVIDE KEYPAD PEDISTAL FOR ENTRY INTO GATE.

13. SEE ES401 FOR EXPANDED VIEW.

14. PROVIDE NEW SINGLE PHASE CONNECTION TO GATE 6. MATCH EXISTING CONDITIONS.

LEGEND:

- XX-# — NEW PRIMARY POWER MANHOLE. XX DESIGNATES MANHOLE/HANDHOLE. # DESIGNATES NUMBER FOR EACH.
- POST INDICATOR VALVE
- NEW OVERHEAD 3 PHASE POWER POLE
- POWER POLE GUY SUPPORTS
- NEW PAD MOUNTED TRANSFORMER
- ATS — NEW PRIMARY POWER MANHOLE
- (G) — NEW PAD MOUNTED GENERATOR
- (M) — NEW FUEL PUMP
- (S) — NEW SLIDING GATE



N

0 100' 200'

SCALE: 1" = 100'

US Army Corps of Engineers®

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DRAWN BY:	K. PAVLIK
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SUBMITTED BY:	S. LINDGREN
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILENAME:	FCDRES100.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
COMPOSITE

SHEET ID

ES100

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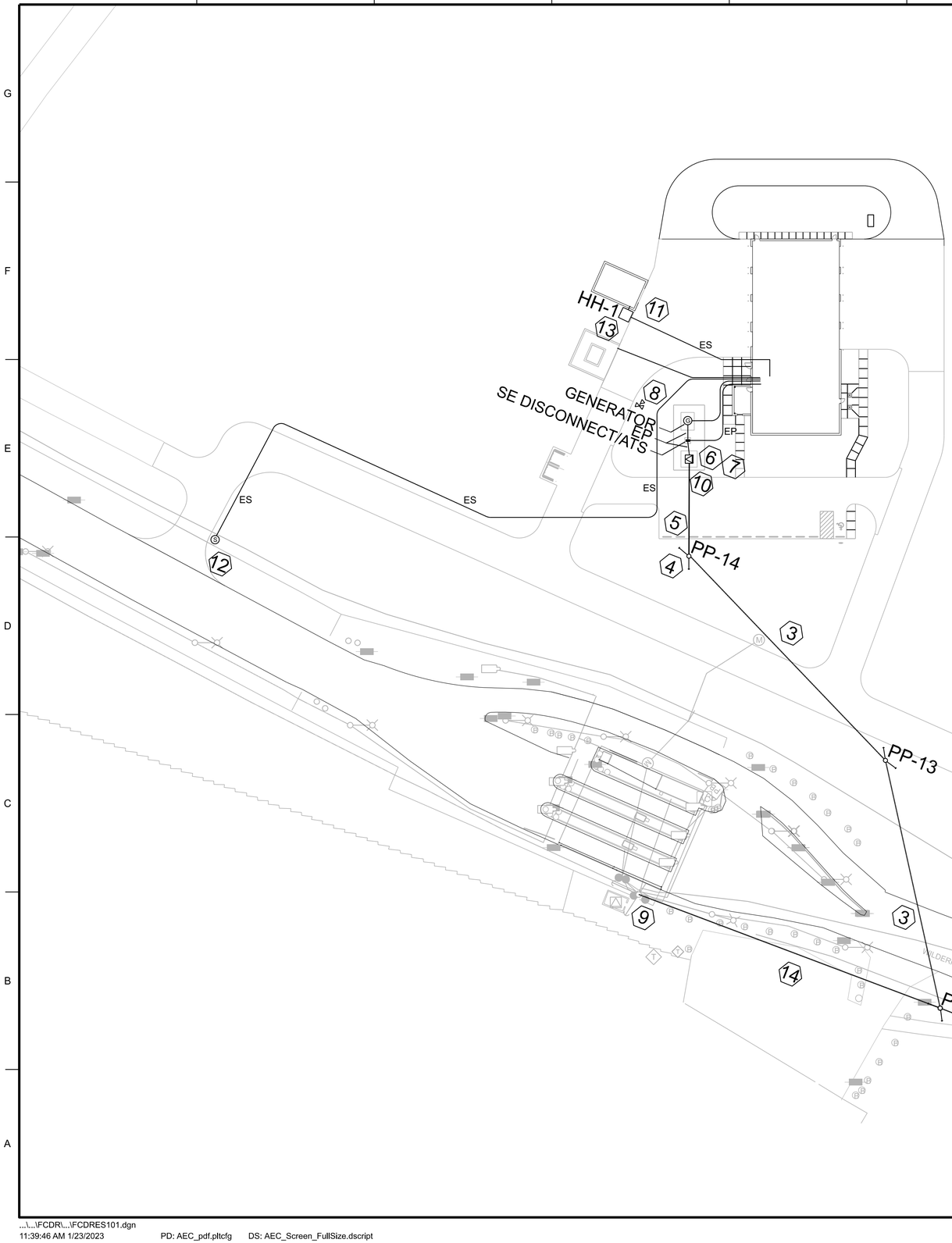

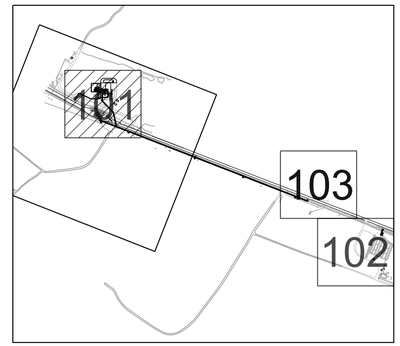

N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. PROVIDE AERIAL MARKER BALLS ALONG NEW OVERHEAD POWER LINES. MARKERS SHALL BE PLACED IN THE CENTER OF THE SPAN BETWEEN EACH POLE.

KEYED NOTES:

1. EXISTING OVERHEAD POWER POLE. CONNECT NEW THREE PHASE POWER AT THIS POLE.

2. NEW THREE PHASE OVERHEAD LINES WITH NEUTRAL. PROVIDE NEW POWER POLES APPROXIMATELY EVERY 220 FEET.

3. NEW THREE PHASE ACSR TURKEY (6:1) WITH NEUTRAL OVERHEAD LINES.

4. NEW 40-3 OVERHEAD TO UNDERGROUND TRANSITION POLE. SEE SHEET ES503 FOR DETAILS.

5. NEW THREE PHASE UNDERGROUND FEED TO TRANSFORMER.

6. LOCATE TRANSFORMER 25' MINIMUM FROM FACILITY. SEE SHEET ES402.

7. LOCATE EQUIPMENT 5' MINIMUM FROM OTHER EQUIPMENT.

8. APPROXIMATE LOCATION OF PIV. SEE CIVIL SHEETS.

9. RECONNECT NEW OVERHEAD POWER LINE TO EXISTING POLE FEEDING GATE 6 TRANSFORMER AND WATER TANK.

10. PROVIDE HOUSEKEEPING PADS (GENERATOR, TRANSFORMER, ACS, ECT.) PER MANUFACTURERS RECOMMENDATIONS.

11. IF STORAGE BUILDING IS NOT AWARDED AS A BID OPTION, PROVIDE CONDUIT TO HANDHOLE, AND PROVIDE PANEL E2-6 WITH A SPARE.

12. PROVIDE KEYPAD PEDISTAL FOR ENTRY INTO GATE.

13. SEE ES401 FOR EXPANDED VIEW.

14. PROVIDE NEW SINGLE PHASE CONNECTION TO GATE 6. MATCH EXISTING CONDITIONS.

LEGEND:

- NEW PRIMARY POWER MANHOLE. XX DESIGNATES MANHOLE/HANDHOLE. # DESIGNATES NUMBER FOR EACH. (XX-#)
- POST INDICATOR VALVE
- NEW OVERHEAD 3 PHASE POWER POLE
- POWER POLE GUY SUPPORTS
- NEW PAD MOUNTED TRANSFORMER
- ATS NEW PRIMARY POWER MANHOLE
- (G) NEW PAD MOUNTED GENERATOR
- (M) NEW FUEL PUMP
- (S) NEW SLIDING GATE

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

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DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: S. LINDGREN	CONTRACT NO.:
SUBMITTED BY: S. LINDGREN	FILE NUMBER:
SIZE: ANSI D	FILENAME: FCDRES101.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
AREA 101

SHEET ID

ES101

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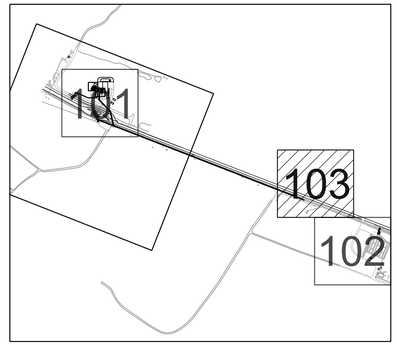


N

KEYPLAN SCALE: 1" = 1000'

GENERAL NOTES:

1. PROVIDE AERIAL MARKER BALLS ALONG NEW OVERHEAD POWER LINES. MARKERS SHALL BE PLACED IN THE CENTER OF THE SPAN BETWEEN EACH POLE.

(#) KEYED NOTES:

1. EXISTING OVERHEAD POWER POLE. CONNECT NEW THREE PHASE POWER AT THIS POLE.

2. NEW THREE PHASE OVERHEAD LINES WITH NEUTRAL. PROVIDE NEW POWER POLES APPROXIMATELY EVERY 220 FEET.

3. NEW THREE PHASE ACSR TURKEY (6:1) WITH NEUTRAL OVERHEAD LINES.

4. NEW 40-3 OVERHEAD TO UNDERGROUND TRANSITION POLE. SEE SHEET ES503 FOR DETAILS.

5. NEW THREE PHASE UNDERGROUND FEED TO TRANSFORMER.

6. LOCATE TRANSFORMER 25' MINIMUM FROM FACILITY. SEE SHEET ES402.

7. LOCATE EQUIPMENT 5' MINIMUM FROM OTHER EQUIPMENT.

8. APPROXIMATE LOCATION OF PIV. SEE CIVIL SHEETS.

9. RECONNECT NEW OVERHEAD POWER LINE TO EXISTING POLE FEEDING GATE 6 TRANSFORMER AND WATER TANK.

10. PROVIDE HOUSEKEEPING PADS (GENERATOR, TRANSFORMER, ACS, ECT.) PER MANUFACTURERS RECOMMENDATIONS.

11. IF STORAGE BUILDING IS NOT AWARDED AS A BID OPTION, PROVIDE CONDUIT TO HANDHOLE, AND PROVIDE PANEL E2-6 WITH A SPARE.

12. PROVIDE KEYPAD PEDISTAL FOR ENTRY INTO GATE.

13. SEE ES401 FOR EXPANDED VIEW.

14. PROVIDE NEW SINGLE PHASE CONNECTION TO GATE 6. MATCH EXISTING CONDITIONS.

LEGEND:

- XX-# — NEW PRIMARY POWER MANHOLE. XX DESIGNATES MANHOLE/HANDHOLE. # DESIGNATES NUMBER FOR EACH.
- POST INDICATOR VALVE
- NEW OVERHEAD 3 PHASE POWER POLE
- POWER POLE GUY SUPPORTS
- NEW PAD MOUNTED TRANSFORMER
- ATS — NEW PRIMARY POWER MANHOLE
- (G) NEW PAD MOUNTED GENERATOR
- (M) NEW FUEL PUMP
- (S) NEW SLIDING GATE

N

0 40' 80'

SCALE: 1" = 40'

PP-2

1 PP-1

WILDERNESS ROAD

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK	ISSUE DATE: 01/20/2023
DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: S. LINDGREN	CONTRACT NO.:
SUBMITTED BY: S. LINDGREN	FILE NUMBER:
SIZE: ANSI D	FILENAME: FCDRES103.dgn

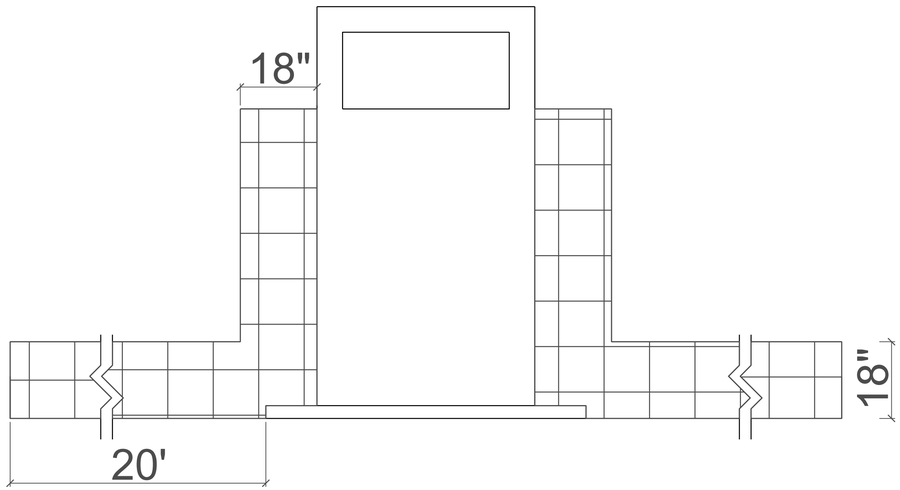
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
AREA 103

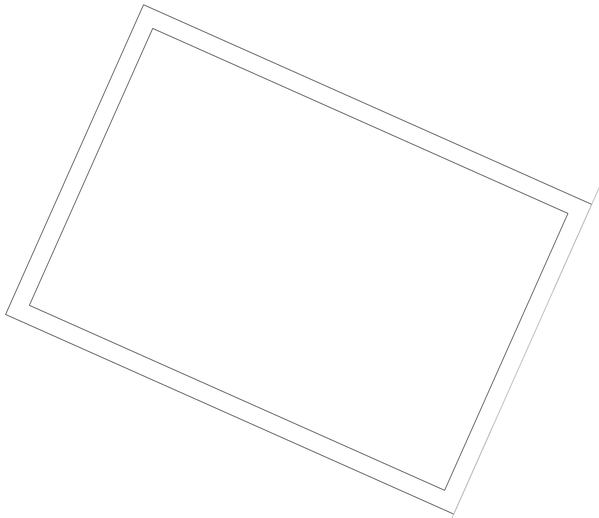
SHEET ID

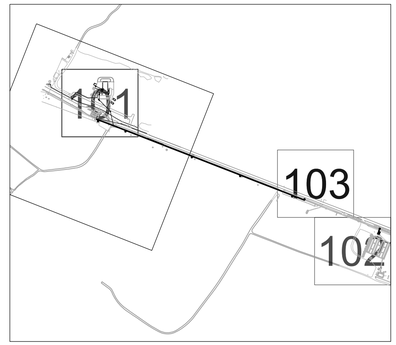
ES103



1 FUEL PUMP HAZARDOUS AREAS

NOT TO SCALE





N

KEYPLAN SCALE: 1" = 1000'

HAZARDOUS AREA LEGEND:

CLASS 1 DIV 2 AREA

N

0 5' 10'

SCALE: 1" = 5'

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%

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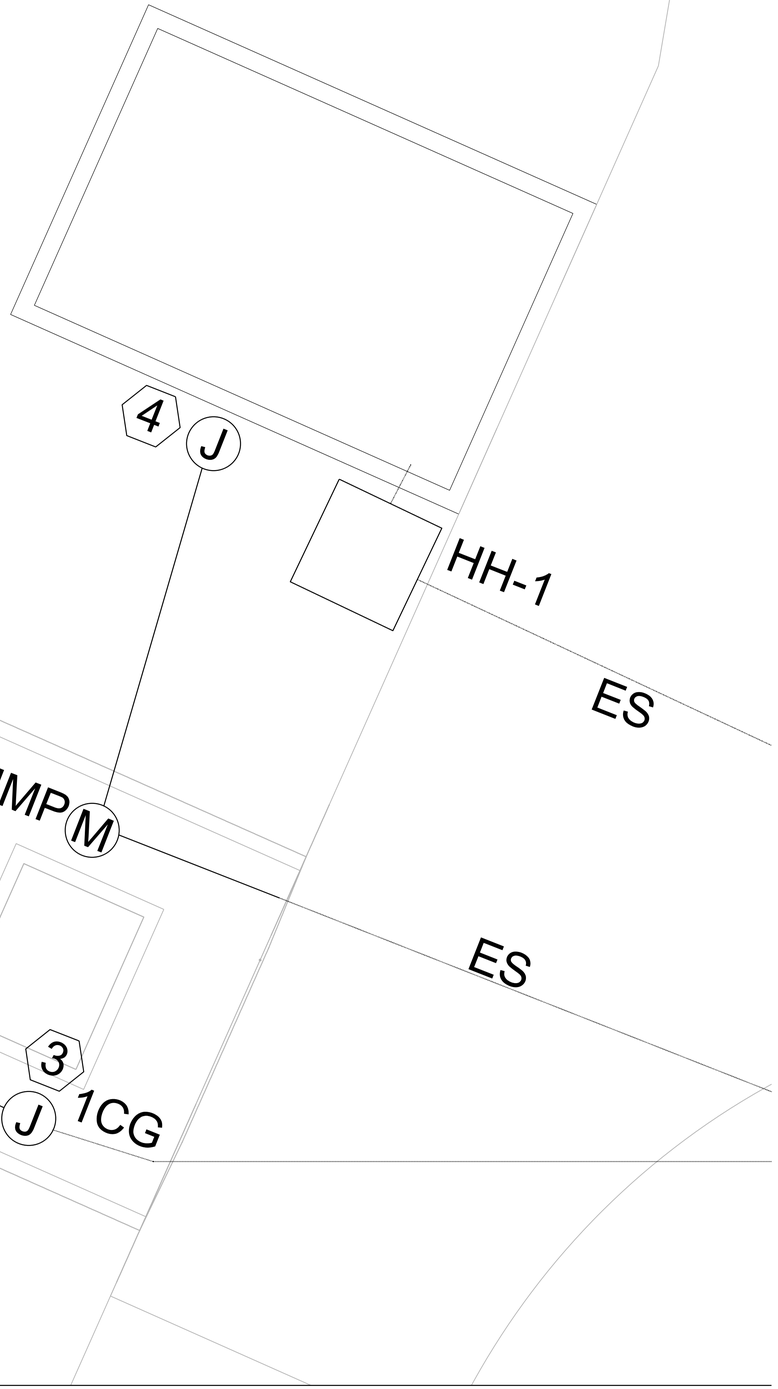
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

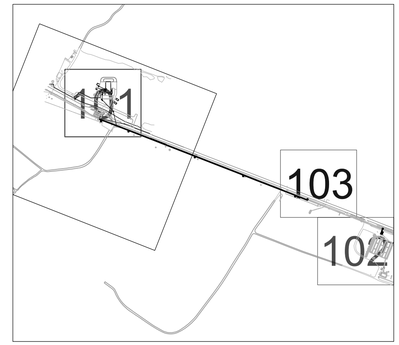
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

FUELING HAZARDOUS AREA

SHEET ID

ES301





N

KEYPLAN SCALE: 1" = 1000'

GAS PUMP KEYED NOTES:

1. NEW FUEL TANKS MOUNTED DISPENSER AND PUMP.

2. LEVEL GAUGE CONNECTION POINT, USE SHIELDED TWISTED PAIR, 16 AWG, OR AS REQUIRED BY MANUFACTURER. INTRINSICALLY SAFE WIRINGONLY PER NFPA 70.

3.INTERSTITIAL SENSOR(S) NEW LEVEL CONTROL. USE SHIELDED TWISTED PAIR, 16 AWG, OR AS REQUIRED BY MANUFACTURER. INTRINSICALLY SAFE WIRING ONLY PER NFPA 70.

4. PROVIDE EMERGENCY FUEL SHUTOFF MOUNTED TO BUILDING. IF BID OPTION FOR STORAGE BUILDING IS NOT AWADED, MOUNT EFSO BUTTON ON A PEDISTAL 25' FROM PUMP. PROVIDE NECESSARY SIGNAGE IN ACCORDANCE WITH NFPA 30A.

GAS PUMP LEGEND:

(M) TANK PUMP MOTOR

(J) JUNCTION BOX

N

0 5' 10'

SCALE: 1" = 5'

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%

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ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	

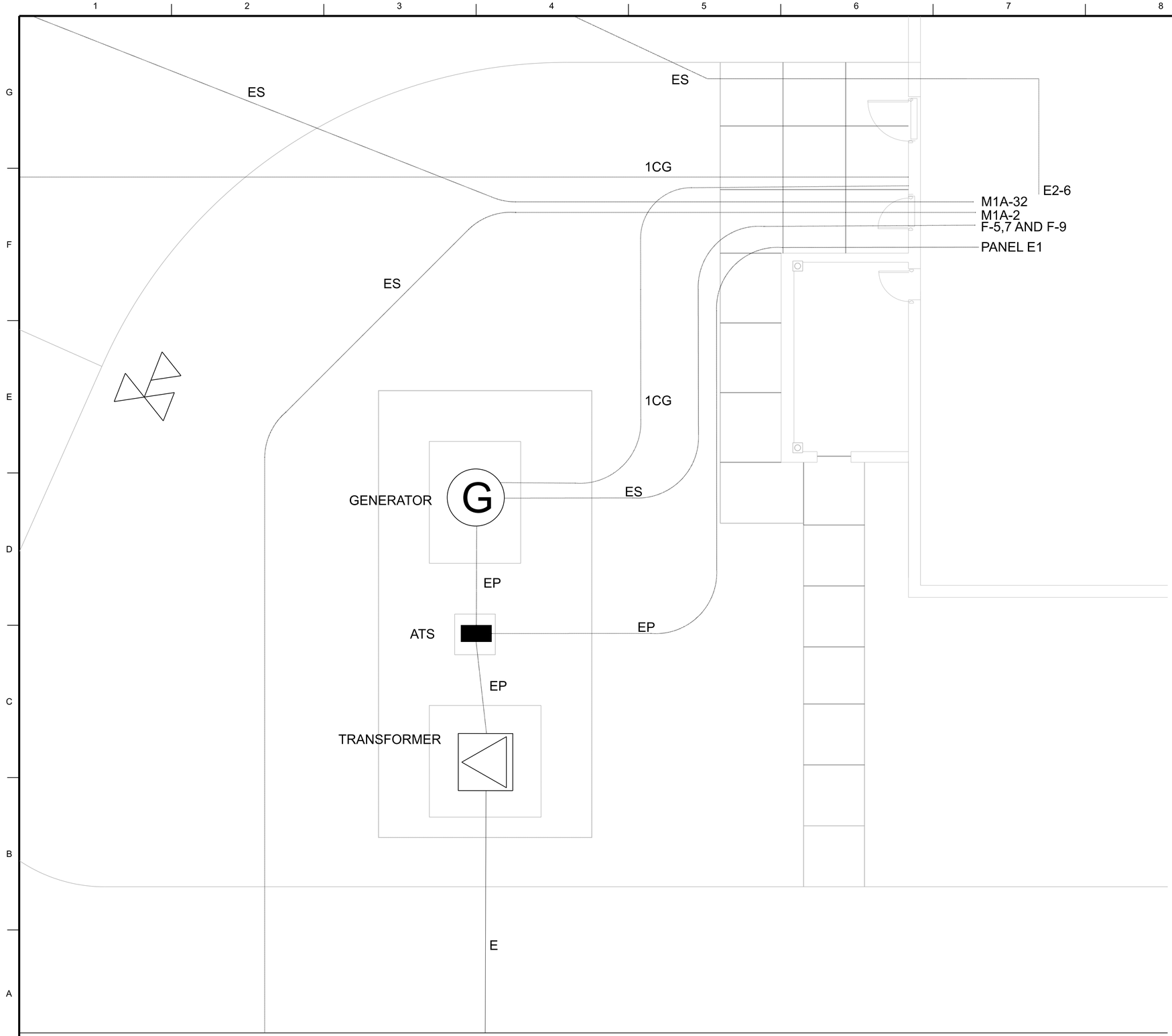
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

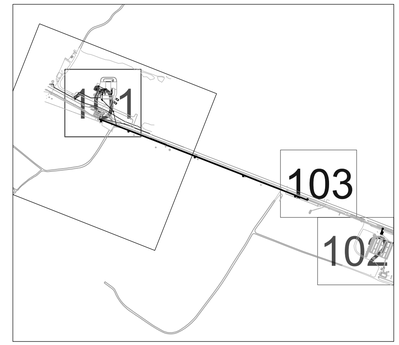
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
ENLARGED FUEL AREA

SHEET ID

ES401





N

KEYPLAN SCALE: 1" = 1000'

N

0 5' 10'

SCALE: 1" = 5'

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%

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SIZE: ANSI D	FILENAME: FCDRES402.dgn

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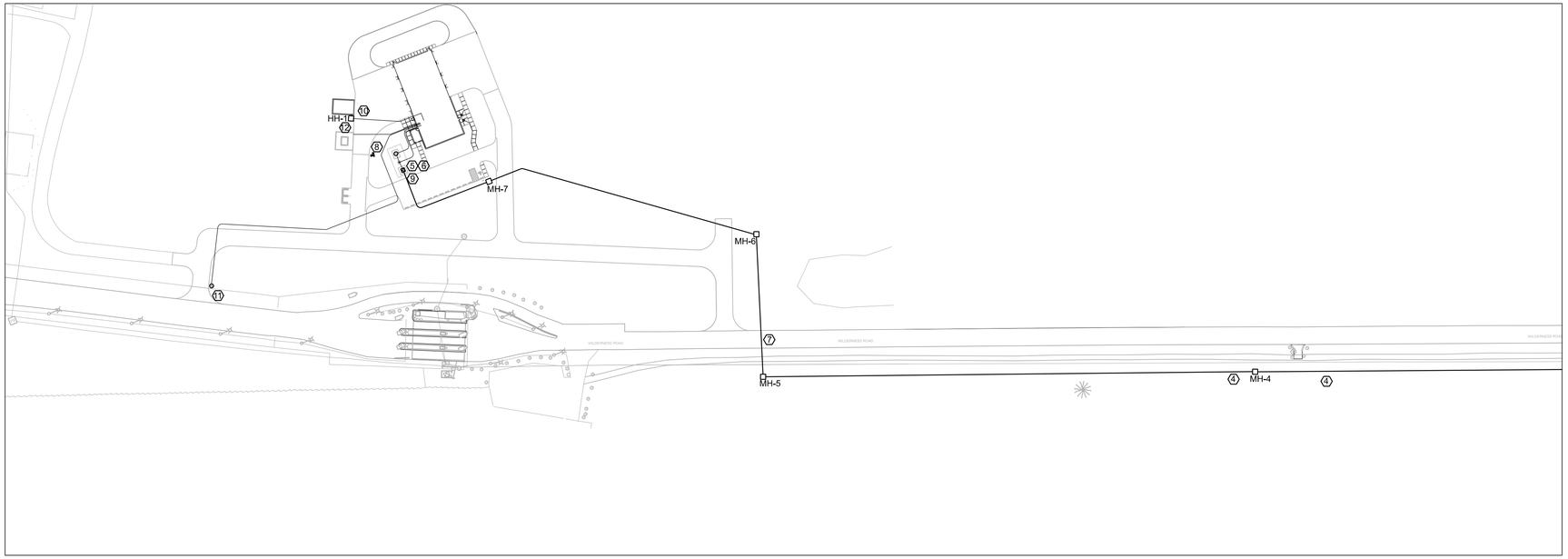
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

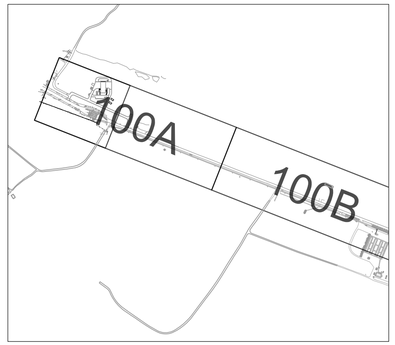
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
ENLARGED GENERATOR AREA

SHEET ID

ES402





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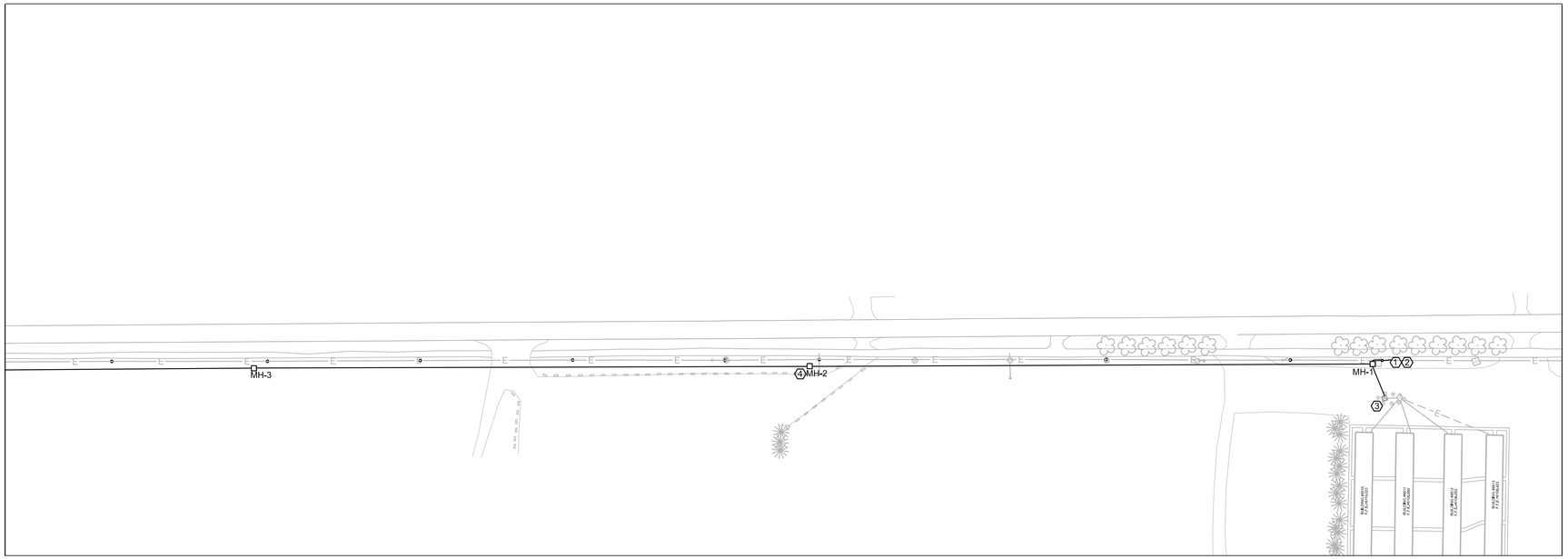
KEYPLAN SCALE: 1" = 1000'



KEYED NOTES:

1. PROVIDE NEW OVERHEAD POWER POLE.

2. PROVIDE THREE PHASE RISER ON NEW POLE. RECONNECT OVERHEAD ELECTRICAL LINES. SEE ES500 SERIES SHEETS FOR DETAILS.

3. REFEED EXISTING TRANSFORMER FROM NEW VAULT.

4. NEW UNDERGROUND THREE PHASE DUCTWORK AND CONDUIT TO NEW FACILITY SITE. PROVIDE MANHOLES APPROXIMATELY 800 FEET TO SITE WHEN ROUTED STRAIGHT. MANHOLES SHALL BE PLACES A MAXIMUM OF 500 FEET APART WHEN THIS IS NOT THE CASE.

5. LOCATE TRANSFORMER 25' MINIMUM FROM FACILITY. SEE SHEET ES502.

6. LOCATE EQUIPMENT 5' MINIMUM FROM OTHER EQUIPMENT.

7. CONTRACTOR SHALL USE HORIZONTAL DRILLING TO CROSS EXISTING ROADWAY. SEE DETAILS ON ES505.

8. APPROXIMATE LOCATION OF PIV. SEE CIVIL SHEETS.

9. PROVIDE HOUSEKEEPING PADS (GENERATOR, TRANSFORMER, ACS, ECT.) PER MANUFACTURERS RECOMMENDATIONS.

10. IF STORAGE BUILDING IS NOT AWARDED AS A BID OPTION, PROVIDE CONDUIT TO HANDHOLE, AND PROVIDE PANEL E2-6 WITH A SPARE.

11. PROVIDE KEYPAD PEDISTAL FOR ENTRY INTO GATE.

12. SEE ES401 FOR EXPANDED VIEW.

LEGEND:

- NEW PRIMARY POWER MANHOLE
- POST INDICATOR VALVE
- NEW PAD MOUNTED TRANSFORMER
- ATS NEW PRIMARY POWER MANHOLE
- (G) NEW PAD MOUNTED GENERATOR
- (M) NEW FUEL PUMP
- (S) NEW SLIDING GATE

N

0 100' 200'

SCALE: 1" = 100'

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%

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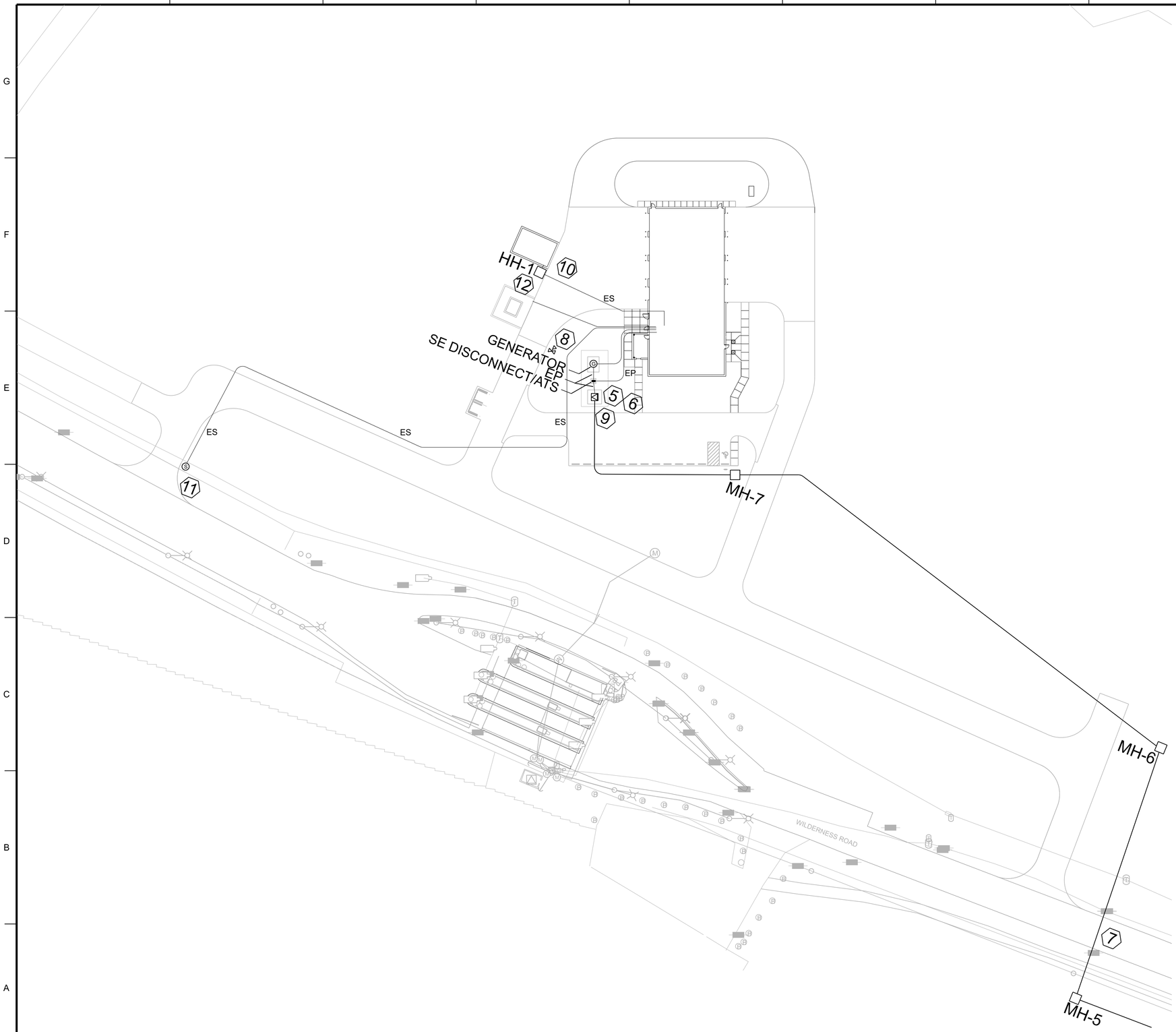
1616 CAPITOL AVE
OMAHA, NE 68102

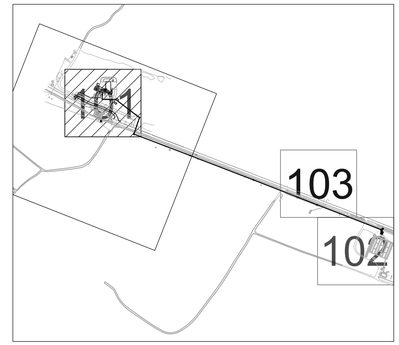
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
BID OPTION COMPOSITE

SHEET ID

ES100A





N

KEYPLAN SCALE: 1" = 1000'

KEYED NOTES:

1. PROVIDE NEW OVERHEAD POWER POLE.

2. PROVIDE THREE PHASE RISER ON NEW POLE. RECONNECT OVERHEAD ELECTRICAL LINES. SEE ES500 SERIES SHEETS FOR DETAILS.

3. REFEED EXISTING TRANSFORMER FROM NEW VAULT.

4. NEW UNDERGROUND THREE PHASE DUCTWORK AND CONDUIT TO NEW FACILITY SITE. PROVIDE MANHOLES APPROXIMATELY 800 FEET TO SITE WHEN ROUTED STRAIGHT. MANHOLES SHALL BE PLACES A MAXIMUM OF 500 FEET APART WHEN THIS IS NOT THE CASE.

5. LOCATE TRANSFORMER 25' MINIMUM FROM FACILITY. SEE SHEET ES502.

6. LOCATE EQUIPMENT 5' MINIMUM FROM OTHER EQUIPMENT.

7. CONTRACTOR SHALL USE HORIZONTAL DRILLING TO CROSS EXISTING ROADWAY. SEE DETAILS ON ES505.

8. APPROXIMATE LOCATION OF PIV. SEE CIVIL SHEETS.

9. PROVIDE HOUSEKEEPING PADS (GENERATOR, TRANSFORMER, ACS, ECT.) PER MANUFACTURERS RECOMMENDATIONS.

10. IF STORAGE BUILDING IS NOT AWARDED AS A BID OPTION, PROVIDE CONDUIT TO HANDHOLE, AND PROVIDE PANEL E2-6 WITH A SPARE.

11. PROVIDE KEYPAD PEDISTAL FOR ENTRY INTO GATE.

12. SEE ES401 FOR EXPANDED VIEW.

LEGEND:

- NEW PRIMARY POWER MANHOLE
- POST INDICATOR VALVE
- NEW PAD MOUNTED TRANSFORMER
- ATS NEW PRIMARY POWER MANHOLE
- (G) NEW PAD MOUNTED GENERATOR
- (M) NEW FUEL PUMP
- (S) NEW SLIDING GATE

N

0 40' 80'

SCALE: 1" = 40'

US Army Corps of Engineers®

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DESIGNED BY:	K. PAVLIK
DRAWN BY:	K. PAVLIK
CHECKED BY:	S. LINDGREN
SUBMITTED BY:	S. LINDGREN
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILENAME:	FCDRES101A.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

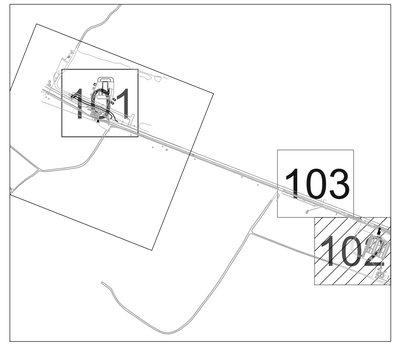
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

ELECTRICAL SITE PLAN
BID OPTION AREA 101

SHEET ID

ES101A

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%



N

KEYPLAN SCALE: 1" = 1000'

KEYED NOTES:

1. PROVIDE NEW OVERHEAD POWER POLE.

2. PROVIDE THREE PHASE RISER ON NEW POLE. RECONNECT OVERHEAD ELECTRICAL LINES. SEE ES500 SERIES SHEETS FOR DETAILS.

3. REFEED EXISTING TRANSFORMER FROM NEW VAULT.

4. NEW UNDERGROUND THREE PHASE DUCTWORK AND CONDUIT TO NEW FACILITY SITE. PROVIDE MANHOLES APPROXIMATELY 800 FEET TO SITE WHEN ROUTED STRAIGHT. MANHOLES SHALL BE PLACES A MAXIMUM OF 500 FEET APART WHEN THIS IS NOT THE CASE.

5. LOCATE TRANSFORMER 25' MINIMUM FROM FACILITY. SEE SHEET ES502.

6. LOCATE EQUIPMENT 5' MINIMUM FROM OTHER EQUIPMENT.

7. CONTRACTOR SHALL USE HORIZONTAL DRILLING TO CROSS EXISTING ROADWAY. SEE DETAILS ON ES505.

8. APPROXIMATE LOCATION OF PIV. SEE CIVIL SHEETS.

9. PROVIDE HOUSEKEEPING PADS (GENERATOR, TRANSFORMER, ACS, ECT.) PER MANUFACTURERS RECOMMENDATIONS.

10. IF STORAGE BUILDING IS NOT AWARDED AS A BID OPTION, PROVIDE CONDUIT TO HANDHOLE, AND PROVIDE PANEL E2-6 WITH A SPARE.

11. PROVIDE KEYPAD PEDISTAL FOR ENTRY INTO GATE.

12. SEE ES401 FOR EXPANDED VIEW.

LEGEND:

- NEW PRIMARY POWER MANHOLE
- POST INDICATOR VALVE
- NEW PAD MOUNTED TRANSFORMER
- ATS NEW PRIMARY POWER MANHOLE
- (G) NEW PAD MOUNTED GENERATOR
- (M) NEW FUEL PUMP
- (S) NEW SLIDING GATE

N

0 40' 80'

SCALE: 1" = 40'

%PRODUCTION DATA 1%
%PRODUCTION DATA 2% %PRODUCTION DATA 3% %PRODUCTION DATA 4%

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FILE NUMBER:	
FILENAME:	FCDRES102A.dgn

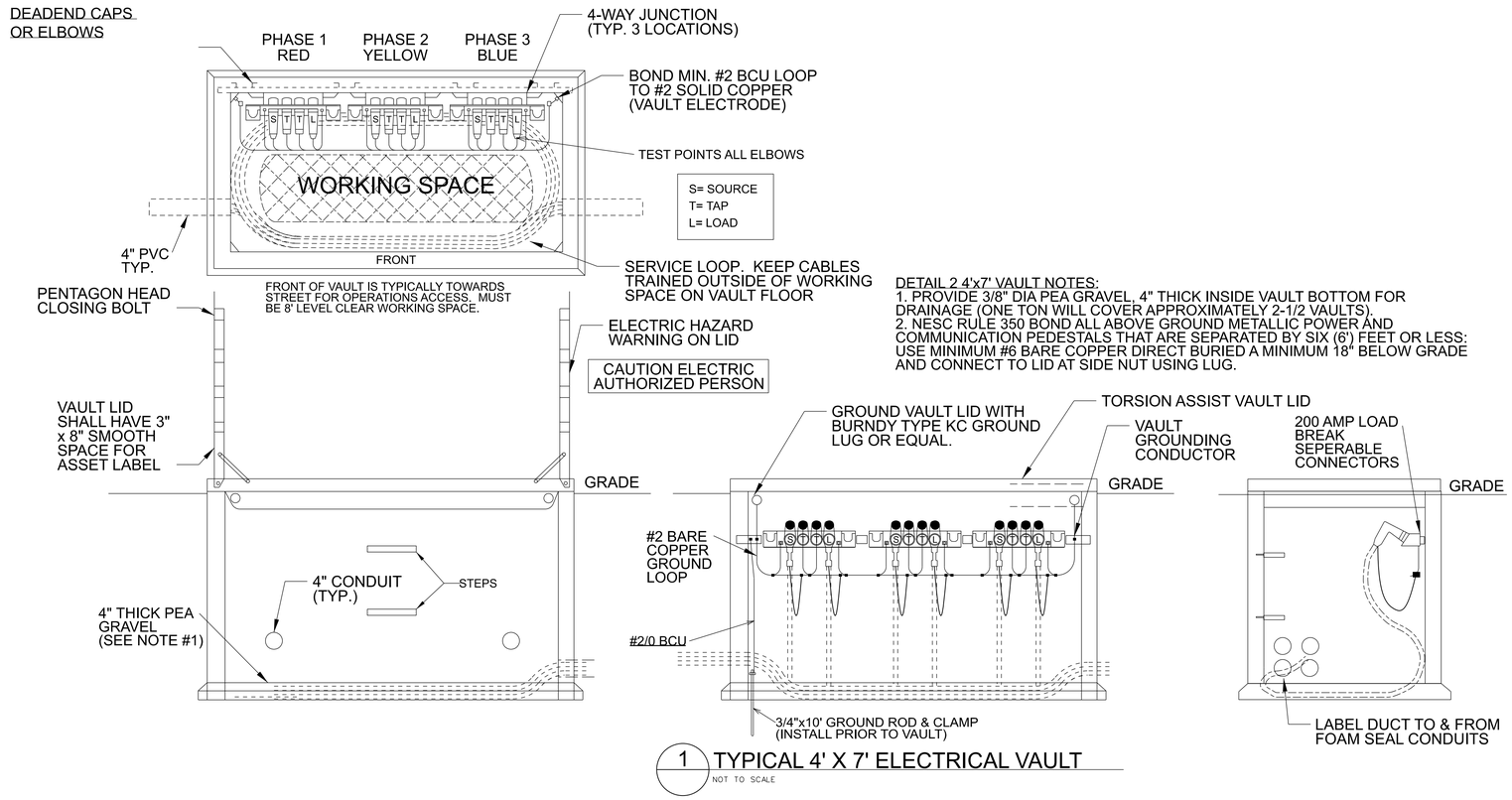
U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

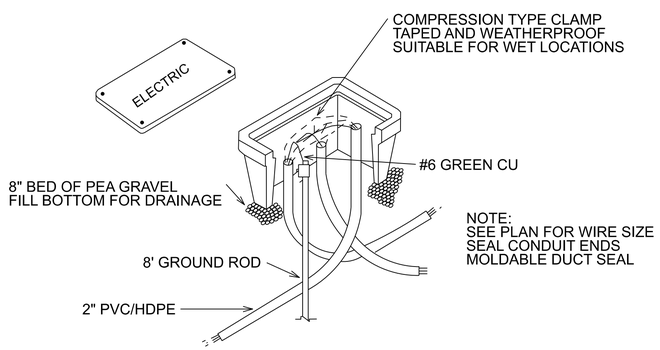
ELECTRICAL SITE PLAN
BID OPTION AREA 102

SHEET ID

ES102A



1 TYPICAL 4' X 7' ELECTRICAL VAULT
NOT TO SCALE



2 TYPICAL ELECTRICAL HAND PULL BOX
NOT TO SCALE

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FILENAME: FCDRES501.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

VAULT DETAILS

SHEET ID
ES501

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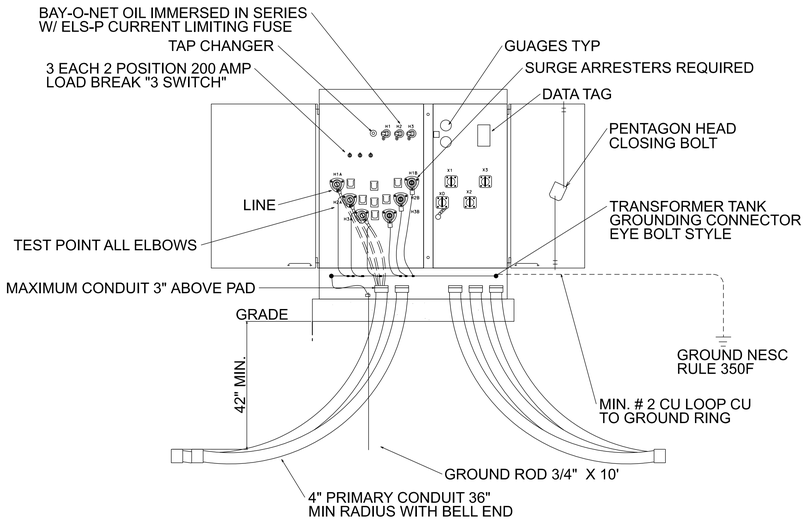
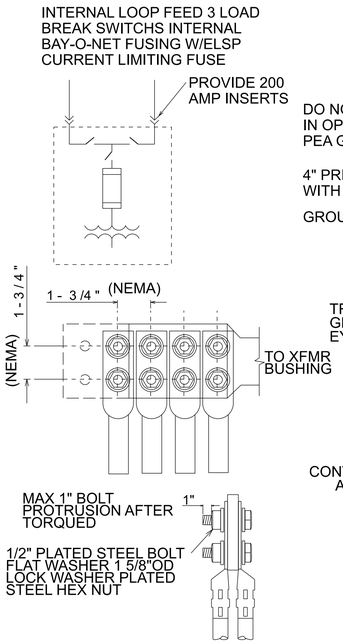
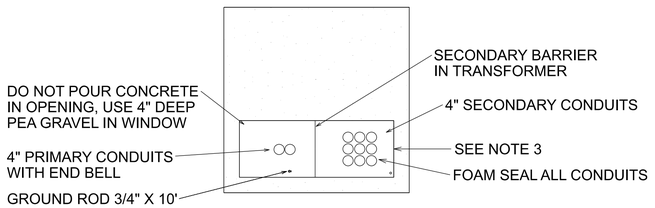


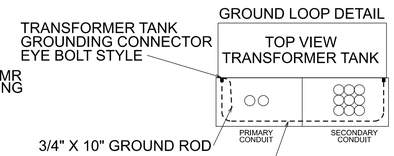
DETAIL 1 TRANSFORMER NOTES:
1. CONTRACTOR SHALL SIZE PAD TO TRANSFORMER, (PRE-CAST PAD PREFERRED)
2. ELBOW CONNECTORS SHALL BE PLACED ON INSULATED PARKING STANDS PRIOR TO THE DPW OPERATIONS & MAINTENANCE CONTRACTOR ENERGIZING TRANSFORMER.
3. PROVIDE 4" OF 3/8" PEA GRAVEL IN TRANSFORMER WINDOW.
4. TRANSFORMERS SHOULD BE PLACED 30' FROM BUILDINGS TO MEET FORCE PROTECTION GUIDELINES.
5. 8' CLEAR LEVEL WORKING SPACE IN FRONT OF TRANSFORMER



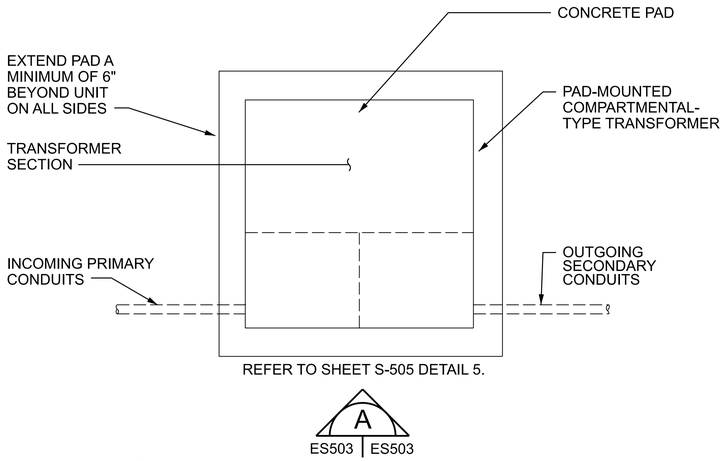
PAD & CONDUIT LAYOUT (TYP)



GROUND LOOP DETAIL



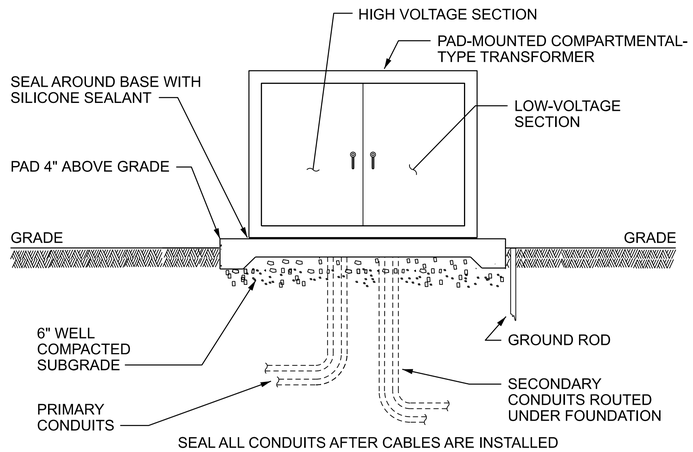
1 ES502 3-PHASE PAD-MOUNT TRANSFORMER
NOT TO SCALE



REFER TO SHEET S-505 DETAIL 5.

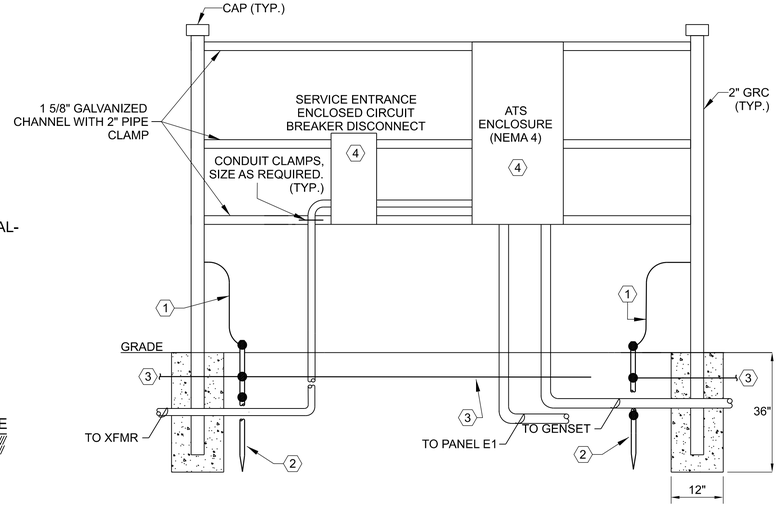
A
ES503 | ES503

2 ES502 TRANSFORMER PAD DETAIL
NOT TO SCALE



SEAL ALL CONDUITS AFTER CABLES ARE INSTALLED

A ES502 TRANSFORMER PAD ELEVATION
NOT TO SCALE



DETAIL 1 SPECIFIC KEYED NOTES:

1. #6 AWG BARE COPPER BOLTED TO FRAME AND EXOTHERMICALLY CONNECTED TO EXPOSED GROUND ROD.
2. MINIMUM 3/4" DIA. x 10'-0" LONG GROUND ROD. LEAVE EXPOSED FOR FUTURE BONDING REQUIREMENTS.
3. EXOTHERMICALLY CONNECT GROUND RODS TO EACH OTHER WITH BARE COPPER.
4. CONTRACTOR SHALL PROVIDE LOCKABLE ENCLOSURES WITH A KEYED LOCK AND/OR A PADLOCK WITH KEY FOR SWITCH ENCLOSURE.

NOTES:

1. ALL ABOVE GROUND CONDUIT SHALL BE RGS AND SHALL TRANSITION TO PVC BELOW GRADE. PROVIDE RGS UNDERGROUND ELBOWS.
2. 24" MINIMUM BURIED DEPTH OF UNDERGROUND CONDUIT.

3 ES502 EXTERIOR ATS MOUNTING STRUCTURE
NOT TO SCALE

US Army Corps of Engineers®

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DESIGNED BY: K PAVLIK
DRAWN BY: K PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: S. LANDGREN
FILENAME: FCDRES502.dgn
SIZE: ANSI D

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

TRANSFORMER PAD DETAIL

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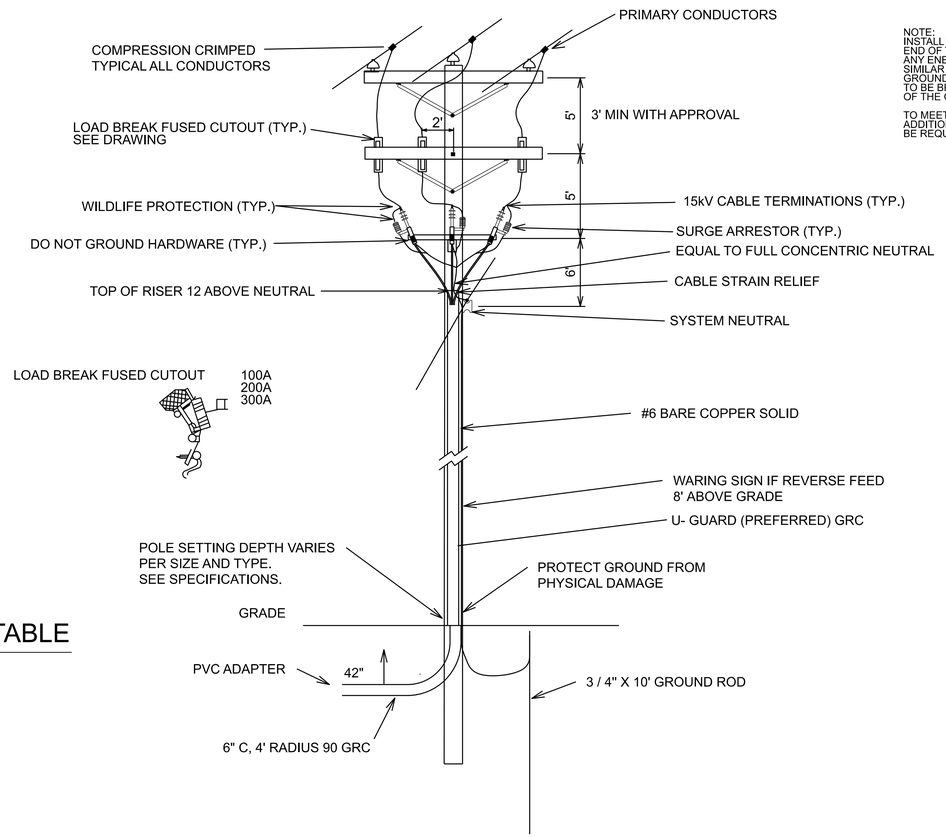
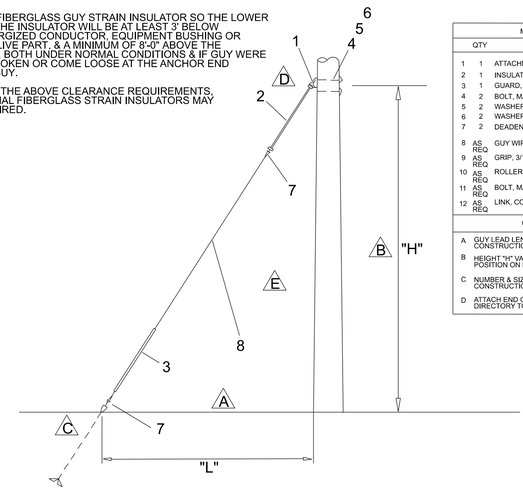
	DISTANCE BETWEEN POLES	MINIMUM CONDUCTOR HEIGHT
PP1 TO PP2	220.0'	32.142'
PP2 TO PP3	220.0'	32.142'
PP3 TO PP4	220.0'	32.142'
PP4 TO PP5	220.0'	32.142'
PP5 TO PP6	220.0'	32.142'
PP6 TO PP7	220.0'	32.142'
PP7 TP PP8	220.0'	32.142'
PP8 TO PP9	220.0'	32.142'
PP9 TO PP10	220.0'	32.142'
PP10 TO PP11	220.0'	32.142'
PP11 TO PP12	220.0'	32.142'
PP12 TO PP13	160.0'	37.018'
PP13 TO PP14	205.0'	32.387'

1 POWER POLE DISTANCE AND MINIMUM HEIGHT ABOVE GROUND (SAG CALCS) TABLE



NOTE:
INSTALL FIBERGLASS GUY STRAIN INSULATOR SO THE LOWER END OF THE INSULATOR WILL BE AT LEAST 3' BELOW ANY ENERGIZED CONDUCTOR, EQUIPMENT BUSHING OR SIMILAR LIVE PART, & A MINIMUM OF 8'-0" ABOVE THE GROUND, BOTH UNDER NORMAL CONDITIONS & IF GUY WERE TO BE BROKEN OR COME LOOSE AT THE ANCHOR END OF THE GUY.

TO MEET THE ABOVE CLEARANCE REQUIREMENTS, ADDITIONAL FIBERGLASS STRAIN INSULATORS MAY BE REQUIRED.



MATERIAL LIST		
QTY		DESCRIPTION
1	1	ATTACHMENT, GUY
2	1	INSULATOR, FIBERGLASS GUY STRAIN
3	1	GUARD, GUY - 8' PVC
4	2	BOLT, MACHINE 3/4" X REQUIRED LENGTH
5	2	WASHER, CURVED 4" x 4" x 13/16" HOLE
6	2	WASHER, DOUBLE COIL 3/4"
7	2	DEADEND, 3/16" AUTOMATIC GUY
8	AS REQ	GUY WIRE - 3/16" SIEMENS - MARTIN GRADE
9	AS REQ	GRIP, 3/16" GUY
10	AS REQ	ROLLER, GUY
11	AS REQ	BOLT, MACHINE 7/8" x 3"
12	AS REQ	LINK, CONNECTING

GENERAL NOTES	
A	GUY LEAD LENGTH "L" AS SPECIFIED ON CITY UTILITIES CONSTRUCTION DRAWINGS.
B	HEIGHT "H" VARIES WITH POLE HEIGHT & CONDUCTOR POSITION ON POLE.
C	NUMBER & SIZE OF ANCHOR RODS AS SPECIFIED ON CONSTRUCTION DRAWINGS.
D	ATTACH END OF FIBERGLASS GUY STRAIN INSULATOR DIRECTORY TO GUY ATTACHMENT PLATE.

3 SINGLE DOWN GUY (WRAPPED TYPE)

NOT TO SCALE

NOTES:
1. ALL CONSTRUCTION SHALL BE 15KV, GRADE B, AND NESC HEAVY LOADING CONDITIONS.
2. ALL POLES SHALL HAVE A MINIMUM OF CLASS 3 STRENGTH OR GREATER (AS SPECIFIED).
3. POLE DESIGNATION SHALL BE A 40-3 POLE.
4. PROVIDE LIGHTNING ARRESTORS EVERY 4 POLES ALONG THE TANGENT LINE.
5. PROVIDE RAPTOR PROTECTION ON ALL POLES. PROVIDE SQUIRREL PROTECTION ON ALL RISER ARRESTORS.

2 THREE PHASE TANGENT RISER POLE

NOT TO SCALE

US Army Corps of Engineers®

MARK	DESCRIPTION	DATE

DESIGNED BY: K PAVLIK	ISSUE DATE: 01/20/2023
DRAWN BY: K PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. CHAMBERLAIN	CONTRACT NO.:
SUBMITTED BY: S. JACOBSEN	FILE NUMBER: F730-10-04
SIZE: ANSI D	FILENAME: FCDRES503.dgn

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

OVERHEAD TO UNDERGROUND DETAIL

SHEET ID

ES503

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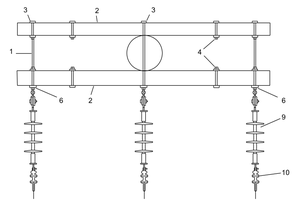
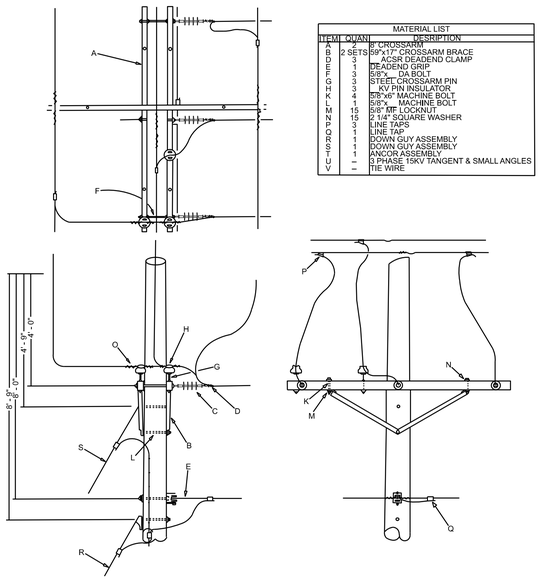


MATERIAL LIST		
QTY		DESCRIPTION
1	3	DOUBLE ARMING BOLT 5/8" x 20"
2	2	CROSSARM 6 PIN
3	11	WASHER 2" x 2" x 5/8" FLAT
4	4	CARRIAGE BOLT 3/8" x 4"
5	1	EYEBOLT 5/8" x 12"
6	3	EYENUT 5/8"
7	2	LAGSCREW 1/2" x 4"
8	2pr	WOOD BRACES
9	3	INSULATOR, POLYMER
10	4	DEADEND CLAMP 2 ASCR

GENERAL NOTES	
A	USED FOR #2 ASCR
B	PROVIDE RAPTOR PROTECTION ON ALL POLES. PROVIDE SQUIRREL PROTECTION ON ALL RISER ARRESTORS.

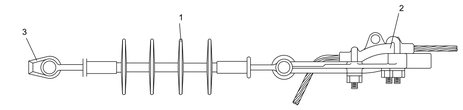
1 DEADEND RISER POLE
NOT TO SCALE



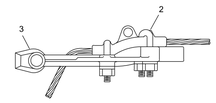
MATERIAL LIST		
ITEM	QUAN	DESCRIPTION
A	2	8' CROSSARM
B	2 SETS	59"x17" CROSSARM BRACE
D	3	ACSR DEADEND CLAMP
E	1	DEADEND GRIP
F	3	5/8"x__ DA BOLT
G	3	STEEL CROSSARM PIN
H	3	KV PIN INSULATOR
K	4	5/8"x6" MACHINE BOLT
L	1	5/8"x__ MACHINE BOLT
M	15	5/8" SAE LOCKNUT
N	15	2 1/4" SQUARE WASHER
P	3	LINE TAPS
Q	1	LINE TAP
R	1	DOWN GUY ASSEMBLY
S	1	DOWN GUY ASSEMBLY
T	1	ANCOR ASSEMBLY
U	–	3 PHASE 15KV TANGENT & SMALL ANGLES
V	–	TIE WIRE

GENERAL NOTES:
1. PROVIDE RAPTOR PROTECTION ON ALL POLES.
PROVIDE SQUIRREL PROTECTION ON ALL RISER ARRESTORS.

2 3 PHASE HORIZONTAL TAKEOFF
NOT TO SCALE



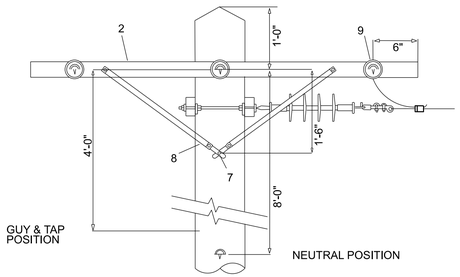
PRIMARY DEADEND ASSEMBLY



MATERIAL LIST	
QTY	DESCRIPTION
1	4" POLYMER DISC INSULATOR
2	DEADEND CLAMP #2ASCR & 336ASCR
3	EYENUT 5/8"

NEUTRAL DEADEND ASSEMBLY

3 DEADEND ASSEMBIES
NOT TO SCALE



4 SINGLE PHASE TAP GUIDE
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OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

POLE DETAILS

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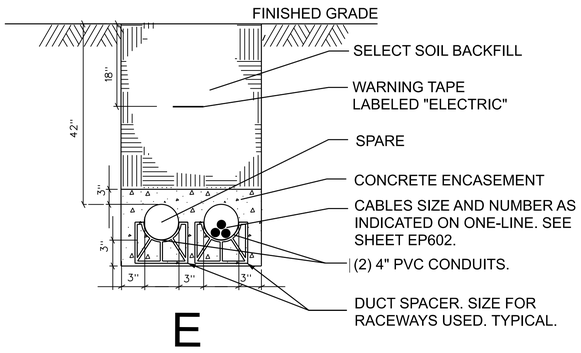

1 12.4KV CONCRETE ENCASED DUCT BANK
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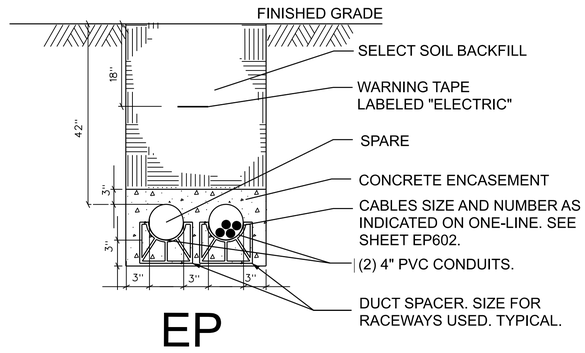

2 480V CONCRETE ENCASED DUCT BANK
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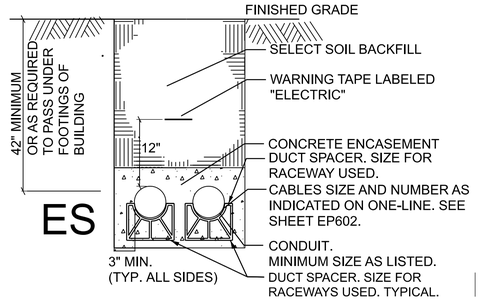

3 120V CONCRETE ENCASED DUCT BANK
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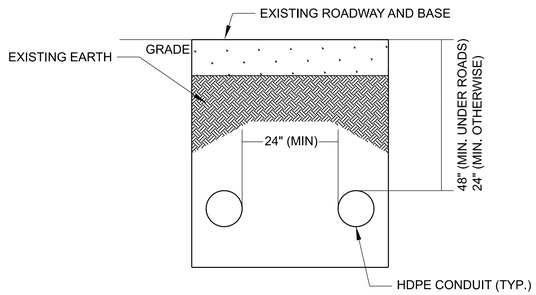

NOTES:

1. FOR ALL BORE DEPTH ABOVE OR BELOW 42" TO 48", PROVIDE BORE LOG DEPTHS ON AS BUILT DRAWINGS.

4 DIRECTIONAL BORING DETAIL
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SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

U.S. ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

DUCT DETAILS

SHEET ID
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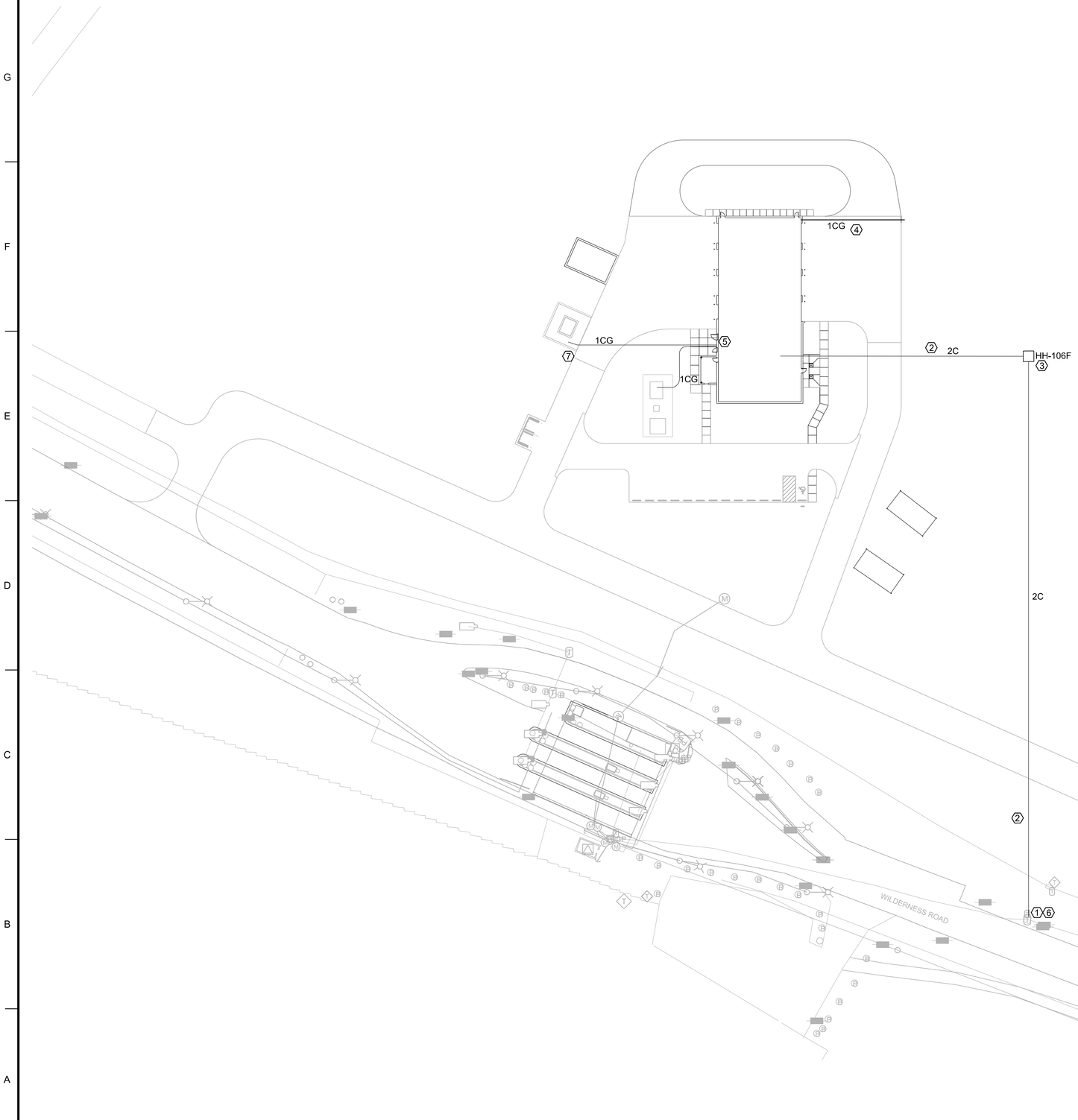

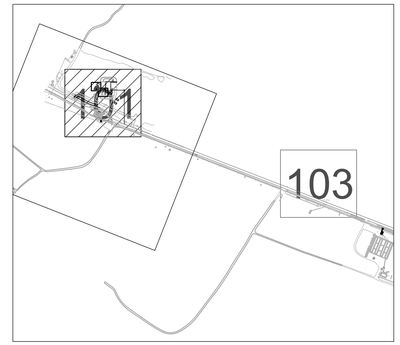

N

KEYPLAN SCALE: 1" = 1000'

KEYED NOTES:

1. EXISTING HANDHOLE HH1106E. CONTRACTOR SHALL SPLICE 12 STRAND SMFO, CABLE FO 11-06, STRANDS 13-24. ROUTE FIBER NORTH AS INDICATED.

2. NEW 12 STRANDED DIELECTRIC SINGLE MODE FIBER OPTIC CABLE BURIED IN 2-4" HARDENED CONCRETE ENCASED DUCTBANK.

3. NEW 4'x4'x6' HANDHOLE. PERMANENT NUMBER PER RNEC SHALL BE HH-106F. ENTRY TO HANDHOLES SHALL BE AT 90 DEGREE ANGLES.

4. COMMUNICATION CIRCUIT FROM INDUSTRIAL TANK CONRTOL PANEL (ITCP) TO INDUSTRIAL TANK TO MONITOR TANK LEVELS.

5. CONNECT GENERATOR/ FUEL PUMP TO BULDING CONTROL SYSTEM FOR MONITORING.

6. CONTRACTOR SHALL PERFORM A MID-SPAN SPLICE AND INSTALL A NEW SPLICE CASE IN HH1106E.

7. SEE ENLARGED VIEW ES401.

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SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILENAME: FCDRTS101.dgn

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN101464 (FY23)

TELECOMMUNICATIONS SITE PLAN AREA 101

SHEET ID

TS101

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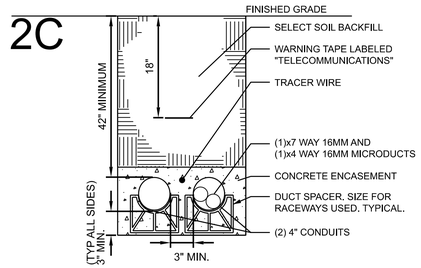
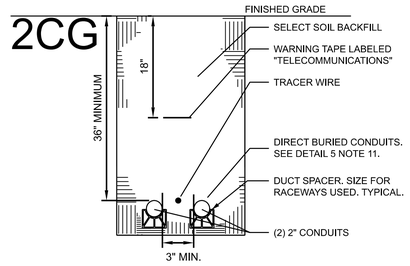


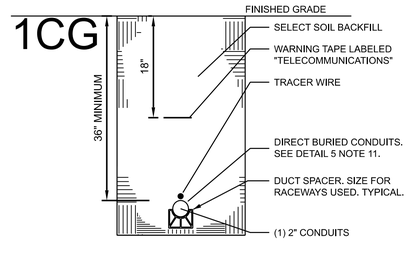
TELECOMMUNICATION (2) - 4" SCH. 40 PVC CONCRETE ENCASED DUCT BANK

1 TS501 NOT TO SCALE



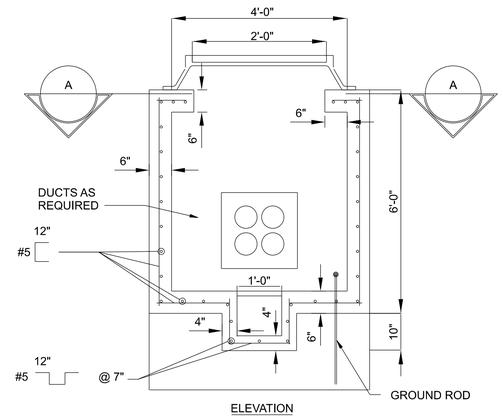
TELECOMMUNICATION (2) - 2" PVC DIRECT BURIED CONDUIT DUCT

2 TS501 NOT TO SCALE



TELECOMMUNICATION (1) - 2" PVC DIRECT BURIED CONDUIT DUCT

3 TS501 NOT TO SCALE



DETAIL 4 NOTES:
1. ALL BARS SHALL BE A NO. 5 ROUND DEFORMED.
2. BARS SHALL BE ON CENTER IN WALLS AND FLOOR.
3. A MINIMUM OF 12" HOOK AT CORNERS AND INTERSECTIONS IS REQUIRED.
4. PULLBOX DESIGNED FOR H-20 LOADING (32,000 LBS, SINGLE AXLE LOAD OVER A 10" x 20" AREA).
5. WALLS AND FLOORS SHALL HAVE BARS AT 7" SPACING.
6. PROVIDE KNOCKOUTS FOR DUCTS ON ALL SIDE OF HANDHOLE.
7. CAST THE LABEL "COMMUNICATIONS" IN THE HANDHOLE LID.
8. HANDHOLES WILL NOT BE INSTALLED IN HARDSTAND OR SHOULDERS.

NEW PRECAST COMMUNICATIONS 4x4x6 HANDHOLE

4 TS501 NOT TO SCALE

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TELECOMMUNICATONS BURIAL DETAILS

SHEET ID
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GENERAL NOTES:

G1. REFERENCE ELEVATION 100'-0" = TOP OF FIRST FLOOR FINISHED SLAB FOR ALL STRUCTURES, SEE CIVIL SHEETS FOR CORRESPONDING MEAN SEA LEVEL TOP OF FINISH FLOOR ELEVATION.

G2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE LOCATIONS OF ALL EMBEDDED ITEMS, CONDUITS, PIPES, AND OPENINGS. REFER TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ITEMS NOT INDICATED ON STRUCTURAL DRAWINGS. THE CONTRACTING OFFICER SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCY.

G3. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ADEQUATE BRACING AND SHORING FOR STEEL, MASONRY AND CONCRETE WORK AT ALL TIMES DURING CONSTRUCTION.

G4. REPORT DISCREPANCIES IN DIMENSIONS ON THE DRAWINGS TO THE CONTRACTING OFFICER'S REPRESENTATIVE PRIOR TO BEGINNING WORK IN AREA THAT WILL AFFECTED.

G5. "TYPICAL" APPLIES NOT ONLY WHERE SPECIFICALLY INDICTED OR REFERENCED, BUT ALSO IN ALL OTHER CASES WHERE THE NATURE OF THE CONSTRUCTION REQUIRES THEIR USE. DETERMINE APPLICABILITY OF TYPICAL DETAILS FROM DESCRIPTIVE TITLES OR FROM THE SIMILARITY OF A CONSTRUCTION CONDITION TO ANOTHER CONDITION WHERE THE DETAIL IS SPECIFICALLY INDICATED OF REFERENCED.

G6. REPRODUCTION OF CONTRACT DRAWINGS SHALL NOT BE USED AS SHOP DRAWINGS.

G7. SEISMIC BRACING: MECHANICAL EQUIPMENT, ELECTRICAL EQUIPMENT, AND ARCHITECTURAL COMPONENTS MEETING CERTAIN REQUIREMENTS AND AT SELECTED LOCATIONS REQUIRE SEISMIC BRACING AND SUPPORT. SEE SPECIFICATIONS.

DESIGN CRITERIA:

D-1. STRUCTURAL DESIGN IS IN ACCORDANCE WITH THE FOLLOWING CODES AND SPECIFICATIONS:

ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE
ACI 360R-10, GUIDE TO DESIGN OF SLABS-ON-GROUND
ACI 530-13, BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES
AISC STEEL CONSTRUCTION MANUAL (15TH EDITION)
AISI S100-16, NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS
ASCE 7-16, MINIMUM DESIGN LOADS FOR BUILDINGS AND STRUCTURES
IBC 2018, INTERNATIONAL BUILDING CODE
UFC 1-200-01, GENERAL BUILDING REQUIREMENTS (2022)
UFC 3-301-01, STRUCTURAL ENGINEERING (CHANGE 1, 2022)
UFC 3-310-04, SEISMIC DESIGN OF BUILDINGS (CHANGE 1, 2016)
UFC 3-320-06A, CONCRETE FLOOR SLABS SUBJECTED TO HEAVY LOADS

D-2. DEAD LOADS:

COLLATERAL ROOF DEAD LOADS FOR MISCELLANEOUS SUSPENDED MECHANICAL AND ELECTRICAL EQUIPMENT	6 PSF
FULL ROOF DEAD LOAD (COLLATERAL LOAD INCLUSIVE)	15 PSF
ALTERNATIVE MINIMUM ROOF DEAD LOAD (FOR WIND UPLIFT CONDITIONS)	12 PSF

D-3. FLOOR LIVE LOADS:

LIVING QUARTERS	40 PSF
DAY ROOM/WORKOUT ROOM	100 PSF
MECHANICAL/ELECTRICAL ROOMS	125 PSF
APPARATUS BAY (CONCENTRATED)	8,500 LB
STORAGE BUILDING	250 PSF

D-4. ROOF LIVE LOAD 20 PSF

D-4.1 WORK ROOM ROOF SLAB LIVE LOAD 50 PSF

D-5. SNOW LOAD CRITERIA (ASCE 7):

RISK CATEGORY	
FIRE STATION	IV
STORAGE BUILDING	II
SNOW IMPORTANCE FACTOR	
FIRE STATION	1.2
STORAGE BUILDING	1.0
GROUND SNOW LOAD, Pg	45 PSF
SNOW EXPOSURE FACTOR, Ce	1.0
SNOW THERMAL FACTOR, Ct	
FIRE STATION	1.0
STORAGE BUILDING	1.1
ROOF SLOPE FACTOR, Cs	1.0
FLAT ROOF SNOW LOAD, Pf	
FIRE STATION	37.8 PSF
STORAGE BUILDING	34.7 PSF
SLOPED ROOF SNOW LOAD, Ps	
FIRE STATION	37.8 PSF
STORAGE BUILDING	34.7 PSF

D-6. WIND LOAD CRITERIA (ASCE 7):

RISK CATEGORY	
FIRE STATION	IV
STORAGE BUILDING	II
BASIC WIND SPEED, V	122 MPH
WIND EXPOSURE CATEGORY	C
GUST EFFECT FACTOR, G	0.85
INTERNAL PRESSURE COEFFICIENTS, GCpi	
APPARATUS BAY	+/- 0.55
LIVING QUARTERS	+/- 0.18
STORAGE BUILDING	+/- 0.55

D-7. SEISMIC LOADS CRITERIA (ASCE 7):

RISK CATEGORY	IV
SEISMIC IMPORTANCE FACTOR, Ie	1.5
MAPPED SPECTRAL RESPONSE ACCELERATION, Ss	0.181
MAPPED SPECTRAL RESPONSE ACCELERATION, S1	0.061
SITE CLASS	D
DESIGN SPECTRAL RESPONSE ACCELERATION, Sds	0.193
DESIGN SPECTRAL RESPONSE ACCELERATION, Sd1	0.098
SEISMIC DESIGN CATEGORY	C

D-8. SOIL PROPERTIES:

ALLOWABLE BEARING PRESSURE	2500 PSF
MINIMUM FOOTING DEPTH	3'-6"
γ_{soil}	120 PSF
AT REST LATERAL PRESSURE COEFFICIENT	0.66

FOUNDATION AND SLAB NOTES:

F-1. SEE SPECIFICATION SECTION 31 00 00 FOR EARTHWORK REQUIREMENTS.

F-2. WHEN WORKING NEAR EXISTING OR NEW CONSTRUCTION, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO NOT UNDERMINE, DISTURB, DAMAGE, OR CAUSE CONSIDERABLE MOVEMENT, CRACKING, OR SETTLEMENT OF THE ADJACENT CONSTRUCTION IN ANY WAY.

F-3. THE CONTRACTOR SHALL HIRE A GEOTECHNICAL ENGINEER, REGISTERED AND LICENSED IN THE STATE WHERE THE WORK WILL BE ACCOMPLISHED, TO INSPECT ALL FOUNDATION SUBGRADE AND ENSURE THAT IT MEETS THE STATED ALLOWABLE SOIL BEARING CAPACITY. SUBGRADE SHALL BE INSPECTED AND APPROVED BY THE CONTRACTOR'S GEOTECHNICAL ENGINEER AND INSPECTED BY THE CONTRACTING OFFICER PRIOR TO PLACING CONCRETE. ANY SUBGRADES NOT MEETING THE STATED CAPACITY SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.

F-4. ALL EXCAVATION SHALL BE PERFORMED SO THAT THE SITE AND AREA IMMEDIATELY SURROUNDING THE SITE WHICH AFFECTS CONSTRUCTION OPERATIONS WILL BE CONTINUALLY AND EFFECTIVELY DRAINED. THE CONTRACTOR SHALL PROVIDE DRAINAGE AND DE-WATERING AS REQUIRED TO ENSURE THAT ALL FOOTING EXCAVATIONS ARE ACCOMPLISHED WITH SUBGRADE SOIL REMAINING DRY AND FIRM UNTIL AFTER FOOTINGS ARE PLACED AND BACKFILLED. REMOVAL OF SURFACE WATER, GROUNDWATER AND ANY PERCHED WATER CONDITIONS HAT MIGHT BE ENCOUNTERED DURING EXCAVATIONS SHALL BE ACCOMPLISHED BY APPROVED MEANS.

F-5. DO NOT PLACE FOUNDATION CONCRETE ON FROZEN OR SATURATED SUBGRADE.

F-6. DO NOT INSTALL FOUNDATIONS UNTIL FOUNDATION WORK HAS BEEN COORDINATED WITH ADJACENT UNDERGROUND UTILITIES.

FLOOR DECK NOTES:

SD-1. DECK SHALL BE GALVANIZED STEEL CONFORMED TO ASTM A653 WITH A MINIMUM YIELD STRENGTH OF 33 KSI.

SD-2. PROVIDE ALL CLOSURE PLATES AND OTHER ACCESSORIES REQUIRED FOR COMPLETE INSTALLATION IN ACCORDANCE WITH THE DECK MANUFACTURER'S RECOMMENDATIONS.

SD-3. CONTRACTOR SHALL COORDINATE OPENINGS IN STEEL DECK WITH ARCHITECTURAL, MECHANICAL, AND ELECTRICAL, DRAWINGS PRIOR TO DECK PLACEMENT.

SD-4. HANGING LOADS DIRECTLY FROM ROOF DECK IS PROHIBITED.

SD-5. STEEL DECK SHALL SPAN CONTINUOUSLY OVER A MINIMUM OF 4 SUPPORTS (3 SPANS) UNLESS OTHERWISE NOTED.

STEEL CONSTRUCTION NOTES:

S-1. FABRICATION AND ERECTION OF STRUCTURAL STEEL AND DESIGN OF CONNECTIONS SHALL BE IN ACCORDANCE WITH AISC 360-10, "SPECIFICATION OR STRUCTURAL STEEL BUILDINGS" AND AISC 303-10 "CODE OF STANDARD PRACTICE FOR BUILDING AND BRIDGES".

S-2. UNLESS OTHERWISE NOTED, STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE ABOVE-LISTED AISC SPECIFICATION AND THE FOLLOWING:

WIDE FLANGE SHAPES	ASTM A992, GRADE B, 50 KSI
HSS HOLLOW SHAPES	ASTM A500, GRADE B, 46 KSI
CHANNELS, PLATES, AND ANGLES	ASTM A36
HIGH STRENGTH BOLTS	ASTM A325
COMMON GRADE BOLTS	ASTM A307
ANCHOR RODS WITH/ NUT AND WASHER	ASTM F1554, GRADE 36
WELDED STEEL ANCHOR STUDS	ASTM A108

S-3. WELDING SHALL CONFORM TO AWS D1.1. WELDING ELECTRODES SHALL CONFORM TO E70XX. CURRENT AWS CERTIFICATIONS SHALL BE AVAILABLE AT THE JOB SITE FOR REVIEW BY THE CONTRACTING OFFICER'S REPRESENTATIVE.

S-4. FIELD CUTTING FOR THE STRUCTURAL STEEL MEMBERS SHALL NOT BE PERMITTED. BOLT HOLES SHALL NOT BE CUT OR ENLARGED BY FLAME CUTTING IN THE FIELD.

S-5. ALL FIELD-BOLTED SHEAR CONNECTIONS SHALL BE SNUG TIGHT BEARING-TYPE CONNECTIONS, THREADS INCLUDED IN THE SHEAR PLANE.

S-5. UNLESS INDICATED OTHERWISE, ALL BOLTED CONNECTIONS SHALL BE 3/4 INCH DIAMETER A325N. ALL BOLT SPACING SHALL BE 3" AND ALL BOLT EDGE DISTANCES SHALL BE 1 1/4" MINIMUM UNLESS OTHERWISE INDICATED ON THE CONTRACT DRAWINGS.

CONCRETE CONSTRUCTION NOTES:

C-1. ALL CAST IN PLACE CONCRETE SHALL ATTAIN THE FOLLOWING PROPERTIES:

MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'c)	4500 PSI
MAX WATER/CEMENT RATIO	0.45
NORMAL WEIGHT, WITH A DENSITY	140 PCF TO 150 PCF

C-2. CONCRETE REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO ASTM A615/A615M, GRADE 60 AND SHALL HAVE FABRICATION TOLERANCES IN ACCORDANCE WITH ACI 315. SHOP FABRICATE REINFORCING BARS WHICH ARE INDICATED TO BE BENT OR HOOKED.

C-3. WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A 185 OR ASTM A497. PROVIDE SHEET-TYPE WWF. SHEET LAPS SHALL BE TIED AND LAPPED ONE FULL MESH SPACING PLUS 2".

C-4. CONCRETE REINFORCING STEEL SHALL BE CONTINUOUS UNLESS OTHERWISE INDICATED. CONTINUOUS REINFORCING STEEL SHALL BE SPLICED AS SHOWN IN SCHEDULE ON PLANS. REINFORCING STEEL SHALL BE PLACED SO THAT SPACING IS GREATER THAN OR EQUAL TO 2X BAR DIAMETER.

C-5. CONCRETE COVER SHALL BE AS FOLLOWS, EXCEPT WHERE INDICATED OTHERWISE:

CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	3 IN
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND - #6 THRU #18	2 IN
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND - WWF THRU #5	1 1/2 IN
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, JOISTS AND WALLS - #14 & #18	1 1/2 IN
SLABS, JOISTS AND WALLS - #11 & SMALLER	3/4 IN
BEAMS, COLUMNS, PEDESTALS AND TENSION MEMBERS	1 1/2 IN

C-6. PROVIDE 1/2" THICK PRE-MOLDED JOINT FILLER MATERIAL WHERE SLABS ON GRADE ABUT VERTICAL SURFACE.

C-7. ALL EMBEDDED ITEMS SHALL BE PROPERLY PLACED, ACCURATELY POSITIONED AND MAINTAINED SECURELY IN PLACE PRIOR TO AND DURING CONCRETE PLACEMENT.

C-8. NO CONCRETE SHALL BE PLACED UNTIL THE CONTRACTING OFFICER'S REPRESENTATIVE HAS INSPECTED ALL EMBEDDED WORK, INCLUDING REINFORCEMENT.

C-9. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4", OR AS INDICATED.

C-10. ALUMINUM SHALL NOT BE PLACED IN DIRECT CONTACT WITH CONCRETE UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION AND ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.

C-11. IN ADDITION, CONTRACTOR SHALL COORDINATE SLAB-ON-GRADE JOINT REQUIREMENTS WITH SLAB-ON-GRADE CONSTRUCTION SEQUENCING. CONTRACTOR SHALL SHOW JOINT LAYOUT ON REINFORCING SHOP DRAWING SUBMITTAL FOR APPROVAL.

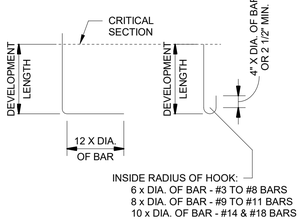
C-12. ALL EXPOSED FLOOR SLABS SHALL BE TREATED WITH A CHEMICAL FLOOR SEALER. SEE SPECIFICATION SECTION 03 30 00 CAST-IN-PLACE CONCRETE.

C-13. CONCRETE REINFORCEMENT DEVELOPMENT AND SPLICE LENGTHS SHALL BE AS SHOWN IN THE DEVELOPMENT AND SPLICE LENGTH TABLE ON THIS SHEET, UNLESS NOTED OTHERWISE.

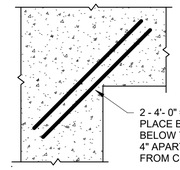
DEVELOPMENT AND SPLICE LENGTHS				
BAR SIZE	DEVELOPMENT LENGTH		SPLICE LENGTH	
	OTHER	TOP*	OTHER	TOP*
#3	1'-2"	1'-6"	1'-6"	1'-11"
#4	1'-6"	2'-0"	2'-0"	2'-7"
#5	1'-11"	2'-6"	2'-6"	3'-2"
#6	2'-3"	2'-11"	2'-11"	3'-10"
#7	3'-4"	4'-3"	4'-3"	5'-7"
#8	3'-9"	4'-11"	4'-11"	6'-4"
#9	4'-3"	5'-6"	5'-6"	7'-2"
#10	4'-9"	6'-2"	6'-2"	8'-0"
#11	5'-4"	6'-10"	6'-10"	8'-11"

*TOP BARS ARE DEFINED AS HORIZONTAL REINFORCEMENT SUCH THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE DEVELOPMENT LENGTH OR SPLICE

DEVELOPMENT LENGTH OF HOOKED BARS	
BAR SIZE	LENGTH OR MIN. EMBEDMENT
#3	7"
#4	9"
#5	1'-0"
#6	1'-2"
#7	1'-4"
#8	1'-6"
#9	1'-9"
#10	1'-11"
#11	2'-2"



2 HOOK RADIUS
N.T.S.



3 RE-ENTRANT CORNER
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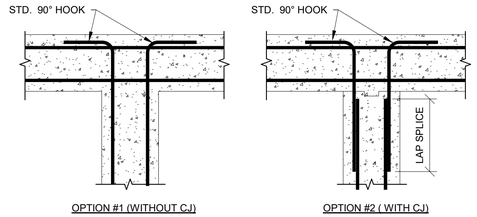
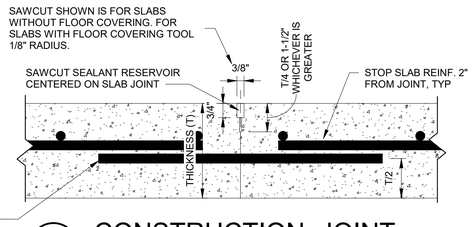


NOTES:
1. VERTICAL REINFORCEMENT NOT SHOWN.
2. UNLESS NOTED OTHERWISE THE CONTRACTOR HAS THE OPTION OF REINFORCING CORNERS AND INTERSECTIONS WITH THE ASSOCIATED OPTION #1 OR OPTION #2.

1 TYP. WALL REINF. DETAILS
N.T.S.



4 CONSTRUCTION JOINT
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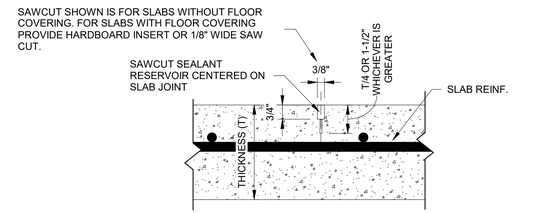

5 CONTRACTION JOINT
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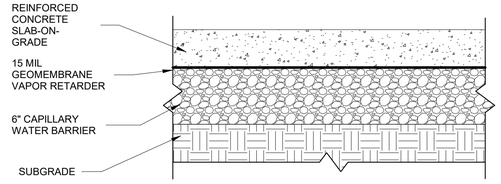

6 TYP. WATER VAPOR RETARDER
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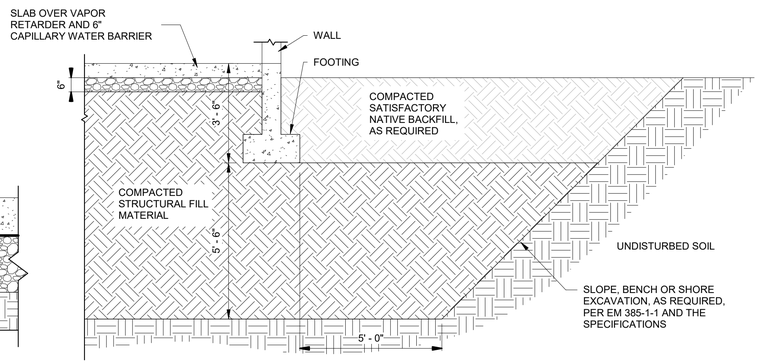


7 FIRE STATION OVEREXCAVATION DETAIL
N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: N. ASKAR/MEIER
CHECKED BY: E. HENIN
SUBMITTED BY: D. MEIER
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

GENERAL STRUCTURAL NOTES

SHEET ID
S-001

FIRE STATION - ASSUMED COLUMN REACTIONS FOR FOUNDATION DESIGN (@TOP OF PIER - KIPS)

	LOAD COMBINATION	WIND DIRECTION	FOOTING MARK (SEE FOUNDATION AND SLAB PLAN) F1					
			V_R	H_R	V_P	H_P	$V_R + V_P$	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-22.75	-10.03	-	-	-22.75	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-19.04	+1.68	-20.22	-8.15	-39.26	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-21.83	-9.33	-14.30	-5.76	-36.13	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	48.53	18.55	-	-	48.53	33.86
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	50.40	18.06	-	-	50.40	32.98
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	37.99	22.01	-	-	50.40	40.18
	1.2 D + 1.6 S + 0.5 W	PARALLEL TO SIDE WALL	49.66	18.19	10.75	4.33	60.41	32.98
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	49.94	18.20	7.60	3.06	57.54	33.21

	LOAD COMBINATION	WIND DIRECTION	F1 (COLUMN A-4 ONLY)*					
			V_R	H_R	V_P	H_P	$V_R + V_P$	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-16.74	-10.03	-	-	-16.74	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-13.03	+1.68	-20.22	-8.15	-33.25	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-15.82	-9.33	-14.30	-5.76	-30.12	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	66.24	18.55	-	-	66.24	33.86
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	68.12	18.06	-	-	50.40	32.98
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	55.71	22.01	-	-	50.40	40.18
	1.2 D + 1.6 S + 0.5 W	PARALLEL TO SIDE WALL	67.37	18.19	10.75	4.33	60.41	32.98
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	67.65	18.20	7.60	3.06	57.54	33.21

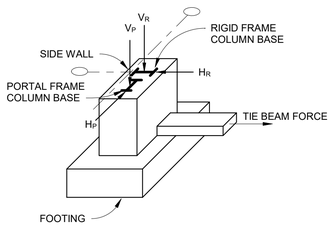
	LOAD COMBINATION	WIND DIRECTION	F2					
			V_R **	H_R	V_P	H_P	$V_R + V_P$**	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-24.06	-16.05	-	-	-24.06	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-20.18	-5.37	-3.24	-3.44	-23.42	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-23.14	-14.37	-2.29	-2.43	-25.43	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	81.66	39.92	-	-	81.66	72.90
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	79.46	40.39	-	-	79.46	73.75
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	68.37	41.10	-	-	68.37	75.04
	1.2 D + 1.6 S + 0.5 W	PARALLEL TO SIDE WALL	79.11	40.45	2.01	2.14	81.12	73.87
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	78.99	40.25	1.42	1.51	80.41	73.50

	LOAD COMBINATION	WIND DIRECTION	F2 (COLUMN A-3 ONLY)*					
			V_R **	H_R	V_P	H_P	$V_R + V_P$**	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-18.05	-16.05	-	-	-18.05	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-14.17	-5.37	-3.24	-3.44	-17.41	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-17.13	-14.37	-2.29	-2.43	-19.42	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	99.38	39.92	-	-	99.38	72.90
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	97.18	40.39	-	-	97.18	73.75
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	86.09	41.10	-	-	86.09	75.04
	1.2 D + 1.6 S + 0.5 W	PARALLEL TO SIDE WALL	96.83	40.45	2.01	2.14	98.84	73.87
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	96.71	40.25	1.42	1.51	98.13	73.50

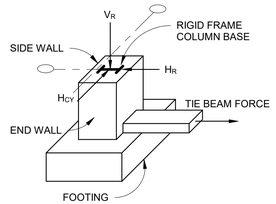
	LOAD COMBINATION	WIND DIRECTION	F3					
			V_R**	H_R	V_P	H_P	$V_R + V_P$**	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-14.37	-11.02	-	-	-14.37	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-12.42	-2.68	-3.24	-3.44	-15.66	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-13.99	-9.91	-2.29	-2.43	-16.28	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	64.10	35.85	-	-	64.10	65.47
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	60.04	36.35	-	-	60.04	66.37
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	55.12	37.89	-	-	55.12	69.19
	1.2 D + 1.6 S + 0.5 W	PARALLEL TO SIDE WALL	60.41	36.42	2.01	2.14	62.42	66.50
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	59.85	36.20	1.42	1.51	61.27	66.11

	LOAD COMBINATION	WIND DIRECTION	F4			
			V_R	H_R	H_{CY}	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-22.75	-10.03	-	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-19.04	+1.68	-	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-21.83	-9.33	-	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	48.53	18.55	-	33.86
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	50.40	18.06	-	32.98
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	37.99	22.01	-	40.18
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	49.94	18.20	-	33.24

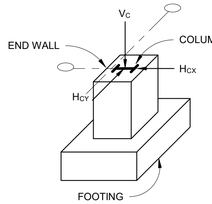
	LOAD COMBINATION	WIND DIRECTION	F5			
			V_R	H_R	H_{CY}	TIE BEAM FORCE
MAXIMUM UPLIFT REACTIONS	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-11.58	-8.94	-	-
	0.9 D + 1.0 W	PARALLEL TO SIDE WALL	-10.08	-3.18	+/-1.22	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-11.29	-7.97	+/-0.86	-
MAXIMUM DOWNWARD REACTIONS	1.2 D + 1.6 S	NO WIND	35.41	18.51	-	33.79
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	31.71	19.04	-	34.66
	1.2 D + 1.6 S + 0.5 W (-INTERNAL)	PARALLEL TO RIGID FRAME	29.15	19.37	-	35.37
	1.2 D + 1.6 S + 0.5 (0.707) W**	45 DEGREES OBLIQUE	31.56	18.84	+/-0.67	34.41



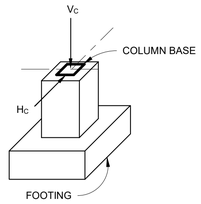
PIER LOAD KEY DIAGRAM - FOOTING MARKS F1, F2 & F3



PIER LOAD KEY DIAGRAM - FOOTING MARK F4 & F5



PIER LOAD KEY DIAGRAM - FOOTING MARK F6, F7, F8 & F11



PIER LOAD KEY DIAGRAM - FOOTING MARK F9 & F10

"V" DESIGNATES VERTICAL PIER LOADS
"H" DESIGNATES HORIZONTAL PIER LOADS
SUBSCRIPT "R" DENOTES RIGID FRAME REACTION
SUBSCRIPT "P" DENOTES PORTAL FRAME BASE REACTION
SUBSCRIPT "C" DENOTES A NON-FRAME COLUMN REACTION
SUBSCRIPT "CX" DENOTES A NON-FRAME BASE REACTION IN THE COLUMN STRONG AXIS
SUBSCRIPT "CY" DENOTES A NON-FRAME BASE REACTION IN THE COLUMN WEAK AXIS

TABLE FOOTNOTES:

* - TABULATED LOADS FOR FOOTING F1 AND F2 COLUMNS AT GRID LOCATIONS A-3 AND A-4 INCLUDE A MAXIMUM FACTORED GRAVITY LOAD OF 17.72 k FOR NET MAXIMUM DOWNWARD REACTIONS, AND A MINIMUM FACTORED GRAVITY LOAD OF 6.01 k FOR NET MAXIMUM UPWARD REACTIONS. THESE LOADS REPRESENT FRAMING REACTIONS TO THE PEMB COLUMNS ALONG LINE A FROM THE WORK ROOM ROOF, BASED UPON AN UNFACTORED UNIFORM DEAD LOAD OF 80.5 psf (MINIMUM 57.5 psf) AND AN UNFACTORED UNIFORM LIVE LOAD OF 50.0 psf. A DEAD LOAD OF .

** - TABULATED UPLIFT REACTIONS IN THESE ROWS RESULT FROM AN OBLIQUE WIND DIRECTION THAT IS AT 45 DEGREES TO THE PRINCIPLE BUILDING AXES. THE REACTIONS RESULT FROM FULL DESIGN WIND UPLIFT PRESSURE ON THE ROOF AREA SUPPORTED BY THE RIGID FRAME IN COMBINATION WITH 0.707 TIMES THE DESIGN HORIZONTAL WIND PRESSURE ON THE SUPPORTED WALL AREAS NORMAL TO THE RIGID FRAME AND NORMAL TO THE PORTAL FRAME SYSTEM.

*** - TABULATED DOWNWARD REACTION IS PRODUCED BY THE INDICATED LOAD COMBINATION WITH UNBALANCED SNOW LOAD OVER THE COLUMN.

**** - TABULATED DOWNWARD REACTIONS ON WIND COLUMNS AT THIS FOOTING ARE BASED UPON THE ASSUMPTION OF THE POSSIBLE INCIDENTAL TRANSFER OF VERTICAL TRIBUTARY AREA GRAVITY LOADING FROM THE RIGID FRAME AT THIS COLUMN LINE.

	LOAD COMBINATION	WIND DIRECTION	F6		
			V_{C+B}	H_{CX}	H_{CY}
MAXIMUM UPLIFT & HORIZONTAL REACTIONS	0.9 D + 1.0 W (- INTERNAL)	PARALLEL TO END WALL	-17.43	-	+/-6.57
	0.9 D + 1.0 W (OUTWARD)	PARALLEL TO SIDE WALL	-10.05	9.73	-
	0.9 D + 1.0 W (INWARD)	PARALLEL TO SIDE WALL	-10.05	-8.61	-
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-14.07	+/-6.88	+/-4.64
DOWNWARD	1.2 D + 1.6 S	NO WIND	19.40	-	-
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	22.59	-	-
	1.2 D + 1.6 S + 0.5 W***	PARALLEL TO RIGID FRAME	26.09	-	-

	LOAD COMBINATION	WIND DIRECTION	F7	
			V_{C+B}****	H_{CX}
MAXIMUM UPLIFT & HORIZONTAL REACTIONS	0.9 D + 1.0 W (WINDWARD +INT.)	PARALLEL TO SIDE WALL	-4.78	2.87
	0.9 D + 1.0 W (WINDWARD -INT.)	PARALLEL TO SIDE WALL	-8.19	1.09
	0.9 D + 1.0 W (LEEWARD -INT.)	PARALLEL TO SIDE WALL	-4.59	-2.33
DOWNWARD	1.2 D + 1.6 S***	NO WIND	29.80	-

	LOAD COMBINATION	WIND DIRECTION	F8		
			V_{C+B}	H_{CX}	H_{CY}
MAXIMUM UPLIFT & HORIZONTAL REACTIONS	0.9 D + 1.0 W (WINDWARD +INT.)	PARALLEL TO BRACED FRAME	-0.05	-	4.93
	0.9 D + 1.0 W (WINDWARD -INT.)	PARALLEL TO BRACED FRAME	-3.79	-	0.85
	0.9 D + 1.0 W (LEEWARD -INT.)	PARALLEL TO BRACED FRAME	-2.45	-	-4.33
	0.9 D + 1.0 W (WINDWARD +INT.)	PARALLEL TO SIDE WALL	-0.10	3.98	0.26
	0.9 D + 1.0 W (WINDWARD -INT.)	PARALLEL TO SIDE WALL	-4.25	0.21	-3.80
	0.9 D + 1.0 W (LEEWARD -INT.)	PARALLEL TO SIDE WALL	-2.81	-3.37	-3.69
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-0.10	2.81	3.49
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-4.25	-2.38	-5.44
DOWNWARD	1.2 D + 1.6 S	NO WIND	9.61	-	-

REACTION NOTES:

1. LOADS SHOWN ON THIS DRAWING ARE TO BE CONSIDERED FOR INFORMATION ONLY, AND NOT A PART OF THE CONTRACT REQUIREMENTS, OTHER THAN FOR THE PURPOSE OF VERIFICATION THAT THE ACTUAL PEMB COLUMN REACTIONS DO NOT EXCEED THE LIMITS OF THE FOUNDATION DESIGN. THEY REPRESENT THE COLUMN REACTIONS AND TIE BEAM FORCES THAT WERE USED TO DEVELOP THE FOUNDATION FOOTING AND PIER DESIGNS.

2. ASSUMED PRE-ENGINEERED METAL BUILDING COLUMN REACTIONS RESULT FROM ASCE 7-16 LOAD AND RESISTANCE FACTOR DESIGN (LRFD) FACTORED DESIGN LOADS, USING FACTORS AND LOAD COMBINATIONS AS INDICATED.

3. ALL COLUMNS ARE ASSUMED TO HAVE 'PINNED' BASES FOR THE PURPOSE OF FOUNDATION DESIGN. PIERS AND FOOTINGS WERE DESIGNED ASSUMING NO BENDING MOMENTS ARE TRANSFERED TO THE FOUNDATION BY COLUMN BASES.

4. THE FACTORED LRFD REACTIONS LISTED WERE USED TO SIZE THE COLUMN FOOTINGS FOR UPLIFT RESISTANCE, AND TO DESIGN PIERS, PIER REINFORCEMENT, AND TIE BEAMS FOR HORIZONTAL REACTIONS. UPLIFT RESISTANCE INCLUDED THE WEIGHT OF THE PIER, FOOTING, COVERING SOIL, AND ATTACHED ADJACENT PORTIONS OF THE PERIMETER FOUNDATION WALL AND WALL FOOTING.

5. REACTION VALUES SHOWN IN SHADED BOXES ARE INTENDED TO HIGHLIGHT THE PARTICULAR MAXIMUMS FOR THE GIVEN REACTION TYPE UNDER CONDITIONS OF EITHER UPLIFT OR DOWNWARD LOADING. THE SHADED BOXES DO NOT REPRESENT A DESIGN ENVELOPE OF MAXIMUM VALUES USED FOR THE DESIGN OF THE FOUNDATION. FOOTINGS AND PIERS WERE CHECKED FOR THE RELEVANT COMBINATIONS OF LOADS AS SHOWN, CORRESPONDING ONLY TO THE SPECIFIC INDIVIDUAL LOAD COMBINATIONS GIVEN, AND WERE NOT CHECKED FOR COMBINATIONS OF MAXIMUM REACTIONS FROM DIFFERENT LOAD CASES.

6. THE ALLOWABLE FOOTING SOIL BEARING PRESSURE IS 2,500 PSF. MAXIMUM FOOTING CORNER SOIL PRESSURES WERE OBTAINED FROM COMBINED DEFACTORED ECCENTRIC COLUMN GRAVITY LOAD REACTIONS, AND CHECKED AGAINST THE ALLOWABLE SOIL BEARING PRESSURE.

7. FOOTING AND PIER DESIGN REACTION COMBINATIONS FOR LOAD COMBINATIONS WHICH INCLUDE WIND LOADING ALSO INCLUDE REACTIONS FROM RIGID PORTAL FRAMES, WHERE PORTAL FRAMES ARE PRESENT, AND APPLY LOADS TO A COMMON PIER UNDER THE SAME LOAD CASE.

8. TIE BEAM FORCES ARE DETERMINED AS A RESULTANT COUNTERACTING FORCE AT THE CENTER OF TIE BEAM ELEVATION FROM THE MOMENT OF THE RIGID FRAME REACTION, APPLIED AT THE TOP OF THE PIER, ABOUT THE FOOTING BASE ELEVATION. TIE BEAMS ARE USED TO RESIST OUTWARD HORIZONTAL COLUMN REACTIONS BY TENSION. INWARD COLUMN REACTIONS OCCURING CONCURRENTLY WITH UPLIFT FORCES ARE RESISTED BY A COMBINATION OF FOOTING-SOIL FRICTION DEVELOPED FROM THE NET PERMANENT GRAVITY LOADS, AT-REST SOIL PRESSURE ON THE FOUNDATION WALL, AND THE COMPRESSION CAPACITY OF THE TIE BEAM.

9. SEE "PRE-ENGINEERED METAL BUILDING (PEMB) NOTES" ON SHEET S-003 FOR REQUIREMENTS FOR VERIFICATION THAT THE ACTUAL BUILDING FRAME REACTIONS FROM THE PEMB DESIGN DO NOT EXCEED THE FOUNDATION DESIGN REACTIONS, AND FOR REQUIREMENTS FOR THE FOUNDATION REDESIGN AND DESIGNER QUALIFICATIONS IF THE FOUNDATION DESIGN REACTIONS ARE EXCEEDED.

	LOAD COMBINATION	WIND DIRECTION	F9	
			V_C	H_C
UPLIFT	0.9 D + 1.0 W	TRANSVERSE TO CANOPY	-5.87	+/-0.87
DOWNWARD REACTIONS	1.2 D + 1.6 S + 0.5 W	TRANSVERSE TO CANOPY	11.69	-
	1.2 D + 1.6 S	NO WIND	9.49	-

	LOAD COMBINATION	WIND DIRECTION	F10	
			V_C	H_C
UPLIFT	0.9 D + 1.0 W	TRANSVERSE TO CANOPY	-4.31	+/-0.82
DOWNWARD REACTIONS	1.2 D + 1.6 S + 0.5 W	TRANSVERSE TO CANOPY	8.55	-
	1.2 D + 1.6 S	NO WIND	6.94	-

STORAGE BUILDING - ASSUMED COLUMN REACTIONS FOR FOUNDATION DESIGN (@TOP OF PIER - KIPS)

	LOAD COMBINATION	WIND DIRECTION	F11		
			V_{C+B}	H_{CX}	H_{CY}
MAXIMUM UPLIFT	0.9 D + 1.0 W	PARALLEL TO RIGID FRAME	-5.04	-2.03	-
	0.9 D + 1.0 W (WINDWARD +INT.)	PARALLEL TO BRACED FRAME	-4.40	-1.25	- 2.79
	0.9 D + 1.0 W (LEEWARD -INT.)	PARALLEL TO BRACED FRAME	-3.24	-1.25	+ 1.06
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	-5.09	-1.80	-1.97
DOWNWARD	1.2 D + 0.5 S + 1.0 W (-INTERNAL)	PARALLEL TO RIGID FRAME	2.08	4.25	-
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO RIGID FRAME	11.69	2.38	-
	1.2 D + 1.6 S + 0.5 W (+INTERNAL)	PARALLEL TO BRACED FRAME	10.79	2.50	-1.39
	0.9 D + 1.0 (0.707) W**	45 DEGREES OBLIQUE	11.72	2.41	+0.53
	1.2 D + 1.6 S	NO WIND	11.03	2.50	-

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

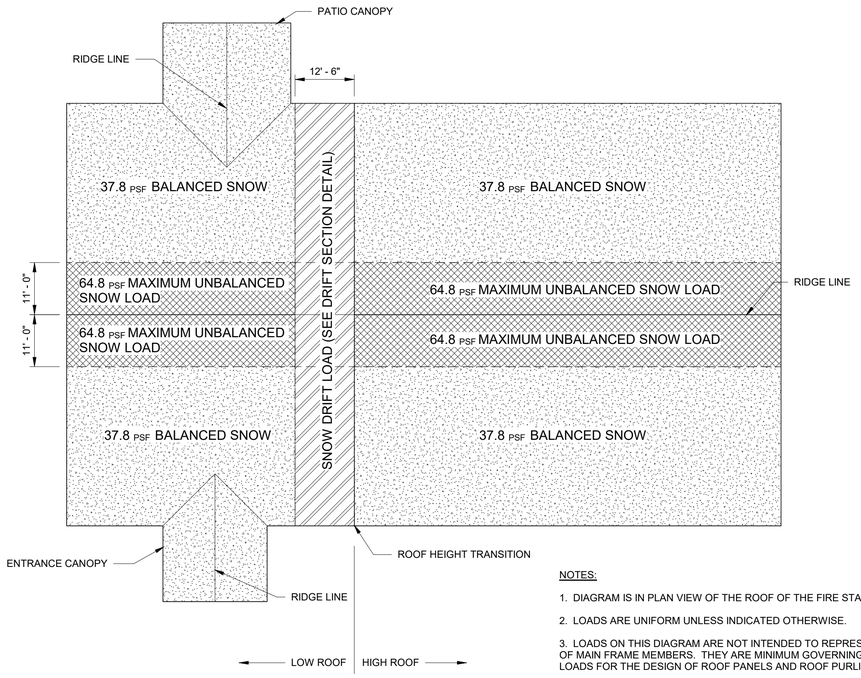
DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER
CHECKED BY: E. HENIN
SUBMITTED BY: DENNING
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.vt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 107464 (FY23)

FOR INFORMATION - FOUNDATION LOADS

SHEET ID
S-002

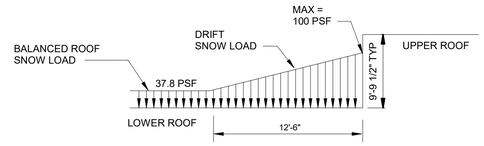


NOTES:

1. DIAGRAM IS IN PLAN VIEW OF THE ROOF OF THE FIRE STATION.
2. LOADS ARE UNIFORM UNLESS INDICATED OTHERWISE.
3. LOADS ON THIS DIAGRAM ARE NOT INTENDED TO REPRESENT DESIGN LOADING OF MAIN FRAME MEMBERS. THEY ARE MINIMUM GOVERNING UNFACTORED SNOW LOADS FOR THE DESIGN OF ROOF PANELS AND ROOF PURLINS.
4. UNBALANCED SNOW LOADS ARE SHOWN ON BOTH OF THE ALTERNATIVE LOCATIONS ON EITHER SIDE OF THE ROOF RIDGE TO REPRESENT AN ENVELOPE OF MAXIMUM ROOF PANEL LOADING. MINIMUM UNBALANCED LOADS ARE NOT SHOWN.

1 FIRE STATION ROOF SNOW LOAD DIAGRAM

1/16" = 1'-0"

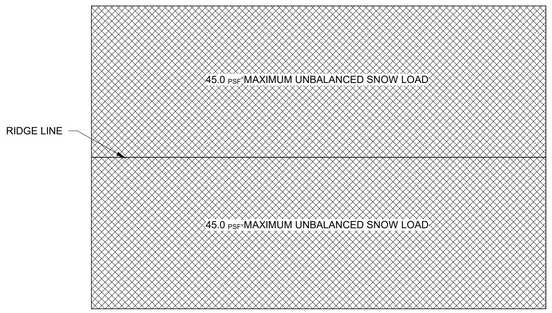


NOTES:

1. SNOW DRIFT SNOW LOAD IS UNFACTORED.
2. OVERLAP OF UNBALLANCED SNOW LOAD w/ DRIFTING IS NOT SHOWN.

2 SNOW DRIFT LOAD SECTION

1/8" = 1'-0"



NOTES:

1. DIAGRAM IS IN PLAN VIEW OF THE ROOF OF THE STORAGE BUILDING.
2. LOADS ARE UNIFORM IN INTENSITY.
3. LOADS ON THIS DIAGRAM ARE NOT INTENDED TO REPRESENT DESIGN LOADING OF MAIN FRAME MEMBERS. THEY ARE MINIMUM GOVERNING UNFACTORED SNOW LOADS FOR THE DESIGN OF ROOF PANELS AND ROOF PURLINS.
4. UNBALANCED SNOW LOADS ARE SHOWN ON BOTH OF THE ALTERNATIVE LOCATIONS ON EITHER SIDE OF THE ROOF RIDGE TO REPRESENT AN ENVELOPE OF MAXIMUM ROOF PANEL LOADING. MINIMUM UNBALANCED LOADS ARE NOT SHOWN.
5. THE UNFACTORED BALANCED SNOW LOAD IS 34.7 PSF FOR THE STORAGE BUILDING, AND IT DOES NOT GOVERN AS THE MAXIMUM LOAD FOR ANY PORTION OF THE ROOF, PER ASCE 7-16 PROVISIONS.

3 STORAGE BUILDING ROOF SNOW LOAD DIAGRAM

1" = 10'-0"

PRE-ENGINEERED METAL BUILDING (PEMB) NOTES:

MB-1. THE PRE-ENGINEERED METAL BUILDING (PEMB) SYSTEM IS PLANNED TO CONSIST OF A RIGID CLEAR SPAN STRUCTURE. THE LATERAL FORCE RESISTING SYSTEM, ALL LATERAL BRACING, LONGITUDINAL LOAD RESISTING PORTAL FRAMES, AND THE METAL DECK SHALL BE DESIGNED BY THE PEMB MANUFACTURER. THE DESIGN OF THE BUILDING SYSTEM SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF IBC, ASCE, AISC, AND THE METAL BUILDING SYSTEMS MANUAL. DESIGN AND CALCULATIONS FROM THE PEMB MANUFACTURER SHALL BE DESIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER.

MB-2. DESIGN THE BUILDING FOR A 6 PSF COLLATERAL DEAD LOAD IN ADDITION TO THE BUILDING DEAD LOAD, WIND LOADS, AND SEISMIC LOADS. CRITERIA FOR DEVELOPMENT OF THE WIND LOAD AND SEISMIC LOADS ARE LISTED IN THE GENERAL NOTES ON SHEET S-001. COMPONENTS AND CLADDING WIND LOADS SHALL NOT BE LESS THAN THOSE GIVEN ON SHEET S-004. INCLUDE THE EFFECTS OF WINDWARD AND LEEWARD WIND PRESSURE AND UPLIFT LOADS.

MB-3. LOAD COMBINATIONS SHALL BE IN ACCORDANCE WITH ASCE 7-16 UNLESS THE MBMA METAL BUILDING SYSTEMS MANUAL OR IBC LOAD COMBINATIONS ARE MORE STRINGENT.

MB-4. LIMIT THE STORY DRIFT OF THE STRUCTURE IN BOTH DIRECTIONS TO H/300 FOR WIND PRESSURE LOADING = 0.42 x THE CODE WIND PRESSURES USED TO DESIGN THE MAIN WIND RESISTING FRAMES AND TO GENERATE FRAME COLUMN REACTIONS. WIND PRESSURE VALUES SHOWN ON SHEET S-004 ARE PROVIDED AS A MINIMUM FOR THE STRUCTURAL STRENGTH DESIGN OF ROOF AND WALL PANEL ELEMENTS, ROOF PURLINS AND WALL GIRTS, AND ARE NOT INTENDED TO BE USED FOR THE DESIGN OF THE STRUCTURE MAIN FORCE RESISTING SYSTEMS. LATERAL DRIFT LIMITATIONS FOR SEISMIC LOAD CONDITIONS SHALL BE AS REQUIRED BY ASCE 7-16.

MB-5. THE METAL BUILDING SHALL INCORPORATE STRUCTURAL BRACING BETWEEN FRAME MEMBERS UNDER THE PLANE OF THE ROOF AT BOTH ROOF LEVELS, IN THE SAME BAYS AS PORTAL FRAMES, TO PROVIDE FRAME STABILITY AND TRANSFER HORIZONTAL FORCES IN THE PLANE OF THE ROOF TO PORTAL FRAMES. THE METAL ROOF PANEL SYSTEM IS NOT TO BE CONSIDERED CAPABLE OF PROVIDING A STRUCTURAL ROOF DIAPHRAGM FOR THE STRUCTURE, NOR SHALL IT BE CONSIDERED A STIFFENING ELEMENT.

MB-6. FOUNDATIONS AND PIERS SHOWN ARE DESIGNED FOR THE LOADS PROVIDED ON SHEET S-004. THE PEMB SUPPLIER SHALL VERIFY THAT THE INDICATED ANCHOR BOLT SIZES AND CONFIGURATIONS ASSUMED FOR THE DESIGN OF THE FOUNDATION ARE ADEQUATE FOR THE REQUIREMENTS OF THE THE METAL BUILDING FRAME REACTIONS. IF CHANGES TO THE FOUNDATION DESIGN ARE REQUIRED BY THE PEMB CONFIGURATION OR REACTIONS, THE CONTRACTOR SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER WITH SPECIALIZATION IN STRUCTURAL DESIGN TO REDESIGN THE FOOTINGS AND/OR COLUMN PIERS AS REQUIRED FOR THE ACTUAL PEMB COLUMN REACTIONS. SOIL PARAMETERS USED IN THE DESIGN SHALL BE AS PROVIDED ON S-001. CONCRETE AND CONCRETE ANCHORAGE DESIGN SHALL BE PER ACI 318-14. THE FOUNDATION RE-DESIGN INCLUDING CALCULATIONS, SHALL BE PROFESSIONALLY STAMPED WITH THE SEAL OF THE DESIGNER OF RECORD AND SUBMITTED TO THE GOVERNMENT FOR APPROVAL.

MB-7. THE CONTRACTOR SHALL COORDINATE THE COLUMN ANCHOR BOLT LAYOUT WITH THE PEMB MANUFACTURER. AT LEAST FOUR (4) ANCHOR BOLTS ARE REQUIRED FOR COLUMN BASE PLATES. ANCHOR BOLTS SHALL NOT BE LESS THAN 3/4" IN DIAMETER. COLUMN ANCHOR BOLTS SHALL BE POSITIVELY LOCATED USING TEMPLATES. PROVISION SHALL BE MADE FOR ALL ANCHOR BOLTS TO BE RIGIDLY HELD IN POSITION DURING CONCRETE CURING. ANCHOR BOLTS SHALL NOT BE TIGHTENED PRIOR TO 14 DAYS FOLLOWING CONCRETE PLACEMENT.

MB-8. STRUCTURAL MATERIAL DESIGN AND CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS ON S-001 AND IN THE SPECIFICATIONS.

MB-9. ROOF CANOPIES/OVERHANGS OVER DOORWAYS SHALL BE DESIGNED BY THE PEMB MANUFACTURER AND SUPPORTED FROM THE PEMB STRUCTURE. SEE ARCHITECTURAL SHEETS FOR LOCATIONS.

MB-10. THE METAL BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR SIZING AND PLACING BUILDING X-BRACING, PORTAL FRAMES AND OTHER STRUCTURAL MEMBERS SUCH THAT THEY DO NOT INTERFERE WITH DOORS, LOUVERS, FANS, HOODS, AND OTHER MECHANICAL AND ELECTRICAL ITEMS LOCATED ALONG THE BUILDING'S WALLS AND ROOF.

MB-11. LOADS INDUCED TO FRAMES CAUSED BY FOUNDATION MOVEMENTS OF 1/2" AT BASE PLATES HORIZONTALLY AND/OR VERTICALLY SHALL BE INCLUDED IN THE DESIGN OF THE STRUCTURE.

MB-12. END WALL COLUMNS SHALL BE DESIGNED TO COLLECT ALL LONGITUDINAL WIND LOADS ON THE END WALLS FROM GIRTS, AND TRANSFER THOSE FORCES TO THE ROOF FRAMING. PRIMARY FRAMING, ROOF FRAMING, EAVE STRUTS, AND BRACING CONNECTIONS SHALL BE DESIGNED TO ULTIMATELY TRANSFER END WALL FORCES TO PORTAL FRAMES, AS LOCATED ON THE FOUNDATION PLAN, FOR RESISTANCE AND TRANSFER TO THE FOUNDATION.

MB-13. END WALL COLUMN FOUNDATIONS ARE DESIGNED TO SUPPORT TRIBUTARY ROOF GRAVITY LOADS IF NECESSARY, AS WELL AS WIND BASE REACTIONS.

MB-14. CONCRETE PIERS AND FOOTINGS SHALL NOT BE PLACED PRIOR TO CONTRACTING OFFICER'S APPROVAL OF METAL BUILDING SHOP DRAWING SUBMITTALS.

MB-15. PEMB MANUFACTURER SHALL DESIGN AND PROVIDE FRAMING AROUND ROOF PENETRATIONS. COORDINATE EXACT SIZE AND LOCATION OF OPENINGS WITH ACTUAL MECHANICAL EQUIPMENT SUPPLIED.

MB-16. PEMB MANUFACTURER SHALL PROVIDE EAVE STRUTS AND BRACING TO TRANSFER SHEAR FORCE FROM THE ROOF LEVEL TO RIGID FRAMES AND PORTAL FRAMES.

MB-17. ALL TRANSVERSE FRAMES OF THE STRUCTURE ARE TO BE CLEAR-SPAN RIGID FRAMES. THE FRAMES IN THE LOW BAY AREA SHALL HAVE STRAIGHT, UNTAPERED COLUMNS. FRAMES IN THE HIGH BAY ARE PERMITTED TO HAVE TAPERED COLUMNS.

MB-18. THE FRAME AT THE TRANSITION BETWEEN THE HIGH AND LOW BAY AREAS SHALL BE A LOW BAY CLEAR SPAN RIGID FRAME WITH UNTAPERED COLUMNS, WITH A BRACED FRAME END WALL PIGGY-BACKED ABOVE IT, AND SUPPORTED BY IT, TO FRAME THE END WALL OF THE HIGH BAY.

MB-19. THE CLEAR SPAN RIGID FRAME AT COLUMN LINE "1" IS NOT INTENDED FOR FUTURE BUILDING EXPANSION. IT'S ONLY PURPOSE IS TO ELIMINATE END WALL BRACING. THE FRAME SHALL BE DESIGNED ONLY FOR THE LOADING FROM THE EXISTING END BAY ROOF SPAN. FOUNDATIONS ARE DESIGNED FOR THE END BAY CONDITIONS ONLY.

FIRE STATION FOOTING SCHEDULE

FOOTING PARAMETERS	FOOTING MARK (SEE FOUNDATION AND SLAB PLAN)										
	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11
FOOTING PLAN DIMENSIONS	10'-0" x 10'-0"	9'-0" x 9'-0"	7'-0" x 7'-0"	8'-6" x 8'-6"	4'-6" x 4'-6"	8'-0" x 8'-0"	4'-0" x 4'-0"	4'-0" x 4'-0"	5'-0" x 5'-0"	5'-0" x 5'-0"	4'-6" x 4'-6"
FOOTING THICKNESS	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"
FOOTING TOP REINFORCEMENT	9 - #4	8 - #4	7 - #4	8 - #4	4 - #4	8 - #4	4 - #4	4 - #4	5 - #4	5 - #4	5 - #4
FOOTING BOTTOM REINFORCEMENT	9 - #6	8 - #6	7 - #6	8 - #6	4 - #6	8 - #6	4 - #6	4 - #6	5 - #6	5 - #6	5 - #5
PIER SIZE (W x D)	42" x 28"	42" x 28"	40" x 24"	26" x 28"	30" x 24"	24" x 28"	18" x 24"	28" x 24"	32" x 32"	32" x 32"	24" x 18"
PIER VERTICAL REINFORCEMENT	(14) #8 BARS	(14) #8 BARS	(12) #8 BARS	(10) #8 BARS	(10) #8 BARS	(8) #8 BARS	(6) #8 BARS	(8) #8 BARS	(8) #8 BARS	(8) #8 BARS	(10) #8 BARS
PLAN DETAIL / SHEET	1 / S-500	2 / S-500	4 / S-500	1 / S-501	3 / S-500	2 / S-501	5 / S-500	6 / S-500	3 / S-501	3 / S-502	3 / S-504

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER
CHECKED BY: E. HENIN
SUBMITTED BY:
DRAWING SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

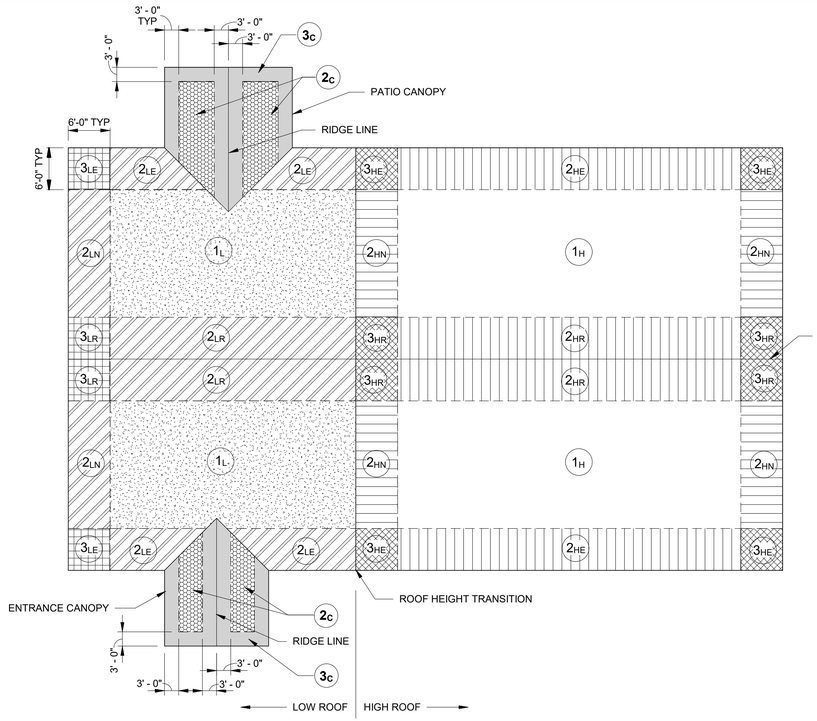
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

FOOTING SCHEDULE

SHEET ID

S-003



1 FIRE STATION ROOF WIND PRESSURE ZONE DIAGRAM
N.T.S.

FIRE STATION COMPONENTS & CLADDING ROOF WIND UPLIFT PRESSURE SCHEDULE (PSF)

	LOCATION	TRIBUTARY AREAS			
		10 SF	20 SF	50 SF	100 SF
HIGH ROOF	ZONE 1H 2HE	-95.9 +47.0	-95.9 +37.6	-63.9 +33.8	-39.5 +32.0
HIGH ROOF	ZONE 3HE 2HR 2HN	-133.5 +47.0	-118.4 +37.6	-95.9 +33.8	-79.0 +32.0
HIGH ROOF	ZONE 3HR	-156.1 +47.0	-135.4 +37.6	-109.0 +33.8	-88.4 +32.0
LOW ROOF	ZONE 1L 2LE	-74.2 +30.0	-74.2 +21.5	-45.3 +18.1	-23.2 +16.4
LOW ROOF	ZONE 3LE 2LR 2LN	-108.3 +30.0	-94.7 +21.5	-74.2 +18.1	-58.9 +16.4
LOW ROOF	ZONE 3HR	-128.7 +30.0	-110.0 +21.5	-86.2 +18.1	-67.4 +16.4
	LOCATION	TRIBUTARY AREAS (A)			
		A <= 9 SF	9 SF < A < 36 SF		A >= 36 SF
ENTRANCE CANOPIES	ZONE 2C	-79.4 +61.3	-79.4 +61.3		-52.9 +39.7
ENTRANCE CANOPIES	ZONE 3C	-105.8 +79.4	-79.4 +61.3		-52.9 +39.7

COMPONENTS AND CLADDING DIAGRAM NOTES:

1. THE INDICATED WIND PRESSURES FOR THE DESIGN OF COMPONENTS AND CLADDING SHOWN ON THIS SHEET HAVE BEEN DETERMINED IN ACCORDANCE WITH ASCE 7-16, ON THE BASIS OF THE WIND CRITERIA INDICATED ON SHEET S-001. THE COMPONENT AND CLADDING WIND PRESSURES SHALL BE USED TO DESIGN THE ROOF AND WALL PANEL SYSTEM, INCLUDING FASTENERS AND SUPPORTING GIRTS AND PURLINS, FOR ENCLOSURE OF THE FIRE STATION BUILDING, AS WELL AS PANELS AND ASSOCIATED SUPPORT MEMBERS ATTACHED TO CANOPIES AND ANY OTHER BUILDING APPURTENANCES.

2. ROOF AND WALL PANELS, GIRTS, AND PURLINS, AND ASSOCIATED FASTENERS OR ATTACHMENT SYSTEMS SHALL BE DESIGNED USING BOTH POSITIVE AND NEGATIVE PRESSURES SHOWN, FOR TRIBUTARY AREAS CORRESPONDING TO THE WIDTH OF THE PANEL UNITS AND THE SPAN DISTANCE BETWEEN POINTS OF SUPPORT OR ANCHORAGE, BASED UPON THE LOCATION OF THE PANELS ON THE BUILDING, RELATIVE TO BUILDING AND ROOF EDGES AND CORNERS.

3. ATTACHMENT FASTENERS FOR ROOF AND WALL PANELS SHALL BE DESIGNED FOR THE WIND PRESSURES INDICATED FOR A TRIBUTARY AREA OF 10 SQUARE FEET.

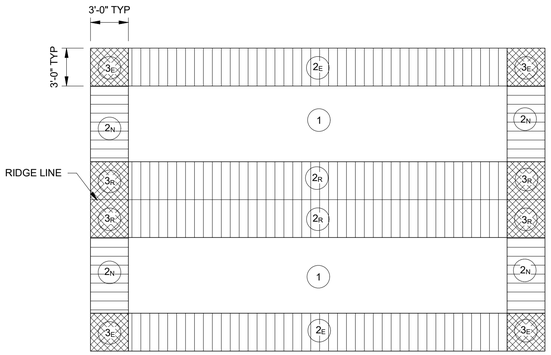
4. WIND PRESSURES SHOWN IN TABLES CORRESPOND TO WIND PRESSURE DIAGRAMS SHOWN.

5. THE TERM "SF" IN SCHEDULES IS AN ABBREVIATION REPRESENTING "SQUARE FEET".

6. WIND PRESSURES SHOWN SHALL BE USED IN CONJUNCTION WITH LOAD COMBINATIONS SPECIFIED IN SECTIONS 2.3 AND 2.4 OF ASCE 7-16.

7. POSITIVE PRESSURE NUMBERS SHOWN IN SCHEDULES ON THIS SHEET ARE TO BE APPLIED TOWARDS THE EXTERIOR SURFACE OF THE COMPONENT AND CLADDING ELEMENT (PRESSURE), AND NEGATIVE NUMBERS ARE TO BE APPLIED IN A DIRECTION AWAY FROM THE EXTERIOR SURFACE (SUCTION).

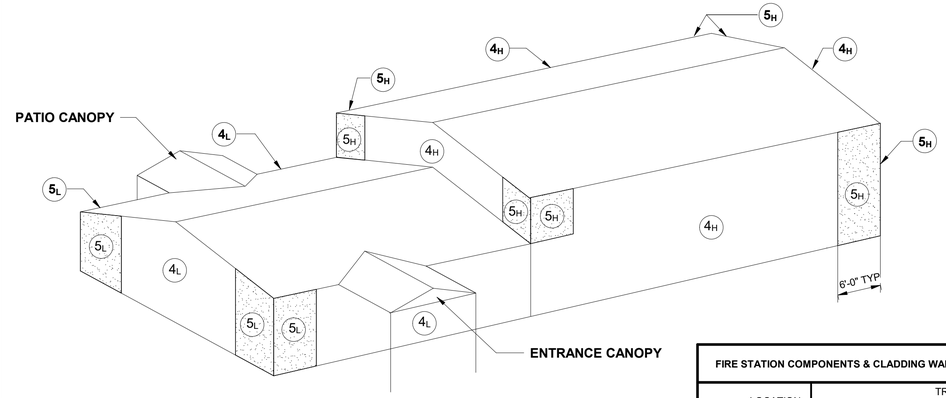
2 FIRE STATION ROOF WIND PRESSURE SCHEDULE
N.T.S.



STORAGE BUILDING COMPONENTS & CLADDING ROOF UPLIFT PRESSURE SCHEDULE, PSF

LOCATION	TRIBUTARY AREAS			
	10 SF	20 SF	50 SF	100 SF
ZONES 1 2E	-70.4 +34.5	-70.4 +27.6	-46.9 +24.8	-37.3 +23.5
ZONES 3E 2R 2N	-98.0 +34.5	-86.9 +27.6	-70.4 +24.8	-48.3 +23.5
ZONE 3R	-114.5 +34.5	-99.3 +27.6	-80.0 +24.8	-70.4 +23.5

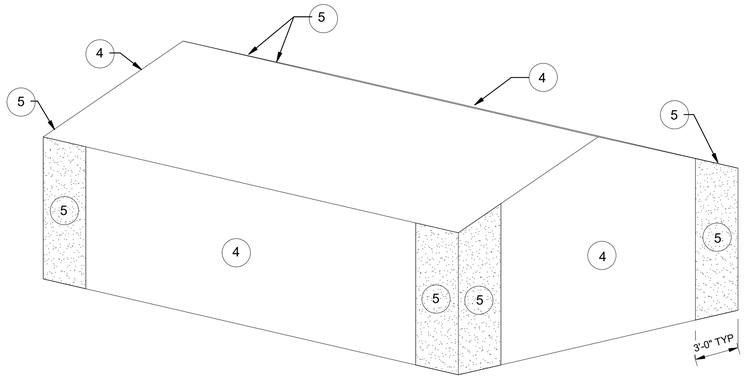
3 STORAGE BUILDING ROOF WIND PRESSURE ZONE DIAGRAM
N.T.S.



FIRE STATION COMPONENTS & CLADDING WALL WIND PRESSURE SCHEDULE, PSF

	LOCATION	TRIBUTARY AREAS					
		10 SF	20 SF	50 SF	100 SF	200 SF	500 SF
HIGH ROOF	ZONE 4H	-62.0 +58.3	-60.2 +56.4	-57.5 +53.8	-55.3 +51.5	-53.8 +49.6	-50.8 +47.0
HIGH ROOF	ZONE 5H	-73.3 +58.3	-69.6 +56.4	-64.3 +53.8	-60.2 +51.5	-56.4 +49.6	-50.8 +47.0
LOW ROOF	ZONE 4L	-43.6 +40.2	-41.9 +38.5	-39.5 +36.1	-37.5 +34.1	-36.1 +32.4	-33.4 +30.0
LOW ROOF	ZONE 5L	-53.8 +40.2	-50.4 +38.5	-45.6 +36.1	-41.9 +34.1	-38.5 +32.4	-33.4 +30.0

4 FIRE STATION WALL WIND PRESSURE ZONE DIAGRAM
N.T.S.



STORAGE BUILDING COMPONENTS & CLADDING WALL WIND PRESSURE SCHEDULE, PSF

LOCATION	TRIBUTARY AREAS					
	10 SF	20 SF	50 SF	100 SF	200 SF	500 SF
ZONE 4	-45.4 +42.6	-44.0 +41.2	-42.1 +39.3	-40.4 +37.7	-39.3 +36.3	-37.1 +34.4
ZONE 5	-53.6 +42.6	-50.9 +41.2	-47.0 +39.3	-44.0 +37.7	-41.2 +36.3	-37.1 +34.4

5 STORAGE BUILDING WALL WIND PRESSURE ZONE DIAGRAM
N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

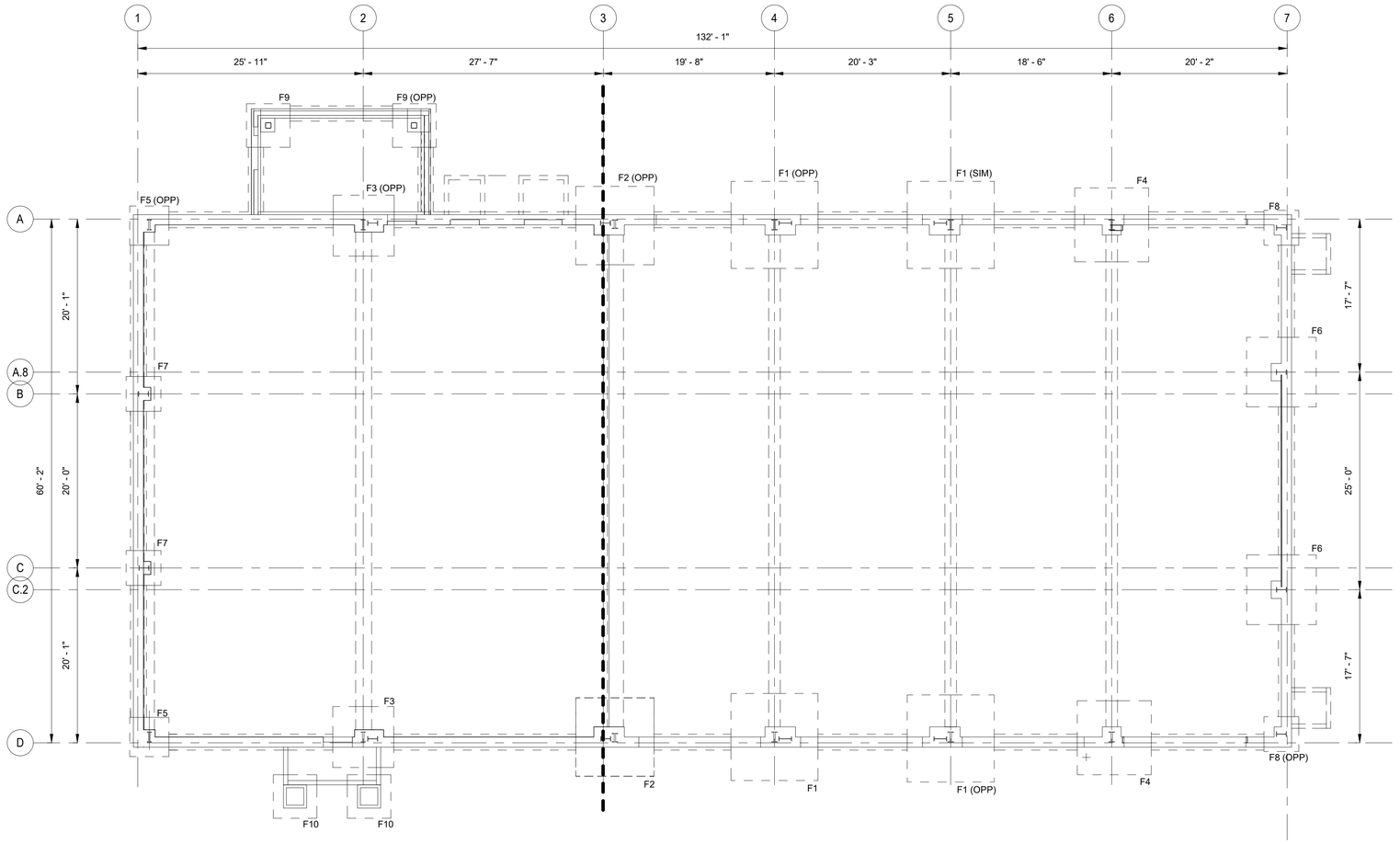
DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER
CHECKED BY: E. HENIN
SUBMITTED BY: DANIEL
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

WIND LOADS

SHEET ID
S-004

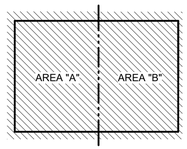


1 / S-100 FIRE STATION OVERALL FOUNDATION PLAN

1/8" = 1'-0"

0 4' 8' 16'

PLAN NORTH



KEYPLAN

NO SCALE

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: S. HALLETT
CHECKED BY: E. HENIN
SUBMITTED BY:
DRAWING STATUS
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

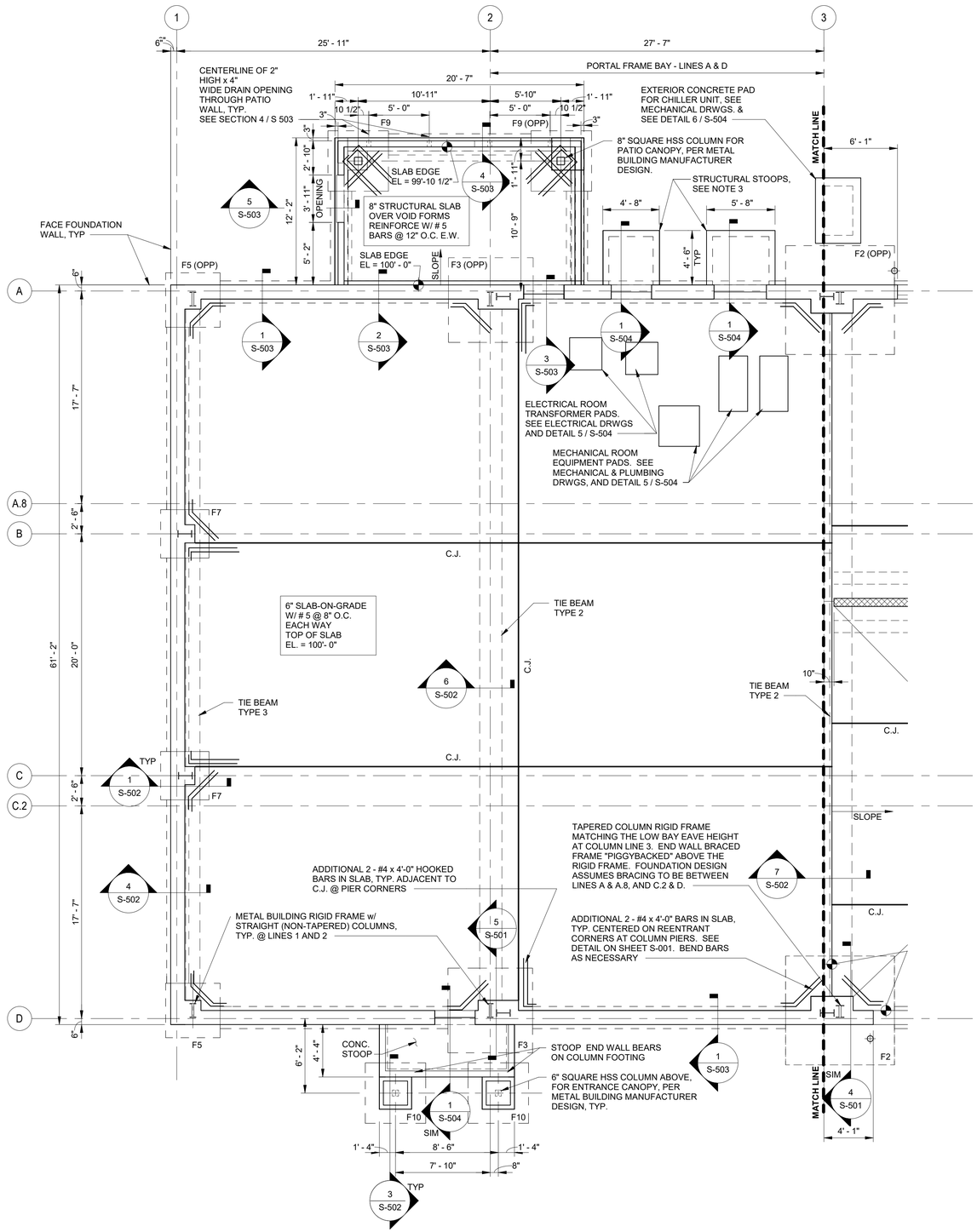
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 / (FY23)

FIRE STATION OVERALL FOUNDATION AND SLAB PLAN

SHEET ID

S-100



NOTES:

1. PLAN ELEVATION 100'-0" = SITE MEAN SEA LEVEL ELEVATION 6223.0'.

2. "C.J." STANDS FOR CONSTRUCTION OR CONTRACTION JOINT AT CONTRACTOR'S OPTION. SEE SHEET S-001 FOR CONTRACTION AND CONSTRUCTION JOINT DETAILS, AND OTHER APPLICABLE SLAB CONSTRUCTION DETAILS.

3. STRUCTURAL STOOPS SHALL BE CENTERED AT EXTERIOR DOORS EXCEPT WHERE INDICATED OTHERWISE. CONTRACTOR SHALL COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS.

4. SEE SHEET S-003 FOR FOOTING SCHEDULE, AND SHEETS S-500 AND S-501 FOR DETAILS RELATING THE LOCATION OF CENTER OF FOOTINGS WITH RESPECT TO PIER CENTER LINES AND COLUMN LINES.

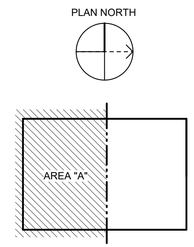
5. COORDINATE UNDERGROUND UTILITY LINES WITH CIVIL, PLUMBING, AND FIRE PROTECTION DRAWINGS PRIOR CONSTRUCTION OF FOOTING AND SLABS ON GRADE.

6. THE EXPRESSION "(OPP)" INDICATES THAT THE FOOTING & PIER AT THE INDICATED LOCATION ARE CONFIGURED OPPOSITE HAND OF THE PLAN DETAIL.

1 FIRE STATION FOUNDATION PLAN - AREA A

3/16" = 1'-0"

0 4' 8' 12'



KEYPLAN

NO SCALE

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER / J. OSBORN
CHECKED BY: E. HENNIN
SUBMITTED BY:
DRAWING FILE NAME:
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

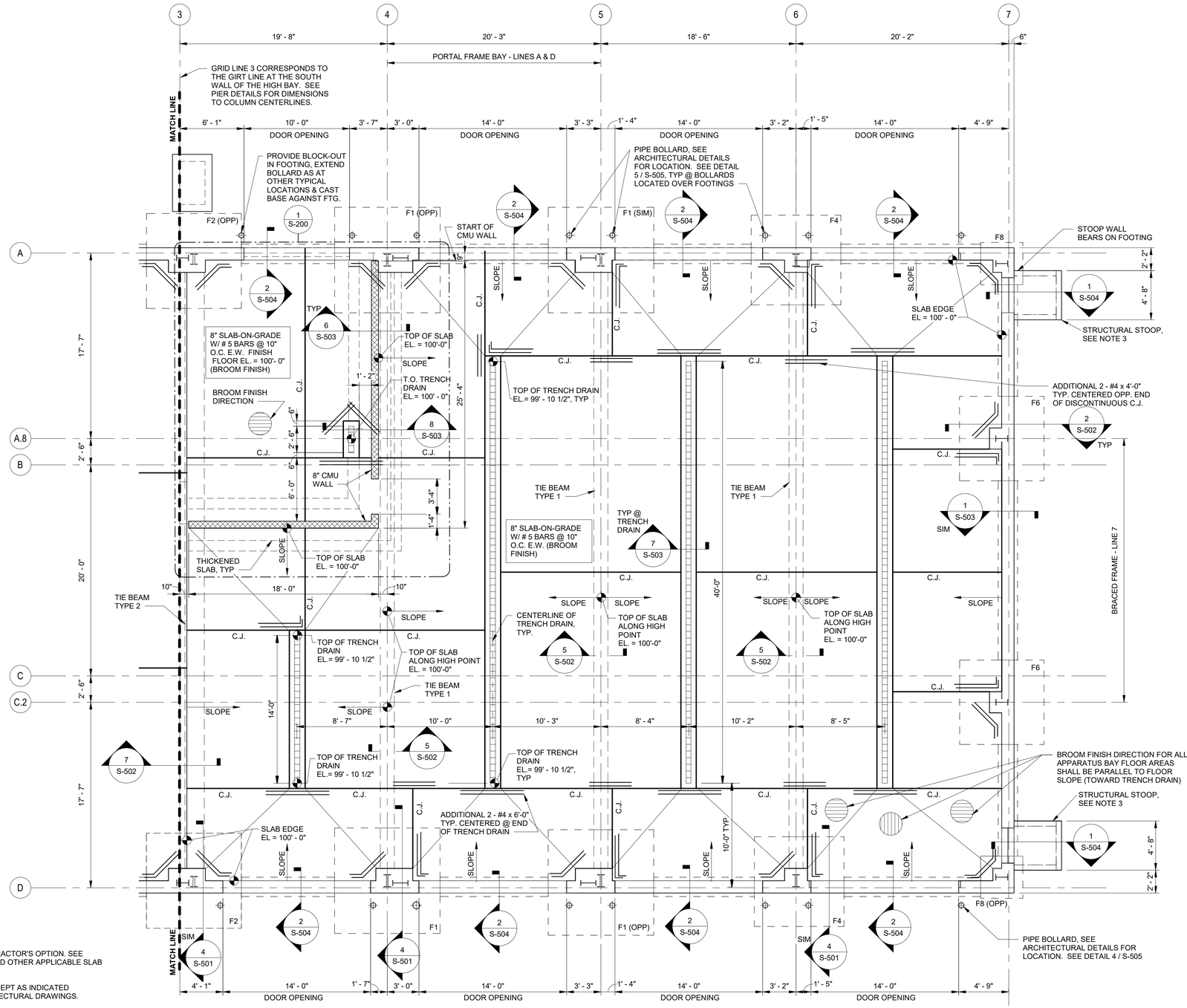
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE STATION FOUNDATION AND SLAB PLAN - AREA A

SHEET ID

S-101



NOTES:

1. PLAN ELEVATION 100'-0" = SITE MEAN SEA LEVEL ELEVATION 6223.0'.

2. "C.J." STANDS FOR CONSTRUCTION OR CONTRACTION JOINT AT CONTRACTOR'S OPTION. SEE SHEET S-001 FOR CONTRACTION AND CONSTRUCTION JOINT DETAILS, AND OTHER APPLICABLE SLAB CONSTRUCTION DETAILS.

3. STRUCTURAL STOOPS SHALL BE CENTERED AT EXTERIOR DOORS, EXCEPT AS INDICATED OTHERWISE. CONTRACTOR SHALL COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS.

4. SEE SHEET S-003 FOR FOOTING SCHEDULE, AND SHEETS S-500 AND S-501 FOR DETAILS RELATING THE LOCATION OF CENTER OF FOOTINGS WITH RESPECT TO PIER CENTER LINES AND COLUMN LINES.

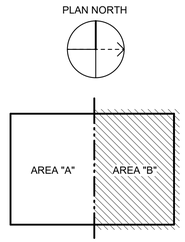
5. COORDINATE UNDERGROUND UTILITY LINES WITH CIVIL, PLUMBING, AND FIRE PROTECTION DRAWINGS PRIOR CONSTRUCTION OF FOOTING AND SLABS ON GRADE.

6. THE EXPRESSION "(OPP)" INDICATES THAT THE FOOTING & PIER AT THE INDICATED LOCATION ARE CONFIGURED OPPOSITE HAND OF THE PLAN DETAIL.

1 S-102 FIRE STATION FOUNDATION PLAN - AREA B

3/16" = 1'-0"

0 4' 8' 12'



KEYPLAN

NO SCALE

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER / J. OSBORN
CHECKED BY: E. HENIN
SUBMITTED BY: DANIEL
SIZE: ANSI D
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SOLICITATION NO.: W9128F23R0016
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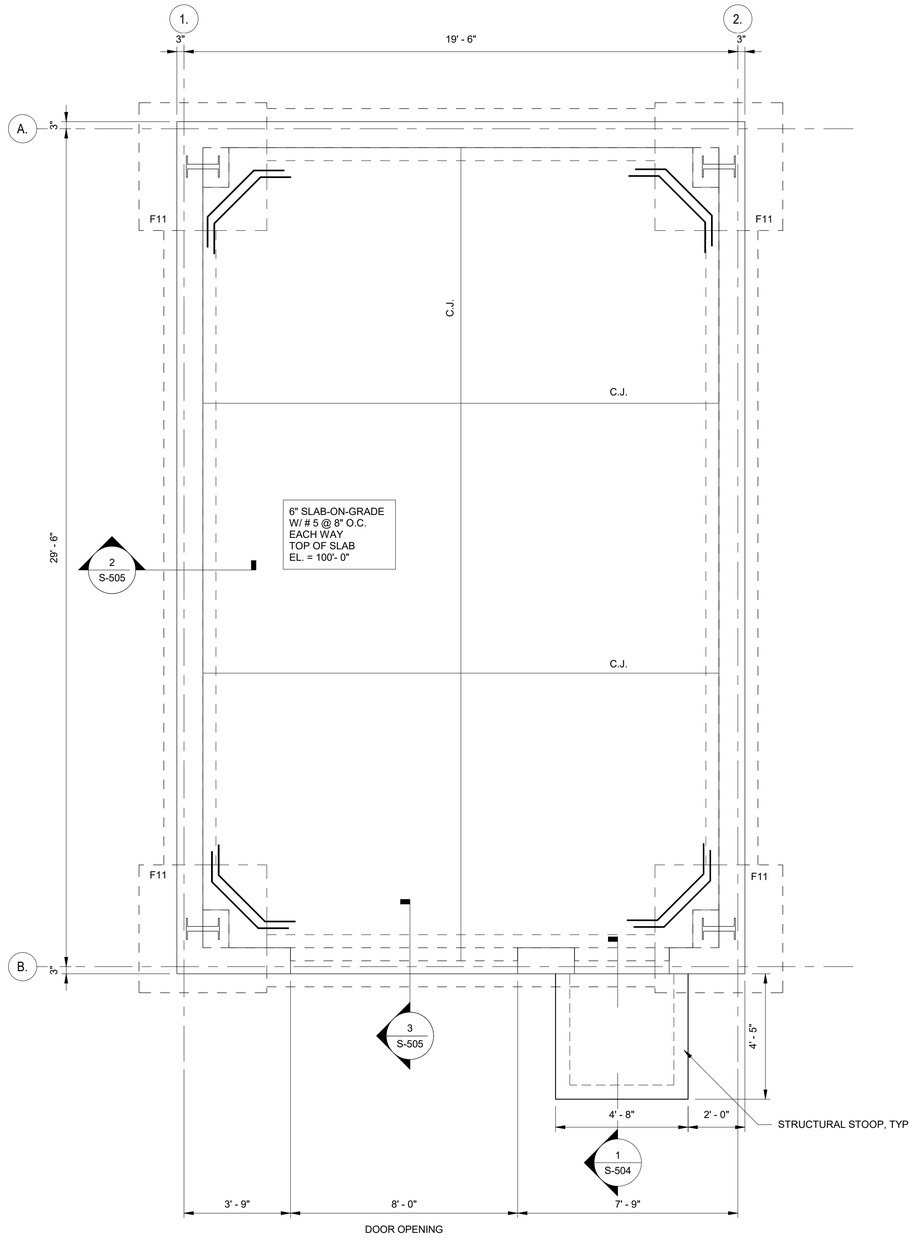
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (F723)

FIRE STATION FOUNDATION AND SLAB
PLAN - AREA B

SHEET ID

S-102



1 STORAGE BUILDING FOUNDATION PLAN

3/8" = 1'-0"

0 2' 4' 6'

PLAN NORTH

NOTES:

1. PLAN ELEVATION 100'-0" = SITE MEAN SEA LEVEL ELEVATION 6223.0'.

2. "C.J." STANDS FOR CONSTRUCTION OR CONTRACTION JOINT AT CONTRACTOR'S OPTION. SEE SHEET S-001 FOR CONTRACTION AND CONSTRUCTION JOINT DETAILS, AND OTHER APPLICABLE SLAB CONSTRUCTION DETAILS.

3. STRUCTURAL STOOPS SHALL BE CENTERED AT EXTERIOR DOORS. CONTRACTOR SHALL COORDINATE LOCATION WITH ARCHITECTURAL DRAWINGS.

4. SEE SHEET S-505 FOR DETAILS RELATING THE LOCATION OF CENTER OF FOOTINGS WITH RESPECT TO PIER CENTER LINES AND COLUMN LINES.

5. COORDINATE UNDERGROUND UTILITY LINES WITH CIVIL, PLUMBING, AND FIRE PROTECTION DRAWINGS PRIOR CONSTRUCTION OF FOOTING AND SLABS ON GRADE.

6. SEE SHEET S-003 FOR FOUNDATION SCHEDULE AND NOTES SPECIFIC TO PRE-ENGINEERED METAL BUILDING DESIGN AND CONSTRUCTION.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER	ISSUE DATE: 01/20/2023
DRAWN BY: S. HALLETT	SOLICITATION NO.: W9128F23R0016
CHECKED BY: E. HENIN	CONTRACT NO.:
SUBMITTED BY: DENVER	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSITN-MEPFS2.rvt

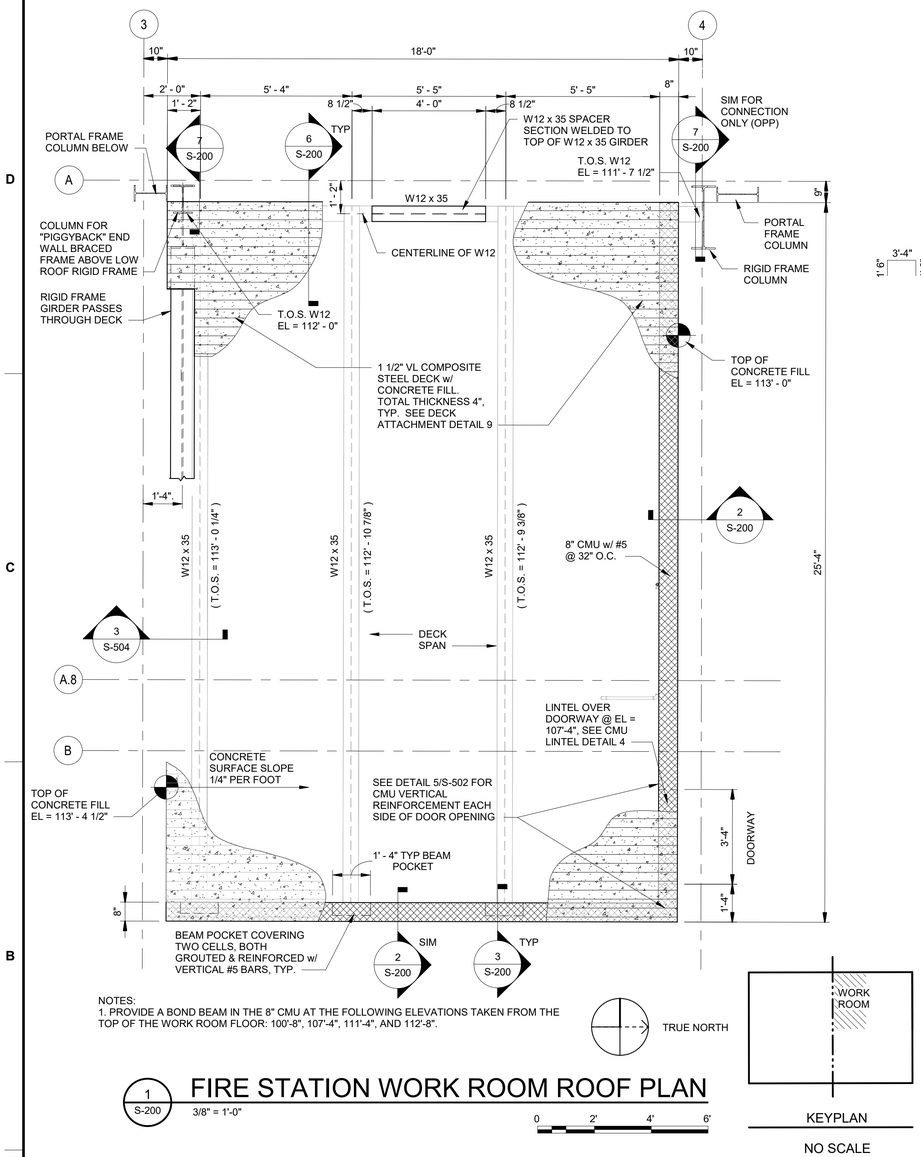
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

STORAGE BUILDING FOUNDATION AND SLAB PLAN

SHEET ID

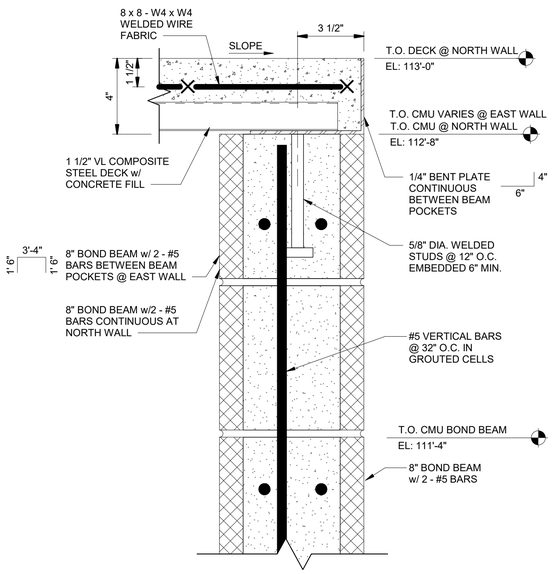
S-110



1 S-200 FIRE STATION WORK ROOM ROOF PLAN

3/8" = 1'-0"

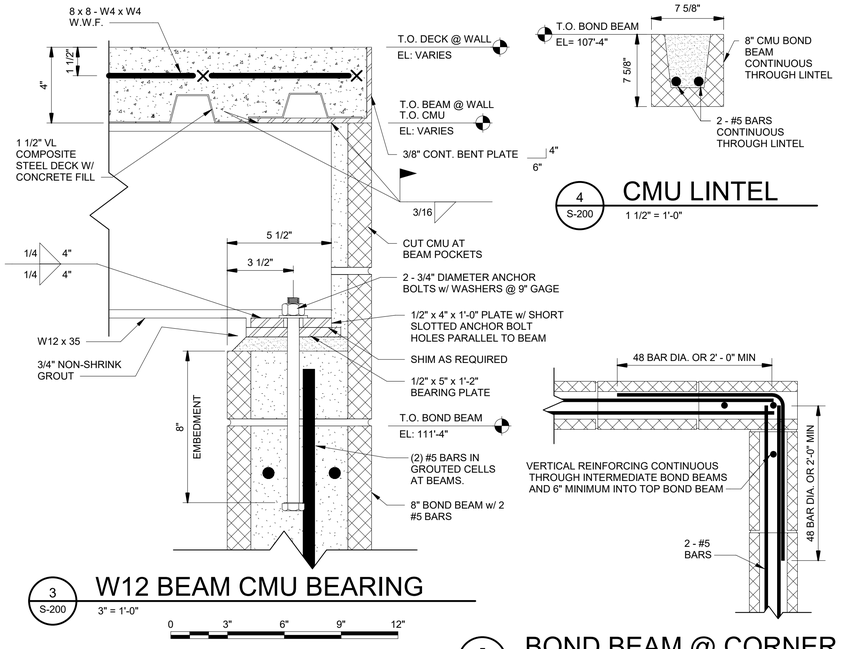
0 2' 4' 6'



2 S-200 TOP OF 8" CMU WALL

3" = 1'-0"

0 3" 6" 9" 12"



3 S-200 W12 BEAM CMU BEARING

3" = 1'-0"

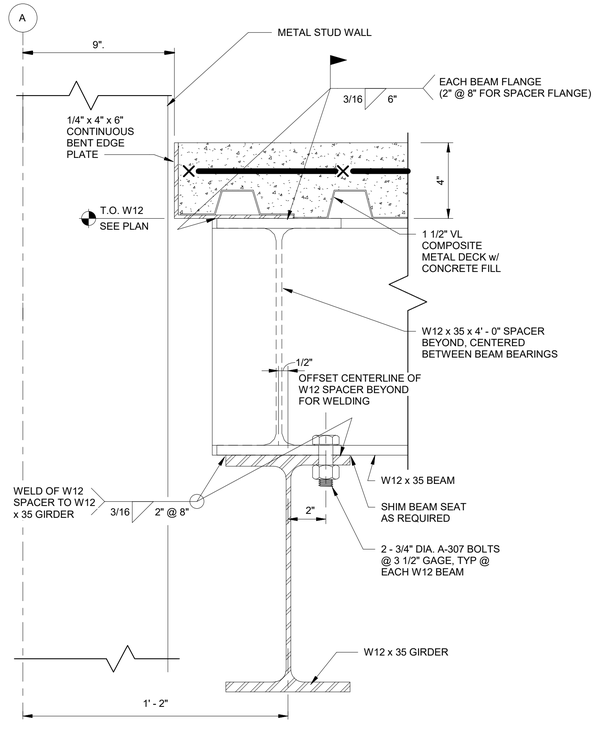
0 3" 6" 9" 12"

4 S-200 CMU LINTEL

1 1/2" = 1'-0"

5 S-200 BOND BEAM @ CORNER

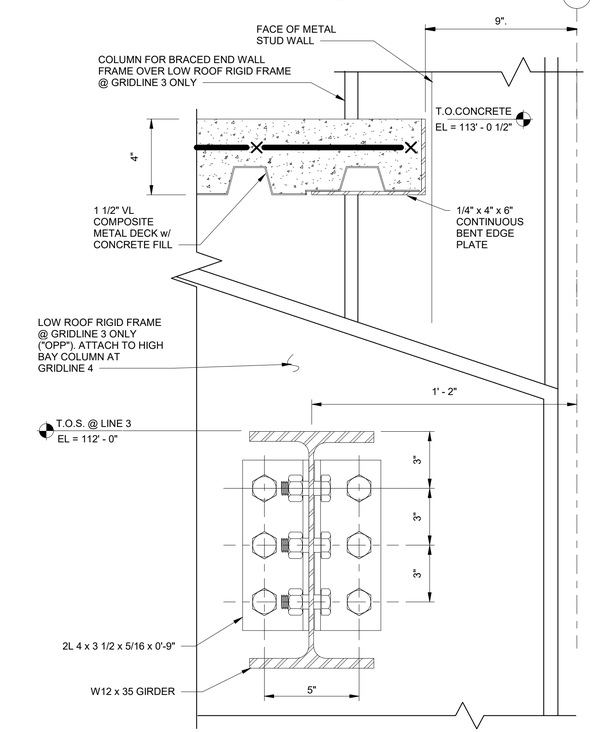
1" = 1'-0"



6 S-200 BEAM-GIRDER CONNECTION

3" = 1'-0"

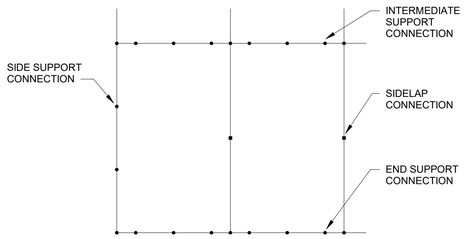
0 3" 6" 9" 12"



7 S-200 W12 GIRDER-RIGID FRAME CONNECTION

3" = 1'-0"

0 3" 6" 9" 12"



NOTES:
1. STEEL DECK SHALL BE VULCRAFT 1.5VL21 OR EQUAL WITH THE FOLLOWING MINIMUM SECTION PROPERTIES:
   DESIGN THICKNESS = 0.0329 IN
   POSITIVE MOMENT OF INERTIA (Ip) = 0.170 IN^4/FT
   NEGATIVE MOMENT OF INERTIA (In) = 0.205 IN^4/FT
   POSITIVE SECTION MODULUS (Sp) = 0.209 IN^3/FT
   NEGATIVE SECTION MODULUS (Sn) = 0.215 IN^3/FT
   YIELD STRENGTH (Fy) = 40 KSI
2. DECK ATTACHMENT SHALL BE AS FOLLOWS:
   END SUPPORTS - 36/4 5/8" PUDDLE WELD
   INTERMEDIATE SUPPORTS - 36/4 5/8" PUDDLE WELD
   SIDE SUPPORTS - (2) 5/8" PUDDLE WELD
   SIDELAP CONNECTIONS - (1) #10 TEK SCREW
3. DECK SHALL BE A MINIMUM WIDTH OF 36 INCHES AND SHALL SPAN ENTIRE LENGTH OF WORK ROOM ROOF.
4. WELDS SHALL BE IN ACCORDANCE WITH AWS D1.3.

9 S-200 DECK FASTENER LAYOUT

1/2" = 1'-0"

US Army Corps of Engineers ®

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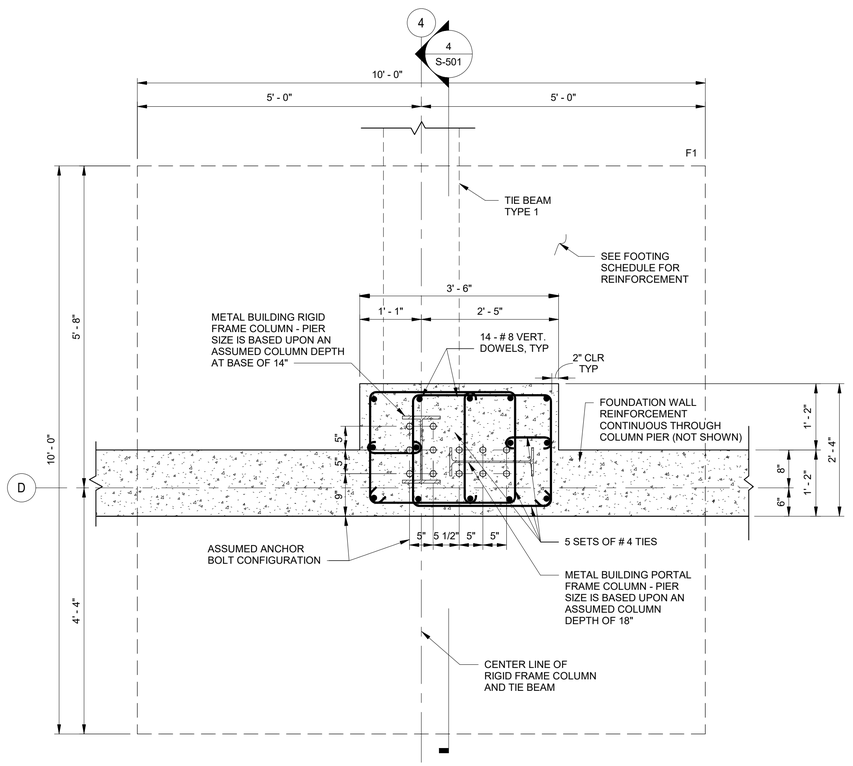
DRAWN BY: D. MEIER / J. OSBORN
CHECKED BY: E. HENIN
SUBMITTED BY:
SIZE: ANSI D
FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

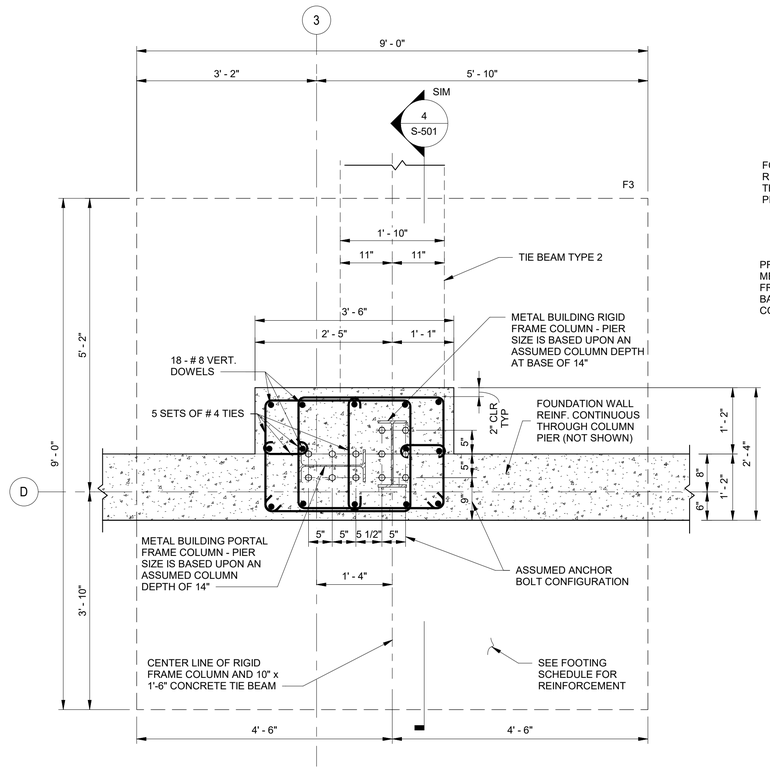
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

WORK ROOM ROOF PLAN AND DETAILS

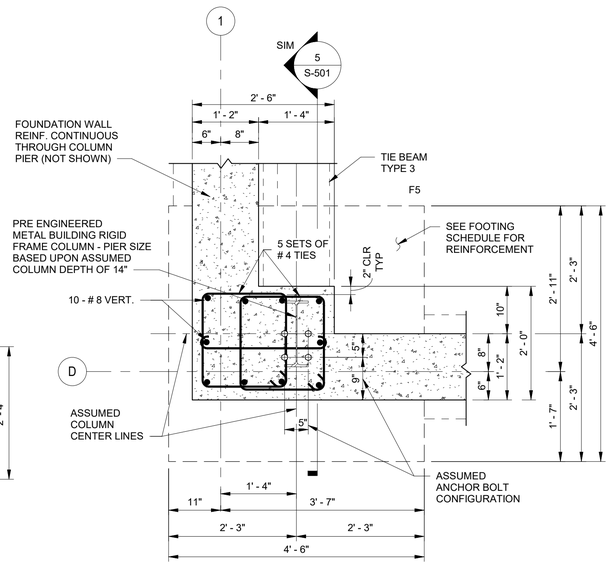
SHEET ID
S-200



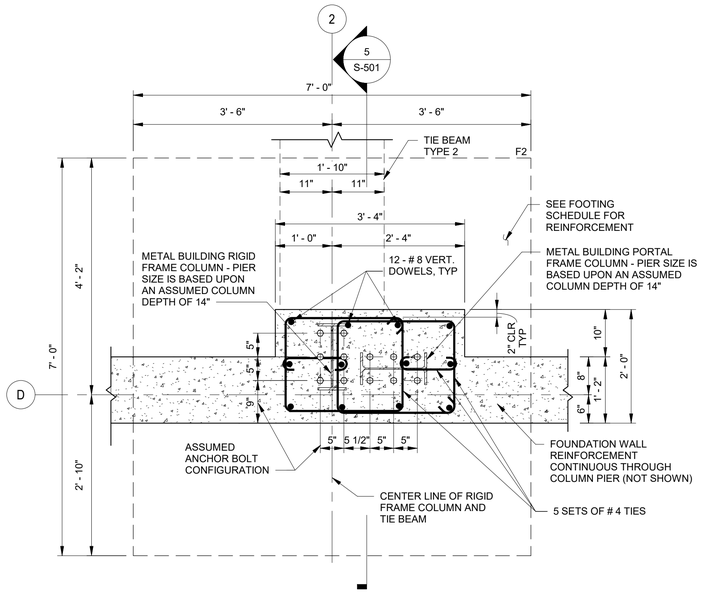
1 PIER F1 DETAIL
3/4" = 1'-0"
0 1' 2' 3'



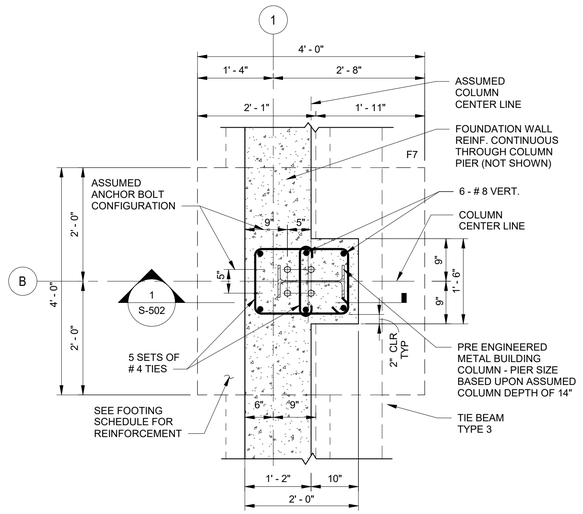
2 PIER F2 DETAIL
3/4" = 1'-0"
0 1' 2' 3'



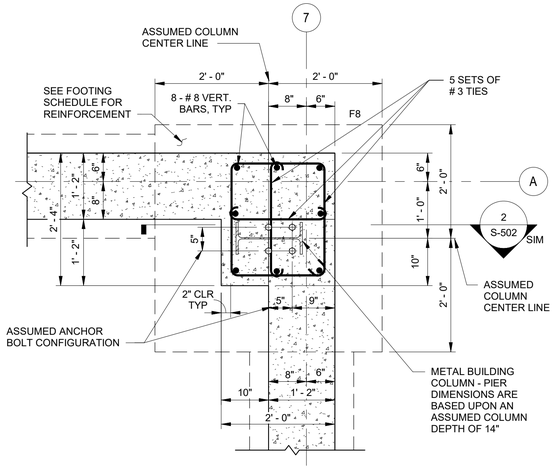
3 PIER F5 DETAIL
3/4" = 1'-0"
0 1' 2' 3'



4 PIER F3 DETAIL
3/4" = 1'-0"
0 1' 2' 3'



5 PIER F7 DETAIL
3/4" = 1'-0"
0 1' 2' 3'



6 PIER F8 DETAIL
3/4" = 1'-0"
0 1' 2' 3'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER	ISSUE DATE: 01/20/2023
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SUBMITTED BY: DANIEL	FILE NUMBER:
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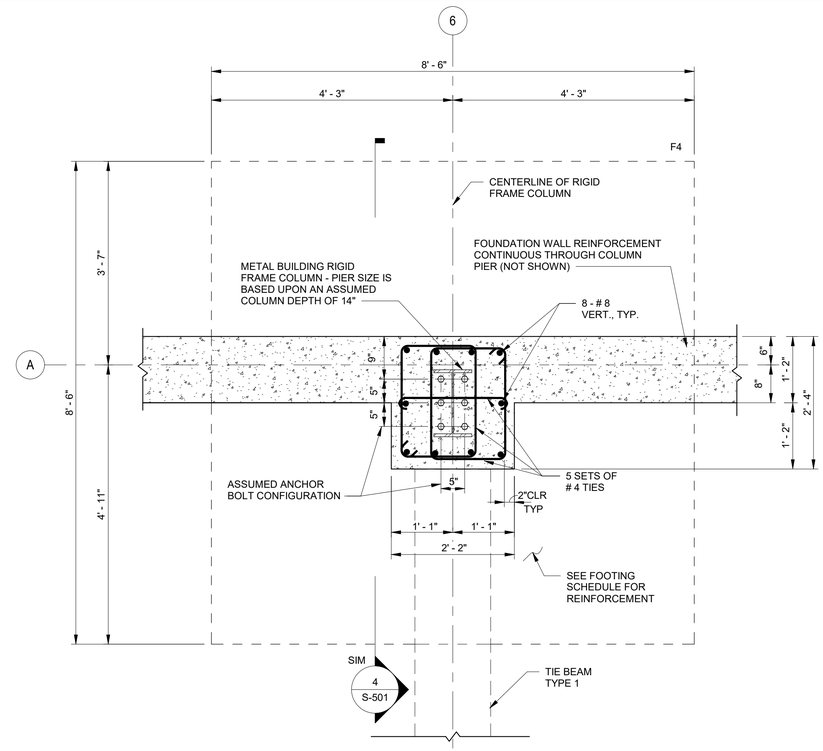
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE STATION STRUCTURAL DETAILS

SHEET ID

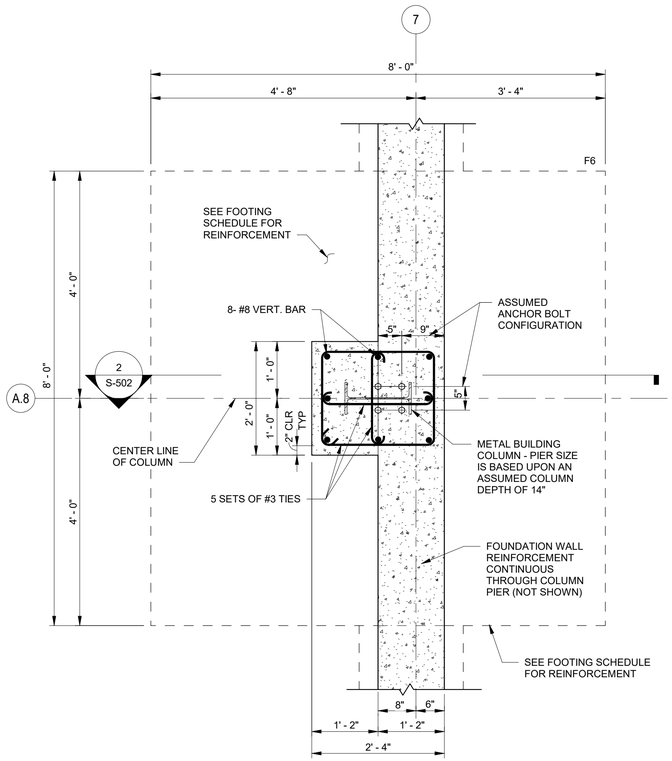
S-500



1 PIER F4 DETAIL

3/4" = 1'-0"

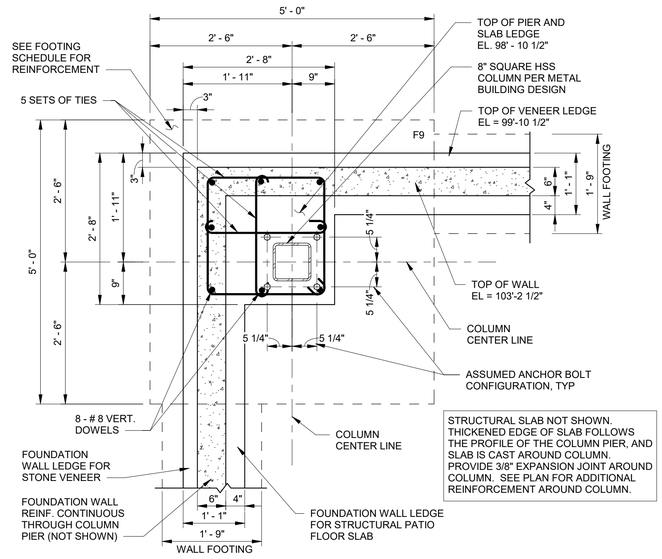
0 1' 2' 3'



2 PIER F6 DETAIL

3/4" = 1'-0"

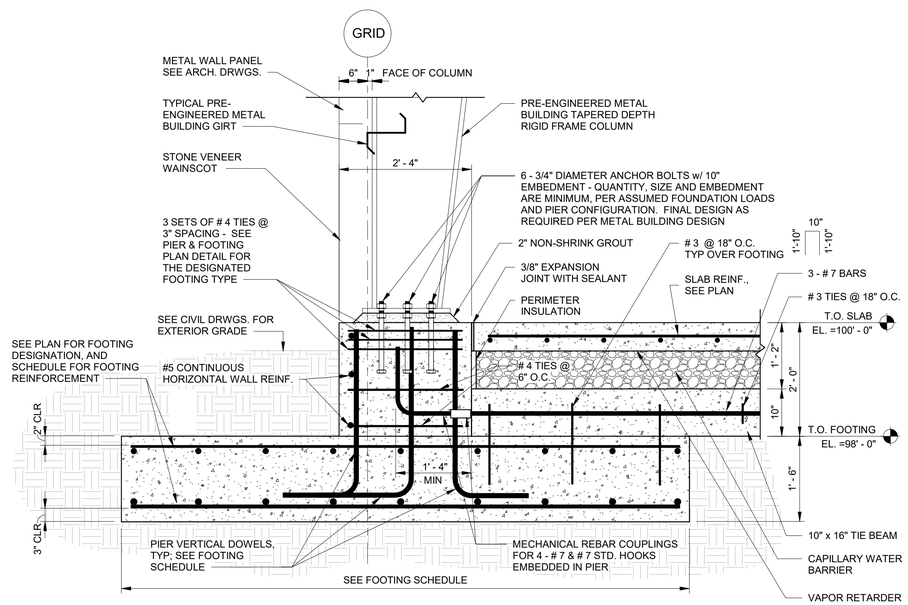
0 1' 2' 3'



3 PIER F9 DETAIL

3/4" = 1'-0"

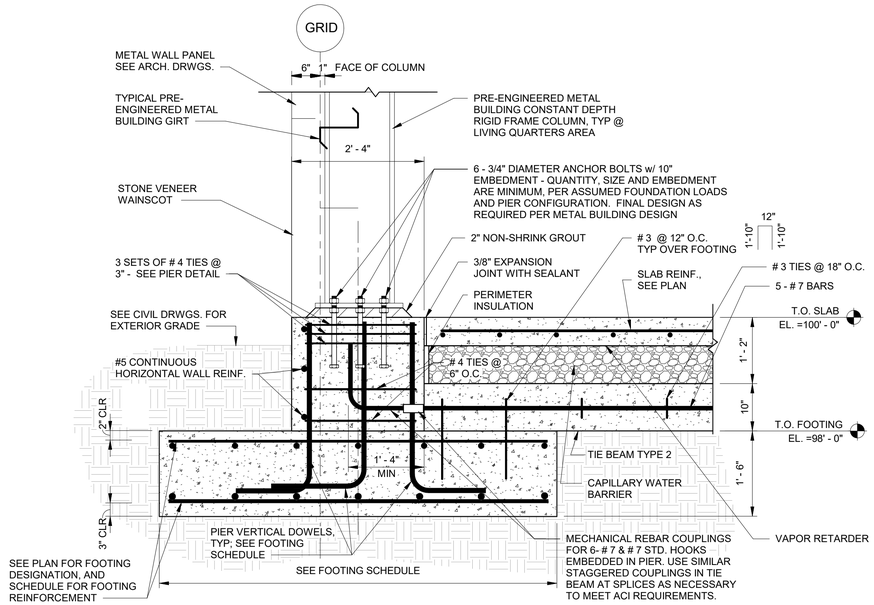
0 1' 2' 3'



4 FOUNDATION @ APARATUS BAY RIGID FRAME

3/4" = 1'-0"

0 1' 2' 3'



5 FOUNDATION @ LIVING QUARTERS RIGID FRAME

3/4" = 1'-0"

0 1' 2' 3'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER
CHECKED BY: E. HENIN
SUBMITTED BY:
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

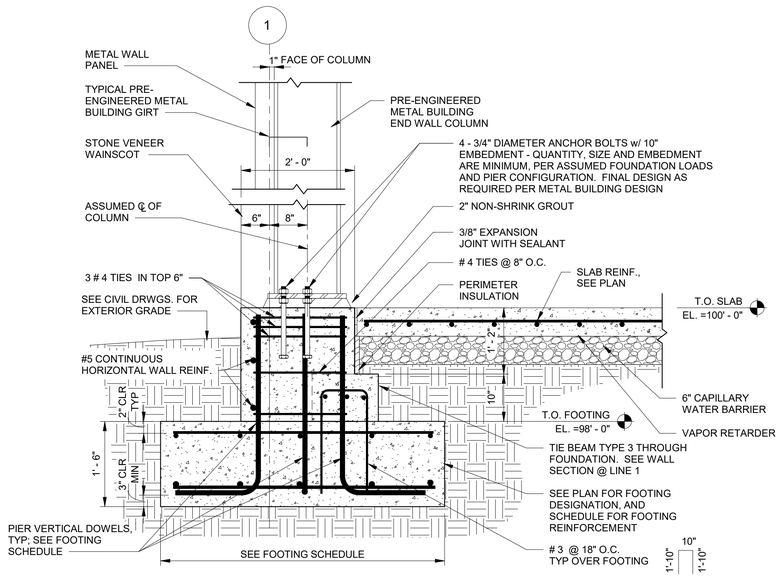
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE STATION STRUCTURAL DETAILS

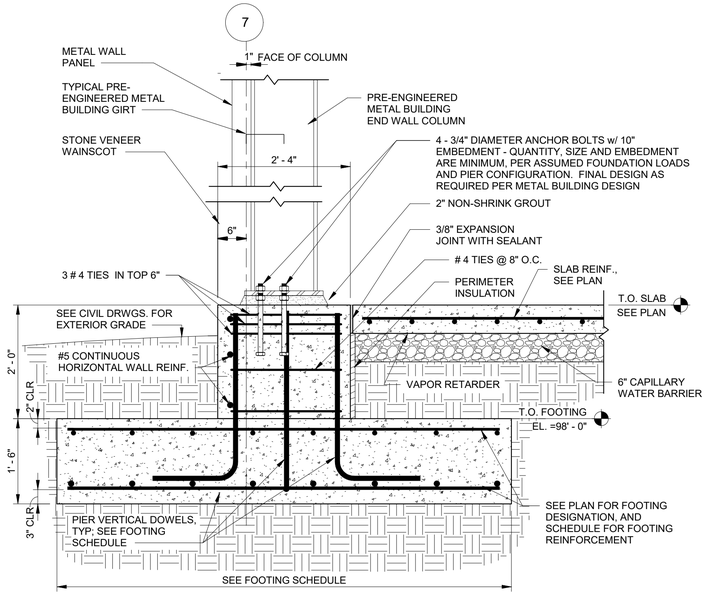
SHEET ID

S-501



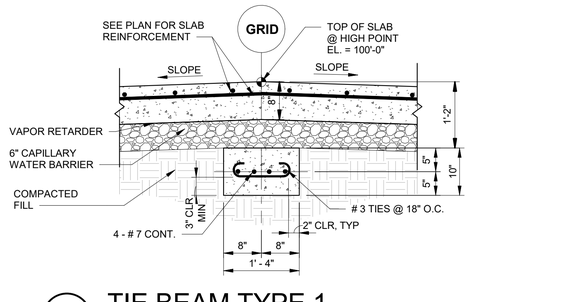
1 FOUNDATION @ END WALL COLUMN AT GRID 1

3/4" = 1'-0"



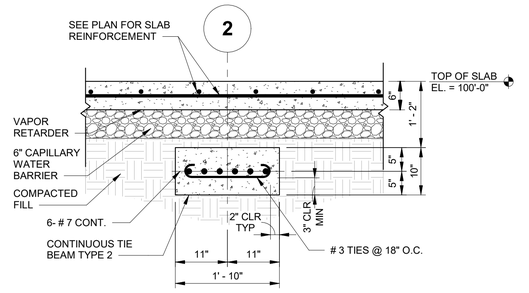
2 FOUNDATION @ END WALL COLUMN AT GRID 7

3/4" = 1'-0"



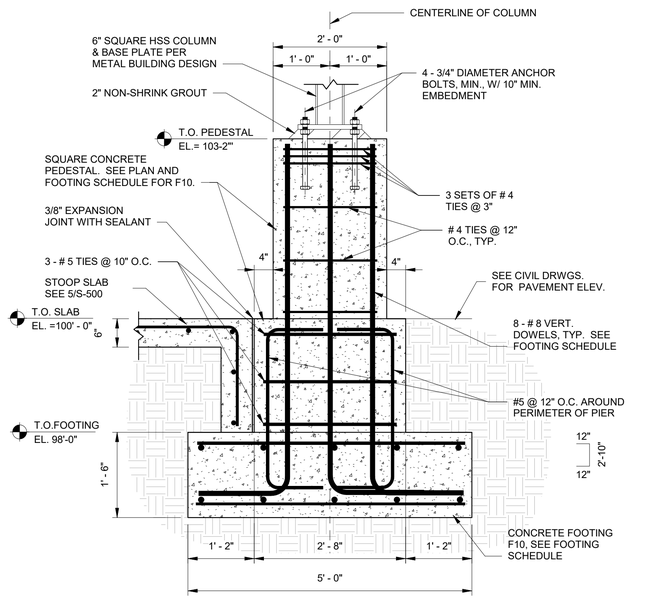
5 TIE BEAM TYPE 1

3/4" = 1'-0"



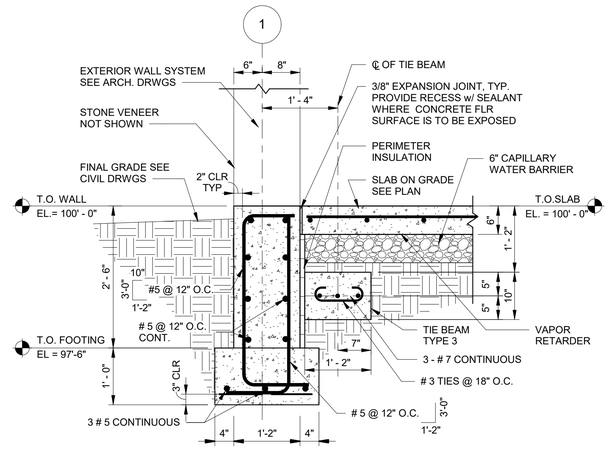
6 TIE BEAM TYPE 2 @ GRID LINE 2

3/4" = 1'-0"



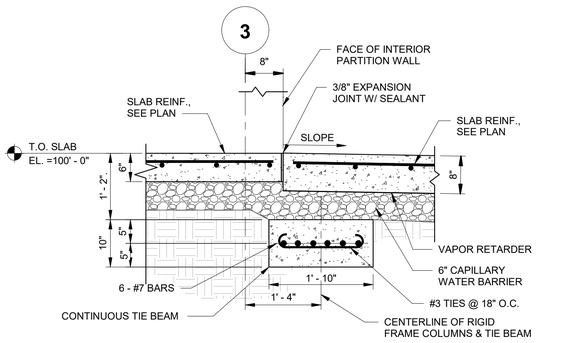
3 ENTRANCE CANOPY COLUMN FOUNDATION - PIER F10

3/4" = 1'-0"



4 TIE BEAM TYPE 3 @ GRID LINE 1

3/4" = 1'-0"



7 TIE BEAM TYPE 2 @ GRID LINE 3

3/4" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER
CHECKED BY: E. HENIN
SUBMITTED BY:
ZONE:
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

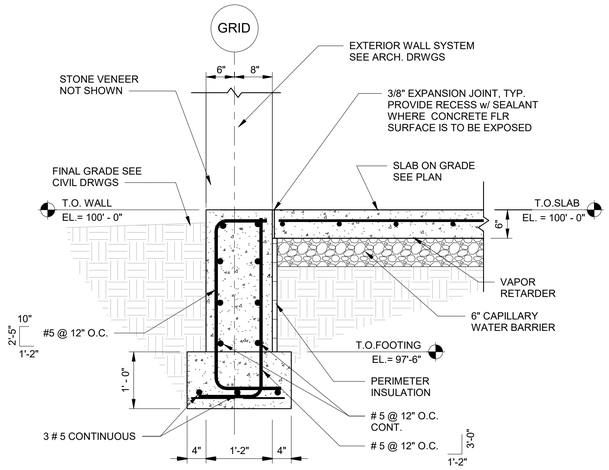
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE STATION STRUCTURAL DETAILS

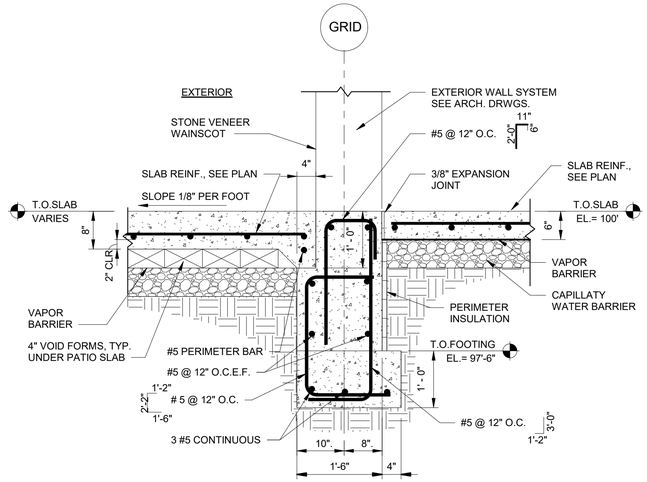
SHEET ID

S-502



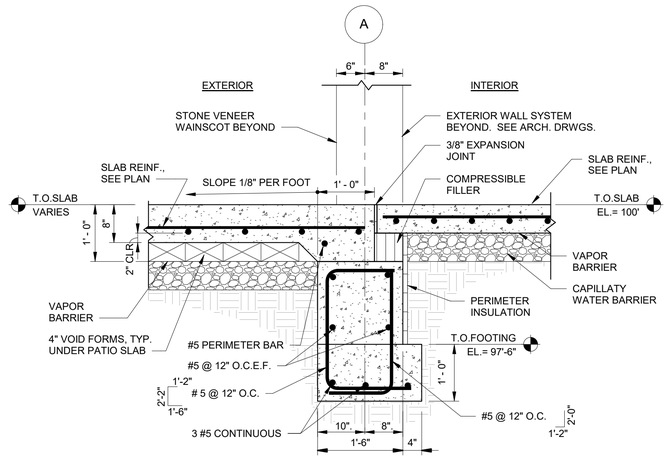
1 TYP. FOUNDATION WALL

3/4" = 1'-0"



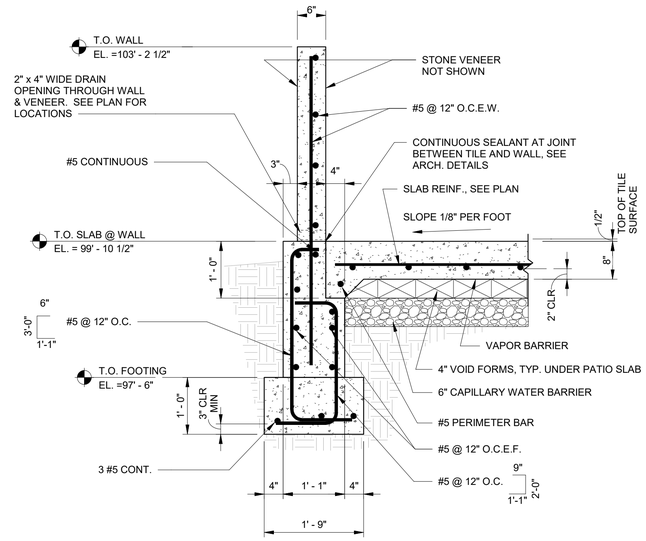
2 TYP. FOUNDATION WALL @ PATIO

3/4" = 1'-0"



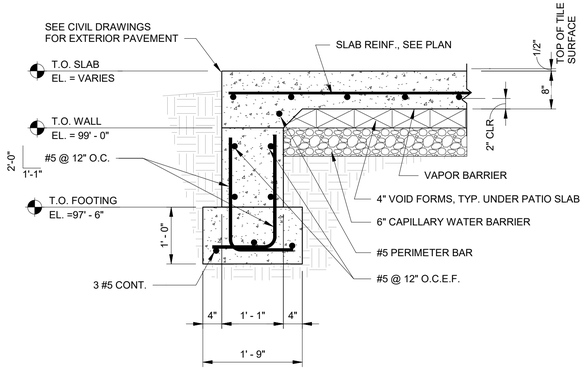
3 FOUNDATION WALL @ PATIO DOORWAY

3/4" = 1'-0"



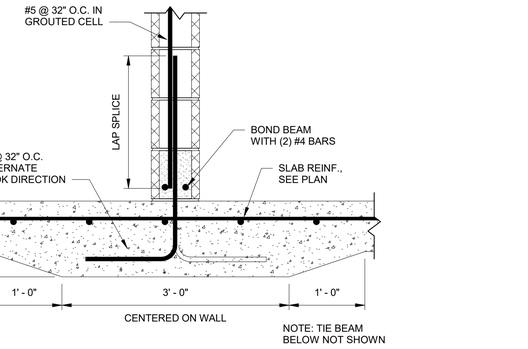
4 PATIO WALL FOUNDATION

3/4" = 1'-0"



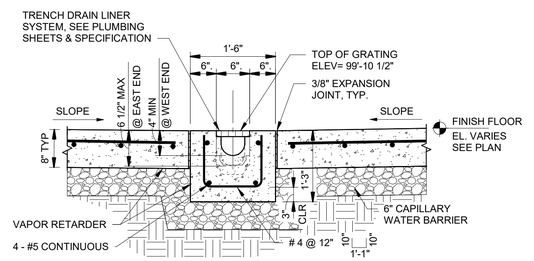
5 SLAB @ PATIO WALL OPENING

3/4" = 1'-0"



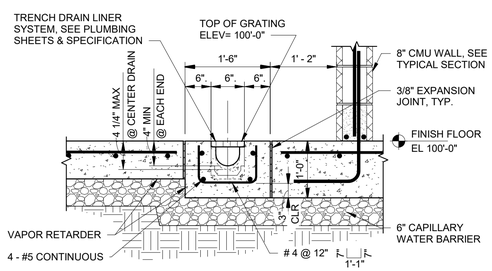
6 THICKENED SLAB @ WORK ROOM WALL

1" = 1'-0"



7 TYP. TRENCH DRAIN SECTION

3/4" = 1'-0"



8 WORK ROOM TRENCH DRAIN SECTION

3/4" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER	ISSUE DATE: 01/20/2023
DRAWN BY: D. MEIER	SOLICITATION NO.: W9128F23R0016
CHECKED BY: E. HENIN	CONTRACT NO.:
SUBMITTED BY: DANIEL	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSTN-MEPFS2.rvt

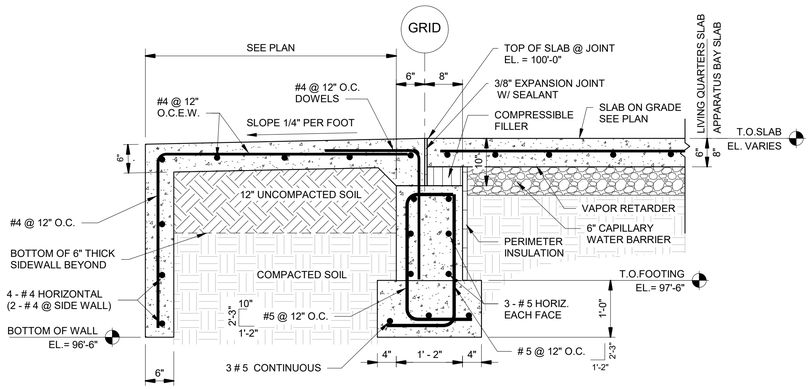
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE STATION STRUCTURAL DETAILS

SHEET ID

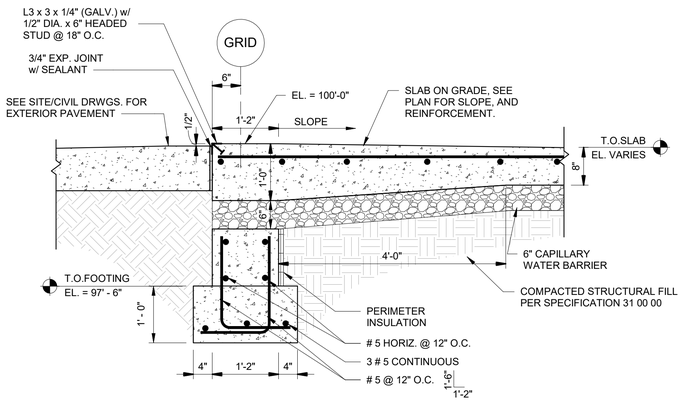
S-503



1 STRUCTURAL STOOP

3/4" = 1'-0"

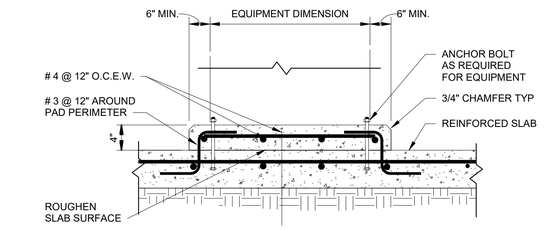
0 1' 2' 3'



2 FOUNDATION WALL @ VEHICLE DOORS

3/4" = 1'-0"

0 1' 2' 3'

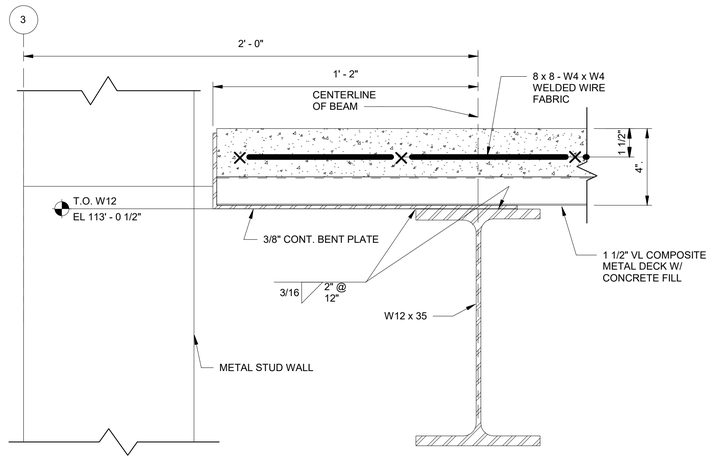


NOTES:
1. SEE MECHANICAL SHEETS FOR LOCATION OF EQUIPMENT PADS.
2. THE PLAN DIMENSIONS OF EQUIPMENT BASES AND THEIR ANCHOR BOLT LOCATIONS, SIZES, EMBEDMENT, AND PROJECTIONS SHALL SUIT THE REQUIREMENTS OF THE APPROVED EQUIPMENT FURNISHED.

5 TYP. INTERIOR EQUIPMENT PAD

1" = 1'-0"

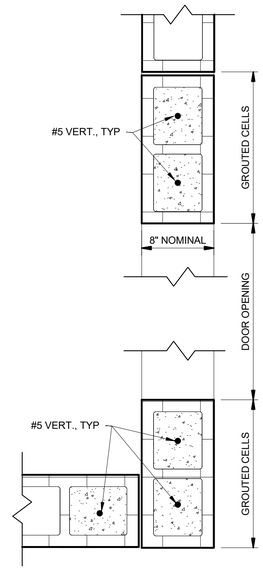
0 1' 2'



3 WORK ROOM ROOF DECK @ GRID LINE 3

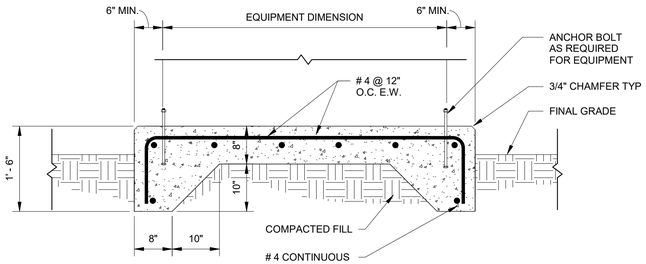
3" = 1'-0"

0 3" 6" 9" 12"



4 WORK ROOM CMU REINFORCEMENT @ OPENING

NOT TO SCALE



NOTES:
1. SEE MECHANICAL SHEETS FOR LOCATION OF EQUIPMENT PADS.
2. THE PLAN DIMENSIONS OF EQUIPMENT BASES AND THEIR ANCHOR BOLT LOCATIONS, SIZES, EMBEDMENT, AND PROJECTIONS SHALL SUIT THE REQUIREMENTS OF THE APPROVED EQUIPMENT FURNISHED.

6 TYP. EXTERIOR CONCRETE PAD

3/4" = 1'-0"

0 1' 2' 3'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: D. MEIER
DRAWN BY: D. MEIER / J. OSBORN
CHECKED BY: E. HENIN
SUBMITTED BY:
DRAWING NO.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

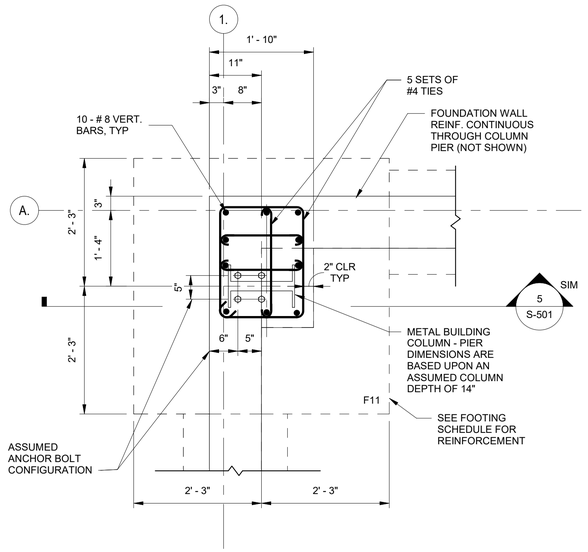
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

FIRE STATION STRUCTURAL DETAILS

SHEET ID

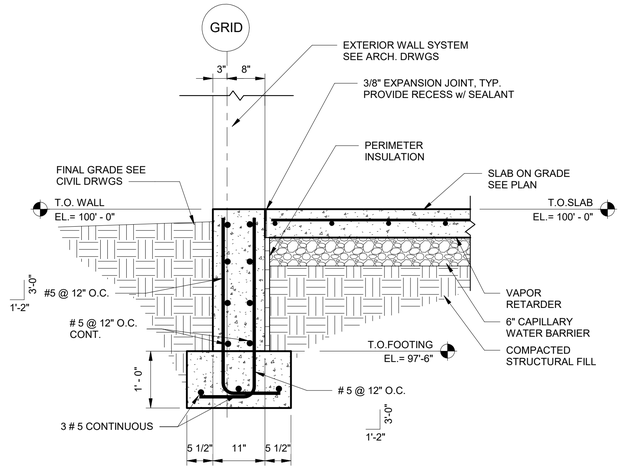
S-504



1 PIER F11 DETAIL

3/4" = 1'-0"

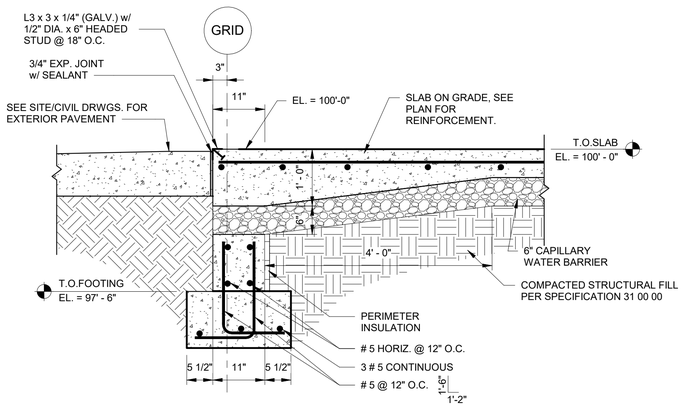
0 1' 2' 3'



2 TYP. STORAGE BUILDING FOUNDATION WALL

3/4" = 1'-0"

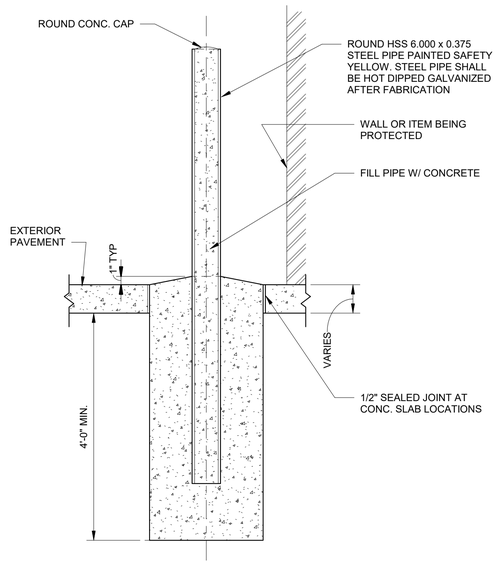
0 1' 2' 3'



3 FOUNDATION @ STORAGE BUILDING VEHICLE DOOR

3/4" = 1'-0"

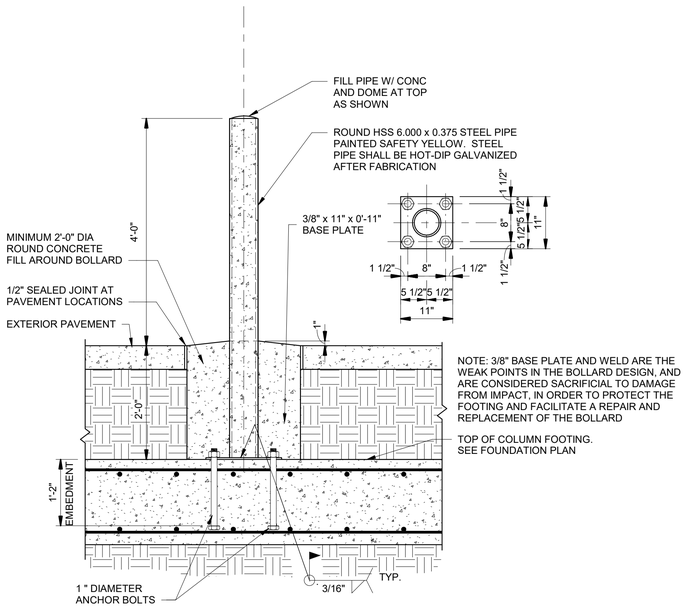
0 1' 2' 3'



4 TYP. EXTERIOR BOLLARD DETAIL

3/4" = 1'-0"

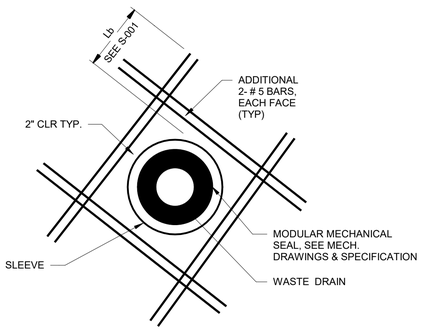
0 1' 2' 3'



5 TYP. BOLLARD OVER FOOTING

3/4" = 1'-0"

0 1' 2' 3'



6 TYP. CONCRETE PENETRATION

N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
DESIGNED BY:	D. MEIER
DRAWN BY:	D. MEIER
CHECKED BY:	E. HENIN
SUBMITTED BY:	
SIGNING OFFICIAL:	
SIZE:	ANSI D
FILE NAME:	FCDR-FSTN-MEPFS2.rvt

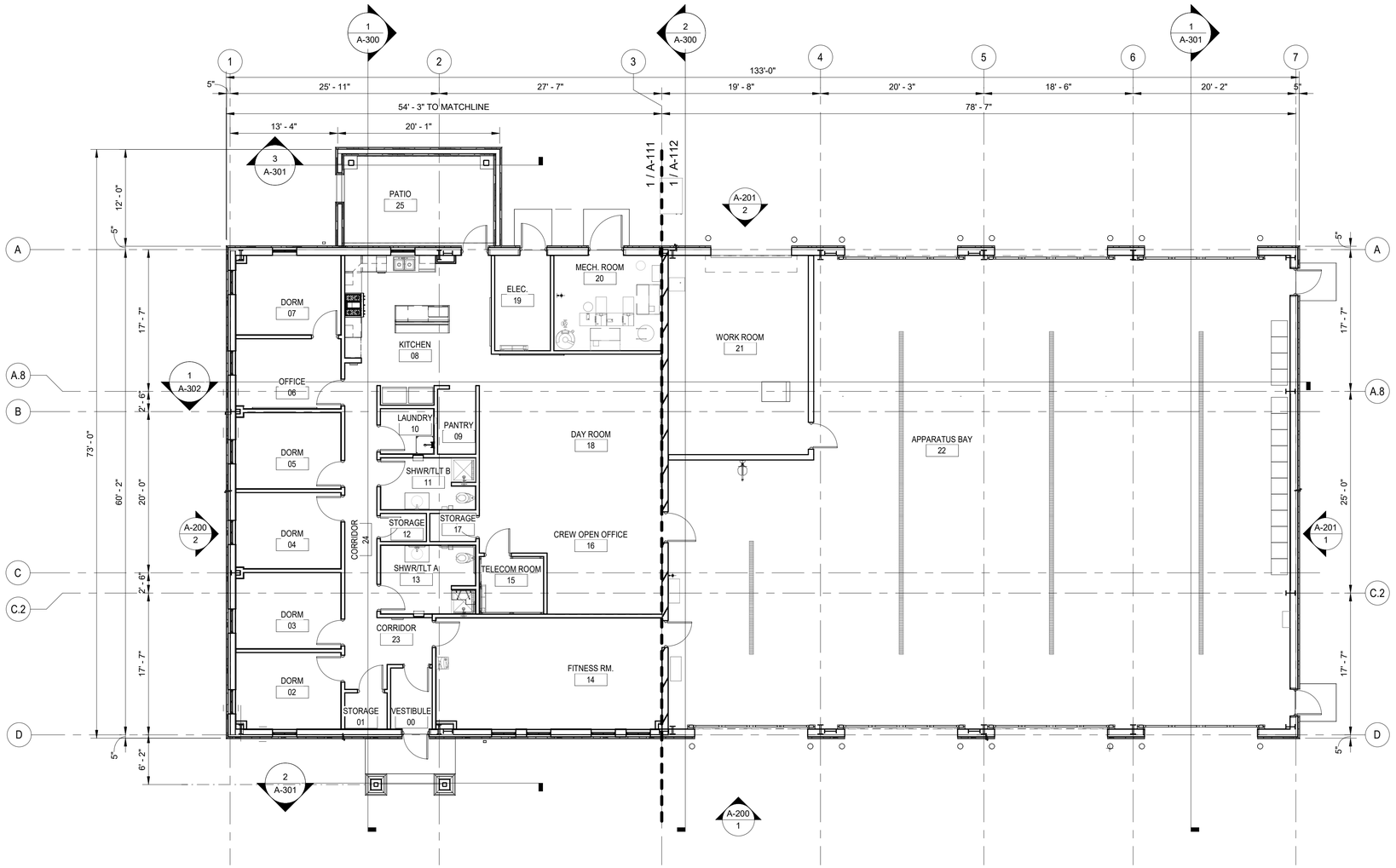
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

TYPICAL STRUCTURAL DETAILS

SHEET ID

S-505



FIRE STATION ROOM SCHEDULE	
ROOM NO	NAME
00	VESTIBULE
01	STORAGE
02	DORM
03	DORM
04	DORM
05	DORM
06	OFFICE
07	DORM
08	KITCHEN
09	PANTRY
10	LAUNDRY
11	SHWR/TLT B
12	STORAGE
13	SHWR/TLT A
14	FITNESS RM.
15	TELECOM ROOM
16	CREW OPEN OFFICE
17	STORAGE
18	DAY ROOM
19	ELEC.
20	MECH. ROOM
21	WORK ROOM
22	APPARATUS BAY
23	CORRIDOR
24	CORRIDOR
25	PATIO
26	STORAGE BUILDING

1 COMPOSITE FLOOR PLAN

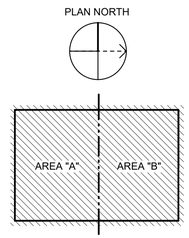
1/8" = 1'-0"

FLOOR PLAN ORIENTATION NOTE:

SITE PLAN DRAWINGS AND BUILDING PLAN DRAWINGS SHOW DIFFERENT BUILDING ORIENTATIONS AND PROXIMATIES. SITE PLAN DRAWINGS ARE ORIENTED TRUE NORTH. BUILDING PLANS ARE ORIENTED WITH TRUE NORTH TO THE RIGHT OF THE SHEET. CONTRACTOR SHALL TAKE CARE TO COORDINATE WORK ACCOUNTING FOR DIFFERENCE IN SITE PLAN AND BUILDING PLAN ORIENTATIONS.

GENERAL NOTES:

1. SEE A-410 FOR WALL TYPES.
2. ROUGH OPENINGS FOR DOORS AND DOOR FRAMES SHALL BE LOCATED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS INDICATED OTHERWISE.
3. ALL CHANGES IN FLOOR MATERIALS IN DOOR OPENINGS SHALL OCCUR AT THE CENTER LINE OF THE DOOR PANEL IN THE CLOSED POSITION UNLESS NOTED OTHERWISE.
4. DIMENSIONS ARE TO CENTER LINE OF COLUMNS, FACE OF STEEL STUDS.
5. ROOM FINISH SCHEDULES ARE ON SHEET A-600.
6. DOOR SCHEDULES ARE ON SHEET A-610.
7. WINDOW SCHEDULES ARE ON SHEET A-610.
8. SEE FIRE PROTECTION SHEETS FOR LOCATIONS OF FIRE RATED WALLS AND PARTITIONS.
9. SEE CIVIL DRAWINGS FOR FINISH FLOOR AND FINISH GRADE ELEVATIONS.



KEYPLAN

NO SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

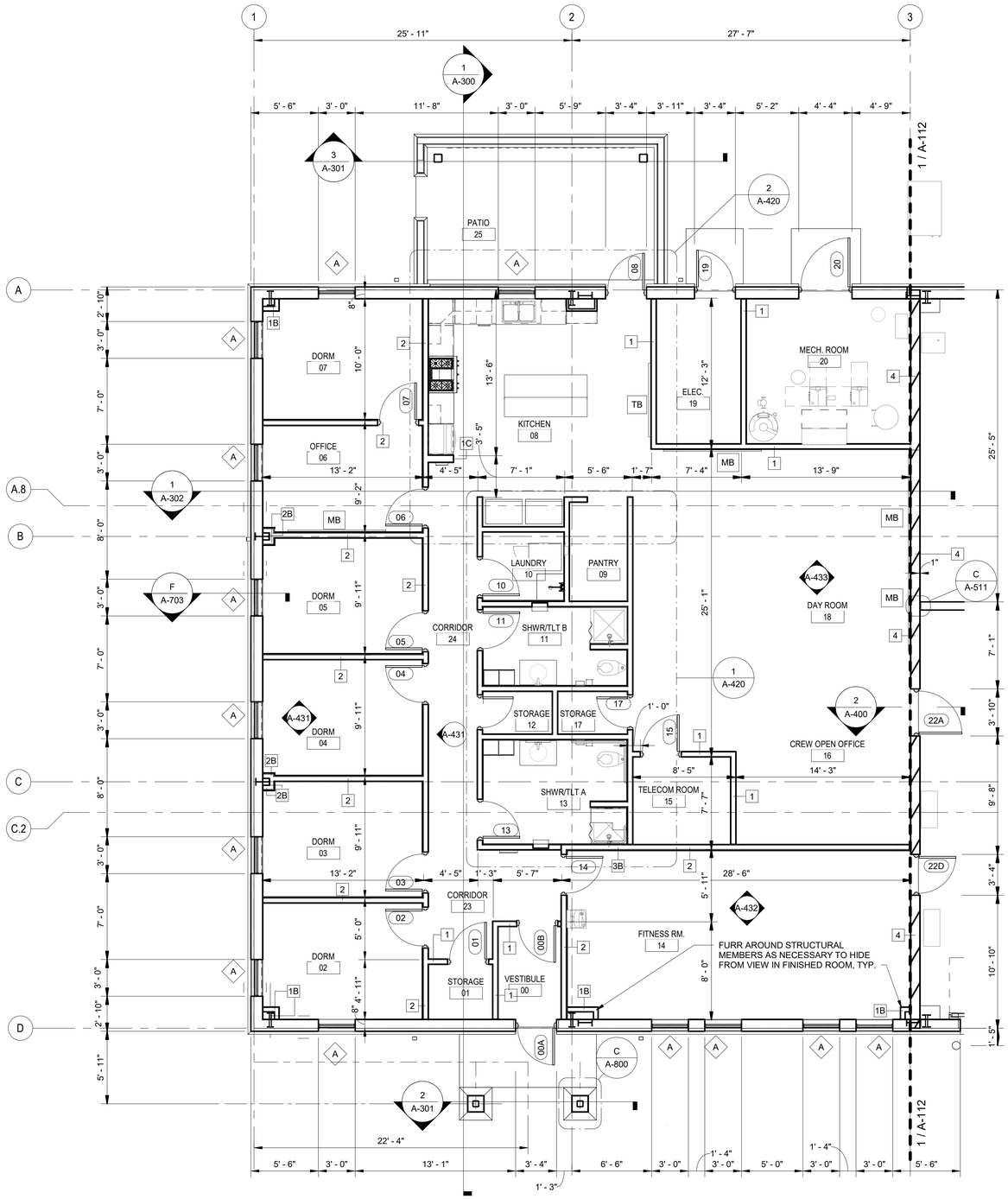
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

COMPOSITE FLOOR PLAN

SHEET ID

A-100



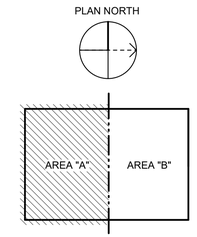
1 FLOOR PLAN - AREA A
3/16" = 1'-0"

FIRE STATION ROOM SCHEDULE	
ROOM NO	NAME
00	VESTIBULE
01	STORAGE
02	DORM
03	DORM
04	DORM
05	DORM
06	OFFICE
07	DORM
08	KITCHEN
09	PANTRY
10	LAUNDRY
11	SHWR/TLT B
12	STORAGE
13	SHWR/TLT A
14	FITNESS RM.
15	TELECOM ROOM
16	CREW OPEN OFFICE
17	STORAGE
18	DAY ROOM
19	ELEC.
20	MECH. ROOM
21	WORK ROOM
22	APPARATUS BAY
23	CORRIDOR
24	CORRIDOR
25	PATIO
26	STORAGE BUILDING

FLOOR PLAN ORIENTATION NOTE:

SITE PLAN DRAWINGS AND BUILDING PLAN DRAWINGS SHOW DIFFERENT BUILDING ORIENTATIONS AND PROXIMATIES. SITE PLAN DRAWINGS ARE ORIENTED TRUE NORTH. BUILDING PLANS ARE ORIENTED WITH TRUE NORTH TO THE RIGHT ON THE SHEET. CONTRACTOR SHALL TAKE CARE TO COORDINATE WORK ACCOUNTING FOR DIFFERENCE IN SITE PLAN AND BUILDING PLAN ORIENTATIONS.

GENERAL NOTES:
1. SEE A-410 FOR WALL TYPE DETAILS
2. ROUGH OPENINGS FOR DOORS AND DOOR FRAMES SHALL BE LOCATED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS INDICATED OTHERWISE.
3. ALL CHANGES IN FLOOR MATERIALS IN DOOR OPENINGS SHALL OCCUR AT THE CENTER LINE OF THE DOOR PANEL IN THE CLOSED POSITION UNLESS NOTED OTHERWISE.
4. DIMENSIONS ARE TO CENTER LINE OF COLUMNS, FACE OF STEEL STUDS.
5. ROOM FINISH SCHEDULES MAY BE FOUND ON A-600 SHEET.
6. DOOR SCHEDULES MAY BE FOUND ON A-610 SHEET.
7. WINDOW SCHEDULES MAY BE FOUND ON A-610 SHEET.
8. SEE FIRE PROTECTION SHEETS FOR LOCATIONS OF FIRE AND SMOKE RATED WALLS AND PARTITIONS.



KEYPLAN

NO SCALE

0 4' 8' 12'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY:	A. WALZ
DRAWN BY:	A. WALZ
CHECKED BY:	B. GORUP
SUBMITTED BY:	B. GORUP
SIZE:	ANSI 'D'
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILE NAME:	FCDR-FSTN-A1.rvt

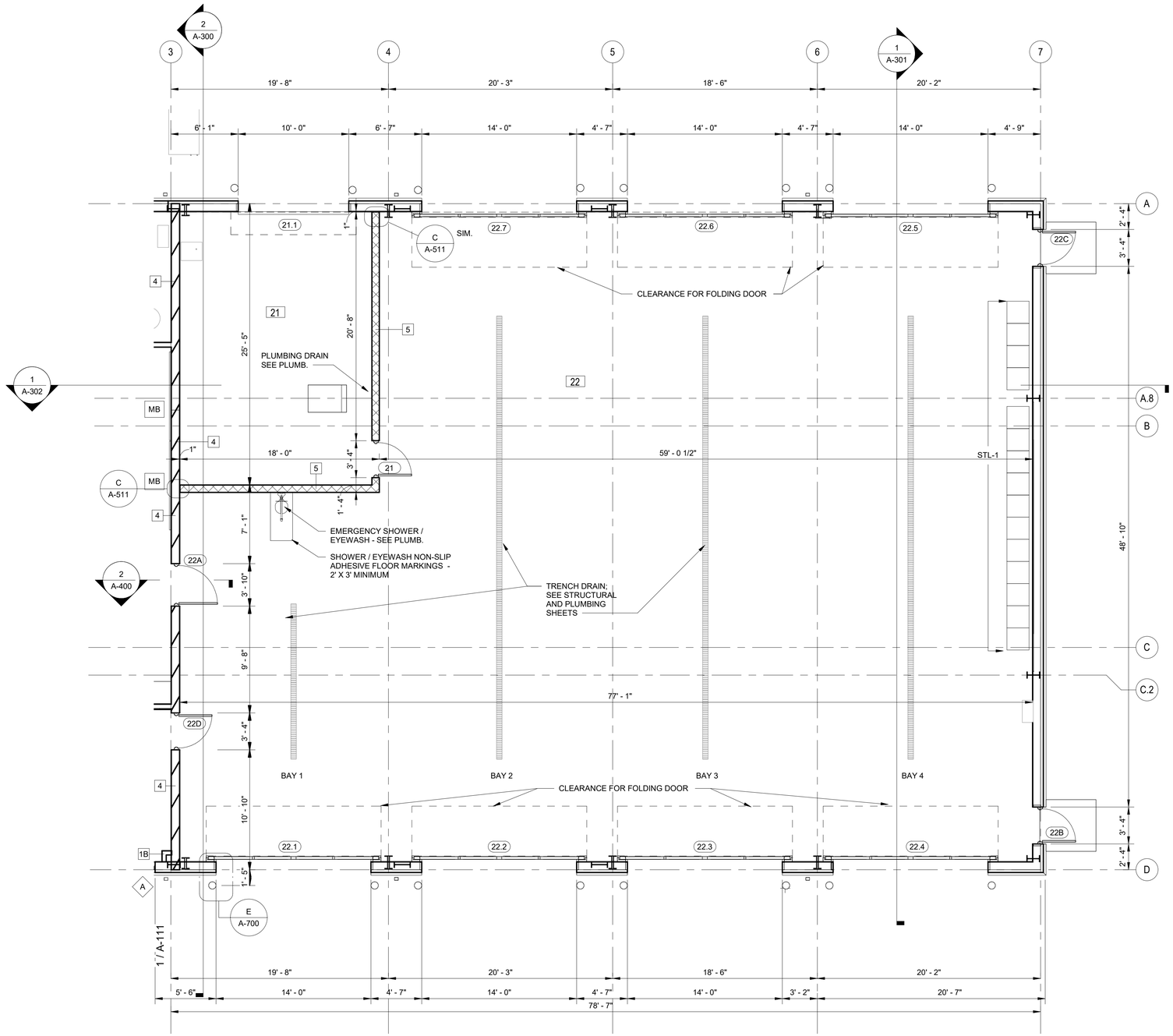
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FLOOR PLAN AREA A

SHEET ID

A-111



FIRE STATION ROOM SCHEDULE	
ROOM NO	NAME
00	VESTIBULE
01	STORAGE
02	DORM
03	DORM
04	DORM
05	DORM
06	OFFICE
07	DORM
08	KITCHEN
09	PANTRY
10	LAUNDRY
11	SHWR/TLT B
12	STORAGE
13	SHWR/TLT A
14	FITNESS RM.
15	TELECOM ROOM
16	CREW OPEN OFFICE
17	STORAGE
18	DAY ROOM
19	ELEC.
20	MECH. ROOM
21	WORK ROOM
22	APPARATUS BAY
23	CORRIDOR
24	CORRIDOR
25	PATIO
26	STORAGE BUILDING

1 FLOOR PLAN - AREA B

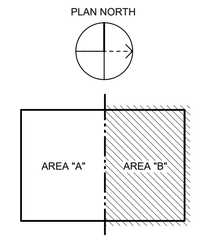
3/16" = 1'-0"

FLOOR PLAN ORIENTATION NOTE:

SITE PLAN DRAWINGS AND BUILDING PLAN DRAWINGS SHOW DIFFERENT BUILDING ORIENTATIONS AND PROXIMATIES. SITE PLAN DRAWINGS ARE ORIENTED TRUE NORTH. BUILDING PLANS ARE ORIENTED WITH TRUE NORTH TO THE RIGHT OF THE SHEET. CONTRACTOR SHALL TAKE CARE TO COORDINATE WORK ACCOUNTING FOR DIFFERENCE IN SITE PLAN AND BUILDING PLAN ORIENTATIONS.

GENERAL NOTES:

1. SEE A-410 FOR WALL TYPE DETAILS
2. ROUGH OPENINGS FOR DOORS AND DOOR FRAMES SHALL BE LOCATED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS INDICATED OTHERWISE.
3. ALL CHANGES IN FLOOR MATERIALS IN DOOR OPENINGS SHALL OCCUR AT THE CENTER LINE OF THE DOOR PANEL IN THE CLOSED POSITION UNLESS NOTED OTHERWISE.
4. DIMENSIONS ARE TO CENTER LINE OF COLUMNS, FACE OF STEEL STUDS.
5. SEE SHT A-600 FOR ROOM FINISH SCHEDULES.
6. SEE SHT A-610 FOR DOOR SCHEDULES.
7. SEE SHT A-610 FOR WINDOW SCHEDULES.
8. SEE FIRE PROTECTION SHEETS FOR LOCATIONS OF FIRE AND SMOKE RATED WALLS AND PARTITIONS.



KEYPLAN

NO SCALE

0 4' 8' 12'

US Army Corps of Engineers ®

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SIZE: ANSI D	FILE NAME: FCDR-FSTN-A1.rvt

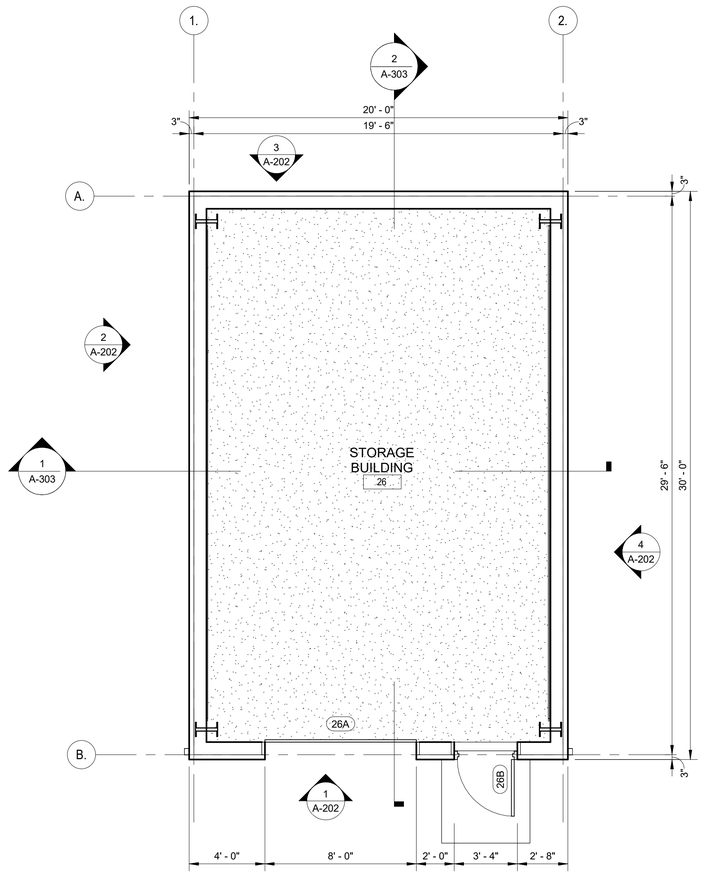
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FLOOR PLAN AREA B

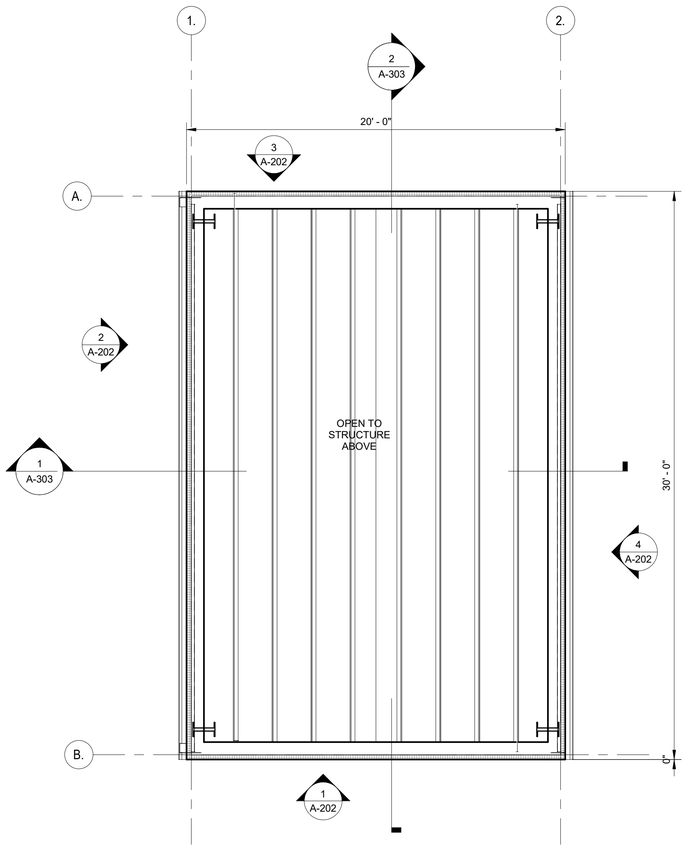
SHEET ID

A-112



1 STORAGE BUILDING FLOOR PLAN

1/4" = 1'-0"



2 REFLECTED CEILING STORAGE

1/4" = 1'-0"

PLAN NORTH

GENERAL NOTES:
1. DIMENSIONS ARE TO CENTER LINE OF COLUMNS, FACE OF STEEL STUDS.
2. ROOM FINISH SCHEDULES ARE ON SHEET A-600.
3. DOOR SCHEDULES ARE ON SHEET A-610.
4. LOUVER SCHEDULES ARE ON SHEET A-610.
5. SEE CIVIL DRAWINGS FOR FINISH FLOOR AND FINISH GRADE ELEVATIONS.

0 2' 4' 8'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI D'
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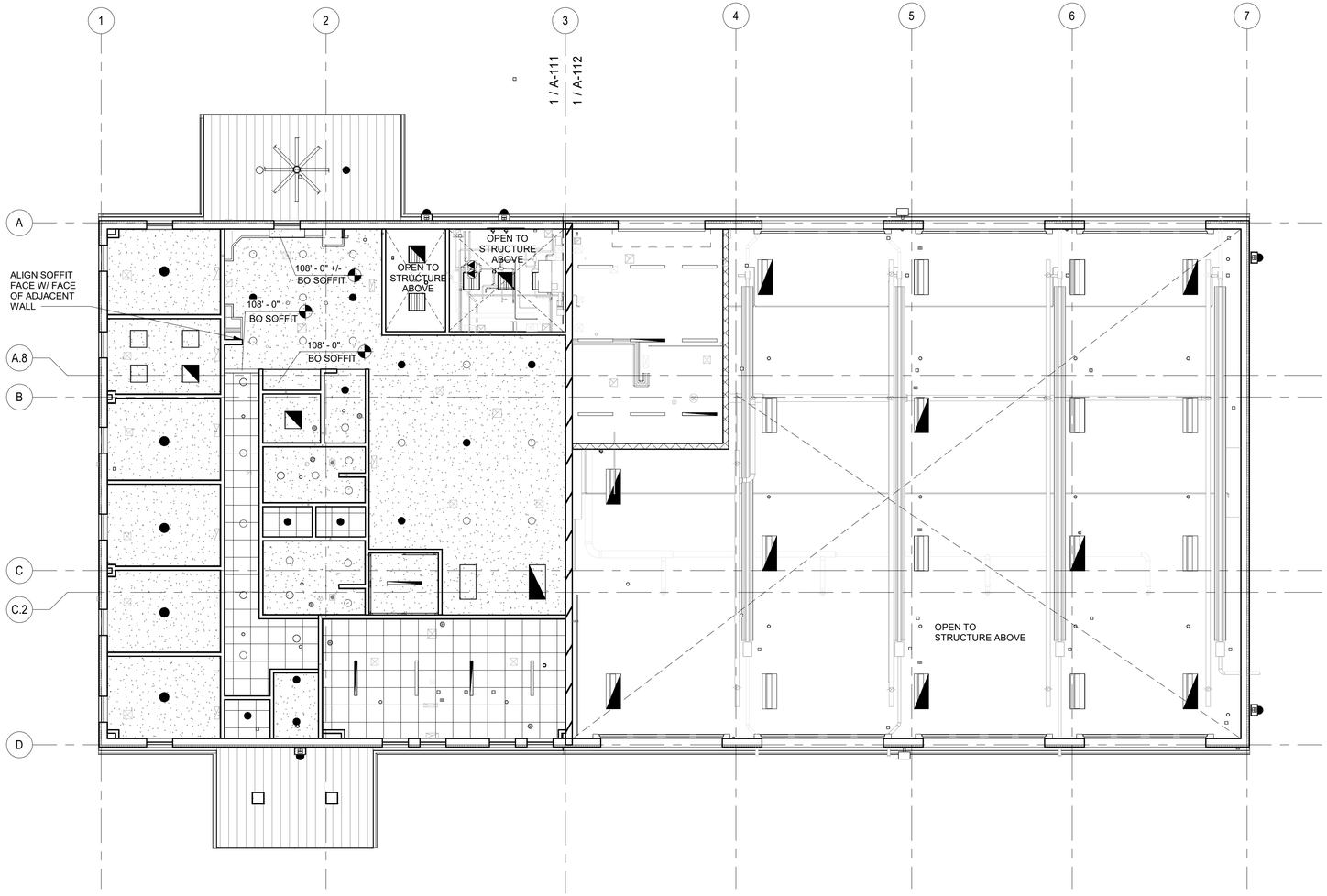
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

STORAGE BUILDING FLOOR PLAN

SHEET ID

A-113



1 COMPOSITE REFLECTED CEILING PLAN

1/8" = 1'-0"

REFLECTED CEILING PLAN LEGEND

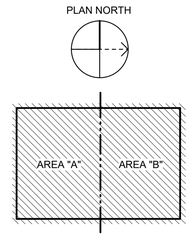
ARCHITECTURAL	MECHANICAL/FIRE PROTECTION	ELECTRICAL
101 ROOM NUMBER	SUPPLY AIR DIFFUSER - SEE MECHANICAL	WALL-MOUNTED FIXTURE - SEE ELEC FOR TYPE
XXX'-X" SPOT ELEVATION	RETURN AIR GRILL OR EXHAUST GRILL - SEE MECHANICAL	1X4 TROFFER - SEE ELEC FOR TYPE
PAINTED GYPSUM BOARD CEILING	CEILING VENT/GRILL - SEE MECHANICAL	2X2 TROFFER SET IN CEILING GRID - SEE ELEC FOR TYPE
2X2 SUSPENDED ATC/WTC CEILING - SEE ROOM FINISH SCHEDULE FOR TYPE	SMOKE DETECTOR/ TEMPERATURE SENSOR / CARBON MONOXIDE DETECTOR - SEE FIRE ALARM DWGS FOR TYPE	2X4 TROFFER SET IN CEILING GRID - SEE ELEC FOR TYPE
METAL SOFFIT PANELS - SEE ELEVATIONS AND SPECS FOR TYPE		CEILING-HUNG LINEAR PENDANT - SEE ELEC FOR TYPE
		RECESSED CAN LIGHT - SEE ELEC FOR TYPE
		OCCUPANCY SENSOR - SEE ELEC
		DAYLIGHT SENSOR- SEE ELEC
		EXTERIOR WALL MOUNTED LIGHT FIXTURE(S) - SEE ELEC FOR TYPE
		CABLE TRAY - SEE TELECOM

RCP LEGEND NOTES:
1. SEE RESPECTIVE DESIGN DRAWINGS FOR SPECIFIC SIZES, TYPES, CONNECTION REQUIREMENTS, ETC.

FLOOR PLAN ORIENTATION NOTE:

SITE PLAN DRAWINGS AND BUILDING PLAN DRAWINGS SHOW DIFFERENT BUILDING ORIENTATIONS AND PROXIMATIES. SITE PLAN DRAWINGS ARE ORIENTED TRUE NORTH. BUILDING PLANS ARE ORIENTED WITH TRUE NORTH TO THE RIGHT OF THE SHEET. CONTRACTOR SHALL TAKE CARE TO COORDINATE WORK ACCOUNTING FOR DIFFERENCE IN SITE PLAN AND BUILDING PLAN ORIENTATIONS.

GENERAL NOTES:
1. SEE A-410 FOR WALL TYPE DETAILS
2. ROUGH OPENINGS FOR DOORS AND DOOR FRAMES SHALL BE LOCATED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS INDICATED OTHERWISE.
3. ALL CHANGES IN FLOOR MATERIALS IN DOOR OPENINGS SHALL OCCUR AT THE CENTER LINE OF THE DOOR PANEL IN THE CLOSED POSITION UNLESS NOTED OTHERWISE.
4. DIMENSIONS ARE TO CENTER LINE OF COLUMNS, FACE OF STEEL STUDS.
5. ROOM FINISH SCHEDULES MAY BE FOUND ON A-600 SHEET.
6. DOOR SCHEDULES MAY BE FOUND ON A-610 SHEET.
7. WINDOW SCHEDULES MAY BE FOUND ON A-610 SHEET.
8. SEE FIRE PROTECTION SHEETS FOR LOCATIONS OF FIRE AND SMOKE RATED WALLS AND PARTITIONS.
9. CENTER FULL CEILING TILES IN THE HALLWAY. LIGHTS AND HVAC WILL BE PLACED IN THE CENTER OF TILES.



KEYPLAN

NO SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
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CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101468 (FY23)

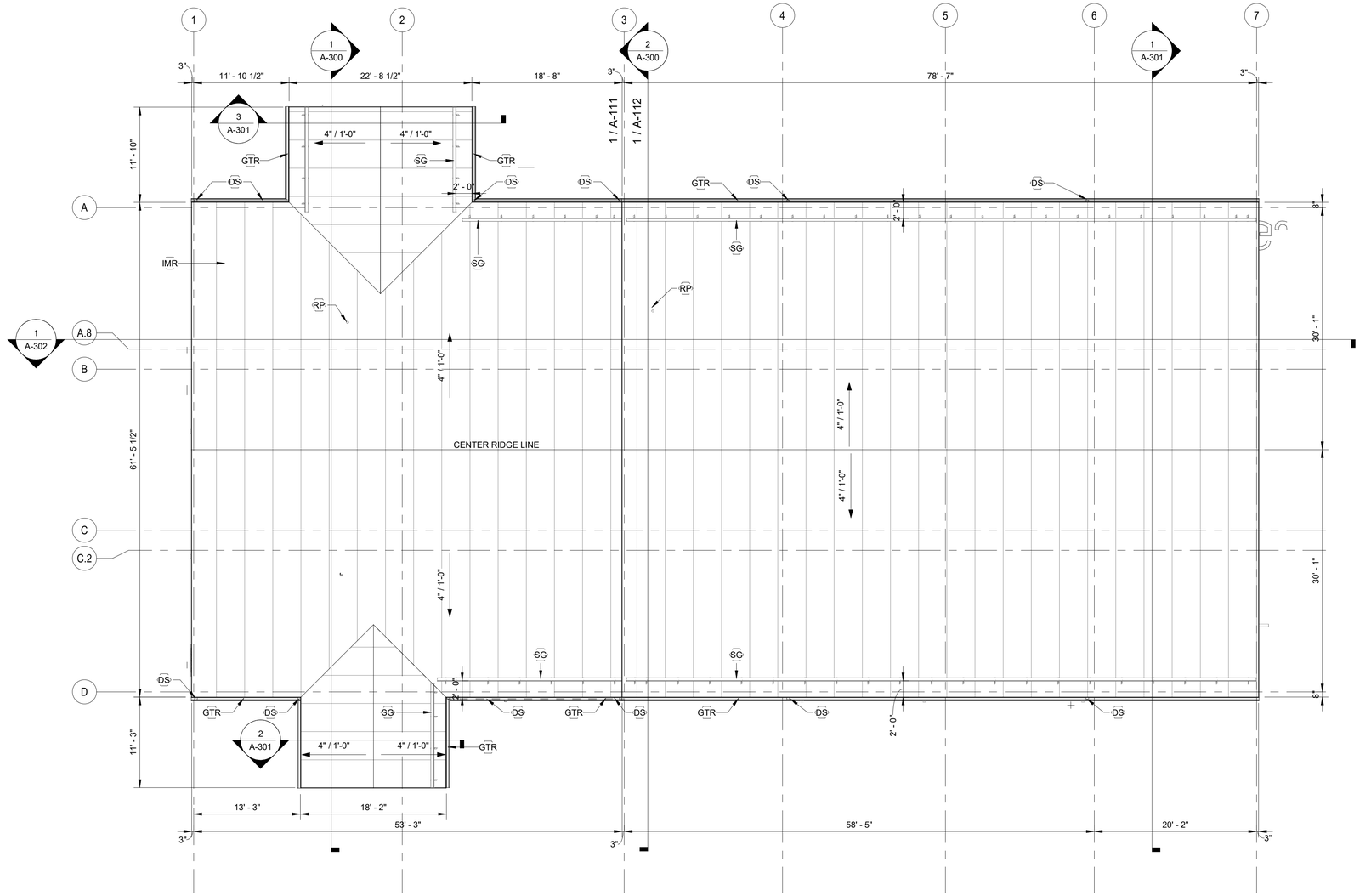
COMPOSITE REFLECTED CEILING PLAN

SHEET ID

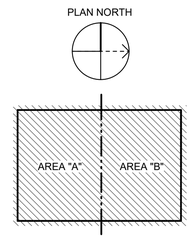
A-120

GENERAL NOTES:

1. SEE CIVIL DRAWINGS FOR DOWNSPOUT CONTINUATIONS.
2. ROOF AND WALL PENETRATIONS/FLASHING SHALL CONFORM TO ACCEPTED ROOFING PRACTICES AS DESCRIBED AND DETAILED IN THE CURRENT EDITION OF THE NRCA ROOFING AND WATERPROOFING MANUALS AND THE SMACNA ARCHITECTURAL SHEET METAL MANUAL. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ACTUAL SIZES OF MECHANICAL ITEMS.
4. SEE SHT A-200 FOR KEYNOTE ABBREVIATIONS



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



KEYPLAN

NO SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

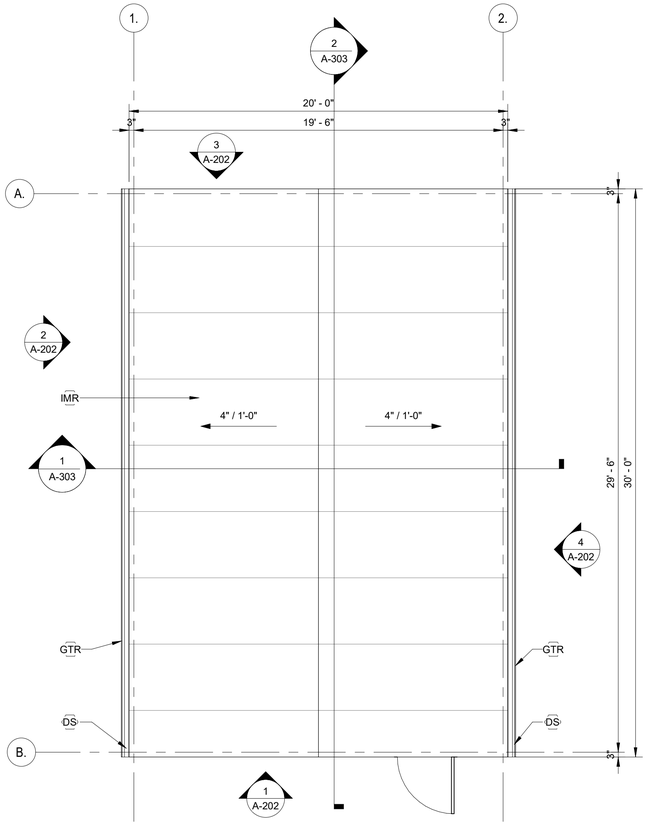
COMPOSITE ROOF PLAN

SHEET ID

A-130

GENERAL NOTES:

1. SEE CIVIL DRAWINGS FOR DOWNSPOUT CONTINUATIONS.
2. ROOF AND WALL PENETRATIONS/FLASHING SHALL CONFORM TO ACCEPTED ROOFING PRACTICES AS DESCRIBED AND DETAILED IN THE CURRENT EDITION OF THE NRCA ROOFING AND WATERPROOFING MANUALS AND THE SMACNA ARCHITECTURAL SHEET METAL MANUAL. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
3. SEE MECHANICAL DRAWINGS AND SPECIFICATIONS FOR ACTUAL SIZES OF MECHANICAL ITEMS.
4. SEE SHT A-200 FOR KEYNOTE ABBREVIATIONS



1 STORAGE BUILDING ROOF PLAN

1/4" = 1'-0"

PLAN NORTH

0 2' 4' 8'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
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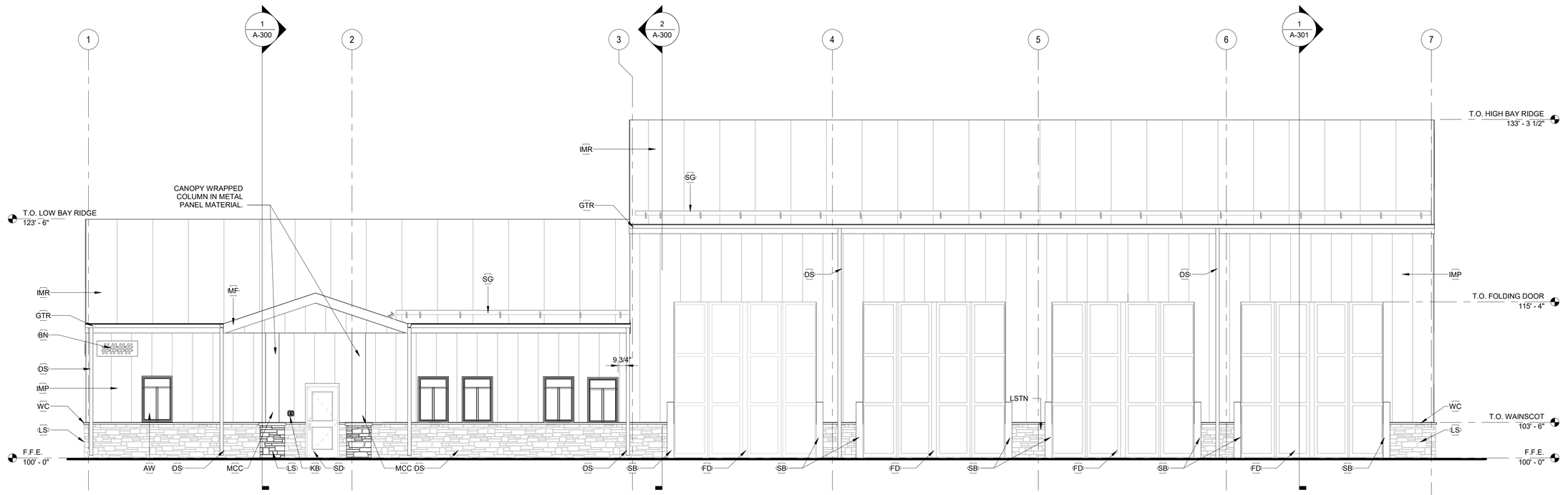
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

STORAGE BUILDING ROOF PLAN

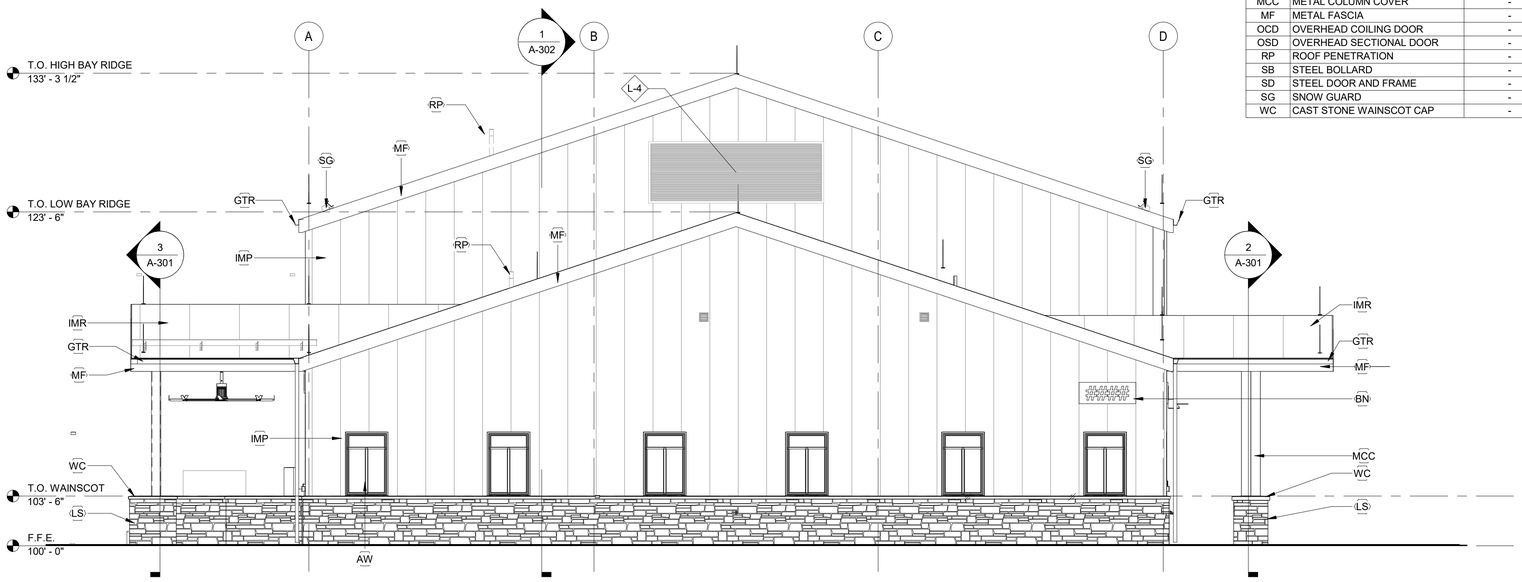
SHEET ID

A-131



1 SOUTH COMPOSITE ELEVATION

3/16" = 1'-0"



2 WEST COMPOSITE ELEVATION

3/16" = 1'-0"

ELEVATION KEYED NOTES AND COLOR/FINISH SCHEDULE

MARK	DESCRIPTION	BASIS OF DESIGN	MODEL	COLOR/FINISH	SPECIFICATION	REMARKS
AW	ALUMINUM WINDOW - TYPE A	-	-	BLACK ANODIZED ALUMINUM	08 51 13	
BN	BUILDING NUMBER	-	-	PER DTL C/A-800	-	B.O. SIGN ELEVATION = 110'-0"
DS	3" X 4" DOWNSPOUT	-	-	WHITE	07 60 00	
FD	FOLDING DOOR	-	-	SHERWIN WILLIAMS, IRON ORE SW 7069	08 35 00	
GTR	GUTTER	-	-	WHITE	07 60 00	CAPACITY ≥ THAN RECTANGULAR GUTTER 4 1/2" X 5 1/2"
IMP	INSULATED METAL PANEL SYSTEM	-	-	KINGSPAN ASCOT WHITE	07 42 63	
IMR	INSULATED PANEL ROOF SYSTEM	-	-	KINGSPAN COPPER PENNY	07 41 63	
KB	HIGH SECURITY KEY BOX	KNOX COMPANY	3200	DARK BRONZE	08 71 00	
LS	LEDGE STONE VENEER	SUNSET STONE	-	BLUE SPRUCE LEDGE	04 72 00	
MCC	METAL COLUMN COVER	-	-	WHITE	07 60 00	
MF	METAL FASCIA	-	-	WHITE	07 60 00	METAL SOFFIT PANELS TO MATCH FASCIA COLOR
OCD	OVERHEAD COILING DOOR	-	-	SHERWIN WILLIAMS, IRON ORE SW 7069	08 33 23	
OSD	OVERHEAD SECTIONAL DOOR	-	-	SHERWIN WILLIAMS, IRON ORE SW 7069	08 36 13	
RP	ROOF PENETRATION	-	-	-	22 00 00	
SB	STEEL BOLLARD	-	-	SAFETY YELLOW	05 50 13	
SD	STEEL DOOR AND FRAME	-	-	SHERWIN WILLIAMS, IRON ORE SW 7069	08 11 13	
SG	SNOW GUARD	-	-	KINGSPAN COPPER PENNY	07 41 63	
WC	CAST STONE WAINSCOT CAP	-	-	WHITE CONCRETE	04 72 00	

GENERAL NOTES:
1. COLORS AND FINISHES LISTED IN COLOR/FINISH SCHEDULE ARE FOR REFERENCE ONLY, AND ARE NOT INTENDED TO LIMIT THE SELECTION OF EQUAL COLORS FROM OTHER MANUFACTURERS.
2. SEE SHT A-610 FOR WINDOW AND LOUVER TYPES
3. SEE SHT A-200 FOR ELEVATIONS KEYED NOTES AND COLOR/FINISH SCHEDULE.

0 4' 8' 12'

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

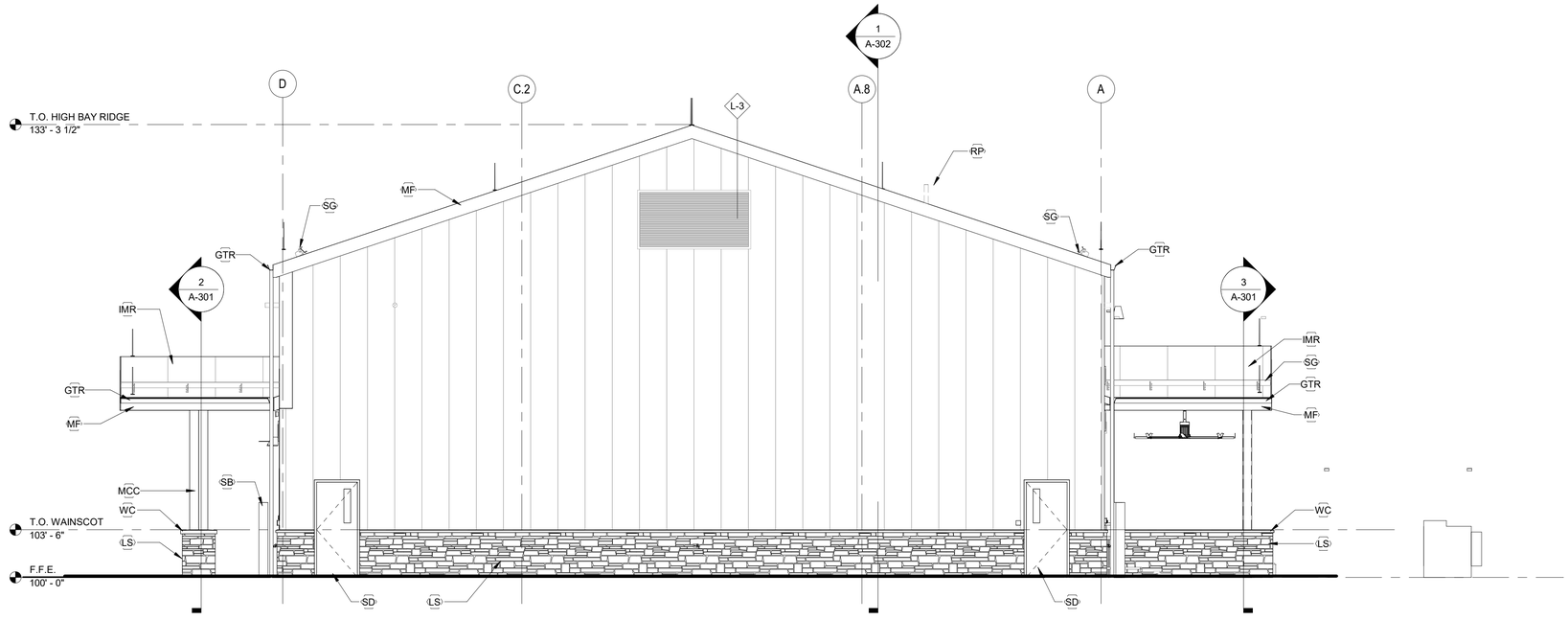
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY25)

BUILDING ELEVATIONS

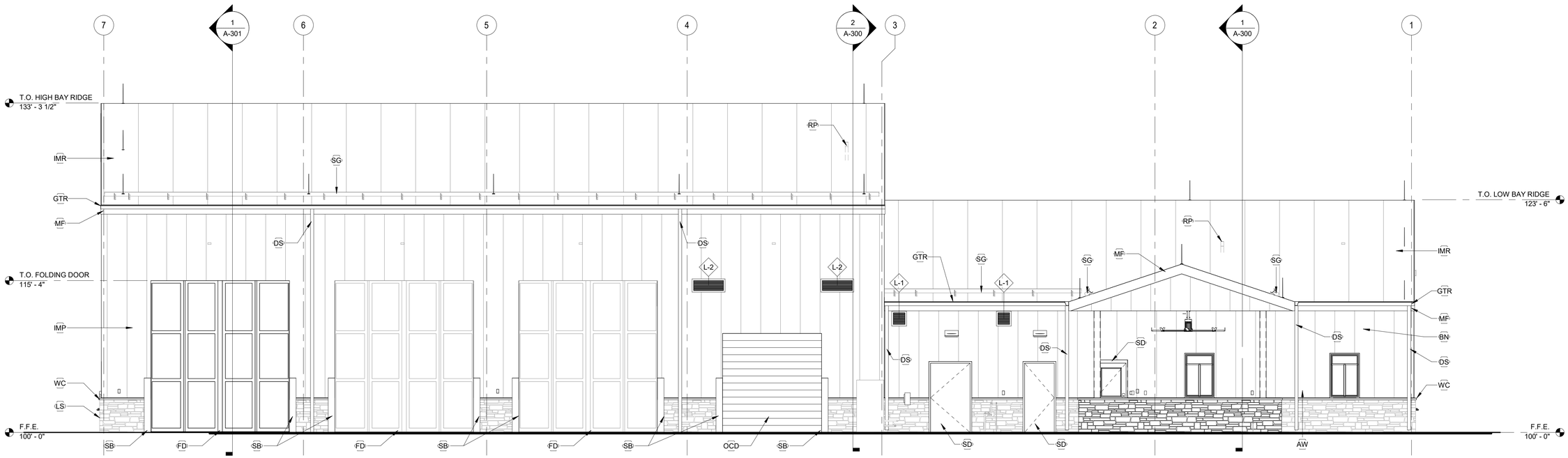
SHEET ID

A-200

GENERAL NOTES:
1. COLORS AND FINISHES LISTED IN COLOR/FINISH SCHEDULE ARE FOR REFERENCE ONLY, AND ARE NOT INTENDED TO LIMIT THE SELECTION OF EQUAL COLORS FROM OTHER MANUFACTURERS.
2. SEE SHT A-610 FOR WINDOW AND LOUVER TYPES
3. SEE SHT A-200 FOR ELEVATIONS KEYED NOTES AND COLOR/FINISH SCHEDULE.



1 EAST COMPOSITE ELEVATION
3/16" = 1'-0"



2 NORTH COMPOSITE ELEVATION
3/16" = 1'-0"

0 4' 8' 12'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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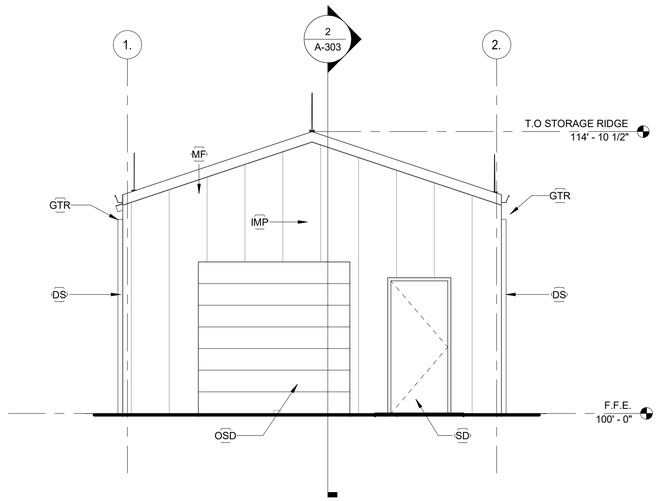
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

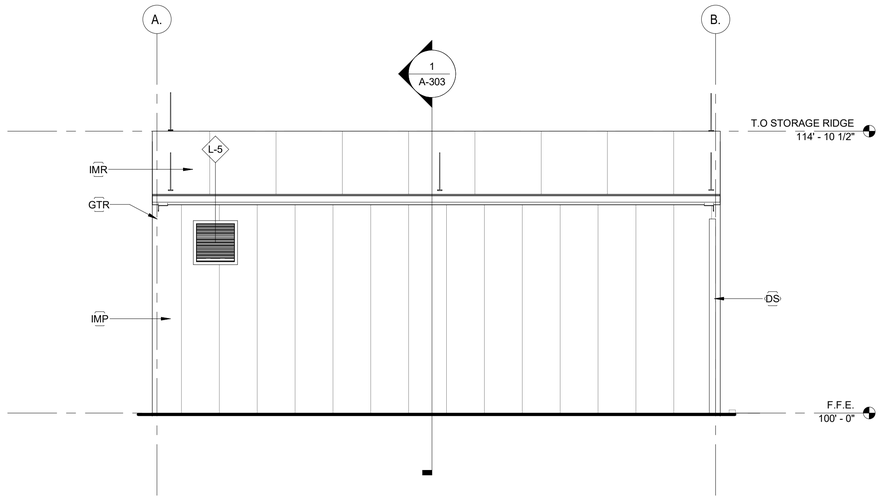
BUILDING ELEVATIONS

SHEET ID

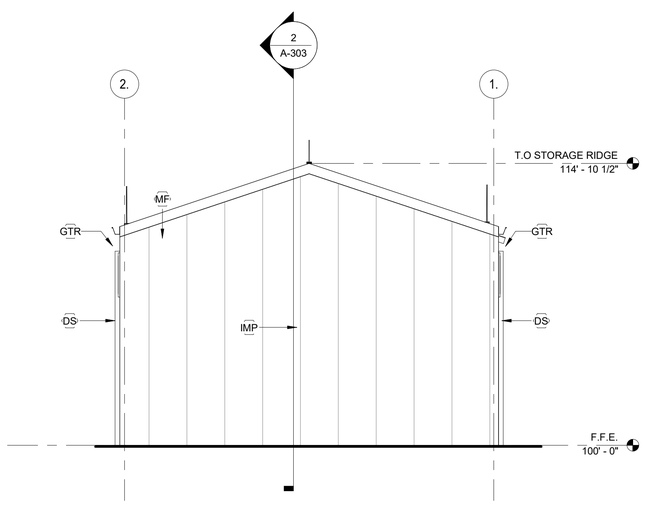
A-201



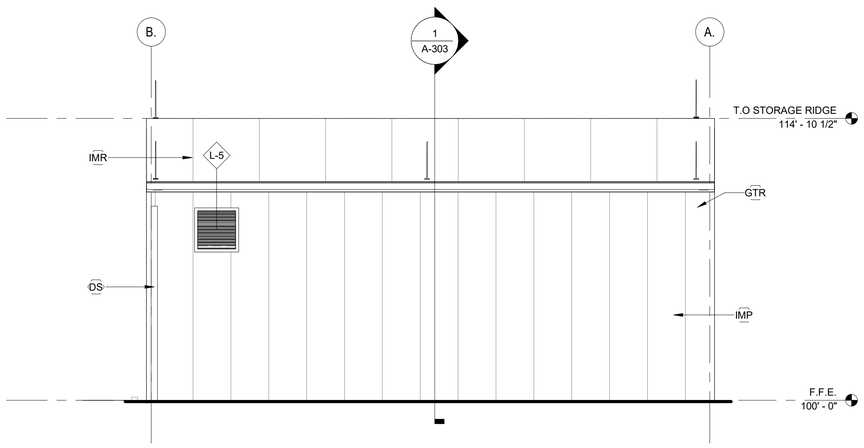
1 SOUTH COMPOSITE ELEVATION STORAGE BLDG
1/4" = 1'-0"



2 WEST COMPOSITE ELEVATION STORAGE BLDG
1/4" = 1'-0"



3 NORTH COMPOSITE ELEVATION STORAGE BLDG
1/4" = 1'-0"



4 EAST COMPOSITE ELEVATION STORAGE BLDG
1/4" = 1'-0"

GENERAL NOTES:
1. COLORS AND FINISHES LISTED IN COLOR/FINISH SCHEDULE ARE FOR REFERENCE ONLY, AND ARE NOT INTENDED TO LIMIT THE SELECTION OF EQUAL COLORS FROM OTHER MANUFACTURERS.
2. SEE SHT A-610 FOR WINDOW AND LOUVER TYPES
3. SEE SHT A-200 FOR ELEVATIONS KEYED NOTES AND COLOR/FINISH SCHEDULE.

0 2' 4' 8'

US Army Corps of Engineers ®

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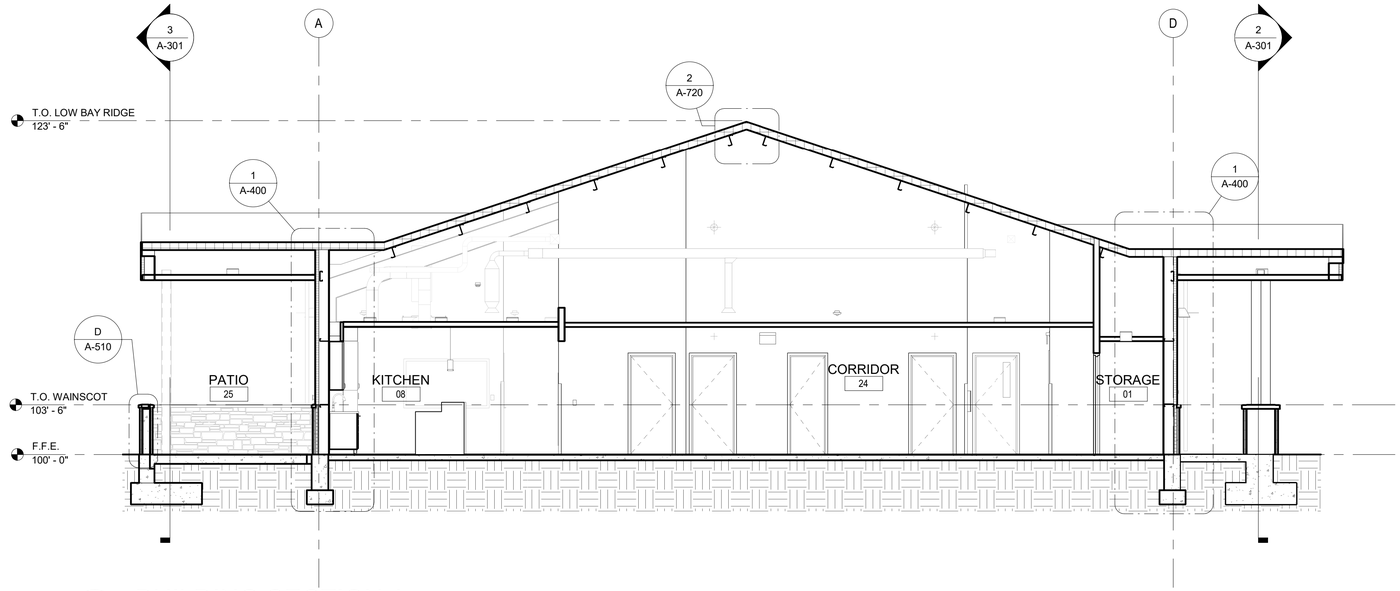
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

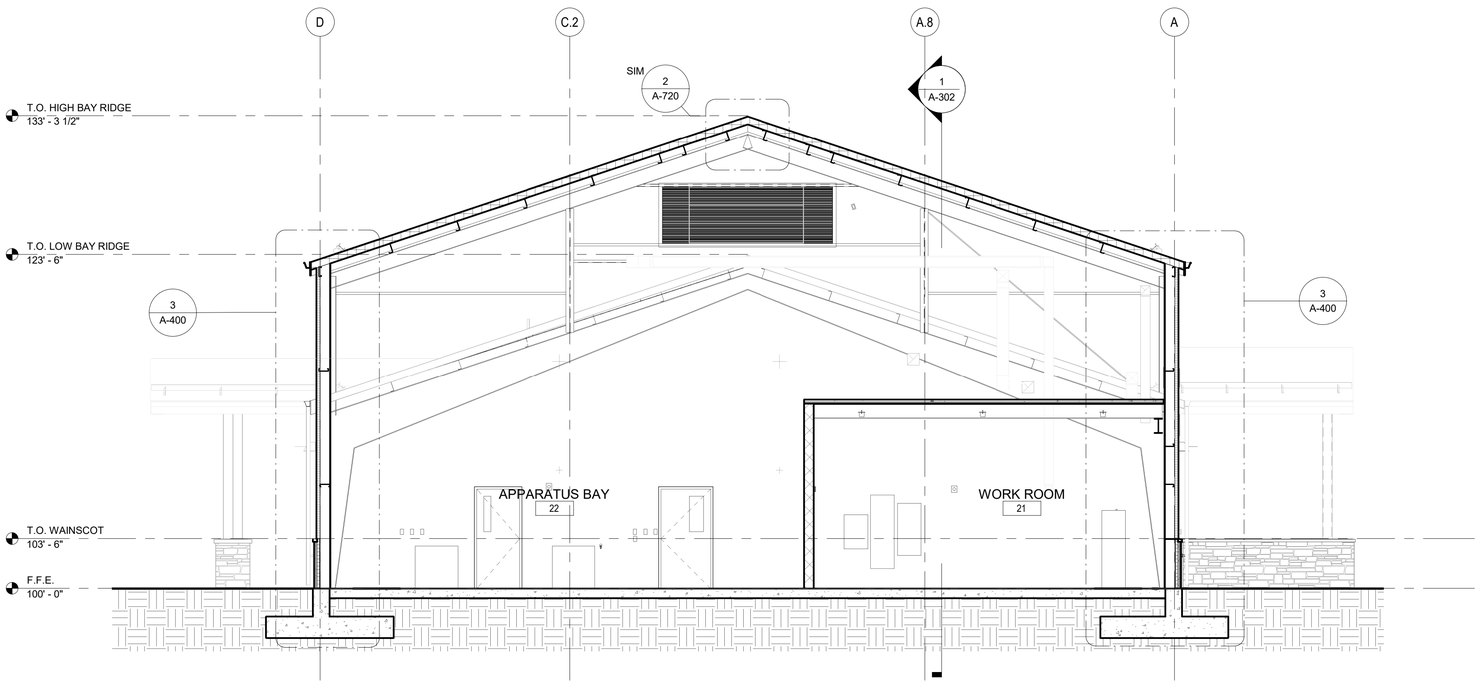
STORAGE BUILDING - BUILDING ELEVATIONS

SHEET ID
A-202



1 BUILDING SECTION A

3/16" = 1'-0"



2 BUILDING SECTION B

3/16" = 1'-0"

0 4' 8' 12'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI 'D'
FILE NAME: FCDR-FSTN-A1.rvt

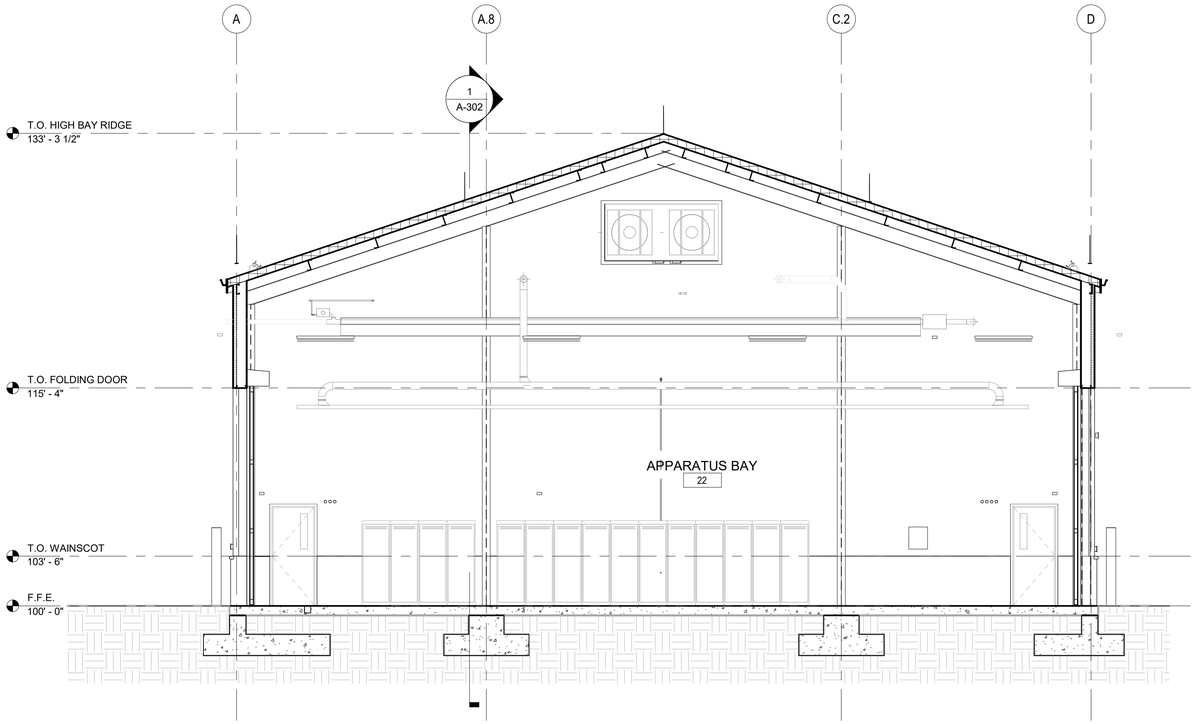
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

BUILDING SECTIONS

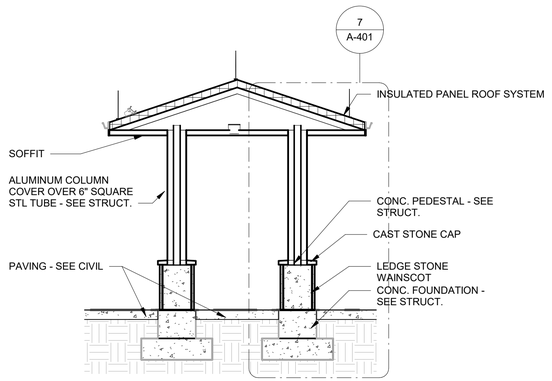
SHEET ID

A-300



1 BUILDING SECTION C

3/16" = 1'-0"



2 BUILDING SECTION D

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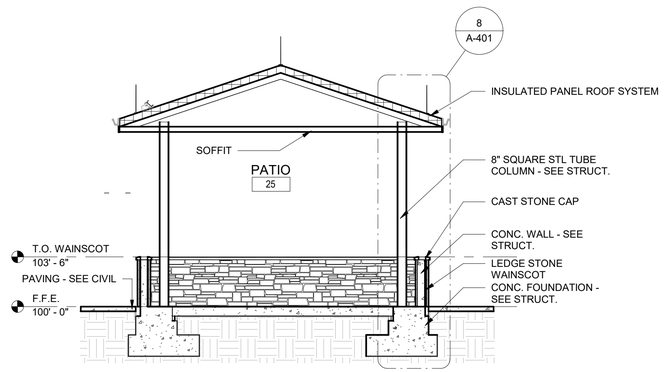


3 BUILDING SECTION E

3/16" = 1'-0"

0 4' 8' 12'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSTN-A1.rvt

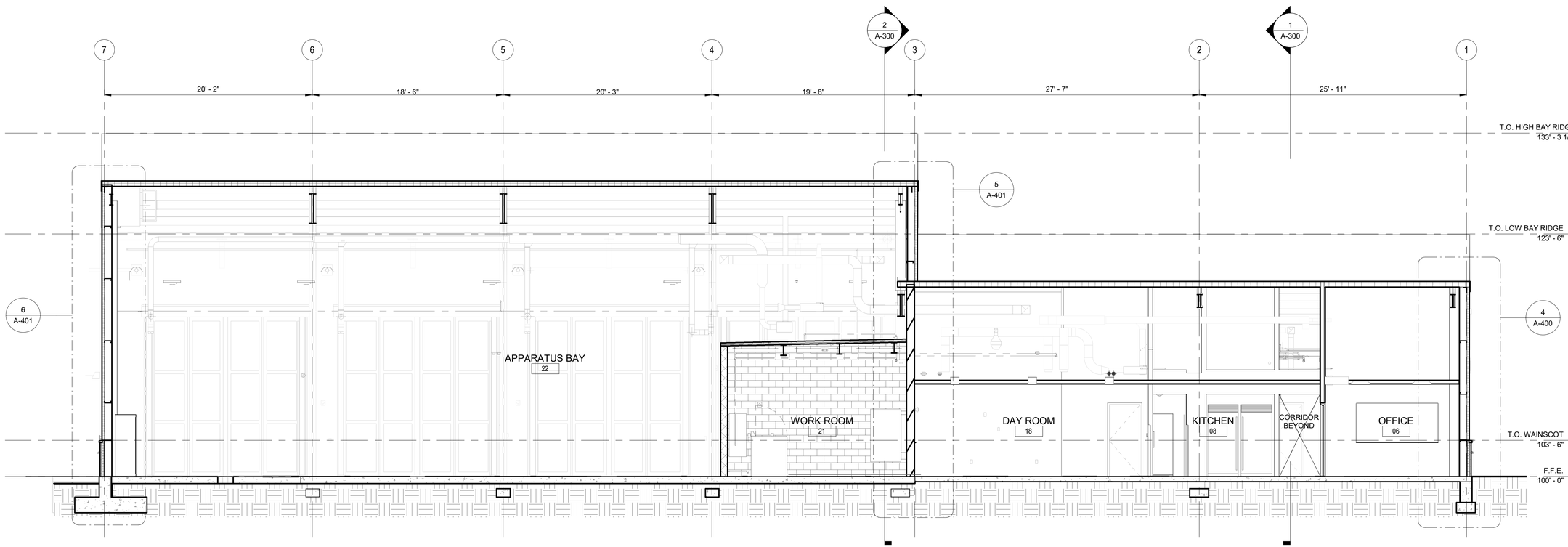
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

BUILDING SECTIONS

SHEET ID

A-301



1 BUILDING SECTION F

3/16" = 1'-0"

0 4' 8' 12'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

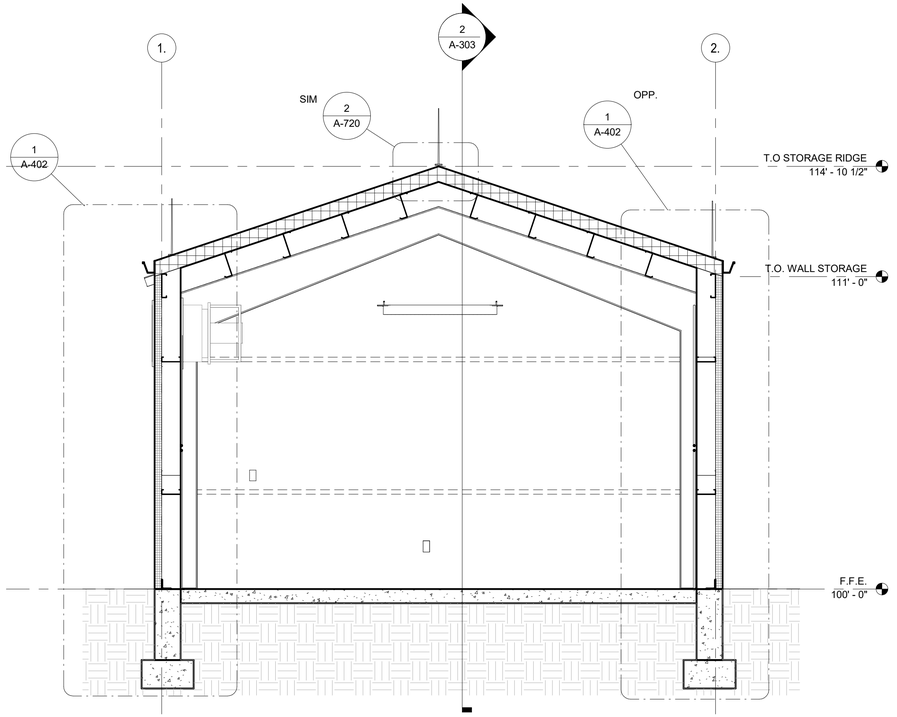
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

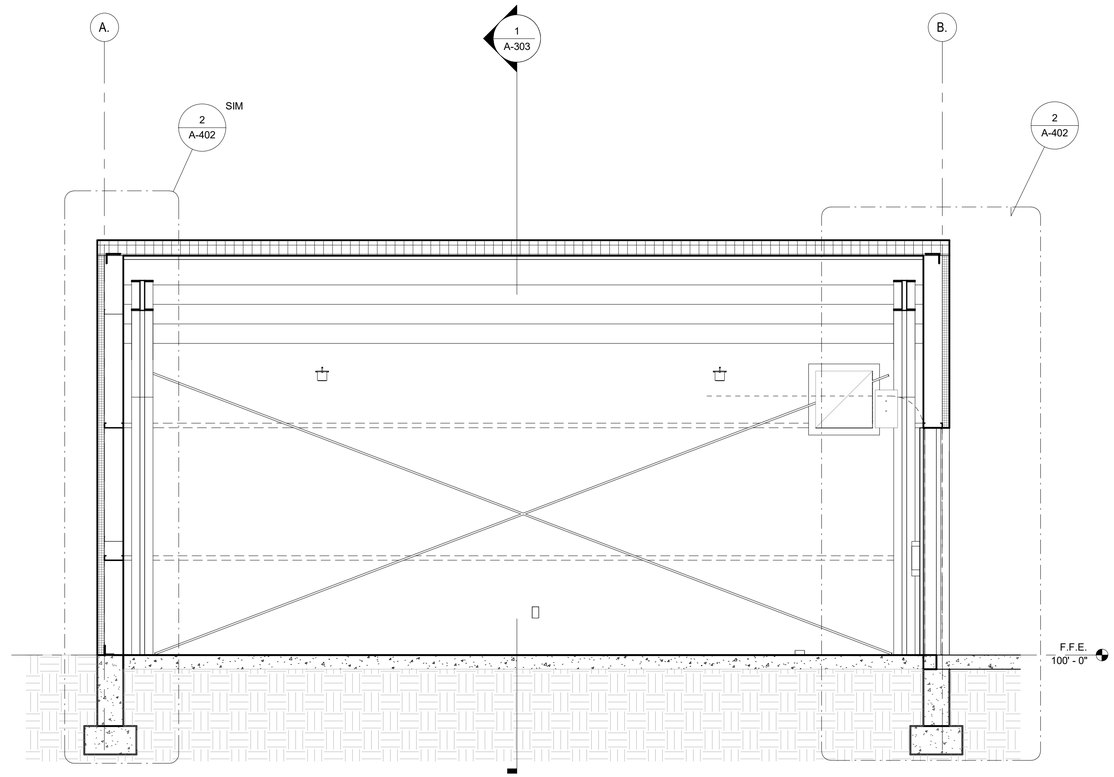
BUILDING SECTIONS

SHEET ID

A-302



1 STORAGE BUILDING SECTION A
3/8" = 1'-0"



2 STORAGE BUILDING SECTION B
3/8" = 1'-0"

0 2' 4' 6'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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SIZE: ANSI D'
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SOLICITATION NO.: W9128F23R0016
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US ARMY CORPS OF ENGINEERS
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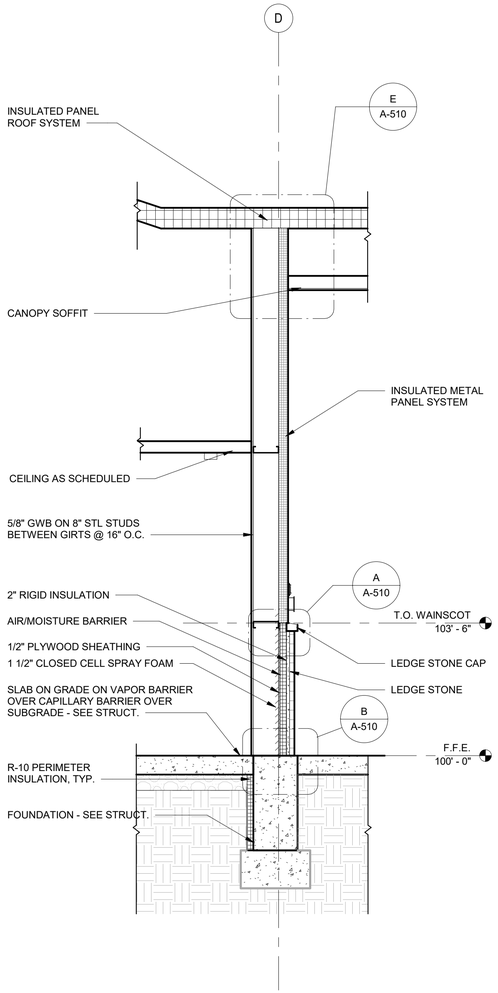
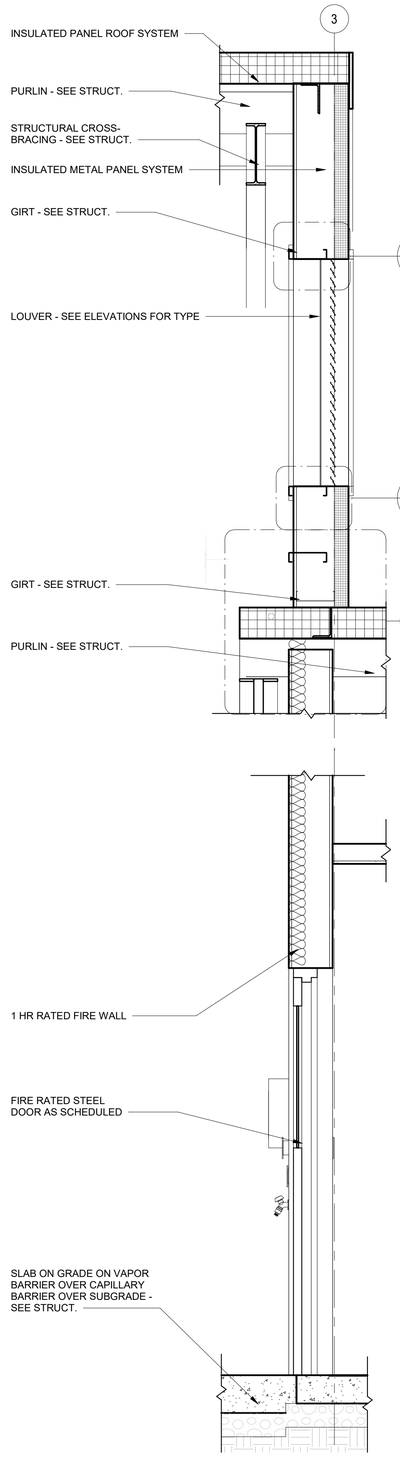
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 / (FY23)

STORAGE BUILDING - BUILDING SECTIONS

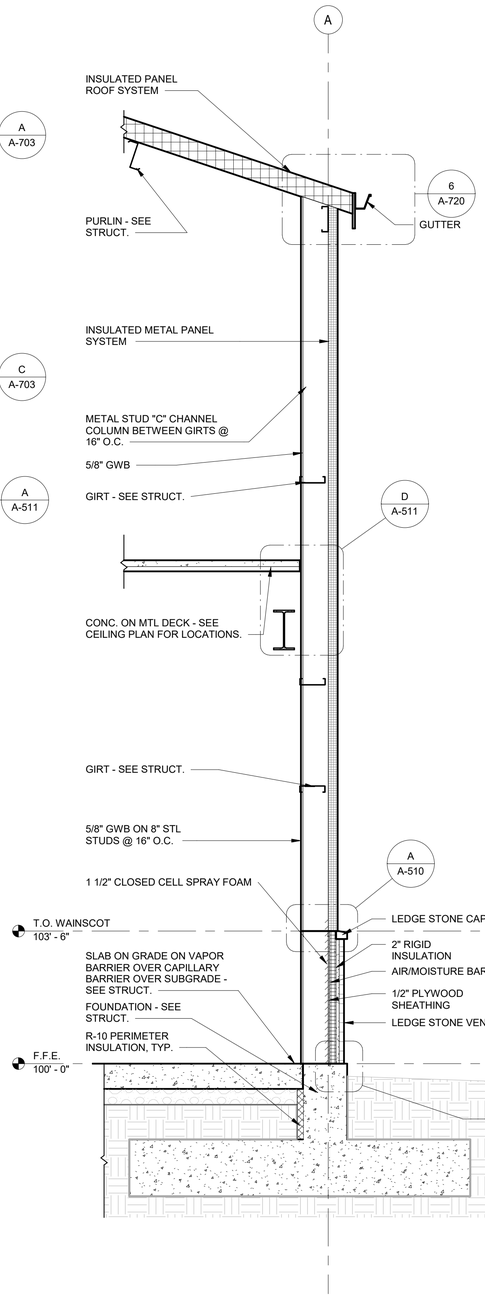
SHEET ID
A-303



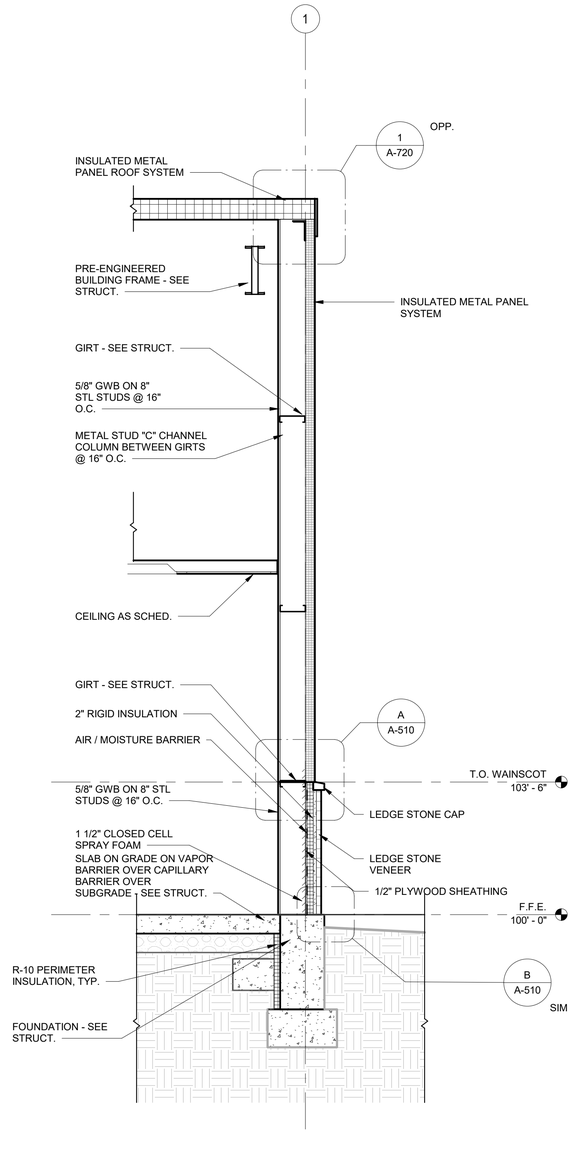
1 WALL SECTION 1
1/2" = 1'-0"



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



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



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

0 1' 2' 4'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
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CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

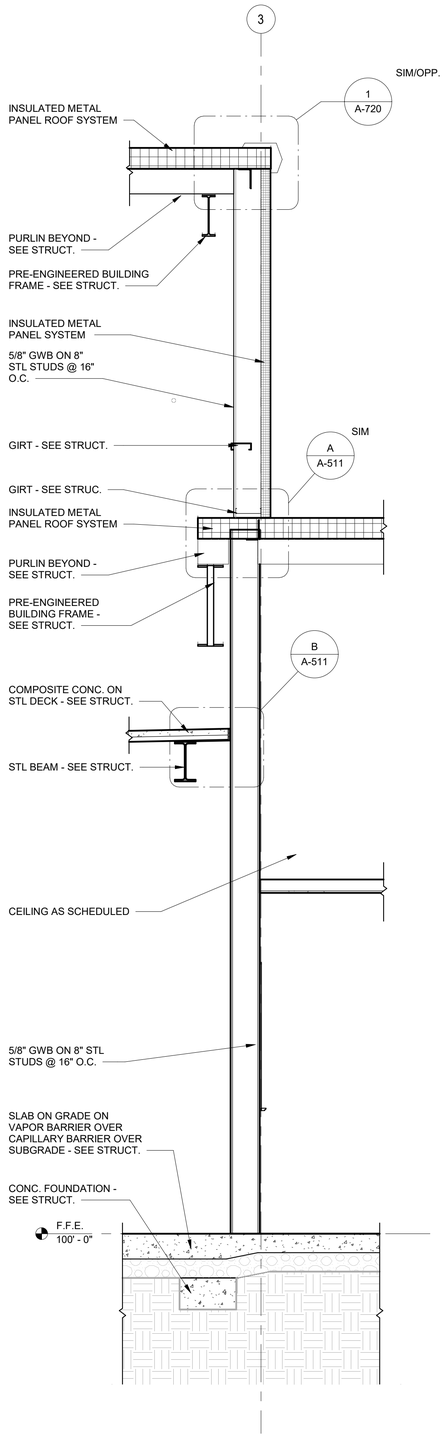
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101484 (FY25)

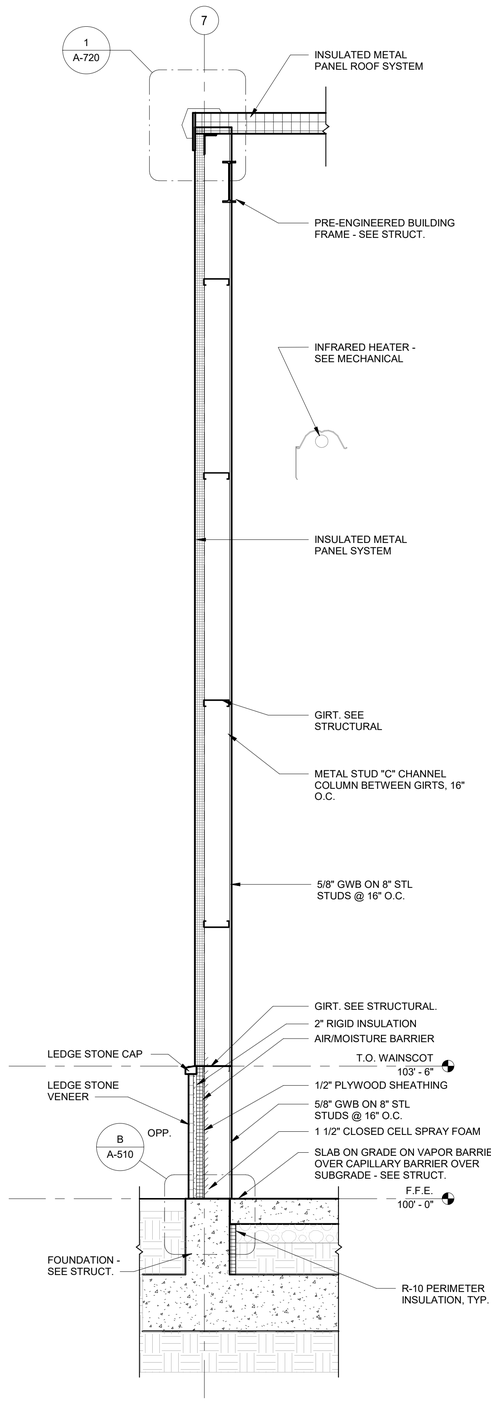
WALL SECTIONS

SHEET ID

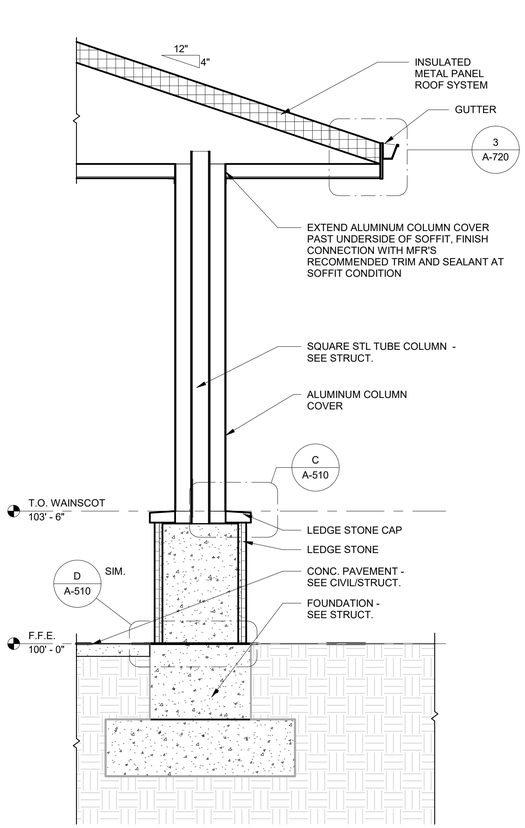
A-400



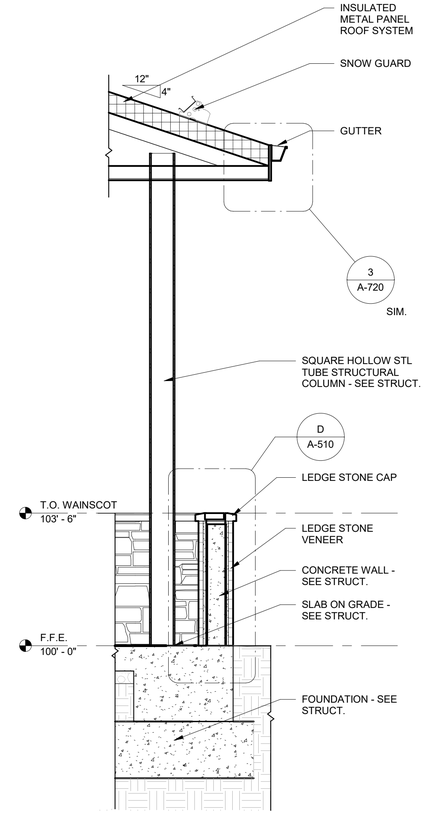
5 WALL SECTION 5
1/2" = 1'-0"



6 WALL SECTION 6
1/2" = 1'-0"



7 WALL SECTION 7
1/2" = 1'-0"



8 WALL SECTION 8
1/2" = 1'-0"

0 1' 2' 4'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY:	ISSUE DATE:
A. WALZ	01/20/2023
DRAWN BY:	SOLICITATION NO.:
A. WALZ	W9128F23R0016
CHECKED BY:	CONTRACT NO.:
B. GORUP	
SUBMITTED BY:	FILE NUMBER:
C. GORUP	
SIZE:	FILE NAME:
ANSI D	FCDR-FSTN-A1.rvt

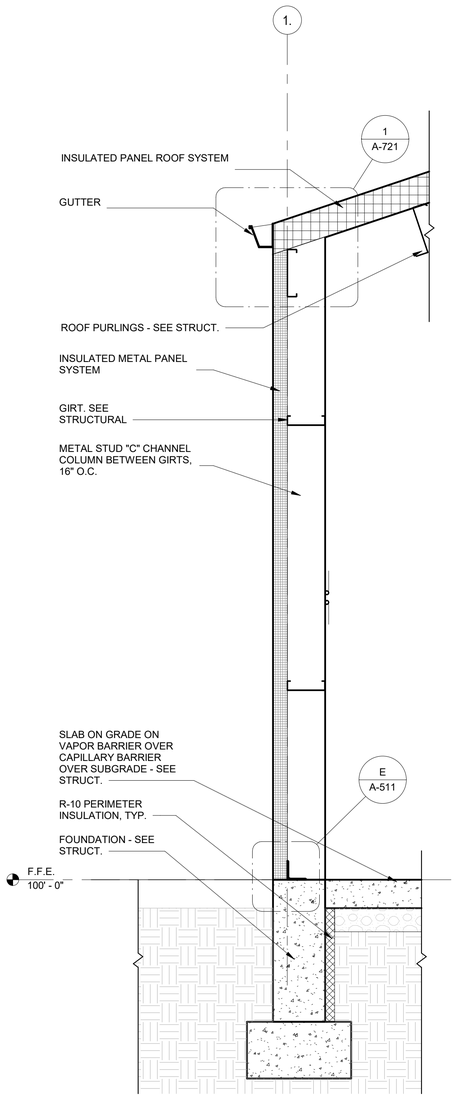
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

WALL SECTIONS

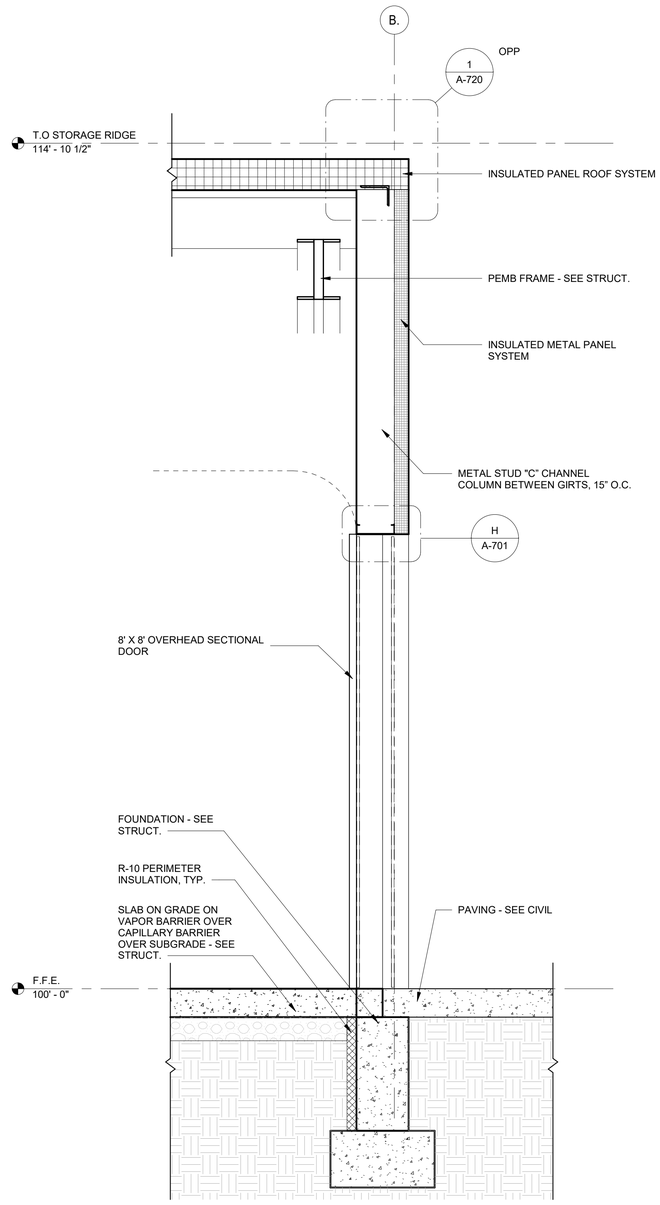
SHEET ID

A-401



1 WALL SECTION 1 STORAGE

3/4" = 1'-0"



2 WALL SECTION 2 STORAGE

3/4" = 1'-0"

0 1' 2' 3'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

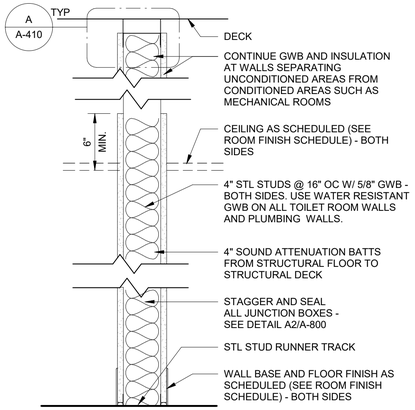
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

WALL SECTIONS

SHEET ID

A-402



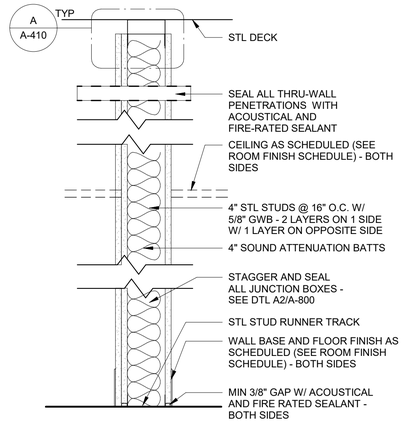
STEEL STUD PARTITION 1

SCALE: NTS **STC 33 MINIMUM**
NOT FIRE-RATED

FURRING AROUND COLUMNS W/ 1 LAYER OF GWB ONE SIDE. NO INSULATION. — 1B

6" STL STUDS @ 16" OC W/ 5/8" GWB BOTH SIDES. NO INSULATION, NO SOUND ATTENUATION BATTS. — 1C

NO SOUND ATTENUATION BATTS — 1D

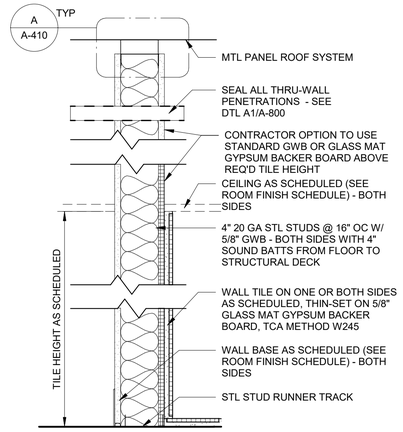


STEEL STUD SOUND PARTITION 2

SCALE: NTS **STC 50 MINIMUM**
30 MINUTE FIRE-RATED

FURRING AROUND COLUMNS W/ 2 LAYERS OF GWB ON ONE SIDE — 2B

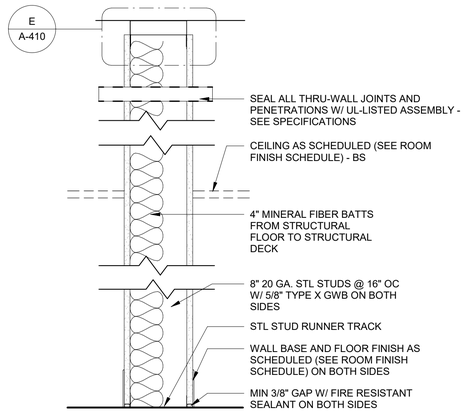
NOTE: REFERENCE SHT F-110 FOR WALLS REQUIRING 30-MINUTE FIRE RATING IN ADDITION TO STC 50 REQUIREMENT



STEEL STUD PARTITION W/ TILE 3

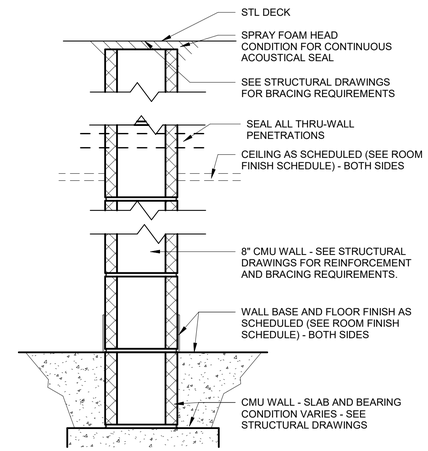
SCALE: NTS **STC 42 MINIMUM**
NOT FIRE-RATED

STC 50 RATED W/ 2 LAYERS OF GWB ON ONE SIDE — 3B



STEEL STUD 1-HR RATED PARTITION 4

SCALE: NTS **STC 42 MINIMUM**
1 HOUR FIRE-RATED



CMU PARTITION 5

SCALE: NTS **STC 50 MINIMUM**
NOT FIRE-RATED

TOP OF WALL PERPENDICULAR TO METAL PANEL ROOF SYSTEM

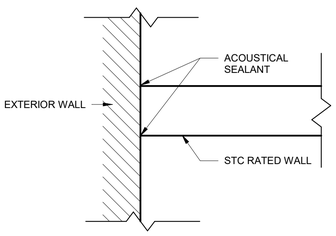
A TYP SOUND-RATED WALL HEAD DETAIL

3" = 1'-0"

B TYP. BOX PENETRATION @ STC WALL

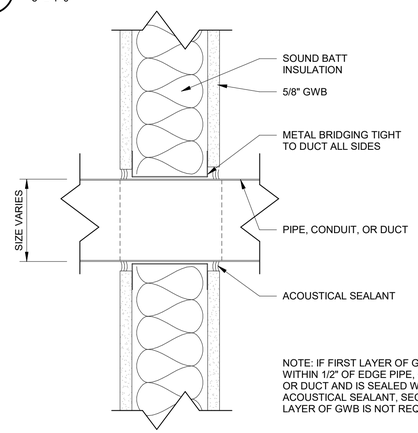
3" = 1'-0"

TOP OF WALL PERPENDICULAR TO ROOF PURLINS - ABOVE



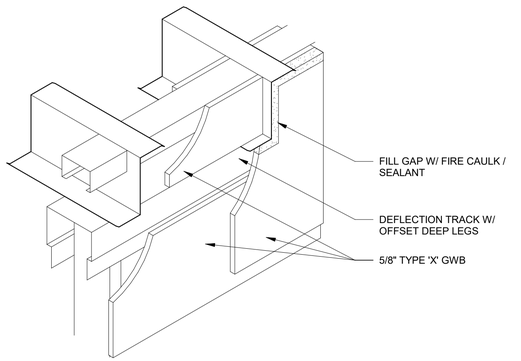
C TYP SOUND-RATED WALL INTERSECTION

1 1/2" = 1'-0"



D TYP ACOUSTICAL WALL PENETRATION

3" = 1'-0"



TOP OF WALL PERPENDICULAR TO ROOF PURLINS

E FIRE RATED WALL HEAD

3" = 1'-0"

US Army Corps of Engineers ®

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OMAHA DISTRICT
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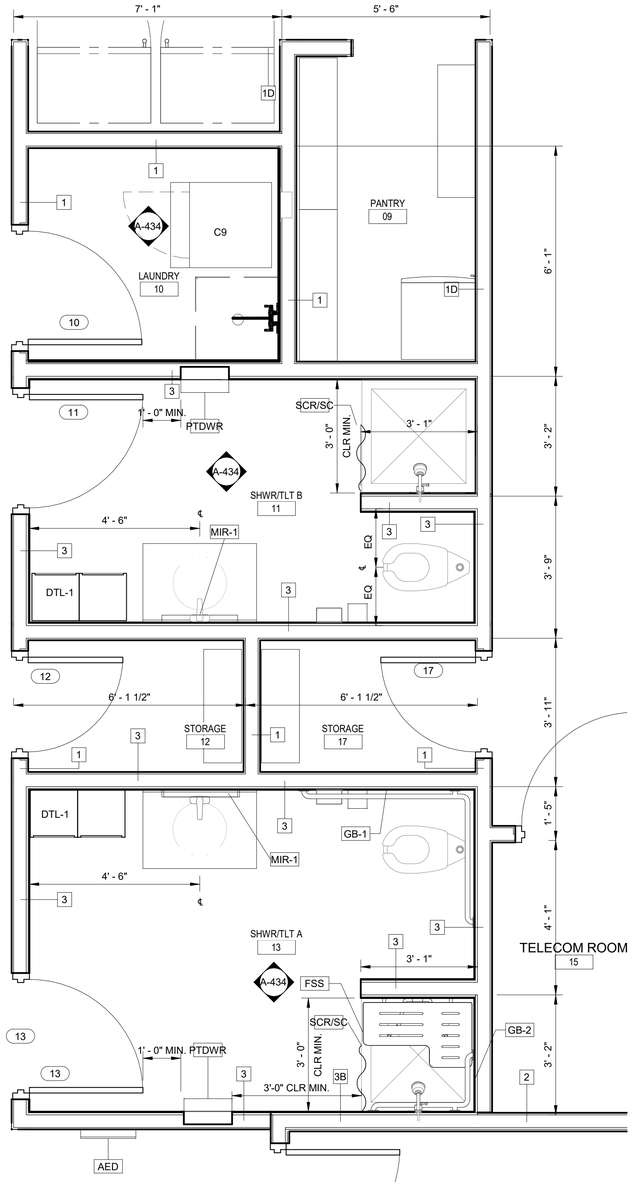
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

WALL TYPES

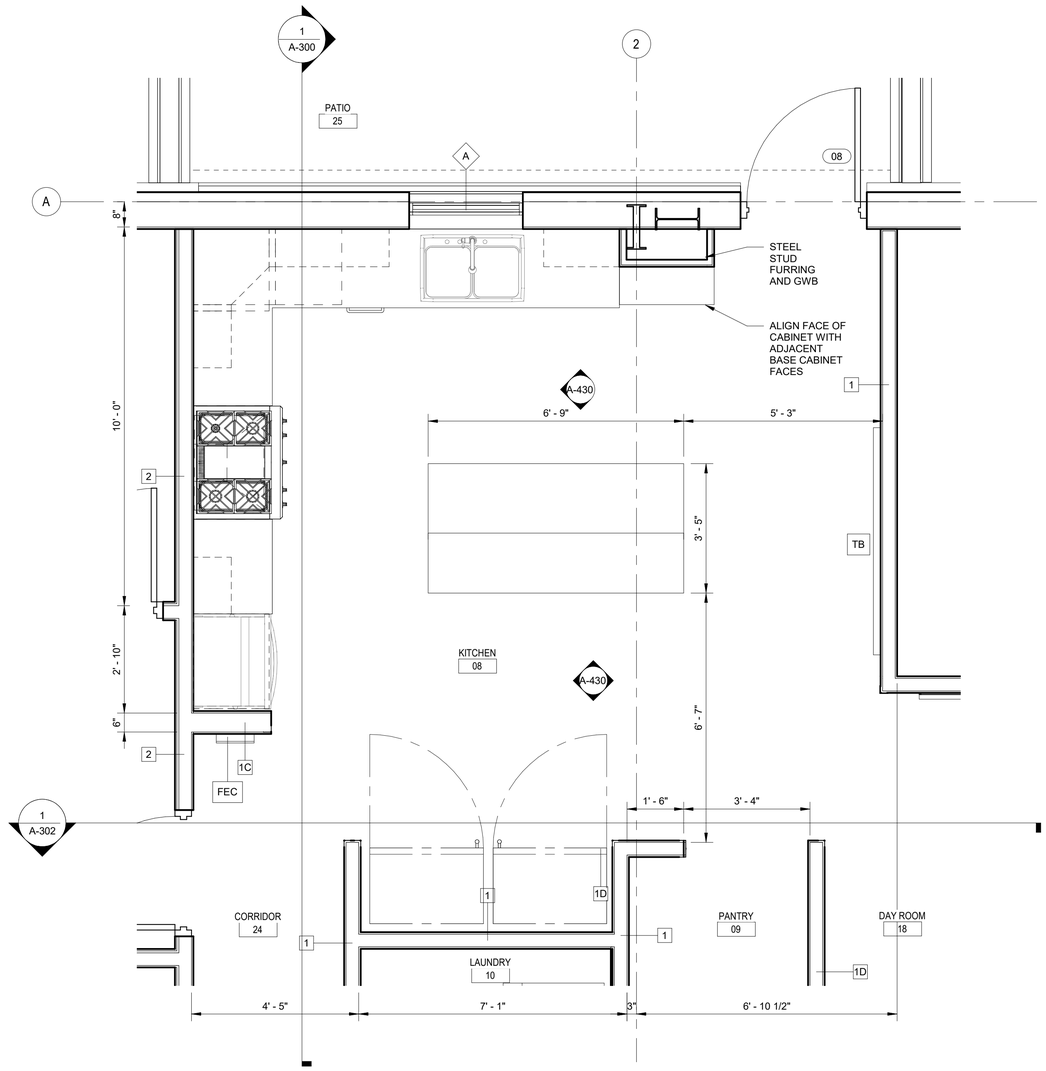
SHEET ID

A-410



1 ENLARGED PLAN

1/2" = 1'-0"



2 ENLARGED KITCHEN

1/2" = 1'-0"

GENERAL NOTES:

1. SEE A-410 FOR WALL TYPES.
2. ROUGH OPENINGS FOR DOORS AND DOOR FRAMES SHALL BE LOCATED 4" AWAY FROM ADJACENT PERPENDICULAR WALLS UNLESS INDICATED OTHERWISE.
3. ALL CHANGES IN FLOOR MATERIALS IN DOOR OPENINGS SHALL OCCUR AT THE CENTER LINE OF THE DOOR PANEL IN THE CLOSED POSITION UNLESS NOTED OTHERWISE.
4. DIMENSIONS ARE TO CENTER LINE OF COLUMNS AND FACE OF STEEL STUDS.
5. ROOM FINISH SCHEDULES MAY BE FOUND ON SHT A-600.
6. DOOR SCHEDULES MAY BE FOUND ON SHT A-610.
7. WINDOW SCHEDULES MAY BE FOUND ON SHT A-610.
8. SEE FIRE PROTECTION SHEETS FOR LOCATIONS OF FIRE AND SMOKE RATED WALLS AND PARTITIONS.
9. SEE SHT A-810 FOR ACCESSORY MOUNTING HEIGHTS, DIMENSIONS AND ACCESSORY ABBREVIATIONS.
10. SEE SPEC SECTION 11 31 13 FOR KITCHEN EQUIPMENT.
11. SEE SPEC SECTION 10 44 16 FOR FEC.
12. SEE SPEC SECTION 10 43 13 FOR AED.

FLOOR PLAN ORIENTATION NOTE:

SITE PLAN DRAWINGS AND BUILDING PLAN DRAWINGS SHOW DIFFERENT BUILDING ORIENTATIONS AND PROXIMATIES. SITE PLAN DRAWINGS ARE ORIENTED TRUE NORTH. BUILDING PLANS ARE ORIENTED WITH TRUE NORTH TO THE RIGHT ON THE SHEET. CONTRACTOR SHALL TAKE CARE TO COORDINATE WORK ACCOUNTING FOR DIFFERENCE IN SITE PLAN AND BUILDING PLAN ORIENTATIONS.

PLAN NORTH

0 1' 2' 4'

US Army Corps of Engineers ®

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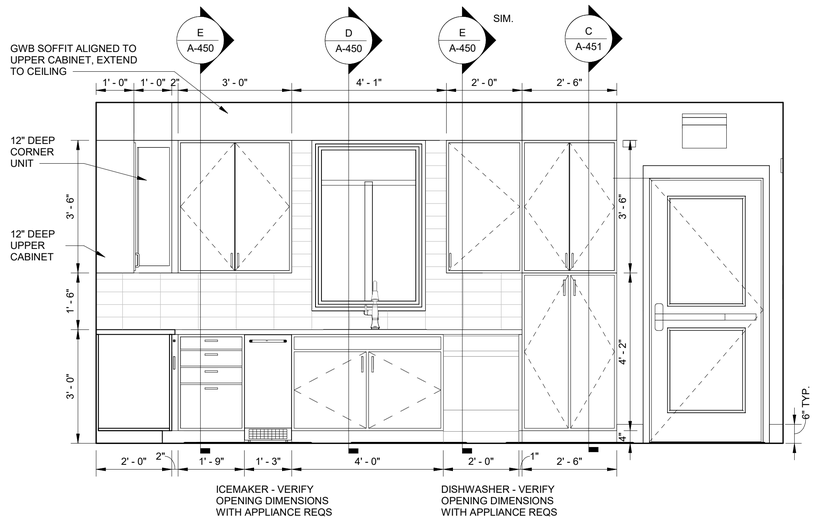
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

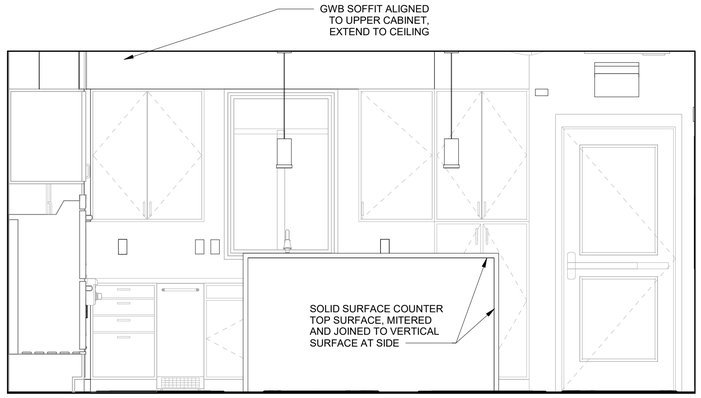
ENLARGED PLANS

SHEET ID

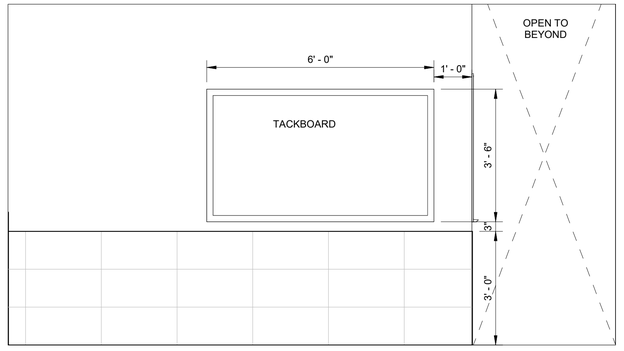
A-420



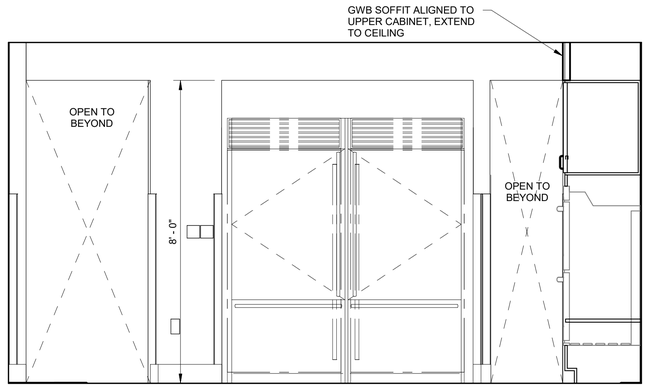
A KITCHEN - NORTH ELEVATION
1/2" = 1'-0"



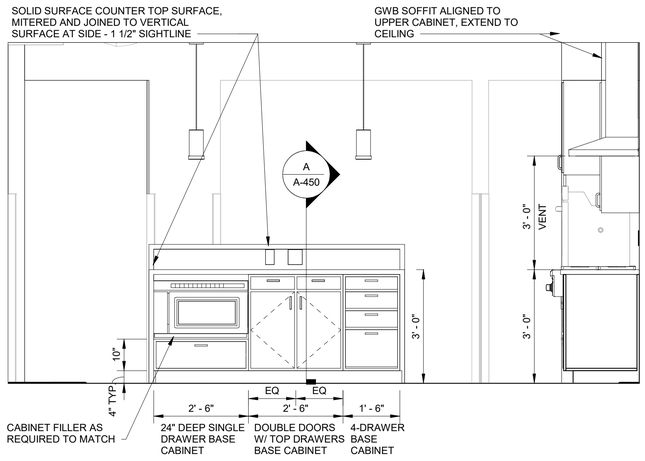
B KITCHEN - NORTH ELEVATION
1/2" = 1'-0"



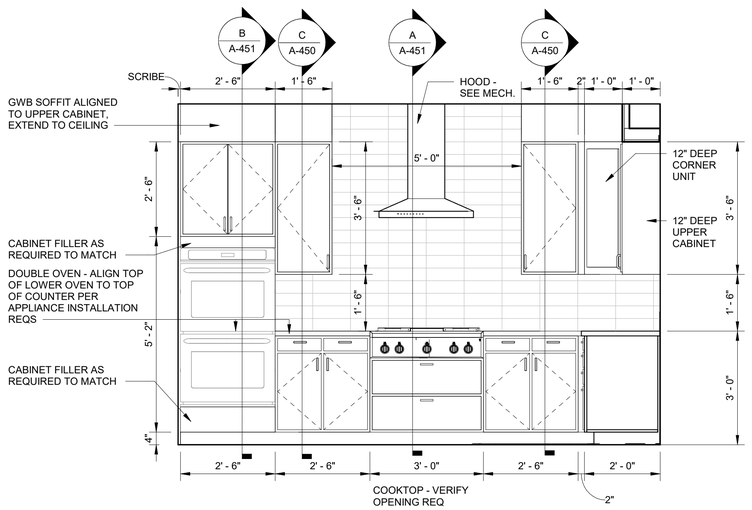
C KITCHEN - EAST ELEVATION
1/2" = 1'-0"



D KITCHEN - SOUTH ELEVATION
1/2" = 1'-0"



E KITCHEN - SOUTH ELEVATION
1/2" = 1'-0"



F KITCHEN - WEST ELEVATION
1/2" = 1'-0"

SOLID SURFACE "WATERFALL" VERTICAL COUNTERTOP

G KITCHEN - WEST ELEVATION
1/2" = 1'-0"

INTERIOR ELEVATIONS GENERAL NOTES:

1. SEE SHT A-600 FOR ROOM FINISH SCHEDULE
2. SEE SPECIFICATION 09 06 00 SCHEDULES FOR FINISHES FOR ALL COLOR AND MATERIAL REFERENCES.
3. SEE SHT A-810 FOR ACCESSORY MOUNTING HEIGHTS, DIMENSIONS AND ACCESSORY ABBREVIATIONS.
4. SEE SPECIFICATION 10 51 13 METAL LOCKERS FOR LOCKER TYPES.
5. PROVIDE ADJUSTABLE/REMOVABLE SHELVING FOR CABINETRY
6. SEE A-800 FOR TYP. LAVATORY SINK SECTION
7. TILE SHALL BE CENTERED ON WALL SO THAT EITHER THE GROUT LINE OR THE MIDPOINT OF THE TILE IS CENTERED ON THE WALL, SO AS TO MINIMIZE SMALL SLIVERS OF TILE AT WALL CORNERS

0 1' 2' 4'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

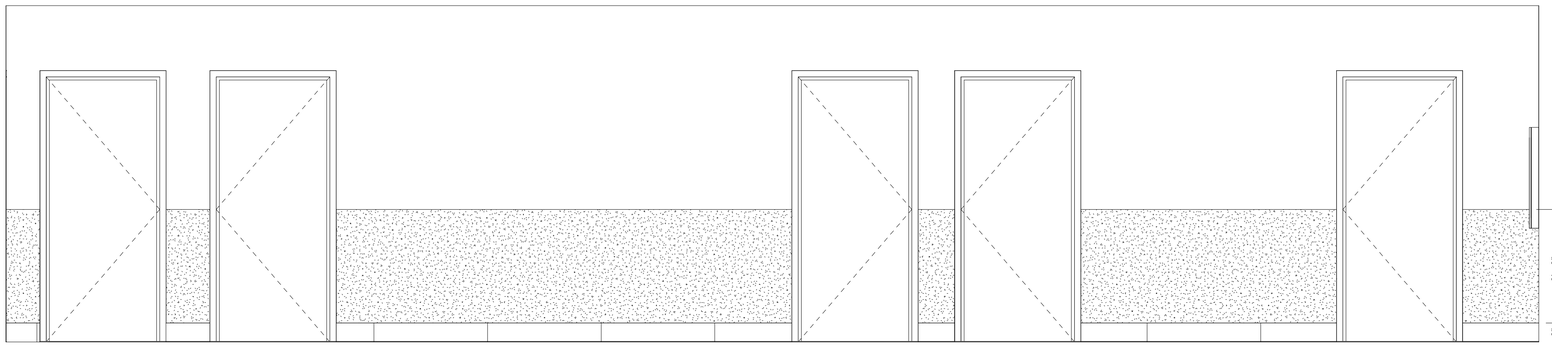
DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI 'D'
FILE NAME: FCDR-FSTN-A1.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

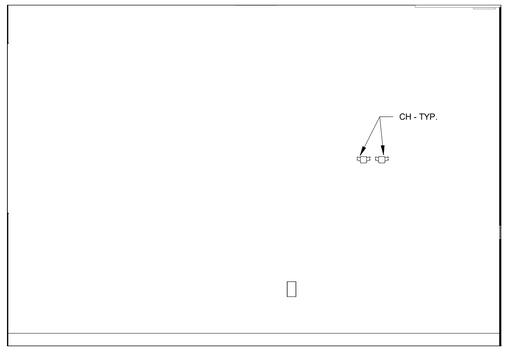
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FY 101468 (FY23)

INTERIOR ELEVATIONS

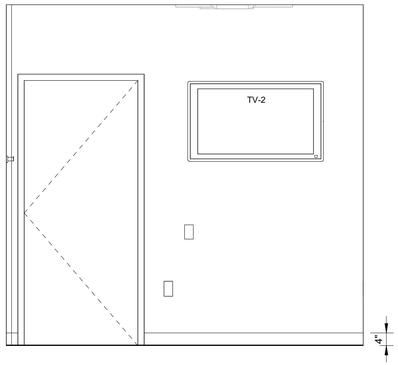
SHEET ID
A-430



A CORRIDOR - WEST ELEVATION
1/2" = 1'-0"



B TYPICAL DORM ROOM - NORTH ELEVATION
1/2" = 1'-0"



C TYPICAL DORM ROOM - EAST ELEVATION
1/2" = 1'-0"

INTERIOR ELEVATIONS GENERAL NOTES:

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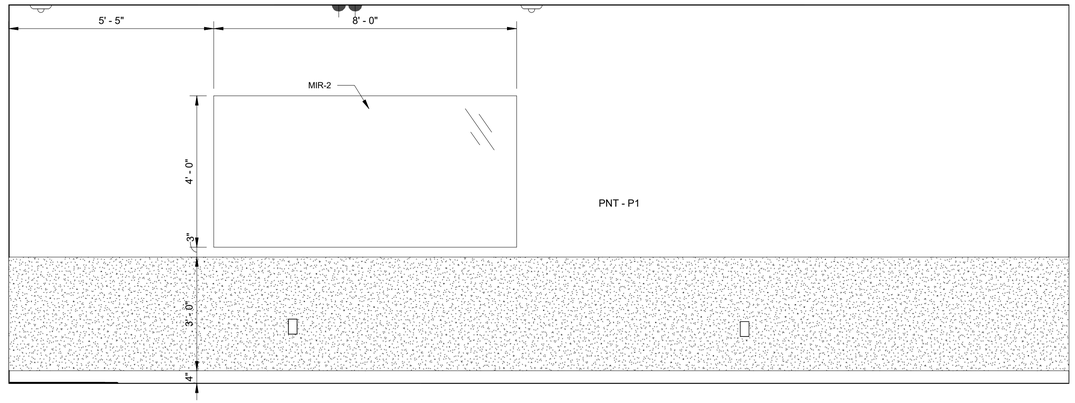
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101468 (FY23)

INTERIOR ELEVATIONS

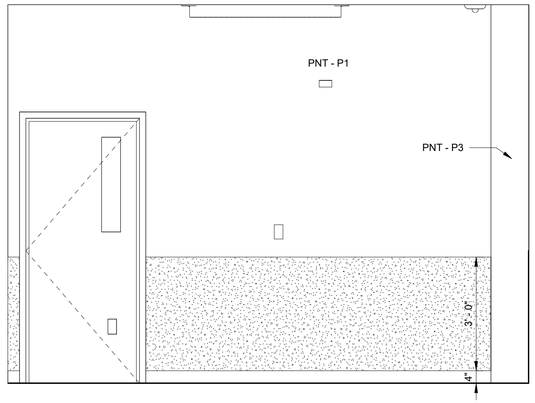
SHEET ID

A-431



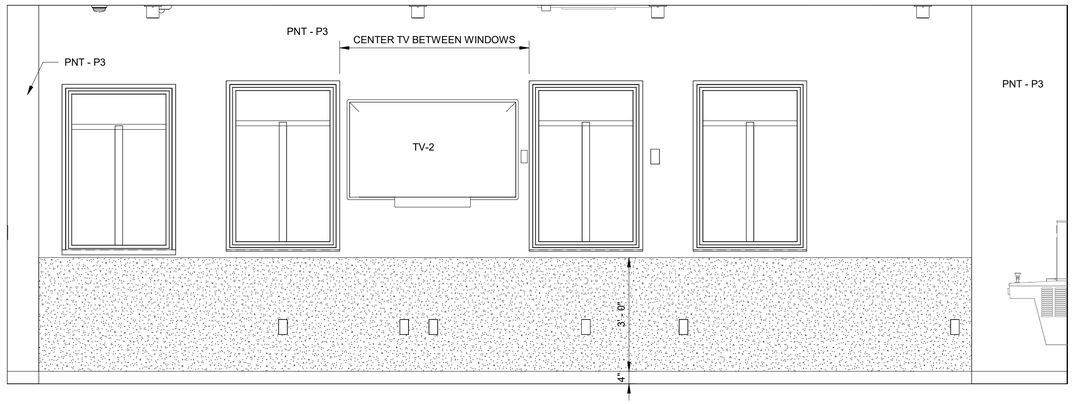
A FITNESS ROOM - NORTH ELEVATION

1/2" = 1'-0"



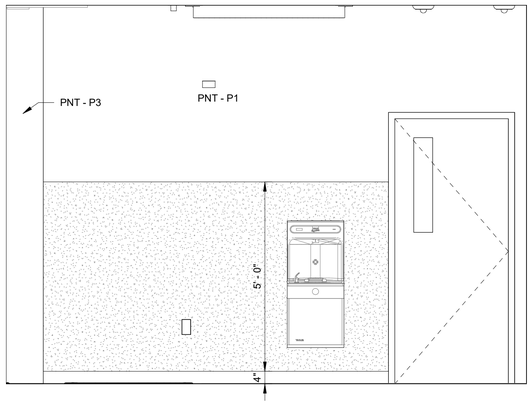
B FITNESS ROOM - EAST ELEVATION

1/2" = 1'-0"



C FITNESS ROOM - SOUTH ELEVATION

1/2" = 1'-0"



D FITNESS ROOM - WEST ELEVATION

1/2" = 1'-0"

INTERIOR ELEVATIONS GENERAL NOTES:

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US Army Corps of Engineers ®

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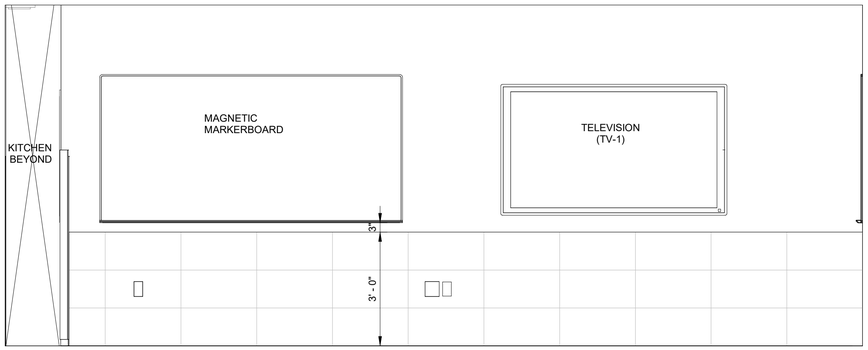
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101468 (FY23)

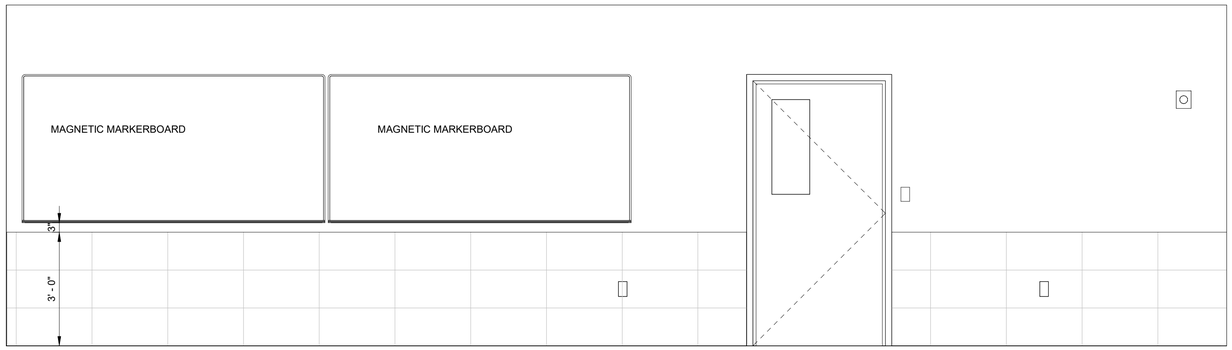
INTERIOR ELEVATIONS

SHEET ID

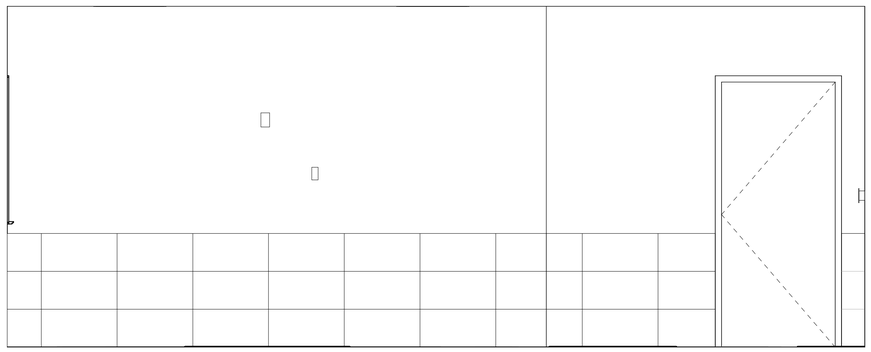
A-432



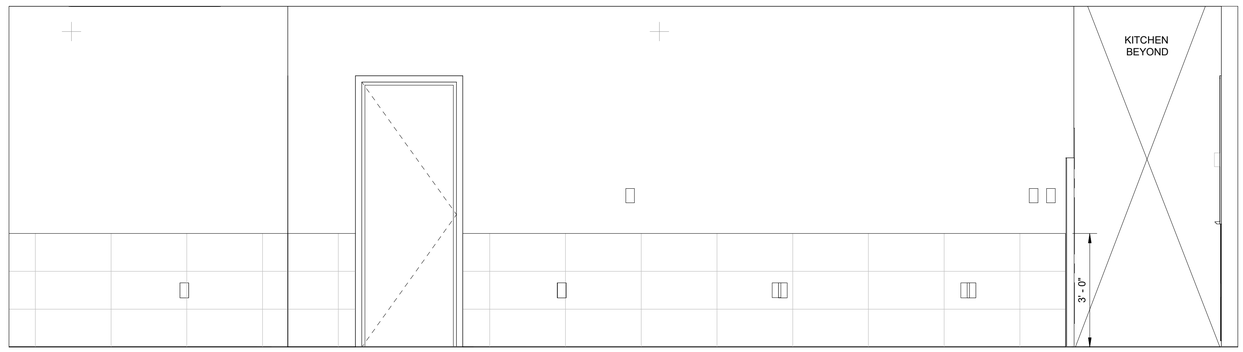
A DAY AND CREW ROOM - NORTH ELEVATION
1/2" = 1'-0"



B DAY AND CREW ROOM - EAST ELEVATION
1/2" = 1'-0"



C DAY AND CREW ROOM - SOUTH ELEVATION
1/2" = 1'-0"



D DAY AND CREW ROOM - WEST ELEVATION
1/2" = 1'-0"

INTERIOR ELEVATIONS GENERAL NOTES:

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US Army Corps of Engineers ®

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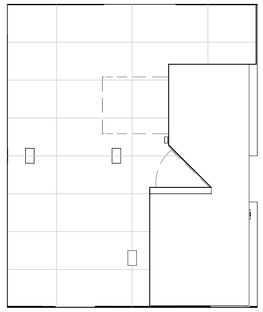
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101468 (FY23)

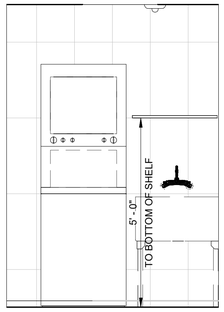
INTERIOR ELEVATIONS

SHEET ID

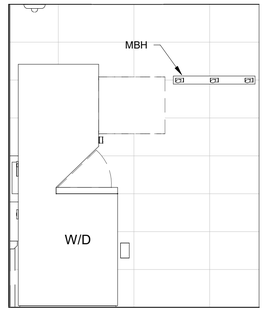
A-433



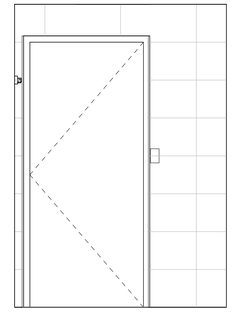
A LAUNDRY ROOM - NORTH ELEVATION
1/2" = 1'-0"



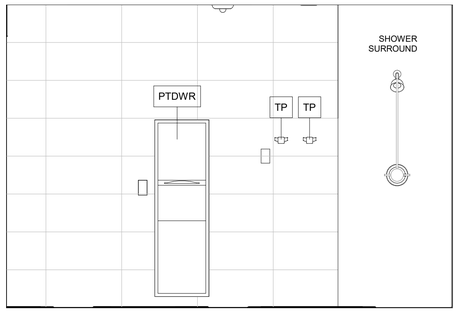
B LAUNDRY ROOM - EAST ELEVATION
1/2" = 1'-0"



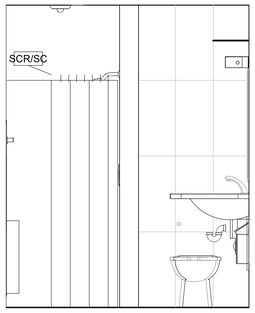
C LAUNDRY ROOM - SOUTH ELEVATION
1/2" = 1'-0"



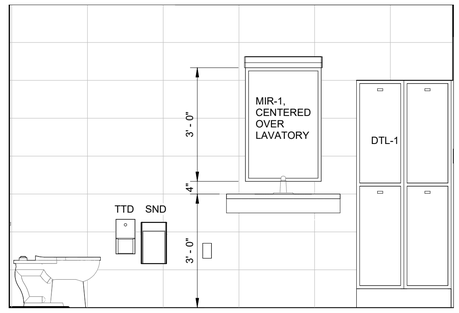
D LAUNDRY ROOM - WEST ELEVATION
1/2" = 1'-0"



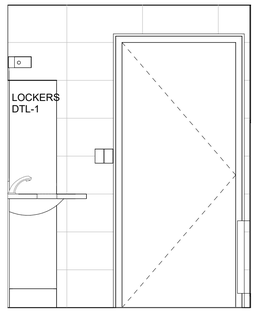
E RM 11 - NORTH ELEVATION
1/2" = 1'-0"



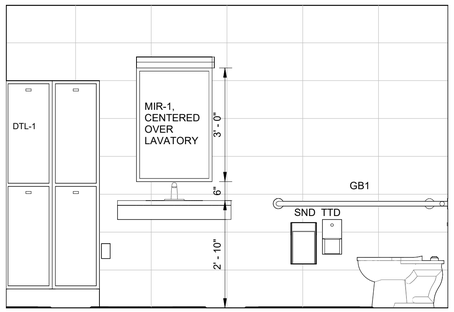
F RM 11 - EAST ELEVATION
1/2" = 1'-0"



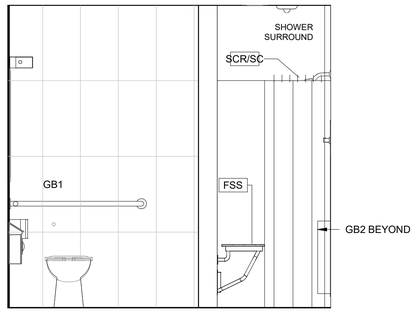
G RM 11 - SOUTH ELEVATION
1/2" = 1'-0"



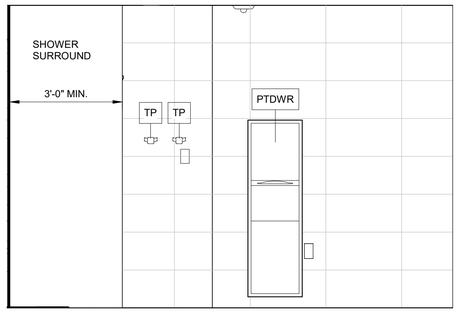
H RM 11 - WEST ELEVATION
1/2" = 1'-0"



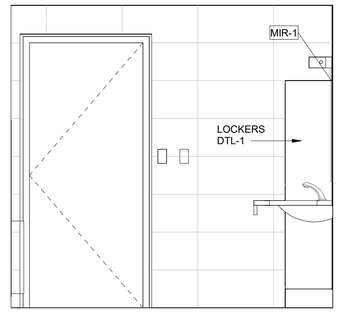
J RM 13 - NORTH ELEVATION
1/2" = 1'-0"



K RM 13 - EAST ELEVATION
1/2" = 1'-0"



L RM 13 - SOUTH ELEVATION
1/2" = 1'-0"



M RM 13 - WEST ELEVATION
1/2" = 1'-0"

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0 1' 2' 4'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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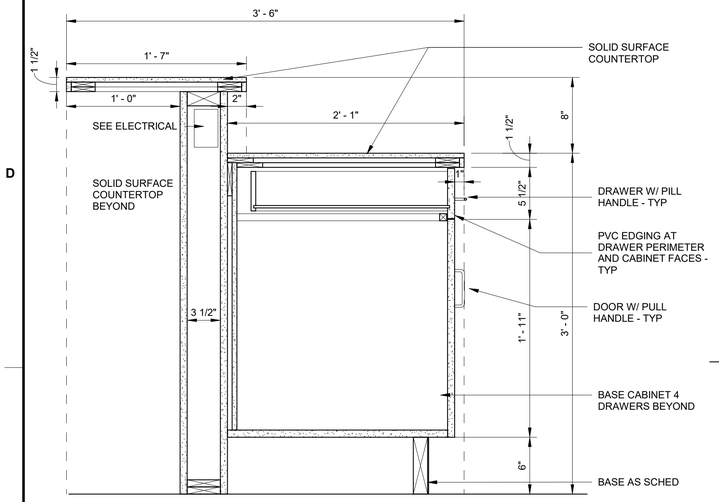
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

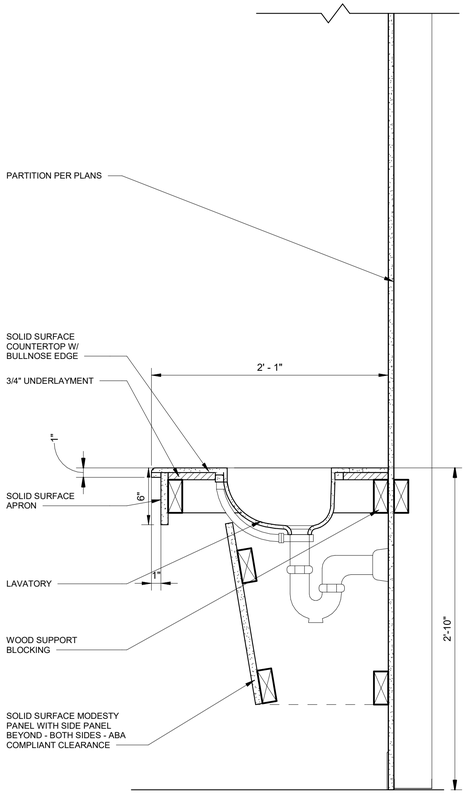
INTERIOR ELEVATIONS

SHEET ID
A-434



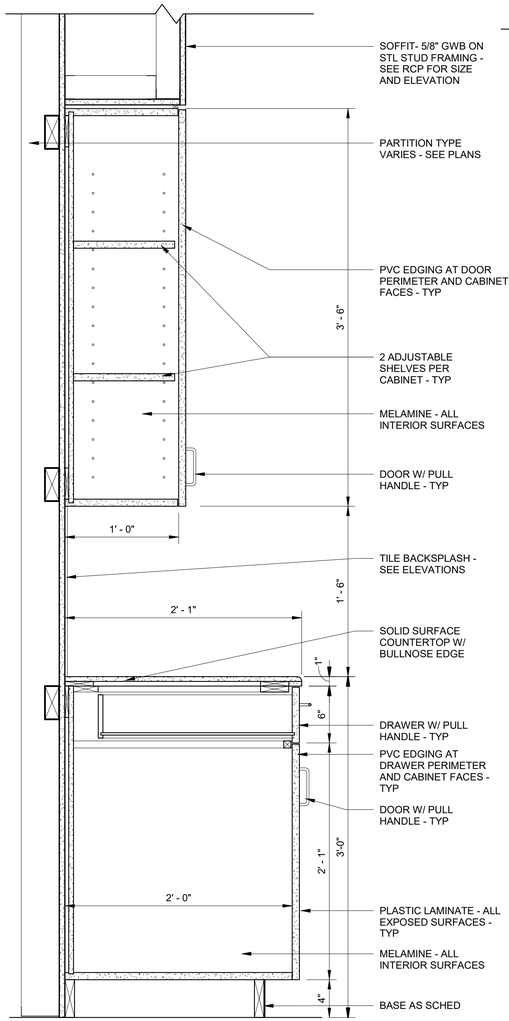
A CABINET SECTION

1 1/2" = 1'-0"



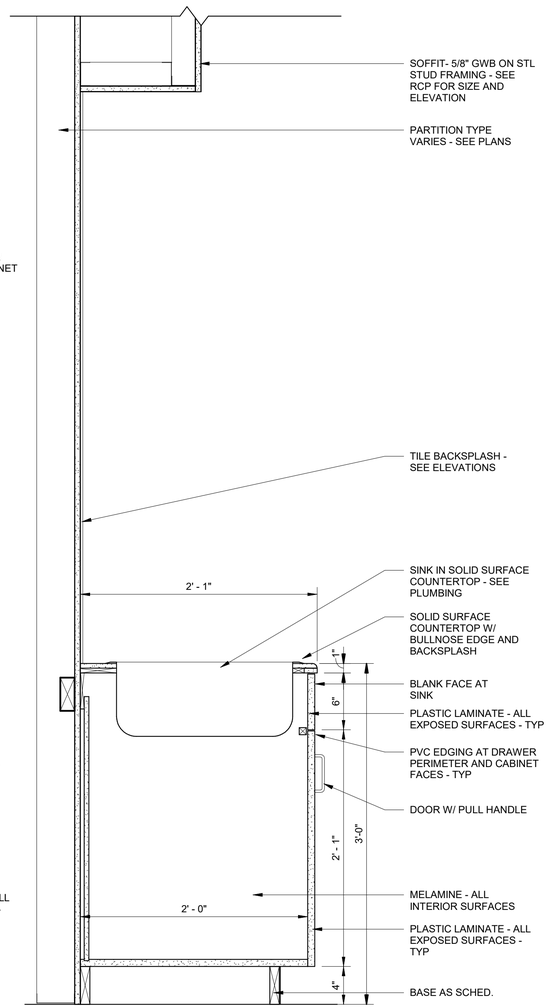
B TYPICAL LAVATORY SINK SECTION

1 1/2" = 1'-0"



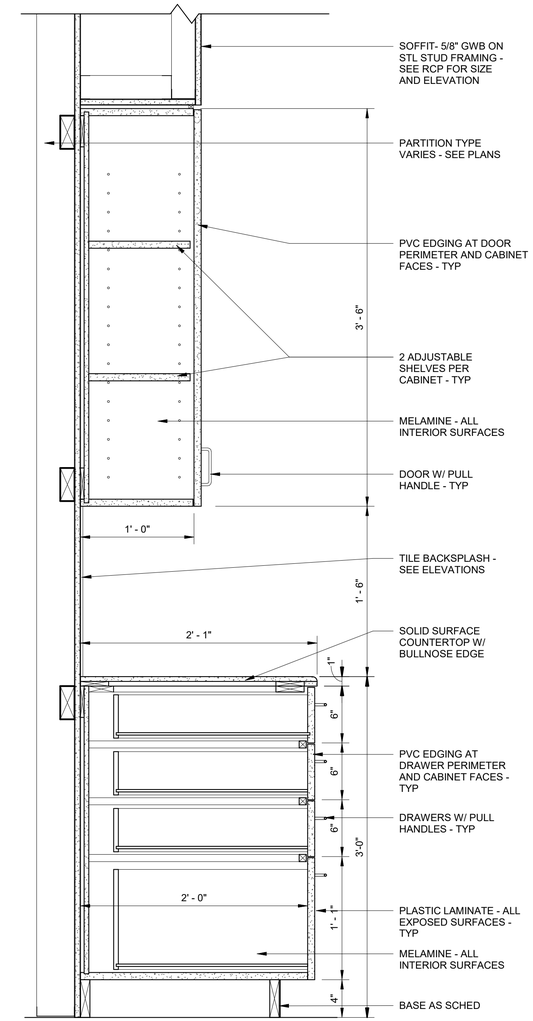
C CABINET SECTION

1 1/2" = 1'-0"



D CABINET SECTION

1 1/2" = 1'-0"



E CABINET SECTION

1 1/2" = 1'-0"

0 6" 1' 2'

US Army Corps of Engineers ®

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SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

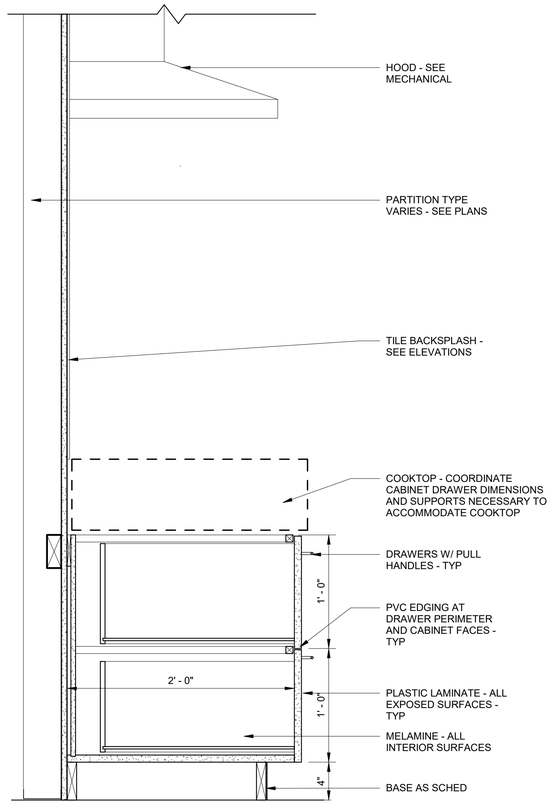
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

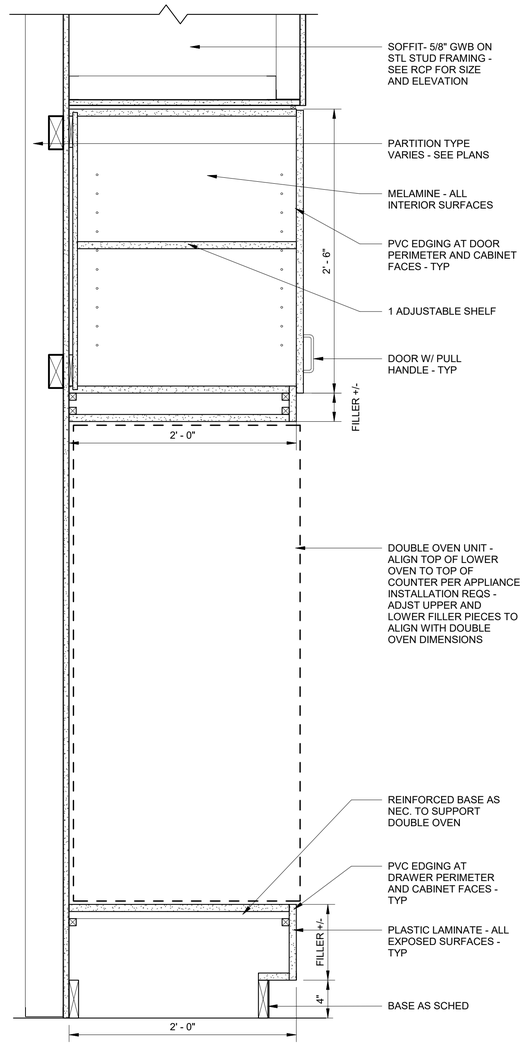
CABINETRY AND CASEWORK SECTIONS

SHEET ID

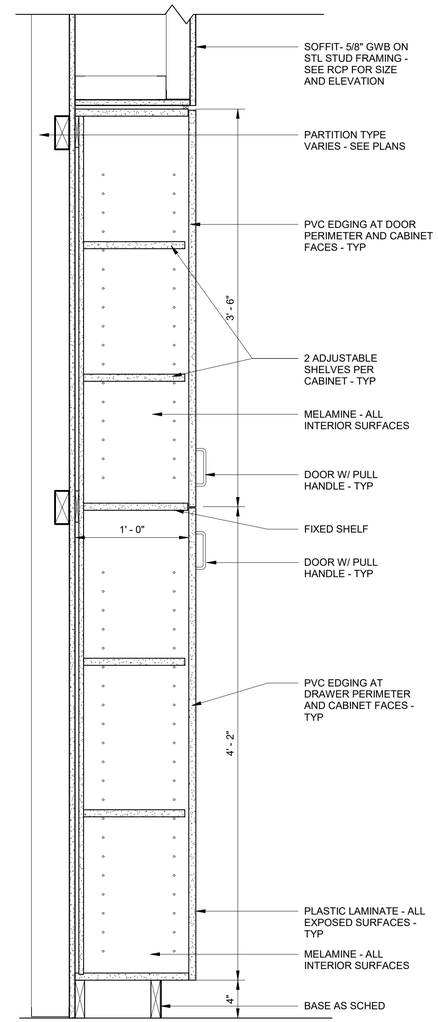
A-450



A CABINET SECTION
1 1/2" = 1'-0"



B CABINET SECTION
1 1/2" = 1'-0"



C CABINET SECTION
1 1/2" = 1'-0"

0 6" 1' 2'

US Army Corps of Engineers ®

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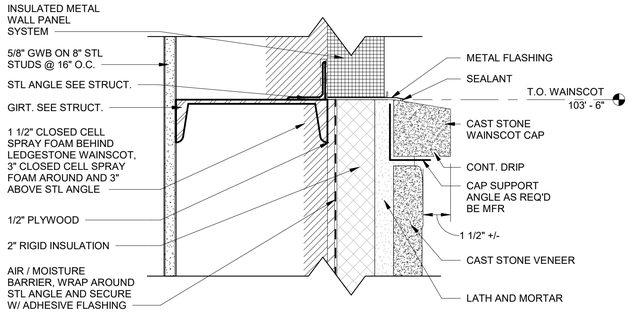
FILE NAME: FCOR-FSTN-A1.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

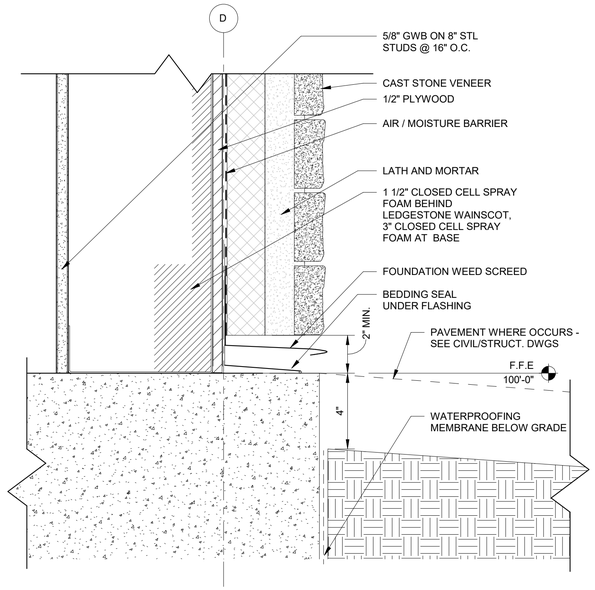
CABINETRY AND CASEWORK SECTIONS

SHEET ID
A-451



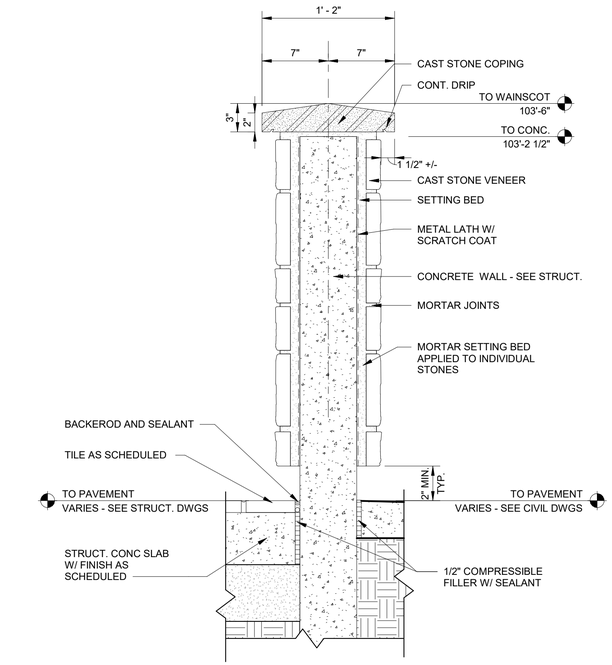
A LEDGE STONE TO METAL PANEL (TYP.)

3" = 1'-0"



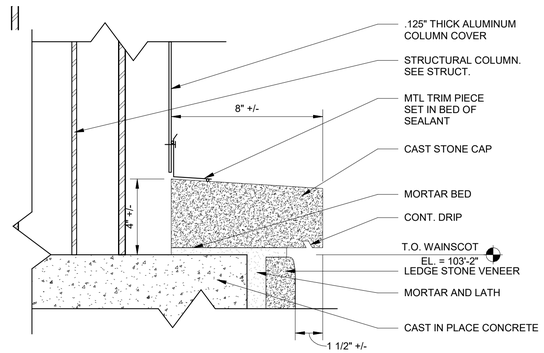
B STONE VENEER AT GRADE

3" = 1'-0"



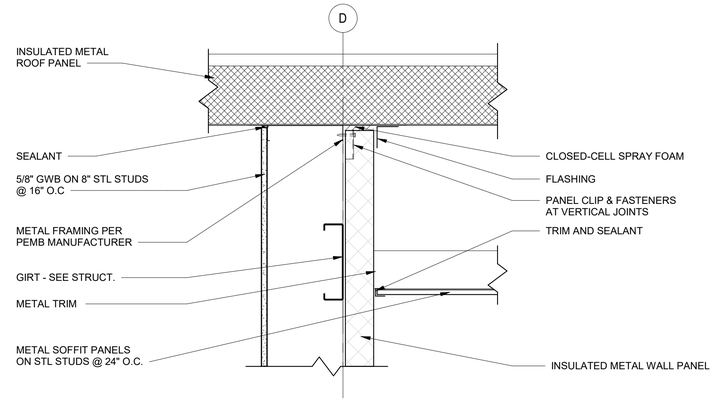
D CONCRETE WALL WITH STONE VENEER

1 1/2" = 1'-0"



C FRONT ENTRANCE DETAIL

3" = 1'-0"



E ENTRANCE CANOPY TO INTERIOR

1 1/2" = 1'-0"

0 6" 1' 2'

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D'	FILE NAME: FCDR-FSTN-A1.rvt

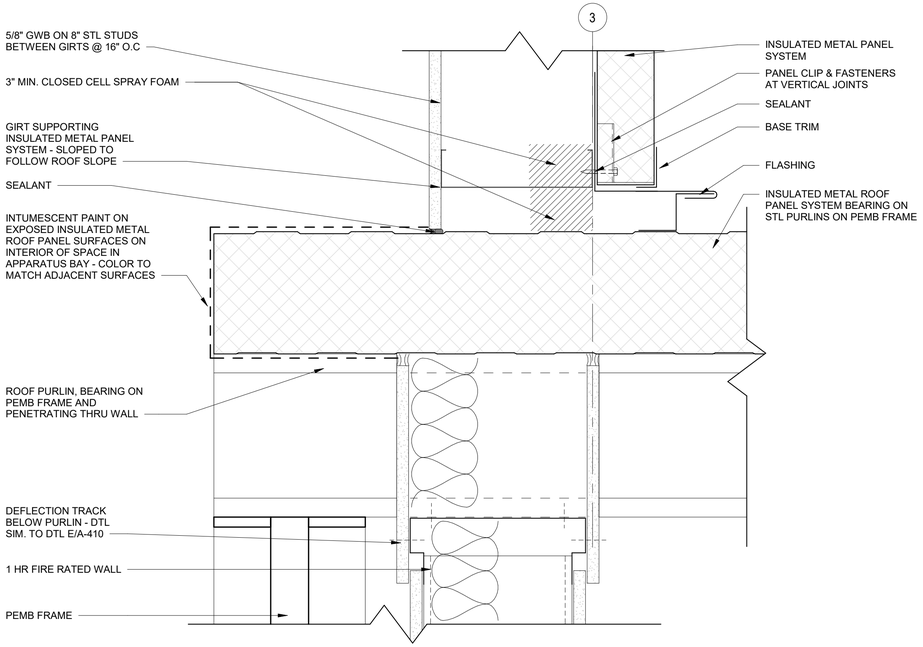
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

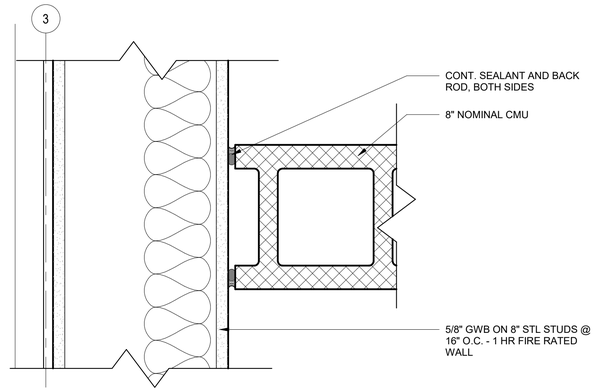
WALL DETAILS

SHEET ID

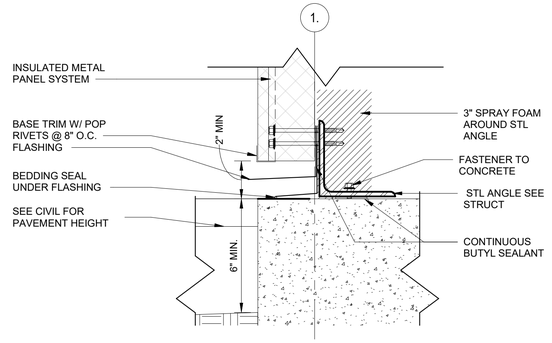
A-510



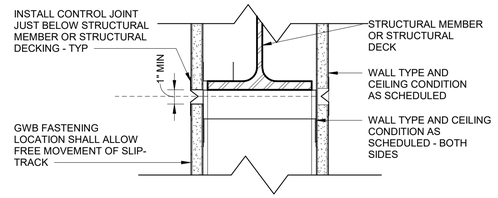
A WALL TO ROOF DETAIL
3" = 1'-0"



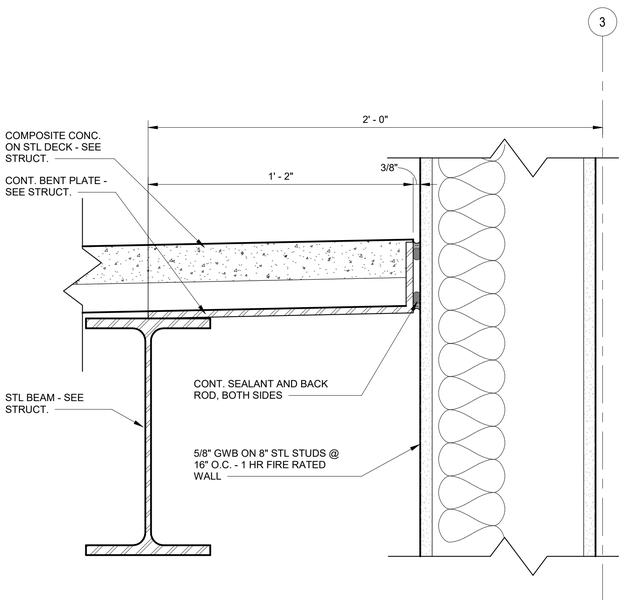
C CMU TO FIRE RATED WALL DETAIL
3" = 1'-0"



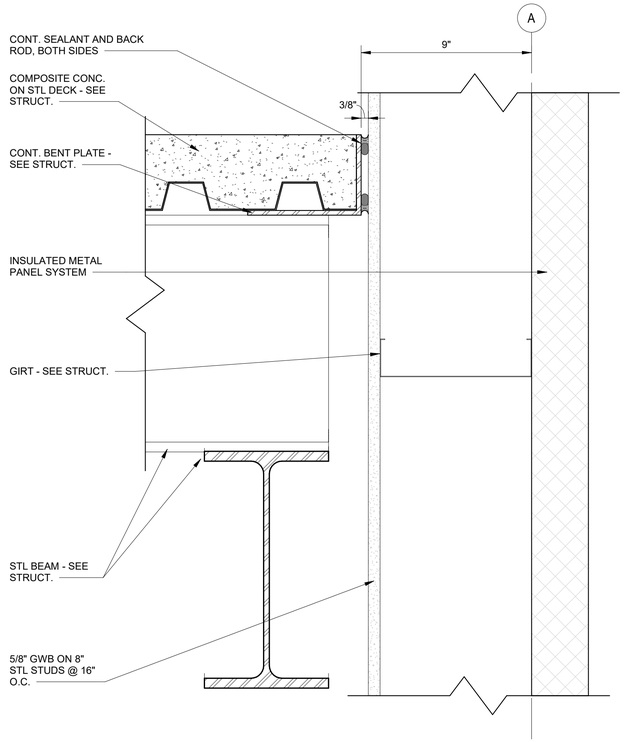
E STORAGE BLDG WALL BASE DETAIL
3" = 1'-0"



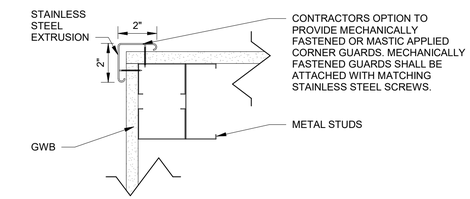
F GWB CONTROL JOINT DETAIL
3" = 1'-0"



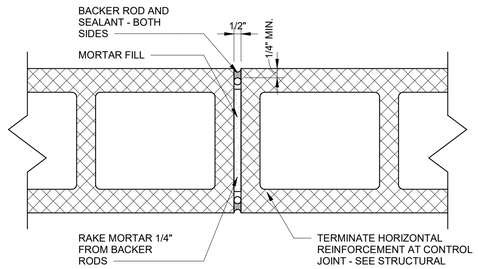
B CONC. LID TO WALL DETAIL 1
3" = 1'-0"



D CONC. LID TO WALL DETAIL 2
3" = 1'-0"



G TYP CORNER GUARD (CG)
3" = 1'-0"



H MASONRY CONTROL JOINT
3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
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FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

WALL DETAILS

SHEET ID
A-511

ROOM FINISH SCHEDULE - FIRE STATION

	ROOM NAME	WALL FINISHES					FLOOR	CEILINGS		NOTES & REMARKS (SEE SCHEDULE NOTES)
		NORTH	EAST	SOUTH	WEST	BASE		MATERIAL	HEIGHT	
00	VESTIBULE	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	MC/PT	WOM	GWB/P	9'-0"	
01	STORAGE	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	MC/PT	PT	ATC	8' - 0"	
02	DORM	GWB/VWC	GWB/PNT	GWB/PNT	GWB/PNT	RB	CONC/CPT	GWB/PNT	9'-0"	
03	DORM	GWB/VWC	GWB/PNT	GWB/PNT	GWB/PNT	RB	CONC/CPT	GWB/PNT	9'-0"	
04	DORM	GWB/PNT	GWB/PNT	GWB/VWC	GWB/PNT	RB	CONC/CPT	GWB/PNT	9'-0"	
05	DORM	GWB/VWC	GWB/PNT	GWB/PNT	GWB/PNT	RB	CONC/CPT	GWB/PNT	9'-0"	
06	OFFICE	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	RB	CONC/CPT	GWB/PNT	9'-0"	
07	DORM	GWB/PNT	GWB/PNT	GWB/VWC	GWB/PNT	RB	CONC/CPT	GWB/PNT	9'-0"	
08	KITCHEN	GWB/PNT/PT	GWB/PNT/PT	GWB/PNT	GWB/PNT/PT	MC/RB	CONC/PT	GWB/PNT	9'-0"	
09	PANTRY	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	MC/PT	CONC/PT	GWB/PNT	8' - 0"	
10	LAUNDRY	GWB/PT	GWB/PT	GWB/PT	GWB/PT	MC	CONC/PT	GWB/PNT	8' - 0"	
11	SHWR/TLT B	GWB/PT	GWB/PT	GWB/PT	GWB/PT	MC	CONC/PT	GWB/PNT	8' - 0"	
12	STORAGE	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	MC/PT	CONC/PT	ATC	8' - 0"	
13	SHWR/TLT A	GWB/PT	GWB/PT	GWB/PT	GWB/PT	MC	CONC/PT	GWB/PNT	8' - 0"	
14	FITNESS RM.	GWB/PW/PNT	GWB/PW/PNT	GWB/PW/PNT	GWB/PW/PNT	RB	CONC/AFT	GWB/PNT	10' - 0"	
15	TELECOM ROOM	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	PT	CONC/PT	GWB/PNT	VARIES	1
16	CREW OPEN OFFICE	-	GWB/PT/PNT	GWB/PT/PNT	GWB/PT/PNT	MC	CONC/PT	GWB/PNT	9'-0"	
17	STORAGE	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	MC/PT	CONC/PT	GWB/PNT	8' - 0"	
18	DAY ROOM	GWB/PT/PNT	GWB/PT/PNT	GWB/PT/PNT	GWB/PT	MC	CONC/PT	GWB/PNT	9'-0"	
19	ELEC.	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	RB	SC	EXP	VARIES	
20	MECH. ROOM	GWB/PNT	GWB/PNT	GWB/PNT	GWB/PNT	RB	SC	EXP	VARIES	
21	WORK ROOM	GWB/PNT	CMU/PNT	CMU/PNT	GWB/PNT	RB	SC	EXP	VARIES	2
22	APPARATUS BAY	GWB/FRP - GWB/PNT - CMU	GWB/FRP - GWB/PNT - CMU	GWB/FRP - GWB/PNT - CMU	GWB/FRP - GWB/PNT - CMU	RB	SC	EXP	VARIES	2, 3
23	CORRIDOR	GWB/PW/PNT	GWB/PW/PNT	GWB/PW/PNT	GWB/PW/PNT	MC/PT	CONC/PT	GWB/PNT	9'-0"	
24	CORRIDOR	GWB/PW/PNT	GWB/PW/PNT	GWB/PW/PNT	GWB/PW/PNT	MC/PT	CONC/PT	GWB/PNT	9'-0"	
25	PATIO	LS	LS	LS	LS	-	CONC/PT	MTL SOFFIT	12' - 3 1/2"	4
26	STORAGE BUILDING	EXP	EXP	EXP	EXP	-	CONC	EXP	VARIES	

FINISH LEGEND	
AFT	ATHLETIC FLOOR TILE
ATC	ACOUSTICAL TILE CEILING
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CPT	CARPET TILE
EXP	EXPOSED STRUCTURE
FRP	FIBER REINFORCED PLASTIC
GWB	GYPSUM WALL BOARD
LS	LEDGE STONE
MC	METAL COVE
MP	METAL PANEL
PNT	PAINT
PT	PORCELAIN TILE
PW	PROTECTIVE WALL COVERING
RB	RESILIENT BASE
SC	SEALED CONCRETE
VWC	VINYL WALL COVERING
WOM	WALK-OFF MAT

GENERAL NOTES:

1. SEE SPECIFICATION 09 06 00 SCHEDULES FOR FINISHES FOR ALL COLOR AND MATERIAL REFERENCES.
2. NORTH, SOUTH, EAST & WEST AS NOTED ON SCHEDULE SHALL BE ACCORDANCE WITH PLAN NORTH AS INDICATED ON PLAN.
3. PAINT ALL STRUCTURAL ELEMENTS WHERE FINISH IS "EXPOSED" TO INCLUDE PEMB FRAMING, COLUMNS, PURLINS AND SIMILAR. DO NOT PAINT PREFINISHED INTERIOR FACES OF INSULATED METAL PANELS AND INSULATED METAL ROOF PANELS.

ROOM FINISH NOTES:

1. PROVIDE 3/4" MIN A-C FIRE RATED PLYWOOD AS SHOWN ON ELECTRICAL. FINISH SHALL BE CLEAR SEALER AND FIRE RATED STAMP SHALL BE CLEARLY VISIBLE ON EACH PANEL.
2. FLOOR FINISH TO INCLUDE REFLECTIVE HARDNER AND SLIP-RESISTIVE COATING.
3. FRP (FIBER REINFORCED PLASTIC) TO 16' AFF, PAINTED GWB OVER 16' AFF.
4. LOW SPEED HIGH VOLUME FAN LOCATED BELOW STRUCTURE.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ
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CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
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OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

ROOM FINISH SCHEDULE

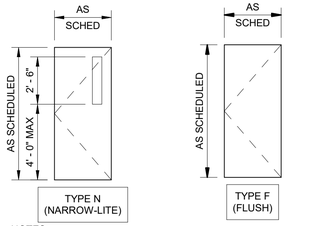
SHEET ID

A-600

DOOR SCHEDULE - WORKING

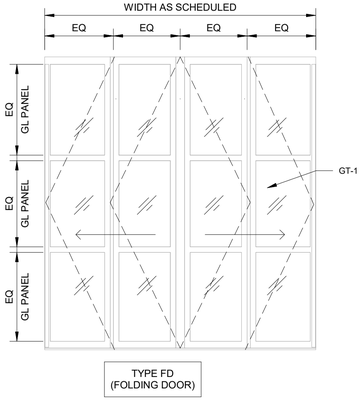
DOOR NUMBER	DOOR TYPE	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICKNESS	DOOR MATERIAL	DOOR FINISH	FIRE RATING	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	FRAME DETAILS HEAD	FRAME DETAILS JAMB	FRAME DETAILS SILL	HARDWARE	REMARKS
00A	FG	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	E/A-701	F/A-701	D/A-701	HW-14.0	
00B	FG	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	A/A-701	B/A-701	D/A-701	HW-2.0	
01	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-8.0	
02	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-6.0	
03	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-6.0	
04	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-6.0	
05	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-6.0	
06	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-10.0	
07	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-6.0	
08	FG	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	E/A-701	F/A-701	G/A-701	HW-1.0	
10	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-9.0	
11	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-4.0	
12	F	2' - 6"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-8.0	
13	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-4.0	
14	N	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-12.0	
15	F	3' - 0"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-11.0	
17	F	2' - 6"	7' - 0"	1 3/4"	WD	STAIN	-	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-8.0	
19	F	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	E/A-701	F/A-701	G/A-701	HW-3.0	
20	F	4' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	E/A-701	F/A-701	G/A-701	HW-3.0	
21	N	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	B	HM	PAINT	G/A-700	H/A-700	C/A-701	HW-7.0	
21.1	OHC	10' - 0"	10' - 0"	-	HM	FF	-	-	HM	FF	A/A-700	B/A-700	C/A-700	-	
22.1	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22.2	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22.3	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22.4	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22.5	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22.6	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22.7	FD	14' - 0"	15' - 4"	-	HM	FF	-	-	HM	FF	D/A-700	E/A-700	F/A-700	-	
22A	N	3' - 6"	7' - 0"	1 3/4"	HM	PAINT	1 HR	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-5.0	
22B	N	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	E/A-701	F/A-701	G/A-701	HW-1.0	
22C	N	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	E/A-701	F/A-701	G/A-701	HW-1.0	
22D	N	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	1 HR	A	HM	PAINT	A/A-701	B/A-701	C/A-701	HW-5.0	
26A	OHS	8' - 0"	8' - 0"	-	HM	FF	-	-	-	FF	H/A-701	I/A-701	J/A-701	-	
26B	F	3' - 0"	7' - 0"	1 3/4"	HM	PAINT	-	A	HM	PAINT	A/A-702	B/A-702	C/A-702	HW-13.0	

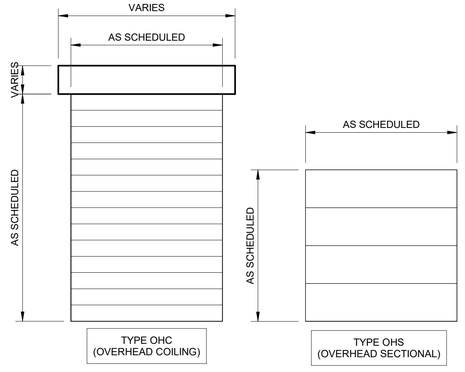
GENERAL NOTES - DOORS:
1. ALL EXTERIOR HM DOORS SHALL BE INSULATED. INSULATE EXTERIOR HM FRAMES WITH SPRAY POLYURETHANE FOAM.
2. PROVIDE THERMALLY BROKEN FRAME AT ALL EXTERIOR DOOR/FRAME LOCATIONS.
3. ALL EXTERIOR DOORS AND FRAMES SHALL BE PROVIDED WITH TAMPER-PROOF SECURITY FASTENERS. PROVIDE SECURITY PINS ON HINGES.
4. SEE SPECIFICATION 08 71 00 "DOOR HARDWARE" FOR HARDWARE SCHEDULE.
5. AT DOUBLE DOORS WHERE INACTIVE LEAF IS IDENTIFIED, THE LEFT DOOR PANEL IN THE DIRECTION OF EGRESS OR THE RIGHT DOOR PANEL IN THE DIRECTION OF ENTRY SHALL BE TREATED AS THE ACTIVE LEAF.
6. EXTERIOR DOORS ARE COMPONENT OF THE BUILDING AIR BARRIER ASSEMBLY. EXTERIOR DOOR ASSEMBLIES SHALL CONFORM TO AIR INFILTRATION REQUIREMENTS SPECIFIED.



NOTES:
1. MEDIUM STILE UNO
2. GT-1 @ EXTERIOR DOORS
5. GT-3 @ INTERIOR DOORS IN 1 HOUR FIRE-RATED PARTITIONS

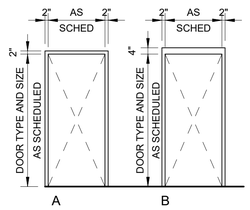
NOTES:
1. WIDE STILE UNO
2. GT-1 @ EXTERIOR DOORS
3. GT-2 @ INTERIOR DOORS





DOOR TYPES

SCALE: NOT TO SCALE



FRAME TYPES

SCALE: NOT TO SCALE

WINDOW SCHEDULE

MARK	COUNT	ROUGH OPENING WIDTH	ROUGH OPENING HEIGHT	FRAME FINISH	FRAME MATERIAL	GLAZING TYPE	GLAZING THICKNESS	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	REMARKS
A	13	3' - 0"	4' - 6"	PAINT	HM	GT-1	1"	D/A-702	E/A-702	F/A-702	

GENERAL NOTES - WINDOWS:
1. ALL DIMENSIONS FOR WINDOWS SHALL BE FIELD VERIFIED PRIOR TO ORDERING WINDOWS.
2. GLAZING TYPE THICKNESSES ARE NOMINAL. PROVIDE GLAZING UNIT THICKNESS APPROPRIATE FOR THE DESIGN LOADS AND CONDITIONS.
3. SEE SPECIFICATION 08 81 00 GLAZING FOR FINISH AND GLAZING TINT REQUIREMENTS.
4. EXTERIOR WINDOWS ARE COMPONENT OF THE BUILDING AIR BARRIER ASSEMBLY. EXTERIOR WINDOW ASSEMBLIES SHALL CONFORM TO AIR INFILTRATION REQUIREMENTS SPECIFIED.

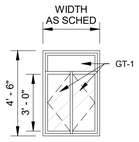
WINDOW SCHEDULE NOTES:
1. PROVIDE DETAILS IN ACCORDANCE WITH TECHNICAL REQUIREMENTS OF SPECIFICATION 08 51 23 STEEL WINDOWS.
2. SEE DRAWING A-433 FOR INTERIOR WINDOW ELEVATION.

GLASS TYPES:

GT-1 1" INSULATED, LOW-E, TINTED, BLAST RESISTANT (LAMINATED) GLAZING UNIT (EXTERIOR 1/4" TINTED, TEMPERED, LOW-E PANE + 1/2" ARGON-FILLED AIRSPACE + 1/4" INTERIOR CLEAR LAMINATED TEMPERED PANE)

GT-2 1/4" CLEAR SAFETY GLASS (1/4" CLEAR TEMPERED PANE)

GT-3 CLEAR FIRE RATED GLASS - 60 MINUTES RATED



WINDOW TYPES

SCALE: NOT TO SCALE

LOUVER SCHEDULE

MARK	COUNT	FREE AREA WIDTH	FREE AREA HEIGHT	FRAME FINISH	FRAME MATERIAL	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	REMARKS
L-1	2	1' - 2"	1' - 2"	PAINT	STL	C1/A-701	B1/A-701	A1/A-701	-
L-2	2	3' - 0"	1' - 0"	PAINT	STL	C1/A-701	B1/A-701	A1/A-701	-
L-3	1	8' - 0"	4' - 0"	PAINT	STL	C1/A-701	B1/A-701	A1/A-701	-
L-4	1	12' - 0"	4' - 0"	PAINT	STL	C1/A-701	B1/A-701	A1/A-701	-
L-5	2	2' - 0"	2' - 0"	PAINT	STL	C1/A-701	B1/A-701	A1/A-701	-

GENERAL NOTES - LOUVERS:
1. BLANK OUT AND INSULATE ANY AREA OF LOUVER NOT BACKED BY A DUCT/DAMPER. SEE MECHANICAL DRAWINGS AND SPECIFICATIONS.
2. PROVIDE BIRD SCREENS BEHIND ALL LOUVERS.
3. LOUVER DIMENSIONS IN LOUVER SCHEDULE ARE FREE AREA, AND DO NOT INCLUDE LOUVER FRAME THICKNESS. SEE MECHANICAL.
4. LOUVER COLOR TO BE SHERWIN WILLIAMS, IRON ORE SW 7069.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

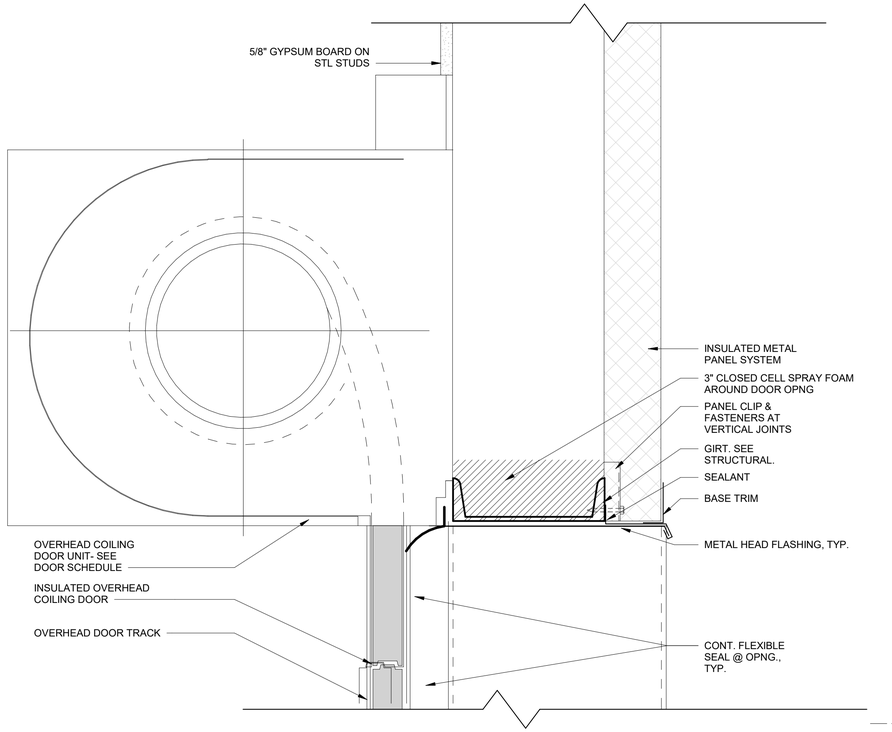
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI 'D'
FILE NAME: FCDR-FSTN-A1.rvt

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

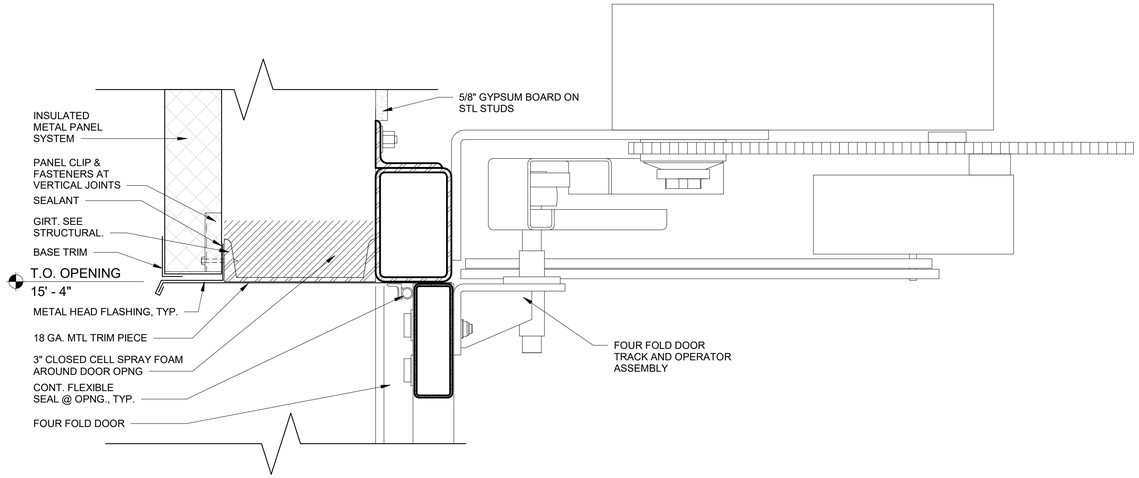
DOOR, WINDOW AND LOUVER SCHEDULES

SHEET ID

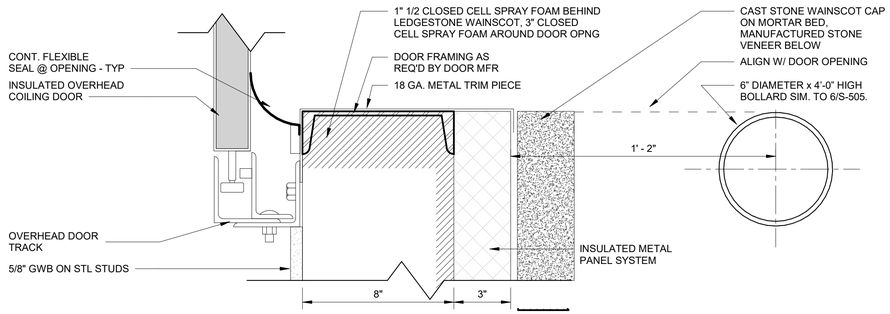
A-610



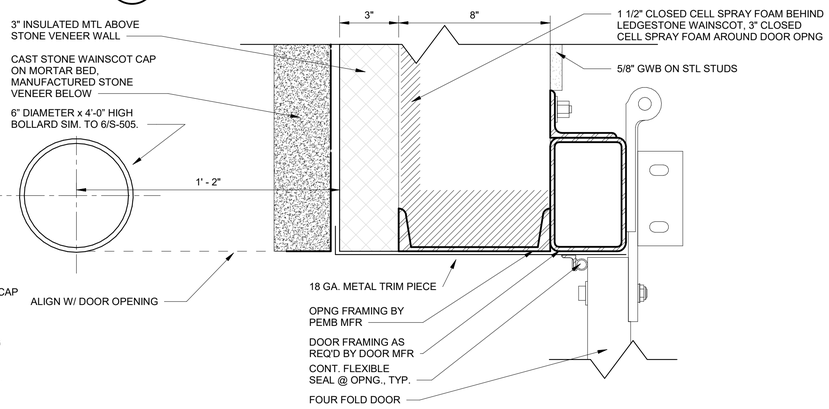
A OVERHEAD COILDING DOOR - HEAD
3" = 1'-0"



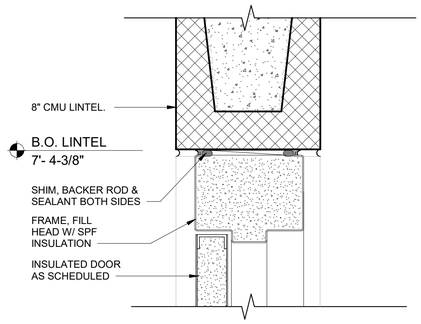
D FOUR FOLD DOOR - HEAD DETAIL
3" = 1'-0"



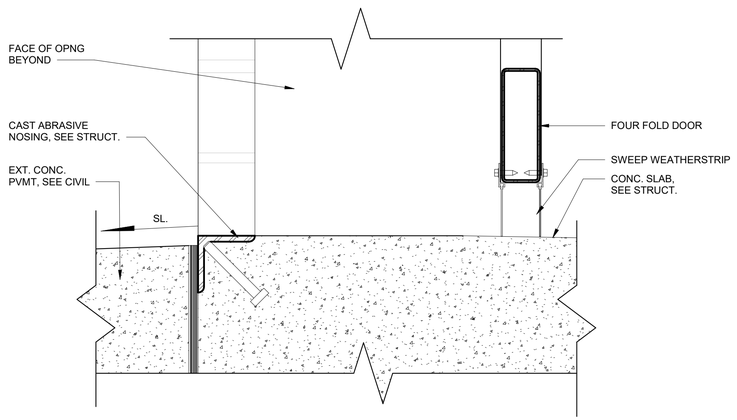
B OVERHEAD COILING DOOR - JAMB
3" = 1'-0"



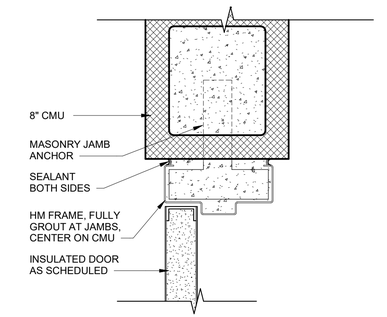
E FOUR FOLD DOOR - JAMB DETAIL
3" = 1'-0"



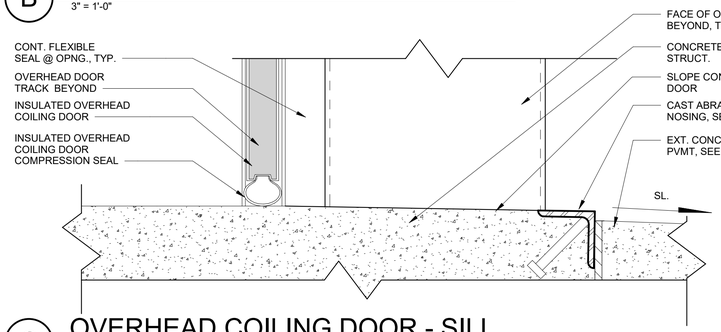
G HEAD DETAIL @ CMU
3" = 1'-0"



F FOUR FOLD DOOR - SILL DETAIL
3" = 1'-0"



H JAMB DETAIL @ CMU
3" = 1'-0"



C OVERHEAD COILING DOOR - SILL
3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

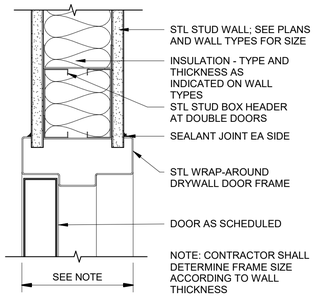
DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI D'
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-A1.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

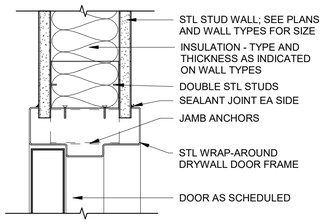
DOOR DETAILS

SHEET ID
A-700



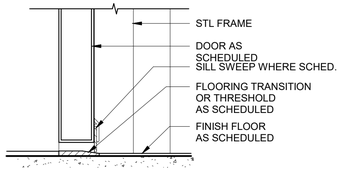
A HEAD DETAIL @ STEEL STUD WALL

3" = 1'-0"



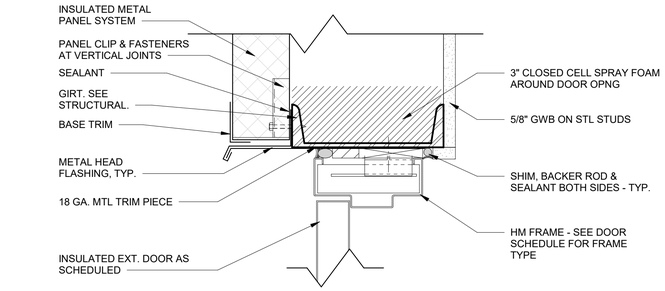
B JAMB DETAIL @ STEEL STUD WALL

3" = 1'-0"



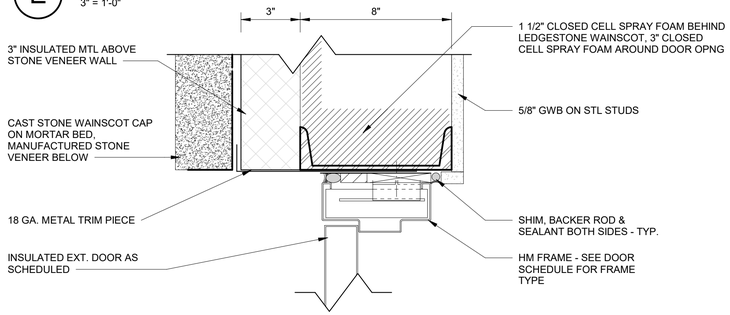
C SILL DETAIL

3" = 1'-0"



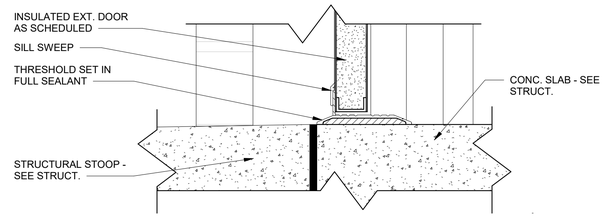
E DOOR HEAD AT EXTERIOR DETAIL

3" = 1'-0"



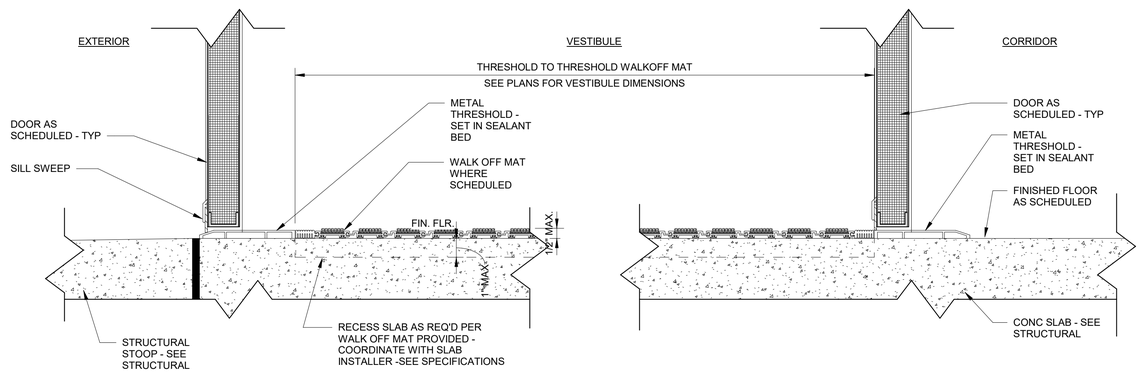
F DOOR JAMB AT EXTERIOR DETAIL

3" = 1'-0"



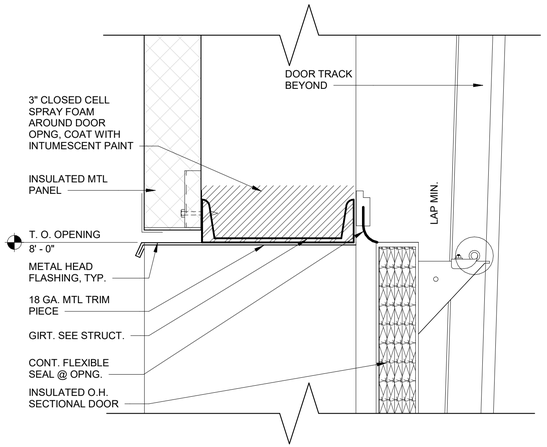
G DOOR SILL AT EXTERIOR DETAIL

3" = 1'-0"



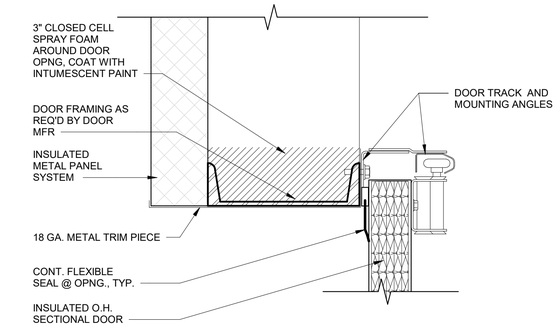
D SEMI-RECESSED WALKOFF MAT - TYP

3" = 1'-0"



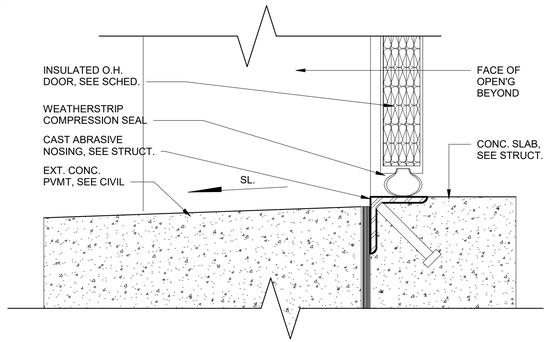
H OVERHEAD SECTIONAL DOOR - HEAD

3" = 1'-0"



I OVERHEAD SECTIONAL DOOR - JAMB

3" = 1'-0"



J OVERHEAD SECTIONAL DOOR - SILL

3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI 'D'	FILE NAME: FCDR-FSTN-A1.rvt

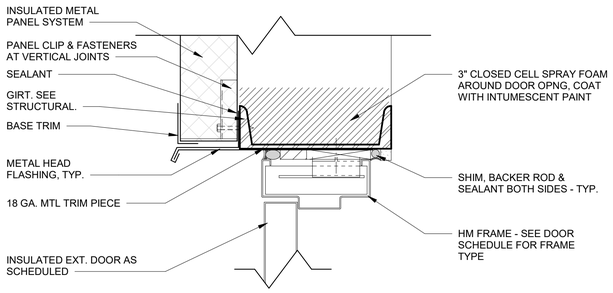
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

DOOR DETAILS

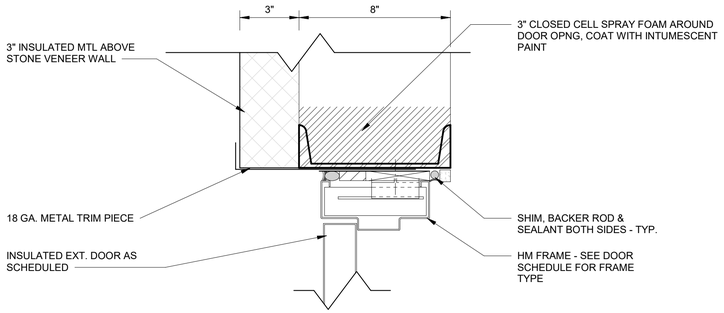
SHEET ID

A-701



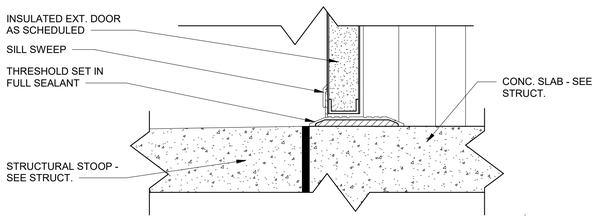
A DOOR HEAD AT STORAGE DETAIL

3" = 1'-0"



B DOOR JAMB AT STORAGE DETAIL

3" = 1'-0"



C DOOR SILL AT STORAGE DETAIL

3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
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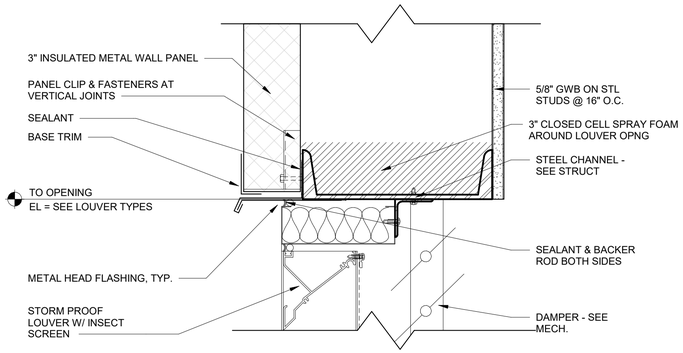
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

DOOR DETAILS

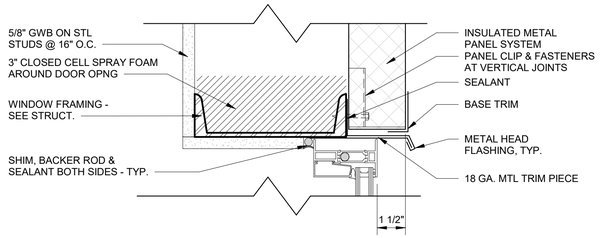
SHEET ID

A-702



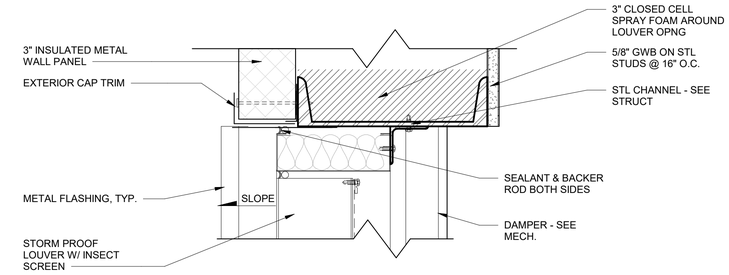
A LOUVER HEAD @ EXTERIOR METAL PANEL WALL

3" = 1'-0"



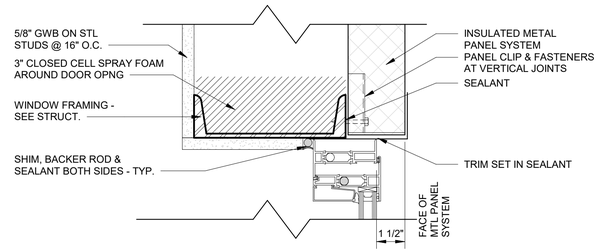
D WINDOW HEAD @ MTL WALL PANEL

3" = 1'-0"



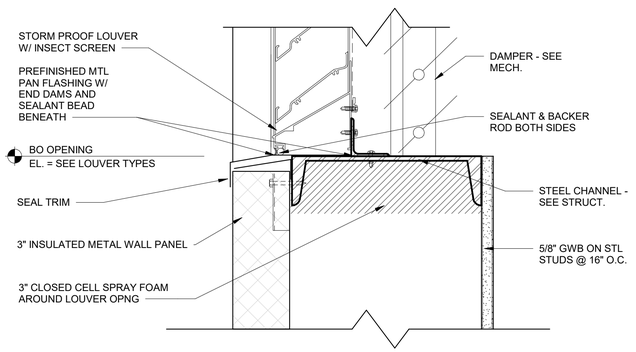
B LOUVER JAMB @ EXTERIOR METAL PANEL WALL

3" = 1'-0"



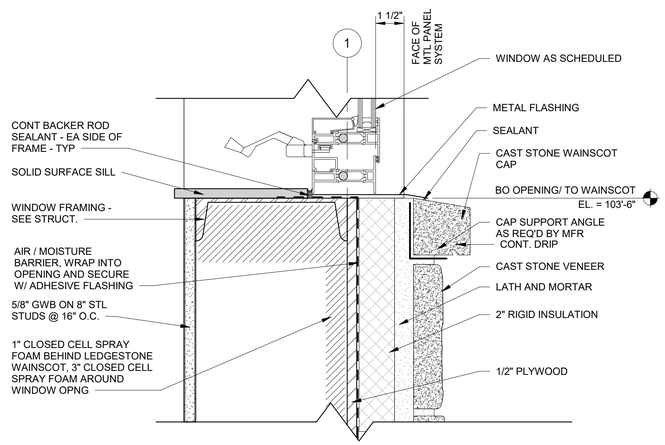
E WINDOW JAMB@ MTL WALL PANEL

3" = 1'-0"



C LOUVER SILL @ EXTERIOR METAL PANEL WALL

3" = 1'-0"



F WINDOW SILL @ CAST STONE VENEER

3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSTN-A1.rvt

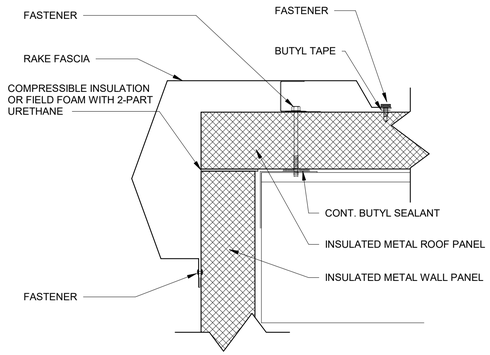
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

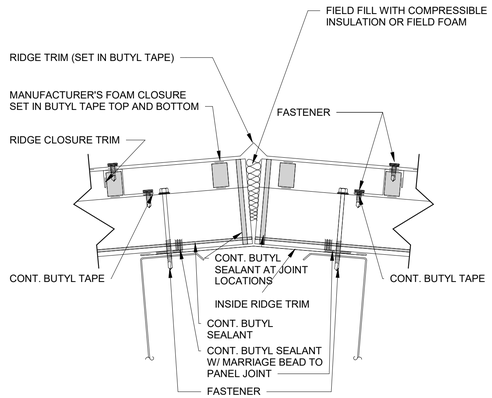
WINDOW AND LOUVER DETAILS

SHEET ID

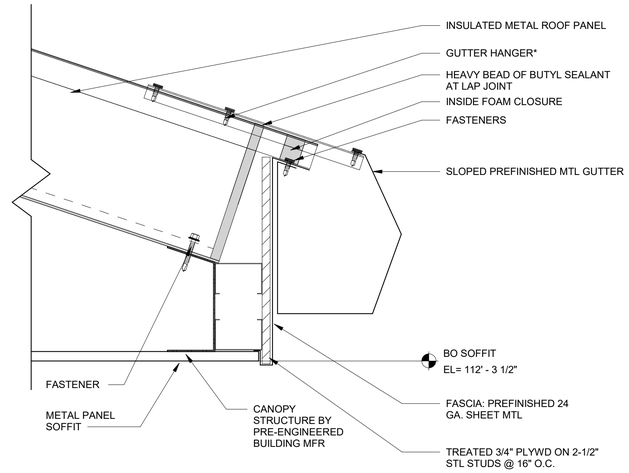
A-703



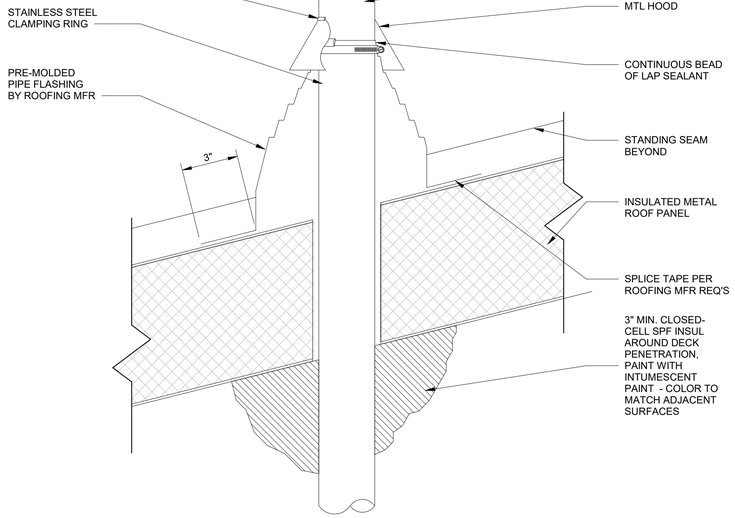
1 ROOF RAKE
3" = 1'-0"



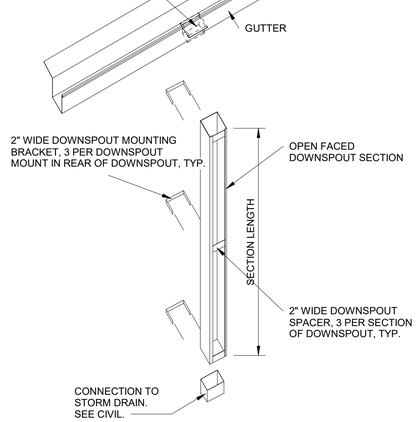
2 ROOF RIDGE
3" = 1'-0"



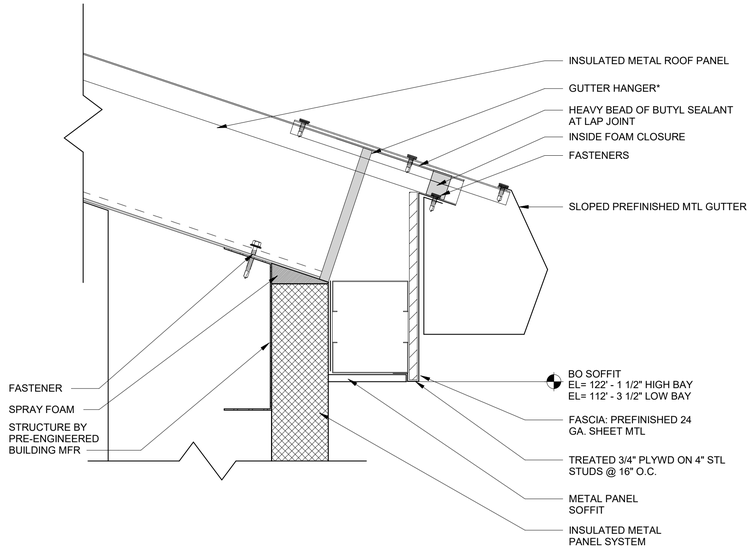
3 ROOF EAVE @ CANOPIES
3" = 1'-0"



4 PIPE FLASHING
3" = 1'-0"



5 DOWNSPOUT AND GUTTER
1/2" = 1'-0"



6 ROOF EAVE @ BAY
3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

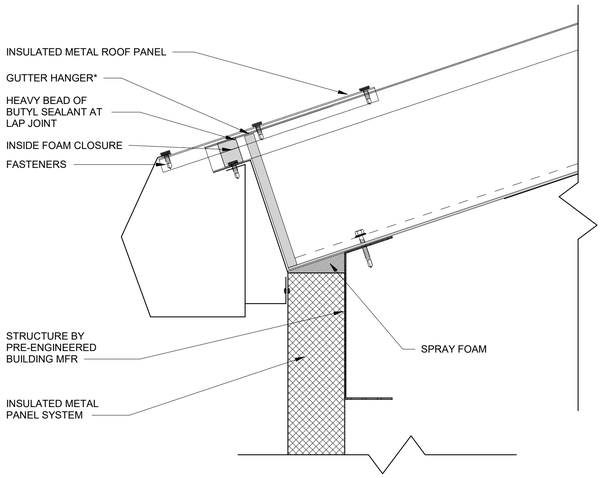
DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI 'D'
FILE NAME: FCDR-FSTN-A1.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

ROOF DETAILS

SHEET ID
A-720



1 ROOF EAVE @ STORAGE BUILDING

3" = 1'-0"

0 3" 6" 9" 12"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
SUBMITTED BY: B. GORUP	FILE NUMBER:
SIZE: ANSI 'D'	FILE NAME: FCDR-FSTN-A1.rvt

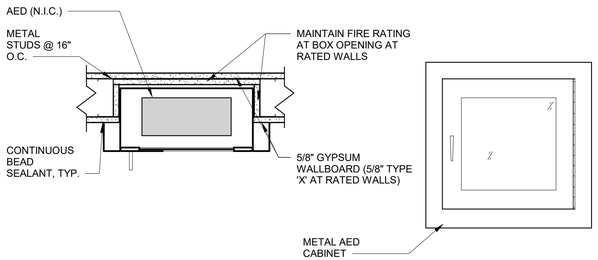
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

ROOF DETAILS

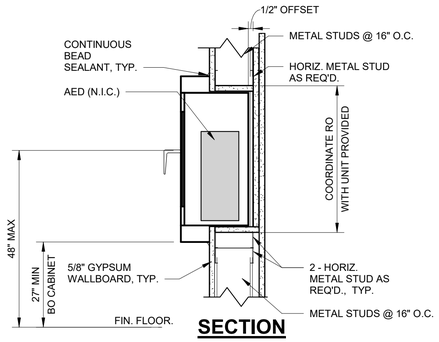
SHEET ID

A-721



PLAN

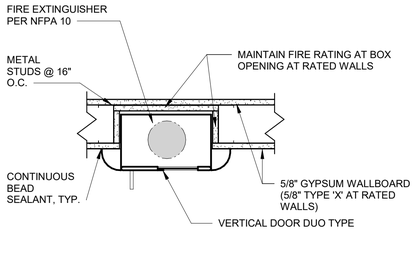
ELEVATION



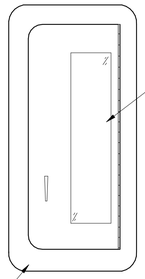
SECTION

A TYP AED CABINET - (AED) SEMI-RECESSED

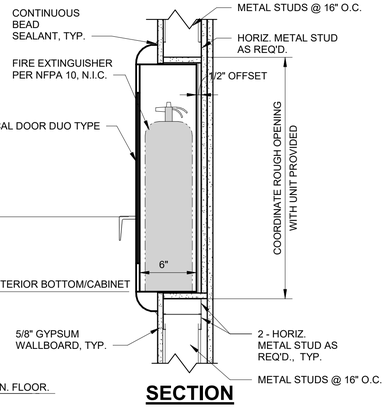
1 1/2" = 1'-0"



PLAN



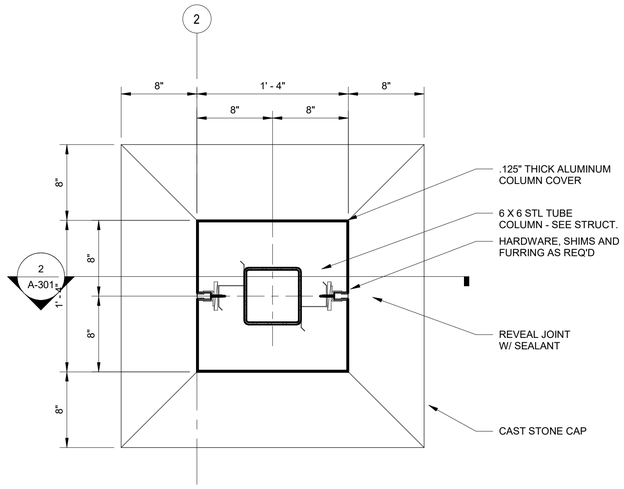
ELEVATION



SECTION

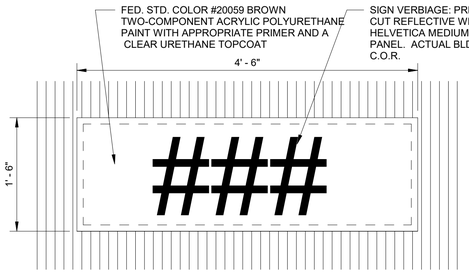
B TYP FIRE EXTINGUISHER CABINET - (FEC) SEMI-RECESSED

1 1/2" = 1'-0"

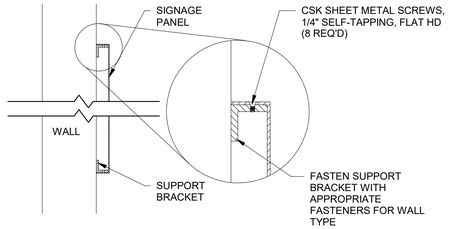


C COLUMN PLAN DETAIL

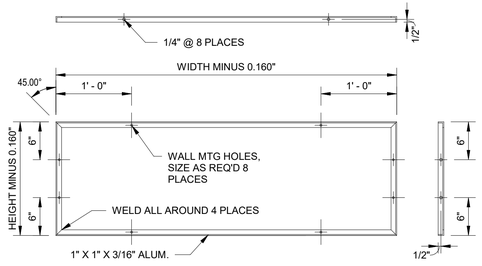
1 1/2" = 1'-0"



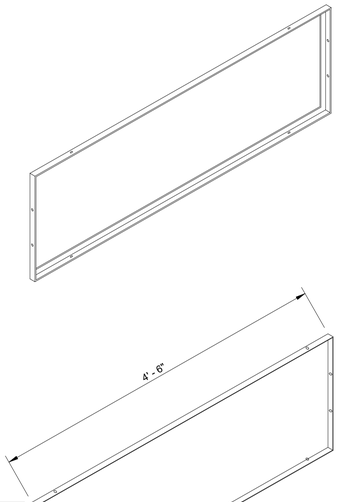
BUILDING NUMBER SIGNAGE ELEVATION

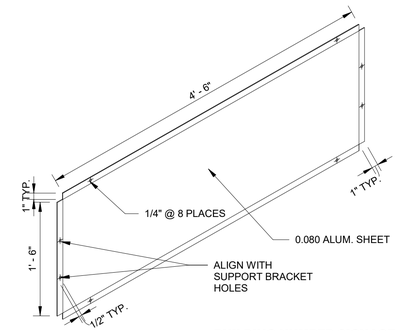


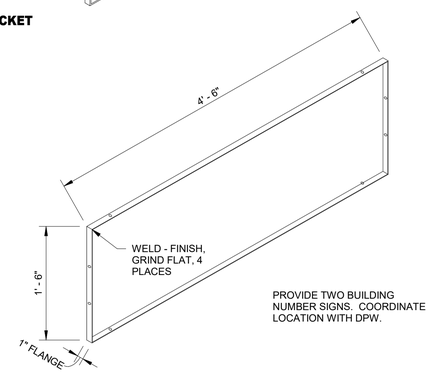
BUILDING NUMBER SIGNAGE DETAIL



BUILDING NUMBER SIGNAGE SUPPORT BRACKET







BUILDING NUMBER SIGNAGE PANEL

D WALL MOUNTED BUILDING NUMBER SIGN

1" = 1'-0"

0 1" 2"

0 6" 1" 2"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ
DRAWN BY: A. WALZ
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-A1.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

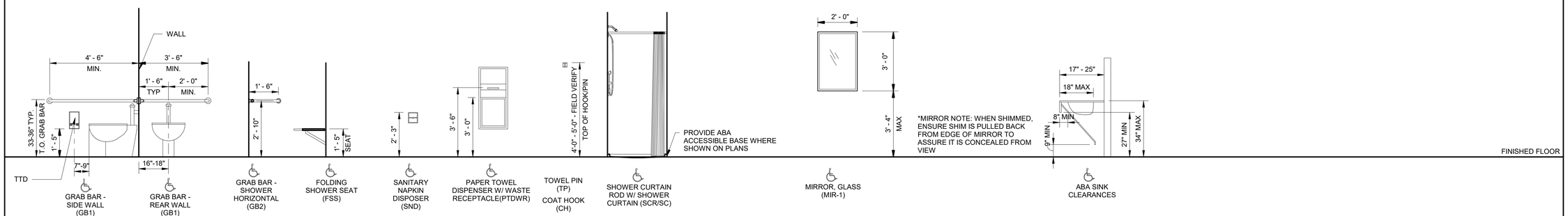
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

MISC. DETAILS

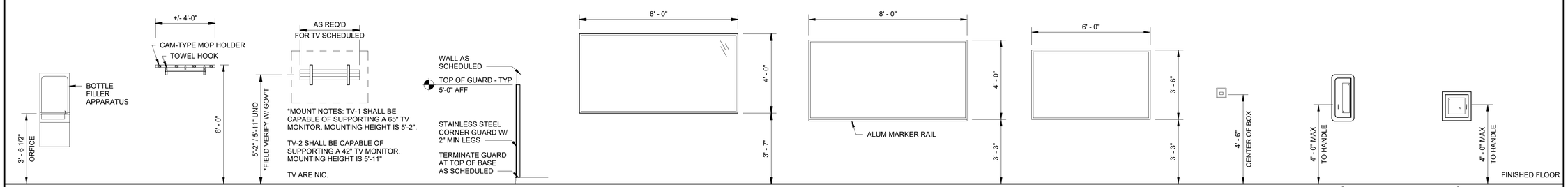
SHEET ID

A-800

TOILET ACCESSORIES LEGEND



BUILDING ACCESSORIES LEGEND



TOILET ACCESSORY NOTES (APPLIES TO ALL TOILET AND BUILDING ACCESSORIES):

1. APPROXIMATE LOCATIONS OF TOILET AND BUILDING ACCESSORIES SHOWN ON PLANS. WHEN NOT SPECIFICALLY DIMENSIONED, PROVIDE ACCESSORY IN THE APPROXIMATE LOCATION SHOWN, AT THE HEIGHT(S) INDICATED ON THIS LEGEND. COORDINATE LOCATIONS OF ALL ACCESSORIES IN THE FIELD IN ORDER TO MINIMIZE CONFLICTS WITH OTHER FIXTURES AND EQUIPMENT.
2. INSTALL ALL ACCESSORIES PER MFR INSTRUCTIONS, UNLESS NOTED OTHERWISE. PROVIDE ALL FRAMING AND BLOCKING AS REQ'D TO INSTALL ACCESSORIES IN LOCATIONS INDICATED ON PLANS.
3. FOR FIXTURES AND ACCESSORIES THAT ARE MOUNTED ON WALL WITH UNEVEN THICKNESS FINISH(ES), SHIM FIXTURES AS REQUIRED FOR A FLUSH, AESTHETICALLY-PLEASING INSTALLED STATE. SHIM WITH PAINTED PLYWOOD OR TRIM KITS TO MATCH FIXTURES AND/OR ADJACENT WALL SURFACE.

0 2' 4' 6'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
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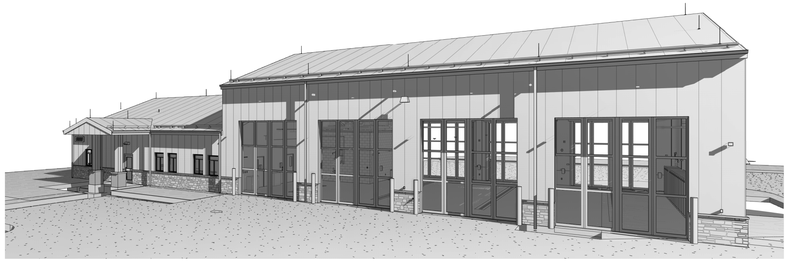
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

TOILET ACCESSORIES/MOUNTING HEIGHTS

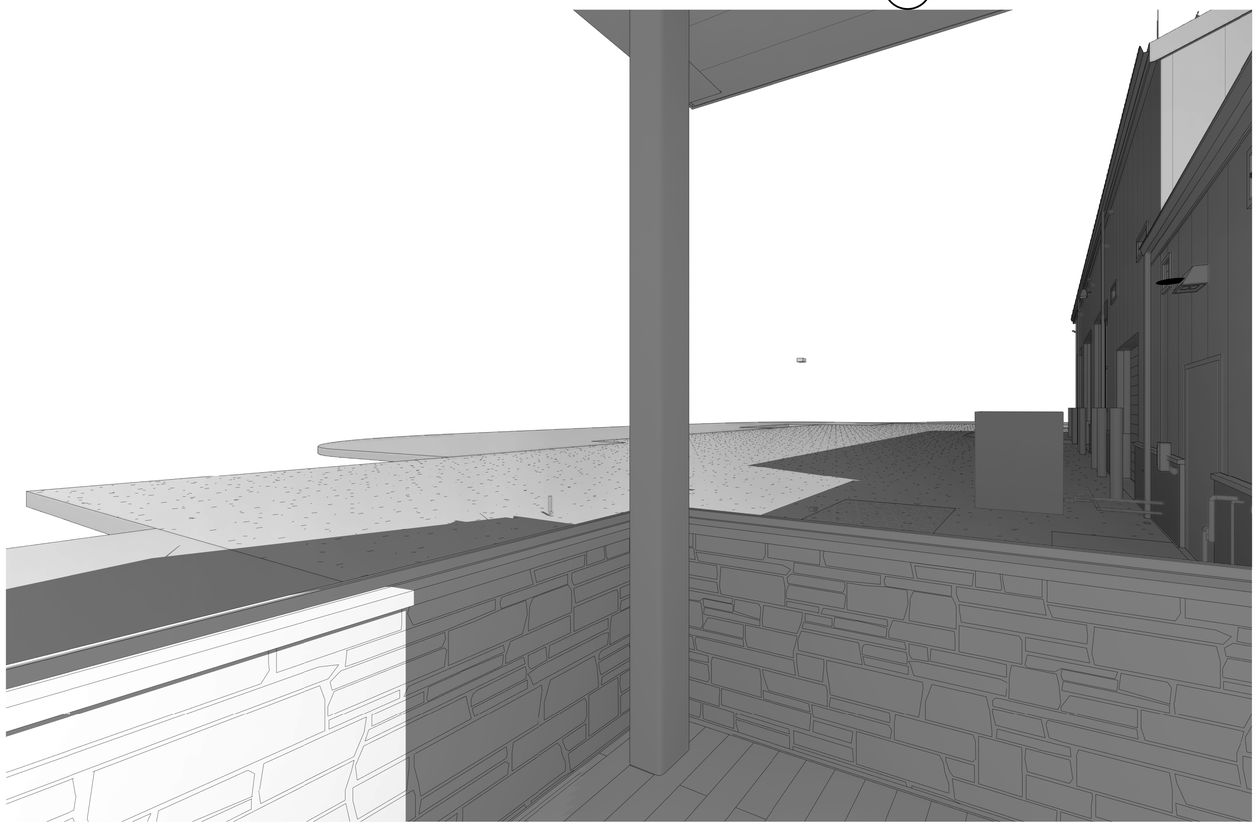
SHEET ID

A-810



C1 EXTERIOR ARRIVAL

C3 KITCHEN VIEW



A1 PATIO VIEW

A3 BACK OF FIRE STATION

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: A. WALZ	ISSUE DATE: 01/20/2023
DRAWN BY: A. WALZ	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B. GORUP	CONTRACT NO.:
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SIZE: ANSI D	FILE NAME: FCDR-FSTN-A1.rvt

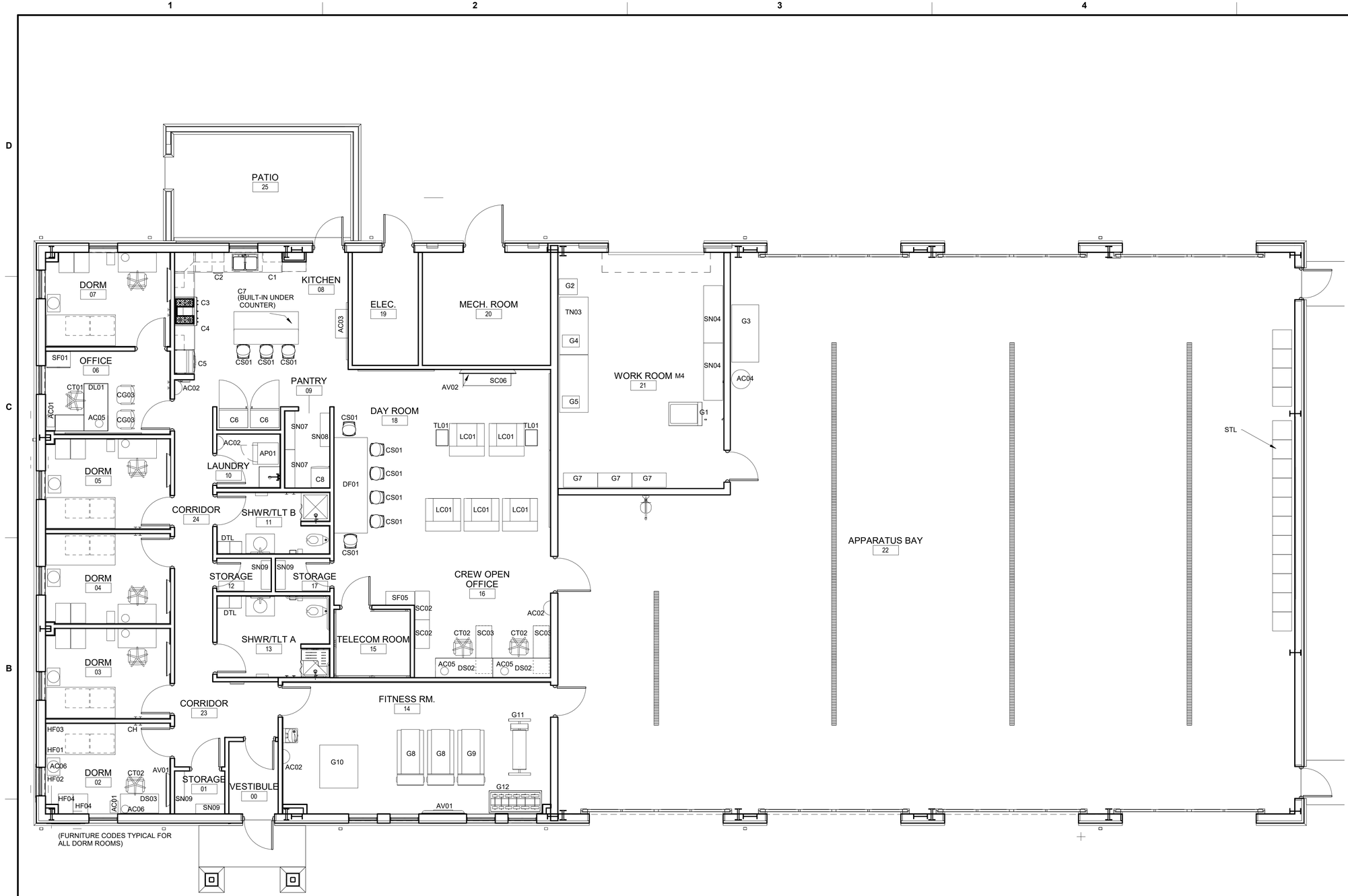
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

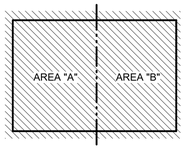
3D REPRESENTATIONS

SHEET ID

A-900



1 COMPOSITE FURNITURE PLAN
3/16" = 1'-0"



KEYPLAN

NO SCALE

FURNITURE, FIXTURES & EQUIPMENT (FF&E) LEGEND

HNC ADMIN FURNITURE

ANCILLARY:
AC01 TRASH RECEPTACLE, SMALL
AC02 TRASH RECEPTACLE, HALF ROUND
AC03 RECYCLE CENTER
AC04 RECYCLE LARGE RECEPTACLE
AC05 DESK, TASK LIGHT

CHAIRS:
CS01 STOOL, HIGH
CT02 DESK CHAIR
CG03 GUEST CHAIR

DESKS/TABLES:
DL01 DESK, L-SHAPE
DS02 DESK, 60"

DINING FURNITURE:
DF01 DINING TABLE

LOUNGE:
LC01 RECLINER

STORAGE:
SF01 LATERAL FILE, 2 DRW
SC02 STORAGE CABINET, DBL DOOR
SC03 CREDENZA, LOW STORAGE
SN04 HEAVY DUTY SHELVING
SF05 LATERAL FILE, 4 DRW & SHELF
SC06 CREDENZA, TV
SN07 MOBILE SHELVING, 48"W
SN08 MOBILE SHELVING, 42'W
SN09 STORAGE SHELVING, 36"W

TABLES:
TL01 END TABLE
TN03 WORKBENCH, 5'

HNC UH BARRACKS PROGRAM

ANCILLARY:
AC06 LAMP, NIGHT STAND
AC07 LAMP, DESK

APPLIANCES:
AP01 WASHER/DRYER, STACKABLE

AV/VISUAL AIDS:
AV01 TV, 42"
AV02 TV, 67"

DESKS:
DS03 DESK, 4 DRW

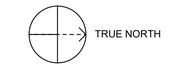
BEDROOM/SLEEPING QUARTERS
HF01 BED/STORAGE DRWS
HF02 NIGHT STAND
HF03 MATTRESS, SINGLE
HF04 WARDROBE

CFCI EQUIPMENT
C1 DISHWASHER
C2 ICE MACHINE
C3 STOVETOP HOOD
C4 STOVETOP
C5 DOUBLE OVEN
C6 REFRIGERATOR
C7 MICROWAVE
C8 FREEZER
CH COAT HOOK
DTL LOCKER 2-TIER
MB MARKER BOARD, MAGNETIC
TB TACKBOARD
STL LOCKER, FIREMAN
TV1 BRACKET, TV 42"
TV2 BRACKET, TV 65"

GFGI EQUIPMENT
G1 EXTRACTOR
G2 AIR COMPRESSOR
G3 HOSE STORAGE RACK
G4 EXPANDER
G5 HYDRLIC HOSE COUPLER
G6 HIGH PRESSURE WASHER
G7 FLAMMABLE STORAGE CABINET
G8 TREADMILL
G9 ELLIPTICAL
G10 UNIVERSAL MACHINE
G11 WEIGHT BENCH
G12 WEIGHT RACK & WEIGHTS

NOTES:
1. FURNITURE LISTED IN THE ABOVE LEGEND IS NOT IN CONTRACT (NIC), INCLUDING GFGI EQUIPMENT.
2. APPLIANCES/EQUIPMENT INCLUDED IN CONSTRUCTION CONTRACT

ABBREVIATIONS:
CFCI - CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
GFGI - GOVERNMENT FURNISHED, GOVERNMENT INSTALLED



US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: M. LUCKEY
DRAWN BY: M. LUCKEY
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

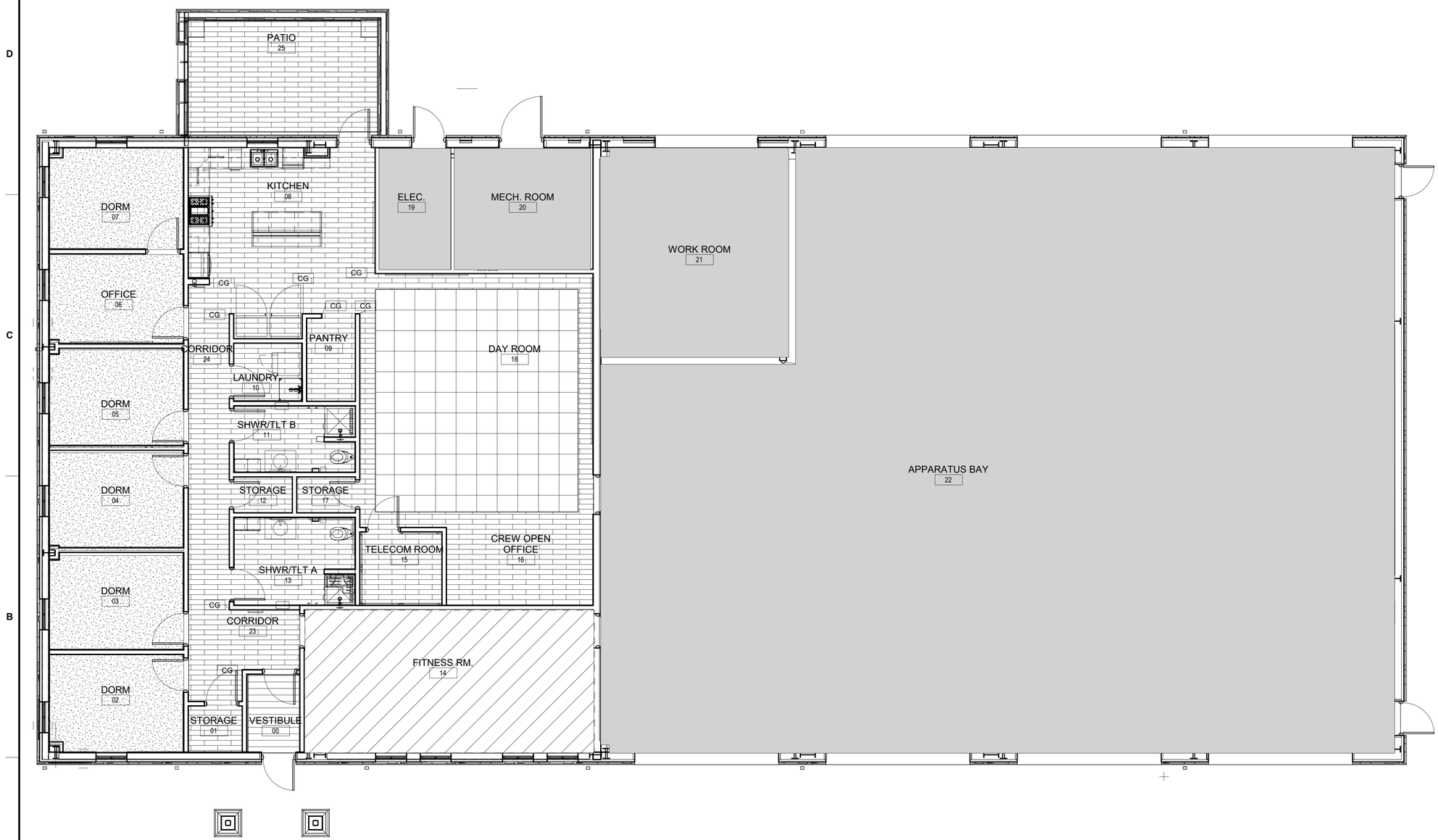
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

COMPOSITE FURNITURE PLAN

SHEET ID

I-101



FLOOR FINISH LEGEND

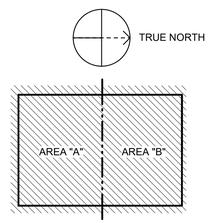
- WOM- WALK OFF MAT
- SC- SEALED CONCRETE
- CPT - CARPET TILE
- AFT - ATHLETIC FLOOR TILE
- PT1 - PORCELAIN TILE
- PT4 - PORCELAIN TILE

1 COMPOSITE FLOOR FINISH PLAN

3/16" = 1'-0"

NOTES:

1. SEE SHEET A-600 ROOM FINISH SCHEDULE
2. SEE SPEC SECTION 09 06 00 SCHEDULES FOR FINISHES, FOR MORE INFORMATION
3. INSTALL PORCELAIN TILE PLANKS IN A STAGGERED BRICK-JOINT PATTERN
4. APPARATUS BAY WILL ALSO HAVE A REFLECTIVE HARDENER AND SLIP-RESISTIVE COATING. SEE SPEC 03 30 00
5. STAINLESS STEEL CORNER GUARDS (CG) SEE A-810 FOR DETAILS



KEYPLAN

NO SCALE

0 4' 8' 12'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: M.LUCKEY	ISSUE DATE: 01/20/2023
DRAWN BY: M.LUCKEY	SOLICITATION NO.: W9128F23R0016
CHECKED BY: B.GORUP	CONTRACT NO.:
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SIZE: ANSI D	FILE NAME: FCOR-FSTN-MEPFS2.rvt

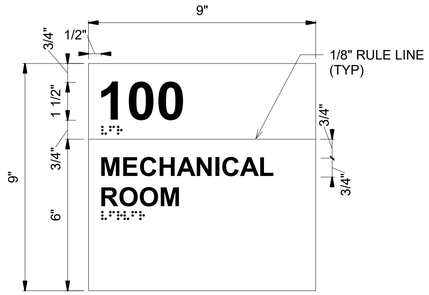
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE FLOOR FINISH PLAN

SHEET ID

I-102



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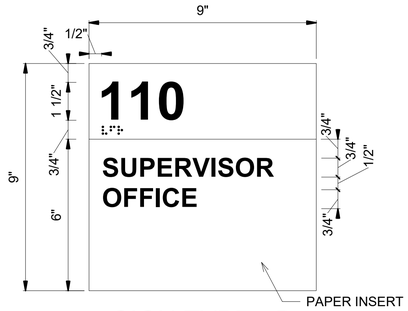

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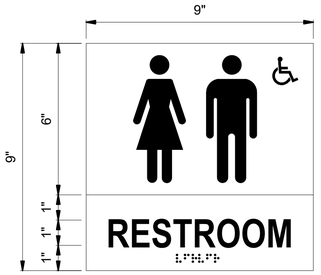

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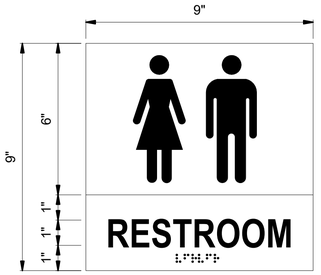
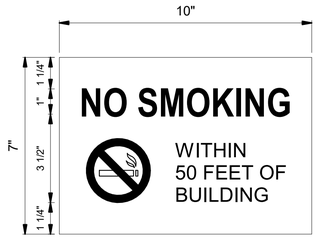


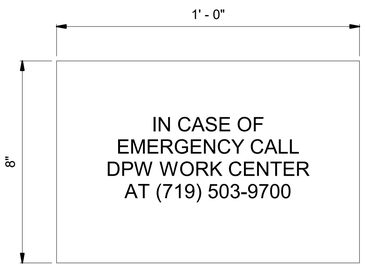
SIGN TYPE - DWM

SIGN TYPE - E



SIGN TYPE - M

NOTE: SIGN SHALL BE POSTED PER AR 600-63.



SIGN TYPE - N

NOTES:

1. SEE INTERIOR SIGNAGE SPEC 10 14 00.20
2. EXIT SIGN AT EVERY ILLUMINATED EXIT OVERHEAD SIGN
3. CONTRACTOR TO VERIFY # ON SIGN TYPE "N" BEFORE FABRICATION

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: M. LUCKEY
DRAWN BY: M. LUCKEY
CHECKED BY: B. GORUP
SUBMITTED BY: B. GORUP
SIZE: ANSI D
ISSUE DATE: 01/20/2023
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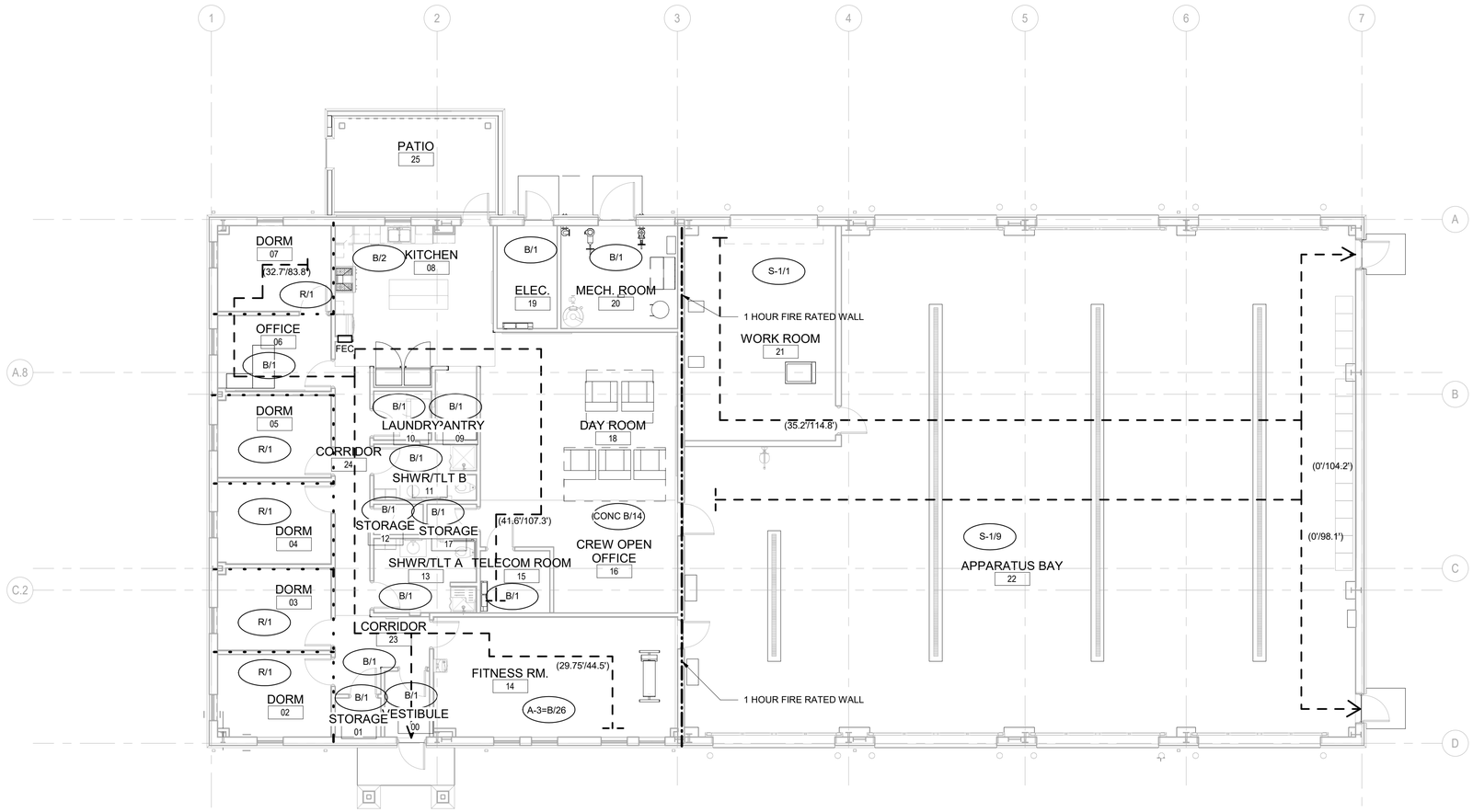
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

INTERIOR TYPICAL SIGNAGE

SHEET ID

IG101



LIFE SAFETY LEGEND

- 30 MINUTE FIRE RATED WALL
- 1 HOUR FIRE RATED WALL
- (X'/XX') TRAVEL DISTANCE: X' IS COMMON PATH XX' IS TOTAL TRAVEL DISTANCE
- OCC./# OCC. OCCUPANCY TYPE /NUMBER OF OCCUPANTS
- FEC FIRE EXTINGUISHER CABINET
- FEB FIRE EXTINGUISHER BRACKET

1 / F-110 COMPOSITE LIFE SAFETY PLAN

1/8" = 1'-0"

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: ...\ESTINUMEPFS2.rvt

DESIGNED BY: B. ERBSTOESSER
DRAWN BY: B. ERBSTOESSER
CHECKED BY: J. SWIERCZEK
SUBMITTED BY: J. SWIERCZEK
SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE LIFE SAFETY PLAN

SHEET ID

F-110

SUPPLEMENTAL FIRE ALARM LEGEND

FACP	FIRE ALARM CONTROL PANEL.
LOC	FIRE ALARM LOCAL OPERATING CONSLE.
FA MAP	REMOTE MAP BOARD, MAP ONLY (no electronics).
F	MANUAL FIRE ALARM PULL STATION, MOUNTED 4'-0" A.F.F.
xx cd; xx dBA S C	FIRE ALARM SPEAKER/STROBE, CANDELLA AND DECIBEL RATINGS AS INDICATED, MOUNTED 6'-8" A.F.F.
xx cd; xx dBA WP H	FIRE ALARM SPEAKER/STROBE FOR WATER FLOW INDICATION IN WEATHERPROOF ENCLOSURE, WALL MOUNTED.
? ? P AC ?	SMOKE DETECTOR. THE LETTER "I" OR "P", IF PRESENT, STIPULATES IONIZATION OR PHOTOELECTRIC TYPE. "AC" INDICATES MOUNTING AT CEILING.
CO	CARBON MONOXIDE DETECTOR.
	TAMPER SWITCH (FURNISHED UNDER OTHER SECTIONS).
	FLOW SWITCH (FURNISHED UNDER OTHER SECTIONS).
	POST INDICATOR VALVE (FURNISHED UNDER OTHER SECTIONS). PIV SHALL BE LOCATED NO LESS THAN 40 FEET FROM THE BUILDING.
RL	RED INDICATING LIGHT (LED) WITH FACEPLATE WHICH INDICATES CARBON MONOXIDE DETECTOR IN ALARM.

(#) KEYED NOTES - FA100 SERIES SHEETS

1	COORDINATE WITH PLUMBING SHEETS FOR FLOW SWITCH DIRECTION.
2	PROVIDE A SOUNDER BASE.
3	PROVIDE SMOKE DETECTOR IN EACH SLEEPING ROOM AND SHARED/COMMON SPACE OF A SUITE REGARDLESS OF OCCUPANCY OR THE PRESENCE OF OTHER DETECTION OR PROTECTION SYSTEMS IN THE FACILITY, PER UFC 3-600-01.

GENERAL NOTES - FA100 SERIES SHEETS

1	UNDERGROUND CONDUITS CROSSING FOUNDATIONS SHALL BE BURIED AT A DEPTH SUCH THAT CONDUITS ARE LOCATED MINIMUM 12" BELOW THE FOUNDATIONS. REFERENCE S-300 SERIES DRAWINGS FOR FOUNDATION DIMENSIONS.
2	THESE DOCUMENTS DEPICT A PERFORMANCE LEVEL ENGINEERING DESIGN LAYOUT TO BE UTILIZED AS GUIDANCE FOR THE PLANNING OF THE FIRE ALARM/MASS NOTIFICATION SYSTEMS BY THE CONTRACTOR. LAYOUT IS GENERIC AND NOT MANUFACTURER-SPECIFIC. SCHEMATIC DRAWING IS INCOMPLETE WITH SOME DEVICES NOT SHOWN OR SEVERAL DEVICES REPRESENTING MORE. PROVIDE COMPLETE DOCUMENTS FOR REVIEW AND APPROVAL FROM THE ENGINEER AND AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION. INCLUDE IN THE SHOP DRAWINGS AND CALCULATIONS ANY ADDITIONAL EQUIPMENT NECESSARY, INCLUDING INITIATING DEVICES AND NOTIFICATION APPLIANCES, TO PROVIDE A COMPLETE INSTALLATION. PROVIDE DEVICES NOT SHOWN FOR A COMPLETE FUNCTIONAL SYSTEM LIMITED TO ADDRESSABLE MONITOR MODULES FOR ALL DEVICES WHICH DO NOT HAVE ADDRESS AND CONTROL MODULES TO CONTROL AUXILIARY FUNCTIONS. PROVIDE A COMPLETE FIRE ALARM SYSTEM AND MASS NOTIFICATION SYSTEM CONTRACTOR DESIGNED AND INSTALLED IN ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND AMENDMENTS INCLUDING BUT NOT LIMITED TO UFC 3-600-01, UFC 4-021-01, UFC 4-440-01, NFPA 70, NFPA 72, NFPA 101, SPECIFICATION 28 31 76, DIVISION 21 SPECIFICATIONS, AND THESE DRAWINGS.
3	FINAL DEVICE LOCATIONS SHALL BE COORDINATED PRIOR TO INSTALLATION TO AVOID CONFLICTS WITH ELEMENTS FROM OTHER TRADES.
4	PROVIDE BACKBOX AT EACH MANUAL STATION, INITIATING/DETECTION DEVICE, BEACON, SPEAKER, STROBE, AND SPEAKER/STROBE LOCATION.
5	UNLESS OTHERWISE NOTED, ALL NON-DUCT SMOKE DETECTORS ARE MOUNTED AT FINISHED CEILING.
6	ROUTE ALL WIRING IN MINIMUM 3/4" CONDUIT PAINTED RED WHERE EXPOSED AND LABELED EVERY 10 FEET WITH "FACP OR "MNS" AS APPLICABLE.
7	MOUNTING OF DEVICES SHALL COMPLY WITH NFPA AND ABA/ADA REQUIREMENTS UNLESS OTHERWISE NOTED. MOUNT THE OPERABLE PART OF MANUAL PULL STATIONS AT HEIGHT INDICATED IN SPECIFICATION 28 31 76.
8	PROVIDE POWER LIMITED CIRCUITS.
9	DO NOT LOCATE DETECTORS IN DIRECT AIR OR CLOSER THAN 3 FEET FROM AN AIR SUPPLY OR RETURN DIFFUSER.
10	PROVIDE CLASS B SIGNALING LINE CIRCUITS, CLASS B INITIATING DEVICE CIRCUITS, AND CLASS B NOTIFICATION APPLIANCE CIRCUITS FOR THE FIRE ALARM AND MASS NOTIFICATION SYSTEM.
11	ALL VALVES THAT CONTROL ALARM FUNCTIONS OR THE FLOW OF WATER, OR WHEN CLOSED WILL DISRUPT THE OPERATION OF THE SYSTEM, SHALL BE ELECTRONICALLY SUPERVISED WITH A TAMPER SWITCH AND MONITORED BY THE FIRE ALARM CONTROL PANEL AS APPROPRIATE.
12	PROVIDE MULTIPLE INITIATING DEVICE CIRCUITS AND SIGNALING LINE CIRCUITS SO THAT FAILURE OF ONE CIRCUIT DOES NOT CAUSE THE FACILITY TO LOSE OVER 50% OF ITS CAPABILITIES PER FLOOR.
13	THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING NECESSARY POWER SUPPLIES, BATTERIES, BOOSTERS, ETC. ANNUNCIATOR(S) AND LOCAL OPERATING CONSOLE(S) ARE TO OPERATE ON 24VDC POWER FROM FACP. ADJUST PANELS DEDICATED FOR FIRE ALARM AS NECESSARY FOR EQUIPMENT PROVIDED AND MAINTAIN BALANCED LOADING OF THE PANEL PHASES. PROVIDE SIGNAL BOOSTERS AS NECESSARY TO COMPENSATE FOR VOLTAGE DROP DUE TO SIZE OF BUILDING AND LENGTH OF CIRCUITS. SIGNAL BOOSTERS SHALL BE PROVIDED WITH BATTERY BACKUP OF THE SAME DURATION AS REQUIRED FOR THE FIRE ALARM SYSTEM (SEE SPECIFICATION 28 31 76) AND SHALL BE RATED FOR THE ENVIROMENTAL CONDITION IDENTIFIED ON SHEET E-101. SPARE CIRCUITS HAVE BEEN PROVIDED ON PANELS DEDICATED TO FIRE ALARM EQUIPMENT.
14	PROVIDE TVSS ON PIV MONITORING CIRCUITS AND EXTERIOR VALVE POWER AND CONTROL CIRCUITS. SEE SITE PLANS FOR LOCATIONS.
15	FOR CONFLICTS BETWEEN THE SPECIFICATION AND THE DRAWINGS, FOLLOW THE SPECIFICATION. WHERE THE DRAWINGS EXCEED REQUIREMENTS OF THE SPECIFICATION, FOLLOW THE DRAWINGS.
16	SPEAKERS SHALL BE CONNECTED TO TRANSMIT FIRE ALARM NOTIFICATION SIGNALS AND MASS NOTIFICATION MESSAGES. SPEAKER QUANTITY AND SPACING MAY VARY WITH THE REQUIREMENTS OF THE MANUFACTURER SELECTED.
17	SMOKE DETECTORS SHALL BE A MINIMUM OF THREE (3) FEET FROM AIR DIFFUSERS.
18	(WHERE PRESENT) PROVIDE FIRE ALARM SYSTEM CONNECTION TO AIR HANDLER ISOLATION SMOKE DAMPERS REQUIRED BY NFPA.
19	CONNECTIONS AND SPLICES SHALL BE MADE USING TERMINAL BOXES.
20	JUNCTION BOXES, BACKBOXES, AND CONDUITS SHALL BE SURFACE MOUNTED ON PRECAST, CONCRETE, AND CONCRETE BLOCK WALLS AND STEEL MEMBERS. JUNCTION BOXES, BACKBOXES, AND CONDUITS SHALL BE RECESS MOUNTED ON GYPSUM WALLS. COORDINATE WITH ARCHITECTURAL SHEETS.
21	PENETRATION OPENINGS THROUGH AIR BARRIERS SHALL COMPLY WITH THE BUILDING AIR BARRIER REQUIREMENTS. CORRECT ALL PENETRATIONS THAT ARE DETERMINED DEFICIENT DURING TESTING. SEE ARCHITECTURE SHEETS FOR AIR BARRIER TESTING BOUNDARIES. SEE ARCHITECTURE FOR SEALING PENETRATIONS.
22	DO NOT PENETRATE STRUCTURAL COLUMNS, BEAMS, JOISTS, AND TRUSSES. AFFIX DEVICES AND RACEWAY WITH BEAM C-CLAMPS, BRACKETS, CLIPS, UNISTRUT, AND OTHER NON-PENETRATING AND NON-ADHESIVE HARDWARE.
23	WHERE SHOWN, DIMENSIONS ON FIRE ALARM DRAWINGS ARE PRELIMINARY FOR PLANNING AND BIDDING PURPOSES. CONTRACTOR IS RESPONSIBLE FOR FINAL LOCATIONS, QUANTITIES, AND SPACING TO SATISFY REQUIREMENTS OF APPLICABLE CODES, STANDARDS, UFCs, AND OTHER REQUIREMENTS INDENTIFIED IN THE CONTRACT DOCUMENTS.
24	FLEXIBLE CONDUIT IS ONLY PERMITTED WHEN CONNECTING TO THE FOLLOWING DEVICES AND APPLIANCES: DEVICES LOCATED ON FIRE SUPPRESSION EQUIPMENT SUCH AS FLOW/PRESSURE SWITCHES, SOLENOIDS, TAMPER SWITCHES, DEVICES AND APPLIANCES LOCATED IN REMOVABLE CEILING TILES, AND OPTICAL FLAME DETECTORS. WHERE FLEXIBLE CONDUIT IS PERMITTED, LENGTH IS LIMITED TO 6 FT. (1.8 M).
25	EXTERIOR BUILDING-MOUNTED DEVICES AND EQUIPMENT SHALL BE WIRED FROM WITHIN THE BUILDING AND SHALL CONFORM TO THE INTERIOR WIRING STANDARDS DESCRIBED IN SPECIFICATION 26 20 00 TO THE GREATEST EXTENT POSSIBLE. NO CIRCUITS FOR EXTERIOR BUILDING-MOUNTED EQUIPMENT AND DEVICES SHALL BE SURFACE MOUNTED ON THE BUILDING EXTERIOR.
26	REPORT SUPERVISORY ALARMS AS INDEPENDENT ADDRESSES TO THE FACP OR ENERGY MANAGEMENT CONTROL SYSTEM AS INDICATED ON THE FUNCTIONAL MATRICES. GROUPED SWITCHES ON COMMON ADDRESSES ARE NOT PERMITTED. PROVIDE NON-LATCHING SUPERVISORY DEVICES UNLESS OTHERWISE NOTED.
27	MONITOR MODULES ARE GENERALLY OMITTED FROM PLANS. PROVIDE AS REQUIRED TO CREATE ADDRESSABLE DEVICES.
28	COORDINATE THE FINAL LOCATIONS OF ELECTRICAL/FIRE ALARM PANELS, CONTROLLERS, DISCONNECTS, SWITCHES, RECEPTACLES, ETC., WITH FINAL FIRE PROTECTION EQUIPMENT LAYOUT.
29	REFER TO SECTION 01 91 00.15 APPENDIX B FOR WESTNET SCOPE OF WORK.
30	APPARATUS BAY IS NOT CLASSIFIED AS A HAZARDOUS AREA PER THE NEC.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK	ISSUE DATE: 01/20/2023
DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. CHAMBERLAIN	CONTRACT NO.:
SUBMITTED BY: J. WOSSER, P.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE ALARM LEGEND AND NOTES

SHEET ID

FA001

PIV
SEE SHEET ES101
FOR PLACEMENT

PATIO
25

110dBA
WP 75cd
H

WATER FLOW
INDICATION
110dBA
WP 75cd
H

GENERATOR
CONTROL/ALARM
PANEL

TS FS

DORM
07

15cd;
80dBA

LOC

KITCHEN
08

ELEC.
19

MECH. ROOM
20

WORK ROOM
21

OFFICE
06

DORM
05

LAUNDRY
10

PANTRY
09

DAY ROOM
18

CORRIDOR
24

SHWR/TLT B
11

DORM
04

STORAGE
12

STORAGE
17

CREW OPEN
OFFICE
16

APPARATUS BAY
22

SHWR/TLT A
13

TELECOM ROOM
15

DORM
03

CORRIDOR
23

FITNESS RM.
14

DORM
02

STORAGE
01

FACP

FA MAP
00

FAT

FA

75cd;
80dBA

15cd;
80dBA

AC
CO
S

TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET FA001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY:	K. PAVLIK
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SUBMITTED BY:	J. CHAMBERLAIN
QA/QC BY:	K. PAVLIK
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
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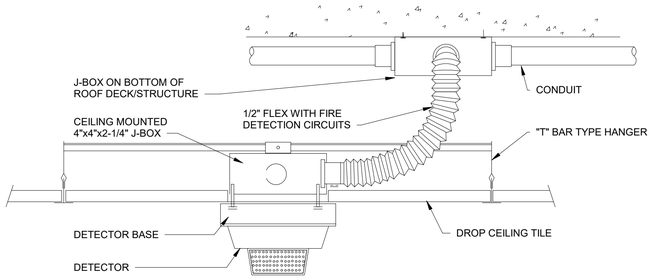
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 107464 (FY23)

COMPOSITE FIRE ALARM PLAN

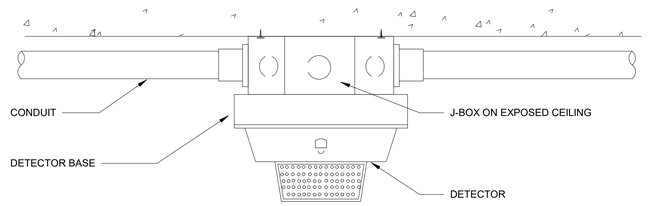
SHEET ID

FA101



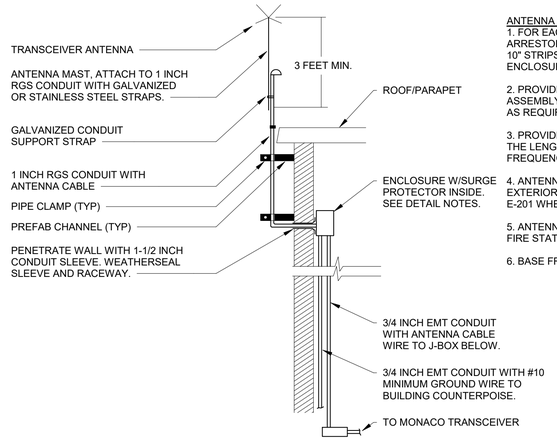
1 FA501 DETECTOR DETAIL - DROP CEILING

N.T.S.



2 FA501 DETECTOR DETAIL - EXPOSED STRUCTURE

N.T.S.



3 FA501 ANTENNA MOUNTING DETAIL

N.T.S.

ANTENNA DETAIL NOTES:

1. FOR EACH ANTENNA, PROVIDE A LIGHTNING ARRESTOR KIT (STATIC DISCHARGE UNIT WITH TWO (2) 10" STRIPS OF COAX SEAL) IN A NEMA 3R RAINTIGHT ENCLOSURE.

2. PROVIDE A MINIATURE RG8-X 50 OHM COAXIAL CABLE ASSEMBLY, TYPE II WITH 2PL-259 CONNECTORS (LENGTH AS REQUIRED).

3. PROVIDE A VHF OMNIDIRECTIONAL ANTENNA. TRIM THE LENGTH OF THE ANTENNA FOR THE BASE FREQUENCY.

4. ANTENNA CABLE SHALL BE IN RIGID RACEWAY WHEN EXTERIOR AND SHALL MEET THE REQUIREMENTS OF E-201 WHEN INTERIOR TO THE BUILDING.

5. ANTENNA SHALL BE PLACED IN LINE OF SIGHT WITH FIRE STATION. COORDINATE LOCATION WITH COR.

6. BASE FREQUENCY: COORDINATE WITH COR.

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FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE ALARM DETAILS

SHEET ID

FA501

SYSTEM OUTPUTS

		BUILDING FACP/ FACP ANN.				TRANSMIT SIGNAL TO MONACO HEADEND EQUIPMENT				AUXILIARY FUNCTIONS			NOTIFICATION APPLIANCES SIGNAL									
		ALARM INDICATION AUDIO-VISUAL	SUPERVISORY INDICATION AUDIO-VISUAL	TROUBLE INDICATION AUDIO-VISUAL		ALARM	WATERFLOW	SUPERVISORY	TROUBLE	CARBON MONOXIDE DETECTED	HVAC SHUTDOWN AND CLOSE SMOKE DAMPER - TO BUILDING DDC	CLOSE ALL DOORS WITH DOOR HOLDERS	SLEEPING QUARTERS LEDS & ALARM AUDIBLE ON DEVICE	EGRESS LIGHTING POWERED ON	AUDIO SPEAKERS - ALARM TONE	FA VISUAL APPLIANCE CLEAR STROBE	EXTERIOR WATER FLOW HORN/STROBE				
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S		
SYSTEM INPUTS																						
FIRE ALARMS																						
1	MANUAL FIRE ALARM STATIONS (F)	A										K	L		N		P	Q				1
2	WATERFLOW INDICATOR (FS)	A				E	F					K	L		N		P	Q	R			2
3	CO DETECTORS IN SLEEPING QUARTERS (CO)	A		C		E				I				M	N							3
4	SMOKE DETECTORS IN SLEEPING QUARTERS (SMOKE ELEMENT) (S)	A		C		E								M	N							4
5	SMOKE DETECTORS IN SLEEPING QUARTERS (HEAT ELEMENT) (S)	A				E						K	L	M	N		P	Q				5
6	SMOKE DETECTOR ABOVE FACP (19) (S)	A				E						K	L		N		P	Q				6
7	SMOKE DETECTORS IN KITCHEN (08) (S) (S)	A				E						K	L		N		P	Q				7
8	SMOKE DETECTOR IN DAY ROOM (18) (S)	A				E						K	L		N		P	Q				8
9	ATFP HVAC SHUTDOWN											K										9
SUPERVISORY SIGNALS																						
20	POST INDICATOR VALVE (PIV) (TS)		B					G														20
21	OS&Y VALVE (BACKFLOW PREVENTOR) (TS)		B					G														21
22	WET PIPE SPRINKLER (OS&Y VALVE) (TS)		B					G														22
23	MAIN SUPPLY VALVE (TS)		B					G														23
24	MECH ROOM (20) TAMPER AND FLOW SWITCHES (TS) (FS)		B					G														24
25	CONTROL COMPONENT COMMON TROUBLE		B					G														25
TROUBLE CONDITIONS																						
30	CIRCUIT FAULT (IDC OPEN)			C					H													30
31	CIRCUIT FAULT (IDC SHORT)			C					H													31
32	CIRCUIT FAULT (IDC GROUND)			C					H													32
33	CIRCUIT FAULT (NAC OPEN)			C					H													33
34	CIRCUIT FAULT (NAC SHORT)			C					H													34
35	CIRCUIT FAULT (NAC GROUND)			C					H													35
36	AC POWER FAILURE			C					H													36
37	TEST MODE			C					H													37
38	LOW BATTERY VOLTAGE			C					H													38
39	SUPERVISED COMPONENT FAILURE			C					H													39

NOTE: THERE IS NO MASS NOTIFICATION SYSTEM IN THE FIRE ALARM SYSTEM. MASS NOTIFICATION FOR THIS FACILITY IS ACCOMPLISHED BY THE STATION ALERT SYSTEM ONLY.

FIRE ALARM MATRIX
NO SCALE

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
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SUBMITTED BY: L. LOSCHEN, P.E.
SIZE: ANSI D
FILE NAME: FCDR-FSTN-MEPFS2.rvt
ISSUE DATE: 01/20/2023
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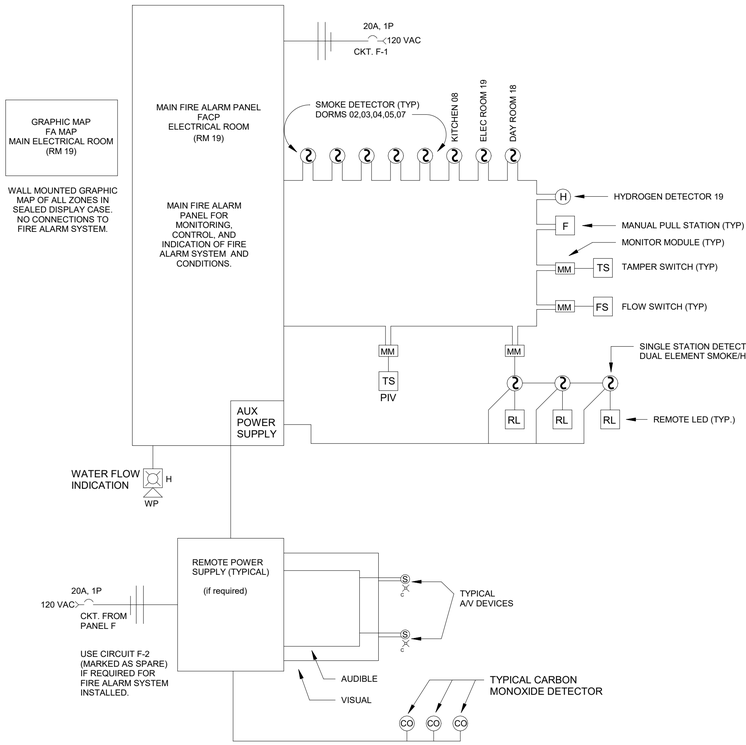
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRE ALARM MATRIX

SHEET ID

FA601



1
FA602

FIRE ALARM RISER

N.T.S.

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MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
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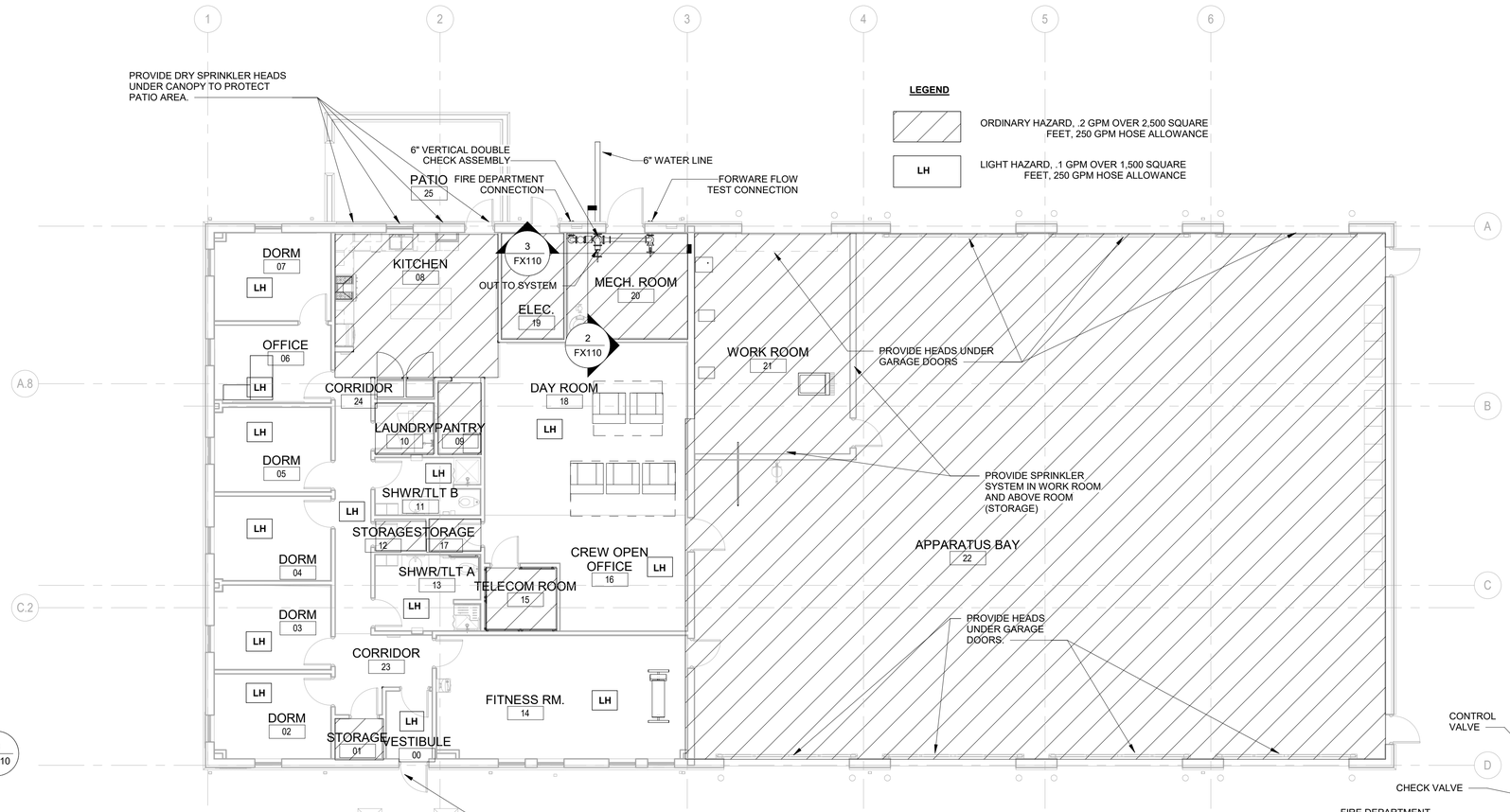
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

FIRE ALARM RISER DIAGRAM

SHEET ID

FA602



COMPOSITE FIRE SUPPRESSION PLAN

1 / FX110 — 1/8" = 1'-0"

LEGEND

ORDINARY HAZARD, .2 GPM OVER 2,500 SQUARE FEET, 250 GPM HOSE ALLOWANCE

LH — LIGHT HAZARD, .1 GPM OVER 1,500 SQUARE FEET, 250 GPM HOSE ALLOWANCE

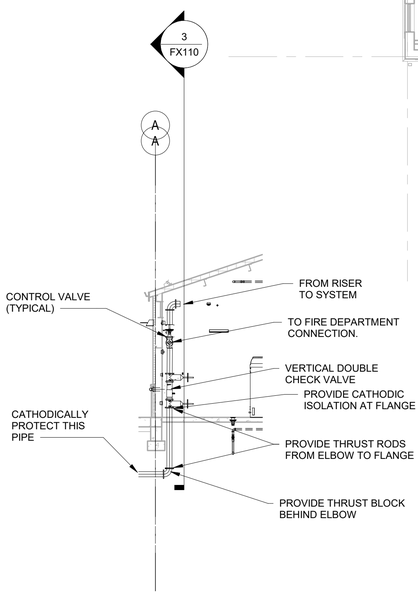
GENERAL NOTES

1. PROVIDE SPRINKLER HEADS UNDER GARAGE DOORS.

2.PROVIDE DRY SPRINKLER HEADS UNDER CANOPY.

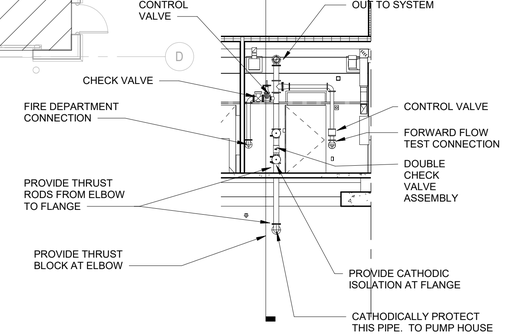
3. PROVIDE FIRE SPRINKLER SYSTEM IN ACCORDANCE WITH UFC 3-600-01.

4. PER UFC 3-600-01, THE APPARATUS BAY SYSTEM AREA MUST BE INCREASED BY 30% SINCE THE ROOF SLOPE IS GREATER THAN 2 IN 12.



FIRE SPRINKLER RISER - VIEW PLAN EAST

2 / FX110 — 1/8" = 1'-0"



FIRE SPRINKLER RISER - VIEW PLAN SOUTH

3 / FX110 — 1/8" = 1'-0"

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: B. ERBSTOESSER
DRAWN BY: B. ERBSTOESSER
CHECKED BY: J. SWERCZEK
SUBMITTED BY: J. SWERCZEK
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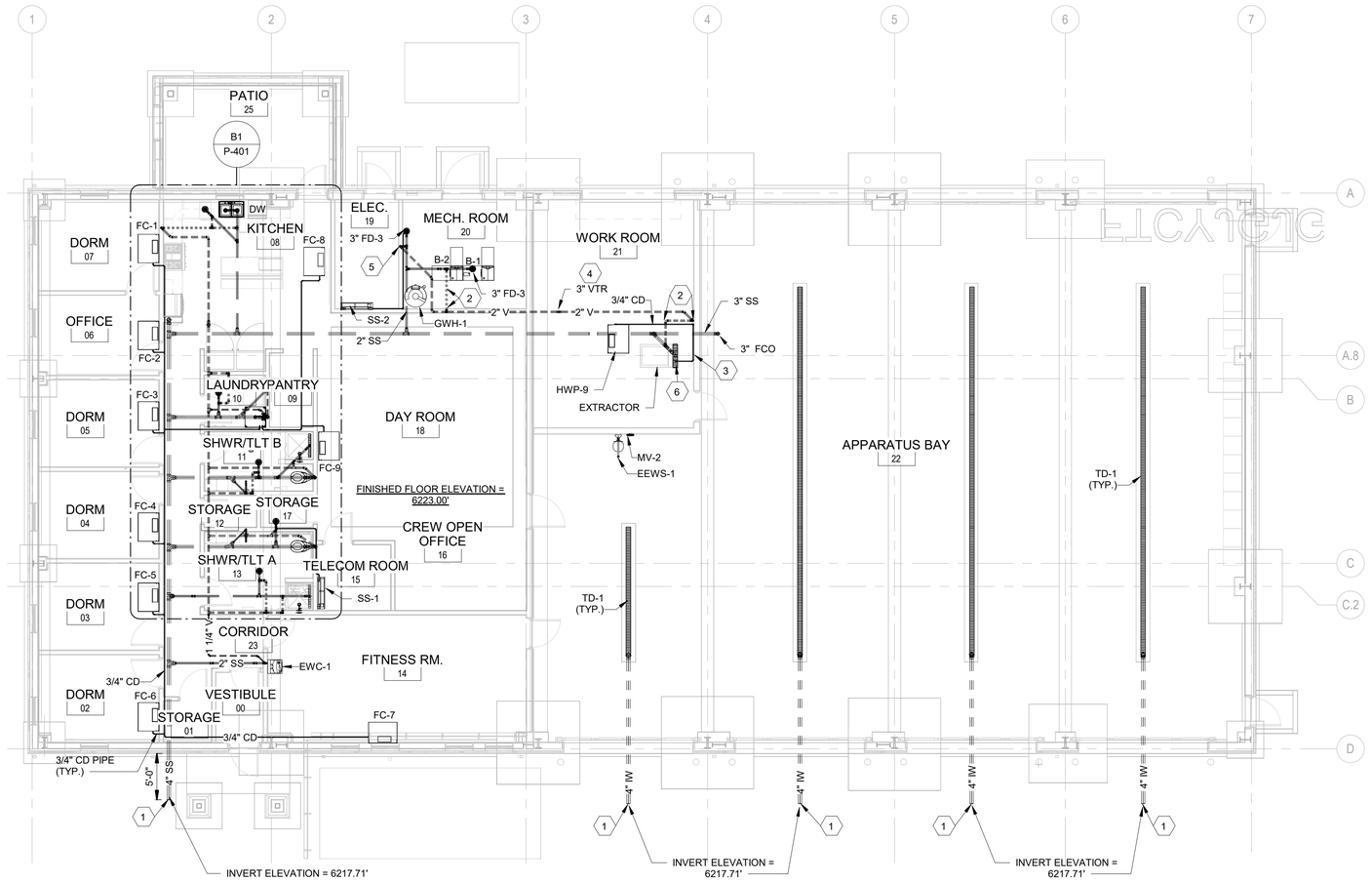
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE FIRE SUPPRESSION PLAN

SHEET ID

FX110

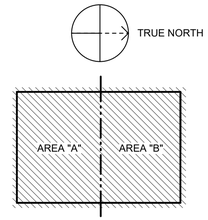


GENERAL NOTES:

1. REFER TO SPECIFICATIONS FOR MATERIALS AND METHODS FOR CONSTRUCTION.
2. DO NOT SCALE THESE DRAWINGS FOR CONSTRUCTION PURPOSE.
3. REFER TO PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES TO INDIVIDUAL FIXTURES AND EQUIPMENT.
4. COORDINATE WORK WITH ALL OTHER TRADES. DO NOT EXTEND ANY WATER OR PROCESSED PIPING ABOVE ELECTRICAL PANELS.
5. COORDINATE THE EXACT LOCATION OF FLOOR DRAINS WITH THE ARCHITECTURAL DRAWINGS AND MECHANICAL EQUIPMENT LOCATIONS PRIOR TO INSTALLATION OF DRAINS.
6. PROVIDE ADDITIONAL CLEANOUTS AT LOCATIONS INDICATED IN SPECIFICATIONS AND/OR REQUIRED BY CODE.
7. FURNISH ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS WHERE ACCESS IS REQUIRED TO CONCEALED PLUMBING EQUIPMENT, VALVES, CONTROLS AND OTHER DEVICES.
8. COORDINATE WORK WITH ARCHITECTURAL FEATURES AND COORDINATE WORK SUCH THAT INTERFERENCES BETWEEN PIPING, DUCTWORK, EQUIPMENT, PLUMBING WORK, ELECTRICAL WORK, FIRE PROTECTION WORK, AND BUILDING STRUCTURE WILL BE AVOIDED.
9. PIPES PASSING THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED WITH FIRESTOPPING MATERIAL LISTED FOR SPECIFIC APPLICATION. REFER TO ARCH SPECIFICATION 07 84 00 "FIRE STOPPING".

PLUMBING KEYNOTES:

1. REFER TO SHEET CU101 FOR CONTINUATION.
2. 2" VENT BELOW FLOOR. EXTEND PIPE TO WALL AND RISE UP EXPOSED ON WALL TO 2" VENT ABOVE.
3. 6" WIDE X 30" LONG X 12" DEEP TROUGH DRAIN FOR WASHER EXTRACTOR. PROVIDE WITH BOTTOM OUTLET AND 3" DEEP SEAL P-TRAP. PROVIDE SEDIMENT TRAP ON THE WASHER DISCHARGE LINE.
4. 2" VENT UP. TRANSITION TO 3" BEFORE EXITING ROOF TO 3" VTR.
5. 2" VENT BELOW FLOOR. EXTEND PIPE TO WALL AND RISE UP IN WALL TO 2" VENT ABOVE.
6. DROP 3/4" CONDENSATE DRAIN (CD) DOWN TO TROUGH DRAIN WITH 2" AIR GAP.



KEYPLAN

NO SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: M. HOFFMAN
DRAWN BY: M. HOFFMAN
CHECKED BY: J. SWERCZEK
SUBMITTED BY: J. SWERCZEK
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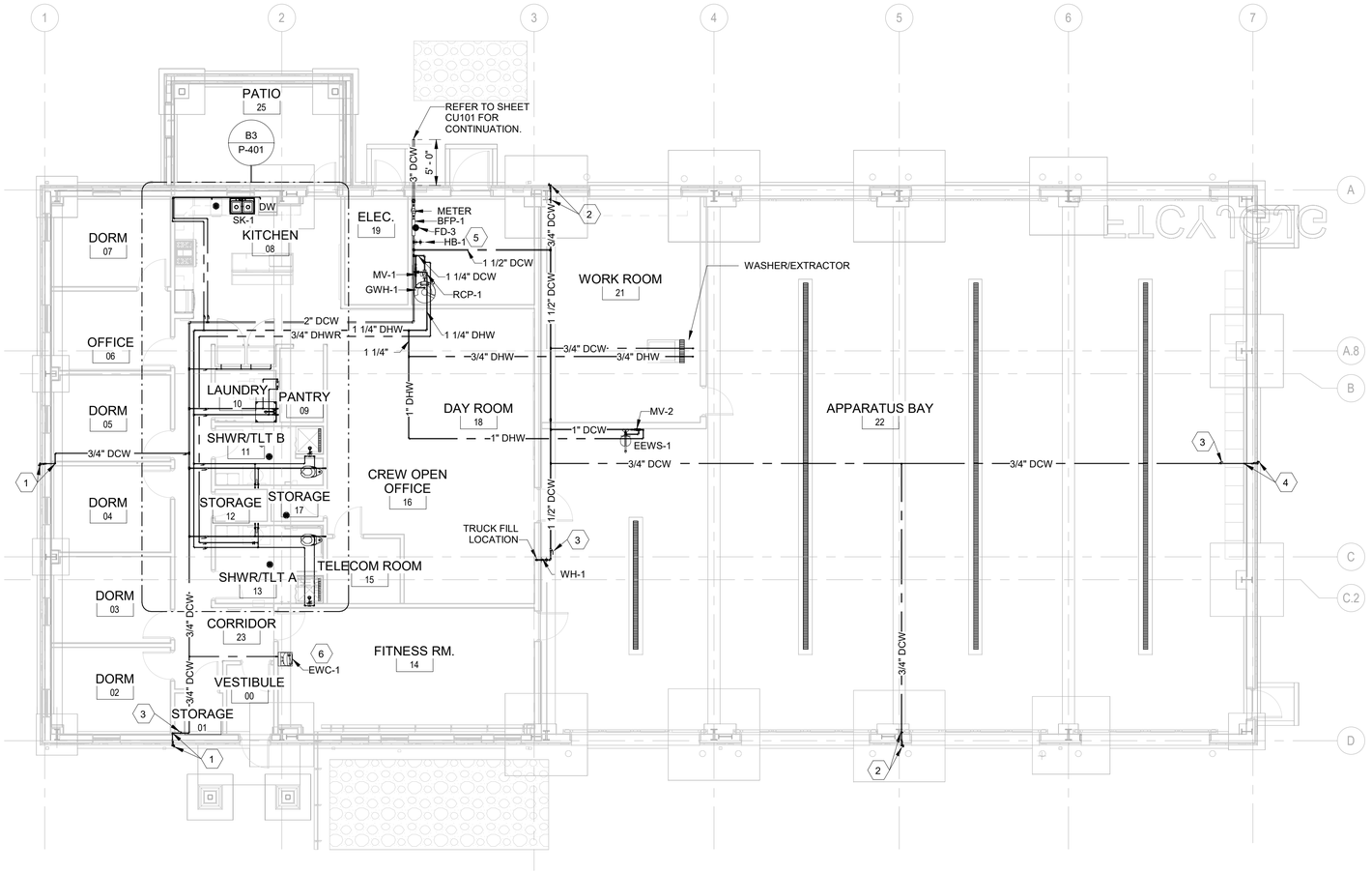
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (FY23)

COMPOSITE WASTE & VENT PLAN

SHEET ID

P-110

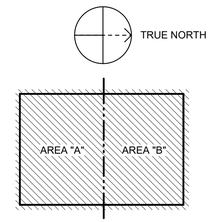


B1 COMPOSITE DOMESTIC WATER PLAN

1/8" = 1'-0"

PLUMBING KEYNOTES:

1. DROP 3/4" DCW DOWN IN WALL. EXTEND PIPE THROUGH WALL TO FREEZEPROOF WALL HYDRANT (FPWH-1). PROVIDE PIPE WALL SLEEVE. MOUNT FPWH-1 AT 28" ABOVE FINISHED GRADE.
2. DROP 3/4" DCW DOWN EXPOSED ON WALL. PROVIDE SHUT-OFF VALVE ON PIPE RISER. EXTEND PIPE THROUGH WALL TO FREEZEPROOF WALL HYDRANT (FPWH-1). PROVIDE PIPE WALL SLEEVE. MOUNT FPWH-1 AT 28" ABOVE FINISHED GRADE.
3. SHUT-OFF VALVE (TYPICAL).
4. DROP 3/4" DCW DOWN EXPOSED ON WALL. EXTEND PIPE THROUGH WALL TO FREEZEPROOF WALL HYDRANT (FPWH-1). PROVIDE PIPE WALL SLEEVE. MOUNT FPWH-1 AT 28" ABOVE FINISHED GRADE.
5. MOUNT HOSE BIBB (HB-1) AT 28" ABOVE FINISHED FLOOR.
6. PROVIDE DEDICATED 1/2" DCW PIPE TO ELECTRIC WATER COOLER (EWC-1) IN FITNESS ROOM 14 FOR USER PROVIDED REVERSE OSMOSIS SYSTEM. PROVIDE SHUT-OFF VALVES UPSTREAM AND DOWNSTREAM OF SYSTEM FOR MAINTENANCE OR REMOVAL OF REVERSE OSMOSIS SYSTEM.



KEYPLAN

NO SCALE

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY:	M. HOFFMAN
DRAWN BY:	M. HOFFMAN
CHECKED BY:	J. SWERCZEK
SUBMITTED BY:	J. SWERCZEK
SIZE:	ANSI D
ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
FILE NAME:	FCOR-FSTN-MEPFS2.rvt

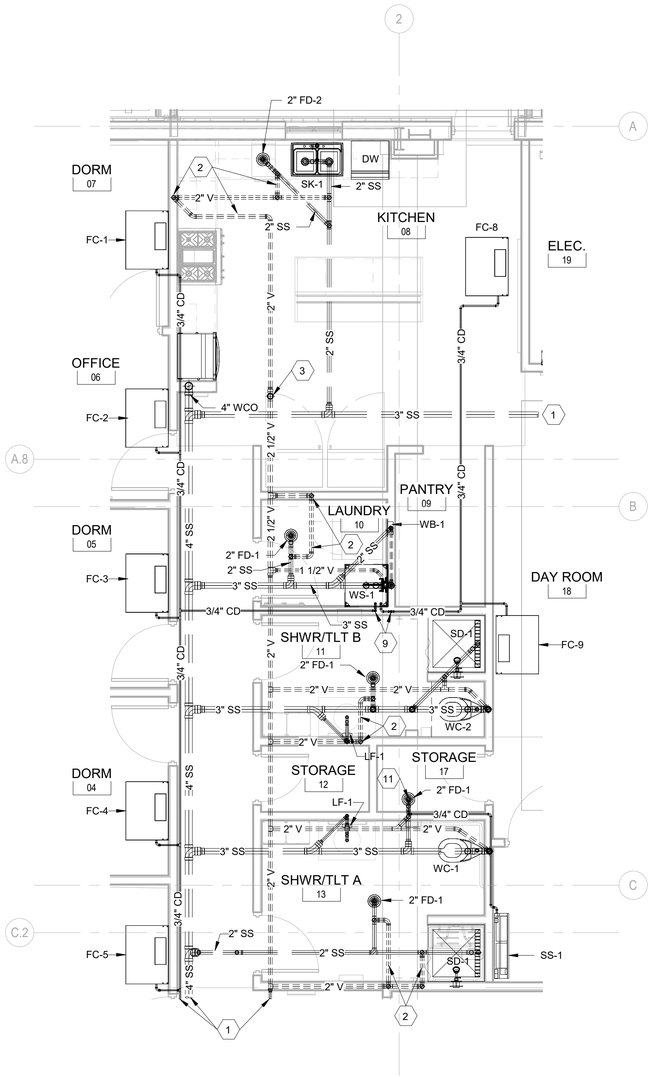
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE DOMESTIC WATER PLAN

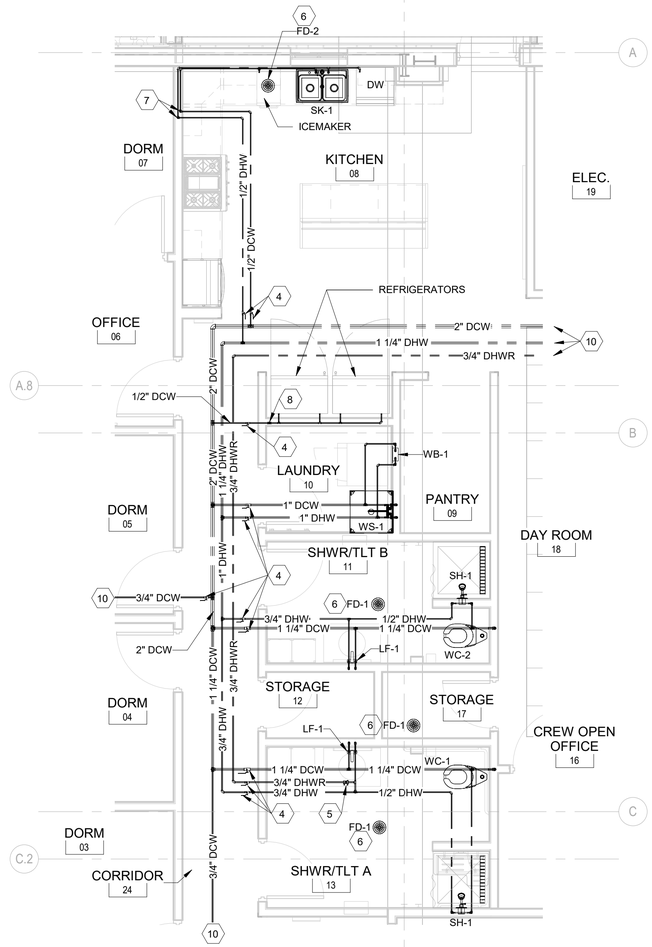
SHEET ID

P-111



B1 ENLARGED WASTE & VENT PLAN

1/4" = 1'-0"



B3 ENLARGED DOMESTIC WATER PLAN

1/4" = 1'-0"

PLUMBING KEYNOTES:

1. REFER TO SHEET P-110 FOR CONTINUATION.
2. 2" VENT BELOW FLOOR. EXTEND INTO WALL AND RISE UP TO 2" VENT IN FIRST FLOOR CEILING.
3. 3" VENT PIPE UP TO 3" VTR.
4. SHUT-OFF VALVE (TYPICAL).
5. PROVIDE AN AUTOMATIC FLOW CONTROL VALVE SET AT 1/2 GPM. PROVIDE AN ISOLATION VALVE AND UNION UP AND DOWNSTREAM OF THE FLOW CONTROL VALVE. REFER TO TYPICAL IN-LINE PUMP (RCP-1) DETAIL ON SHEET P-500/A1.
6. PROVIDE FLOOR DRAIN WITH AUTOMATIC TRAP PRIMER DEVICE. TRAP PRIMERS SHALL BE INSTALLED IN ACCORDANCE WITH IPC SECTION 1002.4 TRAP SEALS. REFER TO DETAILS ON SHEET P-502.
7. DROP 1/2" DCW/DHW DOWN IN WALL. EXTEND PIPE THRU CABINETRY TO SINK AND DISHWASHER. FIELD VERIFY.
8. DROP 1/2" DCW DOWN IN WALL AND EXTEND TO REFRIGERATOR/ FREEZER(S) PER MANUFACTURER'S RECOMMENDATIONS.
9. DROP 3/4" CONDENSATE DRAIN (CD) PIPE DOWN IN WALL. EXTEND THROUGH WALL TO DRAIN OF WASH SINK. PROVIDE A MINIMUM 2" AIR GAP.
10. REFER TO SHEET P-111 FOR CONTINUATION.
11. DROP 3/4" CONDENSATE DRAIN PIPE DOWN TO FLOOR DRAIN WITH 2" AIR GAP.

TRUE NORTH

0 1' 2' 4'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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DESIGNED BY: M. HOFFMAN
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SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
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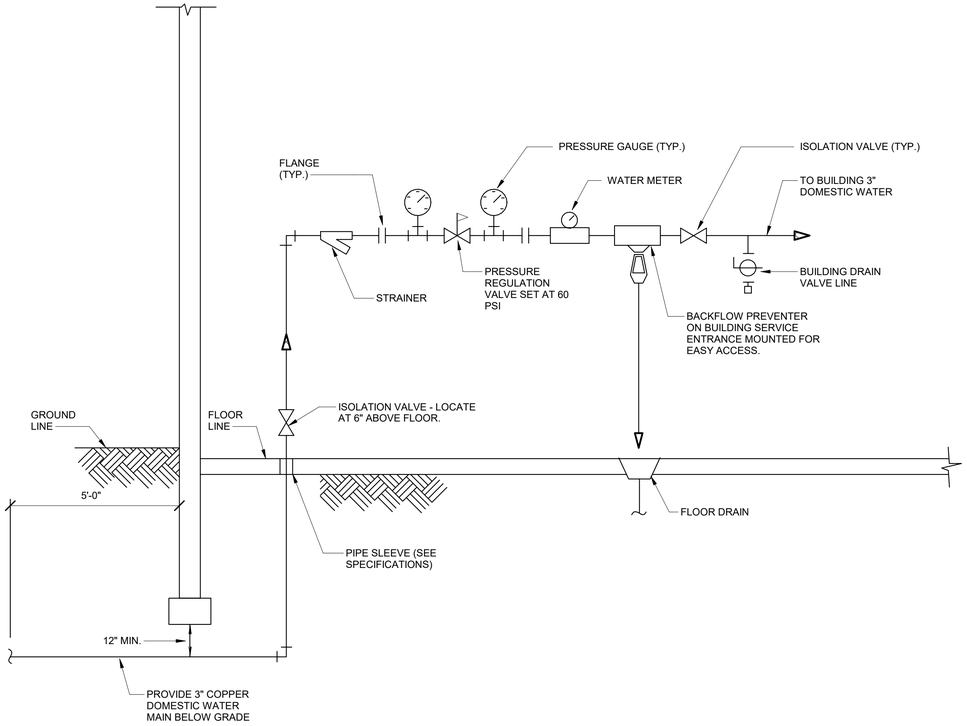
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

ENLARGED PLUMBING PLANS

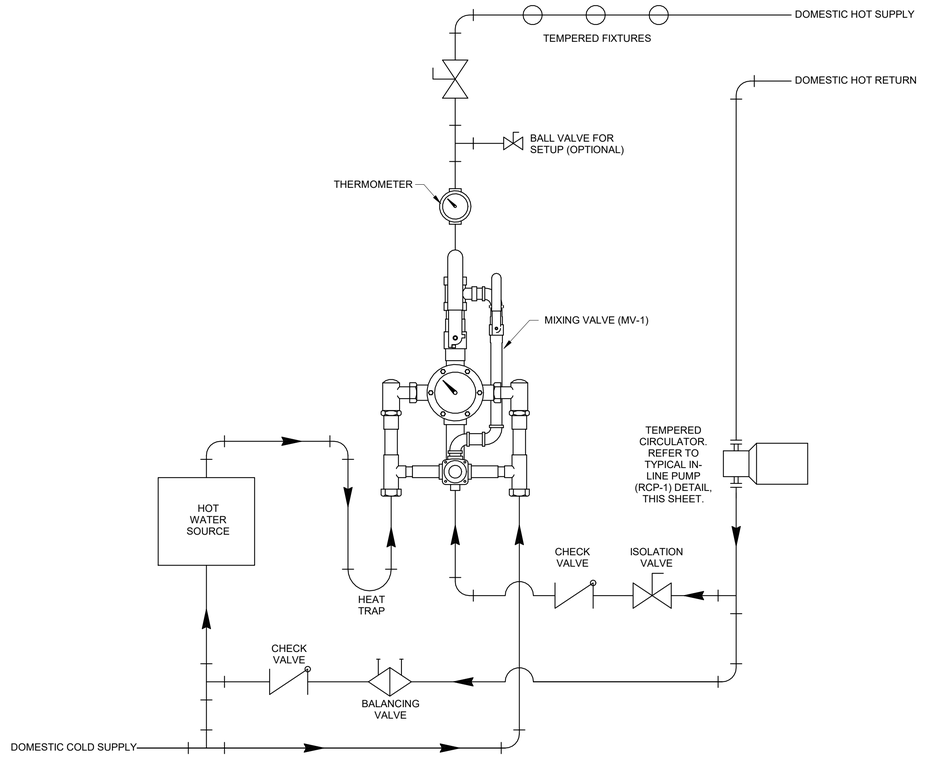
SHEET ID

P-401



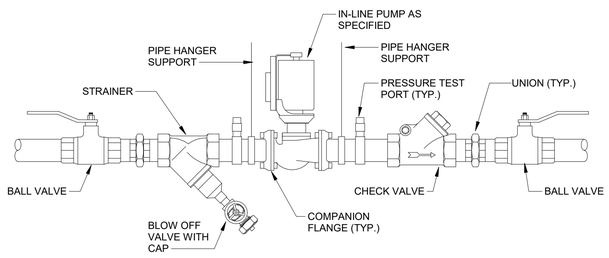
C1 DOMESTIC WATER SERVICE SLAB-ON GRADE DETAIL

NOT TO SCALE



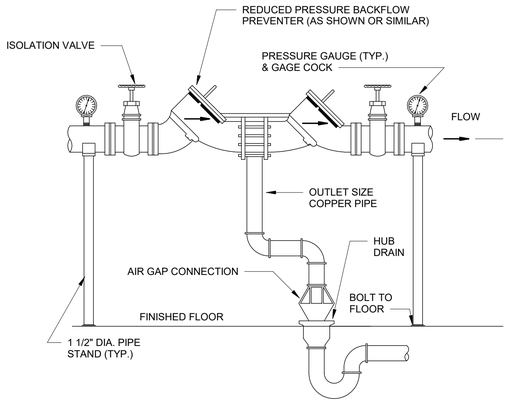
C4 THERMOSTATIC MIXING VALVE DETAIL

NOT TO SCALE



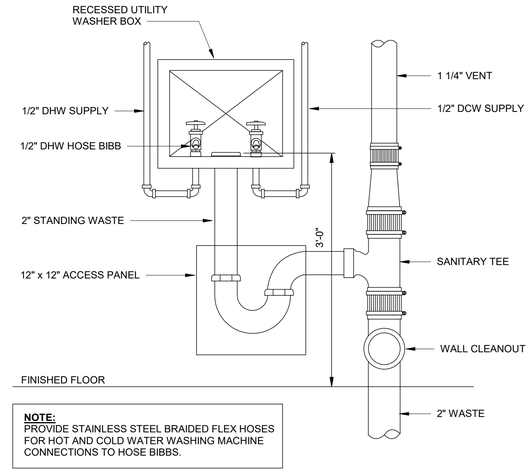
A1 TYPICAL IN-LINE PUMP (RCP-1) DETAIL

NOT TO SCALE



A3 BACKFLOW PREVENTER DETAIL

NOT TO SCALE



NOTE:
PROVIDE STAINLESS STEEL BRAIDED FLEX HOSES FOR HOT AND COLD WATER WASHING MACHINE CONNECTIONS TO HOSE BIBBS.

A4 WASHER BOX DETAIL

NOT TO SCALE

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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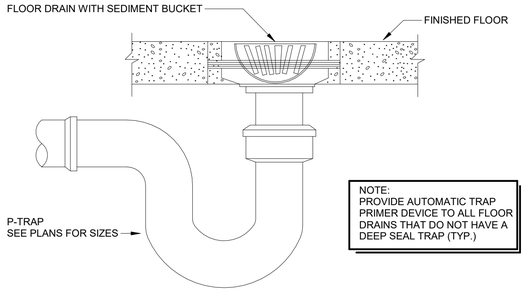
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101468 (FY23)

PLUMBING DETAILS

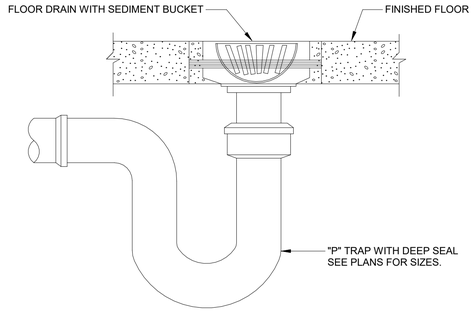
SHEET ID

P-500



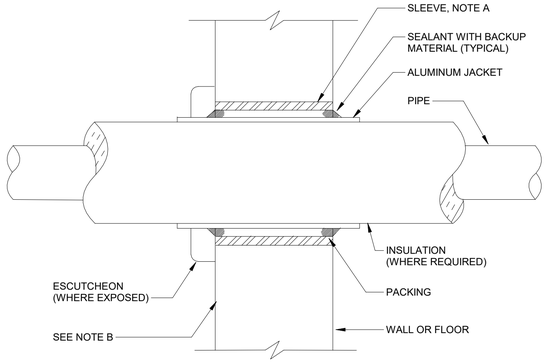
D1 FLOOR DRAIN (FD-1) DETAIL

NOT TO SCALE



D4 FLOOR DRAIN WITH DEEP SEAL TRAP (FD-2) DETAIL

NOT TO SCALE

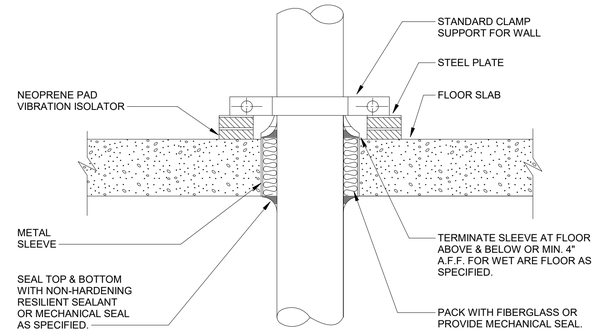


NOTES:

A. IN BEARING AND WALL BOARD WALLS, SLEEVE TO BE SCHEDULE 40 PIPE MATERIAL.
B. THIS DETAIL IS FOR NON-FIRE RATED CONSTRUCTION. PIPE PENETRATIONS OF FIRE-RATED CONSTRUCTION SHALL BE FIRE STOPPED WITH U.L. CLASSIFIED SYSTEM.

B1 TYPICAL WALL SLEEVE DETAIL

NOT TO SCALE

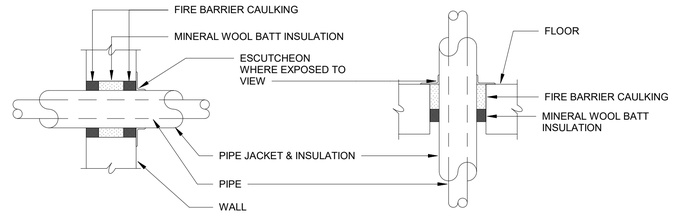


NOTES:

A. SEE SPECIFICATIONS FOR MATERIAL REQUIREMENTS.
B. THIS DETAIL IS FOR NON-FIRE RATED CONSTRUCTION. PIPE PENETRATIONS FOR FIRE-RATED CONSTRUCTION SHALL BE FIRE STOPPED WITH A U.L. CLASSIFIED SYSTEM.

B2 TYPICAL FLOOR SLEEVE DETAIL

NOT TO SCALE



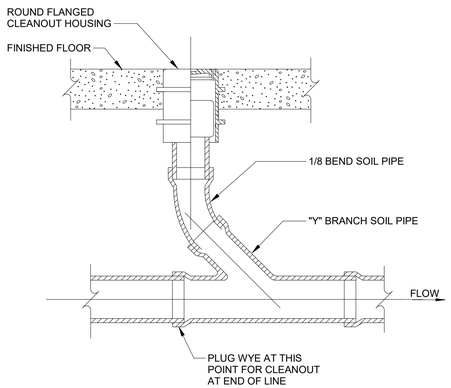
NOTE:

THE ASSEMBLY ABOVE IS BASED ON U.L. PENETRATION ASSEMBLY NO.91. INSTALL PENETRATION ASSEMBLY IN ACCORDANCE WITH ITS LISTING.

INSULATED PIPE

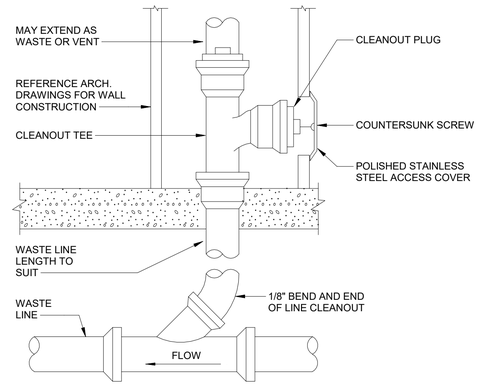
B4 INSULATED FIRE PENETRATION DETAIL

N.T.S.



A1 FLOOR CLEANOUT DETAIL

NOT TO SCALE



A4 WALL CLEANOUT FINISHED ROOM DETAIL

NOT TO SCALE

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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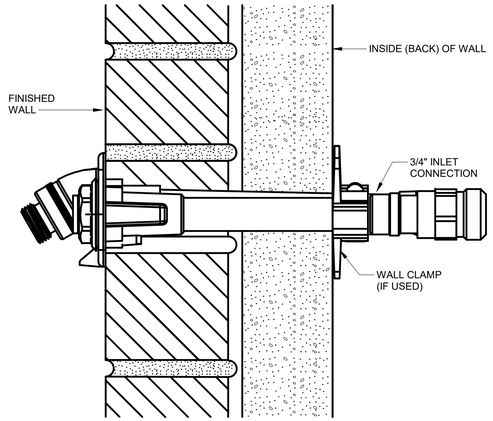
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

PLUMBING DETAILS

SHEET ID

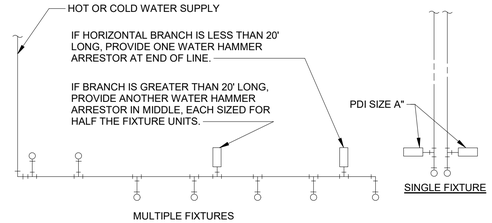
P-501



C1 FREEZEPROOF WALL HYDRANT
NOT TO SCALE

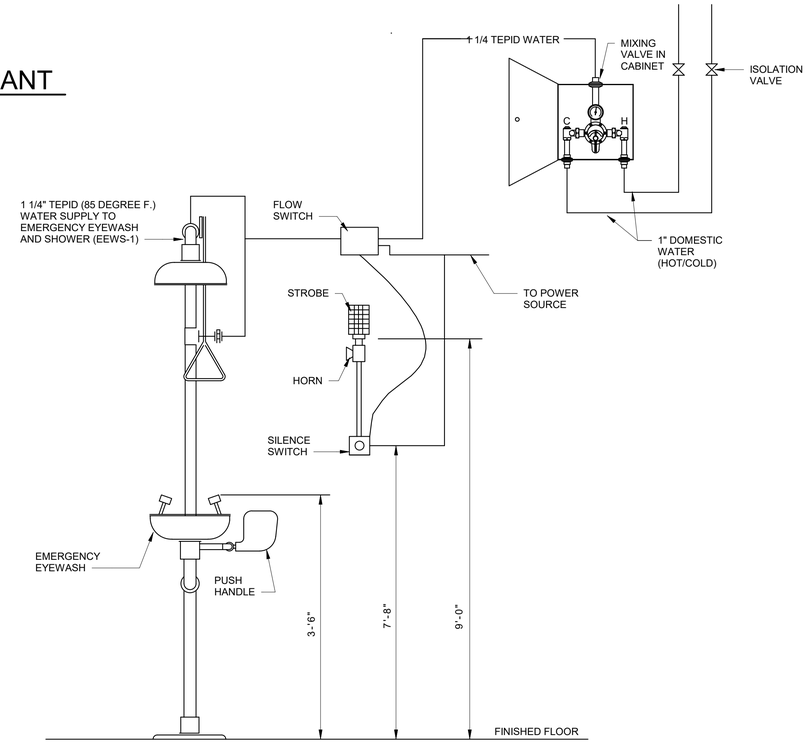
PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1-11
B	3/4"	12-32
C	1"	33-60
D	1 1/4"	61-113
E	1 1/2"	114-154
F	2"	155-330

INSTALL PER PDI STANDARDS AND MANUFACTURER'S INSTRUCTIONS.



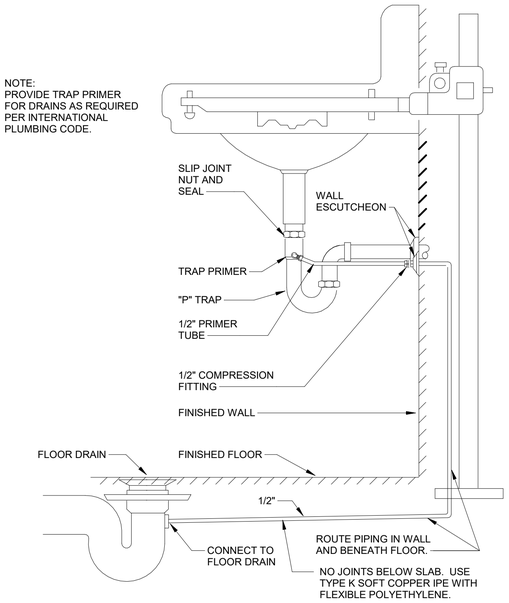
PROVIDE WATER HAMMER ARRESTERS HAVING PDI #WH-201, ASSE #1010 AND ANSI #A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN-LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE UNITS AS SHOWN ON THE DRAWINGS AND/OR PER THE TABLES SHOWN ABOVE.

C3 WATER HAMMER ARRESTOR DETAIL
NOT TO SCALE

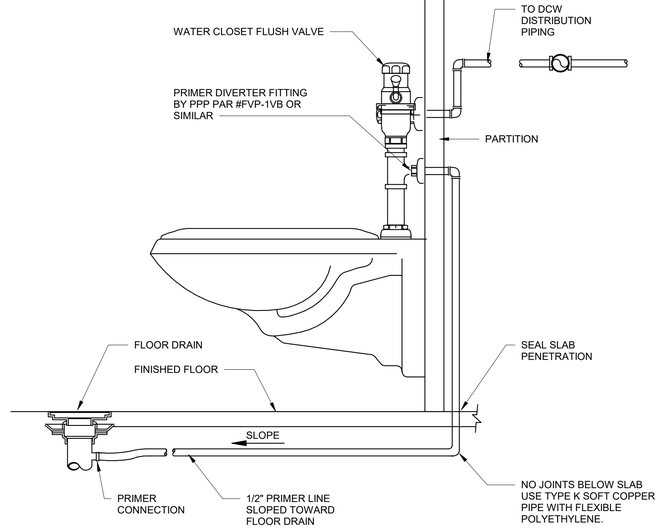


A2 EMERGENCY SHOWER/EYE WASH DETAIL
NOT TO SCALE

NOTE:
PROVIDE TRAP PRIMER FOR DRAINS AS REQUIRED PER INTERNATIONAL PLUMBING CODE.



C4 TRAP PRIMER DEVICE TAILPIECE SUPPLY DETAIL
NOT TO SCALE



A4 TRAP PRIMER DIVERTER AT WATER CLOSET DETAIL
NOT TO SCALE

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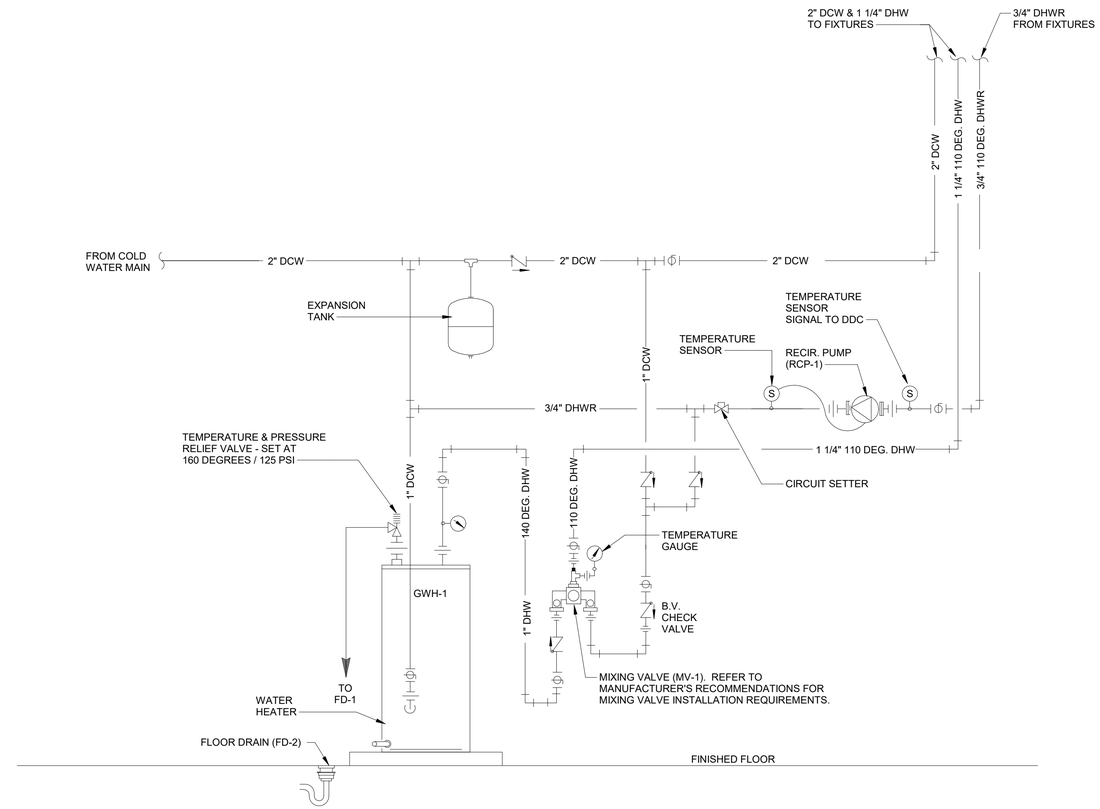
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

PLUMBING DETAILS

SHEET ID
P-502



B2 GAS FIRED WATER HEATER SCHEMATIC

NOT TO SCALE

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SUBMITTED BY: J. SWERCZEK	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 / (FY23)

WATER HEATER SCHEMATIC

SHEET ID

P-503

RECIRCULATION PUMP SCHEDULE

MARK	SERVICE	DRIVE TYPE	FLOW RATE (GPM)	PUMP HEAD	VOLTAGE	NOTES
RCP-1	110 DEG. F. RETURN	INLINE CIRC VARIABLE SPEED	1	2	115V/1P	1

NOTES:
1. RCP-1 TO OPERATE OFF AQUASTAT TO MAINTAIN LOOP TEMPERATURE.

BACKFLOW PREVENTER SCHEDULE

MARK	TYPE	SERVES	SIZE (IN)	DESIGN FLOW (GPM)	PRESSURE DROP (PSI)	NOTES
BFP-1	RPZ	DCW	3"	80 GPM	13 PSI	1, 2

NOTES:
1. PROVIDE WITH SHUT-OFF VALVE.
2. DRAIN WITH AIR GAP TO FLOOR DRAIN BELOW ASSEMBLY.

THERMOSTATIC MIXING VALVE SCHEDULE

MARK	SERVES	LOCATION	WATER TEMPERATURE			MIN. GPM	MAX. GPM	NOTES
			HOT WATER	COLD WATER	FINAL MIXED			
MV-1	DOMESTIC HW	MECH ROOM 20	140	50	110	1	26	1
MV-2	EMERGENCY SHOWER/EYEWASH	APPARATUS BAY 22	110	50	85	1.5	10.5	1

NOTES:
1. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	DCW	DHW	TW	W	V	NOTES
WC-1	WATER CLOSET - FLOOR MOUNTED (ABA) - 1.28 GPF	1"	-	-	3"	2"	1
WC-2	WATER CLOSET - FLOOR MOUNTED - 1.28 GPF	1"	-	-	3"	2"	2
LF-1	LAVATORY FAUCET - 0.5 GPM	1/2"	1/2"	-	-	-	3
SH-1	SHOWER HEAD & ACCESSORIES - 1.5 GPM	1/2"	1/2"	-	2"	1 1/2"	4
SK-1	DOUBLE COMPARTMENT SINK - 1.5 GPM	1/2"	-	-	1 1/4"	1 1/4"	5
EWC-1	ELECTRIC WATER COOLER	1/2"	-	-	1 1/4"	1 1/4"	6
WS-1	WASH SINK	3/4"	3/4"	-	3"	1 1/2"	7
WB-1	WASHER BOX	1/2"	1/2"	-	2"	1 1/4"	--
EEWS-1	EMERGENCY SHOWER/EYEWASH (FREEZEPROOF)	1/2"	1/2"	-			8
SD-1	SHOWER DRAIN	-	-	-	2"	2"	--
FD-1	FLOOR DRAIN	-	-	-	SEE DWGS	SEE DWGS	9
FD-2	FLOOR DRAIN	-	-	-	SEE DWGS	SEE DWGS	10
FD-3	HEAVY DUTY FLOOR DRAIN	-	-	-	SEE DWGS	SEE DWGS	11
TD-1	TRENCH DRAIN	-	-	-	3"	-	12
FCO	FLOOR CLEANOUT	-	-	-	SEE DWGS	SEE DWGS	--
WCO	WALL CLEANOUT	-	-	-	SEE DWGS	SEE DWGS	--
HB-1	HOSE BIBB	3/4"	-	-	-	-	--
WH-1	WALL HYDRANT	1 1/2"	-	-	-	-	13
FPWH-1	FREEZEPROOF WALL HYDRANT	3/4"	-	-	-	-	--

NOTES:
1. INSTALL WATER CLOSET WITH TOP OF SEAT AT 16 1/2 TO 19 INCHES A.F.F. INSTALL FLUSH VALVE ON WIDE, CLEARANCE SIDE OF FIXTURE. SUPPLY WITH EXTRA HEAVY DUTY ELONGATED OPEN FRONT SEAT LESS COVER AND BATTERY POWERED FLUSH VALVE.
2. INSTALL WATER CLOSET WITH EXTRA HEAVY DUTY ELONGATED OPEN FRONT SEAT LESS COVER AND BATTERY POWERED FLUSH VALVE .
3. LAVATORY IS INTEGRAL TO COUNTERTOP. REFER TO SPECIFICATION SECTION 09 06 00, SCHEDULE FOR FINISHES FOR MATERIAL AND COLOR. PROVIDE ON FAUCET WATER SENSE LABELED WITH 0.5 GPM AERATOR.
4. PROVIDE SHOWER VALVE WITH INTEGRAL SHUTOFF VALVE ACCESSIBLE BEHIND THE COVER PLATE. MOUNT 36" SLIDE BAR SO THAT SHOWER HEAD IS AT 6'-8". FIELD VERIFY HEIGHT WITH CONTRACTING OFFICER'S REPRESENTATIVE.
5. PROVIDE AND INSTALL KITCHEN FAUCET WITH 1.5 GPM HOSE ADAPTER. PROVIDE GARBAGE DISPOSER.
6. ELECTRIC WATER COOLER SHALL BE STAINLESS STEEL, UNFILTERED MODEL WITH BOTTLE FILLER. PROVIDE A DEDICATED 1/2" DCW PIPE TO ELECTRIC WATER COOLER FOR USER PROVIDED REVERSE OSMOSIS SYSTEM.
7. WASH SINK SHALL BE 16 GAUGE STAINLESS STEEL. PROVIDE AND INSTALL WITH 8" SWING SPOUT FAUCET.
8. PROVIDE EMERGENCY SHOWER/EYEWASH WITH HAND HELD DRENCH HOSE AND ALARM SYSTEM.
9. PROVIDE FLOOR DRAIN WITH TRAP PRIMER DEVICE. REFER TO DETAILS ON SHEET P-502.
10. PROVIDE FLOOR DRAIN WITH 1/2 GRATE AND TRAP PRIMER DEVICE. REFER TO DETAILS ON SHEET P-502.
11. PROVIDE FLOOR DRAIN WITH DEEP SEAL TRAP, WATER TRAP SEAL AND SEDIMENT BUCKET.
12. PROVIDE TRENCH SYSTEM WITH EXTRA HEAVY DUTY REMOVABLE GRATE AND GRATE REMOVAL TOOL.
13. PROVIDE A 1 1/2" NATIONAL STANDARD HOSE THREAD FITTING.

EXPANSION TANK SCHEDULE

MARK	LOCATION	TYPE	SYSTEM	TANK VOLUME (GAL.)	DIAMETER (IN.)	HEIGHT (IN.)	MAX DESIGN TEMP (DEG. F)	MAX DESIGN PRESSURE (PSI)	NOTES
ET-1	MECH ROOM 20	BLADDER	DOMESTIC	10	12	25	140	150	1, 2

NOTES:
1. PRE-CHARGED WITH BOTTOM SYSTEM CONNECTION AND CHARGING VALVE CONNECTION.
2. CONSTRUCTED WITH REPLACEABLE FDA APPROVED BUTYL BLADDER.

PROPANE WATER HEATER SCHEDULE

MARK	LOCATION	STORAGE (GAL.)	RECOVERY (GPH @ 90 DEG. F RISE)	THERMAL EFFICIENCY	MAXIMUM INPUT (BTU/HR)	NOTES
PWH-1	MECH ROOM 20	100	261	97%	199,000	1

NOTES:
1. PROVIDE AND INSTALL RECOMMENDED CONCENTRIC VENT CAP.

US Army Corps of Engineers ®

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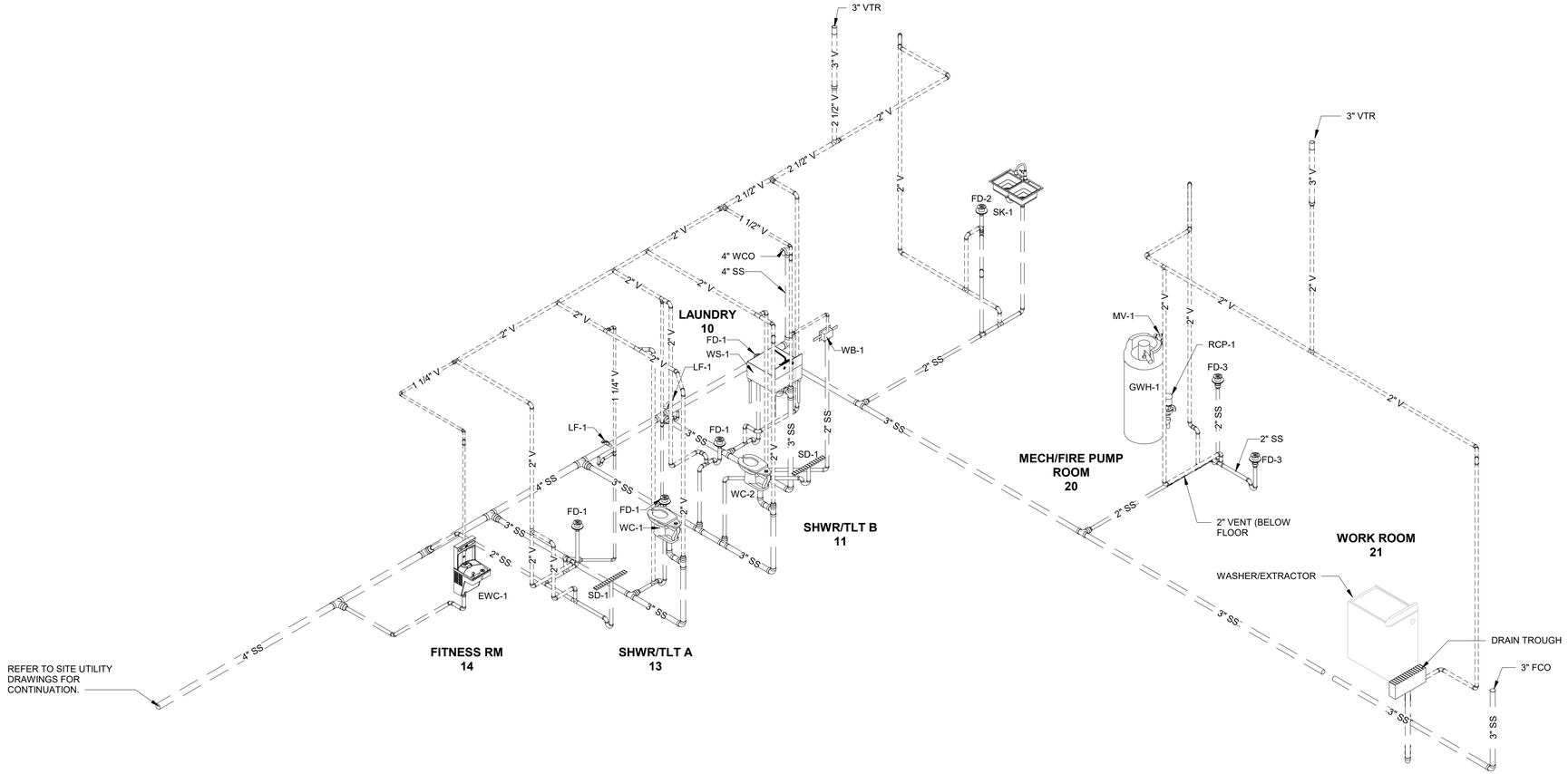
PN 101464 (FY23)

PLUMBING SCHEDULES

SHEET ID

P-600



1 P-900 BUILDING WASTE & VENT ISOMETRIC

US Army Corps of Engineers ®

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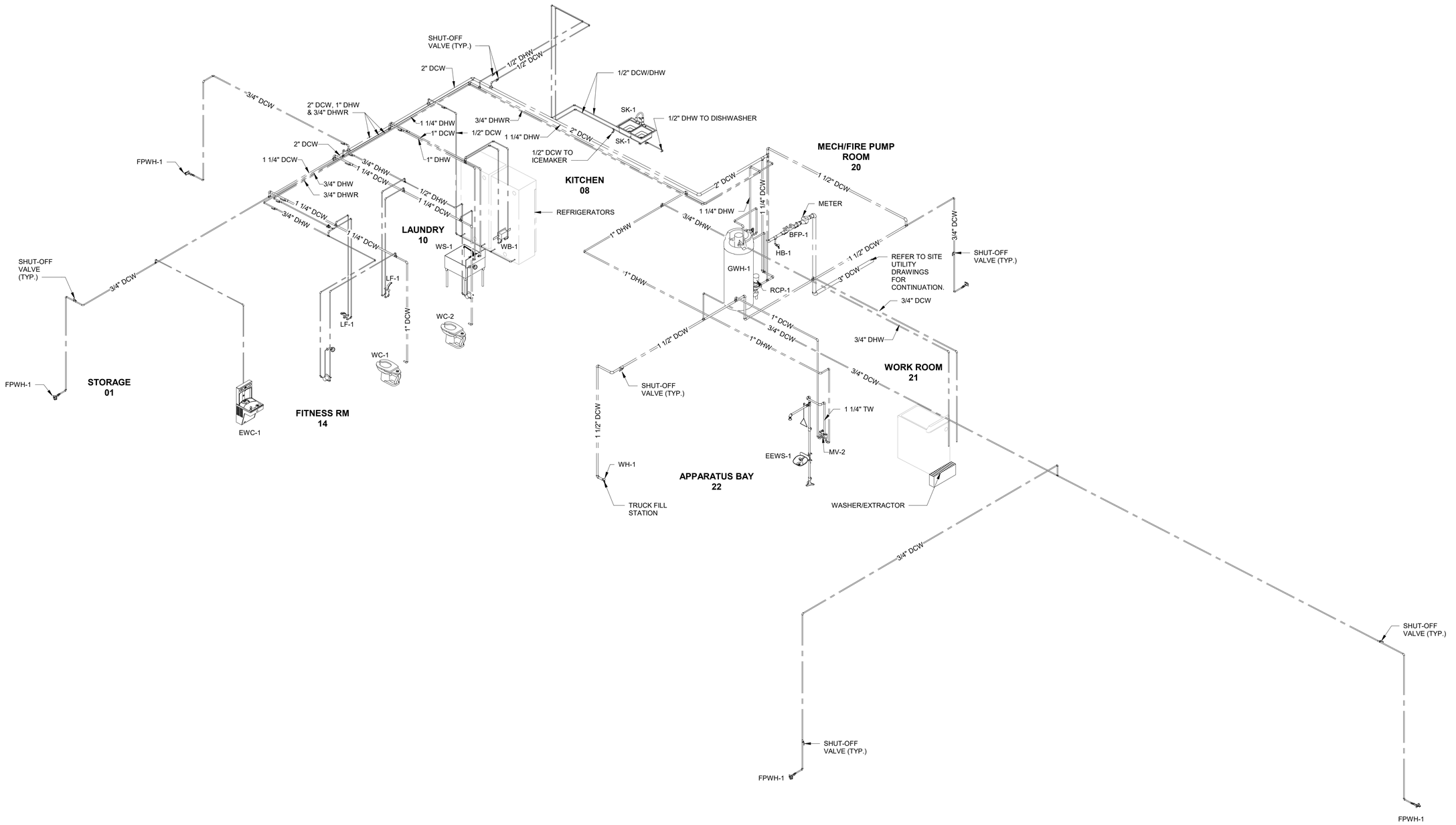
BUILDING WASTE & VENT ISOMETRIC

SHEET ID

P-900



1 P-901 BUILDING DOMESTIC WATER ISOMETRIC

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: M. HOFFMAN
DRAWN BY: M. HOFFMAN
CHECKED BY: J. SWERCZEK
SUBMITTED BY: J. SWERCZEK
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

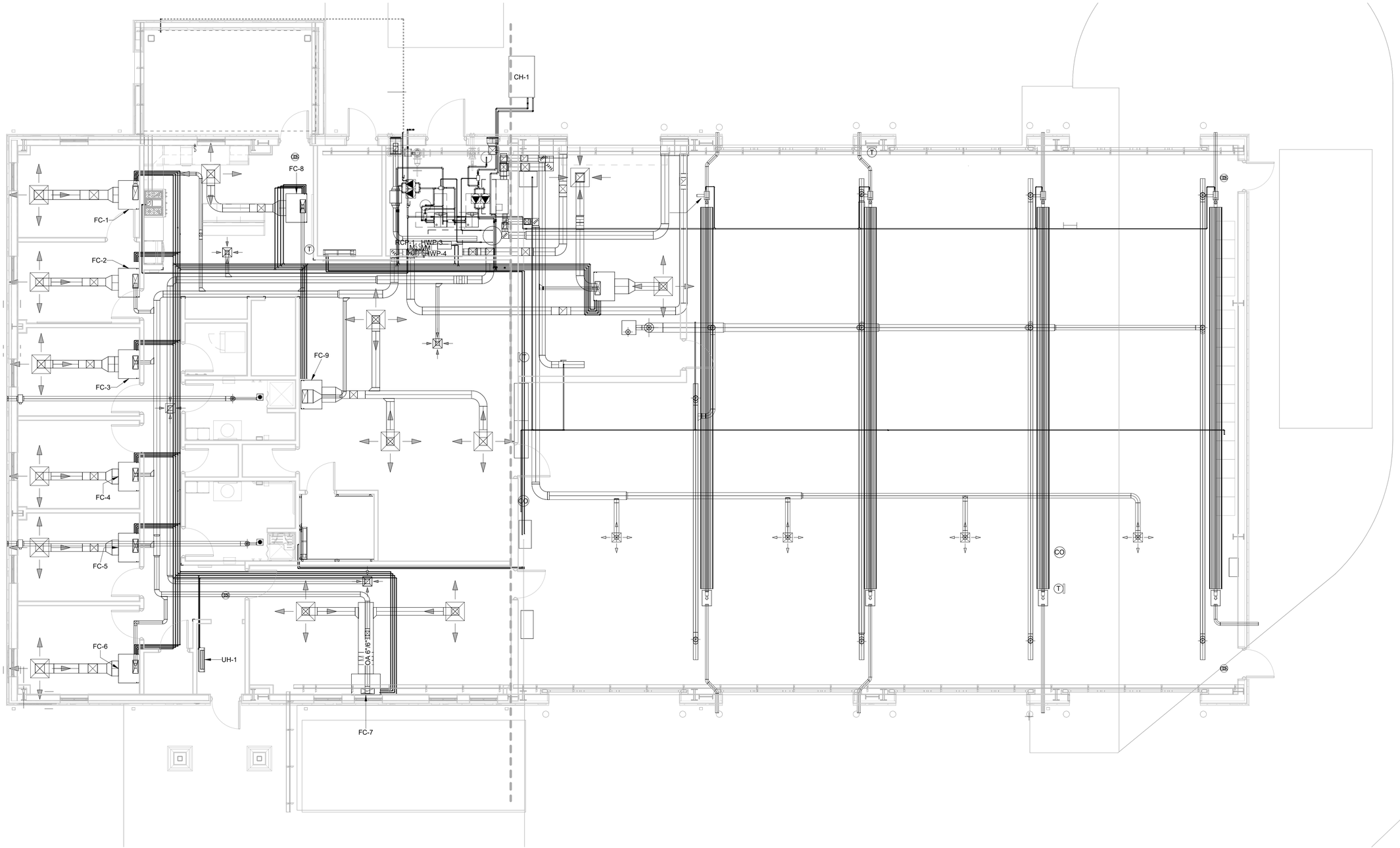
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (FY23)

BUILDING DOMESTIC WATER ISOMETERIC

SHEET ID

P-901



1 M-100

COMPOSITE MECHANICAL PLAN

3/16" = 1'-0"

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

DESIGNED BY: T. WEEDER	ISSUE DATE: 01/20/2023
DRAWN BY: T. WEEDER	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. SWERCZEK	CONTRACT NO.:
SUBMITTED BY: J. SWERCZEK, P.E.	FILE NUMBER:
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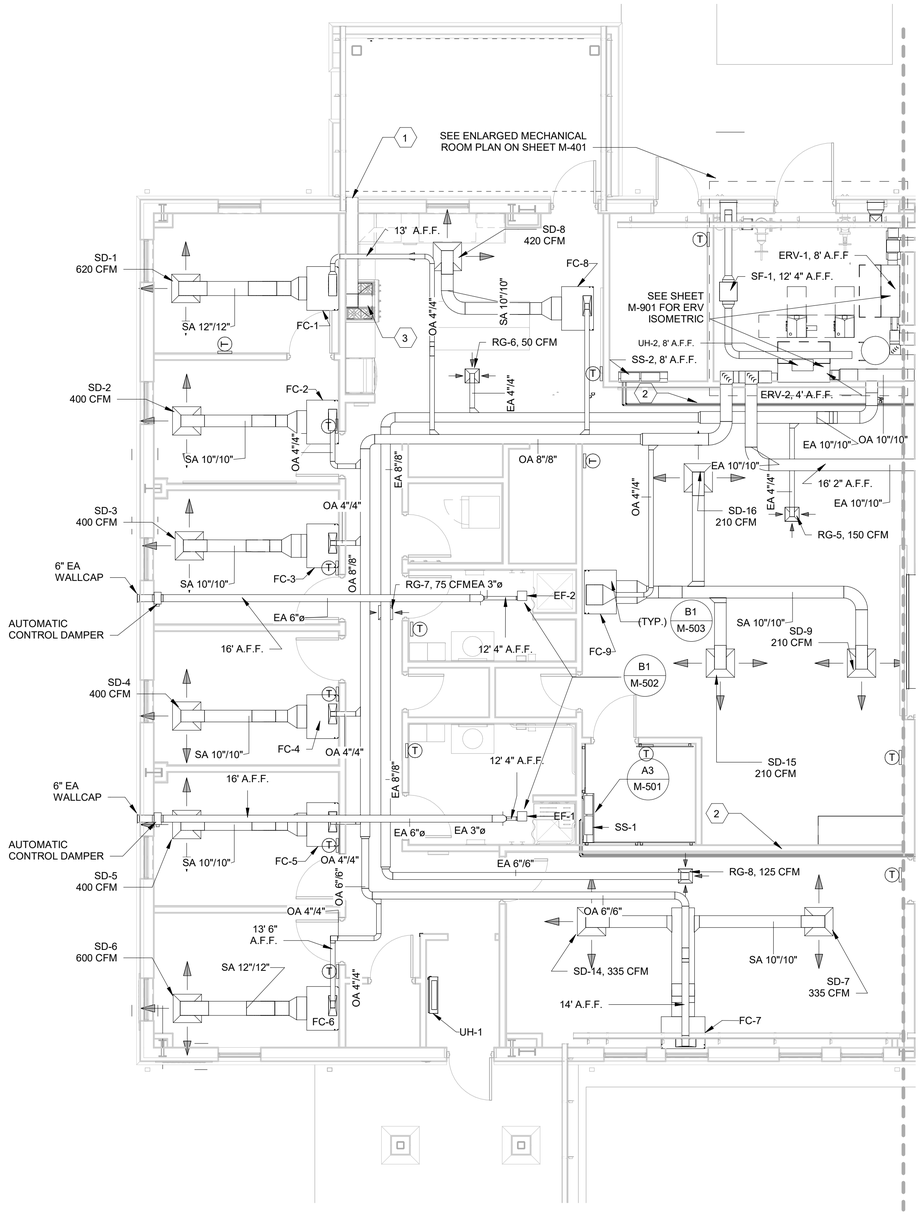
PN 101464 (FY23)

COMPOSITE MECHANICAL PLAN

SHEET ID

M-100



1 M-101 FIRST FLOOR HVAC PLAN AREA A

3/16" = 1'-0"

GENERAL NOTES
ALL ELEVATIONS ARE TAKEN FROM CENTER OF DUCTS.

ACTUAL DUCT ELEVATIONS MAY VARY SLIGHTLY AS NECESSARY. UNLESS OTHERWISE STATED , OUTSIDE AIR DUCT SYSTEM WILL BE AT 15' 2" A.F.F.

ACTUAL DUCT ELEVATIONS MAY VARY SLIGHTLY AS NECESSARY. UNLESS OTHERWISE STATED , EXHAUST AIR DUCT SYSTEM WILL BE AT 14' 2" A.F.F.

TEMPERATURE SENSORS SHALL BE INSTALLED 60" A.F.F. UNLESS INDICATED OTHERWISE.

PROVIDE BALANCING DAMPERS AT EACH DUCT RUNOUT.

PROVIDE EXHAUST AIR WALLCAPS WITH INTEGRAL HOOD, PEST SCREEN, AND BACKDRAFT DAMPERS.

MECHANICAL KEYNOTES:
1. PROVIDE EXHAUST DUCT WEATHER CAP.
2. REFRIGERANT SUCTION AND LIQUID LINES. LINE SIZES SHALL BE AS REQUIRED BY THE EQUIPMENT MANUFACTURER.
3. VERIFY INSTALLATION LOCATION OF RANGE BEFORE INSTALLING RANGE HOOD. INSTALL RANGE HOOD CENTERED OVER RANGE.

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: T. WEEDER
DRAWN BY: T. WEEDER
CHECKED BY: J. SWERCZEK
SUBMITTED BY: S. BECKER, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
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FORT CARSON, COLORADO
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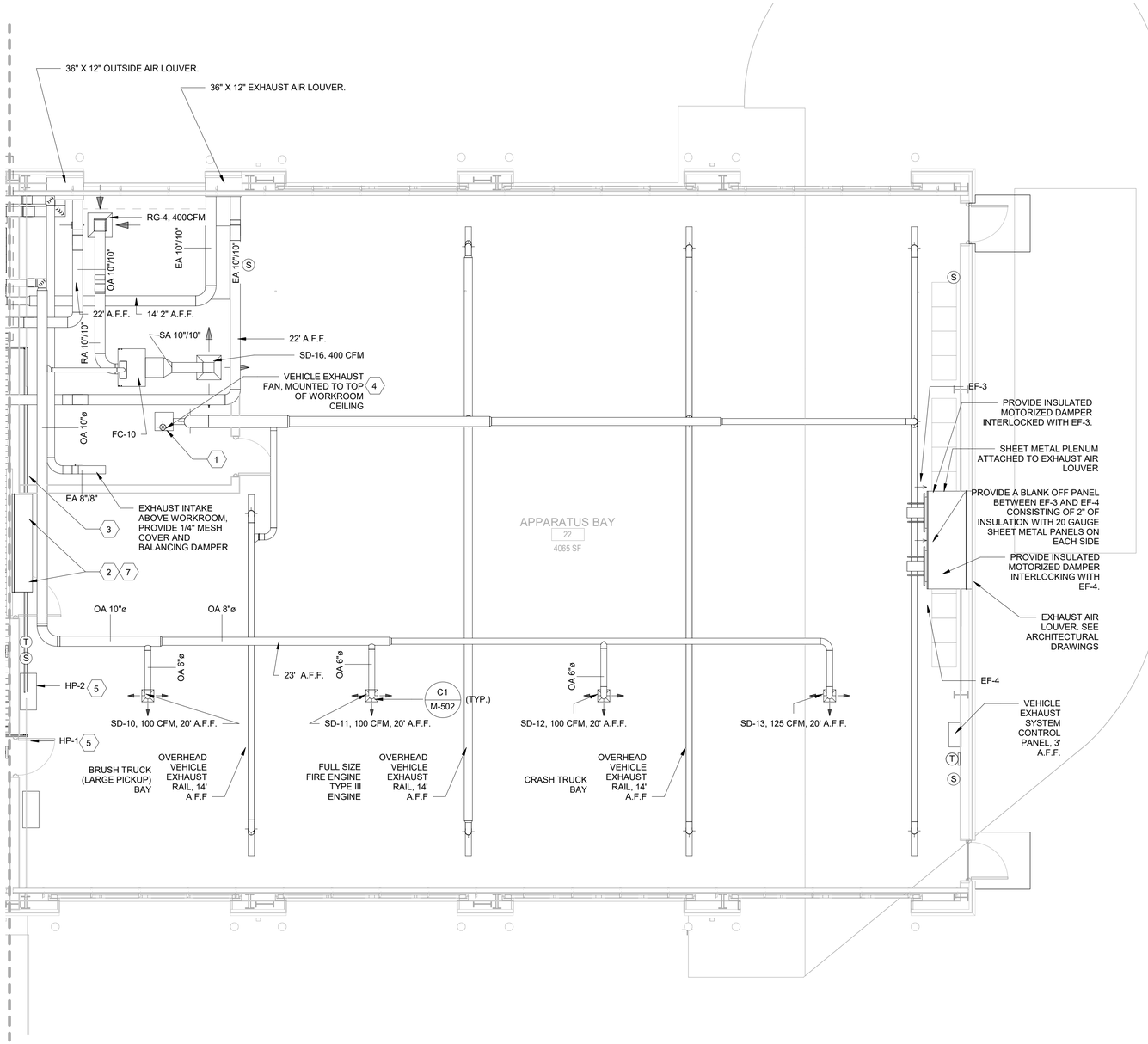
PN 101464 (FY23)

FIRST FLOOR HVAC PLAN
AREA A

SHEET ID
M-101



1 FIRST FLOOR HVAC PLAN AREA B
3/16" = 1'-0"

GENERAL NOTES
ALL ELEVATIONS ARE TAKEN FROM CENTER OF DUCTS.

ACTUAL DUCT ELEVATIONS MAY VARY SLIGHTLY AS NECESSARY. UNLESS OTHERWISE STATED , OUTSIDE AIR DUCT SYSTEM WILL BE AT 15' 2" A.F.F.

ACTUAL DUCT ELEVATIONS MAY VARY SLIGHTLY AS NECESSARY. UNLESS OTHERWISE STATED , EXHAUST AIR DUCT SYSTEM WILL BE AT 14' 2" A.F.F.

TEMPERATURE SENSORS SHALL BE INSTALLED 60" A.F.F. UNLESS INDICATED OTHERWISE.

VEHICLE EXHAUST SYSTEM NOTES:
THE VEHICLE EXHAUST SYSTEM IS SHOWN IN A GENERIC MANNER. THE SYSTEM MANUFACTURER/SUPPLIER SHALL DETERMINE THE FINAL SIZE AND LAYOUT OF THE SYSTEM DUCTWORK, OVERHEAD RAILS, AND THE CAPACITY OF THE SYSTEM EXHAUST FAN.

THE SYSTEM SERVING THE BRUSH TRUCK BAY SHALL ACCOMMODATE AN APPARATUS THAT IS BACKED INTO PLACE. THE SYSTEMS SERVING THE TYPE III FIRE ENGINE BAY AND THE CRASH TRUCK BAY SHALL ACCOMMODATE APPARATUS THAT WILL EITHER DRIVE THROUGH OR BACK INTO THE BAYS. THE SYSTEM(S) SHALL INCLUDE ALL CONTROL DEVICES, TRANSMITTERS, RECEIVERS, APPARATUS MOUNTED EQUIPMENT, ETC. SUCH THAT THE SYSTEM(S) ARE AUTOMATICALLY STARTED WHEN AN APPARATUS IS STARTED OR UPON RETURN OF THE APPARATUS TO THE BAYS. THE OVERHEAD EXHAUST RAILS SHALL EXTEND AS FAR FROM ONE END OF THE BAY TO THE OTHER AS IS PRACTICAL.

MECHANICAL KEYNOTES:
1. VEHICLE EXHAUST FAN VEF-1 DISCHARGE DUCT THROUGH THE ROOF. TERMINATE THE DUCT AS REQUIRED BY THE SYSTEM MANUFACTURER. SEE ARCHITECTURAL SHEETS FOR ROOF PENETRATION REQUIREMENTS.
2. TWO 4' X 4' OUTSIDE AIR INTAKES, INTERLOCK WITH EF-3/4. SEE DETAIL C3 ON M-501.
3. REFRIGERANT SUCTION AND LIQUID LINES. LINE SIZES SHALL BE AS REQUIRED BY THE EQUIPMENT MANUFACTURER.
4. PROVIDE FAN WITH VIBRATION ISOLATION TO MINIMIZE SOUND TRANSMISSION TO THE WORK ROOM BELOW.
5. INSTALL UNIT AT 3'-0" AFF. PROVIDE WALL MOUNTED SUPPORT ALLOWING MANUFACTURERS MINIMUM CLEARANCE REQUIREMENT.
6. COORDINATE LOCATION OF THE VEHICLE EXHAUST SYSTEM CONTROL PANEL WITH THE CONTRACTING OFFICERS REPRESENTATIVE.
7. PROVIDE WITH INSULATED MOTORIZED PARALLEL BLADE DAMPER, PLENUM, AND MESH SCREEN SIMILAR TO DETAIL C3 ON SHEET M-501. SEE ARCH SHEETS FOR ADDITIONAL LOUVER INFORMATION.

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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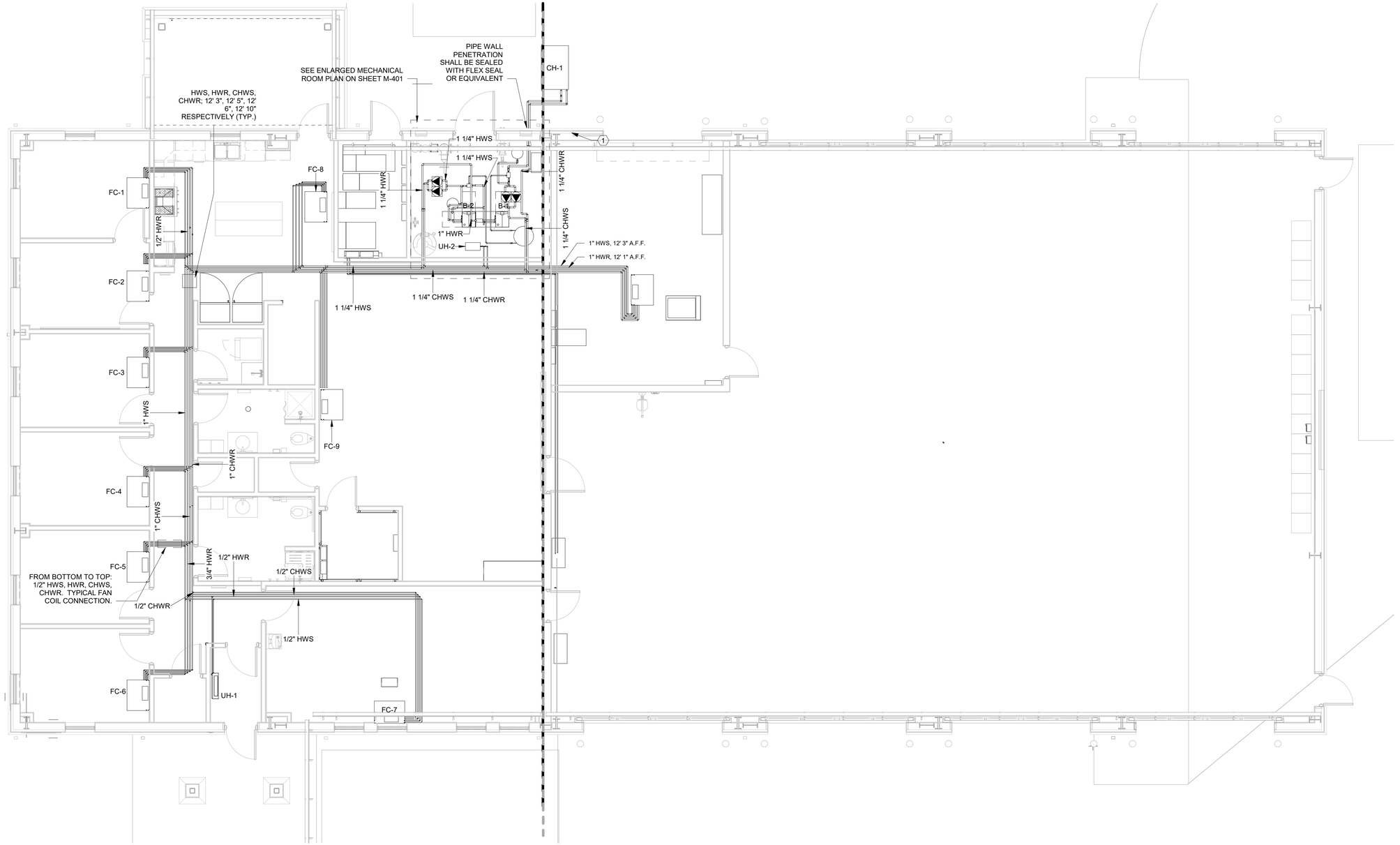
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (FY23)

FIRST FLOOR HVAC PLAN
AREA B

SHEET ID
M-102



1 M-103 FIRST FLOOR HYDRONICS PLAN

3/16" = 1'-0"

KEY NOTES

1 OUTDOOR CHILLER ON 6" THICK CONCRETE PAD. CONCRETE PAD SHALL EXTEND 6" PAST ALL SIDES OF THE CHILLER.

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

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DESIGNED BY: T. WEEDER	ISSUE DATE: 01/20/2023
DRAWN BY: T. WEEDER	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. SWERCZEK	CONTRACT NO.:
SUBMITTED BY: J. SWERCZEK, P.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSTN-MEPFS2.rvt

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OMAHA, NE 68102

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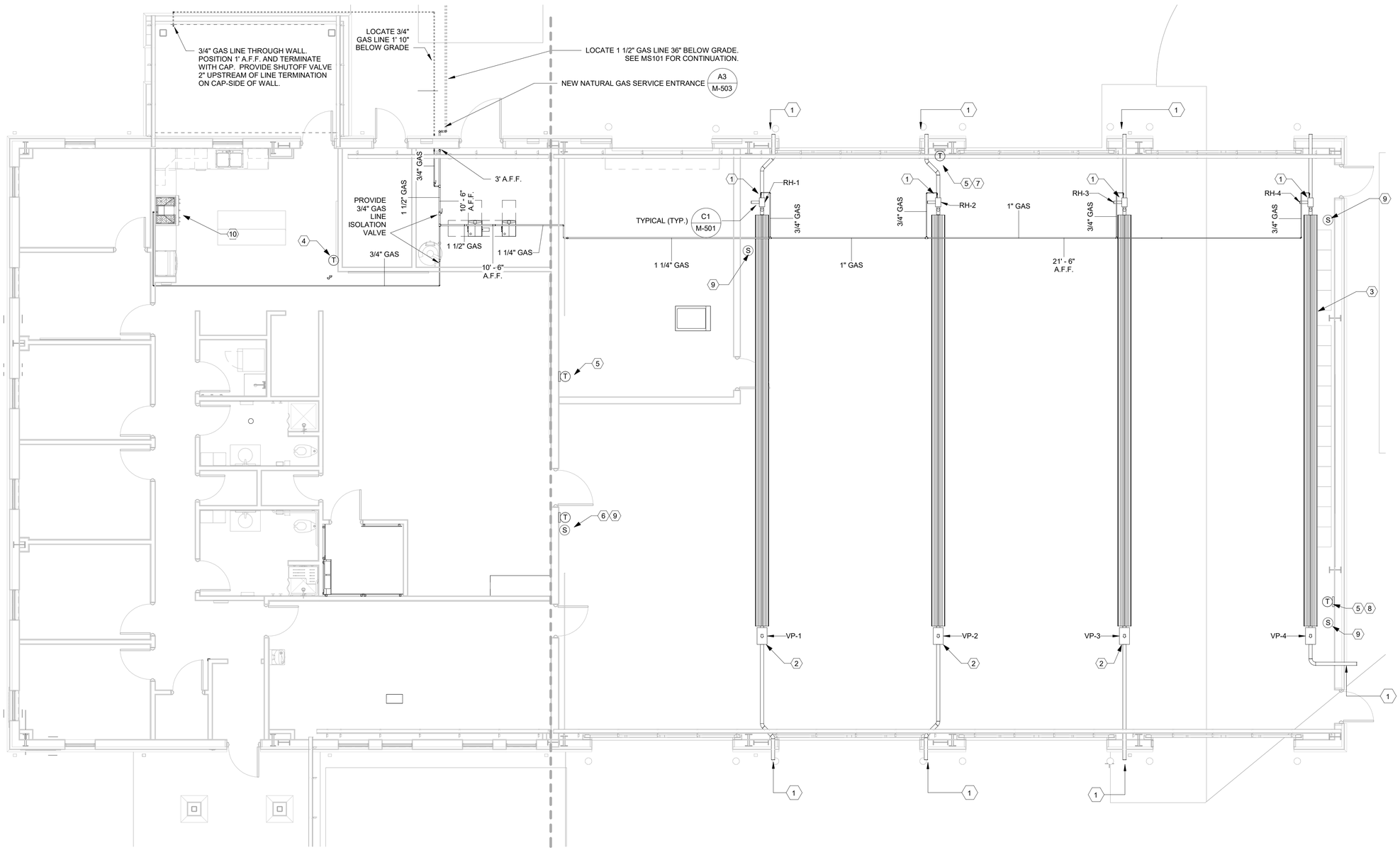
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRST FLOOR HYDRONICS PLAN

SHEET ID

M-103



1 FIRST FLOOR NATURAL GAS AND RADIANT HEAT PLAN

3/16" = 1'-0"

KEY NOTES

1. PROVIDE AND INSTALL GAS-FIRED RADIANT HEATERS IN ACCORDANCE WITH (IAW) MANUFACTURER'S RECOMMENDATIONS. SUPPORT FROM ROOF STRUCTURE. MOUNT AT 20' ABOVE FINISHED FLOOR (A.F.F.). TOP REFLECTORS SHALL BE PROVIDED ALONG THE HORIZONTAL LENGTH OF THE RADIANT PIPE AND TAILPIPE. EXTEND OUTSIDE AIR SUPPLY PIPING THROUGH BUILDING SIDE WALL IAW SYSTEM MANUFACTURER'S RECOMMENDATIONS. TERMINATE WITH PEST SCREEN AND WEATHER HOOD. SEAL WALL PENETRATION WATER TIGHT.
2. OVERHEAD RADIANT HEATING SYSTEM VACUUM PUMP. LOCATE IAW MANUFACTURER'S RECOMMENDATIONS. EXTEND PUMP DISCHARGE PIPING THROUGH BUILDING SIDE WALL IAW MANUFACTURER'S RECOMMENDATIONS. TERMINATE WITH PEST SCREEN AND WEATHER HOOD. SEAL WALL PENETRATION WATER TIGHT.
3. PROVIDE SIDE REFLECTORS ALONG THE LENGTH OF THE RADIANT HEATERS, ON THE SIDE ADJACENT THE BUILDING WALL.
4. TEMPERATURE SENSOR SHALL BE LOCATED APPROXIMATELY 5' A.F.F. PROVIDE 2 ADDITIONAL FEET OF COILED CONTROL WIRE IN WALL TO ALLOW FOR FUTURE HEIGHT ADJUSTMENT IF REQUIRED.
5. TEMPERATURE SENSOR SHALL BE LOCATED APPROXIMATELY 5' A.F.F. MOUNT TO 1" THICK INSULATING PAD PERMANENTLY ATTACHED TO WALL.
6. PROVIDE INPUT FROM TEMPERATURE SENSOR TO HVAC CONTROL SYSTEM FOR OPERATION OF RH-1, AND VP-1.
7. PROVIDE INPUT FROM TEMPERATURE SENSOR TO HVAC CONTROL SYSTEM FOR OPERATION OF RH-2, RH-3, AND VP-2, VP-3.
8. PROVIDE INPUT FROM TEMPERATURE SENSOR TO HVAC CONTROL SYSTEM FOR OPERATION OF RH-4, VP-4.
9. CARBON MONOXIDE AND NOx SENSOR. PROVIDE INPUT FROM CO SENSOR TO HVAC CONTROL SYSTEM.
10. 3/4" GAS LINE TO CONNECT TO GAS COOKTOP. PROVIDE ISOLATION VALVE AND CAP LINE 2" DOWNSTREAM OF ISOLATION VALVE.

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

DESIGNED BY: T. WEEDER
DRAWN BY: T. WEEDER
CHECKED BY: J. SWERCZEK
SUBMITTED BY: J. SWERCZEK, P.E.
SIZE: ANSI D
FILE NAME: FCDR-FSTN-MEPFS2.rvt

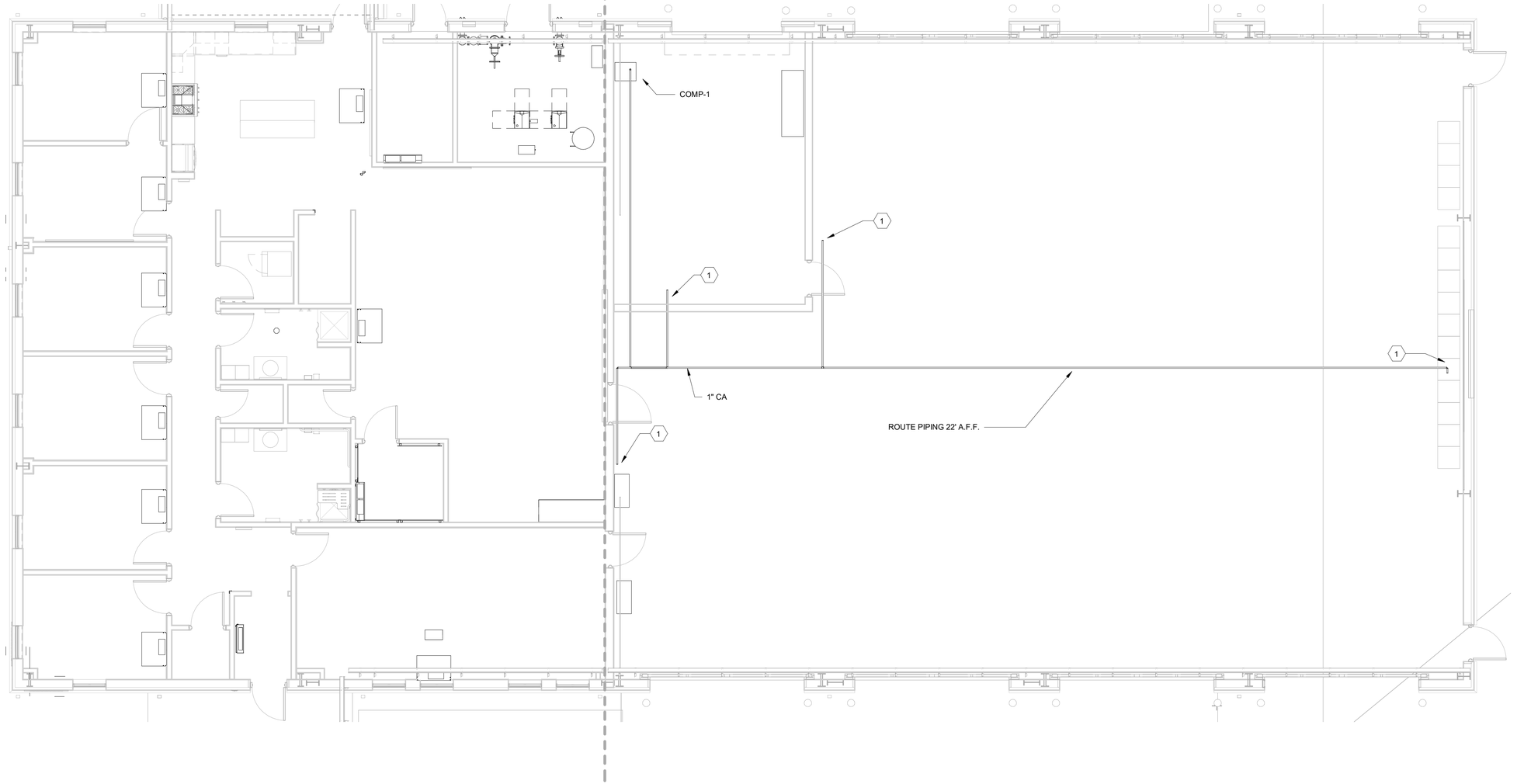
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

FIRST FLOOR GAS AND RADIANT HEAT PLAN

SHEET ID

M-104



1 COMPRESSED AIR PLAN

3/16" = 1'-0"

MECHANICAL KEYNOTES

1 1/2" COMPRESSED AIR PIPING DOWN TO COMPRESSED AIR DROP
SEE DETAIL B1 ON SHEET M-504

PLAN NORTH

0 4' 8' 16'

US Army Corps of Engineers ®

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DESIGNED BY: T. WEEDER	ISSUE DATE: 01/20/2023
DRAWN BY: T. WEEDER	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. SWERCZEK	CONTRACT NO.:
SUBMITTED BY: J. SWERCZEK, P.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

FIRST FLOOR COMPRESSED AIR PLAN

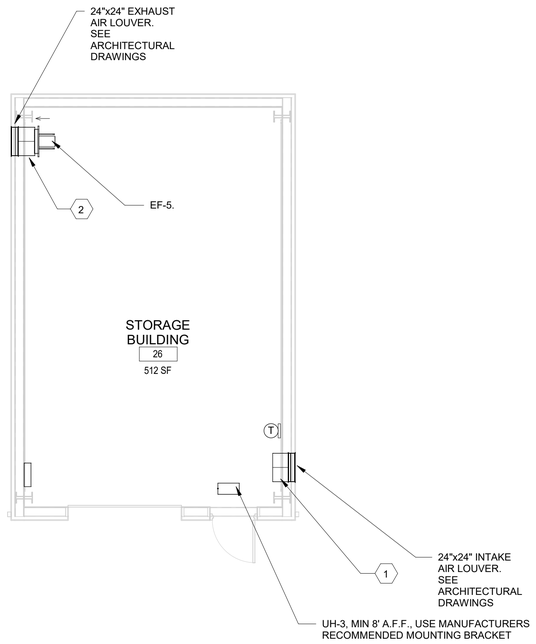
SHEET ID

M-105

KEYED NOTES:

1. PROVIDE MOTORIZED PARALLEL BLADE DAMPER, PLENUM, AND MESH SCREEN SIMILAR TO DETAIL C3 ON SHEET M-501. SEE ARCH SHEETS FOR ADDITIONAL LOUVER INFORMATION.

2. PROVIDE MOTORIZED PARALLEL BLADE DAMPER, PLENUM, AND MESH SCREEN SIMILAR TO DETAIL C4 ON SHEET M-503. SEE ARCH SHEETS FOR ADDITIONAL LOUVER INFORMATION.



1 / M-110 COMPOSITE MECHANICAL STORAGE PLAN

3/16" = 1'-0"

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: T. WEEDER
DRAWN BY: T. WEEDER
CHECKED BY: J. SWERCZEK
SUBMITTED BY: SWERCZEK, J. E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

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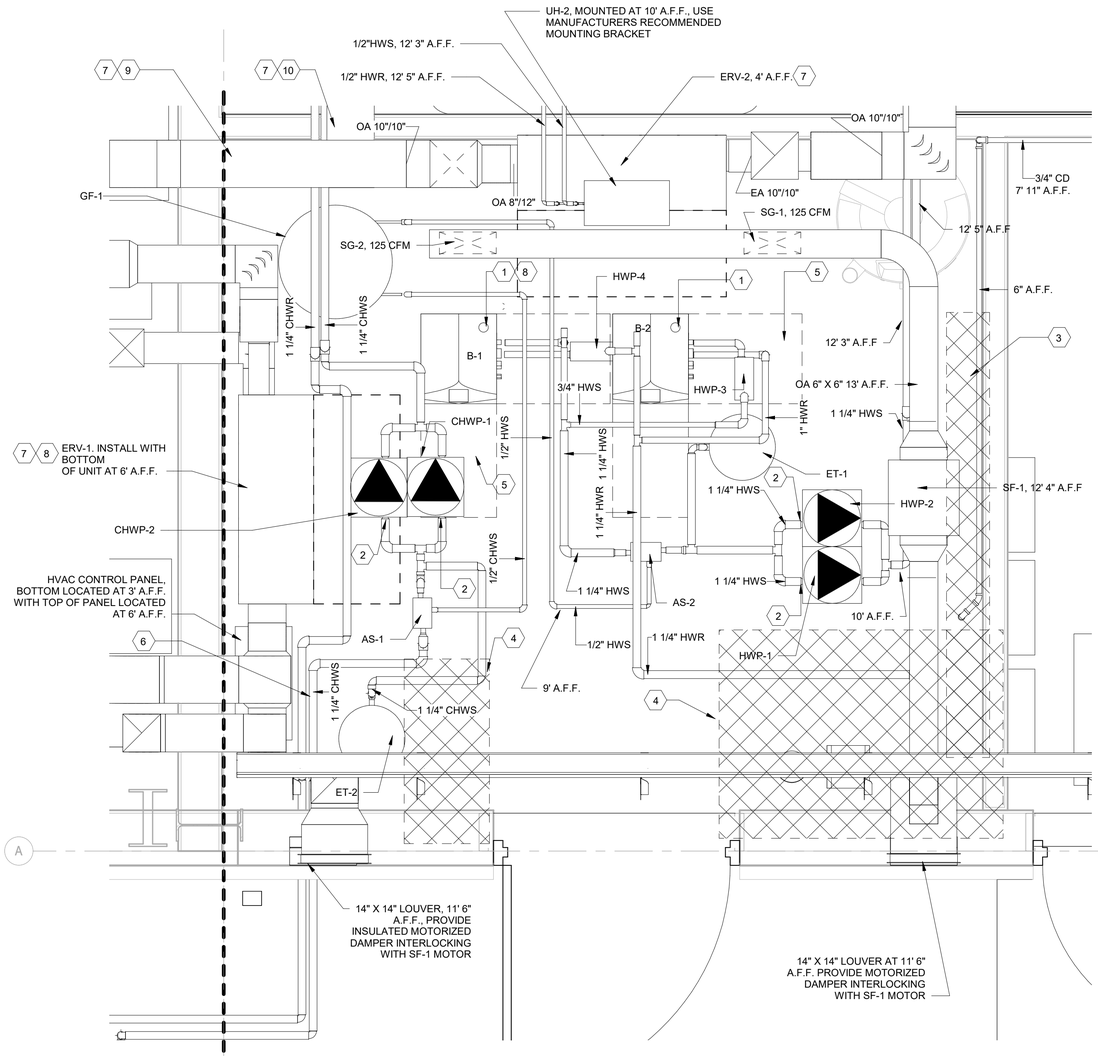
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

STORAGE COMPOSITE MECHANICAL PLAN

SHEET ID

M-110



1 M-401 ENLARGED MECHANICAL ROOM PLAN

3/4" = 1'-0"

KEY NOTES

1. BOILER COMBUSTION AIR OUTLET. ROUTE COMBUSTION AIR PIPING FROM BOILER OUTLET THROUGH THE ROOF. PROVIDE CONCENTRIC VENT KIT FOR PENETRATION OF ROOF. TERMINATE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. IF CONCENTRIC KIT NOT AVAILABLE FOR APPROVED BOILER, PROVIDE BOTH COMBUSTION AIR AND FLUE PENETRATIONS THROUGH ROOF
2. SEE DETAIL C1 ON DRAWING SHEET M-503.
3. DOMESTIC WATER SERVICE ENTRANCE. SEE PLUMBING SHEETS.
4. FIRE PROTECTION SERVICE ENTRANCE. SEE FIRE PROTECTION SHEETS.
5. BOILER MAINTENANCE AREA.
6. 1 1/4" CHWS AND CHWR PIPING TO CH-1 .
7. SEE SHEET M-104 FOR ISOMETRIC VIEWS OF ERV DUCTWORK.
8. PROVIDE ADEQUATE CLEARANCE BETWEEN BOILER B-1 AND ENERGY RECOVERY VENTILATOR ERV-1 TO ALLOW REMOVAL OF GLYCOL FEEDER GF-1.
9. 10" X 10" OUTSIDE AIR SUPPLY DUCT TO FAN COIL UNITS. FOR CONTINUATION OUTSIDE OF THE MECHANICAL ROOM, SEE SHEET M-101.
10. 10" X 10" EXHAUST AIR DUCT. FOR CONTINUATION OUTSIDE THE MECHANICAL ROOM, SEE SHEET M-101.

GENERAL NOTES

1. PROVIDE CHEMICAL FEEDER TO BOTH CHILLED WATER PIPING SYSTEM AND HEATING WATER PIPING SYSTEM IN ACCORDANCE WITH SPECIFICATION SECTION 23 25 00

PLAN NORTH

0 1' 2' 3'

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY:	T. WEEDER
DRAWN BY:	T. WEEDER
CHECKED BY:	J. SWERCZEK
SUBMITTED BY:	J. SWERCZEK, P.E.
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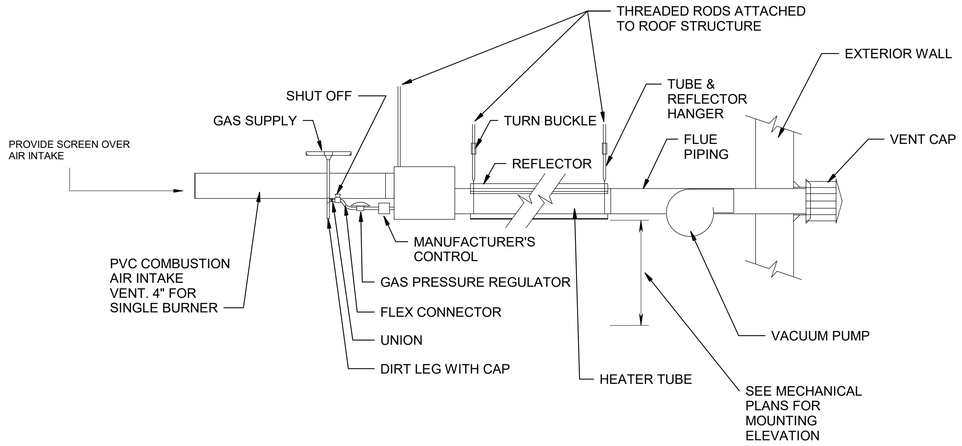
PN 101464 (FY23)

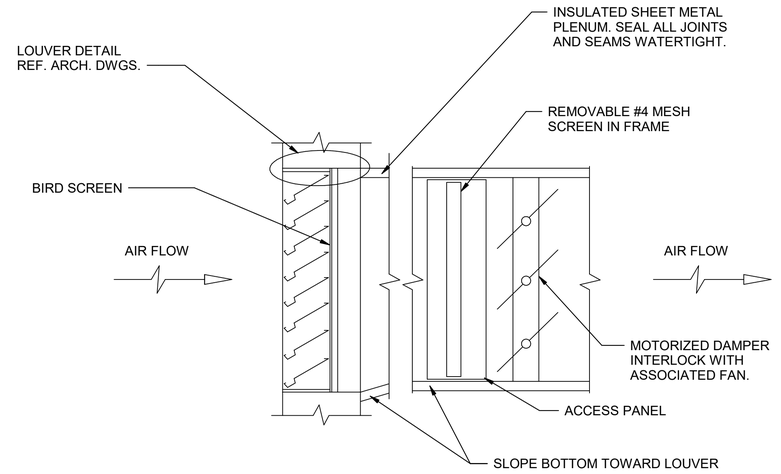
ENLARGED MECHANICAL ROOM

SHEET ID

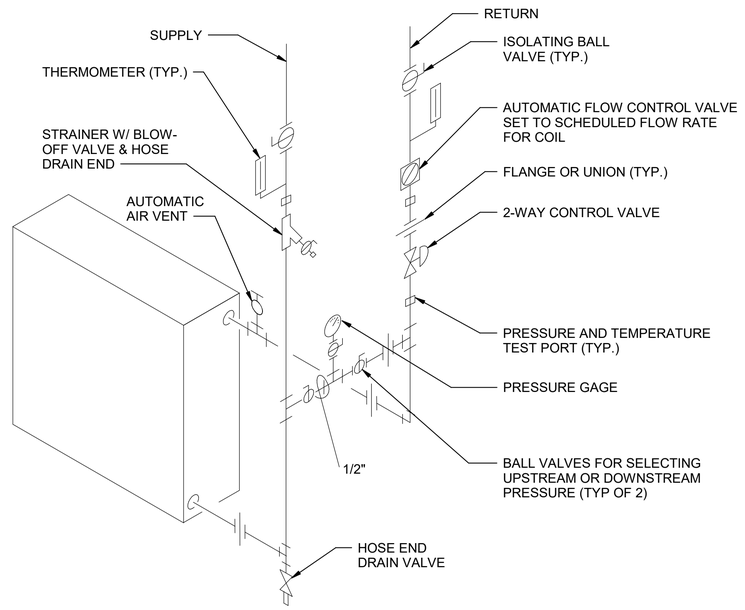
M-401



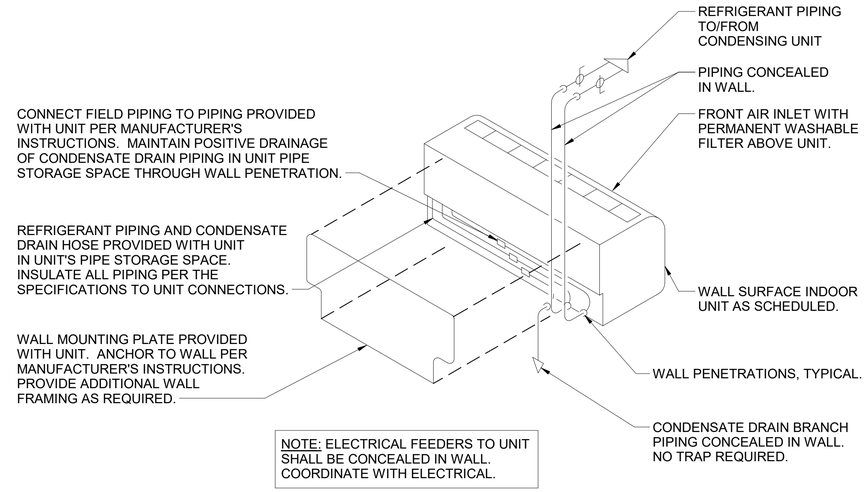
C1 GAS RADIANT HEATER (OVERHEAD) DETAIL
N.T.S.



C3 OUTDOOR AIR DUCT ENTRANCE DETAIL
N.T.S.



A1 CHILLED AND HEATING COIL 2-WAY CONTROL VALVE
N.T.S.



A3 SPLIT SYSTEM INDOOR UNIT DETAIL
N.T.S.

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DESIGNED BY: T. WEEDER
DRAWN BY: T. WEEDER
CHECKED BY: J. SWERCZEK
SUBMITTED BY: STEVEN K. F.
SIZE: ANSI D
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OMAHA DISTRICT
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FORT CARSON, COLORADO
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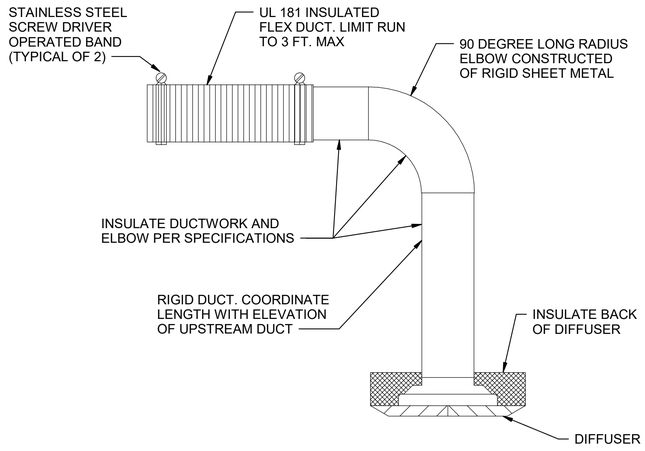
PN 101464 (FY23)

MECHANICAL DETAILS

SHEET ID
M-501



C1 DIFFUSER CONNECTION DETAIL
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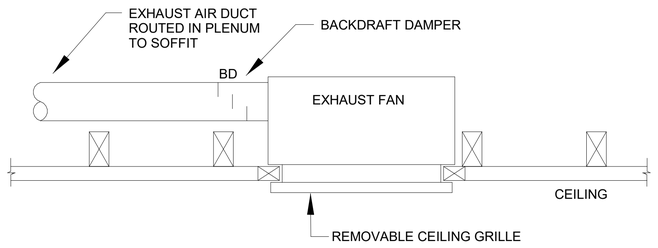
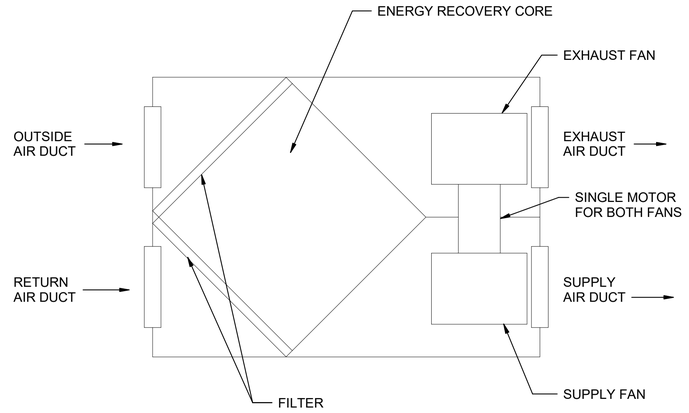
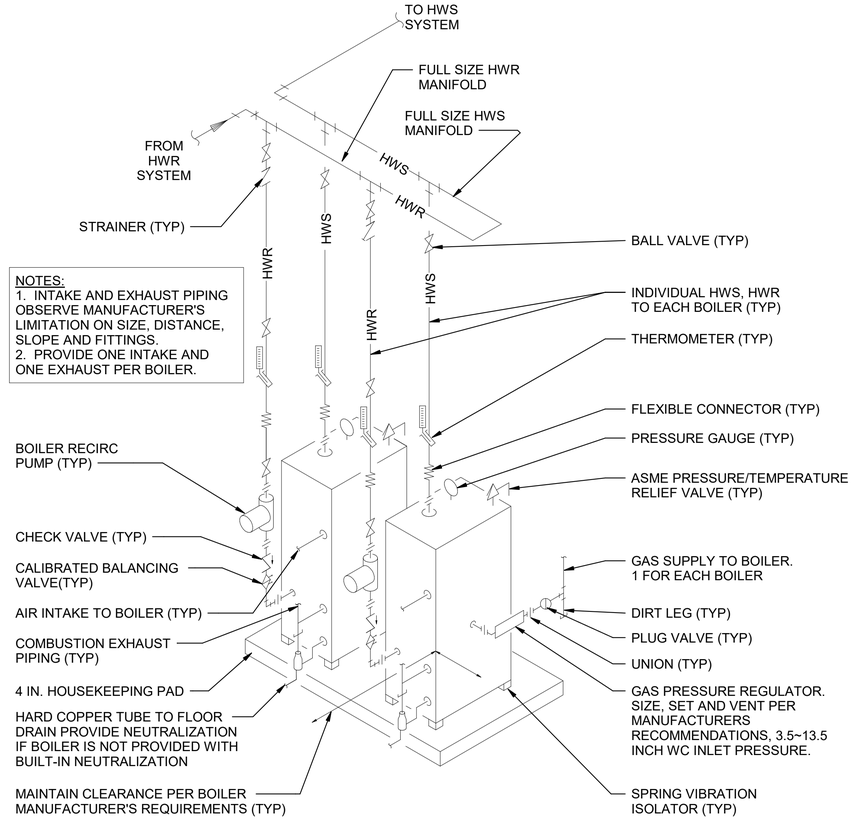


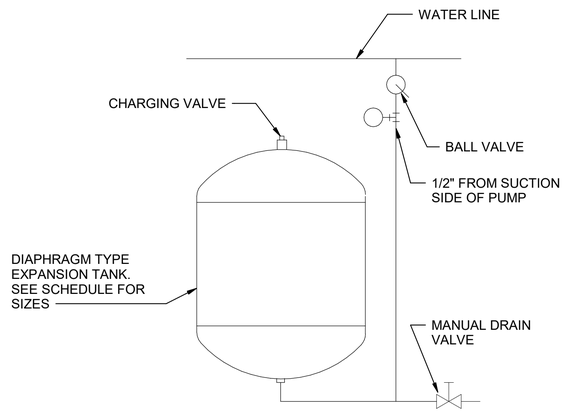
B1 EXHAUST FAN (CEILING) DETAIL
N.T.S.



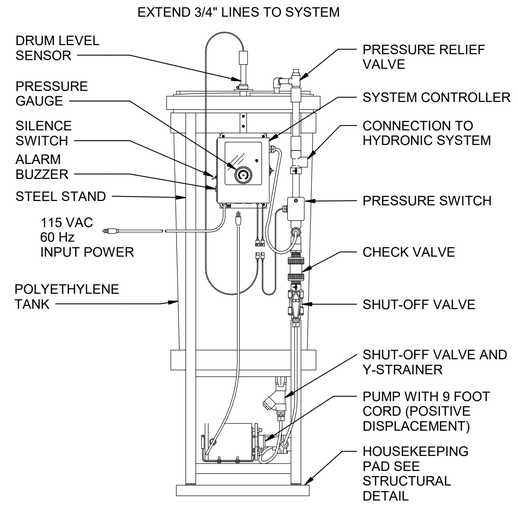
A1 ENERGY RECOVERY VENTILATOR DETAIL
N.T.S.



B3 BOILER PIPING DIAGRAM
N.T.S.



A3 EXPANSION TANK DETAIL
N.T.S.



A4 GLYCOL FEEDER DETAIL
N.T.S.

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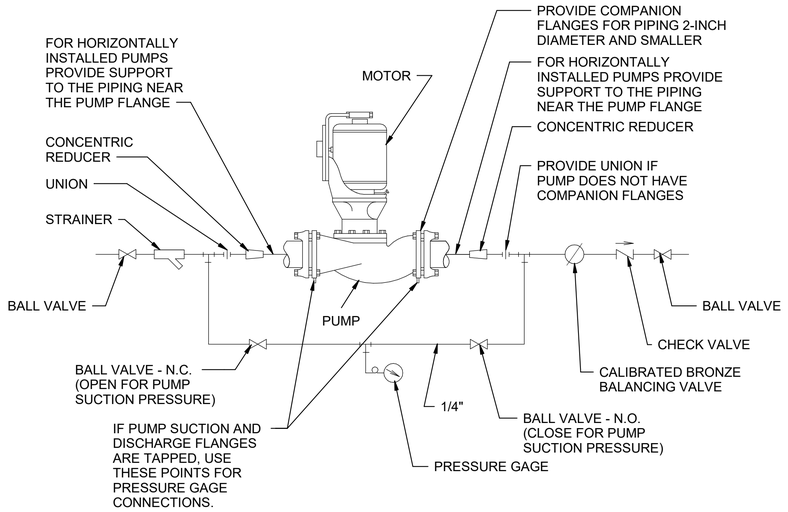
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (FY23)

MECHANICAL DETAILS

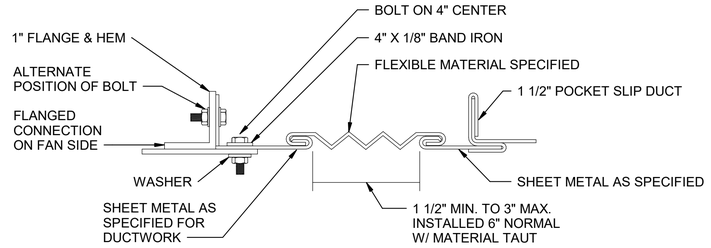
SHEET ID

M-502



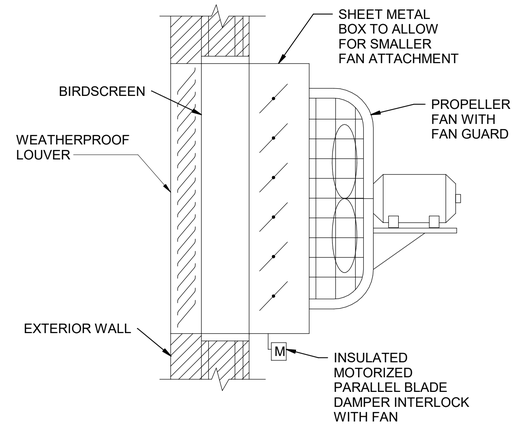
C1 INLINE PUMP DETAIL

N.T.S.



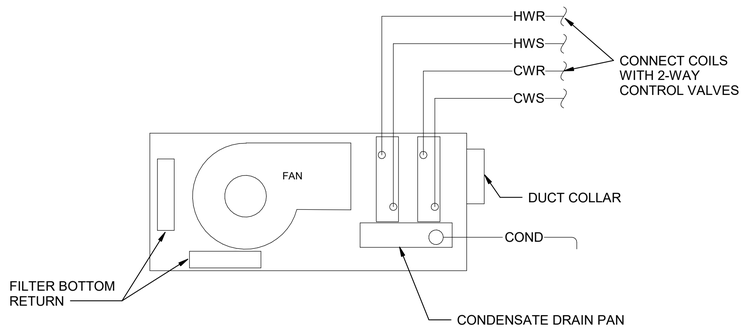
D3 DUCT FLEXIBLE CONNECTOR DETAIL (TYPICAL)

N.T.S.



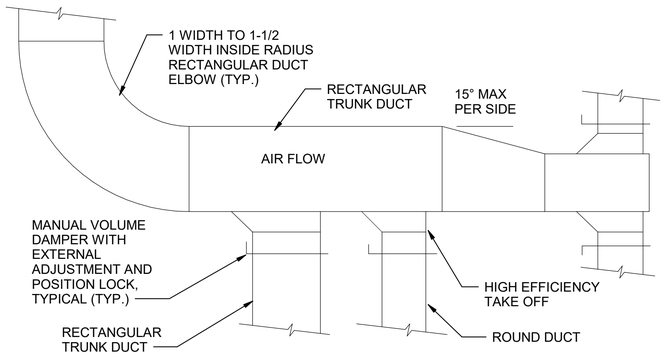
C4 PROPELLER EXHAUST FAN DETAIL

N.T.S.



B1 FAN COIL DETAIL

N.T.S.

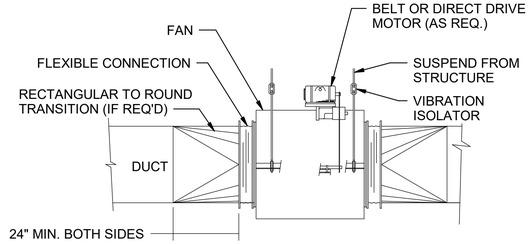


RECTANGULAR DUCT NOTE:

ALL DUCTWORK SHALL BE SEALED IN ACCORDANCE WITH SMACNA FOR SEAL CLASS A. SEE SPEC FOR INSULATION REQUIREMENTS

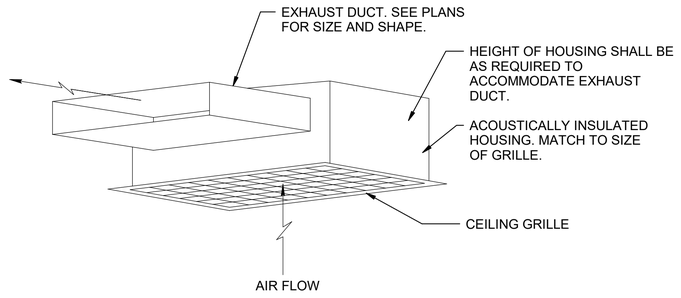
B3 RETANGULAR DUCT CONSTRUCTION DETAIL (TYP.)

N.T.S.



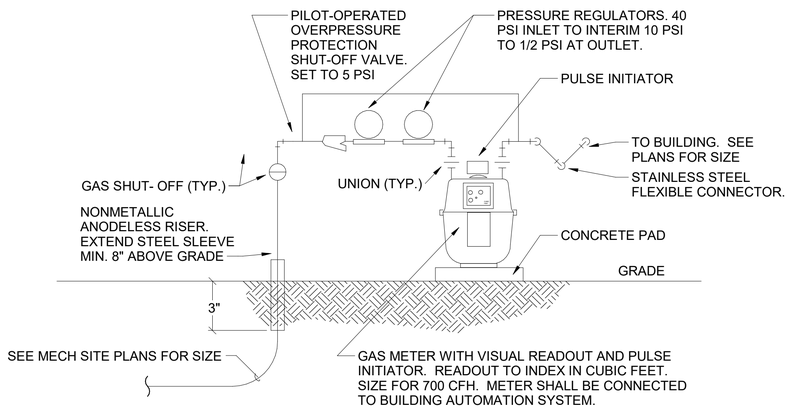
B4 INLINE CENTRIFUGAL FAN (TYPICAL)

N.T.S.



A1 EXHAUST GRILL (CEILING) DETAIL

N.T.S.



A3 GAS SERVICE ENTRANCE DETAIL

N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
DESIGNED BY:	T. WEEDER
DRAWN BY:	T. WEEDER
CHECKED BY:	J. SWIERCZEK
SUBMITTED BY:	J. SWIERCZEK, P.E.
SIZE:	ANSI D
FILE NAME:	FCDR-FSTN-MEPPS2.rvt

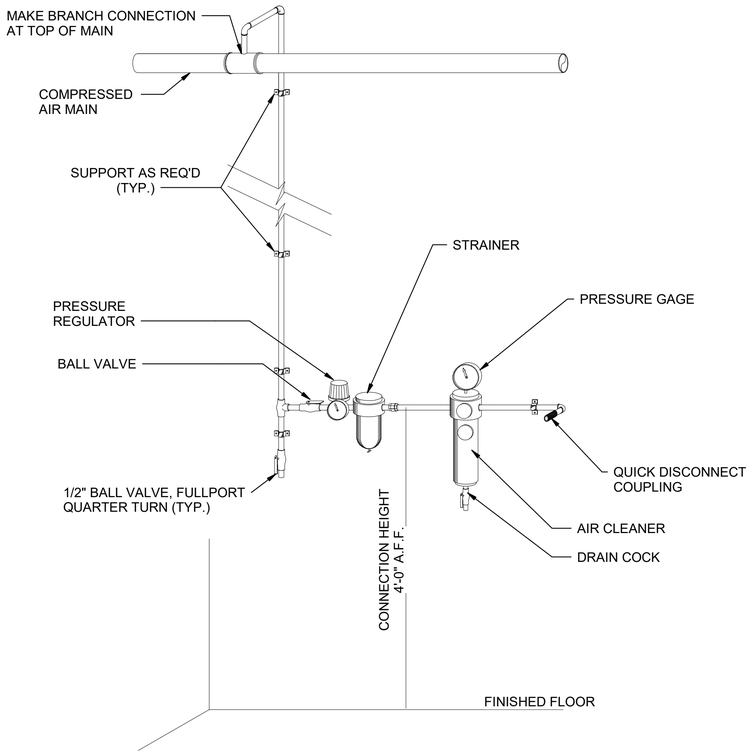
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

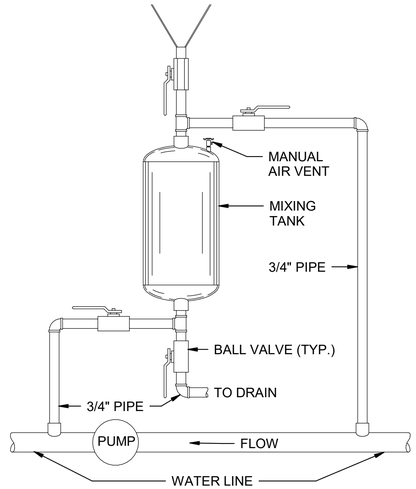
MECHANICAL DETAILS

SHEET ID

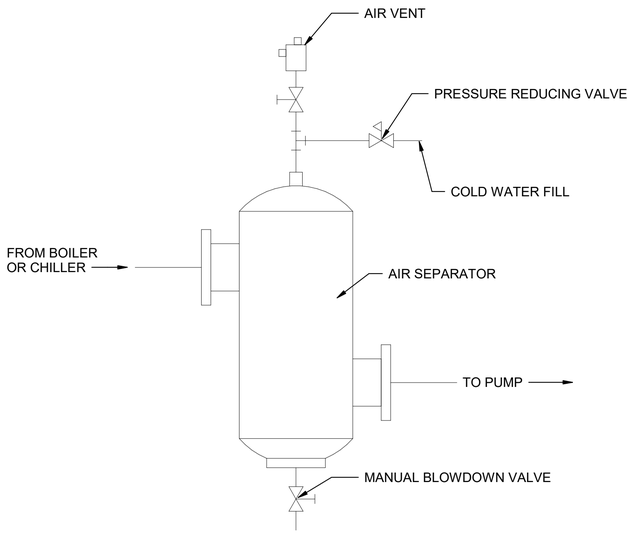
M-503



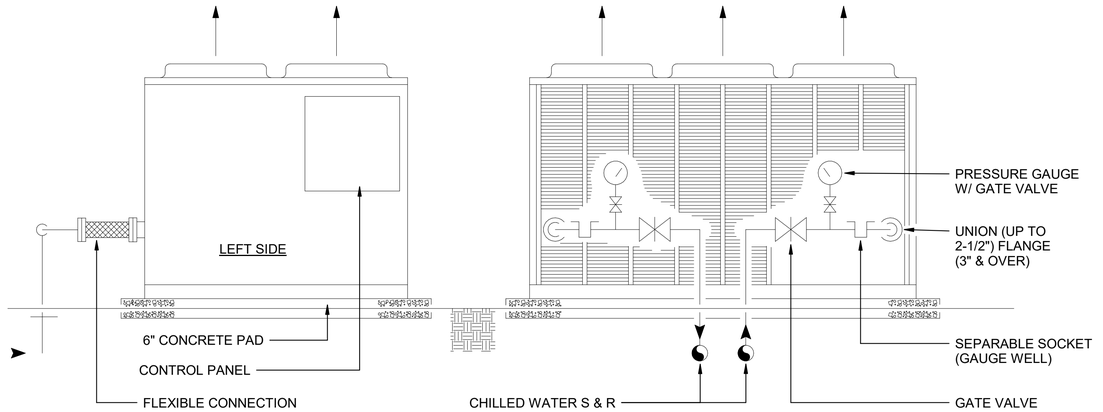
B1 AIR DROP DETAIL
N.T.S.



1 M-503 CHEMICAL FEEDER DETAIL
N.T.S.



A1 AIR SEPARATOR DETAIL
N.T.S.



A3 AIR-COOLED CHILLER PIPING CONNECTION DETAIL
N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

DESIGNED BY: T. WEEDER
DRAWN BY: T. WEEDER
CHECKED BY: J. SWERCZEK
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SIZE: ANSI D
ISSUE DATE: 01/20/2023
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FILE NAME: FCDR-FSTN-MEPFS2.rvt

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

MECHANICAL DETAILS

SHEET ID
M-504

PUMP SCHEDULE

MARK		CHWP-1/2	HWP-1 / HWP-2	HWP-3 / HWP-4
TYPE		IN-LINE	IN-LINE	IN-LINE
LOCATION		MECH ROOM 20	MECH ROOM 20	MECH ROOM 20
SERVICE		CHILLED WATER BUILDING LOOP	HEATING WATER BUILDING LOOP	BOILER CIRCULATING
FLUID PUMPED		CHILLED WATER 35% PROP GLYCOL	HEATING WATER 35% PROP GLYCOL	HEATING WATER 35% PROP GLYCOL
FLOW (G.P.M.)		17	10	10
HEAD PRESS (FT OF WATER)		14	14	1.7
MAXIMUM (R.P.M.)		1750	1750	1750
MINIMUM PUMP EFFICIENCY		50	50	50
ELEC DATA	MOTOR (H.P.)	0.25	0.25	1/12
	VOLTS	120	120	120
	PHASE	1	1	1
	HERTZ	60	60	60

REMARKS: 1. PROVIDE CHILLED WATER PUMPS WITH A VARIABLE FREQUENCY DRIVE (VFD) CONTROLLER

2. PROVIDE HOT WATER PUMPS WITH VARIABLE FREQUENCY DRIVE (VFD) CONTROLLER.

AIR AND DIRT SEPARATOR SCHEDULE

MARK	LOCATION	SERVICE	FLOW (GPM)	MAX. WORKING PRESSURE (PSIG)	PIPE CONN. (IN)	MAX. DIMENSIONS - DIA x H (IN)
AS-1	MECH 09	CHILLED WATER SYSTEM	17	150	1	4.2 X 12.2
AS-2	MECH 09	BUILDING HEATING WATER	10	150	1	4.2 X 12.2

AIR SEPARATOR SCHEDULE NOTES:

1. PROVIDE WITH AUTOMATIC AIR VENT, BLOWDOWN VALVE, AND MAKE-UP WATER CONNECTION.
2. DESIGN AND CONSTRUCT PER ASME SECTION, VIII, DIVISION 1.
3. PROVIDE REMOVABLE LOWER HEAD TO FACILITATE CLEANING.
4. COALESCING MEDIUM SHALL BE COPPER.

EXPANSION TANK SCHEDULE

MARK	SERVICE	MINIMUM VOLUME (GAL)	MIN. ACCEPTANCE VOLUME (GAL)	MIN. OPERATING TEMP (°F)	MAX. OPERATING TEMP (°F)	MIN. FILL PRESSURE (PSIG)	RELIEF PRESSURE (PSIG)	MAX. DIMENSIONS - DIA x H (IN)
ET-1	BUILDING HEATING WATER SYSTEM	5	5	40	180	15	50	-
ET-2	BUILDING CHILLED WATER SYSTEM	5	5	40	180	15	50	-

EXPANSION TANK SCHEDULE NOTES:

1. VERTICAL, DIAPHRAGM TYPE, AIR FILL VALVE, TANK DRAIN AND GAUGE.
2. DESIGN AND CONSTRUCT PER ASME SECTION VIII, DIVISION 1.
3. ALLOW 18" CLEARANCE ABOVE TANK FOR PIPING SYSTEM CONNECTION.
4. RATED TANK PRESSURE 125 PSIG.

AIR COOLED CHILLER SCHEDULE

MARK	NOMINAL CAPACITY (TONS)	REFRIGERANT TYPE	EER	EVAPORATOR DATA				CONDENSER DATA		COMPRESSOR DATA		
				FLOW (GPM)	EWT (°F)	LWT (°F)	MAX PRESSURE DROP	AMB TEMP	MIN AMB TEMP	QUANTITY	MIN UNLOADING	PERCENT UNLOADING
CH-1	7.0	R410A	10.8	17	54 DEG F	44 DEG F	15 FEET H2O	89 DEG F	55 DEG F	1	-	-

REMARKS:

1. FLUID IS 35% PROPYLENE GLYCOL MIXTURE. PROVIDE MANUFACTURER'S LOW AMBIENT PACKAGE.
2. CHILLER SHALL BE PROVIDED WITH INTERNAL PUMP FROM MANUFACTORY OR BE PROVIDED WITH EXTERNAL PUMP RATED TO MAINTAIN PROPER OPERATION OF THE CHILLER

GLYCOL FEED TANK SCHEDULE

MARK	LOCATION	SYSTEM SERVED	TANK SIZE (GAL)	% SOLUTION	MANUFACTURER & MODEL NUMBER	REMARKS
GF-1	MECH 09	BLDG HOT/CHILLED	50	35%	-	1

REMARKS: 1. PROVIDE LOW LEVEL ALARM INPUT TO DDC.

FAN COIL UNIT SCHEDULE

MARK	SERVES	SUPPLY AIR FLOW (CFM)	OUTSIDE CFM (CFM)	COOLING				HEATING			REMARKS
				TOTAL CAPACITY (TON)	SENSIBLE CAPACITY	FLOW (GPM)	MAX PRESSURE DROP	TOTAL CAPACITY	FLOW (GPM)	MAX PRESSURE DROP	
FC-1	07 DORM	620	20	0.5	5.2 MBh	1.20	-	9.5 MBh	1.01	-	1, 2
FC-2	06 OFFICE	400	20	0.4	4.2 MBh	1.00	-	4.7 MBh	0.5	-	1, 2
FC-3	05 DORM	400	20	0.4	4.2 MBh	1.00	-	4.7 MBh	0.5	-	1, 2
FC-4	04 DORM	400	20	0.4	4.2 MBh	1.00	-	4.7 MBH	0.5	-	1, 2
FC-5	03 DORM	400	20	0.4	4.2 MBh	1.00	-	4.7 MBh	0.5	-	1, 2
FC-6	02 DORM	580	20	0.5	4.9 MBh	1.20	-	9.5 MBh	1.01	-	1, 2
FC-7	14 WORKOUT ROOM	670	130	1.1	13.7 MBh	3.00	-	20.7 MBh	2.2	-	1, 2,4
FC-8	08 KITCHEN	420	50	0.8	8.8 MBh	2.15	-	11.6 MBh	1.24	-	1, 2,4
FC-9	18 DAYROOM	630	140	1.6	14.7 MBh	4.00	-	13.2 MBH	1.40	-	1, 2,4
FC-10	21 WORK ROOM	400	20	0.5	5.2 MBh	1.20	-	7.1 MBH	0.75	-	1, 3

REMARKS:

1. FLUID IS 35% PROPYLENE GLYCOL MIXTURE.
2. FAN COILS WILL BE OF A CEILING MOUNTED RECESSED TYPE
3. FAN COIL WILL BE OF A CEILING MOUNTED CONCEALED TYPE
4. PROVIDE WITH A THREE WAY VALVE

AIR COMPRESSOR SCHEDULE

MARK	TANK SIZE	HP	CFM	MANUFACTURER	REMARKS
COMP-1	60 GAL	5	15 CFM @ 90 psi	-	1, 2

REMARKS:

1. VERTICAL TANK
2. PROVIDE AUTOMATIC CONDENSATE DRAIN VALVE.

BOILER SCHEDULE

MARK	SERVES	INPUT CAPACITY	WATER TEMP IN/OUT (DEG F)	MIN. EFFICIENCY (AT HIGH FIRE)	FUEL	FLOW RATE (GPM)	MANUFACTURER	MODEL	REMARKS
B-1	BLD HT WTR	60 MBH	120/140	88%	NATURAL GAS	10	-	-	1
B-2	BLD HT WTR	60 MBH	120/140	88%	NATURAL GAS	10	-	-	1

REMARKS:

1. CONDENSING BOILER. EFFICIENCY IS FOR 100% FIRE AND 120 DEG F RETURN / 140 DEG F SUPPLY TEMP. FLUID IS 35% PROPYLENE GLYCOL.

GENERAL NOTES:
1. EQUIPMENT SELECTIONS SHALL BE FOR 5870 FT ELEVATION.
2. ALL HEATING COILS OPERATE WITH 140°F SUPPLY AND 120°F RETURN WATER TEMPERATURES WITH 35% GLYCOL.
3. WHERE THE MANUFACTURER AND/OR MODEL NUMBER IS LISTED, IT IS INTENDED TO INDICATE THE "BASIS OF DESIGN" ONLY. IT IS NOT INTENDED TO LIMIT THE EQUIPMENT PROVIDED TO THAT INDICATED IN THE SCHEDULE. OTHER MANUFACTURERS OR MODELS OF EQUIPMENT MAY BE PROVIDED. ALL EQUIPMENT PROVIDED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE SCHEDULE AND SPECIFICATIONS.

US Army Corps of Engineers ®

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SIZE: ANSI D

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

MECHANICAL EQUIPMENT SCHEDULE

SHEET ID

M-601

DIFFUSER AND GRILLE SCHEDULE

MARK	SERVICE	AIRFLOW (CFM)	DESCRIPTION	FACE SIZE (IN)	NECK SIZE (IN)	MINIMUM THROW (FT)	MAXIMUM NC	MAXIMUM PRESSURE DROP (IN WC)	REMARKS
SD-1	SUPPLY	625	3-WAY	24 X 24	12 X 12		30	0.1	
SD-2	SUPPLY	400	3-WAY	24 X 24	10 X 10		30	0.1	
SD-3	SUPPLY	400	3-WAY	24 X 24	10 X 10		30	0.1	
SD-4	SUPPLY	400	3-WAY	24 X 24	10 X 10		30	0.1	
SD-5	SUPPLY	400	3-WAY	24 X 24	10 X 10		30	0.1	
SD-6	SUPPLY	600	3-WAY	24 X 24	12 X 12		30	0.1	
SD-7	SUPPLY	350	3-WAY LAY IN DIFFUSER	24 X 24	10 X 10		30	0.1	
SD-8	SUPPLY	425	3-WAY	24 X 24	10 X 10		30	0.1	
SD-9	SUPPLY	225	3-WAY	24 X 24	10 X 10		30	0.1	
SD-10	SUPPLY	100	4-WAY	12 X 12	6" Ø		35	0.1	1
SD-11	SUPPLY	100	4-WAY	12 X 12	6" Ø		35	0.1	1
SD-12	SUPPLY	100	4-WAY	12 X 12	6" Ø		35	0.1	1
SD-13	SUPPLY	125	4-WAY	12 X 12	6" Ø		35	0.1	1
SD-14	SUPPLY	350	4-WAY LAY IN DIFFUSER	24 X 24	10 X 10		20	0.1	
SD-15	SUPPLY	225	4-WAY	24 X 24	10 X 10		20	0.1	
SD-16	SUPPLY	225	4-WAY	24 X 24	10 X 10		20	0.1	
SG-1/2	SUPPLY	125	DUCT MOUNTED	10 X 6	-		20	0.1	
RG-1	RETURN	100	EGGCRATE GRILLE	12 X 12	6" Ø		20	0.1	2
RG-2	RETURN	100	EGGCRATE GRILLE	12 X 12	6" Ø		20	0.1	2
RG-3	RETURN	100	EGGCRATE GRILLE	12 X 12	6" Ø		20	0.1	2
RG-4	RETURN	400	EGGCRATE GRILLE	24 X 24	10" Ø		20	0.1	2
RG-5	RETURN	150	EGGCRATE GRILLE	12 X 12	6" Ø		20	0.1	2
RG-6	RETURN	50	EGGCRATE GRILLE	12 X 12	6" Ø		20	0.1	2
RG-7	RETURN	75	LAY IN GRILLE	24 X 24	6" Ø		20	0.1	2
RG-8	RETURN	125	LAY IN GRILLE	24 X 24	6" Ø		20	0.1	2

REMARKS:
1. SUPPLY DIFFUSERS SERVING THE APPARATUS BAY SHALL PROVIDE AT LEAST 15' OF VERTICAL THROW AT TERMINAL VELOCITIES OF 50 FPM.
2. PROVIDE EGGCRATE GRILLE WITH 1/2" X 1/2" X 1/2" GRID.

RADIANT HEATER SCHEDULE

MARK	TYPE	ARRANGEMENT	HEATING		REMARKS
			MIN. TOTAL CAPACITY (BTUH)	MIN. AFUE (%)	
RH-1	INFARED	OVERHEAD	40,000	80	1,2,3,4
RH-2	INFARED	OVERHEAD	40,000	80	1,2,3
RH-3	INFARED	OVERHEAD	40,000	80	1,2,3
RH-4	INFARED	OVERHEAD	40,000	80	1,2,3,4
VP-1	VACUUM PUMP	OVERHEAD	-	-	5
VP-2	VACUUM PUMP	OVERHEAD	-	-	5
VP-3	VACUUM PUMP	OVERHEAD	-	-	5
VP-4	VACUUM PUMP	OVERHEAD	-	-	5

REMARKS:
1. MIN. TOTAL CAPACITY TAKES INTO ACCOUNT ALTITUDE OF 6400 FT. RADIANT HEATERS PROVIDED SHALL MEET OR EXCEED MIN. TOTAL CAPACITY AFTER HAVING BEEN DERATED FOR ALTITUDE.
2. RADIANT HEATERS SHALL BE MOUNTED USING THREADED RODS AND PROVIDED WITH SEISMIC RESTRAINTS.
3. RADIANT HEATERS SHALL BE EXHAUSTED AS RECOMMENDED BY THE MANUFACTURER, AS SHOWN IN M-102.
4. PROVIDE SIDE REFLECTORS ALONG THE LENGTH OF THE RADIANT HEATERS, ON THE SIDE ADJACENT THE BUILDING WALL.
5. VACUUM PUMPS SHALL BE PROVIDED AND INSTALLED AS RECOMMENDED BY THE MANUFACTURER IN CONNECTION WITH CORRESPONDING RADIANT HEATERS, AS SHOWN.

UNIT HEATER SCHEDULE

MARK	TYPE	SERVES	HEATING		POWER	MAX P-DROP	REMARKS
			TOTAL CAPACITY	FLOW			
UH-1	HYDRONIC	VESTIBULE 01	2.4 MBh	0.13 GPM	-	-	1
UH-2	HYDRONIC	MECH ROOM	10.2 MBh	0.55 GPM	-	-	1
UH-3	ELECTRIC	STORAGE	19.25 MBh	-	7.5 kW	-	-

REMARKS:
1. FLUID IS 35% PROPYLENE GLYCOL MIXTURE.

SPLIT SYSTEM UNIT SCHEDULE

MARK	COMPONENT	LOCATION	REFRIGERANT	MIN COOLING CAPACITY (BTUH)	MIN HEATING CAPACITY (BTUH)	MINIMUM SEER	MANUFACTURER AND MODEL NUMBER	REMARKS
SS-1	INDOOR UNIT	TELECOM 15	R-410A	9,000	4,000	X	-	1,3,4
SS-2	INDOOR UNIT	ELEC. 19	R-410A	9,000	4,000	X	-	1,3,4
HP-1	OUTDOOR UNIT	APPARATUS BAY 22	R-410A	9,000	4,000	14	-	2,3,4
HP-2	OUTDOOR UNIT	APPARATUS BAY 22	R-410A	9,000	4,000	14	-	2,3,4

REMARKS:
1. TEMPERATURE OF ROOM SHALL BE MAINTAINED AT 72 DEG F.
2. UNIT SHALL BE ABLE TO PROVIDE REQUIRED COOLING DOWN TO AN OUTSIDE TEMPERATURE OF 0 DEG F.
3. THE COOLING CAPACITY AND HEATING CAPACITY CONSIDER SS-1,2 AND HP-1,2 FUNCTIONING AS A SYSTEM.
4. MIN. HEATING AND COOLING CAPACITIES TAKE INTO ACCOUNT ALTITUDE OF 6000 FT. EQUIPMENT PROVIDED SHALL MEET OR EXCEED MIN. TOTAL CAPACITIES AFTER DERATING FOR ALTITUDE.

FAN SCHEDULE

MARK	SERVICE	TYPE	AIR FLOW (CFM)	EXT. STAT PRESS (IN H20)	DRIVE TYPE		REMARKS
					BELT	DIRECT	
EF-1	EXHAUST	CEILING MOUNTED	50	0.125	-	X	1
EF-2	EXHAUST	CEILING MOUNTED	50	0.125	-	X	1
EF-3	EXHAUST	WALL MOUNTED PROPELLER	5500	0.25	X	-	1
EF-4	EXHAUST	WALL MOUNTED PROPELLER	5500	0.25	X	-	2
EF-5	EXHAUST	WALL MOUNTED PROPELLER	966	0.25	-	X	2
VEF-1	EXHAUST	RAIL MOUNTED	4000	-	-	X	1,2
SF-1	SUPPLY	INLINE	250	0.125	-	X	2

REMARKS:
1. PROVIDE EXHAUST OUTLET WITH PEST SCREEN.
2. PROVIDE EXHAUST OUTLET WITH MOTORIZED DAMPERS.

GENERAL NOTES:
1. EQUIPMENT SELECTIONS SHALL BE FOR 5870 FT ELEVATION.
2. ALL HEATING COILS OPERATE WITH 140°F SUPPLY AND 120°F RETURN WATER TEMPERATURES WITH 35% GLYCOL.
3. WHERE THE MANUFACTURER AND/OR MODEL NUMBER IS LISTED, IT IS INTENDED TO INDICATE THE "BASIS OF DESIGN" ONLY. IT IS NOT INTENDED TO LIMIT THE EQUIPMENT PROVIDED TO THAT INDICATED IN THE SCHEDULE. OTHER MANUFACTURERS OR MODELS OF EQUIPMENT MAY BE PROVIDED. ALL EQUIPMENT PROVIDED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE SCHEDULE AND SPECIFICATIONS.

US Army Corps of Engineers ®

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FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

MECHANICAL EQUIPMENT SCHEDULE

SHEET ID
M-602

ENERGY RECOVERY UNIT SCHEDULE

MARK	SERVES	SUPPLY		EXHAUST		EFF% WINTER	EFF% SUMMER	REMARKS
		CFM	MAX P-DROP IN. H20	CFM	MAX P-DROP IN H20			
ERV-1	OCCUPIED AREAS	450	0.65	450	0.65	50	50	1
ERV-2	APPARATUS BAY	425	0.65	400	0.65	50	50	1

REMARKS:
1. PROVIDE WITH BALANCING DAMPERS IF EQUIPMENT DOES NOT HAVE INTERNAL BALANCING DAMPERS.

GENERAL NOTES:
1. EQUIPMENT SELECTIONS SHALL BE FOR 5870 FT ELEVATION.
2. ALL HEATING COILS OPERATE WITH 140°F SUPPLY AND 120°F RETURN WATER TEMPERATURES WITH 35% GLYCOL.
3. WHERE THE MANUFACTURER AND/OR MODEL NUMBER IS LISTED, IT IS INTENDED TO INDICATE THE "BASIS OF DESIGN" ONLY. IT IS NOT INTENDED TO LIMIT THE EQUIPMENT PROVIDED TO THAT INDICATED IN THE SCHEDULE. OTHER MANUFACTURERS OR MODELS OF EQUIPMENT MAY BE PROVIDED. ALL EQUIPMENT PROVIDED SHALL MEET THE REQUIREMENTS OF THE APPLICABLE SCHEDULE AND SPECIFICATIONS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: T. WEEDER
DRAWN BY: T. WEEDER
CHECKED BY: J. SWERCZEK
SUBMITTED BY: J. SWERCZEK, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

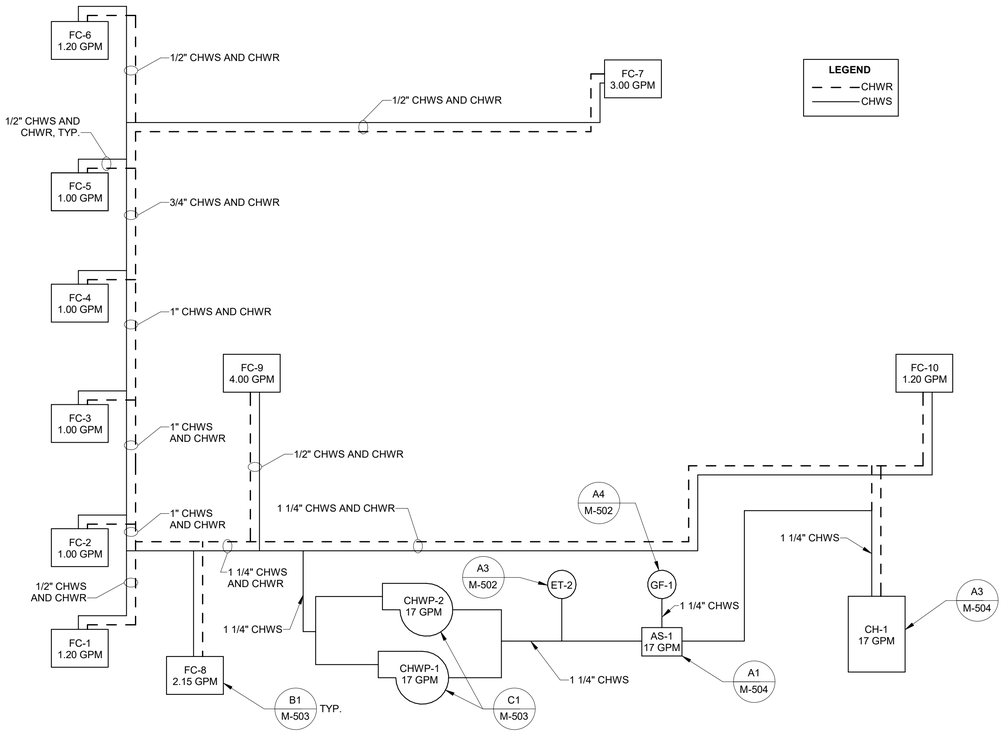
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

MECHANICAL EQUIPMENT SCHEDULE

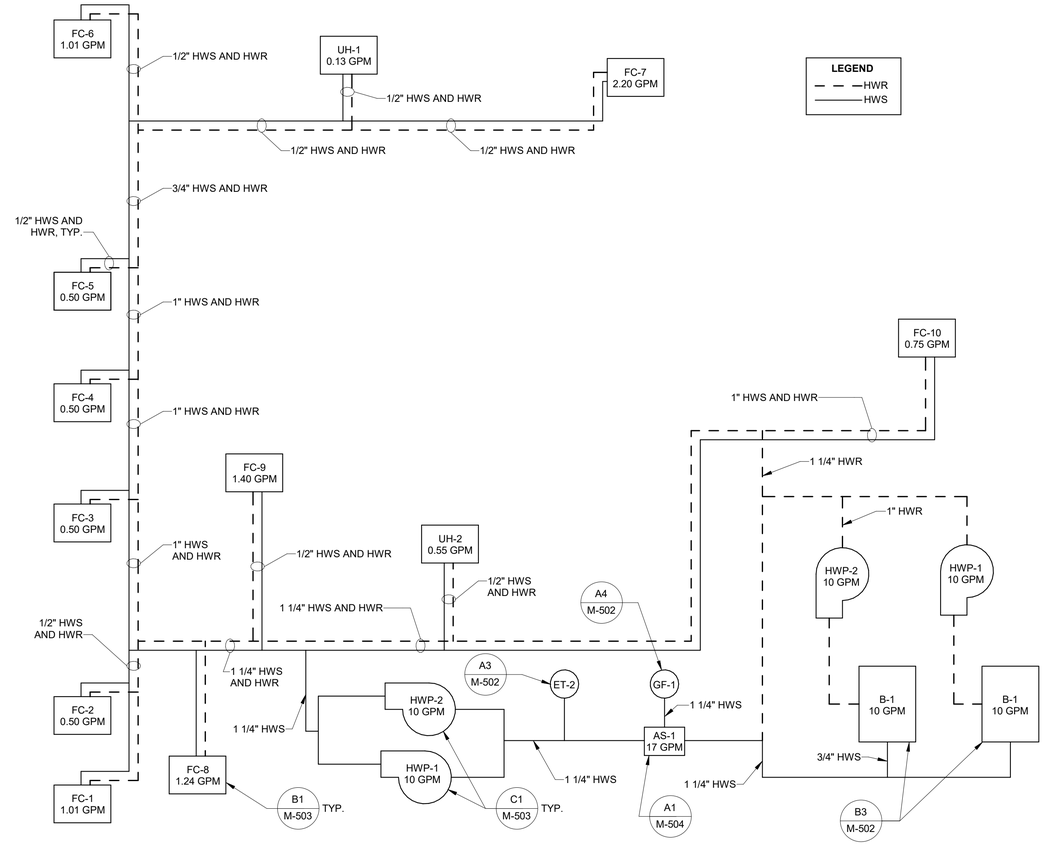
SHEET ID

M-603



B1 CHILLED WATER FLOW DIAGRAM

N.T.S.



B3 HEATED WATER FLOW DIAGRAM

N.T.S.

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HYDRONIC FLOW DIAGRAMS

SHEET ID

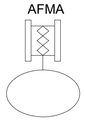
M-604

DEVICE SYMBOL, GENERIC
USED TO REPRESENT SENSORS, INSTRUMENTS
SAFETIES, AND OTHER CONTROL DEVICES
W-X-Y-Z : (SEE ABBREVIATIONS AND ACRONYMS)
GENERIC USAGE TO SHOW LOCATION OF DEVICE;
PROCESS OR DEVICE BEING MEASURED OR
CONTROLLED; SIGNAL TYPE; MODIFIERS AND
OTHER APPLICATION INFORMATION

DEVICE SYMBOL, GENERIC
MULTIPLE OUTPUT DEVICE WHERE AT LEAST 1
OUTPUT IS ALWAYS SAFETY INTERLOCK

DEVICE SYMBOL, CONTROLLER
DDC : DIRECT DIGITAL CONTROL
: DEVICE NUMBER
DIR : DIRECT CONTROL ACTION, OR
REV : REVERSE CONTROL ACTION
W-X-Y-Z : (SEE ABBREVIATIONS AND ACRONYMS)
GENERIC USAGE TO SHOW LOCATION OF DEVICE;
PROCESS OR DEVICE BEING MEASURED OR
CONTROLLED; SIGNAL TYPE; MODIFIERS AND
OTHER APPLICATION INFORMATION

ACTUATOR, ELECTRIC



AIR FLOW MEASUREMENT ARRAY,
WITH FLOW TRANSMITTER
SEE "DEVICE SYMBOL, GENERIC"

BOILER

CHILLER

COIL, COOLING

COIL, HEATING

DAMPER

DAMPER, PARALLEL BLADE
NORMALLY OPEN OR CLOSED AS SHOWN
= DAMPER NUMBER AS SHOWN
IN DAMPER SCHEDULE

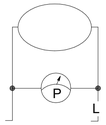
DAMPER, OPPOSED BLADE
NORMALLY OPEN OR CLOSED AS SHOWN
= DAMPER NUMBER AS SHOWN
IN DAMPER SCHEDULE

FAN

FILTER

LOCAL DISPLAY PANEL
= SEQUENTIAL NUMBER
(WHEN MORE THAN 1 LDP)

PRESSURE GAGE



PRESSURE SWITCH, DIFFERENTIAL, WITH GAGE
H = HIGH PRESSURE TAP
L = LOW PRESSURE TAP
SEE "DEVICE SYMBOL, GENERIC"

PUMP

RESET BUTTON FOR SAFETY RESET

SMOKE DETECTOR, DUCT-MOUNTED
SEE "DEVICE SYMBOL, GENERIC"

TEMPERATURE GAGE

TEMPERATURE SENSOR, AVERAGING
or TEMPERATURE LOW LIMIT /
FREEZESTAT
SEE "DEVICE SYMBOL, GENERIC"

TEMPERATURE SENSOR, POINT
SEE "DEVICE SYMBOL, GENERIC"

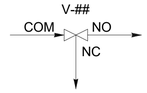
THERMOSTAT WITH
SPECIFIED I/O FUNCTIONS

THERMOWELL IN PIPE

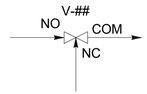
VALVE, BALANCING

VALVE, NORMALLY CLOSED
WITH SPRING RETURN FAILSAFE
= VALVE NUMBER AS SHOWN
IN VALVE SCHEDULE

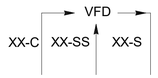
VALVE, NORMALLY OPEN
WITH SPRING RETURN FAILSAFE
= VALVE NUMBER AS SHOWN
IN VALVE SCHEDULE



VALVE, 3-WAY DIVERTING
WITH SPRING RETURN FAILSAFE
NO = NORMALLY OPEN
NC = NORMALLY CLOSED
COM = COMMON PORT
= VALVE NUMBER AS SHOWN
IN VALVE SCHEDULE



VALVE, 3-WAY MIXING
WITH SPRING RETURN FAILSAFE
NO = NORMALLY OPEN
NC = NORMALLY CLOSED
COM = COMMON PORT
= VALVE NUMBER AS SHOWN
IN VALVE SCHEDULE



VARIABLE FREQUENCY DRIVE
XX = PROCESS/DEVICE BEING CONTROLLED

SS = START/STOP COMMAND
S = STATUS FEEDBACK (ON/OFF)
C = 4-20 mA, VDC, or SNVT CONTROL SIGNAL

CONTROL SCHEMATIC SYMBOLS

ABBREVIATIONS AND ACRONYMS

2P - TWO-POSITION (CONTROL SIGNAL)
A - ACTUATE
ADJ - ADJUSTABLE
AFMA - AIRFLOW MEASUREMENT ARRAY
ALM - ALARM
BA - BYPASS AIR
BLDG - BUILDING
BUT - BUTTON
C - COMMAND (MODULATING CONTROL SIGNAL)
CHLR - CHILLER
CLG - COOLING
CO2 - CARBON DIOXIDE
COM - COMMON
COMP - COMPARATOR
CWR - CHILLED WATER RETURN
CWS - CHILLED WATER SUPPLY
D - DAMPER
DA - DISCHARGE AIR
DB - DEADBANK
DDC - DIRECT DIGITAL CONTROL(ER)
DIFF - DIFFERENCE
DIR - DIRECT (CONTROL ACTION)
DIS - DISABLE
DISP - DISPLAY
DUCT - DUCT MOUNTED
DX - DIRECT EXPANSION (UNIT)
EA - EXHAUST AIR
ECO - ECONOMIZER
EF - EXHAUST FAN
EM - EMERGENCY
ENA - ENABLE
F - FLOW
FAP - FIRE ALARM PANEL
FLT - FILTER
H - HUMIDITY
HL - HIGH LIMIT
HTG - HEATING
HUM - HUMIDIFIER
HWR - HEATING WATER RETURN
HWS - HEATING WATER SUPPLY
HX - HEAT EXCHANGER
I/O - INPUT/OUTPUT
LDP - LOCAL DISPLAY PANEL
LL - LOW LIMIT
M&C - MONITORING & CONTROL (SOFTWARE)
MA - MIXED AIR
MINOA - MINIMUM OUTSIDE AIR
MS - MOTOR STARTED
N/A - NOT APPLICABLE
NC - NORMALLY CLOSED
NCI - NETWORK CONFIGURATION INPUT
NO - NORMALLY OPEN
OA - OUTSIDE AIR
OCC - OCCUPIED
OWS - OPERATOR WORKSTATION
P - PRESSURE
PH - PREHEAT
PMP - PUMP
PP - POSITIVE POSITIONER
R - RELAY
RA - RETURN AIR
REV - REVERSE (CONTROL ACTION)
RF - RETURN FAN
RH - RELATIVE HUMIDITY
RLA - RELIEF AIR
RM - ROOM
RST - RESET
RT - RATE
S - STATUS
SA - SUPPLY AIR
SEC - SECONDARY
SF - SUPPLY FAN
SMK - SMOKE
SNVT - STANDARD NETWORK VARIABLE TYPE
SP - SETPOINT
SS - START/STOP COMMAND
STAT - THERMOSTAT
SYS - SYSTEM
SCHC - SCHEDULER
T - TEMPERATURE
TAP - TAP, PRESSURE
UNOCC - UNOCCUPIED
V - VALVE
VAV - VARIABLE AIR VOLUME
VFD - VARIABLE FREQUENCY DRIVE
WB - WET BULB (TEMPERATURE)
ZN - ZONE

US Army Corps of Engineers ®

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FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101484 (FY23)

HVAC CONTROLS SEQUENCE

SHEET ID
M-701

POINTS LIST INSTRUCTIONS

GENERAL:

1) THE CONTRACT DRAWINGS POINTS SCHEDULES ASSUME THAT THE ENTIRE SEQUENCE OF OPERATION IS PERFORMED IN A SINGLE PIECE OF I/O HARDWARE. IN CASES WHERE MULTIPLE PIECES OF DDC HARDWARE ARE USED (INCLUDING ANSI-709.1 SENSORS AND ACTUATORS), SEPARATE THE POINTS SCHEDULE INTO SEPARATE TABLES EACH WITH ITS OWN HEADER INFORMATION (SEE BELOW) SO THAT EACH PIECE OF DDC HARDWARE HAS A TABLE DEDICATED TO IT. ALL TABLES FOR A SINGLE SEQUENCE OF OPERATION SHALL BE ON A SINGLE DRAWINGS WHICH MAY SPAN MULTIPLE SHEETS. SHOW COMMUNICATION BETWEEN MULTIPLE PIECES OF DDC HARDWARE PERFORMING A COMMON SEQUENCE THROUGH THE USE OF NVI AND NVO ENTRIES IN THE I/O COLUMN (SEE I/O COLUMN INSTRUCTIONS BELOW), ADDING ROWS TO THE TABLE(S) AS NEEDED.

2) ENTRIES SHOWN BRACKETED AS: <__> ARE REQUIRED ENTRIES UNDER UFGS 23 09 23. SOME ENTRIES WITHOUT BRACKETS MAY BE REQUIRED IN SOME INSTANCES AS DESCRIBED IN THESE INSTRUCTIONS.

SPACES WHERE NO ENTRY IS ORDINARILY REQUIRED CONTAINS A TILDE: "~" (EQUIVALENT TO AN "N/A" OR NULL VALUE).

WHEN AN ENTRY APPEARS INSIDE OF BRACKETS, IT IS RECOMMENDED ENTRY THAT MUST BE VERIFIED OR CHANGED BY THE APPROPRIATE PROPERTY (AS INDICATED BY THE BRACKET TYPE). WHEN EDITING THE POINT SCHEDULES, DELETE THE BRACKETS AFTER VERIFYING/PROVIDING THE ENTRY. DO NOT LEAVE CELLS BLANK, INSTEAD SHOW THE TILDE ("~") TO INDICATE A NULL VALUE OR THAT NO FURTHER ENTRY IS REQUIRED.

HEADER INFORMATION INSTRUCTIONS:

1) DC HARDWARE IDENTIFIER: SHOW THE IDENTIFIER FOR EACH PIECE OF DDC HARDWARE. MAINTAIN CONSISTENCY AND UNIQUENESS OF DDC HARDWARE IDENTIFIERS BETWEEN ALL DRAWINGS.

2) DDC HARDWARE LOCATION: SHOW THE PHYSICAL LOCATION OF THE DEVICE. LOCATION SHALL INCLUDE THE BUILDING AND ROOM NUMBER AND MAY ALSO INCLUDE FURTHER INFORMATION SUCH AS ENCLOSURE/PANEL IDENTIFICATION.

3) NODE ADDRESS: USE THE DOMAIN VALUE AND THE SUBNET RANGES SPECIFIED. SHOW THE DOMAIN, SUBNET AND NODE ADDRESSES FOR ALL DEVICES ON THE NETWORK.

4) NODE ID: SHOW THE MANUFACTURER SUPPLIED NODE ID FOR EACH DEVICE.

"GENERAL" COLUMNS:

1) NAME COLUMN: SHOW POINT NAMES AS NEEDED AND AS INDICATED BY BRACKETS (<__>). THE NAME SHALL BE CONSISTENT WITH POINT NAMES SHOWN ON ALL OTHER DRAWINGS AND SHALL USE THE ESTABLISHED POINT ABBREVIATIONS.

2) SETTING COLUMN: CONFIGURE DEVICES TO USE THE SETPOINTS AND SETTINGS SHOWN. WHEN A SETPOINT OR SETTING IS NOT SHOWN, USE VALUES IN ACCORDANCE WITH THE SPECIFICATION AND SHOW THE SETPOINT OR SETTING USED. INCLUDE THE APPROPRIATE ENGINEERING UNITS FOR ENTRIES IN THIS COLUMN.

3) RANGE COLUMN: CONFIGURE DEVICES TO USE THE RANGES SHOWN. WHEN A RANGE IS NOT SHOWN SEE VALUES IN ACCORDANCE WITH THE SPECIFICATION AND SHOWS THE RANGE USED. FOR SENSORS SHOW THE ACTUAL SENSOR RANGES (THIS RANGE MUST AT LEAST ENCOMPASS THE RANGE SPECIFIED IN SECTION 23 9 23). FOR DAMPER ACTUATORS SHOWN THE ACTUAL RANGE OVER WHICH THE VALUE OR DAMPER IS ACTUATED. INCLUDE THE APPROPRIATE ENGINEERING UNITS FOR ENTRIES IN THIS COLUMN.

4) NCI/CP NAME COLUMN: ENTRIES IN THIS COLUMN ARE ONLY REQUIRED FOR GENERAL PURPOSE PROGRAMMABLE CONTROLLERS (GPPC) OR APPROVED APPLICATION SPECIFIC CONTROLLERS (ASC) LACKING LONWORKS NETWORK SERVICES (LNS) PLUG-INS. SHOW ALL NETWORK CONFIGURATION INPUTS (NCI) OR CONFIGURATION PROPERTIES (CP) THAT RELATE TO THE POINT. FOR CPS OF A USER-DEFINED NETWORK CONFIGURATION PARAMETER TYPE (UCPT), PROVIDE EITHER THE STANDARD NETWORK VARIABLE TYPE (SNVT) THAT RELATES TO THE CP, OR (FOR UCPTS NOT BASED ON A SNVT) PROVIDE DETAILED DESCRIPTIONS OF THE FIELDS AND UNITS OF EACH CP. EXPAND ROWS AND USE ADDITIONAL SHEETS AS REQUIRED TO PROVIDE CONFIGURATION PROPERTY DESCRIPTIONS.

5) I/O TYPE COLUMN: SHOW I/O TYPE FOR EACH POINT AS ONE (OR MORE) OF THE FOLLOWING:
* AI FOR ANALOG INPUTS
* AO FOR ANALOG OUTPUTS
* BI FOR BINARY INPUTS
* BO FOR BINARY OUTPUTS
* NVO FOR NETWORK VARIABLE OUTPUTS
* NVI FOR NETWORK VARIABLE INPUTS

IF MORE THAN ONE PIECE OF DDC HARDWARE IS USED TO IMPLEMENT A SEQUENCE AND THE VALUE OF A PHYSICAL INPUT TO ONE IS NEEDED BY THE OTHER, SHOW THE POINT AS BOTH A HARDWARE INPUT (AI OR BI) AND A NETWORK VARIABLE OUTPUT (NVO) ON THE FIRST AND AS A NETWORK VARIABLE INPUT (NVI) TO THE OTHER DDC HARDWARE. SIMILARLY FOR OUTPUTS SHOW A NETWORK VARIABLE OUTPUT (NVO) ON ONE CONTROLLER, AND A NETWORK VARIABLE INPUT (NVI) AND HARDWARE OUTPUT (AO OR BO) ON THE OTHER.

AN ENTRY OF NVO IS ONLY REQUIRED FOR OUTPUTS THAT ARE USED BY ANOTHER PIECE OF DDC HARDWARE; POINTS THAT HAVE SNVTS ONLY FOR DISPLAY OR TRENDING AT AN LDP OR M&C SOFTWARE WORKSTATION ARE ASSUMED TO BE NVOS AND DO NOT NEED AN NVO ENTRY IN THE I/O COLUMN.

FOR EVERY ENTRY OF NVO OR NVI SHOW THE SNVT NAME AND TYPE IN THE SNVT NAME AND SNVT TYPE COLUMNS UNDER LDP AND M&C DISPLAY.

LDP AND M&C DISPLAY COLUMNS:

1) LDP VIEW REQ'D COLUMN: PROVIDE AN LDP AND CONFIGURE THE BUILDING CONTROL NETWORK AND LDP TO DISPLAY POINTS MARKED WITH AN "X". SHOW THE SNVT NAME AND SNVT TYPE FOR EACH POINT SHOWN (SEE INSTRUCTIONS FOR THE "SNVT TYPE" COLUMN).

2) M&C DISPLAY REQ'D COLUMN: AN "X" IN THIS COLUMN INDICATES THAT A SNVT FOR THIS POINT MUST BE AVAILABLE FROM THE DDC HARDWARE PERFORMING THE SEQUENCE FOR THIS SYSTEM. PROVIDE A SNVT OUTPUT FOR THESE POINTS AND SHOW THE SNVT NAME AND SNVT TYPE (SEE INSTRUCTIONS FOR "SNVT TYPE" COLUMN).

3) M&C TREND REQ'D COLUMN: FOR ALL POINTS WITH AN "X" IN THIS COLUMN A SNVT FOR THIS POINT SHALL BE AVAILABLE. PROVIDE A SNVT OUTPUT FOR THESE POINTS AND SHOW THE SNVT NAME AND SNVT TYPE (SEE INSTRUCTIONS FOR "SNVT TYPE" COLUMN).

4) SNVT TYPE COLUMN: IF THE SNVT TYPE IS SHOWN ON THE POINT SCHEDULE CONTRACT DRAWINGS, THE PROVIDED SNVT SHALL BE OF THIS TYPE. IF NECESSARY, A SNVT TYPE TRANSLATOR MAY BE USED TO CONVERT TO THIS SNVT TYPE. IF THE USE OF A TYPE TRANSLATOR RESULTS IN THE SHARING OF A SNVT BETWEEN DDC HARDWARE, IT MUST BE DOCUMENTED ON THE POINTS SCHEDULES. WHERE NO SNVT TYPE IS SHOWN, SHOW THE SNVT TYPE.

OVERRIDES COLUMNS:

1) LDP OVRD REQ'D COLUMN: PROVIDE AN LDP AND CONFIGURE THE BUILDING CONTROL NETWORK AND LDP TO ALLOW AN OPERATOR TO OVERRIDE THE POINT FROM THE LDP. SHOW THE INPUT SNVT NAME AND TYPE FOR EACH POINT REQUIRING AN OVERRIDE.

2) M&C OVRD REQ'D COLUMN: FOR ALL POINTS WITH AN "X" IN THIS COLUMN, PROVIDE A SNVT INPUT BY WHICH THE VALUE OF THE POINT CAN BE OVERRIDDEN. SHOW THE SNVT NAME AND TYPE FOR EACH POINT REQUIRING AN OVERRIDE.

ALARMS COLUMN:

1) BLDG ROUTING REQ'D COLUMN: PROVIDE REDUNDANT ALARM HANDLING AS SPECIFIED FOR EACH ALARM WITH AN "X" IN THIS COLUMN.

OTHER:

1) SYSTEM RESET BUTTON (RST-BUT): IF THE "I/O TYPE" COLUMN CONTAINS "BI", THE SYSTEM MUST BE CAPABLE OF BEING RESET VIA A LOCAL PUSH-BUTTON.

IF THERE IS AN "X" IN THE LDP OVRD REQ'D OR M&C OVRD REQ'D COLUMN, THE SYSTEM MUST ALSO BE CAPABLE OF BEING RESET VIA SNVT INPUT (SEE INSTRUCTIONS FOR M&C OVRD REQ'D AND LDP OVRD REQ'D COLUMNS).

2) SYSTEM OCCUPANCY (SYS-OCC): SHOWN OCC, UNOCC, WUCD (WARM UP/ COOL DOWN) IN THE RANGE COLUMN BASED ON SYSTEM- SPECIFIC SEQUENCE OF OPERATIONS AND OCCUPANCY SCHEDULE.

3) OUTSIDE AIR FLOW: FOR SYSTEMS CONTROLLING TO AN OA SETPOINT, USE THE OA-F-SP SHOWN WHEN CONFIGURING THE DDC HARDWARE PERFORMING THE SEQUENCE OF OPERATION.

4) PID LOOP SETTINGS: SHOW ALL PID LOOP SETTINGS IN THE SETTINGS COLUMN, INCLUDING ENGINEERING UNITS FOR EACH SETTING. ADJUST ROW HEIGHT AS NEEDED TO SHOW ALL PID SETTINGS.

5) FILTERS: WHEN FILTER PRESSURES ARE SHOWN, INSTALL FILTER PRESSURE SWITCHES. SHOW LOADED FILTER (HIGH-LIMIT) SETPOINT FOR EACH FILTER.

6) OTHER POINTS: INSTALL SENSORS FOR MONITORING PURPOSES ONLY.

POINT SCHEDULE INSTRUCTIONS FOR CONTRACTOR

1) ENTRIES SHOWN BRACKETED AS: /___/ ARE REQUIRE ENTRIES. SOME ENTRIES WITHOUT BRACKETS MAY BE REQUIRED IN SOME INSTANCES AS DESCRIBED IN THESE INSTRUCTIONS.

SPACES WHERE NO ENTRY IS ORDINARILY REQUIRED CONTAINS A TILDE: "~" (EQUIVALENT TO NULL OR N/A)

WHEN AN ENTRY APPEARS INSIDE OF BRACKETS, IT IS A RECOMMENDED ENTRY THAT MUST BE VERIFIED OR CHANGED BY THE APPROPRIATE PARTY (AS INDICATED BY THE BRACKET TYPE). WHEN EDITING THE POINTS SCHEDULES, DELETE THE BRACKETS AFTER VERIFYING/ PROVIDING ENTRY. DO NOT LEAVE CELLS BLANK, INSTEAD SHOW THE TILDE TO INDICATE THE NULL VALUE OR NO FURTHER ENTRY REQUIRED.

2) NAME COLUMN: USE THE POINT NAMES SHOWN ON THE POINTS SCHEDULES FOR ALL GRAPHICS DISPLAYS.

3) M&C DISP REQ'D: AN "X" IN THIS COLUMN INDICATES THAT THE GRAPHICAL DISPLAY FOR THIS SYSTEM MUST DISPLAY THE VALUE OF THIS POINT. UNLESS OTHERWISE APPROVED, GRAPHIC DISPLAYS SHALL USE THE POINT NAME, AS SHOWN IN THE "NAME" COLUMN FOR THE POINT.

4) M&C TREND REQ'D: FOR ALL POINTS WITH AN "X" IN THIS COLUMN, SET UP A TREND AT THE M&C SOFTWARE AS SPECIFIED.

5) M&C OVRD REQ'D: FOR ALL POINTS WITH AN "X" IN THIS COLUMN, USE THE SNVT NAME AND TYPE SHOWN TO PROVIDE OVERRIDE CAPABILITY. CONFIGURE THE M&C SYSTEM DISPLAYS TO ALLOW AN OPERATOR TO OVERRIDE THESE POINTS AS SPECIFIED.

6) ALARM PRIORITY COLUMN: WHEN CONFIGURING THE ALARM HANDLING AT THE M&C SERVER ACCORDING TO THE ALARM ROUTING SHOWN ON THE POINTS SCHEDULE, THE ALARM ROUTING SCHEDULE AND AS SPECIFIED.

7) M&C ROUTING NAME COLUMN: CONFIGURE ALARM HANDLING AT THE M&C SERVER ACCORDING TO THE ALARM ROUTING SHOWN ON THE POINTS SCHEDULE, THE ALARM ROUTING SCHEDULES, AND AS SPECIFIED.

8) SYSTEM RESET BUTTON (RST-BUT): IF THERE IS AN "X" IN THE M&C OVRD REQ'D COLUMN, CONFIGURE THE M&C SOFTWARE GRAPHIC DISPLAYS TO PROVIDE SYSTEM RESET CAPABILITY.

DDC SYSTEM - GENERAL:

1. DIRECT DIGITAL CONTROLS (DDC) SYSTEM SHALL BE PROVIDED TO OPERATE BUILDING MECHANICAL SYSTEMS AS DESCRIBED IN THE SEQUENCE OF OPERATION. ALL SOFTWARE SHALL BE NON-PROPRIETARY.

2. ALL CONTROL DEVICES SHALL BE ELECTRICALLY OR ELECTRONICALLY OPERATED. PNEUMATIC CONTROL DEVICES SHALL NOT BE USED.

3. INDIVIDUAL CONTROLLERS SHALL BE PROVIDED FOR EACH PIECE OF EQUIPMENT OR SYSTEM. ALL CONTROLLERS SHALL COMMUNICATE WITH THE MASTER TEMPERATURE CONTROL PANEL. THE MASTER TEMPERATURE CONTROL PANEL SHALL BE CAPABLE OF INTERFACING WITH ALL EQUIPMENT AND SYSTEMS CONTROLLERS THROUGHOUT THE DDC SYSTEM. ALL SETPOINTS AND PARAMETERS SHALL BE ACCESSIBLE THROUGH THE MASTER TEMPERATURE CONTROL PANEL AND FRONT END TERMINAL.

4. BUILDING TEMPERATURE CONTROLS SYSTEM SHALL COMMUNICATE WITH THE EXISTING BASE WIDE ENERGY MANAGEMENT CONTROLS SYSTEM (EMCS). COMMUNICATION SHALL BE THROUGH A DSL ACCESS POINT AND COMMUNICATION LINE. THE DSL ACCESS POINT SHALL BE ACCESSIBLE FROM ANY OUTSIDE INTERNET CONNECTION.

5. CONTRACTOR SHALL PROVIDE A WATER METER WITH PULSE READING CAPABILITIES. WATER METER SHALL COMMUNICATE WITH THE LONWORKS DDC CONTROLS AND SHALL INCLUDE GRAPHICS, PROGRAMMING, AND CONFIGURATION AS APPLICABLE.

6. PROVIDE EMERGENCY SHUT-DOWN SWITCHES AS SHOWN ON THE PLANS. THE SWITCH SHALL SHUT-DOWN ALL HVAC EQUIPMENT AND CLOSE ALL OUTSIDE AIR INTAKES AND EXHAUST DAMPERS. MANUAL RESET IS REQUIRED.

7. THE CONTROLS SYSTEM SHALL PROVIDE CONTINUOUS METERING FOR THE FOLLOWING SYSTEMS AND/OR COMPONENTS. THIS MONITORING SHALL BE ACCOMPLISHED THROUGH EQUIPMENT SENSORS AND CONTROL DEVICES. PROVIDE ADDITIONAL DEVICES AS REQUIRED TO ACCOMPLISH THIS MONITORING. THE DDC SYSTEM SHALL BE CAPABLE OF DATA LOGGING THIS INFORMATION AND REPORTING TO THE EMCS.

A. LIGHTING SYSTEMS AND CONTROLS
B. CONSTANT AND VARIABLE MOTOR LOADS.
C. VFD OPERATION

US Army Corps of Engineers ®

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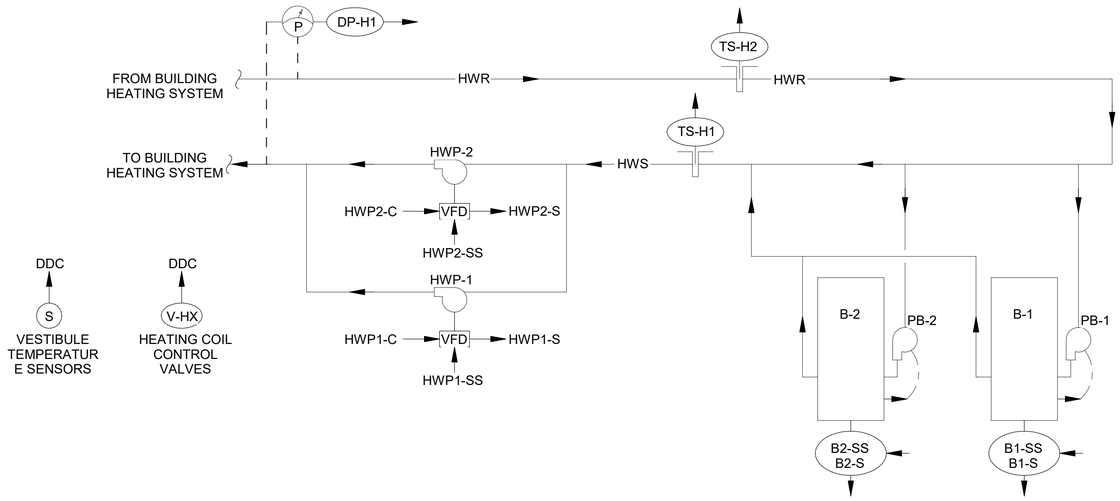
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

HVAC CONTROLS SEQUENCE

SHEET ID

M-702



HOT WATER HYDRONIC PIPING CONTROLS SCHEMATIC

CHILLED WATER SYSTEM

GENERAL:

THE BUILDING CHILLED WATER WILL BE PROVIDED WITH A CHILLER. A VARIABLE SPEED PUMP WILL CIRCULATE THE WATER AND BE CONTROLLED TO MAINTAIN A DIFFERENTIAL PRESSURE.

RUN CONDITIONS- REQUESTED: CWP-1 & CWP-2)

CWP-1 OR CWP-2 SHALL RUN WHENEVER ANY HYDRONIC COOLING COIL CALLS FOR COOLING. CALL FOR COOLING IS DEFINED AS ANY VALVE SERVING A HYDRONIC COOLING COIL OPENING. THE VFD SHALL MODULATE THE SPEED OF THE LEAD PUMP TO MAINTAIN THE SYSTEM DIFFERENTIAL PRESSURE AS MEASURE AT DP-C1.

THE DIFFERENTIAL PRESSURE FOR THE COOLING SYSTEM SHALL BE SET BY THE SYSTEM BALANCER AT A LEVEL THAT ENSURES PROPER FLOW TO THE HYDRONIC COILS.
THE LEAD PUMP SHALL CONTINUE TO RUN FOR 2 HOURS (ADJ.) AFTER ZERO COOLING VALVES ARE OPEN.

CWP-1 AND CWP-2 ARE EACH SIZED FOR 100% AND SHALL OPERATE IN A LEAD/LAG FASHION. THE LEAD PUMP SHALL ALTERNATE BETWEEN CWP-1 AND CWP-2 EVERY 2 WEEKS. IF THE LEAD PUMP SHALL FAIL, THE LAG PUMP SHALL START AND AN ALARM SHALL BE SENT TO THE EMS. CWP-1 AND CWP-2 SHALL NOT RUN AT THE SAME TIME.

ALARMS:

ALARMS SHALL BE SENT IF EITHER SYSTEM FAILS TO MAINTAIN THE DIFFERENTIAL PRESSURE SET POINT +/- 10% FOR A PERIOD OF 30 SECONDS.

CHILLER:

THE CHILLER SHALL BE ENABLED ANYTIME CWP-1 OR CWP-2 IS RUNNING AND THE TEMPERATURE MEASURED AT TS-C2 IS ABOVE 55 DEGREE F. THE CHILLER SHALL MODULATE THE CHILLER'S INTERNAL PUMPS AND COMPRESSOR STAGING TO MAINTAIN TS-C2 AT 55 DEGREE F.

HEATING WATER SYSTEM

RUN CONDITIONS-REQUESTED: (HWP-1 & HWP-2)

HWP-1 OR HWP-2 SHALL RUN WHENEVER ANY HYDRONIC HEATING COIL CALLS FOR HEATING. CALL FOR HEATING IS DEFINED AS ANY VALVE SERVING A HYDRONIC HEATING COIL OPENING OR TEMPERATURE SENSOR IN VESTIBULE IS BELOW 50 DEGREE F. THE VFD SHALL MODULATE THE SPEED OF THE LEAD PUMP TO MAINTAIN THE DIFFERENTIAL PRESSURE SET POINT OF 15 PSIG (ADJ., FINAL SETPOINT TO BE DETERMINED DURING TEST AND BALANCE) AS MEASURE AT DP-H1.

THE DIFFERENTIAL PRESSURE FOR THE HEATING SYSTEM SHALL BE SET BY THE SYSTEM BALANCER AT A LEVEL THAT ENSURES PROPER FLOW TO ALL HYDRONIC COILS.

THE LEAD PUMP SHALL CONTINUE TO RUN FOR 2 HOURS (ADJ.) AFTER ZERO HEATING VALVES ARE OPEN.

HWP-1 AND HWP-2 ARE EACH SIZED FOR 100% AND SHALL OPERATE IN A LEAD/LAG FASHION. THE LEAD PUMP SHALL ALTERNATE BETWEEN HWP-1 AND HWP-2 EVERY 2 WEEKS. IF THE LEAD PUMP SHALL FAIL, THE LAG PUMP SHALL START AND AN ALARM SHALL BE SENT TO THE EMS. HWP-1 AND HWP-2 SHALL NOT RUN AT THE SAME TIME.

BOILER B-1, B-2 GENERAL:

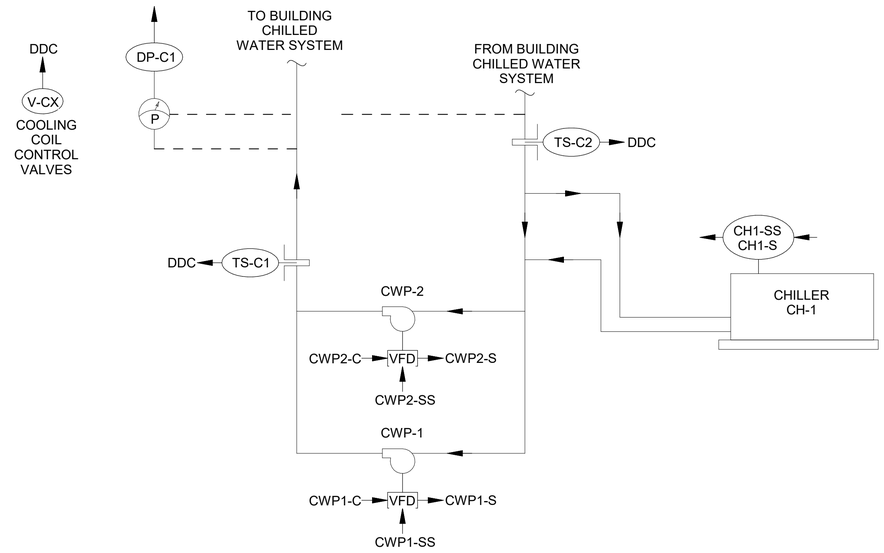
WHEN HWP-1 OR HWP-2 IS RUNNING THE BOILERS SHALL BE ENABLED BY THE DDC TO OPERATE TOGETHER ACCORDING TO THEIR INTERNAL CONTROLS TO MAINTAIN A HEATING WATER SUPPLY TEMPERATURE AS MEASURED AT TS-H1 AT 140 DEGREE F. THE BOILERS SHALL CONTROL THEIR CORRESPONDING BOILER PUMP.

ALARMS:

ALARMS SHALL BE SENT IF EITHER SYSTEM FAILS TO MAINTAIN THE DIFFERENTIAL PRESSURE SET POINT +/- 10% FOR A PERIOD OF 30 SECONDS.

HYDRONIC PIPING CONTROLS POINTS LISTS

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS & SAFETIES	CWP1-S	COLD WATER PUMP 1 STATUS	ON/OFF	BI	PUMP PROOF FAILED
	CWP2-S	COLD WATER PUMP 2 STATUS	ON/OFF	BI	PUMP PROOF FAILED
	HWP1-S	HOT WATER PUMP 1 STATUS	ON/OFF	BI	PUMP PROOF FAILED
	HWP2-S	HOT WATER PUMP 2 STATUS	ON/OFF	BI	PUMP PROOF FAILED
	B1-S	BOILER 1 STATUS	ON/OFF	BI	BOILER PROOF FAILED
	B2-S	BOILER 2 STATUS	ON/OFF	BI	BOILER PROOF FAILED
	CH1-S	CHILLER 1 STATUS	ON/OFF	BI	CHILLER PROOF FAILED
START/STOP	CWP1-SS	COLD WATER PUMP 1 START/STOP	START/STOP	BO	~
	CWP2-SS	COLD WATER PUMP 2 START/STOP	START/STOP	BO	~
	HWP1-SS	HOT WATER PUMP 1 START/STOP	START/STOP	BO	~
	HWP2-SS	HOT WATER PUMP 2 START/STOP	START/STOP	BO	~
	B1-SS	BOILER 1 START/STOP	START/STOP	BO	~
	B2-SS	BOILER 2 START/STOP	START/STOP	BO	~
	CH1-SS	CHILLER 1 START/STOP	START/STOP	BO	~
PUMP CONTROL	CWP1-C	COLD WATER PUMP 1 COMMAND	30%-100% ON	AO	~
	CWP2-C	COLD WATER PUMP 2 COMMAND	30%-100% ON	AO	~
	HWP1-C	HOT WATER PUMP 1 COMMAND	30%-100% ON	AO	~
	HWP2-C	HOT WATER PUMP 2 COMMAND	30%-100% ON	AO	~
PUMP INPUTS	DP-C1	DIFFERENTIAL PRESSURE CHILLED WATER	0 - 25 PSI	AI	~
	DP-H1	DIFFERENTIAL PRESSURE HEATING WATER	0 - 25 PSI	AI	~
TEMP AND INPUTS	TS-C1	CHILLED WATER SUPPLY TEMP	35-85 °F	AI	~
	TS-C2	CHILLED WATER RETURN TEMP	35-85 °F	AI	~
	TS-H1	HEATING WATER SUPPLY TEMP	50-180 °F	AI	~
	TS-H2	HEATING WATER RETURN TEMP	50-180 °F	AI	~
	T-S	VESTIBULE TEMPERATURE SENSORS	20-110 °F	AI	~
VALVES	DP-C1	DIFFERENTIAL PRESSURE CHILLED WATER	0 - 100% OPEN	AI	~
	DP-H1	DIFFERENTIAL PRESSURE HEATING WATER	0 - 100% OPEN	AI	~



CHILLED WATER HYDRONIC PIPING CONTROLS SCHEMATIC

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MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
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DRAWN BY:	T. WEEDER
CHECKED BY:	J. SWERCZEK
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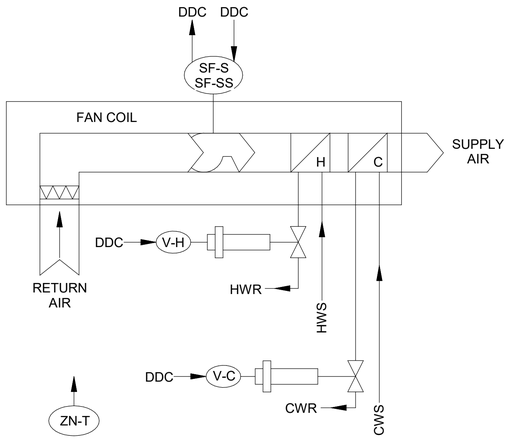
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

HVAC CONTROLS SEQUENCE

SHEET ID

M-703



FAN COIL CONTROLS SCHEMATIC

FAN COIL SYSTEM

GENERAL:
THE SYSTEM SHALL CONSIST OF A BLOW-THRU FAN COIL WITH A FILTER AND HOT WATER HEATING COIL, CHILLED WATER COIL AND CONSTANT SPEED SUPPLY FAN.

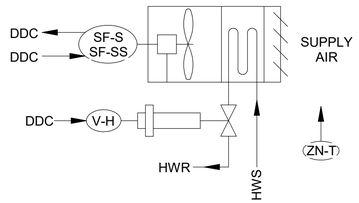
SUPPLY FAN:
THE FAN SHALL RUN WHENEVER HYDRONIC HEATING OR COOLING COIL CALLS FOR HEATING OR COOLING RESPECTIVELY.

HEATING COOL:
WHEN ENABLED V-H SHALL MODULATE TO MAINTAIN A ZONE TEMPERATURE ABOVE THE TEMPERATURE SENSOR SETPOINT.

COOLING COIL:
WHEN ENABLED V-C SHALL MODULATE TO MAINTAIN A ZONE TEMPERATURE BELOW THE TEMPERATURE SENSOR SETPOINT.

FAN COIL CONTROLS POINTS LISTS

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS & SAFETIES	SF-S	SUPPLY FAN STATUS	ON/OFF	BI	SUPPLY FAN PROOF FAILED
	-	FACTORY INSTALLED ALARMS	ON/OFF	BI	FACTORY ALARMS
START/STOP	SF-SS	SUPPLY FAN START/STOP	START/STOP	BO	~
SENSORS	ZT-T	ZONE TEMP	-10-130 °F	AI	~
VALVES	V-H	HEATING VALVE	OPEN/CLOSED	BO	~
	V-C	COOLING VALVE	OPEN/CLOSED	BO	~



UNIT HEATER CONTROLS SCHEMATIC

UNIT HEATER

RUN CONDITIONS – SCHEDULED:
THE UNIT SHALL RUN ANYTIME THE ZONE TEMPERATURE IS BELOW THE SETPOINT OF 50 DEG F.

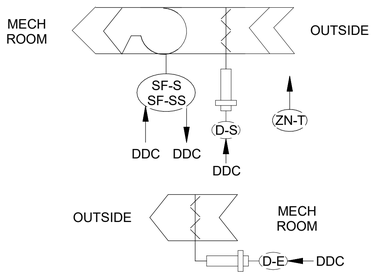
FAN:
THE FAN SHALL RUN ANYTIME THE ZONE TEMPERATURE DROPS BELOW HEATING SETPOINT.

HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND OPEN AND CLOSE THE COIL VALVE TO MAINTAIN THE HEATING SETPOINT.

ZONE TEMPERATURE ALARM:
AN ALARM SHALL BE PROVIDED IF ZONE TEMPERATURE DROPS BELOW 38 DEG F.

UNIT HEATER CONTROLS POINTS LISTS

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	SF-S	SUPPLY FAN STATUS	ON/OFF	BI	SUPPLY FAN PROOF FAILED
START/STOP	SF-SS	SUPPLY FAN START/STOP	START/STOP	BO	~
SENSORS	ZT-T	ZONE TEMP	-10-130 °F	AI	~
VALVES	V-H	HEATING VALVE	OPEN/CLOSED	BO	~



MECH ROOM EXHAUST CONTROLS SCHEMATIC

MECH ROOM EXHAUST SYSTEM - SF-1:

SUPPLY FAN RUN CONDITION:
THE UNIT SHALL RUN WHENEVER THE ZONE TEMPERATURE IS ABOVE 85 DEG F. AND THE OUTSIDE TEMPERATURE IS LOWER THAN THE ZONE TEMPERATURE.

EXHAUST AND INTAKE DAMPERS:
THE EXHAUST AND INTAKE AIR DAMPERS SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPERS SHALL CLOSE 10 SEC (ADJ.) AFTER THE FAN STOPS.

ZONE TEMPERATURE ALARM:
AN ALARM SHALL BE PROVIDED IF ZONE TEMPERATURE RISES ABOVE 110 DEG F.

MECH ROOM EXHAUST POINTS LIST

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	SF-S	SUPPLY FAN STATUS	ON/OFF	BI	SUPPLY FAN PROOF FAILED
START/STOP	SF-SS	SUPPLY FAN START/STOP	START/STOP	BO	~
SENSORS	ZT-T	ZONE TEMP	-10-130 °F	AI	~
DAMPER	D-S	SUPPLY DAMPER	OPEN/CLOSED	BO	~
	D-E	EXHAUST DAMPER	OPEN/CLOSED	BO	~

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

HVAC CONTROLS SEQUENCE

SHEET ID

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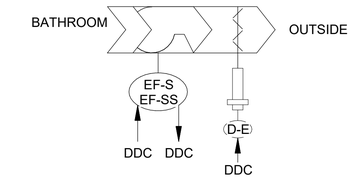


BATHROOM EXHAUST CONTROLS SCHEMATIC

EXHAUST FAN – EF-1 & 2

EXHAUST FAN RUN CONDITION:

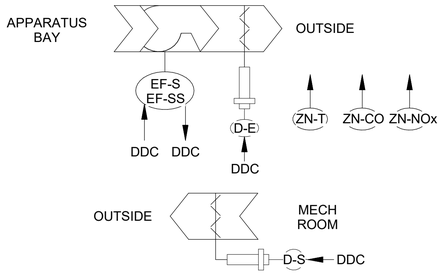
THE UNIT SHALL RUN WHENEVER THE BUILDING IS SCHEDULED TO BE OCCUPIED.

EXHAUST DAMPERS:

THE EXHAUST DAMPERS SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPER SHALL CLOSE 10 SEC (ADJ.) AFTER THE FAN STOPS.

BATHROOM EXHAUST POINTS LIST

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	EF-S	EXHAUST FAN STATUS	ON/OFF	BI	EXHAUST FAN PROOF FAILED
START/STOP	EF-SS	EXHAUST FAN START/STOP	START/STOP	BO	~
SCHEDULE	OCC-TIME	OCCUPANCY SCHEDULE	OCC/UNOCC	BI	~
DAMPER	D-E	EXHAUST DAMPER	OPEN/CLOSED	BO	~



APPARATUS BAY EXHAUST CONTROLS SCHEMATIC

APPARATUS BAY EXHAUST SYSTEM - EF-3 & 4:

SUPPLY FAN RUN CONDITION:
THE UNIT SHALL RUN WHENEVER THE ZONE TEMPERATURE IS ABOVE 85 DEG F. AND THE OUTSIDE TEMPERATURE IS LOWER THAN THE ZONE TEMPERATURE.

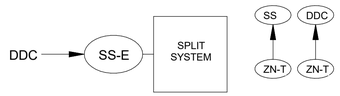
UNIT SHALL RUN WHENEVER THE ZONE CARBON MONOXIDE OR NITROGEN DIOXIDE SENSORS DETECT LEVELS ABOVE THE LIMIT. UNIT SHALL RUN FOR 10 MINUTES (ADJ.) AFTER THE CO AND NOx LEVELS RETURN TO NORMAL.

EXHAUST AND INTAKE DAMPERS:
THE EXHAUST AND INTAKE AIR DAMPERS SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPERS SHALL CLOSE 10 SEC (ADJ.) AFTER THE FAN STOPS.

ZONE TEMPERATURE ALARM:
AN ALARM SHALL BE PROVIDED IF ZONE TEMPERATURE RISES ABOVE 110 DEG F.

APPARATUS BAY EXHAUST POINTS LIST

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	EF-S	SUPPLY FAN STATUS	ON/OFF	BI	EXHAUST FAN PROOF FAILED
START/STOP	EF-SS	SUPPLY FAN START/STOP	START/STOP	BO	~
SENSORS	ZT-T	ZONE TEMP	-10-130 °F	AI	~
	ZT-CO	ZONE CARBON MONOXIDE MONITOR	0-250 ppm	AI	LEVEL ABOVE SAFETY LIMIT
	ZT-NOx	ZONE NITROGEN DIOXIDE MONITOR	0-10 ppm	AI	LEVEL ABOVE SAFETY LIMIT
DAMPER	D-S	SUPPLY DAMPER	OPEN/CLOSED	BO	~
	D-E	EXHAUST DAMPER	OPEN/CLOSED	BO	~



SPLIT SYSTEM- SS-1 &2, HP-1 &2
RUN CONDITIONS- CONTINUOUS:

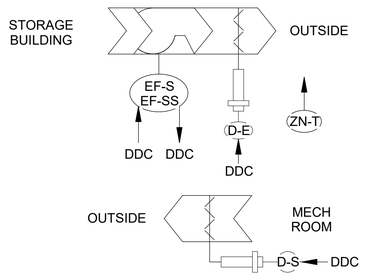
THE UNIT SHALL RUN ACCORDING TO ITS INTERNAL CONTROL AND SHALL MAINTAIN:
- 74 DEG F (ADJ.) COOLING SETPOINT
- 70 DEG F (ADJ.) HEATING SETPOINT

ZONE TEMPERATURE ALARM:

AN ALARM SHALL BE PROVIDED IF ZONE TEMPERATURE RISES ABOVE 85 DEG F (ADJ.)
AN ALARM SHALL BE PROVIDED IF ZONE TEMPERATURE FALLS BELOW 65 DEG F (ADJ.)

SPLIT SYSTEM POINTS LIST

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	EF-S	TEMPERATURE ALARM	ON/OFF	BO	TEMPERATURE ALARM
ENABLE	SS-E	SPLIT SYSTEM ENABLE/DISABLE	ON/OFF	BI	~
SENSORS	ZN-T	ZONE TEMP	-10 - 130°F	AI	~



STORAGE EXHAUST CONTROLS SCHEMATIC

STORAGE EXHAUST SYSTEM - EF-5:

EXHAUST FAN RUN CONDITION:
THE UNIT SHALL RUN WHENEVER THE ZONE TEMPERATURE IS ABOVE 85 DEG F. AND THE OUTSIDE TEMPERATURE IS LOWER THAN THE ZONE TEMPERATURE.

EXHAUST AND INTAKE DAMPERS:
THE EXHAUST AND INTAKE AIR DAMPERS SHALL OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPERS SHALL CLOSE 10 SEC (ADJ.) AFTER THE FAN STOPS.

ZONE TEMPERATURE ALARM:
AN ALARM SHALL BE PROVIDED IF ZONE TEMPERATURE RISES ABOVE 110 DEG F.

STORAGE EXHAUST POINTS LIST

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	EF-S	SUPPLY FAN STATUS	ON/OFF	BI	EXHAUST FAN PROOF FAILED
START/STOP	EF-SS	SUPPLY FAN START/STOP	START/STOP	BO	~
SENSORS	ZT-T	ZONE TEMP	-10-130 °F	AI	~
DAMPER	D-S	SUPPLY DAMPER	OPEN/CLOSED	BO	~
	D-E	EXHAUST DAMPER	OPEN/CLOSED	BO	~

US Army Corps of Engineers ®

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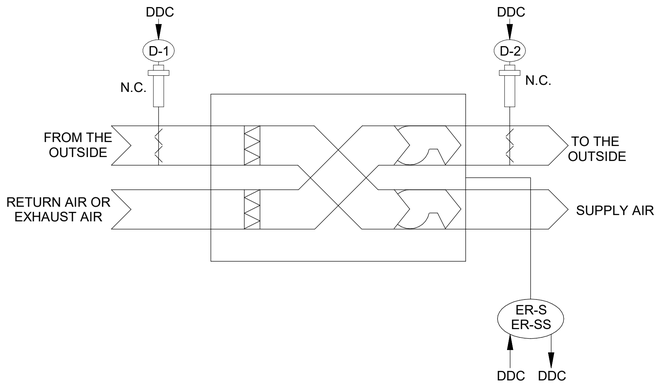

ENERGY RECOVERY VENTILATOR CONTROLS SCHEMATIC

ENERGY RECOVERY UNIT ERV-1

FAN RUN CONDITION:

THE FAN SHALL RUN CONTINUOUSLY IF OCCUPANCY SENSOR DETECTS OCCUPANCY

-THE FAN SHALL RUN FOR 15 MINUTES AFTER OCCUPANCY IS NO LONGER SENSED.

DAMPERS:

D-1 AND D-2 SHALL OPEN WHEN ENERGY RECOVERY UNIT IS RUNNING

D-1 AND D-2 SHALL CLOSE WHEN ENERGY RECOVERY UNIT IS NOT RUNNING

ENERGY RECOVERY UNIT ERV-2

FAN RUN CONDITION:

THE FAN SHALL RUN CONTINUOUSLY.

DAMPERS:

D-1 AND D-2 SHALL OPEN WHEN ENERGY RECOVERY UNIT IS RUNNING

D-1 AND D-2 SHALL CLOSE WHEN ENERGY RECOVERY UNIT IS NOT RUNNING

MECH ROOM EXHAUST POINTS LIST

FUNCTION	NAME	DESCRIPTION	RANGE (WITH UNITS)	I/O TYPE	ALARM CONDITION
PROOFS	ER-S	ENERGY RECOVERY FAN STATUS	ON/OFF	BI	ENERGY RECOVERY FAN PRROF FAILED
START/STOP	ER-SS	ENERGY RECOVERY FAN START/STOP	START/STOP	BO	~
SENSORS	OCC-S	OCCUPANCY SENSOR	OCC/UNOCC	BI	~
DAMPER	D-1	OUTSIDE AIR DAMPER	OPEN/CLOSED	BO	~
	D-2	EXHAUST AIR DAMPER	OPEN/CLOSED	BO	~

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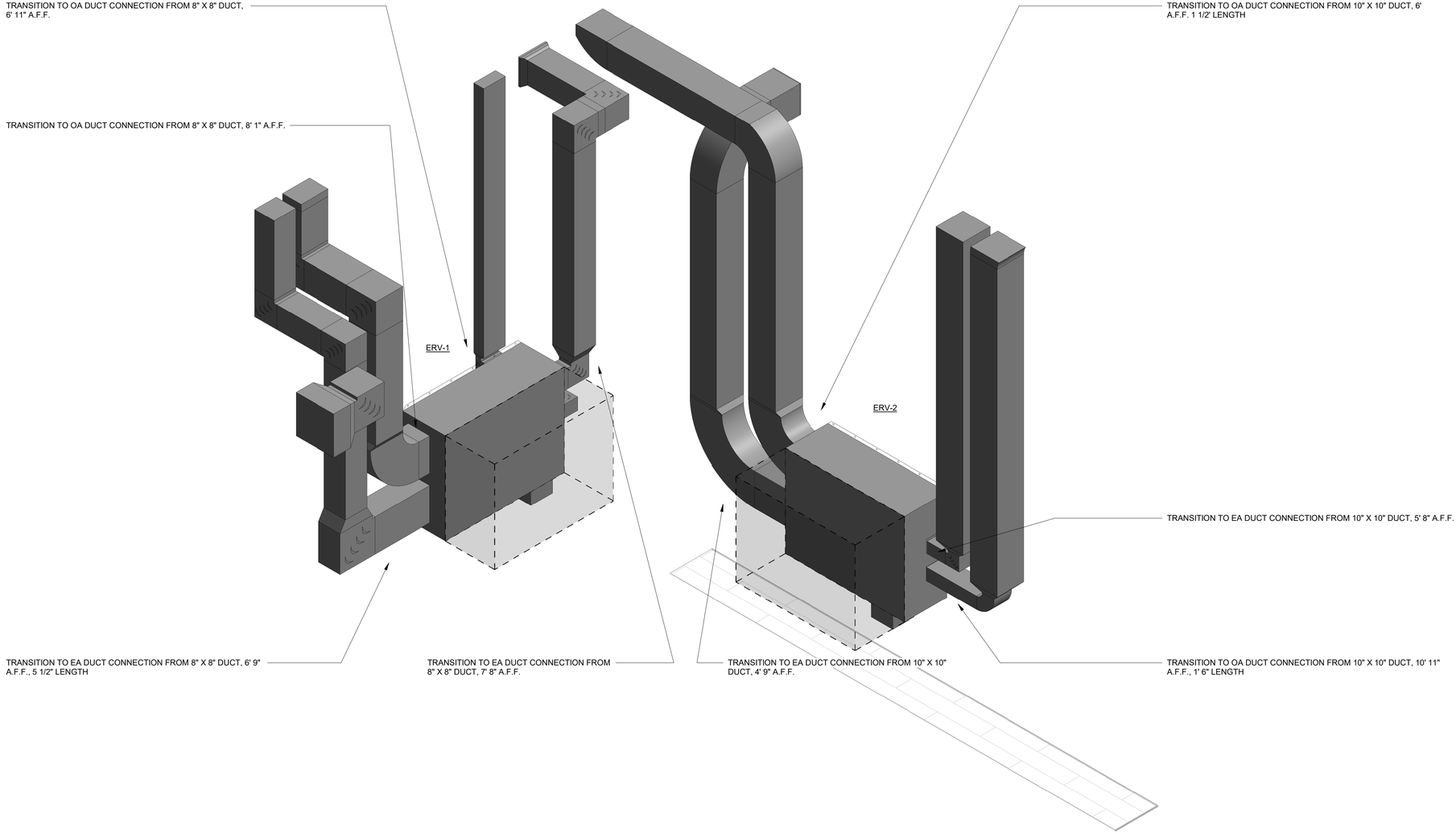

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MECHANICAL ROOM ERV ISOMETRIC

SHEET ID

M-901

SUPPLEMENTAL LIGHTNING PROTECTION AND GROUNDING LEGEND

▲	AIR TERMINAL, 12" MINIMUM HEIGHT
⊕	AIR TERMINAL, 24" MINIMUM HEIGHT
▣	AIR TERMINAL, 60" MINIMUM HEIGHT
⊙	3/4"x10' GROUND ROD
⊙	3/4"x10' GROUND ROD WITH TEST WELL
MGB	MAIN GROUND BAR, SEE EG503 FOR SIZE.
TMGB	TELECOMMUNICATIONS MAIN GROUND BAR, SEE EG503 FOR SIZE.
TGB	TELECOMMUNICATIONS GROUND BAR, SEE EG503 FOR SIZE.
GB	GROUND BAR, SEE EG503 FOR SIZE.
— RC —	LIGHTNING PROTECTION ROOF MAIN CONDUCTOR
— DC —	LIGHTNING PROTECTION DOWN CONDUCTOR
— G —	COUNTERPOISE GROUND LOOP

(#) KEYED NOTES - EG100 SHEETS

1	GENERATOR GROUND RODS AND GROUND RING. GROUND RODS AND RING SHALL BE PLACED MINIMUM 5' AWAY FROM GEN-SET. LIGHTING PROTECTION SHALL BE PROVIDED. SEE SITE PLAN FOR LOCATION.
2	CONNECTION TO STRUCTURAL STEEL.

GENERAL NOTES - EG100 SERIES SHEETS

1	UNDERGROUND CONDUITS CROSSING FOUNDATIONS SHALL BE BURIED AT A DEPTH SUCH THAT CONDUITS ARE LOCATED MINIMUM 12" BELOW THE FOUNDATIONS.
2	THE LIGHTNING PROTECTION SYSTEM DESIGN IS BASED ON THE ROLLING SPHERE DESIGN IS APPROXIMATE, AND IS SUBJECT TO DESIGN VERIFICATION AND APPROVAL BY CONTRACTOR. ENSURE THAT DURING INSTALLATION ALL POINTS ARE WITHIN 2'-0" OF OUTSIDE BUILDING EDGE, OUTSIDE CORNERS, AND RIDGE ENDS. THE MAXIMUM SPACING OF PERIMETER TERMINALS DOES NOT EXCEED 20'-0" FOR 12" COPPER AIR TERMINALS AND 25'-0" FOR 24" COPPER AIR TERMINALS. SUBMIT INSTALLATION DRAWINGS AND PROVIDE AN UL MASTER LABEL CERTIFIED SYSTEM COORDINATING WITH ACTUAL SUBMITTED MECHANICAL EQUIPMENT, ROOF INFORMATION, AND ROOFING MANUFACTURER REQUIREMENTS. ENSURE MINIMUM AIR TERMINAL PROJECTION ABOVE OBJECTS IS 24". LOCATE AIR TERMINALS AS SHOWN AT MINIMUM.
3	CONTRACTOR SHALL BOND TO BUILDING STEEL, ELECTRICAL SERVICE, WATER SERVICE, GAS SERVICE, AND OTHER PIPING SYSTEMS AS REQUIRED BY NFPA 70, NFPA 780, AND OTHER APPLICABLE CODES.
4	CONTRACTOR SHALL VERIFY STRUCTURAL MEMBER LOCATIONS.
5	CONTRACTOR SHALL VERIFY MECHANICAL EQUIPMENT LOCATIONS.
6	COORDINATE INSTALLATION OF LOOP CONDUCTOR WITH INCOMING UTILITIES. BARE COPPER COUNTERPOISE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 30 INCHES, BURIED BETWEEN 3' AND 8' AWAY FROM THE BUILDING, AND HAVE NO BENDS LESS THAN 90 DEGREES.
7	COORDINATE DOWN CONDUCTORS WITH ALL INCOMING UTILITIES.
8	CONTRACTOR SHALL PROVIDE CONDUCTOR FROM ROOF CONDUCTOR TO GROUND ROD, ROUTE CONDUCTOR AROUND GUTTER, PARAPET WALL, AND/OR ROOF EVE AND ALL INCOMING UTILITIES.
9	ALL CONNECTIONS AND EQUIPMENT BONDING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND NFPA 780.
10	BOND EXHAUST HOODS AND PIPES TO LIGHTNING PROTECTION CONDUCTOR.
11	CONTRACTOR SHALL PROVIDE 3/4" X 10'-0" COPPER CLAD STEEL GROUND RODS AT MINIMUM LOCATIONS SHOWN. GROUND RODS SHALL BE SPACED EVERY 50' MAXIMUM.
12	MAINTAIN HORIZONTAL OR DOWNWARD COURSING OF MAIN CONDUCTOR AND ENSURE THAT ALL BENDS HAVE AT LEAST A 8" RADIUS AND DOES NOT EXCEED 90 DEGREES.
13	GROUND BARS TO BE ANCHORED AT INTERVALS NOT TO EXCEED 2'-0".
14	GROUND BARS SHALL BE PRE-DRILLED.
15	AIR TERMINALS SHALL BE BLUNT TIP TYPE.
16	PERIMETER COLUMNS SHALL BE BONDED TO COUNTERPOISE SYSTEM AT INTERVALS NOT EXCEEDING 60 FEET ON AVERAGE FOR BUILDING PERIMETER PER NFPA 780-2020 SECTION 4.19.4. SIZE SHALL BE AS SHOWN ON EG601.
17	GROUNDING AND BONDING CONDUCTORS SHOULD NOT BE PLACED IN FERROUS METALLIC CONDUIT. IF NECESSARY TO PLACE GROUNDING AND BONDING CONDUCTORS IN FERROUS METALLIC CONDUIT THAT EXCEEDS 3 FEET IN LENGTH, THE CONDUCTORS SHALL BE BONDED TO EACH END OF THE CONDUIT USING A GROUNDING BUSHING OR A #6 AWG CONDUCTOR, MINIMUM.
18	EACH TELECOMMUNICATIONS GROUNDING AND BONDING CONDUCTOR SHALL BE LABELED. LABELS SHALL BE LOCATED ON CONDUCTORS AS CLOSE AS PRACTICABLE TO THEIR POINT OF TERMINATION IN A READABLE POSITION. LABELS SHALL BE NONMETALLIC AND SHALL BE IN ACCORDANCE WITH TIA 606. SEE DETAIL 6/EG503.
19	PENETRATION OPENINGS THROUGH AIR BARRIERS SHALL COMPLY WITH THE BUILDING AIR BARRIER REQUIREMENTS. SEE ARCHITECTURAL SHEETS FOR AIR BARRIER BOUNDARIES.
20	SUPPORT EXPOSED ROOF CABLES AS SHOWN IN APPLICABLE DETAILS AT 36" ON CENTER MAXIMUM.
21	BOND OBSTRUCTION LIGHTING CONDUIT (IF PRESENT) TO LIGHTNING PROTECTION SYSTEM AT EACH DOWN CONDUCTOR, CROSS CONDUCTOR LOCATION, AND/OR OBSTRUCTION LIGHT LOCATION. BONDING CONDUCTOR SHALL BE THE SAME SIZE AS THE LIGHTNING PROTECTION SYSTEM CONDUCTOR.
22	BOND PROTECTIVE BOLLARDS AROUND BUILDING PERIMETER TO COUNTERPOISE OR GROUNDED COLUMN WITH MINIMUM #6 AWG COPPER.
23	BOND ALL ROOF MOUNTED METALLIC PARTS AND EQUIPMENT TO THE LIGHTNING PROTECTION SYSTEM.
24	REFERENCE GROUNDING RISER ON SHEET EG601 FOR CONDUCTOR SIZES NOT LISTED AND ROUTING NOT SHOWN ON PLANS.
25	ROOF CONDUCTOR DEAD ENDS SHALL NOT EXCEED CONDUCTOR LENGTHS PERMITTED UNDER NFPA 780.
26	NOT ALL ELEMENTS (PARTICULARLY SIDEWALL ELEMENTS, SUCH AS INTAKE AND EXHAUST LOUVERS) ARE IDENTIFIED ON EG SHEETS FOR BONDING. CONTRACTOR TO FIELD VERIFY LOCATIONS AND BOND ACCORDINGLY.
27	GROUND RODS ARE DUPLICATED ON GROUND LEVEL AND ROOF PLANS FOR COORDINATION, AND ARE NOT INTENDED TO BE SEPERATE DEVICES.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSSER, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

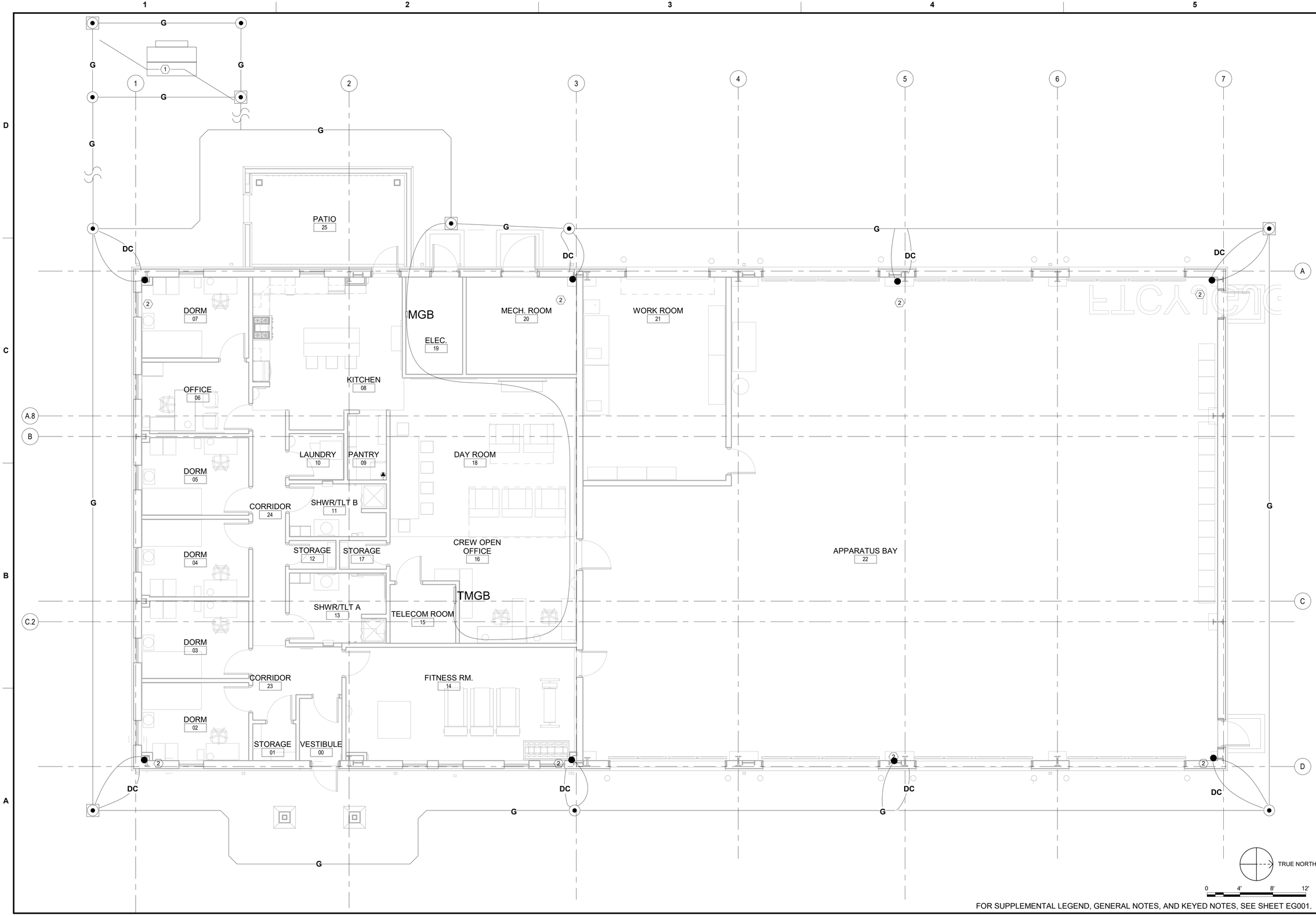
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

GROUNDING LEGEND AND NOTES

SHEET ID

EG001



TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EG001.

US Army Corps of Engineers ®

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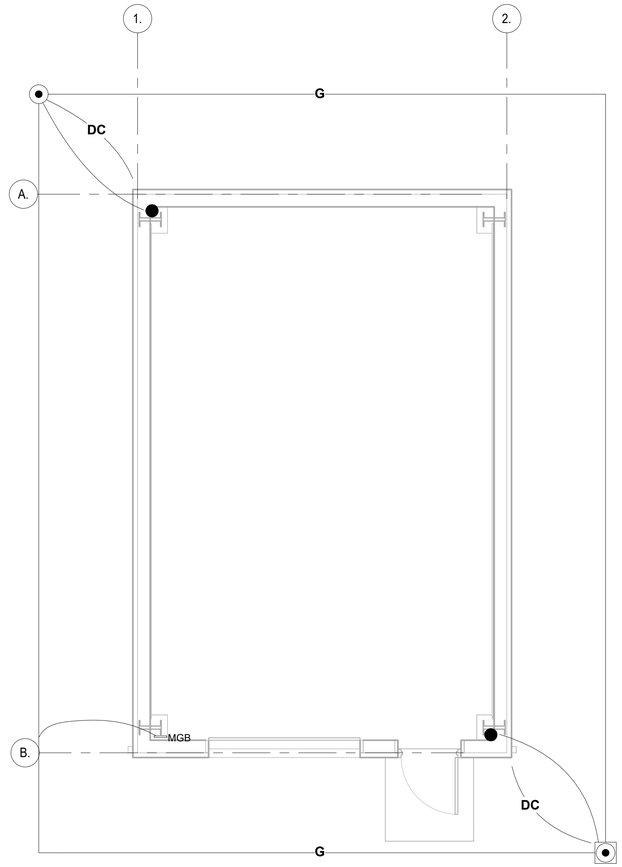
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE GROUNDING PLAN

SHEET ID

EG101



1 EG102

COMPOSITE STORAGE GROUNDING PLAN

1/4" = 1'-0"

PLAN NORTH

0 2' 4' 8'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EG001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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SUBMITTED BY: LINDSEY S. F.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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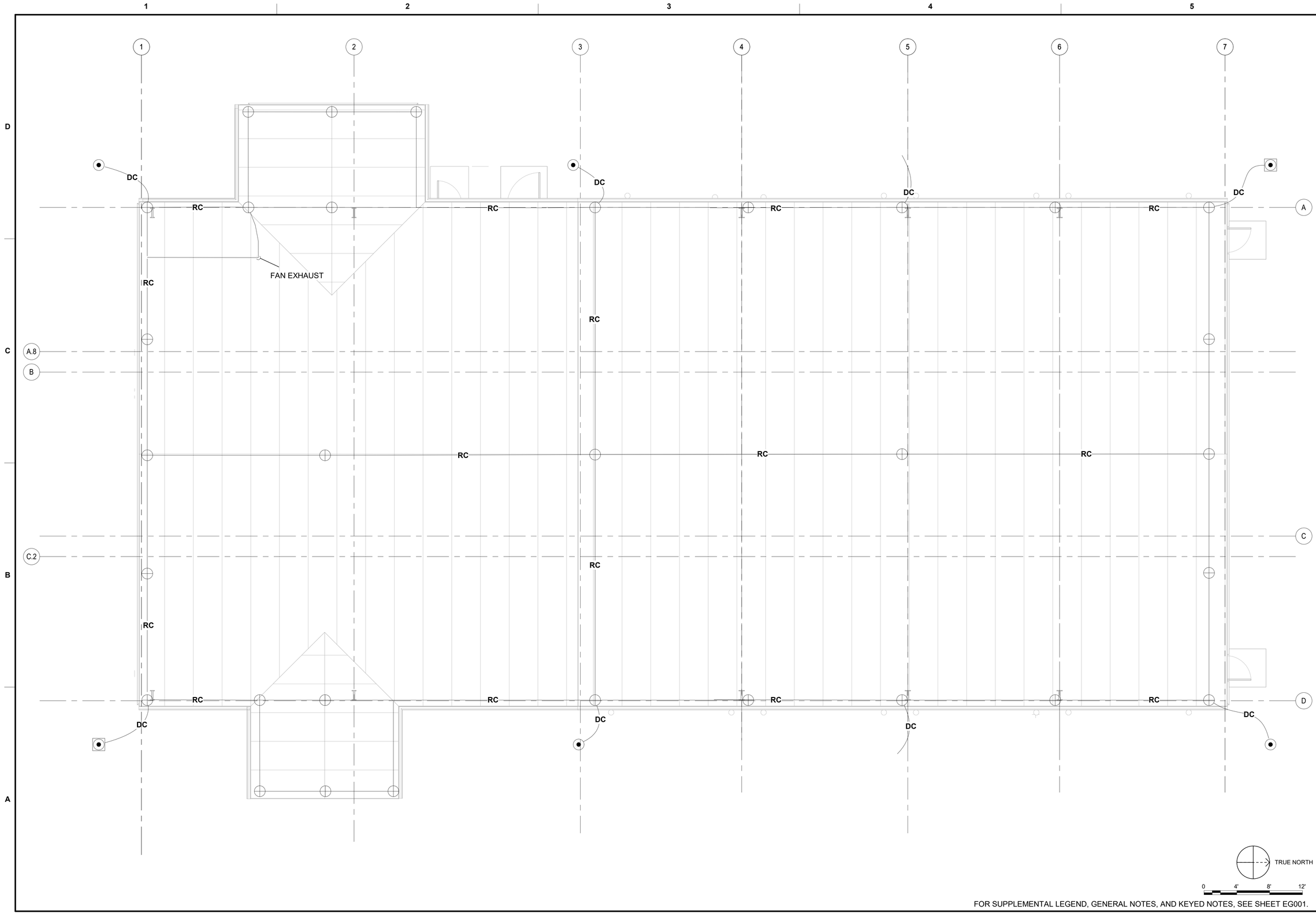
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE STORAGE GROUNDING PLAN

SHEET ID

EG102



FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EG001.

US Army Corps of Engineers ®

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SUBMITTED BY: LINDSEY S. F.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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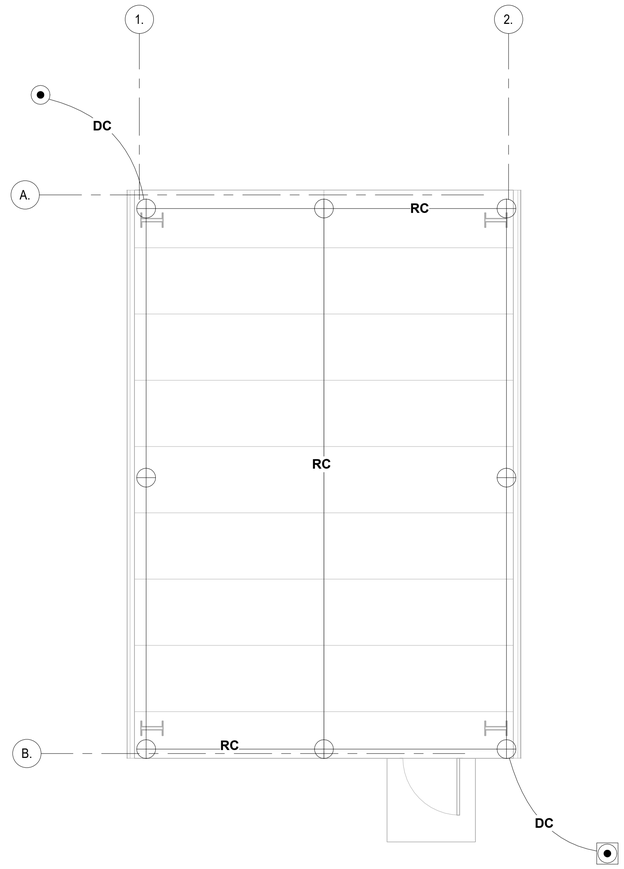
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE LIGHTNING PROTECTION PLAN

SHEET ID

EG201



1 EG202

COMPOSITE STORAGE LIGHTNING PROTECTION

1/4" = 1'-0"

PLAN NORTH

0 2' 4' 8'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EG001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

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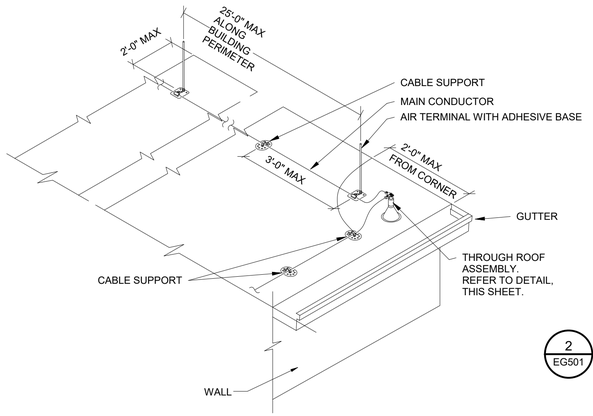
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

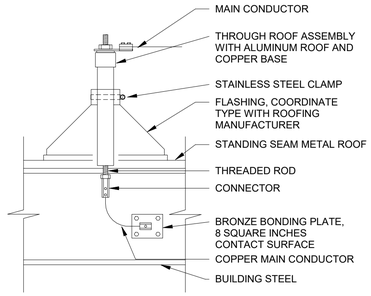
COMPOSITE STORAGE LIGHTNING PROTECTION PLAN

SHEET ID

EG202



1 EG501 **LIGHTNING PROTECTION DETAIL 1**
N.T.S.



2 EG501 **LIGHTNING PROTECTION DETAIL 2**
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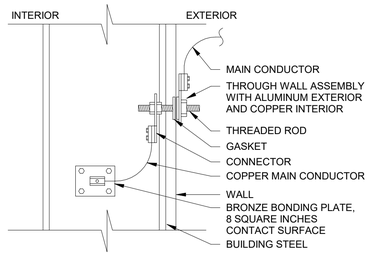

3 EG501 **LIGHTNING PROTECTION DETAIL 3**
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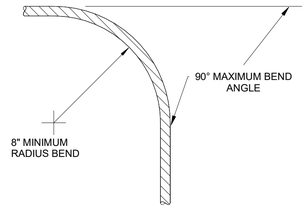

4 EG501 **LIGHTNING PROTECTION DETAIL 4**
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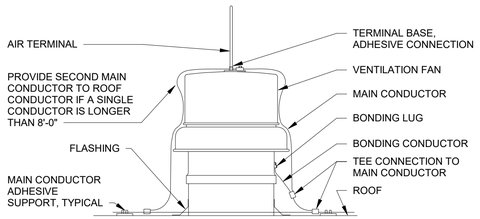

5 EG501 **LIGHTNING PROTECTION DETAIL 5**
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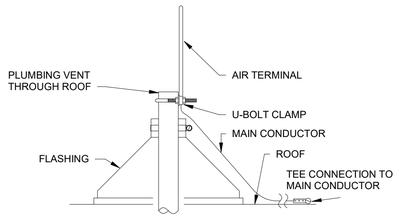
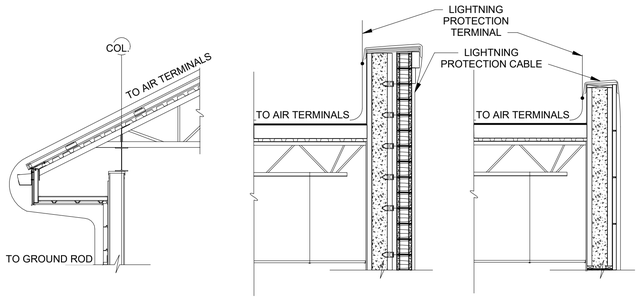
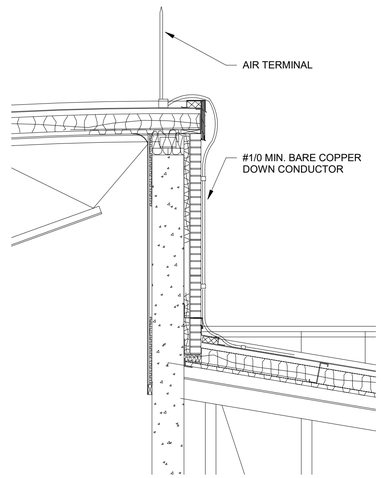


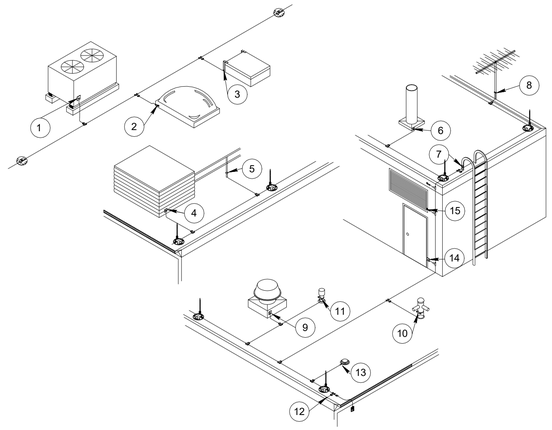
6 EG501 **LIGHTNING PROTECTION DETAIL 6**
N.T.S.



8 EG501 **ROOF DOWN CONDUCTOR DETAIL**
N.T.S.



9 EG501 **ROOF TRANSITION DETAIL**
N.T.S.



BONDING NOTES:
1. ITEMS 1-10 SHOWN IN DIAGRAM ARE TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE FULL SIZE MAIN CONDUCTOR AND APPROPRIATE FITTING FOR CONNECTION.

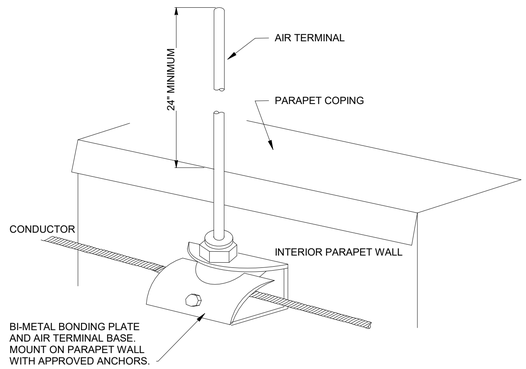
2. ITEM 11 (PLUMBING VENTS) REQUIRES BONDING WITH MAIN SIZE CABLE ONLY IF WITHIN 6'-0" OF SYSTEM.

3. ITEMS 12-15 ARE TYPICAL BODIES OF CONDUCTANCE AS NOTED BELOW. USE SECONDARY SIZE SMALLER CONDUCTOR AND APPROPRIATE FITTING FOR CONNECTION (ITEM 12 TYPICALLY OCCURS AT EACH DOWN-LEAD AND ROOF LEVEL CHANGE AS SHOWN).

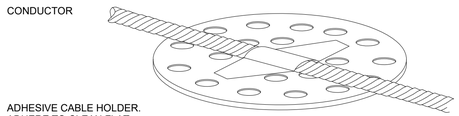
4. BONDING CONNECTIONS SHOWN ARE TYPICAL EXAMPLES. MAKE ALL CONNECTIONS REQUIRED TO MEET CODES AS NOTED BELOW. ADJUST FITTING TYPE AS REQUIRED TO SUIT FIELD CONDITIONS.

5. BONDING DIAGRAM REPRESENTS BONDING FOR TYPICAL BONDING CONDITIONS FOUND FOR GENERAL BUILDING CONSTRUCTION. BONDING FOR CMF ROOF SHALL SUIT INSTALLED WORK. SEE MECHANICAL AND ARCHITECTURAL DRAWINGS FOR FANS, VENTS, ETC.

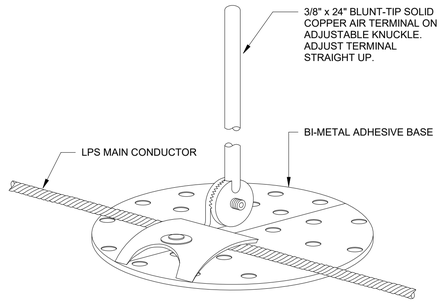
7 EG501 **LIGHTNING PROTECTION DETAIL 7**
N.T.S.



10 EG501 **TYPICAL PARAPET AIR TERMINAL MOUNTING DETAIL**
N.T.S.



11 EG501 **TYPICAL CABLE SUPPORT**
N.T.S.



12 EG501 **TYPICAL AIR TERMINAL MOUNTING DETAIL**
N.T.S.

US Army Corps of Engineers ®

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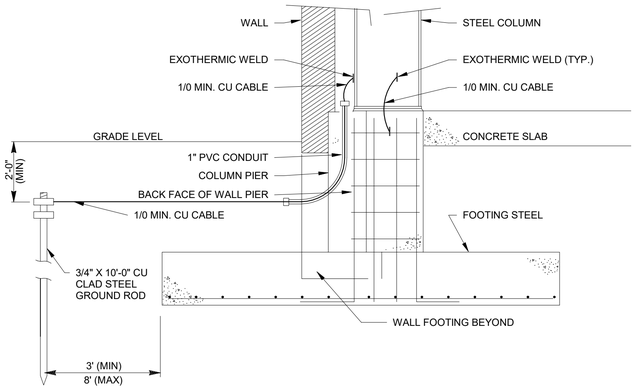
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

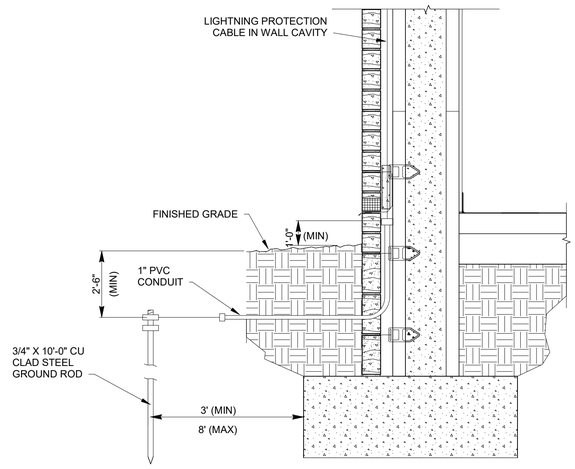
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

GROUNDING AND LIGHTNING PROTECTION DETAILS

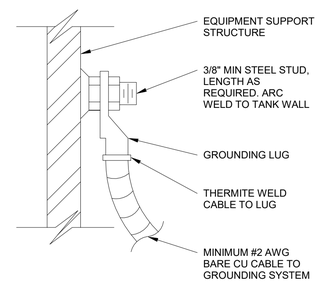
SHEET ID
EG501



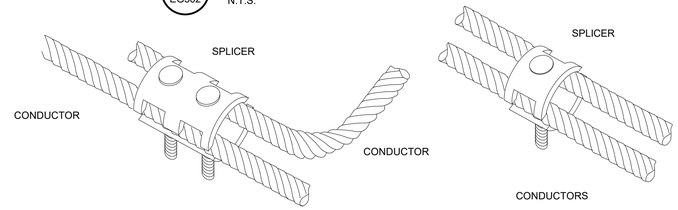
1 EG502 COLUMN BONDING DETAIL
N.T.S.



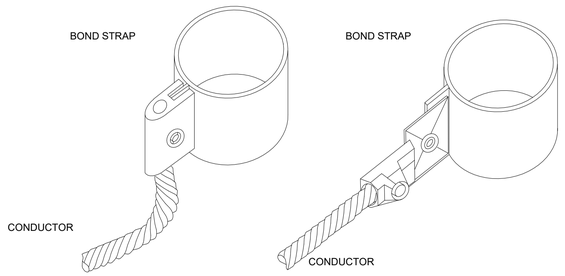
2 EG502 DOWN CONDUCTOR DETAIL
N.T.S.



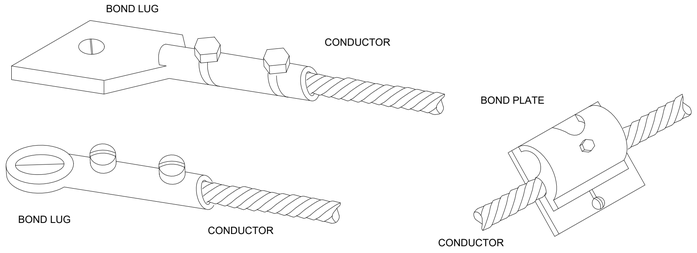
3 EG502 EQUIPMENT GROUNDING
N.T.S.



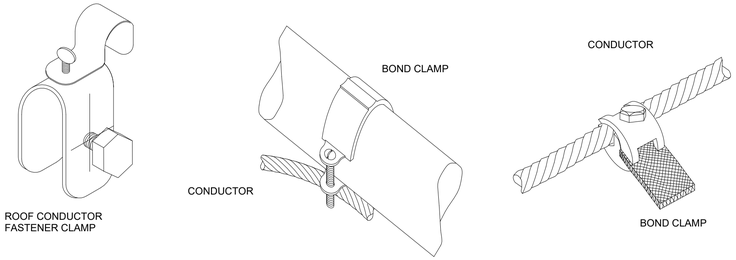
4 EG502 TYPICAL CONDUCTOR SPLICING DETAIL
N.T.S.



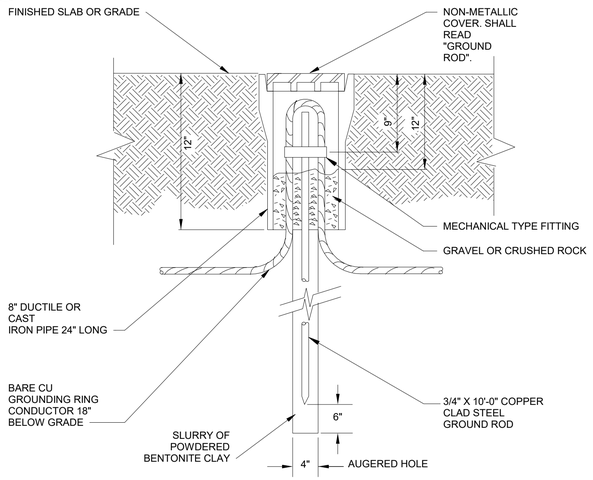
5 EG502 TYPICAL BONDING STRAPS DETAILS
N.T.S.



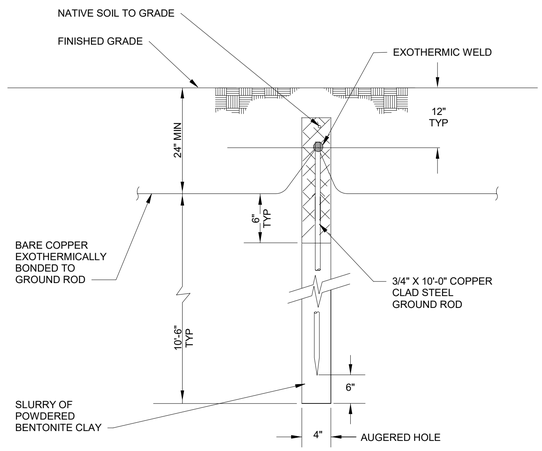
6 EG502 TYPICAL BONDING LUGS/PLATES DETAILS
N.T.S.



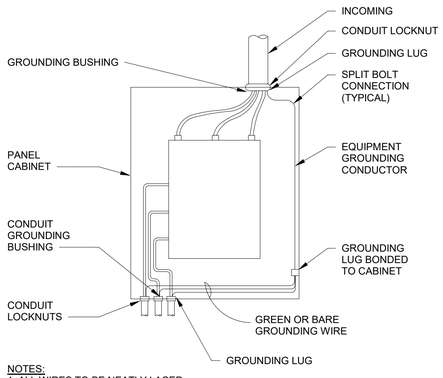
7 EG502 TYPICAL BONDING FASTENING CLAMPS DETAIL
N.T.S.



8 EG502 TYPICAL GROUND ROD AND TEST WELL DETAIL
N.T.S.



9 EG502 TYPICAL GROUND ROD DETAIL
N.T.S.



NOTES:
1. ALL WIRES TO BE NEATLY LACED.
2. AT THE POINT OF ATTACHMENT OF THE GROUNDING LUG TO THE CABINET, THE SURFACES SHALL BE SCRAPED FREE OF PAINT AND THOROUGHLY CLEANED TO ENSURE PROPER BONDING.
3. NEUTRAL CONDUCTOR NOT SHOWN FOR CLARITY.

10 EG502 TYPICAL PANEL GROUNDING DETAIL
N.T.S.

US Army Corps of Engineers ®

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SUBMITTED BY: P.E.	FILE NUMBER:
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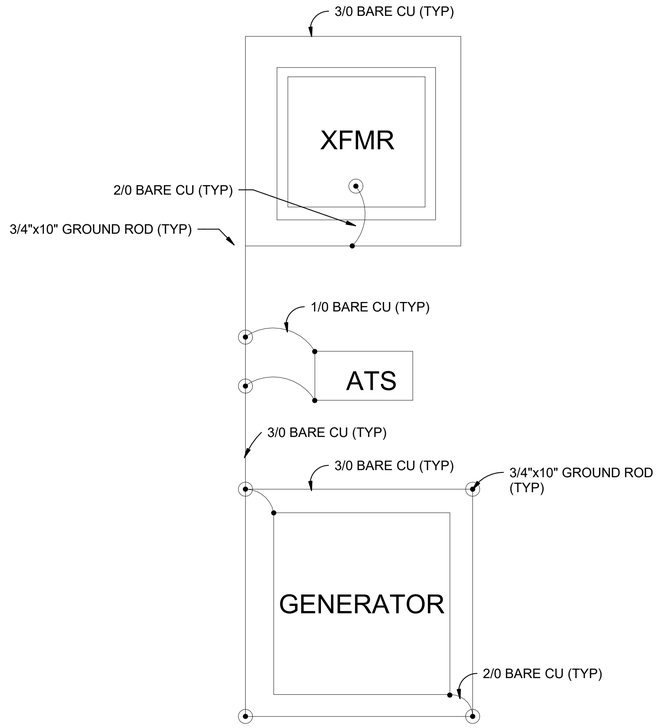
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

GROUNDING DETAILS

SHEET ID
EG502



1 EG503 SYSTEM GROUNDING DETAIL

N.T.S.

US Army Corps of Engineers ®

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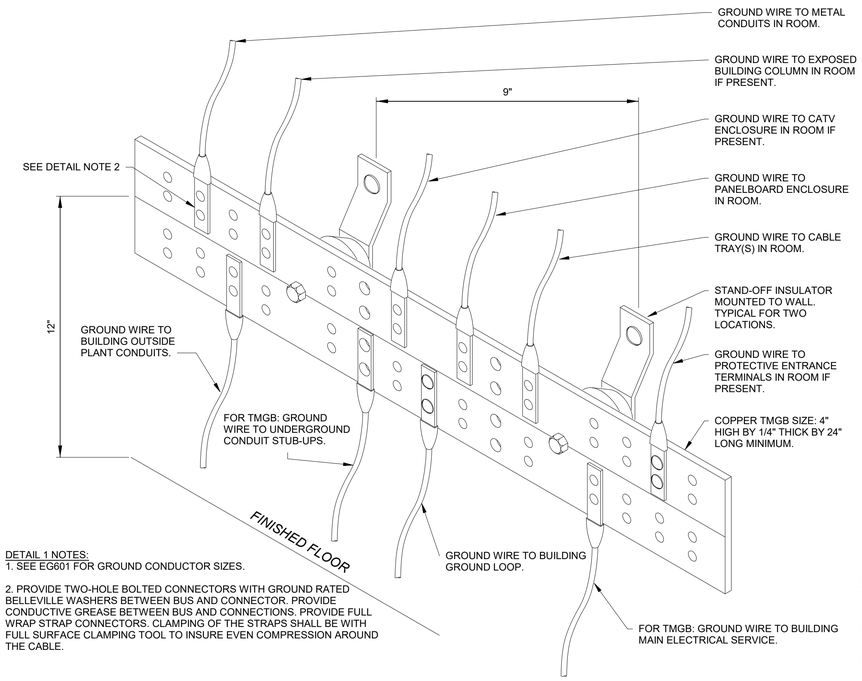
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

GROUNDING DETAILS

SHEET ID

EG503



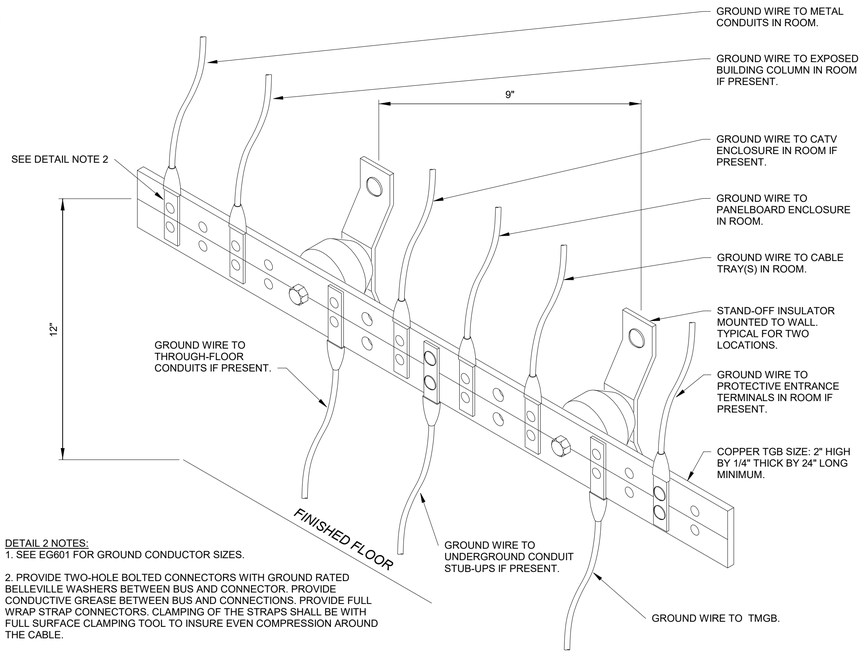
DETAIL 1 NOTES:
1. SEE EG601 FOR GROUND CONDUCTOR SIZES.

2. PROVIDE TWO-HOLE BOLTED CONNECTORS WITH GROUND RATED BELLEVILLE WASHERS BETWEEN BUS AND CONNECTOR. PROVIDE CONDUCTIVE GREASE BETWEEN BUS AND CONNECTIONS. PROVIDE FULL WRAP STRAP CONNECTORS. CLAMPING OF THE STRAPS SHALL BE WITH FULL SURFACE CLAMPING TOOL TO INSURE EVEN COMPRESSION AROUND THE CABLE.

MAIN/ TELECOMMUNICATION MAIN GROUNDING BAR (MGB/TMGB) DETAIL

1 / EG504

N.T.S.



DETAIL 2 NOTES:
1. SEE EG601 FOR GROUND CONDUCTOR SIZES.

2. PROVIDE TWO-HOLE BOLTED CONNECTORS WITH GROUND RATED BELLEVILLE WASHERS BETWEEN BUS AND CONNECTOR. PROVIDE CONDUCTIVE GREASE BETWEEN BUS AND CONNECTIONS. PROVIDE FULL WRAP STRAP CONNECTORS. CLAMPING OF THE STRAPS SHALL BE WITH FULL SURFACE CLAMPING TOOL TO INSURE EVEN COMPRESSION AROUND THE CABLE.

TYPICAL TELECOMMUNICATIONS GROUND BAR (TGB)

2 / EG504

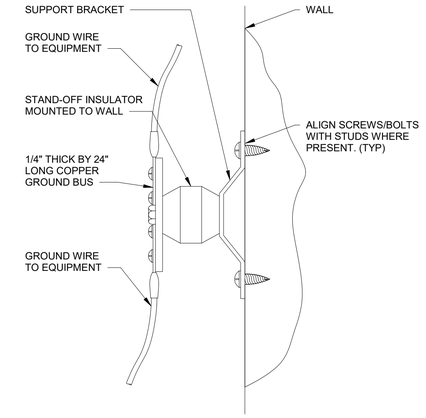
N.T.S.

GENERAL SHEET NOTES:
1. GROUND CONDUCTOR SIZES ARE IDENTIFIED AS MINIMUMS. PROVIDE ACTUAL CABLE SIZE BASED ON ACTUAL CABLE ROUTING AND ANSI J-STD-607A STANDARDS IF LARGER.

2. ALL GROUND CABLES SHALL BE LABELED AT BOTH ENDS.

3. ALL GROUNDING CONDUCTORS ARE NOT SHOWN. SEE PLANS AND SPECIFICATIONS FOR ADDITIONAL GROUNDING CONDUCTORS OR REQUIREMENTS.

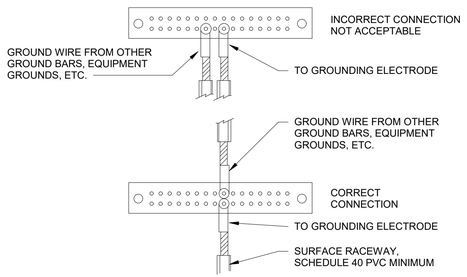
4. PROVIDE EXOTHERMIC WELD CONNECTIONS AND BOLTED LUG CONNECTIONS AT GROUND BARS AS PER SPECIFICATIONS.



TYPICAL GROUND BAR SIDE VIEW

3 / EG504

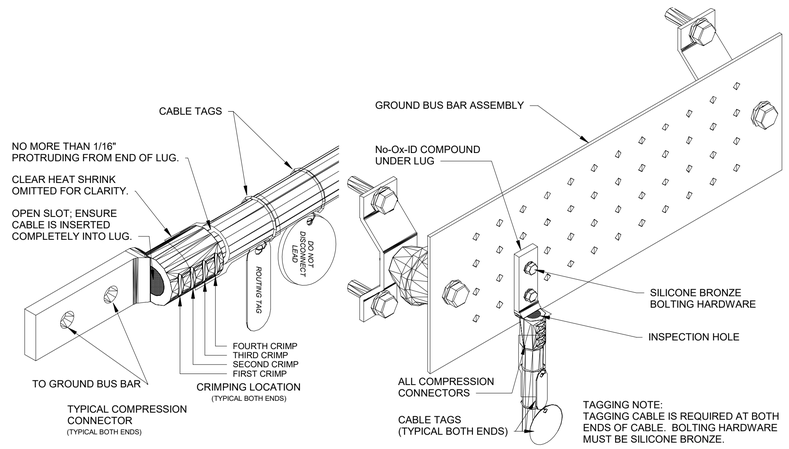
N.T.S.



GROUND ROD CONNECTION DETAIL

4 / EG504

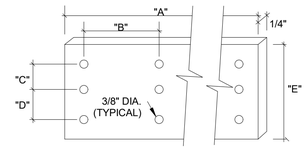
N.T.S.



CRIMPING AND TAGGING DETAIL

5 / EG504

N.T.S.



GROUND BAR DIMENSIONS					
BUSBAR	A	B	C	D	E
MGB	24" MIN.	2"	3/4"	1"	4"
EGB	12" MIN.	2"	3/4"	1"	4"
TMGB	24" MIN.	2"	3/4"	1"	4"
TGB	12" MIN.	2"	3/4"	--	2"
CGB	AS SHOWN	2"	3/4"	--	2"
GB	12"	2"	3/4"	1"	4"

COORDINATE GROUNDBAR LOCATIONS IN ROOMS OTHER THAN ELECTRICAL AND TELECOM ROOMS WITH INTERIORS.

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MARK	DESCRIPTION	DATE

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SUBMITTED BY: J. WOSTENBERG, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

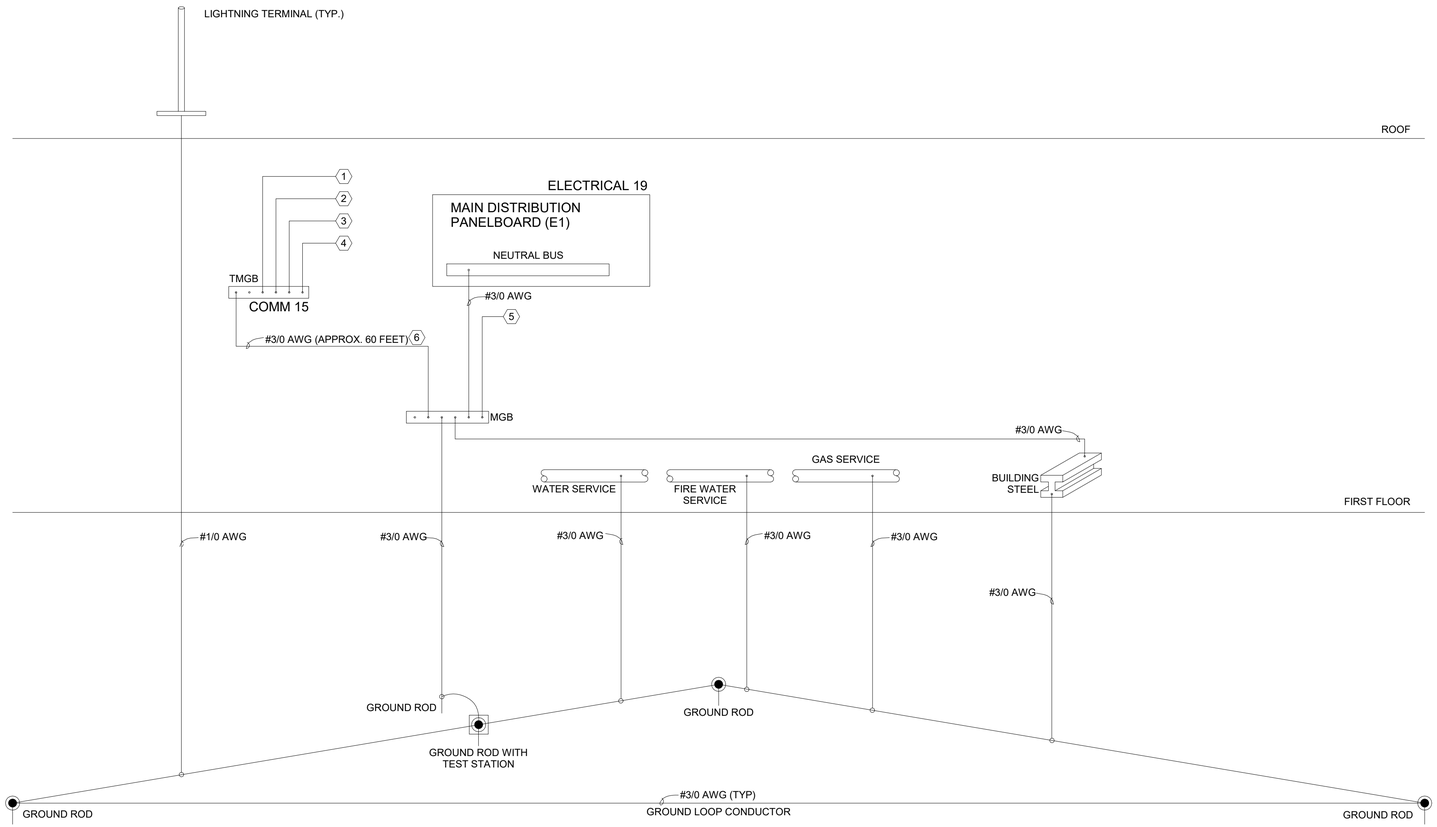
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

GROUNDING DETAILS

SHEET ID

EG504



1 EG601

GROUNDING RISER DIAGRAM

12" = 1'-0"

#	KEYED NOTES - EG600 RISER DIAGRAM
1	#6 AWG MINIMUM BONDING CONDUCTOR TO SERVICE ENTRANCE CABLE SHEATHS.
2	#4 AWG MINIMUM BONDING CONDUCTOR TO BUILDING ENTRANCE PROTECTORS.
3	#6 MINIMUM AWG BONDING CONDUCTOR TO BUILDING STEEL.
4	#4 AWG MINIMUM BONDING CONDUCTOR TO RACKS, RACEWAYS, CABLE TRAY, AND EQUIPMENT, INCLUDING CCTV AND PANELBOARD ENCLOSURES.
5	#4 AWG BONDING CONDUCTOR TO UFER GROUND CONNECTION.
6	CONNECTIONS TO BE MADE IN CONDUIT.

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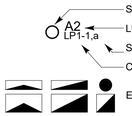
GROUNDING RISER DIAGRAM

SHEET ID

EG601

SUPPLEMENTAL LIGHTING LEGEND



SYMBOL DENOTES GENERAL TYPE OF LUMINAIRE

LUMINAIRE TYPE DESIGNATION

SWITCH DESIGNATION

CIRCUIT IDENTIFICATION

EMERGENCY LIGHTING FIXTURES

Sa SINGLE POLE 20A SWITCH. SUBSCRIPT (WHERE PRESENT) DENOTES THE FOLLOWING:

- '3' DENOTES THREE WAY SWITCH.
- '4' DENOTES FOUR WAY SWITCH.
- 'a' DENOTES SWITCH CONTROLLING MATCHING LETTERED FIXTURES (TYPICAL, SINGLE LOWER CASE LETTERS EXCEPT LETTER 'd')
- 'p' DENOTES PILOT LIGHT SWITCH.
- 'wp' DENOTES WEATHERPROOF (GASKETED) SWITCH.
- 'D' DIMMER SWITCH.

SL LOW VOLTAGE SWITCH. SUBSCRIPT (WHERE PRESENT) DENOTES THE FOLLOWING:

- 'D' DENOTES ELECTRONIC MULTI-SCENE DIMMING SWITCH.
- 'mc' DENOTES MOMENTARY CONTACT SWITCH. LETTER (WHERE PRESENT) DENOTES SWITCH CONTROLLING MATCHING LETTERED FIXTURES.
- 'L1' DENOTES RELAY SWITCH. NUMERAL (WHERE PRESENT) IDENTIFIES SWITCH WITH RELAYS.
- 'La' DENOTES RELAY SWITCH. LOWER CASE LETTER IDENTIFIES SWITCH WITH RELAYS.
- 'SL' DENOTES DPDT MOMENTARY ROCKER TUBULAR DAYLIGHT DIMMER SWITCH. LOWER CASE LETTER (WHERE PRESENT) IDENTIFIES SWITCH WITH TUBULAR DAYLIGHT DEVICE. (SWITCH PROVIDED BY SKYLIGHT MFR FOR CONNECTION TO SKYLIGHT BUTTERFLY CLOSURE).

SOS PASSIVE INFRARED LINE VOLTAGE WALL SWITCH OCCUPANCY SENSOR.

ST DIGITAL TIME SWITCH WITH MANUAL-ON/TIMED-OFF OPERATION AND MANUAL-OFF OVERRIDE. TIME-OUT SETTING SHALL BE SET FOR 30 MINUTES UNLESS OTHERWISE NOTED.

H OS DUAL TECHNOLOGY (ULTRASONIC AND PASSIVE INFRARED) LOW VOLTAGE OCCUPANCY SENSOR, WALL MOUNTED AT 7'-6" UNLESS OTHERWISE NOTED.

OS D ULTRASONIC LOW VOLTAGE OCCUPANCY SENSOR, CEILING MOUNTED UNLESS OTHERWISE INDICATED. (WHERE DENOTED 'D', SENSOR SHALL BE A DUAL TECHNOLOGY (ULTRASONIC AND PASSIVE INFRARED) LOW VOLTAGE OCCUPANCY SENSOR.)

LCP LIGHTING CONTROL CABINET.

DS a DAYLIGHT SENSOR, CEILING- OR PENDANT-MOUNTED. "a" DENOTES CONTROL SWITCH DESIGNATION.

DS a DAYLIGHT SENSOR, WALL- OR SKYLIGHT WELL-MOUNTED. "a" DENOTES CONTROL SWITCH DESIGNATION.

WALL MOUNTED EXIT SIGN.

(#) KEYED NOTES - EL100, EL200, EL300, AND EL400 SERIES SHEETS

1	PRIMARY SIDELIGHTED ZONE WITH DEDICATED DAYLIGHT LEVEL SENSOR.
2	SECONDARY SIDELIGHTED ZONE WITH DEDICATED DAYLIGHT LEVEL SENSOR.
A1	SEE DETAIL 1 ON SHEET EL502.
A2	SEE DETAIL 2 ON SHEET EL502.
A3	SEE DETAIL 3 ON SHEET EL502.
A4	SEE DETAIL 4 ON SHEET EL502.
B1	SEE DETAIL 1 ON SHEET EL503.
B2	SEE DETAIL 2 ON SHEET EL503.
B3	SEE DETAIL 3 ON SHEET EL503.
B4	SEE DETAIL 4 ON SHEET EL503.
B5	SEE DETAIL 5 ON SHEET EL503.
C1	SEE DETAIL 1 ON SHEET EL504.
C2	SEE DETAIL 2 ON SHEET EL504.
C3	SEE DETAIL 3 ON SHEET EL504.
D1	SEE DETAIL 1 ON SHEET EL505.

GENERAL NOTES - EL100, EL200, EL300, AND EL400 SERIES SHEETS

1	UNDERGROUND CONDUITS CROSSING FOUNDATIONS SHALL BE BURIED AT A DEPTH SUCH THAT CONDUITS ARE LOCATED MINIMUM 12" BELOW THE FOUNDATIONS.
2	RACEWAYS SHALL HAVE A SEPARATE EQUIPMENT GROUNDING/BONDING CONDUCTOR. RACEWAY SHALL NOT BE USE AS THE SOLE GROUNDING/BONDING PATH.
3	COORDINATE THE LOCATIONS AND MOUNTING HEIGHTS OF LIGHTING FIXTURES IN MECHANICAL, FIRE SUPPRESSION, AND ELECTRICAL ROOMS WITH THE FINAL LOCATIONS OF PIPES, DUCTS AND OTHER EQUIPMENT FOR BEST (LEAST-OBSTRUCTED AND RELATIVELY UNIFORM) ARRANGEMENT. FIXTURES SHALL BE EASILY ACCESSIBLE FOR RELAMPING AND DRIVER REPLACEMENT.
4	OCCUPANCY SENSOR AND DAYLIGHT PHOTOSENSOR LAYOUT IS CONCEPTUAL ONLY AND IS SHOWN FOR COVERAGE INTENT ONLY. CONTRACTOR TO DETERMINE ACTUAL QUANTITY AND LOCATIONS WITHIN EACH ROOM PER MANUFACTURER'S INSTRUCTION.
5	OCCUPANCY SENSORS SHALL HAVE MULTIPLE OUTPUTS SUITABLE FOR USE WITH VAV BOXES. CONTRACTOR SHALL COORDINATE WITH HVAC CONTROLS AND HAVE A CONTACT FROM THE OCCUPANCY SENSORS AVAILABLE AS NECESSARY. IN ADDITION TO ANY OUTPUTS REQUIRED FOR LIGHTING CONTROL, THE OCCUPANCY SENSOR SHALL PROVIDE A DRY CONTACT OUTPUT RATED AT 1A AT 24 VAC OR A SNVT OUTPUT.
6	CIRCUIT EXIT SIGNS TO NEAREST LIGHTING CIRCUIT (UNLESS OTHERWISE INDICATED) USING UNSWITCHED PHASE LEG.
7	LIGHTING FIXTURES ARE CONTROLLED BY SWITCHING DEVICE WITHIN SAME ROOM OR AREA, UON.
8	ALL EGRESS ZONE LIGHT FIXTURES CONTROLLED BY AN OCCUPANCY SENSOR MUST COMPLY WITH NFPA 101 PARAGRAPH 7.8.1.2.2. SEE EL500 SERIES SHEETS FOR LIST OF EGRESS ZONES.
9	PENETRATION OPENINGS THROUGH AIR BARRIERS SHALL COMPLY WITH THE BUILDING AIR BARRIER REQUIREMENTS. CORRECT ALL PENETRATIONS THAT ARE DETERMINED DEFICIENT DURING TESTING. SEE ARCHITECTURE SHEETS FOR AIR BARRIER TESTING BOUNDARIES. SEE ARCHITECTURE FOR SEALING PENETRATIONS.
10	FIXTURES SERVED BY BOTH DIMMING AND EMERGENCY DRIVERS SHALL PROVIDE 100% LIGHT OUTPUT UPON EMERGENCY ACTIVATION.
11	EMERGENCY DRIVERS AND INVERTERS SHALL BE WIRED TO UNSWITCHED CONDUCTORS (WIRED AHEAD OF ANY LOCAL SWITCHING).
12	EXTERIOR OCCUPANCY SENSORS SHALL BE RATED FOR WET CONDITIONS.
13	DO NOT PENETRATE STRUCTURAL COLUMNS, BEAMS, AND TRUSSES. AFIX DEVICES AND RACEWAY WITH BEAM C-CLAMPS, BRACKETS, CLIPS, UNISTRUT, AND OTHER NON-PENETRATING AND NON-ADHESIVE HARDWARE.
14	CONDUIT AND CONDUCTOR SIZES LISTED ARE MINIMUM SIZES. CIRCUITS MAY BE COMBINED INTO COMMON CONDUIT. CONTRACTOR IS RESPONSIBLE FOR RESIZING CONDUITS PER NFPA 70 FILL RATIO AND CURRENT-CARRYING CONDUCTOR/TEMPERATURE DERATING REQUIREMENTS.
15	INTERIOR EMERGENCY FIXTURES SHALL BE SWITCHED BY THE LOCAL SWITCHING DEVICE IN THE ROOM AND SHALL HAVE AUTOMATIC TESTING CAPABILITY. UPON LOSS OF POWER, EMERGENCY FIXTURES SHALL BYPASS THE LOCAL SWITCHING DEVICE AND TURN ON AUTOMATICALLY.
16	EACH LIGHTING BRANCH CIRCUIT HOME RUN SHALL CONSIST OF MINIMUM 2-#12,#12G CONDUCTORS IN MINIMUM 3/4" CONDUIT UNLESS OTHERWISE NOTED. ENTIRE CIRCUIT SHALL BE SAME SIZE AS HOME RUN SIZE INDICATED UNLESS OTHERWISE NOTED.
17	SERVICE COUNTER, UNDERCABINET LIGHT FIXTURES, OVER-SINK DOWNLIGHTS AND ASSOCIATED SWITCHES SHALL NOT BE CONNECTED TO LIGHTING CONTROL SYSTEM OR POWER PACKS (AS APPLICABLE).
18	COORDINATE DIMMER TYPE AND WIRING WITH ASSOCIATED LIGHT FIXTURE DIMMING REQUIREMENTS (I.E. 3-WIRE 0-10V, ELECTRONIC LOW VOLTAGE, ETC.) OR WITH THE LIGHTING CONTROL SYSTEM PROPRIETARY REQUIREMENTS (I.E. LUTRON, nLIGHT, DALI, ETC.) AS NECESSARY. 3-WIRE DIMMERS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL FOR EACH CONTROL ZONE. COORDINATE PHASE CONTROL OF LED DRIVERS (I.E. REVERSE PHASE, FORWARD PHASE, ETC.) WITH LIGHT FIXTURE MANUFACTURER'S RECOMMENDATIONS. LOW-VOLTAGE CONTROL WIRING IS NOT SHOWN ON PLANS FOR CLARITY, BUT SHALL BE PROVIDED AS REQUIRED.
19	LINE VOLTAGE AND LOW VOLTAGE WIRING SHALL BE PROVIDED IN SEPARATE CONDUITS/RACEWAYS.
20	WIRELESS CONTROLS SHALL NOT BE USED.
21	JUNCTION BOXES, DEVICES, BACKBOXES, ASSOCIATED CONDUIT, ETC., LOCATED ON STEEL MEMBERS, PRECAST CONCRETE, CONCRETE, AND CONCRETE BLOCK WALLS SHALL BE SURFACE MOUNTED. JUNCTION BOXES, DEVICES, BACKBOXES, ASSOCIATED CONDUIT, ETC., SHALL BE RECESS MOUNTED ON GYPSUM WALLS. COORDINATE WITH ARCHITECTURAL SHEETS.
22	WHERE CEILING SPEAKERS ARE SHOWN IN UNFINISHED AREAS, SPEAKERS SHALL BE PENDANT MOUNTED AT HEIGHT OF LIGHTS U.O.N.
23	THE FOLLOWING CLEARANCES SHALL BE PROVIDED BETWEEN RADIANT HEATERS AND ELECTRICAL EQUIPMENT AND INFRASTRUCTURE, EXCEPT FOR ELECTRICAL SUPPLY CIRCUITS TO THE RADIANT HEATERS: - MAINTAIN MINIMUM 2'-6" HORIZONTAL SEPARATION FROM THE WIDEST POINT OF THE RADIANT HEATER ASSEMBLY (RADIANT HEATER AND SHIELDING). - MAINTAIN MINIMUM 6'-9" BELOW THE LOWEST POINT OF THE RADIANT HEATER ASSEMBLY (RADIANT HEATER AND SHIELDING). - MAINTAIN MINIMUM 0'-6" ABOVE THE HIGHEST POINT OF THE RADIANT HEATER ASSEMBLY (RADIANT HEATER AND SHIELDING). CLEARANCES SHALL FORM A RECTANGULAR PRISM AROUND THE RADIANT HEATER. THE HORIZONTAL SEPARATION SHALL APPLY AS THE END CLEARANCE AS WELL. THESE CLEARANCES ARE BASED ON THE RADIANT HEATER BASIS OF DESIGN MODELS INDICATED IN THE MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE ON EP610 SERIES SHEETS FOR 0° MOUNTING ANGLE WITH TWO SHIELDS. SHOULD A DIFFERENT MANUFACTURER OR MODEL BE USED OR INSTALLATION ANGLE EMPLOYED, THE CLEARANCES SHALL BE COORDINATED WITH THE COR BASED ON MANUFACTURER REQUIREMENTS.
24	LIGHT SWITCHES SHOWN SIDE-BY-SIDE ON THE PLANS SHALL BE INSTALLED IN A SINGLE MULTI-GANG BOX UNLESS OTHERWISE INDICATED.
25	LIGHTING FIXTURES LOCATED IN THE ADMIN PORTION OF THE FACILITY (WEST) SHALL BE CONTROLLED FROM LCPW. LIGHTING FIXTURES LOCATED IN THE WAREHOUSE PORTION OG THE FACILITY (EAST) SHALL BE CONTROLLED FROM LCPE.

US Army Corps of Engineers ®

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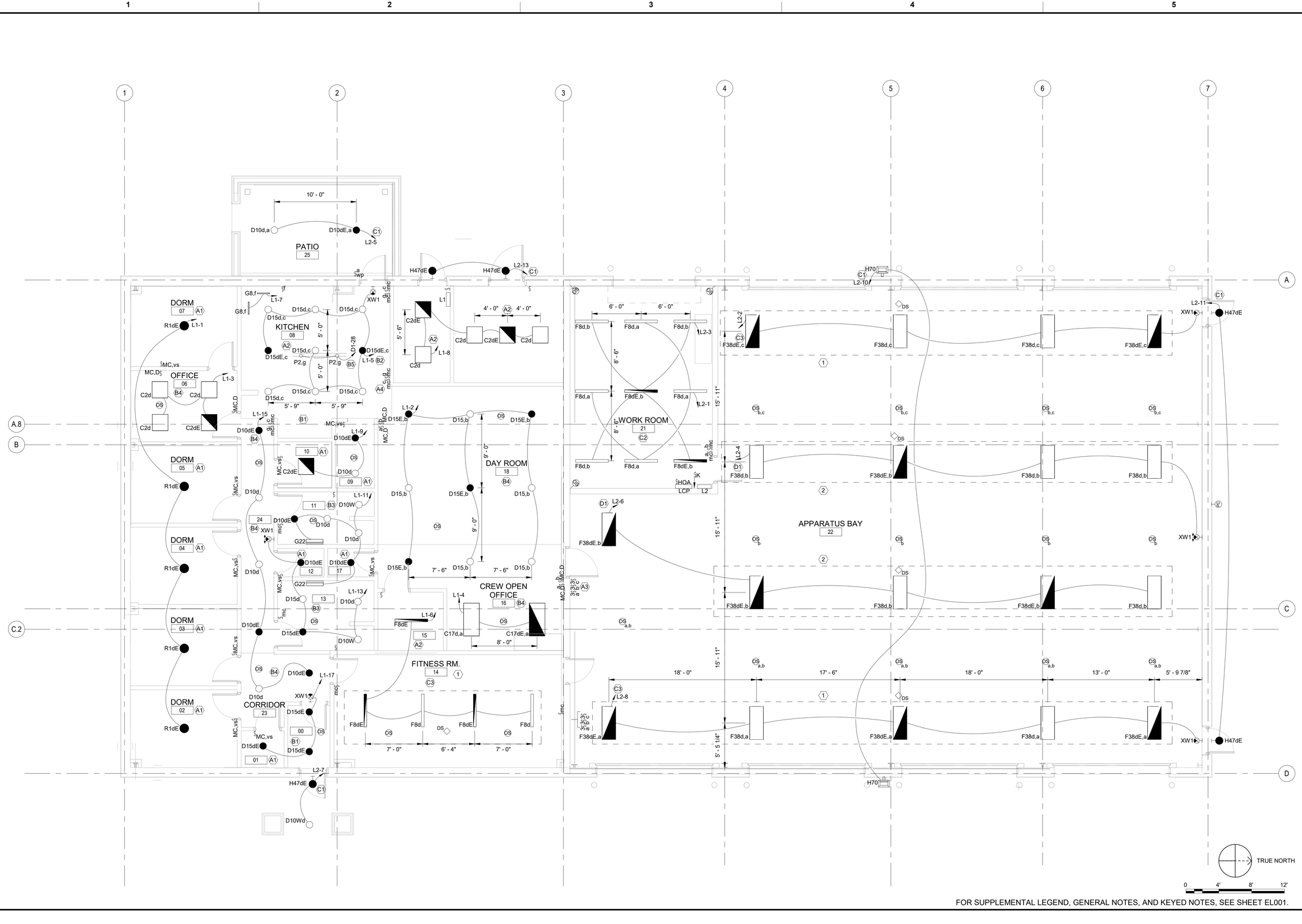
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

LIGHTING LEGEND AND NOTES

SHEET ID

EL001



FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EL001.

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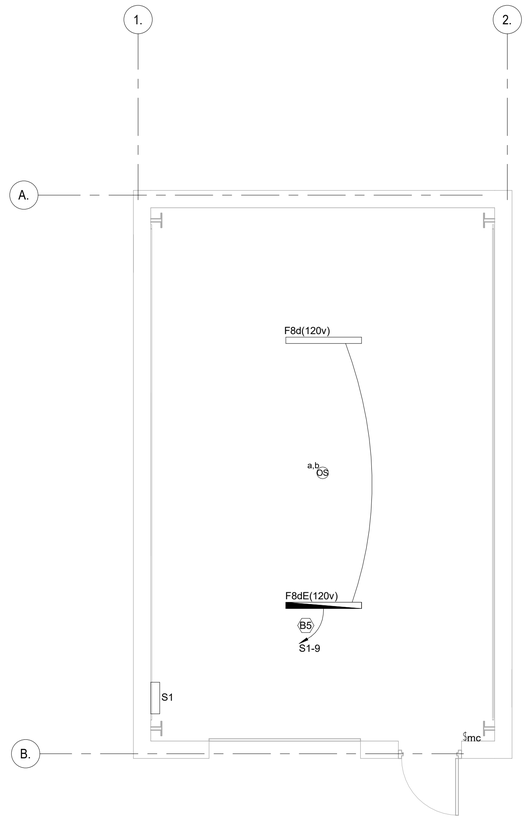
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101484 (FY23)

COMPOSITE LIGHTING PLAN

SHEET ID

EL101



1 EL102 COMPOSITE STORAGE LIGHTING PLAN

1/4" = 1'-0"

PLAN NORTH

0 2' 4' 8'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EL001.

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COMPOSITE STORAGE LIGHTING PLAN

SHEET ID

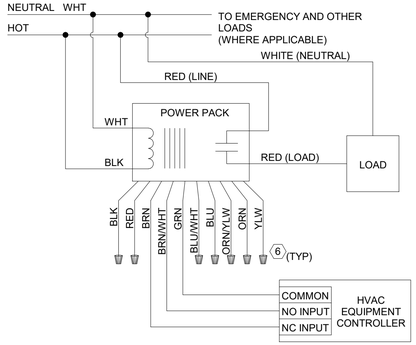
EL102

HVAC CONNECTION NOTES

1. ALL LIGHTING ZONES SHALL HAVE THE CAPABILITY OF PROVIDING RELAYS (COMMON, NO, NC) TO LOCAL HVAC EQUIPMENT. RELAY SHALL BE PROVIDED VIA POWER PACK OR OCCUPANCY SENSOR.

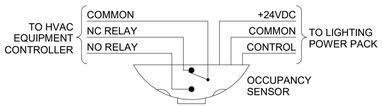
2. WHERE POWER PACKS OR OTHER CONTROLLER DOES NOT HAVE THIS CAPABILITY FOR A GIVEN ZONE, THE ALTERNATIVE HVAC CONNECTION FROM THE OCCUPANCY SENSOR SHALL BE USED.

3. WHERE HVAC EQUIPMENT RELAYS ARE PROVIDED FROM THE POWER PACK, THE POWER PACK SHALL BE CAPABLE OF TRANSMITTING THE OCCUPANCY SIGNAL TO THE HVAC CONTROLLER REGARDLESS OF LIGHTING MANUAL ON/OFF STATE. IF THE POWER PACK IS INCAPABLE OF SUCH OPERATION, THE ALTERNATIVE HVAC CONNECTION FROM THE OCCUPANCY SENSOR SHALL BE USED.



1 EL500 HVAC CONNECTION

N.T.S.



2 EL500 ALTERNATIVE HVAC CONNECTION

N.T.S.

CLASS 2 WIRING DESIGNATIONS	
RED	POWER (24VDC)
BLACK	DC RETURN
BLUE	OCCUPANCY: AUTO-ON / AUTO-OFF
BLUE/WHITE	OCCUPANCY: MANUAL-ON / AUTO-OFF
YELLOW	HOLD-ON
ORANGE	HOLD-OFF
YELLOW/ORANGE	LOCAL SWITCH
HVAC WIRING DESIGNATIONS	
GREEN	DRY CONTACT COMMON
BROWN	DRY CONTACT NC (NORMALLY CLOSED)
BROWN/WHITE	DRY CONTACT NO (NORMALLY OPEN)

FIRE ALARM EGRESS HOLD-ON NOTES:

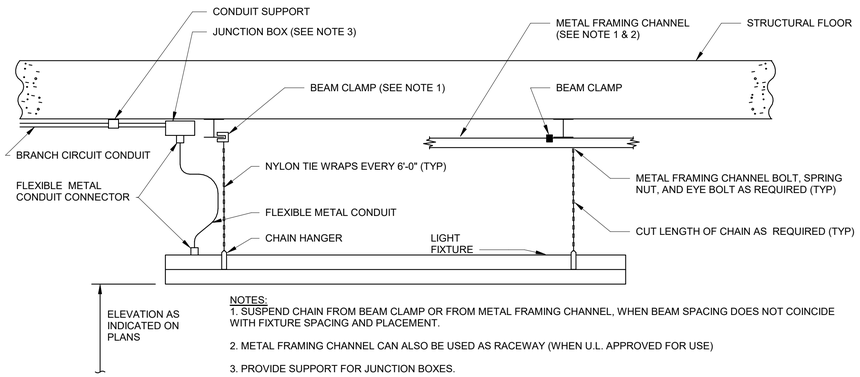
1. RELAYS SHALL BE COORDINATED WITH THE FIRE ALARM SYSTEM. POWER PACKS SHALL RECEIVE INPUT FROM THE FIRE ALARM SYSTEM INDICATING THE FIRE ALARM SYSTEM IS IN AN ALARM STATE. UPON TERMINATION OF ALARM STATE, RELAYS SHALL OPEN AND LIGHTING SYSTEM SHALL RETURN TO NORMAL OPERATION.

2. FIRE ALARM RELAYS SHALL BE FAIL ON (NORMALLY CLOSED) OPERATION.

3. SEE LIGHTING CONTROL DIAGRAMS FOR AREAS INTENDED TO HAVE FIRE ALARM EGRESS HOLD-ON FUNCTION.

GENERAL NOTES - EL500 SHEETS	
1	MAXIMUM NUMBER OF SENSORS PER POWER PACK MAY VARY BETWEEN MANUFACTURERS.
2	DO NOT CONNECT THE RED (+24VDC) WIRES TOGETHER ACROSS POWER PACKS.
3	UNLESS OTHERWISE NOTED, THE OCCUPANCY SENSOR SHUT OFF TIME DELAY SHALL BE 15 MINUTES.
4	POWER PACKS SHALL CONTAIN A GRACE PERIOD (MIN. 15 SECONDS, MAX. 60 SECONDS) FOR "MANUAL ON" OPERATION WHEREBY THE LOAD TURNS OFF WHEN THE SENSOR TIME DELAY EXPIRES, THEN THE LOAD TURNS BACK ON IF OCCUPANCY SENSOR INPUT IS TRIGGERED DURING THE GRACE PERIOD. IF THE GRACE PERIOD EXPIRES WITH NO SENSOR INPUT, THE MOMENTARY CONTACT SWITCH MUST BE USED TO TURN THE LOAD ON.
5	POWER PACKS UNDER AUTO ON/OFF WITH OVERRIDE SWITCH FUNCTION: WHEN THE LOAD IS TURNED OFF USING THE MOMENTARY SWITCH, THE POWER PACK SHALL NOT TURN THE LOAD ON AUTOMATICALLY UNTIL AFTER THE SENSOR TIME DELAY EXPIRES. PRESSING THE MOMENTARY SWITCH BEFORE THE SENSOR TIME DELAY EXPIRES SHALL TURN THE LOAD ON, AND WHEN THE OCCUPANCY SENSOR'S TIME DELAY EXPIRES, THE POWER PACK REVERTS TO AUTO ON OPERATION.
6	INPUTS ON THE "HOLD ON" LINE SHALL OVERRIDE THE AUTOMATIC OFF FUNCTIONS. "HOLD ON" INPUTS SHALL ALSO OVERRIDE THE MANUAL OFF STATE AT THE TIME OF "HOLD ON" INITIATION.
7	POWER PACKS SHALL BE PROVIDED WITH FAIL-SAFE CIRCUITRY WHEREBY THE CONTACT FAILS IN THE CLOSED POSITION IN THE EVENT OF POWER FAILURE OR MALFUNCTION.
8	LIGHTING CONTROLS INCLUDING DIMMING BALLASTS/DRIVERS, DIMMING SWITCHES, AND OCCUPANCY SENSORS SHALL BE FULLY COMPATIBLE.
9	POWER PACKS SHALL BE MOUNTED ABOVE THE CEILING IMMEDIATELY IN FRONT OF THE DOOR WHERE CEILING SPACE IS ACCESSIBLE. POWER PACK BOXES SHALL BE SINGLE OR DOUBLE GANG IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE SENSOR MANUFACTURER. POWER PACKS SHALL BE MOUNTED IN A RECESSED SWITCH BOX WHERE CEILING IS INACCESSIBLE. POWER PACK WALL BOXES SHALL BE LOCATED 6 INCHES FROM INSIDE CORNER OF THE ROOM AND 46 INCHES A.F.F. THE BOX FACEPLATE SHALL BE PERMANENTLY ENGRAVED "OCCUPANCY SENSOR POWER PACK".
10	CONTROL WIRE COUNTS ARE NOT SHOWN ON LIGHTING PLANS. CONSULT LIGHTING CONTROL FUNCTIONAL DIAGRAMS AND MANUFACTURER REQUIREMENTS FOR GUIDANCE.
11	QUANTITY OF FIXTURES, SENSORS, POWER PACKS, AND OTHER DEVICES NOT REPRESENTED IN THESE DIAGRAMS. PROVIDE QUANTITY OF DEVICES SHOWN (MINIMUM) OR AS REQUIRED. MAXIMUM NUMBER OF SENSORS PER POWER PACK MAY VARY BETWEEN MANUFACTURERS.
12	BRANCH CIRCUIT(S) TO EMERGENCY BALLAST IN FIXTURES ARE NOT SHOWN TO COMPLETION IN THESE DIAGRAMS. PROVIDE CONDUCTORS FROM THE BRANCH CIRCUIT TO THE FIXTURES HAVING EMERGENCY BALLAST/DRIVER WITHOUT ROUTING THROUGH THE FIXTURE SWITCHING, TIMER, OR OCCUPANCY CONTROLS.
13	PROVIDE CONDUIT RACEWAY FOR ALL WIRING. PROVIDE LOW VOLTAGE CONTROL RACEWAY SYSTEM SEPARATE FROM 120V AND/OR 277V RACEWAY SYSTEM.
14	SUBMIT SHOP DRAWINGS WITH LIGHTING CONTROL DIAGRAMS FOR THE ACTUAL MANUFACTURER'S DEVICES PROVIDED AND REVISE THE LIGHTING CONTROL DIAGRAMS "AS-BUILT".
15	THE LIGHTING CONTROL FUNCTIONAL DIAGRAMS SHOW ONE METHOD OF ACCOMPLISHING THE LIGHTING CONTROL STRATEGIES INTENDED FOR EACH SPACE OR ZONE. ALTERNATE METHODS ARE ACCEPTABLE ONLY IF THERE IS NO LOSS OF FUNCTIONALITY AS DESCRIBED BY THE LIGHTING CONTROL FUNCTIONAL DIAGRAMS AND THE CONTRACT SPECIFICATIONS. A DETAILED DESCRIPTION INDICATING HOW THE PROPOSED ALTERNATE METHODS SATISFY THE CONTRACT DOCUMENTS SHALL BE SUBMITTED TO THE GOVERNMENT FOR EVALUATION AND APPROVAL. INSTALLATION SHALL NOT PROCEED WITHOUT GOVERNMENT APPROVAL. PROCUREMENT PENDING GOVERNMENT APPROVAL SHALL BE AT THE CONTRACTOR'S RISK.
16	ADDITIONAL POWER PACKS MAY BE REQUIRED FOR LONG MOMENTARY CONTACT SWITCH LOW VOLTAGE CIRCUITS, PARTICULARLY IN THE SERVICE BAY/NOSE AREA. VERIFY MAXIMUM LOW VOLTAGE CIRCUIT LENGTH WITH MANUFACTURER.

# KEYED NOTES - EL500 SERIES SHEETS	
1	PROVIDE QUANTITY OF SWITCHES AS INDICATED ON PLANS AT A MINIMUM. CIRCUIT IN PARALLEL.
2	PROVIDE SWITCHES IN COMMON ENCLOSURE AT LOCATIONS INDICATED ON PLANS.
3	FIRE ALARM/MASS NOTIFICATION SYSTEM PANEL DRY CONTACT ACTUATES "HOLD ON" DURING FIRE ALARM.
4	TUNE 0-10V DAYLIGHT DIMMING CONTROL TO PROVIDE THE AVERAGE ILLUMINANCE LEVEL IDENTIFIED IN THE DAYLIGHTING SCHEDULE IN THE SPACE WHEN ALL LIGHTS ARE ACTIVE. IF BALLASTS SERVED EXCEED MANUFACTURER RECOMMENDATIONS, PROVIDE ADDITIONAL PHOTOSENSOR DIMMING CONTROL MODULES AND POWER PACKS AS NECESSARY.
5	SEE HVAC CONNECTION DIAGRAM ON EL500. COORDINATE WITH MECHANICAL PLANS FOR APPLICATION. WHERE CONNECTIONS ARE NOT USED, WIRES SHALL BE CAPPED.
6	SEE LIGHTING CONTROL DIAGRAM REFERENCED ON THE LIGHTING PLANS FOR EACH SPACE IDENTIFYING USE OF NON-HVAC POWER PACK CONNECTIONS. WHERE CONNECTIONS ARE NOT USED, WIRES SHALL BE CAPPED.



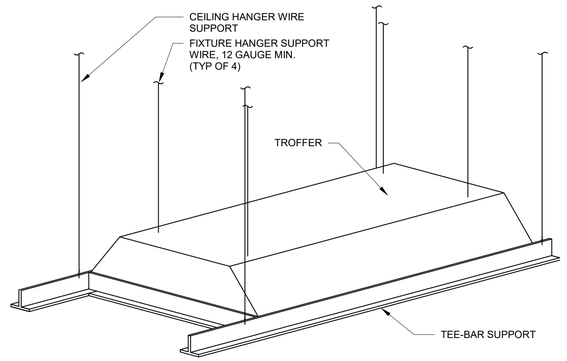
NOTES:
1. SUSPEND CHAIN FROM BEAM CLAMP OR FROM METAL FRAMING CHANNEL, WHEN BEAM SPACING DOES NOT COINCIDE WITH FIXTURE SPACING AND PLACEMENT.

2. METAL FRAMING CHANNEL CAN ALSO BE USED AS RACEWAY (WHEN U.L. APPROVED FOR USE)

3. PROVIDE SUPPORT FOR JUNCTION BOXES.

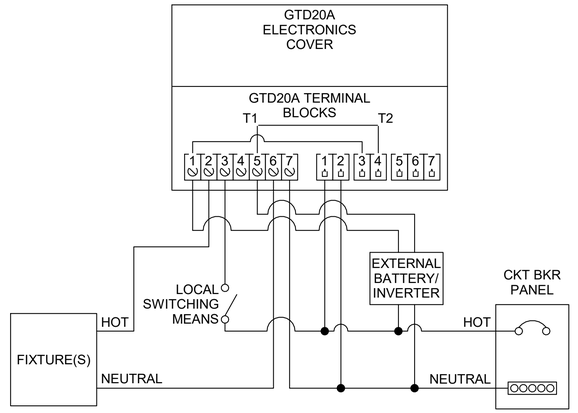
3 EL500 TYPICAL - SUSPENDED FIXTURE

N.T.S.



4 EL500 TYPICAL - RECESSED TROFFER

N.T.S.



NOTE: BODINE GTD20A RELAY DEVICE OR EQUAL FOR CONTROL OF POWER TO FIXTURES WITH EXTERNAL EMERGENCY BATTERY SUPPLY IN LIEU OF INTEGRAL EMERGENCY DRIVER/BALLAST/BATTERY. UNDER NORMAL CIRCUMSTANCES, RELAY SHALL BE CONTROLLED BY SWITCH ON WALL AND NORMAL POWER. IN THE EVENT OF A POWER OUTAGE, RELAY SHALL BYPASS TOGGLE SWITCH CONTROL AND SUPPLY POWER FROM THE EMERGENCY BATTERY INVERTER.

INSTALL PER MANUFACTURER RECOMMENDATION. LOCATE RELAY ABOVE CEILING NEAR SWITCH, UNLESS NOTED OTHERWISE. PROVIDE IN ENCLOSURE FOR THE ENVIRONMENT IN WHICH RELAY IS INSTALLED PER E-100 AND E-200 SERIES SHEETS.

5 EL500 EMERGENCY LIGHTING CONTROL RELAY DETAIL

N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

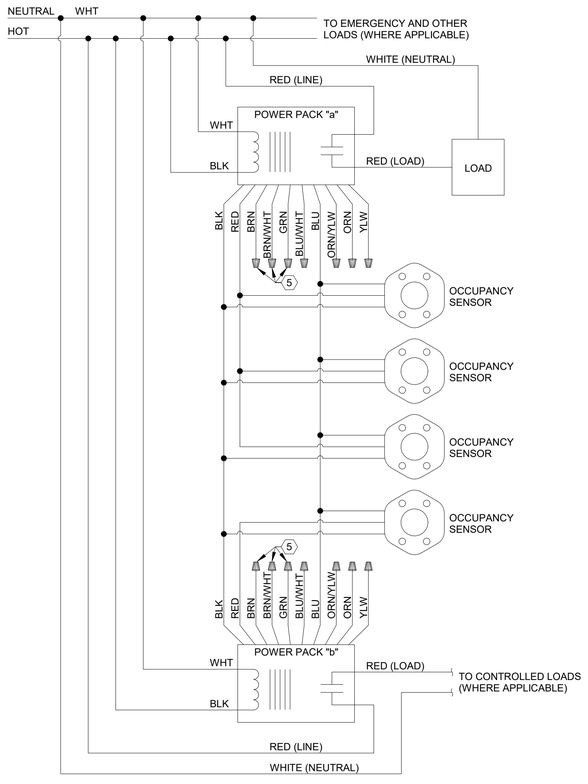
DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSSERMAN, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTNLMEPFS2.rvt

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

LIGHTING CONTROL DIAGRAMS
GENERAL INFORMATION

SHEET ID

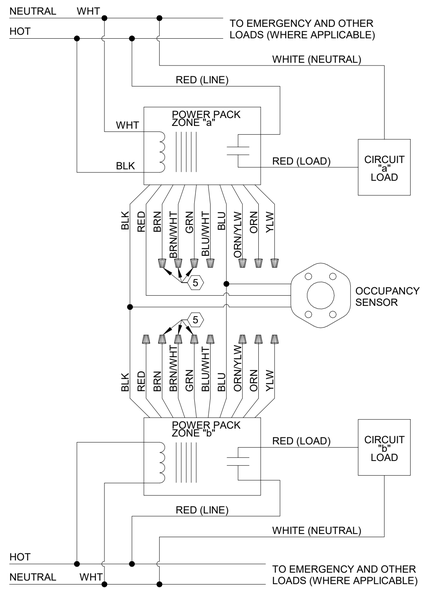
EL500



MULTIPLE CONTROL DEVICES EXCEEDING POWER SUPPLY RATINGS

1 / EL501

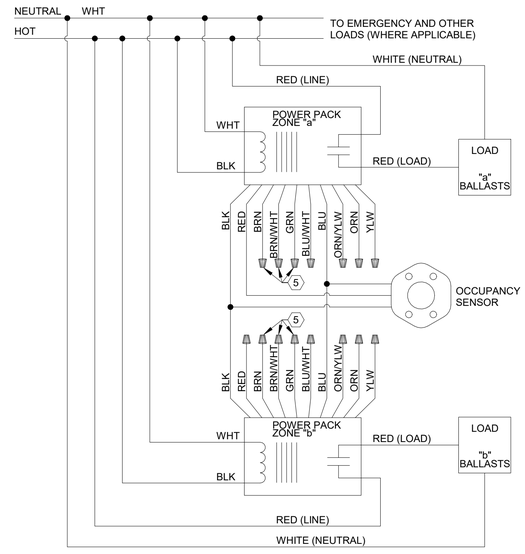
N.T.S.



MULTIPLE CIRCUITS UTILIZING COMMON CONTROL DEVICES

2 / EL501

N.T.S.



MULTIPLE LOADS EXCEEDING SINGLE POWER SUPPLY RATINGS

3 / EL501

N.T.S.

GENERAL LIGHTING NOTES:
SEE GENERAL NOTES ON SHEET EL500.

(#) KEYED LIGHTING NOTES:
SEE KEYED NOTES ON SHEET EL500.

US Army Corps of Engineers ®

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DESIGNED BY:	K. PAVLIK
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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
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FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
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LIGHTING CONTROL DIAGRAMS

SHEET ID

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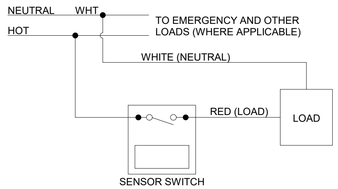
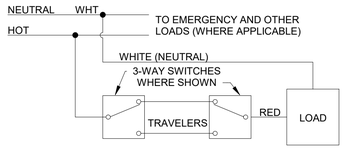


DESCRIPTION OF OPERATION:
MANUAL ON VIA SENSOR SWITCH.
MANUAL/AUTO OFF VIA SENSOR SWITCH.

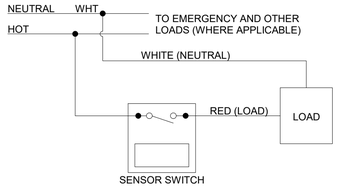
1 EL502 WALL SWITCH VACANCY SENSOR

N.T.S.



3 EL502 THREE-WAY TOGGLE SWITCH

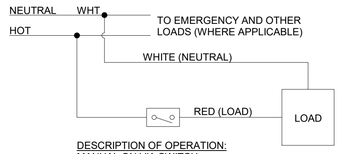
N.T.S.



DESCRIPTION OF OPERATION:
AUTO ON VIA SENSOR SWITCH.
MANUAL/AUTO OFF VIA SENSOR SWITCH.

5 EL502 WALL SWITCH OCCUPANCY SENSOR

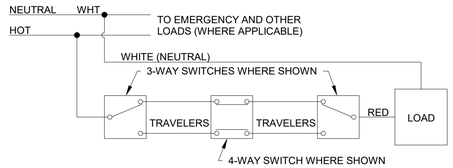
N.T.S.



DESCRIPTION OF OPERATION:
MANUAL ON VIA SWITCH.
MANUAL OFF VIA SWITCH.

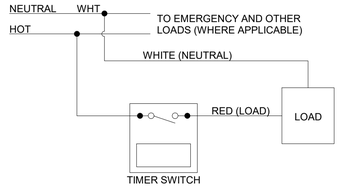
2 EL502 WALL TOGGLE SWITCH

N.T.S.



4 EL502 FOUR-WAY TOGGLE SWITCH

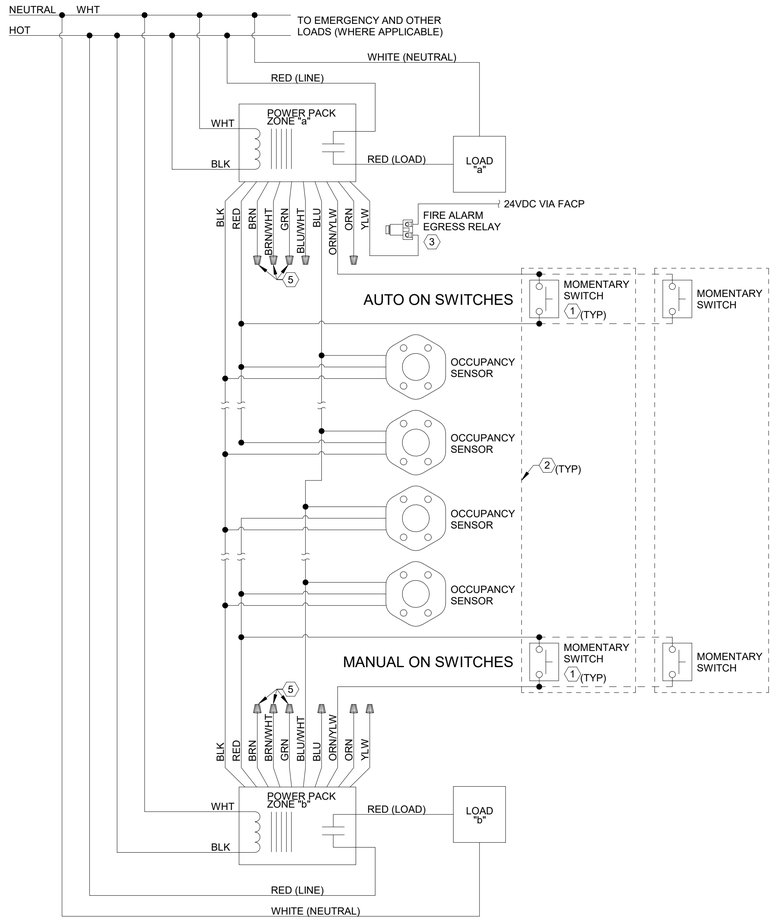
N.T.S.



DESCRIPTION OF OPERATION:
MANUAL ON VIA TIMER SWITCH.
MANUAL/AUTO OFF VIA TIMER SWITCH.
TIMER SHALL TURN OFF LIGHTS AUTOMATICALLY AFTER 15 MINUTES.

6 EL502 WALL TIMER SWITCH

N.T.S.



OPERATIONAL BASIS OF DESIGN:
1. LOAD "a" IS AUTO ON/OFF FUNCTION WITH MANUAL OVERRIDE.
2. LOAD "a" SHALL HAVE FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL CONNECTED TO POWER PACK(S).
3. LOAD "b" IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF.
4. LOADS "a" AND "b" HAVE SEPARATE ON/OFF SWITCHES.

7 EL502 BI-LEVEL SWITCHING WITH FIRE ALARM HOLD ON HALF MANUAL ON, HALF AUTO ON

N.T.S.

GENERAL LIGHTING NOTES:
SEE GENERAL NOTES ON SHEET EL500.

(#) KEYED LIGHTING NOTES:
SEE KEYED NOTES ON SHEET EL500.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSEPKA, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
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FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.vt

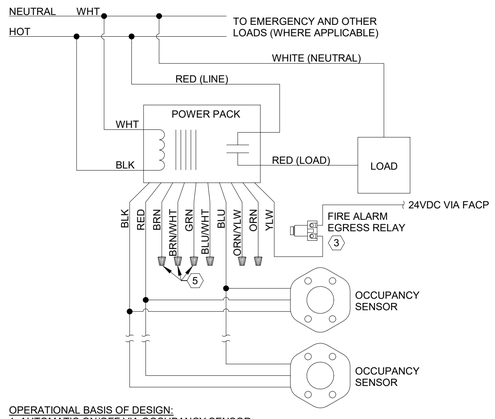
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

LIGHTING CONTROL DIAGRAMS

SHEET ID

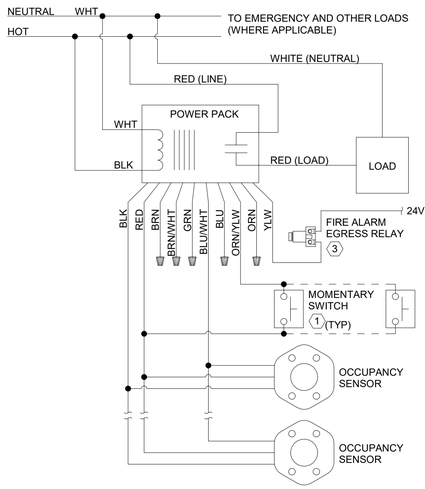
EL502



OPERATIONAL BASIS OF DESIGN:
1. AUTOMATIC ON/OFF VIA OCCUPANCY SENSOR.
2. FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL SHALL BE CONNECTED TO ALL POWER PACKS.

1 EL503 AUTO ON-AUTO OFF WITH FIRE ALARM HOLD ON

N.T.S.

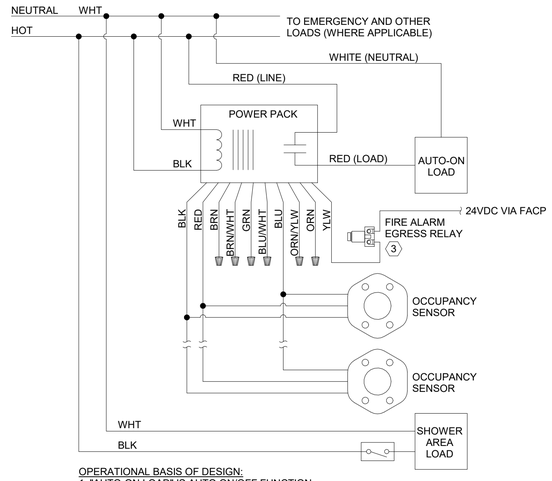


OPERATIONAL BASIS OF DESIGN:
1. LOAD IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF.

2. FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL SHALL BE CONNECTED TO ALL POWER PACKS.

2 EL503 MANUAL ON, AUTO OFF WITH FIRE ALARM HOLD-ON

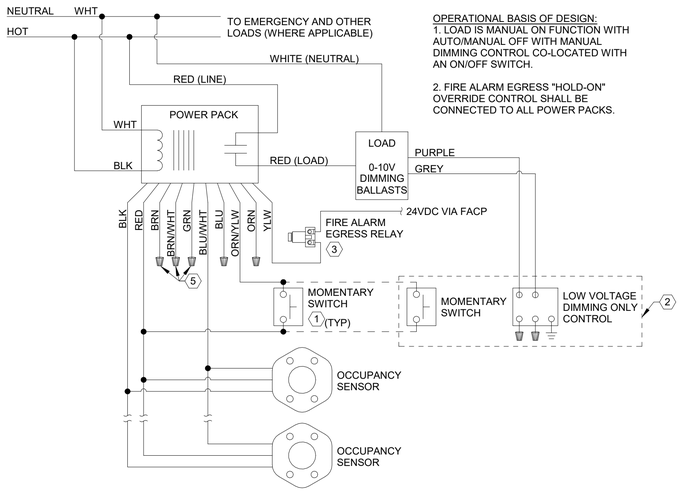
N.T.S.



OPERATIONAL BASIS OF DESIGN:
1. "AUTO-ON LOAD" IS AUTO ON/OFF FUNCTION.
2. "AUTO-ON LOAD" SHALL HAVE FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL CONNECTED TO POWER PACK(S).
3. "SHOWER AREA LOAD" IS MANUAL ON/OFF FUNCTION NOT CONNECTED TO A POWER PACK.

3 EL503 RESTROOMS LIGHTING CONTROL DIAGRAM

N.T.S.

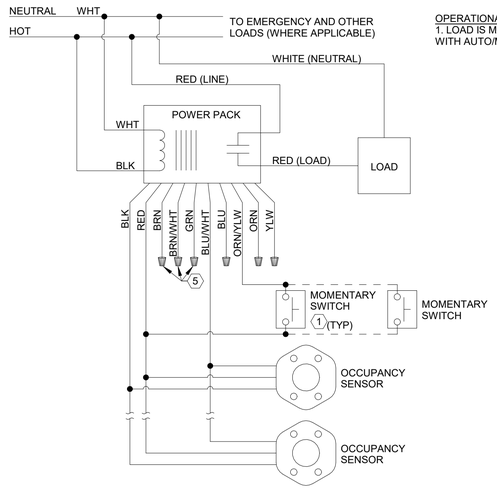


OPERATIONAL BASIS OF DESIGN:
1. LOAD IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF WITH MANUAL DIMMING CONTROL CO-LOCATED WITH AN ON/OFF SWITCH.

2. FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL SHALL BE CONNECTED TO ALL POWER PACKS.

4 EL503 MANUAL ON, AUTO OFF WITH MANUAL 0-10V DIMMING AND FIRE ALARM HOLD-ON

N.T.S.



OPERATIONAL BASIS OF DESIGN:
1. LOAD IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF.

5 EL503 MANUAL ON, AUTO OFF

N.T.S.

GENERAL LIGHTING NOTES:
SEE GENERAL NOTES ON SHEET EL500.

(#) KEYED LIGHTING NOTES:
SEE KEYED NOTES ON SHEET EL500.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY:	K. PAVLIK
DRAWN BY:	K. PAVLIK
CHECKED BY:	J. CHAMBERLAIN
SUBMITTED BY:	J. CHAMBERLAIN, P.E.
SIZE:	ANSI D
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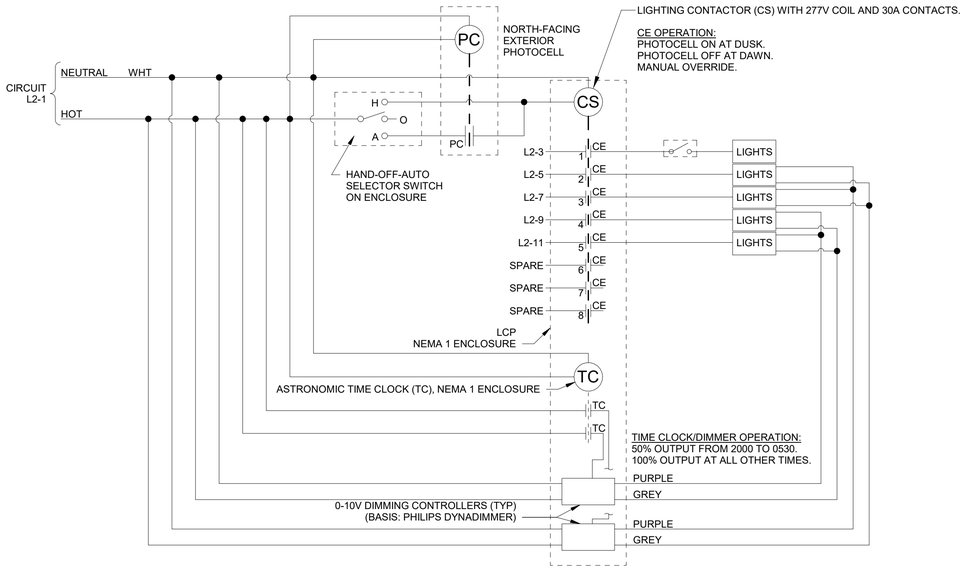
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 107464 (FY23)

LIGHTING CONTROL DIAGRAMS

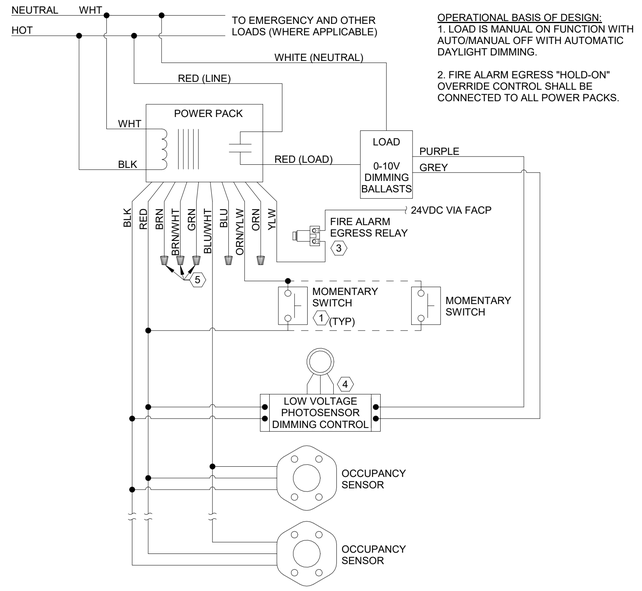
SHEET ID

EL503



1 EL504 — SITE LIGHTING CONTROL DIAGRAM

N.T.S.

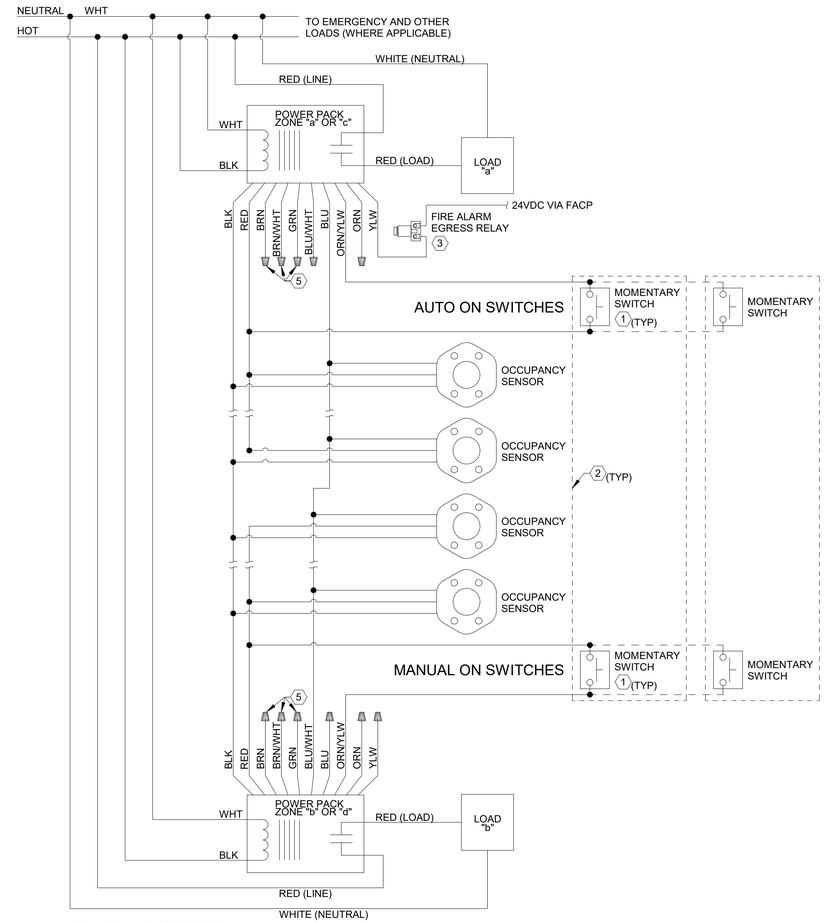


OPERATIONAL BASIS OF DESIGN:
1. LOAD IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF WITH AUTOMATIC DAYLIGHT DIMMING.

2. FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL SHALL BE CONNECTED TO ALL POWER PACKS.

3 EL504 — MANUAL ON, AUTO OFF WITH DAYLIGHT DIMMING AND FIRE ALARM HOLD-ON

N.T.S.



OPERATIONAL BASIS OF DESIGN:
1. LOAD "a" / "c" IS AUTO ON/OFF FUNCTION WITH MANUAL OVERRIDE.
2. LOAD "a" / "c" SHALL HAVE FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL CONNECTED TO POWER PACK(S).
3. LOAD "b" / "d" IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF.
4. LOADS "a" / "c" AND "b" / "d" HAVE SEPARATE ON/OFF SWITCHES.

2 EL504 — BI-LEVEL SWITCHING WITH FIRE ALARM HOLD ON, HALF MANUAL ON, HALF AUTO ON

N.T.S.

GENERAL LIGHTING NOTES:
SEE GENERAL NOTES ON SHEET EL500.

(#) KEYED LIGHTING NOTES:
SEE KEYED NOTES ON SHEET EL500.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
DESIGNED BY:	K. PAVLIK
DRAWN BY:	K. PAVLIK
CHECKED BY:	J. CHAMBERLAIN
SUBMITTED BY:	
QUALITY CONTROL BY:	
SIZE:	FILE NAME:
ANSI D	FCDR-FSTN-MEPES2.pvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

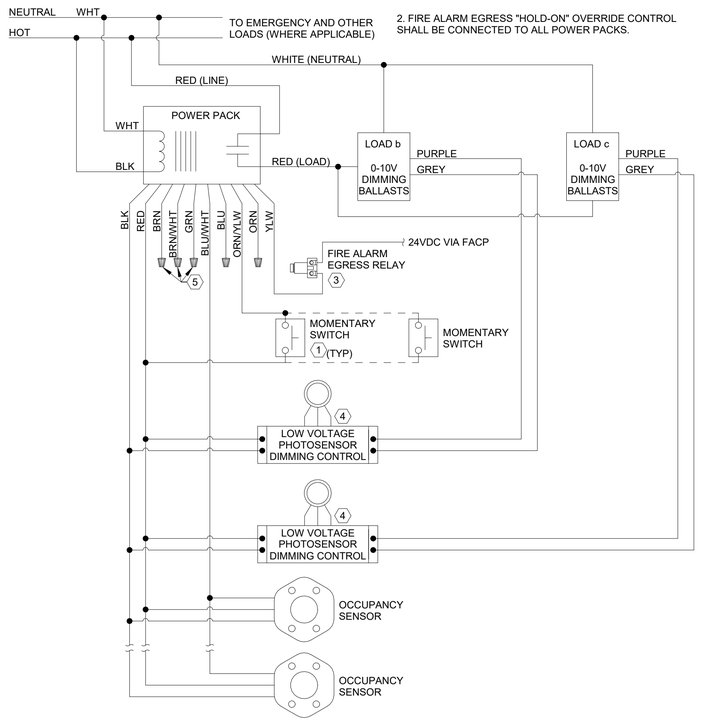
LIGHTING CONTROL DIAGRAMS

SHEET ID

EL504

OPERATIONAL BASIS OF DESIGN:
1. EACH ZONE IS MANUAL ON FUNCTION WITH AUTO/MANUAL OFF WITH AUTOMATIC DAYLIGHT DIMMING IN TWO ZONES.

2. FIRE ALARM EGRESS "HOLD-ON" OVERRIDE CONTROL SHALL BE CONNECTED TO ALL POWER PACKS.



MANUAL ON, AUTO OFF WITH DUAL DAYLIGHT DIMMING AND FIRE ALARM HOLD-ON

1 / EL505

N.T.S.

US Army Corps of Engineers ®

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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 / (FY23)

LIGHTING CONTROL DIAGRAMS

SHEET ID

EL505

LIGHTING FIXTURE SCHEDULE

FIXTURE SYMBOL	QUANTITY NORM	QUANTITY EMERG	FIO LLF	LIGHT SOURCE TYPE	LIGHT SOURCE WATTS	LIGHT SOURCE QTY	LIGHT SOURCE CCT	LIGHT SOURCE MIN. CRI	PERFORM. CONSTRAINTS MAX. POWER	PERFORM. CONSTRAINTS MIN. FLUX	MIN. EM BATT. INITIAL FLUX	VOLTS	MOUNTING	MAX. DEPTH	DESCRIPTION	BASIS OF DESIGN (BOD)	REMARKS
C2d	6	4	0.700	LED	23 W	1	3000K	82	23 W	2100 Lms	700 Lms	277 V	RECESSED	4"	2x2 VOLUMETRIC	A) Columbia LEPC22-40MWG-LL- -EDU B) Metalux 22AC-LD4-23-UNV-L840-CD1 C) Lithonia 2RTL2 20L EZ1 L840	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED). PROVIDE WITH 10% OR LESS DIMMING BALLAST.
C17d	1	1	0.700	LED	45 W	1	3000K	80	45 W	4300 Lms	700 Lms	277 V	RECESSED	4"	2x4 VOLUMETRIC	A) Columbia LEPC24-40MLG B) Eaton Metalux 24AC-LD4-44-UNV-L840 C) Lithonia 2RTL4 40L ** L840 D) LSI ASC24-LED-SS-NW	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED). PROVIDE WITH 10% OR LESS DIMMING BALLAST.
D10d	8	8	0.700	LED	18 W	1	3000K	80	18 W	1050 Lms	450 Lms	277 V	RECESSED	9 1/4"	8" APERTURE DOWNLIGHT	A) Cree KR6-13L B) Eaton LD6A10*** ERW6A10840 6LW*LI C) Eaton LD8A10*** ER8A10840 8LWI*** D) HE Williams L60-L11C/840-**/W E) Hubbell Prescolite 8LFLED5G440K F) Lithonia REAL6C D6** ESL 1000L 40K .95SC	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED) MAY BE LOCATED REMOTELY. PROVIDE WITH 10% OR LESS DIMMING DRIVER.
D10W	2	0	0.700	LED	18 W	1	3000K	80	18 W	1000 Lms	450 Lms	277 V	RECESSED	9 1/4"	8" APERTURE DOWNLIGHT WET-RATED	A) Eaton LD6A10*** ERW6A10840 6LW*LI LGSKT6IP66 B) HE Williams L60-L11C/840-**/W-WET/CC	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED) MAY BE LOCATED REMOTELY.
D10Wd	1	0	0.700	LED	18 W	1	3000K	80	18 W	1000 Lms	450 Lms	277 V	RECESSED	9 1/4"	8" APERTURE DOWNLIGHT WET-RATED	A) Eaton LD6A10*** ERW6A10840 6LW*LI LGSKT6IP66 B) HE Williams L60-L11C/840-**/W-WET/CC	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED) MAY BE LOCATED REMOTELY. PROVIDE WITH 10% OR LESS DIMMING DRIVER.
D15	5	4	0.700	LED	24 W	1	3000K	80	26 W	1650 Lms	450 Lms	277 V	RECESSED	9 1/4"	8" APERTURE DOWNLIGHT	A) Eaton LD8A15*** ER8A15840 8LWI*** B) HE Williams L60-L20C/840-**/W C) Hubbell Prescolite 8LFLED7G440K	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED) MAY BE LOCATED REMOTELY.
D15d	8	6	0.700	LED	24 W	1	3000K	80	26 W	1650 Lms	450 Lms	277 V	RECESSED	9 1/4"	8" APERTURE DOWNLIGHT	A) Eaton LD8A15*** ER8A15840 8LWI*** B) HE Williams L60-L20C/840-**/W C) Hubbell Prescolite 8LFLED7G440K	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED) MAY BE LOCATED REMOTELY. PROVIDE WITH 10% OR LESS DIMMING DRIVER.
F8d	9	5	0.700	LED	41 W	1	3000K	80	41 W	3250 Lms	700 Lms	277 V	SUSPENDED	5 1/2"	LINEAR DIRECT PENDANT	A) Philips TruGrooveLED 2901LAEQN04 B) Pinnacle EX6-A-N-40HO-4 C) Prudential P40LED4SO4-TMW-SAL-D1	UL LISTED FOR DRY LOCATION. FIXTURE SHALL BE ONE OF THE FOLLOWING: (A) PRUDENTIAL P40-2T8-04-BLA-TMW-D1; (B) LIGHTOLIER SQ624DPS1; (C) HE WILLIAMS LX4D-4-232-AC-SAPL. EMERGENCY DRIVER (WHERE REQUIRED). PROVIDE WITH 10% OR LESS DIMMING DRIVER.
F8d(120v)	1	1	0.700	LED	41 W	1	3000K	80	41 W	3250 Lms	700 Lms	120 V	SUSPENDED	5 1/2"	LINEAR DIRECT PENDANT	A) Philips TruGrooveLED 2901LAEQN04 B) Pinnacle EX6-A-N-40HO-4 C) Prudential P40LED4SO4-TMW-SAL-D1	UL LISTED FOR DRY LOCATION. FIXTURE SHALL BE ONE OF THE FOLLOWING: (A) PRUDENTIAL P40-2T8-04-BLA-TMW-D1; (B) LIGHTOLIER SQ624DPS1; (C) HE WILLIAMS LX4D-4-232-AC-SAPL. EMERGENCY DRIVER (WHERE REQUIRED). PROVIDE WITH 10% OR LESS DIMMING DRIVER.
F38d	9	9	0.700	LED	228 W	1	4000K	80	228 W	25,208 Lms	1050 Lms	277 V	SUSPENDED	1' - 4 1/2"	HIGH-BAY	A) Cree CXB-A-UV-H-40K-8-UL-10V CXBW16 CL16 B) Lithonia IBH 24000LM SD080 MD MVOLT OZ10 40K 80CRI WH C) Metalux HBLED-LD4-30-W-CL-UNV-L840-ED3	UL LISTED FOR DAMP LOCATION. FIXTURE SHALL BE PROVIDED WITH A PROTECTIVE LENS. FIXTURE SHALL BE ONE OF THE BASIS OF DESIGN FIXTURES. VARIANCE APPROVAL REQUIRED TO DEVIATE FROM BASIS OF DESIGN FIXTURES. EMERGENCY BALLAST/DRIVER OR EXTERNAL BATTERY (WHERE REQUIRED). PROVIDE WITH 10% OR LESS DIMMING DRIVER.
G8	2	0	0.700	LED		1	3000K	80	REMARKS		--	277 V	SURFACE	1"	UNDERCABINET	Lithonia RAZ (length as required)	8 W/FT MAX; UL LISTED FOR DAMP LOCATION. QUANTITY LISTED FOR THIS FIXTURE IS DEPENDENT ON THE LENGTH OF MODULES TO BE INSTALLED. PROVIDE MODULES OF LENGTH AND QUANTITY TO RUN THE ENTIRE LENGTH OF EACH APPLICATION WITHIN 4 INCHES OF THE END OF EACH CONTINUOUS RUN. CONTINUOUS RUNS ARE TAGGED WITH THIS FIXTURE'S SYMBOL.
G22	2	0	0.700	LED	24 W	1	3000K	80	24 W	1900 Lms		277 V	WALL 7'-0" AFF UON	5 1/2"	WALL-MOUNTED TASK LIGHT		UL LISTED FOR DRY LOCATION.
H47d	0	5	0.700	LED	58 W	1	3000K	70	58 W	5415 Lms	Per BOD	277 V	WALL 11'-0" AFG UON		WALL PACK	Visionaire VSC-1-T3-16LC-10-4K-UNV-WM-BZ-EBPL-DIM	UL LISTED FOR WET LOCATION; 10% OR LESS DIMMING DRIVER; IES TYPE III DISTRIBUTION. PROVIDE EMERGENCY BATTERY BACKUP (WHERE REQUIRED). WHERE LOCATED ON THE BUILDING EXTERIOR, EMERGENCY BATTERY PACK SHALL BE COLD-WEATHER RATED.
H70	2	0	0.700	LED	113 W	1	4000K	70	118 W	11,000 Lms	--	277 V	SURFACE 19'-6" AFG UON		FLOODLIGHT TYPE 4 DISTRIBUTION	Eaton GAN-AF-02-LED-U-SL4-BZ4N7-HA-OA/RA1013-SA1252	UL LISTED FOR WET LOCATION; FIXTURE SHALL BE CUTOFF TYPE, AS DEFINED BY IES, WITH IES TYPE IV DISTRIBUTION. FIXTURE SHALL BE FURNISHED WITH A DIMMABLE DRIVER.
P2	2	0	0.700	LED	50 W	1						120 V	Pendant	0"	DECORATIVE PENDANT		
R1d	0	5	0.700	LED	28 W	1	3000K	80	28 W	1850 Lms	700 Lms	277 V	SURFACE	7"	ROUND RESIDENTIAL	A) Kenall MR13FD-PP-MW-20L40K-DCC-DV B) Lithonia 13 Versi Light FMMSQL_13_840	UL LISTED FOR DRY LOCATION; EMERGENCY DRIVER (WHERE REQUIRED) MAY BE LOCATED REMOTELY. PROVIDE WITH 10% OR LESS DIMMING DRIVER.
XW1	0	6		LED					SEE 26 51 00		FULL	277 V	WALL		WALL-MOUNTED EXIT SIGN	A) Lithonia LE S W 1 G EL N SD B) Holophane MEX S W 2 G EL N SD C) Philips EXEL3GW SDT	PARALLEL TO WALL; SINGLE-SIDED; GREEN STENCIL LETTERS; EMERGENCY BATTERY POWER; SELF-DIAGNOSTICS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. ROSSITER, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

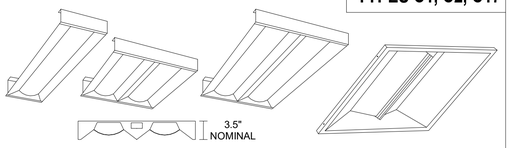
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

LIGHTING FIXTURE SCHEDULE

SHEET ID

EL600

TYPES C1, C2, C17



LUMINAIRE REQUIREMENTS:
1. HOUSING - DIE-FORMED, COLD ROLLED STEEL, WITH ONE-PIECE LOWER REFLECTOR HAVING TEXTURED, HIGH REFLECTANCE, WHITE POLYESTER POWDER-COATED FINISH. OPTIONAL SIZES OF 1FT x 4FT, 2FT x 2FT, AND 2FT x 4FT AVAILABLE.

2. LIGHT SOURCE - UPWARD-FACING LEDS WITH DIFFUSE LENS TO ELIMINATE DIRECT VIEW OF LIGHT SOURCE. LED BOARD OR ARRAY WITH MINIMUM 50K HOURS RATED LIFE AT L70. COLOR TEMPERATURE, EFFICACY, COLOR RENDERING INDEX, MAXIMUM INPUT POWER, AND MINIMUM INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE. MAXIMUM BINNING TOLERANCE OF A 4-STEP MCADAM ELLIPSE.

4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, < 20% TOTAL HARMONIC DISTORTION. STEP-DIMMABLE OR FULLY DIMMABLE AS INDICATED IN LUMINAIRE SCHEDULE.

5. CERTIFICATION - UL 1598, DAMP LOCATION, DLC QUALIFIED, AND ROHS COMPLIANT. COMPLIES WITH LM79, LM80 AND TM21 TESTING STANDARDS. UL 924 WHEN EQUIPPED WITH EMERGENCY BATTERY BACK-UP. IC RATED WHEN INDICATED.

6. MOUNTING - RECESSED IN SUSPENDED ACOUSTICAL TILE OR HARD CEILING.

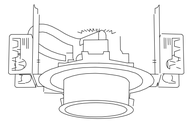
7. SKETCHES ARE NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

RCR	CU
1	92
2	80
3	70
4	64

DIRECT/INDIRECT LED TROFFER

REVISED: APRIL 2016 | LIGHTING PLATE: NL-1

TYPE D10, D15



LUMINAIRE REQUIREMENTS:
1. HOUSING - DIE-FORMED, COLD-ROLLED STEEL, OR FORGED ALUMINUM WITH HEAT SINK. DRIVER MUST BE ACCESSIBLE FROM BOTTOM OF LUMINAIRE. PROVIDE T-BAR HANGERS FOR INSTALLATION IN ACOUSTICAL TILE CEILINGS OR TABS WHEN MOUNTING IN HARD CEILINGS.

2. REFLECTOR AND TRIM - SPECIFICATION GRADE, LOW IRIDESCENT, SPECULAR ALUMINUM REFLECTOR WITH METALLIC OR PAINTED TRIM RING..

3. LIGHT SOURCE - LED BOARD OR ARRAY WITH MINIMUM 50K HOURS RATED LIFE AT L70. COLOR TEMPERATURE, EFFICACY, COLOR RENDERING INDEX, MAXIMUM INPUT POWER, AND MINIMUM INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE. MAXIMUM BINNING TOLERANCE OF A 4-STEP MCADAM ELLIPSE.

4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, < 20% TOTAL HARMONIC DISTORTION. ON-OFF CONTROL, STEP-DIMMABLE OR FULLY DIMMABLE AS INDICATED.

5. CERTIFICATION - UL 1598, DAMP LOCATION, DLC QUALIFIED, AND ROHS COMPLIANT. COMPLIES WITH LM79, LM80 AND TM21 TESTING STANDARDS. UL 924 WHEN EQUIPPED WITH EMERGENCY BATTERY BACK-UP.

6. MOUNTING - RECESSED IN HARD OR ACOUSTICAL TILE CEILING.

7. OPTIONS - EMERGENCY BATTERY BACK-UP, WALL-WASH TRIM, IC RATED FOR DIRECT CONTACT WITH INSULATION, VARIOUS APERTURE DIAMETERS, AND VARIOUS GLASS LENSES.

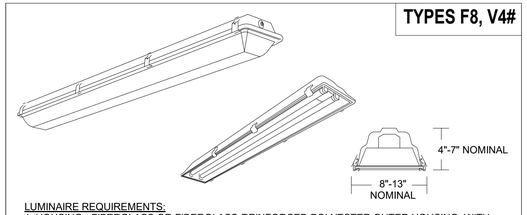
8. THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

9. WHERE INDICATED WITH "W", PROVIDE WET-RATED (IP66) FIXTURE.

LED RECESSED DOWNLIGHT

REVISED: APRIL 2016 | LIGHTING PLATE: NL-19

TYPES F8, V4#



LUMINAIRE REQUIREMENTS:
1. HOUSING - FIBERGLASS OR FIBERGLASS-REINFORCED POLYESTER OUTER HOUSING, WITH ALUMINUM COMPONENT TRAY AND HEAT SINK.
OR
COPPER-FREE ALUMINUM, STAINLESS STEEL, OR HEAT AND IMPACT RESISTANT FIBERGLASS REINFORCED POLYESTER.

2. LENS - IMPACT-RESISTANT POLYCARBONATE, WITH CONTINUOUS CLOSED-CELL POLYURETHANE GASKET, SECURED WITH STAINLESS STEEL OR POLYCARBONATE LATCHES.

3. LIGHT SOURCE - LED BOARD OR ARRAY WITH MINIMUM 50K HOURS RATED LIFE AT L70. COLOR TEMPERATURE, EFFICACY, COLOR RENDERING INDEX, MAXIMUM INPUT POWER, AND MINIMUM INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE. MAXIMUM BINNING TOLERANCE OF A 4-STEP MCADAM ELLIPSE.

4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, < 20% TOTAL HARMONIC DISTORTION. ON-OFF CONTROL, STEP-DIMMABLE OR FULLY DIMMABLE AS INDICATED.

5. CERTIFICATION - UL 1598, WET LOCATION (IP65, IP66, IP67), DLC QUALIFIED, AND ROHS COMPLIANT. COMPLIES WITH LM79, LM80 AND TM21 TESTING STANDARDS. UL 924 WHEN EQUIPPED WITH EMERGENCY BATTERY BACK-UP. UL 844 WHEN IDENTIFIED FOR INSTALLATION IN HAZARDOUS AREA.

6. MOUNTING - SURFACE-MOUNTED OR SUSPENDED FROM CEILING.

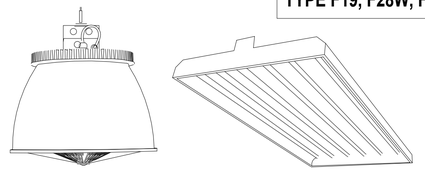
7. OPTIONS - POWER CORD, INTEGRAL MOTION SENSOR, EMERGENCY BACK-UP.

8. THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LED ENCLOSED AND GASKETED

REVISED: APRIL 2016 | LIGHTING PLATE: NL-11

TYPE F19, F28W, F38



LUMINAIRE REQUIREMENTS:
1. DRIVER HOUSING - CODE GAUGE COLD-ROLLED STEEL MOUNTING BOX WITH DIE CAST ALUMINUM HEAT SINK. AVAILABLE MOUNTING FOR HOOK AND CORD (WITH SPRING LOCK HOOK AND POWER CORD) OR DIRECT CONDUIT PENDANT ATTACHMENT.

2. FINISH - MULTI-STAGE PHOSPHATE BONDING TREATMENT FINISHED WITH HIGH-REFLECTANCE, BAKED WHITE ENAMEL.

3. REFLECTOR - SPECULAR ANODIZED ALUMINUM OR CLEAR OR WHITE ACRYLIC. BOTTOM LENS OPTIONAL FOR ACRYLIC REFLECTOR TYPES.

4. LIGHT SOURCE - LED BOARD OR ARRAY WITH MINIMUM 50K HOURS RATED LIFE AT L70. COLOR TEMPERATURE, EFFICACY, COLOR RENDERING INDEX, MAXIMUM INPUT POWER, AND MINIMUM INITIAL LUMEN OUTPUT AS INDICATED IN LUMINAIRE SCHEDULE. MAXIMUM BINNING TOLERANCE OF A 4-STEP MCADAM ELLIPSE.

5. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, < 20% TOTAL HARMONIC DISTORTION. ON-OFF CONTROL; STEP-DIMMABLE OR FULLY DIMMABLE AS INDICATED.

6. CERTIFICATION - UL 1598, DAMP LOCATION, DLC QUALIFIED, AND ROHS COMPLIANT. COMPLIES WITH LM79, LM80 AND TM21 TESTING STANDARDS. UL 924 WHEN EQUIPPED WITH EMERGENCY BATTERY BACK-UP.

7. MOUNTING - PENDANT FROM STRUCTURAL CEILING.

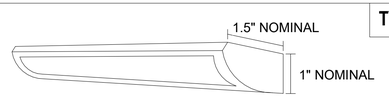
8. OPTIONS - REFLECTOR DISTRIBUTION TYPES, EMERGENCY BATTERY BACK-UP, TWIST-LOCK PLUG ON HOOK AND CORD MODELS, SAFETY CABLE OR CHAIN, WHITE OR SPECULAR REFLECTOR, ACRYLIC LENS, BAFFLES OR SLOTS LOUVERS, MULTIPLE DRIVERS, WIRE GUARD, INTEGRAL PHOTOCELL AND/OR MOTION SENSOR, SINGLE PENDANT OR AIRCRAFT CABLE MOUNTING.

9. SKETCHES ARE NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

LED HIGH BAY INDUSTRIAL

REVISED: APRIL 2016 | LIGHTING PLATE: NL-21

TYPE G8



LUMINAIRE REQUIREMENTS:
1. HOUSING - EXTRUDED ALUMINUM HOUSING WITH DIE CAST ALUMINUM OR MOLDED POLYCARBONATE ENDCAPS.

2. FINISH - WHITE POWDER COAT WITH MULTI-STAGE PHOSPHATE PREPARED METAL.

3. LAMPS - HIGH EFFICACY (MINIMUM 40 LUMEN PER WATT) HIGH BRIGHTNESS LED'S WITH 110x110 BEAM ANGLE AND 4100k COLOR TEMPERATURE; LED SOURCE WARRANTED FOR 50,000 HOURS LIFE WITH 70% OF INITIAL LUMENS; MINIMUM TWO LED'S PER FOOT.

4. SHIELDING - CLEAR FROSTED EXTRUDED POLYCARBONATE.

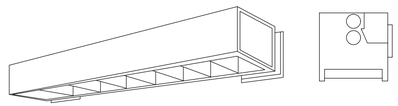
5. CERTIFICATION - UL LISTED AND LABELED FOR DAMP LOCATION.

6. OPTIONS - INTEGRATED DRIVER SYSTEM FOR HARDWIRE CONNECTION TO LINE VOLTAGE; CLAIFORNIA TITLE 24 COMPLIANT.

LOW-PROFILE LED TASK LIGHT FIXTURE

REVISED: AUGUST 2004 | LIGHTING PLATE:

TYPE G22



LUMINAIRE REQUIREMENTS:
1. HOUSING - ALUMINUM EXTRUDED HOUSING OR STEEL HOUSING WRAPPED AROUND MULTIPLE ALUMINUM EXTRUSIONS; DIE CAST ENDCAPS; DIE CAST ALUMINUM MOUNTING BRACKETS; ALL FASTENERS CONCEALED

2. FINISH - WHITE POWDER COAT WITH MULTI-STAGE PHOSPHATE PREPARED METAL

3. REFLECTORS: HIGH REFLECTANCE GLOSS WHITE

4. SHIELDING - WHITE STRAIGHT BLADE CROSS BAFFLES

5. OPTIONS: 30%-70% DIRECT-INDIRECT DISTRIBUTION OPTICS; CURVED SHELF-STYLE ENDCAPS; PAINTED AFTER FABRICATION

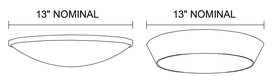
6. CERTIFICATION - UL LISTED AND LABELED FOR DAMP LOCATION.

7. DIMENSIONS: 6"x48"x6" (HxLxD)

BAFFLED DIRECT-INDIRECT WALL-MOUNTED LED FIXTURE

REVISED: AUGUST 2004 | LIGHTING PLATE:

TYPE R1



LUMINAIRE REQUIREMENTS:
1. HOUSING - STEEL OR ALUMINUM FRAME WITH ALUMINUM/METALLIC FINISH. PROVIDE PROTECTIVE GASKETING.

2. BOTTOM LENS/BOWL - FULL FACE, TRANSLUCENT ACRYLIC OR POLYCARBONATE. NO FINIAL OR OTHER ORNAMENTAL ATTACHMENT.

3. LIGHT SOURCE - SOLID STATE LEDS WITH MINIMUM 50K HOURS RATED LIFE AT L70 AND MAXIMUM 4-STEP MCADAM ELLIPSE BINNING TOLERANCE FOR COLOR CONSISTENCY. INITIAL LUMEN OUTPUT, MAXIMUM POWER INPUT, CCT, AND MINIMUM CRI AS INDICATED IN LUMINAIRE SCHEDULE.

4. DRIVER - REPLACEABLE, INTEGRAL, HIGH-EFFICIENCY DRIVER WITH MINIMUM 0.9 PF, OPERATING VOLTAGE OF 120-277V, THERMAL MANAGEMENT, <20% THD. ON-OFF CONTROL OR FULLY DIMMABLE AS INDICATED.

5. CERTIFICATION - UL 1598, DAMP LOCATION, DLC QUALIFIED, AND ROHS COMPLIANT. COMPLIES WITH LM79, LM80, AND TM-21 TESTING STANDARDS. UL 924 WHEN EQUIPPED WITH EMERGENCY BATTERY BACK-UP.

6. MOUNTING - SURFACE MOUNTED FROM HARD OR ACOUSTICAL TILE CEILING.

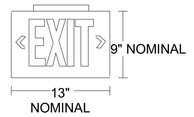
7. OPTIONS - VARIOUS BOWL MATERIALS, TEXTURES, AND FINISHES, HARDWARE FINISHES, METAL MATERIALS, AND EMERGENCY BACK-UP.

8. THIS SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS. IT IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER OR PREFERENCE.

SURFACE-MOUNT RESIDENTIAL LED

REVISED: APRIL 2016 | LIGHTING PLATE: NL-15 / NL-16

TYPE XW1



LUMINAIRE REQUIREMENTS:
1. HOUSING - DIE-CAST ALUMINUM OR HIGH-IMPACT, UV-STABILIZED, INJECTION-MOLDED THERMOPLASTIC. SINGLE OR DOUBLE-FACED AS INDICATED.

2. FINISH (ON CAST ALUMINUM HOUSING ONLY) - TEXTURED POWDER COAT FINISH OPTIONS INCLUDE WHITE, WHITE WITH BRUSHED ALUMINUM FACE, BLACK, OR BLACK WITH BRUSHED ALUMINUM FACE.

3. LETTERS/CHEVRONS - MINIMUM 6" HIGH WITH 3/4" STROKE. RED OR GREEN LETTERS AS INDICATED. PROVIDE CHEVRONS AS INDICATED EITHER LEFT, RIGHT OR BOTH DIRECTIONS AS INDICATED. CHEVRONS PUNCHED OUT THROUGH HOUSING AS REQUIRED.

4. EMERGENCY PACK - SOLID-STATE, CONSTANT-CURRENT TYPE BATTERY CHARGER WITH MAINTENANCE-FREE, NICKEL-CADMIUM BATTERY, AC-ON INDICATOR LAMP AND TEST SWITCH.

5. MOUNTING - UNIVERSAL MOUNTING KIT FOR CEILING, WALL OR END-OF-FIXTURE MOUNTING.

6. ILLUMINATION - PROVIDED BY RED HIGH-OUTPUT LEDS INSIDE OF FIXTURE HOUSING. PROVIDE POLYSTYRENE DIFFUSER IN COLOR INDICATED WITH FREQUENCY-MATCHED SILKSCREEN COATING FOR MAXIMUM LED LIGHT OUTPUT.

7. CERTIFICATION - UL LISTED AND CERTIFIED FOR DAMP LOCATIONS.

LED EXIT SIGN

REVISED: AUGUST 2004 | LIGHTING PLATE: NL-63

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

DESIGNED BY: K. PAVLIK	ISSUE DATE: 01/20/2023
DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. CHAMBERLAIN	CONTRACT NO.:
SUBMITTED BY: LJOSDAL P.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCOR-FSTNLMEPFS2.vt

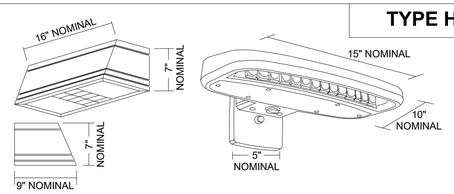
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (FY23)

LUMINAIRE DETAILS PAGE 1

SHEET ID

EL601

TYPE H47



LUMINAIRE REQUIREMENTS:
1. HOUSING - ONE-PIECE, DIE-CAST ALUMINUM WITH DIE-CAST ALUMINUM DOOR THAT IS FULLY GASKETED WITH ONE-PIECE TUBULAR SILICONE.

2. FINISH - TGIC POLYESTER THERMOSET POWDER COAT FINISH WITH BAKED-ON POLYESTER DARK BRONZE COLORED POWDER COAT. FADE, WEATHERING, CORROSION, AND ABRASION RESISTANT.

3. OPTICS SHALL PRODUCE IESNA CLASSIFIED CUTOFF OR FULL CUTOFF DISTRIBUTION WITH TYPE IV DISTRIBUTION.

4. DRIVER - HIGH POWER FACTOR CORRECTION MEETING UL 1310 UL48 CLASS 2 OR CLASS 1 WITH BUILT-IN SURGE PROTECTION. ELECTRONIC DRIVER HAS A POWER FACTOR ≥90%.

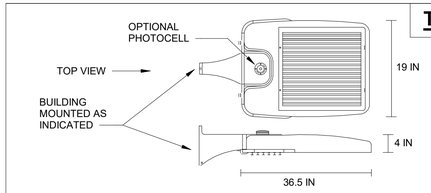
5. LAMPS - LED WITH WATTAGES AS INDICATED MOUNTED TO METAL CORE CIRCUIT BOARD AND ALUMINUM HEAT SINKS. SEE LIGHTING FIXTURE SCHEDULE.

6. CERTIFICATION - UL LISTED AND LABELED FOR WET LOCATIONS. IP66 RATED.

EXTERIOR WALL-MOUNTED LED DOWNLIGHT

REVISED: AUGUST 2004 | LIGHTING PLATE:

TYPE H70



LUMINAIRE REQUIREMENTS:
1. HOUSING - DIE-CAST ALUMINUM OR DIE-CAST AND EXTRUDED ALUMINUM WITH INTEGRAL, SELF-CLEANING HEAT SINK FINS, RIBS, OR EQUIVALENT PASSIVE COOLING MECHANISM. HEAT SINK SHALL BE INCORPORATED DIRECTLY INTO HOUSING TO ENSURE MAXIMUM HEAT TRANSFER AND DISSIPATION.

2. FINISH - MULTI-STAGE PRE-TREATMENT, FINISHED WITH BAKED-ON POLYESTER POWDER COAT. FINISH SHALL PASS 2500 HOUR SALT SPRAY TEST PER ASTM B117. FINISH COLORS INCLUDE DARK BRONZE, SILVER, OR BLACK WITH CUSTOM COLORS AVAILABLE.

3. POWER SUPPLY/LED DRIVER - PROVIDE IN SEPARATE COMPARTMENT ACCESSIBLE WITHOUT THE USE OF HAND TOOLS. CLASS 1 DRIVER SHALL OPERATE AT 120/277V, 50/60 HZ; OTHER VOLTAGES OPTIONAL. POWER FACTOR GREATER THAN 0.9 AND THD LESS THAN 20% AT FULL LOAD. MINIMUM EFFICACY SHALL BE 60 LM/W AT MAXIMUM 600 mA OPERATING CURRENT.

4. LED OPTICAL ASSEMBLY - NUMBER OF LED ARRAYS SHALL VARY TO ACCOMMODATE DESIRED LUMINAIRE OUTPUT. PROVIDE WITH EQUIVALENT NEMA TYPE III, IV OR V DISTRIBUTION AS INDICATED. BUG UPLIGHT RATING OF U0, WITH BACKLIGHT AND GLARE RATINGS AS DETERMINED BY LIGHTING ZONE INSTALLED. MINIMUM COLOR RENDERING INDEX (CRI) SHALL BE 70 FOR CORRELATED COLOR TEMPERATURE (CCT) OF 4000 K TO 4500 DEGREES K.

5. SURGE PROTECTION - 6 kV MINIMUM UON, COMPLIANT WITH ANSI C62.41.2.

6. CERTIFICATION - UL AND/OR ETL LISTED, MINIMUM IP65 RATED PER ANSI/IEC 60529, AND RoHS COMPLIANT.

7. OPTIONS - PHOTOCELL AND RECEPTACLE, SHORTING CAP, BIRD SPIKES, AND 0-10 VOLT DIMMING DRIVER. SEE LIGHTING FIXTURE SCHEDULE.

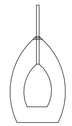
8. OTHER - THE ABOVE SKETCH IS A NON-PROPRIETARY GRAPHIC REPRESENTATION OF A LUMINAIRE THAT MAY MEET THE SPECIFICATION REQUIREMENTS AND IS NOT INTENDED TO INDICATE A CERTAIN MANUFACTURER'S PREFERENCE. ALL DIMENSIONS ARE NOMINAL AND VARY PER MANUFACTURER.

9. POLES - CONTRACTOR SHALL PROVIDE VIBRATION DAMPENERS IN ALL SITE FIXTURE POLES.

LED AREA LUMINAIRE

REVISED: MARCH 2013 | LUMINAIRE PLATE: XL-03

TYPE P2



LUMINAIRE REQUIREMENTS:
1. HOUSING - DECORATIVE TEARDROP CANOPY AMBER IN COLOR. BASIS OF DESIGN FIXTURE P1.28.1 JUNO LIGHTING.

2. FINISH - SATIN NICKEL FINISH

3. LAMPS - 120V, 50W G9 FROSTED HALOGEN LAMP

4. MOUNTING: SUSPENSION CABLE

LOW-VOLTAGE PENDENT-MOUNTED DIRECT HALOGEN

REVISED: | LIGHTING PLATE:

US Army Corps of Engineers ®

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LUMINAIRE DETAILS PAGE 2

SHEET ID

EL602

SUPPLEMENTAL POWER LEGEND

DUPLEX/QUAD 20A RECEPTACLE. MH = 18", UON. RECEPTACLES IN APPARATUS BAY SHALL BE MOUNTED AT 36", UON. SUBSCRIPTS ADJACENT TO RECEPTACLES SHALL DENOTE THE FOLLOWING:

"WC" — DENOTES ELECTRIC WATER COOLER (WC). COORDINATE RECEPTACLE MOUNTING HEIGHT/LOCATION WITH EWC INSTALLER. PROVIDE GFCI CIRCUIT BREAKERS FOR CIRCUITS SERVING EWC RECEPTACLES.

"GFCI" — DENOTES GROUND FAULT CIRCUIT INTERRUPTER (GFCI).

"TV" — DENOTES FOR TELEVISION. COORDINATE MOUNTING WITH TV OUTLET LOCATION.

"WP" — DENOTES UL LISTED FOR WET LOCATION & WHILE-IN-USE COVER. WEATHER PROOF RECEPTACLES SHALL ALSO BE GFCI RECEPTACLES.

"1/2 USB" — DENOTES 1 PLUG RECEPTACLE AND 2 USB PORT OUTLET

"USB" — DENOTES 4 USB PORT OUTLET

DENOTES RECEPTACLE WITH OCCUPANCY SENSOR CONTROL

SPECIAL PURPOSE RECEPTACLE.

JUNCTION BOX, CEILING MOUNTED.

JUNCTION BOX, WALL MOUNTED. MH = 1'-6", UON.

JUNCTION BOX, RECESSED FLOOR MOUNTED.

BLANK FACE GFCI MODULE

30/3/NF/1 — MOTOR DISCONNECT/SAFETY SWITCH. DISCONNECTS SHALL BE RATED "30/3/NF/1" WHERE LOCATED INDOORS AND "30/3/NF/3R" WHERE LOCATED OUTDOORS, UOI.
- DENOTES THE AMPERE RATING.
- DENOTES THE NUMBER OF POLES.
- DENOTES NON-FUSED ("F" DENOTES FUSED; FUSE RATINGS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS).
- DENOTES THE ENCLOSURE'S NEMA RATING.

MOTOR STARTER.

OVERHEAD DOOR CONTROL STATION WITH OPEN, CLOSE, AND STOP PUSH BUTTONS. MH = 48", UON.

m_{TO} — MOTOR RATED TOGGLE SWITCH.

(#) KEYED NOTES - EP100 THROUGH EP400 SERIES SHEETS

1	APPARATUS BAY DOOR CONTROLLER.
2	ALL OUTLETS IN DORMS, INCLUDING LIGHTING, SHALL BE ARC FAULT CIRCUIT INTERRUPTOR OUTLETS.
3	DEDICATED OUTLET FOR USE WITH WESTNET EQUIPMENT POWER HOOKUPS
4	SPACE CONTAINS RECEPTACLES CONTROLLED BY AUTOMATIC MEANS. SEE SPECIFICATION SECTION 26 20 00 AND SHEET EP503 FOR ADDITIONAL AUTOMATIC RECEPTACLE CONTROL INFORMATION AND SHEET EL501 FOR WIRING DIAGRAM EXAMPLES ACROSS MULTIPLE POWER PACKS/CIRCUITS. OCCUPANCY SENSORS MAY BE SHARED ACROSS SYSTEMS (LIGHTING CONTROL AND RECEPTACLE CONTROL) IF COMPATIBLE WITH RESPECTIVE SYSTEM POWER PACKS.
5	TO OTHER UNIT OF SPLIT SYSTEM.
6	FROM LOCAL PLAN NORTH, TO PLAN SOUTH, CONTROLLERS SHALL CONTROL FD 22.1, FD 22.2, FD 22.3 AND FD 22.4 RESPECTIVELY.
7	FROM LOCAL PLAN NORTH, TO PLAN SOUTH, CONTROLLERS SHALL CONTROL FD 22.7, FD 22.6, AND FD 22.5 RESPECTIVELY.
8	RELAY(S)/INTERFACE WITH DDC PANEL IN 20 MECH ROOM TO REPORT GENERATOR STATUS.

GENERAL NOTES - EP100 THROUGH EP400 SERIES SHEETS

1	UNDERGROUND CONDUITS CROSSING FOUNDATIONS SHALL BE BURIED AT A DEPTH SUCH THAT CONDUITS ARE LOCATED MINIMUM 12" BELOW THE FOUNDATIONS. REFERENCE S-300 SERIES DRAWINGS FOR FOUNDATION DIMENSIONS.
2	WHERE CONNECTIONS ARE SHOWN FOR CONTRACTOR-INSTALLED EQUIPMENT, COORDINATE THE EXACT LOCATION OF THE CONNECTION WITH THE INSTALLED EQUIPMENT LOCATION.
3	PROVIDE NAMEPLATES ON THE EXTERIOR OF ALL ELECTRICAL PANELS AND ENCLOSURES AS FOLLOWS: DEVICE ID, DEVICE RATING, AND POWER SOURCE. PROVIDE LABEL INDICATING "ARC FLASH HAZARD". PROVIDE ARC FAULT DATA FOR OFFUTT 55CES. DO NOT LABEL ENCLOSURES WITH ARC FAULT DATA.
4	MINIMUM SIZE CONDUIT SHALL BE 3/4" FOR ELECTRICAL CIRCUITS AND 1" CONDUITS FOR TELECOMMUNICATIONS CIRCUITS.
5	MINIMUM SIZE POWER CONDUCTORS TO BE USED SHALL BE #12 AWG UNLESS OTHERWISE NOTED. RECEPTACLE CIRCUITS SHALL BE 2-#12,#12G MINIMUM.
6	METAL CLAD (MC) CABLE SHALL NOT BE USED.
7	MOUNTING HEIGHTS SHALL BE AS SHOWN IN EP501 UNLESS OTHERWISE NOTED.
8	MOUNT OUTLET BOXES SUCH THAT NONE OCCUR RECESSED BACK TO BACK IN WALLS.
9	EQUIPMENT BY OTHER DISCIPLINES IS SHOWN IN APPROXIMATE LOCATIONS. FOR EXACT LOCATIONS OF EQUIPMENT, PIPING, ETC., SEE RESPECTIVE DISCIPLINE DRAWINGS. PROVIDE DISCONNECT SWITCHES AS REQUIRED BY THE NATIONAL ELECTRICAL CODE EVEN IF NOT INDICATED ON THE ELECTRICAL DRAWINGS. DISCONNECTS ARE SHOWN AT OR ON A WALL NEAR ANTICIPATED EQUIPMENT LOCATION. LOCATE DISCONNECTS IN ACCORDANCE WITH NFPA 70. PROVIDE LOCKABLE DISCONNECT WHERE DICTATED PER NFPA 70 ARTICLE 430.102 AND 440.14 FOR REMOTE LOCATIONS.
10	COMBINATION DISCONNECT SWITCHES AND MOTOR STARTERS MAY BE PROVIDED IN LIEU OF PROVIDING SEPARATE DEVICES.
11	CONDUCTOR SIZES ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN-2 INSULATION WITH 75°C AMPACITIES, EXCEPT 60°C AMPACITIES IS USED FOR #1 AND SMALLER, IN EMT CONDUIT UON. INSIDE EMT. CIRCUIT BREAKERS, TERMINALS, ETC., SHALL BE RATED AND MARKED FOR 75 DEGREES MINIMUM, UON. THE CONTRACTOR SHALL ADJUST CONDUIT SIZES BASED ON ACTUAL TYPE OF CONDUCTORS AND CONDUIT INSTALLED.
12	WHERE CIRCUIT NUMBERS ARE SHOWN ADJACENT TO ELECTRICAL DEVICES, WIRING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND/OR REQUIREMENTS.
13	ALL WIRING SHALL BE CONCEALED UNLESS EXPLICITLY INDICATED OTHERWISE. CONDUITS SHALL NOT BE RUN IN ANY UL RATED SLAB. JUNCTION BOXES, DEVICES, BACKBOXES, AND ASSOCIATED CONDUIT LOCATED ON PRECAST, CONCRETE, CONCRETE BLOCK WALLS, AND STEEL MEMBERS SHALL BE SURFACE MOUNTED. JUNCTION BOXES, DEVICES, BACKBOXES, AND ASSOCIATED CONDUIT SHALL BE RECESS MOUNTED ON GYPSUM WALLS. COORDINATE WITH ARCHITECTURAL SHEETS.
14	UNLESS OTHERWISE NOTED, EMT CONDUIT SHALL BE INSTALLED IN EXPOSED DRY AREAS. CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH THE SPECIFICATIONS. EXPOSED OUTLET BOXES SHALL BE CAST METAL WITH THREADED FITTINGS AND COVERS THAT FIT FLUSH WITH THE EDGES OF THE OUTLET BOXES.
15	REVISE PANELBOARD SCHEDULES ON AS-BUILT DRAWING AND PANEL DIRECTORIES TO REFLECT FINAL INSTALLATION CONDITIONS.
16	SEAL PENETRATIONS THROUGH FLOORS OR FIRE WALLS TO MAINTAIN THE INTEGRITY OF THE FIRE AND ACOUSTIC RATINGS OF THE WALLS AND FLOORS.
17	COMPONENTS WHICH CONSTITUTE AN ELECTRICAL SYSTEM SHALL BE FULLY COMPATIBLE WITH ONE ANOTHER AND SHALL BE APPROVED BY THE VARIOUS MANUFACTURERS FOR USE WITH ALL OTHER COMPONENTS WITHIN THE SYSTEM. (ONE EXAMPLE OF AN ELECTRICAL SYSTEM IS THE BUILDING LIGHTING SYSTEM COMPRISED OF FIXTURES, LAMPS, SWITCHES, OCCUPANCY SENSORS, AND DIMMING EQUIPMENT).
18	LOCATE ALL RACEWAYS TO AVOID INTERFERENCE WITH DUCTS, PIPES, MECHANICAL EQUIPMENT, DOORS (INCLUDING OVERHEAD COILING DOORS), WITH REMOVAL OF CEILING TILES, OR WITH ACCESS TO EQUIPMENT WHICH REQUIRES PERIODIC ADJUSTMENT OR MAINTENANCE.
19	FOR DISCONNECT SWITCH AND MOTOR STARTER LABELS, THE TOP LINE SHALL BE THE NAME/DESIGNATION OF THE EQUIPMENT BEING FED BY THE SWITCH/STARTER AND THE SECOND LINE SHALL BE THE SUPPLYING PANEL AND CIRCUIT NUMBER(S).
20	PROVIDE SEPARATE NEUTRALS FOR EACH CIRCUIT UTILIZING A NEUTRAL CONDUCTOR (DO NOT COMBINE NEUTRALS).
21	THE SHORT CIRCUIT RATING OF THE PANELBOARDS AND ELECTRICAL EQUIPMENT SHALL BE INCREASED TO THE NEXT AVAILABLE RATING WHERE THERE IS NOT A RATING THAT IS EQUAL TO THE EQUIPMENTS LISTED SHORT CIRCUIT RATING.
22	PROVIDE GROUNDING CONDUCTORS IN ALL CONDUITS. ALL RACEWAYS SHALL HAVE A SEPARATE EQUIPMENT GROUNDING/BONDING CONDUCTOR. RACEWAY SHALL NOT BE USE AS THE SOLE GROUNDING/BONDING PATH.
23	RACEWAYS CROSSING STRUCTURAL EXPANSION JOINTS OR SEISMIC JOINTS SHALL BE PROVIDED WITH SUITABLE EXPANSION FITTINGS OR OTHER SUITABLE MEANS TO COMPENSATE FOR THE BUILDING EXPANSION AND CONTRACTION AND TO PROVIDE FOR CONTINUITY OF GROUNDING.
24	RECEPTACLES WHICH HAVE GFI PROTECTION ARE TO BE WIRED SUCH THAT THE LOSS OF POWER ON ONE RECEPTACLE DOES NOT AFFECT DOWNSTREAM RECEPTACLES.
25	EACH PULL ROPE/STRING SHALL BE LABELED WITH A UNIQUE IDENTIFIER TAGGED ON EACH END. THE USER END OF THE PULL ROPE SHALL ALSO INDICATE THE SOURCE LOCATION AND VICE VERSA.
26	PENETRATION OPENINGS THROUGH AIR BARRIERS SHALL COMPLY WITH THE BUILDING AIR BARRIER REQUIREMENTS. CORRECT ALL PENETRATIONS WHICH ARE DETERMINED DEFICIENT DURING TESTING. SEE ARCHITECTURAL SHEETS FOR AIR BARRIER TESTING BOUNDARIES. SEE ARCHITECTURE FOR SEALING PENETRATIONS.
27	DO NOT PENETRATE STRUCTURAL COLUMNS, BEAMS, AND TRUSSES. ATTACH DEVICES AND RACEWAY WITH BEAM C-CLAMPS, BRACKETS, CLIPS, UNISTRUT, AND OTHER NON-PENETRATING AND NON-ADHESIVE HARDWARE.
28	CONDUIT AND CONDUCTOR SIZES LISTED ARE MINIMUM SIZES. CIRCUITS MAY BE COMBINED INTO COMMON CONDUIT. CONTRACTOR IS RESPONSIBLE FOR RESIZING CONDUITS PER NFPA 70 FILL RATIO AND CURRENT-CARRYING CONDUCTOR/TEMPERATURE DERATING REQUIREMENTS.
29	LINE VOLTAGE AND LOW VOLTAGE WIRING SHALL BE PROVIDED IN SEPARATE CONDUITS/RACEWAYS.
30	THE BUILDING CONTRACTOR SHALL COORDINATE WITH THE SYSTEMS FURNITURE INSTALLER (NIC) AND PROVIDE ALL POWER CONNECTIONS TO THE FURNITURE.
31	THE BUILDING CONTRACTOR SHALL COORDINATE ALL RECEPTACLES SERVING A DEDICATED PIECE OF EQUIPMENT (TELEVISIONS, PROJECTORS, PRINTERS, PODIUMS, ETC.) WITH THE EQUIPMENT INSTALLER.
32	COORDINATE THE LOCATION OF WORKBENCH RECEPTACLES WITH WORKBENCH OVERHEADS, GROUND BARS, AND TELECOMMUNICATIONS OUTLETS.
33	COORDINATE FINAL ELECTRICAL CONNECTIONS, CONDUCTORS, RACEWAY, CIRCUIT BREAKER, AND DISCONNECTING DEVICES AND SIZES WITH MANUFACTURER RECOMMENDATIONS FOR ACTUAL EQUIPMENT PROVIDED. THESE PROPERTIES HAVE BEEN COORDINATED FOR EQUIPMENT SHOWN BY OTHER DISCIPLINES INCLUDED IN THIS CONTRACT SET. THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING ELECTRICAL CONNECTIONS, PROTECTION, AND DISCONNECTING DEVICES FOR EQUIPMENT VARIATIONS DEVIATING FROM THESE PLANS.
34	ALL BURIED CABLES SHALL BE WET RATED IN ACCORDANCE WITH NFPA 70.
35	CIRCUIT SIZES SHALL BE AS INDICATED IN THE PANEL SCHEDULES, TRANSFORMER SCHEDULE(S), OR ONE-LINE DIAGRAM AS APPLICABLE FOR A GIVEN CIRCUIT. WHERE CONDUCTOR SIZE IS TOO LARGE FOR CIRCUIT BREAKER, LUGS, OR DEVICE TERMINALS. CONDUCTORS TO THE TERMINALS SHALL BE SPLICED TO REDUCED IN A SPLICING JUNCTION BOX FROM LISTED SIZE TO THE MAXIMUM PERMISSIBLE CONDUCTOR SIZE THE TERMINALS WILL ACCEPT (FOR EXAMPLE, PROVIDE 2-#10, #10G IN 3/4"C FROM SPLICING JUNCTION BOX TO 20A (OR SMALLER) 1-PHASE RECEPTACLES/DEVICES). THE AMOUNT OF REDUCED CONDUCTOR SIZE SHALL NOT EXCEED THE LENGTH OF THE CIRCUIT DEFINED BY THE NFPA 70 SECTION 310.15(A)(2) EXCEPTION (AS AN AGGREGATE LENGTH WHERE MULTIPLE REDUCTIONS ARE MADE) OF THE SERIES LENGTH OF THE CIRCUIT (PARALLEL TAPS MAY COUNT ONLY THE LONGEST SPLICE INSTANCE). WHERE MULTIPLE DEVICES ARE SUPPLIED FROM THE CIRCUIT, THE CONDUCTOR SIZES FROM SPLICING JUNCTION BOX TO SPLICING JUNCTION BOX SHALL BE THE SAME AS THE CONDUCTOR SIZES LISTED FOR THE HOME RUN. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF JUNCTION BOX USED FOR SPLICING.
36	COORDINATE DDC AND EMCS/JACE PANEL LOCATIONS AND CONNECTION TYPES WITH MECHANICAL EQUIPMENT CONTROLS MANUFACTURER AND SMALL DEVICE POWER REQUIREMENTS (SUCH AS 24VDC POWER TO VALVES, ACTUATORS, AND DAMPERS; SEE MECHANICAL). THE QUANTITY AND LOCATIONS HAVE BEEN APPROXIMATED ON THE PLANS. CONTRACTOR SHALL PROVIDE ELECTRICAL CIRCUITS AS REQUIRED IF CONTRACTOR CHANGES THE CONFIGURATION AT NO COST TO THE GOVERNMENT. CIRCUITS SHALL BE POWERED FROM THE NEAREST MECHANICAL EQUIPMENT PANEL (SLM#), EXCEPT THAT THE SOURCE FOR SUCH CIRCUITS SHALL BE FROM THE "SLFA" PANEL WITH AVAILABLE SPARE BREAKERS FOR DEVICES ANYWHERE IN FIRE SUPPRESSION EQUIPMENT ROOMS. EACH DDC AND JACE PANEL SHALL BE POWERED FROM A DEDICATED CIRCUIT. PROVIDE SPARE 20A CIRCUIT BREAKERS IF FEWER CIRCUITS ARE REQUIRED THAN SHOWN ON PLANS. CIRCUITS SHALL ACCOUNT FOR TYPE TW INSULATION AND 500VA FOR VOLTAGE DROP PURPOSES.
37	COORDINATE POWER RECEPTACLES WITH TELECOMMUNICATIONS OUTLETS (TN DRAWING SERIES). SPACING SHALL BE NO GREATER THAN 6" CENTER TO CENTER PER UFC 3-580-01.
38	THE CONDUCTOR SIZES OF MANY CIRCUITS HAVE BEEN INCREASED TO MITIGATE VOLTAGE DROP. WHERE SUCH SIZE INCREASES EXCEED THE MAXIMUM PERMITTED BY A GIVEN DEVICE TERMINATION, THE CONDUCTOR SIZE MAY BE REDUCED TO TERMINATE PROPERLY IN ACCORDANCE WITH MANUFACTURER REQUIREMENTS. WHERE SUCH CONDUCTOR SIZE REDUCTION IS REQUIRED, THE AGGREGATE LENGTH OF CONDUCTOR OVER THE COURSE OF THE ENTIRE CIRCUIT WHICH IS REDUCED BELOW THE MINIMUM SIZE STATED IN THE CONTRACT DOCUMENTS (OR AS ADJUSTED BY ACTUAL CONTRACTOR-FURNISHED EQUIPMENT) SHALL NOT EXCEED 10'-0". SPLICE KITS, JUNCTIONS, ETC., SHALL BE SELECTED TO ACCOMMODATE THE FULL WIRE SIZE AND A CONDUCTOR SIZE REDUCTION FOR SUCH AND SIMILAR DEVICES SHALL NOT BE PERMITTED.
39	NORMAL AND EMERGENCY CIRCUITS SHALL NOT SHARE RACEWAYS.
40	COORDINATE WITH MECHANICAL PLANS FOR VAV BOX POWER CONNECTION PLACEMENT.

US Army Corps of Engineers ®

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SUBMITTED BY:	J. CHAMBERLAIN, P.E.
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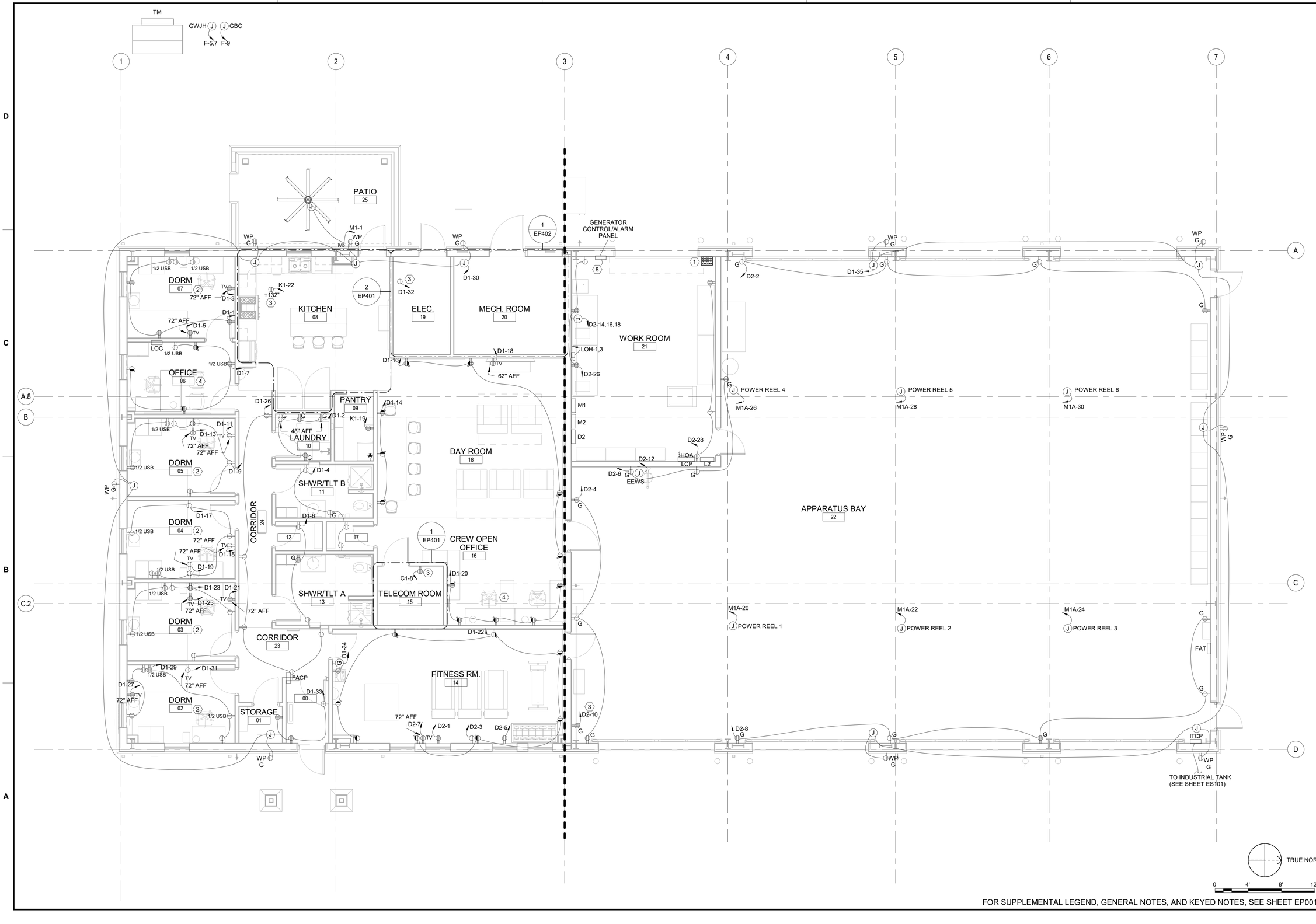
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

POWER LEGEND AND NOTES

SHEET ID

EP001



FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EP001.

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FIRE STATION SUPPORT FACILITY (GATE 6)
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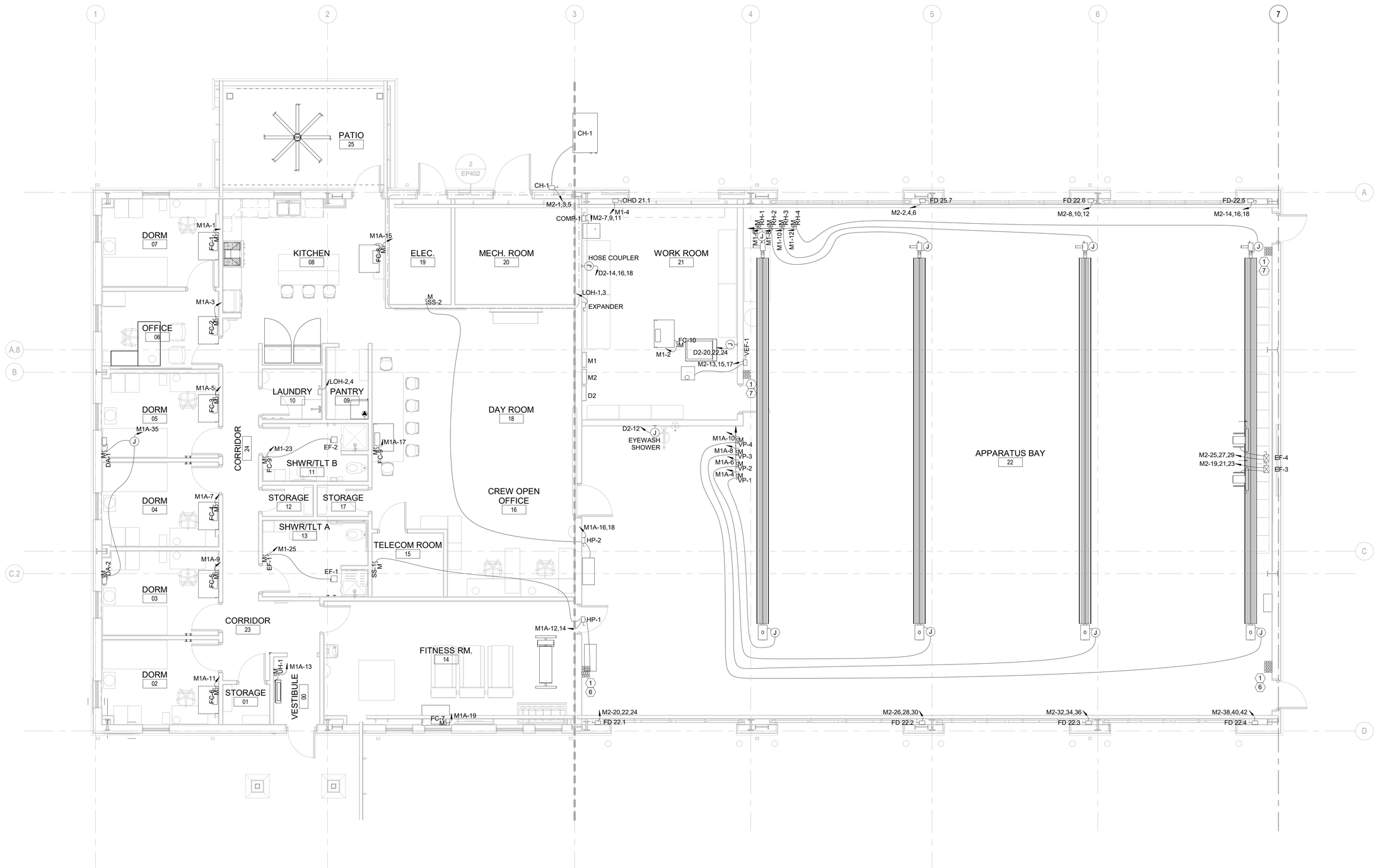
COMPOSITE POWER PLAN

SHEET ID

EP101



TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EP001.

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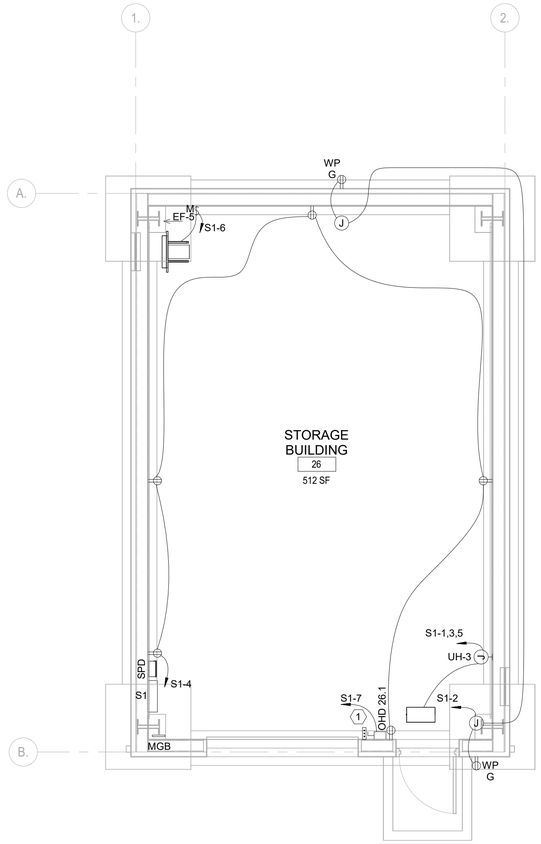
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

COMPOSITE MECH POWER PLAN

SHEET ID

EP102



1 EP103 COMPOSITE STORAGE POWER PLAN

1/4" = 1'-0"

PLAN NORTH

0 2' 4' 8'

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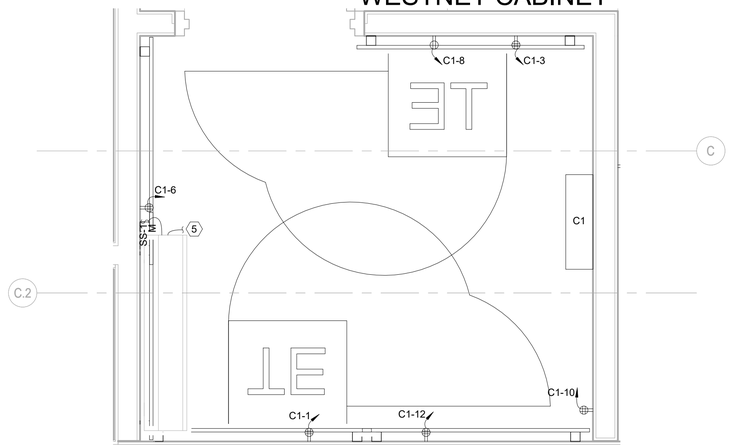
COMPOSITE STORAGE POWER PLAN

SHEET ID

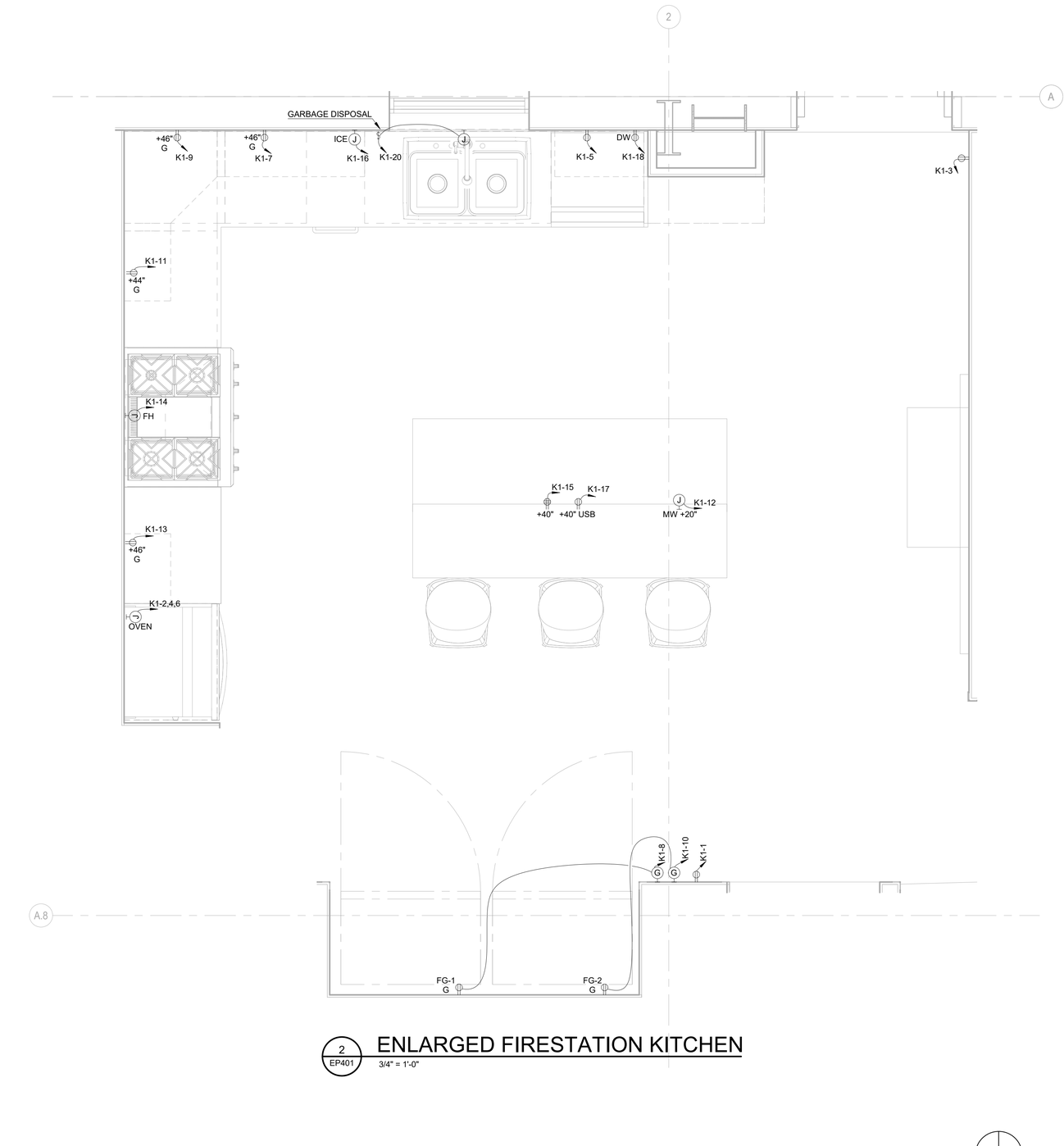
EP103



MAIN COMM CABINET

1 EP401 ENLARGED FIRESTATION COMM ROOM

3/4" = 1'-0"



2 EP401 ENLARGED FIRESTATION KITCHEN

3/4" = 1'-0"

TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EP001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK	ISSUE DATE: 01/20/2023
DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. CHAMBERLAIN	CONTRACT NO.:
SUBMITTED BY: LINDSEY P. E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCOR-FSTN-MEPFS2.rvt

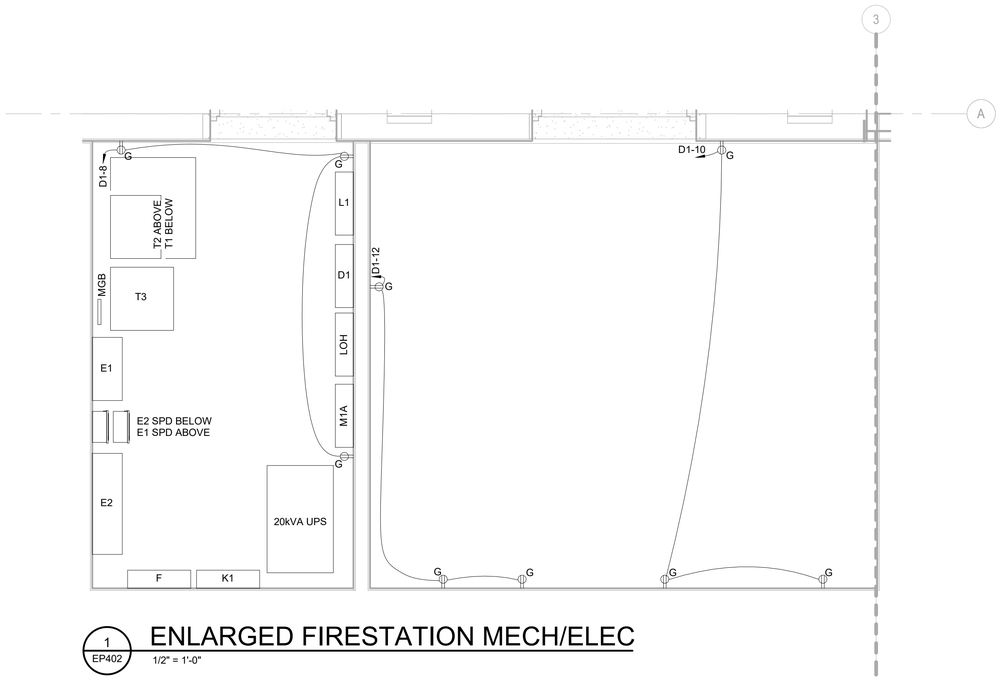
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

ENLARGED FLOOR PLANS

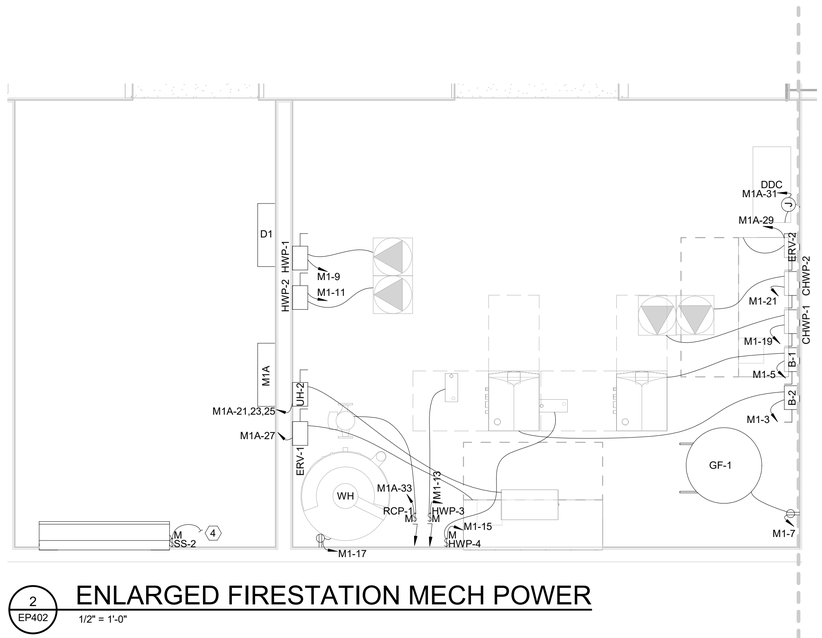
SHEET ID

EP401



1 EP402 ENLARGED FIRESTATION MECH/ELEC

1/2" = 1'-0"



2 EP402 ENLARGED FIRESTATION MECH POWER

1/2" = 1'-0"

TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EP001.

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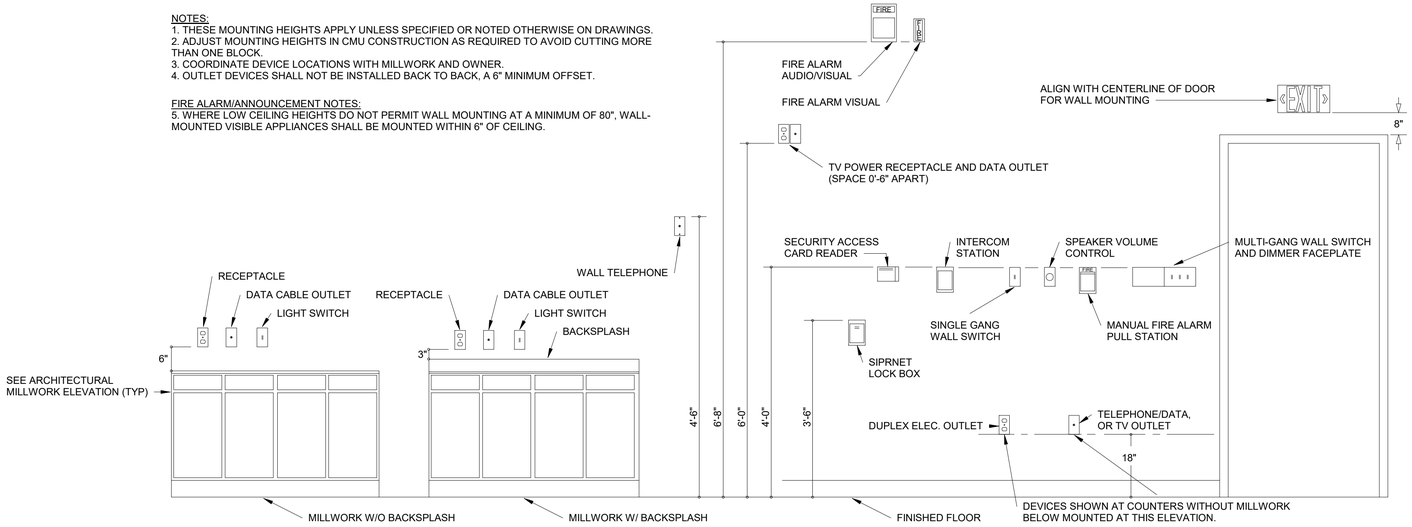
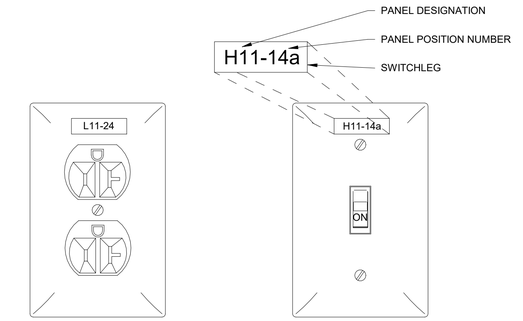
NOTES:
1. THESE MOUNTING HEIGHTS APPLY UNLESS SPECIFIED OR NOTED OTHERWISE ON DRAWINGS.
2. ADJUST MOUNTING HEIGHTS IN CMU CONSTRUCTION AS REQUIRED TO AVOID CUTTING MORE THAN ONE BLOCK.
3. COORDINATE DEVICE LOCATIONS WITH MILLWORK AND OWNER.
4. OUTLET DEVICES SHALL NOT BE INSTALLED BACK TO BACK, A 6" MINIMUM OFFSET.

FIRE ALARM/ANNOUNCEMENT NOTES:
5. WHERE LOW CEILING HEIGHTS DO NOT PERMIT WALL MOUNTING AT A MINIMUM OF 80", WALL-MOUNTED VISIBLE APPLIANCES SHALL BE MOUNTED WITHIN 6" OF CEILING.



1 EP501 DEVICE MOUNTING HEIGHTS
N.T.S.



ELECTRICAL RECEPTACLE

LIGHT SWITCH

COVER LABELS
ALL COVERS SHALL BE PROVIDE WITH AN IDENTIFIER. THE POWER DEVICE COVER LABELING MUST BE DONE IAW THE FOLLOWING GUIDELINES:

1. RECEPTACLES AND SWITCHES SHALL BE IDENTIFIED WITH THE PANEL AND POSITION OF THE CIRCUIT BREAKER USED TO SHUT OFF POWER TO THE DEVICE.

2. OUTLET BOXES USED FOR CIRCUIT EXTENSION TO SYSTEMS FURNITURE SHALL HAVE ALL CIRCUITS WITHIN THE BOX LISTED ON THE COVER.

3. SWITCHES, OCCUPANCY SENSORS, AND DAYLIGHTING CONTROLS, IN COMMON SPACES HAVING DEVICES ON DIFFERENT SWITCHLEGS, INCLUDE THE SWITCHLEG DESIGNATION.

4. WHERE ITEM 3 APPLIES: OCCUPANCY SENSORS AND DAYLIGHTING CONTROL DEVICES SHALL HAVE A LABEL PLACED ON THE ADJACENT CEILING OR ON THE EXPOSED BOX WHEN NOT PLACED IN A CEILING.

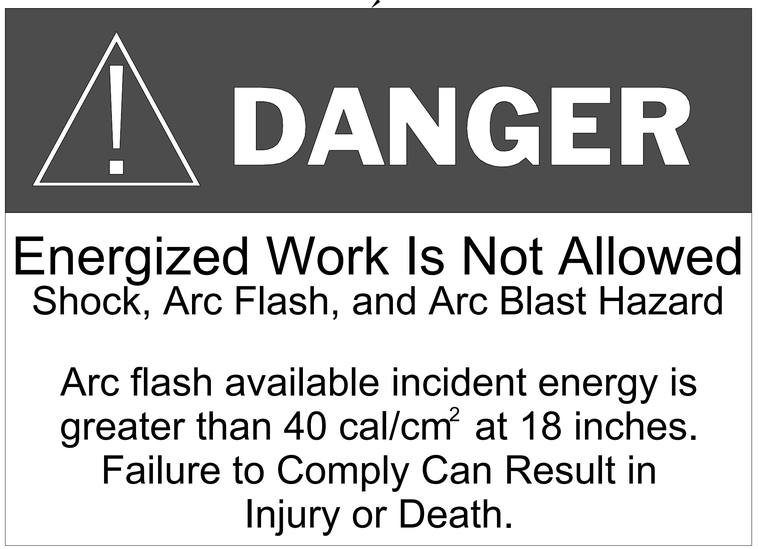
5. WHERE A DEVICE/RECEPTACLE IS PROTECTED BY A GFCI OR AFCI CIRCUIT BREAKER, PROVIDE LABEL INDICATING SUCH AT THE FACEPLATE.

6. WHERE RECEPTACLES ARE MOUNTED WITH THE YOKES VERTICAL, THE GROUND SHALL BE UP.

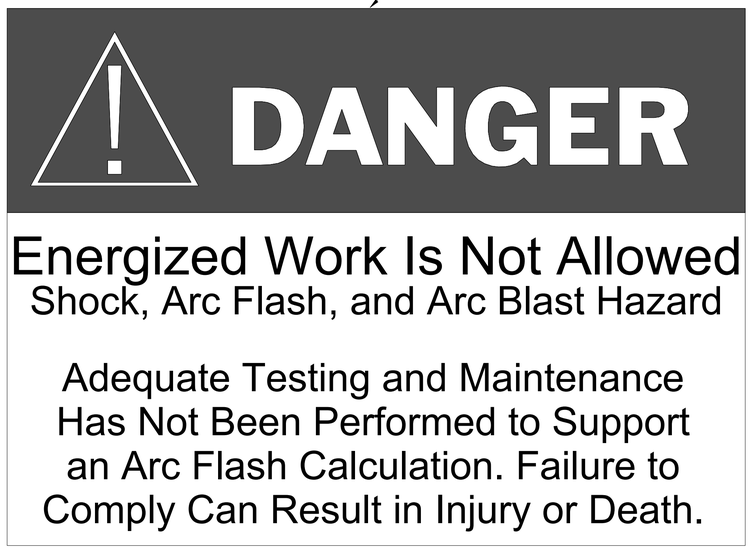
7. WHERE RECEPTACLES ARE MOUNTED WITH THE YOKES HORIZONTAL, THE NEUTRAL SHALL BE UP.

2 EP501 DEVICE AND OUTLET LABELS
N.T.S.

RED BACKGROUND



RED BACKGROUND



LABEL 1 NOTES:
THE ABOVE LABEL IS TO BE PROVIDED AT LOCATIONS WHERE THE ARC FLASH CALCULATIONS INDICATE AN AVAILABLE ARC FLASH IS GREATER THAN 40 cal/cm^2.

LABEL 2 NOTES:
THE ABOVE LABEL IS TO BE PROVIDED AT LOCATIONS WHERE THE ARC FLASH CALCULATIONS INDICATE AN AVAILABLE ARC FLASH IS LESS THAN OR EQUAL TO 40 cal/cm^2.

GENERAL NOTES:
1. CONTRACTOR SHALL PLACE ARC FLASH LABEL ON ALL TRANSFORMERS, PANELBOARDS, SWITCHBOARDS, DISCONNECT SWITCHES, AND METER SOCKET ENCLOSURES. PROVIDE SELF-ADHESIVE VINYL LABEL TO AFFIX TO ELECTRICAL EQUIPMENT. THE LABEL AND TEXT SHALL BE IN ACCORDANCE WITH THE FIGURE. THE LABEL SHALL BE LOCATED ON THE EQUIPMENT TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT. THE MINIMUM SIZE OF THE LABELS SHALL BE 4"Hx6"W.
2. CONTRACTOR SHALL PLACE AN ADDITIONAL SEPARATE LABEL INDICATING "CONTACT MINOT AFB BCE FOR PPE REQUIREMENTS (###-####-####)." LABEL SHALL BE ADJACENT TO ARC FLASH LABEL. COORDINATE TELEPHONE NUMBER WITH COR.
3. CONTRACTOR IS RESPONSIBLE FOR PERFORMING THE ARC FLASH STUDY PER SECTION 26 28 01.00 10.

3 EP501 ARC FLASH LABEL
N.T.S.

US Army Corps of Engineers ®

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SUBMITTED BY:	J. CHAMBERLAIN, P.E.
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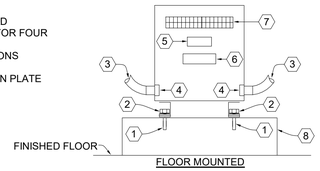
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101464 (FY23)

ELECTRICAL DETAILS

SHEET ID
EP501

(#) DETAIL KEYED NOTES:
1. 3/4"X 1-1/2" BOLT TO FRAME/PAD
2. VIBRATION ISOLATORS - TYP. FOR FOUR
3. FLEXIBLE CONNECTION
4. GROUND BUSSING TERMINATIONS
5. NAMEPLATE
6. TRANSFORMER IDENTIFICATION PLATE
7. VENTED COVER
8. EQUIPMENT PAD



INSTALLATION NOTES:
1. SIZE ALL SUPPORTS, ANCHOR SYSTEMS, BOLTS, ETC., AS REQUIRED FOR A SECURE INSTALLATION IN ACCORDANCE WITH THE SPECIFICATIONS.

DRY-TYPE TRANSFORMER NOTES:
1. DRY-TYPE TRANSFORMERS SHALL CONSIST OF BUT NOT BE LIMITED TO THE FOLLOWING:
   a. VENTILATED ENCLOSURE
   b. PRIMARY SECTION
   c. SECONDARY SECTION

2. INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE NFPA 70 (NATIONAL ELECTRICAL CODE) AND THE NATIONAL ELECTRICAL SAFETY CODE (NESC).

3. ALL CONDUCTIVE PARTS OF EQUIPMENT, ENCLOSURES, FRAMES, ETC., SHALL BE GROUNDED.

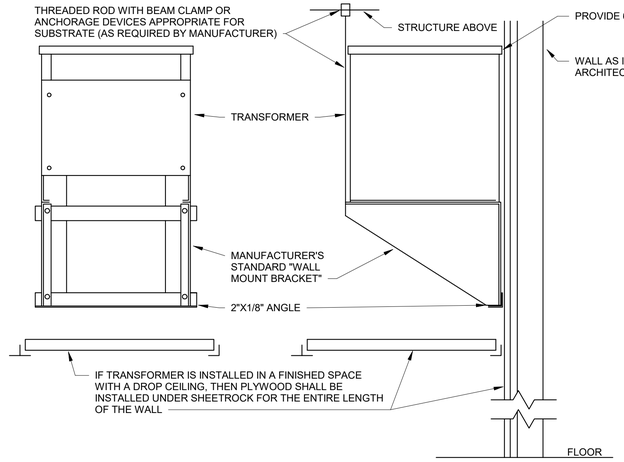
4. ALL CLEARANCES SHALL BE MAINTAINED PER NFPA 70. ALL PARTS, DEVICES, EQUIPMENT, ETC. WHICH REQUIRE MAINTENANCE, ADJUSTMENT, OPERATION OR EXAMINATION DURING NORMAL NETWORK OPERATION SHALL BE ARRANGED SO AS TO BE ACCESSIBLE BY THE PROVISION OF ADEQUATE WORKING SPACES, WORKING FACILITIES AND CLEARANCES. UNLESS NOTED OTHERWISE ALL CLEARANCES ARE MEASURED FROM SURFACE TO SURFACE.

5. ALL DIMENSIONS INDICATED IN THESE DOCUMENTS ARE FOR REFERENCE AND COORDINATION PURPOSES ONLY. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS IN THE FIELD.

6. TRANSFORMERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND APPLICABLE DETAILS, ACCESSIBLE WITH MECHANICAL PROTECTION, VENTILATED ENCLOSURES AND WITHIN A SPACE TO PROVIDE VENTILATION TO DISPOSE OF THE TRANSFORMER FULL LOAD LOSSES. EACH TRANSFORMER SHALL CONTAIN A NAMEPLATE IN ACCORDANCE WITH NFPA 70 AND THE CONTRACTOR SHALL INSURE THAT ALL SPECIAL PRECAUTIONS ARE MET SUCH AS PROPER CLEARANCES FOR VENTILATION, OVERCURRENT PROTECTION, ETC.

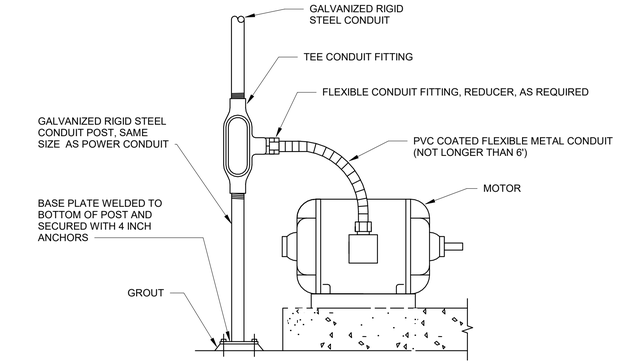
1 EP502 TYPICAL INDOOR INSTALLATION OF DRY TYPE TRANSFORMERS

N.T.S.



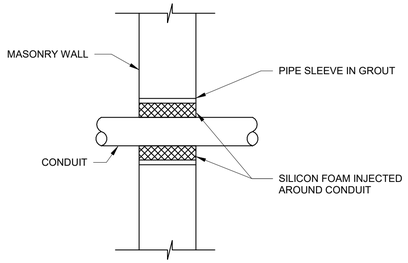
2 EP502 TYPICAL WALL MOUNTED TRANSFORMER

N.T.S.



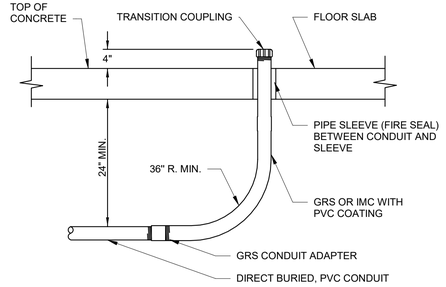
3 EP502 TYPICAL OVERHEAD CONDUIT SERVICE FOR SMALL AND MEDIUM SIZE MOTORS

N.T.S.



4 EP502 TYPICAL CONDUIT WALL SLEEVE

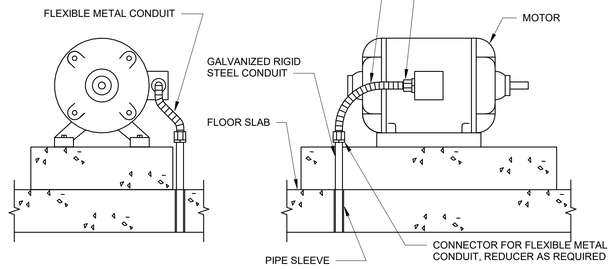
N.T.S.



NOTE: FOR SITE COMMUNICATION CONDUITS, MINIMUM BEND RADIUS SHALL BE 10x THE OUTSIDE DIAMETER OF CONDUIT.

5 EP502 UNDERFLOOR CONDUIT

N.T.S.



6 EP502 TYPICAL FLOOR-FED CONDUIT SERVICE FOR MOTORS

N.T.S.

US Army Corps of Engineers ®

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DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. OSBORNE, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
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ELECTRICAL DETAILS

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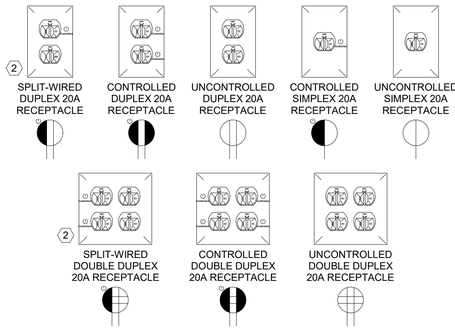
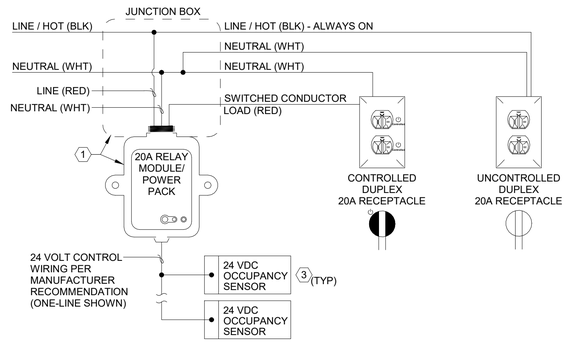


1 EP503 RECEPTACLE CONTROL SCHEMES

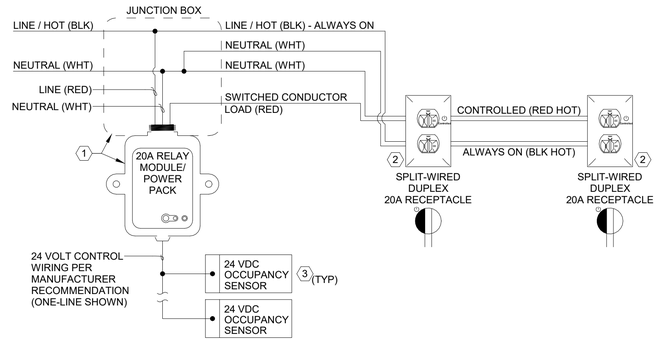
N.T.S.



NOTE: MAXIMUM NUMBER OF SENSORS PER POWER PACK MAY VARY BETWEEN MANUFACTURERS.

2 EP503 FULL RECEPTACLE CONTROL

N.T.S.



NOTE: MAXIMUM NUMBER OF SENSORS PER POWER PACK MAY VARY BETWEEN MANUFACTURERS.

3 EP503 SPLIT-WIRED DUPLEX RECEPTACLE CONTROL

N.T.S.

GENERAL NOTES FOR DETAILS 1, 2, AND 3:

1. LABEL EACH RECEPTACLE TO INDICATE WHICH PLUG IS "SENSOR CONTROLLED". ANY RECEPTACLES THAT ARE CONTROLLED BY AN AUTOMATIC CONTROL DEVICE MUST BE MARKED ON THE CONTROLLED RECEPTACLE OUTLET WHERE VISIBLE AFTER INSTALLATION AS STATED IN NFPA 70-2020 ARTICLE 406.3(E).

2. THE TIME DELAY FOR AUTOMATIC SHUTOFF OF THE CONTROLLED RECEPTACLES SHALL BE LONGER THAN THE TIME DELAY FOR AUTOMATIC SHUTOFF OF THE SPACE LIGHTING, BUT SHALL NOT EXCEED THE APPLICABLE ASHRAE 90.1 TIME LIMITS. COORDINATE TIME DELAY SETTING WITH THE LIGHTING DESIGN. WHERE THE TIME DELAY FOR THE LIGHTING SYSTEM MEETS OR EXCEEDS THE TIME LIMIT FOR CONTROLLED RECEPTACLES PER LIGHTING EXCEPTIONS, SET THE CONTROLLED RECEPTACLE TIME DELAY AT THE APPLICABLE ASHRAE 90.1 TIME LIMIT.

3. GROUND CONDUCTOR IS OMITTED FROM DIAGRAMS FOR SIMPLICITY.

4. WHERE RECEPTACLES ON A GIVEN YOKE IS SPLIT-WIRED, REMOVE THE TABS/JUMPERS BETWEEN RECEPTACLES AND CIRCUIT INDIVIDUALLY.

KEYED NOTES FOR DETAILS 1, 2, AND 3:

1. CONTROLLER AND JUNCTION BOX SHALL BE INSTALLED ABOVE CEILING.

2. WHERE SPLIT-WIRED RECEPTACLES ARE SHOWN, THE FOLLOWING OUTLETS SHALL BE CONTROLLED:
   - DUPLEX: TOP RECEPTACLE ON YOKE; REMOVE YOKE JUMPERS.
   - QUADLEX: LEFT YOKE RECEPTACLES.

3. CONTRACTOR SHALL DESIGN AND INSTALL OCCUPANCY SENSOR SYSTEM TO AVOID DEAD ZONES IN COVERAGE. COVERAGE SHALL INCLUDE THE FOOTPRINT OF THE FURNITURE AS SHOWN ON THE CONSTRUCTION DOCUMENTS PLUS 5'-0" IN ALL DIRECTIONS (OR TO THE WALL, WHICHEVER IS SHORTER). ADDITIONAL POWER PACKS MAY BE REQUIRED. OCCUPANCY SENSOR LOCATIONS SHALL BE COORDINATED WITH OTHER CEILING DEVICES.

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ELECTRICAL DETAILS

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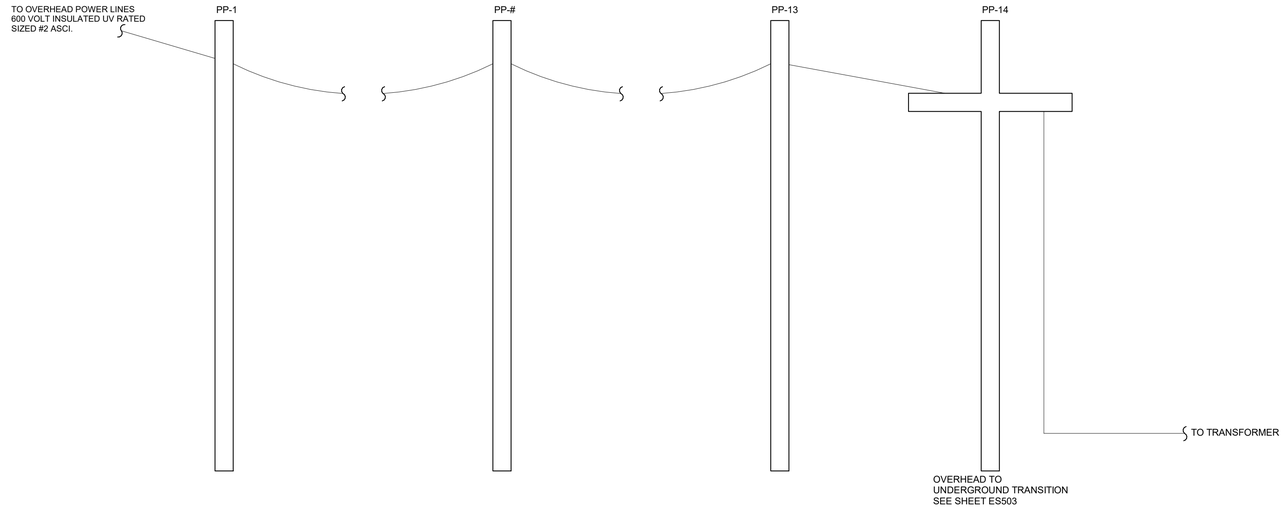
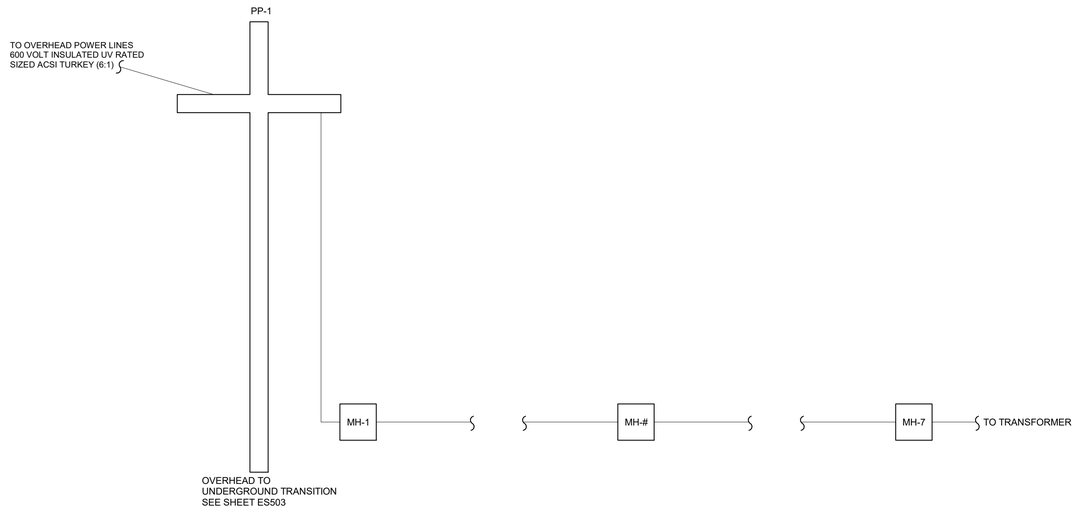


1 EP601 BASE OPTION EXTERIOR DISTRIBUTION

N.T.S.



2 EP601 EXTERIOR DISTRIBUTION OPTION

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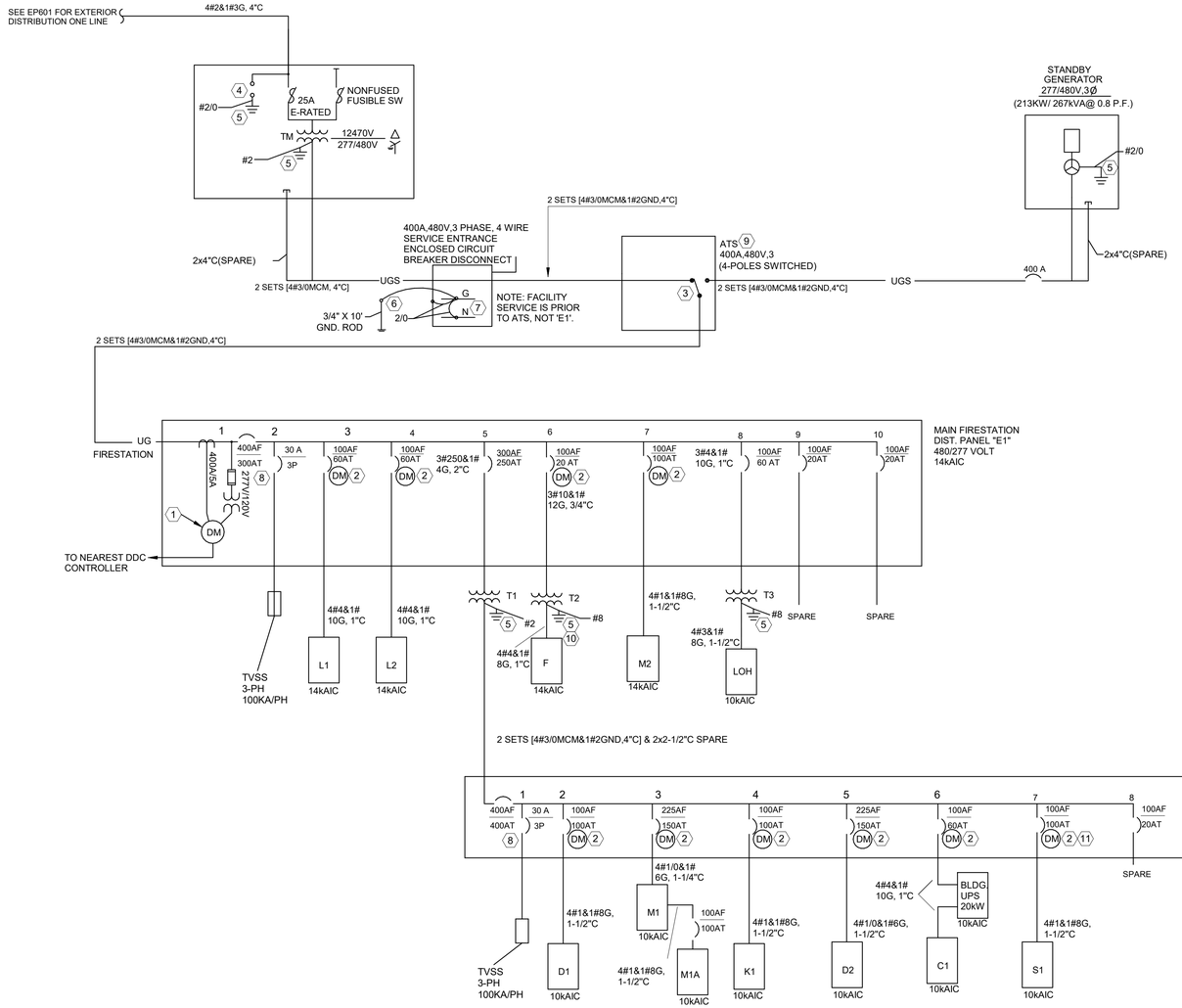
EXTERIOR DISTRIBUTION
BASE OPTION/ BID OPTION

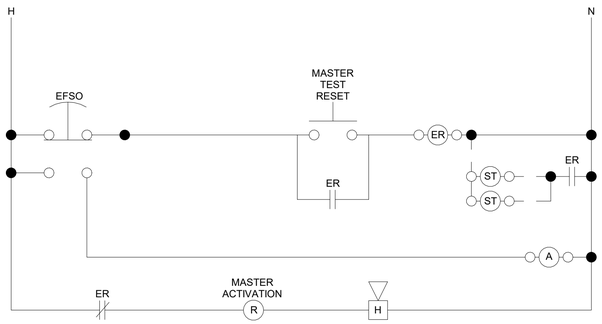
SHEET ID

EP601



1 EP602 **ONE LINE DIAGRAM**

12" = 1'-0"



2 EP602 **EMERGENCY FUEL SHUTOFF**

12" = 1'-0"

KEYED NOTES - EP600-EP609 SHEETS

1	PANEL MOUNTED BUILDING DIGITAL METER. PROVIDE 24 AWG, SHIELDED, TWISTED, 2 PAIR, RS-485 CABLE IN 1" EMT CONDUIT FROM BUILDING DIGITAL METER TO NEAREST DDC CONTROLLER FOR CONNECTION INTO DDC CONTROL LOOP. ALSO, PROVIDE 24 AWG, SHIELDED, TWISTED, 1 PAIR, RS-485 CABLE IN 1" EMT CONDUIT TO THE NEAREST ENERGY MONITORING KWHR METER.
2	PANEL MOUNTED ENERGY MONITORING KWHR METER. PROVIDE 24 AWG, SHIELDED, TWISTED, 1 PAIR, RS-485 CABLE IN 1" EMT CONDUIT BETWEEN BUILDING DIGITAL METER AND ENERGY MONITORING KWHR METERS. PROVIDE 277V:120V P.T.s AND XXA:5A C.T.s FOR EACH ENERGY MONITORING KWHR METER WITH XXA = TO NEAREST FULL SCALE READING OF THE CIRCUIT BEING METERED. FOR EXAMPLE, 100A:5A FOR A 100A CIRCUIT, 200A:5A FOR A 200A CIRCUIT, ...ETC.
3	NON-SERVICE RATED AUTOMATIC TRANSFER SWITCH.
4	10KV DUTY CLASS (12.7MCOV) DISTRIBUTION TYPE SURGE ARRESTORS.
5	SEE SYSTEM GROUNDING DETAIL, SHEET EG503 FOR TRANSFORMER/GENERATOR GROUNDING SYSTEM.
6	GROUND ELECTRODE SYSTEM TO TRANSFORMER/GENERATOR GROUNDING SYSTEM. SEE SYSTEM GROUNDING DETAIL, SHEET EG503.
7	OVERCURRENT PROTECTION INTEGRAL TO 400A DISCONNECT.
8	TVSS EQUIPMENT, SQUARE D COMPANY CATALOG NUMBER FC4MA16 OR APPROVED EQUAL.
9	FIRE SERVICE RATED AUTOMATIC TRANSFER SWITCH.
10	FIRE ALARM PANEL FEEDS SHALL BE PAINTED RED, AND INCLUDE LOCK ON HANDLES.
11	STORAGE BUILDING IS INCLUDED AS A BID OPTION. IF OPTION IS NOT AWARDED, REPLACE THIS PANEL WITH A 100AF/20AT SPARE.

TRANSFORMER SCHEDULE

DESIGNATOR	SIZE (KVA)	TYPE	PRIMARY / SECONDARY VOLTS	PHASE	MOUNTING
TM	300	OA	12470 - 480/277	3	PAD MOUNTED, EXTERIOR
T1	150	DT	480 - 208/120	3	FLOOR MOUNTED
T2	9	DT	480 - 208/120	3	WALL/ ELEVATED
T3	15	DT	480 - 240/120	1	FLOOR MOUNTED

NOTE: POWER TRANSFORMER SCHEDULE DOES NOT COVER DRIVE ISOLATION TRANSFORMERS.
OA = OIL TO AIR INSULATED
DT = IMPLIES DRY TYPE TRANSFORMER

US Army Corps of Engineers ®

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SUBMITTED BY: J. ROSSELOT, P.E.
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ONE-LINE DIAGRAM/ EMERGENCY FUEL SHUTOFF

SHEET ID

EP602

MECHANICAL EQUIPMENT - ELECTRICAL CONNECTION SCHEDULE

E.Q. I.D. TAG	DESCRIPTION	LOCATION	VOLTS	PH	HP	FLA	MCA	PKG UNIT	NEMA ENCL.	DISCONNECT TYPE	DISCONNECT SIZE	DISCONNECT FUSE	STARTER TYPE	STARTER SIZE	PANEL	CKT. NUM.	SUPPLY CIRCUIT	BASIS OF DESIGN	REMARKS
B-1	BOILER	20 MECH ROOM	120 V	1	--	12.0 A	15.0 A	Yes	1	SPST	30 A	--	--	--	M1	5	2#12, 1#12G, 3/4"C	KHN 055	
B-2	BOILER	20 MECH ROOM	120 V	1	--	12.0 A	15.0 A	Yes	1	SPST	30 A	--	--	--	M1	3	2#12, 1#12G, 3/4"C	KHN 055	
CH-1	AIR CHILLER	EXTERNAL 20 MECH ROOM	480 V	3	1 1/2 HP	3.0 A	3.8 A	Yes	3R	SPST	30 A	--	--	--	M2	1,3,5	3#12, 1#12G, 3/4"C	MHRC2-060-VS-01	
CHWP-1	CHILLED WATER PUMP	20 MECH ROOM	120 V	1	1/4 HP	5.8 A	7.3 A	Yes	1	SPST	30 A	--	--	--	M1	19	2#12, 1#12G, 3/4"C	E 90	
CHWP-2	CHILLED WATER PUMP	20 MECH ROOM	120 V	1	1/4 HP	5.8 A	7.3 A	Yes	1	SPST	30 A	--	--	--	M1	21	2#12, 1#12G, 3/4"C	E 90	
COMP-1	AIR COMPRESSOR	22 APPARATUS BAY	480 V	3	5 HP	7.6 A	9.5 A	Yes	1	SPST	30 A	--	--	--	M2	7,9,11	3#12, 1#12G, 3/4"C		
EF-1	EXHAUST FAN	13 SHWR/TLT A	120 V	1	--	0.2 A	0.3 A	Yes	1	SM	--	--	--	--	M1	25	2#12, 1#12G, 3/4"C	BROAN AE50	
EF-2	EXHAUST FAN	11 SHWR/TLT B	120 V	1	--	0.2 A	0.3 A	Yes	1	SM	--	--	--	--	M1	23	2#12, 1#12G, 3/4"C	BROAN AE50	
EF-3	EXHAUST FAN	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	FNVR	0	M2	19,21,23	3#12, 1#12G, 3/4"C	GREENHECK SE2-48-407-C15	
EF-4	EXHAUST FAN	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	FNVR	0	M2	25,27,29	3#12, 1#12G, 3/4"C	GREENHECK SE2-48-407-C15	
EF-5	EXHAUST FAN	26 STORAGE	120 V	1	1/4 HP	5.8 A	7.3 A	Yes	1	SM	--	--	--	--	S1	6	3#12, 1#12G, 3/4"C	GREENHECK SE1-12-432-A	
ERV-1	ENERGY RECVOVERY UNIT	20 MECH ROOM	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SPST	30 A	--	--	--	M1A	27	2#12, 1#12G, 3/4"C	EV450IN	
ERV-2	ENERGY RECVOVERY UNIT	20 MECH ROOM	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SPST	30 A	--	--	--	M1A	29	2#12, 1#12G, 3/4"C	EV450IN	
FC-1	FAN COIL	07 DORM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	1	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-2	FAN COIL	06 OFFICE	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	3	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-3	FAN COIL	05 DORM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	5	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-4	FAN COIL	04 DORM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	7	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-5	FAN COIL	03 DORM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	9	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-6	FAN COIL	02 DORM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	11	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-7	FAN COIL	14 FITNESS ROOM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	19	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-8	FAN COIL	08 KITCHEN	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	15	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-9	FAN COIL	18 DAY ROOM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1A	17	2#12, 1#12G, 3/4"C	UNITRANE MODEL E	
FC-10	FAN COIL	21 WORK ROOM	120 V	1	1/25 HP	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1	2	2#12, 1#12G, 3/4"C	UNITRANE MODEL C	
FD 22.1	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	20,22,24	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FD 22.2	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	26,28,30	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FD 22.3	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	32,34,36	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FD 22.4	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	38,40,42	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FD 22.5	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	2,4,6	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FD 22.6	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	8,10,12	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FD 22.7	HIGH SPEED FOLDING DOOR	22 APPARATUS BAY	480 V	3	1 1/2 HP	6.9 A	8.6 A	Yes	1	SPST	30 A	--	--	--	M2	14,16,18	3#12, 1#12G, 3/4"C	EFAFLEX SERIES F	
FP-W	FUEL PUMP	EXTERIOR WEST	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SPST	20	--	--	--	M1A	34	2#12, 1#12G, 3/4"C		
GF-1	GLYCOL FEED	20 MECH ROOM	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	REC	--	--	--	--	M1	7	2#12, 1#12G, 3/4"C		
HP-1	DUCTLESS SPLIT SYSTEM CONDENSOR	22 APPARATUS BAY	208 V	2	--	5.2 A	6.5 A	Yes	1	SPST	30 A	--	--	--	M1A	12,14	2#12, 1#12G, 3/4"C	MITSUBISHI - MXZ30TN	
HP-2	DUCTLESS SPLIT SYSTEM CONDENSOR	22 APPARATUS BAY	208 V	2	--	5.2 A	6.5 A	Yes	1	SPST	30 A	--	--	--	M1A	16,18	2#12, 1#12G, 3/4"C	MITSUBISHI - MXZ30TN	
HWP-1	HOT WATER PUMP	20 MECH ROOM	120 V	1	1/4 HP	5.8 A	7.3 A	Yes	1	SPST	30 A	--	--	--	M1	9	2#12, 1#12G, 3/4"C	E 90	
HWP-2	HOT WATER PUMP	20 MECH ROOM	120 V	1	1/4 HP	5.8 A	7.3 A	Yes	1	SPST	30 A	--	--	--	M1	11	2#12, 1#12G, 3/4"C	E 90	
HWP-3	CIRCULATING PUMP	20 MECH ROOM	120 V	1	1/25 HP	0.5 A	0.7 A	Yes	1	SM	--	--	--	--	M1	13	2#12, 1#12G, 3/4"C	B&G PL-30	
HWP-4	CIRCULATING PUMP	20 MECH ROOM	120 V	1	1/25 HP	0.5 A	0.7 A	Yes	1	SM	--	--	--	--	M1	15	2#12, 1#12G, 3/4"C	B&G PL-30	
MSG-1	MOTORIZED SLIDING GATE	EXTERNAL DRIVE - SOUTHWEST	120 V	1	1 HP	16.0 A	20.0 A	Yes	3R	SPST	30 A	--	--	--	M1A	2	2#2, 1#8G, 1"C		INCREASE CONDUCTOR SIZE TO MITIGATE VOLTAGE DROP DUE TO DISTANCE.
OHD 21.1	OVERHEAD COILING DOOR	21 WORK ROOM	120 V	1	1/2 HP	9.8 A	12.3 A	Yes	1	SPST	30 A	--	--	--	M1	4	2#12, 1#12G, 3/4"C		
OHD 26.1	OVERHEAD COILING DOOR	21 WORK ROOM	120 V	1	1/2 HP	9.8 A	12.3 A	Yes	1	SPST	30 A	--	--	--	S1	7	2#12, 1#12G, 3/4"C		
RCP-1	RECIRCULATION PUMP	20 MECH ROOM	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SM	--	--	--	--	M1A	33	2#12, 1#12G, 3/4"C	BELL AND GOSSETT 19-16	
RH-1	RADIANT HEATER	22 APPARATUS BAY	120 V	1	--	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1	6	2#12, 1#12G, 3/4"C	CORAYVAC ROBERTS GORDON - MODEL CRV - B, B - 2	
RH-2	RADIANT HEATER	22 APPARATUS BAY	120 V	1	--	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1	8	2#12, 1#12G, 3/4"C	CORAYVAC ROBERTS GORDON - MODEL CRV - B, B - 2	
RH-3	RADIANT HEATER	22 APPARATUS BAY	120 V	1	--	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1	10	2#12, 1#12G, 3/4"C	CORAYVAC ROBERTS GORDON - MODEL CRV - B, B - 2	
RH-4	RADIANT HEATER	22 APPARATUS BAY	120 V	1	--	0.3 A	0.4 A	Yes	1	SM	--	--	--	--	M1	12	2#12, 1#12G, 3/4"C	CORAYVAC ROBERTS GORDON - MODEL CRV - B, B - 2	
SS-1	DUCTLESS SPLIT SYSTEM	15 TELECOM ROOM	208 V	2	--	0.8 A	1.0 A	Yes	1	SM(2P)	--	--	--	--	M1A	12,14	2#12, 1#12G, 3/4"C	RAV-SP180KRT-UL	
SS-2	DUCTLESS SPLIT SYSTEM	19 ELEC ROOM	208 V	2	--	0.8 A	1.0 A	Yes	1	SM(2P)	--	--	--	--	M1A	16,18	2#12, 1#12G, 3/4"C	FUJITSU	
UH-1	UNIT HEATER	00 VESTIBULE	120 V	1		0.8 A	1.0 A	Yes	1	SPST	--	--	--	--	M1A	13	2#12, 1#12G, 3/4"C		
UH-2	UNIT HEATER	20 MECH ROOM	208 V	3	--	15.9 A	19.9 A	Yes	1	SPST	30 A	--	--	--	M1A	21,23,25	3#12, 1#12G, 3/4"C		
UH-3	UNIT HEATER	26 STORAGE	208 V	3	--	20.8 A	26.0 A	Yes	1	SPST	30 A	--	--	--	S1	1,3,5	3#10, 1#12G, 3/4"C		
VEF-1	VEHICLE EXHAUST FAN	ABOVE 21 WORK ROOM	480 V	3	1 HP	2.1 A	2.7 A	Yes	1	SPST	30 A	--	--	--	M2	13,15,17	3#12, 1#12G, 3/4"C	GREENHECK - 180HP-10	
VP-1	VACCUM PUMP	22 APPARATUS BAY	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SM	--	--	--	--	M1A	4	2#12, 1#12G, 3/4"C		
VP-2	VACCUM PUMP	22 APPARATUS BAY	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SM	--	--	--	--	M1A	6	2#10, 1#12G, 3/4"C		
VP-3	VACCUM PUMP	22 APPARATUS BAY	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SM	--	--	--	--	M1A	8	2#10, 1#12G, 3/4"C		
VP-4	VACCUM PUMP	22 APPARATUS BAY	120 V	1	1/3 HP	7.2 A	9.0 A	Yes	1	SM	--	--	--	--	M1A	10	2#10, 1#12G, 3/4"C		

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. CHAMBERLAIN, P.E.
SIZE: D FILE NAME: ANSI D FCDR-FSTNLMEPFS2.rvt

ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 / (FY23)

MEC SCHEDULE

SHEET ID

EP603

Distribution Panel: E1

Location: ELEC. 19
Supply From: TMRVICE XFMR
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4

A.I.C. Rating (Min.): 14 kA
Mains Type: MCB
Mains Rating: 400 A
MCB Rating: 300 A

Notes:

CKT	LOAD	P	CB	A	B	C	REMARKS
1	19 PANEL L1	3	60 A	5049 VA	4768 VA	5095 VA	
2	19 PANEL L2	3	60 A	3625 VA	3415 VA	3376 VA	
3	19 TRANSFORMER T1	3	250 A	57872 VA	56565 VA	56113 VA	
4	19 TRANSFORMER T2	3	20 A	3500 VA	3500 VA	3000 VA	
5	21 PANEL M2	3	100 A	19165 VA	19165 VA	19165 VA	
6	19 TRANSFORMER T3	3	60 A	9300 VA	9300 VA	0 VA	
7	SPARE	3	20 A	0 VA	0 VA	0 VA	
8	SPARE	3	20 A	0 VA	0 VA	0 VA	
9	19 PANEL E1 SPD	3	30 A	0 VA	0 VA	0 VA	
			Total Load:	98361 VA	96668 VA	86699 VA	
			Total Amps:	361 A	355 A	313 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C Continuous	27052 VA	125.00%	33815 VA		
E Equipment	35378 VA	50.00%	17689 VA	**Total Conn. Load:**	281727 VA
H HVAC	22134 VA	90.00%	19921 VA	**Total Est. Demand:**	198429 VA
L Lighting	88 VA	125.00%	110 VA	**Total Conn. Current:**	339 A
M Motor	52733 VA	80.00%	42186 VA	**Total Est. Demand Current:**	239 A
OA Office Appliances	5550 VA	50.00%	2775 VA		
R Receptacle	41927 VA	61.93%	25964 VA		
Spare	85400 VA	50.00%	42700 VA		
Motor	696 VA	80.00%	557 VA		
L Lighting	7843 VA	125.00%	9804 VA		
P Power	2500 VA	100.00%	2500 VA		
O Other	0 VA	0.00%	0 VA		
LE Lighting - Exterior	527 VA	125.00%	659 VA		

Notes:

Branch Panel: L1

Location: ELEC. 19
Supply From: E1
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 14 kA
Mains Type: MCB
Frame Rating: 100 A
MCB Rating: 60 A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	LIGHTING 02 / 03 / 04 / 05 / 07	L...	20 A	1	172 VA	247 VA					1	20 A	L...	LIGHTING 18	2
3	LIGHTING 06	L...	20 A	1			97 VA	83 VA			1	20 A	L...	LIGHTING 16	4
5	LIGHTING 08	L...	20 A	1					243 VA	224 VA	1	20 A	L...	LIGHTING 14 / 15	6
7	LIGHTING 08 UNDERCABINET	L...	20 A	1	26 VA	121 VA					1	20 A	L...	LIGHTING 19 / 20	8
9	LIGHTING 09 / 10	L...	20 A	1			66 VA	2200 VA			1	20 A	--	SPARE	10
11	LIGHTING 11 / 17	L...	20 A	1					155 VA	2200 VA	1	20 A	--	SPARE	12
13	LIGHTING 13 / 12	L...	20 A	1	98 VA	2200 VA					1	20 A	--	SPARE	14
15	LIGHTING 23 / 24	L...	20 A	1			129 VA	2200 VA			1	20 A	--	SPARE	16
17	LIGHTING 00 / 01	L...	20 A	1					97 VA	2200 VA	1	20 A	--	SPARE	18
19	SPACE ONLY	--	--	--	0 VA	2200 VA					1	20 A	--	SPARE	20
21	SPACE ONLY	--	--	--			0 VA	0 VA			--	--	--	SPACE ONLY	22
23	SPACE ONLY	--	--	--					0 VA	0 VA	--	--	--	SPACE ONLY	24
			Total Load:		5049 VA		4768 VA		5095 VA						
			Total Amps:		18 A		17 A		19 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	13200 VA	50.00%	6600 VA		
L Lighting	1743 VA	125.00%	2179 VA	**Total Conn. Load:**	14911 VA
				Total Est. Demand:	8745 VA
				Total Conn. Current:	18 A
				Total Est. Demand Current:	11 A

Notes:

Branch Panel: L2

Location: WORK ROOM 21
Supply From: E1
Mounting: Surface
Enclosure: Type 1

Volts: 480/277 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 14 kA
Mains Type: MCB
Frame Rating: 100 A
MCB Rating: 60A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	LIGHTING 21 'O'	L...	20 A	1	167 VA	1039 VA					1	20 A	L...	LIGHTING 22 ROW 1	2
3	LIGHTING 21 'X'	L...	20 A	1			219 VA	1029 VA			1	20 A	L...	LIGHTING 22 ROW 2	4
5	LIGHTING 25 PATIO	L...	20 A	1					43 VA	1297 VA	1	20 A	L...	LIGHTING 22 ROW 3	6
7	LIGHTING EXTERIOR FRONT ENTRANCE	L...	20 A	1	77 VA	1302 VA					1	20 A	L...	LIGHTING 22 ROW 4	8
9	LIGHTING EXTERIOR CONTACTOR AND DIMMING	L...	20 A	1			1000 VA	238 VA			1	20 A	L...	LIGHTING EXTERIOR PARKING	10
11	LIGHTING EXTERIOR APPARATUS WALL PACKS	L...	20 A	1					118 VA	1000 VA	1	20 A	--	SPARE	12
13	LIGHTING EXTERIOR 19 / 20	L...	20 A	1	118 VA	1000 VA					1	20 A	--	SPARE	14
15	SPACE ONLY	--	--	--			0 VA	1000 VA			1	20 A	--	SPARE	16
17	SPACE ONLY	--	--	--					0 VA	1000 VA	1	20 A	--	SPARE	18
			Total Load:		3625 VA		3415 VA		3376 VA						
			Total Amps:		13 A		12 A		12 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Spare	4000 VA	50.00%	2000 VA		
L Lighting	6027 VA	125.00%	7534 VA	**Total Conn. Load:**	10397 VA
LE Lighting - Exterior	527 VA	125.00%	659 VA	**Total Est. Demand:**	10084 VA
				Total Conn. Current:	13 A
				Total Est. Demand Current:	12 A

Notes:

Branch Panel: F

Location: Elec. 19
Supply From: T2
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 14 kA
Mains Type: MCB
Frame Rating: 100 A
MCB Rating: 60 A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	19 FACP: FIRE ALARM CONTROL PANEL	C...	20 A	1	1500 VA	1000 VA					1	20 A	--	SPARE	2
3	22 ITCP: INDUSTRIAL TANK CONTROL PANEL	C...	20 A	1			2000 VA	1000 VA			1	20 A	--	SPARE	4
5	GENERATOR WATER JACKET HEATER	P...	20 A	2					1000 VA	1000 VA	1	20 A	--	SPARE	6
7	--	--	--	--	1000 VA	0 VA					--	--	--	SPACE ONLY	8
9	GENERATOR BATTERY CHARGERS	P...	20 A	1			500 VA	0 VA			--	--	--	SPACE ONLY	10
11	21 GENERATOR CONTROL/ ALARM PANEL	C...	20 A	1					1000 VA	0 VA	--	--	--	SPACE ONLY	12
			Total Load:		3500 VA		3500 VA		3000 VA						
			Total Amps:		30 A		30 A		25 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C Continuous	4500 VA	125.00%	5625 VA		
Spare	3000 VA	50.00%	1500 VA	**Total Conn. Load:**	10000 VA
P Power	2500 VA	100.00%	2500 VA	**Total Est. Demand:**	9625 VA
				Total Conn. Current:	28 A
				Total Est. Demand Current:	27 A

Notes:
1. DEDICATED FIRE ALARM PANEL. MCB SHALL BE LOCK-ON TYPE AND SHALL BE RED. THE PANEL SHALL BE PAINTED RED. PROVIDE A LABEL WITH THE FOLLOWING INSCRIPTION: "FIRE PROTECTION/ LIFE SAFETY EQUIPMENT". LABEL SHALL BE RED LAMINATED PLASTIC WITH WHITE CENTER CORE.
2. CIRCUITS LISTED ON THIS PANEL ARE APPROXIMATIONS OF CONNECTIONS FOR FIRE ALARM AND MASS NOTIFICATION SYSTEMS TO ENSURE ENOUGH CIRCUITS ARE PROVIDED. COORDINATE ALL CONNECTIONS FROM THIS PANEL WITH ACTUAL EQUIPMENT INSTALLED. REALIGN CIRCUITS AS DESCRIBED IN THE REQUIREMENTS FOR THE "DEDICATED EMERGENCY PANEL SCHEDULE" REFERENCED IN SECTIONS 26 20 00 AND 28 31 76.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSSER, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

PANEL SCHEDULES

SHEET ID
EP701

Distribution Panel: E2

Location: ELEC. 19 | **Volts:** 120/208 Wye | **A.I.C. Rating (Min.):** 10 kA
Supply From: T1 | **Phases:** 3 | **Mains Type:** MCB
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: Type 1 | **MCB Rating:** 400 A

Notes:

CKT	LOAD	P	CB	A	B	C	REMARKS
1	19 PANEL D1	3	100 A	9870 VA	9328 VA	11105 VA	
2	19 PANEL M1	3	150 A	15610 VA	16059 VA	13825 VA	
3	19 PANEL K1	3	100 A	8423 VA	8257 VA	8194 VA	
4	21 PANEL D2	3	150 A	13893 VA	13133 VA	12993 VA	
5	15 PANEL C1	3	60 A	5000 VA	5200 VA	4800 VA	
6	26 PANEL S1	3	100 A	5076 VA	4588 VA	5196 VA	
7	SPARE	3	20 A	0 VA	0 VA	0 VA	
8	19 PANEL E2 SPD	3	30 A	0 VA	0 VA	0 VA	
		Total Load:		57872 VA	56565 VA	56113 VA	
		Total Amps:		483 A	472 A	468 A	

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C Continuous	22552 VA	125.00%	28190 VA		
E Equipment	25250 VA	50.00%	12625 VA	**Total Conn. Load:**	170550 VA
H HVAC	8750 VA	90.00%	7875 VA	**Total Est. Demand:**	117824 VA
L Lighting	88 VA	125.00%	110 VA	**Total Conn. Current:**	473 A
M Motor	22349 VA	80.00%	17879 VA	**Total Est. Demand Current:**	327 A
OA Office Appliances	5550 VA	50.00%	2775 VA		
R Receptacle	38927 VA	62.84%	24464 VA		
Spare	46000 VA	50.00%	23000 VA		
Motor	696 VA	80.00%	557 VA		
L Lighting	90 VA	125.00%	112 VA		
O Other	0 VA	0.00%	0 VA		

Notes:

Branch Panel: D1

Location: Elec. 19 | **Volts:** 120/208 Wye | **A.I.C. Rating (Min.):** 10 kA
Supply From: E2 | **Phases:** 3 | **Mains Type:** MCB
Mounting: Recessed | **Wires:** 4 | **Mains Rating:** 100 A
Enclosure: Type 1 | **Sections:** 1 | **MCB Rating:** 100 A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	07 RECEPTACLES	R...	20 A	1	1200 VA	800 VA					1	20 A	R...	10 RECEPTACLES	2
3	07 RECEPTACLE: TV EAST	O...	20 A	1			360 VA	800 VA			1	20 A	R...	11 / 17 RECEPTACLES	4
5	07 RECEPTACLE: TV SOUTH	O...	20 A	1					360 VA	600 VA	1	20 A	R...	12 / 13 RECEPTACLES	6
7	06 RECEPTACLES	R...	20 A	1	1000 VA	600 VA					1	20 A	R...	19 RECEPTACLES	8
9	05 RECEPTACLES	R...	20 A	1			1200 VA	600 VA			1	20 A	R...	20 RECEPTACLES: EAST	10
11	05 RECEPTACLE: TV EAST	O...	20 A	1					360 VA	600 VA	1	20 A	R...	20 RECEPTACLES: WEST	12
13	05 RECEPTACLE: TV NORTH	O...	20 A	1	390 VA	600 VA					1	20 A	R...	18 RECEPTACLES: WEST	14
15	04 RECEPTACLE: TV EAST	O...	20 A	1			360 VA	1000 VA			1	20 A	R...	18 RECEPTACLES: NORTH	16
17	04 RECEPTACLES	R...	20 A	1					1200 VA	360 VA	1	20 A	O...	18 RECEPTACLE: TV	18
19	04 RECEPTACLE: TV SOUTH	O...	20 A	1	360 VA	1000 VA					1	20 A	R...	16 RECEPTACLES	20
21	03 RECEPTACLE: TV EAST	O...	20 A	1			360 VA	1600 VA			1	20 A	R...	14 RECEPTACLES	22
23	03 RECEPTACLES	R...	20 A	1					1200 VA	1225 VA	1	20 A	M...	14 RECEPTACLE: EWC-1	24
25	03 RECEPTACLE: TV NORTH	O...	20 A	1	360 VA	1000 VA					1	20 A	R...	23 / 24 RECEPTACLES	26
27	02 RECEPTACLE: TV WEST	O...	20 A	1			360 VA	88 VA			1	20 A	L...	LIGHTING 08 TABLE	28
29	02 RECEPTACLES	R...	20 A	1					1200 VA	1000 VA	1	20 A	R...	RECEPTACLES: EXTERNAL WEST	30
31	02 RECEPTACLE: TV NORTH	O...	20 A	1	360 VA	200 VA					1	20 A	E...	19 RECEPTACLE: WESTNET UPS	32
33	00 / 01 RECEPTACLES	R...	20 A	1			600 VA	1000 VA			1	20 A	--	SPARE	34
35	RECEPTACLES: EXTERIOR EAST	R...	20 A	1					1000 VA	1000 VA	1	20 A	--	SPARE	36
37	SPARE	--	20 A	1	1000 VA	1000 VA					1	20 A	--	SPARE	38
39	SPARE	--	20 A	1			1000 VA	0 VA			--	--	--	SPACE ONLY	40
41	SPARE	--	20 A	1					1000 VA	0 VA	--	--	--	SPACE ONLY	42
			Total Load:		9870 VA		9328 VA		11105 VA						
			Total Amps:		83 A		78 A		93 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
E Equipment	200 VA	50.00%	100 VA		
L Lighting	88 VA	125.00%	110 VA	**Total Conn. Load:**	30303 VA
M Motor	1225 VA	80.00%	980 VA	**Total Est. Demand:**	20585 VA
OA Office Appliances	3990 VA	50.00%	1995 VA	**Total Conn. Current:**	84 A
R Receptacle	18800 VA	76.60%	14400 VA	**Total Est. Demand Current:**	57 A
Spare	6000 VA	50.00%	3000 VA		

Notes:

Branch Panel: M1

Location: WORK ROOM 21 | **Volts:** 120/208 Wye | **A.I.C. Rating (Min.):** 10 kA
Supply From: E2 | **Phases:** 3 | **Mains Type:** MCB
Mounting: Surface | **Wires:** 4 | **Frame Rating:** 225 A
Enclosure: Type 1 | **Sections:** 1 | **MCB Rating:** 150 A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	25 OVERHEAD FAN	C...	15 A	1	398 VA	37 VA					1	15 A	H...	21 FC-10 FAN COIL	2
3	20 B-1 BOILER	C...	20 A	1			1440 VA	1176 VA			1	20 A	M...	21 - OVERHEAD DOOR	4
5	20 B-2 BOILER	C...	20 A	1					1440 VA	40 VA	1	15 A	C...	22 RH-1 RADIANT HEATER	6
7	20 GF-1 GLYCOL FEEDER	M...	20 A	1	1028 VA	40 VA					1	15 A	C...	22 RH-2 RADIANT HEATER	8
9	20 HWP-1 HOT WATER PUMP	C...	20 A	1			696 VA	40 VA			1	15 A	C...	22 RH-3 RADIANT HEATER	10
11	20 HWP-2 HOT WATER PUMP	C...	20 A	1					696 VA	40 VA	1	15 A	C...	22 RH-4 RADIANT HEATER	12
13	20 HWP-3 HOT WATER PUMP	C...	15 A	1	60 VA	1000 VA					1	20 A	--	SPARE	14
15	20 HWP-4 HOT WATER PUMP	C...	15 A	1			60 VA	1000 VA			1	20 A	--	SPARE	16
17	20 WH WATER HEATER	C...	20 A	1					600 VA	1000 VA	1	20 A	--	SPARE	18
19	20 CHWP-1 CHILLED WATER PUMP	M...	20 A	1	696 VA	1000 VA					1	20 A	--	SPARE	20
21	20 CHWP-2 CHILLED WATER PUMP	M...	20 A	1			696 VA	0 VA			--	--	--	SPACE ONLY	22
23	11 EF-2 EXHAUST FAN	H...	15 A	1					25 VA	0 VA	--	--	--	SPACE ONLY	24
25	13 EF-1 EXHAUST FAN	H...	15 A	1	25 VA	11326 VA					3	70 A	C...	20 M1A	26
27	SPACE ONLY	--	--	--			0 VA	10951 VA			--	--	--	--	28
29	SPACE ONLY	--	--	--					0 VA	9984 VA	--	--	--	--	30
			Total Load:		15610 VA		16059 VA		13825 VA						
			Total Amps:		132 A		136 A		115 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C Continuous	10452 VA	125.00%	13065 VA		
E Equipment	2000 VA	50.00%	1000 VA	**Total Conn. Load:**	45494 VA
H HVAC	8054 VA	90.00%	7249 VA	**Total Est. Demand:**	39204 VA
M Motor	7292 VA	80.00%	5834 VA	**Total Conn. Current:**	126 A
R Receptacle	6000 VA	100.00%	6000 VA	**Total Est. Demand Current:**	109 A
Spare	11000 VA	50.00%	5500 VA		
Motor	696 VA	80.00%	557 VA		

Notes:

Branch Panel: M2

Location: WORK ROOM 21 | **Volts:** 480/277 Wye | **A.I.C. Rating (Min.):** 14 kA
Supply From: E1 | **Phases:** 3 | **Mains Type:** MCB
Mounting: Surface | **Wires:** 4 | **Frame Rating:** 100 A
Enclosure: Type 1 | **Sections:** 1 | **MCB Rating:** 100 A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	EXTERNAL 20 CH-1 AIR CHILLER	H...	20 A	3	797 VA	1104 VA					3	20 A	M...	22 FD-22.7 - FOLDING DOOR	2
3	--	--	--	--			797 VA	1104 VA			--	--	--	--	4
5	--	--	--	--					797 VA	1104 VA	--	--	--	--	6
7	21 COMP-1 AIR COMPRESSOR	E...	15 A	3	2018 VA	1104 VA					3	20 A	M...	22 FD-22.6 - FOLDING DOOR	8
9	--	--	--	--			2018 VA	1104 VA			--	--	--	--	10
11	--	--	--	--					2018 VA	1104 VA	--	--	--	--	12
13	ABOVE 21 VEH-1 VEHICLE EXHAUST FAN	E...	20 A	3	558 VA	1104 VA					3	20 A	M...	22 FD-22.5 - FOLDING DOOR	14
15	--	--	--	--			558 VA	1104 VA			--	--	--	--	16
17	--	--	--	--					558 VA	1104 VA	--	--	--	--	18
19	22 EF-3 EXHAUST FAN	H...	20 A	3	1832 VA	1104 VA					3	20 A	M...	22 FD-22.1 - FOLDING DOOR	20
21	--	--	--	--			1832 VA	1104 VA			--	--	--	--	22
23	--	--	--	--					1832 VA	1104 VA	--	--	--	--	24
25	22 EF-4 EXHAUST FAN	H...	20 A	3	1832 VA	1104 VA					3	20 A	M...	22 FD-22.2 - FOLDING DOOR	26
27	--	--	--	--			1832 VA	1104 VA			--	--	--	--	28
29	--	--	--	--					1832 VA	1104 VA	--	--	--	--	30
31	SPARE	--	20 A	1	2200 VA	1104 VA					3	20 A	M...	22 FD-22.3 - FOLDING DOOR	32
33	SPARE	--	20 A	1			2200 VA	1104 VA			--	--	--	--	34
35	SPARE	--	20 A	1					2200 VA	1104 VA	--	--	--	--	36
37	SPARE	--	20 A	1	2200 VA	1104 VA					3	20 A	M...	22 FD-22.4 - FOLDING DOOR	38
39	SPARE	--	20 A	1			2200 VA	1104 VA			--	--	--	--	40
41	SPARE	--	20 A	1					2200 VA	1104 VA	--	--	--	--	42
			Total Load:		19165 VA		19165 VA		19165 VA						
			Total Amps:		69 A		69 A		69 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
E Equipment	7728 VA	50.00%	3864 VA		
H HVAC	13384 VA	90.00%	12046 VA	**Total Conn. Load:**	57496 VA
M Motor	23184 VA	80.00%	18547 VA	**Total Est. Demand:**	41057 VA
Spare	13200 VA	50.00%	6600 VA	**Total Conn. Current:**	69 A
				Total Est. Demand Current:	49 A

Notes:

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSSELER, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

PANEL SCHEDULES

SHEET ID

EP702

Branch Panel: K1

Location: Elec. 19
Supply From: E2
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 10 kA
Mains Type: MCB
Frame Rating: 100 A
MCB Rating: 100 A

Notes:

CKT	LOAD	LT	CB	P	A	B	C	P	CB	LT	LOAD	CKT
1	08 RECEPTACLE: SOUTH	R...	20 A	1	200 VA 2267 VA			3	40 A	E...	08 DOUBLE OVEN	2
3	08 RECEPTACLE: EAST WALL	R...	20 A	1		200 VA 2267 VA		--	--	--	--	4
5	08 RECEPTACLE: NORTH WALL, EAST	R...	20 A	1			200 VA 2267 VA	--	--	--	--	6
7	08 RECEPTACLE: NORTH WALL, CENTER	R...	20 A	1	200 VA 2300 VA			1	20 A	C...	08 RECEPTACLE: WEST REFRIGERATOR	8
9	08 RECEPTACLE: NORTH WALL, WEST	R...	20 A	1		200 VA 2300 VA		1	20 A	C...	08 RECEPTACLE: EAST REFRIGERATOR	10
11	08 RECEPTACLE: WEST WALL, NORTH	R...	20 A	1			200 VA 1200 VA	1	20 A	O...	08 MICROWAVE	12
13	08 RECEPTACLE: WEST WALL, SOUTH	R...	20 A	1	200 VA 300 VA			1	20 A	A...	08 FUME HOOD	14
15	08 RECEPTACLE: TABLE	R...	20 A	1		400 VA 690 VA		1	20 A	E...	08 RECEPTACLE: IVE MAKER	16
17	08 RECEPTACLE: TABLE USB	R...	20 A	1			200 VA 1127 VA	1	20 A	R...	08 DISHWASHER	18
19	09 RECEPTACLE	R...	20 A	1	200 VA 756 VA			1	20 A	L...	08 GARBAGE DISPOSAL	20
21	SPACE ONLY	--	--	--		0 VA 200 VA		1	20 A	E...	08 RECEPTACLE: WESTNET ACD	22
23	SPARE	--	20 A	1			1000 VA 1000 VA	1	20 A	--	SPARE	24
25	SPARE	--	20 A	1	1000 VA 1000 VA			1	20 A	--	SPARE	26
27	SPARE	--	20 A	1		1000 VA 1000 VA		1	20 A	--	SPARE	28
29	SPARE	--	20 A	1			1000 VA 0 VA	--	--	--	SPACE ONLY	30
			Total Load:		8423 VA	8257 VA	8194 VA					
			Total Amps:		70 A	69 A	68 A					

Legend:

Load Classification		Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C	Continuous	4600 VA	125.00%	5750 VA		
E	Equipment	7690 VA	50.00%	3845 VA	**Total Conn. Load:**	24873 VA
M	Motor	756 VA	80.00%	605 VA	**Total Est. Demand:**	17867 VA
OA	Office Appliances	1200 VA	50.00%	600 VA	**Total Conn. Current:**	69 A
R	Receptacle	3327 VA	100.00%	3327 VA	**Total Est. Demand Current:**	50 A
Spare		7000 VA	50.00%	3500 VA		
L	Lighting	0 VA	0.00%	0 VA		

Notes:

Branch Panel: D2

Location: Work Room 21
Supply From: E2
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 10 kA
Mains Type: MCB
Frame Rating: 225 A
MCB Rating: 150 A

Notes:

CKT	LOAD	LT	CB	P	A	B	C	P	CB	LT	LOAD	CKT
1	14 RECEPTACLE: WEST TREADMILL	E...	20 A	1	720 VA 800 VA			1	20 A	R...	22 RECEPTACLES: NORTH	2
3	14 RECEPTACLE: CENTER TREADMILL	E...	20 A	1		720 VA 600 VA		1	20 A	R...	22 RECEPTACLES: WEST	4
5	14 RECEPTACLE: EAST TREADMILL	E...	20 A	1			720 VA 600 VA	1	20 A	R...	22 RECEPTACLES: NORTHWEST	6
7	14 RECEPTACLE: TV	O...	20 A	1	360 VA 1000 VA			1	20 A	R...	22 RECEPTACLES: SOUTHEAST	8
9	SPARE	--	20 A	1		1000 VA 200 VA		1	20 A	E...	22 RECEPTACLE: WESTNET UPS	10
11	SPARE	--	20 A	1			1000 VA 660 VA	1	20 A	E...	22 EEWS-1 EMERGENCY EYEWASH STATION	12
13	SPARE	--	20 A	1	1000 VA 4047 VA			3	45 A	E...	21 HOSE DECOUPLER	14
15	SPARE	--	20 A	1		1000 VA 4047 VA		--	--	--	--	16
17	SPARE	--	20 A	1			1000 VA 4047 VA	--	--	--	--	18
19	SPARE	--	20 A	1	1000 VA 3967 VA			3	45 A	M...	21 EXTRACTOR	20
21	SPARE	--	20 A	1		1000 VA 3967 VA		--	--	--	--	22
23	SPARE	--	20 A	1			1000 VA 3967 VA	--	--	--	--	24
25	SPACE ONLY	--	--	--	0 VA 1000 VA			1	20 A	R...	21 RECEPTACLES: EAST	26
27	SPACE ONLY	--	--	--		0 VA 600 VA		1	20 A	R...	21 RECEPTACLES: WEST	28
29	SPACE ONLY	--	--	--			0 VA 0 VA	--	--	--	SPACE ONLY	30
			Total Load:		13893 VA	13133 VA	12993 VA					
			Total Amps:		116 A	110 A	108 A					

Legend:

Load Classification		Connected Load	Demand Factor	Estimated Demand	Panel Totals	
E	Equipment	15160 VA	50.00%	7580 VA		
M	Motor	11900 VA	80.00%	9520 VA	**Total Conn. Load:**	40020 VA
OA	Office Appliances	360 VA	50.00%	180 VA	**Total Est. Demand:**	25880 VA
R	Receptacle	4600 VA	100.00%	4600 VA	**Total Conn. Current:**	111 A
Spare		8000 VA	50.00%	4000 VA	**Total Est. Demand Current:**	72 A

Notes:

Branch Panel: C1

Location: Telecom Room 15
Supply From: UPS
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 10 kA
Mains Type: MCB
Frame Rating: 100 A
MCB Rating: 60 A

Notes:

CKT	LOAD	LT	CB	P	A	B	C	P	CB	LT	LOAD	CKT
1	15 RECEPTACLE: MAIN COMM CABINET	R...	20 A	1	1800 VA 0 VA			--	--	--	SPACE ONLY	2
3	15 RECEPTACLE: WESTNET CABINET	R...	20 A	1		1800 VA 0 VA		--	--	--	SPACE ONLY	4
5	SPARE	--	20 A	1			1000 VA 400 VA	1	20 A	R...	15 RECEPTACLE: WEST	6
7	SPARE	--	20 A	1	1000 VA 200 VA			1	20 A	E...	15 RECEPTACLE: WESTNET UPS	8
9	SPARE	--	20 A	1		1000 VA 400 VA		1	20 A	R...	15 RECEPTACLE: EAST	10
11	SPARE	--	20 A	1			1000 VA 400 VA	1	20 A	R...	15 RECEPTACLE: SOUTH	12
13	SPARE	--	20 A	1	1000 VA 1000 VA			1	20 A	--	SPARE	14
15	SPARE	--	20 A	1		1000 VA 1000 VA		1	20 A	--	SPARE	16
17	SPARE	--	20 A	1			1000 VA 1000 VA	1	20 A	--	SPARE	18
19	SPACE ONLY	--	--	--	0 VA 0 VA			--	--	--	SPACE ONLY	20
21	SPACE ONLY	--	--	--		0 VA 0 VA		--	--	--	SPACE ONLY	22
23	SPACE ONLY	--	--	--			0 VA 0 VA	--	--	--	SPACE ONLY	24
			Total Load:		5000 VA	5200 VA	4800 VA					
			Total Amps:		42 A	44 A	40 A					

Legend:

Load Classification		Connected Load	Demand Factor	Estimated Demand	Panel Totals	
E	Equipment	200 VA	50.00%	100 VA		
R	Receptacle	4800 VA	100.00%	4800 VA	**Total Conn. Load:**	15000 VA
Spare		10000 VA	50.00%	5000 VA	**Total Est. Demand:**	9900 VA
					Total Conn. Current:	42 A
					Total Est. Demand Current:	27 A

Notes:

Branch Panel: M1A

Location: MECH. ROOM 20
Supply From: M1
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 10 kA
Mains Type: MCB
Frame Rating: 100 A
MCB Rating: 100 A

Notes:

CKT	LOAD	LT	CB	P	A	B	C	P	CB	LT	LOAD	CKT
1	07 FC-1 FAN COIL	H...	15 A	1	37 VA 1920 VA			1	30 A	M...	EXTERNAL MOTORIZED SLIDING GATE - SW	2
3	06 FC-2 FAN COIL	H...	15 A	1		37 VA 828 VA		1	20 A	H...	22 VP-1 VACUUM PUMP	4
5	05 FC-3 FAN COIL	H...	15 A	1			37 VA 828 VA	1	20 A	H...	22 VP-2 VACUUM PUMP	6
7	04 FC-4 FAN COIL	H...	15 A	1	37 VA 828 VA			1	20 A	H...	22 VP-3 VACUUM PUMP	8
9	03 FC-5 FAN COIL	H...	15 A	1		37 VA 828 VA		1	20 A	H...	22 VP-4 VACUUM PUMP	10
11	02 FC-6 FAN COIL	H...	15 A	1			37 VA 541 VA	2	20 A	H...	22 HP-1 / 15 SS-1 SPLIT SYSTEM	12
13	00 UH-1 UNIT HEATER	C...	15 A	1	91 VA 541 VA			--	--	--	--	14
15	08 FC-8 FAN COIL	H...	15 A	1		37 VA 541 VA		2	20 A	H...	22 HP-2 / 19 SS-2 SPLIT SYSTEM	16
17	18 FC-9 FAN COIL	H...	15 A	1			37 VA 541 VA	--	--	--	--	18
19	14 FC-7 FAN COIL	H...	15 A	1	37 VA 1000 VA			1	20 A	R...	22 POWER REEL 1	20
21	20 UH-2 UNIT HEATER	C...	20 A	3		1836 VA 1000 VA		1	20 A	R...	22 POWER REEL 2	22
23	--	--	--	--			1836 VA 1000 VA	1	20 A	R...	22 POWER REEL 3	24
25	--	--	--	--	1836 VA 1000 VA			1	20 A	R...	22 POWER REEL 4	26
27	20 ERV-1 ENERGY RECOVERY UNIT	H...	20 A	1		1080 VA 1000 VA		1	20 A	R...	22 POWER REEL 5	28
29	20 ERV-2 ENERGY RECOVERY UNIT	H...	20 A	1			1080 VA 1000 VA	1	20 A	R...	22 POWER REEL 6	30
31	20 HVAC DDC PANEL	E...	20 A	1	500 VA 1500 VA			1	20 A	E...	EXTERIOR EFSO CABINET	32
33	20 RCP-1 RECIRCULATION PUMP	M...	20 A	1		864 VA 864 VA		1	20 A	M...	EXTERIOR WEST FUEL PUMP	34
35	03/05 DA-1/ DA-2 DAMPER ACTUATORS	M...	20 A	1			48 VA 1000 VA	1	20 A	--	SPARE	36
37	SPARE	--	20 A	1	1000 VA 1000 VA			1	20 A	--	SPARE	38
39	SPARE	--	20 A	1		1000 VA 1000 VA		1	20 A	--	SPARE	40
41	SPARE	--	20 A	1			1000 VA 1000 VA	1	20 A	--	SPARE	42
			Total Load:		11326 VA	10951 VA	9984 VA					
			Total Amps:		96 A	93 A	83 A					

Legend:

Load Classification		Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C	Continuous	5598 VA	125.00%	6998 VA		
E	Equipment	2000 VA	50.00%	1000 VA	**Total Conn. Load:**	32261 VA
H	HVAC	7967 VA	90.00%	7170 VA	**Total Est. Demand:**	27625 VA
M	Motor	3696 VA	80.00%	2957 VA	**Total Conn. Current:**	90 A
R	Receptacle	6000 VA	100.00%	6000 VA	**Total Est. Demand Current:**	77 A
Spare		7000 VA	50.00%	3500 VA		

Notes:

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOOSLEY, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCDR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

PANEL SCHEDULES

SHEET ID

EP703

Branch Panel: LOH

Location: ELEC. 19
Supply From: T3
Mounting: Surface
Enclosure: Type 1

Volts: 120/240 Single
Phases: 1
Wires: 3
Sections: 1

A.I.C. Rating (Min.): 10 kA
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: 100 A

Notes:

CKT	LOAD	LT	CB	P	A		B		P	CB	LT	LOAD	CKT
1	21 EXPANDER	E...	20 A	2	1200 VA	3600 VA			2	30 A	M...	10 WASHER / DRYER	2
3	--	--	--	--			1200 VA	3600 VA	--	--	--	--	4
5	09 FREEZER	R...	20 A	2	1500 VA	1000 VA			1	20 A	--	SPARE	6
7	--	--	--	--			1500 VA	1000 VA	1	20 A	--	SPARE	8
9	SPARE	--	20 A	1	1000 VA	1000 VA			1	20 A	--	SPARE	10
11	SPARE	--	20 A	1			1000 VA	1000 VA	1	20 A	--	SPARE	12
			Total Load:		9300 VA		9300 VA						
			Total Amps:		78 A		78 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
E Equipment	2400 VA	50.00%	1200 VA		
M Motor	7200 VA	80.00%	5760 VA	**Total Conn. Load:**	18600 VA
R Receptacle	3000 VA	100.00%	3000 VA	**Total Est. Demand:**	12960 VA
Spare	6000 VA	50.00%	3000 VA	**Total Conn. Current:**	78 A
				Total Est. Demand Current:	54 A

Notes:

Branch Panel: S1

Location: 26 STORAGE
Supply From: E2
Mounting: Surface
Enclosure: Type 1

Volts: 120/208 Wye
Phases: 3
Wires: 4
Sections: 1

A.I.C. Rating (Min.): 10 kA
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: 100 A

Notes:

CKT	LOAD	LT	CB	P	A		B		C		P	CB	LT	LOAD	CKT
1	26 UH-3 UNIT HEATER	C...	30 A	3	2500 VA	400 VA					1	20 A	R...	26 EXTERIOR RECEPTACLES	2
3	--	--	--	--			2500 VA	1000 VA			1	20 A	R...	26 RECEPTACLES	4
5	--	--	--	--					2500 VA	696 VA	1	15 A	H...	26 EF-5 EXHAUST FAN	6
7	26 OVERHEAD DOOR 26.1	M...	20 A	1	1176 VA	1000 VA					1	20 A	--	SPARE	8
9	26 LIGHTING	L...	20 A	1			90 VA	1000 VA			1	20 A	--	SPARE	10
11	SPARE	--	20 A	1					1000 VA	1000 VA	1	20 A	--	SPARE	12
13	26 PANEL S1 SPD	O...	20 A	3	0 VA	0 VA					--	--	--	SPACE ONLY	14
15	--	--	--	--			0 VA	0 VA			--	--	--	SPACE ONLY	16
17	--	--	--	--					0 VA	0 VA	--	--	--	SPACE ONLY	18
			Total Load:		5076 VA		4588 VA		5196 VA						
			Total Amps:		43 A		38 A		44 A						

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
C Continuous	7500 VA	125.00%	9375 VA		
H HVAC	696 VA	90.00%	626 VA	**Total Conn. Load:**	14860 VA
M Motor	1176 VA	80.00%	941 VA	**Total Est. Demand:**	14452 VA
R Receptacle	1400 VA	100.00%	1400 VA	**Total Conn. Current:**	41 A
Spare	4000 VA	50.00%	2000 VA	**Total Est. Demand Current:**	40 A
L Lighting	90 VA	125.00%	112 VA		
O Other	0 VA	0.00%	0 VA		

Notes:

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSSOUGH, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

PANEL SCHEDULES

SHEET ID

EP704

GENERAL NOTES - EY100 SERIES SHEETS

1	JUNCTION BOXES AND ASSOCIATED CONDUIT LOCATED ON PRECAST CONCRETE WALLS SHALL BE SURFACE MOUNTED.
2	SEE TELECOMM ROOM LAYOUTS ON SHEET TN400.
3	EACH PULL ROPE SHALL BE LABELED WITH A UNIQUE IDENTIFIER TAGGED ON EACH END. THE USER END OF THE PULL ROPE SHALL ALSO INDICATE THE SOURCE LOCATION.
4	PENETRATION OPENINGS THROUGH AIR BARRIERS SHALL COMPLY WITH THE BUILDING AIR BARRIER REQUIREMENTS. CORRECT ALL PENETRATIONS THAT ARE DETERMINED DEFICIENT DURING TESTING. SEE ARCHITECTURAL SHEETS FOR AIR BARRIER TESTING BOUNDARIES. SEE ARCHITECTURE FOR SEALING PENETRATIONS.
5	DO NOT PENETRATE STRUCTURAL COLUMNS. AFIX DEVICES AND RACEWAY WITH NON-PENETRATING BEAM C-CLAMPS, BRACKETS, CLIPS, AND UNISTRUT.

(#) KEYED NOTES - EY100 SERIES SHEETS

1	GENERAL CONTRACTOR TO INSTALL JUNCTION BOXES FOR CAC READERS TO BE INSTALLED AT A LATER DATE BY FT. CARSON. SECURITY SYSTEM ON PLANS IS FOR INFRASTRUCTURE ONLY.
2	PROVIDE PATHWAYS TO INTERIOROCCUPANCY SENSOR FOR FUTURE REQUEST FOR EXIT SGNALS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: LIVIO STELLA, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

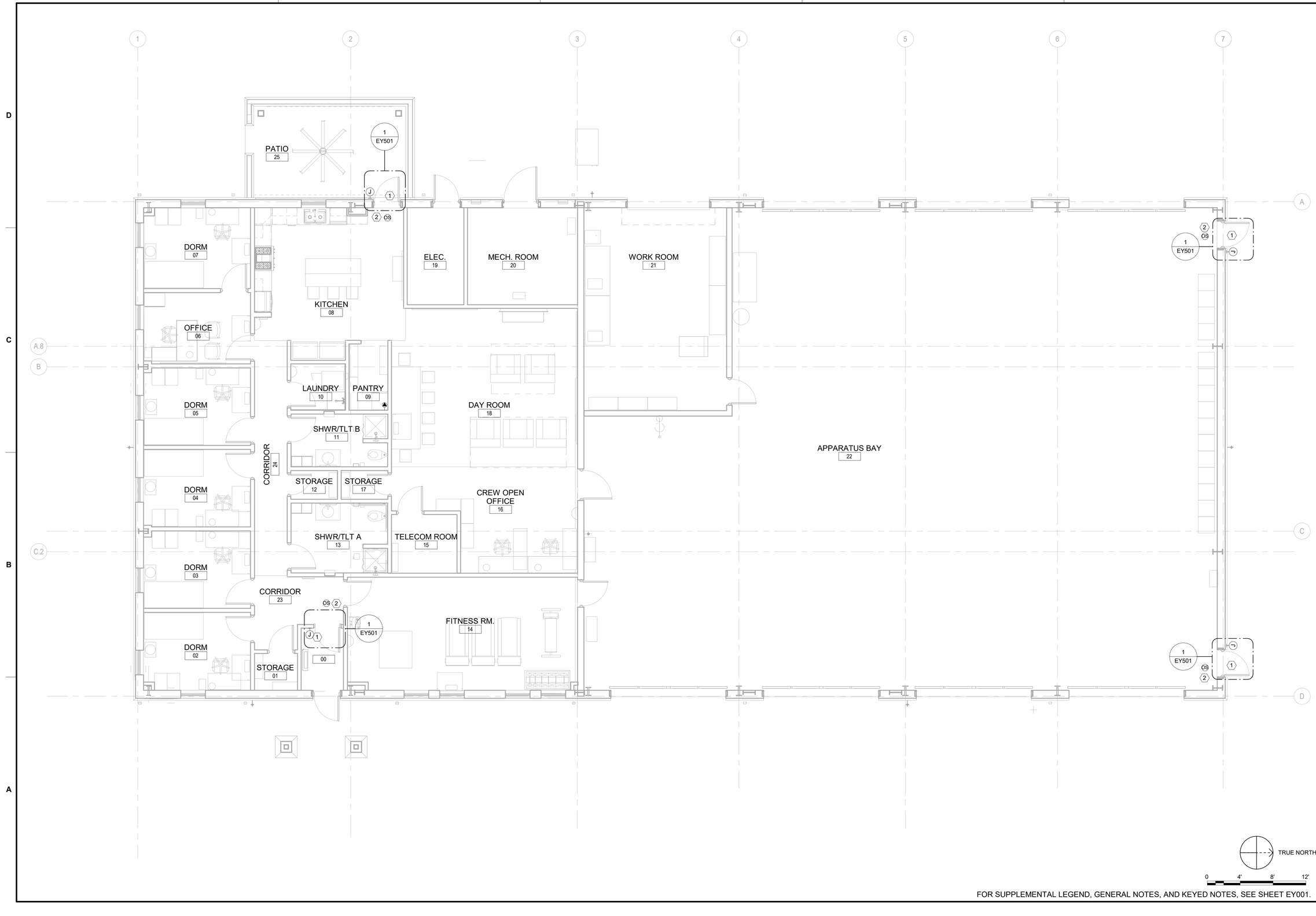
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

SECURITY NOTES

SHEET ID

EY001



TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET EY001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: LT. JOSEPH C. F.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

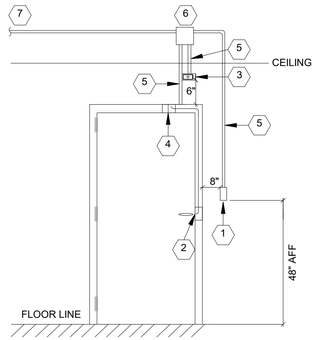
SECURITY COMPOSITE PLAN

SHEET ID

EY101

ELECTRIC HARDWARE KEYED NOTES:

1. CARD READER (N.I.C.) MOUNTS TO SINGLE GANG ELECTRICAL BOX ON UNSECURED SIDE OF DOOR. CARD READERS ON EXTERIOR DOORS SHALL INCLUDE A KEYPAD (N.I.C.).
2. SEE SPECIFICATIONS FOR LOCKSET HARDWARE FOR SPECIFIC APPLICATIONS. DEVICE TO BE EITHER ELECTRIFIED EXIT DEVICE OR ELECTRIC STRIKE MOUNTED IN DOOR FRAME (WIRE STRIKE BACK TO THE RTE J-BOX USING 18/2 CONDUCTOR) PER SPECIFICATION.
3. REX MOTION SENSOR (N.I.C.) MOUNTS TO SINGLE GANG ELECTRICAL BOX ON SECURED SIDE OF DOOR.
4. FLUSH MOUNTED DOOR POSITION SWITCH (N.I.C.) MOUNTED AT TOP OF DOOR ON SECURE SIDE OF DOOR.
5. CONDUIT 3/4" MINIMUM
6. JUNCTION BOX ON SECURE SIDE OF DOOR IN ACCESSIBLE SPACE.
7. CONDUIT TO COMM ROOM, CONDUIT SIZED PER LOCATION.



SINGLE DOOR WITH ELECTRONIC LOCK

ELECTRIC HARDWARE GENERAL NOTES:

A. CONTRACTOR SHALL COORDINATE ALL DOOR HARDWARE WITH ARCHITECTURAL HARDWARE SCHEDULE, AND SECURITY SYSTEMS PLANS. THIS SHEET IS SHOWN AS TYPICAL ONLY.

B. MINIMUM WIRE SIZE SHALL BE 18/2.

C. CONTRACTOR SHALL INSTALL FLUSH MOUNT JUNCTION BOX FOR ALL EQUIPMENT SHOWN AS NOT IN CONTRACT (N.I.C.).

D. PROVIDE 3' EXCESS CONDUCTOR AT ALL ICIDS PANEL LOCATIONS.

1 / EY501 KEYLESS CONTROLLED DOOR

N.T.S.

US Army Corps of Engineers ®

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DESIGNED BY: K. PAVLIK	ISSUE DATE: 01/20/2023
DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016
CHECKED BY: J. CHAMBERLAIN	CONTRACT NO.:
SUBMITTED BY: J. WOSSUM, P.E.	FILE NUMBER:
SIZE: ANSI D	FILE NAME: FCOR-FSTN-MEPFS2.rvt

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

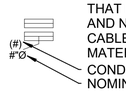
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
HN 101464 (FY23)

SECURITY DETAILS

SHEET ID

EY501

SUPPLEMENTAL TELECOM LEGEND

J	JUNCTION BOX, CEILING MOUNTED.
JH	JUNCTION BOX, WALL MOUNTED. MH = 1'-6", UON.
#D▽	DATA JACK , 8 POSITION EIT/TIA-568A, CATEGORY 6 JACK. #D INDICATES NUMBER OF DATA JACKS.
TV	CABLE TV "F" TYPE COAX OUTLET.
	LADDER-TYPE CABLE TRAY.
	THROUGH-WALL CONDUITS. LOCATE AT ELEVATION SUCH THAT BOTTOM OF CONDUIT IS NO MORE THAN 1" HIGHER AND NO LESS THAN AT SAME ELEVATION AS BOTTOM OF CABLE TRAYS. FILL CONDUITS WITH FIRE STOPPING MATERIAL AT ALL LOCATIONS. CONDUIT QUANTITY NOMINAL CONDUIT DIAMETER
+12"	DENOTES MOUNTING HEIGHT ABOVE FINISHED FLOOR MEASURED TO CENTER (OR ABOVE FINISHED GRADE AS APPLICABLE FOR EXTERIOR LOCATIONS). IF NO MOUNTING HEIGHT IS INDICATED ON PLANS (EITHER BY THIS NOTE OR BY KEYED NOTE), MOUNTING HEIGHT SHALL BE AS SHOWN ON EP500.
TE	COMMUNICATIONS CABINET. SEE DETAIL 6/TN502.

(#) KEYED NOTES - T-100 SERIES SHEETS

1	CATV AMPLIFIER/SPLITTER LOCATION.

GENERAL NOTES - T-100 SERIES SHEETS

	THE MAXIMUM NUMBER OF CAT6 CABLES PER TELECOM CONDUIT SHALL BE SIZED AS FOLLOWS: 1" C: 3 CABLES 1 1/4" C: 5 CABLES 1 1/2" C: 8 CABLES 2" C: 14 CABLES 2 1/2" C: 22 CABLES 3" C: 32 CABLES 3 1/2" C: 43 CABLES 4" C: 56 CABLES
1	UNDERGROUND CONDUITS CROSSING FOUNDATIONS SHALL BE BURIED AT A DEPTH SUCH THAT CONDUITS ARE LOCATED MINIMUM 12" BELOW THE FOUNDATIONS
2	REFER TO SHEET TN501 FOR COMMUNICATIONS LETTER DESIGNATIONS AND JACK AND CABLE COLOR.
3	CABLES SHALL BE SECURED WITH VELCRO TYPE CABLE RETAINERS. NO RATCHET-TYPE CABLE (ZIP) TIES SHALL BE USED.
4	FIRE SEAL PENETRATIONS AFTER CABLE INSTALLATION FOR CONDUIT PENETRATIONS THROUGH AIR BARRIERS AND FIRE WALLS.
5	JUNCTION BOXES, BACKBOXES, AND CONDUITS SHALL BE SURFACE MOUNTED ON PRECAST, CONCRETE, AND CONCRETE BLOCK WALLS AND STEEL MEMBERS. JUNCTION BOXES, BACKBOXES, AND CONDUITS SHALL BE RECESS MOUNTED ON GYPSUM WALLS. COORDINATE WITH ARCHITECTURAL SHEETS.
6	EACH PULL ROPE SHALL BE LABELED WITH A UNIQUE IDENTIFIER TAGGED ON EACH END. THE USER END OF THE PULL ROPE SHALL ALSO INDICATE THE SOURCE LOCATION AND VICE VERSA.
7	TELECOMMUNICATIONS PENETRATION OPENINGS THROUGH AIR BARRIERS SHALL COMPLY WITH THE BUILDING AIR BARRIER REQUIREMENTS. CORRECT ALL PENETRATIONS THAT ARE DETERMINED DEFICIENT DURING TESTING. SEE ARCHITECTURAL SHEETS FOR AIR BARRIER TESTING BOUNDARIES. SEE ARCHITECTURE FOR SEALING PENETRATIONS.
8	WHERE A CONDUIT SLEEVE IS SHOWN THROUGH A WALL BETWEEN TWO PORTIONS OF CABLE TRAY, COORDINATE HEIGHT OF SLEEVES HEIGHT WITH CABLE TRAY SUCH THAT THE SLEEVE IS SLIGHTLY ABOVE THE CABLE TRAY.
9	PROVIDE EQUIVALENT CONDUIT PATHWAYS WHERE CABLE TRAY IS INTERRUPTED BY WALLS OR NONACCESSIBLE CEILINGS.
10	DO NOT PENETRATE STRUCTURAL COLUMNS, BEAMS, AND TRUSSES. AFIX DEVICES AND RACEWAY WITH BEAM C-CLAMPS, BRACKETS, CLIPS, UNISTRUT, AND OTHER NON-PENETRATING AND NON-ADHESIVE HARDWARE.
11	COORDINATE TELECOMMUNICATIONS OUTLETS WITH POWER RECEPTACLES (EP DRAWING SERIES). SPACING SHALL BE NO GREATER THAN 6" CENTER TO CENTER PER UFC 3-580-01.
12	WHERE CABLE TRAY INFORMATION IS OMITTED FROM A SEGMENT, SIZE AND ELEVATION SHALL BE ASSUMED TO BE THE SAME AS THE ADJACENT CONNECTED SEGMENT WHICH IS CLOSER TO THE ORIGINATION TELECOM ROOM OR CABINET. PLEASE NOTE WHERE KEYED NOTES ARE USED FOR ELEVATIONS AND TRANSITIONS.
13	ALL CONDUITS SHALL BE PROVIDED WITH PULL STRING IN ADDITION TO CABLES.
14	CABLE TRAY ROUTING PATHS ARE COORDINATED WITH CEILING ELEVATIONS, LIGHTING LOCATIONS, AND HVAC DUCT ROUTING, AS SHOWN IN THE RESPECTIVE CONTRACT DOCUMENTS BUT ARE NOT SHOWN ON TN SHEETS FOR CLARITY.
15	COORDINATE CABLE TRAY AND CONDUIT ROUTING THROUGH FIRE WALLS WITH ARCHITECTURAL AND FIRE PROTECTION SHEETS. PROVIDE FIRE STOPPING MATERIAL WHERE PATHWAYS CROSS FIRE WALLS.
16	DATA OUTLETS TO BE WIRED TO BICSI STANDARDS.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: LINDSEY P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

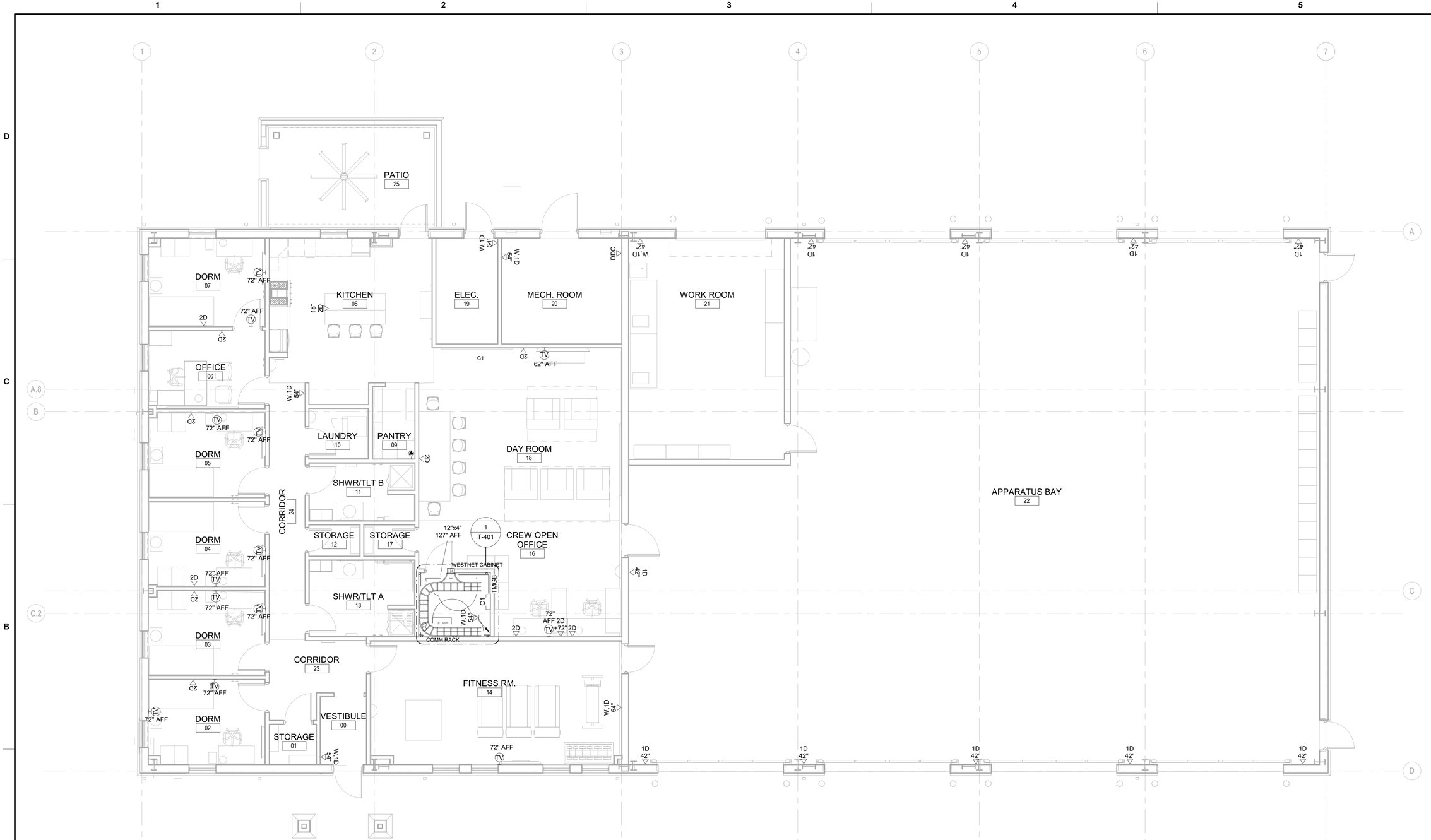
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

TELECOMMUNICATIONS LEGEND AND NOTES

SHEET ID

T-001



TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET T-001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

ISSUE DATE:	01/20/2023
SOLICITATION NO.:	W9128F23R0016
CONTRACT NO.:	
FILE NUMBER:	
DESIGNED BY:	K. PAVLIK
DRAWN BY:	K. PAVLIK
CHECKED BY:	J. CHAMBERLAIN
SUBMITTED BY:	S. ANDERSON, P.E.
FILE NAME:	FCOR-FSTN-MEPFS2.rvt
SIZE:	ANSI D

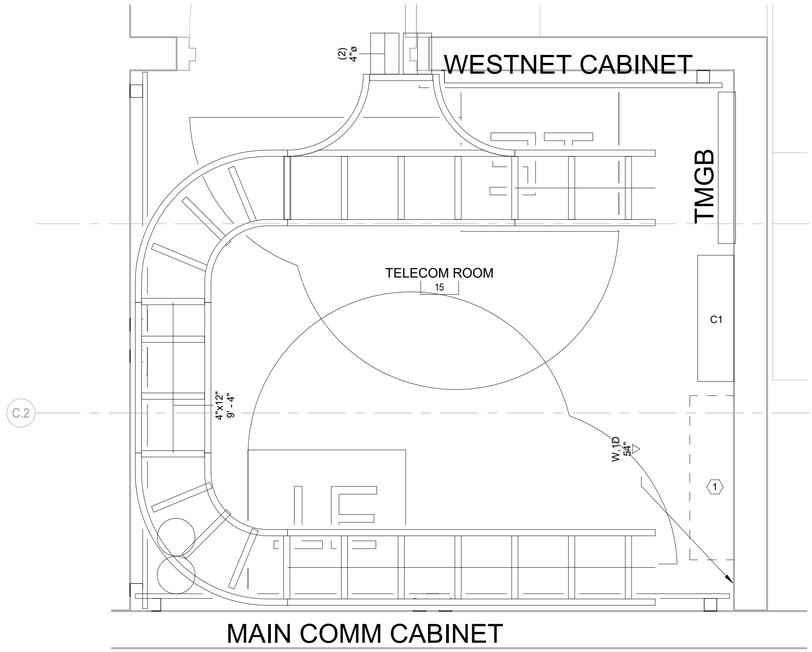
US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY25)

COMPOSITE COMM. PLAN

SHEET ID

T-101



TRUE NORTH

0 4' 8' 12'

FOR SUPPLEMENTAL LEGEND, GENERAL NOTES, AND KEYED NOTES, SEE SHEET T-001.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

DESIGNED BY: K. PAVLIK	ISSUE DATE: 01/20/2023		
DRAWN BY: K. PAVLIK	SOLICITATION NO.: W9128F23R0016		
CHECKED BY: J. CHAMBERLAIN	CONTRACT NO.:	FILE NUMBER:	
SUBMITTED BY: JOSEPH E. [illegible]			
SIZE: ANSI D	FILE NAME: FCOR-FSTN-MEPFS2.rvt		

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 107464 (FY23)

ENLARGED TELECOMMUNICATIONS ROOM

SHEET ID

T-401

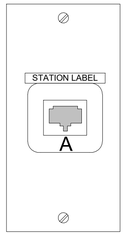
COMMUNICATIONS OUTLET CONFIGURATIONS						
SYMBOL	LABEL	PORT				DETAIL
		A	B	C	D	(TN501)
▽	N/A	D				1
▼	W	V				2
▽	2D	D	D			3
▽ V	N/A	V	D			3
▽ V	2D 1V	V	D		D	3
TV	N/A	TV				4

NOTES:
1. SEE COLOR CODE SCHEDULE ON THIS SHEET FOR CABLE AND JACK COLORS.

2. -- INDICATES BLANK PORT. FACEPLATES WITH AT LEAST ONE BLANK PORT SHALL BE PROVIDED WITH A PULL STRING TO THE COMMUNICATIONS CABINET.

COMMUNICATIONS COLOR CODE DESIGNATION SCHEDULE			
TYPE	LETTER	JACK	CABLE
DATA (NIPRNET)	D	ORANGE	WHITE
VOICE (VOIP)	V	BLUE	BLUE

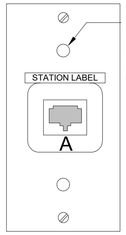
ALL CAT6 COMM OUTLETS SHALL BE 8-PIN RJ-45 U.O.N.



DATA

▽

1 T-501 SINGLE DATA OUTLET
N.T.S.

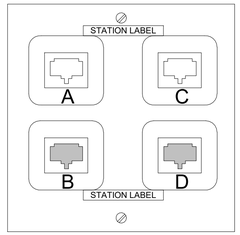


PROVIDE SINGLE GANG "LUG-TYPE" FACEPLATE FOR WALL PHONE LOCATIONS

VOICE

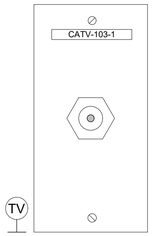
W ▼

2 T-501 WALL PHONE OUTLET
N.T.S.



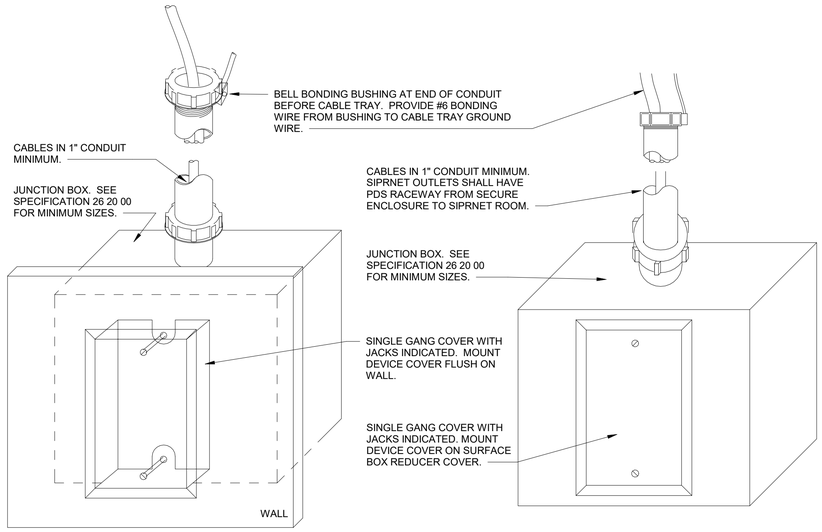
#D ▽

3 T-501 4-PORT COMM OUTLET
N.T.S.



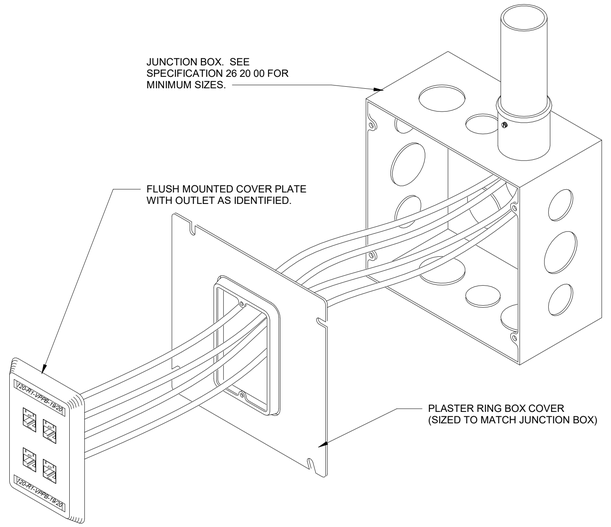
MOUNT POWER RECEPTACLE IN SEPARATE BOX.

4 T-501 CATV OUTLET
N.T.S.

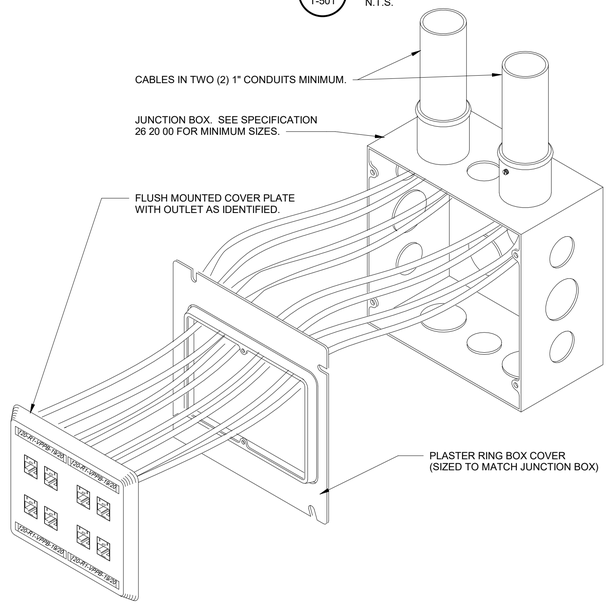


5 T-501 TYPICAL DATA AND VOICE OUTLET MOUNTING DETAIL
N.T.S.

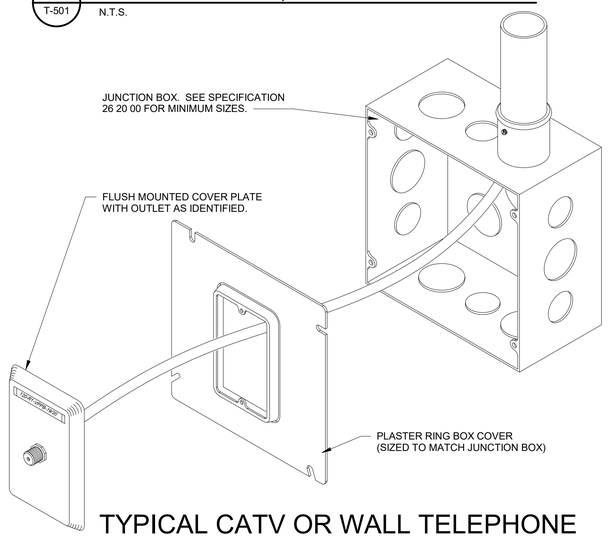
6 T-501 TYPICAL OUTLET SURFACE MOUNTING DETAIL
N.T.S.



7 T-501 TYPICAL MULTIPLE OUTLET, SINGLE GANG, MOUNTING DETAIL
N.T.S.

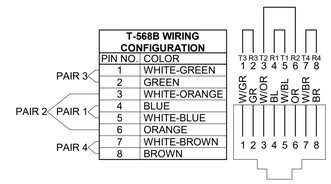


8 T-501 TYPICAL MULTIPLE OUTLET, DOUBLE GANG, MOUNTING DETAIL
N.T.S.



9 T-501 TYPICAL CATV OR WALL TELEPHONE VOICE OUTLET MOUNTING DETAIL
N.T.S.

T-568B WIRING CONFIGURATION	
PIN NO.	COLOR
1	WHITE-GREEN
2	GREEN
3	WHITE-ORANGE
4	BLUE
5	WHITE-BLUE
6	ORANGE
7	WHITE-BROWN
8	BROWN



11 T-568A WIRING CONFIGURATION
N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

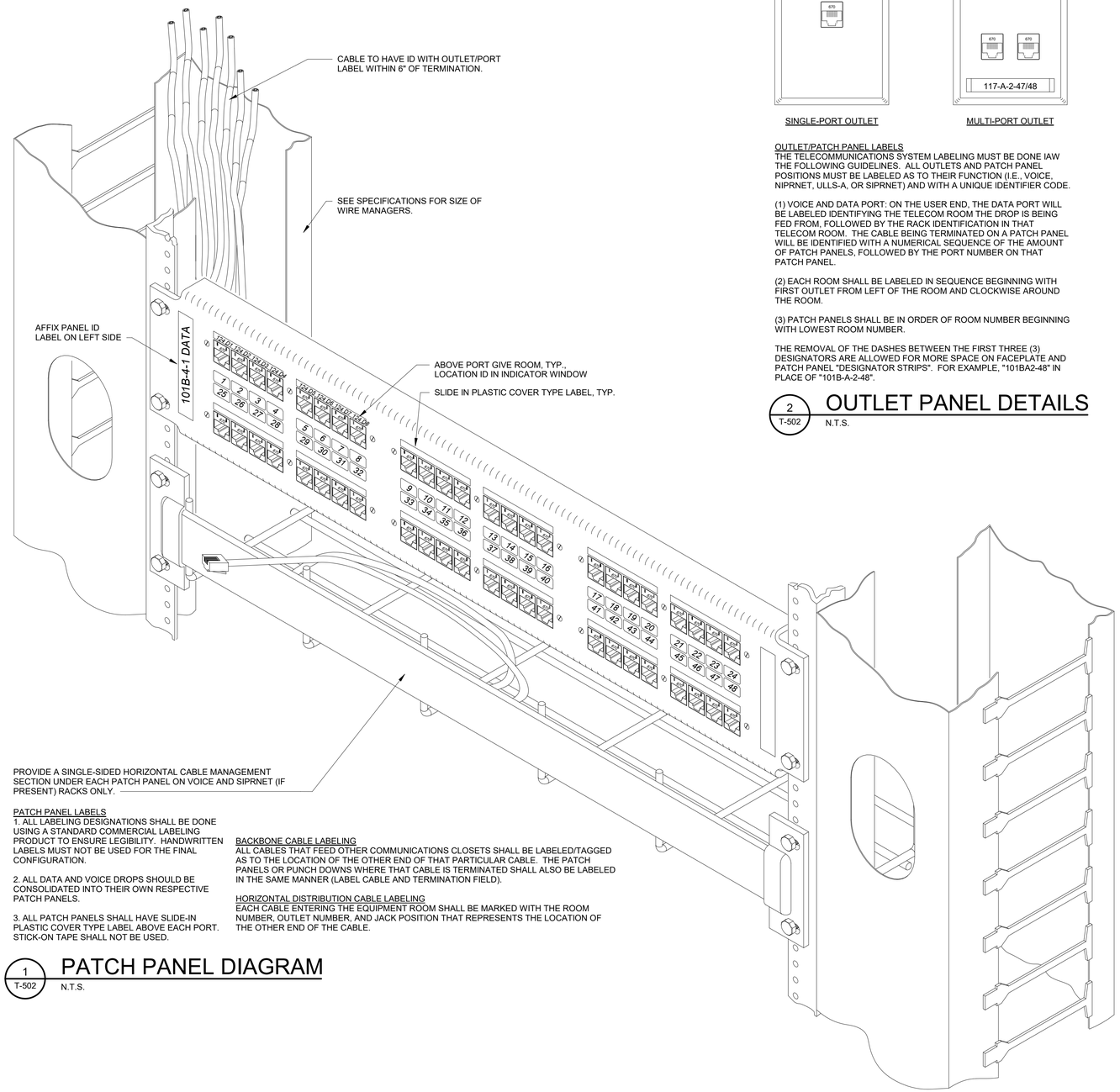
DESIGNED BY: K. PAVLIK
DRAWN BY: K. PAVLIK
CHECKED BY: J. CHAMBERLAIN
SUBMITTED BY: J. WOSSOUGH, P.E.
SIZE: ANSI D
ISSUE DATE: 01/20/2023
SOLICITATION NO.: W9128F23R0016
CONTRACT NO.:
FILE NUMBER:
FILE NAME: FCOR-FSTN-MEPFS2.rvt

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 161464 (FY23)

TELECOMMUNICATIONS DETAILS

SHEET ID

T-501



PATCH PANEL LABELS
1. ALL LABELING DESIGNATIONS SHALL BE DONE USING A STANDARD COMMERCIAL LABELING PRODUCT TO ENSURE LEGIBILITY. HANDWRITTEN LABELS MUST NOT BE USED FOR THE FINAL CONFIGURATION.

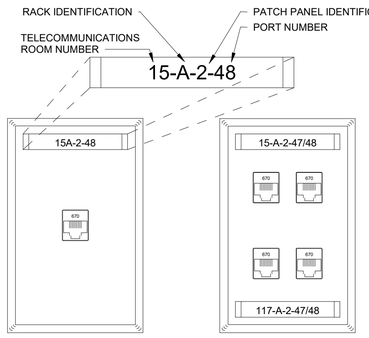
2. ALL DATA AND VOICE DROPS SHOULD BE CONSOLIDATED INTO THEIR OWN RESPECTIVE PATCH PANELS.

3. ALL PATCH PANELS SHALL HAVE SLIDE-IN PLASTIC COVER TYPE LABEL ABOVE EACH PORT. STICK-ON TAPE SHALL NOT BE USED.

BACKBONE CABLE LABELING
ALL CABLES THAT FEED OTHER COMMUNICATIONS CLOSETS SHALL BE LABELED/TAGGED AS TO THE LOCATION OF THE OTHER END OF THAT PARTICULAR CABLE. THE PATCH PANELS OR PUNCH DOWNS WHERE THAT CABLE IS TERMINATED SHALL ALSO BE LABELED IN THE SAME MANNER (LABEL CABLE AND TERMINATION FIELD).

HORIZONTAL DISTRIBUTION CABLE LABELING
EACH CABLE ENTERING THE EQUIPMENT ROOM SHALL BE MARKED WITH THE ROOM NUMBER, OUTLET NUMBER, AND JACK POSITION THAT REPRESENTS THE LOCATION OF THE OTHER END OF THE CABLE.

1 T-502 PATCH PANEL DIAGRAM
N.T.S.



OUTLET/PATCH PANEL LABELS
THE TELECOMMUNICATIONS SYSTEM LABELING MUST BE DONE IAW THE FOLLOWING GUIDELINES. ALL OUTLETS AND PATCH PANEL POSITIONS MUST BE LABELED AS TO THEIR FUNCTION (I.E., VOICE, NIPRNET, ULLS-A, OR SIPRNET) AND WITH A UNIQUE IDENTIFIER CODE.

(1) VOICE AND DATA PORT: ON THE USER END, THE DATA PORT WILL BE LABELED IDENTIFYING THE TELECOM ROOM THE DROP IS BEING FED FROM, FOLLOWED BY THE RACK IDENTIFICATION IN THAT TELECOM ROOM. THE CABLE BEING TERMINATED ON A PATCH PANEL WILL BE IDENTIFIED WITH A NUMERICAL SEQUENCE OF THE AMOUNT OF PATCH PANELS, FOLLOWED BY THE PORT NUMBER ON THAT PATCH PANEL.

(2) EACH ROOM SHALL BE LABELED IN SEQUENCE BEGINNING WITH FIRST OUTLET FROM LEFT OF THE ROOM AND CLOCKWISE AROUND THE ROOM.

(3) PATCH PANELS SHALL BE IN ORDER OF ROOM NUMBER BEGINNING WITH LOWEST ROOM NUMBER.

THE REMOVAL OF THE DASHES BETWEEN THE FIRST THREE (3) DESIGNATORS ARE ALLOWED FOR MORE SPACE ON FACEPLATE AND PATCH PANEL "DESIGNATOR STRIPS". FOR EXAMPLE, "101BA2-48" IN PLACE OF "101B-A-2-48".

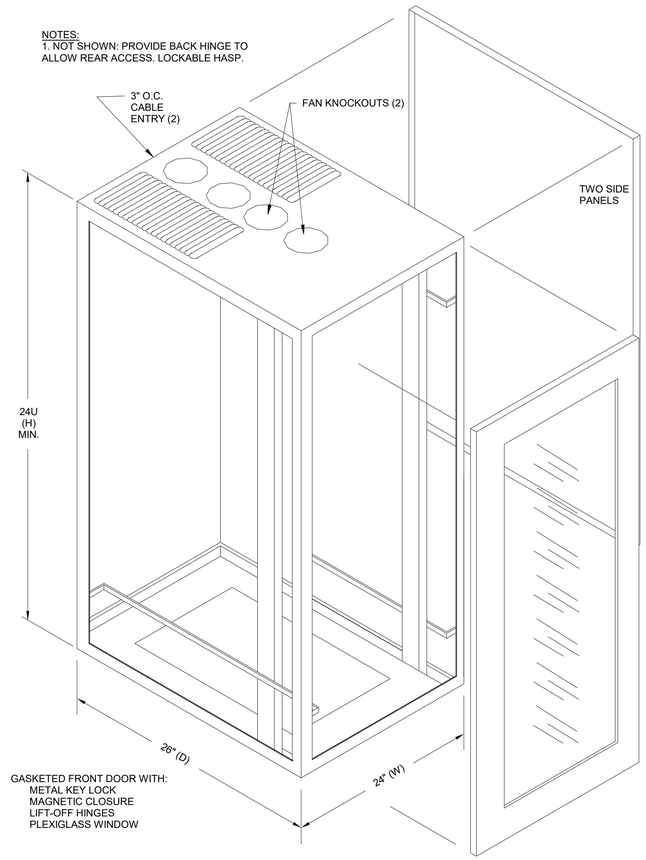
2 T-502 OUTLET PANEL DETAILS
N.T.S.

FIBER OPTIC ID	FO 07-07
# FIBER STRANDS	12 FO SM
CABLE COUNT	1-12 STRANDS

NOTES:
1. UNDER "# FIBER STRANDS", APPEND WITH "SM" FOR SINGLE-MODE FIBER OPTIC CABLE AND "MM" FOR MULTI-MODE FIBER OPTIC CABLE.
2. BUILDING ENTRANCE PROTECTOR TERMINALS AND FIBER OPTIC DISTRIBUTION PANELS SHALL BE LABELED USING YELLOW 1"x1" SIZED LABEL.

3 T-502 FIBER OPTIC PATCH PANEL LABELING EXAMPLE
N.T.S.

NOTES:
1. NOT SHOWN: PROVIDE BACK HINGE TO ALLOW REAR ACCESS. LOCKABLE HASP.



GASKETED FRONT DOOR WITH:
METAL KEY LOCK
MAGNETIC CLOSURE
LIFT-OFF HINGES
PLEXIGLASS WINDOW

4 T-502 WALL MOUNT COMMUNICATIONS CABINET
N.T.S.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

DESIGNED BY:	ISSUE DATE:
K. PAVLIK	01/20/2023
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K. PAVLIK	W9128F23R0016
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J. CHAMBERLAIN	
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J. CHAMBERLAIN, P.E.	
SIZE: FILE NAME:	
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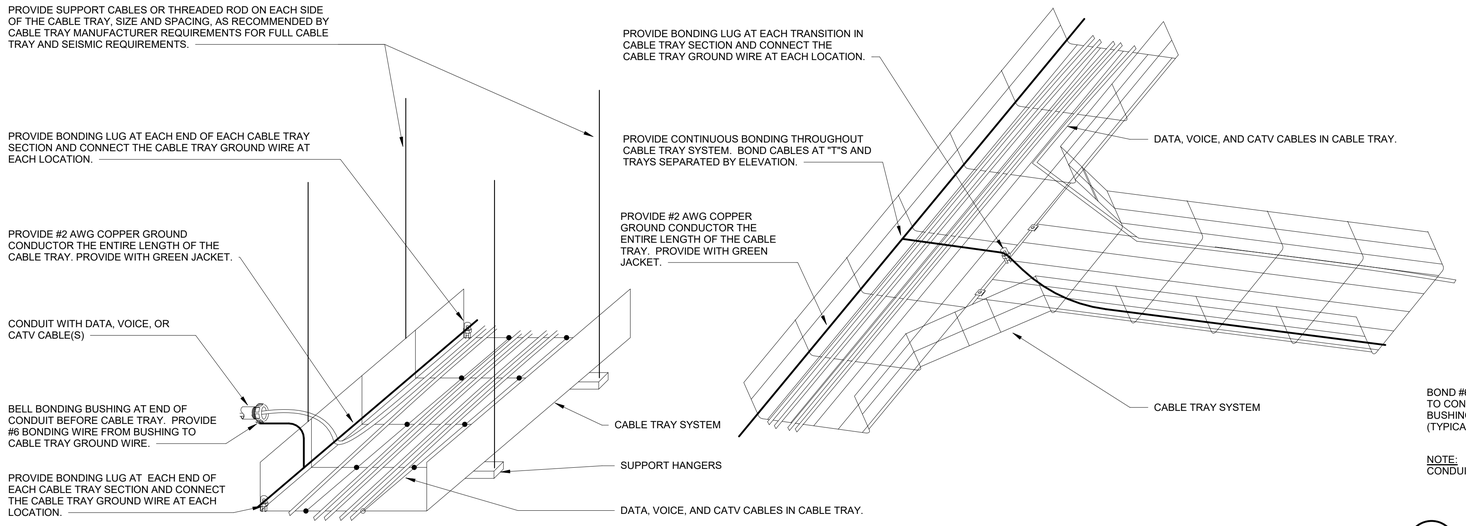
FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
FN 101468 (FY23)

TELECOMMUNICATIONS DETAILS

SHEET ID

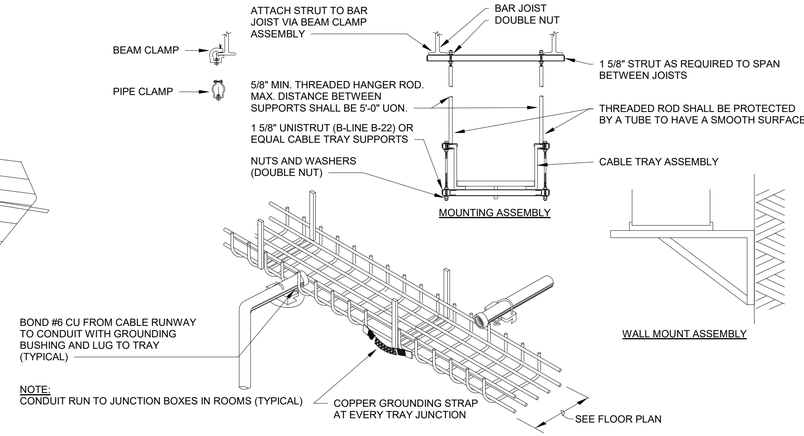
T-502



1 T-503

TYPICAL CABLE TRAY MOUNTING AND BONDING

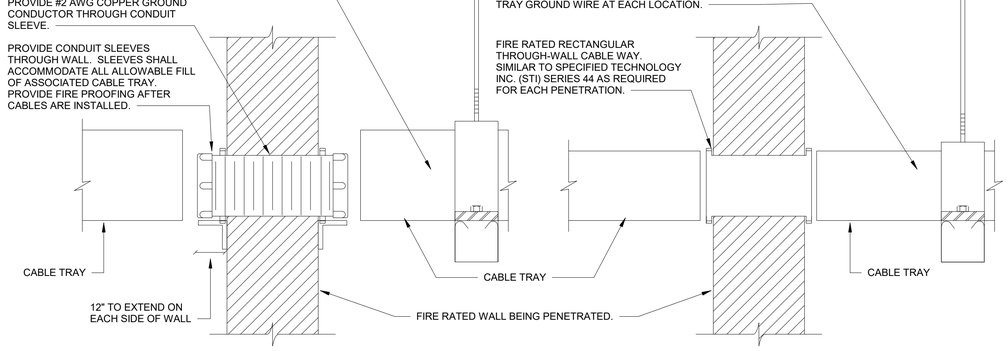
N.T.S.



2 T-503

TYPICAL CABLE RUNWAY TO CONDUIT TRANSITION DETAIL

N.T.S.



3 T-503

TYPICAL CABLE TRAY WALL PENETRATION

N.T.S.

CABLE TRAY NOTES:

1. CABLE RUNWAY SHALL BE SUPPORTED PER THE REQUIREMENTS OF NEMA VE-1, CONTRACT DOCUMENTS AND THE MANUFACTURER REQUIREMENTS. ALL NUTS, BOLTS, WASHERS, ETC., NECESSARY TO ASSEMBLE AND INSTALL THE RUNWAY ARE THE RESPONSIBILITY OF THE CONTRACTOR.

2. RUNWAY SHALL BE GROUNDED AT EACH DATA CLOSET TO NEAREST GROUND BAR. IF A GIVEN RUNWAY IS NOT RATED PER THE NEC TO BE AN EQUIPMENT GROUNDING CONDUCTOR, THEN A #4 AWG BARE GROUND CONDUCTOR SHALL BE RUN IN THE RUNWAY AND BE BONDED TO EACH SECTION. IF THE RUNWAY IS RATED PER THE NFPA 70 TO BE AN EQUIPMENT GROUNDING CONDUCTOR, BUT CONTINUITY IS LOST AT A SECTION CONNECTION, THEN PROVIDE FLEXIBLE GROUND STRAPS ACROSS SECTION JOINT.

3. AT SUPPORT POINTS, THREADED ROD MUST BE HUNG FROM CONCRETE INSERTS, CLAMPS OR DEVICES THAT ARE SECURELY FASTENED IN THE INTERMEDIATE GRID, WALL, OR BEAM SUFFICIENTLY TO CARRY THE LOAD OF THE RUNWAY AND ITS CONTENTS WITH A SAFETY FACTOR OF 1.5. CONTRACTOR IS TO USE EXTRA HANGARS WHENEVER IN DOUBT OR FOR ANY UNUSUAL SITUATION WHEN HANGAR ROD IS MOUNTED AT OTHER THAN A SPLICE POINT ALONG A RUNWAY.

4. INSTALL CABLES UNIFORMLY ACROSS THE BOTTOM OF THE RUNWAY.

5. CABLE RUNWAY AND CHANNELS SHALL NOT HAVE A CURVE RADIUS SMALLER THAN 6".

6. CABLE TRAY AND CHANNELS SHALL NOT HAVE A CURVE RADIUS SMALLER THAN 6".

7. PROVIDE 12" MINIMUM CLEARANCE FROM TOP OF CABLE TRAY TO STRUCTURE ABOVE AND 6" MINIMUM CLEARANCE FROM TOP OF CABLE TRAY TO HVAC DUCTWORK.

US Army Corps of Engineers ®

MARK	DESCRIPTION	DATE

US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

DESIGNED BY:	K. PAVLIK
DRAWN BY:	K. PAVLIK
CHECKED BY:	J. CHAMBERLAIN
SUBMITTED BY:	J. CHAMBERLAIN, P.E.
SIZE:	ANSI D
FILE NAME:	F:\CDR-FSTN-MEP\ES2.dwg
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SOLICITATION NO.:	
ISSUE DATE:	01/20/2023

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 107464 (FY23)

TELECOMMUNICATIONS DETAILS

SHEET ID

T-503

(#) KEYED NOTES:

1. 4" CONDUIT WITH (3) 1 1/4" INNER DUCTS. RUN 12-STRAND SINGLE-MODE FIBER OPTIC OUTSIDE PLANT SERVICE ENTRANCE CABLE.

2. 25-FOOT FIBER MAINTENANCE LOOP. 2 FOOT MINIMUM DIAMETER.

3. DEDICATED DOUBLE DUPLEX RECEPTACLE MOUNTED AT THE BOTTOM OF THE CABINET. MOUNT PER NEC'S DIRECTION.

4. 4" SPARE CONDUIT.

5. SPACE FOR GOVERNMENT FURNISHED, GOVERNMENT INSTALLED EQUIPMENT

6. ONE RACK UNIT HIGH, OPTICAL FIBER TERMINATION ENCLOSURE WITH LC TYPE CONNECTOR.

7. 48-PORT CATEGORY 6- RATED PATCH PANEL FOR DATA STATION CABLES.

8. CATEGORY 6 DATA STATION CABLES TO OUTLETS. SEE SCHEDULE ON SHEET T-501 FOR LETTERING DESIGNATION AND CABLE JACK COLORS.

9. 12-STRAND SINGLE-MODE FIBER OPTIC CABLE TO DATA CABINET. MOUNT FIBER OPTIC LIU OR PATCH PANEL WITH SM LC TYPE CONNECTOR.

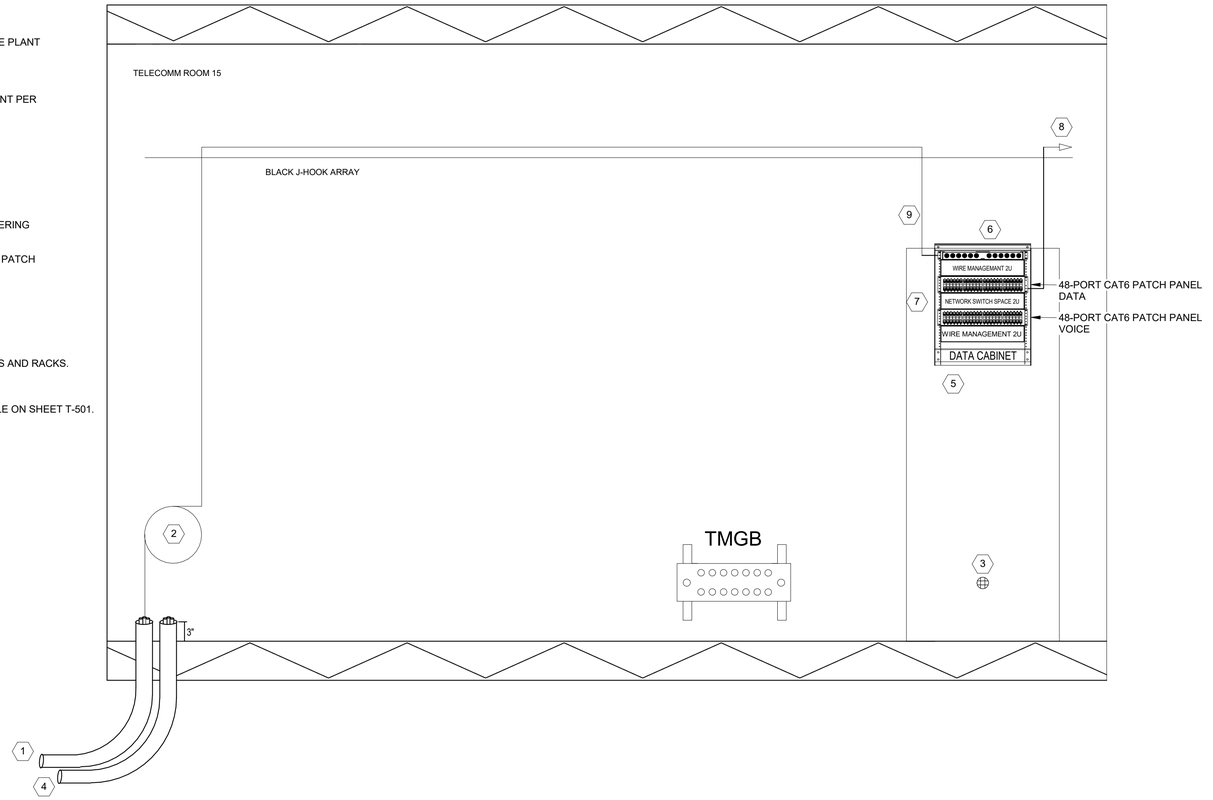
GENERAL NOTES: (THESE NOTES SHALL BE APPLIED TO ALL FA SHEETS)

1. RISER IS TYPICAL ONLY. SEE FLOOR PLANS FOR EXACT NUMBER AND LOCATIONS OF OUTLETS AND RACKS.

2. GROUND TTB'S CABINETS PER ANSI/TIA/EIA 607A

3. COMMUNICATION CONNECTORS AND CABLE COLOR SHALL BE AS INDICATED IN THE SCHEDULE ON SHEET T-501.

4. CABINET SHOULD BE 20 RU(H) MIN.



(#) KEYED NOTES:

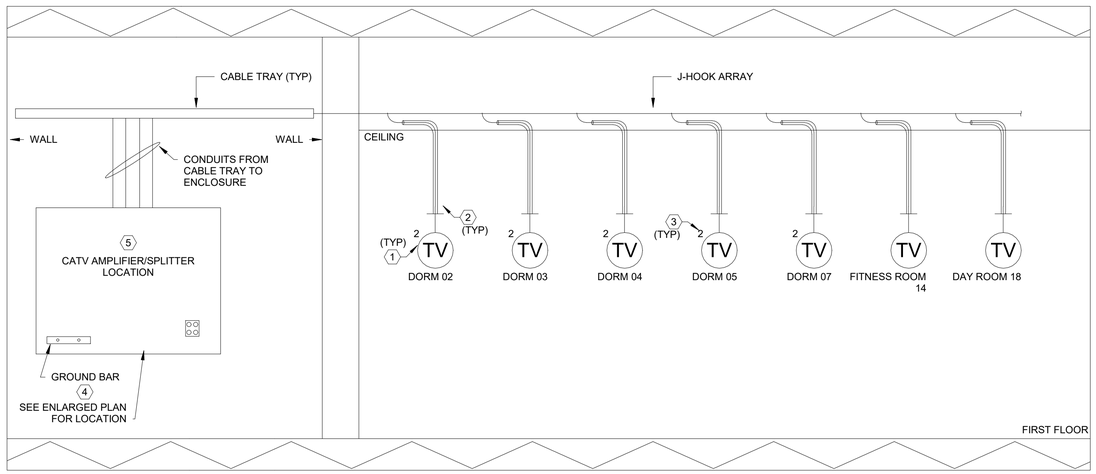
1. CABLE TV CONNECTOR/OUTLET. SINGLE-GANG BOX AND FACEPLATE WITH F-CONNECTOR FOR EACH TELEVISION OUTLET U.O.N. REFER TO PLAN SHEETS FOR DEVICE LOCATIONS.

2. RUN COAXIAL CABLE FROM CATV CONNECTOR IN 1" CONCEALED CONDUIT TO CATV ENCLOSURE.

3. INDICATED NUMBER OF COAXIAL CABLE DROPS IN ROOM IDENTIFIED. IF NO NUMBER IS SHOWN, THE QUANTITY OF DROPS IS ONE (1).

4. CONNECT CATV EQUIPMENT TO GROUND BAR WITHIN TELECOM ROOM WITH MINIMUM #6 AWG COPPER GROUND CONDUCTOR IN 3/4"C.

5. PROVIDE 48" OF COILED COAXIAL CABLE AT CATV SPLITTER/AMPLIFIER LOCATION FOR EACH HOME RUN CABLE. SPLITTERS AND AMPLIFIERS TO BE MOUNTED DIRECTLY TO PLYWOOD BACKBOARD.



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US ARMY CORPS OF ENGINEERS
OMAHA DISTRICT
1616 CAPITOL AVE
OMAHA, NE 68102

FORT CARSON, COLORADO
FIRE STATION SUPPORT FACILITY (GATE 6)
PN 101464 (FY23)

TELECOM RISER DIAGRAM

SHEET ID

T-601