

NOT FOR
CONSTRUCTION

BUILDING 4
WASH

CONSTRUCTION DOCUMENTS
03/31/2015

**UTAH TRANSIT
AUTHORITY
DEPOT DISTRICT
TECHNOLOGY CENTER**
WASH
BUILDING 4
669 WEST 200 SOUTH
SALT LAKE CITY, UT 84101

**J
N
R**
1050 17TH STREET,
SUITE A200
DENVER, CO 80265
303 295 1717 t
303 292 0845 f

**ARCHITECT, PROJECT
MGMT, SUSTAINABILITY**
RNL
1050 17TH STREET, SUITE A200
DENVER, CO 80265
(303) 295-1717

**ASSOCIATE ARCHITECT,
LANDSCAPE, LEED**
CRSA
640 E SOUTH TEMPLE
SALT LAKE CITY, UT 84102
(801) 355-5915

EQUIPMENT
MAINTENANCE DESIGN GROUP (MDG)
1600 STOUT STREET, SUITE 940
DENVER, CO 80202
(720) 473-5900

CIVIL
JACOBS ENGINEERING
155 NORTH 400 WEST, SUITE 550
SALT LAKE CITY, UT 84103
(801) 335-1112

STRUCTURAL
REAVELEY AND ASSOCIATES
655 EAST 500 SOUTH, SUITE 400
SALT LAKE CITY, UT 84102
(801) 486-3853

MECHANICAL, PLUMBING
COLVIN ENGINEERING
244 WEST 300 NORTH, SUITE 200
SALT LAKE CITY, UT 84103
(801) 322-2400

ELECTRICAL
SPECTRUM ENGINEERING
324 SOUTH STATE STREET, SUITE 400
SALT LAKE CITY, UT 84111
(801) 328-5151

CNG / FUELING
FUEL SOLUTIONS
12340 SANTA MONICA BLVD, SUITE 133
SANTA MONICA, CA 90405
(310) 507-5548

FUNDING
SDRP
310 PINE AVENUE, SUITE 200
COLORADO SPRINGS, CO 80906
(719) 577-4253

SURVEYING
REDCON
90 N. MAIN STREET
BOUNTIFUL, UT 84010
(801) 298-2401

GEOTECHNICAL
GEOSTRATA
14425 SOUTH CENTER POINT WAY
BLUFFDALE, UT 84065
(801) 501-0583

ENVIRONMENTAL
IHI ENVIRONMENTAL
640 E. WILMINGTON AVENUE
SALT LAKE CITY, UT 84106
(801) 466-2223

COST ESTIMATING
PARAMETRIX, INC.
7186 SOUTH HIGHLAND DRIVE
SALT LAKE CITY, UT 84211
(801) 753-5900
CONSTRUCTION CONTROL CORPORATION
307 WEST 200 SOUTH, SUITE 4006
SALT LAKE CITY, UT 84101
(801) 5781201

ABBREVIATIONS

ABBREVIATIONS	
AB	ANCHOR BOLT
ACT	ACCOMPLISH
ADJ	ADJACENT/ADJUSTABLE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHU	AIR HANDLING UNIT
ALT	ALTERNATE NO.
ALUM	ALUMINUM
ANOD	ANODIZED
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPRO	APPROVED
APPROX	APPROXIMATELY
ARCH	ARCHITECT
ASSY	ASSEMBLY
AUTO	AUTOMATIC/AUTOMATION
AVG	AVERAGE
AWI	AMERICAN WOODWORKING INSTITUTE
AWT	ACCOUSTICAL WALL TREATMENT
B/B	BACK TO BACK
BD	BOARD
BLDG	BUILDING
BLKG	BLOCKING
BLST	BALLAST
BM	BEAM/BENCH MARK
BOIS	BOTTOM OF STEEL
BOT	BOTTOM
BRG	BEARING
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT UP ROOFING
C / C	CENTER TO CENTER
CAB	CABINET
CB	CATCH BASIN
CBR	CEMENTITIOUS BACKER BOARD
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CER	CERAMIC
CF	CUBIC FOOT / FEET
CF/CI	CONTRACTOR FURNISHED/CONTRACTOR INSTALLED
CF/CI	CONTRACTOR FURNISHED/OWNER INSTALLED
CFLG	COUNTER FLASHING
CFMF	COLD FORMED METAL FRAMING
CG	CORNER GUARD
CIP	CAST IN PLACE
CJ	CONTROL JOINT / CONSTRUCTION JOINT
CL	CENTERLINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CLT	CLEAT
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
COND	CONDITION
CONST	CONSTRUCTION
CONT	CONTINUE / CONTINUATION / CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
COP	COPING
CORR	CORRIDOR
CPT	CARPET
CSK	COUNTER SUNK
CT	CERAMIC TILE
CTR	CENTER
CU FT	CUBIC FOOT / CUBIC FEET
CU YD	CUBIC YARDS
CW	COLD WATER
D	DEPTH / DEEP
DBL	DOUBLE
DEG	DEGREE
DEL	DELETE
DEMO	DEMOLITION
DET	DETAIL
DETN	DETENTION
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DISP	DISPENSER
DMPF	DAMP-PROOFING
DN	DOWN
DR	DOOR / DRAIN
DS	DOWNSPOUT
DTL	DETAIL
DWG	DRAWING
E	EAST
EA	EACH
EIFS	EXTERIOR INSULATION FINISH SYSTEM
ENTS	EXPANSION JOINT
EL	REFERENCE ELEVATION
EL	EASEMENT LINE
ELEC	ELECTRIC / ELECTRICAL
ELEV	ELEVATOR / ELEVATION
EMER	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER / ENGINEERING
EOS	EDGE OF SLAB
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ	EQUAL
EQL SP	EQUALLY SPACED
EQUIP	EQUIPMENT
EST	ESTIMATE
ETC	ET CETERA
EW	EACH WAY
EW/C	ELECTRIC WATER COOLER
EXIST	EXISTING
EXP	EXPOSED / EXPAND / EXPANSION
EXT	EXTERIOR / EXTERNAL / EXTINGUISHER
F / F	FACE TO FACE
F F EL	FINISHED FLOOR ELEVATION
FA	FIRE ALARM / FACE AREA / FRESH AREA
FACP	FIRE ALARM CONTROL PANEL
FD	FLOOR DRAIN
FDTN	FOUNDATION
FDV	FIRE DEPARTMENT VALVE CABINET
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF INSUL	FOIL BACKED INSULATION
FH	FIRE HYDRANT / FIRE HOSE

ABBREVIATIONS	
FHC	FIRE HOSE CABINET
FIN	FINISH
FIN GR	FINISHED GRADE
FIXT	FIXTURE
FL	FLOW LINE / FLOOR LINE
FLR	FLOOR / FLOORING
FLUOR	FLUORESCENT
FR	FRAME / FIRE RATED / FIRE RETARDANT
FT	FOOT / FEET / FIRE TREATED / FULLY TEMPERED
FTG	FOOTING
FURG	FURRING
FURN	FURNISH / FURNITURE
FUT	FUTURE
FVC	FIRE VALVE CABINET
GA	GAGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERAL / GENERATOR
GI	GALVANIZED IRON
GL	GLASS / GROUND LEVEL
GLZ	GLAZING
GND	GROUND
GYP BD	GYPSPUM BOARD
GYP SHTG	GYPSPUM SHEATHING BOARD
HC	HANDICAPPED ACCESSIBLE / HOLLOW CORE
HD	HEAD / HEAVY DUTY
HDW	HARDWARE
HDWD	HARDWOOD
HMA	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT / HORSEPOWER / HIGH PRESSURE
HT	HEIGHT
HVAC	HEATING VENTILATION AND AIR CONDITIONING
HW	HOT WATER
HHW	HOT WATER HEATER
ID	INSIDE DIAMETER / INTERIOR DESIGN
IF	INSIDE FACE / INTAKE FAN
IN	INCHES
INCAND	INCANDESCENT
INCL	INCLUDING
INSTL	INSTALL
INSUL	INSULATE / INSULATION
INT	INTERIOR / INTERNAL
INV	INVERT
INV EL	INVERT ELEVATION
J BOX	JUNCTION BOX
JAN	JANITOR
JAN CLO	JANITOR CLOSET
JOINT	JOINT
KIT	KITCHEN
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LBS	POUNDS
LF	LINEAR FEET
LH	LEFT HAND
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LPT	LOW POINT
LT	LIGHT
LTG	LIGHTING
LVR	LOUVER
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MFG	MANUFACTURING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	METAL LATH
MO	MASONRY OPENING
MOD BIT	MODIFIED BITUMEN
MR	MOISTURE RESISTANT
MS	MOP SINK
MTD	MOUNTED
MTL	METAL
MULL	MULLION
N	NORTH
N/A	NOT APPLICABLE
NCOMBL	NONCOMBUSTIBLE
NEG	NEGATIVE
NIC	NOT IN CONTACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
O/O	OUT TO OUT
OA	OVERALL / OUTSIDE AIR
OC	ON CENTER
OD	OUTSIDE DIAMETER / OUTSIDE DIMENSION
OF	OUTSIDE FACE
OF/CI	OWNER FURNISHED/CONTRACTOR INSTALLED
OF/CI	OWNER FURNISHED/OWNER INSTALLED
OFF	OFFICE
OH	OPPOSITE HAND / OVERHEAD / OVERHANG
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
ORIG	ORIGINAL
ORN	ORNAMENTAL
ORS	OVERFLOW ROOF SCUPPER
PAT	PATTERN
PBD	PARTICLE BOARD
PCC	PRECAST CONCRETE
PERF	PERFORATED
PERM	PERMANENT
PL	PLATE / PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER / PLASTIC
PLBG	PLUMBING
PLYWD	PLYWOOD
PNL	PANEL
POL	POLISHED
PR	PAIR / PIPE RAIL
PREFAB	PREFABRICATED
PREFIN	PREFINISHED

ABBREVIATIONS	
PRELIM	PRELIMINARY
PREP	PREPARATION
PROJ	PROJECT
PT	PAINT / PRESSURE TREATED
PT CONC	POST TENSION CONCRETE
PTD	PAINTED / PAPER TOWEL DISPENSER
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS / RISER
RA	RETURN AIR
RB	RUBBER BASE / RESILIENT BASE
RBR	RUBBER
RC/P	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REBAR	REINFORCED STEEL BAR
REC	RECESSED
REF	REFERENCE / REFRIGERATOR
REINF	REINFORCED / REINFORCEMENT
REM	REMOVE
REQD	REQUIRED
REV	REVISION
RIGD INS	RIGID INSULATION
RH	RIGHT HAND
RL	ROOF LEADER
RLG	RAILING
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RP	REFERENCE POINT
RTG	RATING
RTU	ROOF TOP UNIT
RVL	REVEAL
S	SOUTH
SALV	SALVAGE
SAN	SANITARY
SB	SPLASH BLOCK
SCHED	SCHEDULE / SCHEDULED
SCHEM	SCHEMATIC
SCP	SCUPPER
SCHWD	SOLID CORE WOOD DOOR
SEC	SECOND
SECT	SECTION
SF	SQUARE FOOT / SQUARE FEET / SUPPLY FAN
SGL	SINGLE
SHT	SHEET
SHT MTL FLASH	SHEET METAL FLASHING
SHTHG	SHEATHING
SIM	SIMILAR
SLANT	SLANT
SM	SHEET METAL / SMALL / SURFACE MOUNTED
SMACNA	SHEET METAL AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION
SPEC	SPECIFICATION(S)
SPLY	SUPPLY
SPRT	SUPPORT
SQ	SQUARE
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STL JST	STEEL JOIST
STOR	STORAGE
STRUCT	STRUCTURAL
SURF	SURFACE
SUSP	SUSPENDED
SYMM	SYMMETRICAL
T	TREAD
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
TBD	TO BE DETERMINED
TEL	TELEPHONE
TEMP	TEMPERATURE / TEMPORARY
TERR	TERRAZZO
THK	THICK / THICKNESS
THRES	THRESHOLD
THRU	THROUGH
TMPPD GL	TEMPERED GLASS
TO	TOP OF
TCC	TOP OF CONCRETE / TOP OF CURB
TOJ	TOP OF JOIST
TOM	TOP OF MASONRY
TOP	TOP OF PARAPET / TOP OF PAVEMENT
TOS	TOP OF STEEL / TOP OF SLAB
TOW	TOP OF WALL
TRTD	TREATED
TS	TUBE STEEL
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UC	UNDERCUT
UL	UNDERWRITER'S LABORATORIES
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UTIL	UTILITY
VAR	VARIABLES
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VNR	VENEER
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W	WEST / WIDTH / WIDE
WI	WITH
W/O	WITHOUT
WBL	WOOD BLOCKING
WC	WATER CLOSET / WALL COVERING
WD	WOOD / WOOD DOOR
WDW	WINDOW
WF	WIDE FLANGE
WGL	WIRED GLASS
WH	WATER HEATER / WEEP HOLE
WP	WATERPROOFING / WORKING POINT
WR	WATER RESISTANT / WEATHER RESISTANT
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD / YARDS

AREA MAP



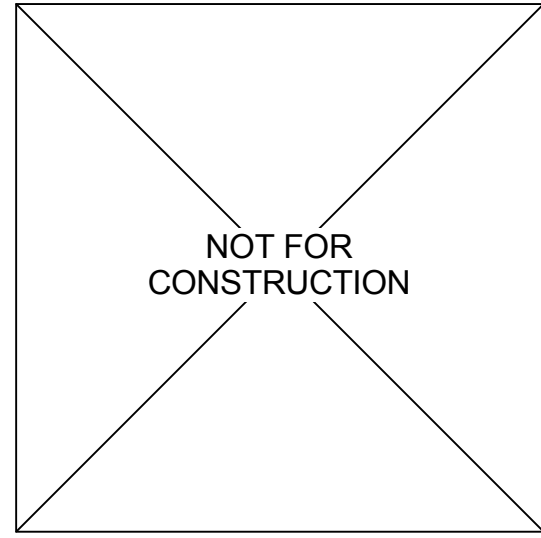
VICINITY MAP



INDEX OF DRAWINGS	
SHEET NO.	SHEET NAME
GENERAL INFORMATION	
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04-G102	ENVELOPE COMPLIANCE CERTIFICATE
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04-C101	MASTER SITE PLAN & GENERAL NOTES
04-C102	SITE UTILITIES & DRAINAGE PLANS (BASE BID)
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04-S501	TYPICAL FOOTING & FOUNDATION DETAILS
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04-S511	ROOF FRAMING DETAILS
04-S601	STRUCTURAL SCHEDULES
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04-P601	PLUMBING SCHEDULES
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04-M902	MECHANICAL ENERGY CODE COMPLIANCE DOCUMENTATION
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04-EP601	POWER ONE LINE DIAGRAM
04-EP602	PANEL & EQUIPMENT SCHEDULES
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04-Q102	LEVEL 1 PLAN - WASH EQUIPMENT DETAILS AND ELEVATION

UTAH TRANSIT AUTHORITY
DEPOT DISTRICT TECHNOLOGY CENTER

WASH
BUILDING 4
669 WEST 200 SOUTH
SALT LAKE CITY, UT 84101
CONSTRUCTION DOCUMENTS 03/31/2015



No.	REVISION/SUBMISSION	DATE
PROJECT No: 3514		

SHEET INDEX,
ABBREVIATIONS, AND
GENERAL NOTES

04-G001

BUILDING CODE DATA

AUTHORITY HAVING JURISDICTION:

SALT LAKE CITY
451 W. STATE ST.
SALT LAKE CITY, UT 84111

APPLICABLE CODES:

2012 IBC (INTERNATIONAL BUILDING CODE) INCLUDES APPENDIX 'J'
2011 NEC (NATIONAL ELECTRICAL CODE) NFPA
2012 IPC (INTERNATIONAL PLUMBING CODE)
2012 IMC (INTERNATIONAL MECHANICAL CODE)
2012 IECC (INTERNATIONAL ENERGY CONSERVATION CODE)
2012 IFGC (INTERNATIONAL FUEL GAS CODE)
2010 NFPA 52 VEHICULAR GASEOUS FUEL SYSTEMS CODE
1995 TITLE 21 ZONING CODE, UPDATED 10/98
TITLE 18 OF SALT LAKE CITY ORDINANCES - BUILDING AND CONSTRUCTION
SALT LAKE CITY CODES AS AMENDED BY H.B. 301, CONSTRUCTION CODE AMENDMENTS

USE AND OCCUPANCY:

S-1 MOTOR VEHICLE REPAIR GARAGE

TYPE OF CONSTRUCTION:

TYPE II-B
BUILDING ELEMENTS FRR (FIRE RESISTANCE RATING) PER IBC TABLE 601:
ELEMENT FRR
- STRUCTURAL FRAME 0
- BEARING WALLS, EXTERIOR 0
- BEARING WALLS, INTERIOR 0
- NONBEARING W-P, EXTERIOR 0
- NONBEARING W-P, INTERIOR 0
- FLOOR ASSEMBLY 0
- ROOF ASSEMBLY 0

GENERAL BUILDING HEIGHT AND AREA LIMITATIONS:

BUILDING	GROSS SQFT / FLOOR	STORIES	HEIGHT (FT)
WASH	5,252	1	20
BUILDING AREA	5,257 GSF		

PERMISSIBLE PER TABLE 503, ALLOWABLE BUILDING HEIGHTS AND AREAS:

- TYPE II - B CONSTRUCTION
- S-1 OCCUPANCY
BUILDING AREA 17,500 GSF
STORIES 2
HEIGHT (FT) 55

PROPERTY DESCRIPTION:

NORTH SIDE FACES ADJACENT BUILDING DISTANCE = 522'-6"
EAST SIDE FRONTS UTA RAIL WAY R.O.W. DISTANCE = 70'-3"
SOUTH SIDE FACES ADJACENT BUILDING DISTANCE = 121'-7"
WEST SIDE FRONTS PUBLIC WAY (700 S) DISTANCE = 60'-8" TO CL OF STREET

EXTERIOR WALL FIRE RESISTANCE BASED ON TABLE 602:

NO FIRE RESISTANCE RATING IS REQUIRED FOR EXTERIOR WALLS PER IBC TABLES 601 AND 602. UNPROTECTED OPENINGS ARE NOT LIMITED PER TABLE 705.6

COMBUSTIBLE MATERIAL IN TYPE I AND II CONSTRUCTION:

COMBUSTIBLE MATERIALS ARE PERMISSIBLE WHEN PROVIDED IN ACCORDANCE WITH 603.1 ALLOWABLE MATERIALS.

EXTERIOR WALLS:

705.2 PROJECTIONS: SHALL CONFORM TO THIS SECTION, IBC 1019, 1026 AND 1406.
EXCEPTION: BUILDINGS ON THE SAME LOT AND CONSIDERED AS PORTIONS OF ONE BUILDING PER IBC 705.3 ARE EXEMPT FROM THIS SECTION.

MEANS OF EGRESS:

1003.2 CEILING HEIGHTS: NOT LESS THAN 7'-6", UNLESS EXCEPTIONS APPLY.

1003.3 HORIZONTAL PROJECTIONS: PROJECTIONS SHALL NOT HORIZONTALLY PROJECT FROM EITHER SIDE MORE THAN 4" BETWEEN 27" MAX AND 80" MIN ABOVE THE FLOOR.

1004 OCCUPANT LOAD: PER TABLE 1004.1.2 MAX FLOOR AREA ALLOWANCE PER OCCUPANT.

SPACE FUNCTION:	AREA	X	OLF	OCCUPANT LOAD	CPET	EATD
STORAGE	S-1	5,123	300	20	100	200

1005 MEANS OF EGRESS SIZING: REQUIRED CAPACITY BASED ON OCCUPANT LOAD BASED ON IBC
1005.3.2 AND 1005.3.2
OTHER EGRESS COMPONENTS REQUIRED 4" = 20 x 0.2"
OTHER EGRESS COMPONENTS PROVIDED 204"

1005.5 DISTRIBUTION OF EGRESS CAPACITY: WHERE MORE THAN (1) MEANS OF EGRESS IS REQUIRED, THE MEANS OF EGRESS SHALL BE CONFIGURED SO THAT THE LOST OF ANY EXIT OR EXIT ACCESS SHALL NOT REDUCE THE AVAILABLE CAPACITY TO LESS THAN 50% OF THE REQUIRED CAPACITY.

1007 ACCESSIBLE MEANS OF EGRESS: ACCESSIBLE SPACES SHALL HAVE A MINIMUM OF (1) ACCESSIBLE MEANS OF EGRESS.

1008 DOORS AND GATES:

1008.1.1 SIZE OF DOORS: SHALL BE SUFFICIENT FOR OCCUPANT LOAD WITH MINIMUM CLEAR WIDTH OF 32" AND A MAXIMUM CLEAR WIDTH OF 48".

1008.1.5 FLOOR ELEVATION: EXTERIOR LANDINGS ARE PERMITTED TO SLOPE NO MORE THAN 1/4:12 (2%).

1008.1.7 THRESHOLDS: THRESHOLDS SHALL NOT EXCEED 1/2" ABOVE FLOOR OR LANDING.

1008.1.10 PANS: PANS: SHALL BE PROVIDED FOR DOORS SERVING OCCUPANT LOADS GREATER THAN 50 IN A OCCUPANCY.

1014 EXIT ACCESS:

1014.2 EGRESS THROUGH INTERVENING SPACES: SHALL COMPLY WITH THIS SECTION.

1014.3 COMMON PATH OF EGRESS: PER IBC TABLE 1014.3.

100'-0" FOR S' OCCUPANTS < 30

1015 EXIT OR EXIT ACCESS DOORWAY ARRANGEMENT:

1015.1 EXITS AND EXIT ACCESS DOORWAYS

TWO EXIT OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE ONE OF THE FOLLOWING CONDITIONS EXISTS:

1. THE OCCUPANT LOAD OF THE SPACE EXCEED ONE OF THE VALUE IN TABLE 1015.1
S-1 = 29 MAXIMUM OCCUPANCY LOAD = TWO EXIT DOORS ARE NOT REQUIRED
6 EXITS ARE PROVIDED

1016 EXIT ACCESS TRAVEL DISTANCE:

1016.2 LIMITATIONS: IBC TABLE 1016.2.

200'-0" FOR S' OCCUPANCIES W/ OUT SPRINKLER SYSTEM

10 27 EXIT DISCHARGE:

1027.1 GENERAL: EXITS SHALL DISCHARGE DIRECTLY TO THE EXTERIOR OF THE BUILDING. THE EXIT DISCHARGE SHALL BE AT GRADE OR SHALL PROVIDE DIRECT ACCESS TO GRADE. THE EXIT DISCHARGE SHALL NOT REENTER A BUILDING. THE COMBINED USE OF EXCEPTIONS 1 + 2 SHALL NOT EXCEED 50 PERCENT OF THE NUMBER AND CAPACITY OF THE REQUIRED EXITS.

EXCEPTIONS: 1. A MAXIMUM OF 50 PERCENT OF THE NUMBER AND CAPACITY OF INTERIOR EXIT STAIRWAYS IS PERMITTED TO EGRESS THROUGH AREAS ON THE LEVEL OF EXIT DISCHARGE PROVIDED ALL OF THE FOLLOWING ARE MET:

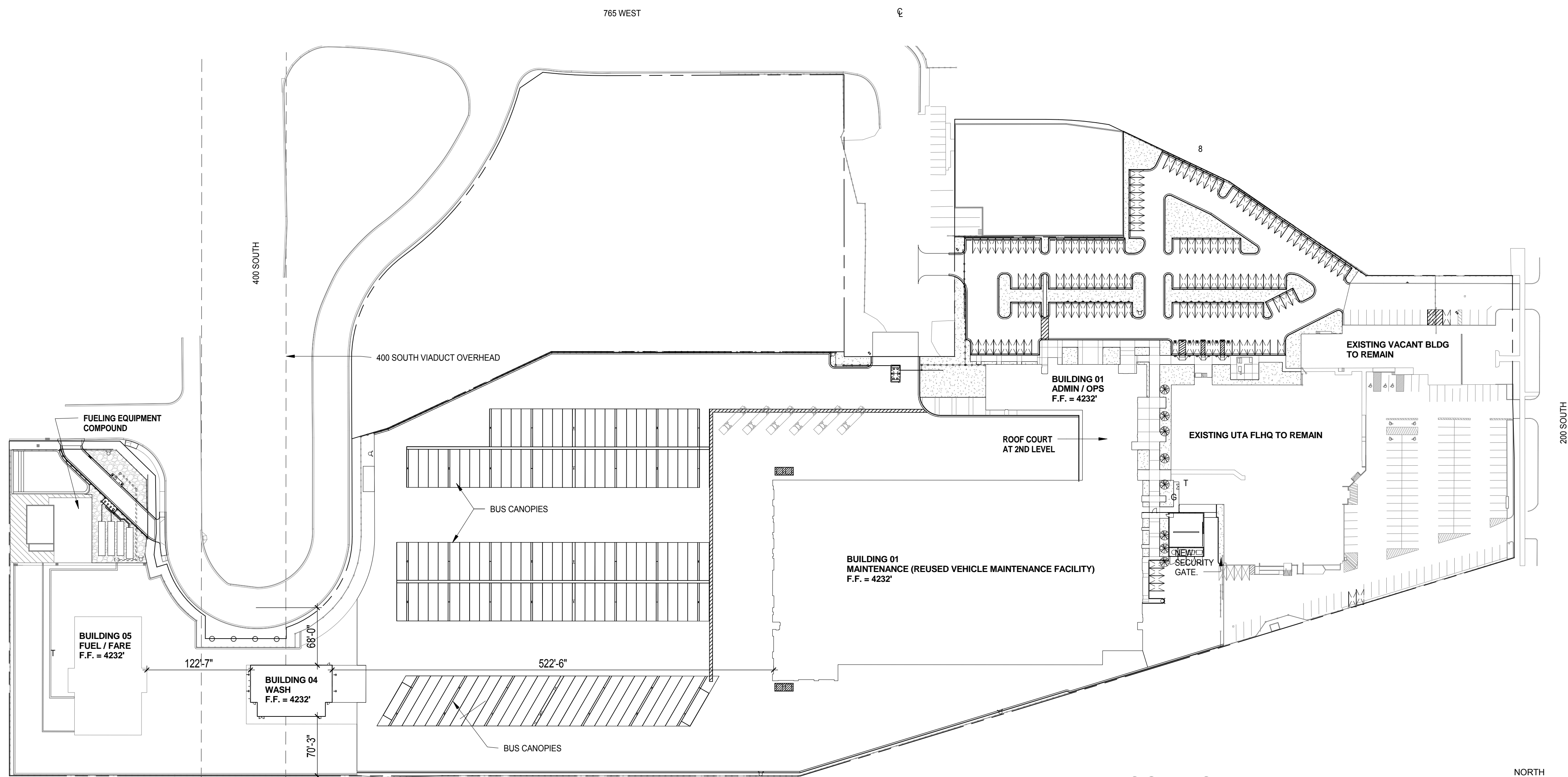
1. SUCH ENCLOSURES EGRESS TO A FREE AND UNOBSTRUCTED PATH OF TRAVEL TO AN EXTERIOR EXIT DOOR AND SUCH EXIT IS READILY VISIBLE AND IDENTIFYPOINT FROM THE OF TERMINATION TO THE ENCLOSURE.

1. THE ENTIRE AREA OF THE LEVEL OF EXIT DISCHARGE IS SEPARATED FROM AREAS BELOW BY CONSTRUCTION CONFORMING TO THE FRR FOR THE ENCLOSURE.

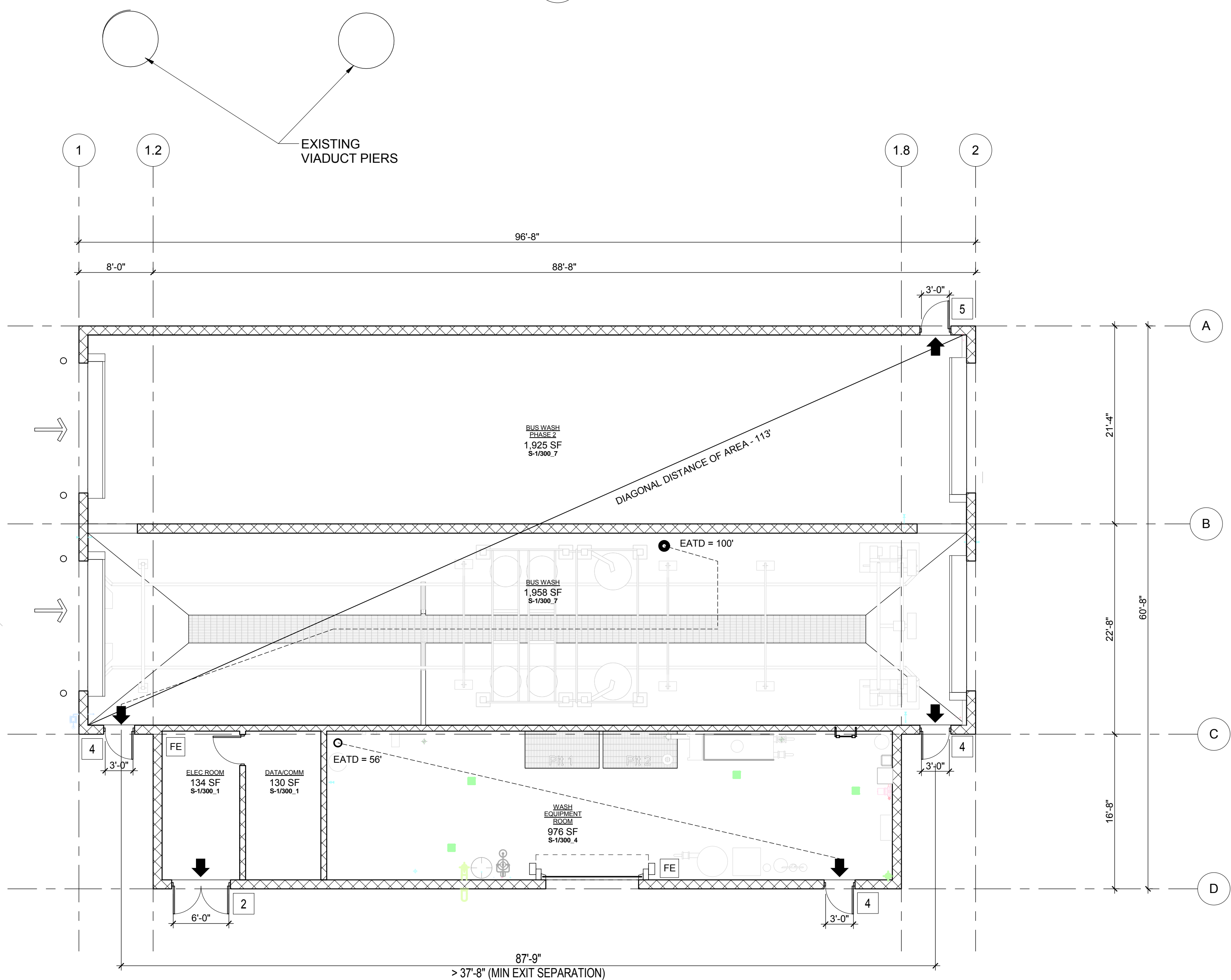
1. THE EGRESS PATH FROM THE INTERIOR EXIT STAIRWAY ON THE LEVEL OF EXIT DISCHARGE IS PROTECTED THROUGHOUT BY AN APPROVED FIRE SPRINKLER SYSTEM.

PLUMBING SYSTEMS:

EMPLOYEE TOILETS ARE NOT PROVIDED IN THE WASH BUILDING BUT ARE PROVIDED IN THE FUEL/ FARE RETRIEVAL BUILDING LOCATED AT A DISTANCE OF 145'-0" COMPLYING WITH SECTION 2902.3 EMPLOYEE FACILITIES AND 2902.3.2 LOCATION OF TOILET FACILITIES. EMPLOYEE TOILET FACILITIES PATH OF TRAVEL SHALL NOT EXCEED A DISTANCE OF 500 FEET.



H12 CODE SITE PLAN
1" = 80'-0"



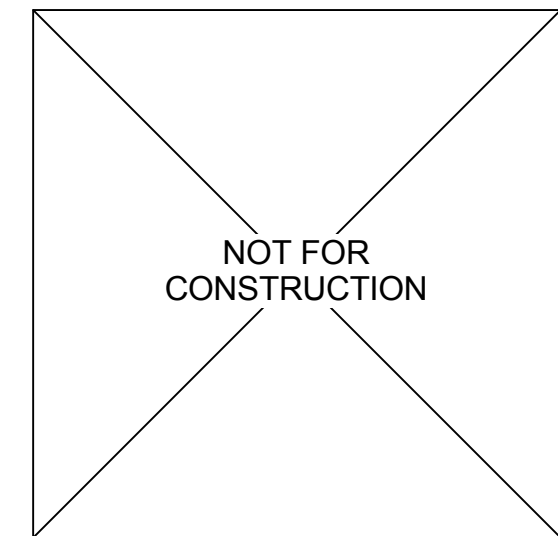
A12 CODE STUDY LEVEL 1 PLAN
1/8" = 1'-0"

CODE LEGEND

- 1 HOUR FIRE BARRIER
- 2 HOUR FIRE BARRIER
- 3 HOUR FIRE BARRIER
- 4 HOUR FIRE BARRIER
- OFFICE AREAS
1/100
- ASSEMBLY AREAS
1/15
- COMMON PATH OF EGRESS TRAVEL (CPET)
- EXIT ACCESS TRAVEL DISTANCE (EATD)
- BUILDING DIAGONAL
- DOOR DISCHARGE OCCUPANTS
- OCCUPANT LOAD AT EXIT
- TOTAL OCCUPANT LOAD OF AREA
- DIRECTION OF EGRESS
- EXIT SIGN
- STANDPIPE LOCATION
- FIRE EXTINGUISHER
- FIRE RISER
- ANNUNCIATOR
- FACP
- FIRE ALARM CONTROL PANEL
- FIRE ALARM TERMINAL CABINET
- FIRE DEPARTMENT CONNECTION

UTAH TRANSIT AUTHORITY
DEPOT DISTRICT TECHNOLOGY CENTER

WASH
BUILDING 4
669 WEST 200 SOUTH
SALT LAKE CITY, UT 84101
CONSTRUCTION DOCUMENTS 03/31/2015

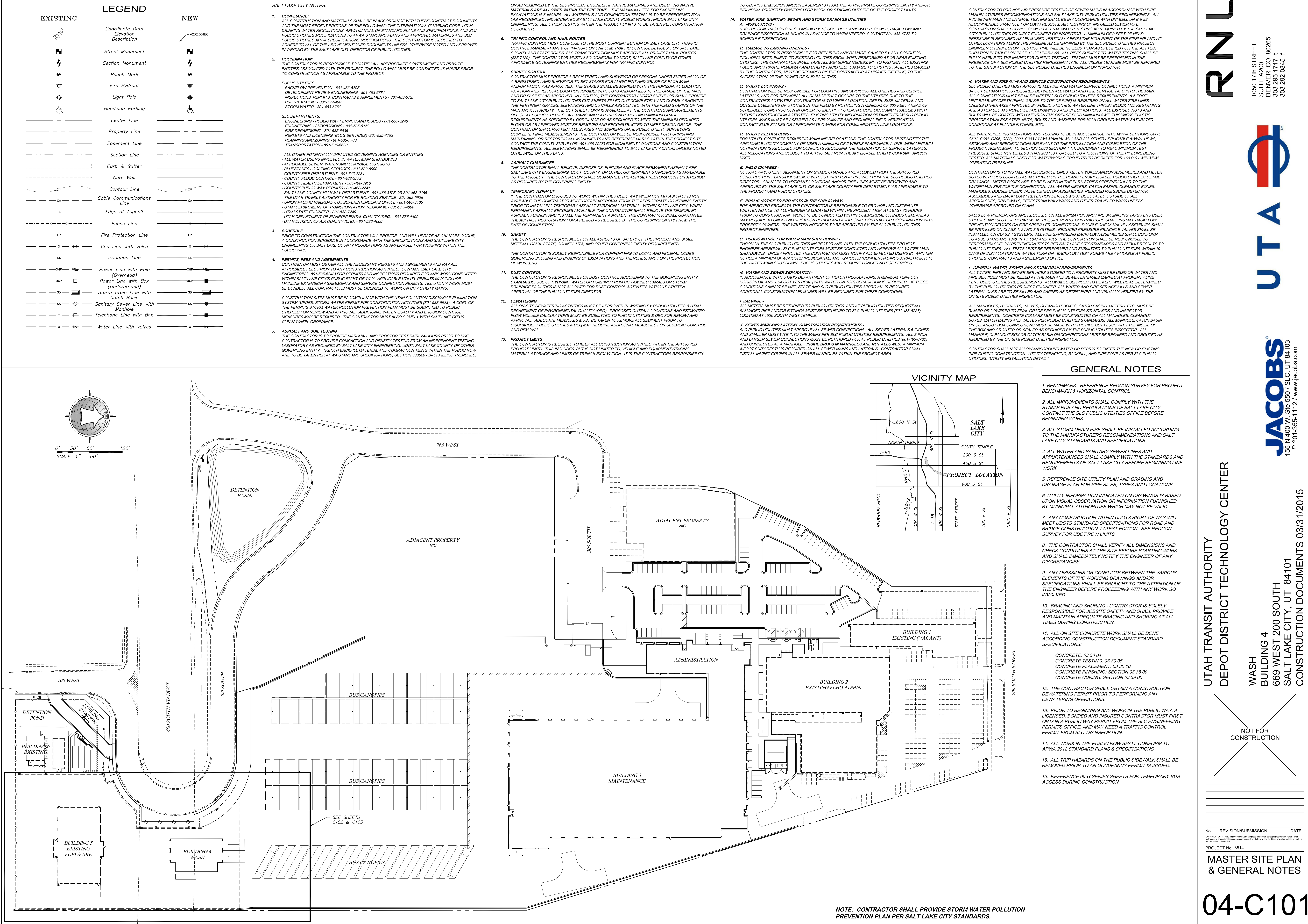


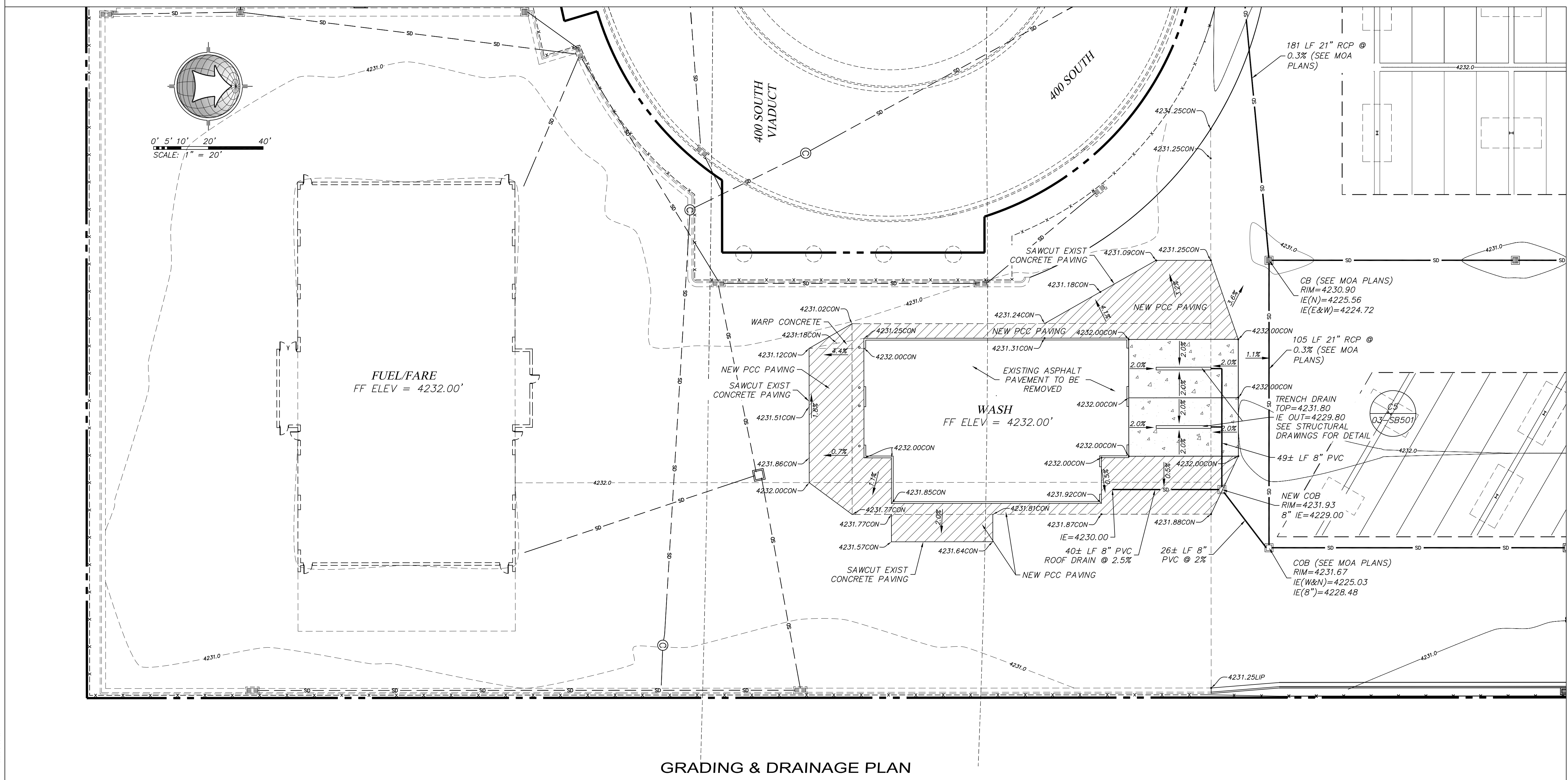
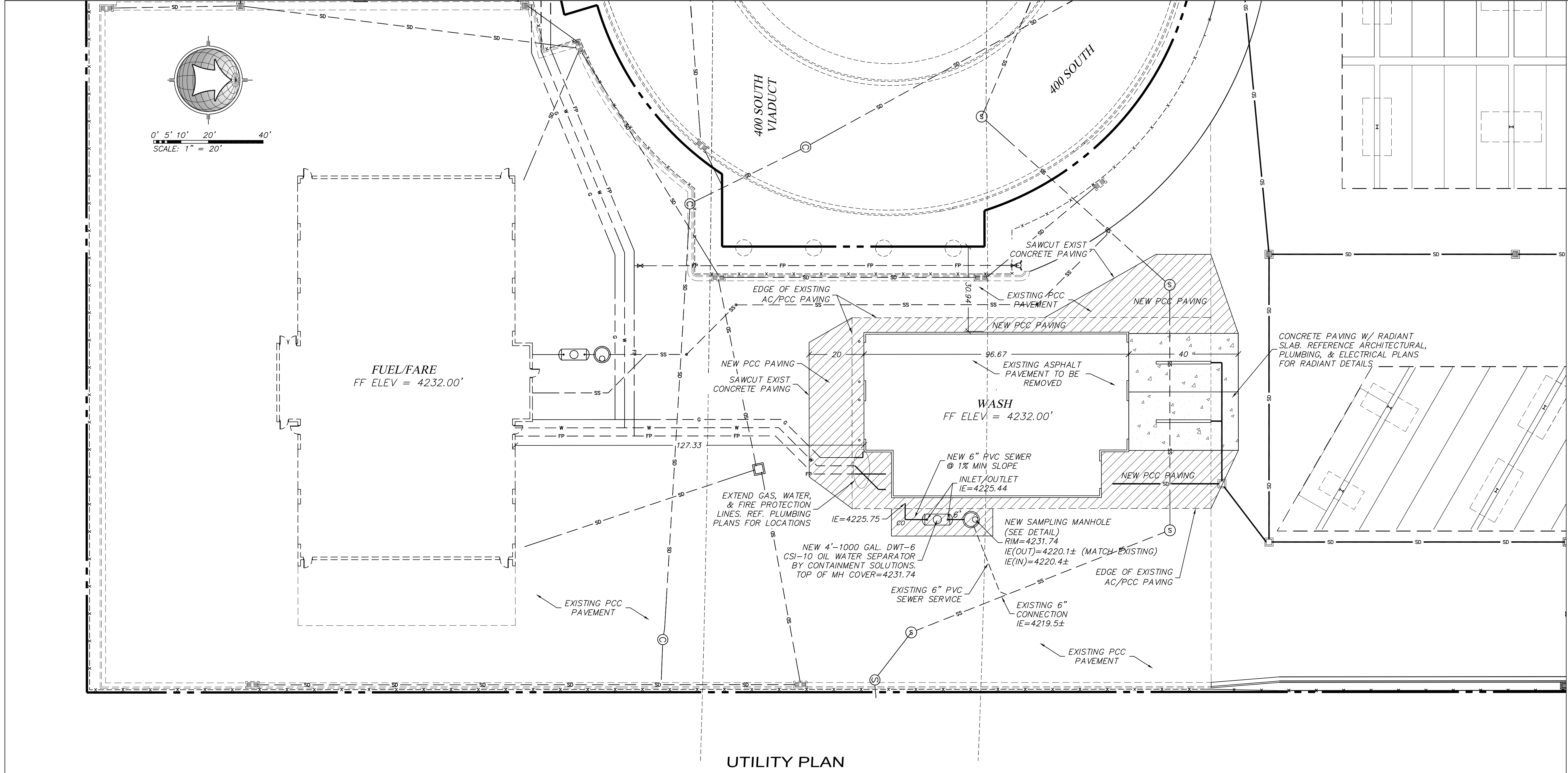
No REVISION/SUBMISSION DATE

PROJECT No: 3514

LIFE SAFETY EGRESS
OCCUPANCY PLAN

04-G101





GENERAL HORIZONTAL CONTROL NOTES:

1. IT IS THE RESPONSIBILITY OF THE SURVEYOR AND CONTRACTOR TO VERIFY ALL BUILDING DIMENSIONS WITH ARCHITECTURAL PLAN WHEN STAKING AND CONSTRUCTING BUILDINGS. THE BUILDING MUST BE STAKED AND BUILT ACCORDING TO THE DIMENSIONS ON THE ARCHITECTURAL PLANS. NOTIFY THE CIVIL ENGINEER AND ARCHITECT OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION.

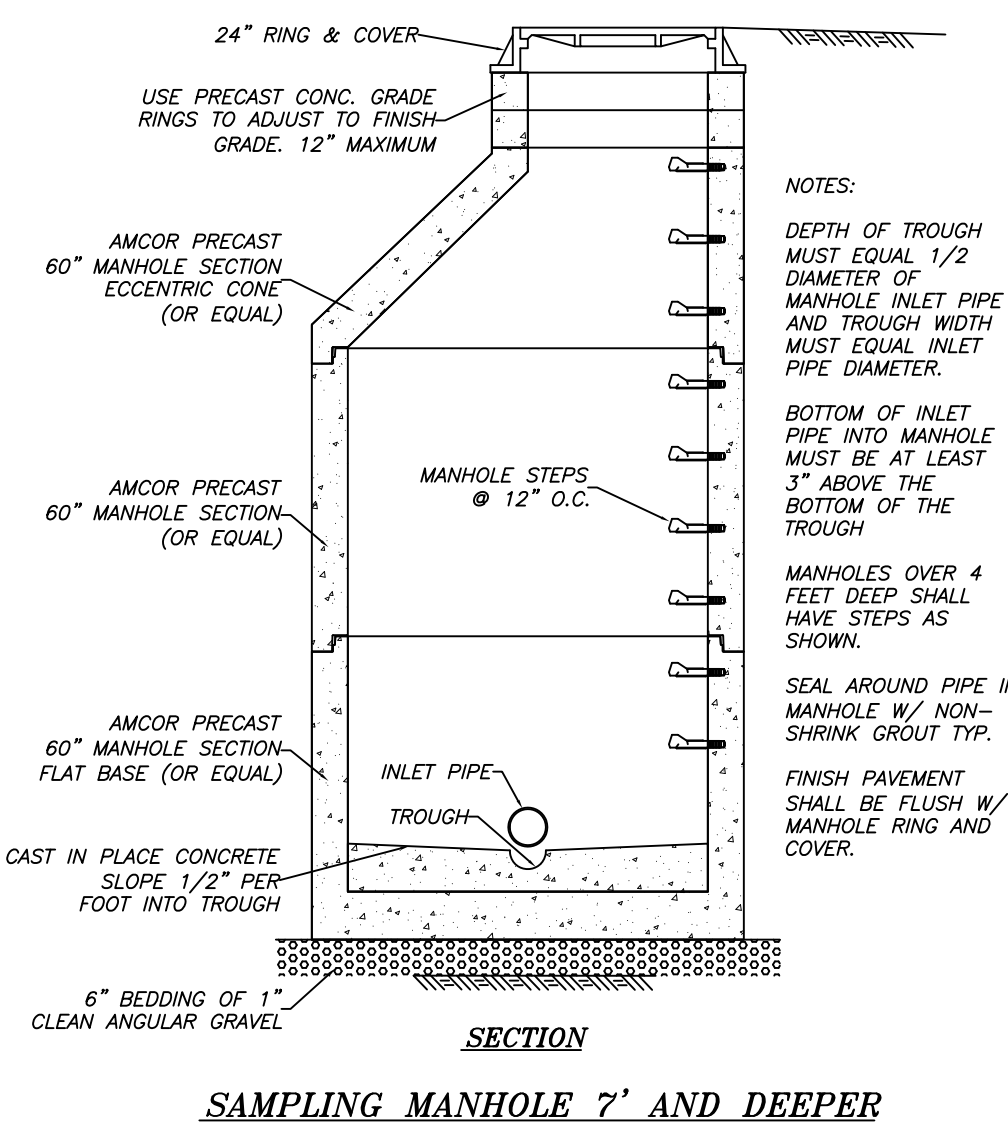
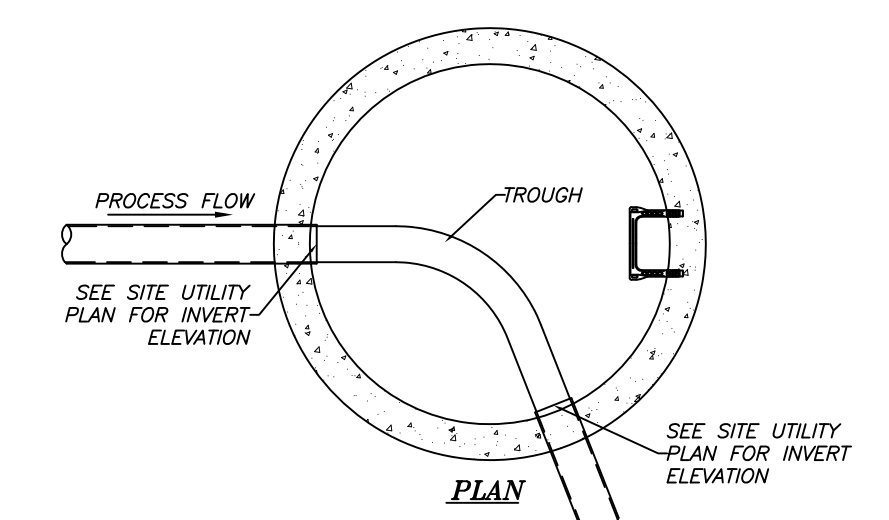
2. DIMENSIONS OF IMPROVEMENTS STAKED FROM COORDINATES MUST BE CHECKED AGAINST SITE PLAN DIMENSIONS. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION.

STORM DRAIN LINES:

1. 8" PIPES OR SMALLER - POLYVINYL CHLORIDE (PVC) SEWER PIPE, ASTM D3034, TYPE FPM, SDR 35

2. 12" PIPES OR LARGER - REINFORCED CONCRETE PIPE, ASTM C76, CLASS III

NOTE: CONTRACTOR SHALL PROVIDE STORM WATER POLLUTION PREVENTION PLAN PER SALT LAKE CITY STANDARDS.



PAVEMENT KEY

PAVEMENT	T(g)	TYPICAL PCC PAVING (SEE PLAN)
UNTREATED BASE COURSE	T(ubc)	
GRANULAR SUBBASE	T(gb)	EXTERIOR RADIANT SLAB (SEE PLAN)
PROPERLY PREPARED SUBGRADE		

PORTLAND CEMENT CONCRETE (PCC) PAVING

DESC.	PCC PAVEMENT T(p)	UNTREATED BASE COURSE T(ubc)	GRANULAR SUBBASE T(gb)
TYPICAL	9.5 inches	12 inches	--
RADIANT	9.5 inches	12 inches	--

USE: 1 1/4" x 18" DOWEL @ 12" O.C. AT PAVEMENT JOINTS TYPICAL

REFERENCE GEOSTRATA ENGINEERING GEOTECHNICAL INVESTIGATION, JOB NO 857-001

TYPICAL PAVEMENT SECTION

RNL

1050 17th STREET
SUITE A200
DENVER CO 80265
303 295 1717
303 292 0845

UTAH

JACOBS

155 N 400 W, Ste 550 / SLC, UT 84103
303-355-1112 / www.jacobs.com

UTAH TRANSIT AUTHORITY

DEPOT DISTRICT TECHNOLOGY CENTER

WASH BUILDING 4

669 WEST 200 SOUTH

SALT LAKE CITY, UT 84101

CONSTRUCTION DOCUMENTS 03/31/2015

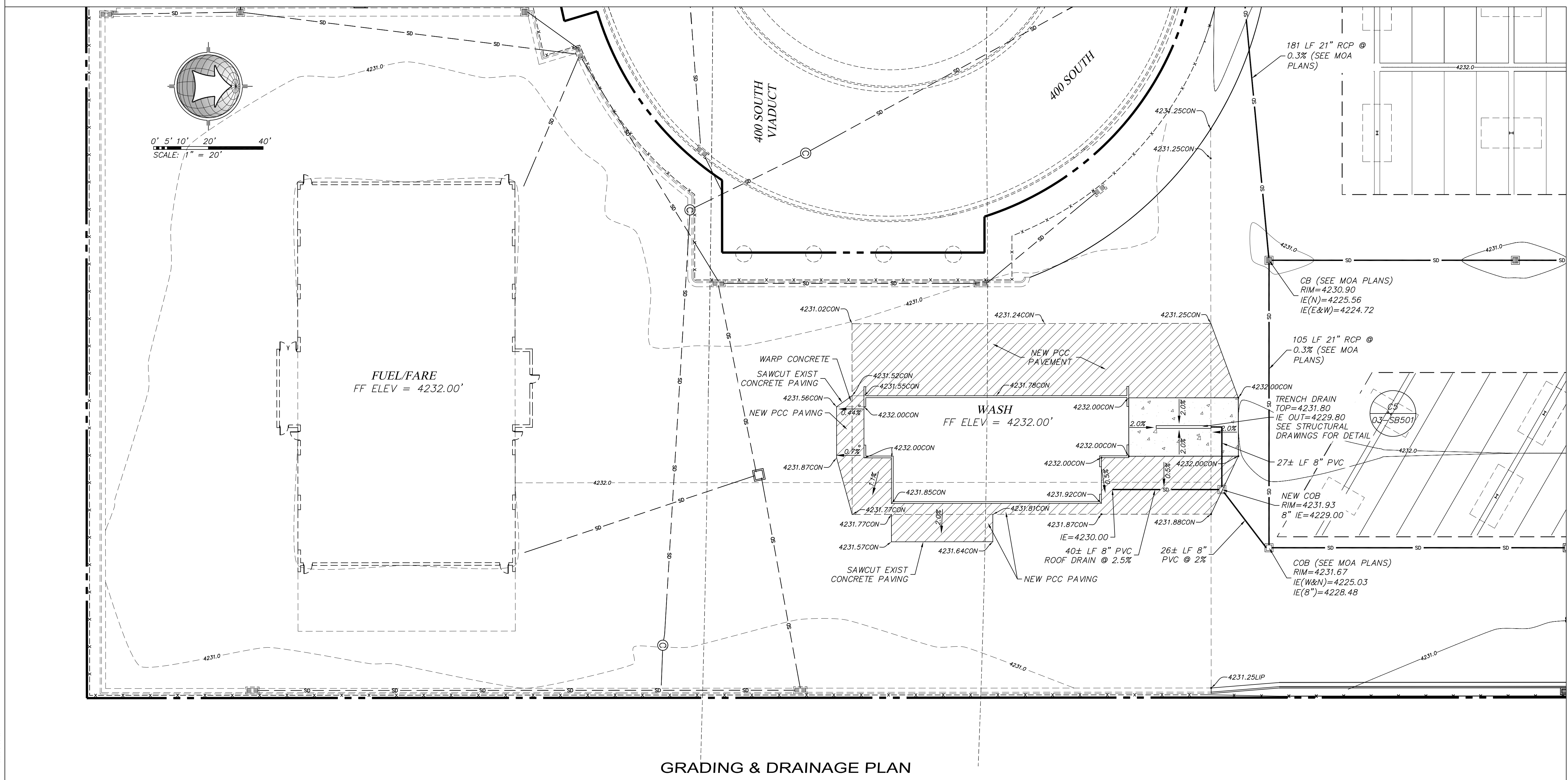
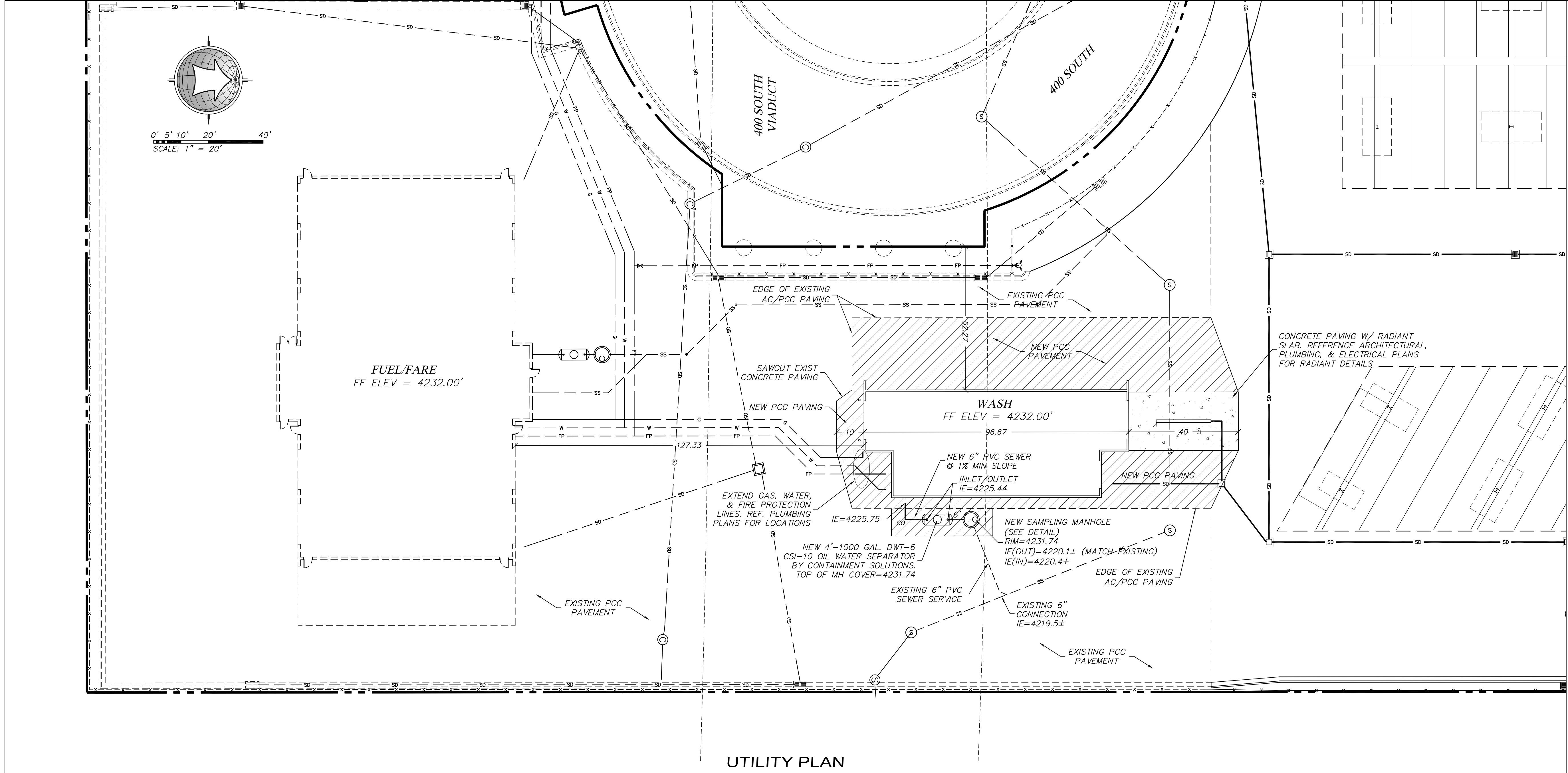
NOT FOR CONSTRUCTION

No REVISION/SUBMISSION DATE

PROJECT No: 3514

SITE UTILITIES & DRAINAGE PLANS (BASE BID)

04-C102



GENERAL HORIZONTAL CONTROL NOTES:

1. IT IS THE RESPONSIBILITY OF THE SURVEYOR AND CONTRACTOR TO VERIFY ALL BUILDING DIMENSIONS WITH ARCHITECTURAL PLAN WHEN STAKING AND CONSTRUCTING BUILDINGS. THE BUILDING MUST BE STAKED AND BUILT ACCORDING TO THE DIMENSIONS ON THE ARCHITECTURAL PLANS. NOTIFY THE CIVIL ENGINEER AND ARCHITECT OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION.

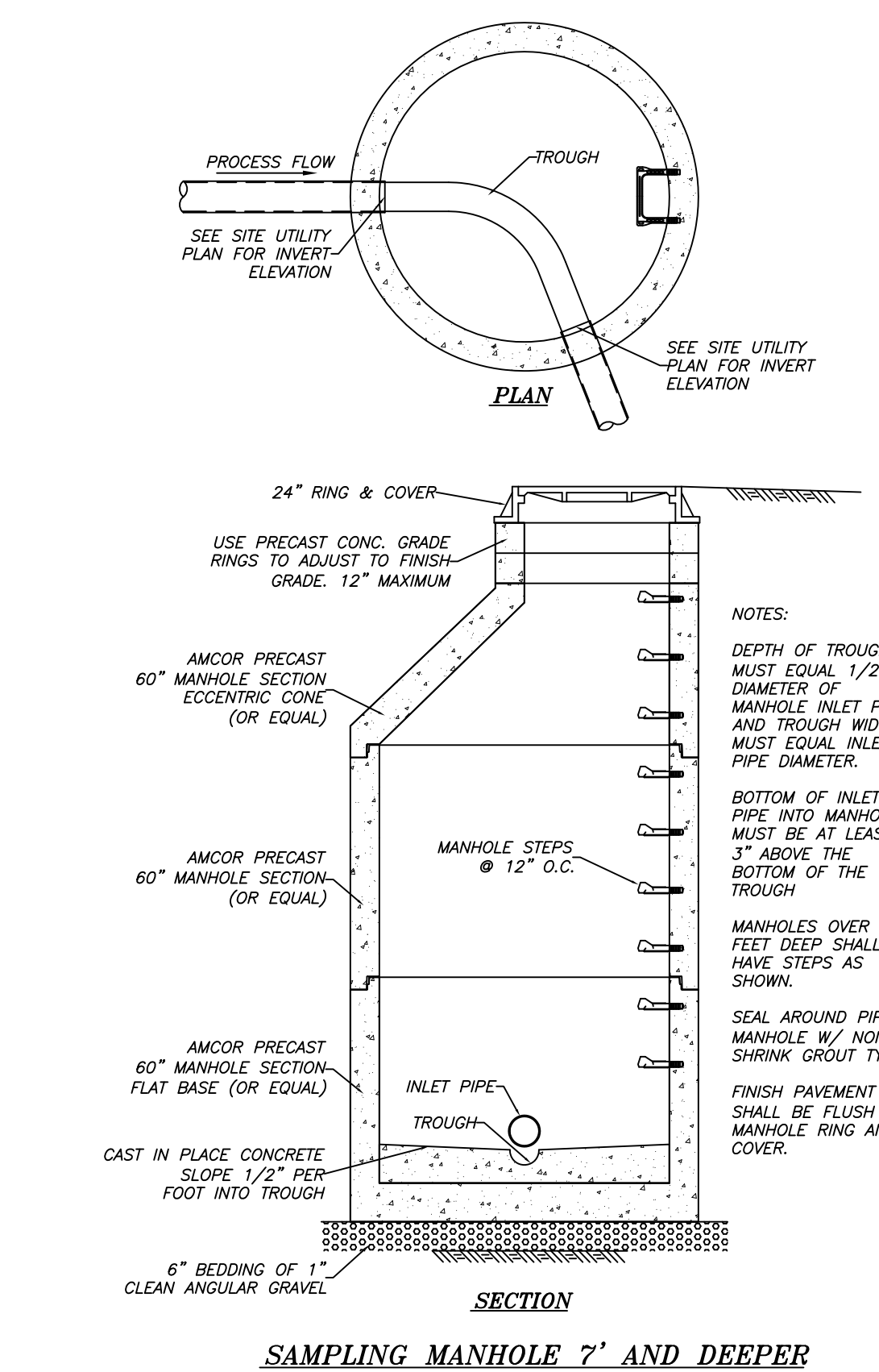
2. DIMENSIONS OF IMPROVEMENTS STAKED FROM COORDINATES MUST BE CHECKED AGAINST SITE PLAN DIMENSIONS. NOTIFY THE CIVIL ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING CONSTRUCTION.

STORM DRAIN LINES:

1. 8" PIPES OR SMALLER - POLYVINYL CHLORIDE (PVC) SEWER PIPE, ASTM D3034, TYPE FSM, SDR 35

2. 12" PIPES OR LARGER - REINFORCED CONCRETE PIPE, ASTM C76, CLASS III

NOTE: CONTRACTOR SHALL PROVIDE STORM WATER POLLUTION PREVENTION PLAN PER SALT LAKE CITY STANDARDS.



PAVEMENT KEY

PAVEMENT	T(g)	TYPICAL PCC PAVING (SEE PLAN)
UNTREATED BASE COURSE	T(ubc)	
GRANULAR SUBBASE	T(gb)	EXTERIOR RADIANT SLAB (SEE PLAN)
PROPERLY PREPARED SUBGRADE		

PORTLAND CEMENT CONCRETE (PCC) PAVING

DESC.	PCC PAVEMENT T(p)	UNTREATED BASE COURSE T(ubc)	GRANULAR SUBBASE T(gb)
TYPICAL	9.5 inches	12 inches	--
RADIANT	9.5 inches	12 inches	--

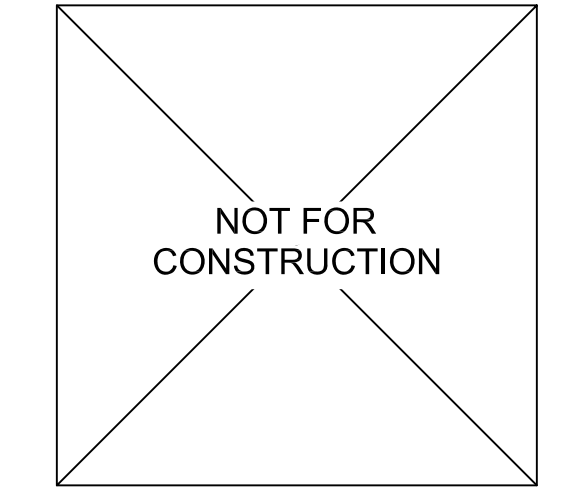
USE: 1 1/4"Ø x 18" DOWEL @ 12" O.C. AT PAVEMENT JOINTS TYPICAL

REFERENCE: GEOSTRATA ENGINEERING GEOTECHNICAL INVESTIGATION, JOB NO 857-001

TYPICAL PAVEMENT SECTION

UTAH TRANSIT AUTHORITY
DEPOT DISTRICT TECHNOLOGY CENTER

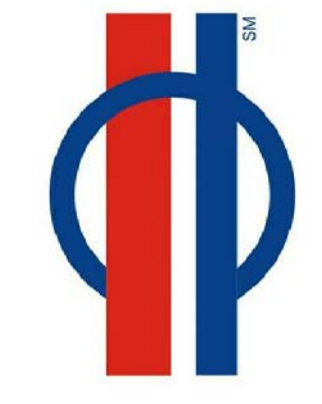
WASH
BUILDING 4
669 WEST 200 SOUTH
SALT LAKE CITY, UT 84101
CONSTRUCTION DOCUMENTS 03/31/2015



REVISION/SUBMISSION DATE
PROJECT No: 3514
SITE UTILITIES & DRAINAGE PLANS (ALTERNATE BID)

04-C103

RNL



JACOBS
155 N 400 W, Ste 550 / SLC, UT 84103
P 801-355-1112 / www.jacobs.com

1050 17th STREET
SUITE A200
DENVER CO 80265
303 295 1717
303 292 0845

1. Design Criteria

- 1.1. Governing Building Code: 2012 International Building Code (IBC)

- 1.2. Floor Live Loading:
A. Exit Facilities & Corridors:100 psf Live Load
B. Mechanical Rooms:125 psf Live Load or actual weights, if larger
- 1.3. Roof Live Loading:
A. Roof Live Load:20 psf
B. Roof Snow Load:30 psf + Drift per IBC
1. Ground Snow Load, P_g :48 psf
2. Snow Exposure Factor, C_e :1.0
3. Importance Factor, I_s :1.0
4. Thermal Factor, C_t :1.0

- 1.4. Earthquake:
A. Risk Category:II
B. Seismic Design Category:D
C. Spectral Response Accelerations:
 $S_s = 1.72 \text{ g}$ $S_{a1} = 1.15 \text{ g}$
 $S_1 = 0.70 \text{ g}$ $S_{a2} = 0.70 \text{ g}$
D. Soil Site Class:E
 $F_a = 1.00$ $F_v = 1.50$
E. Basic Seismic-Force-Resisting System:Intermediate Precast Shear Walls
 $R = 4.0$ $C_u = 4.0$ $\Delta\mu = 2.5$
F. Importance Factor, I_e :1.0
G. Design Base Shear:197 kips
H. Analysis Procedure:Equivalent Lateral Force (Static)
- 1.5. Wind
A. Basic Wind Speed (3-second gust):115 mph
B. Exposure:B
C. Internal Pressure Coefficient, GCF :0.18
D. Topographic Factor, K_z :1.0
E. Components and Cladding Design Pressure:

Design Wind Pressure (psf)			
Location		Tributary Area (ft²)	
		< 10	50 100 > 500
Walls	Within 16.5 ft of building corner	29	25 23 19
	All other areas	24	22 21 19
Roof	Within 16.5 ft of building corner	60	37 26 26
	Within 16.5 ft of building edge	40	30 26 26
	All other areas	24	23 22 22

- 1.6. Foundation:
A. Subsurface Conditions:
Soils report and log of borings was obtained by the Owner for the Engineer's use in the design of the foundation, and is not a part of the Contract Documents. This report and log of borings is available for the Contractor's information, but is not a warranty of the subsurface conditions. The Contractor may use the report at his own risk.
B. Soils Report by Geo Strata, dated October 25, 2013.
C. Soil Bearing Pressure:1,700 psf, on Compacted Fill, or 3,000 psf to 4,000psf on Rammed Aggregate Piers
D. Lateral Soil Pressure Fluid Equivalent Density:
1. Active:35 pcf (retaining walls)
2. At Rest:55 pcf (rigid foundation walls)
3. Passive:300 pcf
4. Increase for Seismic:20 pcf
E. Coefficient of Friction:0.35

- 1.7. Classification for Fire Rated Construction:
A. For the purpose of determining fire-resistive assemblies, precast concrete roof framing members shall be considered restrained

2. Earthwork

- 2.1. Clearing: The entire building area shall be scraped to remove the top 4 inches of soil, including all vegetation and debris.
- 2.2. Stabilize all soft or pumping soils encountered during excavation and during proffrolling. Use methods outlined in the Geotechnical Report for soil stabilization.
- 2.3. Proof rolling: The natural undisturbed soil below all footings shall be proof rolled prior to placing concrete. Remove all soft spots and replace with compacted structural fill.
- 2.4. Compacted structural fill: All fill material shall be a well-graded granular material with a maximum size less than 4 inches, a maximum of 50 percent passing a No. 4 sieve, and with not more than 25 percent passing a No. 200 sieve. It shall be compacted to 95 percent of the maximum laboratory density as determined by ASTM D1557. All fill shall be tested (See Specifications and the Quality Assurance section of the GSN).

3. Concrete

- 3.1. Materials shall comply with the Standards specified in American Concrete Institute (ACI) 318-08, "Building Code Requirements for Structural Concrete."
- A. Concrete mix design requirements shall be as follows:
- | Location | Fc at 28 days (psi) | Max W/C Ratio | Air Content (%) | Max Aggregate Size (in) | Exposure Classes* |
|------------------------------|---------------------|---------------|-----------------|-------------------------|-------------------|
| Footings | 3000 | 0.45 | 4.5 | 1" | F1 S0 C1 |
| Interior Slabs on Grade | 3000 | 0.45 | - | 1" | F0 S0 C0 |
| Exterior Walls | 4500 | 0.45 | 5 | 3/4" | F1 S0 C1 |
| Walls | 4000 | 0.45 | - | 3/4" | F0 S0 C0 |
| Precast Wall Panels | 5000 | 0.45 | 5 | 3/4" | F1 S0 C1 |
| All other site cast concrete | 4500 | 0.45 | 4.5 | 1" | F1 S0 C1 |
- * Exposure Classes are per ACI 318, Section 4.2.1, where F, S and C are exposure categories for freezing and thawing, sulfate, and corrosion protection of reinforcement, respectively.
- B. Cementitious Materials:
1. Portland Cement (ASTM C150):
a. Type I or II for exposure class S0.
b. Type II or V for exposure class S1.
c. Type V for exposure class S2 and S3.
2. Fly Ash (ASTM C618, Class C or F): maximum fly ash content as a percentage of total weight of cementitious materials shall be 25 percent.
- C. Concrete Density (Maximum Air Dry Weight):
1. Normal weight concrete shall be approximately 145 to 155 pounds per cubic foot. Aggregate shall be ASTM C33.
2. Reinforcement steel:
1. ASTM A615 Grade 60, fy = 60,000 psi min, unless noted otherwise.
2. Reinforcement at shear wall jambs shall be ASTM A706 or ASTM A615 Grade 60, with the following properties:
a. Actual yield strength based on mill tests shall not exceed 78,000 psi.
b. Relet shall not exceed 81,000 psi.

- c. Ratio of actual ultimate tensile stress to actual yield strength shall not be less than 1.25.
d. Mill tests shall be submitted to the Engineer.
- E. Admixtures:
1. Air-entraining admixtures, comply with ASTM C 260 (when used).
a. Tolerance on air content as delivered shall be +/- 1.5%.
b. When air content of a trowel finished floor slab exceeds 3%, there is an increased risk for delaminations and blistering to occur. When this situation is present, the contractor shall pay special attention to the finishing procedures to help minimize such risks. Refer to ACI 302.1R-96 "Guide for Concrete Floor and Slab Construction" for proper finishing guidelines.
2. The use of super plasticizers and water reducers is allowed, but not required.
3. Calcium chloride or admixtures containing calcium chloride shall not be added to the concrete mix.
F. Chloride Ion: Maximum water soluble chloride ion concentrations in hardened concrete at age between 28 and 42 days contributed from the ingredients including water, aggregates, cementitious materials, and admixtures shall not exceed a maximum, by weight of cement, of 1.00% for concrete with exposure class C0, 0.30% for concrete with exposure class C1, 0.15% for concrete with exposure class C2, and 0.06% for all prestressed concrete.
G. Slump Limit: 4 inches maximum for all concrete prior to the addition of plasticizers and water reducing admixtures. The concrete supplier shall indicate the final slump of each concrete mix in the submitted mix design.
H. Shrinkage Limit: Interior slabs on grade shall have a drying shrinkage limit of 0.040 percent tested in accordance with ASTM C157. Drying shrinkage test results shall be submitted with mix designs.
I. Only one grade or type of concrete shall be poured on the site at any given time.
J. Plastic coated tie wires and chairs shall be used to support reinforcing bars, tie bars and tendons in reinforced concrete structures that will be exposed to moisture.

- 3.2. Formwork shall comply with ACI Standards Publication 347 and the project specifications. The contractor shall be responsible for the design, detailing, care, placement and removal of the formwork and shores.
A. Pre-camber forms and screeds with a camber of 1/4" per every 10'-0" of span to compensate for dead load deflection, unless noted otherwise. Post tensioned concrete slabs and beams do not require formwork to be pre-cambered.

- 3.3. Concrete cover requirements for deformed bar reinforcing steel shall comply with ACI 318, "Building Code Requirements for Structural Concrete"
- A. Cast-in-place Concrete: Specified Cover
1. Cast against and permanently exposed to earth:3"
2. Formed concrete exposed to earth or weather:2"
#6 thru #18 bars2"
#5 and smaller bars1.1/2"
3. Concrete not exposed to weather or in contact with ground:3/4"
Slabs, Walls, Joists: #11 bars and smaller3/4"
Beams, Columns: primary reinforcement, ties, stirrups, spirals1.1/2"
4. Concrete Tie-Up Panels:1"
#8 and smaller bars1"
#6 thru #18 bars2"
- B. Pre-cast Concrete (manufactured under plant controlled conditions):
1. Wall Panels: #11 bars and smaller3/4"
2. Other members: #6 thru #11 bars1.1/2"
3. Other members: #5 bars and smaller1.1/4"
C. Prestressed Concrete (Provide the following specified cover for prestressed and non-prestressed reinforcements, ducts, and end fittings):
1. Cast against and permanently exposed to earth3"
2. Formed concrete exposed to earth or weather:1"
Wall Panels, Slabs, Joists1.1/2"
Other members1.1/2"
3. Concrete not exposed to weather or in contact with ground:3/4"
Slabs, Walls, Joists3/4"
Beams, Columns: primary reinforcement1.1/2"
Beams, Columns, ties, stirrups, spirals1"

- 3.4. Construction Joints and Control Joints:
A. Provide a surface intentionally roughened to 1/2" amplitude in all wall footings. A continuous keyway shall not be used for concrete shear wall to footing connections, unless specifically indicated. Refer to project plans, schedules and details for the shear wall to footing connection requirements.
B. All horizontal and vertical construction joints shall have a surface intentionally roughened to 1/2" amplitude. A continuous 2 X 4 keyway may be used on elements other than shear walls.
C. Provide reinforcement dowels to match the member reinforcement across the joint, unless noted otherwise. For dowels across construction joints and wall to footing connections of concrete shear walls, refer to specific project plans, schedules, and details.
D. Slabs on grade shall have construction or control joints spaced not to exceed 30 times the slab thickness in any direction.
E. Control joints shall be installed in slabs on grade so the length to width ratio of the slab is no more than 1.25:1. Control joints shall be completed within 12 hours of concrete placement. See typical details for joint configuration.
F. Control joints shall be installed in suspended slabs over steel decking by saw-cutting along girders and purlins at interior grid lines.

- 3.5. Detailing: All reinforcing, including welded wire fabric, shall be detailed, bolstered & supported to comply with ACI 315, "Details and Detailing of Concrete Reinforcement" and the Concrete Reinforcing Steel Institute (CRSI) recommendations. Reinforcing bars shall not be welded unless specifically shown on drawings.
- A. Lap splice lengths shall be detailed to comply with the CONCRETE REINFORCING BAR DEVELOPMENT AND LAP SPLICE SCHEDULE
B. All mechanical splices shall have the capacity to develop at least 1.25fy of the bar in tension or compression. Type 2 couplers have the capacity to develop the full tension capacity of the bar. Type 1 couplers shall not be used in moment frames and shear wall jamb columns. Mechanical splices shall have a current ICC Code Evaluation Report, "Lenton" (ER-3607), "Taper-Lock" (ESR-2481) or "SAS Stressteel" (ESR-1163) tapered threaded rebar splices, "Bar-Lock" (ESR-2495) bolt coupling sleeves or approved equivalent may be used. Mechanical couplers on adjacent bars shall be staggered a minimum of 24" apart along the longitudinal axis of the reinforcing bars.
C. All embedded elements and dowels shall be securely tied to formwork or to adjacent reinforcing prior to the placement of concrete.
D. Use chairs or other support devices recommended by CRSI to support and tie reinforcement bars and welded wire fabric prior to placing concrete. Welded wire fabric shall be continuously supported at 36" o.c. maximum.
E. See typical details for reinforcing at wall intersections and ends, reinforcing around wall openings and suspended slab openings, vertical wall dowels, concrete column ties and splices in vertical column reinforcing.
F. Contractor shall coordinate placement of all openings, curbs, dowels, sleeves, conduits, bolts, inserts and other embedded items prior to concrete placement.
G. All reinforcement shall be bent cold, and shall be bent only once at the same location. All reinforcement shall be shop bent, unless otherwise permitted by the engineer.

Wall Thickness	Horizontal Reinforcing	Vertical Reinforcing
6"	#4 @ 13" o.c.	#4 @ 18" o.c.
8"	#5 @ 15" o.c.	#4 @ 16" o.c.
10"	#5 @ 12" o.c.	#4 @ 13" o.c.
12"	#4 @ 13" o.c. Each Face	#4 @ 18" o.c. Each Face
Others	0.25% of Wall Area	0.15% of Wall Area

Spacing shall exceed neither three times the wall thickness nor 18". In addition to the above reinforcing, 2 - #5 x continuous horizontal bars shall be placed at the bottom of the wall (near the footing) and at each floor level, at the roof level and at the top wall.

- 3.7. No aluminum conduit or product containing aluminum or any other material injurious to concrete shall be embedded in concrete.
- 3.8. Unless otherwise noted, all slabs on grade shall be 8" thick.
- 3.9. Prestressed (precast) concrete shall be designed to conform to the current editions and supplements of the IBC, ACI 318 and PCI design handbook.
A. The prestressed (precast) concrete supplier shall provide members designed for all loads as shown on the contract documents.
B. Bolts, angles, plate inserts and other embed items which are to be cast in the precast element shall be provided by the precast supplier.
C. Lifting inserts shall be located and placed by the supplier with additional reinforcing provided as required.
D. See mechanical and electrical drawings for sleeves and inserts required for those trades.
E. See architectural drawings for locations of prestressed (precast) elements, rib placements, finish conditions, and locations of feature strips.
F. The prestressed (precast) supplier shall submit calculations, by a registered professional engineer. Calculations shall bear the seal of a professional engineer licensed in the State of Utah and shall be submitted with the shop drawings for review. Calculations shall include (but not be limited to) the following items:
1. Design of the elements for flexural, compression, tension, and shear stress imposed by the loads as indicated on the structural drawings and by loads specified in the International Building Code. Thermal loads may be included.
2. Panel connections as required by the International Building Code.
3. When double tee wall panels are used in construction, the design of the panels is the responsibility of the manufacturer.
G. Field verify locations of connections and coordinate with the prime contractor all requirements for attachment of prestressed or precast elements.
H. Field verify dimensions.

4. Masonry

- 4.1. Materials, unless noted otherwise:
A. Concrete Masonry Units: ASTM C 90, Lightweight.
B. Material Strength. The Prism Test Method or the Unit Strength Method according to IBC Section 2105.2 may be used to determine the compressive strength of masonry assemblies. The contractor shall select the desired method and meet the required material strengths as follows:
1. Prism Test Method, IBC 2105.2.2.1:
a. Concrete Masonry Unit Assembly, fm = 1500 psi.
b. Hollow Clay Unit Assembly, fm = 2500 psi.
c. Solid Clay Unit Assembly, fm = 1500 psi.
2. Unit Strength Method, IBC 2105.2.2.2:
a. Concrete Masonry Units, minimum unit strength of 1900 psi average or better. (fm = 1500 psi)
b. Hollow Clay Units, minimum unit strength of 6600 psi average or better. (fm = 2500 psi)
c. Solid Clay Units, minimum unit strength of 3350 psi average or better. (fm = 1500 psi)
C. Mortar: Use Type "S" according to ASTM C270, proportion specification. Admixtures shall not be added to the mortar mix.
D. Grout: For masonry assemblies with fm = 2,000 psi or less conform to ASTM C476, proportion specification. Grout that does not meet the requirements of ASTM C476 proportion specification or that is used in masonry assemblies with fm > 2,000 psi shall meet the following requirements: Meet the material requirements of ASTM C476, obtain a minimum compressive strength of fm or 2,000 psi, whichever is larger, at 28 days tested according to ASTM C1019, and a slump of 8 in. to 11 in. as determined by ASTM C143.
E. Self Consolidating Grout: Conform to the material requirements of ASTM C476, obtain a minimum compressive strength of fm or 2,000 psi, whichever is larger, at 28 days tested according to ASTM C1019, obtain a slump flow of 24 in. to 30 in. as determined by ASTM C1511, and shall have a Visual Stability Index less than or equal to 1 as determined in accordance with ASTM C1611 Appendix X.1. Field addition of admixtures is not permitted.
F. Reinforcing: Grade 60 reinforcing steel shall comply with ASTM A615. Wire joint reinforcing shall comply with ASTM A951.
G. Deformed Bar Anchors (DBA): All DBAs shall comply with ASTM A496.
H. Anchor Bolts (AB): ASTM A307 with ASTM A563 heavy hex nuts and hardened washers, Grade A, unless noted otherwise.
I. Headed Stud Anchors (HSA): Manufacture all HSAs in conformance with ASTM A108 with dimensions complying with AISC specifications.

- 4.2. Construction Requirements:
A. Mortar Joints: Joints shall be "concave", "V-joint" or "weathered raked" for structural members unless noted otherwise on architectural drawings.
B. Masonry walls, beams and columns shall be constructed with running bond, unless noted otherwise.
C. Grouting Requirements: Comply with IBC Section 2104 and ACI 530.1/ASCE 6/TMS 602 Section 3.5. Grout shall be mechanically consolidated and mechanically reconsolidated according to TMS 602/ACI 530.1/ASCE 6 Section 3.5.E.
1. Grout Pour Heights that exceed 4 feet shall meet the following requirements:
a. Provide cleanouts in the bottom course of masonry for each grout pour in accordance with ACI 530.1/ASCE 6/TMS 602 Section 3.2.F.
b. For grout other than Self Consolidating Grout a demonstration panel representative of the proposed wall construction and construction procedures shall be provided and approved by the Architect. The demonstration panel may be a part of the completed construction as approved by the Architect.
c. For Self Consolidating Grout placed in masonry that has cured for at least 4 hours, place in lifts not exceeding the Maximum Grout Pour Height in listed in ACI 530.1/ASCE 6/TMS 602 Table 7.
2. When grouting, form grout keys between grout pours. Form grout keys between grout lifts when the first lift is permitted to set prior to placement of the subsequent lift.
a. Form a grout key by terminating the grout a minimum of 1.1/2 in. below a mortar joint.
b. Do not form grout keys within beams.
c. At beams or lintels laid with closed bottom units, terminate the grout pour at the bottom of the beam or lintel without forming a grout key.
D. Reinforcing Bars shall not be welded unless specifically shown on drawings. In such cases, use only AWS standards. Do not substitute reinforcing bars for DBAs or HSAs.
E. Control Joints: Spacing shall not exceed 40'-0" or 2.5 times the wall height, whichever is less. Joints shall not be located over masonry openings, and shall be a minimum of the schedule masonry column width away from masonry openings. See architectural drawings for locations.
F. Grout all beam and joint pockets solid after installation of beams and joists.

- 4.3. Detailing Requirements:
A. Standards: Reinforcing detailing shall comply with American Concrete Institute (ACI) Standard 315, "Details and Detailing of Concrete Reinforcement."
B. Reinforcement Protection (cover):
1. Joint reinforcement shall have not less than 5/8" mortar coverage from the exposed face.
2. Other reinforcement shall have a minimum coverage of one bar diameter over all the bars, but not less than 3/4". When masonry is exposed to soil, minimum coverage shall be 1.5".
C. Vertical steel reinforcement shall be placed and secured against displacement prior to grouting by wire positioners or other suitable devices, at intervals not exceeding 112 bar diameters, at the grout lift heights, or at bar splice locations, whichever is less. Vertical reinforcing shall be located at the center of the wall, unless noted otherwise.
D. Lap Splice Lengths: Lap all masonry reinforcing bars per the "Masonry Reinforcing Bar Lap Splice Schedule". Joint reinforcement shall lap a minimum of 6".
E. Corner Bars: Horizontal reinforcement shall be continuous at all corners and at intersecting walls. Provide corner bars with the required lap splice length.
F. Dowels: All vertical reinforcing shall be doweled to the foundation wall, footing (structure below) and to the structure above with the same size dowel, spacing (and in the same core) as the vertical wall reinforcing unless noted otherwise.

- G. Wall Openings 24" wide and wider: Provide reinforced masonry lintels per Masonry Lintel Schedule over the top of, and 2 - #5 bars, in grouted spaces, on all sides and adjacent to every unscheduled opening, unless noted otherwise. Bars for all openings shall extend a minimum of 48 bar diameters beyond the corners of the opening. Vertical bars shall extend from floor level below to the floor, or roof, level above. Where a 48 bar diameter extension is not possible, extend bars as far beyond the opening as possible and terminate them with a 90 degree standard ACI hook.
H. Horizontal wall reinforcing shall be continuous through joining concrete walls, masonry walls, columns, and pilasters. Provide a key between the wall and the column or pilaster. Horizontal wall reinforcing shall be placed inside the column vertical reinforcing.
I. Anchor bolts and headed stud anchors shall be set in a grouted cell. Anchor bolts and headed stud anchors shall have 1" grout surrounding the shank at its penetration. Grout shall be flush with the face or top of the masonry.
J. All masonry column ties shall terminate with 135 degree hooks plus a 6 bar diameter extension (4" minimum)
K. The exposed face of all embed plates shall be set flush with the face of masonry wall or column.
- 4.4. Minimum Reinforcing:
All masonry walls shall be reinforced as follows, unless shown otherwise on the drawings. Reinforcing shall be placed in grouted cells.
- | Wall Thickness | Horizontal Reinf. | Vertical Reinf. |
|----------------|-------------------|-----------------|
| 6" | #4 @ 48" o.c. | #5 @ 32" o.c. |
| 8" | #5 @ 48" o.c. | #5 @ 32" o.c. |
| 10" | #6 @ 48" o.c. | #5 @ 32" o.c. |
| 12" | 2 - #5 @ 48" o.c. | #5 @ 32" o.c. |

5. Structural Steel

- 5.1. Material:
A. All Shapes and Plates: ASTM A36 (Fy = 36 ksi), except as noted otherwise.
B. Deformed Bar Anchors (DBA): ASTM A496.
C. Headed Stud Anchors (HSA): ASTM A108, with dimensions complying with AISC specifications.
- 5.2. Fabrication and construction shall comply with the following Codes and Standards:
A. American Institute of Steel Construction (AISC) 360-10, "Specification for Structural Steel Buildings".
B. AISC 341-10, "Seismic Provisions for Structural Steel Buildings".
C. AISC 303-10, "Code of Standard Practice for Steel Buildings and Bridges" excluding the following: Section 3.3 (last sentence of first paragraph), Section 4.4, Section 4.4.1, Section 4.4.2, Section 4.5, and Section 7.13.3.
1. The architectural drawings are the prime contract drawings. Consultants' drawings by other disciplines are supplementary to the architectural drawings. The structural drawings shall be used in conjunction with the architectural drawings. Detailing and shop drawing production for structural elements will require information (including dimensions) contained in architectural, structural, and/or other consultants' drawings. Refer to the Special Instructions section of the general notes, below.
D. American Welding Society (AWS) D1.1:2010, "Structural Welding Code - Steel" (specific items do not apply when they conflict with the AISC requirements).
E. American Welding Society (AWS) D1.6:2008, "Structural Welding Code - Seismic Supplement" (specific items do not apply when they conflict with the AISC requirements).
- 5.3. Structural shapes and plates shall be fabricated from newly rolled (milled) one-piece sections without splices, unless specifically noted otherwise on the structural drawings. Connections for structural steel shall comply with the structural drawings, unless written approval is given by the structural engineer.
- 5.4. Welding:
A. It is recommended the steel erection contractor and steel fabricator contact the Quality Assurance Agency prior to beginning any welds. A program of joint preparation and welding procedures should be worked out between the two parties before the welding is started so that correct welds will be made from the beginning.
B. Certification of Welders: All shop and field welding shall be executed by AWS certified welders who have been specifically certified for the process of welding being performed. The welder's certification will be considered as being current unless the welder is not engaged in the process of welding being performed for a period exceeding six months or there is a specific reason to question a welder's ability as required by AWS. Certification and records must comply with AWS Standards. Certification and appropriate records must be provided to the architect prior to beginning work.
C. Electrodes: E-70 XX or as noted otherwise. E60 XX may be used for welding steel floor and roof decks.
D. Minimum Welds: All intersecting steel shapes that are not bolted shall be connected by a fillet weld all around, unless noted otherwise. Fillet weld sizes that are not shown shall be 1/16" less than the thinnest of the connected parts for thicknesses 1/4" and larger. Fillet welds on plates less than 1/4" shall be of the same size as the thinnest of the connected parts.
E. Reinforcing Bars: Do not weld rebar except as specifically detailed in the drawings. In such cases, use only AWS standards. Do not substitute reinforcing bars for deformed bar anchors (DBAs), machine bolts, or headed stud anchors (HSAs).
F. Bolts: Do not apply any welds, including "lack" welds to bolts, including anchor bolts, except as specifically detailed in the drawings.
G. Headed Stud Anchor (HSA) welding and Deformed Bar Anchor (DBA) welding shall conform to the manufacturer's specifications. Welding shall comply with AWS D1.1 Section 7.6 through 7.8 and Annex IX.
H. Special Provisions for Welds in the SLRS (Seismic Load Resisting System): Welding methods, procedures and quality control shall comply with AISC 341, AWS D1.1, AWS D1.6 and the following:
1. Demand Critical Welds: The following CJP groove welds are demand critical and shall comply with the special requirements for Demand Critical Welds.
a. Welds designated as demand critical in the drawings.
2. Welding shall be performed in accordance with AISC 341 Appendix W and a welding procedure specification (WPS) as required in AWS D1.1. WPS variables shall be within the parameters established by the filler metal manufacturer. WPS for demand critical welds shall also comply with AWS D1.8 Section 6.1.
3. All welds except for demand critical welds shall be made with a filler metal that can produce welds that have a minimum Charpy V-notch toughness of 20 ft-lb at 0 degrees Fahrenheit, as determined by the appropriate AWS A5 classification test method or manufacturer certification.
4. Demand critical welds shall be made with a filler metal that can produce welds that have a minimum Charpy V-notch toughness of 20 ft-lb at -20 degrees Fahrenheit, as determined by the appropriate AWS A5 classification test method or manufacturer certification and 40 ft-lb at 70 degrees Fahrenheit as determined by AISC 341 Appendix X.
5. Quality requirements for weld access holes for all demand critical welds shall comply with AWS D1.8 Section 6.9.2. Weld access hole shape shall be per AWS D1.8 Figure 6.2.
6. Filler and weld metal shall comply with AWS D1.8 Section 6.3 in addition to the following:
a. Interpass temperatures shall comply with AISC 341 Appendix W5.1.
b. Filler metal diffusible hydrogen shall comply with AISC 341 Appendix W5.2.
7. Preheat, and interpass temperatures shall comply with AWS D1.1 Section 3.5, AWS D1.8 Section 6.5 and AISC 341 Appendix W6.4.
8. Additional welding provisions applicable to demand critical welds only are as follows:
a. Welding processes shall comply with AWS D1.8 Section 6.2.
b. Filler metal packaging and exposure limitations shall comply with AISC 341 Appendix W6.2 and W6.3 and AWS D1.8 Section 6.4.
9. Tack welds shall comply with AWS D1.1 Section 5.18 and AWS D1.8 Section 6.16. Tack welds attaching backing bars to the structural steel tabs at demand critical welds shall be placed where they are incorporated into a final weld.

STRUCTURAL DRAWING LIST

SHEET NO.	SHEET NAME
04-S001	GENERAL STRUCTURAL NOTES
04-S002	GENERAL STRUCTURAL NOTES
04-S101	FOOTING & FOUNDATION PLANS
04-S102	ROOF FRAMING PLANS
04-S501	TYPICAL FOOTING & FOUNDATION DETAILS
04-S502	TYPICAL FOOTING & FOUNDATION DETAILS
04-S511	ROOF FRAMING DETAILS
04-S601	STRUCTURAL SCHEDULES
04-S602	STRUCTURAL SCHEDULES

No. REVISION/SUBMISSION DATE
PROJECT No.: 3514

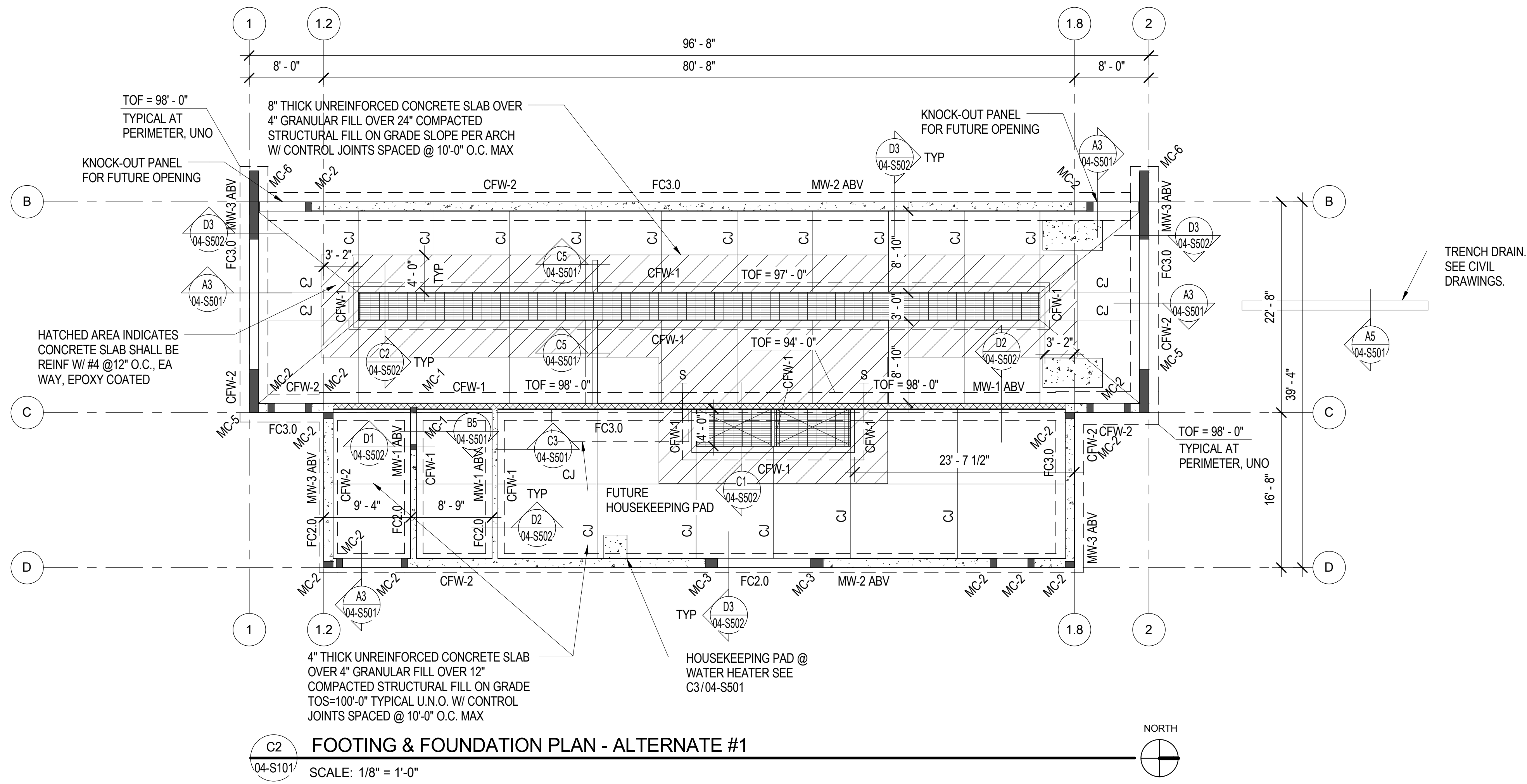
GENERAL STRUCTURAL NOTES

04-S001

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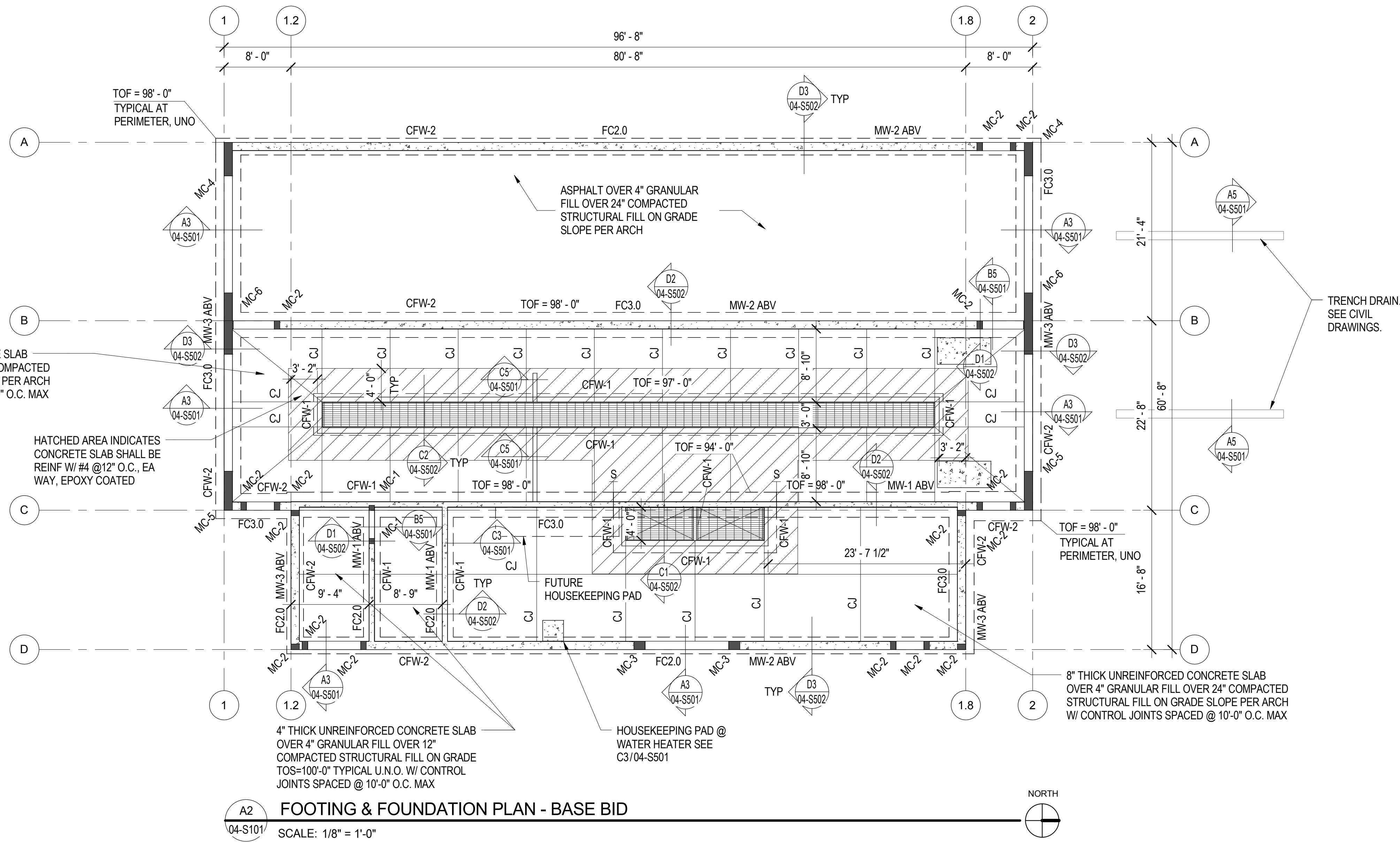
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18



FOOTING & FOUNDATION PLAN - ALTERNATE #1

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



FOOTING & FOUNDATION PLAN - BASE BID

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

FOOTING & FOUNDATION PLAN LEGEND

- FOOTING STEP
- FOOTING - CONTINUOUS
- FOOTING - THICKENED SLAB
- FOOTING - SQUARE FOOTING - RECTANGULAR FOOTING - MAT FOOTING
- CONCRETE WALL, CONCRETE FOUNDATION WALL, OR CONCRETE RETAINING WALL
- CONCRETE FOUNDATION WALL - RECESSED
- MASONRY WALL
- MASONRY WALL - RECESSED
- MASONRY COLUMN IN MASONRY WALL
- SLAB CONTROL/CONSTRUCTION JOINT
- SPECIAL SLAB AREA
- OPENING

FOOTING & FOUNDATION PLAN NOTES

- SEE ARCHITECTURAL, CIVIL AND LANDSCAPE DRAWINGS FOR EXTERIOR CONCRETE WORK AT DOORS, SIDEWALKS ETC.
- SEE ARCHITECTURAL DRAWINGS AND FINISH SCHEDULE FOR SLAB AREAS TO RECEIVE FLOOR TILE.
- SEE ARCHITECTURAL DRAWINGS FOR SLAB DEPRESSIONS AND SLOPES TO DRAINS, ETC.
- SEE ARCHITECTURAL, CIVIL AND LANDSCAPE DRAWINGS FOR ADDITIONAL EXTERIOR CONCRETE RETAINING AND / OR SITE WALLS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- SEE TYPICAL STEP DETAIL AT CONTINUOUS FOOTING AND TYPICAL STEP DETAIL AT MAT FOOTING FOR CHANGES IN FOOTING ELEVATIONS.
- SEE TYPICAL CONCRETE WALL REINFORCING DETAILS FOR REINFORCEMENT AT INTERSECTIONS CORNERS AND ENDS.
- SEE TYPICAL CONCRETE SLAB ON GRADE DETAILS FOR CONSTRUCTION JOINTS, CONTROL JOINTS AND ADDITIONAL SLAB REINFORCING.
- SEE TYPICAL CONCRETE SLAB ON GRADE PROFILE DETAIL FOR SUBGRADE REQUIREMENTS.
- PROVIDE COMPACTED STRUCTURAL FILL UNDER ALL CONCRETE FOOTINGS PER TYPICAL COMPACTED STRUCTURAL FILL DETAIL.
- SEE D4/04-S502 FOR REINFORCING LAYOUT FOR HI-R MASONRY.
- SEE D5/04-S502 FOR HI-R MASONRY CONTROL JOINT.
- SEE C4/04-S502 FOR HI-R MASONRY CORNER DETAIL.
- SEE MECHANICAL PLUMBING PLANS FOR PIPES IN PITS AND TRENCHES.

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FOOTING &
FOUNDATION PLANS

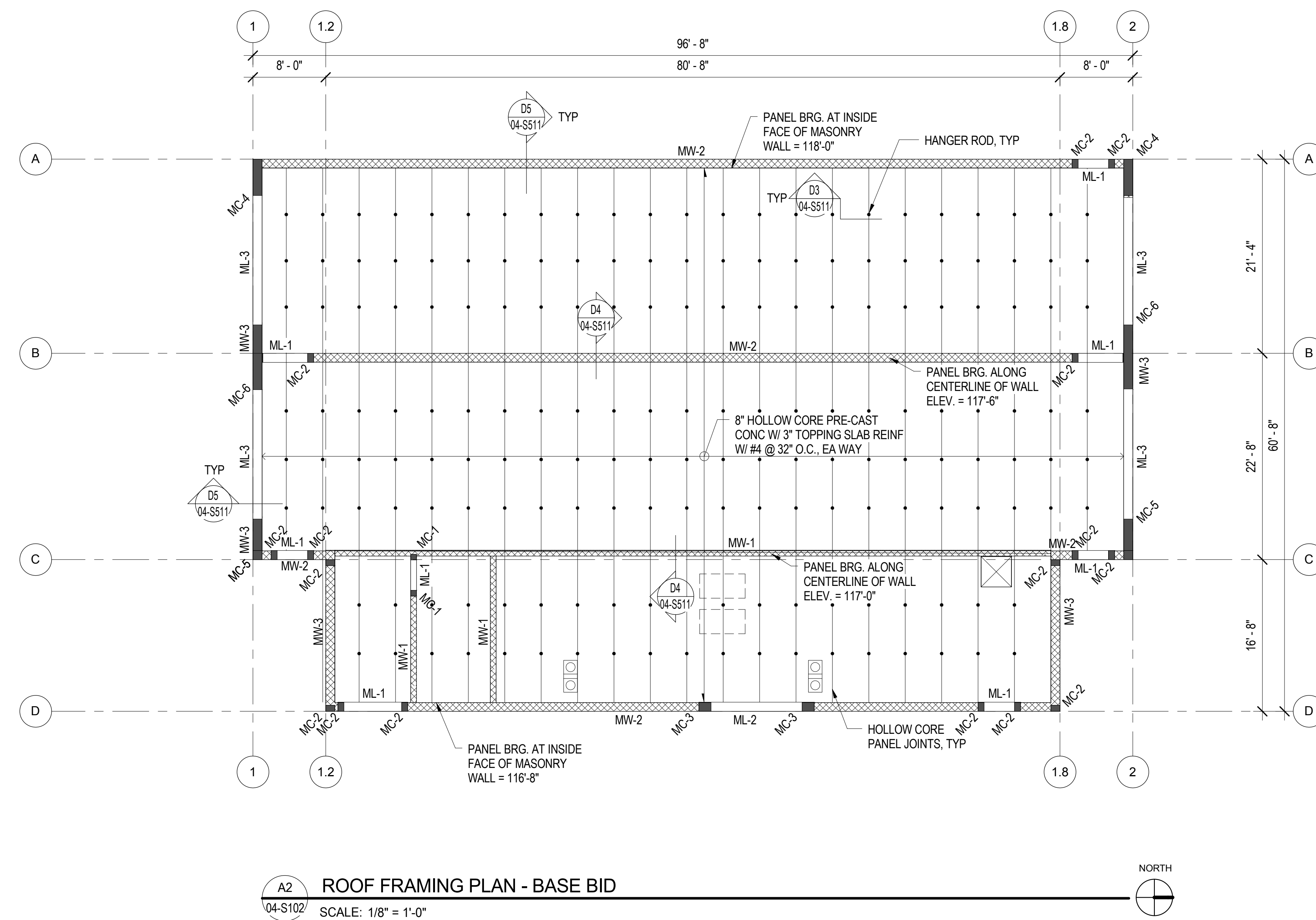
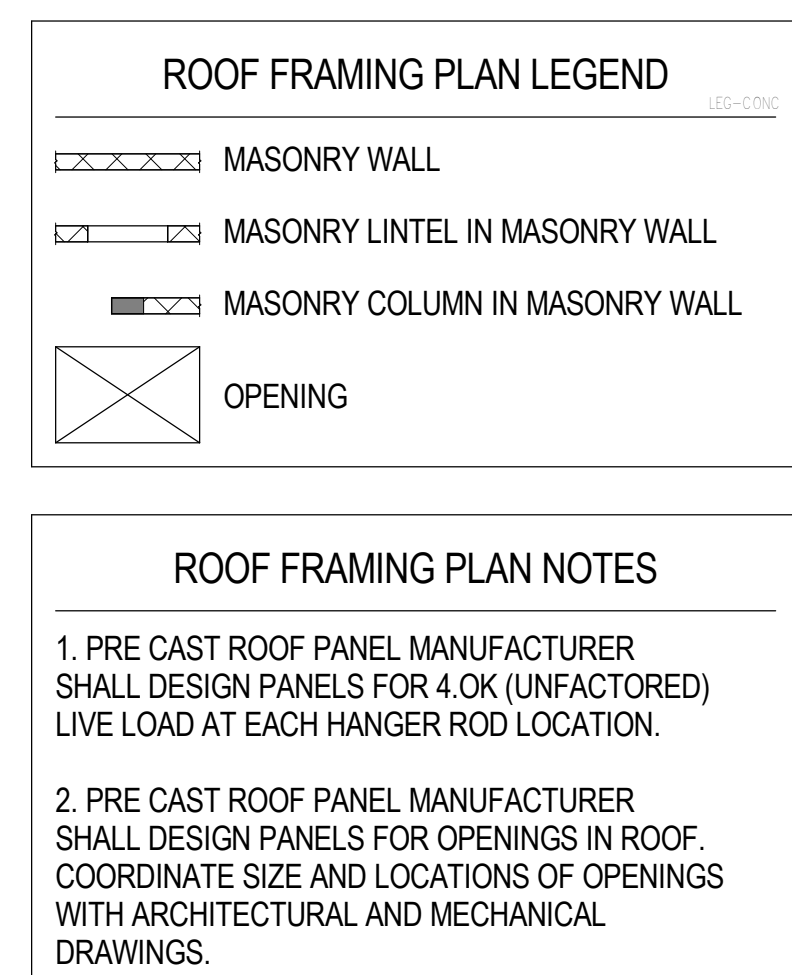
04-S101

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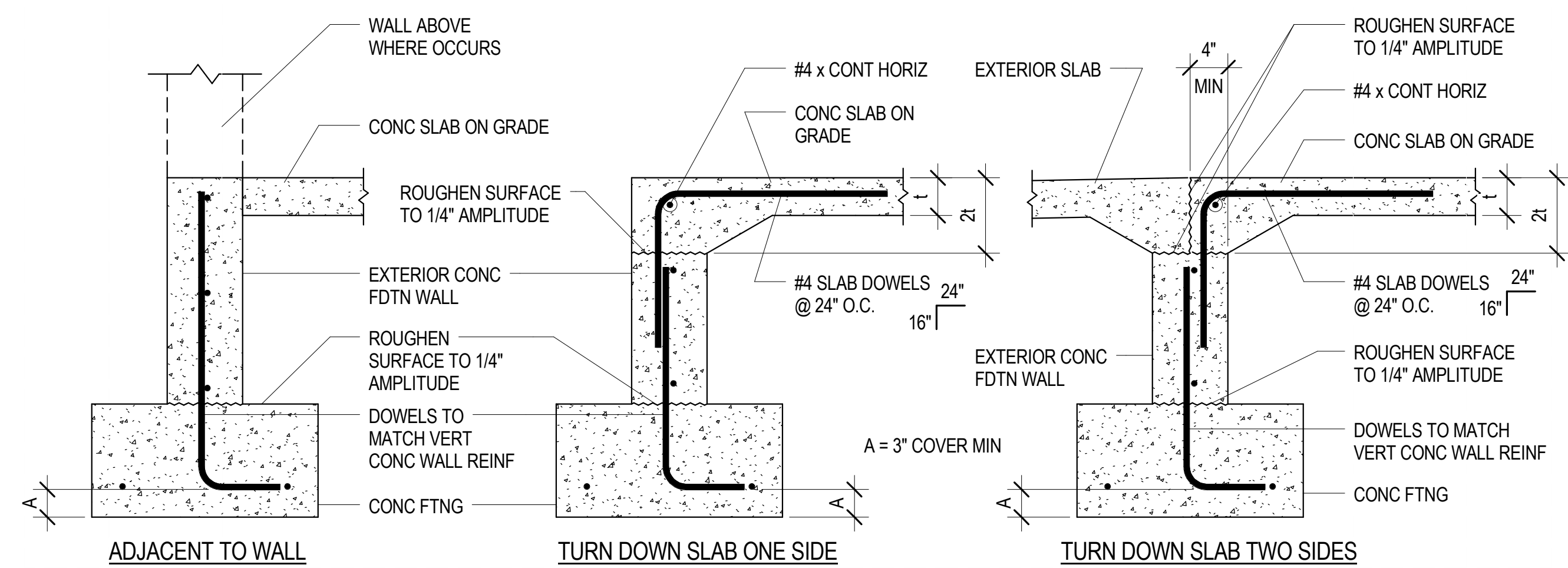
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**ROOF FRAMING
PLANS**

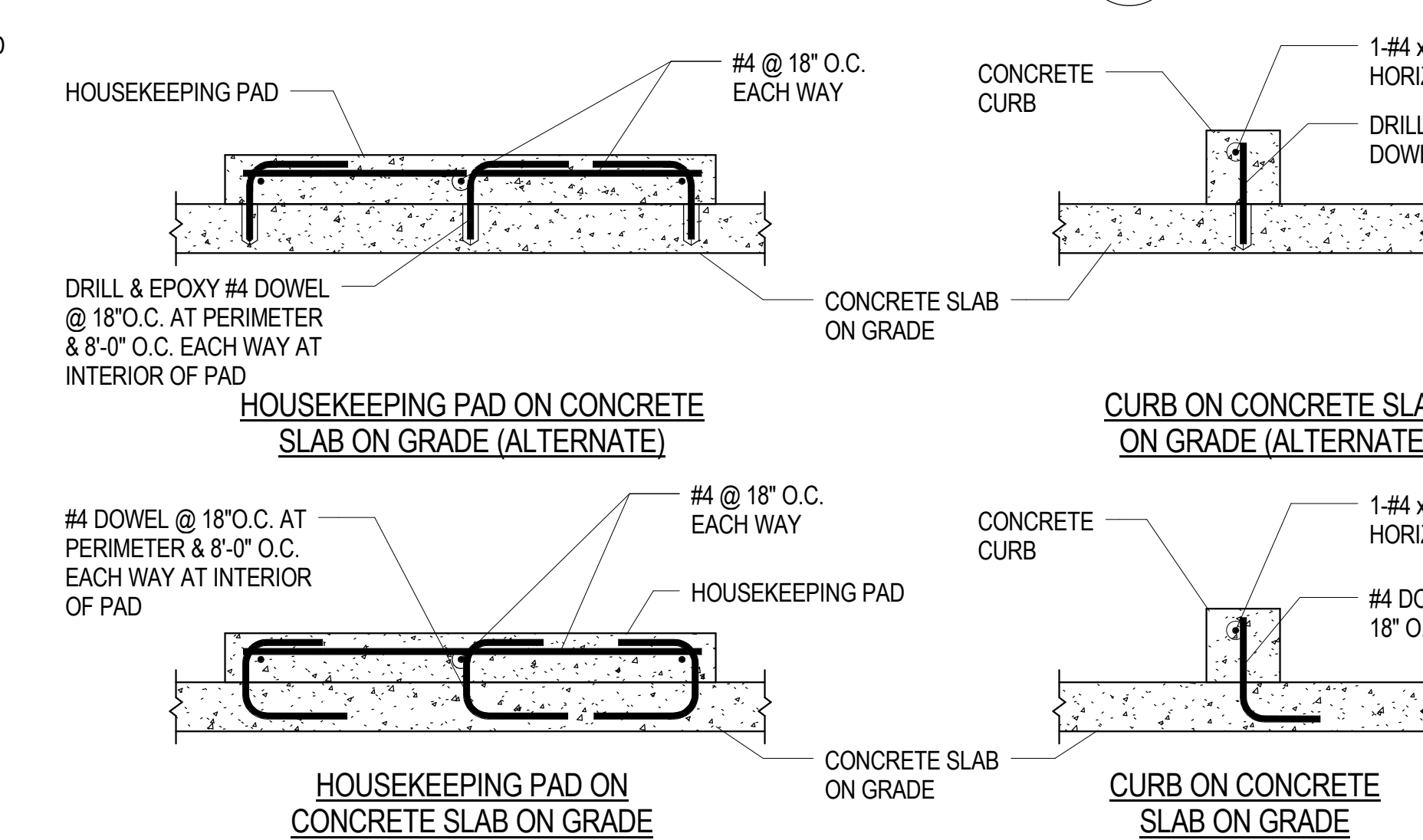
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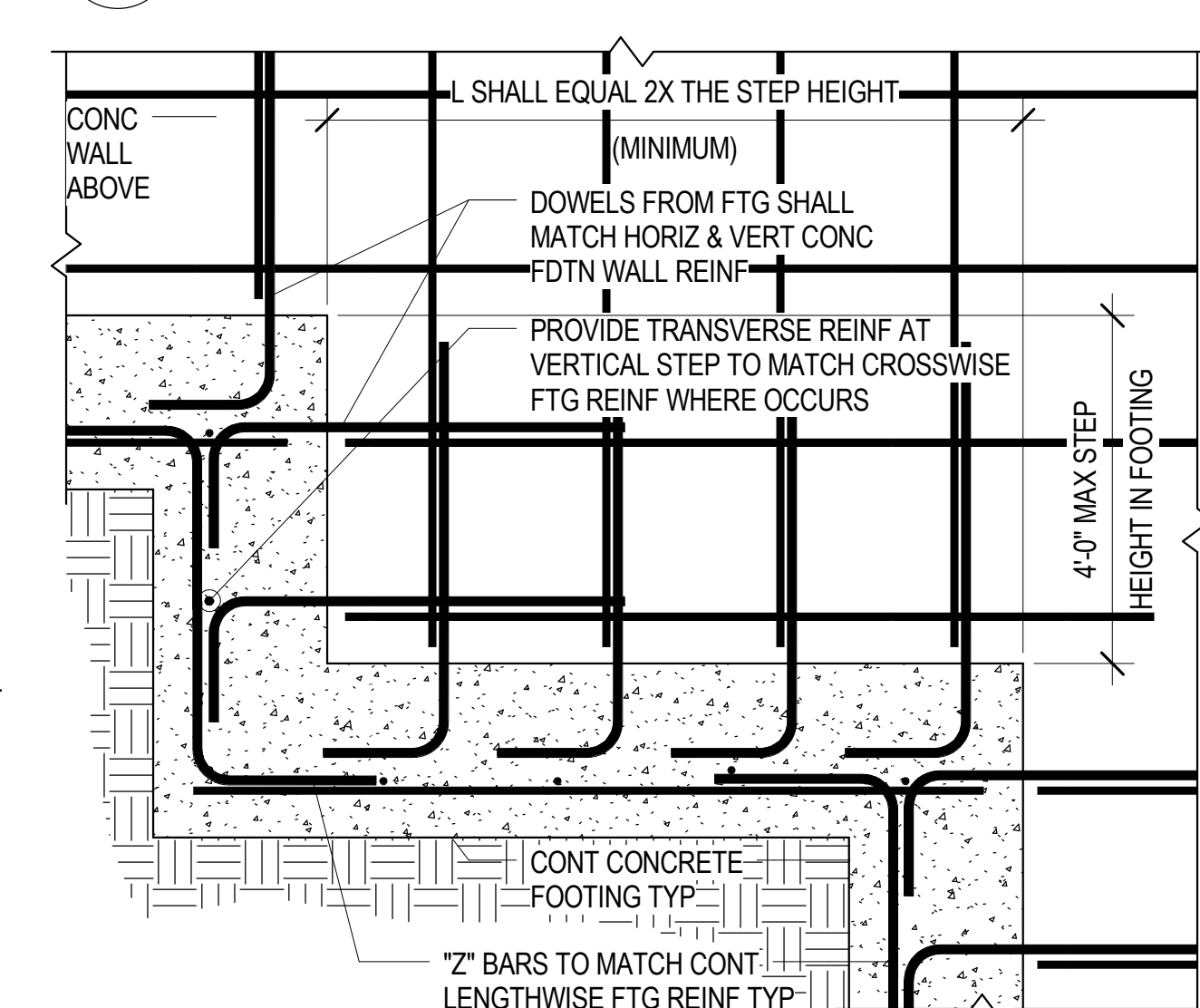
D4
04-S501

TYPICAL CONCRETE SLAB ON GRADE TO EXTERIOR
CONCRETE FOUNDATION WALL

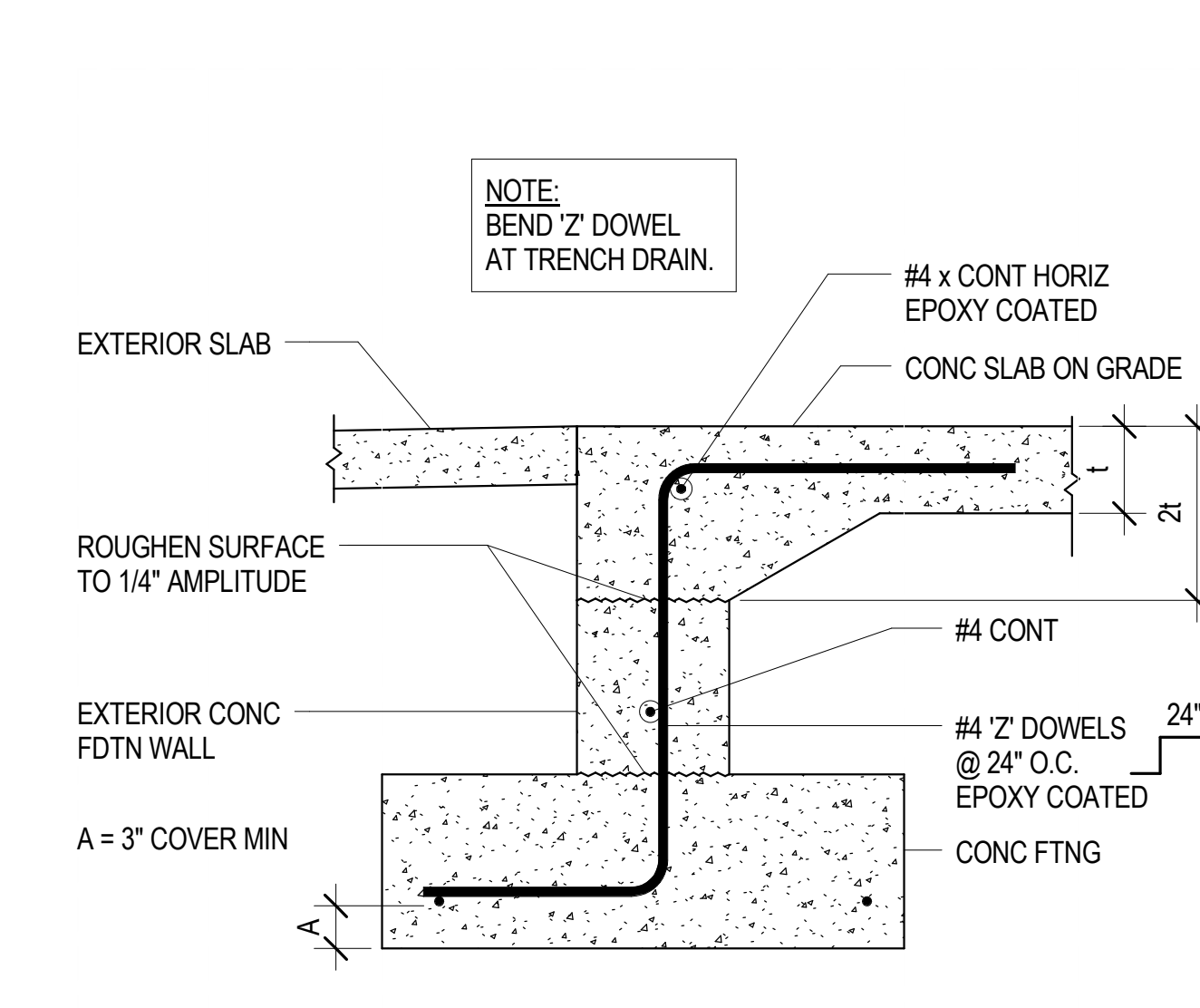
NO SCALE



C3 TYPICAL HOUSEKEEPING PAD & CURB DETAILS
04-S501 NO SCALE



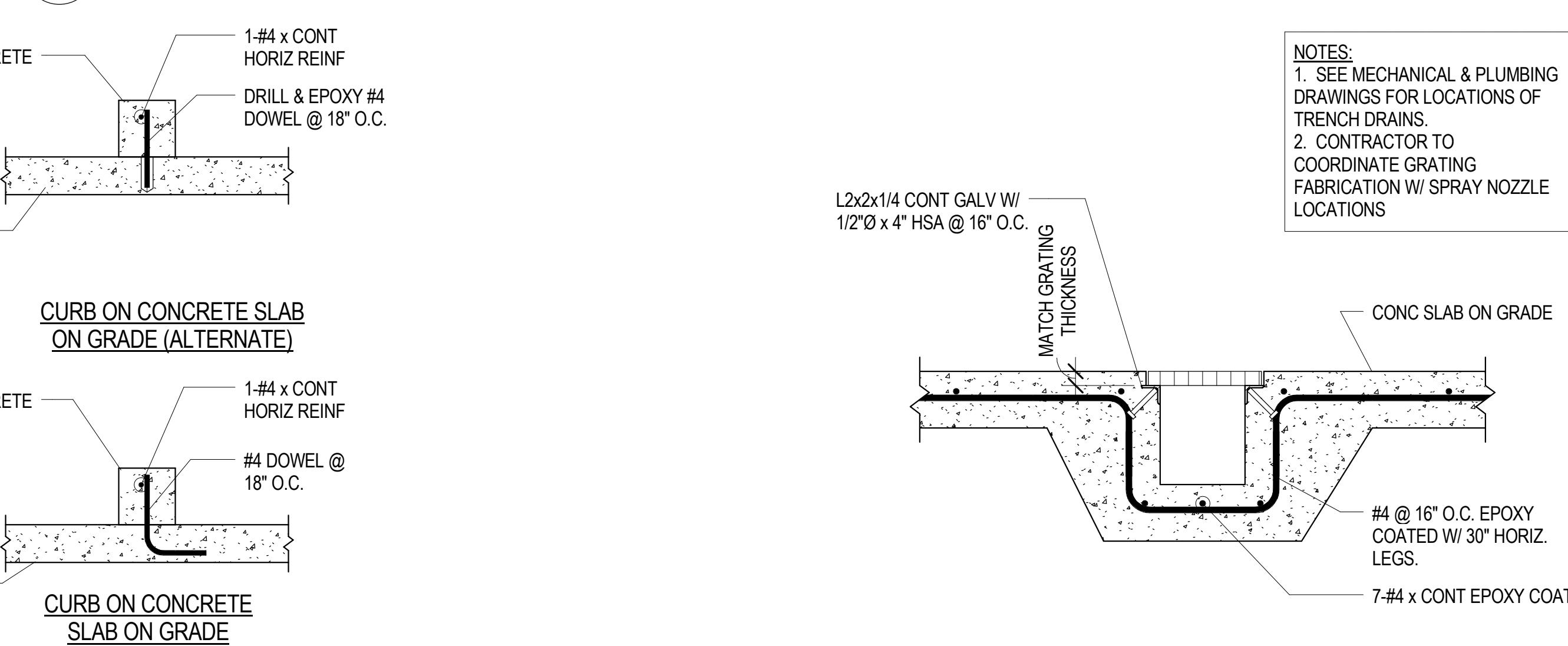
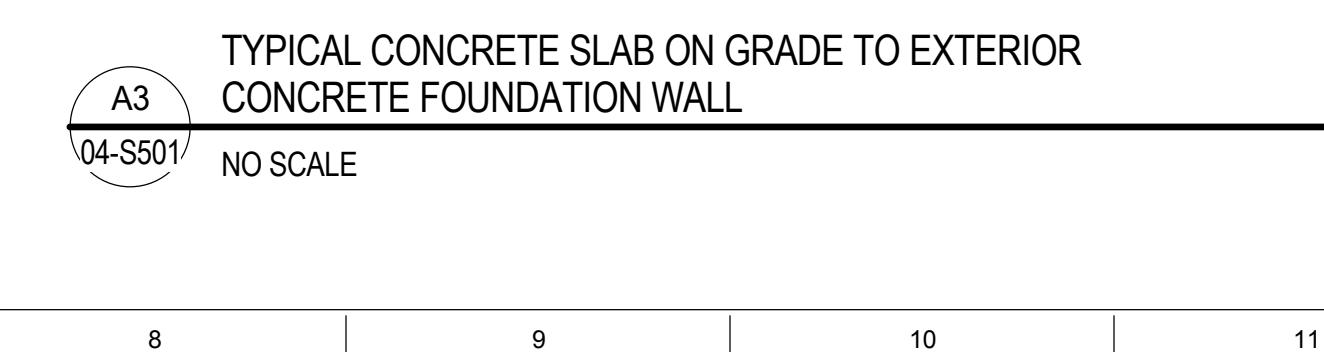
B2 TYPICAL RECESS IN 8" MASONRY WALL
04-S501 NO SCALE



Plan-Section Profile

A2 TYPICAL CONCRETE SLAB ON GRADE PROFILE

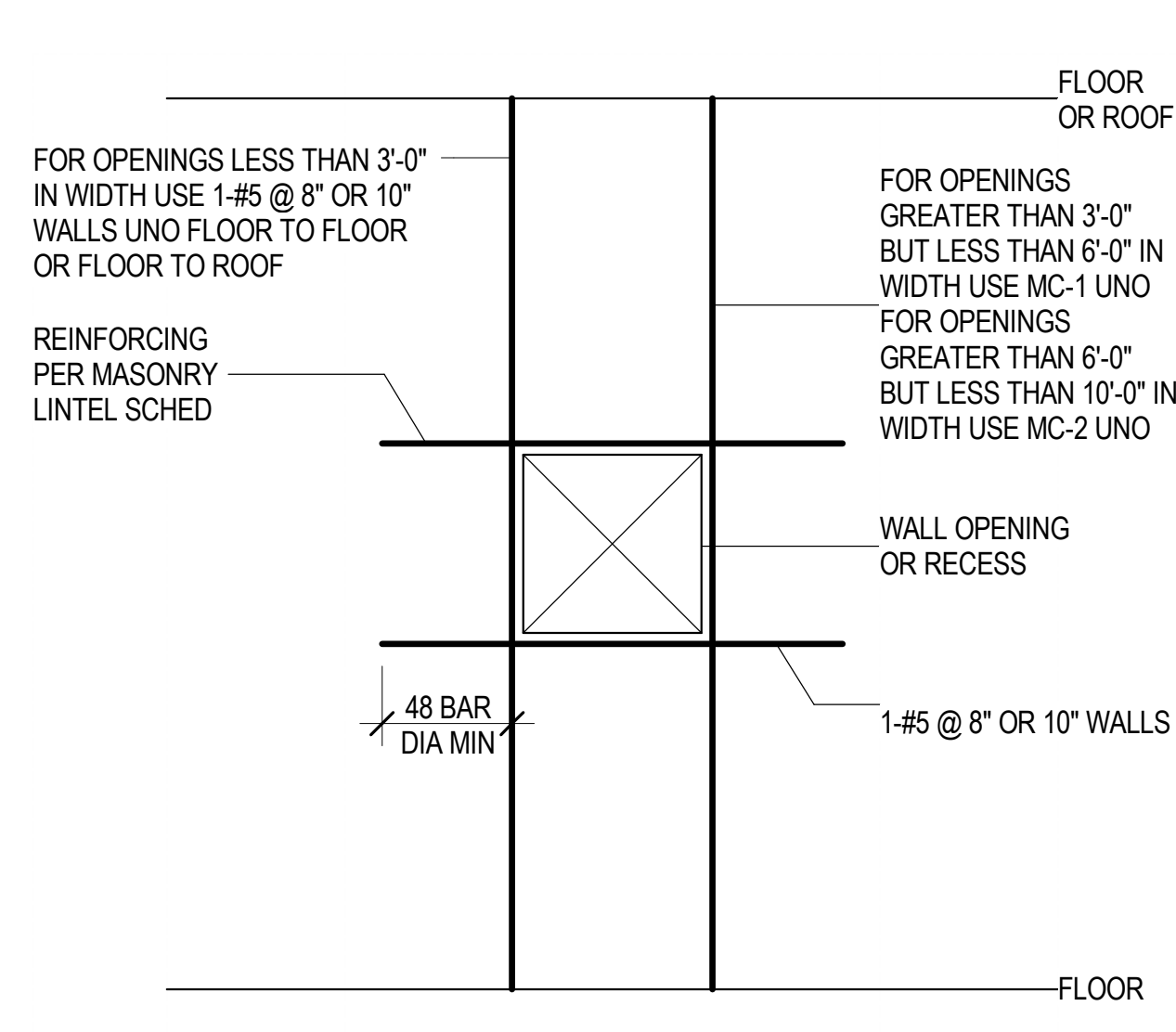
04-S501 NO SCALE



CS
04-S501

TRENCH DRAIN IN CONCRETE SLAB ON GRADE IN WASH
BAY

NO SCALE



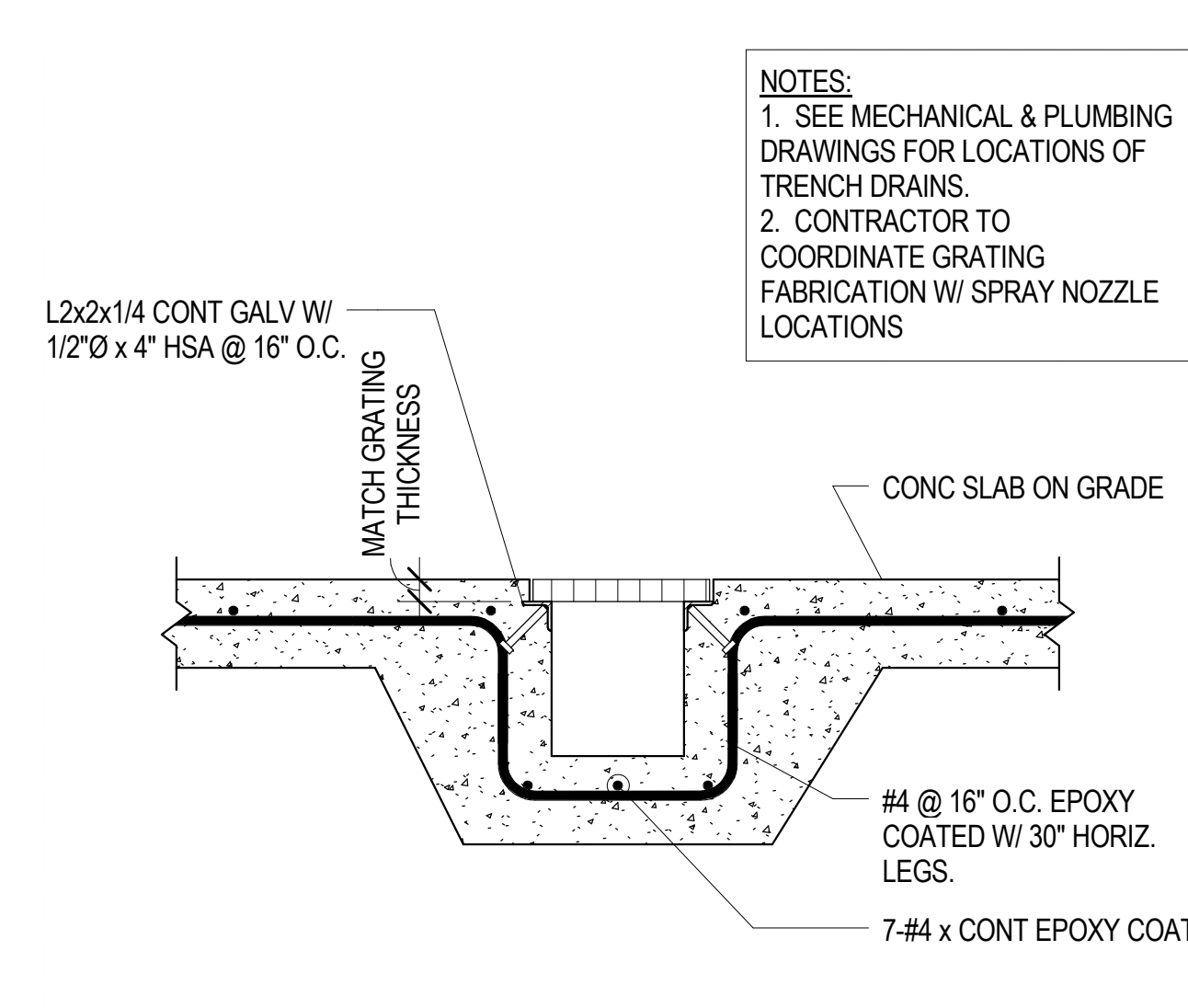
CF-TYP13

TYP REINF AROUND MISC OR RECESSED MASONRY
OPENINGS

B4

04-S501

NO SCALE



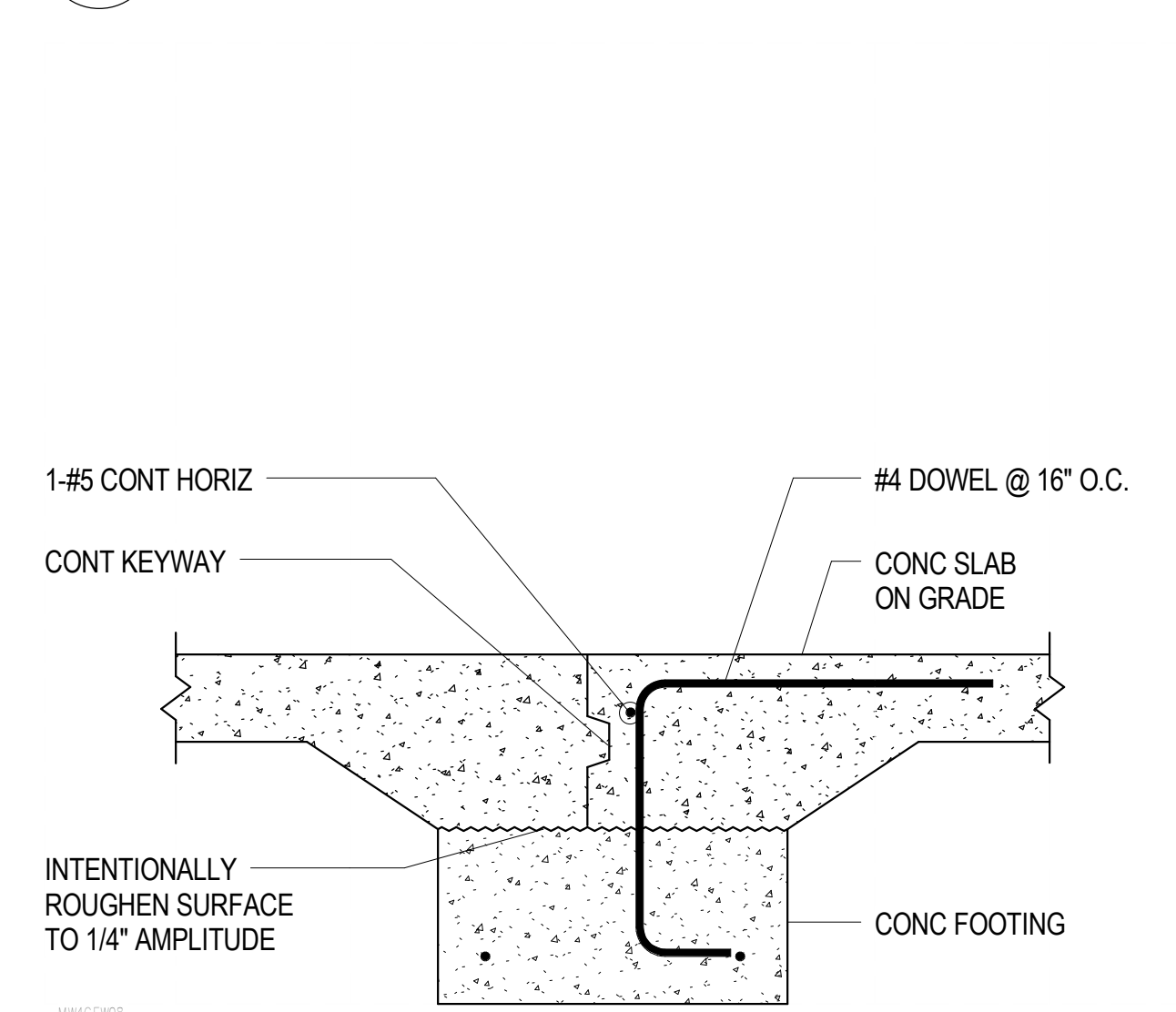
1-DRAIN

TRENCH DRAIN IN CONCRETE SLAB ON GRADE IN WASH
BAY

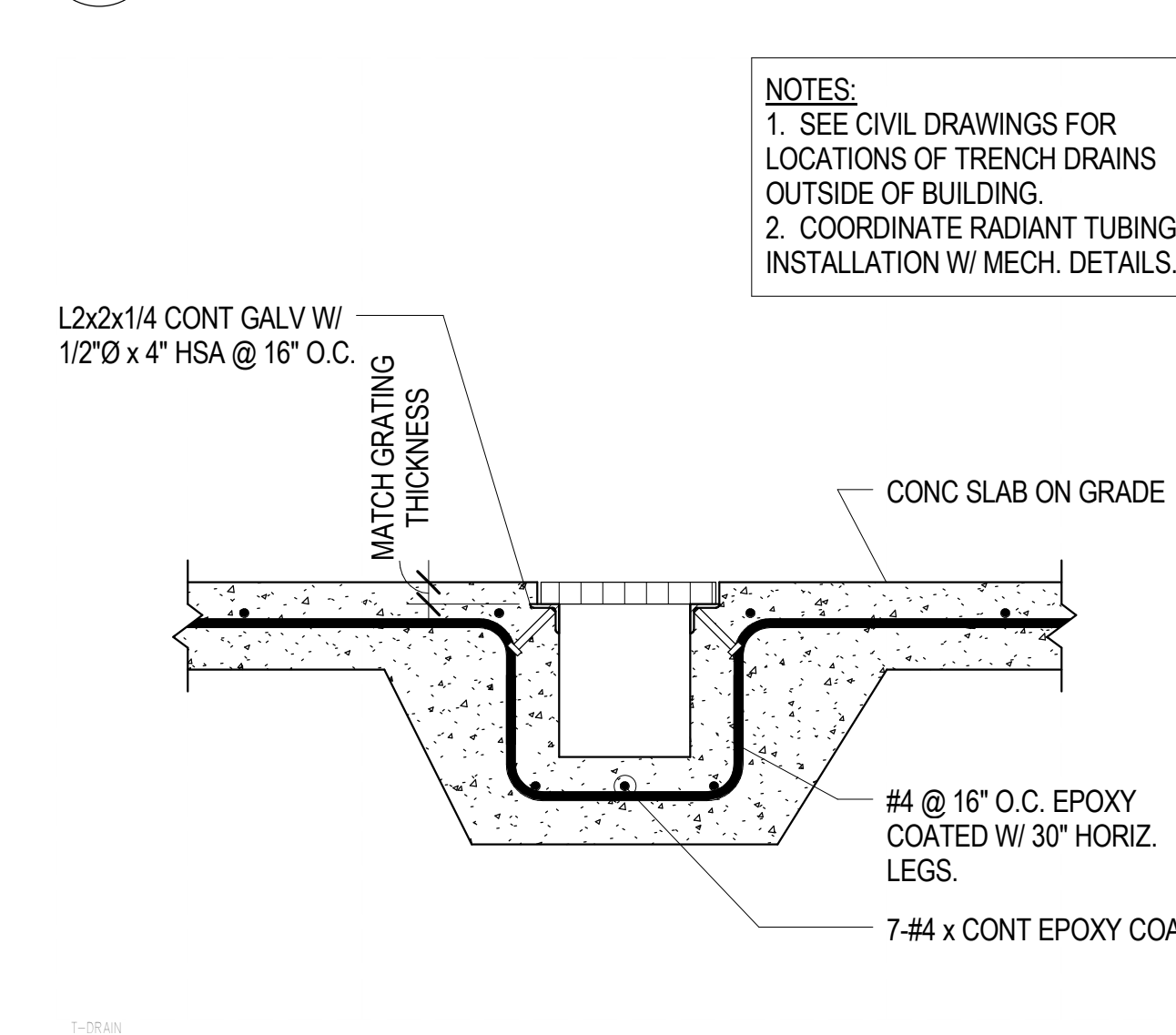
C5

04-S501

NO SCALE

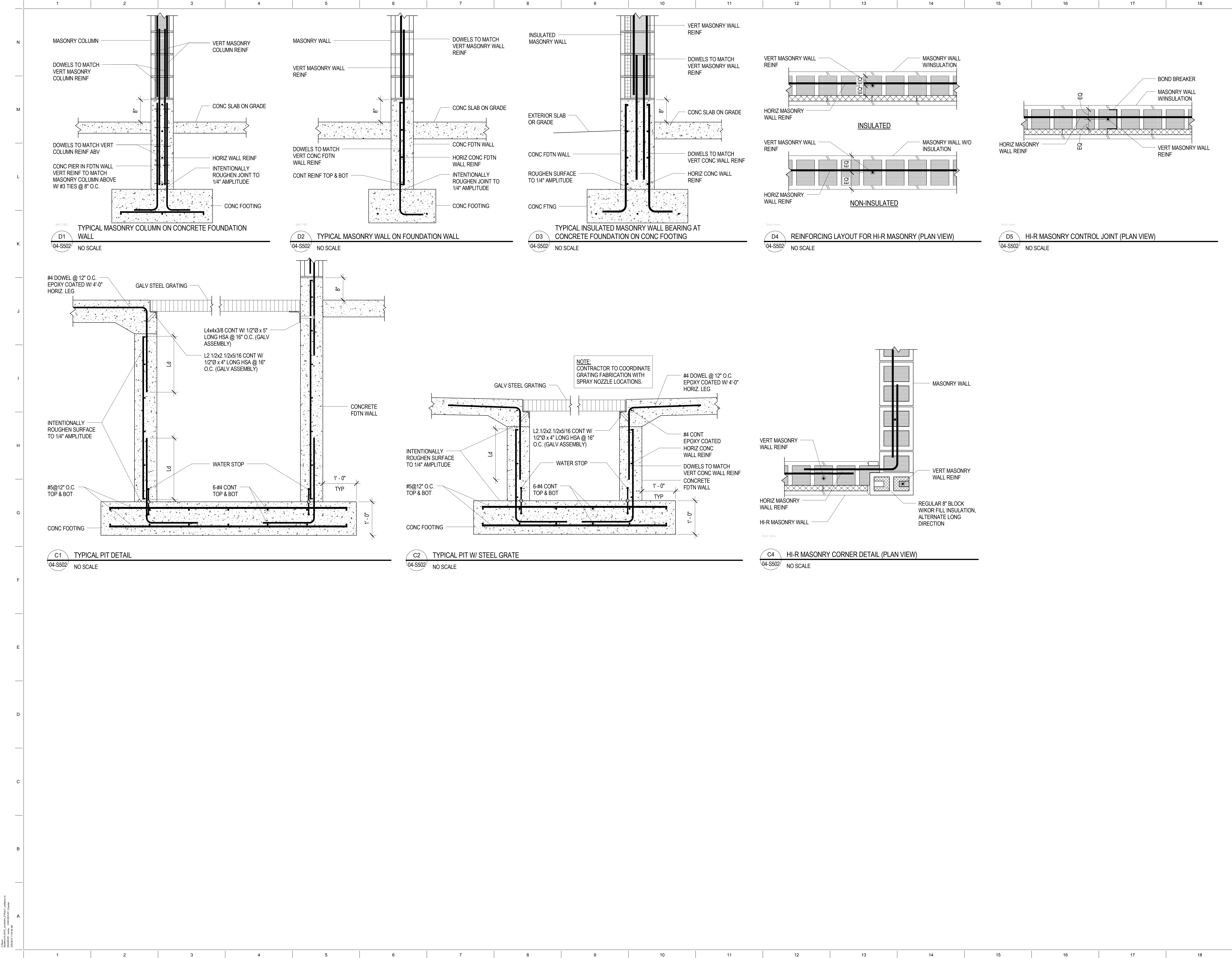


B5 TYPICAL DOOR OPENING AT INTERIOR
04-S501 NO SCALE



A5 TRENCH DRAIN IN CONCRETE SLAB ON GRADE OUTSIDE BUILDING
04-S501 NO SCALE





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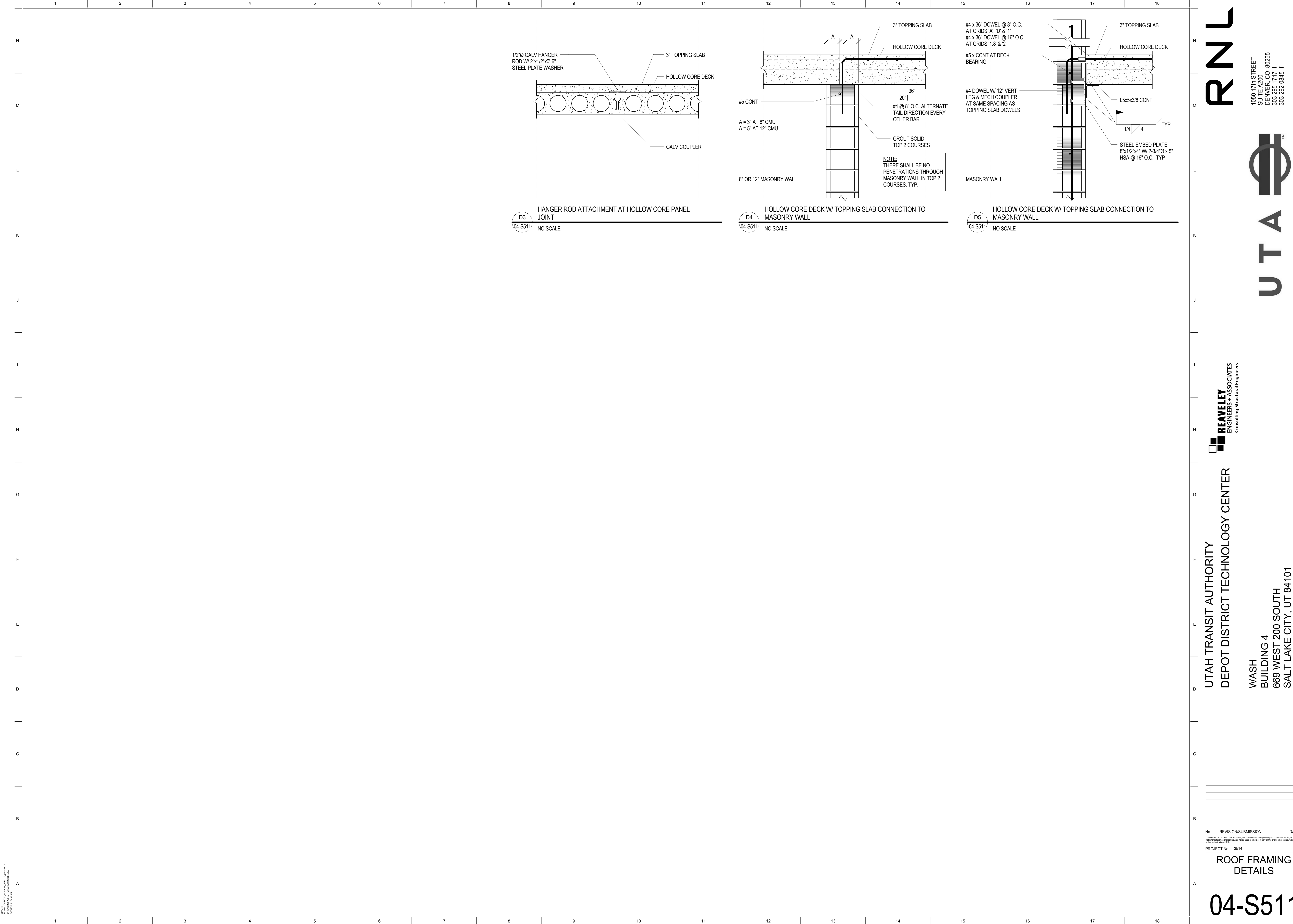
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TYPICAL FOOTING & FOUNDATION DETAILS

04-S502

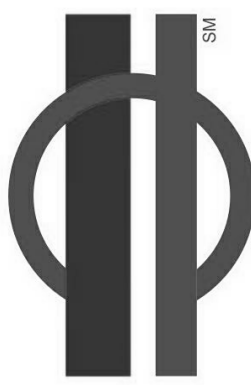
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ROOF FRAMING
DETAILS

04-S511

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CONCRETE FOUNDATION WALL SCHEDULE					
MARK	THICK	VERTICAL REINFORCING	HORIZONTAL REINFORCING	T & B HORIZ. BARS	PLACEMENT
CFW-1	8"	#4 @ 16" O.C.	#5 @ 15" O.C.	#5	TYPE A
CFW-2	1'-0"	#4 @ 18" O.C., E.F.	#4 @ 13" O.C., E.F.	2-#4	TYPE C

PLACEMENT TYPE

TYPE A

TYPE B

TYPE C

TYPE D

E.F. = EACH FACE
O.F. = OUTSIDE FACE (AGAINST SOIL)
I.F. = INSIDE FACE
3L = THREE LAYERS

CONCRETE FOOTING SCHEDULE												
MARK	WIDTH	LENGTH	THICK	CROSSWISE REINFORCING				LENGTHWISE REINFORCING				REMARKS
				NO.	SIZE	LENGTH	SPACE	NO.	SIZE	LENGTH	SPACE	
FC2.0	2' - 0"	CONT.	1' - 0"	--	NONE	REQ'D	--	3	#4	CONT	6"	
FC3.0	3' - 0"	CONT.	1' - 0"	--	#5	2'-6"	14"	3	#5	CONT	15"	
FC3.5	3' - 6"	CONT.	1' - 0"	--	#5	3'-0"	14"	3	#5	CONT	18"	

1. PLACE ALL FOOTING REINFORCING IN BOTTOM OF FOOTING WITH 3" CLEAR CONCRETE COVER UNLESS NOTED OTHERWISE.

2. TOP REINFORCING, WHERE SPECIFIED, SHALL BE PLACED IN THE TOP OF THE FOOTING WITH 2" CLEAR CONCRETE COVER.

3. SPOT FOOTINGS SHALL BE CENTERED UNDER COLUMNS AND CONTINUOUS FOOTINGS SHALL BE CENTERED UNDER WALLS, UNLESS NOTED OTHERWISE.

4. ALL FOOTINGS SHALL BE FORMED. FOOTINGS SHALL NOT BE EARTH FORMED OR OVERSIZED WITHOUT WRITTEN PERMISSION FROM THE STRUCTURAL ENGINEER.

CONCRETE REINFORCING BAR DEVELOPMENT AND LAP SPLICE LENGTH SCHEDULE																						
BAR SIZE	f _c = 3000 PSI				f _c = 4000 PSI				f _c = 4500 PSI				f _c = 5000 PSI				f _c = 6000 PSI				f _c = ALL	
	Ld	Lt	Lsb	Lsbt	Ld	Lt	Lsb	Lsbt	Ld	Lt	Lsb	Lsbt	Ld	Lt	Lsb	Lsbt	Ld	Lt	Lsb	Lsbt	Ldc	Lsc
#3	17"	22"	22"	28"	15"	19"	19"	25"	14"	18"	18"	23"	13"	17"	17"	22"	12"	16"	16"	20"	8"	12"
#4	22"	29"	29"	38"	19"	25"	25"	33"	18"	24"	24"	31"	17"	23"	23"	29"	16"	21"	21"	27"	10"	15"
#5	28"	36"	36"	47"	24"	31"	31"	41"	23"	30"	30"	38"	22"	28"	28"	36"	20"	26"	26"	33"	12"	19"
#6	33"	43"	43"	56"	29"	37"	37"	49"	27"	35"	35"	46"	26"	34"	34"	44"	24"	31"	31"	40"	15"	23"
#7	48"	63"	63"	81"	42"	54"	54"	71"	40"	51"	51"	67"	38"	49"	49"	63"	34"	45"	45"	58"	17"	27"
#8	55"	72"	72"	93"	48"	62"	62"	81"	45"	59"	59"	76"	43"	56"	56"	72"	39"	51"	51"	66"	19"	30"
#9	62"	81"	81"	105"	54"	70"	70"	91"	51"	66"	66"	86"	48"	63"	63"	81"	44"	57"	57"	74"	22"	34"
#10	70"	91"	91"	118"	61"	79"	79"	102"	57"	74"	74"	96"	54"	71"	71"	92"	50"	64"	64"	84"	24"	39"
#11	78"	101"	101"	131"	67"	87"	87"	114"	64"	82"	82"	107"	60"	78"	78"	102"	55"	71"	71"	93"	27"	43"
#14	93"	121"	NA	NA	81"	105"	NA	NA	76"	99"	NA	NA	72"	94"	NA	NA	66"	86"	NA	NA	33"	NA
#18	124"	161"	NA	NA	108"	140"	NA	NA	101"	132"	NA	NA	96"	125"	NA	NA	88"	114"	NA	NA	43"	NA

NOTES:

1. DEFINITIONS:

Ld: TENSION DEVELOPMENT LENGTH FOR REINFORCEMENT SATISFYING THE FOLLOWING CONDITIONS:
SLABS AND WALLS: CLEAR SPACING > 2db AND CONCRETE CLEAR COVER > db
BEAMS AND COLUMNS: CLEAR COVER SPACING > db AND CONCRETE CLEAR COVER > db

Lt: DEVELOPMENT LENGTH FOR TOP BARS IN TENSION

Lsb: TENSION LAP SPLICE LENGTH FOR OTHER THAN TOP BARS (CLASS B)

Lsbt: TENSION LAP SPLICE LENGTH OF TOP BARS

Ldc: DEVELOPMENT LENGTH FOR BARS IN COMPRESSION

Lsc: TIED COLUMN LAP SPLICE IN COMPRESSION

db: NOMINAL BAR DIAMETER (INCHES)

TOP BARS: HORIZONTAL REINFORCEMENT WITH MORE THAN 12 INCHES OF CONCRETE CAST BELOW

2. MULTIPLY VALUES IN SCHEDULE BY 1.5 IF CLEAR SPACING OR CONCRETE COVER DO NOT MEET REQUIREMENTS FOR Ld IN NOTE 1.

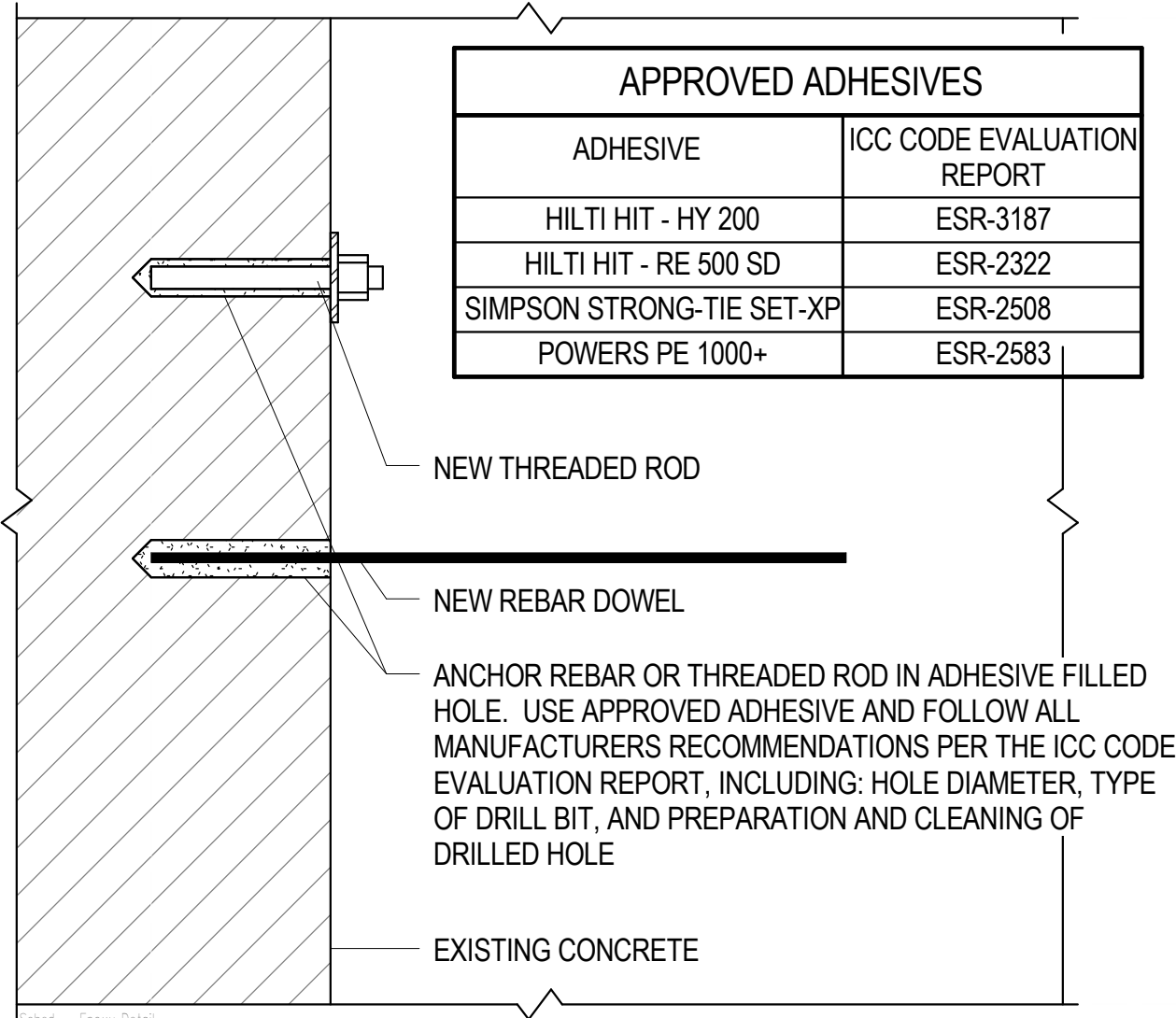
3. MULTIPLY VALUES IN SCHEDULE BY 1.3 FOR USE IN LIGHTWEIGHT AGGREGATE CONCRETE.

4. FOR EPOXY COATED BAR: MULTIPLY VALUES IN SCHEDULE BY 1.5 FOR BARS WITH CLEAR COVER < 3db OR CLEAR SPACING < 6db. OTHERWISE MULTIPLY VALUES BY 1.2.

5. a. FOR BUNDLED BARS OF THREE OR LESS MULTIPLY LENGTHS BY 1.2.
b. FOR BUNDLED BARS OF FOUR OR MORE MULTIPLY LENGTHS BY 1.33.
c. INDIVIDUAL BAR SPLICES WITHIN A BUNDLE SHALL NOT OVERLAP. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED.

6. SCHEDULE LENGTHS ARE FOR f_y=60ksi REINFORCING. MULTIPLY LENGTHS BY 1.25 FOR f_y=75ksi REINFORCING.

7. LAP SPLICES ARE NOT PERMITTED FOR #14 & #18 BARS. USE BAR COUPLERS PER G.S.N.



ADHESIVE ANCHORING TO CONCRETE SCHEDULE			
REINFORCING BAR		THREADED ROD	
DOWEL SIZE	EMBEDMENT LENGTH (SEE NOTE #2)	SIZE (DIA)	EMBEDMENT LENGTH (SEE NOTE #2)
#3	4"	3/8"	4 1/2"
#4	6"	1/2"	6"
#5	9"	5/8"	7 1/2"
#6	10"	3/4"	9"
#7	12"	7/8"	10 1/2"
#8	13"	1"	12"
#9	14"	1 1/4"	15"
#10	18"		
#11	18"		

NOTES:

1. THIS SCHEDULE SHALL BE USED ONLY WHERE SPECIFICALLY REFERENCED ON THE DRAWINGS AND AT OTHER LOCATIONS WITH APPROVAL OF THE ENGINEER.

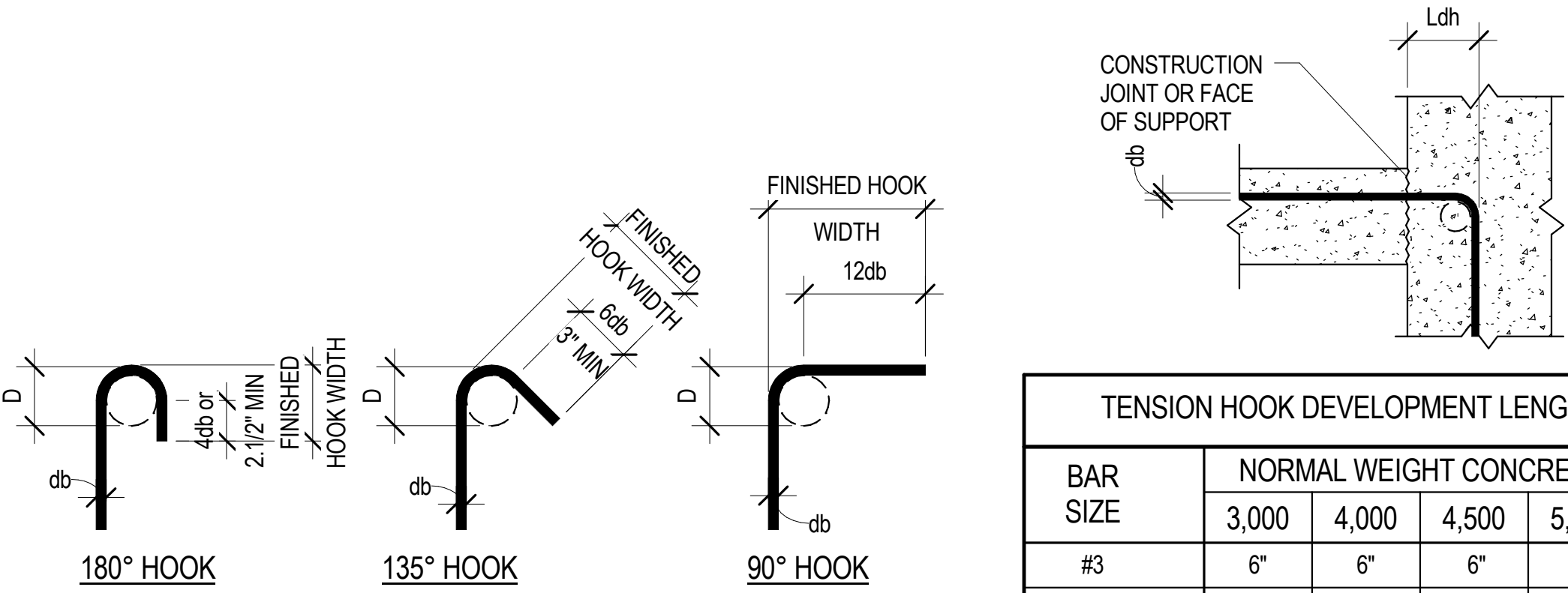
2. EMBEDMENT LENGTHS SPECIFIED ON PLANS OR DETAILS TAKE PRECEDENCE OVER EMBEDMENT LENGTHS IN THIS SCHEDULE.

3. WHERE THE THICKNESS OF THE EXISTING CONCRETE MEMBER IS NOT SUFFICIENT TO ACHIEVE SCHEDULED EMBEDMENT AND SPECIFIED CLEAR COVER FOR THE ANCHOR, CONTACT THE ENGINEER.

4. USE PROCEDURES AND PRODUCTS RECOMMENDED BY ADHESIVE MANUFACTURER FOR OVERHEAD INSTALLATION.

5. SPECIAL INSPECTION IS REQUIRED DURING INSTALLATION OF ALL ADHESIVE ANCHORS PER THE CODE EVALUATION REPORT FOR THE ANCHOR AND THE QUALITY ASSURANCE SECTION OF THE GENERAL STRUCTURAL NOTES.

A1 ADHESIVE ANCHORING SCHEDULE
04-S601/ NO SCALE



END HOOK SCHEDULE				
BAR SIZE	D	FINISHED HOOK WIDTH		
		180° HOOK	135° HOOK	90° HOOK
#3	2.1/4"	3"	3"	6"
#4	3"	4"	3"	8"
#5	3.1/4"	5"	3.3/4"	10"
#6	4.1/2"	6"	4.1/2"	12"
#7	5.1/4"	7"	5.1/4"	14"
#8	6"	8"	6"	16"
#9	9.1/2"	11.3/4"	--	19"
#10	10.3/4"	13.1/4"	--	22"
#11	12"	14.3/4"	--	24"
#14	18.1/4"	21.3/4"	--	31"
#18	24"	28.1/2"	--	41"

TENSION HOOK DEVELOPMENT LENGTH (Ldh)					
BAR SIZE	NORMAL WEIGHT CONCRETE, f _c = PSI				
	3,000	4,000	4,500	5,000	6,000
#3	6"	6"	6"	6"	6"
#4	8"	7"	7"	7"	7"
#5	10"	9"	8"	8"	7"
#6	12"	10"	10"	9"	8"
#7	14"	12"	11"	11"	10"
#8	16"	14"	13"	12"	11"
#9	18"	15"	14"	14"	13"
#10	20"	17"	16"	15"	14"
#11	22"	19"	18"	17"	16"
#14	37"	32"	31"	29"	27"
#18	50"	43"	41"	39"	35"

NOTES:

1. VALUES HERE VALID FOR ALL CASES IF:
SIDE COVER ≥ 2.1/2"
END COVER ≥ 2"

2. MULTIPLY VALUES IN SCHEDULE BY 1.2 FOR LIGHTWEIGHT CONCRETE

3. MULTIPLY VALUES IN SCHEDULE BY 1.2 FOR USE WITH EPOXY COATED REBAR

RNL

1050.17th STREET
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PROJECT No: 3514

STRUCTURAL
SCHEDULES

04-S601

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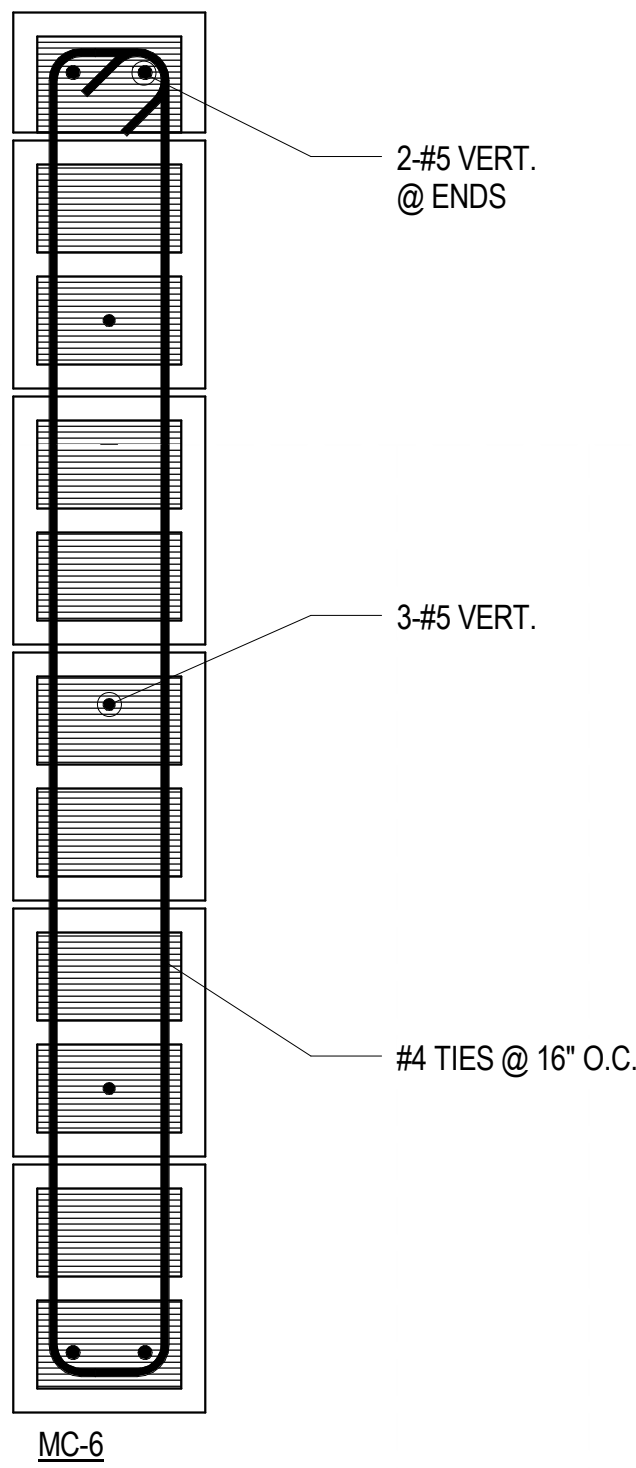
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MASONRY COLUMN SCHEDULE				
MARK	SIZE	REINFORCING		REMARKS
		VERTICAL	TIES	
MC-1	8" x 8"	#5	--	
MC-2	12" x 8"	2-#5	--	
MC-3	12" x 1'-4"	4-#5	--	
MC-4	12" x 4'-0"	5-#5	#4 @ 16" O.C.	SEE A5/04-S602
MC-5	12" x 4'-8"	5-#5	#4 @ 16" O.C.	SEE A4/04-S602
MC-6	12" x 7'-4"	7-#5	2-#4 @ 16" O.C.	SEE A3/04-S602
NOTES: 1. THE CENTERLINE OF VERTICAL BARS SHALL BE LOCATED 2 1/2" FROM THE FACE OF THE MASONRY. HORIZONTAL BARS SHALL BE LOCATED TO THE INSIDE OF THE VERTICAL BARS, UNO ON DETAILS. 2. UNLESS NOTED OTHERWISE, VERTICAL REINFORCING AND TIES SHALL EXTEND FULL HEIGHT OF THE WALL. 3. MASONRY COLUMN VERTICAL BARS OR DOWELS IN CONCRETE FOUNDATION WALLS SHALL BE TIED WITH #3 TIES @ 8" O.C.				

MASONRY WALL SCHEDULE						
MARK	THICK	MATERIALS	REINFORCING			NOTES
			VERTICAL	HORIZONTAL	JOINTS	
MW-1	8"	CMU	#4 @ 32" O.C.	#5 @ 48" O.C.	-	-
MW-2	12"	HI-R CMU	#5 @ 24" O.C.	#5 @ 24" O.C.	-	-
MW-3	12"	CMU	#5 @ 32" O.C.	#5 @ 24" O.C.	-	-
NOTES: 1. PROVIDE SCHEDULED VERTICAL REINFORCING BARS AT ALL CORNERS, ENDS OF WALLS, AND SPACED AS SCHEDULED, UNLESS NOTED OTHERWISE. 2. HORIZONTAL REINFORCING BARS SHALL BE CONTINUOUS AT ALL CORNERS AND AT INTERSECTING WALLS. PROVIDE CORNER BARS WITH THE REQUIRED LAP SPLICE LENGTH. 3. TERMINATE ALL HORIZONTAL REINFORCING BARS AT ENDS OF WALLS AND EDGES OF OPENINGS WITH A STANDARD HOOK AROUND VERTICAL REINFORCING BARS. 4. SEE PLANS, DETAILS AND GENERAL STRUCTURAL NOTES FOR ADDITIONAL REINFORCING REQUIREMENTS. 5. GROUT SOLID ALL CELLS BELOW GRADE, CELLS CONTAINING EMBEDS (HSA'S, DBA'S, ANCHOR BOLTS, ETC.), AND CELLS CONTAINING REINFORCING. CONSOLIDATE GROUT AS PER THE GENERAL STRUCTURAL NOTES. 6. HORIZONTAL WALL REINFORCING SHALL BE PLACED INSIDE THE VERTICALS OF MASONRY COLUMNS. 7. HORIZONTAL WALL REINFORCING SHALL CONTINUE THROUGH MASONRY LINTELS. WHERE BOTH HORIZONTAL WALL REINFORCING AND LINTEL REINFORCING OCCUR IN THE SAME COURSE, THE LARGER BARS ARE TO REPLACE THE SMALLER BARS.						

MASONRY REINFORCING BAR LAP SPLICE SCHEDULE										
BAR SIZE	f'm = 1500 psi								f'm = 2500 psi	
	6" CMU		8" CMU		10" CMU		12" CMU		6" ATLAS	8" ATLAS
	CLASS		CLASS		CLASS		CLASS		CLASS	CLASS
	A	A	B	A	B	A	B	A	A	B
#3	19"	19"	19"	19"	19"	19"	19"	15"	15"	15"
#4	25"	25"	30"	25"	28"	25"	28"	20"	20"	24"
#5	35"	31"	49"	31"	45"	31"	45"	31"	24"	40"
#6	81"	57"	**	53"	92"	53"	92"	64"	45"	87"
#7	-	79"	**	61"	**	61"	**	-	63"	**
#8	-	**	**	87"	**	75"	**	-	89"	**
#9	-	-	-	**	**	90"	**	-	-	-
NOTES: 1. CLASS A SPLICES MAY BE USED WHEN ONLY ONE BAR IS CONTINUOUS IN THE MASONRY CELL OR COURSE. 2. CLASS B SPLICES SHALL BE USED WHEN TWO BARS ARE CONTINUOUS IN THE MASONRY CELL OR COURSE. 3. ** INDICATES THAT A LAP SPLICE IS NOT ALLOWED AND MECHANICAL BAR COUPLERS ARE REQUIRED FOR THE BAR SPLICES. 4. WHERE VERTICAL BARS HAVE A REQUIRED LAP SPLICE GREATER THAN THE HEIGHT OF THE GROUT POUR, THE BAR SPLICE SHALL BE MADE WITH A MECHANICAL BAR COUPLER. WHERE THE HEIGHT OF THE GROUT POUR EXCEEDS 60 INCHES, HIGH LIFT GROUTING PROCEDURES SHALL BE FOLLOWED. 5. WHERE MECHANICAL BAR COUPLERS ARE USED, THE CONNECTOR SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR IN TENSION AND COMPRESSION.										

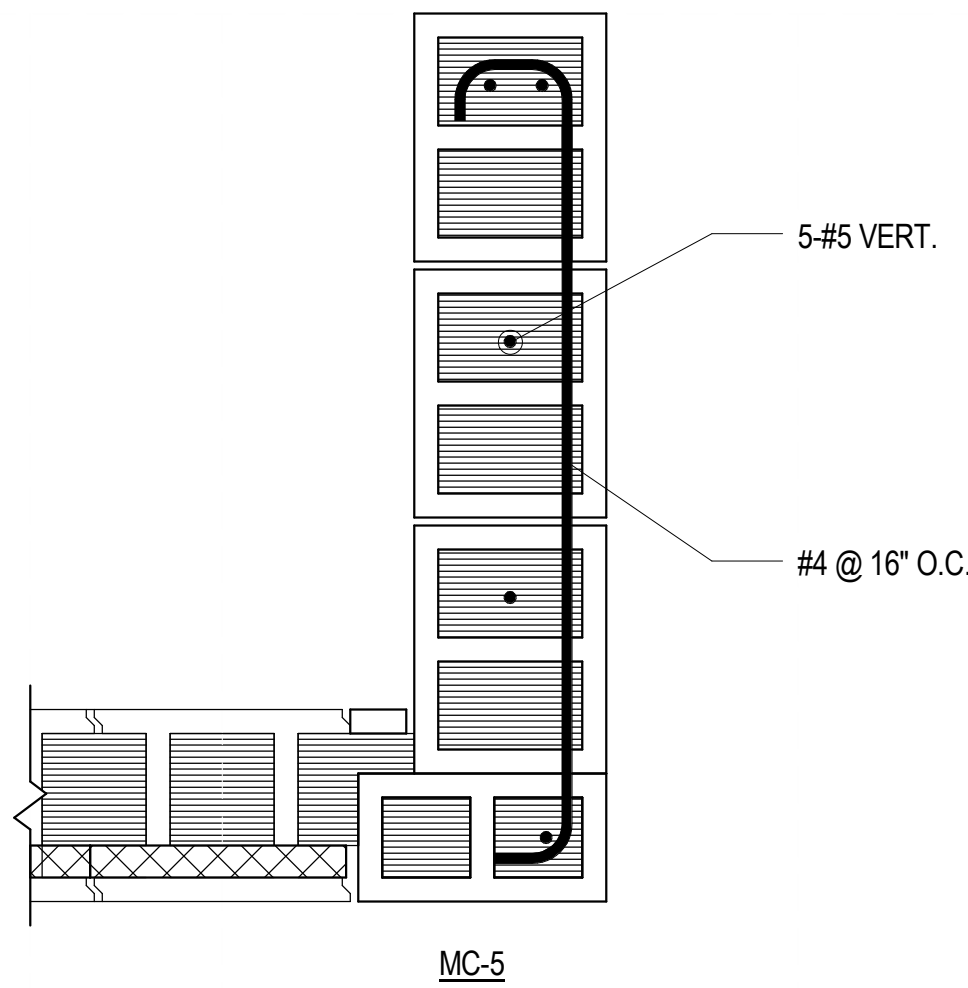
MASONRY LINTEL SCHEDULE						
MARK	LINTEL DEPTH	LINTEL WIDTH	MASONRY TYPE	LINTEL		REMARKS
				HORIZONTAL	STIRRUPS	
ML-1	8"	6", 8", 10" OR 12"	BRICK OR CMU	1- #7 CONT.	----	3'-4"
ML-2	16"	6", 8", 10" OR 12"	BRICK OR CMU	1- #7 CONT. TOP & BOT.	#3 @ 8" O.C.	5'-4"
ML-3	40"	12"	HI-R CMU	1- #7 CONT. TOP & BOT.	#3 @ 8" O.C.	
NOTES: 1. MASONRY LINTELS ML-1 AND ML-2 SHALL BE USED OVER OPENINGS IN MASONRY WALLS WHEN A SPECIFIC MASONRY LINTEL IS NOT OTHERWISE SPECIFIED. THE MASONRY LINTEL TO BE USED SHALL BE DETERMINED BY THE MAXIMUM SPAN AS SPECIFIED IN THIS SCHEDULE. WHEN A SPECIFIC MASONRY LINTEL IS CALLED OUT ON THE PLAN, THE MAXIMUM SPAN AS NOTED IN THIS SCHEDULE SHALL NOT APPLY 2. MASONRY LINTELS ML-1 AND ML-2 SHALL NOT BE LOCATED BELOW ANY FLOOR, OR ROOF BEAM, OR GIRDER, OR ANY OTHER CONCENTRATED LOAD UNLESS SHOWN SPECIFICALLY ON THE PLAN SHEET. 3. FOR MASONRY LINTELS NOT SHOWN ON THE DRAWINGS THAT CARRY ANY FLOOR, OR ROOF BEAM, OR GIRDER, OR ANY OTHER CONCENTRATED LOAD, OR THAT SPAN GREATER THAN 10'-0" CONSULT THE STRUCTURAL ENGINEER. 4. EXTEND ALL HORIZONTAL REINFORCING 48 BAR DIAMETERS BEYOND THE EDGE OF THE OPENING. IF HORIZONTAL REINFORCING CANNOT BE EXTENDED 48 BAR DIAMETERS BEYOND THE EDGE OF THE OPENING, PROVIDE 90 DEGREE STANDARD HOOK. 5. GROUT MASONRY LINTELS MONOLITHICALLY WITH THE SUPPORT WALL OR COLUMN AT EACH END. 6. SPLICE TOP BARS AT MIDSPAN OF LINTEL ONLY. 7. SPLICE BOTTOM BARS OVER SUPPORTS ONLY. 8. FOR WALL ABOVE LINTEL, DOWEL VERTICAL REINFORCING INTO FULL DEPTH OF THE LINTEL OR 48 BAR DIAMETERS, WHICHEVER IS LESS. 9. HORIZONTAL WALL REINFORCING SHALL CONTINUE THROUGH MASONRY LINTELS. WHERE BOTH HORIZONTAL WALL REINFORCING AND LINTEL REINFORCING WOULD OCCUR IN THE SAME COURSE, THE LARGER BARS ARE TO REPLACE THE SMALLER BARS.						



Design Name

A3
04-S602

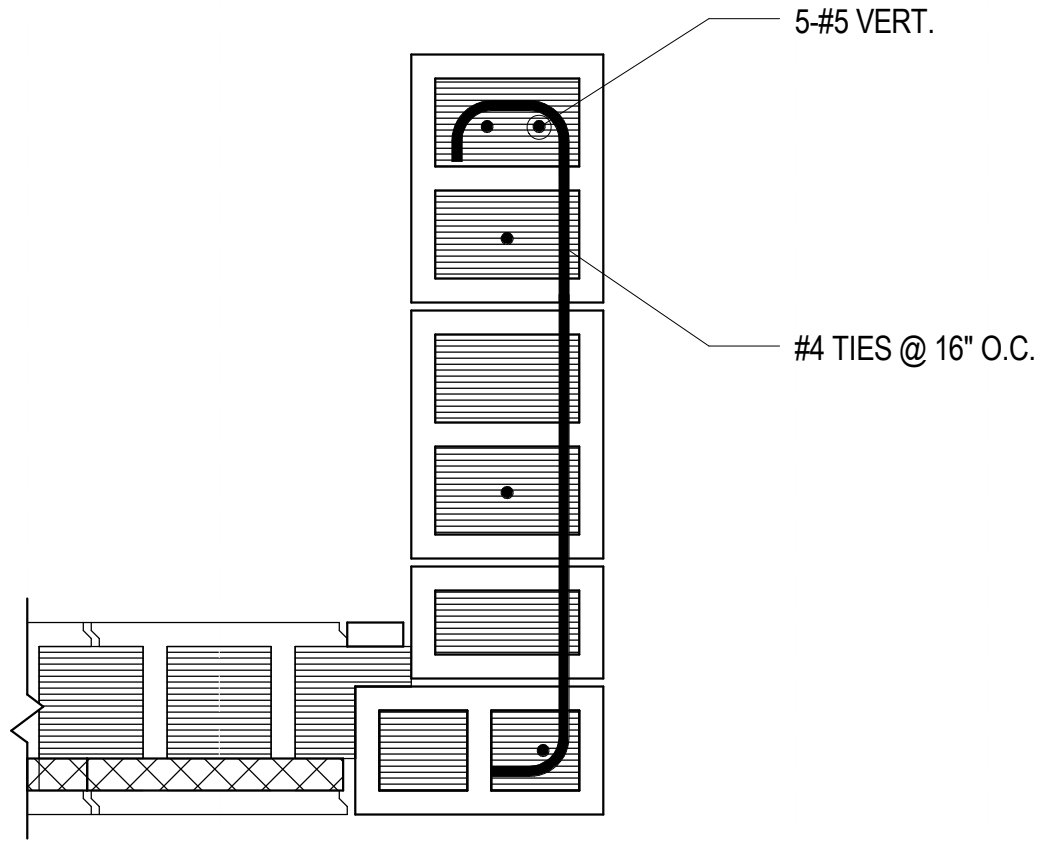
MASONRY COLUMN MC-6 - PLAN VIEW
NO SCALE



Design Name

A4
04-S602

MASONRY COLUMN MC-5 - PLAN VIEW
NO SCALE



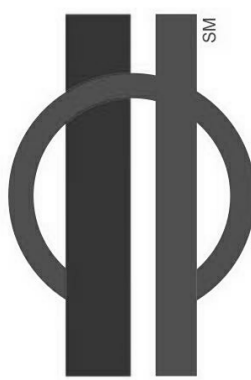
Design Name

A5
04-S602

MASONRY COLUMN MC-4 - PLAN VIEW
NO SCALE

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DENVER CO 80265
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303 292 0845 f



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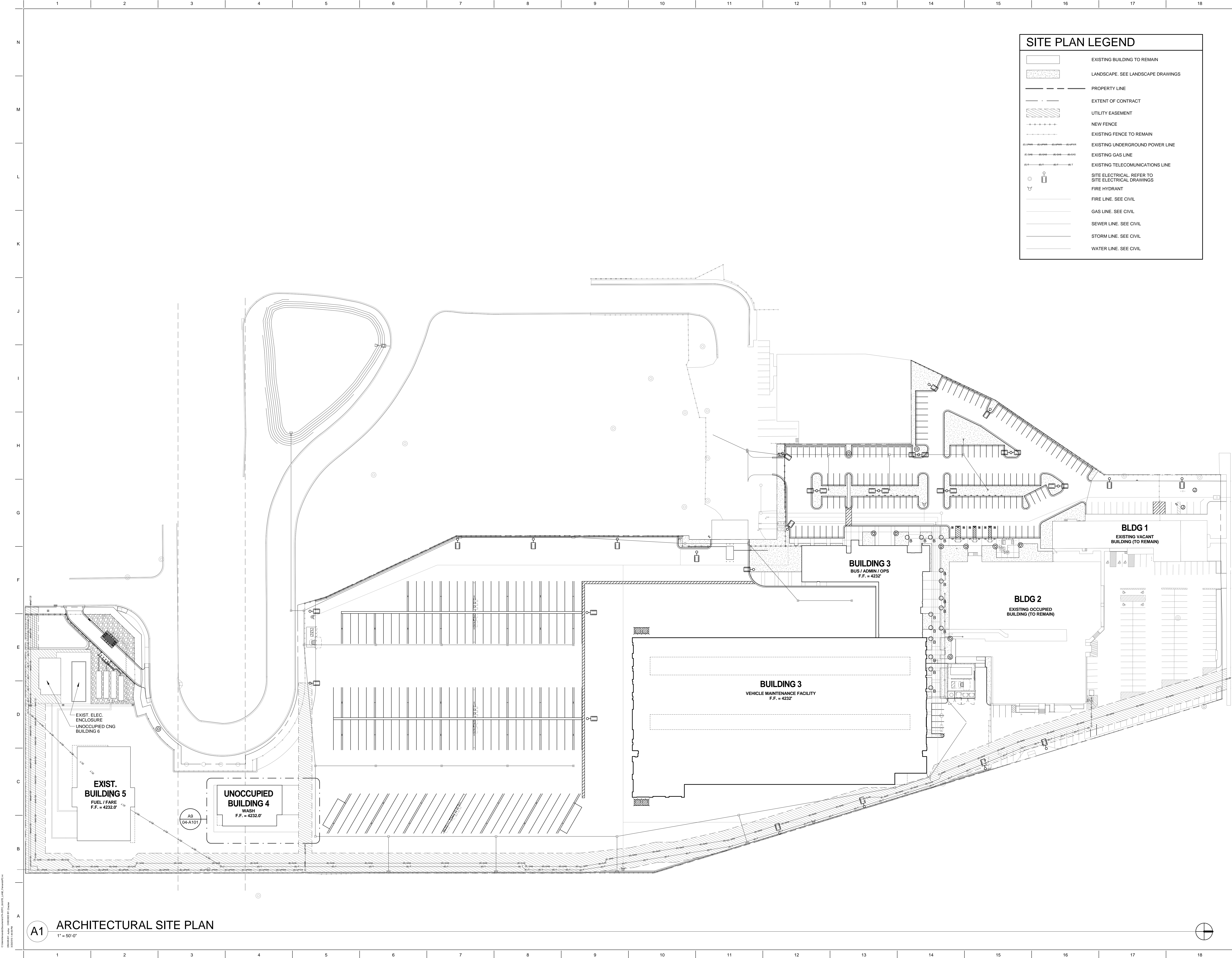
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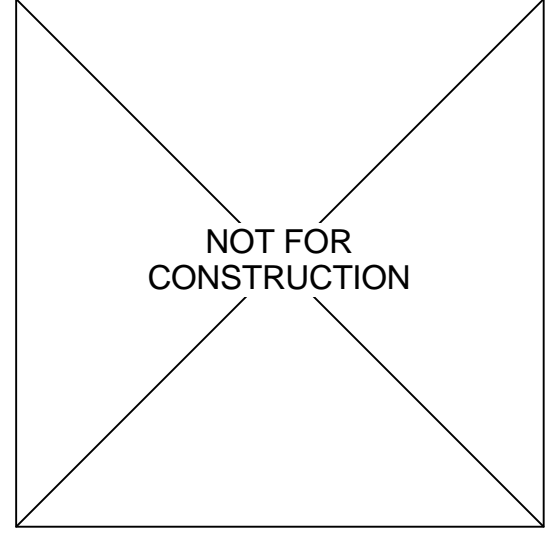
04-S602



SITE PLAN LEGEND	
	EXISTING BUILDING TO REMAIN
	LANDSCAPE. SEE LANDSCAPE DRAWINGS
	PROPERTY LINE
	EXTENT OF CONTRACT
	UTILITY EASEMENT
	NEW FENCE
	EXISTING FENCE TO REMAIN
	EXISTING UNDERGROUND POWER LINE
	EXISTING GAS LINE
	EXISTING TELECOMMUNICATIONS LINE
	SITE ELECTRICAL. REFER TO SITE ELECTRICAL DRAWINGS
	FIRE HYDRANT
	FIRE LINE. SEE CIVIL
	GAS LINE. SEE CIVIL
	SEWER LINE. SEE CIVIL
	STORM LINE. SEE CIVIL
	WATER LINE. SEE CIVIL

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No REVISION/SUBMISSION DATE
PROJECT No: 3514
ARCHITECTURAL SITE PLAN

A1 ARCHITECTURAL SITE PLAN
1" = 50'-0"

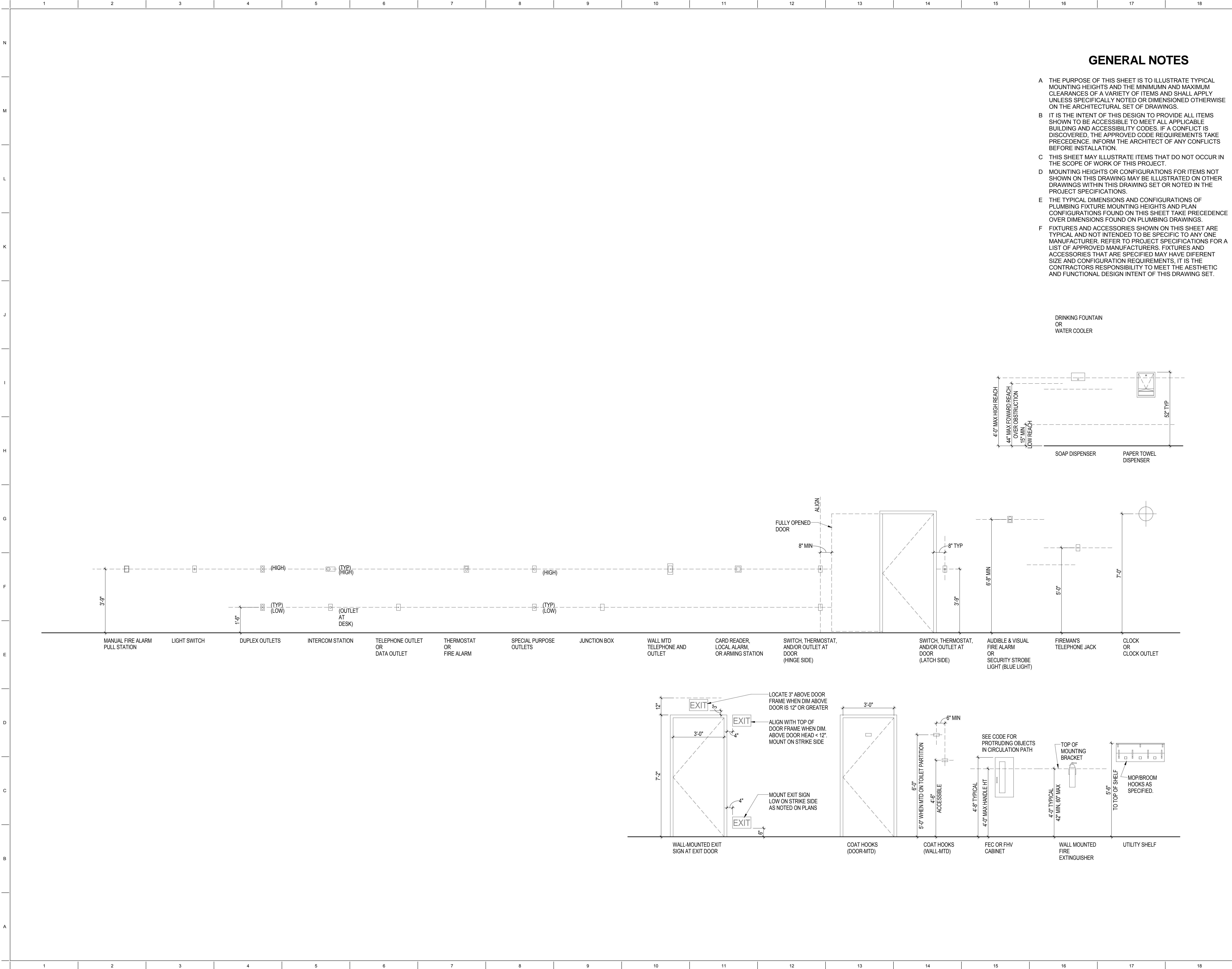
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SUITE 4200
DENVER CO 80265
303 295 1717 t
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No.	REVISION/SUBMISSION	DATE
PROJECT No:	3514	

TYPICAL FIXTURE
MOUNTING HEIGHTS

04-A002

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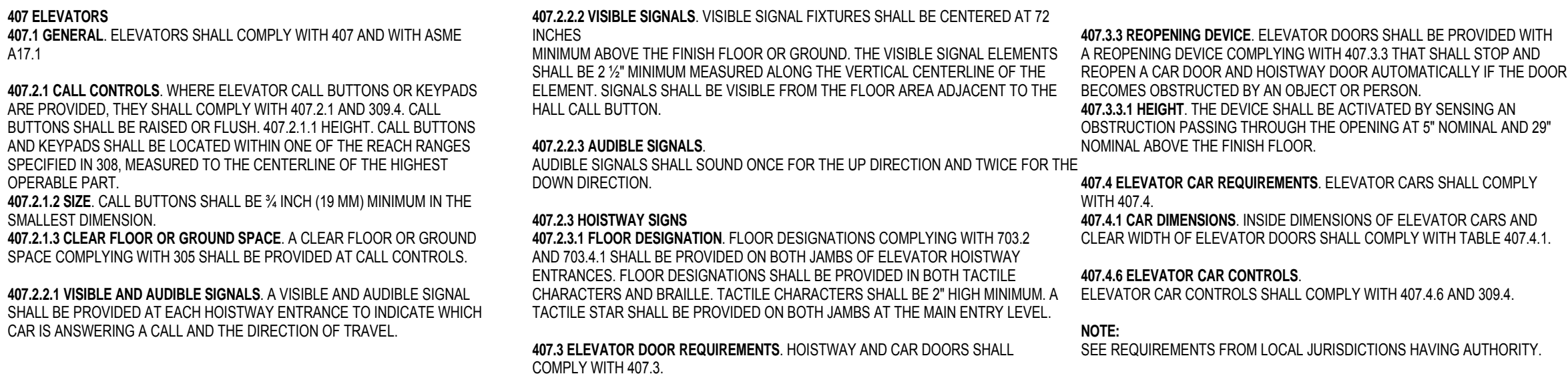
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SUITE 4200
DENVER CO 80265
303 295 1717 t
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1. THE PURPOSE OF THIS SHEET IS TO ILLUSTRATE TYPICAL DETAILS IN REGARDS TO CLEARANCES AND MOUNTING HEIGHTS AND SHALL
APPLY UNLESS OTHERWISE NOTED OR DIMENSIONED ON THE ARCHITECTURAL SET OF DRAWINGS.

2. IT IS THE INTENT OF THIS DESIGN TO PROVE ALL ITEMS SHOWN TO BE ACCESSIBLE TO MEET ALL APPLICABLE BUILDING AND ACCESSIBILITY
CODES. IF A CONFLICT IS DISCOVERED, THE APPROVED CODE REQUIREMENTS TAKE PRECEDENCE. INFORM THE ARCHITECT OF ANY
CONFLICTS BEFORE INSTALLATION.

3. THIS SHEET MAY ILLUSTRATE ITEMS THAT DO NOT OCCUR IN THE SCOPE OF WORK OF THIS PROJECT.

4. MOUNTING HEIGHTS OR CONFIGURATIONS FOR ITEMS NOT SHOWN ON THIS DRAWING MAY BE ILLUSTRATED ON OTHER DRAWINGS WITHIN
THIS DRAWING SET OR NOTED IN THE PROJECT SPECIFICATIONS.



216.2 DESIGNATIONS. INTERIOR AND EXTERIOR SIGNS IDENTIFYING PERMANENT ROOMS AND SPACES SHALL COMPLY WITH 703.1 (GENERAL), 703.2 (RAISED CHARACTERS), AND 703.5 (VISUAL CHARACTERS). WHERE PICTOGRAMS ARE PROVIDED AS DESIGNATIONS OF PERMANENT INTERIOR ROOMS AND SPACES, THE PICTOGRAMS SHALL COMPLY WITH 703.6 AND SHALL HAVE TEXT DESCRIPTORS COMPLYING WITH 703.2 (RAISED CHARACTERS) AND 703.5 (VISUAL CHARACTERS).

[ADVISORY 216.2 SECTION 216.2 APPLIES TO SIGNS THAT PROVIDE DESIGNATIONS, LABELS, OR NAMES FOR INTERIOR ROOMS OR SPACES WHERE THE SIGN IS NOT LIKELY TO CHANGE OVER TIME. EXAMPLES INCLUDE INTERIOR SIGNS LABELING RESTROOMS, ROOM AND FLOOR NUMBERS OR LETTERS, AND ROOM NAMES.]

[ADVISORY 216.3 DIRECTIONAL AND INFORMATIONAL SIGNS. INFORMATION ABOUT INTERIOR SPACES AND FACILITIES INCLUDES RULES OF CONDUCT, OCCUPANT LOAD, AND SIMILAR SIGNS. SIGNS PROVIDING DIRECTION TO ROOMS OR SPACES INCLUDE THOSE THAT IDENTIFY EGRESS ROUTES.]

216.4.1 EXIT DOORS. DOORS AT EXIT PASSAGEWAYS, EXIT DISCHARGE, AND EXIT STAIRWAYS SHALL BE IDENTIFIED BY TACTILE SIGNS COMPLYING WITH 703.1 (GENERAL), 703.2 (RAISED CHARACTERS), AND 703.5 (VISUAL CHARACTERS).

216.4.3 DIRECTIONAL SIGNS. SIGNS TO PROVIDE DIRECTIONS TO ACCESSIBLE MEANS OF EGRESS SHALL COMPLY WITH 703.5 (VISUAL CHARACTERS).

216.5 PARKING: ACCESSIBLE PARKING SPACES SHALL BE IDENTIFIED BY SIGNS. PARKING SPACE IDENTIFICATION SIGNS SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. SIGNS IDENTIFYING VAN PARKING SPACES SHALL CONTAIN THE DESIGNATION "VAN ACCESSIBLE". SIGNS SHALL BE 60 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE MEASURED TO THE BOTTOM OF THE SIGN.

216.6 ENTRANCES: WHERE NOT ALL ENTRANCES COMPLY WITH 404, ENTRANCES COMPLYING WITH 404 SHALL BE IDENTIFIED BY THE INTERNATIONAL SYMBOL OF ACCESSIBILITY. DIRECTIONAL SIGNS COMPLYING WITH 703.5 (VISUAL CHARACTERS) THAT INDICATE THE LOCATION OF THE NEAREST ENTRANCE COMPLYING WITH 404 SHALL BE PROVIDED AT ENTRANCES THAT DO NOT COMPLY WITH 404.

404. DOORS, DOORWAYS, AND GATES THAT ARE PART OF AN ACCESSIBLE ROUTE.

216.8 TOILET ROOMS AND BATHING ROOMS. WHERE EXISTING TOILET OR BATHING ROOMS ARE NOT ACCESSIBLE, DIRECTIONAL SIGNAGE INDICATING THE LOCATION OF THE NEAREST TOILET ROOM OR BATHING ROOM COMPLYING WITH 603 WITHIN THE FACILITY SHALL BE PROVIDED. SIGNS SHALL COMPLY WITH 703.5 (VISUAL CHARACTERS) AND SHALL INCLUDE THE INTERNATIONAL SYMBOL OF ACCESSIBILITY.

703.1 GENERAL. SIGNS SHALL COMPLY WITH 703. WHERE BOTH VISUAL AND TACTILE CHARACTERS ARE REQUIRED, EITHER ONE SIGN WITH BOTH VISUAL AND TACTILE CHARACTERS, OR TWO SEPARATE SIGNS, ONE WITH VISUAL, AND ONE WITH TACTILE CHARACTERS, SHALL BE PROVIDED.

703.2 RAISED CHARACTERS. RAISED CHARACTERS SHALL COMPLY WITH 703.2 AND SHALL BE DUPLICATED IN BRAILLE COMPLYING WITH 703.3. RAISED CHARACTERS SHALL BE INSTALLED IN ACCORDANCE WITH 703.4.

703.4 INSTALLATION HEIGHT AND LOCATION. SIGNS WITH TACTILE CHARACTERS SHALL COMPLY WITH 703.4.

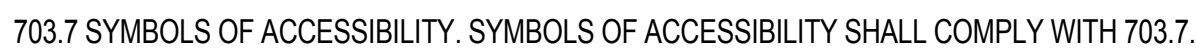
703.4.1 HEIGHT ABOVE FINISH FLOOR OR GROUND. TACTILE CHARACTERS ON SIGNS SHALL BE LOCATED 48 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST TACTILE CHARACTER AND 60 INCHES (1525 MM) MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST TACTILE TACTILE CHARACTER.

EXCEPTION: TACTILE CHARACTERS FOR ELEVATOR CAR CONTROLS SHALL NOT BE REQUIRED TO COMPLY WITH 703.4.1.

703.4.2 LOCATION. WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE.

703.6.1 PICTOGRAM FIELD. PICTOGRAMS SHALL HAVE A FIELD HEIGHT OF 6 INCHES (150 MM) MINIMUM. CHARACTERS AND BRAILLE SHALL NOT BE LOCATED IN THE PICTOGRAM FIELD.

703.6.3 TEXT DESCRIPTORS. PICTOGRAMS SHALL HAVE TEXT DESCRIPTORS LOCATED DIRECTLY BELOW THE PICTOGRAM FIELD. TEXT DESCRIPTORS SHALL COMPLY WITH 703.2 (RAISED CHARACTERS), 703.3 (AND 703.4 (INSTALLATION HEIGHT AND LOCATION).



The diagram illustrates the requirements for wheelchair ramps and stairs, showing a side view of a ramp system connecting three levels: Bottom Landing, Intermediate Landing, and Top Landing.

Ramp Details:

- RAMP HANDRAILS** [1133B.5.5.1]
- RAMP EDGE PROTECTION** [133B.6]
- RAMP RUNS WITH RISE GREATER THAN 6" REQUIRE HANDRAILS**
- A CURB OR RAIL SHALL BE PROVIDED THAT PREVENTS THE PASSAGE OF A 4" DIAMETER SPHERE, WHERE ANY PORTION OF THE SPHERE IS WITHIN 4" OF THE FINISH FLOOR OR GROUND SURFACE**
- RAMP HANDRAILS SHALL EXTEND 12" IN THE DIRECTION OF TRAVEL AT BOTH BOTTOM AND TOP OF RAMPS**
- PROVIDE EXTENDED RAMP SURFACE WHEN CURB OR RAIL NOT USED**
- SLOPES:**
 - 1:48 MAX CROSS SLOPE
 - 1:20 MAX RUNNING SLOPE
- RAMPS:**
 - 1:12 MAX RAMP RUNNING SLOPE
 - 1:10 MAX FLARE SLOPE
 - 1:20 MAX COUNTER SLOPE
- HANDRAILS ARE REQUIRED WHEN RISE IS GREATER THAN 6".**
- NOTE: WHEN DOOR SWINGS ONTO LANDING 42" MIN PLUS DOOR WIDTH**

Dimensions and Clearances:

- 30" MAX RAMP RUN**
- 60" MIN**
- 72" MIN**
- CROSS SLOPE**
- RUNNING SLOPE**
- INTERMEDIATE LANDING**
- 30" MAX RISE OF ANY RAMP RUN**
- LANDING**
- BOTTOM LANDING**
- TOP LANDING**
- 48" MIN CLEAR WIDTH BETWEEN HANDRAILS**
- 72" MIN**
- 60" MIN WHEN NO DOORS SWINGS ONTO LANDING**



B CIRCULAR TURNING SPACE

60" DIAMETER

THE SPACE SHALL BE PERMITTED TO INCLUDE KNEE AND TOE CLEARANCE.

12" MAXIMUM DOOR SWING ENCROACHMENT

D CLEAR WIDTH AT 180° TURN

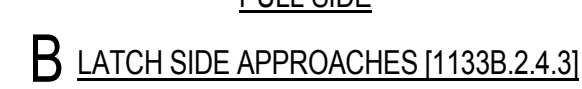
48" MIN (60" MIN)

42" MIN (36" MIN)

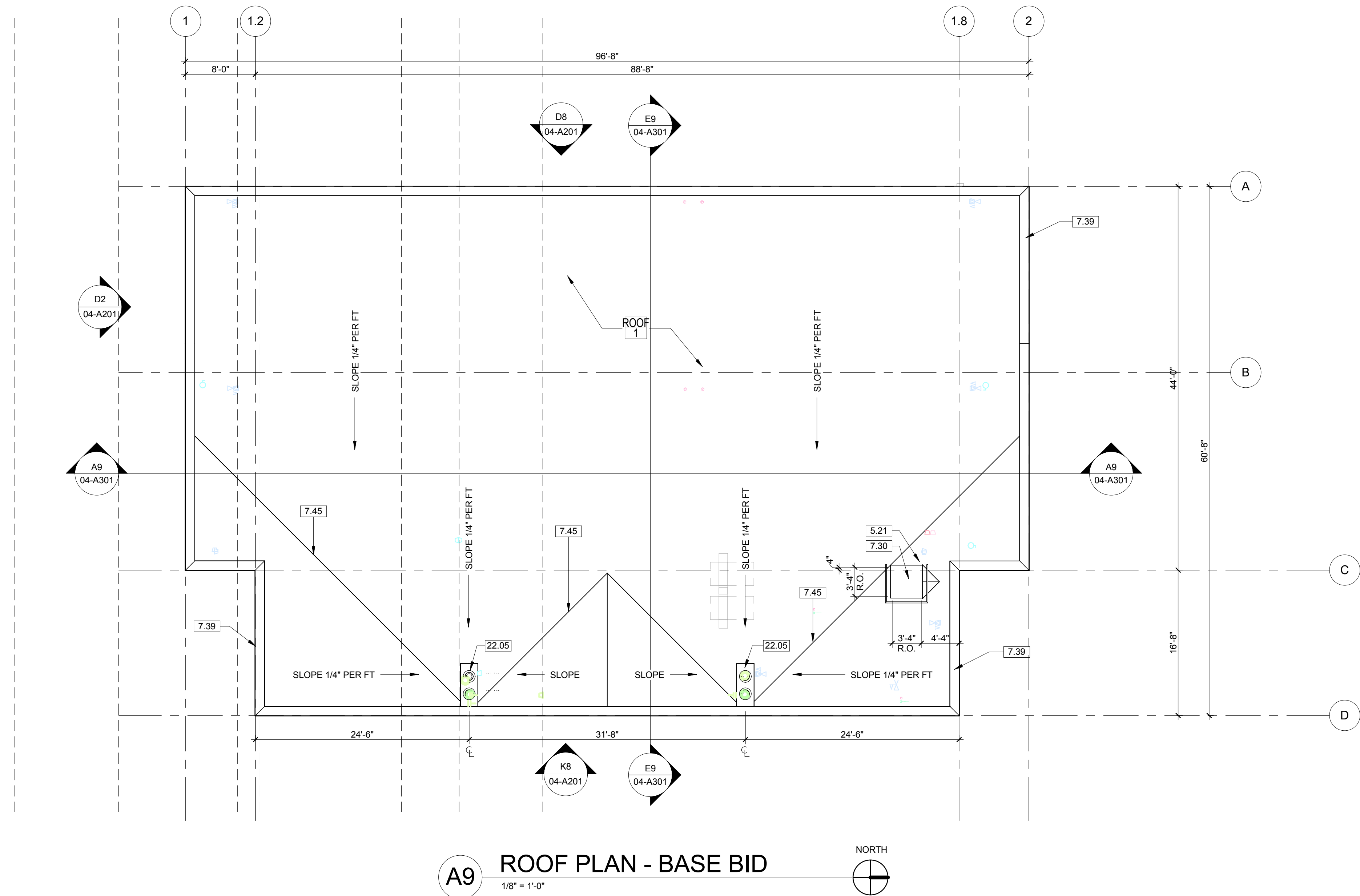
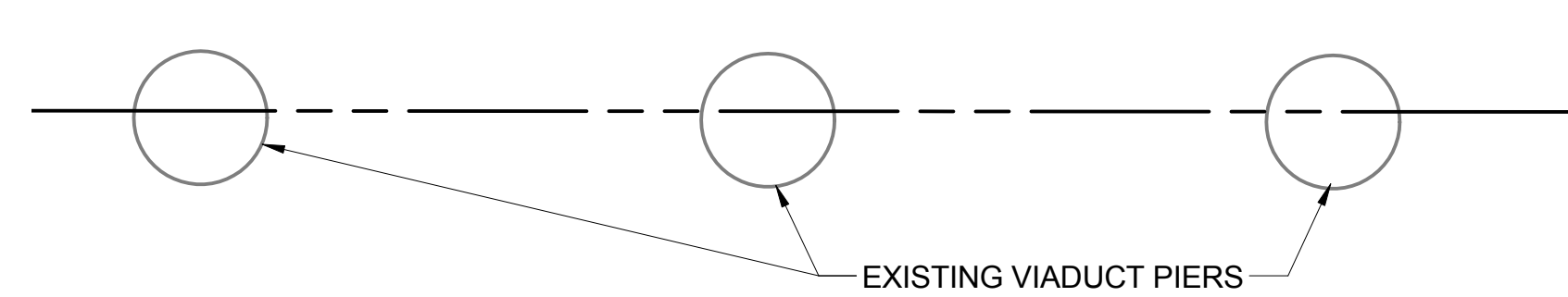
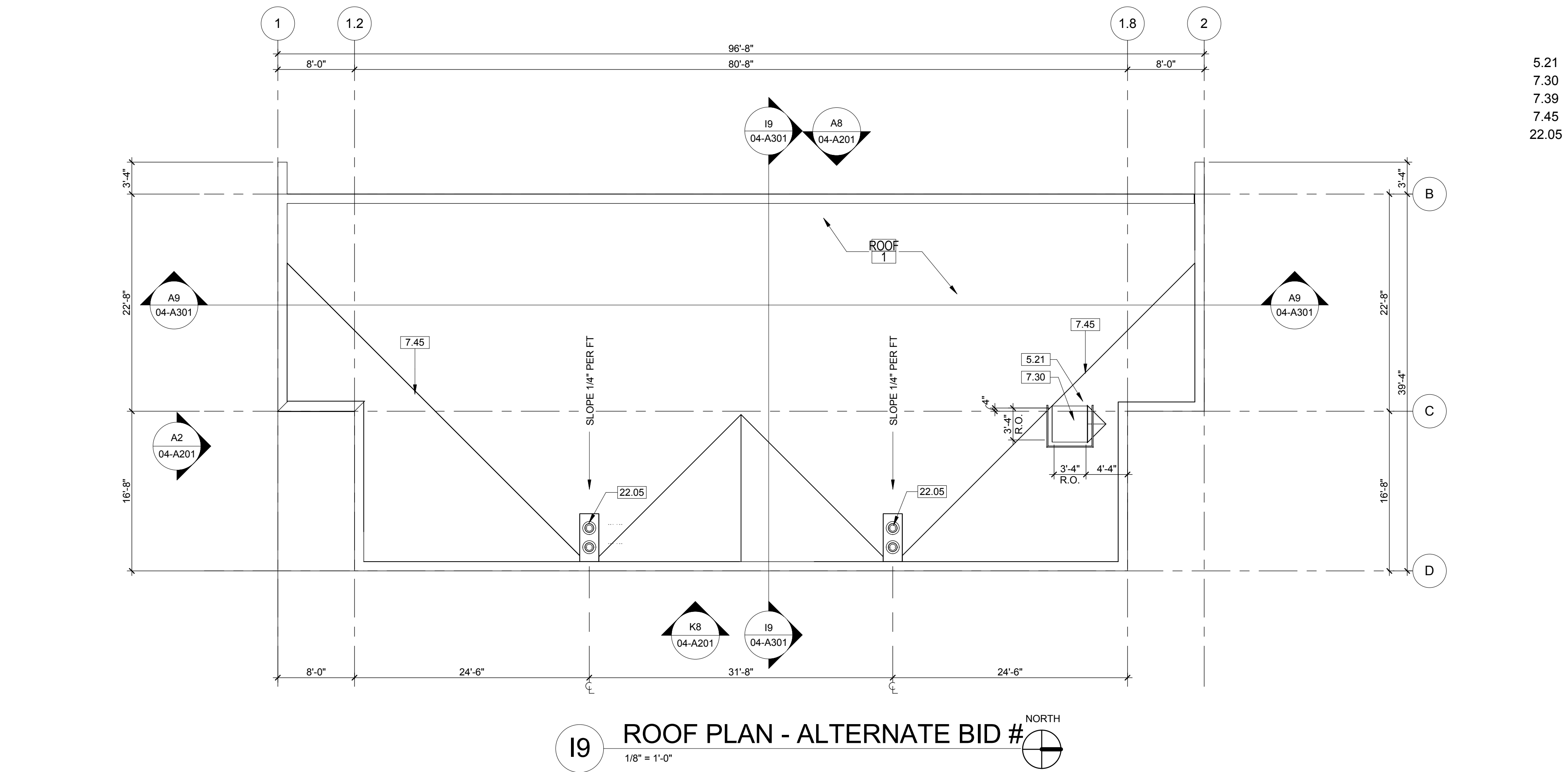
42" MIN (36" MIN)



F 13 $1/4" = 1'-0"$



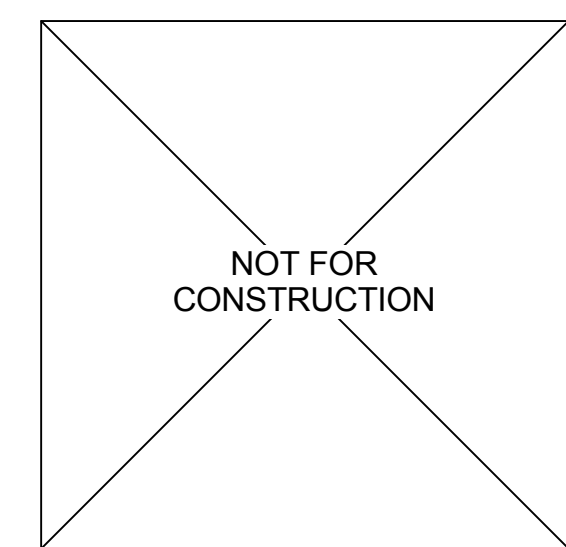
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DWG: 10/10/15, 10/10/15, 10/10/15
10/10/15 10/10/15



- KEYNOTES**
- 5.21 (TYPE 1) TUBE STEEL GUARDRAIL
 - 7.30 ROOF HATCH
 - 7.39 MANUFACTURED COPING
 - 7.45 TAPERED INSULATION
 - 22.05 ROOF AND OVERFLOW DRAIN, RE: PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION

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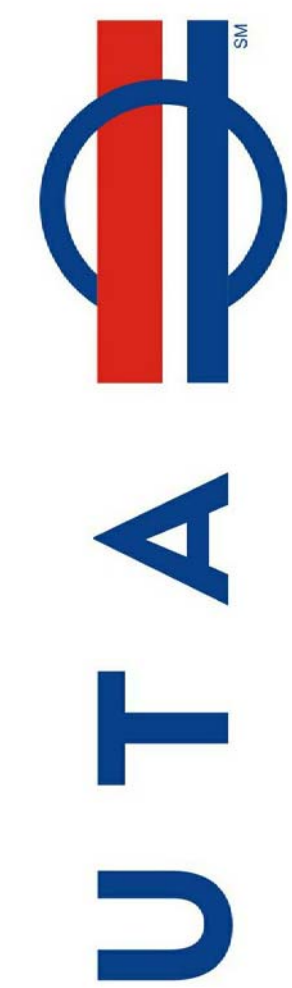


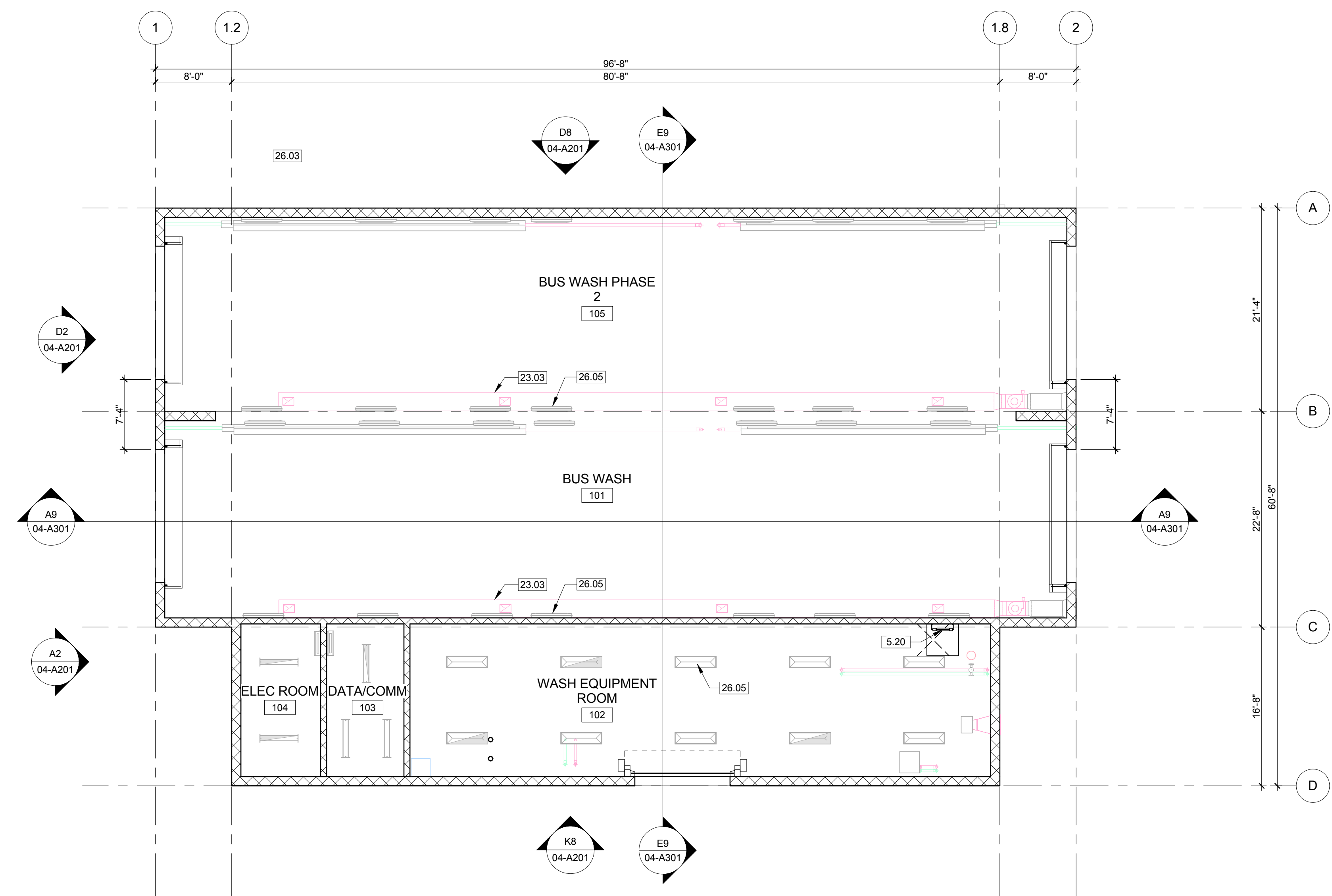
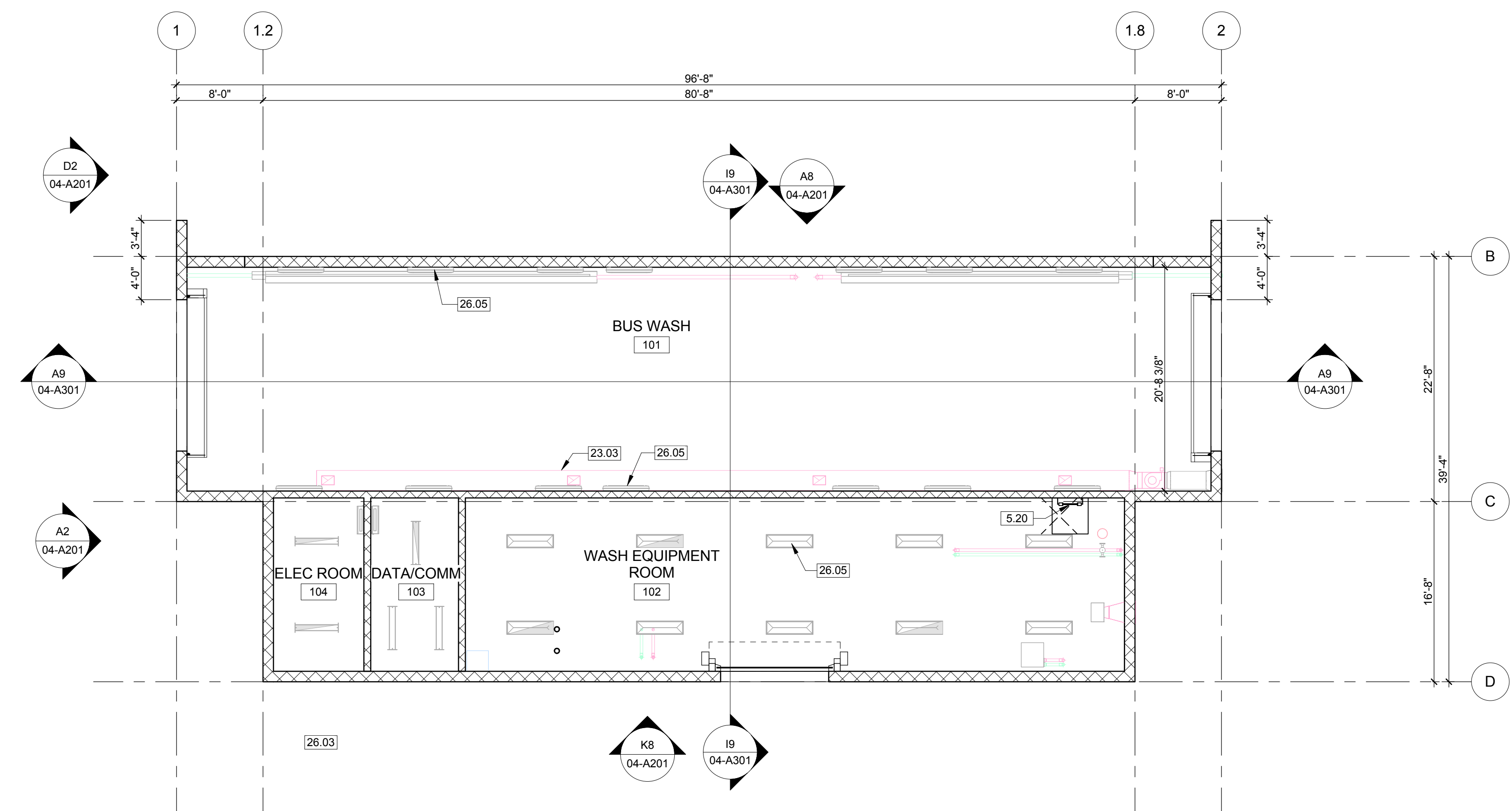
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PROJECT No: 3514
ROOF PLAN

04-A102

RNL

1050 17TH STREET
SUITE A200
DENVER CO 80265
303 295 1717 t
303 292 0945 f





SHEET NOTES


- A REFER TO 04-A001 FOR PROJECT GENERAL NOTES, REFERENCE AND MATERIAL SYMBOLS, AND ABBREVIATIONS USED ON THIS DRAWING.
- B ALL INTERIOR WALLS TO BE PAINTED P-1, UNLESS NOTED OTHERWISE.

KEYNOTES

- 5.20 VERTICAL METAL LADDER
23.03 MECHANICAL DUCTWORK, SEE MECHANICAL DRAWINGS
26.05 INTERIOR LIGHT

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A square stamp with a double border. Inside, the text "NOT FOR CONSTRUCTION" is centered in a bold, sans-serif font. Two diagonal lines cross in the center, forming an 'X' shape.

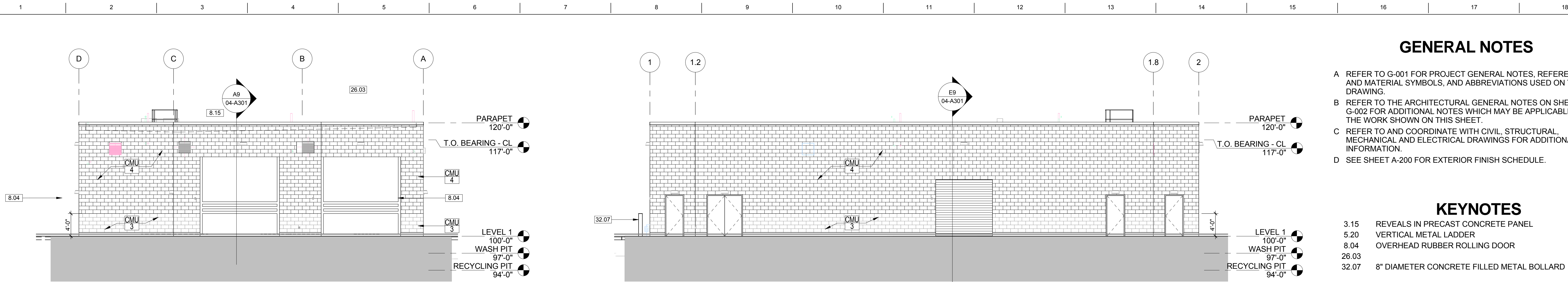
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REFLECTED CEILING PLAN		

PROJECT No: 3514

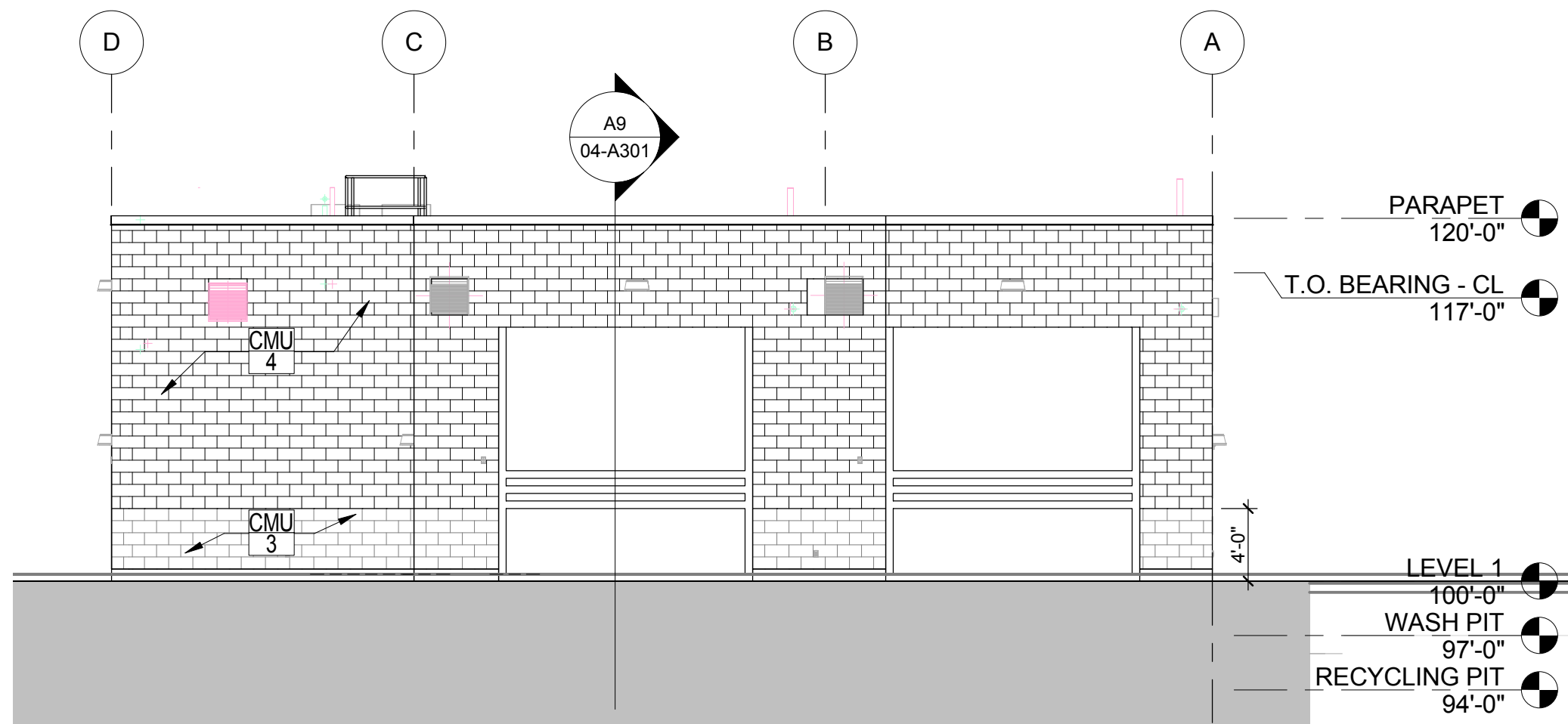
REFLECTED CEILING
PLAN

04-A103

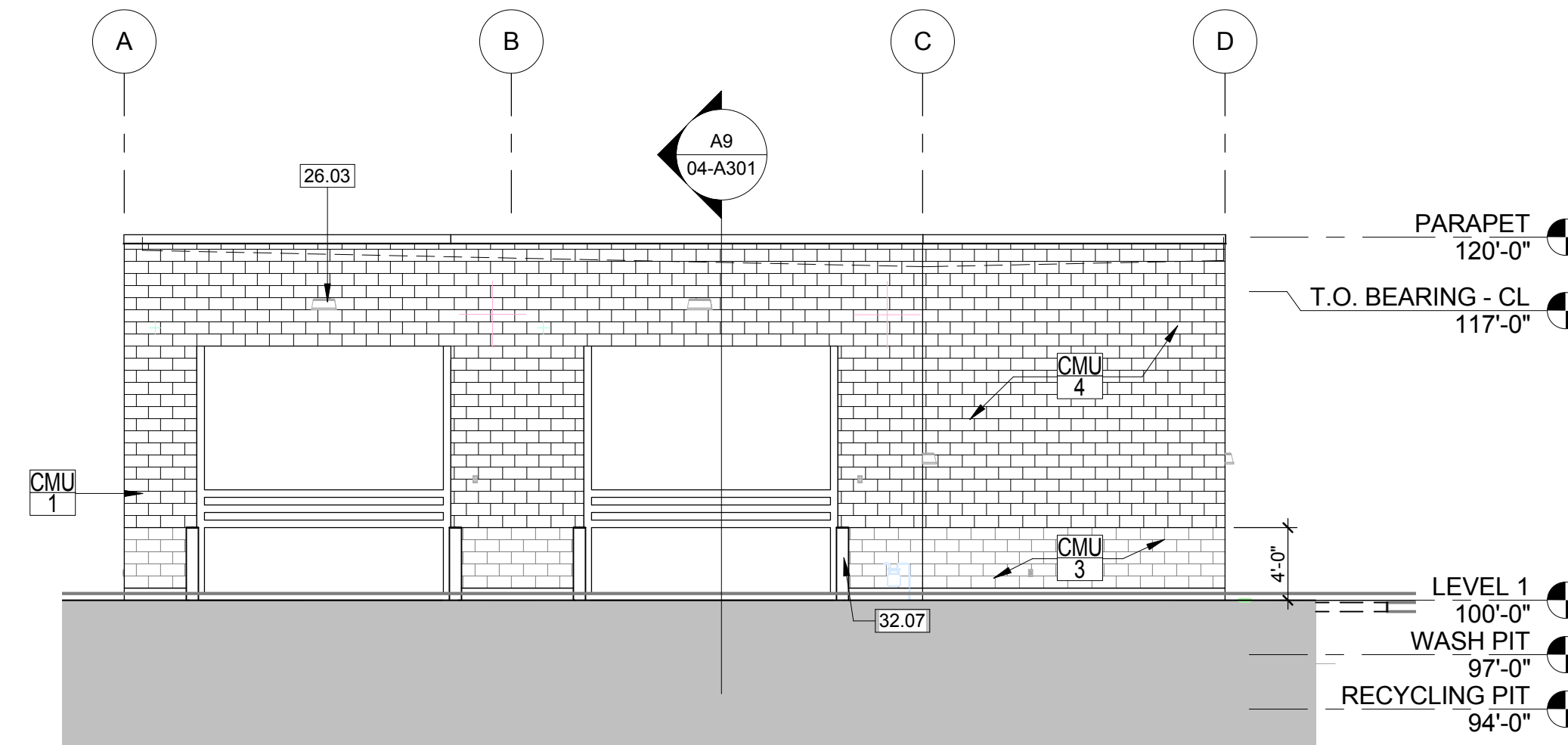
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DWG BY: JAC, C:\Users\landr\Documents\04-A201\04-A201.dwg
10/20/2015 10:45 AM



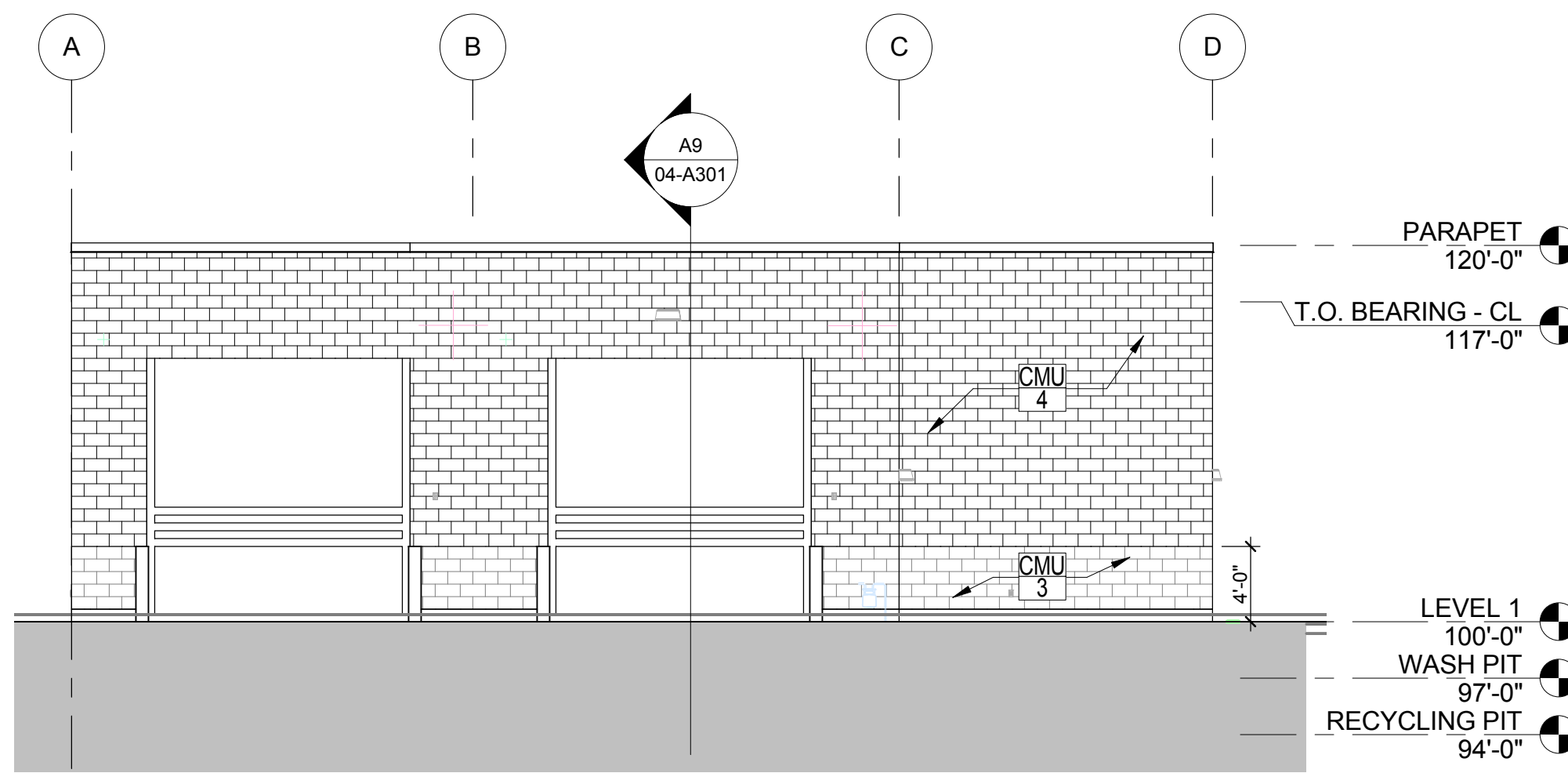
K2 NORTH ELEVATION
1/8" = 1'-0"



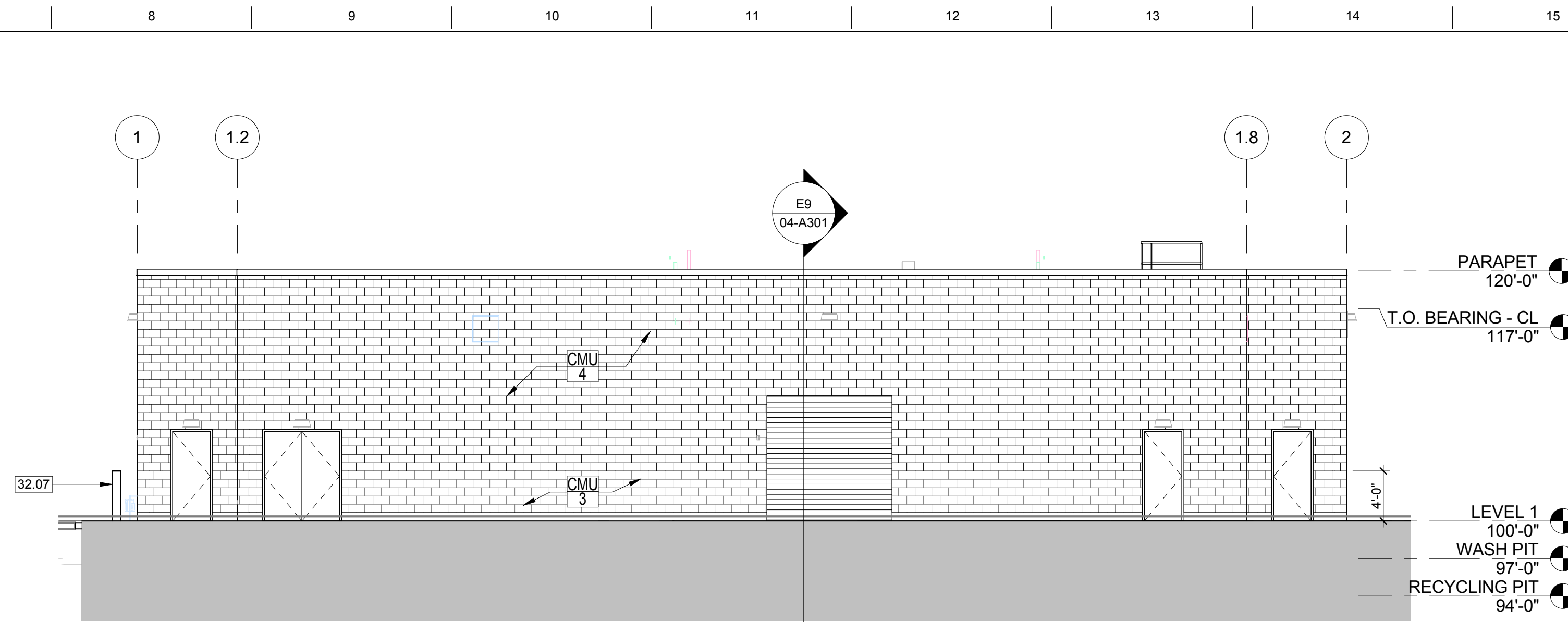
H2 NORTH ELEVATION ADD ALTERNATE
1/8" = 1'-0"



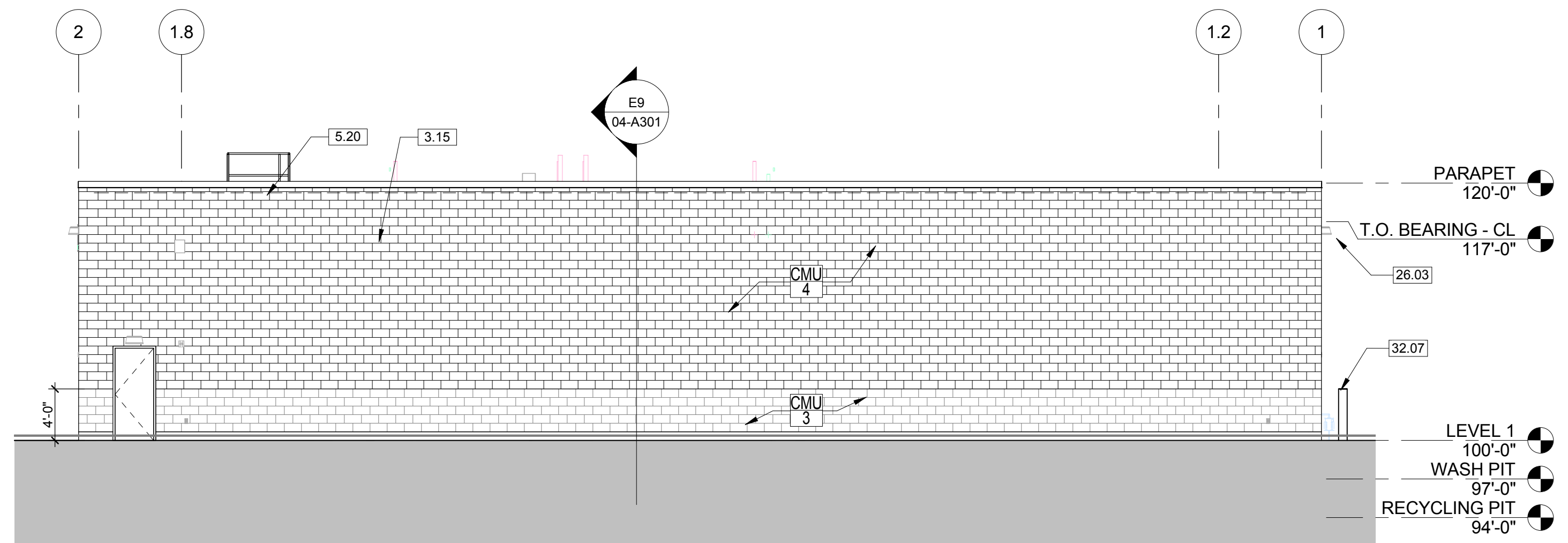
D2 SOUTH ELEVATION
1/8" = 1'-0"



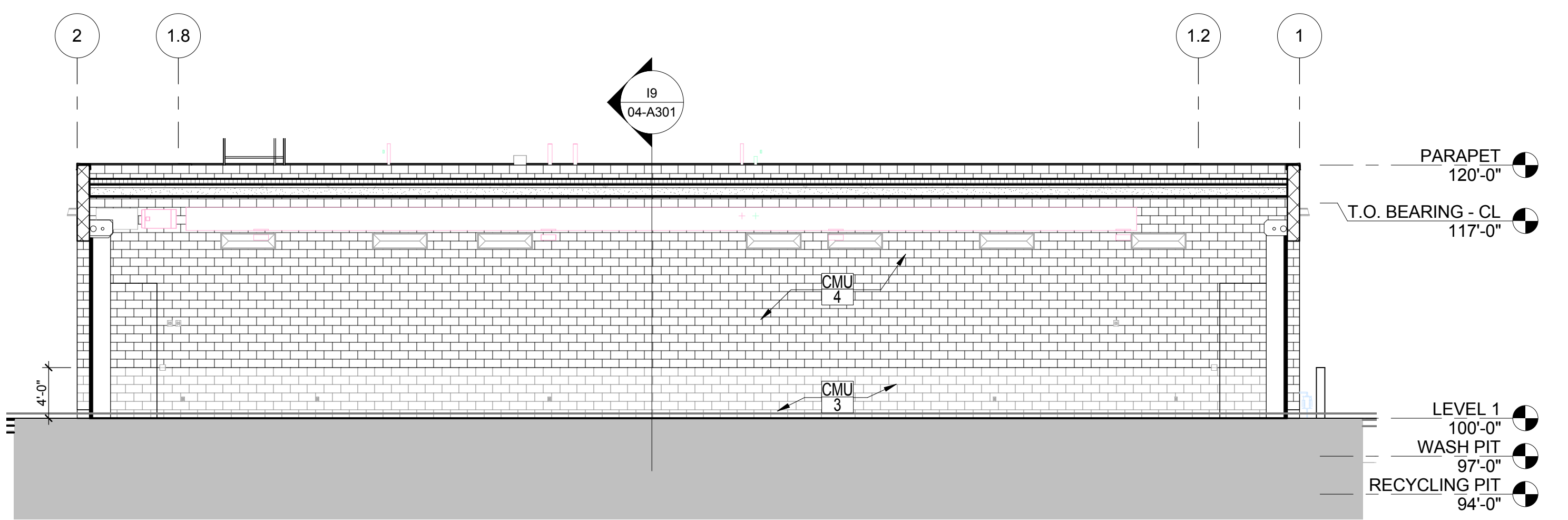
A2 SOUTH ELEVATION ADD ALTERNATE
1/8" = 1'-0"



K8 EAST ELEVATION
1/8" = 1'-0"



D8 WEST ELEVATION
1/8" = 1'-0"



A8 WEST ELEVATION ADD ALTERNATE
1/8" = 1'-0"

GENERAL NOTES

- A REFER TO G-001 FOR PROJECT GENERAL NOTES, REFERENCE AND MATERIAL SYMBOLS, AND ABBREVIATIONS USED ON THIS DRAWING.
B REFER TO THE ARCHITECTURAL GENERAL NOTES ON SHEET G-002 FOR ADDITIONAL NOTES WHICH MAY BE APPLICABLE TO THE WORK SHOWN ON THIS SHEET.
C REFER TO AND COORDINATE WITH CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
D SEE SHEET A-200 FOR EXTERIOR FINISH SCHEDULE.

KEYNOTES

- 3.15 REVEALS IN PRECAST CONCRETE PANEL
5.20 VERTICAL METAL LADDER
8.04 OVERHEAD RUBBER ROLLING DOOR
26.03 8" DIAMETER CONCRETE FILLED METAL BOLLARD
32.07 8" DIAMETER CONCRETE FILLED METAL BOLLARD

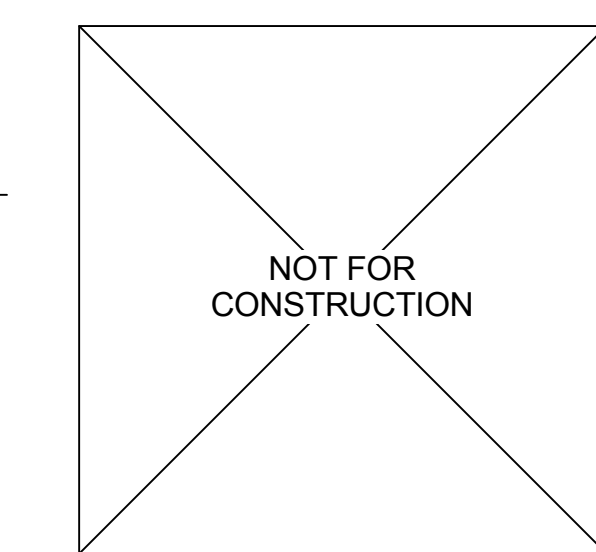
EXTERIOR MATERIAL LEGEND

WALL ASSEMBLY

- CMU 3 CONCRETE MASONRY UNIT
COLOR - GRANITE
CMU 4 CONCRETE MASONRY UNIT
COLOR - JAVA

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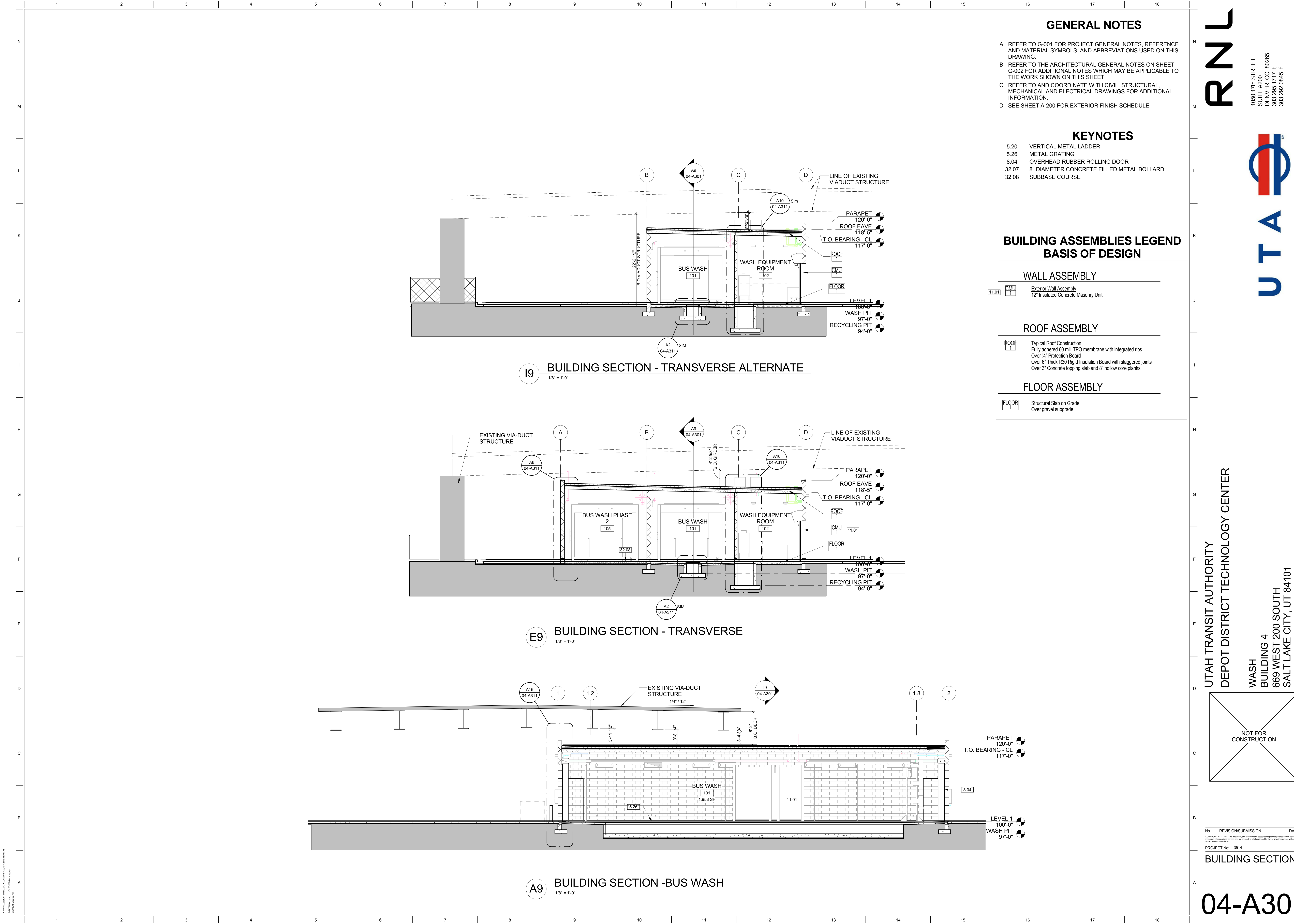
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BUILDING
ELEVATIONS

04-A201



GENERAL NOTES

- A REFER TO G-001 FOR PROJECT GENERAL NOTES, REFERENCE AND MATERIAL SYMBOLS, AND ABBREVIATIONS USED ON THIS DRAWING.
- B REFER TO THE ARCHITECTURAL GENERAL NOTES ON SHEET G-002 FOR ADDITIONAL NOTES WHICH MAY BE APPLICABLE TO THE WORK SHOWN ON THIS SHEET.
- C REFER TO AND COORDINATE WITH CIVIL, STRUCTURAL, MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- D SEE SHEET A-200 FOR EXTERIOR FINISH SCHEDULE.

KEYNOTES

- 5.20 VERTICAL METAL LADDER
- 5.26 METAL GRATING
- 8.04 OVERHEAD RUBBER ROLLING DOOR
- 32.07 8" DIAMETER CONCRETE FILLED METAL BOLLARD
- 32.08 SUBBASE COURSE

BUILDING ASSEMBLIES LEGEND
BASIS OF DESIGN

WALL ASSEMBLY

- 11.01 CMU Exterior Wall Assembly
12" Insulated Concrete Masonry Unit

ROOF ASSEMBLY

- ROOF Typical Roof Construction
Fully adhered 60 mil. TPO membrane with integrated ribs
Over 1/4" Protection Board
Over 6" Thick R30 Rigid Insulation Board with staggered joints
Over 3" Concrete topping slab and 8" hollow core planks

FLOOR ASSEMBLY

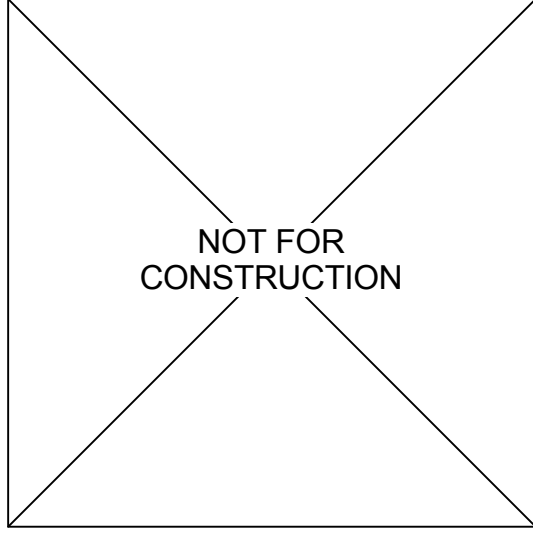
- FLOOR Structural Slab on Grade
Over gravel subgrade

I9 BUILDING SECTION - TRANSVERSE ALTERNATE
1/8" = 1'-0"

E9 BUILDING SECTION - TRANSVERSE
1/8" = 1'-0"

A9 BUILDING SECTION -BUS WASH
1/8" = 1'-0"

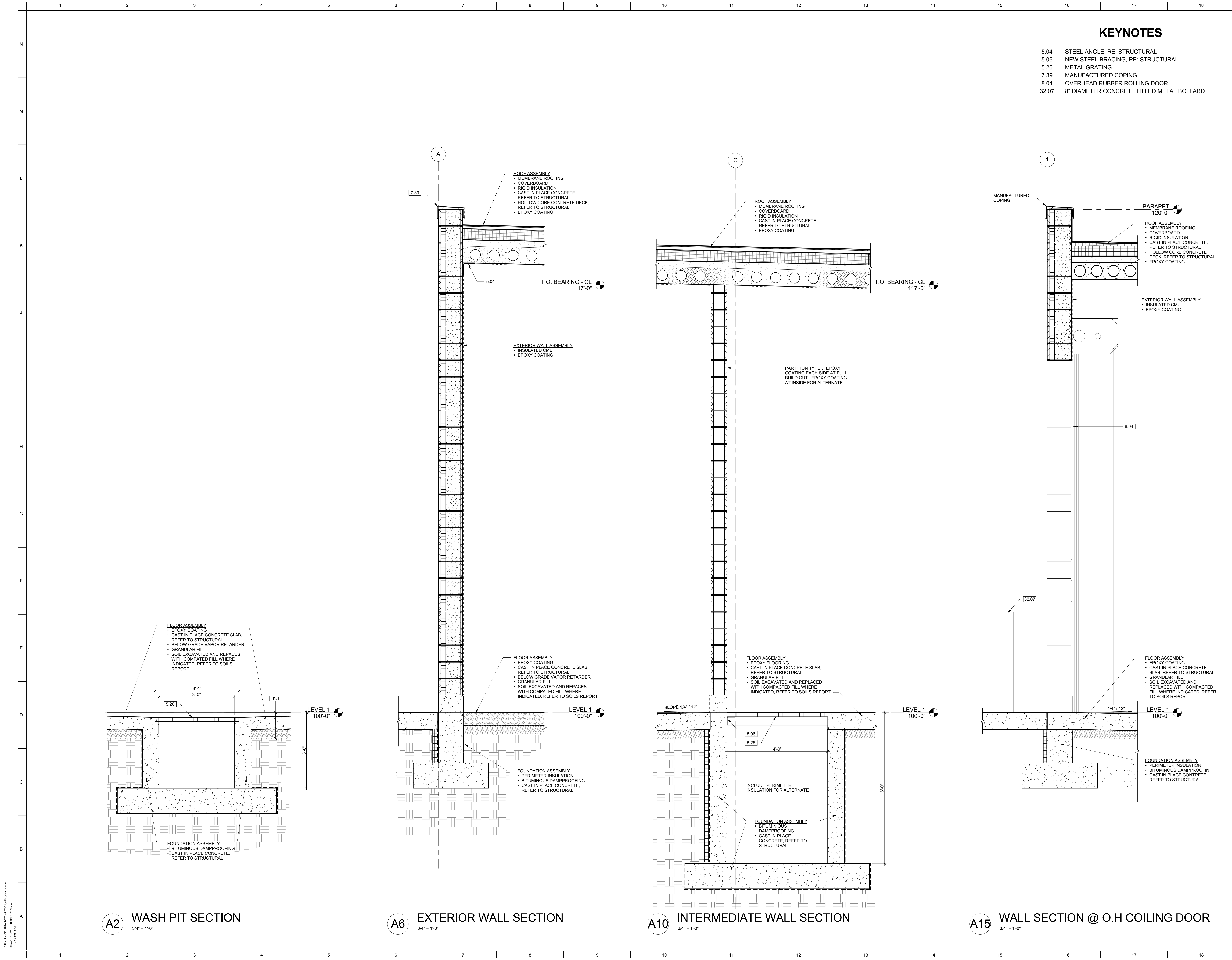
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BUILDING SECTIONS

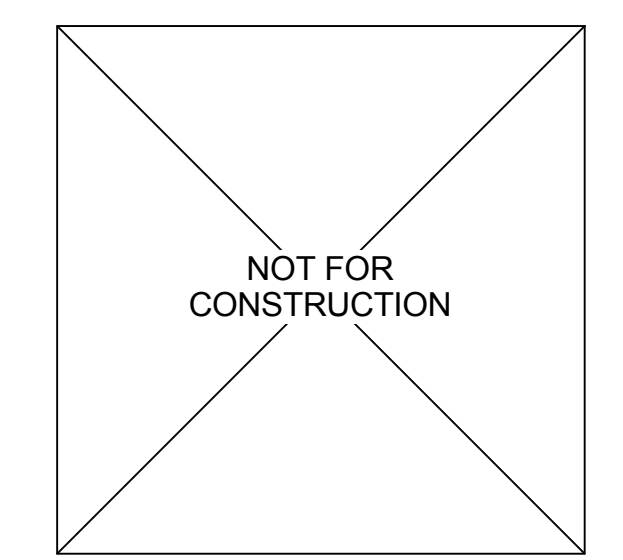
04-A301



- KEYNOTES**
- 5.04 STEEL ANGLE, RE: STRUCTURAL
 - 5.06 NEW STEEL BRACING, RE: STRUCTURAL
 - 5.26 METAL GRATING
 - 7.39 MANUFACTURED COPING
 - 8.04 OVERHEAD RUBBER ROLLING DOOR
 - 32.07 8" DIAMETER CONCRETE FILLED METAL BOLLARD

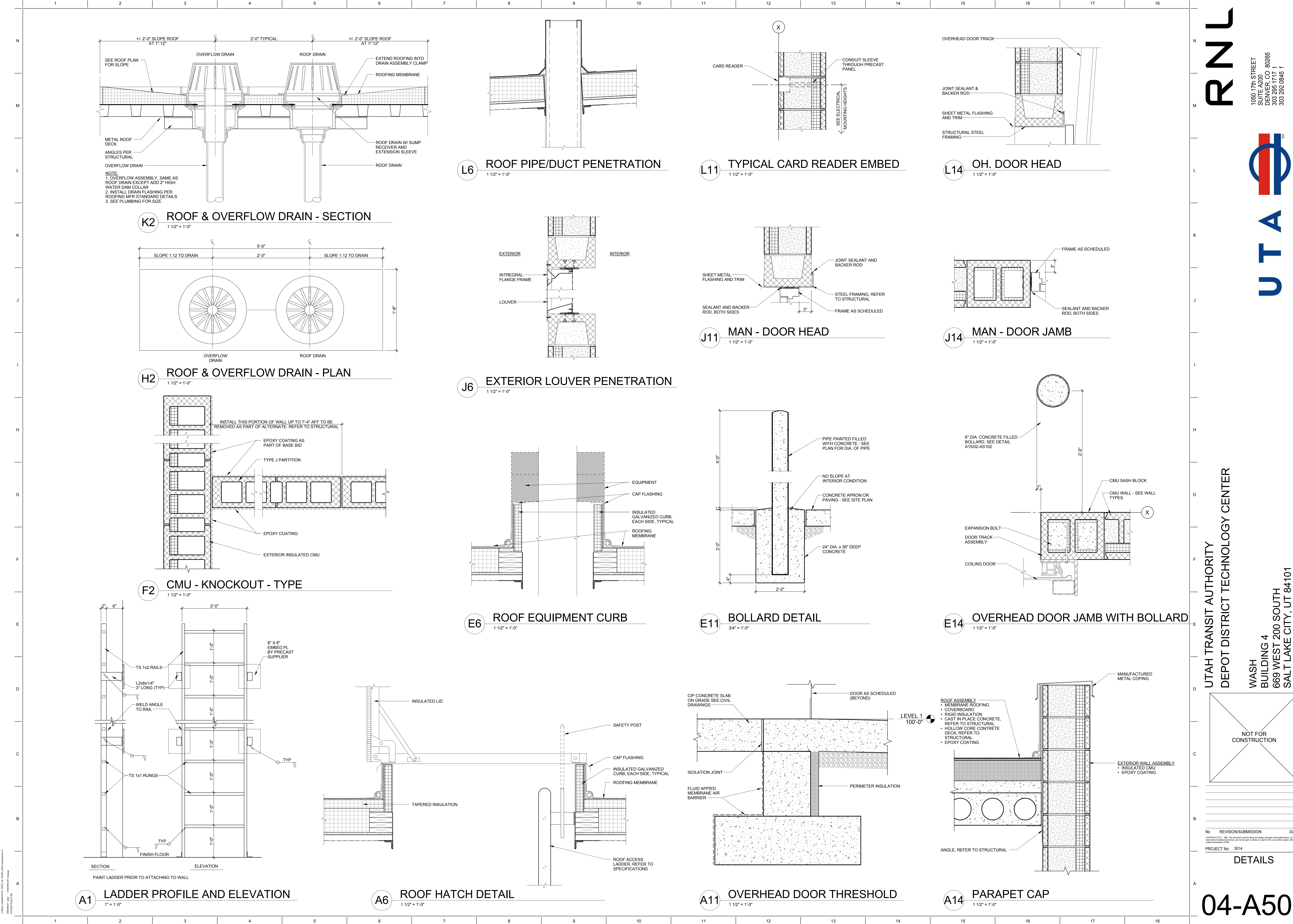
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PROJECT No:	3514	
WALL SECTIONS		

04-A311



04-A501
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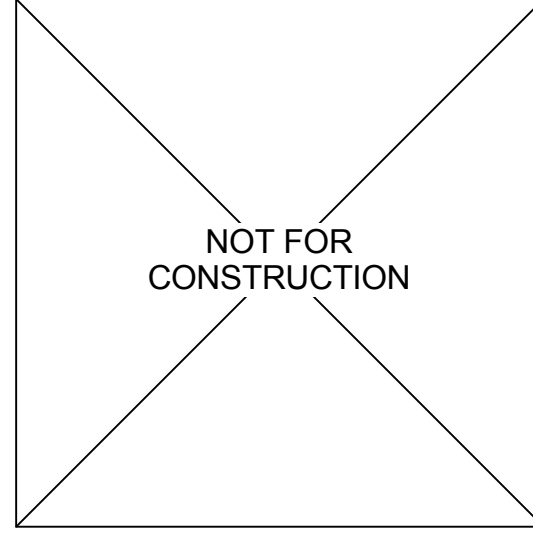
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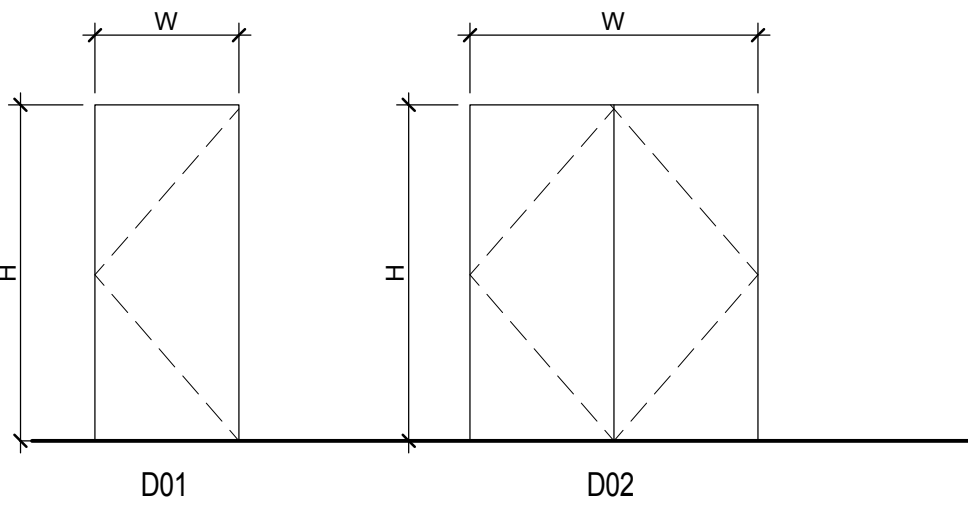
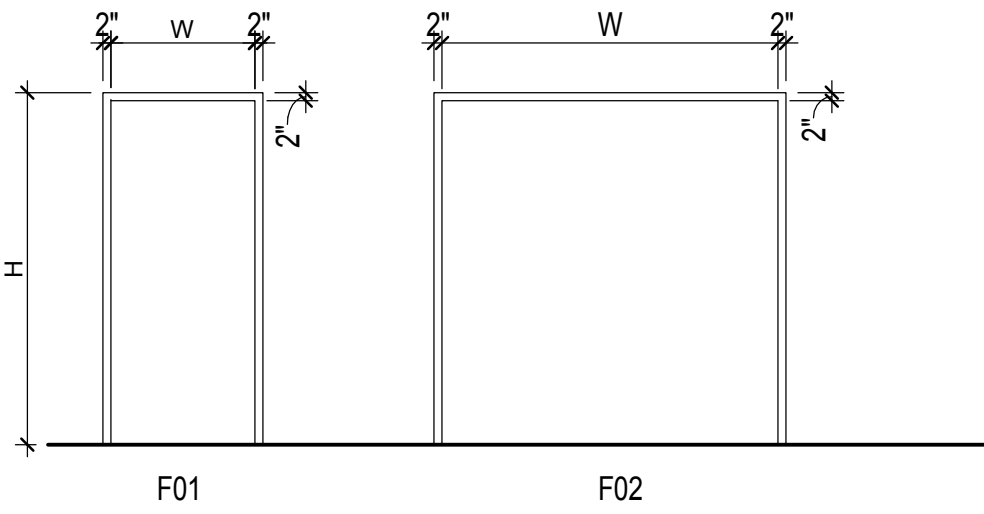


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DETAILS

04-A501

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Drawn By: JAC Date: 03/24/25
13:03:00 03/24/25



DOOR AND FRAME LEGEND

1/4" = 1'-0"

CONCRETE FLOOR

CON
1 SEALED CONCRETE
FINISH: CLEAR

STATIC DISSIPATIVE TILE

SDT
1 COLOR:
SIZE:
DESCRIPTION:

BASES

RBB
1 RUBBER WALL BASE
MFR:
STYLE:
COLOR:
SIZE:

PAINT

PNT
1 PAINT - EPOXY
MANUFACTURER:
TYPE:
COLOR:
FINISH: SEMI-GLOSS

PNT
2 PAINT
MANUFACTURER:
TYPE:
COLOR:
FINISH: SEMI-GLOSS

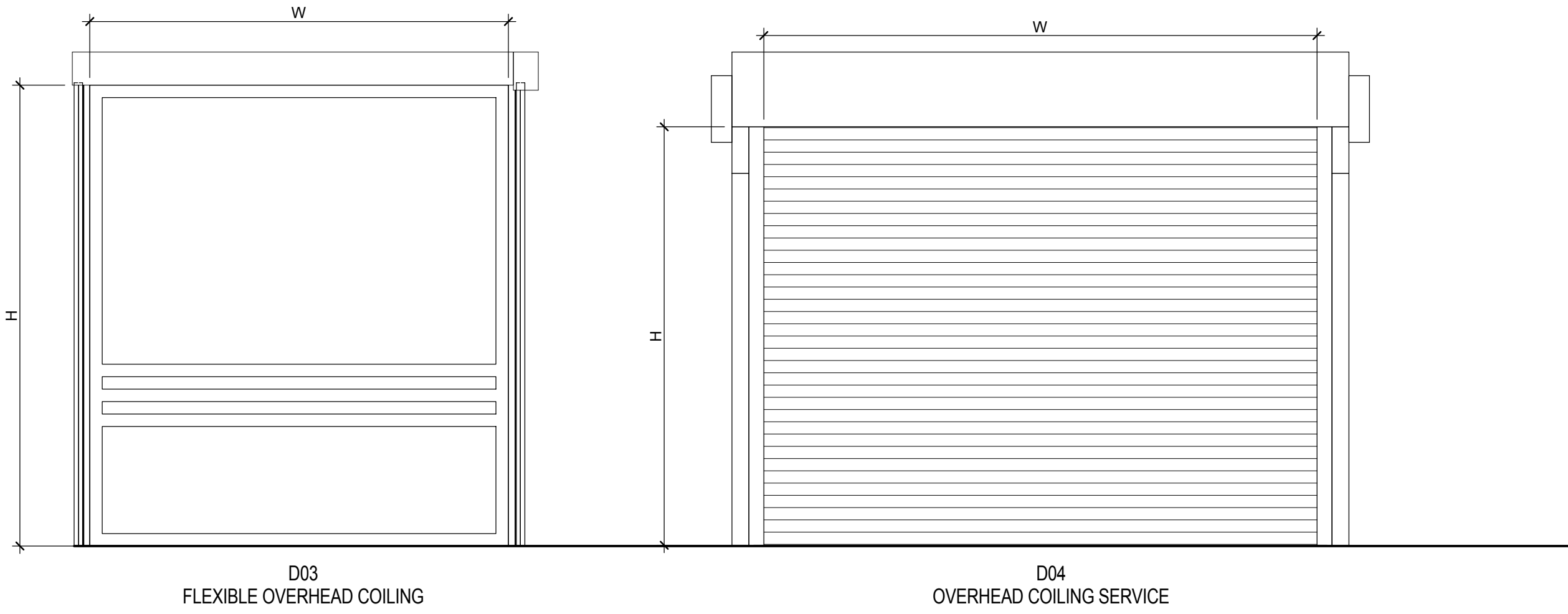
WALL PANELS/PROTECTION

PLY
1 PLYWOOD - TELE COMM ROOMS
THICKNESS: 3/4"
PATTERN: BOND PATTERN
FINISH:
APPLICATION: MECHANICALLY ATTACHED TO WALLS

FINISH LEGEND

1/4" = 1'-0"

DOOR AND FRAME SCHEDULE																		
NO	HW	DOOR SIZE	DOOR SIZE	DOOR SIZE	DOOR	DOOR	DOOR	DOOR	FRAME	FRAME	FRAME	FRAME	DETAILS	DETAILS	DETAILS	FIRE RATING	REMARKS	NOTES
		W	H	T	TYPE	MATL	FINISH	GLASS	TYPE	MATL	FINISH	GLASS	HEAD	JAMB	SILL			
101A		14'-0"	14'-0"	1/8"	D03	FABRIC	INTEGRAL		MANF	STL	PNT						1,2,3a,3b	HIGH SPEED COILING
101B		3'-0"	7'-2"	1 3/4"	D01	FG	PNT		F01	FG	PNT						6,10	FIBERGLASS DOOR + FRAME
101C		3'-0"	7'-2"	1 3/4"	D01	FG	PNT		F01	FG	PNT						6,10	FIBERGLASS DOOR + FRAME
101D		14'-0"	14'-0"	1/8"	D03	FABRIC	INTEGRAL		MANF	STL	PNT						1,2,3b	HIGH SPEED COILING
102A		3'-0"	7'-2"	1 3/4"	D01	STL	PNT		F01	HM	PNT						6,10	FIBERGLASS DOOR + FRAME
102B		10'-0"	10'-0"	3/4"	D04	STL	PNT		MANF	HM	PNT						1,2	STANDARD
103		3'-0"	7'-2"	1 3/4"	D01	STL	PNT		F01	HM	PNT						10	FIBERGLASS DOOR + FRAME
104		3'-0"	7'-2"	1 3/4"	D02	STL	PNT		F02	HM	PNT						6,10	FIBERGLASS DOOR + FRAME
105A		14'-0"	14'-0"	1/8"	D03	FABRIC	INTEGRAL		MANF	FG	PNT						1,2,3a,3b	HIGH SPEED COILING
105B		14'-0"	14'-0"	1/8"	D03	FABRIC	INTEGRAL		MANF	FG	PNT						1,2,3b	HIGH SPEED COILING
105C		3'-0"	7'-2"	1 3/4"	D01	FG	PNT		F01	FG	PNT						6,10,14	FIBERGLASS DOOR + FRAME



D03
FLEXIBLE OVERHEAD COILING

D04
OVERHEAD COILING SERVICE

ROOM FINISH SCHEDULE

ROOM NAME	ROOM #	AREA	FLOOR FINISH	BASE FINISH	WALLS				CEILING FINISH
					NORTH	EAST	SOUTH	WEST	
BUS WASH	101	1,958 SF	CON-1		PT-1	PT-1	PT-1	PT-1	PT-1 CEILINGS
WASH EQUIPMENT ROOM	102	976 SF	CON-1		PT-1	PT-1	PT-1	PT-1	PT-1 CEILINGS
DATA/COMM	103	130 SF	SDT	RB	PLY / PNT-2	PLY / PNT-2	PLY / PNT-2	PLY / PNT-2	
ELEC ROOM	104	134 SF	SDT		PT-2	PT-2	PT-2	PT-2	
BUS WASH PHASE 2	105	1,925 SF	CON-1		PT-1	PT-1	PT-1	PT-1	PT-1 CEILINGS

SHEET NOTES

- A. PROVIDE ALL OVERHEAD BUS DOORS WITH 3" TRACKS AND ROLLERS AND HEAVY DUTY SPRINGS.
B. WASH CONTROLS: 1. OVERHEAD DOORS ON OVERRIDE SWITCH 2. WASH EQUIPMENT NEED OVERRIDE ON/OFF SWITCH (EACH BAY WILL REQUIRE THERE OWN SWITCHES)

DOOR/FRAME FINISH LEGEND

PRE PREFINISHED ALUMINUM
TP TRANSPARENT FINISH
PT- PAINT, SEE FINISH LEGEND ON SHEET A-700
MANF COLOR CHOSEN BY ARCHITECT FROM MANUFACTURES STANDARD COLORS
PRE FINISHED
GALV GALVANIZED
GL ALL GLASS LOBBY DOORS
POLY POLYCARBONATE
FG FIBERGLASS

ABBREVIATIONS

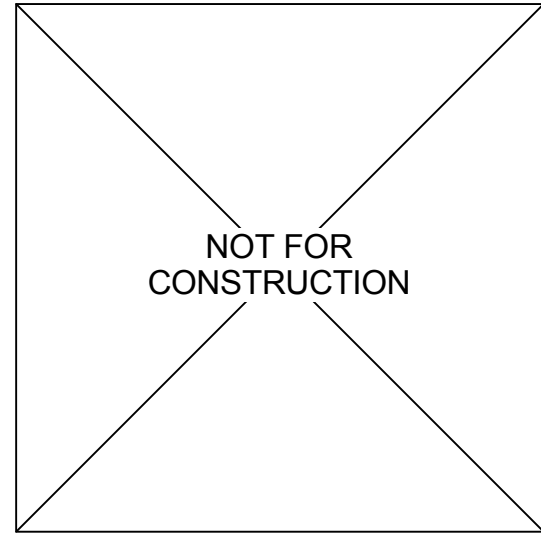
AL ALUMINUM
GL- GLAZING TYPE
HM HOLLOW METAL
SC SOLID CORE WOOD DOOR
STL STEEL
WWM WWF2x2 W2,9/2,9 WELDED WIRE FABRIC,GALV
SSTS STAINLESS STEEL SCREEN

REMARKS LEGEND

- 1 PUSH BUTTONS INSIDE
2 PUSH BUTTONS OUTSIDE
3a GROUND LOOP WITH MANUAL OVERRIDE - INTERIOR - CLASS 1 DIVISION 2
3b GROUND LOOP WITH MANUAL OVERRIDE - EXTERIOR
4a ADA PUSH BUTTON - INTERIOR
4b ADA PUSH BUTTON - EXTERIOR
4c ADA PUSH BUTTON - PEDESTAL
5 HOOK TO OVERRIDE FOR EMERGENCY EXHAUST INTAKE
6 PANIC HARDWARE
7 COLOR TO BE SELECTED FROM MFR STANDARD
8 DOOR LOUVER, SEE MECHANICAL
9 MAGNETIC HOLD CLOSED
10 CARD READER
11 PNEUMATIC OPERATOR
12 KEY LOCK
13 OPENING SENSOR
14 ALTERNATE OPTION - SEE 01-A114A

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DOOR & FINISH
SCHEDULE, FINISH
LEGEND

04-A601

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Checked by: [Signature] Date: 03/31/2015
Drawn by: [Signature] Date: 03/31/2015

#	SHEET NAME
04-P001	PLUMBING - MECHANICAL LEGEND, SYMBOLS & ABBREVIATIONS
04-P101	LEVEL 1 PLUMBING FLOOR PLAN
04-P501	PLUMBING DETAILS
04-P601	PLUMBING SCHEDULES
04-M101	LEVEL 1 MECHANICAL HVAC FLOOR PLAN
04-M102	MECHANICAL ROOF PLAN
04-M201	LEVEL 1 MECHANICAL PIPING FLOOR PLAN
04-M301	SCHEMATICS AND SEQUENCE OF OPERATIONS
04-M501	MECHANICAL DETAILS
04-M601	MECHANICAL SCHEDULES
04-M901	MECHANICAL ENERGY CODE COMPLIANCE DOCUMENTATION
04-M902	MECHANICAL ENERGY CODE COMPLIANCE DOCUMENTATION

ABBREVIATIONS

Ø	ROUND OR DIAMETER	LWT	LEAVING WATER TEMPERATURE
AD	ACCESS DOOR	MAX	MAXIMUM
AF	AIRFOIL	MBH	THOUSAND BRITISH THERMAL UNIT/SHOUR
AFF	ABOVE FINISHED FLOOR	MECH	MECHANICAL
ALT	ALTERNATE	MIN	MINIMUM
BI	BACKWARD INCLINED	NC	NOISE CRITERIA OR NORMALLY CLOSED
BOD	BOTTOM OF DUCT	NIC	NOT IN CONTRACT
BOP	BOTTOM OF PIPE	NO	NUMBER
BTUH	BRITISH THERMAL UNITS PER HOUR	NOM	NOMINAL
CAP	CAPACITY	NTS	NOT TO SCALE
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
CV	CONSTANT VOLUME	OBD	OPPOSED BLADE DAMPER
DB	DRY BULB	OD	OVERFLOW DRAIN
DN	DOWN	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
DIA	DIAMETER	OFOI	OWNER FURNISHED, OWNER INSTALLED
DCW	DOMESTIC COLD WATER	PD	PRESSURE DROP
DHW	DOMESTIC HOT WATER	POC	POINT OF CONNECTION
DHWC	DOMESTIC HOT WATER CIRC.	PRV	PRESSURE REDUCING VALVE
DSN	DOWN SPOUT NOZZLE	PSI	POUNDS PER SQUARE INCH
DW	DISHWASHER	PSIG	POUNDS PER SQUARE INCH GAUGE
(E)	EXISTING	RA	RETURN AIR
EA	EXHAUST AIR	RAD	RADIUS
EAT	ENTERING AIR TEMPERATURE	RD	ROOF DRAIN
EFF	EFFICIENCY	RRBP	REDUCED PRESSURE BACKFLOW PREVENTER
ELEV	ELEVATION	SA	SUPPLY AIR OR SHOCK ARRESTOR
ENCL	ENCLOSURE	SEN	SENSIBLE
ESP	EXTERNAL STATIC PRESSURE	SIM	SIMILAR
ET	EXPANSION TANK	SL	SEA LEVEL
EWC	ELECTRIC WATER COOLER	SP	STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE	SF	SQUARE FEET
FCO	FLOOR CLEANOUT	SS	SERVICE SINK OR STAINLESS STEEL
FD	FLOOR DRAIN	TOO	TOP OF DUCT
FO	FLAT OVAL	TSP	TOTAL STATIC PRESSURE
FPM	FEET PER MINUTE	TYP.	TYPICAL
FS	FLOOR SINK	U	URINAL
FT	FEET	V	VENT
FV	FACE VELOCITY	VAV	VARIABLE AIR VOLUME
GA	GAUGE	VD	VOLUME DAMPER
GAL	GALLON	VFD	VARIABLE FREQUENCY DRIVE
GD	GARAGE DRAIN	VOL	VOLUME
GPM	GALLONS PER MINUTE	VTR	VENT THROUGH ROOF
HP	HORSEPOWER	WI	WITH
HR	HOUR	W/O	WITHOUT
HT	HEIGHT	WB	WET BULB
IN	INCH	WC	WATER CLOSET
INWC	INCHES OF WATER COLUMN	MVD	MANUAL VOLUME DAMPER
INWG	INCHES OF WATER GAUGE	WCO	WALL CLEANOUT
L	LAVATORY OR LOUVER	WPD	WATER PRESSURE DROP
LAT	LEAVING AIR TEMPERATURE	WT	WEIGHT
LBS	POUNDS	W	SANITARY WASTE

MECHANICAL LEGEND

NOTE: ALL ITEMS MAY NOT APPEAR ON DRAWINGS

GATE VALVE		CHILLED WATER SUPPLY	
OS & Y PATTERN GATE VALVE		CHILLED WATER RETURN	
BALL VALVE		CONDENSER WATER SUPPLY	
BUTTERFLY VALVE		CONDENSER WATER RETURN	
MOTORIZED VALVE OPERATOR		GROUND LOOP SUPPLY	
GAS COCK		GROUND LOOP RETURN	
PLUG VALVE		HEATING WATER SUPPLY	
CHECK VALVE (SWING OR LIFT AS REQ'D)		HEATING WATER RETURN	
SOLENOID VALVE		RADIANT FLOOR SUPPLY	
AUTOMATIC CONTROL VALVE (2-WAY)		RADIANT FLOOR RETURN	
AUTOMATIC CONTROL VALVE (3-WAY)		SNOW MELT SUPPLY	
PRESSURE REDUCING VALVE		SNOW MELT RETURN	
P & T RELIEF VALVE		STEAM	
AIR VENT (AUTOMATIC)		STEAM CONDENSATE RETURN	
CURB COCK		WATER TREATMENT	
THERMAL EXPANSION VALVE		FUEL OIL SUPPLY	
STRAINER		FUEL OIL RETURN	
CALIBRATED BALANCE VALVE		REFRIGERANT LIQUID	
VENTURI FLOW METER		REFRIGERANT SUCTION	
REDUCER		HOT GAS	
PET COCK OR GAUGE COCK		HOT GAS BYPASS	
PRESSURE GAUGE W/GAUGE COCK		VACUUM	
THERMOMETER		MEDICAL AIR	
TEMPERATURE & PRESSURE TEST PLUG		OXYGEN	
IN-LINE PUMP		NITROUS OXIDE	
FLOW SWITCH		NITROGEN	
AQUASTAT		HYDROGEN	
TEMPERATURE SENSING WELL		HELIUM	
HOSE BIBB OR SILL COCK		CARBON DIOXIDE	
YARD HYDRANT		ARGON	
FLOOR DRAIN		DUCT SIZE (IN), FIRST FIGURE IS SIDE SHOWN	
FLOOR SINK		BURIED OR UNDERFLOOR DUCT	
MANHOLE		FLEXIBLE DUCT (HELICAL)	
WALL CLEANOUT		SPIN-IN FITTING W/ MVD	
FLOOR OR GRADE CLEANOUT		FLEXIBLE DUCT CONNECTION	
GRADE CLEANOUT W/ CONCRETE PAD		SUPPLY SLOT DIFFUSER	
VENT THROUGH ROOF		SUPPLY DIFFUSER	
POST TYPE FDC CONNECTION		RETURN GRILLE	
WALL TYPE FDC CONNECTION		RADIAL SUPPLY DIFFUSERS	
FIRE HOSE CABINET		RETURN AIR DUCT SECTION	
FIRE DEPT. HORN & LIGHT		RETURN AIR DUCT UP	
EXPANSION JOINT		RETURN AIR DUCT DOWN	
FLEXIBLE PIPE CONNECTION		SUPPLY AIR DUCT SECTION	
REDUCED PRESSURE BACKFLOW PREVENTER		SUPPLY AIR DUCT UP	
DIRECTION OF FLOW		SUPPLY AIR DUCT DOWN	
ELBOW DOWN		EXHAUST AIR DUCT SECTION	
ELBOW UP		EXHAUST AIR DUCT UP	
PIPE CAP		EXHAUST AIR DUCT DOWN	
TEE DOWN		ACCESS PANEL	
UNION		MANUAL VOLUME DAMPER	
DOMESTIC COLD WATER		GRAVITY BACKDRAFT DAMPER	
DOMESTIC HOT WATER		MOTORIZED DAMPER	
DOMESTIC HOT WATER CIRC.		AIR FLOW STATION	
TEMPERED WATER		FIRE DAMPER	
SANITARY (PLBG) VENT		SMOKE DAMPER	
SANITARY WASTE ABOVE GRADE		COMBINATION FIRE/SMOKE DAMPER	
SANITARY WASTE BELOW GRADE		DUCT TRANSITION	
GREASE WASTE ABOVE GRADE		ELBOW W/ TURNING VANES	
GREASE WASTE BELOW GRADE		TEE W/ 45° ENTRY	
DRAIN		WYE W/ 45° ENTRY	
ROOF DRAIN		THERMOSTAT OR TEMP SENSOR	
OVERFLOW DRAIN		HUMIDISTAT OR HUMIDITY SENSOR	
STORM DRAIN ABOVE GRADE		CARBON MONOXIDE SENSOR	
STORM DRAIN BELOW GRADE		CARBON DIOXIDE SENSOR	
FIRE SERVICE		NITROGEN DIOXIDE SENSOR	
NATURAL GAS		POINT OF REMOVAL FROM EXISTING	
PROPANE		POINT OF CONNECTION TO EXISTING	
COMPRESSED AIR		DETAIL TAG	
INDUSTRIAL WATER (NON-POTABLE)		DETAIL NO. DRAWING NO.	
DEIONIZED WATER		NOTE NO.	
DEIONIZED WATER RETURN		SECTION NO. DRAWING NO.	
HEAT TRACING			

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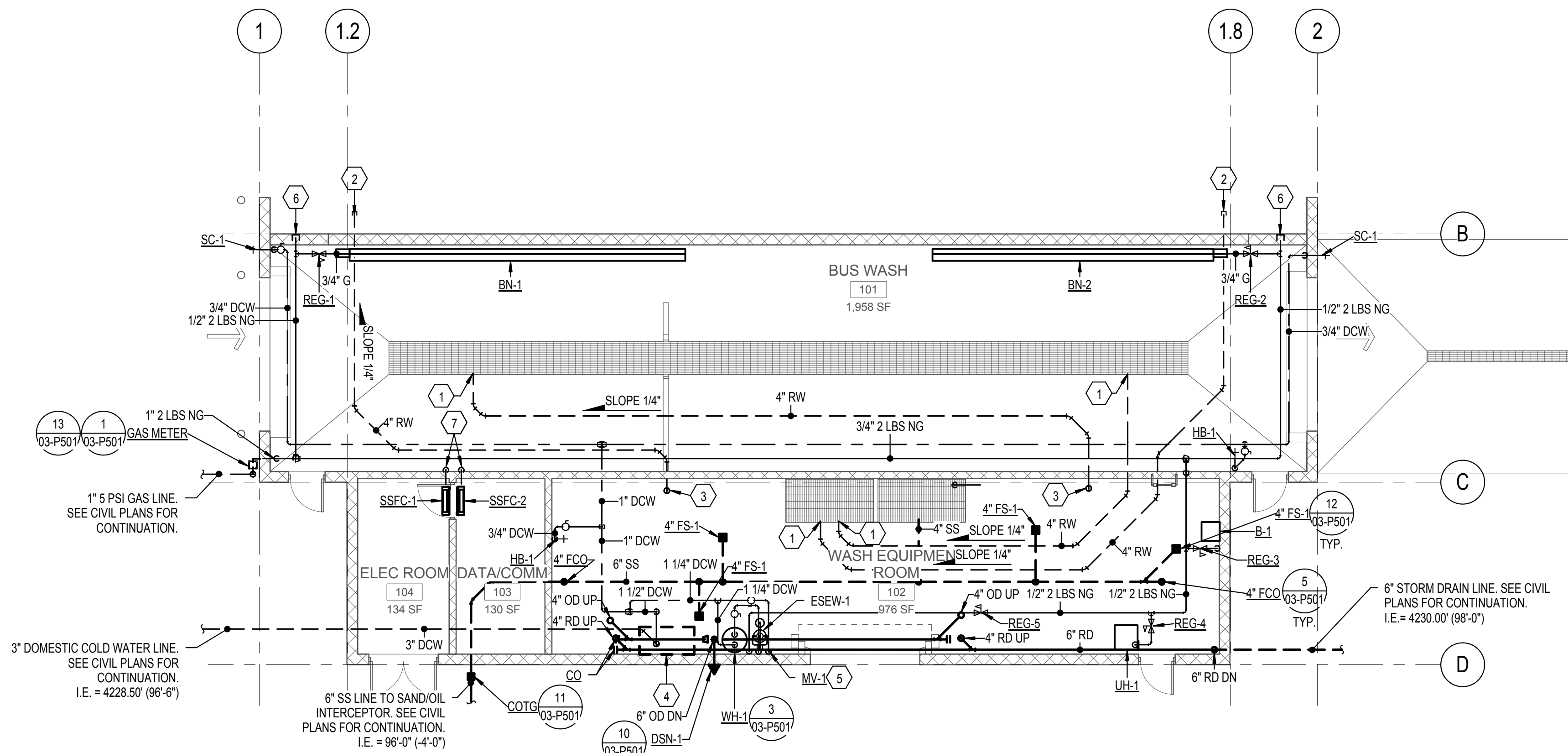
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PROJECT No:	3514	

PLUMBING - MECHANICAL
LEGEND, SYMBOLS &
ABBREVIATIONS

04-P001

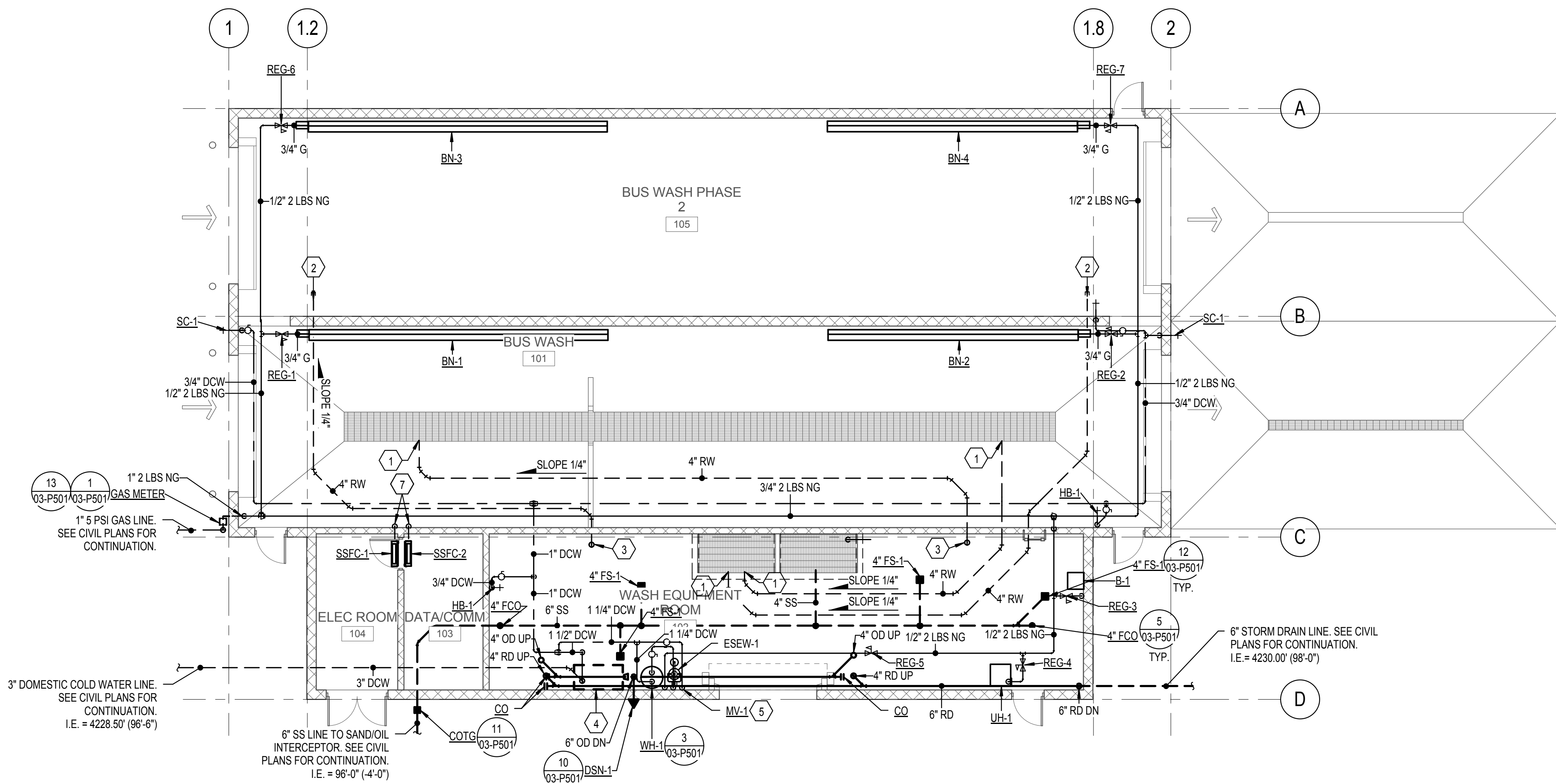
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Drawn By: AutoCAD 2010
Date: 03/31/2010
Project: 04-P101



LEVEL 1 PLUMBING FLOOR PLAN - ALTERNATE BID

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



LEVEL 1 PLUMBING FLOOR PLAN - BASE BID

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



KEYED NOTES

- COORDINATE EXACT RECYCLED WATER PLUMBING CONNECTION WITH STRUCTURAL, EQUIPMENT AND ARCHITECT.
- CAP 4" RECYCLED WATER CONNECTION TO FUTURE PHASE 2 AT 12" BEYOND NEW SLAB.
- CONNECT TO OVERFLOW FROM WASH EQUIPMENT BUFFER TANK. PLUMBING CONTRACTOR TO TERMINATE PIPE AT 6" ABOVE FINISHED FLOOR WITH A BLIND FLANGE. COORDINATE EXACT LOCATION WITH EQUIPMENT AND ARCHITECT.
- 60" X 30" AREA RESERVED FOR WATER ENTRY EQUIPMENT. SEE DETAIL 2/03-P501 FOR MORE INFORMATION.
- ROUTE 1-1/4" DOMESTIC COLD WATER AND DOMESTIC HOT WATER TO MV-1. ROUTE 1-1/4" TEMPERED WATER TO EMERGENCY SHOWER.
- CAP GAS PIPING FOR CONNECTION TO FUTURE PHASE 2 UNIT HEATERS.
- ROUTE 3/4" CONDENSATE DRAIN THROUGH WALL AND TERMINATE AT 6" ABOVE FINISHED FLOOR IN WASH BAY.

GENERAL NOTES

- A. ALL FIXTURES ROUTING TO SAND / OIL INTERCEPTOR SHALL BE UN-TRAPPED. SAND / OIL INTERCEPTOR WILL ACT AS THE TRAP FOR THE ENTIRE SYSTEM.

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LEVEL 1 PLUMBING
FLOOR PLAN

04-P101

RNL

1050 17TH STREET
SUITE 4200
DENVER CO 80265
303 295 1717
303 292 0845



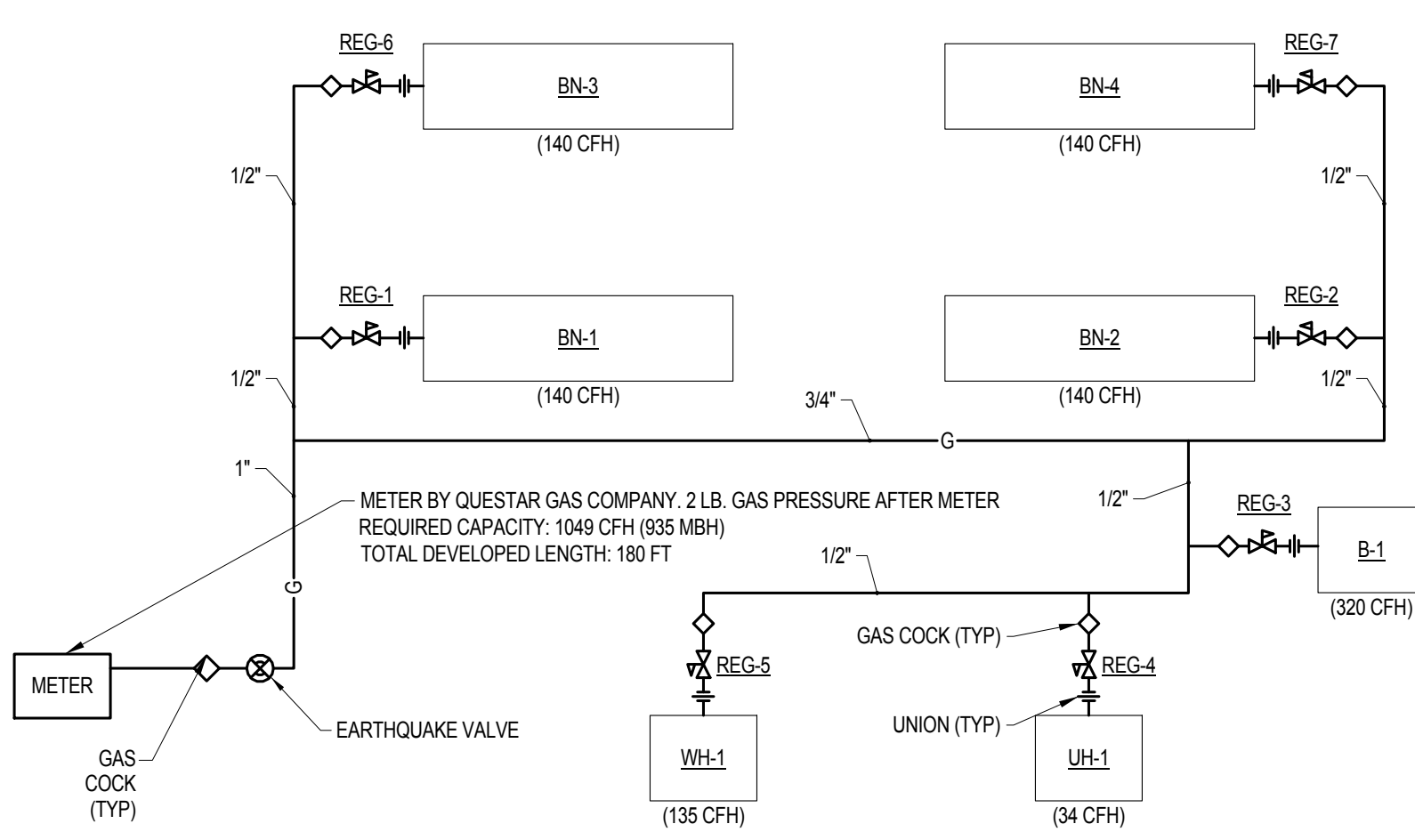
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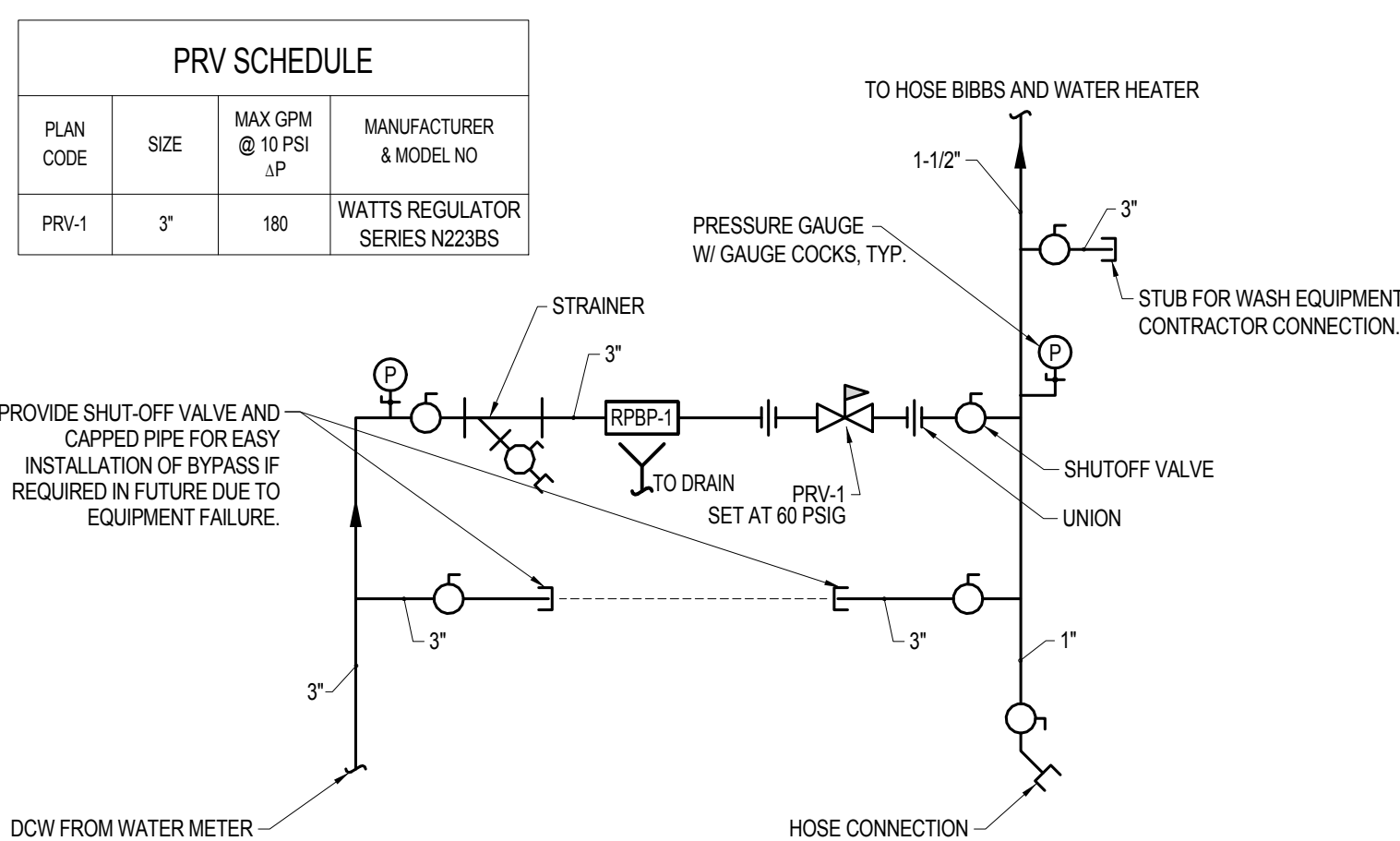
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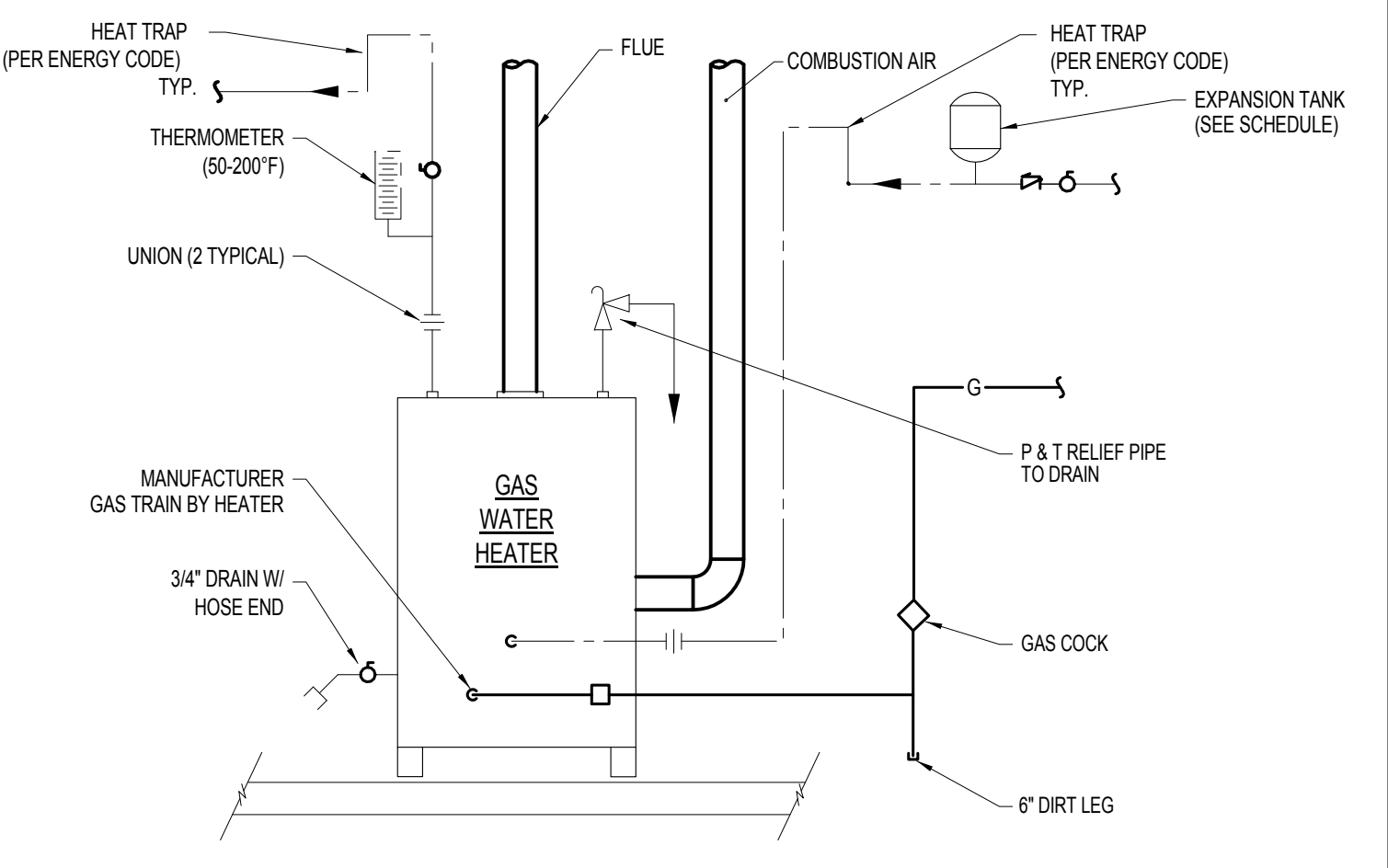
1 GAS PIPING SCHEMATIC

NO SCALE



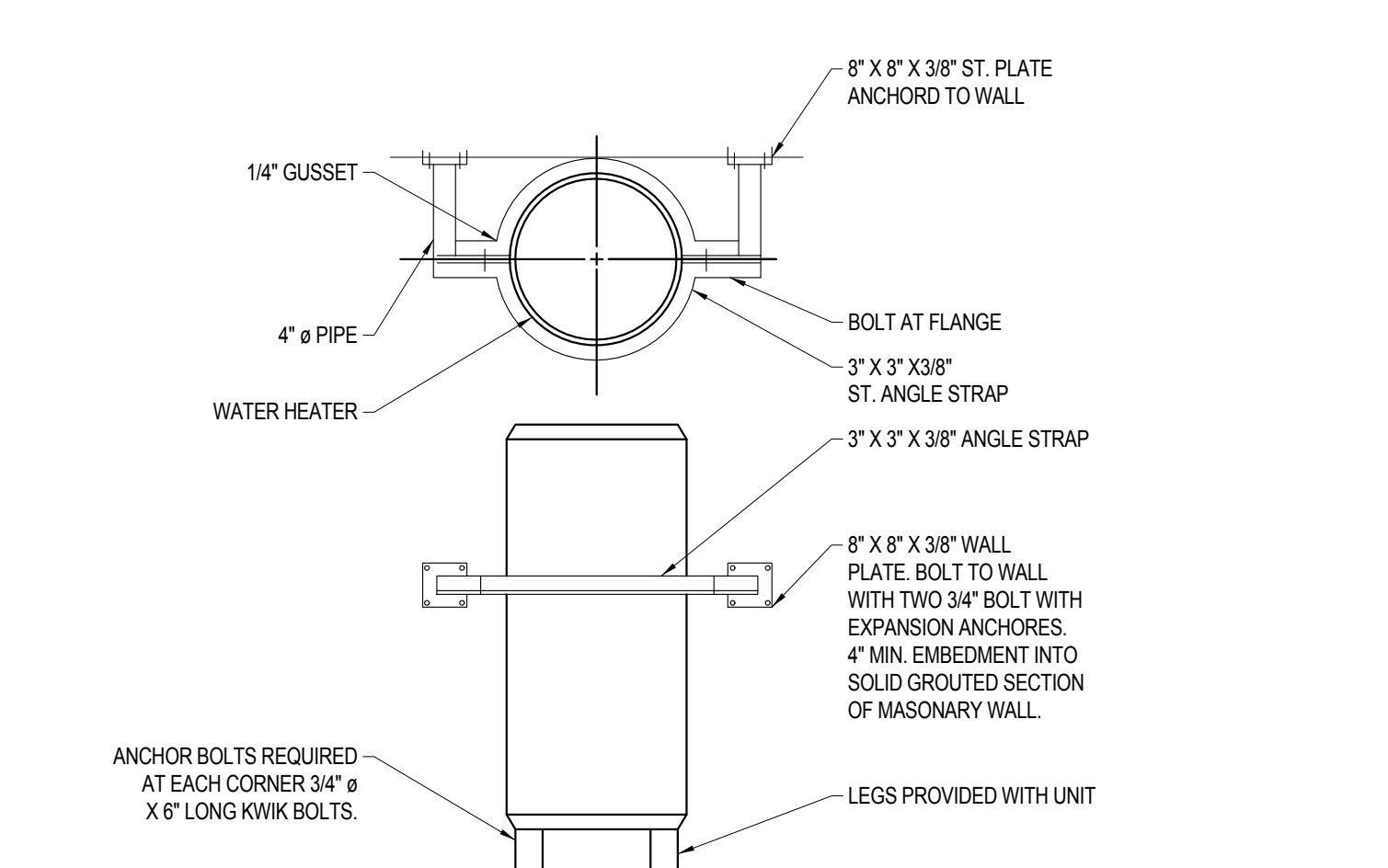
2 PRV STATION DETAIL

NO SCALE



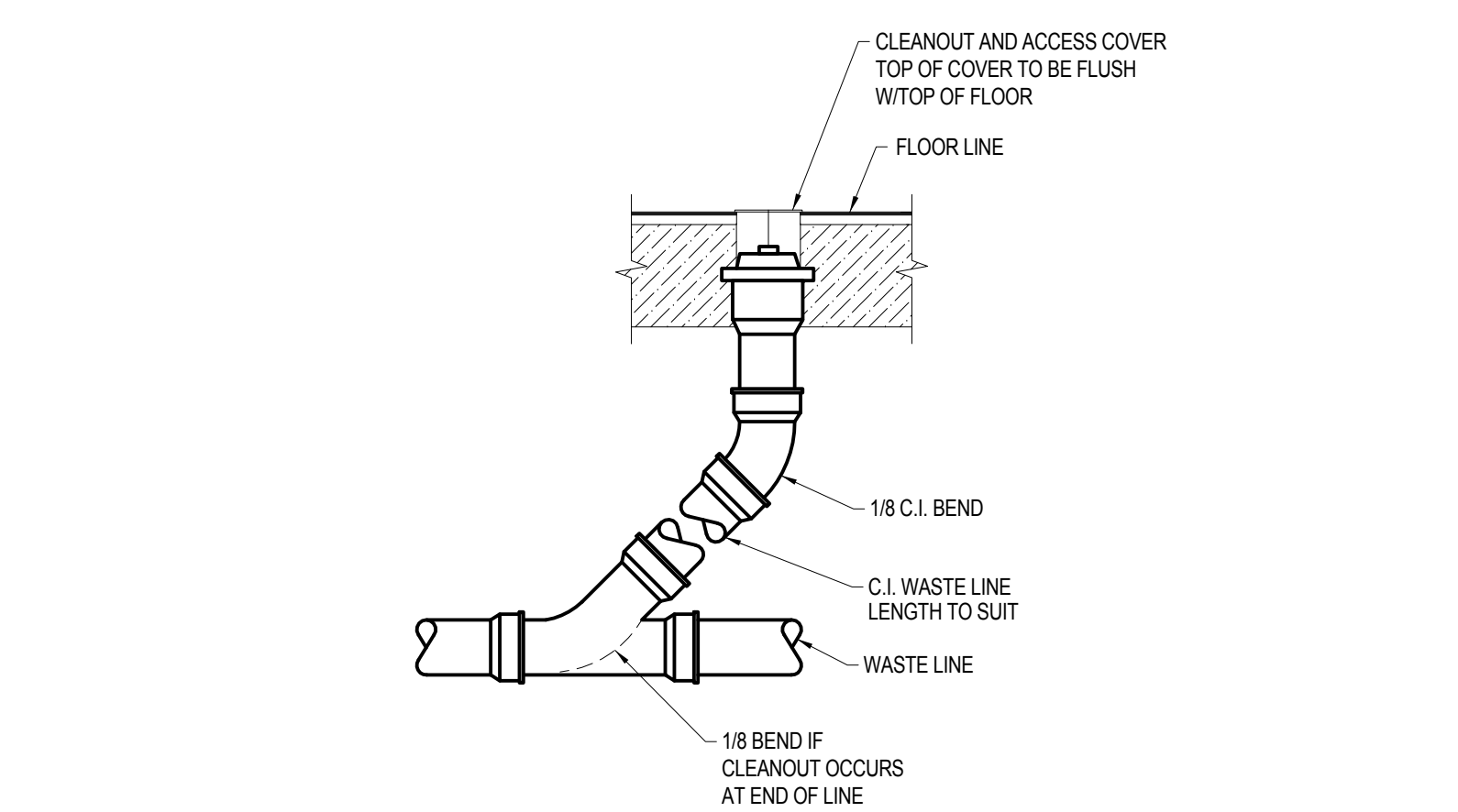
3 GAS WATER HEATER PIPING DETAIL

NO SCALE



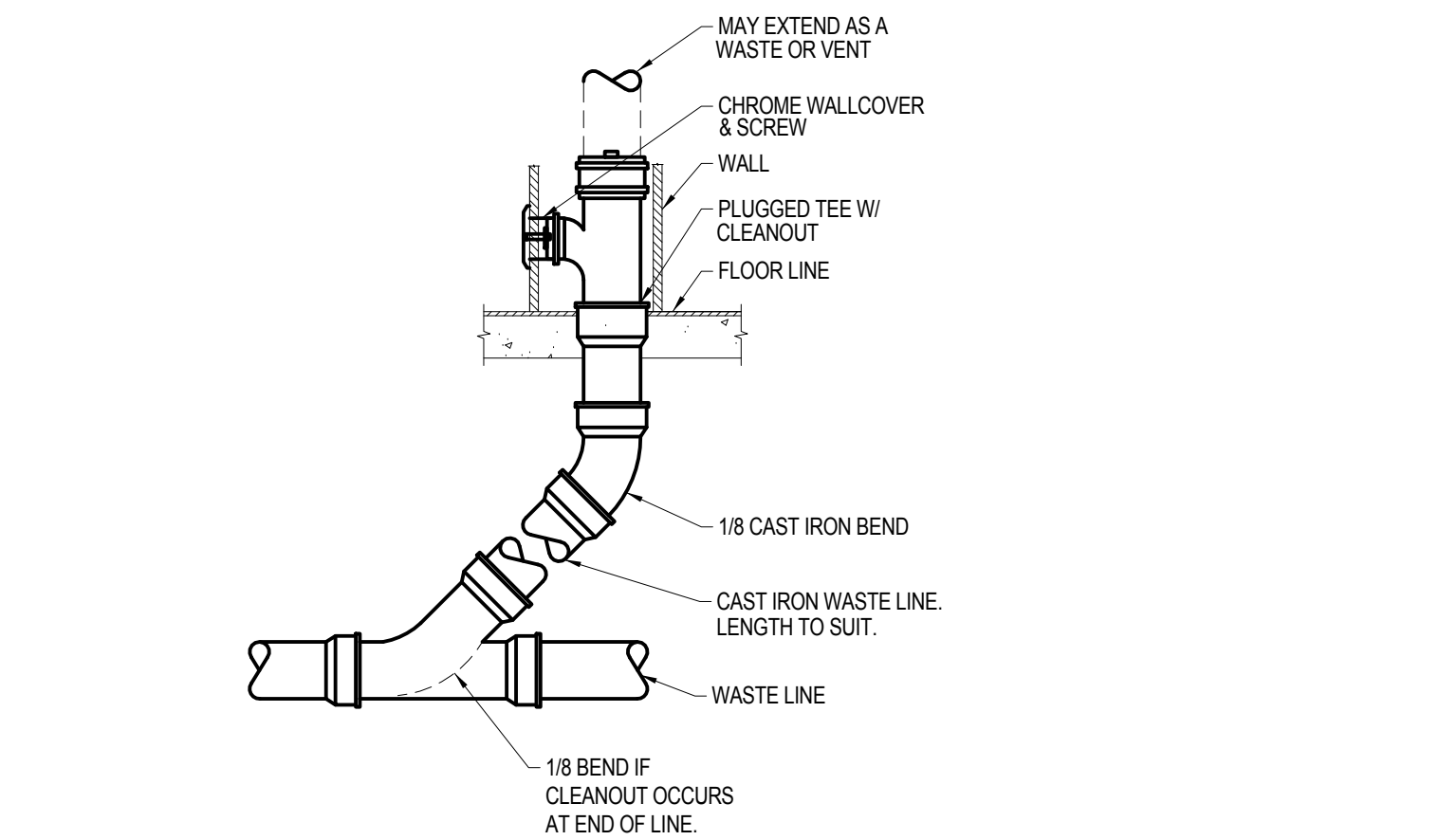
4 FLOOR MOUNTED WATER HEATER ANCHOR

NO SCALE



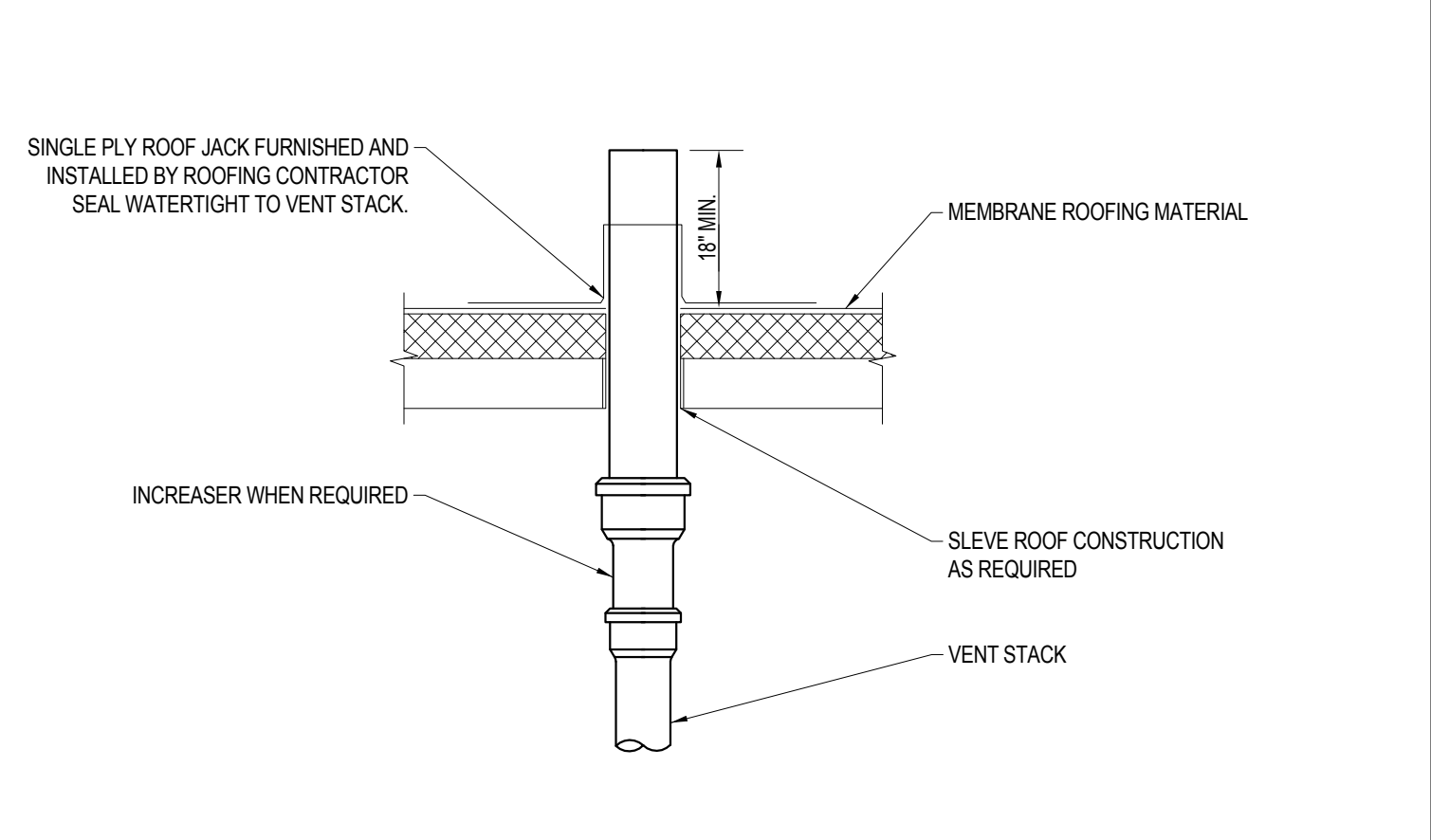
5 FLOOR CLEANOUT DETAIL

NO SCALE



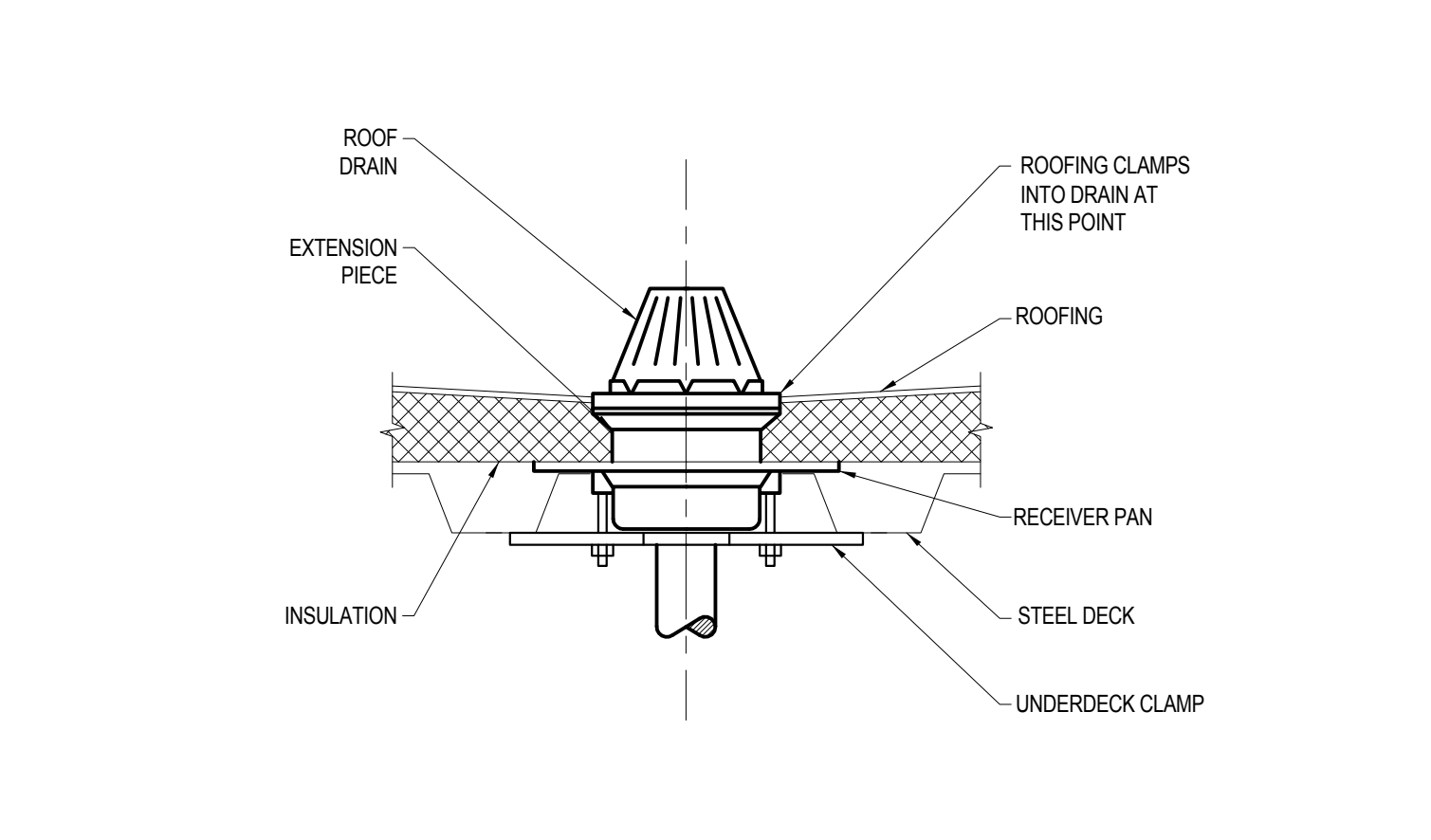
6 WALL CLEANOUT DETAIL

NO SCALE



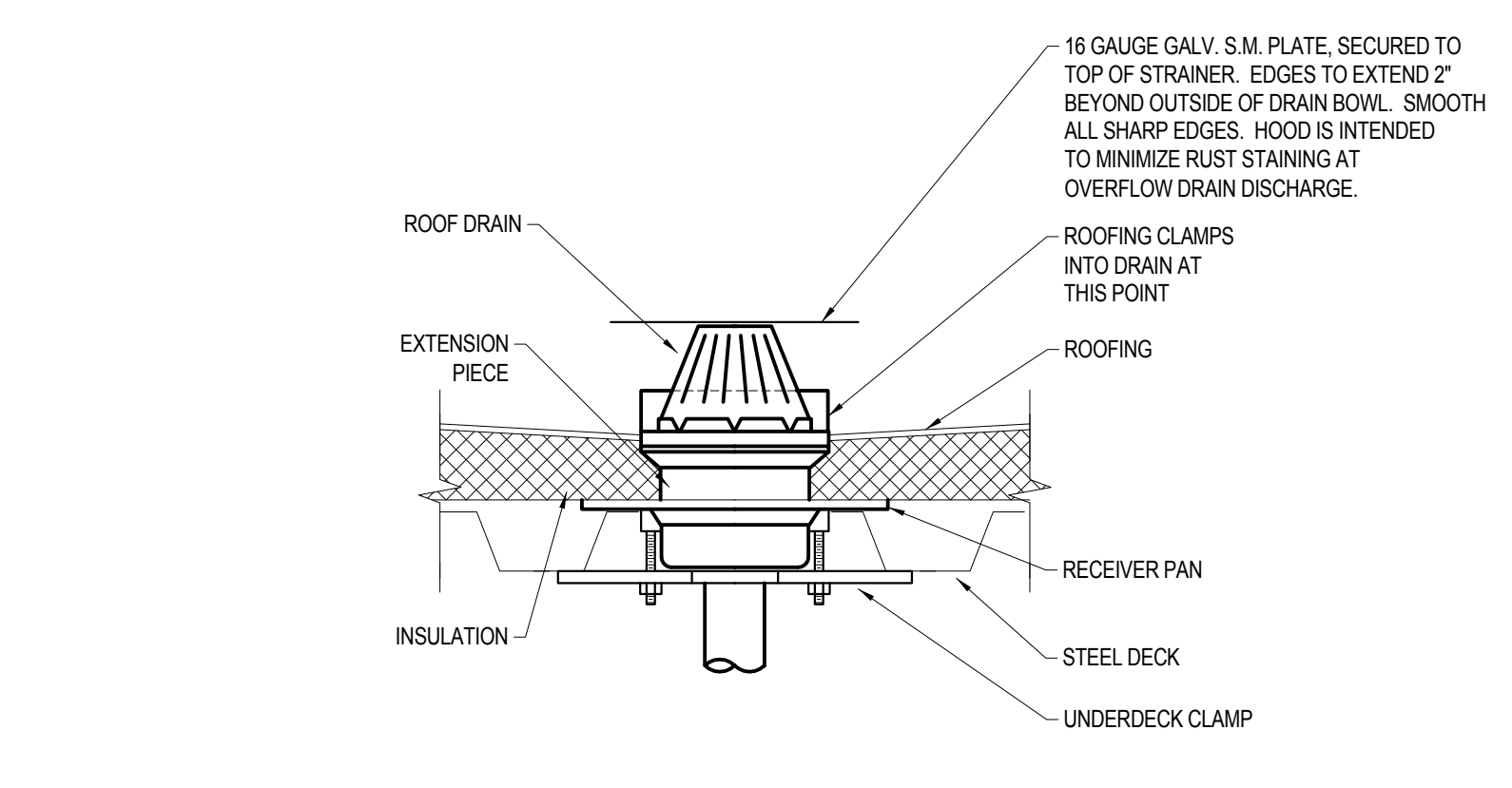
7 VENT THROUGH ROOF DETAIL

NO SCALE



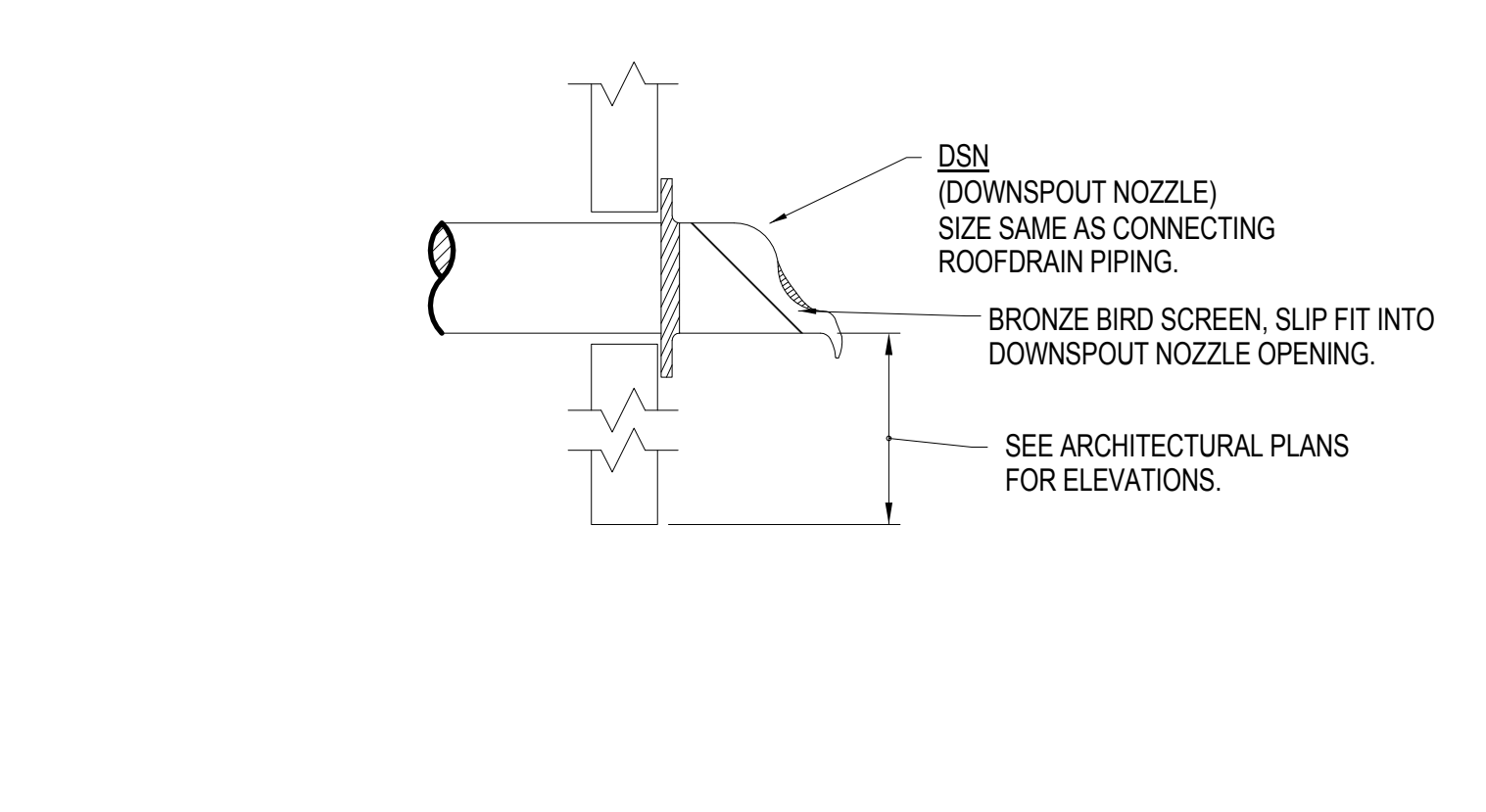
8 ROOF DRAIN DETAIL

NO SCALE



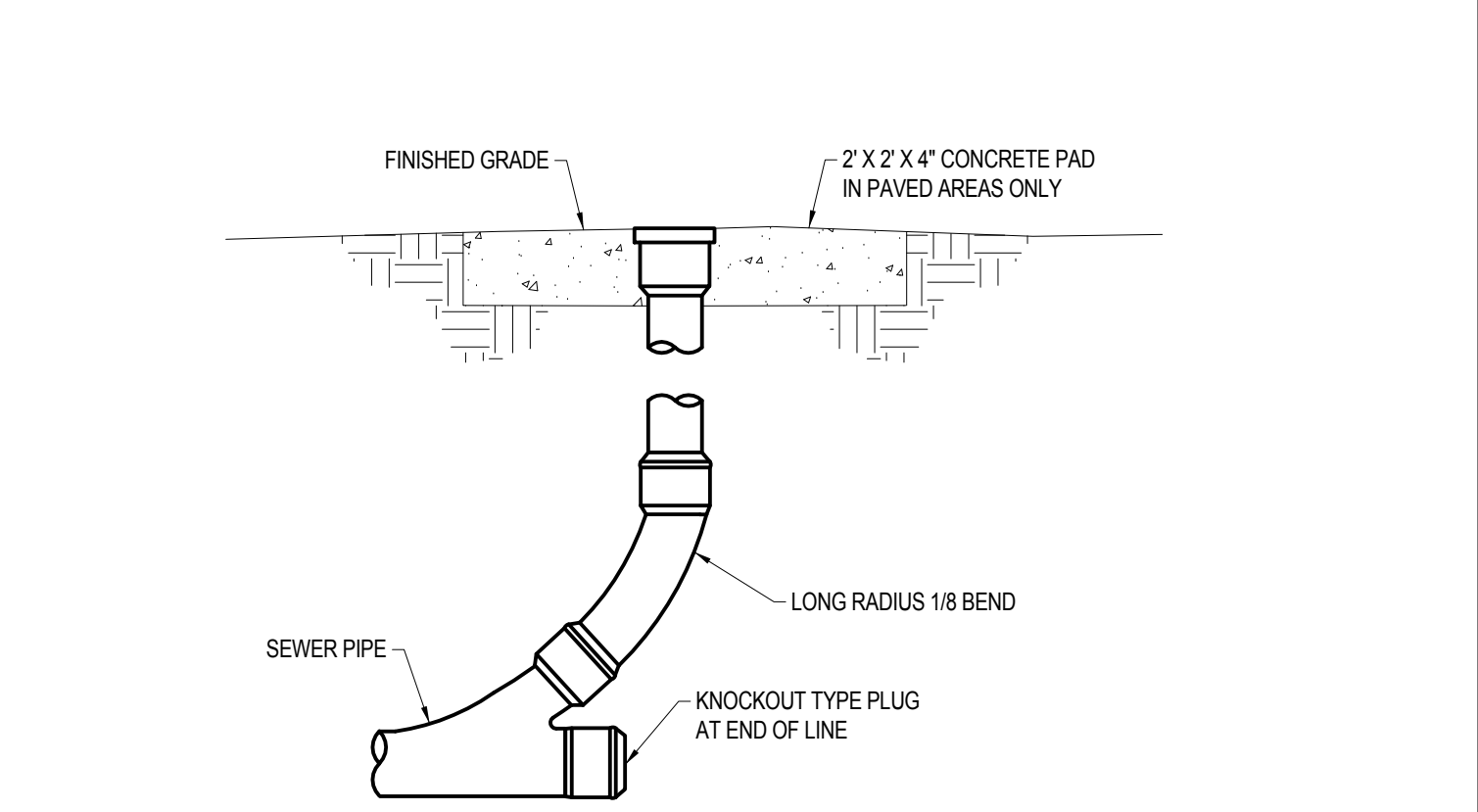
9 OVERFLOW ROOF DRAIN WITH HOOD DETAIL

NO SCALE



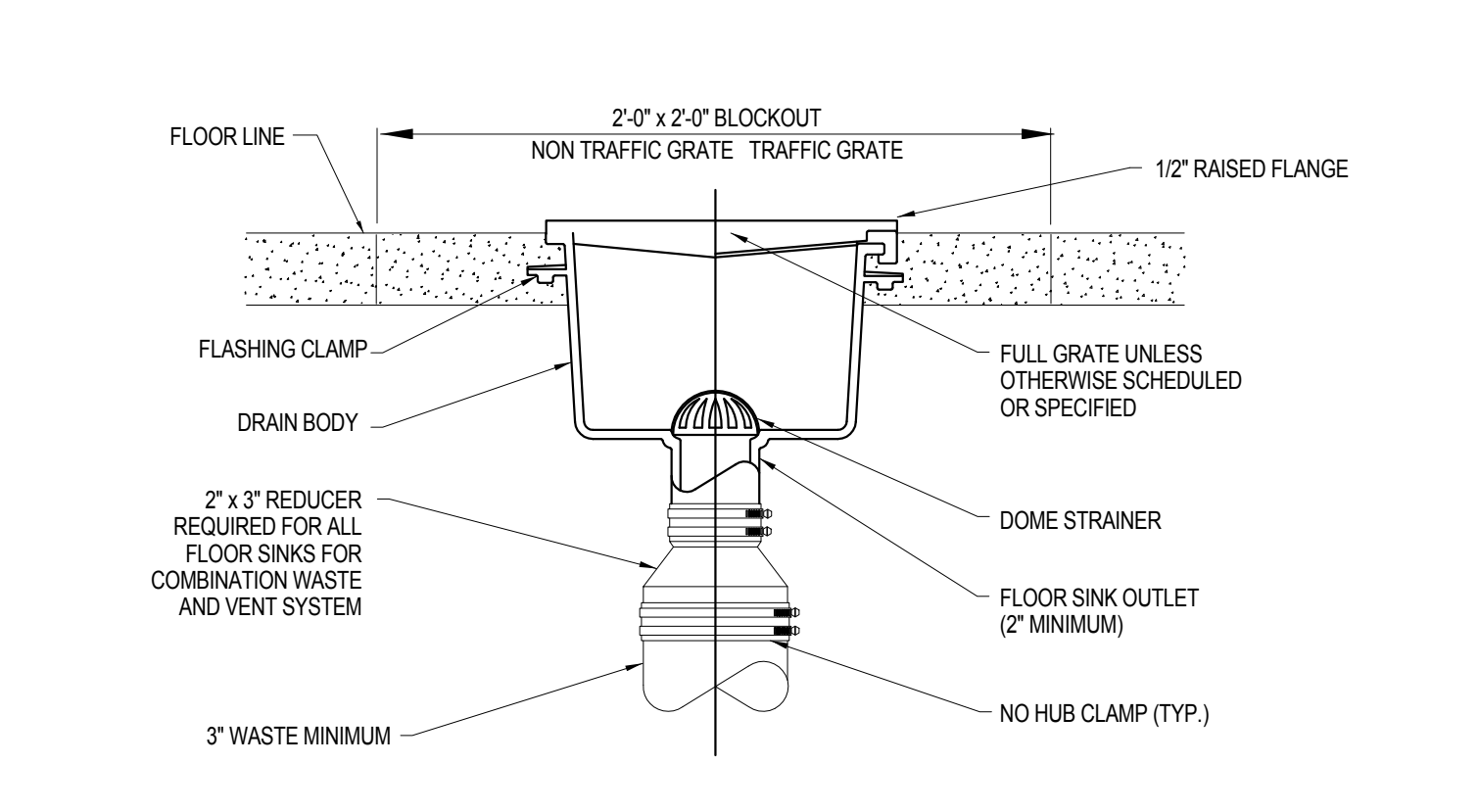
10 DOWNSPOUT NOZZLE DETAIL

NO SCALE



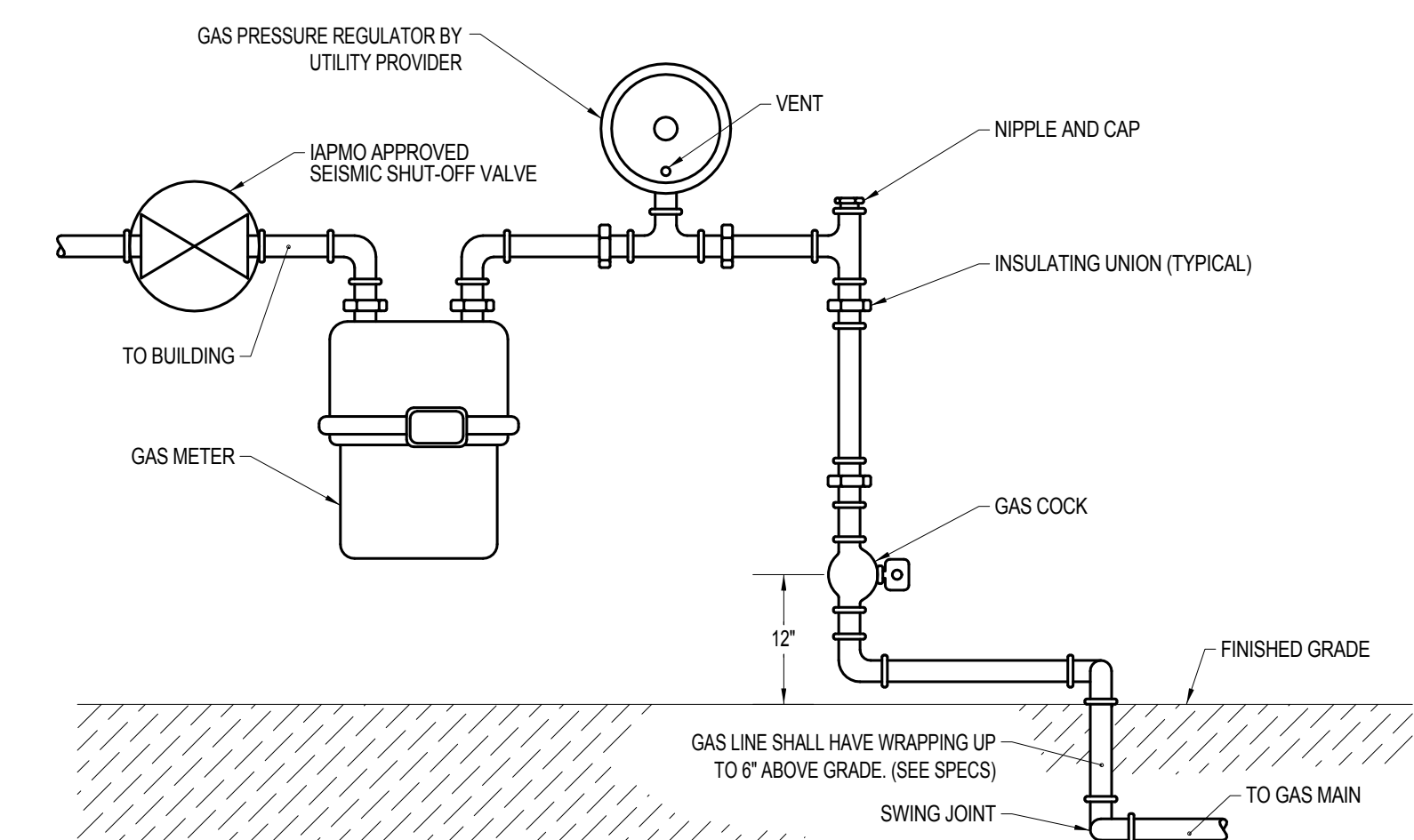
11 SURFACE CLEANOUT DETAIL

NO SCALE



12 FLOOR SINK DETAIL

NO SCALE



13 GAS METER SERVICE CONNECTION DETAIL

NO SCALE

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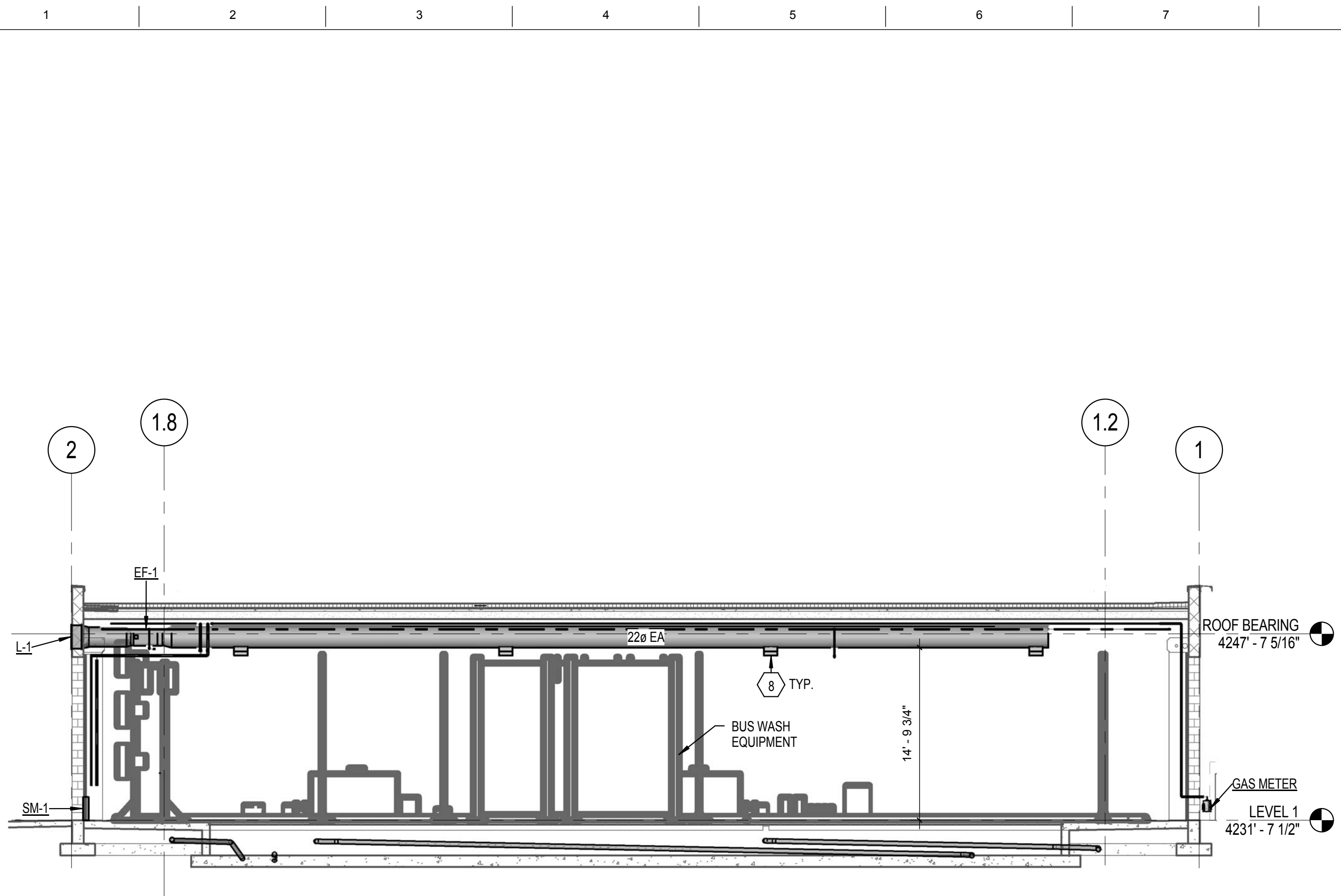
04-P501

MIXING VALVE SCHEDULE (MV)								
PLAN CODE	AREA SERVED	INLET SIZE	OUTLET SIZE	MINIMUM FLOW GPM	MAXIMUM FLOW GPM	MANUFACTURER & MODEL NO.		REMARKS
MV-1	EMERGENCY SHOWER	1 1/4"	1 1/4"	3	55	LEONARD TM-600-LF	①	-
① SET MIXING VALVE OUTLET TEMPERATURE TO 65°F.				② PROVIDE WALL MOUNTED ENCLOSURE.				

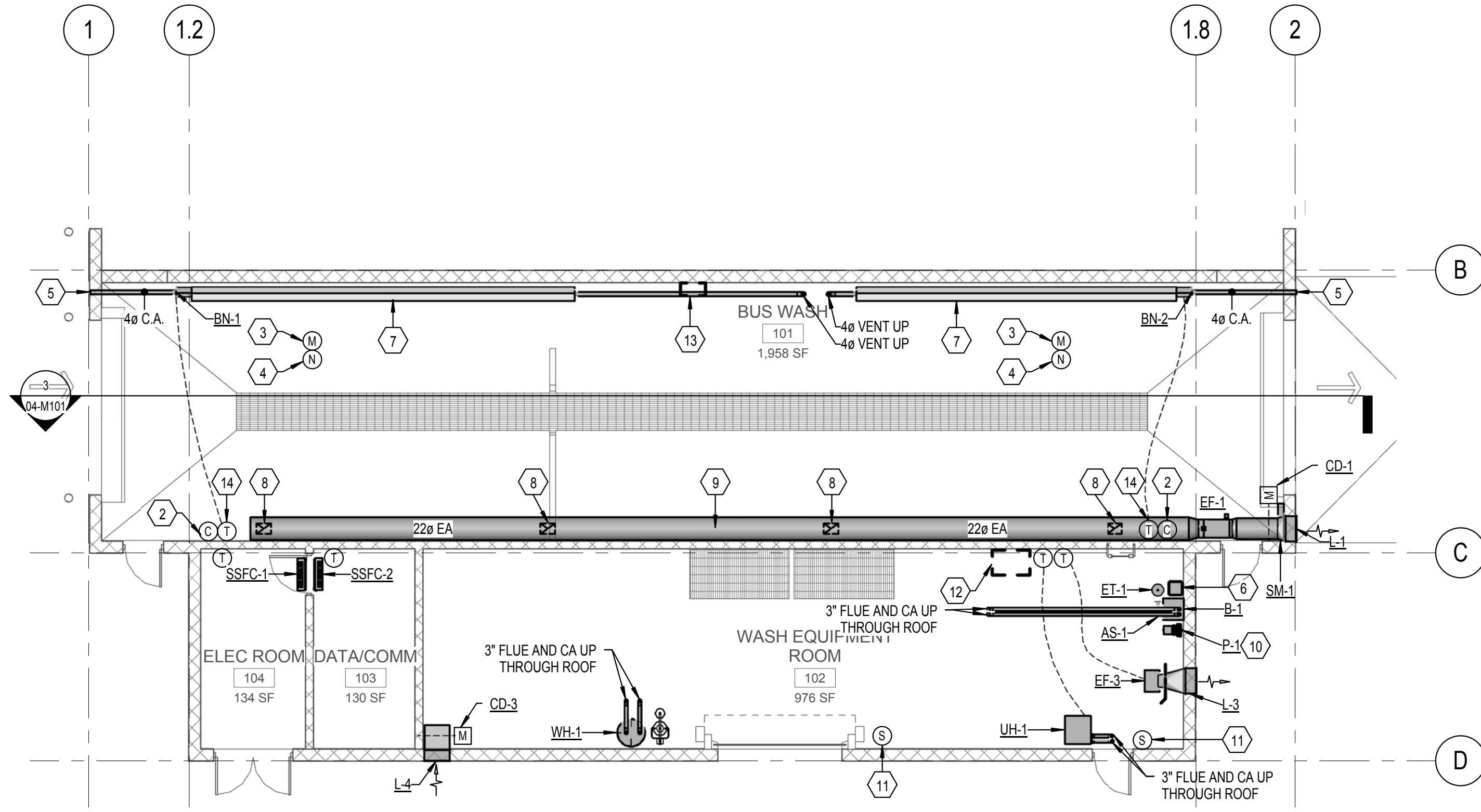
PLUMBING FIXTURE SCHEDULE							
PLAN CODE	DESCRIPTION	ROUGH-IN SIZE					MANUFACTURER & MODEL NO
		CW	HW	WASTE	VENT	STORM	
ESEW-1	EMERGENCY SHOWER EYE WASH		1-1/4"	-	-		BRADLEY S19314DC8F BARRIER FREE EXPOSED SHOWER AND EYEFACE WASH SYSTEM. PROVIDE GALVANIZED STEEL WITH BRADTIGHT SAFETY YELLOW COATING. CHROME PLATED BRASS BALL VALVES. TYPE 304 CORROSION-RESISTANT S.S. ACTIVATION HANDLE. PLASTIC SHOWER HEAD WITH PLASTIC SHROUD. HALO EYEFACE WASH. MODEL S19-2220 THERMOSTATIC MIXING VALVE (ASSE 10T1). OR EQUAL.
FD-1	FLOOR DRAIN (INDOOR FINISHED AREA USE)	-	-	SEE PLANS	1 1/2"	-	J.R. SMITH MANUFACTURING COMPANY FIG. 2005F-B-P105-AB DUCO CAST IRON FLOOR DRAIN. DRAIN TO BE PROVIDED WITH 2" OUTLET. SQUARE NICKEL BRONZE STRAINER HEAD. DEEP SEAL P-TRAP AND VANDAL PROOF SCREWS. TRAP PRIMER CONNECTION CAPPED IF NOT USED. STRAINER HEAD MUST BE HEEL PROOF. DEEP SEAL TRAP OR EQUAL.
FD-2	FLOOR DRAIN (OUTDOOR AREA USE)	-	-	SEE PLANS		-	J.R. SMITH MANUFACTURING COMPANY FIG. 2142 DUCO CAST IRON FLOOR DRAIN. DRAIN TO BE PROVIDED WITH 4" OUTLET. TRACTOR GATE STRAINER HEAD. DEEP SEAL P-TRAP. AND VANDAL PROOF SCREWS. STRAINER HEAD MUST BE HEAVY DUTY. OR EQUAL.
FS-1	FLOOR SINK	-	-	SEE PLANS	1 1/2"	-	J.R. SMITH MANUFACTURING COMPANY FIG. 3160-Y-ASS SQUARE FLOOR SINK. FLOOR SINK SHALL BE OF CAST IRON CONSTRUCTION WITH ENAMEL INTERIOR FINISH. MINIMUM INTERIOR DIMENSIONS OF 12"X12". PROVIDE WITH NICKEL BRONZE GRATE AND DEEP SEAL P-TRAP. SEE FOOD SERVICE EQUIPMENT PLANS FOR GRATE REQUIRED IN KITCHEN. OR EQUAL. PROVIDE HEAVY DUTY GRATE IN MECHANICAL ROOMS.
WCO	WALL CLEANOUT	-	-	SEE PLANS	SEE PLANS	-	J.R. SMITH MANUFACTURING COMPANY SERIES 4530. CAST IRON CLEANOUT TEE. ABS PLUG. STAINLESS STEEL COVER WITH VANDAL PROOF SECURITY SCREWS. OR EQUAL.
FCO	FLOOR CLEANOUT	-	-	SEE PLANS	SEE PLANS	-	J.R. SMITH MANUFACTURING COMPANY SERIES 4020. CAST IRON ADJUSTABLE BODY. ABS PLUG. VANDAL PROOF SECURITY SCREWS. OR EQUAL.
RD-1	ROOF DRAIN - PRIMARY	-	-	-	-	SEE PLANS	J.R. SMITH MODEL 1015-C-CID LARGE GENERAL PURPOSE ROOF DRAIN. ROOF DRAIN SHALL BE PROVIDED WITH DUCO CAST IRON BODY. REVERSIBLE COLLAR. COMBINED FLASHING CLAMP AND GRAVEL STOP WITH NEOPRENE GASKET. CAST IRON DOME. SUMP RECEIVER. UNDERDECK CLAMP AND VANDAL PROOF SECURITY SCREWS. OR EQUAL.
OD-1	ROOF DRAIN - SECONDARY	-	-	-	-	SEE PLANS	J.R. SMITH MODEL 1015-C-CID GENERAL PURPOSE OVERFLOW DRAIN. OVERFLOW DRAIN SHALL BE PROVIDED WITH DUCO CAST IRON BODY. REVERSIBLE COLLAR. COMBINED FLASHING CLAMP AND GRAVEL STOP WITH NEOPRENE GASKET. CAST IRON DOME. SUMP RECEIVER. UNDERDECK CLAMP. VANDAL PROOF SECURITY SCREWS. MOUNT 2" HIGHER THAN RD-1. OR EQUAL.
DSN-1	DOWN SPOUT NOZZLE	-	-	-	-	SEE PLANS	J.R. SMITH SERIES 1770 WITH WALL FLANGE. PROVIDE WITH BIRD SCREEN.
HB-1	HOSE BIBB - WALL MOUNTED (INDOOR UNFINISHED AREA)	3/4"	-	-	-	-	WOODCOFF MANUFACTURING CO. MODEL 28 WALL MOUNTED BACKFLOW PROTECTED WALL FAUCET. HOSE BIBB TO BE PROVIDED WITH METAL WHEEL. HANDLE AND LOOSE KEY SHUTOFF. 3/4" INLET (2 INLET) AND 3/4" MALE HOSE THREADED OUTLET. EXTERIOR FINISH TO BE BRASS. OR EQUAL.
SC-1	SILCOCK (OUTDOOR FREEZE PROOF USE)	3/4"	-	-	-	-	WOODCOFF MANUFACTURING CO. MODEL 865 (OR EQUAL) WALL MOUNTED ANTI-SIPHON AUTOMATIC DRAINING FREEZELESS WALL HYDRANT. WALL HYDRANT SHALL BE PROVIDED WITH LOOSE KEY SHUTOFF. 3/4" INLET AND 3/4" MALE HOSE THREAD OUTLET. PROVIDE BOXDOOR ASSEMBLY. EXTERIOR FINISH SHALL BE CHROME PLATED OR EQUAL.

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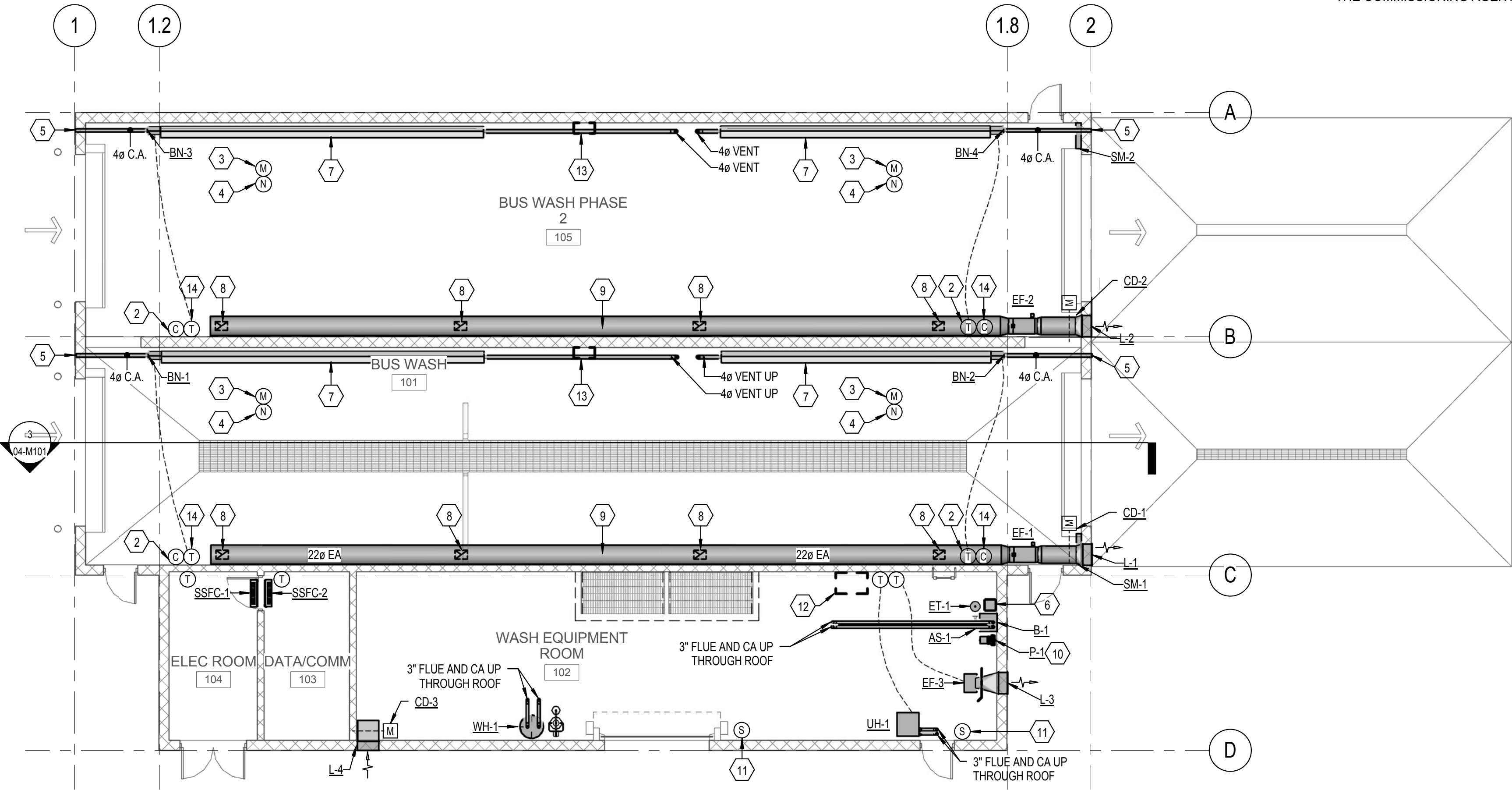
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3 BUS WASH MECHANICAL SECTION
SCALE: 1/8" = 1'-0"



2 LEVEL 1 MECHANICAL HVAC FLOOR PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"



1 LEVEL 1 MECHANICAL HVAC FLOOR PLAN - BASE BID
SCALE: 1/8" = 1'-0"

KEYED NOTES

- 1 MOUNT UNIT ON 4" CONCRETE HOUSEKEEPING PAD.
- 2 PROVIDE CO DETECTION AT APPROXIMATELY 4'-0" ABOVE FINISHED FLOOR (CONFIRM SENSOR LOCATION WITH SENSOR MANUFACTURER). EMERGENCY EXHAUST FANS SHALL ENERGIZE AND GARAGE DOORS SHALL OPEN UPON DETECTION OF ELEVATED LEVELS (50 PPM, ADJ.). SEE SEQUENCE OF OPERATION FOR MORE INFORMATION. EXACT INSTALLATION ELEVATION TO BE COORDINATED WITH SENSOR MANUFACTURER.
- 3 PROVIDE A CONTINUOUSLY OPERATING METHANE (NATURAL GAS) DETECTION SYSTEM PER IMC 502.16.1. LOCATE METHANE SENSORS AT HIGH POINTS OF CEILING BASED ON SMOKE TEST RESULTS. EMERGENCY EXHAUST FANS SHALL ENERGIZE AND GARAGE DOORS SHALL OPEN (SEE SEQUENCE OF OPERATION FOR MORE INFORMATION) UPON DETECTION OF CONCENTRATION OF 20% OF THE LOWER FLAMMABILITY LIMIT (1.25% BY VOLUME, 12,500 PPM MAXIMUM, ADJ.). FIELD ROUTE TUBING FROM SENSORS TO CONTROL BOX AS REQUIRED BY SUCCESSFUL MANUFACTURER'S INSTALLATION INSTRUCTIONS. EXACT INSTALLATION ELEVATION TO BE COORDINATED WITH SENSOR MANUFACTURER.
- 4 PROVIDE NOX DETECTION HIGH IN SPACE. EMERGENCY EXHAUST FANS SHALL ENERGIZE AND GARAGE DOORS SHALL OPEN UPON DETECTION OF ELEVATED LEVELS (50 PPM, ADJ.). SEE SEQUENCE OF OPERATION FOR MORE INFORMATION. EXACT INSTALLATION ELEVATION TO BE COORDINATED WITH SENSOR MANUFACTURER.
- 5 4" COMBUSTION AIR INTAKE. PROVIDE WALL CAP AND INSECT SCREEN.
- 6 PROVIDE AUTOMATIC GLYCOL SYSTEM FEEDER. AXIOM INDUSTRIES MF200 OR EQUAL.
- 7 PROVIDE WALL MOUNT SYSTEM FROM RADIANT TUBE HEATER MANUFACTURER.
- 8 14/10 EXHAUST AIR OPENING OFF BOTTOM OF DUCT. COVER OPENING WITH BIRD SCREEN.
- 9 ALL DUCTWORK IN WASH BAYS SHALL BE ALUMINUM.
- 10 MOUNT PUMP AT APPROXIMATELY 4' ABOVE FINISHED FLOOR.
- 11 PROVIDE BOILER EMERGENCY SHUT-DOWN SWITCH. SWITCH TO CUT POWER TO ALL BOILER CONTROLS PER ASME AND STATE OF UTAH BOILER CODES. PROVIDE AND ENGRAVED SIGN THAT READS "EMERGENCY BOILER SHUT DOWN".
- 12 APPROXIMATE LOCATION OF GAS DETECTION SYSTEM CONTROLLER. COORDINATE EXACT LOCATION WITH OWNER AND OTHER DISCIPLINES.
- 13 APPROXIMATE LOCATION OF GAS DETECTION SYSTEM HORN AND INDICATOR LIGHT. COORDINATE EXACT LOCATION WITH OWNER AND ARCHITECT.
- 14 THERMOSTAT IN NEMA 4X ENCLOSURE TO BE PROVIDED BY RADIANT TUBE HEATER MANUFACTURER.

GENERAL NOTES

- A. THE LOCATIONS OF THE METHANE SENSORS ARE PRELIMINARY. THE CONTRACTOR SHALL CONDUCT A SMOKE TEST APOIN COMPLETION OF THE VENTILATION SYSTEM TO STUDY AIR MOVEMENT PATTERNS TO CONFIRM THE VALIDITY OF SENSOR LOCATIONS. FINAL METHANE SENSOR LOCATIONS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS BASED ON THE RESULTS OF THE SMOKE TEST.
- B. PROVIDE THE REQUIRED SUPPORT AND ADDITIONAL HOURS NECESSARY TO PARTICIPATE IN THE COMMISSIONING PROCESS. REFER TO SPECIFICATION REQUIREMENTS COORDINATE DIRECTLY WITH THE COMMISSIONING AGENT.

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LEVEL 1 MECHANICAL
HVAC FLOOR PLAN

04-M101

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303.292.0945

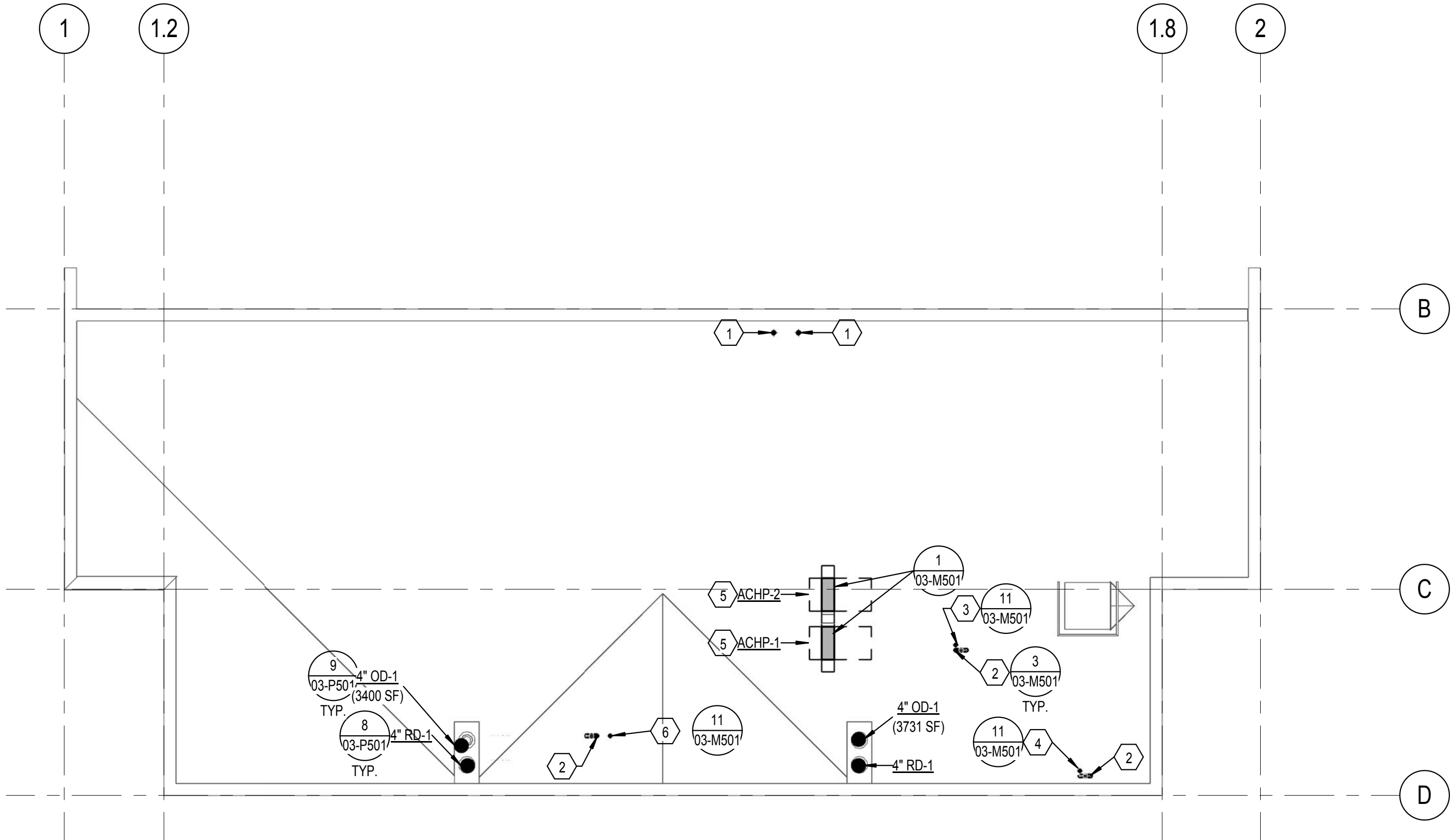


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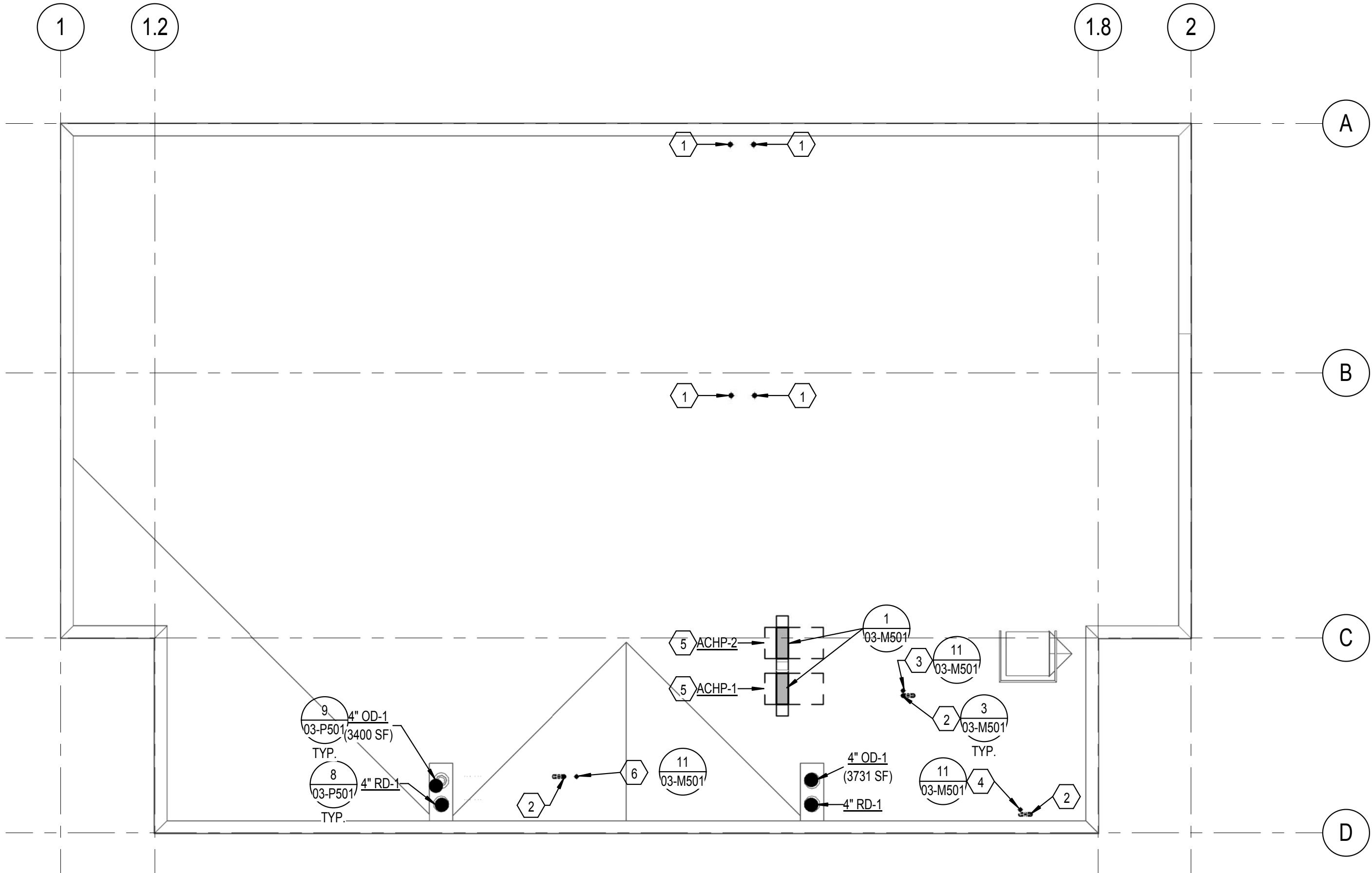
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2 MECHANICAL ROOF PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"



1 MECHANICAL ROOF PLAN - BASE BID
SCALE: 1/8" = 1'-0"

KEYED NOTES

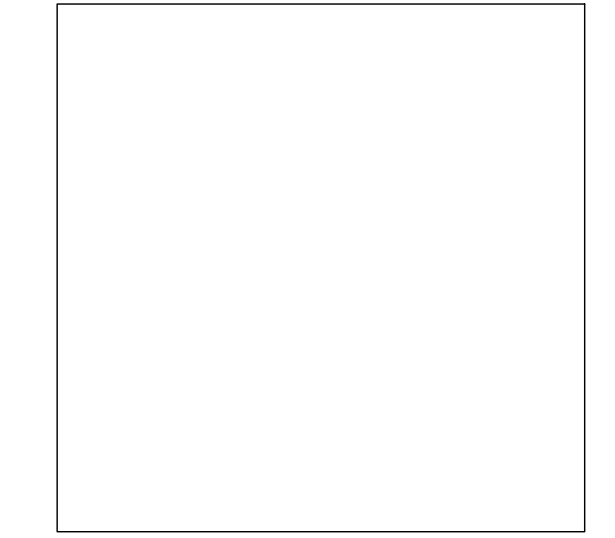
- 1 4" RADIANT TUBE HEATER FLUE. TERMINATE AT 36" ABOVE ROOF. PROVIDE ROOF CAP.
- 2 3" COMBUSTION AIR INTAKE. TERMINATE WITH GOOSENECK AT 24" ABOVE ROOF.
- 3 3" BOILER FLUE. TERMINATE AT 36" ABOVE ROOF.
- 4 3" UNIT HEATER FLUE. TERMINATE AT 36" ABOVE ROOF. PROVIDE RAIN CAP.
- 5 MOUNT ON 14" SEISMIC ROOF CURB.
- 6 3" WATER HEATER FLUE. TERMINATE AT 36" ABOVE ROOF.

GENERAL NOTES

- A. THE LOCATIONS OF THE METHANE SENSORS ARE PRELIMINARY. THE CONTRACTOR SHALL CONDUCT A SMOKE TEST UPON COMPLETION OF THE VENTILATION SYSTEM TO STUDY AIR MOVEMENT PATTERNS TO CONFIRM THE VALIDITY OF SENSOR LOCATIONS. FINAL METHANE SENSOR LOCATIONS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS BASED ON THE RESULTS OF THE SMOKE TEST.
- B. PROVIDE THE REQUIRED SUPPORT AND ADDITIONAL HOURS NECESSARY TO PARTICIPATE IN THE COMMISSIONING PROCESS. REFER TO SPECIFICATION REQUIREMENTS. COORDINATE DIRECTLY WITH THE COMMISSIONING AGENT.

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MECHANICAL ROOF PLAN

04-M102

RNL

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303 292 0945 f

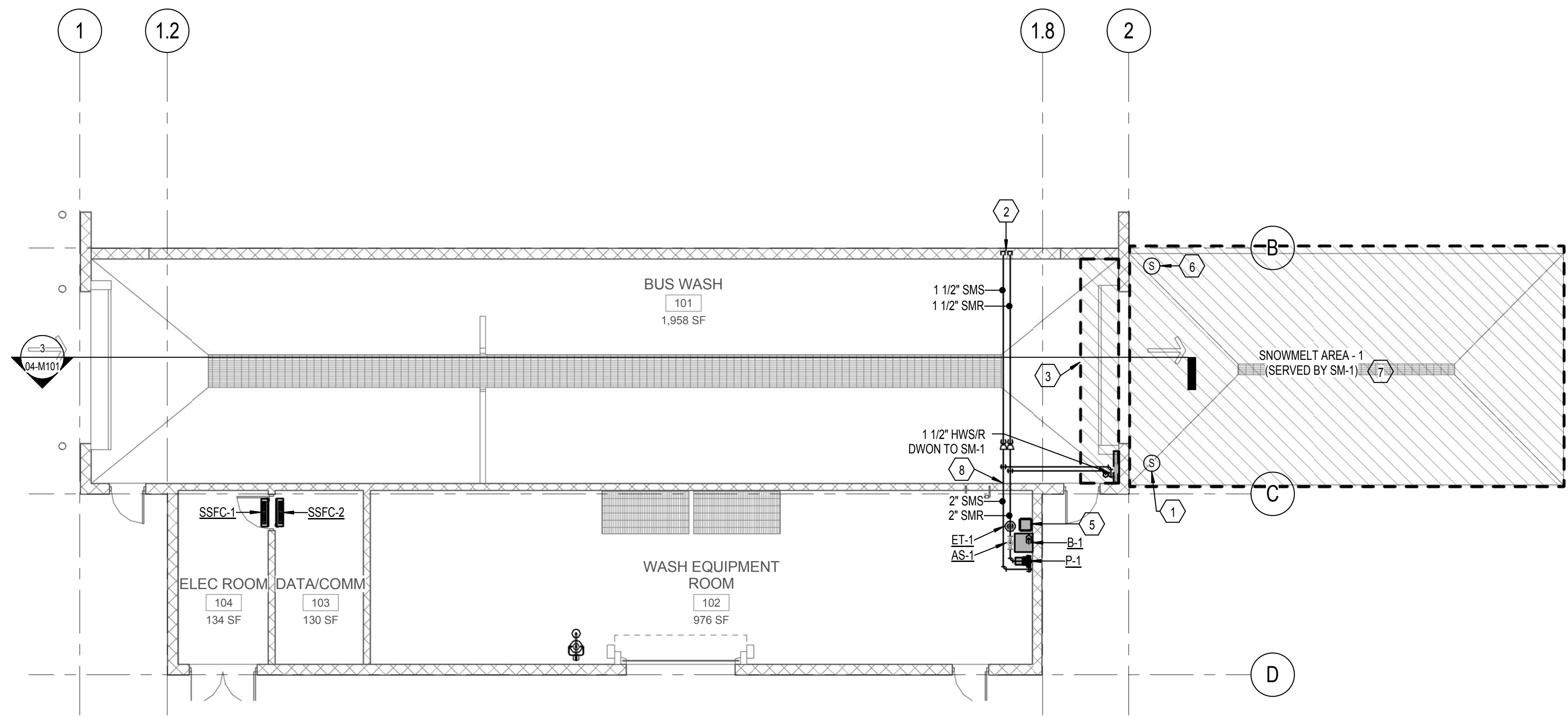


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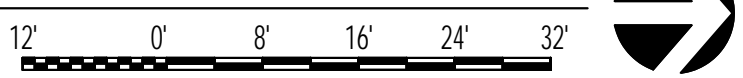
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2 LEVEL 1 MECHANICAL PIPING FLOOR PLAN -
ALTERNATE BID

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



KEYED NOTES

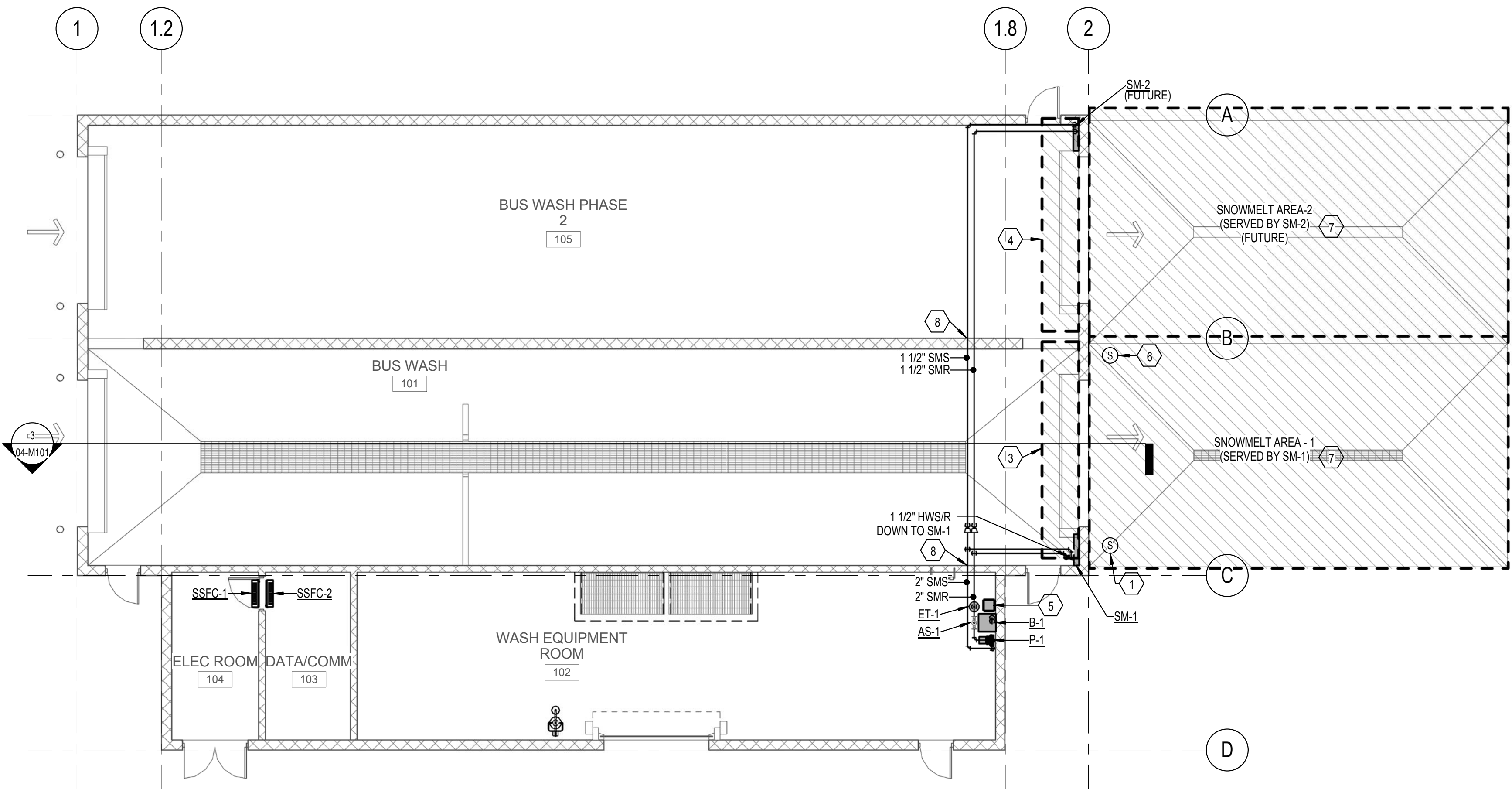
- 1 APPROXIMATE LOCATION OF MOISTURE AND TEMPERATURE SENSOR. COORDINATE EXACT LOCATION IN FIELD.
- 2 CAP HEATING WATER SUPPLY AND RETURN PIPING FOR FUTURE CONNECTION TO PHASE TWO SNOWMELT MANIFOLD.
- 3 SNOWMELT AREA-1A. EXTEND SNOWMELT AREA TO 3'-6" INSIDE OF BUILDING. PROVIDE A DEDICATED SNOWMELT LOOP FOR THIS AREA. COORDINATE WITH ALL FLOOR MOUNTED EQUIPMENT.
- 4 SNOWMELT AREA-2A (FUTURE). EXTEND SNOWMELT AREA TO 3'-6" INSIDE OF BUILDING. PROVIDE A DEDICATED SNOWMELT LOOP FOR THIS AREA. COORDINATE WITH ALL FLOOR MOUNTED EQUIPMENT.
- 5 PROVIDE AUTOMATIC GLYCOL SYSTEM FEEDER. AXIOM INDUSTRIES MF200 OR EQUAL.
- 6 PROVIDE SECONDARY (BACKUP) MOISTURE AND TEMPERATURE SENSOR IN CASE OF PRIMARY SENSOR FAILURE. WIRE BACK TO CONNECTION POINT AND LABEL WIRES ACCORDINGLY. COORDINATE EXACT LOCATION IN FIELD.
- 7 COORDINATE TUBING LAYOUT WITH TRENCH DRAIN TO BE LOCATED IN SNOWMELT AREA. COORDINATE EXACT LOCATION WITH ARCHITECT AND CIVIL. PROVIDE TUBING IN BOTTOM OF CAST-IN-PLACE TRENCH DRAIN TO PREVENT ICE BUILD-UP.
- 8 STRUCTURAL PENETRATION REQUIRED. COORDINATE EXACT LOCATION WITH ARCHITECT AND STRUCTURAL ENGINEER.

GENERAL NOTES

- A. ALL BRANCH PIPING TO INDIVIDUAL VAV BOXES NOT SHOWN FOR CLARITY BUT MUST BE INSTALLED PER SIZING SCHEDULE AND DETAILS. REFER TO THE HEATING WATER RUNOUT PIPE SIZES SCHEDULE FOR SIZING OF THE BRANCH PIPING.

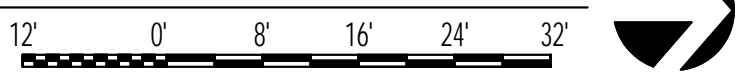
HEATING WATER RUNOUT PIPE SIZES

GPM RANGE	RUNOUT PIPE SIZE
0-3	3/4"
3.1-6	1"



1 LEVEL 1 MECHANICAL PIPING FLOOR PLAN -
BASE BID

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



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LEVEL 1 MECHANICAL
PIPING FLOOR PLAN

04-M201

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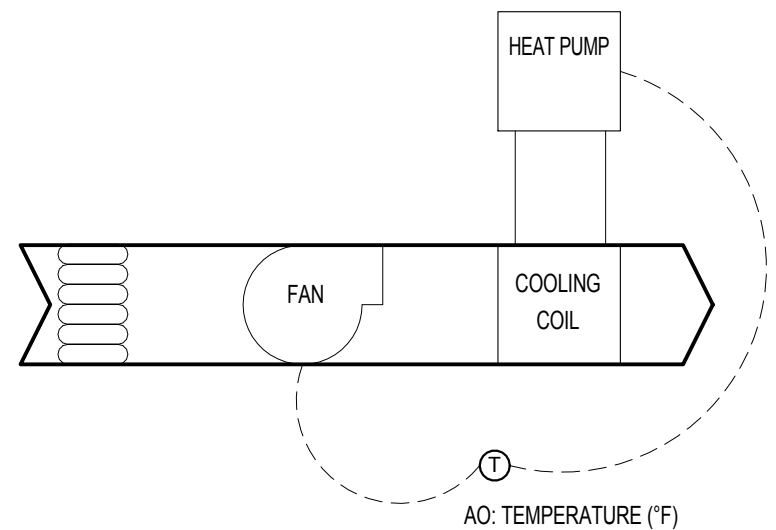
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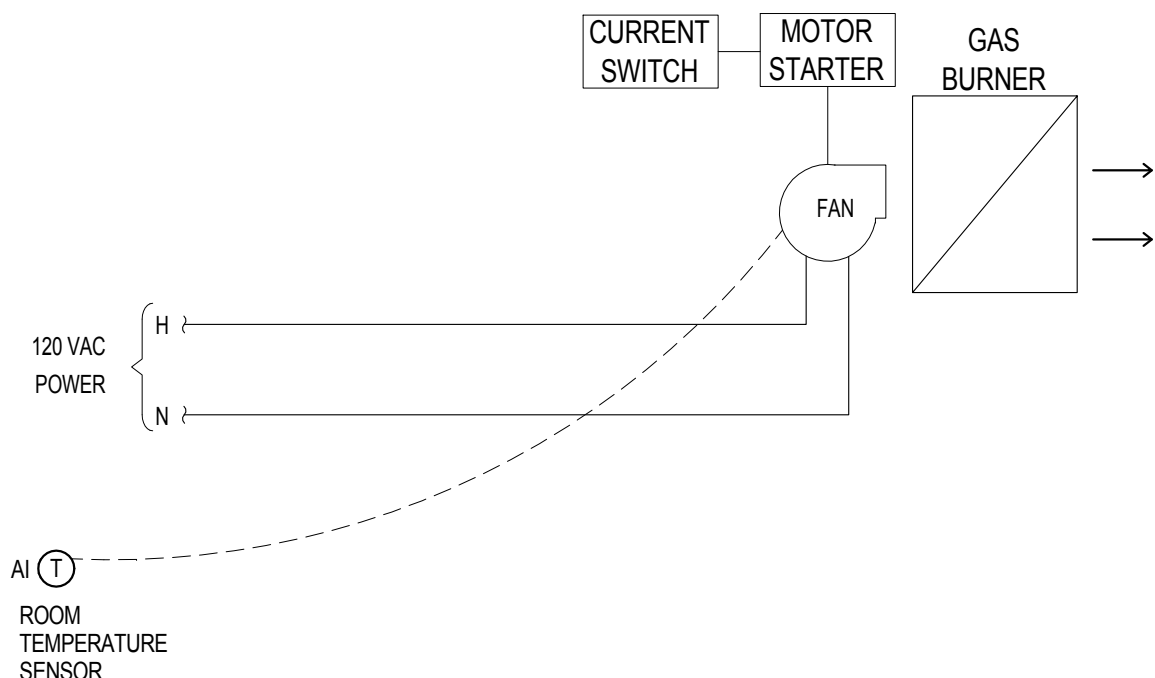
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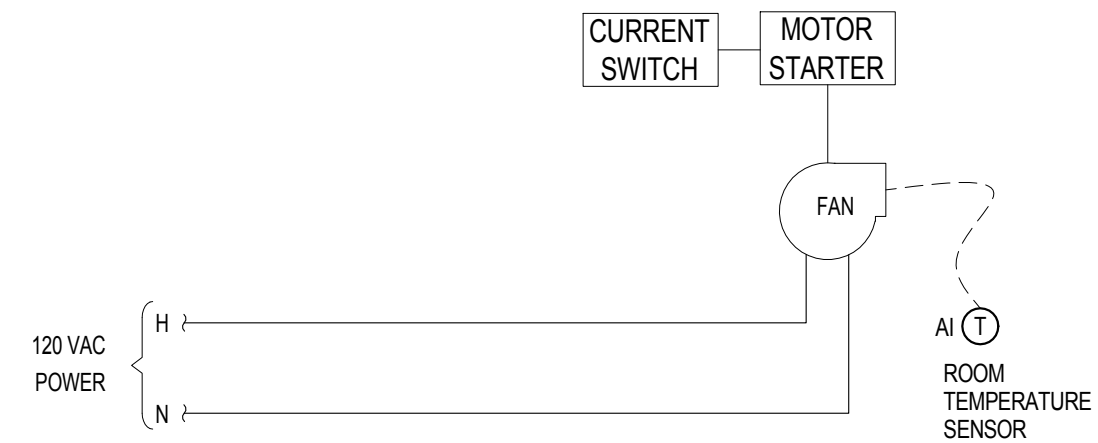
SPLIT SYSTEM FAN COIL SEQUENCE:
1. START HEAT PUMP AND THE SINGLE DX FAN COIL UNIT IT SERVES WHENEVER SPACE TEMPERATURE RISES ABOVE SETPOINT (80°F, 4° DEAD BAND, OFF AT 70°F, ALL SET POINTS ADJUSTABLE).
2. GENERATE AN ALARM IF SPACE TEMPERATURE EXCEEDS 90°F FOR 15 MINUTES.

DX SPLIT SYSTEM CONTROL SCHEMATIC / SEQUENCE



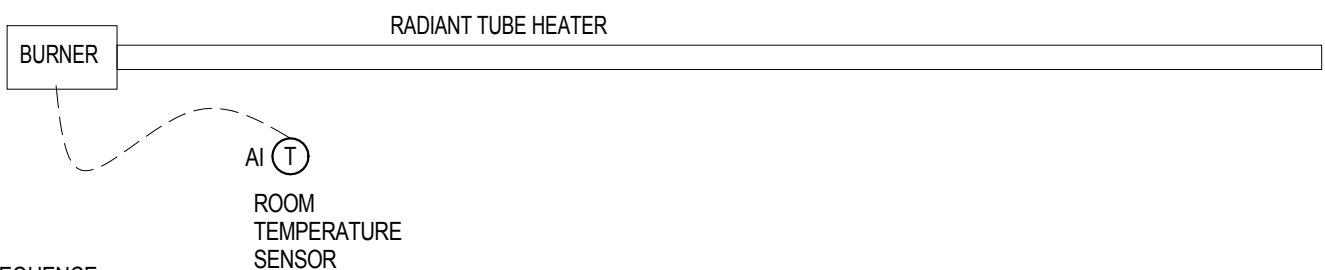
GAS FIRED UNIT HEATER (UB-1) SEQUENCE:
CONTROLLED BY A WALL MOUNTED THERMOSTAT
1. INTERNAL BLOWER SHALL START AND GAS BURNER SHALL FIRE UPON A CALL FOR HEAT FROM WALL MOUNTED THERMOSTAT, (SETPOINT INITIALLY 50°F, ADJUSTABLE, WITH 5°F DEAD BAND, ON AT 50°F AND OFF AT 55°F).
2. GENERATE AN ALARM WHEN SPACE TEMPERATURE DROPS BELOW 40°F FOR 15 MINUTES.

GAS FIRED UNIT HEATER CONTROL SCHEMATIC / SEQUENCE



EXHAUST FAN (EF-3) SEQUENCE:
FAN SHALL RUN WHENEVER THERE IS A CALL FOR COOLING FROM SPACE MOUNTED COOLING THERMOSTAT. SETPOINT SHALL INITIALLY BE SET AT 80°F (ADJUSTABLE).

EXHAUST FAN (EF-3) CONTROL SCHEMATIC / SEQUENCE



RADIANT TUBE HEATER BURNER (BN-1, 2, 3 & 4) SEQUENCE:
CONTROLLED BY A WALL MOUNTED THERMOSTAT
1. INTERNAL BLOWER SHALL START AND GAS BURNER SHALL FIRE UPON A CALL FOR HEAT FROM WALL MOUNTED THERMOSTAT, (SETPOINT INITIALLY 50°F, ADJUSTABLE, WITH 5°F DEAD BAND, ON AT 50°F AND OFF AT 55°F).
2. GENERATE AN ALARM WHEN SPACE TEMPERATURE DROPS BELOW 40°F FOR 15 MINUTES.

RADIANT TUBE HEATER BURNER (BN-1, 2, 3 & 4) CONTROL SCHEMATIC / SEQUENCE

SEQUENCE OF OPERATION:

SNOWMELT SYSTEM
UPON A CALL FOR HEATING FROM SNOWMELT MOISTURE AND TEMPERATURE SENSOR:
1. PUMP P-1 SHALL START.
2. BOILER B-1 SHALL FIRE AND MODULATE TO MAINTAIN SNOWMELT SUPPLY SETPOINT, INITIALLY SET AT 90°F (ADJUSTABLE).

SAFETIES:

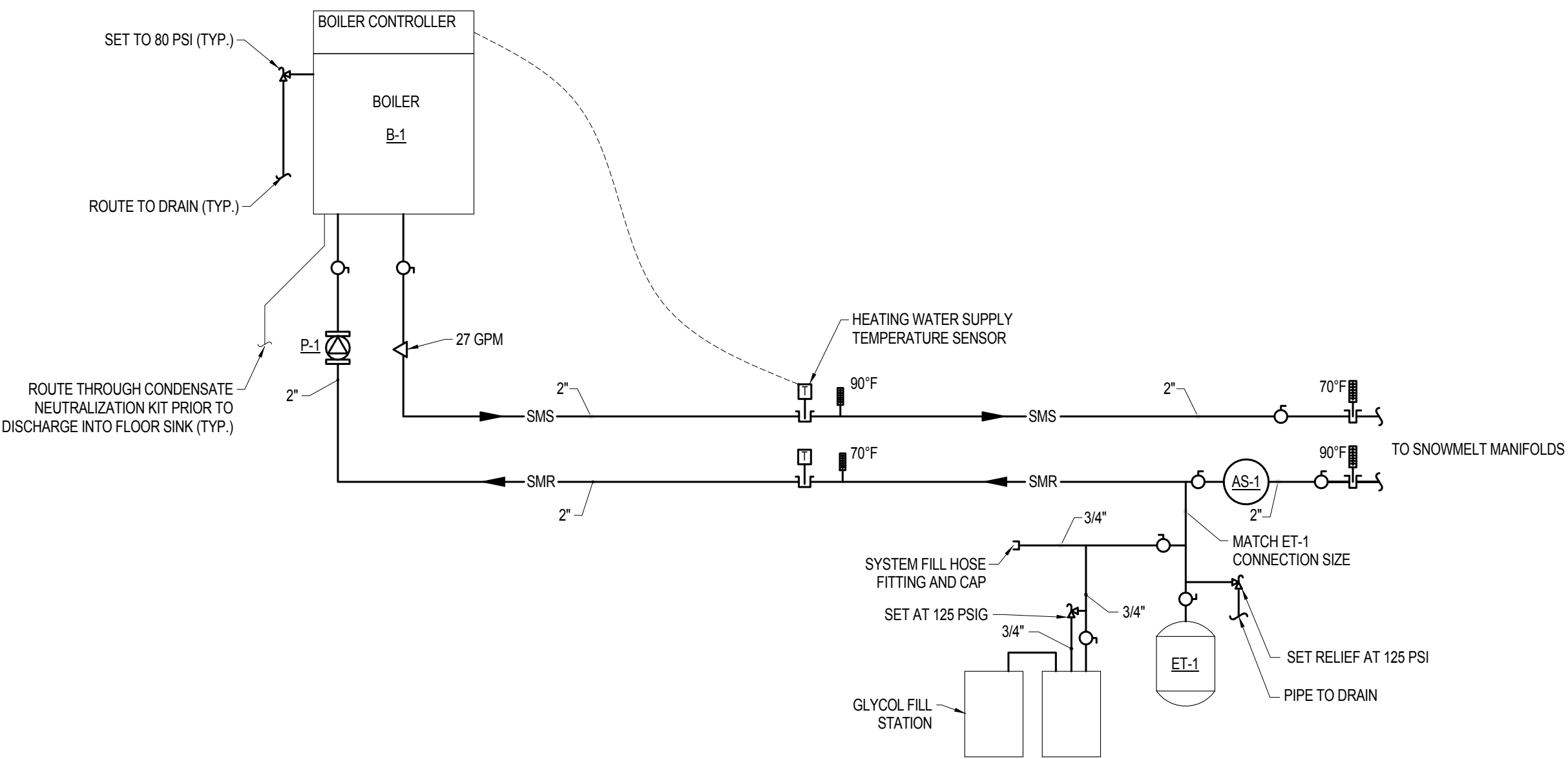
- INDICATE ALARM CONDITION UPON FAILURE BOILER BURNER AND/OR WHENEVER THE SMS TEMPERATURE FALLS BELOW THE ALARM SETPOINT (80°F, ADJUSTABLE) FOR MORE THAN 90 MINUTES WHILE THE BOILER IS RUNNING.
- MONITOR THE SNOWMELT PUMP WITH AN ADJUSTABLE ANALOG CURRENT SENSOR AND GENERATE AN ALARM UPON PUMP FAILURE.
- MONITOR THE SUMMARY ALARM CONTACT ON EACH BOILER, AND GENERATE AN ALARM UPON BOILER FAILURE.

EMERGENCY SHUT-DOWN:

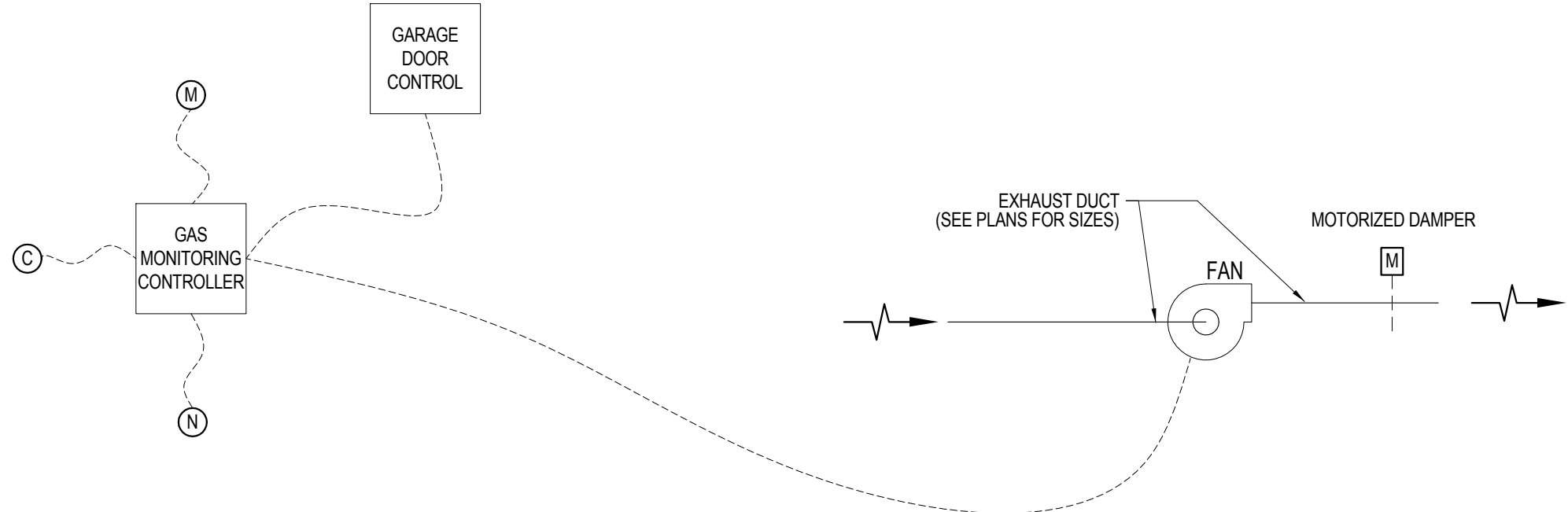
- PROVIDE AN EMERGENCY SHUT-DOWN SWITCH AT EACH BOILER ROOM EXIT, (AS REQUIRED BY THE ASME CODE) TO DISCONNECT THE POWER TO ALL CONTROLS ON THE BOILER. SWITCHES SHALL BE MUSHROOM TYPE. PROVIDE PLASTIC NAMEPLATE TO READ "BOILER EMERGENCY SHUT-OFF".

GENERAL NOTES

- ALL POINTS SPECIFIED IN SCHEMATICS OR SEQUENCES MUST BY SHOWN ON DDC PAGE AND BE ADJUSTABLE.
- TRENDING MUST BE SET UP FOR ALL POINTS SHOWN WITH ADJUSTABLE INTERVALS.
- SEE DETAILS FOR ADDITIONAL VALVING AND ACCESSORIES.
- BOILERS TO BE PROVIDED WITH COMMUNICATION GATEWAYS BY THE MANUFACTURER, TO BE MONITORED BY THE DDC SYSTEM.



SNOWMELT BOILER SYSTEM CONTROL SCHEMATIC / SEQUENCE



GAS MONITORING SYSTEM CONTROL SCHEMATIC:
THE GAS MONITORING SYSTEM SHALL CONTINUOUSLY MONITOR LEVELS OF CARBON MONOXIDE (CO), NITROGEN OXIDES (NOX) AND METHANE (NATURAL GAS). LOCATE CO AND NOX SENSORS IN THE LOW SPACE AS SHOWN ON THE PLANS. METHANE SENSORS SHALL BE LOCATED HIGH IN THE SPACE BASED ON THE RESULTS OF A SMOKE TEST TO BE PERFORMED AFTER THE COMPLETION OF THE VENTILATION SYSTEM. LOCATIONS SHOWN ON PLANS ARE PRELIMINARY ESTIMATES ONLY. PROVIDE A STATUS LIGHT, STROBE AND HORN AT EACH LOCATION SHOWN ON THE PLANS.

INITIATE THE EMERGENCY GAS PURGE EXHAUST FAN (EF-1 & 2) SEQUENCE UPON DETECTION OF ELEVATED LEVELS OF ANY OF THE MONITORED GASSES.

SEQUENCE OF OPERATION FOR EMERGENCY GAS PURGE SYSTEM

OPERATE EMERGENCY EXHAUST FANS UPON DETECTION OF ELEVATED LEVELS (BY THE GAS MONITORING SYSTEM) OF CO, NOX OR NATURAL GAS (METHANE). THERE SHALL BE THREE LEVELS OF ALARM. EACH LEVEL WILL TRIGGER A DIFFERENT READING OF THE STATUS LIGHT, OPERATION OF THE EXHAUST PURGE SYSTEM AND FIRE ALARM SIGNAL BASED ON THE MATRIX BELOW. ALL FUNCTIONS BELOW SHALL DISPLAY ON THE BUILDING AUTOMATION SYSTEM GRAPHICS. ALL VALUES ARE ADJUSTABLE.

ALARM LEVEL	METHANE CONCENTRATION (PPM) [% OF LFL]	NOx CONCENTRATION (PPM)	CO CONCENTRATION (PPM)	STATUS LIGHT	HORN & STROBE	PURGE FAN OPERATION (EF-1, 2)	GARAGE DOOR CONTROL (ALL DOORS)	PURGE FAN & GARAGE DOOR RESET
NO ALARM	<7,500 PPM [$\leq 15\%$]	<2.5 PPM	<25 PPM	GREEN	OFF	OFF	NONE	N/A
LEVEL 1	7,500 PPM [15%]	2.5 PPM	25 PPM	FLASHING GREEN	OFF	OFF	NONE	N/A
LEVEL 2	12,500 PPM [25%]	5 PPM	50 PPM	YELLOW	OFF	ON	OPEN	MANUAL
LEVEL 3	20,000 PPM [40%]			RED	ON	ON	OPEN	MANUAL

EMERGENCY GAS PURGE SYSTEM SCHEMATICS AND SEQUENCE OF OPERATION

LEGEND		
SYMBOLS	DESCRIPTION	DI: STATUS DO: START / STOP AO: SPEED (HZ) AI: SPEED
VFD	VARIABLE FREQUENCY DRIVE	
VP	VENTURI FLOW METER WITH DIFFERENTIAL PRESSURE SENSOR	AI: PRESSURE
M	BUTTERFLY VALVE WITH MODULATING ACTUATOR AND END SWITCHES	AO: POSITION AI: POSITION DI: POSITION
LM	LINKED BUTTERFLY VALVE WITH MODULATING ACTUATOR AND END SWITCH	AO: POSITION AI: POSITION DI: POSITION
3W	MODULATING THREE WAY CONTROL VALVE	AO: POSITION AI: POSITION
2W	MODULATING TWO WAY CONTROL VALVE	AO: POSITION AI: POSITION
T	TEMPERATURE SENSOR	AI: °F
DP	DIFFERENTIAL PRESSURE SENSOR	AI: PSI
BTU	BTU METER	AI: FLOW (GPM) AI: TEMP (°F) AI: ENERGY (BTU)
H	RELATIVE HUMIDITY SENSOR	AI: RH (%)
AT	AIR TEMPERATURE SENSOR	AI: °F
P	PRESSURE SENSOR	AI: PSI
P	PUMP	DI: STATUS (CT) DO: START / STOP

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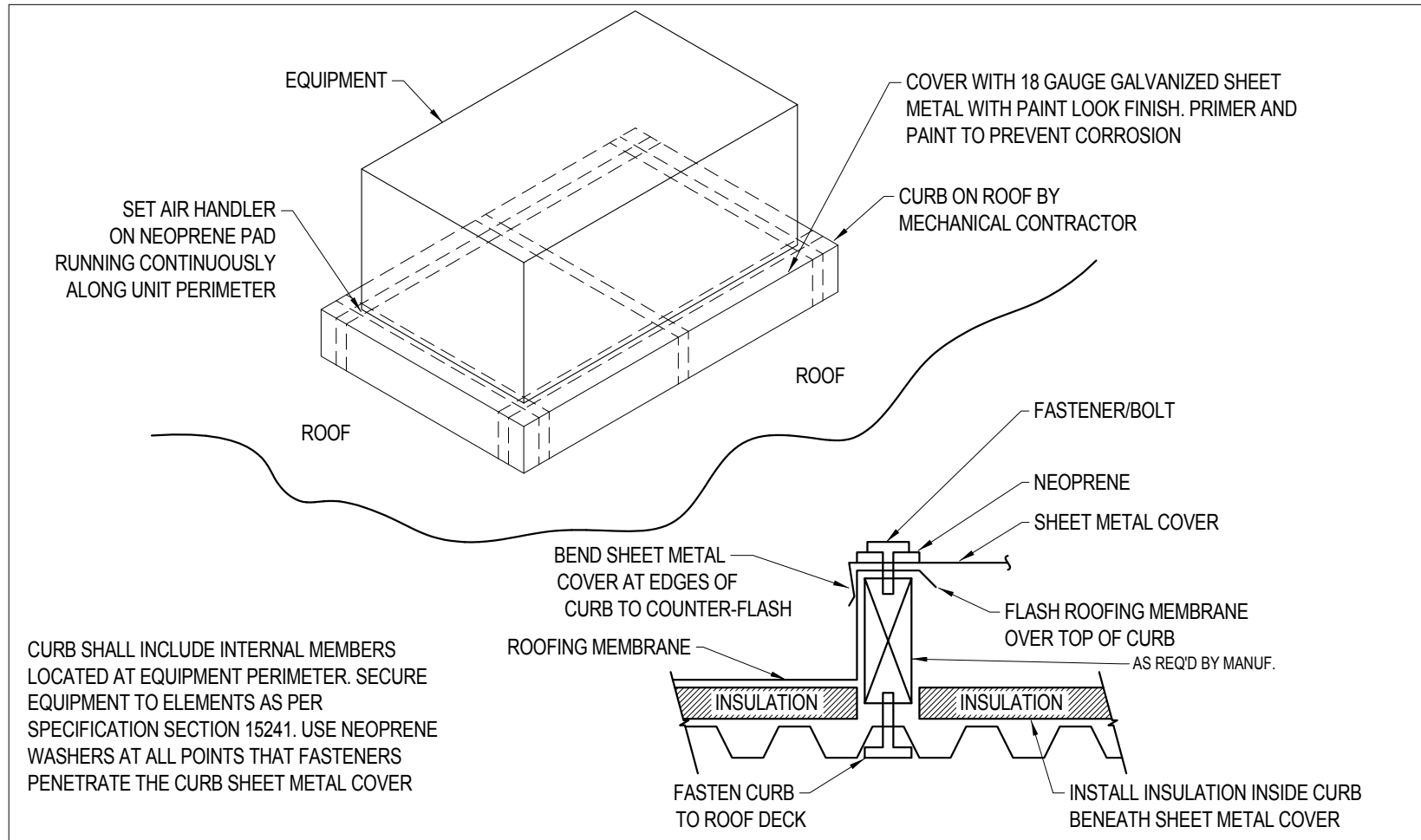
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SCHEMATICS AND
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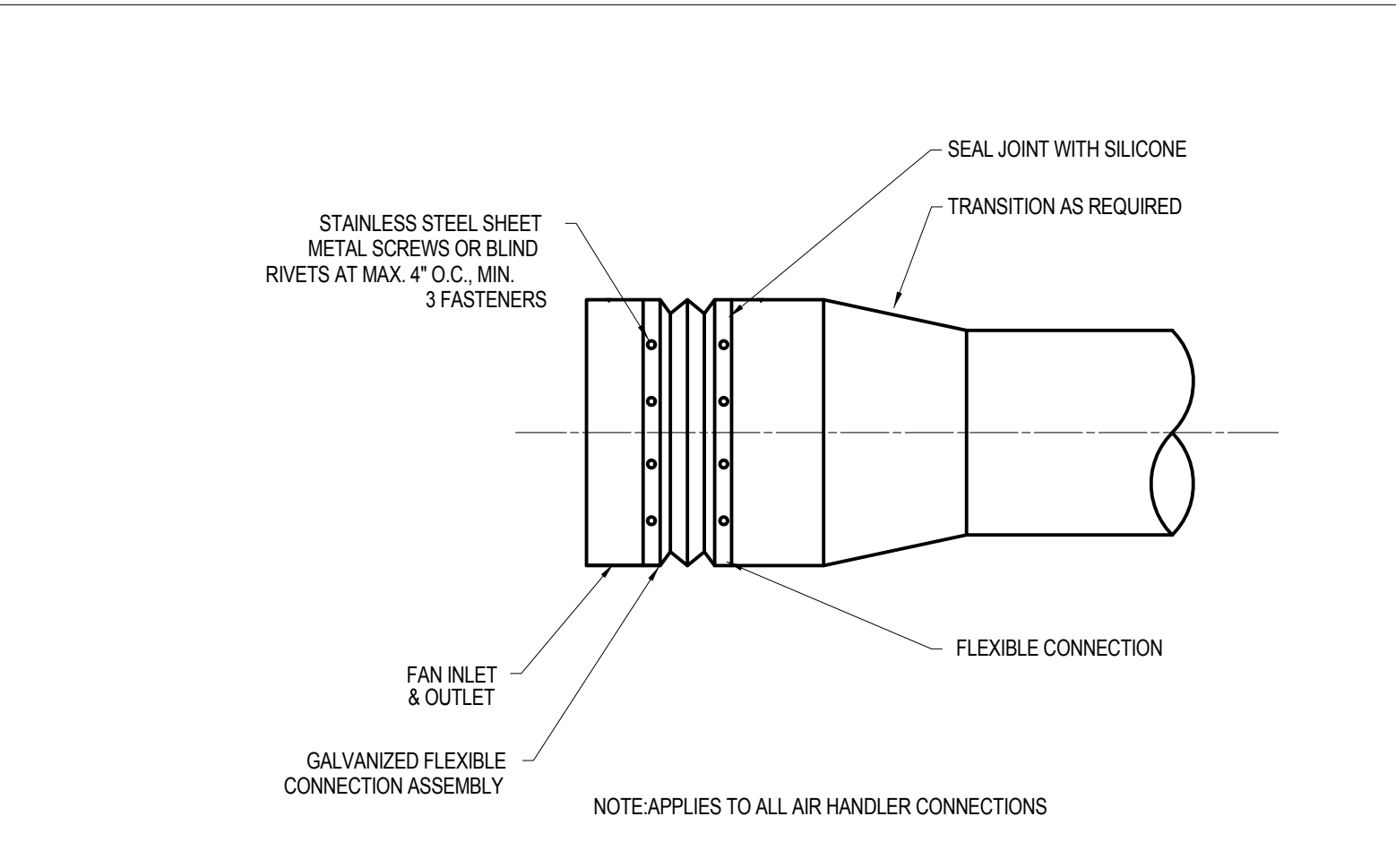
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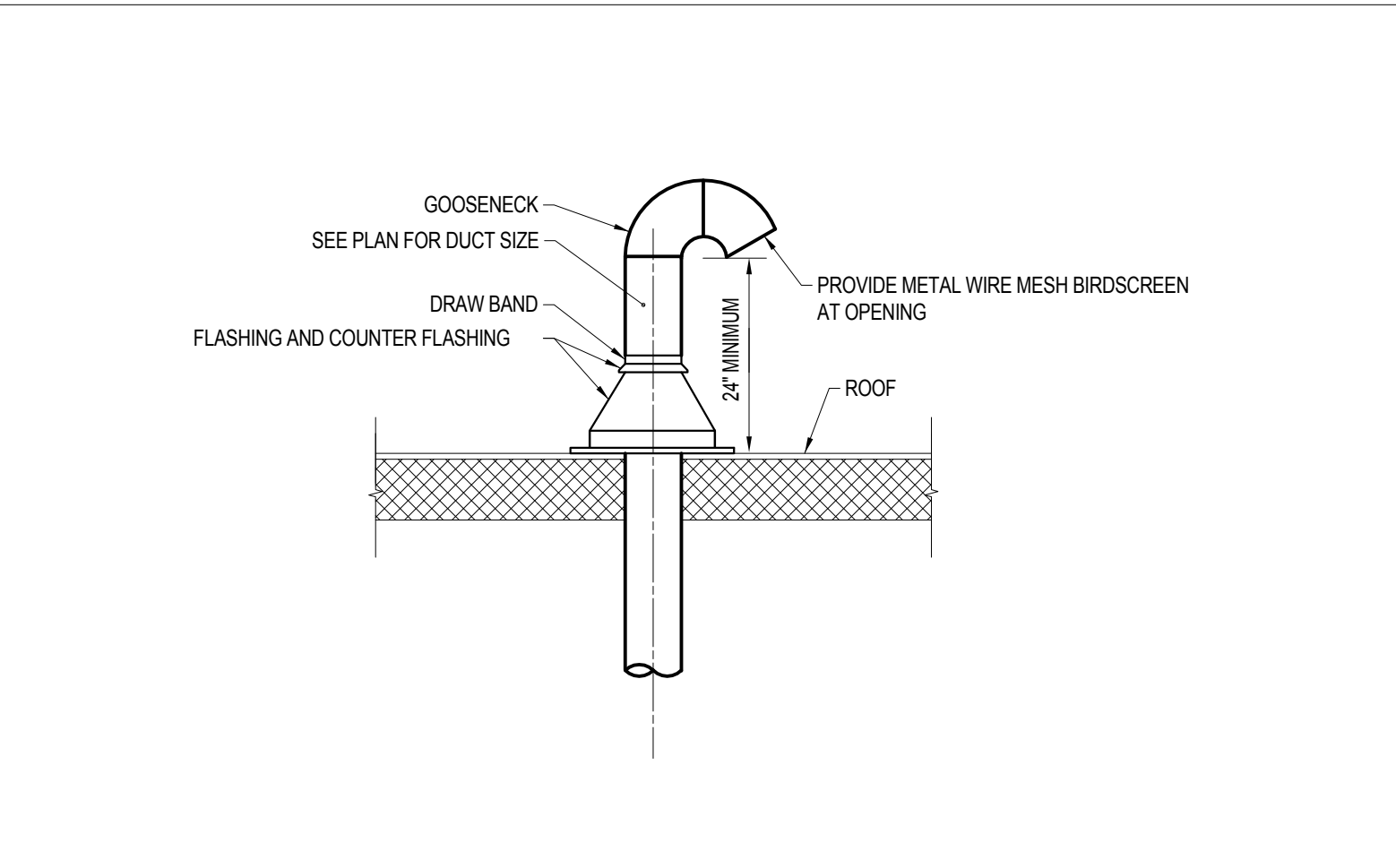
1 ROOF MOUNTED EQUIPMENT CURB

NO SCALE



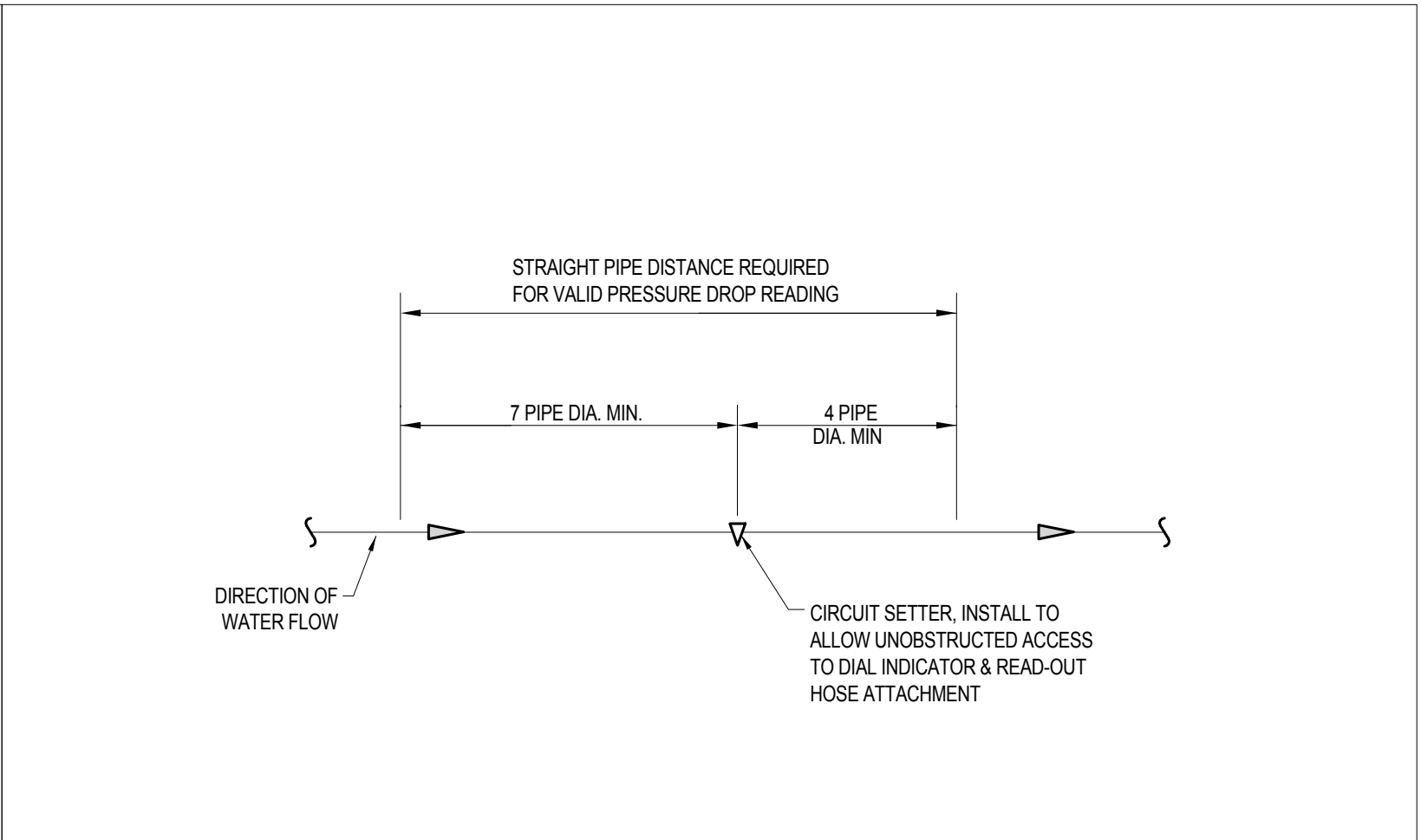
2 FLEXIBLE CONNECTION DETAIL

NO SCALE



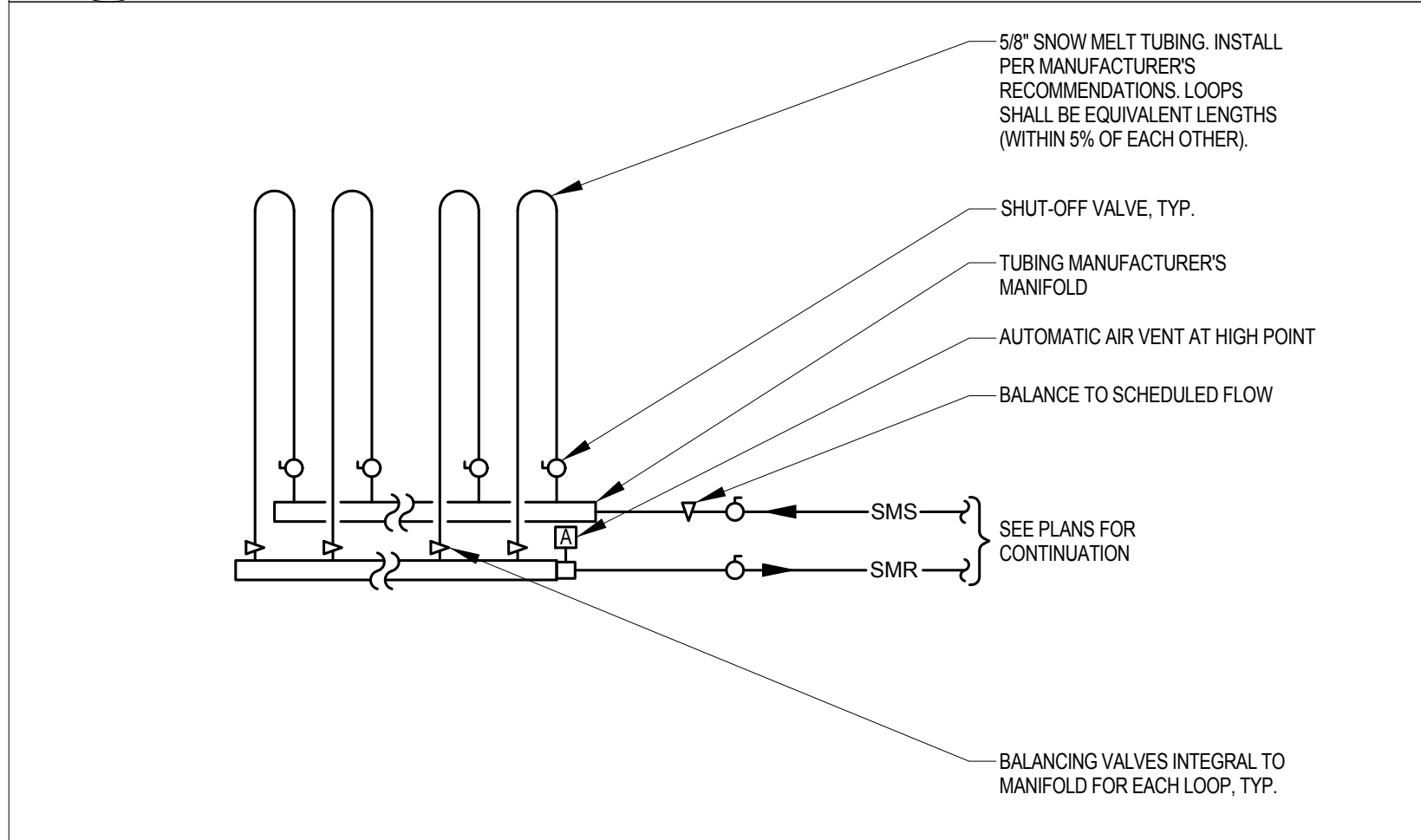
3 GOOSENECK DETAIL

NO SCALE



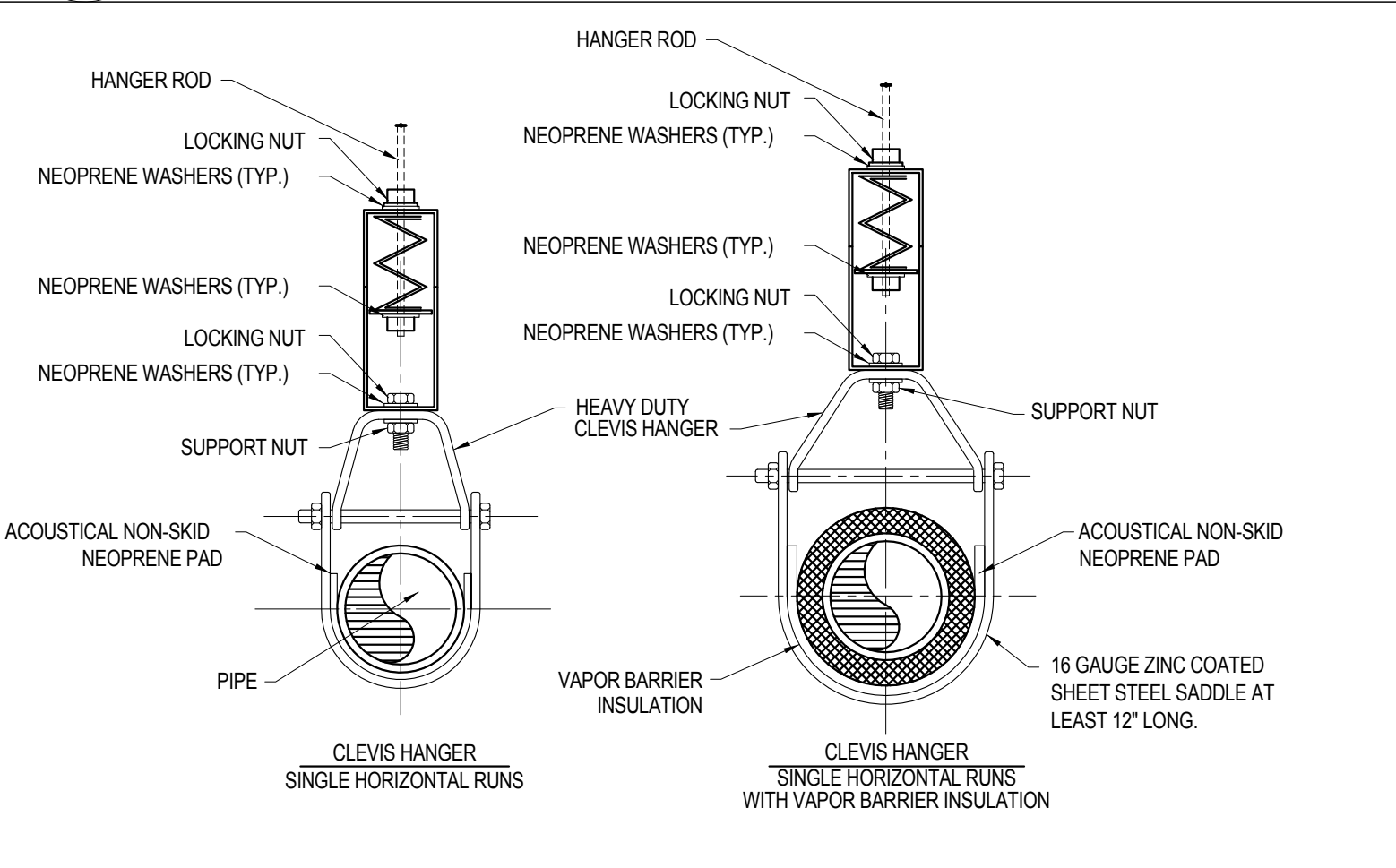
4 CIRCUIT SETTER DETAIL

NO SCALE



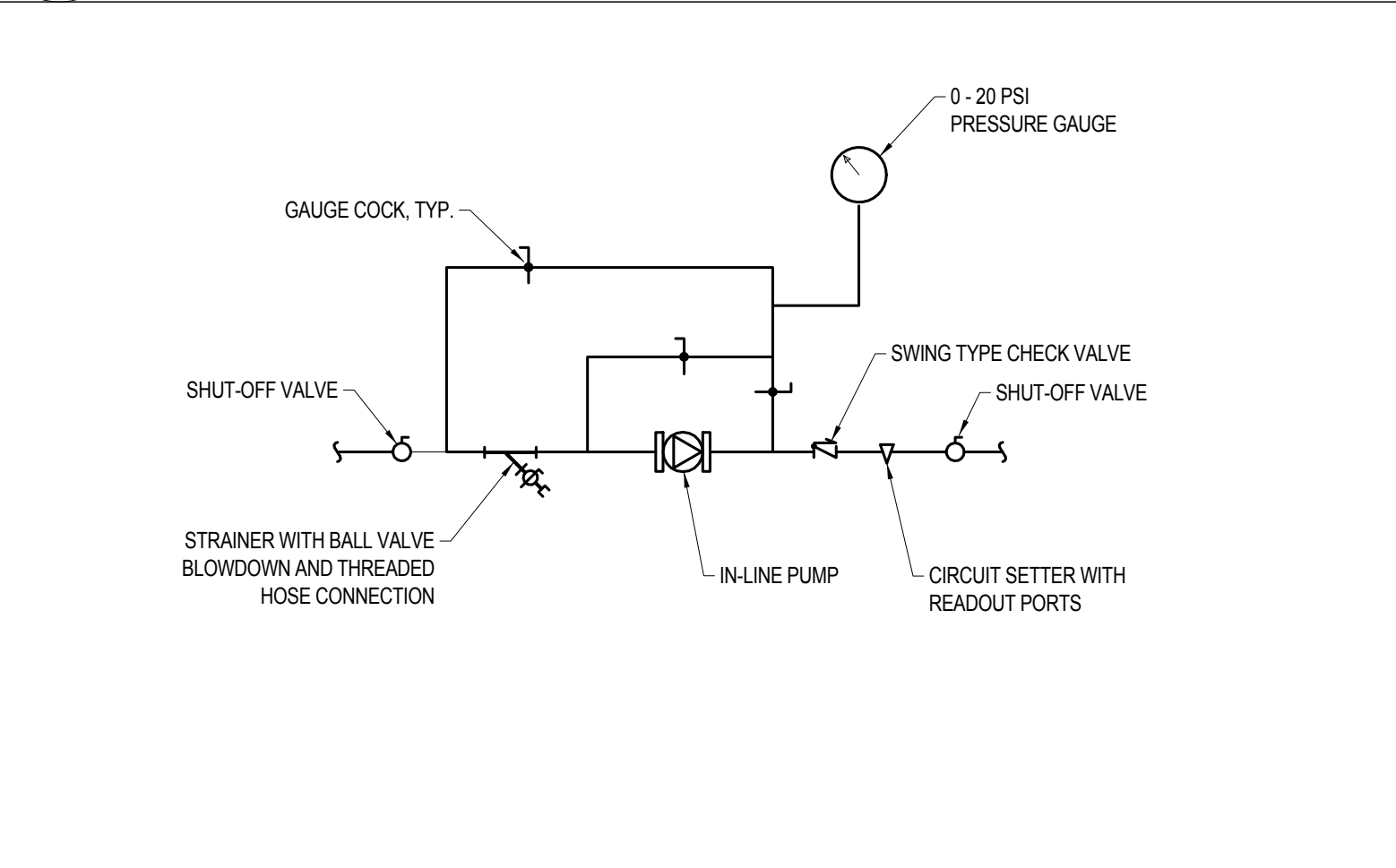
5 SNOW MELT MANIFOLD PIPING SCHEMATIC

NO SCALE



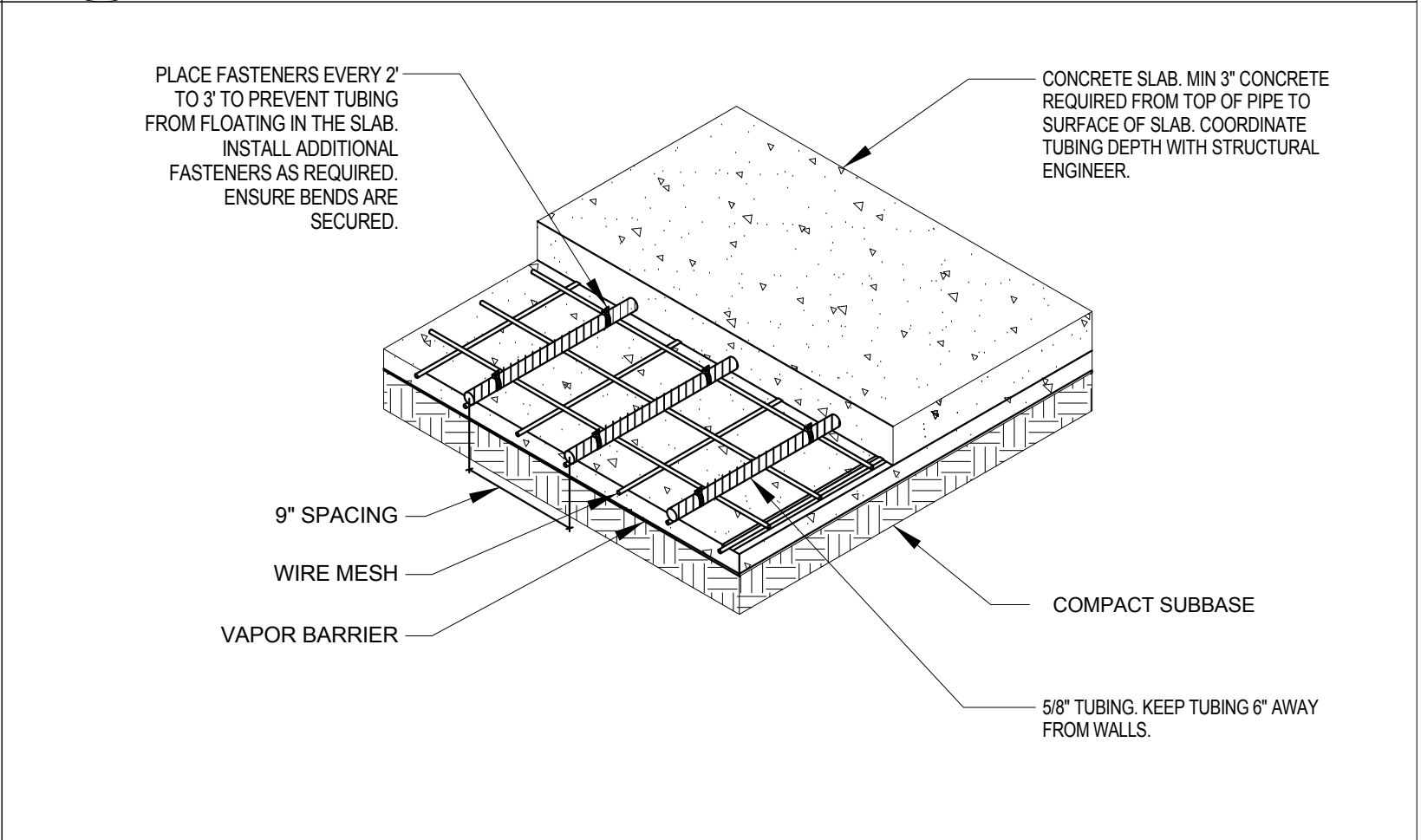
6 HANGER DETAIL FOR PIPING REQUIRING VIBRATION ISOLATION

NO SCALE



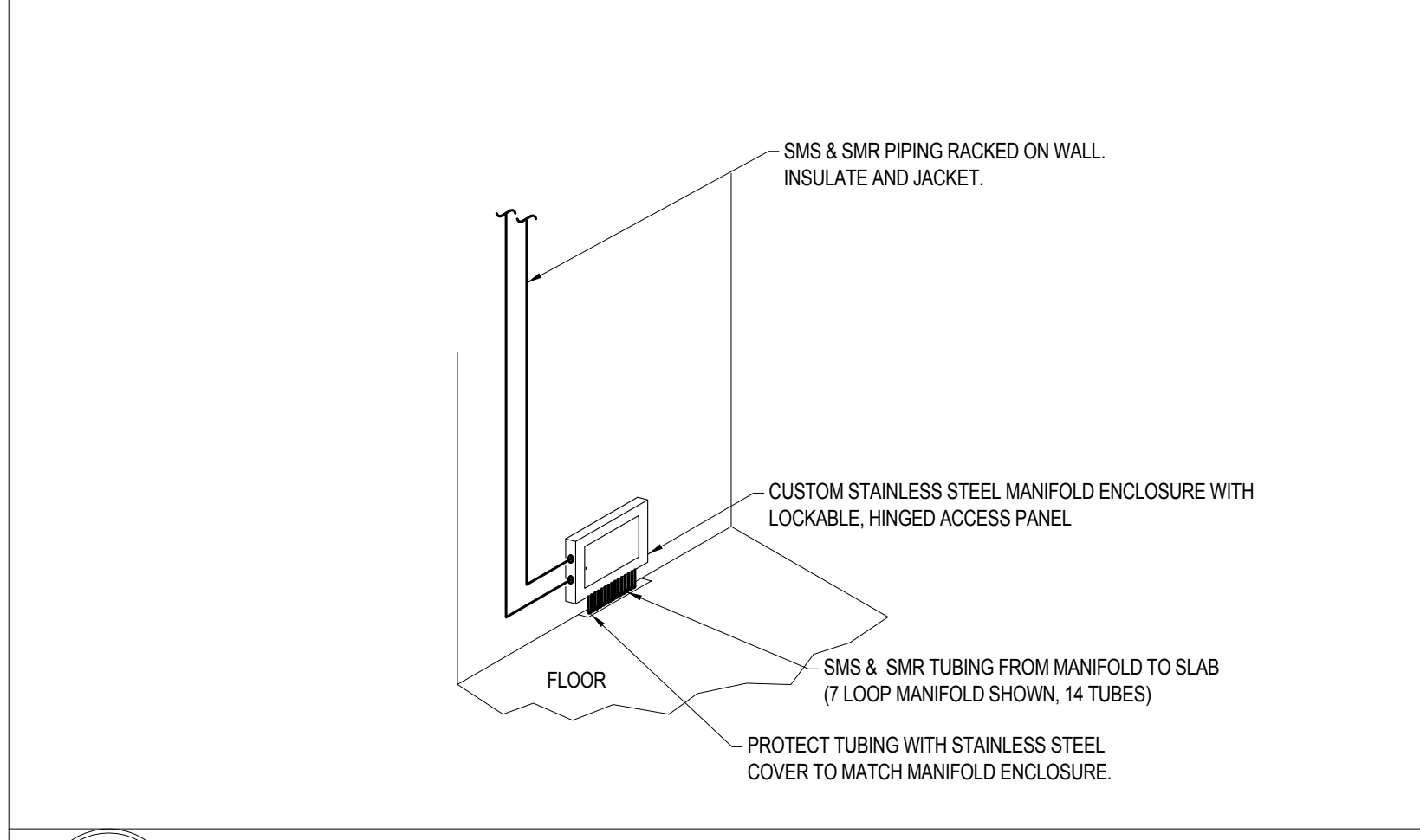
7 IN-LINE PUMP PIPING DETAIL

NO SCALE



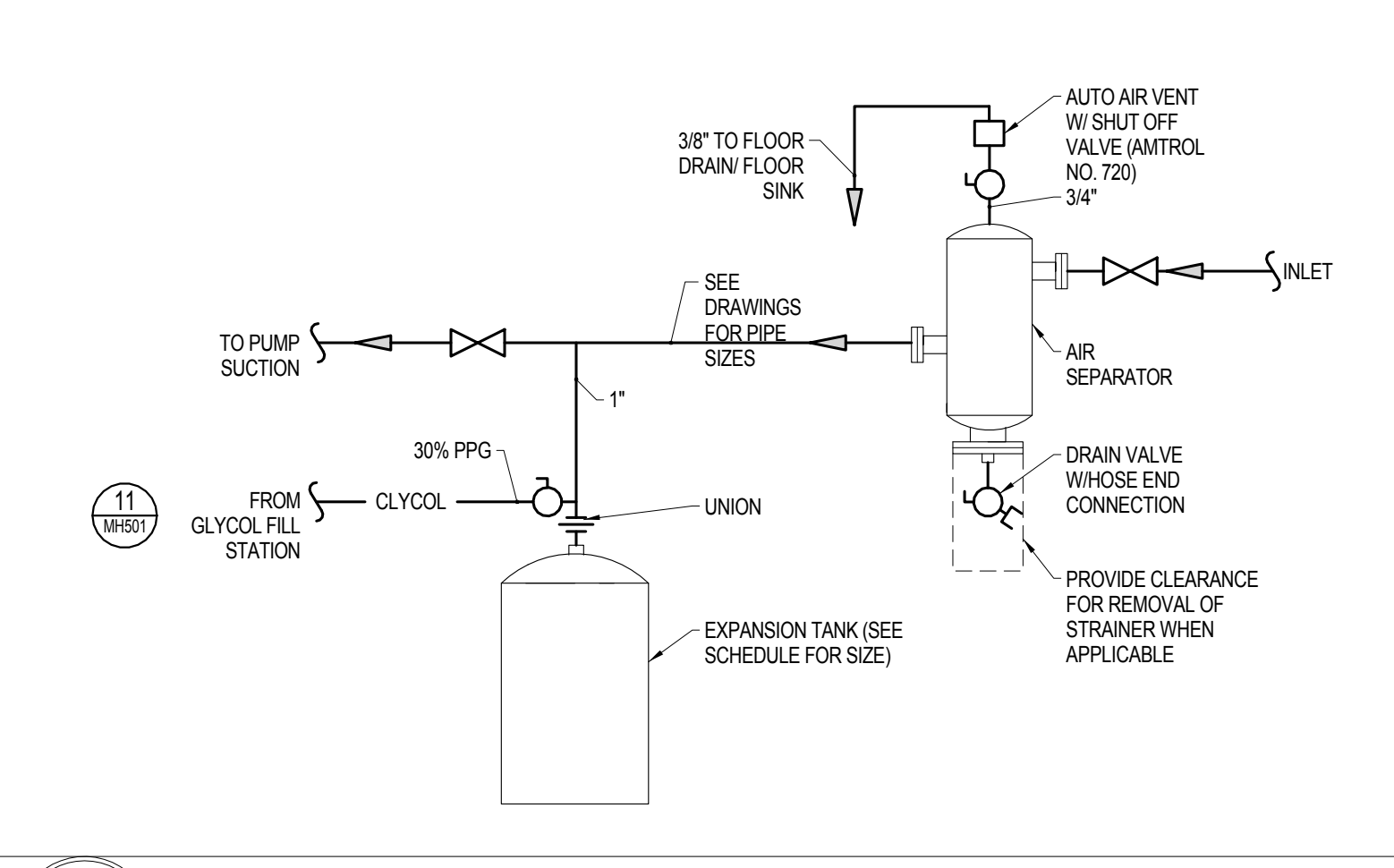
8 SNOW MELT TUBING INSTALLATION DETAIL

NO SCALE



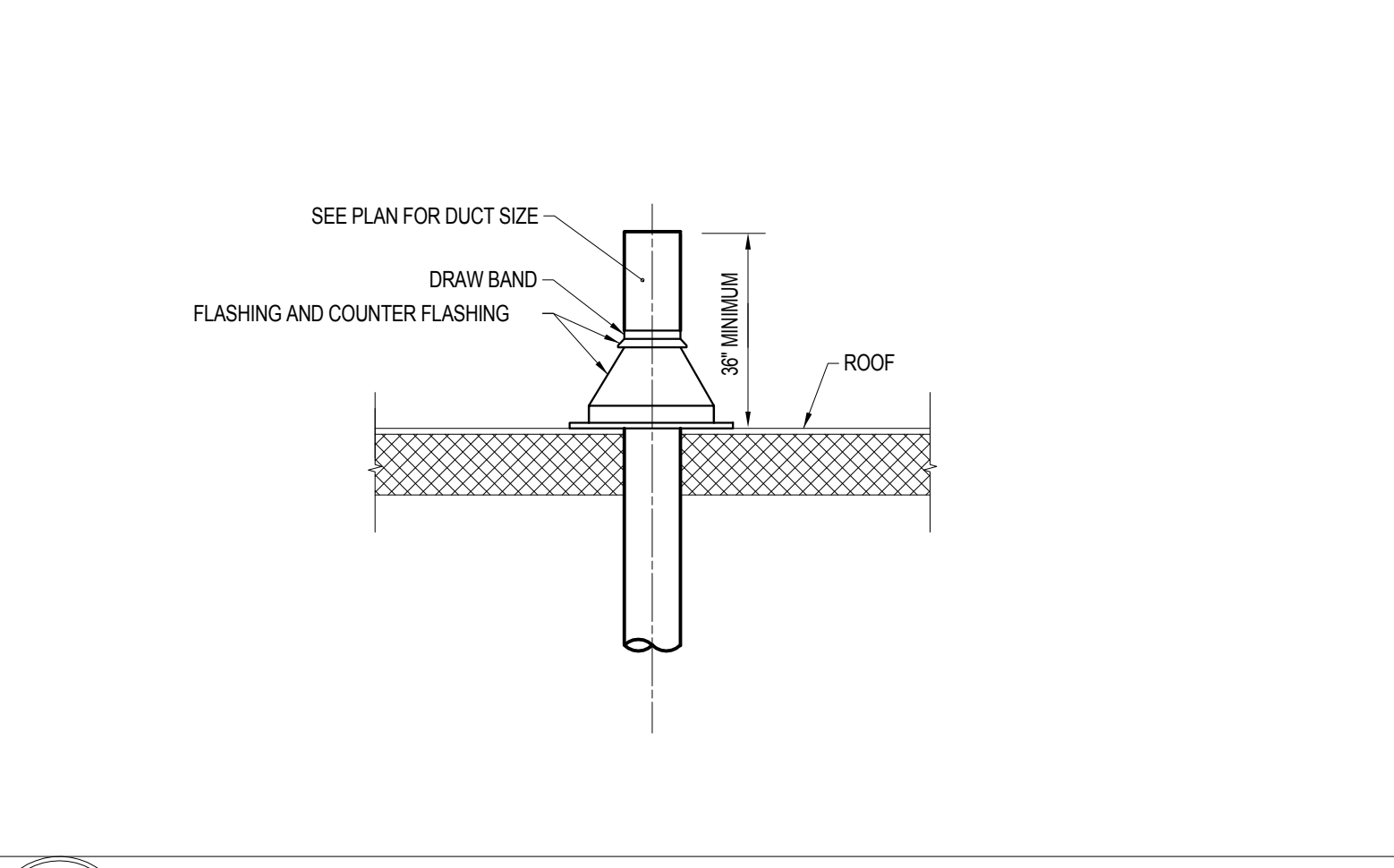
9 SNOW MELT MANIFOLD ENCLOSURE DETAIL

NO SCALE



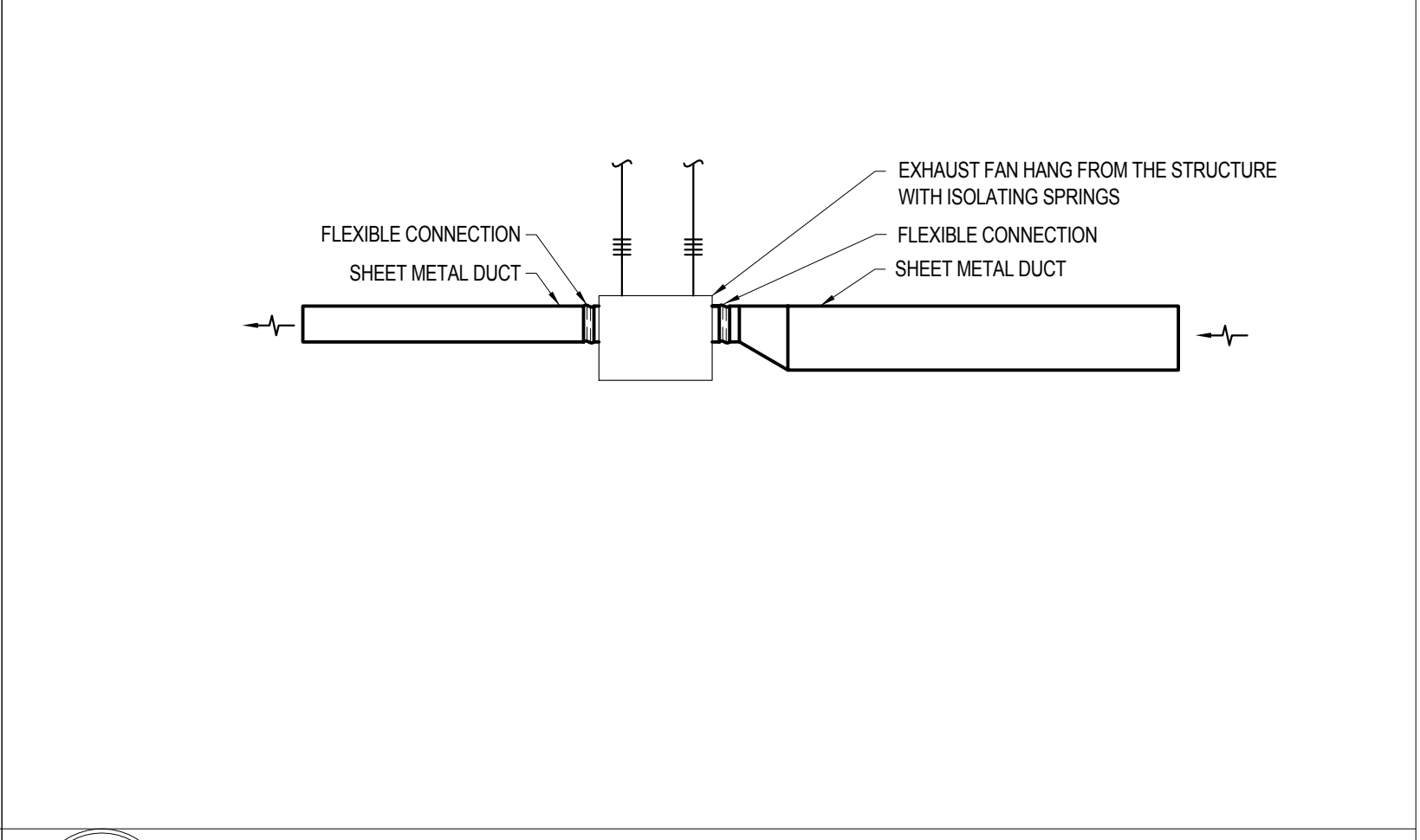
10 AIR SEPARATOR/EXPANSION TANK PIPING DETAIL (W/GLYCOL)

NO SCALE



11 BOILER FLUE ROOF PENETRATION DETAIL

NO SCALE



12 INLINE EXHAUST FAN DETAIL

NO SCALE

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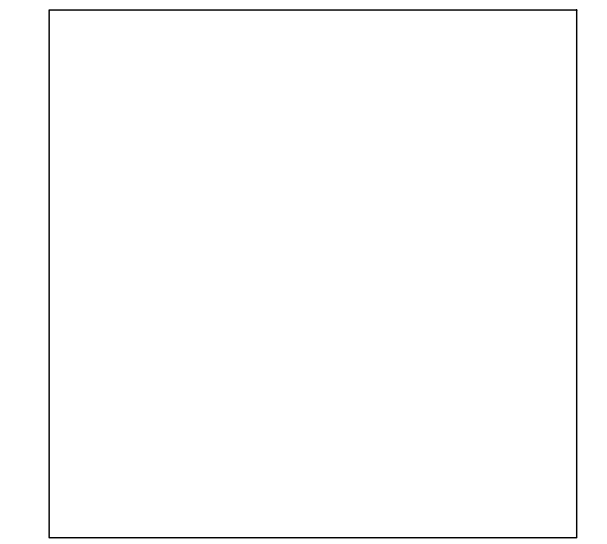
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PROJECT No: 3514
MECHANICAL DETAILS

04-M501

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CONDENSING BOILER SCHEDULE (B)																									
PLAN CODE	SERVES	MBH CAPACITY ②		SYSTEM FLUID	ASME PRESS. RATING (PSI)	OPERATING PRESSURE (PSI)	EFFICIENCY % ⑤	EWT (°F)	LWT (°F)	AIR INLET	FLUE SIZE	FLUE TYPE	FLOW (GPM)	FLOW RANGE (GPM)	PRESS DROP (FT-H2O)	MAX. SIZE			OPERATING WT.(LBS)	BURNER			MANUFACTURER & MODEL NO	REMARKS	
		OUTPUT @ SITE (MBH)	INPUT @ SL (MBH)													DEPTH (IN)	WIDTH (IN)	HEIGHT (IN)		FLA	VOLTAGE & PHASE	GAS PRESSURE			
B-1	SNOWMELT	238	285	40% PG	80	25	94	70	90	3"	3"	S636	27	CONSTANT	5	21	20	33	300	5	120/1	14" W.C.	HTP ELITE FT 285	① ③ ④	
① CONDENSATE NEUTRALIZATION KIT ② GAS VALVE: 890 BTU/CF ③ FURNISH WITH MULTIPLE UNIT CONTROLLER, BACNET COMMUNICATION GATEWAY ④ STAINLESS STEEL FIRE TRUE HEAT EXCHANGER ⑤ LISTED EFFICIENCY IS AT DESIGN CONDITION.																									

SPLIT SYSTEM FAN COIL (SSFC)												
PLAN CODE	AREA SERVED	CFM	NOM. CLG CAPACITY (MBH) ①	NOM. HEATING CAPACITY (MBH)	ELECTRICAL ③					WEIGHT LBS	MANUFACTURER & MODEL NO	REMARKS
					MCA	WATTS	VOLTS	PH	HZ			
SSFC-1	ELEC. ROOM	520	18	18.9	14	30	208/230	1	60	50	② ENVIROAIR ZWH 18	PAIRED WITH ACHP-1
SSFC-2	DATA/COMM ROOM	520	18	18.9	14	30	208/230	1	60	50	② ENVIROAIR ZWH 18	PAIRED WITH ACHP-1
① RATING AT 97° F DB / 63° F WB ENTERING CONDENSING UNIT ③ POWERED BY ASSOCIATED ACHP ② ROUTE AND SIZE REFRIGERANT LINES FROM CONDENSING UNIT TO SPLIT SYSTEM FAN COIL PER MANUFACTURERS REQUIREMENTS.												

AIR COOLED HEAT PUMP SCHEDULE (ACHP)																
PLAN CODE	SYSTEM SERVED	NOM. COOLING MBH	AMBIENT TEMP (°F)	NOM. HEATING MBH	AMBIENT TEMP (°F)	REFRIGERANT TYPE	ELECTRICAL			DIMENSIONS				SEER	MANUFACTURER & MODEL NO	REMARKS
							VOLTAGE/ PHASE	MCA	MOCP	LENGTH	WIDTH	HEIGHT	OPERATING WEIGHT (LBS)			
ACHP-1	SSFC-1	18	95	18.9	9	R410A	208/230 / 1	14	20	34	14	28	100	16	ENVIROAIR ZHB 18	(2) (3) PAIRED WITH SSFC-1
ACHP-2	SSFC-2	18	95	18.9	9	R410A	208/230 / 1	14	20	34	14	28	100	16	ENVIROAIR ZHB 18	(2) (3) PAIRED WITH SSFC-1
(1) MOUNT UNIT ON MINIMUM 14" SEISMIC ROOF CURB. (3) PROVIDE WITH LOW AMBIENT KIT DOWN TO 0°F. (2) ROUTE AND SIZE REFRIGERANT LINES FROM CONDENSING UNIT TO SPLIT SYSTEM FAN COIL PER MANUFACTURERS REQUIREMENTS.																

CONTROL DAMPER SCHEDULE (CD)									
PLAN CODE	SERVICE	TYPE (1)	AIR FLOW VOLUME (CFM)	DIMENSIONS		MAX FACE VELOCITY (FPM)	METHOD OF CONTROL	BLADE ORIENTATION	MANUFACTURER & MODEL NO
				WIDTH (IN)	HEIGHT (IN)				
CD-1	EF-1 NG PURGE	MOTORIZED 2-POSITION	2,700	24	24	1500	INTERLOCKED WITH EXHAUST FAN	HORIZONTAL PARALLEL BLADE	RUSKIN CD36
CD-2	EF-2 NG PURGE	MOTORIZED 2-POSITION	2,700	24	24	1500	INTERLOCKED WITH EXHAUST FAN	HORIZONTAL PARALLEL BLADE	RUSKIN CD36
CD-3	EQUIPMENT ROOM MAKE-UP AIR	MOTORIZED 2-POSITION	1,100	24	24	1500	INTERLOCKED WITH EXHAUST FAN	HORIZONTAL PARALLEL BLADE	RUSKIN CD36
(1) PROVIDE END SWITCHES ON DAMPER.									

PUMP SCHEDULE (P)												
PLAN CODE	DUTY	GPM	FEET OF HEAD	% PROPYLENE GLYCOL	MOTOR				METHOD OF CONTROL	MAX WEIGHT (LBS)	MANUFACTURER & MODEL NO	REMARKS
					BHP (W)	HP	EFFICIENCY %	W/GPM				
P-1	SNOWMELT SYSTEM	27	25	40	0.4	0.5	PREM.	11.1	230 / 1	ATC	50	GRUNDFOS MAGNA 40-120F

SNOWMELT AREA AND MANIFOLD SCHEDULE (SM)													
PLAN CODE	EFFECTIVE AREA (SF)	LOAD (MBH)	BTUH / SF	FLOW (GPM)	TUBING SIZE	TUBE CENTERS	NUMBER OF LOOPS	LOOP LENGTHS (FT)	GPM / LOOP	PRESSURE DROP (FT.)	HEADER SIZE	TOTAL # OF MANIFOLD LOOPS	REMARKS
SM-1	900	112.5	125	12.5	5/8"	9	6	210	2.1	14.8	1-1/2"	7	①②③④⑤
⑤ SM-1A	75	9.5	125	1.0	5/8"	9	1	110	1.0	2.2			
SM-2 (FUTURE)	900	112.5	125	12.5	5/8"	9	6	210	2.1	14.8	1-1/2"	7	①②③④⑥
⑥ SM-2A (FUTURE)	75	9.5	125	1.0	5/8"	9	1	110	1.0	2.2			
① FLOW METER WITH ISOLATION VALVE (PER LOOP) ② BALANCE VALVE CAPS (PER LOOP) ③ VENT / PURGE ASSEMBLY ④ TRUNK ISOLATION VALVES													
⑤ SM-XA REPRESENTS A DEDICATED LOOP OFF OF THE SM-X MANIFOLD THAT IS DIFFERENT FROM THE REST OF THE LOOPS SERVED BY THE MANIFOLD.													
⑥ PROVIDE A CUSTOM 36" STAINLESS STEEL MANIFOLD ENCLOSURE CABINET.													

LOUVER SCHEDULE (L)						
PLAN CODE	SERVICE	CFM	MAXIMUM VELOCITY (FPM)	MINIMUM FREE AREA (FT²)	MAXIMUM DIMENSIONS (W x H) (IN)	MANUFACTURER & MODEL NO (1) (2)
L-1	NG PURGE EXHAUST	2,700	1000	3.17	24 X 24	RUSKIN ELF6375DX
L-2	NG PURGE EXHAUST	2,700	1000	3.17	24 X 24	RUSKIN ELF6375DX
L-3	EQUIPMENT ROOM EXHAUST	1,100	1000	1.28	24 X 24	RUSKIN ELF6375DX
L-4	EQUIPMENT ROOM MAKE UP AIR	1,100	1000	1.28	24 X 24	RUSKIN ELF6375DX
(1) TYPE AND COLOR TO BE REVIEWED AND CONFIRMED BY ARCHITECT. (2) PROVIDE WITH BIRDSCREEN.						

EXPANSION TANK SCHEDULE (ET)											
PLAN CODE	SYSTEM SERVED	WATER TEMP (°F)	% GLYCOL	TANK VOL (GAL)	ACCEPTANCE VOL (GAL)	PRE-CHARGE (PSI)	MAX DIMENSIONS			MANUFACTURER & MODEL NO	REMARKS
							DIA (IN)	HEIGHT (IN)	OPERATING WT (LBS)		
ET-1	SNOWMELT SYSTEM	90	40	4.0	0.9	30	10	11	35	AMTROL ST-S-C	-

AIR SEPARATOR (AS)										
PLAN CODE	SYSTEM SERVED	CONNECTION SIZE (IN)	REC. GPM	PD (FT)	MAX DIMENSIONS			DRY WT (LBS)	MAX OPERATING WEIGHT (LBS)	MANUFACTURER & MODEL NO ①
					DIA (IN)	HEIGHT (IN)	FLANGE TO FLANGE (IN)			
AS-1	SNOWMELT SYSTEM	2"	35	.5	6.3	18.5	15.3	31	45	SPIROVENT SENIOR
① MAXIMUM TEMPERATURE = 270° F @ 145 PSIG										

RADIANT TUBE HEATER BURNER SCHEDULE (BN)											
PLAN CODE	INPUT (MBH)	EFFECTIVE LENGTH (FT)	MOUNTING HEIGHT (FT)	MOUNTING ANGLE (DEG)	ELECTRICAL		WEIGHT (LBS)	MANIFOLD / TAIL PIPE SIZE (IN)	CA DIA.	MANUFACTURER & MODEL NO	REMARKS
					VOLTI/PH	AMPS					
BN-1	125	30	15	45	120 / 1	1.2	300	4"	4"	AMBRAD ER	(1) (2) (3)
BN-2	125	25	15	45	120 / 1	1.2	300	4"	4"	AMBRAD ER	(1) (2) (3)
BN-3 (FUTURE)	125	30	15	45	120 / 1	1.2	300	4"	4"	AMBRAD ER	(1) (2) (3)
BN-4 (FUTURE)	125	25	15	45	120 / 1	1.2	300	4"	4"	AMBRAD ER	(1) (2) (3)
(1) WALL MOUNT KIT. (2) ALUMINUM REFLECTOR (3) STAINLESS STEEL BURNER											

JOB SITE ELEVATION = 4,300 FT
JOB SITE PRESSURE = 12.31 PSI
SELECT ALL EQUIPMENT FOR OPERATION AT JOB SITE ELEVATION

ALL MOTORS TO BE PREMIUM EFFICIENCY

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PROJECT No: 3514

MECHANICAL
SCHEDULES

04-M601

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303 292 0945 f



UTAH

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Phone: 801.532.2447 Fax: 801.532.2448

2012 IECC	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1)

2 Medium Impact (Tier 2)

3 Low Impact (Tier 3)

Project Data

Utah Transit Authority - DDSC - WASH
I:\PROJECTS\2013 Projects\2013-064\14 UTA-DDSC CD Phase\Energy\Energy Code-
COMCheck-Models\WASH\WASH ComCheck.cck

Report date: 02/11/11
Page 2 of 8

2012 IECC	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4, 5 [F09]	Freeze protection and snow/ice melting system sensors for future connection to controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1

High Impact (Tier 1)

2

Medium Impact (Tier 2)

3

Low Impact (Tier 3)

Project Data	Utah Transit Authority - DDSC - WASH I:\PROJECTS\2013 Projects\2013-064.14 UTA-DDSC CD Phase\Energy\Energy Code- COMCheck-Model\WASH\WASH ComCheck.cck	Report date: 02/11/18 Page 3 of 8
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Section & ReqID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
C403.2.3 [ME55]	HVAC equipment efficiency verification.	Efficiency: _____	Efficiency: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
C403.2.5 [ME59]	Demand control ventilation provided for spaces >500 ft ² and >25 people/1000 ft ² occupied density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	_____	_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.7 [ME60]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	_____	_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_31_00
C403.2.8 [ME61]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_21_13 See the Mechanical Systems list for values for Split System Fan Coil 1 & 2.
C403.2.8 [ME61]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_07_00 See the Mechanical Systems list for values for Radiant Tube Heaters.
C403.2.8 [ME61]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_07_00 See the Mechanical Systems list for values for Gas Fired Unit Heater.
C403.2.8 [ME61]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_21_13 See the Mechanical Systems list for values for SnowMelt SM-1 (Cond. Roller).
C403.2.8 [ME61]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_21_13 See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Roller).
C403.2.8 [ME41]	Thermally ineffective panel surfaces of serrable heating panels have insulation = R-3.5.	_____	_____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

1 High Impact (Tier 1)
2 Medium Impact (Tier 2)
3 Low Impact (Tier 3)

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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
C403.3.1.1 (ME11)†	Total cooling capacity without economizers must be less than %varMaxKBTuPerHr%.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: Mit 601
C403.2.7 (ME10)†	Ducts and plenums sealed based on static pressure and location.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00
C403.2.7.1,3 (ME11)†	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00 <i>See the Mechanical Systems list for values for Split System Fan Coil 1 & 2.</i>
C403.2.7.1,3 (ME11)†	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00 <i>See the Mechanical Systems list for values for Radiant Tube Heaters.</i>
C403.2.7.1,3 (ME11)†	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00 <i>See the Mechanical Systems list for values for Gas Fired Unit Heater.</i>
C403.2.7.1,3 (ME11)†	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C403.2.7.1,3 (ME11)†	Ductwork operating >3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C408.2.2.1 (ME53)†	Air outlets and zone terminal devices have means for air balancing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_33_00, 23_05_93
C403.4.2 (ME66)†	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_34_00 <i>See the Mechanical Systems list for values for Split System Fan Coil 1 & 2.</i>

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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2012 IECC	Final Inspection	Complies?	Comments/Assumptions
C303.3.C4 (F18)†	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5.3 (F143)†	An air and/or hydronic system balancing report is provided for HVAC systems.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.2 (F10)†	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C403.2.2 (F127)†	HVAC systems and equipment capacity does not exceed calculated loads.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.1 (F128)†	Commissioning plan developed by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.4 (F129)†	Preliminary commissioning report completed and certified by registered design professional or approved agency.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.5.4 (F130)†	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.2.3.1 (F131)†	HVAC equipment has been tested to ensure proper operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C406 (F134)†	Efficient HVAC performance, efficient lighting system, or on-site supply of renewable energy consistent with what is shown the approved plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
C403.4.2 (ME66)†	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_08_10 <i>See the Mechanical Systems list for values for Radiant Tube Heaters.</i>
C403.4.2 (ME66)†	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_34_00 <i>See the Mechanical Systems list for values for Gas Fired Unit Heater.</i>
C403.4.2 (ME66)†	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_34_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C403.4.2 (ME66)†	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> VSD <input type="checkbox"/> Vane axial fan <input type="checkbox"/> Other	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_34_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C403.2.6 (ME57)†	Exhaust air energy recovery on systems meeting Table C403.2.6			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
C403.2.11 (ME71)†	Unenclosed spaces that are heated use only radiant heat.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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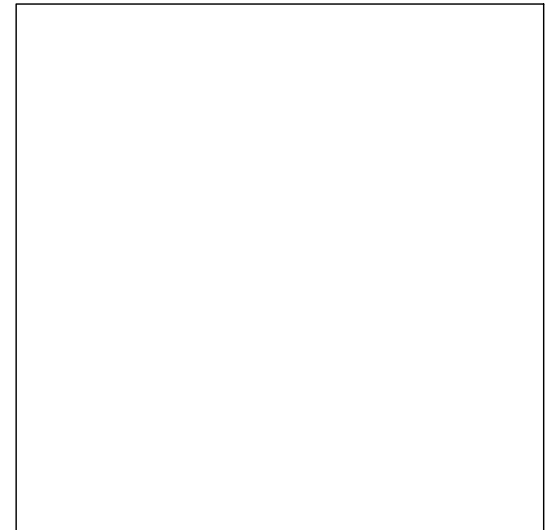
2012 IECC	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.2 (F147)†	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00 <i>See the Mechanical Systems list for values for Split System Fan Coil 1 & 2.</i>
C403.2.4.2 (F147)†	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00 <i>See the Mechanical Systems list for values for Radiant Tube Heaters.</i>
C403.2.4.2 (F147)†	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00 <i>See the Mechanical Systems list for values for Gas Fired Unit Heater.</i>
C403.2.4.2 (F147)†	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C403.2.4.2 (F147)†	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C403.2.4.2 (F147)†	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00 <i>See the Mechanical Systems list for values for SnowMelt SM-1A (Cond. Boiler).</i>
C403.2.4.2 (F138)†	Thermostatic controls have a 5 °F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00
C403.2.4.2 (F120)†	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00
C403.2.4.3 (F139)†	Each zone equipped with setback controls using automatic time clock or programmable control system.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00
C403.2.4.3 (F140)†	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. Location on plans/spec: 23_09_00
C403.2.4.3,3 (F141)†	Systems include optimum start controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for Split System Fan Coil 1 & 2.</i>
C403.2.4.3,3 (F141)†	Systems include optimum start controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met. <i>See the Mechanical Systems list for values for Gas Fired Unit Heater.</i>
C408.2.5.1 (F1)†	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

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UTAH TRANSIT AUTHORITY
DEPOT DISTRICT TECHNOLOGY CENTER

WASH
BUILDING 4
669 WEST 200 SOUTH
SALT LAKE CITY, UT 84101
CONSTRUCTION DOCUMENTS 03/31/2015



No REVISION/SUBMISSION DATE

PROJECT No: 3514

MECHANICAL ENERGY
CODE COMPLIANCE
DOCUMENTATION

04-M902

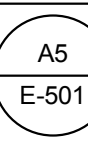
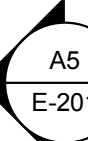
















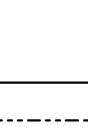
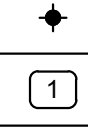













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

















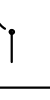








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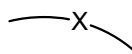



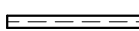








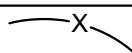











1050 17TH STREET
SUITE 4200
DENVER, CO 80265
303.295.1717
303.292.0945 f

RNL

SYMBOLS LEGEND	
SYMBOL	DESCRIPTION
REFERENCE AND LINE SYMBOLS	
	DETAIL INDICATOR: A5 INDICATES DETAIL NUMBER, E-501 INDICATES DRAWING SHEET WHERE DETAIL IS SHOWN.
	ELEVATION OR SECTION INDICATOR, EXTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
	ELEVATION OR SECTION INDICATOR, INTERIOR: A5 INDICATES ELEVATION OR SECTION NUMBER, E-201 INDICATES DRAWING SHEET WHERE ELEVATION OR SECTION IS SHOWN.
	ROOM IDENTIFIER WITH ROOM NAME AND NUMBER.
	KEYNOTE INDICATOR.
	REVISION INDICATOR.
	EQUIPMENT INDICATOR.
	BREAK, STRAIGHT: TO BREAK PARTS OF DRAWING
	BREAK, ROUND
	MATCH LINE INDICATOR: CENTER, EXTRA WIDE LINE.
	NEW LINE: MEDIUM LINE.
	EXISTING TO REMAIN LINE: THIN LINE.
	DEMOLITION LINE: DASHED, MEDIUM LINE.
	PROPERTY LINE: DASHED, WIDE LINE.
	CONTRACT LIMIT LINE: DASHDOT, WIDE LINE.
WIRING METHODS	
	WIRING.
	WIRING TURNED UP OR TOWARDS OBSERVER.
	WIRING TURNED DOWN OR AWAY FROM OBSERVER.
	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
	BRANCH CIRCUIT HOME RUN TO PANELBOARD: NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS. LETTER AND NUMBER NOTATIONS IDENTIFY PANEL AND CIRCUIT NUMBERS. USE #12 CONDUCTORS, EXCEPT #10 CONDUCTORS SHALL BE INSTALLED IF DISTANCES EXCEED THOSE SPECIFIED IN THE ELECTRICAL SPECIFICATIONS.
	LOW VOLTAGE WIRING: DIVIDE, MEDIUM LINE.
	CONDUIT STUB. DIMENSION RECORD DRAWINGS AND MARK.
	CONDUCTOR & CONDUIT (CC) SCHEDULE INDICATOR. REFER TO ONE-LINE DIAGRAM.
	JUNCTION BOX.
	PULL BOX.
	EARTH GROUND (ONE-LINE DIAGRAM).
	MECHANICAL EQUIPMENT CONNECTION. REFER TO EQUIPMENT SCHEDULE FOR REQUIREMENTS.
WIRING DEVICES	
	RECEPTACLE, DUPLEX: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WET LABEL, WEATHERPROOF IN USE: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER: NEMA 5-20R.
	RECEPTACLE, DUPLEX WITH GROUND FAULT CIRCUIT INTERRUPTER, WEATHERPROOF: NEMA 5-20R.
	RECEPTACLE, QUADRAPLEX: NEMA 5-20R.
	RECEPTACLE, SPECIAL PURPOSE. PROVIDE RECEPTACLE TO MATCH EQUIPMENT PLUG.

SYMBOLS LEGEND	
SYMBOL	DESCRIPTION
WIRING DEVICES	
	SWITCH, SINGLE POLE ("X" INDICATES FIXTURES CONTROLLED).
	SWITCH, THREE-WAY ("X" INDICATES FIXTURES CONTROLLED).
	SWITCH, FOUR-WAY ("X" INDICATES FIXTURES CONTROLLED).
	SWITCH, TIMER OPERATED.
	SWITCH, WEATHERPROOF.
SITE ELECTRICAL AND COMMUNICATIONS UTILITIES	
	ELECTRIC LINE: 3Ø = 3-PHASE, 1Ø = SINGLE PHASE, 2Ø = 2-PHASE, 3Ø = 3-PHASE, O = OVERHEAD, U = UNDERGROUND, P = PRIMARY, S = SECONDARY
	UTILITY POLE.
	UTILITY, COMMUNICATIONS MANHOLE.
	UTILITY, ELECTRICAL MANHOLE.
	UTILITY, TELEPHONE MANHOLE.
	TRANSFORMER.
ELECTRICAL POWER AND DISTRIBUTION	
	FUSE WITH RATING (ONE-LINE DIAGRAM).
	DISCONNECT, FUSED (ONE-LINE DIAGRAM).
	DISCONNECT, NONFUSED (ONE-LINE DIAGRAM).
	DISCONNECT WITH FUSE AND MOTOR STARTER COMBINATION (ONE-LINE DIAGRAM).
	OVERLOAD RELAY (ONE-LINE DIAGRAM).
	STARTER (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOLDED CASE WITH SHUNT TRIP (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, MOTOR CIRCUIT PROTECTION (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE (ONE-LINE DIAGRAM).
	CIRCUIT BREAKER, SOLID STATE WITH GROUND FAULT PROTECTION (ONE-LINE DIAGRAM).
	MOTOR.
	TRANSFORMER (ONE-LINE DIAGRAM).
	PANELBOARD (ONE-LINE DIAGRAM).
	PANELBOARD WITH MAIN LUGS ONLY. BUS SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).
	PANELBOARD WITH MAIN CIRCUIT BREAKER. SIZE AND PHASE AS SHOWN (ONE-LINE DIAGRAM).

SYMBOLS LEGEND	
SYMBOL	DESCRIPTION
ELECTRICAL POWER AND DISTRIBUTION	
	PANELBOARD WITH MAIN AND SUB FEED CIRCUIT BREAKER (ONE-LINE DIAGRAM).
	PANELBOARD WITH MAIN LUGS ONLY AND SURGE PROTECTION WITH CIRCUIT BREAKER (ONE-LINE DIAGRAM).
LIGHTING (REFER TO FIXTURE SCHEDULE FOR SYMBOLS)	
	FIXTURE IDENTIFICATION: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
	FIXTURE IDENTIFICATION, EMERGENCY WITH BATTERY PACK, CONNECTED TO GENERATOR AS INDICATED: (W-3) INDICATES FIXTURE TYPE AS SCHEDULED.
EM	EMERGENCY.
LIGHTING CONTROL	
*	OCCUPANCY SENSOR, DUAL TECHNOLOGY, OMNI-DIRECTIONAL, CEILING.
⋆	OCCUPANCY SENSOR, DUAL TECHNOLOGY, WALL.
	PHOTOCELL.
	OCCUPANCY SENSOR, SWITCH PACK.
STRUCTURED CABLING	
	TELEPHONE, WALL MOUNTED (* INDICATES QUANTITY OF CABLES).
	TELEPHONE, WALL MOUNTED: WALL PHONE.
	OUTLET, DATA COMMUNICATION (* INDICATES QUANTITY OF CABLES).
	OUTLET, BUILDING STANDARD COMBINATION TELEPHONE/ DATA COMMUNICATION.
	TELEPHONE TERMINAL BOARD, FIRE TREATED PLYWOOD PAINTED.
	LAN RACK, FLOOR STANDING.
FIRE ALARM	
	FIRE SYSTEM ANNUNCIATOR.
	FIRE ALARM CONTROL PANEL, SEMI-RECESSED.
	FIRE ALARM NOTIFICATION POWER SUPPLY.
	CONTROL MODULE.
	MONITOR MODULE.
	FIRE ALARM MANUAL PULL STATION.
	SHUT DOWN RELAY. INSTALL RELAY IN CONTROL CIRCUIT OF EQUIPMENT TO BE CONTROLLED IN THE EVENT OF A FIRE.
	DETECTOR, SMOKE.
	DETECTOR, SMOKE, DUCT WITH HOUSING AND SAMPLING TUBE.
	DETECTOR, HEAT.
	STROBE. SUBSCRIPT INDICATES CANDELA RATING.
	ALARM, HORN/SPEAKER, WEATHERPROOF.
	ALARM, HORN/STROBE, ONE ASSEMBLY. SUBSCRIPT INDICATES CANDELA RATING.
	ALARM, HORN/STROBE WITH GUARD, ONE ASSEMBLY.
	DETECTOR, FLOW SWITCH: FLOW SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.
	DETECTOR, TAMPER SWITCH WITH VALVE. TAMPER SWITCHES SHALL BE PROVIDED AND INSTALLED WITH FIRE SPRINKLER SYSTEM AND SHALL BE CONNECTED TO LOCATIONS SHOWN ON THE FIRE SPRINKLER SHOP DRAWINGS.

SYMBOLS LEGEND	
SYMBOL	DESCRIPTION
TECHNOLOGY SYSTEMS	
	TECHNOLOGY SYSTEM CABLE. SEE SPECIFIC JOB EQUIPMENT LIST FOR APPLICABLE DESIGNATIONS.
	EXAMPLES: C = CONTROL CABLE G = GROUND CABLE, 10 AWG, 1 CONDUCTOR, GREEN I = INSULATED M = MICROPHONE CABLE S = SPEAKER CABLE, 70 VOLT SYSTEM Z = SPEAKER CABLE, 8 OHM SYSTEM
	SPEAKER, CEILING MOUNTED.
	SPEAKER, WALL MOUNTED.
	EQUIPMENT CABINET.
	SCREEN, PROJECTION, CEILING MOUNTED.
	PROJECTOR, CEILING MOUNTED.
CCTV	
	CCTV CABLE, POWER.
	CCTV CABLE, VIDEO SIGNAL.
	CCTV HEADEND EQUIPMENT.
	CCTV MONITOR.
	CCTV CAMERA/ENCLOSURE WITH LENS, TYPICAL. SEE SCHEDULE.
PTZ	 CCTV CAMERA WITH PAN, TILT AND ZOOM.
360°	 PANNING CAMERA TRANSVERSE ANGLE.
SECURITY	
	SECURITY CABLE. SEE EQUIPMENT SCHEDULE FOR CABLE TYPE.
	ACCESS CONTROL, HEADEND EQUIPMENT.
	SECURITY CONTROL PANEL.
	INTRUSION DETECTION HEADEND EQUIPMENT.
	CARD ACCESS DOOR TYPE #1 OR AS NOTED. SEE SCHEDULE.
	CARD READER.
	KEYPAD/CARD READER COMBINATION.
	EXIT REQUEST.
	REMOTE DOOR RELEASE BUTTON.
	SENSOR, BURIED VEHICULAR.
	INTERCOM STATION.
	PANIC DURESS SWITCH.

ABBREVIATIONS

NOTE: ALL ABBREVIATIONS MAY NOT BE USED.

1P	SINGLE POLE	LRA	LOOKED ROTOR AMPS
1PH	SINGLE-PHASE	LVG	LIGHTING
3C	THREE-CONDUCTOR	LT	LOW VOLTAGE
4W	FOUR-WIRE	MATV	MASTER ANTENNA TELEVISION
AB	ABOVE PLASTER	MS	MINIMUM
ADJ	ADJACENT	MAX	MAXIMUM
ABF	ABOVE FINISHED FLOOR	MCA	MINIMUM CIRCUIT AMPS
AFG	ABOVE FINISHED GRADE	MCB	MINIMUM CIRCUIT BREAKER
AMP	AMPERE INTERRUPTING CAPACITY	MCC	MOTOR CONTROL CENTER
ALUM	ALUMINUM	MCP	MOTOR CIRCUIT PROTECTION
ANN	ANNUNCIATOR	MDP	MAN DISTRIBUTION PANEL
AP	ACCESS POINT (WIRELESS DATA)	MG	MOTOR GENERATOR
ASR	AS REQUIRED	MH	MANIFOLD
ASC	AMPS SHORT CIRCUIT	MIN	MINIMUM
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAX LUG ONLY
AUD	AUDIO	MOPCP	MAXIMUM OVERCURRENT PROTECTION
AWG	AMERICAN WIRE GAGE	NA	NOT APPLICABLE
CB	CIRCUIT BREAKER	NB	NOT BUILT
CCB	CUSTOM COLOR AS SELECTED BY ARCHITECT	NEC	NATIONAL ELECTRICAL CODE
CATV	TELEVISION	NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CB	CIRCUIT BREAKER	NFC	NATIONAL FIRE CODE
CCB	CUSTOM COLOR AS SELECTED BY ARCHITECT	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CCTV	CLOSED CIRCUIT TELEVISION	NIC	NOT IN CONTRACT
CF/CI	CONTRACTOR/CONTRACTOR/INSTALLED	NL	NIGHT LIGHT
CF/OFI	CONTRACTOR FURNISHED/OWNER INSTALLED	NO	NORMALLY OPEN
CFB	CUSTOM FINISH AS SELECTED BY ARCHITECT	NTS	NOT TO SCALE
CKT	CIRCUIT	OC	ON CENTER
CM	CONSTRUCTION MANAGER	OCF	OVER CURRENT PROTECTION
CON	CONDUIT	OF/CI	OWNER FURNISHED/OWNER INSTALLED
CO	CONVENIENCE OUTLET	OFI	OWNER FURNISHED/OWNER INSTALLED
CP	CONTROL PANEL	OP	OBTAIN FROM PLANS
CT	CURRENT TRANSFORMER	OH DR	OVERHEAD (COILING) DOWEL
CTV	CABLE TELEVISION	OH	OVERHEAD
CU	COPPER	PH	PUSH-BUTTON
DPDT	DOUBLE THROW DOUBLE THROW	PF	POWER FACTOR
EA	EACH	PH	PHASE
EM	EMERGENCY	PNL	PANEL
EPT	ELECTRICAL METALLIC TUBING	PTZ	POTENTIAL TRANSFORMER
EMP	EMERGENCY POWER OFF EQUIP	QTY	QUANTITY
EX	EXISTING	RCF	REFLECTED CEILING PLAN
F	FURNITURE MOUNTED	RCD	RIGID METAL CONDUIT
FA	FIRE ALARM CONTROL PANEL	RMP	ROCKY MOUNTAIN POWER
FLA	FULL LOAD AMPS	RNC	RIGID NONMETAL CONDUIT
FMC	FLEXIBLE METAL CONDUIT	RRM	REVOLUTIONS PER MINUTE
FNB	FIBERGLASS BOARD	RST/STP	RST/START/STOP
FNR	NON-REVERSING	SCA	SHORT CIRCUIT AMPS
FVR	FULL VOLTAGE REVERSING	SCBA	STANDARD COLOR CODE
GEN	GENERATOR	SE	SELECTED BY ARCHITECT
GFCI	GROUND FAULT INTERRUPTER	SFBA	STANDARD FINISH AS SELECTED BY ARCHITECT
GFP	GROUND FAULT PROTECTION	SPDT	SINGLE POLE DOUBLE THROW SWITCH
HD	HEAVY	SPC	SPECIFICATION
HI	HIGH INTENSITY DISCHARGE	SPE	SINGLE POLE SINGLE THROW
HOA	HAND-OFF-AUTOMATIC	ST	SINGLE THROW
HP	HORSE POWER	SWB	SWITCHBOARD
HPF	HIGH POWER FACTOR	SWGR	SWITCHGEAR
HPV	HIGH PRESSURE SODIUM	TL	TWIST LOCK
HS	HIGH VOLTAGE	TP	TELEPHONE POLE
HZ	HERTZ	TPW	TWISTED PAIR
IG	INPUT OUTPUT	TTB	TELEPHONE TERMINAL BOARD
IG	ISOLATED GROUND	T	TELEVISION
IMC	INTERMEDIATE METAL CONDUIT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
IMS	INSULATED ISOLATED	TYP	TYPICAL
IR	INFRA-RED	UF	UNDERFLOOR
J-BOX	JUNCTION BOX	UPS	UNINTERRUPTIBLE POWER SUPPLY
K	KILOVOLT	V	VOLTS
KVA	KILOVOLT AMPERE	VA	VOLT AMPERE
KVAR	KILOVOLT AMPERE REACTIVE	VFCVF	VARIABLE FREQUENCY MOTOR CONTROLLER
KW	KILOWATT	W	WITH
KWH	KILOWATT HOUR	W/O	WITHOUT
LED	LIGHT EMITTING DIODE	WO	WEATHERPROOF
LFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT	XFMR	TRANSFORMER

DEFINITIONS

NOTE: ALL DEFINITIONS MAY NOT BE USED.

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

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

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

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

INSTALL: THE TERM "INSTALL" IS USED TO MEAN OPERATIONS AT THE PROJECT SITE INCLUDING, BUT NOT LIMITED TO, UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

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

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

TECHNOLOGY SYSTEMS: THE TERM "TECHNOLOGY SYSTEMS" IS USED TO DESCRIBE ALL LOW VOLTAGE SYSTEMS GENERALLY REFERRED TO AS "SPECIAL SYSTEMS." THESE SYSTEMS INCLUDE BUT ARE NOT NECESSARILY LIMITED TO ALL TYPES OF AUDIO, VISUAL, COMMUNICATIONS, AND DATA SYSTEMS SUCH AS SOUND SYSTEMS, VIDEO SYSTEMS, TV SYSTEMS, SECURITY SYSTEMS, VOICE AND DATA CABLEING SYSTEMS, ETC.,...

GENERAL ELECTRICAL NOTES

CLARIFICATION METHODS: AT THE TIME OF BIDDING, BIDDERS SHALL FAMILIARIZE THEMSELVES WITH THE DRAWINGS AND SPECIFICATIONS. ANY QUESTIONS, MISUNDERSTANDINGS, CONFLICTS, DELETIONS, DISCONTINUED PRODUCTS, MATERIAL NUMBER CHANGES, ETC. MUST BE SUBMITTED TO THE CONTRACTOR SUPPLIED AND THE INTENT OR FUNCTION OF THE EQUIPMENT, ETC. SHALL BE SUBMITTED TO THE ARCHITECT/ENGINEER IN WRITING FOR CLARIFICATION PRIOR TO ISSUANCE OF THE FINAL ADDENDUM AND BIDDING OF THE PROJECT. WHERE DISCREPANCIES OR MULTIPLE INTERPRETATIONS OCCUR, THE MOST STRINGENT (WHICH IS GENERALLY RECOGNIZED AS THE MOST COSTLY) THAT MEETS THE INTENT OF THE DOCUMENTS SHALL BE ENFORCED.

2. OWNER FURNISHED ITEMS: THE OWNER WILL FURNISH MATERIAL AND EQUIPMENT TO BE INSTALLED IN THE PROJECT. THESE ITEMS SHALL BE INCORPORATED INTO THE WORK. THESE ITEMS ARE ASSIGNED TO THE INSTALLER AND COSTS FOR RECEIVING, HANDLING, STORAGE, IF REQUIRED, AND INSTALLATION ARE INCLUDED IN THE CONTRACT SUM.

A. THE INSTALLER'S RESPONSIBILITIES ARE THE SAME AS IF THE INSTALLER FURNISHED THE MATERIALS OR EQUIPMENT.

B. THE OWNER WILL ARRANGE AND PAY FOR DELIVERY OF OWNER FURNISHED ITEMS. THE OWNER HAS FREIGHT ON BOARD JOBS. THE INSTALLER WILL INSPECT DELIVERIES FOR DAMAGE. IF OWNER FURNISHED ITEMS ARE DAMAGED, DEFECTIVE OR MISSING, DOCUMENT DAMAGED ITEMS WITH THE TRANSPORT COMPANY AND THE OWNER WILL ARRANGE FOR REPLACEMENT. THE OWNER WILL ALSO ARRANGE FOR MANUFACTURER'S FIELD SERVICES, AND THE DELIVERY OF MANUFACTURER'S WARRANTIES AND BONDS TO THE INSTALLER.

C. THE INSTALLER IS RESPONSIBLE FOR DESIGNATING THE DELIVERY DATES FOR OWNER FURNISHED ITEMS. THE INSTALLER IS RESPONSIBLE FOR HANDLING OWNER FURNISHED ITEMS AT THE SITE. THE INSTALLER IS RESPONSIBLE FOR PROTECTING OWNER FURNISHED ITEMS FROM DAMAGE, INCLUDING DAMAGE FROM THE ELEMENTS, AND TO REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF HIS OPERATIONS.

ELECTRICAL SHEET INDEX	
04-EE001	SHEET INDEX, ABBREVIATIONS, AND GENERAL NOTES
04-EE101	LEVEL 1 ELECTRICAL PLANS - BASE BID
04-EE101A	LEVEL 1 ELECTRICAL PLANS - ALTERNATE BID
04-EE102	ELECTRICAL DETAILS AND POWER PLANS
04-EE601	ELECTRICAL ENERGY CODE COMPLIANCE FORMS
04-EE701	TYPICAL MOUNTING HEIGHT DETAILS
04-ES101	ELECTRICAL, SITE PLAN
04-EP601	POWER ONE-LINE DIAGRAM
04-EP602	PANEL & EQUIPMENT SCHEDULES
04-EL601	LIGHTING FIXTURE SCHEDULE AND DETAILS
04-FA101	FIRE ALARM RISER

BASE /ALTERNATE BID NOTES
<p>BASE BID: INSTALL ALL EQUIPMENT, DEVICES, AND FIXTURES AS INDICATED, AND DISREGARD ALL REFERENCES TO DEDUCTIVE ALTERNATE WORK. PROVIDE SPARES CONDUITS AND PROVISIONS TO FUTURE BUS WASH EQUIPMENT AS INDICATED.</p> <p>DEDUCTIVE ALTERNATE: DO NOT INSTALL EQUIPMENT, DEVICES, AND FIXTURES ASSOCIATED WITH ROOM "BUS WASH PHASE 2 #105". PROVIDE SPARE CONDUITS AND PROVISIONS FOR PHASE 2 BUILDOUT AS INDICATED. USE SHEET 03-EE101 FOR REFERENCE ONLY.</p>

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BUILDING 04
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SALT LAKE CITY, UT 84101
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PROJECT No: 3514

DATE

REVISION/SUBMISSION

DATE

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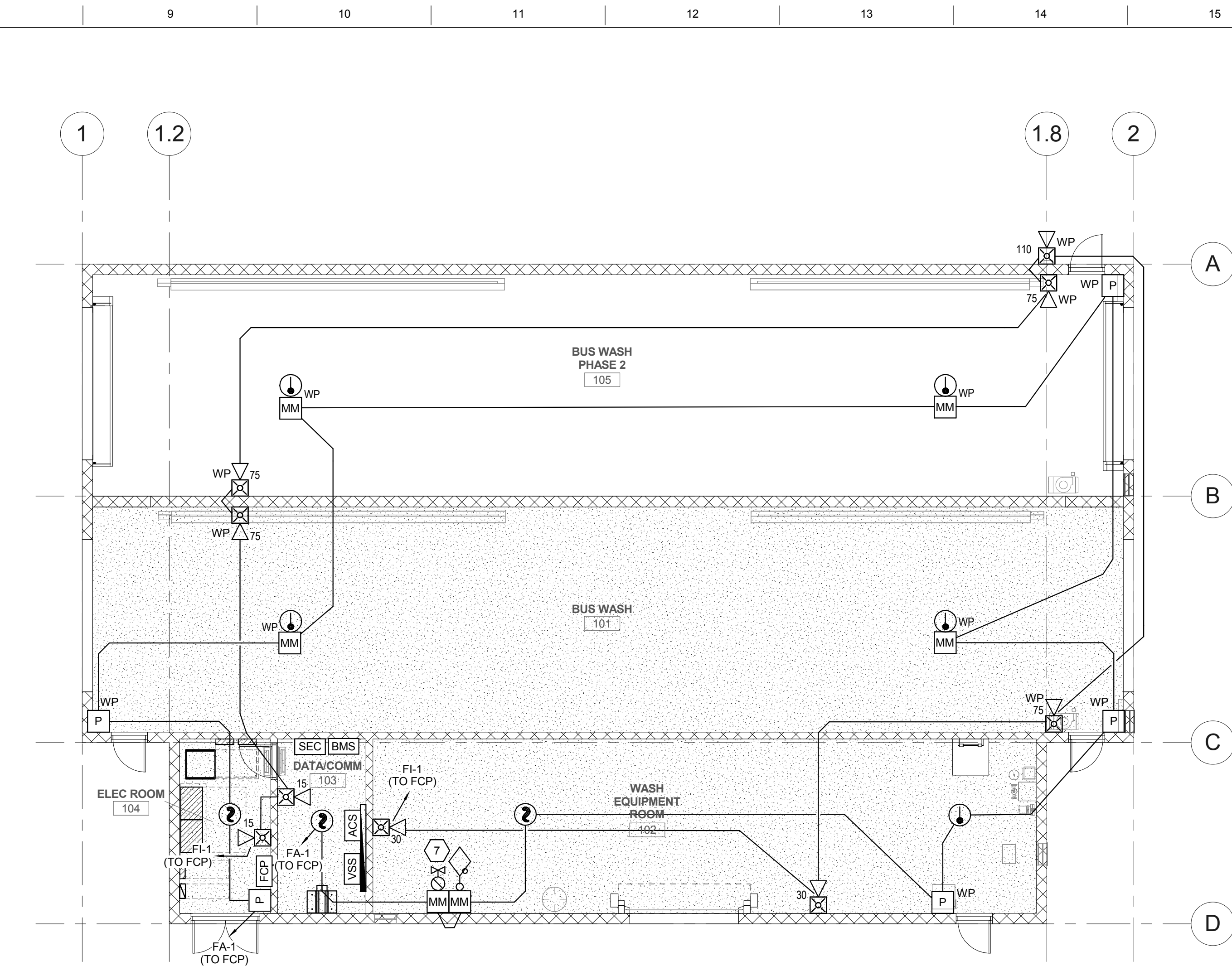
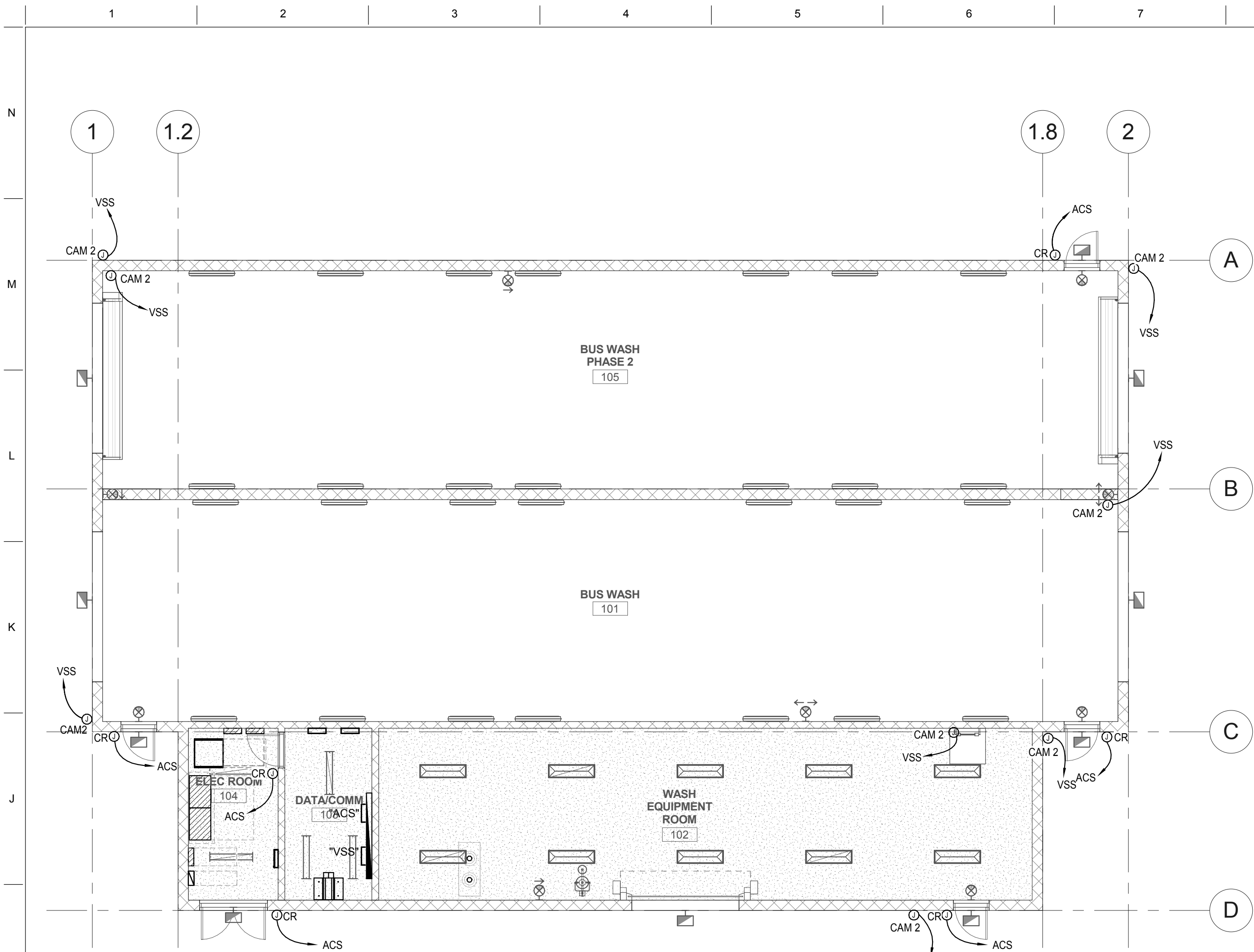
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SHEET INDEX,
ABBREVIATIONS, AND
GENERAL NOTES

DATE

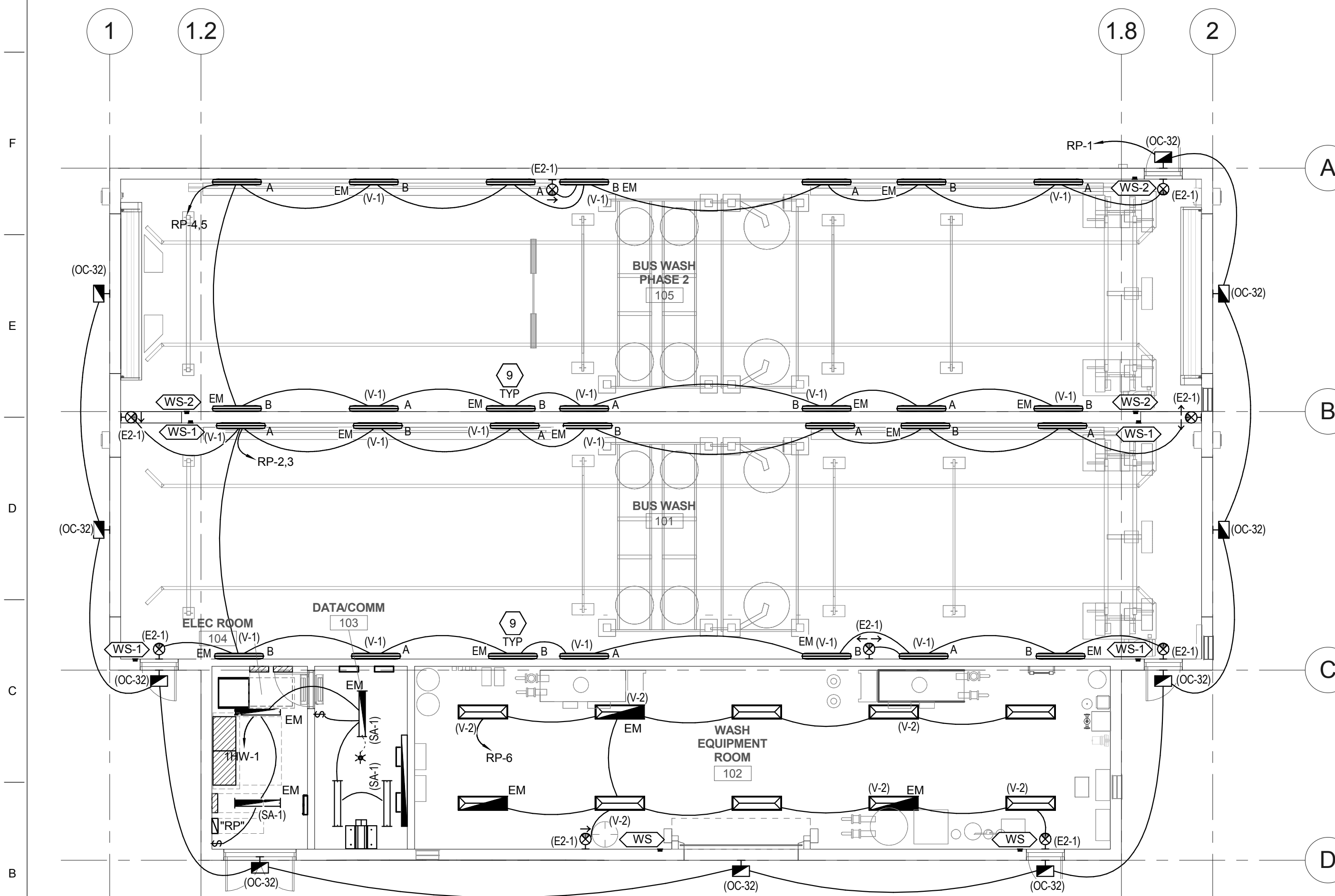
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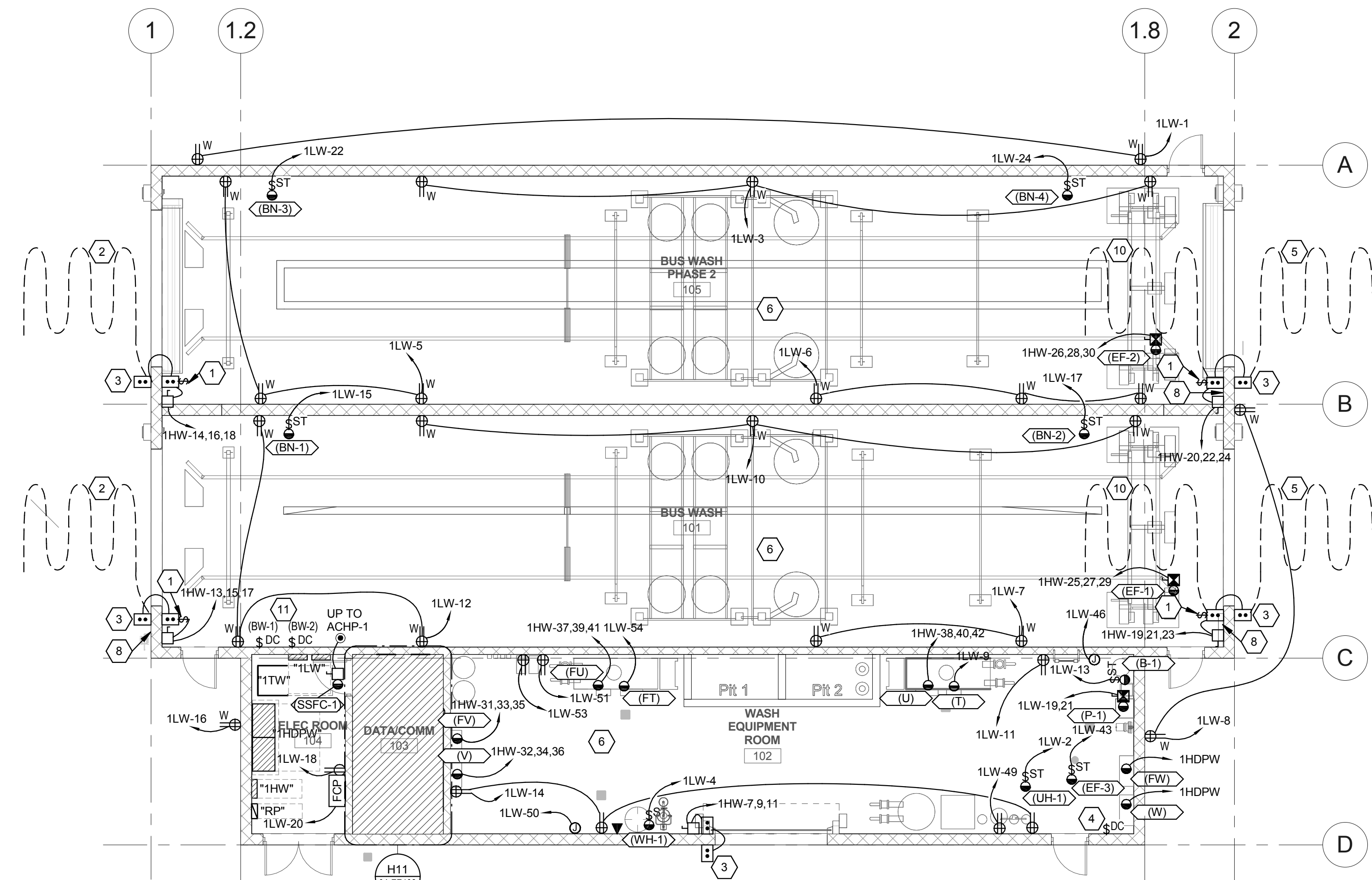


H1 LEVEL 1 AUXILIARY PLAN
SCALE: 1/8" = 1'-0"

H8 LEVEL 1 FIRE ALARM PLAN
SCALE: 1/8" = 1'-0"



A1 LEVEL 1 LIGHTING PLAN
SCALE: 1/8" = 1'-0"



A9 LEVEL 1 POWER PLAN
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

- 1 SURFACE MOUNTED RACEWAY AND BOXES ARE ALLOWABLE AT PRECAST WALLS.
- 2 CONNECT UNSWITCHED PORTION OF CIRCUITS TO EXIT SIGNS.
- 3 IF DEDUCT ALTERNATE BID IS SELECTED THIS SHEET IS FOR REFERENCE ONLY. REFER TO SHEET 03-EE101A FOR DEDUCT ALTERNATE DRAWINGS.

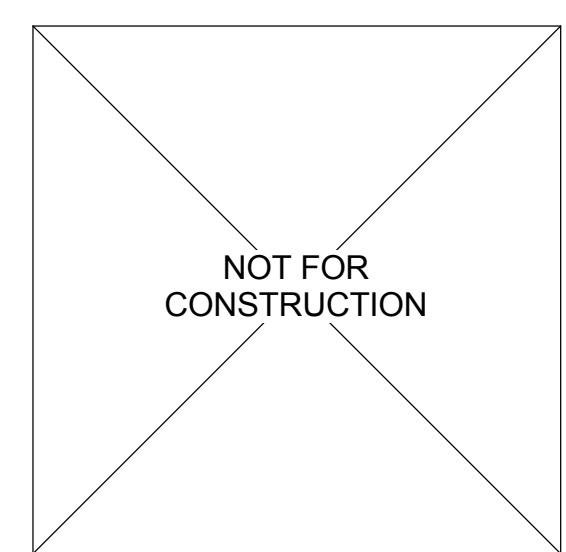
SHEET KEYNOTES

- 1 PROVIDE BUS DOOR CONTROLLER WITH SWITCH TO CHANGE BUS DOOR FROM OPERATING AUTOMATICALLY WITH GROUND LOOPS TO ONLY OPERATING WITH MANUAL PUSH-BUTTONS.
- 2 PROVIDE GROUND LOOPS TO AUTOMATICALLY OPEN BUS DOOR WHEN ACTIVATED. INSTALL EQUIPMENT AND PROGRAM BUS DOOR CONTROLLER TO CLOSE DOOR AFTER BUS HAS BROKEN AND CLEARED BUS THRESHOLD DETECTION SYSTEM LOCATED AT ENTRY BUS DOOR.
- 3 BUS DOOR TO BE OPENED BY PUSH BUTTONS ADJACENT TO BUS DOOR ON INSIDE AND OUTSIDE OF BUILDING. BUS DOOR CONTROLLER CONNECTED TO SUPERVISOR'S DRY CONTACT OVERRIDE SWITCH AND TO BUILDING BMS. BUS DOOR TO ALWAYS OPEN WITH BMS SIGNAL, DESPITE WHAT POSITION SUPERVISOR'S DRY CONTACT SWITCH IS IN.
- 4 SUPERVISOR'S OFFICE BUS DOOR DRY CONTACT SWITCH, TO BE CONNECTED TO EVERY BUS DOOR CONTROLLER, SUCH THAT WHEN IN THE ON POSITION, THAT ALL BUS DOORS OPERATE PER SPECIFICATIONS AND AS INDICATED ON DRAWINGS. WHEN IN THE OFF POSITION ALL BUS DOORS ARE INACTIVE, EXCEPT WHEN OVERRIDEN BY GAS DETECTION SYSTEM OVERRIDE SIGNAL.
- 5 PROVIDE GROUND LOOP TO AUTOMATICALLY CLOSE EXIT BUS DOOR WHEN ACTIVATED AND AFTER BUS HAS DRIVEN COMPLETELY OVER GROUND LOOP.
- 6 ALL ENCLOSURES IN THIS SPACE ARE TO BE NEMA 4X RATED. ALSO USE PVC-COATED RIGID GALVANIZED CONDUIT AND FLEXIBLE METAL SEAL-TIGHT (NO GREATER THAN 6") FOR EQUIPMENT CONNECTIONS.
- 7 LOCATIONS OF FLOW AND TAMPER SWITCHES SHOWN ARE APPROXIMATE. COORDINATE EXACT LOCATION WITH FIRE PROTECTION INSTALLER PRIOR TO ROUGH-IN.
- 8 APPROXIMATE LOCATION OF GREEN LIGHT PROVIDED BY DOOR MANUFACTURER. LIGHT TO BE RATED ACCORDING TO ENVIRONMENT IN WHICH IT IS LOCATED (NEMA 3R, NEMA 4X, ETC.). DESIRED MOUNTING HEIGHT IS 8'-0" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH OTHER DISCIPLINES AND EQUIPMENT IN THIS AREA.
- 9 CONNECT HALF OF LAMPS IN (V-1) FIXTURE TO ONE RELAY ON CIRCUIT AND CONNECT OTHER HALF OF LAMPS TO OTHER RELAY ON CIRCUIT. SEE RELAY CONTROL PANEL "RP" SCHEDULE FOR MORE INFORMATION.
- 10 PROVIDE INTERIOR DETECTION LOOP TO OPEN EXIT BUS DOOR WHILE BUS IS IN THE MIDDLE OF WASH CYCLE. COORDINATE EXACT LOCATION WITH WASH SYSTEM INSTALLER AND WASH TRENCH DRAIN DRAWINGS PRIOR TO ROUGH-IN.
- 11 PROVIDE (2) DRY CONTACT SWITCHES THAT WILL EACH DEACTIVATE CONNECTED BUS DOORS WHEN IN THE OFF POSITION. EACH SWITCH TO CONTROL BOTH DOORS OF ASSOCIATED WASH BAY. INSTALL DRY CONTACT SWITCH INSIDE OF NEMA 4X ENCLOSURE.

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PROJECT No: 3514
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PLANS - BASE BID

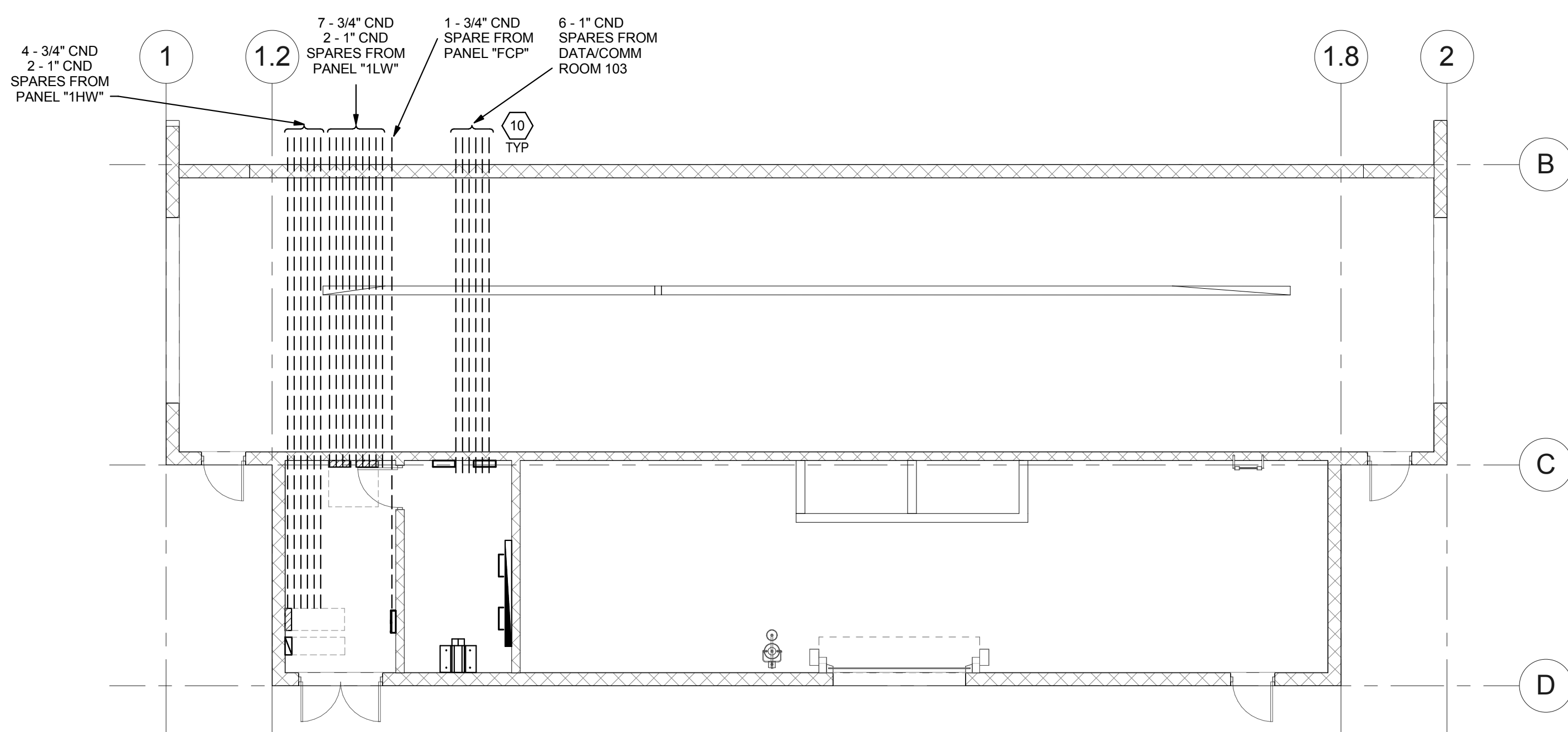
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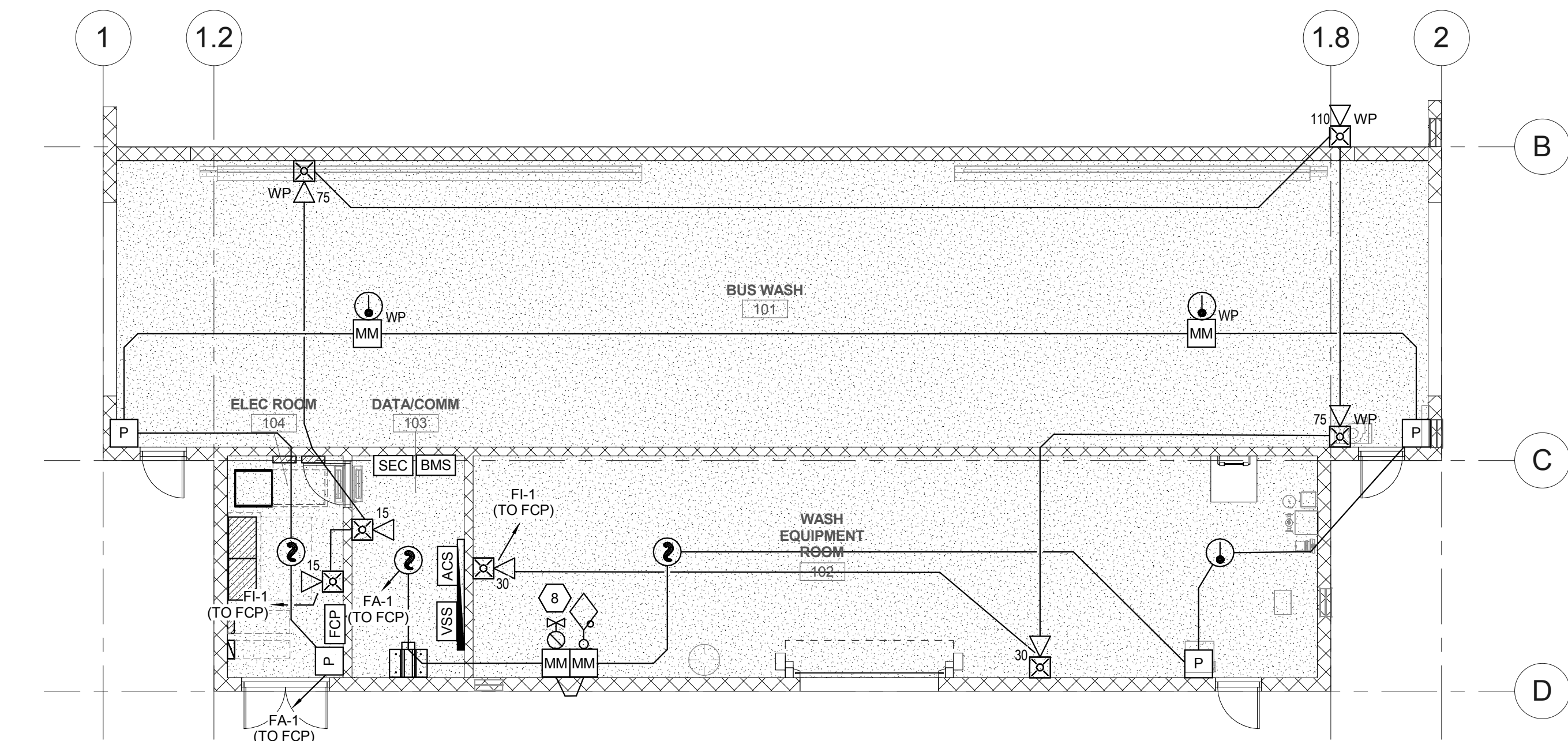
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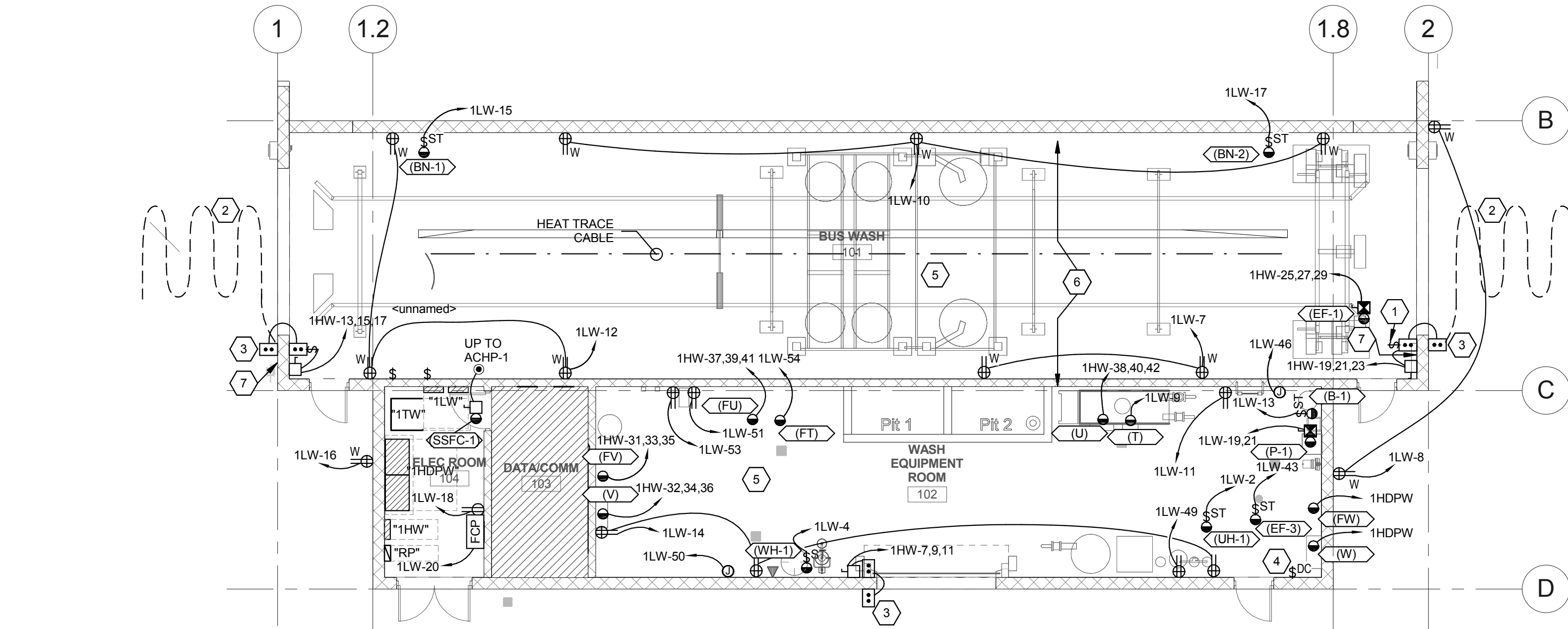
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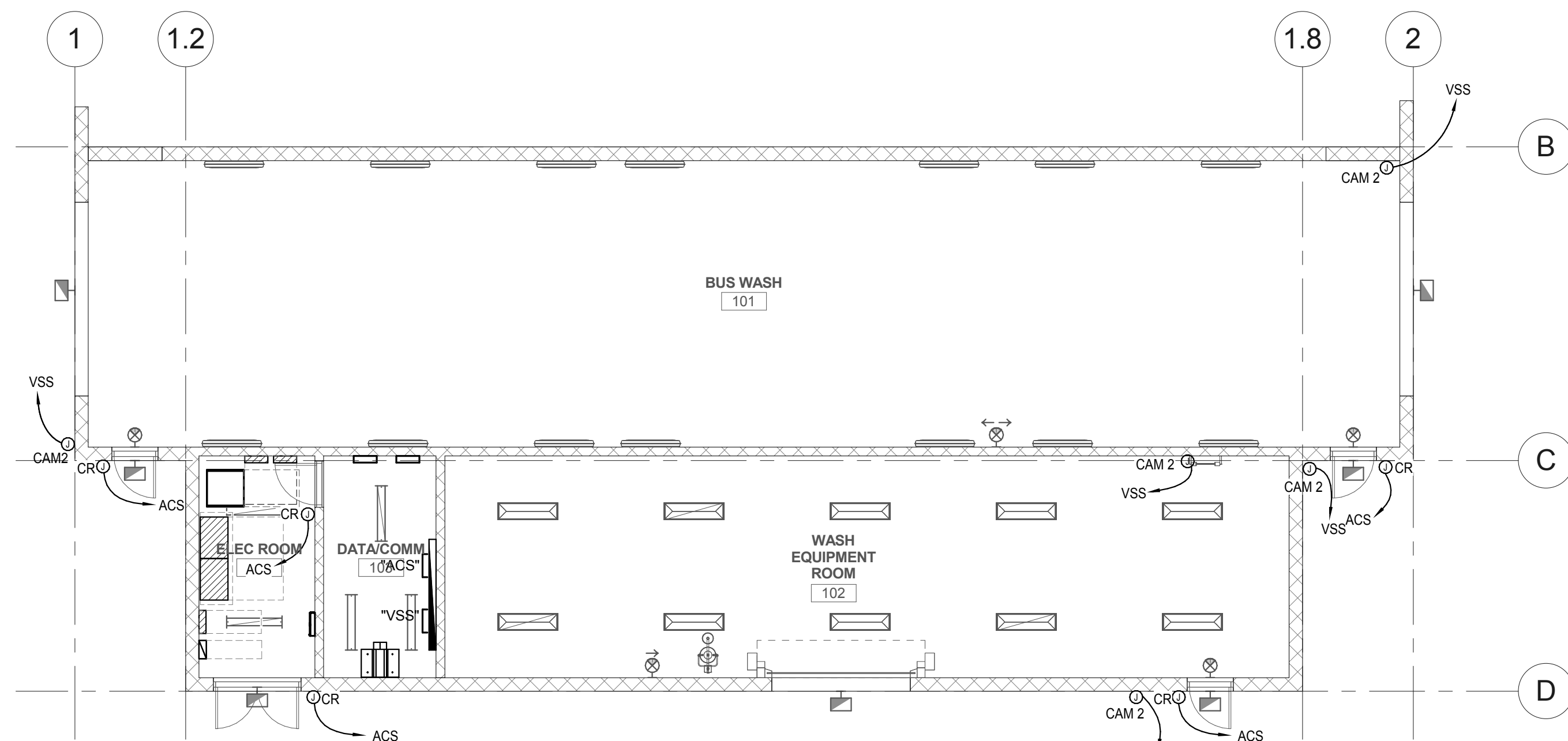
K8 LEVEL 1 SPARE CONDUIT PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"



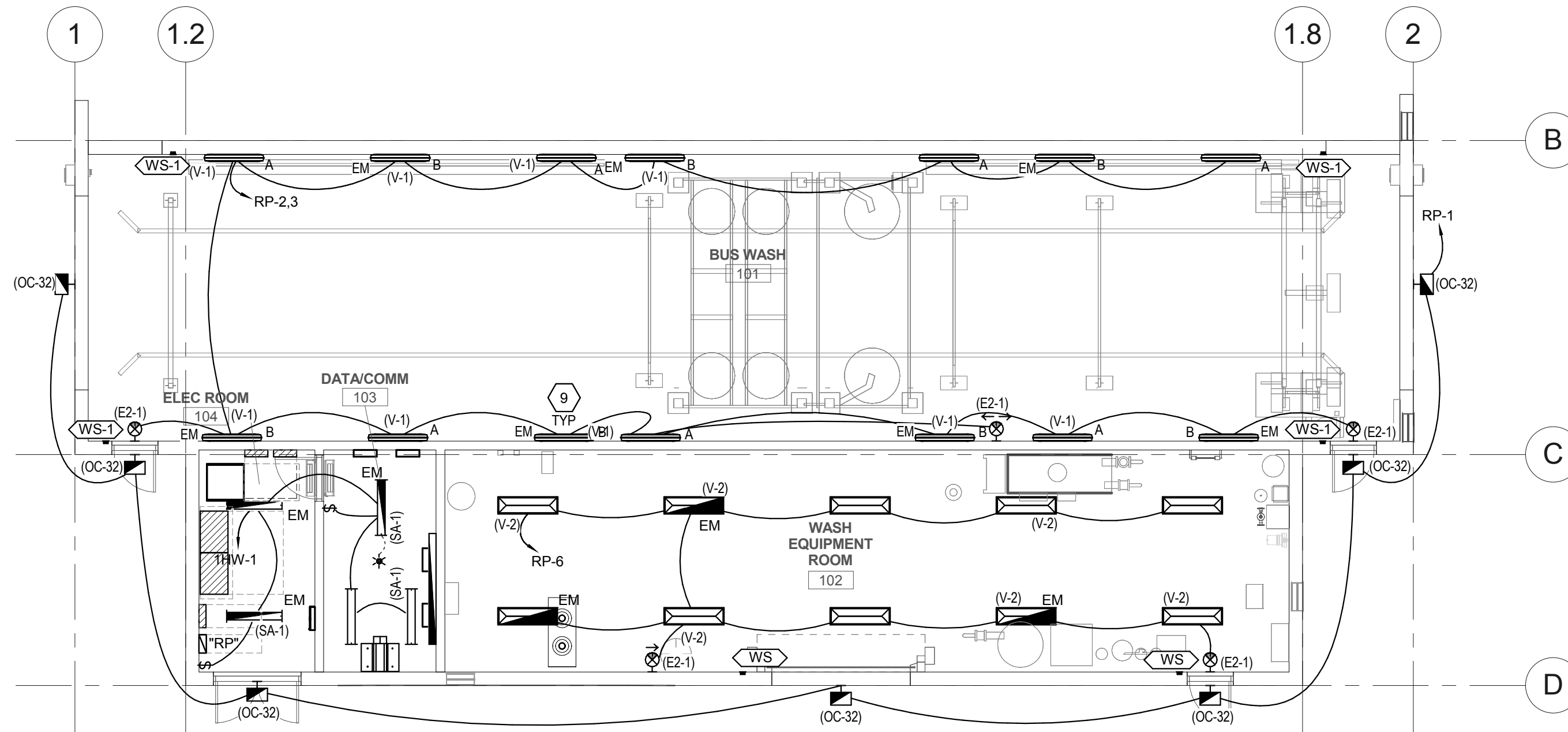
F8 LEVEL 1 FIRE ALARM PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"



A9 LEVEL 1 POWER PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"



F1 LEVEL 1 AUXILIARY PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"



A1 LEVEL 1 LIGHTING PLAN - ALTERNATE BID
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

- 1 SURFACE MOUNTED RACEWAY AND BOXES ARE ALLOWABLE AT PRECAST WALLS.
- 2 CONNECT UNSWITCHED PORTION OF CIRCUITS TO EXIT SIGNS.
- 3 IF BASE BID IS SELECTED DISREGARD THIS SHEET AND OTHER REFERENCES TO DEDUCT ALTERNATE WORK. REFER TO SHEET 03-EE101 FOR BASE BID DRAWINGS.

SHEET KEYNOTES

- 1 PROVIDE BUS DOOR CONTROLLER WITH SWITCH TO CHANGE BUS DOOR FROM OPERATING AUTOMATICALLY WITH GROUND LOOPS TO ONLY OPERATING WITH MANUAL PUSH-BUTTONS.
- 2 PROVIDE GROUND LOOPS TO AUTOMATICALLY OPEN BUS DOOR WHEN ACTIVATED. INSTALL EQUIPMENT AND PROGRAM BUS DOOR CONTROLLER TO CLOSE DOOR AFTER BUS HAS BROKEN AND CLEARED BUS THRESHOLD DETECTION SYSTEM LOCATED AT ENTRY BUS DOOR.
- 3 BUS DOOR TO BE OPENED BY PUSH BUTTONS ADJACENT TO BUS DOOR ON INSIDE AND OUTSIDE OF BUILDING. BUS DOOR CONTROLLER CONNECTED TO SUPERVISOR'S DRY CONTACT OVERRIDE SWITCH AND TO BUILDING BMS. BUS DOOR TO ALWAYS OPEN WITH BMS SIGNAL, DESPITE WHAT POSITION SUPERVISOR'S DRY CONTACT SWITCH IS IN.
- 4 SUPERVISOR'S OFFICE BUS DOOR DRY CONTACT SWITCH, TO BE CONNECTED TO EVERY BUS DOOR CONTROLLER, SUCH THAT WHEN IN THE ON POSITION, THAT ALL BUS DOORS OPERATE PER SPECIFICATIONS AND AS INDICATED ON DRAWINGS. WHEN IN THE OFF POSITION ALL BUS DOORS ARE INACTIVE, EXCEPT WHEN OVERRIDEN BY GAS DETECTION SYSTEM OVERRIDE SIGNAL.
- 5 ALL ENCLOSURES IN THIS SPACE ARE TO BE NEMA 4X RATED. ALSO USE PVC-COATED RIGID GALVANIZED CONDUIT AND FLEXIBLE METAL SEAL-TIGHT (NO GREATER THAN 6") FOR EQUIPMENT CONNECTIONS.
- 6 PROVIDE INTERIOR DETECTION LOOP TO OPEN EXIT BUS DOOR WHILE BUS IS IN THE MIDDLE OF WASH CYCLE. COORDINATE EXACT LOCATION WITH WASH SYSTEM INSTALLER AND WASH TRENCH DRAIN DRAWINGS PRIOR TO ROUGH-IN.
- 7 APPROXIMATE LOCATION OF GREEN LIGHT PROVIDED BY DOOR MANUFACTURER. LIGHT TO BE RATED ACCORDING TO ENVIRONMENT IN WHICH IT IS LOCATED (NEMA 3R, NEMA 4X, ETC.). DESIRED MOUNTING HEIGHT IS 8'-0" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH OTHER DISCIPLINES AND EQUIPMENT IN THIS AREA.
- 8 LOCATIONS OF FLOW AND TAMPER SWITCHES SHOWN ARE APPROXIMATE. COORDINATE EXACT LOCATION WITH FIRE PROTECTION INSTALLER PRIOR TO ROUGH-IN.
- 9 CONNECT HALF OF LAMPS IN (V-1) FIXTURE TO ONE RELAY ON CIRCUIT AND CONNECT OTHER HALF OF LAMPS TO OTHER RELAY ON CIRCUIT. SEE RELAY CONTROL PANEL "RP" SCHEDULE FOR MORE INFORMATION.
- 10 PROVIDE AND BURY SPARE CONDUITS SO THAT THEY EXTEND 2-FEET BEYOND BUILDING FOUNDATION. CAP, SEAL, AND PULL NYLON CORD THROUGH SPARE CONDUITS. LABEL BOTH ENDS, AT PANEL AND UNDERGROUND OF ALL CONDUITS. INDICATE ON RECORD DRAWINGS EXACT, DIMENSIONED LOCATIONS OF UNDERGROUND SPARE CONDUITS.

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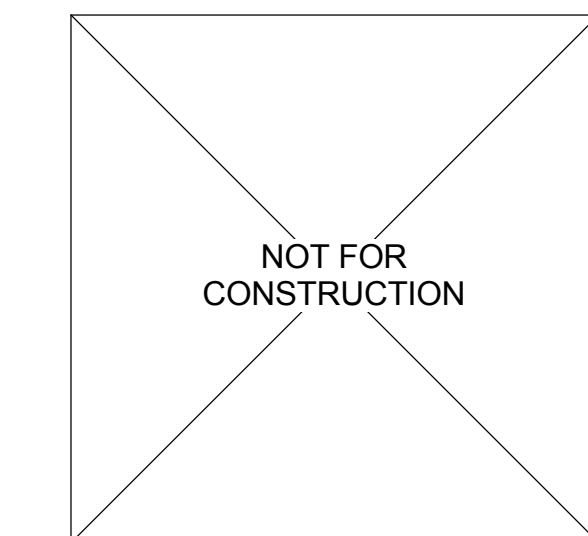
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PROJECT No: 3514
LEVEL 1 ELECTRICAL
PLANS - ALTERNATE
BID

04-EE101A

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

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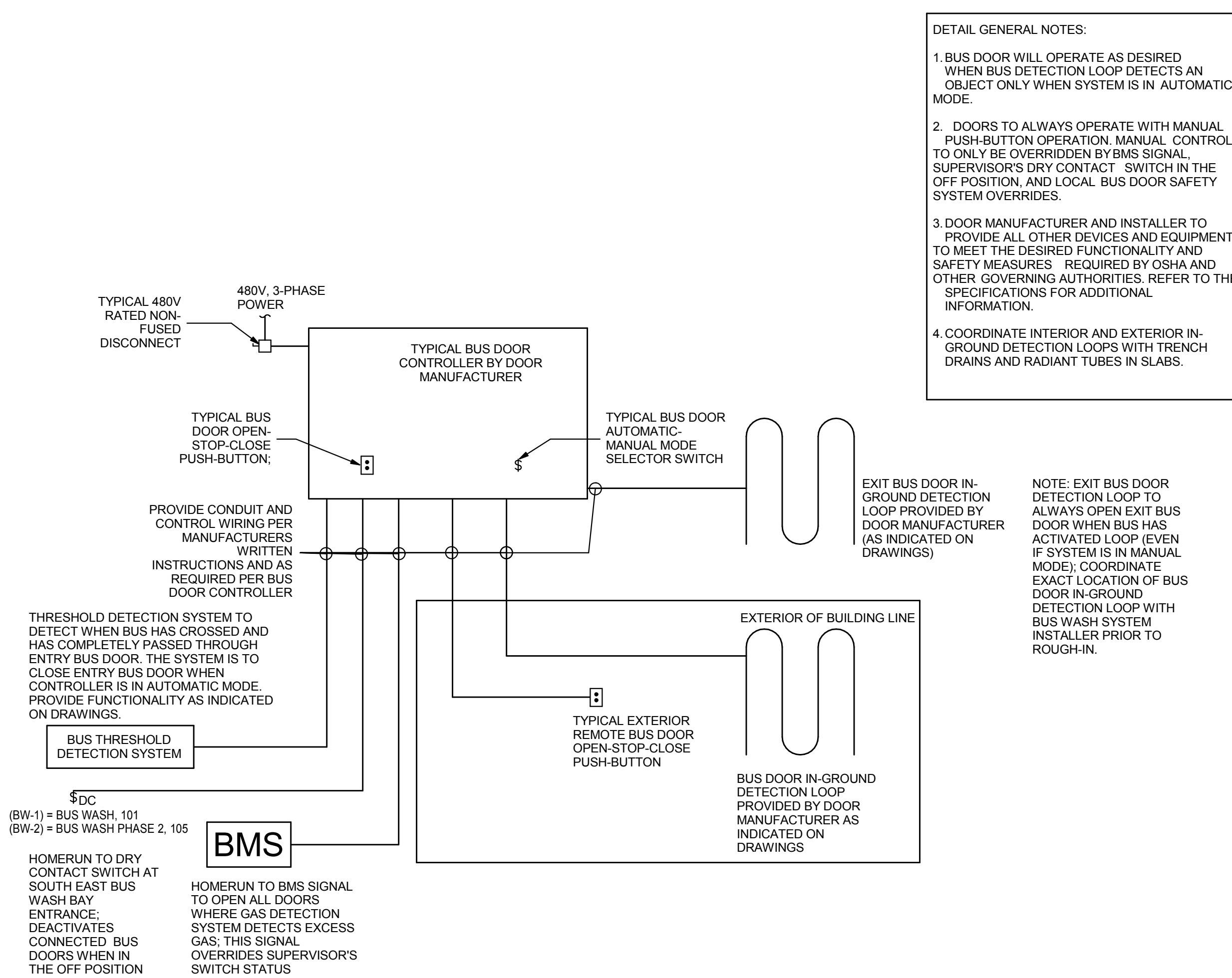
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18

WASH BUILDING BUS ENTRY/EXIT DOORS SEQUENCE OF OPERATIONS:

1. BUS COMES TO DETECTION LOOP. BUS DOOR IN AUTOMATIC MODE, DEPENDING ON IF SWITCHED TO THAT MODE.
 - IF SYSTEM IS IN AUTOMATIC MODE: DOOR OPENS WHEN GROUND LOOP IS ACTIVATED
 - IF SYSTEM IS IN MANUAL MODE: WORKER OR DRIVER CAN OPEN BUS DOOR MANUALLY VIA ASSOCIATED PUSHBUTTONS
 - GREEN LIGHT TURNS ON WHEN DOOR IS IN FULLY RAISED AND STOPPED POSITION.
2. BUS ENTERS WASH BAY:
 - ENTRY BUS DOOR AUTOMATICALLY CLOSES DOOR AFTER BUS CLEARS BUS THRESHOLD DETECTION SYSTEM, IF IN AUTOMATIC MODE, OR MANUALLY VIA ASSOCIATED PUSH-BUTTONS.
 - ENTRY BUS DOOR WILL RESET DEPENDING ON IF DOOR SAFETY SYSTEM DETECTS AN OBJECT OR DOOR TOUCHES AN OBJECT WHILE CLOSING. IF RESET, THE DOOR WILL RETRACT AND WAIT FOR MANUAL PUSH-BUTTON ACTIVATION.
3. BUS LEAVING WASH BAY:
 - EXIT BUS DOOR IS OPENED AUTOMATICALLY VIA INTERIOR DETECTION LOOP ACTIVATION (EVEN IF SYSTEM IS IN MANUAL MODE).
 - INTERIOR GREEN LIGHT TURNS ON WHEN DOOR IS IN FULLY RAISED AND STOPPED POSITION.
 - BUS LEAVES FUEL BAY, EXTERIOR GREEN LIGHT TURNS ON, INDICATING TO BUS DRIVER THAT IT IS OKAY TO DRIVE AWAY.
 - EXIT BUS DOOR EXTERIOR DETECTION LOOP SYSTEM AUTOMATICALLY CLOSES DOOR AFTER BUS DRIVES COMPLETELY PAST DETECTION LOOP. IF IN AUTOMATIC MODE, OR MANUALLY VIA ASSOCIATED PUSH-BUTTONS.
 - EXIT BUS DOOR WILL RESET DEPENDING ON IF DOOR SAFETY SYSTEM DETECTS AN OBJECT OR DOOR TOUCHES AN OBJECT WHILE CLOSING. IF RESET, THE DOOR WILL RETRACT AND WAIT FOR MANUAL PUSH-BUTTON ACTIVATION.

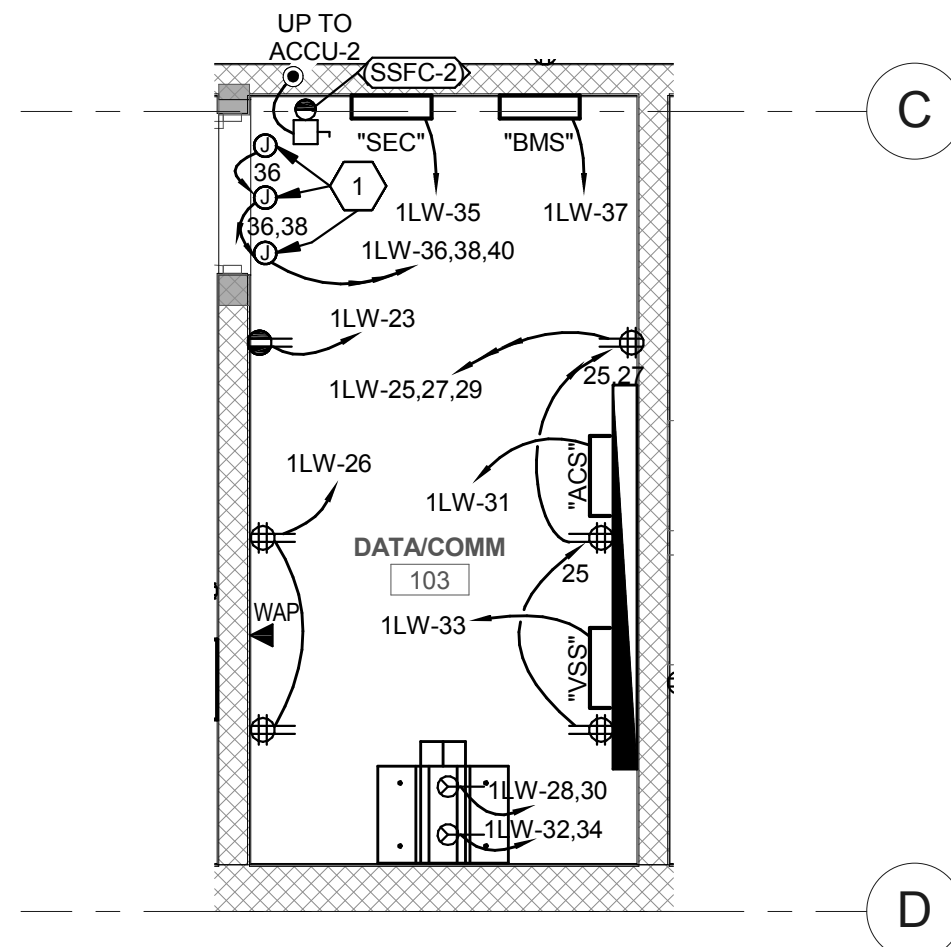
BUS DOORS CONTROL SEQUENCE OF OPERATIONS

SCALE: NTS



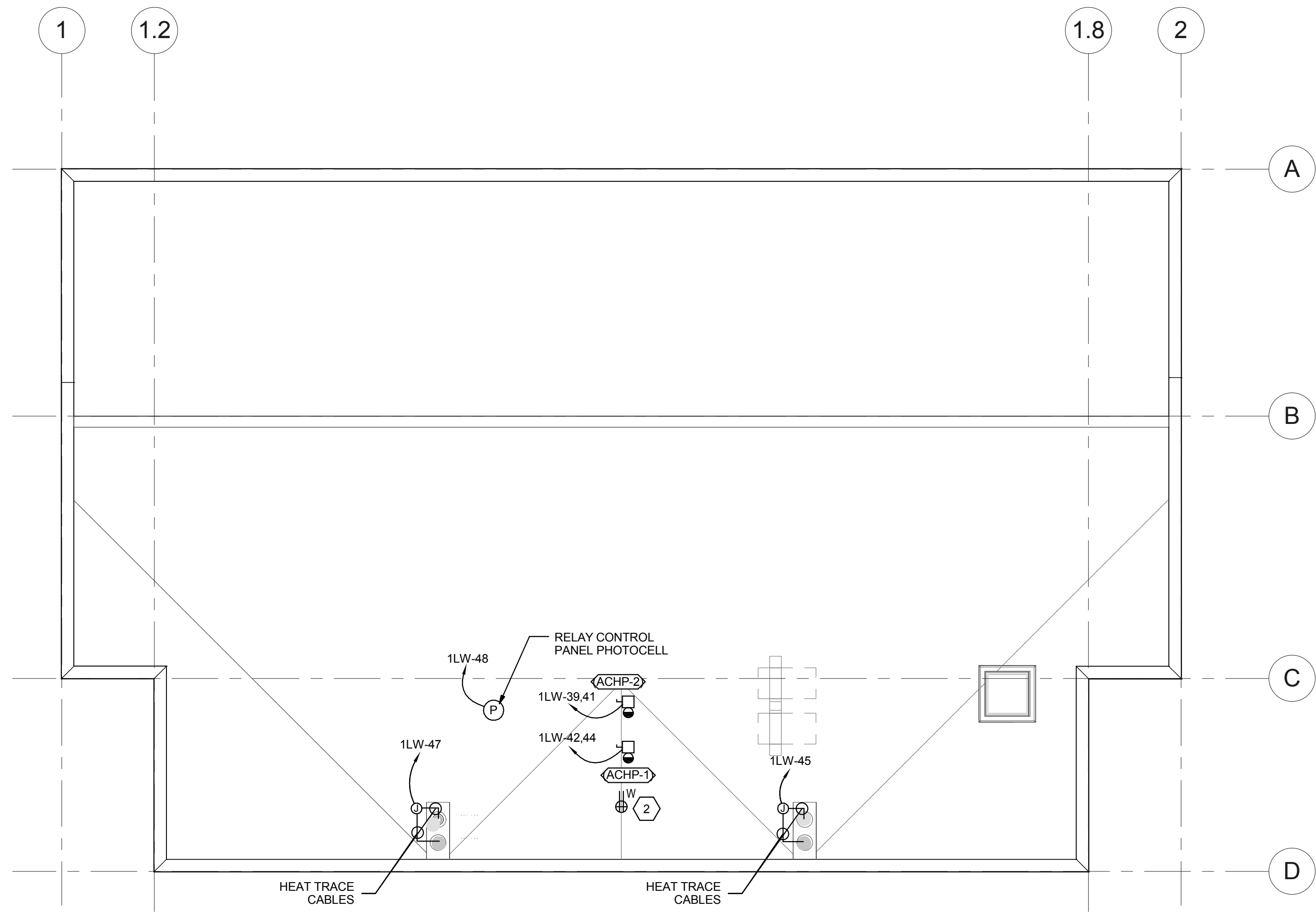
A3 TYPICAL BUS DOOR CONTROLS RISER DIAGRAM

SCALE: NTS



H11 ENLARGED DATA/COMM POWER PLAN

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



A11 ROOF POWER PLAN

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

GENERAL SHEET NOTES

1. LOCATIONS OF MAINTENANCE AND MECHANICAL EQUIPMENT SHOWN IS APPROXIMATE. FIELD COORDINATE EXACT LOCATIONS OF EQUIPMENT PRIOR TO ROUGH-IN.
2. SURFACE MOUNTED RACEWAY AND BOXES ARE ALLOWABLE AT PRECAST WALLS.
3. COORDINATE DOOR CONTROLS AND FUNCTIONS WITH TYPICAL BUS DOOR CONTROLS RISER DIAGRAM, DRAWINGS, SEQUENCE OF OPERATION, AND SPECIFICATIONS.

SHEET KEYNOTES

1. PROVIDE POWER J-BOXES FOR MECHANICAL CONTROL CIRCUITS.
2. ROOF MOUNTED RECEPTACLE. PROVIDE INDEPENDENT SUPPORT SUCH AS UNISTRUT OR RIGID CONDUIT TO SUPPORT RECEPTACLE. INSTALL NEAR ROOF MOUNTED MECHANICAL EQUIPMENT.

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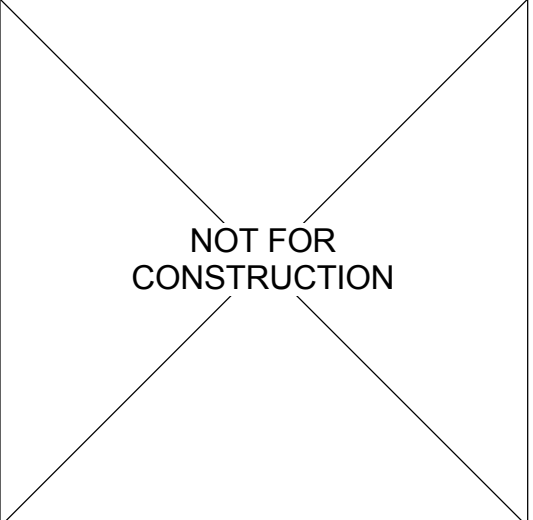
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PROJECT No: 3514

**ELECTRICAL DETAILS
AND POWER PLANS**

04-EE102



COMcheck Software Version 3.9.3
Interior Lighting and Power
Compliance Certificate

2012 IECC

Section 1: Project Information

Project Type: **New Construction**
Project Title : UTA DDTCC Wash Building

Construction Site:
669 W 200 S #X
Salt Lake City, UT 84111

Owner/Agent:
Greg Thorpe
Utah Transit Authority
669 W 200 S
Salt Lake City, UT 84111

Designer/Contractor:
Jim Morris
Spectrum Engineers
324 S State St.
Suite 400
Salt Lake City, UT 84111

Additional Efficiency Package: **Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.**

Section 2: Interior Lighting and Power Calculation

A	B Floor Area	C Allowed Watts / ft ²	D Allowed Watts
Wash Building (Automotive facility)	5614	0.82	4603
Total Allowed Watts = 4603			

Section 3: Interior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Wash Building (Automotive facility 5614 sq.ft.)				
Linear Fluorescent 1: V-1: Spray Down Rated 6-Lamp Fixture: 48" T8 32W: Electronic:	6	28	138	3864
Linear Fluorescent 2: 3A-1: 48" Industrial Ship Light: 48" T8 32W: Electronic:	2	5	47	235
Linear Fluorescent 3: V-2: Spray Down Rated 2-Lamp Fixture: 48" T8 32W: Electronic:	2	10	47	470
Total Proposed Watts =				4569

Interior Lighting PASSES: Design 1% better than code.

Section 4: Compliance Statement

Compliance Statement: The proposed lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2012 IECC requirements in COMcheck Version 3.9.3 and to comply with the mandatory requirements in the Requirements Checklist.

Jim Morris - EIT

Jim Morris 12-22-2014
Signature Date

Section 5: Post Construction Compliance Statement

Record Drawings and Operating and Maintenance Manuals:

- ☐ 1. Construction documents with record drawings and operating and maintenance manuals provided to the owner.

Lighting Designer or Contractor Name Signature Date

Project Title: UTA DDTCC Wash Building
Data filename: P:\2013\20130237\0Quality_Control\Design_and_Calculations\16Electrical\Lighting\COMcheck\UTA WASH COMCHECK.cck
Report date: 12/23/14
Page 1 of 2



COMcheck Software Version 3.9.3
Exterior Lighting Compliance
Certificate

2012 IECC

Section 1: Project Information

Project Type: **New Construction**
Project Title : UTA DDTCC Wash Building
Exterior Lighting Zone: **2 (Light Industrial area with limited nighttime use)**

Construction Site:
669 W 200 S #X
Salt Lake City, UT 84111

Owner/Agent:
Greg Thorpe
Utah Transit Authority
669 W 200 S
Salt Lake City, UT 84111

Designer/Contractor:
Jim Morris
Spectrum Engineers
324 S State St.
Suite 400
Salt Lake City, UT 84111

Additional Efficiency Package: **Reduced interior lighting power. Requirements are implicitly enforced within interior lighting allowance calculations.**

Section 2: Exterior Lighting Area/Surface Power Calculation

A Exterior Area/Surface	B Quantity	C Allowed Watts (Unit)	D Tradable Wattage (B x C)	E Allowed Watts	F Proposed Watts
Driveway	3758 ft ²	0.06	Yes	225	495
Total Tradable Watts =				225	495
Total Allowed Watts =				225	
Total Allowed Supplemental Watts* =				600	

* Wattage tradeoffs are only allowed between tradable areas/surfaces.

** A supplemental allowance equal to 600 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Driveway (3758 ft ²): Tradable Wattage				
LED 1: OC-32: Surface Mounted Over Door: LED Panel 55W:	1	9	55	495
Total Tradable Proposed Watts =				495

Section 4: Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2012 IECC requirements in COMcheck Version 3.9.3 and to comply with the mandatory requirements in the Requirements Checklist.

Jim Morris - EIT

Jim Morris 12-22-2014
Signature Date

Project Title: UTA DDTCC Wash Building
Data filename: P:\2013\20130237\0Quality_Control\Design_and_Calculations\16Electrical\Lighting\COMcheck\UTA WASH COMCHECK.cck
Report date: 12/23/14
Page 2 of 2



COMcheck Software Version 3.9.3
Inspection Checklist

Energy Code: 2012 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

2012 IECC	Plan Review	Complies?	Comments/Assumptions
C103.2 (P94)1	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C103.2 (P94)2	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the exterior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include exterior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C406 (P93)1	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Data UTA DDTCC Wash Building
P:\2013\20130237\0Quality_Control\Design_and_Calculations\16Electrical\Lighting\COMch Page 1 of 5
eck\UTA WASH COMCHECK.cck

2012 IECC	Final Inspection	Complies?	Comments/Assumptions
C408.2.5 (F16)1	Furnished as-built drawings for electric power systems within 30 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C303.3.C4 (F17)2	Furnished OEM instructions for systems and equipment to the building owner or designated representative.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C405.5.2 (F18)1	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Interior Lighting fixture schedule for values.
C405.6.2 (F19)1	Exterior lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Exterior Lighting fixture schedule for values.
C408.3 (F33)1	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C408.3 (F48)1	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
C406 (F34)1	Efficient HVAC performance, efficient lighting system, or on-site supply of renewable energy consistent with what is shown the approved plans.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Data UTA DDTCC Wash Building
P:\2013\20130237\0Quality_Control\Design_and_Calculations\16Electrical\Lighting\COMch Page 5 of 5
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RNL

1050 17th STREET
SUITE A200
DENVER CO 80265
303 295 1717 t
303 292 0845 f



UTAH

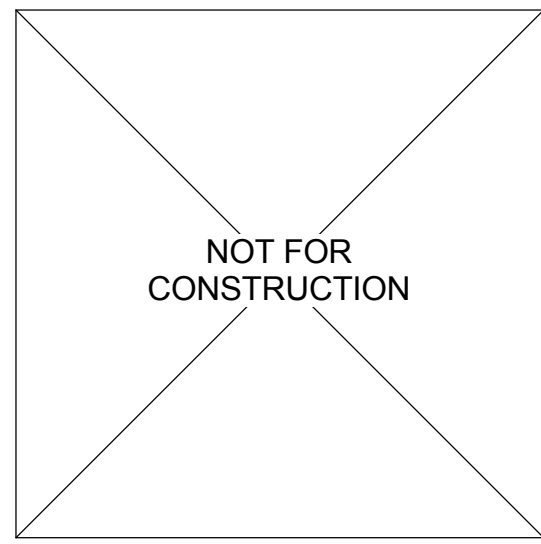


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DEPOT DISTRICT TECHNOLOGY CENTER

WASH
BUILDING 04
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SALT LAKE CITY, UT 84101

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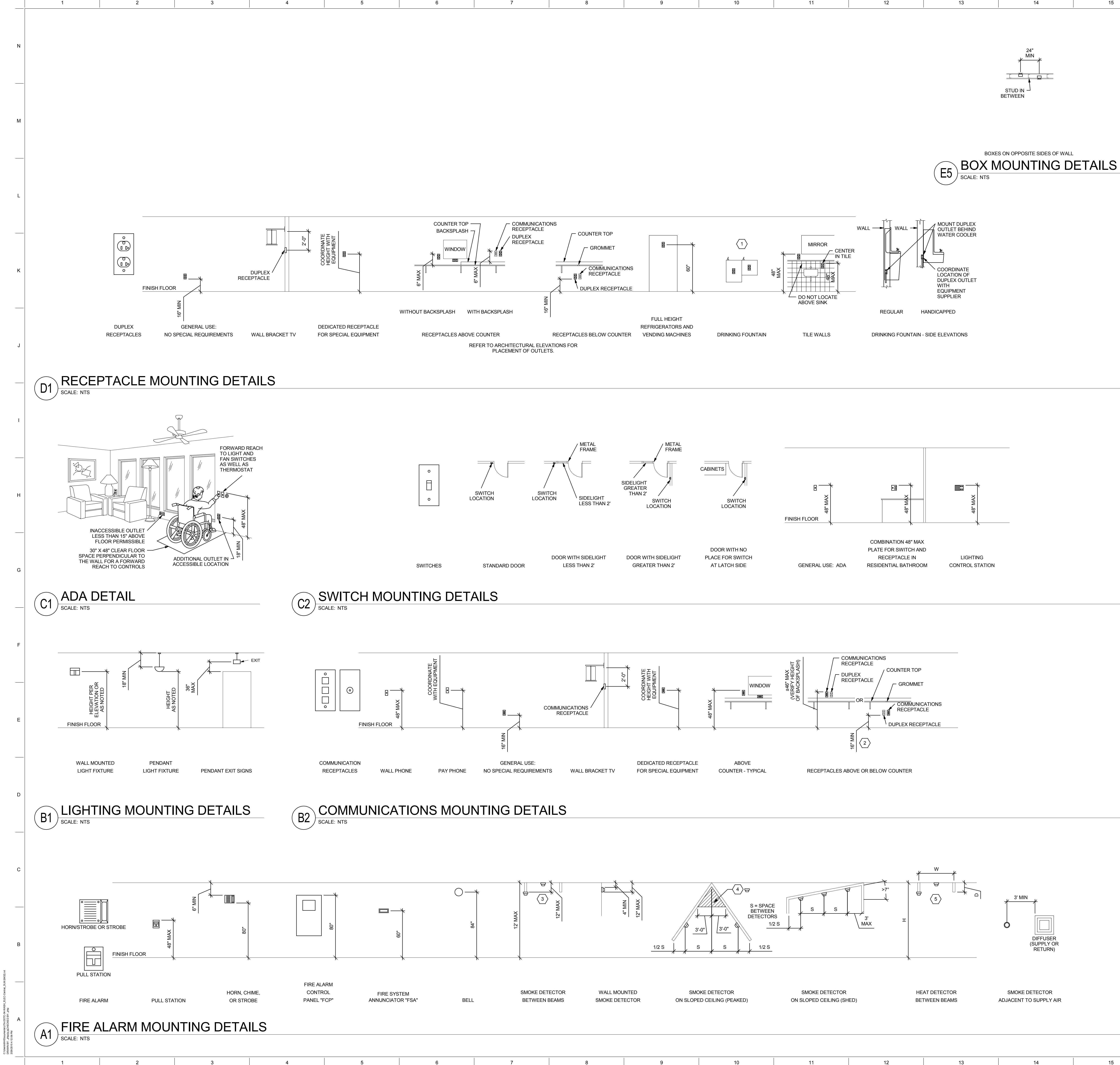


No REVISION/SUBMISSION DATE

PROJECT No: 3514

ELECTRICAL ENERGY
CODE COMPLIANCE
FORMS

04-EE601



GENERAL SHEET NOTES

1. DETERMINE MOUNTING HEIGHTS OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE FOLLOWING ORDER OF PRIORITY:
1 - ELEVATIONS (ARCHITECTURAL, ELECTRICAL, MECHANICAL, ETC).
2 - EQUIPMENT SHOP DRAWINGS.
3 - FIELD INSTRUCTIONS.
2. LOCATE RECEPTACLES SERVING THE SAME TYPE OF USE AT A UNIFORM HEIGHT UNLESS DIRECTED OTHERWISE.
3. MECHANICAL, ELECTRICAL, AND COMMUNICATION ROOMS: COORDINATE LOCATION OF LIGHTING AND POWER RECEPTACLES WITH EQUIPMENT, PIPING AND DUCTWORK. DO NOT INSTALL RECEPTACLES BEHIND EQUIPMENT OR WHERE OTHERWISE INACCESSIBLE. POSITION LIGHTING REGARDLESS OF WHERE SHOWN ON DRAWING TO PROVIDE PROPER ILLUMINATION.
4. MOUNT RECEPTACLE BOXES FOR SWITCHES AND RECEPTACLES WITH LONG AXIS OF THE DEVICE VERTICAL UNLESS OTHERWISE INDICATED.
5. SET BOXES WITH PLASTER RINGS FLUSH WITH FINISHED SURFACE.
6. LOCATE BOX COVERS OR DEVICE PLATES SO THEY WILL NOT SPAN DIFFERENT TYPES OF BUILDING FINISHES EITHER VERTICALLY OR HORIZONTALLY.
7. VERIFY ALL DOOR CONDITIONS ON ARCHITECTURAL DRAWINGS PRIOR TO INSTALLING SWITCHES.
8. LOCATE WIRING DEVICES WHICH ARE ADJACENT AND ARE COMPATIBLE VOLTAGES IN ONE PLATE.

SHEET KEYNOTES

1. LOCATE RECEPTACLES BEHIND DRINKING FOUNTAINS.
2. REFER TO ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF OUTLETS.
3. LOCATE AT BOTTOM OF BEAMS (OR JOISTS) OR AT CEILING. (REDUCE SPACING BY .5 PERPENDICULAR TO BEAM OR JOIST DIRECTION.) FOR OTHER CONDITIONS, REFER TO NFPA 72.
4. LOCATE DETECTOR ANYWHERE IN SHADED AREA BUT NOT IN TOP 4" OF PEAK.
5. LOCATE AT BOTTOM OF BEAMS IF DH < 1 OR WH < 4; OTHERWISE LOCATE IN BEAM POCKET. FOR D > 4 REDUCE SPACING .33 PERPENDICULAR TO BEAMS.

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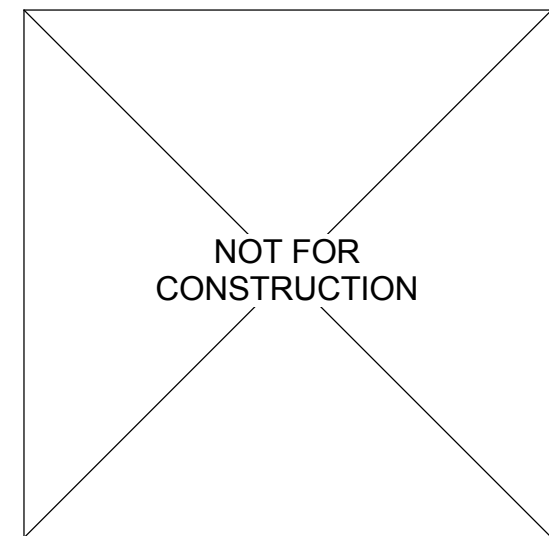
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No.	REVISION/SUBMISSION	DATE

PROJECT No: 3514
**TYPICAL MOUNTING
HEIGHT DETAILS**

04-EE701

16	17	18
GENERAL SHEET NOTES		
1	PROVIDE NEMA 3R ENCLOSURES FOR EQUIPMENT LOCATED OUTDOORS. REFER TO PLANS FOR EQUIPMENT LOCATIONS.	
2	REFER TO PLANS FOR CONSTRAINTS ON PHYSICAL DIMENSIONS AND CLEARANCE REQUIREMENTS OF EQUIPMENT. PROVIDE EQUIPMENT DIMENSIONS THAT FALL WITHIN THE CONSTRAINTS OF EACH SPECIFIC LOCATION.	
3	ALL EQUIPMENT SHALL BE CONSTRUCTED AND BRACED FOR THE SEISMIC CONDITIONS OF THE PROJECT. REFER TO SPECIFICATIONS SECTION 16071 FOR REQUIREMENTS.	
4	PROVIDE PERFORMANCE TESTING FOR GROUND-FAULT PROTECTION SYSTEMS ON SITE WITH A WRITTEN RECORD OF THIS TEST SUBMITTED TO THE AUTHORITY HAVING JURISDICTION PER 2011 NEC 230.90(K)	

CONDUCTOR AND CONDUIT SCHEDULE

SCHEDULE NUMBER

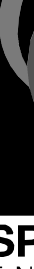
SUBSCRIPT (NOTE 5)

(E.G. 5)

IG

SYM	AMP	CONDUIT SIZE	QTY	SIZE	G	IG	SE	NOTES
1	20	.75	2	12	12	12	8	2
2	20	.75	3	12	12	12	8	2.3
3	20	.75	2	10	10	10	8	2.3
4	30	.75	2	10	10	10	8	2
5	30	.75	3	10	10	10	8	2
6	30	.75	4	10	10	10	8	2
7	40	1	2	8	10	8	6	2
8	40	1	3	8	10	8	6	2
9	40	1	4	8	10	8	6	2
10	55	1	2	6	10	8	4	2
11	55	1	3	6	10	8	4	2
12	55	1.25	4	6	10	8	4	2
13	70	1	2	4	8	4	2	2
14	70	1.25	3	4	8	4	2	2
15	70	1.25	4	4	8	4	2	2
16	85	1.25	2	3	8	3	2	2
17	85	1.25	3	3	8	3	2	2
18	85	1.25	4	3	8	3	2	2
19	85	1.25	3	2	8	2	2	2
20	95	1.50	4	2	8	2	2	2
21	130	1.50	3	1	6	2	2	2
22	130	1.50	4	1	6	2	2	2
23	150	2	3	1/0	6	2	1/0	2
24	150	2	4	1/0	6	2	1/0	2
25	175	2	3	2/0	6	2	2/0	2
26	175	2	4	2/0	6	2	2/0	2
27	200	2	3	3/0	6	2	2/0	2
28	200	2.50	4	3/0	6	2	2/0	2
29	230	2.50	3	4/0	4	2	2/0	2
30	230	2.50	4	4/0	4	2	2/0	2
31	255	2.50	3	2/0	4	1	2/0	2
32	255	2.50	4	250	4	1	2/0	2
33	310	3	3	350	3	1/0	3/0	2
34	310	3	4	350	3	1/0	3/0	2
35	380	3.50	3	500	3	3/0	3/0	2
36	380	4	4	500	3	3/0	3/0	2
37	400	2 EA 2	3	3/0	3	3/0	3/0	2
38	400	2 EA 2.50	4	3/0	3	3/0	3/0	2
39	510	2 EA 3.50	3	250	1	4/0	3/0	2
40	510	2 EA 3	3	250	1	4/0	3/0	2
41	620	2 EA 3	3	350	1/0	4/0	3/0	2.4
42	620	2 EA 3	4	350	1/0	4/0	3/0	2.4
43	780	2 EA 3.50	3	500	1/0	4/0	3/0	2.4
44	780	2 EA 4	4	500	1/0	4/0	3/0	2.4
45	855	3 EA 3	3	300	2/0	4/0	3/0	2.4
46	855	3 EA 3	4	300	2/0	4/0	3/0	2.4
47	1000	3 EA 3.50	3	400	2/0	4/0	3/0	2.4
48	1000	3 EA 3.50	4	400	2/0	4/0	3/0	2.4
49	1140	3 EA 4	4	500	3/0	4/0	3/0	4
50	1140	3 EA 4	4	500	3/0	4/0	3/0	4
51	1240	4 EA 3	3	350	3/0	4/0	3/0	4
52	1240	4 EA 3	4	350	3/0	4/0	3/0	4
53	1675	5 EA 4	4	400	4/0	4/0	4/0	4
54	2010	6 EA 4	4	400	250	250	250	4
55	2660	7 EA 4	4	500	350	350	350	4
56	3040	8 EA 4	4	500	500	500	500	4
57	4180	11 EA 4	4	500	500	500	500	4
58		5 EA 4						6
59								6
60		10 EA 4						6

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PROJECT No: 3514

POWER ONE-LINE
DIAGRAM

04-EP601

EQUIPMENT SCHEDULE KEY

E	ELECTRICAL CONTRACTOR
Q	FURNISHED WITH THE EQUIPMENT
*	COORDINATE WITH MECHANICAL CONTROL INSTALLER
**	AUTOMATIC CONTROL WIRING BY MECHANICAL CONTRACTOR

NOTES:

- PROVIDE CONDUIT AND CONDUCTORS TO INTERLOCK POWER AND CONTROLS OF INSIDE UNIT WITH OUTSIDE UNIT.
- COORDINATE EXACT POWER CONNECTION AND MEANS OF DISCONNECT WITH MECHANICAL INSTALLER PRIOR TO ORDERING EQUIPMENT.
- IF ALTERNATE #1 SELECTED, PROVIDE EMPTY RACEWAY TO FUTURE/PHASE 2 EQUIPMENT LOCATION OR STUB CONDUIT OUTSIDE OF BUILDING EXTERIOR. CAP, SEAL, AND LABEL ALL CONDUITS AT BOTH ENDS OF RACEWAY. IF EMPTY RACEWAY IS RUN UNDERGROUND, RECORD, REDLINE, AND LABEL CONDUIT PATH IN RECORD DRAWINGS SET.
- PROVIDE 1" SPARE CND FROM DATA/COMM ROOM 103 TO J-BOX ADJACENT TO THIS PIECE OF EQUIPMENT. COORDINATE EXACT LOCATION OF J-BOX WITH EQUIPMENT INSTALLER PRIOR TO ROUGH-IN. DATA WIRES TO BE PULLED AND TERMINATED BY OTHERS.

EQUIPMENT SCHEDULE

			LOAD DATA								OVERCURRENT PROTECTION			DISCONNECT			STARTER									
MARK	QTY	ITEM DESCRIPTION	HP	KW	MCA	FLA	VOLT	PH	H _z	WIRE AND CONDUIT SIZE	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	LOCATION	FURN BY	DEVICE	SIZES	SELECTOR SWITCH	PILOT LAMP	NORMALLY OPEN CONTACT	NORMALLY CLOSED CONTACT	PHASE FAILURE RELAY	NOTES	MARK
(FT)	1	FUTURE OZONE CONTROL PANEL	-	-	-	15	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	1LW	Q		ADJ TO EQUIP	Q								3,4	(FT)
(FU)	1	FUTURE PUMP CONTROL PANEL	-	-	-	60	480	3	60	3 #1, #6 GR 1.5" CND	E	125/3 CB	1HW	Q		ADJ TO EQUIP	Q								3,4	(FU)
(FV)	1	FUTURE WASH CONTROL PANEL	-	-	-	20	480	3	60	3 #10, #10 GR 0.75" CND	E	30/3 CB	1HW	Q		ADJ TO EQUIP	Q								3,4	(FV)
(FW)	1	FUTURE BLOWER CONTROL PANEL	(5) 15	-	-	125	480	3	60	3 #4/0, #4 GR 2.5" CND	E	225/3 CB	1HDPW	Q		ADJ TO EQUIP	Q								3,4	(FW)
(T)	1	OZONE CONTROL PANEL	-	-	-	15	120	1	60	2 #12, #12 GR 0.75" CND	E	20/1 CB	1LW	Q		ADJ TO EQUIP	Q								4	(T)
(U)	1	PUMP CONTROL PANEL	-	-	-	60	480	3	60	3 #1, #6 GR 1.5" CND	E	125/3 CB	1HW	Q		ADJ TO EQUIP	Q								4	(U)
(V)	1	WASH CONTROL PANEL	-	-	-	20	480	3	60	3 #10, #10 GR 0.75" CND	E	30/3 CB	1HW	Q		ADJ TO EQUIP	Q								4	(V)
(W)	1	BLOWER CONTROL PANEL	(5) 15	-	-	125	480	3	60	3 #4/0, #4 GR 2.5" CND	E	225/3 CB	1HDPW	Q		ADJ TO EQUIP	Q								4	(W)
(ACHP-1)	1	ROOF-TOP CONDENSING UNIT	-	-	-	14	208	1	60	2 #10, 10 GR 0.75" CND	E	30/2 CB	1LW	E	30A/2P NF	1LW	Q								1	(ACHP-1)
(ACHP-2)	1	ROOF-TOP CONDENSING UNIT	-	-	-	14	208	1	60	2 #10, 10 GR 0.75" CND	E	30/2 CB	1LW	E	30A/2P NF	1LW	Q								1	(ACHP-2)
(B-1)	1	BOILER	-	-	-	5	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q									(B-1)
(BN-1)	1	RADIANT TUBE HEATER BURNER	-	-	-	1.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q									(BN-1)
(BN-2)	1	RADIANT TUBE HEATER BURNER	-	-	-	1.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q									(BN-2)
(BN-3)	1	RADIANT TUBE HEATER BURNER (PHASE 2)	-	-	-	1.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q								3	(BN-3)
(BN-4)	1	RADIANT TUBE HEATER BURNER (PHASE 2)	-	-	-	1.2	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q								3	(BN-4)
(EF-1)	1	EXHAUST FAN	1.5	-	-	3	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1HW	E	30A/3P NF	1HW	E	FVNR	0	HOA	R,G	2	2	YES	(EF-1)	
(EF-2)	1	EXHAUST FAN (PHASE 2)	1.5	-	-	3	480	3	60	3 #12, #12GR 0.75" CND	E	20/3 CB	1HW	E	30A/3P NF	1HW	E	FVNR	0	HOA	R,G	2	2	YES	3	(EF-2)
(EF-3)	1	EXHAUST FAN	1/2	-	-	9.8	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q									(EF-3)
(P-1)	1	PUMP	1/2	-	-	5.4	208	1	60	2 #12, 12 GR 0.75" CND	E	20/2 CB	1LW	E	30A/2P NF	1LW	E	FVNR	0	HOA	R,G	2	2	YES	(P-1)	
(SSFC-1)	1	INDOOR FAN COIL UNIT	-	-	-	1	208	1	60	2 #12, 12 GR 0.75" CND	E	20/2 CB	1LW	E	30A/2P NF	1LW	Q									(SSFC-1)
(SSFC-2)	1	INDOOR FAN COIL UNIT	-	-	-	1	208	1	60	2 #12, 12 GR 0.75" CND	E	20/2 CB	1LW	E	30A/2P NF	1LW	Q									(SSFC-2)
(UH-1)	1	GAS FIRED UNIT HEATER	1/12	-	-	2.5	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q									(UH-1)
(WH-1)	1	GAS FIRED WATER HEATER	1/12	-	-	2.5	120	1	60	2 #12, 12 GR 0.75" CND	E	20/1 CB	1LW	E	THERMAL SWITCH	1LW	Q								2	(WH-1)

PANEL: "1HW"

VOLTS/PHASE/WIRE:		PANEL SIZE & TYPE:				MAIN SIZE AND TYPE:				LOCATION:		CABINET:		NOTES:			
480/277 V, 3 PH 4 WIRE		22" W x 6" D, BOLT-ON				400 AMPERE LUG				ELEC ROOM 104		SURFACE					
ACCESSORIES:						PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR						AIC RATING: 25,100 SCA					
CKT NO	OCP	LOAD (kVA)	LOAD (kVA)			PHASE LOAD			DESCRIPTION			LOAD (kVA)			OCP	CKT NO	
			LTG	PWR	CO	A	B	C	CO	PWR	LTG	POLE	AMP				
1	20	1	0.3	0	0	LTG: ELEC. DATA/COMM RM 104...	0.3	0.6			LTG: EXTERIOR ABOVE DOORS (RP-1)	0	0	0.6	1	20	2
3	20	1	--	--	--	SPARE		0.0	2.0		LTG: BUS WASH 101 (RP-2,3)	0	0	2	1	20	4
5	20	1	--	--	--	SPARE			0.0	2.0	LTG: BUS WASH 105 (RP-4,5) (NOTE 1)	0	0	2	1	20	6
7	20	3	0	4.2	0	PWR: E GAR DOOR WASH EQUIP...	1.4	0.5			LTG: WASH EQUIP ROOM 102 (RP-6)	0	0	0.5	1	20	8
9	--	--	--	--	--	--		1.4	0.0		SPARE	--	--	--	1	0	10
11	--	--	--	--	--	--			1.4	0.0	SPARE	--	--	--	1	0	12
13	20	3	0	4.2	0	PWR: SE BUS DOOR WASH 101	1.4	1.4			PWR: SW BUS DR WASH 105 (NOTE 1)	0	4.2	0	3	20	14
15	--	--	--	--	--	--		1.4	1.4		--	--	--	--	--	--	16
17	--	--	--	--	--	--			1.4	1.4	--	--	--	--	--	--	18
19	20	3	0	4.2	0	PWR: NE BUS DOOR WASH 101	1.4	1.4			PWR: NW BUS DR WASH 105 (NOTE 1)	0	4.2	0	3	20	20
21	--	--	--	--	--	--		1.4	1.4		--	--	--	--	--	--	22
23	--	--	--	--	--	--			1.4	1.4	--	--	--	--	--	--	24
25	20	3	0	2.5	0	MTR: (EF-1) BUS WASH 101	0.8	0.8			MTR: (EF-2) BUS WASH 105 (NOTE 1)	0	2.5	0	3	20	26
27	--	--	--	--	--	--		0.8	0.8		--	--	--	--	--	--	28
29	--	--	--	--	--	--			0.8	0.8	--	--	--	--	--	--	30
31	40	3	0	16.6	0	MTR: (FV) WASH CNTRL - WASH...	5.5	5.5			MTR: (V) WASH CNTRL - WASH EQUIP...	0	16.6	0	3	40	32
33	--	--	--	--	--	--		5.5	5.5		--	--	--	--	--	--	34
35	--	--	--	--	--	--			5.5	5.5	--	--	--	--	--	--	36
37	100	3	0	49.9	0	MTR: (FU) FUT PUMP CNTRL - WA...	16.6	16.6			MTR: (U) PUMP CNTRL PNL - WASH...	0	49.9	0	3	100	38
39	--	--	--	--	--	--		16.6	16.6		--	--	--	--	--	--	40
41	--	--	--	--	--	--			16.6	16.6	--	--	--	--	--	--	42
43	20	1	--	--	--	SPARE					SPARE	--	--	--	1	20	44
45	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	46
47	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	48
49	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	50
51	20	1	--	--	--	SPARE		0.0	0.0		SPARE	--	--	--	1	20	52
53	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	54
55	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	--	1	20	56
57	20	1	--	--	--	SPARE		0.0	0.0		SPARE	--	--	--	1	20	58
59	20	1	--	--	--	SPARE			0.0	0.0	SPARE	--	--	--	1	20	60
TOTALS:		CONNECTED KVA PER PHASE					54	55	55	CONNECTED TOTAL KVA = 164							
		CONNECTED AMPS PER PHASE					196	199	199	AVERAGE CONNECTED AMPS PER PHASE = 198							
NEC DIVERSIFIED LOAD CALCULATIONS																	
LIGHTING & CONTINUOUS LOADS: 5.3 kVA @ 125% = 6.6 kVA - 100% CONNECTED LOAD PLUS 25% DIVERSIFIED TOTAL KVA = 178																	
RECEPTACLES: - FIRST 10kVA @ 100%, REMAINDER @ 50% AVERAGE AMPS PER PHASE = 214																	
ALL OTHER LOADS @ 100%: 171.5 kVA - MOTOR TOTALS INCLUDED IN ALL OTHER LOADS WITH LARGEST MOTOR CALCULATED @ 125% PER NEC																	
Notes:																	
1. CIRCUIT NOT INSTALLED IF ALTERNATE #1 SELECTED. PROVIDE CIRCUIT BREAKER AND SPARE CONDUIT ONLY. SEE SHEET 03-EE101A.																	

PANEL: "1LW"

VOLTS/PHASE/WIRE:		PANEL SIZE & TYPE:			MAIN SIZE AND TYPE:			LOCATION:			CABINET:			NOTES:							
120/208V, 3 PH 4 WIRE		22" W x 6" D, BOLT-ON			225 AMPERE CIRCUIT BREAKER			ELEC ROOM 104			SURFACE										
PANEL DIRECTORY, IDENTIFICATION, GROUNDING BAR															AIC RATING: 5,825 SCA						
CKT	NO	OC	LOAD (kVA)	PHASE LOAD			DESCRIPTION			LOAD (kVA)	OC	AMP	LTG	POLE	AMP	NO					
	1	20	1	0	0	0.4		A	B	C		CO	PWR	LTG							
	1	20	1	0	0	0.4	CO: EXTERIOR (NOTE 2)	0.4	0.4			PWR: (UH-1) WASH EQUIP RM 102	0	0	1	20	2				
	3	20	1	0	0	0.5	CO BUS WASH 105 (NOTE 2)		0.5	0.4		PWR: (WH-1) WASH EQUIP RM 102	0	0.4	0	1	20	4			
	5	20	1	0	0	0.5	CO: BUS WASH 105 (NOTE 2)			0.5	0.5	CO: BUS WASH 105 (NOTE 2)	0.5	0	1	20	6				
	7	20	1	0	0	0.4	CO: BUS WASH 101	0.4	0.4			CO: EXTERIOR	0.4	0	1	20	8				
	9	20	1	0	1.8	0	MTR: (T) OZONE GEN WASH EQUI...		1.8	0.5		CO: BUS WASH 101	0.5	0	1	20	10				
	11	20	1	0	1.8	0	CO: BUS WASH 101			1.8	0.5	CO: BUS WASH 101	0.5	0	1	20	12				
	13	20	1	0	0.6	0	PWR: (B-1) WASH EQUIP RM 102	0.6	0.5			CO: WASH EQUIPMENT RM 102	0.5	0	1	20	14				
	15	20	1	0	0.2	0	PWR: (BN-1) BUS WASH 101		0.2	0.2		CO: EXTERIOR	0.2	0	1	20	16				
	17	20	1	0	0.2	0	PWR: (BN-2) BUS WASH 101		0.2	0.2		CO: ELEC ROOM 104	0.2	0	1	20	18				
	19	20	2	0	1.1	0	MTR: (P-1) WASH EQUIP RM 102	0.6	0.5			PWR: FPS PANEL	0	0.5	0	1	20	20			
	21	--	--	--	--	--	--		0.6	0.2		PWR: (BN-3) BUS WASH 105 (NOTE 2)	0	0.2	0	1	20	22			
	23	20	1	0	0	0.2	CO: DATA/COMM 103		0.2	0.2		PWR: (BN-4) BUS WASH 105 (NOTE 2)	0	0.2	0	1	20	24			
	25	20	1	0	0.4	0	CO: DATA/COMM 103	0.4	0.7			CO: DATA/COMM 103	0.7	0	1	20	26				
	27	20	1	0	0	0.4	CO: DATA/COMM 103		0.4	0.3		PWR: RACK DATA/COMM 103	0	0.5	0	2	20	28			
	29	20	1	0	0	0.4	CO: DATA/COMM 103			0.4	0.3	--	--	--	--	--	30				
	31	20	1	0	1	0	PWR: ACS PANEL	1.0	0.3			PWR: RACK DATA/COMM 103	0	0.5	0	2	32				
	33	20	1	0	1	0	PWR: VSS PANEL		1.0	0.3		--	--	--	--	--	34				
	35	20	1	0	1	0	PWR: SEC PANEL			1.0	0.5	PWR: MECH CKT DATA/COMM 103	0	0.5	0	1	20	36			
	37	20	1	0	1	0	PWR: BMS PANEL	1.0	0.5			PWR: MECH CKT DATA/COMM 103	0	0.5	0	1	20	38			
	39	20	2	0	3.2	0	MTR: (ACU-2) ROOF/ DATA/COMM 102		1.6	0.5		PWR: MECH CKT DATA/COMM 103	0	0.5	0	1	20	40			
	41	--	--	--	--	--	--			1.6	1.6	MTR: (ACCU-1) ROOF/ELEC 104	0	3.2	0	2	42	42			
	43	20	1	0	1.2	0	PWR: (FF-3) WASH EQUIP RM 102	1.2	1.6			--	--	--	--	--	44				
	45	20	1	0	0.9	0	PWR: HEAT TRC ROOF 1 (NOTE 1)		0.9	1.5		PWR: GAS DTCN SYS - WASH EQUIP...	0	1.5	0	1	20	46			
	47	20	1	0	0.9	0	PWR: HEAT TRC ROOF 2 (NOTE 1)			0.9	0.0	PWR: RP PNL PHOTOCELL - ROOF	0	0	1	20	48				
	49	20	1	0	1.8	0	PWR: (R) WATER SOFTENER WASH...	1.8	1.0			PWR: SAND OIL CONTRL PNL WASH EQ...	0	1	1	20	50				
	51	20	1	0	1.9	0	PWR: (I) DET MIXING SYSTEM		1.9	0.0		SPARE	--	--	1	20	52				
	53	20	1	0	1.9	0	PWR: (F) PUT DET MIXING SYSTEM			1.9	1.8	PWR: (F) PUT OZONE GEN WASH EQUI...	0	1.8	0	1	20	54			
	55	20	1	--	--	--	SPARE	0.0	0.0			SPARE	--	--	1	20	56				
	57	20	1	--	--	--	SPARE	--	0.0	0.0		SPARE	--	--	1	20	58				
	59	20	1	--	--	--	SPARE	--	--	0.0		SPARE	--	--	1	20	60				
	61	20	1	--	--	--	SPARE	0.0	0.0	0.0		SPARE	--	--	1	20	62				
	63	20	1	--	--	--	SPARE	--	0.0	0.0	0.0	SPARE	--	--	1	20	64				
	65	20	1	--	--	--	SPARE	--	--	0.0	0.0	SPARE	--	--	1	20	66				
	67	20	1	--	--	--	SPARE	0.0	0.0	0.0		SPARE	--	--	1	20	68				
	69	20	1	--	--	--	SPARE	--	--	0.0	0.0	SPARE	--	--	1	20	70				
	71	20	1	--	--	--	SPARE	--	--	0.0	0.0	SPARE	--	--	1	20	72				
	73	20	1	--	--	--	SPARE	0.0	0.0	0.0		SPARE	--	--	1	20	74				
	75	20	1	--	--	--	SPARE	--	--	0.0	0.0	SPARE	--	--	1	20	76				
	77	--	--	--	--	--	SPACE	--	--	--	0.0	0.0	SPACE	--	--	--	78				
	79	--	--	--	--	--	SPACE	0.0	0.0	0.0		SPACE	--	--	--	--	80				
	81	--	--	--	--	--	SPACE	--	--	0.0	0.0	SPACE	--	--	--	--	82				
	83	--	--	--	--	--	SPACE	--	--	0.0	0.0	SPACE	--	--	--	--	84				
TOTALS:															CONNECTED KVA PER PHASE		13	13	14	CONNECTED TOTAL KVA = 36	
															CONNECTED AMPS PER PHASE		110	105	118	AVERAGE CONNECTED AMPS PER PHASE = 98	
NOTES: DIVERSIFIED LOAD CAL CULATIONS																					

Notes:

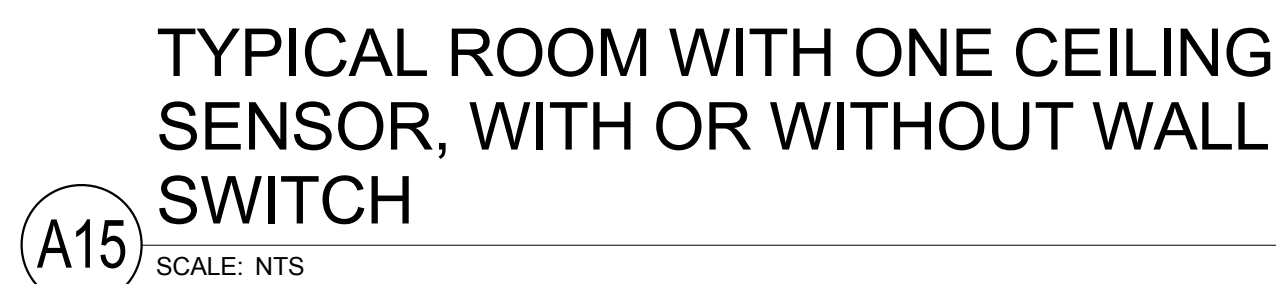
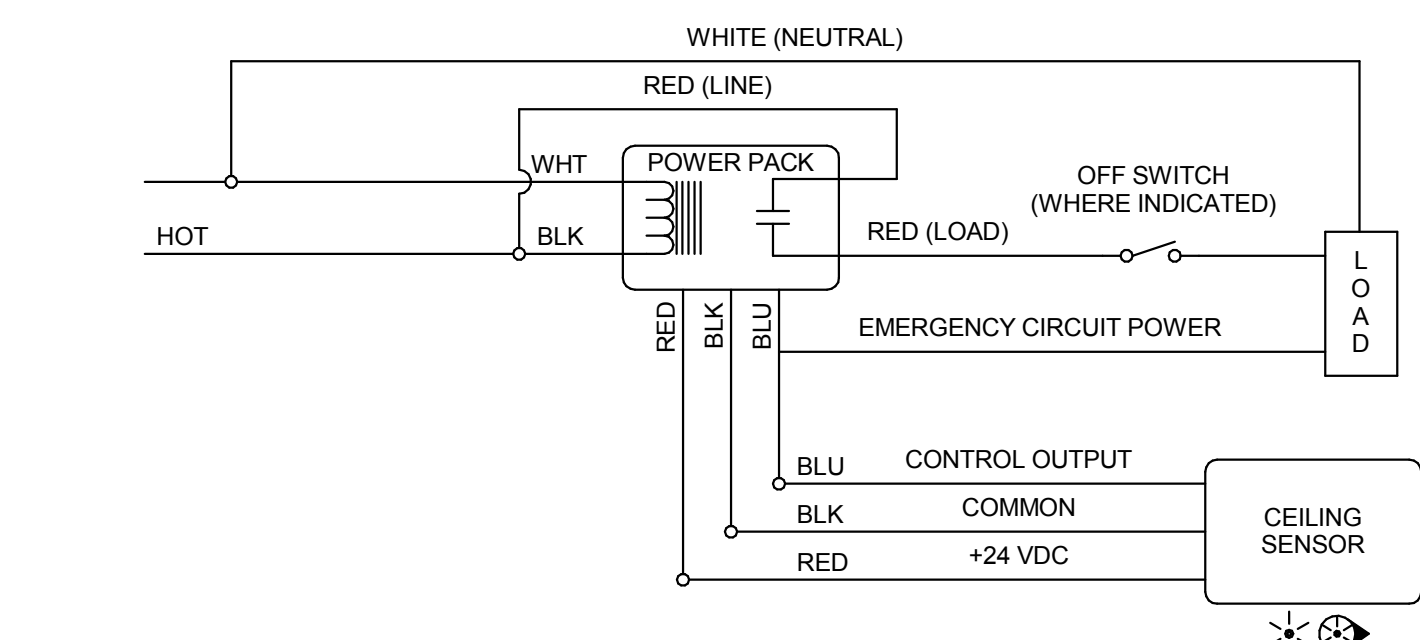
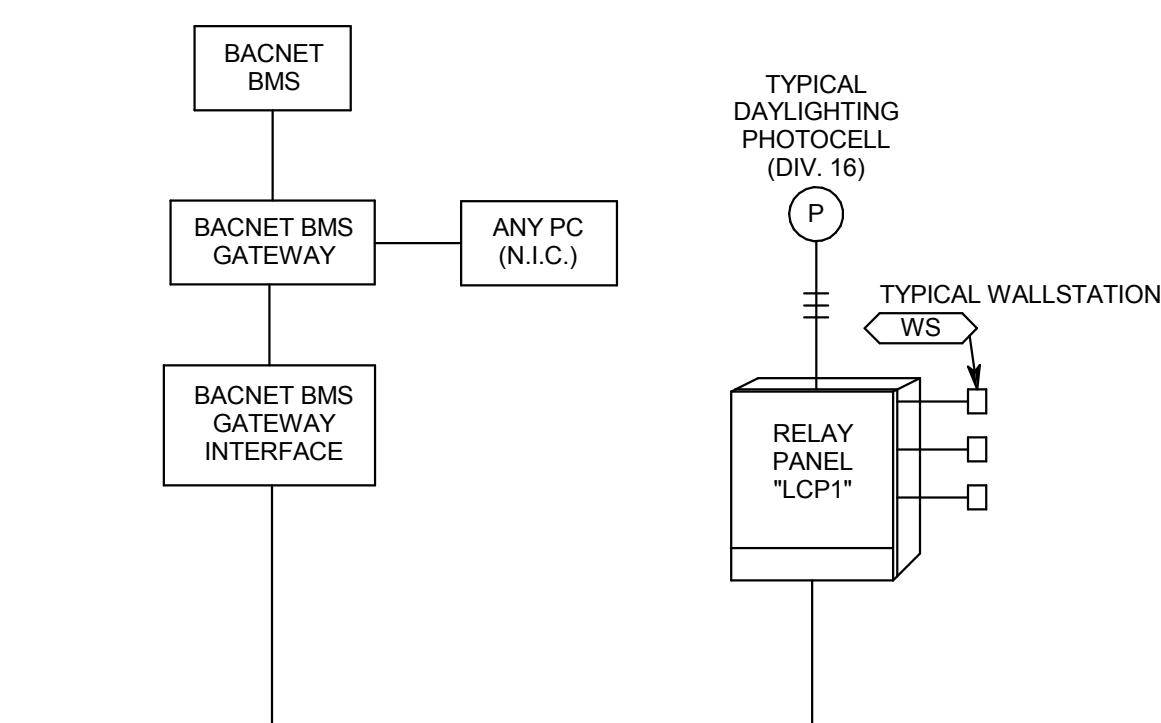
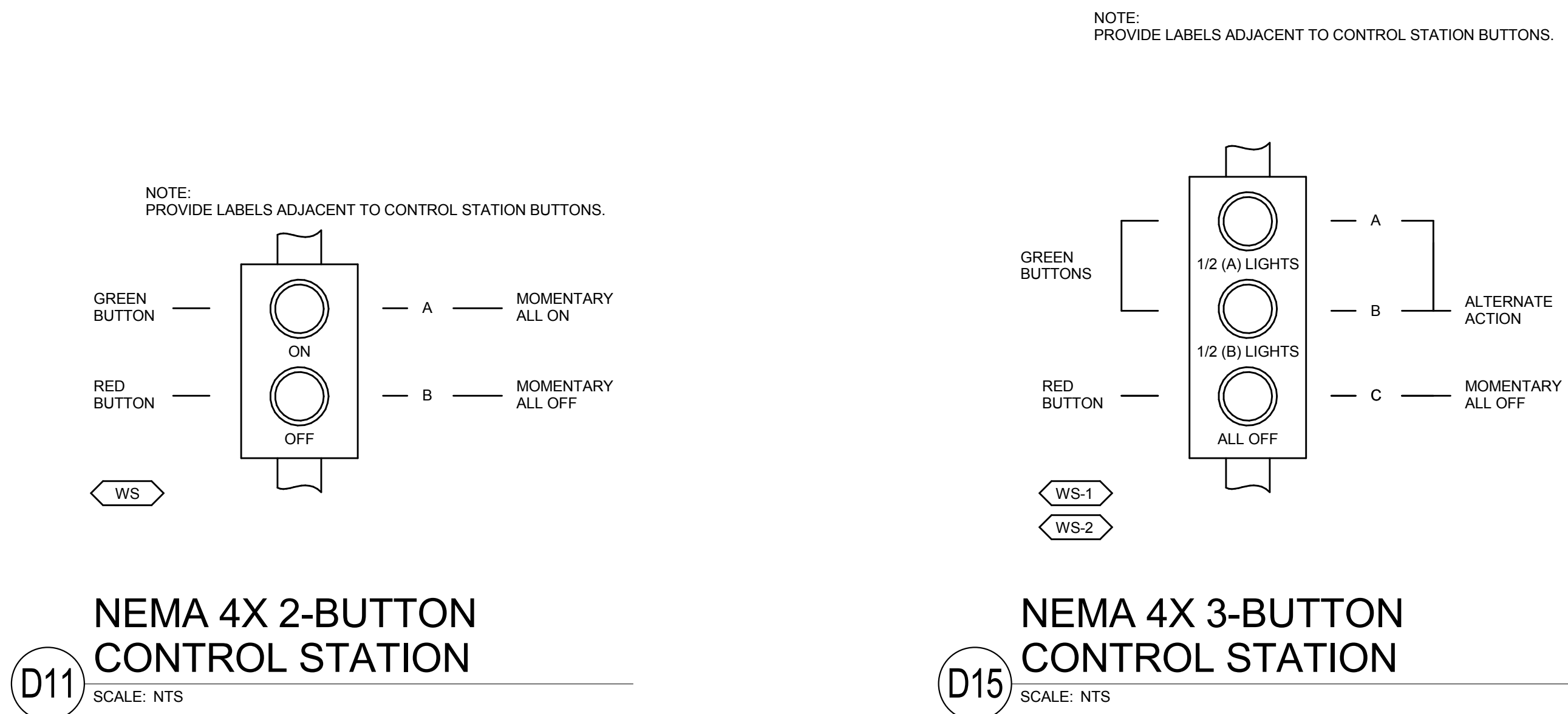
1. CONTROL SWITCHES TO HAVE AFTER-HOURS OVERRIDE CONTROLS. OVERRIDE TIME SHALL BE 2-HOURS.
2. LAMPS CONNECTED TO RELAY CIRCUIT TO TURN ON VIA TIME-CLOCK AT BEGINNING OF BUILDING HOURS OF OPERATION. ALL OTHER TIMES TO OPERATE VIA WALL STATION AND TO TURN OFF AT THE END OF BUILDING HOURS OF OPERATION.
3. LAMPS CONNECT TO RELAY CIRCUIT DO NOT TURN ON VIA TIME-CLOCK AT BEGINNING OF BUILDING HOURS OF OPERATION. ALL OTHER TIMES TO OPERATE SAME AS NOTE 2.



LIGHTING FIXTURE SCHEDULE

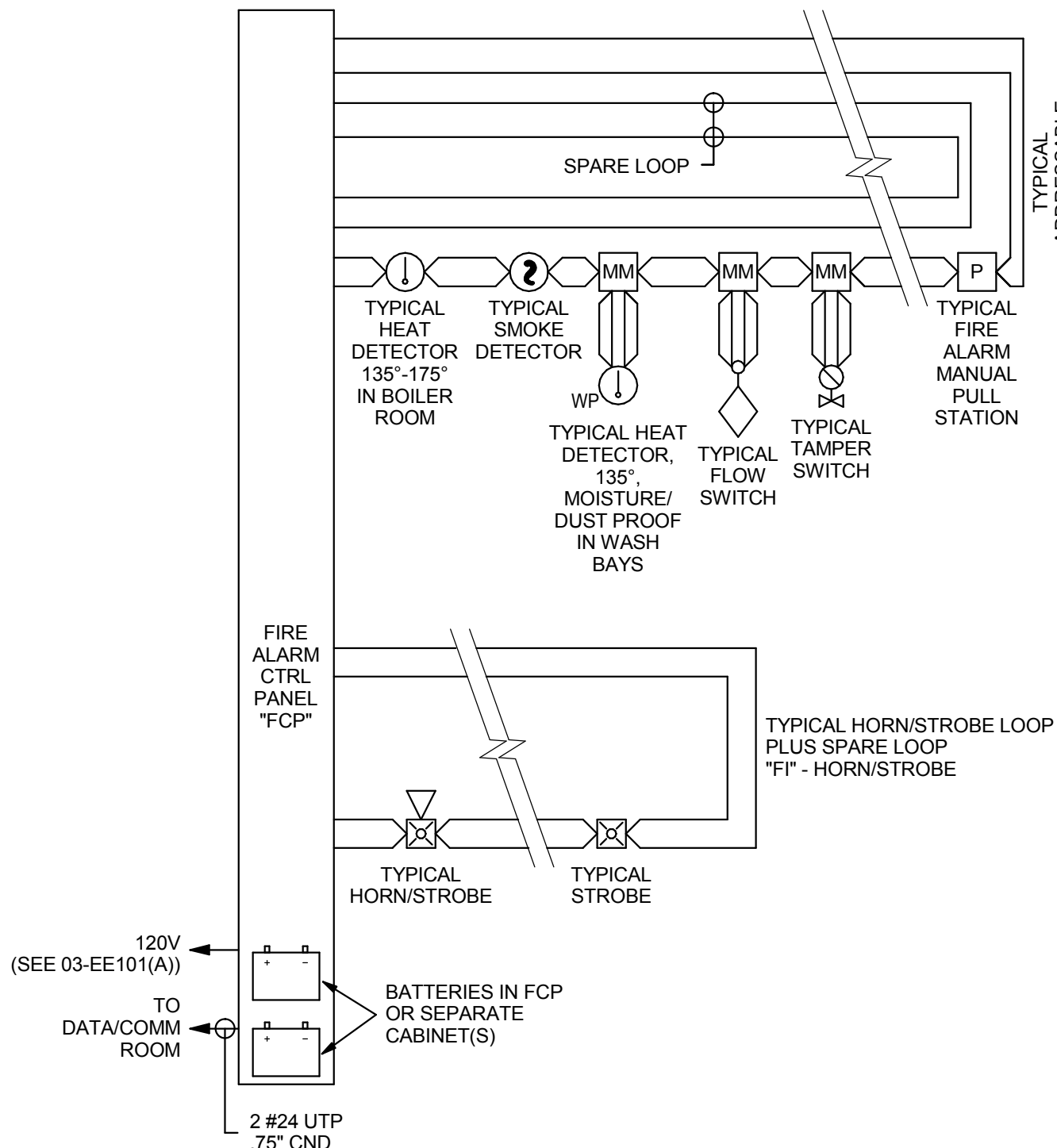
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SYMBOL		MARK	FIXTURE CHARACTERISTICS BODY / AIR / MOUNTING / DOOR	LAMP	WATTS	VOLTS	MANUFACTURER	CATALOG NUMBER	NOTES
E	EM		LENS/LOUVER/REFLECTOR/OTHER E OR EM PREFIX INDICATES THAT FIXTURE IS PROVIDED WITH AN EMERGENCY BATTERY PACK TO PROVIDE POWER TO ANY 2, 3, 4 OR 8 FOOT FLOURESCENT LAMP COMPATIBLE WITH ALL STANDARD AND ELECTRONIC BALLASTS; COMPLETELY SELF-CONTAINED TO PROVIDE 90 MINUTES OF EMERGENCY POWER TO FIXTURE BALLAST; MINIMUM LIGHT OUTPUT FOR TYPICAL 4' LAMP SHALL BE 1100 LUMENS OR HIGHER; UNIVERSAL TRANSFORMER FOR 120 OR 277 VOLTS; LOW VOLTAGE PROTECTION, COMBINATION TEST SWITCH AND AC "ON" INDICATOR; 10 YEAR PRO-RATA WARRANTY; INSTALL TEST SWITCH IN A MANNER THAT REQUIRES NO DISASSEMBLY FOR TESTING.						
E	EM		EMERGENCY BATTERY PACK; 1400 LUMENS	3W	UNV		IOTA BOODINE LITHONIA PRESCOLITE HUBBELL CHLORIDE LIGHTOLIER EXITRONIX EVENLITE DUAL LITE SIDELITE	I-80 B50 PS-1400 EFPS-5 E96 CFP841 FBP60 XEB14 FPDLJ UFO-6W S60F	
E2			EXIT SIGN: METAL HOUSING; UNIVERSAL MOUNT. SEE DRAWINGS; ARROWS PER PLANS; LED LAMPS; GREEN LETTERS. INTERNAL EM BATTERY POWER. MUST MEET NFPA ILLUMINATION STANDARDS. CONTRACTOR TO PROVIDE WALL MOUNTED OR END MOUNTED MODELS AND ALL CHEVRONS WHERE REQUIRED.	LED	4.7W	UNV	DUAL-LITE MULE EELP	LN4XGWEI N4X-BX1-G-SO-SD EX4X-1-G-W-X-EM-SD	
OC			WALL PACK; ADJUSTABLE CUT-OFF; FULL PERIMETER GASKETING; WET LOCATION; STAINLESS STEEL HINGES AND LATCHES; PROJECTING LENS; HPF DRIVER; SEE ELEVATION FOR MOUNTING HEIGHT, COLOR AS SPECIFIED BY ARCHITECT.	LED 4K 4158 LUMENS	55W	UNV	LSI LITHONIA MCGRAW	CGBW3MWT-LED-48350NNWUECBA-BB WST LED 2 10A700/40K SR3 MVOLT CBA ELCW IST-B02-LED-E1-BL3-AP-51LWS UNV BL3 GREY-BBB	
SA			GENERAL PURPOSE INDUSTRIAL: WHITE ENAMEL, APERTURED REFLECTOR; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS; ONE BALLAST PER FIXTURE WHERE POSSIBLE; UNLESS TWO LEVEL SWITCHING IS SHOWN ON THE PLANS; STEM MOUNTED WITH TONG HANGERS.	2F32T8 RE841	47W	UNV	LITHONIA LSI COLUMBIA METALUX DAYBRITE	EJA232-MVOLT-71BFPS-THUN F23-232-SSOR-71F-JUE CS94 232 ST EPU CSTH. 71BF DCIF232UNVHR81L71BF-U IA232-UNV-EB10R/71BF	
V			VANDAL RESISTANT SURFACE MOUNTED LIGHTING: .125" INJECTION MOLDED POLYCARBONATE LENS; IMPACT RESISTANT; UV STABILIZED; ALL METAL PARTS ARE ENCLOSED; GASKETED; VANDAL RESISTANT STAINLESS STEEL SCREWS; SECURED MOUNTING; PROGRAM START ELECTRONIC BALLASTS; T8 LAMPS.	6F32T8 RE841	138W	UNV	METALUX LITHONIA PHILIPS	V14-632-M-DR-UNV-XX-WL / V14-SS-SM FHE-632L-SD-2/3-GE810PS(, 71 BF)-SMB APX-632-UNV-A-2/3-EB10R-71BF	
V-1			WALL SURFACE MOUNTED FLOURESCENT. SPRAY DOWN (IP67), PROVIDE SURFACE MOUNT BRACKET .71 BF PROGRAM START BALLAST	2F32T8 RE841	47W	UNV	METALUX LITHONIA	V13-232DR-UNV-GL-ED8-1-WL-GT4 71BF FHE-232L-SD-GE810PS(, 71 BF)-SMB	
V-2			WALL SURFACE MOUNTED FLOURESCENT. WET LOCATION (IP67), PROVIDE SURFACE MOUNT BRACKET .71 BF PROGRAM START BALLAST	2F32T8 RE841	47W	UNV	METALUX LITHONIA	V13-232DR-UNV-GL-ED8-1-WL-GT4 71BF FHE-232L-SD-GE810PS(, 71 BF)-SMB	



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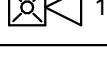
A11 FIRE ALARM RISER DIAGRAM
SCALE: NTS



FIRE ALARM INPUT/OUTPUT MATRIX		OUTPUT DEVICES			
		GENERAL ALARM	TROUBLE SIGNAL	SUPERVISORY SIGNAL	NOTES
INITIATING DEVICES					
ZONE					
1	MAIN FLOW	•			
2	MAIN TAMPER		•		
3	SMOKE DETECTOR	•			
4	HEAT DETECTOR	•			
5	PULL STATION	•			
6	LOW BATTERY VOLTAGE		•		
7	CIRCUIT FAULT FAILURE		•		
8	GENERAL TROUBLE		•		
9	AC POWER FAILURE		•		

INDICATING LOOP LEGEND	
INDICATING LOOP	DESCRIPTION
FI-1	-

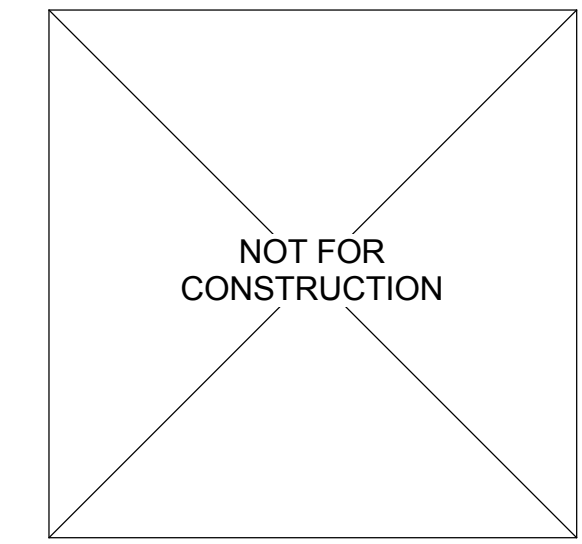
ADDRESSABLE LOOP LEGEND	
INITIATING LOOP	DESCRIPTION
FA-1	WASH BUILDING ADDRESSABLE LOOP

NOTIFICATION SCHEDULE				
SYMBOL	STROBE SIZE	COVERAGE	AVERAGE CURRENT	MAXIMUM PER CIRCUIT ALONE
 15	15 CD	20'x20'x 10'H	.095A	15
 30	30 CD	30'x30'x 10'H	.120A	12
 75	75 CD	40'x40'x 10'H	.180A	8
 110	110 CD	50'x50'x 10'H	.225A	6

WIRING SCHEDULE				
FUNCTION	< 500'	< 1000'	1000'-3000'	> 3000'
ADDRESSABLE LOOP	#18 TSP	#18 TSP	#16 TSP	#14 TSP
SPARE LOOP	#14 THWN	#14 THWN	#12 THWN	#10 THWN
STROBE HORNS	#14 THWN	#14 THWN	#12 THWN	#10 THWN

GENERAL SHEET NOTES

- 1 FLOW AND TAMPER CONFIGURATION BASED UPON FIRE SPRINKLER DESIGN CONCEPT. FIELD VERIFY ACTUAL REQUIREMENTS. INCLUDE ANY ADDITIONAL MONITOR MODULES REQUIRED BY ACTUAL DESIGN REQUIREMENTS.
- 2 BATTERY CAPACITY TO BE ADEQUATE TO OPERATE FULL ALARM MODE LOAD FOR 15 MINUTES AFTER 24 HOURS WITHOUT POWER, PLUS 25% SPARE CAPACITY.
- 3 RUN SPARE LOOPS IN SAME CONDUIT. DO NOT EXCEED 40% AREA FILL OF CONDUITS.
- 4 PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.
- 5 LOCATE SMOKE DETECTORS MINIMUM 3' FROM AIR SUPPLY AND RETURN LOUVERS.
- 6 PROVIDE SYNCHRONIZED STROBES THROUGHOUT FACILITY. PROVIDE SYNCHRONIZATION MODULES PER MANUFACTURER'S REQUIREMENTS. INCLUDE ADDITIONAL WIRING, IF REQUIRED.
- 7 PLANS ARE BASED UPON 99 MONITOR AND CONTROL DEVICES PER ADDRESSABLE LOOP. OTHER CONFIGURATIONS ARE ACCEPTABLE SUBJECT TO CONTRACTOR ALLOWING FOR INCREASED WIRING REQUIREMENTS AND SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION. MAXIMUM INITIAL DEVICES PER LOOP SHALL NOT EXCEED 75% MAXIMUM ALLOWABLE.
- 8 PLANS ARE BASED UPON THE WIRING SCHEDULE SHOWN. WHERE MANUFACTURER'S REQUIREMENTS EXCEED REQUIREMENTS SHOWN, INCLUDE ADDITIONAL ASSOCIATED COSTS AND SUBMITTAL DRAWINGS INDICATING NEW WIRING CONFIGURATION.
- 9 PLANS ARE BASED UPON 2 AMPS AT 24 VDC, NOT TO EXCEED 75% (1.50 AMPS AVAILABLE), POWER SUPPLY CAPACITY PER NOTIFICATION CIRCUIT. NOTIFICATION DEVICE LOADS ARE BASED UPON NOTIFICATION DEVICE SCHEDULE SHOWN. INCLUDE ADDITIONAL ASSOCIATED COSTS FOR INCREASED WIRING AND POWER SUPPLY CAPACITY IF LOADS OF ACTUAL DEVICES PROVIDED EXCEED CIRCUIT CAPACITY, OR IF LOAD OUTPUT OF ACTUAL POWER SUPPLIES PROVIDED IS SIZED DIFFERENTLY. PROVIDE SUBMITTAL DRAWINGS SHOWING NEW WIRING CONFIGURATION.
- 10 PROVIDE ONE YEAR OFF SITE MONITORING INCLUDING ALL INTERFACE DEVICES AND MONITORING CHARGES. COORDINATE WITH BUILDING OWNER'S OFF SITE MONITORING COMPANY.
- 11 ALL OUTPUT DEVICES ARE DESIGNED ON SYSTEMS WITH 2 AMP POWER SUPPLY.



No	REVISION/SUBMISSION	DATE
PROJECT No:	3514	

FIRE ALARM RISER

04-FA601

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GENERAL EQUIPMENT NOTES

- 1 ALL CONTRACTOR FURNISHED (CF) EQUIPMENT SHOWN ON THESE DRAWINGS WITH A FOUR DIGIT IDENTIFICATION NUMBER IS BASED ON A SPECIFIED MANUFACTURER. ANY MODIFICATION AND/OR SUBSTITUTION OF SAID EQUIPMENT IS SUBJECT TO COMPLETE COORDINATION BY THE CONTRACTOR OF ALL CONNECTIONS SERVICES, OPENING SIZE AND ANY OTHER CONSTRUCTION RELATED REQUIREMENTS.
- 2 CONTRACTOR TO VERIFY AND COORDINATE ALL STRUCTURAL, MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS OF EQUIPMENT WITH MANUFACTURER'S APPROVED SHOP DRAWINGS PRIOR TO INSTALLATION.
- 3 THIS LAYOUT IS PROVIDED FOR GENERAL LOCATION OF EQUIPMENT. UNLESS SPECIFICALLY LOCATED BY DIMENSIONS ON THE DRAWINGS, THE EQUIPMENT SHALL BE PLACED NEAR THE THE LOCATION ON THE DRAWINGS BUT IN THE MOST OPERATIONALLY EFFICIENT POSITION AND ORIENTATION.
- 5 SEISMICALLY BRACE ALL FIXED EQUIPMENT AND STORAGE EQUIPMENT PER LOCAL AND STATE SEISMIC RESTRAINT GUIDELINES.
- 7 COORDINATE WORK WITH ARCHITECTURAL FEATURES SO THE INTERFERENCE BETWEEN PIPING, EQUIPMENT, MECHANICAL WORK AND BUILDING STRUCTURE IS AVOIDED.

EQUIPMENT LINE TYPE LEGEND

CF/CI _____
OF/CI _____
OF/OI _____

CF/CI EQUIPMENT SCHEDULE

EQ ID #	DESCRIPTION	FURNISH INSTALL
3845	SIX BRUSH MACHINE	CF/CI

EQUIPMENT KEYNOTE BY SYMBOL

- 3 UTILITIES AND CONCRETE SUMP DESIGN FOR THE 6 BRUSH BUS WASH EQUIPMENT ARE BASED ON A SPECIFIED MANUFACTURER. REFERENCE SPECIFICATION SECTION 111126 AND APPROVED SHOP DRAWINGS FOR DETAILS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND CHANGING AND UNDERGROUND PIPING AND CONDUIT FOR UTILITIES AND DESIGN OF THE WASH EQUIPMENT BASED ON THE SUBMITTED AND APPROVED EQUIPMENT. CONTRACTOR SHALL COORDINATE WITH THE MANUFACTURER ALL INTERCONNECTING PIPING, AND ELECTRICAL WORK BETWEEN THE PANELS, PUMPS, AND WASH TANK EQUIPMENT IN THE WASH BAY.
- 5 START TRENCH OPENING AS CLOSE TO WALL AS POSSIBLE FOR PIPING

ABBREVIATIONS

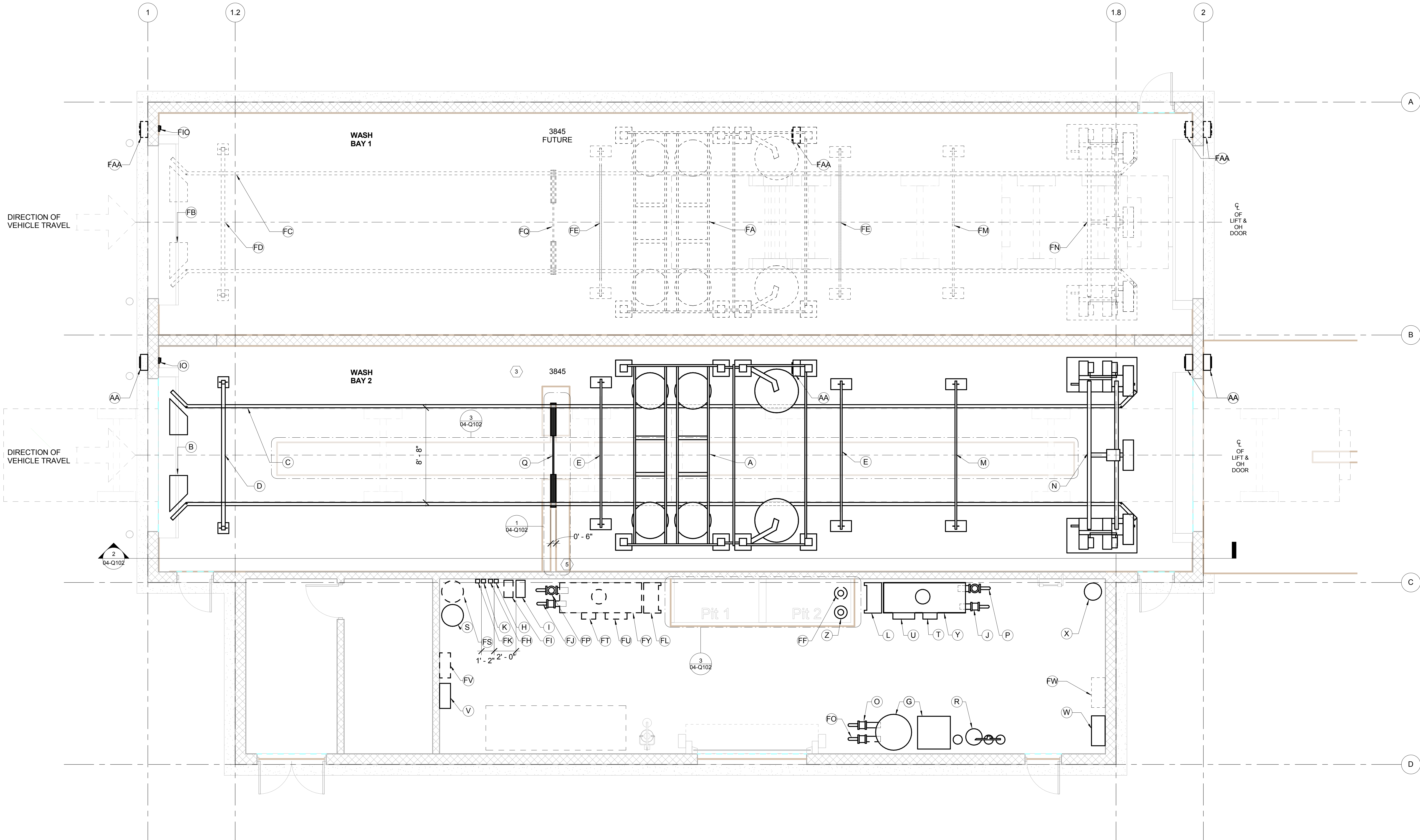
W WATER
AFF ABOVE FINISH FLOOR
CA COMPRESSED AIR
FD FLOOR DRAIN
OH OVERHEAD
CF/CI CONTRACTOR FURNISHED / CONTRACTOR INSTALLED
OF/CI OWNER FURNISHED / CONTRACTOR INSTALLED
OF/OI OWNER FURNISHED / OWNER INSTALLED

WASH COMPONENT SCHEDULE

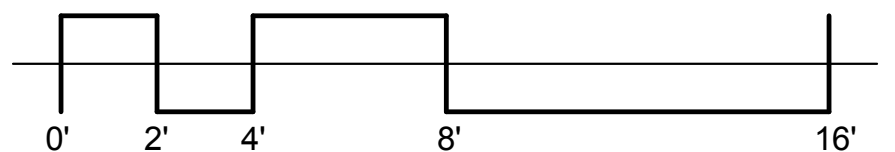
EQ ID #	DESCRIPTION
A	SIX BRUSH MACHINE
AA	TRAFFIC SIGNAL
B	SKID PLATES
C	TIRE GUIDE
D	PRE-SOAK ARCH
E	ROOF MOP
G	SPOT-FREE RINSE SYSTEM WITH BUFFER TANK
H	BRUSH DETERGENT PUMP
I	DETERGENT MIXING/METERING SYSTEM
IO	ON/OFF SWITCH
J	WASH WATER PUMP
K	RINSE AID PUMP
L	WATER RECYCLING SYSTEM WITH OZONE
M	SPOT-FREE RINSE ARCH
N	BLOWERS ARCH
O	RO WATER PUMP
P	HP CHASSIS WASH PUMP
Q	CHASSIS/WHEEL WASH
R	WATER SOFTENER
S	DETERGENT STORAGE
T	OZONE GENERATOR
U	PUMP CONTROL PANEL
V	WASH CONTROL PANEL
W	BLOWERS CONTROL PANEL
X	COMPRESSOR
Y	BUFFER TANK
Z	SUBMERSIBLE PUMP FOR WATER RECYCLING

FUTURE WASH COMPONENT SCHEDULE

EQ ID #	DESCRIPTION
FA	SIX BRUSH MACHINE
FAA	TRAFFIC SIGNAL
FB	SKID PLATES
FC	TIRE GUIDE
FD	PRE-SOAK ARCH
FE	ROOF MOP
FF	SUBMERSIBLE PUMP FOR WATER RECYCLING
FH	BRUSH DETERGENT PUMP
FI	DETERGENT MIXING/METERING SYSTEM
FIO	ON/OFF SWITCH
FJ	WASH WATER PUMP
FK	RINSE AID PUMP
FL	WATER RECYCLING SYSTEM WITH OZONE
FM	SPOT-FREE RINSE ARCH
FN	BLOWERS ARCH
FO	RO WATER PUMP
FP	HP CHASSIS WASH PUMP
FQ	CHASSIS/WHEEL WASH
FS	DETERGENT STORAGE
FT	OZONE GENERATOR
FU	PUMP CONTROL PANEL
FV	WASH CONTROL PANEL
FW	BLOWERS CONTROL PANEL
FY	BUFFER TANK

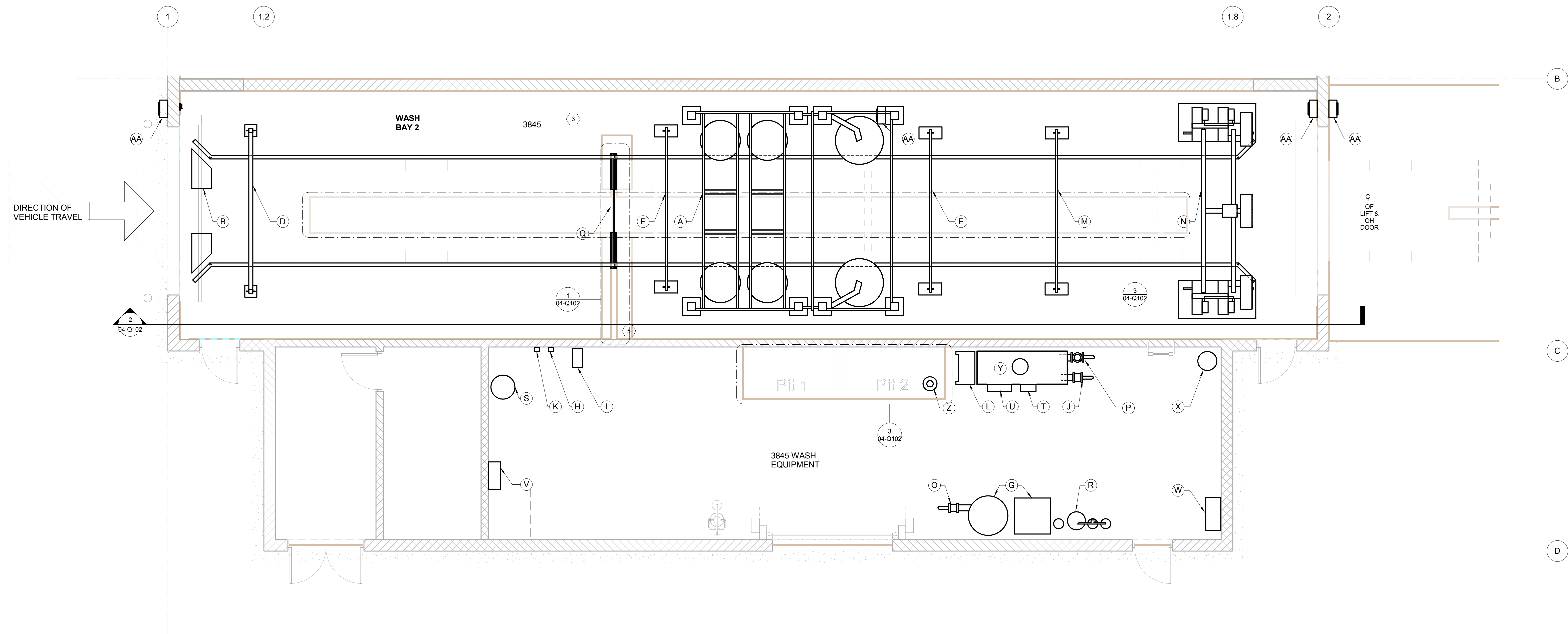


04 - LEVEL 1 WASH EQUIPMENT LAYOUT - BASE BID
1/4" = 1'-0"

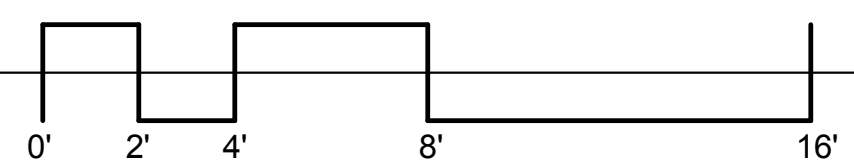


DRAWING SHEET NOTES

- 1 REFERENCE SHEET 03-Q101 FOR ALL EQUIPMENT DESCRIPTIONS
- 2 REFERENCE SHEET 03-Q101 FOR ALL GENERAL EQUIPMENT NOTES
- 3 REFERENCE SHEET 03-Q101 FOR ALL ABBREVIATIONS
- 4 REFERENCE SHEET 03-Q101 FOR ALL EQUIPMENT KEYNOTES



1 04 - LEVEL 1 WASH EQUIPMENT LAYOUT - ALTERNATE BID
1/4" = 1'-0"



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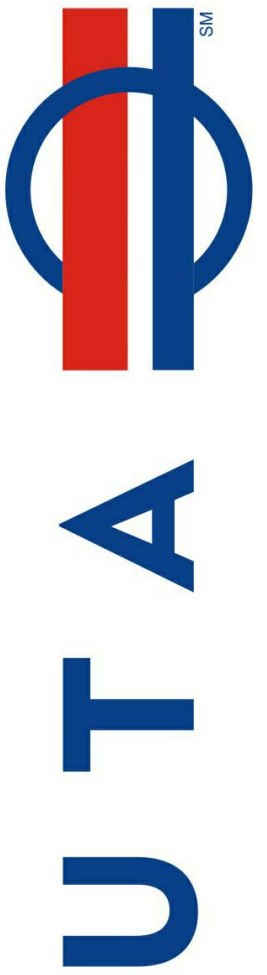
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CONSTRUCTION DOCUMENTS 03/31/2015

REVISION/SUBMISSION DATE
PROJECT No: Project Number
LEVEL 1 PLAN - WASH EQUIPMENT ALTERNATE BID

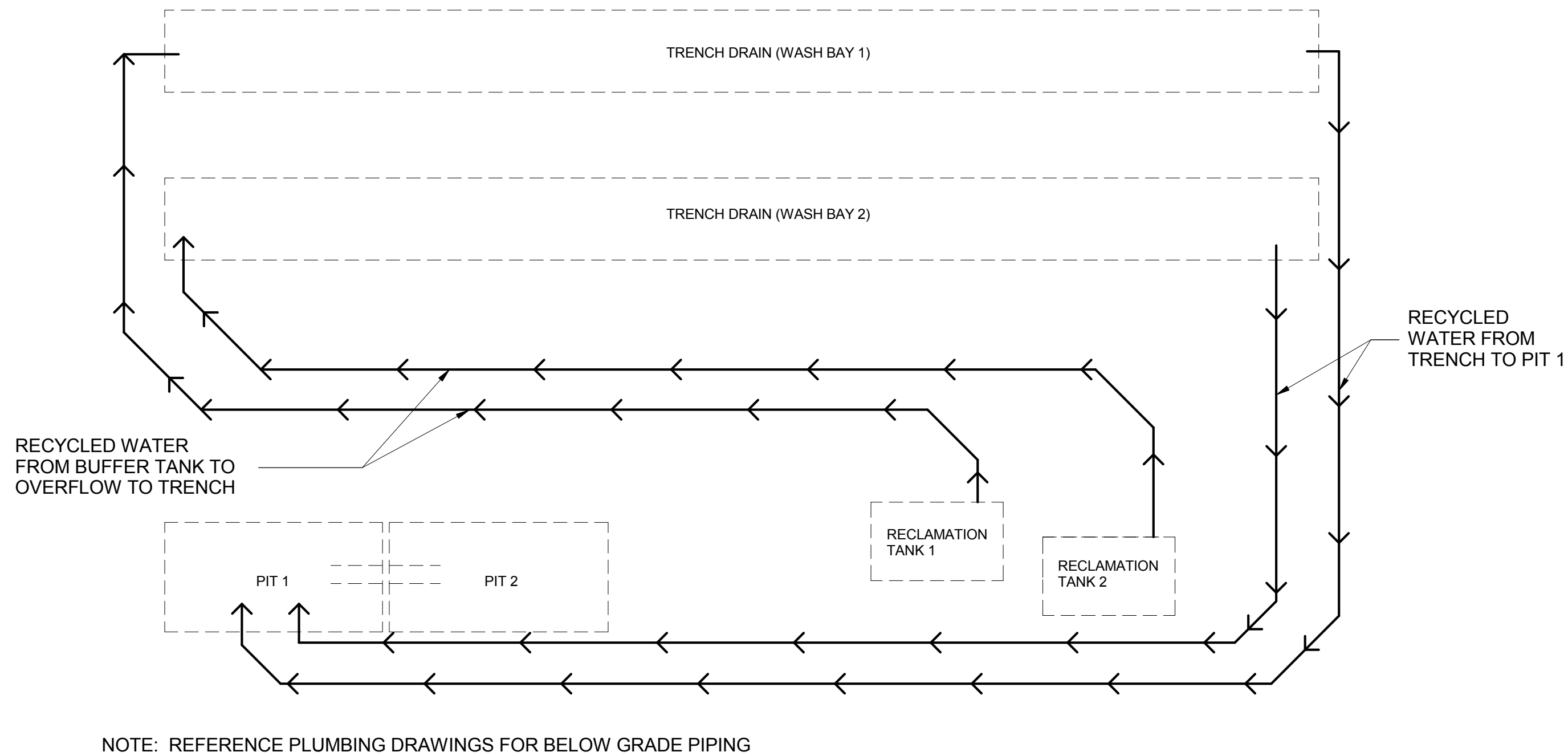
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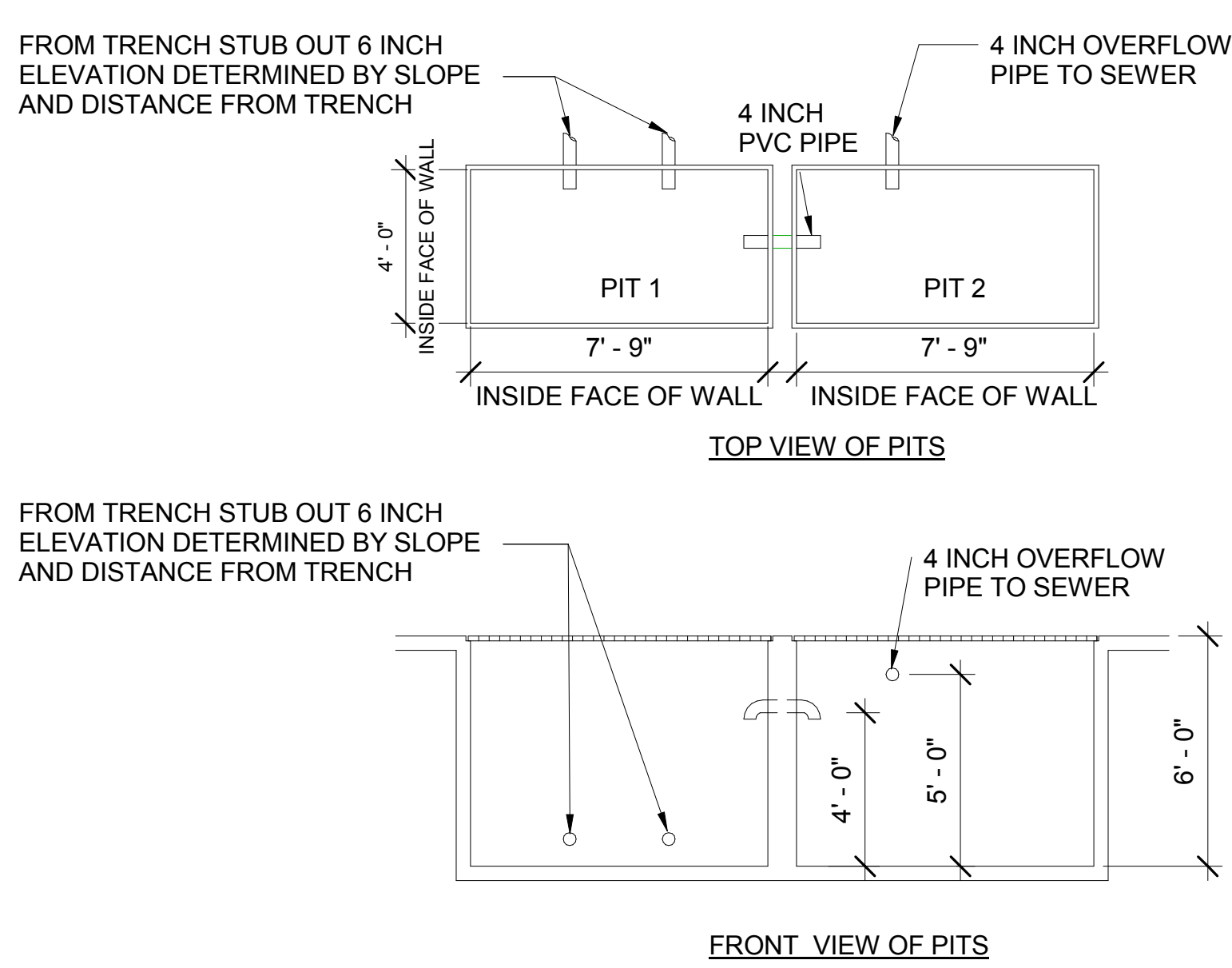
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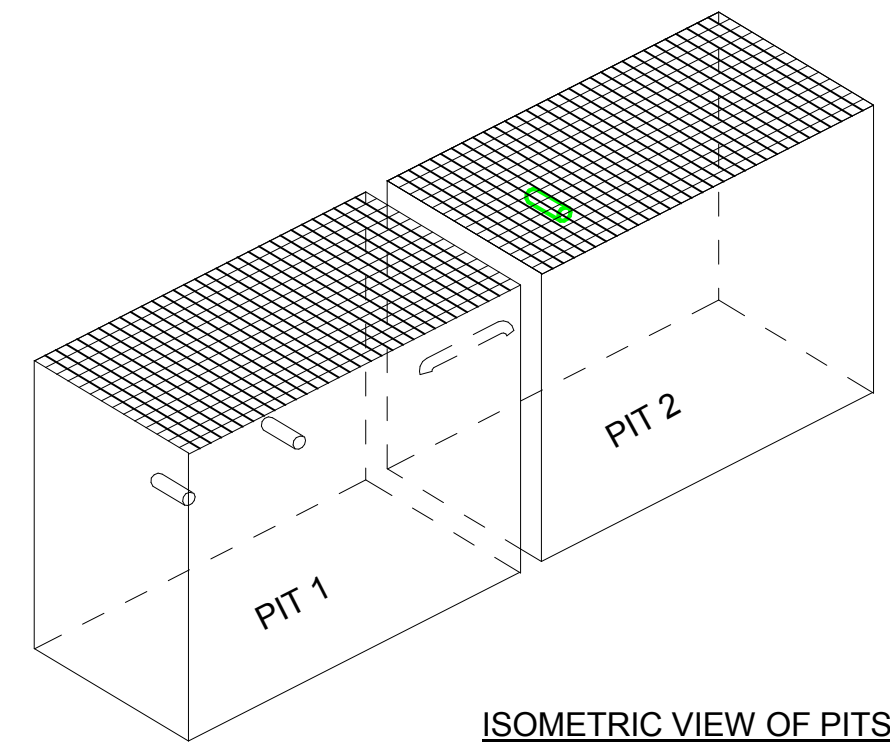
4 UNDERGROUND PIPING SCHEMATIC
NTS



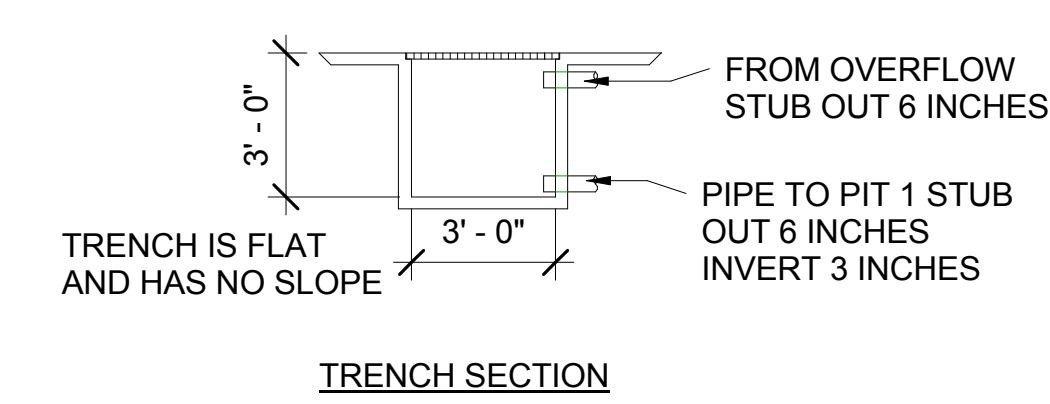
3 BUS WASH WATER RECYCLING PITS AND TRENCHES DETAIL
NTS

DRAWING SHEET NOTES

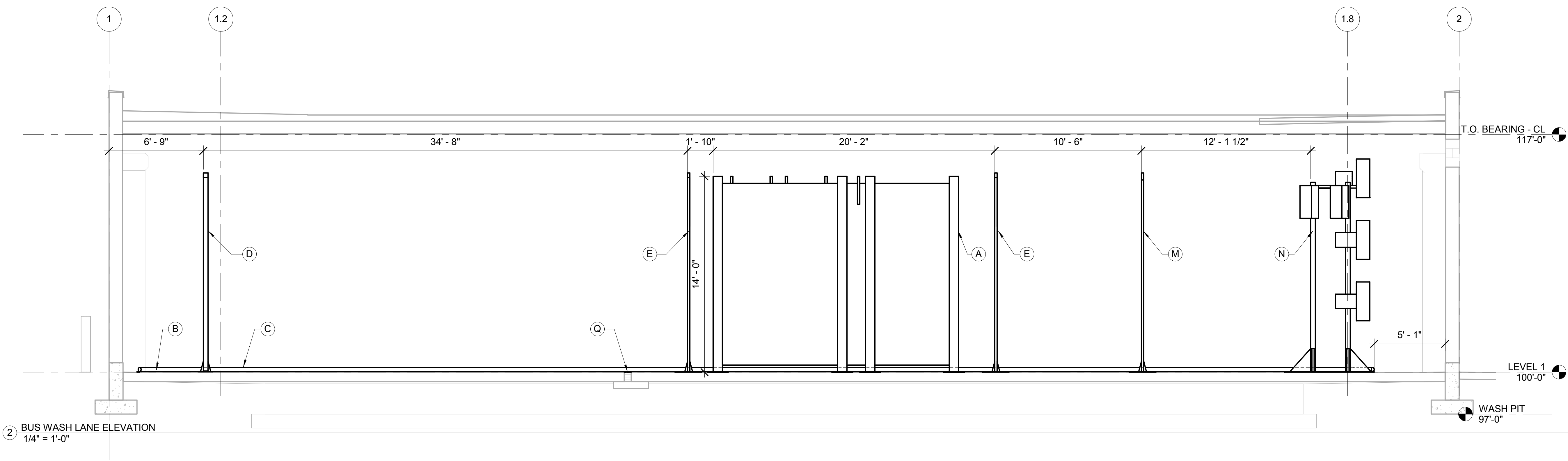
- 1 REFERENCE SHEET 03-Q101 FOR ALL EQUIPMENT DESCRIPTIONS
- 2 REFERENCE SHEET 03-Q101 FOR ALL GENERAL EQUIPMENT NOTES
- 3 REFERENCE SHEET 03-Q101 FOR ALL ABBREVIATIONS
- 4 REFERENCE SHEET 03-Q101 FOR ALL EQUIPMENT KEYNOTES



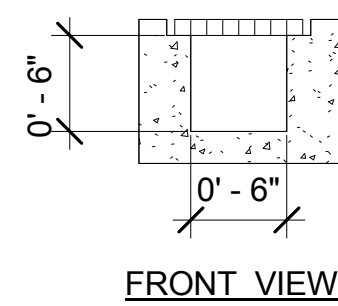
ISOMETRIC VIEW OF PITS



TRENCH SECTION



2 BUS WASH LANE ELEVATION
1/4" = 1'-0"



1 CHASSIS/WHEEL WASH TRENCH
1" = 1'-0"



1600 Stout Street, Suite 940
Denver, CO 80202
p. 303.302.0266

UTAH TRANSIT AUTHORITY
DEPOT DISTRICT TECHNOLOGY CENTER

WASH BUILDING 4
669 WEST 200 SOUTH
SALT LAKE CITY, UT 84101
CONSTRUCTION DOCUMENTS 03/31/2015

No.	REVISION/SUBMISSION	DATE

PROJECT No: Project Number
LEVEL 1 PLAN - WASH
EQUIPMENT DETAILS
AND ELEVATION

04-Q102