NEW CONSTRUCTION

DESCRIPTION OF WORK

THE SCOPE OF WORK FOR THIS PROJECT WILL INCLUDE THE DESIGN AND RECONFIGURATION OF THE AREA 3, PAD-D LAUNCH SITE AS PART OF THE PACIFIC SPACEPORT COMPLEX ON KODIAK ISLAND, ALASKA FOR ALASKA AEROSPACE CORPORATION. THE PROJECT WILL INCLUDE THE FOLLOWING DESIGN SCOPE:

- THE SITE CIVIL CONFIGURATION AND DEVELOPMENT OF PAD D FROM A 100FT X 100FT GRAVEL SITE TO AN EXPANDED 240FT X 560FT PAD.
  a. SITE WORK WILL INCLUDE EXTENSIVE CONCRETE DESIGN INCLUDING COMMODITY PADS, RUNWAYS, LAUNCH PAD, DELUGE CATCHMENT TRENCH, UTILIDORS, AND BUILDING FOUNDATIONS.
- THE DESIGN OF THE VERTICAL INTEGRATION BUILDING (VIB) THAT WILL BE ASSOCIATED WITH PAD D. THE VIB WILL BE A PRE-ENGINEERED METAL BUILDING WITH ASSOCIATED UTILITIES.
- SUPPORTING INFRASTRUCTURE FOR WATER STORAGE AND DELUGE TANKS, COMMUNICATIONS, ELECTRICAL, COMPRESSED AIR, POWER GENERATION, AND OTHER LAUNCH SUPPORT ELEMENTS.
  a. THE VIB WILL INCLUDE LOCATING CONNEX STYLE CONTAINERS FOR ELECTRICAL HOUSING, AIR COMPRESSOR, AND OTHER COMMODITY STORAGE.

THIS PACKAGE WILL BE FOR THE PRE-ENGINEERED METAL BUILDING BID SET AND ASSOCIATED STRUCTURAL CONCRETE. ADDITIONALLY, THE PACKAGE WILL INCLUDE SITE CONCRETE DESIGN INTENDED FOR EARLY BID.

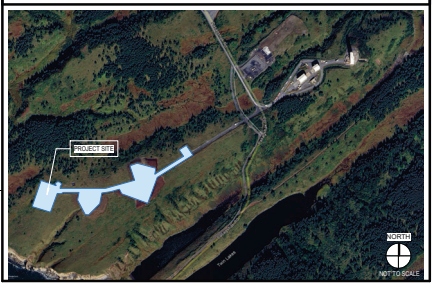
DELEGATED DESIGN / DEFERRED SUBMITTALS

THE FOLLOWING BUILDING COMPONENTS, EQUIPMENT OR SYSTEMS REQUIRE DELEGATED DESIGN SERVICES PROVIDED BY AN OUTSIDE DESIGN PROFESSIONAL. SHOP DRAWINGS FOR THESE WILL BE SUBMITTED TO THE BUILDING OFFICIAL AFTER REVIEW AND APPROVAL FROM THE DESIGNER OF RECORD.

- PRE-ENGINEERED METAL BUILDING
  1. INSULATED METAL WALL PANELS
  2. METAL ROOF PANELS
- COLD-FORMED STEEL FRAMING
- SNOW GUARDS

VICINITY MAP

LOCATION MAP



AREA 3 PAD D

ALASKA AEROSPACE CORPORATION

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

GENERAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
G-001	COVER SHEET	05/08/2026				No
G-002	ABBREVIATIONS, SYMBOLS, GENERAL NOTES	05/08/2026				No
G-003	SPECIFICATIONS	05/08/2026				No
G-004	SPECIFICATIONS	05/08/2026				No
Total Sheets: 4						

CIVIL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
B-100	TEST PIT LOCATIONS (FOR REFERENCE ONLY)	05/08/2026				No
B-101	TEST PIT LOGS (FOR REFERENCE ONLY)	05/08/2026				No
C-001	CIVIL GENERAL NOTES, LEGEND & ABBREVIATIONS	05/08/2026				No
C-101	DEMOLITION PLAN	05/08/2026				No
C-121	SITE PLAN	05/08/2026				No
C-141	GRADING & DRAINAGE PLAN	05/08/2026				No
C-161	UTILITY PLAN	05/08/2026				No
C-400	CROSS SECTIONS	05/08/2026				No
C-401	CROSS SECTIONS	05/08/2026				No
C-501	SITE DETAILS	05/08/2026				No
C-502	UTILITY DETAILS	05/08/2026				No
C-503	JOINTING DETAILS	05/08/2026				No
C-700	JOINTING PLAN	05/08/2026				No
Total Sheets: 13						

STRUCTURAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
S-001	GENERAL NOTES	05/08/2026				No
S-002	SPECIAL INSPECTIONS	05/08/2026				No
S-003	SPECIAL INSPECTIONS	05/08/2026				No
S-004	ABBREVIATIONS, LEGENDS & SPLICE TABLES	05/08/2026				No
S-005	WIND LOAD TABLES	05/08/2026				No
S-006	GRAVITY LOAD TABLES	05/08/2026				No
S-007	PEMB REQUIREMENTS	05/08/2026				No
S-008	CONCRETE SPECS	05/08/2026				No
S-100	SITE PLAN	05/08/2026				No
S-101	VIB SLAB & FOUNDATION PLANS	05/08/2026				No
S-130	LAUNCH PAD & TRENCHES SLAB PLAN	05/08/2026				No
S-131	EAST COMMODITY PAD SLAB PLAN	05/08/2026				No
S-132	WEST COMMODITY PAD SLAB PLAN	05/08/2026				No
S-133	SOUTH RAT SLAB	05/08/2026				No
S-500	SECTIONS & DETAILS	05/08/2026				No
S-501	SECTIONS & DETAILS	05/08/2026				No
S-502	SECTIONS & DETAILS	05/08/2026				No
S-503	SECTIONS & DETAILS	05/08/2026				No
S-504	SECTIONS & DETAILS	05/08/2026				No
S-505	SECTIONS & DETAILS	05/08/2026				No
S-601	SCHEDULES	05/08/2026				No
S-610	MATERIAL TAKEOFFS	05/08/2026				No
Total Sheets: 22						

ARCHITECTURE

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
E-001	CODE SUMMARY	05/08/2026				No
A-101	FLOOR PLAN	05/08/2026				No
A-191	ROOF PLAN	05/08/2026				No
A-201	ELEVATIONS	05/08/2026				No
A-301	BUILDING SECTIONS	05/08/2026				No
A-901	DETAILS	05/08/2026				No
Total Sheets: 6						

MECHANICAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
M-001	LEGENDS & GENERAL NOTES	05/08/2026				No
M-002	GENERAL NOTES	05/08/2026				No
M-101	HVAC FLOOR PLAN	05/08/2026				No
M-401	MECHANICAL ENLARGED PLANS	05/08/2026				No
M-501	MECHANICAL DETAILS	05/08/2026				No
M-601	MECHANICAL SCHEDULES	05/08/2026				No
M-701	MECHANICAL CONTROL DIAGRAMS	05/08/2026				No
Total Sheets: 7						

PLUMBING

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
P-001	ABBREVIATIONS, LEGEND AND GENERAL NOTES	05/08/2026				No
P-101	PLUMBING PLAN	05/08/2026				No
P-121	SITE PLAN	05/08/2026				No
P-401	PLUMBING ENLARGED PLANS	05/08/2026				No
P-501	PLUMBING DETAILS	05/08/2026				No
P-502	PLUMBING TANK DETAILS	05/08/2026				No
P-601	PLUMBING SCHEDULES	05/08/2026				No
P-901	PLUMBING SCHEMATIC RISERS	05/08/2026				No
Total Sheets: 8						

ELECTRICAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
E-001	ELECTRICAL LEGEND & ABBREVIATIONS	05/08/26				No
E-002	ELECTRICAL SPECIFICATIONS	05/08/26				No
E-101	ELECTRICAL PLAN	05/08/26				No
EL-101	ELECTRICAL LIGHTING PLAN	05/08/26				No
E-121	SITE PLAN	05/08/26				No
E-122	SITE GROUNDING	05/08/26				No
E-123	SITE LIGHTNING PROTECTION	05/08/26				No
E-401	ENLARGED ELECTRICAL PLANS	05/08/26				No
E-402	ENLARGED ELECTRICAL PLAN	05/08/26				No
E-403	ENLARGED GROUNDING PLAN	05/08/26				No
E-501	ELECTRICAL DETAILS	05/08/26				No
E-502	HAZARDOUS AREAS	05/08/26				No
E-503	AREA WARNING LIGHTS	05/08/26				No
E-504	ELECTRICAL DETAILS	05/08/26				No
E-505	ELECTRICAL DETAILS	05/08/26				No
E-601	ONE LINE DIAGRAM	05/08/26				No
E-602	CONDUIT ONE-LINES WITH LENGTHS	05/08/26				No
E-701	PANEL SCHEDULES	05/08/26				No
E-702	PANEL SCHEDULES	05/08/26				No
Total Sheets: 19						

ISSUE FOR CONSTRUCTION
05/08/2026

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
COVER SHEET

DRAWING NO.
G-001

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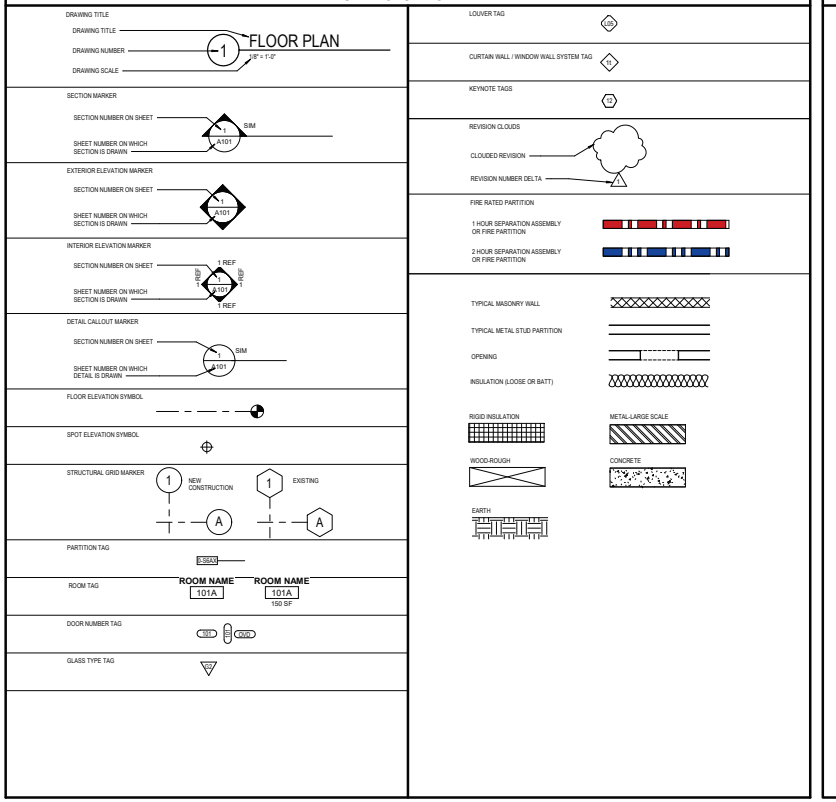
ABBREVIATIONS

AAC	ALASKA AEROSPACE CORPORATION
ABV	ABOVE
AFF	ABOVE FINISHED FLOOR
AF	ACCESS FLOOR
AP	ACCESS PANEL
ACOUS	ACOUSTICAL
APC	ACOUSTIC PANEL CEILING
AWC	ACOUSTICAL WALL COVERING
ADJUST	ADJUSTABLE
A/C	AIR CONDITIONING
AHU	AIR HANDLING UNIT
AL, ALUM	ALUMINUM
ALT	ALTERNATE
ADA	AMERICANS W/ DISABILITIES ACT
AB	ANCHOR BOLT
L	ANGLE
ANOD	ANODIZE
APPROX	APPROXIMATE
A/E	ARCHITECT/ENGINEER
ARCH	ARCHITECT
ASSY	ASSEMBLY
ASPH	ASPHALT
@	AT
BKS	BACKSPLASH
BM	BEAM
BRG	BEARING
BTW	BETWEEN
BF	BIFOLD
BLK	BLOCK (NG)
BD	BOARD
BLT	BOLT
BND	BOND
BS	BOTH SIDES
BOT	BOTTOM
B.O.	BOTTOM OF
BRK	BRICK
BRZ	BRONZE
BLDG	BUILDING
BL	BUILDING LINE
BP	BYPASS
CAB	CABINET
CAR	CARPET
CSWK	CASEWORK
CIP	CAST IN PLACE
CLG	CEILING
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CTR	CENTER
CL, ℄	CENTERLINE
C TO C	CENTER TO CENTER
CT	CERAMIC TILE
CHBD	CHALKBOARD
C	CHANNEL
CLRM	CLASSROOM
CO	CLEANOUT
CLR	CLEARANCE, CLEAR
CLOS	CLOSET
CRC	COLD ROLLED CHANNEL
COL	COLUMN
COMB	COMBINATION
CONC	CONCRETE
CCB	CONCRETE BLOCK
CMU	CONCRETE MASONRY UNIT
CONF	CONFERENCE
CONN	CONNECTION
CONST	CONSTRUCTION
CJ	CONSTRUCTION, CONTROL JOINT
CONT	CONTINUOUS
CONTR	CONTRACTOR
CFE	CONTRACTOR FURNISHED EQUIP
COORD	COORDINATE
CPG	COPING
CG	CORNER GUARD
CORR	CORRIDOR
CTSK	COUNTER SINK
CRS	COURSE
DP	DAMPPROOFING
DB	DECIBEL
DEPT	DEPARTMENT
DET	DETAIL
DIAG	DIAGONAL
DIA, ∅	DIAMETER
DIM	DIMENSION
DW	DISHWASHER
DISP	DISPENSER
DBL	DOUBLE
DR	DOOR
DG	DOOR GRILLE
DO	DOOR OPENING
DN	DOWN
DS	DOWNSPOUT
DWG	DRAWING
DF	DRINKING FOUNTAIN
DYR	DRYER
EA	EACH
EAF	EACH FACE
E	EAST
ELEC	ELECTRIC (AL)
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EL	ELEVATION
ELEV	ELEVATOR
ENCL	ENCLOSURE
ENGR	ENGINEER
ENT	ENTRANCE
EQ	EQUAL
EQUIP, EQMT	EQUIPMENT
EXH	EXHAUST
EF	EXHAUST FAN
EXIST	EXISTING
EG	EXISTING GRADE
EXP	EXPANSION
EJ, EXP JT	EXPANSION JOINT
EXT	EXTERIOR
ECB	EXTERIOR CEMENT BOARD
EXTD	EXTRUDED
FAB	FABRIC
FBR	FACE BRICK
FDS	FACE OF STUDS
FOW	FACE OF WALL
FM	FACTORY MUTUAL
FED SPEC	FEDERAL SPECIFICATIONS
FT	FEET, FOOT
FIN	FINISH
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FR	FIRE RESISTANT (RATED)
FPRF	FIREPROOF
FXT	FIXTURE
FL/SH'G	FLASHING
FLEX	FLEXIBLE
FL	FLOOR
FLD, FD	FLOOR DRAIN
FLUOR	FLUORESCENT
FSE	FOOD SERVICE EQUIPMENT
FTG	FOOTING
FDN	FOUNDATION
FS	FULL SIZE
FURN	FURNISH
FBO	FURNISHED BY OWNER
FURG	FURRING

GA	GAGE
GALV	GALVANIZED
GALV STL	GALVANIZED STEEL
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GL	GLASS
GOVT	GOVERNMENT
GFE	GOVERNMENT FURNISHED EQUIPMENT
GB	GRAB BAR
GR	GRADE
GRL	GRILLE
GND	GROUND
GT	GROUT
GYP	GYPSUM
GWB	GYPSUM WALLBOARD
HNDRL	HANDRAIL
HDW	HARDWARE
HDWD	HARDWOOD
HD	HEAD
HDR	HEADER
HVAC	HEATING/VENTILATION/AIR COND
HGT	HEIGHT
H	HIGH
HP	HIGH POINT
HC	HOLLOW CORE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
HB	HOSE BIBB
HWH	HOT WATER HEATER
HR	HOUR
IR	IMPACT RESISTANT
IN	INCHES
INFO	INFORMATION
ID	INSIDE DIAMETER
IG	INSULATED GLASS
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JAN	JANITOR
JAN CLOS	JANITOR CLOSET
JT	JOINT
JST	JOIST
KD	KNOCKDOWN
KO	KNOCK OUT
LAB	LABORATORY
LAM	LAMINATE
LP	LAMINATED PLASTIC
LW	LAMINATED WOOD
LAT	LATITUDINAL
LAV	LAVATORY
L	LEFT
LH	LEFT HAND
LTG	LIGHTING
LT WT	LIGHT WEIGHT
LWC	LIGHT WEIGHT CONCRETE
LG	LONG
LONG	LONGITUDINAL
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LVR	LOUVER
LP	LOW POINT
LSC	NFPA LIFE SAFETY CODE
LBS or (#)	POUNDS
MACH	MACHINE
MAINT	MAINTENANCE
MFR	MANUFACTURER
MFG	MANUFACTURING
MP	MAPLE
M	MARBLE
MAR	MARCITE
MO	MASONRY OPENING
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MC	MEDICINE CABINET
MTG	MEETING
MEMB	MEMBRANE
MTL	METAL
MBM	METAL BUILDING MANUFACTURER
MLC	METAL LINEAR CEILING
MS	METAL STUD
MEZZ	MEZZANINE
MW	MICROWAVE
MIL	MILITARY
MLWK	MILLWORK
MIN	MINIMUM
MIR, M	MIRROR
MISC	MISCELLANEOUS
MR	MOISTURE RESISTANT
MLDG	MOLDING
MTR	MORTAR
MTD	MOUNTED
MH	MOUNTING HEIGHT
MUL	MULLION
NAP	NO APPLIED FINISH
NRC	NOISE REDUCTION COEFFICIENT
NOM	NOMINAL
NR	NON-RATED
N	NORTH
NE	NORTHEAST
NW	NORTHWEST
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO., #	NUMBER
OFF	OFFICE
OC	ON CENTER
OPNG	OPENING
OPP	OPPOSITE
OPP HAND	OPPOSITE HAND
OPT	OPTIONAL
OZ	OUNCE
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
O/O	OUT TO OUT
OA	OVERALL
OVHG	OVERHANG
OH	OVERHEAD
PNL	PANEL
P	PAINT
PTD	PAINTED
PCMU	PAINTED CONCRETE MASONRY UNIT
PGWB	PAINTED GYPSUM WALLBOARD
PR	PAIR
PBD	PARTICLE BOARD
PTN, PART	PARTITION
PVMT	PAVEMENT
PGBD	PEGBOARD
PLCS	PLACES
PLAS	PLASTER, PLASTIC
PLAM	PLASTIC LAMINATE
PL	PLATE
PLBG	PLUMBING
PLWD,PLYWD	PLYWOOD
PKT	POCKET
POL	POLISH
PVC	POLYVINYL CHLORIDE

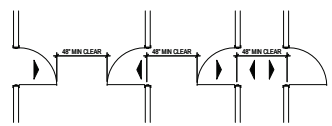
POR	PORCELAIN TILE
LB, #	POUND
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PCC	PRECAST CONCRETE
PJ	PRECAST WALL JOINT
PREFAB	PREFABRICATED
PT	PRESSURE TREATED
PP	PRIME PAINT
PROJ	PROJECT
QTY	QUANTITY
QT	QUARRY TILE
RAD, R	RADIUS
RCPT	RECEPTACLE
REC	RECESSED
RECT	RECTANGULAR
REF	REFERENCE
RCP	REFLECTED CEILING PLAN
REFR, REFRIG	REFRIGERATOR
REINF	REINFORCING
REM	REMOVABLE
RMV	REMOVED
REQD	REQUIRED
REQT	REQUIREMENT
RF	RESILIENT FLOOR
RA	RETURN AIR
REV	REVISION / REVISED
RT	RIGHT
RH	RIGHT HAND
RI	RIGID INSULATION
R	RISER, RADIUS
RD	ROOF DRAIN
RM	ROOM
RO	ROUGH OPENING
RND	ROUND
RBR	RUBBER
RUB	RUBBER TILE OR ROLL FLOORING
SWL	SANITARY WASTE LEADER
SCHED	SCHEDULE
SJ	SCORED JOINT
SLNT	SEALANT
S CONC	SEALED CONCRETE
SLR	SEALER
SVCB	SEAMLESS VINYL COVE BASE
SECT	SECTION
SERV SK	SERVICE SINK
SHT	SHEET
SV	SHEET VINYL
SVC	SHEET VINYL COVE
SH	SHELF / SHELVES
SHWR	SHOWER
SIM	SIMILAR
SGD	SLIDING GLASS DOOR
SC	SOLID CORE
SND	SOUND
SAB	SOUND ATTENUATION BLANKET
SI	SOUND BATT INSULATION
STC	SOUND TRANSMISSION CLASS
S	SOUTH
SE	SOUTHEAST
SW	SOUTHWEST
SP	SPACES
SPCT	SPECIAL COATING
SPF	SPECIAL FINISH
SPEC	SPECIFICATIONS
SB	SPLASH BLOCK
SQ	SQUARE
SF	SQUARE FEET
SQ IN	SQUARE INCHES
STAG	STAGGERED
ST	STAINED
STBLK	STAINED BLOCK
SST, SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPENDED
SACT	SUSPENDED ACOUSTICAL CEILING TILE
STN CONC	STAINED CONCRETE
SYS	SYSTEM
TKBD	TACKBOARD
TECH	TECHNICAL
TEL, TELE	TELEPHONE
TV	TELEVISION
TEMP	TEMPERATURE or TEMPERED
TEMPY	TEMPORARY
TEX	TEXTURES
THK	THICK
TH	THRESHOLD
THRU	THROUGH
TWF	THROUGH-WALL FLASHING
TLT	TOILET
TA	TOILET ACCESSORIES
TP	TOILET PARTITION
T/	TOP
T & B	TOP AND BOTTOM
TC	TOP CHORD
T.O.	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
T	TREAD
TYP	TYPICAL
UC	UNDERCUT
UL	UNDERWRITERS LABORATORY
UG	UNDERGROUND
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UON	UNLESS OTHERWISE NOTED
UR	URINAL
VAN	VANITY
VB	VAPOR BARRIER
VPS	VENEERED PLASTER (SMOOTH)
VPT	VENEERED PLASTER (TEXTURED)
VTR	VENT THRU ROOF
VENT	VENTILATING
VERT	VERTICAL
VEST	VESTIBULE
V	VINYL
VCT	VINYL COMPOSITION TILE
VC	VINYL COVE
VGWB	VINYL COVERED GYPSUM WALLBOARD
VRB	VENTED RUBBER BASE
VS	VINYL STRAIGHT
VT	VINYL TILE
VWC	VINYL WALL COVERING
WSCT	WAINSCOT
WSH	WASHER
WC	WATER CLOSET
WP	WATERPROOFING
WH	WALL HYDRANT
WT	WALL THICKNESS
WSP	WEATHERSTRIP
WWF	WELDED WIRE FABRIC
W	WEST
WIN	WINDOW
WM	WIRE MESH
W/	WITH
W/O	WITHOUT
WD	WOOD
WDFLR	ATHLETIC WOOD FLOORING

SYMBOLS LEGEND

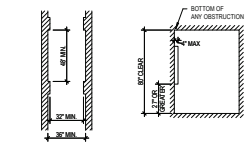


GENERAL NOTES

1. CONTRACTOR IS RESPONSIBLE FOR VERIFYING SITE, FIELD AND BUILDING CONDITIONS ASSOCIATED WITH THIS WORK PRIOR TO SUBMITTING BIDS AND COMMENCING WORK. IF THERE ARE ANY DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS, CONFER WITH CONSTRUCTION MANAGER AND ARCHITECT/ENGINEER FOR RESOLUTION.
2. ADDITIONS/ALTERATIONS PROJECTS: THE DESIGN DEPICTED HEREIN IS BASED ON INFORMATION (AS-BUILTS, RECORD DRAWINGS, SURVEY, GEOTECHNICAL SERVICES, ETC.) PROVIDED BY THE OWNER OR OTHERS. UNLESS OTHERWISE DIRECTED BY THE CONTRACT, ANY VERIFICATION OF THIS INFORMATION IS LIMITED TO FIELD OBSERVATION. UNKNOWN CONDITIONS MAY EXIST THAT WILL ONLY BE REVEALED AS THE CONTRACTOR'S WORK PROGRESSES. GIVEN THE NATURE OF THESE PROJECTS, THE CONTRACTOR SHOULD ANTICIPATE THE NEED FOR ADJUSTMENTS TO THE DESIGN AS UNKNOWN CONDITIONS ARE DISCOVERED DURING CONSTRUCTION.
3. CONTRACTOR SHALL FURNISH ALL ADDITIONAL DATA AND DOCUMENTATION TO SECURE ALL REQUIRED PERMITS AND SHALL COORDINATE THIS DATA WITH THE CONSTRUCTION DOCUMENTS WHERE REQUIRED.
4. ALL DETAILS AND SECTIONS SHOWN IN THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO SIMILAR CONDITIONS ELSEWHERE ON THE PROJECT, EXCEPT WHERE INDICATED BY A DIFFERENT DETAIL.
5. CONTRACTOR TO PROVIDE COMPLETE AND WORKING MEP/FP/FIT SYSTEMS IF INDICATED IN ANY PORTION OF THE DRAWINGS.
6. PLANS WHICH APPEAR AS BACKGROUNDS ON ENGINEERING DRAWINGS ARE FOR THE PURPOSE OF ILLUSTRATING GENERAL SPACE CONFIGURATION ONLY AND SHALL NOT BE USED FOR PORTIONS OF THE WORK OTHER THAN THAT PERTAINING TO THE TITLE OF EACH SHEET.
7. AROUND ALL EXPOSED PIPES, CONDUIT OR DUCTS, INSTALL ENCLOSURES OF THE SAME MATERIAL AND FINISH AS ADJACENT WORK, UNLESS NOTED OTHERWISE.
8. PROVIDE AND INSTALL ALL NECESSARY SUPPORT, BLOCKING, ANCHORING AND BRACING FOR ELECTRIC LIGHT FIXTURES, CHANDELIERS, OPERABLE PARTITIONS, TOILET PARTITIONS, MECHANICAL EQUIPMENT, PIPES, DUCTWORK, CABLE TRAYS, OTHER UTILITY APPURTENANCES, AND SIMILAR MISC. METALS NOTED OR IMPLIED IN THE CONTRACT DOCUMENTS.
9. ANY SURFACES OR AREAS NOT CLEARLY DEFINED OR INDICATED BY FINISH SCHEDULE SHALL BE OF SAME MATERIAL AND FINISH AS SURFACES OR AREAS OF SIMILAR USE ELSEWHERE.
10. FINISHES SHOWN IN SCHEDULE TO EXTEND OVER, UNDER AND BEHIND CABINETS, COUNTERS, EQUIPMENT, FURNISHINGS, CHALK AND TACK BOARDS, RACKS, AND FIXTURES APPROXIMATELY 1"-2", WALLS BEHIND SAME TO BE FILLED AND PRIMED.
11. WALL FINISHES SHALL INCLUDE ALL PROJECTIONS, RECESSES, COLUMNS, ENCLOSURES AND BULKHEADS.
12. EXTERIOR PERIMETER OF ALL WINDOWS, DOOR FRAMES, LOUVERS OR OTHER ITEMS INSERTED IN AN EXTERIOR WALL SHALL BE SEALED WEATHER TIGHT WHETHER INDICATED ON DRAWINGS OR NOT.
13. SEE STRUCTURAL DRAWINGS FOR LOCATIONS OF ALL VERTICAL AND HORIZONTAL MASONRY WALL REINFORCEMENT.
14. FIELD CHECK ALL ROUGH AND/OR FINISH DIMENSIONS FOR ACCURATE FITTING OF EQUIPMENT, CABINETS, COUNTERS, FIXTURES AND ACCESSORIES BEFORE FABRICATION. PROVIDE AND INSTALL ALL NECESSARY FILLERS, SCRIBE STRIPS, PANELS, BASES OR TRIM TO COMPLETE AND FINISH INSTALLATIONS.
15. CONSULT PLUMBING, ELECTRICAL AND MECHANICAL DRAWINGS FOR LOCATIONS AND DESCRIPTION OF ACCESS PANELS, LOUVER OPENINGS, VENTILATORS, GRILLES, REGISTERS, PANELS, VALVE CABINETS, DRINKING FOUNTAINS, ETC.
16. ALL SWITCHES, OUTLETS, THERMOSTATS, CLOCKS, SPEAKERS, FLAG POLE HOLDERS OR OTHER WALL MOUNTED DEVICES OR CONTROLS SHALL BE INSTALLED IN LOCATIONS WHICH ARE UNOBSTRUCTED BY CABINETS, COUNTERS, RACKS, FIXTURES, CHALK AND TACK BOARDS, FURNISHINGS OR EQUIPMENT. ITEMS INTENDED FOR WALL MOUNTING SHALL NOT BE INSTALLED ON, THROUGH OR INTO ANY OTHER EQUIPMENT UNLESS SPECIFICALLY CALLED FOR. VERIFY MOUNTING HEIGHTS WITH ADA REQUIREMENTS.
17. PROVIDE AND INSTALL ALL NECESSARY HARDWARE, BRACKETS, BRACING, ANCHORING, INSERTS, BLOCKING, FURRING OR OTHER SUPPLEMENTARY ITEMS NEEDED FOR COMPLETE INSTALLATION OF EQUIPMENT, CABINETS, FIXTURES, ACCESSORIES, CCTV, INTERCOM, PROJECTORS, ETC.



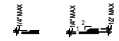
B3 DOOR IN SERIES AND GATES IN SERIES
1/4" = 1'-0"



CLEAR WIDTH OF AN ACCESSIBLE ROUTE
A117.1 §403.5

LIMITS OF PROTRUDING OBJECTS
A117.1 §307.2

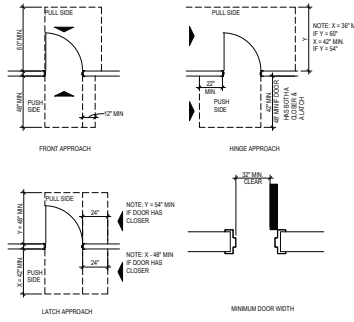
B4 MINIMUM CLEAR PASSAGE AND PROTRUDING OBJECTS
1/4" = 1'-0"



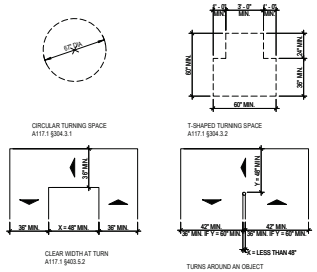
MAXIMUM VERTICAL LEVEL CHANGE IN WALKING SURFACE
A117.1 §303.2

MAXIMUM BEVELED LEVEL CHANGE IN WALKING SURFACE
A117.1 §303.3

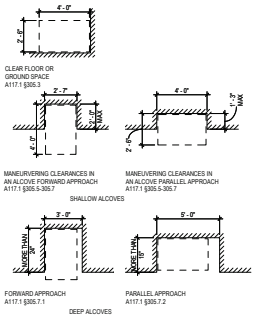
B5 CHANGED IN LEVELS
1 1/2" = 1'-0"



A3 MANEUVERING CLEARANCES AT MANUAL SWINGING DOORS AND GATES
1/4" = 1'-0"



A4 TURNING SPACE
1/4" = 1'-0"



A5 CLEAR FLOOR OR GROUND SPACE
1/4" = 1'-0"

0 1/2" 1" 1 1/2" 2"
1 1/2" = 1'-0"
0 2' 4' 8' 12'
1/4" = 1'-0"

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHHOLDER OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
ABBREVIATIONS, SYMBOLS, GENERAL NOTES

DRAWING NO.
G-002

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SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Silicone joint sealants.
2. Latex joint sealants.
3. Acoustical joint sealants.
1.2 ACTION SUBMITTALS
A. Product Data: For each joint-sealant product indicated.
B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
C. Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.
1.3 INFORMATIONAL SUBMITTALS
A. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
1.4 CLOSEOUT SUBMITTALS
A. Manufacturers' special warranties.
B. Installer's special warranties.
1.5 QUALITY ASSURANCE
A. Installer Qualifications: Authorized representative who is trained and approved by manufacturer.
B. Testing Agency Qualifications: Qualified in accordance with ASTM C1021 to conduct the testing indicated.
1.6 FIELD CONDITIONS
A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
1.7 WARRANTY
A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.
C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.
PART 2 - PRODUCTS
2.1 SOURCE LIMITATIONS
A. Obtain joint sealants from single manufacturer for each sealant type.
2.2 JOINT SEALANTS, GENERAL
A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
B. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.
2.3 SILICONE JOINT SEALANTS
A. Silicone, S, NS, 100/50, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 100/50, Use NT.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Adfast.
b. GE Construction Sealants; Momentive Performance Materials Inc.
c. Silka Corporation - Building Components.
2.4 LATEX JOINT SEALANTS
A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Adfast.
b. Everkem Diversified Products, Inc.
c. Franklin International.
d. PPG Paints; PPG Industries, Inc.
e. Pecora Corporation.
f. Sherwin-Williams Company (The).
g. Tremco Incorporated.
2.5 JOINT-SEALANT BACKING
A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Adfast.
b. Alcoa Plastics Ltd.
c. Construction Foam Products; a division of Nomaco, Inc.
d. Master Builders Solutions; brand of MBCC Group.
B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.
2.6 MISCELLANEOUS MATERIALS
A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.
PART 3 - EXECUTION
3.1 EXAMINATION
A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
B. Proceed with installation only after unsatisfactory conditions have been corrected.
3.2 PREPARATION
A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
a. Concrete.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
3.3 INSTALLATION OF JOINT SEALANTS
A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant capability.
1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
E. Install sealants using given techniques that comply with the following and at the same time backings are installed:
1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants in accordance with requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
4. Provide flush joint profile in accordance with Figure 8B in ASTM C1193.
5. Provide recessed joint configuration of recess depth and in accordance with Figure 8C in ASTM C1193.
a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
3.4 CLEANING
A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
3.5 PROTECTION
A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Standard hollow metal doors and frames.
1.2 DEFINITIONS
A. Minimum Thickness: Minimum thickness of base metal without coatings in accordance with NAAMM-HMMA 803 or ANSI/SDI A250.8.
1.3 ACTION SUBMITTALS
A. Product Data:
1. Standard hollow metal doors and frames.
B. Product Data Submittals: For each product.
1. Include construction details, material descriptions, core descriptions, and finishes.
C. Shop Drawings: Include the following:
1. Elevations of door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
7. Details of anchorages, joints, field splices, and connections.
8. Details of accessories.
9. Details of moldings and removable stops.
D. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.
1.4 QUALITY ASSURANCE
A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
B. Express Door Inspector Qualifications: Inspector for field quality-control inspections of express door assemblies is to meet the qualifications set forth in NFPA 101, Section 7.2.1.15.4 and the following:
1. Door and Hardware Institute Express Door Assembly Inspector (FDAI) certification.
1.5 DELIVERY, STORAGE, AND HANDLING
A. Deliver hollow-metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
1. Provide additional protection to prevent damage to factory-finished units.
B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch-high wood blocking. Do not store in a manner that traps excess humidity.
1. Provide minimum 1/4-inch space between each stacked door to permit air circulation.
1.6 PROJECT CONDITIONS
A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.
PART 2 - PRODUCTS
2.1 HOLLOW METAL DOORS AND FRAMES
A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Ceco Door Products; an Assa Abloy Group company.
2. Curries Company; an Assa Abloy Group company.
3. Fleming Door Products Ltd.; an Assa Abloy Group company.
4. Steelcraft; an Ingersoll-Rand company.
5. Trudoor.
6. Others as approved by Architect.
2.2 MATERIALS
A. Hot-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.
D. Inserts, Bolts, and Fasteners: Hot-dip galvanized in accordance with ASTM A153/A153M.
E. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from glass or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
2.3 STANDARD HOLLOW METAL DOORS
A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.
1. Design: Flush panel.
2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
a. Beveled Edge: 1/8 inch in 2 inches.
4. Vertical Edges Double-Acting Doors: Round vertical edges with 2-1/8-inch radius.
5. Top and Bottom Edges: Closed with flush or inverted 0.042-inch-thick, end closures or channels of same material as face sheets.
6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
B. Exterior Doors: Face sheets fabricated from cold-rolled steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
1. Level 1 and Physical Performance Level C (Heavy Duty), Model 1 (Full Flush).
a. Width: 1-3/4 inches.
b. Face: Metallic-coated steel sheet, minimum thickness of 0.032 inch.
C. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.
2.4 STANDARD HOLLOW METAL FRAMES
A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
B. Interior Frames: Fabricated from cold-rolled steel sheet.
1. Fabricate frames with mitered or coped corners.
2. Fabricate frames as full profile welded unless otherwise indicated.
3. Frames for Borrowed Lights: Same as adjacent door frame.
4. Metallic-coated steel sheet, minimum thickness of 0.042 inch.
C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.
2.5 FRAME ANCHORS
A. Jamb Anchors:
1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
3. Post-Installed Expansion Anchor: Minimum 3/8-inch-diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.
B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.
C. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at top of underlayment.
D. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M, hot-dip galvanized in accordance with ASTM A153/A153M, Class B.
2.6 FABRICATION
A. Fabricate hollow metal work to be rigid and free of defects, warp, or bulge. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
C. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frame is also fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
1. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
2. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
E. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware; and templated mortises, including cutouts, reinforcement, mortising, drilling, and tapping in accordance with ANSI/SDI A250.6, the door Hardware Schedule on Drawings, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.
2.8 STEEL FINISHES
A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with subsequent field-applied coatings despite prolonged exposure.
B. Factory Finish: Clean, pretreat, and apply manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat; complying with ANSI/SDI A250.3.
1. Color and Gloss: As selected by Architect from manufacturer's full range.
PART 3 - EXECUTION
3.1 PREPARATION
A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
B. Drill and tap doors and frames to receive non-templated, mortised, and surface-mounted door hardware.
3.2 INSTALLATION
A. Install hollow-metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.
B. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.
1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
b. Install frames with removable stops located on secure side of opening.
2. Floor Anchors: Secure with post-installed expansion anchors.
a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
3. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
C. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below:
1. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES (cont.)

3.3 FIELD QUALITY CONTROL
A. Inspection Agency: Owner will engage a qualified inspector to perform inspections and to furnish reports to Architect.
B. Inspections:
1. Express Door Inspections: Inspect each door equipped with panic hardware, each door equipped with fire exit hardware, each door located in an exit enclosure, each electrically controlled egress door, and each door equipped with special locking arrangements in accordance with NFPA 101, Section 7.2.1.15.
C. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
3.4 REPAIR
A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint in accordance with manufacturer's written instructions.
C. Factory-Finish Touchup: Clean abraded areas and repair with same material used for factory finish in accordance with manufacturer's written instructions.
D. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 08 11 13

SECTION 08 33 23 - OVERHEAD COILING DOORS

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Insulated service doors.
B. Related Requirements:
1. Section 13 34 19 "Metal Building Systems"
1.2 ACTION SUBMITTALS
A. Product Data: For each type and size of overhead coiling door and accessory.
B. Shop Drawings: For each installation and for special components not dimensioned or detailed in manufacturer's product data.
1. Include points of attachment and their corresponding static and dynamic loads imposed on structure.
2. Include diagrams for power, signal, and control wiring.
C. Samples: For each exposed product and for each color and texture specified.
1.3 INFORMATIONAL SUBMITTALS
A. Sample warranty.
1.4 CLOSEOUT SUBMITTALS
A. Special warranty.
B. Maintenance data.
C. Record Documents: List of door numbers and applicable room name and number to which door accesses.
1.5 QUALITY ASSURANCE
A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer for both installation and maintenance of units required for this Project.
1.6 WARRANTY
A. Special Warranty: Manufacturer agrees to repair or replace components of doors that fail in materials or workmanship within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
PART 2 - PRODUCTS
2.1 MANUFACTURERS, GENERAL
A. Source Limitations: Obtain overhead coiling doors from single source from single manufacturer.
1. Equal to Overhead Door Company, 625 Series Insulated.
2. Obtain operators and controls from overhead coiling door manufacturer.
2.2 PERFORMANCE REQUIREMENTS
A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.
B. Structural Performance, Exterior Doors: Capable of withstanding the following design wind loads: Second option in "Design Wind Load" Subparagraph below is minimum design pressure advertised by manufacturers.
1. Design Wind Load: As indicated on Drawings.
2. Testing: According to ASTM E330/E330M.
C. Windborne-Debris Impact Resistance: Provide impact-protective overhead coiling doors that pass ASTM E1886 missile-impact and cyclic-pressure tests according to ASTM E1886 and ASTM E1996 Zone 3 for basic protection.
1. Large-Missile Test: For overhead coiling doors located within 30 ft. (9.1 m) of the building.
D. Seismic Performance: Overhead coiling doors withstand the effects of earthquake motions determined according to ASCE/SEI 7.
2.3 DOOR ASSEMBLY - OHCD
A. Insulated Service Door: Overhead coiling door formed with curtain of interlocking metal slats.
B. Operation Cycles: Door components and operators capable of operating for not less than 50,000.
C. Insulated Door Curtain R-Value: R-7.7.
D. Insulated Door Assembly U-Factor: U-0.31.
E. Door Curtain Material: Galvanized steel.
F. Door Curtain Slats: Flat profile slats of 2-5/8-inch (67-mm) center-to-center height.
1. Insulated-Slat Interior Facing: Metal.
G. Bottom Bar: Two angles, each not less than 1-1/2 by 1-1/2 by 1/8 inch (38 by 38 by 3 mm) thick; fabricated from hot-dip galvanized steel and finished to match door.
H. Curtain Jamb Guides: Galvanized steel with exposed finish matching curtain slats.
I. Hood: Match curtain material and finish.
1. Mounting: Between Pre-engineered metal building jambs or as indicated on the drawings.
J. Locking Devices: Equip door with slide bolt for padlock, and chain lock keeper.
K. Manual Door Operator: Chain-hoist operator.
L. Electric Door Operator:
1. Equal to Overhead Door Company RHX Series.
2. Usage Classification: Standard duty, up to 25 cycles per hour and up to 90 cycles per day.
3. Safety: Listed according to UL 325 by a qualified testing agency for commercial or industrial use.
4. Motor Exposure: Interior.
5. Motor Electrical Characteristics:
a. Horsepower: 1 hp.
b. Voltage: As indicated on Electrical Drawings.
6. Emergency Manual Operation: Chain type.
7. Obstruction-Detection Device: Automatic photoelectric sensor.
8. Control Station(s): Interior mounted.
M. Curtain Accessories: Equip door with weatherseals, astragal, automatic-closing device.
N. Door Finish:
1. Aluminum Finish: Anodized color as selected by Architect from full range of industry colors and color densities.
2. Baked-Enamel or Powder-Coated Finish: Color as selected by Architect from manufacturer's full range.
3. Factory Prime Finish: Manufacturer's standard color.
4. Interior Curtain-Slat Facing: Match finish of exterior curtain-slat face.
2.4 MATERIALS, GENERAL
A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2.5 DOOR CURTAIN MATERIALS AND CONSTRUCTION
A. Door Curtains: Fabricate overhead coiling-door curtain of interlocking metal slats, designed to withstand wind loading indicated, in a continuous length for width of door without splices. Unless otherwise indicated, provide slats of thickness and mechanical properties recommended by door manufacturer for performance, size, and type of door indicated, and as follows:
1. Insulation: Fill slats for insulated doors with manufacturer's standard thermal insulation complying with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, according to ASTM E84 or UL 723. Enclose insulation completely within slat faces.
2. Metal Interior Curtain-Slat Facing: Match metal of exterior curtain-slat face, with minimum steel thickness of 0.010 inch (0.25 mm).
B. Curtain Jamb Guides: Manufacturer's standard angles or channels and angles of same material and finish as curtain slats unless otherwise indicated, with sufficient depth and strength to retain curtain, to allow curtain to operate smoothly, and to withstand loading. Slot bolt holes for guide adjustment. Provide removable stops on guides to prevent overthrow of curtain.
2.6 HOODS
A. General: Form sheet metal hood to entirely enclose coiled curtain and operating mechanism at opening head. Contour to fit and brackets to which hood is attached. Roll and reinforce top and bottom edges for stiffness. Form closed ends for surface-mounted hoods and fascia for any portion of between-jamb mounting that projects beyond wall face. Equip hood with intermediate support brackets as required to prevent sagging.
2.7 LOCKING DEVICES
A. Slide Bolt: Fabricate with side-locking bolts to engage through slots in tracks for locking by padlock, located on both left and right jamb sides, operable from coil side.
1. Keys: Three for each cylinder.
B. Chain Lock Keeper: Suitable for padlock.
C. Safety Interlock Switch: Equip power-operated doors with safety interlock switch to disengage power supply when door is locked.
2.8 CURTAIN ACCESSORIES
A. Weatherseals for Exterior Doors: Equip each exterior door with weather-stripping gaskets fitted to entire exterior perimeter of door for a weather-resistant installation unless otherwise indicated.
B. Push/Pull Handles: Equip each push-up-operated or emergency-operated door with lifting handles on each side of door, finished to match door.
2.9 COUNTERBALANCE MECHANISM
A. General: Counterbalance doors by means of manufacturer's standard mechanism with an adjustable-tension, steel helical torsion spring mounted around a steel shaft and contained in a spring barrel connected to top of curtain with barrel rings. Use grease-sealed bearings or self-lubricating graphite bearings for rotating members.
B. Brackets: Manufacturer's standard mounting brackets of either cast iron or cold-rolled steel plate.
2.10 MANUAL DOOR OPERATORS
A. General: Equip door with manual door operator by door manufacturer.
B. Chain-Hoist Operator: Consisting of endless steel hand chain, chain-pocket wheel and guard, and gear-reduction unit with a maximum 25-lbf (111-N) force for door operation. Provide alloy-steel hand chain with chain holder secured to operator guide.

SECTION 08 33 23 - OVERHEAD COILING DOORS (cont.)

2.11 ELECTRIC DOOR OPERATORS
A. General: Electric door operator assembly of size and capacity recommended and provided by door manufacturer for door and operation-cycles requirement specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, solenoid-operated brake, clutch, control stations, control devices, integral gearing for locking door, and accessories required for proper operation.
1. Comply with NFPA 70.
2. Control equipment complying with NEMA ICS 1, NEMA ICS 2, and NEMA ICS 6, with NFPA 70 minimum 2 control circuit, maximum 24-V or do.
B. Usage Classification: Electric operator and components capable of operating for not less than number of cycles per hour indicated for each door.
C. Motors: Reversible-type motor with controller (disconnect switch) for motor exposure indicated for each door assembly.
1. Electrical Characteristics: Minimum as indicated for each door assembly. If not indicated, large enough to start, accelerate, and operate door in either direction from any position, at a speed not less than 8 in./sec. (203 mm/sec) and not more than 12 in./sec. (305 mm/s), without exceeding nameplate ratings or service factor.
2. Operating Controls, Controllers, Disconnect Switches, Wiring Devices, and Wiring: Manufacturer's standard unless otherwise indicated.
D. Obstruction-Detection Devices: External entrapment protection consisting of indicated automatic safety sensor capable of protecting full width of door opening. For non-fire-rated doors, activation of device immediately stops and reverses downward door travel.
1. Photoelectric Sensor: Manufacturer's standard system designed to detect an obstruction in door opening without contact between door and obstruction.
a. Self-Monitoring Type: Designed to interface with door operator control circuit to detect damage to or disconnection of sensing device. When self-monitoring feature is activated, door closes only with sustained or constant pressure on close button.
2. Electric Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor activates device. Connect to control circuit using manufacturer's standard take-up reel or self-coiling cable.
a. Self-Monitoring Type: Fail-wire-configured device designed to interface with door operator control circuit to detect damage to or disconnection of sensor edge.
3. Pneumatic Sensor Edge: Automatic safety sensor edge, located within astragal or weather stripping mounted to bottom bar. Contact with sensor activates device.
E. Control Station: Three-button control station in fixed location with momentary-contact push-button controls labeled "Open" and "Stop" and sustained- or constant-pressure push-button control labeled "Close."
1. Interior-Mounted Units: Full-guarded, surface-mounted, heavy-duty type, with general-purpose NEMA ICS 6, Type 1 enclosure.
2. Exterior-Mounted Units: Full-guarded, standard-duty, surface-mounted, weatherproof type, NEMA ICS 6, Type 4 enclosure, key operated.
F. Emergency Manual Operation: Equip each electrically powered door with capability for emergency manual operation. Design manual mechanism so required force for door operation does not exceed 25 lbf (111 N).
G. Emergency Operation Disconnect Device: Equip operator with hand-operated disconnect mechanism for automatically engaging manual operator and releasing brake for emergency manual operation while disconnecting motor without affecting timing of limit switch. Mount mechanism so it is accessible from floor level. Include device to automatically prevent motor from operating when emergency operator is engaged.
H. Motor Removal: Design operator so motor may be removed without disturbing limit-switch adjustment and without affecting emergency manual operation.
PART 3 - EXECUTION
3.1 INSTALLATION, GENERAL
A. Install overhead coiling doors and operating equipment complete with necessary hardware, anchors, inserts, hangers, and miscellaneous equipment specified, according to manufacturer's written instructions and as specified.
B. Power-Operated Doors: Install automatic garage doors operers according to UL 325.
3.2 FIELD QUALITY CONTROL
A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections and to furnish reports to Architect.
B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
1. Test door release, closing, and alarm operations when activated by smoke detector or building's fire-alarm system. Test manual operation of closed door. Reset door-closing mechanism after successful test.
C. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.
D. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.
3.3 DEMONSTRATION
A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain overhead coiling doors.

END OF SECTION 08 33 23

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Hinges.
2. Continuous, pin-and-barrel-type hinges.
3. Bored locks.
4. Mortise locks.
5. Self-contained electronic locks.
6. Exit devices and auxiliary items.
7. Lock cylinders.
8. Operating trim.
9. Wall- and floor-mounted stops.
10. Door silencers, stops and holders.
11. Door gasketing.
12. Thresholds.
B. Related Sections:
1. 13 34 19 – Metal Building Systems
1.2 PRERINSTALLATION MEETINGS
A. Pre-Installation Conference: Conduct conference at Project site
B. Keying Conference: Conduct conference at Project site.
1. Conference participants must include Installer's Architectural Hardware Consultant and Owner's representative.
1.3 ACTION SUBMITTALS
A. Product data.
B. Shop Drawings: For electrified door hardware.
C. Samples: For each exposed product in each finish specified.
D. Door hardware schedule.
E. Keying schedule.
1.4 INFORMATIONAL SUBMITTALS
A. Field quality-control reports.
B. Sample warranty.
1.5 CLOSEOUT SUBMITTALS
A. Maintenance data.
B. Final door hardware and keying schedule.
C. Certification: At Substantial Completion, the Installers AHC shall review installation and function of all hardware and certify all has been installed and functions in strict accordance with manufacturer's written instructions per the final, accepted door hardware schedule. Upon acceptable review, the AHC shall provide a certificate attesting to the review.
1.6 QUALITY ASSURANCE
A. Installer Qualifications: Supplier of products and an employer of workers trained and approved by product manufacturers and of an Architectural Hardware Consultant who is available during the course of the Work to consult Contractor, Architect, and Owner about door hardware and keying.
1. Scheduling Responsibility: Preparation of door hardware and keying schedule.
B. Architectural Hardware Consultant Qualifications: A person who is regularly providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and who is currently certified by DHI as an Architectural Hardware Consultant (AHC).
1.7 WARRANTY
A. Special Warranty: Manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Structural failures, including excessive deflection, cracking, or breakage.
b. Faulty operation of doors and door hardware.
c. Deterioration of metals, metal finishes, and other materials beyond normal weathering and use.
2. Warranty Period: Three years from date of Substantial Completion unless otherwise indicated below:
a. Exit Devices: Two years from date of Substantial Completion.
b. Manual Closers: 10 years from date of Substantial Completion.
PART 2 - PRODUCTS
2.1 SOURCE LIMITATIONS
A. Obtain each type of door hardware from single manufacturer.
1. Provide electrified door hardware from same manufacturer as mechanical door hardware unless otherwise indicated. Manufacturers that perform electrical modifications and that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.
2.2 PERFORMANCE REQUIREMENTS
A. Means of Egress Doors: Latches do not require more than 15 lbf to release the latch. Locks do not require use of a key, tool, or special knowledge for operation.
B. Accessibility Requirements: For door hardware on doors in an accessible route, comply with the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.
2.3 HINGES
A. Hinges: ANSI/BHMA A156.1. Provide template-produced hinges for hinges installed on hollow-metal doors and hollow-metal frames.
2.4 CONTINUOUS HINGES
A. Continuous, Pin-and-Barrel-Type Hinges: ANSI/BHMA A156.26; minimum 0.125-inch- (3.0-mm-) thick, hinge leaves with minimum overall width of 4 inches (102 mm); fabricated to full height of door and frame and to template screw locations; with components finished after milling and drilling are complete.
2.5 MECHANICAL LOCKS AND LATCHSETS
A. Lock Functions: As indicated in door hardware schedule.
B. Lock Throw: Comply with testing requirements for length of bolts required, and as follows:
1. Bored Locks: Minimum 1/2-inch (13-mm) latchbolt throw.
2. Mortise Locks: Minimum 3/4-inch (19-mm) latchbolt throw.
3. Deadbolts: Minimum 1-inch (25-mm) bolt throw.
C. Lock Backset: 2-3/4 inches (70 mm) unless otherwise indicated.
D. Lock Trim:
1. Levers: Cast.
2. Escutcheons (Roses): Cast.
3. Dummy Trim: Match lever lock trim and escutcheons.
4. Operating Device: Lever with escutcheons (roses).
E. Strikes: Provide manufacturer's standard strike for each lock bolt or latchbolt

PART 1 - GENERAL
1.1 SUMMARY
A. Section Includes:
1. Structural-steel framing.
2. Metal roof panels.
3. Metal wall panels.
4. Foamed-insulation-core metal wall panels.
5. Metal soffit panels.
6. Thermal insulation.
7. Personnel doors and frames.
8. Accessories.
1.2 Related Requirements
A. 03 30 00 - Cast-In-Place Concrete
B. 07 92 00 - Joint Sealants
C. 08 11 13 - Hollow Metal Doors
D. 08 33 23 - Overhead Coiling Doors
E. 08 71 00 - Door Hardware
1.3 DEFINITIONS
A. Terminology Standard: See MBMA's "Metal Building Systems Manual" for definitions of terms for metal building system construction not otherwise defined in this Section or in standards referenced by this Section.
1.4 COORDINATION
A. Coordinate sizes and locations of concrete foundations and casting of anchor-rod inserts into foundation walls and footings. Anchor rod installation, concrete, reinforcement, and formwork requirements are specified in Section 03 30 00 "Cast-in-Place Concrete."
B. Coordinate imposed load of mechanical and electrical equipment specified in other Sections with structural performance requirements specified in this Section.
C. Coordinate metal panel assemblies with rain drainage work, flashing, trim, and construction of supports and other adjoining work to provide a leakproof, secure, and noncorrosive installation.
1.5 PREINSTALLATION MEETINGS
A. Preinstallation Conference: Conduct conference at **Project site** or by web conference.
1. Review methods and procedures related to metal building systems including, but not limited to, the following:
a. Condition of foundations and other preparatory work performed by other trades.
b. Structural load limitations.
c. Construction schedule. Verify availability of materials and erector's personnel, equipment, and facilities needed to make progress and avoid delays.
d. "Specialty Design Considerations for Steel Buildings."
e. Unfavorable weather and forecasted weather conditions and impact on construction schedule.
2. Review methods and procedures related to metal roof panel assemblies including, but not limited to, the following:
a. Compliance with requirements for purlin and rafter conditions, including flatness and attachment to structural members.
b. Structural limitations of purlins and rafters during and after roofing.
c. Flashings, special roof details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect metal roof panels.
d. Temporary protection requirements for metal roof panel assembly during and after installation.
e. Roof observation and repair after metal roof panel installation.
3. Review methods and procedures related to metal wall panel assemblies including, but not limited to, the following:
a. Compliance with requirements for support conditions, including alignment between and attachment to structural members.
b. Structural limitations of girts and columns during and after wall panel installation.
c. Flashings, special siding details, wall penetrations, openings, and condition of other construction that will affect metal wall panels.
d. Temporary protection requirements for metal wall panel assembly during and after installation.
e. Wall observation and repair after metal wall panel installation.
1.6 ACTION SUBMITTALS
A. Product Data: For each type of metal building system component.
1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
a. Metal roof panels.
b. Metal wall panels.
c. Foamed-insulation-core metal panels.
d. Metal soffit panels.
e. Thermal insulation and vapor-retarder facings.
f. Personnel doors and frames.
B. Shop Drawings: Indicate components by others. Include full building plan, elevations, sections, details and the following:
1. Anchor-Rod Plans: Submit anchor-rod plans and templates before foundation work begins. Include location, diameter, and minimum projection of anchor rod required to attach metal building system to foundation. Indicate column reactions at each location.
2. Structural-Framing Drawings: Show complete fabrication of primary and secondary framing; include provisions for openings. Indicate welds and bolted connections, distinguishing between shop and field applications. Include transverse cross-sections.
a. Show provisions for attaching lean-to structures to primary framing.
3. Metal **Roof and Wall** Panel Layout Drawings: Show layouts of panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, clip spacing, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work; show locations of exposed fasteners.
a. Show roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
b. Show wall-mounted items including personnel doors, vehicular doors, windows, louvers, and lighting fixtures.
c. Show translucent panels.
4. Accessory Drawings: Include details of the following items, at a scale of not less than **1-1/2 inches per 12 inches (1:8)**:
a. Flashing and trim.
b. Gutters.
c. Downspouts.
d. Service walkways.
C. Samples for Initial Selection: For units with factory-applied finishes.
D. Samples for Verification: For the following products:
1. Panels: Manufacturer's standard size, not less than nominal 12 inches (300 mm) long by actual panel width. Include fasteners, closures, and other accessory panel accessories.
2. Flashing and Trim: Manufacturer's standard size, or nominal 12 inches (300 mm) long. Include fasteners and other exposed accessories.
3. Vapor-Retarder Facings: Nominal 6-inch- (150-mm-) square Samples.
4. Windows: Full-size, nominal 12-inch- (300-mm-) long frame Samples showing typical profile.
5. Accessories: Nominal 12-inch- (300-mm-) long Samples for each type of accessory.
E. Door Schedule: For doors and frames. Use same designations indicated on Drawings. Include details of reinforcement.
1. Door Hardware Schedule: Include details of fabrication and assembly of door hardware. Organize schedule into door hardware sets indicating complete designations of every item required for each door or opening.
2. Keying Schedule: Detail Owner's final keying instructions for locks. Include schematic keying diagram and index each key set to unique door designations.
F. Delegated Design Submittals: For metal building systems.
1. Include analysis data indicating compliance with performance requirements and design data signed and sealed by the qualified professional engineer responsible for their preparation.
1.7 INFORMATIONAL SUBMITTALS
A. Welding certificates.
B. Letter of Qualification Certification: Signed and sealed by a qualified professional engineer. Include the following:
1. Name and location of Project.
2. Order number.
3. Name of manufacturer.
4. Name of Contractor.
5. Building dimensions including width, length, height, and roof slope.
6. Indicate compliance with AISC standards for hot-rolled steel and AISI standards for cold-rolled steel, including edition dates of each standard.
7. Building classification and year of edition.
8. Design Loads: Include dead load, roof live load, collateral loads, roof snow load, deflection, wind loads/speeds and exposure, seismic design category or effective peak velocity-related acceleration/peak acceleration, and auxiliary loads (cranes).
9. Load Combinations: Indicate that loads were applied acting simultaneously with concentrated loads, according to governing building code.
10. Building-Use Category: Indicate category of building use and its effect on load importance factors.
B. Erector Certificate: For qualified erector, from manufacturer.
D. Material Test Reports: For each of the following products:
1. Structural steel including chemical and physical properties.
2. Bolts, nuts, and washers including mechanical properties and chemical analysis.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shop primers.
5. Nonshrink grout.
E. Source quality-control reports.
F. Field quality-control reports.
G. Surveys: Show final elevations and locations of major members. Indicate discrepancies between actual installation and the Contract Documents. Have surveyor who performed surveys certify their accuracy.
H. Sample Warranties: For special warranties.
1.8 CLOSEOUT SUBMITTALS
A. Maintenance Data: For metal panels **finishes and door hardware** to include in maintenance manuals.
1.9 QUALITY ASSURANCE
A. Manufacturer Qualifications: A qualified manufacturer.
1. Accreditation: Manufacturer's facility accredited according to IAS AC472, "Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems."
2. Engineering Responsibility: Preparation of comprehensive engineering analysis and Shop Drawings by a professional engineer who is legally qualified to practice in jurisdiction where Project is located.
B. Delegated-Design Engineer Qualifications: A professional engineer who is legally qualified to practice in Alaska where Project is located and who is experienced in providing engineering services of the type indicated.
C. Erector Qualifications: An experienced erector who specializes in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer.
D. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3, "Structural Welding Code - Sheet Steel."
E. Laed Surveyor Qualifications: A professional land surveyor who practices in jurisdiction where Project is located and who is experienced in providing surveying services of the kind indicated.
F. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
1. Build mockups for typical wall metal panel including accessories.
a. Size: **48 inches (1200 mm) long by 48 inches (1200 mm)**.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
1.10 DELIVERY, STORAGE, AND HANDLING
A. Deliver components, sheets, panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
B. Unload, store, and protect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
D. Protect foam-plastic insulation as follows:
1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
3. Complete installation and concealment of foam-plastic materials as rapidly as possible in each area of construction.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undistributed at time of Substantial Completion.

1.11 FIELD CONDITIONS
A. Weather Limitations: Proceed with panel installation only when weather conditions permit metal panels to be installed according to manufacturers' written instructions and warranty requirements.
1.12 WARRANTY
A. Special Warranty on Metal Panel Finishes: Manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
2. Finish Warranty Period: **20** years from date of Substantial Completion.
B. Special Weather-Tightness Warranty: Warranty for Standing-Seam Metal Roof Panels: Manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.
1. Warranty Period: **20** years from date of Substantial Completion.
PART 2 - PRODUCTS
2.1 MANUFACTURERS
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Americlad; Billings, Oklahoma.
2. CBC Steel Buildings; a Nucor company.
3. Ceco Building Systems; part of the Cornerstone Building Brands.
4. Gulf States Manufacturers; Nucor Company.
5. Kirby Building Systems; a Nucor Company.
6. Nucor Building Systems; a Nucor company.
B. Source Limitations: Obtain metal building system components, including primary and secondary framing members and accessories, from single source from single manufacturer.
2.2 PERFORMANCE REQUIREMENTS
A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to design metal building system.
B. Structural Performance: Metal building systems to withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated according to procedures in MBMA's "Metal Building Systems Manual."
1. Design Loads: **As indicated on Drawings**.
2. Deflection and Drift Limits:
a. Design metal building system assemblies to withstand servicability design loads without exceeding deflections and drift limits recommended in AISC Steel Design Guide No. 3 "Serviceability Design Considerations for Steel Buildings."
b. No greater than the following:
1) Purlins and Girts: Vertical deflection of 1/240 of the span.
2) Girts: Horizontal deflection of 1/120 of the span.
3) Metal Roof Panels: Vertical deflection of 1/240 of the span.
4) Metal Wall Panels: Horizontal deflection of 1/180 of the span.
5) Design secondary-framing system to accommodate deflection of primary framing and construction tolerances, and to maintain clearances at openings.
6) Lateral Drift: Maximum of 1/400 of the building height.
C. Seismic Performance: Metal building system to withstand the effects of earthquake motions determined according to **ASCE/SEI 7**.
D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other adverse effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change: **120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces**.
E. Fire Propagation Characteristics: Exterior wall assemblies shall pass fire propagation test in ASTM E84 fire test.
F. Structural Performance for Metal Roof **and Wall** Panels: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E1592:
1. Wind Loads: As indicated on Drawings.
G. Air Infiltration for Metal Roof Panels: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283 at the following test-pressure difference:
1. Test-Pressure Difference: **1.57 lbf/sq. ft. (75 Pa)**.
H. Air Infiltration for Metal Wall Panels: Air leakage of not more than 0.06 cfm/sq. ft. (0.3 L/s per sq. m) when tested according to ASTM E283 at the following test-pressure difference:
1. Test-Pressure Difference: **1.57 lbf/sq. ft. (75 Pa)**.
I. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E1646 or **ASTM E331** at the following test-pressure difference:
1. Test-Pressure Difference: **2.86 lbf/sq. ft. (137 Pa)**.
J. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
1. Test-Pressure Difference: **2.86 lbf/sq. ft. (137 Pa)**.
K. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated:
1. Uplift Rating: **UL 90**
L. FM Global Listed: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
1. Fire/Windstorm Classification: Class 1A-90.
2. Hail Resistance: SH.
M. Thermal Performance for Opaque Elements: Provide the following maximum U-factors and minimum R-values when tested according to ASTM C518 or ASTM C518:
1. Roof: R-Value: R-30 + R-11LS
2. Walls: R-Value: R-13 + R-17LS
3. Slab-on-grade (Perimeter Heated Slab): R-Value: R-15 + R-5 for 24 hrs
4. Opaque Doors (Non-swinging): U-Value: U-0.31
5. Fenestration: U-Value: U-0.37
2.3 STRUCTURAL-STEEL FRAMING
A. Structural Steel: Comply with AISC 360, "Specification for Structural Steel Buildings."
B. Bolted Connections: Comply with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
C. Cold-Formed Steel: Comply with AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members" for design requirements and allowable stresses.
D. Primary Framing: Manufacturer's standard primary-framing system, designed to withstand required loads and specified requirements. Provide minimum knockaway and lean-to brackets, collar tie braces, rafter braces, gussets, sidewall, intermediate, end-wall, and corner columns; and wind bracing.
1. Connections: Provide bolted moment connections, bearing plates, and splice members. Factory drill for field-bolted assembly. Provide frame span and spacing indicated.
a. Slight variations in spacing or location shall be acceptable if necessary to comply with manufacturer's standard, as approved by Architect.
2. Rigid Clear-Span Primary Frames: Provide rigid clear-span frames fabricated from shop-welded, built-up steel plates or structural-steel shapes. Interior columns are not permitted.
3. Frame Configuration: **Single gable**
4. Exterior Column: **Tapered**.
5. Rafter: **Tapered**.
6. End-Wall Framing: Manufacturer's standard primary end-wall framing fabricated for field-bolted assembly to comply with the following:
7. Secondary Framing: Manufacturer's standard secondary framing, including purlins, girts, eave struts, flange bracing, base members, gable angles, clips, headers, jambs, and other miscellaneous structural members. Unless otherwise indicated, fabricate secondary framing members from cold-formed steel or structural steel, prepainted with coil coating, to comply with the following:
1. Purlins: C- or Z-shaped sections, fabricated from built-up steel plates, steel sheet, or structural-steel shapes; minimum 2-1/2-inch- (64-mm-) wide flanges.
2. Girts: C- or Z-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes. Provide girts at corners with manufacturer's standard girts, designed for wind loads, with minimum 2-1/2-inch- (64-mm-) wide flanges.
3. Eave Struts: Provide C-shaped sections; fabricated from built-up steel plates, steel sheet, or structural-steel shapes; to provide adequate backup for metal panels.
4. Flange Bracing: Provide angles or C-shapes (5-by-5-by-0.63-inch) structural-steel angles or 1-inch- (25-mm-) diameter, cold-formed structural tubing to stiffen primary-frame flanges.
5. Sag Bracing: Provide angles or C-shapes (5-by-5-by-0.63-inch) structural-steel angles.
6. Base or Sill Angles: Manufacturer's standard base angle, minimum 3-by-2-inch (76-by-51-mm), fabricated from zinc-coated (galvanized) steel sheet.
7. Purlin and Girt Clips: Manufacturer's standard clips fabricated from steel sheet. Provide galvanized clips where clips are connected to galvanized framing members.
8. Framing for Openings: Manufacturer's standard, fabricated from cold-formed, structural-steel sheet or structural-steel shapes. Frame head and jamb of door openings and head, jamb, and sill of other openings.
9. Miscellaneous Structural Members: Manufacturer's standard sections fabricated from cold-formed, structural-steel sheet or structural-steel shapes. Provide zinc-coated (galvanized) steel sheet, designed to withstand required loads.
10. Tapered **Purlin-extension type As indicated**.
G. Bracing: Provide adjustable wind bracing **using any method** as follows:
1. Rods: ASTM A36/A36M, ASTM A572/A572M, Grade 50 (345); or ASTM A529/A529M, Grade 50 (345); minimum 1-inch (25-mm) diameter, with maximum flange-to-flange distance of 20 feet (6 m) unless noted otrherwise.
2. Cables: ASTM A475, minimum 1/4-inch- (6-mm-) diameter, extra-high-strength grade, Class B, zinc-coated, seven-strand steel, with threaded end anchors.
3. Angles: Fabricated from structural-steel shapes to match primary framing, of size required to withstand design loads.
4. Rigid Portal Frames: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
5. Fixed-Base Columns: Fabricated from shop-welded, built-up steel plates or structural-steel shapes to match primary framing; of size required to withstand design loads.
6. Diaphragm Action of Metal Panels: Design metal building to resist wind forces through diaphragm action of roof panels.
H. Anchor Rods: Headed anchor rods as indicated in Anchor Rod Plan for attachment of metal building to foundation.
I. Materials:
1. W-Shapes: ASTM A992/A992M, ASTM A572/A572M, Grade 50 or 55 (345 or 380); or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
2. Channels, Angles, M-Shapes, and S-Shapes: ASTM A36/A36M, ASTM A572/A572M, Grade 50 or 55 (345 or 380), or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
3. Plate and Bar: ASTM A36/A36M, ASTM A572/A572M, Grade 50 or 55 (345 or 380); or ASTM A529/A529M, Grade 50 or 55 (345 or 380).
4. Structural-Steel Sheet: Hot-rolled, ASTM A1011/A1011M, Structural Steel (SS), Grade 30 through 55 (205 through 380), or High-Strength Low-Alloy Steel (HSLAS) or High-Strength Low-Alloy Steel with Improved Formability (HSLAS-F), Grades 45 through 70 (310 through 480); or cold-rolled, ASTM A1008/A1008M, Structural Steel (SS), Grades 25 through 80 (170 through 550), or HSLAS, Grades 45 through 70 (310 through 480).
5. Metallic-Coated Steel Sheet: ASTM A653/A653M, SS, Grades 33 through 80 (230 through 550), or HSLAS or HSLAS-F, Grades 50 through 80 (340 through 550); with G90 (Z275) coating designation.
6. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A792/A792M, SS, Grade 50 or 80 (340 or 550); with Class A25 (AZM150) coating.
J. Finish: Factory primed. Apply specified primer immediately after cleaning and pretreating. Red-Oxide or Gray Primer, or galvanized (pre coated galvanized cold-form, hot-dipped otherwise).
1. Clean and prepare in accordance with SSPC-SP2.
2. Coat with manufacturer's standard primer. Apply primer to primary and secondary framing to a minimum dry film thickness of 1 mil (0.025 mm).
a. Prime secondary framing formed from uncoated steel sheet to a minimum dry film thickness of 0.5 mil (0.013 mm) on each side.

2.4 METAL ROOF PANELS
A. Standing-Seam, Vertical-Rib, Metal Roof Panels: Formed with vertical ribs at panel edges and **intermediate stiffening ribs symmetrically spaced between** ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Clips: **One-piece fixed** to accommodate thermal movement.
3. Joint Type: **Mechanically seamed**.
4. Panel Coverage: **24 inches (610 mm)**.
5. Panel Height: **2 inches (51 mm)**.
B. Standing-Seam, Trapezoidal-Rib, Metal Roof Panels: Formed with raised trapezoidal ribs at panel edges and **intermediate stiffening ribs symmetrically spaced** between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Clips: **One-piece fixed** to accommodate thermal movement.
3. Joint Type: **Mechanically seamed**.
4. Panel Coverage: **24 inches (610 mm)**.
5. Panel Height: **1.25 inches (32 mm)**.
C. Exposed-Fastener, Tapered-Rib, Metal Roof Panels: Formed with raised, trapezoidal major ribs and **intermediate stiffening ribs symmetrically spaced** between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Major-Rib Spacing: **12 inches (305 mm)** o.c.
3. Panel Coverage: **36 inches (914 mm)**.
4. Panel Height: **1.25 inches (32 mm)**.
D. Exposed-Fastener, Tapered-Rib, Metal Liner Panels: Formed with raised, trapezoidal major ribs and **intermediate stiffening ribs symmetrically spaced** between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Major-Rib Spacing: **12 inches (305 mm)** o.c.
3. Panel Coverage: **36 inches (914 mm)**.
4. Panel Height: **1.25 inches (32 mm)**.
E. Finishes:
1. Galvalume® (GM)
Exposed Coil-Coated Finish:
a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
c. Silicone/Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.
3. Concealed Finish: Apply prebaked and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
2.5 METAL WALL PANELS
A. Exposed-Fastener, Tapered-Rib, Metal Wall Panels: Formed with raised, trapezoidal major ribs and **intermediate stiffening ribs symmetrically spaced** between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Major-Rib Spacing: **12 inches (305 mm)** o.c.
3. Panel Coverage: **36 inches (914 mm)**.
4. Panel Height: **1.25 inches (32 mm)**.
B. Finishes:
1. Galvalume® (GM)
Exposed Coil-Coated Finish:
a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
c. Silicone/Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.
2. Concealed Finish: Apply prebaked and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
C. Flush-Profile, Metal Liner Panels: **Solid** panels formed with vertical panel edges and **intermediate stiffening ribs symmetrically spaced** between panel edges; with flush joint between panels; designed for interior side of metal wall panel assemblies and installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners **and factory-applied sealant** in side laps.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Panel Coverage: **16 inches (406 mm)**.
3. Panel Height: **2 inches (51 mm)**.
D. Flush-Profile, Metal Wall Panels: **Solid** panels formed with vertical panel edges and **intermediate stiffening ribs symmetrically spaced** between panel edges; with flush joint between panels; designed for interior side of metal wall panel assemblies and installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners **and factory-applied sealant** in side laps.
1. Material: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 24 gauge, **0.024-inch (0.61-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Finish: Galvalume®
b. Color: **As selected by Architect from manufacturer's full range**.
2. Panel Coverage: **16 inches (406 mm)**.
3. Panel Height: **2 inches (51 mm)**.
E. Finishes:
1. Galvalume® (GM)
Exposed Coil-Coated Finish:
a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
c. Silicone/Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.
2. Concealed Finish: Apply prebaked and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
2.6 FOAMED-INSULATION-CORE METAL WALL PANELS
A. Concealed-Fastener, Foamed-Insulation-Core Metal Wall Panels: Formed with tongue-and-groove panel edges; designed for sequential installation by interlocking panel edges and mechanically attaching panels to supports using concealed clips.
1. Panel Thermal-Resistance Value (R-Value): R-13 + R-17ci (R-30 total).
2. Facing Material: Fabricate panel with exterior and interior facings of same material and thickness. Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, **0.018-inch (0.46-mm)** nominal uncoated steel thickness. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
a. Exterior Surface: Architectural, Flush.
b. Exterior Finish: Fluoropon®.
c. Color: **As selected by Architect from manufacturer's full range**.
3. Panel Coverage: **36 inches (914 mm)** nominal.
4. Panel Thickness: As required to meet Thermal-Resistance Value (R-Value).
5. Insulation Core: Modified polyisocyanurate or polymer foam using a non-CFC blowing agent, foamed-in-place or board stock, with maximum flame-spread and smoke-developed indexes of 25 and 450, respectively.
a. Closed-Cell Content: 90 percent when tested according to ASTM D6226.
b. Density: 2.0 lb/ cu. ft. (32 kg/cu. m) when tested according to ASTM D1622.
c. Compressive Strength: Minimum 20 psi (140 kPa) when tested according to ASTM D1621.
d. Shear Strength: 26 psi (179 kPa) when tested according to ASTM C273/273M.
6. Fire-Test-Response Characteristics: Class A according to ASTM E108.
7. Surface-Burning Characteristics: Flame-spread index of 25 or less and a smoke-developed index of 450 or less, per ASTM E84.
8. Finishes:
Fluoropon® (GM)
Exposed Coil-Coated Finish:
a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
b. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, primer, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
c. Silicone/Polyester: Epoxy primer and silicone-modified, polyester-enamel topcoat; with a dry film thickness of 0.2 mil (0.005 mm) for primer and 0.8 mil (0.02 mm) for topcoat.
2. Concealed Finish: Apply prebaked and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
2.7 METAL SOFFIT PANELS
A. General: Provide factory-formed metal soffit panels designed to be installed by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners **and factory-applied sealant** in side laps. Include accessories required for weathertight installation.
B. Metal Soffit Panels: Match profile and material of metal wall panels.
1. Finish: **Match finish and color of metal wall panels.**
2.8 THERMAL INSULATION
A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Bay Insulation Systems; a division of Bay Industries.
2. Fi-Foil Company, Inc.
B. Faced Metal Building Insulation: ASTM C991, Type I, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.
C. Unfaced Metal Building Insulation: ASTM C991, Type I, or NAIMA 202, glass-fiber-blanket insulation; 0.5-lb/cu. ft. (8-kg/cu. m) density; 2-inch- (51-mm-) wide, continuous, vapor-tight edge tabs; with a flame-spread index of 25 or less.
D. Mineral-Fiber-Blanket Insulation: ASTM C665, type indicated below; consisting of fibers manufactured from glass, slag wool, or rock wool.
Retain "Nonreflective Faced," "Reflective Faced," or "Unfaced" Subparagraph below.
1. Nonreflective Faced: Type II (blankets with nonreflective membrane covering), Category 1 (membrane is a vapor retarder), Class A (membrane-faced surface with a flame-spread index of 25 or less).
2. Reflective Faced: Type III (blankets with reflective membrane covering), Category 1 (membrane is a vapor retarder), Class A (membrane-faced surface with a flame-spread index of 25 or less).
3. Unfaced: Type I (blankets without membrane covering), passing ASTM E136 for combustion characteristics.

E. Faced, Polyisocyanurate Board Insulation: ASTM C1289, Type I (foil facing), Class 2, with maximum flame-spread and smoke-developed indexes of 75 and 450, respectively, based on tests performed on unfaced core. Provide units tested for interior exposure without an approved thermal barrier.
F. Retainer Strips: For securing insulation between supports, 0.015-inch (0.54-mm) nominal-thickness, formed, metallic-coated steel or PVC retainer clips colored to match insulation facing.
G. Vapor-Retarder Facing: ASTM C1136, with permance not greater than 0.02 perm (1.15 ng/Pa x s x sq. m) when tested according to ASTM E96/E96M, Desiccant Method.
1. Manufacturer's recommendations for compliance with requirements, provide products by the following:
a. Lamtec Corporation.
2. Composition: Facing:
a. White metallized-polypropylene film facing, fiberglass scrim reinforcement, and kraft-paper backing.
b. Aluminum foil facing, elastomeric barrier coating, fiberglass scrim reinforcement, and kraft-paper backing.
c. White **polypropylene** film facing, fiberglass scrim reinforcement, and metallized-polyester film backing.
d. White polypropylene film facing and fiberglass-polyester-blend fabric backing.
H. Vapor-Retarder Tape: Pressure-sensitive tape of type recommended by vapor-retarder manufacturer for sealing joints and penetrations in vapor retarder.
2.9 PERSONNEL DOORS AND FRAMES
A. Swinging Personnel Doors and Frames:
1. Metal building system manufacturer's standard doors and frames; prepared and reinforced at strike and at hinges to receive factory- and field-applied hardware according to BHMA A156 Series.
a. Steel Doors: 1-3/4 inches (44.5 mm) thick; fabricated from metallic-coated steel face sheets, 0.036-inch (0.91-mm) nominal uncoated steel thickness, of **seamless**, hollow-metal construction; with 0.060-inch (1.52-mm) nominal uncoated steel thickness, inverted metallic-coated steel channels welded to face sheets at top and bottom of door.
1) Design Pattern: **UL 90**
2) Core:
a) Polystyrene foam with U-factor rating of at least 0.16 Btu/sq. ft. x h x deg F (0.91 W/sq. m x K).
b. Steel Frames: Fabricate 2-inch- (51-mm-) wide face frames from zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.060-inch (1.52-mm) nominal uncoated steel thickness.
1) Type: **Knocked down for field assembly**.
2. Fabricate concealed stiffeners, reinforcement, edge channels, and mortises from

BUILDING DATA

GENERAL DESCRIPTION

A.	Project Name	LAUNCH PAD D - VERTICAL INTEGRATION BUILDING
B.	Project Location	PACIFIC SPACEPORT COMPLEX
C.	Occupancy Classification (Single Occupancy)	GROUP S-1 MODERATE HAZARD, STORAGE (AIRCRAFT HANGAR)
D.	Construction Type	TYPE II-B
E.	Risk Category	III
F.	Automatic Sprinkler System	NO, UN-SPRINKLERED
G.	Building Area	4,442 GSF
H.	Building Height	28'-0"
I.	Occupancy Load	8 OCC*

* REFER TO LIFE SAFETY SHEET FOR OCCUPANCY LOAD CALCULATION BREAKDOWN PER ROOM.

BUILDING ENVELOPE THERMAL VALUES

COMPLIANCE METHOD

PRESCRIPTIVE ■

CALCULATED □

CLIMATE ZONE: **7A (DRY)**

ENVELOPE COMPONENT		THERMAL VALUE	
ROOF		U-FACTOR	R-VALUE
ROOF TYPE:	METAL BUILDING[1]		R-30 + R-11LS
WALLS		U-FACTOR	R-VALUE
WALL TYPE:	METAL BUILDING		R-13 + R-17ci
FLOORS		U-FACTOR	R-VALUE
FLOOR TYPE:	SLAB ON GRADE, UNHEATED		R-20 for 24" below
OPAQUE DOORS		U-FACTOR	R-VALUE
DOOR TYPE:	SWINGING	0.37	
DOOR TYPE:	NON-SWINGING	0.31	

NOTES:
1. WHERE USING R-VALUE COMPLIANCE METHOD, A THERMAL SPACER BLOCK SHALL BE PROVIDED
2. ALL EXTERIOR JOINTS IN THE BUILDING ENVELOPE SHALL BE SEALED, CAULKED, GASKETED, OR WEATHER STRIPPED TO MINIMIZE AIR LEAKAGE.
3. AIR LEAKAGE FOR EXTERIOR DOORS AND WINDOWS SHALL NOT EXCEED 1.0 CFM/SF FOR GLAZED SWINGING ENTRY DOORS AND REVOLVING DOORS AND 0.4 CFM/SF FOR ALL OTHER PRODUCTS. ALL PRODUCTS SHALL BE LABELED AND CERTIFIED BY THE MANUFACTURER.

CODE REVIEW

A.	APPLICABLE CODES:	
	International Building Code (IBC)	**2021**
	International Energy Conservation Code (IECC)	**2021**
	International Mechanical Code (IMC)	**2021**
	International Plumbing Code (IPC)	**2021**
	International Fire Code (IFC)	**2021**
	NFPA 10, Standard for Portable Fire Extinguishers	**2022**
	NFPA 70, National Electrical Code	**2026**
	ICC / ANSI A117.1 Accessible and Usable Buildings and Facilities	**2017**

CODE ISSUE	IBC REF	IBC ITEM	COMMENT
B. Occupancy Classification (Mixed, Separated Occupancy):			
	§311.2	**Moderate-Hazard storage (S-1)**	**Moderate-Hazard storage (S-1)**
C. Allowable Area, Height and Construction Type:			
	§503	**Type II-B, Un-sprinklered**	
	Table 506.2	**Allowable Area -** 17,500 SF / **4,448 SF** provided	
	Table 504.4	**Stories** - 2 / **1 provided**	
	Table 504.3	**Height** - 50' / **22'-0"** provided	
D. Fire Resistance Requirements for Building Elements			
Building Elements	Table 601	**0 hr** protection for all elements (2)	
Exterior Walls - Separation Distance	Table 705.5	For a distance of X ≥ 10, Type II, S-1; **there is 0hr fire resistance requirement for exterior walls.**	The largest opening in an exterior wall are from the overhead coiling door and personnel door. Total Area of South Elevation: **248 SF** Total Area of Exterior South Wall: **1,070 SF** **% of Exterior Wall = 23%**
Maximum Opening Area in Exterior Wall	Table 705.8	For a distance of 20 > X ≥ 15, non-protected, un-sprinkler; **there is a limit of 25% of allowable area of the exterior wall.**	
E. General Fire Resistant Requirements			
Interior Finish Classification - Walls and Ceilings	Table 803	Interior Exits - B Corridors & Exit Access - B Rooms & Enclosed Spaces - C (1)	[1]Class A: Flame Spread Index 0-25; Smoke-Developed Index 0-450 Class B: Flame Spread Index 26-75; Smoke-Developed Index 0-450 Class C: Flame Spread Index 76-200; Smoke-Developed Index 0-450
F. Exit Requirements			
Maximum Floor Area Allowances per Occupant	§1004.1, Table 1004.5	**Storage**[1]: 300 gross for accessory storage areas, mechanical equipment rooms, and IT equipment rooms 500 gross for aircraft hangars (Vehicle)	(1) Occupant Load Schedule for designation of space and
Required Exit Capacity	§1005.3.2	Level Components and Ramps - 0.2 inch per occupant. **8 occupants * 0.2 = 1.6" Req / 120" provided**	
Minimum Number of Exits	Table 1006.3.3	Two exits per story - Occ Load 1-500 persons	
	Table 1006.2.1	Spaces with one exit or exit access doorways: Max Occ. Load: **29 Occ**	

F.	Exit Requirements, Cont.		
Maximum Exit Travel Distance	Table 1017.2	(S-1) Occupancy, Un-sprinkler: **200 feet**	
	Table 1021.2(2)	One exit per story - Occ. Load 1-49 person, 75 feet maximum exit access travel distance	
Maximum Common Path of Egress Travel	Table 1006.2.1	(S-1) Occupancy, Un-sprinkler, ≤30 Occ: **100 feet**	
Maximum Dead End Corridor	§1020.5	20 feet	
Location of Exits	§1007.1.1	Exit doors or exit access doorways shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors or exit access doorways.	
Exit Corridors	Table 1020.2	Minimum Width - **44 inches** Minimum Width - Serving Less than 50 - **36 inches**	
	§1003.2	Min. ceiling height of 7'-6"	
	§1003.3.1	Min. headroom of 80" for protruding objects.	
G. Hazardous Materials			
Hazardous Materials - Outdoor Control Areas	IFC Table 5003.1.1(3)	*Outdoor Storage* All are Compressed gasses **1. Gaseous Oxygen (GO_2) K-Cylinder:** Oxidizer (Category 1), QTY 5: • **Not Applicable - No Limit** **2. Gaseous Methane (CH_4) K-Cylinder:** Flammable Gas, Category 1, QTY 5: • **Maximum 3000 ft³ Allowed;** • **Provided:** 5 bottles @ 300 ft³ = **1500 ft³** **3. Carbon Dioxide (CO_2) K-Cylinder,** QTY: 5: • Simple Asphyxiant **(No Limit)** **4. Gaseous Nitrogen (GN_2) K-Cylinder,** QTY 6: • Simple Asphyxiant **(No Limit)** **5. Gaseous Nitrogen (GN_2) K15 Manifold,** QTY 6: • Simple Asphyxiant **(No Limit)** **6. Gaseous Helium (GHe) K-Cylinder,** QTY 4: • Simple Asphyxiant **(No Limit)** **7. Gaseous Helium (GHe) K15 Manifold,** QTY 4: • Simple Asphyxiant **(No Limit)**	**Note:** The Vehicle as part of Integration operations will have fuel drained and unloaded prior to, and while inside the structure. Hazardous areas shown in these documents are shown as worst case scenario for any trace materials remaining in the vehicle and are as a precaution.

OCCUPANCY SCHEDULE

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	SQF/PERSON	OCCUPANT LOAD	AREA	Comments
CONNEX						
C01	AIR COMP CONEX	STORAGE (S-1)	300	1	158 SF	CONNEX
C02	CONEX	STORAGE (S-1)	300	1	169 SF	CONNEX
C03	ELEC CONEX	STORAGE (S-1)	300	1	169 SF	CONNEX
CONNEX				3	477 SF	
VIB						
100	VIB	STORAGE (S-1)	500	9	4094 SF	VIB
001	NORTH ENTRY	UNOCCUPIED	0		40 SF	VIB
002	OUTDOOR GAS STORAGE	UNOCCUPIED	0		328 SF	VIB
003	SOUTH ENTRY	UNOCCUPIED	0		40 SF	VIB
004	WEST ENTRY	UNOCCUPIED	0		40 SF	VIB
VIB				9	4542 SF	
Grand total: 8				12	5018 SF	

EGRESS PATH SCHEDULE

EGRESS PATH	SEGMENT LENGTH
PATH 1	49' - 2"
PATH 2	31' - 5"

LIFE SAFETY LEGEND

LIFE SAFETY ROOM TAG
ROOM NAME
ROOM NUMBER
ROOM AREA
OCCUPANT LOAD FACTOR
NUMBER OF OCCUPANTS
ROOM NAME; 001; Area; 1000 SF; 51

LIFE SAFETY EXIT TAG
EXIT CAPACITY REQUIRED
EXIT WIDTH REQUIRED
EXIT CAPACITY PROVIDED
EXIT WIDTH PROVIDED

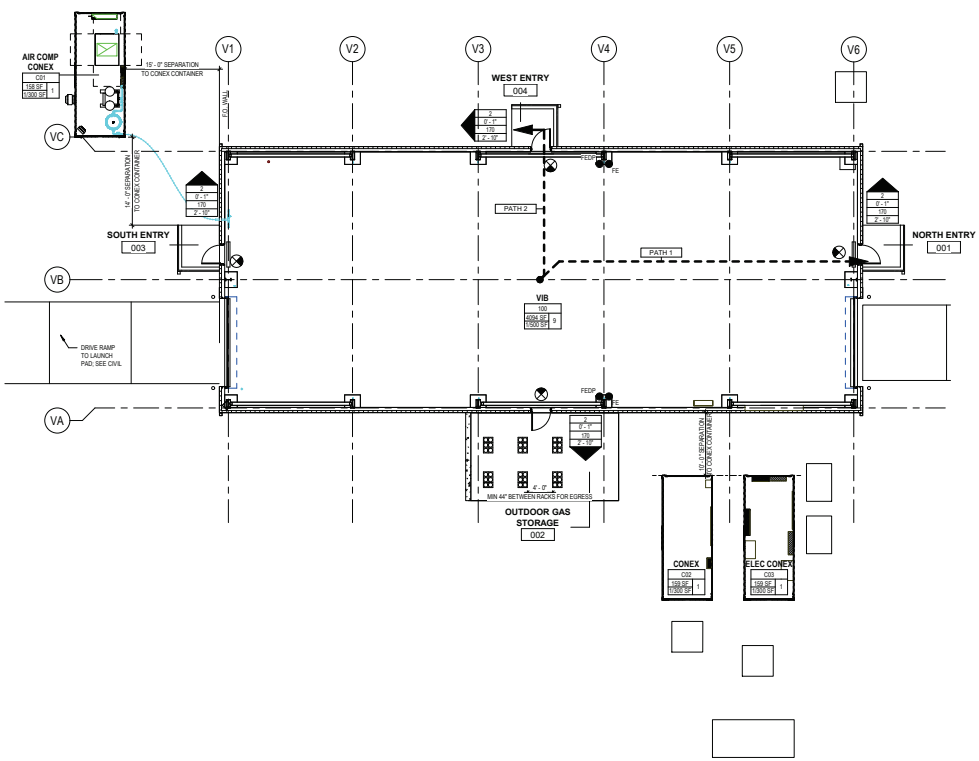
EGRESS ROUTE
EGRESS SEGMENT NAME
EGRESS PATH ORIGIN
EGRESS PATH EXIT
PATH SEGMENT

FIRE PROTECTION
FIRE EXTINGUISHER, BRACKET-MOUNTED: FE
- MULTI-PURPOSE DRY-CHEMICAL TYPE IN STEEL CONTAINER;
  a. UL-RATED 2-A; 10-B:C, 10-LB (NOMINAL CAPACITY)

FIRE EXTINGUISHER, DRY-POWDER TYPE, BRACKET-MOUNTED: FEDP
- WHEELED "PURPLE K" DRY-CHEMICAL TYPE IN STEEL CONTAINER; B.O.D. MODEL: 497
  a. UL-RATED 4-A:80-B:C, 65-LB (NOMINAL CAPACITY)

EMERGENCY SYSTEMS
EXIT LIGHT
PORTABLE EYEWASH/SHOWER; B.O.D.: HAWS MODEL NO. 7501 EWS

NOTE:
REFER TO TABLE RIGHT FOR CODE REVIEW ITEMS.



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

NORTH
0 8' 16' 32' 48'
1/16" = 1'-0"

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640
DESIGNED BY
BRPH
DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001
DATE
05/08/2026
TITLE
CODE SUMMARY
DRAWING NO.
LS-001

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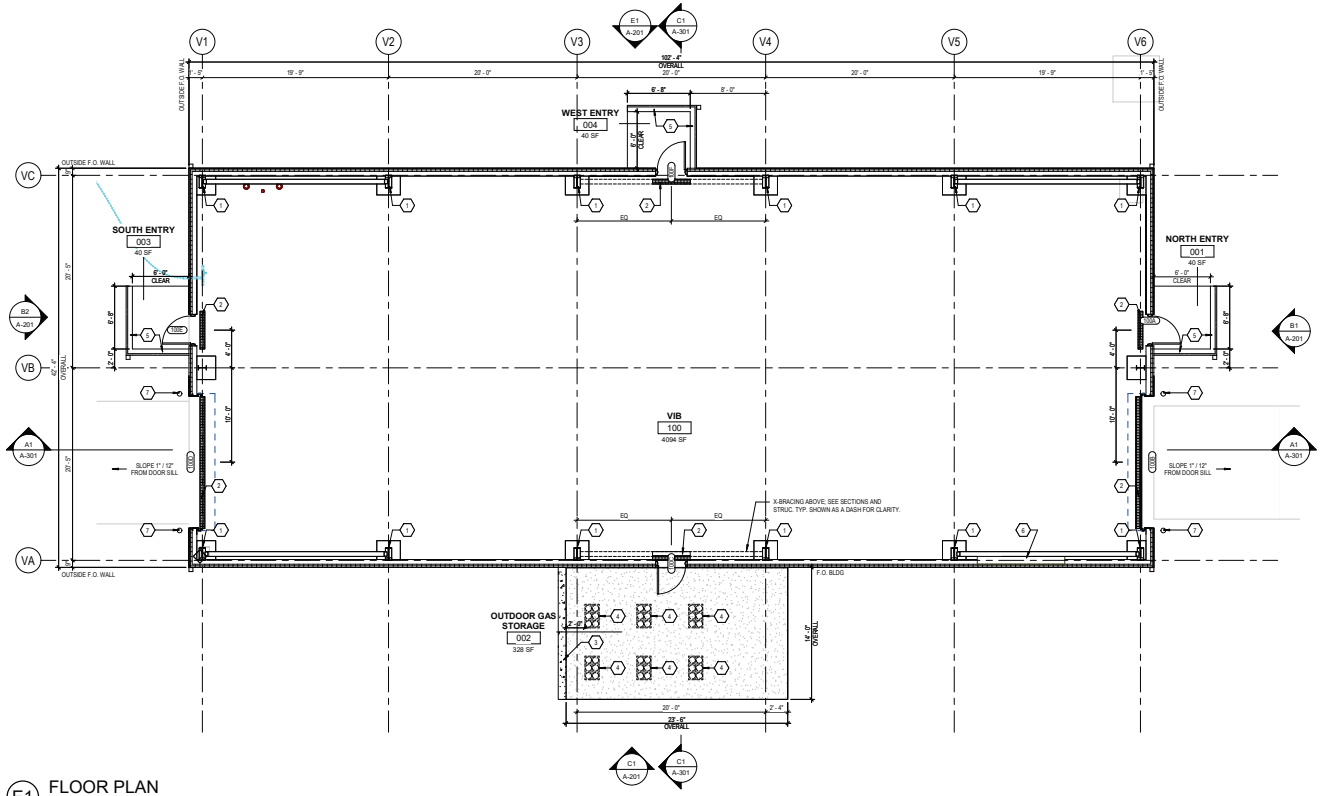
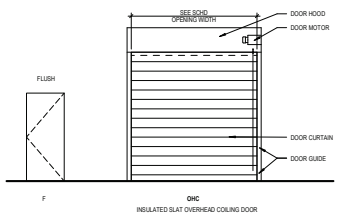


E1 FLOOR PLAN

3/16" = 1'-0"

DOOR SCHEDULE

REV	NUMBER	DOOR TYPE	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICK	DOOR MATL	HARDWARE	FRAME TYPE	FRAME MATL	FRAME DETAIL HEAD	FRAME DETAIL JAMB	FRAME DETAIL SILL	COMMENTS
	100A	F	3' - 0"	7' - 0"	0' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1a/b	DS-1	
	100B	OHCD	14' - 0"	16' - 0"	0' - 1"	STL	2	-	STL	DH-2	DJ-2	DS-2	
	100C	F	3' - 0"	7' - 0"	0' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1a/b	DS-1	
	100D	OHCD	14' - 0"	16' - 0"	0' - 1"	STL	2	-	STL	DH-2	DJ-2	DS-2	
	100E	F	3' - 0"	7' - 0"	0' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1a/b	DS-1	
	100F	F	3' - 0"	7' - 0"	0' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1a/b	DS-1	



DOOR TYPE ELEVATIONS

1/4" = 1'-0"

DOOR FRAME ELEVATIONS

1/4" = 1'-0"

Hardware Group No. 1 – EXTERIOR SINGLE DOORS

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	BB81 4.5" X 4.5" NRP 26D	26D	PBB
1	EA	PANIC HARDWARE	CD5-98-L-RHO	626	VON DUPRIN
1	EA	SURFACE CLOSER (PUSH SIDE)	SC71 R/W/PA TB	626	FALCON
1	EA	THRESHOLD	276	A	PEMKO
1	EA	DOOR SWEEP	216_PK	C	PEMKO
3	EA	SILENCER	SR64	GRY	IVES
1	EA	WS HEAD SECTION	289142PK	AL	PEMKO
1	EA	WS JAMBS	290APK	AL	PEMKO
1	EA	RAIN DRIP	346A	AL	PEMKO
1	EA	KICK PLATE	KP50 10 X 34 HB4E	32D	MICK
1	EA	PRIMUS CORE	-	C23	EVEREST PRIMUS
1	EA	CIPHER LOCK	CO-200-MD-40	626	SCHLAGE

Hardware Group No. 2 – OVERHEAD COILING DOORS

Provide each door with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	PADLOCK	-	26D	SCHLAGE
1	EA	PRIMUS CORE		C23	EVEREST PRIMUS

LEGEND

EXTERIOR PEMB INSULATED MTL PANEL WALL (TYP. PEMB WALL)

EXTERIOR PEMB SINGLE SKIN MTL PANEL WALL (ENTRY)

GENERAL NOTES

1. REFER TO STRUCTURAL DRAWINGS FOR FOUNDATIONS AND LOADS.
2. PRE-ENGINEERED METAL BUILDING (PEMB) IS BY DELEGATED DESIGN; REFER TO PEMB DOCUMENTS FOR ADDITIONAL DETAILS.
3. PROVIDE FLUID APPLIED ELECTRO STATIC DISSIPATIVE (ESD) FLOORING SYSTEM THROUGH VIB OPEN AREA. SYSTEM BASIS OF DESIGN: SHERWIN WILLIAMS FASTOP SL23 SDU., COLOR: LIGHT GRAY

KEYED NOTES

1. PRE-ENGINEERED METAL BUILDING COLUMN SYSTEM ON CONCRETE PEDESTAL; REFER TO PEMB AND STRUC. DRAWINGS FOR DETAILS.
2. 6" TRENCH DRAIN AT ALL OPENINGS. BOD: ZURN Z886 PERMA-TRENCH LINEAR TRENCH DRAIN SYSTEM. **NO PLUMBING CONNECTION**, FOR WATER CATCHMENT AND AIR DRY ONLY. INSTALL MUST BE LEVEL AND FLUSH WITH FINISHED FLOOR. PROVIDE 4" DRAIN AT SWING MAN DOORS, PROVIDE 14" DRAIN AT OVERHEAD DOORS; ALL CENTERED ON EACH DOOR; TYP.
3. 7'-0" HIGH CONC. BLAST PROTECTION WALL; SEE STRUC. DOCS FOR DETAILS.
4. GAS STORAGE RACKS IN FUTURE BY CUSTOMER, REFER TO MECHANICAL DRAWINGS FOR DETAILS.
5. SINGLE SKIN MTL PANEL ENCLOSURE W/ ROOF; SEE SECTIONS AND DETAILS.
6. ELEC. EQUIPMENT; SEE ELEC DOCS.
7. CONC. FILLED MTL PIPE BOLLARD; SEE OHCD DETAIL FOR LOCATION. PAINTED SAFETY YELLOW.

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ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

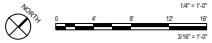
DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
FLOOR PLAN

DRAWING NO.
A-101



NORTH

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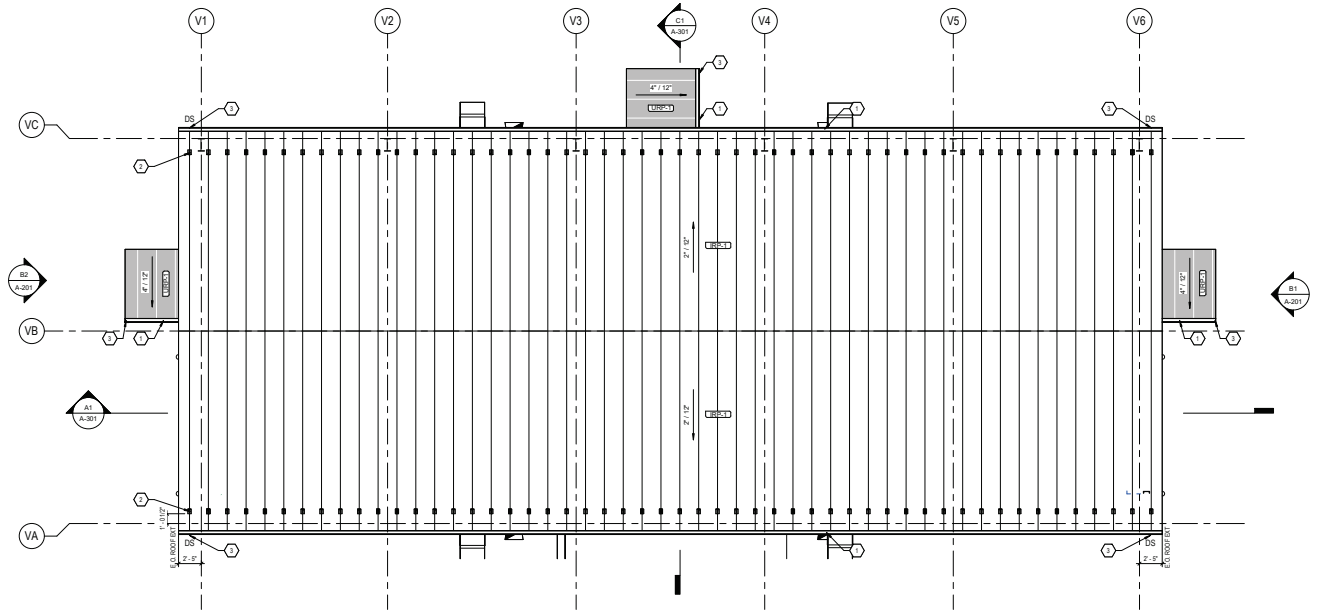
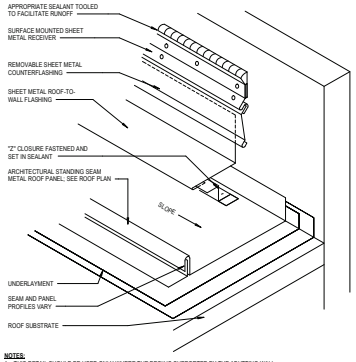
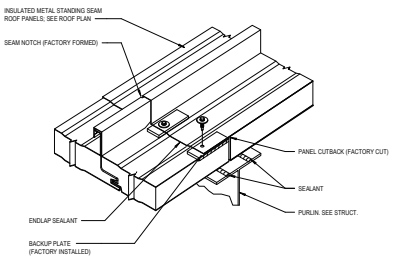


E1 ROOF PLAN
3/16" = 1'-0"



NOTES:
1. THIS DETAIL SHOULD BE USED ONLY WHERE THE DECK IS SUPPORTED BY THE ABUTTING WALL.
2. SPECIFIC FASTENING REQUIREMENTS ARE NOT INDICATED, AS THEY VARY FROM SYSTEM TO SYSTEM DEPENDING UPON PANEL MANUFACTURER'S REQUIREMENTS, WIND ZONE AND BUILDING CODE.
3. THIS DETAIL MAY BE USED WITH "STARTER" AND "END" PANELS.
4. REFER TO SM-13, 14, 15 IN THE SHEET METAL SECTION FOR ADDITIONAL COUNTERFLASHING OPTIONS.
5. THIS DETAIL FIXES THE PANEL IF THE "Z" CLOSURE IS FASTENED TO THE ROOF SUBSTRATE.

B1 ROOF-TO-WALL TRANSITION
NTS



B2 ROOF ENDLAP ISOMETRIC
NTS

LEGEND

RP-1: INSULATED MTL ROOF PANEL: RP-1
- MATERIAL: STEEL
- INSTALL: 36" INSULATED MTL PANEL OVER PEMB GIRTS BY PEMB MANUFACTURER.
- MANUF. BOD: METLSPAN®, LS-36 INSULATED METAL ROOF PANEL & INSULATION LINER SYSTEM
- METAL PANELS, 4" THICK R-35.9, 22 GA. G-90 STEEL
- FINISH: FLUROPON®, COLOR: HARVEST BEIGE

URP-1: UN-INSULATED MTL PANEL: URP-1
- MATERIAL: STEEL
- INSTALL: 24" STANDING SEAM MTL PANEL OVER PEMB GIRTS BY PEMB MANUFACTURER
- MANUF. BOD: NUCOR, CFR STANDING SEAM ROOF PANEL, **UN-INSULATED**
- METAL PANELS, 3" THICK 24 GA. G-90 STEEL
- FINISH: MATCH RP-1

ROOF NOTES

1. ALL ROOFING MATERIALS SHALL INSTALLED IN ACCORDANCE WITH IBC 2021.
2. SLOPE ALL GUTTERS MIN 1/8" PER FOOT TO NEAREST DOWNSPOUT (SEE CALCS)
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND VERIFY THEIR OWN FIELD MEASUREMENTS FOR THE EXECUTION OF HIS WORK AND PRIOR TO FABRICATION OF THE VARIOUS COMPONENTS OF THE WORK.
4. ALL ROOF PENETRATIONS REQUIRED FOR INSTALLATION OF MECHANICAL UNITS, EQUIPMENT CURBS, VENTS, ETC. MUST BE DONE PER PEMB MANUFACTURER'S RECOMMENDATIONS TO ENSURE ALL WARRANTIES ARE MAINTAINED. PROVIDE FLASHING, COUNTERFLASHING, SEALANT, ETC. AS REQUIRED TO PROVIDE WATERPROOF CONDITIONS, TYPICAL AT ALL ROOF PENETRATIONS.
5. LOCATIONS AND QUANTITIES OF ALL VENTS, FLASHINGS, ETC. SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD. DISCREPANCIES IN THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE CONT. PROJECT MGR. PRIOR TO PROCEEDING WITH WORK. PROCEDURE WITHOUT NOTIFICATION WILL BE CONSIDERED ACCEPTANCE OF FIELD CONDITIONS AND PART OF THE CONTRACTOR'S SCOPE OF WORK.
6. ALL ROOFING SYSTEMS AND COMPONENTS SHALL BE INSTALLED IN CONFORMANCE WITH THE GUIDELINES OF THE NATIONAL ROOFING CONTRACTORS' ASSOCIATION (NRCA).
7. ALL SHEET METAL WORK SHALL BE REQUIRED TO CONFORM TO THE GUIDELINES OF THE SHEET METAL AND AIR CONDITIONING NATIONAL ASSOCIATION (SMACNA).
8. ALL VERTICAL CONDUCTORS AND DOWN SPOUTS SHALL BE REQUIRED TO CONFORM TO THE GUIDELINES OF THE INTERNATIONAL PLUMBING CODE PER THE CALCULATIONS TABLE BELOW.
9. ALL WOOD BLOCKING TO BE PRESSURE TREATED BLOCKING; ALL FASTENERS TO BE STAINLESS STEEL.
10. DAYLIGHT DISCHARGE DOWNSPOUTS TO SURFACE; SYSTEM SEE CIVIL.

KEYED NOTES

1. PEMB PRE-FINISHED MTL GUTTER W/ SNOW CLIPS; SEE CALCULATIONS FOR SIZING. SEE DETAILS FOR SNOW CLIPS.
2. ROOF SNOW GUARDS SECURED TO STANDING SEAM ROOF CLIPS; BOD ALPINE SNOWGUARD® STANDING SEAM TWO-PIPE SNOW GUARD, MODEL NO. ASG4000G. SPACED AT EACH PANEL SEAM PER MANUF. INSTRUCTIONS.
3. PEMB PRE-FINISHED MTL DOWNSPOUTS TERMINATING AT SPLASH BLOCKS AT GRADE; SEE CALCULATIONS FOR SIZING.

ROOF DRAINAGE CALCULATIONS

IPC 2021 (INTERNATIONAL PLUMBING CODE)

FIGURE 1106.1
100-YEAR, 1-HOUR RAINFALL (INCHES)[1] FOR KODIAK, AK = APPROX. 1.28"

TABLE 1106.4
Size of vertical conductors and leaders shall be sized based on the flow rate from horizontal gutters or the maximum flow rate through roof drains.

LEGEND:
R_U : SQFT OF PROJECTED ROOF AREA PER QUADRANT

TOTAL GARAGE ROOF AREA = 4,480 SF (R_T)

R_U = ROOF AREA PER QUADRANT = R_T / 4 = 4,480 / 4 = 1,120 SF

GALLONS PER MINUTE (GPM) = (12" X 12" X 1.28") / 231 = 0.80 GAL/HR / 60 MIN = 0.0133 GPM

Total GPM = (R_T x 0.0156) / 4 = (4,480 * 0.0133) / 4 = 14.89 gpm per DS

MIN. REQUIRED[2]
4" ø GUTTER, SLOPE @ 1/8" / 12", W/ (2) 2" X 2" DS, EACH SIDE

MIN. PROVIDED:
5"x5" GUTTER, SLOPE @ 1/8" / 12", W/ (2) 5" X 5" DS, EACH SIDE

NOTE:
1. RAINFALL DATA GATHERED FROM NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES. PRECIPITATION FREQUENCY IS ESTIMATED WITH 90% CONFIDENCE INTERVALS. SEE ADDITIONAL INFORMATION AT HDSC.NWS.NOAA.GOV.
2. DIMENSIONS ARE WIDTH X DEPTH FOR RECTANGULAR SHAPES. SINGULAR DIMENSIONS ARE DIAMETER (ø) OF A SEMI-CIRCULAR GUTTER PROFILE.

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ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
ROOF PLAN

DRAWING NO.
A-191

NORTH
0 4' 8' 16' 24'
1/8" = 1'-0"

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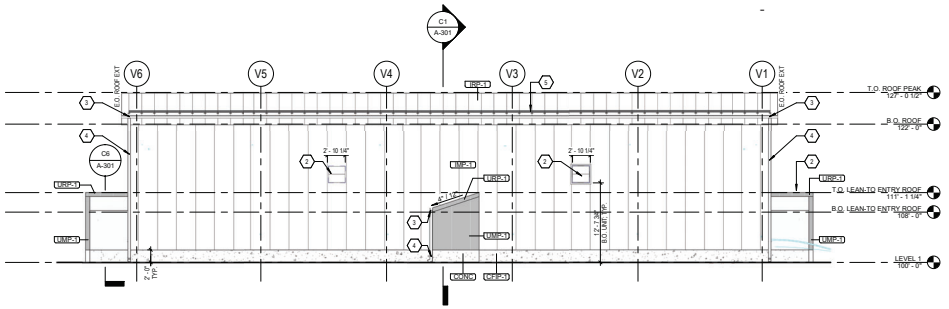
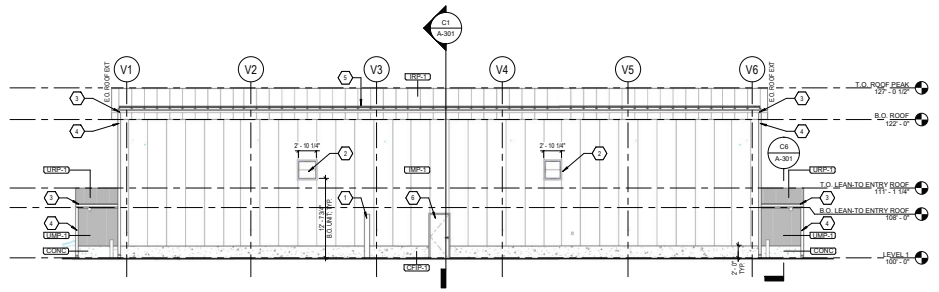
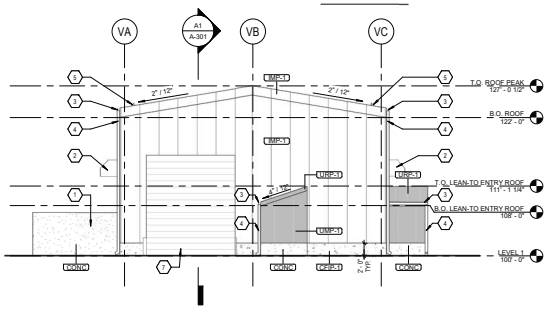


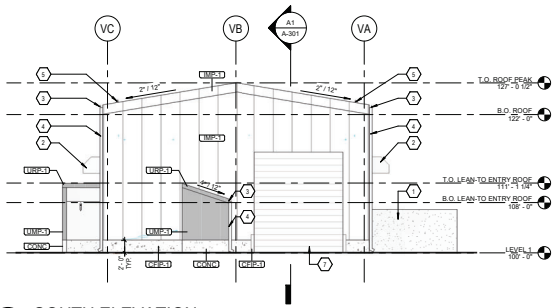
E1 WEST ELEVATION
1/8" = 1'-0"



C1 EAST ELEVATION
1/8" = 1'-0"



B1 NORTH ELEVATION
1/8" = 1'-0"



B2 SOUTH ELEVATION
1/8" = 1'-0"

LEGEND

IMP-1: INSULATED MTL PANEL: IMP-1
- MATERIAL: STEEL
- INSTALL: 36" VERTICAL PANEL OVER PEMB GIRTS
- MANUF: BOD: VARCO PRUDEN, THERMACLAD INSULATED
- METAL PANELS, 4" THICK R-30.89, 22 GA. G-90 STEEL
- FINISH: ARCHITECTURAL, COLOR: COOL SIERRA TAN

CFP-1: CONCRETE-FACED INSULATION PANEL: CFP-1
- MATERIAL: CONCRETE FACED INSULATION WALL PANELS
- PRODUCT: WALLGUARD, 2" THICK, MIN R-20
- INSTALL: GALVANIZED STEEL MOUNTING CLIPS TO CONCRETE STEM WALL.
- MANUF: BOD: T-CLEAR CORPORATION
- FINISH: INTEGRATED FINISH

UMP-1: UN-INSULATED MTL PANEL: UMP-1
- MATERIAL: STEEL
- INSTALL: 36" VERTICAL PANEL OVER PEMB GIRTS
- MANUF: BOD: VARCO PRUDEN, RPR WALL PANEL, **UN-INSULATED**
- METAL PANELS, 1-3/16" THICK 24 GA. G-90 STEEL
- FINISH: ARCHITECTURAL, COLOR: COOL SIERRA TAN

CONC: CONCRETE STEM WALL (ENTRY WAYS): CONC
- STRUCTURAL CONCRETE STEM WALL PER STRUC DOCS.
- 2'-0" HIGH ABOVE GRADE, TYP.

GENERAL NOTES

1. REFER TO STRUCTURAL DRAWINGS FOR FOUNDATIONS AND LOADS.
2. PRE-ENGINEERED METAL BUILDING (PEMB) IS BY DELEGATED DESIGN; REFER TO PEMB DOCUMENTS FOR ADDITIONAL DETAILS.
3. SEE ROOF PLAN FOR ROOF MATERIAL CALLOUTS
4. MANUFACTURER AND PRODUCT NAMES ARE "BASIS OF DESIGN". REFER TO SPECIFICATIONS FOR ADDITIONAL APPROVED MANUFACTURERS AND ALLOWABLE SUBSTITUTIONS.

KEYED NOTES

1. CAST-IN-PLACE CONCRETE BLAST PROTECTION WALL; SEE STRUCTURAL DOCUMENTS FOR SIZE AND DETAILS.
2. WALL MOUNTED MECHANICAL UNITS; SEE MECH DOCS.
3. PEMB PRE-FINISHED MTL GUTTER; SEE CALCULATIONS FOR SIZING.
4. PEMB PRE-FINISHED MTL OPEN-FACED DOWNSPOUTS; SEE CALCULATIONS FOR SIZING.
5. ROOF SNOW GUARDS SECURED TO STANDING SEAM ROOF CLIPS; BOD ALPINE SNOWGUARDS® STANDING SEAM TWO-PIPE SNOW GUARD, MODEL NO. ASG4000G. SPACED AT EACH PANEL SEAM PER MANUF. INSTRUCTIONS.
6. HM PERSONNEL DOOR PER PLAN; SEE DOOR SCHEDULE
7. OHCD PER PLAN; SEE DOOR SCHEDULE

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
ELEVATIONS

DRAWING NO.
A-201

0 4' 8' 16' 24'
1/8" = 1'-0"

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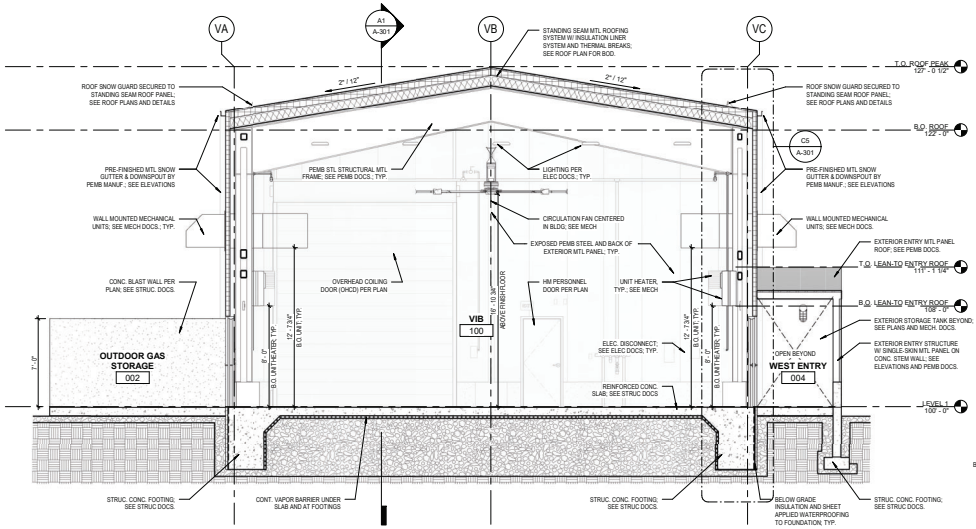
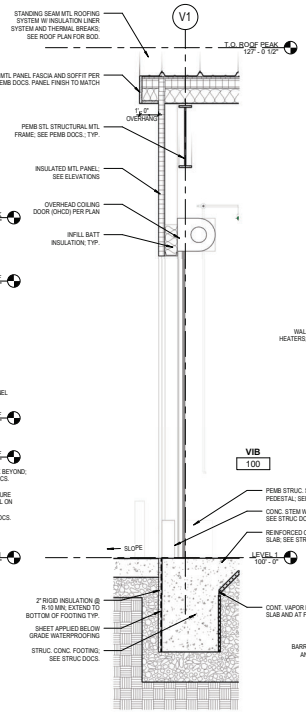
GENERAL NOTES

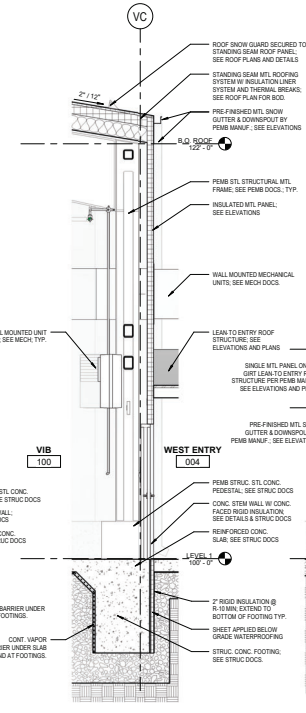
1. REFER TO STRUCTURAL DRAWINGS FOR FOUNDATIONS AND LOADS.
2. PRE-ENGINEERED METAL BUILDING (PEMB) IS BY DELEGATED DESIGN; REFER TO PEMB DOCUMENTS FOR ADDITIONAL DETAILS.
3. SEE ROOF PLAN FOR ROOF MATERIAL CALLOUTS
4. SEE ELEVATIONS FOR EXTERIOR WALL MATERIAL CALLOUTS.



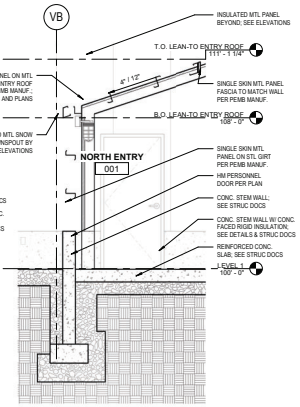
C1 BUILDING SECTION N/S
1/4" = 1'-0"



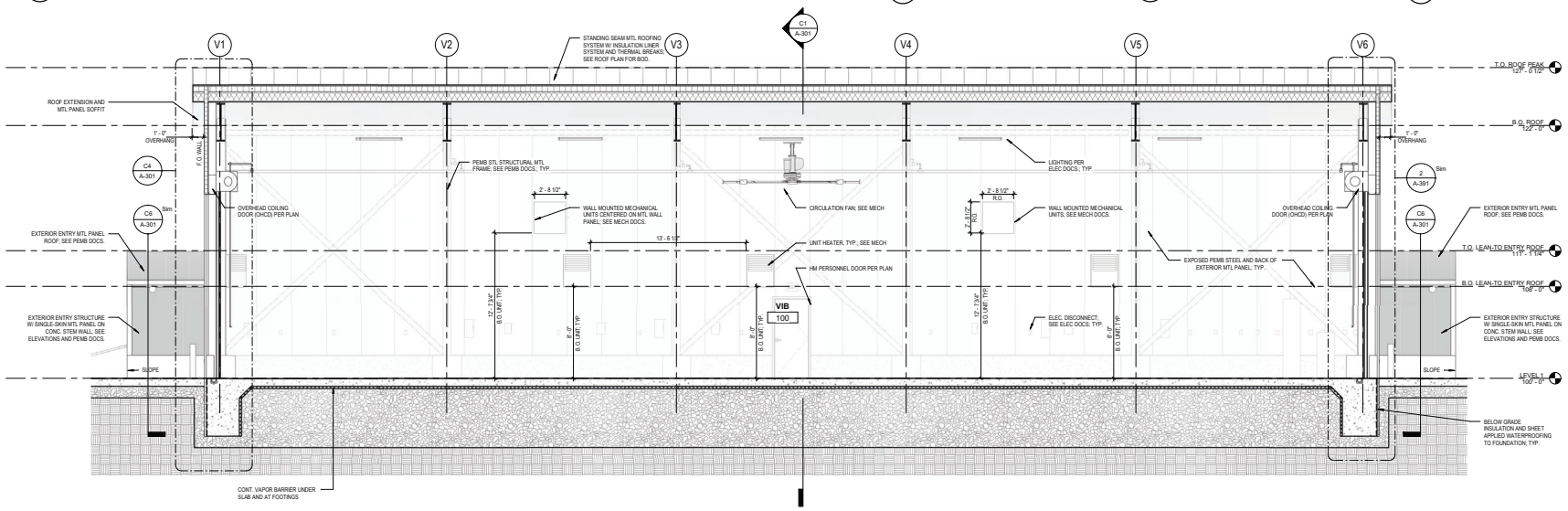
C4 TYPICAL EXTERIOR WALL SECTION N/S
3/8" = 1'-0"



C5 TYPICAL EXTERIOR WALL SECTION E/W
3/8" = 1'-0"



C6 TYPICAL ENTRY LEAN-TO WALL SECTION
3/8" = 1'-0"



A1 BUILDING SECTION E/W
1/4" = 1'-0"

0 2' 4' 6' 8'
3/8" = 1'-0"

0 2' 4' 8' 12'
1/4" = 1'-0"

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
49TH TIS
Kenneth M Lowery Jr.
No. 14640
01-08-26

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
BUILDING SECTIONS

DRAWING NO.
A-301

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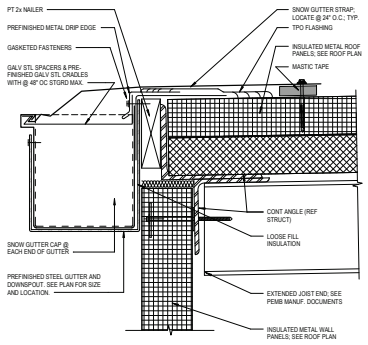
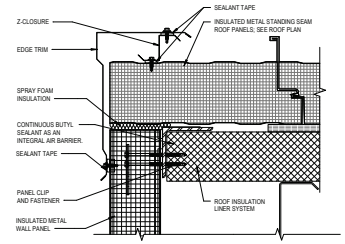
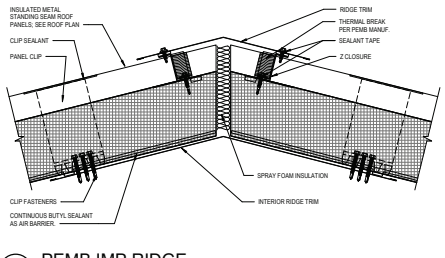


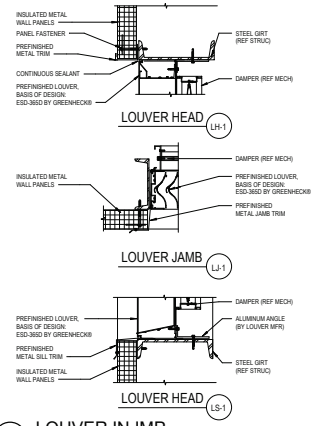
D1 ROOF GUTTER @ IMP WALL
3" = 1'-0"



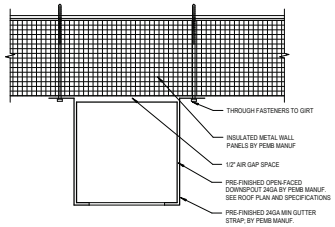
D2 ROOF RAKE EDGE AT IMP
3" = 1'-0"



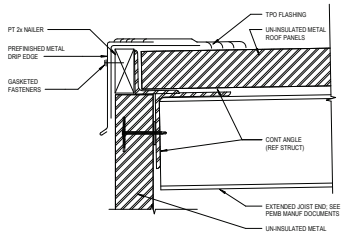
D4 PEMB IMP RIDGE
3" = 1'-0"



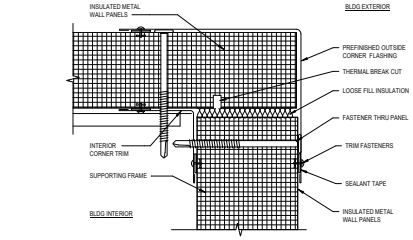
D5 LOUVER IN IMP
1 1/2" = 1'-0"



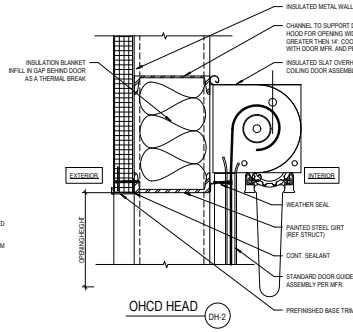
C1 DOWNSPOUT ON METAL PANEL
3" = 1'-0"

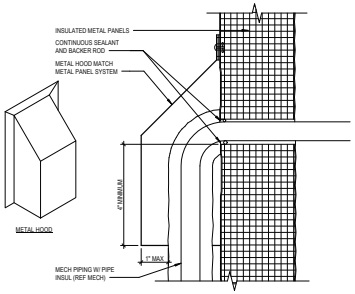


C2 ROOF EDGE @ MTL PANEL WALL
3" = 1'-0"

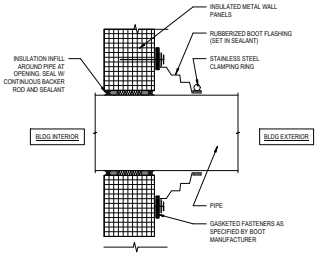


C4 IMP OUTSIDE CORNER
6" = 1'-0"

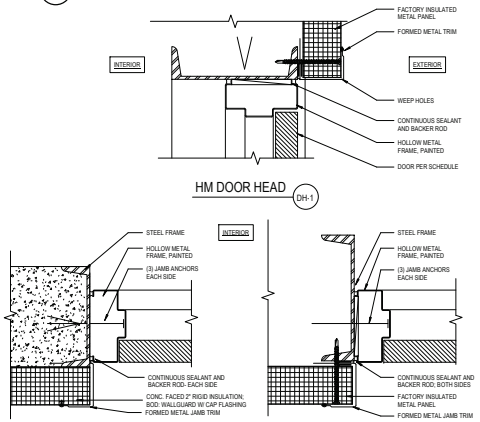


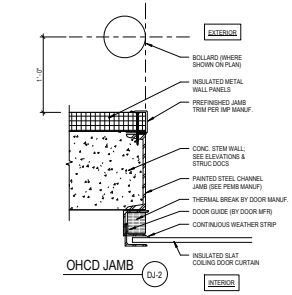


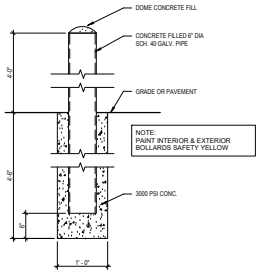
B1 SMALL PIPE PENETRATION
6" = 1'-0"



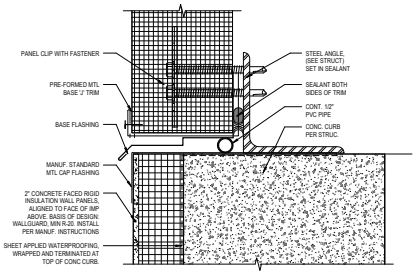
B2 IMP PIPE PENETRATION
3" = 1'-0"



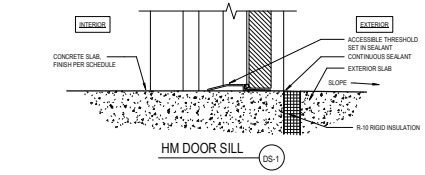




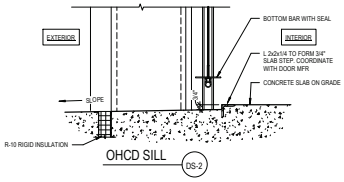
A1 PIPE BOLLARD 'PB'
1" = 1'-0"



A2 IMP TO CURB DETAIL
6" = 1'-0"



A4 DOOR IN CONC./IMP
3" = 1'-0"



A5 OHC DOOR IMP DETAILS
1 1/2" = 1'-0"

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
DETAILS

DRAWING NO.
A-501

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STATEMENT OF WORK

THE CIVIL SCOPE OF THIS PROJECT IS COMPRISED OF THE LIMITED SITE DEMOLITION INCLUDING CLEARING AND GRUBBING AS WELL AS GRADING/EARTHWORKS, PAVING, FENCING, UTILITY DISTRIBUTION FOR WATER SERVICES, ALL RELATED TO THE CONSTRUCTION OF PAD 3D AT ALASKA AEROSPACE CORPORATION'S PACIFIC SPACEPORT COMPLEX-ALASKA.

CIVIL GENERAL NOTES

1. COMPLY WITH APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
2. COMPLY WITH PERMIT CONDITIONS AND POST A COPY OF PROJECT PERMITS ON SITE ON A WEATHERPROOF DISPLAY BOARD.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATIONS AND CRITICAL ELEVATIONS OF UTILITIES AND COORDINATE WITH THE APPROPRIATE AUTHORITIES AND UTILITY OWNERS PRIOR TO CONSTRUCTION. UTILITY CONFLICTS OR DISCREPANCIES ON THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO CONSTRUCTION.
4. NOTIFY THE AKC COTR FOR EXISTING UTILITY COORDINATION/VERIFICATION IN THE AREA AT LEAST 48-HOURS PRIOR TO CONSTRUCTION.
5. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING HORIZONTAL AND VERTICAL CONTROL FOR SITE CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF SURVEY MONUMENTATION. DISTURBED SURVEY MONUMENTATION SHALL BE REPLACED BY A SURVEYOR LICENSED IN THE STATE OF ALASKA.
6. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE SAFETY MARKINGS, BARRICADES, AND TEMPORARY FENCING TO MAINTAIN JOBSITE SAFETY.
7. CONTRACTOR SHALL CONTRACT A CERTIFIED CONSTRUCTION MATERIALS TESTING LABORATORY TO PROVIDE MATERIALS AND DENSITY TESTING IN ACCORDANCE WITH ALASKA DOT & PF STANDARDS. TESTING REPORTS SHALL BE PROVIDED TO THE ENGINEER OF RECORD PRIOR TO CONSTRUCTION.
8. AREAS OUTSIDE THE LIMITS OF CONSTRUCTION THAT ARE DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT NO COST TO THE OWNER.
9. TRAFFIC CONTROL DEVICES SHALL MEET THE REQUIREMENTS OF THE ALASKA DOT & PF (DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES)
10. EXISTING OFFSITE DRAINAGE PATTERNS SHALL BE MAINTAINED DURING CONSTRUCTION.
11. COORDINATE WITH THE OWNER'S REPRESENTATIVE TO MINIMIZE THE EXTENT OF CLEARED AND DISTURBED AREAS IN CONFORMANCE WITH THE CONSTRUCTION PLANS.
12. DRAINAGE PIPES WITHIN THE PROJECT BOUNDARY SHALL BE CLEANED OF SAND, SILT, DEBRIS, ETC. DURING AND AT THE END OF CONSTRUCTION TO MAINTAIN POSITIVE DRAINAGE.
13. EXISTING SITE SECURITY MUST NOT BE COMPROMISED. THE CONTRACTOR SHALL COORDINATE REMOVAL OF EXISTING FENCING AND INSTALLATION OF FENCING TO MAINTAIN SECURITY.
14. THE CONTRACTOR IS RESPONSIBLE FOR AROUND-THE-CLOCK MAINTENANCE OF TRAFFIC BOTH ONSITE AND ON ADJOINING ROADWAYS DURING CONSTRUCTION. MAINTENANCE OF TRAFFIC AND ASSOCIATED NOTIFICATIONS SHALL COMPLY WITH ALASKA DOT & PF REQUIREMENTS.

SITE CLEARING

1. REMOVE TREES, SHRUBS, GRASS AND OTHER VEGETATION, IMPROVEMENTS, OR OBSTRUCTIONS, WITHIN AREA OF WORK, TO PERMIT INSTALLATION OF CONSTRUCTION. REMOVE SIMILAR ITEMS ELSEWHERE ON SITE OR PREMISES AS SPECIFICALLY INDICATED
2. TOPSOIL IS DEFINED AS FRIABLE CLAY LOAM SURFACE SOIL, BROWN FIBROUS PEAT AS DEFINED IN THE GEOTECHNICAL ENGINEERING REPORT BY R & M CONSULTANTS, INC., DATED JUNE 15, 2009.
3. STRIP TOPSOIL TO DEPTHS ENCOUNTERED IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OR OTHER OBJECTIONABLE MATERIAL.
4. CONTRACTOR SHALL BE RESPONSIBLE TO ADHERE TO THE PROVISIONS FOR PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE AS CONTAINED IN SECTION 107, PARAGRAPH 107.11 OF THE ALASKA DOT AND PUBLIC FACILITIES STANDARDS FOR HIGHWAY CONSTRUCTION, 2017.

EARTHWORK

1. THE PROJECT GEOTECHNICAL REPORT WAS PERFORMED BY SHANNON & WILSON, INC. DATED MAY 2025. THE BORING LOGS SHOW SUBSURFACE CONDITIONS AT THE DATES AND LOCATIONS INDICATED, AND IT IS NOT WARRANTED THAT THEY ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THE CONTRACTOR SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT.
2. COMPLY WITH APPLICABLE REQUIREMENTS OF NFPA 495 - EXPLOSIVE MATERIALS CODE.
3. SUBMIT MATERIAL TEST REPORTS, MATERIAL CERTIFICATES, AND COMPACTION TEST REPORTS, SIGNED AND SEALED BY AN ALASKA LICENSED PROFESSIONAL ENGINEER, TO THE ENGINEER OF RECORD & OWNER'S REPRESENTATIVE.
4. MATERIALS:

   SAND

   DEFINED AS "BEACH SAND" ORIGINATING FROM THE BOAT BAY MATERIAL SITE.

   STRUCTURAL FILL

   AGGREGATE BASE COURSE CONFORMING TO SECTION 703-2.03 OF THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION FOR D1 BASE COURSE OR 9" MINUS PIT RUN, BOTH D1 BASE COURSE AND 9" MINUS PIT RUN SHALL HAVE A MAXIMUM 6% BY WEIGHT PASSING THE NO. 200 SIEVE AND A MAXIMUM 60% BY WEIGHT PASSING THE NO. 4 SIEVE.
5. THE TERM "BEDROCK" AS USED IN THESE DRAWINGS SHALL MEAN THE MODERATELY WEATHERED ROCK OF THE NARROW CAPE FORMATION AS DEFINED IN SECTION 5 OF THE REFERENCED GEOTECHNICAL REPORT.
6. EXCAVATIONS BELOW SLABS ON-GRADE AND SPREAD FOOTINGS SHALL BE MADE TO BEDROCK. LAUNCH PAD SHALL BE PLACED ON NATURAL SANDSTONE OR STRUCTURAL FILL.
7. STRUCTURAL FILL TO BE USED BELOW SLABS AND LAUNCH PADS SHALL CONFORM TO THE DEFINITIONS AND REQUIREMENTS IN THE ABOVE-REFERENCED GEOTECHNICAL REPORT.
8. STRUCTURAL FILL SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DENSITY PER ASTM D 1557 (MODIFIED PROCTOR TEST) IN 10 TO 12 INCH MAXIMUM LIFTS.
9. SOIL MATERIAL CLASSIFICATION GROUPS GC, SC, ML, MH, CL, CH, OL, OH AND PT SHALL NOT BE USED UNDER STRUCTURES.
10. DEWATER SITE AS NECESSARY TO PREVENT SURFACE, SUBSURFACE OR GROUNDWATER FROM ENTERING EXCAVATIONS.
11. COMPLY WITH LOCAL, CODES, ORDINANCES, AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION TO MAINTAIN STABLE EXCAVATIONS.
12. PROVIDE APPROVED BORROW SOIL MATERIALS FROM OFF-SITE WHEN SUFFICIENT APPROVED SOIL MATERIALS ARE NOT AVAILABLE FROM EXCAVATIONS.
13. SILT FENCE: GEOTEXTILES FOR SEDIMENT CONTROL SHALL BE IN ACCORDANCE WITH SECTION 633 OF THE ALASKA DOT & PF STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.
14. PROTECT SUBGRADES AND FOUNDATION SOILS AGAINST FREEZING TEMPERATURES OR FROST. PROVIDE PROTECTIVE INSULATING MATERIALS.
15. PROVIDE EROSION CONTROL MEASURES TO PREVENT EROSION OR DISPLACEMENT OF SOILS AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES AND WALKWAYS.
16. PREVENT SURFACE WATER AND SUBSURFACE OR GROUNDWATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES, AND FROM FLOODING THE PROJECT SITE AND SURROUNDING AREA.
17. PROTECT SUBGRADES, EXPOSED BEDROCK, AND FOUNDATION SOILS FROM SOFTENING AND DAMAGE BY CONSTRUCTION ACTIVITIES, CONSTRUCTION EQUIPMENT, AND RAIN OR WATER ACCUMULATION. NECESSARY REMEDIAL WORK SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER.
18. EXCAVATIONS FOR FOOTINGS AND FOUNDATIONS: DO NOT DISTURB BOTTOM OF EXCAVATION. EXCAVATE BY HAND TO FINAL GRADE AND COMPACT TO 95 PERCENT MAXIMUM DENSITY PER ASTM D 1557 BEFORE PLACING CONCRETE REINFORCEMENT. TRIM BOTTOMS TO REQUIRED LINES AND GRADES TO LEAVE SOLID BASE TO RECEIVE OTHER WORK.
19. EXCAVATION FOR UNDERGROUND TANKS, BASINS, AND MECHANICAL OR ELECTRICAL APPURTENANCES: EXCAVATE TO ELEVATIONS AND DIMENSIONS INDICATED WITH NA TOLERANCE OF PLUS OR MINUS 0.10 FOOT. DO NOT DISTURB BOTTOM OF EXCAVATIONS INTENDED FOR BEARING SURFACE. COMPACT UNDERLYING SOIL TO 95 PERCENT MAXIMUM DENSITY PER ASTM D 1557 PRIOR TO STRUCTURE/EQUIPMENT INSTALLATION.
20. EXCAVATE UTILITY TRENCHES TO INDICATED SLOPES, LINES, DEPTHS AND INVERT ELEVATIONS SHOWN ON THE PROJECT PLANS. EXCAVATE TRENCHES TO ALLOW INSTALLATION OF TOP OF PIPE BELOW FROST LINE.
21. RECONSTRUCT SUBGRADES DAMAGED BY FREEZING TEMPERATURES, FROST, RAIN, ACCUMULATED WATER, OR CONSTRUCTION ACTIVITIES, AS DIRECTED BY THE OWNER'S REPRESENTATIVE, AT NO ADDITIONAL COST TO THE OWNER.
22. STOCKPILE EXCAVATED MATERIALS ACCEPTABLE FOR BACKFILL AND FILL SOIL MATERIALS, INCLUDING ACCEPTABLE BORROW MATERIALS. STOCKPILE SOIL MATERIALS WITHOUT INTERMIXING, PLACE, GRADE, AND SHAPE STOCKPILES TO DRAIN AND SHED WATER.
23. CONTRACTOR SHALL PROVIDE DETECTABLE WARNING TAPE MADE FROM ACID- AND ALKALI-RESISTANT POLYETHYLENE FILM TO MARK AND IDENTIFY UNDERGROUND UTILITIES. TAPE SHALL BE 6 INCHES WIDE AND 4 MILS THICK, CONTINUOUSLY INSCRIBED WITH A DESCRIPTION OF THE UTILITY, WITH A METALLIC CORE ENCASED IN A PROTECTIVE JACKET FOR CORROSION PROTECTION, DETECTABLE BY METAL DETECTOR WHEN TAPE IS BURIED UP TO 12" DEEP. OVER NON-FERROUS PIPE, PROVIDE TAPE COLORS TO MATCH UTILITIES AS FOLLOWS:

   23.1. RED.....ELECTRIC
   23.2. ORANGE.....FIBER AND OTHER COMMUNICATIONS
   23.3. BLUE.....WATER SYSTEMS
24. UTILITY TRENCH BACKFILL: PLACE AND COMPACT INITIAL BACKFILL OF SATISFACTORY SOIL MATERIAL OR SUBBASE MATERIAL IN ACCORDANCE WITH SECTION 7.8 OF THE PROJECT GEOTECHNICAL REPORT.
25. CAREFULLY COMPACT MATERIAL UNDER PIPE HAUNCHES AND BRING BACKFILL EVENLY UP ON BOTH SIDES AND ALONG THE FULL LENGTH OF UTILITY PIPING OR CONDUIT TO AVOID DAMAGE OR DISPLACEMENT OF UTILITY SYSTEM.
26. PLACE AND COMPACT FINAL BACKFILL OF SATISFACTORY SOIL MATERIAL TO FINAL SUBGRADE.
27. WHEN SUBGRADE OR EXISTING GROUND SURFACE TO RECEIVE FILL HAS A DENSITY LESS THAN THAT REQUIRED FOR FILL, BREAK UP GROUND SURFACE TO DEPTH REQUIRED, PULVERIZE, MOISTURE-CONDITION OR ARRATE SOIL AND RECOMPACT TO REQUIRED DENSITY.
28. PROTECT NEWLY GRADED AREAS FROM TRAFFIC, FREEZING AND EROSION. KEEP FREE OF TRASH AND DEBRIS.
29. DISPOSAL: TRANSPORT SURPLUS SATISFACTORY SOIL TO DESIGNATED STORAGE ON THE OWNER'S PROPERTY. STOCKPILE OR SPREAD SOIL AS DIRECTED BY THE OWNER'S REPRESENTATIVE. REMOVE WASTE MATERIAL, INCLUDING UNSATISFACTORY SOIL, TRASH AND DEBRIS AND LEGALLY DISPOSE OF IT OFF THE OWNER'S PROPERTY.
30. EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE PORTIONS OF SECTION 203-0 FTHE ALASKA DOT AND PUBLIC FACILITIES STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

SURVEY

1. EXISTING SITE CONDITIONS SHOWN ARE BASED ON A TOPOGRAPHIC SURVEY BY LOUNSBURY & ASSOCIATES, INC. DATED 01-23-2026. THE CONTRACTOR SHALL FIELD VERIFY EXISTING SITE INFORMATION SHOWN ON THE SURVEY PRIOR TO CONSTRUCTION.
   a. VERTICAL CONTROL: ELEVATIONS ARE BASED ON NAVD88 DATUM.
   b. HORIZONTAL CONTROL: BASED UPON NAD83 (2002) ALASKA STATE PLANE, ZONE 5, US SURVEY FEET.
2. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING HORIZONTAL AND VERTICAL CONTROL FOR SITE CONSTRUCTION AND SHALL HIRE A SURVEYOR LICENSED IN THE STATE OF ALASKA. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF SURVEY MONUMENTATION. DISTURBED SURVEY MONUMENTATION SHALL BE REPLACED BY A SURVEYOR LICENSED IN THE STATE OF ALASKA AT THE CONTRACTOR'S EXPENSE.
3. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS INCLUDING THE SIZES, LOCATIONS AND ELEVATIONS OF ITEMS THAT AFFECT THE WORK PRIOR TO THE START OF WORK. REPORT VARIATIONS TO THE OWNER'S REPRESENTATIVE.

UTILITIES

1. COMPLY WITH STANDARDS OF AUTHORITIES HAVING JURISDICTION FOR POTABLE WATER PIPING AND PLUMBING SYSTEMS. INCLUDE MATERIALS, INSTALLATION AND TESTING.
2. COMPLY WITH STANDARDS OF AUTHORITIES HAVING JURISDICTION FOR FIRE PROTECTION SYSTEMS. INCLUDE MATERIALS, HOSE THREADS, INSTALLATION, AND TESTING.
3. COMPLY WITH THE UNIFORM BUILDING CODE FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES FOR MATERIALS, INSTALLATIONS, TESTS, AND FLUSHING.
4. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
   A. GATE VALVES:

      AMERICAN DARLING VALVE DIV., AMERICAN CAST IRON PIPE CO.
      CLOW VALVE CO. DIV., MCWANE, INC.
      MUELLER CO., GRINNELL CORP.
      OR EQUIVALENT

   B. DRY-BARREL FIRE HYDRANTS

      AMERICAN DARLING VALVE DIV., AMERICAN CAST IRON PIPE CO.
      CLOW VALVE CO. DIV., MCWANE, INC.
      MUELLER CO., GRINNELL CORP.
      OR EQUIVALENT

   C. YARD HYDRANT

      WOODFORD MANUFACTURING COMPANY, LL. (PART #U200M) OR EQUIVALENT
5. PROVIDE THE FOLLOWING TYPES OF PIPES AND TUBES, AS APPLICABLE.
   A. DUCTILE IRON PIPE: AWWA C151, CLASSES 200 AND 250.
   B. LINING: AWWA C104, CEMENT MORTAR, SEAL COATED.
   C. DUCTILE IRON FITTINGS: AWWA C110.
   D. GASKETS, GLANDS, BOLTS AND NUTS: AWWA C110. BOLTS, NUTS AND FLANGE BACK-UP RINGS SHALL BE STAINLESS STEEL. GASKETS SHALL BE RUBBER AND RING OR FULL FACE.
   E. POLYETHYLENE (PE) PLASTIC PIPE: AWWA C901, AWWA C906. PE COMPOUND NUMBERS REQUIRED TO GIVE A PRESSURE RATING NOT LESS THAN 160 PSIG. SDR 11 INDICATED ON THE DRAWINGS.
   F. PIPE MARKING: NSF14, OR "NSF-PW".
   G. MOLDED POLYETHYLENE (PE) PLASTIC FITTINGS: ASTM D3350, PE RESIN, SOCKET-TYPE AND BUTT-FUSION MADE TO PE PIPE DIMENSIONS. FITTINGS SHALL BE ONE DRY VALUE STRONGER THAN THE PIPE TO WHICH THEY ARE CONNECTED.
6. MAINTAIN A MINIMUM 6-FEET COVER OVER WATER MAIN PIPING.
7. GATE VALVES SHALL BE NORMAL INGS SYSTEM, AWWA C509, RESILIENT SEATED, BRONZE STEM, CAST IRON OR DUCTILE IRON BODY AND BONNET, STEM NUT, 200-PSIG WORKING PRESSURE, FLANGED ENDS.
8. VALVE BOXES SHALL BE OF CAST-IRON HAVING TOP SECTION AND COVER WITH LETTERING "WATER," BOTTOM SECTION WITH BASE OF SIZE TO FIT OVER VALVE AND BARREL APPROXIMATELY 5 INCHES IN DIAMETER, AND ADJUSTABLE CAST-IRON EXTENSION OF LENGTH REQUIRED FOR DEPTH OF BURY OF VALVE.
9. PROVIDE (1) STEEL TEE-HANDLE OPERATING WRENCH FOR VALVE BOX OPERATION. WRENCH SHALL HAVE HOOK-POINTED END, STEM OF LENGTH TO OPERATE VALVE, AND SOCKET-FITTING VALVE-OPERATING NUT.
10. FIRE HYDRANTS SHALL BE DRY-BARREL TYPE, AWWA C502, TWO 2-1/2-INCH AND ONE 4-1/2-INCH OUTLETS, 5-1/4-INCH MAIN VALVE, DRAIN VALVE, AND 6-INCH FLANGED JOINT INLET. OUTLET THREADS SHALL MEET THE REQUIREMENTS OF LOCAL FIRE MARSHALL.
11. PROVIDE THRUST RESTRAINT IN ACCORDANCE WITH DETAIL U-03.00 OF THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES STANDARD DETAILS.
12. CONDUCT PIPING TESTS BEFORE JOINTS ARE COVERED AND AFTER THRUST BLOCKS HAVE HARDENED SUFFICIENTLY. FILL PIPELINE 24 HOURS PRIOR TO TESTING AND APPLY TEST PRESSURE TO STABILIZE SYSTEM.
13. HYDROSTATIC TESTS SHALL BE AT A MINIMUM OF 240 PSI FOR 2 HOURS FOR WATER DISTRIBUTION SYSTEM PIPING WITHOUT 11. ALLOWABLE LEAKAGE FOR DUCTILE IRON PIPE SHALL BE DETERMINED USING THE METHOD PRESENTED IN AWWA C600. NO LEAKAGE WILL BE ALLOWABLE FOR POLYETHYLENE PIPE AND FITTINGS. VERIFY MAXIMUM PRESSURE PIPE CAN ACCOMMODATE FOR TESTING WITH MANUFACTURER.
14. CLEAN WATER DISTRIBUTION PIPING IN ACCORDANCE WITH AWWA C651. PIPE SHALL NOT EXHIBIT GREATER THAN 3% DIMENSIONAL CHANGE OR 5% WEIGHT CHANGE WHEN TESTED FOR CHEMICAL RESISTANCE (PIPE SWELL) IN ACCORDANCE WITH ASTM D543.
15. COMPLY WITH THE UNIFORM BUILDING CODE FOR FLUSHING OF FIRE PROTECTION PIPING.

SEEDING

1. SEEDING SHALL BE IN ACCORDANCE WITH SECTION 618 OF THE ALASKA DOT & PF STANDARD DETAILS FOR HIGHWAY CONSTRUCTION EXCEPT THAT THE SEEDING RESTRICTIONS BEFORE MAY 15 AND AFTER AUGUST 15 DO NOT APPLY. ALL OTHER CONDITIONS APPLY.
2. SUBMIT CERTIFICATION OF GRASS SEED FROM SEED VENDOR FOR EACH GRASS-SEED MIXTURE STATING THE BOTANICAL AND COMMON NAME AND PERCENTAGE BY WEIGHT OF EACH SPECIES AND VARIETY AND PERCENTAGE OF PURITY, GERMINATION, AND WEED SEED. INCLUDE THE YEAR OF PRODUCTION AND DATE OF PACKAGING.
3. FOR TOPSOIL MATERIAL, REUSE SURFACE SOIL STOCKPILED ON THE SITE.
4. PROVIDE WILD SEED BLEND WITH GERMINATION PERIOD, PERCENT PURITY, AND PERCENT GERMINATION IN ACCORDANCE WITH SECTION 724 OF THE ALASKA DOT & PF STANDARD SPECIFICATIONS.
5. SOW SEED AT THE RATES 3 TO 4 LB PER 1000 SQ. FT. SOIL PREPARATION AND SEED APPLICATION SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 618 HYDROSEEDING SHALL BE AN ACCEPTABLE METHOD OF APPLICATION FOR ALL AREAS.

DRAINAGE

1. STORM DRAINAGE INLETS AND PIPES SHALL BE PROTECTED FROM SILT, SAND, AND DEBRIS DURING CONSTRUCTION. ACCUMULATION WITHIN THE STORM DRAINAGE SYSTEM SHALL BE REMOVED WITHOUT PUMPING OR FLUSHING PRIOR TO THE RELEASE OF RETAINAGE.
2. CONTRACTOR SHALL DEVELOP A STORMWATER POLLUTION PREVENTION PLAN IDENTIFYING PLACEMENT OF EROSION CONTROL BEST MANAGEMENT PRACTICES INCLUDING SILT FENCE INSTALLATION AND SUBMIT FOR REVIEW BY THE OWNER'S REPRESENTATIVE.
3. FIELD CONDITIONS MAY NECESSITATE SLIGHT ALIGNMENT AND GRADE DEVIATION OF THE PROPOSED IMPROVEMENTS TO AVOID OBSTACLES, AS REQUIRED. CONTRACTOR SHALL CONSTRUCT THE PROPOSED FACILITIES TO THE REQUIRED DEVIATION AS APPROVED BY THE OWNER'S REPRESENTATIVE WITHOUT INCREASE IN THE CONTRACT PRICE OR TIME.
4. NO DISTURBANCE SHALL BE ALLOWED OUTSIDE THE LIMITS OF CONSTRUCTION UNLESS APPROVED BY THE OWNER'S REPRESENTATIVE OR SPECIFICALLY NOTED ON THE PLANS.
5. EXISTING STORMWATER DRAINAGE PATTERNS AND CHANNELS ARE TO BE MAINTAINED. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IF THE WORK APPEARS TO INTERRUPT AN EXISTING STORMWATER DRAINAGE PATTERN. CONTRACTOR SHALL MAINTAIN A CLEAR PATH FOR SURFACE WATER DRAINAGE STRUCTURES AND SWALES DURING ALL PHASES OF CONSTRUCTION AND SHALL USE WHATEVER MEANS NECESSARY TO MANAGE STORMWATER SUCH THAT THE IMPACT TO CONSTRUCTION AND/OR SURROUNDING FACILITIES IS MINIMIZED. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY EROSION, SEDIMENT TRANSPORT, DISTURBED FOUNDATIONS, IMPACT TO STRUCTURES, AND ANY OTHER DAMAGE CAUSED DURING CONSTRUCTION.
6. PROVIDE THE FOLLOWING TYPES OF PIPES, AS APPLICABLE.
   A. CORRUGATED POLYETHYLENE (CPEP) PLASTIC PIPE: AASHTO M294-21 TYPE C.
   B. PIPE MARKING: "CPEP.
   C. MOLDED POLYETHYLENE (PE) PLASTIC FITTINGS: ASTM D3350, PE RESIN, SOCKET-TYPE AND BUTT-FUSION TYPE MADE TO PE PIPE DIMENSIONS. FITTINGS SHALL BE ONE DRY VALUE STRONGER THAN THE PIPE TO WHICH THEY ARE CONNECTED.

AS-BUILT REQUIREMENTS

1. BEFORE REQUESTING FINAL INSPECTION, THE CONTRACTOR SHALL SUBMIT A CERTIFIED (BY A REGISTERED SURVEYOR LICENSED IN THE STATE OF ALASKA) SET OF AS-BUILT DRAWINGS TO THE COTR AND ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RECORDING INFORMATION ON THE AS-BUILT DRAWINGS CONCURRENTLY WITH CONSTRUCTION PROGRESS. AS-BUILT DRAWINGS SUBMITTED TO THE ENGINEER AS PART OF THE PROJECT ACCEPTANCE SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
   A. DRAWINGS SHALL BE LEGIBLY MARKED TO RECORD ACTUAL CONSTRUCTION.
   B. DRAWINGS SHALL SHOW ACTUAL LOCATION & ELEVATION OF BUILDING, PAVEMENT, ALL UNDERGROUND AND ABOVE GROUND STORM DRAINAGE, WATER PIPING, AND RELATED APPURTENANCES. ALL CHANGES TO PIPING LOCATIONS INCLUDING HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES AND APPURTENANCES SHALL BE CLEARLY SHOWN AND REFERENCED TO PERMANENT SURFACE IMPROVEMENTS. DRAWINGS SHALL ALSO SHOW ACTUAL INSTALLED PIPE MATERIALS, CLASS, SIZE, ETC.
   C. DRAWINGS SHALL CLEARLY SHOW ALL FIELD CHANGES OF DIMENSION AND DETAIL INCLUDING CHANGES MADE BY FIELD ORDER OR BY CHANGE ORDER.
   D. DRAWINGS SHALL CLEARLY SHOW ALL DETAILS NOT ON ORIGINAL CONTRACT DRAWINGS, BUT CONSTRUCTED IN THE FIELD. ALL EQUIPMENT AND PIPING RELOCATION SHALL BE CLEARLY SHOWN.
   E. LOCATION OF ALL INLETS, MANHOLES, HYDRANTS, VALVES, AND VALVE BOXES SHALL BE SHOWN. ALL VALVES SHALL BE REFERENCED FROM AT LEAST TWO AND PREFERABLY THREE PERMANENT POINTS.
   F. DIMENSIONS BETWEEN ALL INLETS AND MANHOLES SHALL BE FIELD VERIFIED AND SHOWN. THE INVERTS AND GRADE ELEVATIONS OF ALL INLETS AND MANHOLES SHALL BE SHOWN.
   G. SHOW THE DESIGN ELEVATION INVERT ON THE AS-BUILT WITH THE AS-BUILT ELEVATION ADDED ABOVE.

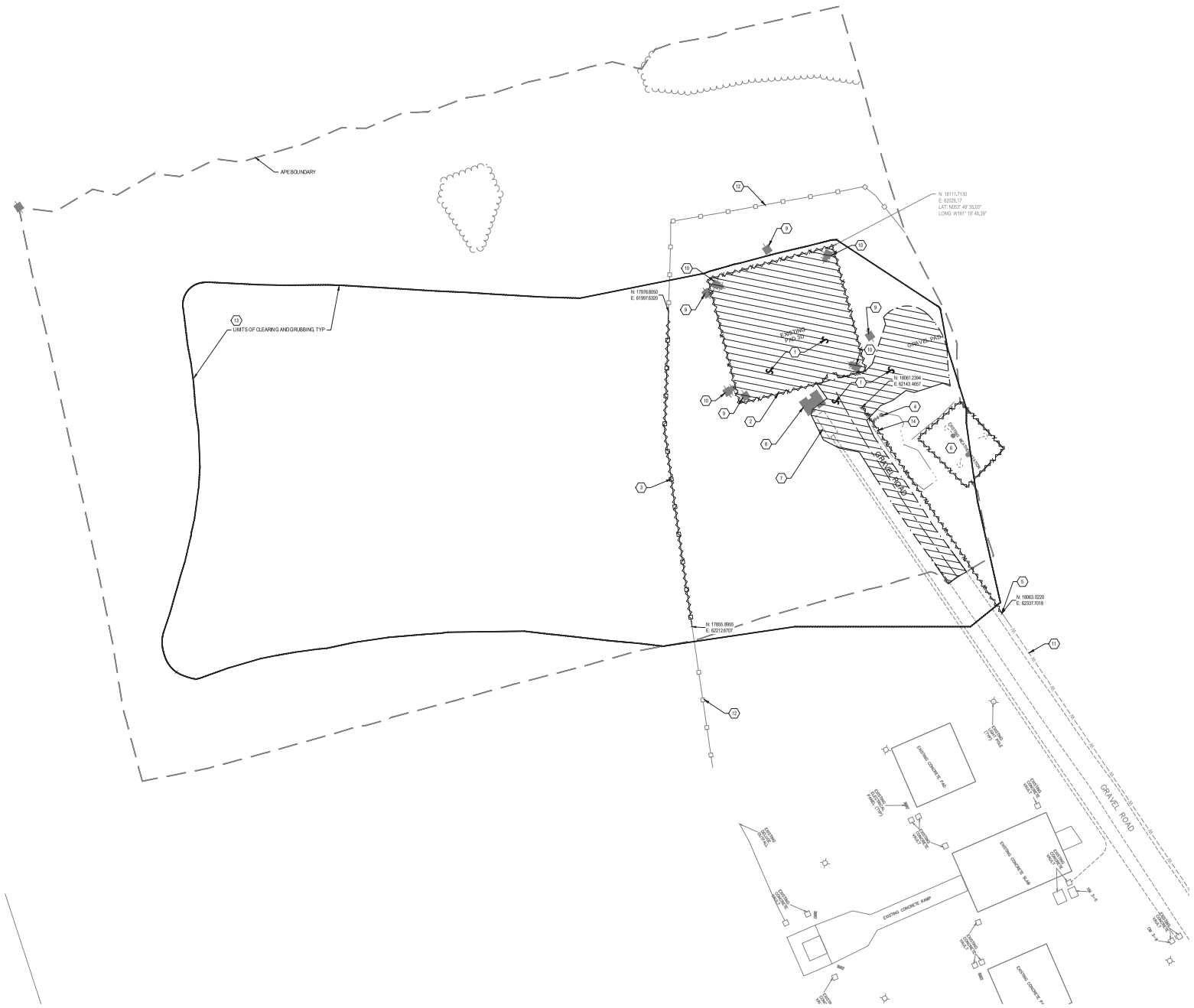
LEGEND

DESCRIPTION	EXISTING	NEW
BUILDING		
STORM DRAIN		
STORM UNDERDRAIN		STRM
POWER / COMMUNICATIONS VAULT		
CONTOUR	150	165
SPOT ELEVATION	x165.50	x165.00
FENCE		
SILT FENCE		SF
DEMOLITION		
STOCK PILE		
CONCRETE (SITE)		
CONCRETE (STRUCTURAL)		
AGGREGATE SURFACE		
RIP RAP		
WATER LINE		W
ELECTRICAL LINE		EU
COMMUNICATIONS LINE		CU
FIRE HYDRANT		
YARD HYDRANT		
GATE & VALVE BOX		
LIGHT POLE		
IMPERMEABLE LINER		
SWALE CENTERLINE		
AREA DRAIN		
DRAINAGE FLOW		2.00%

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS SHOWN MAY NOT APPEAR IN THE DRAWINGS.

AAC	ALASKA AEROSPACE CORPORATION	LAT	LATITUDE
ADD	ADDITIVE, ADDENDUM	L	LENGTH
ADJ	ADJACENT	LONG	LONGITUDE
AND DOT & PF	ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES	LF	LINEAR FEET
		LP1	LAUNCH PAD 1
APUB	ANTENNA FIELD UTILITY BUILDING	LP2	LAUNCH PAD 2 (SUBORBITAL)
ALT	ALTERNATE	LP3	LAUNCH PAD 3
AL	ALUMINUM	LP	LOW POINT
APE	AREA OF POTENTIAL EFFECT	LSA	LIFE SUPPORT AREA
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS		
APPROX	APPROXIMATELY		
ARCH	ARCHITECTURAL	MAINT	MAINTENANCE
ASPH CONC	ASPHALTIC CONCRETE	MSF	MAINTENANCE SUPPORT FACILITY
ASSY	ASSEMBLY	MFR	MANUFACTURER
@	AT	MATL	MATERIAL
AVG	AVERAGE	MAX	MAXIMUM
		MECH	MECHANICAL
BL	BASELINE	MJMU	MECHANICAL JOINT BY MECHANICAL JOINT
BRG	BEARING	MJPE	MECHANICAL JOINT BY PLAIN END
BM	BENCH MARK	MIN	MINIMUM
BH	BORE HOLE	MISC	MISCELLANEOUS
BIT	BITUMINOUS		
BLK	BLOCK	N	NORTH
BO	BLOW OFF	N/A	NOT APPLICABLE
BOT	BOTTOM	NIC	NOT IN CONTRACT
BLDG	BUILDING	NTS	NOT TO SCALE
		NO	NUMBER
		NWI	NATIONAL WETLANDS INVENTORY
D	CENTRAL ANGLE		
CL	CENTERLINE	OC	ON CENTER
CLF	CHAIN LINK FENCE	OPNG	OPENING
CV	CHECK VALVE	ORIG	ORIGINAL
CHD	CHORD	OD	OUTSIDE DIAMETER
CO	CLEAN OUT, CHANGE ORDER	OH	OVERHEAD
COL	COLUMN		
CONC	CONCRETE	PVMT	PAVEMENT
CONN	CONNECTION	PPF	PAYLOAD PROCESSING FACILITY
CONST	CONSTRUCTION	PERF	PERFORATED
CJ	CONSTRUCTION JOINT	PE/PE	PLAIN END BY PLAIN END
CONT	CONTINUOUS	PNT	POINT
CONTR	CONTRACTOR	PC	POINT OF CURVATURE
COTR	CONTRACTING OFFICERS' TECHNICAL REPRESENTATIVE	PI	POINT OF INTERSECTION
COORD	COORDINATE	PRC	POINT OF REVERSE CURVE
CPEP	CORRUGATED POLYETHYLENE PIPE	PT	POINT OF TANGENCY
CU FT	CUBIC FEET	PVI	POINT OF VERTICAL INTERSECTION
CFM	CUBIC FEET PER MINUTE	PVC	POLYVINYL CHLORIDE PIPE
CFS	CUBIC FEET PER SECOND	PIV	POSIT INDICATOR VALVE
CU IN	CUBIC INCH	PSCA	PACIFIC SPACEPORT COMPLEX ALASKA
CY	CUBIC YARD	PSF	POUNDS PER SQUARE FOOT
CRV	CURVE	PSI	POUNDS PER SQUARE INCH
		P	POWER
DEPT	DEPARTMENT	PP	POWER POLE
DET	DETAIL	PCV	PRESSURE CONTROL VALVE
DIAG	DIAGONAL		
DIA	DIAMETER	R	RADIUS
DIM	DIMENSION	RCC	RANGE CONTROL CENTER
DIV	DIVISION	RED	REDUCER
DBL	DOUBLE	REF	REFERENCE, REFUSAL
DS	DOWNSPOUT	REINF	REINFORCED
DWG	DRAWING	REQ'D	REQUIRED
DIP	DUCTILE IRON PIPE	REV	REVISED, REVISION
DOT	DEPARTMENT OF TRANSPORTATION	RD	ROAD
		RMSF	ROCKET MOTOR STORAGE FACILITY
EA	EACH	RREB	RANGE RADIO EQUIPMENT BUILDING
E	EAST	RSF	ROCKET STAGING FACILITY
ELEC	ELECTRIC	RT	RIGHT
EL	ELEVATION	SAN	SANITARY
EQUIP	EQUIPMENT	SS	SANITARY SEWER
EXIST	EXISTING	SCAT	SPACECRAFT AND ASSEMBLIES
EJ	EXPANSION JOINT		TRANSFER STRUCTURE
		SCHED	SCHEDULE
FT	FEET	SECT	SECTION
FPS	FEET PER SECOND	SH	SHEET
FF	FINISH FLOOR	SLP	SLOPE
FHA	FIRE HYDRANT ASSEMBLY	S	SOUTH
FLXFL	FLANGED JOINT BY FLANGED JOINT	SPEC	SPECIFICATION
FLXPE	FLANGED JOINT BY PLAIN END	SQ	SQUARE
FLR	FLOOR	SF	SQUARE FEET
FL	FLOW LINE	STA	STATION
FTG	FOOTING	STD	STANDARD
FM	FORCE MAIN	SQ IN	SQUARE INCH
FDN	FOUNDATION	STL	STEEL
FUT	FUTURE	STOR	STORAGE
		SD	STORM DRAIN
GCI	GCI COMMUNICATION CORPORATION	SURF	SURFACE
GPD	GALLONS PER DAY	SYM	SYMBOL
GPS	GALLONS PER SECOND	SYS	SYSTEM
GALV	GALVANIZED		
GIP	GALVANIZED IRON PIPE	TAN	TANGENT
GSP	GALVANIZED STEEL	TEL	TELEPHONE
GV	GATE VALVE	TEMP	TEMPORARY
GEN	GENERAL	THK	THICK
GRD	GRADE	THRU	THROUGH
GND	GROUND	TYP	TYPICA



DEMOLITION PLAN

1"=30'

0 15' 30' 60' 90'

SCALE: 1" = 30'

CIVIL KEYNOTES:

1. REMOVE EXISTING AGGREGATE APRON.
2. REMOVE EXISTING 7' TALL CHAIN LINK FENCING, GATES AND APPURTENANCES, SALVAGE FOR REUSE.
3. EXISTING 4' TALL FIELD FENCING TO BE REMOVED BY OTHERS.
4. REMOVE AND RELOCATE EXISTING FIRE HYDRANT ASSEMBLY , SEE SHEET C-161.
5. ABANDON IN PLACE EXISTING 8" WATER LINE. CUT, CAP AND THRUST BLOCK.
6. EXISTING WEATHER STATION AND FENCING TO BE REMOVED BY OTHERS.
7. REMOVE AND RELOCATE EXISTING CONEX BOX, SEE SHEET C-121.
8. REMOVE EXISTING ELECTRICAL VAULT AND SALVAGE TO AAC.
9. REMOVE EXISTING UTILITY POLE.
10. REMOVE EXISTING UTILITY POLE WITH LIGHTS.
11. EXISTING 8" WATER LINE TO REMAIN, PROTECT FROM DAMAGE.
12. EXISTING 4' TALL FIELD FENCE TO REMAIN, PROTECT FROM DAMAGE.
13. CLEAR AND GRUB TO THE LIMITS SHOWN.
14. EXISTING WATER LINE TO BE ABANDONED IN PLACE, FILL WITH FLOWABLE FILL.

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

REV	DATE	DESCRIPTION

AREA 3 PAD D

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

This item has been electronically signed and sealed by the licensed professional engineer named below using a digital signature and associated private encryption key. The date of signature is shown and sealed, and the signature must be verified on electronic copies.

STATE OF ALASKA 49TH JENNIFER A. HARVIN No. 112979 PROFESSIONAL ENGINEER

ARCHITECT OF RECORD
JENNIFER A. HARVIN
AK PE 112979

DESIGNED BY
A. LUNA

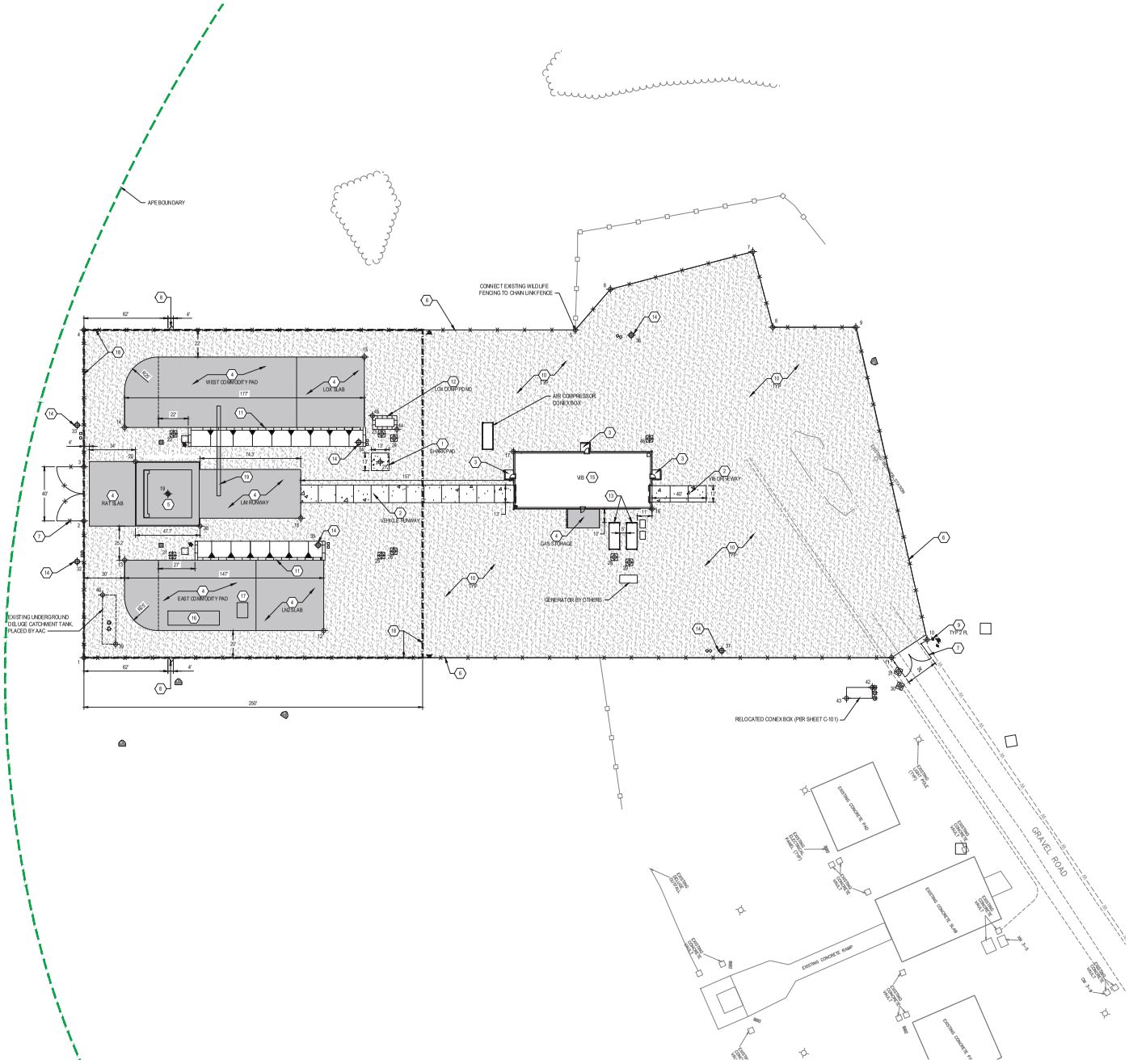
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

TITLE
DEMOLITION PLAN

DRAWING NO.
C-101



SITE PLAN

1"=30'

0 15' 30' 60' 90'

SCALE: 1" = 30'

CIVIL NOTES:

A. FUEL STORAGE TANK BASIS OF DESIGN IS A HORIZONTAL ABOVEGROUND DOUBLE WALL CONVAULT TANK FROM CORE ENGINEERED SOLUTIONS, INC. WITH THE FOLLOWING PARAMETERS

- MAWP ATMOSPHERIC
- GROSS CAPACITY 3,000 GAL
- TARE WEIGHT 38,200 LBS
- MAX GROSS WEIGHT 57,979 LBS
- TANK DIMENSIONS 8' WIDE x 11'-3" LONG

CIVIL KEYNOTES:

1. PROVIDE EXTERIOR EQUIPMENT PAD, SEE STRUCTURAL DRAWINGS.
2. PROVIDE CONCRETE PAVEMENT, SEE DETAIL 1 ON SHEET C-501.
3. PROVIDE CONCRETE DOOR LANDING, SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS.
4. PROVIDE CONCRETE SLAB, SEE STRUCTURAL DRAWINGS.
5. PROVIDE CONCRETE LAUNCH PAD, SEE STRUCTURAL DRAWINGS.
6. PROVIDE 7' TALL CHAIN LINK FENCING WITH 3-STRAND BARBED WIRE, SEE DETAIL 7 ON SHEET C-501.
7. PROVIDE 7' TALL DOUBLE LEAF SWING GATE, SEE DETAILS ON SHEET C-501.
8. PROVIDE PEDESTRIAN GATE, SEE DETAIL 6 ON SHEET C-501.
9. PROVIDE CONCRETE FILLED BOLLARD, SEE DETAIL 4 ON SHEET C-501.
10. PROVIDE AGGREGATE SURFACE, SEE DETAIL 2 ON SHEET C-501.
11. PROVIDE BARRIER WALL, SEE STRUCTURAL DRAWINGS.
12. PROVIDE ECOBLOCK WALL CONTAINMENT PIT, SEE STRUCTURAL DRAWINGS.
13. POWER AND COMMUNICATIONS CONEX VAULTS, OWNER FURNISHED AND CONTRACTOR INSTALLED.
14. PROVIDE LIGHT POLE AND FOUNDATION, SEE ELECTRICAL AND STRUCTURAL DRAWINGS.
15. PROVIDE VERTICAL INTEGRATION BUILDING (VIB), SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
16. OWNER FURNISHED AND INSTALLED 25,000-GAL ABOVEGROUND DELUGE CATCHMENT TANK.
17. OWNER FURNISHED AND INSTALLED 3,000-GAL ABOVEGROUND FUEL STORAGE TANK, SEE CIVIL NOTE A ON THIS SHEET.
18. LIMITS OF IMPERMEABLE LINER.
19. PROVIDE STAGE 2 UTILITY TRENCH, SEE STRUCTURAL DRAWINGS.

POINT TABLE

#	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	17539.66	61999.98	155.22	FENCE CORNER
2	17595.57	61915.86	156.39	FENCE CORNER
3	17617.72	61892.56	156.39	FENCE CORNER
4	17673.65	61798.45	155.22	FENCE CORNER
5	17975.65	61999.26	155.04	FENCE CORNER
6	18013.88	61988.61	154.30	FENCE CORNER
7	18116.79	62023.67	154.86	FENCE CORNER
8	18098.21	62078.36	155.90	FENCE CORNER
9	18149.22	62112.27	155.54	FENCE CORNER
10	18005.28	62333.59	161.86	FENCE CORNER
11	18036.11	62330.08	162.60	FENCE CORNER
12	17698.11	62081.32	156.00	CONCRETE CORNER
13	17604.50	61966.62	156.75	CONCRETE CORNER
14	17658.76	61875.02	156.75	CONCRETE CORNER
15	17834.94	61929.72	156.00	CONCRETE CORNER
16	17949.69	62140.73	157.00	BUILDING CORNER
17	17887.91	62048.81	157.00	BUILDING CORNER
18	17729.92	62002.79	156.84	LIN RUNWAY CORNER
19	17658.28	61933.54	156.77	LAUNCH PAD CENTER
20	17651.49	61900.41	156.77	LAUNCH PAD CORNER
21	17635.93	61973.34	156.43	PWR/COMMS VAULT CENTER
22	17686.33	61898.96	156.38	PWR/COMMS VAULT CENTER
23	17814.20	61983.99	156.55	PWR/COMMS VAULT CENTER
24	17820.03	61991.65	156.58	PWR/COMMS VAULT CENTER
25	17764.29	62058.70	156.41	PWR/COMMS VAULT CENTER
26	17773.61	62061.11	156.41	PWR/COMMS VAULT CENTER
27	17801.83	62000.63	156.67	LASER STING CENTER
28	17906.74	62154.92	156.29	PWR/COMMS VAULT CENTER
29	17913.96	62164.32	156.21	PWR/COMMS VAULT CENTER
30	18029.72	62351.01	169.00	PWR/COMMS VAULT CENTER
31	18034.69	62341.38	167.50	PWR/COMMS VAULT CENTER
32	17574.76	61938.13	154.71	LIGHT POLE
33	17630.96	61854.22	154.70	LIGHT POLE
34	17796.60	61979.65	156.44	LIGHT POLE
35	17729.68	62026.50	156.47	LIGHT POLE
36	18007.94	62025.33	155.19	LIGHT POLE
37	17934.51	62256.42	157.09	LIGHT POLE
38	17664.70	61966.49	156.77	LAUNCH PAD CORNER
39	17564.63	62004.63	156.67	EXISTING CATCHMENT TANK CORNER
40	17576.77	61969.05	156.57	EXISTING CATCHMENT TANK CORNER
42	18012.07	62340.46	172.50	CONEX CORNER
43	17991.81	62336.60	173.00	CONEX CORNER
44	17925.43	61987.48	149.24	LOX DUMP POND CORNER
45	17815.98	61969.18	149.24	LOX DUMP POND CORNER
46	17976.84	62096.50	156.77	PWR/COMMS VAULT CENTER

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
49TH
JENNIFER A. HARVIN
No. 112979

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JENNIFER A. HARVIN
AK PE 112979

DESIGNED BY
A. LUNA

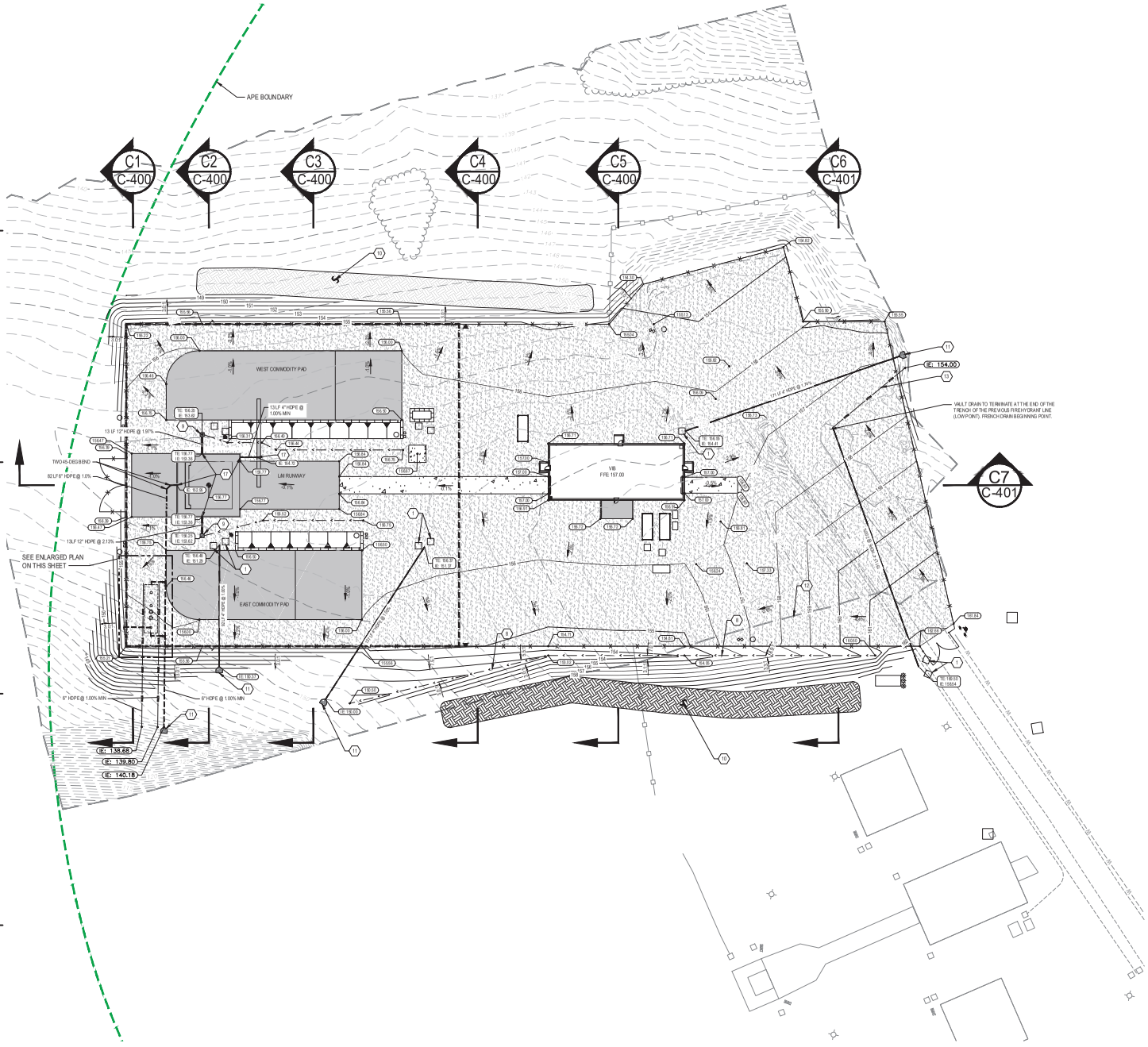
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

TITLE
SITE PLAN

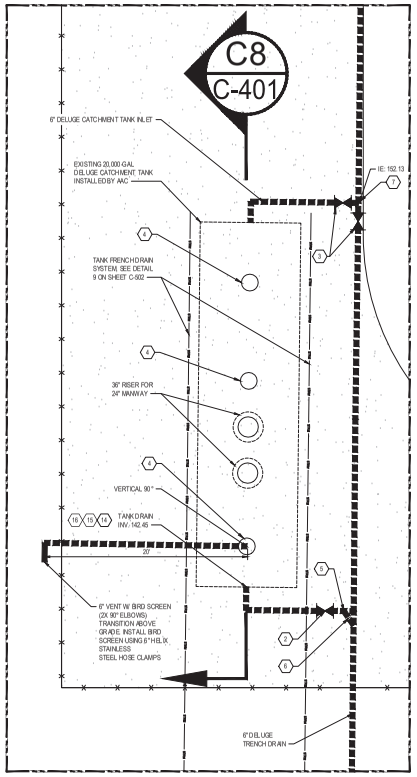
DRAWING NO.
C-121



GRADING & DRAINAGE PLAN
1"=30'

CIVIL KEYNOTES:

1. PROVIDE DRAIN FROM ELECTRICAL/COMMUNICATIONS VAULTS, SEE DETAIL 7 ON SHEET C-502.
2. PROVIDE GATE VALVE & BOX, SEE DETAIL 2 ON SHEET C-502.
3. PROVIDE LONG STEM GATE VALVE & BOX, SEE DETAIL 2 ON SHEET C-502.
4. EXISTING 6" FLANGED TANK CONNECTION.
5. PROVIDE 6" 45DEG THREE-SEGMENT MITERED BEND.
6. PROVIDE 6"x6"x6" WYE.
7. PROVIDE 6"x6"x6" TEE.
8. PROVIDE V-SHAPED SWALE 1.5' DEEP.
9. PROVIDE AREA DRAIN, SEE DETAIL 8 ON SHEET C-502.
10. STOCKPILE AREA FOR 3.5' OF TOPSOIL EXCAVATION.
11. PROVIDE RIP RAP OUTLET PROTECTION, SEE DETAIL 3 ON SHEET C-501.
12. LIMIT OF TOPOGRAPHIC SURVEY. CONTRACTOR TO FIELD VERIFY EXISTING TOPOGRAPHY ACCOMMODATES THE DESIGN GRADING.
13. PROVIDE FRENCH DRAIN, SEE DETAIL 9A ON SHEET C-502.
14. EXISTING PLAIN END SCHEDULE 40 CARBON STEEL STUBOUT. WELD A CLASS 150 SLIP-ON FLANGE THEN INSTALL FLANGE ADAPTER AND 90DEGREE BEND.
15. PROVIDE 6" FLANGE 2/ CLASS 150 STAINLESS STEEL BACK-UP RING.
16. PROVIDE 6" 90DEGREE ELBOW THREE SEGMENT MITERED BEND.
17. SEE STRUCTURAL DRAWINGS FOR DRAIN PENETRATION INTO THE LOP DELUGE TRENCH.



ENLARGED PLAN
1"=5'

SCALE: 1" = 5'

SCALE: 1" = 30'

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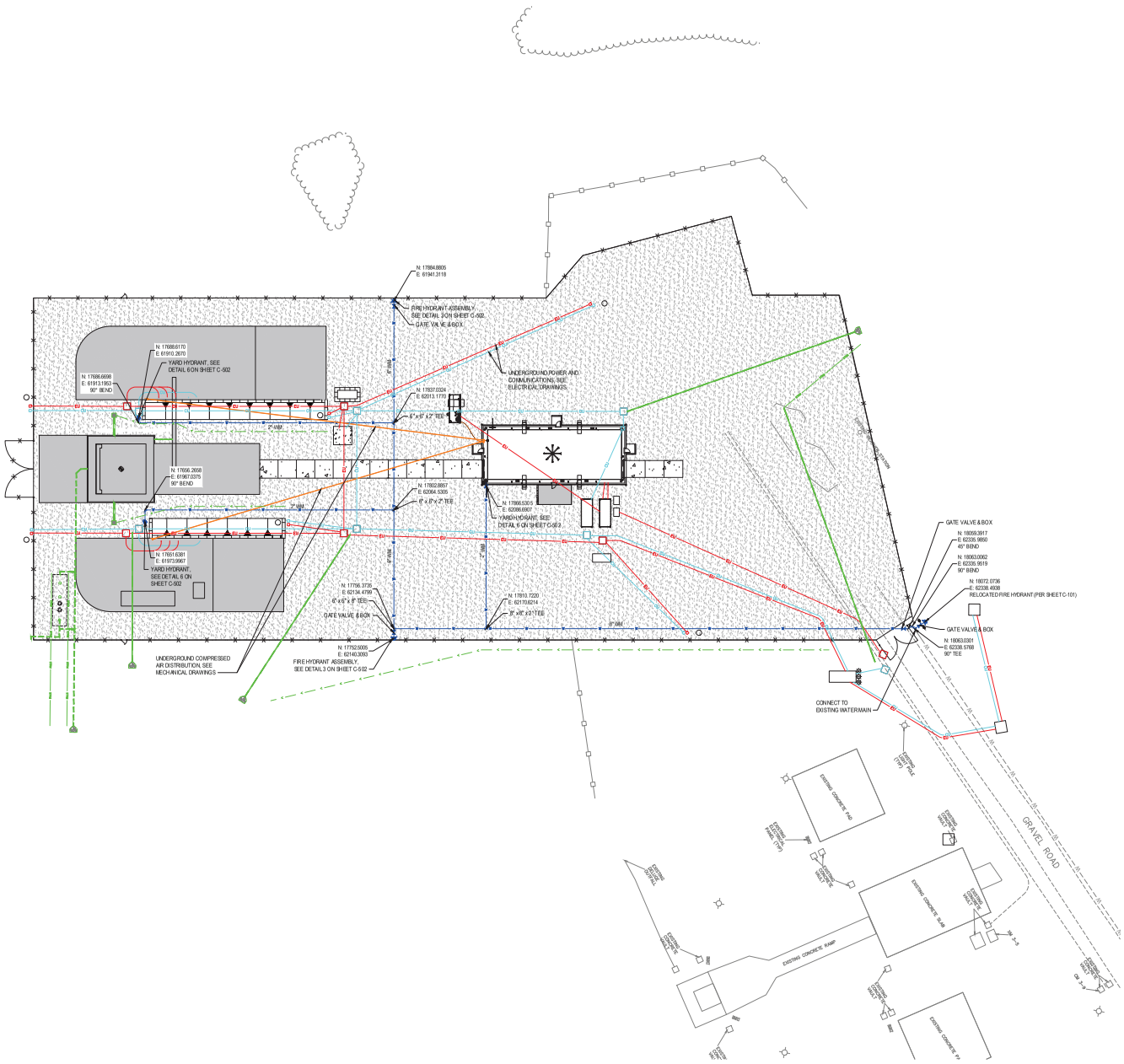
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

TITLE
GRADING & DRAINAGE PLAN

DRAWING NO.
C-141



UTILITY LEGENDS:

STORM PIPE	
UNDERDRAIN (FRENCH DRAIN)	STM
DRAINAGE SWALE	
UNDERGROUND COMMUNICATIONS LINE	CU
UNDERGROUND ELECTRICAL LINE	EU
RIP RAP	
STORM AREA DRAIN	
FIRE HYDRANT	
YARD HYDRANT	
WYE	
45 DEGREE BEND	
GATE VALVE & BOX	
90 DEGREE TEE	
90 DEGREE BEND	
WATER PIPE	W
COMPRESSED AIR PIPE	

UTILITY PLAN
1"=30'

0 15' 30' 60' 90'
SCALE: 1" = 30'

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AK PE 112979

DESIGNED BY
A. LUNA

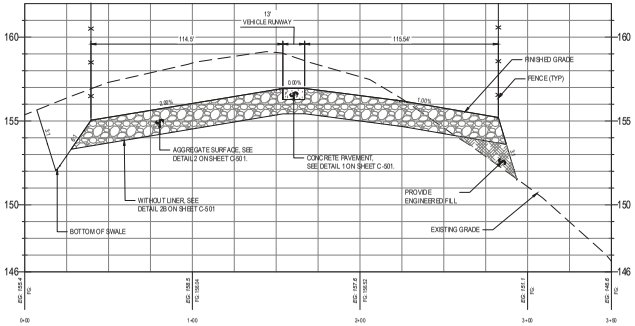
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

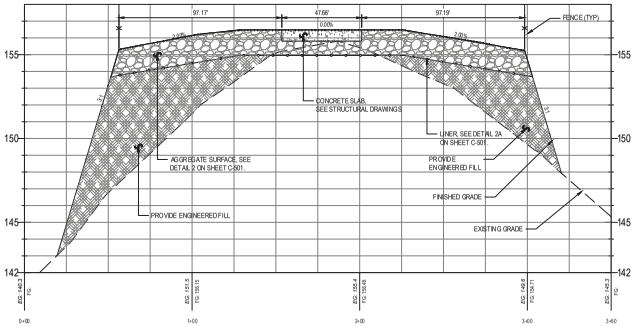
DATE
05/08/2026

TITLE
UTILITY PLAN

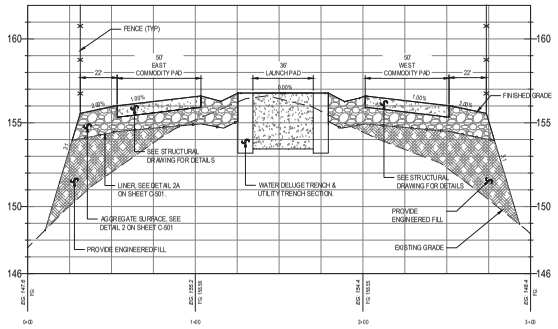
DRAWING NO.
C-161



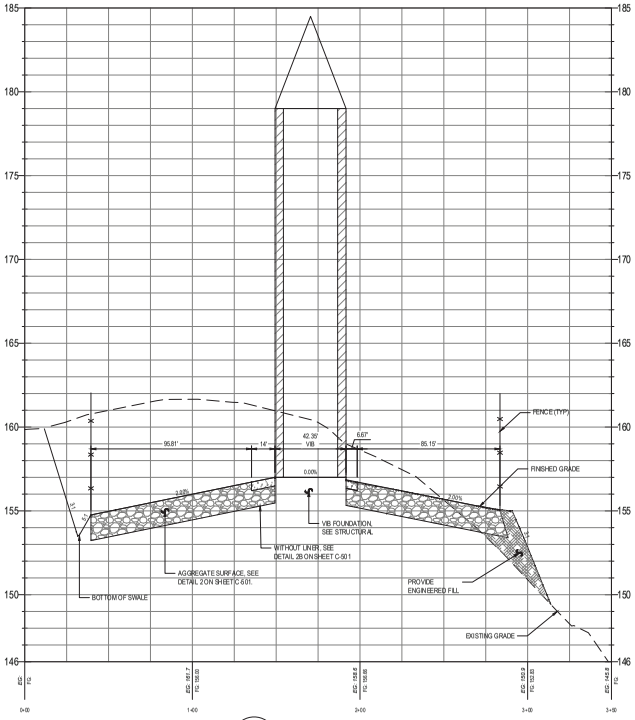
C4 C-141 VEHICLE RUNWAY SECTION
SCALE: 1" = 30' H, 1" = 3' V



C1 C-141 CROSS SECTION
SCALE: 1" = 30' H, 1" = 3' V



C2 C-141 LAUNCH AND EQUIPMENT PAD SECTION
SCALE: 1" = 30' H, 1" = 3' V



C5 C-141 VIB SECTION
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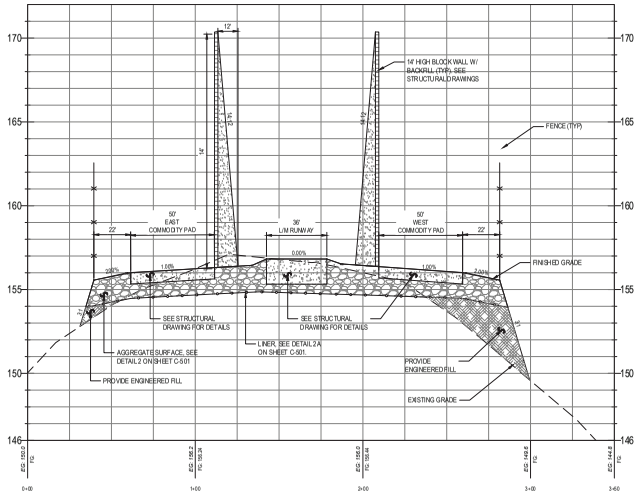

C3 C-141 L/M RUNWAY SECTION
SCALE: 1" = 30' H, 1" = 3' V

0 15' 30' 60' 90'
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

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JENNIFER A. HARVIN
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DESIGNED BY
A. LUNA

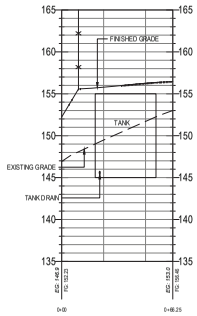
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

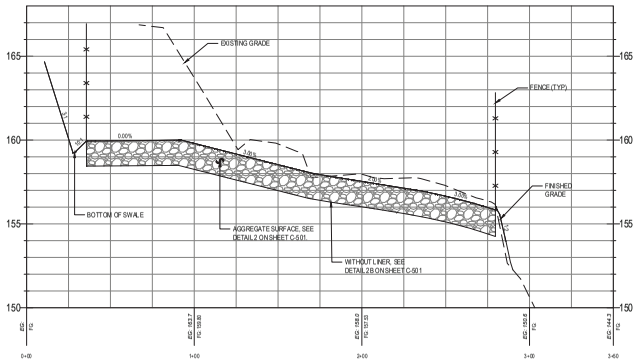
DATE
05/08/2026

TITLE
CROSS SECTIONS

DRAWING NO.
C-400



C8 C-141 DELUGE CATCHMENT TANK CENTERLINE SECTION
SCALE: 1" = 30' H, 1" = 3' V



C6 C-141 CROSS SECTION
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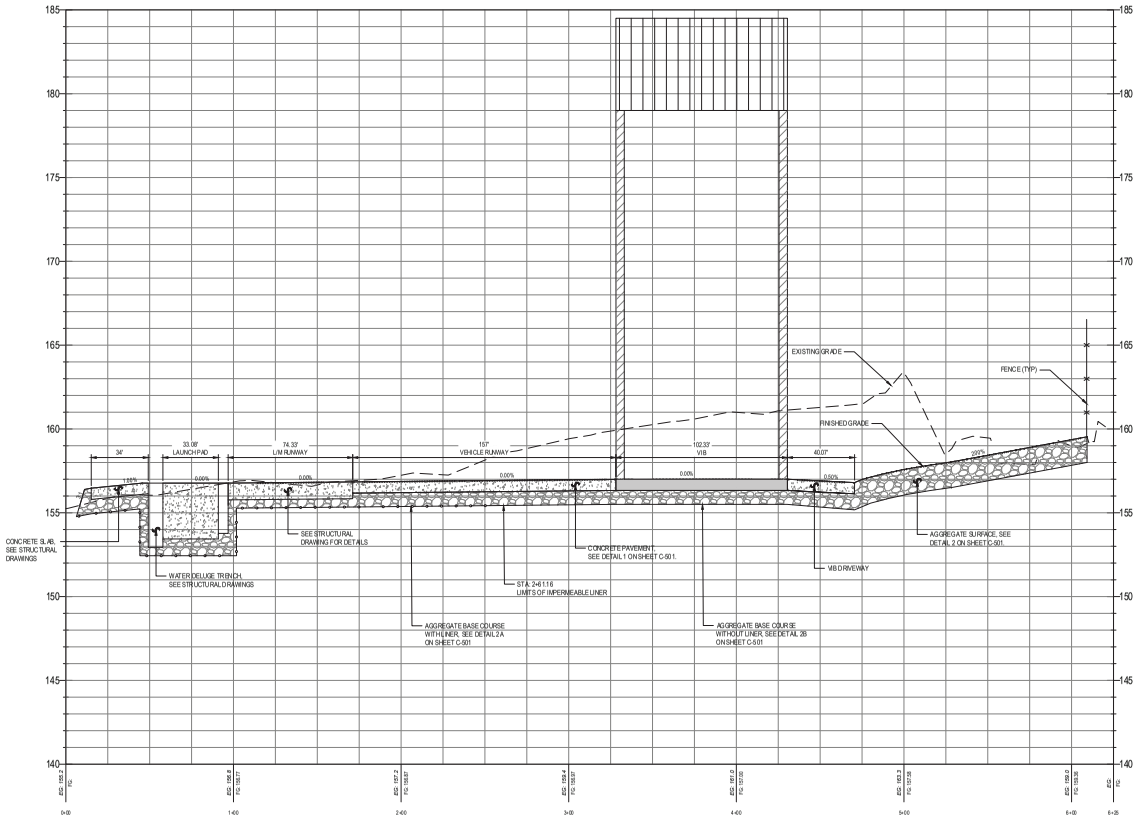

C7 C-141 SITE CENTERLINE SECTION
SCALE: 1" = 30' H, 1" = 3' V

0 15' 30' 60' 90'
HORIZONTAL SCALE: 1" = 30'
VERTICAL SCALE: 1" = 3'

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PROJECT NUMBER
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DATE
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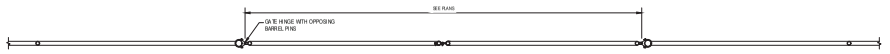
TITLE
CROSS SECTIONS

DRAWING NO.
C-401



PLAN - DOUBLE SWING GATE

SCALE: N.T.S.

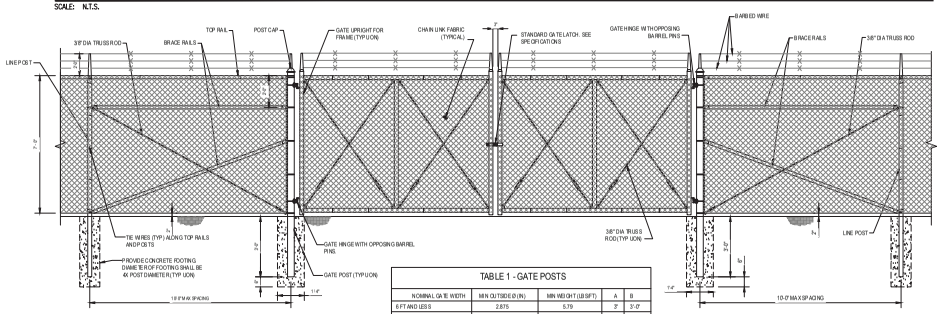
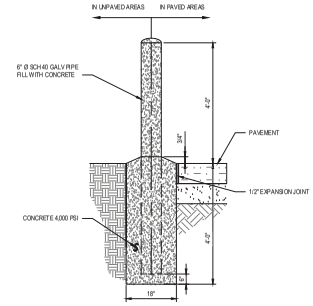


TABLE 1 - GATE POSTS

NOMINAL GATE WIDTH	MIN OUTSIDE Ø (IN)	MIN WEIGHT (LB/FT)	A	B
6 FT AND LESS	2.875	5.79	3"	3'-0"
OVER 6 FT TO 13 FT (INCL)	4.000	9.11	3"	3'-6"
OVER 13 FT TO 18 FT (INCL)	6.625	18.97	3"	4'-0"
OVER 18 FT	8.625	24.70	3"	5'-0"

5 C-121 C-501 DOUBLE SWING GATE DETAIL

N.T.S.



4 C-121 C-501 CONCRETE FILLED BOLLARD DETAIL

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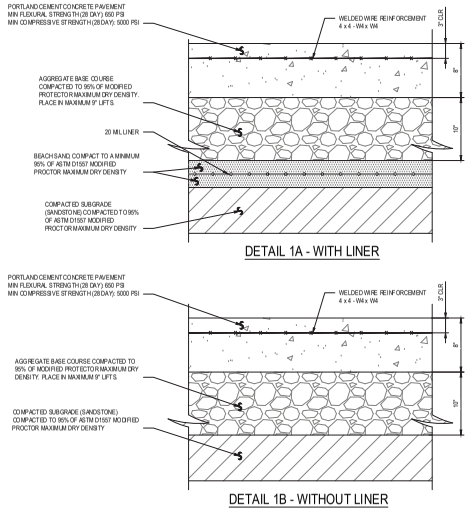
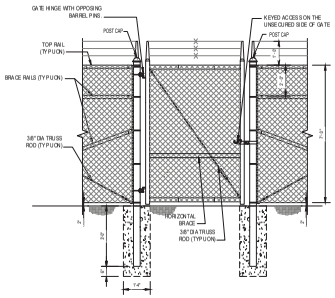


1 C-121 C-501 CONCRETE PAVEMENT DETAILS

N.T.S.

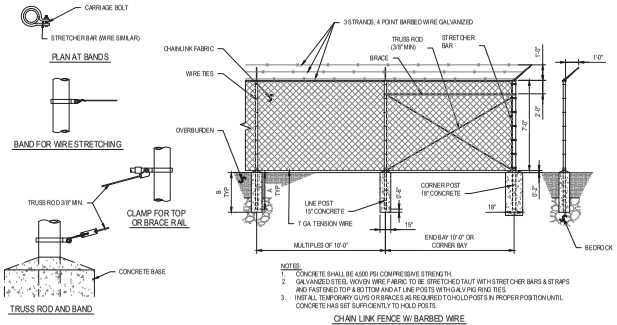
PLAN PEDESTRIAN GATE

SCALE: N.T.S.



6 C-121 C-501 PEDESTRIAN GATE DETAIL

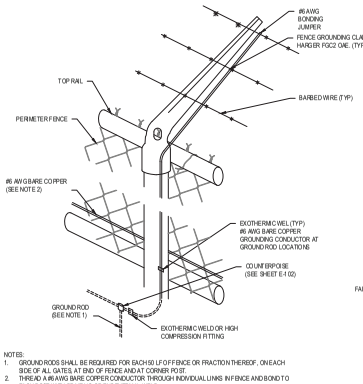
N.T.S.



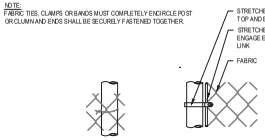
NOTES:
1. CONCRETE SHALL BE 4,000 PSI COMPRESSIVE STRENGTH.
2. GALVANIZED STEEL WOVEN WIRE FABRIC TO BE STRETCHED TAUT WITH STRETCHER BARS & STRAPS AND FASTENED TOP & BOTTOM AND AT LINE POSTS WITH GALVPIG RING TIES.
3. INSTALL TEMPORARY GUYS OR BRACES AS REQUIRED TO HOLD POSTS IN PROPER POSITION UNTIL CONCRETE HAS SET SUFFICIENTLY TO HOLD POSTS.

CHAIN LINK FENCE W/ BARBED WIRE

NOTE:
FABRIC TIES, CLAMPS OR BANDS MUST COMPLETELY ENCIRCLE POST OR COLUMN AND ENDS SHALL BE SECURELY FASTENED TOGETHER.



NOTES:
1. GROUND RODS SHALL BE REQUIRED FOR EACH 50 LF OF FENCE OR FRACTION THEREOF, ONE EACH SIDE OF ALL GATES, AT END OF FENCE AND AT CORNER POST.
2. THREAD A #8 AWG BARE COPPER CONDUCTOR THROUGH INDIVIDUAL LINKS IN FENCE AND BOND TO EACH POST WITH BRAZING OR EXOTHERMAL WELD.



WIRE TIES FOR POSTS

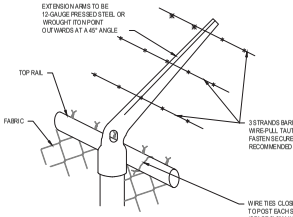
DETAIL - END OR GATE POST

TABLE 1 - FENCE POSTS

COMPONENTS	MIN OUTSIDE Ø (IN)	MIN WEIGHT (LBS/FT)	A	B
LINE POSTS	2.375	3.65	3"	3'-0"
END, PULL AND CORNER POSTS	2.875	5.79	3"	3'-6"
BRACE RAIL	1.660	2.27	-	-

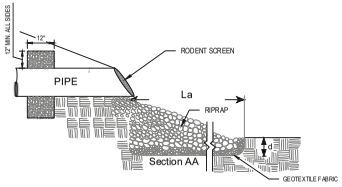
CHAIN LINK FENCING NOTES

1. FABRIC: THE STANDARD FENCE FABRIC SHALL BE 9 GAUGE GALVANIZED ZINC WIRE CHAIN LINK WITH MESH OPENINGS NOT LARGER THAN TWO INCHES PER SIDE AND A TWISTED AND BARBED SELVAGE AT TOP AND BOTTOM.
2. FABRIC TIES: ONLY 11 GAUGE STEEL TIES SHALL BE USED. COATING OR PLATING WILL BE ELECTROLYTICALLY COMPATIBLE WITH THE FENCE FABRIC TO INHIBIT CORROSION.
3. REINFORCEMENT: TENSION WIRES SHALL BE INSTALLED AND INTERWOVEN (OR AFFIXED WITH FABRIC TIES) ALONG THE TOP & BOTTOM OF THE FENCE FOR STABILIZATION OF THE FENCE FABRIC.
4. FENCE HEIGHT: CHAIN LINK FABRICS SHALL BE 7' HIGH WITH AN ADDITIONAL 1' IN HEIGHT COMPOSED OF 3 STRANDS OF BARBED WIRE.
5. GROUND CLEARANCE: BOTTOM OF THE FENCE FABRIC SHALL BE WITHIN TWO INCHES OF FIRM GRADE.
6. TOP GUARDS: A TOP GUARD IS AN OVERHANG OF BARBED WIRED ALONG THE TOP OF A FENCE, FACING OUTWARD (AWAY FROM PROTECTED SITE) AND UPWARD AT APPROX. 45 ANGLE. TOP GUARD SUPPORTING ARMS WILL BE PERMANENTLY AFFIXED TO THE TOP OF FENCE POSTS TO INCREASE THE OVERALL HEIGHT OF THE FENCE AT LEAST 1 FOOT. THREE STRANDS OF 12-GAUGE BARBED WIRE, EQUALLY SPACED, SHALL BE INSTALLED ON THE SUPPORTING ARMS.
7. FENCE POSTS: SHALL BE ASTM F1043 OR F1083 ROUND PIPE AND SHALL BE GALVANIZED IN ACCORDANCE WITH THE SPECIFICATIONS. FENCE POST SPACING AND SIZE (DIAMETER) SHALL BE DETERMINED IN ACCORDANCE WITH CHAIN LINK FENCE MANUFACTURERS INSTITUTE (RLG 2445). SPACING SHALL NOT EXCEED 10'-0" O.C. SIZE (DIAMETER) SHALL NOT BE LESS THAN THAT SPECIFIED. SEE TABLE 1 FOR POST DIMENSIONS.

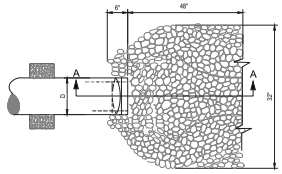


7 C-121 C-501 CHAIN LINK FENCING DETAILS

N.T.S.



SECTION



PLAN

NOTES:
1. RIPRAP d_{50} SHALL BE 12".
2. d SHALL BE A MINIMUM 24".
3. RIPRAP SHALL BE UNDERLAIN BY A GEOTEXTILE FABRIC, MIRAFI 600X OR EQUIVALENT.

3 C-121 C-501 RIP RAP OUTLET PROTECTION DETAIL

N.T.S.

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DESIGNED BY
A. LUNA

DRAWN BY
P. BRIONES

PROJECT NUMBER
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DATE
05/08/2026

TITLE
SITE DETAILS

DRAWING NO.
C-501

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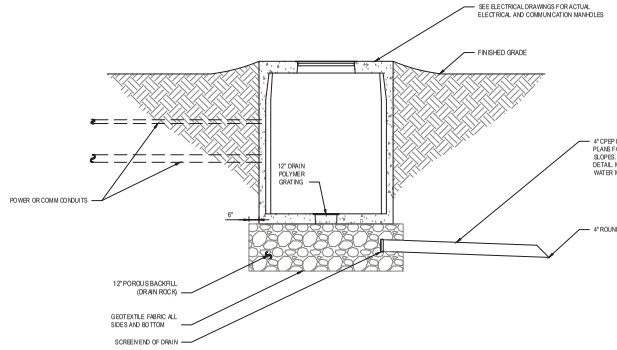
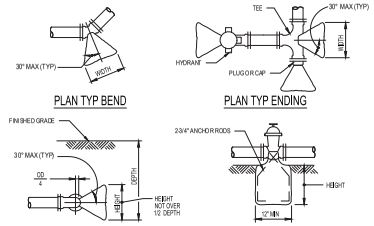


7 ELECTRICAL VAULT DRAIN DETAIL

C-161 | C-502 N.T.S.



PIPE SIZE	MIN BEARING AREA (SQ FT)				HYDRANT, TEE VALVE, PLUG, CAP
	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND	
6"	4.6	3.1	2.1	1.6	2.8
8"	7.1	4.1	2.3	1.4	4.8
10"	10.7	6.2	3.5	2.1	7.3

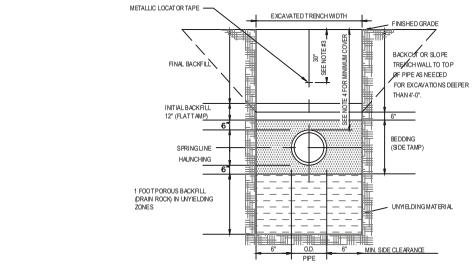
SIZE SCHEDULE

SINGLE-PIPE

NOTES:
1. THIS DRAWING IS SCHEMATIC.
2. PROVIDE CLEARANCE FOR BOLT REMOVAL.
3. THRUST BLOCKS: 3,000 PSI CONCRETE. POUR AGAINST UNDISTURBED FIRM EARTH.
4. BEARING AREAS BASED ON 225 PSIG PRESSURE AND SOIL RESISTANCE OF 3,000 PSF.

4 THRUST BLOCK DETAIL

C-161 | C-502 N.T.S.



NOTES:
1. FOR TRENCHES REQUIRING SHEETING, SHORING, STAY BRACING, TRENCH JACKS, OR TRENCH BOX, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SUPPORTS.
2. IF THE MAX. TRENCH WIDTH MUST BE EXCEEDED OR IF THE PIPE IS INSTALLED IN A COMPACTED EMBANKMENT, THEN PIPE EMBEDMENT SHOULD BE COMPACTED TO A POINT OF AT LEAST 2.5 PIPE DIAMETER FROM THE PIPE ON BOTH SIDES OF THE PIPE OR TO THE TRENCH WALLS, WHICHEVER IS LESS.
3. METALLIC LOCATOR TAPE AND COPPER TRACING WIRE SHALL BE USED ABOVE ALL BURIED UTILITIES. TAPE SHALL BE 12" MINIMUM ABOVE UTILITY.
4. MINIMUM COVER
   4.1. WATER: 6FT
   4.2. STORM 1.5FT
   4.3. POWER AND COMMUNICATIONS: 3FT
   4.4. COMPRESSED AIR: 3FT

1 TYPICAL TRENCH DETAIL

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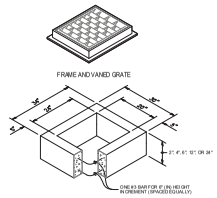
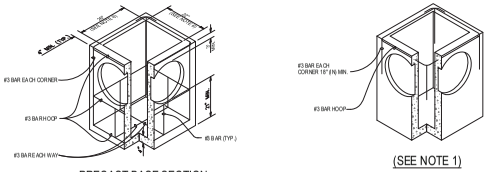


RECTANGULAR ADJUSTMENT SECTION



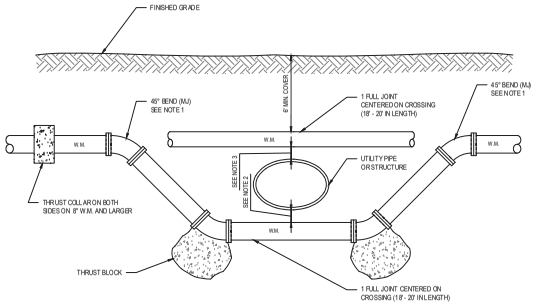
PRECAST BASE SECTION

(SEE NOTE 1)
ALTERNATIVE PRECAST BASE SECTION

NOTES:
1. ALTERNATIVES TO THE REBAR SHOWN IN THE PRECAST BASE SECTION, INCLUDE FIBERS (PLACED ACCORDING TO THE STANDARD SPECIFICATIONS), OR WIRE MESH HAVING A MINIMUM AREA OF 0.12 SQUARE INCHES PER FOOT SHALL BE USED WITH THE MINIMUM REQUIRED REBAR SHOWN IN THE ALTERNATIVE PRECAST BASE SECTION. WIRE MESH SHALL NOT BE PLACED IN THE KNOCKOUTS.
2. THE KNOCKOUT DIAMETER SHALL NOT BE GREATER THAN 20" (IN). KNOCKOUTS SHALL HAVE A WALL THICKNESS OF 2" (IN) MINIMUM TO 2.5" (IN) MAXIMUM. PROVIDE A 1.5" (IN) MINIMUM GAP BETWEEN THE KNOCKOUT WALL AND THE OUTSIDE OF THE PIPE. AFTER THE PIPE IS INSTALLED, FILL THE GAP WITH JOINT MORTAR IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 904.3.
3. THE MAXIMUM DEPTH FROM THE FINISHED GRADE TO THE LOWEST PIPE INVERT SHALL BE 5' (FT).
4. THE FRAME AND GRATE MAY BE INSTALLED WITH THE FLANGE DOWN, OR INTEGRALLY CAST INTO THE ADJUSTMENT SECTION WITH FLANGE UP.
5. THE PRECAST BASE SECTION MAY HAVE A ROUNDED FLOOR, AND THE WALLS MAY BE SLOPED AT A RATE OF 1:.24 OR STEEPER.
6. THE OPENING SHALL BE MEASURED AT THE TOP OF THE PRECAST BASE SECTION.
7. PICKUP HOLES SHALL BE GROUTED FULL AFTER THE BASIN HAS BEEN PLACED.

8 AREA DRAIN DETAIL

C-161 | C-502 N.T.S.



NOTES:
1. JOINT SHALL BE MECHANICALLY RESTRAINED USING DUCTILE IRON RESTRAINING GLANDS OR RINGS SUCH AS MEGA-LUGS OR GRIP-RINGS.
2. PROVIDE 18" MINIMUM SEPARATION WHEN WATER MAIN MUST CROSS BELOW OTHER PIPE.
3. PROVIDE 6" MINIMUM (12" PREFERRED) SEPARATION FOR STORM SEWER CROSSINGS.

5 UTILITY CROSSING DETAIL

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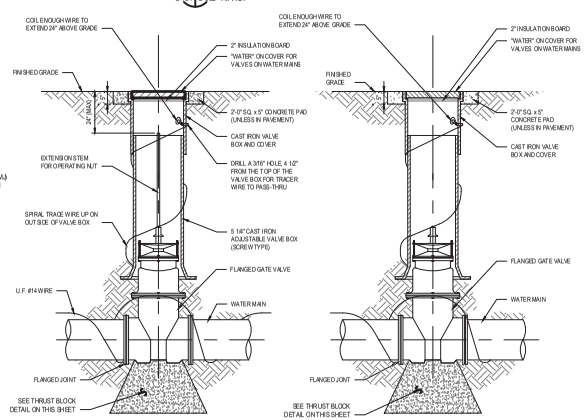

LONG STEM VALVE

STANDARD

2 GATE VALVE & BOX DETAIL

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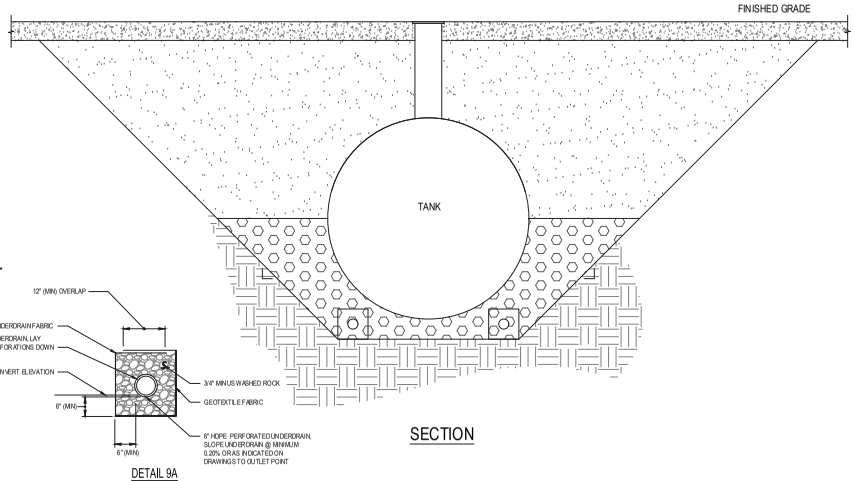

DETAIL 9A

UNDERDRAIN PIPE (FRENCH DRAIN)

SECTION

9 TANK FRENCH DRAIN DETAIL

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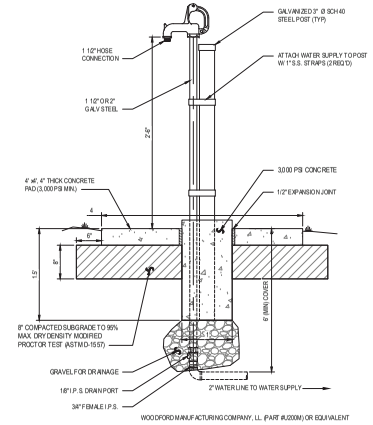

6 YARD HYDRANT (NON-FREEZE) DETAIL

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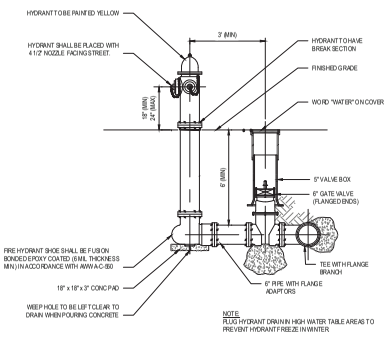

NOTE:
PLUG HYDRANT DRAIN IN HIGH WATER TABLE AREAS TO PREVENT HYDRANT FREEZE IN WINTER

3 FIRE HYDRANT ASSEMBLY DETAIL

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ARCHITECT OF RECORD
JENNIFER A. HARVIN
AK PE 112979

DESIGNED BY
A. LUNA

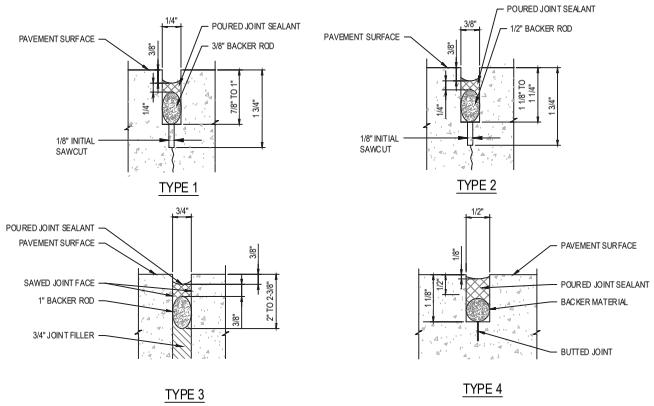
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

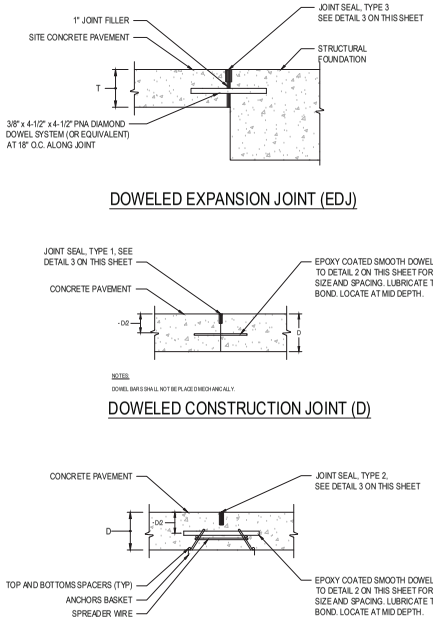
TITLE
UTILITY DETAILS

DRAWING NO.
C-502



3 JOINT SEAL DETAILS

C700 C-503 N.T.S.

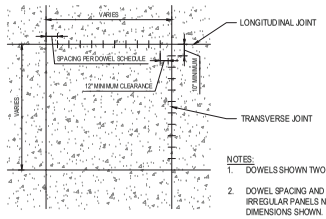


1 CONCRETE JOINTING DETAILS

C700 C-503 N.T.S.

DOWEL SCHEDULE			
SLAB THICKNESS (D)	DIAMETER	LENGTH	SPACING
5" - 7"	3/4"	18"	12"
7.5" - 12"	1"	18"	12"
12.5" - 16"	1 1/4"	20"	15"

DOWEL SCHEDULE



DOWEL SPACING/CLEARANCE

NOTES:

1. DOWELS SHOWN TWO SIDES ONLY FOR CLARITY.
2. DOWEL SPACING AND CLEARANCES SHOWN APPLY TO IRREGULAR PANELS NOT CONFORMING TO THE TYPICAL DIMENSIONS SHOWN.
3. DOWELS SHALL BE FIXED IN PLACE THROUGH FORMS AND SUPPORTED BY CHAIRS OR DRILLED AND EPOXIED INTO HOLE (1/8" LARGER THAN DOWEL DIA.) OF FULLY CURED CONCRETE.

2 DOWEL DETAILS

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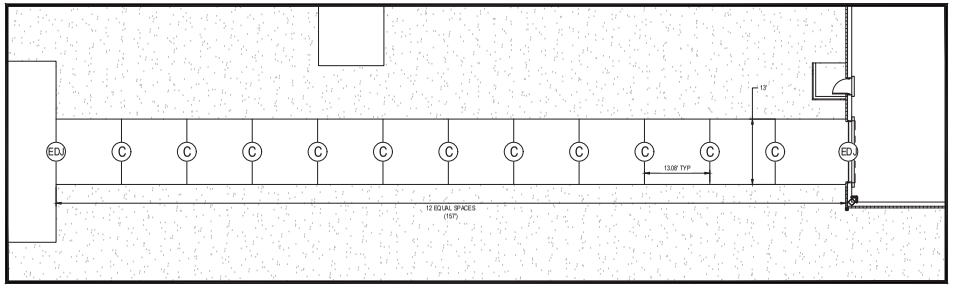
ARCHITECT OF RECORD
JENNIFER A. HARVIN
AK PE 112979
DESIGNED BY
A. LUNA
DRAWN BY
P. BRIONES
PROJECT NUMBER
C09729.001.01
DATE
05/08/2026
TITLE
JOINTING DETAILS
DRAWING NO.
C-503

CIVIL NOTES:

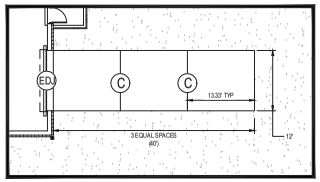
A SEE SHEET C-503 FOR CONCRETE JOINTING DETAILS.

CIVIL JOINTING LEGEND:

DOWELED CONTRACTION JOINT	C
DOWELED CONSTRUCTION JOINT	D
DOWELED EXPANSION JOINT	EJ



VEHICLE RUNWAY JOINTING



VIB DRIVEWAY

JOINTING PLAN
1"=10'

0 5' 10' 20' 30'
SCALE: 1" = 10'

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TITLE
JOINTING PLAN

DRAWING NO.
C-700

POWER LEGEND

- TRANSFORMER.
- PANELBOARD; 480Y/277V.
- PANELBOARD; 208Y/120V.
- FUSED DISCONNECT. FUSED PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. FURNISHED BY DIVISION 23, UON. FOR ALL MECHANICAL EQUIPMENT. FURNISHED BY DIVISION 26 FOR ALL OTHER EQUIPMENT. P=NUMBER OF POLES, SIZE=AMPERE RATING, FUSE=TYPE OR SIZE.
- NON-FUSED DISCONNECT, FURNISHED BY DIVISION 23, UON.
- COMBINATION STARTER, FURNISHED BY DIVISION 23, UON.
- MOTOR RATED SWITCH. 20A, 2P, 120/277V.
- JUNCTION BOX.
- SIMPLEX RECEPTACLE; NEMA 5-20R, 125VAC.
- DUPLEX RECEPTACLE; NEMA 5-20R, 125VAC.
- DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, 125VAC.
- DUPLEX/QUAD RECEPTACLE; NEMA 5-20R, 125VAC. MOUNT RECEPTACLES 2" ABOVE COUNTERS OR BACKSPLASH OR AT 48" AFF. COORDINATE WITH ARCHITECTURAL ELEVATION DRAWINGS.
- CEILING MOUNTED DUPLEX RECEPTACLE, NEMA 5-20R, 125VAC.
- CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, 125VAC.
- 20A, 120V NEMA L5-20R. (DSN20A)
- 20A, 208V NEMA L6-20R. (DSN20A)
- 30A, 208V, NEMA L6-30R. (DSN30A)
- 60A, 208V, 4P, 5W, NEMA L21-60R. (DSN60A)
- 100A, 480Y, DS100 WITH INTEGRAL DISCONNECT.
- 20A, 208V, DSNA20A WITH INTEGRAL DISCONNECT.

RECEPTACLE SUBSCRIPTS:

GF	GROUND FAULT CIRCUIT INTERRUPTER.
WP	GROUND FAULT CIRCUIT INTERRUPTER WITH WEATHERPROOF IN USE TYPE COVER
IG	ISOLATED GROUND.
EP	EXPLOSION PROOF.
TR	TAMPER RESISTANT.
SW	SWITCHED - PLUG LOAD CONTROL PER ASHRAE 90.1

- VFD — VARIABLE FREQUENCY DRIVE FURNISHED BY DIVISION 23 CONTRACTOR.
- SPD — SURGE PROTECTIVE DEVICE.
- DUPLEX/QUAD CONVENIENCE RECEPTACLE, 20A, 125 VAC, ON GENERATOR POWER.
- MH — ELECTRICAL MANHOLE.
- EMERGENCY POWER-OFF BUTTON.
- MI — MECHANICALLY INTERLOCKED RECEPTACLE, DEVICE TYPE VARIES, SEE PLANS FOR SPECIFIC TYPE AND RATING.
- 150 — 150A, 480V, HUBBLE VERSAMATE SERIES PIN & SLEEVE RECEPTACLE, SEE PLANS FOR DETAILS.

LIGHTING LEGEND

- A1 / a — UPPER CASE LETTER INDICATES FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE AND DRAWINGS. LOWER CASE LETTER INDICATES SWITCH LEG.
- 2' x 4' LIGHTING FIXTURE.
- 2' x 4' EMERGENCY LIGHTING FIXTURE.
- 2' x 2' LIGHTING FIXTURE.
- 2' x 2' EMERGENCY LIGHTING FIXTURE.
- 1' x 4' LIGHTING FIXTURE.
- 1' x 4' EMERGENCY LIGHTING FIXTURE.
- DOWNLIGHT FIXTURE.
- DOWNLIGHT EMERGENCY FIXTURE.
- 4' STRIP LIGHTING FIXTURE.
- 4' EMERGENCY STRIP LIGHTING FIXTURE.
- 6" DOWNLIGHT WALL WASH.
- WALL SCONCE.
- WALL SCONCE EMERGENCY.
- SINGLE SIDED EMERGENCY/EXIT SIGN.
- DOUBLE SIDED EMERGENCY/EXIT SIGN.
- SINGLE POLE SWITCH, 20A, 120/277V.

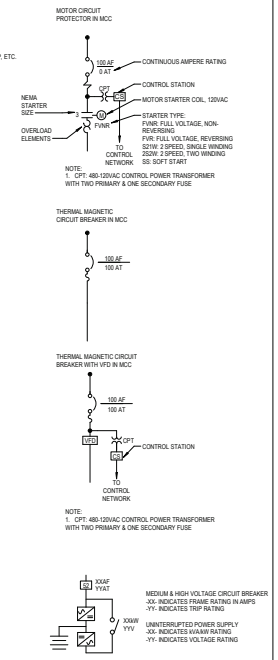
SWITCH MODIFIERS:

3	THREE WAY WALL SWITCH.
4	FOUR WAY WALL SWITCH.
D	DIMMER SWITCH.
K	KEYED WALL SWITCH.
LV	LOW VOLTAGE SWITCH.
OC	WALL MOUNTED OCCUPANCY SENSOR SWITCH.
WP	WEATHERPROOF SWITCH.

- OC — OCCUPANCY SENSOR.
- PC — PHOTOCELL.
- # — LIGHTING CONTROL CALL OUT. REFER TO LIGHTING CONTROL SCHEDULE.
- ELR — EMERGENCY LIGHTING CONTROL RELAY - UL924 COMPLIANT.
- DS — DUAL TECHNOLOGY OCCUPANCY SENSOR WITH PHOTOCELL FOR AUTOMATIC DAYLIGHT RESPONSE DIMMING.

ONE-LINE DIAGRAMS LEGEND

- SS4 — CONDUCTOR SIZE - SEE WIRE & CONDUIT SCHEDULE.
- 25HP — MOTOR FEEDER TAG
- AF/AT — CIRCUIT BREAKER. XXX DENOTES BREAKER TYPE: LSIG, ICP, ETC.
- CR — CONTACT, NORMALLY CLOSED OR NORMALLY OPEN.
- XXA / Z — FUSE. -'XX' INDICATES TRIP RATING IN RATING IN AMPS. -'Z' INDICATES CLASSIFICATION (IF SPECIFIED).
- GENERATOR SET.
- M — UTILITY METER.
- SPLICE.
- SWITCH.
- S / A — TRANSFER SWITCH.
- TRANSFORMER, DELTA WYE.
- PANEL — 225A MLO, 480/277V, 3Ø, 4W — 480V/277V PANELBOARD.
- PANEL — 225A MLO, 208/120V, 3Ø, 4W — 208V/120V PANELBOARD.
- X — MOTOR - 'X' INDICATES HORSEPOWER.
- MULTIFUNCTION METER AND CIRCUIT MONITOR WITH ETHERNET INTERFACE CARD.
- VFD — VARIABLE FREQUENCY DRIVE.
- ANGLED BRACKETS INDICATE DRAWOUT DEVICE.



ABBREVIATIONS AND ACRONYMS

(APPLIES TO ALL ELECTRICAL SHEETS)

A	AMPERES
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ASSOC	ASSOCIATION
A/V	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
C	CONDUIT
CLG	CEILING
COMM	COMMUNICATION
CU	COPPER
DISC	DISCONNECT
DIV	DIVISION
DWG	DRAWING
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
ELEC	ELECTRICAL
EM	EMERGENCY
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ETR	EXISTING TO REMAIN
EX	EXISTING
GF	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HVAC	HEATING, VENTILATING & AIR CONDITIONING
JBOX	JUNCTION BOX
KAIC	(THOUSAND) AMPERE INTERRUPTING CAPACITY
kcmil	THOUSAND OF CIRCULAR MILS
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LC	LIGHTING CONTACTOR
LCP	LIGHTING CONTROL PANEL
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LTS	LIGHTS
LSI	LONG, SHORT, INSTANTANEOUS
LSIG	LONG, SHORT, INSTANTANEOUS, GROUND FAULT
MANUF	MANUFACTURERS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
N	NEUTRAL
NA	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NF	NON-FUSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NEMA	NATIONAL ELECTRICAL MANUF ASSOC
NFPA	NATIONAL FIRE PROTECTION ASSOC
NL	NIGHT LIGHT - FIXTURE OPERATES CONTINUOUSLY
N.O.	NORMALLY OPEN
NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY
NTS	NOT TO SCALE
O.C.	ON CENTER
OCPD	OVER CURRENT PROTECTION DEVICE
OH	OVERHEAD
PNL	PANELBOARD
PROJ	PROJECTOR
PVC	POLYVINYL CHLORIDE
RM	ROOM
RECPT(S)	RECEPTACLE(S)
RGS	RIGID GALVANIZED STEEL
SN	SOLID NEUTRAL
SEC	SECURITY
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SPST	SINGLE POLE SINGLE THROW
SQ	SQUARE
SW	SWITCH
TEL	TELEPHONE
TEMP	TEMPORARY
TTC	TELEPHONE TERMINAL CABINET
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
USB	UNIVERSAL SERIAL BUS
V	VOLTS
W	WIRE
WP	WEATHER PROOF
XFMR	TRANSFORMER
Y	WYE (CONNECTED)

GENERAL NOTES

1. ELECTRICAL SERVICE TO AND FOR MECHANICAL AND OTHER EQUIPMENT IS BASED ON EQUIPMENT DESIGN DATA, THE VALUES MAY DIFFER DEPENDING UPON THE ACTUAL EQUIPMENT TO BE FURNISHED. COORDINATE RATINGS WITH OTHER TRADES PRIOR TO ORDERING ELECTRICAL EQUIPMENT. ANY MODIFICATION TO THE ELECTRICAL INSTALLATION BASED UPON ACTUAL EQUIPMENT SELECTION, SHALL RESULT IN NO ADDITIONAL COST TO THE CONTRACT.
2. CONTRACTOR SHALL REVIEW ALL DESIGN DOCUMENTS TO ENSURE THAT ELECTRICAL SERVICE FOR ALL ITEMS AND/OR EQUIPMENT REQUIRING ELECTRICAL SERVICE IS INCLUDED. ANY ITEM AND/OR EQUIPMENT NOT PROVIDED WITH ELECTRICAL SERVICE, REQUIRING ELECTRICAL SERVICE, SHALL BE IMMEDIATELY BROUGHT TO THE OWNERS ATTENTION.
3. MECHANICAL AND ELECTRICAL EQUIPMENT HAS BEEN LOCATED AND ARRANGED TO MINIMIZE THE INTERFERENCES OF EQUIPMENT AND STRUCTURE. CONTRACTOR SHALL THOROUGHLY BECOME FAMILIAR WITH THE WORK TO BE PERFORMED BY ALL TRADES AND THE PHYSICAL CHARACTERISTICS OF THE STRUCTURE IN ORDER TO SCHEDULE AND INSTALL EQUIPMENT AND TO MINIMIZE POSSIBLE INTERFERENCE. FAILURE TO PROPERLY COMMUNICATE AND SCHEDULE WORK WITH OTHER TRADES RESULTING IN ADDITIONAL WORK AND MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. EQUIPMENT INSTALLED WITHIN CONCEALED SPACES SHALL HAVE REASONABLE AND CODE COMPLIANT ACCESS PANELS PROVIDED NEARBY FOR INSPECTION, TESTING AND SERVICE CONSIDERATIONS.
5. VERIFY CEILING TYPES AND INSTALLATION REQUIREMENTS PRIOR TO ORDERING LIGHT FIXTURES.
6. COORDINATE THE LOCATION OF ALL DEVICES AND BOXES WITH WINDOWS, MILLWORK, BUILT-INS, AND CABINETS PRIOR TO ANY INSTALLATION OF CONDUITS.
7. DISCONNECTING MEANS (SWITCHES) FEEDING FAN TERMINAL BOXES SHALL BE MOTOR RATED SWITCHES.
8. MOUNT DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT WITHIN SIX (6) FEET OF EQUIPMENT AS REQUIRED BY APPLICABLE CODES AND STANDARDS. LOCATIONS FOR DISCONNECT SWITCHES SHOWN ON PLANS IS FOR GENERAL INFORMATION ONLY.
9. COORDINATE EXACT INSTALLATION REQUIREMENTS OF OUTLETS IN MILLWORK WITH ARCHITECTURAL DRAWINGS AND ACCEPTED MILLWORK SHOP DRAWINGS.
10. VERIFY EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, INCLUDING WALL SWITCHES, THERMOSTATS, ETC WITH MECHANICAL CONTRACTOR AND MECHANICAL DRAWINGS.
11. REFER TO MECHANICAL EQUIPMENT SCHEDULE, FOR CONDUIT/CONDUCTORS, DISCONNECTS, MISCELLANEOUS EQUIPMENT REQUIRED FOR ALL MECHANICAL EQUIPMENT .
12. VERIFY POWER AND LIGHTING CIRCUITS IN THE FIELD PRIOR TO REUSE FOR FEEDING NEW LOADS.
13. FOR UNDERGROUND CONDUITS 1-1/2" AND LARGER, PROVIDE MASTIC COATED GALVANIZED RIGID METAL SWEEPS AND BENDS. PROVIDE MASTIC AROUND ALL THREADS AFTER CONDUIT ASSEMBLY.
14. WIRE AND CONDUIT SYSTEMS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE ROUTED TO SUIT FIELD CONDITIONS AND EQUIPMENT LOCATIONS.
15. LIGHTING FIXTURES AND GENERAL PURPOSE RECEPTACLES IN MECHANICAL, ELECTRICAL AND EQUIPMENT ROOMS SHALL BE FIELD LOCATED TO SUIT EQUIPMENT CONDITIONS AND EQUIPMENT LOCATIONS.
16. POLE MANUFACTURER SHALL SUBMIT FOR APPROVAL ALONG WITH POLE AND LIGHT FIXTURE SHOP DRAWING SUBMITTAL, CERTIFIED WINDLOAD WITHSTAND CALCULATIONS OF POLE WITH POLE BASE INDICATING ADEQUACY OF POLE, POLE BASE, AND EMBEDMENT METHOD TO WITHSTAND 125 MPH WINDLOADS. CALCULATIONS SHALL INCLUDE EPA OF POLE WITH CORRESPONDING EPA FOR MOUNTING ASSEMBLY AND ACTUAL LIGHT FIXTURE TO BE MOUNTED AS PROPOSED. THE ABOVE MOUNTING ASSEMBLY AND ACTUAL LIGHT FIXTURE TO BE MOUNTED AS PROPOSED. THE ABOVE CALCULATIONS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
17. WORK SHALL BE IN COMPLIANCE WITH CURRENT NEC, STATE CODES AND REGULATIONS.
18. CONDUCTOR ALLOWABLE AMPACITY SIZE FOR 100A CIRCUITS AND BELOW HAVE BEEN BASED ON NEC TABLE 310.16, 60° C COLUMN. CONDUCTOR ALLOWABLE AMPACITY SIZE FOR OVER 100A CIRCUITS HAVE BEEN BASED ON NEC TABLE 310.16, 75°C COLUMN.
19. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL NOT BE INSTALLED WITHIN ENVIRONMENTAL AIR SPACES PER NEC 300.22(C).
20. ADJUST WIRE AND CONDUIT SIZES FOR VOLTAGE DROP OF 3% ON ALL BRANCH CIRCUITING OVER 100' WHERE UNGROUNDED CONDUCTORS ARE INCREASED IN SIZE. EQUIPMENT GROUNDING CONDUCTORS AND ISOLATED GROUNDING CONDUCTORS, WHERE INSTALLED, SHALL BE INCREASED IN SIZE PROPORTIONATELY ACCORDING TO THE CIRCULAR MIL AREA OF THE UNGROUNDED CONDUCTORS IN COMPLIANCE WITH NEC 250.122(B).
21. PROVIDE BOLT-ON TYPE CIRCUIT BREAKERS FOR MAIN DISTRIBUTION PANELS.

COMMUNICATIONS LEGEND

- DATA OUTLET.
- DATA/COMM OUTLET.
- PHONE.
- DATA CEILING.
- DATA/COMM CEILING.
- DATA FLOOR.
- DATA/COMM FLOOR.
- CABLETRAY.
- COMM RACK WITH VERTICAL WIRE MANAGERS.
- 4'x8'x3/4" FIRE RETARDANT PLYWOOD BACKBOARD.
- WAP — WIRELESS ACCESS POINT.
- DASHED LINE INDICATES DATA/COMM OUTLET TO BE DEMOLISHED.
- EXISTING DATA/COMM OUTLET TO REMAIN.
- HH — COMMUNICATIONS HANDHOLE.

FIRE ALARM LEGEND (PER NFPA 170, SECTIONS 8.2, 8.3 & 8.4)

- FACP — FIRE ALARM CONTROL PANEL.
- FAA — FIRE ALARM ANNUNCIATOR PANEL.
- NAC n — NOTIFICATION CIRCUIT POWER BOOSTER PANEL. n = UNIT NUMBER
- F — MANUAL PULL STATION.
- AUDIBLE AND VISUAL SIGNAL DEVICE (HORN STROBE). 75cd UNLESS OTHERWISE NOTED.
- C — CEILING MOUNTED AUDIBLE AND VISUAL SIGNAL DEVICE (CEILING HORN STROBE). 75cd UNLESS OTHERWISE NOTED.
- AUDIBLE AND VISUAL SIGNAL DEVICE (SPEAKER STROBE). 75cd UNLESS OTHERWISE NOTED.
- C — CEILING MOUNTED AUDIBLE AND VISUAL SIGNAL DEVICE (CEILING SPEAKER STROBE). 75cd UNLESS OTHERWISE NOTED.
- VISUAL SIGNAL DEVICE (STROBE). 75cd UNLESS OTHERWISE NOTED.
- CEILING MOUNTED VISUAL SIGNAL DEVICE (CEILING STROBE). 75cd UNLESS OTHERWISE NOTED.
- SMOKE DETECTOR.
- DUCT SMOKE DETECTOR. R = RETURN, S = SUPPLY.
- HEAT DETECTOR.
- AIM — ADDRESSABLE INPUT MODULE.
- SD — SMOKE DAMPER.
- FIRE/SMOKE DAMPER WITH ACCESS PANEL LOCATION.
- DTS — DUCT SMOKE DETECTOR REMOTE TEST INDICATION STATION.
- GAS SHUTOFF SOLENOID VALVE.
- R — RELAY.
- ACV — ALARM CHECK VALVE.
- DH — DOOR HOLDER.
- XXcd — CANDELA RATING.
- K — KNOX BOX.
- TRIPLE IR FLAME DETECTOR.
- DASHED LINE INDICATES AUDIBLE AND VISUAL SIGNAL DEVICE (HORN STROBE) TO BE DEMOLISHED.
- EXISTING AUDIBLE AND VISUAL SIGNAL DEVICE (HORN STROBE) TO REMAIN.

GROUNDING & LIGHTNING PROTECTION LEGEND

- BOND, EXOTHERMIC WELDED CONNECTION (UON).
- BURIED GROUND CONDUCTOR.
- EXPOSED LIGHTNING PROTECTION CONDUCTOR.
- 3/4" X 20' STEEL COPPER CLAD GROUND ROD.
- GROUND TEST WELL.
- AIR TERMINAL.
- DOWN CONDUCTOR THRU-ROOF PENETRATION.
- GROUND BAR ASSEMBLY.
- STATIC GROUND RECEPTACLE, WALL MOUNTED.

GENERAL LEGEND

- 01 — SHEET KEYNOTE.
- SECURITY 100 — ROOM NAME AND NUMBER.
- INDIVIDUAL SECTION, ELEVATION OR DETAIL REFERENCE.
- DRAWING NUMBER WHERE SECTION, ELEVATION OR DETAIL IS SHOWN OR REFERRED FROM.
- ANNOTATION FOR EXPOSED CONDUIT RUN - 3/4", UON.
- ANNOTATION FOR CONCEALED CONDUIT RUN - 3/4", UON.
- ANNOTATION FOR CONDUIT IN OR BELOW FLOOR SLAB OR GRADE - 3/4", UON.
- CONDUIT STUB-OUT WITH CAP ANNOTATION.
- REVISION CLOUD AND REVISION NUMBER.

SECURITY LEGEND

- CR — CARD READER.
- PS — POWER SUPPLY.
- EL — ELECTRONIC LOCK.
- PIR — PASSIVE INFRARED REQUEST TO EXIT.
- MAG — MAGNETIC LOCK.
- DPS — DOOR POSITION SWITCH.
- REX — REQUEST TO EXIT.
- CAM Z — CAMERA (PTZ PAN-TILT-ZOOM), MOUNT 8' AFF UON.

DEVICE MOUNTING HEIGHTS

SWITCHES	48" AFF TO CENTER LINE OF BOX, UON
RECEPTACLES	18" AFF TO CENTER LINE, UON
COUNTER HEIGHT RECEPTACLES	48" AFF TO CENTER LINE OR 2" ABOVE BACK SPLASH UON
TELEPHONE/DATA OUTLET (OFFICES)	18" AFF TO CENTER LINE, UON
WALL MOUNTED TELEPHONE	48" AFF TO CENTER LINE OF BOX, UON
FIRE ALARM PULL STATIONS	48" TO TOP OF BOX
FIRE ALARM SPEAKER/STROBES	80" TO BOTTOM OF STROBE
EXTERIOR WALL RECEPTACLES	24" AFG TO BOTTOM, UON

ALL HEIGHTS ARE BASED ON NON-OBSTRUCTED REACH. MODIFY MOUNTING HEIGHTS IF/AS NECESSARY PER ADA AS REQUIRED.

PHASING LEGEND

- NEW EQUIPMENT/DEVICE. (REGULAR LINE WEIGHT)
- EXISTING EQUIPMENT/DEVICE (LIGHT LINE WEIGHT)
- EXISTING EQUIPMENT/DEVICE TO BE REMOVED. DASHED OR HATCHED ITEM.
- FUTURE EQUIPMENT/DEVICE. (DASHED ITEM IN LIGHT LINE WEIGHT)

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1. **CODES AND REQUIREMENTS**

A. ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, STATE CODE, LOCAL BUILDING CODE AND AS REQUIRED AND /OR AS SPECIFIED HEREIN OR BY THE AUTHORITY HAVING JURISDICTION, WHICHEVER IS MORE STRINGENT.

B. OBTAIN REQUIRED PERMITS FROM THE AUTHORITY HAVING JURISDICTION AND TURN OVER TO THE GENERAL CONTRACTOR.

C. COMPLY WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS OF THE PROJECT SPECIFICATIONS, CONTRACT DOCUMENTS, AND BASE BUILDING SPECIFICATIONS AND BUILDING CRITERIA INCLUDED IN THIS PROJECT.

D. VISIT THE PROJECT SITE BEFORE SUBMITTING BID AS NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

E. DRAWINGS ARE DIAGRAMMATIC IN NATURE. TAKE DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS, AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING WORK.

F. THE DRAWINGS INDICATE THE LOCATION, TYPE AND SIZES OF VARIOUS UTILITIES WITHIN THE SITE WHERE KNOWN. RELOCATION OR REMODELING REQUIRED SHALL BE APPROVED BY THE ENGINEER BEFORE PROCEEDING. INVESTIGATE UTILITIES SUCH AS ELECTRIC AND TELEPHONE AND MAKE ARRANGEMENTS WITH THE PROPER AUTHORITY TO PAY FOR CHARGES ASSOCIATED WITH CONNECTING THOSE UTILITIES. PAY FOR PERMITS, FEES, INSPECTIONS ETC.

G. VERIFY THE INTERCONNECTION REQUIREMENTS OF EACH ELECTRICAL SYSTEM BETWEEN THIS SPACE AND OTHER ATTACHED SPACE. THESE REQUIREMENTS ARE TO BE INCLUDED IN BID.

H. FURNISH LABOR, MATERIALS, EQUIPMENT, AND TOOLS TO PERFORM THE ELECTRICAL WORK AS INDICATED, AND /OR REQUIRED FOR A COMPLETE AND OPERABLE INSTALLATION.

I. PROVIDE TEMPORARY SERVICE, WIRING, POWER, AND LIGHTS AS REQUIRED. TEMPORARY SERVICE SHALL MEET NEC AND OSHA REQUIREMENTS CONCERNING GROUND FAULT PROTECTION AND ARC FLASH. UPON COMPLETION OF PROJECT, REMOVE CONDUIT, CONDUCTORS, DEVICES, ETC., ASSOCIATED WITH TEMPORARY SERVICE AND WIRING.

J. PROVIDE TEMPORARY LIGHTING AT PERIMETER ROAD F/AS REQUIRED TO PROVIDE TEMPORARY LIGHTING IN PLACE OF REMOVED/DISCONNECTED EXISTING FIXTURES.

K. RECORD FIELD CHANGES IN THEIR WORK AS THE JOB PROGRESSES, AND UPON COMPLETION SHALL TURN OVER TO THE GENERAL CONTRACTOR A RECORD SET OF PRINTS AND SPECIFICATIONS SHOWING THESE CHANGES.

L. GOOD WORKMANSHIP AND APPEARANCE ARE CONSIDERED EQUAL TO PROPER OPERATION.

M. PROVIDE CORE DRILLING, CHANNELING, CUTTING, PATCHING, TRENCHING AND BACKFILL AS REQUIRED FOR INSTALLATION OF ELECTRICAL EQUIPMENT. SEAL HOLES, FIREPROOFING WHERE NECESSARY, AND REFINISH AND REPAIR WORK TO ORIGINAL CONDITION WHERE DAMAGED BY ELECTRICAL WORK.

N. MAKE PROVISIONS FOR SAFE DELIVERY AND SECURE STORAGE OF MATERIALS. COORDINATE WITH OWNER.

2. **WARRANTY**

A. PROVIDE FOR THE OWNER A ONE-YEAR (FROM THE DATE OF FINAL ACCEPTANCE) WARRANTY OF ELECTRICAL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT. DEFECTIVE EQUIPMENT OR MATERIALS WHICH APPEAR DURING THE WARRANTY PERIOD SHALL BE REPLACED OR REPAIRED BY THE ELECTRICAL CONTRACTOR IN A TIMELY FASHION AND AT NO ADDED COST.

3. **EQUIPMENT**

A. PROVIDE EQUIPMENT AND ACCESSORIES NECESSARY WHETHER SPECIFICALLY STATED OR NOT TO MAKE THE REQUIRED ELECTRICAL SYSTEMS COMPLETE AND OPERATIONAL.

B. EQUIPMENT PROVIDED SHALL BE NEW EXCEPT AS OTHERWISE STATED ON THE DRAWINGS. EQUIPMENT PROVIDED SHALL BE UL LISTED WHEN SUCH STANDARDS EXIST FOR THE TYPE OF EQUIPMENT FURNISHED AND ACCEPTABLE FOR INSTALLATION BY THE APPLICABLE AUTHORITY HAVING JURISDICTION. SIMILAR EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.

C. SUBMIT MATERIALS LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT PROPOSED FOR THIS WORK TO THE GENERAL CONTRACTOR FOR REVIEW. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SHALL BEAR THE APPROVAL OF THE ELECTRICAL CONTRACTOR SHOWING THAT HE HAS REVIEWED THEM AND THAT THE PROPOSED MATERIALS ARE EQUIVALENT TO OR BETTER THAN THE SPECIFIED MATERIALS AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

D. MAINTAIN NEC ARTICLE 110 MINIMUM WORKING SPACE AND DEDICATED EQUIPMENT SPACE REQUIREMENTS. THESE SAME CLEARANCES SHALL BE MAINTAINED AT ELECTRICAL EQUIPMENT LIKELY TO REQUIRE ADJUSTMENT, OBSERVATION OR OPERATION WHILE ENERGIZED, SUCH AS DISCONNECT SWITCHES, FOR EXAMPLE.

E. CONFIRM THAT ACCESS, EXIT AND DOOR HARDWARE TO / FROM ELECTRICAL EQUIPMENT COMPLIES WITH NEC AS APPLICABLE.

4. **HAZARDOUS AREAS**

A. PROVIDE COMPONENTS RATED FOR HAZARDOUS AREAS INDICATED ON DRAWINGS.

5. **OUTDOOR AREAS**

A. PROVIDE NEMA 4X ENCLOSURES.

6. **CONDUCTORS**

A. MINIMUM SIZE #12 AWG EXCEPT FOR CONTROL CIRCUITS WHICH MAY BE #14 AWG OR SIGNAL CIRCUITS WHICH SHALL BE AS INDICATED. CONDUCTORS SHALL BE COPPER. INCREASE CONDUCTOR SIZE AS NECESSARY TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO 3% AND FEEDER VOLTAGE DROP TO 2%.

B. HOMERUNS SHALL BE #10 AWG COPPER UON. WIRING THROUGH #10 AWG SHALL BE SOLID. LARGER THAN #10 SHALL BE STRANDED.

C. SPLICES FOR #8 AWG AND SMALLER CONDUCTORS: WIRE OR WING NUTS.

D. FEEDERS AND OTHER WIRING NO. 4 AWG AND LARGER, TYPE THHN.

E. OTHER WIRING NO. 6 AWG AND SMALLER, TYPE THNN.

F. WIRING IN HIGH TEMPERATURE AREAS SHALL BE RATED 105 DEGREES C AND BE A TYPE ACCEPTED BY LOCAL CODE.

G. COLOR CODING: WIRING FOR CONTROL SYSTEMS TO BE INSTALLED IN CONJUNCTION WITH MECHANICAL AND MISCELLANEOUS EQUIPMENT SHALL BE COLOR CODED IN ACCORDANCE WITH THE WIRING DIAGRAMS FURNISHED WITH THE EQUIPMENT. BRANCH CIRCUIT WIRING, INCLUDING CIRCUITS TO MOTORS AND FEEDERS SHALL BE CODED BY LINE OR PHASE AS FOLLOWS:

H. WIRE NO. 2 AWG AND SMALLER SHALL BE FACTORY COLOR CODED. WIRE NO. 1 AWG AND LARGER MAY BE COLOR CODED BY FIELD PAINTING OR COLOR TAPING OF SIX INCH (6") LENGTH AT ACCESSIBLE OR EXPOSED LOCATIONS, INCLUDING TERMINATIONS.

120/208 VOLTS	277/480 VOLTS
A = BLACK	A = BROWN
B = RED	B = ORANGE
C = BLUE	C = YELLOW
NEUTRAL = WHITE	NEUTRAL = GRAY
GROUND = GREEN	GROUND = GREEN W/YELLOW STRIPES
SWITCH TRAVELERS = PINK	SWITCH TRAVELERS = PURPLE

I. AMPACITY: WIRING AMPACITY SHALL BE IN ACCORDANCE WITH NEC AS APPLICABLE. UNLESS NOTED OTHERWISE, CIRCUITS RATED LESS THAN 100 AMP SHALL HAVE WIRING BASED ON 60 DEGREES C TEMPERATURE RISE; CIRCUITS RATED 100 AMP AND GREATER SHALL HAVE WIRING SIZED BASED ON 75 DEGREES C TEMPERATURE RISE.

7. **OUTLETS**

A. 4" SQUARE, ZINC COATED SHEET STEEL BOXES.

B. PROVIDE 3/8" NO-BOLT FIXTURE STUDS.

C. PROVIDE COVERS SET TO COME FLUSH WITH FINISH WALLS.

D. UTILITY OR SECTIONAL SWITCH BOXES ONLY WHERE PERMITTED.

8. **DEVICES**

A. DEVICE COLORS SHALL BE WHITE.

B. SPECIFICATION GRADE RECEPTACLES, EQUAL TO HUBBELL 5362 NEMA 5-20R. FEED-THRU TYPE GFCI DEVICES ARE PROHIBITED. CONTROLLED DEVICES SHALL BE PERMANENTLY MARKED.

C. A.C. QUIET OPERATING TYPE SWITCHES EQUAL TO HUBBELL CS120 SERIES, RATED 20A, 277V.

D. DEVICE PLATES SHALL BE NYLON, COLOR TO MATCH DEVICES.

E. EXISTING DEVICES TO REMAIN IN VISIBLE LOCATIONS SHALL BE REPLACED WITH WHITE DEVICES AND PLATES. FIELD VERIFY REQUIREMENTS FOR EXISTING DEVICES.

9. **LIGHTING**

A. PROVIDE NEW LIGHTING FIXTURES COMPLETE WITH LAMPS, DRIVERS, REFLECTORS, LOUVERS, STEM HANGERS, ETC., AND AS DESCRIBED ON THE DRAWINGS AS REQUIRED FOR A COMPLETE INSTALLATION.

B. PROVIDE AND THE SPECIFIED MANUFACTURER AND MODEL NUMBER OF LIGHT FIXTURE(S) AND LAMPS AS INDICATED ON THE LIGHTING FIXTURE SCHEDULE AND / OR DRAWINGS. PROVIDE ADEQUATE INFORMATION ON PROPOSED EXCEPTION TO THE SPECIFIED LIST NO LESS THAN THREE (3) DAYS PRIOR TO BID DATE. PROVIDE MANUFACTURER AND MODEL NUMBER OF PROPOSED EXCEPTIONS AND, IF REQUESTED, PROVIDE CUT SHEET AND PHOTOMETRICS FIXTURE SUBMITTALS NOT AS SPECIFIED AND PROVIDED AFTER BID WITHOUT PRIOR APPROVAL WILL NOT BE ACCEPTED FOR REVIEW. PROPOSED ALTERNATE MANUFACTURERS AND EXCEPTIONS TO THE FIXTURE SCHEDULE, IF APPROVED, WILL NOT RELIEVE ELECTRICAL CONTRACTOR OF RESPONSIBILITY FOR FIXTURE QUALITY, PHOTOMETRIC PERFORMANCE AND OWNER SATISFACTION. SUCH SITUATION SHALL BE CORRECTED, AT ELECTRICAL CONTRACTOR'S EXPENSE AND TO OWNER'S SATISFACTION.

C. CLOSELY COORDINATE ARCHITECTURAL REFLECTED CEILING PLANS AND CEILING TYPE SPECIFICATIONS WITH RESPECTIVE LIGHTING FIXTURE FOR EACH ROOM PRIOR TO ORDERING TO ASSURE PROPER INSTALLATION. CONFLICTS PERTAINING TO THE INSTALLATION REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD

D. EXIT AND EMERGENCY LIGHTS SHALL CONFORM WITH LIFE SAFETY CODE AND LOCAL CODE REQUIREMENTS. PROVIDE UNSWITCHED CONDUCTOR TO FIXTURES EQUIPPED WITH EMERGENCY BATTERY AND DRIVER.

E. MOUNT OUTLETS AT POSITION AND HEIGHT TO CLEAR DUCTS, ETC.

10. **BRANCH CIRCUIT PANELBOARDS**

A. PROVIDE DEAD-FRONT, CIRCUIT BREAKER TYPE PANELS, WITH THE SIZE AND NUMBER OF CIRCUITS INDICATED. BREAKERS SHALL BE THERMAL MAGNETIC TYPE EMPLOYING QUICK-MAKE AND QUICK-BREAK MECHANISMS FOR MANUAL OPERATION AS WELL AS AUTOMATIC OPERATION. AUTOMATIC TRIPPING SHALL BE INDICATED BY THE BREAKER HANDLE ASSUMING A DISTINCTIVE POSITION FROM THE MANUAL "ON" AND "OFF".

B. PANELBOARDS SHALL BE DOOR-IN-DOOR TYPE, UNLESS INDICATED OTHERWISE.

C. SPACES SHALL BE FULLY EQUIPPED.

D. PANELBOARDS SHALL HAVE A GROUNDING LUG FOR THE EQUIPMENT GROUNDING SYSTEM.

E. PANELBOARDS SHALL BE RATED AND CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING CAPACITY AS FOLLOWS; WHERE INDICATED OR REQUIRED PROVIDE HIGHER RATED UNITS.
120/240 VOLTS: 22,000 AMPERES.
277/480 VOLTS: 25,000 AMPERES.

F. PANELBOARDS SHALL BE A MINIMUM TWENTY INCHES (20") WIDE (BOX).

G. BUSES SHALL BE COPPER.

H. ACCEPTABLE MANUFACTURERS: CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS, SQUARE D.

I. PROVIDE PRINTED PANELBOARD DIRECTORIES TO REFLECT ACTUAL EQUIPMENT INSTALLED.

11. **SAFETY AND DISCONNECT SWITCHES**

A. PROVIDE ENCLOSED, FUSIBLE OR NON-FUSIBLE SAFETY SWITCHES WHERE INDICATED AND HEREIN SPECIFIED. SAFETY SWITCHES SHALL BEAR THE UL LABEL AND EACH ENCLOSURE SHALL BE THE NEMA TYPE SUITABLE FOR THE SURROUNDING AREA AND CONDITIONS. SWITCHES SHALL BE MINIMUM HEAVY DUTY, HORSEPOWER RATED, AND SHALL HAVE QUICK-MAKE AND QUICK-BREAK MECHANISMS. SWITCHES USED ON MOTOR CIRCUITS SHALL HAVE ADEQUATE HORSEPOWER RATINGS FOR THE MOTORS SERVED.

B. SAFETY SWITCHES EMPLOYED AS MOTOR DISCONNECT DEVICES OR WHERE OTHERWISE INDICATED AND / OR REQUIRED SHALL BE OF THE FUSIBLE TYPE FOR REJECTION TYPE FUSES.

C. HEAVY DUTY INDUSTRIAL TYPE SAFETY SWITCHES SHALL BE USED AND SHALL BE HORSEPOWER RATED WITH QUICK-MAKE, QUICK-BREAK MECHANISMS AND INTERLOCKED COVERS.

D. SWITCHES SHALL BE AS MANUFACTURED BY CUTLER-HAMMER, GENERAL ELECTRIC, SQUARE-D, OR SIEMENS, AND SWITCHES PROVIDED SHALL BE BY THE SAME MANUFACTURER.

12. **FUSES**

A. FUSES SHALL BE AS MANUFACTURED BY BUSSMANN UNLESS NOTED OTHERWISE ON THE DRAWINGS.

B. FUSES FOR APPLICATION AT UNDER 600 VOLTS, AND RATED AT 600 AMPS OR LESS, SHALL BE AS FOLLOWS:

FOR FUSES IN THE MAIN SERVICE EQUIPMENT, EXCEPT FOR MOTOR CIRCUITS, PROVIDE CURRENT LIMITING, 200,000 RMS AMPERES SYMMETRICAL INTERRUPTING CAPACITY, REJECTION TYPE, BUSSMANN LIMITRON OR AS ACCEPTED.

FOR OTHER FUSES, PROVIDE REJECTION TYPE WITH 200,000 RMS AMPERES SYMMETRICAL INTERRUPTING CAPACITY, BUSSMANN FUSETRON RK5, OR AS ACCEPTED.

C. CONTROL FUSES SHALL BE BUSSMANN ONE-TIME NONRENEWABLE FUSES.

13. **CONDUIT/RACEWAYS EXECUTION**

A. CONDUCTORS SHALL BE ENCLOSED BY CONDUIT SIZED IN ACCORDANCE WITH THE NEC. MINIMUM 1/2" EXCEPT FOR FACTORY FURNISHED LIGHTING FIXTURE FLEXIBLE CONDUIT MAY BE 3/8". ADHERE TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED IN THE DRAWINGS.

B. RIGID METAL CONDUIT (RMC) SHALL BE UTILIZED FOR ABOVE AND BELOW GRADE APPLICATIONS IN ACCORDANCE WITH ARTICLES 344 AND 342 OF THE NATIONAL ELECTRICAL CODE. COUPLINGS SHALL BE THREADED.

C. PVC-COATED RIGID NONMETALLIC CONDUIT AND HDPE SHALL BE PERMITTED FOR BELOW GRADE OR CONCRETE CAST IN PLACE APPLICATIONS ABOVE GRADE. ELBOW TRANSITIONS TO ABOVE GRADE OR STUB-OUT OF FLOOR SLAB SHALL BE PVC-COATED RIGID CONDUIT. PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR RUNS OF NONMETALLIC CONDUIT.

D. ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED FOR DRY "FINISHED" SPACES ABOVE GRADE OR ABOVE FLOOR APPLICATIONS IN ACCORDANCE WITH ARTICLE 358 OF THE NATIONAL ELECTRICAL CODE. SET SCREW COUPLINGS ARE NOT ACCEPTABLE.

E. FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS (MINIMUM OF 2'-0" - MAXIMUM OF (6'-0"), CONNECTION TO LAY-IN TYPE LIGHT FIXTURES. USE LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT IN WET OR MOIST SPACES.

F. EXPOSED CONDUIT SHALL BE ROUTED PARALLEL OR PERPENDICULAR WITH THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

G. CONDUIT AND TUBING FITTINGS SHALL BE COMPATIBLE WITH THE TYPE OF RACEWAY USED. PROPERLY SIZED PER NEC AND GALVANIZED IF METALLIC.

H. SUPPORTS: PROVIDE SUPPORTS FOR MATERIAL AND EQUIPMENT. METALLIC SUPPORT MATERIALS SHALL BE GALVANIZED. HARDWARE SHALL BE GALVANIZED.

14. **BONDING / GROUNDING EXECUTION**

A. SERVICE EQUIPMENT, CONDUIT SYSTEMS, SUPPORTS, CABINETS, EQUIPMENT, TRANSFORMERS, FIXTURES, THE GROUNDED CIRCUIT CONDUCTOR, ETC., SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CODE.

B. PROVIDE BONDING JUMPERS AND WIRE. GROUNDING BUSHINGS, CLAMPS, ETC., AS REQUIRED FOR COMPLETE GROUNDING.

C. ROUTE GROUND CONDUCTORS TO PROVIDE THE SHORTEST AND MOST DIRECT PATH TO THE GROUND ELECTRODE SYSTEM.

D. GROUND CONNECTIONS SHALL HAVE CLEAN CONTACT SURFACES, TINNED AND SWEATED WHILE BOLTING.

E. INSTALL GROUND CONDUCTORS IN CONDUIT.

F. BOND THE SERVICE EQUIPMENT TO BUILDING STEEL, CONCRETE ENCASED ELECTRODES, UNDERGROUND METAL PIPING, DRIVEN ELECTRODE, AND OTHER AVAILABLE GROUNDING ELECTRODES PER NEC ARTICLE 250.

15. **PANELBOARD EXECUTION**

A. INSTALL PANELBOARDS WITH THE TOP OF THE TRIM SIX-FEET, THREE-INCHES (6'-3") FROM THE FINISHED FLOOR.

B. FIELD CHECK PANELBOARD LOADING AND RECONNECT CIRCUITS AS REQUIRED TO PROVIDE BALANCED PHASE AND LINE LOADS.

16. **MECHANICAL EQUIPMENT WIRING AND CONNECTIONS**

A. MECHANICAL EQUIPMENT MOTORS AND CONTROLS ARE FURNISHED WITH MECHANICAL EQUIPMENT, UNLESS NOTED OTHERWISE.

B. PROVIDE FEEDER CIRCUITS TO MECHANICAL EQUIPMENT AND MAKE CONNECTIONS.

C. PROVIDE SAFETY SWITCHES AND/OR THERMAL OVERLOAD SWITCHES AS REQUIRED.

D. PROVIDE POWER (LINE VOLTAGE) WIRING FOR MECHANICAL EQUIPMENT AND MAKE CONNECTIONS EXCEPT FOR TEMPERATURE CONTROL EQUIPMENT, WHICH WILL BE WIRED BY MECHANICAL CONTRACTOR.

E. FURNISH, SET IN PLACE, AND WIRE, EXCEPT AS INDICATED, HEATING, VENTILATING, AIR CONDITIONING, PLUMBING, FIRE PROTECTION, MOTORS AND CONTROLS IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTRUCTIONS. CAREFULLY COORDINATE WITH WORK PERFORMED UNDER THE MECHANICAL DIVISION OF THESE SPECIFICATIONS.

F. HEATER UNITS IN MOTOR STARTERS SHALL BE SIZED FOR APPROXIMATELY ONE HUNDRED FIFTEEN PERCENT (115%) OF FULL LOAD MOTOR CURRENT. CHECK AND COORDINATE THERMAL PROTECTIVE DEVICES WITH THE EQUIPMENT THEY PROTECT.

G. PROVIDE FOR EACH MOTOR, ONE-HALF (1/2) HORSEPOWER AND BELOW, A HORSEPOWER RATED DISCONNECT SWITCH WITH THERMAL OVERLOAD PROTECTION UNLESS INTEGRALLY PROVIDED WITH THE MOTOR. THERMAL OVERLOAD SWITCHES FOR SINGLE PHASE MOTORS SHALL BE ALLEN-BRADLEY BULLETIN 600 OR ACCEPTABLE ALTERNATIVE. SIZE HEATER UNITS FOR APPROXIMATELY ONE-HUNDRED FIFTEEN PERCENT (115%) OF FULL LOAD MOTOR CURRENT.

H. MISCELLANEOUS EQUIPMENT: WHERE OUTLETS ARE REQUIRED FOR MISCELLANEOUS EQUIPMENT REQUIRING ELECTRIC POWER OR CONTROL, PROVIDE WIRE, CONDUIT, ETC., AND MAKE CONNECTIONS, UNLESS OTHERWISE INDICATED. REFER TO THE MECHANICAL SPECIFICATIONS AND PLANS COVERING MOTOR INTERLOCKS, SWITCHING, ETC. PROVIDE WIRING, CONDUIT, OUTLETS AND PROVIDE FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT.

17. **SPECIAL SYSTEMS**

A. PROVIDE SPECIAL SYSTEMS AS SPECIFIED ON THE DRAWINGS INCLUDING REQUIRED ACCESSORIES TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL. SPECIAL SYSTEMS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. PROVIDE INSTRUCTIONAL DEMONSTRATION FOR THE OWNER PRIOR TO FINAL ACCEPTANCE.

18. **ELECTRIC MOTOR AND EQUIPMENT WIRING**

A. PROVIDE A COMPLETE BRANCH CIRCUIT WIRING, STARTER AND DISCONNECT SWITCH FOR MOTOR DRIVEN EQUIPMENT. WHEN MOTOR DRIVEN EQUIPMENT IS PROVIDED WITH "PACKAGE" CONTROL PANEL WHICH INCLUDES STARTER, DO NOT PROVIDE STARTER. MOTOR CONNECTIONS SHALL BE MADE WITH FLEXIBLE CONDUIT.

B. RIGID METAL CONDUIT (RMC) SHALL BE UTILIZED FOR ABOVE AND BELOW GRADE APPLICATIONS IN ACCORDANCE WITH ARTICLES 344 AND 342 OF THE NATIONAL ELECTRICAL CODE. COUPLINGS SHALL BE THREADED.

C. PVC-COATED RIGID NONMETALLIC CONDUIT AND HDPE SHALL BE PERMITTED FOR BELOW GRADE OR CONCRETE CAST IN PLACE APPLICATIONS ABOVE GRADE. ELBOW TRANSITIONS TO ABOVE GRADE OR STUB-OUT OF FLOOR SLAB SHALL BE PVC-COATED RIGID CONDUIT. PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR RUNS OF NONMETALLIC CONDUIT.

D. ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED FOR DRY "FINISHED" SPACES ABOVE GRADE OR ABOVE FLOOR APPLICATIONS IN ACCORDANCE WITH ARTICLE 358 OF THE NATIONAL ELECTRICAL CODE. SET SCREW COUPLINGS ARE NOT ACCEPTABLE.

E. FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS (MINIMUM OF 2'-0" - MAXIMUM OF (6'-0"), CONNECTION TO LAY-IN TYPE LIGHT FIXTURES. USE LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT IN WET OR MOIST SPACES.

F. EXPOSED CONDUIT SHALL BE ROUTED PARALLEL OR PERPENDICULAR WITH THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

G. CONDUIT AND TUBING FITTINGS SHALL BE COMPATIBLE WITH THE TYPE OF RACEWAY USED. PROPERLY SIZED PER NEC AND GALVANIZED IF METALLIC.

H. SUPPORTS: PROVIDE SUPPORTS FOR MATERIAL AND EQUIPMENT. METALLIC SUPPORT MATERIALS SHALL BE GALVANIZED. HARDWARE SHALL BE GALVANIZED.

19. **GROUNDING AND BONDING**

A. GROUND THE ELECTRICAL SYSTEM IN ACCORDANCE WITH ARTICLE 250 OF THE LATEST ADOPTED ISSUE OF THE NEC.

B. EQUIPMENT, MOTOR, FIXTURE, RECEPTACLE, OR DEVICE TO WHICH CURRENT CARRYING CONDUCTORS ARE CONNECTED SHALL HAVE A SEPARATE GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED IN ACCORDANCE WITH NEC TABLE 250.122, AND TO BE INSTALLED IN THE RACEWAY AND CONNECTED TO THE DEVICE.

C. GROUNDING AND BONDING CONDUCTORS SHALL BE SIZED AS REQUIRED BY THE NEC AND SHALL BE THWN/THHN INSULATED WITH GREEN COLOR JACKET.

D. ELECTRICAL EQUIPMENT ENCLOSURES AND CONDUCTOR ENCLOSURES AND RACEWAYS SHALL BE GROUNDED.

20. **CONDUITS/RACEWAY**

A. USE THREADED GALVANIZED RIGID STEEL CONDUIT FOR CONDUITS EXPOSED ABOVE GRADE IN EXTERIOR LOCATIONS, HAZARDOUS LOCATIONS, AND INTERIOR LOCATIONS BELOW 15' ABOVE FLOOR. USE EMT CONDUIT WITH COMPRESSION FITTINGS FOR INTERIOR LOCATIONS 15' ABOVE FLOOR AND NOT SUBJECT TO PHYSICAL DAMAGE.

B. MINIMUM SIZE OF RACEWAY SHALL BE 3/4".

C. UNDERSLAB OR UNDERGROUND CONDUIT SHALL BE HDPE. TRANSITION FROM HDPE TO PVC-COATED RIGID GALVANIZED STEEL CONDUIT AT LAST BEND AND PRIOR TO STUBBING UP ABOVE GRADE OR FINISHED FLOOR SURFACE.

D. SIZE CONDUIT PER NEC FOR ENCLOSED WIRING.

E. FITTINGS SHALL BE APPROVED AND UL LISTED FOR THE RACEWAY INSTALLED.

F. PROVIDE NYLON PULLCORD IN EMPTY OR SPARE CONDUITS.

G. CONDUIT TERMINATING IN OUTLETS, JUNCTION OR PULL BOXES, AND CABINETS SHALL BE TERMINATE WITH A LOCKNUT AND BUSHING, EXCEPT AT EXPOSED THREADED HUB CAST BOXES, WHERE INSTEAD THREADED CONDUIT PLUGS ARE REQUIRED. RIGID CONDUIT SHALL BE INSTALLED WITH DOUBLE LOCKNUTS AND BUSHINGS.

H. FLEXIBLE METAL CONDUIT SHALL BE USED FOR CONNECTIONS TO LIGHTING FIXTURES. FIXED APPLIANCES AND MOTORS, WHEREVER FLEXIBILITY IS REQUIRED, AND FOR VIBRATING EQUIPMENT. FLEXIBLE METAL CONDUIT SHALL NOT BE USED IN LENGTHS EXCEEDING 6FT.

I. FLEXIBLE CONDUIT EXPOSED TO MOISTURE SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT.

J. CONDUCTORS SHALL BE IN A RACEWAY.

K. UNDERGROUND CONDUIT/DUCT BANKS: UNDERSLAB OR UNDERGROUND CONDUIT SHALL BE HDPE. USE APPROVED PLASTIC DUCT SUPPORTS/SPACERS. PROVIDE PULL STRING IN EMPTY CONDUITS. PROVIDE WARNING TAPE WITH TRACER (CAPABLE OF BEING LOCATED FROM ABOVE GRADE WITH HAND-HELD DETECTOR) ABOVE UNDERGROUND CONDUITS AND DUCT BANKS. CAP CONDUITS AT APPROXIMATELY 5'-0" FROM LOCATION OF FUTURE ELECTRICAL SWITCHGEAR/ TRANSFORMERS. PROVIDE AND INSTALL APPROVED MARKERS (METAL DISCS OR EQUAL) TO IDENTIFY LOCATIONS. MAKE FINAL CONDUIT TERMINATIONS AT SWITCHGEAR/TRANSFORMERS. IDENTIFY. COORDINATE AND CLEAR NEW AND EXISTING UNDERGROUND INTERFERENCES AND OBSTRUCTIONS. SLOPE UNDERGROUND CONDUITS TO ALLOW DRAINAGE TO MANHOLES, ETC.

L. FIELD VERIFY ACTUAL REQUIRED ROUTING OF CONDUITS. DESIGN INTENT IS THAT CONDUIT BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING CONSTRUCTION LINES.

M. SEAL RACEWAY PENETRATIONS THROUGH FIRE-RATED WALLS UTILIZING A UL LISTED SYSTEM THAT MAINTAINS THE WALL RATING DESIGNATION.

21. **SEISMIC RESTRAINTS**

A. PROVIDE SEISMIC RESTRAINTS FOR ELECTRICAL EQUIPMENT AND SYSTEM COMPONENTS AS REQUIRED BY LOCAL CODES.

22. **TESTING**

A. RING OUT CONDUCTORS TO ASSURE CONTINUITY.

B. MEGGER POWER CONDUCTORS. RECORD RESULTS. REMOVE AND REPLACE WIRING SHOWING SIGNIFICANTLY LOWER RESISTIVITY IN COMPARISON TO LIKE WIRING.

C. CONDUCT COMPLETE SYSTEM FUNCTIONAL TESTS TO ENSURE PROPER OPERATION. RECORD RESULTS. INVITE WITNESSING BY OWNER / AHJ / ENGINEER AS APPROPRIATE.

D. THE ABOVE REPRESENTS MINIMUM REQUIREMENTS ONLY. INCLUDE OTHER TESTING IF / AS NECESSARY BASED ON APPROPRIATE REQUIREMENTS.

23. **WIRING**

A. A COMPLETE SYSTEM OF CONDUCTORS SHALL BE INSTALLED FOR FEEDERS, BRANCH CIRCUITS, AND CONTROL CIRCUITS AS NOTED ON THE PLANS.

B. NO WIRE IS TO BE INSTALLED IN RACEWAY UNTIL THE ENTIRE RACEWAY SYSTEM IS COMPLETE AND THEN ONLY WITH THE USE OF AN APPROVED WIRING LUBRICANT.

C. BRANCH CIRCUIT SIZES ARE NOTED ON THE PLANS AND SHALL BE CONTINUOUS WITHOUT REDUCTION IN SIZE THROUGHOUT THEIR LENGTH BETWEEN FIXTURES, EXCEPT WHERE CONNECTING TO FIXTURES. BRANCH CIRCUITS EXCEEDING 70 FEET IN TOTAL LENGTH SHALL BE A MINIMUM OF #10 AWG TO THE FIRST OUTLET.

D. EVERY WIRE SHALL BE LABELED AT EVERY TERMINATION AND ACCESSIBLE LOCATION. USE PRODUCTS BY IDEAL OR EQUIVALENT TUBULAR WIRING ACCESSORIES.

E. COMMUNICATIONS AND SYSTEM WIRING: PROVIDE NECESSARY PATHWAY FOR WIRING, BOXES AND RELATED ACCESSORIES REQUIRED FOR COMMUNICATIONS AND OTHER SYSTEMS INCLUDED. OWNER TO PROVIDE COMMUNICATIONS CABLING.

24. **EQUIPMENT CONNECTIONS**

A. MAKE POWER CONNECTIONS AS INDICATED ON THE PLANS AND AS REQUIRED TO MEET INTENT OF THE PROJECT SCOPE.

B. OBTAIN ROUGH-IN INFORMATION FROM OTHER CONTRACTORS AND VERIFY THE ACTUAL PURCHASED EQUIPMENT PRIOR TO INSTALLATION.

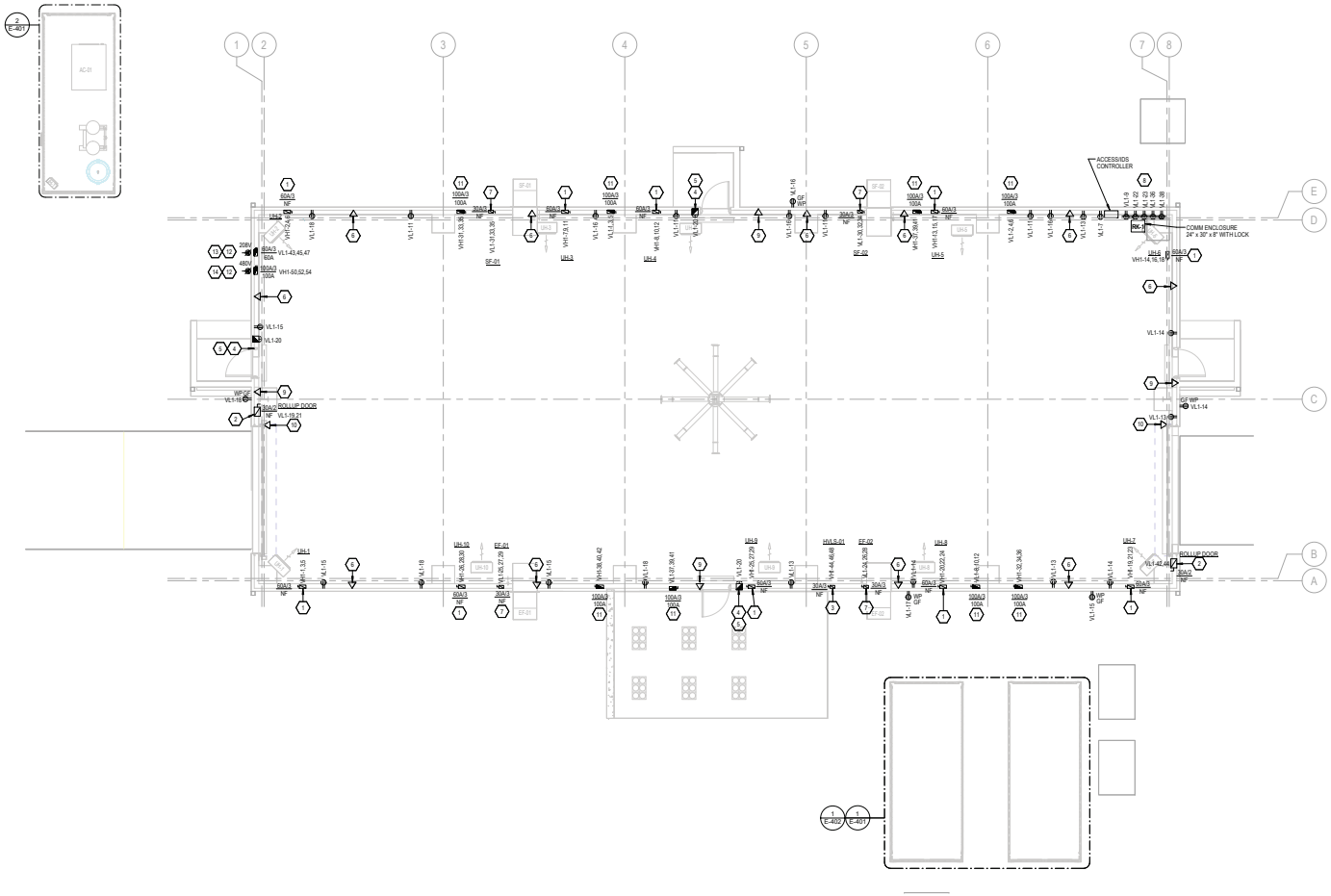
C. VERIFY THE THERMAL CONDITIONS OF THE EQUIPMENT BASED ON NAMEPLATE DATA AND CONNECT AS THE LISTING REQUIREMENTS ARE STATED USING THE SPECIFIED MATERIALS.

D. ALL POWER AND CONTROL CIRCUITS FOR ELECTRICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS ARE BASED ON THE DESIGN AS INDICATED WITHIN THE CONTRACT DOCUMENTS. VERIFY PURCHASED EQUIPMENT THAT REQUIRES ELECTRICAL CONNECTION WITH THE RESPONSIBLE CONTRACTOR OR VENDOR PRIOR TO ELECTRICAL ROUGH-IN. DEVIATIONS IN EQUIPMENT ROUGH-IN REQUIREMENTS FROM THE CONTRACT DOCUMENTS SHALL BE CONSIDERED A COORDINATION ITEM THAT THE ELECTRICAL CONTRACTOR SHALL DISCUSS WITH THE OTHER TRADES INVOLVED.

25. **APPARATUS IDENTIFICATION**

A. PANELBOARDS, LOAD CENTERS, CIRCUIT BREAKERS, DISCONNECT SWITCHES, STARTERS AND OTHER APPARATUS USED FOR THE OPERATION AND CONTROL OF CIRCUITS, APPLIANCES AND EQUIPMENT SHALL BE PROPERLY IDENTIFIED BY MEANS OF ENGRAVED LAMINATED PLASTIC DESCRIPTIVE NAME PLATES MOUNTED ON THE APPARATUS USING PERMANENT CONTACT CEMENT.

B. TRANSFORMERS SHALL BE PROPERLY IDENTI



1 VIB ELECTRICAL PLAN
3/16" = 1'-0"

POWER NOTES

1. MOUNT RECEPTACLES AT 4'-0" ABOVE FLOOR.
2. HAZARDOUS AREA INSIDE VIB PER DETAIL 1 ON E-502. SOURCE OF FLAMMABLE VAPOR IS ON FLIGHT HARDWARE. PROVIDE APPROPRIATELY RATED ELECTRICAL EQUIPMENT, CONDUITS, SEAL-OFFS, ETC.
3. SEE TYPICAL CONDUIT MOUNTING DETAIL ON SHEET E-501, DETAIL 6.

KEYNOTES:

1. PROVIDE DISCONNECT SWITCH FOR UNIT HEATERS. REFER TO DETAIL 2/E-501 FOR MOUNTING INFORMATION.
2. PROVIDE DISCONNECT SWITCH FOR ROLL UP DOORS. REFER TO DETAIL 2/E-501 FOR MOUNTING INFORMATION.
3. PROVIDE DISCONNECT SWITCH AND VFD FOR CIRCULATION FAN. REFER TO DETAIL 2/E-501 FOR MOUNTING INFORMATION.
4. PROVIDE EPO BUTTON AND GUARD WITH RED POWER LIGHT. FOR SHUNT TRIP SYSTEM LOCATED AS INDICATED. DESIGN BASIS OF EPO IS SCHNEIDER ELECTRIC MODEL 9001KR9RH6. REFER TO NOTE 5 FOR ADDITIONAL INFORMATION. REFER TO DETAIL 1/E-501 FOR WIRING DIAGRAM.
5. ALL POWER CIRCUITS IN THE VIB BUILDING WILL BE SHUT DOWN BY ACTIVATING THE EPO BUTTON. SHUNT TRIPPING THE MAIN CIRCUIT BREAKERS IN PANELS VL1 AND VH1.
6. PROVIDE QUAD BOX AND PATHWAY TO RK-1 IN 3/4" EMT CONDUIT. DATA PORTS MOUNTED AT 48" AFF. COMM CABLING FURNISHED AND INSTALLED BY OWNER.
7. PROVIDE DISCONNECT SWITCH FOR SUPPLY AND EXHAUST FANS. REFER TO DETAIL 2/E-501 FOR MOUNTING INFORMATION.
8. PROVIDE (5) QUAD RECEPTACLES FOR COMM EQUIPMENT. VERIFY FINAL LOCATION AND MOUNTING HEIGHT IN FIELD. RECEPTACLES SHALL BE MOUNTED ABOVE HAZARDOUS AREA AS DETAILED ON SHEET E-502.
9. PROVIDE QUAD BOX AND PATHWAY TO RK-1 IN 3/4" EMT CONDUIT. MOUNT QUAD BOX ABOVE DOOR. COMM CABLING FURNISHED AND INSTALLED BY OWNER.
10. PROVIDE QUAD BOX AND PATHWAY TO RK-1 IN 3/4" EMT CONDUIT. MOUNT QUAD BOX ABOVE ROLL-UP DOOR. COMM CABLING FURNISHED AND INSTALLED BY OWNER.
11. PROVIDE DISCONNECT SWITCH FOR 480V AND 208V 100A POWER. REFER TO DETAIL 2/E-501 FOR MOUNTING INFORMATION.
12. CONNECT EXTERIOR COMPRESSOR CONEX RECEPTACLE TO INTERIOR DISCONNECT ON OPPOSITE SIDE OF WALL. MOUNT RECEPTACLE AT 4'-0" AFF. ROUTE CONDUIT AND CONDUCTORS THROUGH WALLS AS REQUIRED, SEAL WALL PENETRATION WEATHERTIGHT.
13. PROVIDE HUBBELL 208V, 60A, 4 POLE, 5 WIRE, WATERTIGHT PIN & SLEEVE RECEPTACLE MODEL# HBL560R9W.
14. PROVIDE HUBBELL 480V, 100A, 4 POLE, 5 WIRE, WATERTIGHT PIN & SLEEVE RECEPTACLE MODEL# HBL5100R7W.

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Alaska Business Entity Number: 56725F

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

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SUSAN M SCHILLER
AK 101052

DESIGNED BY
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DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ELECTRICAL PLAN

DRAWING NO.
E-101

0 4' 8' 12' 16'
3/16" = 1'-0"

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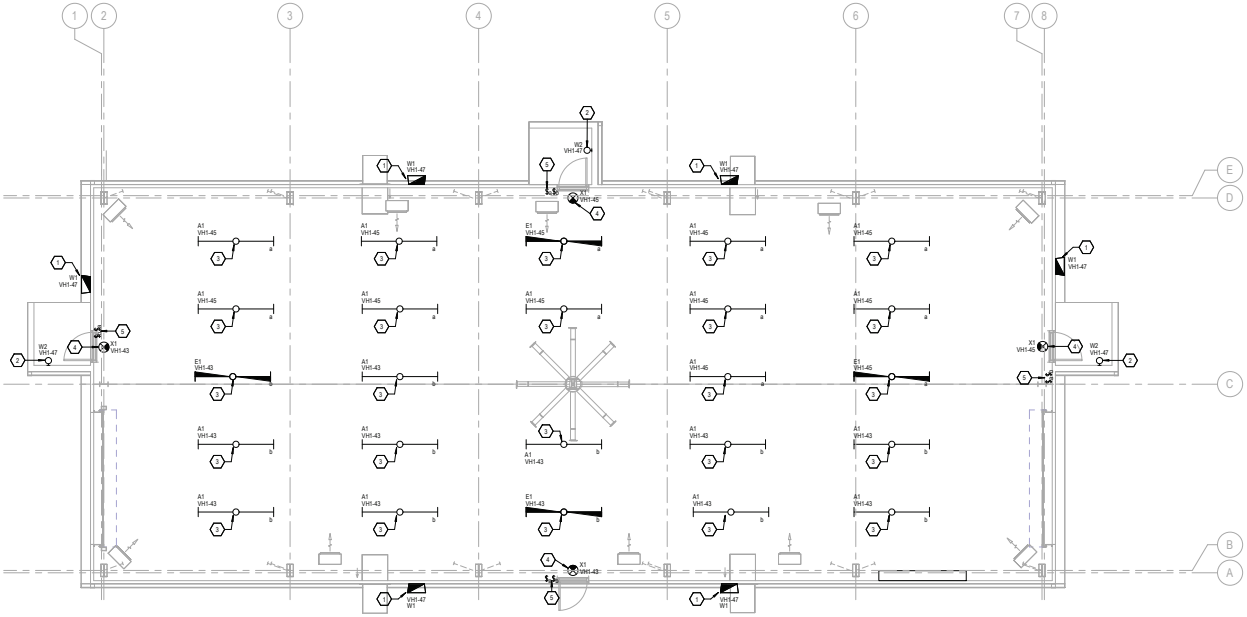

1 VIB LIGHTING PLAN
3/16" = 1'-0"

LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	VOLTS
A1	LITHONIA	UFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI	LED LOW BAY	SUSPENDED 21' AFF	277 V
A2	LITHONIA	CLX-L48-4800LM-SEF-WDL-MVOLT-GZ10-50K-80CRI-WH	LED LINEAR FIXTURE	SURFACE	<varies>
E1	LITHONIA	UFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI (ELB-CP10-HE-A)	LED LOW BAY WITH EXTERNAL BATTERY BACKUP	SUSPENDED 21' AFF	277 V
E2	LITHONIA	CLX-L48-4800LM-SEF-WDL-MVOLT-GZ10-50K-80CRI-E10W-WH	LED LINEAR FIXTURE WITH INTEGRAL BATTERY BACKUP	SURFACE	<varies>
P1	LITHONIA	RSXF4-LED-P3-50K-120/277	LED AREA LIGHT ON POLE	50' POLE MOUNT	277 V
W1	LITHONIA	TWR2-LED-ALO-SWW2-LV/OLT-PE-DDBTXD	LED WALL PACK	WALL MOUNT 9'-2" AFF	277 V
W2	LITHONIA	WST-LED-P1-50K-VW-MVOLT-PIR-DDBTXD	LED WALL PACK	WALL MOUNT 7'-10" AFF	277 V
W3	COOPER	AACS4ARL	LED WALL PACK	WALL MOUNT 8'-6" AFF	277 V
X1	LITHONIA	LQM-S-W-3-G-120/277-EL N	LED EXIT SIGN WITH BATTERY BACKUP	WALL MOUNT 8" ABOVE DOOR FRAME	277 V

GENERAL NOTES

1. HAZARDOUS AREA INSIDE VIB PER DETAIL 1 ON E-502. SOURCE OF FLAMMABLE VAPOR IS ON FLIGHT HARDWARE. PROVIDE APPROPRIATELY RATED ELECTRICAL EQUIPMENT, CONDUITS, SEAL-OFFS, ETC.

KEYNOTES:

1. PROVIDE LED WALL PACK. REFER TO LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPE. LIGHTS SHALL BE CONTROLLED VIA INTEGRAL PHOTOCELL.
2. PROVIDE LED WALL PACK WITH MOTION/AMBIENT LIGHT SENSOR. REFER TO LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPE. LIGHTING SHALL BE CONTROLLED WITH MOTION SENSOR.
3. PROVIDE LOW BAY LED. REFER TO LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPE. MOUNT LUMINAIRES 21'-0" ABOVE FINISH FLOOR. WIRE LUMINAIRES SO THE LUMINAIRES IN THE NORTH HALF OF THE SPACE SWITCH SEPARATELY FROM THE SOUTH HALF OF THE SPACE.
4. PROVIDE LED EXIT LIGHT. REFER TO LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPE. MOUNT 8" ABOVE DOOR FRAME.
5. PROVIDE 4-WAY SWITCHING FOR VIB LOW BAY LIGHTING MOUNTED AT 48" AFF.

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ARCHITECT OF RECORD
SUSAN M SCHILLER
AK 101052

DESIGNED BY
S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ELECTRICAL LIGHTING PLAN

DRAWING NO.
EL-101

N

0 4' 8' 12' 16'
3/16" = 1'-0"

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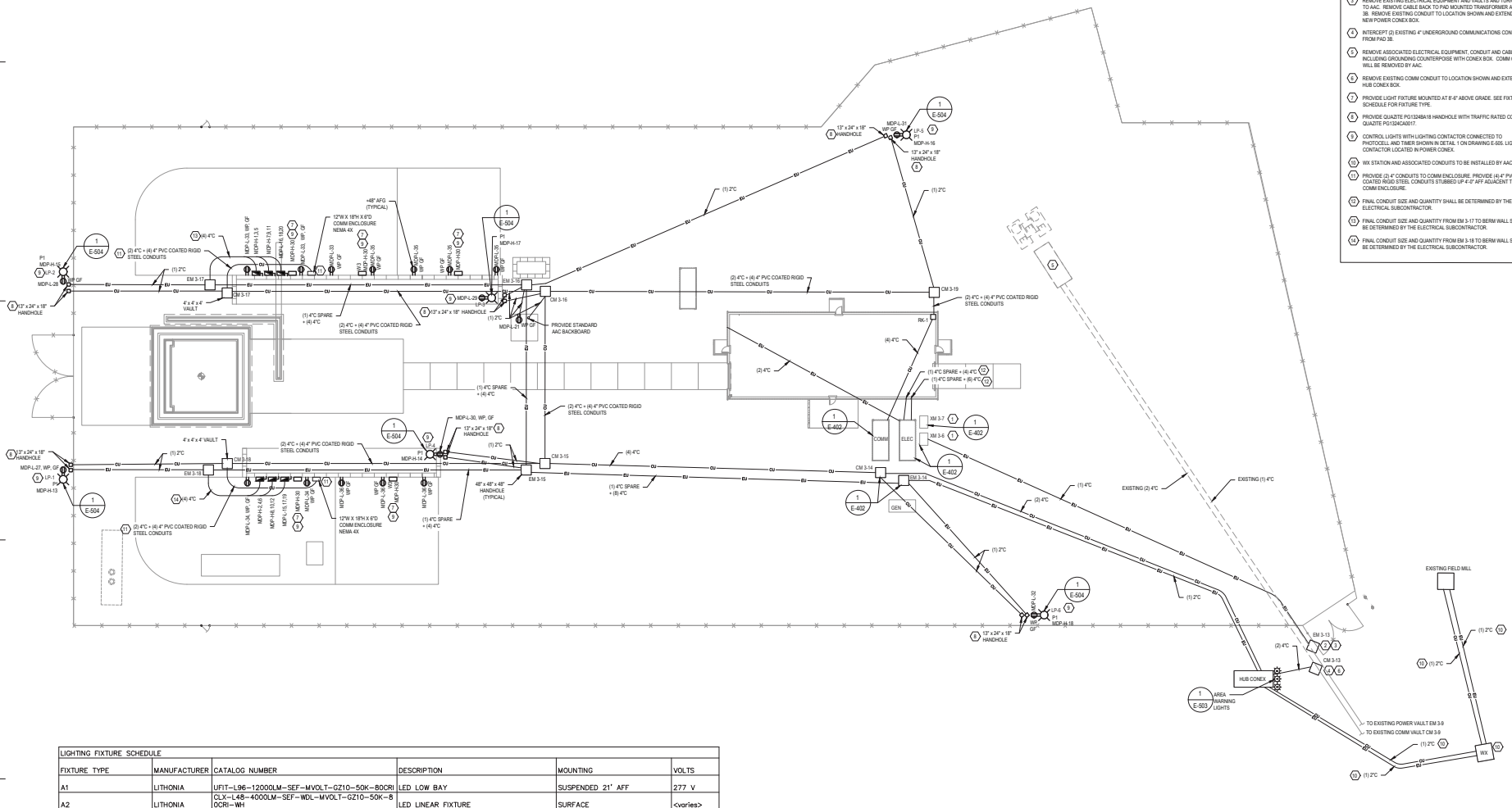
GENERAL NOTES

1. PROVIDE PVC-COATED RIGID STEEL ELBOWS AND END-POINTS FOR UNDERGROUND CONDUITS.
2. MAINTAIN SEPARATION DISTANCE OF 12" BETWEEN POWER AND COMMUNICATION CONDUITS.

KEYNOTES

1. TRANSFORMER VAULT 6' x 4' x 4', OLDCASTLE 644-BL W/ CU2 CCP 574 COVER OR SIMILAR.
2. INTERCEPT EXISTING UNDERGROUND POWER CONDUIT FROM PAD 3B. PROVIDE NEW MEDIUM VOLTAGE CONDUCTORS AND CONNECT TO EXISTING LOOP FED 24.9 KV WYE PRIMARY PAD MOUNTED TRANSFORMER XM 3-5 AT PAD 3B.
3. REMOVE EXISTING ELECTRICAL EQUIPMENT AND VAULTS AND TURN OVER TO AAC. REMOVE CABLE BACK TO PAD MOUNTED TRANSFORMER AT PAD 3B. REMOVE EXISTING CONDUIT TO LOCATION SHOWN AND EXTEND TO NEW POWER CONEX BOX.
4. INTERCEPT (2) EXISTING 4" UNDERGROUND COMMUNICATIONS CONDUITS FROM PAD 3B.
5. REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUIT AND CABLES INCLUDING GROUNDING COUNTERPOISE WITH CONEX BOX. COMM CABLE WILL BE REMOVED BY AAC.
6. REMOVE EXISTING COMM CONDUIT TO LOCATION SHOWN AND EXTEND TO HUB CONEX BOX.
7. PROVIDE LIGHT FIXTURE MOUNTED AT 8'-6" ABOVE GRADE. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE.
8. PROVIDE QUAZITE PG13248A18 HANDHOLE WITH TRAFFIC RATED COVER, QUAZITE PG13240CA0017.
9. CONTROL LIGHTS WITH LIGHTING CONTACTOR CONNECTED TO PHOTOCELL AND TIMER SHOWN IN DETAIL 1 ON DRAWING E-505. LIGHTING CONTACTOR LOCATED IN POWER CONEX.
10. WX STATION AND ASSOCIATED CONDUITS TO BE INSTALLED BY AAC.
11. PROVIDE (2) 4" CONDUITS TO COMM ENCLOSURE. PROVIDE (4) 4" PVC COATED RIGID STEEL CONDUITS STUBBED UP 4'-0" AFF ADJACENT TO COMM ENCLOSURE.
12. FINAL CONDUIT SIZE AND QUANTITY SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.
13. FINAL CONDUIT SIZE AND QUANTITY FROM EM 3-17 TO BERM WALL SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.
14. FINAL CONDUIT SIZE AND QUANTITY FROM EM 3-18 TO BERM WALL SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.



LIGHTING FIXTURE SCHEDULE					
FIXTURE TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	VOLTS
A1	LITHONIA	UFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI	LED LOW BAY	SUSPENDED 21' AFF	277 V
A2	LITHONIA	CLX-L48-4000LM-SEF-WDL-MVOLT-GZ10-50K-8 OCRI-WH	LED LINEAR FIXTURE	SURFACE	<varies>
E1	LITHONIA	UFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI (ILB-CP10-HE-A)	LED LOW BAY WITH EXTERNAL BATTERY BACKUP	SUSPENDED 21' AFF	277 V
E2	LITHONIA	CLX-L48-4000LM-SEF-WDL-MVOLT-GZ10-50K-8 OCRI-E10W-WH	LED LINEAR FIXTURE WITH INTEGRAL BATTERY BACKUP	SURFACE	<varies>
P1	LITHONIA	RSXF4-LED-P3-50K-120/277	LED AREA LIGHT ON POLE	50' POLE MOUNT	277 V
W1	LITHONIA	TWR2-LED-ALO-SWW2-UVOLT-PE-DDBTXD	LED WALL PACK	WALL MOUNT 9'-2" AFF	277 V
W2	LITHONIA	WST-LED-P1-50K-VW-MVOLT-PIR-DDBTXD	LED WALL PACK	WALL MOUNT 7'-10" AFF	277 V
W3	COOPER	AXCS4ARL	LED WALL PACK	WALL MOUNT 8'-6" AFF	277 V
X1	LITHONIA	LQM-S-W-3-G-120/277-EL N	LED EXIT SIGN WITH BATTERY BACKUP	WALL MOUNT 6" ABOVE DOOR FRAME	277 V

SITE CONDUITS

1"=20'

0 10' 20' 40' 60'

SCALE: 1" = 20'

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA 49TH Susan M. Schiller No. 101052 PROFESSIONAL ENGINEER

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SUSAN M SCHILLER
AK 101052

DESIGNED BY
S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
SITE PLAN

DRAWING NO.
E-121

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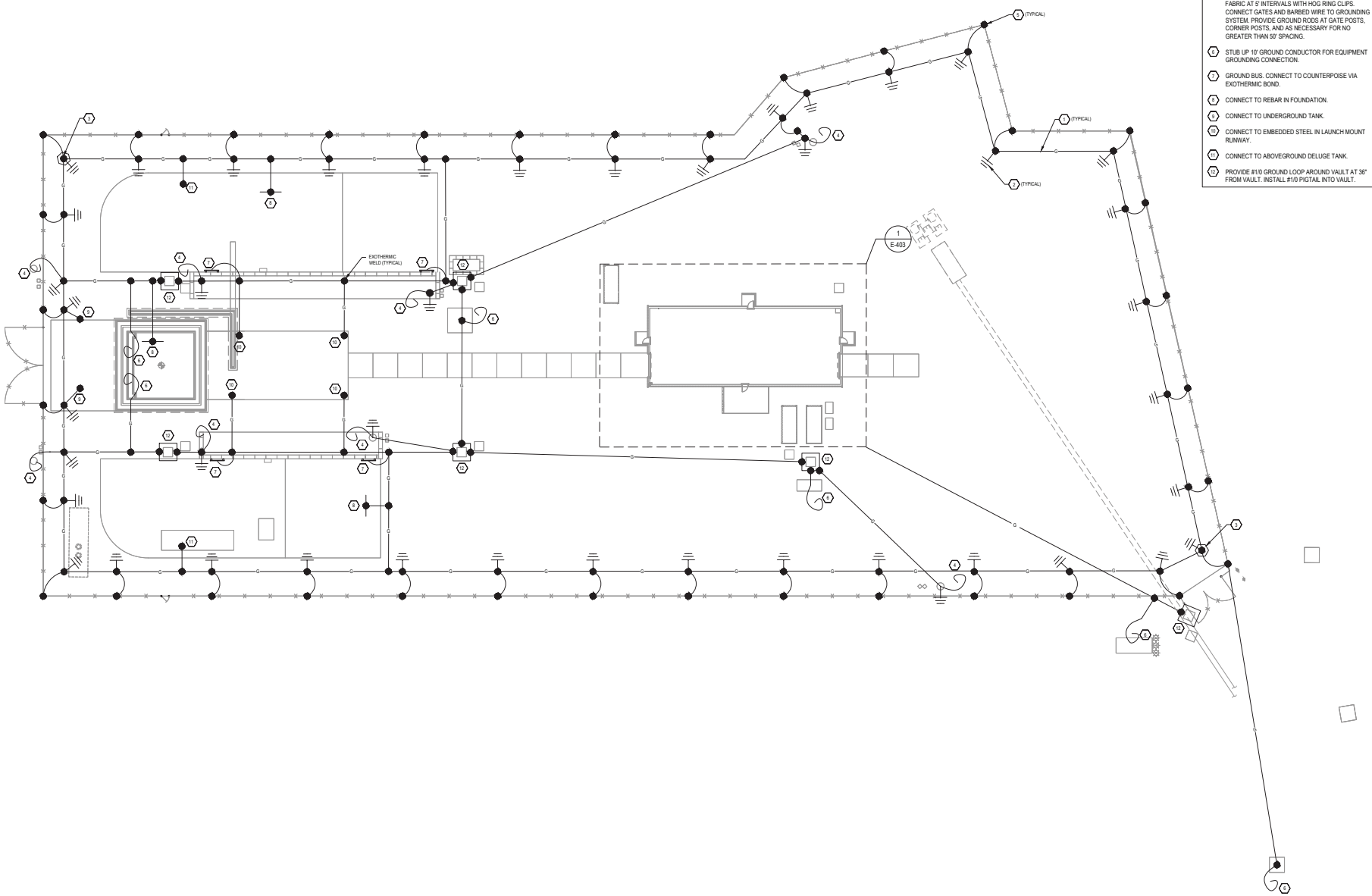

GROUNDING

1"=20'

KEYNOTES:

1. #1/0 AWG BARE STRANDED COPPER GROUNDING WIRE BURIED AT 30" BELOW GRADE.
2. GROUND ROD, 10 FEET LONG BY 3/4" DIAMETER. SEE DETAIL 4 ON E-501.
3. GROUND TEST WELL. SEE DETAIL 5 ON E-501.
4. STUB UP GROUND CONDUCTOR FOR CONNECTION TO LIGHTNING PROTECTION.
5. PROVIDE FENCE SYSTEM WITH #6 AWG BARE COPPER AROUND ENTIRE PERIMETER EXCEPT THROUGH GATE OPENINGS. LACE THROUGH OR ATTACH TO FENCE FABRIC AT 5' INTERVALS WITH HOG RING CLIPS. CONNECT GATES AND BARBED WIRE TO GROUNDING SYSTEM. PROVIDE GROUND RODS AT GATE POSTS, CORNER POSTS, AND AS NECESSARY FOR NO GREATER THAN 50' SPACING.
6. STUB UP 10' GROUND CONDUCTOR FOR EQUIPMENT GROUNDING CONNECTION.
7. GROUND BUS. CONNECT TO COUNTERPOISE VIA EXOTHERMIC BOND.
8. CONNECT TO REBAR IN FOUNDATION.
9. CONNECT TO UNDERGROUND TANK.
10. CONNECT TO EMBEDDED STEEL IN LAUNCH MOUNT RUNWAY.
11. CONNECT TO ABOVEGROUND DELUGE TANK.
12. PROVIDE #1/0 GROUND LOOP AROUND VAULT AT 36" FROM VAULT. INSTALL #1/0 PIGTAIL INTO VAULT.

0 10' 20' 40' 60'

SCALE: 1" = 20'

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DOCUMENT HISTORY

AREA 3 PAD D

NARROW CAPE, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

STATE OF ALASKA 49TH Susan M. Schiller No. 101052 PROFESSIONAL ENGINEER

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AK 101052

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PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
SITE GROUNDING

DRAWING NO.
E-122

P:\C09729.00 ID - AAC_PAD D_TO&S\B-MODEL\SHEETS\CAD_E-122.DWG
PLOTTED BY: Susan Schiller
C:\Users\schiller\Documents\C09729001_E_R25_Central_accAdeWorkFlow.rvt
05/08/2026 1:26:21 PM

E
D
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B
A

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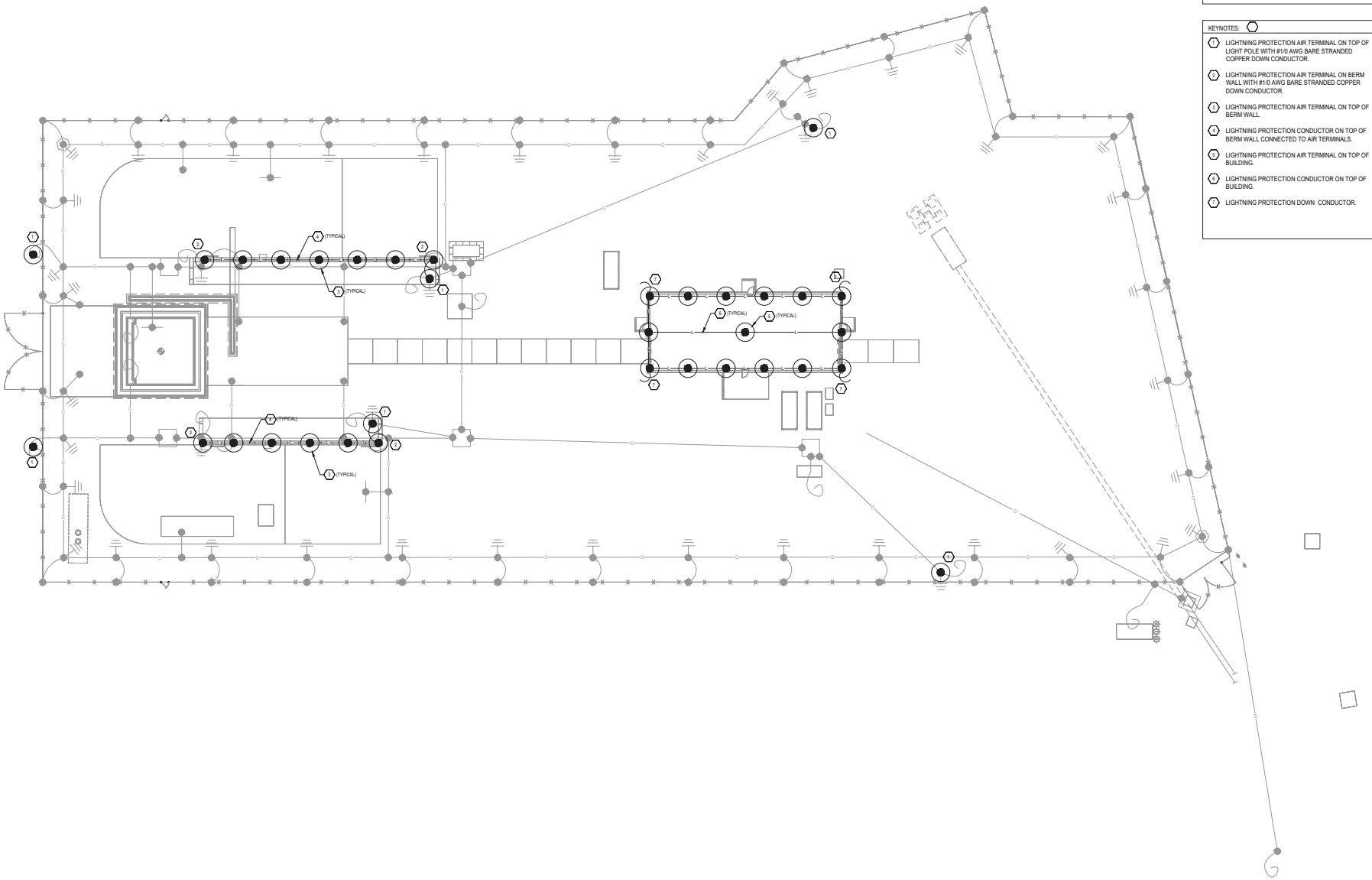

LIGHTNING PROTECTION

1"=20'

0 10' 20' 40' 60'

SCALE: 1" = 20'

GENERAL NOTES

1. PROVIDE CLASS 1 LIGHTNING PROTECTION SYSTEM IN ACCORDANCE WITH NFPA 780.

KEYNOTES:

1. LIGHTNING PROTECTION AIR TERMINAL ON TOP OF LIGHT POLE WITH #1/0 AWG BARE STRANDED COPPER DOWN CONDUCTOR.
2. LIGHTNING PROTECTION AIR TERMINAL ON BERM WALL WITH #1/0 AWG BARE STRANDED COPPER DOWN CONDUCTOR.
3. LIGHTNING PROTECTION AIR TERMINAL ON TOP OF BERM WALL.
4. LIGHTNING PROTECTION CONDUCTOR ON TOP OF BERM WALL CONNECTED TO AIR TERMINALS.
5. LIGHTNING PROTECTION AIR TERMINAL ON TOP OF BUILDING.
6. LIGHTNING PROTECTION CONDUCTOR ON TOP OF BUILDING.
7. LIGHTNING PROTECTION DOWN CONDUCTOR.

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DATE
05/08/26

TITLE
SITE LIGHTNING PROTECTION

DRAWING NO.
E-123

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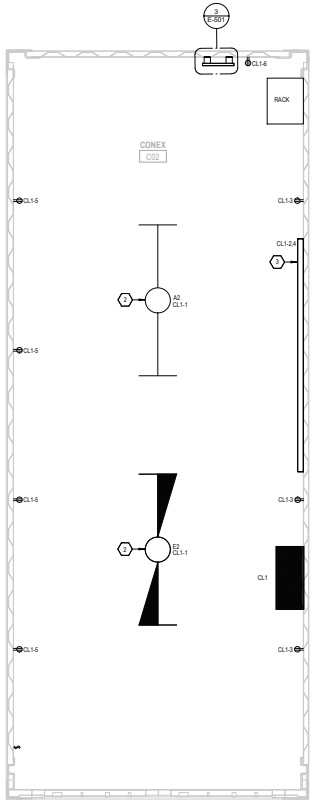
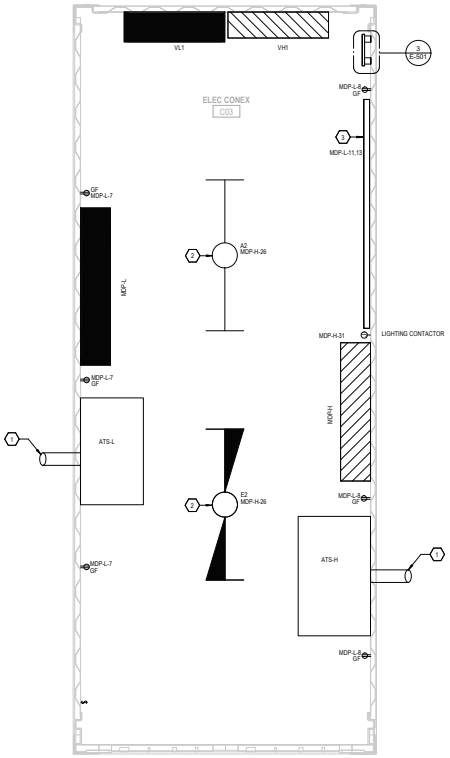
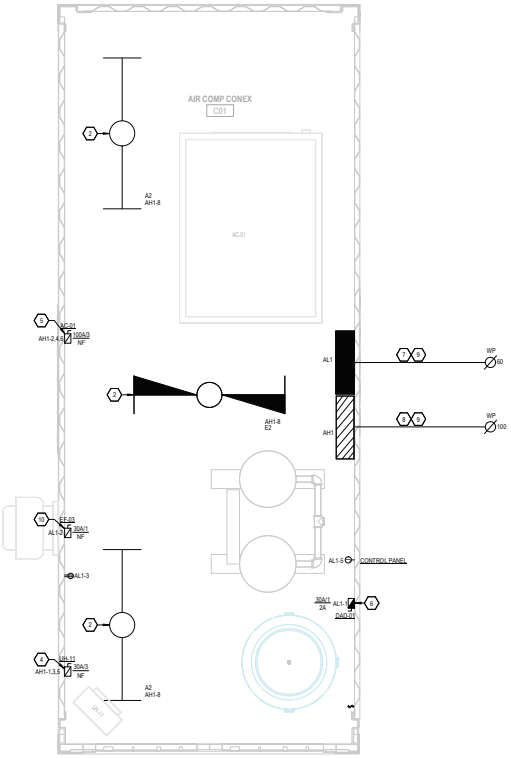
LIGHTING FIXTURE SCHEDULE

FIXTURE TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	VOLTS
A1	LITHONIA	LFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI	LED LOW BAY	SUSPENDED 21' AFF	277 V
A2	LITHONIA	CLXL48-4000LM-SEF-WDL-MVOLT-GZ10-50K-80CRI-WH	LED LINEAR FIXTURE	SURFACE	<varies>
E1	LITHONIA	LFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI (ELB-CP10-HE-A)	LED LOW BAY WITH EXTERNAL BATTERY BACKUP	SUSPENDED 21' AFF	277 V
E2	LITHONIA	CLXL48-4000LM-SEF-WDL-MVOLT-GZ10-50K-80CRI-E10W-WH	LED LINEAR FIXTURE WITH INTEGRAL BATTERY BACKUP	SURFACE	<varies>
P1	LITHONIA	RSIF4-LED-P3-50K-120/277	LED AREA LIGHT ON POLE	50' POLE MOUNT	277 V
W1	LITHONIA	TWR2-LED-ALO-SWR2-U/VOLT-PE-DDBTXD	LED WALL PACK	WALL MOUNT 9'-2" AFF	277 V
W2	LITHONIA	WST-LED-P1-50K-VW-MVOLT-PIR-DDBTXD	LED WALL PACK	WALL MOUNT 7'-10" AFF	277 V
W3	COOPER	AXCS4ARL	LED WALL PACK	WALL MOUNT 8'-6" AFF	277 V
X1	LITHONIA	LQM-S-W-3-S-120/277-EL N	LED EXIT SIGN WITH BATTERY BACKUP	WALL MOUNT 6" ABOVE DOOR FRAME	277 V



1 ENLARGED CONEX ELECTRICAL PLANS
3/4" = 1'-0"





2 ENLARGED MECH CONEX ELECTRICAL PLAN
3/4" = 1'-0"

GENERAL NOTES

1.

KEYNOTES:

1. PROVIDE GENERATOR FEED PASS - THROUGH.
2. PROVIDE LIGHT FIXTURE MOUNTED TO CEILING. REFER TO LIGHT FIXTURE SCHEDULE FOR FIXTURE TYPE.
3. PROVIDE BASEBOARD HEATER, 6 FEET LONG, 1500-2000 WATTS.
4. PROVIDE DISCONNECT SWITCH FOR UNIT HEATER.
5. PROVIDE DISCONNECT SWITCH FOR AIR COMPRESSOR.
6. PROVIDE DISCONNECT SWITCH FOR DRYER.
7. PROVIDE HUBBELL 208V, 60A, 4 POLE, 5 WIRE, PIN & SLEEVE CONNECTOR PLUG MODEL# HBL560P9W. PROVIDE 5-CONDUCTOR #8 AWG COPPER TYPE W CORD CONNECTED TO PANEL AL1 AND LONG ENOUGH TO REACH RECEPTACLE ON VIB EXTERIOR WALL.
8. PROVIDE HUBBELL 480V, 100A, 4 POLE, 5 WIRE, PIN & SLEEVE CONNECTOR PLUG MODEL# HBL5100P7W. PROVIDE 5-CONDUCTOR #4 AWG COPPER TYPE W CORD CONNECTED TO PANEL AH1 AND LONG ENOUGH TO REACH RECEPTACLE ON VIB EXTERIOR WALL.
9. COORDINATE ROUTING WITH PANEL LOCATION. SEAL PENETRATION THROUGH MECHANICAL CONEX EXTERIOR WALL.
10. PROVIDE DISCONNECT SWITCH FOR EXHAUST FAN.

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ALASKA AEROSPACE CORPORATION

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AK 101052

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DRAWN BY
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PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ENLARGED ELECTRICAL PLANS

DRAWING NO.
E-401

3/4" = 1'-0"

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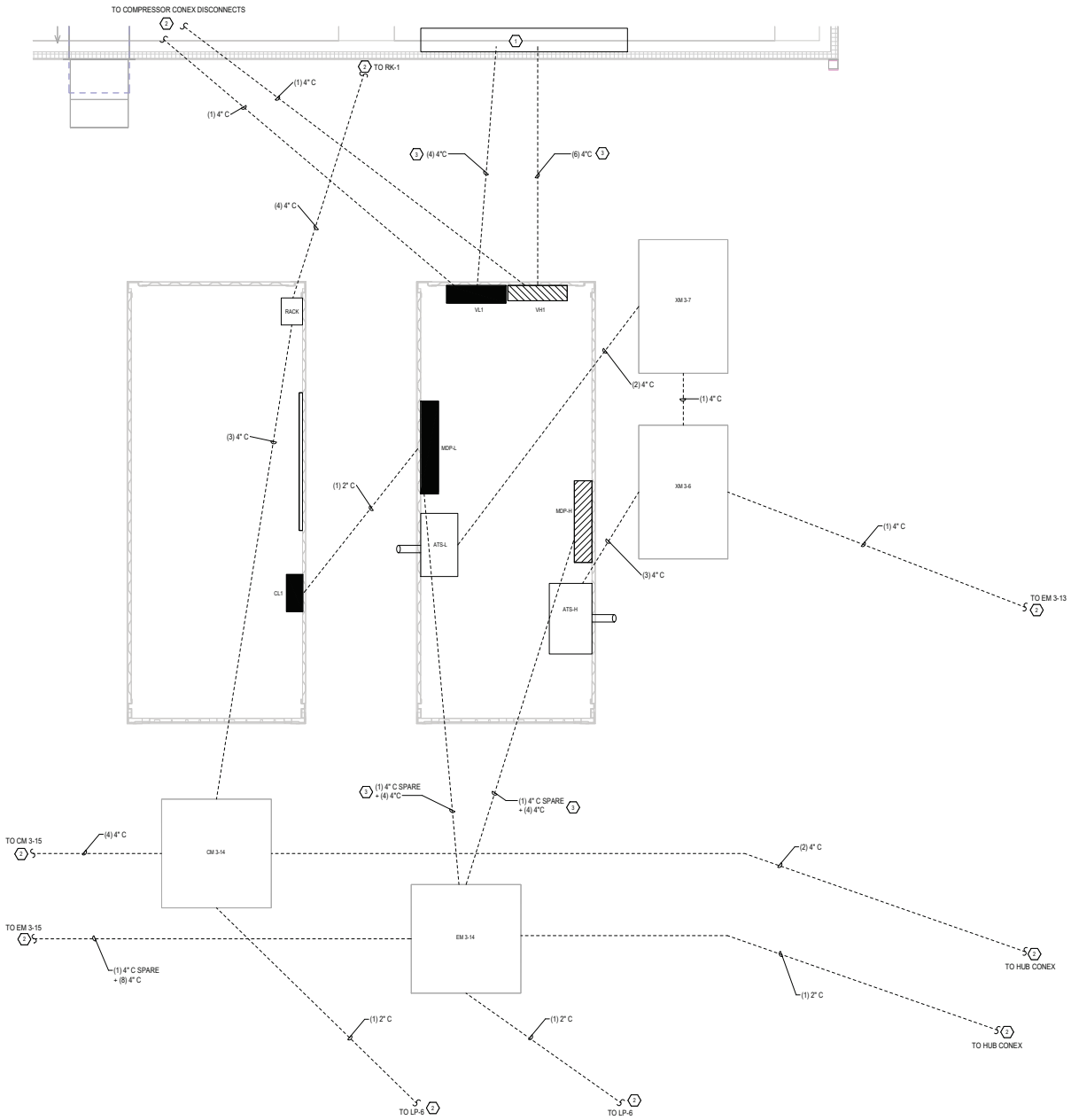

1 ENLARGED CONEX CONDUIT PLANS
1/2" = 1'-0"

GENERAL NOTES

1. SEE ONE LINE DIAGRAM ON SHEET E-601.
2. SEE ENLARGED GROUNDING PLAN ON SHEET E-403.

KEYNOTES:

1. PROVIDE 10" X 10" GUTTER FOR CONDUITS TO VIB, SEE SHEET S-501 DETAIL 6.
2. SEE SHEET E-121 FOR COMPLETE CONDUIT RUN DETAILS.
3. FINAL CONDUIT SIZE AND QUANTITY SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.

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C09729.001.00

DATE
05/08/26

TITLE
ENLARGED ELECTRICAL PLAN

DRAWING NO.
E-402

0 1' 2' 4' 6'
1/2" = 1'-0"

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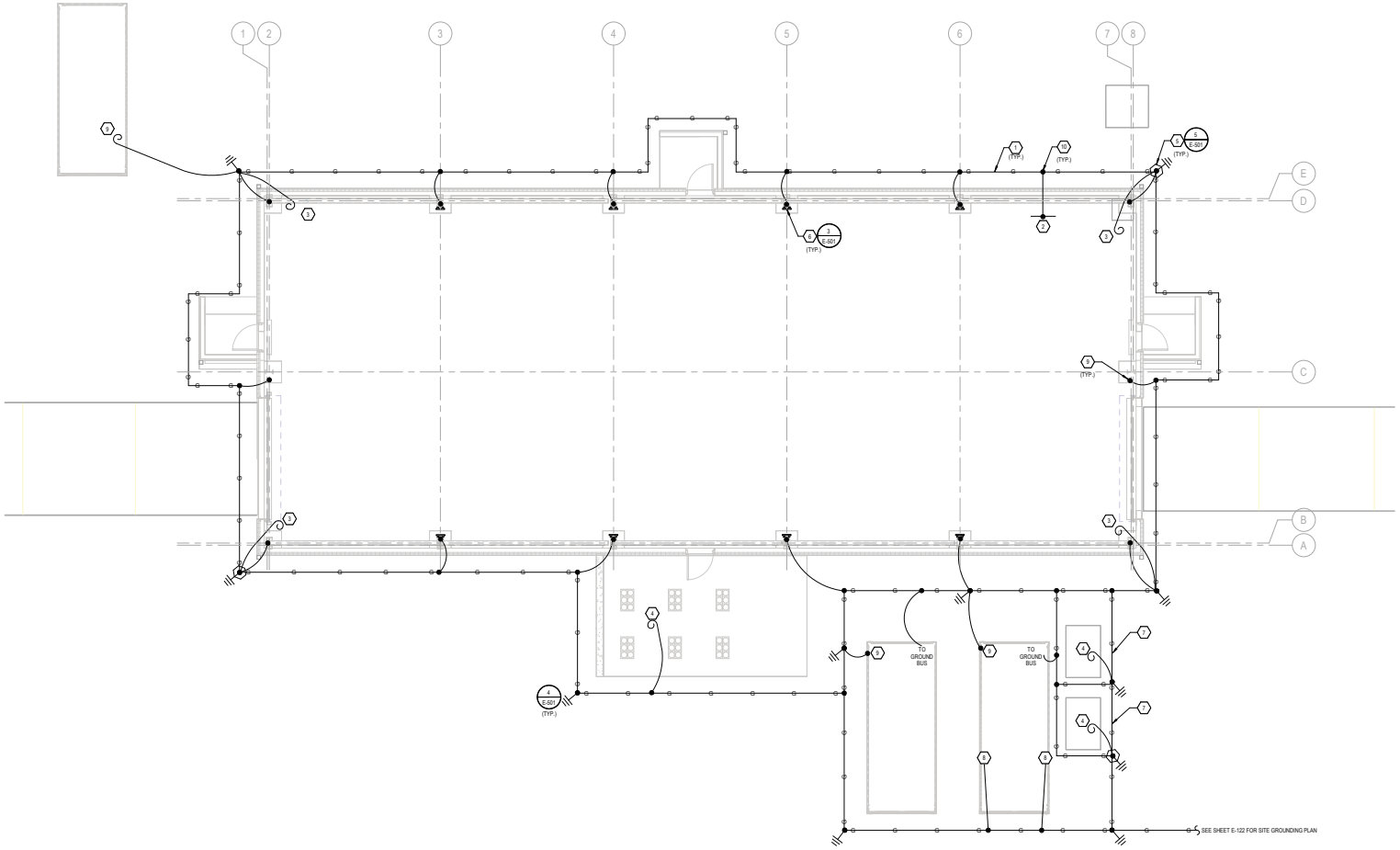

1 ENLARGED GROUNDING PLAN
3/16" = 1'-0"

GENERAL NOTES

1.

KEYNOTES:

1. #10 AWG BARE STRANDED COPPER GROUNDING WIRE BURIED AT 30" BELOW GRADE.
2. CONNECT TO REBAR IN FOUNDATION.
3. STUB UP GROUND CONDUCTOR FOR CONNECTION TO LIGHTNING PROTECTION.
4. STUB UP 10' GROUND CONDUCTOR FOR EQUIPMENT GROUNDING CONNECTION.
5. GROUND TEST WELL.
6. GROUND BUS.
7. PROVIDE #10 AWG COPPER GROUND LOOP AROUND TRANSFORMER VAULT 36" FROM VAULT. INSTALL #10 AWG PIGTAIL INTO VAULT.
8. PROVIDE CONNECTION TO ATS. COORDINATE LOCATION IN FIELD.
9. BOND GROUNDING LOOP TO STRUCTURAL STEEL.
10. EXOTHERMIC WELD.

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PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ENLARGED GROUNDING PLAN

DRAWING NO.
E-403

0 4' 8' 12' 16'
3/16" = 1'-0"

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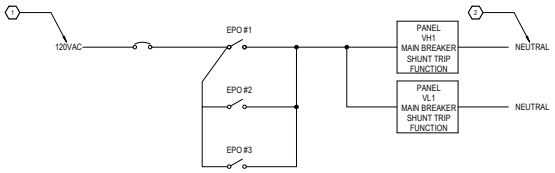
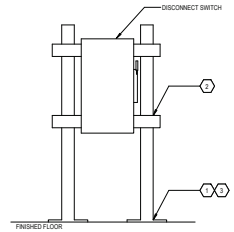


DETAIL 1/E-501 NOTES:

1. CONNECT TO CIRCUIT AS INDICATED IN PANEL SCHEDULE VL1.
2. NEUTRAL CONNECTION TO BE UTILIZED AT BOTH THE EPO BUTTON FOR THE "LIGHT" FUNCTION AND IN THE PANEL FOR THE SHUNT TRIP DEVICE ON THE MAIN CIRCUIT BREAKER.

1 WIRING DIAGRAM FOR EPO SYSTEM

NTS

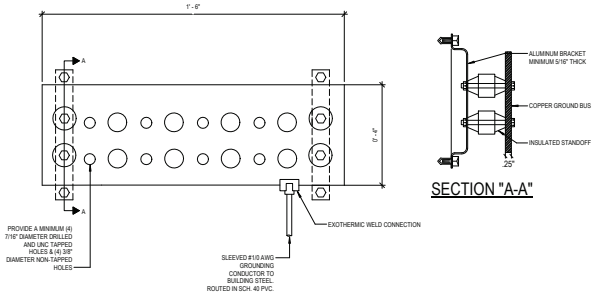


DETAIL 2/E-501 NOTES:

1. UTILIZE 1-1/2" X 1-1/2" GALVANIZED UNISTRUT FOR SUPPORTS. PROVIDE A 6" X 6" BASEPLATE AND FOUR 3/8" X 3" WEDGE ANCHORS FOR EACH SUPPORT. SUPPORTS TO BE INSTALLED SUCH THAT THEY ARE 8" WIDER APART THAN THE WIDTH OF THE DISCONNECT SWITCH. HEIGHT OF SUPPORTS TO ALLOW FOR BOTTOM OF DISCONNECT SWITCH TO BE AT 48" AFF.
2. UTILIZE 1-1/2" X 1-1/2" GALVANIZED UNISTRUT FOR CROSS BRACING.
3. VERTICAL SUPPORTS AND BASEPLATE ARE NOT REQUIRED WHERE THE DISCONNECT SWITCH IS MOUNTED DIRECTLY TO THE WALL SURFACE. ONLY THE HORIZONTAL BRACING WILL BE REQUIRED.

2 UNISTRUT MOUNTED DISCONNECT SWITCH SUPPORT

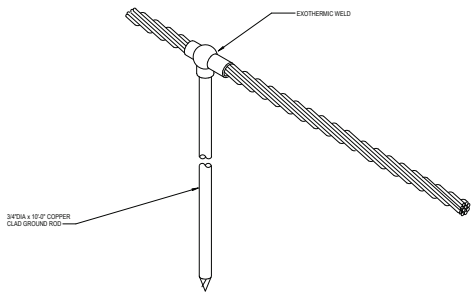
NTS



SECTION "A-A"

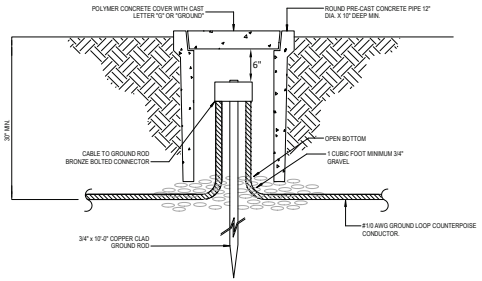
3 TYPICAL GROUND BUS BAR DETAIL

NTS



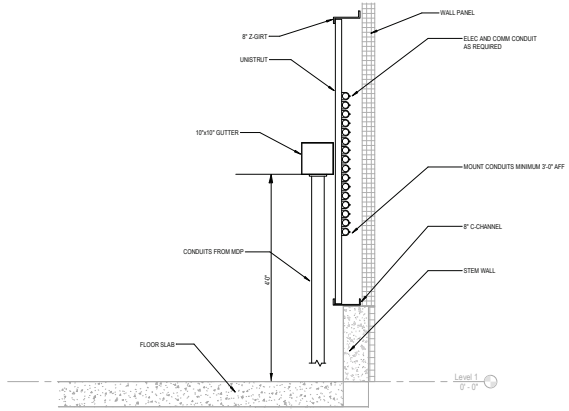
4 GROUND ROD DETAIL

NTS



5 GROUND TEST WELL

NTS



6 TYPICAL CONDUIT MOUNTING DETAIL

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05/08/26

TITLE
ELECTRICAL DETAILS

DRAWING NO.
E-501

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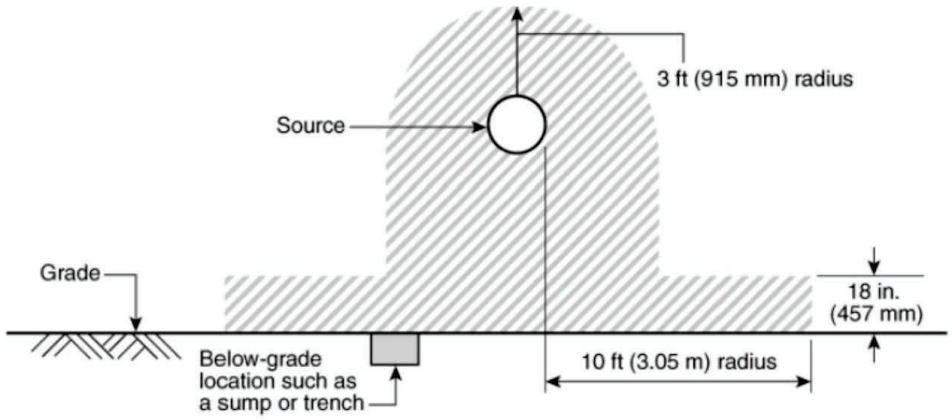

Material: Flammable liquid

	Small/low	Moderate	Large/high
Process equipment size	X	X	
Pressure	X	X	
Flow rate	X	X	

Division 1

Division 2

Figure 5.10.1(b) Leakage Located Outdoors, Above Grade. The material being handled is a flammable liquid.

1 HAZARDOUS AREAS INSIDE THE VIB & NEAR OUTDOOR FUEL TANKS
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DATE
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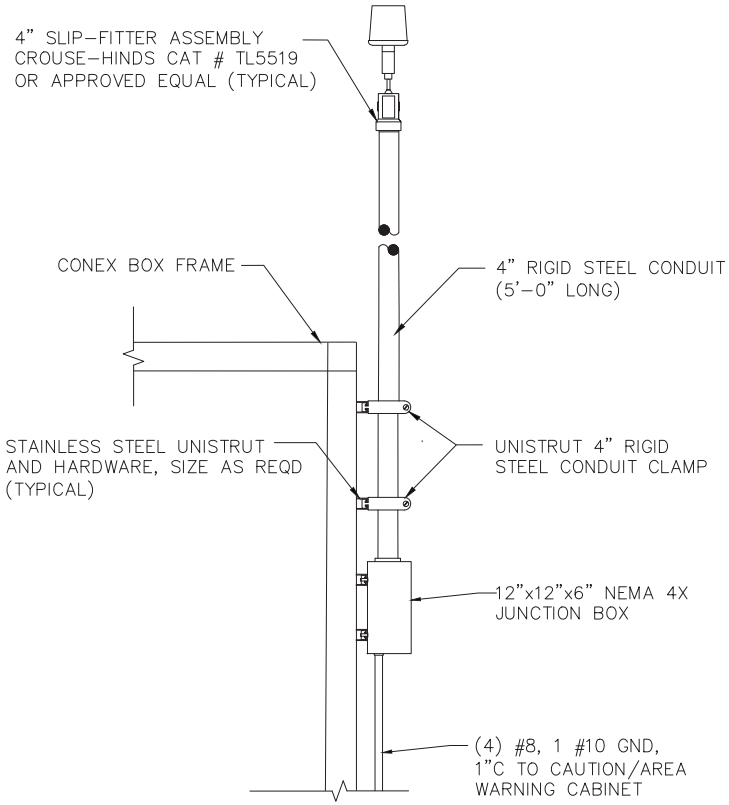
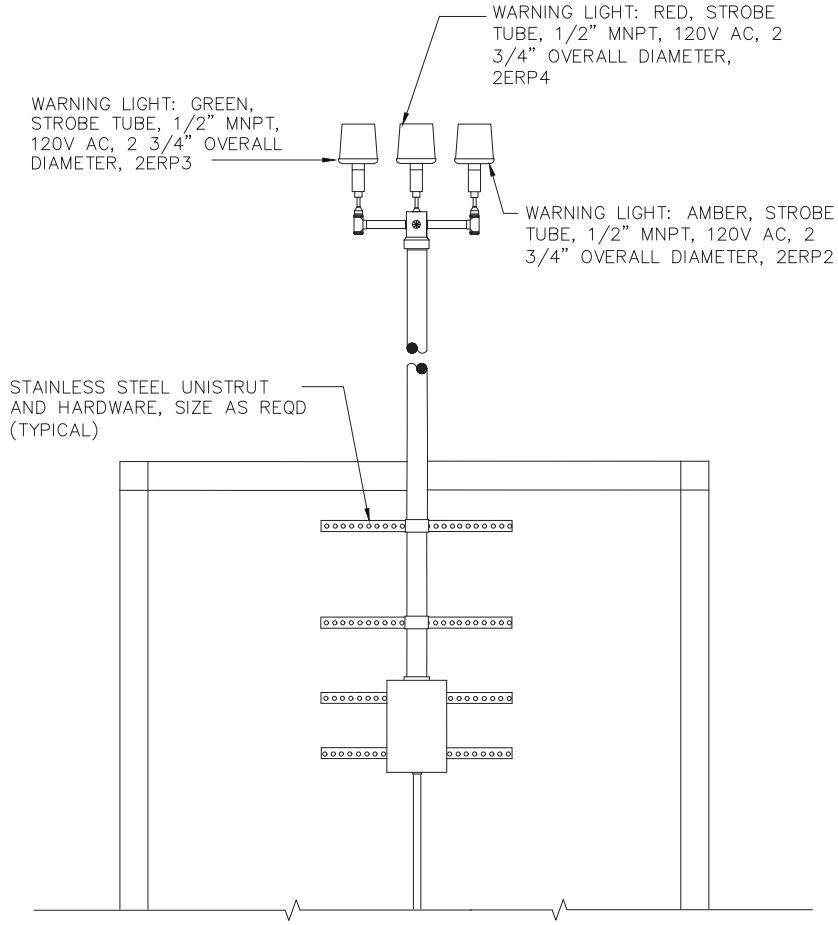
TITLE
HAZARDOUS AREAS

DRAWING NO.
E-502



CONEX SIDE VIEW



CONEX FRONT VIEW

NOTE: CONFIRM LOCATION WITH OWNER PRIOR TO INSTALLATION.

1 CAUTION / AREA WARNING LIGHTS
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05/08/26

TITLE
AREA WARNING LIGHTS

DRAWING NO.
E-503

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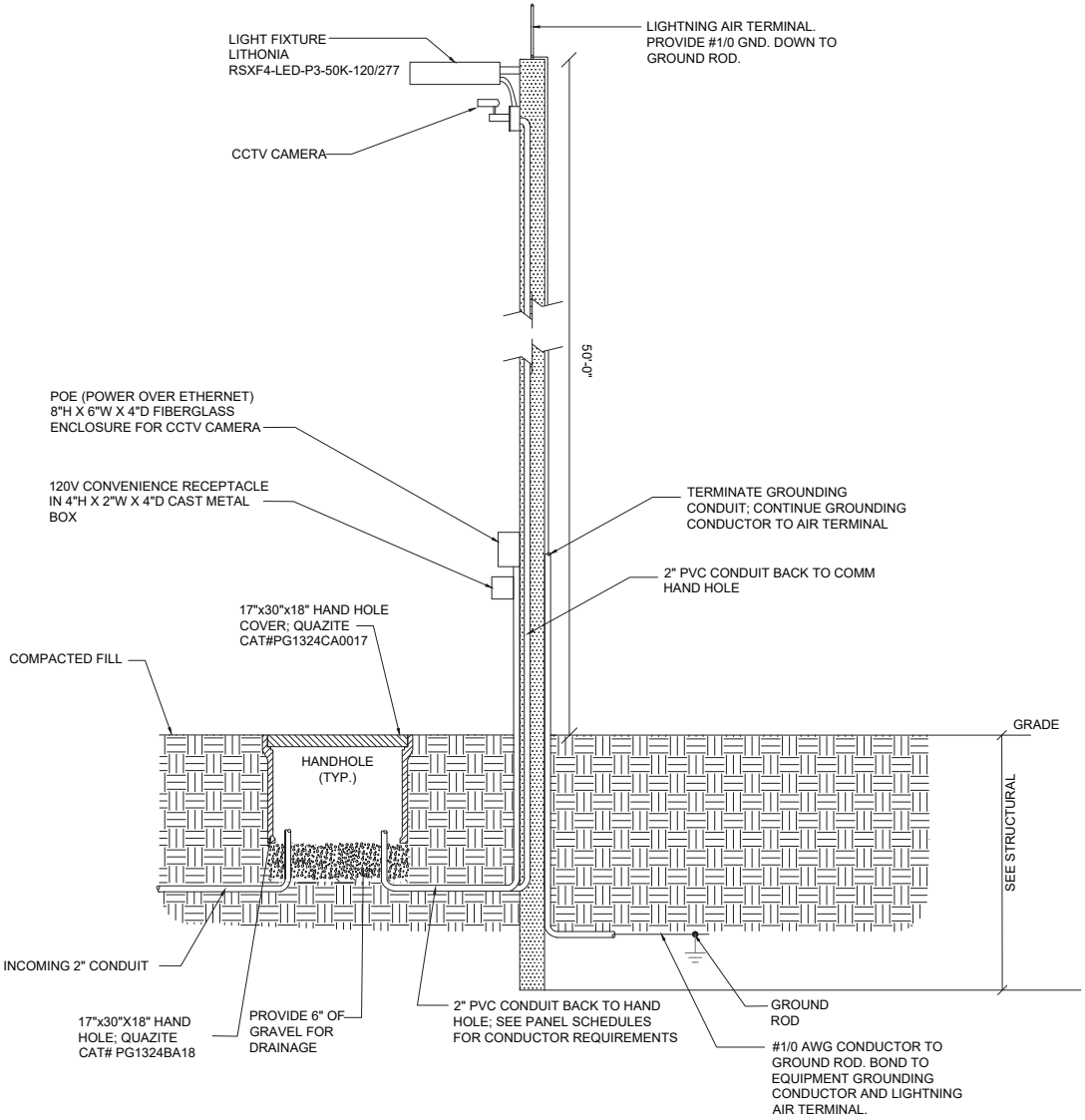
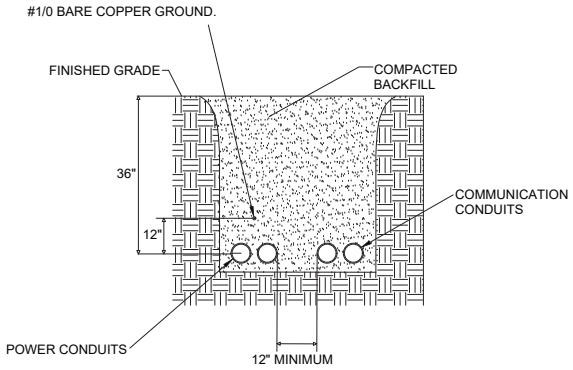


1 TYPICAL LIGHT POLE DETAIL
NTS



2 TYPICAL TRENCH DETAIL
NTS

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA 49TH Susan M Schiller No. 101052 REGISTERED PROFESSIONAL ENGINEER

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SUSAN M SCHILLER
AK 101052

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PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ELECTRICAL DETAILS

DRAWING NO.
E-504

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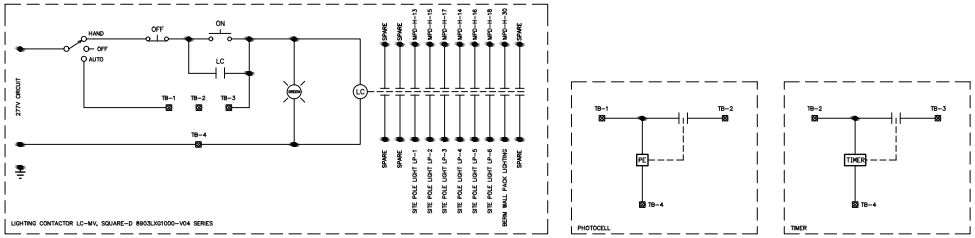

1 SITE LIGHTING CONTROL DIAGRAM
NTS

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05/08/26

TITLE
ELECTRICAL DETAILS

DRAWING NO.
E-505

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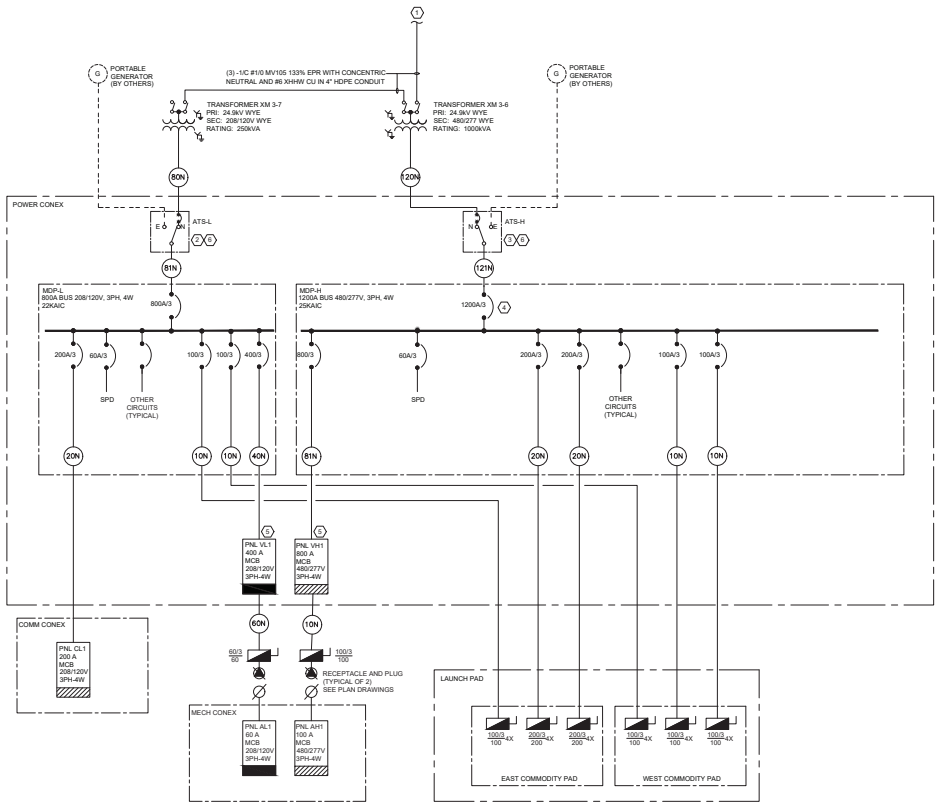

1 ONE-LINE DIAGRAM
NTS

FEEDER SCHEDULE

FEEDER MARK	NO. OF SETS	CONDUCTOR SIZES (AWG OR KCMIL)			
		PHASE	NEUTRAL	GROUND	CONDUIT
120N	3	3#600	1#600	----	(3)4"
121N	3	3#600	1#600	#3/0	(3)4"
80N	2	3#500	1#500	----	(2)4"
81N	2	3#500	1#500	#1/0	(2)4"
40N	1	3#600	1#600	1#2	(1)4"
20N	1	3#3/0	1#3/0	1#6	(1)2"
10N	1	3#1	1#1	1#8	(1)2"
60N	1	3#6	1#6	1#10	(1)2"

REFERENCE KEYNOTES

1. CONNECT TO EXISTING LOOP FED 24.9 KV WYE PRIMARY PAD MOUNTED TRANSFORMER XM 3-4 AT PAD 3B. COORDINATE WITH AAC FOR EACH CONNECTION POINT.
2. PROVIDE AUTOMATIC TRANSFER SWITCH, WITH INTEGRAL DISCONNECT SWITCH. ATS SHALL BE 208V, 800A, 3-POLE, AND 25kA WCR SERVICE ENTRANCE RATED, OPEN TRANSITION.
3. PROVIDE AUTOMATIC TRANSFER SWITCH, WITH INTEGRAL DISCONNECT SWITCH. ATS SHALL BE 480V, 1200A, 3-POLE, AND 25kA WCR SERVICE ENTRANCE RATED, OPEN TRANSITION.
4. PROVIDE GROUND FAULT PROTECTION AND ARC FLASH REDUCTION MAINTENANCE SWITCH.
5. PROVIDE 120V SHUNT TRIP ON PANELBOARD MAIN BREAKER.
6. PROVIDE SIGNAGE ON EACH ATS INDICATING SERVICE DISCONNECT NUMBER (1 OF 2 AND 2 OF 2) AND THE LOCATION OF THE OTHER SERVICE WITHIN THE SAME BUILDING.

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SUSAN M SCHILLER
AK 101052

DESIGNED BY
S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ONE-LINE DIAGRAM

DRAWING NO.
E-601

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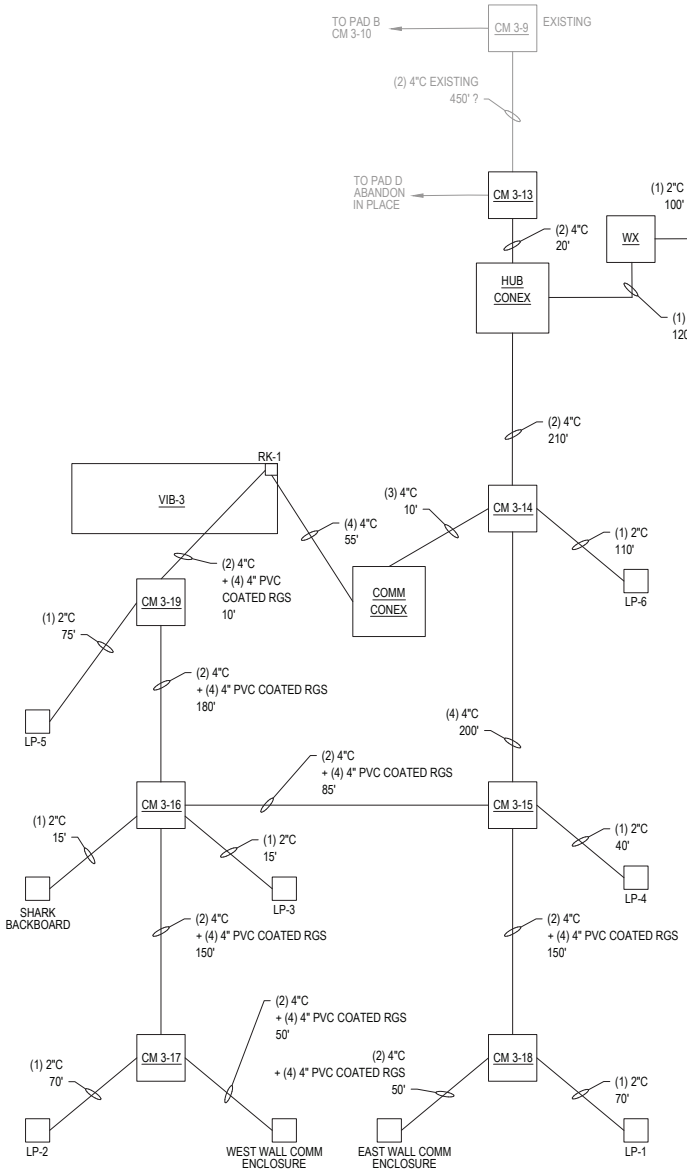
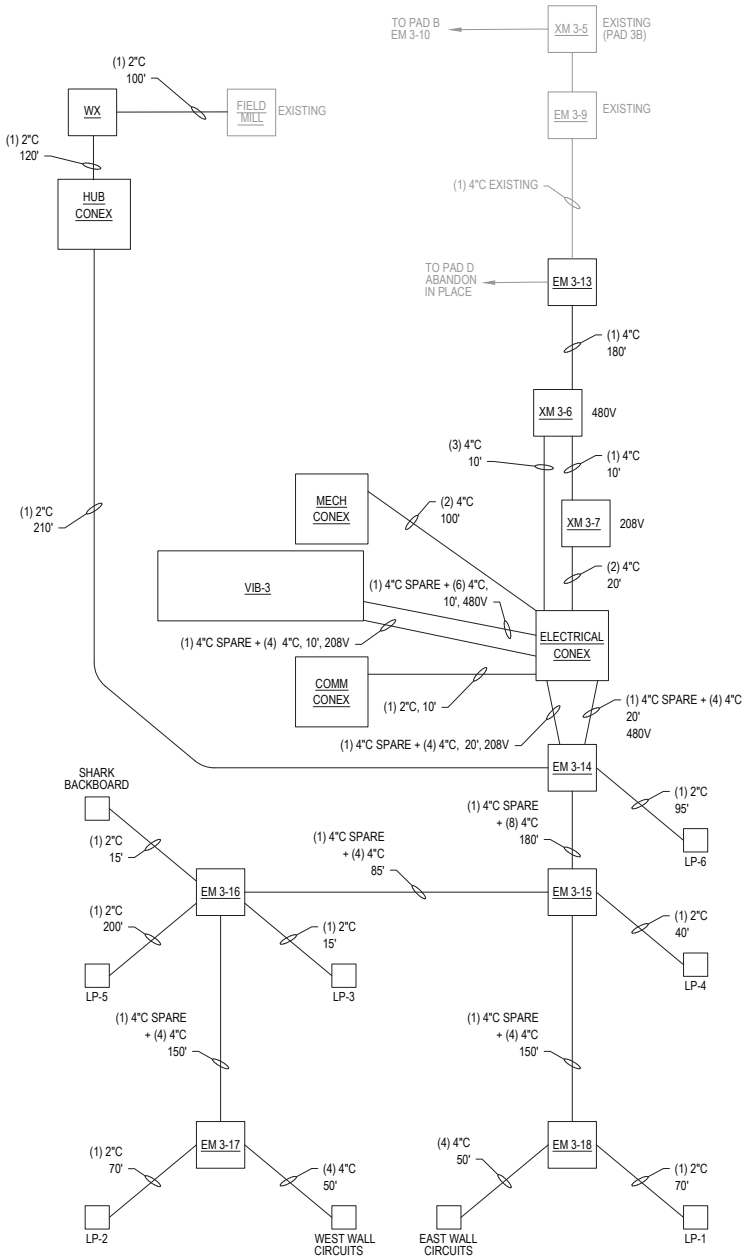


COMMUNICATION CONDUITS



POWER CONDUITS

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
49TH
Susan M. Schiller
No. 101052
PROFESSIONAL ENGINEER

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SUSAN M SCHILLER
AK 101052

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C09729.001.00

DATE
05/08/26

TITLE
CONDUIT
ONE-LINES WITH
LENGTHS

DRAWING NO.
E-602

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Panel: MDP-H

Design Selection:
Mains Rating: 1200 A
Type: MCB

Voltage: 480Y/277V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 25 KAIC
Location: POWER CONEX
Served From: TRANSFORMER XM 3-6
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	13.86...	27.71...					2								
1	100 A	3	WEST COMMODITY PAD DISC	--	--	--	--	3			13.86...	27.71...			4	--	--	--	--	EAST COMMODITY PAD DISC	3	200 A	1
								5					13.86...	27.71...	6								
								7	13.86...	27.71...					8								
1	100 A	3	WEST COMMODITY PAD DISC	--	--	--	--	9			13.86...	27.71...			10	--	--	--	--	EAST COMMODITY PAD DISC	3	200 A	1
								11					13.86...	27.71...	12								
	20 A	1	LP-1	#10	#10	#10	1"	13	0.36 kVA	0.36 kVA					14	1"	#10	#10	#10	LP-4	1	20 A	
	20 A	1	LP-2	#10	#10	#10	1"	15			0.36 kVA	0.36 kVA			16	1"	#10	#10	#10	LP-5	1	20 A	
	20 A	1	LP-3	#10	#10	#10	1"	17					0.36 kVA	0.36 kVA	18	1"	#10	#10	#10	LP-6	1	20 A	
								19	148.10...	--					20	--	--	--	--	SPACE ONLY	1	--	--
1	800 A	3	PANEL VH1	--	--	--	--	21			148.02...	--			22	--	--	--	--	SPACE ONLY	1	--	--
								23					147.48...	--	24	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	25	--	0.05 kVA					26	3/4"	#10	#10	#10	ELECT CONEX LIGHTING	1	20 A	
--	--	1	SPACE ONLY	--	--	--	--	27			--	0.00 kVA			28	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	29					--	0.20 kVA	30	3/4"	#10	#10	#10	BERM LTG	1	20 A	
	20 A	1	LIGHTING CONTACTOR	#12	#12	#12	3/4"	31	0.50 kVA	--					32	--	--	--	--	SPACE ONLY	1	--	--
--	20 A	1	SPARE	--	--	--	--	33			0.00 kVA	--			34	--	--	--	--	SPACE ONLY	1	--	--
--	20 A	1	SPARE	--	--	--	--	35					0.00 kVA	--	36	--	--	--	--	SPACE ONLY	1	--	--
								37	0.00 kVA	--					38	--	--	--	--	SPACE ONLY	1	--	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	39			0.00 kVA	--			40	--	--	--	--	SPACE ONLY	1	--	--
								41					0.00 kVA	--	42	--	--	--	--	SPACE ONLY	1	--	--
								Total	232.5 kVA		231.88 kVA		231.54 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	429.92 kVA	50.00%	214.96 kVA	Total Connected Load:	696 kVA
Heating	201.00 kVA	100.00%	201.00 kVA		
Lighting	5.00 kVA	100.00%	5.00 kVA	Estimated Demand Load:	481 kVA
Motor	60.01 kVA	100.00%	60.01 kVA	25% Future Demand Allowance:	120.24 kVA
Other	0.00 kVA	100.00%	0.00 kVA	Total Estimated Demand Load:	601.21 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA		
				Total Estimated Demand Current:	723 A

Notes:
1. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.
2. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.

Panel: MDP-L

Design Selection:
Mains Rating: 800 A
Type: MCB

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 22 KAIC
Location: POWER CONEX
Served From: TRANSFORMER XM 3-7
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	28.13...	0.80 kVA					2								
1	400 A	3	PANEL VL1	--	--	--	--	3			27.86...	1.29 kVA			4	--	--	--	--	PANEL CL1	3	200 A	1
								5					28.36...	0.90 kVA	6								
	20 A	1	CONEX RECEPTACLES	#12	#12	#12	3/4"	7	0.54 kVA	0.54 kVA					8	3/4"	#12	#12	#12	CONEX RECEPTACLES	1	20 A	
--	--	1	SPACE ONLY	--	--	--	--	9			--	0.00 kVA			10	--	--	--	--	SPARE	1	20 A	--
	20 A	2	BASEBOARD HEATER	(2) #12	--	#12	3/4"	11					0.75 kVA	0.00 kVA	12	--	--	--	--	SPARE	1	20 A	--
								13	0.75 kVA	0.00 kVA					14	--	--	--	--	SPARE	1	20 A	--
								15			6.00 kVA	6.00 kVA			16								
1	100 A	3	EAST COMMODITY PAD DISC	--	--	--	--	17					6.00 kVA	6.00 kVA	18	--	--	--	--	WEST COMMODITY PAD DISC	3	100 A	1
								19	6.00 kVA	0.00 kVA					20								
	20 A	1	SHARK BACKBOARD	#10	#10	#10	1"	21			0.18 kVA	0.00 kVA			22	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	23					0.00 kVA	0.00 kVA	24	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	25	0.00 kVA	0.00 kVA					26	--	--	--	--	SPARE	1	20 A	--
	20 A	1	LP-1 DUPLEX RECEPT	#10	#10	#10	1"	27			0.18 kVA	0.18 kVA			28	1"	#10	#10	#10	LP-2 DUPLEX RECEPT	1	20 A	
	20 A	1	LP-3 DUPLEX RECEPT	#10	#10	#10	1"	29					0.18 kVA	0.18 kVA	30	1"	#10	#10	#10	LP-4 DUPLEX RECEPT	1	20 A	
	20 A	1	LP-5 DUPLEX RECEPT	#10	#10	#10	1"	31	0.18 kVA	0.18 kVA					32	1"	#10	#10	#10	LP-6 DUPLEX RECEPT	1	20 A	
	20 A	1	WEST BERM DUPLEXES	#10	#10	#10	1"	33			0.72 kVA	0.36 kVA			34	1"	#10	#10	#10	EAST BERM DUPLEXES	1	20 A	
	20 A	1	WEST BERM DUPLEXES	#10	#10	#10	1"	35					0.54 kVA	0.54 kVA	36	1"	#10	#10	#10	EAST BERM DUPLEXES	1	20 A	
								37	0.00 kVA	0.00 kVA					38	--	--	--	--	SPARE	1	20 A	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	39			0.00 kVA	0.00 kVA			40	--	--	--	--	SPARE	1	20 A	--
								41					0.00 kVA	0.00 kVA	42	--	--	--	--	SPARE	1	20 A	--
								Total	43.12 kVA		42.78 kVA		43.46 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	108.76 kVA	50.00%	54.38 kVA	Total Connected Load:	129 kVA
Heating	3.00 kVA	100.00%	3.00 kVA		
Lighting	0.05 kVA	100.00%	0.05 kVA	Estimated Demand Load:	74 kVA
Motor	4.95 kVA	100.00%	4.95 kVA	25% Future Demand Allowance:	18.42 kVA
Power	0.00 kVA	0.00%	0.00 kVA	Total Estimated Demand Load:	92.10 kVA
Receptacle	12.60 kVA	89.68%	11.30 kVA		
Electrical	0.00 kVA	0.00%	0.00 kVA	Total Estimated Demand Current:	256 A

Notes:
1. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.
2. PROVIDE SURGE PROTECTIVE DEVICE FOR PANEL.

Panel: VH1

Design Selection:
Mains Rating: 800 A
Type: MCB (NOTE 1)

Voltage: 480Y/277V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 25 KAIC
Location: POWER CONEX
Served From: MDP-H
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	6.60 kVA	6.60 kVA					2								
	40 A	3	UH-1	(3) #8	--	#10	3/4"	3			6.60 kVA	6.60 kVA			4	3/4"	#10	--	(3) #8	UH-2	3	40 A	
								5					6.60 kVA	6.60 kVA	6								
								7	6.60 kVA	6.60 kVA					8								
	40 A	3	UH-3	(3) #8	--	#10	3/4"	9			6.60 kVA	6.60 kVA			10	3/4"	#10	--	(3) #8	UH-4	3	40 A	
								11					6.60 kVA	6.60 kVA	12								
								13	6.60 kVA	6.60 kVA					14								
	40 A	3	UH-5	(3) #8	--	#10	3/4"	15			6.60 kVA	6.60 kVA			16	3/4"	#10	--	(3) #8	UH-6	3	40 A	
								17					6.60 kVA	6.60 kVA	18								
								19	6.60 kVA	6.60 kVA					20								
	40 A	3	UH-7	(3) #8	--	#10	3/4"	21			6.60 kVA	6.60 kVA			22	3/4"	#10	--	(3) #8	UH-8	3	40 A	
								23					6.60 kVA	6.60 kVA	24								
								25	6.60 kVA	6.60 kVA					26								
	40 A	3	UH-9	(3) #8	--	#10	3/4"	27			6.60 kVA	6.60 kVA			28	3/4"	#10	--	(3) #8	UH-10	3	40 A	
								29					6.60 kVA	6.60 kVA	30								
								31	15.00...	15.00...					32								
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#6	1-1/2"	33			15.00...	15.00...			34	1-1/2"	#6	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
								35					15.00...	15.00...	36								
								37	15.00...	15.00...					38								
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#6	1-1/2"	39			15.00...	15.00...			40	1-1/2"	#6	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
								41					15.00...	15.00...	42								
	20 A	1	LOW BAY LIGHTING	#10	#10	#10	3/4"	43	1.02 kVA	2.77 kVA					44								
	20 A	1	LOW BAY LIGHTING	#10	#10	#10	3/4"	45			1.02 kVA	2.77 kVA			46	3/4"	#10	--	(3) #10	HVLS-01	3	20 A	
	20 A	1	EXTERIOR WALL PACKS	#10	#10	#10	3/4"	47					0.48 kVA	2.77 kVA	48								
--	20 A	1	SPARE	--	--	--	--	49	0.00 kVA	18.31...					50								
--	20 A	1	SPARE	--	--	--	--	51			0.00 kVA	18.23...			52	--	--	--	--	PANEL AH1 VIA DISCONNECT AND RECEPTACLE	3	100 A	3
--	20 A	1	SPARE	--	--	--	--	53					0.00 kVA	18.23...	54								
--	20 A	1	SPARE	--	--	--	--	55	0.00 kVA	0.00 kVA					56	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	57			0.00 kVA	0.00 kVA			58	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	59					0.00 kVA	0.00 kVA	60	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	61	--	--					62	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	63			--	--			64	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	65					--	--	66	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	67	--	--					68	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	69			--	--			70	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	71					--	--	72	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	73	--	--					74	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	75			--	--			76	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	77					--	--	78	--	--	--	--	SPACE ONLY	1	--	--
								79	0.00 kVA	--					80	--	--	--	--	SPACE ONLY	1	--	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	81			0.00 kVA	--			82	--	--	--	--	SPACE ONLY	1	--	--
								83					0.00 kVA	--	84	--	--	--	--	SPACE ONLY	1	--	--
								Total	148.1 kVA		148.02 kVA		147.48 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	180.00 kVA	50.00%	90.00 kVA	Total Connected Load:	444 kVA
Heating	201.00 kVA	100.00%	201.00 kVA		
Lighting	2.59 kVA	100.00%	2.59 kVA	Estimated Demand Load:	354 kVA
Motor	60.01 kVA	100.00%	60.01 kVA	25% Future Demand Allowance:	88.40 kVA
Other	0.00 kVA	100.00%	0.00 kVA	Total Estimated Demand Load:	442.00 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA		
				Total Estimated Demand Current:	532 A

Notes:
1. PROVIDE MAIN BREAKER WITH 120V SHUNT TRIP.
2. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.
3. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.

Panel: VL1

Design Selection:
Mains Rating: 400 A
Type: MCB (NOTE 1)

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 22 KAIC
Location: POWER CONEX
Served From: MDP-L
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	6.00 kVA	6.00 kVA					2								
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#8	1-1/2"	3			6.00 kVA	6.00 kVA			4	1-1/2"	#8	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
								5					6.00 kVA	6.00 kVA	6								
	20 A	1	RECEPT ACCESS / IDS	#10	#10	#10	3/4"	7	0.18 kVA	6.00 kVA					8								
	20 A	1	COMM RACK 4-PLEX	#10	#10	#10	3/4"	9			0.36 kVA	6.00 kVA			10	1-1/2"	#8	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	11					0.72 kVA	6.00 kVA	12								
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	13	0.72 kVA	0.72 kVA					14	3/4"	#10	#10	#10	DUPLEX RECEPTACLE	1	20 A	
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	15			0.72 kVA	0.72 kVA			16	3/4"	#10	#10	#10	DUPLEX RECEPTACLE	1	20 A	
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	17					0.18 kVA	0.72 kVA	18	3/4"	#10	#10	#10	DUPLEX RECEPTACLE	1	20 A	
	20 A	2	ROLLUP DOOR	(2) #10	--	#10	3/4"	19	0.38 kVA	0.00 kVA					20	3/4"	#10	#10	#10	EPO	1	20 A	
								21			0.38 kVA	0.38 kVA			22	3/4"	#10	#10	#10	COMM RACK 4-PLEX	1	20 A	
	20 A	1	COMM RACK 4-PLEX	#10	#10	#10	3/4"	23					0.36 kVA	0.29 kVA	24								
								25	0.29 kVA	0.29 kVA					26	3/4"	#10	--	(3) #10	EF-02	3	15 A	
	15 A	3	EF-01	(3) #10	--	#10	3/4"	27			0.29 kVA	0.29 kVA			28								
								29					0.29 kVA	0.29 kVA	30								
								31	0.29 kVA	0.29 kVA					32	3/4"	#10	--	(3) #10	SF-02	3	15 A	
	15 A	3	SF-01	(3) #10	--	#10	3/4"	33			0.29 kVA	0.29 kVA			34								
								35					0.29 kVA	0.36 kVA	36	3/4"	#10	#10	#10	COMM RACK 4-PLEX	1	20 A	
								37	6.00 kVA	0.36 kVA					38	3/4"	#10	#10	#10	COMM RACK 4-PLEX	1	20 A	
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#8	1-1/2"	39			6.00 kVA	0.00 kVA			40	--	--	--	--	SPARE	1	20 A	--
								41					6.00 kVA	0.38 kVA	42	3/4"	#10	--	(2) #10	ROLL UP DOOR	2	20 A	
								43	0.25 kVA	0.38 kVA					44								
3	60 A	3	PANEL AL1 VIA DISCONNECT AND RECEPTACLE					45			0.18 kVA	0.00 kVA			46	--	--	--	--	SPARE	1	20 A	--
								47					0.50 kVA	0.00 kVA	48	--	--	--	--	SPARE	1	20 A	--
								49	0.00 kVA	--					50	--	--	--	--	SPACE ONLY	1	--	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	51			0.00 kVA	--			52	--	--	--	--	SPACE ONLY	1	--	--
								53					0.00 kVA	--	54	--	--	--	--	SPACE ONLY	1	--	--
								Total	28.13 kVA		27.86 kVA		28.36 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	72.74 kVA	50.00%	36.37 kVA	Total Connected Load:	84 kVA
Motor	4.95 kVA	100.00%	4.95 kVA		
Power	0.00 kVA	0.00%	0.00 kVA	Estimated Demand Load:	48 kVA
Receptacle	6.66 kVA	100.00%	6.66 kVA	25% Future Demand Allowance:	12.00 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA	Total Estimated Demand Load:	59.98 kVA
				Total Estimated Demand Current:	166 A

Notes:
1. PROVIDE MAIN BREAKER WITH 120V SHUNT TRIP.
2. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.
3. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.

Panel: CL1

Design Selection:
Mains Rating: 200 A
Type: MCB

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 22 KAIC
Location: COMM CONEX
Served From: MDP-L
Modifications: NOTE 1

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
	20 A	1	CONEX LIGHTING	#12	#12	#12	3/4"	1	0.05 kVA	0.75 kVA					2	3/4"	#12	--	(2) #12	BASEBOARD HEATER	2	20 A	
	20 A	1	CONEX RECEPTACLES	#12	#12	#12	3/4"	3			0.54 kVA	0.75 kVA			4								
	20 A	1	CONEX RECEPTACLES	#12	#12	#12	3/4"	5					0.72 kVA	0.18 kVA	6	3/4"	#12	#12	#12	CONEX RECEPTACLES	1	20 A	
--	20 A	1	SPARE	--	--	--	--	7	0.00 kVA	0.00 kVA					8	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	9			0.00 kVA	0.00 kVA			10	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	11					0.00 kVA	0.00 kVA	12	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	13	0.00 kVA	0.00 kVA					14	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	15			--	--			16	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	17					--	--	18	--	--	--	--	SPACE ONLY	1	--	--
								19	0.00 kVA	--					20	--	--	--	--	SPACE ONLY	1	--	--
1	60 A	3	SURGE ARRESTOR	--	--	--	--	21			0.00 kVA	--			22	--	--	--	--	SPACE ONLY	1	--	--
								23					0.00 kVA	--	24	--	--	--	--	SPACE ONLY	1	--	--
								Total	0.8 kVA		1.29 kVA		0.9 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Heating	1.50 kVA	100.00%	1.50 kVA	Total Connected Load:	3 kVA
Lighting	0.05 kVA	100.00%	0.05 kVA		
Receptacle	1.44 kVA	100.00%	1.44 kVA	Estimated Demand Load:	3 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA	25% Future Demand Allowance:	0.75 kVA
				Total Estimated Demand Load:	3.74 kVA
				Total Estimated Demand Current:	10 A

Notes:
1. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.

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ARCHITECT OF RECORD
SUSAN M SCHILLER
AK 101052

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S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
PANEL SCHEDULES

DRAWING NO.
E-701

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Panel: AL1

Design Selection:
Mains Rating: 60 A
Type: MCB

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: Surface

Minimum A.I.C. Rating: 22 KAIC
Location: AIR COMP CONEX C01
Served From: VL1
Modifications:

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
	20 A	1	DAD-01	#12	#12	#12	3/4"	1	0.24 kVA	0.01 kVA					2	3/4"	#12	#12	#12	EF-03	1	20 A	
	20 A	1	MECH CONEX RCPT	#12	#12	#12	3/4"	3			0.18 kVA	0.00 kVA			4	--	--	--	--	SPARE	1	20 A	--
	20 A	1	CONTROL PANEL	#12	#12	#12	3/4"	5					0.50 kVA	0.00 kVA	6	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	7	--	--					8	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	9			--	--			10	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	11					--	--	12	--	--	--	--	SPACE ONLY	1	--	--
								Total	0.25 kVA		0.18 kVA		0.5 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	0.74 kVA	50.00%	0.37 kVA	**Total Connected Load:**	1 kVA
Motor	0.01 kVA	100.00%	0.01 kVA		
Receptacle	0.18 kVA	100.00%	0.18 kVA	**Estimated Demand Load:**	1 kVA
				25% Future Demand Allowance:	0.14 kVA
				Total Estimated Demand Load:	0.70 kVA
				Total Estimated Demand Current:	2 A

Notes:

Panel: AH1

Design Selection:
Mains Rating: 100 A
Type: MCB

Voltage: 480Y/277V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 25 KAIC
Location: AIR COMP CONEX C01
Served From: VH1
Modifications:

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
	30 A	3	UH-11	(3) #10	--	#10	3/4"	1	1.00 kVA	17.23...					2								
								3			1.00 kVA	17.23...			4	2"	#8	--	(3) #1	AC-01	3	100 A	
								5					1.00 kVA	17.23...	6								
--	20 A	1	SPARE	--	--	--	--	7	0.00 kVA	0.07 kVA					8	3/4"	#10	#10	#10	MECH CONEX LIGHTING	1	20 A	
--	20 A	1	SPARE	--	--	--	--	9			0.00 kVA	0.00 kVA			10	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	11					0.00 kVA	0.00 kVA	12	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	13	--	--					14	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	15			--	--			16	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	17					--	--	18	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	19	--	--					20	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	21			--	--			22	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	23					--	--	24	--	--	--	--	SPACE ONLY	1	--	--
								Total	18.31 kVA		18.23 kVA		18.23 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Heating	3.00 kVA	100.00%	3.00 kVA	**Total Connected Load:**	55 kVA
Lighting	0.07 kVA	100.00%	0.07 kVA		
Motor	51.70 kVA	100.00%	51.70 kVA	**Estimated Demand Load:**	55 kVA
				25% Future Demand Allowance:	13.69 kVA
				Total Estimated Demand Load:	68.47 kVA
				Total Estimated Demand Current:	82 A

Notes:

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AK 101052

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S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
PANEL SCHEDULES

DRAWING NO.
E-702

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MECHANICAL ABBREVIATIONS

ABBR	DESCRIPTION
A	COMPRESSED AIR
AC	AIR CONDITIONER
A/C	AIR CONDITIONING
ACCTWP	AIR COMPRESSOR COOLING TOWER WATER PUMP
ACU	AIR HANDLING UNIT
AD	ACCESS DOOR
AF	AIRFOIL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AP	ACCESS PANEL
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BAS	BUILDING AUTOMATION SYSTEM
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT PER HOUR
CAP	CAPACITY
C/C	CENTER OF CENTER
CENTRI	CENTRIFUGAL
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWP	CHILLED WATER PUMP
CHWS/R	CHILLED WATER SUPPLY/RETURN
CONN	CONNECTION
CONT	CONTINUE
COP	COEFFICIENT OF PERFORMANCE
CO2	CARBON DIOXIDE
CT	COOLING TOWER
CTW	COOLING TOWER WATER
CTWP	COOLING TOWER WATER PUMP
CTWS/R	COOLING TOWER WATER SUPPLY/RETURN
CU	CONDENSING UNIT
DB	DRY BULB
DG	DOOR GRILLE
DL	DOOR LOUVER
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIFF	DIFFERENTIAL
DN	DOWN
DP	DIFFERENTIAL PRESSURE
DR	DRYER
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAG	EXHAUST AIR GRILLE
EAR	EXHAUST AIR REGISTER
EAT	ENTERING AIR TEMPERATURE
ECO	EXTERIOR CLEAN OUT
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
ELEC	ELECTRIC, ELECTRICAL
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EXIST	EXISTING
°F	DEGREES FAHRENHEIT
FA	FACE AREA
FACP	FIRE ALARM CONTROL PANEL
FAS	FIRE ALARM SYSTEM
FC	FORWARD CURVE
FCU	FAN COIL UNIT
FLD	FLOOR DRAIN
FLEX	FLEXIBLE
FLG	FLANGE
FLR	FLOOR
FPS	FEET PER SECOND
FT	FEET
FTU	FAN TERMINAL UNIT
FV	FACE VELOCITY
GA	GAUGE
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
GTH	GRAND TOTAL HEAT
H2O	WATER
HD	HEAD
HDT	HORIZONTAL DRAW THRU
HP	HORSEPOWER
HP	HEAT PUMP
HR	HOUR
HRU	HEAT RECOVERY UNIT
HVAC	HEATING, VENTILATION AND AIR CONDITIONING
HX	HEAT EXCHANGER
HZ	HERTZ
IAC	INDUSTRIAL AIR COMPRESSOR
IH	INFRARED HEATER
IN	INCHES
IST	ICE STORAGE TANK
KW	KILOWATTS
LAT	LEAVING AIR TEMPERATURE
LDS	LEAK DETECTION SENSOR
LPG	LIQUID PETROLEUM GAS
LRA	LOCKED ROTOR AMPS
LVR	LOUVER
LWT	LEAVING WATER TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MEZZ	MEZZANINE
MFS	MAXIMUM FUSE SIZE
MIN	MINIMUM
MOCP	MAXIMUM OVER CURRENT PROTECTION
MVD	MANUAL VOLUME DAMPER
NC	NORMALLY CLOSED
N/C	NOISE CRITERIA
NEC	NATIONAL ELECTRIC CODE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAL	OUTSIDE AIR LOUVER
OAT	OUTSIDE AIR TEMPERATURE
OAU	OUTSIDE AIR UNIT
OC	ON CENTER
ODP	OPEN DRIP PROOF
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PCHWP	PRIMARY CHILLED WATER PUMP
PCT	PERCENT
PD	PRESSURE DROP
PH	PHASE
POC	POINT OF CONNECTION
PROP	PROPELLER
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS PER SQUARE INCH GAUGE
PTAC	PACKAGED TERMINAL AIR CONDITIONER
RA	RETURN AIR
RAG	RETURN AIR GRILLE
RAR	RETURN AIR REGISTER
RAT	RETURN AIR TEMPERATURE
REF	REFRIGERANT
RH	RELATIVE HUMIDITY
RHC	REHEAT COIL
RHP	ROOFTOP HEAT PUMP
RLA	RATED LOAD AMPS
RM	ROOM
RPM	REVOLUTION PER MINUTE
RTU	ROOFTOP UNIT
RV	ROOF VENT
SA	SUPPLY AIR
SAG	SUPPLY AIR GRILLE
SAR	SUPPLY AIR REGISTER
SAT	SUPPLY AIR TEMPERATURE
SATT	SOUND ATTENUATOR
SCH	SCHEDULE
SCHWP	SECONDARY CHILLER WATER PUMP
SD	SUPPLY DIFFUSER
SEC	SECOND
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION
SF	SUPPLY FAN
SG	SOFFIT GRILLE
SHT	SHEET
SP	STATIC PRESSURE
SQ	SQUARE
SS	STAINLESS STEEL
SSF	SIDE STREAM FILTER
STL	STEEL
STM	STEAM
TAG	TRANSFER AIR GRILLE
TAR	TRANSFER AIR REGISTER
TEAO	TOTALLY ENCLOSED AIR OVER
TEFC	TOTALLY ENCLOSED FAN COOLED
TEMP	TEMPERATURE
TSH	TOTAL SENSIBLE HEAT
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
TYP	TYPICAL
TOD	TOP OF DUCT
TOS	TOP OF STEEL
U/G	UNDER GROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORIES
UNO	UNLESS NOTED OTHERWISE
V	VOLTS, VOLTAGE
VAV	VARIABLE AIR VOLUME
VDT	VERTICAL DRAW THRU
VFD	VARIABLE FREQUENCY DRIVE
VLV	VALVE
VVT	VARIABLE VOLUME AND TEMPERATURE
W	WATT(S)
W/	WITH
WB	WET BULB
WG	WATER GAGE
WH	WALL HEATER
WSHP	WATER SOURCE HEAT PUMP
ZD	ZONE DAMPER

GENERAL LEGEND

SYMBOL	DESCRIPTION
A / B	DETAIL SYMBOL: A = IDENTIFYING NUMBER; B = SHEET WHERE DETAIL IS SHOWN
A / B	SECTION SYMBOL: A = IDENTIFYING NUMBER; B = SHEET WHERE SECTION IS SHOWN
A / B	ELEVATION / PHOTO SYMBOL: A = IDENTIFYING NUMBER; B = SHEET WHERE ELEVATION / PHOTO IS SHOWN
A / B	VIEW TITLE SYMBOL ON SHEET WHERE SHOWN: A = IDENTIFYING NUMBERLETTER; B = SHEET WHERE VIEW IS FROM

SYMBOL	DESCRIPTION
	DEVICE IDENTIFICATION:
SD-2 / 800	(REFER TO SCHEDULES) CFM
	EQUIPMENT IDENTIFICATION:
CH-1	(REFER TO SCHEDULES)
1	REVISION CLOUD AND REVISION NUMBER
	POINT OF CONNECTION SYMBOL
	POINT OF DEMOLITION SYMBOL
	CODED NOTE

AIR DISTRIBUTION LEGEND

SYMBOL	ABBR	DESCRIPTION
		EXISTING DUCT
		DUCT TO BE DEMOLISHED
18"x12"		RECTANGULAR DUCT SIZE IN INCHES FIRST SIZE LISTED IS SIDE SHOWN
18"Ø		ROUND DUCT SIZE IN INCHES
DN		DUCT OFFSET (DOWN) IN DIRECTION OF ARROW (NOT TYPICALLY SHOWN)
UP		DUCT OFFSET (UP) IN DIRECTION OF ARROW (NOT TYPICALLY SHOWN)
		SUPPLY AIR DUCT SECTION TURNED UP OR TOWARDS
		SUPPLY AIR DUCT SECTION TURNED DOWN OR AWAY
		RETURN AIR DUCT SECTION TURNED UP OR TOWARDS
		RETURN AIR DUCT SECTION TURNED DOWN OR AWAY
		EXHAUST AIR DUCT SECTION TURNED UP OR TOWARDS
		EXHAUST AIR DUCT SECTION TURNED DOWN OR AWAY
		ROUND DUCT SECTION TURNED UP OR TOWARDS
		ROUND DUCT SECTION TURNED DOWN OR AWAY
		DUCT SECTIONS UP THROUGH SLAB OR ROOF
		END OF DUCT WITH CAP (UNLESS NOTED OTHERWISE)
		FLEXIBLE DUCT
	AD	DUCT ACCESS DOOR
		CONCENTRIC DUCT TRANSITION
		ECCENTRIC DUCT TRANSITION
12"x8" / 12"Ø		SQUARE TO ROUND TRANSITION
	MVD	MANUAL VOLUME DAMPER
	BDD	BACKDRAFT DAMPER
	FD	FIRE DAMPER W/ACCESS DOOR IN DUCT
	FSD	FIRE/SMOKE DAMPER WITH ACCESS DOOR IN DUCT
	SMD	SMOKE DAMPER WITH ACCESS DOOR IN DUCT
		INDICATES SUPPLY AIR FLOW DIRECTION
		INDICATES RETURN OR EXHAUST AIR FLOW DIRECTION
U/G		UNDERCUT
		CEILING SUPPLY DIFFUSER. REFER TO DIFFUSER AND GRILLE SCHEDULE FOR ADDITIONAL INFORMATION.
		LINEAR SLOT DIFFUSER. REFER TO DIFFUSER AND GRILLE SCHEDULE FOR ADDITIONAL INFORMATION.
		CEILING GRILLE (RETURN OR TRANSFER) REFER TO DIFFUSER AND GRILLE SCHEDULE FOR ADDITIONAL INFORMATION.
		CEILING EXHAUST GRILLE. REFER TO DIFFUSER AND GRILLE SCHEDULE FOR ADDITIONAL INFORMATION.
		GRILLE, REGISTER OR OPEN DUCT (SUPPLY SHOWN)
		FLEXIBLE DUCT CONNECTION

PIPING LEGEND

SYMBOL	ABBR	DESCRIPTION
		THIN LINEWORK INDICATES EXISTING PIPING OR EQUIPMENT
		HATCHING INDICATES PIPING OR EQUIPMENT TO BE REMOVED
CD	CD	CONDENSATE DRAIN - INDIRECT
CTWS	CTWS	COOLING TOWER WATER SUPPLY
CTWR	CTWR	COOLING TOWER WATER RETURN
CHWS	CHWS	CHILLED WATER SUPPLY
CHWR	CHWR	CHILLED WATER RETURN
HHWS	HHWS	HEATING HOT WATER SUPPLY
HHWR	HHWR	HEATING HOT WATER RETURN
		PIPE WITH ARROW INDICATING FLOW DIRECTION
		PIPE CONTINUATION
		PIPE END CAP
		PIPE TURNING DOWN OR AWAY
		PIPE TURNING UP OR TOWARD
		PIPE TEE TURNING DOWN OR AWAY
		PIPE TEE TURNING UP OR TOWARD
		PIPE TURNING DOWN OR AWAY
		PIPE TURNING UP OR TOWARD
		PIPE TURNING DOWN OR AWAY
		PIPE TURNING UP THROUGH SLAB OR ROOF
		CONCENTRIC REDUCER (NOT TYPICALLY SHOWN)
		ECCENTRIC REDUCER (NOT TYPICALLY SHOWN)
		PIPE ANCHOR
		ALIGNMENT GUIDE
		UNION
		FLANGES
		PUMP (DIAGRAM)
		FLEXIBLE CONNECTOR
		INDICATES ASSEMBLY OF PIPING COMPONENTS (AS NOTED OR DIAGRAMMED)
		SHUTOFF VALVE (AS SPECIFIED FOR PIPING SYSTEM)
	BV	BALL VALVE
	CKV	CHECK VALVE
	BFV	BUTTERFLY VALVE
	BAL VA	BALANCING VALVE
	BSV	COMBINATION BALANCING/SHUTOFF VALVE
	PRV	PRESSURE REDUCING VALVE
	RV	RELIEF VALVE
	STR	Y-TYPE STRAINER
	NV	NEEDLE VALVE
	GLV	GLOBE VALVE
	OSY VA	OUTSIDE SCREW AND YOKE VALVE
	AFCV	AUTOMATIC FLOW CONTROL VALVE
		THREADED DRAIN PLUG
		MALE (GARDEN) HOSE CONNECTION WITH CAP
	TP	TEST PLUG
	TH	THERMOMETER
	B STR	BASKET STRAINER
	PG	PRESSURE GAUGE WITH BLOCK AND BLEED VALVES OR COMBINATION BLOCK AND BLEED VALVE
DP		DIFFERENTIAL PRESSURE GAUGE WITH BLOCK VALVES AND BLEED VALVE. SEE DRAWINGS FOR OTHER VARIATIONS OF CONFIGURATION.
	AAV	AUTOMATIC AIR VENT
	MAV	MANUAL AIR VENT
		MAGNEHELIC DIFFERENTIAL PRESSURE GAUGE
PSD		PUMP SUCTION DIFFUSER
TDV		TRIPLE - DUTY VALVE

CONTROLS LEGEND

SYMBOL	DESCRIPTION
	DIGITAL INPUT OR OUTPUT
	ANALOG INPUT OR OUTPUT
	COMMUNICATIONS INTERFACE
	DRY CONTACT
CT	CURRENT SENSOR/TRANSMITTER
STR	STARTER
	DUCT SMOKE DETECTOR
F	FLOW METER
T	AIR TEMPERATURE SENSOR
F	AIR FLOW MEASURING STATION
	2-WAY CONTROL VALVE WITH 24V ACTUATOR UNO
	3-WAY CONTROL VALVE WITH 24V ACTUATOR UNO
	2-WAY BUTTERFLY VALVE WITH 24V ACTUATOR UNO
	SOLENOID VALVE (TWO-POSITION W/ ACTUATOR)
	PRESSURE INDEPENDENT CONTROL VALVE
T	SPACE TEMPERATURE SENSOR
T/H	SPACE TEMPERATURE AND RELATIVE HUMIDITY SENSOR WITH LCD SCREEN AND INTERFACE
H	SPACE RELATIVE HUMIDITY SENSOR
T	IMMERSION TEMPERATURE TRANSMITTER WITH THERMOWELL
	EMERGENCY PUSHBUTTON
VS	VIBRATION SWITCH
CO2	CARBON DIOXIDE SENSOR/TRANSMITTER
CO	CARBON MONOXIDE SENSOR/TRANSMITTER
T	THERMOSTAT
DP	DIFFERENTIAL PRESSURE SENSOR/TRANSMITTER
VFD	VARIABLE FREQUENCY DRIVE
SP	STATIC PRESSURE SENSOR/TRANSMITTER
	LIGHT
	HORN AND STROBE
	DIFFERENTIAL PRESSURE INDICATING TRANSMITTER
	OPPOSED BLADE CONTROL DAMPER WITH 24V ACTUATOR UNO
	PARALLEL BLADE CONTROL DAMPER WITH 24V ACTUATOR UNO
F	FREEZESTAT (ACROSS COIL FACE)
T	AVERAGING TEMP SENSOR (ACROSS COIL FACE)
	FLOW SWITCH
	PRESSURE SWITCH
M	WATER METER

MECHANICAL - GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2021 ALASKA - MECHANICAL CODE AND THEIR REFERENCED STANDARDS
2. CONFLICTS: THE CONTRACTOR SHALL UNDERSTAND AND ACCEPT THE FACT THAT CONFLICTS MAY EXIST OR ARISE WITHIN THE CONTRACT DOCUMENTS. IF OR WHEN SUCH CONFLICTS ARE DISCOVERED, THE CHOICE HAVING THE HIGHER MONETARY VALUE SHALL BE REGARDED AS THE ACCEPTED PRACTICE, METHOD, SYSTEM OR EQUIPMENT AND SHALL BE PROVIDED.
3. VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING NEW WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
4. PROVIDE LABOR AND MATERIALS TO PROVIDE A COMPLETE AND OPERATIONAL HVAC SYSTEM AS INDICATED ON THE DRAWINGS AND IN THE SPECIFICATIONS. COORDINATE WORK WITH ALL OTHER TRADES. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE UL LISTED WHERE APPLICABLE.
5. PLANS AND DIAGRAMS ARE SCHEMATIC OVERVIEW DESCRIPTIONS OF THE SYSTEMS AND SHOULD NOT BE SCALED. COORDINATE ALL PLUMBING, HVAC, ELECTRICAL AND FIRE PROTECTION WORK AT SITE SO AS NOT TO CONFLICT WITH OTHER WORK UNDER THE CONTRACT.
6. COORDINATE ALL MECHANICAL WORK & EQUIPMENT WITH STRUCTURAL MEMBERS, ELECTRICAL WORK, FIXTURES AND ALL OTHER TRADES.
7. ALL MISCELLANEOUS IRON AND STEEL WORK REQUIRED TO PROPERLY INSTALL THE MECHANICAL WORK AND EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WORK INCLUDES ALL HANGERS, SUPPORTS, RACKS, BRACKETS AND ANY WELDING REQUIRED. ALL MISCELLANEOUS METAL EXPOSED TO THE WEATHER SHALL BE GALVANIZED.
8. COORDINATE FINAL EQUIPMENT LOCATIONS WITH THE ACTUAL EQUIPMENT PROVIDED FOR THE ACTUAL SITE CONDITION. LOCATIONS INDICATED ON THE DRAWINGS ARE APPROXIMATE.
9. SET AND ANCHOR ALL EXPOSED MECHANICAL EQUIPMENT.
10. FABRICATE ALL DUCTWORK IN ACCORDANCE WITH SMACNA STANDARDS.
11. DUCT PRESSURE CLASSIFICATION SHALL BE AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. IF NOT INDICATED, THEY SHALL BE AS FOLLOWS:

SUPPLY DUCTS UPSTREAM OF VAV BOXES:	3" W.G. POSITIVE, SEAL CLASS A, LEAKAGE CLASS 6
SUPPLY DUCTS DOWNSTREAM OF VAV BOXES:	2" W.G. POSITIVE, SEAL CLASS A, LEAKAGE CLASS 24
RETURN DUCTS:	2" W.G. NEGATIVE, SEAL CLASS A, LEAKAGE CLASS 24
EXHAUST DUCTS:	2" W.G. NEGATIVE, SEAL CLASS A, LEAKAGE CLASS 24
OUTSIDE AIR DUCTS:	1" W.G. NEGATIVE, SEAL CLASS A, LEAKAGE CLASS 24

12. DUCTWORK DIMENSIONS SHOWN ARE CLEAR INSIDE DIMENSIONS.
13. INSTALL FLEXIBLE DUCTS IN ACCORDANCE WITH SMACNA STANDARDS. MAXIMUM ALLOWED FLEXIBLE DUCT LENGTH SHALL BE EIGHT (8) FEET.
14. DO NOT ROUTE ANY DUCTWORK OR HYDRONIC PIPING THROUGH ELECTRICAL, COMMUNICATION OR ELEVATOR EQUIPMENT ROOMS UNLESS SPECIFICALLY DEDICATED TO THAT ROOM.
15. DUCTWORK, DIFFUSERS, GRILLES AND OTHER ITEMS OF THE AIR HANDLING SYSTEM SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM. COORDINATE LOCATION OF GRILLES, DIFFUSERS AND LOUVERS WITH ELECTRICAL, ARCHITECTURAL, STRUCTURAL, PLUMBING, AND FIRE PROTECTION WORK.
16. DUCT RUNOUT SIZES TO DIFFUSERS, GRILLES, AND REGISTERS SHALL BE EQUAL TO NECK SIZE UNLESS OTHERWISE NOTED.
17. INSTALL ALL DUCT SMOKE DETECTORS FURNISHED UNDER DIVISION 28 SPECIFICATIONS. SEE FIRE ALARM PLANS.
18. PROVIDE FIRE/SMOKE DAMPERS AT ALL DUCT PENETRATIONS OF ALL FIRE/SMOKE RATED ASSEMBLIES TO MAINTAIN THE INTEGRITY OF THE ASSOCIATED FIRE/SMOKE ASSEMBLY. SEE ARCHITECTURAL PLANS FOR RATED ASSEMBLIES.
19. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF CEILING DIFFUSERS/GRILLES. COORDINATE WITH ALL OTHER TRADES FOR THEIR LAYOUTS.
20. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DETAILS OF EXTERIOR WALL LOUVERS, ROOF CURBS, AND EQUIPMENT RAILS.
21. PROVIDE CONDENSATE DRAINS FOR ALL AIR COILS FROM WHICH CONDENSATION MAY OCCUR.
22. PROVIDE FLEXIBLE CONNECTOR BETWEEN EACH DUCT AND THE FAN THAT IT IS CONNECTED TO.
23. PROVIDE 1/4" x 1/4" STAINLESS STEEL WIRE MESH AND INSECT SCREEN ON THE INSIDE FACE OF ALL LOUVERS UNLESS NOTED OTHERWISE ON DETAILS.
24. WHETHER INDICATED ON THE DRAWINGS OR NOT, PROVIDE MANUAL VOLUME DAMPERS AT EACH DUCT BRANCH LEADING TO AN OUTLET/INLET OPENING. INSTALL THESE DAMPERS AS FAR AS POSSIBLE AWAY FROM THE OPENING. DO NOT INSTALL VOLUME DAMPERS IN DUCTWORK UPSTREAM OF VAV BOXES.
25. PROVIDE ALL CONTROL WIRING IN COMPLIANCE WITH DIVISION 26 SPECIFICATIONS. ALL CONTROL WIRING IN EXPOSED AREAS SHALL BE IN RIGID, METAL CONDUIT. CONTROL WIRING ABOVE CEILINGS MAY BE RUN EXPOSED UNLESS NOTED OTHERWISE AND EXPOSED WIRING ABOVE CEILING SHALL BE PLENUM RATED.
26. COORDINATE FINAL THERMOSTAT, TEMPERATURE SENSOR, AND HUMIDISTAT LOCATIONS WITH INTERIOR FINISH AND FURNITURE EQUIPMENT DRAWINGS PRIOR TO INSTALLATION. MOUNT SENSORS 48" AFF. TYPICAL FOR ALL SENSORS UNLESS NOTED OTHERWISE.
27. FIRESTOP/SMOKESTOP ALL PIPE PENETRATIONS THROUGH FIRE/SMOKE RATED ASSEMBLIES TO MAINTAIN THE INTEGRITY OF THE ASSEMBLY.
28. PROVIDE MANUAL AIR VENTS AT ALL HIGH POINTS & DRAIN VALVES, WITH CAPPED HOSE CONNECTIONS AT. ALL LOW POINTS OF PIPING SYSTEMS.
29. REGARDLESS OF HOW PIPING IS PRESENTED ON THE DRAWINGS, PROVIDE ECCENTRIC (FLAT ON TOP) REDUCERS IN CHILLED WATER PIPING.
30. PROVIDE A MANUAL CALIBRATED BALANCING VALVE, AUTOMATIC FLOW CONTROL VALVE OR OTHER FLOW REGULATING VALVE IN EVERY PIPING BRANCH SERVING A TERMINAL HEAT TRANSFER UNIT UNLESS NOTED OTHERWISE.
31. PROVIDE FLANGED/THREADED PIPING CONNECTIONS AND ISOLATION VALVES AT COILS TO ALLOW FOR COIL REMOVAL/REINSTALLATION.
32. DIVISION 23 CONTRACTOR TO FURNISH ALL VFDS/STARTERS/DISCONNECTS (UNO) FOR HVAC EQUIPMENT. WHICH SHALL BE INSTALLED BY THE DIVISION 26 CONTRACTOR. THE DIVISION 23 CONTRACTOR IS DIRECTED TO COMPLY WITH DIVISION 26 OF THE CONTRACT SPECIFICATIONS REFERRING TO VFD'S MOTORS, STARTERS, ETC.
33. POWER REQUIREMENTS FOR ALL SMOKE AND COMBINATION FIRE/SMOKE DAMPERS SHALL BE 120v UNLESS NOTED OTHERWISE.
34. ALL NEW SYSTEMS SHALL BE COMMISSIONED AND EXISTING SYSTEMS SHALL BE RECOMMISSIONED . SEE SPECIFICATION SECTION 23 08 00.

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ISSUE FOR CONSTRUCTION

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DANIEL QUINONES
No.245438
MAY 14, 2026

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GENERAL MECHANICAL REQUIREMENTS

DIVISION 23

GENERAL:

DRAWINGS AND GENERAL CONDITIONS OF CONTRACT, INCLUDING GENERAL AND SUPPLEMENTAL CONDITIONS AND DIVISION 1 SPECIFICATIONS APPLY TO WORK SPECIFIED IN THIS SECTION.

SCOPE OF WORK:

WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

PROVIDE ALL LABOR, MATERIALS, SERVICES, EQUIPMENT AND APPLIANCES REQUIRED FOR THE FABRICATION AND INSTALLATION OF MECHANICAL SYSTEMS INCLUDING HEATING, VENTILATING, AIR CONDITIONING AND MISCELLANEOUS SYSTEMS AS INDICATED ON THE DESIGN DRAWINGS AND AS OUTLINED IN THESE SPECIFICATIONS.

RELATED WORK SPECIFIED ELSEWHERE

REFER TO ELECTRICAL SPECIFICATION (DIV. 26) FOR ELECTRICAL WORK TO BE DONE IN CONJUNCTION WITH THE MECHANICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL CONDUIT, WIRING, JUNCTION BOXES, ETC., REQUIRED FOR HVAC CONTROLS.

INSTALL DUCT SMOKE DETECTOR FURNISHED BY DIVISION 26 IN SUPPLY AIR DUCTS OF AIR HANDLING UNITS EXCEEDING 2000 CFM AND WHERE INDICATED ON DRAWINGS. DETECTOR TO SHUT UNIT DOWN WHEN ACTIVATED.

SUBSTITUTIONS:

EQUIPMENT AND DESIGN OF SYSTEMS INDICATED ON THE DESIGN DRAWINGS AND WITHIN THESE SPECIFICATIONS SHALL BE CONSIDERED AS "SPECIFIED STANDARD" OF QUALITY. NO SUBSTITUTIONS SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER.

ANY DEVIATION FROM SPECIFIED EQUIPMENT THAT AFFECTS THE ELECTRICAL REQUIREMENTS SHALL BE COORDINATED BY THE MECHANICAL CONTRACTOR AND EQUIPMENT VENDOR WITH THE ELECTRICAL CONTRACTOR PRIOR TO SUBMITTING BIDS. FAILURE OF MECHANICAL CONTRACTOR AND VENDOR TO DO SO WILL NOT BE CAUSE FOR CHANGE OF BID AT A LATER TIME. IT WILL NOT BE THE ELECTRICIAN'S RESPONSIBILITY TO COORDINATE REVISED ELECTRICAL REQUIREMENTS DUE TO EQUIPMENT CHANGES INITIATED BY THE MECHANICAL CONTRACTOR AND VENDOR. IN ADDITION, THE MECHANICAL CONTRACTOR SHALL BE FINANCIALLY RESPONSIBLE FOR ANY AND ALL CHANGES TO ENGINEERING PLANS REQUIRED BY AUTHORITY HAVING JURISDICTION.

CODES AND STANDARDS:

THE ENTIRE SYSTEM AND ALL COMPONENTS LISTED HEREIN SHALL MEET ALL STATE, COUNTY, AND LOCAL CODES AND ORDINANCES IN EVERY RESPECT.

THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL FEES.

PRODUCTS:

ALL EQUIPMENT, ETC., SHALL BE NEW UNLESS OTHERWISE NOTED, AND AS SPECIFIED FREE OF DEFECTS AS SHOWN ON THE DRAWINGS AND AS INDICATED IN THESE SPECIFICATIONS. ALL ELECTRICAL POWERED EQUIPMENT SHALL BE U.L. OR E.T.L. LISTED.

WORKMANSHIP:

ALL MATERIALS SHALL BE FABRICATED AND INSTALLED IN A NEAT AND WORKMANLIKE MANNER WITH THE COORDINATION OF ALL INVOLVED TRADES TO AVOID INTERFERENCES AND DELAY DUE TO LACK OF COORDINATION. NO ALLOWANCES WILL BE MADE FOR REWORK DUE TO COORDINATION DIFFICULTIES OR INTERFERENCES BETWEEN INVOLVED TRADES.

SHOP DRAWINGS AND SUBMITTALS:

SUBMIT FOR ENGINEER'S APPROVAL, SHOP DRAWINGS, AND MANUFACTURER'S DATA FOR ALL NEW EQUIPMENT AND ACCESSORIES PRIOR TO PURCHASE AND OR FABRICATION.

SHOP DRAWINGS FOR EQUIPMENT REQUIRING ELECTRIC POWER OR CONTROL WIRING CONNECTIONS SHALL INCLUDE COMPLETE WIRING DIAGRAMS.

SUBMITTAL PACKAGE FOR HVAC EQUIPMENT SHALL ALSO INCLUDE QUALIFICATIONS AND CERTIFICATIONS OF PROPOSED TEST AND BALANCE SUBCONTRACTOR. HVAC SUBMITTALS WILL NOT BE REVIEWED WITHOUT TEST AND BALANCE DOCUMENTATION. QUALIFICATIONS OF MULTIPLE TEST AND BALANCE CONTRACTORS IS ACCEPTABLE.

HVAC CONTRACTORS SHALL SUBMIT COMPLETE DUCTWORK SHOP DRAWINGS, MINIMUM 1/ 32" SCALE, FOR REVIEW BY PENINSULA ENGINEERING, INC. SHOP DRAWINGS SHALL INCLUDE COORDINATION WITH THE GENERAL CONTRACTOR REGARDING EXACT OPENINGS REQUIRED IN INSUL-WALL TILT-UP WALL PANEL OPENINGS. SHOP DRAWINGS SHALL BEAR THE APPROVAL STAMP OF GENERAL CONTRACTORS PRIOR TO SUBMITTAL TO THE ENGINEER.

WHEN PROVIDED, THE DUCTWORK SHOP DRAWINGS WILL ONLY BE REVIEWED FOR COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE DUCTWORK SHOP DRAWINGS WILL NOT BE CHECKED FOR COORDINATION WITH OTHER TRADES OR BUILDINGS STRUCTURE. IT IS THE RESPONSIBILITY OF THE CONTRACTORS TO COORDINATE AND VERIFY ROUTING AND EXACT LOCATION OF SYSTEM COMPONENTS.

AS-BUILTS:

CONTRACTOR SHALL PROVIDE THE ENGINEER TWO (2) SETS OF COMPLETE HVAC AS-BUILT DRAWINGS AT THE TIME OF SUBSTANTIAL COMPLETION. AS BUILTS SHALL BE PROVIDED ON REPRODUCIBLE VELLUM AND AUTO CADD DRAWING FILES (RELEASE 14 OR 2000). AS-BUILT DRAWINGS SHALL CONSIST OF AN ACCURATE "AS-BUILT" RECORD OF THE INSTALLED WORK. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE OF THE INSTALLED WORK. PROJECT WILL NOT BE COMPLETE UNTIL ACCURATE AS-BUILTS ARE DELIVERED.

ACCESS DOORS:

CONTRACTOR SHALL PROVIDE HINGED ACCESS DOORS (MIN. 12"X12") FOR DAMPERS, VALVES, ETC. WHERE FLOORS, WALLS, AND CEILINGS MUST BE PENETRATED TO ACCESS MECHANICAL SYSTEMS. FINISH SHALL BE COORDINATED THROUGH ARCHITECT TO MATCH SURROUNDING FINISHES. FIRE RATED ACCESS DOORS IN FIRE RATED WALLS OR CEILINGS SHALL BEAR A U.L. LABEL FOR FIRE RATING REQUIRED.

EXECUTION:

[COORDINATE AND SCHEDULE THE WORK WITH THE OWNER TO MINIMIZE DISRUPTIONS TO THE NORMAL OPERATIONS AT THE BUILDING.] ALL LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC., INDICATED ON THE DRAWINGS IS DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE TO THE PLANS SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER TRADES. ALL WORK SHALL BE INSTALLED TO INSURE MAXIMUM HEADROOM, BALANCED OPERATION AND SUITABLE AESTHETIC APPEARANCE. CONTRACTOR IS RESPONSIBLE FOR ANY FIELD MEASUREMENTS REQUIRED TO PROVIDE AN APPROVED AND FUNCTIONAL INSTALLATION.

COORDINATE WITH OTHER TRADES AND FIELD VERIFY EXISTING CONDITIONS FOR EXACT LOCATION AND ROUTING OF SYSTEMS. PROVIDE OFFSETS, TRANSITIONS AND ADAPTORS AS REQUIRED.

NOT ALL COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION ARE SHOWN ON THESE DRAWINGS. REFER TO EQUIPMENT INSTALLATION INSTRUCTION, SCHEDULES AND APPLICABLE CODES FOR ADDITIONAL INFORMATION, INCLUDING REQUIRED CONNECTION LOCATIONS, TYPES AND SIZES. PROVIDE ISOLATION VALVES AND UNIONS AT ALL EQUIPMENT AND AS INDICATED ON DRAWINGS.

CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING AND INSTALLING ADEQUATE AND PROPER INSULATION AND MOISTURE-SEAL IN A MANNER THAT WILL PERMANENTLY PREVENT THE ACCUMULATION OF ANY OBJECTIONABLE MOISTURE ON THE EXTERIOR OF AIR-CONDITIONING UNITS, REFRIGERANT-PIPING, CONDENSATE DRAIN PIPING, AIR DUCTS OR OTHER PARTS OF THE SYSTEM. CONTRACTOR SHALL CORRECT THE CAUSE OF ANY CONDENSATION AND FULLY REPAIR, WITHOUT COST TO THE OWNER, ANY DAMAGES TO BUILDING SURFACES, FURNISHINGS OR EQUIPMENT CAUSED BY CONDENSATION FROM THIS SYSTEM, FOR THE FULL PERIOD OF THE GUARANTEE.

PERFORM ALL WORK NECESSARY TO PREPARE THE STRUCTURE FOR THE INSTALLATION OF THE WORK. ALL HOLES, OPENINGS AND DAMAGED MATERIALS CREATED DURING CONSTRUCTION SHALL BE REPAIRED AND FINISHED BY EXPERIENCED WORKMEN.

PROVIDE ALL ROOF, WALL AND FLOOR PENETRATIONS REQUIRED TO COMPLETE INSTALLATION AND REMOVAL OF WORK (MAINTAIN FIRE RATING OF EXISTING STRUCTURE). ALL PENETRATIONS SHALL BE PATCHED AND FINISHED TO MATCH SURROUNDING SURFACES AND FINISHES. ALL EQUIPMENT OR PIPE PENETRATIONS THROUGH WALL, ROOF AND FLOORS SHALL BE SLEEVED AND SEALED SO AS TO BE WATER AND AIR TIGHT. ALL ROOF CUTS AND REPAIRS SHALL BE PERFORMED BY OWNER APPROVED ROOFING CONTRACTOR IN ORDER TO MAINTAIN ROOF WARRANTY.

CLEANING, TESTING AND ADJUSTING:

THE MECHANICAL CONTRACTOR, AT HIS EXPENSE, SHALL CLEAN, REPAIR, ADJUST, CHECK, BALANCE, AND PLACE IN SERVICE THE VARIOUS SYSTEMS HEREIN SPECIFIED WITH THEIR RESPECTIVE EQUIPMENT, ACCESSORIES AND PIPING. HE SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND TOOLS REQUIRED TO PERFORM TESTS REQUIRED BY THESE SPECIFICATIONS AND BY THE GOVERNING AUTHORITIES.

NO WORK SHALL BE COVERED OR CONCEALED UNTIL PROPERLY INSPECTED AND TESTED.

EXCAVATION AND BACKFILL:

PROVIDE ALL EXCAVATION AND TRENCHING TO THE CORRECT ELEVATIONS, FOR THE INSTALLATION OF ALL PIPING, VALVE, VALVE PITS AND FOUNDATIONS INCLUDED UNDER THIS DIVISION OF THE WORK.

PROVIDE ALL BACKFILL AND COMPACTION IN STRICT ACCORDANCE WITH THE EXCAVATION AND BACKFILL SECTION OF DIVISION 1 SPECIFICATIONS.

TESTING:

ALL WATER PIPING SYSTEMS SHALL BE TESTED FOR ABSOLUTE TIGHTNESS BY SUBJECTING THE SYSTEM TO A HYDROSTATIC PRESSURE OF 150 PSI GAUGE OR 50 PSI OVER WORKING PRESSURE, WHICHEVER IS HIGHER FOR A PERIOD OF NOT LESS THAN EIGHT (8) HOURS. ALL LEAKS SHALL BE REPAIRED AND THE HYDROSTATIC TEST REAPPLIED UNTIL FOR AN EIGHT (8) HOUR PERIOD, NO LEAKS CAN BE FOUND WHILE THE SYSTEM IS SUBJECT TO THE TEST PRESSURE.

CONDENSATE DRAINS SHALL BE TESTED BY TEMPORARILY PLUGGING ALL OUTLETS AND FILLING THE SYSTEM WITH WATER TO THE LEVEL OF THE HIGHEST VENT STACK. THE SYSTEM MUST BE INSPECTED AND ALL LEAKS REPAIRED AND THE TEST REPEATED UNTIL THE WATER LEVEL DOES NOT DECREASE FOR A PERIOD OF 24 HOURS.

ADJUST THE AIR CONDITIONING SYSTEMS, VENTILATING SYSTEMS, FANS, ETC., TO DELIVER NOT LESS THAN THE REQUIRED AIR QUANTITY WITH QUANTITIES IN EXCESS TO BE SUBJECT TO THE APPROVAL OF THE ENGINEER IF FOUND TO NOT HAVE OBJECTIONABLE EFFECTS SUCH AS NOISE, DRAFTS, OR MOTOR OVERLOAD.

PRIOR APPROVAL BY THE ENGINEER OF TESTING AND BALANCING CONTRACTOR IS REQUIRED. SEE SHOP DRAWINGS AND SUBMITTAL SECTION. TEST AND BALANCE REPORTS BY NON-APPROVED CONTRACTORS WILL BE REJECTED.

THIS CONTRACTOR SHALL PROVIDE THREE (3) COPIES OF A TEST AND BALANCE REPORT TO THE ENGINEER AT TIME OF SUBSTANTIAL COMPLETION INSPECTION. THE TEST AND BALANCE REPORT SHALL BE PREPARED BY A CONTRACTOR CERTIFIED BY ASSOCIATED AIR BALANCE COUNCIL OR NATIONAL ENVIRONMENTAL BALANCING BUREAU.

THE TEST AND BALANCE REPORT SHALL BE TYPEWRITTEN AND CONTAIN THE FOLLOWING DATA:

1. DATE, TIME, WEATHER, WHEN TEST TAKEN.
2. AIR CAPACITIES AT EACH UNIT INCLUDING OUTSIDE AIR. (ENTERING AND LEAVING DBWB)
3. STATIC PRESSURE THROUGH UNITS AND UNIT COMPONENTS.
4. MOTOR OPERATING VOLTAGE AND AMPERAGE.
5. DRIVE TYPES, SIZES AND SPEED RANGE.
6. IDENTIFICATION OF ALL AIR TERMINAL DEVICES WITH DESIGN CFM AND ACTUAL CFM.
7. PROVIDE WATER TESTING INCLUDING FLOW RATES, ENTERING AND LEAVING TEMPERATURE OPERATING PRESSURE FOR ALL HOT WATER, CHILLED WATER AND CONDENSER WATER SYSTEMS.

ADDITIONALLY, SYSTEMS DRAWINGS CLEARLY MARKED TO IDENTIFY LOCATION OF EQUIPMENT AND AIR DEVICES TESTED SHALL BE PROVIDED ALONG WITH THE WRITTEN TEST AND BALANCE REPORT.

MAINTENANCE MANUALS:

PROVIDE COMPLETE MAINTENANCE MANUALS (3 REQUIRED) ON ALL NEW EQUIPMENT. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL, HEAVY-DUTY, 2-INCH, 3-RING VINYL-COVERED BINDERS WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER. INCLUDE THE FOLLOWING TYPES OF INFORMATION. THE INFORMATION WILL BE TURNED OVER TO THE OWNER AT TIME OF SUBSTANTIAL COMPLETION:

- OPERATING AND MAINTENANCE INSTRUCTIONS
- SPARE PARTS LIST
- COPIES OF WARRANTIES
- WIRING DIAGRAMS
- INSPECTION REPORTS & APPROVALS
- SHOP DRAWINGS AND PRODUCT DATA
- TEST AND BALANCE INFORMATION

TRAINING SERVICES:

THOROUGHLY INSTRUCT THE OWNER'S REPRESENTATIVE IN THE OPERATION OF ALL EQUIPMENT FURNISHED AND LOCATION OF ALL VALVES AND CONTROL DEVICES.

TRAIN BUILDING OWNER'S PERSONNEL DURING NORMAL WORKING HOURS ON START-UP AND SHUT-DOWN PROCEDURES, TROUBLESHOOTING PROCEDURES, SERVICING AND PREVENTATIVE MAINTENANCE SCHEDULE AND PROCEDURES. REVIEW WITH THE OWNER'S PERSONNEL, THE DATA CONTAINED IN THE OPERATING AND MAINTENANCE MANUALS. SCHEDULE TRAINING WITH OWNER, PROVIDE AT LEAST 7-DAYS PRIOR NOTICE TO ARCHITECT/ENGINEER.

SYSTEM IDENTIFICATION:

PROVIDE IDENTIFICATION LABELS ON OR NEAR EACH PIECE OF MAJOR EQUIPMENT AND EACH OPERATIONAL DEVICE AND DISCONNECT. THE LABELS SHALL BE CONSTRUCTED OF ENGRAVED PLASTIC LAMINATE SIGN OR PLASTIC EQUIPMENT MARKER PERMANENTLY SECURED TO EQUIPMENT. THE LETTERING SHALL BE A MINIMUM OF 1/2 INCH HIGH FOR EQUIPMENT NAME AND 3/8 INCH FOR EQUIPMENT INFORMATION. ALL VALVES SHALL BE TAGGED USING PLASTIC LAMINATE TAGS AND SECURED WITH BRASS CHAINS. THE TAGS SHALL INDICATE THE VALVE SIZE, SERVICE AND FUNCTION (IE. 2" CW , MAIN SERVICE SHUTOFF).

HANGERS AND SUPPORTS:

PROVIDE ALL NECESSARY DUCTWORK, PIPE SUPPORTS, HANGER, RODS, CLAMPS AND ATTACHMENTS TO PROPERLY INSTALL AND SUPPORT DUCTWORK, PIPING AND EQUIPMENT FROM THE BUILDING STRUCTURE.

PROVIDE ANY ANGLE IRON OR UNISTRUT AND SUSPENSION RODS REQUIRED TO INSTALL EQUIPMENT, PIPING AND DUCTWORK.

ALL SUPPORTS EXPOSED TO OUTDOORS SHALL BE CLEANED, PRIMED AND PAINTED TO PREVENT RUSTING. FINISH COLOR AS SELECTED BY OWNER.

THE USE OF BALING WIRE OR PERFORATED METAL STRAPPING IS NOT ACCEPTABLE FOR SUPPORTS.

WARRANTY/GUARANTEE:

THE CONTRACTOR SHALL WARRANTY/GUARANTEE AND MAINTAIN THE STABILITY OF WORK AND MATERIALS AND KEEP SAME IN PERFECT REPAIR AND CONDITION OF THE PERIOD OF ONE (1) YEAR.

DEFECTS OF ANY KIND DUE TO FAULTY WORK OR MATERIALS APPEARING DURING THE ABOVE MENTIONED PERIOD MUST BE IMMEDIATELY MADE GOOD BY THE CONTRACTOR AT HIS OWN EXPENSE TO THE ENTIRE SATISFACTION OF THE OWNER AND ARCHITECT AND ENGINEER. SUCH RECONSTRUCTION AND REPAIRS SHALL INCLUDE ALL DAMAGE TO THE FINISH OR FURNISHING OF THE BUILDING RESULTING FROM THE ORIGINAL DEFECT OR REPAIRS THERETO.

HEATING / VENTILATING / AIR CONDITIONING SPECIFICATIONS:

23 05 00 SCOPE OF WORK

FURNISH AND INSTALL COMPLETE AIR CONDITIONING SYSTEMS AS INDICATED ON THE DESIGN DRAWINGS AND AS OUTLINED WITHIN THESE SPECIFICATIONS. WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FABRICATION AND/OR INSTALLATION OF THE SCHEDULED AIR CONDITIONING UNITS, EXHAUST FANS, VARIABLE VOLUME BOXES, AIR DISTRIBUTION AND DUCTWORK.

23 05 13 COMMON MOTOR REQUIREMENTS FOR HVAC EQUIPMENT:

POLYPHASE MOTORS: DESIGN B, MEDIUM INDUCTION MOTORS, PREMIUM EFFICIENCY. SERVICE FACTOR: 1.15. MINIMUM POWER FACTOR SHALL BE 0.85. ROTOR: RANDOM-WOUND, SQUIRREL CAGE. BEARINGS: REGREASABLE, SHIELDED, ANTIFRICTION BALL BEARINGS SUITABLE FOR RADIAL AND THRUST LOADING. TEMPERATURE RISE: MATCH INSULATION RATING. INSULATION: CLASS F. CODE LETTER DESIGNATION: MOTORS 15 HP AND LARGER: NEMA STARTING CODE F OR CODE G; MOTORS SMALLER THAN 15 HP: MANUFACTURER'S STANDARD STARTING CHARACTERISTIC. ENCLOSURE MATERIAL: CAST IRON FOR MOTOR FRAME SIZES 324T AND LARGER; ROLLED STEEL FOR MOTOR FRAME SIZES SMALLER THAN 324T.

MOTORS USED WITH VARIABLE-FREQUENCY CONTROLLERS: COMPLY WITH NEMA MG 1 PART 31 (AFD MOTORS) - MOTOR DIELECTRIC VOLTAGE RATING SHALL BE 3.1 TIMES THE VOLTAGE RATING. PROVIDE SHAFT GROUNDING FOR ALL MOTORS 1 HP AND LARGER. ONLY APPROVED MANUFACTURER IS SHAFT GROUNDING SYSTEMS (SGS). DEVICES CAN BE EITHER FACTORY INSTALLED OR INSTALLED IN THE FIELD BY TRAINED PERSONNEL ONLY. INSTALL AN SGS CR SERIES SHAFT GROUNDING SYSTEM ON THE OUTBOARD (NON DRIVE-END) SIDE OF THE MOTOR ONLY.

SINGLE-PHASE MOTORS: MOTORS LARGER THAN 1/20 HP: PERMANENT-SPLIT CAPACITOR, SPLIT PHASE; CAPACITOR START, INDUCTOR RUN; OR CAPACITOR START, CAPACITOR RUN TO SUIT STARTING TORQUE AND REQUIREMENTS OF SPECIFIC MOTOR APPLICATION. MULTISPEED MOTORS: VARIABLE-TORQUE, PERMANENT-SPLIT-CAPACITOR TYPE. BEARINGS: PRELUBRICATED, ANTIFRICTION BALL BEARINGS OR SLEEVE BEARINGS SUITABLE FOR RADIAL AND THRUST LOADING. MOTORS 1/20 HP AND SMALLER: SHADED-POLE TYPE. INTERNAL THERMAL PROTECTION.

ELECTRONICALLY COMMUTATED MOTOR (ECM™): MOTOR SHALL BE BRUSHLESS DC CONTROLLED BY AN INTEGRAL CONTROLLER / INVERTER THAT OPERATES THE WOUND STATOR AND SENSES ROTOR POSITION TO ELECTRICALLY COMMUTATE THE STATOR. MOTOR SHALL BE PERMANENT MAGNET TYPE WITH NEAR-ZERO ROTOR LOSSES DESIGNED FOR SYNCHRONOUS ROTATION.

23 05 23 VALVES:

VALVES 2" AND SMALLER SHALL BE FULL PORT BALL VALVES WITH TWO PIECE BODY RATED AT 600 PSI CWP. VALVE CONSTRUCTION SHALL BE BRONZE BODY, 316 STAINLESS STEEL BALL AND STEM. RTFE SEATS, MPTFE STEM PACKING RINGS AND ADJUSTABLE STEM PACKING, LEVER HANDLE, SCREWED ENDS. VALVES TO BE PROVIDED WITH HANDLE EXTENSION AS REQUIRED TO CLEAR INSULATION. APOLLO70-140 OR EQUAL.

VALVES 2-1/2" TO 12" SHALL BE BUTTERFLY VALVES RATED AT 200 PSIG CWP. VALVES 14" TO 24" SHALL BE BUTTERFLY VALVES RATED AT 150 PSIG CWP. VALVE CONSTRUCTION SHALL BE FULL LUG DUCTILE IRON BODY, EPDM SEAT, ALUMINUM BRONZE DISC. VALVES 8" AND SMALLER SHALL HAVE LEVER OPERATOR AND VALVES LARGER THAN 8" SHALL HAVE GEAR OPERATOR WITH WHEEL HANDLE (CHAIN OPERATOR REQUIRED ON VALVES INSTALLED MORE THAN 8 FEET ABOVE FLOOR). VALVES TO BE PROVIDED WITH HANDLE EXTENSION AS REQUIRED TO CLEAR INSULATION. CRANE CENTERLINE SERIES 225 OR EQUAL.

BALANCING VALVES SHALL BE ARMSTRONG CBV OR TOUR & ANDERSON, INC. ST-A-D AND STA-F CIRCUIT BALANCING VALVES, WITH PROVISION FOR CONNECTING PORTABLE DIFFERENTIAL PRESSURE METER.

STRAINERS SHALL BE Y TYPE STAINLESS STEEL SCREEN, CAST IRON BODY, 125 PSIG CWP. THREADED ENDS FOR NPS 2" AND SMALLER, FLANGED ENDS FOR 2-1/2" AND LARGER.

AUTOMATIC CONTROL VALVES SHALL BE FULLY PROPORTIONING WITH MODULATING PLUG OR V-PORT INNER GUIDES, UNLESS OTHERWISE SPECIFIED. THE VALVE SHALL BE QUIET IN OPERATION AND FAIL-SAFE IN THE NORMALLY OPEN POSITION IN THE EVENT OF CONTROL FAILURE. CONTROL VALVES SHALL BE SIZED BY THE CONTROL MANUFACTURER AND SHALL BE WARRANTED TO MEET THE HEATING AND COOLING LOADS AS SPECIFIED. CONTROL VALVES SHALL BE SUITABLE FOR THE PRESSURE CONDITIONS AND SHALL CLOSE AGAINST THE DIFFERENTIAL PRESSURES INVOLVED. VALVE OPERATORS SHALL BE OF THE ELECTRIC 24 VOLT TYPE. BODY PRESSURE RATING AND CONNECTION TYPE (SCREWED FLANGED OR FLANGED) SHALL CONFORM TO PIPE SCHEDULE ELSEWHERE IN THIS SPECIFICATION. TYPE, 3'-0" ON CENTER, SECURELY ATTACHED TO BUILDING CONSTRUCTION.

23 05 29 PIPE SUPPORT:

ATTACH LINES SECURELY ALONG PAD/FLOOR/EQUIPMENT/STRUCTURE TO PREVENT MOVEMENT. SUPPORT IN A MANNER THAT LINES DO NOT HANG FROM EVAPORATOR CONNECTIONS OR BLOCK ACCESS TO FILTERS, CONTROLS, ETC.

TRAP OIL IN SUCTION LINE AT EVAPORATOR COIL. NO OTHER COIL TRAPS PERMITTED. PROVIDE SUCTION RISERS, CHECK VALVES, SOLENOID VALVES, OR OTHER DEVICES REQUIRED IN PIPING SYSTEM BY MANUFACTURERS INSTALLATION INSTRUCTIONS.

FURNISH ALL LABOR AND MATERIALS TO REPLACE REFRIGERANT LOST DURING THE ONE YEAR WARRANTY PERIOD.

23 05 48 VIBRATION ISOLATION

ALL BLOWER UNITS AND VIBRATING TYPE EQUIPMENT SHALL BE PROPERLY FITTED WITH MASON INDUSTRIES VIBRATION ISOLATION EQUIPMENT SIZED IN ACCORDANCE WITH EQUIPMENT WEIGHT AND DUTY.

PROVIDE FLEXIBLE CONNECTORS AT ALL SUPPLY AND RETURN CONNECTIONS TO AIR HANDLING EQUIPMENT CONSISTING OF HEAVY CANVAS OR NEOPRENE FABRIC WITH AIR-TIGHT SEAMS AND CONNECTIONS TO THE EQUIPMENT.

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DRAWN BY
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PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
GENERAL NOTES

DRAWING NO.
M-002

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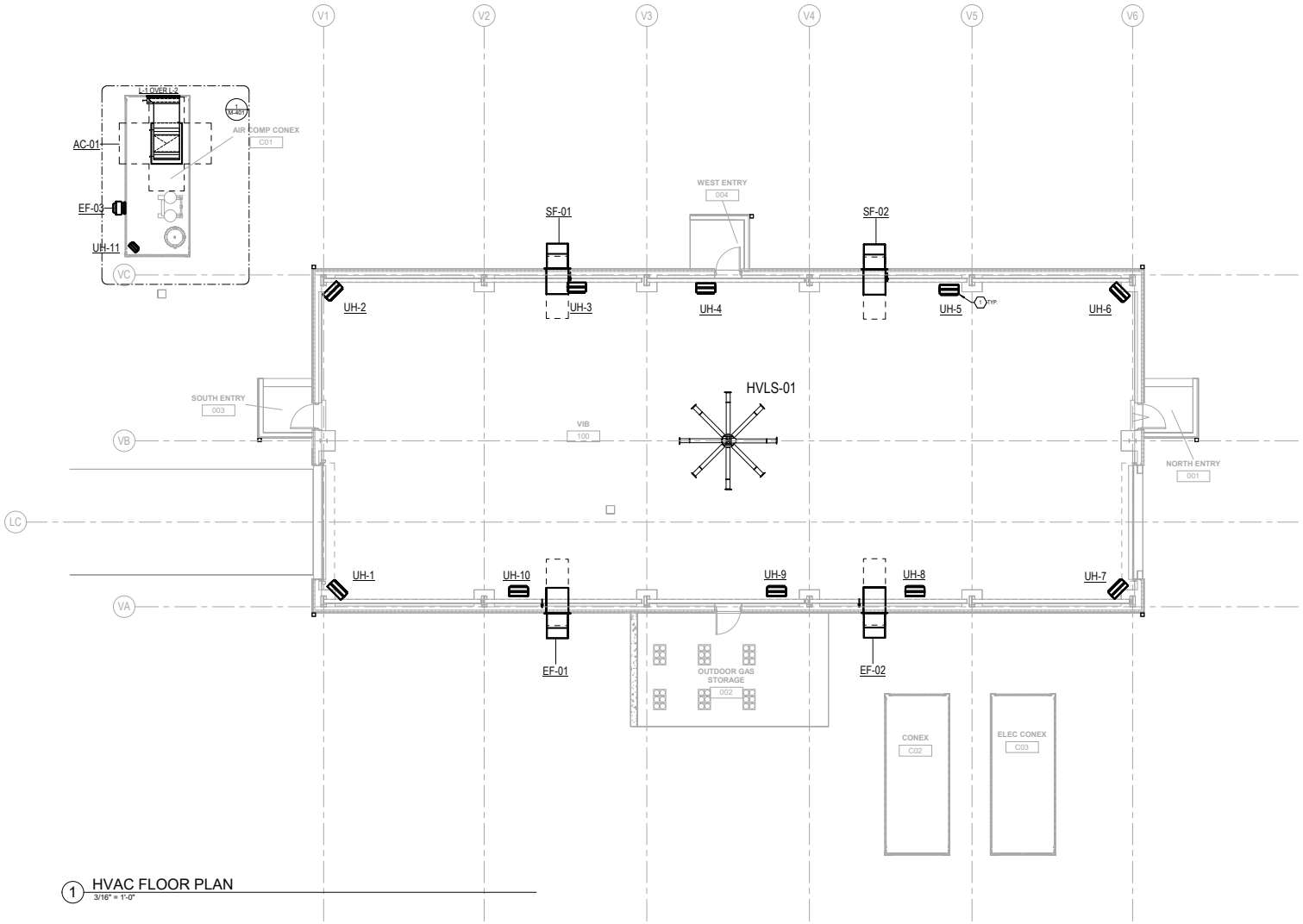
DRAWING NOTES:

1. SEE SHEET M-601 FOR EQUIPMENT SCHEDULES.

KEY NOTES:

1 DIRECT WIRE THERMOSTATS TO UNIT HEATERS UNDER UNIT.



1 HVAC FLOOR PLAN
3/16" = 1'-0"

0 4' 8' 16' 24'
1/8" = 1'-0"

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TITLE
HVAC FLOOR PLAN

DRAWING NO.
M-101

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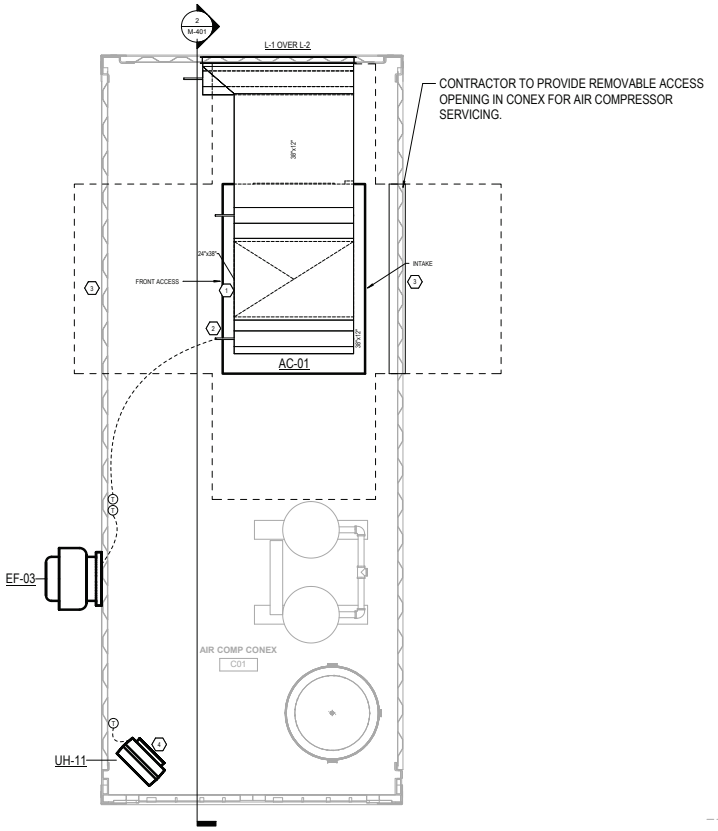
DRAWING NOTES:

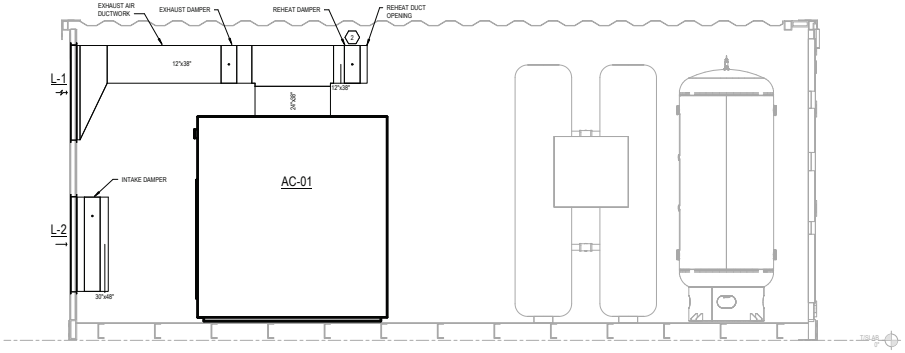
1. FOR LOUVER AND ACCESS PANEL OPENINGS, REFER TO ARCHITECHTURAL DETAILS FOR IMP PENETRATIONS.

KEY NOTES:

1. 38" x 24" EXHAUST DUCT, DIRECT CONNECTED TO COMPRESSOR AIR OUTLET.
2. THERMOSTATICALLY CONTROLLED RECIRCULATION LOUVER / DAMPER.
3. PROVIDE ACCESS DOOR TO COMPRESSOR MAINTENANCE.
4. UNIT HEATER UH-11 SHALL BE MOUNTED WITH BOTTOM OF HEATER 5'-0" AFF.



1 HVAC CONEX ENLARGED PLAN
3/4" = 1'-0"



2 HVAC CONEX SECTION
3/4" = 1'-0"

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TITLE
MECHANICAL ENLARGED PLANS

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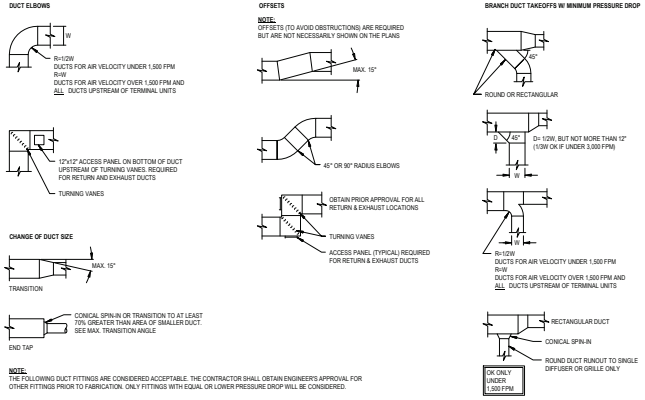
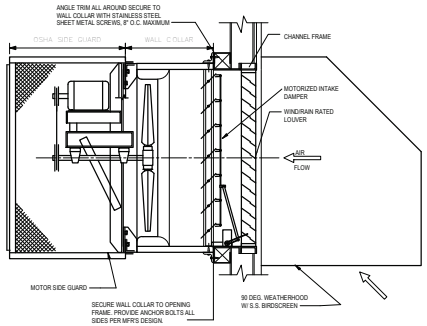


1 DUCT FITTING REQUIREMENTS DETAIL



2 VENTILATION WALL FAN DETAIL

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MECHANICAL DETAILS

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M-501

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LOUVER SCHEDULE

MARK	ASSOCIATED EQUIPMENT	MANUFACTURER	MODEL	TYPE	CFM	FREE AREA (FT^2)	FREE AREA VELOCITY (FT/MIN)	ESP (IN. W.C)	HEIGHT (IN.)	WIDTH (IN.)	DEPTH (IN.)	NOTES
L-1	AC-01	GREENHECK	ESD-365D	INTAKE	3,200	5.1	600	0.03	30	48	5	ALL
L-2	AC-01	GREENHECK	ESD-365D	EXHAUST	3,200	5.1	750	0.04	30	48	3	ALL

NOTES:
1. PROVIDE S.S. BIRDSCREEN AND INSECT SCREEN.
2. LOUVER TO BE AMCA 540 AND 550 RATED WITH DAMPER.
3. PROVIDE 2.4 MIL DFT OF BLACK ANODIZED ALUMINUM COATING.
4. PROVIDE WITH ACTUATED DAMPER.

FAN SCHEDULE

MARK	MANUFACTURER/MODEL NO.	TYPE	SERVICE	DRIVE	SUPPLY FAN		HP	ELECTRICAL		FLA	REMARKS
					SUPPLY FAN CFM	ESP (IN. WC)		VOLT	PH		
EF-01	GREENHECK BAER-24-02-0310	INLINE	EXHAUST	BELT	2000	0.25	1/3	208	3	2.4	1,2,3,4,6,7,8
EF-02	GREENHECK BAER-24-02-0310	INLINE	EXHAUST	BELT	2000	0.25	1/3	208	3	2.4	1,2,3,4,6,7,8
EF-03	GREENHECK CUE-070-D	WALL	EXHAUST	DRIVE	250	0.25	1/30	115	1	- -	1,2,3,6,8
SF-01	GREENHECK BAER-24-02-0310	INLINE	SUPPLY	BELT	2000	0.25	1/3	208	3	2.4	1,2,3,4,6,7,8
SF-02	GREENHECK BAER-24-02-0310	INLINE	SUPPLY	BELT	2000	0.25	1/3	208	3	2.4	1,2,3,4,6,7,8
HVLS-01	BAS 14' POWERFOIL	HVLS	CIRC	DRIVE	108721	-		480	3	10.0	1, 5,9

GENERAL NOTES:
1. EXHAUST FAN SHALL OPERATE THROUGH THE LINE VOLTAGE THERMOSTAT. REFER TO CONTROL DIAGRAM AND SEQUENCE OF OPERATIONS.
2. PROVIDE GRAVITY BACKDRAFT DAMPER.
3. PROVIDE BIRDSCREEN, DISCONNECT SWITCH
4. PROVIDE 90 DEGREE HOODS.
5. 4 FT EXTENSION TUBE
6. PROVIDE ACTUATED DAMPER.
7. PROVIDE LOUVER.
8. PROVIDE MOTOR STARTER.
9. PROVIDE VFD.

ELECTRIC UNIT HEATER SCHEDULE

MARK	MFG.	SERVICE	MODEL	CFM	MOUNTING HEIGHT	KW	VOLT/PHASE	REMARKS
UH-01, UH-02, UH-03, UH-04, UH-05, UH-06, UH-07, UH-08, UH-09, UH-10	MODINE	VIB	REZNOR	530	8 FT	20.0	480/3	1, 2
UH-11	MODINE	AC-01 CONEX	REZNOR	530	8 FT	3.0	480/3	1, 2

GENERAL NOTES:
1. PROVIDE WITH UNIT HEATING ONLY THERMOSTAT MOUNTED 2'-0" BELOW UNIT ON CONDUIT. SET TO 65F.
2.. PROVIDE FRONT STAMPED INLET AND OUTLET

ELECTRICAL COORDINATION

ALL 208/480 VOLT MECHANICAL EQUIPMENT ("DISCRETE UNITS" AND "PACKAGED SYSTEMS") SHALL BE PROVIDED COMPLETE WITH ELECTRICAL FEATURES AND COMPONENTS, ALL FULLY COMPATIBLE, INTEGRATED, AND (TO THE EXTENT POSSIBLE) PREWIRED TO MEET THE FOLLOWING CRITERIA:

1. SINGLE POINT ELECTRICAL CONNECTION (UNLESS NOT AVAILABLE AS A STANDARD PRODUCT).
2. INCOMING POWER LOCKABLE DISCONNECT FUSED SWITCH COMPLETE WITH CURRENT LIMITING FUSES, OR LOCKABLE CIRCUIT BREAKER, UNO.
3. NEMA RATED COMBINATION STARTER(S), VARIABLE SPEED DRIVE(S), CONTROLLER(S), CONTROL TRANSFORMER(S), OVERLOAD ELEMENTS, AND CONTROLS.
4. NEMA ENCLOSURE(S). UNO, NEMA 1 INDOORS, NEMA 3R OUTDOORS.
5. ALL DEVICES AND FEATURES DESCRIBED HEREIN MAY BE FURNISHED IN AN APPROVED COMMON ENCLOSURE, WHERE APPROPRIATE.
6. ALL ELECTRICAL EQUIPMENT SHALL MEET THE MINIMUM SCCR (SHORT CIRCUIT CURRENT RATING) INTERRUPTING CAPACITY AND MINIMUM WITHSTAND RATING AS LISTED IN THE TABLE BELOW.

UNIT INCOMING CIRCUIT BREAKER OR FUSED SWITCH REQUIREMENTS

NOMINAL VOLTAGE AND PHASE	MAX. NOMINAL CURRENT RATING	MAX. EQUIPMENT POWER RATING (HP / KVA)	MIN. SCCR INTERRUPTING CAPACITY (kAIC - KILO AMPERE INTERRUPTING CAPACITY)	MIN. WITHSTAND RATING
208V, 1 PHASE	30 A	5 HP / 5 KVA	10 kAIC	10 kA
208V, 3 PHASE	60 A	20 HP / 20 KVA	25 kAIC	25 kA
480V, 3 PHASE	20 A	15 HP / 15 KVA	10 kAIC	10 kA
480V, 3 PHASE	60 A	40 HP / 40 KVA	25 kAIC	25 kA
480V, 3 PHASE	600 A	400 HP / 400 KVA	65 kAIC	65 kA
480V, 3 PHASE	ABOVE 600 A	ABOVE 400 HP / 400 KVA	100 kAIC	100 kA

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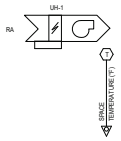


SEQUENCE OF OPERATION:

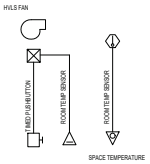
SYSTEM DESCRIPTION:

THE UNIT HEATER CONSISTS OF A ELECTRIC HEATER, SUPPLY AIR FAN, INTERNAL CONTROLS AND ALL ASSOCIATED APPURTENANCES AND DEVICES DEPICTED ON THE CONTROL SYSTEM DIAGRAM.

SYSTEM START-STOP:

UNIT IS STARTED AND STOPPED FROM WALL MOUNTED THERMOSTAT (SETPOINT = 50°F).

UNIT HEATER



HVLS FAN CONTROL

NTS HVLS-01

SYSTEM DESCRIPTION:

SEQUENCE OF OPERATION:

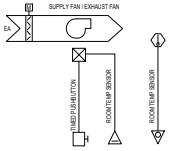
SYSTEM START-STOP:
UNIT IS STARTED AND STOPPED FROM WALL MOUNTED THERMOSTAT (SETPOINT = 70°F, ADJUSTABLE) OR THRU A MANUALLY OPERATED PUSH BUTTON TIMED SWITCH (SET FOR 1-HOUR, ADJUSTABLE).

DURING UNOCCUPIED HOURS, THE FANS WILL BE COMMANDED OFF.

MONITOR SPACE TEMPERATURE VIA THE THERMOSTAT SENSORS - SPACE TEMPERATURE SENSORS SHALL BE AVERAGED. UPON AVERAGE SPACE TEMPERATURE RISING ABOVE 70°F (ADJ.), FANS SHALL BE ENABLED, FAN
SPEED SHALL BE SET TO 50% (ADJ.) AND FAN ROTATIONS SHALL BE CLOCKWISE. AS AVERAGE SPACE TEMPERATURE RISES ABOVE 80°F (ADJ), FAN SPEED SHALL INCREASE PROPORTIONALLY TO 100% (ADJ.). SHOULD AVERAGE SPACE TEMPERATURE FALL BELOW 70°F (ADJ.), THE REVERSE SHALL OCCUR.
UPON AVERAGE SPACE TEMPERATURE FALLING BELOW 65°F (ADJ.), FANS SHALL BE ENABLED, FANS SPEED
SHALL BE SET TO 50% (ADJ.), AND FAN ROTATIONS SHALL BE COUNTER-CLOCKWISE. AS AVERAGE SPACE
TEMPERATURE FALLS TO 55°F (ADJ.), FAN SPEED SHALL INCREASE PROPORTIONALLY TO 100%. SHOULD THE AVERAGE SPACE
TEMPERATURE RISE ABOVE 65°F (ADJ.), THE REVERSE SHALL OCCUR.

ALARMS SHALL REQUIRE MANUAL RESET AT THE DEVICE.

MONITORING/TRENDING/LOGGING:
SYSTEM ALARM: AN ALARM IS SENT TO THE OPERATORS WORKSTATION IF THE ROOM TEMPERATURE DROPS BELOW 40°F.



FAN CONTROL

NTS SF-01,SF-02

SYSTEM DESCRIPTION: EF-01,EF-02

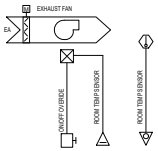
VIB VENTILATION SEQUENCE OF OPERATION:
VENTILATION OF THE VIB SPACE SHALL OPERATE BASED ON STATE OF MOTOR STARTER. THE INTAKE FAN SF-01, SF-02 AND EXHAUST FAN EF-01, EF-02 SHALL BE INTERLOCKED. FANS SHALL BE ON OR OFF BY MOTOR STARTER POSITION. IN AUTO MODE, FAN SHALL OPERATE BASED ON THERMOSTAT.

WHEN THE TEMPERATURE IN THE VIB ROOM EXCEEDS +10°F OVER AMBIENT TEMPERATURE; MAX TEMPERATURE IS 78°F DB (ADJ.).

DAMPERS:
DURING OCCUPIED HOURS, THE INTAKE DAMPER AND EXHAUST DAMPER SHALL OPEN.

THE INTAKE AND EXHAUST AIR DAMPERS MUST OPEN ANYTIME THE UNIT RUNS AND MUST CLOSE ANYTIME THE UNIT STOPS. THE FAN MUST START ONLY AFTER THE DAMPER STATUS HAS PROVEN THE DAMPER IS OPEN. THE INTAKE AND EXHAUST AIR DAMPERS MUST CLOSE 5 SEC (ADJ.) AFTER THE FANS STOP.

ALARMS MUST BE PROVIDED AS FOLLOWS:
IF FAN STATUS DOES NOT MATCH COMMAND.
INTAKE DAMPER POSITION DOES NOT MATCH COMMAND
EXHAUST DAMPER POSITION DOES NOT MATCH COMMAND
ALARMS SHALL REQUIRE MANUAL RESET AT THE UNIT



EXHAUST FAN CONTROL

NTS EF-03

SYSTEM DESCRIPTION:

THE VENTILATION SYSTEM SERVING THE AIR COMPRESSOR CONEX IS COMPRISED OF AN EXHAUST FAN, EXHAUST LOUVER AND ROOM THERMOSTAT MOTOR STARTER.

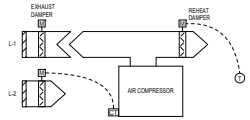
SYSTEM START-STOP:
MOTOR STARTER SHALL COMMAND MOTOR ON OR OFF. AUTO SHALL BE CONTROLLED BY THERMOSTAT

RUN CONDITIONS - THERMOSTAT:
EXHAUST FAN EF-03 SHALL OPERATE WHEN THE TEMPERATURE IN THE AIR COMPRESSOR ROOM EXCEEDS +10°F OVER AMBIENT TEMPERATURE; MAX TEMPERATURE IS 78°F DB (ADJ).

DAMPER:
THE EXHAUST AIR DAMPERS MUST OPEN ANYTIME THE UNIT RUNS AND MUST CLOSE ANYTIME THE UNIT STOPS. THE FAN MUST START ONLY AFTER THE DAMPER STATUS HAS PROVEN THE DAMPER IS OPEN. THE EXHAUST AIR DAMPERS MUST CLOSE 5 SEC (ADJ.) AFTER THE FAN STOPS.

FAN:
WHEN TEMPERATURE DROPS BELOW SETPOINT, THE REVERSE SHALL OCCUR

ALARMS:
IF FAN STATUS DOES NOT MATCH COMMAND.
EXHAUST DAMPER POSITION DOES NOT MATCH COMMAND
ALARMS SHALL REQUIRE MANUAL RESET AT THE UNIT.



AIR COMPRESSOR VENTILATION CONTROL DIAGRAM

NTS

COMPRESSOR VENTILATION SEQUENCE OF OPERATION:

RUN CONDITIONS - INTERLOCKED:

INTAKE DAMPER FOR L-2 SHALL BE INTERLOCKED WITH AND OPERATE WHEN THE AIR COMPRESSOR IS OPERATIONAL.
DURING OCCUPIED HOURS. L-2 DAMPER SHALL BE OPEN DURING OCCUPIED HOURS.

DAMPERS:
DURING OCCUPIED HOURS, INTAKE DAMPER L-2 SHALL BE OPEN.
WHEN AIR COMPRESSOR IS ACTIVATED, THE REHEAT DAMPER ON COMPRESSOR EXHAUST DUCTWORK SHALL OPEN. THE EXHAUST DAMPER CONNECTED TO L-1 REMAINS CLOSED. UPON A RISE ABOVE THE ROOM HEATING SETPOINT OF 68°F (ADJ), THE EXHAUST AIR DAMPER SHALL OPEN AND REHEAT DAMPER SHALL CLOSE. THE EXHAUST DAMPER MUST CLOSE 5 SEC (ADJ.) AFTER THE AIR COMPRESSOR STOPS.

ALARMS:
ALARMS MUST BE PROVIDED AS FOLLOWS:
IF LOUVER POSITION DOES NOT MATCH COMMAND.
EXHAUST DAMPER POSITION DOES NOT MATCH COMMAND

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S. NASH

PROJECT NUMBER
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DATE
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TITLE
MECHANICAL CONTROL DIAGRAMS

DRAWING NO.
M-701

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PLUMBING ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AS	ABOVE SLAB
AD	ACCESS DOOR
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
ALT	ALTERNATE
ANSI INSTITUTE	AMERICAN NATIONAL STANDARDS
AP	ACCESS PANEL
ASTM MATERIALS	AMERICAN STANDARDS TESTING
AWWA ASSOCIATION	AMERICAN WATER WORKS
BA	BREATHING AIR
BAS	BUILDING AUTOMATION SYSTEM
BFP	BACKFLOW PREVENTER
BF	BELOW FLOOR
BFF	BELOW FINISHED FLOOR
BG	BELOW GRADE
BHP	BREAK HORSEPOWER
BOP	BOTTOM OF PIPE
BS	BELOW SLAB
BTU	BRITISH THERMAL UNIT PER HOUR
CA	COMPRESSED AIR
CAP	CAPACITY
CD	CONDENSATE
CFH	CUBIC FEET PER HOUR
CO	CLEANOUT
CONN	CONNECTION
CONT	CONTINUE
CP	CIRCULATING PUMP
CW	DOMESTIC COLD WATER
DF	DRINKING FOUNTAIN
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
DW	DOMESTIC WATER
ECO	EXTERIOR CLEANOUT
EFF	EFFICIENCY
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATION
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EXIST	EXISTING
°F	DEGREES FAHRENHEIT
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FIN	FINISH
FL	FLOOR
FPS	FEET PER SECOND
FT	FEET
FU	FIXTURE UNITS
G	NATURAL GAS
GAL	GALLON(S)
GPM	GALLONS PER MINUTE
GR	GREASE WASTE
H_2O	WATER
HB	HOSE BIBB
HP	HORSEPOWER
HR	HOUR
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER CIRCULATION
HZ	HERTZ
IE	INVERT ELEVATION
ID	INTERNAL DIAMETER
IN	INCHES
IPS	INTERNATIONAL PIPE STANDARD
IRR	IRRIGATION WATER
IW	INDUSTRIAL WASTE
KW	KILOWATTS
LAV	LAVATORY
LF	LINEAR FEET
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MECH	MECHANICAL
MEZZ	MEZZANINE
MIN	MINIMUM
MNTG	MOUNTING
MS	MOP SINK
NA	NOT APPLICABLE
NC	NORMALLY CLOSED
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NSF	NATIONAL SANITATION FOUNDATION
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
ORWL	OVERFLOW RAIN WATER LEADER
PCT	PERCENT
PCW	PUMPED COLD WATER
PDI	PLUMBING DRAINAGE INSTITUTE
PH	PHASE
PIW	PUMPED INDUSTRIAL WASTE
PC	POINT OF CONNECTION
PPP	PRECISION PLUMBING PRODUCTS
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PSI	POUNDS PER SQUARE INCH
PW	PROCESS WATER
RM	ROOM
RPM	REVOLUTION PER MINUTE
RWL	RAIN WATER LEADER
S	SANITARY
S U/G	SANITARY UNDERGROUND
SCH	SCHEDULE
SEC	SECOND
SH	SHOWER
SHT	SHEET
SK	SINK
SL	SODA LINE
SOV	SHUT OFF VALVE
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSD	SUB SOIL DRAIN
ST	STORM
STO	STORM OVERFLOW
STD	STANDARD
STL	STEEL
STM	STEAM
STS	STORM SEWER
TDH	TOTAL DYNAMIC HEAD
TEMP	TEMPERATURE
TET	THERMAL EXPANSION TANK
TMV	THERMOSTATIC MIXING VALVE
TOP	TOP OF PIPE
TOS	TOP OF SLAB
TP	TRAP PRIMER
TYP	TYPICAL
UL	UNDERWRITER LABORATORY
U/G	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
V	VENT
V	VOLTS, VOLTAGE
VAC	VACUUM
VTR	VENT THROUGH ROOF
VIV	VALVE IN VERTICAL
VLV	VALVE
VOL	VOLUME
W	WATT (S)
W/	WITH
WC	WATER CLOSET
WCO	WALL CLEANOUT
WHA	WATER HAMMER ARRESTOR
WHY	WALL HYDRANT
WFU	WATER SUPPLY FIXTURE UNITS

PLUMBING LEGEND

SYMBOL	DESCRIPTION
CA	COMPRESSED AIR PIPING
CW	COLD WATER PIPING
PCW	PUMPED COLD WATER PIPING
HW	110° HOT WATER PIPING
HWC	HOT WATER CIRCULATING PIPING
G	NATURAL GAS PIPING
S	SANITARY DRAINAGE PIPING (ABOVE SLAB)
S U/G	SANITARY DRAINAGE PIPING (UNDERGROUND)
ST	STORM LEADER - PRIMARY
STO	STORM OVERFLOW LEADER - SECONDARY
ST U/G	STORM PIPING (UNDERGROUND)
V	VENT PIPING
CD	CONDENSATE PIPING
CD U/G	CONDENSATE PIPING (UNDERGROUND)
GR	GREASE PIPING
SSD	SUB SOIL DRAIN PIPING
IW	INDUSTRIAL WASTE PIPING
PIW	PUMPED INDUSTRIAL WASTE PIPING
PW	PROCESS WATER PIPING
CLV	CLEAN OUT VACUUM PIPING
HDV	HOLD DOWN VACUUM PIPING
OR	GATE VALVE
OR	BALL VALVE
OR	CIRCUIT SETTER VALVE
OR	CHECK VALVE
OR	PRESSURE REGULATING VALVE
OR	THERMOSTATIC MIXING VALVE
OR	BUTTERFLY VALVE
	GLOBE VALVE
	COMBINATION BALANCING/SHUTOFF VALVE
	RELIEF VALVE
	FLOW MEASUREMENT STATION
	Y-TYPE STRAINER
	PLUG VALVE
OR	CLEANOUTS
	PIPE END CAP
	PIPE TURNING DOWN
	PIPE TURNING UP
	PIPE TURNING DOWN (TEE)
	PIPING TEE
	ROLL DOWN
	P-TRAP
	FLOW ARROW
HB-2 OR WHY-2	HOSE BIBB / WALL HYDRANT
PDI-"7"	WATER HAMMER ARRESTER & SIZE
	THERMOMETER
	PRESSURE GAUGE
	CIRCULATING PUMP

GENERAL LEGEND

SYMBOL	DESCRIPTION
A 1	PLUMBING RISER DESIGNATION: A = RISER IDENTIFYING SYSTEM TYPE 1 = RISER IDENTIFYING SYSTEM NUMBER
A B SIM	SECTION SYMBOL: A = IDENTIFYING LETTER B = SHEET WHERE SECTION IS SHOWN SIM = SIMILAR (ONLY NOTED IF IT APPLIES)
A	TITLE SYMBOL ON SHEET WHERE SHOWN A = IDENTIFYING NUMBER/LETTER
1	REVISION CLOUD AND REVISION NUMBER
W1	KEYED REFERENCE NOTE OR SHEET NOTE
	POINT OF CONNECTION

NOT ALL SYMBOLS USED

COMPRESSED AIR SYSTEM SPECIFICATION

COMPRESSED AIR SYSTEM SPECIFICATION
THE CONTRACTOR SHALL PROVIDE A COMPLETE, FULLY FUNCTIONAL COMPRESSED AIR SYSTEM. THE SYSTEM SHALL SUPPLY 125 PSIG COMPRESSED AIR TO 5X (6) AIR STATIONS WITHIN THE VEHICLE INTEGRATION BUILDING USING A LOOP DISTRIBUTION CONFIGURATION.

THE PRIMARY SYSTEM COMPONENTS SHALL INCLUDE:
1. AIR COMPRESSOR: OIL-FREE, AIR-COOLED, ROTARY, FIXED SPEED COMPRESSOR RATED 150 CFM @ 125 PSIG.
2. AIR DRYER: NON-CYCLING, DESICCANT TYPE, RATED 200 CFM, COMPLETE WITH PREFILTER.
3. AIR RECEIVER: VERTICAL 200-GALLON VESSEL, MAXIMUM ALLOWABLE WORKING PRESSURE 200 PSIG @ 450°F.

PIPING MATERIALS AND INSTALLATION
1. ALL PIPING, FITTINGS, VALVES, AND ACCESSORIES SHALL BE SUITABLE FOR THE DESIGN PRESSURE AND TEMPERATURE OF THE SYSTEM.
2. PIPE MATERIAL: CARBON STEEL PIPE: ASTM A53/ASCM GRADE B, TYPE E OR S, BLACK FINISH, SCHEDULE 40 UNLESS NOTED OTHERWISE, DIMENSIONS PER ASME B36.10.
3. JOINTS: THREADED FOR FERROUS PIPING. USE PTFE THREAD TAPE CONFORMING TO ASTM D3308 FOR SEALING.
4. FITTINGS: CLASS 150 MALLEABLE IRON, ASTM A47, PER ASME B16.3.
5. COUPLINGS: SEAMLESS TYPE I (HOT-DIPPED GALVANIZED) CARBON STEEL PER ASTM A865 THREADED TO ASME B1.20.
6. VALVES: INSTALLED AS SHOWN OR WHERE REQUIRED. ORIENT STEMS HORIZONTALLY OR UPWARD.
7. PIPING PITCH:
   1. SUPPLY LINES – NOT LESS THAN 1" IN 40 FT IN DIRECTION OF FLOW.
   2. OTHER LINES – NOT LESS THAN 1" IN 40 FT TOWARD LOW-POINT DRAINS.
   3. DRIP LEGS: INSTALL AT ALL INDICATED LOW POINTS AND AS REQUIRED FOR DRAINAGE.
   4. BRANCH CONNECTIONS: PROVIDE AS SHOWN OR APPROVED TO ENSURE FULL DRAINAGE AND UNRESTRICTED FLOW. USE ECCENTRIC REDUCERS FOR HORIZONTAL SIZE CHANGES.
8. BELOW GRADE COMPRESSED AIR PIPING SHALL BE HDPE PE4710 IN ACCORDANCE WITH ASTM F714 AND AWWA C906, WITH CELL CLASSIFICATION ASTM D3350: 445574C OR BETTER, AND SHALL BE MANUFACTURER-RATED FOR COMPRESSED AIR SERVICE. MINIMUM PIPE RATING SHALL BE SDR 9. JOINTS SHALL BE MADE BY BUTT FUSION IN ACCORDANCE WITH ASTM F2620, WITH ELECTROFUSION PERMITTED WHERE REQUIRED, AND ALL FUSION WORK PERFORMED BY CERTIFIED TECHNICIANS WITH DOCUMENTED FUSION LOGS. INSTALLATION SHALL BE BELOW FROST DEPTH OR INSULATED; ABOVE-GROUND PIPING SHALL BE UV-RESISTANT AND DESIGNED TO ACCOMMODATE THERMAL EXPANSION AND CONTRACTION, WITH PROPER ANCHORAGE AND PROTECTION FROM MECHANICAL DAMAGE. FITTINGS SHALL BE PE4710 MOLDED OR FABRICATED HDPE, WITH MECHANICAL FITTINGS PERMITTED ONLY WHERE RATED FOR COMPRESSED AIR AND LOW-TEMPERATURE SERVICE. SYSTEM SHALL INCLUDE PRESSURE RELIEF VALVES, ISOLATION VALVES, AND PROVISIONS FOR CONTROLLED PRESSURIZATION, AND SHALL COMPLY WITH APPLICABLE CODES AND OWNER REQUIREMENTS FOR COMPRESSED AIR SYSTEMS.

PIPE SUPPORTS
1. SUPPORT ALL HORIZONTAL AND VERTICAL PIPING PER MSS SP-58 AND SP-69.
2. ALL HANGERS, RODS, BOLTS, AND HARDWARE SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123 AND ASTM A153.

VALVES AND INSTRUMENTATION
1. BALL VALVES (3" AND SMALLER): AS SHOWN ON SHEET M-602, TABLE 3.
2. PRESSURE GAUGE (AIR RECEIVER):
   A. MODEL: *ASHCROFT TYPE 1009* STAINLESS STEEL CASE, 3½" DIAL, ½" NPT MALE PROCESS CONNECTION.
      ORDERING CODE: *351009 SW L 09 L 200#.*
   B. GAUGE VALVE: *ASHCROFT* WITH ½" NPT MALE PROCESS AND ½" NPT FEMALE INSTRUMENT CONNECTIONS.
      ORDERING CODE: *04 V01 1VA SS 50.*

AIR COUPLINGS (QUICK DISCONNECTS)
1. ONE-WAY SHUTOFF TYPE WITH AUTOMATIC SOCKET-END CLOSURE.
2. PLUG SHALL SWIVEL FREELY WHEN CONNECTED.
3. MATERIALS: SOCKET MACHINED FROM SOLID BRASS BAR; LOCKING PAWLS, SLEEVE SPRING, AND VALVE SPRING SHALL BE STAINLESS STEEL.

EQUIPMENT REQUIREMENTS
1. AIR COMPRESSOR, AIR DRYER, AND AIR RECEIVER: INSTALL AS SHOWN ON DRAWINGS OR PROVIDE APPROVED EQUALS.
2. AIR RECEIVER CONSTRUCTION:
   1. FABRICATE, INSPECT, AND ASME CODE-STAMP PER ASME SECTION VIII, DIVISION 1.
   2. MINIMUM CONNECTIONS:
      - (2) 3" NOZZLES (INLET/OUTLET – NS)
      - (1) 1" LOW-POINT DRAIN NOZZLE (N3) WITH NO-LOSS DRAIN VALVE
      - (1) 1" SAFETY RELIEF VALVE NOZZLE (N3 TOP)
   3. ALL CONNECTIONS SHALL BE FEMALE NPT.
   4. COATINGS: PRIMER (INTERIOR AND EXTERIOR); EXTERIOR ENAMEL; INTERIOR EPOXY, PER MANUFACTURER'S RECOMMENDATIONS.

CLEANING AND TESTING
1. CLEANING: BLOW OUT PIPING WITH COMPRESSED AIR BEFORE TESTING TO REMOVE ALL DEBRIS.
2. AIR TIGHTNESS TEST:
   1. TEST SYSTEM (OR ISOLATABLE SECTIONS) AT 125 PSIG FOR A MINIMUM OF 8 HOURS.
   2. ISOLATE FROM COMPRESSORS AND EXTERNAL AIR SOURCES DURING TESTING.
   3. CORRECT FOR ATMOSPHERIC CHANGES USING THE RELATIONSHIP

      WHERE = ABSOLUTE TEMPERATURE AND = ABSOLUTE PRESSURE.
   4. ACCEPT TEST ONLY IF NO PRESSURE LOSS AFTER CORRECTIONS.
   5. TEST INSTRUMENTS MUST BE APPROVED BY THE OWNER AND AVAILABLE FOR INSPECTION THROUGHOUT TESTING.

PLUMBING GENERAL NOTES

1. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH 2023 BUILDING CODE - PLUMBING.
2. PROVIDE ACCESS PANELS WHERE NECESSARY. (12"X12" MIN.)
3. ALL LOCATIONS OF EQUIPMENT, FLOOR DRAINS, PIPING, ETC., INDICATED ON THE DRAWINGS ARE DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE TO THE PLANS SUBJECT TO BUILDING CONSTRUCTION AND INTERFERENCES WITH OTHER TRADES. ALL WORK SHALL BE INSTALLED TO INSURE MAXIMUM HEADROOM, BALANCED OPERATION AND SUITABLE AESTHETIC APPEARANCE. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY FIELD MEASUREMENTS AND DIMENSIONING REQUIRED TO PROVIDE AN APPROVED AND FUNCTIONAL INSTALLATION AND SUBMIT TO ENGINEER FOR REVIEW ON SHOP DRAWINGS. VENT PIPING SHOWN IS ONLY FOR DIAGRAMMATIC PURPOSES. COORDINATE VTRS WITH HVAC AIR INTAKES.
4. SIZE CLEANOUTS TO MATCH THE PIPING SERVED.
5. THE MANUFACTURERS OF EQUIPMENT SHOWN ARE THE BASIS OF DESIGN AND ARE THE OWNER'S PREFERRED MANUFACTURER OF CHOICE. SEE SPECIFICATION FOR OTHER ACCEPTABLE MANUFACTURERS.
6. COORDINATE UNDERGROUND PIPING INVERT ELEVATIONS WITH STRUCTURAL FOOTING ELEVATIONS AND CIVIL INVERT CONNECTIONS PRIOR TO ANY UNDERGROUND PIPING INSTALLATIONS. IF FOOTINGS ARE IN CONFLICT AND WHERE A PIPING ROLL DOWN IS NOT POSSIBLE, COORDINATE WITH GENERAL CONTRACTOR FOR DROPS IN FOOTING AS REQUIRED.
7. SLOPE SANITARY PIPING 2-1/2" OR LESS AT 1/4" PER FOOT. SLOPE SANITARY PIPING 3" AND LARGER AT 1/8" PER FOOT.
8. VALVES AND FITTINGS SHALL BE THE SAME SIZE AS THE PIPING WHERE THEY ARE LOCATED UNLESS NOTED OTHERWISE.
9. ROUGH-IN WASTE AND WATER SUPPLIES FOR FIXTURES AND PERFORM FINAL CONNECTIONS AS NEEDED.
10. THE CONTRACTOR SHALL BASE HIS/HER PROPOSAL UPON THE EQUIPMENT AS SCHEDULE OR SPECIFIED, USING THE MANUFACTURERS AND MODEL NUMBERS AS CALLED FOR IN THE SPECIFICATIONS AND SCHEDULED ON THE DRAWINGS. IF MORE THAN ONE MANUFACTURE OF EQUIPMENT IS SPECIFIED, ANY ONE OF THE MANUFACTURERS OF EQUIPMENT MAY BE USED IN THIS CONTRACTOR'S PROPOSAL. IF THE CONTRACTOR WISHES TO USE EQUIPMENT NOT SPECIFIED HE/SHE MUST, AT THE TIME OF BIDDING, SUBMIT SEPARATELY ON LETTERHEAD STATIONARY OF THE BIDDER, THE EQUIPMENT HE/SHE WOULD SUBSTITUTE AND THE COST TO BE ADDED OR TO BE DEDUCTED FROM HIS/HER PROPOSAL.
11. COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES.
12. ALL AUTOMATIC CONTROL, PROTECTIVE OR SIGNAL DEVICES REQUIRED FOR THE OPERATION SPECIFIED, SHALL BE PROVIDED WITH ANY CONTROL WIRING AND INSTALLED PER MANUFACTURERS REQUIREMENTS.
13. SANITARY AND VENT PIPING SHALL BE SERVICE-WEIGHT NO-HUB CAST IRON, SCHEDULE 40 PVC, OR SCHEDULE 40 ABS DWV PIPE AS PERMITTED BY CODE AND APPROVED BY THE OWNER. ABOVEGROUND RISERS SHALL BE SERVICE-WEIGHT NO-HUB CAST IRON UNLESS PVC OR ABS IS SPECIFICALLY APPROVED. SANITARY PIPING BELOW-GRADE SHALL BE SCHEDULE 40 SOLID-CORE PVC PIPE ASTM D2665 OR SCHEDULE 40 ABS ASTM D2661.
14. PROVIDE DIELECTRIC UNIONS AT ALL DISSIMILAR PIPE CONNECTIONS.
15. PROVIDE AN AIR GAP, WHEN REQUIRED BY CODE, SERVING INDIVIDUAL FIXTURES, DEVICES, APPLIANCES AND APPARATUS.
16. INSTALL LATERAL BRACING WITH PIPE HANGERS AND SUPPORTS TO PREVENT SWAYING.
17. ALL MISCELLANEOUS IRON AND STEEL WORK REQUIRED TO PROPERLY INSTALL THE PLUMBING WORK, FIXTURES AND EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. WORK INCLUDES ALL HANGERS, SUPPORTS, RACKS, BRACKETS AND ANY WELDING REQUIRED. ALL MISCELLANEOUS METAL EXPOSED TO THE WEATHER SHALL BE GALVANIZED.
18. PLUMBING CONTRACTOR SHALL COORDINATE/VERIFY ALL FIXTURES AND EQUIPMENT CONNECTIONS AND ELEVATIONS PRIOR TO CONSTRUCTION. PROVIDE ALL NECESSARY APPURTENANCES (INCLUDING BUT NOT LIMITED TO SHUT-OFF VALVES, QUICK CONNECTS, FLEXIBLE TUBING, REGULATORS, GAUGES, FILTERS, DRAINS, COUPLERS, REDUCERS, NIPPLES, DIELECTRIC UNIONS, ETC.) FOR A COMPLETE AND FUNCTIONAL SYSTEM. ALL FIXTURES AND EQUIPMENT SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.

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S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
ABBREVIATIONS, LEGEND AND GENERAL NOTES

DRAWING NO.
P-001

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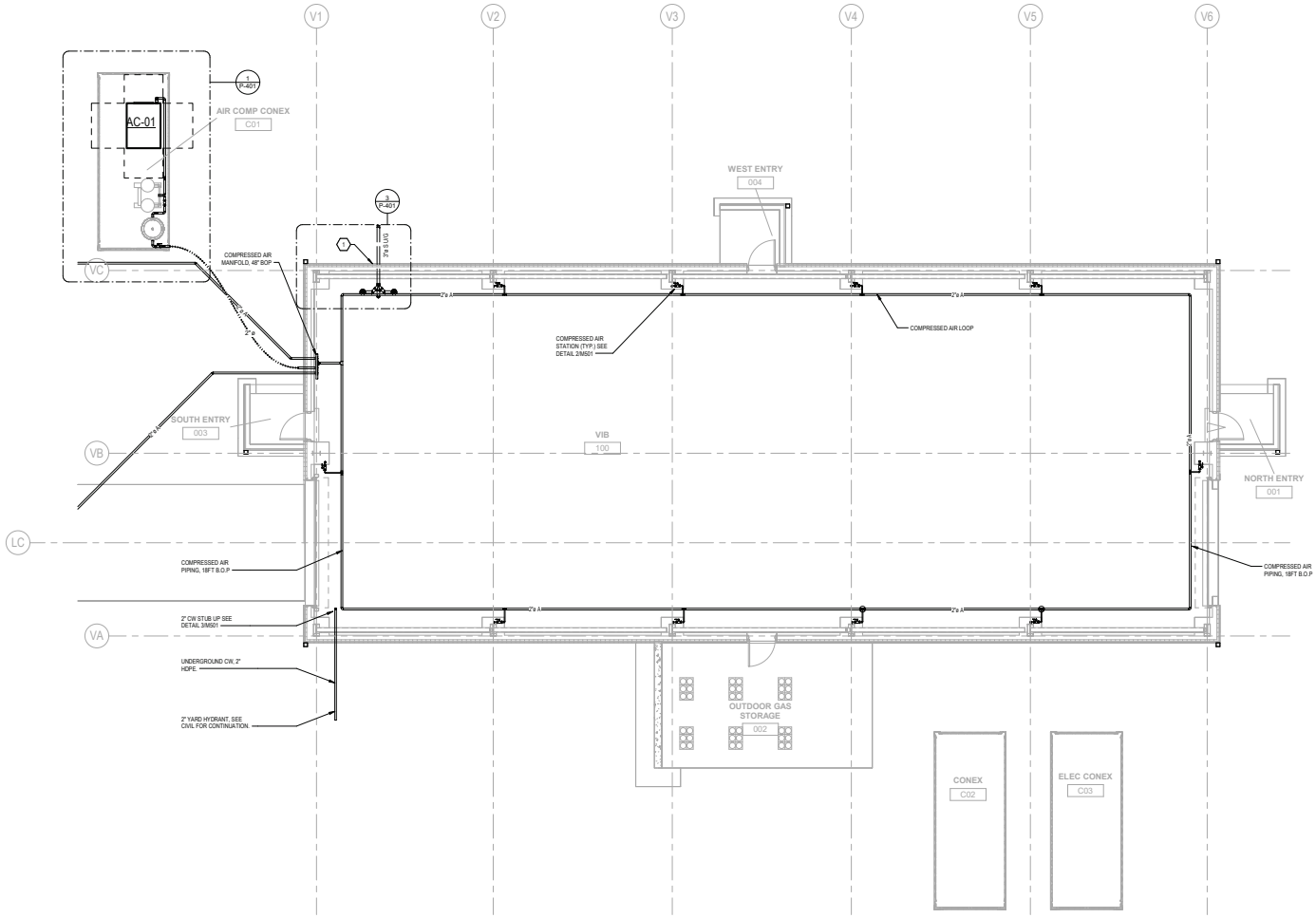
DRAWING NOTES:

1. 2" COMPRESSED AIR LOOP ROUTED AT 18' B.O.P.
2. COMPRESSED AIR SYSTEM AND EQUIPMENT SIZED TO DELIVER 150 CFM AT 125 PSI
3. COMPRESSED AIR EQUIPMENT SELECTION PROVIDED BY SULLAIR. ATLAS COPCO IS ANOTHER QUALIFIED COMPRESSOR MANUFACTURER WHO CAN PROVIDE "OR" EQUAL EQUIPMENT.

KEYED NOTES

1. SEAL PIPE PENETRATION WEATHER TIGHT



1 COMPRESSED AIR FLOOR PLAN
3/16" = 1'-0"

0 4' 8' 12' 16'
3/16" = 1'-0"

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DATE
05/08/2026

TITLE
PLUMBING PLAN

DRAWING NO.
P-101

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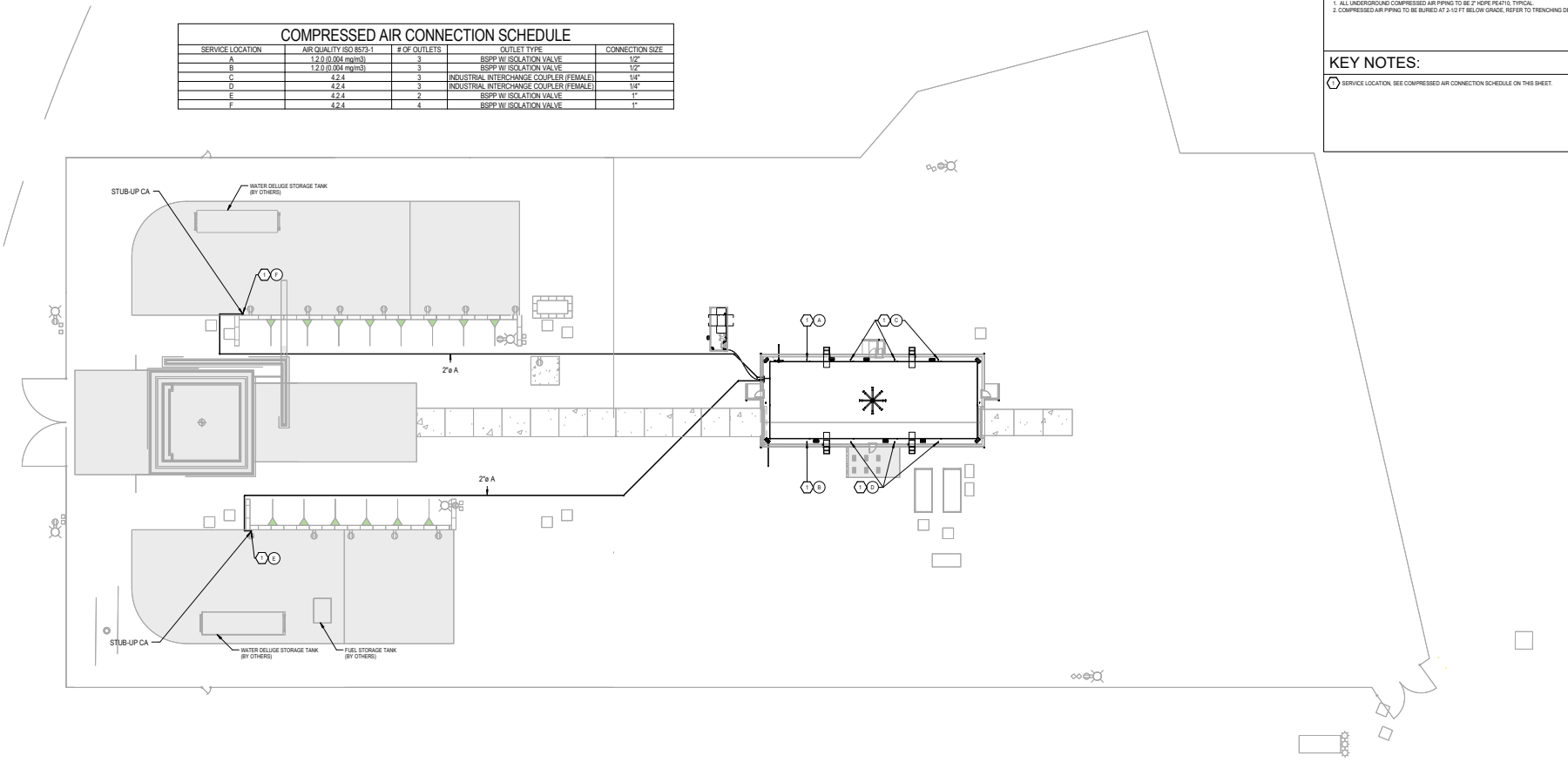
COMPRESSED AIR CONNECTION SCHEDULE

SERVICE LOCATION	AIR QUALITY ISO 8573-1	# OF OUTLETS	OUTLET TYPE	CONNECTION SIZE
A	1.2.0 (0.004 mg/m3)	3	BSPP W/ ISOLATION VALVE	1/2"
B	1.2.0 (0.004 mg/m3)	3	BSPP W/ ISOLATION VALVE	1/2"
C	4.2.4	3	INDUSTRIAL INTERCHANGE COUPLER (FEMALE)	1/4"
D	4.2.4	3	INDUSTRIAL INTERCHANGE COUPLER (FEMALE)	1/4"
E	4.2.4	2	BSPP W/ ISOLATION VALVE	1"
F	4.2.4	4	BSPP W/ ISOLATION VALVE	1"



1 COMPRESSED AIR SITE PLAN
1" = 20'-0"

DRAWING NOTES:

1. ALL UNDERGROUND COMPRESSED AIR PIPING TO BE 2" HDPE PE4710, TYPICAL.
2. COMPRESSED AIR PIPING TO BE BURIED AT 2-1/2 FT BELOW GRADE, REFER TO TRENCHING DETAIL.

KEY NOTES:

1 SERVICE LOCATION, SEE COMPRESSED AIR CONNECTION SCHEDULE ON THIS SHEET.

0 10' 20' 40' 60'
1" = 20'

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DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
49TH
DANIEL QUINONES
No.245438
PROFESSIONAL ENGINEER

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DANIEL QUINONES
AK PE 245438

DESIGNED BY
D. QUINONES

DRAWN BY
S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SITE PLAN

DRAWING NO.
P-121

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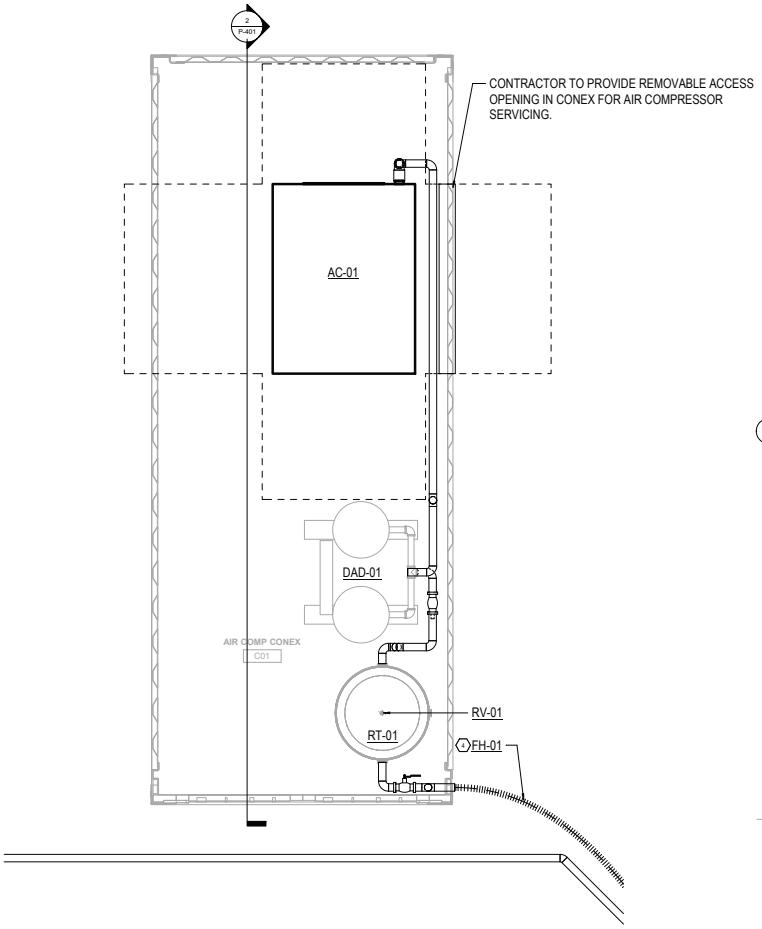
DRAWING NOTES:

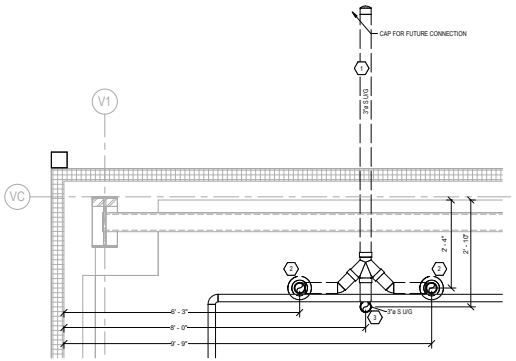
1.

KEYED NOTES

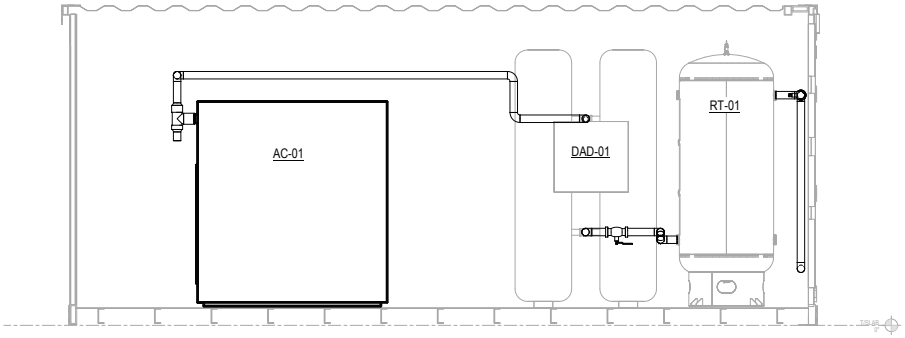
1. 2" PVC, EXTEND 5FT FROM BUILDING. 4FT INVERT ELEVATION.
2. STD. 3" TOILET FLANGE. TYP.
3. 3" SANITARY RISER FEMALE, FLUSH WITH FLOOR.
4. FLEXIBLE COMPRESSED AIR HOSE, SEE FLEXIBLE HOSE SCHEDULE FOR SPECIFICATIONS.



1 CONDENSED AIR CONEX ENLARGED PLAN
3/4" = 1'-0"



3 SANITARY ENLARGED PLAN
3/4" = 1'-0"



2 CONDENSED AIR CONEX SECTION
3/4" = 1'-0"

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

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
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DANIEL QUINONES
No.245438
PROFESSIONAL ENGINEER

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DESIGNED BY
D. QUINONES

DRAWN BY
S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
PLUMBING ENLARGED PLANS

DRAWING NO.
P-401

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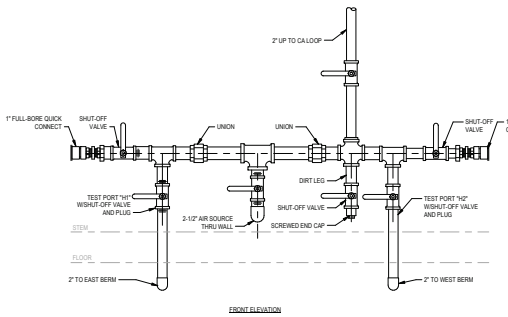
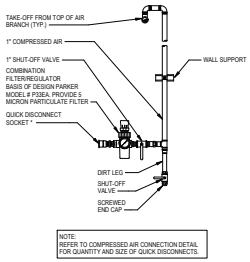
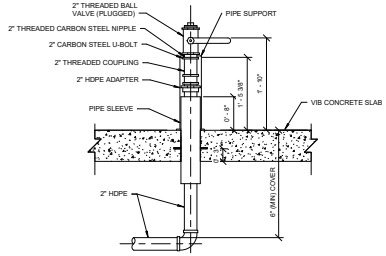


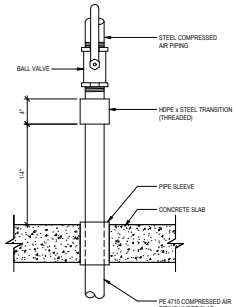
1 CA MANIFOLD DETAIL



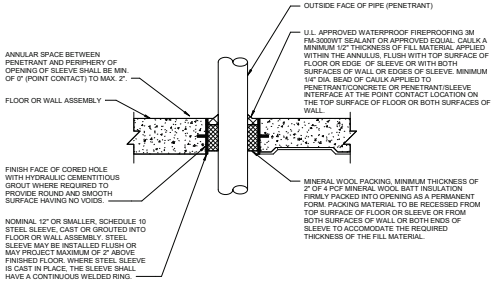
2 COMPRESSED AIR QUICK DISCONNECT



3 CW STUB UP DETAIL

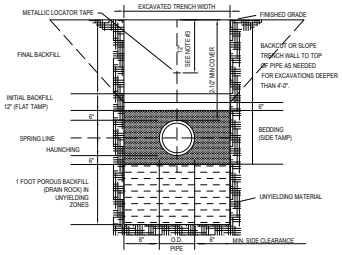


5 UNDERSLAB CA STEEL TO PE 4710 TRANSITION FITTING



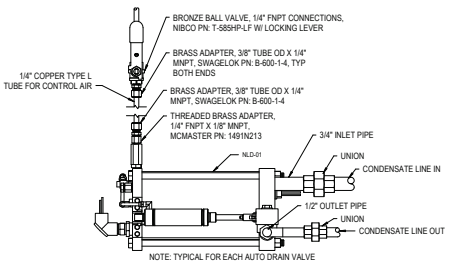
NOTES:
1. MINIMUM 2-1/2" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE FLOORS OR 3" THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT CONCRETE WALLS.
2. ALL SEALANTS SHALL BE APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. SURFACE OF PIPE, INSULATION AND CONCRETE SHALL BE FREE OF MOISTURE AND DUST PRIOR TO APPLICATION OF SEALANT.
3. REFER TO U.L. SYSTEM C-A-J-1427 (OR SIMILAR) FOR CAVITY WALL PENETRATIONS. FOR EXPOSED PENETRATIONS, REFER TO U.L. SYSTEM C-AJ-1473 (OR SIMILAR) WITH F AND T RATING EQUAL TO OR GREATER THAN THE FLOOR SYSTEM.
4. PENETRANT (PIPE, TUBING, OR CONDUIT) SHALL BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR PER CODE REQUIREMENTS.

4 PIPE PENETRATION DETAIL FOR NON-INSULATED PIPING

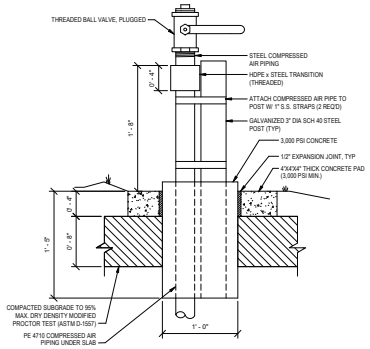


NOTES:
1. FOR TRENCHES REQUIRING SHEETING, SHORING, STAY BRACING, TRENCH JACKS, OR TRENCH BOX, DIMENSIONS SHALL BE TAKEN FROM THE INSIDE FACE OF THE SUPPORTS.
2. IF THE MAX. TRENCH WIDTH MUST BE EXCEEDED OR IF THE PIPE IS INSTALLED IN A COMPACTED EMBANKMENT, THEN PIPE EMBEDMENT SHOULD BE COMPACTED TO A POINT OF AT LEAST 2.5 x PIPE DIA FROM THE PIPE ON BOTH SIDES OF THE PIPE OR TO THE TRENCH WALLS, WHICHEVER IS LESS.
3. METALLIC LOCATOR TAPE AND COPPER TRACING WIRE SHALL BE USED ABOVE ALL BURIED UTILITIES. TAPE SHALL BE 12" MINIMUM ABOVE UTILITY.

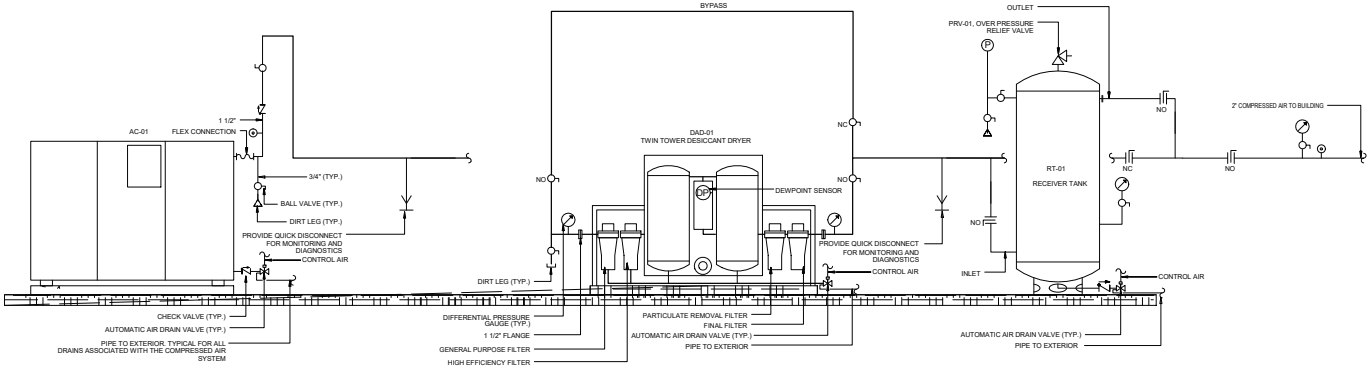
6 TYPICAL TRENCH DETAIL



7 AUTOMATIC AIR DRAIN VALVE CONNECTION DETAIL



8 EXTERIOR CA DETAIL
N.T.S



9 COMPRESSED AIR SCHEMATIC

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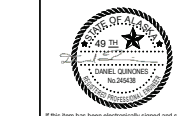

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S. NASH

PROJECT NUMBER
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TITLE
PLUMBING DETAILS

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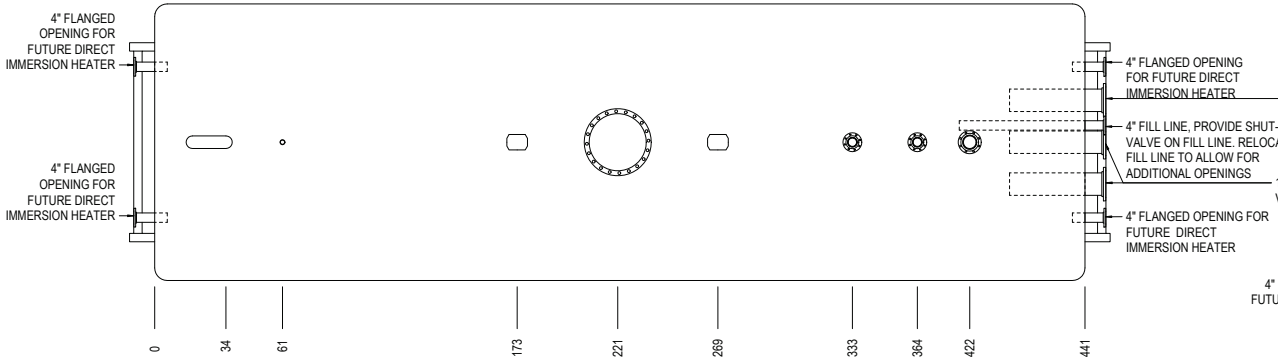
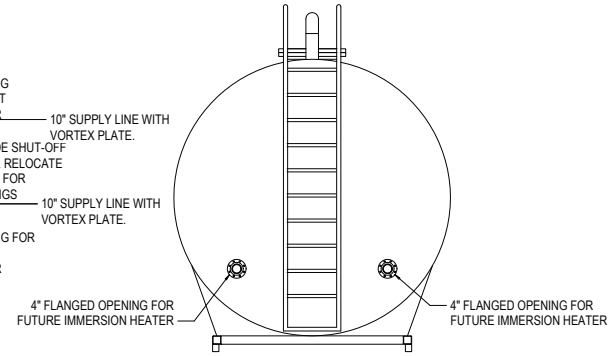
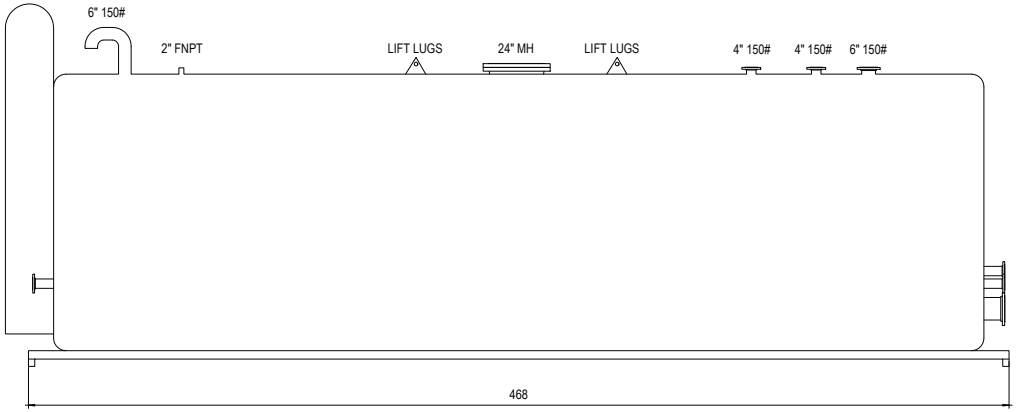


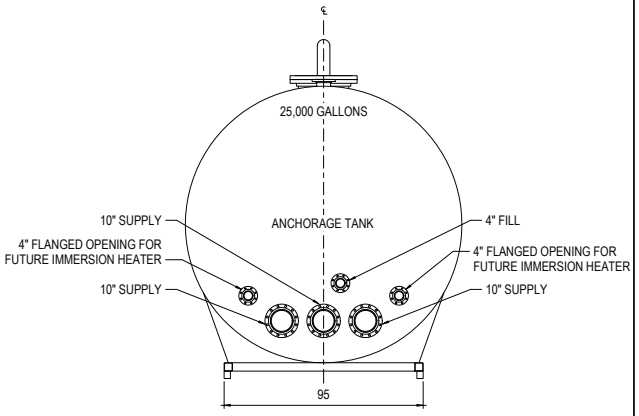
1 25,000 GALLON WATER STORAGE TANK - TOP



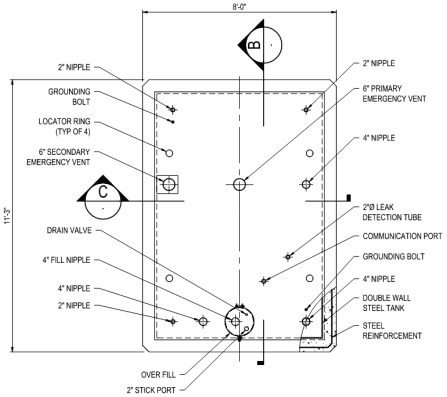
2 25,000 GALLON WATER STORAGE TANK - LEFT END



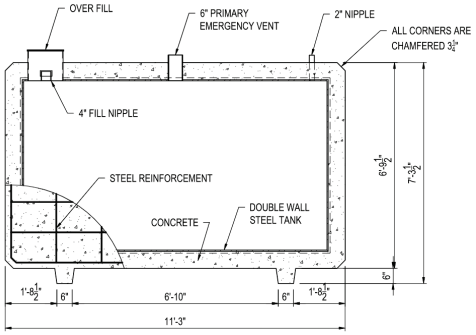
3 25,000 GALLON WATER STORAGE TANK - SIDE



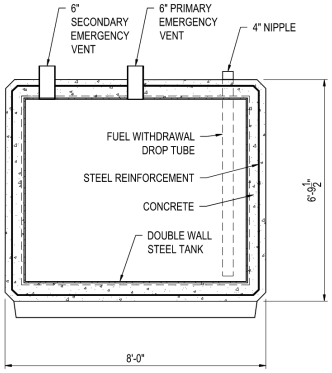
4 25,000 GALLON WATER STORAGE TANK - RIGHT END



5 FUEL TANK PLAN



6 FUEL TANK SECTION B



END VIEW

7 FUEL TANK SECTION C

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DANIEL QUINONES
AK PE 245438

DESIGNED BY
D. QUINONES

DRAWN BY
S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
PLUMBING TANK DETAILS

DRAWING NO.
P-502

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AIR COMPRESSOR SCHEDULE

UNIT NO.	LOCATION	COMPRESSOR TYPE	MAKE	MODEL	MAX. OPERATING PRESSURE (PSIG)	OUTPUT (SCFM)	CONNECTION SIZE AND TYPE	DRAIN CONNECTION (INCHES)	ELECTRICAL					DIMENSIONS (W" x D" x H")	WEIGHT (LBS.)	NOTES
									HP	kW	VOLTS	PH	HZ			
AC-01	CONEX	OIL FREE ROTARY SCREW WATER COOLED - AIR COMPRESSOR	SULLAIR	DSP3709AY	125	166	1.5" NPT	1/2"	50	37	460	3	60	60.3 x 45.3 x 65	2650	1,2

NOTES - COMPRESSORS SHALL BE PROVIDED WITH THE FOLLOWING:
1. ISO 8573-1 Class 0 OIL FREE
2. FIXED SPEED COMPRESSOR

RECEIVER TANK SCHEDULE

UNIT NO.	LOCATION	CAPACITY (GAL)	MAX. OPERATING PRESSURE (PSIG)	INLET SIZE & TYPE CONNECTION	DRAIN CONNECTION	OVERALL DIMENSIONS	BASIS OF DESIGN	WEIGHT (LBS)	NOTES
RT-01 (DRY)	CONEX	200	200	2" NPT	1" FNPT	30" Ø x 80"H	MANCHESTER TANK	533	1, 2, 3, 4, 5, 6

NOTES:
1. TANK SHALL BE EPOXY PAINTED.
2. PROVIDE PRESSURE GAUGE.
3. PROVIDE SAFETY VALVE PER RELIEF VALVE SCHEDULE, RV-01.
4. PROVIDE PNEUMATIC NO LOSS DRAIN VALVE KIT.
5. PROVIDE STANDARD FACTORY WARRANTY.
6. PROVIDE ANCHOR UNIT TO HOUSEKEEPING PAD PER MANUFACTURER'S RECOMMENDATIONS.

PRESSURE RELIEF VALVE SCHEDULE

TAG	LOCATION	TYPE	SERVICE	MANUFACTURER	MODEL	SET PRESSURE (PSIG)	MINUMUM RELIEVING CAPACITY (SCFM) @ SET PRESSURE	BODY MATERIAL	SEAT MATERIAL	CONNECTION SIZE (IN) & TYPE	NOTES
PRV-01	CONEX	SPRING LOADED	AIR	MCMASTER-CARR	98905K188	200	180	303 SS	303 STAINLESS STEEL	1/2" MNPT	ALL

NOTES:

1. RELIEF VALVE SHALL BE DESIGNED, CONTRUCTED, TESTED, AND CERTIFIED IN ACCCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE (BPVC) SECTION VIII, DIVISION 1, INCLUDING COMPLIANCE WITH PARAGRAPH UG-125 THROUGH UG-137, AS APPLICABLE.

2. RELIEF VALVES SHALL BE PRE-SET FROM MANUFACTURER.

3. RELIEF VALVE SHALL BE PROCURED WITH A CERTIFICATE OF COMPLIANCE INCLUDING FUNCTIONAL TEST DATE WITH TEST PRESSURE.

4. METAL TAGS SHALL INCLUDE THE FOLLOWING INFORMATION: SET PRESSURE, DATE OF CERTIFICATION OF COMPLIANCE, DUE DATE (5 YEARS), MANUFACTURER, AND MODEL NUMBER.

DESICCANT DRYER SCHEDULE

UNIT NO.	LOCATION	TYPE	BASIS OF DESIGN	CAPACITY (SCFM)	MAX. OPERATING PRESSURE (PSIG)	DEW POINT (°F)	INLET/OUTLET SIZE & TYPE CONNECTION	DESICCANT/VESSEL (LBS)	ELECTRICAL			DIMENSIONS (D" x W" x H")	WEIGHT (LBS.)	NOTES
									VOLTS	PH	HZ			
DAD-01	CONEX	DESICCANT DRYER	SA200	200	150	-40	1-1/2" NPT	172	120	1	60	36" x 52" x 86"	692	1-2

NOTES:
1. BASED ON 100 PSIG, 100°F INLET AIR, 100°F AMBIENT.
2. PROVIDE WITH PNEUMATIC NO-LOSS DRAIN VALVE.

COMPRESSED AIR FILTER SCHEDULE

TAG	LOCATION	TYPE	SERVICE	MANUFACTURER	MODEL	CAPACITY (SCFM)	INLET / OUTLET CONNECTIONS...	MICRON RATING	MAWP (PSIG)	DIMENSIONS (W"X H")	WEIGHT (LBS)	NOTES
FL-01	CONEX	GENERAL PURPOSE	COMPRESSED AIR	SULLAIR	SFGP 233	233	1 1/2" MPT / 1 1/2" MPT	1	232	6.5" X 14.5"	6.6	1-3
FL-02	CONEX	HIGH EFFICIENCY	COMPRESSED AIR	SULLAIR	SFFP 233	233	1 1/2" MPT / 1 1/2" MPT	0.01	232	6.5" X 14.5"	6.6	1-3
FL-01	CONEX	GENERAL PURPOSE	COMPRESSED AIR	SULLAIR	SFGP 233	233	1 1/2" MPT / 1 1/2" MPT	1	232	6.5" X 14.5"	6.6	1-3
FL-02	CONEX	HIGH EFFICIENCY	COMPRESSED AIR	SULLAIR	SFFP 233	233	1 1/2" MPT / 1 1/2" MPT	0.01	232	6.5" X 14.5"	6.6	1-3

NOTES:
1. PROVIDE WITH DIFFERENTIAL PRESSURE INDICATOR AND AUTOMATIC DRAIN VALVE.
2. CODE STAMPED VESSEL PER ASME BPVC SECTION VIII, DIV I.
3. PROVIDE WITH (1) SPARE FILTER ELEMENTS, PER FILTER.

FLEX HOSE SCHEDULE

TAG	LOCATION	MATERIAL	SERVICE	MANUFACTURER	MODEL	TEMPERATURE RATING (°F)	HOSE DIA ID / OD	INLET / OUTLET CONNECTIONS SIZE (IN) & TYPE	MAWP (PSIG)	FITTING MATERIAL	NOTES
FH-01	CONEX TO BUILDING	EPDM	COMPRESSED AIR	MCMASTER-CARR	5138K999	-40 TO 200	2" / 2 1/2"	2" MNPT / 2" FNPT	200	BRASS	1-4

NOTES:
1. PROVIDE 25' LENGTH.
2. PROVIDE HOSE COLOR BLACK.
3. PROVIDE WITH (1) FEMALE SWIVEL END.
4. FOR OUTDOOR USE.

STORAGE TANKS

UNIT NO.	LOCATION	DESIGNATION	NOMINAL CAPACITY (GAL)	BASIS OF DESIGN	REFERENCE DWG NO.	TANK DIMENSIONS	DRY WEIGHT (LBS)	NOTES
TK-01	EAST COMMODITY PAD	WATER DELUGE STORAGE TANK	25,000	ANCHORAGE TANK	RHC21H2025M	132" DIA X 444" L	19,500	PROVIDED BY OTHERS
TK-02	WEST COMMODITY PAD	WATER DELUGE STORAGE TANK	25,000	ANCHORAGE TANK	RHC21H2025M	132" DIA X 444" L	19,500	PROVIDED BY OTHERS
TK-03	EAST COMMODITY PAD	FUEL STORAGE TANK	3,000	CORE ENGINEERED SOLUTIONS	CONVAULT, UL-2085	135" L X 96" W X 81.5" H	38,200	PROVIDED BY OTHERS

AUTOMATIC DRAIN VALVE SCHEDULE

TAG	LOCATION	TYPE	MANUFACTURER	MODEL	MAWP (PSIG)	RATED COMPRESSOR FLOW (CFM)	INLET / OUTLET CONNECTIONS (NPT)	NOTES
NLD-01	CONEX COMPRESSOR	PNEUMATIC AUTOMATIC DRAIN	INGERSOLL RAND	PNLD II 28 LP	300	30,000	3/4" X 1/2"	ALL
NLD-02	CONEX DRYER	PNEUMATIC AUTOMATIC DRAIN	INGERSOLL RAND	PNLD II 28 LP	300	30,000	3/4" X 1/2"	ALL
NLD-03	CONEX RECEIVER TANK	PNEUMATIC AUTOMATIC DRAIN	INGERSOLL RAND	PNLD II 28 LP	300	30,000	3/4" X 1/2"	ALL

NOTES:

1. PROVIDE PNEUMATICALLY OPERATED DRAIN VALVE ("AUTO DRAIN VALVE") THAT OPERATES ON DEMAND WITHOUT ANY EXTERNAL ELECTRICAL POWER, CONTROL SIGNAL, OR TIMER.

2. THE AUTO DRAIN VALVE SHALL CONSIST OF AN ALUMINUM HOUSING, STAINLESS STEEL INTERNALS, BRASS DISCHARGE VALVE, AND VITON AND TEFLON SEALS.

3. AUTO DRAIN VALVE SHALL BE A 1/2" FULL PORT STAINLESS STEEL BALL VALVE ACTUATED BY STAINLESS STEEL FLOAT AND STAINLESS STEEL CONNECTING LINKAGE ARM.

4. THE 1/2" FNPT EQUALIZING LINE PORT SHALL BE PLUGGED.

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ALASKA AEROSPACE CORPORATION

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TITLE
PLUMBING SCHEDULES

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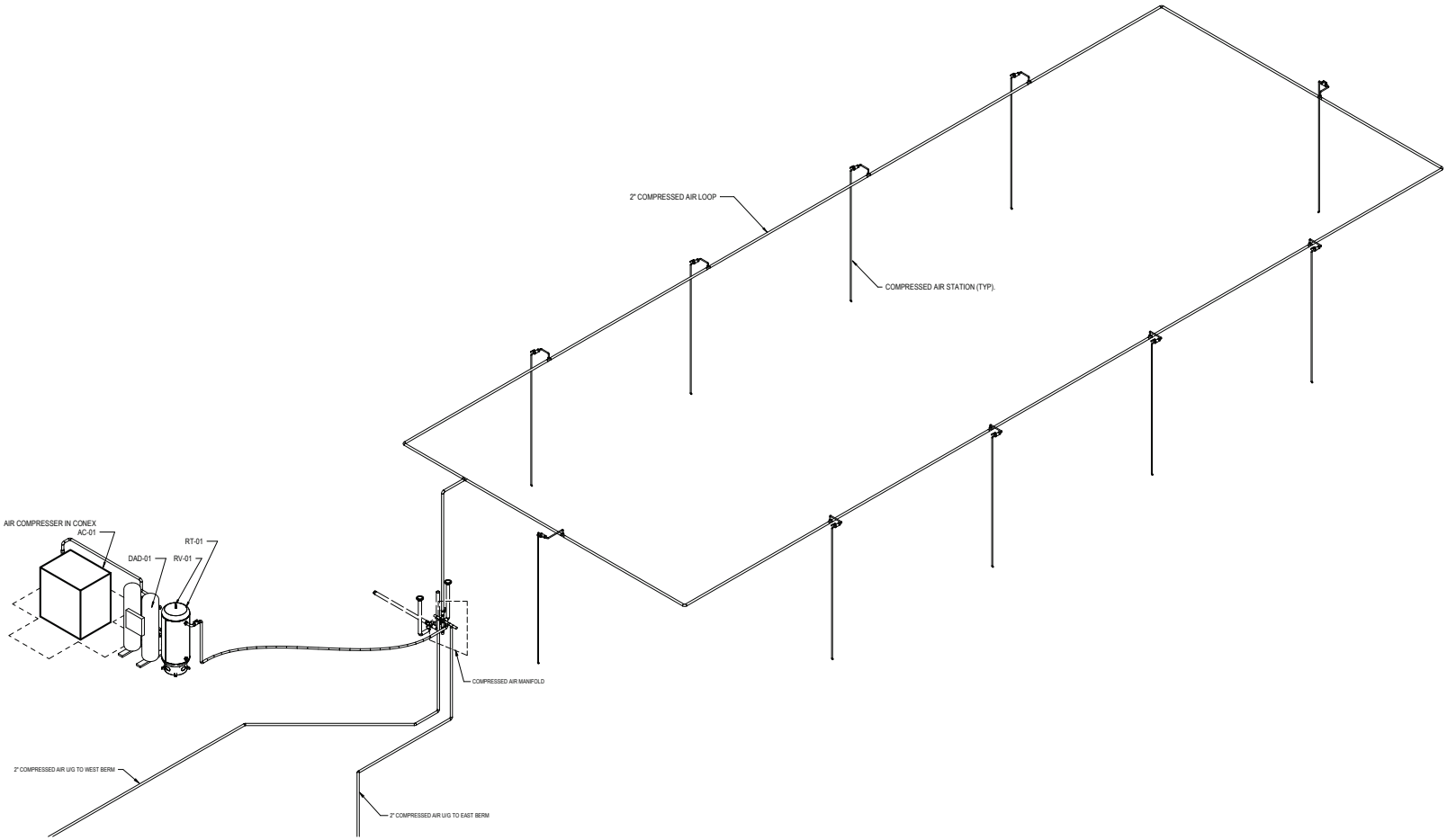

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PROJECT NUMBER
C09729.001

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05/08/2026

TITLE
PLUMBING SCHEMATIC RISERS

DRAWING NO.
P-901

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GENERAL NOTES:

1. DESIGN IS BASED ON THE APPLICABLE CODES AND STANDARDS REFERENCED IN THE DESIGN STANDARDS.
2. ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH PROJECT DRAWINGS AND SPECIFICATIONS
3. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, CONNECTIONS, EMBED PLATE AND ANCHOR BOLT LOCATIONS FROM EQUIPMENT MANUFACTURER'S APPROVED DRAWINGS AND STEEL FABRICATOR'S ANCHOR BOLT AND EMBED PLATE SETTING PLANS, WHICH HAVE BEEN APPROVED BY THE ARCHITECT ENGINEER.
4. THE CONTRACTOR SHALL WORK STRUCTURAL DRAWINGS TOGETHER WITH ARCHITECTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AND CIVIL DRAWINGS AS APPLICABLE TO LOCATE DEPRESSED SLABS, SLOPES, DRAINS, REGLETS, BOLT SETTINGS, GRADES, ETC. ANY DISCREPANCIES SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK. DO NOT PENETRATE STRUCTURAL ELEMENTS (BEAMS, COLUMNS, WALLS, SLABS, STEEL DECKS, ETC.) WITHOUT PRIOR WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
5. ALL STRUCTURES ARE DESIGNED TO BE STABLE AND SELF-SUPPORTING IN THEIR COMPLETED CONSTRUCTED STATE AT THE END OF CONSTRUCTION. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURES AND SEQUENCES THAT ENSURE THE STABILITY OF STRUCTURES AND ITS COMPONENTS DURING CONSTRUCTION. THIS INCLUDES BUT IS NOT LIMITED TO THE ADDITION OF SUPPORTS, BRACING, GUYS WIRES, TIE DOWNS, SHORING AND RE-SHORING. SUCH TEMPORARY SUPPORTS SHALL BE DESIGNED BY QUALIFIED REGISTERED PROFESSIONAL ENGINEERS RETAINED BY THE CONTRACTOR IN ACCORDANCE WITH LOCAL STATUTES AND REGULATIONS. TEMPORARY SUPPORTS SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AND INFORMATION RELATED TO THEM IS NOT INCLUDED IN THE CONTRACT DOCUMENTS.
6. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS PRIOR TO ORDERING ANY MATERIALS AND SHALL NOTIFY THE ARCHITECT/ENGINEER IF DIFFERENT FROM WHAT IS SHOWN ON THE DRAWINGS.
7. THE CONTRACTOR SHALL REVIEW THESE DRAWINGS AND VISIT THE PROJECT SITE BEFORE CONSTRUCTION BEGINS TO COMPARE ALL EXISTING CONDITIONS WITH WHAT IS SHOWN ON THESE DRAWINGS. IF THERE ARE CONDITIONS WHICH ARE DIFFERENT FROM WHAT IS SHOWN, THE STRUCTURAL ENGINEER OF RECORD SHALL BE NOTIFIED.
8. THE CONTRACTOR SHALL ARRANGE A PRE CONSTRUCTION MEETING WITH THE ARCHITECT ENGINEER TO ENSURE THAT THE CONTRACTOR'S UNDERSTANDING OF THESE DRAWINGS AND PLANS FOR THE WORK IS IN ACCORDANCE WITH THE DESIGN INTENT AND TO CLARIFY ANY QUESTIONS THAT THE CONTRACTOR MAY HAVE.
9. ALL DETAILS AND SECTIONS SHOWN ON THE DRAWINGS ARE INTENDED TO BE TYPICAL AND SHALL BE CONSTRUED TO APPLY TO ANY SIMILAR SITUATION ELSEWHERE ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.
10. THAT WHICH IS REFERENCED AS BEING ON "HOLD" SHALL BE INCLUDED IN THE BID AND WORK, HOWEVER FABRICATION AND/OR CONSTRUCTION SHALL NOT PROCEED UNTIL THE "HOLD" REFERENCE IS REMOVED.
11. DO NOT SCALE THE STRUCTURAL DRAWINGS TO DETERMINE DIMENSIONS OR MATERIAL QUANTITIES.
12. ELEVATIONS

    FINISHED GROUND FLOOR EL = 0'-0" (TYP. U.N.O.)

    FINISHED GROUND FLOOR REF EL = SEE CIVIL DWGS FOR PROJECT SPECIFIC DATUM & ELEVATION
13. SHOP DRAWING SUBMITTALS:
    A. CONTRACTOR SHALL SUBMIT TO BRPH FOR REVIEW SHOP DRAWINGS FOR ALL APPLICABLE TRADES IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
    B. IN ORDER TO EXPEDITE REVIEW OF SHOP DRAWINGS BY BRPH AND AVOID ANY NEED FOR RE-SUBMITTAL BY THE CONTRACTOR, SUBMITTED SHOP DRAWINGS SHALL BE COMPLETE WITH ADEQUATE AND NECESSARY INFORMATION SHOWN TO FACILITATE THEIR REVIEW.
    C. CONTRACTOR SHALL REVIEW THE SHOP DRAWINGS THOROUGHLY AND VERIFY DIMENSIONS, ELEVATIONS, QUANTITIES, ETC. BEFORE SUBMITTING TO BRPH FOR REVIEW. SHOP DRAWINGS NOT REVIEWED AND MARKED APPROVED BY THE CONTRACTOR WILL BE REJECTED AND RETURNED.
    D. CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION BETWEEN SHOP DRAWINGS AND DRAWINGS OF DIFFERENT TRADES ANY FIELD ISSUES AS A RESULT OF THE LACK OF SUCH COORDINATION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

DESIGN CRITERIA:

1. DESIGN DEAD LOADS

   SEE S-006
2. DESIGN COLLATERAL LOADS (NOT FOR UPLIFT RESISTANCE):

   SEE S-006
3. DESIGN LIVE LOADS:

   SEE S-006
4. DESIGN WIND LOAD: (PER ASCE 7)

   ULTIMATE WIND SPEED, Vult ---------- 170 MPH

   NOMINAL WIND SPEED, Vasd ---------- 132 MPH

   EXPOSURE CATEGORY ---------- D

   OCCUPANCY RISK CATEGORY ---------- II

   ENCLOSURE CLASSIFICATION ---------- ENCLOSED

   INTERNAL PRESSURE COEFFICIENT ---------- ±0.18
5. DESIGN SNOW LOAD: (PER ASCE 7)

   GROUND SNOW LOAD ---------- 30 PSF

   FLAT ROOF SNOW LOAD ---------- 40 PSF

   ROOF SLOPE FACTOR, Cs ---------- 1.0

   EXPOSURE FACTOR, Ce ---------- 0.8

   IMPORTANCE FACTOR, I ---------- 1.1

   THERMAL FACTOR, Ct ---------- 1.2

   DRIFT HEIGHT ---------- SEE S-006
6. DESIGN SEISMIC LOAD: (PER ASCE 7)

   SHORT DURATION DESIGN ACCELERATION, Sds ---------- 1.9

   RISK CATEGORY ---------- III

   SITE CLASS ---------- C

   SEISMIC DESIGN CATEGORY ---------- E

   MAPPED ACCELERATION PARAMETERS: ---------- $S_s = 2.3$ $S_1 = 1.2$

   SPECTRAL RESPONSE COEFFICIENTS ---------- $S_{DS} = 1.9$ $S_{D1} = 1.1$

   ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

   SEISMIC DRIFT:

   BUILDING ELEMENTS INCLUDING EXTERIOR CLADDING, STAIRS, ELEVATORS, AND MISCELLANEOUS METALS; MECHANICAL/ELECTRICAL/PLUMBING SYSTEM SUPPORTS; INTERIOR METAL STUD FRAMING, AND ANY OTHER ELEMENTS AS REQUIRED BY THE BUILDING CODE SHALL BE DESIGNED TO ACCOMMODATE THE PRIMARY STRUCTURE STORY DRIFTS WITH ANY APPLICABLE ELEMENT SPECIFIC MODIFICATIONS PER CHAPTER 13 OF ASCE 7.

FOUNDATIONS AND SLABS ON GROUND:

1. FOUNDATIONS ARE DESIGNED FOR MAXIMUM ALLOWABLE SOIL BEARING CAPACITY OF 2,500 PSF BASED ON INFORMATION AND RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT PREPARED BY SHANNON AND WILSON, DATED 5/20/2025. THIS VALUE SHALL BE VERIFIED BY A REGISTERED GEOTECHNICAL ENGINEER (OR HIS REPRESENTATIVE) PRIOR TO PLACEMENT OF CONCRETE FOR FOOTINGS.
2. SUBGRADE FOR ALL NEW FOUNDATIONS SHALL BE PREPARED AND COMPACTED IN ACCORDANCE WITH RECOMMENDATIONS STATED IN THE GEOTECHNICAL REPORT MENTIONED ABOVE. REFER TO GEOTECH REPORT FOR DETAILS ON LOOSE SOIL REMOVAL, COMPACTION RECOMMENDATIONS, AND STRUCTURAL FILL REQUIREMENTS.
3. WHERE EARTH FORMING IS USED, EXCAVATION FOR FOUNDATIONS SHOWN ON DRAWINGS SHALL NOT BE LESS THAN INDICATED FOUNDATION SIZE, NOR LARGER THAN THE INDICATED FOUNDATION SIZE BY MORE THAN 2" IN EACH DIRECTION.
4. THE FOLLOWING LATERAL EQUIVALENT FLUID PRESSURES WERE USED FOR RETAINING STRUCTURES BASED ON TYPICAL VALUES FOR GRAVEL BACK-FILLED WALLS.

   ACTIVE CONDITION ---------- 35 PCF

   AT REST CONDITION ---------- 55 PCF

   PASSIVE CONDITION ---------- 225 PCF
5. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR EXTERIOR CONCRETE SLAB LAYOUTS, CONTROL JOINTS, AND ELEVATIONS.
6. PROVIDE THICKENED EDGE IN SLAB ON GROUND AT ALL EXTERIOR BUILDING DOORS AND AT EXTERIOR SLAB EDGES.
7. EXCAVATIONS FOR SPREAD FOOTINGS, COMBINED FOOTINGS, CONTINUOUS FOOTINGS AND/OR MAT FOUNDATIONS SHALL BE CLEANED AND HAND TAMPED TO A UNIFORM SURFACE. FOOTING EXCAVATIONS SHALL HAVE THE SIDES AND BOTTOMS TEMPORARILY LINED WITH 6 MIL VISQUEEN IF PLACEMENT OF CONCRETE DOES NOT OCCUR WITHIN 24 HOURS OF THE EXCAVATION OF THE FOOTING.
8. FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION, WHICH DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO BRPH AND THE GEOTECHNICAL ENGINEER BEFORE CONSTRUCTION IS CONTINUED.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING "DIG SAFE" AS WELL AS ALL APPROPRIATE AGENCIES AND MUNICIPALITIES TO AVOID DAMAGE TO UNDERGROUND UTILITIES PRIOR TO THE START OF ANY SITE WORK.
10. THE CONTRACTOR SHALL PROVIDE CONTINUOUS CONTROL OF THE SURFACE AND SUBSURFACE WATER DURING CONSTRUCTION SUCH THAT FOUNDATION WORK IS DONE IN THE DRY AND ON UNDISTURBED SUBGRADE MATERIAL AS APPLICABLE.
11. REINFORCEMENT PLACEMENT SEQUENCE FOR FOOTINGS IS NOTED ONLY FOR MAJOR REINFORCEMENT BAR LAYERS. IN SPREAD FOOTINGS AND MATS THE CONTRACTOR SHALL SEQUENCE ALL OTHER BAR PLACEMENTS AS REQUIRED TO CONFORM TO THE CONTRACT DOCUMENTS.
12. DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY SHORING OF WALLS WHICH ARE ULTIMATELY SUPPORTED TOP AND BOTTOM. SUCH SHORING SHALL NOT BE REMOVED UNTIL THE SUPPORTING ELEMENTS ARE IN PLACE, THE CONCRETE IN THE WALLS AND SUPPORTING ELEMENTS HAS ATTAINED THE SPECIFIED 28 DAY COMPRESSIVE STRENGTH (fc) AND COMPACTION OF THE BACKFILL AGAINST THE WALL HAS BEEN COMPLETED.
13. THE FLOOR SUBGRADE SHALL BE PROPERLY COMPACTED AND PROOF-ROLLED AND SHALL BE FREE OF STANDING WATER, MUD AND FROZEN SOIL.
14. SLABS ON GROUND CONTROL JOINTS SHALL BE MADE USING A "SOFT-CUT" CONCRETE SAW AS SOON AS THE SLAB WILL SUPPORT THE WEIGHT OF THE SAW AND OPERATOR WITHOUT DISTURBING THE FINAL FINISH. THE CRACK CONTROL JOINTS SHALL BE CUT A MINIMUM WIDTH OF 1/8 INCH AND A MINIMUM DEPTH OF 1/4 THE SLAB THICKNESS. REFER TO THE DRAWINGS FOR INFORMATION ON CONTROL JOINTS, CONSTRUCTION JOINTS, REINFORCEMENT DETAILS AND JOINT SEALANT DETAILS.
15. WHERE THE SLAB IS TO RECEIVE SENSITIVE ARCHITECTURAL FLOOR FINISHES, ALL JOINTS IN THE SLAB CONSTRUCTION SHALL BE PLACED TO ALIGN WITH JOINTS IN THE FLOOR FINISHES.

STRUCTURAL STEEL:

1. DESIGN, FABRICATION AND ERECTION OF ALL STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
2. PROVIDE 3" MINIMUM CONCRETE COVER AROUND STEEL BELOW GRADE OR COAT WITH ASPHALTIC OR BITUMASTIC PAINT.
3. ALL GROUT FOR USE UNDER BEARING PLATES, LEVELING PLATES, ETC. SHALL BE PRE-MIXED, NON-SHRINK, NON-METALLIC CONFORMING TO ASTM C537. THE GROUT STRENGTH SHALL BE THE GREATER OF 8,000 PSI OR TWICE THE STRENGTH OF THE SUPPORTING CONCRETE.
4. ALL STRUCTURAL STEEL SHALL HAVE THE FOLLOWING ASTM SPECIFICATION AND YIELD STRENGTHS UNO:

   ANGLES ---------- FY = 36 KSI (A36)

   ALL OTHER SHAPES (U.N.O.) ---------- FY = 36 KSI (A36)

   PLATES (U.N.O.) ---------- FY = 36 KSI (A36)
5. ALL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL AND THE APPLICABLE CODES AND STANDARDS REFERENCED IN THE DESIGN STANDARDS.
6. ALL WELDING ELECTRODES SHALL BE E70XX, UNO. ALL WELDING SHALL BE PERFORMED BY AWS CERTIFIED WELDERS AND SHALL CONFORM TO AWS D1.1/D1.1M: STRUCTURAL WELDING CODE - STEEL, LATEST EDITION.
7. ALL FILLET WELDS SHALL BE AS INDICATED, BUT NOT LESS THAN ABS MINIMUM. SEE CHART BELOW.

MINIMUM SIZE FOR FILLET WELDS	
MATERIAL THICKNESS OF THINNER PART JOINED (INCHES)	MINIMUM SIZE OF FILLET WELD (INCHES)
TO 1/4" INCLUSIVE	1/8"
OVER 1/4" TO 1/2"	3/16"
OVER 1/2" TO 3/4"	1/4"
OVER 3/4"	5/16"

8. THE FABRICATOR SHALL FURNISH A STRUCTURAL SUBMITTAL WHICH SHALL BE CHECKED BY THE CONTRACTOR FOR COMPLETENESS AND CONTENT PRIOR TO SUBMITTAL TO THE STRUCTURAL ENGINEER OF RECORD FOR REVIEW. THE SUBMITTAL SHOULD INCLUDE FABRICATION AND ERECTION DRAWINGS. FABRICATION SHALL NOT COMMENCE UNTIL THIS REVIEW IS COMPLETED.
9. CUTS, HOLES AND THEIR REINFORCEMENT REQUIRED BY OTHER TRADES SHALL BE SHOWN ON THE STRUCTURAL STEEL SHOP DRAWINGS AND SHALL BE MADE IN THE SHOP. FIELD BURNING OF HOLES & CUTS IN STRUCTURAL STEEL SHALL NOT BE PERMITTED EXCEPT BY WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER OF RECORD, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
10. SIZE AND SHAPE OF STRUCTURAL STEEL SHALL BE AS SHOWN ON DRAWINGS. SUBSTITUTES MAY BE USED IF PRE-APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD.
11. AFTER ERECTION, ALL STEEL SHALL BE CLEANED OF ALL RUST, LOOSE MILL SCALE, AND OTHER FOREIGN MATERIAL. SCUFFS AND ABRASIONS SHALL BE FIELD TOUCHED-UP.
12. ALL STRUCTURAL STEEL TO BE PRIMED AND PAINTED. ALL FIELD CONNECTIONS ARE TO BE PAINTED TO MATCH ATTACHED COMPONENTS.
13. ALL WELDING WORK SHALL FOLLOW INFORMATION IN AN APPROVED WELDING PROCEDURE SPECIFICATION SUPPORTED BY A PRE-QUALIFICATION RECORD, FOLLOWING REQUIREMENTS IN THE CURRENT BUILDING CODE ADOPTED EVERSION OF THE AMERICAN WELDING SOCIETY (AWS) D1.1 - STRUCTURAL WELDING CODE STEEL. ALL WELDING WORK SHALL BE PERFORMED BY WELDERS CERTIFIED TO PERFORM WELDING WORK IN ACCORDANCE WITH THE GOVERNING WPS.

CONCRETE:

1. ALL CONCRETE WORK SHALL COMPLY WITH THE LATEST ADOPTED PROVISIONS OF ACI 318, AND ACI 301 AND THE APPLICABLE CODES AND STANDARDS REFERENCED IN THE DESIGN STANDARDS.
2. CONCRETE SHALL BE NORMAL WEIGHT CONCRETE EXCEPT AS NOTED. ALL CONCRETE STRENGTHS (AT 28 DAYS) SHALL BE AS FOLLOWS:

   SEE CONCRETE MIX TABLE
3. CALCIUM CHLORIDE SHALL NOT BE USED IN ANY FORM.
4. CONCRETE PROTECTION FOR REINFORCING (U.N.O.)

STRUCTURAL ELEMENT	CLEAR COVER
FOOTINGS, (CAST AGAINST & PERMANENTLY EXPOSED TO EARTH)	3 INCHES
FOOTINGS AND WALLS (CAST-IN FORMS PERMANENTLY EXPOSED TO EARTH)	2 INCHES
SLABS (IN CONTACT WITH EARTH)	2 INCHES
SLABS (EXPOSED TO WEATHER)	1 1/2 INCHES
SLABS ABOVE GROUND	3/4 INCHES
PEDESTALS (TO TIES)	2 INCHES
BEAMS (TO STIRRUPS)	1 1/2 INCHES
COLUMNS ABOVE GRADE (TO TIES)	1 1/2 INCHES

5. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A1064 AND SHALL BE LAPPED ONE FULL MESH PANEL PLUS 2 INCHES AT SIDES AND ENDS AND WIRED TOGETHER.
6. ALL REINFORCING STEEL SHALL BE PLACED WITHIN TOLERANCES SPECIFIED IN ACI 315.
7. DEFORMED REBAR (TYP. UNO) ---------- FY = 60 KSI (A615, GRADE 60)

   WELDABLE DEFORMED REBAR (WHERE INDICATED) ---------- FY = 60 KSI (A706, GRADE 60)
8. REINFORCING LAP SPLICE TABLE: SEE SHEET S-004
9. FOR NON CONTACT SPLICES, THE CENTER TO CENTER SPACING OF SPLICED BARS SHALL NOT EXCEED THE LESSER OF ONE-FIFTH THE REQUIRED LAP SPLICE LENGTH AND 6 INCHES
10. IT IS PERMITTED TO SUBSTITUTE MECHANICAL SPLICES (MEETING THE REQUIREMENTS OF SECTION 25.5.7 IN ACI 318) FOR LAP SPLICES AT NO ADDITIONAL COST. MECHANICAL SPLICES SHALL DEVELOP 125% (MIN) OF THE YIELD STRENGTH OF THE REBAR IN TENSION OR COMPRESSION.
11. ALL REINFORCEMENT SHALL BE BENT COLD. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT UNLESS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. HOOKS SHALL BE ACI STANDARD HOOKS IN ACCORDANCE WITH CHAPTER IN ACI 318. SEE TABLES ON SHEET S-004.
11. REINFORCING FOR CONTINUOUS FOUNDATIONS SHALL BE CONTINUOUS AT CORNERS AND INTERSECTIONS. PROVIDE CORNER LAP BARS AT ALL CORNERS AND INTERSECTIONS. SEE TYPICAL CORNER REINFORCING DETAIL ON DRAWINGS. WHERE CONTINUOUS FOUNDATIONS INTERSECT COLUMN FOUNDATIONS, REBAR FROM CONTINUOUS FOUNDATION SHALL BE CONTINUOUS THROUGH 6'-0" AND SMALLER COLUMN FOUNDATIONS, AND SHALL EITHER BE CONTINUOUS THROUGH, OR EXTEND A MINIMUM OF 2'-0" (BUT NOT LESS THAN THE STRAIGHT BAR DEVELOPMENT LENGTH) INTO COLUMN FOUNDATIONS LARGER THAN 6'-0" WIDE.
12. AT THE TIME CONCRETE IS PLACED, REINFORCEMENT SHALL BE FREE FROM MUD, OIL OR OTHER NONMETALLIC COATINGS THAT DECREASE BOND.
13. CHAMFER EXPOSED CORNERS OF CONCRETE CONSTRUCTION WITH STANDARD 3/4" CHAMFERS, UNO.
14. WHERE STRIP WATERSTOP IS INDICATED ON DRAWINGS, WATERSTOP-RX (RX-101) BY CETCO, SWELLSTOP 2/4" x 1" BY GREENSTREAK, SF312 SYNAGROLEX WATER STOP BY HENRY COMPANY OR APPROVED EQUAL. INSTALL PER MANUFACTURES INSTRUCTIONS.

CONCRETE MIX TABLE:

CONC MIX TYPE	INTENDED USE	EXPOSURE CATEGORIES AND CLASSES	COMPRESSIVE STRENGTH (PSI)	TEST AVG (DAYS)	CONC WEIGHT	MAX W/C RATIO	MAX AGGREGATE SIZE (IN)	TOTAL AIR CONTENT (%)	OTHER REQ'S
A	FOOTINGS	F1, S0, W1, C1	4000	28	NWC	0.45	1 1/2" (NOTE 1)	4.5	-
B.1	LAUNCH PAD	F3, S0, W1, C1	5000	56	NWC	0.4	1 1/2" (NOTE 1)	5.5	[MSB]
B.2	LAF RUNWAY	F3, S0, W1, C1	5000	56	NWC	0.4	1 1/2" (NOTE 1)	5.5	[MSB]
B.3	SOUTH RAT SLAB	F3, S0, W1, C1	5000	56	NWC	0.4	1 1/2" (NOTE 1)	5.5	[MSB]
C	INTERIOR SLABS ON GRADE	F1, S0, W0, C0	4000	28	NWC	0.5	1" (NOTE 1)	4.5	-
D	ALL CONC EXPOSED TO WEATHER OR DEICERS: WALLS, CURBS, TRENCH WALLS AND TRENCH SLABS	F3, S0, W1, C2	4000	28	NWC	0.45	3/4 (NOTE 1)	6	-
E	ALL CONCRETE OTHERWISE NOT SPECIFIED	F3, S0, W1, C1	4000	28	NWC	0.40	1" (NOTE 1)	6	-

CONCRETE MIX TABLE ABBREVIATIONS:

- F# = FREEZING AND THAWING CLASS
- S# = SULFATE CLASS
- W# = IN CONTACT WITH WATER CLASS
- C# = CORROSION PROTECTION OF REINFORCEMENT CLASS
- LWC = LIGHTWEIGHT CONCRETE
- MSS = MAXIMUM SHRINKAGE STRAIN LIMITED
- NWC = NORMAL WEIGHT CONCRETE

CONCRETE MIX NOTES:

1. AGGREGATE SIZE NOT TO EXCEED 1/5 OF NARROWEST DIMENSION BETWEEN FORMS; 1/3 OF SLAB DEPTH; OR 3/4 OF MINIMUM CLEAR SPACING BETWEEN REINFORCEMENT.
2. CONCRETE MIXES FOR SLAB ON GROUND CONSTRUCTION SHALL COMPLY WITH ACI 302.1R-15, SECTION 8.9 REGARDING AGGREGATE GRADATIONS.

LIMITS ON CEMENTITIOUS MATERIALS	
CEMENTITIOUS MATERIALS	MAXIMUM % OF TOTAL CEMENTITIOUS MATERIAL BY MASS
FLY ASH OR OTHER POZZOLANS CONFORMING TO ASTM C618	25
SLAG CEMENT CONFORMING TO ASTM C989	50
SILICA FUME CONFORMING TO ASTM C1240	10
TOTAL OF FLY ASH OR OTHER POZZOLANS AND SILICA FUME	35
TOTAL OF FLY ASH OR OTHER POZZOLANS, SLAG CEMENT, AND SILICA FUME	50

AIR ENTRAINMENT NOTES:

REQUIRED ONLY WHERE CONCRETE WILL BE EXPOSED TO ENVIRONMENTAL CONDITIONS FOR EXPOSURE CLASS F1, F2, OR F3 (PER ACI 318) AND HARD TROWEL FINISH IS NOT SPECIFIED. UNLESS OTHERWISE SPECIFIED BY ARCHITECT OR ENGINEER. THE PROPER AIR ENTRAINMENT RATE IS PER THE TABLE ABOVE, COMPLIMENTED WITH THE FOLLOWING INFORMATION WITH A TOLERANCE ON THE AS-DELIVERED CONCRETE OF ± 1.5 PERCENT. THE PROPER AIR ENTRAINMENT RATE IS DEPENDENT ON THE EXPOSURE CONDITION AND THE SIZE OF THE COARSE AGGREGATE EXPRESSED AS THE MAXIMUM NOMINAL AGGREGATE SIZE. (ACI 318-14 TABLE 19.3.2.1)

EXPOSURE CLASS F1 - WHERE THE CONCRETE IN A COLD CLIMATE WILL BY ONLY OCCASIONALLY EXPOSED TO MOISTURE PRIOR TO FREEZING AND WHERE NO DEICING SALTS ARE USED.

A. 1 1/2" OR 1" NOMINAL MAXIMUM AGGREGATE SIZE: 4.5 PERCENT
B. 3/4" NOMINAL MAXIMUM AGGREGATE SIZE: 5 PERCENT
C. 1/2" NOMINAL MAXIMUM AGGREGATE SIZE: 5.5 PERCENT
D. 3/8" NOMINAL MAXIMUM AGGREGATE SIZE: 6 PERCENT

EXPOSURE CLASS F2 & F3 - WHERE THE CONCRETE IN A COLD CLIMATE MAY BE IN ALMOST CONTINUOUS CONTACT WITH MOISTURE PRIOR TO FREEZING AND WHERE DEICING SALTS ARE USED

A. 1-1/2" NOMINAL MAXIMUM AGGREGATE SIZE: 5.5 PERCENT
B. 3/4" OR 1" NOMINAL MAXIMUM AGGREGATE SIZE: 6 PERCENT
C. 1/2" NOMINAL MAXIMUM AGGREGATE SIZE: 7 PERCENT
D. 3/8" NOMINAL MAXIMUM AGGREGATE SIZE: 7.5 PERCENT

DELEGATED DESIGNS:

1. UNLESS SPECIFICALLY DETAILED ON DRAWING S, THE FOLLOWING SHALL BE DESIGNED BY THE CONTRACTOR'S DELEGATED DESIGN ENGINEER. SHOP DRAWINGS AND CALCULATIONS FOR COMPLETE DESIGN SHALL BE PREPARED AND SUBMITTED TOGETHER FOR REVIEW BY THE ENGINEER OF RECORD AND BY THE OWNER. CALCULATIONS AND DETAILS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER REGISTERED IN THE STATE WHICH THE STRUCTURE RESIDES. BEFORE SUBMITTING TO THE ENGINEER OF RECORD, SHOP DRAWINGS SHALL BE REVIEWED BY THE CONTRACTOR FOR COMPLETENESS AND COMPLIANCE TO THE CONTRACT DOCUMENTS. SHOP DRAWINGS NOT REVIEWED BY THE CONTRACTOR WILL BE REJECTED AND RETURNED. NO FABRICATION SHALL BEGIN UNTIL THE REVIEW PROCESS OF THE SHOP DRAWINGS BY THE ENGINEER OF RECORD IS COMPLETED, APPROVED, AND RETURNED TO THE CONTRACTOR.

   DELEGATED DESIGN ITEMS:

   A. WOOD LIGHT POLES

MECHANICAL ANCHORS:

1. FOR POST-INSTALLED MECHANICAL ANCHORS INTO CRACKED CONCRETE, PRODUCTS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.2 AND ICC-ES AC193. INSTALLATION SHALL COMPLY WITH MANUFACTURE'S LATEST ICC-ES APPROVAL. PRE-APPROVED ANCHORS INCLUDE:
   A. SIMPSON STRONG-TIE STRONG-BOLT 2
   B. SIMPSON STRONG-TIE TITEN HD
   C. HILTI KWIK BOLT TZ2
   D. HILTI KWIK HUS-EZ
   E. DEWALT SCREW-BOLT+
2. FOR POST-INSTALLED MECHANICAL ANCHORS INTO CONCRETE MASONRY, PRODUCTS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC01 OR ICC-ES106. ALL MASONRY CELLS TO RECEIVE ANCHORS SHALL BE GROUTED SOLID. INSTALLATION SHALL COMPLY WITH MANUFACTURES LATEST ICC-ES APPROVAL. PRE-APPROVED ANCHORS INCLUDE:
   A. SIMPSON STRONG-TIE STRONG-BOLT 2
   B. SIMPSON STRONG-TIE TITEN HD
   C. HILTI KWIK BOLT 3
   D. HILTI KWIK HUS-EZ
   E. DEWALT POWER-STUD+ SD1
   F. DEWALT SCREW-BOLT+
3. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED ABOVE MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD (EOR) FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING A CODE REPORT RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS DEMONSTRATING THE SUBSTITUTION IS THE EQUIVALENT CAPABLE OF ACHIEVING PERFORMANCE VALUES OF THE PRE-APPROVED PRODUCTS.
4. MECHANICAL ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR SHALL CONTACT THE MANUFACTURER FOR PRODUCT INSTALLATION TRAINING. MANUFACTURERS FIELD REPRESENTATIVE SHALL PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF WORK. ONLY TRAINED INSTALLERS SHALL PERFORM POST INSTALLED ANCHOR INSTALLATION. A RECORD OF TRAINING SHALL BE KEPT ON SITE AND BE MADE AVAILABLE TO THE EOR AS REQUESTED

ADHESIVE ANCHORS:

1. FOR POST-INSTALLED ADHESIVE ANCHORS INTO CRACKED CONCRETE, PRODUCTS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308. INSTALLATION SHALL COMPLY WITH MANUFACTURE'S LATEST ICC-ES APPROVAL. PRE-APPROVED ADHESIVES INCLUDE
   A. SIMPSON STRONG-TIE SET-3G
   B. HILTI HIT-RE 500 V3 SLOW CURE A (APPROVED FOR DYNAMIC LOADING)
   C. HILTI HIT-HY 200-A R V3 FAST CURE
   D. DEWALT PURE110+
   E. DEWALT AC200+ FAST CURE.
2. FOR POST-INSTALLED ADHESIVE ANCHORS INTO CONCRETE MASONRY, PRODUCTS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. ALL MASONRY CELLS TO RECEIVE ANCHORS SHALL BE GROUTED SOLID. INSTALLATION SHALL COMPLY WITH MANUFACTURES LATEST ICC-ES APPROVAL. PRE-APPROVED ADHESIVES INCLUDE:
   A. SIMPSON STRONG-TIE SET-XP
   B. HILTI HIT-HY 270
   C. DEWALT AC100+GOLD
3. FOR POST-INSTALLED ADHESIVE ANCHORS INTO BRICK MASONRY, PRODUCTS SHALL HAVE BEEN TESTED AND QUALIFIED FOR USE IN ACCORDANCE WITH ICC-ES AC58. INSTALLATION SHALL COMPLY WITH MANUFACTURES LATEST ICC-ES APPROVAL. PRE-APPROVED ADHESIVES INCLUDE
   A. SIMPSON STRONG-TIE SET-3G
   B. HILTI HIT-HY 270
   C. DEWALT AC100+GOLD
4. SUBSTITUTION REQUESTS FOR PRODUCTS OTHER THAN THOSE LISTED ABOVE MAY BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD (EOR) FOR REVIEW. SUBSTITUTIONS WILL ONLY BE CONSIDERED FOR PRODUCTS HAVING A CODE REPORT RECOGNIZING THE PRODUCT FOR THE APPROPRIATE APPLICATION. SUBSTITUTION REQUESTS SHALL INCLUDE CALCULATIONS DEMONSTRATING THE SUBSTITUTION IS THE EQUIVALENT CAPABLE OF ACHIEVING PERFORMANCE VALUES OF THE PRE-APPROVED PRODUCTS.
5. ADHESIVE ANCHORS SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS. THE CONTRACTOR SHALL CONTACT THE MANUFACTURER FOR PRODUCT INSTALLATION TRAINING. MANUFACTURER'S FIELD REPRESENTATIVE SHALL PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF WORK. ONLY TRAINED INSTALLERS SHALL PERFORM POST INSTALLED ANCHOR INSTALLATION. A RECORD OF TRAINING SHALL BE KEPT ON SITE AND BE MADE AVAILABLE TO THE EOR AS REQUESTED
6. INSTALLATION OF ADHESIVE ANCHORS IN HORIZONTAL TO VERTICALLY OVERHEAD ORIENTATION, OR OTHER CONFIGURATION THAT RESULTS IN SUSTAINED TENSION, SHALL BE DONE BY A CERTIFIED ADHESIVE ANCHOR INSTALLER (AAI), AS CERTIFIED THROUGH IAS AND IN ACCORDANCE WITH IAS 318. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE

REQUIRED SPECIAL INSPECTIONS AND TEST PER IBC 2021

INDICATED ITEMS REQUIRING SPECIAL INSPECTION ARE IDENTIFIED UNDER COLUMNS "FREQUENCY OF INSPECTION" AS "PERIODIC" OR "CONTINUOUS" OR UNDER COLUMNS "INSPECTION ACTION" AS "PERFORM" OR "OBSERVE". IF NO BOX IS CHECKED, EITHER THE TASK DOES NOT EXIST OR DOES NOT REQUIRE ANY SPECIAL INSPECTION.

STATEMENT OF SPECIAL INSPECTIONS 2021 IBC

1. THE OWNER SHALL HIRE AN INDEPENDENT TESTING/INSPECTION AGENCY TO PERFORM REQUIRED SPECIAL INSPECTIONS IN ACCORDANCE WITH SECTION 1704.2 OF THE INTERNATIONAL BUILDING CODE (IBC).
2. THE STATEMENT OF SPECIAL INSPECTIONS HEREIN IS FULFILLMENT OF THE REQUIREMENTS OF IBC SECTIONS 1704 AND 1705.
3. SPECIAL INSPECTIONS AND TESTING SHALL BE PERFORMED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS, THIS STATEMENT, IBC CHAPTER 17 AND ITS REFERENCED STANDARDS.
4. THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK FOR COMPLIANCE WITH THE JURISDICTION APPROVED PLANS, SPECIFICATIONS, AND APPLICABLE PROVISIONS OF THE IBC. THE ARCHITECT ENGINEER'S REVIEWED SHOP DRAWINGS, AND/OR PLACEMENT DRAWINGS, MAY BE USED ONLY AS AN AID TO SPECIAL INSPECTIONS. THE DEFINITIONS FOR ACTIONS OR FREQUENCIES OF INSPECTIONS ARE AS FOLLOWS
   A. "CONTINUOUS", FULL-TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED.
   B. "PERIODIC", INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK.
   C. "OBSERVE" THESE ITEMS ON A RANDOM BASIS (ASC). OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
   D. "PERFORM" THESE TASKS FOR EACH BOLTED CONNECTION, WELDED JOINT, OR MEMBER (AISC).
5. THE SPECIAL INSPECTOR SHALL COMPLETE A DAILY REPORT FOR INSPECTIONS. THE DAILY REPORTS SHALL REMAIN AT THE JOB SITE WITH THE CONTRACTOR FOR THE BUILDING OFFICIALS INSPECTOR. THE REPORTS SHALL INCLUDE THE FOLLOWING.
   A. NAME OF SPECIAL INSPECTOR AND DATE THE INSPECTION WAS PERFORMED.
   B. DESCRIPTION OF THE INSPECTIONS WITH LOCATIONS AND TESTS PERFORMED.
   C. LIST OF NON-CONFORMING ITEMS.
   D. HOW NON-CONFORMING ITEMS WERE RESOLVED OR UNRESOLVED.
   E. LIST OF CHANGES OR CORRECTIONS TO NON-CONFORMING ISSUES AUTHORIZED BY THE ENGINEER, ARCHITECT, OR BUILDING OFFICIALS INSPECTORS.
6. THE INSPECTOR SHALL BRING NON-CONFORMING ITEMS TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR, AND NOTE ALL SUCH ITEMS IN THE DAILY REPORT. IF ANY ITEM IS NOT RESOLVED IN A TIMELY MANNER AND IS ABOUT TO BE INCORPORATED IN THE WORK, THE SPECIAL INSPECTORS SHALL IMMEDIATELY NOTIFY THE ENGINEER OF RECORD.
7. THE INSPECTION AGENCY SHALL FURNISH MONTHLY REPORTS OF THE TEST AND INSPECTIONS PERFORMED DIRECTLY TO THE BUILDING OFFICIAL, ENGINEER OF RECORD, AND/OR OTHERS AS DESIGNATED.
8. THE INSPECTION AGENCY SHALL SUBMIT A FINAL SIGNED AND SEALED REPORT TO THE BUILDING OFFICIAL STATING THAT ALL ITEMS REQUIRING SPECIAL INSPECTIONS AND TESTING WERE FULFILLED, ALL DISCREPANCIES WERE CORRECTED OR RESOLVED, AND ALL WORK REQUIRING SPECIAL INSPECTIONS IS IN CONFORMANCE WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS AND APPLICABLE CODES. ANY ITEMS UNRESOLVED OR DISCREPANCIES IN COVERAGE (I.E. MISSED INSPECTIONS, PERIODIC INSPECTIONS WHEN CONTINUOUS WAS REQUIRED, ETC) SHALL BE SPECIFICALLY ITEMIZED IN THE REPORT.
9. SPECIAL INSPECTION AND TEST REQUIREMENTS FOR CERTAIN BUILDING ELEMENTS IMPLIED BY THE STATEMENT OF SPECIAL INSPECTIONS YET LISTED AS EXEMPT BY IBC IS PERMITTED TO BE WAIVED WITH WRITTEN APPROVAL FROM THE ENGINEER OF RECORD.
10. REQUIREMENTS FOR WIND RESISTANCE:
    STATEMENT OF SPECIAL INSPECTION FOR WIND RESISTANCE IS REQUIRED. (REQUIRED IN WIND EXPOSURE CATEGORY B, WHERE THE NOMINAL DESIGN WIND SPEED, Vasd IS 150 MPH OR GREATER. REQUIRED IN WIND EXPOSURE CATEGORY C OR D, WHERE THE NOMINAL DESIGN WIND SPEED, Vasd IS 140 MPH OR GREATER.)

    DESCRIPTION OF MAIN WIND FORCE-RESISTING SYSTEM SUBJECT TO SPECIAL INSPECTION FOR WIND RESISTANCE: (REQUIRED FOR SYSTEMS NOTED IN IBC SECTION 1705.12.1 AND 1705.12.2)
    LATERAL SYSTEM FOR PRE-ENGINEERED METAL BUILDING

    DESCRIPTION OF WIND FORCE-RESISTING COMPONENTS SUBJECT TO SPECIAL INSPECTION FOR WIND RESISTANCE: (REQUIRED FOR SYSTEMS AND COMPONENTS NOTED IN IBC SECTION 1705.12.3)
    COMPONENTS OF PRE-ENGINEERED METAL BUILDING
11. EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF FABRICATION OF A SYSTEM OR COMPONENT DESCRIBED ABOVE SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER OR THE OWNER'S AUTHORIZED AGENT PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT IN ACCORDANCE WITH IBC 1704.4. REQUIREMENTS FOR SEISMIC RESISTANCE

    STATEMENT OF SPECIAL INSPECTION FOR SEISMIC RESISTANCE IS REQUIRED

    DESCRIPTION OF SEISMIC FORCE-RESISTING SYSTEM SUBJECT TO SPECIAL INSPECTION AND TESTING FOR SEISMIC RESISTANCE: (REQUIRED FOR SEISMIC DESIGN CATEGORIES C, D, E, OR F IN ACCORDANCE WITH IBC SECTIONS 1705.13.1 THRU OUGH 1705.13.3, 1705.14.1, AND 1705.14.2)
    LATERAL SYSTEM FOR PRE-ENGINEERED METAL BUILDING

    DESCRIPTION OF DESIGNATED SEISMIC SYSTEMS SUBJECT TO SPECIAL INSPECTION AND TESTING FOR SEISMIC RESISTANCE: (REQUIRED FOR ARCHITECTURAL, PLUMBING, ELECTRICAL, AND MECHANICAL SYSTEMS AND THEIR COMPONENTS AND THEIR COMPONENTS THAT REQUIRE DESIGN IN ACCORDANCE WITH CHAPTER 13 OF ASCE 7, HAVE A COMPONENT IMPORTANCE FACTOR, Ip GREATER THAN ONE, AND ARE IN SEISMIC DESIGN CATEGORIES C, D, E, OR F.)
    COMPONENTS OF PRE-ENGINEERED METAL BUILDING

    DESCRIPTION OF ADDITIONAL SEISMIC SYSTEMS AND COMPONENTS REQUIRING SPECIAL INSPECTIONS AND TESTING (REQUIRED FOR SYSTEMS NOTED IN IBC SECTION 1705.13.5 THROUGH 1705.13.9.)
    COMPONENTS OF PRE-ENGINEERED METAL BUILDING

    EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESCRIBED ABOVE SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND OWNER OR THE OWNER'S AUTHORIZED AGENT PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT IN ACCORDANCE WITH IBC 1704.4.
12. THIS STATEMENT OF SPECIAL INSPECTION HAS BEEN PREPARED BY THE ENGINEER OF RECORD WITH THE UNDERSTANDING THAT THE BUILDING OFFICIAL WILL:
    A. REVIEW AND APPROVE THE QUALIFICATIONS OF THE SPECIAL INSPECTORS WHO WILL PERFORM THE INSPECTIONS
    B. MONITOR SPECIAL INSPECTION ACTIVITIES ON THE JOB SITE TO ASSURE THAT THE SPECIAL INSPECTORS ARE QUALIFIED AND PERFORMING THEIR DUTIES AS CALLED FOR IN THE STATEMENT OF SPECIAL INSPECTION.
    C. REVIEW SUBMITTED INSPECTION REPORTS.
    D. PERFORM INSPECTIONS AS REQUIRED BY THE LOCAL BUILDING CODE
    E. ISSUE CERTIFICATION OF OCCUPANCY AFTER ALL SPECIAL INSPECTION REPORTS AND THE FINAL SPECIAL INSPECTION REPORT HAVE BEEN SUBMITTED AND ACCEPTED.

SPECIAL CASES (IBC 1705.1.1):

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
MATERIAL ALTERNATIVES	CONTINUOUS	☒	PERIODIC	☐	PER DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE OR REPORT FROM AN ACCEPTED ACCREDITATION AGENCY (I.E. ICC-ES).
UNUSUAL DESIGN APPLICATIONS	CONTINUOUS	☒	PERIODIC	☐	PER DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE OR REPORT FROM AN ACCEPTED ACCREDITATION AGENCY (I.E. ICC-ES).
MATERIALS AND SYSTEMS REQUIRED TO BE INSTALLED IN ACCORDANCE WITH ADDITIONAL MANUFACTURER'S INSTRUCTION THAT PRESCRIBE REQUIREMENTS NOT CONTAINED IN THE IBC OR REFERENCED STANDARDS	CONTINUOUS	☒	PERIODIC	☐	

STRUCTURAL STEEL (IBC 1705.2.1)

STEEL SPECIAL INSPECTIONS OF RAILING SYSTEMS SHALL BE LIMITED TO WELDING INSPECTION OF WELDS AT THE BASE OF CANTILEVERED RAIL POSTS.

WELDED CONNECTION - PRIOR TO WELDING (TABLE N5.4-1, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
VERIFY WELDER QUALIFICATION RECORDS AND CONTINUITY RECORDS	PERFORM	☐	OBSERVE	☒	
VERIFY WELDING PROCEDURES (WPS) AVAILABLE	PERFORM	☒	OBSERVE	☐	
VERIFY CERTIFICATIONS FOR WELDING CONSUMABLES AVAILABLE	PERFORM	☒	OBSERVE	☐	
MATERIAL IDENTIFICATION	PERFORM	☐	OBSERVE	☒	VERIFY TYPE AND GRADE OF MATERIAL.
WELDER IDENTIFICATION	PERFORM	☐	OBSERVE	☒	A SYSTEM SHALL BE MAINTAINED BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED.
FIT-UP GROOVE WELDS	PERFORM	☐	OBSERVE	☒	VERIFY JOINT PREPARATION, DIMENSIONS, CLEANLINESS, TACKING, AND BACKING TYPE AND FIT.
FIT-UP CJP GROOVE WELDS OF HSS T_n, Y_n, AND K- JOINT'S WITHOUT BACKING	PERFORM	☐	OBSERVE	☒	VERIFY JOINT PREPARATION, ALIGNMENT, GAPS AT ROOT, CLEANLINESS, TACK QUALITY AND LOCATION.
ACCESS HOLES	PERFORM	☐	OBSERVE	☒	VERIFY CONFIGURATION AND FINISH.
FIT-UP OF FILLET WELDS	PERFORM	☐	OBSERVE	☒	VERIFY ALIGNMENT, GAPS AT ROOT, CLEANLINESS OF STEEL SURFACES, AND TACK WELD QUALITY AND LOCATION.
CHECK WELDING EQUIPMENT	PERFORM	☐	OBSERVE	☐	

WELDED CONNECTION - DURING WELDING (TABLE N5.4-2, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
CONTROL AND HANDLING OF WELDING CONSUMABLES	PERFORM	☐	OBSERVE	☒	VERIFY PACKAGING AND EXPOSURE CONTROL.
CRACKED TACK WELDS	PERFORM	☐	OBSERVE	☒	VERIFY THAT WELDING DOES NOT OCCUR OVER CRACKED TACK WELDS.
ENVIRONMENTAL CONDITIONS	PERFORM	☐	OBSERVE	☒	VERIFY WIND SPEED IS WITHIN LIMITS AS WELL AS PRECIPITATION AND TEMPERATURE.
WPS FOLLOWED	PERFORM	☐	OBSERVE	☒	VERIFY ITEMS SUCH AS SETTINGS ON WELDING EQUIPMENT, TRAVEL SPEED, WELDING MATERIALS, SHIELDING GAS TYPE/FLOW RATE, PREHEAT APPLIED, INTERPASS TEMPERATURE MAINTAINED, AND PROPER POSITION.
WELDING TECHNIQUES	PERFORM	☐	OBSERVE	☒	VERIFY INTERPASS AND FINAL CLEANING, EACH PASS IS WITHIN PROFILE LIMITATIONS, AND QUALITY OF EACH PASS.
PLACEMENT AND INSTALLATION OF STEEL HEADED STUD ANCHORS	PERFORM	☒	OBSERVE	☐	VERIFY SIZE, SPACING AND CORRECT INSTALLATION OF STUDS.

WELDED CONNECTION - AFTER WELDING (TABLE N5.4-3, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
WELDS CLEANED	PERFORM	☐	OBSERVE	☒	VERIFY THAT WELDS HAVE BEEN PROPERLY CLEANED
SIZE, LENGTH, AND LOCATION OF WELDS	PERFORM	☒	OBSERVE	☐	
WELDS MEET VISUAL ACCEPTANCE CRITERIA	PERFORM	☒	OBSERVE	☐	ACCEPTANCE CRITERIA TO CONSIDER INCLUDES CRACK PROHIBITION, WELD/BASE-METAL FUSION, CRATER CROSS SECTION, WELD PROFILES AND SIZE, UNDERCUT, AND POROSITY.
ARC STRIKES	PERFORM	☒	OBSERVE	☐	
K-AREA	PERFORM	☒	OBSERVE	☐	WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OR STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 INCHES OF THE WELD
WELD ACCESS HOLES IN ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES	PERFORM	☒	OBSERVE	☐	AFTER ROLLED HEAVY SHAPES AND BUILT-UP HEAVY SHAPES ARE WELDED, VISUALLY INSPECT THE WELD ACCESS HOLE FOR CRACKS
BACKING & WELD TABS REMOVED	PERFORM	☒	OBSERVE	☐	
REPAIR ACTIVITIES	PERFORM	☒	OBSERVE	☐	
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT/MEMBER	PERFORM	☒	OBSERVE	☐	
NO PROHIBITED WELDS HAVE BEEN ADDED WITHOUT THE APPROVAL OF THE EOR	PERFORM	☐	OBSERVE	☒	

NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS (SECTION N5.5, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
COMPLETE-JOINT-PENETRATION (CJP) GROOVE WELDS IN MATERIALS 5/16 INCH THICK OR GREATER	PERFORM	☐	OBSERVE	☒	ULTRASONIC TESTING SHALL BE PERFORMED ON 100 % OF CJP GROOVE WELDS SUBJECT TO TRANSVERSELY APPLIED TENSION LOADING IN BUTT, TEE, AND CORNER JOINTS FOR STRUCTURES IN RISK CATEGORY II OR IV. 10% IN RISK CATEGORY III. AND 0% IN RISK CATEGORY I. TESTING RATE MUST BE INCREASED PER SECTION N5.6 IF 5% OR MORE WELDS TESTED HAVE UNACCEPTABLE DEFECTS. THE RATE IS PERMITTED TO BE REDUCED PER SECTION N5.6a.
WELDED JOINTS SUBJECT TO FATIGUE	PERFORM	☒	OBSERVE	☐	PER AISC 360-16, SECTION N5.5c

STRUCTURAL STEEL (IBC 1705.2.1) CON'T

BOLTED CONNECTION - PRIOR TO BOLTING (TABLE N5.6-1, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
CERTIFICATIONS OF FASTENERS	PERFORM	☒	OBSERVE	☐	
FASTENERS MARKED	PERFORM	☐	OBSERVE	☒	VERIFY THAT FASTENERS HAVE BEEN MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS.
PROPER FASTENERS FOR JOINT	PERFORM	☐	OBSERVE	☒	VERIFY GRADE, TYPE, AND BOLT LENGTH IF THREADS ARE EXCLUDED FROM THE SHEAR PLANE.
PROPER BOLTING PROCEDURE	PERFORM	☐	OBSERVE	☒	VERIFY PROPER PROCEDURE IS USED FOR THE JOINT DETAIL.
CONNECTING ELEMENTS	PERFORM	☐	OBSERVE	☒	VERIFY APPROPRIATE FAYING SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET REQUIREMENTS
PRE-INSTALLATION VERIFICATION TESTING**	PERFORM	☐	OBSERVE	☒	OBSERVE AND DOCUMENT VERIFICATION TESTING BY INSTALLATION PERSONNEL FOR FASTENER ASSEMBLIES AND METHODS USED.
PROPER STORAGE	PERFORM	☐	OBSERVE	☒	VERIFY PROPER STORAGE OF BOLTS, NUTS, WASHERS, AND OTHER FASTENER COMPONENTS.

** NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED (PER SECTION N5.6a OF AISC 360-16).

BOLTED CONNECTION - DURING BOLTING (TABLE N5.6-2, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
FASTENER ASSEMBLIES	PERFORM	☐	OBSERVE	☒	VERIFY THAT FASTENER ASSEMBLIES ARE OF SUITABLE CONDITION, PLACED IN ALL HOLES, AND WASHERS AND NUTS ARE POSITIONED AS REQUIRED.
SNUG-TIGHT PRIOR TO PRETENSIONING	PERFORM	☐	OBSERVE	☒	VERIFY THAT JOINTS ARE BROUGHT TO SNUG-TIGHT CONDITION PRIOR TO PRE-TENSIONING OPERATION. ALSO APPLIES TO JOINTS SPECIFIED AS SNUG-TIGHT ONLY.
FASTENER COMPONENT**	PERFORM	☐	OBSERVE	☒	VERIFY THAT FASTENER COMPONENT NOT TURNED BY WRENCH IS PREVENTED FROM ROTATING.
PRETENSIONED FASTENERS**	PERFORM	☐	OBSERVE	☒	VERIFY THAT FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES.

** NOT REQUIRED IF ONLY SNUG-TIGHT JOINTS ARE SPECIFIED (PER SECTION N5.6a OF AISC 360-16).

BOLTED CONNECTION - AFTER BOLTING (TABLE N5.6-3, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
DOCUMENT ACCEPTANCE OR REJECTION OF BOLTED CONNECTIONS	PERFORM	☒	OBSERVE	☐	

OTHER STEEL INSPECTIONS (SECTION N5.7 & N5.8, AISC 360-16):

ITEM	INSPECTION ACTION				INSTRUCTIONS
GALVANIZED STRUCTURAL STEEL MAIN MEMBERS	PERFORM	☒	OBSERVE	☐	VISUALLY INSPECT EXPOSED CUT SURFACES OF GALVANIZED STRUCTURAL STEEL MAIN MEMBERS AND EXPOSED CORNERS OF RECTANGULAR HSS FOR CRACKS SUBSEQUENT TO GALVANIZING. CRACKS SHALL BE REPAIRED OR THE MEMBER SHALL BE REJECTED
STRUCTURAL STEEL DETAILS	PERFORM	☒	OBSERVE	☐	ALL FABRICATED STEEL OR STEEL FRAMES SHALL BE INSPECTED TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN IN CONSTRUCTION DOCUMENTS, SUCH AS BRACES, STIFFENERS, MEMBER LOCATIONS, AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.
ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL	PERFORM	☒	OBSERVE	☐	INSPECTOR SHALL BE ON THE PREMISES DURING THE PLACEMENT OF ANCHOR RODS AND OTHER EMBEDMENTS SUPPORTING STRUCTURAL STEEL FOR COMPLIANCE WITH CONSTRUCTION DOCUMENTS. VERIFY THE DIAMETER, GRADE, TYPE, AND LENGTH OF THE ANCHOR ROD OR EMBEDDED ITEM AND THE EXTENT OR DEPTH OF EMBEDMENT PRIOR TO PLACEMENT OF CONCRETE.

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FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
BRIAN LEE SAYRE
No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
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DATE
05/08/2026

TITLE
SPECIAL INSPECTIONS

DRAWING NO.
S-002

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SOILS CONSTRUCTION (IBC 1705.6):

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY	CONTINUOUS	☐	PERIODIC	☒	
VERIFY EXCAVATIONS EXTEND TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL	CONTINUOUS	☐	PERIODIC	☒	
PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS	CONTINUOUS	☐	PERIODIC	☒	
VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF FILL.	CONTINUOUS	☒	PERIODIC	☐	
PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THE SITE HAS BEEN PREPARED PROPERLY	CONTINUOUS	☐	PERIODIC	☒	

CONCRETE CONSTRUCTION (IBC 1705.3):

CONCRETE SPECIAL INSPECTIONS AND TESTS SHALL NOT BE REQUIRED FOR:
1. ISOLATED SPREAD CONCRETE FOOTINGS OF BUILDINGS THREE STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK
2. CONTINUOUS CONCRETE FOOTINGS SUPPORTING WALLS OF BUILDINGS THREE STORIES OR LESS ABOVE GRADE PLANE THAT ARE FULLY SUPPORTED ON EARTH OR ROCK WHERE
   A. THE FOOTINGS SUPPORT WALLS OF LIGHT-FRAME CONSTRUCTION
   B. THE FOOTINGS ARE DESIGNED IN ACCORDANCE WITH TABLE 1809.7
   C. THE STRUCTURAL DESIGN OF THE FOOTING IS BASED ON A SPECIFIED COMPRESSIVE STRENGTH, f'c, NOT MORE THAN 2,500 PSI REGARDLESS OF THE COMPRESSIVE STRENGTH SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS OR USED IN THE FOOTING CONSTRUCTION
3. NONSTRUCTURAL CONCRETE SLABS SUPPORTED DIRECTLY ON THE GROUND, INCLUDING PRESTRESSED SLABS ON GRADE, WHERE THE EFFECTIVE PRESTRESS IN THE CONCRETE IS LESS THAN 150 PSI
4. CONCRETE FOUNDATION WALLS CONSTRUCTED IN ACCORDANCE WITH TABLE 1807.1.6.2
5. CONCRETE PATIOS, DRIVEWAYS, AND SIDEWALKS ON GRADE

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS	REFERENCED STANDARD
REINFORCING STEEL, INCLUDING PRESTRESSING TENDONS	CONTINUOUS	☐	PERIODIC	☒	VERIFY PRIOR TO PLACING CONCRETE THAT REINFORCING IS OF SPECIFIED TYPE, GRADE, AND SIZE; THAT IT IS FREE OF OIL, DIRT AND RUST; THAT IT IS LOCATED AND SPACED PROPERLY; THAT HOOKS, BEND, TIES, STIRRUPS AND SUPPLEMENTAL REINFORCEMENT ARE PLACED CORRECTLY; THAT LAP LENGTHS, STAGGER AND OFFSETS ARE PROVIDED, AND THAT ALL MECHANICAL CONNECTIONS ARE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS AND/OR EVALUATION REPORT.	ACI 318: CH 20, 25.2, 25.3, 26.6.1-26.6.3
REINFORCING BAR WELDABILITY	CONTINUOUS	☐	PERIODIC	☒	VERIFY WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A706 BASED UPON CARBON EQUIVALENT AND IN ACCORDANCE WITH AWS D1.4.	AWS D1.4, ACI 318: 26.6.4
REINFORCING BAR WELDING	CONTINUOUS	☒	PERIODIC	☐	VISUALLY INSPECT ALL WELDS IN ACCORDANCE WITH AWS D1.4. VERIFY SIZE AND SPACING OF REINFORCEMENT. INSPECTION OF SINGLE-PASS WELDS, MAXIMUM 5/16", IS PERMITTED TO BE MADE PERIODICALLY.	AWS D1.4, ACI 318:26.6.4
CAST-IN BOLTS & EMBEDS	CONTINUOUS	☐	PERIODIC	☒	INSPECT ANCHORS CAST IN CONCRETE.	ACI 318: 17.8.2
ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: ADHESIVE ANCHORS INSTALLED IN HORIZONTALLY OR UPWARDLY INCLINED ORIENTATIONS TO RESIST SUSTAINED TENSION LOADS	CONTINUOUS	☒	PERIODIC	☐	ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC ES REPORT.	ACI 318: 17.8.2.4
ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS: MECHANICAL ANCHORS AND ALL OTHER ADHESIVE ANCHORS	CONTINUOUS	☐	PERIODIC	☒	ANCHORS/DOWELS SHALL BE SPECIALLY INSPECTED AS REQUIRED BY THE APPROVED ICC ES REPORT.	ACI 318: 17.8.2.2
USE OF REQUIRED MIX DESIGN	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ALL MIXES USED COMPLY WITH THE APPROVED CONSTRUCTION DOCUMENTS; ACI 318: CH19, 26.4.3, 26.4.4, AND IBC 1904.1, 1904.2.	
CONCRETE TESTS	CONTINUOUS	☒	PERIODIC	☐	PRIOR TO CONCRETE PLACEMENT, FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	ASTM C31 ASTM C172 ACI 318: 26.5, 26.12
CONCRETE & SHOTCRETE PLACEMENT	CONTINUOUS	☒	PERIODIC	☐	INSPECT CONCRETE AND SHOTCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	ACI 318: 26.5
CURING TEMPERATURE AND TECHNIQUES	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT THE AMBIENT TEMPERATURE FOR CONCRETE IS KEPT AT > 50°F FOR AT LEAST 7 DAYS AFTER PLACEMENT. HIGH-EARLY-STRENGTH CONCRETE SHALL BE KEPT AT >50°F FOR AT LEAST 3 DAYS. ACCELERATED CURING METHODS MAY BE USED (SEE ACI 318:26.4.7 - 26.4.9). THE AMBIENT TEMPERATURE FOR SHOTCRETE SHALL BE >40°F FOR THE SAME PERIOD OF TIME AS NOTED FOR CONCRETE. SHOTCRETE SHALL BE KEPT CONTINUOUSLY MOIST FOR AT LEAST 24 HOURS AFTER SHOTCRETING. ALL CONCRETE MATERIALS, REINFORCEMENT, FORMS, FILLERS, AND GROUND SHALL BE FREE FROM FROST. IN HOT WEATHER CONDITIONS ENSURE THAT APPROPRIATE MEASURES ARE TAKEN TO AVOID PLASTIC SHRINKAGE CRACKING AND THAT THE SPECIFIED WATER/CEMENT RATIO IS NOT EXCEEDED.	ACI 318: 26.5.3 - 26.5.5
ERECTION OF PRECAST CONCRETE	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ALL PRECAST ELEMENTS ARE LIFTED, ASSEMBLED AND BRACED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DOCUMENTS.	ACI 318: 26.9
STRENGTH VERIFICATION	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ADEQUATE STRENGTH HAS BEEN ACHIEVED PRIOR TO THE REMOVAL OF SHORES AND FORMS OR THE STRESSING OF POST-TENSIONED TENDONS.	ACI 318: 26.11.2
FORMWORK	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT THE FORMS ARE PLACED, PLUMB AND CONFORM TO THE SHAPES, LINES, AND DIMENSIONS OF THE MEMBERS AS REQUIRED BY THE APPROVED CONSTRUCTION DOCUMENTS.	ACI 318: 26.11.1.2(b)

SPECIAL INSPECTIONS AND TESTS FOR ELEMENTS SUBJECT TO SEISMIC RESISTANCE (IBC 1705.13 & IBC 1705.14)

SPECIAL SEISMIC INSPECTIONS ARE REQUIRED UNLESS ONE OF THE FOLLOWING EXEMPTIONS APPLIES
1. THE STRUCTURE CONSISTS OF LIGHT-FRAME CONSTRUCTION & THE DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS, S_{DS} < 0.5; THE BUILDING HEIGHT OF THE STRUCTURE IS 35FT
2. THE SEISMIC FORCE-RESISTING SYSTEM OF THE STRUCTURE CONSISTS OF REINFORCED MASONRY OR REINFORCED CONCRETE; THE DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS, S_{DS} < 0.5; THE BUILDING HEIGHT OF THE STRUCTURE IS 25FT
3. THE STRUCTURE IS A DETACHED ONE- OR TWO-FAMILY DWELLING NOT EXCEEDING TWO STORIES ABOVE GRADE AND DOES NOT HAVE ANY OF THE FOLLOWING HORIZONTAL OR VERTICAL IRREGULARITIES IN ACCORDANCE WITH ASCE 7:
   A. TORSIONAL OR EXTREME TORSIONAL IRREGULARITY
   B. NONPARALLEL SYSTEMS IRREGULARITY
   C. STIFFNESS-SOFT STORY OR STIFFNESS-EXTREME SOFT STORY IRREGULARITY
   D. DISCONTINUITY IN LATERAL STRENGTH-WEAK STORY IRREGULARITY

STRUCTURAL STEEL INSPECTIONS AND NONDESTRUCTIVE TESTING (NDT) OF WELDED JOINTS (IBC 1705.13.1, IBC 1705.14.1, & AISC 341-16 CHAPTER J)

STRUCTURAL STEEL SEISMIC INSPECTIONS ARE REQUIRED FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B, C, D, E, OR F EXCEPT FOR THE FOLLOWING
1. STEEL BUILDING STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B OR C WHERE THE RESPONSE MODIFICATION COEFFICIENT, R = 3, IS DESIGNATED FOR "STEEL SYSTEMS NOT SPECIFICALLY DETAILED FOR SEISMIC RESISTANCE, EXCLUDING CANTILEVER COLUMN SYSTEMS" IN ASCE 7, TABLE 12.2-1 HAS BEEN INSURED FOR DESIGN AND DETAILING
2. STEEL NONBUILDING STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY B OR C WHERE THE RESPONSE MODIFICATION COEFFICIENT, R ≤ 3 IS USED FOR DESIGN
3. STEEL STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY D, E, OR F, WHERE DESIGN AND DETAILING IN ACCORDANCE WITH AISC 360-16 PERMITTED BY ASCE 7, TABLE 15-1

WELDING INSPECTION AND NONDESTRUCTIVE TESTING OF SEISMIC FORCE RESISTING SYSTEM SHALL MEET THE REQUIREMENTS OF AWS D1.8/D1.8M INCLUDING THE FOLLOWING SECTIONS AND ANNEXES
1. GENERAL REQUIREMENTS
7. INSPECTION
ANNEX E SUPPLEMENTAL ULTRASONIC TECHNICIAN TESTING
ANNEX Q SUPPLEMENTAL MAGNETIC PARTICLE TESTING PROCEDURES
ANNEX R FLAW SIZING BY ULTRASONIC TESTING

ITEM	INSPECTION ACTION				INSTRUCTIONS
REDUCED BEAM SECTIONS (RBS)	PERFORM	☒	OBSERVE	☐	VERIFY CONTOUR AND FINISH AS WELL AS DIMENSIONAL TOLERANCES
PROTECTED ZONES	PERFORM	☒	OBSERVE	☐	VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE WITHIN THE PROTECTED ZONE
H-PILES	PERFORM	☒	OBSERVE	☐	VERIFY THAT NO HOLES OR UNAPPROVED ATTACHMENTS ARE MADE WITHIN THE PROTECTED ZONE OF PILING
COMPLETE-JOINT-PENETRATION (CJP) GROOVE WELDS IN MATERIALS 5/16 INCH THICK OR GREATER	PERFORM	☒	OBSERVE	☐	ULTRASONIC TESTING (UT) SHALL BE PERFORMED ON 100% OF CJP GROOVE WELDS. WELD DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF AWS D1.1/D1.1M TABLE 6.2. PERCENTAGE OF NDT TESTING IS PERMITTED TO BE REDUCED PER ASCC 341-16 SECTION J6.2g
COMPLETE-JOINT-PENETRATION (CJP) GROOVE WELDS OF BEAMS TO COLUMNS FOR MATERIALS LESS THAN 5/16 INCH THICK	PERFORM	☒	OBSERVE	☐	MAGNETIC PARTICAL TESTING (MT) SHALL BE PERFORMED ON 25% OF CJP GROOVE WELDS. WELD DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF AWS D1.1/D1.1M TABLE 6.2. PERCENTAGE OF NDT TESTING IS PERMITTED TO BE REDUCED PER AISC 341-16 SECTION J6.2h
PARTIAL-JOINT-PENETRATION (PJP) GROOVE WELDS OF COLUMN SPLICES AND COLUMNS TO BASE PLATES	PERFORM	☒	OBSERVE	☐	ULTRASONIC TESTING (UT) SHALL BE PERFORMED ON 100% OF PJP GROOVE WELDS. WELD DISCONTINUITIES SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF AWS D1.1/D1.1M TABLE 6.2. PERCENTAGE OF NDT TESTING IS PERMITTED TO BE REDUCED PER ASCC 341-16 SECTION J6.2g. PROCEDURE AND TECHNICAN QUALIFICATION SHALL INCLUDE REQUIREMENTS PER ASCC 341-16 SECTION J6.2b
BASE METAL THICKER THAN 1-1/2 INCH LOADED IN TENSION IN THE THROUGH-THICKNESS DIRECTION IN TEE AND CORNER JOINTS WHERE THE CONNECTED MATERIALS > 3/4 INCH AND CONTAINS CJP GROOVE WELDS	PERFORM	☒	OBSERVE	☐	ULTRASONIC TESTING (UT) SHALL BE PERFORMED FOR DISCONTINUITIES BEHIND AND ADJACENT TO THE FUSION LINE ANY BASE METAL DISCONTINUITIES FOUND WITHIN T/4 OF THE STEEL SURFACE SHALL BE ACCEPTED OR REJECTED ON THE BASIS OF AWS D1.1/D1.1M TABLE 6.2 WHERE T IS THE THICKNESS OF THE PART SUBJECTED TO THROUGH THICKNESS STRAIN
THERMALLY CUT SURFACES OF BEAM COPES AND ACCESS HOLES AT WELDED SPLICES AND CONNECTIONS	PERFORM	☒	OBSERVE	☐	MAGNETIC PARTICAL TESTING (MT) OR PENETRANT TESTING SHALL BE PERFORMED WHEN THE FLANGE THICKNESS EXCEEDS 1 1/2 INCHES FOR ROLLED SHAPES OR WHEN THE WEB THICKNESS EXCEEDS 1 1/2 INCHES FOR BUILT UP SHAPES
REDUCED BEAM SECTION (RBS) REPAIR	PERFORM	☒	OBSERVE	☐	MAGNETIC PARTICAL TESTING (MT) SHALL BE PERFORMED ON ANY WELD AND ADJACENT AREA OF THE RBS CUT SURFACE THAT HAS BEEN REPAIRED BY WELDING, OR ON THE BASE METAL OF THE RBS CUT SURFACE IF A SHARP NOTCH HAS BEEN REMOVED BY GRINDING.
WELD TAB REMOVAL SITES	PERFORM	☒	OBSERVE	☐	AT THE ENDS OF WELDS WHERE WELD TABS HAVE BEEN REMOVED, MAGNETIC PARTICAL TESTING (MT) SHALL BE PERFORMED ON THE SAME BEAM TO COLUMN JOINTS RECEIVING ULTRASONIC TESTING (UT). PERCENTAGE OF NDT TESTING IS PERMITTED TO BE REDUCED PER ASCC 341-16 SECTION J6.2h. MT OF COMMUNITY PLATE WELD TAB REMOVAL SITES IS NOT REQUIRED.

DESIGNATED SEISMIC SYSTEMS (IBC 1705.13.4 & IBC 1705.14.3):

DESIGNATED SEISMIC SYSTEM INSPECTIONS ARE REQUIRED FOR STRUCTURES ASSIGNED TO SEISMIC DESIGN CATEGORY C, D, E, OR F.

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
DESIGNATED SEISMIC SYSTEMS VERIFICATION	CONTINUOUS	☒	PERIODIC	☐	INSPECT AND VERIFY THAT THE COMPONENT LABEL, ANCHORAGE, AND MOUNTING CONFORMS TO THE CERTIFICATE OF COMPLIANCE BASED ON REQUIREMENTS IN ASCE 7-16 SECTION 13.2.2

SPECIAL INSPECTIONS AND TESTS FOR ELEMENTS SUBJECT TO SEISMIC RESISTANCE (IBC 1705.13 & IBC 1705.14) CONT'D

ARCHITECTURAL COMPONENTS (IBC 1705.12.5, IBC 1705.13.7, & IBC 1705.14.2):

SEISMIC INSPECTIONS OF ARCHITECTURAL COMPONENTS ARE REQUIRED FOR SEISMIC DESIGN CATEGORY D, E, OR F.
CERTIFICATES OF SEISMIC QUALIFICATIONS ARE REQUIRED FOR SEISMIC DESIGN CATEGORY B, C, D, E, OR F.

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
ERECTION AND FASTENING OF EXTERIOR CLADDING GREATER THAN 30 FEET ABOVE GRADE OR WALKING SURFACE AND WEIGHT > 5PSF	CONTINUOUS	☐	PERIODIC	☒	VERIFY APPROPRIATE MATERIALS, FASTENERS AND ATTACHMENT AT COMMENCEMENT OF WORK AND AT COMPLETION.
ERECTION AND FASTENING OF EXTERIOR NONBEARING WALLS GREATER THAN 30 FEET ABOVE GRADE OR WALKING SURFACE	CONTINUOUS	☐	PERIODIC	☒	VERIFY APPROPRIATE MATERIALS, FASTENERS AND ATTACHMENT AT COMMENCEMENT OF WORK AND AT COMPLETION.
ERECTION AND FASTENING OF INTERIOR NONBEARING WALLS GREATER THAN 30 FEET ABOVE GRADE OR WALKING SURFACE AND WEIGHT > 15PSF	CONTINUOUS	☐	PERIODIC	☒	VERIFY APPROPRIATE MATERIALS, FASTENERS AND ATTACHMENT AT COMMENCEMENT OF WORK AND AT COMPLETION.
ERECTION AND FASTENING OF INTERIOR AND EXTERIOR VENEER GREATER THAN 30 FEET ABOVE GRADE OR WALKING SURFACE AND WEIGHT > 5PSF	CONTINUOUS	☐	PERIODIC	☒	VERIFY APPROPRIATE MATERIALS, FASTENERS AND ATTACHMENT AT COMMENCEMENT OF WORK AND AT COMPLETION.
ACCESS FLOORS	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ANCHORAGE COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS. INSPECTION OF POST-INSTALLED ANCHORS SHALL COMPLY WITH APPROVED ICC ES REPORT.
STORAGE RACKS 8 FEET OR GREATER IN HEIGHT	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ANCHORAGE COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS. INSPECTION OF POST-INSTALLED ANCHORS SHALL COMPLY WITH APPROVED ICC ES REPORT.
VERIFICATION OF SEISMIC QUALIFICATION IN SEISMIC DESIGN CATEGORY B, C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY ARCHITECTURAL COMPONENTS HAVE A CERTIFICATE OF SEISMIC QUALIFICATION MEETING REQUIREMENTS OF ASCE 7-16 SECTION 13.2.1

PLUMBING, MECHANICAL, AND ELECTRICAL COMPONENTS (IBC 1705.13.6 & IBC 1705.14.2)

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
ANCHORAGE OF ELECTRICAL EQUIPMENT FOR EMERGENCY OR STANDBY POWER SYSTEMS IN SEISMIC DESIGN CATEGORY C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ANCHORAGE COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS.
ANCHORAGE OF OTHER ELECTRICAL EQUIPMENT IN SEISMIC DESIGN CATEGORY E OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT ANCHORAGE COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS.
INSTALLATION AND ANCHORAGE OF PIPING SYSTEMS DESIGNED TO CARRY HAZARDOUS MATERIALS AND THEIR ASSOCIATED MECHANICAL UNITS IN SEISMIC DESIGN CATEGORY C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT INSTALLATION AND RESISTANT COMPLY WITH APPROVED CONSTRUCTION DOCUMENTS.
INSTALLATION AND ANCHORAGE OF DUCTWORK DESIGNED TO CARRY HAZARDOUS MATERIALS IN SEISMIC DESIGN CATEGORY C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT INSTALLATION AND RESISTANT COMPLY WITH APPROVED CONSTRUCTION DOCUMENTS.
INSTALLATION AND ANCHORAGE OF VIBRATION ISOLATION SYSTEMS HAVING A CLEARANCE OF ≤ 1/4" BETWEEN THE EQUIPMENT SUPPORT FRAME AND RESTRAINT IN SEISMIC DESIGN CATEGORY C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT INSTALLATION COMPLIES WITH APPROVED CONSTRUCTION DOCUMENTS AND MANUFACTURERS RECOMMENDATIONS.
INSTALLATION OF MECHANICAL AND ELECTRICAL EQUIPMENT WHERE AUTOMATIC FIRE SPRINKLER SYSTEMS ARE INSTALLED IN SEISMIC DESIGN CATEGORY C, D, E, OR F (INCLUDES DUCTWORK, PIPING SYSTEMS, AND THEIR STRUCTURAL SUPPORTS)	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT MINIMUM CLEARANCES HAVE BEEN PROVIDED AS REQUIRED BY ASCE 7 SECTION 13.2.3 OR A NOMINAL CLEARANCE OF > 3 INCHES HAS BEEN PROVIDED BETWEEN FIRE PROTECTION SPRINKLER SYSTEM DROPS AND SPRIGS AND THE FOLLOWING UNLESS FLEXIBLE SPRINKLER HOSE FITTINGS ARE USED: 1. STRUCTURAL MEMBERS NOT USED COLLECTIVELY OR INDEPENDENTLY TO SUPPORT THE SPRINKLERS; 2. EQUIPMENT ATTACHED TO THE BUILDING STRUCTURE; AND 3. OTHER SYSTEMS PIPING.
VERIFICATION OF SEISMIC QUALIFICATION IN SEISMIC DESIGN CATEGORY B, C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY MECHANICAL, ELECTRICAL, AND PLUMBING COMPONENTS HAVE A CERTIFICATE OF SEISMIC QUALIFICATION MEETING REQUIREMENTS OF ASCE 7 SECTION 13.2.1

SEISMICALLY ISOLATED STRUCTURES (IBC 1705.13.8 & 1705.14.3):

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
FABRICATION AND INSTALLATION OF SEISMIC ISOLATION SYSTEM IN SEISMIC DESIGN CATEGORY B, C, D, E, OR F	CONTINUOUS	☐	PERIODIC	☒	VERIFY THAT FABRICATION AND INSTALLATION OF ISOLATOR UNITS AND ENERGY DISSIPATION DEVICES CONFORM TO MANUFACTURERS RECOMMENDATIONS AND APPROVED CONSTRUCTION DOCUMENTS.
VERIFICATION OF TESTING PER ASCE 7-16 SECTION 17.8	CONTINUOUS	☐	PERIODIC	☒	VERIFY REQUIRED TESTING ACCORDING TO ASCE 7-16 SECTION 17.8 HAVE BEEN CONDUCTED.

SPECIAL INSPECTIONS AND TESTS FOR ELEMENTS SUBJECT TO WIND RESISTANCE (IBC 1705.11)

APPLIES FOR BUILDINGS AND STRUCTURES IN THE FOLLOWING AREAS:
1. IN WIND EXPOSURE B, WHERE BASIC WIND SPEED V ≤ 150 MPH ASD
2. IN WIND EXPOSURE C OR D, WHERE BASIC WIND SPEED V ≤ 140 MPH ASD

WIND-RESISTING COMPONENTS (IBC 1705.11.3)

ITEM	FREQUENCY OF INSPECTION				INSTRUCTIONS
FASTENING OF ROOF COVERING, ROOF DECK, AND ROOF FRAMING CONNECTIONS	CONTINUOUS	☐	PERIODIC	☒	INSPECT APPLICABLE WELDING OPERATIONS.
FASTENING OF EXTERIOR WALL COVERING AND WALL CONNECTIONS TO ROOF AND FLOOR DIAPHRAGMS AND FRAMING	CONTINUOUS	☐	PERIODIC	☒	INSPECT APPLICABLE FASTENING OPERATIONS.

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FOR CONSTRUCTION

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
BRIAN LEE SAYRE
No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
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DATE
05/08/2026

TITLE
SPECIAL INSPECTIONS

DRAWING NO.
S-003

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f'c = 3,000 PSI				
BAR SIZE	Ld	Lt	Lab	Labt
#3	17	23	23	30
#4	22	29	29	38
#5	28	37	37	49
#6	33	43	43	56
#7	48	63	63	82
#8	55	72	72	94
#9	62	81	81	106
#10	70	91	91	119
#11	78	102	102	133
#14	93	121	-	-
#18	124	162	-	-

f'c = 4,000 PSI				
BAR SIZE	Ld	Lt	Lab	Labt
#3	15	20	20	26
#4	19	25	25	33
#5	24	32	32	42
#6	29	38	38	50
#7	42	55	55	72
#8	48	63	63	82
#9	54	71	71	93
#10	61	80	80	104
#11	67	88	88	115
#14	81	106	-	-
#18	108	141	-	-

f'c = 5,000 PSI				
BAR SIZE	Ld	Lt	Lab	Labt
#3	13	17	17	23
#4	17	23	23	30
#5	22	29	29	38
#6	26	34	34	45
#7	38	50	50	65
#8	43	56	56	73
#9	48	63	63	82
#10	54	71	71	93
#11	60	78	78	102
#14	72	94	-	-
#18	96	125	-	-

f'c = 6,000 PSI				
BAR SIZE	Ld	Lt	Lab	Labt
#3	12	16	16	21
#4	16	21	21	28
#5	20	26	26	34
#6	24	32	32	42
#7	34	45	45	59
#8	39	51	51	67
#9	44	58	58	76
#10	50	65	65	85
#11	55	72	72	94
#14	66	86	-	-
#18	88	115	-	-

f'c = 8,000 PSI				
BAR SIZE	Ld	Lt	Lab	Labt
#3	12	16	16	21
#4	14	19	19	25
#5	17	23	23	30
#6	21	28	28	37
#7	30	39	39	51
#8	34	45	45	59
#9	38	50	50	65
#10	43	56	56	73
#11	48	63	63	82
#14	57	75	-	-
#18	76	99	-	-

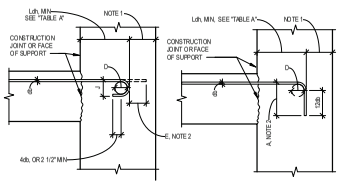
f'c = 10,000 PSI				
BAR SIZE	Ld	Lt	Lab	Labt
#3	9	12	12	16
#4	12	16	16	21
#5	15	20	20	26
#6	18	24	24	31
#7	27	36	36	46
#8	30	39	39	51
#9	34	45	45	58
#10	39	51	51	66
#11	43	56	56	73
#14	51	67	-	-
#18	68	89	-	-

NOTES:

1. NOTATIONS
   - db: NOMINAL BAR DIAMETER (INCHES)
   - Ld: TENSION DEVELOPMENT LENGTH (INCHES) FOR REINFORCEMENT SATISFYING THE FOLLOWING REQUIREMENTS:
     - SLABS AND WALLS: CLEAR SPACING > 2db, AND CONCRETE CLEAR COVER> db
     - BEAMS AND COLUMNS: CLEAR SPACING >db, AND CONCRETE CLEAR COVER> db
   - Lt: DEVELOPMENT LENGTH OF BARS IN THICK CONCRETE = 1.3 X Ld (INCHES)
   - Lab: TYPICAL LAP SPLICE LENGTH = 1.3 X Ld (INCHES)
   - Labt: LAP SPLICE LENGTH OF HORIZONTAL BARS IN THICK CONCRETE = 1.69 X Ld (INCHES)
2. MULTIPLY VALUES IN THE TABLE BY 1.5 IF CLEAR SPACING OR CONCRETE COVER DO NOT MEET THE REQUIREMENTS FOR Ld IN NOTE 1.
3. "HORIZONTAL BARS IN THICK CONCRETE" REFERS TO BARS WITH MORE THAN 12 INCHES OF FRESH CONCRETE CAST BELOW. THIS INCLUDES BEAMS, SLABS, FOUNDATIONS, AND WALLS.
4. THE DEVELOPMENT AND SPLICE LENGTHS ARE BASED ON REINFORCEMENT STRENGTH FY = 60KSI. WHERE THE DRAWINGS INDICATE REINFORCEMENT STRENGTHS OF Fy= 75KSI OR 80KSI MULTIPLY VALUES BY 1.25 AND 1.33, RESPECTIVELY.
5. MULTIPLY VALUES IN THE TABLE BY 1.3 FOR USE WITH LIGHTWEIGHT AGGREGATE CONCRETE.
6. #14 AND #18 BARS SHALL NOT BE LAP SPLICED AND SHALL INSTEAD USE MECHANICAL COUPLERS THAT DEVELOP 125% OF THE BAR YIELD STRENGTH.

REINF BAR DEVELOPMENT AND SPLICE LENGTH TABLES

SCALE: NTS



180 DEGREE HOOK **90 DEGREE HOOK**

END HOOK (ALL GRADES) (D) FINISHED BEND DIAMETER				
BAR SIZE	D	180° HOOKS		90° HOOKS
		E	J	A
#3	2 1/4"	5"	3"	6"
#4	3"	6"	4"	8"
#5	3 3/4"	7"	5"	10"
#6	4 1/2"	8"	6"	12"
#7	5 1/4"	10"	7"	14"
#8	6"	11"	8"	16"
#9	9 1/2"	15"	11 3/4"	19"
#10	10 3/4"	17"	13 3/4"	22"
#11	12"	19"	14 3/4"	24"
#14	18 1/4"	27"	21 3/4"	31"
#18	24"	36"	28 1/2"	41"

TABLE A MINIMUM TENSION EMBEDMENT LENGTHS, (Ldh) FOR STANDARD END HOOKS ON GRADE 60 BARS						
BAR SIZE	NORMAL WEIGHT CONCRETE, f'c (PSI)					
	3,000	4,000	5,000	6,000	8,000	10,000
#3	6"	6"	6"	6"	6"	6"
#4	6"	7"	7"	7"	7"	6"
#5	10"	9"	8"	7"	7"	6"
#6	12"	10"	9"	8"	8"	7"
#7	14"	12"	11"	10"	9"	8"
#8	16"	14"	12"	11"	10"	9"
#9	18"	15"	14"	13"	11"	10"
#10	20"	17"	15"	14"	14"	11"
#11	22"	19"	17"	16"	15"	12"
#14	37"	32"	29"	27"	35"	21"
#18	50"	43"	39"	35"	31"	28"

NOTES:

1. ABOVE VALUES VALID FOR ALL CASE IF:
   SIDE COVER ≥ 2 1/2"
   END COVER ≥ 2"
2. BAR DIMENSION REQUIRED TO MANUFACTURE HOOK.
3. FOR EPOXY COATED HOOKS, INCREASE THE ABOVE EMBEDMENT LENGTHS BY 20%.

STANDARD HOOKS AND EMBEDMENT

SCALE: NTS

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	LG	LONG
ACI	AMERICAN CONCRETE INSTITUTE	LLH	LONG LEG HORIZONTAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LLV	LONG LEG VERTICAL
AISI	AMERICAN IRON AND STEEL INSTITUTE	LOC	LOCATIONS
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	LP	LOW POINT
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS		
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	MATL	MATERIAL
AWS	AMERICAN WELDING SOCIETY	MAX	MAXIMUM
AB	ANCHOR BOLT	MECH	MECHANICAL
L	ANGLE	MFR	MANUFACTURER
APPROX	APPROXIMATE	MID	MIDDLE
ARCH	ARCHITECT; ARCHITECTURAL	MTL	METAL
@	AT	MIN	MINIMUM
		MISC	MISCELLANEOUS
		MCJ	MASONRY CONTROL JOINT
BM	BEAM	MW(XX)	MASONRY WALL REINFORCING (TYPE)
BLT	BOLT	MP(XX)	MASONRY PIER (TYPE)
B; BOTT	BOTTOM	MC(XX)	MASONRY COLUMN (TYPE)
CIP	CAST-IN PLACE	NA; NA	NOT APPLICABLE
CL; CL	CENTERLINE	NTS N.T.S.	NOT TO SCALE
CLR	CLEARANCE; CLEAR	NGVD	NATIONAL GEODETIC VERTICAL DATUM
COL	COLUMN		
CONC	CONCRETE	O.C; O.C.	ON CENTER
CONN	CONNECTION	OPNG	OPENING
CONT	CONTINUOUS	OPP	OPPOSITE
COORD	COORDINATE	OPP HND	OPPOSITE HAND
CMU	CONCRETE MASONRY UNIT		
CJ	CONTROL JOINT	QTY	QUANTITY
CC (XX)	CONCRETE COLUMN	PROJ	PROJECTION
DET	DETAIL	LB; #	POUND
DIAG	DIAGONAL	PLF	POUNDS PER LINEAR FOOT
DIA	DIAMETER	PSF	POUNDS PER SQUARE FOOT
DWG	DRAWING	PSI	POUNDS PER SQUARE INCH
DF	DROPPED FOOTING		
		RAD	RADIUS
EA	EACH	REF	REFERENCE
EL; ELEV	ELEVATION	REINF	REINFORCED; REINFORCING
EQUIP; EQMT	EQUIPMENT	REQD	REQUIRED
EW	EACH WAY		
EXIST	EXISTING	SCHED	SCHEDULE
EXP	EXPANSION	SHT	SHEET
EJ; EXP JT	EXPANSION JOINT	SIM	SIMILAR
EXT	EXTERIOR	SPEC	SPECIFICATION
		SQ	SQUARE
FBA	FLAT BAR ANCHOR	SF	SQUARE FEET
FBC	FLORIDA BUILDING CODE	SQ IN	SQUARE INCHES
FT	FOOT; FEET	SST; SS	STAINLESS STEEL
FIN	FINISH	STD	STANDARD
FLR; FL	FLOOR; FLOORING	STL	STEEL
FLD; FD	FLOOR DRAIN	SC(XX)	STEEL COLUMN (TYPE)
FOB	FACE OF BRICK		
FOF	FACE OF FOOTING	T&B	TOP AND BOTTOM
FOW	FACE OF WALL	THK	THICK
FTG	FOOTING	THRU	THROUGH
FDN	FOUNDATION	T / CONC	TOP OF CONCRETE
F(XX)	SPREAD FOOTING (TYPE)	T / FTG	TOP OF FOOTING
		T / STL	TOP OF STEEL
GA	GAGE	T&G	TONGUE AND GROOVE
GALV	GALVANIZED	TS	THICKENED SLAB
GALV STL	GALVANIZED STEEL	TYP	TYPICAL
GEN	GENERAL	TSE; TE	THICKENED SLAB EDGE
HP	HIGH POINT	UNO, U.N.O.	UNLESS NOTED OTHERWISE
HORIZ	HORIZONTAL		
		VERT	VERTICAL
INT	INTERIOR		
INFO	INFORMATION	W/	WITH
		W/O	WITHOUT
K	KIPS	WWF	WELDED WIRE FABRIC
KSI	KIPS PER SQUARE INCH	WF(XX)	WALL FOOTING (TYPE)

SYMBOLS AND LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
X, S-XXX	SECTION LETTER / WHERE DRAWN		POINT OF REFERENCE ELEVATION
			BENCHMARK / WORK POINT
X, S-XXX	DETAIL NUMBER / WHERE DRAWN		EARTH
			CONCRETE
NORTH	NORTH ARROW		CRUSHED STONE
		T	KEY NOTE
	CMU WALL		GIRDER BEAM
	CONCRETE WALL		INFILL BEAM
	WALL BELOW		JOIST
		%	DOWNWARD SLOPE

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PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
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No. SE215775

ARCHITECT OF RECORD
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DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
ABBREVIATIONS, LEGENDS & SPLICE TABLES

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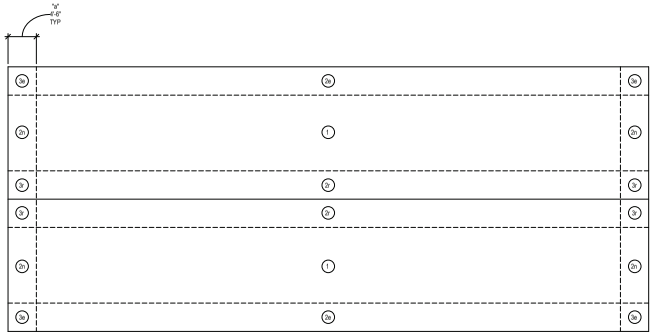


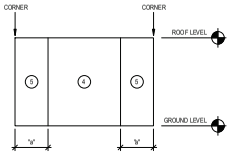
3 WIND LOAD MAP
SCALE: NTS

COMPONENT & CLADDING ROOF WIND PRESSURES (PSF)						
ZONE	EFFECTIVE WIND AREA (SF)					
	10	20	50	100	200	400
1	+51/-154	+46/-154	+39/-94	+34/-48	+34/-48	+34/-48
2e	+51/-154	+46/-154	+39/-94	+34/-48	+34/-48	+34/-48
2n	+51/-224	+46/-194	+39/-154	+34/-124	+34/-93	+34/-84
2r	+51/-224	+46/-194	+39/-154	+34/-124	+34/-93	+34/-84
3e	+51/-224	+46/-194	+39/-154	+34/-124	+34/-93	+34/-84
3r	+51/-227	+46/-229	+39/-178	+34/-140	+34/-140	+34/-140

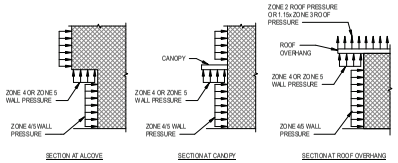
COMPONENT & CLADDING WALL WIND PRESSURES (PSF)						
ZONE	EFFECTIVE WIND AREA (SF)					
	10	20	50	100	200	400
4	+84/-91	+80/-87	+75/-82	+71/-78	+67/-74	+64/-71
5	+84/-112	+80/-104	+75/-94	+71/-87	+67/-79	+64/-72

1. FOR NET ROOF UPLIFT, 5 PSF DEAD LOAD SHALL BE PERMISSIBLE.
2. PLUS & MINUS SIGNS SIGNIFY PRESSURE ACTING TOWARD AND AWAY FROM THE SURFACE.
3. ZONE 4 = WALL AREAS OTHER THAN ZONE 5 & ZONE 5 = WALL AREAS WITHIN 4'-0" OF EACH CORNER.
4. PRESSURES SHOWN ARE BASED ON ASCE 7-16 ULTIMATE WIND SPEED. FOR SERVICE LEVEL PRESSURES, MULTIPLY VALUES IN TABLE BY 0.6.
5. GROSS PRESSURES ARE FOR JOINTS, WINDOWS, DOORS, VENEER, LIGHT GAGE METAL FRAMING, METAL DECK ATTACHMENTS, ROOFING, ROOFING ACCESSORIES AND OTHER BUILDING COMPONENTS AND CLADDING.
6. AT ALCOVES AND CANOPIES, THE TOTAL PRESSURE ON THE ALCOVE SOFFIT OR CANOPY SHALL EQUAL THE WALL PRESSURE IN THAT AREA.

6 COMPONENTS & CLADDING LOADS
SCALE: NTS



4 WIND LOAD WALL ZONE DIAGRAM
SCALE: NTS



5 ALCOVE WIND PRESSURE DIAGRAM
SCALE: NTS

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ALASKA AEROSPACE CORPORATION

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DESIGNED BY
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DRAWN BY
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WIND LOAD TABLES

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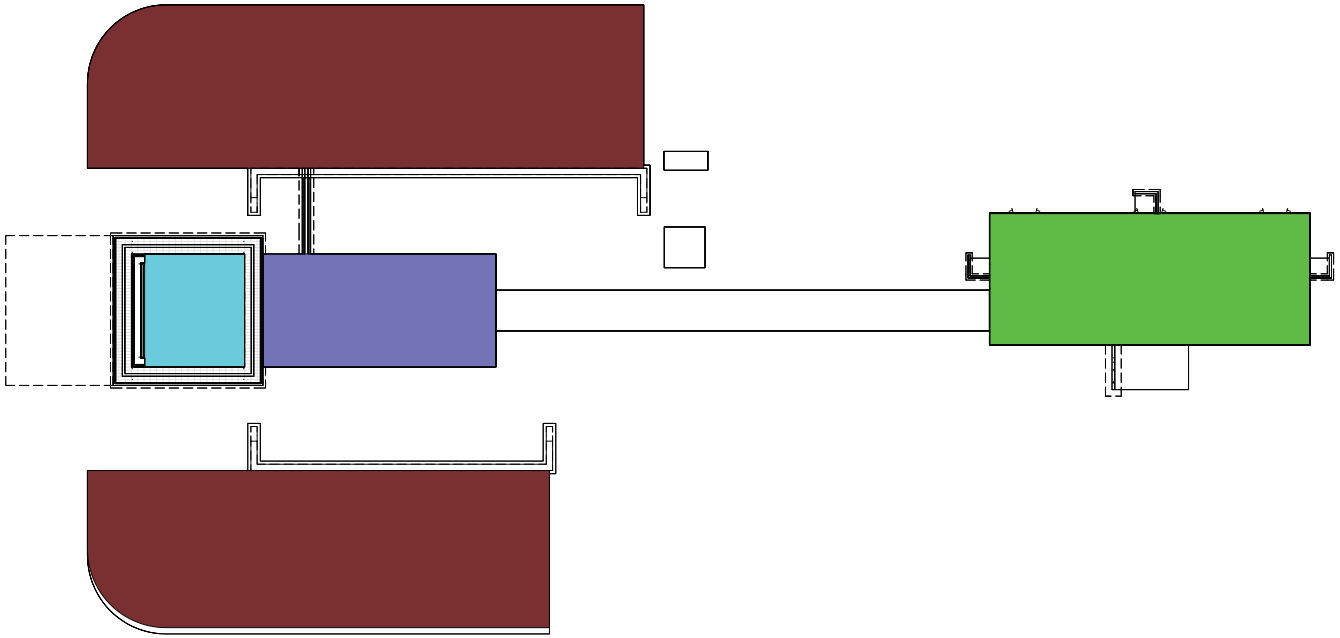
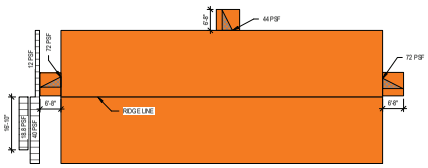


1 LOAD MAP - SLAB
SCALE: NTS

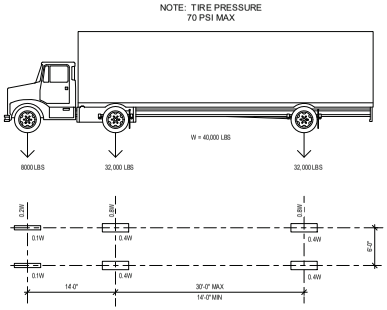


2 LOAD MAP - VIB ROOF
SCALE: NTS

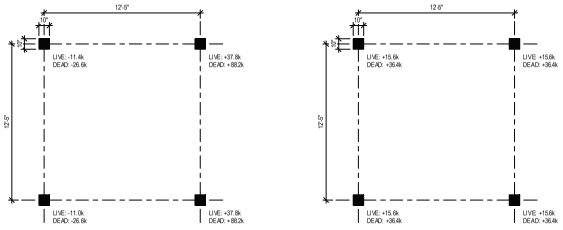
DESIGN LOAD SCHEDULE

DESCRIPTION	DESIGNATION MARK	DEAD LOAD (PSF)	DEAD LOAD BREAKDOWN	SUPERIMPOSED DEAD LOAD (PSF)	SUPERIMPOSED DEAD LOAD BREAKDOWN	LIVE LOAD (PSF)	CONCENTRATED LOADS	LIVE LOAD REDUCTION (Y/N)	COMMENTS
VIB SLAB		-	-	-	-	125 PSF	2 KIPS ON 2'-6"x2'-6" CONTACT AREA	N	
VIB ROOF		SW + 10 PSF	STANDING SEAM METAL ROOF DECK = 5 PSF	10 PSF	M/E/P = 5 PSF CEILING = 5 PSF	20 PSF	-	Y	
LM RUNWAY		-	-	-	-	125 PSF	96 KIPS ON 4'-0"x4'-0" CONTACT AREA HS20 TRUCK WHEELS PER 4/S-006	N	
LAUNCH PAD		-	-	-	-	125 PSF	LAUNCH PAD LOADING PER 3/S-006 HS20 TRUCK WHEELS PER 4/S-006	N	
COMMODITY PAD		-	-	-	-	125 PSF	(2) STACKED 20' 0"x8'-0" STANDARD SHIPPING CONTAINERS, 53 KIPS EA DELUGE WATER SUPPLY TANK 233 KIPS EA HS20 TRUCK WHEELS PER 4/S-006	N	

NOTES:
1. LOADS ARE UNFACTORED FOR USE WITH CODE PRESCRIBED LOAD COMBINATIONS UNO.
2. "SW" INDICATES SELF WEIGHT OF JOISTS TO BE DETERMINED BY JOIST DESIGNER.
3. SEE SHEET S-005 FOR ULTIMATE WIND LOADS ON ROOF, WALLS, AND OTHER COMPONENTS.
4. JOIST SEATS AND THEIR CONNECTIONS TO STRUCTURE SHALL BE DESIGNED FOR GRAVITY LOADS INDICATED IN TABLE, AND WIND UPLIFT LOADS INDICATED ON S-005.
5. JOIST DEFLECTION SHALL NOT EXCEED L/360 FOR ROOF LIVE LOAD OR L/240 FOR TOTAL WORST CASE GRAVITY OR NET WIND UPLIFT LOADS.
6. INDICATES SNOW DRIFT LOADS.
7. INDICATES UNBALANCED SNOW LOADS, REVERSIBLE ALONG RIDGE LINE.



4 HS20-44 TRUCK LOADING DETAIL
SCALE: 1/8" = 1'-0"



CONDITION 1 - HORIZONTAL POSITION

CONDITION 2 - VERTICAL POSITION

NOTES:
1. (-) INDICATES TENSION LOAD
2. (+) INDICATES COMPRESSION LOAD
3. LOADS ARE ULTIMATE

3 LAUNCH PAD LOADING DETAIL
SCALE: 1/4" = 1'-0"

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DESIGNED BY
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DRAWN BY
K. BANNISTER

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GRAVITY LOAD TABLES

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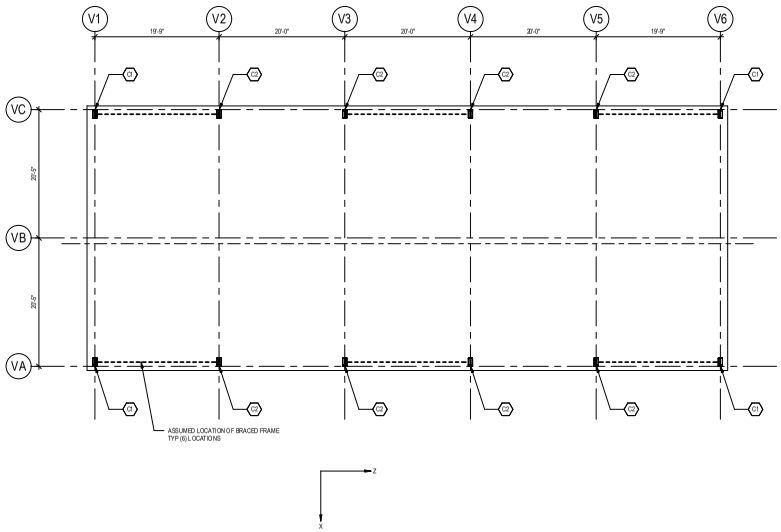
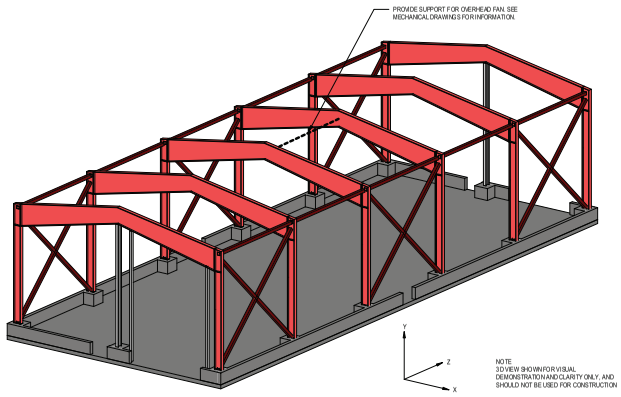


ESTIMATED COLUMN REACTIONS (KIPS, SERVICE LEVEL)

COLUMN	DEAD LOAD			ROOF LIVE LOAD			SEISMIC (X DIR)			SEISMIC (Z DIR)			WIND (X DIR)			WIND (Z DIR)			SNOW		
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
C1	±1.0	+9.0	±3.0	±1.0	+6.0	±3.0	±9.0	+12.0 -13.0	±3.0	±0.0	+12.0 -28.0	±3.0	±14.0	+17.0 -9.0	±10.0	±6.0	+9.0 -5.0	±11.0	±1.0	+12.0	±5.0
C2	±2.0	+12.0	±2.0	±2.0	+8.0	±2.0	±9.0	±9.0	±1.0	±0.0	+26.0 -18.0	±14.0	±20.0	+8.0 -10.0	±14.0	±12.0	+9.0 -12.0	±16.0	±3.0	+18.0	±3.0

2 ASSUMED PEMB FOUNDATION LOADS
SCALE: NTS



1 ASSUMED PEMB FRAME LAYOUT
SCALE:

PRE-ENGINEERED METAL BUILDING DEFLECTION AND DRIFT LIMITS:

VERTICAL DEFLECTIONS	
ROOF MEMBERS	
SNOW LOAD DEFLECTION FOR MEMBERS SUPPORTING NON-PLASTER CEILING	L/240
TOTAL LOAD DEFLECTION FOR MEMBERS SUPPORTING NON PLASTER CEILING	L/180
SNOW LOAD DEFLECTION FOR MEMBERS NOT SUPPORTING CEILING SLOW LOAD DEFLECTION FOR SECONDARY MEMBERS AT FORMED METAL ROOFING ONLY	L/180 L/150
TOTAL LOAD DEFLECTION FOR MEMBERS NOT SUPPORTING CEILING	L/120
TOTAL LOAD DEFLECTION AT FORMED METAL ROOF (WITH NO ADDITIONAL ROOF COVERING)	L/60
TOTAL LOAD DEFLECTION AT MEMBERS SUPPORTING MASONRY WALLS AND LINTELS	L/600 ≤ 3/8"
DEAD LOAD DEFLECTION PRIOR TO CLADDING FOR SPANDRELS SUPPORTING CLADDING LOADS	3/8"
TOTAL DEAD LOAD DEFLECTION FOR SPANDRELS SUPPORTING CLADDING LOADS	L/480 ≤ 5/8"
0.9*LL OR 0.5*DL DEFLECTION FOR SPANDRELS AT PRECAST OR STONE PANELS AND AT GLAZING	L/360 ≤ 1/2"
TOTAL DEAD LOAD DEFLECTION FOR SPANDRELS SUPPORTING HEAVY CLADDING LOADS (>25% BEAM DEAD LOAD) INCLUDING MASONRY	L/600 ≤ 3/8"
NOTES: 1. STIFFER ROOF MEMBERS MAY BE REQUIRED TO SATISFY ROOF PONDING REQUIREMENTS. PRE-ENGINEERED METAL BUILDING DESIGNER SHALL MAINTAIN POSITIVE ROOF DRAINAGE UNDER (D+0.5*S) [D+S PSF] LOAD COMBINATION. 2. SPANDREL MEMBERS MAY REQUIRE STIFFER DEFLECTION REQUIREMENTS. PRE-ENGINEERED METAL BUILDING DESIGNER SHALL COORDINATE VERTICAL DEFLECTION REQUIREMENTS WHERE STRUCTURAL MEMBERS INTERACT WITH ARCHITECTURAL ELEMENTS AND WHERE CLADDING WEIGHT EXCEEDS 25% OF THE TOTAL DEAD LOAD ON SPANDREL BEAM	
ROOF MEMBERS	
TOTAL LOAD ON FLOOR MEMBERS	L/240
LIVE LOAD ON FLOOR MEMBERS	L/360
NOTES: 1. STIFFER ROOF MEMBERS MAY BE REQUIRED TO SATISFY FLOOR VIBRATION REQUIREMENTS BASED ON DESIGN GUIDE 11, SEE DESIGN CRITERIA FOR ADDITIONAL VIBRATION PARAMETERS AND LIMITS.	
HORIZONTAL DEFLECTIONS	
EXTERIOR WALLS/GIRTS (OUT-OF-PLANE)	
EXTERIOR WALLS WITH METAL PANELS SIDING AND NO INTERIOR GYP	L/60
EXTERIOR WALLS WITH FLEXIBLE FINISHED (GYP BOARD, METAL PANEL, ETC)	L/120
EXTERIOR WALLS WITH OTHER BRITTLE FINISHED (MASONRY, ETC)	L/240 ≤ 1.5"
EXTERIOR WALLS WITH PLASTER OR STUCCO FINISHED	L/360
NOTES: 1. WIND LOAD - IBC 2012 OR LATER - 0.42*ULTIMATE LEVEL COMPONENT AND CLADDING PRESSURES	
BUILDING DRIFT	
WIND DRIFT FOR FORMED METAL SIDED BUILDINGS	H/180
SEISMIC LOADS - STORY DRIFTS	H/180
NOTES: 1. WIND LOAD - IBC 2012 OR LATER - 0.42*MAIN FORCE RESISTING SYSTEM PRESSURES AS CALCULATED BY THE PRE-ENGINEERED METAL BUILDING DESIGNER (ADJUST FROM 50 YEAR WIND TO 10 YEAR WIND)	

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No. SE215775
05/08/2026

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

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TITLE
PEMB REQUIREMENTS

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SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

B. Related Requirements:

1. Section 031000 "Concrete Forming and Accessories" for form-facing materials, form liners, insulating concrete forms, and waterstops.
2. Section 033000 "Concrete Reinforcing" for steel reinforcing bars and welded-wire reinforcement.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, and other pozzolans materials subject to compliance with requirements.

B. Water-Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 ACTION SUBMITTALS

A. Product Data: For each of the following:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Aggregates.
6. Admixtures:
   a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
7. Vapor retarders.
8. Liquid floor treatments.
9. Curing materials.
10. Joint fillers.

B. Design Mixtures: For each concrete mixture, include the following:

1. Mixture identification.
2. Minimum 28-day compressive strength.
3. Durability exposure class.
4. Maximum w/cm.
5. Calculated equilibrium unit weight, for lightweight concrete.
6. Slump limit.
7. Air content.
8. Nominal maximum aggregate size.
9. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
10. Intended placement method.
11. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
   a. Location of construction joints is subject to approval of the Architect.

D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

1.4 INFORMATIONAL SUBMITTALS

A. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Curing compounds.
4. Vapor retarders.
5. Joint-filler strips.

B. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Aggregates.
6. Admixtures.

C. Research Reports: For concrete admixtures in accordance with ICC's Acceptance Criteria AC198.

D. Preconstruction Test Reports: For each mix design.

1.5 QUALITY ASSURANCE

A. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.

1. Include the following information in each test report:
   a. Admixture dosage rates.
   b. Slump.
   c. Air content.
   d. Seven-day compressive strength.
   e. 28-day compressive strength.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Comply with ASTM C94/C94M and ACI 301.

1.8 FIELD CONDITIONS

A. Cold Weather Placement: Comply with ACI 301 and ACI 306.1.

B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, **Type III, gray**.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.

B. Normal-Weight Aggregates: ASTM C33/C33M, **Class 3S, Class 2S, Class 1S**, coarse aggregate or better, graded. Provide aggregates from a single source.

1. Alkali-Silica Reaction: Comply with one of the following:
   a. Expansion Results of Aggregate: Not more than 0.04 percent at one-year when tested in accordance with ASTM C1293.
   b. Expansion Results of Aggregate and Cementitious Materials in Combination: Not more than 0.10 percent at an age of 16 days when tested in accordance with ASTM C1567.
   c. Alkali Content in Concrete: Not more than 4 lb./cu. yd. for moderately reactive aggregate or 3 lb./cu. yd. for highly reactive aggregate, when tested in accordance with ASTM C1293 and categorized in accordance with ASTM C1778, based on alkali content being calculated in accordance with ACI 301.
2. Maximum Coarse-Aggregate Size: 1-1/2 inches, but not to exceed 1/5 of narrowest dimension between forms, 1/3 of slab depth, or 3/4 of minimum clear spacing between reinforcement; nominal.
3. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

C. Air-Entraining Admixture: ASTM C260/C260M.

D. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
2. Retarding Admixture: ASTM C494/C494M, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.

E. Water and Water Used to Make Ice: ASTM C94/C94M, potable

2.3 VAPOR RETARDERS

A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A, not less than 15 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.

LIQUID FLOOR TREATMENTS

B. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or siliconate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.

2.4 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

B. Moisture-Retaining Cover: ASTM C171, polyethylene film but apo polyethylene sheet.

1. Color:
   a. Ambient Temperature Below 50 deg F: Black.
   b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
   c. Ambient Temperature Above 85 deg F: White.

C. Curing Paper: 6-feet-wide paper, consisting of two layers of fibered kraft paper laminated with double coating of asphalt.

D. Water: Potable or complying with ASTM C1602/C1602M.

E. Clear Waterborne, Membrane-Forming, Dissipating Curing Compound: ASTM C309, Type 1, Class B.

F. Clear Waterborne, Membrane-Forming, Nondissipating Curing Compound: ASTM C309, Type 1, Class B.

G. Clear Waterborne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

2.5 RELATED MATERIALS

A. Expansion- and Isolation-Joint Filler Strips: **ASTM D1751, asphalt-saturated cellulosic fiber or ASTM D1752, cork or self-expanding cork**.

B. Floor Slab Protective Covering: 6-feet-wide cellulosed fabric.

2.6 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.

1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash or Other Pozzolans: 25 percent by mass.
2. Slag Cement: 50 percent by mass.
3. Total of Fly Ash or Other Pozzolans, Slag Cement: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass.
4. Total of Fly Ash or Other Pozzolans: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass.

C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.

1. Use **water-reducing, high-range water-reducing or plasticizing** admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in **pumped concrete, concrete for heavy-use industrial slabs, and concrete with a w/cm below 0.50**.

2.7 CONCRETE MIXTURES

A. Class A Normal-weight concrete used for footings, grade beams, and tie beams.

1. Exposure Class: ACI 318 **F1 S0 W1 C1**.
2. Minimum Compressive Strength: **4000** psi at 28 days.
3. Maximum w/cm: **0.45**
4. Slump Limit: **4 inches, plus or minus 1 inch** or **8 inches, plus or minus 1 inch for concrete with verified slump of 3 inches plus or minus 1 inch before adding high-range water-reducing admixture or plasticizing admixture at Project site**.
5. Air Content:
   a. Exposure Class F1: **5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size. 4.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-inch nominal maximum aggregate size. 4.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-1/2-inch nominal maximum aggregate size**.
6. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.

B. Class B: Normal-weight concrete used for launch pad slabs, LM runway slab, and south rail slab.

1. Exposure Class: ACI 318 **F3 S0 W1 C1**.
2. Minimum Compressive Strength: **5000** psi at 56 days.
3. Maximum w/cm: **0.40**.
4. Slump Limit: **4 inches, plus or minus 1 inch** or **8 inches, plus or minus 1 inch for concrete with verified slump of 3 inches plus or minus 1 inch before adding high-range water-reducing admixture or plasticizing admixture at Project site**.
5. Air Content:
   a. Exposure Classes F2 and F3: **6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size. 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-inch nominal maximum aggregate size. 5.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-1/2-inch nominal maximum aggregate size**.
6. Limit water-soluble, chloride-ion content in hardened concrete to 0.30 percent by weight of cement.

C. Class C: Normal-weight concrete used for interior slabs-on-ground.

1. Exposure Class: ACI 318 **F1 S0 W0 C0**.
2. Minimum Compressive Strength: **4000** psi at 28 days.
3. Maximum w/cm: **0.50**.
4. Minimum Cementitious Materials Content: **520 lb/cu. yd.**
5. Air Content:
   a. Exposure Class F1: **5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size. 4.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-inch nominal maximum aggregate size. 4.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-1/2-inch nominal maximum aggregate size**.
6. Limit water-soluble, chloride-ion content in hardened concrete to 0.60 percent by weight of cement.

D. Class E: Normal-weight concrete used for stem walls, retaining walls, curbs, trench walls and trench slabs exposed to weather or deicers.

1. Exposure Class: ACI 318 **F3 S0 W1 C2**.
2. Minimum Compressive Strength: **4000** psi at 28 days.
3. Maximum w/cm: **0.45**
4. Slump Limit: **4 inches, plus or minus 1 inch**, **8 inches, plus or minus 1 inch for concrete with verified slump of 3 inches plus or minus 1 inch before adding high-range water-reducing admixture or plasticizing admixture at Project site**.
5. Air Content:
   a. Exposure Classes F2 and F3: **6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size. 6 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-inch nominal maximum aggregate size. 5.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-1/2-inch (38 mm) nominal maximum aggregate size**.
6. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and **ASTM C11 16/C1116M**, and furnish batch ticket information.

B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.

1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..
3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added.
4. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.

3.2 INSTALLATION OF VAPOR RETARDER

A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.

1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
2. Face laps away from exposed direction of concrete pour.
3. Lap vapor retarder over footings and gap beams not less than 6 inches, sealing vapor retarder to concrete.
4. Lap joints 6 inches and seal with manufacturer's recommended tape.
5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps
6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
7. Protect vapor retarder during placement of reinforcement and concrete.
   a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.

3.3 JOINTS

A. Construct joints true to line, with faces perpendicular to surface plane of concrete.

B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.

1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
2. Place joints perpendicular to main reinforcement.
   a. Continue reinforcement across construction joints unless otherwise indicated.
   b. Do not continue reinforcement through a side of strip placements of floors and slabs.
3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
4. Locate joints for beams, slabs, joists, and grides at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
6. Space vertical joints in **walls as indicated on Drawings**. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.

C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Install **one-fourth** of concrete thickness as follows:

1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond blades. Cut 1/8-inch-wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.

D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.

1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

E. Doweled Joints:

1. Install dowel bars and support assemblies at joints where indicated on Drawings.
2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

F. Dowel Plates: Install dowel plates at joints where indicated on Drawings.

3.4 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.

1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.

B. Notify Architect and testing and inspection agencies 24 hours prior to commencement of concrete placement.

C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect in writing, but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.

1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.

E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.

1. If a section cannot be placed continuously, provide construction joints as indicated.
2. Deposit concrete to avoid segregation.
3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
   a. Do not use vibrators to transport concrete inside forms.
   b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
   c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
   d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.

1. Do not place concrete floors and slabs in a checkerboard sequence.
2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
3. Maintain reinforcement in position on chairs during concrete placement.
4. Screed slab surfaces with a straightedge and strike off to correct elevations.
5. Level concrete, cut high areas, and fill low areas.
6. Slope surfaces uniformly to drains where required.
7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
8. Do not further disturb slab surfaces before starting finishing operations.

3.5 FINISHING FORMED SURFACES

A. As-Cast Surface Finishes:

1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
   a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
   b. Remove projections larger than 1 inch.
   c. Tie holes do not require patching.
   d. Surface Tolerance: ACI 117 Class D.
   e. Apply to concrete surfaces **not exposed to public view**.
2. ACI 301 Surface Finish SF-2.0: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams.
   a. Patch voids larger than 1 inch wide or 1/2 inch deep.
   b. Remove projections larger than 1/4 inch.
   c. Patch tie holes.
   d. Surface Tolerance: ACI 117 Class B.
   e. Locations: Apply to concrete surfaces **exposed to public view, to receive a rubbed finish, or to be covered with a coating or covering material applied directly to concrete**.

B. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a color and texture matching adjacent formed surfaces.
2. Continue the final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.6 FINISHING FLOORS AND SLABS

A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Scratch Finish:

1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.
3. Apply scratch finish to surfaces to **receive concrete floor topping** or **to receive mortar setting beds for bonded cementitious floor finishes**.

C. Float Finish:

1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
2. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 tolerances for conventional concrete.
3. Apply float finish to surfaces **to receive trowel finish**.

D. Trowel Finish:

1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
2. Continue trowel in passes and restraightening until surface is free of trowel marks and uniform in texture and appearance.
3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
4. Do not add water to concrete surface.
5. Do not apply hard-trowelled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces **exposed to view**.
7. Finish and measure surface, so gap at any point between concrete surface and an unleaved, freestanding, 10-ft. - (3.05-m-) long straightedge resting on two high spots and placed anywhere on the surface does not exceed **1/4 inch (6 mm) [3/16 inch (4.8 mm)] [1/8 inch (3 mm)] [1/8 inch (3 mm)] [1/8 inch (3 mm)] and also no more than 1/4 inch (6 mm) in 2 feet (610 mm)**.

E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces **[indicated on Drawings] [where ceramic or quarry tile is to be installed by either thickset or thinset method]**. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.

1. Coordinate required final finish with Architect before application.
2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.

Retain "Broom Finish" Paragraph below if applicable. Broom finish is generally used on exterior concrete steps and platforms, ramps, and other surfaces subject to light foot traffic.

F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and other surfaces indicated on Drawings.

1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
2. Coordinate required final finish with Architect before application.

3.7 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

A. Filling In:

1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
3. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations:

1. Coordinate sizes and locations of concrete bases with actual equipment provided.
2. Construct concrete bases **6 inches** high unless otherwise indicated on Drawings and extend base not less than 6 inches in each direction beyond the maximum dimensions of supported equipment unless otherwise indicated on Drawings, or unless required for seismic anchor support.
3. Minimum Compressive Strength: **4000** psi at 28 days.
4. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18 inch centers around the full perimeter of concrete base.
5. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete substrate.
6. Prior to pouring concrete, place and secure anchorage devices.
   a. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   b. Cast anchor-bolt insert into bases.
   c. Install anchor bolts to elevations required for proper attachment to supported equipment.

D. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.

1. Cast-in inserts and accessories, as shown on Drawings.
2. Screed, ramp, and trowel finish concrete surfaces.

3.8 CONCRETE CURING

A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
2. Comply with ACI 301 and ACI 305.1 for hot weather protection during curing.
3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h, calculated in accordance with ACI 305.1, before and during finishing operations.

B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:

1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
2. Cure concrete containing color pigments in accordance with color pigment manufacturer's instructions.
3. If forms remain during curing period, moist cure after loosening forms.
4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
   a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
   b. Continuous Sprinkling: Maintain concrete surface continuously wet.
   c. Absorptive Cover: Fit absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
   d. Water Retention Sheeting Materials: Cover exposed concrete surfaces with sheeting material, taping, or lapping seams.
   e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
      1) Recoat areas subject to heavy rainfall within three hours after initial application.
      2) Maintain continuity of coating and repair damage during curing period.

C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:

1. Begin curing immediately after finishing concrete.
2. Interior Concrete Floors:
   a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
      1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
         a) Lap edges and ends of absorptive cover not less than 12 inches.
         b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
      2) Moisture-Retaining Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
         a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
         b) Cure for not less than seven days.
      3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
         a) Water.
         b) Continuous water fog spray.
   b. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
      1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
         a) Lap edges and ends of absorptive cover not less than 12 inches.
         b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
      2) Moisture-Retaining Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
         a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
         b) Cure for not less than seven days.
      3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
         a) Water.
         b) Continuous water fog spray.
   c. Floors to Receive Polished Finish: Contractor has option of the following:
      1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
         a) Lap edges and ends of absorptive cover not less than 12 inches.
         b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
      2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
         a) Water.
         b) Continuous water fog spray.
   d. Floors to Receive Chemical Stain:
      1) As soon as concrete has sufficient set to permit application without marring concrete surface, install curing paper over entire area of floor.
      2) Install curing paper square to building lines, without wrinkles, and in a single length without end joints.
      3) Butt sides of curing paper tight; do not overlap sides of curing paper.
      4) Leave curing paper in place for duration of curing period, but not less than 28 days.
   e. Floors to Receive Urethane Flooring:
      1) As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
      2) Rewet absorptive cover, and cover immediately with polyethylene moisture-retaining cover with edges lapped 6 inches and sealed in place.
      3) Secure polyethylene moisture-retaining cover in place to prohibit air from circulating under polyethylene moisture-retaining cover.
      4) Leave absorptive cover and polyethylene moisture-retaining cover in place for duration of curing period, but not less than 28 days.
   f. Floors to Receive Curing Compound:

1) App

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FOR CONSTRUCTION

DOCUMENT HISTORY

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DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
CONCRETE SPECS

DRAWING NO.
S-008

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

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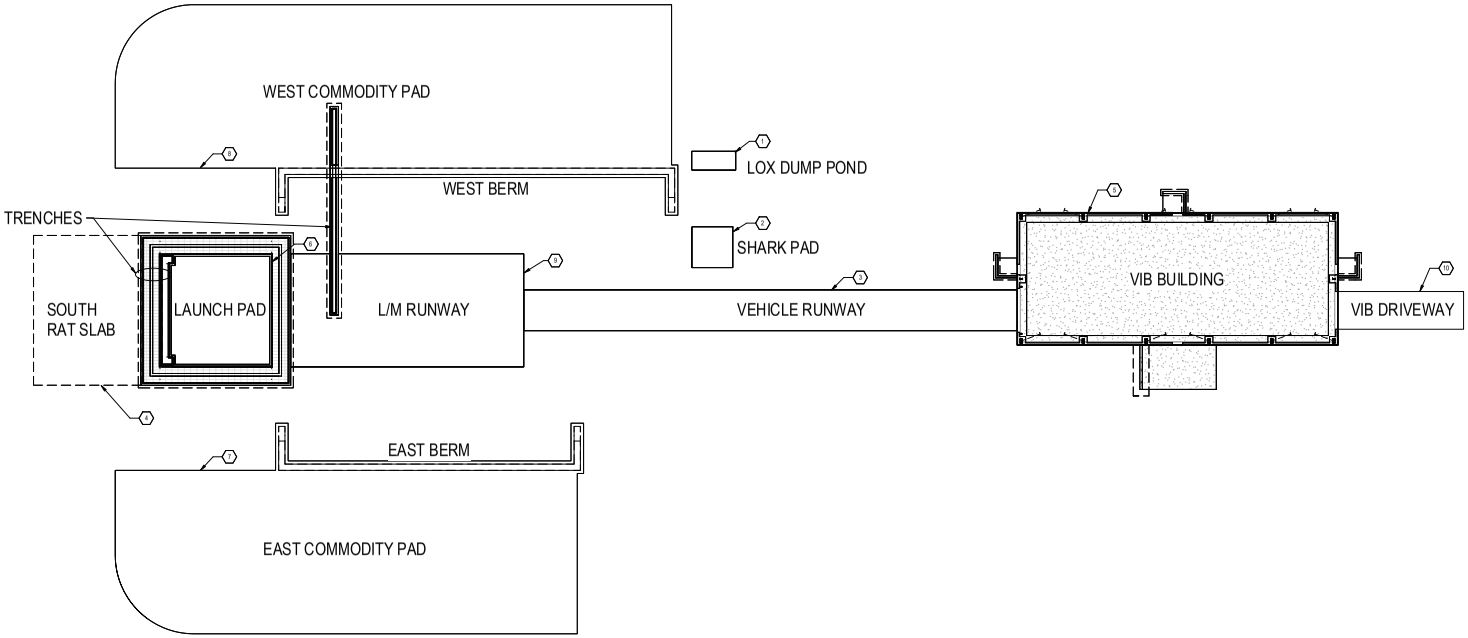

1 SITE PLAN
SCALE: 1/16" = 1'-0"

LEGEND:

NOTES:

1. SEE SHEET SERIES S-000X FOR GENERAL NOTES AND ABBREVIATIONS.
2. COORDINATE ALL WALL DIMENSIONS AND OPENING LOCATIONS WITH ARCHITECTURAL DRAWINGS.
3. COORDINATE ALL FLOOR PENETRATIONS FOR UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO S-007 FOR FRAMING REQUIREMENTS.
4. COORDINATE SIZES AND LOCATIONS WITH MECHANICAL AND ELECTRICAL DRAWINGS AND MANUFACTURER INFORMATION. MECHANICAL/ELECTRICAL EQUIPMENT LOCATED ON ELEVATED SLAB SHALL BE PLACED ON STEEL SUPPORTS/RAILS.
5. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR CONCRETE SLAB LOCATIONS, EXTENTS, SLOPES, CONTROL JOINT LOCATIONS AND ELEVATIONS.

KEY NOTES:

1. LOX DUMP PER DETAIL 1/S-503
2. SHARK PAD, SEE EXTERIOR PAD DETAIL 4/S-503
3. VEHICLE RUNWAY PER CIVIL
4. SOUTH RAT SLAB PER S-133
5. VIB BUILDING PER S-101
6. LAUNCH PAD PER S-130
7. EAST COMMODITY PAD PER S-131
8. WEST COMMODITY PAD PER S-132
9. L/M RUNWAY PER S-130
10. VIB DRIVEWAY PER CIVIL

NORTH

0 8' 16' 32' 48'
SCALE: 1/16" = 1'-0"

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DOCUMENT HISTORY

AREA 3 PAD D

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
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No. SE215775
REGISTERED PROFESSIONAL ENGINEER

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SITE PLAN

DRAWING NO.
S-100

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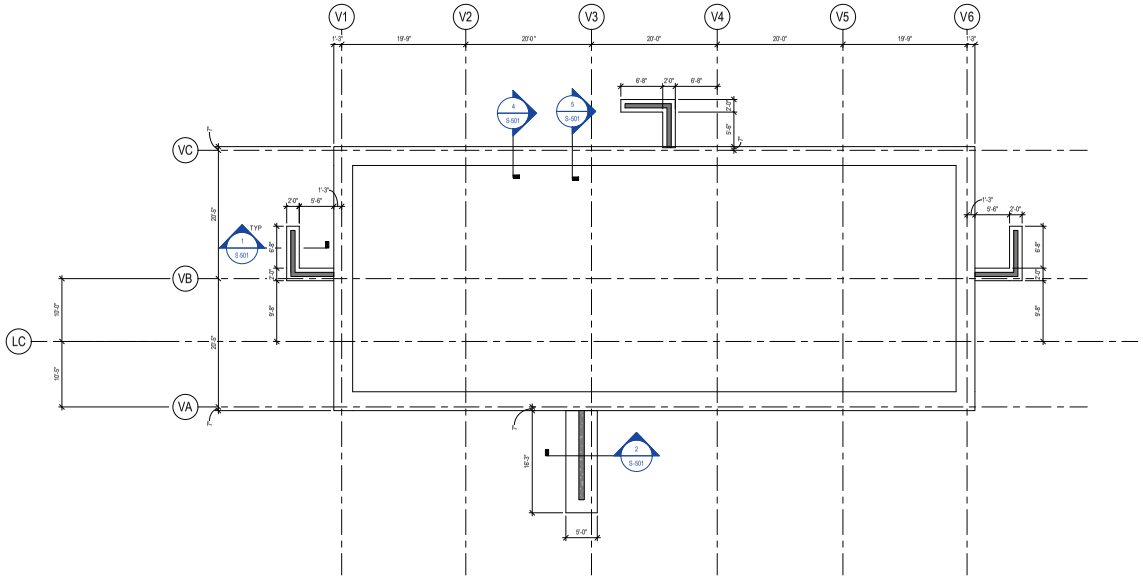
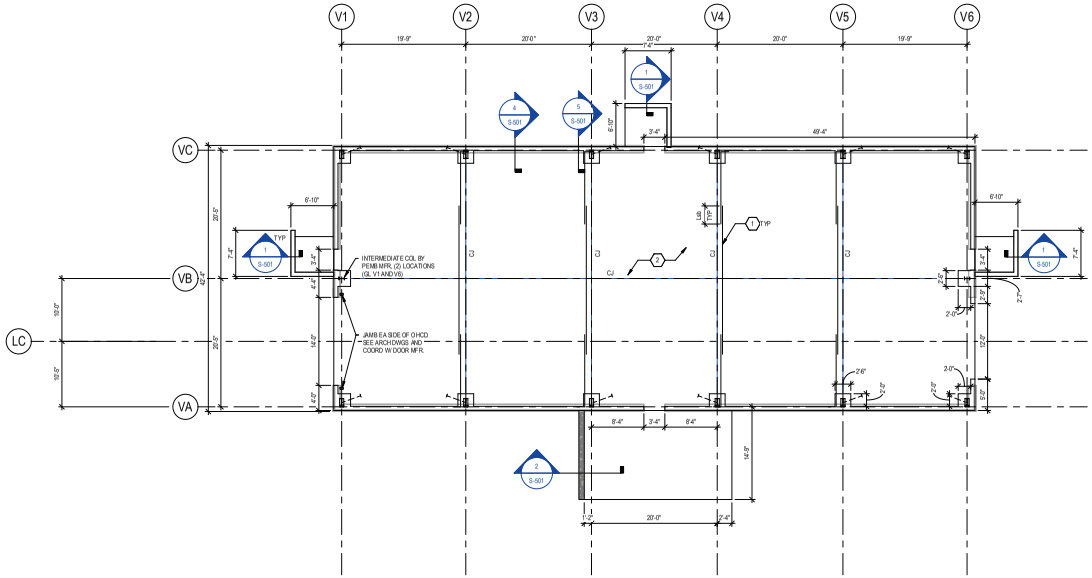


1 VIB FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



2 VIB SLAB PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

NOTES:

1. SEE SHEET SERIES S-00X FOR GENERAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS.
2. COORDINATE ALL WALL DIMENSIONS AND OPENING LOCATIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR EXTERIOR CONCRETE SLAB LOCATIONS, EXTENTS, SLOPES, CONTROL JOINT LOCATIONS AND ELEVATIONS.
4. COORDINATE ALL UNDER SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
5. PROVIDE HOUSEKEEPING PADS FOR MECHANICAL AND ELECTRICAL EQUIPMENT AS REQUIRED ON SLABS ON GRADE. COORDINATE SIZES AND LOCATIONS WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS AND MANUFACTURER INFORMATION. SEE DETAIL ON SHEET S-503.
6. TS SLAB ELEVATION = 0'-0" UNO.
7. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.
8. COORDINATE LOCATIONS OF DEPRESSED SLABS WITH ARCHITECTURAL AND PLUMBING DRAWINGS.
9. COORDINATE ALL CURB DIMENSIONS WITH JAMB AND BASE PLATES. SEE CIVIL DWGS FOR ADDL INFO.

KEY NOTES:

1. (3) #6 REINFORCEMENT BETWEEN PEMB COLUMNS. HOOK ENDS INTO GRADE BEAM FOOTING PER S'S-501
2. 8" SLAB ON GRADE REINFORCED W/ #5 @ 12" OC T&B E-W

NORTH

0 4' 8' 16' 24'
SCALE: 1/8" = 1'-0"

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ALASKA AEROSPACE CORPORATION

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ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
VIB SLAB & FOUNDATION PLANS

DRAWING NO.
S-101

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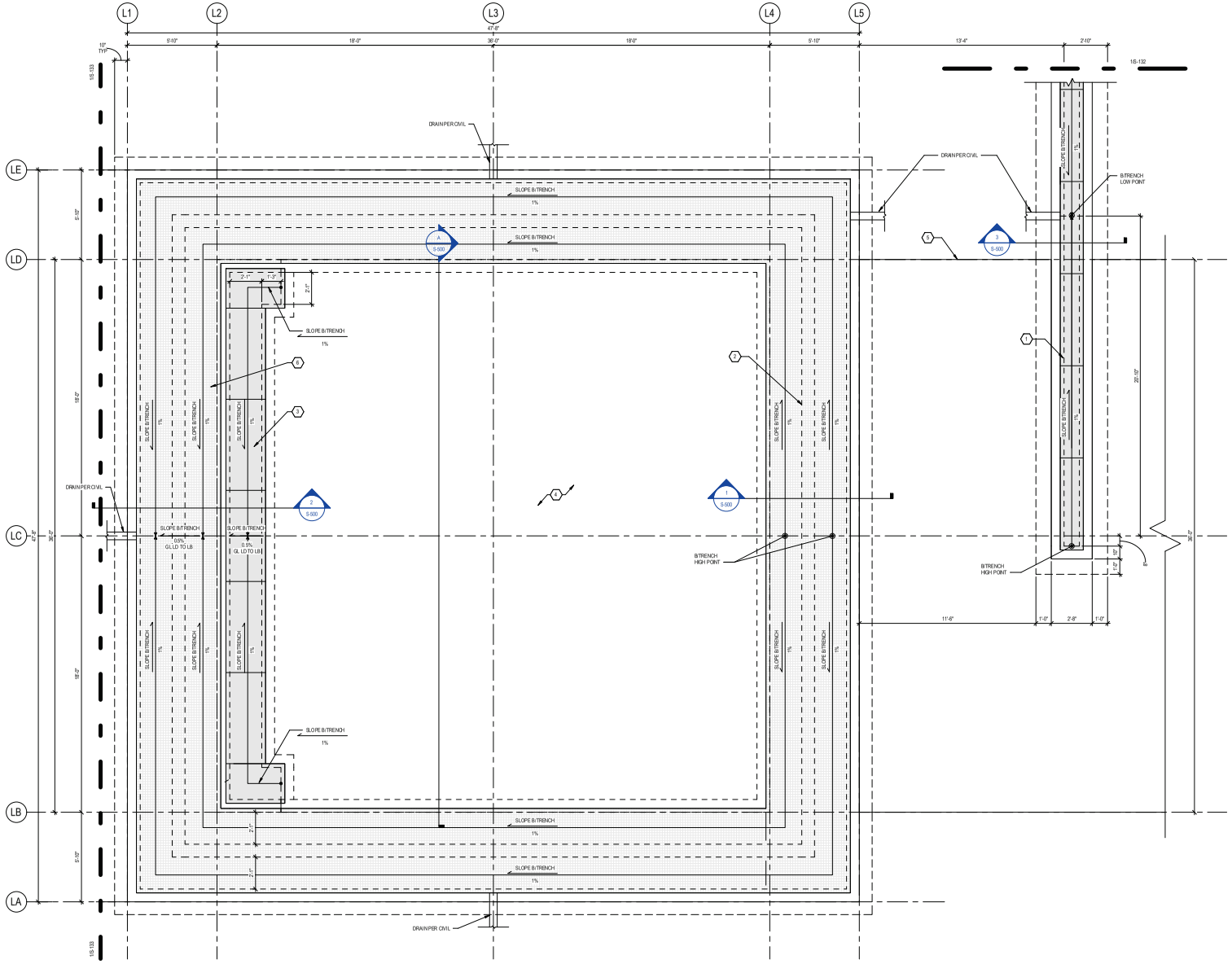

1 LAUNCH PAD & TRENCHES SLAB PLAN

SCALE: 3/8" = 1'-0"

LEGEND:

NOTES:

1. SEE SHEET SERIES S-000 FOR GENERAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS.
2. COORDINATE ALL WALL DIMENSIONS AND OPENING LOCATIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR CONCRETE SLAB LOCATIONS, EXTENTS, SLOPES, CONTROL JOINT LOCATIONS AND ELEVATIONS
4. COORDINATE ALL UNDER SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
5. TI SLAB ELEVATION = 0'-0" UNO.
6. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.

KEY NOTES:

1. STAGE 2 SERVICE TRENCH, PER SHEET S-500
2. DELUGE TRENCH PER SHEET S-500. TRENCH BOTTOM SLAB TO BE SLOPED TOWARDS DELUGE CATCHMENT TANK, PER CIVIL. 1% SLOPE. W/ HIGH POINT OF SLAB LOCATED IN TRENCH OPPOSITE OF CATCHMENT TANK.
3. LAUNCH MOUNT SERVICE TRENCH PER SHEET S-500. TRENCH BOTTOM SLAB TO BE SLOPED TOWARDS DELUGE CATCHMENT TANK, PER CIVIL. 1% SLOPE. W/ HIGH POINT OF SLAB LOCATED IN TRENCH OPPOSITE OF CATCHMENT TANK.
4. LAUNCH PAD PER SHEET S-500
5. LM RUNWAY. 12" SLAB ON GRADE REINFORCED W/ #5 @ 12" O.C.T.&B. E.W.
6. TRAFFIC-RATED GRATING, McNICHOLS HEAVY-DUTY RECTANGULAR BAR GHS-400, 19W x 4 SPACING, 4" THICK.

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PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
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No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
LAUNCH PAD & TRENCHES SLAB PLAN

DRAWING NO.
S-130

NORTH

SCALE: 3/8" = 1'-0"

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LEGEND:

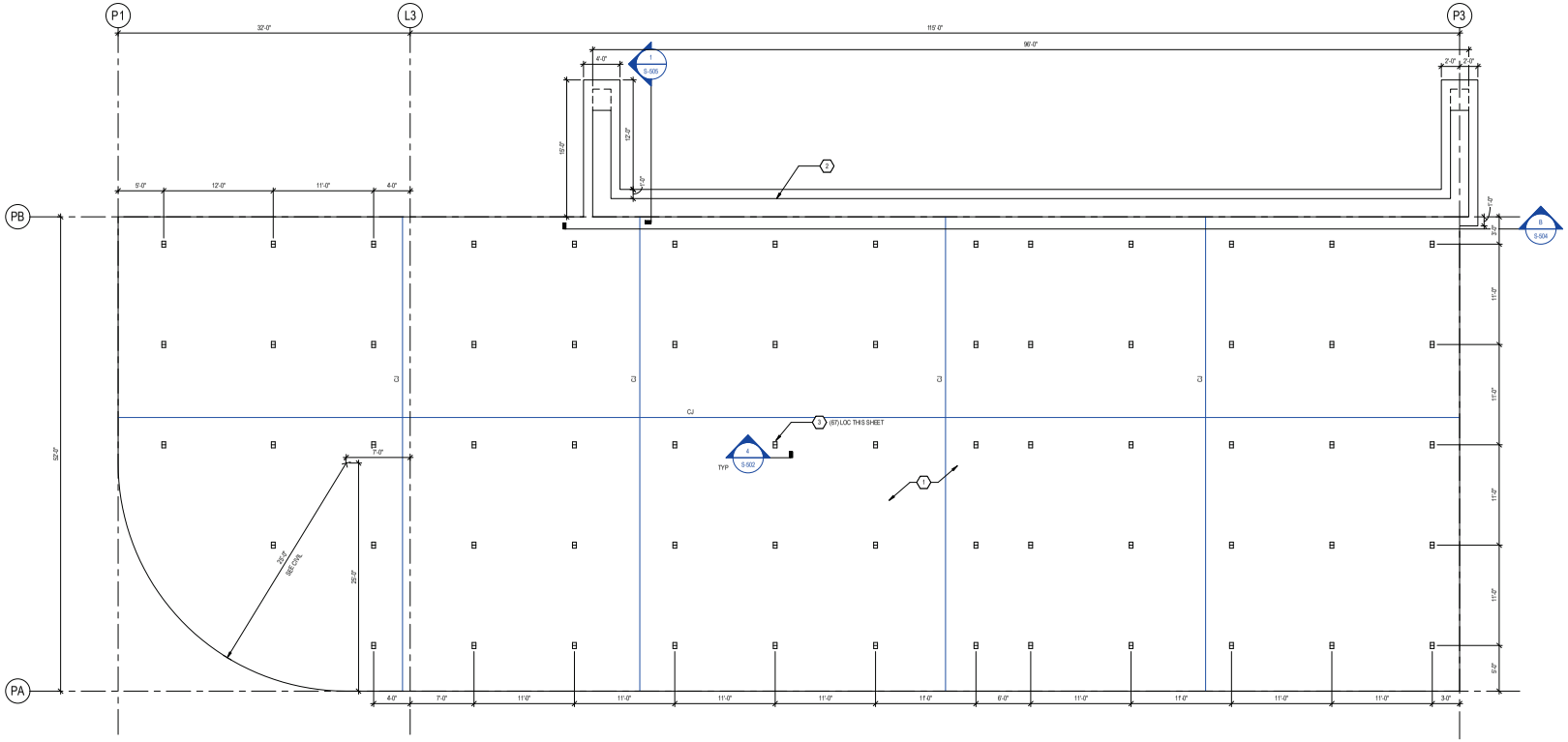
CJ(XX) = SLAB CONTROL JOINT/CONSTRUCTION JOINT. SEE SHEET S-501 FOR DETAIL

NOTES:

1. SEE SHEET SERIES S-00X FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR GROUND/FLOOR EXTERIOR CONCRETE SLAB LAYOUT, SLOPES, CONTROL JOINTS AND ELEVATIONS.
3. COORDINATE ALL UNDER-SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
4. TI SLAB ELEVATION = 0'-0" UNO.
5. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.

KEY NOTES:

1. 10" SLAB ON GRADE. REINFORCED W / #5 @ 12" OC T&B E/W
2. BERM WALL PER SHEET S-504
3. SECURING POINT PER DETAIL 4/S-502
4. STAGE 2 SERVICE TRENCH. PER SHEET S-500



1 EAST COMMODITY PAD
3/16" = 1'-0"

NORTH

0 4 8 12 16
SCALE: 3/16" = 1'-0"

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ARCHITECT OF RECORD
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ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
EAST
COMMODITY PAD
SLAB PLAN

DRAWING NO.
S-131

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LEGEND:

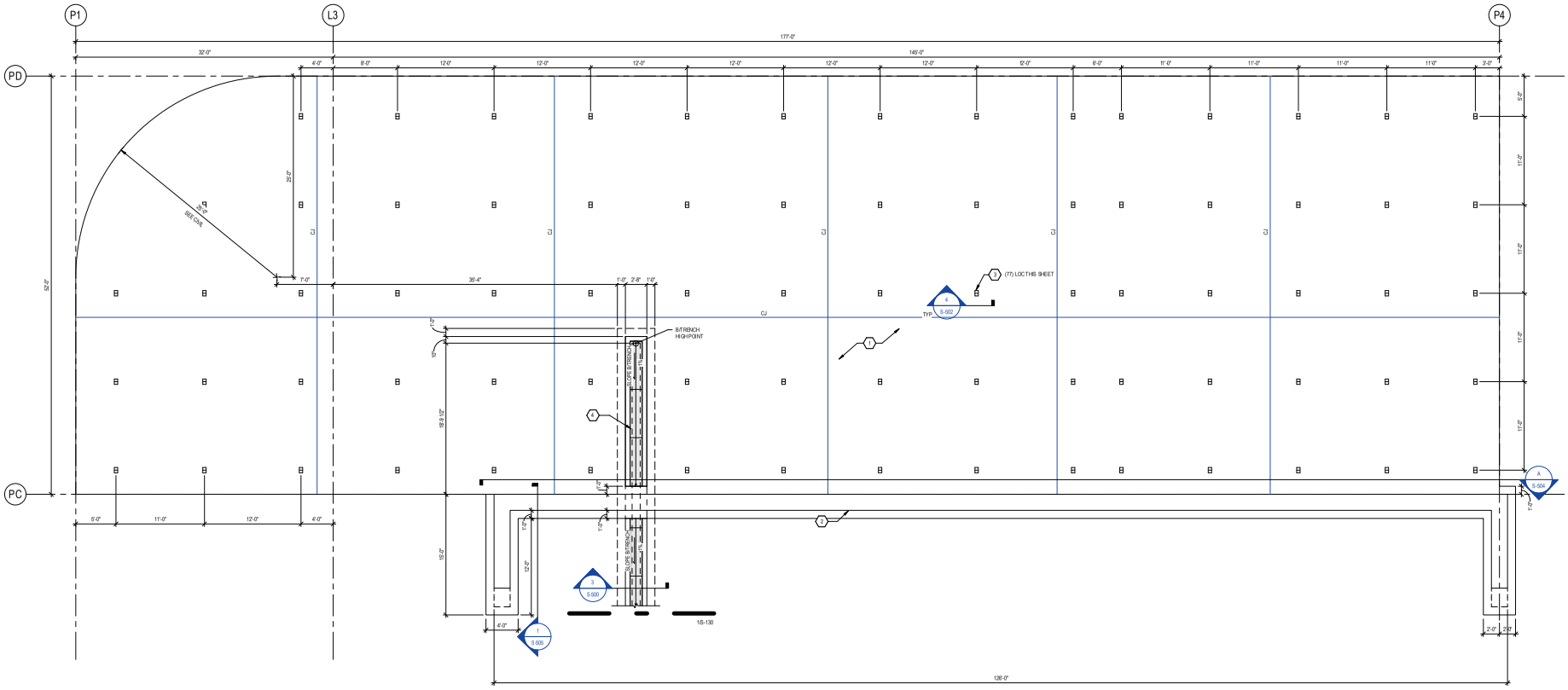
CJ(XX) = SLAB CONTROL JOINT/CONSTRUCTION JOINT. SEE SHEET S-501 FOR DETAIL

NOTES:

1. SEE SHEET SERIES S-00X FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR GROUND/FLOOR EXTERIOR CONCRETE SLAB LAYOUT, SLOPES, CONTROL JOINTS AND ELEVATIONS.
3. COORDINATE ALL UNDER-SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
4. TI SLAB ELEVATION = 0'-0" UNO.
5. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.

KEY NOTES:

1. 10" SLAB ON GRADE REINFORCED W / #5 @ 12" OC T&B E/W
2. BERM WALL PER SHEET S-504
3. SECURING POINT PER DETAIL 4/S-502
4. STAGE 2 SERVICE TRENCH, PER SHEET S-500



1 WEST COMMODITY PAD
3/16" = 1'-0"

NORTH

0 4' 8' 12' 16'
SCALE: 3/16" = 1'-0"

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12/31/2026

ARCHITECT OF RECORD
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ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
WEST COMMODITY PAD SLAB PLAN

DRAWING NO.
S-132

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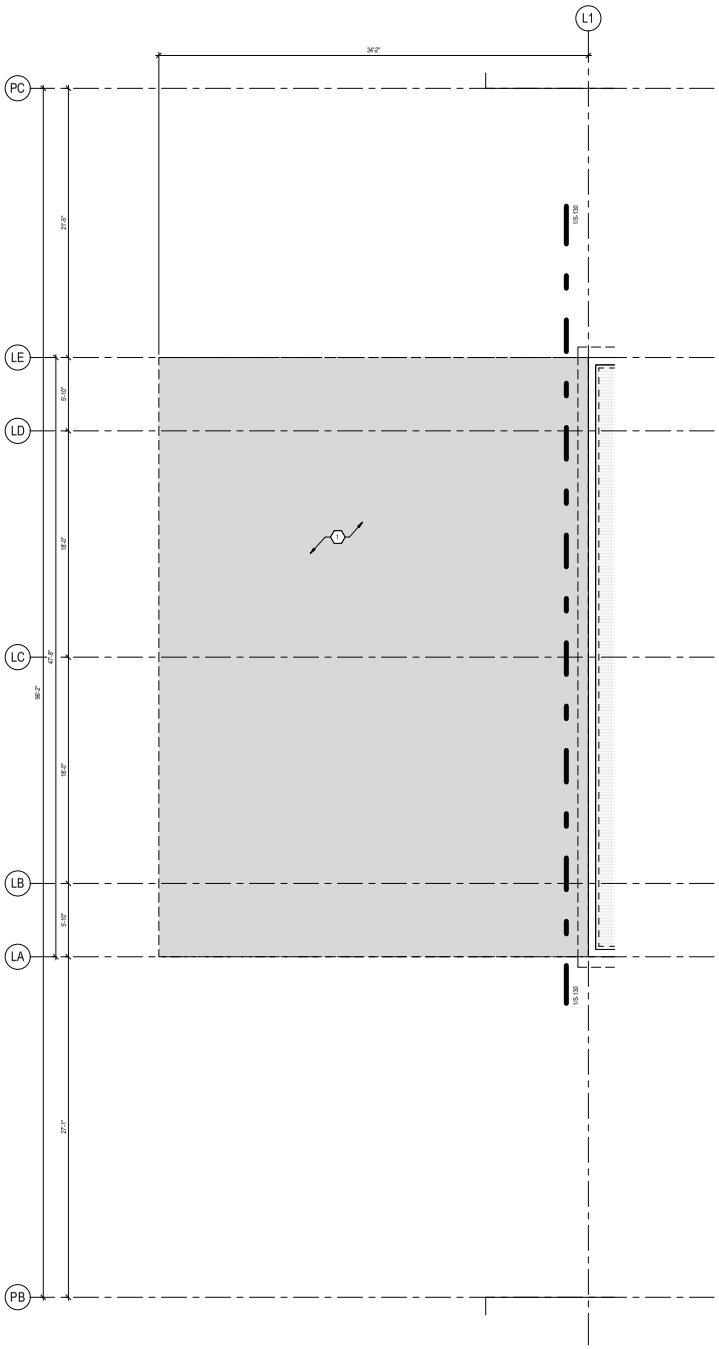

1 SOUTH RAT SLAB
SCALE: 1/4" = 1'-0"

LEGEND:

NOTES:

1. SEE SHEET SERIES S-000 FOR GENERAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS.
2. COORDINATE ALL WALL DIMENSIONS AND OPENING LOCATIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR CONCRETE SLAB LOCATIONS, EXTENTS, SLOPES, CONTROL JOINT LOCATIONS AND ELEVATIONS
4. COORDINATE ALL UNDER-SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
5. TS SLAB ELEVATION = 0'-0" UNO.
6. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.

KEY NOTES:

1. 8" CONCRETE RAT SLAB REINFORCED WITH #5 @ 18" O.C AT MID DEPTH

NORTH

0 2' 4' 6' 8' 12'
SCALE: 1/8" = 1'-0"

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STATE OF ALASKA
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05/08/2026

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SOUTH RAT SLAB

DRAWING NO.
S-133

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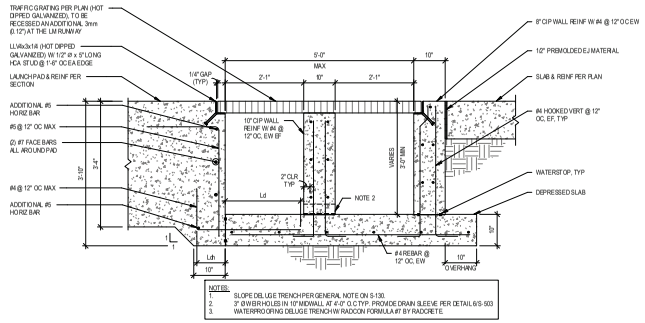
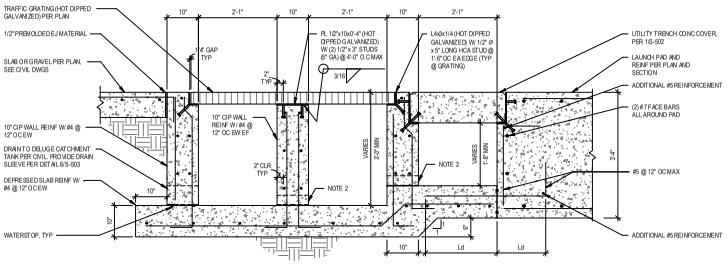


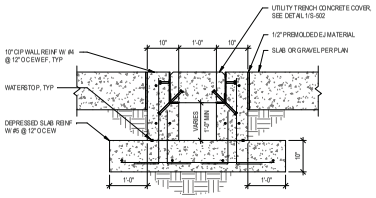
NOTES:
1. SLOPE DELUGE TRENCH PER GENERAL NOTE ON S-130.
2. 3" Ø WEIR HOLES IN 10" MIDWALL AT 4'-0" O.C TYP. PROVIDE DRAIN SLEEVE PER DETAIL 6/S-503
3. WATERPROOFING DELUGE TRENCH W/ RADCON FORMULA #7 BY RADCRETE

1 DELUGE TRENCH
SCALE: 3/4" = 1'-0"



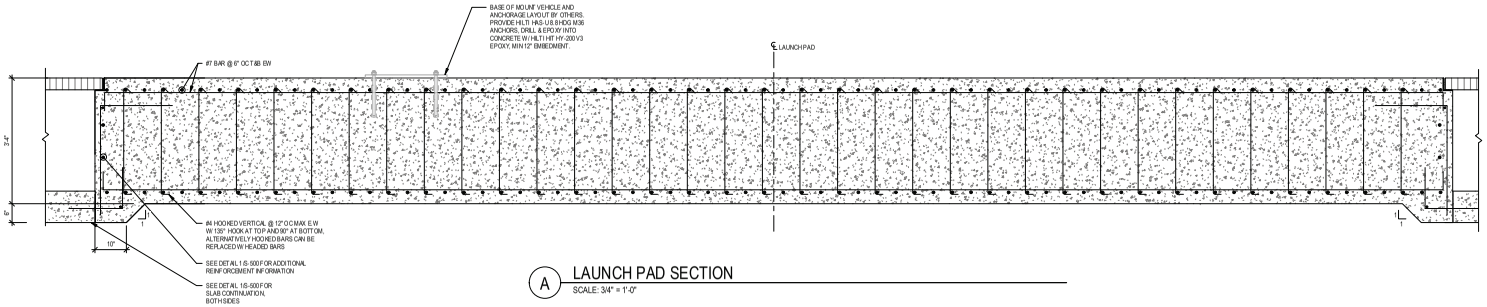
NOTES:
1. SLOPE BOTTOM OF DELUGE TRENCH AND LAUNCH MOUNT SERVICE TRENCH PER GENERAL NOTE ON S-130.
2. 3" Ø WEIR HOLES IN 10" DELUGE TRENCH MIDWALL AND 10" LAUNCH MOUNT SERVICE TRENCH WALL AT 4'-0" O.C TYP. PROVIDE DRAIN SLEEVE PER DETAIL 6/S-503
3. WATERPROOF TRENCHES W/ RADCON FORMULA #7 BY RADCRETE.

2 LAUNCH MOUNT SERVICE TRENCH
SCALE: 3/4" = 1'-0"



NOTES:
1. WATERPROOF TRENCH W/ RADCON FORMULA #7 BY RADCRETE.

3 STAGE 2 SERVICE TRENCH
SCALE: 3/4" = 1'-0"



A LAUNCH PAD SECTION
SCALE: 3/4" = 1'-0"

0 1' 2' 3' 4'
SCALE: 3/4" = 1'-0"

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
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No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

DRAWING NO.
S-500

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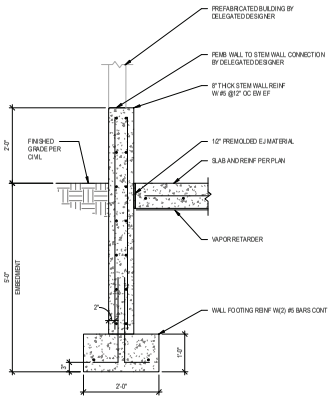
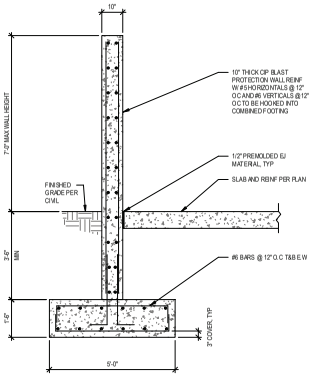
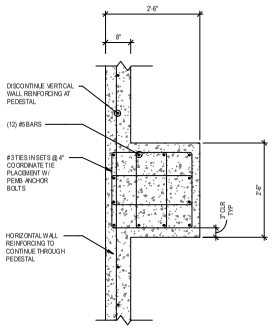


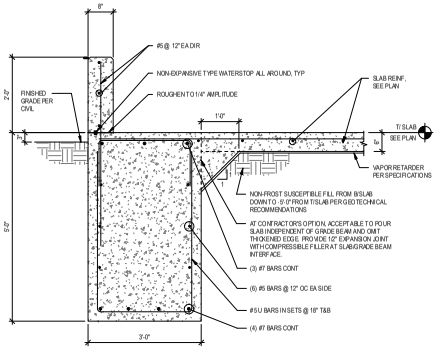
1 TYP STEM WALL DETAIL
SCALE: 3/4" = 1'-0"



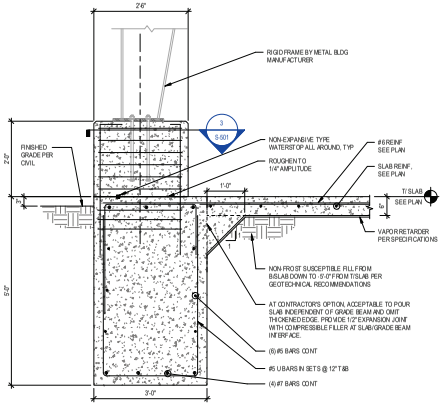
2 RETAINING WALL DETAIL
SCALE: 1/2" = 1'-0"



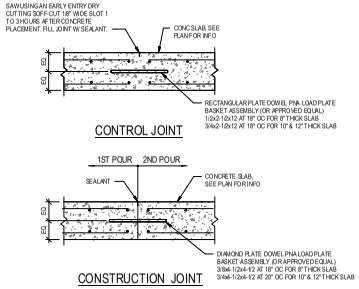
3 SECTION
SCALE: 3/4" = 1'-0"



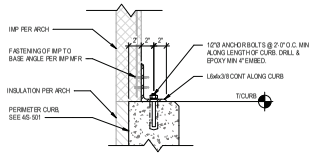
4 TYP METAIL BLDG FOUNDATION BETWEEN COL
SCALE: 3/4" = 1'-0"



5 TYP METAL BLDG FOUNDATION AT COL
SCALE: 3/4" = 1'-0"



6 TYP CONTROL/CONSTRUCTION JOINT (CJ) DETAIL AT 8" MIN SLAB THICKNESS
SCALE: 3/4" = 1'-0"



7 TYP IMP BASE ANGLE ATTACHMENT DETAIL
SCALE: 1 1/2" = 1'-0"

SCALE: 1/2" = 1'-0"

SCALE: 3/4" = 1'-0"

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FOR CONSTRUCTION

DOCUMENT HISTORY

AREA 3 PAD D

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
BRIAN LEE SAYRE
No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

DRAWING NO.
S-501

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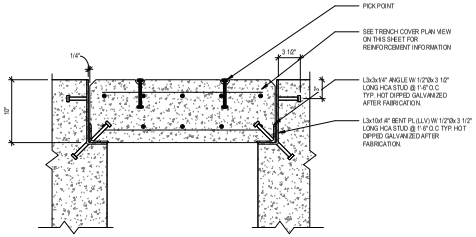
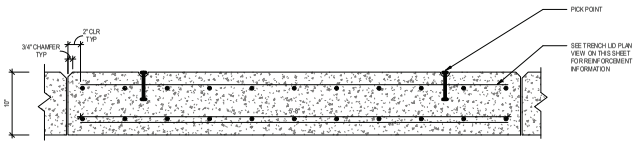
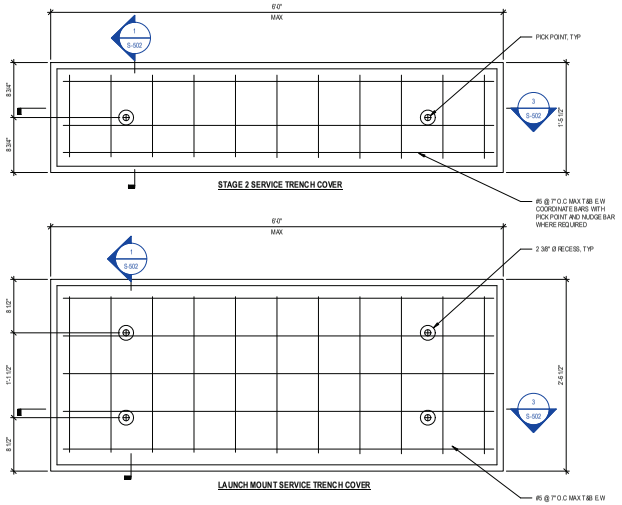


1 SECTION
SCALE: 1 1/2" = 1'-0"

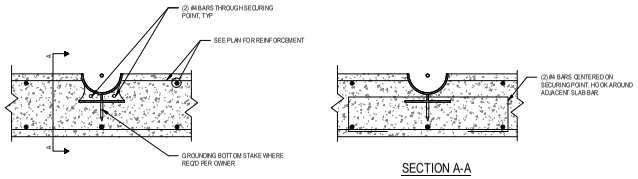


3 SECTION
SCALE: 1 1/2" = 1'-0"



NOTE:
1. PICK POINTS HAVE A SAFE WORKING LOAD OF 2 KIPS. MIN. BASIS OF DESIGN: ALP LIFT PIN ANCHOR (HOT DIP GALVANIZED), PIN: LPA1T43AG W/ RUBBER RECESS SYSTEM LPRN1T (OAE). SUITABLE FOR USE W/ ALP LIFTING EYE (PIN:LPLE1T) AND CROSBY LIFTING HOOK (PN: L-322CN). OAE.
2. TOP OF PICKUP POINTS TO BE RECESSED WITHIN TOP OF CONCRETE.

2 TRENCH CONCRETE COVER DETAIL
SCALE: 1 1/2" = 1'-0"



SECTION A-A

NOTE:
1. BASIS OF DESIGN: PACIFIC MARINE AND INDUSTRIAL, P3460 A AIRCRAFT SECURING POINT.
2. LOCATE SECURING POINT BETWEEN EXISTING REINFORCEMENT
3. SEE ELECTRICAL FOR GROUNDING INFORMATION.

4 SECURING POINT DETAIL
SCALE: 1 1/2" = 1'-0"

SCALE: 1 1/2" = 1'-0"

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ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
BRIAN LEE SAYRE
No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

DRAWING NO.
S-502

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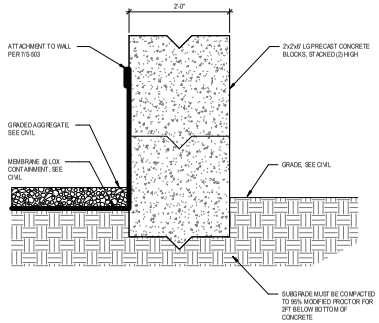
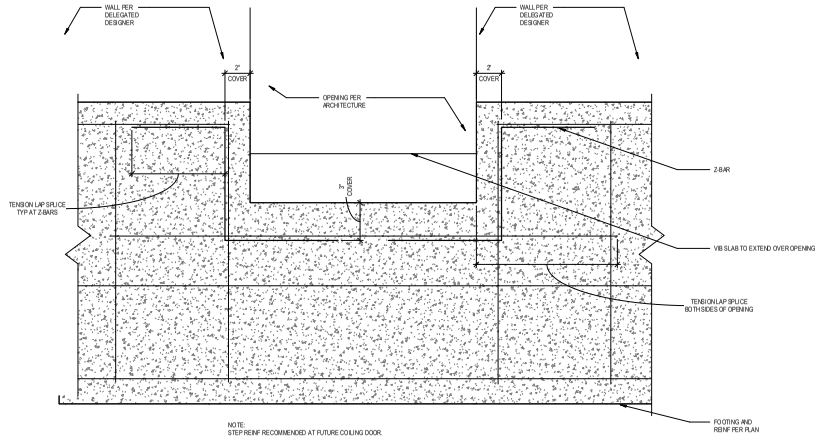
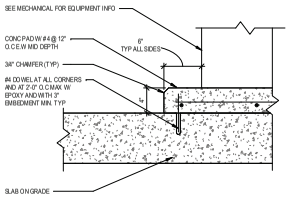


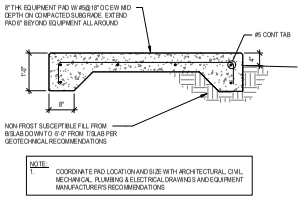
1 LOX DUMP SECTION
SCALE: 1" = 1'-0"



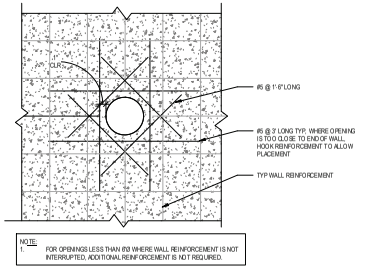
2 TYPICAL STEP AT STEM WALL
SCALE: 3" = 1'-0"



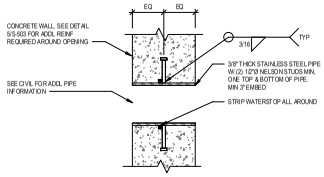
3 TYPICAL INDOOR EQUIPMENT HOUSEKEEPING PAD
SCALE: 1 1/2" = 1'-0"



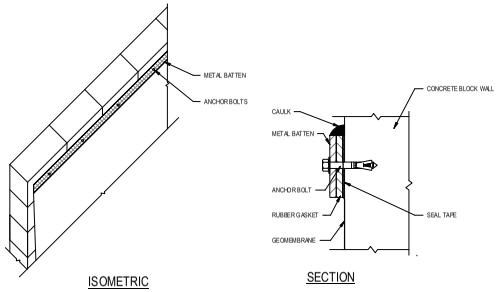
4 TYP EXTERIOR EQUIPMENT PAD DETAIL
SCALE: 3/4" = 1'-0"



5 TYPICAL WALL PENETRATION REINFORCEMENT DETAIL
SCALE: 1 1/2" = 1'-0"



6 TYPICAL DRAIN SLEEVE DETAIL
SCALE: 1 1/2" = 1'-0"



NOTES:
1. CAULK: SIKA 1A OR EQUIVALENT. SHALL BE CONTINUOUS AND COMPATIBLE WITH LINER TYPE.
2. ANCHOR BOLTS: 3/8" X 3" STAINLESS STEEL MECHANICAL ANCHOR BOLTS WITH WASHERS. BOLTS LOCATED 6" O.C. WHEN INSTALLED BELOW WATER LINE; 12" O.C. WHEN INSTALLED ABOVE WATER LINE. LOCATE MINIMUM 4" FROM EDGE OF CONCRETE.
3. RUBBER GASKET: 1/4" X 2" NEOPRENE OR EPDM RUBBER, CONTINUOUS.
4. SEAL TAPE: 1/8" X 2" BUTYL GUM, APPLIED OVER BOLTS.

7 BATTEN ATTACHMENT DETAIL
SCALE: NTS

SCALE: 3/4" = 1'-0"
SCALE: 1" = 1'-0"
SCALE: 1 1/2" = 1'-0"
SCALE: 3" = 1'-0"

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FOR CONSTRUCTION

DOCUMENT HISTORY

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PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
BRIAN LEE SAYRE
No. SE215775

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

DRAWING NO.
S-503

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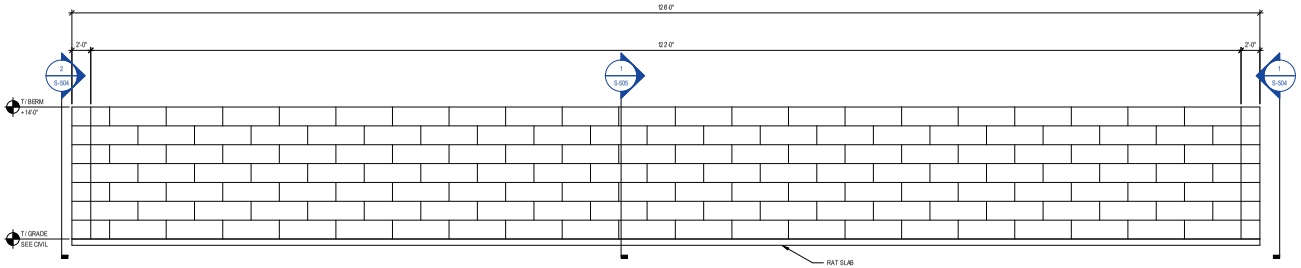
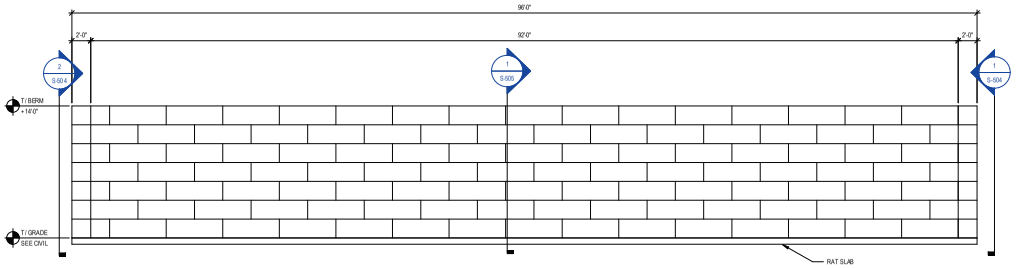
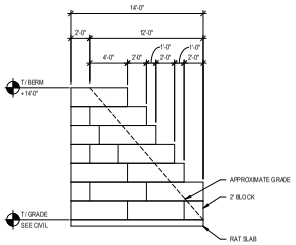


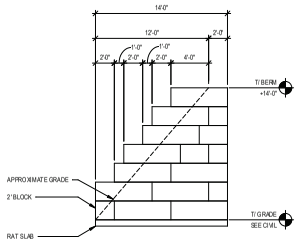
A WEST BERM
SCALE: 3/16" = 1'-0"



B EAST BERM
SCALE: 3/16" = 1'-0"



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



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

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

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ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

DRAWING NO.
S-504

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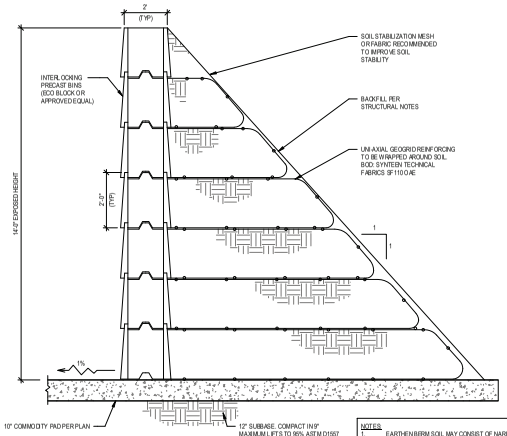
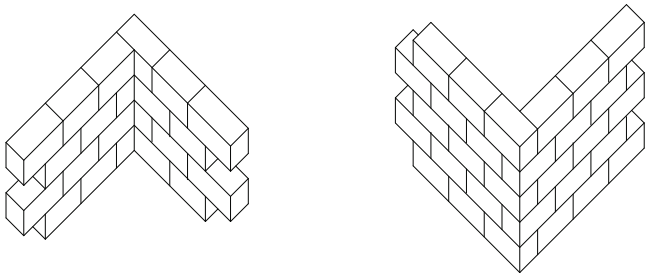


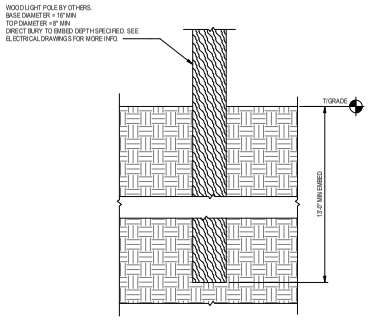
NOTES:
1. EARTHEN BERM SOIL MAY CONSIST OF NARROW CAPE SANDSTONE OR AGGREGATE.
2. A FINE MESH POLYMER NET IS REQUIRED FOR EROSION CONTROL.

1 TYPICAL BERM SECTION
SCALE: 1/2" = 1'-0"



90° CORNER - NO BATTER (MSE WALL)

2 TYPICAL BERM CORNER DETAIL
SCALE: 1/4" = 1'-0"



3 50FT LIGHT POLE FOUNDATION DETAIL
SCALE: 1/2" = 1'-0"

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

SCALE: 1/2" = 1'-0"

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DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

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S-505

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NEW CONSTRUCTION

DESCRIPTION OF WORK

THE SCOPE OF WORK FOR THIS PROJECT WILL INCLUDE THE DESIGN AND RECONFIGURATION OF THE AREA 3, PAD-D LAUNCH SITE AS PART OF THE PACIFIC SPACEPORT COMPLEX ON KODIAK ISLAND, ALASKA FOR ALASKA AEROSPACE CORPORATION. THE PROJECT WILL INCLUDE THE FOLLOWING DESIGN SCOPE:

- THE SITE CIVIL CONFIGURATION AND DEVELOPMENT OF PAD D FROM A 100FT X 100FT GRAVEL SITE TO AN EXPANDED 240FT X 560FT PAD.
  a. SITE WORK WILL INCLUDE EXTENSIVE CONCRETE DESIGN INCLUDING COMMODITY PADS, RUNWAYS, LAUNCH PAD, DELUGE CATCHMENT TRENCH, UTILIDORS, AND BUILDING FOUNDATIONS.
- THE DESIGN OF THE VERTICAL INTEGRATION BUILDING (VIB) THAT WILL BE ASSOCIATED WITH PAD D. THE VIB WILL BE A PRE-ENGINEERED METAL BUILDING WITH ASSOCIATED UTILITIES.
- SUPPORTING INFRASTRUCTURE FOR WATER STORAGE AND DELUGE TANKS, COMMUNICATIONS, ELECTRICAL, COMPRESSED AIR, POWER GENERATION, AND OTHER LAUNCH SUPPORT ELEMENTS.
  a. THE VIB WILL INCLUDE LOCATING CONNEX STYLE CONTAINERS FOR ELECTRICAL HOUSING, AIR COMPRESSOR, AND OTHER COMMODITY STORAGE.

THIS PACKAGE WILL BE FOR THE PRE-ENGINEERED METAL BUILDING BID SET AND ASSOCIATED STRUCTURAL CONCRETE. ADDITIONALLY, THE PACKAGE WILL INCLUDE SITE CONCRETE DESIGN INTENDED FOR EARLY BID.

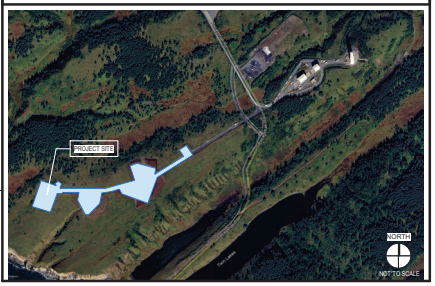
DELEGATED DESIGN / DEFERRED SUBMITTALS

THE FOLLOWING BUILDING COMPONENTS, EQUIPMENT OR SYSTEMS REQUIRE DELEGATED DESIGN SERVICES PROVIDED BY AN OUTSIDE DESIGN PROFESSIONAL. SHOP DRAWINGS FOR THESE WILL BE SUBMITTED TO THE BUILDING OFFICIAL AFTER REVIEW AND APPROVAL FROM THE DESIGNER OF RECORD.

- PRE-ENGINEERED METAL BUILDING
  1. INSULATED METAL WALL PANELS
  2. METAL ROOF PANELS
- COLD-FORMED STEEL FRAMING
- SNOW GUARDS

VICINITY MAP

LOCATION MAP



AREA 3 PAD D

ALASKA AEROSPACE CORPORATION

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

GENERAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
G-001	COVER SHEET	05/08/2026	1	06/02/26	REVISION 1	Yes
G-002	ABBREVIATIONS, SYMBOLS, GENERAL NOTES	05/08/2026				No
G-003	SPECIFICATIONS	05/08/2026				No
G-004	SPECIFICATIONS	05/08/2026				No
Total Sheets: 4						

CIVIL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
B-100	TEST PIT LOCATIONS (FOR REFERENCE ONLY)	05/08/2026				No
B-101	TEST PIT LOGS (FOR REFERENCE ONLY)	05/08/2026				No
C-001	CIVIL GENERAL NOTES, LEGEND & ABBREVIATIONS	05/08/2026				No
C-101	DEMOLITION PLAN	05/08/2026				No
C-121	SITE PLAN	05/08/2026	1	06/02/26	REVISION 1	Yes
C-141	GRADING & DRAINAGE PLAN	05/08/2026	1	06/02/26	REVISION 1	Yes
C-161	UTILITY PLAN	05/08/2026	1	06/02/26	REVISION 1	Yes
C-400	CROSS SECTIONS	05/08/2026				No
C-401	CROSS SECTIONS	05/08/2026				No
C-501	SITE DETAILS	05/08/2026				No
C-502	UTILITY DETAILS	05/08/2026				No
C-503	JOINTING DETAILS	05/08/2026				No
C-700	JOINTING PLAN	05/08/2026				No
Total Sheets: 13						

STRUCTURAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
S-001	GENERAL NOTES	05/08/2026				No
S-002	SPECIAL INSPECTIONS	05/08/2026				No
S-003	SPECIAL INSPECTIONS	05/08/2026				No
S-004	ABBREVIATIONS, LEGENDS & SPLICE TABLES	05/08/2026				No
S-005	WIND LOAD TABLES	05/08/2026				No
S-006	GRAVITY LOAD TABLES	05/08/2026				No
S-007	PEMB REQUIREMENTS	05/08/2026	1	06/03/26	REVISION 1	Yes
S-008	CONCRETE SPECS	05/08/2026				No
S-100	SITE PLAN	05/08/2026	1	06/03/26	REVISION 1	Yes
S-101	VIB SLAB & FOUNDATION PLANS	05/08/2026	1	06/03/26	REVISION 1	Yes
S-130	LAUNCH PAD & TRENCHES SLAB PLAN	05/08/2026				No
S-131	EAST COMMODITY PAD SLAB PLAN	05/08/2026				No
S-132	WEST COMMODITY PAD SLAB PLAN	05/08/2026	1	06/03/26	REVISION 1	Yes
S-133	SOUTH RAT SLAB	05/08/2026				No
S-500	SECTIONS & DETAILS	05/08/2026				No
S-501	SECTIONS & DETAILS	05/08/2026				No
S-502	SECTIONS & DETAILS	05/08/2026				No
S-503	SECTIONS & DETAILS	05/08/2026				No
S-504	SECTIONS & DETAILS	05/08/2026	1	06/03/26	REVISION 1	Yes
S-505	SECTIONS & DETAILS	05/08/2026	1	06/03/26	REVISION 1	Yes
S-601	SCHEDULES	05/08/2026				No
S-610	MATERIAL TAKEOFFS	05/08/2026				No
Total Sheets: 22						

ARCHITECTURE

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
E.S-001	CODE SUMMARY	05/08/2026	1	06/02/26	REVISION 1	Yes
A-101	FLOOR PLAN	05/08/2026	1	06/02/26	REVISION 1	Yes
A-191	ROOF PLAN	05/08/2026	1	06/02/26	REVISION 1	Yes
A-201	ELEVATIONS	05/08/2026				No
A-301	BUILDING SECTIONS	05/08/2026	1	06/02/26	REVISION 1	Yes
A-901	DETAILS	05/08/2026	1	06/02/26	REVISION 1	Yes
Total Sheets: 6						

MECHANICAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
M-001	LEGENDS & GENERAL NOTES	05/08/2026				No
M-002	GENERAL NOTES	05/08/2026				No
M-101	HVAC FLOOR PLAN	05/08/2026				No
M-401	MECHANICAL ENLARGED PLANS	05/08/2026				No
M-501	MECHANICAL DETAILS	05/08/2026				No
M-601	MECHANICAL SCHEDULES	05/08/2026				No
M-701	MECHANICAL CONTROL DIAGRAMS	05/08/2026				No
Total Sheets: 7						

PLUMBING

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
P-001	ABBREVIATIONS, LEGEND AND GENERAL NOTES	05/08/2026				No
P-101	PLUMBING PLAN	05/08/2026				No
P-121	SITE PLAN	05/08/2026	1	06/02/26	REVISION 1	Yes
P-401	PLUMBING ENLARGED PLANS	05/08/2026				No
P-501	PLUMBING DETAILS	05/08/2026				No
P-502	PLUMBING TANK DETAILS	05/08/2026	1	06/02/26	REVISION 1	Yes
P-601	PLUMBING SCHEDULES	05/08/2026	1	06/02/26	REVISION 1	Yes
P-901	PLUMBING SCHEMATIC RISERS	05/08/2026				No
Total Sheets: 8						

ELECTRICAL

SHEET NO.	SHEET NAME	SHEET ISSUE DATE	CURRENT REVISION	CURRENT REVISION DATE	CURRENT REVISION DESCRIPTION	CURRENT REVISION ISSUED
E-001	ELECTRICAL LEGEND & ABBREVIATIONS	05/08/26	1	06/02/26	REVISION 1	Yes
E-002	ELECTRICAL SPECIFICATIONS	05/08/26	1	06/02/26	REVISION 1	Yes
E-101	ELECTRICAL PLAN	05/08/26				No
EL-101	ELECTRICAL LIGHTING PLAN	05/08/26				No
E-121	SITE PLAN	05/08/26				No
E-122	SITE GROUNDING	05/08/26				No
E-123	SITE LIGHTNING PROTECTION	05/08/26				No
E-401	ENLARGED ELECTRICAL PLANS	05/08/26				No
E-402	ENLARGED ELECTRICAL PLAN	05/08/26				No
E-403	ENLARGED GROUNDING PLAN	05/08/26				No
E-501	ELECTRICAL DETAILS	05/08/26				No
E-502	HAZARDOUS AREAS	05/08/26				No
E-503	AREA WARNING LIGHTS	05/08/26				No
E-504	ELECTRICAL DETAILS	05/08/26				No
E-505	ELECTRICAL DETAILS	05/08/26				No
E-601	ONE LINE DIAGRAM	05/08/26				No
E-602	CONDUIT ONE-LINES WITH LENGTHS	05/08/26				No
E-701	PANEL SCHEDULES	05/08/26	1	06/02/26	REVISION 1	Yes
E-702	PANEL SCHEDULES	05/08/26				No
Total Sheets: 19						

REVISION 1
06/02/2026

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	06/02/26	REVISION 1

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
COVER SHEET

DRAWING NO.
G-001

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BUILDING DATA

GENERAL DESCRIPTION

A.	Project Name	LAUNCH PAD D - VERTICAL INTEGRATION BUILDING
B.	Project Location	PACIFIC SPACEPORT COMPLEX
C.	Occupancy Classification (Single Occupancy)	GROUP S-1 MODERATE HAZARD, STORAGE (AIRCRAFT HANGAR)
D.	Construction Type	TYPE II-B
E.	Risk Category	III
F.	Automatic Sprinkler System	NO, UN-SPRINKLERED
G.	Building Area	4,442 GSF
H.	Building Height	28'-0"
I.	Occupancy Load	8 OCC*

* REFER TO LIFE SAFETY SHEET FOR OCCUPANCY LOAD CALCULATION BREAKDOWN PER ROOM.

BUILDING ENVELOPE THERMAL VALUES

COMPLIANCE METHOD

PRESCRIPTIVE ■

CALCULATED □

CLIMATE ZONE: **7A (DRY)**

ENVELOPE COMPONENT		THERMAL VALUE	
ROOF		U-FACTOR	R-VALUE
ROOF TYPE:	METAL BUILDING[1]		R-30 + R-11LS
WALLS		U-FACTOR	R-VALUE
WALL TYPE:	METAL BUILDING		R-13 + R-17ci
FLOORS		U-FACTOR	R-VALUE
FLOOR TYPE:	SLAB ON GRADE, UNHEATED		R-20 for 24" below
OPAQUE DOORS		U-FACTOR	R-VALUE
DOOR TYPE:	SWINGING	0.37	
DOOR TYPE:	NON-SWINGING	0.31	

NOTES:
1. WHERE USING R-VALUE COMPLIANCE METHOD, A THERMAL SPACER BLOCK SHALL BE PROVIDED
2. ALL EXTERIOR JOINTS IN THE BUILDING ENVELOPE SHALL BE SEALED, CAULKED, GASKETED, OR WEATHER STRIPPED TO MINIMIZE AIR LEAKAGE.
3. AIR LEAKAGE FOR EXTERIOR DOORS AND WINDOWS SHALL NOT EXCEED 1.0 CFM/SF FOR GLAZED SWINGING ENTRY DOORS AND REVOLVING DOORS AND 0.4 CFM/SF FOR ALL OTHER PRODUCTS. ALL PRODUCTS SHALL BE LABELED AND CERTIFIED BY THE MANUFACTURER.

CODE REVIEW

A.	APPLICABLE CODES:	
	International Building Code (IBC)	**2021**
	International Energy Conservation Code (IECC)	**2021**
	International Mechanical Code (IMC)	**2021**
	International Plumbing Code (IPC)	**2021**
	International Fire Code (IFC)	**2021**
	NFPA 10, Standard for Portable Fire Extinguishers	**2022**
	NFPA 70, National Electrical Code	**2026**
	ICC / ANSI A117.1 Accessible and Usable Buildings and Facilities	**2017**

CODE ISSUE	IBC REF	IBC ITEM	COMMENT
B. Occupancy Classification (Mixed, Separated Occupancy):			
	§311.2	**Moderate-Hazard storage (S-1)**	**Moderate-Hazard storage (S-1)**
C. Allowable Area, Height and Construction Type:			
	§503	**Type II-B, Un-sprinklered**	
	Table 506.2	**Allowable Area -** 17,500 SF / **4,448 SF** provided	
	Table 504.4	**Stories** - 2 / **1 provided**	
	Table 504.3	**Height** - 50' / **22'-0"** provided	
D. Fire Resistance Requirements for Building Elements			
Building Elements	Table 601	**0 hr** protection for all elements (2)	
Exterior Walls - Separation Distance	Table 705.5	For a distance of X ≥ 10, Type II, S-1; **there is 0hr fire resistance requirement for exterior walls.**	The largest opening in an exterior wall are from the overhead coiling door and personnel door. Total Area of South Elevation: **248 SF** Total Area of Exterior South Wall: **1,070 SF** **% of Exterior Wall = 23%**
Maximum Opening Area in Exterior Wall	Table 705.8	For a distance of 20 > X ≥ 15, non-protected, un-sprinkler; **there is a limit of 25% of allowable area of the exterior wall.**	
E. General Fire Resistant Requirements			
Interior Finish Classification - Walls and Ceilings	Table 803	Interior Exits - B Corridors & Exit Access - B Rooms & Enclosed Spaces - C (1)	(1)Class A: Flame Spread Index 0-25; Smoke-Developed Index 0-450 Class B: Flame Spread Index 26-75; Smoke-Developed Index 0-450 Class C: Flame Spread Index 76-200; Smoke-Developed Index 0-450
F. Exit Requirements			
Maximum Floor Area Allowances per Occupant	§1004.1, Table 1004.5	**Storage**(1): 300 gross for accessory storage areas, mechanical equipment rooms, and IT equipment rooms 500 gross for aircraft hangars (Vehicle)	(1) Occupant Load Schedule for designation of space and
Required Exit Capacity	§1005.3.2	Level Components and Ramps - 0.2 inch per occupant. **8 occupants * 0.2 = 1.6" Req / 120" provided**	
Minimum Number of Exits	Table 1006.3.3	Two exits per story - Occ Load 1-500 persons	
	Table 1006.2.1	Spaces with one exit or exit access doorways: Max Occ. Load: **29 Occ**	

F.	Exit Requirements, Cont.		
Maximum Exit Travel Distance	Table 1017.2	(S-1) Occupancy, Un-sprinkler: **200 feet**	
	Table 1021.2(2)	One exit per story - Occ. Load 1-49 person, 75 feet maximum exit access travel distance	
Maximum Common Path of Egress Travel	Table 1006.2.1	(S-1) Occupancy, Un-sprinkler, ≤30 Occ: **100 feet**	
Maximum Dead End Corridor	§1020.5	20 feet	
Location of Exits	§1007.1.1	Exit doors or exit access doorways shall be placed a distance apart equal to not less than one-half of the length of the maximum overall diagonal dimension of the building or area to be served measured in a straight line between exit doors or exit access doorways.	
Exit Corridors	Table 1020.2	Minimum Width - **44 inches** Minimum Width - Serving Less than 50 - **36 inches**	
	§1003.2	Min. ceiling height of 7'-6"	
	§1003.3.1	Min. headroom of 80" for protruding objects.	
G. Hazardous Materials			
Hazardous Materials - Outdoor Control Areas	IFC Table 5003.1.1(3)	Outdoor Storage All are Compressed gases **1. Gaseous Oxygen (GOx) K-Cylinder:** Oxidizer (Category 1), QTY 5: • **Not Applicable - No Limit** **2. Gaseous Methane (CH_4) K-Cylinder:** Flammable Gas, Category 1, QTY 5; • **Maximum 3000 ft³ Allowed;** • **Provided:** 5 bottles @ 300 ft³ = **1500 ft³** **3. Carbon Dioxide (CO_2) K-Cylinder,** QTY: 5: • Simple Asphyxiant **(No Limit)** **4. Gaseous Nitrogen (GN_2) K-Cylinder,** QTY 6: • Simple Asphyxiant **(No Limit)** **5. Gaseous Nitrogen (GN_2) K15 Manifold,** QTY 6: • Simple Asphyxiant **(No Limit)** **6. Gaseous Helium (GHe) K-Cylinder,** QTY 4: • Simple Asphyxiant **(No Limit)** 7. **Gaseous Helium (GHe) K15 Manifold,** QTY 4: • Simple Asphyxiant **(No Limit)**	**Note:** The Vehicle as part of Integration operations will have fuel drained and unloaded prior to, and while inside the structure. Hazardous areas shown in these documents are shown as worst case scenario for any trace materials remaining in the vehicle and are as a precaution.

OCCUPANCY SCHEDULE

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	SQF/PERSON	OCCUPANT LOAD	AREA	Comments
CONNEX						
C01	AIR COMP CONEX	STORAGE (S-1)	300	1	158 SF	CONNEX
C02	CONEX	STORAGE (S-1)	300	1	159 SF	CONNEX
C03	ELEC CONEX	STORAGE (S-1)	300	1	159 SF	CONNEX
CONNEX				3	477 SF	
VIB						
100	VIB	STORAGE (S-1)	500	9	4094 SF	VIB
001	NORTH ENTRY	UNOCCUPIED	0		40 SF	VIB
002	OUTDOOR GAS STORAGE	UNOCCUPIED	0		328 SF	VIB
003	SOUTH ENTRY	UNOCCUPIED	0		40 SF	VIB
004	WEST ENTRY	UNOCCUPIED	0		40 SF	VIB
VIB				9	4542 SF	
Grand total: 8				12	5018 SF	

EGRESS PATH SCHEDULE

EGRESS PATH	SEGMENT LENGTH
PATH 1	49' - 2"
PATH 2	31' - 5"

LIFE SAFETY LEGEND

LIFE SAFETY ROOM TAG

ROOM NAME — **ROOM NAME**
ROOM NUMBER — 001
ROOM AREA — Area
OCCUPANT LOAD FACTOR — 1,000 SF — 51
NUMBER OF OCCUPANTS

LIFE SAFETY EXIT TAG

EXIT CAPACITY REQUIRED
EXIT WIDTH REQUIRED
EXIT CAPACITY PROVIDED
EXIT WIDTH PROVIDED

EGRESS ROUTE

EGRESS SEGMENT NAME — PATH SEGMENT
EGRESS PATH ORIGIN
EGRESS PATH EXIT

FIRE PROTECTION

FE
FIRE EXTINGUISHER, BRACKET-MOUNTED:
- MULTI-PURPOSE DRY-CHEMICAL TYPE IN STEEL CONTAINER;
  a. UL-RATED 2-A; 10-B:C, 10-LB (NOMINAL CAPACITY)

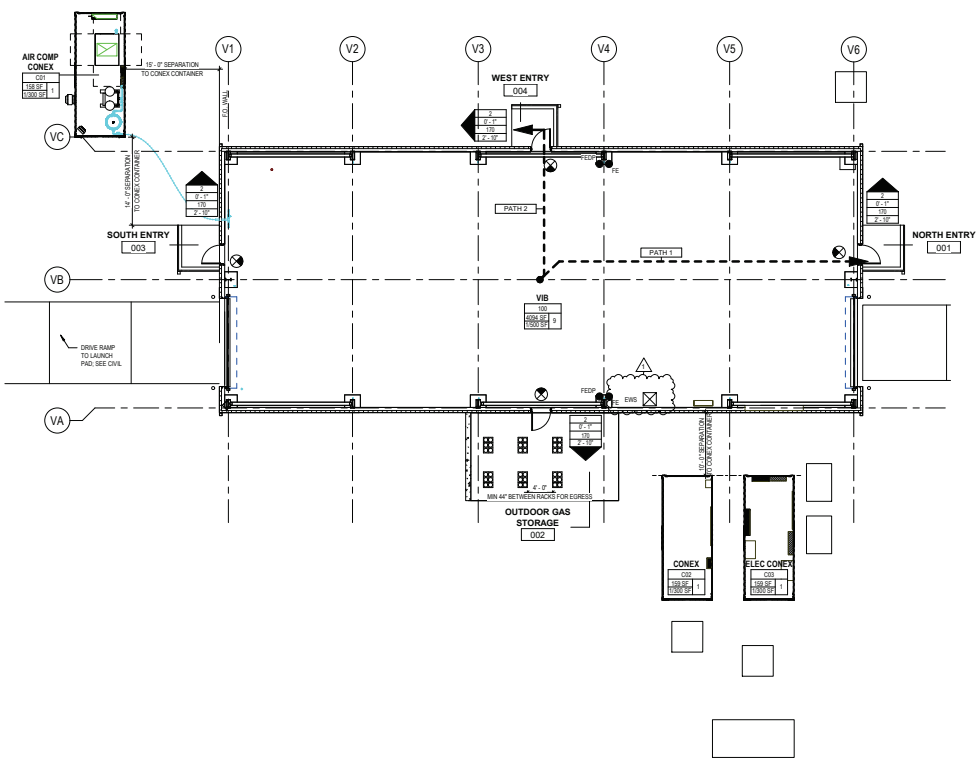
FEDP
FIRE EXTINGUISHER, DRY-POWDER TYPE, BRACKET-MOUNTED:
- WHEELED "PURPLE K" DRY-CHEMICAL TYPE IN STEEL CONTAINER; B.O.D. MODEL: 497
  a. UL-RATED 4-A:80-B:C, 154-LB (NOMINAL CAPACITY)

EMERGENCY SYSTEMS

EXIT LIGHT

EWS
PORTABLE EYEWASH/SHOWER; B.O.D.: HAWS MODEL NO. 7501

NOTE:
REFER TO TABLE RIGHT FOR CODE REVIEW ITEMS.



LIFE SAFETY - PLAN

1/8" = 1'-0"

NORTH

0 8' 16' 32' 48'

1/16" = 1'-0"

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	06/02/26	REVISION 1

AREA 3 PAD D

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

ALASKA LICENSED ARCHITECT 49 TH Kenneth W. Lowery No 14640 4/17/26 REGISTERED

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
CODE SUMMARY

DRAWING NO.
LS-001

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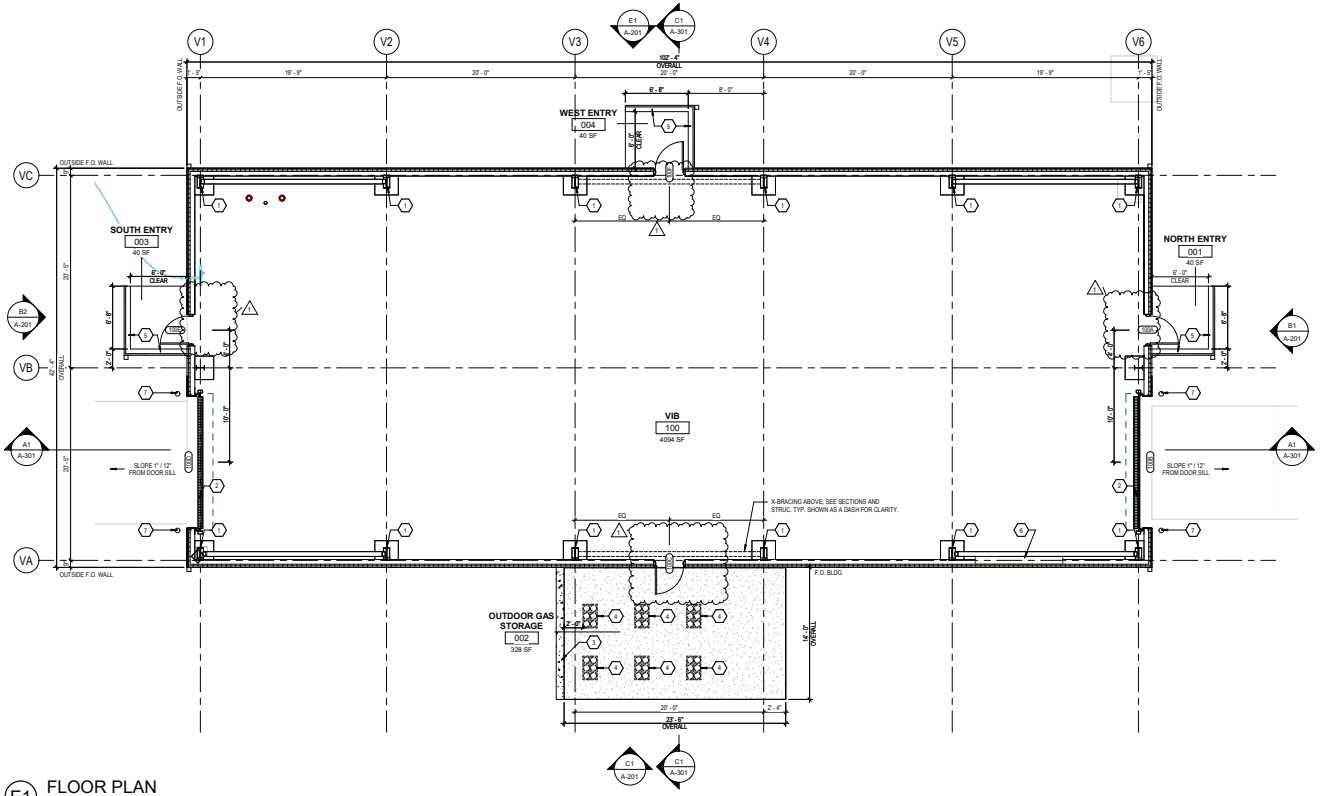
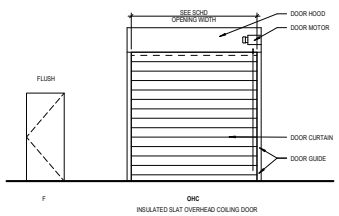


E1 FLOOR PLAN

3/16" = 1'-0"

DOOR SCHEDULE

REV	NUMBER	DOOR TYPE	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SIZE THICK	DOOR MATL	HARDWARE	FRAME TYPE	FRAME MATL	FRAME DETAIL HEAD	FRAME DETAIL JAMB	FRAME DETAIL SILL	COMMENTS
	100A	F	3' - 0"	7' - 0"	2' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1alb	DS-1	
	100B	OHCD	14' - 0"	16' - 0"	2' - 1"	STL	2	-	STL	DH-2	DJ-2	DS-2	
	100C	F	3' - 0"	7' - 0"	2' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1alb	DS-1	
	100D	OHCD	14' - 0"	16' - 0"	2' - 1"	STL	2	-	STL	DH-2	DJ-2	DS-2	
	100E	F	3' - 0"	7' - 0"	2' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1alb	DS-1	
	100F	F	3' - 0"	7' - 0"	2' - 1 3/4"	HM	1	A	HM	DH-1	DJ-1alb	DS-1	



DOOR TYPE ELEVATIONS

1/4" = 1'-0"

DOOR FRAME ELEVATIONS

1/4" = 1'-0"

Hardware Group No. 1 – EXTERIOR SINGLE DOORS

Provide each SGL door(s) with the following:

Qty		Description	Catalog Number	Finish	Mfr
3	EA	HINGE	BB81 4.5" X 4.5" NRP 26D	26D	PBB
1	EA	PANIC HARDWARE	CDS-98-L-RHO	626	VON DUPRIN
1	EA	SURFACE CLOSER (PUSH SIDE)	SC71 RW/PA TB	626	FALCON
1	EA	THRESHOLD	276	A	PEMKO
1	EA	DOOR SWEEP	216_PK	C	PEMKO
3	EA	SILENCER	SR64	GRY	IVES
1	EA	WS HEAD SECTION	289/APK	AL	PEMKO
1	EA	WS JAMBS	290APK	AL	PEMKO
1	EA	RAIN DRIP	346A	AL	PEMKO
1	EA	KICK PLATE	KP50 10 X 34 HB4E	32D	MICK
1	EA	PRIMUS CORE	-	C23	EVEREST PRIMUS
1	EA	CIPHER LOCK	CO-200-MD-40	626	SCHLAGE

Hardware Group No. 2 – OVERHEAD COILING DOORS

Provide each door with the following:

Qty		Description	Catalog Number	Finish	Mfr
1	EA	PADLOCK	-	26D	SCHLAGE
1	EA	PRIMUS CORE		C23	EVEREST PRIMUS

LEGEND

EXTERIOR PEMB INSULATED MTL PANEL WALL (TYP. PEMB WALL)

EXTERIOR PEMB SINGLE SKIN MTL PANEL WALL (ENTRY)

GENERAL NOTES

1. REFER TO STRUCTURAL DRAWINGS FOR FOUNDATIONS AND LOADS.
2. PRE-ENGINEERED METAL BUILDING (PEMB) IS BY DELEGATED DESIGN; REFER TO PEMB DOCUMENTS FOR ADDITIONAL DETAILS.
3. PROVIDE FLUID APPLIED ELECTRO STATIC DISSIPATIVE (ESD) FLOORING SYSTEM THROUGH VIB OPEN AREA. SYSTEM BASIS OF DESIGN: SHERWIN WILLIAMS FASTOP SL23 SDU., COLOR: LIGHT GRAY

KEYED NOTES

1. PRE-ENGINEERED METAL BUILDING COLUMN SYSTEM ON CONCRETE PEDESTAL; REFER TO PEMB AND STRUC. DRAWINGS FOR DETAILS.
2. NOT USED
3. 7'-0" HIGH CONC. BLAST PROTECTION WALL; SEE STRUC. DOCS FOR DETAILS.
4. GAS STORAGE RACKS IN FUTURE BY CUSTOMER, REFER TO MECHANICAL DRAWINGS FOR DETAILS.
5. SINGLE SKIN MTL PANEL ENCLOSURE W/ ROOF; SEE SECTIONS AND DETAILS.
6. ELEC. EQUIPMENT; SEE ELEC DOCS.
7. CONC. FILLED MTL PIPE BOLLARD; SEE OHCD DETAIL FOR LOCATION. PAINTED SAFETY YELLOW.

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	06/02/26	REVISION 1.

AREA 3 PAD D

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
FLOOR PLAN

DRAWING NO.
A-101

NORTH

0 2' 4' 8' 12'
1/4" = 1'-0"

0 4' 8' 12' 16'
3/16" = 1'-0"

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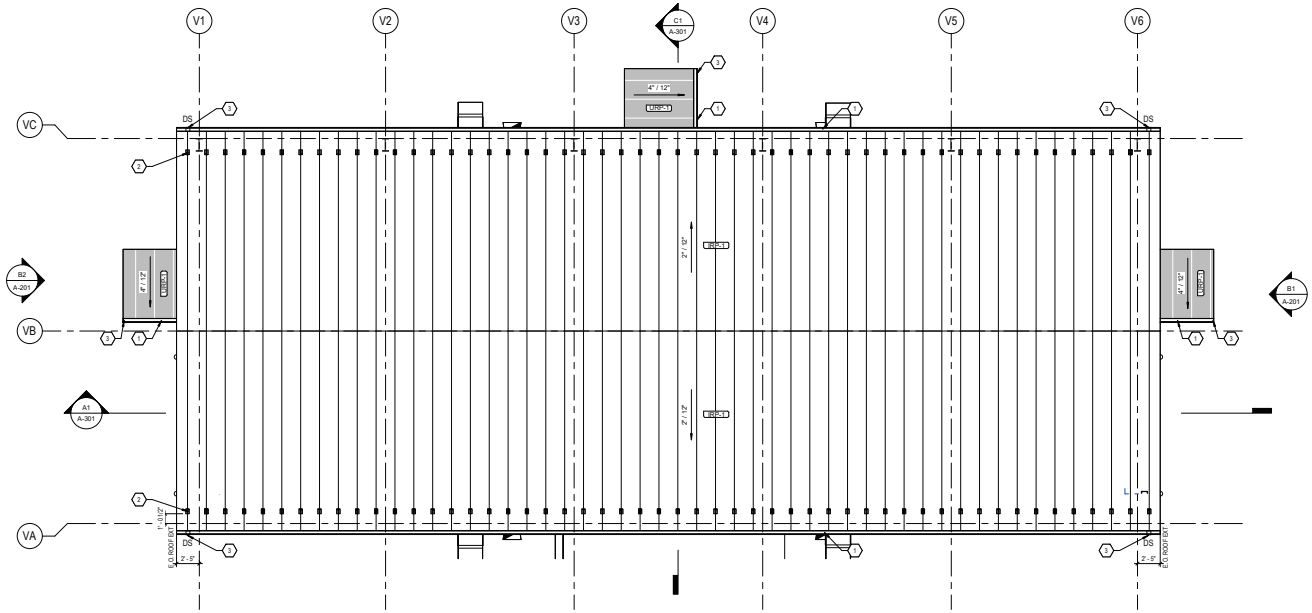
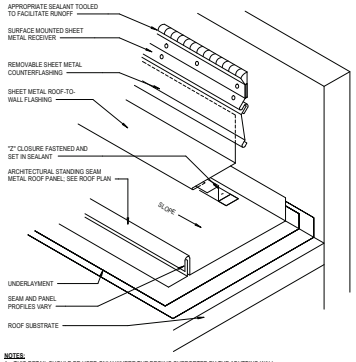
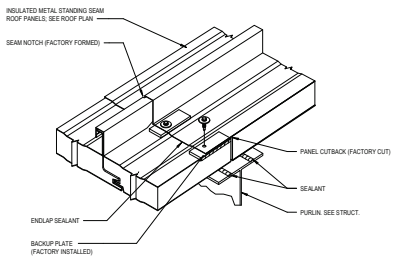


E1 ROOF PLAN
3/16" = 1'-0"



NOTES:
1. THIS DETAIL SHOULD BE USED ONLY WHERE THE DECK IS SUPPORTED BY THE ABUTTING WALL.
2. SPECIFIC FASTENING REQUIREMENTS ARE NOT INDICATED, AS THEY VARY FROM SYSTEM TO SYSTEM DEPENDING UPON PANEL MANUFACTURER'S REQUIREMENTS, WIND ZONE AND BUILDING CODE.
3. THIS DETAIL MAY BE USED WITH "STARTER" AND "END" PANELS.
4. REFER TO SM-13, 14, 15 IN THE SHEET METAL SECTION FOR ADDITIONAL COUNTERFLASHING OPTIONS.
5. THIS DETAIL FIXES THE PANEL IF THE "Z" CLOSURE IS FASTENED TO THE ROOF SUBSTRATE.

B1 ROOF-TO-WALL TRANSITION
NTS



B2 ROOF ENDLAP ISOMETRIC
NTS

LEGEND

RP-1: INSULATED MTL ROOF PANEL: RP-1
- MATERIAL: STEEL
- INSTALL: 36" INSULATED MTL PANEL OVER PEMB GIRTS BY PEMB MANUFACTURER.
- MANUF. BOD: METLSPAN®, LS-36 INSULATED METAL ROOF PANEL
- METAL PANELS, 5" THICK R-44.8, 22 GA. G-90 STEEL
- FINISH: FLUOROPON®, COLOR: HARVEST BEIGE

URP-1: UN-INSULATED MTL PANEL: URP-1
- MATERIAL: STEEL
- INSTALL: 24" STANDING SEAM MTL PANEL OVER PEMB GIRTS BY PEMB MANUFACTURER.
- MANUF. BOD: NUCOR, CFR STANDING SEAM ROOF PANEL, **UN-INSULATED**
- METAL PANELS, 3" THICK 24 GA. G-90 STEEL
- FINISH: MATCH IRP-1.

ROOF NOTES

1. ALL ROOFING MATERIALS SHALL INSTALLED IN ACCORDANCE WITH IBC 2021.
2. SLOPE ALL GUTTERS MIN 1/8" PER FOOT TO NEAREST DOWNSPOUT (SEE CALCS)
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN AND VERIFY THEIR OWN FIELD MEASUREMENTS FOR THE EXECUTION OF HIS WORK AND PRIOR TO FABRICATION OF THE VARIOUS COMPONENTS OF THE WORK.
4. ALL ROOF PENETRATIONS REQUIRED FOR INSTALLATION OF MECHANICAL UNITS, EQUIPMENT CURBS, VENTS, ETC. MUST BE DONE PER PEMB MANUFACTURER'S RECOMMENDATIONS TO ENSURE ALL WARRANTIES ARE MAINTAINED. PROVIDE FLASHING, COUNTERFLASHING, SEALANT, ETC. AS REQUIRED TO PROVIDE WATERPROOF CONDITIONS, TYPICAL AT ALL ROOF PENETRATIONS.
5. LOCATIONS AND QUANTITIES OF ALL VENTS, FLASHINGS, ETC. SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD. DISCREPANCIES IN THE DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE CONT. PROJECT MGR. PRIOR TO PROCEEDING WITH WORK. PROCEDURE WITHOUT NOTIFICATION WILL BE CONSIDERED ACCEPTANCE OF FIELD CONDITIONS AND PART OF THE CONTRACTOR'S SCOPE OF WORK.
6. ALL ROOFING SYSTEMS AND COMPONENTS SHALL BE INSTALLED IN CONFORMANCE WITH THE GUIDELINES OF THE NATIONAL ROOFING CONTRACTORS' ASSOCIATION (NRCA).
7. ALL SHEET METAL WORK SHALL BE REQUIRED TO CONFORM TO THE GUIDELINES OF THE SHEET METAL AND AIR CONDITIONING NATIONAL ASSOCIATION (SMACNA).
8. ALL VERTICAL CONDUCTORS AND DOWN SPOUTS SHALL BE REQUIRED TO CONFORM TO THE GUIDELINES OF THE INTERNATIONAL PLUMBING CODE PER THE CALCULATIONS TABLE BELOW.
9. ALL WOOD BLOCKING TO BE PRESSURE TREATED BLOCKING; ALL FASTENERS TO BE STAINLESS STEEL.
10. DAYLIGHT DISCHARGE DOWNSPOUTS TO SURFACE; SYSTEM SEE CIVIL.

KEYED NOTES

1. PEMB PRE-FINISHED MTL GUTTER W/ SNOW CLIPS; SEE CALCULATIONS FOR SIZING. SEE DETAILS FOR SNOW CLIPS.
2. ROOF SNOW GUARDS SECURED TO STANDING SEAM ROOF CLIPS; BOD ALPINE SNOWGUARD® STANDING SEAM TWO-PIPE SNOW GUARD, MODEL NO. ASG4000G. SPACED AT EACH PANEL SEAM PER MANUF. INSTRUCTIONS.
3. PEMB PRE-FINISHED MTL DOWNSPOUTS TERMINATING AT SPLASH BLOCKS AT GRADE; SEE CALCULATIONS FOR SIZING.

ROOF DRAINAGE CALCULATIONS

IPC 2021 (INTERNATIONAL PLUMBING CODE)

FIGURE 1106.1
100-YEAR, 1-HOUR RAINFALL (INCHES)[1] FOR KODIAK, AK = APPROX. 1.28"

TABLE 1106.4
Size of vertical conductors and leaders shall be sized based on the flow rate from horizontal gutters or the maximum flow rate through roof drains.

LEGEND:
R_U : SQFT OF PROJECTED ROOF AREA PER QUADRANT

TOTAL GARAGE ROOF AREA = 4,480 SF (R_T)

R_U = ROOF AREA PER QUADRANT = R_T / 4 = 4,480 / 4 = 1,120 SF

GALLONS PER MINUTE (GPM) = (12" X 12" X 1.28") / 231 =
0.80 GAL/HR / 60 MIN = 0.0133 GPM

Total GPM = (R_T x 0.0156) / 4 = (4,480 * 0.0133) / 4 = 14.89 gpm per DS

MIN. REQUIRED[2]
4" ø GUTTER, SLOPE @ 1/8" / 12", W/ (2) 2" X 2" DS, EACH SIDE

MIN. PROVIDED:
5"x5" GUTTER, SLOPE @ 1/8" / 12", W/ (2) 5" X 5" DS, EACH SIDE

NOTE:
1. RAINFALL DATA OBTAINED FROM NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES. PRECIPITATION FREQUENCY IS ESTIMATED WITH 90% CONFIDENCE INTERVALS. SEE ADDITIONAL INFORMATION AT HDSC.NWS.NOAA.GOV.
2. DIMENSIONS ARE WIDTH BY DEPTH FOR RECTANGULAR SHAPES. SINGULAR DIMENSIONS ARE DIAMETER (Ø) OF A SEMI-CIRCULAR GUTTER PROFILE.

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	06/02/26	REVISION 1

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
AREA 3 PAD D
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
ROOF PLAN

DRAWING NO.
A-191

NORTH
0 4' 8' 16' 24'
1/8" = 1'-0"

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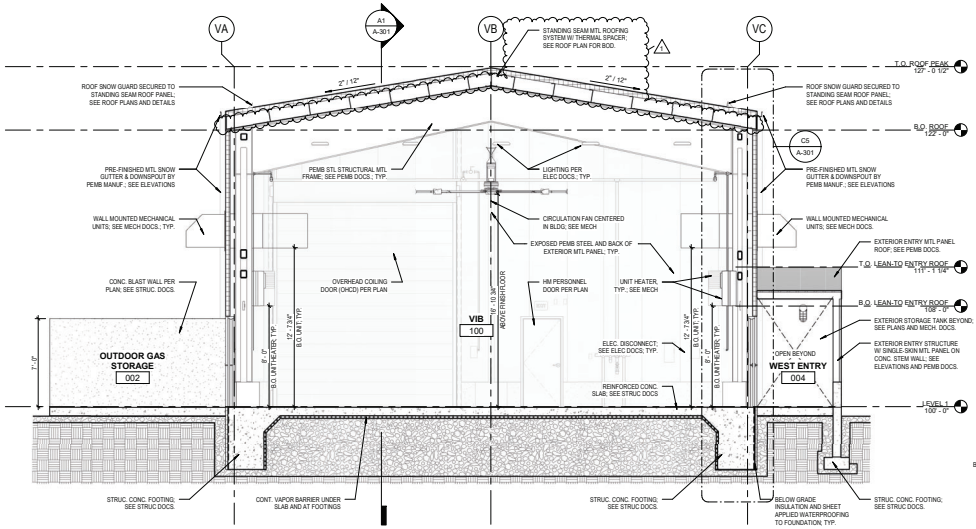
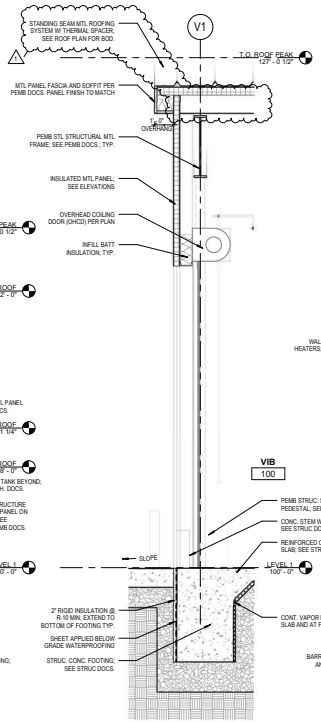
GENERAL NOTES

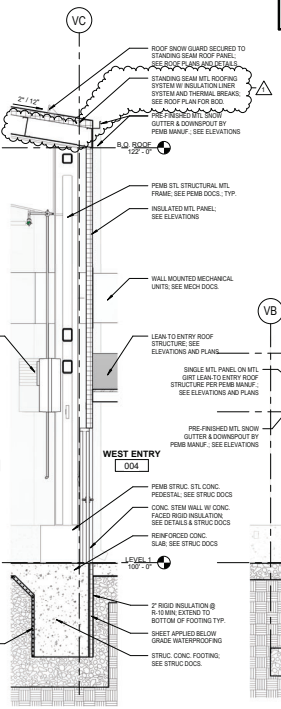
1. REFER TO STRUCTURAL DRAWINGS FOR FOUNDATIONS AND LOADS.
2. PRE-ENGINEERED METAL BUILDING (PEMB) IS BY DELEGATED DESIGN; REFER TO PEMB DOCUMENTS FOR ADDITIONAL DETAILS.
3. SEE ROOF PLAN FOR ROOF MATERIAL CALLOUTS
4. SEE ELEVATIONS FOR EXTERIOR WALL MATERIAL CALLOUTS.



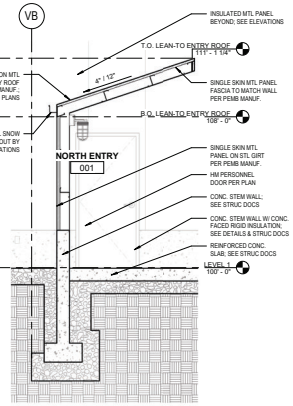
C1 BUILDING SECTION N/S
1/4" = 1'-0"



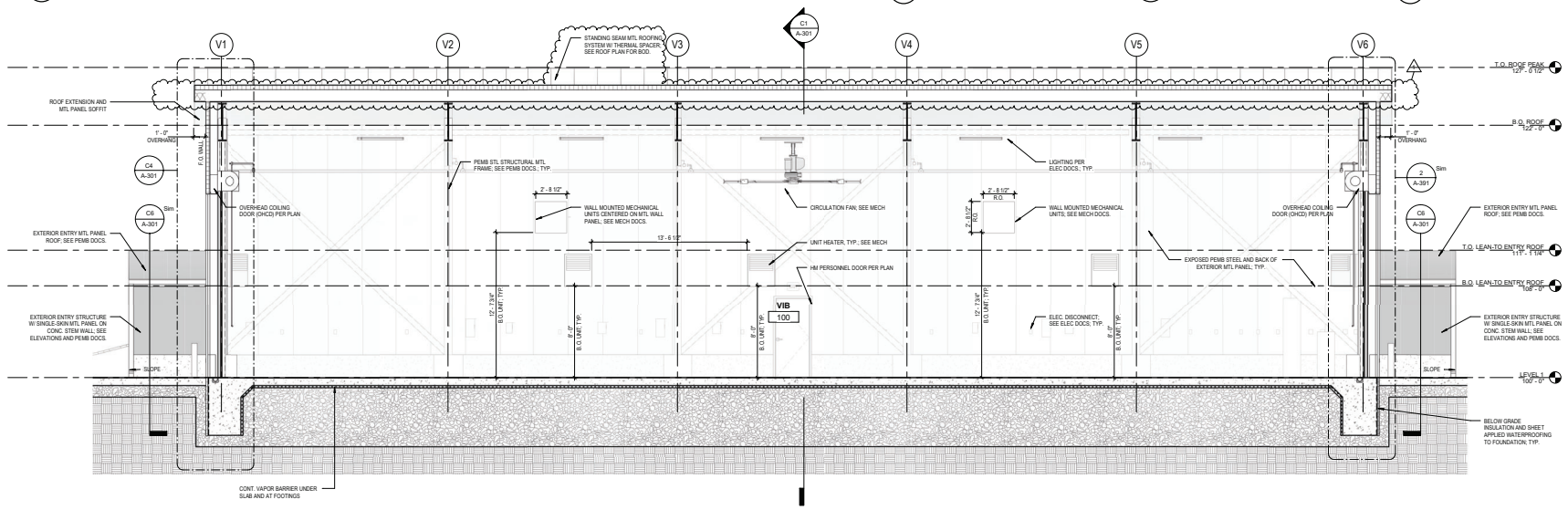
C4 TYPICAL EXTERIOR WALL SECTION N/S
3/8" = 1'-0"



C5 TYPICAL EXTERIOR WALL SECTION E/W
3/8" = 1'-0"



C6 TYPICAL ENTRY LEAN-TO WALL SECTION
3/8" = 1'-0"



A1 BUILDING SECTION E/W
1/4" = 1'-0"

0 2' 4' 6' 8'
3/8" = 1'-0"
0 2' 4' 8' 12'
1/4" = 1'-0"

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	06/02/26	REVISION 1

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
49TH TH
Kenneth W. Lowery
No 14640
4/13/26

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640

DESIGNED BY
BRPH

DRAWN BY
C. KOTRLIK

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
BUILDING SECTIONS

DRAWING NO.
A-301

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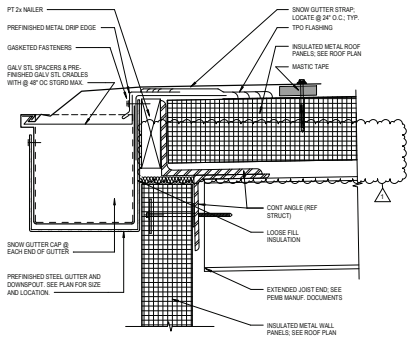
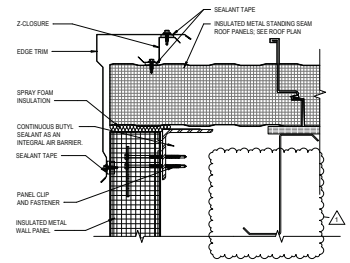
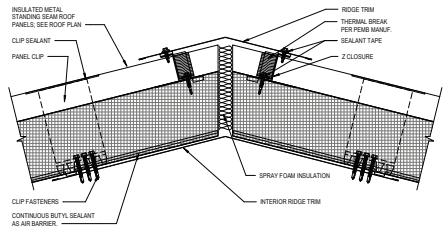


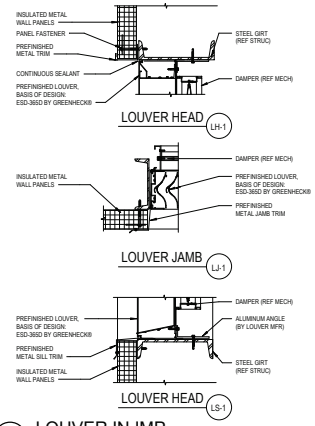
D1 ROOF GUTTER @ IMP WALL
3" = 1'-0"



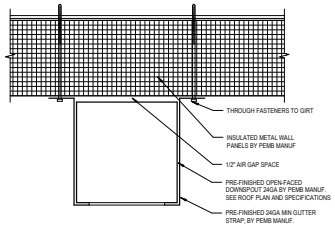
D2 ROOF RAKE EDGE AT IMP
3" = 1'-0"



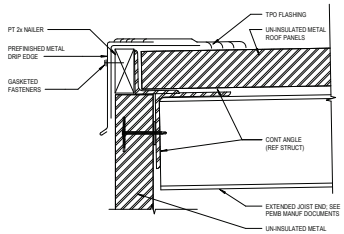
D4 PEMB IMP RIDGE
3" = 1'-0"



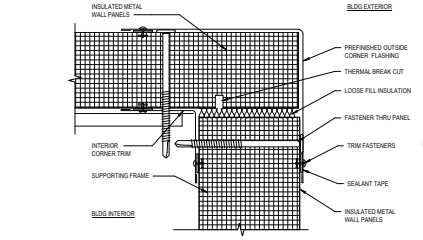
D5 LOUVER IN IMP
1 1/2" = 1'-0"



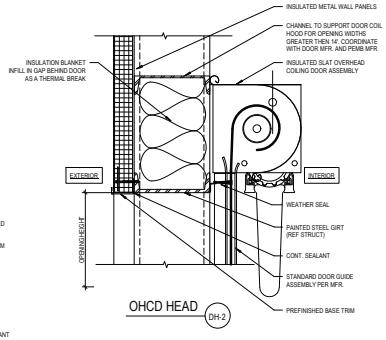
C1 DOWNSPOUT ON METAL PANEL
3" = 1'-0"

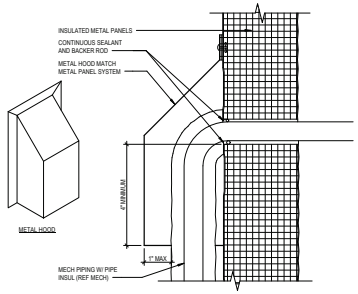


C2 ROOF EDGE @ MTL PANEL WALL
3" = 1'-0"

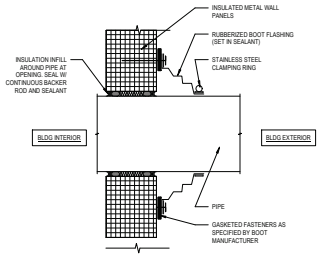


C4 IMP OUTSIDE CORNER
6" = 1'-0"

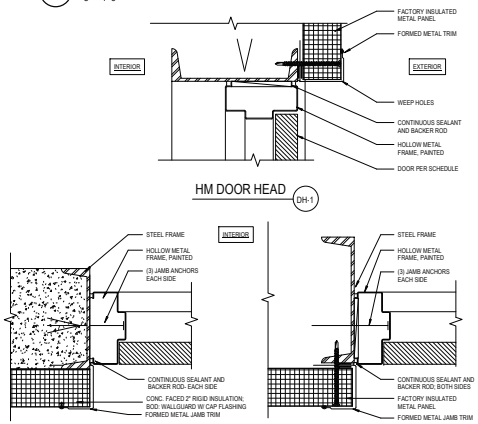


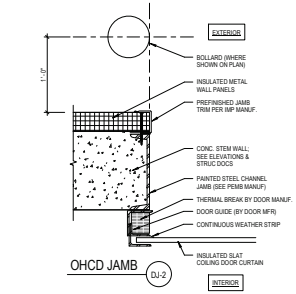


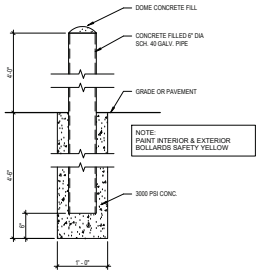
B1 SMALL PIPE PENETRATION
6" = 1'-0"



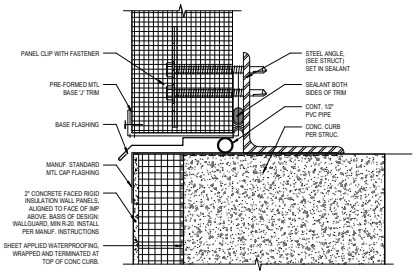
B2 IMP PIPE PENETRATION
3" = 1'-0"



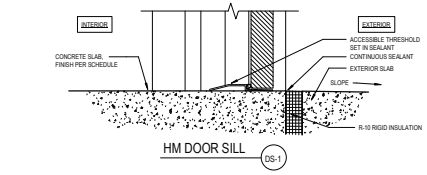




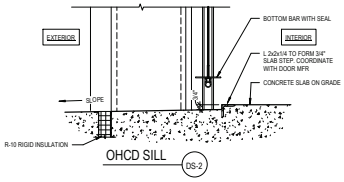
A1 PIPE BOLLARD 'PB'
1" = 1'-0"



A2 IMP TO CURB DETAIL
6" = 1'-0"



A4 DOOR IN CONC./IMP
3" = 1'-0"



A5 OHC DOOR IMP DETAILS
1 1/2" = 1'-0"

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1	06/02/26	REVISION 1.

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
KEN LOWERY
AK NO. 14640
DESIGNED BY
BRPH
DRAWN BY
C. KOTRLIK
PROJECT NUMBER
C09729.001
DATE
05/08/2026
TITLE
DETAILS
DRAWING NO.
A-501

0 1" 2" 3" 4" 5" 6"
6" = 1'-0"
0 3" 6" 9" 1'-0"
3" = 1'-0"
0 1/2" 1" 1 1/2" 2"
1 1/2" = 1'-0"

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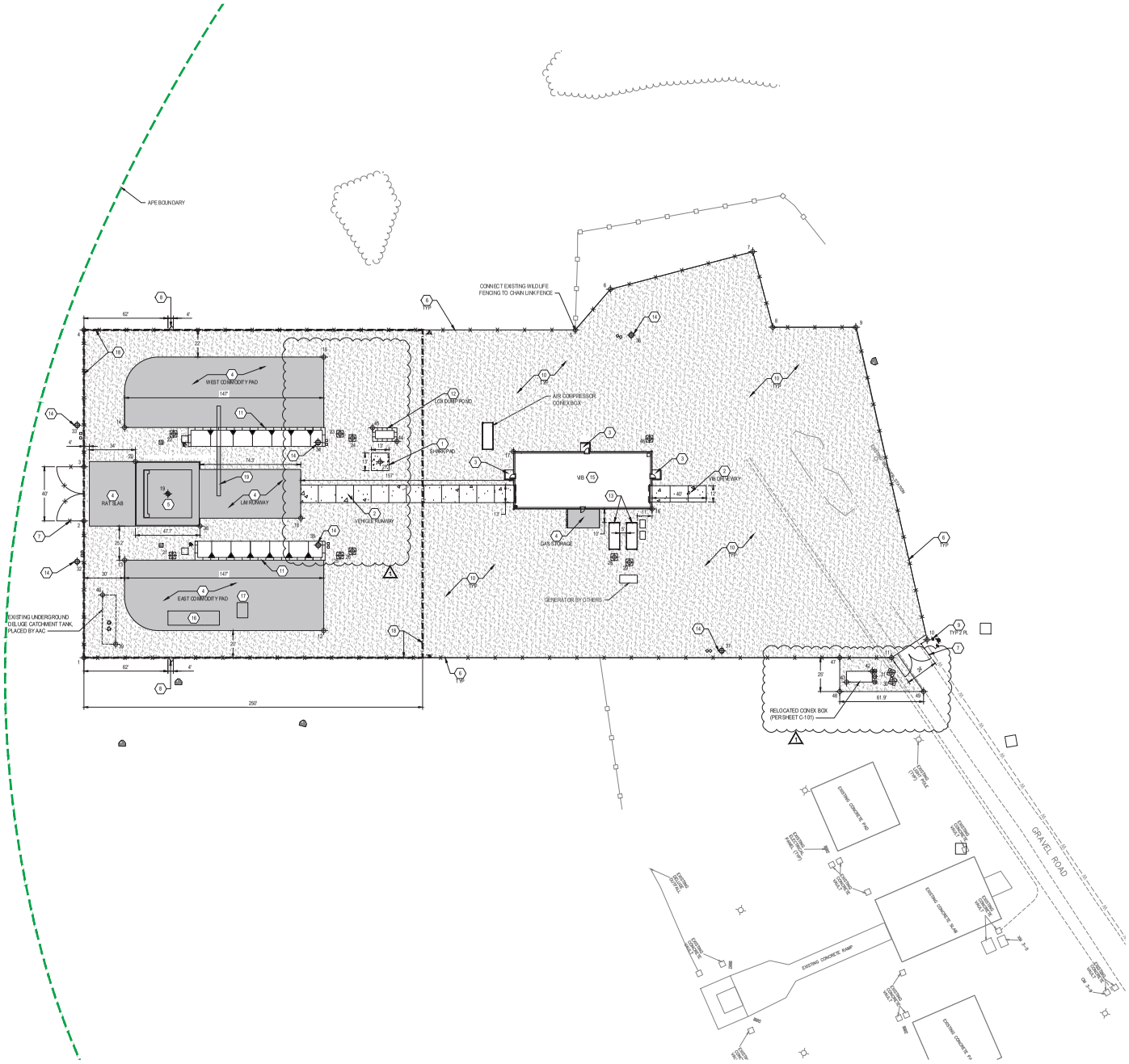

SITE PLAN

1"=30'

CIVIL NOTES:

A. FUEL STORAGE TANK BASIS OF DESIGN IS A HORIZONTAL ABOVEGROUND DOUBLE WALL CONVAULT TANK FROM CORE ENGINEERED SOLUTIONS, INC. WITH THE FOLLOWING PARAMETERS

- MAWP ATMOSPHERIC
- GROSS CAPACITY 3,000 GAL
- TARE WEIGHT 38,200 LBS
- MAX GROSS WEIGHT 57,979 LBS
- TANK DIMENSIONS 8' WIDE x 11'-3" LONG

CIVIL KEYNOTES:

1. PROVIDE EXTERIOR EQUIPMENT PAD, SEE STRUCTURAL DRAWINGS.
2. PROVIDE CONCRETE PAVEMENT, SEE DETAIL 1 ON SHEET C-501.
3. PROVIDE CONCRETE DOOR LANDING, SEE STRUCTURAL AND ARCHITECTURAL DRAWINGS.
4. PROVIDE CONCRETE SLAB, SEE STRUCTURAL DRAWINGS.
5. PROVIDE CONCRETE LAUNCH PAD, SEE STRUCTURAL DRAWINGS.
6. PROVIDE 7' TALL CHAIN LINK FENCING WITH 3-STRAND BARBED WIRE, SEE DETAIL 7 ON SHEET C-501.
7. PROVIDE 7' TALL DOUBLE LEAF SWING GATE, SEE DETAILS ON SHEET C-501.
8. PROVIDE PEDESTRIAN GATE, SEE DETAIL 6 ON SHEET C-501.
9. PROVIDE CONCRETE FILLED BOLLARD, SEE DETAIL 4 ON SHEET C-501.
10. PROVIDE AGGREGATE SURFACE, SEE DETAIL 2 ON SHEET C-501.
11. PROVIDE BARRIER WALL, SEE STRUCTURAL DRAWINGS.
12. PROVIDE ECOBLOCK WALL CONTAINMENT PIT, SEE STRUCTURAL DRAWINGS.
13. POWER AND COMMUNICATIONS CONEX VAULTS, OWNER FURNISHED AND CONTRACTOR INSTALLED.
14. PROVIDE LIGHT POLE AND FOUNDATION, SEE ELECTRICAL AND STRUCTURAL DRAWINGS.
15. PROVIDE VERTICAL INTEGRATION BUILDING (VIB), SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
16. OWNER FURNISHED AND INSTALLED 25,000-GAL ABOVEGROUND DELUGE CATCHMENT TANK.
17. OWNER FURNISHED AND INSTALLED 3,000-GAL ABOVEGROUND FUEL STORAGE TANK, SEE CIVIL NOTE A ON THIS SHEET.
18. LIMITS OF IMPERMEABLE LINER.
19. PROVIDE STAGE 2 UTILITY TRENCH, SEE STRUCTURAL DRAWINGS.

POINT TABLE

#	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	17539.66	61999.98	155.22	FENCE CORNER
2	17595.57	61915.86	156.39	FENCE CORNER
3	17617.72	61892.56	156.39	FENCE CORNER
4	17673.65	61798.45	155.22	FENCE CORNER
5	17975.65	61999.28	155.04	FENCE CORNER
6	18013.88	61988.61	154.30	FENCE CORNER
7	18116.79	62023.67	154.86	FENCE CORNER
8	18098.21	62078.36	155.90	FENCE CORNER
9	18149.22	62112.27	155.54	FENCE CORNER
10	18005.28	62333.59	161.86	FENCE CORNER
11	18036.11	62330.08	162.60	FENCE CORNER
12	17698.11	62081.32	156.00	CONCRETE CORNER
13	17604.50	61966.62	156.75	CONCRETE CORNER
14	17658.76	61875.02	156.75	CONCRETE CORNER
15	17809.96	61913.11	156.00	CONCRETE CORNER
16	17949.69	62140.73	157.00	BUILDING CORNER
17	17887.91	62048.81	157.00	BUILDING CORNER
18	17729.92	62002.79	156.84	LIM RUNWAY CORNER
19	17658.28	61933.54	156.77	LAUNCH PAD CENTER
20	17651.49	61900.41	156.77	LAUNCH PAD CORNER
21	17635.93	61973.34	156.43	PWR/COMMS VAULT CENTER
22	17686.33	61898.96	156.38	PWR/COMMS VAULT CENTER
23	17788.64	61966.99	156.55	PWR/COMMS VAULT CENTER
24	17794.47	61974.65	156.58	PWR/COMMS VAULT CENTER
25	17738.89	62041.80	156.41	PWR/COMMS VAULT CENTER
26	17748.21	62044.22	156.41	PWR/COMMS VAULT CENTER
27	17801.83	62000.63	156.67	LASER STING CENTER
28	17906.74	62154.92	156.29	PWR/COMMS VAULT CENTER
29	17913.96	62164.32	156.21	PWR/COMMS VAULT CENTER
30	18027.15	62345.11	169.00	PWR/COMMS VAULT CENTER
31	18029.69	62339.12	167.50	PWR/COMMS VAULT CENTER
32	17574.76	61938.13	154.71	LIGHT POLE
33	17630.66	61854.22	154.70	LIGHT POLE
34	17771.62	61963.24	156.44	LIGHT POLE
35	17729.68	62026.50	156.47	LIGHT POLE
36	18007.94	62025.33	155.19	LIGHT POLE
37	17934.51	62256.42	157.09	LIGHT POLE
38	17664.70	61966.49	156.77	LAUNCH PAD CORNER
39	17564.63	62004.63	156.67	EXISTING CATCHMENT TANK CORNER
40	17576.77	61969.05	156.57	EXISTING CATCHMENT TANK CORNER
42	18018.68	62330.50	161.85	CONEX CORNER
43	17998.43	62326.65	161.85	CONEX CORNER
44	17820.50	61994.89	0.00	LOX DUMP POND CORNER
45	17811.05	61978.59	0.00	LOX DUMP POND CORNER
46	17976.84	62096.50	156.77	PWR/COMMS VAULT CENTER
47	18004.24	62308.89	160.96	EDGE OF GRAVEL CORNER
48	17990.39	62329.71	161.76	EDGE OF GRAVEL CORNER
49	18041.92	62363.97	169.00	EDGE OF GRAVEL CORNER

0 15' 30' 60' 90'

SCALE: 1" = 30'

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DOCUMENT HISTORY

REV	DATE	DESCRIPTION
1	06/03/26	REVISION 1

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA 49TH JENNIFER A. HARVIN No. 112979

This item has been electronically signed and sealed by the licensed professional engineer named below using a digital signature and associated private key. Printed copies of this document are not sealed, and the signature must be verified on electronic copies.

ARCHITECT OF RECORD
JENNIFER A. HARVIN
AK PE 112979

DESIGNED BY
A. LUNA

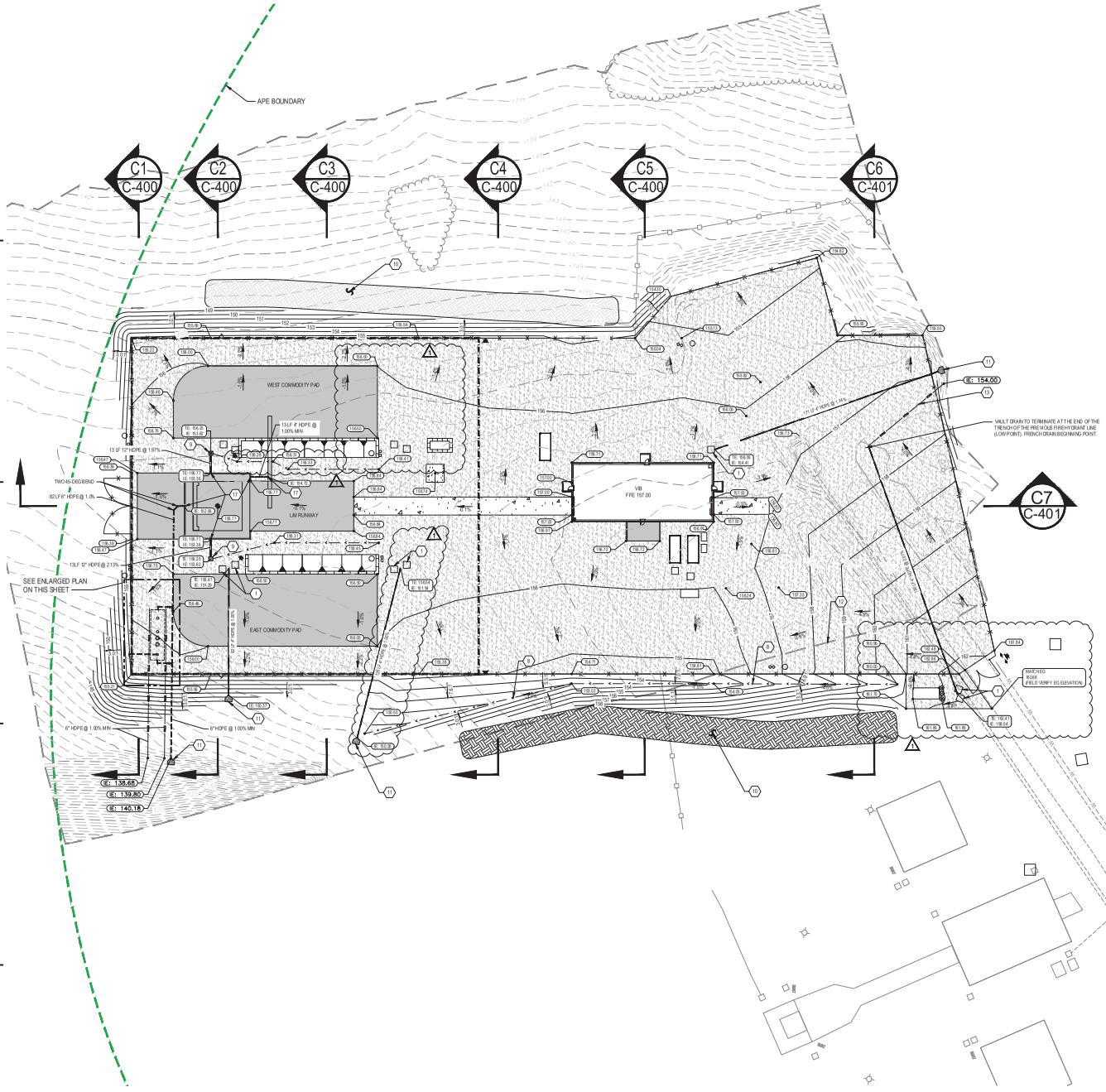
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

TITLE
SITE PLAN

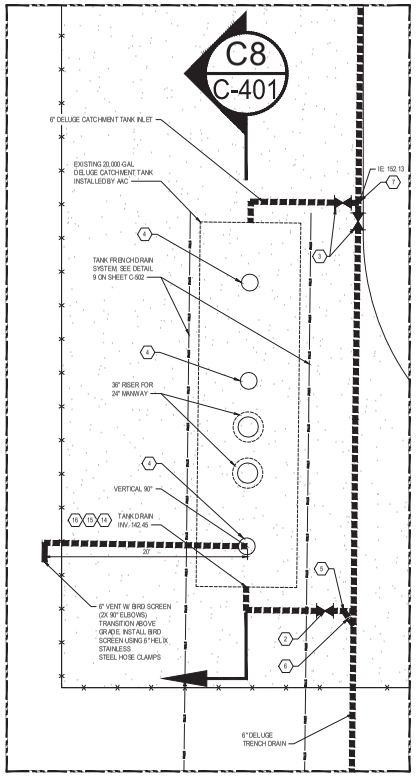
DRAWING NO.
C-121



GRADING & DRAINAGE PLAN
1"=30'

CIVIL KEYNOTES:

1. PROVIDE DRAIN FROM ELECTRICAL/COMMUNICATIONS VAULTS, SEE DETAIL 7 ON SHEET C-502.
2. PROVIDE GATE VALVE & BOX, SEE DETAIL 2 ON SHEET C-502.
3. PROVIDE LONG STEM GATE VALVE & BOX, SEE DETAIL 2 ON SHEET C-502.
4. EXISTING 6" FLANGED TANK CONNECTION.
5. PROVIDE 6" 45DEG THREE-SEGMENT MITERED BEND.
6. PROVIDE 6"x6"x6" WYE.
7. PROVIDE 6"x6"x6" TEE.
8. PROVIDE V-SHAPED SWALE 1.5' DEEP.
9. PROVIDE AREA DRAIN, SEE DETAIL 8 ON SHEET C-502.
10. STOCKPILE AREA FOR 3.5' OF TOPSOIL EXCAVATION.
11. PROVIDE RIP RAP OUTLET PROTECTION, SEE DETAIL 3 ON SHEET C-501.
12. LIMIT OF TOPOGRAPHIC SURVEY, CONTRACTOR TO FIELD VERIFY EXISTING TOPOGRAPHY ACCOMMODATES THE DESIGN GRADING.
13. PROVIDE FRENCH DRAIN, SEE DETAIL 9A ON SHEET C-502.
14. EXISTING PLAIN END SCHEDULE 40 CARBON STEEL STUBOUT. WELD A CLASS 150 SLIP-ON FLANGE THEN INSTALL FLANGE ADAPTER AND 90-DEGREE BEND.
15. PROVIDE 6" FLANGE 2/ CLASS 150 STAINLESS STEEL BACK-UP RING.
16. PROVIDE 6" 90DEGREE ELBOW THREE SEGMENT MITERED BEND.
17. SEE STRUCTURAL DRAWINGS FOR DRAIN PENETRATION INTO THE LOP DELUGE TRENCH.



ENLARGED PLAN
1"=5'

0 2.5' 5' 10' 15'
SCALE: 1" = 5'

0 15' 30' 60' 90'
SCALE: 1" = 30'

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

REV	DATE	DESCRIPTION
1	06/03/26	REVISION 1

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
ALASKA AEROSPACE CORPORATION

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STATE OF ALASKA 49TH JENNIFER A. HARVIN No. 112979

ARCHITECT OF RECORD
JENNIFER A. HARVIN
AK PE 112979

DESIGNED BY
A. LUNA

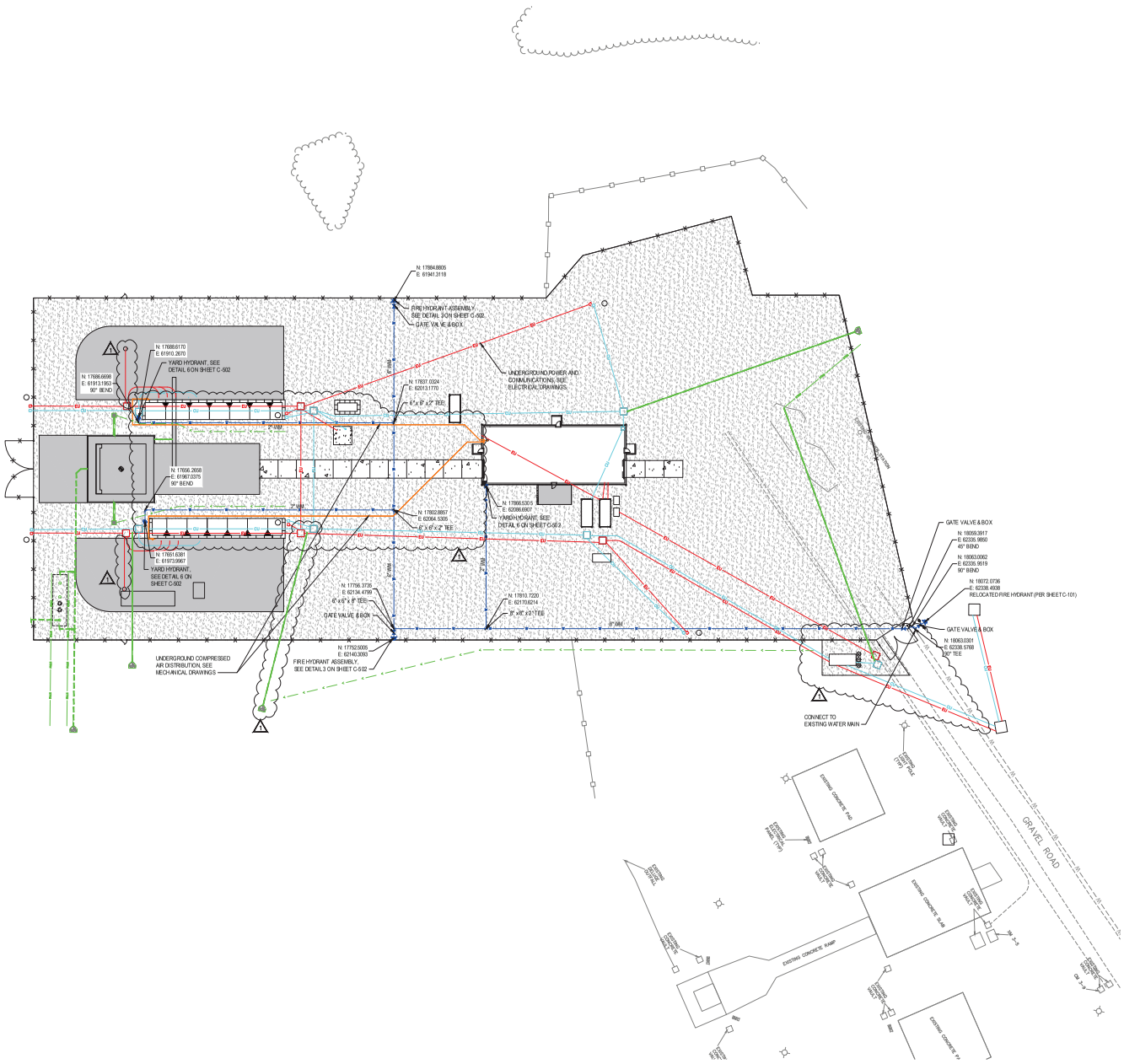
DRAWN BY
P. BRIONES

PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

TITLE
GRADING & DRAINAGE PLAN

DRAWING NO.
C-141



UTILITY PLAN

1"=30'

0 15' 30' 60' 90'

SCALE: 1" = 30'

UTILITY LEGENDS:

STORM PIPE	STM
UNDERDRAIN (FRENCH DRAIN)	STM
DRAINAGE SWALE	
UNDERGROUND COMMUNICATIONS LINE	CU
UNDERGROUND ELECTRICAL LINE	EU
RIP RAP	
STORM AREA DRAIN	
FIRE HYDRANT	
YARD HYDRANT	
WYE	
45 DEGREE BEND	
GATE VALVE & BOX	
90 DEGREE TEE	
90 DEGREE BEND	
WATER PIPE	W
COMPRESSED AIR PIPPE	

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PROJECT NUMBER
C09729.001.01

DATE
05/08/2026

TITLE
UTILITY PLAN

DRAWING NO.
C-161

POWER LEGEND

- TRANSFORMER.
- PANELBOARD; 480Y/277V.
- PANELBOARD; 208Y/120V.
- FUSED DISCONNECT. FUSED PER EQUIPMENT MANUFACTURER'S RECOMMENDATIONS. FURNISHED BY DIVISION 23, UON. FOR ALL MECHANICAL EQUIPMENT. FURNISHED BY DIVISION 26 FOR ALL OTHER EQUIPMENT. P-NUMBER OF POLES, SIZE-AMPERE RATING, FUSE-TYPE OR SIZE.
- NON-FUSED DISCONNECT, FURNISHED BY DIVISION 23, UON.
- COMBINATION STARTER, FURNISHED BY DIVISION 23, UON.
- MOTOR RATED SWITCH. 20A, 2P, 120/277V.
- JUNCTION BOX.
- SIMPLEX RECEPTACLE; NEMA 5-20R, 125VAC.
- DUPLEX RECEPTACLE; NEMA 5-20R, 125VAC.
- DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, 125VAC.
- DUPLEX/QUAD RECEPTACLE; NEMA 5-20R, 125VAC. MOUNT RECEPTACLES 2" ABOVE COUNTERS OR BACKSPLASH OR AT 48" AFF. COORDINATE WITH ARCHITECTURAL ELEVATION DRAWINGS.
- CEILING MOUNTED DUPLEX RECEPTACLE, NEMA 5-20R, 125VAC.
- CEILING MOUNTED DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, 125VAC.
- 20A, 120V NEMA L5-20R. (DSN20A)
- 20A, 208V NEMA L6-20R. (DSN20A)
- 30A, 208V, NEMA L6-30R. (DSN30A)
- 60A, 208V, 4P, 5W, NEMA L21-60R. (DSN60A)
- 100A, 480Y, DS100 WITH INTEGRAL DISCONNECT.
- 20A, 208V, DSNA20A WITH INTEGRAL DISCONNECT.

RECEPTACLE SUBSCRIPTS:

GF	GROUND FAULT CIRCUIT INTERRUPTER.
WP	GROUND FAULT CIRCUIT INTERRUPTER WITH WEATHERPROOF IN USE TYPE COVER
IG	ISOLATED GROUND.
EP	EXPLOSION PROOF.
TR	TAMPER RESISTANT.
SW	SWITCHED - PLUG LOAD CONTROL PER ASHRAE 90.1

- VFD — VARIABLE FREQUENCY DRIVE FURNISHED BY DIVISION 23 CONTRACTOR.
- SPD — SURGE PROTECTIVE DEVICE.
- DUPLEX/QUAD CONVENIENCE RECEPTACLE, 20A, 125 VAC, ON GENERATOR POWER.
- MH — ELECTRICAL MANHOLE.
- EMERGENCY POWER-OFF BUTTON.
- MI — MECHANICALLY INTERLOCKED RECEPTACLE, DEVICE TYPE VARIES, SEE PLANS FOR SPECIFIC TYPE AND RATING.
- 150 — 150A, 480V, HUBBLE VERSAMATE SERIES PIN & SLEEVE RECEPTACLE, SEE PLANS FOR DETAILS.

LIGHTING LEGEND

- A1 / a — UPPER CASE LETTER INDICATES FIXTURE TYPE, SEE LIGHTING FIXTURE SCHEDULE AND DRAWINGS. LOWER CASE LETTER INDICATES SWITCH LEG.
- 2' x 4' LIGHTING FIXTURE.
- 2' x 4' EMERGENCY LIGHTING FIXTURE.
- 2' x 2' LIGHTING FIXTURE.
- 2' x 2' EMERGENCY LIGHTING FIXTURE.
- 1' x 4' LIGHTING FIXTURE.
- 1' x 4' EMERGENCY LIGHTING FIXTURE.
- DOWNLIGHT FIXTURE.
- DOWNLIGHT EMERGENCY FIXTURE.
- 4' STRIP LIGHTING FIXTURE.
- 4' EMERGENCY STRIP LIGHTING FIXTURE.
- 6" DOWNLIGHT WALL WASH.
- WALL SCONCE.
- WALL SCONCE EMERGENCY.
- SINGLE SIDED EMERGENCY/EXIT SIGN.
- DOUBLE SIDED EMERGENCY/EXIT SIGN.
- SINGLE POLE SWITCH, 20A, 120/277V.

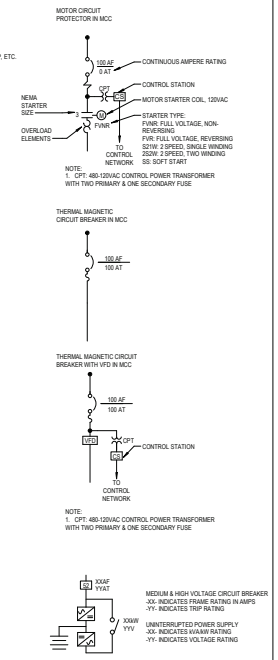
SWITCH MODIFIERS:

3	THREE WAY WALL SWITCH.
4	FOUR WAY WALL SWITCH.
D	DIMMER SWITCH.
K	KEYED WALL SWITCH.
LV	LOW VOLTAGE SWITCH.
OC	WALL MOUNTED OCCUPANCY SENSOR SWITCH.
WP	WEATHERPROOF SWITCH.

- OC — OCCUPANCY SENSOR.
- PC — PHOTOCELL.
- # — LIGHTING CONTROL CALL OUT. REFER TO LIGHTING CONTROL SCHEDULE.
- ELR — EMERGENCY LIGHTING CONTROL RELAY - UL924 COMPLIANT.
- DS — DUAL TECHNOLOGY OCCUPANCY SENSOR WITH PHOTOCELL FOR AUTOMATIC DAYLIGHT RESPONSE DIMMING.

ONE-LINE DIAGRAMS LEGEND

- SS4 — CONDUCTOR SIZE - SEE WIRE & CONDUIT SCHEDULE.
- 25HP — MOTOR FEEDER TAG
- AF/AT — CIRCUIT BREAKER. XXX DENOTES BREAKER TYPE: LSIG, ICP, ETC.
- CR — CONTACT, NORMALLY CLOSED OR NORMALLY OPEN.
- XXA Z — FUSE. -'XX' INDICATES TRIP RATING IN RATING IN AMPS. -'Z' INDICATES CLASSIFICATION (IF SPECIFIED).
- GENERATOR SET.
- M — UTILITY METER.
- SPLICE.
- SWITCH.
- S — TRANSFER SWITCH.
- TRANSFORMER, DELTA WYE.
- PANEL — 225A MLO, 480/277V, 3Ø, 4W — 480V/277V PANELBOARD.
- PANEL — 225A MLO, 208/120V, 3Ø, 4W — 208V/120V PANELBOARD.
- X — MOTOR - 'X' INDICATES HORSEPOWER.
- MULTIFUNCTION METER AND CIRCUIT MONITOR WITH ETHERNET INTERFACE CARD.
- VFD — VARIABLE FREQUENCY DRIVE.
- ANGLED BRACKETS INDICATE DRAWOUT DEVICE.



ABBREVIATIONS AND ACRONYMS

(APPLIES TO ALL ELECTRICAL SHEETS)

A	AMPERES
AC	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ASSOC	ASSOCIATION
A/V	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
C	CONDUIT
CLG	CEILING
COMM	COMMUNICATION
CU	COPPER
DISC	DISCONNECT
DIV	DIVISION
DWG	DRAWING
ECB	ENCLOSED CIRCUIT BREAKER
EF	EXHAUST FAN
ELEC	ELECTRICAL
EM	EMERGENCY
EMCS	ENERGY MANAGEMENT CONTROL SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ETR	EXISTING TO REMAIN
EX	EXISTING
GF	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HVAC	HEATING, VENTILATING & AIR CONDITIONING
JBOX	JUNCTION BOX
KAIC	(THOUSAND) AMPERE INTERRUPTING CAPACITY
kcmil	THOUSAND OF CIRCULAR MILS
KVA	KILOVOLT-AMPERES
KW	KILOWATT
LC	LIGHTING CONTACTOR
LCP	LIGHTING CONTROL PANEL
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LTS	LIGHTS
LSI	LONG, SHORT, INSTANTANEOUS
LSIG	LONG, SHORT, INSTANTANEOUS, GROUND FAULT
MANUF	MANUFACTURERS
MCB	MAIN CIRCUIT BREAKER
MLO	MAIN LUG ONLY
N	NEUTRAL
NA	NOT APPLICABLE
N.C.	NORMALLY CLOSED
NF	NON-FUSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NEMA	NATIONAL ELECTRICAL MANUF ASSOC
NFPA	NATIONAL FIRE PROTECTION ASSOC
NL	NIGHT LIGHT - FIXTURE OPERATES CONTINUOUSLY
N.O.	NORMALLY OPEN
NRTL	NATIONALLY RECOGNIZED TESTING LABORATORY
NTS	NOT TO SCALE
O.C.	ON CENTER
OCPD	OVER CURRENT PROTECTION DEVICE
OH	OVERHEAD
PNL	PANELBOARD
PROJ	PROJECTOR
PVC	POLYVINYL CHLORIDE
RM	ROOM
RECPT(S)	RECEPTACLE(S)
RGS	RIGID GALVANIZED STEEL
SN	SOLID NEUTRAL
SEC	SECURITY
SPD	SURGE PROTECTION DEVICE
SPEC	SPECIFICATION
SPST	SINGLE POLE SINGLE THROW
SQ	SQUARE
SW	SWITCH
TEL	TELEPHONE
TEMP	TEMPORARY
TTC	TELEPHONE TERMINAL CABINET
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
USB	UNIVERSAL SERIAL BUS
V	VOLTS
W	WIRE
WP	WEATHER PROOF
XFMR	TRANSFORMER
Y	WYE (CONNECTED)

GENERAL NOTES

1. ELECTRICAL SERVICE TO AND FOR MECHANICAL AND OTHER EQUIPMENT IS BASED ON EQUIPMENT DESIGN DATA, THE VALUES MAY DIFFER DEPENDING UPON THE ACTUAL EQUIPMENT TO BE FURNISHED. COORDINATE RATINGS WITH OTHER TRADES PRIOR TO ORDERING ELECTRICAL EQUIPMENT. ANY MODIFICATION TO THE ELECTRICAL INSTALLATION BASED UPON ACTUAL EQUIPMENT SELECTION, SHALL RESULT IN NO ADDITIONAL COST TO THE CONTRACT.
2. CONTRACTOR SHALL REVIEW ALL DESIGN DOCUMENTS TO ENSURE THAT ELECTRICAL SERVICE FOR ALL ITEMS AND/OR EQUIPMENT REQUIRING ELECTRICAL SERVICE IS INCLUDED. ANY ITEM AND/OR EQUIPMENT NOT PROVIDED WITH ELECTRICAL SERVICE, REQUIRING ELECTRICAL SERVICE, SHALL BE IMMEDIATELY BROUGHT TO THE OWNERS ATTENTION.
3. MECHANICAL AND ELECTRICAL EQUIPMENT HAS BEEN LOCATED AND ARRANGED TO MINIMIZE THE INTERFERENCES OF EQUIPMENT AND STRUCTURE. CONTRACTOR SHALL THOROUGHLY BECOME FAMILIAR WITH THE WORK TO BE PERFORMED BY ALL TRADES AND THE PHYSICAL CHARACTERISTICS OF THE STRUCTURE IN ORDER TO SCHEDULE AND INSTALL EQUIPMENT AND TO MINIMIZE POSSIBLE INTERFERENCE. FAILURE TO PROPERLY COMMUNICATE AND SCHEDULE WORK WITH OTHER TRADES RESULTING IN ADDITIONAL WORK AND MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
4. EQUIPMENT INSTALLED WITHIN CONCEALED SPACES SHALL HAVE REASONABLE AND CODE COMPLIANT ACCESS PANELS PROVIDED NEARBY FOR INSPECTION, TESTING AND SERVICE CONSIDERATIONS.
5. VERIFY CEILING TYPES AND INSTALLATION REQUIREMENTS PRIOR TO ORDERING LIGHT FIXTURES.
6. COORDINATE THE LOCATION OF ALL DEVICES AND BOXES WITH WINDOWS, MILLWORK, BUILT-INS, AND CABINETS PRIOR TO ANY INSTALLATION OF CONDUITS.
7. DISCONNECTING MEANS (SWITCHES) FEEDING FAN TERMINAL BOXES SHALL BE MOTOR RATED SWITCHES.
8. MOUNT DISCONNECT SWITCHES FOR MECHANICAL EQUIPMENT WITHIN SIX (6) FEET OF EQUIPMENT AS REQUIRED BY APPLICABLE CODES AND STANDARDS. LOCATIONS FOR DISCONNECT SWITCHES SHOWN ON PLANS IS FOR GENERAL INFORMATION ONLY.
9. COORDINATE EXACT INSTALLATION REQUIREMENTS OF OUTLETS IN MILLWORK WITH ARCHITECTURAL DRAWINGS AND ACCEPTED MILLWORK SHOP DRAWINGS.
10. VERIFY EXACTLOCATIONS OF ALL MECHANICAL EQUIPMENT, INCLUDING WALL SWITCHES, THERMOSTATS, ETC WITH MECHANICAL CONTRACTOR AND MECHANICAL DRAWINGS.
11. REFER TO MECHANICAL EQUIPMENT SCHEDULE, FOR CONDUIT/CONDUCTORS, DISCONNECTS, MISCELLANEOUS EQUIPMENT REQUIRED FOR ALL MECHANICAL EQUIPMENT .
12. VERIFY POWER AND LIGHTING CIRCUITS IN THE FIELD PRIOR TO REUSE FOR FEEDING NEW LOADS.
13. FOR UNDERGROUND CONDUITS 1-1/2" AND LARGER, PROVIDE MASTIC COATED GALVANIZED RIGID METAL SWEEPS AND BENDS. PROVIDE MASTIC AROUND ALL THREADS AFTER CONDUIT ASSEMBLY.
14. WIRE AND CONDUIT SYSTEMS ARE SHOWN DIAGRAMMATICALLY AND SHALL BE ROUTED TO SUIT FIELD CONDITIONS AND EQUIPMENT LOCATIONS.
15. LIGHTING FIXTURES AND GENERAL PURPOSE RECEPTACLES IN MECHANICAL, ELECTRICAL AND EQUIPMENT ROOMS SHALL BE FIELD LOCATED TO SUIT EQUIPMENT CONDITIONS AND EQUIPMENT LOCATIONS.
16. POLE MANUFACTURER SHALL SUBMIT FOR APPROVAL ALONG WITH POLE AND LIGHT FIXTURE SHOP DRAWING SUBMITTAL, CERTIFIED WINDLOAD WITHSTAND CALCULATIONS OF POLE WITH POLE BASE INDICATING ADEQUACY OF POLE, POLE BASE, AND EMBEDMENT METHOD TO WITHSTAND 125 MPH WINDLOADS. CALCULATIONS SHALL INCLUDE EPA OF POLE WITH CORRESPONDING EPA FOR MOUNTING ASSEMBLY AND ACTUAL LIGHT FIXTURE TO BE MOUNTED AS PROPOSED. THE ABOVE MOUNTING ASSEMBLY AND ACTUAL LIGHT FIXTURE TO BE MOUNTED AS PROPOSED. THE ABOVE CALCULATIONS SHALL BE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
17. WORK SHALL BE IN COMPLIANCE WITH CURRENT NEC, STATE CODES AND REGULATIONS.
18. CONDUCTOR ALLOWABLE AMPACITY SIZE FOR 100A CIRCUITS AND BELOW HAVE BEEN BASED ON NEC TABLE 310.16, 60° C COLUMN. CONDUCTOR ALLOWABLE AMPACITY SIZE FOR OVER 100A CIRCUITS HAVE BEEN BASED ON NEC TABLE 310.16, 75°C COLUMN.
19. LIQUIDTIGHT FLEXIBLE METAL CONDUIT SHALL NOT BE INSTALLED WITHIN ENVIRONMENTAL AIR SPACES PER NEC 300.22(C).
20. ADJUST WIRE AND CONDUIT SIZES FOR VOLTAGE DROP OF 3% ON ALL BRANCH CIRCUITING OVER 100' WHERE UNGROUNDED CONDUCTORS ARE INCREASED IN SIZE. EQUIPMENT GROUNDING CONDUCTORS AND ISOLATED GROUNDING CONDUCTORS, WHERE INSTALLED, SHALL BE INCREASED IN SIZE PROPORTIONATELY ACCORDING TO THE CIRCULAR MIL AREA OF THE UNGROUNDED CONDUCTORS IN COMPLIANCE WITH NEC 250.122(B).
21. PROVIDE BOLT-ON TYPE CIRCUIT BREAKERS FOR MAIN DISTRIBUTION PANELS.

COMMUNICATIONS LEGEND

- DATA OUTLET.
- DATA/COMM OUTLET.
- PHONE.
- DATA CEILING.
- DATA/COMM CEILING.
- DATA FLOOR.
- DATA/COMM FLOOR.
- CABLETRAY.
- COMM RACK WITH VERTICAL WIRE MANAGERS.
- 4'x8'x3/4" FIRE RETARDANT PLYWOOD BACKBOARD.
- WAP — WIRELESS ACCESS POINT.
- DASHED LINE INDICATES DATA/COMM OUTLET TO BE DEMOLISHED.
- EXISTING DATA/COMM OUTLET TO REMAIN.
- HH — COMMUNICATIONS HANDHOLE.

SECURITY LEGEND

- CR — CARD READER.
- PS — POWER SUPPLY.
- EL — ELECTRONIC LOCK.
- PIR — PASSIVE INFRARED REQUEST TO EXIT.
- MAG — MAGNETIC LOCK.
- DPS — DOOR POSITION SWITCH.
- REX — REQUEST TO EXIT.
- CAMERA (PTZ PAN-TILT-ZOOM), MOUNT 8' AFF UON.

FIRE ALARM LEGEND (PER NFPA 170, SECTIONS 8.2, 8.3 & 8.4)

- FACP — FIRE ALARM CONTROL PANEL.
- FAA — FIRE ALARM ANNUNCIATOR PANEL.
- NAC n — NOTIFICATION CIRCUIT POWER BOOSTER PANEL. n = UNIT NUMBER
- F — MANUAL PULL STATION.
- AUDIBLE AND VISUAL SIGNAL DEVICE (HORN STROBE). 75cd UNLESS OTHERWISE NOTED.
- C — CEILING MOUNTED AUDIBLE AND VISUAL SIGNAL DEVICE (CEILING HORN STROBE). 75cd UNLESS OTHERWISE NOTED.
- AUDIBLE AND VISUAL SIGNAL DEVICE (SPEAKER STROBE). 75cd UNLESS OTHERWISE NOTED.
- C — CEILING MOUNTED AUDIBLE AND VISUAL SIGNAL DEVICE (CEILING SPEAKER STROBE). 75cd UNLESS OTHERWISE NOTED.
- VISUAL SIGNAL DEVICE (STROBE). 75cd UNLESS OTHERWISE NOTED.
- CEILING MOUNTED VISUAL SIGNAL DEVICE (CEILING STROBE). 75cd UNLESS OTHERWISE NOTED.
- SMOKE DETECTOR.
- R / S — DUCT SMOKE DETECTOR. R = RETURN, S = SUPPLY.
- HEAT DETECTOR.
- AIM — ADDRESSABLE INPUT MODULE.
- SD — SMOKE DAMPER.
- FIRE/SMOKE DAMPER WITH ACCESS PANEL LOCATION.
- DTS — DUCT SMOKE DETECTOR REMOTE TEST INDICATION STATION.
- G — GAS SHUTOFF SOLENOID VALVE.
- R — RELAY.
- ACV — ALARM CHECK VALVE.
- DH — DOOR HOLDER.
- XXcd — CANDELA RATING.
- K — KNOX BOX.
- TRIPLE IR FLAME DETECTOR.
- DASHED LINE INDICATES AUDIBLE AND VISUAL SIGNAL DEVICE (HORN STROBE) TO BE DEMOLISHED.
- EXISTING AUDIBLE AND VISUAL SIGNAL DEVICE (HORN STROBE) TO REMAIN.

GROUNDING & LIGHTNING PROTECTION LEGEND

- BOND, EXOTHERMIC WELDED CONNECTION (UON).
- BURIED GROUND CONDUCTOR.
- EXPOSED LIGHTNING PROTECTION CONDUCTOR.
- 3/4" X 10' STEEL COPPER CLAD GROUND ROD.
- GROUND TEST WELL.
- AIR TERMINAL.
- DOWN CONDUCTOR THRU-ROOF PENETRATION.
- GROUND BAR ASSEMBLY.
- STATIC GROUND RECEPTACLE, WALL MOUNTED.

GENERAL LEGEND

- 01 — SHEET KEYNOTE.
- SECURITY 100 — ROOM NAME AND NUMBER.
- INDIVIDUAL SECTION, ELEVATION OR DETAIL REFERENCE.
- DRAWING NUMBER WHERE SECTION, ELEVATION OR DETAIL IS SHOWN OR REFERRED FROM.
- ANNOTATION FOR EXPOSED CONDUIT RUN - 3/4", UON.
- ANNOTATION FOR CONCEALED CONDUIT RUN - 3/4", UON.
- ANNOTATION FOR CONDUIT IN OR BELOW FLOOR SLAB OR GRADE - 3/4", UON.
- CONDUIT STUB-OUT WITH CAP ANNOTATION.
- REVISION CLOUD AND REVISION NUMBER.

DEVICE MOUNTING HEIGHTS

SWITCHES	48" AFF TO CENTER LINE OF BOX, UON
RECEPTACLES	18" AFF TO CENTER LINE, UON
COUNTER HEIGHT RECEPTACLES	48" AFF TO CENTER LINE OR 2" ABOVE BACK SPLASH UON
TELEPHONE/DATA OUTLET (OFFICES)	18" AFF TO CENTER LINE, UON
WALL MOUNTED TELEPHONE	48" AFF TO CENTER LINE OF BOX, UON
FIRE ALARM PULL STATIONS	48" TO TOP OF BOX
FIRE ALARM SPEAKER/STROBES	80" TO BOTTOM OF STROBE
EXTERIOR WALL RECEPTACLES	24" AFG TO BOTTOM, UON

ALL HEIGHTS ARE BASED ON NON-OBSTRUCTED REACH. MODIFY MOUNTING HEIGHTS IF/AS NECESSARY PER ADA AS REQUIRED.

PHASING LEGEND

- NEW EQUIPMENT/DEVICE. (REGULAR LINE WEIGHT)
- EXISTING EQUIPMENT/DEVICE (LIGHT LINE WEIGHT)
- EXISTING EQUIPMENT/DEVICE TO BE REMOVED. DASHED OR HATCHED ITEM.
- FUTURE EQUIPMENT/DEVICE. (DASHED ITEM IN LIGHT LINE WEIGHT)

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ARCHITECT OF RECORD
SUSAN M SCHILLER
AK 101052

DESIGNED BY
S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
ELECTRICAL LEGEND & ABBREVIATIONS

DRAWING NO.
E-001

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1. **CODES AND REQUIREMENTS**

A. ELECTRICAL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, STATE CODE, LOCAL BUILDING CODE AND AS REQUIRED AND /OR AS SPECIFIED HEREIN OR BY THE AUTHORITY HAVING JURISDICTION, WHICHEVER IS MORE STRINGENT.

B. OBTAIN REQUIRED PERMITS FROM THE AUTHORITY HAVING JURISDICTION AND TURN OVER TO THE GENERAL CONTRACTOR.

C. COMPLY WITH THE REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTAL GENERAL CONDITIONS OF THE PROJECT SPECIFICATIONS, CONTRACT DOCUMENTS, AND BASE BUILDING SPECIFICATIONS AND BUILDING CRITERIA INCLUDED IN THIS PROJECT.

D. VISIT THE PROJECT SITE BEFORE SUBMITTING BID AS NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

E. DRAWINGS ARE DIAGRAMMATIC IN NATURE. TAKE DIMENSIONS FROM ARCHITECTURAL DRAWINGS, CERTIFIED EQUIPMENT DRAWINGS, AND FROM THE STRUCTURE ITSELF BEFORE FABRICATING WORK.

F. THE DRAWINGS INDICATE THE LOCATION, TYPE AND SIZES OF VARIOUS UTILITIES WITHIN THE SITE WHERE KNOWN. RELOCATION OR REMODELING REQUIRED SHALL BE APPROVED BY THE ENGINEER BEFORE PROCEEDING. INVESTIGATE UTILITIES SUCH AS ELECTRIC AND TELEPHONE AND MAKE ARRANGEMENTS WITH THE PROPER AUTHORITY TO PAY FOR CHARGES ASSOCIATED WITH CONNECTING THOSE UTILITIES. PAY FOR PERMITS, FEES, INSPECTIONS ETC.

G. VERIFY THE INTERCONNECTION REQUIREMENTS OF EACH ELECTRICAL SYSTEM BETWEEN THIS SPACE AND OTHER ATTACHED SPACE. THESE REQUIREMENTS ARE TO BE INCLUDED IN BID.

H. FURNISH LABOR, MATERIALS, EQUIPMENT, AND TOOLS TO PERFORM THE ELECTRICAL WORK AS INDICATED, AND /OR REQUIRED FOR A COMPLETE AND OPERABLE INSTALLATION.

I. PROVIDE TEMPORARY SERVICE, WIRING, POWER, AND LIGHTS AS REQUIRED. TEMPORARY SERVICE SHALL MEET NEC AND OSHA REQUIREMENTS CONCERNING GROUND FAULT PROTECTION AND ARC FLASH. UPON COMPLETION OF PROJECT, REMOVE CONDUIT, CONDUCTORS, DEVICES, ETC., ASSOCIATED WITH TEMPORARY SERVICE AND WIRING.

J. PROVIDE TEMPORARY LIGHTING AT PERIMETER ROAD IF/AS REQUIRED TO PROVIDE TEMPORARY LIGHTING IN PLACE OF REMOVED/DISCONNECTED EXISTING FIXTURES.

K. RECORD FIELD CHANGES IN THEIR WORK AS THE JOB PROGRESSES, AND UPON COMPLETION SHALL TURN OVER TO THE GENERAL CONTRACTOR A RECORD SET OF PRINTS AND SPECIFICATIONS SHOWING THESE CHANGES.

L. GOOD WORKMANSHIP AND APPEARANCE ARE CONSIDERED EQUAL TO PROPER OPERATION.

M. PROVIDE CORE DRILLING, CHANNELING, CUTTING, PATCHING, TRENCHING AND BACKFILL AS REQUIRED FOR INSTALLATION OF ELECTRICAL EQUIPMENT. SEAL HOLES, FIREPROOFING WHERE NECESSARY, AND REFINISH AND REPAIR WORK TO ORIGINAL CONDITION WHERE DAMAGED BY ELECTRICAL WORK.

N. MAKE PROVISIONS FOR SAFE DELIVERY AND SECURE STORAGE OF MATERIALS. COORDINATE WITH OWNER.

2. **WARRANTY**

A. PROVIDE FOR THE OWNER A ONE-YEAR (FROM THE DATE OF FINAL ACCEPTANCE) WARRANTY OF ELECTRICAL EQUIPMENT AND SYSTEMS PROVIDED UNDER THIS CONTRACT. DEFECTIVE EQUIPMENT OR MATERIALS WHICH APPEAR DURING THE WARRANTY PERIOD SHALL BE REPLACED OR REPAIRED BY THE ELECTRICAL CONTRACTOR IN A TIMELY FASHION AND AT NO ADDED COST.

3. **EQUIPMENT**

A. PROVIDE EQUIPMENT AND ACCESSORIES NECESSARY WHETHER SPECIFICALLY STATED OR NOT TO MAKE THE REQUIRED ELECTRICAL SYSTEMS COMPLETE AND OPERATIONAL.

B. EQUIPMENT PROVIDED SHALL BE NEW EXCEPT AS OTHERWISE STATED ON THE DRAWINGS. EQUIPMENT PROVIDED SHALL BE UL LISTED WHEN SUCH STANDARDS EXIST FOR THE TYPE OF EQUIPMENT FURNISHED AND ACCEPTABLE FOR INSTALLATION BY THE APPLICABLE AUTHORITY HAVING JURISDICTION. SIMILAR EQUIPMENT SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER.

C. SUBMIT MATERIALS LIST AND SHOP DRAWINGS FOR MAJOR EQUIPMENT PROPOSED FOR THIS WORK TO THE GENERAL CONTRACTOR FOR REVIEW. SUBMITTALS SHALL BE IN ACCORDANCE WITH THE GENERAL CONDITIONS AND SHALL BEAR THE APPROVAL OF THE ELECTRICAL CONTRACTOR SHOWING THAT HE HAS REVIEWED THEM AND THAT THE PROPOSED MATERIALS ARE EQUIVALENT TO OR BETTER THAN THE SPECIFIED MATERIALS AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.

D. MAINTAIN NEC ARTICLE 110 MINIMUM WORKING SPACE AND DEDICATED EQUIPMENT SPACE REQUIREMENTS. THESE SAME CLEARANCES SHALL BE MAINTAINED AT ELECTRICAL EQUIPMENT LIKELY TO REQUIRE ADJUSTMENT, OBSERVATION OR OPERATION WHILE ENERGIZED, SUCH AS DISCONNECT SWITCHES, FOR EXAMPLE.

E. CONFIRM THAT ACCESS, EXIT AND DOOR HARDWARE TO / FROM ELECTRICAL EQUIPMENT COMPLIES WITH NEC AS APPLICABLE.

4. **HAZARDOUS AREAS**

A. PROVIDE COMPONENTS RATED FOR HAZARDOUS AREAS INDICATED ON DRAWINGS.

5. **OUTDOOR AREAS**

A. PROVIDE NEMA 4X ENCLOSURES.

6. **CONDUCTORS**

A. MINIMUM SIZE #12 AWG EXCEPT FOR CONTROL CIRCUITS WHICH MAY BE #14 AWG OR SIGNAL CIRCUITS WHICH SHALL BE AS INDICATED. CONDUCTORS SHALL BE COPPER. INCREASE CONDUCTOR SIZE AS NECESSARY TO LIMIT BRANCH CIRCUIT VOLTAGE DROP TO 3% AND FEEDER VOLTAGE DROP TO 2%.

B. HOMERUNS SHALL BE #10 AWG COPPER UON. WIRING THROUGH #10 AWG SHALL BE SOLID. LARGER THAN #10 SHALL BE STRANDED.

C. SPLICES FOR #8 AWG AND SMALLER CONDUCTORS: WIRE OR WING NUTS.

D. FEEDERS AND OTHER WIRING NO. 4 AWG AND LARGER, TYPE THHN.

E. OTHER WIRING NO. 6 AWG AND SMALLER, TYPE THNN.

F. WIRING IN HIGH TEMPERATURE AREAS SHALL BE RATED 105 DEGREES C AND BE A TYPE ACCEPTED BY LOCAL CODE.

G. COLOR CODING: WIRING FOR CONTROL SYSTEMS TO BE INSTALLED IN CONJUNCTION WITH MECHANICAL AND MISCELLANEOUS EQUIPMENT SHALL BE COLOR CODED IN ACCORDANCE WITH THE WIRING DIAGRAMS FURNISHED WITH THE EQUIPMENT. BRANCH CIRCUIT WIRING, INCLUDING CIRCUITS TO MOTORS AND FEEDERS SHALL BE CODED BY LINE OR PHASE AS FOLLOWS:

H. WIRE NO. 2 AWG AND SMALLER SHALL BE FACTORY COLOR CODED. WIRE NO. 1 AWG AND LARGER MAY BE COLOR CODED BY FIELD PAINTING OR COLOR TAPING OF SIX INCH (6") LENGTH AT ACCESSIBLE OR EXPOSED LOCATIONS, INCLUDING TERMINATIONS.

120/208 VOLTS	277/480 VOLTS
A = BLACK	A = BROWN
B = RED	B = ORANGE
C = BLUE	C = YELLOW
NEUTRAL = WHITE	NEUTRAL = GRAY
GROUND = GREEN	GROUND = GREEN W/YELLOW STRIPES
SWITCH TRAVELERS = PINK	SWITCH TRAVELERS = PURPLE

I. AMPACITY: WIRING AMPACITY SHALL BE IN ACCORDANCE WITH NEC AS APPLICABLE. UNLESS NOTED OTHERWISE, CIRCUITS RATED LESS THAN 100 AMP SHALL HAVE WIRING BASED ON 60 DEGREES C TEMPERATURE RISE; CIRCUITS RATED 100 AMP AND GREATER SHALL HAVE WIRING SIZED BASED ON 75 DEGREES C TEMPERATURE RISE.

7. **OUTLETS**

A. 4" SQUARE, ZINC COATED SHEET STEEL BOXES.

B. PROVIDE 3/8" NO-BOLT FIXTURE STUDS.

C. PROVIDE COVERS SET TO COME FLUSH WITH FINISH WALLS.

D. UTILITY OR SECTIONAL SWITCH BOXES ONLY WHERE PERMITTED.

8. **DEVICES**

A. DEVICE COLORS SHALL BE WHITE.

B. SPECIFICATION GRADE RECEPTACLES, EQUAL TO HUBBELL 5362 NEMA 5-20R. FEED-THRU TYPE GFCI DEVICES ARE PROHIBITED. CONTROLLED DEVICES SHALL BE PERMANENTLY MARKED.

C. A.C. QUIET OPERATING TYPE SWITCHES EQUAL TO HUBBELL CS120 SERIES, RATED 20A, 277V.

D. DEVICE PLATES SHALL BE NYLON, COLOR TO MATCH DEVICES.

E. EXISTING DEVICES TO REMAIN IN VISIBLE LOCATIONS SHALL BE REPLACED WITH WHITE DEVICES AND PLATES. FIELD VERIFY REQUIREMENTS FOR EXISTING DEVICES.

9. **LIGHTING**

A. PROVIDE NEW LIGHTING FIXTURES COMPLETE WITH LAMPS, DRIVERS, REFLECTORS, LOUVERS, STEM HANGERS, ETC., AND AS DESCRIBED ON THE DRAWINGS AS REQUIRED FOR A COMPLETE INSTALLATION.

B. PROVIDE AND THE SPECIFIED MANUFACTURER AND MODEL NUMBER OF LIGHT FIXTURE(S) AND LAMPS AS INDICATED ON THE LIGHTING FIXTURE SCHEDULE AND / OR DRAWINGS. PROVIDE ADEQUATE INFORMATION ON PROPOSED EXCEPTION TO THE SPECIFIED LIST NO LESS THAN THREE (3) DAYS PRIOR TO BID DATE. PROVIDE MANUFACTURER AND MODEL NUMBER OF PROPOSED EXCEPTIONS AND, IF REQUESTED, PROVIDE CUT SHEET AND PHOTOMETRICS FIXTURE SUBMITTALS NOT AS SPECIFIED AND PROVIDED AFTER BID WITHOUT PRIOR APPROVAL WILL NOT BE ACCEPTED FOR REVIEW. PROPOSED ALTERNATE MANUFACTURERS AND EXCEPTIONS TO THE FIXTURE SCHEDULE, IF APPROVED, WILL NOT RELIEVE ELECTRICAL CONTRACTOR OF RESPONSIBILITY FOR FIXTURE QUALITY, PHOTOMETRIC PERFORMANCE AND OWNER SATISFACTION. SUCH SITUATION SHALL BE CORRECTED, AT ELECTRICAL CONTRACTOR'S EXPENSE AND TO OWNER'S SATISFACTION.

C. CLOSELY COORDINATE ARCHITECTURAL REFLECTED CEILING PLANS AND CEILING TYPE SPECIFICATIONS WITH RESPECTIVE LIGHTING FIXTURE FOR EACH ROOM PRIOR TO ORDERING TO ASSURE PROPER INSTALLATION. CONFLICTS PERTAINING TO THE INSTALLATION REQUIREMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD

D. EXIT AND EMERGENCY LIGHTS SHALL CONFORM WITH LIFE SAFETY CODE AND LOCAL CODE REQUIREMENTS. PROVIDE UNSWITCHED CONDUCTOR TO FIXTURES EQUIPPED WITH EMERGENCY BATTERY AND DRIVER.

E. MOUNT OUTLETS AT POSITION AND HEIGHT TO CLEAR DUCTS, ETC.

10. **BRANCH CIRCUIT PANELBOARDS**

A. PROVIDE DEAD-FRONT, CIRCUIT BREAKER TYPE PANELS, WITH THE SIZE AND NUMBER OF BRANCHES INDICATED. BREAKERS SHALL BE THERMAL MAGNETIC TYPE EMPLOYING QUICK-MAKE AND QUICK-BREAK MECHANISMS FOR MANUAL OPERATION AS WELL AS AUTOMATIC OPERATION. AUTOMATIC TRIPPING SHALL BE INDICATED BY THE BREAKER HANDLE ASSUMING A DISTINCTIVE POSITION FROM THE MANUAL "ON" AND "OFF".

B. PANELBOARDS SHALL BE DOOR-IN-DOOR TYPE, UNLESS INDICATED OTHERWISE.

C. SPACES SHALL BE FULLY EQUIPPED.

D. PANELBOARDS SHALL HAVE A GROUNDING LUG FOR THE EQUIPMENT GROUNDING SYSTEM.

E. PANELBOARDS SHALL BE RATED AND CIRCUIT BREAKERS SHALL HAVE A MINIMUM INTERRUPTING CAPACITY AS FOLLOWS; WHERE INDICATED OR REQUIRED PROVIDE HIGHER RATED UNITS.
120/240 VOLTS: 22,000 AMPERES.
277/480 VOLTS: 25,000 AMPERES.

F. PANELBOARDS SHALL BE A MINIMUM TWENTY INCHES (20") WIDE (BOX).

G. BUSES SHALL BE COPPER.

H. ACCEPTABLE MANUFACTURERS: CUTLER HAMMER, GENERAL ELECTRIC, SIEMENS, SQUARE D.

I. PROVIDE PRINTED PANELBOARD DIRECTORIES TO REFLECT ACTUAL EQUIPMENT INSTALLED.

11. **SAFETY AND DISCONNECT SWITCHES**

A. PROVIDE ENCLOSED, FUSIBLE OR NON-FUSIBLE SAFETY SWITCHES WHERE INDICATED AND HEREIN SPECIFIED. SAFETY SWITCHES SHALL BEAR THE UL LABEL AND EACH ENCLOSURE SHALL BE THE NEMA TYPE SUITABLE FOR THE SURROUNDING AREA AND CONDITIONS. SWITCHES SHALL BE MINIMUM HEAVY DUTY, HORSEPOWER RATED, AND SHALL HAVE QUICK-MAKE AND QUICK-BREAK MECHANISMS. SWITCHES USED ON MOTOR CIRCUITS SHALL HAVE ADEQUATE HORSEPOWER RATINGS FOR THE MOTORS SERVED.

B. SAFETY SWITCHES EMPLOYED AS MOTOR DISCONNECT DEVICES OR WHERE OTHERWISE INDICATED AND / OR REQUIRED SHALL BE OF THE FUSIBLE TYPE FOR REJECTION TYPE FUSES.

C. HEAVY DUTY INDUSTRIAL TYPE SAFETY SWITCHES SHALL BE USED AND SHALL BE HORSEPOWER RATED WITH QUICK-MAKE, QUICK-BREAK MECHANISMS AND INTERLOCKED COVERS.

D. SWITCHES SHALL BE AS MANUFACTURED BY CUTLER-HAMMER, GENERAL ELECTRIC, SQUARE-D, OR SIEMENS, AND SWITCHES PROVIDED SHALL BE BY THE SAME MANUFACTURER.

12. **FUSES**

A. FUSES SHALL BE AS MANUFACTURED BY BUSSMANN UNLESS NOTED OTHERWISE ON THE DRAWINGS.

B. FUSES FOR APPLICATION AT UNDER 600 VOLTS, AND RATED AT 600 AMPS OR LESS, SHALL BE AS FOLLOWS:

FOR FUSES IN THE MAIN SERVICE EQUIPMENT, EXCEPT FOR MOTOR CIRCUITS, PROVIDE CURRENT LIMITING, 200,000 RMS AMPERES SYMMETRICAL INTERRUPTING CAPACITY, REJECTION TYPE, BUSSMANN LIMITRON OR AS ACCEPTED.

FOR OTHER FUSES, PROVIDE REJECTION TYPE WITH 200,000 RMS AMPERES SYMMETRICAL INTERRUPTING CAPACITY, BUSSMANN FUSETRON RK5, OR AS ACCEPTED.

C. CONTROL FUSES SHALL BE BUSSMANN ONE-TIME NONRENEWABLE FUSES.

13. **CONDUIT/RACEWAYS EXECUTION**

A. CONDUCTORS SHALL BE ENCLOSED BY CONDUIT SIZED IN ACCORDANCE WITH THE NEC. MINIMUM 1/2" EXCEPT FOR FACTORY FURNISHED LIGHTING FIXTURE FLEXIBLE CONDUIT MAY BE 3/8". ADHERE TO THE FOLLOWING, UNLESS OTHERWISE SPECIFIED IN THE DRAWINGS.

B. RIGID METAL CONDUIT (RMC) SHALL BE UTILIZED FOR ABOVE AND BELOW GRADE APPLICATIONS IN ACCORDANCE WITH ARTICLES 344 AND 342 OF THE NATIONAL ELECTRICAL CODE. COUPLINGS SHALL BE THREADED.

C. PVC-COATED RIGID NONMETALLIC CONDUIT AND HDPE SHALL BE PERMITTED FOR BELOW GRADE OR CONCRETE CAST IN PLACE APPLICATIONS ABOVE GRADE. ELBOW TRANSITIONS TO ABOVE GRADE OR STUB-OUT OF FLOOR SLAB SHALL BE PVC-COATED RIGID CONDUIT. PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR RUNS OF NONMETALLIC CONDUIT.

D. ELECTRICAL METALLIC TUBING (EMT) SHALL BE UTILIZED FOR DRY "FINISHED" SPACES ABOVE GRADE OR ABOVE FLOOR APPLICATIONS IN ACCORDANCE WITH ARTICLE 358 OF THE NATIONAL ELECTRICAL CODE. SET SCREW COUPLINGS ARE NOT ACCEPTABLE.

E. FLEXIBLE METAL CONDUIT SHALL BE UTILIZED FOR CONNECTIONS TO VIBRATING EQUIPMENT SUCH AS MOTORS (MINIMUM OF 2'-0" - MAXIMUM OF (6'-0"). CONNECTION TO LAY-IN TYPE LIGHT FIXTURES. USE LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT IN WET OR MOIST SPACES.

F. EXPOSED CONDUIT SHALL BE ROUTED PARALLEL OR PERPENDICULAR WITH THE BUILDING WALLS. SUPPORT CONDUIT AS REQUIRED BY THE NATIONAL ELECTRICAL CODE.

G. CONDUIT AND TUBING FITTINGS SHALL BE COMPATIBLE WITH THE TYPE OF RACEWAY USED. PROPERLY SIZED PER NEC AND GALVANIZED IF METALLIC.

H. SUPPORTS: PROVIDE SUPPORTS FOR MATERIAL AND EQUIPMENT. METALLIC SUPPORT MATERIALS SHALL BE GALVANIZED. HARDWARE SHALL BE GALVANIZED.

14. **BONDING / GROUNDING EXECUTION**

A. SERVICE EQUIPMENT, CONDUIT SYSTEMS, SUPPORTS, CABINETS, EQUIPMENT, TRANSFORMERS, FIXTURES, THE GROUNDED CIRCUIT CONDUCTOR, ETC., SHALL BE BONDED AND GROUNDED IN ACCORDANCE WITH THE LATEST ISSUE OF THE NATIONAL ELECTRICAL CODE.

B. PROVIDE BONDING JUMPERS AND WIRE. GROUNDING BUSHINGS, CLAMPS, ETC., AS REQUIRED FOR COMPLETE GROUNDING.

C. ROUTE GROUND CONDUCTORS TO PROVIDE THE SHORTEST AND MOST DIRECT PATH TO THE GROUND ELECTRODE SYSTEM.

D. GROUND CONNECTIONS SHALL HAVE CLEAN CONTACT SURFACES, TINNED AND SWEATED WHILE BOLTING.

E. INSTALL GROUND CONDUCTORS IN CONDUIT.

F. BOND THE SERVICE EQUIPMENT TO BUILDING STEEL, CONCRETE ENCASED ELECTRODES, UNDERGROUND METAL PIPING, DRIVEN ELECTRODE, AND OTHER AVAILABLE GROUNDING ELECTRODES PER NEC ARTICLE 250.

15. **PANELBOARD EXECUTION**

A. INSTALL PANELBOARDS WITH THE TOP OF THE TRIM SIX-FEET, THREE-INCHES (6'-3") FROM THE FINISHED FLOOR.

B. FIELD CHECK PANELBOARD LOADING AND RECONNECT CIRCUITS AS REQUIRED TO PROVIDE BALANCED PHASE AND LINE LOADS.

16. **MECHANICAL EQUIPMENT WIRING AND CONNECTIONS**

A. MECHANICAL EQUIPMENT MOTORS AND CONTROLS ARE FURNISHED WITH MECHANICAL EQUIPMENT, UNLESS NOTED OTHERWISE.

B. PROVIDE FEEDER CIRCUITS TO MECHANICAL EQUIPMENT AND MAKE CONNECTIONS.

C. PROVIDE SAFETY SWITCHES AND/OR THERMAL OVERLOAD SWITCHES AS REQUIRED.

D. PROVIDE POWER (LINE VOLTAGE) WIRING FOR MECHANICAL EQUIPMENT AND MAKE CONNECTIONS EXCEPT FOR TEMPERATURE CONTROL EQUIPMENT, WHICH WILL BE WIRED BY MECHANICAL CONTRACTOR.

E. FURNISH, SET IN PLACE, AND WIRE, EXCEPT AS INDICATED, HEATING, VENTILATING, AIR CONDITIONING, PLUMBING, FIRE PROTECTION, MOTORS AND CONTROLS IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S INSTRUCTIONS. CAREFULLY COORDINATE WITH WORK PERFORMED UNDER THE MECHANICAL DIVISION OF THESE SPECIFICATIONS.

F. HEATER UNITS IN MOTOR STARTERS SHALL BE SIZED FOR APPROXIMATELY ONE HUNDRED FIFTEEN PERCENT (115%) OF FULL LOAD MOTOR CURRENT. CHECK AND COORDINATE THERMAL PROTECTIVE DEVICES WITH THE EQUIPMENT THEY PROTECT.

G. PROVIDE FOR EACH MOTOR, ONE-HALF (1/2) HORSEPOWER AND BELOW, A HORSEPOWER RATED DISCONNECT SWITCH WITH THERMAL OVERLOAD PROTECTION UNLESS INTEGRALLY PROVIDED WITH THE MOTOR. THERMAL OVERLOAD SWITCHES FOR SINGLE PHASE MOTORS SHALL BE ALLEN-BRADLEY BULLETIN 600 OR ACCEPTABLE ALTERNATIVE. SIZE HEATER UNITS FOR APPROXIMATELY ONE-HUNDRED FIFTEEN PERCENT (115%) OF FULL LOAD MOTOR CURRENT.

H. MISCELLANEOUS EQUIPMENT: WHERE OUTLETS ARE INDICATED FOR MISCELLANEOUS EQUIPMENT REQUIRING ELECTRIC POWER OR CONTROL, PROVIDE WIRE, CONDUIT, ETC., AND MAKE CONNECTIONS, UNLESS OTHERWISE INDICATED. REFER TO THE MECHANICAL SPECIFICATIONS AND PLANS COVERING MOTOR INTERLOCKS, SWITCHING, ETC. PROVIDE WIRING, CONDUIT, OUTLETS AND PROVIDE FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT.

17. **SPECIAL SYSTEMS**

A. PROVIDE SPECIAL SYSTEMS AS SPECIFIED ON THE DRAWINGS INCLUDING REQUIRED ACCESSORIES TO MAKE THE SYSTEM COMPLETE AND OPERATIONAL. SPECIAL SYSTEMS SHALL BE INSTALLED AND CONNECTED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. PROVIDE INSTRUCTIONAL DEMONSTRATION FOR THE OWNER PRIOR TO FINAL ACCEPTANCE.

18. **ELECTRIC MOTOR AND EQUIPMENT WIRING**

A. PROVIDE A COMPLETE BRANCH CIRCUIT WIRING, STARTER AND DISCONNECT SWITCH FOR MOTOR DRIVEN EQUIPMENT. WHEN MOTOR DRIVEN EQUIPMENT IS PROVIDED WITH "PACKAGE" CONTROL PANEL WHICH INCLUDES STARTER, DO NOT PROVIDE STARTER. MOTOR CONNECTIONS SHALL BE MADE WITH FLEXIBLE CONDUIT.

19. **GROUNDING AND BONDING**

A. GROUND THE ELECTRICAL SYSTEM IN ACCORDANCE WITH ARTICLE 250 OF THE LATEST ADOPTED ISSUE OF THE NEC.

B. EQUIPMENT, MOTOR, FIXTURE, RECEPTACLE, OR DEVICE TO WHICH CURRENT CARRYING CONDUCTORS ARE CONNECTED SHALL HAVE A SEPARATE GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED IN ACCORDANCE WITH NEC TABLE 250.122, AND TO BE INSTALLED IN THE RACEWAY AND CONNECTED TO THE DEVICE.

C. GROUNDING AND BONDING CONDUCTORS SHALL BE SIZED AS REQUIRED BY THE NEC AND SHALL BE THWN/THHN INSULATED WITH GREEN COLOR JACKET.

D. ELECTRICAL EQUIPMENT ENCLOSURES AND CONDUCTOR ENCLOSURES AND RACEWAYS SHALL BE GROUNDED.

E. GROUNDING SYSTEM SHALL BE TESTED AFTER INSTALLATION AND SHALL HAVE A MEASURED RESISTANCE TO EARTH OF LESS THAN 5 OHMS. 1

20. **CONDUITS/RACEWAY**

A. USE THREADED GALVANIZED RIGID STEEL CONDUIT FOR CONDUITS EXPOSED ABOVE GRADE IN EXTERIOR LOCATIONS, HAZARDOUS LOCATIONS, AND INTERIOR LOCATIONS BELOW 15' ABOVE FLOOR. USE EMT CONDUIT WITH COMPRESSION FITTINGS FOR INTERIOR LOCATIONS 15' ABOVE FLOOR AND NOT SUBJECT TO PHYSICAL DAMAGE.

B. MINIMUM SIZE OF RACEWAY SHALL BE 3/4".

C. UNDERSLAB OR UNDERGROUND CONDUIT SHALL BE HDPE. TRANSITION FROM HDPE TO PVC-COATED RIGID GALVANIZED STEEL CONDUIT AT LAST BEND AND PRIOR TO STUBBING UP ABOVE GRADE OR FINISHED FLOOR SURFACE.

D. SIZE CONDUIT PER NEC FOR ENCLOSED WIRING.

E. FITTINGS SHALL BE APPROVED AND UL LISTED FOR THE RACEWAY INSTALLED.

F. PROVIDE NYLON PULLCORD IN EMPTY OR SPARE CONDUITS.

G. CONDUIT TERMINATING IN OUTLETS, JUNCTION OR PULL BOXES, AND CABINETS SHALL BE TERMINATE WITH A LOCKNUT AND BUSHING, EXCEPT AT EXPOSED THREADED HUB CAST BOXES, WHERE INSTEAD THREADED CONDUIT PLUGS ARE REQUIRED. RIGID CONDUIT SHALL BE INSTALLED WITH DOUBLE LOCKNUTS AND BUSHINGS.

H. FLEXIBLE METAL CONDUIT SHALL BE USED FOR CONNECTIONS TO LIGHTING FIXTURES, FIXED APPLIANCES AND MOTORS, WHEREVER FLEXIBILITY IS REQUIRED, AND FOR VIBRATING EQUIPMENT. FLEXIBLE METAL CONDUIT SHALL NOT BE USED IN LENGTHS EXCEEDING 6FT.

I. FLEXIBLE CONDUIT EXPOSED TO MOISTURE SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT.

J. CONDUCTORS SHALL BE IN A RACEWAY.

K. UNDERGROUND CONDUIT/DUCT BANKS: UNDERSLAB OR UNDERGROUND CONDUIT SHALL BE HDPE. USE APPROVED PLASTIC DUCT SUPPORTS/SPACERS. PROVIDE PULL STRING IN EMPTY CONDUITS. PROVIDE WARNING TAPE WITH TRACER (CAPABLE OF BEING LOCATED FROM ABOVE GRADE WITH HAND-HELD DETECTOR) ABOVE UNDERGROUND CONDUITS AND DUCT BANKS. CAP CONDUITS AT APPROXIMATELY 5'-0" FROM LOCATION OF FUTURE ELECTRICAL SWITCHGEAR/ TRANSFORMERS. PROVIDE AND INSTALL APPROVED MARKERS (METAL DISCS OR EQUAL) TO IDENTIFY LOCATIONS. MAKE FINAL CONDUIT TERMINATIONS AT SWITCHGEAR/TRANSFORMERS. IDENTIFY, COORDINATE AND CLEAR NEW AND EXISTING UNDERGROUND INTERFERENCES AND OBSTRUCTIONS. SLOPE UNDERGROUND CONDUITS TO ALLOW DRAINAGE TO MANHOLES, ETC.

L. FIELD VERIFY ACTUAL REQUIRED ROUTING OF CONDUITS. DESIGN INTENT IS THAT CONDUIT BE INSTALLED PARALLEL AND PERPENDICULAR TO BUILDING CONSTRUCTION LINES.

M. SEAL RACEWAY PENETRATIONS THROUGH FIRE-RATED WALLS UTILIZING A UL LISTED SYSTEM THAT MAINTAINS THE WALL RATING DESIGNATION.

21. **SEISMIC RESTRAINTS**

A. PROVIDE SEISMIC RESTRAINTS FOR ELECTRICAL EQUIPMENT AND SYSTEM COMPONENTS AS REQUIRED BY LOCAL CODES.

22. **TESTING**

A. RING OUT CONDUCTORS TO ASSURE CONTINUITY.

B. MEGGER POWER CONDUCTORS. RECORD RESULTS. REMOVE AND REPLACE WIRING SHOWING SIGNIFICANTLY LOWER RESISTIVITY IN COMPARISON TO LIKE WIRING.

C. CONDUCT COMPLETE SYSTEM FUNCTIONAL TESTS TO ENSURE PROPER OPERATION. RECORD RESULTS. INVITE WITNESSING BY OWNER / AHJ / ENGINEER AS APPROPRIATE.

D. THE ABOVE REPRESENTS MINIMUM REQUIREMENTS ONLY. INCLUDE OTHER TESTING IF / AS NECESSARY BASED ON APPROPRIATE REQUIREMENTS.

23. **WIRING**

A. A COMPLETE SYSTEM OF CONDUCTORS SHALL BE INSTALLED FOR FEEDERS, BRANCH CIRCUITS, AND CONTROL CIRCUITS AS NOTED ON THE PLANS.

B. NO WIRE IS TO BE INSTALLED IN RACEWAY UNTIL THE ENTIRE RACEWAY SYSTEM IS COMPLETE AND THEN ONLY WITH THE USE OF AN APPROVED WIRING LUBRICANT.

C. BRANCH CIRCUIT SIZES ARE NOTED ON THE PLANS AND SHALL BE CONTINUOUS WITHOUT REDUCTION IN SIZE THROUGHOUT THEIR LENGTH BETWEEN FIXTURES, EXCEPT WHERE CONNECTING TO FIXTURES. BRANCH CIRCUITS EXCEEDING 70 FEET IN TOTAL LENGTH SHALL BE A MINIMUM OF #10 AWG TO THE FIRST OUTLET.

D. EVERY WIRE SHALL BE LABELED AT EVERY TERMINATION AND ACCESSIBLE LOCATION. USE PRODUCTS BY IDEAL OR EQUIVALENT TUBULAR WIRING ACCESSORIES.

E. COMMUNICATIONS AND SYSTEM WIRING: PROVIDE NECESSARY PATHWAY FOR WIRING, BOXES AND RELATED ACCESSORIES REQUIRED FOR COMMUNICATIONS AND OTHER SYSTEMS INCLUDED. OWNER TO PROVIDE COMMUNICATIONS CABLING.

24. **EQUIPMENT CONNECTIONS**

A. MAKE POWER CONNECTIONS AS INDICATED ON THE PLANS AND AS REQUIRED TO MEET INTENT OF THE PROJECT SCOPE.

B. OBTAIN ROUGH-IN INFORMATION FROM OTHER CONTRACTORS AND VERIFY THE ACTUAL PURCHASED EQUIPMENT PRIOR TO INSTALLATION.

C. VERIFY THE THERMAL CONDITIONS OF THE EQUIPMENT BASED ON NAMEPLATE DATA AND CONNECT AS THE LISTING REQUIREMENTS ARE STATED USING THE SPECIFIED MATERIALS.

D. ALL POWER AND CONTROL CIRCUITS FOR ELECTRICAL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS ARE BASED ON THE DESIGN AS INDICATED WITHIN THE CONTRACT DOCUMENTS. VERIFY PURCHASED EQUIPMENT THAT REQUIRES ELECTRICAL CONNECTION WITH THE RESPONSIBLE CONTRACTOR OR VENDOR PRIOR TO ELECTRICAL ROUGH-IN. DEVIATIONS IN EQUIPMENT ROUGH-IN REQUIREMENTS FROM THE CONTRACT DOCUMENTS SHALL BE CONSIDERED A COORDINATION ITEM THAT THE ELECTRICAL CONTRACTOR SHALL DISCUSS WITH THE OTHER TRADES INVOLVED.

25. **APPARATUS IDENTIFICATION**

A. PANELBOARDS, LOAD CENTERS, CIRCUIT BREAKERS, DISCONNECT SWITCHES, STARTERS AND OTHER APPARATUS USED FOR THE OPERATION AND CONTROL OF CIRCUITS, APPLIANCES AND EQUIPMENT SHALL BE PROPERLY IDENTIFIED BY MEANS OF ENGRAVED LAMINATED PLASTIC DESCRIPTIVE NAMEPLATES MOUNTED ON THE APPARATUS USING PERMANENT CONTACT CEMENT.

B. TRANSFORMERS SHALL BE PROPERLY IDENTIFIED BY MEANS OF ENGRAVED LAMINATED PLASTIC DESCRIPTIVE NAME PLATES MOUNTED ON THE APPARATUS USING PERMANENT CONTACT CEMENT.

C. FURNISH AND INSTALL ARC FLASH, SHORT CIRCUIT AND SIMILAR WARNING LABELS AS REQUIRED.

D. PROVIDE PRINTED PANELBOARD DIRECTORIES IN EXISTING PANEL BOARDS TO REFLECT ACTUAL EQUIPMENT SERVED.

26. **SURGE PROTECTION DEVICES (SPD)**

A. PROVIDE SPD'S WHERE INDICATED ON THE DRAWINGS. RATINGS SHALL CONFORM TO NEC. PROVIDE DEVICE, WIRING AND INSTALLATION METHOD PER MANUFACTURER'S RECOMMENDATIONS.

27. **DEMOLITION**

A. SCOPE OF WORK STRICTLY CONSISTS OF AREAS SHOWN ON THE DRAWING.

B. PROVIDE REQUIRED ELECTRICAL SYSTEM DEMOLITION TO MODIFY THE EXISTING ELECTRICAL WIRING AS REQUIRED TO INSTALL NEW WORK. PATCH PENETRATIONS TO ORIGINAL BUILDING INTEGRITY. REMOVE AND DISPOSE OF (SITE CLEAR) OBSOLETE ELECTRICAL WIRING, CONDUITS, SUPPORTS, BOXES, AND DISCONNECT SWITCHES. RE-FEED DOWNSTREAM DEVICES AFFECTED BY DEMOLITION WHICH ARE TO REMAIN IN SERVICE.

C. CONTRACTOR SHALL PERFORM CIRCUIT TRACING FOR BRANCH CIRCUITS IN THE PROJECT'S SCOPE AND DOCUMENT ACCORDINGLY PRIOR TO CONSTRUCTION.

D. EQUIPMENT AND MATERIAL REMOVED SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR.

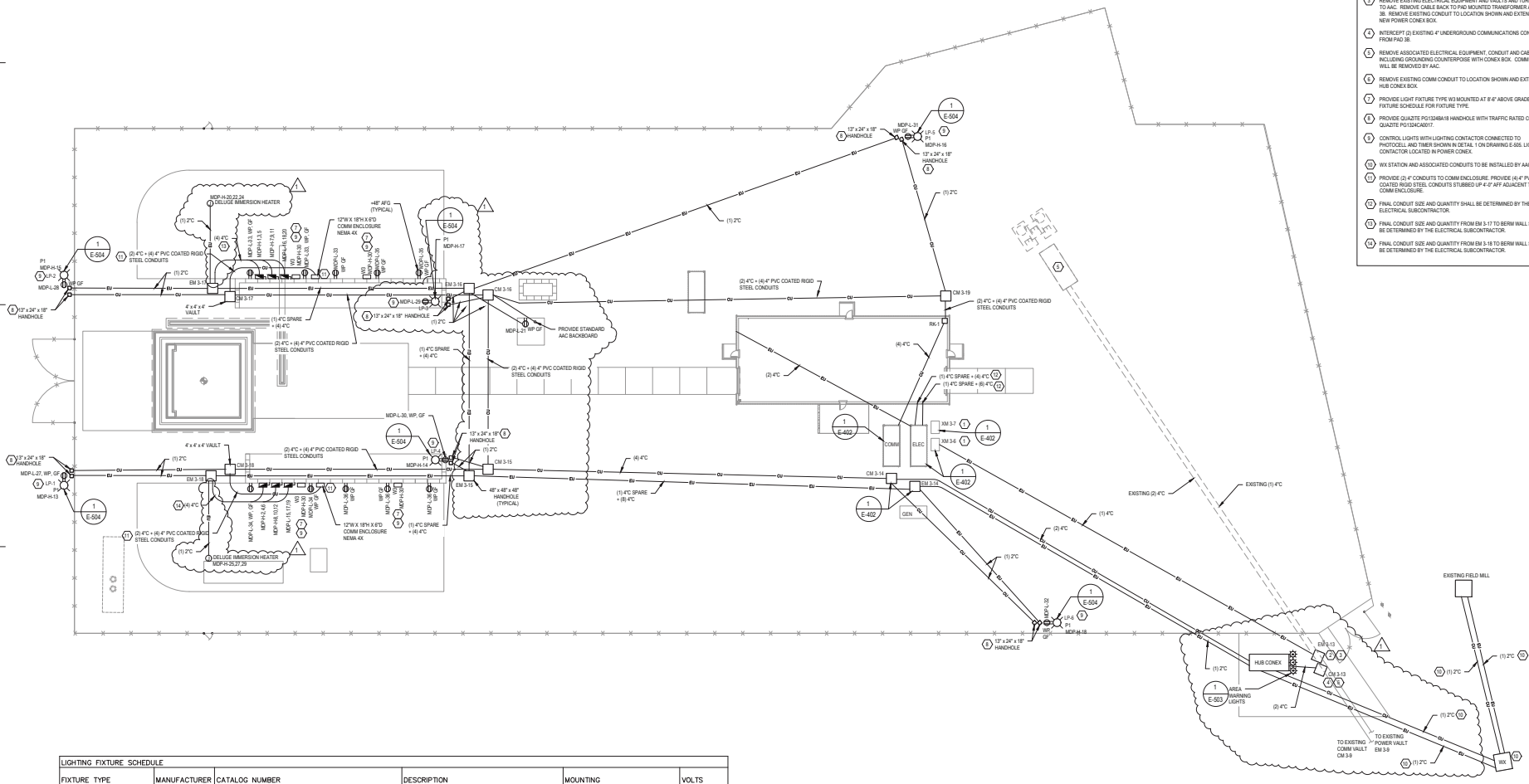
E. ALL EXISTING ELECTRICAL EQUIPMENT IS NOT SHOWN. IT IS THE CONTRACTORS RESPONSIB

GENERAL NOTES

1. PROVIDE PVC-COATED RIGID STEEL ELBOWS AND END-POINTS FOR UNDERGROUND CONDUITS.
2. MAINTAIN SEPARATION DISTANCE OF 12" BETWEEN POWER AND COMMUNICATION CONDUITS.

KEYNOTES

1. TRANSFORMER VAULT 6' x 4' x 4', OLDCASTLE 644-BL W/ CU2 CCP 574 COVER OR SIMILAR.
2. INTERCEPT EXISTING UNDERGROUND POWER CONDUIT FROM PAD 3B. PROVIDE NEW MEDIUM VOLTAGE CONDUCTORS AND CONNECT TO EXISTING LOOP FED 24.9 KV WYE PRIMARY PAD MOUNTED TRANSFORMER XM 3-5 AT PAD 3B.
3. REMOVE EXISTING ELECTRICAL EQUIPMENT AND VAULTS AND TURN OVER TO AAC. REMOVE CABLE BACK TO PAD MOUNTED TRANSFORMER AT PAD 3B. REMOVE EXISTING CONDUIT TO LOCATION SHOWN AND EXTEND TO NEW POWER CONEX BOX.
4. INTERCEPT (2) EXISTING 4" UNDERGROUND COMMUNICATIONS CONDUITS FROM PAD 3B.
5. REMOVE ASSOCIATED ELECTRICAL EQUIPMENT, CONDUIT AND CABLES INCLUDING GROUNDING COUNTERPOISE WITH CONEX BOX. COMM CABLE WILL BE REMOVED BY AAC.
6. REMOVE EXISTING COMM CONDUIT TO LOCATION SHOWN AND EXTEND TO HUB CONEX BOX.
7. PROVIDE LIGHT FIXTURE TYPE W3 MOUNTED AT 8'-6" ABOVE GRADE. SEE FIXTURE SCHEDULE FOR FIXTURE TYPE.
8. PROVIDE QUAZITE PG13248A18 HANDHOLE WITH TRAFFIC RATED COVER, QUAZITE PG13240A0017.
9. CONTROL LIGHTS WITH LIGHTING CONTACTOR CONNECTED TO PHOTOCELL AND TIMER SHOWN IN DETAIL 1 ON DRAWING E-505. LIGHTING CONTACTOR LOCATED IN POWER CONEX.
10. WX STATION AND ASSOCIATED CONDUITS TO BE INSTALLED BY AAC.
11. PROVIDE (2) 4" CONDUITS TO COMM ENCLOSURE. PROVIDE (4) 4" PVC COATED RIGID STEEL CONDUITS STUBBED UP 4'-0" AFF ADJACENT TO COMM ENCLOSURE.
12. FINAL CONDUIT SIZE AND QUANTITY SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.
13. FINAL CONDUIT SIZE AND QUANTITY FROM EM 3-17 TO BERM WALL SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.
14. FINAL CONDUIT SIZE AND QUANTITY FROM EM 3-18 TO BERM WALL SHALL BE DETERMINED BY THE ELECTRICAL SUBCONTRACTOR.



LIGHTING FIXTURE SCHEDULE					
FIXTURE TYPE	MANUFACTURER	CATALOG NUMBER	DESCRIPTION	MOUNTING	VOLTS
A1	LITHONIA	UFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI	LED LOW BAY	SUSPENDED 21' AFF	277 V
A2	LITHONIA	CLX-L48-4000LM-SEF-WDL-MVOLT-GZ10-50K-8 OCRI-WH	LED LINEAR FIXTURE	SURFACE	<varies>
E1	LITHONIA	UFIT-L96-12000LM-SEF-MVOLT-GZ10-50K-80CRI (ILB-CP10-HE-A)	LED LOW BAY WITH EXTERNAL BATTERY BACKUP	SUSPENDED 21' AFF	277 V
E2	LITHONIA	CLX-L48-4000LM-SEF-WDL-MVOLT-GZ10-50K-8 OCRI-E10W-WH	LED LINEAR FIXTURE WITH INTEGRAL BATTERY BACKUP	SURFACE	<varies>
P1	LITHONIA	RSXF4-LED-P3-50K-120/277	LED AREA LIGHT ON POLE	50' POLE MOUNT	277 V
W1	LITHONIA	TWR2-LED-ALO-SWW2-UVOLT-PE-DDBTXD	LED WALL PACK	WALL MOUNT 9'-2" AFF	277 V
W2	LITHONIA	WST-LED-P1-50K-VW-MVOLT-PIR-DDBTXD	LED WALL PACK	WALL MOUNT 7'-10" AFF	277 V
W3	COOPER	AXCS4ARL	LED WALL PACK	WALL MOUNT 8'-6" AFF	277 V
X1	LITHONIA	LQM-S-W-3-G-120/277-EL N	LED EXIT SIGN WITH BATTERY BACKUP	WALL MOUNT 6" ABOVE DOOR FRAME	277 V

SITE CONDUITS

1"=20'

0 10' 20' 40' 60'

SCALE: 1" = 20'

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	06/03/26	Revision 1

AREA 3 PAD D

NARROW CAPE, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
49TH
Susan M. Schiller
No. 101052
PROFESSIONAL ENGINEER

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ARCHITECT OF RECORD
SUSAN M SCHILLER
AK 101052

DESIGNED BY
S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
SITE PLAN

DRAWING NO.
E-121

P:\C09729.001 (B - AAC_PAD D_TOD)\B-001\MODEL\SHEET\ELECTRICAL E-121.DWG
Plotted on 05/08/2026
C:\Users\sschiller\Documents\C09729001_E_2025_Central_sschiller1WrTrd.rvt
2026/05/08 2:06:21 PM

Panel: MDP-H

Design Selection:
Mains Rating: 1200 A
Type: MCB

Voltage: 480Y/277V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 25 KAIC
Location: POWER CONEX
Served From: TRANSFORMER XM 3-6
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	13.86...	27.71...					2								
1	100 A	3	WEST COMMODITY PAD DISC	--	--	--	--	3			13.86...	27.71...			4	--	--	--	--	EAST COMMODITY PAD DISC	3	200 A	1
								5					13.86...	27.71...	6								
								7	13.86...	27.71...					8								
1	100 A	3	WEST COMMODITY PAD DISC	--	--	--	--	9			13.86...	27.71...			10	--	--	--	--	EAST COMMODITY PAD DISC	3	200 A	1
								11					13.86...	27.71...	12								
	20 A	1	LP-1	#10	#10	#10	1"	13	0.36 kVA	0.36 kVA					14	1"	#10	#10	#10	LP-4	1	20 A	
	20 A	1	LP-2	#10	#10	#10	1"	15			0.36 kVA	0.36 kVA			16	1"	#10	#10	#10	LP-5	1	20 A	
	20 A	1	LP-3	#10	#10	#10	1"	17					0.36 kVA	0.36 kVA	18	1"	#10	#10	#10	LP-6	1	20 A	
								19	148.10...	1.00 kVA					20								
1	100 A	3	PANEL 1M4					21			148.02...	1.00 kVA			22	1"	#10	--	(3) #10	DELUGE IMMERSION HEATER - WEST PAD	3	20 A	
								23					147.48...	1.00 kVA	24								
	20 A	3	DELUGE IMMERSION HEATER - EAST PAD	(3) #10	--	#10	1"	25	0.17 kVA	0.05 kVA					26	1"	#10	#10	#10	EAST COMM LIGHTING	1	20 A	
								27			0.17 kVA	0.00 kVA			28	--	--	--	--	SPARE	1	20 A	--
								29					0.17 kVA	0.20 kVA	30	3/4"	#10	#10	#10	BERM LTG	1	20 A	
--	40 A	1	LIGHTING CONTACTOR	#12	#12	#12	3/4"	31	0.50 kVA	--					32	--	--	--	--	SPACE ONLY	1	--	--
--	20 A	1	SPARE	--	--	--	--	33			0.00 kVA	--			34	--	--	--	--	SPACE ONLY	1	--	--
--	20 A	1	SPARE	--	--	--	--	35					0.00 kVA	--	36	--	--	--	--	SPACE ONLY	1	--	--
								37	0.00 kVA	--					38	--	--	--	--	SPACE ONLY	1	--	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	39			0.00 kVA	--			40	--	--	--	--	SPACE ONLY	1	--	--
								41					0.00 kVA	--	42	--	--	--	--	SPACE ONLY	1	--	--
								Total	233.67 kVA		233.05 kVA		232.71 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	429.92 kVA	50.00%	214.96 kVA	**Total Connected Load:**	699 kVA
Heating	204.50 kVA	100.00%	204.50 kVA		
Lighting	5.00 kVA	100.00%	5.00 kVA	**Estimated Demand Load:**	484 kVA
Motor	60.01 kVA	100.00%	60.01 kVA	**25% Future Demand Allowance:**	121.12 kVA
Other	0.00 kVA	100.00%	0.00 kVA	**Total Estimated Demand Load:**	605.59 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA		
				Total Estimated Demand Current:	728 A

Notes:
1. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.
2. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.

Panel: MDP-L

Design Selection:
Mains Rating: 800 A
Type: MCB

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 22 KAIC
Location: POWER CONEX
Served From: TRANSFORMER XM 3-7
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	28.13...	0.80 kVA					2								
1	400 A	3	PANEL VL1	--	--	--	--	3			27.86...	1.29 kVA			4	--	--	--	--	PANEL CL1	3	200 A	1
								5					28.36...	0.90 kVA	6								
	20 A	1	CONEX RECEPTACLES	#12	#12	#12	3/4"	7	0.54 kVA	0.54 kVA					8	3/4"	#12	#12	#12	CONEX RECEPTACLES	1	20 A	
--	--	1	SPACE ONLY	--	--	--	--	9			--	0.00 kVA			10	--	--	--	--	SPARE	1	20 A	--
	20 A	2	BASEBOARD HEATER	(2) #12	--	#12	3/4"	11					0.75 kVA	0.00 kVA	12	--	--	--	--	SPARE	1	20 A	--
								13	0.75 kVA	0.00 kVA					14	--	--	--	--	SPARE	1	20 A	--
								15			6.00 kVA	6.00 kVA			16								
1	100 A	3	EAST COMMODITY PAD DISC	--	--	--	--	17					6.00 kVA	6.00 kVA	18	--	--	--	--	WEST COMMODITY PAD DISC	3	100 A	1
								19	6.00 kVA	0.00 kVA					20								
	20 A	1	SHARK BACKBOARD	#10	#10	#10	1"	21			0.18 kVA	0.00 kVA			22	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	23					0.00 kVA	0.00 kVA	24	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	25	0.00 kVA	0.00 kVA					26	--	--	--	--	SPARE	1	20 A	--
	20 A	1	LP-1 DUPLEX RECEPT	#10	#10	#10	1"	27			0.18 kVA	0.18 kVA			28	1"	#10	#10	#10	LP-2 DUPLEX RECEPT	1	20 A	
	20 A	1	LP-3 DUPLEX RECEPT	#10	#10	#10	1"	29					0.18 kVA	0.18 kVA	30	1"	#10	#10	#10	LP-4 DUPLEX RECEPT	1	20 A	
	20 A	1	LP-5 DUPLEX RECEPT	#10	#10	#10	1"	31	0.18 kVA	0.18 kVA					32	1"	#10	#10	#10	LP-6 DUPLEX RECEPT	1	20 A	
	20 A	1	WEST BERM DUPLEXES	#10	#10	#10	1"	33			0.72 kVA	0.36 kVA			34	1"	#10	#10	#10	EAST BERM DUPLEXES	1	20 A	
	20 A	1	WEST BERM DUPLEXES	#10	#10	#10	1"	35					0.18 kVA	0.54 kVA	36	1"	#10	#10	#10	EAST BERM DUPLEXES	1	20 A	
								37	0.00 kVA	0.00 kVA					38	--	--	--	--	SPARE	1	20 A	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	39			0.00 kVA	0.00 kVA			40	--	--	--	--	SPARE	1	20 A	--
								41					0.00 kVA	0.00 kVA	42	--	--	--	--	SPARE	1	20 A	--
								Total	43.12 kVA		42.78 kVA		43.1 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	108.76 kVA	50.00%	54.38 kVA	**Total Connected Load:**	129 kVA
Heating	3.00 kVA	100.00%	3.00 kVA		
Lighting	0.05 kVA	100.00%	0.05 kVA	**Estimated Demand Load:**	73 kVA
Motor	4.95 kVA	100.00%	4.95 kVA	**25% Future Demand Allowance:**	18.37 kVA
Power	0.00 kVA	0.00%	0.00 kVA	**Total Estimated Demand Load:**	91.87 kVA
Receptacle	12.24 kVA	90.85%	11.12 kVA		
Electrical	0.00 kVA	0.00%	0.00 kVA	**Total Estimated Demand Current:**	255 A

Notes:
1. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.
2. PROVIDE SURGE PROTECTIVE DEVICE FOR PANEL.

Panel: VH1

Design Selection:
Mains Rating: 800 A
Type: MCB (NOTE 1)

Voltage: 480Y/277V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 25 KAIC
Location: POWER CONEX
Served From: MDP-H
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	6.60 kVA	6.60 kVA					2								
	40 A	3	UH-1	(3) #8	--	#10	3/4"	3			6.60 kVA	6.60 kVA			4	3/4"	#10	--	(3) #8	UH-2	3	40 A	
								5					6.60 kVA	6.60 kVA	6								
								7	6.60 kVA	6.60 kVA					8								
	40 A	3	UH-3	(3) #8	--	#10	3/4"	9			6.60 kVA	6.60 kVA			10	3/4"	#10	--	(3) #8	UH-4	3	40 A	
								11					6.60 kVA	6.60 kVA	12								
								13	6.60 kVA	6.60 kVA					14								
	40 A	3	UH-5	(3) #8	--	#10	3/4"	15			6.60 kVA	6.60 kVA			16	3/4"	#10	--	(3) #8	UH-6	3	40 A	
								17					6.60 kVA	6.60 kVA	18								
								19	6.60 kVA	6.60 kVA					20								
	40 A	3	UH-7	(3) #8	--	#10	3/4"	21			6.60 kVA	6.60 kVA			22	3/4"	#10	--	(3) #8	UH-8	3	40 A	
								23					6.60 kVA	6.60 kVA	24								
								25	6.60 kVA	6.60 kVA					26								
	40 A	3	UH-9	(3) #8	--	#10	3/4"	27			6.60 kVA	6.60 kVA			28	3/4"	#10	--	(3) #8	UH-10	3	40 A	
								29					6.60 kVA	6.60 kVA	30								
								31	15.00...	15.00...					32								
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#6	1-1/2"	33			15.00...	15.00...			34	1-1/2"	#6	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
								35					15.00...	15.00...	36								
								37	15.00...	15.00...					38								
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#6	1-1/2"	39			15.00...	15.00...			40	1-1/2"	#6	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
								41					15.00...	15.00...	42								
	20 A	1	LOW BAY LIGHTING	#10	#10	#10	3/4"	43	1.02 kVA	2.77 kVA					44								
	20 A	1	LOW BAY LIGHTING	#10	#10	#10	3/4"	45			1.02 kVA	2.77 kVA			46	3/4"	#10	--	(3) #10	HVLS-01	3	20 A	
	20 A	1	EXTERIOR WALL PACKS	#10	#10	#10	3/4"	47					0.48 kVA	2.77 kVA	48								
--	20 A	1	SPARE	--	--	--	--	49	0.00 kVA	18.31...					50								
--	20 A	1	SPARE	--	--	--	--	51			0.00 kVA	18.23...			52	--	--	--	--	PANEL AH1 VIA DISCONNECT AND RECEPTACLE	3	100 A	3
--	20 A	1	SPARE	--	--	--	--	53					0.00 kVA	18.23...	54								
--	20 A	1	SPARE	--	--	--	--	55	0.00 kVA	0.00 kVA					56	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	57			0.00 kVA	0.00 kVA			58	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	59					0.00 kVA	0.00 kVA	60	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	61	--	--					62	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	63			--	--			64	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	65					--	--	66	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	67	--	--					68	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	69			--	--			70	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	71					--	--	72	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	73	--	--					74	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	75			--	--			76	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	77					--	--	78	--	--	--	--	SPACE ONLY	1	--	--
								79	0.00 kVA	--					80	--	--	--	--	SPACE ONLY	1	--	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	81			0.00 kVA	--			82	--	--	--	--	SPACE ONLY	1	--	--
								83					0.00 kVA	--	84	--	--	--	--	SPACE ONLY	1	--	--
								Total	148.1 kVA		148.02 kVA		147.48 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	180.00 kVA	50.00%	90.00 kVA	**Total Connected Load:**	444 kVA
Heating	201.00 kVA	100.00%	201.00 kVA		
Lighting	2.59 kVA	100.00%	2.59 kVA	**Estimated Demand Load:**	354 kVA
Motor	60.01 kVA	100.00%	60.01 kVA	**25% Future Demand Allowance:**	88.40 kVA
Other	0.00 kVA	100.00%	0.00 kVA	**Total Estimated Demand Load:**	442.00 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA		
				Total Estimated Demand Current:	532 A

Notes:
1. PROVIDE MAIN BREAKER WITH 120V SHUNT TRIP.
2. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.
3. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.

Panel: VL1

Design Selection:
Mains Rating: 400 A
Type: MCB (NOTE 1)

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 22 KAIC
Location: POWER CONEX
Served From: MDP-L
Modifications: NOTE 2

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
								1	6.00 kVA	6.00 kVA					2								
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#8	1-1/2"	3			6.00 kVA	6.00 kVA			4	1-1/2"	#8	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
								5					6.00 kVA	6.00 kVA	6								
	20 A	1	RECEPT ACCESS / IDS	#10	#10	#10	3/4"	7	0.18 kVA	6.00 kVA					8								
	20 A	1	COMM RACK 4-PLEX	#10	#10	#10	3/4"	9			0.36 kVA	6.00 kVA			10	1-1/2"	#8	#1	(3) #1	VIB EQUIPMENT DISCONNECT	3	100 A	
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	11					0.72 kVA	6.00 kVA	12								
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	13	0.72 kVA	0.72 kVA					14	3/4"	#10	#10	#10	DUPLEX RECEPTACLE	1	20 A	
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	15			0.72 kVA	0.72 kVA			16	3/4"	#10	#10	#10	DUPLEX RECEPTACLE	1	20 A	
	20 A	1	DUPLEX RECEPTACLE	#10	#10	#10	3/4"	17					0.18 kVA	0.72 kVA	18	3/4"	#10	#10	#10	DUPLEX RECEPTACLE	1	20 A	
	20 A	2	ROLLUP DOOR	(2) #10	--	#10	3/4"	19	0.38 kVA	0.00 kVA					20	3/4"	#10	#10	#10	EPO	1	20 A	
								21			0.38 kVA	0.36 kVA			22	3/4"	#10	#10	#10	COMM RACK 4-PLEX	1	20 A	
	20 A	1	COMM RACK 4-PLEX	#10	#10	#10	3/4"	23					0.36 kVA	0.29 kVA	24								
								25	0.29 kVA	0.29 kVA					26	3/4"	#10	--	(3) #10	EF-02	3	15 A	
	15 A	3	EF-01	(3) #10	--	#10	3/4"	27			0.29 kVA	0.29 kVA			28								
								29					0.29 kVA	0.29 kVA	30								
								31	0.29 kVA	0.29 kVA					32	3/4"	#10	--	(3) #10	SF-02	3	15 A	
	15 A	3	SF-01	(3) #10	--	#10	3/4"	33			0.29 kVA	0.29 kVA			34								
								35					0.29 kVA	0.36 kVA	36	3/4"	#10	#10	#10	COMM RACK 4-PLEX	1	20 A	
								37	6.00 kVA	0.36 kVA					38	3/4"	#10	#10	#10	COMM RACK 4-PLEX	1	20 A	
	100 A	3	VIB EQUIPMENT DISCONNECT	(3) #1	#1	#8	1-1/2"	39			6.00 kVA	0.00 kVA			40	--	--	--	--	SPARE	1	20 A	--
								41					6.00 kVA	0.38 kVA	42	3/4"	#10	--	(2) #10	ROLL UP DOOR	2	20 A	
								43	0.25 kVA	0.38 kVA					44								
3	60 A	3	PANEL AL1 VIA DISCONNECT AND RECEPTACLE					45			0.18 kVA	0.00 kVA			46	--	--	--	--	SPARE	1	20 A	--
								47					0.50 kVA	0.00 kVA	48	--	--	--	--	SPARE	1	20 A	--
								49	0.00 kVA	--					50	--	--	--	--	SPACE ONLY	1	--	--
2	60 A	3	SURGE ARRESTOR	--	--	--	--	51			0.00 kVA	--			52	--	--	--	--	SPACE ONLY	1	--	--
								53					0.00 kVA	--	54	--	--	--	--	SPACE ONLY	1	--	--
								Total	28.13 kVA		27.86 kVA		28.36 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Equipment	72.74 kVA	50.00%	36.37 kVA	**Total Connected Load:**	84 kVA
Motor	4.95 kVA	100.00%	4.95 kVA		
Power	0.00 kVA	0.00%	0.00 kVA	**Estimated Demand Load:**	48 kVA
Receptacle	6.66 kVA	100.00%	6.66 kVA	**25% Future Demand Allowance:**	12.00 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA	**Total Estimated Demand Load:**	59.98 kVA
				Total Estimated Demand Current:	166 A

Notes:
1. PROVIDE MAIN BREAKER WITH 120V SHUNT TRIP.
2. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.
3. SEE ONE-LINE DIAGRAM FOR CONDUIT AND CONDUCTOR SIZING.

Panel: CL1

Design Selection:
Mains Rating: 200 A
Type: MCB

Voltage: 208Y/120V
Phases: 3
Wires: 4
Mounting: SURFACE

Minimum A.I.C. Rating: 22 KAIC
Location: COMM CONEX
Served From: MDP-L
Modifications: NOTE 1

Note	Trip Amps	Poles	Description	Wire	Neut	Gnd	Cond	No.	A		B		C		No.	Cond	Gnd	Neut	Wire	Description	Poles	Trip Amps	Note
	20 A	1	CONEX LIGHTING	#12	#12	#12	3/4"	1	0.05 kVA	0.75 kVA					2	3/4"	#12	--	(2) #12	BASEBOARD HEATER	2	20 A	
	20 A	1	CONEX RECEPTACLES	#12	#12	#12	3/4"	3			0.54 kVA	0.75 kVA			4								
	20 A	1	CONEX RECEPTACLES	#12	#12	#12	3/4"	5					0.72 kVA	0.18 kVA	6	3/4"	#12	#12	#12	CONEX RECEPTACLES	1	20 A	
--	20 A	1	SPARE	--	--	--	--	7	0.00 kVA	0.00 kVA					8	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	9			0.00 kVA	0.00 kVA			10	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	11					0.00 kVA	0.00 kVA	12	--	--	--	--	SPARE	1	20 A	--
--	20 A	1	SPARE	--	--	--	--	13	0.00 kVA	0.00 kVA					14	--	--	--	--	SPARE	1	20 A	--
--	--	1	SPACE ONLY	--	--	--	--	15			--	--			16	--	--	--	--	SPACE ONLY	1	--	--
--	--	1	SPACE ONLY	--	--	--	--	17					--	--	18	--	--	--	--	SPACE ONLY	1	--	--
								19	0.00 kVA	--					20	--	--	--	--	SPACE ONLY	1	--	--
1	60 A	3	SURGE ARRESTOR	--	--	--	--	21			0.00 kVA	--			22	--	--	--	--	SPACE ONLY	1	--	--
								23					0.00 kVA	--	24	--	--	--	--	SPACE ONLY	1	--	--
								Total	0.8 kVA		1.29 kVA		0.9 kVA										

Load Classification	Connected Load	Demand Factor	Demand Load	Load Summary	
Heating	1.50 kVA	100.00%	1.50 kVA	**Total Connected Load:**	3 kVA
Lighting	0.05 kVA	100.00%	0.05 kVA		
Receptacle	1.44 kVA	100.00%	1.44 kVA	**Estimated Demand Load:**	3 kVA
Electrical	0.00 kVA	0.00%	0.00 kVA	**25% Future Demand Allowance:**	0.75 kVA
				Total Estimated Demand Load:	3.74 kVA
				Total Estimated Demand Current:	10 A

Notes:
1. PROVIDE SURGE PROTECTION DEVICE FOR PANEL.

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ISSUE FOR CONSTRUCTION

DOCUMENT HISTORY

1	05/03/26	Revision 1

AREA 3 PAD D
PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA
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ARCHITECT OF RECORD
SUSAN M SCHILLER
AK 101052

DESIGNED BY
S SCHILLER

DRAWN BY
S SCHILLER

PROJECT NUMBER
C09729.001.00

DATE
05/08/26

TITLE
PANEL SCHEDULES

DRAWING NO.
E-701

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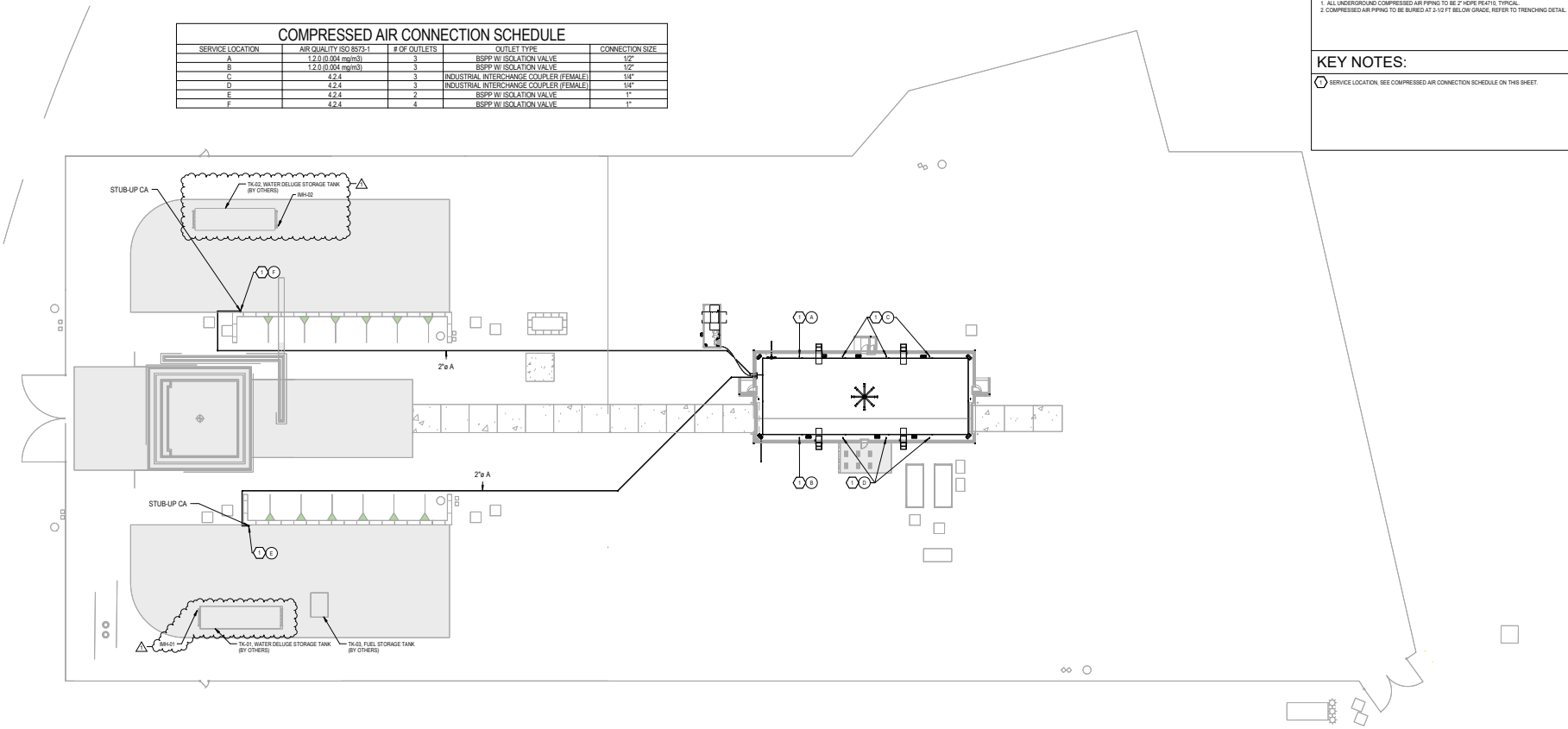
COMPRESSED AIR CONNECTION SCHEDULE

SERVICE LOCATION	AIR QUALITY ISO 8573-1	# OF OUTLETS	OUTLET TYPE	CONNECTION SIZE
A	1.2.0 (0.004 mg/m3)	3	BSPP W/ ISOLATION VALVE	1/2"
B	1.2.0 (0.004 mg/m3)	3	BSPP W/ ISOLATION VALVE	1/2"
C	4.2.4	3	INDUSTRIAL INTERCHANGE COUPLER (FEMALE)	1/4"
D	4.2.4	3	INDUSTRIAL INTERCHANGE COUPLER (FEMALE)	1/4"
E	4.2.4	2	BSPP W/ ISOLATION VALVE	1"
F	4.2.4	4	BSPP W/ ISOLATION VALVE	1"



1 COMPRESSED AIR SITE PLAN
1" = 20'-0"

DRAWING NOTES:

1. ALL UNDERGROUND COMPRESSED AIR PIPING TO BE 2" HDPE PE4710, TYPICAL.
2. COMPRESSED AIR PIPING TO BE BURIED AT 2-1/2 FT BELOW GRADE, REFER TO TRENCHING DETAIL.

KEY NOTES:

1 SERVICE LOCATION, SEE COMPRESSED AIR CONNECTION SCHEDULE ON THIS SHEET.

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AK PE 245438

DESIGNED BY
D. QUINONES

DRAWN BY
S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SITE PLAN

DRAWING NO.
P-121

0 10' 20' 40' 60'
1" = 20'

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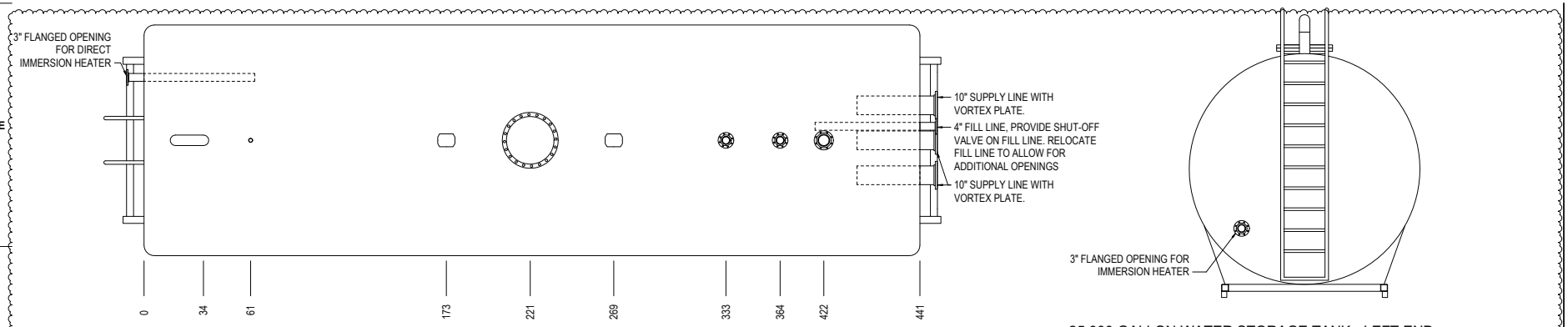
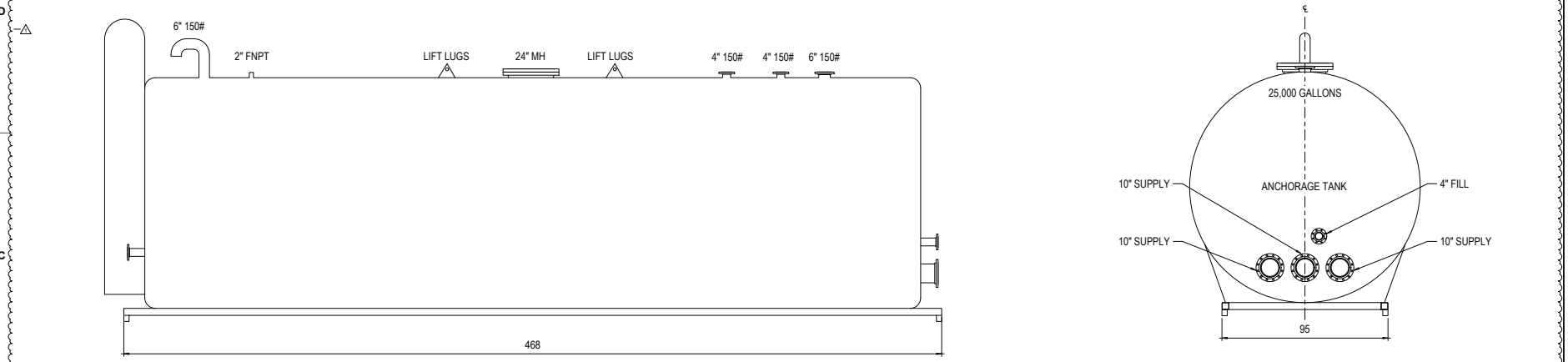


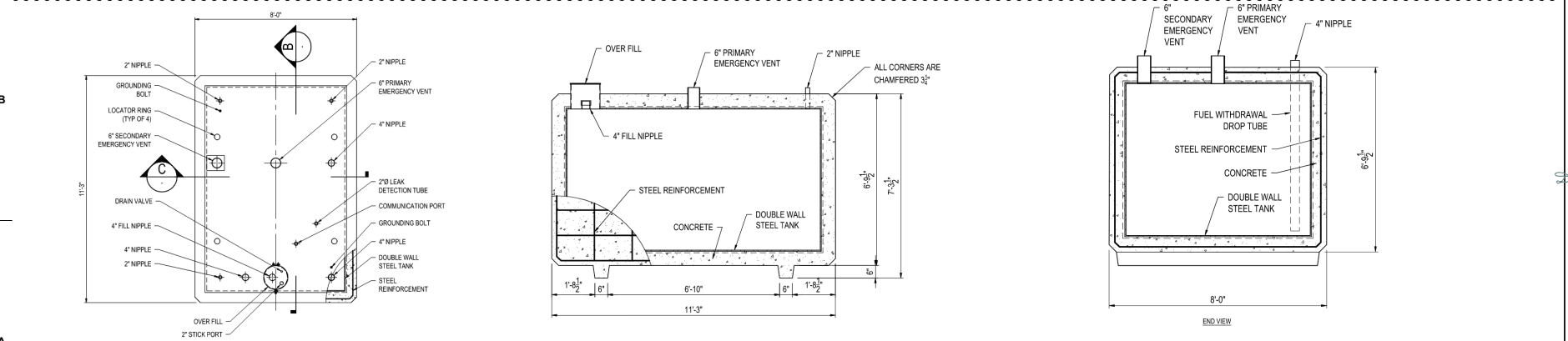
1 25,000 GALLON WATER STORAGE TANK - TOP

2 25,000 GALLON WATER STORAGE TANK - LEFT END



3 25,000 GALLON WATER STORAGE TANK - SIDE

4 25,000 GALLON WATER STORAGE TANK - RIGHT END



5 FUEL TANK PLAN

6 FUEL TANK SECTION B

7 FUEL TANK SECTION C

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DANIEL QUINONES
AK PE 245438

DESIGNED BY
D. QUINONES

DRAWN BY
S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
PLUMBING TANK DETAILS

DRAWING NO.
P-502

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IMMERSION HEATER SCHEDULE

TAG	LOCATION	TYPE	MANUFACTURER	MODEL	PART NUMBER	ELECTRICAL W/V/PH	PROCESS WATT DENSITY (WPSI)	TANK CONNECTION	DIMENSIONS (LENGTH)	NOTES
IMH-01	EAST COMMODITY PAD	IMMERSION	CHROMALOX	LARGE TANK FLANGE HEATER	LTFXSS-1206-0 03E4XX	3000/480/3	7.3	3" 150# FLANGE, 304SS	6 FEET	ALL
IMH-02	WEST COMMODITY PAD	IMMERSION	CHROMALOX	LARGE TANK FLANGE HEATER	LTFXSS-1206-0 03E4XX	3000/480/3	7.3	3" 150# FLANGE, 304SS	6 FEET	ALL

NOTES:
1. PROVIDE WITH E4 MOISTURE RESISTANT TERMINAL HOUSING.
2. PROVIDE WITH STAND-SPRT/LTFX: 18" ADJ 304SS SUPPORT STAND.
3. PROVIDE WITH PCA-4-CV-CIP66 480/ 1-3P 3KW POWER AND COMMUNICATION SYSTEM CONTROL PANEL WITH ARTIC OUTDOOR PACKAGE.
4. PROVIDE WITH TCW-20JTT-100, J TC WIRE, 20GA, 100FT, STRD, TEFL THERMOCOUPLE.

AIR COMPRESSOR SCHEDULE

UNIT NO.	LOCATION	COMPRESSOR TYPE	MAKE	MODEL	MAX. OPERATING PRESSURE (PSIG)	OUTPUT (SCFM)	CONNECTION SIZE AND TYPE	DRAIN CONNECTION (INCHES)	ELECTRICAL HP	kW	VOLTS	PH	HZ	DIMENSIONS (W" x D" x H")	WEIGHT (LBS.)	NOTES
AC-01	CONEX	OIL FREE ROTARY SCREW WATER COOLED - AIR COMPRESSOR	SULLAIR	DSP3709AY	125	166	1.5" NPT	1/2"	50	37	460	3	60	60.3 x 45.3 x 65	2650	1,2

NOTES - COMPRESSORS SHALL BE PROVIDED WITH THE FOLLOWING:
1. ISO 8573-1 Class 0 OIL FREE
2. FIXED SPEED COMPRESSOR

RECEIVER TANK SCHEDULE

UNIT NO.	LOCATION	CAPACITY (GAL)	MAX. OPERATING PRESSURE (PSIG)	INLET SIZE & TYPE CONNECTION	DRAIN CONNECTION	OVERALL DIMENSIONS	BASIS OF DESIGN	WEIGHT (LBS)	NOTES
RT-01 (DRY)	CONEX	200	200	2" NPT	1" FNPT	30" Ø x 80"H	MANCHESTER TANK	533	1, 2, 3, 4, 5, 6

NOTES:
1. TANK SHALL BE EPOXY PAINTED.
2. PROVIDE PRESSURE GAUGE.
3. PROVIDE SAFETY VALVE PER RELIEF VALVE SCHEDULE, RV-01.
4. PROVIDE PNEUMATIC NO LOSS DRAIN VALVE KIT.
5. PROVIDE STANDARD FACTORY WARRANTY.
6. PROVIDE ANCHOR UNIT TO HOUSEKEEPING PAD PER MANUFACTURER'S RECOMMENDATIONS.

PRESSURE RELIEF VALVE SCHEDULE

TAG	LOCATION	TYPE	SERVICE	MANUFACTURER	MODEL	SET PRESSURE (PSIG)	MINUMUM RELIEVING CAPACITY (SCFM) @ SET PRESSURE	BODY MATERIAL	SEAT MATERIAL	CONNECTION SIZE (IN) & TYPE	NOTES
PRV-01	CONEX	SPRING LOADED	AIR	MCMASTER-CARR	98905K188	200	180	303 SS	303 STAINLESS STEEL	1/2" MNPT	ALL

NOTES:
1. RELIEF VALVE SHALL BE DESIGNED, CONTRUCTED, TESTED, AND CERTIFIED IN ACCCORDANCE WITH ASME BOILER AND PRESSURE VESSEL CODE (BPVC) SECTION VIII, DIVISION 1, INCLUDING COMPLIANCE WITH PARAGRAPH UG-125 THROUGH UG-137, AS APPLICABLE.
2. RELIEF VALVES SHALL BE PRE-SET FROM MANUFACTURER.
3. RELIEF VALVE SHALL BE PROCURED WITH A CERTIFICATE OF COMPLIANCE INCLUDING FUNCTIONAL TEST DATE WITH TEST PRESSURE.
4. METAL TAGS SHALL INCLUDE THE FOLLOWING INFORMATION: SET PRESSURE, DATE OF CERTIFICATION OF COMPLIANCE, DUE DATE (5 YEARS), MANUFACTURER, AND MODEL NUMBER.

DESICCANT DRYER SCHEDULE

UNIT NO.	LOCATION	TYPE	BASIS OF DESIGN	CAPACITY (SCFM)	MAX. OPERATING PRESSURE (PSIG)	DEW POINT (°F)	INLET/OUTLET SIZE & TYPE CONNECTION	DESICCANT/VESSEL (LBS)	ELECTRICAL VOLTS	PH	HZ	DIMENSIONS (D" x W" x H")	WEIGHT (LBS.)	NOTES
DAD-01	CONEX	DESICCANT DRYER	SA200	200	150	-40	1-1/2" NPT	172	120	1	60	36" x 52" x 86"	692	1,2

NOTES:
1. BASED ON 100 PSIG, 100°F INLET AIR, 100°F AMBIENT.
2. PROVIDE WITH PNEUMATIC NO-LOSS DRAIN VALVE.

COMPRESSED AIR FILTER SCHEDULE

TAG	LOCATION	TYPE	SERVICE	MANUFACTURER	MODEL	CAPACITY (SCFM)	INLET / OUTLET CONNECTIONS...	MICRON RATING	MAWP (PSIG)	DIMENSIONS (W"X H")	WEIGHT (LBS)	NOTES
FL-01	CONEX	GENERAL PURPOSE	COMPRESSED AIR	SULLAIR	SFGP 233	233	1 1/2" MPT / 1 1/2" MPT	1	232	6.5" X 14.5"	6.6	1-3
FL-02	CONEX	HIGH EFFICIENCY	COMPRESSED AIR	SULLAIR	SFFP 233	233	1 1/2" MPT / 1 1/2" MPT	0.01	232	6.5" X 14.5"	6.6	1-3
FL-01	CONEX	GENERAL PURPOSE	COMPRESSED AIR	SULLAIR	SFGP 233	233	1 1/2" MPT / 1 1/2" MPT	1	232	6.5" X 14.5"	6.6	1-3
FL-02	CONEX	HIGH EFFICIENCY	COMPRESSED AIR	SULLAIR	SFFP 233	233	1 1/2" MPT / 1 1/2" MPT	0.01	232	6.5" X 14.5"	6.6	1-3

NOTES:
1. PROVIDE WITH DIFFERENTIAL PRESSURE INDICATOR AND AUTOMATIC DRAIN VALVE.
2. CODE STAMPED VESSEL PER ASME BPVC SECTION VIII, DIV I.
3. PROVIDE WITH (1) SPARE FILTER ELEMENTS, PER FILTER.

FLEX HOSE SCHEDULE

TAG	LOCATION	MATERIAL	SERVICE	MANUFACTURER	MODEL	TEMPERATURE RATING (°F)	HOSE DIA ID / OD	INLET / OUTLET CONNECTIONS SIZE (IN) & TYPE	MAWP (PSIG)	FITTING MATERIAL	NOTES
FH-01	CONEX TO BUILDING	EPDM	COMPRESSED AIR	MCMASTER-CARR	5138K999	-40 TO 200	2" / 2 1/2"	2" MNPT / 2" FNPT	200	BRASS	1-4

NOTES:
1. PROVIDE 25' LENGTH.
2. PROVIDE HOSE COLOR BLACK.
3. PROVIDE WITH (1) FEMALE SWIVEL END.
4. FOR OUTDOOR USE.

STORAGE TANKS

UNIT NO.	LOCATION	DESIGNATION	NOMINAL CAPACITY (GAL)	BASIS OF DESIGN	REFERENCE DWG NO.	TANK DIMENSIONS	DRY WEIGHT (LBS)	NOTES
TK-01	EAST COMMODITY PAD	WATER DELUGE STORAGE TANK	25,000	ANCHORAGE TANK	RHC21H2025M	132" DIA X 444" L	19,500	PROVIDED BY OTHERS
TK-02	WEST COMMODITY PAD	WATER DELUGE STORAGE TANK	25,000	ANCHORAGE TANK	RHC21H2025M	132" DIA X 444" L	19,500	PROVIDED BY OTHERS
TK-03	EAST COMMODITY PAD	FUEL STORAGE TANK	3,000	CORE ENGINEERED SOLUTIONS	CONVAULT, UL-2085	135" L X 96" W X 81.5" H	38,200	PROVIDED BY OTHERS

AUTOMATIC DRAIN VALVE SCHEDULE

TAG	LOCATION	TYPE	MANUFACTURER	MODEL	MAWP (PSIG)	RATED COMPRESSOR FLOW (CFM)	INLET / OUTLET CONNECTIONS (NPT)	NOTES
NLD-01	CONEX COMPRESSOR	PNEUMATIC AUTOMATIC DRAIN	INGERSOLL RAND	PNLD II 28 LP	300	30,000	3/4" X 1/2"	ALL
NLD-02	CONEX DRYER	PNEUMATIC AUTOMATIC DRAIN	INGERSOLL RAND	PNLD II 28 LP	300	30,000	3/4" X 1/2"	ALL
NLD-03	CONEX RECEIVER TANK	PNEUMATIC AUTOMATIC DRAIN	INGERSOLL RAND	PNLD II 28 LP	300	30,000	3/4" X 1/2"	ALL

NOTES:
1. PROVIDE PNEUMATICALLY OPERATED DRAIN VALVE ("AUTO DRAIN VALVE") THAT OPERATES ON DEMAND WITHOUT ANY EXTERNAL ELECTRICAL POWER, CONTROL SIGNAL, OR TIMER.
2. THE AUTO DRAIN VALVE SHALL CONSIST OF AN ALUMINUM HOUSING, STAINLESS STEEL INTERNALS, BRASS DISCHARGE VALVE, AND VITON AND TEFLON SEALS.
3. AUTO DRAIN VALVE SHALL BE A 1/2" FULL PORT STAINLESS STEEL BALL VALVE ACTUATED BY STAINLESS STEEL FLOAT AND STAINLESS STEEL CONNECTING LINKAGE ARM.
4. THE 1/2" FNPT EQUALIZING LINE PORT SHALL BE PLUGGED.

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1	06/03/26	REVISION 1

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AREA 3 PAD D
ALASKA AEROSPACE CORPORATION

STATE OF ALASKA
AK PE 245438
DANIEL QUINONES
No.245438
2026-06-08

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D. QUINONES

DRAWN BY
S. NASH

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
PLUMBING SCHEDULES

DRAWING NO.
P-601

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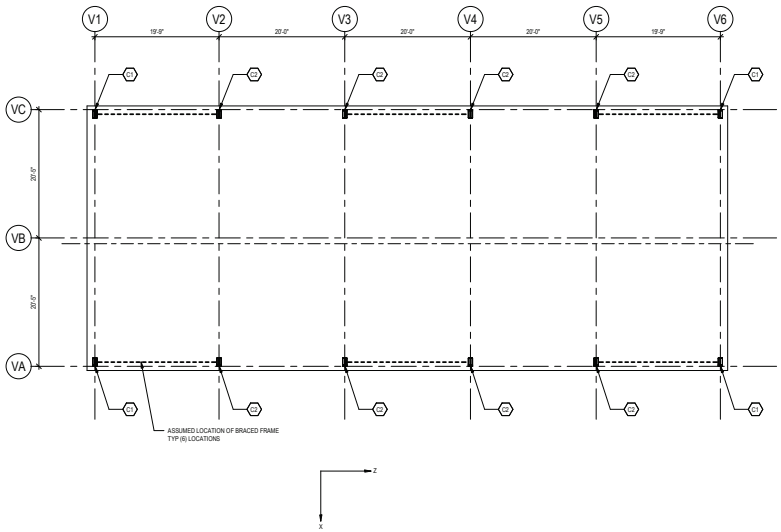
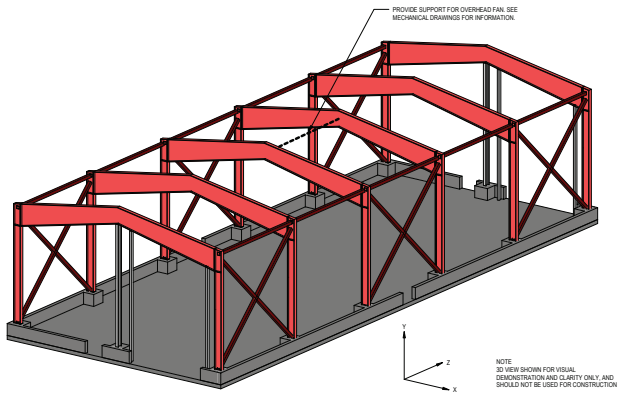


ESTIMATED COLUMN REACTIONS (KIPS, SERVICE LEVEL)

COLUMN	DEAD LOAD			ROOF LIVE LOAD			SEISMIC (X-DIR)			SEISMIC (Z-DIR)			WIND (X-DIR)			WIND (Z-DIR)			SNOW		
	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z	X	Y	Z
C1	±1.0	+9.0	±3.0	±1.0	+6.0	±3.0	±9.0	+12.0 -13.0	±3.0	±0.0	+12.0 -28.0	±3.0	±14.0	+17.0 -9.0	±10.0	±6.0	+9.0 -5.0	±11.0	±1.0	+12.0	±5.0
C2	±2.0	+12.0	±2.0	±2.0	+8.0	±2.0	±9.0	±9.0	±1.0	±0.0	+25.0 -18.0	±14.0	±20.0	+8.0 -10.0	±14.0	±12.0	+9.0 -12.0	±16.0	±3.0	+18.0	±3.0

2 ASSUMED PEMB FOUNDATION LOADS

SCALE: NTS



NOTE
3D VIEW SHOWN FOR VISUAL
DEMONSTRATION AND CLARITY ONLY, AND
SHOULD NOT BE USED FOR CONSTRUCTION

1 ASSUMED PEMB FRAME LAYOUT

SCALE:

PRE-ENGINEERED METAL BUILDING DEFLECTION AND DRIFT LIMITS:

VERTICAL DEFLECTIONS	
ROOF MEMBERS	
SNOW LOAD DEFLECTION FOR MEMBERS SUPPORTING NON-PLASTER CEILING	L/240
TOTAL LOAD DEFLECTION FOR MEMBERS SUPPORTING NON-PLASTER CEILING	L/180
SNOW LOAD DEFLECTION FOR MEMBERS NOT SUPPORTING CEILING SLOW LOAD DEFLECTION FOR SECONDARY MEMBERS AT FORMED METAL ROOFING ONLY	L/180 L/150
TOTAL LOAD DEFLECTION FOR MEMBERS NOT SUPPORTING CEILING	L/120
TOTAL LOAD DEFLECTION AT FORMED METAL ROOF (WITH NO ADDITIONAL ROOF COVERING)	L/60
TOTAL LOAD DEFLECTION AT MEMBERS SUPPORTING MASONRY WALLS AND LINTELS	L/600 ≤ 3/8"
DEAD LOAD DEFLECTION PRIOR TO CLADDING FOR SPANDRELS SUPPORTING CLADDING LOADS	3/8"
TOTAL DEAD LOAD DEFLECTION FOR SPANDRELS SUPPORTING CLADDING LOADS	L/480 ≤ 5/8"
0.5*LL OR 0.5*SL DEFLECTION FOR SPANDRELS AT PRECAST OR STONE PANELS AND AT GLAZING	L/360 ≤ 1/2"
TOTAL DEAD LOAD DEFLECTION FOR SPANDRELS SUPPORTING HEAVY CLADDING LOADS (>25% BEAM DEAD LOAD) INCLUDING MASONRY	L/600 ≤ 3/8"
NOTES: 1. STIFFER ROOF MEMBERS MAY BE REQUIRED TO SATISFY ROOF PONDING REQUIREMENTS. PRE-ENGINEERED METAL BUILDING DESIGNER SHALL MAINTAIN POSITIVE ROOF DRAINAGE UNDER [D+0.5*S] [D+S PSF] LOAD COMBINATION. 2. SPANDREL MEMBERS MAY REQUIRE STIFFER DEFLECTION REQUIREMENTS. PRE-ENGINEERED METAL BUILDING DESIGNER SHALL COORDINATE VERTICAL DEFLECTION REQUIREMENTS WHERE STRUCTURAL MEMBERS INTERACT WITH ARCHITECTURAL ELEMENTS AND WHERE CLADDING WEIGHT EXCEEDS 25% OF THE TOTAL DEAD LOAD ON SPANDREL BEAM.	
ROOF MEMBERS	
TOTAL LOAD ON FLOOR MEMBERS	L/240
LIVE LOAD ON FLOOR MEMBERS	L/360
HORIZONTAL DEFLECTIONS	
EXTERIOR WALLS/GIRTS (OUT-OF-PLANE)	
EXTERIOR WALLS WITH METAL PANELS SIDING AND NO INTERIOR GYP	L/90
EXTERIOR WALLS WITH FLEXIBLE FINISHED (GYP BOARD, METAL PANEL, ETC)	L/120
EXTERIOR WALLS WITH OTHER BRITTLE FINISHED (MASONRY, ETC)	L/240 ≤ 1.0"
EXTERIOR WALLS WITH PLASTER OR STUCCO FINISHED	L/360
NOTES: 1. WIND LOAD - IBC 2012 OR LATER - 0.42*ULTIMATE LEVEL COMPONENT AND CLADDING PRESSURES	
BUILDING DRIFT	
WIND DRIFT FOR FORMED METAL SIDED BUILDINGS	H/180
SEISMIC LOADS - STORY DRIFTS	H/180
NOTES: 1. WIND LOAD - IBC 2012 OR LATER - 0.42*MAIN FORCE RESISTING SYSTEM PRESSURES AS CALCULATED BY THE PRE-ENGINEERED METAL BUILDING DESIGNER (ADJUST FROM 50 YEAR WIND TO 10 YEAR WIND)	

1

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DOCUMENT HISTORY

1	06/03/26	REVISION 1

AREA 3 PAD D

PACIFIC SPACEPORT COMPLEX, KODIAK ISLAND, ALASKA

ALASKA AEROSPACE CORPORATION

ARCHITECT OF RECORD
BRIAN LEE SAYRE
ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
PEMB
REQUIREMENTS

DRAWING NO.
S-007

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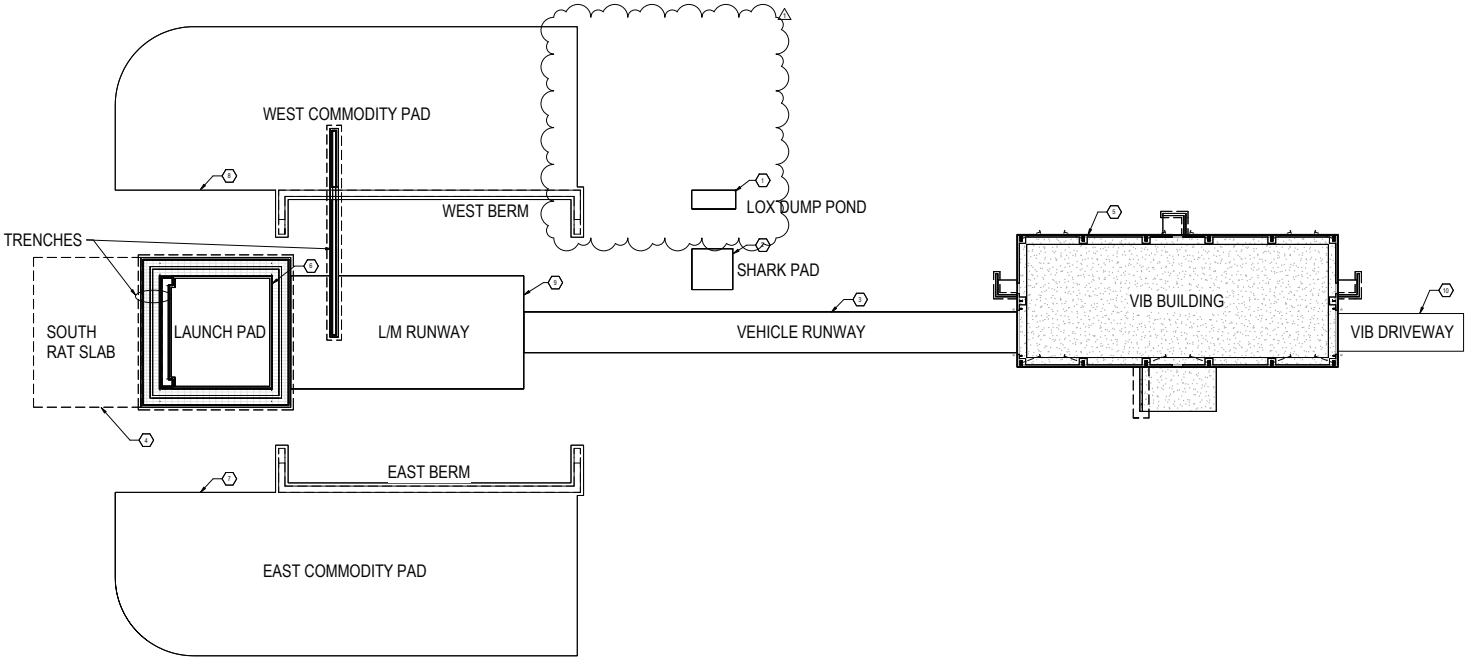

1 SITE PLAN
SCALE: 1/16" = 1'-0"

LEGEND:

NOTES:

1. SEE SHEET SERIES S-00X FOR GENERAL NOTES AND ABBREVIATIONS.
2. COORDINATE ALL WALL DIMENSIONS AND OPENING LOCATIONS WITH ARCHITECTURAL DRAWINGS.
3. COORDINATE ALL FLOOR PENETRATIONS FOR UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS. REFER TO S-007 FOR FRAMING REQUIREMENTS.
4. COORDINATE SIZES AND LOCATIONS WITH MECHANICAL AND ELECTRICAL DRAWINGS AND MANUFACTURER INFORMATION. MECHANICAL/ELECTRICAL EQUIPMENT LOCATED ON ELEVATED SLAB SHALL BE PLACED ON STEEL SUPPORTS/RAILS.
5. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR EXTERIOR CONCRETE SLAB LOCATIONS, EXTENTS, SLOPES, CONTROL JOINT LOCATIONS AND ELEVATIONS.

KEY NOTES:

1. LOX DUMP PER DETAIL 1/S-503
2. SHARK PAD, SEE EXTERIOR PAD DETAIL 4/S-503
3. VEHICLE RUNWAY PER CIVIL
4. SOUTH RAT SLAB PER S-133
5. VIB BUILDING PER S-101
6. LAUNCH PAD PER S-130
7. EAST COMMODITY PAD PER S-131
8. WEST COMMODITY PAD PER S-132
9. L/M RUNWAY PER S-130
10. VIB DRIVEWAY PER CIVIL

NORTH

0 5' 10' 20' 40'
SCALE: 1/16" = 1'-0"

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REGISTERED ARCHITECT

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DESIGNED BY
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DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SITE PLAN

DRAWING NO.
S-100

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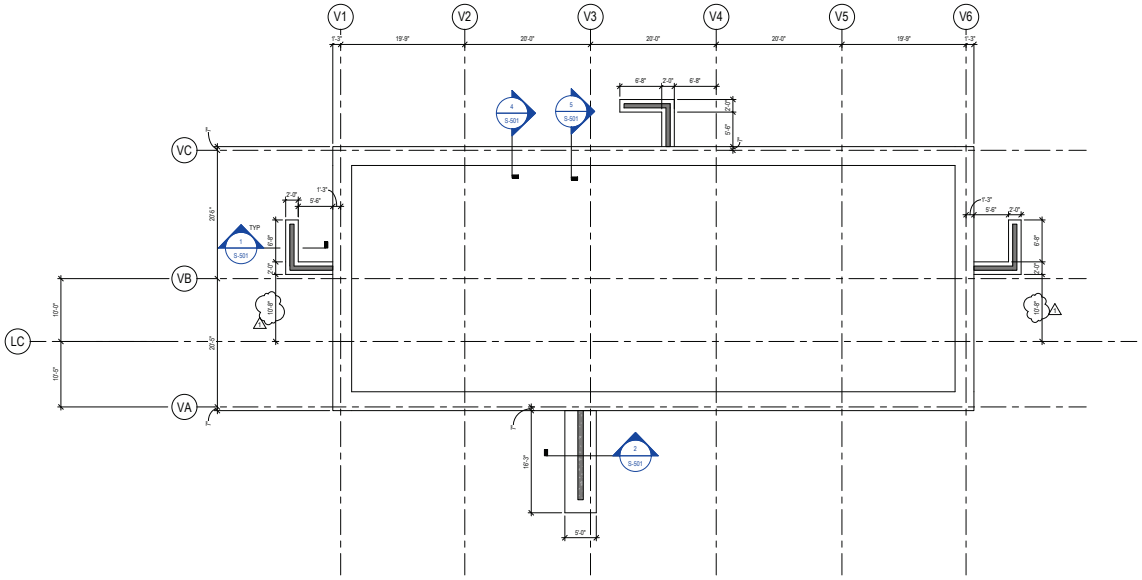
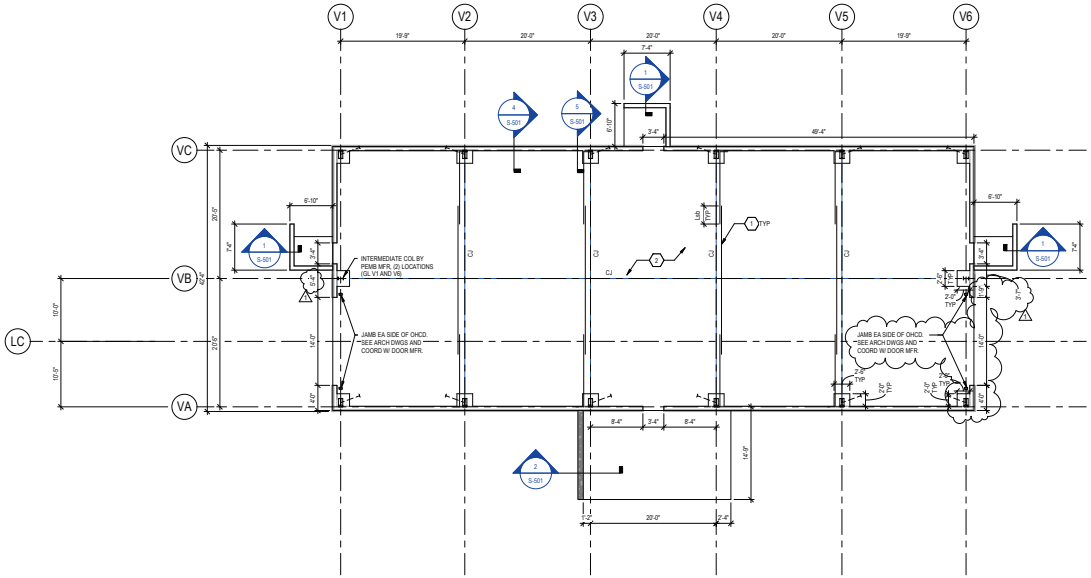


1 VIB FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



2 VIB SLAB PLAN
SCALE: 1/8" = 1'-0"

LEGEND:

NOTES:

1. SEE SHEET SERIES S-00X FOR GENERAL NOTES, SPECIAL INSPECTIONS, AND ABBREVIATIONS.
2. COORDINATE ALL WALL DIMENSIONS AND OPENING LOCATIONS WITH ARCHITECTURAL DRAWINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR EXTERIOR CONCRETE SLAB LOCATIONS, EXTENTS, SLOPES, CONTROL JOINT LOCATIONS AND ELEVATIONS.
4. COORDINATE ALL UNDER-SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
5. PROVIDE HOUSEKEEPING PADS FOR MECHANICAL AND ELECTRICAL EQUIPMENT AS REQUIRED ON SLAB ON GRADE. COORDINATE SIZES AND LOCATIONS WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS AND MANUFACTURER INFORMATION. SEE DETAIL ON SHEET S-503.
6. T/ SLAB ELEVATION = 0'-0" UNO.
7. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.
8. COORDINATE LOCATIONS OF DEPRESSED SLABS WITH ARCHITECTURAL AND PLUMBING DRAWINGS.
9. COORDINATE ALL CURB DIMENSIONS WITH JAMB AND BASE PLATES. SEE CIVIL DWGS FOR ADD'L INFO.

KEY NOTES:

1. (3) #6 REINFORCEMENT BETWEEN PEMB COLUMNS. HOOK ENDS INTO GRADE BEAM FOOTING PER S/S-501
2. 8" SLAB ON GRADE REINFORCED W/ #5 @ 12" OC T&B EW

NORTH

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

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ALASKA SE 215775

DESIGNED BY
C. ALTINOK

DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
VIB SLAB & FOUNDATION PLANS

DRAWING NO.
S-101

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LEGEND:

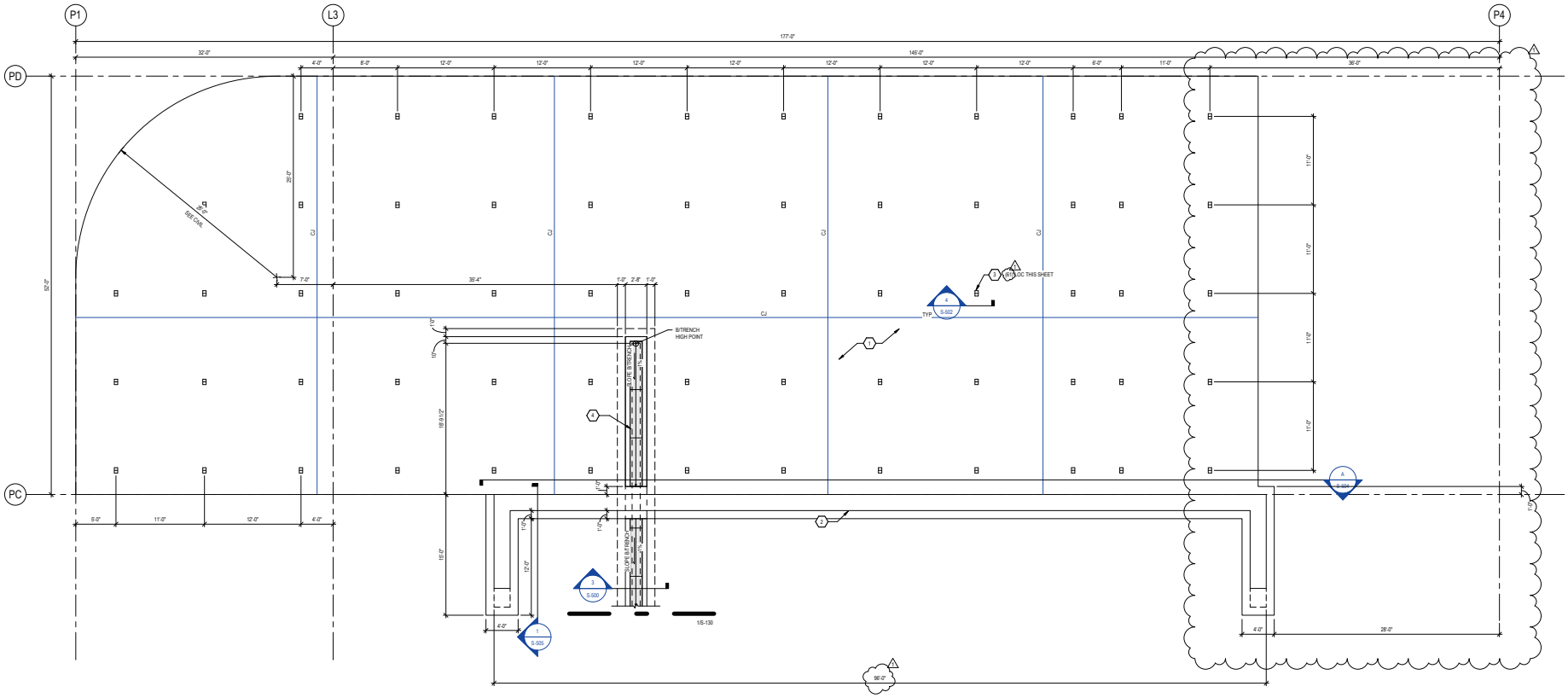
CJ(XX) = SLAB CONTROL JOINT/CONSTRUCTION JOINT. SEE SHEET S-501 FOR DETAIL

NOTES:

1. SEE SHEET SERIES S-00X FOR GENERAL NOTES AND ABBREVIATIONS.
2. SEE CIVIL AND ARCHITECTURAL DRAWINGS FOR GROUND FLOOR EXTERIOR CONCRETE SLAB LAYOUT, SLOPES, CONTROL JOINTS AND ELEVATIONS.
3. COORDINATE ALL UNDER-SLAB UTILITIES WITH MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS PRIOR TO POURING FOUNDATIONS AND SLAB. PENETRATE WALL FOUNDATIONS OR DROP FOUNDATIONS AS NEEDED FOR UTILITIES ACCORDING TO DETAILS ON SHEET S-503.
4. T/ SLAB ELEVATION = 0'-0" UNO.
5. COORDINATE LOCATIONS OF FLOOR DRAINS WITH ARCHITECTURAL AND PLUMBING DRAWINGS. SLOPE FLOOR TO DRAIN.

KEY NOTES:

1. 10" SLAB ON GRADE REINFORCED W/ #5 @ 12" OC T&B EW
2. BERM WALL PER SHEET S-504
3. SECURING POINT PER DETAIL 4/S-502
4. STAGE 2 SERVICE TRENCH, PER SHEET S-500



1 WEST COMMODITY PAD
3/16" = 1'-0"

NORTH

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

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DRAWN BY
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PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
WEST COMMODITY PAD SLAB PLAN

DRAWING NO.
S-132

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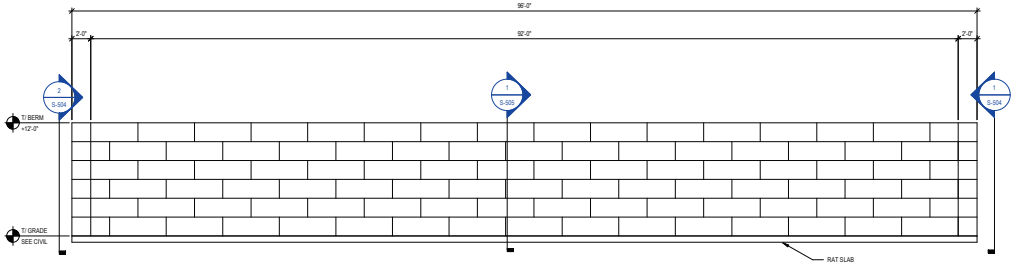
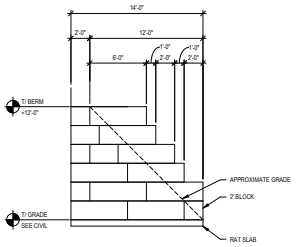
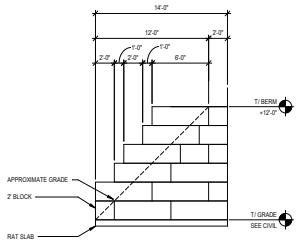


A BERM WALL ELEVATION
SCALE: 3/16" = 1'-0"



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



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

0 4' 8' 12' 16'
SCALE: 3/16" = 1'-0"

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DRAWN BY
K. BANNISTER

PROJECT NUMBER
C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

DRAWING NO.
S-504

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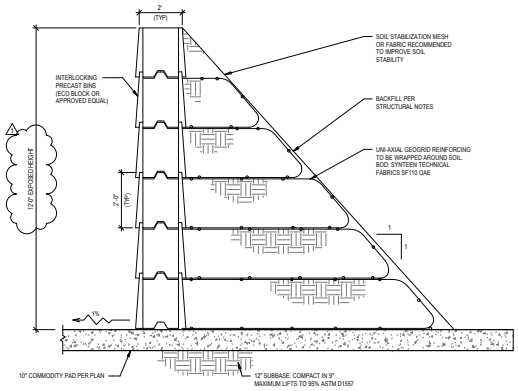
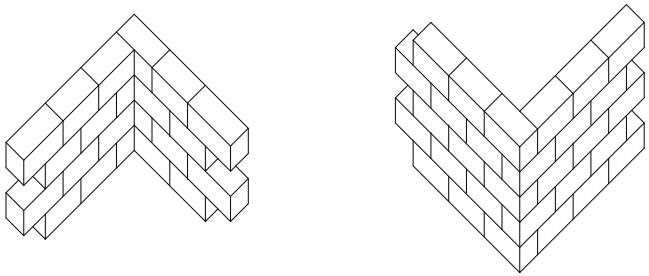


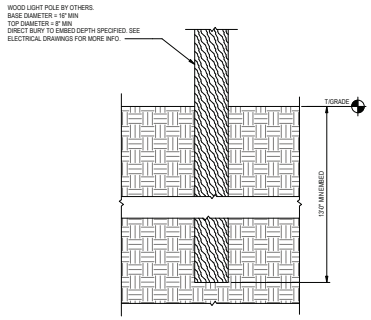
NOTES:
1. EARTHEN BERM SOIL MAY CONSIST OF NARROW CAPE SANDSTONE OR AGGREGATE.
2. A FINE MESH POLYMER NET IS REQUIRED FOR EROSION CONTROL

1 TYPICAL BERM SECTION
SCALE: 1/2" = 1'-0"



90° CORNER - NO BATTER (MSE WALL)

2 TYPICAL BERM CORNER DETAIL
SCALE: 1/4" = 1'-0"



3 50FT LIGHT POLE FOUNDATION DETAIL
SCALE: 1/2" = 1'-0"

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

SCALE: 1/2" = 1'-0"

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C09729.001

DATE
05/08/2026

TITLE
SECTIONS & DETAILS

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S-505

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