ABBREVIATIONS

&	AND	LAB	LABORATORY
∠	ANGLE	LAD	LADDER
@	AT	LAM	LAMINATE/ LAMINATED
⌶	CHANNEL	LAV	LAVATORY
		LH	LEFT HAND
AB	ANCHOR BOLT	LL	LIVE LOAD
ABV	ABOVE	LLH	LONG LEG HORIZONTAL
A/C	AIR CONDITION/ CONDITIONING	LLV	LONG LEG VERTICAL
ACC	ACCESS	LMST	LIMESTONE
ACOUS	ACOUSTIC, ACOUSTICAL	LPT	LOW POINT
ACP	ACOUSTICAL CEILING PANEL	LT	LIGHT
ACT	ACOUSTICAL CEILING TILE	LT WT	LIGHT WEIGHT
AD	AREA DRAIN	LVR	LOUVER
ADD	ADDENDUM	LWC	LIGHT WEIGHT CONCRETE
ADDL	ADDITIONAL		
ADJ	ADJACENT, ADJUSTABLE	M	METER
		MAS	MASONRY
AFF	ABOVE FINISH FLOOR	MATL	MATERIAL
AGGR	AGGREGATE	MAX	MAXIMUM
AHJ	AUTHORITY HAVING JURISDICTION	MB	MACHINE BOLT
AHR	ANCHOR	MBR	MEMBER
ALT	ALTERNATE	MC	MEDICINE CABINET
ALUM	ALUMINUM	MECH	MECHANICAL
ANOD	ANODIZED	MED	MEDIUM
AP	ACCESS PANEL	MEMB	MEMBRANE
APPROX	APPROXIMATE	MEZZ	MEZZANINE
ARCH	ARCHITECT/ ARCHITECTURAL	MFR	MANUFACTURER
ASB	ASBESTOS	MH	MAN HOLE
ASPH	ASPHALT	MIN	MINIMUM
AUTO	AUTOMATIC	MIRR	MIRROR
AVE	AVERAGE	MISC	MISCELLANEOUS
		MLWK	MILLWORK
BD	BOARD	MM	MILLIMETER
BEV	BEVEL, BEVELED	MO	MASONRY OPENING
BITUM	BITUMINOUS/ BITUMASTIC	MOD	MODULE/ MODULAR
BLDG	BUILDING	MR	MOISTURE RESISTANT
BLK	BLOCK	MRF	MARBLE FLOOR
BLKG	BLOCKING	MSB	MOP SERVICE BASIN
BM	BEAM	MT	MOUNT
BOT	BOTTOM	MTD	MOUNTED
BR	BRICK	MTL	METAL
BRG	BEARING	MULL	MULLION
BRG PL	BEARING PLATE		
BRKT	BRACKET	N	NORTH
BRZ	BRONZE	NAT	NATURAL
BSMT	BASEMENT	NIC	NOT IN CONTRACT
BTWN	BETWEEN	NO	NUMBER
BUR	BUILT UP ROOF(ING)	NOM	NOMINAL
BW	BOTH WAYS	NRC	NOISE REDUCTION COEFFICIENT
		NTS	NOT TO SCALE
C	CURB		
CAB	CABINET	OA	OVERALL
CB	CATCH BASIN	OC	ON CENTER
CEM	CEMENT	OD	OUTSIDE DIAMETER
CFLG	COUNTER FLASHING	OF	OUTSIDE FACE
CHFR	CHAMFER	OFF	OFFICE
CG	CORNER GUARD	OH	OVER HEAD
CI	CAST IRON	OPNG	OPENING
CIPC	CAST-IN-PLACE CONCRETE	OPP	OPPOSITE
CIR	CIRCLE	OPH	OPPOSITE HAND
CJ	CONSTRUCTION/CONTROL JOINT		
CL	CENTERLINE	PAR	PARALLEL
CLG	CEILING	PB	PANIC BAR
CLKG	CAULKING	PBD	PARTICLEBOARD
CLO	CLOSET	PC	PIECE
CLR	CLEAR/ CLEARANCE	PCC	PRECAST CONCRETE
CM	CENTIMETER	PCF	POUNDS PER CUBIC FOOT
CMU	CONCRETE MASONRY UNIT	PED	PEDESTAL
CNTOR	CONTRACTOR	PERIM	PERIMETER
CNTR	COUNTER	PERF	PERFORATE/ PERFORATED
CO	CLEAN OUT	PERM	PERMANENT
COL	COLUMN	PL	PLATE
COMB	COMBINATION	PLAM	PLASTIC LAMINATE
CONC	CONCRETE	PLAS	PLASTER
COND	CONDITION	PLBG	PLUMBING
CONN	CONNECT/ CONNECTION	PLF	POUNDS PER LINEAL FOOT
CONSTR	CONSTRUCTION	PL GL	PLATE GLASS
CONT	CONTINUE/ CONTINUOUS	PLYWD	PLYWOOD
CORR	CORRIDOR	PNL	PANEL
CPRS	COMPRESSIBLE	PR	PAIR
CPT	CARPET/ CARPETED	PREFAB	PREFABRICATED
CRS	COLD ROLLED STEEL	PREFIN	PREFINISHED
CSK	COUNTERSINK/COUNTERSUNK	PREFMD	PREFORMED
CSMT	CASEMENT	PRKG	PARKING
CT	CERAMIC TILE	PS CONC	PRESTRESSED CONCRETE
C TO C	CENTER TO CENTER	PSF	POUNDS PER SQUARE FOOT
CTR	CENTER	PSI	POUNDS PER SQUARE INCH
CU	CUBIC	PT	PAINT
CU FT	CUBIC FEET	PT CONC	POST-TENSIONED CONCRETE
CUH	CABINET UNIT HEATER	PTD	PAPER-TOWEL DISPENSER
CUV	CABINET UNIT VENTILATOR	PTN	PARTITION
CU YD	CUBIC YARD	PTR	PAPER TOWEL RECEPTACLE
		PVC	POLYVINYL CHLORIDE
D	DEEP	PVG	PAVING/ PAVEMENT
DBL	DOUBLE	QT	QUARRY TILE
DEMO	DEMOLISH/ DEMOLITION		
DEP	DEPRESS/ DEPRESSED	R	RISER, RADIUS
DEPT	DEPARTMENT	RA	RETURN AIR
DET	DETAIL	RB	RUBBER/ RESILIENT BASE
DF	DRINKING FOUNTAIN	RBR	RUBBER
DH	DOUBLE HUNG	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	RD	ROOF DRAIN
DIAG	DIAGONAL	REF	REFERENCE, REFRIGERATOR
DIM	DIMENSION	REFL	REFLECT
DISP	DISPENSER	REG	REGISTER
DIV	DIVISION/ DIVIDE	REINF	REINFORCE, REINFORCING
D	DEAD LOAD	REM	REMOVABLE, REMOVE
DMPF	DAMPPROOFING	REQD	REQUIRED
DMPR	DAMPER	RESIL	RESILIENT
DN	DOWN	REV	REVISION/ REVISED
DR	DOOR	RFG	ROOFING
DS	DOWNSPOUT	RH	RIGHT HAND/ ROOF HATCH
DWG	DRAWING/ DRAWINGS	RHR	RIGHT HAND REVERSE
DWR	DRAWER	RLG	RAILING
		RM	ROOM
E	EAST	RO	ROUGH OPENING
EA	EACH	ROW	RIGHT OF WAY
EJ	EXPANSION JOINT	RTF	RUBBER TILE FLOORING
EL	ELEVATION	RWD	REDWOOD
ELEC	ELECTRIC/ ELECTRICAL	RVS	REVERSE
ELEV	ELEVATOR		
EMBED	EMBEDMENT	S	SOUTH
EMER	EMERGENCY	SC	SOLID CORE
ENCL	ENCLOSURE	SCD	SEAT COVER DISPENSER
EPB	ELECTRIC PANEL BOARD	SCHED	SCHEDULE
EPDM	ETHYLENE PROPYLENE DIENE MONOMER	SCRN	SCREEN
EQ	EQUAL	SCT	STRUCTURAL CLAY TILE
EQUIP	EQUIPMENT	SD	SOAP DISPENSER/ SMOKE DETECTOR
ESTG	ESTIMATE	SECT	SECTION
EW	EACH WAY	SF	SQUARE FOOT
EWC	ELECTRIC WATER COOLER	SHR	SHOWER
EWH	ELECTRIC WATER HEATER	SHT	SHEET
EXIST	EXISTING	SHTHG	SHEATHING
EXP	EXPANAND/ EXPANSION/ EXPOSED	SHV	SHELVING
EXH	EXHAUST	SIM	SIMILAR
EXT	EXTERIOR	SK	SKETCH
		SKLT	SKYLIGHT
FA	FRESH AIR	SLNT	SEALANT
FB	FLAT BAR	SLV	SLEEVE
F BRK	FIRE BRICK	SND	SANITARY NAPKIN DISPENSER
FD	FLOOR DRAIN	SND INS	SOUND INSULATION
FDTN	FOUNDATION	SNDU	SANITARY NAPKIN DISPOSAL UNIT
FE	FIRE EXTINGUISHER	SPCL	SPECIAL
FEC	FIRE EXTINGUISHER CABINET	SPEC	SPECIFICATION
FF	FINISH FACE	SPKR	SPEAKER
FF EL	FINISH FLOOR ELEVATION	SQ	SQUARE
FGL	FIBERGLASS	SQ IN	SQUARE INCH
FH	FLAT HEAD	SS	SERVICE SINK
FHC	FIRE HOSE CABINET	SST	STAINLESS STEEL
FIN	FINISH/ FINISHED	STA	STATION
FIN FLR	FINISHED FLOOR	STC	SOUND TRANSMISSION CLASS
FLASH	FLASHING	STD	STANDARD
FLEX	FLEXIBLE	STRUCT	STRUCTURAL/ STRUCTURE
FLR	FLOOR/ FLOORING	SUSP	SUSPEND/ SUSPENDED
FLUOR	FLUORESCENT	SV	SHEET VINYL
FP	FIREPROOF/ FIRE PROTECTION	SYMM	SYMMETRICAL
FR	FRAME/ FRAMING	SYNTH	SYNTHETIC
FRP	FIBERGLASS REINFORCED PLASTIC	SYS	SYSTEM
FT	FEET/ FOOT		
FTG	FOOTING	T	TREAD
FURG	FURRING	T&G	TONGUE AND GROOVE
FURN	FURNACE/ FURNISH	TB	TOWEL BAR
FBO	FURNISH BY OTHERS	TC	TERRA COTTA
		TEL	TELEPHONE
G	GROUND	TER	TERRAZZO/ TELEPHONE EQUIPMENT ROOM
GA	GAGE/ GAUGE	THK	THICKNESS
GALV	GALVANIZED	THRES	THRESHOLD
GB	GRAB BAR	TK BD	TACK BOARD
GC	GENERAL CONTRACTOR	TOB	TOP OF BEAM
GKT	GASKET/ GASKETED	TOC	TOP OF CURB
GL	GLASS	TO FDN	TOP OF FOUNDATION
GL BLK	GLASS BLOCK	TOL	TOLERANCE
GLZ CMU	GLAZED CONCRETE MASONRY UNIT	TOM	TOP OF MASONRY
GR	GRADE/ GRADING	TOS	TOP OF SLAB/ STEEL
GR FL	GROUND FLOOR	TOW	TOP OF WALL
GT	GROUT	TPD	TOILET PAPER DISPENSER
GWH	GAS FIRED WATER HEATER	TV	TELEVISION
GWT	GLAZED WALL TILES	TYP	TYPICAL
GYP	GYPSUM		
GYP BD	GYPSUM BOARD	UC	UNDERCUT
		UNFIN	UNFINISHED
H	HIGH	UNO	UNLESS NOTED OTHERWISE
HB	HOSE BIBB	UR	URINAL
HC	HOLLOW CORE	VCT	VINYL COMPOSITION TILE
HDNR	HARDENER	VERT	VERTICAL
HDR	HEADER	VEST	VESTIBULE
HDWD	HARDWOOD	VNR	VENEER
HDW	HARDWARE	VR	VAPOR RETARDER
HP	HIGH POINT	VWC	VINYL WALL COVERING
HT	HEIGHT	VQF	VINYL WALL FABRIC
HM	HOLLOW METAL		
HMD	HOLLOW METAL DOOR	W	WIDE/ WIDTH/ WEST
HORIZ	HORIZONTAL	W/	WITH
HTG	HEATING	WB	WOOD BASE
HVAC	HEATING / VENTILATING/ AIR CONDITIONING	WC	WATER CLOSET
ID	INSIDE DIAMETER	WD	WOOD
IF	INSIDE FACE	WDW	WINDOW
IN	INCH	WGL	WIRED GLASS
INCIN	INCINERATOR	WH	WALL HUNG
INCL	INCLUDE/ INCLUDED/ INCLUDING	WI	WROUGHT IRON
INSUL	INSULATION/ INSULATING	WM	WIRE MESH/ WATER METER
INT	INTERIOR	W/O	WITHOUT
INV	INVERT	WP	WATERPROOFING/ WEATHERPROOF
		WR	WATER REPELLENT
JAN	JANITOR	WSCT	WAINSCOT
JAN CLO	JANITOR CLOSET	WT	WEIGHT
JS	JANITOR'S SINK	W/W	WALL TO WALL
J-BOX	JUNCTION BOX	WWF	WELDED WIRE FABRIC
KD	KNOCK DOWN	WWM	WELDED WIRE MESH
KOP	KNOCK OUT PANEL	YD	YARD, YARD DRAIN

MATERIAL DESIGNATION

- EXISTING
- STONE OR GRAVEL FILL
- TOPSOIL
- CLAY BACKFILL
- CONCRETE
- BRICK
- CONCRETE MASONRY UNIT
- CUT STONE
- METAL (LARGE SCALE)
- METAL (SMALL SCALE)
- CONCRETE, PLASTER, EXTERIOR INSULATION FINISH SYSTEM
- GLAZING
- GYPSUM BOARD, PLASTER, GROUT, SAND
- GLASS-MAT
- PLYWOOD
- WOOD
- ROUGH LUMBER
- BATT OR LOOSE INSULATION
- RIGID INSULATION
- ACOUSTICAL TILE

SYMBOLS & CALLOUTS

- DETAIL CALLOUT — 1 / A6.1 — DRAWING NUMBER; SHEET WHERE DRAWING APPEARS
- DETAIL OR SECTION CALLOUT — 1 / A8.1 — DRAWING NUMBER; SHEET WHERE DRAWING APPEARS
- CENTER LINE — ℄
- COLUMN LINE — A
- CONTOUR, NEW — 95
- CONTOUR, ABANDONED OR EXISTING TO REMAIN — 90
- DATUM LINE
- DOOR TAG — 102A
- ELEVATION CALLOUT — 1 / A4.1 — DRAWING NUMBER; SHEET WHERE DRAWING APPEARS
- ELEVATION CALLOUT, MULTIPLE — 1, 2 / A8.1 — DRAWING NUMBERS; SHEET WHERE DRAWING APPEARS
- G1 — GLAZING PANEL TAG
- SF1, CW1 — STOREFRONT, CURTAINWALL, OR WINDOW TAG
- MATCH LINE
- 1 — REVISION
- ROOM NAME 101 — ROOM TAG
- A — TOILET ACCESSORY OR PLUMBING FIXTURE
- A — WALL TYPE

CONSULTANTS

OWNER'S CONSULTANTS

ARCHITECTS
WILLIAMS ARCHITECTS
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LOW VOLTAGE CONSULTANT
SENTINEL TECHNOLOGIES
2550 WARRENVILLE ROAD (630) 769-4300
DOWNERS GROVE, IL 60515

ISSUED FOR BID AND PERMIT

06 APRIL 2023

Lake County Forest Preserves

LAKEWOOD FOREST PRESERVE NET ZERO MAINTENANCE FACILITY

LAKE COUNTY FOREST PRESERVE DISTRICT
27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

CERTIFICATION

I HEREBY CERTIFY THAT THESE PLANS WERE PREPARED BY ME OR UNDER MY SUPERVISION AND TO THE BEST OF MY KNOWLEDGE COMPLY WITH ALL APPLICABLE CODES, INCLUDING PUBLIC LAW 101-336 'AMERICANS WITH DISABILITIES ACT OF 2010' AND MEET ALL OF THE REQUIREMENTS SET FORTH IN THE FEDERAL REGISTER PART III DEPARTMENT OF JUSTICE, ADA ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES AND THE ILLINOIS ACCESSIBILITY CODE.

EXP. DATE

MARK BUSHHOUSE, AIA, LEED AP,
WILLIAMS ARCHITECTS
SEAL APPLIES TO DRAWINGS: G SHEETS, A SHEETS

EXP. DATE

EXP. DATE

KARL R. PENNINGS, S.E.,
IMEG
S SHEETS INCLUSIVE

EXP. DATE

DAVE A. HICKMAN, P.E.,
IMEG
P SHEETS, M SHEETS, E SHEETS AND F SHEETS INCLUSIVE

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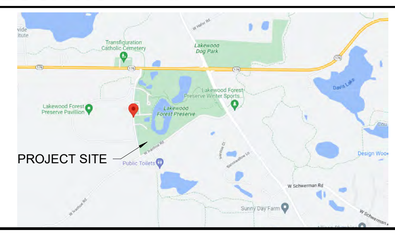
LOCATION MAP



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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

4/6/2023 4:27:33 PM

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Date 06 APRIL 2023
Drawn LMT / JAO
Checked MCR

REVISIONS

NO.	DESCRIPTION	DATE

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

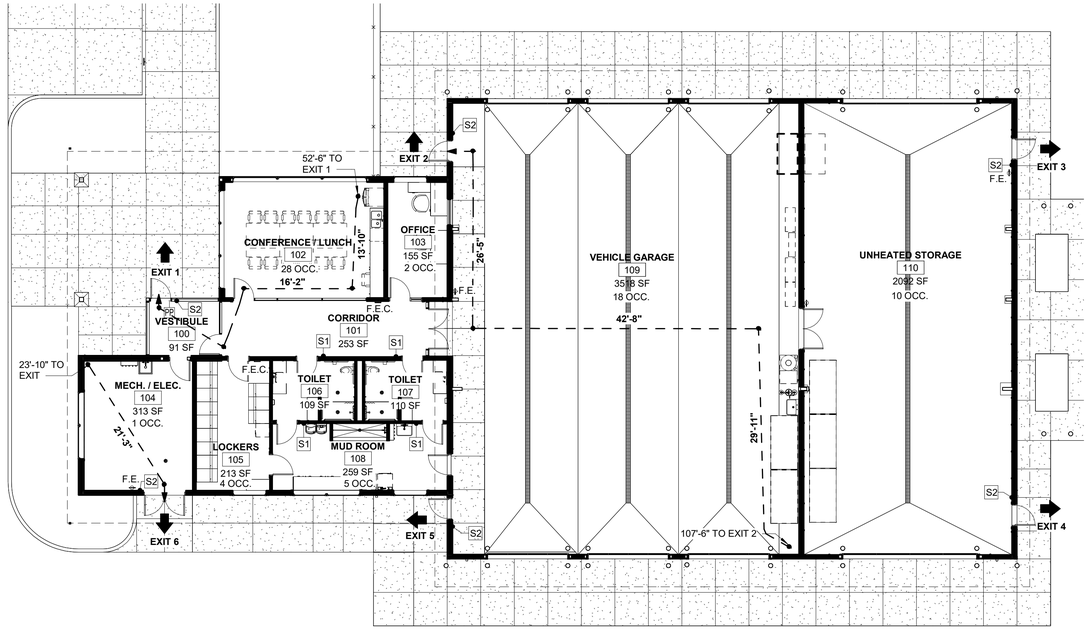
TITLE SHEET

G1.1

OCCUPANCY TABLE

ROOM INFORMATION				IBC 2012 OCCUPANCY CALCULATIONS			ILLINOIS PLUMBING CODE 2014		
ROOM NUMBER	ROOM NAME	AREA	PROJECTED OCCUPANT LOAD	FUNCTION OF SPACE	FLOOR AREA ALLOWANCE PER OCCUPANT	OCCUPANT LOAD	FUNCTION OF SPACE	FLOOR AREA ALLOWANCE PER OCCUPANT (IPC SECTION 890.810)	OCCUPANT LOAD
100	VESTIBULE	91 SF	N/A- CIRCULATION SPACE	CIRCULATION	0	0	N/A-CIRCULATION SPACE	0	0
101	CORRIDOR	253 SF	N/A- CIRCULATION SPACE	CIRCULATION	0	0	N/A-CIRCULATION SPACE	0	0
102	CONFERENCE / LUNCH	412 SF	12	ASSEMBLY WITHOUT FIXED SEATS, UNCONCENTRATED (TABLES & CHAIRS)	15	27.47	ASSEMBLY PLACES	50	8.25
103	OFFICE	155 SF	2	BUSINESS AREAS	100	1.55	OFFICE BUILDINGS	200	0.77
104	MECH. / ELEC.	313 SF	0	MECHANICAL EQUIPMENT ROOM	300	1.04	INDUSTRIAL UNITS	500	0.63
105	LOCKERS	213 SF	12	LOCKER ROOMS	50	4.26	STORAGE AREA	400	0.53
106	TOILET	109 SF	N/A- CIRCULATION SPACE	CIRCULATION	0	0	N/A-CIRCULATION SPACE	0	0
107	TOILET	110 SF	N/A- CIRCULATION SPACE	CIRCULATION	0	0	N/A-CIRCULATION SPACE	0	0
108	MUD ROOM	259 SF	0	LOCKER ROOMS	50	5.17	STORAGE AREA	400	0.65
109	VEHICLE GARAGE	3518 SF	0	PARKING GARAGES	200	17.59	STORAGE AREA	400	8.79
110	UNHEATED STORAGE	2092 SF	0	PARKING GARAGES	200	10.46	STORAGE AREA	400	5.23
TOTAL PROJECTED OCCUPANTS =			26	TOTAL IBC OCCUPANTS =		68	TOTAL IPC OCCUPANTS =		25 OCC.

OCCUPANCY TABLE



GROUND FLOOR EGRESS & CODE SIGNAGE PLAN — SCALE: 3/32" = 1'-0" — 2

TOILET / SHOWER ROOM

S1

EXIT

S2

1. SEE CODE SIGNAGE PLAN THIS SHEET FOR LOCATIONS OF ALL CODE REQUIRED SIGNS.
2. ACCESSIBLE SIGNS SHALL COMPLY WITH ALL APPLICABLE CODES INCLUDING CHAPTER 7 OF THE ILLINOIS ACCESSIBILITY CODE, 2010 DOJ STANDARDS, AND ICC/ANSI 117.1.
3. VISUAL CHARACTERS, CASE, STYLE, CHARACTER HEIGHT, CHARACTER WIDTH, STROKE WIDTH, CHARACTER SPACING, LINE SPACING, HEIGHT ABOVE FLOOR, AND FINISH AND CONTRAST SHALL COMPLY WITH SECTION 703.
4. TACTILE CHARACTERS, DEPTH, CASE, STYLE, CHARACTER HEIGHT, CHARACTER WIDTH, STROKE WIDTH, CHARACTER SPACING, LINE SPACING, HEIGHT ABOVE FLOOR, AND FINISH AND CONTRAST SHALL COMPLY WITH SECTION 703. ALL CHARACTERS AND SYMBOLS TO BE TACTILE (RAISED) THIS PROJECT.
5. BRAILLE UPPERCASE LETTERS, DIMENSIONS, POSITION, AND MOUNTING HEIGHT SHALL COMPLY WITH SECTION 703. PROVIDE BRAILLE AT ALL SIGNS THIS PROJECT.
6. THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL COMPLY WITH SECTION 703.
7. ALL SIGN SIZES, LAYOUTS, AND TEXT ARE FOR GENERAL INFORMATION ONLY.

CODE SIGN LEGEND — SCALE: 3" = 1'-0" — 19

LEGEND

F.E. WALL HUNG FIRE EXTINGUISHER.

F.E.C. SEMI-RECESSED FIRE EXTINGUISHER CABINET WITH FIRE EXTINGUISHER.

FIRE EXTINGUISHER LEGEND — 20

LEGEND / ABBREVIATIONS

DISTANCE BETWEEN TWO NODES ALONG A PATH OF EGRESS. 37'-0"

NODE / POINT

PATH OF EGRESS TRAVEL

EXIT LOCATION

EXIT

EGRESS PLAN LEGEND — 21

BUILDING CODE SUMMARY

PROJECT NAME:	LAKEWOOD NET ZERO MAINTENANCE FACILITY LAKE COUNTY FOREST PRESERVE DISTRICT- LAKEWOOD FOREST PRESERVE WAUCONDA, ILLINOIS 60084
PROPOSED USE:	ONE STORY VEHICLE STORAGE GARAGE WITH SUPPORT SPACES BUILDING

GOVERNING CODES

- 2012 ICC INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS
- 2012 ICC INTERNATIONAL MECHANICAL CODE WITH LOCAL AMENDMENTS
- 2012 ICC INTERNATIONAL FUEL GAS CODE WITH LOCAL AMENDMENTS
- 2018 ICC INTERNATIONAL FIRE CODE WITH LOCAL AMENDMENTS (BY THE AHJ)
- 2011 NFPA 70 NATIONAL ELECTRICAL CODE WITH LOCAL AMENDMENTS
- 2014 STATE OF ILLINOIS PLUMBING CODE
- 2018 STATE OF ILLINOIS ACCESSIBILITY CODE
- 2018 ILLINOIS ENERGY CONSERVATION CODE

CHAPTER 3 USE AND OCCUPANCY CLASSIFICATION

USE GROUP:	CHAPTER AND CODE:
LOW-HAZARD STORAGE, GROUP S-2	311.3, 2012 INTERNATIONAL BUILDING CODE

CHAPTER 5 GENERAL BUILDING HEIGHTS AND AREAS

CODE REFERENCE:	DESCRIPTION:	
TABLE 503 (USE GROUP S-2, CONSTRUCTION TYPE VB)	TABLE 503 ALLOWABLE BUILDING HEIGHT AND AREA LIMITATIONS	
	ALLOWABLE PER TABLE 503:	PROPOSED BUILDING:
HEIGHT:	40'-0"	31'-8"
STORIES:	2	1
AREA:	13,500 S.F.	7,982 G.S.F.
503.1 GENERAL	THE BUILDING HEIGHT AND AREA SHALL NOT EXCEED THE LIMITS SPECIFIED IN TABLE 503 BASED ON THE TYPE OF CONSTRUCTION AS DETERMINED BY SECTION 602 AND THE OCCUPANCIES AS DETERMINED BY SECTION 302. **ANALYSIS: THE PROPOSED BUILDING SIZE IS LESS THAN THE ALLOWABLE AREA IN THE TABLE FOR THE PROPOSED WOOD CONSTRUCTION TYPE (VB).**	
507.2 UNLIMITED AREA BUILDING, NONSPRINKLERED, ONE STORY	THE AREA OF A GROUP F-2 OR S-2 BUILDING NO MORE THAN *ONE STORY* IN HEIGHT SHALL NOT BE LIMITED WHERE THE BUILDING IS SURROUNDED AND ADJOINED BY PUBLIC WAYS OR YARDS NOT LESS THAN 60 FEET IN WIDTH. **ANALYSIS: ACCORDING TO IBC 2012 THIS BUILDING WOULD NOT REQUIRE AN AUTOMATIC SPRINKLER SYSTEM. HOWEVER, DUE TO THE WAUCONDA FIRE PROTECTION DISTRICT'S LOCAL AMENDMENTS, ANY NEW BUILDING MUST HAVE AN APPROVED AUTOMATIC SPRINKLER SYSTEM. *THIS BUILDING WILL INCLUDE AN AUTOMATIC SPRINKLER SYSTEM WITH SYSTEM PERFORMANCE LIMITATIONS DEFINED BY THE WAUCONDA FIRE PROTECTION DISTRICT.***	
508.3 NON-SEPARATED OCCUPANCIES	BUILDINGS OR PORTIONS OF BUILDINGS THAT COMPLY WITH THE PROVISIONS OF THIS SECTION SHALL BE CONSIDERED AS NONSEPARATED OCCUPANCIES.	
508.3.3 SEPARATION	NO SEPARATION IS REQUIRED BETWEEN NONSEPARATED OCCUPANCIES. **ANALYSIS: REVIEWING THE TWO OCCUPANCIES, GROUP B (OFFICE, CONFERENCE ROOM, LOCKER ROOMS) AND GROUP S-2 (VEHICLE GARAGE), IT WAS DETERMINED THAT THIS BUILDING WOULD BE CLASSIFIED AS A GROUP S-2 OCCUPANCY BUILDING (AS THE MOST RESTRICTIVE USE GROUP) AS NO SEPARATION IS REQUIRED BETWEEN NONSEPARATED OCCUPANCIES.**	

CHAPTER 6 TYPES OF CONSTRUCTION

TABLE 601 FIRE-RESISTANCE RATING REQUIREMNETS FOR BUILDING ELEMENTS (HOURS)

BUILDING ELEMENTS	TYPE VB
PRIMARY STRUCTURAL FRAME	0 HR.
BEARING WALLS	0 HR.
EXTERIOR	0 HR.
INTERIOR	0 HR.
NON-BEARING WALLS AND PARTITIONS - EXTERIOR	SEE TABLE 602
NON-BEARING WALLS AND PARTITIONS - INTERIOR	0 HR.
FLOOR CONSTRUCTION AND ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0 HR.
ROOF CONSTRUCTION AND ASSOCIATED SECONDARY STRUCTURAL MEMBERS	0 HR.

ANALYSIS / SUMMARY: THE BUILDING WILL BE CONSTRUCTED OF WOOD WITH NO FIRE-RATINGS REQUIRED IN ACCORDANCE WITH THE TABLE ABOVE.

CHAPTER 9 - FIRE PROTECTION SYSTEMS

CODE REFERENCE:	DESCRIPTION:
903.2 WHERE REQUIRED	APPROVED *AUTOMATIC SPRINKLER SYSTEMS* IN NEW BUILDINGS SHALL BE PROVIDED IN THE LOCATIONS DESCRIBED IN SECTIONS 903.2.1 THROUGH 903.2.12, AND AS REQUIRED BY THE WAUCONDA FIRE PROTECTION DISTRICT.
903.2.10 GROUP S-2 ENCLOSED PARKING GARAGES	AN *AUTOMATIC SPRINKLER SYSTEM* SHALL BE PROVIDED THROUGHOUT BUILDINGS CLASSIFIED AS ENCLOSED PARKING GARAGES IN ACCORDANCE WITH SECTION 406.4. AS FOLLOWS: 1. WHERE THE FIRE AREA OF THE ENCLOSED PARKING GARAGE EXCEEDS 12,000 SQUARE FEET. 2. WHERE THE ENCLOSED PARKING GARAGE IS LOCATED BENEATH OTHER GROUPS. **ANALYSIS: THE BUILDING DOES NOT EXCEED 12,000 SQUARE FEET FOR THE PARKING GARAGE PORTION, AND THE PARKING GARAGE PORTION IS NOT LOCATED BENEATH OTHER GROUPS. A FIRE SPRINKLER SYSTEM MEETING WAUCONDA FIRE PROTECTION DISTRICT'S REQUIREMENTS AND SPECIFICATIONS IS BEING PROVIDED BUT OTHERWISE IS NOT REQUIRED DUE TO THE SMALL SIZE OF THE BUILDING.**

CHAPTER 10 - MEANS OF EGRESS

CODE REFERENCE:	DESCRIPTION:
1015.1 EXITS OR EXIT ACCESS DOORWAYS FROM SPACES.	TWO *EXITS OR EXIT ACCESS DOORWAYS* FROM ANY SPACE SHALL BE PROVIDED WHERE ONE OF THE FOLLOWING CONDITIONS EXIST: 1. THE OCCUPANT LOAD OF THE SPACES EXCEEDS ONE OF THE VALUES IN TABLE 1015.1. **ANALYSIS: THE OCCUPANT LOAD OF THE ENTIRE BUILDING (S-2 OCCUPANCY) EXCEEDS THAT LISTED IN TABLE 1015.1 (29 OCCUPANTS) SO A MINIMUM OF TWO (2) EXITS IS REQUIRED. REFER TO EGRESS PLAN ABOVE; A TOTAL OF SIX (6) EXITS HAS BEEN PROVIDED. THIS SECTION ALSO APPLIES TO CONFERENCE / LUNCH ROOM 102 WHERE ONLY ONE EXIT ACCESS DOORWAY HAS BEEN PROVIDED DUE TO THE OCCUPANT LOAD OF 27.**
TABLE 1016.2 EXIT ACCESS TRAVEL DISTANCE	EXIT ACCESS TRAVEL DISTANCE SHALL NOT EXCEED THE VALUES GIVEN IN TABLE 1016.2. THE TABULAR VALUE FOR A NON-SPRINKLERED S-2 OCCUPANCY IS 300'-0". **ANALYSIS: THE BUILDING IS PLANNED TO BE FULLY SPRINKLERED WITH PERFORMANCE MEETING WAUCONDA FIRE PROTECTION DISTRICT STANDARDS ONLY. THIS IS NOT PLANNED TO BE A FULLY COMPLIANT NFPA 13 SYSTEM. FOR THIS REASON, THE INCREASED EXIT ACCESS TRAVEL DISTANCE PERMITTED WITH FIRE SPRINKLERS WAS NOT USED IN THE DESIGN OF THE BUILDING. AS THE ABOVE PLAN EXHIBIT INDICATES, EXIT ACCESS IS ACCOMPLISHED FROM ALL SPACES WITH TRAVEL DISTANCES FAR BELOW THE MAXIMUM TRAVEL DISTANCE OF 300'-0".**

CODE ANALYSIS — 4

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APRIL 2023
Drawn LMT / JAO
Checked MCR

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

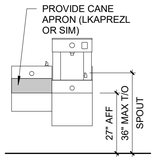
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

EGRESS PLAN & BUILDING CODE SUMMARY

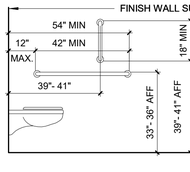
G1.2

THIS FACILITY SHALL COMPLY WITH THE 2017 ADA STANDARDS FOR ACCESSIBLE DESIGN, ICC / ANSI A117.1 "ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES", AND THE ILLINOIS ACCESSIBILITY CODE. THE FOLLOWING ARE ABBREVIATED REQUIREMENTS FROM THESE PUBLICATIONS. REFER TO THE PUBLICATIONS FOR COMPLETE REQUIREMENTS.

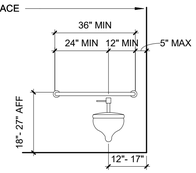
ALL SECTION REFERENCES REFER TO THE ICC/ANSI A117.1.



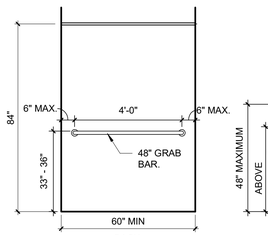
HI/LO ACCESSIBLE ELECTRIC WATER COOLER (EWC) WITH BOTTLE FILLER



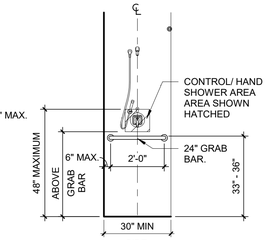
42" GRAB BAR WITH 18" VERTICAL GRAB BAR



ONE PIECE 36" GRAB BAR W/ USE OF REVEALED FLUSH VALVE CHILDREN'S HEIGHT

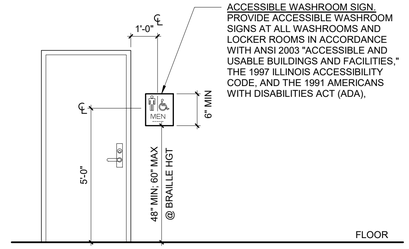


BACK WALL WITH 48" GRAB BAR



SIDE WALL WITH CONTROLS

ADA ROLL-IN SHOWER



ACCESSIBLE DRINKING FOUNTAINS

GENERAL:
ACCESSIBLE DRINKING FOUNTAINS SHALL COMPLY WITH SECTIONS 602 AND 307.

CLEAR FLOOR SPACE: (ADULT SITTING ACCESSIBLE)
A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305, POSITION AN ADULT FOR A FORWARD APPROACH TO THE DRINKING FOUNTAIN, SHALL BE PROVIDED. KNEE AND TOE SPACE COMPLYING WITH SECTION 306 SHALL BE PROVIDED. THE CLEAR FLOOR SPACE SHALL BE CENTERED ON THE DRINKING FOUNTAIN.

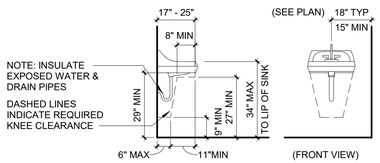
OPERABLE PARTS: (ADULT SITTING ACCESSIBLE AND STANDING)
OPERABLE PARTS SHALL COMPLY WITH SECTION 309.

SPOUT OUTLET HEIGHT: (ADULT SITTING ACCESSIBLE AND STANDING)
SPOUT OUTLETS OF AN ADULT WHEELCHAIR ACCESSIBLE DRINKING FOUNTAINS SHALL BE 36 INCHES MAXIMUM ABOVE THE FLOOR. SPOUT OUTLETS OF DRINKING FOUNTAINS FOR STANDING PERSONS SHALL BE 38 INCHES MINIMUM AND 43 INCHES MAXIMUM ABOVE THE FLOOR.

SPOUT LOCATION: (ADULT SITTING ACCESSIBLE AND STANDING)
THE SPOUT SHALL BE LOCATED 15 INCHES MINIMUM FROM THE VERTICAL SUPPORT (SITTING ONLY) AND 5 INCHES MAXIMUM FROM THE FRONT EDGE OF THE DRINKING FOUNTAIN, INCLUDING BUMPERS.

WATER FLOW: (ADULT SITTING AND STANDING)
THE SPOUT SHALL PROVIDE A FLOW OF WATER 4 INCHES MINIMUM IN HEIGHT. THE ANGLE OF THE WATER STREAM FROM SPOUTS WITHIN 3 INCHES OF THE FRONT OF THE DRINKING FOUNTAIN SHALL BE 30 DEGREES MAXIMUM, AND FROM SPOUTS BETWEEN 3 INCHES AND 5 INCHES FROM THE FRONT OF THE DRINKING FOUNTAIN SHALL BE 15 DEGREES MAXIMUM, MEASURED HORIZONTALLY RELATIVE TO THE FRONT FACE OF THE DRINKING FOUNTAIN.

BOTTLE FILLING STATIONS:
BOTTLE FILLING STATIONS SHALL COMPLY WITH SECTIONS 602.
WHERE BOTTLE FILLING STATIONS ARE PART OF THE DRINKING FOUNTAIN FOR PERSONS WHO ARE STANDING, THE BOTTLE FILLING STATION IS NOT REQUIRED TO COMPLY WITH THIS SECTION PROVIDED A BOTTLE FILLING STATION IS LOCATED AT THE DRINKING FOUNTAIN FOR PERSONS USING WHEELCHAIRS. A CLEAR FLOOR SPACE POSITIONED FOR A FORWARD OR SIDE APPROACH SHALL BE PROVIDED. CONTROLS FOR BOTTLE FILLING STATIONS SHALL BE HAND OPERATED OR AUTOMATIC. HAND OPERATED CONTROLS SHALL COMPLY WITH SECTION 309.



WALL MOUNTED LAVATORY

ACCESSIBLE LAVATORIES

GENERAL: LAVATORIES AND SINKS SHALL COMPLY WITH SECTION 606.

CLEAR FLOOR SPACE:
A CLEAR FLOOR SPACE COMPLYING WITH SECTION 305.3, POSITIONED FOR FORWARD APPROACH, SHALL BE PROVIDED. KNEE AND TOE CLEARANCES COMPLYING WITH SECTION 306 SHALL BE PROVIDED. THE DIP OF THE OVERFLOW SHALL NOT BE CONSIDERED IN DETERMINING KNEE AND TOE CLEARANCES.

HEIGHT:
THE FRONT OF LAVATORIES AND SINKS SHALL BE 34 INCHES MAXIMUM ABOVE THE FLOOR, MEASURED TO THE HIGHER OF THE RIM OR COUNTER SURFACE.

FAUCETS:
FAUCETS SHALL COMPLY WITH SECTION 309. HAND-OPERATED METERING FAUCETS SHALL REMAIN OPEN FOR 10 SECONDS MINIMUM.

EXPOSED PIPES AND SURFACES:
WATER SUPPLY AND DRAINPIPES UNDER LAVATORIES AND SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES AND SINKS.

ACCESSIBLE WATER CLOSETS

GENERAL:
TOILET AND BATHING ROOMS SHALL COMPLY WITH SECTION 603.

LOCATION:
THE WATER CLOSET SHALL BE LOCATED WITH A WALL OR PARTITION TO THE REAR AND TO ONE SIDE. THE CENTERLINE OF THE WATER CLOSET SHALL BE 16 INCHES MINIMUM TO 18 INCHES MAXIMUM FROM THE SIDE WALL OR PARTITION.

HEIGHT:
THE HEIGHT OF THE WATER CLOSET SEATS SHALL BE 17 INCHES MINIMUM AND 19 INCHES MAXIMUM ABOVE THE FLOOR, MEASURED TO THE TOP OF THE SEAT. SEATS SHALL NOT BE SPRUNG TO RETURN TO A LIFTED POSITION.

GRAB BARS:
GRAB BARS FOR WATER CLOSETS SHALL BE PROVIDED ON THE REAR WALL AND ON THE SIDE WALL CLOSEST TO THE WATER CLOSET.

FIXED SIDE WALL GRAB BARS:
FIXED SIDE WALL GRAB BARS SHALL BE 42 INCHES MINIMUM IN LENGTH, LOCATED 12 INCHES MAXIMUM FROM THE REAR WALL AND EXTENDING 54 INCHES MINIMUM FROM THE REAR WALL. IN ADDITION, A VERTICAL GRAB BAR 18 INCHES MINIMUM IN LENGTH SHALL BE MOUNTED WITH THE BOTTOM OF THE BAR LOCATED BETWEEN 39 INCHES AND 41 INCHES ABOVE THE FLOOR, AND WITH THE CENTER LINE OF THE BAR LOCATED BETWEEN 39 INCHES AND 41 INCHES FROM THE REAR WALL.

REAR WALL GRAB BARS:
THE REAR WALL GRAB BAR SHALL BE 36 INCHES MINIMUM IN LENGTH, AND EXTEND FROM THE CENTERLINE OF THE WATER CLOSET 12 INCHES MINIMUM ON THE SIDE CLOSET TO THE WALL, AND 24 INCHES MINIMUM ON THE TRANSFER SIDE. WHERE ADMINISTRATIVE AUTHORITY REQUIRES FLUSH CONTROLS FOR FLUSH VALVES TO BE LOCATED IN A POSITION THAT CONFLICTS WITH THE LOCATION OF THE REAR GRAB BAR, THAT GRAB BAR SHALL BE PERMITTED TO BE SPLIT OR SHIFTED TO THE OPEN SIDE OF THE TOILET AREA. SHALL COMPLY WITH SECTIONS 609 AND 604.

FLUSH CONTROLS:
FLUSH CONTROLS SHALL BE HAND OPERATED OR AUTOMATIC. HAND OPERATED FLUSH CONTROLS SHALL COMPLY WITH SECTION 309 AND BE LOCATED ON THE OPEN SIDE OF THE WATER CLOSET.

DISPENSERS:
TOILET PAPER DISPENSERS SHALL BE 7 INCHES MINIMUM AND 9 INCHES MAXIMUM IN FRONT OF THE WATER CLOSET. THE OUTLET OF THE DISPENSER SHALL BE 15 INCHES MINIMUM AND 48 INCHES MAXIMUM ABOVE THE FLOOR. THERE SHALL BE A CLEARANCE OF 1-1/2 INCHES MINIMUM BELOW AND 12 INCHES MAXIMUM ABOVE THE GRAB BAR. DISPENSERS SHALL NOT BE OF A TYPE THAT CONTROL DELIVERY, OR THAT DO NOT ALLOW CONTINUOUS PAPER FLOW.

COMPARTMENTS:
THE MINIMUM AREA OF A WHEELCHAIR ACCESSIBLE COMPARTMENT SHALL BE 60 INCHES MINIMUM IN WIDTH MEASURED PERPENDICULAR TO THE SIDE WALL, AND 56 INCHES MINIMUM IN DEPTH FOR WALL HUNG WATER CLOSETS, AND 59 INCHES MINIMUM IN DEPTH FOR FLOOR MOUNTED WATER CLOSETS MEASURED PERPENDICULAR TO THE REAR WALL. ARCHITECT TO CONFIRM.

DOORS- ARCHITECT TO CONFIRM
WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT DOORS, INCLUDING DOOR HARDWARE, SHALL COMPLY WITH SECTION 404. THE DOOR SHALL BE SELF-CLOSING. A DOOR PULL COMPLYING WITH SECTION 404.2.6 SHALL BE PLACED ON BOTH SIDES OF THE DOOR NEAR THE LATCH. WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT DOORS SHALL NOT SWING INTO THE REQUIRED MINIMUM AREA OF THE COMPARTMENT.

DOOR OPENING LOCATION:
THE FARTHEST EDGE OF THE WHEELCHAIR ACCESSIBLE TOILET COMPARTMENT DOOR OPENING SHALL BE LOCATED IN THE FRONT WALL OR PARTITION OR IN THE SIDE WALL OR PARTITION AS REQUIRED BY TABLE 604.9.3.1.

TOE CLEARANCE:
THE FRONT PARTITION AND AT LEAST ONE SIDE PARTITION SHALL PROVIDE A TOE CLEARANCE OF 12 INCHES MINIMUM ABOVE THE FLOOR AND EXTENDING 8 INCHES BEYOND THE COMPARTMENT SIDE FACE OF THE PARTITION, EXCLUSIVE OF PARTITION SUPPORT MEMBERS.

CLEARANCE:
CLEARANCE AROUND A WATER CLOSET SHALL BE 60 INCHES MINIMUM IN WIDTH, MEASURED PERPENDICULAR FROM THE SIDE WALL. CLEARANCE AROUND THE WATER CLOSET SHALL BE 56 IN INCHES MINIMUM IN DEPTH, MEASURED PERPENDICULAR FROM THE REAR WALL. THE REQUIRED CLEARANCE AROUND THE WATER CLOSET SHALL BE PERMITTED TO OVERLAP THE WATER CLOSET, ASSOCIATED GRAB BARS, PAPER DISPENSERS, SANITARY NAPKIN RECEPTACLES, COAT HOOKS, SHELVES, ACCESSIBLE ROUTES, CLEAR FLOOR SPACE AT OTHER FIXTURES AND THE TURNING SPACE. NO OTHER FIXTURES OR OBSTRUCTIONS SHALL BE WITHIN THE REQUIRED WATER CLOSET CLEARANCE.

ACCESSIBLE ROLL-IN SHOWERS

GENERAL:
ACCESSIBLE SHOWER COMPARTMENTS SHALL COMPLY WITH SECTION 608.

SIZE AND CLEARANCES:
TRANSFER-TYPE SHOWER COMPARTMENTS SHALL HAVE A CLEAR INSIDE DIMENSION OF 36 INCHES IN WIDTH AND 36 INCHES IN DEPTH, MEASURED AT THE CENTER POINT OF OPPOSING SIDES. AN ENTRY 36 INCHES MINIMUM IN WIDTH SHALL BE PROVIDED, A CLEARANCE OF 48 INCHES MINIMUM IN LENGTH MEASURED PERPENDICULAR FROM THE CONTROL WALL, AND 36 INCHES MINIMUM IN DEPTH SHALL BE PROVIDED ADJACENT TO THE OPEN FACE OF THE COMPARTMENT.

HORIZONTAL GRAB BAR:
HORIZONTAL GRAB BARS SHALL BE PROVIDED ACROSS THE CONTROL WALL AND ON THE BACK WALL TO A POINT 18 INCHES FROM THE CONTROL WALL.

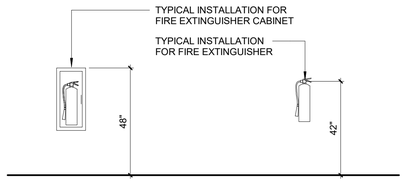
VERTICAL GRAB BAR:
A VERTICAL GRAB BAR 18 INCHES MINIMUM IN LENGTH SHALL BE PROVIDED ON THE CONTROL END WALL 3 INCHES MINIMUM TO 6 MAXIMUM ABOVE THE HORIZONTAL GRAB BAR, AND 4 INCHES MAXIMUM INWARD FROM THE FRONT EDGE OF THE SHOWER.

SHOWER COMPARTMENT SEAT:
THE HEIGHT OF THE SEAT SHALL BE 17 INCHES MINIMUM AND 19 INCHES MAXIMUM ABOVE THE BATHROOM FLOOR, MEASURED TO THE TOP OF THE SEAT. THE SEAT SHALL EXTEND ALONG THE SEAT WALL TO A POINT WITHIN 3 INCHES OF THE COMPARTMENT ENTRY.

CONTROLS AND HAND SHOWERS:
THE CONTROLS AND HAND SHOWER SHALL BE LOCATED ON THE CONTROL WALL OPPOSITE THE SEAT, 38 INCHES MINIMUM AND 48 INCHES MAXIMUM ABOVE THE SHOWER FLOOR, WITHIN 15 INCHES, LEFT OR RIGHT, OF THE CENTERLINE OF THE SEAT.

HAND SHOWERS:
A HAND SHOWER WITH A HOSE 59 INCHES MINIMUM IN LENGTH, THAT CAN BE USED BOTH AS A FIXED SHOWER HEAD AND AS A HAND SHOWER, SHALL BE PROVIDED. THE HAND SHOWER SHALL HAVE A CONTROL WITH A NONPOSITIVE SHUT-OFF FEATURE. AN ADJUSTABLE-HEIGHT SHOWER HEAD MOUNTED ON A VERTICAL BAR SHALL BE INSTALLED SO AS TO NOT OBSTRUCT THE USE OF GRAB BARS.

THRESHOLDS:
DO NOT PROVIDE A THRESHOLD. DEPRESS THE CONCRETE SLAB 2" TO RECEIVE THE PREMOLDED ACCESSIBLE SHOWER BASE, WHICH SHALL MEET THE ADJACENT FLOOR FLUSH.



FIRE EXTINGUISHERS

MOUNTING:
FIRE EXTINGUISHERS SHALL BE RECESSED, SEMI-RECESSED (WITH NO MORE THAN A PROJECTION OF 4-INCHES), OR SURFACE MOUNTED, AS INDICATED ON THE DRAWINGS. IF SURFACE MOUNTED, A CANE DETECTABLE BARRIER SHALL BE PROVIDED BELOW 27" AND THE WIDTH OF THE FIRE EXTINGUISHER.

ACCESSIBLE SIGNAGE

GENERAL:
ACCESSIBLE SIGNS SHALL COMPLY WITH SECTION 703.

VISUAL CHARACTERS, CASE, STYLE, CHARACTER HEIGHT, CHARACTER WIDTH, STROKE WIDTH, CHARACTER SPACING, LINE SPACING, HEIGHT ABOVE FLOOR, AND FINISH AND CONTRAST SHALL COMPLY WITH SECTION 703.2.

TACTILE CHARACTERS, DEPTH, CASE, STYLE, CHARACTER HEIGHT, CHARACTER WIDTH, STROKE WIDTH, CHARACTER SPACING, LINE SPACING, HEIGHT ABOVE FLOOR, AND FINISH AND CONTRAST SHALL COMPLY WITH SECTION 703.3.

BRAILLE UPPERCASE LETTERS, DIMENSIONS, POSITION, AND MOUNTING HEIGHT SHALL COMPLY WITH SECTION 703.4.

THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL COMPLY WITH SECTION 703.6.

ACCESSIBLE COAT HOOKS

AT LEAST 5% OF EACH TYPE OF COAT HOOKS SHALL BE ACCESSIBLE. PROVIDE ACCESSIBLE COAT HOOK(S) NO HIGHER THAN 48" AFF FOR FORWARD REACH OVER AN OBJECT NO DEEPER THAN 20", AND FOR A SIDE REACH OF 48" AFF OVER AN OBJECT NO DEEPER THAN 10". AN ACCESSIBLE 30X48" CLEAR FLOOR SPACE SHALL BE PROVIDED AT ACCESSIBLE COAT HOOKS. REFER TO THE OVERALL FLOOR PLANS AND KEYNOTES, ENLARGED FLOOR PLANS, INTERIOR ELEVATIONS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING ACCESSIBLE COAT HOOKS.

ACCESSIBLE LOCKERS

AT LEAST 5% OF EACH TYPE OF LOCKER SHALL BE ACCESSIBLE. PROVIDE A COAT HOOK AND SHELF NO HIGHER THAN 48" AFF FOR A SIDE OR FRONT APPROACH. THE BASE SHALL BE NO LOWER THAN 15" AND PROVIDE ACCESSIBLE DOOR HARDWARE. AN ACCESSIBLE 30X48" CLEAR FLOOR SPACE SHALL BE PROVIDED AT ACCESSIBLE LOCKERS. ACCESSIBLE LOCKERS SHALL BE LOCATED NEAR ACCESSIBLE BENCHES. REFER TO THE OVERALL FLOOR PLANS AND KEYNOTES, ENLARGED FLOOR PLANS, INTERIOR ELEVATIONS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING ACCESSIBLE LOCKERS.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
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27139 FOREST PRESERVE ROAD
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WA No. 2020-008
Date 06 APRIL 2023
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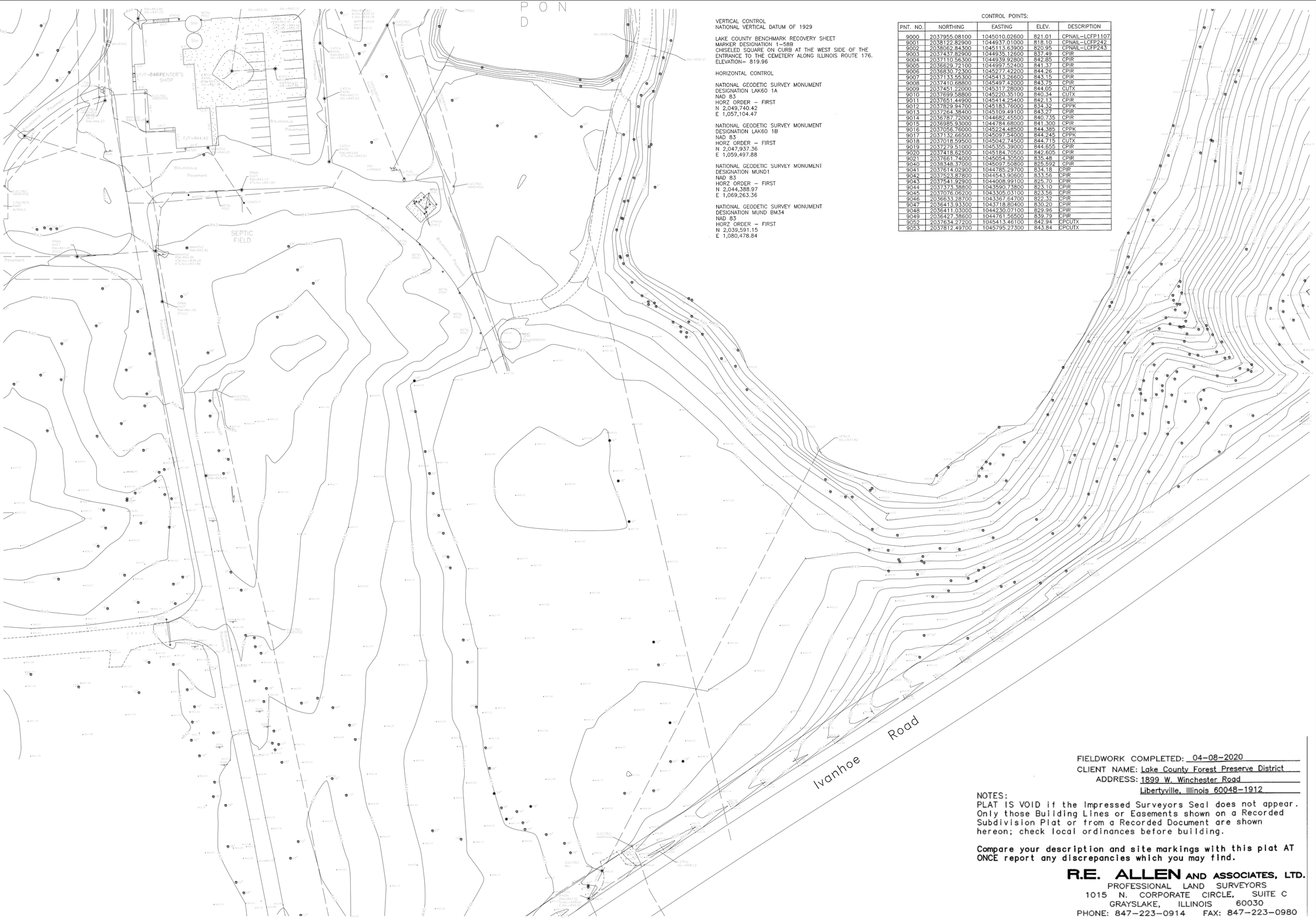
REVISIONS

NO.	DATE	DESCRIPTION

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

ACCESSIBILITY GENERAL NOTES

G1.3



VERTICAL CONTROL
NATIONAL VERTICAL DATUM OF 1929

LAKE COUNTY BENCHMARK RECOVERY SHEET
MARKER DESIGNATION 1-588
CHISELED SQUARE ON CURB AT THE WEST SIDE OF THE ENTRANCE TO THE CEMETERY ALONG ILLINOIS ROUTE 176.
ELEVATION= 819.96

HORIZONTAL CONTROL

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION LAK60 1A
NAD 83
HORZ ORDER - FIRST
N 2,049,740.42
E 1,057,104.47

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION LAK60 1B
NAD 83
HORZ ORDER - FIRST
N 2,047,937.36
E 1,059,497.88

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION MUND1
NAD 83
HORZ ORDER - FIRST
N 2,044,388.97
E 1,069,263.36

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION MUND BM34
NAD 83
HORZ ORDER - FIRST
N 2,039,591.15
E 1,080,478.84

CONTROL POINTS:

PNT. NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
9000	2037955.08100	1045010.02600	821.01	CPNAIL-LCFP1107
9001	2038122.82900	1044937.01000	818.10	CPNAIL-LCFP242
9002	2038062.84300	1045113.63900	820.95	CPNAIL-LCFP243
9003	2037437.82900	1044935.12600	837.49	CPIR
9004	2037110.56300	1044939.92800	842.85	CPIR
9005	2036829.72100	1044997.52400	841.37	CPIR
9006	2036830.72300	1045277.42200	844.26	CPIR
9007	2037133.55300	1045413.26600	843.15	CPIR
9008	2037410.68800	1045497.42000	843.75	CPIR
9009	2037451.22000	1045317.28000	844.05	CUTX
9010	2037699.58800	1045220.35100	840.34	CUTX
9011	2037651.44900	1045414.25400	842.13	CPIR
9012	2037829.94700	1045183.76000	834.32	CPPK
9013	2037264.38400	1045109.49100	843.27	CPIR
9014	2036787.77000	1044682.45500	840.735	CPIR
9015	2036985.93000	1044784.68000	841.300	CPIR
9016	2037056.76000	1045224.48500	844.385	CPPK
9017	2037132.66500	1045097.54000	844.245	CPPK
9018	2037018.59500	1045042.74500	844.715	CUTX
9019	2037279.51000	1045355.39000	844.655	CPIR
9020	2037418.62500	1045184.70500	842.605	CPIR
9021	2037661.74000	1045054.30500	835.48	CPIR
9040	2038348.37000	1045097.50800	825.592	CPIR
9041	2037614.02900	1044785.29700	834.18	CPIR
9042	2037623.87800	1044543.90600	833.56	CPIR
9043	2037541.92900	1044008.99100	825.70	CPIR
9044	2037373.38800	1043590.73800	823.10	CPIR
9045	2037076.06200	1043305.03100	823.56	CPIR
9046	2036633.28700	1043367.64700	822.32	CPIR
9047	2036413.93300	1043718.80400	830.20	CPIR
9048	2036411.03000	1044230.07100	829.96	CPIR
9049	2036427.38600	1044761.56500	839.79	CPIR
9052	2037634.27200	1045413.46100	842.94	CPCUTX
9053	2037812.49700	1045795.27300	843.84	CPCUTX

FIELDWORK COMPLETED: 04-08-2020
CLIENT NAME: Lake County Forest Preserve District
ADDRESS: 1899 W. Winchester Road
Libertyville, Illinois 60048-1912

NOTES:
PLAT IS VOID if the Impressed Surveyors Seal does not appear. Only those Building Lines or Easements shown on a Recorded Subdivision Plat or from a Recorded Document are shown hereon; check local ordinances before building.

Compare your description and site markings with this plat AT ONCE report any discrepancies which you may find.

R.E. ALLEN AND ASSOCIATES, LTD.
PROFESSIONAL LAND SURVEYORS
1015 N. CORPORATE CIRCLE, SUITE C
GRAYSLAKE, ILLINOIS 60030
PHONE: 847-223-0914 FAX: 847-223-0980

OWNER PROVIDED TOPOGRAPHICAL SURVEY

SCALE: 1" = 40'-0"

4

FOR REFERENCE ONLY

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APRIL 2023
Drawn JAO
Checked MCR

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

OWNER PROVIDED SURVEY

G1.4

J.U.L.I.E
JOINT UTILITY LOCATION INFORMATION FOR EXCAVATION
CALL 811

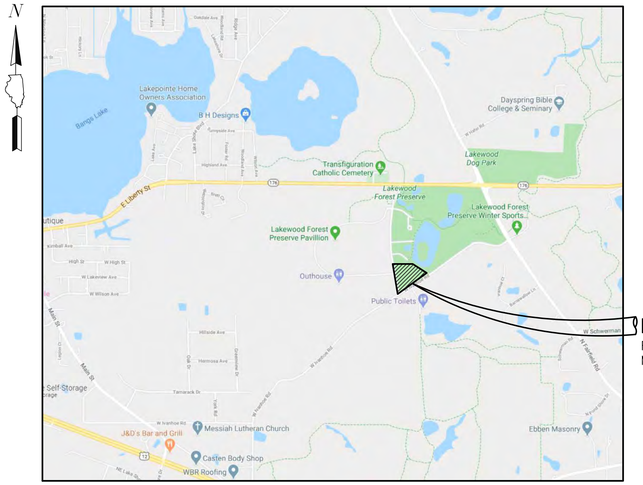
811 Know what's below. Call before you dig.

SITE IMPROVEMENT PLANS FOR
LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
MUNDELEIN, ILLINOIS

NOTE: CONSTRUCTION MEANS, METHODS AND JOB SITE SAFETY IS THE SOLE AND EXCLUSIVE RESPONSIBILITY OF THE CONTRACTOR

STANDARD SYMBOLS

FEATURE	EXISTING	PROPOSED
BUFFALO BOX		
BUSH/SHRUB		
CATCH BASIN		
CLEANOUT	CO	C.O.
COMBINE SEWER LINE		
CONTOUR	708	708
CULVERT		
DITCH/SWALE		
ELECTRIC LINE	E	E
ELECTRIC MANHOLE		
FENCE	X X X X	X X X X
FIRE HYDRANT		
FLARED END SECTION		
GAS LINE	G	G
GAS MANHOLE		
GAS VALVE		
INLET		
LIGHT POLE		
OVERHEAD WIRES	A	A
POWER POLE		
R.O.W LINE		
R.O.W MARKER		
SANITARY FORCEMAIN LINE		
SANITARY SEWER LINE		
SANITARY SEWER MANHOLE		
SIGN		
SPOT ELEVATION	×850.00	×850.0
STORM SEWER LINE		
STORM SEWER MANHOLE		
TELEPHONE LINE	T	T
TELEPHONE MANHOLE		
TELEPHONE BOX/PEDESTAL		
TREE–CONIFEROUS (SIZE/TAG#)	345	345
TREE–DECIDUOUS (SIZE/TAG#)	12"	12"
VALVE BOX		
VALVE VAULT		
WATER VALVE		
WATERMAIN LINE	W	W



PROJECT LOCATION
FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS

LOCATION MAP
(Not to Scale)

SHEET INDEX

C1.0 TITLE SHEET
C2.0 EXISTING CONDITIONS/DEMOLITION PLAN
C3.0 GEOMETRIC & UTILITY PLAN
C4.0 GRADING PLAN
C5.0 SOIL EROSION AND SEDIMENT CONTROL PLAN
C6.0 STORMWATER POLLUTION PREVENTION PLAN NOTES
C7.0 SOIL EROSION AND SEDIMENT CONTROL DETAILS
C8.0 GENERAL NOTES & DETAILS
C9.0 DETAILS
C10.0 SEPTIC SYSTEM DESIGN

TOPOGRAPHIC SURVEY BY:
R.E. ALLEN AND ASSOCIATES, LTD.
1015 N. CORPORATE CIRCLE, SUITE C
GRAYSLAKE, ILLINOIS 60030
TELEPHONE: 847–223–0914

PROFESSIONAL DESIGN FIRM LICENSE:
GEWALT HAMILTON ASSOCIATES, INC.
DESIGN FIRM – LAND SURVEYOR/PROF ENG
LICENSE NUMBER: 184.000922–0010
EXPIRES: 4/30/2021

PLANS PREPARED FOR:
LAKE COUNTY FOREST PRESERVES
1899 W. WINCHESTER RD
LIBERTYVILLE, ILLINOIS 60048
TELEPHONE: 847–367–6640

COORDINATING/PERMITTING AGENCIES:

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION	1–847–377–7700
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)	1–217–782–0610
LAKE COUNTY HEALTH DEPARTMENT	1–847–377–8000

VERTICAL CONTROL
NATIONAL VERTICAL DATUM OF 1929

LAKE COUNTY BENCHMARK RECOVERY SHEET
MARKER DESIGNATION 1–58B
CHISELED SQUARE ON CURB AT THE WEST SIDE OF THE ENTRANCE TO THE CEMETERY ALONG ILLINOIS ROUTE 176.
ELEVATION= 819.96

HORIZONTAL CONTROL

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION LAK60 1A
NAD 83
HORZ ORDER – FIRST
N 2,049,740.42
E 1,057,104.47

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION LAK60 1B
NAD 83
HORZ ORDER – FIRST
N 2,047,937.36
E 1,059,497.88

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION MUND1
NAD 83
HORZ ORDER – FIRST
N 2,044,388.97
E 1,069,263.36

NATIONAL GEODETIC SURVEY MONUMENT
DESIGNATION MUND BM34
NAD 83
HORZ ORDER – FIRST
N 2,039,591.15
E 1,080,478.84

CONTROL POINTS:

PNT. NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
9000	2037955.08100	1045010.02600	821.01	CPNAIL–LCFP1107
9001	2038122.82900	1044937.01000	818.10	CPNAIL–LCFP242
9002	2038062.84300	1045113.63900	820.95	CPNAIL–LCFP243
9003	2037437.82900	1044935.12600	837.49	CPIR
9004	2037110.56300	1044939.92800	842.85	CPIR
9005	2036629.72100	1044997.52400	841.37	CPIR
9006	2036830.72300	1045277.42200	844.26	CPIR
9007	2037133.55300	1045413.26600	843.15	CPIR
9008	2037410.68800	1045497.42000	843.75	CPIR
9009	2037451.22000	1045317.28000	844.05	CUTX
9010	2037699.58800	1045220.35100	840.34	CUTX
9011	2037651.44900	1045414.25400	842.13	CPIR
9012	2037829.94700	1045183.76000	834.32	CPPK
9013	2037284.38400	1045109.49100	843.27	CPIR
9014	2036787.72000	1044682.45500	840.735	CPIR
9015	2036985.93000	1044784.68000	841.300	CPIR
9016	2037056.76000	1045224.48500	844.385	CPPK
9017	2037132.66500	1045097.54000	844.245	CPPK
9018	2037018.59500	1045042.74500	844.715	CUTX
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9049	2036427.38600	1044761.56500	839.79	CPIR
9052	2037634.27200	1045413.46100	842.94	CPCUTX
9053	2037812.49700	1045795.27300	843.84	CPCUTX

EXISTING UTILITIES: WHEN THE PLANS OR SPECIAL PROVISIONS INCLUDE INFORMATION PERTAINING TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES, SUCH INFORMATION REPRESENTS ONLY THE OPINION OF THE ENGINEER AS TO THE LOCATION OF SUCH UTILITIES AND IS ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THE ENGINEER AND OWNER ASSUME NO RESPONSIBILITY WHATEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES OR THE MANNER IN WHICH THEY ARE TO BE REMOVED OR ADJUSTED. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE ACTUAL LOCATION OF ALL SUCH FACILITIES. HE SHALL ALSO OBTAIN FROM THE RESPECTIVE UTILITY COMPANIES, DETAILED INFORMATION RELATIVE TO THE LOCATION OF THEIR FACILITIES AND THE WORKING SCHEDULES OF THE UTILITY COMPANIES FOR REMOVING OR ADJUSTING THEM.

CONTRACTOR IS RESPONSIBLE FOR CONTACTING J.U.L.I.E. AT 1–800–892–0123 AND MUST ACQUIRE A DIG NUMBER A MINIMUM OF 72 HOURS PRIOR TO ANY WORK BEING DONE.

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FILE: 5588.100 DT1.dwg
DRAWN BY: EJS
DATE: 04–06–23
GHA PROJECT #: 5588.100
CHECKED BY: DEM
DATE: 04–06–23
SCALE: N/A

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
TEL 847.478.9700 ▪ FAX 847.478.9701

ISSUED FOR BID/PERMIT 04-06-2023

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APR 2023
Drawn EJS
Checked DEM

REVISIONS
NO. | DATE | DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

TITLE SHEET

C1.0

SIGNED: _____ P.E.
EDWARD J. SPECKART
DATE: _____
ILLINOIS LICENSE NO.: 062–070391
EXPIRATION DATE: NOVEMBER 30, 2023

REMOVAL LEGEND

- TREE/SHRUB REMOVAL
- PERIMETER EROSION BARRIER
- TREE TRUNK PROTECTION FENCE
- UTILITY TO BE ABANDONED
- UTILITY TO BE REMOVED
- B-110 SOIL BORING
- COIR LOG
- CONSTRUCTION ENTRANCE

EXISTING CONDITION AND DEMOLITION NOTES

1. PRIOR TO STARTING ANY CONSTRUCTION, PROVIDE SOIL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS AND AS REQUIRED PER IEPA NPDES GUIDELINES. REFER TO NOTES AND DETAILS THROUGHOUT THE ENTIRE PLAN SET.
2. PRIOR TO STARTING ANY EXCAVATION WORK, PROVIDE TREE PROTECTION, PRESERVATION AND ROOT PRUNING AS SHOWN ON THE PLANS AND NOTES THROUGHOUT THE ENTIRE PLAN SET.
3. CONTRACTOR SHALL REFER TO SUBSURFACE SOIL EXPLORATION REPORT.
4. IVANHOE ROAD IS UNDER THE JURISDICTION OF WAUCONDA TOMNSHIP. ALL WORK WITHIN THE RIGHT OF WAY WILL REQUIRE A PERMIT.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FENCING THE ACTIVE WORK ZONE FROM THE PUBLIC AND PROTECTING THE PUBLIC FROM ANY CONSTRUCTION RELATED HAZARDS. AT A MINIMUM, ALL EXCAVATION, DEMOLITION AREAS AND OTHER AREAS POTENTIALLY HAZARDOUS TO PEDESTRIANS AND VEHICLES MUST BE PROTECTED.
6. THE EXISTING FACILITIES WILL REMAIN OPEN AND ACTIVELY USED. CONTRACTOR SHALL REFER TO MECHANICAL, ELECTRICAL AND ARCHITECTURAL PLANS AND COORDINATE WITH UTILITY COMPANIES TO ENSURE CONTINUOUS UTILITY SERVICES DURING DEMOLITION AND TRANSITIONING OF SERVICES.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE DEMOLITION AND DISPOSAL OF ALL EXISTING IMPROVEMENTS ONSITE NECESSARY TO COMPLETE THE JOB. THESE IMPROVEMENTS INCLUDE, BUT ARE NOT LIMITED TO, EXISTING PAVEMENTS, CURBS, SIDEWALKS, UTILITIES, LIGHTING, LIGHT BASES, MANHOLES, FENCES, FOUNDATIONS, AND OTHER STRUCTURES WITHIN THE WORK AREA. EXCAVATE AND GRADE TO PROPOSED PAVEMENT AND BUILDING SUBBASE GRADES. (REFER TO FOUNDATION PLANS FOR PROPOSED BUILDING SUBBASE GRADES.) THESE ITEMS SHALL BE COMPLETELY REMOVED AND LEGALLY DISPOSED OF OFFSITE.
8. REMOVE OR ABANDON EXISTING UTILITIES AS SHOWN. UTILITIES THAT ARE REMOVED, UNLESS OTHERWISE NOTED, SHALL BE BACKFILLED WITH CA-6 CRUSHED STONE IN LIFTS OF 8" OR LESS AND COMPACTED TO 95% MODIFIED PROCTOR DENSITY. UTILITIES TO BE ABANDONED SHALL BE PLUGGED AT BOTH ENDS WITH A MINIMUM OF 2 FEET LONG NON-SHRINK CONCRETE/MORTAR PLUGS. MANHOLE STRUCTURES TO BE ABANDONED SHALL HAVE THE TOP SECTION REMOVED, SEWERS BULKHEADED WITH CONCRETE AND BACKFILLED WITH CA-6 CRUSHED STONE.
9. THE CONTRACTOR SHALL INCLUDE ALL ASSOCIATED COSTS WITH THE REMOVAL, TRANSPORT, DISPOSAL, TESTING AND CERTIFICATION OF "UNCONTAMINATED SOIL" AS DEFINED UNDER 415 ILCS 5/3.160 INCLUDING ANY FEES, TAXES, OR SURCHARGES CHARGED BY OR THROUGH THE OPERATOR(S) OF CLEAN CONSTRUCTION OR DEMOLITION DEBRIS FILL OPERATIONS OR UNCONTAMINATED SOIL FILL OPERATIONS FOR THE ACCEPTANCE OF UNCONTAMINATED SOIL.
10. ALL VEGETATION AND LANDSCAPED AREAS NOT SHOWN REMAINING SHALL BE REMOVED AND DISPOSED OF OFFSITE PROPERLY. REFER TO LANDSCAPE PLANS FOR DETAILED INFORMATION ON PLANTING REMOVALS AND TRANSPLANTS
11. CONTRACTOR TO STRIP EXISTING TOPSOIL AND STOCKPILE IN THE LOCATION SHOWN ON THE PLANS. PRIOR TO FINAL PLACEMENT OF TOPSOIL THE TOPSOIL SHALL BE PULVERIZED ON-SITE.
12. EXISTING CONDITION SURVEY PROVIDED BY R.E. ALLEN AND ASSOCIATES, LTD. DATED 04-08-2020.
13. CONTRACTOR TO VERIFY LOCATION AND STATUS OF ABANDONED UTILITIES. CONTRACTOR TO REMOVE ABANDONED UTILITIES AS NEEDED FOR CONSTRUCTION OF IMPROVEMENTS.
14. ALL CONSTRUCTION TRAFFIC MUST ENTER THE SITE FROM HIGHWAY 176. ENTRANCE FROM IVANHOE ROAD IS PROHIBITED.
15. CONTRACTOR SHALL COORDINATE WITH OWNER & CONTSTRUCTION MANAGER FOR ANY PLAN ADJUSTMENTS REQUIRED DUE TO TIMING OF THE SEPARATE PATH & ROADWAY PROJECT.

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FILE: 5588.100 PR1.dwg

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DATE: 04-06-23	
CHECKED BY: DEM	SCALE: N/A
DATE: 04-06-23	

GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
TEL 847.478.9700 ▪ FAX 847.478.9701

SEPARATE PATH & ROADWAY PROJECT (N.I.C.)

STUMP REMOVAL

WATER, ELECTRIC, & GAS SERVICE PREVIOUSLY ABANDONED IN PLACE

Ivanhoe Road

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No.	2020-008
Date	06 APR 2023
Drawn	EJS
Checked	DEM

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

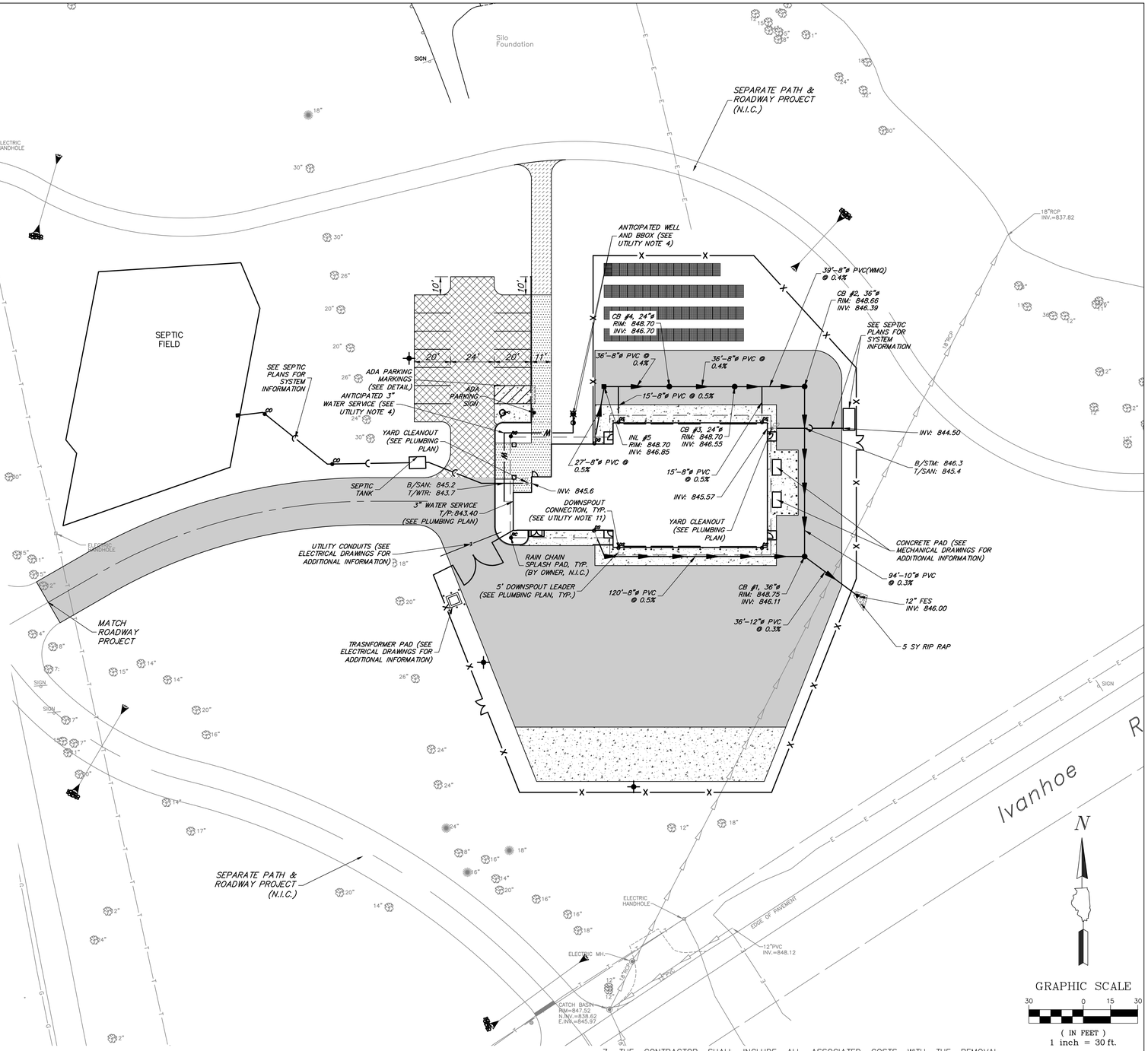
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

EXISTING CONDITIONS & DEMOLITION PLAN

C2.0

PROPOSED LEGEND

- HEAVY DUTY HMA PAVEMENT
- NORTMAL DUTY HMA PAVEMENT
- HMA PATH
- PCC PAVEMENT
- PCC SIDEWALK
- STONE RIP RAP, CLASS A1
- DETECTABLE WARNINGS
- BARRIER CURB
- BARRIER CURB (DEPRESSED)
- FENCE
- SEPTIC PIPE
- PROPOSED STORM SEWER
- STORM CATCHBASIN
- STORM INLET
- SIGN



GEOMETRIC AND PAVING PLAN

1. ALL PAVEMENT DIMENSIONS ARE TO EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED. E=EDGE OF PAVEMENT, B=BACK OF CURB, F=FACE OF CURB. RADII DIMENSIONS ARE TO BACK OF CURB.
2. INSTALL ALL CURB AND SIDEWALK AS SHOWN. NOTE SOME CURBS REQUIRE REVERSE PITCH GUTTER. DOWEL NEW SIDEWALK AND CURB TO EXISTING AND PROPOSED CURBS PER GENERAL NOTES. WHEN CONSTRUCTING A CARRIAGE WALK, THE PROPOSED SIDEWALK CONTRACTION AND EXPANSION JOINTS SHALL ALIGN WITH EXISTING CURB JOINTS.
3. PROVIDE 1.50% CROSS SLOPE AND 4.5% MAXIMUM LONGITUDINAL SLOPE ON ALL SIDEWALKS AND PEDESTRIAN PATH WAYS UNLESS OTHERWISE INDICATED. ILLINOIS ACCESSIBILITY CODE REQUIRES A MAXIMUM CONSTRUCTED CROSS SLOPE OF 2.00% AND LONGITUDINAL SLOPE OF 5.00%.
4. INSTALL BITUMINOUS PAVEMENT AS SHOWN. REFER TO DETAIL SHEET FOR SPECIFIC PAVEMENT SECTIONS AND GENERAL NOTE SHEET FOR CONSTRUCTION, TESTING AND COMPACTION REQUIREMENTS.
5. INSTALL PCC PAVEMENT AS SHOWN. REFER TO DETAIL SHEET FOR SPECIFIC PAVEMENT SECTION AND GENERAL NOTES FOR CONSTRUCTION, TESTING AND COMPACTION REQUIREMENTS.
6. ALL PARKING LOT STALL MARKINGS SHALL BE 4" YELLOW PAINT AND ALL OTHER PARKING LOT PAVEMENT MARKINGS SHALL BE PAINT, COLOR AS NOTED, IN ACCORDANCE WITH SECTION 780 OF THE IDOT STANDARD SPECIFICATIONS. (TWO SINGLE APPLICATIONS, 16 MILS EACH REQUIRED). SITE PAVEMENT MARKING SHALL BE COORDINATED WITH SITE ENGINEER. CONTRACTOR SHALL NOTIFY SITE ENGINEER 48 HRS PRIOR TO INSTALLING PAVEMENT MARKING.
7. FOR HANDICAPPED STALL MARKINGS, REFER TO HANDICAPPED PARKING STALL AND SIGN DIMENSIONING DETAIL.
8. INSTALL NEW SIGNS AND HANDICAPPED PARKING SIGNS USING 2" GALVANIZED SQUARE TUBE POST AND TELESCOPING POST SLEEVE PER IDOT STANDARD.
9. INSTALL TRANSFORMER PAD AS SHOWN. PAD SHALL BE SET 6" ABOVE FINISHED GRADE. REFER TO MEP PLANS FOR FINAL PAD SIZE AND DESIGN REQUIREMENTS.
10. CONTRACTOR SHALL INSTALL TEMPORARY EROSION CONTROL SEED AND BLANKET AS NECESSARY TO MEET SOIL EROSION AND SEDIMENT CONTROL REQUIREMENTS. REFER TO NOTES AND DETAILS THROUGHOUT THE PLAN SET FOR SPECIFIC MATERIAL REQUIREMENTS.
11. FOR FINAL RESTORATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING ALL DISTURBED TURF AREAS AND PROPOSED TURF AREAS AS FOLLOWS:
    a. PRIOR TO PLACEMENT OF TOPSOIL RESTORATION AREA SUBGRADE MATERIAL SHALL BE ROTOTILLED AND RE-COMPACTED TO A MAXIMUM OF 80% STANDARD PROCTOR TO A DEPTH OF 6".
    b. SPREAD A MINIMUM OF 6" OF EXISTING SITE SALVAGED SCREENED TOPSOIL OR NEW PULVERIZED TOPSOIL ON ALL DISTURBED AREAS. COMPACT TO 80% STANDARD PROCTOR.
    c. TOPSOIL MUST BE FREE OF LITTER, BRUSH, ROCKS AND EARTH CLODS OF GREATER THAN 1 INCH IN ANY DIMENSION. CONTAIN BETWEEN 1%-10% ORGANIC MATTER, 12%-50% CLAY, AND LESS THAN 55% SAND CONTENT. PH SHALL BE BETWEEN 6.0 AND 8.0.
    d. RESTORATION TO BE PERFORMED BY OWNER. CONTRACTOR TO MINIMIZE AREAS OF DISTURBANCE TO THE MAXIMUM EXTENT POSSIBLE.
13. ONCE RESTORATION HAS BEEN COMPLETED, THE CONTRACTOR SHALL REMOVE EROSION CONTROL DEVICES. SILT FENCE TRENCHES SHALL BE BACKFILLED AND RESTORED IN KIND. STORM STRUCTURES SHALL BE CLEANED OF DEBRIS.
14. ALL 8" PCC PAVEMENT AND B6.12 CURB AND GUTTER CONTRACTION JOINTS SHALL BE SAWCUT A MINIMUM OF 2" DEEP WITHIN 12 HOURS OF POUR.
15. INSTALL NEW 6 FOOT HIGH CHAIN LINK FENCE AS SHOWN ON THIS PAGE. FENCE FABRIC, LINE POST SPACING AND DIAMETERS TO MATCH 6 FOOT HIGH CHAIN LINK FENCE DETAIL. TOP AND BOTTOM RAIL FOR 6 FOOT HIGH FENCE IS REQUIRED.
16. HOT MIX ASPHALT (HMA) PAVING – AFTER PASSING PROOF ROLL, THE CONTRACTOR SHALL STRING LINE THE PARKING LOT. ANY AREAS THAT DO NOT MEET MINIMUM PAVEMENT CROSS SLOPE (1.0%) WILL BE CORRECTED, RE-COMPACTED AND RE-PROOF ROLLED.
17. CONTRACTOR SHALL COORDINATE WITH OWNER & CONTSTRUCTION MANAGER FOR ANY PLAN ADJUSTMENTS REQUIRED DUE TO TIMING OF THE SEPARATE PATH & ROADWAY PROJECT.

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FILE: 5588.100 PR1.dwg	
DRAWN BY: EJS DATE: 04-06-23	GHA PROJECT # 5588.100
CHECKED BY: DEM DATE: 04-06-23	SCALE: N/A

GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
TEL 847.478.9700 ▪ FAX 847.478.9701

UTILITY PLAN NOTES

1. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO INITIATING WORK. ANY DISCREPANCIES FOUND BETWEEN THE INFORMATION NOTED ON THE PLANS AND ACTUAL FIELD CONDITIONS, OR ANY CONFLICTS WITH PROPOSED IMPROVEMENTS SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. THE CONTRACTOR SHALL NOT PROCEED ANY FURTHER UNTIL GIVEN WRITTEN CLARIFICATION ON HOW TO PROCEED.
2. INSTALL STORM SEWER AS SHOWN. REFER TO STORM SEWER REQUIREMENT TABLE ON GENERAL NOTES SHEET FOR PIPE MATERIAL, JOINT, FRAME AND GRATE, STONE BEDDING AND TESTING REQUIREMENTS.
3. INSTALL SANITARY SEWER AS SHOWN ON THE SEPTIC PLANS. REFER TO SEPTIC PLANS FOR PIPE MATERIAL, JOINT, FRAME AND GRATE, STONE BEDDING AND TESTING REQUIREMENTS.
4. ANTICIPATED WELL & WATER SERVICE LOCATION IS SHOWN ON THE PLANS. FINAL DESIGN TO BE DETERMINED BY A LICENSED WATER WELL DRILLER. REFER TO THE PROJECT SPECIFICATIONS FOR MATERIAL & INSTALLATION REQUIREMENTS.
5. CONTRACTOR SHALL PROVIDE THE FOLLOWING AS-CONSTRUCTED DOCUMENTS AT THE CONCLUSION OF THE PROJECT:
   a. WATER SERVICE
      - AS-CONSTRUCTED LOCATION OF ALL BENDS, TEES, VALVES, COPPER UNIONS, ETC. (MEASURED DIMENSION FROM TWO FIXED ABOVE GRADE OBJECTS ARE REQUIRED FOR BURIED OBJECTS)
      - RIM AND TOP OF PIPE ELEVATIONS FOR ALL STRUCTURES
      - PROVIDE ALL TESTING DOCUMENTATION.
   b. SANITARY SERVICE
      - AS-CONSTRUCTED LOCATIONS OF STRUCTURES, SERVICE CONNECTIONS, CLEANOUTS.
      - RIM AND INVERT ELEVATIONS.
      - PROVIDE ALL TESTING DOCUMENTATION.
   c. STORM SEWER
      - AS-CONSTRUCTED LOCATIONS OF STRUCTURES, SERVICE CONNECTIONS, CLEANOUTS.
      - RIM AND INVERT ELEVATIONS.
6. REFER TO MEP AND ARCHITECTURAL PLANS FOR ELECTRIC AND GAS REQUIREMENTS AND FINAL ROUTING.
7. THE CONTRACTOR SHALL INCLUDE ALL ASSOCIATED COSTS WITH THE REMOVAL, TRANSPORT, DISPOSAL, TESTING AND CERTIFICATION OF "UNCONTAMINATED SOIL" AS DEFINED UNDER 415 ILCS 5/3.160 INCLUDING ANY FEES, TAXES, OR SURCHARGES CHARGED BY OR THROUGH THE OPERATOR(S) OF CLEAN CONSTRUCTION OR DEMOLITION DEBRIS FILL OPERATIONS OR UNCONTAMINATED SOIL FILL OPERATIONS FOR THE ACCEPTANCE OF UNCONTAMINATED SOIL.
8. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE TO ALL INLETS AND CATCHBASINS. AREAS OF SURFACE PONDING SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
9. DRAINAGE, SEWER AND VALVE VAULT RIMS SHALL BE FLUSH WITH ADJACENT FINISHED GRADES. ALL RIM ELEVATION OF STRUCTURES SHALL BE ADJUSTED TO FINISHED GRADE OF ROADWAYS, ISLAND, CURBLINES, ETC. IF A CONFLICT EXISTS, NOTIFY ENGINEER PRIOR TO FINAL ADJUSTMENT OF STRUCTURE ELEVATION.
10. INSTALL CONDUITS AS SHOWN ON ELECTRICAL PLANS. REFER TO ELECTRICAL PLANS FOR CONDUIT AND MANHOLE DETAILS AND BUILDING TERMINATION CONNECTIONS.
11. STORM SEWER LEADER TO CONNECT TO CAST IRON DOWNSPOUT BOOT WITH STAINLESS STEEL NON-SHEER COUPLING. SEE ARCHITECTURAL/PLUMBING PLANS FOR ADDITIONAL INFORMATION FOR THE CAST IRON BOOTS.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No.	2020-008
Date	06 APR 2023
Drawn	EJS
Checked	DEM

REVISIONS		
NO.	DATE	DESCRIPTION

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GEOMETRIC & UTILITY PLAN

C3.0

LEGEND

754.32 ×	SPOT GRADE
754.70 / 754.20	TOP OF CURB/FLOW LINE
0.50% →	SLOPES
----------	SUMMITS
— ··· ← ··· ←	SWALES
846	PROPOSED CONTOUR

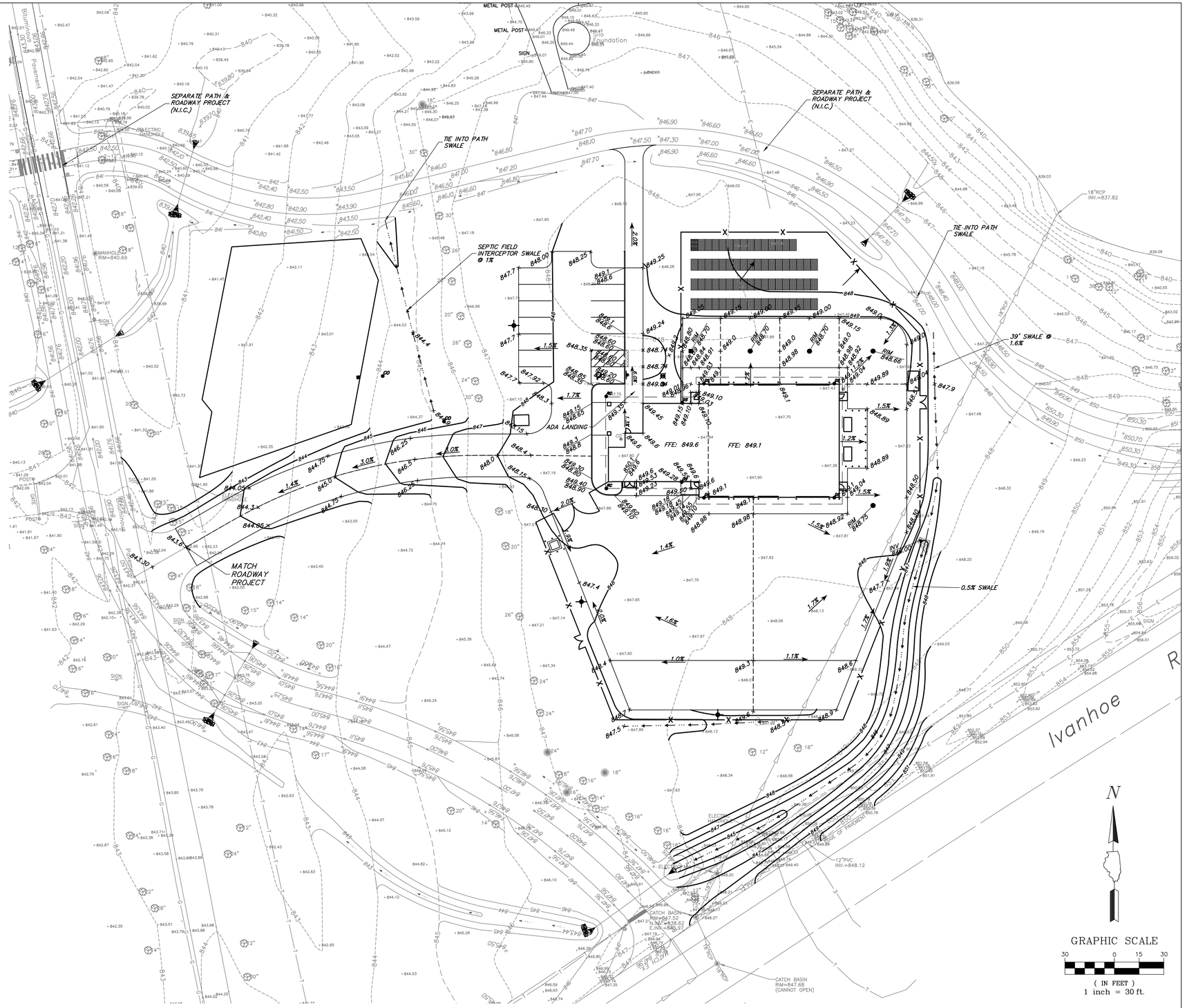
GRADING PLAN NOTES

1. PRIOR TO STARTING ANY CONSTRUCTION, PROVIDE SOIL EROSION AND SEDIMENT CONTROL DEVICES AS SHOWN ON THE PLANS AND AS REQUIRED PER IEPA NPDES GUIDELINES. REFER TO NOTES AND DETAILS THROUGHOUT THE ENTIRE PLAN SET.
2. PRIOR TO STARTING ANY EXCAVATION WORK, PROVIDE TREE PROTECTION, PRESERVATION AND ROOT PRUNING AS SHOWN ON THE PLANS AND NOTES THROUGHOUT THE ENTIRE PLAN SET.
3. CONTRACTOR SHALL REFER TO SUBSURFACE SOIL EXPLORATION REPORT.
4. REFER TO GENERAL NOTES FOR GRADING, COMPACTION AND PROOF ROLL REQUIREMENTS.
5. HANDICAP ACCESSIBLE PARKING SPACES SHALL BE CONSTRUCTED BETWEEN 1.0% AND 1.50% MAXIMUM SLOPES IN ANY ONE DIRECTION. ILLINOIS ACCESSIBILITY CODE PERMITS A MAXIMUM CONSTRUCTED SLOPE OF 2.00%.
6. CRUSHED CONCRETE MEETING IDOT CERTIFICATIONS FOR THE DESIGN PLAN GRADATIONS FOR NON–POROUS PAVEMENT AND SIDEWALK STONE BASE, STRUCTURAL FILL, AND TRENCH BACKFILL WILL BE PERMITTED.
7. CRUSHED CONCRETE MAY NOT BE USED FOR UNDERDRAIN TRENCH OR POROUS FILL CONDITIONS.
8. THE CONTRACTOR SHALL IMPORT OR EXPORT SOIL AS NECESSARY TO CONSTRUCT THE SITE TO SPECIFIED PLAN GRADES. SUCH WORK IS CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR SUCH WORK. MINOR ADJUSTMENTS TO GRADES CAN BE ACCOMMODATED WITH PROJECT ENGINEER APPROVAL.
9. THE CONTRACTOR SHALL INCLUDE ALL ASSOCIATED COSTS WITH THE REMOVAL, TRANSPORT, DISPOSAL, TESTING AND CERTIFICATION OF "UNCONTAMINATED SOIL" AS DEFINED UNDER 415 ILCS 5/3.160 INCLUDING ANY FEES, TAXES, OR SURCHARGES CHARGED BY OR THROUGH THE OPERATOR(S) OF CLEAN CONSTRUCTION OR DEMOLITION DEBRIS FILL OPERATIONS OR UNCONTAMINATED SOIL FILL OPERATIONS FOR THE ACCEPTANCE OF UNCONTAMINATED SOIL.
10. ALL STRUCTURES SHALL BE ADJUSTED TO MEET FINISHED TURF AND PAVEMENT GRADES.
11. REFER TO SOIL EROSION AND SEDIMENT CONTROL NOTES AND DETAILS FOR SEED AND BLANKET REQUIREMENTS FOR TEMPORARY STABILIZATION.
12. REFER TO GEOMETRIC PLAN OR LANDSCAPE PLAN FOR FINAL RESTORATION REQUIREMENTS.
13. CONTRACTOR SHALL PROVIDE THE FOLLOWING AS–CONSTRUCTED DOCUMENTS AT THE CONCLUSION OF THE PROJECT:
    a. LAWN OR OPEN SPACE AREAS
    - SPOT ELEVATIONS AT A MAXIMUM 50 FOOT GRID.
    - SPOT ELEVATION TOP AND BOTTOM OF BERMS OR SWALES
    - SPOT ELEVATIONS AND RIDGE / HIGH AND LOW POINTS.

    b. PARKING LOT AND HARD SURFACES
    - TOP OF CURB AND FLOWLINE ELEVATIONS AT SIMILAR LOCATIONS TO PROPOSED GRADING.
    - SPOT ELEVATIONS AT SUMMIT / HIGH AND LOW POINTS.

    c. ADA PARKING STALLS, SIDEWALK RAMPS, AND ADA ROUTES
    - PROVIDE 6 SPOT ELEVATIONS WITHIN THE PARKING STALL 3 ALONG THE FRONT AND REAR OF THE STALL AT 8 FOOT SPACING ALONG THE STALL PAVEMENT MARKINGS.
    - PROVIDE 4 SPOT GRADES PER SQUARE AT LANDINGS AND ANY TAMPERS OR RAMPS.
    - PROVIDE SPOT ELEVATIONS ALONG ROUTE AT MAXIMUM 10 FOOT SPACING ON BOTH SIDES OF THE PATH TO CONFIRM CROSS AND LONGITUDINAL SLOPES REQUIREMENTS HAVE BEEN MET.

    d. BUILDINGS
    - TOP OF FOUNDATION ELEVATIONS.
    - FINISHED FLOOR ELEVATIONS AT DOORWAYS.
14. CONTRACTOR SHALL ENSURE POSITIVE DRAINAGE TO ALL INLETS AND CATCHBASINS. AREAS OF SURFACE PONDING SHALL BE CORRECTED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER.
15. ALL LAWN AREAS DISTURBED AS A RESULT OF CONSTRUCTION SHALL BE RESTORED TO PRECONSTRUCTION LAWN CONDITION FOLLOWING RESTORATION REQUIREMENTS.
16. GRADING TO BE COORDINATED WITH THE PATH/ROADWAY IMPROVEMENT PROJECT.



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LAKEWOOD NET ZERO MAINTENANCE FACILITY
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GRADING PLAN

C4.0

LAKE COUNTY STORMWATER MANAGEMENT COMMISSION
SOIL EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES

A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

B. FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM:

- UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
- AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5 INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.

C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.

D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA-1 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.

F. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR REDISTURBANCE.

G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.

H. SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MEASURESAS APPROVED BY THE ENFORCEMENT OFFICER.

I. APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL.

J. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES.

L. IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT SITE, ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT OFFICER.

M. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.

N. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

O. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

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LAKE COUNTY STORMWATER MANAGEMENT COMMISSION

TYPICAL CONSTRUCTION SEQUENCING

1.) Installation of soil erosion and sediment control SE/SC measures
  a.) Selective vegetation removal for silt fence installation
  b.) Silt fence installation
  c.) Construction fencing around areas not to be disturbed
  d.) Stabilized construction entrance

2.) Tree removal where necessary (clear & grub)

3.) Construct sediment trapping devices (sediment traps, basins…)

4.) Construct detention facilities and outlet control structure with restrictor & temporary perforated riser

5.) Strip topsoil, stockpile topsoil and grade site

6.) Temporarily stabilize topsoil stockpiles (seed and silt fence around toe of slope)

7.) Install storm sewer, sanitary sewer, water and associated inlet & outlet protection

8.) Permanently stabilize detention basins with seed and erosion control blanket

9.) Temporarily stabilize all areas including lots that have reached temporary grade

10.) Install roadways

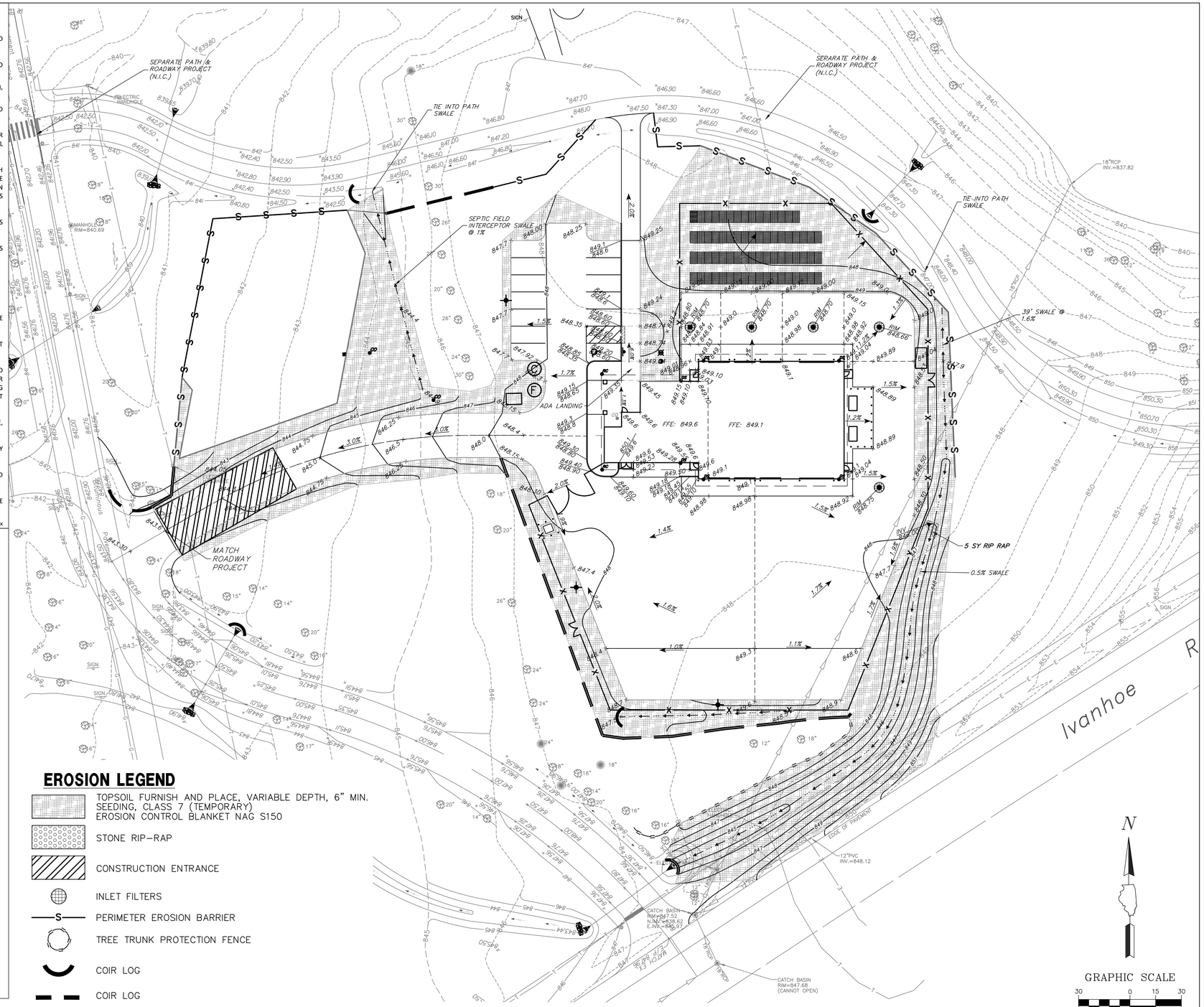
11.) Permanently stabilize all outlot areas

12.) Install structures and grade individual lots

13.) Permanently stabilize lots

14.) Remove all temporary SE/SC measures after the site is stabilized with vegetation

* Soil erosion and sediment control maintenance must occur every two weeks and after every ½ or greater rainfall event



EROSION LEGEND

- TOPSOIL FURNISH AND PLACE, VARIABLE DEPTH, 6" MIN. SEEDING, CLASS 7 (TEMPORARY) EROSION CONTROL BLANKET NAG S150
- STONE RIP-RAP
- CONSTRUCTION ENTRANCE
- INLET FILTERS
- PERIMETER EROSION BARRIER
- TREE TRUNK PROTECTION FENCE
- COIR LOG
- COIR LOG
- Ⓒ CONCRETE WASHOUT
- Ⓕ PORTABLE RESTROOM FACILITY

SESC PLAN NOTE

1. EROSION CONTROL INSPECTIONS MUST BE PERFORMED BY A LAKE COUNTY STORMWATER MANAGEMENT COMMISION DESIGNATED EROSION CONSTROL INSPECTOR (DECI).

N

GRAPHIC SCALE
30 0 15 30
(IN FEET)
1 inch = 30 ft.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

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SOIL EROSION & SEDIMENT CONTROL PLAN

C5.0

PERMIT COVERAGE AND REQUIREMENTS

The management practices, controls and other provisions contained in this Storm Water Pollution Prevention Plan (SWPPP) are at least as protective as the requirements contained in the Illinois Environmental Protection Agency (EPA) NPDES ILR10 permit, 2018 and the Illinois Urban Manual, 2017. Requirements specified in plans or permits for this project approved by local officials that are applicable to protecting surface water resources are, upon submittal of a NOI to be authorized to discharge under the ILR10 permit, incorporated by reference and are enforceable under the ILR10 permit even if they are not specifically included in the storm water pollution prevention plan. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for this project.

CONTROL IMPLEMENTATION SCHEDULE

Perimeter controls of the site and stabilized construction entrance shall be installed prior to demolition, clearing and grubbing. Perimeter controls shall be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Existing storm sewer inlets that will function during the construction process should have the sediment control measures installed as indicated prior to land – disturbing activities, including demolition and site clearing. In addition, sediment control measures shall be installed in newly constructed inlets immediately after their installation is complete. Erosion control blanket may be used to stabilize the construction areas where the final grade has been reached but cannot be permanently stabilized due to planting season restrictions. Permanent controls, such as riprap, shall be installed at each storm sewer outfall structure prior to any storm water discharge. Temporary perimeter controls shall only be removed after final stabilization of those portions of the site upward of the perimeter control. Temporary drop–in sediment bags will be installed in all inlets to prevent infiltration of sediment–laden ground water into existing and proposed structures. Sediment bags shall remain in place until placement of base course in paved areas or until vegetation has taken hold. Care shall be taken when removing sediment bags to avoid release of sediment into the storm sewer.

POST CONSTRUCTION STORM WATER MANAGEMENT

Storm water management devices installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed may include storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). Velocity dissipation devices shall be located (i.e. riprap) at discharge locations and along the length of any outfall channel as necessary to provide a non–erosive velocity flow from the structure to the water course so that the natural physical and biological characteristics and functions are maintained and protected. Structural measures should be placed on upland soils to the degree attainable. The contractor is responsible for the installation and maintenance of storm water management measures until final stabilization of the site.

SOIL EROSION AND SEDIMENT CONTROLS

The appropriate soil erosion and sediment controls shall be implemented onsite and shall be modified to reflect the current phase of construction. All damaged or defective temporary sediment and erosion control measures must be repaired or replaced as soon as possible to maintain NPDES compliance.

Unless otherwise indicated, all vegetative and structural erosion and sediment control practices shall be installed according to the Standard Practice. The contractor shall be responsible for the installation of any additional erosion and sediment control measures necessary to prevent excessive sedimentation as determined by the engineer, owner, or permitting authority.

1. Stabilization Practices
Areas that will not be paved or covered with non–erosive material shall be stabilized as indicated on the erosion control plan using procedures in substantial conformance with the Illinois Urban Manual. Stabilization practices may include: temporarily seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, staged or staggered development, and other appropriate measures.

Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days.
Stabilization of disturbed areas must be initiated within 1 working day of permanent or temporary cessation of earth disturbing activities and shall be completed as soon as possible but not later than 14 days from the initiation of stabilization work in an area. Exceptions to these time frames are specified below:

(i) Where the initiation of stabilization measures is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.
(ii) On areas where construction activity has temporarily ceased and will resume after 14 days, a temporary stabilization method can be used. Temporary stabilization techniques and materials shall be described in the SWPPP.

2. Structural Practices
Structural practices will be utilized to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins.

Structural practices should be placed on upland soils to the degree practicable. The installation of these devices may be subject to Section 404 of the CWA.

(i) The following design requirements apply to sediment basins if such structural practices will be installed to reduce sediment concentrations in storm water discharges:
a. When discharging from the sediment basin, utilize outlet structures that withdraw water from the surface in order to minimize the discharges.
b. Prevent erosion of the sediment basin using stabilization controls (e.g., erosion control blankets), at the inlet and outlet using erosion controls and velocity dissipation devices.
c. Sediment basins shall be designed to facilitate maintenance, including sediment removal from the basins, as necessary.

(ii) The following requirements apply to protecting storm drain inlets:
a. Install inlet protection measures that removes sediment from discharges prior to entry into any storm drain inlet that carries stormwater flow from your site to a water of the U.S., provided you have authority to access the storm drain inlet.
b. Clean, or remove and replace, the protection measures as sediment accumulates, the filter becomes clogged, and/or performance is compromised. Where there is evidence of sediment accumulation adjacent to the inlet protection measure, remove the deposited sediment by the end of the same business day in which it is found or by the end of the following business day if removal by the same business day is not feasible.

OFF–SITE VEHICLE TRACKING

A stabilized pad of aggregate underlain with filter fabric shall be located at any point where traffic will be entering or leaving the construction site to or from a public right–of–way, street, alley, sidewalk, or parking area to help reduce vehicle tracking of sediments. Roads shall be swept as needed to reduce excess sediment, dirt or stone tracked from the site. Accumulated sediment and stone shall be removed from the stabilized construction entrance as needed. Water runoff from such washing area shall be periodically inspected and repaired as necessary throughout the life of the project. Vehicles hauling erodible material to and from the construction site should be covered with a tarp. The stabilized construction entrance shall be installed prior to any soil disturbance (including demolition) and removed prior to any paving.

DUST CONTROL

As requested, a water truck will be used to limit the amount of dust leaving the site. The following list of control measures may also be implemented on–site to limit the generation of dust as needed:Sprinkling/irrigation, Vegetative cover, Mulch, Spray–on soil treatments, Tillage, Stone.

WASTE MANAGEMENT

No solid materials, including building materials, shall be discharged to protected natural areas, a storm sewer system or Waters of the State (except as authorized by a Section 404 permit). All waste materials shall be collected and stored in approved receptacles. No wastes shall be placed in any location other than in the approved containers appropriate for the materials being discarded. There shall be no liquid wastes deposited into dumpsters or other containers which may leak. Receptacles with deficiencies shall be replaced as soon as possible and the appropriate clean–up procedure shall take place, if necessary. Construction waste material is not to be buried on site. Waste disposal should comply with all local, State and Federal regulations. Hazardous material shall not be stored on site. Any hazardous waste should be disposed of in the manner specified by local or State regulation or by the manufacturer.

MATERIAL STORAGE

Materials and or contaminants shall be stored in a manner that minimizes the potential to discharge into storm drains or watercourses. An on–site area shall be designated for material delivery and storage. All materials kept on–site shall be stored in their original containers with legible labels, and if possible, under a roof or other enclosure. Labels should be replaced if damaged or difficult to read. Bermed–off storage areas are an acceptable control measure to prevent contamination of storm water. MSD sheets shall be available for referencing cleanup procedures. Any release of chemicals/contaminants shall be immediately cleaned up and disposed of properly. Contractors shall immediately report all spills to the Primary Contact, who shall notify the appropriate agencies, if needed. To reduce the risks associated with hazardous materials on–site, hazardous products shall be kept in original containers unless they are not re–sealable. The original labels and MSD data shall be retained on–site at all times. Hazardous materials and all other materials on–site shall be stored in accordance with manufacturer's MSDS specifications. When disposing of hazardous materials, follow manufacturers' or local and State recommended methods on Local, State and Federal regulations.

DE–WATERING OPERATIONS

During de–watering/pumping operations, only uncontaminated water should be allowed to discharge to protected natural areas, Waters of the State or to a storm sewer system. Inlet hoses should be placed in a stabilized sump pit or floated at the surface of the water with a screen in order to limit the amount of sediment intake. Pumping operations may be discharged to a stabilized area that consists of an energy dissipating device (i.e. stone) on a stabilized surface, sediment filter bag on a stabilized surface or a sediment trap. Adequate erosion control measures should be used during de–watering operations as necessary. Stabilized conveyance channels should be installed to direct water to the desired location as applicable. Additional erosion control material may be installed at the outlet area at the discretion of the Primary Contact or Engineer.

SANITARY FACILITIES

To the extent practicable, sanitary facilities shall be located at a minimum 8 feet behind the curb and gutter of the internal roads and be located in an area that does not drain to any protected natural area, Waters of the State or storm water structures. Sanitary facilities shall be anchored to the ground to prevent tipping over. Sanitary facilities located on impervious surfaces shall be placed on top of a secondary containment device or be surrounded by a control device (i.e. gravel–bag berm).

CONCRETE WASTE MANAGEMENT

Concrete mixer trucks shall only perform washouts in designated areas. Concrete waste or washout is not allowed in the street or allowed to reach a storm water drainage system or watercourse. A sign shall be posted at each location to identify the washout. Concrete washout areas should be located at least 50 feet from a storm water drainage inlets or watercourse. Concrete washout areas shall be located at least 10 feet behind the curb, if the washout area is adjacent to a paved road. A stabilized entrance as detailed on the erosion control plan shall be installed at each washout area. The washout areas shall be of sufficient volume to completely contain all liquid and concrete waste materials including enough capacity for anticipated levels of rainwater. The dried concrete waste material shall be picked up and disposed of properly when 75% of the capacity is reached. Hardened concrete can be properly recycled and reused on–site or hauled off–site to an appropriate facility.

SPILL PREVENTIONS

Discharges of hazardous substances or oil caused by a spill are not authorized by the ILR10 permit. If a spill occurs, notify the Primary Contact immediately. The construction site shall have the capacity to control, contain and remove spills if they occur. Spills shall be cleaned up immediately in accordance with MSD sheets and shall not be buried on–site or washed into storm sewer drainage inlets, drainageways or Waters of the State.

Spills in excess of Federal Reportable Quantities (as established under 40 CFR Parts 110, 117 or 302) shall be reported to the National Response Center by calling (800) 424–8802. MSDS often include information on federal Reportable Quantities for materials. Spills of toxic or hazardous materials shall be reported to the appropriate State or local government IEPA, regardless of size. When cleaning up a spill, the area shall be kept well ventilated and appropriate personal protective equipment shall be used to minimize injury from contact with a hazardous substance.

In addition to proper Waste Management, Concrete Waste Management, Concrete Cutting, Vehicle Storage and Maintenance, Material Storage and Sanitary Station protection, the following minimum practices shall be followed to reduce the risk of spills:
- Petroleum products shall be stored in tightly sealed and clearly labeled containers.
- All paint containers shall be tightly sealed and stored when not required for use. Excess paint shall be disposed of according to the manufacturer's instructions or State and local regulations and shall not be discharged to the storm sewer.
- Contractors shall follow manufacturers' recommendations for proper use and disposal of materials.

CONCRETE CUTTING

Concrete waste management should be implemented to contain and dispose of saw–cutting slurries. Concrete cutting shall not take place during or immediately after a rainfall event. Waste generated from concrete cutting should be cleaned up and disposed into the concrete washout facility described above.

VEHICLE STORAGE AND MAINTENENCE

When not in use, vehicles utilized in the development operations of the site shall be stored in a designated upland area away from any natural or created watercourse, pond, drainage–way or storm drain. Whenever possible, vehicle maintenance, fueling, and washing will occur off–site. If allowed on–site, vehicle maintenance (including both routine maintenance as well as on–site repairs) shall be made within the designated area to prevent the migration of mechanical fluids (oil, antifreeze, etc.) into watercourses, wetlands or storm drains. Drip pans or absorbent pads shall be used for all vehicle and equipment maintenance activities that involve grease, oil, solvents or other vehicle fluids. Construction vehicles shall be inspected frequently to identify any leaks. Leaks shall be repaired immediately, or the vehicle should be removed from the site. Dispose of all used oil, antifreeze, solvents and other automotive–related chemicals according to manufacturer MSDS instructions. Contractors shall immediately report spills to the Primary Contact.

NON–STORM WATER DISCHARGES

Authorized Discharges

The following non–storm water discharges may be authorized by this permit provided the non–storm water component of the discharge is in compliance with Part IV.D.6 (Non–Storm Water Discharges) of the ILR10 permit:
- Discharges from firefighting activities
- Water main flushing
- Fire hydrant flushing
- Watering for Dust Control
- Irrigation drainage for vegetative growth for seeding, etc.
- Uncontaminated groundwater

The pollution prevention measures described below will be implemented for non–storm water components of the discharge:
- The fire hydrant and water main should not be flushed directly on the exposed area or subgrade of the pavement. Hoses should be used to direct the flow onto a stabilized area.
- Erosion due to irrigation of seeding shall be minimized.

Prohibited Discharges

The following non–storm water discharges are prohibited by this permit:
- Concrete and wastewater from washout of concrete (unless managed by an appropriate control)
- Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds and other construction materials, fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance.
- Soaps, solvents, detergents
- Toxic or hazardous substances from a spill or other release

DISCHARGES TO RECEIVING WATERS WITH AN APPROVED TMDL

Discharges to waters for which there is an approved Total Maximum Daily Load (TMDL) waste load allocation for sediment or a parameter that addresses sediment (total suspended solids, turbidity or siltation) are not eligible for coverage under the ILR10 permit unless the owner/operator develops and certifies a SWPPP that is consistent with allocations listed in the TMDL. To be eligible for coverage under the ILR10 permit, operators must incorporate into their SWPPP any conditions and/or Best Management Practices (BMPs) applicable to their discharges necessary for consistency with the TMDL within any timeframes established in the TMDL. If a specific numeric waste load allocation has been established that would apply to the project's discharges, the operator must incorporate that allocation into its SWPPP and implement necessary steps to meet it.

INSPECTIONS

Qualified personnel (provided by the permittee or contractor– see Table 1.) shall inspect disturbed areas of the construction site that have not been finally stabilized, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days, and within 24 hours of the end of a storm or by the end of the following business or work day that is 0.5 inches or greater.
- Inspections may be reduced to once per month when construction activities have ceased due to frozen conditions (when ground and/or air temperatures are at or below 32°f). Weekly inspections will recommence when construction activities are conducted, or if there is a 0.5 inches or greater rain event, or a discharge due to snowmelt occurs.
- Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.
- Based on the results of the inspection, the description of potential pollutant sources identified in the SWPPP and the pollution prevention control measures identified in the SWPPP shall be revised as soon as practicable after such inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.
- A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, and actions taken in accordance with paragraph b above shall be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the permit coverage expires or is terminated. All inspection reports shall be retained at the construction site. The reports shall be signed in accordance with Part VI.G (Signatory Requirements) of this permit. Any flooding or other unsafe conditions that delay inspections shall be documented in the inspection report.
- The permittee (or qualified inspector) shall notify the appropriate Agency Field Operations Section office by email at epa.swnoncomp@illinois.gov, telephone or fax within 24 hours of any incidence of noncompliance for any violation of the storm water pollution prevention plan observed during any inspection conducted, or for violations of any condition of this permit.
- The permittee (or qualified inspector) shall complete and submit within 5 days an "Incidence of Noncompliance" (ION) report for any violation of the SWPPP observed during an inspection conducted, including those not required by the SWPPP. Submission shall be on forms provided by the IEPA and include specific information on the cause of noncompliance, actions which were taken to prevent any further causes of noncompliance, and a statement detailing any environmental impact, which may have resulted from the noncompliance. Corrective actions must be undertaken immediately to address the identified non–compliance issue(s).
- All reports of non–compliance shall be signed by a responsible authority as defined in Part VI.G (Signatory Requirements).
- After the initial contact has been made with the appropriate Agency Field Operations Section Office, all reports of noncompliance shall be mailed to the IEPA at the following address:

Illinois Environmental Protection Agency
Division of Water Pollution Control
Compliance Assurance Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794–9276

CORRECTIVE ACTIONS

The Contractor must take corrective actions to address any of the following conditions identified on site:
(i) A stormwater control needs repair or replacement
(ii) A stormwater control necessary to comply with the requirements of this permit was never installed or was installed incorrectly.
(iii) Site discharges are causing an exceedance of applicable water quality standards.
(iv) A prohibited discharge has occurred.

Corrective Actions shall be completed as soon as possible and documented within seven (7) days in an Inspection Report or report of noncompliance. If it is infeasible to complete the installation or repair within 7 calendar days, you must document in your records why it is infeasible to complete the installation or repair within the 7–day timeframe and document your schedule for installing the stormwater control(s) and making it operational as soon as feasible after the 7–day timeframe.

RECORDKEEPING

The permittee shall retain copies of the SWPPP and all reports and notices required by the ILR10 permit, and records of all data used to complete the Notice of Intent to be covered by the ILR10 permit, for a period of at least three years from the date that the permit coverage expires or is terminated unless extended by request of the IEPA. In addition, the contractor shall retain a copy of the SWPPP required by the ILR10 permit at the construction site from the date of project initiation to the date of final stabilization.

LOG OF MAJOR GRADING AND CONSTRUCTION ACTIVITIES

A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in this SWPPP.

KEEPING PLANS CURRENT

The permittee or contractor shall amend the SWPPP whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for discharge of pollutants to Waters of the State and which has not otherwise been addressed in the SWPPP or if the SWPPP proves to be ineffective in eliminating or significantly minimizing pollutants, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with construction site activity. In addition, the SWPPP shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the SWPPP by signing the contractor's certification statement.The SWPPP and site map must be modified within 7 days for any changes to construction plans, stormwater controls or other activities at the site that are no longer accurately reflected in the SWPPP. Any revisions of the documents for the SWPPP shall be kept on site at all times.

FINAL STABILIZATION

Final Stabilization has occurred when all soil disturbing activities at the site have been completed, and either of the two following conditions have been met:

(i) A uniform (e.g. evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or
(ii) Equivalent permanent stabilization measures (such as the use of riprap, gabions or geotextiles) have been employed.

For individual lots in residential construction, final stabilization has occurred when either:

(i) The homebuilder has completed final stabilization as specified above, or
(ii) The homebuilder has established temporary stabilization including perimeter controls for individual lot prior to occupation of the home by the homeowner and informing the homeowner of the need to, and the benefits of, final stabilization.

When the site has been finally stabilized and all storm water discharges from construction sites that are authorized by the ILR10 permit are eliminated, the permittee of the facility must submit a completed Notice of Termination that is signed in accordance with Part VI.G (Signatory Requirements) of the ILR10 permit. Elimination of storm water discharges associated with industrial activity means that all disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have otherwise been eliminated.

BMP Operation and Maintenance

Silt Fence

Silt fences shall be removed when they have served their usefulness, but not before the upslope areas have been permanently stabilized.

Silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.

Should the fabric decompose or become ineffective prior to the end of the expected usable life and the fence still is necessary, the fabric or the entire system shall be replaced promptly.

Sediment deposits should be removed after each rainfall. They must be removed when the level of deposition reaches approximately one–half the height of the silt fence.

Any sediment deposits remaining in place after the silt fence is no longer required shall be dressed to conform to the existing grade, a seedbed prepared, and the site vegetated.

Stabilized Construction Entrance

The entrance shall be maintained in a condition that will prevent tracking of sediment onto public right–of–ways or streets. This may require periodic top dressing with additional aggregate. All sediment spilled, dropped, or washed onto public right–of–ways must be removed immediately. Periodic inspection and needed maintenance shall be provided after each rain.

Inlet Protection

Each inlet protection practice or device shall be inspected after every runoff event. Accumulated sediment shall be removed per manufacturers' directions but not less than when the capacity for sediment storage has been reduced by half. Sediment that has been removed shall be placed such that it will not reenter the storm drain system.

Repairs or replacement of inlet protection devices shall be made immediately.

For devices to be kept in place in the winter season, areas shall be cleared of any sediment accumulation and prepared or protected for snow removal operations.

Inlet protection practices shall be removed upon job completion.

Erosion Control Blanket

Inspect all erosion control blankets periodically and after rainstorms to check for damage due to water running under the blanket or if the blankets that have been displaced by wind. Any areas where water seeped under the blanket, more staples may be needed per given area or more frequent anchoring trenches installed with better compaction. If significant erosion has occurred under the blanket, regrading and reseeding may also be necessary. Any erosion control blankets that have been displaced will need to be re–installed and re–stapled. This may indicate that the wrong type of blanket was chosen. One may need to revisit the site characteristics and then select a different type of erosion control blanket or chose a different practice.

Temporary Concrete Washout Facility

Temporary concrete washout facilities shall be maintained to provide adequate holding capacity with a minimum freeboard of 100 mm (4 in.) for above grade facilities and 300 mm (12 in.) for below grade facilities. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete or slurry and returning the facilities to a functional condition.

Existing facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is two–thirds full.

Temporary concrete washout facilities shall be inspected for damage (e.g. tears in plastic liner, missing sand bags, etc.). Damaged facilities shall be repaired promptly.

Portable Sediment Tank

The tank shall be cleaned out when one–third of the storage volume is filled with sediment. All sediment collected in the tank shall be disposed of in an approved sediment trapping device (i.e. temporary sediment trap) or on the construction site or as approved by the engineer/inspector.

Temporary Sediment Trap

Inspect temporary sediment traps after each period of significant rainfall. Remove sediment and restore the trap to its original dimensions when the sediment has accumulated to one–half the design depth of the permanent pool. Place the sediment that is removed in the designated disposal area and replace the contaminated part of the gravel facing.

Check the structure for damage from erosion or piping. Periodically check the depth of the spillway to ensure it is a minimum of 1.5 feet below the low point of the embankment to slightly above the design grade. Any rip rap displaced from the spillway must be replaced immediately.

After all sediment–producing areas have been permanently stabilized, remove the structure and all unstable sediment. Smooth the area to blend with the adjoining areas and stabilize properly.

Ditch Check (Manufactured)

Manufactured ditch check shall be inspected every 7 days and after each 1/2" rainfall or snow equivalent.

Sediment shall be removed from the upstream of the ditch check when sediment has reached one–half the height of the ditch check. Inspect any fabric for tears or dislodging after the sediment is removed and repair or replace immediately. Additional requirements may apply per manufacturer specifications or permit requirements.

Products shall be maintained in same condition as when installed. Rolled erosion control ditch checks must be replaced whenever tears, splits, unraveling or compressed straw or excelsior is apparent.

Any fabric used as a base or apron underneath the plastic permeable or synthetic porous runoff control structure ditch checks that is torn or dislodged must be replaced or repaired.

Remove debris (litter, cornstalks) when observed.

Water or sediment going around the ditch check indicates incorrect installation or maintenance is required. The flow of water over the center of the ditch check or through the device must be reestablished. The manufactured ditch check may need length up the side slope, sediment removed from pores, or the flow velocities are too great for the type of ditch check.

Manufactured ditch checks are not designed to be a part are not designed to be part of the permanent storm water management system. Their material components are not conducive to being incorporated into soils once they have reached their useful life.

Remove manufactured ditch checks once all upslope areas are stabilized, and swale or ditch stabilization is complete. The biodegradable form of plastic permeable ditch checks can be left in place on top of the permanent stabilization such as blankets to provide velocity reductions, provided they are not a hazard to mowing operations. Vegetated ditch checks may remain in place within the ditch or swale if permanent vegetation is desired such as in the case of establishing a vegetated swale.

Rock Check Dam

On active construction sites, the rock check dams shall be inspected at least once every 7 days and within 24 hours of a rainfall of 0.5 inches or more. If any erosion has taken place around the or below the rock check dam or if rocks have been dislodged, repairs shall be made to prevent further damage. Sediment shall be removed once has accumulated to one–half the height of the rock check dam. The center of the rock check dam shall also be inspected periodically to ensure that the center of the dam is lower than the sides.

Unless they will be incorporated into permanent stormwater management control, rock check dams must be removed when useful life has been completed. In temporary ditches and swales, rock check dams should be removed, and the ditch filled in where it is no longer needed. In permanent structures rock check dams should be removed when the grass has matured sufficiently to protect the ditch or swale. The area beneath the rock check dams should be seeded and mulched immediately after they are removed.

For rock check dams that are made a part of stormwater management control, regular inspections should be made to see if any erosion has occurred around or below the dam and if any rock has been dislodged. Immediately make all needed repairs to prevent further damage. If sediment trapping is to be a continuing function of the rock check dam, the sediment shall be removed when it has accumulated to one–half the depth of the rock check dam.

Rock Outlet Protection

Inspect outlet structures after heavy rains to see if any erosion around or below the riprap has taken place or if stones have been dislodged. Immediately make all needed repairs.

Dewatering

The frequency of inspections shall depend on the dewatering method, amount of discharge, potential damage, and quality of the receiving bodies of water.

1. Inspections shall be conducted to ensure proper operation and compliance with any permits or water standards.
2. Accumulated sediment shall be removed from the flow area and temporary diversions shall be repaired, as required.
3. Outlet areas shall be checked, and repairs shall be made in a timely manner, as needed.
4. Pump outlets shall be inspected for erosion, and sumps shall be inspected for accumulated sediment.
5. Dewatering bags shall be stopped and replaced when half full of sediment or when the pump discharge has reduced to an impractical rate.
6. If the receiving area is showing any signs of cloudy water, erosion, or sediment accumulation, discharges shall be stopped immediately once safety and property damage concerns have been addressed.
7. Sediment shall be disposed in accordance with all applicable laws and regulations.

Discharges from Dewatering Activities

Discharges from dewatering activities, including from dewatering of trenches and excavations, are allowable if managed by appropriate controls:
- Dewatering discharges shall be treated or controlled to minimize discharge of pollutants.
- This discharge shall not include visible floating solids or foam.
- An oil–water separator (or suitable filtration device) shall be used to treat oil, grease, or other similar products if dewatering water is found to contain these materials.
- To the extent feasible, use vegetated, upland areas of the site to infiltrate dewatering water before discharging.
- Backwash water (water used to clean any filters used as part of stormwater treatment) must be properly treated or hauled off site for disposal.
- Dewatering treatment devices shall be properly maintained as described above.

Natural Buffers

For any stormwater discharges from construction activities within 50 feet of a Waters of the United States, except for activities for water–dependent structures authorized by a Section 404 permit, the permittee shall:
(i) Provide a 50–foot undisturbed natural buffer between the construction activity and the Waters of the United States; or
(ii) Provide additional erosion and sediment controls within that area.

TABLE 1

ACTION	RESPONSIBLE PARTY
Provide qualified personnel for weekly and 0.5 inch rain event inspections	Contractor ☒ Permittee/Owner ☐
Install and maintain erosion control practices and address Corrective Actions	Contractor ☒

SESC PLAN NOTE

1. EROSION CONTROL INSPECTIONS MUST BE PERFORMED BY A LAKE COUNTY STORMWATER MANAGEMENT COMMISION DESIGNATED EROSION CONSTROL INSPECTOR (DECI).

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FILE: 5588.100 DT1.dwg
DRAWN BY: EJS | GHA PROJECT #: 5588.100
DATE: 04–06–23
CHECKED BY: DEM | SCALE: N/A
DATE: 04–06–23

GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APR 2023
Drawn EJS
Checked DEM

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

STORMWATER POLLUTION PREVENTION PLAN NOTES

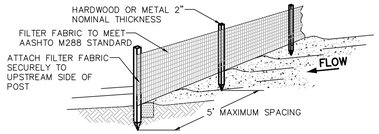
C6.0

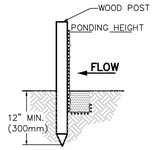
NOTES:

1. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
2. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9" (225mm) MAXIMUM RECOMMENDED STORAGE HEIGHT.
3. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
4. FABRIC AND INSTALLATION SHALL MEET THE REQUIREMENTS OF ASSHTO STANDARD SPECIFICATION M-288-00.
5. SLICING METHOD IS PREFERRED.

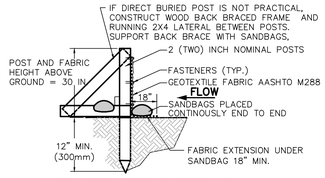
PROPERTY	TEST PROCEDURE	
Grab Elongation		
Machine Direction	ASTM D-4533	123 lbs
X-Machine Direction	ASTM D-4833	101 lbs
Permittivity	ASTM D-4491	0.05 sec^{-1}
A.S.O.	ASTM D-4751	30 u.s. Sieve
UV Stability	ASTM D-4355	70%

1. SET POSTS AND EXCAVATE OR SLIT-TRENCH A 6-INCH DEEP TRENCH UPSLOPE ALONG THE LINE OF THE POST
2. ATTACH AASHTO GEOTEXTILE FILTER FABRIC TO EACH POST WITH A MINIMUM OF 3(THREE) FASTENERS PER POST AND EXTEND TO THE BOTTOM OF THE TRENCH. ACCEPTABLE FASTENERS INCLUDE STAPLES, ZIP-TIES, OR WIRE TIES.
3. BACKFILL AND COMPACT THE EXCAVATED SPOIL MATERIALS





TRENCH INSTALLATION



INSTALLATION WITHOUT TRENCHING

03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC.

SILT FENCE INSTALLATION DETAIL

Stabilization Type:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Permanent Seeding			A	■	■	X	X	X	X	X		
Dormant Seeding	B	■	■								■	■
Temporary Seeding			C	■	■	X	X	X	X	X		
Sodding			E	X	X	X	■	■	■	■	■	■
Mulching	F	■	■	■	■	■	■	■	■	■	■	■

A = KENTUCKY BLUEGRASS @ 90 LBS/AC. MIXED WITH PERENNIAL RYEGRASS @ 30 LBS/AC.
B = KENTUCKY BLUEGRASS @ 135 LBS/AC. MIXED WITH PERENNIAL RYEGRASS @ 45 LBS/AC.
C = SPRING OATS @ 100 LBS/AC.
D = WHEAT OR CEREAL RYE @ 150 LBS/AC.
E = SOD
F = STRAW MULCH (HYDROMULCH OR USE STRAW BLANKET) @ 2 TONS/AC.
XXX = IRRIGATION NEEDED

IRRIGATION SHOULD BE PROVIDED AS NECESSARY TO THOROUGHLY ESTABLISH INTENDED GROWTH.

NOTE:
SPRAYED ON PRODUCTS CANNOT BE USED NOV.-FEB.

03.15.2016

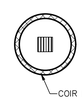
GHA GEWALT HAMILTON ASSOCIATES, INC.

TYPICAL SOIL PROTECTION CHART

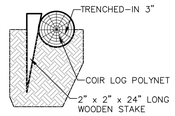
NOTES:

1. DO NOT SCALE DRAWING.
2. REFER TO MANUFACTURER'S PRODUCT SPECIFICATIONS TO ENSURE QUALITY OF THE PRODUCTS

PLAN VIEW



SECTION VIEW



DROP INLET OR MANHOLE
INLET PROTECTION FOR DROP INLETS OR MANHOLES

* USE 9LB DENSITY 12" DIAMETER, 20' LONG COIR LOG POLYNET FOR STANDARD CIRCULAR DRAINAGE STRUCTURES. PLACE THE COIR LOG AROUND THE STRUCTURE AND JOIN THE ENDS TOGETHER WITH COIR TWINE. USE 2"x2"x24" WOODEN STAKES SPACED 3' APART TO HOLD DOWN LOG POLYNET.

MAINTENANCE
1. CLEAN OUT SEDIMENT BEHIND LOG WHEN ½ FULL
2. RESECURE LOOSE LOGS
3. REPLACE LOGS AS NEEDED
4. REMOVE WHEN NOT NEEDED

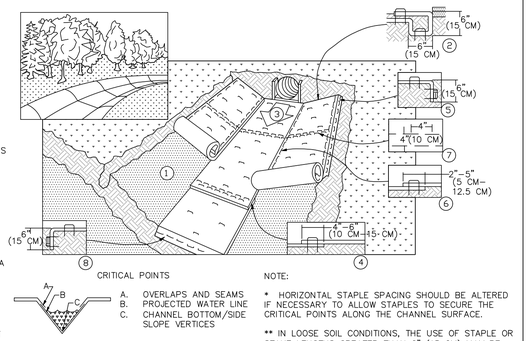
03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC.

COIR ROLL DETAIL INLET PROTECTION

NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE RECP'S IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF RECP'S EXTENDED BEYOND THE UP SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH. AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL CENTER RECP'S IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINS THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. PLACE CONSECUTIVE RECP'S END OVER END (SHINGLE STYLE) WITH A 4"-6" (10 CM-15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE RECP'S.
5. FULL LENGTH EDGE OF RECP'S AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM)DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT RECP'S MUST BE OVERLAPPED APPROSIMATELY 2"-5" (5 CM-12.5 CM) (DEPENDING ON RECP'S TYPE) AND STAPLED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M-12 M) INTERVALSUSE A COUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE RECP'S MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:

* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP'S.

NOTE:

* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (12 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE RECP'S.

03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC.

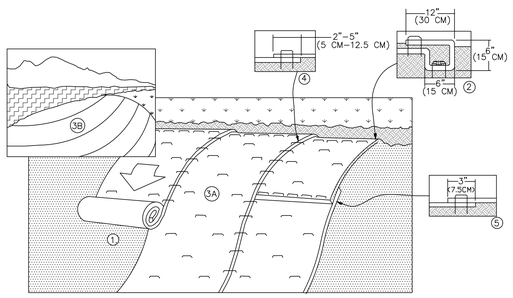
EROSION CONTROL BLANKET CHANNEL INSTALLATION

NOTES:

1. PREPARE SOIL BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE RECP'S.
3. ROLL THE RECP'S (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5 CM - 12.5 CM) OVERLAP DEPENDING ON RECP'S TYPE.
5. CONSECUTIVE RECP'S SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE RECP'S WIDTH.

NOTE:

*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.



STAPLE PLACEMENTS SHOWN FOR ILLUSTRATIVE PURPOSES ONLY. SEE STAPLE PATTERN GUIDES FOR ACTUAL RECOMMENDED PLACEMENTS.

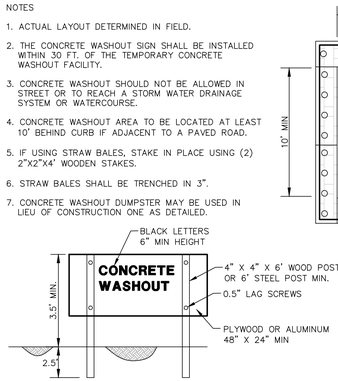
03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC.

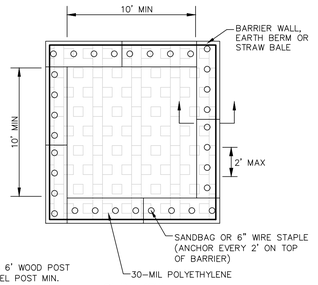
EROSION CONTROL BLANKET SLOPE INSTALLATION

NOTES

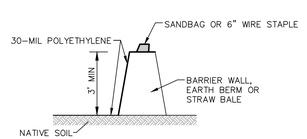
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT. OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. CONCRETE WASHOUT SHOULD NOT BE ALLOWED IN STREET OR TO REACH A STORM WATER DRAINAGE SYSTEM OR WATERCOURSE.
4. CONCRETE WASHOUT AREA TO BE LOCATED AT LEAST 10' BEHIND CURB IF ADJACENT TO A PAVED ROAD.
5. IF USING STRAW BALES, STAKE IN PLACE USING (2) 2"X2"X4' WOODEN STAKES.
6. STRAW BALES SHALL BE TRENCHED IN 3".
7. CONCRETE WASHOUT DUMPSTER MAY BE USED IN LIEU OF CONSTRUCTION ONE AS DETAILED.



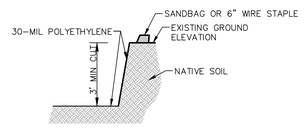
CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)



PLAN VIEW



ABOVE GRADE ANCHOR SECTION



SUBGRADE ANCHOR SECTION

MAINTENANCE:

1. DRIED CONCRETE WASTE SHALL BE PICKED UP AND DISPOSED OF PROPERLY WHEN 75% OF CAPACITY IS REACHED.
2. HARDENED CONCRETE CAN BE PROPERLY RECYCLED AND REUSED ONSITE OR HAULED OFF-SITE TO AN APPROPRIATE FACILITY.

03.15.2016

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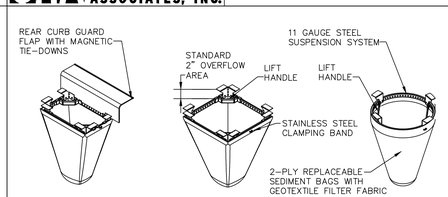
CONCRETE WASHOUT



TYPICAL CURB BOX INLET FILTER

TYPICAL FLAT/RECTANGULAR/ROLLED CURB INLET FILTER

TYPICAL ROUND INLET FILTER

Material Property	Test Method	Value (min. ave.)	
> Inner Filter Bag Specs ($2ft^3$/min val)		Non-Woven	Woven Mono
Grab Tensile	ASTM D 4632	100 lbs	200 lbs
Puncture Strength	ASTM D 4833	65 lbs	90 lbs
Trapezoidal Tear	ASTM D 4535	45 lbs	75 lbs
UV Resistance	ASTM D 4355	70% at 500 hrs	90%
App Open Size (AOS)	ASTM D 4751	70 sieve (.212 mm)	40 sieve (.425 mm)
Premittivity	ASTM D 4491	2.0/sec.	2.1/sec
Water Flow Rate	ASTM D 4491	145 gpm/sqft.	145gpm/sqft
> Polyester Outer Reinforcement Bag Specifications			
Weight	ASTM D 3776	4.55 oz/sqyd +/-15%	
Thickness	ASTM D 1777	.040 +/- .005	
> Frame Construction			
A36 Structural Steel; 11 Gauge, Zinc Plated	ASTM A 576	Tensile Strength > 58,000 psi Yield Strength > 36,000 psi	

MAINTENANCE
1. CLEAN OUT AFTER EVERY RAIN EVENT

ACCEPTABLE MANUFACTURER'S AS LISTED BELOW:

1. INLET & PIPE PROTECTION, INC. Naperville, IL 60564 847 722-0690
2. MARATHON MATERIALS, INC. Plainfield, IL 60544 800-983-9493

03.15.2016

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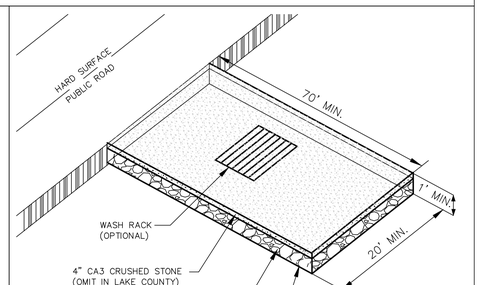
INLET FILTER BASKET DETAIL



NOTE:

IF WASH RACKS ARE USED THEY SHALL BE INSTALLED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC.

TEMPORARY CONSTRUCTION ENTRANCE

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FILE: 5588.100 DT1.dwg

DRAWN BY: EJS | GHA PROJECT #: 5588.100
DATE: 04-06-23

CHECKED BY: DEM | SCALE: N/A
DATE: 04-06-23

GHA GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ■ Vernon Hills, IL. 60061
TEL 847.478.9700 ■ FAX 847.478.9701

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APR 2023
Drawn EJS
Checked DEM

NO.	DATE	REVISIONS DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

SOIL EROSION & SEDIMENT CONTROL DETAILS

C7.0

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE PERFORMED ACCORDING TO THE ILLINOIS DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION, THE "SUPPLEMENTAL SPECIFICATIONS AND RECURRING SPECIAL PROVISIONS" LATEST EDITION, THE "STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS" LATEST EDITION, THE ILLINOIS PLUMBING CODE, THE DETAILS IN THESE PLANS, THE CONTRACT DOCUMENTS, ALL APPLICABLE REQUIREMENTS OF THE ILLINOIS DEPARTMENT OF TRANSPORTATION, THE IEPA AND ORDINANCES OF AUTHORITIES HAVING JURISDICTION AND ALL ADDENDA THERETO.

2. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE AND UTILITIES WITHIN PUBLIC RIGHTS-OF-WAY ARE SHOWN ON THE PLANS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.

3. WHENEVER, DURING CONSTRUCTION OPERATIONS, ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THE LOOSE MATERIAL WILL BE REMOVED AT THE CLOSE OF EACH WORKING DAY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES AND FLOW LINES SHALL BE FREE FROM DIRT AND DEBRIS. THIS WORK SHALL BE CONSIDERED INCLUDED IN THE CONTRACT. THE CONTRACTOR'S FAILURE TO PROVIDE THE ABOVE WILL PRECLUDE ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF.

4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS AFFECTING THEIR WORK WITH THE ACTUAL CONDITIONS AT THE JOB SITE PRIOR TO ORDERING MATERIALS. IN ADDITION, THE CONTRACTOR MUST VERIFY THE LINE AND GRADES. IF THERE ARE ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE CONSTRUCTION PLANS, STANDARD SPECIFICATIONS AND/OR SPECIAL DETAILS, THE CONTRACTOR SHALL SECURE WRITTEN INSTRUCTION FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED BY OMISSION OR DISCREPANCIES. FAILING TO SECURE SUCH INSTRUCTION, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT HIS/HER OWN RISK AND EXPENSE AND NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ANY COSTS INCURRED..

5. ALL PAVEMENT DIMENSIONS ARE SHOWN TO EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.

6. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED BEFORE THE MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL CAREFULLY PRESERVE ALL PROPERTY MARKS AND MONUMENTS UNTIL THE OWNER, AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION.

7. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 72 HOURS PRIOR TO BEGINNING WORK.

8. IF DURING CONSTRUCTION THE CONTRACTOR ENCOUNTERS OR OTHERWISE BECOMES AWARE OF ANY SEWERS OR UNDERDRAINS OTHER THAN THOSE SHOWN ON THE PLANS, HE/SHE SHALL INFORM THE ENGINEER, WHO SHALL DIRECT THE WORK NECESSARY TO MAINTAIN OR REPLACE THE FACILITIES IN SERVICE AND TO PROTECT THEM FROM DAMAGE DURING CONSTRUCTION IF MAINTAINED. EXISTING FACILITIES TO BE MAINTAINED THAT ARE DAMAGED BECAUSE OF NON-COMPLIANCE WITH THIS PROVISION SHALL BE REPLACED AT THE CONTRACTOR'S OWN EXPENSE.

9. THE OWNER SHALL PROVIDE TEMPORARY TOILET FACILITIES AND HAND SANITIZING STATIONS FOR THE USE OF ALL THE CONTRACTORS PERSONNEL EMPLOYED ON THE WORK SITE. THE FACILITIES SHALL BE MAINTAINED IN PROPER SANITARY CONDITION THROUGHOUT THE PROJECT. THE LOCATION OF THE TEMPORARY FACILITIES SHALL BE APPROVED BY THE ENGINEER.

10. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE NPDES PERMIT AND SWPPP MANUAL. IF NO NPDES PERMIT OR SWPPP MANUAL IS NEEDED FOR THE PROJECT THE CONTRACTOR SHALL PERFORM SOIL EROSION SEDIMENT CONTROL BEST PRACTICES OR AS DIRECTED BY THE OWNER TO PREVENT ILLICIT DISCHARGES FROM THE SITE.

UTILITY NOTES

1. UNDERGROUND WORK SHALL INCLUDE TRENCHING, DISPOSAL OF EXCESS MATERIAL, DEWATERING, INSTALLATION OF PIPE, CASTINGS, STRUCTURES, BACKFILLING OF TRENCHES AND COMPACTION, AND TESTING AS SHOWN ON THE CONSTRUCTION PLANS. FITTINGS AND ACCESSORIES NECESSARY TO COMPLETE THE WORK MAY NOT BE SPECIFIED BUT SHALL BE CONSIDERED AS INCLUDED TO THE COST OF THE CONTRACT. ALL SEWER SHALL BE INSTALLED USING A LASER AND BEGIN AT THE DOWNSTREAM END.

2. ALL CONNECTIONS TO EXISTING OR DISSIMILAR STORM/SANITARY LINES SHALL BE DONE WITH STAINLESS STEEL NON-SHEAR COUPLINGS.

3. STONE BEDDING AND BACKFILL SHALL BE OMITTED FOR A DISTANCE OF 15 FEET UP AND DOWNSTREAM OF SEWERS DRAINING TO OR FROM PONDS OR STREAMS. THE REPLACED BEDDING SHALL BE SILTY CLAY SOIL MECHANICALLY COMPACTED TO 90% MODIFIED PROCTOR DENSITY. THE USE OF PERMEABLE SOILS WILL NOT BE PERMITTED.

4. ALL FLOOR DRAINS SHALL DISCHARGE TO THE SANITARY SEWER. ALL DOWNSPOUTS, SIDE YARD DRAINS, AND OUTSIDE DRAINS SHALL DISCHARGE TO THE STORM SEWER SYSTEM. FOOTING DRAINS SHALL FIRST DRAIN TO A SUMP PIT.

GEOTEXTILE TABLE

NON-WOVEN	STYLE DESCRIPTION	STANDARDS/REQUIREMENTS
LIGHT DUTY	UNDERDRAIN FABRIC	3.5 oz
		MINIMUM GRAD TENSILE ASTM D4632 = 90 LBS
		MINIMUM TRAPEZOID TEAR ASTM D4533 = 40 LBS
		MINIMUM FLOW RATE ASTM D4491 = 150 GAL/MIN/SQFT
HEAVY DUTY	SUBGRADE/SUBBASE SEPARATION	10 oz
		MINIMUM GRAD TENSILE ASTM D4632 = 250 LBS
		MINIMUM TRAPEZOID TEAR ASTM D4533 = 100 LBS
		MINIMUM FLOW RATE ASTM D4491 = 75 GAL/MIN/SQFT

UTILITY TABLE

STORM SEWERS	MODEL/SPECIFICATION	STANDARDS/REQUIREMENTS	
	PVC SDR 26	PIPE:ASTM D-3034	JOINT:ASTM D-3212
FRAME & GRATE/LID	PAVED AREAS	OPEN LID: NEENAH R-2504	CLOSED LID: N/A
	CURB STRUCTURES	OPEN LID: N/A	CLOSED LID:N/A
	GRASS AREAS	OPEN LID: N/A	CLOSED LID: N/A
ADJUSTMENT RINGS	CONCRETE	4" MINIMUM, 12" MAXIMUM	
PIPE BEDDING MATERIAL	CA-11		
TRENCH BACKFILL	CA-6		

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DATE: 04-06-23

GEWALT HAMILTON ASSOCIATES, INC.
625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
TEL 847.478.9700 ▪ FAX 847.478.9701

PROJECT SPECIFIC NOTES

1. THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS THAT INCLUDE; CRITICAL SPOT GRADES SUCH AS OVERFLOW ELEVATIONS, SPOT ELEVATIONS NEAR ENTRANCES, SPOT ELEVATIONS ALONG THE DESIGNATED ADA ROUTE, SUFFICIENT INFORMATION SUCH THAT THE ENGINEER MAY VERIFY DETENTION VOLUMES, RIM AND INVERT ELEVATIONS OF ALL SEWERS, RIM AND TOP OF PIPE ELEVATIONS OF ALL WATER MAIN, LOCATIONS OF ALL INSTALLED UNDERGROUND UTILITIES, LOCATIONS OF ALL BURIED BENDS AND FITTINGS AND ALL FIELD CHANGES FROM THE APPROVED DRAWINGS.

2. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR AND HIS SURETY FOR A PERIOD OF 12 MONTHS FROM THE DATE OF INITIAL ACCEPTANCE OF THE WORK BY THE OWNER AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP OF WHATEVER NATURE.

3. ALL CONSTRUCTION WILL BE INSPECTED BY THE OWNER'S REPRESENTATIVE. ALL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE MUNICIPALITY AS WELL AS THE STANDARD SPECIFICATIONS.

4. THE SEWER AND WATER CONTRACTOR SHALL BE REQUIRED TO BE LICENSED AND BONDED WITH THE LAKE COUNTY PLANNING, BUILDING, & DEVELOPMENT DEPARTMENT BEFORE WORK IS STARTED.

5. CONTRACTOR SHALL NOTIFY THE LAKE COUNTY PLANNING, BUILDING, & DEVELOPMENT DEPARTMENT (847-377-2600) AND THE PROJECT ENGINEER (847-478-9700) AT LEAST 72 HOURS PRIOR TO BEGINNING ANY WORK ON THIS PROJECT.

6. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, ENGINEER, THE MUNICIPALITY AND THEIR AGENTS, FROM ALL LIABILITY INVOLVED IN CONSTRUCTION, INSTALLATION AND TESTING OF THE WORK ON THIS PROJECT.

7. THE CONTRACTOR MUST CARRY INSURANCE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. ALL OFFICIALS, EMPLOYEES AND AGENTS OF GEWALT HAMILTON ASSOCIATES MUST BE LISTED AS ADDITIONAL INSURED.

8. ALL ELEVATIONS ARE ON NGVD 29 VERTICAL DATUM.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL TRAFFIC CONTROL TO ADEQUATELY INFORM AND PROTECT THE PUBLIC OF ALL CONSTRUCTION OPERATIONS.

10. PRIOR TO PLACEMENT OF FABRIC AND STONE, THE SUBGRADE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER. PROOF-ROLLING SHALL BE DONE USING A THREE AXLE DUMP TRUCK TOGETHER WITH LOAD WEIGHING AT LEAST TWENTY-FIVE (25) TONS. THE LOAD SHALL BE UNIFORMLY PLACED IN THE DUMP BODY. ALL DEFICIENCIES SHALL BE REPAIRED AND RE-PROOF-ROLLED UNTIL FOUND ACCEPTABLE TO THE ENGINEER.

11. CRUSHED CONCRETE IS NOT PERMITTED FOR USE ON THE PROJECT UNLESS PRIOR WRITTEN NOTICE IS GIVEN BY THE ENGINEER.

12. ALL STONE USED ON THE PROJECT SHALL BE CRUSHED UNLESS SPECIFICALLY NOTED OTHERWISE.

13. ALL CONCRETE SHALL HAVE A LIGHT BROOM FINISH APPLIED WITHIN 1 HOUR OF FINAL STRIKING.

14. ALL CONCRETE SHALL CONSIST OF PORTLAND CEMENT CONCRETE MEETING REQUIREMENTS OF SECTION 1020. ALL SIDEWALKS, CURBS AND POST FOUNDATIONS SHALL BE CLASS SI 3,500 PSI @ 14 DAYS. ALL PAVEMENT SHALL BE CLASS PV 3,500 PSI @ 14 DAYS. WHERE NOTED ON THE PLANS HIGH EARLY CONCRETE SHALL BE CLASS PV TYPE III 3,500 PSI CONCRETE @ 3 DAYS. ALL CONCRETE REQUIRING A CURE TIME FASTER THAN 3 DAYS SHALL HAVE A MIX DESIGN SUBMITTED TO THE ENGINEER FOR APPROVAL. WHEN REQUIRED BY THE MUNICIPALITY, FLY ASH SHALL NOT BE USED IN THE MIX DESIGN. SLUMP SHALL BE 2-4" AND AIR CONTENT SHALL BE BETWEEN 5-8% UNLESS MODIFIED BY ARTICLE 1020.04.

15. ALL CONCRETE SHALL HAVE A WHITE, IDOT TYPE 3 CURING COMPOUND APPLIED TO THE SURFACE WITHIN 1 HOUR OF FINAL STRIKING AT THE MANUFACTURER RECOMMENDED APPLICATION RATE.

16. 3/4" THICK PRE-MOLDED FIBER EXPANSION JOINTS WITH 2 , 3/4" x 18" PLAIN ROUND, STEEL DOWEL BARS SHALL BE INSTALLED IN ALL CURBS AT (45') FORTY-FIVE FOOT INTERVALS AND AT ALL P.C.'S, P.T.'S AND CURB RETURNS. ALTERNATE ENDS OF THE DOWEL BARS SHALL BE GREASED AND FITTED WITH METAL EXPANSION TUBES. ALL EXPANSION JOINTS MUST BE FREE OF CONCRETE FOR FULL DEPTH. CONTRACTION JOINTS SHALL BE TOOLED AT 15' INTERVALS.

17. UNLESS OTHERWISE NOTED ON THE PLANS WHENEVER NEW CONCRETE ABUTS EXISTING/ OR NEW CONCRETE SET A 1/2" THICK PRE-MOLDED FIBER EXPANSION JOINT AND DOWEL WITH SMOOTH 12" #4 BARS @ 24" O.C. THIS INCLUDES CONCRETE POURED ADJACENT TO EXISTING SIDEWALKS, CURBS AND BUILDING. THE DOWEL BARS SHOULD BE 4" INTO EXISTING CONCRETE WITH 8" EXTENDING INTO NEW CONCRETE.

18. ALL DOWEL BARS AND TIE BARS SHALL BE EPOXY COATED UNLESS NOTED OTHERWISE.

19. ALL PAVEMENT AND BUILDING SUBGRADE SHALL BE COMPACTED TO 95% MODIFIED PROCTOR DENSITY (ASTM D-1557). ALL SUBGRADE IN LAWN AREAS SHALL BE COMPACTED TO 90% MODIFIED PROCTOR DENSITY (ASTM D-1557). ALL TOPSOIL AND SUBGRADE 6" BELOW TOPSOIL SHALL BE COMPACTED TO 80% STANDARD PROCTOR DENSITY (ASTM D-698)

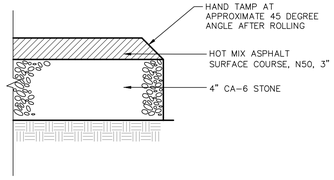
20. SPREAD SCREENED TOPSOIL ON ALL DISTURBED AREAS AND PROPOSED GREEN AREAS. TOPSOIL SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 1081.05.

21. ALL SIGNAGE SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT VERSION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND ILLINOIS SUPPLEMENT OR ILLINOIS DEPARTMENT OF TRANSPORTATION DETAILS.

22. ALL SIGNAGE NOT ATTACHED TO SIGNAL OR LIGHTING POLES SHALL BE MOUNTED ON TELESCOPING STEEL SIGN SUPPORTS WITH BREAKAWAY BASES IN ACCORDANCE WITH SECTION 728.

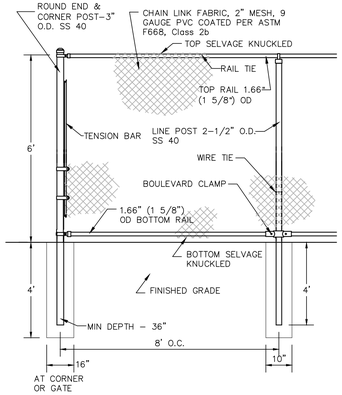
23. ALL SIGNAGE SHALL HAVE TYPE ZZ SHEETING.

14. ALL CONSTRUCTION TRAFFIC MUST ENTER THE SITE FROM HIGHWAY 176. ENTRANCE FROM IVANHOE ROAD IS PROHIBITED.



10.12.2018

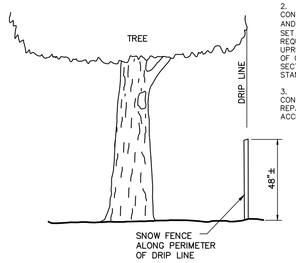
GHA GEWALT HAMILTON ASSOCIATES, INC. — HMA PATHWAY PAVEMENT DETAIL



NOTES:
1. SPECIFICATIONS SHOWN CAN BE CHANGED BY THE MANUFACTURER ONLY.
2. FOOTING WIDTH TO BE (4)X POST WIDTH.
3. ALL FENCING AND POSTS SHALL BE COATED WITH BLACK PVC.
4. BOTTOM RAIL ON ALL FENCING SHALL BE A MAX. OF 2" ABOVE THE FINISHED GRADE.
5. OWNER TO APPROVE FENCE COLOR COATING PRIOR TO CONSTRUCTION.

6' FENCE DETAIL

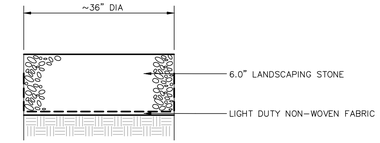
NOTES:
1. EXISTING TREES TO BE PROTECTED SHALL HAVE SNOW FENCE INSTALLED AT THE DRIP LINE OF THE TREE TO PREVENT THE STOCKPILING OF EXCAVATED OR CONSTRUCTION MATERIALS UNDER THE TREE, AND PROHIBIT VEHICULAR TRAFFIC OR EXCESSIVE FOOT TRAFFIC WITHIN THE DRIP LINE.
2. SNOW FENCE SHALL BE WEBBED HDPE CONSTRUCTION FENCING, COLORED ORANGE AND SUPPORTED WITH STEEL "TEE" POSTS SET AT MAX. 15' INTERVALS, OR AS REQUIRED TO MAINTAIN THE FENCE IN AN UPRIGHT POSITION THROUGHOUT THE TERM OF CONSTRUCTION, IN CONFORMANCE WITH SECTION 201.05a OF THE HIGHWAY STANDARDS.
3. TREES THAT MAY BE DAMAGED BY CONSTRUCTION OPERATIONS SHALL BE REPAIRED OR REPLACED IN A MANNER ACCEPTABLE TO THE VILLAGE.



ELEVATION

03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC. — TREE PROTECTION FENCING DETAIL



06.26.2020

GHA GEWALT HAMILTON ASSOCIATES, INC. — RAIN CHAIN SPLASH PAD

VERTICAL SEPARATION REQUIREMENTS

CROSSING	REQUIRED VERTICAL SEPARATION	ADDITIONAL REQUIREMENTS (SELECT ONE)
WATER OVER SEWER	WATER INVERT >18" ABOVE CROWN OF SEWER.	**VERTICAL SEPARATION < 18"** 1. WATER OR SEWER TO BE ENCASED FOR A MINIMUM DISTANCE OF 10' FROM THE EDGE OF PIPE, ON EITHER SIDE, PERPENDICULAR TO THE CROSSING. 2. SEWER TO BE WATER MAIN CLASS PIPE FOR A DISTANCE OF 10' FROM THE EDGE OF PIPE ON EITHER SIDE PERPENDICULAR TO THE CROSSING.
SEWER OVER WATER	SEWER INVERT >18" ABOVE CROWN OF WATER. (SEWER INVERT < 18" ABOVE CROWN OF WATER NEVER ALLOWED)	**VERTICAL SEPARATION >18" (NEVER ALLOWED)** 1. WATER OR SEWER TO BE ENCASED FOR A MINIMUM DISTANCE OF 10' FROM THE EDGE OF PIPE ON EITHER SIDE PERPENDICULAR TO THE CROSSING. 2. SEWER TO BE WATER MAIN CLASS PIPE FOR A DISTANCE OF 10' FROM THE EDGE OF PIPE ON EITHER SIDE PERPENDICULAR TO THE CROSSING.

HORIZONTAL SEPARATION REQUIREMENTS

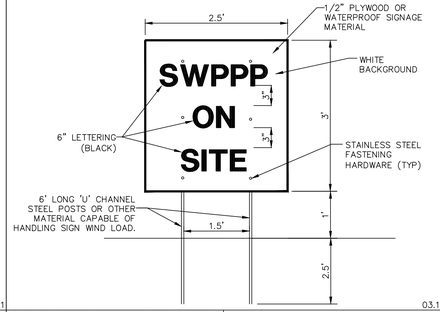
REQUIRED HORIZONTAL SEPARATION	ADDITIONAL REQUIREMENTS
10' OF LATERAL SEPARATION FROM EDGE OF PIPE TO EDGE OF PIPE.	**HORIZONTAL SEPARATION < 10'** 1. WATER INVERT 18" ABOVE CROWN OF SEWER. **HORIZONTAL SEPARATION < 10' & VERTICAL SEPARATION < 18"** 2. SEWER CONSTRUCTED WITH WATER MAIN CLASS PIPE (SEE VERTICAL SEPARATION REQUIREMENTS) AND PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE PRIOR TO BACKFILLING.

NOTES:
1. SEPARATION REQUIREMENTS APPLY TO BOTH EXISTING AND PROPOSED WATER MAIN, STORM SEWER, SANITARY SEWER, COMBINED SEWER, AND ALL SERVICE CONNECTIONS.
2. WATER MAINS SHALL BE SEPARATED FROM SEPTIC TANKS, DISPOSAL FIELDS, SEEPAGE BEDS, AND LIFT STATIONS BY A MINIMUM OF 25'.

04.02.2021

GHA GEWALT HAMILTON ASSOCIATES, INC. — WATER MAIN SEPARATION REQUIREMENTS

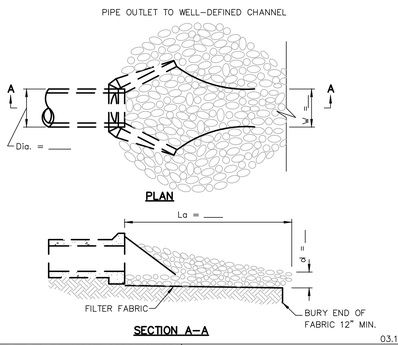
NOTES:
1. WORDING IS TO BE PLACED ON WATERPROOF MATERIAL OR ENCLOSED WITHIN A WATERPROOF ENCASEMENT.
2. THE SIGN SHALL BE FASTENED TO THE POSTS AT A MINIMUM OF SIX (6) LOCATIONS WITH STAINLESS STEEL HARDWARE.
3. THE SIGN SHALL BE POSTED AT THE MAIN ENTRANCE TO THE CONSTRUCTION SITE. IF THE ENTRANCE LOCATION IS RELOCATED, THE SWPPP SIGNAGE SHALL ALSO BE RELOCATED.



03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC. — SWPPP SIGNAGE

NOTES:
1. ALL GEOTEXTILE SHALL BE NON-WOVEN TABLE 1, CLASS 2 MATERIAL.
2. THE RIPRAP SHALL BE PLACED ACCORDING TO CONSTRUCTION SPECIFICATION 61 LOOSE ROCK RIPRAP. THE ROCK MAY BE EQUIPMENT PLACED.



03.15.2016

GHA GEWALT HAMILTON ASSOCIATES, INC. — PIPE OUTLET TO CHANNEL

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APR 2023
Drawn EJS
Checked DEM

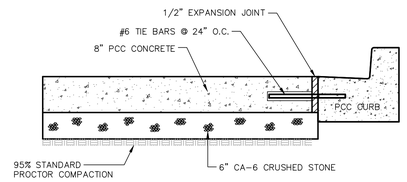
NO.	DATE	REVISIONS DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

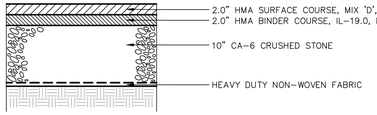
GENERAL NOTES & DETAILS

C8.0



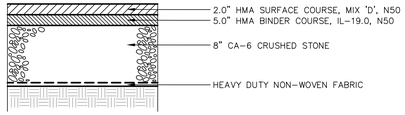
10.12.2018

PCC PAVEMENT DETAIL



06.26.2020

NORMAL DUTY ASPHALT PAVEMENT DETAIL

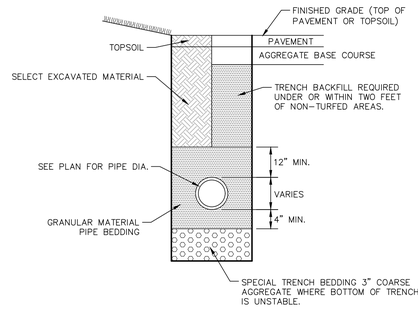


06.26.2020

HEAVY DUTY ASPHALT PAVEMENT DETAIL

NOTE:
SEE STORM TABLE FOR MATERIAL REQUIREMENTS.

TRENCH WIDTH
WIDTH (MAX.) = 9" + OD + 9" WHEN TRENCH ≤ 5 FT.
WIDTH (MAX.) = 18" + OD + 18" WHEN TRENCH > 5 FT.

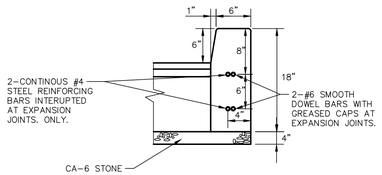


10.08.2018

STORM TRENCH DETAIL FLEXIBLE PIPE INSTALLATION

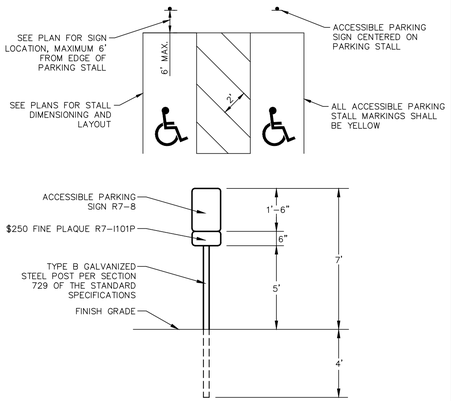
NOTES:

1. SET EXPANSION JOINTS AT ALL PC'S, PT'S, FIVE FEET ON EITHER SIDE OF ANY FRAMES, AND AT 45' MAX. INTERVALS.
2. SAW CUT CONTRACTION JOINTS FULL FACE AND TOP, AT LEAST 2 INCHES IN DEPTH AND AT 15' MAXIMUM INTERVALS WITHIN 24 HOURS OF POURING.
3. CURING COMPOUND REQUIRED.



10.12.2018

VERTICAL CURB

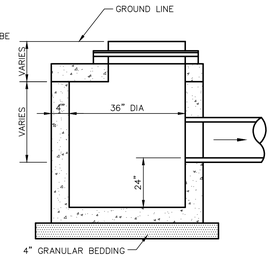


11.27.2018

ACCESSIBLE PARKING DETAIL

NOTES:

1. SEE STORM TABLE FOR FURTHER REQUIREMENTS.
2. PRECAST REINFORCED CONCRETE SECTIONS PER ASTM C-478 AND PREFORMED BITUMINOUS JOINTS WITH INTEGRAL PRECAST BOTTOMS.
3. PIPE OPENINGS SHALL BE PRECAST INTO WALLS.
4. I.D.O.T #602601 FOR FLAT TOPS.
5. FINAL ADJUSTMENT TO FRAMES TO BE DONE WITH STEEL SHIMS SET IN MORTAR.

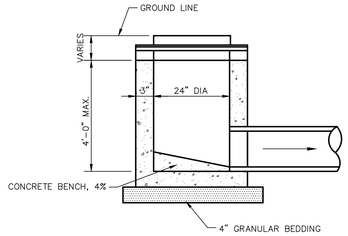


03.15.2016

CATCH BASIN, 36"

NOTES:

1. SEE STORM TABLE FOR FURTHER REQUIREMENTS.
2. PRECAST REINFORCED CONCRETE SECTIONS PER ASTM C-478 AND PREFORMED BITUMINOUS JOINTS WITH INTEGRAL PRECAST BOTTOMS.
3. PIPE OPENINGS SHALL BE PRECAST INTO WALLS.
4. FINAL ADJUSTMENT TO FRAMES TO BE DONE WITH STEEL SHIMS SET IN MORTAR.

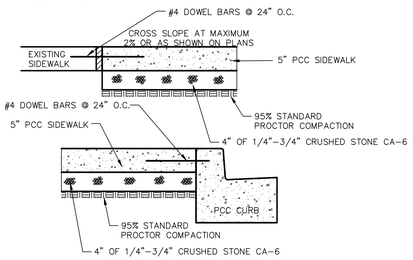


03.15.2016

INLET TYPE A

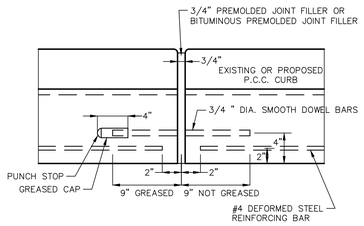
NOTES:

1. SET 1/2" EXPANSION JOINTS AT POINTS ABUTTING CURB OR PAVEMENT AND AT 60' MAX. INTERVALS.
2. CONTROL JOINTS SHALL BE 1/8" TO 1/4" SIDE AND 1/4 OF THE SIDEWALK THICKNESS DEEP. THE EDGE OF THE CONTROL JOINTS SHALL BE GIVE A 1/4" RADIUS.
3. SIDEWALK WIDTH AS SHOWN ON PLANS.
4. SIDEWALK JOINTS SHALL MATCH CURB CONTROL AND CONSTRUCTION JOINTS.



10.12.2018

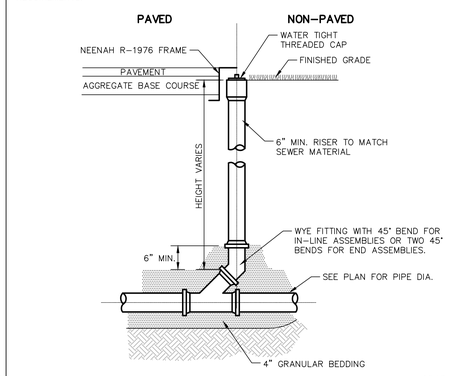
PCC SIDEWALK DETAIL



10.12.2018

EXPANSION JOINT DETAIL

NOTE:
SEE STORM TABLE FOR MATERIAL REQUIREMENTS.

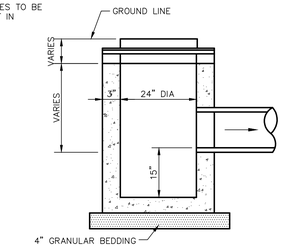


03.15.2016

STORM SEWER CLEAN-OUT DETAIL

NOTES:

1. SEE STORM TABLE FOR FURTHER REQUIREMENTS.
2. PRECAST REINFORCED CONCRETE SECTIONS PER ASTM C-478 AND PREFORMED BITUMINOUS JOINTS WITH INTEGRAL PRECAST BOTTOMS.
3. PIPE OPENINGS SHALL BE PRECAST INTO WALLS.
4. FINAL ADJUSTMENT TO FRAMES TO BE DONE WITH STEEL SHIMS SET IN MORTAR.



03.15.2016

CATCH BASIN TYPE C

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DRAWN BY: EJS	GHA PROJECT # 5588.100
DATE: 04-06-23	
CHECKED BY: DEM	SCALE: N/A
DATE: 04-06-23	

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625 Forest Edge Drive ▪ Vernon Hills, IL. 60061
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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No.	2020-008
Date	06 APR 2023
Drawn	EJS
Checked	DEM

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
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DETAILS

C9.0

CONTINENTAL ENGINEERS & SURVEYORS, INC.

SEPTIC SYSTEM PLAN

BY: CONTINENTAL ENGINEERS & SURVEYORS, INC.
1315 FAIRMONT ROAD HOFFMAN ESTATES, IL 60169
PROJECT ENGINEER: TERRY CAHILL
EMAIL: terryrc@ces-consultants.com
847-885-3326 FAX: 847-885-3496

ISSUE DATE: 03/10/23 COPYRIGHT © 2023 BY CES, INC.

SEPTIC SYSTEM DESIGNER LICENSE #023-2023 CES #20-106

SOIL EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES

A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

B. FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM:

B.A. UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.

B.B. AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5 INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.

C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.

D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA-1 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.

F. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR REDISTURBANCE.

G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.

H. SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MEASURESAS APPROVED BY THE ENFORCEMENT OFFICER.

I. APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL.

J. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE CONTROL MEASURE. SEDIMENT

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE OF DEWATERING ACTIVITIES. PRESENT AT THE COMMENCEMENT

L. IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT SITE, OFFICER.

M. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.

N. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

O. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

NOTES:

1) ALL FILL USED IN THE SEEPAGE FIELD AREA AND FOR BACKFILLING THE SEEPAGE TRENCHES SHALL CONSIST OF FINELY DIVIDED POROUS TOPSOIL CONTAINING LITTLE OR NO CLAY.

2) SEPTIC CONTRACTORS SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND EXISTING WELLS IN FIELD BEFORE START OF INSTALLATION.

3) SEPTIC INSTALLATION SHALL CONFORM TO THE APPROPRIATE JURISDICTIONAL AUTHORITIES CODES AND ORDINANCES.

4) DOWN SPOUT AND FOOTING DRAIN SUMP PUMP DISCHARGE SHALL BE DIVERTED FROM SEPTIC FIELD AREA OR TIED INTO CURTAIN DRAIN.

5) CLEARWATER AND DEHUMIDIFIER DISCHARGE SHALL NOT DISCHARGE TO SEPTIC SYSTEM.

6) KEEP ALL HEAVY EQUIPMENT OFF THE SEPTIC FIELD AREA.

7) ROPE OFF ENTIRE SEPTIC SYSTEM WITH SUITABLE BARRICADE FENCING AS SHOWN ON THE PLANS.

8) NO SPRINKLER SYSTEM SHALL BE INSTALLED WITHIN 25' OF THE SEPTIC FIELD AREA.

9) THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND HAVE ALL EXISTING UTILITIES LOCATED AND STAKED PRIOR TO CONSTRUCTION. CALL J.U.L.I.E. TOLLFREE (800)892-0123.

10) NO SEEPAGE FIELD CONSTRUCTION OR PLACING OF SEPTIC APPROVED FILL IS PERMITTED UPON WET OR FROZEN GROUND.

11) ALL SWALES SHALL BE CONSTRUCTED AT 1.0% OR GREATER. UNLESS OTHERWISE NOTED

12) ALL DISTURBED AREAS SHALL BE FINISHED WITH 4" TO 6" OF TOPSOIL & SEEDED WITH EROSION CONTROL BLANKET INSTALLED.

13) LANDSCAPING ON AND AROUND THE SEPTIC FIELD SHALL BE ESTABLISHED BEFORE THE SEPTIC FIELD IS PUT INTO USE.

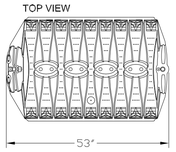
14) REMOVE EXISTING TREES AS REQUIRED IN THE SEPTIC FIELD AREA.

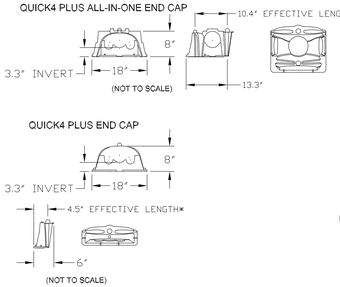
15) REMOVE EXCESS EARTHEN MATERIAL

16) ALL EXCESS EXCAVATED MATERIAL SHALL BE HAULED OFFSITE.

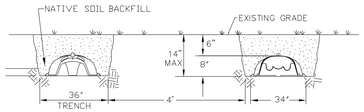
SPECIAL NOTICE:
THIS DESIGN IS BASED UPON: (1) THE FIELD CONDITIONS AS THEY WERE ON THE DAY THE PERCOLATION TEST OR SOIL TYPING, AND/OR TOPOGRAPHIC INFORMATION WERE OBTAINED AND (2) DATA FURNISHED BY THE OWNER OR GENERAL CONTRACTOR, OR THEIR REPRESENTATIVE – REGARDING BUILDING SIZE, NUMBER OF BEDROOMS, AND/OR PEOPLE WITHIN THE UNIT TO BE SERVED.

ANY DEVIATIONS FROM THESE DESIGN CONDITIONS SUCH AS: (1) CHANGING THE NUMBER OF BEDROOMS AND/OR PEOPLE TO BE SERVED; (2) REDUCING THE PERCOLATION CAPACITY OF THE SOILS – BY RUNNING HEAVY EQUIPMENT OVER OR STOCK PILING BUILDING MATERIAL OR EXCAVATED SOIL ON THE SEEPAGE FIELD AREA; (3) REDUCING THE EFFECTIVE SEEPAGE FIELD – BY SIGNIFICANTLY CHANGING, ACTUALLY REDUCING OR COVERING THE SEEPAGE FIELD WITH PAVEMENT; (4) DIVERTING GROUND WATER INTO OR OVER THE SEEPAGE FIELD; OR (5) INTRODUCING OILS AND/OR GREASES INTO THE SEEPAGE FIELD – WILL VOID THIS DESIGN PLAN.

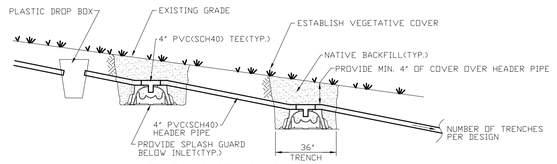




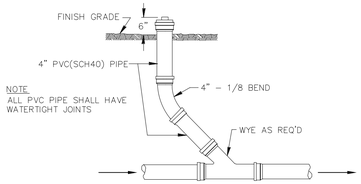
INFILTRATOR WATER TECHNOLOGIES
QUICK4 PLUS STANDARD LOW PROFILE CHAMBER
PRODUCT SPECIFICATIONS
(NOT TO SCALE)



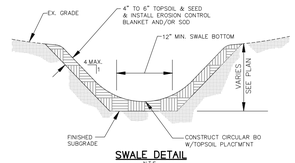
INFILTRATOR WATER TECHNOLOGIES
QUICK4 PLUS STANDARD LOW PROFILE CHAMBER
TYPICAL TRENCH DETAIL
SECTION VIEW
(NOT TO SCALE)



INFILTRATOR SYSTEMS INC.
QUICK4 PLUS STANDARD LOW PROFILE CHAMBER
PRODUCT SPECIFICATION
(NOT TO SCALE)

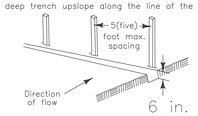


CLEANOUT TO GRADE (CO)
N.T.S.

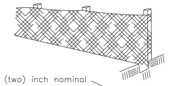


SWALE DETAIL
N.T.S.

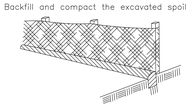
1. Set posts and excavate or slit-trench a 6-inch deep trench upslope along the line of the post



2. Attach the geotextile filter fabric to each post with a minimum of 3 (three) fasteners per post and extend to the bottom of the trench. Acceptable fasteners include staples, zip ties, or wire ties

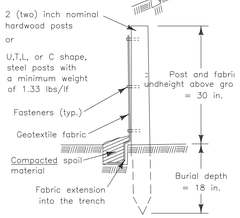


3. Backfill and compact the excavated spoil materials



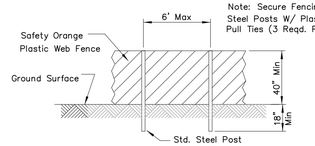
GEOTEXTILE REQUIREMENT	TEST METHOD	MARV
GRAB STRENGTH -MACHINE DIRECTION -X-MACHINE DIRECTION	ASTM D 4632	550 N 450 N
PERMITTIVITY	ASTM D 4491	0.05 SEC-1
APPARENT OPENING SIZE*	ASTM D 4751	0.60 MM
ULTRAVIOLET STABILITY (RETAINED STRENGTH)	ASTM D 4355	70% AFTER 500 HOURS

NOTE:
VALUE FOR APPARENT OPENING SIZE REPRESENTS MAXIMUM AVERAGE ROLL VALUE.

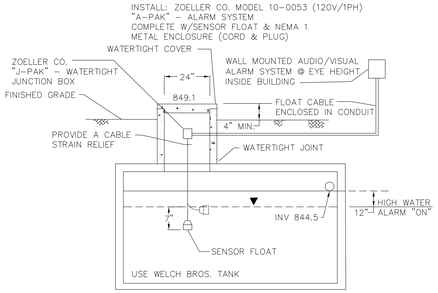


SILT FENCE DETAIL (SF)
N.T.S.

NOTE: INSTALL ALL SILT FENCE (SF) AND SAFETY FENCE (SAF) PRIOR TO ANY CONSTRUCTION ACTIVITIES!!!



SAFETY FENCE DETAIL (SAF)
N.T.S.



2000 GAL. PRECAST CONCRETE HOLDING TANK
NOT TO SCALE

PROPOSED SEPTIC SYSTEM CONSTRUCTION

① 60 LF +/- OF 4" PVCPP(PVC PRESSURE PIPE C900) @ 2% MIN. W/CLEANOUT(CO) AS SHOWN

② 1225 GAL PRECAST CONCRETE COMBINATION SEPTIC / AEROBIC TANK (410 GAL / 815 GAL) W/ BIO-MICROBICS 600 GAL CLASS I ATU: MICROFAST 0.6 W/ LID MOUNT, INV IN 844.3 / INV OUT 844.1

③ 110 LF +/- OF 4" PVCP (SCH40) @ 1% MIN. TO FIRST CHAMBER TEE W/CLEANOUTS(CO) & DROP BOX AS SHOWN

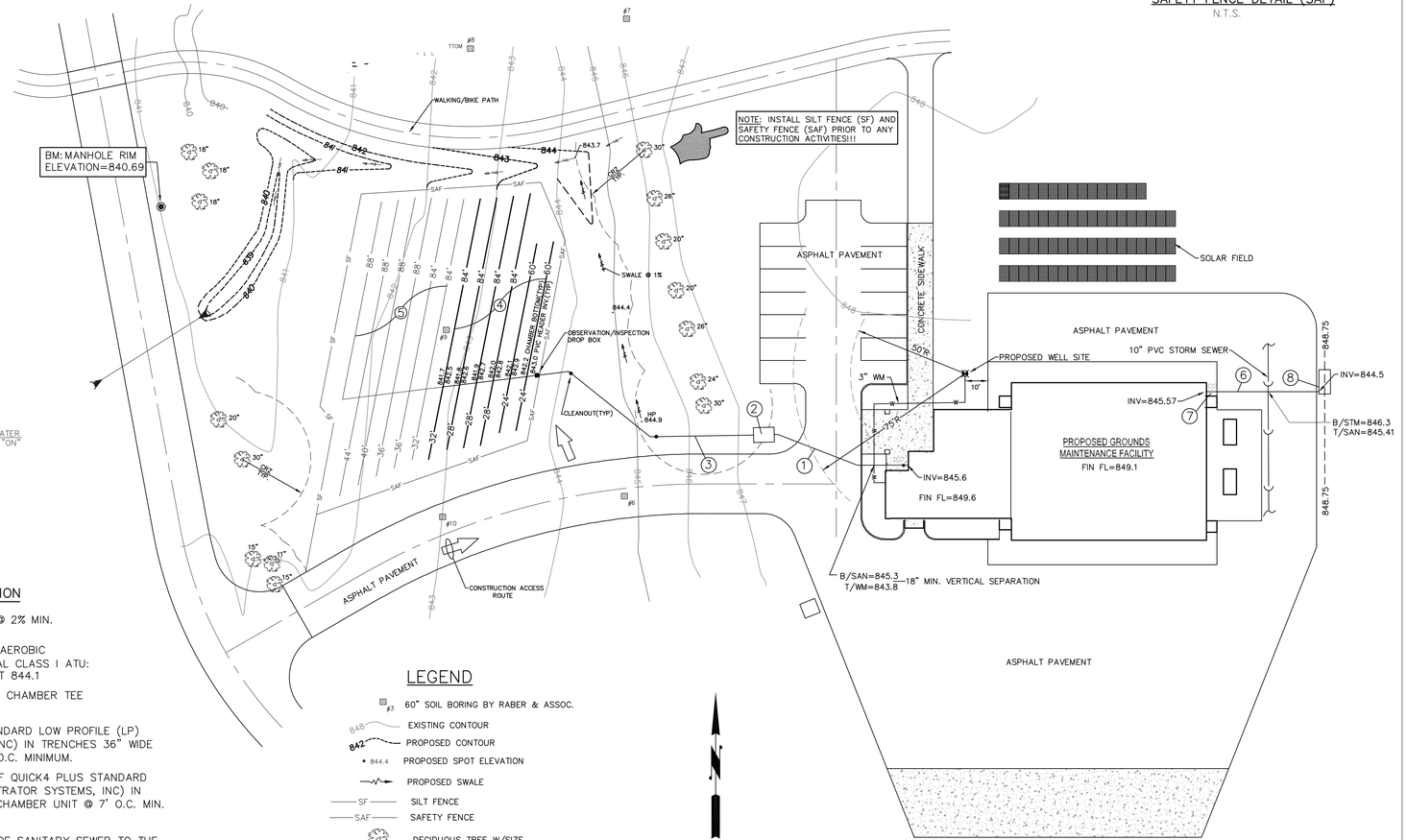
④ INSTALL 620 LF (456 LF REQ'D) OF QUICK4 PLUS STANDARD LOW PROFILE (LP) CHAMBER (MANUFACTURED BY INFILTRATOR SYSTEMS, INC) IN TRENCHES 36" WIDE BY 14" DEEP W/6" COVER OVER CHAMBER UNIT @ 7' O.C. MINIMUM.

⑤ FUTURE EXPANSION SHOWN: 708 LF (456 LF REQ'D) OF QUICK4 PLUS STANDARD LOW PROFILE (LP) CHAMBER (MANUFACTURED BY INFILTRATOR SYSTEMS, INC) IN TRENCHES 36" WIDE BY 14" DEEP W/6" COVER OVER CHAMBER UNIT @ 7' O.C. MIN.

⑥ 40 LF OF 4" PVCP (SCH40) @ 2.68%
NOTE: PROVIDE 0.5' MIN. SEPARATION FROM THE TOP OF SANITARY SEWER TO THE BOTTOM OF THE 10" STORM SEWER AT THE PIPE CROSSING

⑦ YARD CLEANOUT (SEE PLUMBING PLAN)

⑧ 2000 PRECAST CONCRETE HOLDING TANK W/ALARM SYSTEM COMPLETE FOR GARAGE FLOOR DRAINS, INV IN 844.5



LEGEND

- #3 — 60" SOIL BORING BY RABER & ASSOC.
- 840 — EXISTING CONTOUR
- 842 — PROPOSED CONTOUR
- • 844.4 — PROPOSED SPOT ELEVATION
- PROPOSED SWALE
- SF — SILT FENCE
- SAF — SAFETY FENCE
- 36" — DECIDUOUS TREE W/SIZE

N

30 0 30 60 90

Scale 1" = 30'

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
27139 FOREST PRESERVE ROAD
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WA No.	2020-008
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Checked	TC

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GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
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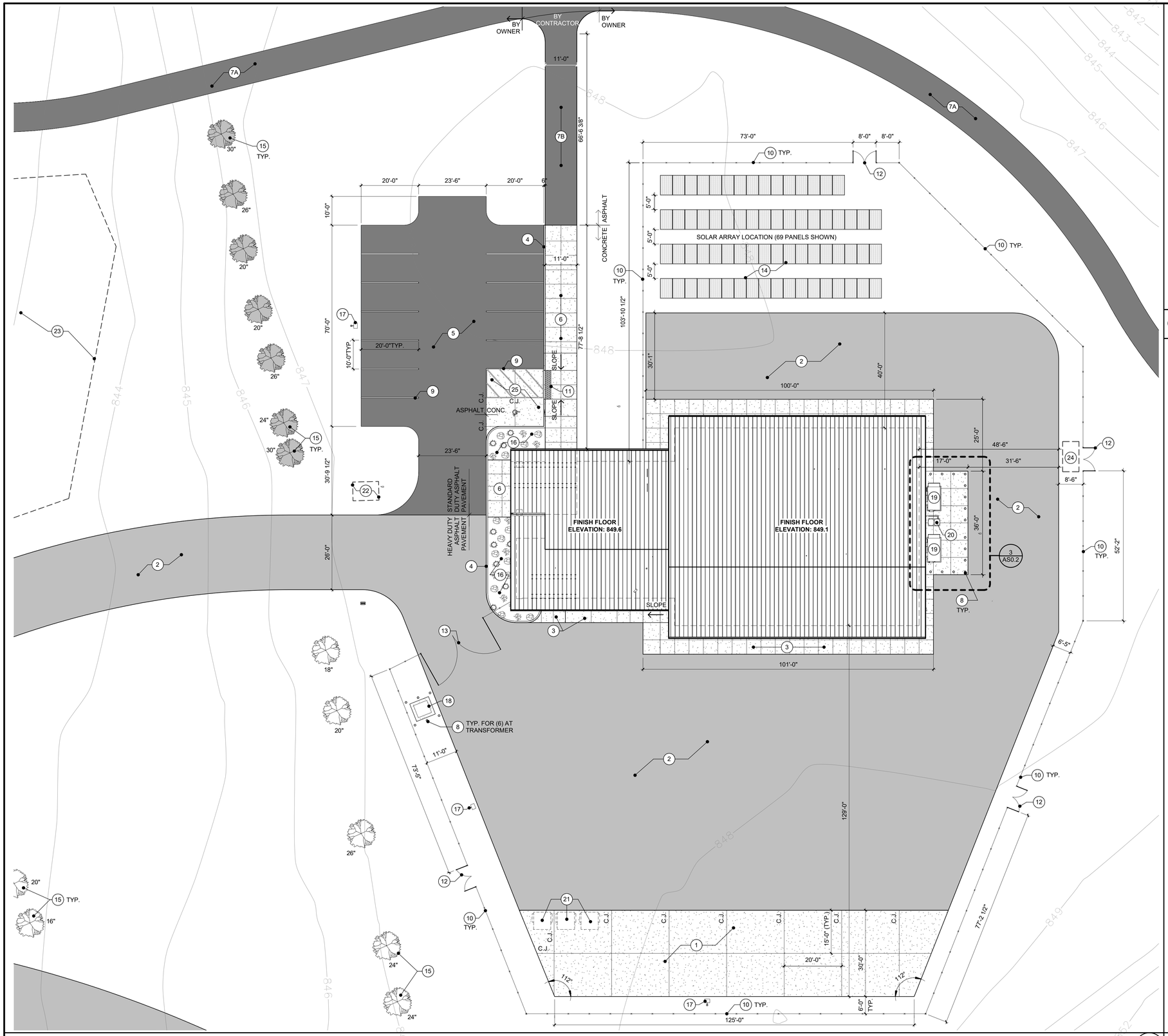
SEPTIC SYSTEM PLAN

C10.0



ARCHITECTURAL SITE PLAN

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

8

1. ARCHITECTURAL SITE PLAN IS INTENDED FOR GENERAL REFERENCE TO ESTABLISH DESIGN INTENT. REFER TO CIVIL DRAWINGS FOR GRADING, PAVING, AND SITE UTILITY INFORMATION INCLUDING LOCATIONS AND DIMENSIONS OF ALL ROADS, DRIVEWAYS, PARKING LOTS, STRIPING, CURBS, AND SIDEWALKS.
2. EXISTING SITE CONDITIONS SHOWN ON THE ARCHITECTURAL SITE PLAN ARE INDICATED TO THE BEST KNOWLEDGE OF THE ARCHITECT. HOWEVER, THE ARCHITECT ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE EXISTING SITE CONDITIONS SHOWN AS THE SITE SURVEY WAS PREPARED BY OTHERS AND PROVIDED BY THE OWNER.
3. NOTIFY THE CONSTRUCTION MANAGER OF ANY UNFORESEEN CONDITIONS DISCOVERED PRIOR TO OR DURING CONSTRUCTION PRIOR TO PROCEEDING WITH RELEVANT PORTIONS OF THE WORK.
4. ALL STREETS, SIDEWALKS, RIGHT-OF-WAYS, AND EXISTING FOREST PRESERVE DRIVES THAT ARE DAMAGED, DISTURBED, OR DIRTIED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED, REPAIRED, AND CLEANED AT THE COMPLETION OF THE WORK TO THEIR ORIGINAL CONDITION PRIOR TO THE COMPLETION OF CONSTRUCTION.
5. REFER TO ARCHITECTURAL SITE PLAN FOR LOCATIONS AND DIMENSIONS OF ALL CONCRETE SIDEWALK AND CONCRETE APRON SCORING PATTERNS. C.J. = CONTROL JOINT.
6. ALL BUILDING EXTERIOR MAN DOORS WILL HAVE A CONCRETE STOOP. SEE STRUCTURAL DRAWINGS. STOOP DIMENSIONS ARE DESIGNED TO FIT WITHIN THE CONCRETE SIDEWALK'S SCORING PATTERN.
7. CAUTION. PROJECT CONSTRUCTION AREA HAS BEEN IDENTIFIED AS HABITAT FOR BLANDING'S TURTLE WHICH IS PROTECTED UNDER THE ILLINOIS ENDANGERED SPECIES PROTECTION ACT. COORDINATE PROTECTION MEASURES WITH ILLINOIS DEPARTMENT OF NATURAL RESOURCES (IDNR) AND OWNER LAKE COUNTY FOREST PRESERVE DISTRICT. ALL CONSTRUCTION PERSONNEL ARE TO BE EDUCATED ABOUT THE SPECIES AND INSTRUCTED TO CONTACT IDNR IMMEDIATELY IF THEY ARE ENCOUNTERED IN THE PROJECT AREA. PROVIDE EXCLUSIONARY FENCING AROUND THE WORK AREA TRENCHED INTO THE GROUND FOR THE DURATION OF THE CONSTRUCTION PROJECT.

GENERAL SITE PLAN NOTES 1

(#) NOTE: SITE PLAN KEYNOTES REFER TO THIS SHEET ONLY.

(1) CONCRETE PAVEMENT. HEAVY DUTY. REFER TO CIVIL DRAWINGS.

(2) ASPHALT PAVEMENT. HEAVY DUTY. REFER TO CIVIL DRAWINGS.

(3) CONCRETE STOOP | APRON. TYPICAL AT GARAGE PERIMETER. REFER TO ARCHITECTURAL FLOOR PLAN AND CIVIL DRAWINGS FOR DETAILS AND STRUCTURAL DRAWINGS FOR STOOP LOCATIONS.

(4) CURB. CONCRETE. REFER TO CIVIL DRAWINGS.

(5) ASPHALT PAVEMENT. STANDARD DUTY. REFER TO CIVIL DRAWINGS.

(6) CONCRETE SIDEWALK. REFER TO CIVIL DRAWINGS.

(7A) WALKING PATH. ASPHALT. DESIGN AND CONSTRUCTION BY OWNER.

(7B) WALKING PATH. ASPHALT. SECTION INDICATED BY THIS KEYNOTE IS PART OF CONSTRUCTION CONTRACT / THIS PROJECT. REFER TO CIVIL DRAWINGS. COORDINATE WITH OWNER PROVIDED PATH.

(8) 8" DIAMETER CONCRETE FILLED GALVANIZED STEEL PIPE BOLLARD. REFER TO ARCHITECTURAL FLOOR PLAN AND DETAILS.

(9) PARKING LOT STRIPING. REFER TO CIVIL DRAWINGS.

(10) FENCING. CHAIN LINK TYPE. 6'-0" TALL. REFER TO SPECIFICATIONS.

(11) ADA TRUNCATED DOME WARNING PLATES AT CURB RAMP. SEE CIVIL DRAWINGS.

(12) SWING GATE. CHAIN LINK TYPE. 8'-0" WIDE OPENING, TWO (2) 4'-0" LEAVES. PROVIDE PADLOCK HASP. REFER TO SPECIFICATIONS.

(13) SWING GATE. CHAIN LINK TYPE. 25'-0" WIDE OPENING, TWO (2) 12'-6" LEAVES. PROVIDE PADLOCK HASP. REFER TO SPECIFICATIONS.

(14) SOLAR ARRAY | PV PANELS. 69 PANELS SHOWN. REFER TO ELECTRICAL DRAWINGS AND PROJECT SPECIFICATIONS. CONFIRM EXACT LAYOUT, SPACING, AND NUMBER OF PANELS WITH PV TRADE CONTRACTOR.

(15) EXISTING DECIDUOUS TREE TO REMAIN. NUMERICAL FIGURE INDICATES EXISTING TRUNK DIAMETER. OWNER WILL PROVIDE TREE PROTECTION MEASURES AT ALL EXISTING TREES TO REMAIN. REFER TO CIVIL DRAWINGS FOR SELECTIVE TREE DEMOLITION. TYPICAL.

(16) LANDSCAPE PLANTINGS. LANDSCAPE DESIGN AND CONSTRUCTION BY OWNER. PROVIDE 6" NEW TOPSOIL READY TO RECEIVE LANDSCAPE PLANTINGS AT ALL NEW PLANTING BEDS.

(17) SITE LIGHTING POLE. LED TYPE. REFER TO ELECTRICAL DRAWINGS.

(18) PROPOSED COMED ELECTRIC TRANSFORMER LOCATION. REFER TO ELECTRICAL DRAWINGS.

(19) DEDICATED OUTSIDE AIR SUPPLY (DOAS) UNIT. PROVIDE CONCRETE PAD. REFER TO MECHANICAL DRAWINGS.

(20) VRF HEAT PUMP UNIT. SEE MECHANICAL DRAWINGS.

(21) TRASH DUMPSTER. 8 CUBIC YARD CAPACITY. FURNISHED BY OWNER. APPROXIMATE LOCATION SHOWN. FOR REFERENCE ONLY.

(22) COMBINATON SEPTIC / AEROBIC TANK. PRECAST CONCRETE. REFER TO CIVIL DRAWINGS.

(23) DASHED LINES INDICATE APPROXIMATE EXTENT OF SEPTIC LEACH FIELD. REFER TO CIVIL DRAWINGS FOR ENTIRE EXTENT OF LEACH FIELD AND SEPTIC FIELD DETAILS.

(24) WASTEWATER HOLDING TANK FOR GARAGE. PRECAST CONCRETE. REFER TO CIVIL DRAWINGS. (APPROXIMATE LOCATION SHOWN)

(25) CONCRETE PAVEMENT AT ADA PARKING STALL AND TRANSFER AREA. REFER TO CIVIL DRAWINGS. C.J. = CONTROL JOINT.

SITE PLAN KEYNOTES 4

LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

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WA No. 2020-008
Date 06 APRIL 2023
Drawn JAO
Checked MCR

REVISIONS

NO.	DATE	DESCRIPTION

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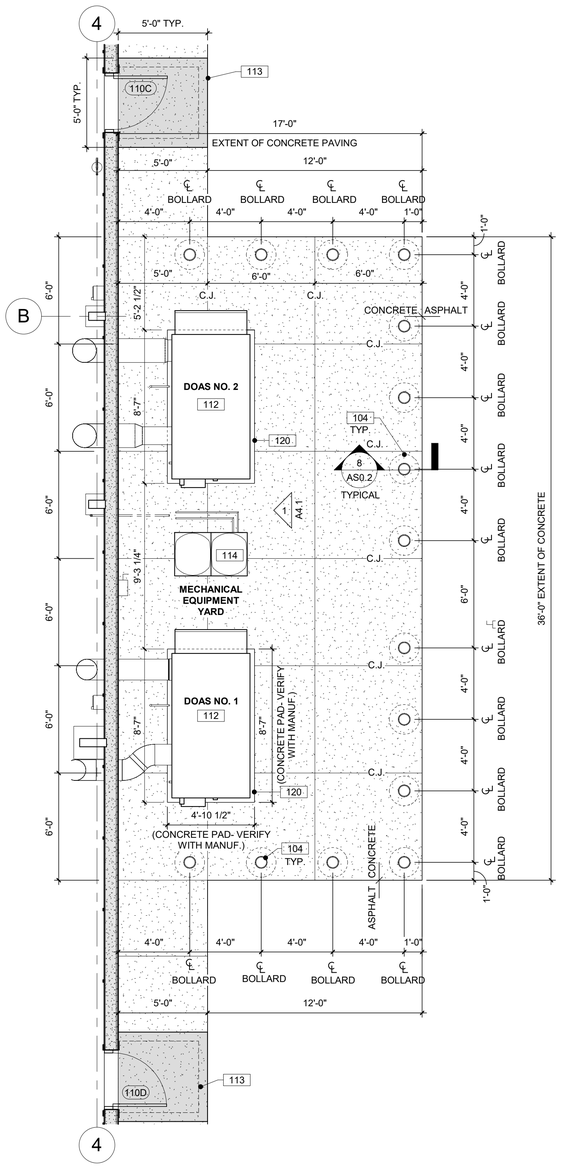
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

ARCHITECTURAL SITE PLAN

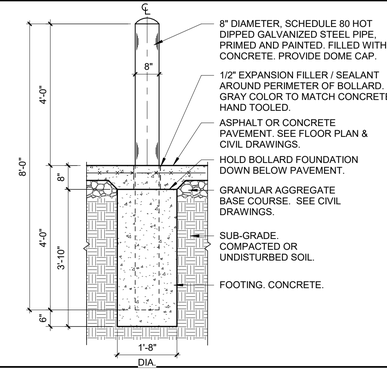
AS0.1



ENLARGED PLAN/ MECHANICAL EQUIPMENT YARD

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

3



DETAIL/ STEEL BOLLARD SECTION

SCALE: 1/2" = 1'-0"

8

KEYNOTE LEGEND

NOTE #	PLAN NOTE
104	8" DIAMETER CONCRETE FILLED GALVANIZED STEEL PIPE BOLLARDS. (TYPICAL)
112	DOAS (DEDICATED OUTSIDE AIR SUPPLY) UNIT. PROVIDE CONCRETE PAD. REFER TO MECHANICAL DRAWINGS.
113	CONCRETE STOOP WITH FROST WALLS. (SHADED REGIONS). REFER TO STRUCTURAL DRAWINGS.
114	VRF HEAT PUMP. REFER TO MECHANICAL DRAWINGS.
120	CONCRETE PAD BENEATH MECHANICAL UNIT. APPROXIMATE SIZE SHOWN. COORDINATE WITH MECHANICAL UNIT MANUFACTURER.

SHEET KEYNOTES

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APRIL 2023
Drawn JAO
Checked MCR

REVISIONS

NO.	DATE	DESCRIPTION

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WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

ARCHITECTURAL SITE DETAILS

AS0.2

DESIGN CRITERIA

1. STRUCTURE HAS BEEN DESIGNED TO COMPLY WITH:
   IBC 2012
   ASCE 7-10
   ACI 318-11
   AISC 360-10
   NDS-12 AND SDPWS-08
2. RISK CATEGORY II
3. SUPERIMPOSED LOADS ARE LISTED ON PLANS.
4. LIVE LOADS:

TYPICAL ROOF	20 PSF (REDUCIBLE)

5. SNOW:

GROUND SNOW	25 PSF
SNOW EXPOSURE FACTOR	1.0
THERMAL FACTOR	1.0
IMPORTANCE FACTOR	1.0
BALANCED SNOW LOAD	17.5 PSF
SEE S1.2 FOR SNOW DRIFT LOADS	

6. SEISMIC:

SEISMIC DESIGN CATEGORY	B
IMPORTANCE FACTOR	1.0
SOIL CLASS	D
Ss	0.125 g
S1	0.057 g
Sds	0.133 g
Sd1	0.091 g
SEISMIC FORCE RESISTING SYSTEM	WOOD WALLS SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE
R	6.5
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE
DESIGN BASE SHEAR, STRENGTH LEVEL	V = Cs x W = 0.0205 x W

7. WIND:

BASIC WIND SPEED	V = 115 MPH
IMPORTANCE FACTOR	1.0
EXPOSURE CLASS	C
INTERNAL PRESSURE COEFFICIENT, GCpi	0.0 ± 0.55 ± 0.18

   C & C NOTES:
   a. THE PRESSURES LISTED ARE IN ACCORDANCE IBC CBC AND ASCE 7, AND THE DESIGN FORCES USED BY THE SUBCONTRACTOR FOR A SPECIFIC APPLICATION ARE THE RESPONSIBILITY OF THE SUBCONTRACTOR.
   b. WIND PRESSURES ARE ULTIMATE DESIGN LEVEL.
   c. SEE ASCE 7 FOR ZONE DEFINITIONS AND EXTENT OF ZONES.
   d. SUBMIT DESIGN CALCULATIONS PREPARED BY A QUALIFIED PROFESSIONAL STRUCTURAL ENGINEER, REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED, FOR ANY DESIRED MODIFICATION TO THE STATED PRESSURES.

GENERAL

1. DURING THE CONSTRUCTION PERIOD, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONNEL AND PROPERTY ON AND AROUND THE JOBSITE. THE CONTRACTOR SHALL PROVIDE ADEQUATE SHORING, BRACING, GUYS, ETC. IN ACCORDANCE WITH ALL NATIONAL, STATE, AND LOCAL SAFETY ORDINANCES.
2. ALL DRAWINGS ARE CONSIDERED TO BE A PART OF THE CONTRACT DOCUMENTS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO THE START OF CONSTRUCTION SO A CLARIFICATION CAN BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENTS SHALL BE CORRECTED BY THE CONTRACTOR AT THEIR OWN EXPENSE AND AT NO EXPENSE TO THE OWNER OR ARCHITECT.
3. STRUCTURAL SUBSTITUTIONS MAY BE ALLOWED WITH THE APPROVAL OF THE STRUCTURAL ENGINEER. SUPPLIER SHALL PROVIDE SEALED DESIGN CALCULATIONS OR SUITABLE PRODUCT LITERATURE FOR THE COMPONENTS.
4. ALL DIMENSIONS AND SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOBSITE PRIOR TO CONSTRUCTION, START OF SHOP DRAWINGS, START OF CONSTRUCTION, AND/OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, OR CONDITIONS DEVELOP THAT ARE NOT COVERED BY THE CONTRACT DOCUMENTS, THE ARCHITECT SHALL BE NOTIFIED FOR CLARIFICATION.
5. CONTRACTOR SHALL PROVIDE AND BE RESPONSIBLE FOR THE PROTECTION AND REPAIR OF ADJACENT EXISTING SURFACES AND AREAS WHICH MAY BE DAMAGED AS A RESULT OF NEW WORK.
6. STRUCTURAL DRAWINGS INCLUDE DESIGN REQUIREMENTS AND DIMENSIONS FOR STRUCTURAL INTEGRITY BUT DO NOT SHOW ALL DETAIL DIMENSIONS TO FIT INTRICATE ARCHITECTURAL AND MECHANICAL DETAILS. CONTRACTOR SHALL SO CONSTRUCT THE WORK SO IT WILL CONFORM TO THE CLEARANCES REQUIRED BY ARCHITECTURAL, MECHANICAL AND ELECTRICAL DESIGN.
7. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED TO BE CONSTRUCTION STANDARDS. IF CLARIFICATION IS REQUIRED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK.
8. DO NOT SCALE DRAWINGS. PRINTED DIMENSIONS HAVE PRECEDENCE OVER SCALED DRAWINGS AND LARGE-SCALE OVER SMALL-SCALE DRAWINGS. CONTRACTOR TO DETERMINE FINAL DIMENSION WITH ARCHITECT.
9. TYPICAL DETAILS SHALL APPLY TO SITUATIONS OCCURRING ON THE PROJECT THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED. WHERE NO DETAILS ARE GIVEN, CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK.
10. THE CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE AND SAFETY OF WORKMEN DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE ARCHITECT OR STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OR APPROVAL OF THE ABOVE ITEMS AND DO NOT IN ANY WAY RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITIES FOR THE ABOVE.
11. SEE ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS FOR DETAILS, CONDITIONS, PITS, TRENCHES, PADS, DEPRESSIONS, ROOF/FLOOR OPENINGS, STAIRS, SLEEVES, ITEMS TO BE EMBEDDED OR ATTACHED TO STRUCTURAL ELEMENTS, ETC., NOT SHOWN ON THE STRUCTURAL DRAWINGS.
12. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR MECHANICAL, ELECTRICAL AND PLUMBING WITH APPROPRIATE TRADE CONTRACTORS. OPENING SIZES AND LOCATIONS SHOWN FOR DUCTS, PIPE, INSERTS AND OTHER PENETRATIONS WHEN SHOWN ARE FOR GENERAL INFORMATION ONLY AND SHALL BE VERIFIED PRIOR TO FORMING.
13. NO HOLES, NOTCHES, BLOCK-OUTS, ETC. ARE ALLOWED IN STRUCTURAL ELEMENTS UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER.
14. PENETRATIONS SHALL BE CAST-IN-PLACE AND SHALL NOT BE PERMITTED EXCEPT AS SHOWN IN THE STRUCTURAL DRAWINGS.
15. BEFORE SUBMITTING A PROPOSAL FOR THIS WORK, EACH PARTY SHALL VISIT THE PREMISES AND BECOME FULLY ACQUAINTED WITH CONDITIONS IN FIELD, TEMPORARY CONSTRUCTION REQUIRED, QUANTITIES AND TYPE OF EQUIPMENT, ETC. THE PROPOSAL SHALL INCLUDE ALL SUMS REQUIRED TO DO THE WORK.

SUBMITTALS

1. SUBMITTALS ARE:
   a. CONCRETE MIX DESIGNS
   b. MATERIAL PRODUCT DATA FOR STRUCTURAL MATERIALS
   c. CONCRETE REINFORCING
   d. ENGINEERED LUMBER
   e. HEAVY TIMBER
   f. PANELIZED WALLS FOR WOOD BUILDINGS
2. SUBMITTALS SHALL BE REVIEWED AND COORDINATED PRIOR TO SUBMITTING TO THE ARCHITECT. EACH SHOP DRAWING SUBMITTED SHALL BE STAMPED INDICATING REVIEW BY THE CONSTRUCTION MANAGER/GENERAL CONTRACTOR AND REVIEW BY THE ARCHITECT SHALL NOT BEGIN UNTIL THIS IS COMPLETE. WORK SHALL NOT BEGIN WITHOUT REVIEW BY THE ARCHITECT/STRUCTURAL ENGINEER.
3. SUBMITTALS SHALL BE REVIEWED BY THE ARCHITECT/STRUCTURAL ENGINEER FOR GENERAL CONFORMANCE WITH DESIGN CONCEPT ONLY. NOTATIONS MADE BY THE ARCHITECT/STRUCTURAL ENGINEER ON THE SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS.
4. FOR ADDITIONAL INFORMATION ON REQUIRED SUBMITTALS, SEE INDIVIDUAL MATERIAL SECTIONS.

EARTHWORK

1. FOUNDATION DESIGN IS BASED ON THE GEOTECHNICAL REPORT DATED DECEMBER 7, 2022 BY SOIL AND MATERIAL CONSULTANTS, INC. REPORT IS ON FILE WITH THE ARCHITECT.
2. SOIL PROPERTIES PER THE GEOTECHNICAL REPORT:
   ALLOWABLE NET SOIL BEARING PRESSURE:

FOOTINGS	3000 PSF
FROST DEPTH	3.5 FT

3. ALL EXCAVATIONS SHALL BE PROPERLY AND SAFELY BACKFILLED. DO NOT PLACE BACKFILL BEHIND RETAINING/BASEMENT WALLS BEFORE CONCRETE HAS ATTAINED SPECIFIED COMPRESSIVE STRENGTH. CONTRACTOR SHALL BRACE OR PROTECT ALL WALLS BELOW GRADE FROM LATERAL LOADS UNTIL SUPPORTING FLOORS ARE COMPLETELY IN PLACE AND HAVE ATTAINED 7-DAY STRENGTH MINIMUM. BACKFILLING IS NOT PERMITTED FOR FOUNDATION WALLS UNTIL SUPPORTED SLAB TOP AND BOTTOM IS IN PLACE OR THE WALL IS ADEQUATELY BRACED TO RESIST LATERAL LOADS. CONTRACTOR SHALL PROVIDE FOR DESIGN, PERMITS, AND INSTALLATION OR SHORING AND/OR SHEETING.
4. CONTRACTOR SHALL PROVIDE FOR DE-WATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER OR SEEPAGE. FREE GROUND WATER WAS NOT ENCOUNTERED IN THE BORINGS. DETAILS OF GROUND WATER INFORMATION CAN BE OBTAINED FROM THE ABOVE-MENTIONED GEOTECHNICAL REPORT. IF GROUND WATER SHOULD OCCUR DURING EXCAVATION, SPECIAL PROCEDURES SHALL BE IMPLEMENTED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
5. WHERE THERE IS NOT SUFFICIENT SPACE FOR SLOPED EMBANKMENTS, SHORING WILL BE REQUIRED. SEE THE GEOTECHNICAL REPORT FOR INFORMATION REGARDING THE DESIGN AND INSTALLATION OF THE SHORING. SHORING THAT IS NOT PART OF THE PERMANENT BUILDING SUPPORT IS THE CONTRACTOR'S RESPONSIBILITY AND OUTSIDE THIS PERMIT.
6. CARE SHALL BE EXERCISED WHEN EXCAVATING OR GRADING ADJACENT TO EXISTING STRUCTURES OR IMPROVEMENTS TO NOT DAMAGE OR UNDERMINE FOUNDATIONS, WALLS, SLABS, UTILITIES, ETC.
7. CONTRACTOR SHALL INVESTIGATE SITE DURING CLEARING AND EARTHWORK OPERATIONS FOR FILL MATERIAL OR BURIED STRUCTURES SUCH AS CESSPOOLS, CISTERNS AND FOUNDATIONS. IF ANY SUCH MATERIAL OR STRUCTURES ARE FOUND, ARCHITECT/ENGINEER SHALL BE NOTIFIED IMMEDIATELY. ALL ABANDONED FOUNDATIONS, UTILITIES AND OTHER STRUCTURES THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
8. ALL FOOTINGS AND SLABS ON GRADE SHALL BE PLACED ONTO FIRM UNDISTURBED SOIL OR CONTROLLED COMPACTED FILL, REMOVING ANY EXISTING FILL, ORGANIC MATERIAL, OR UNSUITABLE SOILS, AS RECOMMENDED BY THE GEOTECHNICAL REPORT. EXPOSED NATURAL SOIL SHALL BE PROOF ROLLED BELOW SLABS ON GRADE.
9. THE PREPARATION OF THE SUBGRADE FOR THE SLAB ON GRADE SHALL BE IN STRICT ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT REFERENCED ABOVE. THE CONTRACTOR SHALL DIRECT QUESTIONS REGARDING THE SUBGRADE PREPARATION REQUIREMENTS TO THE GEOTECHNICAL ENGINEER.
10. FOUNDATION ELEVATIONS SHOWN DESIGNATE A MINIMUM DEPTH WHERE AN ADEQUATE SOIL BEARING PRESSURE IS EXPECTED. FOOTINGS, PIERS AND/OR WALLS SHALL BE LOWERED OR EXTENDED AS REQUIRED TO REACH SOIL MEETING THE DESIGN BEARING PRESSURE.
11. ALL REQUIRED BACKFILL AND UTILITY TRENCH BACKFILL WITHIN THE BUILDING AREA SHALL BE MECHANICALLY COMPACTED IN 8" LAYERS TO 95% MAXIMUM DRY DENSITY PER ASTM D1557 AND TO THE APPROVAL OF THE INSPECTION AGENCY.
12. THE MOISTURE CONTENT OF ONSITE CLAYEY SOILS AT THE TIME OF COMPACTION SHALL BE BETWEEN 2-3% ABOVE OPTIMUM MOISTURE CONTENT.
13. ANY REQUIRED IMPORT FILL SOIL SHALL HAVE A LOW POTENTIAL FOR EXPANSION AND SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO IMPORTING.

REINFORCING STEEL

1. ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE AMERICAN CONCRETE INSTITUTE "ACI DETAILING MANUAL" (SP-066) EXCEPT AS OTHERWISE SHOWN, NOTED OR SPECIFIED.
2. CONCRETE REINFORCING STEEL SHALL BE HIGH STRENGTH NEW BILLET STEEL CONFORMING TO THE FOLLOWING STANDARDS:

DEFORMED BARS	ASTM A615, GR 60	Fy = 60 KSI
DEFORMED BARS IN SFRS	ASTM A706, GR 60	Fy = 60 KSI
WELDED WIRE REINFORCING	ASTM A1064	Fy = 65 KSI
DEFORMED EPOXY-COATED BARS	ASTM A775	Fy = 60 KSI
DEFORMED GALVANIZED-COATED BARS	ASTM A767	Fy = 60 KSI
STEEL WIRE	ASTM A1064	Fy = 60 KSI
DEFORMED BAR ANCHORS	ASTM A1064	Fy = 70 KSI
WELDABLE BARS, DEFORMED	ASTM A706, GR 60	Fy = 60 KSI

3. MINIMUM CONCRETE COVER SHALL BE PROVIDED AS FOLLOWS TO THE OUTERMOST REINFORCING BARS:

CAST AGAINST AND PERMANENTLY IN CONTACT WITH GROUND	3"
EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
#6 BARS OR LARGER	2"
#5 BARS OR SMALLER	1 1/2"
NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND	
SLABS, JOIST AND WALLS WITH #14 AND #18 BARS	1 1/2"
SLABS, JOISTS AND WALLS WITH #11 BARS OR SMALLER	3/4"
BEAMS, COLUMNS, PEDESTALS AND TENSION TIES	1 1/2"
COLUMN VERTICAL BARS	2"
BOUNDARY ELEMENTS	1 1/2"

4. ALL REINFORCING IN CONCRETE USED FOR THE CONTAINMENT OF WATER SHALL BE HOT-DIP GALVANIZED OR EPOXY-COATED.
5. WELDING OF REINFORCING BARS TO BE IN ACCORDANCE WITH AWS D1.4.
6. DEFORMED BAR ANCHORS (DBA) SHALL BE AUTOMATICALLY END WELDED WITH SUITABLE WELDING EQUIPMENT IN THE SHOP OR IN THE FIELD. WELDING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER.
7. SUPPORTS FOR REINFORCEMENT SHALL HAVE CLASS 2 PROTECTION AS DEFINED IN THE CRSI MANUAL OF STANDARD PRACTICE, UNLESS OTHERWISE NOTED.
8. SUPPORTS FOR COATED REINFORCEMENT SHALL HAVE CLASS 1 PROTECTION AS DEFINED IN THE CRSI MANUAL OF STANDARD PRACTICE, UNLESS OTHERWISE NOTED.
9. ALL WELDED WIRE REINFORCING (WWR) SHALL BE LAPPED 2 PANELS AT EDGES AND ENDS.
10. CONTINUOUS HORIZONTAL REINFORCING SHALL BE LAPPED AT MIDSPAN FOR TOP BARS AND DIRECTLY OVER SUPPORTS FOR BOTTOM BARS. AT DISCONTINUOUS ENDS, THE TOP STEEL SHALL BE BENT DOWN 12 BAR DIAMETERS OR 12" MINIMUM, WHICHEVER IS GREATER.
11. FOR MAT FOUNDATIONS, REINFORCING FOR TOP BARS SHALL BE LAPPED UNDER STRUCTURAL COLUMNS AND WALLS ABOVE AND AT MIDSPAN FOR BOTTOM BARS. AT DISCONTINUOUS ENDS, THE TOP STEEL SHALL BE BENT DOWN 12 BAR DIAMETERS OR 12" MINIMUM, WHICHEVER IS GREATER.
12. WHERE REINFORCEMENT LENGTH IS SPECIFIED, NO SPLICES ARE PERMITTED WITHIN THE SPECIFIED LENGTH WITHOUT APPROVAL BY THE STRUCTURAL ENGINEER.
13. DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE THE SAME GRADE, SIZE AND SPACING OR NUMBER AS THE VERTICAL REINFORCING, RESPECTIVELY, UNLESS OTHERWISE NOTED. PROVIDE FOUNDATION DOWELS TO MATCH SIZE AND SPACING OF WALL OR COLUMN REINFORCEMENT. EXTEND DOWELS A LAP SLICE LENGTH INTO WALL OR COLUMN AND TERMINATE WITH STANDARD HOOK AT BOTTOM OF FOOTING, UNLESS OTHERWISE NOTED.
14. REINFORCING IN WALL FOOTINGS AND GRADE BEAMS BETWEEN COLUMNS SHALL BE DEVELOPED (Ld) INTO COLUMN FOOTINGS.
15. CUTTING OF REINFORCING WHICH CONFLICTS WITH EMBEDDED OBJECTS OR SLEEVES IS NOT ACCEPTABLE.
16. REINFORCING BARS SHALL BE BENT COLD, AND NO METHOD OF FABRICATION SHALL BE USED WHICH WOULD BE INJURIOUS TO THE MATERIAL. HEATING OF BARS FOR BENDING IS NOT PERMITTED.
17. FIELD WELDING OR BENDING OF REINFORCING IS NOT PERMITTED EXCEPT AS INDICATED ON THE DRAWINGS OR AS APPROVED BY THE STRUCTURAL ENGINEER.
18. USE TEMPLATES TO SET ALL EMBEDDED ANCHOR BOLTS, LEVELING PLATES, AND DOWEL BARS AS REQUIRED OR INDICATED ON THE DRAWINGS.
19. SUBMIT SHOP DRAWINGS FOR FABRICATION AND PLACEMENT OF REINFORCING STEEL. INCLUDE SCHEDULES AND DIAGRAMS OF BENT BARS AND SHOW ARRANGEMENT OF REINFORCEMENT, INCLUDING CONCRETE COVER. STRUCTURAL ENGINEER'S REVIEW WILL BE FOR COMPLIANCE WITH DESIGN REQUIREMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING DIMENSIONS AND QUANTITIES.
20. ALL CONCRETE NOT OTHERWISE SPECIFIED SHALL BE REINFORCED TO THE MINIMUM REQUIREMENT OF ACI 318.
21. REINFORCE ALL ARCHITECTURAL CONCRETE TOPPING SLABS WITH 6x6-W1.4xW1.4 WWR UNLESS OTHERWISE NOTED.

CAST-IN-PLACE CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE CORRESPONDING EDITION OF THE AMERICAN CONCRETE INSTITUTE PUBLICATIONS: ACI 117, ACI 301, ACI 305.1, ACI 306.1, ACI 308.1, ACI 318 AND SP-066, UNLESS OTHERWISE NOTED.
2. CONCRETE MATERIALS SHALL CONFORM TO:

CEMENT	ASTM C150, TYPE I OR II
FLY ASH	ASTM C618, TYPE C OR F
FINE AND COARSE AGGREGATE	ASTM C33
LIGHTWEIGHT AGGREGATE	ASTM C330
WATER	POTABLE
AIR-ENTRAINING ADMIXTURE	ASTM C260
WATER REDUCING ADMIXTURE	ASTM C494

3. CONCRETE STRENGTHS SHALL CONFORM TO:

INTENDED USE	STRENGTH (PSI)	EXPOSURE CLASS
FOOTINGS	3000	N/A
FOUNDATIONS	4000	N/A
SLAB ON GRADE	4000	N/A
UNLESS OTHERWISE NOTED	4000	N/A

   NORMAL-WEIGHT 28-DAY STRENGTH UNLESS OTHERWISE NOTED.
4. THE MODULUS OF ELASTICITY OF ALL CONCRETE SHALL EXCEED 57,000 SQRT(f'c) FOR NORMAL-WEIGHT CONCRETE OR wc1.5 33 SQRT(f'c).
5. LIGHTWEIGHT CONCRETE SHALL HAVE A DRY DENSITY OF 107-116 PCF.
6. DRYPACK OR GROUT SHALL HAVE A MINIMUM 28-DAY STRENGTH OF 7000 PSI.
7. SLAB-ON-GRADE CONSTRUCTION: LOCATE SAW-CUT CONTROL JOINTS ALONG COLUMN LINES WITH INTERMEDIATE JOINTS SPACED PER THE TABLE BELOW, UNLESS OTHERWISE NOTED. SLAB PANELS SHALL HAVE A MAXIMUM LENGTH TO WIDTH RATIO OF 1.5:1. PROVIDE ADDITIONAL CONTROL JOINTS AT ALL RE-ENTRANT CORNERS. SEE PLAN FOR SPECIAL CASES.

THICKNESS (IN)	MAXIMUM JOINT SPACING EACH WAY (FT)
5	13
6	15

8. CROSS REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO ENSURE PROPER DIMENSIONS AND PLACEMENT OF ALL ANCHOR BOLTS, INSERTS, NOTCHES, AND EDGES OF WALLS/FOUNDATIONS PRIOR TO PLACING CONCRETE.
9. UNLESS OTHERWISE NOTED, ALL FOOTINGS SHALL BE CENTERED UNDER WALLS, PIERS OR COLUMNS.
10. CONSTRUCTION JOINTS SHALL BE THOROUGHLY ROUGHENED TO 1/4" AMPLITUDE BY SAND BLASTING OR MECHANICAL MEANS. CLEAN BEFORE POUR. LOCATION TO BE APPROVED BY THE STRUCTURAL ENGINEER. SUBMIT LOCATION PLAN OF ALL PROPOSED JOINTS NOT INDICATED ON DRAWINGS FOR APPROVAL PRIOR TO BEGINNING WORK.
11. PRIOR TO PLACING CONCRETE, THE CONTRACTOR SHALL ENSURE ALL REINFORCING AND EMBEDMENTS, INCLUDING COLUMN ANCHOR BOLTS, ARE PROPERLY LOCATED AND SECURELY TIED IN PLACE.
12. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL PENETRATIONS THROUGH CONCRETE BEFORE PLACING. SECURE SLEEVES TO PREVENT MOVEMENT DURING PLACING OPERATIONS. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS.
13. CONFIRM WITH ARCHITECT THAT MATERIALS TO BE EMBEDDED ARE SUITABLE FOR EMBEDMENT IN CONCRETE.
14. CONDUIT, PIPES, AND SLEEVES EMBEDDED IN CONCRETE SHALL CONFORM TO REQUIREMENTS OF ACI 318, SECTIONS 20.7 AND 26.8.
15. DO NOT PLACE VERTICAL CONDUIT IN CONCRETE COLUMNS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER.
16. NO ALUMINUM SHALL BE ALLOWED IN THE CONCRETE WORK UNLESS COATED TO PREVENT ALUMINUM-CONCRETE REACTION.
17. PROJECTING CORNERS OF BEAMS, WALLS, COLUMNS, ETC., SHALL BE FORMED WITH A 3/4 INCH CHAMFER, UNLESS OTHERWISE NOTED ON ARCHITECTURAL DRAWINGS.
18. SLOPE SLABS TO DRAINS OR FOR POSITIVE DRAINAGE IF NO DRAINS ARE PRESENT AND PROVIDE DEPRESSIONS WHERE SHOWN ON THE STRUCTURAL AND/OR ARCHITECTURAL DRAWINGS WITHOUT REDUCING THE THICKNESS OF SLAB INDICATED. FOR SLAB-ON-GRADE DEPRESSIONS GREATER THAN 1 INCH, SEE DETAILS FOR ADDITIONAL REINFORCING.
19. INTERNALLY VIBRATE ALL CAST-IN-PLACE CONCRETE EXCEPT SLABS-ON-GRADE WHICH NEED ONLY BE VIBRATED AROUND UNDER FLOOR DUCTS AND OTHER EMBEDDED ITEMS.
20. PROVIDE VERTICAL CONTROL JOINTS IN EXPOSED CONCRETE WALLS AT A MINIMUM UNIFORM SPACING NOT TO EXCEED 25 FEET PER ACI 224.3. COORDINATE JOINT LOCATIONS WITH ARCHITECTURAL DRAWINGS.
21. CONCRETE SHALL NOT BE PERMITTED TO DROP MORE THAN 5 FEET.
22. IF CONCRETE IS PLACED BY PUMPING, SUPPORT SHALL BE PROVIDED FOR THE HOSE. THE HOSE SHALL NOT BE ALLOWED TO RIDE ON THE REINFORCING AND OTHER EMBEDDED ITEMS.
23. CONCRETE SLABS SHALL BE CURED BY KEEPING CONTINUOUSLY WET FOR 7 DAYS. FORMS FOR CONCRETE WALLS SHALL BE LEFT IN PLACE FOR 7 DAYS OR MAY BE STRIPPED AFTER 3 DAYS AND COATED WITH AN APPROVED CURING COMPOUND.
24. NO LOADS SHALL BE PLACED ON STRUCTURAL CONCRETE SLABS WITHIN 7 DAYS AFTER CONCRETE IS PLACED. AFTER CONCRETE IS PLACED, IN NO CASE SHALL THE SUPERIMPOSED CONSTRUCTION LOADS BE GREATER THAN SPECIFIED DESIGN LIVE LOADS, UNLESS THE WORK IS SHORED.
25. NOTIFY THE ARCHITECT/STRUCTURAL ENGINEER 48 HOURS MINIMUM PRIOR TO ALL POURS.
26. CONTRACTOR SHALL SURVEY ALL CONCRETE WORK WITHIN 48 HOURS OF PLACING CONCRETE TO ENSURE PLACEMENT IS IN ACCORDANCE WITH PROJECT REQUIREMENTS.
27. THE DESIGN AND ENGINEERING OF FORMWORK, SHORING AND RESHORING, AS WELL AS THEIR CONSTRUCTION, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. FORMS SHALL BE DESIGNED TO HAVE SUFFICIENT STRENGTH TO SAFELY WITHSTAND THE LOADS RESULTING FROM PLACEMENT AND VIBRATION OF THE CONCRETE AND SHALL ALSO BE DESIGNED FOR SUFFICIENT RIGIDITY TO MAINTAIN SPECIFIED TOLERANCES. CONTRACTOR SHALL SUBMIT DETAILED FORMWORK SHOP DRAWINGS TO THE ARCHITECT TO BE REVIEWED FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT ONLY.
29. SHORING OF ELEVATED CONCRETE TO REMAIN UNTIL CONCRETE TESTS, CURED UNDER JOB-SITE CONDITIONS HAVE BEEN TESTED AND INDICATE 80% OF THE DESIGN MODULUS OF ELASTICITY. GENERAL CONTRACTOR TO PROVIDE THE STRUCTURAL ENGINEER WITH MODULUS OF ELASTICITY TEST RESULTS. SHORING OF THE STRUCTURAL BAY CONTAINING CONSTRUCTION JOINTS AND/OR POUR STRIPS TO REMAIN IN PLACE UNTIL SLAB CONSTRUCTION IS COMPLETE.
30. CONCRETE FILL THICKNESS SHOWN ON FRAMING PLANS AND DETAIL SHEETS IS MINIMUM THICKNESS. NO ALLOWANCES HAVE BEEN SHOWN FOR ADDITIONAL CONCRETE FILL REQUIRED TO COMPENSATE FOR BEAM OR DECK DEFLECTIONS AND TO MAINTAIN SURFACE TOLERANCES SPECIFIED.
31. PROVIDE LIGHTWEIGHT SELF-LEVELING MATERIAL AT ELEVATED CONCRETE SLABS AND SLABS ON STEEL DECK AS REQUIRED TO MEET FLOOR FLATNESS AND LEVELNESS REQUIREMENTS. SUBMIT PROPOSED LOCATIONS AND LEVELING MATERIAL DATA FOR APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO PLACEMENT.
32. CORING OF CONCRETE IS NOT PERMITTED UNLESS APPROVED BY THE STRUCTURAL ENGINEER.
33. NO CONCRETE SHALL BE PLACED ONTO OR AGAINST SUBGRADES CONTAINING FREE WATER, FROST, ICE OR SNOW.
34. DURING WINTER CONSTRUCTION, ALL FOOTINGS SHALL BE PROTECTED FROM FROST PENETRATION UNTIL THE BUILDING IS ENCLOSED AND TEMPORARY HEAT IS PROVIDED.
35. GENERAL CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR SIZE, LOCATION AND HEIGHT OF MECHANICAL EQUIPMENT PADS ON CONCRETE SLAB ON STEEL DECK AND SLAB-ON-GRADE.
36. THE PROPOSED MATERIALS AND MIX DESIGN SHALL BE FULLY DOCUMENTED AND REVIEWED BY THE TESTING AGENCY. RESPONSIBILITY FOR OBTAINING THE REQUIRED DESIGN STRENGTH IS THE CONTRACTOR'S. SUBMIT TEST DATA ON EACH PROPOSED MIX FOR REVIEW IN ACCORDANCE WITH THE APPLICABLE CODE. MIX DESIGNS SUBMITTED WITHOUT THE REQUIRED TEST DATA WILL BE RETURNED WITHOUT REVIEW.
37. PROVIDE SLAB COORDINATION DRAWING SUBMITTAL INDICATING COORDINATED LOCATIONS OF: MEP PENETRATIONS, SLEEVES, OPENINGS, IN-SLAB CONDUIT/DUCT (IF ALLOWED), EMBEDS, CAST-IN ANCHORS, POST-TENSIONED TENDONS AND STRESSING ANCHORS, AND OTHER ITEMS EMBEDDED OR PENETRATING STRUCTURAL ELEVATED SLABS.

STEEL

1. STRUCTURAL STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "DETAILING FOR STEEL CONSTRUCTION" AND FABRICATED AND ERECTED IN ACCORDANCE WITH THE "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS".
2. STRUCTURAL STEEL SHALL CONFORM TO ASTM STANDARDS AS NOTED BELOW, UNLESS OTHERWISE NOTED:

OTHER ROLLED SHAPES	ASTM A36	Fy = 36 KSI
BASE AND CONNECTION PLATES	ASTM A36	Fy = 36 KSI
ANCHOR RODS	ASTM F1554, GR 36	Fy = 36 KSI
HIGH STRENGTH BOLTS	ASTM F3125, GR A325	Fv = 120 KSI
HIGH STRENGTH TWIST-OFF BOLTS	ASTM F3125, GR F1852	Fv = 120 KSI
HIGH STRENGTH TWIST-OFF BOLTS	ASTM F3125, GR F2280	Fv = 150 KSI
HEAVY HEX NUTS	ASTM A563	
WASHERS	ASTM F436	
HEADED STUD ANCHORS	ASTM A108, TYPE B	
ELECTRODES FOR ARC WELDING	AWS 5.1, E70XX	

3. HIGH STRENGTH BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH AISC "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS". SEE DETAILS FOR BOLT SIZE AND MATERIAL ASTM DESIGNATION.
4. ALL BOLTED CONNECTIONS SHALL BE GRADE A325N BEARING TYPE BOLTS, UNLESS OTHERWISE NOTED. ALL BOLTS SHALL BE INSTALLED TO A MINIMUM "SNUG TIGHT" CONDITION, UNLESS OTHERWISE NOTED.
5. FULLY TENSIONED HIGH STRENGTH BOLTS AND SLIP CRITICAL HIGH STRENGTH BOLTS SHALL USE TENSION-CONTROL "TWIST-OFF" BOLTS OR BE INSTALLED USING THE TURN OF THE NUT METHOD.
6. ALL STEEL EXPOSED TO WEATHER OR AS NOTED ON PLAN SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 G60. ABRADED AREAS TO BE TOUCHED UP WITH COLD GALVANIZING COMPOUND IN ACCORDANCE WITH ASTM A780.

WOOD

1. STRUCTURAL SHEATHING
   A. ALL PANELS TO BE PLYWOOD OF MINIMUM 5 PLY CONSTRUCTION OR OSB. EACH PANEL SHALL BEAR THE QUALITY TRADEMARK STAMP OF THE AMERICAN PLYWOOD ASSOCIATION (APA).
   B. ROOFS: REFER TO STRUCTURAL INSULATED PANELS
      i. PANEL EDGE SUPPORT SHALL BE EITHER TONGUE-AND-GROOVE EDGE, PANEL EDGE CLIP MIDWAY BETWEEN SUPPORTS, OR LUMBER BLOCKING (MIN 2x4 SIZE).
   C. WALLS:

iii. PROVIDE MINIMUM 2x SOLID BLOCKING AT PANEL EDGES OF WALL SHEATHING WHERE REQUIRED BY SHEAR WALL SCHEDULE OR AT PANEL EDGES OF ROOF/FLOOR SHEATHING WHERE REQUIRED ON PLAN.

iv. SHEATHING FASTENERS SHALL BE DRIVEN FLUSH BUT SHALL NOT FRACTURE THE FACE PLY.

v. HOT-DIP GALVANIZED NAILS SHALL BE USED WHEN NAILING TO PRESSURE TREATED MEMBERS.

F. PANEL LAYOUT:

i. LONG DIMENSION OF PANEL TO BE PERPENDICULAR TO FRAMING MEMBERS, EXCEPT PANELS AT WALLS MAY BE INSTALLED WITH LONG DIMENSION PARALLEL TO STUDS UNLESS OTHERWISE NOTED.

ii. END JOINTS IN ADJACENT RUNS SHALL BE STAGGERED 4 FEET.

iii. MINIMUM PANEL WIDTH SHALL BE 12".

iv. EDGES OF ALL PANELS LESS THAN 24" WIDE SHALL BE BACKED BY BLOCKING (MIN 2x4 SIZE)

v. PROVIDE 1/8" GAP AT ALL SHEATHING JOINTS FOR FLOORS AND WALLS UNLESS OTHERWISE NOTED ON PLAN OR DETAILS.

G. IF SHEATHING PANELS EXHIBIT SWELLING, NAIL HEAD PULL-THROUGH, SOFT SPOTS OR OTHER CONDITIONS WHEREBY REDUCING THE STRUCTURAL CAPACITY, REMOVE AND REPLACE.

2. LUMBER:

A. COMPLY WITH ANSI/AWC NATIONAL DESIGN SPECIFICATION (NDS) FOR WOOD CONSTRUCTION.

B. ALL FRAMING LUMBER SHALL BE DOUGLAS FIR-LARCH, GRADED BY WESTERN WOOD PRODUCTS ASSOCIATION. NOTED ALLOWABLE STRESSES ARE MINIMUMS AND FOR NONREPETITIVE USES PRIOR TO ALLOWABLE STRESS INCREASES AND CONFORMING TO THE NDS AS FOLLOWS:

2" THICK - 4" TO 6" WIDE (WALL STUD ONLY)	NO. 2 Fb = 900 PSI, E = 1,600,000 PSI
2" TO 4" THICK - 6" AND WIDER	NO. 2 FB = 900 PSI, E = 1,600,000 PSI
5" THICK - 5" AND WIDER	NO. 1 Fb = 1350 PSI, E = 1,600,000 PSI

C. ALL LUMBER STRESSES SHOWN ABOVE ARE FOR VISUALLY STRESS-RATED LUMBER USED AT 19% MAXIMUM MOISTURE CONTENT WHEN BUILDING IS ENCLOSED, SINGLE MEMBER USE. ALL LUMBER SHALL BE GRADE MARKED.

D. PROVIDE A MINIMUM OF 1 1/2" JOIST BEARING UNLESS OTHERWISE NOTED.

E. NOTCHING OR DRILLING HOLES IN LUMBER FRAMING MEMBERS MUST BE AS APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.

3. MANUFACTURED WOOD PRODUCTS:

A. LAMINATED VENEER LUMBER (LVL)

i. SIZES SHOWN ARE AS MANUFACTURED BY TRUS JOIST, BOISE CASCADE, LOUISIANA PACIFIC, ROSEBURG FOREST PRODUCTS, REDBUILT. MATERIALS, FABRICATION, HANDLING, AND INSTALLATION SHALL BE PER MANUFACTURER'S WRITTEN RECOMMENDATIONS.

ii. MATERIAL STRENGTHS:

MODULUS OF ELASTICITY, E	2000 KSI
BENDING STRENGTH, Fb	2900 PSI
SHEAR STRENGTH, Fv	285 PSI

B. NOTCHING OR DRILLING HOLES IN MANUFACTURED WOOD PRODUCTS THAT ARE DIFFERENT FROM THE MANUFACTURER'S GUIDELINES MUST BE AS APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.

C. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER INSTALLATION PER DETAILED INSTALLATION RECOMMENDATIONS AND GUIDELINES OF THE MANUFACTURER.

D. NAILING INTO THE SIDE FACE OF AN I-JOIST TOP/BOTTOM CHORD IS NOT PERMITTED.

E. PROVIDE SLOPED SEAT HANGERS FOR SLOPING I-JOIST INSTALLATIONS.

F. ALL HANGERS SELECTED SHALL MATCH THE SIZE OF SUPPORTED MEMBER AND SHALL HAVE FULL NAILING AS SHOWN IN THE ICC REPORT.

G. SUBSTITUTIONS MUST BE APPROVED BY THE STRUCTURAL ENGINEER AND HAVE ICC APPROVED LOAD CAPACITIES EQUAL TO OR GREATER THAN THE SIMPSON STRONG-TIE CONNECTORS.

H. SIMPSON HANGERS AT PRESSURE TREATED MEMBERS SHALL HAVE ZMAX COATING.

I. SEE ARCHITECTURAL DETAILS AND SPECIFICATIONS FOR MATERIAL TYPES AND FINISHES.

J. PROVIDE STANDARD CAMBERS FOR ALL ROOF BEAMS AND PURLINS UNLESS OTHERWISE NOTED.

K. SEE MANUFACTURER REQUIREMENTS FOR MINIMUM BEARING LENGTHS.

4. FASTENING:

A. ALL NAILS SHALL BE COMMON WIRE NAILS. AT ALL EXPOSED NAILING TO WEATHER OR INSTALLED IN PRESSURE TREATED WOOD (E.G.-DECKING & SIDING), USE HOT-DIP GALVANIZED NAILS. USE OF PLASTIC COATED OR CASING NAILS IS NOT ALLOWED. NAIL DESIGNATIONS SHALL MEET THE FOLLOWING LENGTHS AND DIAMETERS:

i. 6d - 2" x 0.113"

ii. 8d - 2 1/2" x 0.131"

iii. 10d - 3" x 0.148"

iv. 12d - 3 1/4" x 0.148"

v. 16d - 3 1/2" x 0.162"

vi. 20d - 4" x 0.192"

B. THE NAILING SCHEDULE AND STRUCTURAL DETAILS ARE BASED ON THE USAGE OF "COMMON" WIRE NAILS EXCEPT THAT 16d "SINKER" NAILS (3 1/4" x 0.148") MAY BE USED WHERE 16d IS SPECIFIED. IF GUN NAILS ARE USED, THE CONTRACTOR SHALL SUBMIT NAIL DATA FOR REVIEW PRIOR TO BEGINNING CONSTRUCTION.

C. THE NUMBER AND SIZE OF NAILS CONNECTING WOOD MEMBERS SHALL NOT BE LESS THAN THE FOLLOWING SCHEDULE:

CONNECTION	FASTENING
JOIST TO SILL, TOP PLATE OR GIRDER	(3) 8d TOENAILS
BRIDGING OR BLOCKING BETWEEN JOISTS OR TRUSSES NOT AT WALL TOP PLATE	(2) 8d TOENAILS, EACH END OR (2) 16d END NAILS
SILL PLATE TO JOIST, RIM JOIST OR BLOCKING	16d @ 16" OC, FACE NAIL
TOP PLATE TO STUD AND STUD TO SILL PLATE	(2) 16d END NAILS FOR 2x (3) 16d END NAILS FOR 3x
2x STUD TO TOP OR SILL PLATE	(4) 8d TOENAILS OR (2) 16d END NAILS
3x STUD TO SOLE PLATE	(6) 8d TOENAILS OR (3) 16d END NAILS
STUD TO STUD	16d @ 24" OC, FACE NAIL
DOUBLE TOP PLATES	16d @ 16" OC, FACE NAIL
DOUBLE TOP PLATES, LAP SPLICE	(12) 16d EACH SIDE OF SPLICE
BLOCKING BETWEEN JOIST OR RAFTERS TO TOP PLATE	(3) 8d TOENAILS
RIM JOIST TO TOP PLATE OR FRAMING BELOW	8d @ 6" OC, TOENAIL
JOIST TO RIM JOIST	(3) 16d END NAILS
TOP PLATE LAPS AT CORNERS AND INTERSECTIONS	(2) 16d, FACE NAIL
BUILT-UP HEADER	16d @ 16" OC ALONG EACH EDGE
CEILING JOIST TO TOP PLATE	(3) 8d TOENAILS
CONTINUOUS HEADER TO STUD	(4) 8d, TOENAIL
CEILING JOIST, LAPS OVER PARTITIONS	(3) 16d FACE NAILS
CEILING JOISTS TO PARALLEL RAFTERS	SEE TABLE 2308.7.3.1
RAFTER OR ROOF TRUSS TO PLATE	(3) 10d TOENAILS
BUILT-UP CORNER STUDS	16d @ 24" OC
BUILT-UP GIRDER AND BEAMS, 2x LUMBER LAYERS	20d FACE NAILS @ 32" OC ALONG T&B, STAGGERED OPPOSITE SIDES, AND (2) 20d AT ENDS AND AT EACH SPLICE
FLAT BLOCKING TO TRUSS AND WEB FILLER	16d @ 16" OC, FACE NAIL
MULTI-PLY LAMINATED VENEER LUMBER (LVL)	2 ROWS 10d (0.128" x 3") @ 12" OC

D. PILOT HOLES SHALL BE PROVIDED FOR ALL NAILS 20d AND LARGER. PILOT HOLES SHALL HAVE A DIAMETER OF APPROXIMATELY 75% OF THE NAIL SHANK DIAMETER.

E. USE OF MACHINE NAILING IS SUBJECT TO A SATISFACTORY JOBSITE DEMONSTRATION AND THE APPROVAL OF THE ARCHITECT/STRUCTURAL ENGINEER.

F. CONTRACTOR TO AVOID SPLITTING WOOD MEMBERS DURING FASTENER INSTALLATION. NAIL HEADS SHOULD BE DRIVEN NO GREATER THAN 1/16 OF AN INCH BELOW WOOD SURFACE.

G. ALL BOLTED WOOD CONNECTIONS SHALL BE MADE WITH A307 BOLTS CONFORMING TO THE REQUIREMENTS OF THE CURRENT VERSION OF ANSI/ASME UNLESS OTHERWISE NOTED. BOLT HOLES SHALL BE 1/32" TO 1/16" LARGER THAN THE BOLT. FORCIBLE DRIVING OF BOLTS IS NOT ALLOWED. RETIGHTEN ALL BOLTS BEFORE CONCEALING CONNECTION.

H. USE STANDARD CUT WASHERS BETWEEN THE BOLTS HEADS, BOLT NUTS AND LAG SCREW HEADS AND WOOD FRAMING, UNLESS OTHERWISE NOTED.

I. ALL WOOD CONNECTIONS MADE WITH LAG SCREWS SHALL BE MADE WITH SCREWS CONFORMING TO THE REQUIREMENTS OF THE CURRENT VERSION OF ANSI/ASME. LEAD HOLES FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK AND THE SAME DEPTH AS THE LENGTH OF UNTHREADED SHANK. THE LEAD HOLE SHALL HAVE A DIAMETER EQUAL TO 60-75% OF THE SHANK DIAMETER.

J. WHERE THERE ARE CONNECTOR NAILING ALTERNATIVES LISTED IN THE MANUFACTURER'S CATALOG, THE NAILING PROVIDING THE HIGHEST LOAD CAPACITY SHALL BE USED, UNLESS OTHERWISE NOTED.

5. GENERAL CONSTRUCTION REQUIREMENTS:

A. METAL FRAMING CONNECTORS NOTED ON THE DRAWINGS USE SIMPSON STRONG-TIE AS BASIS OF DESIGN, UNLESS OTHERWISE NOTED. SUBSTITUTIONS OF ALTERNATE MANUFACTURERS WILL BE ACCEPTABLE AS LONG AS LOAD CAPACITIES ARE MET OR EXCEEDED AND ARE SUBSTANTIATED BY AN ICC REPORT.

B. FRAMING PLANS INDICATE GENERAL LAYOUT AND DIMENSIONAL CONTROL ONLY. SEE SHOP DRAWINGS FOR ENGINEERING AND ERECTION.

C. SOLID-SAWN LUMBER BEAMS, RAFTERS AND JOISTS SHALL HAVE LATERAL SUPPORT PREVENTING ROTATION OR DISPLACEMENT BASED UPON SPAN-TO-DEPTH RATIOS AS FOLLOWS:

i. 2:1, NO LATERAL SUPPORT IS REQUIRED.

ii. 3:1 OR 4:1, THE ENDS SHALL BE HELD IN POSITION BY FULL-DEPTH BLOCKING, BRIDGING, NAILING, OR BOLTING TO OTHER FRAMING MEMBERS.

iii. 5:1, ONE EDGE SHALL BE HELD IN LINE FOR ITS ENTIRE LENGTH.

iv. 6:1, FULL-DEPTH BLOCKING, BRIDGING, OR CROSS-BRACING SHALL BE INSTALLED AT INTERVALS NOT EXCEEDING 8 FEET UNLESS BOTH EDGES ARE HELD IN LINE.

v. 7:1, BOTH EDGES SHALL BE HELD IN LINE FOR THE ENTIRE LENGTH.

D. ALL LUMBER, UNLESS NOTED, SHALL BE MILL SIZED AND SURFACED ON FOUR SIDES AND SHALL BE STRAIGHT STOCK, FREE FROM WARP OR CUP, AND SINGLE LENGTH PIECES.

E. ALL ROUGH CARPENTRY SHALL PRODUCE JOINTS TRUE, TIGHT, AND WELL NAILED WITH MEMBERS ASSEMBLED IN ACCORDANCE WITH THE DRAWINGS AND ALL PERTINENT BUILDING CODES. THE SHIMMING OF SILLS, JOISTS, SHORT STUDS, TRIMMERS, HEADERS, OR OTHER FRAMING MEMBERS SHALL NOT BE PERMITTED. ALL WALLS AND PARTITIONS SHALL BE STRAIGHT, PLUMB, AND ACCURATELY LOCATED. CAREFULLY SELECT ALL STRUCTURAL MEMBERS SO KNOTS AND OBVIOUS MINOR DEFECTS WILL NOT INTERFERE WITH MAKING SOUND CONNECTIONS.

F. INSTALL ALL BLOCKING AS REQUIRED TO SUPPORT ALL REQUIRED FINISHES AND EQUIPMENT. PROVIDE 2x FIRE BLOCKING TO CUT OFF ALL CONCEALED DRAFT OPENINGS, BOTH VERTICAL AND HORIZONTAL, BETWEEN CEILING AND FLOOR AREAS. VERIFY ALL REQUIRED BLOCKING WITH ARCHITECTURAL DRAWINGS AND LOCAL BUILDING OFFICIAL.

G. ALL LUMBER AND PRODUCTS SHALL BE HANDLED AND STORED TO PREVENT MARRING AND MOISTURE ABSORPTION. NO DIRECT CONTACT WITH THE GROUND IS PERMITTED.

H. PROTECTION AGAINST DECAY AND TERMITES:

i. ALL LUMBER: WHEN IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE TREATED WOOD. BOTTOM OF SILLS AT EXTERIOR WALLS SHALL NOT BE LESS THAN 8" ABOVE OUTSIDE GRADE EXCEPT WHERE GRADE IS PAVED OVER FOR 18" MINIMUM WIDTH AND DRAINING AWAY FROM THE BUILDING. FOR THAT CONDITION, SILL MAY BE 2" ABOVE.

ii. EXTERIOR COLUMNS AND POSTS: IN AREAS EXPOSED TO WATER SPLASH AND EXTERIOR CONDITIONS, COLUMN/POST SHALL BE SUPPORTED BY A METAL CONNECTOR AND BE TREATED IN ACCORDANCE WITH AWPA UC3.

iii. STRUCTURAL SUPPORTS OF BALCONIES, PORCHES, OR SIMILAR APPURTENANCES: WHEN MEMBERS ARE EXPOSED TO THE WEATHER WITHOUT ADEQUATE ROOF PROTECTION PREVENTING WATER ACCUMULATION, THEY SHALL BE TREATED WOOD IN ACCORDANCE WITH AWPA UC3.

iv. MOISTURE CONTENT: WHEN WOOD IS PRESSURE TREATED WITH A WATERBORNE PRESERVATIVE AND LOCATED IN ENCLOSED SPACES WHERE DRYING IN SERVICE CANNOT READILY OCCUR, SUCH WOOD SHALL BE AT A MOISTURE CONTENT OF 19% OR LESS BEFORE BEING COVERED.

v. USE AWPA UC4 AT ALL WOOD IN CONTACT WITH SOIL.

I. NOTCHES AND BORED HOLE PENETRATIONS IN WOOD STUD WALLS SHALL CONFORM TO SECTION 2308 OF THE IBC AND TYPICAL DETAIL, WHICHEVER IS MORE RESTRICTIVE.

J. ALL APPLICABLE FRAMING STANDARDS OR GRADING RULES SPECIFIED SHALL BE IDENTIFIED BY THE GRADE MARK OR A CERTIFICATE OF INSPECTION BY AN APPROVED AGENCY. ALL LUMBER AND PLYWOOD REQUIRED TO BE TREATED WOOD SHALL BE IDENTIFIED BY THE QUALITY MARK OF AN APPROVED INSPECTION AGENCY WHICH MAINTAINS CONTINUED SUPERVISION, TESTING, AND INSPECTION OVER THE QUALITY OF THE PRODUCT.

K. ALL APPLICABLE FRAMING STANDARDS OR GRADING RULES SPECIFIED SHALL BE IDENTIFIED BY THE GRADE MARK OR A CERTIFICATE OF INSPECTION BY AN APPROVED AGENCY. ALL LUMBER AND PLYWOOD REQUIRED TO BE TREATED WOOD SHALL BE IDENTIFIED BY THE QUALITY MARK OF AN APPROVED INSPECTION AGENCY WHICH MAINTAINS CONTINUED SUPERVISION, TESTING, AND INSPECTION OVER THE QUALITY OF THE PRODUCT.

L. WALL STUD CONSTRUCTION IS DESIGNED TO BE BRACED BY THE WALL SHEATHING (WOOD STRUCTURAL PANEL OR GYPSUM BOARD). CONTRACTOR TO PROVIDE TEMPORARY BRACING, AS REQUIRED, UNTIL SHEATHING IS INSTALLED.

M. ALL DRYWALL, WINDOWS, EXTERIOR CLADDING, MEP, ETC. SHALL BE ARCHITECTURALLY DETAILED AND CONSTRUCTED BY THE CONTRACTOR TO ACCOMMODATE ESTIMATED VERTICAL MOVEMENT DUE TO CRUSHING, SHRINKAGE, AND CONSTRUCTION GAPS. STRUCTURAL ENGINEER SHALL NOT BE HELD LIABLE FOR ANY POST-CONSTRUCTION REMEDIATION REQUIRED AS A RESULT OF DIFFERENTIAL MOVEMENT.

HEAVY TIMBER

1. ALL HEAVY TIMBER FRAMING SHALL BY DRY, DOUGLAS FIR LARCH, GRADED BY WESTERN WOOD PRODUCTS ASSOCIATION. NOTED ALLOWABLE STRESSES ARE MINIMUMS AND FOR NONREPETITIVE USES PRIOR TO ALLOWABLE STRESS INCREASES AND CONFORMING TO THE NDS AS FOLLOWS:

NO. 1 ALL TIMBER 5" THICK - 5" AND WIDER AND SHALL BE DRY SERVICE CONDITION WITH MOISTURE CONTENT LESS THAN 16% (RF-KD) RADIO FREQUENCY KILN DRIED

BENDING STRENGTH, Fb	1350 PSI
SHEAR STRENGTH, Fv	170 PSI
AXIAL STRENGTH, Fc	925 PSI
COMPRESSION PERPENDICULAR TO GRAIN, Fc perp	625 PSI
MODULUS OF ELASTICITY, E	1,600,000 PSI

METAL PLATE CONNECTED WOOD TRUSSES

1. DESIGN, FABRICATE, TRANSPORT, AND ERECT METAL PLATE CONNECTED WOOD TRUSSES IN ACCORDANCE WITH LATEST STRUCTURAL BUILDING COMPONENTS ASSOCIATION (SBCA) STANDARDS AND MANUFACTURER'S RECOMMENDATIONS.
2. DESIGN FOR LOADS, IN ADDITION TO MEMBER WEIGHTS, AS NOTED ON THE DRAWINGS AND PER APPLICABLE CODE REQUIREMENTS.
3. PREFABRICATED PRE-ENGINEERED TRUSSES ARE PERFORMANCE SPECIFIED. WOOD GRADE, SECTION, BRACING, CONNECTIONS, AND SIMILAR DETAILS ARE THE RESPONSIBILITY OF THE MANUFACTURER BASED ON REQUIRED LOADING.
4. ALL TRUSS-T0-TRUSS CONNECTIONS ARE TO BE DESIGNED BY THE TRUSS MANUFACTURER.
5. ALL PERMANENT AND TEMPORARY BRACING SHALL BE DESIGNED BY THE TRUSS MANUFACTURER, UNLESS OTHERWISE NOTED.
6. COMPONENT DESIGN SHALL BE SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL STRUCTURAL ENGINEER, REGISTERED IN THE STATE WHERE THE PROJECT IS LOCATED. SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS FOR REVIEW BY THE STRUCTURAL ENGINEER THROUGH THE ARCHITECT. FABRICATION SHALL NOT BEGIN WITHOUT APPROVED SHOP DRAWINGS.
7. SHOP DRAWINGS SHALL SHOW THE TRUSS DESIGN LOADS, SIZE AND GRADE OF THE CHORDS AND WEBS, TRUSS DEFLECTION, LOCATIONS OF THE JOINTS AND CONNECTIONS, SIZE AND TYPE AND LOCATION OF THE METAL PLATES, AND ALL BRACING AND BLOCKING REQUIREMENTS.
8. ROOF TRUSS LIVE LOAD DEFLECTION SHALL NOT EXCEED SPAN/360. TOTAL LOAD DEFLECTION SHALL NOT EXCEED SPAN/240.
9. FLOOR TRUSS LIVE LOAD DEFLECTION SHALL NOT EXCEED SPAN/480. TOTAL LOAD DEFLECTION SHALL NOT EXCEED SPAN/360.
10. TRUSSES SUPPORTING MASONRY TO BE DESIGNED FOR A MAXIMUM TOTAL LOAD DEFLECTION OF SPAN/600 OR 3/8", WHICHEVER IS SMALLER.
11. MAXIMUM DIFFERENTIAL DEFLECTION SHALL BE 1/2" MAXIMUM BETWEEN ADJACENT TRUSSES (LIVE LOAD ONLY OR TOTAL LOAD).
12. TRUSS MANUFACTURER SHALL NOT EXCEED THE ALLOWABLE BEARING STRESS PERPENDICULAR TO GRAIN OF THE SUPPORTING MEMBER.
13. TRUSS MANUFACTURER TO CONFIRM CEILING SLOPES AND CONFIGURATION WITH ARCHITECTURAL DRAWINGS PRIOR TO FABRICATION.
14. TRUSS MANUFACTURER IS RESPONSIBLE FOR MAINTAINING WEB OPENING ALIGNMENT BETWEEN ADJACENT TRUSSES AT TYPICAL AND ATYPICAL SPANS. GENERAL CONTRACTOR SHALL COORDINATE WEB OPENING MIS-ALIGNMENT WITH MECHANICAL, ELECTRICAL AND PLUMBING ROUTING.

GLUED-LAMINATED CONSTRUCTION

1. MATERIALS, MANUFACTURE AND QUALITY CONTROL SHALL BE IN CONFORMANCE WITH ANSI/AITC STANDARD A190.1, ASTM D3737 AND AITC 117.
2. LUMBER FOR LAMINATING SHALL COMPLY WITH THE FOLLOWING:

SPECIES	DOUGLAS FIR-LARCH
COMBINATION SYMBOL	24F-V8
STRESS CLASSIFICATION	24F-1.8E
LAYUP	BALANCED
EXTREME FIBER BENDING, TENSION	2400 PSI
EXTREME FIBER BENDING, COMPRESSION	2400 PSI
HORIZONTAL SHEAR	230 PSI
MODULUS OF ELASTICITY, E	1.8 (10^6) PSI

3. THE MAXIMUM MOISTURE CONTENT OF THE WOOD AT THE TIME OF GLUING SHALL NOT EXCEED 16% FOR PROJECTS LOCATED IN COASTAL AREAS, 12% FOR PROJECTS LOCATED IN INTERIOR VALLEYS, OR 10% FOR PROJECTS LOCATED IN DESERT AREAS, WITH THE GEOGRAPHICAL AREAS AS DETERMINED BY THE CITY REPRESENTATIVE. MOISTURE CONTENT OF THE WOOD FOR MEMBERS EXPOSED TO DIRECT SUNLIGHT OF THE FINISHED STRUCTURE SHALL NOT EXCEED 10% AT THE TIME OF GLUING. THE MINIMUM MOISTURE CONTENT SHALL NOT BE LESS THAN 7%. THE RANGE OF MOISTURE CONTENT OF LAMINATIONS ASSEMBLED INTO A SINGLE MEMBER SHALL NOT EXCEED 5% AT THE TIME OF GLUING.
4. THOSE PORTIONS OF GLUED-LAMINATED TIMBERS WHICH FORM THE STRUCTURAL SUPPORTS FOR THE BUILDING AND ARE EXPOSED TO WEATHER AND NOT PROPERLY PROTECTED BY A ROOF, EAVES, OVERHANGS, OR SIMILAR COVERING SHALL BE TREATED WITH AN APPROVED PRESERVATIVE.
5. ADHESIVES SHALL MEET THE REQUIREMENTS OF ASTM D2559 FOR WET SERVICE CONDITION. TEMPERATURE OF LUMBER IN SERVICE SHALL NOT EXCEED 150°F.
6. A COAT OF END SEALER SHALL BE APPLIED TO THE ENDS OF ALL MEMBERS AS SOON AS PRACTICAL AFTER END TRIMMING. SURFACES OF THE MEMBERS SHALL BE SEALED WITH A PENETRATING SEALER.
7. MEMBERS SHALL BE BUNDLE WRAPPED.
8. EACH MEMBER SHALL BE STAMPED WITH A QUALITY MARK AND AN IDENTIFYING MARK INDICATING SPECIES OF LUMBER, GRADE, TYPE OF GLUE, EXTREMES OF MOISTURE CONTENT, AND COMBINATION SYMBOL INDICATING CONFORMANCE WITH THE ABOVE NOTED PRODUCT STANDARD.
9. ALL GLUED-LAMINATED TIMBER SHALL BE CONTINUOUSLY INSPECTED DURING FABRICATION BY A GLUE FABRICATION INSPECTOR SPECIALLY APPROVED FOR THAT PURPOSE BY THE STRUCTURAL ENGINEER. INSTALLATION OF ALL TIMBER CONNECTORS SHALL ALSO BE INSPECTED BY A QUALIFIED INSPECTOR APPROVED BY THE STRUCTURAL ENGINEER.
10. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER PRIOR TO FABRICATION.

POST-INSTALLED ANCHORS

1. ANCHORS SERVING AS THE BASIS OF DESIGN ARE SHOWN ON THE DRAWINGS. ACCEPTABLE ALTERNATIVE ANCHORS MAY BE SUPPLIED PROVIDED THE QUANTITY AND CONFIGURATION MATCH THE CAPACITY OF THE DESIGN ANCHOR QUANTITY AND CONFIGURATION. ANY ALTERNATES ARE TO BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW. INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. BELOW SUMMARIZES EACH ANCHOR TYPE USED ON THE PROJECT.
2. MECHANICAL ANCHORS:

a. EXPANSION ANCHORS

ANCHORED INTO	BASIS OF DESIGN	ACCEPTABLE ALTERNATES
UNCRACKED CONCRETE	HILTI KB3 (ESR-2302)	DEWALT POWER STUD+ SD2 (ESR-2502) RED HEAD TRUBOLT+ (ESR-2427) SIMPSON STRONG BOLT 2 (ESR-3037)
CRACKED CONCRETE	HILTI KBTZ (ESR-1917)	DEWALT POWER STUD+ SD2 (ESR-2502) RED HEAD TRUBOLT+ (ESR-2427) SIMPSON STRONG BOLT 2 (ESR-3037)

b. THREADED SCREW ANCHORS

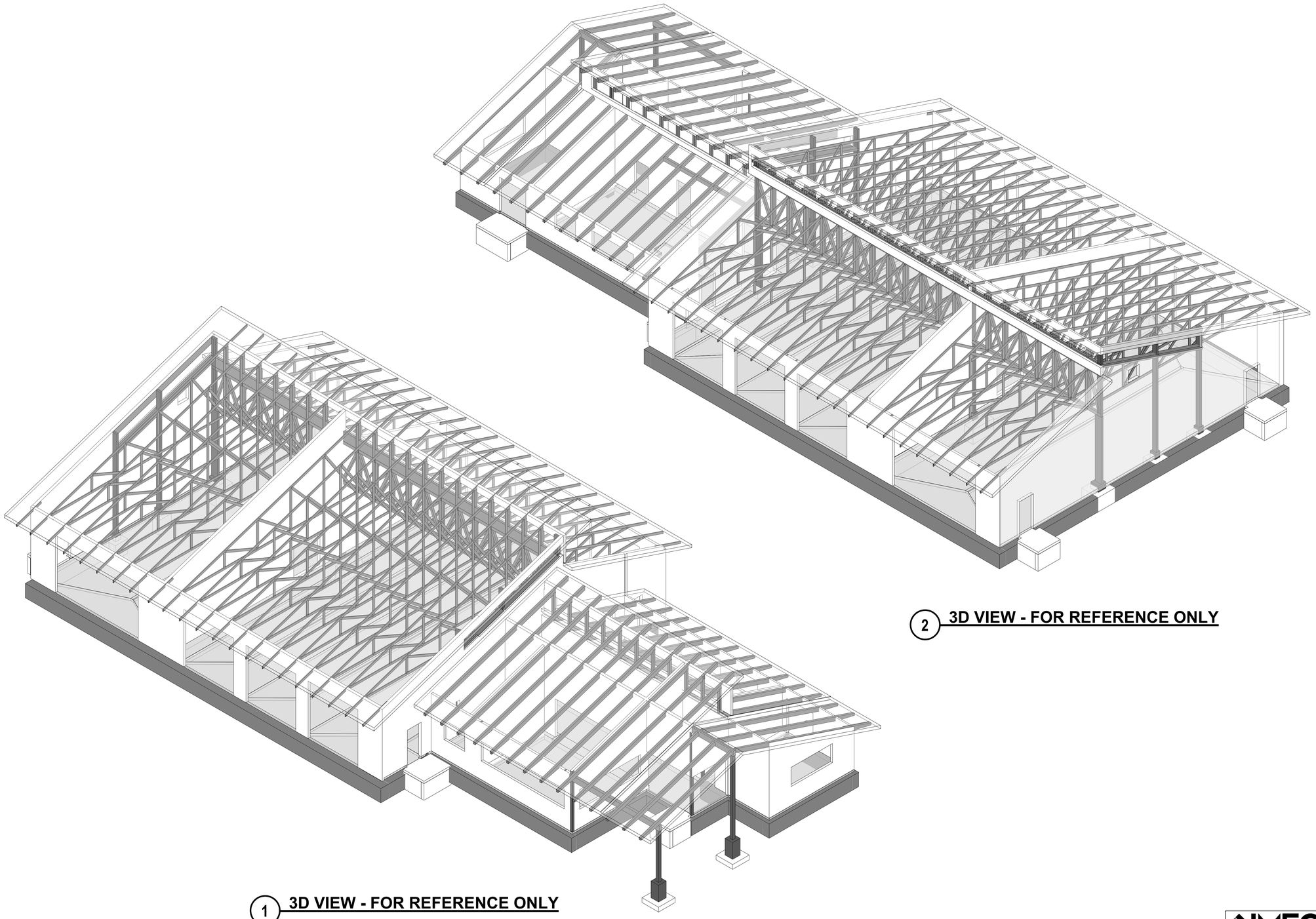
ANCHORED INTO	BASIS OF DESIGN	ACCEPTABLE ALTERNATES
UNCRACKED CONCRETE	HILTI KWIK HUS-EZ (ESR-3027)	DEWALT POWER SCREW-BOLT+ (ESR-3889) SIMPSON TITEN HD (ESR-2713)
CRACKED CONCRETE	HILTI KWIK HUS-EZ (ESR-3027)	DEWALT POWER SCREW-BOLT+ (ESR-3889) SIMPSON TITEN HD (ESR-2713)

3. ADHESIVE ANCHORS: SHALL CONSIST OF DEFORMED REINFORCING BARS OR ASTM A193 GRADE B7 RODS, HEAVY DUTY NUTS AND WASHERS AND A TWO COMPONENT STRUCTURAL ADHESIVE. WHERE ANCHORING INTO HOLLOW MASONRY, A SCREEN TUBE SHALL BE PROVIDED.

STRUCTURAL INSULATED PANELS

1. DEFINITION-STRUCTURAL INSULATED PANELS (SIPS): PRESSURE LAMINATED COMPOSITES ORIENTED STRAND BOARD (OSB) LAMINATED WITH STRUCTURAL ADHESIVES TO AN EPS INSULATION CORE, AND MANUFACTURER SUPPLIED CONNECTING SPLINES SEALANTS, AND SIP SCREWS MANUFACTURED BY R- CONTROL.
2. PROVIDE SIPS WHICH HAVE BEEN MANUFACTURED, FABRICATED AND INSTALLED TO WITHSTAND LOADS AS PER IBC 2012 EDITION.
3. SUBMIT STAMPED DEFERRED SUBMITTAL SHOP DRAWINGS FOR SIPS SHOWING LAYOUT, PROFILES, PRODUCT COMPONENTS AND ACCESSORIES TO SUBMIT TO LOCAL JURISDICTION FOR PERMIT.
4. DELIVERY, STORAGE, & HANDLING: DELIVER MATERIALS IN MANUFACTURER'S ORIGINAL UNOPENED, UNDAMAGED CONTAINERS WITH IDENTIFICATION LABELS, OFF-LOAD SIPS FROM TRUCK AND HANDLE USING FORK LIFT OR OTHER MEANS TO PREVENT DAMAGE TO SIPS. WHEN STORING PANELS; DO NOT ALLOW PANELS TO COME INTO GROUND CONTACT STORED PANELS MUST REMAIN DRY. DO NOT ALLOW PANELS TO BE STORED IN AN UNSUPPORTED MANNER. PRIOR TO INSTALLATION PANELS SHALL BE COVERED AND PROTECTED FROM EXPOSURE TO SUNLIGHT AND MOISTURE.
5. MANUFACTURER'S WARRANTY: SUBMIT SIP MANUFACTURER'S STANDARD WARRANTY DOCUMENT SIP MANUFACTURER WARRANTY IS IN ADDITION TO, AND NOT A LIMITATION OF, OTHER RIGHT OWNER MAY HAVE UNDER CONTRACT DOCUMENTS.
A WARRANTY PERIOD: 2 YEARS COMMENCING ON DATE OF SUBSTANTIAL COMPLETION.
A. WARRANTY PERIOD: 2 YEARS COMMENCING ON DATE OF SUBSTANTIAL COMPLETION.
6. PANELS: R-CONTROL STRUCTURAL INSULATED PANELS CONSISTING OF THE FOLLOWING.
A. UL CERTIFIED EPS CORE WITH PERFORM GUARD TREATMENT, MIN. OF 0.95 PCF COMPLYING WITH ASTM C578 TYPE I AND HAVING ICC ES RECOGNITION OF TERMITE RESISTANCE. INSULATION MANUFACTURER SHALL PROVIDE THIRD PARTY UL CERTIFICATE. ICC ES REPORT SHALL BE PROVIDED FOR RECOGNITION OF TERMITE RESISTANCE IN COMPLIANCE WITH ICC AC239.
B. OSB-SHALL BE IDENTIFIED ON THE PANEL WITH AN APA OR TECO PERFORMANCE RATING MARK WITH EXPOSURE 1 DURABILITY RATING: MINIMUM PHYSICO PROPERTIES SHALL BE TESTED AND THICKNESS MEET DOC PS 2, SPAN RATING 24/16 OR GREATER - 19/32" MINIMUM THICKNESS.
C. ADHESIVES SHALL BE AN R-CONTROL BUILDING SYSTEMS APPROVED LAMINATING ADHESIVE. SHALL BE IN CONFORMANCE WITH ICC ES ACO5-ACCEPTANCE CRITERIA FOR SANDWICH PANEL ADHESIVES.
D. SPLINES: OSB, BLOCK SPLINES, OR I-BEAMS FOR USE IN JOINING PANELS SHALL BE SUPPLIED BY PANEL MANUFACTURER.
E. FASTENERS: CORROSION RESISTANT R-CONTROL SCREWS FOR ROOF, CORNERS AND ATTACHMENT OF PANEL TO FRAMES. IN ADDITION, ZINC GALVANIZED SCREWS NAILS, OR STAPLES FOR SPLINE AND PLATE ATTACHMENTS, FASTENERS AS SUPPLIED OR APPROVED BY PANEL MANUFACTURER FOLLOWING FASTENING REQUIREMENTS.
F. SIP SEALANT: SHALL BE SPECIFICALLY DESIGNED FOR USE WITH SIPS. SEALANT MUST BE COMPATIBLE WITH ALL COMPONENTS OF THE SIP. SEALANT SHALL BE PROVIDED BY THE SIP MANUFACTURER. VOC CONTENT OF SIP SEALANT SHALL BE LESS THAN 10g/L.
G. DIMENSION LUMBER: DF-L #2 OR BETTER OR PRE-ENGINEERED EQUIVALENT SUPPLIED BY CONTRACTOR.
H. VAPOR BARRIER SIP TAPE: WOVEN AND COATED POLYOLEFIN MEMBRANE WITH SYNTHETIC ADHESIVE SUITABLE FOR INDOOR USE, MIN. 4" WIDE FOR USE ON JOINTS BETWEEN SIP ROOF PANELS AND AT INTERSECTIONS OF SIP ROOF AND WALL. SIP TAPE SHALL BE SUPPLIED BY THE SIP MANUFACTURER.
7. COMPLIANCE: COMPLY WITH MANUFACTURER'S ICC ES REPORT, LOAD DESIGN CHARTS, CONSTRUCTION MANUAL, SHOP DRAWINGS, AND PRODUCT DATA, INCLUDING PRODUCT TECHNICAL BULLETINS, FOR INSTALLATION.
8. VERIFY CONDITIONS OF SUBSTRATE, GRADE AND OTHER CONDITIONS WHICH AFFECT INSTALLATION OF ANY ADVERSE CONDITIONS SHALL BE REPORTED IN WRITING. DO NOT PROCEED WITH INSTALLATION UNTIL ADVERSE CONDITIONS ARE CORRECTED.
9. PROVIDE ADEQUATE BRACING OF PANELS DURING ERECTION. REMOVE DEBRIS FROM PLATE AREA PRIOR TO PANEL PLACEMENT.
10. PANEL FASTENING, CONNECT PANELS BY NAILS AS SHOWN ON DRAWINGS SIP SEALANT MUST BE USED TOGETHER WITH EACH FASTENING TECHNIQUE WHEN R-CONTROL SCREW FASTENERS ARE USED PROVIDE A MINIMUM OF 1" PENETRATION INTO SUPPORT.
11. JOIN R-CONTROL PANELS USING PLATES AND SPLINES. SECURE ATTACHMENT WITH NAILS OR SCREWS, AND APPLY SIP SEALANT FOLLOWING MANUFACTURER'S RECOMMENDATIONS.
12. PROVIDE VAPOR RETARDERS MANDATED BY BUILDING CODE OR CLIMATE CONDITIONS.
13. THERMAL BARRIERS: INTERIOR SURFACES OF SIPS SHALL BE FINISHED WITH A MINIMUM 15 MINUTE THERMAL BARRIER, SUCH AS 1/2" GWB OR OTHER APPROVED MATERIALS. APPLY CODE APPROVED THERMAL BARRIERS, ACCORDING TO SIP MANUFACTURER'S RECOMMENDATIONS.
14. RESTRICTIONS: DO NOT INSTALL PANELS DIRECTLY ON CONCRETE. DO NOT PUT PLUMBING IN R- CONTROL PANELS WITHOUT CONSULTING PANEL MANUFACTURER. DO NOT OVERCUT SKINS FOR FIELD- CUT OPENINGS AND DO NOT CUT SKINS FOR ELECTRICAL CHASES. SIPS SHALL BE PROTECTED FROM EXPOSURE TO SOLVENTS AND THEIR VAPORS THAT DAMAGE THE EPS FOAM CORE.
15. REMOVE AND REPLACE INSULATED WALL OR ROOF PANELS WHICH HAVE BECOME EXCESSIVELY WET OR DAMAGED PRECEDING WITH INSTALLATION OF ADDITIONAL PANELS OR OTHER WORK.
16. AFTER INSTALLATION, COVER PANELS TO PREVENT CONTACT WITH WATER ON EACH EXPOSED PANEL EDGES AND FACES.

STRUCTURAL



1 **3D VIEW - FOR REFERENCE ONLY**

2 **3D VIEW - FOR REFERENCE ONLY**

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REF. SCALE IN INCHES

PROJECT #20000551.00

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LAKE COUNTY FOREST PRESERVE DISTRICT

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27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

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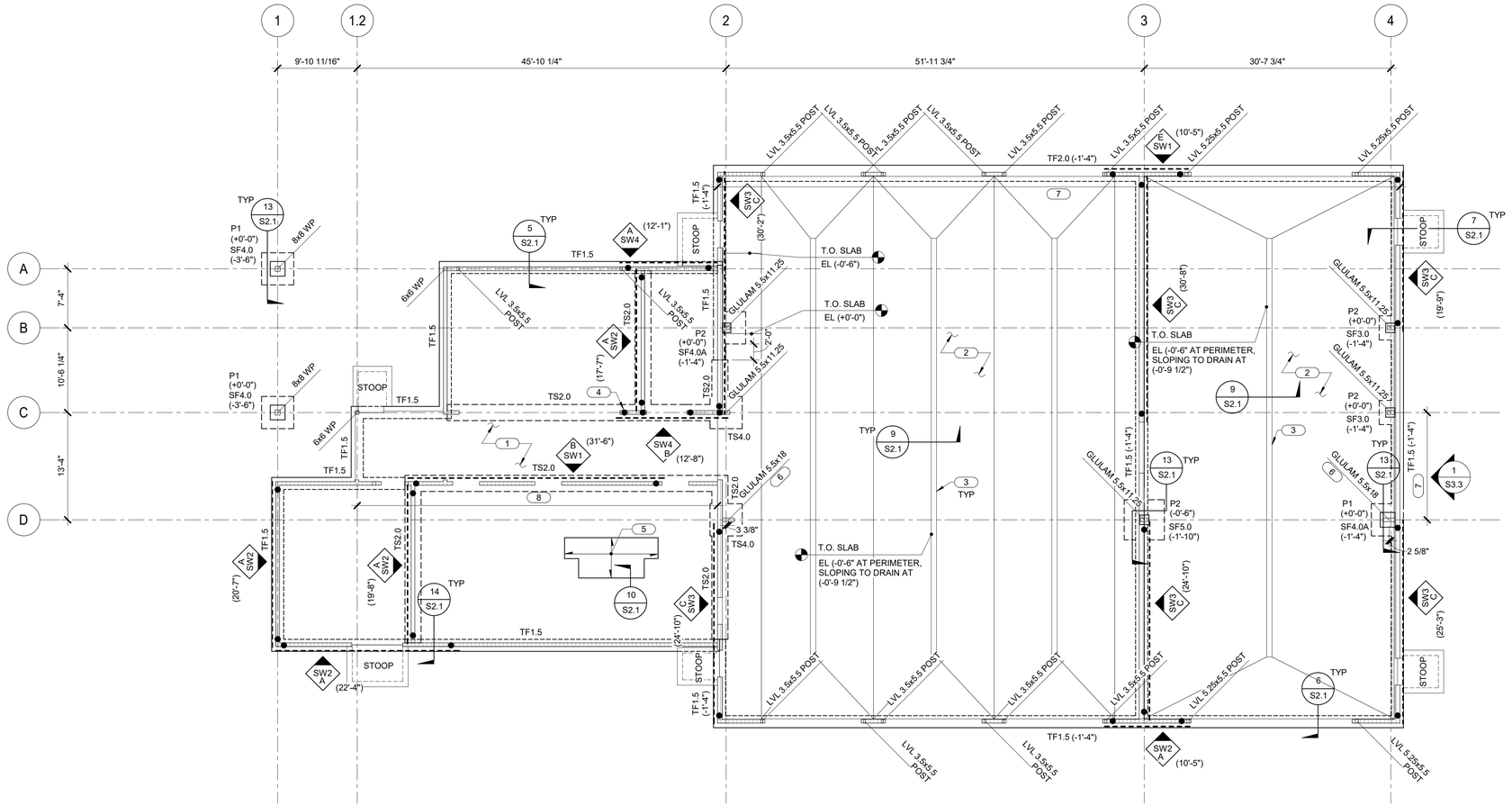
3D VIEWS

S0.2



NOTES:

1. TOP OF FOOTING EL (-0'-8") UNO. SEE THIS SHEET FOR SCHEDULE.
2. P# INDICATES CONCRETE PIER. SEE PLAN FOR TOP OF PIER ELEVATION. SEE S2.1 FOR PIER SCHEDULE.
3. SEE S2.1 FOR TYPICAL SLAB ON GRADE CONSTRUCTION DETAILS.
4. TS#.# INDICATES THICKENED SLAB. SEE 4/S2.1 FOR DETAIL AND ARCHITECTURAL PLANS FOR EXTENT AND LOCATIONS.
5. TF#.# INDICATES TRENCH FOOTING. SEE THIS SHEET FOR SCHEDULE. SEE S2.1 FOR DETAILS.
6. ● INDICATES HOLDOWN. SEE S3.1 FOR SCHEDULE.
7. SEE 6/S3.1 FOR TYPICAL POST BASE CONNECTION DETAILS.
8. PROVIDE 2 x 8 @ 16" OC BEARING WALL STUDS ALONG GRID 2, 3, AND 4. PROVIDE 2 x 6 @ 16" OC BEARING WALL STUDS ELSEWHERE, UON ON PLAN.
9. SEE ARCHITECTURAL DRAWINGS FOR TYPICAL WALL SHEATHING, UON. SEE SHEAR WALL SCHEDULE FOR SHEAR WALL SHEATHING.
10. SEE 15/S2.1 FOR PIPING AND CONDUIT THROUGH FOUNDATIONS.
11. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT GIVEN HERE.

KEYNOTES: (#)

1. 5" CONCRETE SLAB ON GRADE WITH 6x6 - W2.1xW2.1 WWR. TOP OF SLAB EL (+0'-0").
2. 6" CONCRETE SLAB ON GRADE WITH 6x6 - W2.1xW2.1 WWR. TOP OF SLAB EL (SEE PLAN).
3. TRENCH DRAIN - COORDINATE LOCATION AND SIZE WITH PLUMBING AND ARCHITECTURAL DRAWINGS. SEE 9/S3.1.
4. SEE HOLDOWN D ON 1/S3.1.
5. 5" CONCRETE SLAB ON GRADE WITH 6x6 - W2.1xW2.1 WWR. TOP OF SLAB EL (-0'-2"). COORDINATE SIZE AND LOCATION OF DEPRESSION WITH ARCHITECTURAL DRAWINGS.
6. NOTCH GLULAM COLUMN TO 5.5x11.25 AT TRUSS BEARING.
7. BEARING WALL STUDS SPACED AT 12" OC.
8. PROVIDE LVL 5.25 x 5.5 POSTS IN STUD WALL TO ALIGN WITH LVL BEAMS.

SPREAD FOOTING SCHEDULE

MARK	LENGTH	WIDTH	THICKNESS	BOTTOM REINFORCING BOTH DIRECTIONS
SF3.0	3'-0"	3'-0"	3'-0"	(3) #5
SF4.0	4'-0"	4'-0"	1'-0"	(4) #5
SF4.0A	4'-0"	4'-0"	3'-0"	(4) #5
SF5.0	5'-0"	5'-0"	3'-0"	(5) #5

TRENCH FOOTING SCHEDULE

MARK	WIDTH	THICKNESS	REINFORCING	
			LONG DIRECTION	SHORT DIRECTION
TF1.5	1'-6"	3'-0"	(2) #5 T&B	-
TF2.0	2'-0"	3'-0"	(2) #5 T&B	-

THICKENED SLAB SCHEDULE

MARK	WIDTH	d	LONG REINFORCING	REMARKS
TS2.0	2'-0"	1'-0"	(2) #5	
TS4.0	4'-0"	1'-0"	(4) #5 EW	

NORTH 1 **FOUNDATION PLAN**
1/8" = 1'-0"

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Illinois Design Firm Registration #184.007637-0014

REF. SCALE IN INCHES 0 1 2 3 — PROJECT #20000551.00

LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

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WA No. 2020-008
Date 6 APR 2023
Drawn KARKRA
Checked KARPEN

REVISIONS

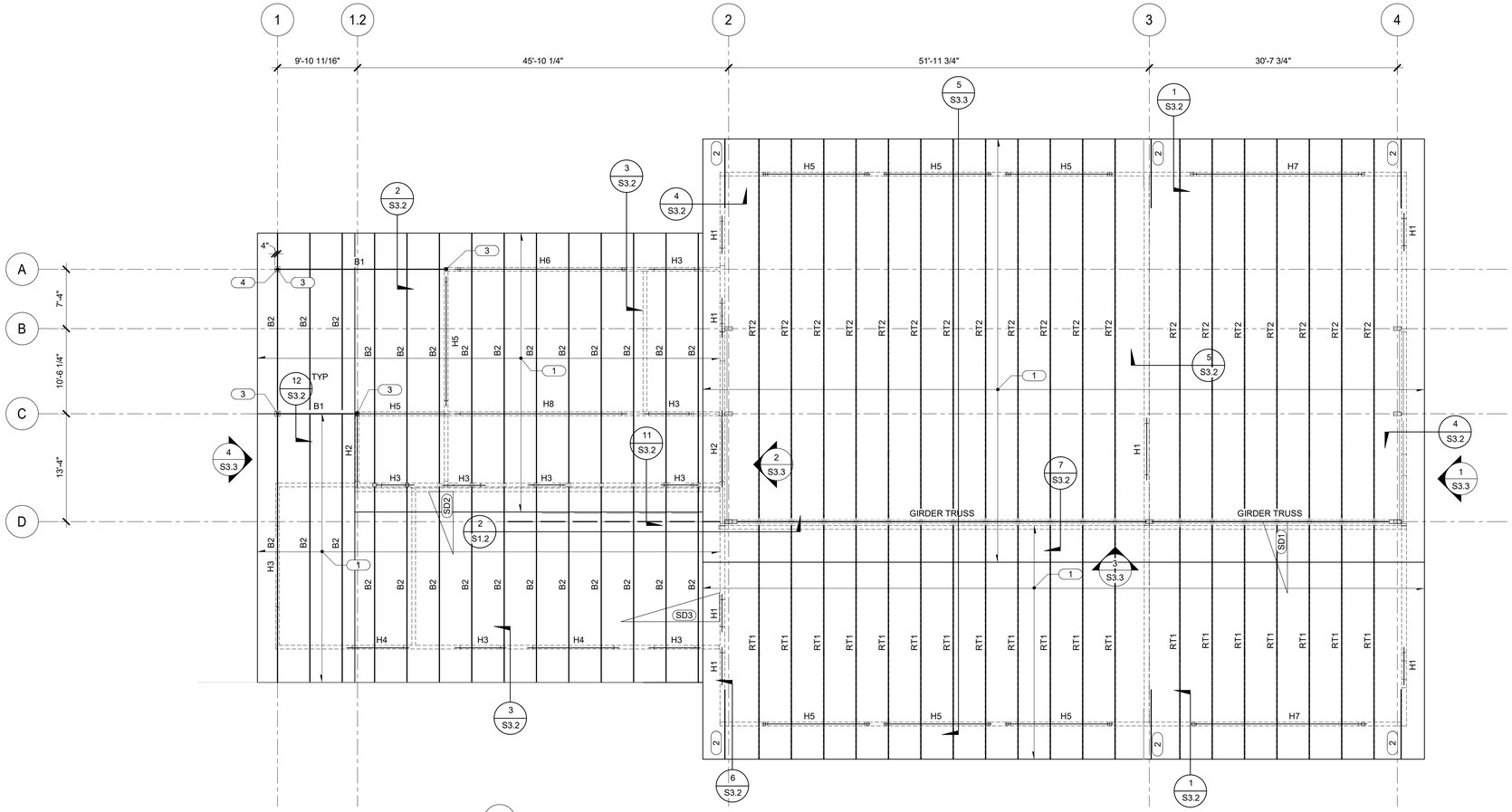
NO.	DATE	DESCRIPTION

GRAPHIC NORTH

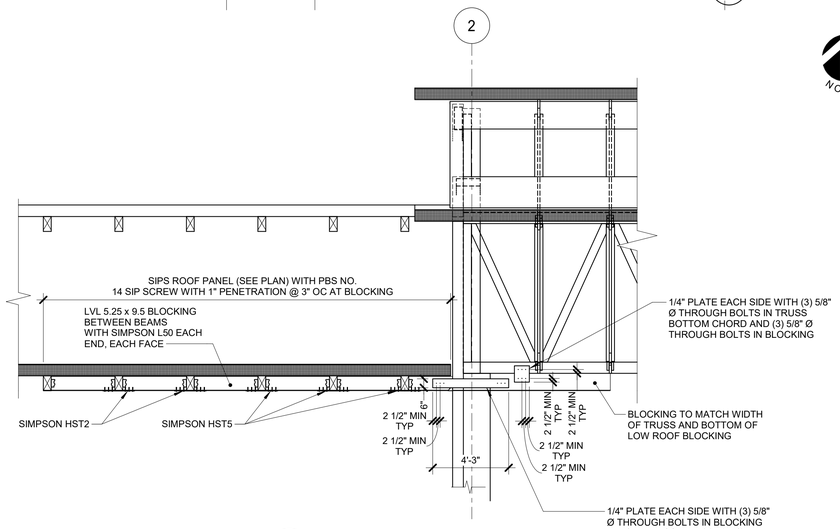
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

FOUNDATION PLAN

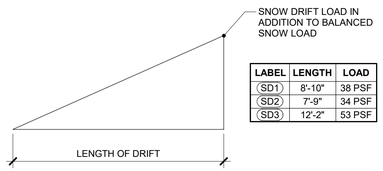
S1.1



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



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



LABEL	LENGTH	LOAD
SD1	8'-10"	38 PSF
SD2	7'-9"	34 PSF
SD3	12'-2"	53 PSF

3 SNOW DRIFT LOADING KEY
3/4" = 1'-0"

WOOD FLOOR/ROOF FRAMING NOTES:

1. SEE ARCHITECTURAL DRAWINGS FOR WALL AND OPENING LOCATIONS.
2. SEE ARCHITECTURAL DRAWINGS FOR T.O. TOP PLATE/TRUSS BEARING ELEVATION UON.
3. TRUSS MANUFACTURER TO COORDINATE ALL OPENINGS WITH MECHANICAL. PROVIDE FRAMING AS REQUIRED.
4. TRUSS MANUFACTURER IS RESPONSIBLE FOR MAINTAINING WEB OPENING ALIGNMENT BETWEEN ADJACENT TRUSSES AT TYPICAL AND ATYPICAL SPANS. GENERAL CONTRACTOR SHALL COORDINATE WEB OPENING MISALIGNMENT WITH MEP ROUTING.
5. RT# INDICATES ROOF TRUSS CONFIGURATION. REFER TO ARCH DRAWINGS FOR GEOMETRY
6. SW# INDICATES WOOD SHEAR WALL. SEE S3.1 FOR SCHEDULES.
7. PROVIDE ROOF TRUSS TIES AT ALL BEARING LOCATIONS, UON. SEE S3.2 FOR DETAILS.

KEYNOTES: (#)

1. 6 1/2" SIPS PANEL WITH PBS NO. 14 SIP SCREW WITH 1" PENETRATION @ 12" OC AT DIAPHRAGM BOUNDARIES AND ALL PANEL EDGES, UON.
2. 2x6 OUTRIGGER ATTACHED TO WOOD SHEAR WALL. REFER TO SECTION 6 /S3.2.
3. CONNECT GIRDER TO POST WITH SIMPSON OCC68 AT 8x8 POST AND SIMPSON OCC66 AT 6x6 POST.
4. CONNECT GLULAM GIRDER TO LVL BEAM WITH SIMPSON APA6. (1) ON EACH FACE OF LVL BEAM (2 TOTAL).

TRUSS LOADING PLAN NOTES:

1. TOP CHORD DL = 10 PSF.
2. BOTTOM CHORD DL = 7 PSF.
3. DEAD LOAD EXCLUDES SELF WEIGHT OF TRUSSES.
4. ROOF LIVE LOAD = 20 PSF.
5. SNOW & SNOW DRIFT LOAD = SEE S1.2.
6. SEE 3/S3.3 FOR GIRDER TRUSS LOAD CRITERIA.

WOOD BEAM SCHEDULE

MARK	MEMBER SIZE	SUPPORT STUDS	REMARKS
B1	GLULAM 5.5 x 14	-	-
B2	LVL 5.25 x 9.5	-	-

WOOD HEADER SCHEDULE

MARK	SIZE	REMARKS
H1	(4) 2x6	-
H2	(4) 2x8	-
H3	(3) 2x10	-
H4	(3) 2x12	-
H5	LVL 5.25 x 11.25	PROVIDE DOUBLE SILL PLATE AT WINDOW OPENING
H6	LVL 5.25 x 14	PROVIDE LVL 5.25 x 5.5 AS SILL BELOW OPENING
H7	LVL 5.25 x 18	PROVIDE (3) TRIMMERS
H8	LVL 5.25 x 16	PROVIDE (3) TRIMMERS

NOTES:

1. SEE 8/S3.1 FOR TYPICAL DETAIL.
2. PROVIDE (2) TRIMMERS AND (1) KING STUD MIN @ ALL BEAMS AND HEADERS UON.

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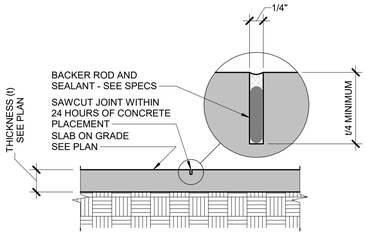
ROOF FRAMING PLAN

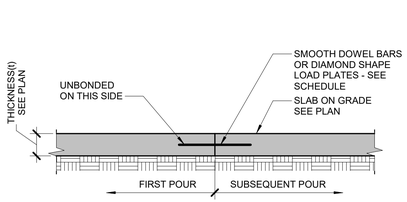
S1.2



NOTES:

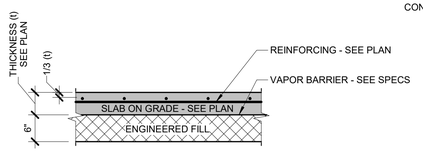
1. SEE CAST-IN-PLACE CONCRETE GENERAL NOTES CONCERNING LOCATION OF JOINTS.

1 TYPICAL CONTROL JOINT
3/4" = 1'-0"



SLAB THICKNESS	SMOOTH DOWEL BAR	DIAMOND SHAPE LOAD PLATES
5"	3/4"Ø x 1'-4" @ 12" OC	1/4"x4 1/2" x 0'-4 1/2" @ 18" OC
6"		

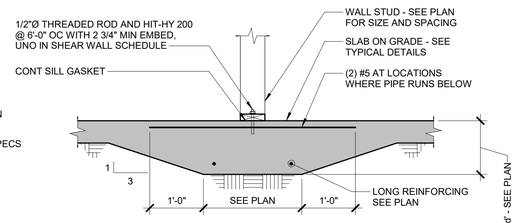
2 TYPICAL CONSTRUCTION JOINT
3/4" = 1'-0"



NOTES:

1. REFERENCE SPECIFICATIONS FOR MATERIAL AND COMPACTION REQUIREMENTS.
2. COMPACT ALL FILL MATERIAL TO 95% OF THE MAXIMUM DRY DENSITY PER ASTM D1557.
3. VAPOR BARRIER TO MEET ASTM E1745, CLASS A AND BE NOT LESS THAN 15 MILS THICK.

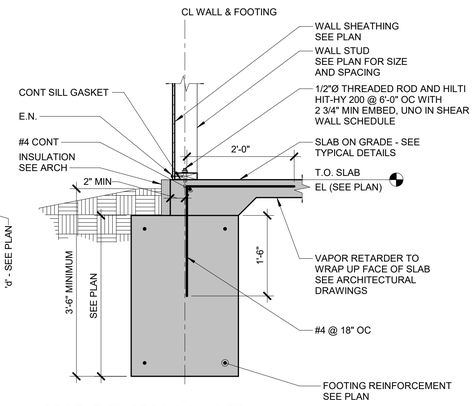
3 TYPICAL SLAB SECTION
3/4" = 1'-0"



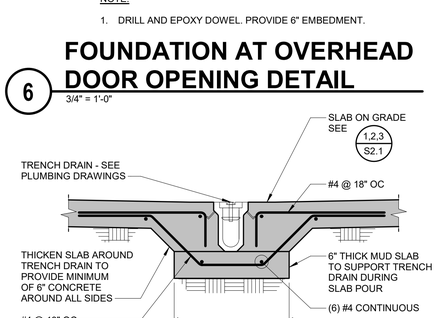
NOTES:

1. CENTER THICKENED SLAB ABOUT WALL. SEE ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS.
2. PROVIDE 2'-0" x 2'-0" CORNER DOWELS AT INTERSECTIONS OF THICKENED SLABS - TO MATCH THICKENED SLAB REINFORCEMENT.

4 INTERIOR BEARING/SHEAR WALL AT THICKENED SLAB
3/4" = 1'-0"



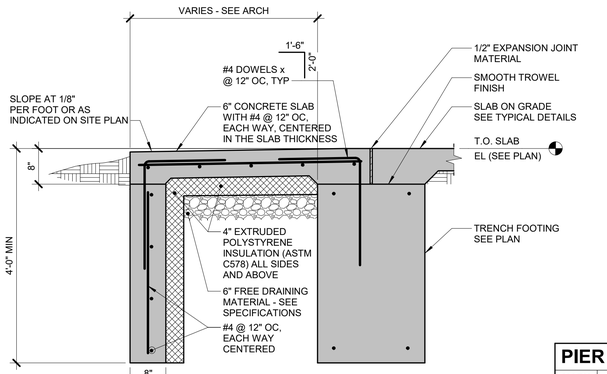
5 WOOD WALL AT TRENCH FOOTING DETAIL
3/4" = 1'-0"



NOTE:

1. DRILL AND EPOXY DOWEL. PROVIDE 6" EMBEDMENT.

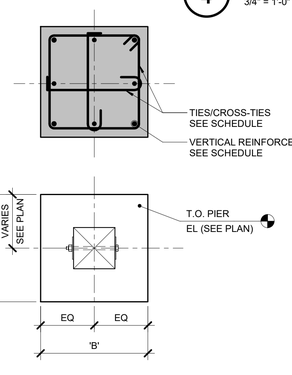
6 FOUNDATION AT OVERHEAD DOOR OPENING DETAIL
3/4" = 1'-0"



NOTE:

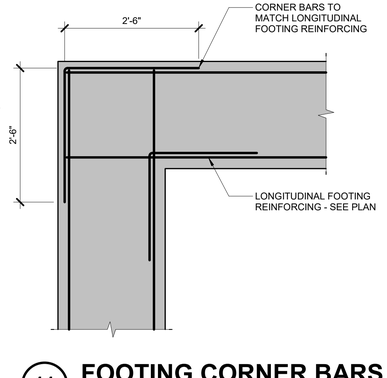
1. SEE ARCHITECTURAL DRAWINGS FOR EXACT STOOP LAYOUT AND LOCATIONS.

7 TYPICAL STOOP DETAIL
3/4" = 1'-0"

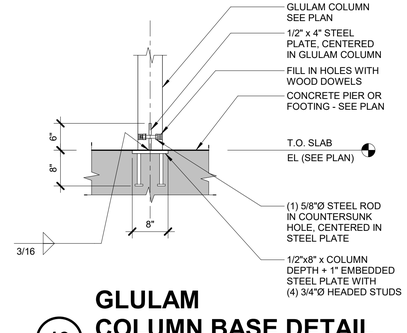


PIER SCHEDULE					
MARK	'B'	'N'	VERTICAL BARS	TIES/CROSS-TIES	REMARKS
P1	1'-10"	1'-10"	(8) #6	#4 @ 12" OC	-
P2	1'-2"	1'-2"	(4) #6	#4 @ 12" OC	-

8 PIER DETAIL
3/4" = 1'-0"



11 FOOTING CORNER BARS
3/4" = 1'-0"

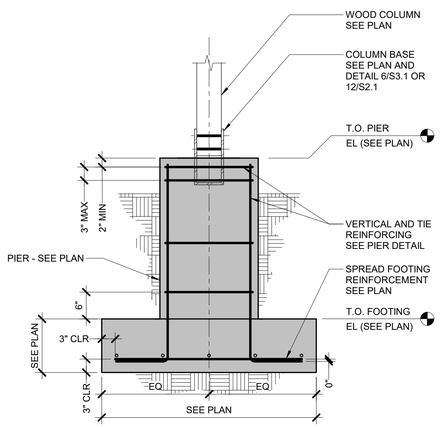


12 GLULAM COLUMN BASE DETAIL
3/4" = 1'-0"

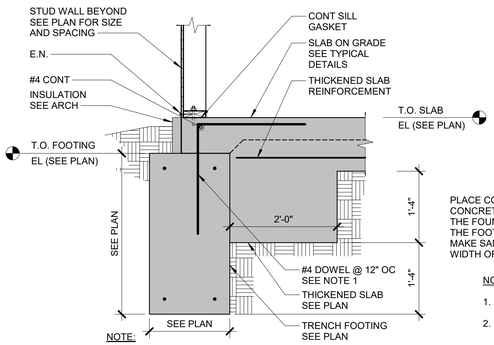
NOTE:

1. CONTRACTOR OPTION TO PROVIDE CONSTRUCTION JOINT AT STEP.

10 TYPICAL SLAB DEPRESSION
3/4" = 1'-0"



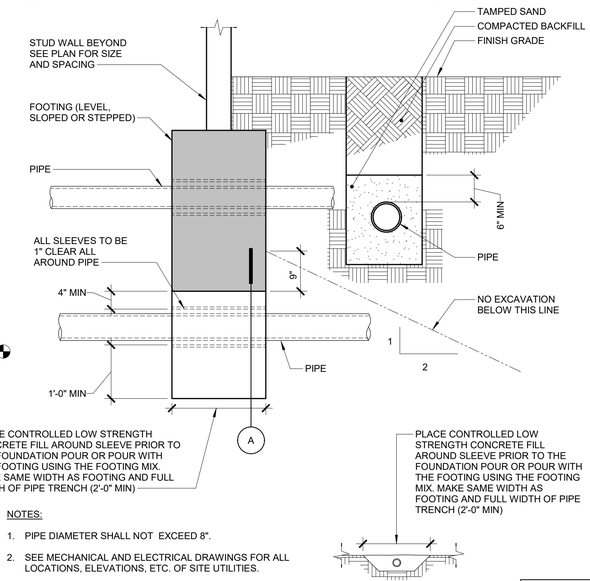
13 COLUMN ON PIER/FOOTING DETAIL
3/4" = 1'-0"



NOTE:

1. DRILL AND EPOXY DOWEL. PROVIDE 6" EMBEDMENT.

14 THICKENED SLAB AT TRENCH FOOTING DETAIL
3/4" = 1'-0"



NOTES:

1. PIPE DIAMETER SHALL NOT EXCEED 8".
2. SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ALL LOCATIONS, ELEVATIONS, ETC. OF SITE UTILITIES.
3. DETAIL REQUIRED AT ALL UTILITIES HAVING A PLAN WIDTH UP TO 1'-0". FOR WIDTHS GREATER THAN 1'-0", SEE PLAN FOR REQUIRED DETAIL.
4. PIPE IS NOT ALLOWED UNDER SPREAD FOOTINGS.

SECTION A

15 TYPICAL PIPE TRENCH DETAIL
3/4" = 1'-0"

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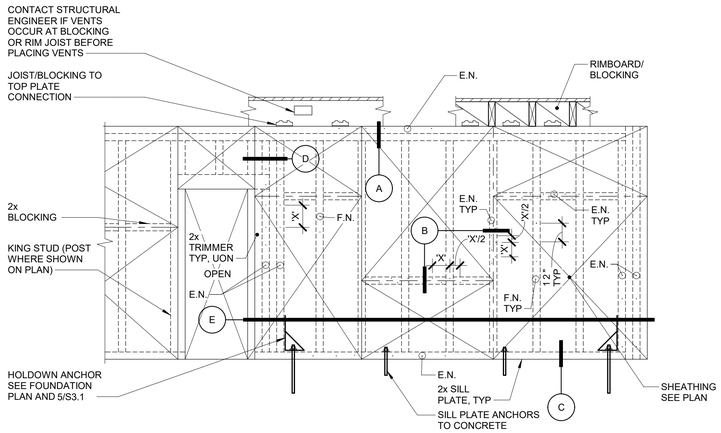
CONCRETE DETAILS

S2.1



NOTES:

A. STRUCTURAL SHEATHING:

1. FOR SHEATHING TYPE (PLYWOOD, RATED SHEATHING, ETC.), SEE FRAMING PLANS AND SHEAR WALL SCHEDULE.
2. WHEN SHEATHING IS NOTED AS 'LET-IN' ON PLANS OR SECTIONS, ALL STUDS AND BLOCKING ARE TO BE RIPPED TO MAINTAIN CONTINUOUS PLANE ON FACE OF WALL.
3. USE 4'-0" x 8'-0" MINIMUM SIZE SHEATHING WHEREVER POSSIBLE AND STAGGER ADJACENT HORIZONTAL JOINTS IN ALL CASES AS SHOWN.
4. MINIMUM DIMENSION OF ANY PIECE OF SHEATHING SHALL BE 2'-0".
5. LEAVE A 1/8" GAP BETWEEN ALL PIECES OF SHEATHING AT EACH STUD AND BLOCKING WHERE SHEATHING SPLICE OCCURS TYP.
6. SHEATHING OCCURS ON 1 SIDE OF WALL, UON. WHERE SHEATHING OCCURS ON BOTH SIDES OF WALL, SHEATHING SPLICES SHALL BE OFFSET TO FALL ON DIFFERENT FRAMING MEMBERS AND ALL BLOCKING AND STUDS AT ADJOINING PANEL EDGES SHALL BE 3x MEMBERS.

B. NAILING:

1. E.N. = EDGE NAILING F.N. = FIELD NAILING
2. 'X' REPRESENTS THE SPACING OF NAILS. SIZE OF NAILS AND SPECIFIC SPACING ARE SHOWN ON SCHEDULE.
3. THE MINIMUM EDGE DISTANCE FOR NAILING OF SHEATHING SHALL BE: 1/2" FOR 10d, 3/8" FOR 8d.
4. MINIMUM STUDS AND BLOCKING SIZES AT SHEATHING SPLICES SHALL BE PER SHEAR WALL SCHEDULE.
5. ALL EDGE NAILING SHALL BE STAGGERED AT ADJOINING PANEL EDGES. SEE TYPICAL SHEAR PANEL ELEVATION

C. GENERAL:

1. ALL SILL PLATES AND STUDS BOLTED TO CMU OR CONCRETE ARE TO BE PRESERVATIVE TREATED.
2. SEE SHEAR WALL SCHED FOR ADDITIONAL REQUIREMENTS.
3. ONLY RECESS NAILER STUD BOLTS AT TRIMMER AT WALL OPENINGS, SEE DETAIL 5/S3.1.
4. WASHER PLATES AT SILL SHALL BE TIGHTENED UNTIL WASHER BEGINS TO DEFORM OR WOOD JUST STARTS TO CRUSH.

HOLDOWN SCHEDULE

MARK	MODEL NO.	CONNECTION TO POST		HOLDOWN POST	ANCHOR ROD			UPLIFT CAPACITY (LBS)		REMARKS
		BOLTS	SCREWS		DIAMETER (IN)	MATERIAL	EMBEDMENT 'E' (IN)	100%	80%	
A	HTT5	-	(26) 0.162 x 2 1/2	(2) 2x6	5/8" ø	ASTM F1554, GR36	5	5,090	4,072	-
B	HD9B	(3) 7/8" ø	-	(3) 2x6	7/8" ø	ASTM F1554, GR36	7	7,740	6,192	-
C	HTT4		(18) 0.148 x 1 1/2	(2) 2x8	5/8" ø	ASTM F1554, GR36	5	3,610	2,888	-
D	HD9B	(3) 7/8" ø	-	(4) 2x6	7/8" ø	ASTM F1554, GR36	7	7,740	6,192	-
E	HD9B	(3) 7/8" ø	-	(3) 2x6	7/8" ø	ASTM F1554, GR36	9	9,200	7,360	-

NOTES:

1. BASIS OF DESIGN IS SIMPSON STRONG-TIE. SUBSTITUTIONS REQUIRE WRITTEN AUTHORIZATION FROM STRUCTURAL ENGINEER.
2. ALL ANCHOR RODS INSTALLED WITH SIMPSON SET-XP HIGH-STRENGTH EPOXY ADHESIVE. CONCRETE SHALL HAVE FULL COMPRESSIVE STRENGTH AT TIME OF ANCHOR INSTALLATION.

1 WOOD HOLDOWN SCHEDULE

NO SCALE

WOOD SHEAR WALL SCHEDULE

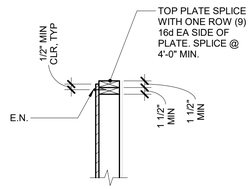
MARK	APA RATED SHEATHING			PANEL NAIL SIZE AND SPACING			FRAMING SIZE AT ADJOINING PANEL EDGES, MIN	JOIST/BLOCKING TO TOP PLATE CONN WITH SIMPSON A35 OR LTP4, UON	SILL PLATE ANCHORS AT CONCRETE		SHEAR CAPACITY (PLF)	REMARKS
	THICKNESS	GRADE	SPAN RATING	SIZE	E.N.	F.N.			SIZE AND SPACING	EMBEDMENT (IN)		
1	5/8"	STRUCT 1	40/20	10d	@ 4" OC,	12" OC	(2) 2x6	10" OC EA FACE	5/8"Ø @ 32" OC	6"	715	-
2	5/8"	STRUCT 1	40/20	10d	@ 6" OC,	12" OC	(2) 2x6	12" OC EA FACE	5/8"Ø @ 32" OC	6"	475	-
3	5/8"	STRUCT 1	40/20	10d	@ 6" OC,	12" OC	(2) 2x8	12" OC EA FACE	5/8"Ø @ 32" OC	6"	475	-
4	5/8"	STRUCT 1	40/20	10d	@ 6" OC,	12" OC	(2) 2x6	12" OC EA FACE	5/8"Ø @ 32" OC	6"	475	REFER TO 7/S3.1 FOR FORCE TRANSFER AROUND OPENING DETAILING

NOTES:

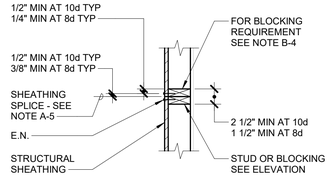
1. SHEATHING SHALL BE PLYWOOD OR OSB ONLY.
2. SILL PLATE ANCHORS ARE BASED UPON HILTI HAS-V ALL-THREAD ROD INSTALLED WITH HILTI-HY 200 V3 ADHESIVE.
3. ALL PANEL EDGES ARE TO BE BLOCKED.
4. SEE PLAN FOR HOLDOWN ANCHOR AND POST SIZE.
5. ALL NAILS SHALL BE COMMON WIRE NAILS WITH 1 1/2" PENETRATION. SINKER OR BOX NAILS ARE NOT PERMITTED.
6. OVERDRIVEN NAILS INTO SHEATHING ARE NOT ACCEPTABLE. ANY SHEATHING AND STUDS DAMAGED DUE TO OVERDRIVEN NAILS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
7. CONCRETE SHALL HAVE FULL COMPRESSIVE STRENGTH AT TIME OF SILL PLATE ANCHOR INSTALLATION.
8. SEE 3,4,5, AND 6 ON S3.1 FOR TYPICAL SHEAR WALL CONSTRUCTION DETAILS.

2 WOOD SHEAR WALL SCHEDULE

NO SCALE



SECTION A



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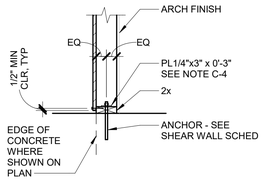
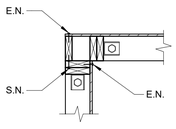
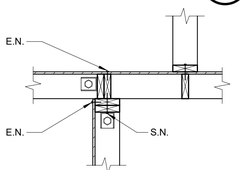
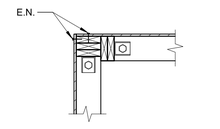
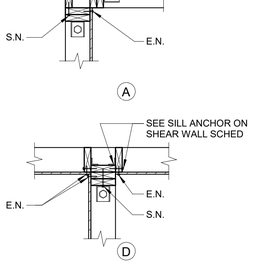


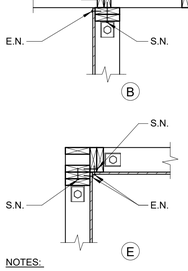
SECTION C

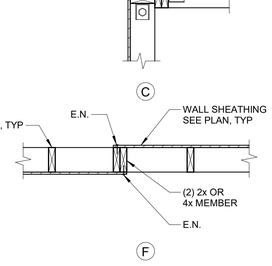










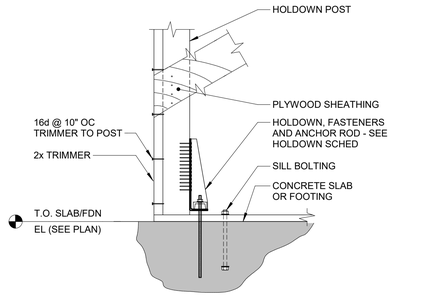


NOTES:

1. SEE FOR DETAILS AT HOLDOWNS WHERE SHOWN.
2. S.N. = STUD NAILING

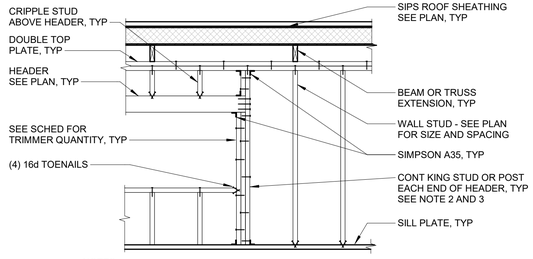
4 SHEAR WALL CORNER/INTERSECTION DETAILS

NO SCALE



5 HDU TYPE HOLDOWN DETAIL

3/4" = 1'-0"

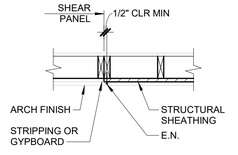


NOTES:

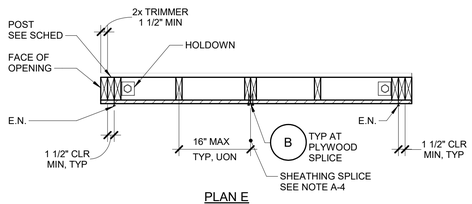
1. SEE PLANS FOR SPECIAL FRAMING REQUIREMENTS.
2. AT EXTERIOR WALLS WHERE OPENING WIDTH IS GREATER THAN 3'-6", PROVIDE DOUBLE STUD EACH END OF HEADER UON.
3. TRIMMERS AND KING STUDS TO BE SAME SIZE AS STUDS UON. SEE PLANS FOR POSTS WHERE REQUIRED INSTEAD OF KING STUDS.
4. NAIL TRIMMERS AND KING STUDS TOGETHER WITH 16d NAILS @ 12" OC, STAGGERED EACH FACE.
5. SEE PLANS FOR SHEAR WALL FRAMING REQUIREMENTS.
6. FRAMING IS SYMMETRICAL ABOUT OPENING.
7. WHERE TRIMMERS/KING STUDS ARE ADJACENT TO SILL PLATE BOLTING, PROVIDE 2" MIN CLEAR.

8 TYPICAL STUD WALL FRAMING DETAIL

1/2" = 1'-0"



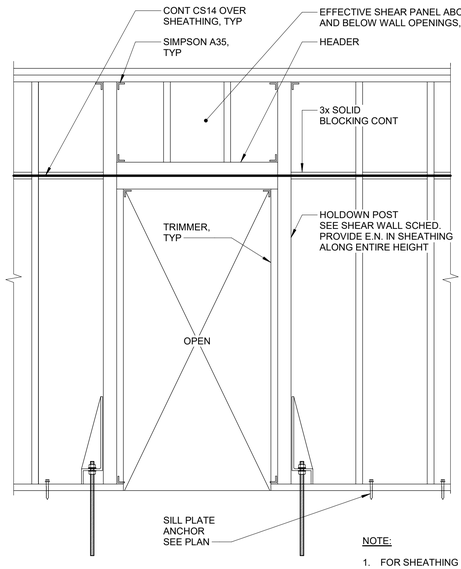
PLAN D

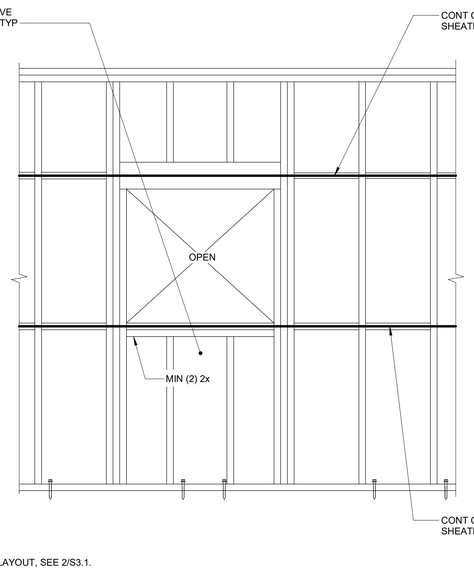


PLAN E

3 SINGLE STORY SHEAR WALL ELEVATION

3/4" = 1'-0"



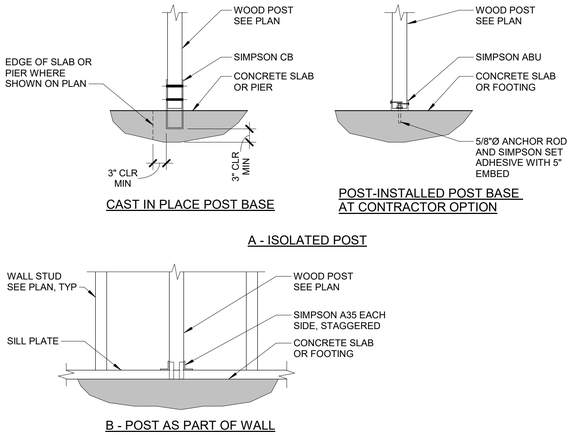


NOTE:

1. FOR SHEATHING LAYOUT, SEE 2/S3.1.

7 FORCE TRANSFER AROUND OPENING SHEAR WALL ELEVATION

3/4" = 1'-0"



6 POST BASE CONNECTION DETAILS

3/4" = 1'-0"

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 6 APR 2023
Drawn KARKRA
Checked KARPEN

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
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WOOD DETAILS

S3.1

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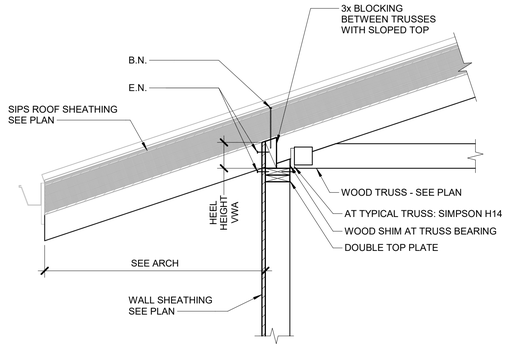
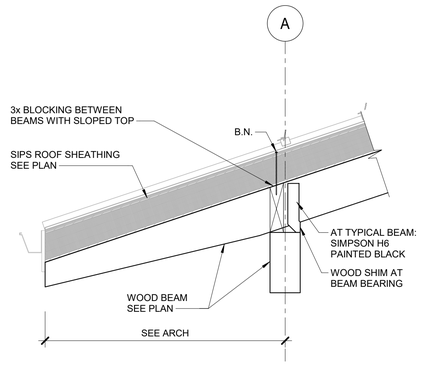
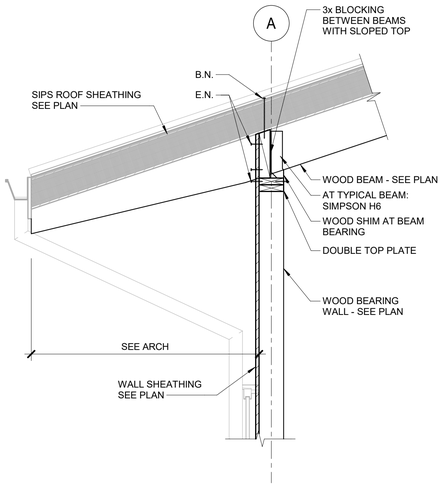


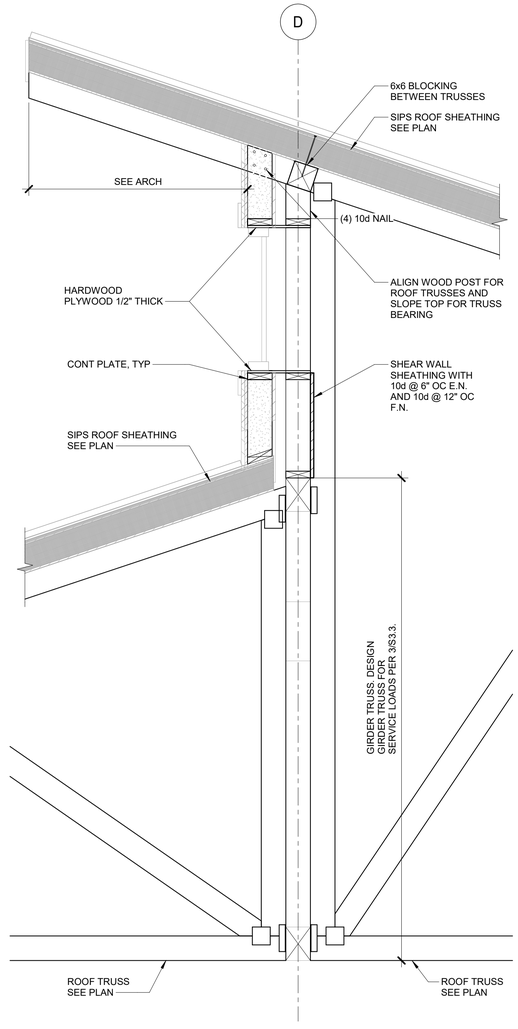
1 TRUSS BEARING AT EXTERIOR WALL
3/4" = 1'-0"

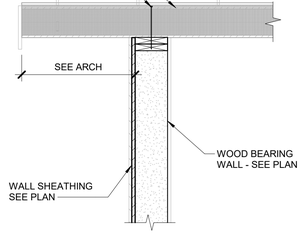


2 BEAM BEARING AT BEAM
3/4" = 1'-0"

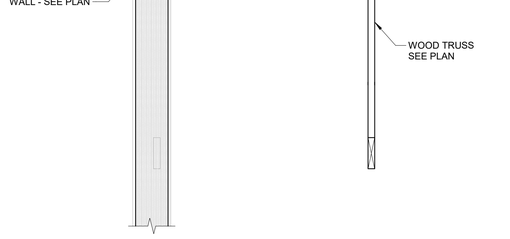


3 ROOF BEARING AT WALL
3/4" = 1'-0"

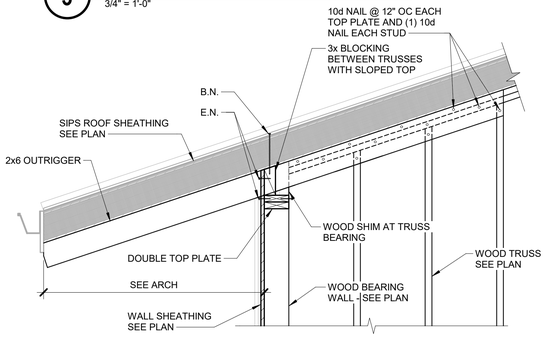




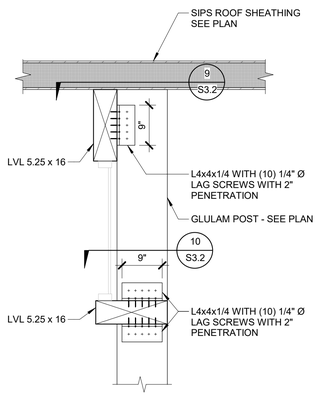
4 ROOF BEARING AT WALL
3/4" = 1'-0"



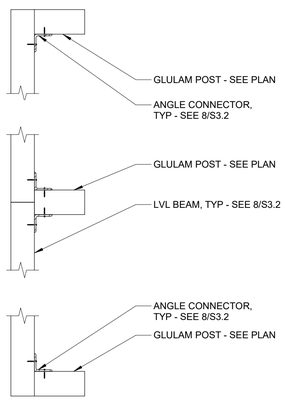
5 ROOF BEARING AT WALL
3/4" = 1'-0"



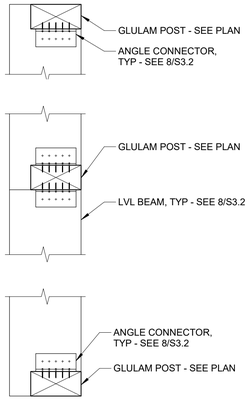
6 ROOF BEARING AT WALL
3/4" = 1'-0"



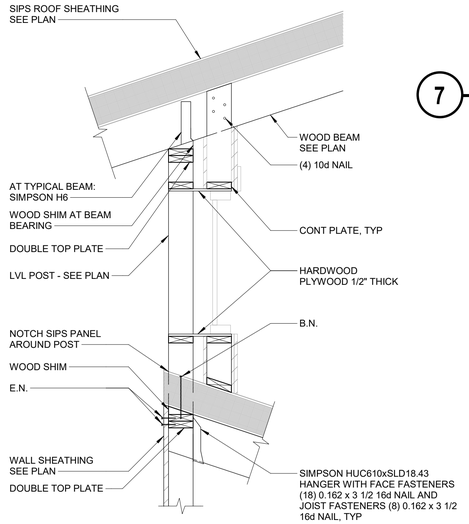
8 SECTION
3/4" = 1'-0"



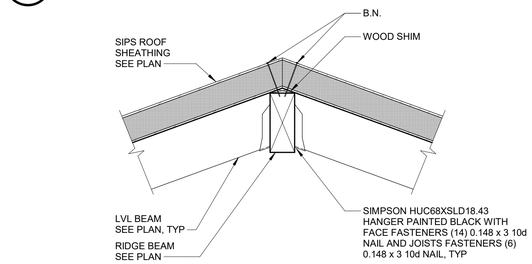
9 SECTION
3/4" = 1'-0"



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



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



12 RIDGE BEAM DETAIL
3/4" = 1'-0"

7 TRUSS BEARING AT GIRDER TRUSS
3/4" = 1'-0"

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No.	2020-008
Date	6 APR 2023
Drawn	KARKRA
Checked	KARPEN

REVISIONS

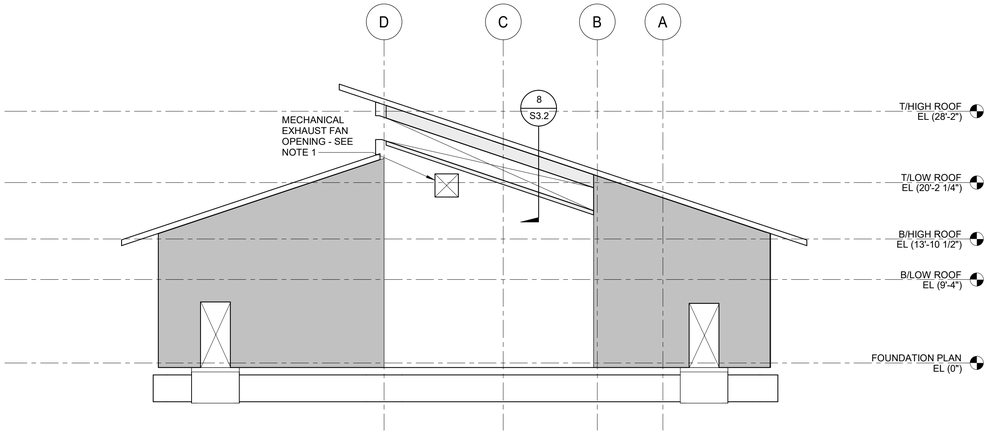
NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

WOOD DETAILS

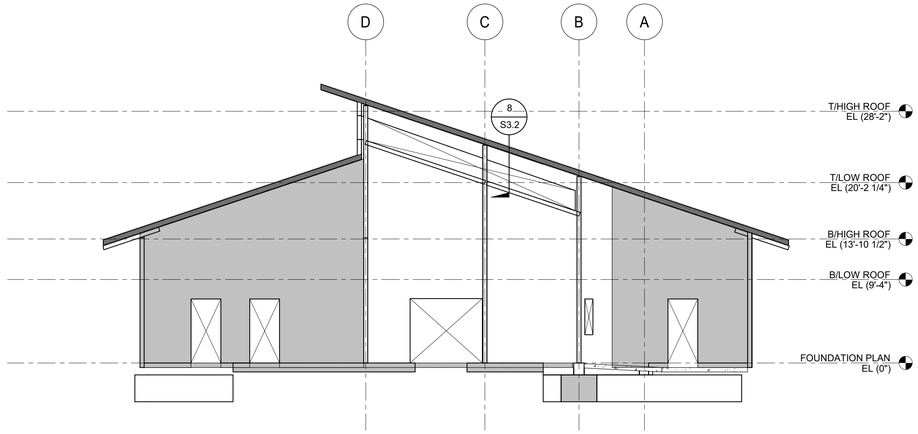
S3.2



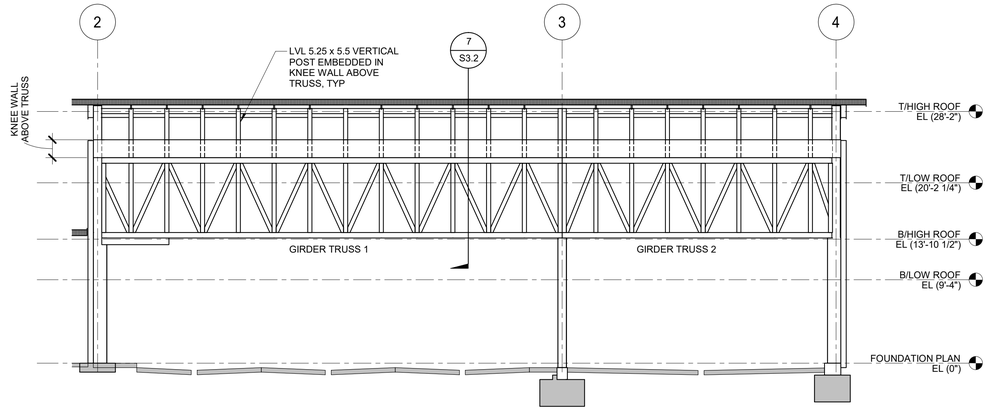
NOTE:

1. PROVIDE (2) 2x PLATE AS HEADER AT OPENING. PROVIDE (2) TRIMMER AND (1) KING STUD EACH SIDE OF OPENING. COORDINATE EXACT LOCATION AND SIZE OF OPENING WITH MECHANICAL.

1 ELEVATION ALONG GRID 4
1/8" = 1'-0"



2 ELEVATION ALONG GRID 2
1/8" = 1'-0"

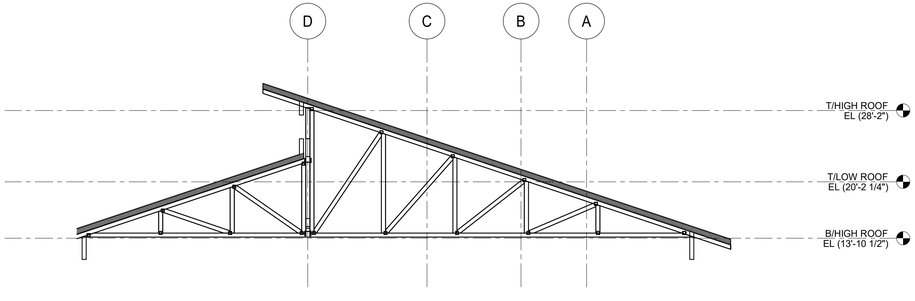


NOTES:

1. GIRDER TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING SERVICE LOADS:
   DEAD LOAD: 652 PLF
   SNOW LOAD: 840 PLF
   ROOF LIVE LOAD: 766 PLF
   LATERAL WIND LOAD: 123 PLF
2. DEAD LOAD EXCLUDES SELF WEIGHT OF TRUSSES
3. WIDTH OF GIRDER TRUSSES SHALL BE 5 1/2".

3 ELEVATION ALONG GRID D
1/8" = 1'-0"

4 ELEVATION ALONG GRID 1
1/8" = 1'-0"



5 SECTION
1/8" = 1'-0"

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
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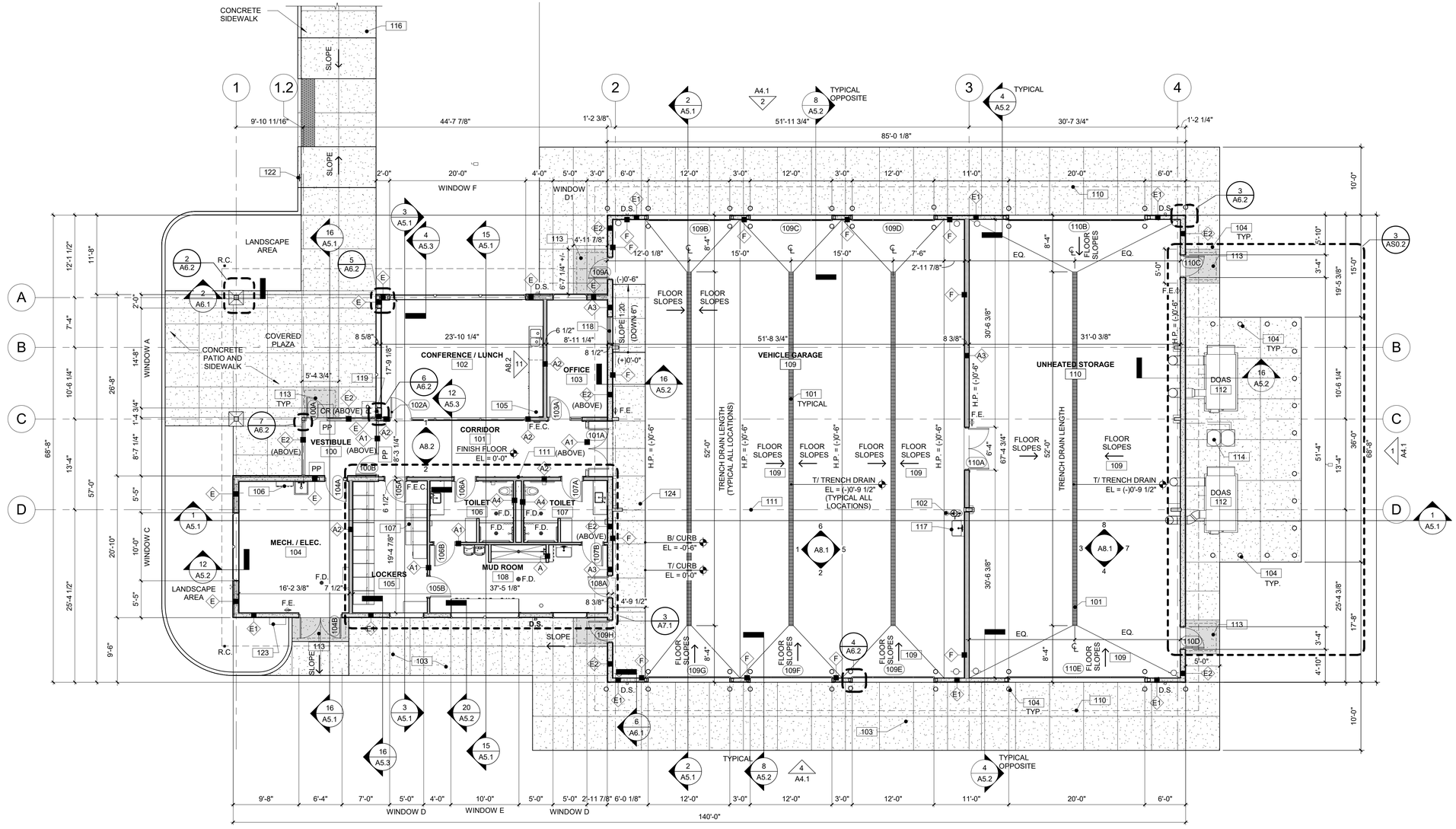

GROUND FLOOR PLAN

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

GENERAL NOTES & PLAN LEGEND

GENERAL

1. REFER TO PROJECT MANUAL FOR ALL PRODUCTS, MATERIALS, OR PROCEDURES NOT COVERED ON THE DRAWINGS.
2. CONSTRUCTION MANAGER SHALL REPORT ANY DISCREPANCIES OR DIMENSIONAL QUESTIONS TO THE ATTENTION OF THE ARCHITECT PRIOR TO SUBMITTAL OF SHOP DRAWINGS.
3. SEE SHEET A4.2 FOR WINDOW TYPES AND DIMENSIONS.
4. ALL EXTERIOR WALLS ARE DIMENSIONED TO THE FACE OF THE SHEATHING.
5. SEE SHEET A8.3 FOR ALL EQUIPMENT AND FURNITURE. NOT SHOWN ON THIS PLAN.

WALL TYPES

1. HATCHED WALLS INDICATE LOCATIONS OF SOUND ATTENUATION BATT INSULATION.
2. SHADED WALLS INDICATE LOCATIONS OF THERMAL SPRAY INSULATION.
3. ALL WALLS TO RECEIVE SOLID SURFACE PANELS (SHOWERS) ARE TO RECEIVE CEMENTITIOUS BACKER BOARD.
4. ALL INTERIOR WALL FINISHES & SUBSTRATES TO BE INSTALLED TIGHT TO STRUCTURE TOP & BOTTOM UNLESS OTHERWISE NOTED.
5. ALL WALL STUD TOP & BOTTOM PLATES TO BE CONTINUOUS & SECURED TO STRUCTURE UNLESS OTHERWISE NOTED.
6. REFER TO STRUCTURAL DRAWINGS FOR ALL SHEAR WALLS AND FASTENING PATTERNS AT SHEAR WALLS.

LEGEND

- F.E. — WALL HUNG FIRE EXTINGUISHER.
- SEMI-RECESSED FIRE EXTINGUISHER CABINET WITH FIRE EXTINGUISHER.
- D.S. — DOWNSPOUT. SQUARE. REFER TO ROOF PLAN.
- R.C. — RAIN CHAIN. REFER TO ROOF PLAN.
- CR — CARD READER DEVICE. FUTURE. PROVIDE EMPTY JUNCTION BOX ONLY.
- PP — ADA PUSH PLATE. PROVIDE MULLION MOUNT STYLE AT WINDOW MULLION LOCATIONS. REFER TO SPECIFICATIONS.

WALL TYPES

- A — 4 1/2" — 1/2" SOFTWOOD PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE ON BOTH SIDES OF 2 x 4 WOOD STUDS AT 16" O.C.
- A1 — 4 1/2" — SAME AS WALL TYPE A EXCEPT PROVIDE 3-1/2" SOUND ATTENUATION BATT INSULATION IN WALL CAVITY. PROVIDE ACOUSTICAL SEALANT TOP & BOTTOM.
- A2 — 6 1/2" — 1/2" SOFTWOOD PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE ON BOTH SIDES OF 2 x 6 WOOD STUDS AT 16" O.C.. PROVIDE 5-1/2" SOUND ATTENUATION BATT INSULATION IN WALL CAVITY. PROVIDE ACOUSTICAL SEALANT TOP & BOTTOM.
- A3 — 8 3/8" — 1/2" SOFTWOOD PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE ON ONE SIDE OF 2 x 8 WOOD STUDS AT 16" O.C.. PROVIDE 5/8" STRUCTURAL SHEATHING ON OTHER / GARAGE SIDE. PROVIDE 5 1/2" MINIMUM THICKNESS CLOSED CELL SPRAY INSULATION IN WALL CAVITY. (R = 35.0).
- A4 — 4" — 1/2" SOFTWOOD PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE TO 6" ABOVE THE UNDERSIDE OF FINISHED CEILING SYSTEM ON ONE SIDE OF 2 X 4 WOOD STUDS AT 16" O.C. WITH CONTINUOUS WOOD PLATES TOP AND BOTTOM SECURED TO STRUCTURE. PROVIDE 3-1/2" SOUND ATTENUATION BATT INSULATION IN WALL CAVITY FULL HEIGHT.
- A5 — 3/4" — 1/2" CEMENT BOARD ON SHOWER SIDE TO CEILING HEIGHT WITH 1/4" SOLID SURFACE.

TIGHT TO STRUCTURE

- E — 8 5/8" — 2" STONE VENEER. 5/8" ORIENTED STRAND BOARD (OSB) SHEATHING WITH INTEGRAL, FACTORY-LAMINATED WATER-RESISTANT AIR BARRIER, TIGHT TO STRUCTURE TOP & BOTTOM ON EXTERIOR SIDE. 1/2" SOFTWOOD PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE TIGHT TO STRUCTURE TOP & BOTTOM ON INTERIOR SIDE. 2 X 6 WOOD STUDS (TYP.) AT 16" O.C. WITH CONTINUOUS TOP & BOTTOM PLATES SECURED TO STRUCTURE. PROVIDE 5 1/2" MIN. THICKNESS CLOSED CELL SPRAY INSULATION IN WALL CAVITY (R=35.0).

TIGHT TO STRUCTURE

- E1 — 6 5/8" — COMPOSITE LAP SIDING AND TRIM ON EXTERIOR. 5/8" ORIENTED STRAND BOARD (OSB) SHEATHING WITH INTEGRAL, FACTORY-LAMINATED WATER-RESISTANT AIR BARRIER, TIGHT TO STRUCTURE TOP & BOTTOM ON EXTERIOR SIDE. 1/2" PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE TIGHT TO STRUCTURE TOP & BOTTOM ON INTERIOR SIDE. 2 X 6 WOOD STUDS AT 16" O.C. WITH CONTINUOUS TOP & BOTTOM PLATES SECURED TO STRUCTURE. PROVIDE 5 1/2" MIN. THICKNESS CLOSED CELL SPRAY INSULATION IN WALL CAVITY (R=35.0).

TIGHT TO STRUCTURE

- E2 — 8 3/8" — COMPOSITE LAP SIDING AND TRIM ON EXTERIOR. 5/8" ORIENTED STRAND BOARD (OSB) SHEATHING WITH INTEGRAL, FACTORY-LAMINATED WATER-RESISTANT AIR BARRIER, TIGHT TO STRUCTURE TOP & BOTTOM ON EXTERIOR SIDE. 1/2" PLYWOOD WITH BATTEN STRIPS AT SEAMS AND CLEAR MATTE FINISH POLYURETHANE TIGHT TO STRUCTURE TOP & BOTTOM ON INTERIOR SIDE. 2 X 8 WOOD STUDS AT 16" O.C. WITH CONTINUOUS TOP & BOTTOM PLATES SECURED TO STRUCTURE. PROVIDE 5 1/2" MIN. THICKNESS CLOSED CELL SPRAY INSULATION IN WALL CAVITY (R=35.0).

EXTERIOR / INTERIOR WALL TYPE.

- F — 1/2" — 1/2" PLASTIC PANELING. APPLY TO GARAGE SIDE OF WALL OVER PLYWOOD PANELS.

1/2" PLASTIC PANELING.

FLOOR PLAN KEYNOTES

NOTE #	PLAN NOTE
101	TRENCH DRAIN. REFER TO PLUMBING DRAWINGS.
102	EMERGENCY EYEWASH STATION & DRENCH SHOWER. FLOOR MOUNTED. REFER TO PLUMBING DRAWINGS.
103	CONCRETE APRON AROUND BUILDING PERIMETER - REFER TO CIVIL DRAWINGS.
104	8" DIAMETER CONCRETE FILLED GALVANIZED STEEL PIPE BOLLARDS. (TYPICAL)
105	CASEWORK. REFER TO INTERIOR ELEVATIONS, SECTIONS, AND DETAILS.
106	MOP RACK. TOILET ACCESSORY 'N'. SEE SPECIFICATIONS AND SHEET A7.1 FOR MOUNTING HEIGHT.
107	LOCKERS WITH INTEGRAL BENCH. CONTRACTOR FURNISHED, CONTRACTOR INSTALLED. REFER TO INTERIOR ELEVATIONS & SPECIFICATIONS.
109	ARROW INDICATES SLOPED FLOOR SLAB DOWN TO TRENCH DRAIN. SLOPE RATES VARY. DO NOT EXCEED ADA SLOPE RATES.
110	DASHED LINE INDICATES ROOF OVERHANG. REFER TO ROOF PLAN. (TYPICAL)
111	CLERESTORY GLAZING ABOVE. REFER TO BUILDING ELEVATIONS AND WINDOW TYPES.
112	DOAS (DEDICATED OUTSIDE AIR SUPPLY) UNIT. PROVIDE CONCRETE PAD. REFER TO MECHANICAL DRAWINGS.
113	CONCRETE STOOP WITH FROST WALLS. (SHADED REGIONS). REFER TO STRUCTURAL DRAWINGS.
114	VRF HEAT PUMP. REFER TO MECHANICAL DRAWINGS.
116	CONCRETE SIDEWALK. REFER TO CIVIL DRAWINGS.
117	SERVICE SINK. REFER TO PLUMBING DRAWINGS.
118	HOLLOW METAL BORROWED LITE FRAME '11'. SEE SHEET A9.1 FOR DIMENSIONS.
119	KNOX BOX LOCATION. CONTACT WAUCONDA FIRE PROTECTION DISTRICT FOR MODEL REQUIRED. CONTRACTOR FURNISHED, CONTRACTOR INSTALLED.
122	ADA PARKING SIGN. REFER TO CIVIL DRAWINGS.
123	CT / METERING CABINET. REFER TO ELECTRICAL DRAWINGS.
124	INTERIOR CONCRETE SIDEWALK.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APRIL 2023
Drawn JAO
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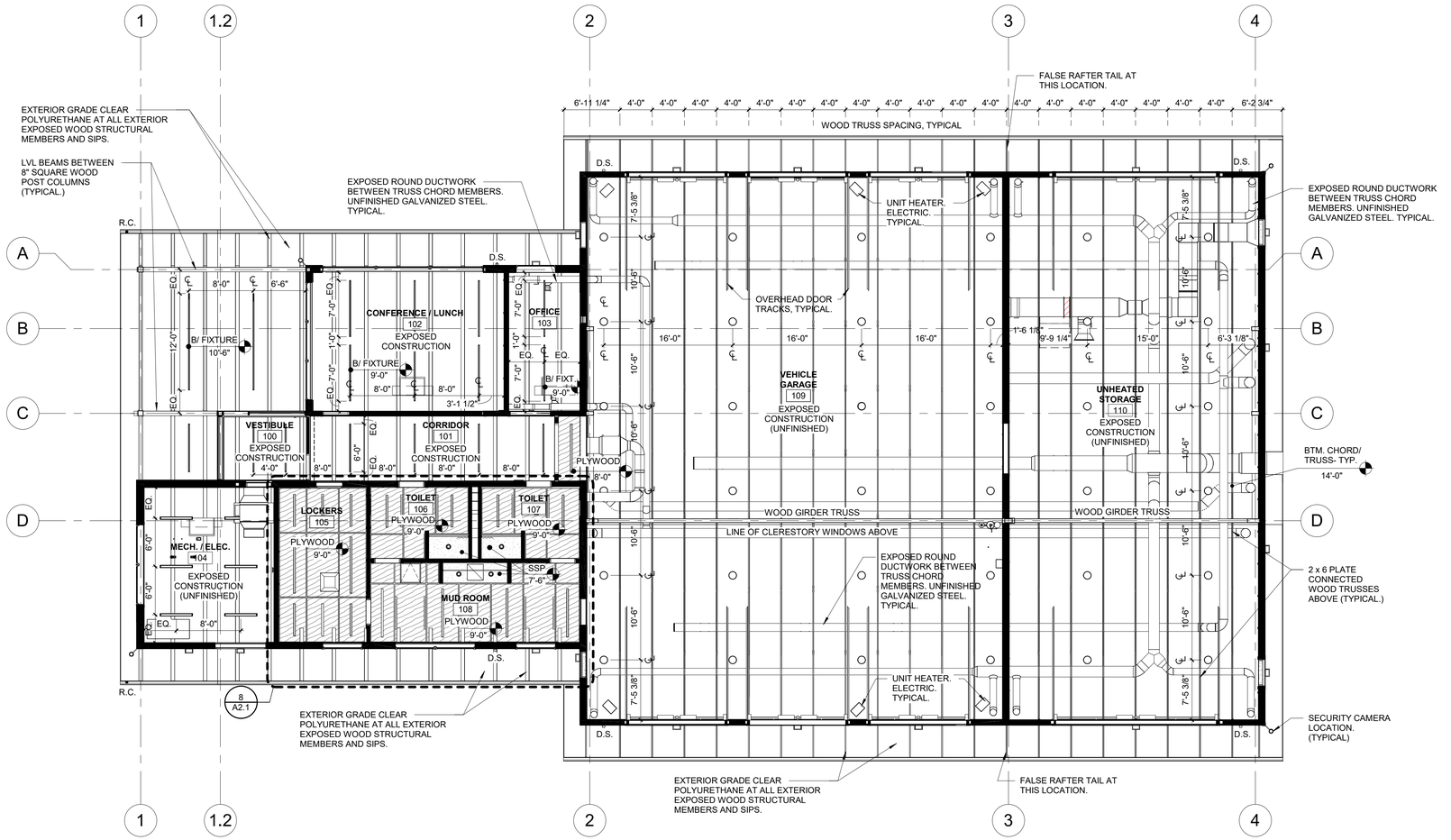
FLOOR PLAN

A1.1



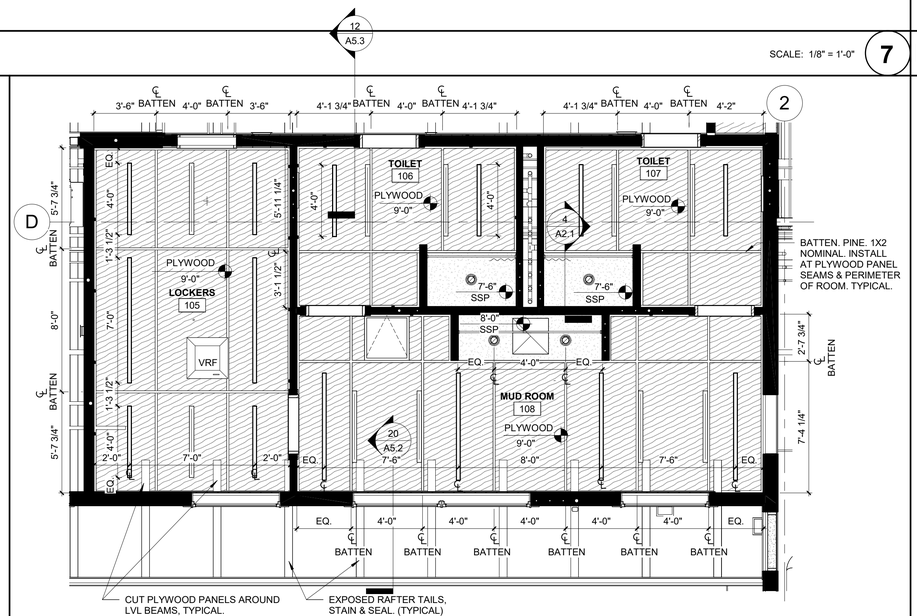
REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0" **7**

GRAPHIC	DESCRIPTION
	1/2" PLYWOOD. SOFTWOOD VENEER. GRADE 'A'. PRE-SANDED. FINISHED CEILING. WITH THREE (3) COATS POLYURETHANE SEALER. PROVIDE 1X2 BATTENS AT SEAMS.
	EXPOSED CONSTRUCTION. WOOD TRUSSES OR WOOD BEAMS- VARIES BY LOCATION. 48" O.C. SPACING. REFER TO STRUCTURAL DRAWINGS.
	SOLID SURFACE PANEL. (SSP) 1/4". PROVIDE CEMENT BOARD SUBSTRATE UNDERNEATH AT ALL LOCATIONS.
	HIGH BAY LED LIGHT FIXTURE. SUSPENDED. MATCH BOTTOM OF FIXTURE WITH BOTTOM CHORD OF TRUSS ELEVATION. REFER TO ELECTRICAL DRAWINGS.
	RECESSED LINEAR LED LIGHT FIXTURE. DIRECT LIGHT DISTRIBUTION. REFER TO ELECTRICAL DRAWINGS.
	SUSPENDED LED STRIP TYPE LIGHT FIXTURE. DIRECT AND INDIRECT LIGHT DISTRIBUTION. REFER TO ELECTRICAL DRAWINGS.
	LED WET LOCATION CAN LIGHT. REFER TO ELECTRICAL DRAWINGS.
	WALL PAK STYLE LED LIGHT FIXTURE. REFER TO ELECTRICAL DRAWINGS.
	SUPPLY DIFFUSER. REFER TO MECHANICAL DRAWINGS.
	EXHAUST DIFFUSER. REFER TO MECHANICAL DRAWINGS.
VRF	VARIABLE REFRIGERANT FLOW TERMINAL UNIT. REFER TO MECHANICAL DRAWINGS.
	SLOT TYPE DIFFUSER. REFER TO MECHANICAL DRAWINGS.
	ACCESS PANEL. 2'-6" X 2'-6". WITH RECESSED PAN TO RECEIVE 1/2" PLYWOOD.

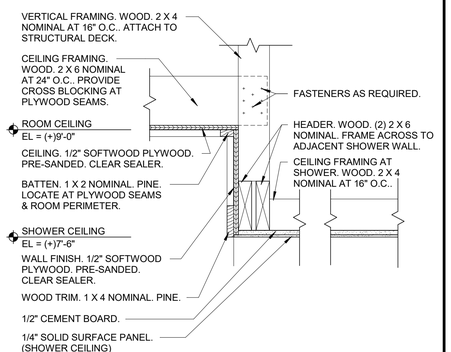
RCP LEGEND

2



ENLARGED CEILING PLAN- LOCKER ROOM AREA

SCALE: 1/4" = 1'-0" **8**



DETAIL/ SHOWER CEILING SECTION

SCALE: 1 1/2" = 1'-0" **4**

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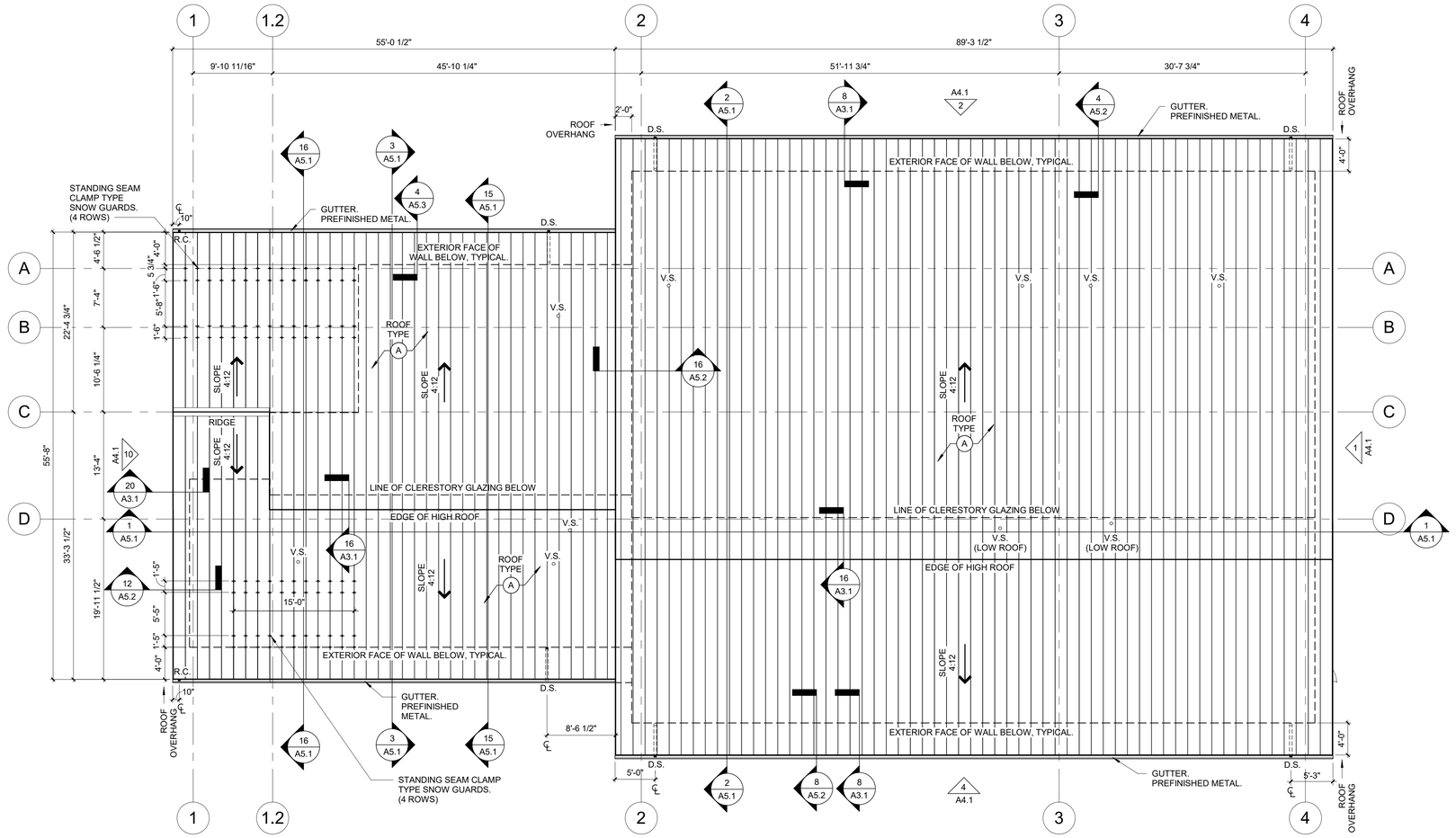
REFLECTED CEILING PLANS

A2.1



ROOF PLAN

SCALE: 1/8" = 1'-0" **7**

1. ROOF PLAN IS SHOWN FOR OVERALL DESIGN INTENT. ACTUAL PANEL LAYOUT & ROOF SYSTEM DETAILS ARE TO BE BASED ON MANUFACTURER'S STANDARD DETAILS.
2. TRUSS LAYOUTS, TRUSS CERTIFICATES & CALCULATIONS, SIGNATURE BY THE ENGINEER RESPONSIBLE FOR THEIR PREPARATION INCLUDING SEAL WITH DATE, AND ALL OTHER PERTINENT INFORMATION SHALL BE PREPARED AND SUBMITTED BY THE TRUSS FABRICATOR FOR THE PREFABRICATED WOOD TRUSSES.
3. CONTRACTOR TO VERIFY ALL MECHANICAL ROOF PENETRATIONS WITH MEP DRAWINGS. ARCHITECTURAL ROOF PLAN DOES NOT NECESSARILY INDICATE ALL REQUIRED PENETRATIONS.

GENERAL NOTES **1**

(A) STANDING SEAM METAL ROOFING SYSTEM. METAL PANEL. 2" TALL STANDING SEAMS AT 18" O.C. SPACING. PREFINISHED.

ROOF TYPE 'A'

1. STANDING SEAM METAL ROOFING PANELS. MECHANICALLY FASTENED TO SIPS PANEL.
2. ICE & WATER SHIELD OVER ENTIRE ROOF. 40-MIL THICKNESS. FULLY ADHERED.
3. STRUCTURAL INSULATED PANELS (SIPS). OVERALL THICKNESS = 6 1/2". POLYURETHANE INSULATION, R = 42. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS.
4. PLATE CONNECTED PRE-ENGINEERED WOOD TRUSSES OR WOOD FRAMING (VARIES BY LOCATION). EXPOSED RAFTER TAILS, TYPICAL. REFER TO STRUCTURAL DRAWINGS.
5. PROVIDE ADDITIONAL FALSE RAFTER TAILS AS NEEDED TO PROVIDE CONSISTENT RAFTER TAIL LAYOUT.

D.S. PREFINISHED ALUMINUM DOWNSPOUT, SHADED AREA INDICATES LOCATION AT GUTTER.

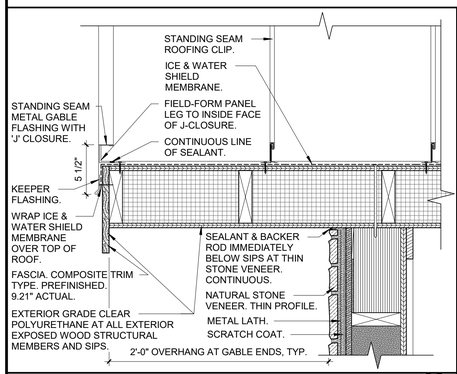
DASHED LINES INDICATE DOWNSPOUT RETURN TO WALL.

INDICATES DOWNSPOUT LOCATION AT WALL.

SNOW GUARD. STANDING SEAM PAD STYLE SNOW GUARD. CLAMP-TO-SEAM TYPE. BASIS OF DESIGN: ALPINE SNOW GUARDS ASG33G. ROOFING CONTRACTOR TO COORDINATE EXACT BRACKET REQUIRED TO COORDINATE WITH STANDING SEAMS. POWDER COAT TO MATCH STANDING SEAM COLOR SELECTION. SEE ROOF ACCESSORIES 07 72 00 FOR EQUAL MANUFACTURERS. SEE ROOF PLAN FOR LAYOUT.

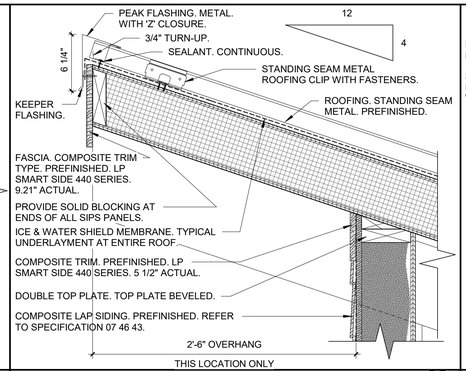
V.S. VENT STACK. REFER TO PLUMBING DRAWINGS.

R.C. RAIN CHAIN LOCATION.



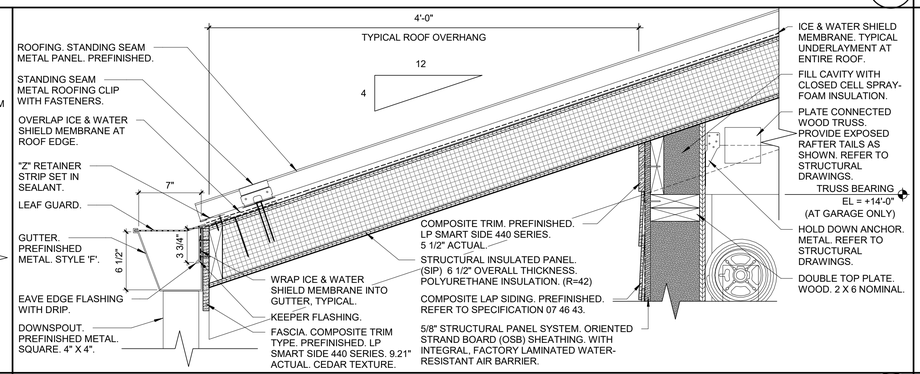
DETAIL/ SECTION- RAKE EDGE DETAIL

SCALE: 1 1/2" = 1'-0" **20**



DETAIL/ SECTION- HIGH ROOF OVERHANG

SCALE: 1 1/2" = 1'-0" **16**



DETAIL/ SECTION- TYPICAL OVERHANG WITH GUTTER DETAIL

SCALE: 1 1/2" = 1'-0" **8**

ROOF PLAN LEGEND **3**

SMACNA DOWNSPOUT AND GUTTER SIZING REPORT

NOTE: CALCULATIONS ARE DERIVED USING THE 7TH EDITION OF SMACNA'S ARCHITECTURAL SHEET METAL MANUAL VIA SMACNA'S WEB-SITE CALCULATOR.

RAINFALL INTENSITY: 6.8 INCHES / HOUR BASED ON RAINFALL AVERAGES IN CHICAGO, ILLINOIS FOR THE 10 YEAR STORM EVENT.

ROOF RAINFALL DESIGN AREA: 4,950 SF (LARGEST ROOF SERVING A SINGLE GUTTER SYSTEM- HIGH GARAGE ROOF)

GUTTER LINEAR FEET: 89'-3 1/2"

GUTTER LENGTH SERVING A SINGLE DOWNSPOUT: 44' - 7 3/4"

GUTTER DEPTH TO WIDTH RATIO: 0.90

MINIMUM GUTTER WIDTH PER SMACNA CALCULATOR: 7" (7" PROVIDED)

MINIMUM GUTTER DEPTH PER SMACNA CALCULATOR: 6 1/2" (6 1/2" PROVIDED)

NUMBER OF DOWNSPOUTS: 2 (AT THE HIGH GARAGE ROOF AREA)

MINIMUM AREA PER DOWNSPOUT PER SMACNA CALCULATOR: 13.75 SQUARE INCHES PROVIDED DOWNSPOUT AREA: 16 SQUARE INCHES PER DOWNSPOUT BASED ON 4" X 4" SQUARE DOWNSPOUT SIZE, EXCEEDS REQUIRED AREA.

NOTE: CALCULATIONS USE THE LARGEST ROOF AREA. ALL ROOF SURFACES ARE REQUIRED TO HAVE THE SAME SIZE GUTTER AND DOWNSPOUT FOR CONSISTENCY.

SMACNA CALCULATIONS **4**

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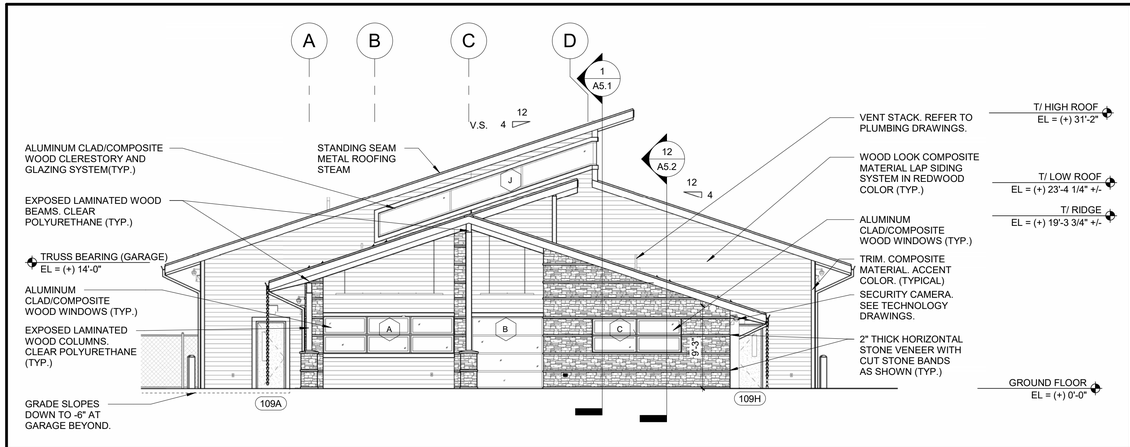
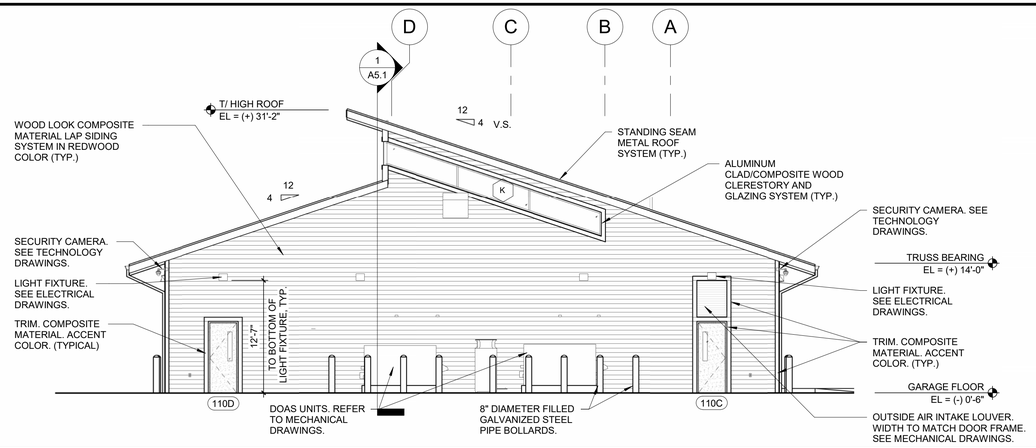
ROOF PLAN

A3.1



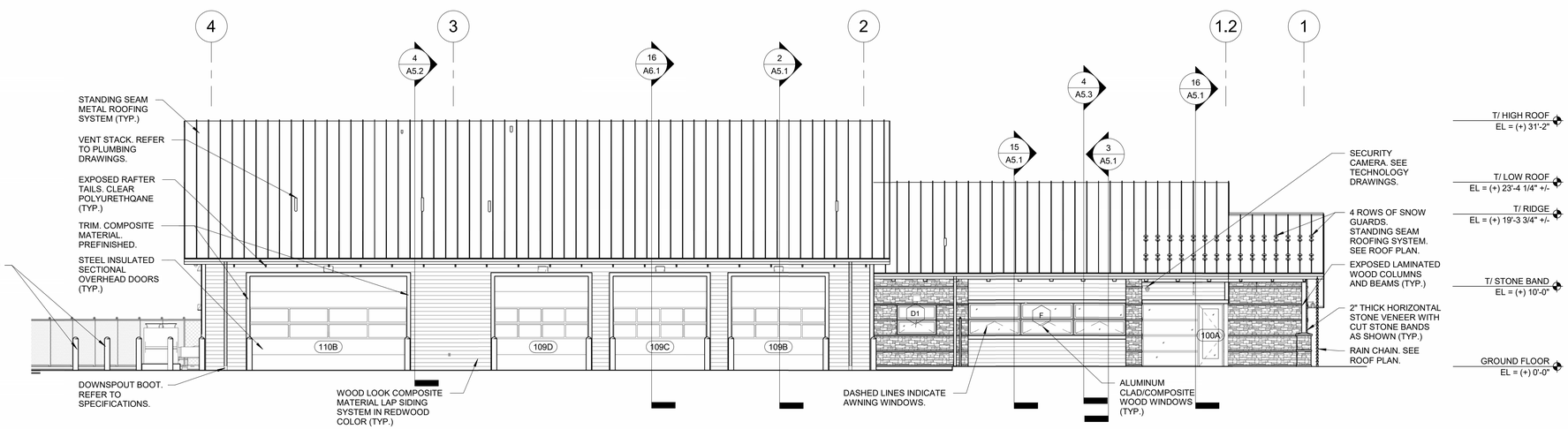
WEST ELEVATION

SCALE: 1/8" = 1'-0" **10**



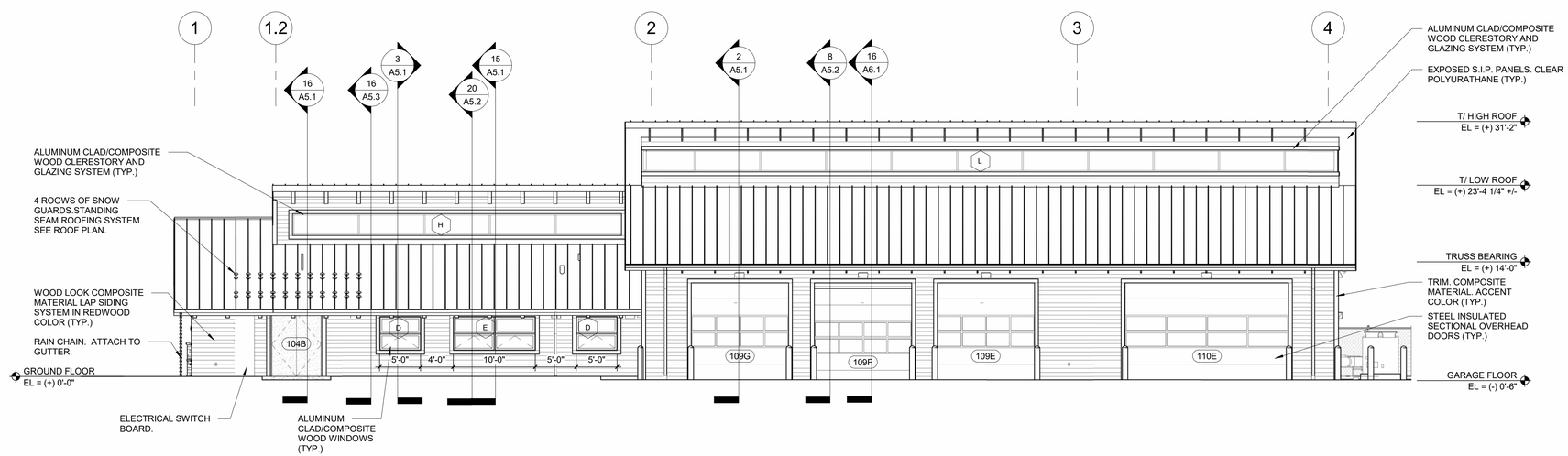
EAST ELEVATION

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



NORTH ELEVATION

SCALE: 1/8" = 1'-0" **2**



SOUTH ELEVATION

SCALE: 1/8" = 1'-0" **4**

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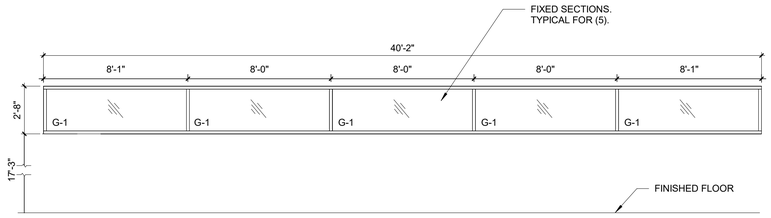
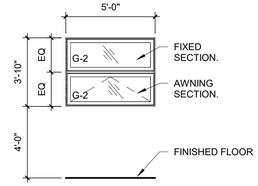
BUILDING ELEVATIONS

A4.1



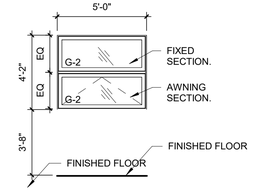
ALUMINUM CLAD COMPOSITE
WOOD CURTAIN WALL

H



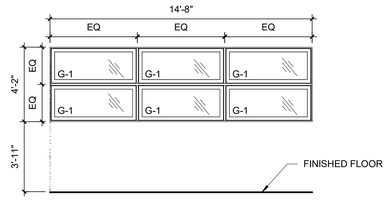
ALUMINUM CLAD COMPOSITE
WOOD WINDOW
(AWNING / FIXED)

D1



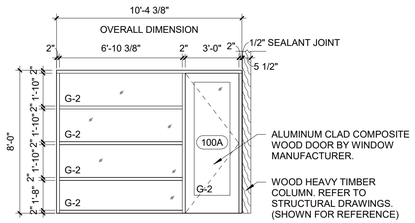
ALUMINUM CLAD COMPOSITE
WOOD WINDOW
(AWNING / FIXED)

D



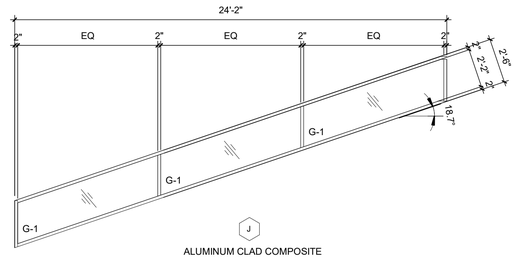
ALUMINUM CLAD COMPOSITE
WOOD WINDOW
(FIXED)

A



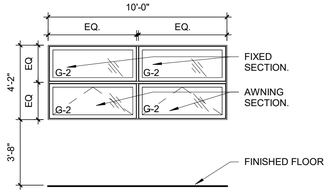
ALUMINUM CLAD COMPOSITE
WOOD CURTAIN WALL

G



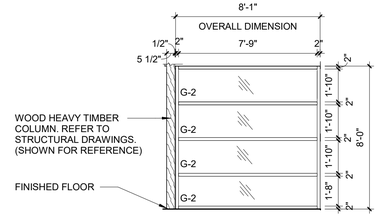
ALUMINUM CLAD COMPOSITE
WOOD CURTAIN WALL

J



ALUMINUM CLAD COMPOSITE
WOOD WINDOW
(AWNING / FIXED)

E

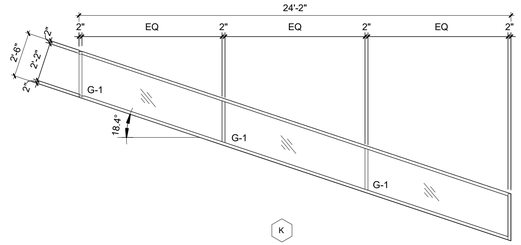


ALUMINUM CLAD COMPOSITE
WOOD CURTAIN WALL

B

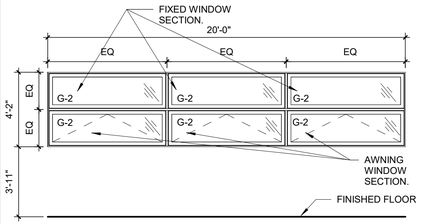
1. WINDOW DIMENSIONS ARE OPENING DIMENSIONS. WINDOW SIZES TO BE PER MANUFACTURER'S IS STANDANRD ROUGH OPENING REQUIREMENTS.
2. ALL WOOD WINDOWS, WOOD CURTAIN WALL AND ENTRY DOORS ARE TO BE BY THE SAME MANUFACTURERR.
3. AT WINDOW MANUFACTURER'S OPTION, ALL INSULATED GLAZING.
4. FIELD VERIFY ALL WINDOW OPENINGS PROIR TO FABRICATION.

WINDOW GENERAL NOTES



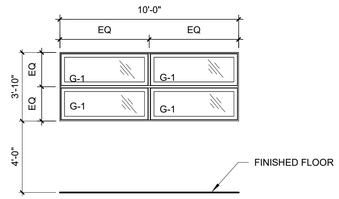
ALUMINUM CLAD COMPOSITE
WOOD CURTAIN WALL

K



ALUMINUM CLAD COMPOSITE
WOOD WINDOW
(AWNING / FIXED)

F



ALUMINUM CLAD COMPOSITE
WOOD WINDOW
(FIXED)

C

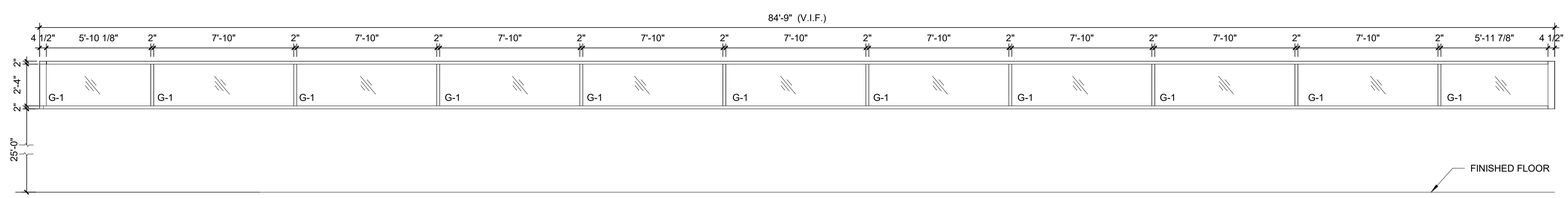
G-1. INSULATING GLASS UNITS, VISION GLASS. LOW-E COATING ON NO. 2 SURFACE. BOTH PANES HEAT STRENGTHENED. CLEAR TINT.

G-2. INSULATING GLASS UNITS, VISION GLASS. LOW-E COATING ON NO. 2 SURFACE. FULLY TEMPERED. CLEAR TINT.

G-3. MONOLITHIC, INTERIOR VISION GLASS. 1/4" THICKNESS. FULLY TEMPERED. CLEAR TINT.

GLAZING TYPE NOTES:
1. SEE SPECIFICATION SECTION 08 80 00 GLAZING FOR PERFORMANCE VALUES AND ADDITIONAL INFORMATION.
2. SEE SHEET A9.1 DOOR SCHEDULE FOR INTERIOR BORROWED LITE FRAMES.
3. ALUMINUM CLAD COMPOSITE WOOD WINDOWS ARE SPECIFIED IN 08 52 01. WINDOW MANUFACTURERS ARE TO PROVIDE GLAZING IN ACCORDANCE WITH THIS LEGEND AND 08 80 00 GLAZING. NOTE: BASIS OF DESIGN WINDOW MANUFACTURER H-WINDOW USES 1" INSULATED GLASS.

GLAZING LEGEND



ALUMINUM CLAD COMPOSITE
WOOD CURTAIN WALL

L

EXTERIOR WINDOW ELEVATIONS

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

5

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CURTAINWALL & WINDOW ELEVATIONS

A4.2

PERSPECTIVE- WEST & NORTH FACADE 10

PERSPECTIVE- SOUTH & WEST FACADE 2

PERSPECTIVE- ENTRANCE FROM GRADE 11

PERSPECTIVE- NORTH & WEST FACADE 3

PERSPECTIVE- NORTH & EAST FACADE 12

PERSPECTIVE- ENTRANCE DRIVE 4

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Drawn LMT
Checked MCR

REVISIONS

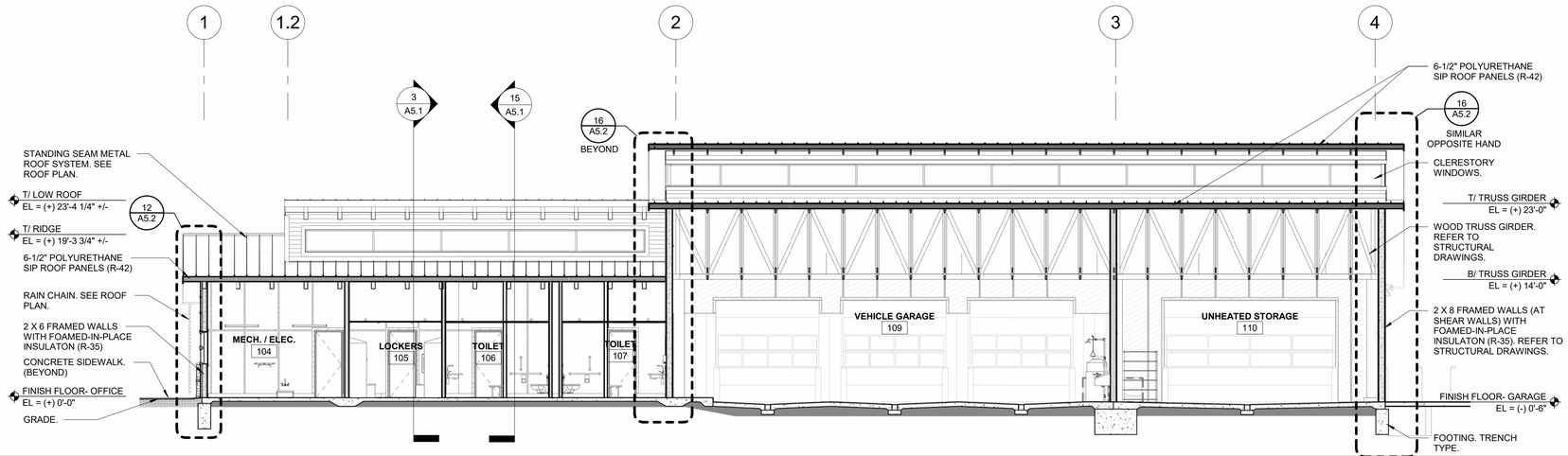
NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

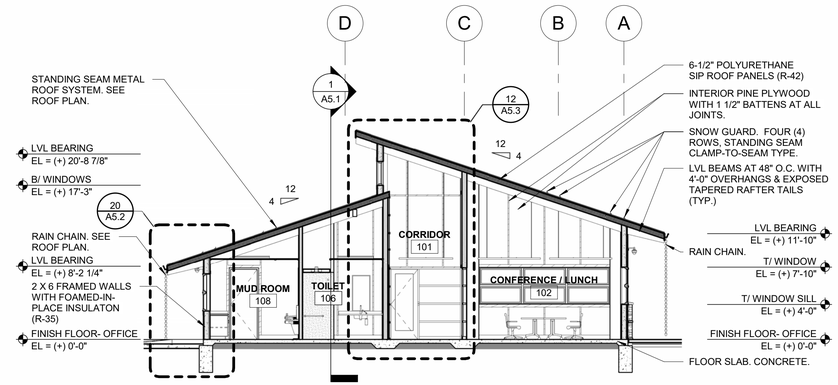
EXTERIOR 3D VIEWS

A4.3



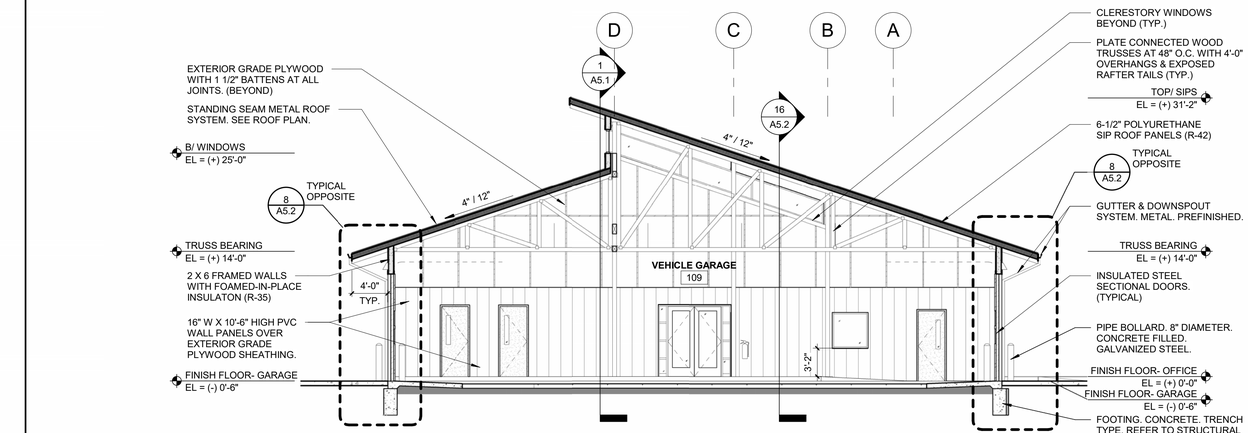
BUILDING SECTION/ LONGITUDINAL

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



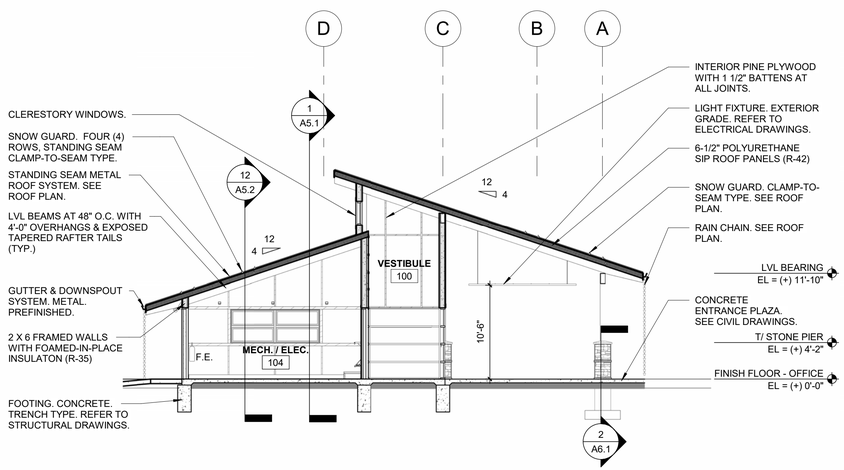
BUILDING SECTION/ LUNCH / TOILET / MUD ROOM

SCALE: 1/8" = 1'-0" **15**



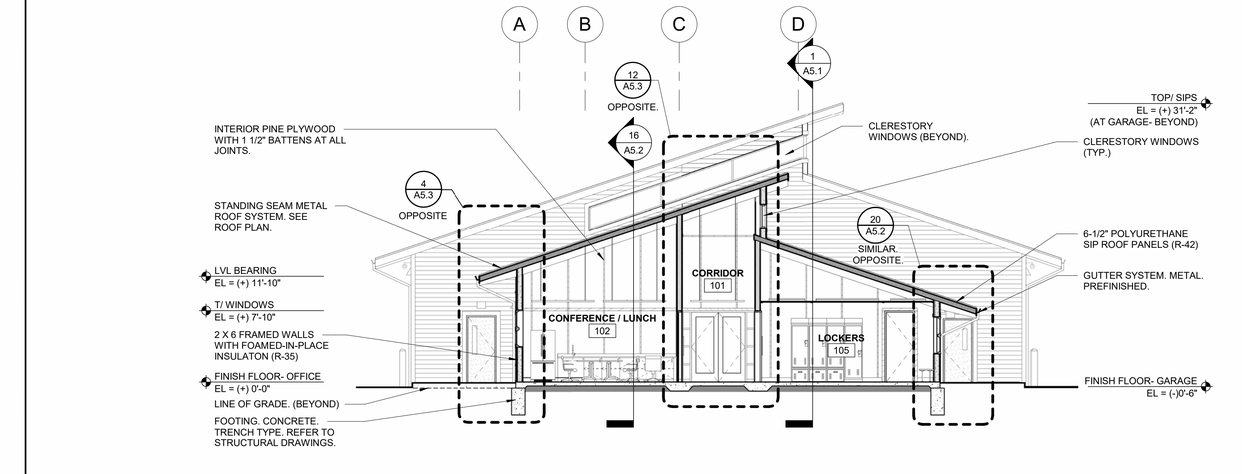
BUILDING SECTION/ VEHICLE GARAGE

SCALE: 1/8" = 1'-0" **2**



BUILDING SECTION/ MECHANICAL / VESTIBULE / COVERED PLAZA

SCALE: 1/8" = 1'-0" **16**



BUILDING SECTION/ LUNCH & LOCKER ROOM

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

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No.	2020-008
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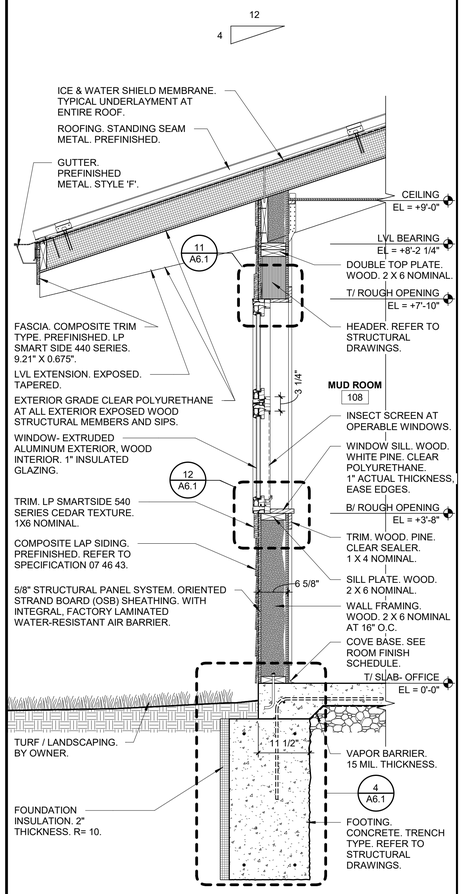
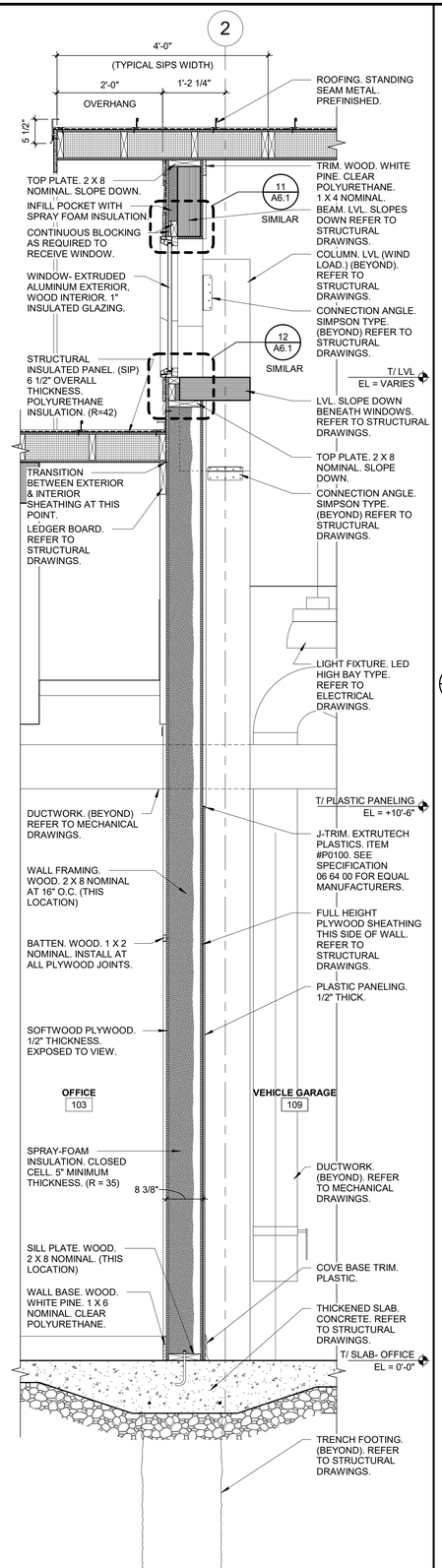
BUILDING SECTIONS

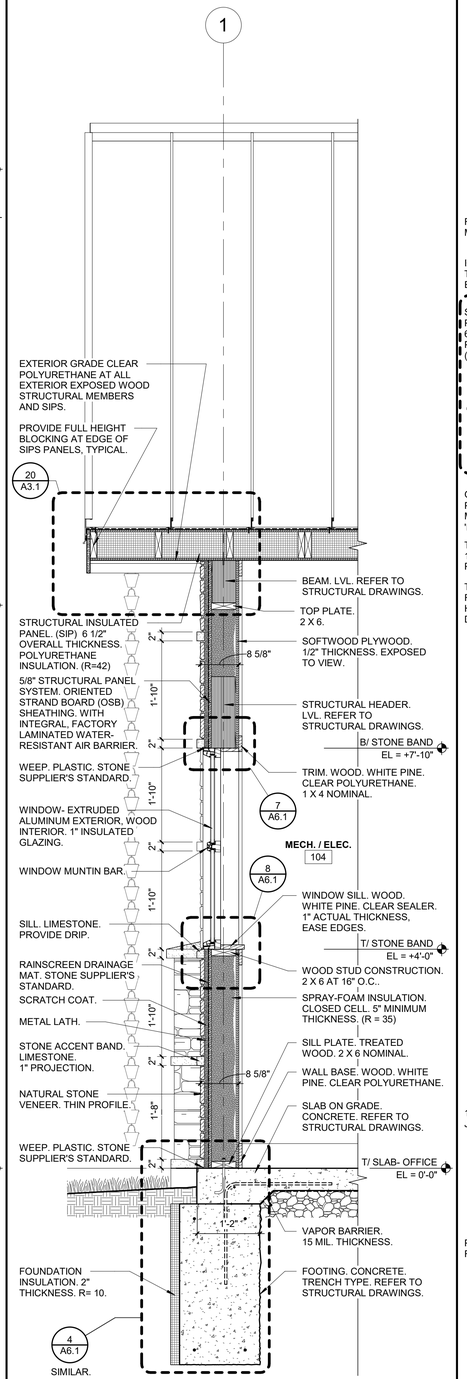
A5.1



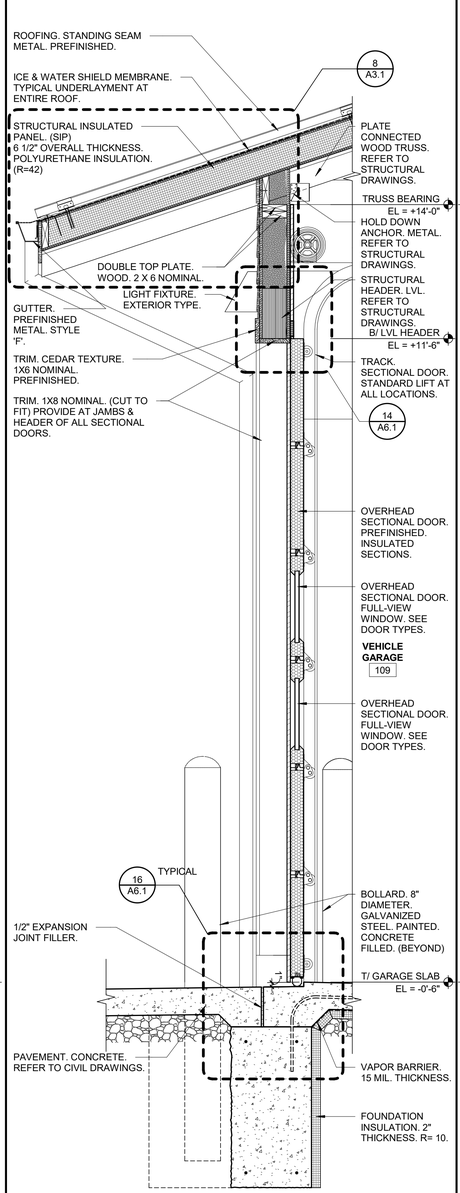
WALL SECTION/MUD ROOM 108 SCALE: 3/4" = 1'-0" **20**



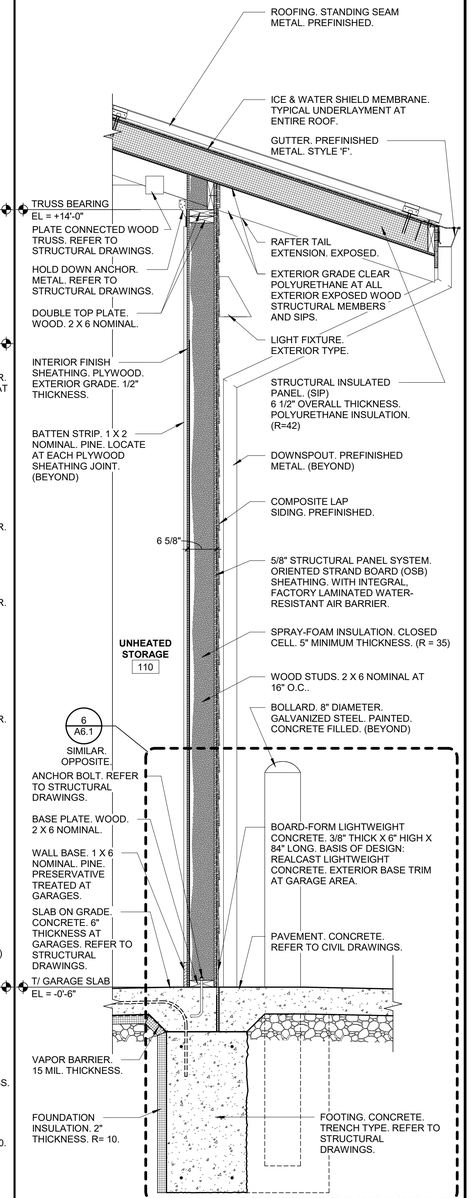
WALL SECTION/OFFICE 103 - GARAGE 109 SCALE: 3/4" = 1'-0" **16**



WALL SECTION/MECHANICAL 104 SCALE: 3/4" = 1'-0" **12**



WALL SECTION/HEATED GARAGE 109 SCALE: 3/4" = 1'-0" **8**



WALL SECTION/UNHEATED GARAGE 110 SCALE: 3/4" = 1'-0" **4**

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

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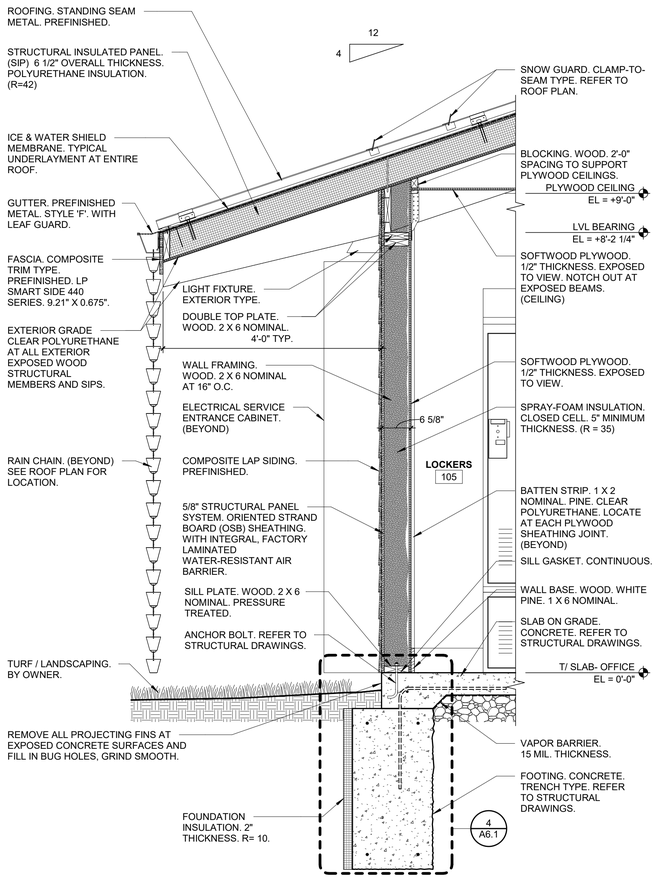
Phone 630-221-2121 / Fax 630-221-1220

WALL SECTIONS

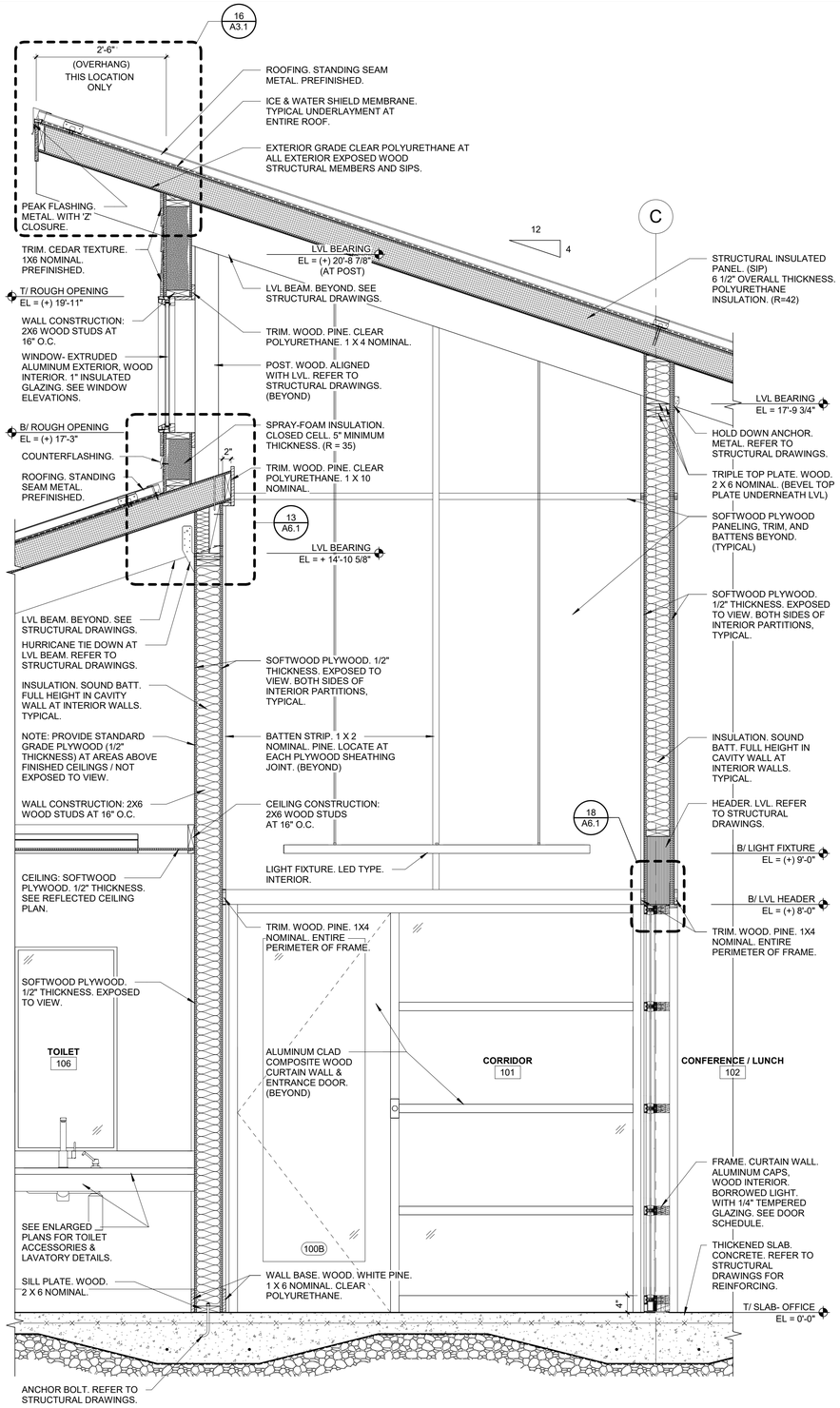
A5.2



WALL SECTION/ LOCKERS 105

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

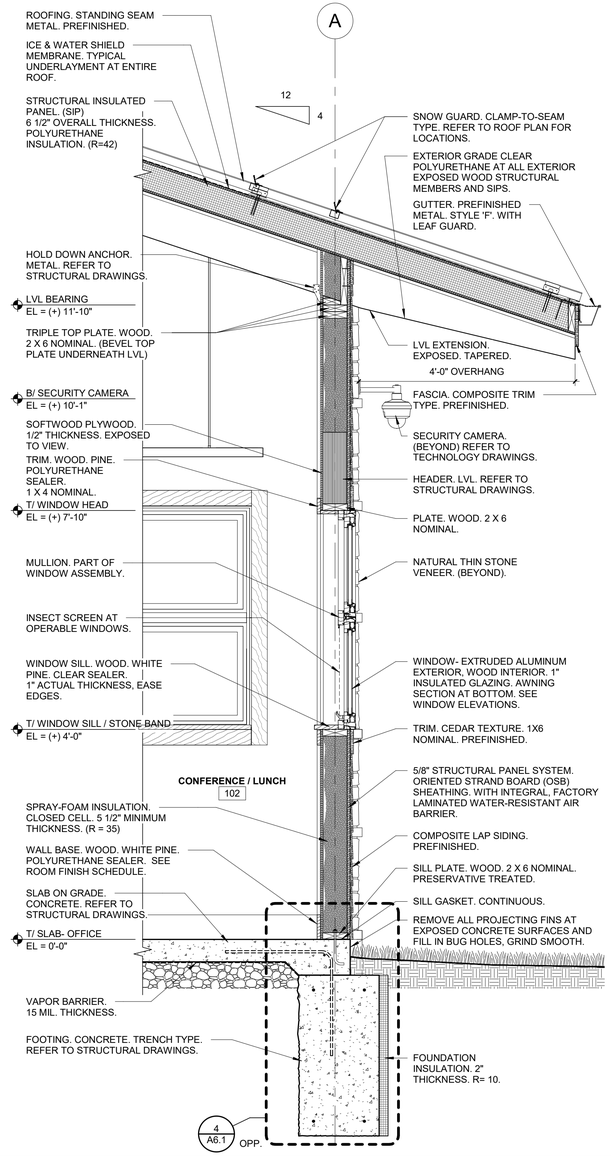
16



SECTION/ DECONTAMINATION TOILET 106 - CORRIDOR 101 - CONFERENCE-LUNCH - 102

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

12



WALL SECTION/ CONFERENCE - LUNCH 102

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

4

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
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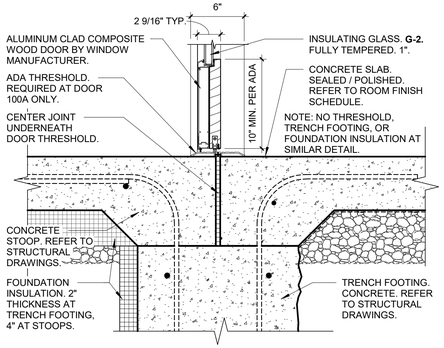
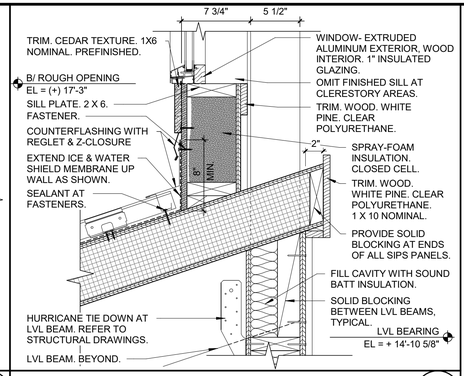
WALL SECTIONS

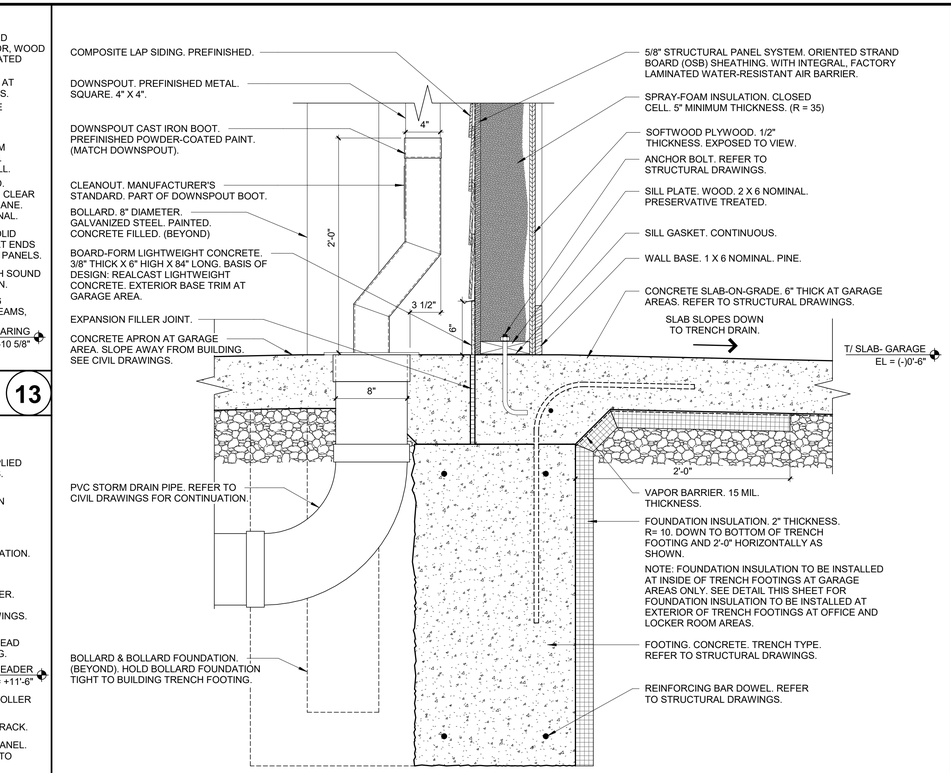
A5.3



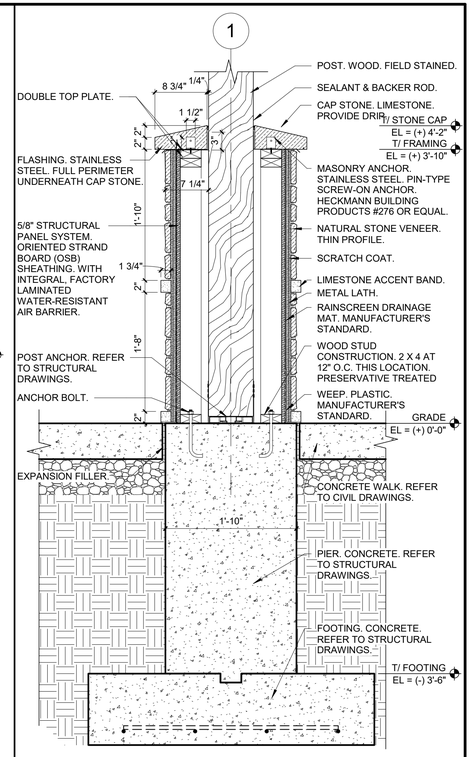
DETAIL/ ALUMINUM CLAD COMPOSITE WOOD DOOR
SCALE: 1 1/2" = 1'-0" **17**



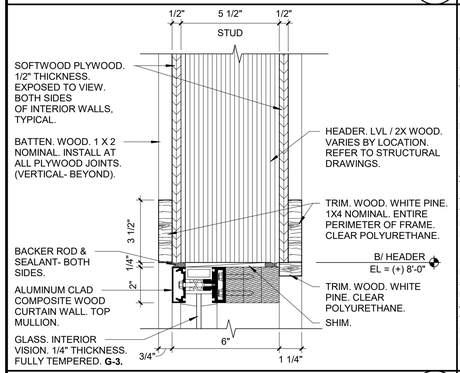
DETAIL/ SECTION- CORRIDOR CLERESTORY WINDOW
SCALE: 1 1/2" = 1'-0" **13**



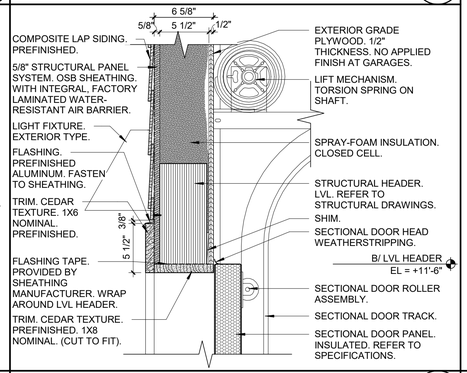
DETAIL/ SECTION- TYPICAL DOWNSPOUT BOOT & FOUNDATION DETAIL AT GARAGE AREA
SCALE: 1 1/2" = 1'-0" **6**



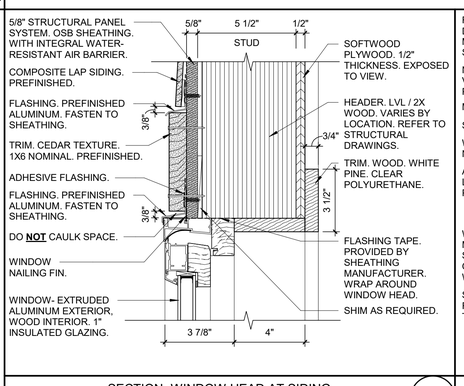
DETAIL/ PIER SECTION AT ENTRANCE
SCALE: 1" = 1'-0" **2**



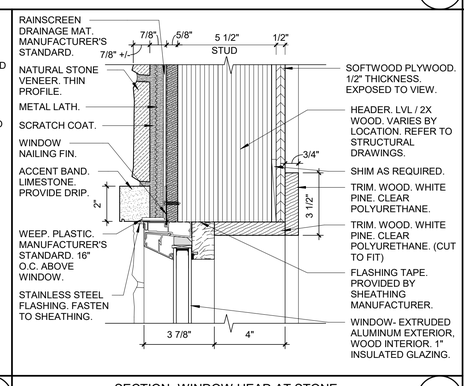
DETAIL/ ALUM. CLAD COMPOSITE WOOD CURTAINWALL
SCALE: 3" = 1'-0" **18**



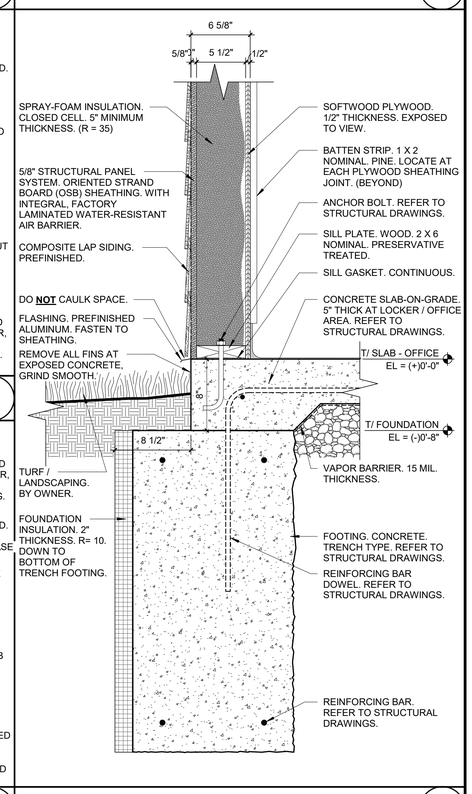
DETAIL/ SECTION- SECTIONAL DOOR HEAD
SCALE: 1 1/2" = 1'-0" **14**



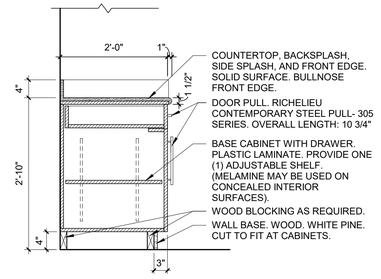
DETAIL/ SECTION- WINDOW HEAD AT SIDING
SCALE: 3" = 1'-0" **11**



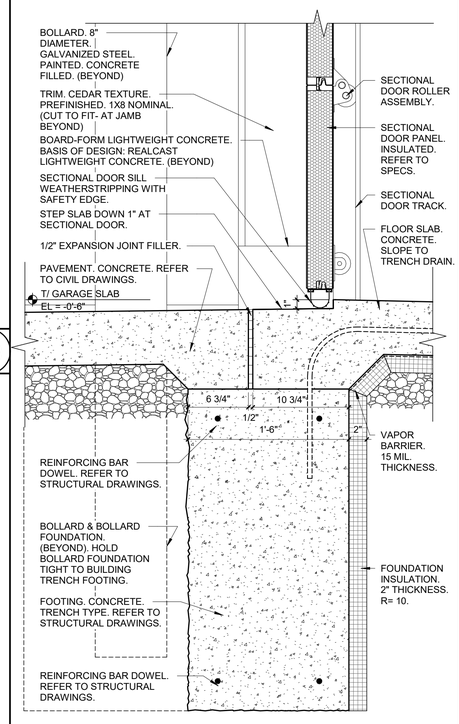
DETAIL/ SECTION- WINDOW HEAD AT STONE
SCALE: 3" = 1'-0" **7**



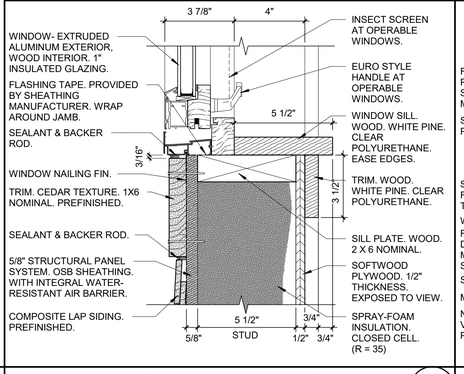
DETAIL/ SECTION- FOUNDATION
SCALE: 1 1/2" = 1'-0" **4**



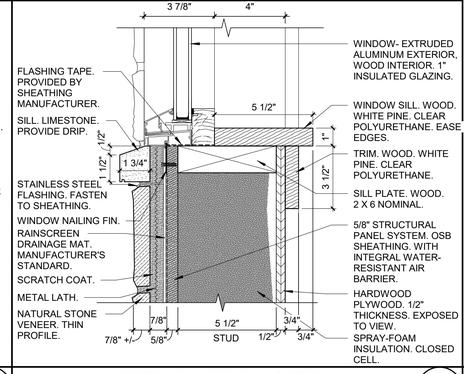
DETAIL/ SECTION- BASE CABINET W/DRAWER
SCALE: 3/4" = 1'-0" **19**



DETAIL/ SECTION- FOUNDATION AT SECTIONAL DOOR
SCALE: 1 1/2" = 1'-0" **16**



DETAIL/ SECTION- WINDOW SILL AT SIDING
SCALE: 3" = 1'-0" **12**



DETAIL/ SECTION- WINDOW SILL AT STONE
SCALE: 3" = 1'-0" **8**

LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

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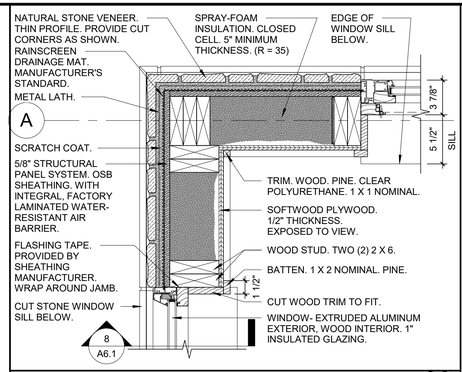
Phone 630-221-1212 / Fax 630-221-1220

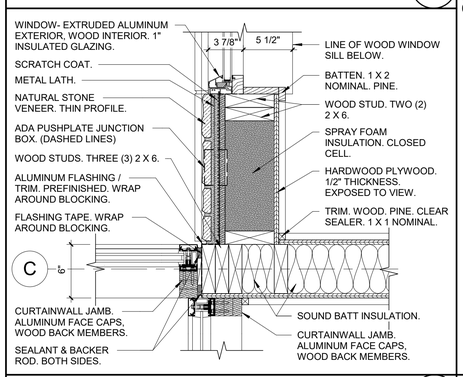
SECTION DETAILS

A6.1



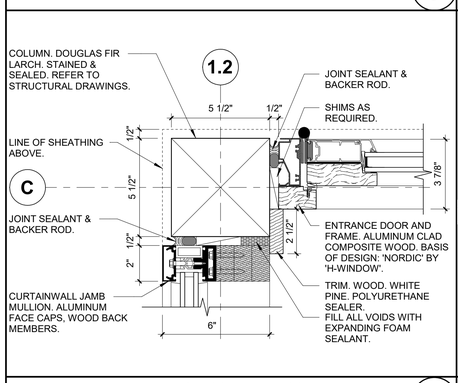
DETAIL/ PLAN- STONE VENEER CORNER & WINDOW JAMB 5

SCALE: 1 1/2" = 1'-0"



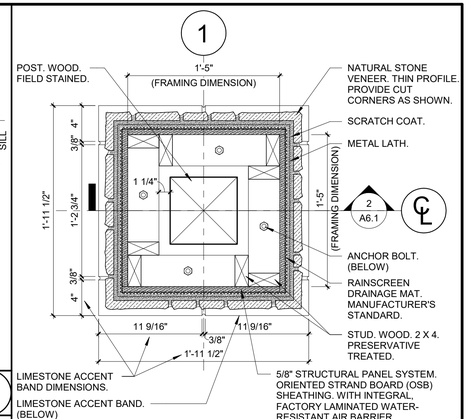
DETAIL/ PLAN- WINDOW INTERFACE 6

SCALE: 1 1/2" = 1'-0"

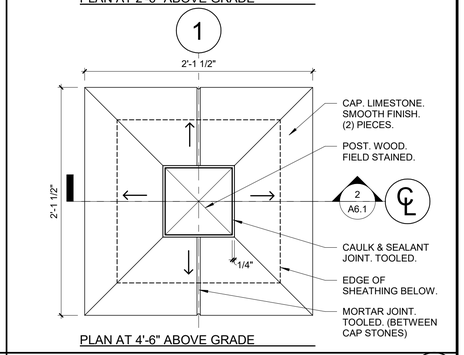


DETAIL/ PLAN- WINDOW CORNER AT COLUMN 7

SCALE: 3" = 1'-0"



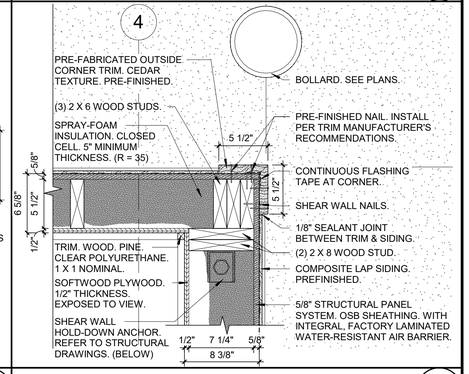
PLAN AT 2'-6" ABOVE GRADE



PLAN AT 4'-6" ABOVE GRADE

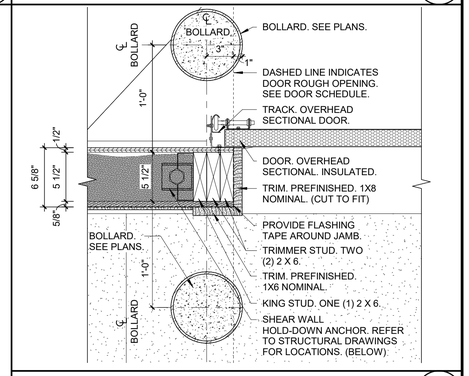
DETAIL/ PLAN- THIN STONE VENEER PIER 2

SCALE: 1 1/2" = 1'-0"



DETAIL/ PLAN- WOOD STUD CORNER 3

SCALE: 1 1/2" = 1'-0"



DETAIL/ PLAN- TYPICAL SECTIONAL DOOR JAMB 4

SCALE: 1 1/2" = 1'-0"

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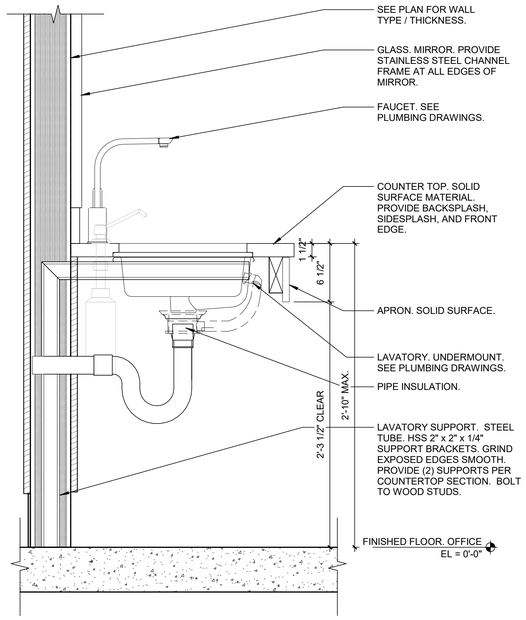
PLAN DETAILS

A6.2

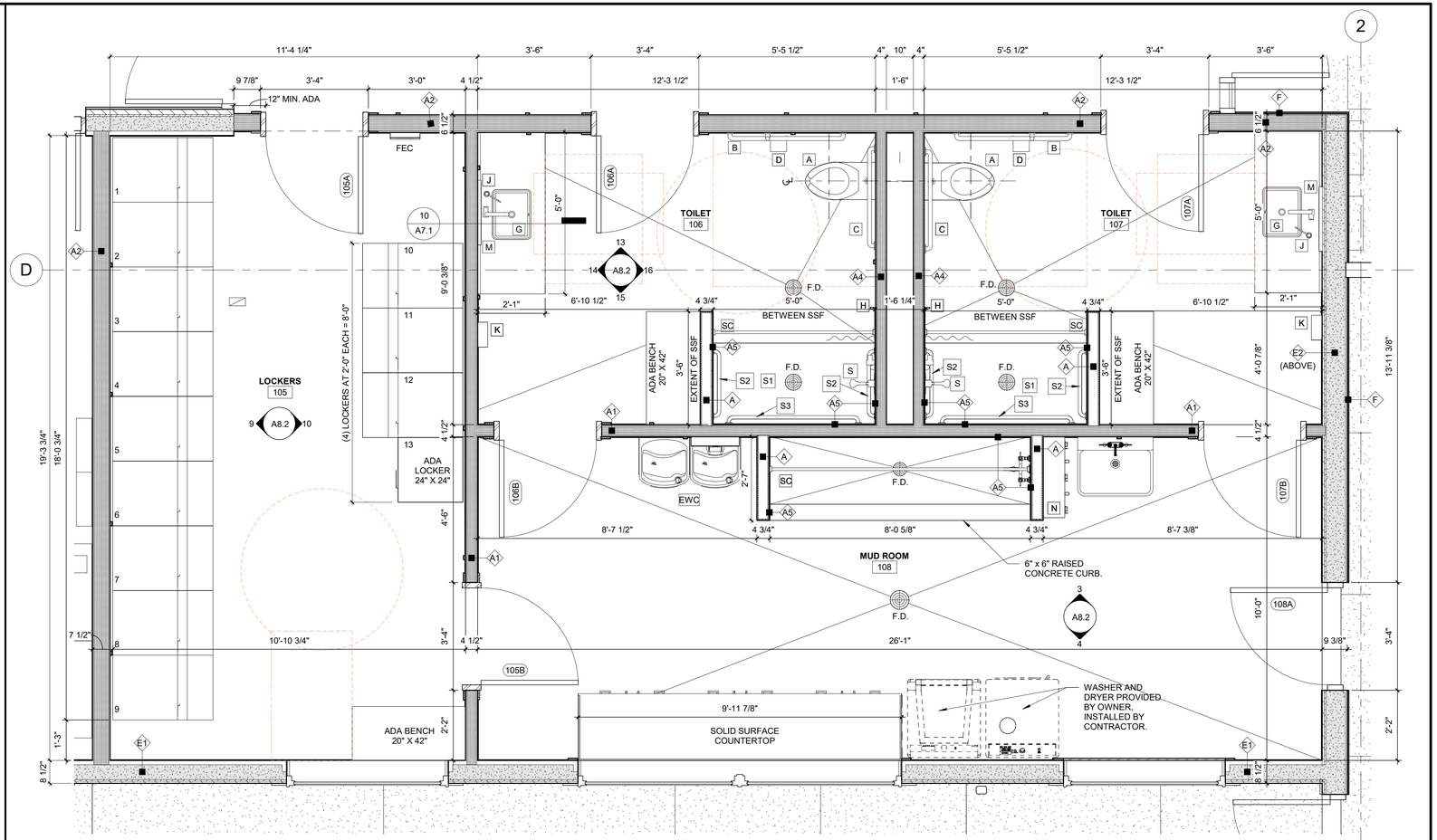


G

ACCESSIBLE LAVATORY DETAIL

SCALE: 1 1/2" = 1'-0"

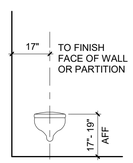
10



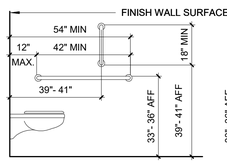
ENLARGED FLOOR PLAN

SCALE: 1/2" = 1'-0"

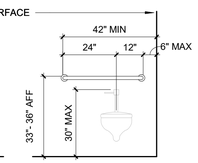
3



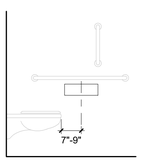
A — ACCESSIBLE WATER CLOSET



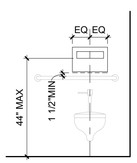
42" GRAB BAR WITH 18" VERTICAL GRAB BAR



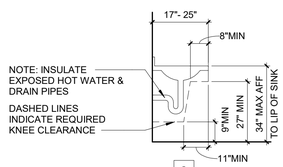
C — ONE PIECE 36" GRAB BAR



D — TOILET PAPER HOLDER

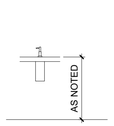


E — SEAT COVER DISPENSER SURFACE MOUNTED

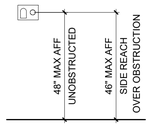


G — ACCESSIBLE SURFACE MOUNTED OR UNDERMOUNT COUNTERTOP SINK

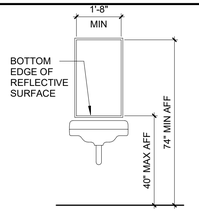
H — ACCESSIBLE COAT/ ROBE HOOK



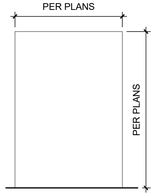
J — COUNTERTOP MOUNTED SOAP DISPENSER*



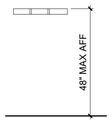
K — HAND DRYER
NOTE: HAND DRYER TO EXTEND NO GREATER THAN 4" FROM FINISHED FACE OF WALL WHEN IN EGRESS PATH



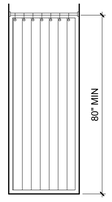
M — ACCESSIBLE MIRROR WITH FRAME



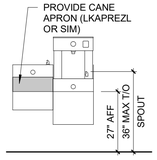
SSF — SOLID SURFACE PANELS IN SHOWER WALLS AND CEILING



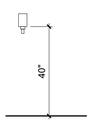
N — MOP RACK



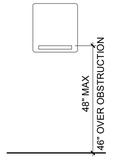
SC — SHOWER ROD AND CURTAIN



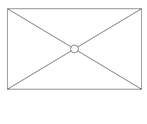
EWC — HI/LO ACCESSIBLE ELECTRIC WATER COOLER (EWC) WITH BOTTLE FILLER



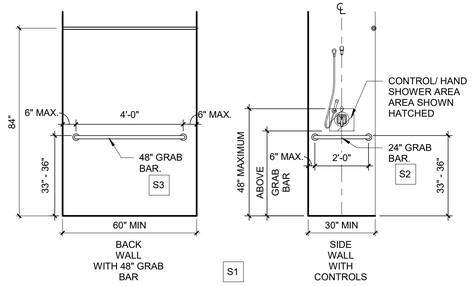
J1 — SOAP DISPENSER SURFACE MOUNTED



K1 — PAPER TOWEL DISPENSER SURFACE MOUNTED



S — 5'-0" x 3'-0" 2" DEEP RECESS IN CONCRETE SLAB FOR ROLL-IN SHOWER



TOILET ACCESSORY SCHEDULE

GENERAL NOTES

1. PROVIDE WOOD BLOCKING IN WALLS AS REQUIRED FOR MOUNTING OF ALL ACCESSORIES.
2. EQUIPMENT SHOWN IN THE MOUNTING HEIGHT LEGEND MAY OR MAY NOT BE USED IN THE CONSTRUCTION OF THIS PROJECT. THE ABOVE LEGEND REPRESENTS A MASTER LIST OF TYPICAL EQUIPMENT COMPILED BY THE ARCHITECT.
3. MOUNT EQUIPMENT AT HEIGHTS INDICATED UNLESS OTHERWISE NOTED.
4. REFER TO THE TOILET AND BATH ACCESSORIES IN THE SPECIFICATIONS.
5. COMPLIANCE WITH ADA FOR INSTALLATION OF ALL THE ACCESSORIES AND EQUIPMENT IS RESPONSIBILITY OF THE CONTRACTOR.
6. ALL SHOWER CLEARANCES ARE MEASURED FROM FACE OF SOLID SURFACE PANELS.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APRIL 2023
Drawn LMT
Checked MCR

REVISIONS

NO.	DATE	DESCRIPTION

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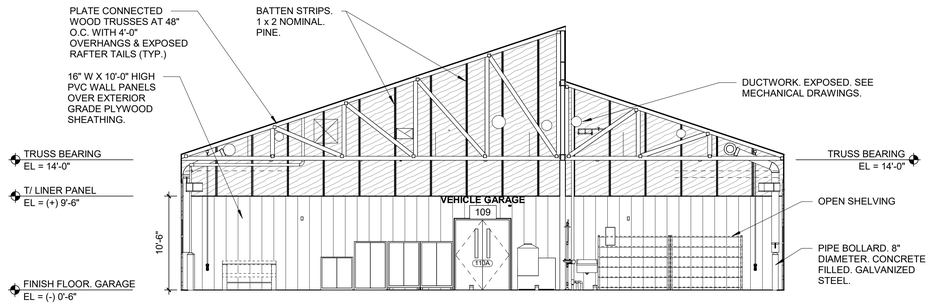
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

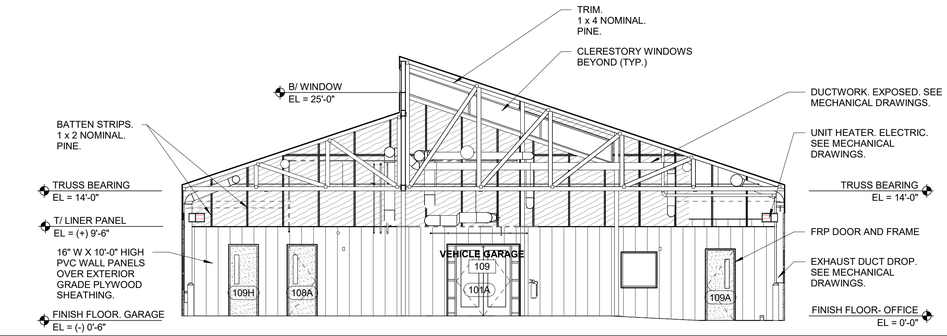
ENLARGED PLANS & TOILET ACCESSORY SCHEDULE

A7.1



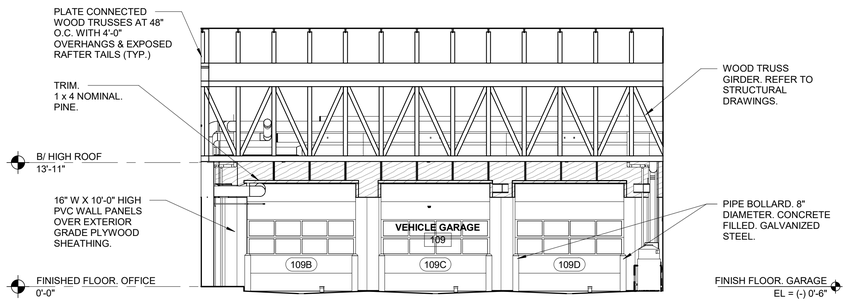
INT. ELEV./ HEATED VEHICLE STORAGE - EAST

SCALE: 1/8" = 1'-0" **5**



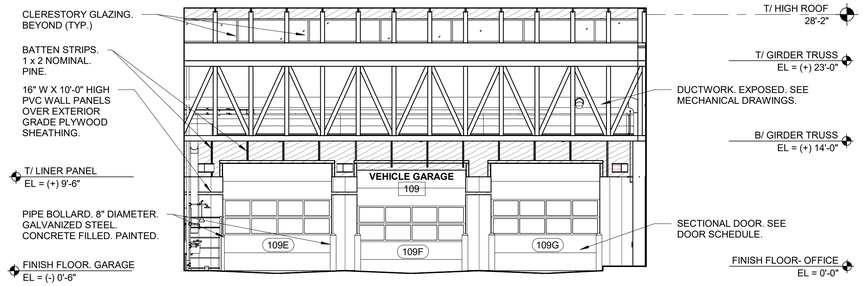
INT. ELEV./ HEATED VEHICLE STORAGE - WEST

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



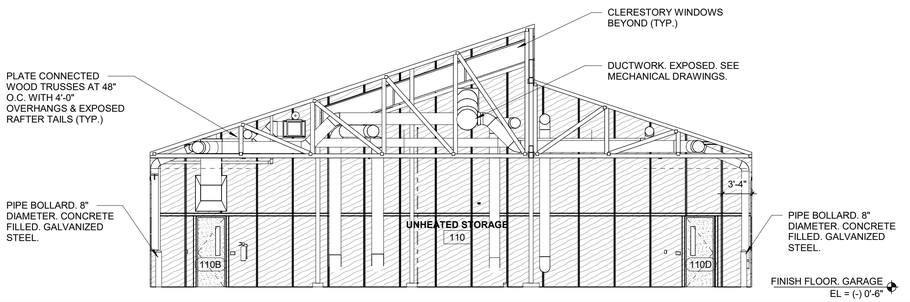
INT. ELEV./ HEATED VEHICLE STORAGE - NORTH

SCALE: 1/8" = 1'-0" **6**



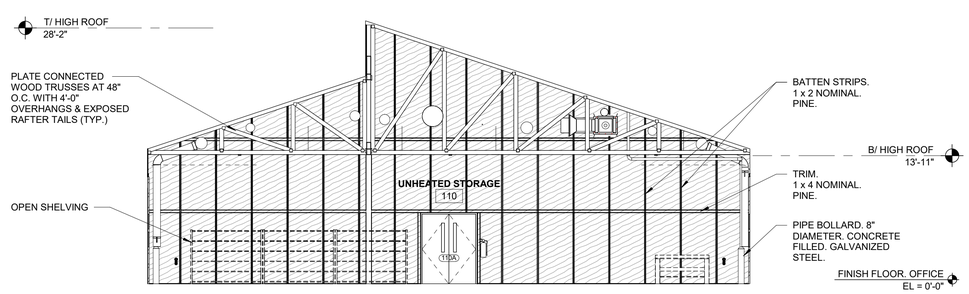
INT. ELEV./ HEATED VEHICLE STORAGE - SOUTH

SCALE: 1/8" = 1'-0" **2**



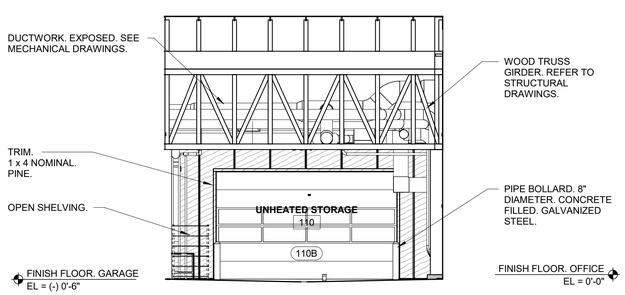
INT. ELEV./ UNHEATED VEHICLE STORAGE - EAST

SCALE: 1/8" = 1'-0" **7**



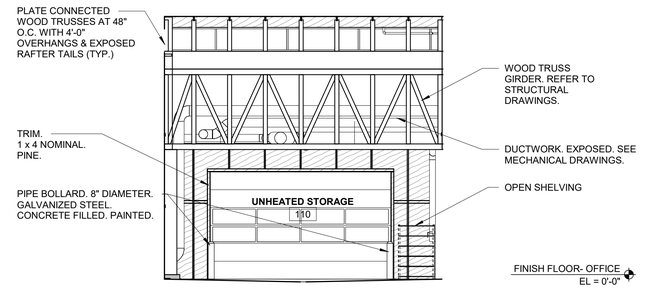
INT. ELEV./ UNHEATED VEHICLE STORAGE - WEST

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



INT. ELEV./ UNHEATED VEHICLE STORAGE - NORTH

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



INT. ELEV./ UNHEATED VEHICLE STORAGE - SOUTH

SCALE: 1/8" = 1'-0" **4**

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No.	2020-008
Date	06 APRIL 2023
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REVISIONS

NO.	DATE	DESCRIPTION

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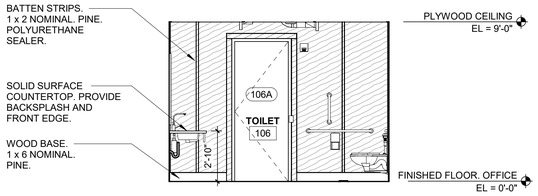
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

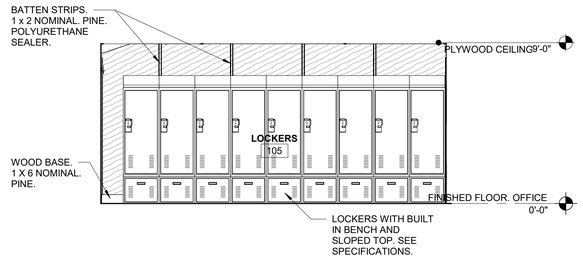
INTERIOR ELEVATIONS & SECTIONS

A8.1



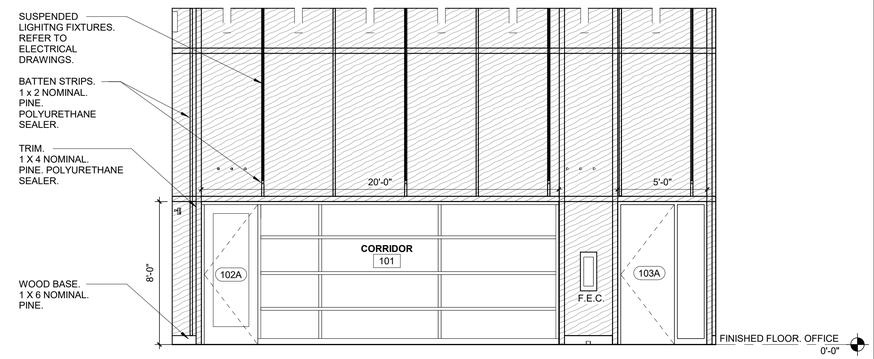
INT. ELEV./ SHOWER/TOILET TYP. NORTH

SCALE: 1/4" = 1'-0" 13



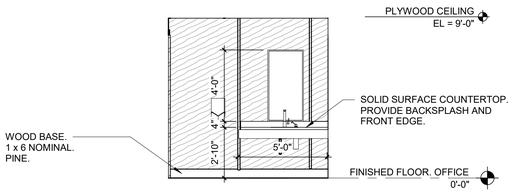
INT. ELEV./ LOCKER ROOM 105 WEST

SCALE: 1/4" = 1'-0" 9



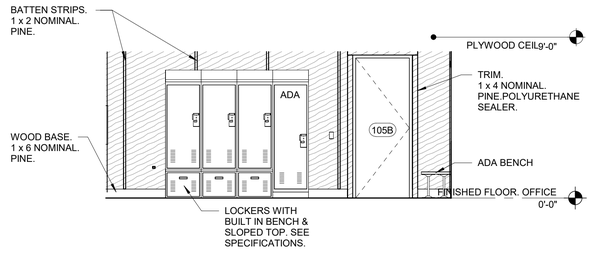
INT. ELEV./ CORRIDOR 101 NORTH

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



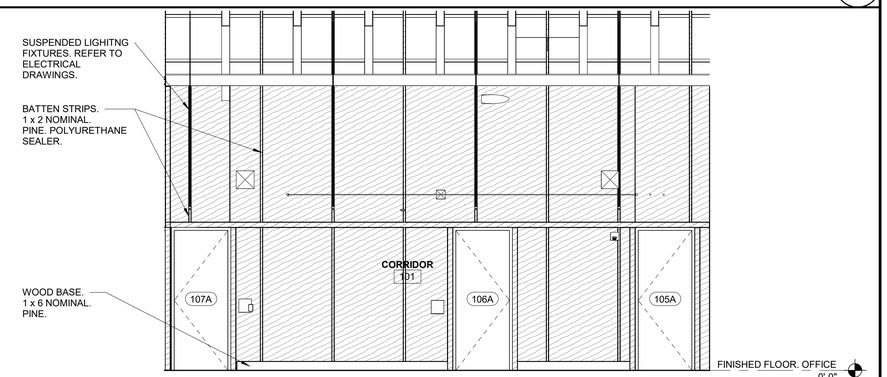
INT. ELEV./ SHOWER/TOILET TYP. WEST

SCALE: 1/4" = 1'-0" 14



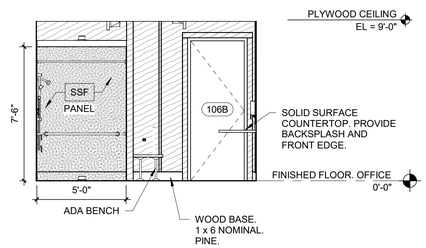
INT. ELEV./ LOCKER ROOM 105 EAST

SCALE: 1/4" = 1'-0" 10



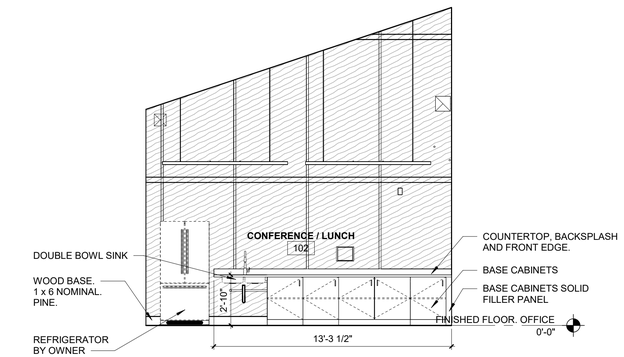
INT. ELEV./ CORRIDOR 101 SOUTH

SCALE: 1/4" = 1'-0" 2



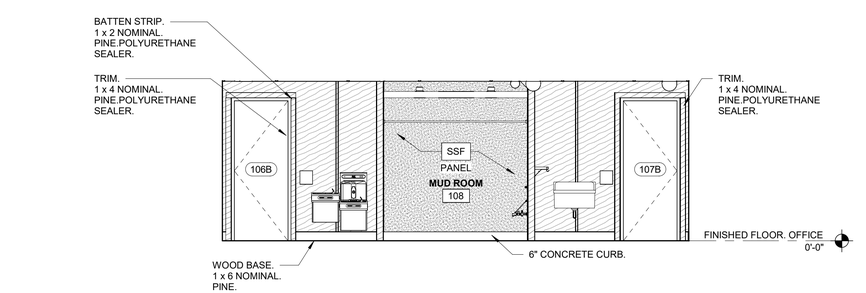
INT. ELEV./ SHOWER/TOILET TYP. SOUTH

SCALE: 1/4" = 1'-0" 15



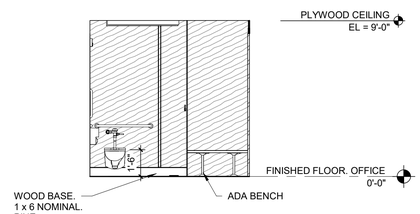
INT. ELEV./ CONFERENCE/ LUNCH 102 EAST

SCALE: 1/4" = 1'-0" 11



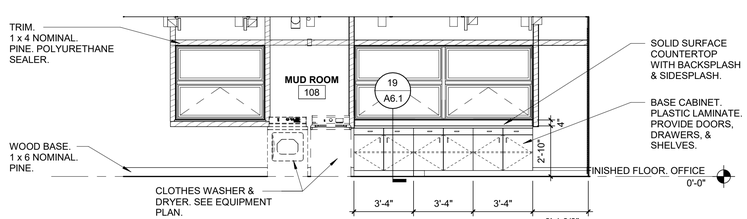
INT. ELEV./ MUD ROOM 108 NORTH

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



INT. ELEV./ SHOWER/TOILET TYP. EAST

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



INT. ELEV./ MUD ROOM 108 SOUTH

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

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No.	2020-008
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REVISIONS

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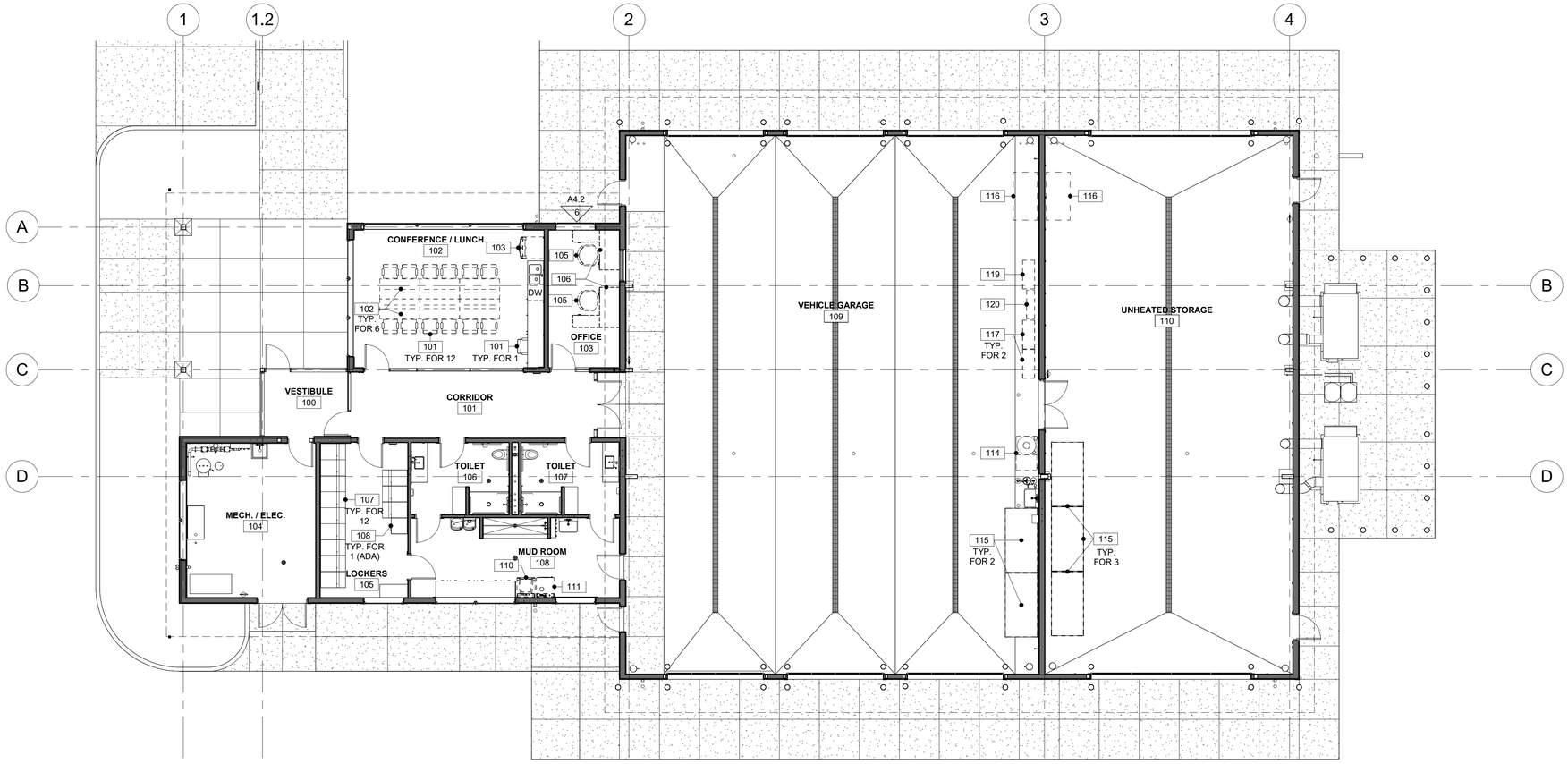
Phone 630-221-1212 / Fax 630-221-1220

INTERIOR ELEVATIONS

A8.2



EQUIPMENT & FURNITURE SCHEDULE			
NO.	DESCRIPTION	MODEL	COMMENTS
CONTRACTOR FURNISHED, CONTRACTOR INSTALLED.			
107	PERSONAL STORAGE LOCKER - SINGLE DOOR WITH BENCH DRAWER	SPACESAVER PSL722418BDRS	SEE PROJECT SPECIFICATIONS FOR EQUAL MANUFACTURERS.
108	PERSONAL STORAGE LOCKER- ADA COMPLIANT, NO BENCH	24"W X 24"D X 78"T	SEE PROJECT SPECIFICATIONS FOR EQUAL MANUFACTURERS.
OWNER FURNISHED, CONTRACTOR INSTALLED.			
110	CLOTHES WASHER.	OWNER TO DETERMINE.	SEE ELECTRICAL AND PLUMBING DRAWINGS FOR CONNECTIONS REQUIRED.
111	CLOTHES DRYER.	OWNER TO DETERMINE.	ELECTRIC ONLY. SEE ELECTRICAL AND MECHANICAL DRAWINGS FOR CONNECTIONS REQUIRED.
OWNER FURNISHED, OWNER INSTALLED.			
101	TASK CHAIR. WITH ARMS AND CASTERS.	OWNER TO DETERMINE.	FURNITURE VENDOR DETERMINED BY OWNER.
102	TRAINING TABLE. RECTANGULAR. WITH LOCKING CASTERS AND TILT TOP.	DETERMINED BY OWNER. DESCRIPTION PROVIDED FOR GUIDANCE ONLY	FURNITURE VENDOR DETERMINED BY OWNER.
103	FRENCH DOOR REFRIGERATOR AND FREEZER. SIZE SHOWN: 23.9 CUBIC FEET	DESCRIPTION PROVIDED FOR REFERENCE ONLY. EXACT MODEL DETERMINED BY OWNER.	SEE ELECTRICAL AND PLUMBING DRAWINGS FOR CONNECTIONS REQUIRED.
105	EXECUTIVE TASK CHAIR. WITH HEADREST, CASTERS, ARMS.	OWNER TO DETERMINE.	FURNITURE VENDOR DETERMINED BY OWNER.
106	L-SHAPED WORKSTATION. FURNITURE SYSTEM.	OWNER TO DETERMINE.	FURNITURE VENDOR DETERMINED BY OWNER.
114	WASHER. HIGH-PRESSURE.	OWNER TO DETERMINE	COLD WATER ONLY. SEE PLUMBING AND ELECTRICAL DRAWINGS FOR CONNECTIONS REQUIRED.
115	STEEL SHELVING RACK. SOLID SHELVES.	OWNER TO DETERMINE, SIZE SHOWN IS: 8'-0" LONG X 4'-0" DEEP X 8'-0" TALL.	EXACT BRAND AND MODEL TO BE SELECTED BY OWNER; SIZE MAY VARY FROM WHAT IS SHOWN.
116	WORKBENCH. STEEL TOP.	OWNER TO DETERMINE, SIZE SHOWN IS: 6'-0" LONG X 3'-0" DEEP X 2'-10" TALL.	EXACT BRAND AND MODEL TO BE SELECTED BY OWNER; SIZE MAY VARY FROM WHAT IS SHOWN.
117	CABINET, FLAMMABLE MATERIALS, LARGE.	EAGLE 1947XLEGS PER OWNER	3'-7" WIDE X 1'-6" DEEP X 5'-9" TALL, SEE MECHANICAL DRAWINGS FOR DUCTWORK CONNECTIONS REQUIRED.
119	CABINET, FLAMMABLE MATERIALS, MEDIUM, PESTICIDES	EAGLE PEST32X PER OWNER	SIZE: 43" WIDE X 18" DEEP X 44" HIGH, SEE MECHANICAL DRAWINGS FOR DUCTWORK CONNECTIONS REQUIRED.
120	CABINET, FLAMMABLE MATERIALS, AEROSOL PAINT SAFETY CABINET	EAGLE YPI7710X PER OWNER	SIZE: 43" WIDE X 12" DEEP X 65" HIGH, SEE MECHANICAL DRAWINGS FOR DUCTWORK CONNECTIONS REQUIRED.

FURNITURE AND EQUIPMENT PLAN

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

4

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
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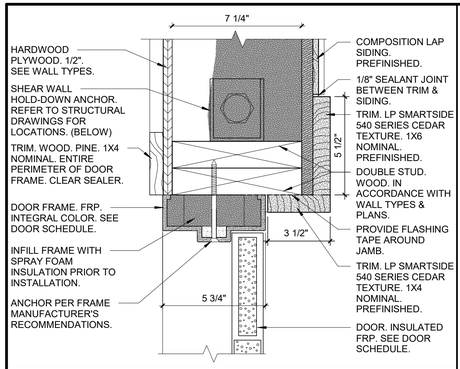
Phone 630-221-1212 / Fax 630-221-1220

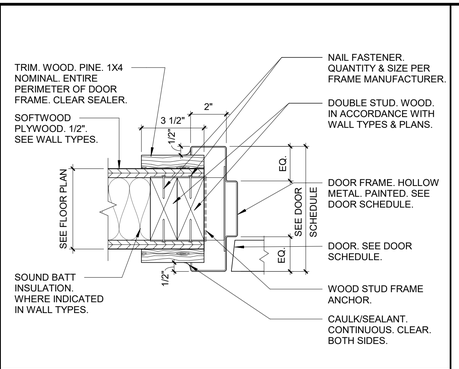
EQUIPMENT & FURNITURE PLANS, SCHEDULE & DETAILS

A8.3



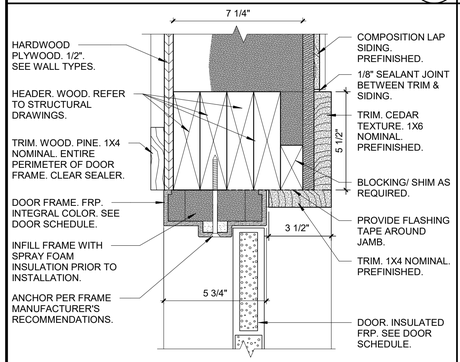
DETAIL/ FRP DOOR JAMB AT WOOD FRAMING 17

SCALE: 3" = 1'-0"



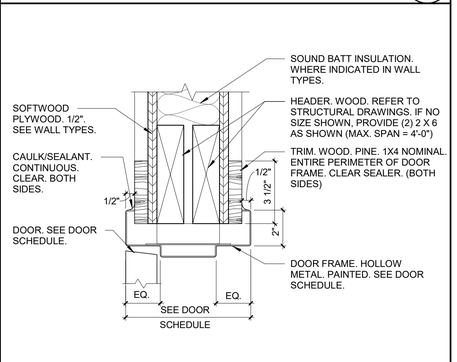
DETAIL/ H.M. DOOR JAMB AT WOOD STUD WALL 13

SCALE: 3" = 1'-0"



DETAIL/ FRP DOOR HEAD AT WOOD FRAMING 18

SCALE: 3" = 1'-0"



DETAIL/ H.M. DOOR HEAD AT WOOD STUD WALL 14

SCALE: 3" = 1'-0"

DOOR AND FRAME SCHEDULE

DOOR NUMBER	DOOR							FRAME				DETAILS						DOOR NUMBER	ROOM SERVED
	LEAF QTY	SIZE			TYPE	MATERIAL	GLAZING	TYPE	MATERIAL	FRAME DEPTH	GLAZING	HEAD	JAMB	SILL	FIRE LABEL	HARDWARE	REMARKS		
		WIDTH	HEIGHT	THICKNESS															
100A	1	3'-0"	7'-10"	2 9/16"	FG	AL / WD	G-2	CURTAINWALL 'G'- SEE A4.2	AL / WD	6"	G-2	18/A6.1 SIM.	7/A6.2	17/A6.1	---	SET 02	R1, R2, R3, R6	100A	VESTIBULE
100B	1	3'-0"	7'-10"	2 9/16"	FG	AL / WD	G-3	04	AL / WD	6"	G-3	18/A6.1 SIM.	6/A6.2	17/A6.1 SIM.	---	SET 06	R1, R6	100B	CORRIDOR
101A	2	3'-0"	7'-10"	2 9/16"	FG	AL / WD	G-3	02	AL / WD	6"	G-3	18/A6.1 SIM.	6/A6.2 SIM.	17/A6.1 SIM.	---	SET 15	R6	101A	VEHICLE GARAGE
102A	1	3'-0"	7'-10"	2 9/16"	FG	AL / WD	G-3	03	AL / WD	6"	G-3	18/A6.1 SIM.	6/A6.2 SIM.	17/A6.1 SIM.	---	SET 09	R6	102A	CONFERENCE / LUNCH
103A	1	3'-0"	7'-10"	1 3/4"	F	AL / WD	---	01A	AL / WD	6"	G-3	18/A6.1 SIM.	6/A6.2 SIM.	17/A6.1 SIM.	---	SET 13	R6	103A	OFFICE
104A	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	5 3/4"	---	14/A9.1 SIM.	13/A9.1 SIM.	---	---	SET 09	R5	104A	MECH. / ELEC.
104B	2	3'-0"	7'-10"	1 3/4"	F	FRP	---	10	FRP	5 3/4"	---	18/A9.1 SIM.	17/A9.1 SIM.	---	---	SET 05	R5	104B	MECH. / ELEC.
105A	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	9"	---	14/A9.1	13/A9.1	---	---	SET 07	---	105A	LOCKERS
105B	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	7"	---	14/A9.1	13/A9.1	---	---	SET 08	---	105B	MUD ROOM
106A	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	9"	---	14/A9.1	13/A9.1	---	---	SET 12	---	106A	TOILET
106B	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	7"	---	14/A9.1	13/A9.1	---	---	SET 11	---	106B	TOILET
107A	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	9"	---	14/A9.1	13/A9.1	---	---	SET 12	---	107A	TOILET
107B	1	3'-0"	7'-10"	1 3/4"	F	WD	---	00	HM	7"	---	14/A9.1	13/A9.1	---	---	SET 11	---	107B	TOILET
108A	1	3'-0"	7'-10"	1 3/4"	N	FRP	G-3	00	FRP	5 3/4"	---	18/A9.1 SIM.	17/A9.1 SIM.	---	---	SET 07	---	108A	MUD ROOM
109A	1	3'-0"	7'-10"	1 3/4"	N	FRP	G-2	00	FRP	5 3/4"	---	18/A9.1	17/A9.1	---	---	SET 03	---	109A	VEHICLE GARAGE
109B	---	12'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	109B	VEHICLE GARAGE
109C	---	12'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	109C	VEHICLE GARAGE
109D	---	12'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	109D	VEHICLE GARAGE
109E	---	12'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	109E	VEHICLE GARAGE
109F	---	12'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	109F	VEHICLE GARAGE
109G	---	12'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	109G	VEHICLE GARAGE
109H	1	3'-0"	7'-10"	1 3/4"	N	FRP	G-2	00	FRP	5 3/4"	---	18/A9.1	17/A9.1	---	---	SET 04	R3	109H	VEHICLE GARAGE
110A	2	3'-0"	7'-10"	1 3/4"	N	FRP	G-3	10	FRP	5 3/4"	---	18/A9.1 SIM.	17/A9.1 SIM.	---	---	SET 10	---	110A	UNHEATED STORAGE
110B	---	20'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	110B	UNHEATED STORAGE
110C	1	3'-0"	7'-10"	1 3/4"	N	FRP	G-2	00	FRP	5 3/4"	---	18/A9.1	17/A9.1	---	---	SET 03	---	110C	UNHEATED STORAGE
110D	1	3'-0"	7'-10"	1 3/4"	N	FRP	G-2	00	FRP	5 3/4"	---	18/A9.1	17/A9.1	---	---	SET 03	---	110D	UNHEATED STORAGE
110E	---	20'-0"	12'-0"	2"	OS-V2	INSUL. STEEL	SEE SPEC	---	---	---	---	14/A6.1	4/A6.2	16/A6.1	---	SET 01	R4	110E	UNHEATED STORAGE

GENERAL NOTES:

1. REFER TO SPECIFICATION SECTION 08 71 00 FOR DOOR HARDWARE SETS.
2. DOOR HARDWARE SHALL BE CAPABLE OF OPERATION WITH THE USE OF ONE (1) HAND AND SHALL NOT REQUIRE TIGHT-PINCHING, TIGHT GRASPING, OR TWISTING OF WRIST TO OPERATE. THUMB-TURN DEADBOLTS ARE PROHIBITED; LEVER OR PADDLE DEADBOLT RELEASES ARE ACCEPTABLE. DOOR THRESHOLDS SHALL NOT EXCEED ONE-HALF INCH (1/2") IN HEIGHT, THRESHOLDS EXCEEDING ONE-QUARTER INCH (1/4") IN HEIGHT SHALL HAVE A 1:2 BEVEL. DOOR CLOSERS SHALL MEET OPENING FORCE AND SWEEP PERIOD REQUIREMENTS.
3. EGRESS DOORS SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
4. ALL DOORS SHALL HAVE ACCESSIBLE HARDWARE LIMITED TO LEVER-OPERATED MECHANISMS AND U-SHAPED HANDLE DESIGNS. DOOR HANDLES, PULLS, LATCHES, LOCKS, AND OTHER OPERATING DEVICES ON DOORS REQUIRED TO BE ACCESSIBLE SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING, OR TWISTING OF THE WRIST TO OPERATE.
5. DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE INSTALLED 34 INCHES MINIMUM AND 48 INCHES MAXIMUM ABOVE THE FINISHED FLOOR. LOCKS USED ONLY FOR SECURITY PURPOSES AND NOT USED FOR NORMAL OPERATION ARE PERMITTED AT ANY HEIGHT.
6. THE UNLATCHING OF ANY DOOR LEAF SHALL NOT REQUIRE MORE THAN ONE OPERATION.
7. PANIC HARDWARE SHALL COMPLY WITH THE FOLLOWING: 1) THE ACTUATING PORTION OF THE RELEASING DEVICES SHALL EXTEND AT LEAST ONE-HALF OF THE DOOR LEAF WIDTH; AND 2) MAXIMUM UNLATCHING FORCE OF 15 LBS.
8. DOOR CLOSER SWEEPS SHALL BE ADJUSTED SO THE DOOR TAKES THREE SECONDS FROM SEVENTY DEGREES OPEN TO CLOSE TO A POINT THREE INCHES FROM THE LATCH.

MATERIAL KEY:

ALUM = ALUMINUM
GALV HM = GALVANIZED HOLLOW METAL
HM = HOLLOW METAL
FRP = FIBER-REINFORCED PLASTIC
WD = WOOD, FACTORY STAINED
INSUL. STEEL = PREFINISHED INSULATED STEEL. REFER TO SECTIONAL DOOR SPECIFICATION.

GLASS KEY:

G-1 INSULATING GLASS UNITS: LOW-E, VISION GLASS, DOUBLE GLAZED, HEAT STRENGTHENED.
G-2 INSULATING GLASS UNITS: LOW-E, VISION GLASS, DOUBLE GLAZED, FULLY TEMPERED.
G-3 1/4" CLEAR, INTERIOR VISION GLASS. TEMPERED.

REMARKS:

R1 DOOR EQUIPPED WITH ADA AUTO OPERATOR. REFER TO DOOR HARDWARE SPECIFICATIONS AND ELECTRICAL DRAWINGS.
R2 PREPARE DOOR AND FRAME FOR FUTURE CARD ACCESS CONTROL SYSTEM. PROVIDE EMPTY JUNCTION BOX WITHIN DOOR FRAME AND COVER PLATE. REFER TO SPECIALITY ELECTRICAL / SECURITY DRAWINGS.
R3 REFER TO SPECIALTY ELECTRICAL / SECURITY DRAWINGS FOR ROUGH-IN REQUIRED FOR INTRUSION DETECTION KEYPAD. INTRUSION DETECTION SYSTEM INSTALLATION BY OWNER. ROUGH-IN BY APPLICABLE TRADE CONTRACTOR.
R4 ELECTRICALLY-OPERATED OVERHEAD SECTIONAL DOOR. REFER TO SECTIONAL DOOR SPECIFICATION FOR JACKSHAFT OPERATOR REQUIRED, PHOTO SAFETY EYES, AND TIMER TO CLOSE FEATURE. REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS OF THREE-BUTTON CONTROL STATIONS.
R5 PROVIDE PERMANENT TACTILE WARNING AT LEVER HANDLE PER ADA REGULATIONS.
R6 COMPOSITE ALUMINUM AND WOOD DOOR AND/OR FRAME TO BE PROVIDED BY THE WINDOW MANUFACTURER.

DOOR & FRAME SCHEDULE, NOTES, AND REMARKS 2

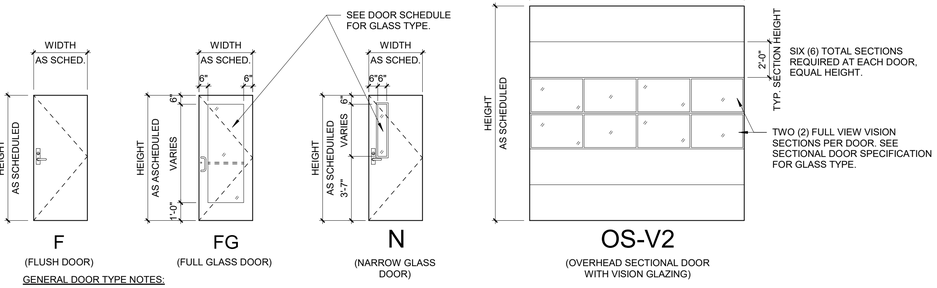
ROOM FINISH SCHEDULE

ROOM NO.	ROOM DESCRIPTION	FLOOR	WALLS								CEILING		REMARKS
			NORTH		EAST		SOUTH		WEST				
		MATERIAL	MATERIAL	BASE	MATERIAL	BASE	MATERIAL	BASE	MATERIAL	BASE	MATERIAL	HEIGHT	
100	VESTIBULE	CPT-1	G-2 , PLYWOOD-1 ABOVE	NONE	G-3, PLYWOOD-1 ABOVE	NONE	PLYWOOD-1	WD-1	G-2, PLYWOOD-1 ABOVE	NONE	SIPS	VARIES	R1, R4
101	CORRIDOR	P.C.	PLYWOOD-1	WD-1	G-3, PLYWOOD-1 ABOVE	NONE	PLYWOOD-1	WD-1	G-3, PLYWOOD-1 ABOVE	NONE	SIPS	VARIES	R1, R4
102	CONFERENCE / LUNCH	P.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	G-3, PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	SIPS	VARIES	R1, R4
103	OFFICE	P.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	SIPS	VARIES	R1, R4
104	MECH. / ELEC.	S.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	SIPS	VARIES	R1, R4
105	LOCKERS	P.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1 & SSF-1	8'-3"	R1, R4
106	TOILET	P.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1 & SSF-1	8'-6"	R1, R2, R4
107	TOILET	P.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1 & SSF-1	8'-6"	R1, R2, R4
108	MUD ROOM	P.C.	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1	WD-1	PLYWOOD-1 & SSF-1	8'-6"	R1, R2, R4
109	VEHICLE GARAGE	S.C.	PVC PANELS TO 10'-0" A.F.F., PLYWOOD-2	NONE	PVC PANELS TO 10'-0" A.F.F., PLYWOOD-2	NONE	PVC PANELS TO 10'-0" A.F.F., PLYWOOD-2	NONE	PVC PANELS TO 10'-0" A.F.F., PLYWOOD-2	NONE	SIPS	VARIES	R3, R4
110	UNHEATED STORAGE	S.C.	PLYWOOD-2	WD-1	PLYWOOD-2	WD-1	PLYWOOD-2	WD-1	PLYWOOD-2	WD-1	SIPS	VARIES	R3, R4

REMARKS:

R1 FINISH ALL EXPOSED WOOD (E.G. SIP PANELS, PLYWOOD PANELS, WOOD BATTENS, LVL BEAMS, TRUSSES) AT WALLS & EXPOSED STRUCTURE WITH ONE (1) COAT STAIN AND THREE (3) COATS POLYURETHANE.
R2 PROVIDE 1/4" SOLID SURFACE WALL PANELS AT SHOWERS AND BOOT WASHING BASIN.
R3 DO NOT FINISH PLYWOOD PANELS, WOOD SURFACES, TRUSSES, OR OTHER WOOD MATERIALS AT WALLS OR CEILINGS. LEAVE UNFINISHED.
R4 DO NOT PAINT EXPOSED DUCTWORK.

ROOM FINISH SCHEDULE AND NOTES 15



GENERAL DOOR TYPE NOTES:

1. WHERE GLAZING IS INDICATED, INTERIOR DOORS ARE TO TYPICALLY RECEIVE 1/4" TEMPERED GLASS AND EXTERIOR DOORS ARE TO RECEIVE 1" INSULATED GLAZING, BOTH FULLY TEMPERED.
2. GLAZING AS SHOWN IS TYPICALLY SHOWN AS EXPOSED AREA OF GLAZING, EXCLUSIVE OF GLAZING STOPS.

DOOR TYPES

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

ROOM FINISH SCHEDULE LEGEND

MATERIALS : FLOORS

CPT-1 WALK-OFF TYPE CARPET TILE WITH HEAVY DUTY BACKING.
S.C. SEALED CONCRETE.
P.C. POLISHED CONCRETE.

MATERIALS : WALLS / BASE

G-1. INSULATED GLAZING. HEAT STRENGTHENED.
G-2. INSULATED GLAZING. FULLY TEMPERED.
G-3. 1/4" CLEAR GLAZING. TEMPERED WHERE REQUIRED BY CODE.
PLYWOOD-1 GRADE 'A'. 1/2". WITH CLEAR SEALER UNLESS NOTED OTHERWISE. PROVIDE 1 1/2" BATTENS AT ALL END JOINTS.
PLYWOOD-2 EXTERIOR GRADE. 1/2". PROVIDE 1 1/2" BATTENS AT ALL END JOINTS.
PVC PANELS 16" WIDE X 10'-0" TALL.
WD-1 WOOD WALL BASE. PINE. 1X6 NOMINAL. CLEAR SEALER UNLESS NOTED OTHERWISE.
SSP 1/4" SOLID SURFACE PANEL (TYPICAL AT SHOWERS)

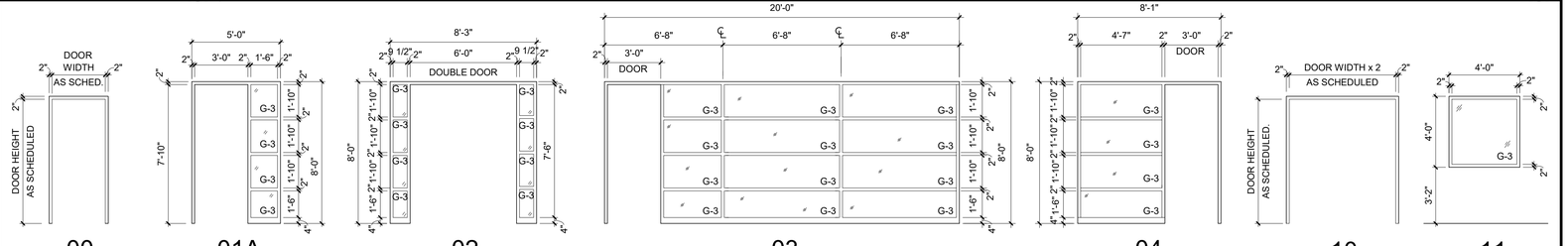
MATERIALS : CEILINGS

PLYWOOD-1 GRADE 'A'. 1/2". PRE-SANDED. ATTACH DIRECTLY TO UNDERSIDE OF TRUSSES OR WOOD FRAMING AS APPLICABLE. PROVIDE 1 1/2" BATTENS AT SEAMS.
SIPS SIPS PANELS.

GENERAL FINISH NOTES

A. PROVIDE SPECIFIED TRANSITION STRIPS BETWEEN ANY FLOOR FINISH CHANGE IN MATERIAL.
B. ALL FLOOR FINISH MATERIAL TRANSITIONS SHALL OCCUR BELOW CENTERLINE OF DOOR OPENINGS.
C. PREP, REPAIR, AND LEVEL ALL SUBFLOORS FOR SPECIFIED FINISH PER MANUFACTURER'S RECOMMENDATIONS.
D. PROVIDE CEMENTITIOUS BACKER BOARD FOR ALL WALLS SCHEDULED TO RECEIVE SOLID SURFACE PANELS, I.E. SHOWERS.
E. VERIFY ALL DIMENSIONS AND QUANTITIES PRIOR TO ORDERING MATERIALS AND FINISHES.
F. LEAD TIMES FOR SPECIFIED MATERIALS AND FINISHES VARY. THE CONTRACTOR SHALL ASSUME RESPSONBILITY FOR VERIFYING LEAD TIMES WITH MANUFACTURERS, PREPARING SUBMITTALS, AND ORDERING MATERIALS AND FINISHES IN ACCORDANCE WITH THE PROJECT SCHEDULE AND SUBSTANTIAL COMPLETION DATE.
G. PROTECT MATERIALS AND FINISHES FROM DAMAGE DURING CONSTRUCTION. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR DAMAGE TO MATERIALS AND FINISHES CAUSED BY CONSTRUCTION ACTIVITIES. SUCH DAMAGED MATERIALS AND FINISHES SHALL BE REPAIRED OR REPLACED AT THE DISCRETION OF THE ARCHITECT AT NO ADDITIONAL COST.

ROOM FINISH SCHEDULE LEGEND AND NOTES 20



GENERAL DOOR FRAME NOTES:

1. AREAS TO RECEIVE GLAZING ARE DENOTED "G-3".
2. ALL FRAMES ARE TO BE FULLY WELDED. WHERE FRAMES ARE PROVIDED IN SECTIONS, FULLY WELD AND DRESS WELDS. SEAMS SHALL BE FULLY CONCEALED PRIOR TO PAINTING.
3. GLAZING STOPS ARE TO TYPICALLY BE PROVIDED ON ROOM-SIDE OF OPENING.

FRAME TYPES

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

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27139 FOREST PRESERVE ROAD
MUNDELEIN, ILLINOIS 60060

WA No. 2020-008
Date 06 APRIL 2023
Drawn JAO
Checked MCR

REVISIONS

NO.	DESCRIPTION	DATE

GRAPHIC NORTH

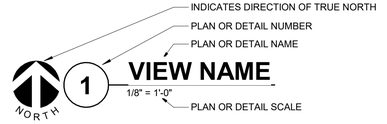
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

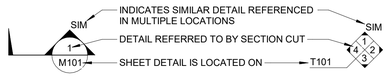
DOOR SCHEDULE, FRAME TYPES, ROOM FINISH SCHEDULE

A9.1

VIEW KEY

1 → INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
NEW

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
EXISTING

HALFTONING DOES NOT MODIFY SCOPE.

TAG	UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST
	INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

FIRE PROTECTION SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
DFP	DRAIN
FP	FIRE PROTECTION
FPD	FIRE PROTECTION - DRY SYSTEM
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	UNION/FLANGE
	DIRECTION OF FLOW IN PIPE
	ROUTE TO DRAIN
	SHUTOFF VALVE NORMALLY OPEN
	AUTOMATIC DRAIN VALVE
	ANGLE VALVE
	BUTTERFLY VALVE WITH MONITOR SWITCH
	CHECK VALVE
	INSPECTOR TEST AND DRAIN VALVE
F	FLOW SWITCH
P	PRESSURE GAUGE (FURNISHED WITH BALL VALVE)
	AREA BOUNDARY
NO HATCH	LIGHT HAZARD
	ORDINARY GROUP 1

FIRE PROTECTION ABBREVIATION KEY

ABBR:	DESCRIPTION:
TYP	TYPICAL

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION AND PIPING.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
13. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
14. MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
15. MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING; DUCTWORK, PIPING, ETC.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

FIRE PROTECTION GENERAL NOTES:

1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER IS THE BASIS OF DESIGN.
3. CENTER SPRINKLERS IN CEILING TILES IN BOTH DIRECTIONS IN ALL AREAS. IN AREAS WITH 2'X4' CEILING TILES CENTERING USING A 2'X2' CEILING PATTERN IS ACCEPTABLE. SPRINKLER HEADS SHALL BE ALIGNED WITH OTHER SPRINKLER HEADS, LIGHTING, DIFFUSERS, AND ANY OTHER FEATURES IN THE CEILING.
4. NEW SPRINKLERS SHALL BE QUICK RESPONSE TYPE, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL NOT MIX STANDARD RESPONSE SPRINKLERS WITH QUICK RESPONSE SPRINKLERS IN UNPARTITIONED SPACES.
5. PROVIDE COVERAGE ABOVE (IF APPLICABLE) AND BELOW FLOATING CEILINGS, REFER TO ARCHITECTURAL PLANS.
6. FIRE PROTECTION PIPE ROUTING IS SHOWN FOR GENERAL LAYOUT. DETERMINE EXACT NUMBER OF SPRINKLERS, PIPE SIZING, AND PIPE ROUTING.
7. THE FIRE PROTECTION SYSTEM SHALL BE DESIGNED TO MEET OWNER'S INSURANCE COMPANY STANDARDS WHERE APPLICABLE. THE MORE STRINGENT OF THE OWNER'S INSURANCE UNDERWRITER'S DESIGN CRITERIA AND THE NFPA STANDARDS SHALL BE USED.
8. ALL BUILDING AREA SHALL BE FULLY SPRINKLERED INCLUDING CANOPIES, WALKWAYS, OVERHANGS, SOFFITS, AND BUILDING PROJECTIONS. ALL ACCESSIBLE COMBUSTIBLE CONCEALED SPACES SHALL BE FULLY PROTECTED BY THE SPRINKLER SYSTEM.
9. EACH ASSEMBLY SHALL INCLUDE CHECK VALVE, BUTTERFLY CONTROL VALVE INDICATING "OPEN" OR "CLOSED" POSITION, TEST INSPECTION VALVE, FLOW SWITCH AND PRESSURE GAUGES.
10. WHERE FEASIBLE INSTALL PIPES HIGH AS POSSIBLE TO AVOID CONFLICT WITH OTHER DISCIPLINES.
11. INSTALL SYSTEM DRAINS AT LOW POCKET AREAS CONTAINING FIVE GALLONS OF WATER OR MORE, PROVIDE WITH ISOLATION VALVE AND THREADED HOSE CONNECTION.
12. PROVIDE INTERMEDIATE TEMPERATURE SPRINKLER HEADS WHERE REQUIRED BY NFPA 13 UNLESS OTHERWISE NOTED.
13. FINAL HEAD LOCATION, TYPE AND FINISH SHALL BE REVIEWED AND APPROVED BY THE ARCHITECT.
14. PAINT ALL EXPOSED PIPING TO MATCH BACKGROUND OR AS DIRECTED BY THE ARCHITECT.
15. THE OWNER MUST BE NOTIFIED PRIOR TO EACH AND EVERY DRAINING OR RECHARGING OF THE SPRINKLER SYSTEM.
16. THE CONTRACTOR SHALL PREPARE A COORDINATED SET OF SHOP DRAWINGS AND SHALL OBTAIN APPROVAL FROM THE AUTHORITIES HAVING JURISDICTION AND THE LOCAL FIRE DEPARTMENT PRIOR TO ANY INSTALLATION.
17. DRAWING SHOW LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC. AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
18. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS. INCLUDING THOSE OF OTHER TRADES.

FIRE PROTECTION SHEET INDEX

F0.0	FIRE PROTECTION COVERSHEET
F1.1	FIRST FLOOR PLAN - FIRE PROTECTION
F4.0	FIRE PROTECTION DETAILS, DIAGRAM & MATERIAL LIST
GRAND TOTAL: 3	

FIRE SPRINKLER USAGE SCHEDULE

AREA TYPE (NOTE 1 & 6)	AREA HAZARD	SPRINKLER					MANUFACTURER & MODEL	REMARKS
		SYMBOL (NOTES 4 & 5)	TYPE	RESPONSE	FINISH	TEMPERATURE °F		
EXPOSED STRUCTURE WITHOUT OBSTRUCTIONS	SEE PLANS	SPR-1	PENDENT	QUICK	ROUGH BRASS	155	VIKING VK, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2708	NOTE 2, 3
EXPOSED STRUCTURE WITH OBSTRUCTIONS	SEE PLANS	SPR-2	UPRIGHT	QUICK	ROUGH BRASS	155	VIKING VK, RELIABLE F1FR, TYCO TY-FRB, VICTAULIC V2704	NOTE 2, 3
FINISHED AREA	SEE PLANS	SPR-3	CONCEALED	QUICK	WHITE	155	VIKING VK, RELIABLE G4A, TYCO RFII, VICTAULIC V3802	NOTE 3
EXPOSED STRUCTURE WITH OBSTRUCTIONS - DRY SYSTEM	SEE PLANS	SPR-4	DRY UPRIGHT	QUICK	ROUGH BRASS	155	VIKING VK, TYCO, VICTAULIC	NOTE 2, 3
FINISHED AREA - DRY SYSTEM	SEE PLANS	SPR-5	DRY CONCEALED	QUICK	WHITE	155	VIKING VK, TYCO, VICTAULIC	NOTE 3

NOTES:
1. SEE FLOOR PLANS FOR ZONING REQUIREMENTS.
2. SPRINKLER SHALL HAVE COLOR CODED BULB THERMAL ELEMENT.
3. ALL SPRINKLERS SHALL BE UL LISTED.
4. CONTRACTOR TO VERIFY SPRINKLER REQUIREMENTS BASED ON ACTUAL INSTALLATION, USAGE, ARCHITECTURAL CEILING PLAN AND NFPA 13 REQUIREMENTS.
5. SYMBOL IS PRIMARILY FOR INDENTIFYING SPRINKLERS IN SUBMITTALS. IT MAY OR MAY NOT BE FOUND ELSEWHERE ON THE DRAWINGS. CONTRACTOR TO SUBMIT ALL SPRINKLER TYPES TO BE USED.
6. AREAS ARE GENERAL IN NATURE. CONTRACTOR TO MATCH UNSCHEDULED AREAS TO SIMILAR SPACES.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 06 APR 2023
Drawn DAH
Checked RDS

REVISIONS

NO.	DATE	DESCRIPTION

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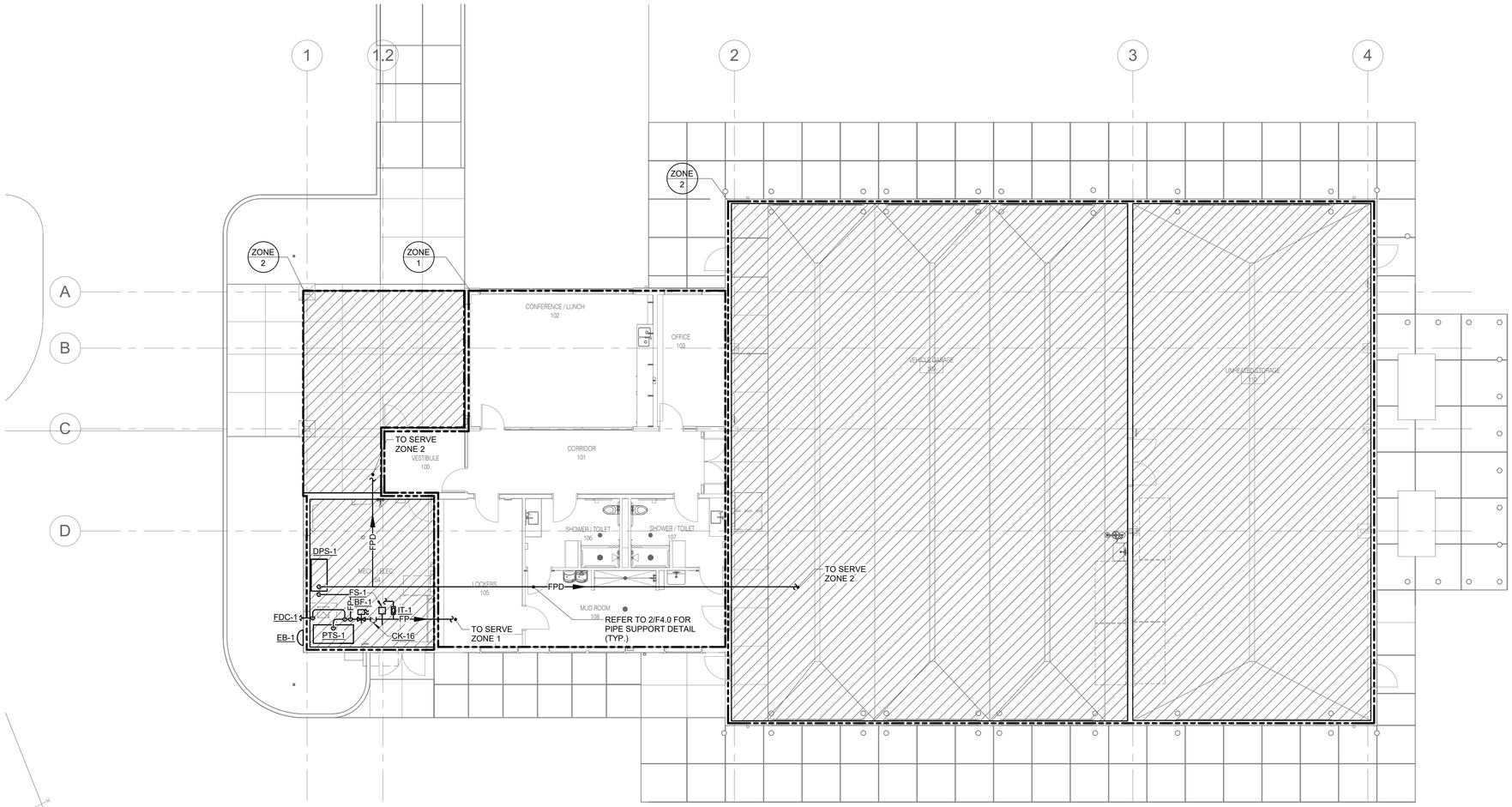
FIRE PROTECTION COVERSHEET

F0.0

SHEET NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DESIGN LAYOUT AND QUANTITY OF SPRINKLER HEADS TO MEET NFPA 13.
2. CONTRACTOR SHALL PROVIDE SPRINKLER COVERAGE IN COMBUSTIBLE CONCEALED SPACE ABOVE CEILING AS PER NFPA 13 REQUIREMENTS.
3. COORDINATE SPRINKLER HEAD LOCATIONS WITHIN CEILINGS WITH ARCHITECTURAL REFLECTED CEILING PLANS. SPRINKLERS SHALL BE LOCATED IN THE CENTER OF THE TILES PER SPECIFICATION SECTION 21 13 00.
4. REFER TO 2/F4.0 FOR SPRINKLER HEAD MOUNTING DETAIL.



NORTH

1 FIRST FLOOR PLAN - FIRE PROTECTION

1/8" = 1'-0"

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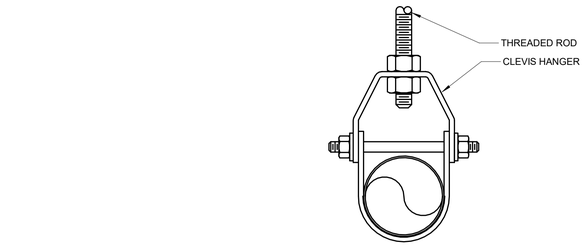
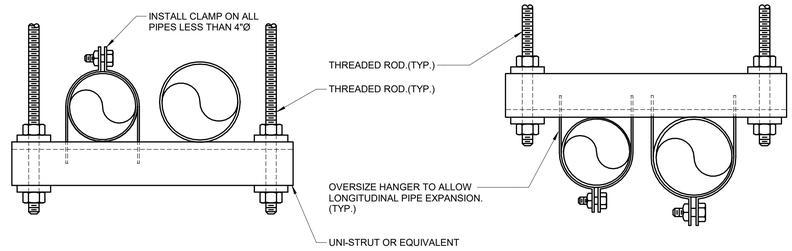
FIRST FLOOR PLAN - FIRE PROTECTION

F1.1



CLEVIS HANGER



TRAPEZE HANGER **STRUCT CLAMP HANGERS**

1 PIPE SUPPORT DETAIL
NO SCALE

NOTES:

1. REFER TO SPECIFICATION SECTION 21 05 29.

FIRE PROTECTION MATERIAL LIST

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CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.

ADV-1

DESCRIPTION: AUTOMATIC DRIP VALVE, FOR USE ON INLET SIDE OF FDC OR PUMPER CONNECTION, 175 PSI, BRASS OR BRONZE BODY, STAINLESS STEEL OR BERYLLIUM COPPER SPRING AND RETAINING RING, MIN. CLOSING PRESSURE 7 PSI WITH INCREASING PRESSURE, MIN OPENING PRESSURE 5 PSI WITH DECREASING PRESSURE, 1/2" NPT INLET AND 1/4" NPT DRAIN OUTLET. VALVE ORIENTATION SHALL BE INSTALLED ACCORDING TO MFR. RECOMMENDATIONS, UL.

MANUFACTURER & CATALOG NO.: VIKING B-1, TYCO AD-1, RELIABLE C

BF-1

DESCRIPTION: INDICATING BUTTERFLY VALVE, NORMALLY OPEN, 175 PSI WWP, GROOVED TYPE, DUCTILE IRON BODY WITH PROTECTIVE COATING, ELECTROLESS NICKEL OR EPDM COATED DUCTILE IRON DISC, STAINLESS STEEL STEM AND SCREWS, CAST OR DUCTILE IRON HANDWHEEL, EPDM SEAT, INDICATOR FLAG, FACTORY MOUNTED INTEGRAL MONITOR SWITCHES, UL.

LUGGED OR WAFER VALVES ARE ACCEPTABLE PROVIDED THEY HAVE THE FEATURES LISTED ABOVE.

MANUFACTURER & CATALOG NO.: NIBCO GD-4765-8N, VICTAULIC SERIES 705, TYCO BFV-300, KENNEDY G300, GLOBE GLR300G, REL-BFG-300

CK-16

DESCRIPTION: SWING CHECK VALVE, 300 PSI WWP, GROOVED/FLANGED TYPE, DUCTILE IRON BODY, STAINLESS STEEL HINGE ASSOCIATED WITH RUBBER FACED CLAPPER, BRASS SEAT RING, ACCESS COVER, 1/2" OR 3/4" TAPPED BOSSES, VALVE LISTED FOR HORIZONTAL OR VERTICAL INSTALLATION, UL.

FLANGED TYPE IS ACCEPTABLE PROVIDED VALVE HAS THE FEATURES LISTED ABOVE.

MANUFACTURER & CATALOG NO.: VIKING G-1, TYCO CV-1F

DPS-1

DESCRIPTION: DRY PIPE SYSTEM, COMPLETELY PREASSEMBLED IN FINISHED STEEL FLOOR MOUNTED CABINET. UL. SYSTEM SHALL INCLUDE A DRY PIPE VALVE, WATER SUPPLY CONTROL VALVE, WATER PRESSURE AND LOW AIR PRESSURE ALARM SWITCHES, ANTI-COLUMN DEVICE, AIR DEHYDRATOR, ACCELERATOR, AIR SUPPLY, RE-PRESSURE GAUGES FOR SYSTEM AIR AND WATER, AND POWER CONNECTIONS. AIR SUPPLY SHALL BE BY AN INTEGRAL DIRECT AIR COMPRESSOR WITH AIR MAINTENANCE DEVICE INTEGRAL TO UNIT. AIR COMPRESSOR SHALL BE SIZED FOR CAPACITY TO FILL SYSTEM TO REQUIRED PRESSURE IN LESS THAN 30 MINUTES.

ELECTRICAL POWER FOR AIR COMPRESSOR SHALL BE 1/2 HP 120V/1PH/60 HZ. COORDINATE ANY CHANGES WITH E.E.

MANUFACTURER & CATALOG NO.: VIKING TOTALPAC 3, RELIABLE DDX PREPAK, VICTAULIC 745 FIRE PAC

FIRE PROTECTION MATERIAL LIST CONTINUED

EB-1

DESCRIPTION: FIRE SPRINKLER ELECTRIC BELL - 10" GONG SIZE, RATED FOR INDOOR OR OUTDOOR USE, WEATHERPROOF RED STEEL COVER AND BACKBOX, 120VAC, UL.

MANUFACTURER & CATALOG NO.: POTTER PBA120, SYSTEM SENSOR SSV.

FDC-1

DESCRIPTION: EXPOSED STORZ FIRE DEPT. CONNECTION INLET CONNECTION, 4" FEMALE NPT OUTLET x 4" STORZ INLET, INLET SCREEN, 30 DEGREE ANGLE BODY STYLE, ALUMINUM LOCKING CAPS WITH KEYWRENCH LOCK, CHROME PLATED WALL PLATE LABELED "AUTO SPKR".

CONTRACTOR SHALL COORDINATE PURCHASE OF LOCKING CAPS AND KEYWRENCH WITH LOCAL FIRE DEPARTMENT.

MANUFACTURER & CATALOG NO.:

FDC: POTTER ROEMER 5795/5799, CROKER SERIES 6350-6365, GUARDIAN 6624-6629

LOCKING CAP: KNOX COMPANY [5001] 5002

FS-1

DESCRIPTION: FLOW SWITCH - VANE TYPE, 450 PSI, FLOW SENSITIVITY OF 4-10 GPM, TWO SINGLE POLE DOUBLE THROW SWITCHES, PNEUMATIC RETARD ADJUSTABLE FROM 0-90 SECONDS WITH AUTOMATIC RESET, NEMA 4 INDOOR/OUTDOOR RATED METAL HOUSING, UL/FM.

MANUFACTURER & CATALOG NO.: POTTER VSR, SYSTEM SENSOR WFD

IT-1

DESCRIPTION: COMBINATION INSPECTOR'S TEST AND DRAIN VALVE, 300 PSI, INTEGRAL SIGHT GLASS, BALL VALVE PLATE INDICATING OFF-TEST-DRAIN POSITIONS, FURNISHED WITH TEST ORIFICE GIVING FLOW EQUIVALENT TO ONE SPRINKLER OF A TYPE HAVING THE SMALLEST ORIFICE INSTALLED ON THE SYSTEM, PRESSURE RELIEF VALVE, UL/FM.

MANUFACTURER & CATALOG NO.: AGF M1011A, RELIABLE MODEL TD, VICTAULIC TESTMASTER, GLOBE UTD W/ MODEL ARV PRV.

PTS-1

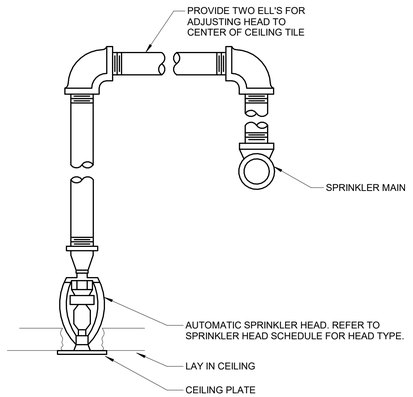
DESCRIPTION: COMBINATION PUMP AND STORAGE TANK SYSTEM. NFPA 13D COMPLIANT. STAINLESS STEEL PUMP AND NON-FERROUS COMPONENTS. PROVIDE WITH AIR PRESSURE SWITCH, RISER MANIFOLD KIT.

RISER MANIFOLD KIT SHALL INCLUDE PRESSURE GAUGE, DISCHARGE CHECK VALVE, TANK ISOLATION VALVE, SYSTEM AND TANK DRAIN, PUMP ISOLATION VALVE.

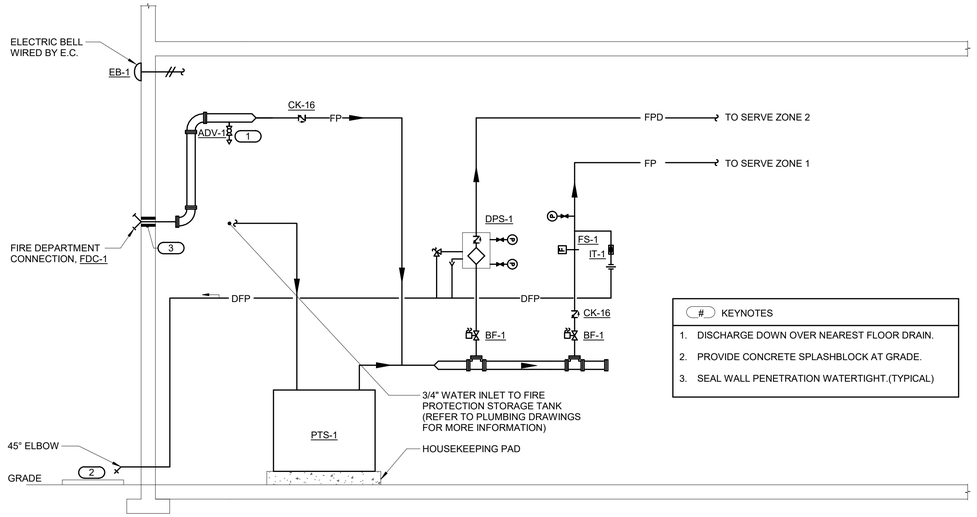
TANK SHALL HAVE 450 GALLON HOLDING VOLUME, FILL WITH FLOAT VALVE, OVERFLOW AND TEST LINE.
PUMP SHALL PROVIDE 30 GPM AT 50 PSI.

ELECTRICAL CONNECTION - 2 HP PUMP, 240-1 CONNECTION. DISCONNECT BY EC.

MANUFACTURER & CATALOG NO.: TALCO (HH4-200A), RAIMONDO



2 SPRINKLER HEAD MOUNTING DETAIL
NO SCALE



3 FIRE PROTECTION RISER DIAGRAM
NO SCALE

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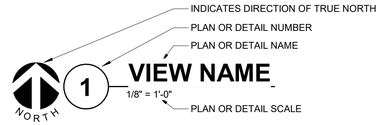
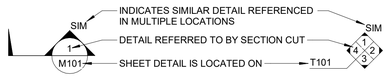
FIRE PROTECTION DETAILS, DIAGRAM & MATERIAL LIST

F4.0

VIEW KEY

1 — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
NEW

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
EXISTING

HALFTONING DOES NOT MODIFY SCOPE.

TAG — UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR

PLUMBING SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
CW	COLD WATER - POTABLE
D	DRAIN
GSAN	SANITARY DRAINAGE (GREASE SANITARY DRAINAGE)
GV	GREASE VENT
HW	HOT WATER - POTABLE
HWC	HOT WATER CIRCULATING - POTABLE
SAN	SANITARY DRAINAGE
ST(1,000)	STORM DRAINAGE (ROOF SQUARE FOOTAGE)
STS	STORM DRAINAGE (SECONDARY)
TW	TEMPERED WATER
V	VENT
W	SERVICE WATER - POTABLE
	PIPE CONTINUATION
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
FD	PIPE SERVING FIXTURE ON FLOOR ABOVE (EXAMPLE: FD = FLOOR DRAIN)
	PITCH PIPE IN DIRECTION
	DIRECTION OF FLOW IN PIPE
	ROUTE TO DRAIN
	DIELECTRIC CONNECTION
	UNION/FLANGE
	SHUTOFF VALVE NORMALLY OPEN
	SHUTOFF VALVE NORMALLY CLOSED
GPM	BALANCING VALVE (NUMBER INDICATES GPM)
	CHECK VALVE
	BACKFLOW PREVENTER

PLUMBING ABBREVIATION KEY

ABBR:	DESCRIPTION:
AFF	ABOVE FINISHED FLOOR
BFP	BACKFLOW PREVENTER
CO	CLEANOUT
ESE	EMERGENCY SHOWER/EYEWASH
EWC	ELECTRIC WATER COOLER
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
HB	HOSE BIBB
I.E.	INVERT ELEVATION (FOR REFERENCE ONLY)
LAV	LAVATORY
MB	MOP BASIN
MV	MIXING VALVE
SH	SHOWER
SK	SINK
SS	SERVICE SINK
TD	TRENCH DRAIN
TYP	TYPICAL
VTR	VENT THROUGH ROOF
WC	WATER CLOSET
WH	WATER HEATER
WMF	WASHING MACHINE FIXTURE
YCO	YARD CLEANOUT

PLUMBING ROUGH-IN SCHEDULE

NOTES: (APPLIES TO ALL PLUMBING FIXTURES LISTED BELOW)
1) SIZES SHOWN ARE MINIMUMS. LARGER SIZES SHOWN ON THE DRAWING SHALL DICTATE THE ROUGH-IN SIZE. 2) SANITARY RISERS UP IN WALL TO FIXTURES SHALL BE A MINUMUM OF 2". 3) DOMESTIC WATER BRANCH PIPING OUTSIDE OF THE WALL/CHASE SHALL BE A MINIMUM OF 3/4" UNLESS NOTED OTHERWISE. ONLY THE FINAL RISE-DROP SHALL BE SMALLER. 4) FINAL SANITARY SIZE SHALL MATCH P-TRAP SIZE (REFER TO MATERIAL LIST).

TAG NAME	DESCRIPTION	COLD WATER	HOT WATER	SANITARY	VENT
CMF-1	UTILITY BOX (COFFEE MACHINE FIXTURE)	1/2"	-	-	-
ESE-1	EMERGENCY SHOWER EYE/FACE WASH	1 1/2"	-	-	-
EWC-1	ELECTRIC WATER COOLER (ACCESSIBLE)	1/2"	-	1 1/2"	1 1/2"
FD-1	FLOOR DRAIN	-	-	3"	1 1/2"
FD-1	FLOOR DRAIN	-	-	4"	2"
L-1	LAVATORY (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
MB-1	MOP BASIN	3/4"	3/4"	3"	1 1/2"
MB-2	MOP BASIN	3/4"	3/4"	3"	1 1/2"
SH-1	SHOWER	1/2"	1/2"	2"	1 1/2"
SK-1	SINK (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
SK-2	SINK (ACCESSIBLE)	1/2"	1/2"	1 1/2"	1 1/2"
TD-1	TRENCH DRAIN				
TD-1	TRENCH DRAIN				
WC-1	WATER CLOSET (ACCESSIBLE)	1 1/2"	-	4"	2"
WMF-1	UTILITY BOX (WASHING MACHINE FIXTURE)	3/4"	3/4"	2"	1 1/4"

PLUMBING GENERAL NOTES:

1. THE SYMBOLS AND THE MATERIAL LIST ARE FOR THE CONVENIENCE OF THE CONTRACTOR. CONTRACTOR SHALL VERIFY QUANTITIES AND FURNISH ALL MATERIALS REQUIRED FOR FULLY OPERATIONAL SYSTEMS, WHETHER SPECIFIED OR NOT.
2. CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE, BUT ARE GIVEN AS AN AID TO THE CONTRACTOR AND TO INDICATE THE QUALITY REQUIRED. CONTRACTOR IS RESPONSIBLE FOR A COMPLETE DESCRIPTION OF MATERIAL ON THESE DRAWINGS AND IN THE SPECIFICATIONS BEFORE ORDERING. THE DESCRIPTION OF THE MATERIAL TAKES PRECEDENCE OVER THE CATALOG NUMBER. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.
3. CONTRACTOR SHALL VERIFY THAT FIXTURES SUPPLIED ARE APPROVED PER ALL APPLICABLE STATE, LOCAL AND GOVERNING AUTHORITIES.
4. ALL FIXTURES SHALL CONFORM TO FEDERAL ACT S.3874
5. INVERT ELEVATIONS ARE FROM EXISTING DRAWINGS AND MAY NOT BE ACCURATE. VERIFY ALL ELEVATIONS BEFORE BEGINNING WORK.
6. VERIFY UNDERGROUND PIPE SIZES, INVERT ELEVATIONS, AND LOCATIONS PRIOR TO BEGINNING ANY WORK.
7. REFER TO THE PLUMBING ROUGH-IN SCHEDULE FOR THE SIZES OF BRANCH PIPES TO PLUMBING FIXTURES.

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, FIRE PROTECTION, PLUMBING, VENTILATION AND PIPING.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
13. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
14. MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
15. MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING: DUCTWORK, PIPING, ETC.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

PLUMBING SHEET INDEX

P0.0	PLUMBING COVERSHEET
P1.0	UNDERFLOOR PLAN - PLUMBING
P1.1	FIRST FLOOR PLAN - PLUMBING
P4.0	PLUMBING DETAILS
P5.0	PLUMBING MATERIAL LIST
GRAND TOTAL: 5	

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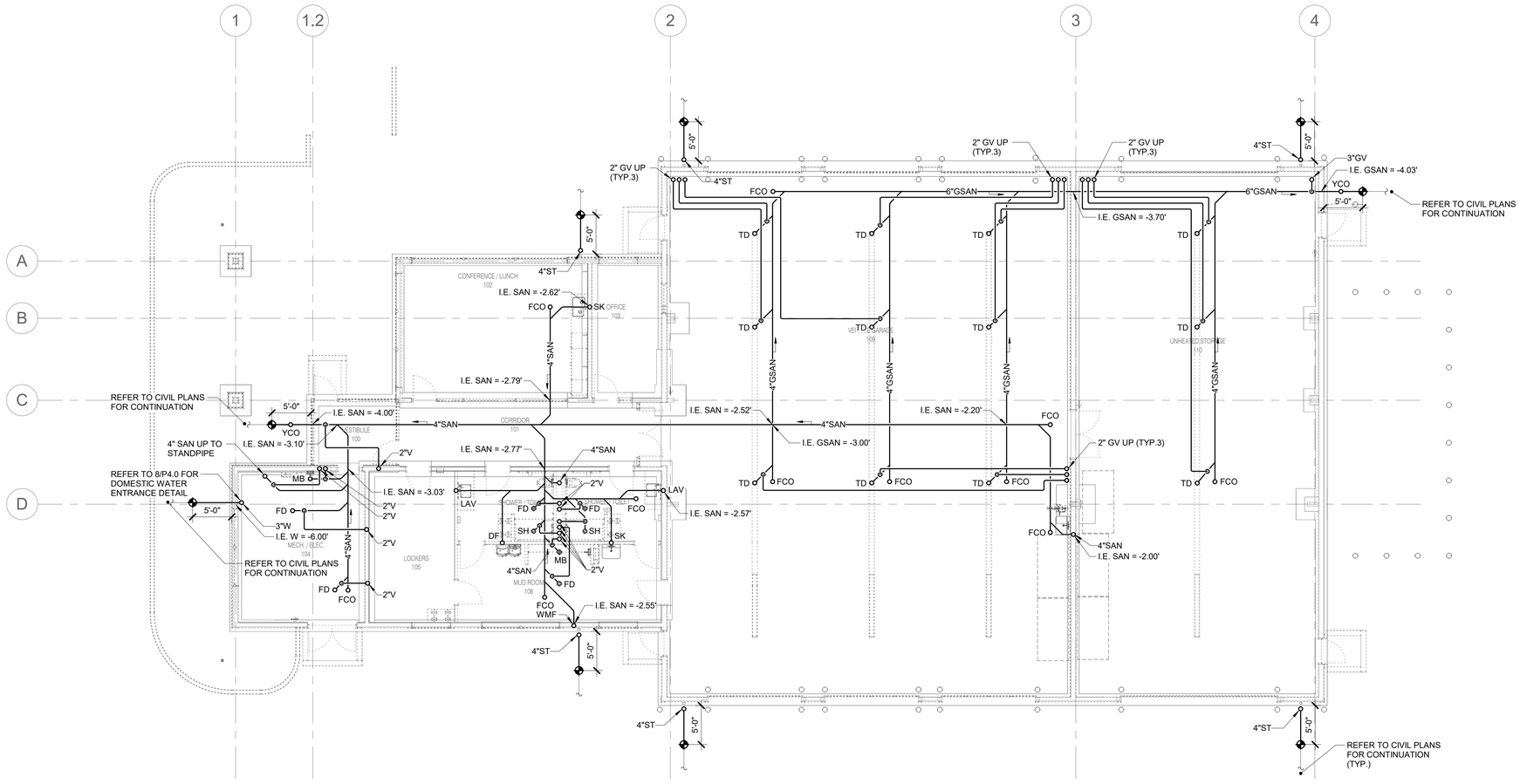
PLUMBING COVERSHEET

P0.0



1 UNDERFLOOR PLAN - PLUMBING

1/8" = 1'-0"

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UNDERFLOOR PLAN - PLUMBING

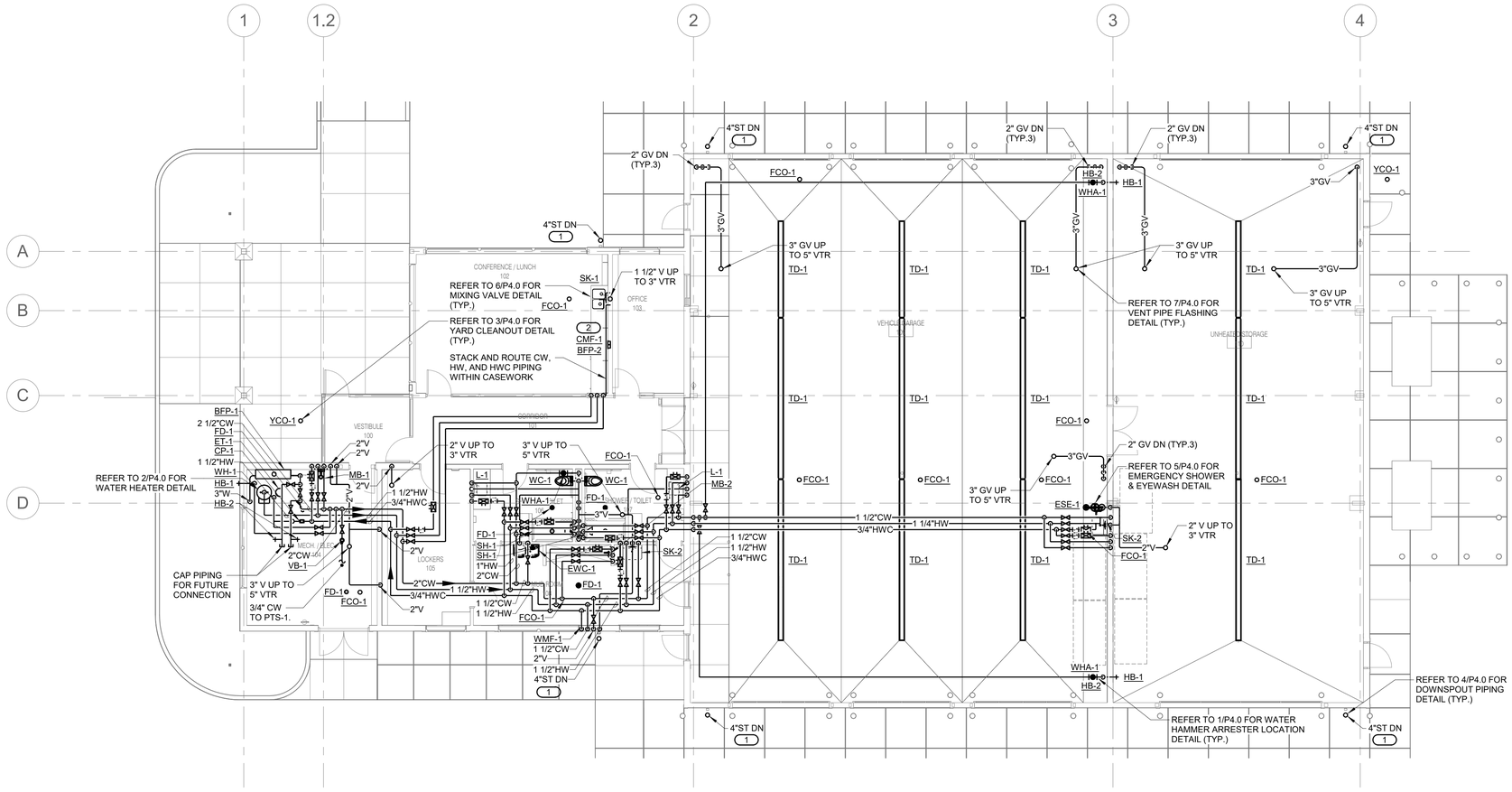
P1.0

SHEET NOTES:

1. CONTRACTOR SHALL BALANCE ALL BALANCING VALVES TO 0.5 GPM UNLESS NOTED OTHERWISE.
2. CONTRACTOR SHALL ROUTE ALL THE PLUMBING PIPING WITHIN WALL IN OFFICE AREA.

KEYNOTES: (#)

1. CONTRACTOR SHALL CONNECT STORM PIPING TO DOWNSPOUT CONNECTOR AND ROUTE TO UNDERGROUND AS SHOWN ON DRAWINDS. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF DOWNSPOUT. REFER TO 4/P4.0 FOR DOWNSPOUT PIPING DETAIL.
2. CONTRACTOR SHALL BRANCH OFF CW PIPING AND EXTEND TO CMF-1. PROVIDE BFP-2 ON CW PIPING PRIOR TO CMF-1 CONNECTION. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF COFFEE MACHINE. REFER TO PLUMBING MATERIAL LIST FOR CMF-1 AND BFP-2 DESCRIPTION.



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1 FIRST FLOOR PLAN - PLUMBING

1/8" = 1'-0"

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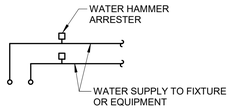
FIRST FLOOR PLAN - PLUMBING

P1.1

PROVIDE WATER HAMMER ARRESTER (WHA-#) AT PLUMBING FIXTURES AND QUICK CLOSING VALVES AS INDICATED ON DRAWINGS AND AS RECOMMENDED BY STANDARD PDI-WH201. REFER TO PLUMBING MATERIAL LIST FOR WATER HAMMER ARRESTER DESCRIPTION.

SINGLE / DOUBLE FIXTURE

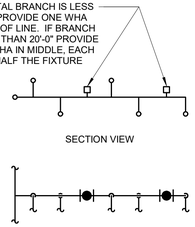


PDI SIZE	PIPE SIZE	FIXTURE UNIT LOAD
A	1/2"	1-11
B	3/4"	12-32

INSTALL WHA'S PER PDI STANDARDS AND MANUFACTURER'S INSTRUCTIONS. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE DOWN. INSTALL IN LINE WITH WATER FLOW DIRECTION IF POSSIBLE. SIZE THE WHA AS SHOWN PER THE TABLES ABOVE. PROVIDE ACCESSIBILITY TO WHA WITH ACCESS PANEL OR INSTALL ABOVE ACCESSIBLE CEILING.

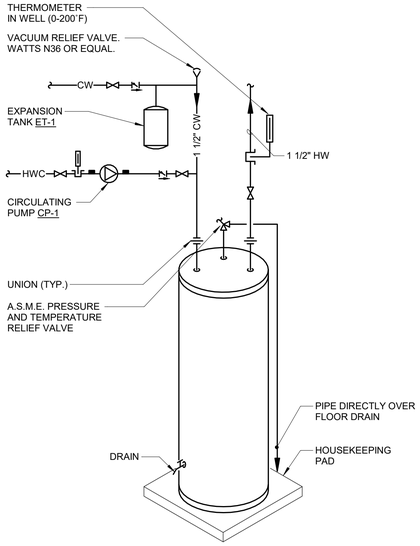
MULTIPLE FIXTURES

IF HORIZONTAL BRANCH IS LESS THAN 20'-0" PROVIDE ONE WHA AT THE END OF LINE. IF BRANCH IS GREATER THAN 20'-0" PROVIDE ANOTHER WHA IN MIDDLE, EACH SIZED FOR HALF THE FIXTURE UNITS.

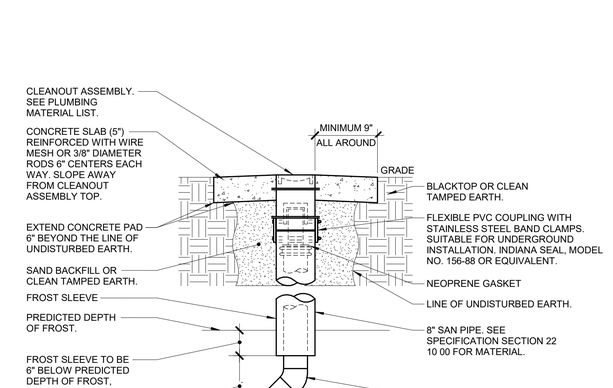


FIXTURE UNIT CALCULATION		
FIXTURE	COLD	HOT
WATER CLOSET (F.V.)	10	--
WATER CLOSET (TANK)	5	--
URINAL	5	--
LAVATORY	1.5	1.5
JANITOR'S SINK	3	3
SHOWER/BATHTUB	2	3
DRINKING FOUNTAIN	2	-
KITCHEN SINK	2	2
ICE MAKER / BEVERAGE	1	-

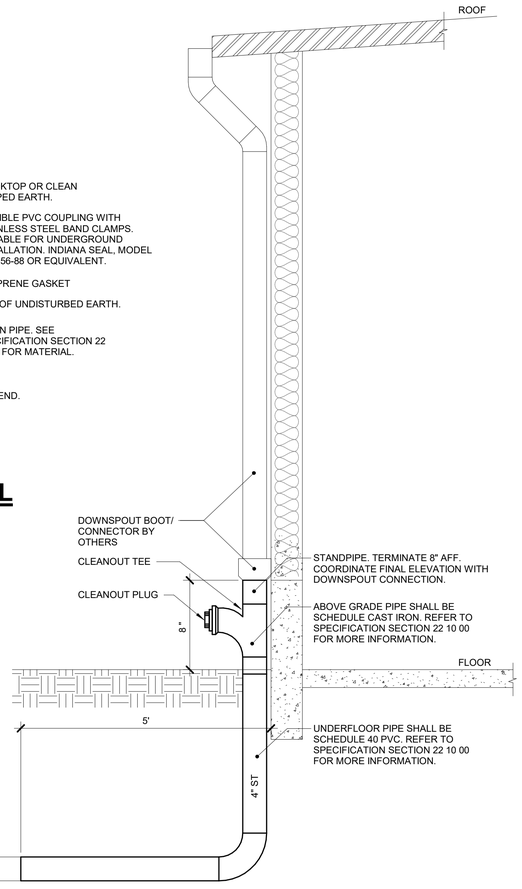
1 WATER HAMMER ARRESTER LOCATION DETAIL
NO SCALE



2 WATER HEATER DETAIL
NO SCALE

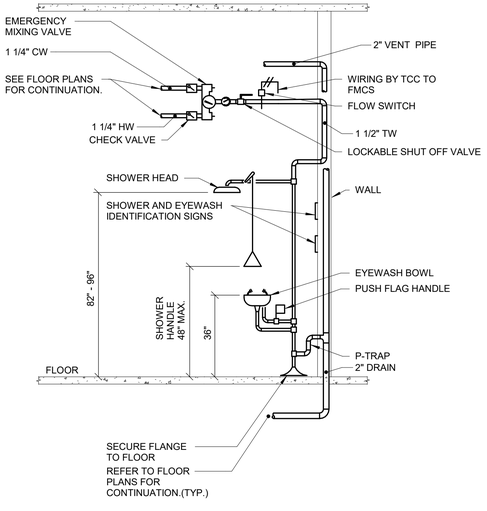


3 YARD CLEANOUT DETAIL
NO SCALE



4 DOWNSPOUT PIPING DETAIL
NO SCALE

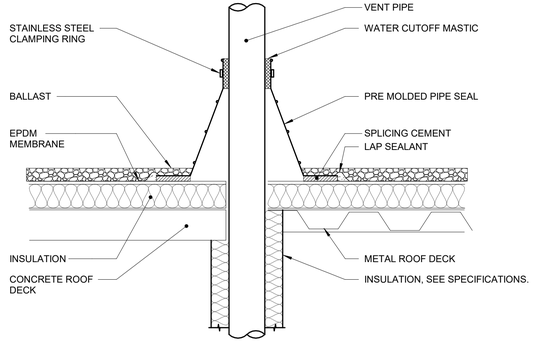
6 MIXING VALVE DETAIL
NO SCALE



5 EMERGENCY SHOWER & EYEWASH DETAIL
NO SCALE

NOTES:

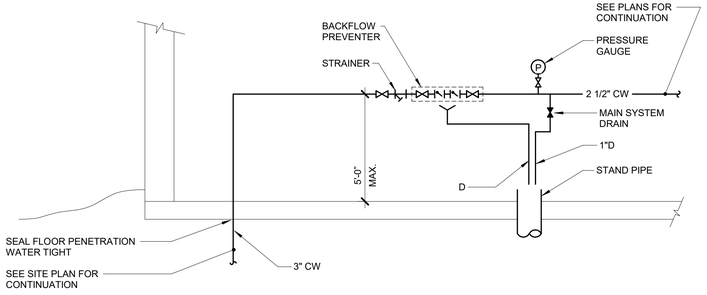
1. EYEWASH AND SHOWER PERFORMANCE AND ROUGH-IN SHALL MEET THE CURRENT VERSION OF ANSI Z358.1.
2. GENERAL CONTRACTOR SHALL PAINT AREA AROUND AND BEHIND SHOWER/EYEWASH A BRIGHT COLOR AS DIRECTED BY THE ARCHITECT.



7 VENT PIPE FLASHING
NO SCALE

NOTES:

1. VENT PIPE SHALL BE A MINIMUM OF 3" DIAMETER UNLESS NOTED LARGER ON FLOOR PLANS. INCREASERS, IF REQUIRED TO TRANSITION TO THE LARGER VTR SIZE, MUST BE INSTALLED AT LEAST 12 INCHES BELOW THE THERMAL ENVELOPE OF THE BUILDING.



8 DOMESTIC WATER ENTRANCE
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PLUMBING DETAILS

P4.0

PLUMBING MATERIAL LIST

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
BFP-1	BACK FLOW PREVENTER - REDUCED PRESSURE ZONE, STAINLESS STEEL CONSTRUCTION, SIZE SAME AS PIPE [2 1/2" - 10"], NON-CORROSIVE INTERNAL PARTS, STAINLESS STEEL SPRINGS, DIFFERENTIAL PRESSURE RELIEF VALVE BETWEEN SPRING-LOADED CHECK VALVES, GATE STYLE SHUT-OFF VALVES ON INLET AND OUTLET OF UNIT, AIR GAP DRAIN FITTING, TEST PORTS WITH SHUT-OFF VALVES, RATED FOR 175 PSI AT 33°F TO 140°F, 15 PSI (MAXIMUM) PRESSURE DROP AT 10 FPS, FACTORY TESTED, ALL PARTS TO BE SERVICEABLE WITHOUT REMOVING UNIT FROM LINE, APPROVED BY USC FCCC & HR, AWWA C511-92, ASSE 1013, IAPMO AND SBCCI LISTED. MOUNT WITHIN 60" OF FINISHED FLOOR. ROUTE DRAIN PIPE FROM AIR GAP FITTING TO STANDPIPE. PROVIDE AND INSTALL BRONZE OR EPOXY COATED STRAINER UPSTREAM OF EACH UNIT AND ADDITIONAL VALVE UPSTREAM OF EACH STRAINER. FLOW PRESSURE DROP CURVES SHALL BE SUBMITTED.	WATTS (957), APOLLO (RPLF4A), WILKINS (375AST), MIFAB (BECO BARRACUDA 40 FRP SS)
BFP-2	BACK FLOW PREVENTER - DUAL CHECK, LEAD FREE STAINLESS STEEL BODY, HEAVY DUTY FDA APPROVED RUBBER DIAPHRAGMS, 3/8" SIZE, RATED FOR 150 PSI AT 33°F TO 110°F, APPROVED BY ASSE 1032.	WATTS (SD-2)
CMF-1	COFFEE MACHINE FIXTURE - UNPAINTED GALVANIZED STEEL OR WHITE PAINTED STEEL ENCLOSURE, MATCHING FACEPLATE, ANGLE VALVE WITH 1/4" COMPRESSION OUTLET, INTREGAL WATER HAMMER ARRESTOR. PROVIDE A 6 FOOT STAINLESS STEEL FLEXIBLE HOSE FOR CONNECTION TO EQUIPMENT.	GUY GRAY (BIM875AB), OATEY (39140 WITH 38686 FACEPLATE)
CP-1	CIRCULATING PUMP - LEAD FREE BRONZE CONSTRUCTION, PERMANENTLY LUBRICATED SEALED BEARINGS, MECHANICAL SEAL, OIL LUBRICATED, OPEN DRIP-PROOF NON OVERLOADING MOTOR WITH THERMAL OVERLOAD PROTECTION, FLANGED CONNECTIONS, RATED FOR 125 PSIG AT 225°F, UL LISTED. 6.5 GPM @ 15 FEET OF HEAD. MOTOR SHALL BE 1/6 HP OPERATING AT 3300 RPM. AQUASTAT - LINE VOLTAGE, ADJUSTABLE SETTING OF 90-180°F WITH STRAP-ON REMOTE SENSOR BULB, UL LISTED. PROVIDE WITH TRANSFORMER IF REQUIRED. INSTALL PER MANUFACTURERS INSTRUCTIONS. ELECTRICAL REQUIREMENTS - 120V-1 PHASE (HARD-WIRE)	PUMP - B&G (PL SERIES), TACO (OO SERIES), GRUNDFOS (UP SERIES) AQUASTAT - HONEYWELL, WHITE-RODGERS, JOHNSON CONTROLS, SAME AS PUMP MANUFACTURER
ESE-1	EMERGENCY SHOWER & EYE/FACE WASH - ACCESSIBLE, COMBINATION UNIT, FREESTANDING, FLOOR MOUNTED WITH TOP INLET, STAINLESS STEEL SHOWER HEAD, BRASS/BRONZE STAY OPEN BALL VALVE, STAINLESS STEEL/ALUMINUM PULL ROD, STAINLESS STEEL BOWL WITH HINGED DUST COVER, PLASTIC SPRAY HEADS WITH CAPS AND RETAINING CHAINS/STRAPS, BRASS SUPPLY ARMS, BRASS/BRONZE STAY OPEN BALL VALVE, METAL FLAG, INTEGRAL FLOW CONTROL FITTINGS, STAINLESS STEEL SUPPLY PIPING AND FITTINGS, UNIVERSAL IDENTIFICATION SIGN, ANSI Z358.1-2004 COMPLIANT. MINIMUM FLOW RATE OF SHOWER SHALL BE 20 GPM AT 30 PSI. MINIMUM FLOW RATE OF EYE/FACE WASH SHALL BE 3.0 GPM AT 30 PSI. ACTIVATION TIME SHALL BE 1 SECOND OR LESS. BRASS/BRONZE PIPING, FITTINGS, AND VALVES SHALL BE CHROME-PLATED OR CHEMICAL-RESISTANT POWDER COATED. MOUNT SHOWER HEAD BETWEEN 80"-96" AND PULL ROD AT MAXIMUM 48" ABOVE FINISH FLOOR. EYE/FACE WASH OUTLET HEADS SHALL BE AT MAXIMUM 36" ABOVE FINISH FLOOR WITH MINIMUM 27" OF KNEE CLEARANCE BELOW, AND MINIMUM OF 19" OF CLEARANCE FROM CENTER OF BOWL TO WALL OR OBSTRUCTION. IN COMPLIANCE WITH LATEST ADA AND ANSI 117.1 STANDARDS MIXING VALVE - THERMOSTATIC MIXING VALVE FOR EMERGENCY SHOWER OR COMBINATION SHOWER/EYEWASH FIXTURE, BRONZE BODY CONSTRUCTION, COLD WATER BYPASS, INLET AND OUTLET THERMOMETERS, COMBINATION CHECK STOPS OR SEPARATE SUPPLY CHECK VALVES AND SHUT OFF VALVES, OUTLET ISOLATION VALVE, MOUNTING BRACKET. SUPPLY SHUT OFF VALVES SHALL BE LOCKED OPEN TO PREVENT UNAUTHORIZED CLOSURE. DUAL THERMOSTATIC MIXING AND PRESSURE REGULATING VALVE TO DELIVER 25 GPM OF TEMPERED WATER (60-100 DEGREE F) WITH 10 PSI PRESSURE DIFFERENTIAL. UNIT SHALL BE ASSE 1071 LISTED AND APPROVED. VALVE SHALL COMPLY WITH FEDERAL ACT S.3874.	GUARDIAN (GBF1900 SERIES), BRADLEY (S19314BF SERIES), ACORN SAFETY (S13/S23 SERIES), HAWS (8300 SERIES), SPEAKMAN (SE-1200 SERIES), ENCON MIXING VALVE - LEONARD (TM-LF), ACORN CONTROLS (ET7-1 SERIES), ARMSTRONG (Z358), BRADLEY (S19), HAWS (9201H), LAWLER (911), POWERS (ETV400), GUARDIAN (G6040), OR PRE-PACKAGED WITH EMERGENCY SHOWER FROM SAME MANUFACTURER.
ET-1	EXPANSION TANK - WELDED BLACK STEEL CONSTRUCTION, ASME STAMPED, GUARANTEED AIRTIGHT AND LEAKPROOF, STAINLESS STEEL SYSTEM CONNECTION, HEAVY DUTY BUTYL DIAPHRAGM AND RIGID POLYPROPYLENE LINER MECHANICALLY BONDED TO TANK TO PROVIDE A 100% NON-CORROSIVE WATER RESERVOIR, DIAPHRAGM AND LINER SHALL BE APPROVED FOR USE IN POTABLE WATER SYSTEMS, ALL WETTED COMPONENTS OF FDA APPROVED MATERIALS. PROVIDE STANDARD SCHRADER AIR VALVE FOR FIELD CHARGING. TANK SHALL COMPLY WITH FEDERAL ACT S.3874. MINIMUM TANK VOLUME TO BE 5 GALLONS MINIMUM ACCEPTING VOLUME TO BE 3.3 GALLONS. TANK SHALL HAVE A WORKING TEMPERATURE OF 200°F AND A WORKING PRESSURE OF 125 PSIG. FIELD CHARGE TANK TO 55 PSIG.	AMTROL (THERM-X-TROL), B&G (PT), ELBI (DT), TACO (PAX SERIES), WATTS (DETA), WESSELS (TX), LOCHINVAR (LTCPA5)
EWC-1	ELECTRIC WATER COOLER - WALL HUNG, BI-LEVEL UNITS, ADA COMPLIANT WITH MATCHING STAINLESS STEEL APRON INSTALLED UNDER UPPER UNIT, 18 GAUGE STAINLESS STEEL CABINETS AND NON-SPLASH BASINS WITH STAINLESS STEEL FINISH, STREAM PROJECTORS WITH PROTECTIVE HOODS, PUSH BAR OR LEVER OPERATING CONTROLS ON FRONT AND BOTH SIDES, BUILT-IN FLOW REGULATOR, PLASTIC P-TRAP ASSEMBLY, ADJUSTABLE THERMOSTAT, MOUNTING ACCESSORIES, TANK DRAIN AND ANGLE STOPS, HERMETIC COMPRESSOR TO OPERATE ON HFC-134a REFRIGERANT. COMPLIANT TO LATEST ANSI A117.1 AND ADA STANDARDS. UNIT SHALL COMPLY WITH FEDERAL ACT S.3874. BOTTLE FILLING STATION - UNIT MOUNTED, STAINLESS STEEL CONSTRUCTION AND FINISH, INTEGRAL DRAIN, SENSOR OPERATED WITH AUTOMATIC SHUTOFF, [REPLACEABLE LEAD-CHLORINE-TASTE-ODOR WATER FILTER], BOTTLE COUNTER, FILTER REPLACEMENT INDICATOR. UNIT SHALL PROVIDE 8.0 GPH OF WATER FROM 80°F TO 50°F AT 90°F AMBIENT. WATER SYSTEM SHALL BE OF LEAD FREE CONSTRUCTION. TANK SHALL BE TESTED TO 125 PSIG. ORIFICE SHALL BE AT 36" (MAXIMUM) ABOVE FINISHED FLOOR ON LOWER UNIT AND 40" ABOVE FINISHED FLOOR ON UPPER UNIT. BOTTOM OF APRON SHALL BE 27" ABOVE FLOOR ON LOWER UNIT IN COMPLIANCE WITH LATEST ADA STANDARDS. ELECTRICAL REQUIREMENTS - 1/5 HP MOTOR, 120V-1 PHASE, CORD AND PLUG, PLAIN RECEPTACLE MOUNTED WITHIN EWC LOWER ENCLOSURE, GFCI BREAKER.	ELECTRIC WATER COOLER -ELKAY (LZST)[(EZSTL8)], MURDOCK (A172), HALSEY TAYLOR (HTHB-HAC8BLSS-WF)[(HTHB-HAC8BL)]
FCO-1	FLOOR CLEANOUT - ADJUSTABLE, CAST IRON HOUSING, ANCHOR FLANGE, TAPERED THREAD PLUG, SECURED NICKEL BRONZE TOP. TOP STYLE SHALL MATCH FLOOR FINISH AS FOLLOWS: UNFINISHED FLOOR - ROUND SOLID SCORIATED TOP TILE OR TERRAZZO - ROUND RECESSED TOP CARPET - ROUND TOP WITH CARPET MARKER.	ZURN (Z1400), JOSAM (55000), MIFAB (C1100), SMITH (4000), WADE (6000), WATTS (CO-200)
FD-1	FLOOR DRAIN - CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 6" ROUND, 4" BOTTOM OUTLET, FLASHING COLLAR, SURFACE MEMBRANE CLAMP. DEAP SEAL TRAP.	FLOOR DRAIN - ZURN (Z-415), SMITH (2005), WADE (1100), JOSAM (30000), WATTS (FD-100), MIFAB (F1100), SUN (FD1000)
HB-1	HOSE BIBB - FREEZELESS WALL HYDRANT, BRASS VALVE BODY AND SEAT. STANDARD FINISH, NON-FERROUS METAL STEM, AUTOMATIC DRAINING, VACUUM BREAKER, 3/4" MALE HOSE THREAD, WALL CLAMP, KEY OPERATED, ASSE 1019 OR 1052 LISTED AND APPROVED. VERIFY NUMBER OF KEY OPERATORS TO BE PROVIDED WITH OWNER. MOUNT AT 18" ABOVE GRADE UNLESS NOTED OTHERWISE ON DRAWINGS.	PRIER (C-634), WOODFORD (67), WATTS (HY-420), MIFAB (MHY-10), SMITH (5619), WADE (8600), ZURN (Z1310)
HB-2	HOSE BIBB - FOR INDOOR USE, BRASS CONSTRUCTION, STANDARD FINISH, VACUUM BREAKER, 3/4" MALE HOSE THREAD, METAL WHEEL HANDLE, ASSE 1011 LISTED AND APPROVED. MOUNT AT 18" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE ON DRAWINGS.	PRIER (C-155NP.75), WOODFORD (24), CHICAGO FAUCET (293), ACORN (8121), T&S BRASS (B-0736), MIFAB (MHY-90)

PLUMBING MATERIAL LIST

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
L-1	LAVATORY - UNDER-COUNTER MOUNTED, WHITE VITREOUS CHINA, 17"x13" RECTANGULAR BOWL, FRONT OVERFLOW. LAVATORY TRIM - SINGLE HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, CONVENTIONAL SPOUT WITH AERATOR FLOW OUTLET, WASHERLESS PUSH-PULL LEVER HANDLE WITH SUPPLIES AT 4" CENTERS SINGLE HOLE, CERAMIC DISC CARTRIDGE, PERFORATED GRID STRAINER WITH 1-1/4" 17 GAUGE TAILPIECE. MAXIMUM FLOW TO BE 0.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AS REQUIRED. MIXING VALVE - POINT-OF-USE ANTI-SCALD THERMOSTATIC MIXING VALVE FOR TEMPERED WATER CONTROL, ALL BRONZE/BRASS CONSTRUCTION, ROUGH FINISH, THREADED INLETS, TAMPER RESISTANT SETPOINT, 3/8" COMPRESSION INLETS AND OUTLETS, COLD WATER BYPASS IF USED WITH MIXING FAUCET. 0.5 GPM OUTPUT. UNIT TO MIX 140 DEGREE F HOT WATER SUPPLY AND 40 DEGREE F COLD WATER SUPPLY FOR 110 DEGREE F OUTLET. UNIT SHALL BE ASSE 1070 LISTED AND APPROVED. VALVE SHALL COMPLY WITH FEDERAL ACT S.3874. INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES, AND SUPPLY LINES. ACCESSORIES - QUARTER-TURN 3/8" CHROME PLATED HEAVY BRASS ANGLE SUPPLY LOOSE KEY STOPS, CHROME PLATED SOFT COPPER SUPPLY LINES, 1-1/4" 17 GAUGE CAST BRASS P-TRAP. COORDINATE OPENINGS REQUIRED IN COUNTERTOP WITH GENERAL CONTRACTOR. FIELD CUT OPENINGS WILL NOT BE ACCEPTABLE. ARMAFLEX WITH TAPE IS NOT ACCEPTABLE IN LIEU OF INSULATION KIT.	SINK - KOHLER (K-2882), LAVATORY - AMERICAN STANDARD (0496.221), GERBER (12-780), SLOAN (SS-3001), TOTO (LT569), ZURN (Z5220) LAVATORY TRIM - MOEN (S7170), DELTA (22C631), AMERICAN STANDARD (6114.116.002), CHICAGO FAUCET (2200-E2805ABCP), ZURN (Z82200-XL) MIXING VALVE - WATTS (LFUSG-B), LEONARD (170D-LF), LAWLER (TMM-1070T), ACORN CONTROLS (ST70), APOLLO (34DLF), POWERS (LFE480), SLOAN (MIX-135-A), SYMMONS (8210CK), WILKINS (ZW3870XLT) INSULATION KIT - TRUEBRO (LAV-GUARD), BROCAR PRODUCTS (TRAP WRAP), MCGUIRE (PROWRAP), PLUMBEREX (PRO-EXTREME)
MB-1	MOP BASIN - PRECAST TERRAZZO, [24"x24"][36"x24"][36"x36"]x12", STAINLESS STEEL INTEGRAL DRAIN WITH REMOVABLE STRAINER, 3" OUTLET, CONTINUOUS STAINLESS STEEL CAP ON ALL EDGES. TRIM - EXPOSED TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, SINGLE WING HANDLES, 1/4 TURN CERAMIC DISC CARTRIDGE, 3/4" HOSE THREAD SPOUT WITH [ASSE 1053 RATED] INTEGRAL VACUUM BREAKER, WALL BRACE, PAIL HOOK, CHECK STOPS OR INLINE CHECK VALVES TO PREVENT THERMAL CROSSOVER. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. ACCESSORIES - MOP HANGER, HOSE AND HOSE BRACKET, TRAP [ONE 24" WIDE STAINLESS STEEL WALL GUARD][TWO 24" WIDE STAINLESS STEEL WALL GUARD]	MOP BASIN - FIAT (TSB), ACORN (TSH), CREATIVE INDUSTRIES (MC), WILLIAMS (SB) TRIM - DELTA (28C2383), AMERICAN STANDARD (8344.012), CHICAGO FAUCETS (897-CP), MOEN (8124), SPEAKMAN (SC-5812), SYMMONS (S-2490), ZURN (Z841M1-XL) [VACUUM BREAKER - WATTS (8A), OR APPROVED EQUAL]
MB-2	MOP BASIN - BY OTHERS, 2" DRAIN, STAINLESS STEEL REMOVABLE STRAINER. MOP BASIN DRAIN - FLOOR DRAIN - CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 2" ROUND, 2" BOTTOM OUTLET, FLASHING COLLAR, DEEP SEAL TRAP. TRIM - EXPOSED TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, SINGLE WING HANDLES, 1/4 TURN CERAMIC DISC CARTRIDGE, 3/4" HOSE THREAD SPOUT WITH WALL BRACE, PAIL HOOK, CHECK STOPS OR INLINE CHECK VALVES TO PREVENT THERMAL CROSSOVER. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. ACCESSORIES - MOP HANGER, HOSE AND HOSE BRACKET, DEEP SEAL TRAP, TWO 24" WIDE STAINLESS STEEL WALL GUARD.	MOP BASIN - BY OTHERS TRIM - DELTA (28C2383), AMERICAN STANDARD (8344.012), CHICAGO FAUCETS (897-CP), MOEN (8124), SPEAKMAN (SC-5812), SYMMONS (S-2490), ZURN (Z841M1-XL)
SH-1	SHOWER BASE - BY OTHERS. 2" DRAIN, STAINLESS STEEL REMOVABLE STRAINER. 4" NICKEL BRONZE STRAINER. SHOWER DRAIN - FLOOR DRAIN - CAST IRON BODY, NICKEL BRONZE ADJUSTABLE TOP, 2" ROUND, 2" BOTTOM OUTLET, FLASHING COLLAR, DEEP SEAL TRAP. SHOWER VALVE - SHOWER VALVE - ACCESSIBLE, SINGLE HANDLE PRESSURE BALANCED MIXING FAUCET, BRASS OR BRONZE CONSTRUCTION, WASHERLESS DESIGN, OFF-COLD-HOT TEMPERATURE RANGE INDICATOR DIAL, POLISHED CHROME CAST METAL LEVER HANDLE, INTEGRAL CHECK STOPS, ADJUSTABLE TEMPERATURE LIMIT STOP. ASSE 1016 LISTED. ACCESSORIES - CHROME-PLATED BRASS SHOWERHEAD WITH SWIVEL BALL JOINT, CHROME-PLATED BRASS ARM AND FLANGE, HAND HELD SHOWER WITH ON/OFF CONTROL AND NON-POSITIVE SHUT OFF, 60" CHROME-PLATED METAL HOSE AND QUICK DISCONNECT, CHROME-PLATED BRASS SWIVEL CONNECTOR, 30" CHROME-PLATED MOUNTING RAIL, CHROME-PLATED BRASS SUPPLY ELBOW FLANGE, CHROME-PLATED ELEVATED VACUUM BREAKER WITH CHROME-PLATED PIPING AND FLANGES, CHROME-PLATED BRASS 2 FUNCTION TRANSFER VALVE. INSTALL ALL CONTROLS BETWEEN 38" AND 48" ABOVE FINISHED FLOOR IN COMPLIANCE WITH LATEST ADA STANDARDS. INSTALL BOTTOM OF SHOWERHEAD AT 78" ABOVE FINISHED FLOOR. MAXIMUM FLOW TO BE 2.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. SET SAFETY LIMIT STOP TO 110 DEGREE F DISCHARGE.	SHOWER BASE/WALL - BY OTHERS SHOWER DRAIN - ZURN (Z-415), SMITH (2005), WADE (1100), JOSAM (30000), WATTS (FD-100), MIFAB (F1100), SUN (FD1000) SHOWER VALVE - MOEN COMMERCIAL (8342/52236GBM25), SYMMONS (9605-PLR), AMERICAN STANDARD (1662.223), DELTA (R10700-UNWS/T13H323-20), LEONARD (PAM-II-ST-F/51-3D/62003), POWER (PB417M202BV)
SK-1	SINK - ACCESSIBLE, UNDERMOUNT, OFFSET DOUBLE COMPARTMENT, 18 GAUGE TYPE 304 STAINLESS STEEL, COMPLETELY UNDERCOATED, 31-1/4" SIDE-TO-SIDE x 20-1/2" FRONT-TO-BACK x 5-3/8" DEEP OVERALL SIZE, EACH COMPARTMENT 14" x 18" x 5-3/8" DEEP AND 13-1/2" x 16" x 5-3/8" DEEP, 3-1/2" DIAMETER DRAIN OUTLET LOCATION CENTERED REAR IN EACH BOWL, PERFORATED TYPE 304 STAINLESS STEEL GRID STRAINER. SINK TRIM - SINGLE HANDLE MIXING FAUCET, BRASS CONSTRUCTION, CHROME-PLATED FINISH, NOMINAL 10" HIGH-RISE SWING SPOUT, CERAMIC CARTRIDGE, NOMINAL 9" REACH, PULL DOWN SPRAYHEAD WITH TOUCH-CONTROL WITH AERATOR STREAM / SWEEP SPRAY / BOOST SELECTOR, LEVER HANDLE. MAXIMUM FLOW TO BE 1.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AND ESCUTCHEON PLATE AS REQUIRED. ACCESSORIES - 1-1/2" 17 GAUGE CHROME-PLATED BRASS TAILPIECE AND P-TRAP, QUARTER-TURN BALL VALVE TYPE 3/8" CHROME-PLATED BRASS ANGLE SUPPLIES WITH [LOOSE KEY] STOPS, CHROME-PLATED SOFT COPPER SUPPLY LINES. INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES, AND SUPPLY LINES.	SINK - ELKAY (ELUHAD3120555R), JUST (UD-ADA/J-ADA-35-FS/J-ADA-35), FRANKE (UCD) SINK TRIM - ELKAY (K596), DELTA (9178-DST), AMERICAN STANDARD (4285.300), MOEN (7594C), SYMMONS (S-2302-PD), KOHLER (K-597-CP) INSULATION KIT - MCGUIRE (PROWRAP), JUST (J-ADA), PLUMBEREX (PRO-EXTREME), TRUEBRO (LAV-GUARD2)
SK-2	UTILITY SINK – TOP MOUNT, WHITE VITREOUS CHINA, 28"x22" RECTANGULAR BOWL, 1-1/2" DIAMETER DRAIN OUTLET LOCATION OFF-CENTERED REAR, PERFORATED ANTI-BACTERIAL COPPER GRID STRAINER. SINK TRIM - TWO HANDLE MIXING FAUCET, BRASS CONSTRUCTION, INTEGRAL CAST BODY, CHROME-PLATED FINISH, GOOSENECK RIGID/SWING SPOUT, NOMINAL 8" REACH, AERATOR FLOW OUTLET, 4" WRISTBLADE HANDLES AT 4" CENTERS, 1/4-TURN OPERATION CERAMIC DISC CARTRIDGE. MAXIMUM FLOW TO BE 1.5 GPM IN COMPLIANCE WITH ENERGY POLICY ACT OF 2005 AND ASME/ANSI STANDARD A112.18.1M. FAUCET SHALL COMPLY WITH FEDERAL ACT S.3874. PROVIDE RESTRICTIVE DEVICE AND ESCUTCHEON PLATE AS REQUIRED. ACCESSORIES - 1-1/2" 17 GAUGE CHROME-PLATED BRASS TAILPIECE AND P-TRAP, QUARTER-TURN BALL VALVE TYPE 3/8" CHROME-PLATED BRASS ANGLE SUPPLIES WITH [LOOSE KEY] STOPS, CHROME-PLATED SOFT COPPER SUPPLY LINES. INSULATION KIT - PRE-MANUFACTURED FOR P-TRAP, STOP VALVES, AND SUPPLY LINES.	UTILITY SINK - KOHLER (K-12794) CHICAGO FAUCET (895), SPEAKMAN (SC-3084), ZURN (Z812C4-XL) INSULATION KIT - MCGUIRE (PROWRAP), JUST (J-ADA), PLUMBEREX (PRO-EXTREME), TRUEBRO (LAV-GUARD2)

PLUMBING MATERIAL LIST

TAG NAME	DESCRIPTION	MANUFACTURER AND MODEL
TD-1	TRENCH DRAIN - MODULAR, PRE-SLOPED, REFER TO DRAWING FOR LENGTHS, ENAMEL-COATED DUCTILE IRON MATERIAL, DUCTILE IRON FRAME, 6" WIDE, 1/8" PER FOOT SLOPE, MEMBRANE CLAMP, BOLTED FLANGE CONNECTIONS, RUBBER FLANGE GASKETS, SLOTTED HEAVY DUTY GRATE WITH LOCKDOWN ASSEMBLY CLASS D RATED. PROVIDE EACH TRENCH DRAIN SECTION WITH A FLUSHING NOZZLE AS SHOWN IN DRAWINGS.	SIOUXCHIEF (FASTTRACK) OR EQUAL BY ZURN, MIFAB
VB-1	PRESSURE VACUUM BREAKER - ANTI-SIPHON, SPILL RESISTANT, COPPER SILICON ALLOY BODY, HEAVY DUTY FDA APPROVED RUBBER DIAPHRAGMS, SIZE SAME AS PIPE. FULL PORT BALL VALVE ON INLET AND OUTLET OF UNIT, RATED FOR 150 PSI AT 33°F TO 130°F, APPROVED BY ASSE 1056.	WATTS (LF008PCQT), WILKINS (460XL)
WC-1	WATER CLOSET - ACCESSIBLE, WALL HUNG, FLUSH VALVE TYPE, WHITE VITREOUS CHINA, SIPHON JET, HIGH EFFICIENCY RATED FOR 1.28 GPF, ELONGATED BOWL, 1-1/2" TOP SPUD. FLUSH VALVE - EXPOSED, WALL MOUNTED SENSOR OPERATION, HARDWIRED, 1.28 GALLONS PER FLUSH, 11-1/2" ROUGH IN, CHROME PLATED 1" I.P.S. SCREWDRIVER STOP-CHECK VALVE WITH VANDAL RESISTANT CAP, HIGH BACK PRESSURE VACUUM BREAKER, ADJUSTABLE TAILPIECE, SPUD COUPLING AND FLANGE, WALL FLANGE WITH SET SCREW, MECHANICAL OVER-RIDE BUTTON, RANGE ADJUSTMENT SCREW, CHLORAMINE RESISTANT MATERIALS, CHROME PLATED COVER PLATE WITH TAMPER-PROOF SCREWS, TRANSFORMER AND LOW VOLTAGE WIRING, TRANSFORMER CAPABLE OF OPERATING UP TO 10 UNITS, LOW VOLTAGE WIRING FROM TRANSFORMER TO EACH FLUSH VALVE, ADA COMPLIANT, 3 YEAR WARRANTY. ELECTRICAL REQUIREMENTS - 120VAC INPUT ELECTRONIC SENSOR FLUSH VALVES SHALL HAVE PROGRAMMABLE AUTOMATIC FLUSH SET FOR 1 FLUSH PER DAY. SEAT - WHITE, EXTRA HEAVY, OPEN FRONT, INJECTION MOLDED SOLID ANTI-MICROBIAL PLASTIC, SELF-SUSTAINING HINGE, STAINLESS STEEL OR PLATED STEEL POSTS AND NUTS. CONTRACTOR OPTION: COMBINATION WATER CLOSET/FLUSH VALVE PACKAGED SYSTEM BY AMERICAN STANDARD, KOHLER, SLOAN, OR ZURN ACCESSORIES - WATER CLOSET SUPPORT CARRIER RATED FOR 500 LBS. MOUNT WATER CLOSET WITH CARRIER BOLTED SECURELY TO FLOOR. TOP OF SEAT SHALL BE AT 17"-19" ABOVE FINISHED FLOOR (VERIFY EXACT MOUNTING HEIGHT WITH MANUFACTURER). VERIFY EQUIPMENT REQUIREMENTS AND ROUGH-IN LOCATIONS.	WATER CLOSET - AMERICAN STANDARD (2257.101), SLOAN (ST-2050), ZURN (Z5615), KOHLER (K-84325), TOTO (CT708E) FLUSH VALVE - ZURN (ZEMS6000AV-HET), SLOAN (111-1.28 ESS), AMERICAN STANDARD (6067.121), HYDROTEK (H8-128), MOEN (8311AC12), AMTC (AEF-801-HWCT-12) SEAT - BEMIS (3155SSCT), CHURCH (3155C), BENEKE (533PC), OLSONITE (95), SAME AS WATER CLOSET MANUFACTURER
WH-1	WATER HEATER - ELECTRIC, VERTICAL, METAL CABINET, BAKED ENAMEL FINISH, GLASS-LINED ASME STAMPED WELDED STEEL TANK, 150 PSI WORKING PRESSURE, FIBERGLASS OR FOAM INSULATION, BRASS WATER CONNECTIONS AND DRAIN VALVE, ASME APPROVED T&P RELIEF VALVE, MAGNESIUM ANODE ROD, INDIVIDUAL FLANGE-MOUNTED IMMERSION HEATING ELEMENTS SHEATHED WITH CORROSION-RESISTANT METAL ALLOY, EXTERNALLY ADJUSTABLE AUTOMATIC IMMERSION WATER THERMOSTAT, MANUAL RESET HIGH TEMPERATURE CUTOFF SWITCH, ENCLOSED CONTROLS, VENTILATED CONTROL CABINET, PILOT LIGHTS INDICATING MAIN POWER AND HEATING STEPS, CONTROL CIRCUIT TOGGLE SWITCH, SEQUENCING STEP CONTROLLER, CONTROL TRANSFORMER, POWER CIRCUIT FUSES, MAGNETIC CONTACTORS, CERAMIC TERMINAL BLOCK, FACTORY ASSEMBLED AND WIRED, 3-YEAR WARRANTY, UL LISTED, NEC COMPLIANT ELECTRICAL COMPONENTS, COMPLIANT TO NAECA, ASHRAE 90.1 AND ASHRAE 90A. 10 GALLON CAPACITY, 6 KW ELEMENT(S), 25 GPH RECOVERY RATE AT 100°F TEMPERATURE RISE. HEATING ELEMENTS RATED FOR LESS THAN 75 WATTS PER SQUARE INCH. ELECTRICAL REQUIREMENTS - 208V-3 PHASE HEATING CIRCUIT, 120V CONTROL CIRCUIT. SET WATER TEMPERATURE AT 140°F.	LOCHINVAR (LCA), A.O. SMITH (DVE), AMERICAN (ITCE31), BOCK (F SERIES), BRADFORD WHITE (M-II), RHEEM/RUUD (E SERIES), STATE (SSE), HTP (CGE SERIES HEAVY DUTY)
WHA-1	WATER HAMMER ARRESTOR - BELLOWS TYPE, PRE-CHARGED, ALL LEAD FREE STAINLESS STEEL CONSTRUCTION, ASSE 1010 APPROVED, PDI CERTIFIED, RATED FOR 1-11 AND 12-32 FIXTURE UNITS. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.	ZURN (Z1700), JR SMITH (5005-5050), WADE (W5-100), JOSAM (75000 SERIES), WATTS (SS), MIFAB (WHB)
WMF-1	WASHING MACHINE FIXTURE - WHITE POWDER COATED GALVANIZED STEEL ENCLOSURE, MAT2" CENTER DRAIN, TWO INDEXED 1/2" DOMESTIC VALVES WITH THREADED OUTLETS, INTEGRAL WATER HAMMER ARRESTORS. PROVIDE FLEXIBLE WATER AND WASTE LINES FOR FINAL CONNECTION TO EQUIPMENT.	GUY GRAY (MWB SERIES)
YCO-1	YARD CLEANOUT - ROUND, DURA-COATED CAST IRON, SIZE AS LISTED ON DRAWINGS, DOUBLE FLANGED HOUSING, HEAVY DUTY SECURED SCORIATED DURA-COATED CAST IRON COVER, LIFTING DEVICE, BRONZE CLEANOUT PLUG WITH GAS/WATER-TIGHT SEAL.	ZURN (Z1474), SMITH (4261), WADE (8401), JOSAM (58680), WATTS (CO-300-MF), MIFAB (C1300-MF)

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 06 APR 2023
Drawn DAH
Checked JMO

REVISIONS

NO.	DESCRIPTION	DATE

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P5.0

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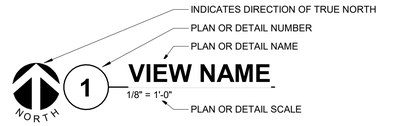
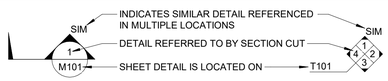
VIEW KEY

1 → INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
NEW

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
EXISTING

HALFTONING DOES NOT MODIFY SCOPE.

TAG	UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST
	INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

CONTRACTOR ABBREVIATION KEY

ABBR:	DESCRIPTION:
C.C.	CIVIL CONTRACTOR
C.M.	CONSTRUCTION MANAGER
E.C.	ELECTRICAL CONTRACTOR
F.P.C.	FIRE PROTECTION CONTRACTOR
G.C.	GENERAL CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR

MECHANICAL ABBREVIATION KEY

ABBR:	DESCRIPTION:
CO	CLEANOUT
EA	EXHAUST/RELIEF AIR
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
SCCR	SHORT CIRCUIT CURRENT RATING
TD	TRANSFER DUCT
TYP	TYPICAL
UC-1	DOOR UNDERCUT BY OTHERS (1" TYPICAL)

MECHANICAL SYMBOL LIST

NOT ALL SYMBOLS MAY APPLY.

SYMBOL:	DESCRIPTION:
	DIRECTION OF AIR FLOW
	FLEXIBLE DUCT
	MANUAL VOLUME DAMPER
	DUCT CAP
	DUCT DOWN
	DUCT UP
	SUPPLY/OUTSIDE AIR DUCT SECTION
	RETURN AIR DUCT SECTION
	EXHAUST/RELIEF AIR DUCT SECTION
	4-WAY DIFFUSER WITH BLANKOFF IN ONE DIRECTION
SD-1 6/115	AIR TERMINAL PROPERTIES SYMBOL NECK SIZE/CFM
	OPPOSED BLADE DAMPER (REFER TO SCHEDULE)
	PARALLEL BLADE DAMPER (REFER TO SCHEDULE)
C	CARBON MONOXIDE SENSOR
NO_2	NITROGEN DIOXIDE SENSOR
T	THERMOSTAT/SENSOR
T	TEMPERATURE SENSOR
DPP	DRAIN
	TWO PIPE REFRIGERANT SYSTEM
	PIPE CAP
	PIPE DOWN
	PIPE UP OR UP/DOWN
	DIRECTION OF FLOW IN PIPE
	REDUCER - REFERENCE SPECIFICATION FOR CONCENTRIC/ECCENTRIC AND FOT/FOB
SP	STATIC SWITCH

MECHANICAL SHEET INDEX

M0.0	MECHANICAL COVERSHEET
M1.0	FIRST FLOOR PLAN - PIPING
M2.0	FIRST FLOOR PLAN - VENTILATION
M4.0	MECHANICAL DETAILS
M4.1	MECHANICAL DETAILS
M4.2	MECHANICAL DETAILS
M4.3	MECHANICAL DETAILS
M4.4	MECHANICAL DETAILS
M5.0	MECHANICAL DIAGRAMS
M5.1	MECHANICAL DIAGRAMS
M5.2	VRF SYSTEM DIAGRAM
M6.0	MECHANICAL SCHEDULES
M6.1	MECHANICAL SCHEDULES
M6.2	MECHANICAL SCHEDULES
GRAND TOTAL: 14	

PIPING GENERAL NOTES:

1. PIPE DRAIN LINES FROM EQUIPMENT TO NEAREST FLOOR DRAIN.
2. INSTALL ALL REFRIGERANT LIQUID AND SUCTION PIPING SIZED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS.

MECHANICAL GENERAL NOTES:

THESE NOTES APPLY TO ALL MECHANICAL SHEETS AND TRADES, INCLUDING BUT NOT LIMITED TO, PLUMBING.

1. DRAWINGS SHOWING LOCATIONS OF EQUIPMENT, DUCTWORK, PIPING, ETC. ARE DIAGRAMMATIC AND MAY NOT ALWAYS REFLECT EXACT INSTALLATION CONDITIONS. DRAWINGS SHOW THE GENERAL ARRANGEMENT OF DUCTWORK, PIPING, EQUIPMENT, ETC., AND MAY NOT INCLUDE ALL OFFSETS AND FITTINGS REQUIRED FOR COMPLETE INSTALLATION. THE DRAWINGS SHALL BE FOLLOWED AS CLOSELY AS ACTUAL BUILDING CONSTRUCTION AND THE WORK OF OTHERS WILL PERMIT.
2. DO NOT SCALE DRAWINGS. VERIFY ALL DIMENSIONS AND CLEARANCES FROM ARCHITECTURAL, STRUCTURAL, SUBMITTALS, AND OTHER APPROPRIATE DRAWINGS OR PHYSICALLY AT SITE. REVIEW ALL DRAWINGS, INCLUDING THOSE OF OTHER TRADES.
3. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO INSTALLATION TO PROVIDE CLEARANCES REQUIRED FOR OPERATION, MAINTENANCE, CODE COMPLIANCE, AND TO VERIFY NON-INTERFERENCE WITH OTHER WORK. DO NOT FABRICATE PRIOR TO VERIFICATION OF NECESSARY CLEARANCES FOR ALL TRADES. BRING ANY INTERFERENCES OR CONFLICTS TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH FABRICATION OR EQUIPMENT ORDERS.
4. REVIEW SPACE REQUIREMENTS OF EQUIPMENT SPECIFIED OR SUBSTITUTED AND MAKE REASONABLE ACCOMMODATIONS IN LAYOUT AND POSITIONING TO PROVIDE PROPER ACCESS.
5. ANY CHANGES REQUIRED TO ELIMINATE CONFLICTS OR THAT RESULT FROM A FAILURE TO COORDINATE SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL COST OR EXPENSE TO OTHERS.
6. EACH CONTRACTOR IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ELECTRICAL CHANGES REQUIRED FOR EQUIPMENT PROPOSED THAT DIFFERS FROM THE BASIS OF DESIGN.
7. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER MECHANICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
8. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
9. IN AREAS WITH DRYWALL CEILINGS COORDINATE LOCATIONS OF ACCESS PANELS WITH THE GC FOR ACCESS TO VALVES, DUCTWORK ACCESSORIES, DAMPERS, ETC. COORDINATE PANEL TYPE AND COLOR WITH ARCHITECT. NOTIFY THE GC OF THE REQUIRED ACCESS PANELS PRIOR TO BIDDING.
10. SEAL ALL PENETRATIONS AIRTIGHT WHERE CONDUITS, PIPING, AND DUCTS PENETRATE.
11. CAULK ALL PIPE AND DUCT PENETRATIONS OF FULL HEIGHT NON-FIRE RATED WALL, PARTITION, FLOOR, AND ROOF ASSEMBLIES. THIS IS ESSENTIAL TO PREVENT NOISE TRANSMISSION FROM ONE ROOM TO ANOTHER AND TO PROVIDE THE DESIRED NC LEVELS WITHIN ROOMS.
12. EQUIPMENT SIZES AND SERVICE CLEARANCE REQUIREMENTS VARY AMONG DIFFERENT MANUFACTURERS. CONSULT APPROVED SHOP DRAWINGS FOR EQUIPMENT SIZES AND REQUIRED SERVICE CLEARANCES. COORDINATE WITH LAYOUT OF EQUIPMENT PADS, PIPING, DUCTWORK, ETC.
13. DO NOT BLOCK TUBE PULL OR EQUIPMENT SERVICE CLEARANCES.
14. MAINTAIN A MINIMUM WORKING CLEARANCE OF 3'-6" IN FRONT OF ALL ELECTRICAL EQUIPMENT REQUIRING MAINTENANCE, INSPECTION, AND TESTING INCLUDING BUT NOT LIMITED TO PANELS, DISTRIBUTION PANELS, SWITCHBOARDS, MOTOR CONTROL CENTERS, TRANSFORMERS, EQUIPMENT DISCONNECTS AND STARTERS.
15. MAINTAIN THE DEDICATED ELECTRICAL EQUIPMENT SPACE DEFINED BY THE WIDTH / DEPTH OF ELECTRICAL EQUIPMENT MEASURED FROM THE FLOOR TO A HEIGHT 6'-0" ABOVE THE EQUIPMENT OR THE STRUCTURAL CEILING, WHICHEVER IS LOWER. SYSTEMS FOREIGN TO THE ELECTRICAL DISTRIBUTION SYSTEM ARE NOT ALLOWED IN THE DEDICATED ELECTRICAL SPACE INCLUDING; DUCTWORK, PIPING, ETC.
16. PROVIDE CONCRETE EQUIPMENT PAD FOR ALL FLOOR MOUNTED EQUIPMENT. PAD SHALL EXTEND MINIMUM 6" BEYOND ALL SIDES OF EQUIPMENT.
17. DO NOT SUPPORT EQUIPMENT, PIPING, OR DUCTWORK FROM METAL DECKING OR OTHER NON-STRUCTURAL BUILDING ELEMENTS. ANCHORS EMBEDDED IN CONCRETE SHALL BE CRACKED CONCRETE APPROVED IN ACCORDANCE WITH SPECIFICATIONS.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No.	2020-008
Date	06 APR 2023
Drawn	ABR
Checked	BLH

REVISIONS

NO.	DATE	DESCRIPTION

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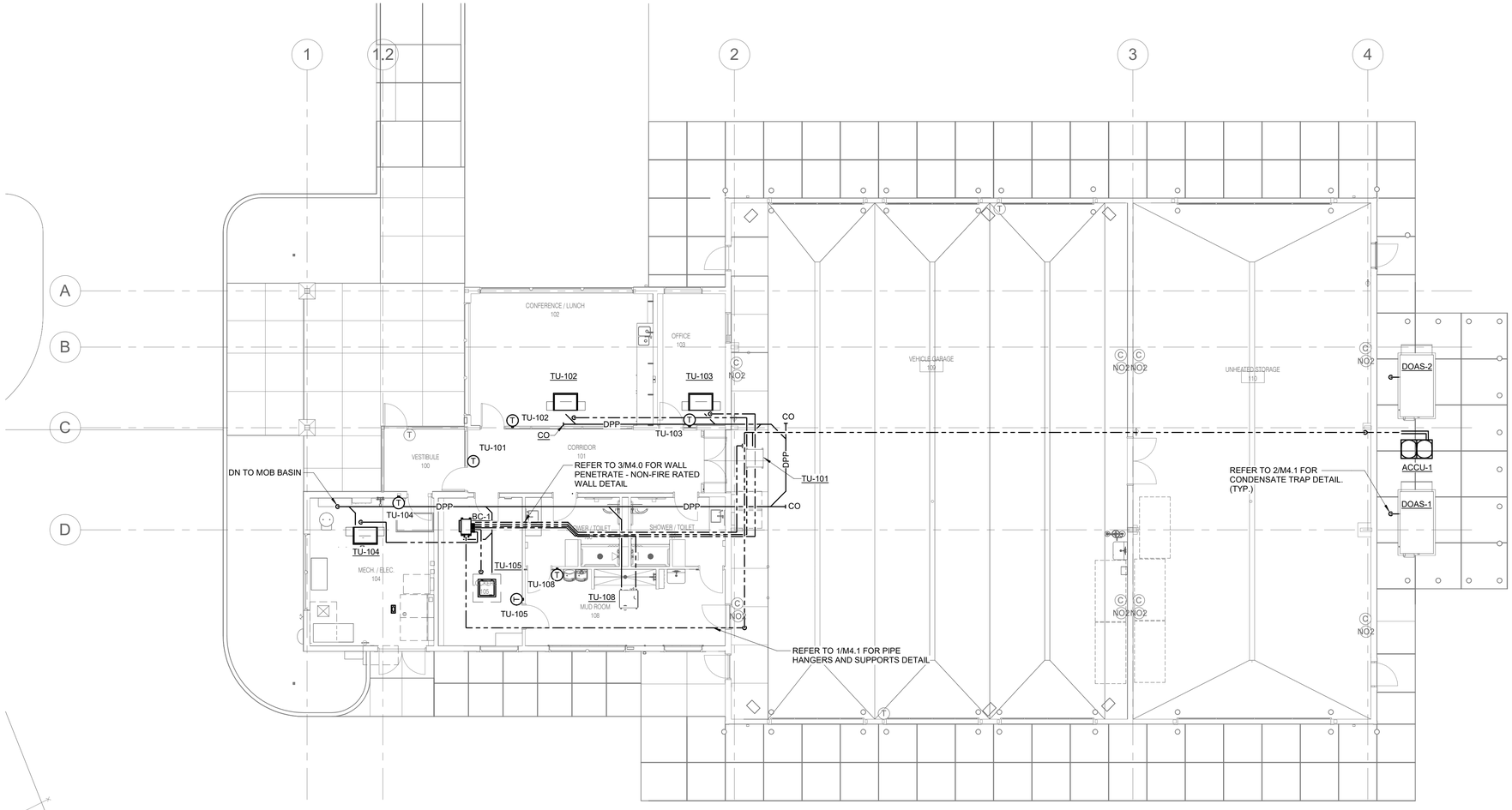
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

MECHANICAL COVERSHEET

M0.0

GENERAL SHEET NOTES:

1. ALL CONDENSATE DRAIN BRANCH PIPING TO TERMINAL UNIT SHALL BE 1-1/4" AND MAINS SHALL BE 1-1/4" UNLESS NOTED OTHERWISE.
2. CURRENT SELECTION MANUFACTURER PROVIDE TWO PIPE REFRIGERANT SYSTEM. IF CONTRACTOR PROVIDE ANOTHER MANUFACTURER HAVING THREE PIPE REFRIGERANT SYSTEM, CONTRACTOR IS RESPONSIBLE FOR COORDINATING ROUTING OF REFRIGERANT PIPING WITH THE ENGINEER.
3. ALL PIPING IN CONFERENCE ROOM, OFFICE AND MECH/ELEC ROOM SHOULD PIANT COORDINATE COLOUR WITH THE ARCHITECT.



1 FIRST FLOOR PLAN - PIPING

1/8" = 1'-0"

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FIRST FLOOR PLAN - PIPING

M1.0

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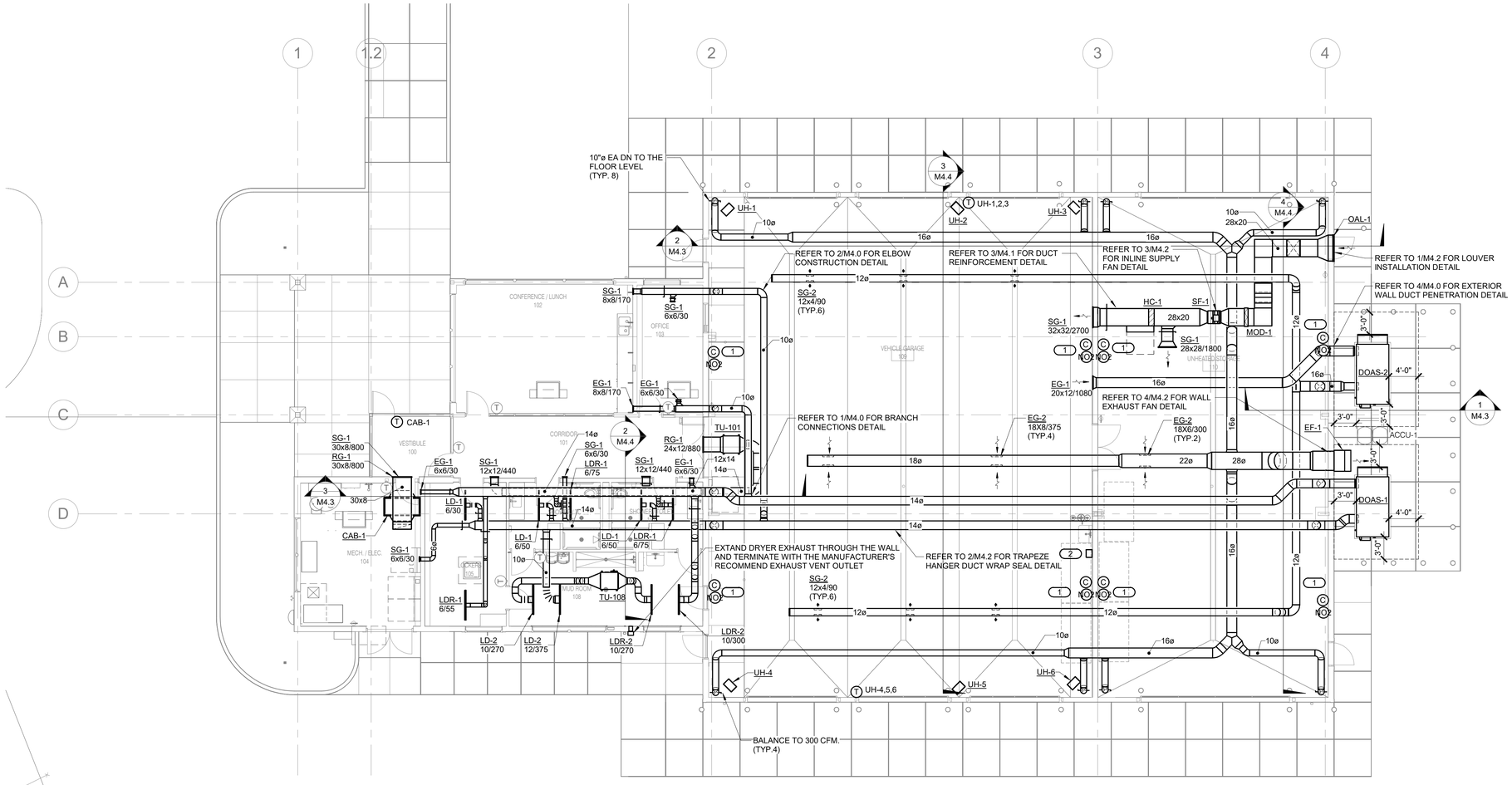
GENERAL SHEET NOTES:

1. ALL DUCTWORK IN OFFICE ROOM SHOULD PIANT COORDINATE COLOUR WITH THE ARCHITECT.

KEYNOTES: (#)

1. CONTRACTOR SHALL PROVIDE A SEPARATE CARBON MONOXIDE (C) & NITROGEN DIOXIDE (NO2) SENSOR ARMSTRONG AMC-1228-20 & ARMSTRONG AMC-1228-28 OR APPROVED EQUAL AT LOCATIONS INDICATED. UNLESS COORDINATED OTHERWISE WITH SENSOR MANUFACTURER C SENSOR TO BE MOUNTED 5' AFF AND N2 SENSOR TO BE MOUNTED 1' BELOW BOTTOM OF THE STRUCTURE. COORDINATE FINAL ROUTING OF SENSORS TO SENSOR MONITOR MODULE WITH MANUFACTURER.
2. PROVIDE C AND NO2 SENSOR MONITOR (ARMSTRONG ACD-1 OR APPROVED EQUIVALENT). MOUNT APPROX 4'-6" AFF. COORDINATE FINAL LOCATION / MOUNTING WITH MANUFACTURER.



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1 FIRST FLOOR PLAN - VENTILATION

1/8" = 1'-0"

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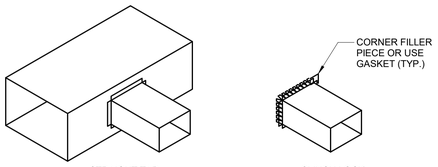
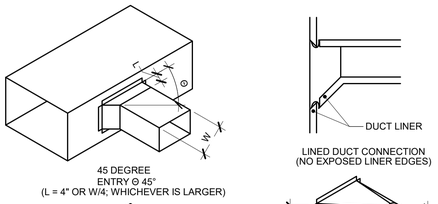
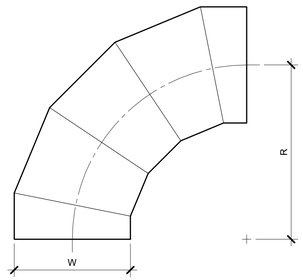
FIRST FLOOR PLAN - VENTILATION

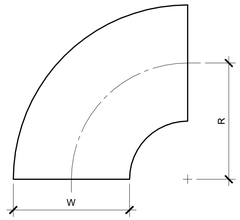
M2.0

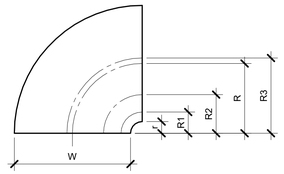


NOTE:STRAIGHT TAP WITH BUTT FLANGE FOR BRANCH AND TEE CONNECTION IN RECTANGULAR DUCTS UNDER 1" PRESSURE CLASS ONLY.

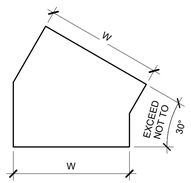




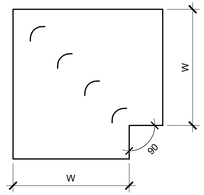


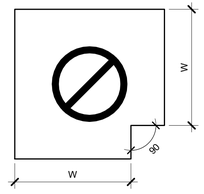


REFER TO SMACNA HVAC SYSTEMS DUCT DESIGN MANUAL, FOURTH EDITION, SECTION 5.14 "SPLITTER VANES" AND SMACNA HVAC DUCT CONSTRUCTION STANDARDS, THIRD EDITION, FIGURES 4-2 AND 4-9 AND CHARTS 4-1 AND 4-1M. ELBOW SHALL HAVE THREE SPLITTER VANES AND r/W = 0.10 (R/W = 0.60) UNLESS NOTED OTHERWISE.

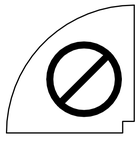


USE ONLY AS PART OF OFFSETS AND TRANSITIONS PER FIGURE 4-7 TYPE 2 OR AS SHOWN ON DRAWINGS. OFFSETS ABOVE 30° SHALL BE TYPE RE1.





NOT ALLOWED



NOT ALLOWED

1 BRANCH CONNECTIONS

NO SCALE

NOTES:

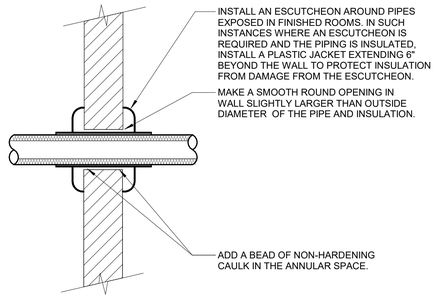
1. DO NOT USE CONNECTIONS WITH SCOOPS.
2. FIT ALL CONNECTIONS TO AVOID VISIBLE OPENINGS AND SECURE THEM SUITABLY FOR THE PRESSURE CLASS.
3. ADDITIONAL MECHANICAL FASTENERS ARE REQUIRED FOR 4"W.G. AND OVER.
4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

2 ELBOW CONSTRUCTION

NO SCALE

NOTES:

1. BEAD, CROSSBREAK, AND REINFORCE FLAT SURFACES AS IN STRAIGHT DUCT.
2. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
3. DEFAULT ELBOW SHALL BE TYPE "RE1".
4. ELBOW TYPES SHALL BE INSTALLED AS SHOWN AND NOT BE SUBSTITUTED WITHOUT PERMISSION. EXCEPTION: RE1 OR RE3 MAY BE SUBSTITUTED FOR RE2.

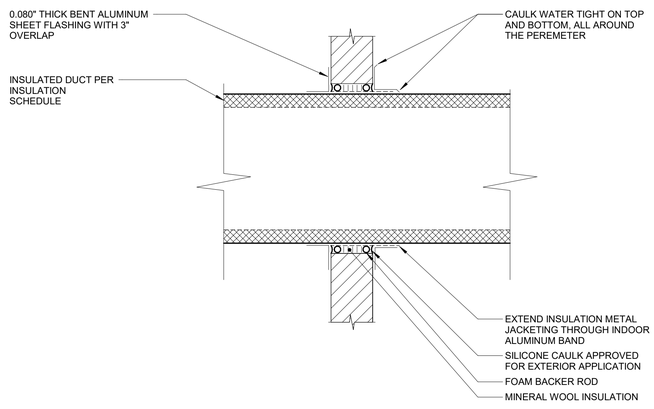


3 WALL PENETRATION - NON-FIRE RATED

NO SCALE

NOTES:

1. THIS DETAIL APPLIES TO ALL PIPES. THE INTENTION IS TO CONTINUE THE INSULATION AND VAPOR BARRIER THROUGH ALL PENETRATIONS. PERMIT THERMAL EXPANSION WITHOUT DAMAGING INSULATION, AND TO SEAL AIRTIGHT AROUND INSULATED AND UNINSULATED PIPES FOR NOISE TRANSMISSION CONTROL.
2. SEE SPECIFICATION SECTION 23 05 29 - HVAC FOR ADDITIONAL INFORMATION.
3. FLOOR OPENINGS ARE SIMILAR, SEE SPECIFICATION SECTION 23 05 29 - HVAC FOR DIFFERENCES BETWEEN FLOOR AND WALL PENETRATIONS.



4 EXTERIOR WALL DUCT PENETRATION

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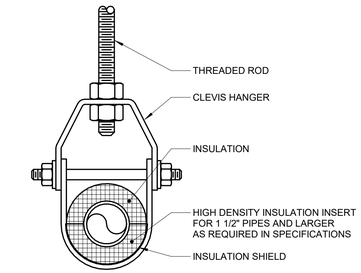
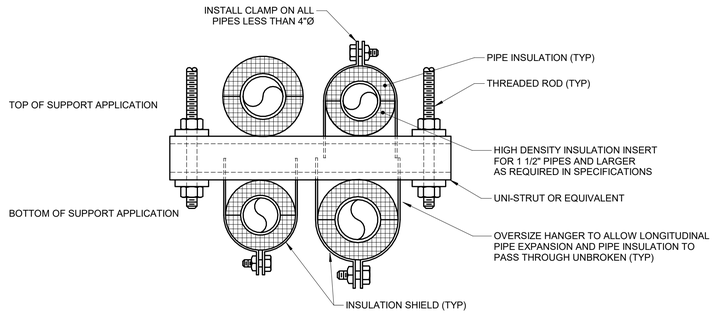
MECHANICAL DETAILS

M4.0



INSULATED COLD PIPE HANGER



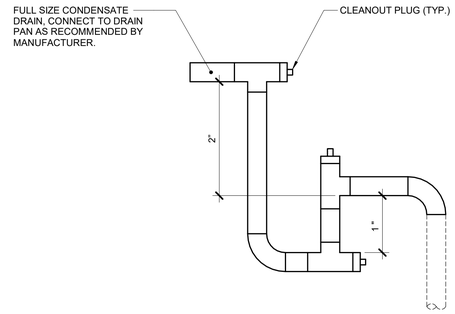
TRAPEZE HANGER

1 PIPE - HANGERS AND SUPPORTS

NO SCALE

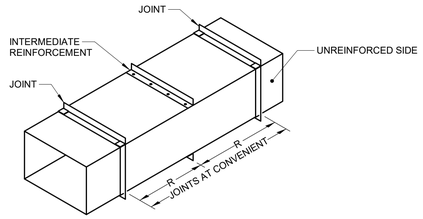
NOTES:

1. REFER TO SPECIFICATION SECTIONS SECTION 23 05 29-HVAC & SECTION 23 07 19-HVAC.

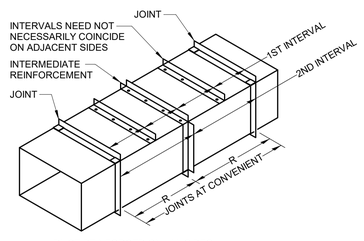


2 CONDENSATE TRAP - DRAW THROUGH COIL

NO SCALE



DUCT REINFORCED ON TWO SIDES



DUCT REINFORCED ON ALL SIDES

3 DUCT REINFORCEMENT DETAIL

NO SCALE

NOTES:

1. 'R' IS AN ALLOWABLE REINFORCEMENT INTERVAL.
2. TOP AND BOTTOM JOINTS MUST QUALIFY AS REINFORCEMENT
3. DUCT SIZES THAT ARE 19 INCHES AND OVER ARE 20 GAGE OR LESS, WITH MORE THAN 10 SQUARE FEET OF UNBRACED PANEL AREA, SHALL BE CROSSBROKEN OR BEADED UNLESS THEY ARE LINED OR EXTERNALLY INSULATED. DUCTS THAT ARE OF HEAVIER GAGE, SMALLER DIMENSIONS, AND SMALLER PANEL AREA AND THOSE THAT ARE LINED OR EXTERNALLY INSULATED ARE NOT REQUIRED TO HAVE CROSSBREAKING OR BEADING.
4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

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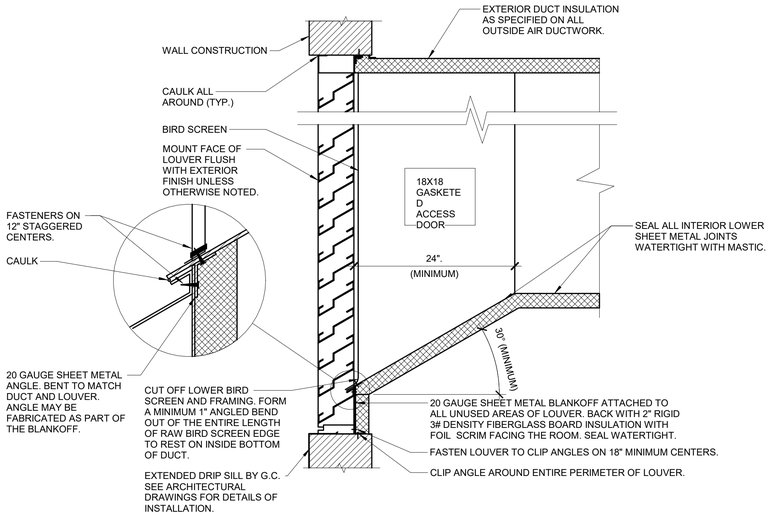
MECHANICAL DETAILS

M4.1

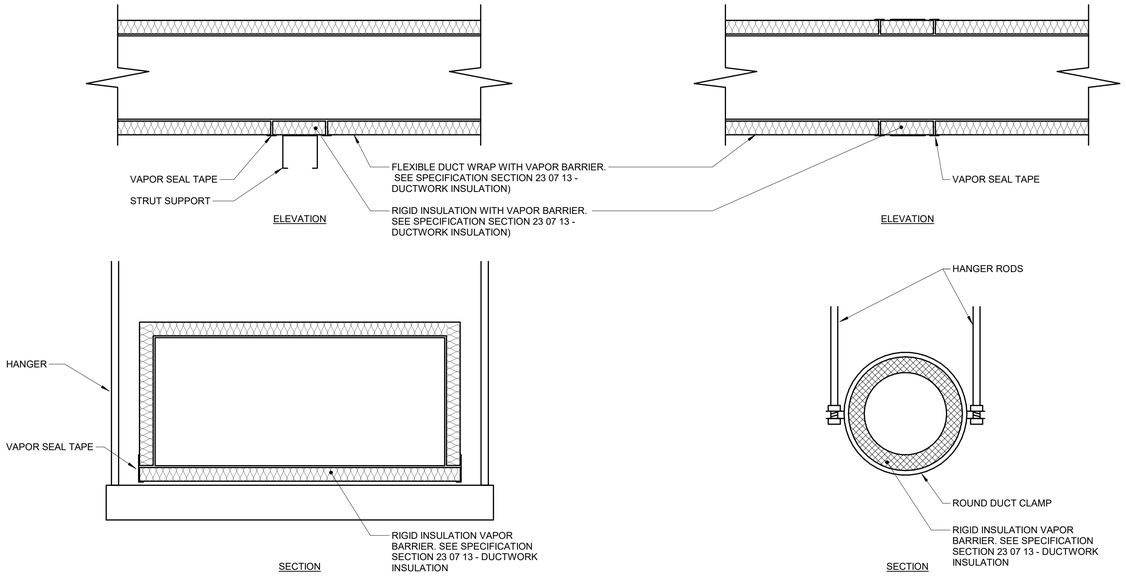


1 LOUVER INSTALLATION DETAIL

NO SCALE

NOTES:

1. SEAL ALL JOING ON BOTTOM INTERIOR SURFACE OF DUCT WITHIN 6'-0" OF THE LOUVER WATER TIGHT.
2. MOUNT BOTTOM OF INTAKE LOUVERS AT LEAST 40" ABOVE GRADE OR ROOF ELEVATION TO MINIMIZE CHANCES OF SNOW DRIFTING INTO THE LOUVER.
3. CAULK SHEETMETAL SCREWS WHERE THE PENETRATE METAL.

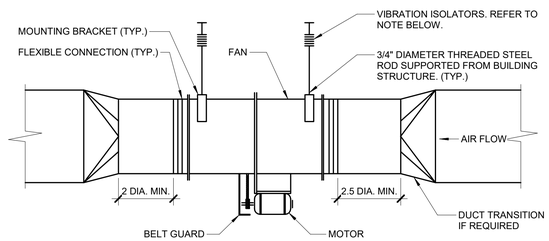


2 TRAPEZE HANGER DUCT WRAP VAPOR SEAL

NO SCALE

NOTES:

1. DETAIL FOR USE WHERE DUCTS REQUIRE TRAPEZE OR DOUBLE ROD HANGERS (36" DIA. OR EQUIVALENT)

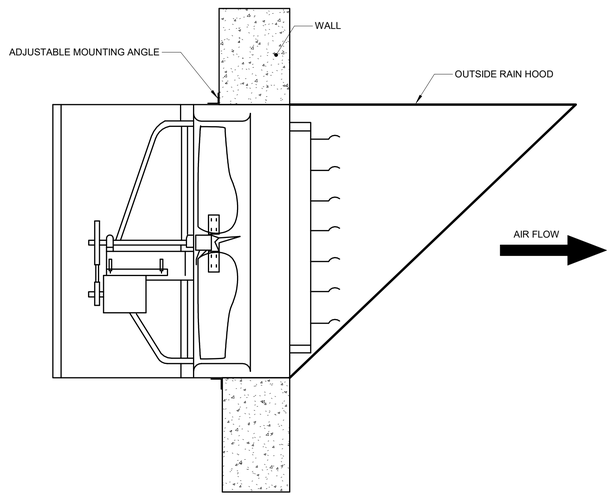


3 IN-LINE SUPPLY FAN

NO SCALE

NOTES:

1. THE FAN SHOULD BE SUSPEND FROM STRUCTURE USING HANGER RODS AND VIBRATION ISOLATION SPRINGS SIZED AND APPROVED BY FAN MANUFACTURER.
2. EXTEND DUCTWORK TO MAKE ALL THE REQUIRED CONNECTIONS. USE FABRIC CONNECTIONS BETWEEN FAN AND DUCTWORK AT INLET AND OUTLET TO ELIMINATE THE TRANSMISSION OF FAN VIBRATION TO DUCTWORK SYSTEM.



4 WALL EXHAUST FAN DETAIL

NO SCALE

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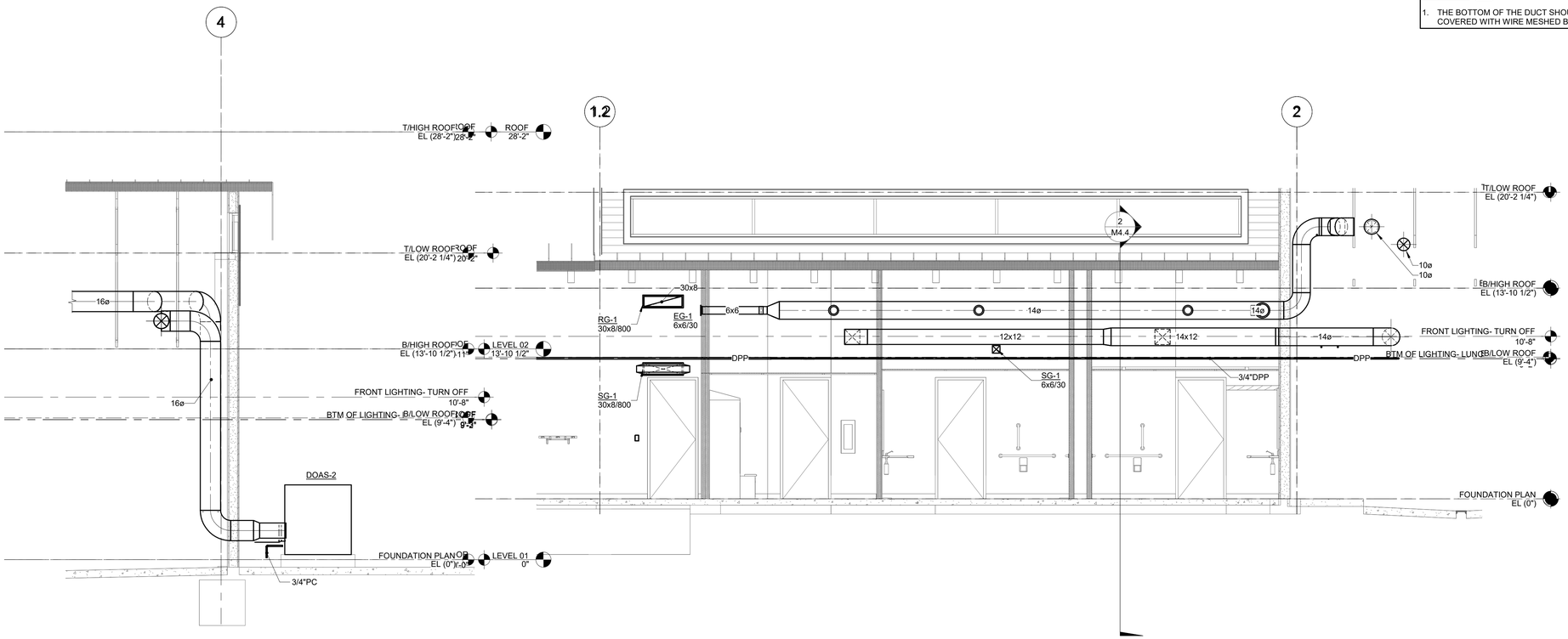
MECHANICAL DETAILS

M4.2

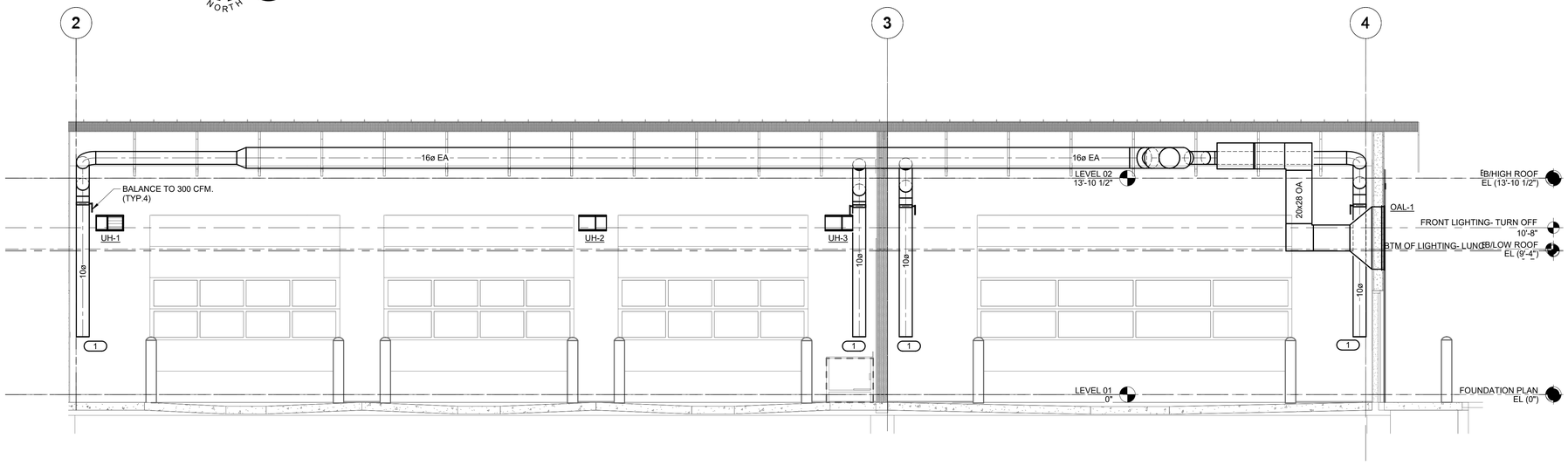
KEYNOTES: (#)

1. THE BOTTOM OF THE DUCT SHOULD BE COVERED WITH WIRE MESHED BIRD SCREEN .



NORTH 3 **FIRST FLOOR - MECHANICAL - SHOWER ROOM**
1/4" = 1'-0"

NORTH 1 **FIRST FLOOR - MECHANICAL - DOAS-2**
1/4" = 1'-0"



NORTH 2 **FIRST FLOOR- MECHANICAL- VEHICLE GARAGE & UNHEATED STORAGE ROOMS**
1/4" = 1'-0"

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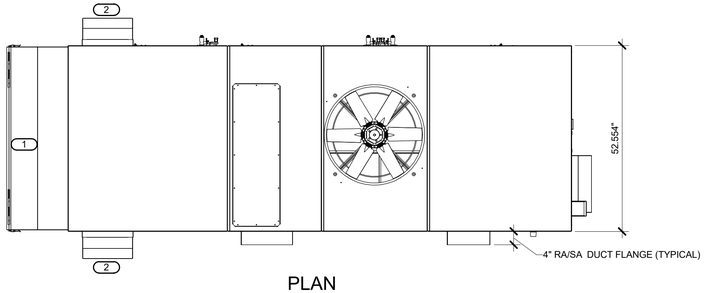
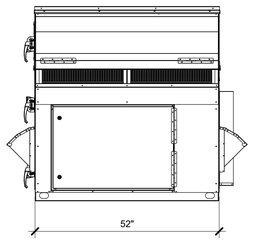
KEYNOTES: (#)

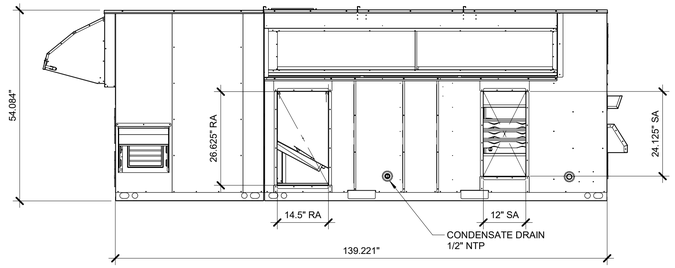
1. OUTSIDE AIR HOOD
2. EXHAUST LOUVER



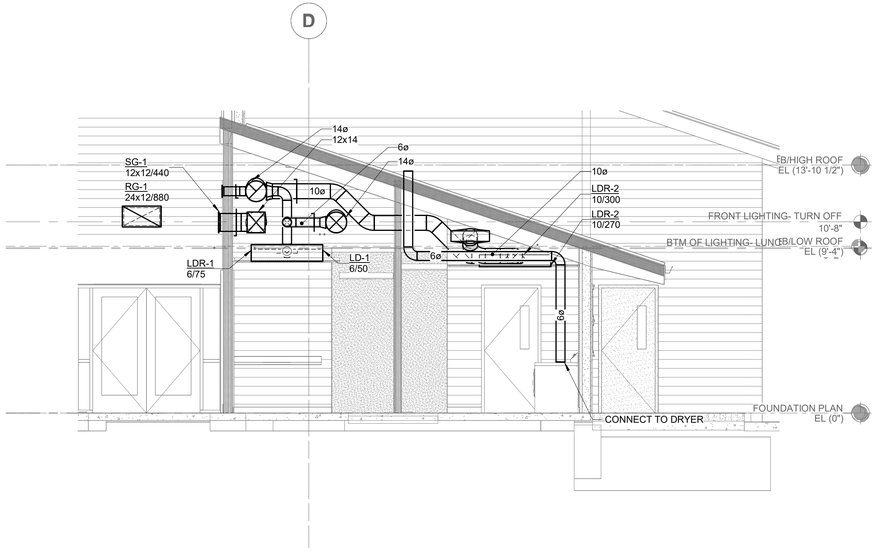
PLAN



SIDE VIEW



ELEVATION

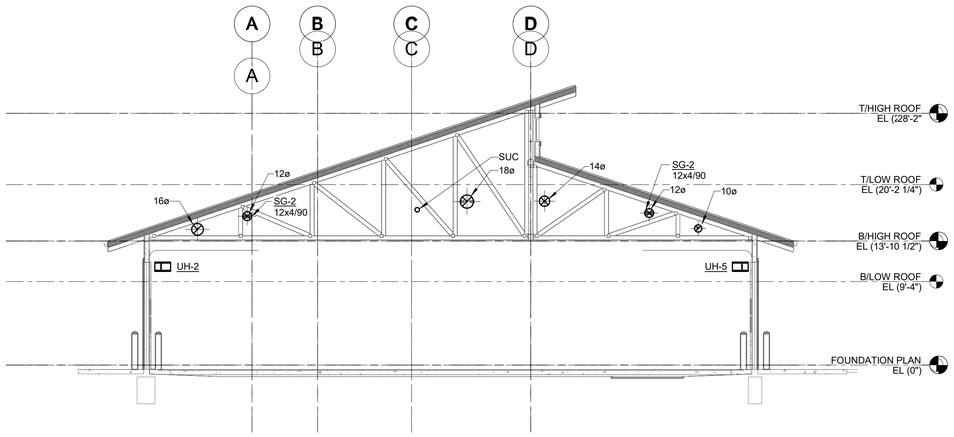


1 DOAS DETAIL

NO SCALE

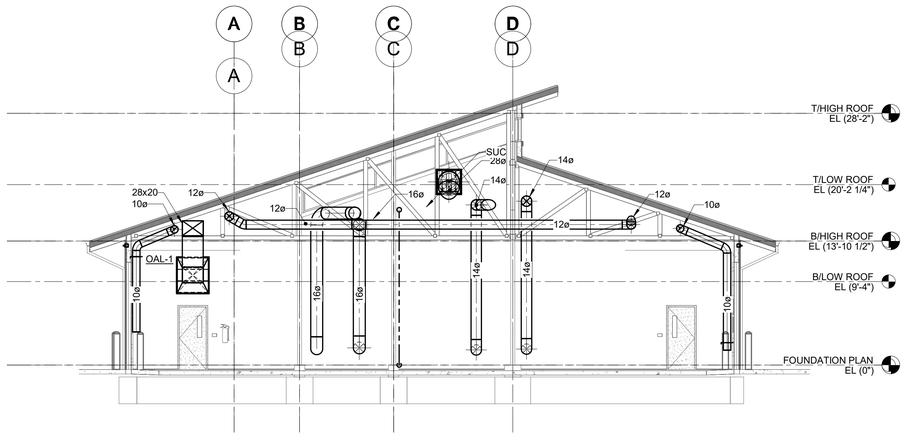
2 FIRST FLOOR - MECHANICAL - MUD ROOM AND CORRIDOR

1/4" = 1'-0"



3 FIRST FLOOR - MECHANICAL - HEATED VEHICAL STORAGE ROOM

1/8" = 1'-0"



4 FIRST FLOOR - MECHANICAL - UNHEATED VEHICAL STORAGE ROOM

1/8" = 1'-0"

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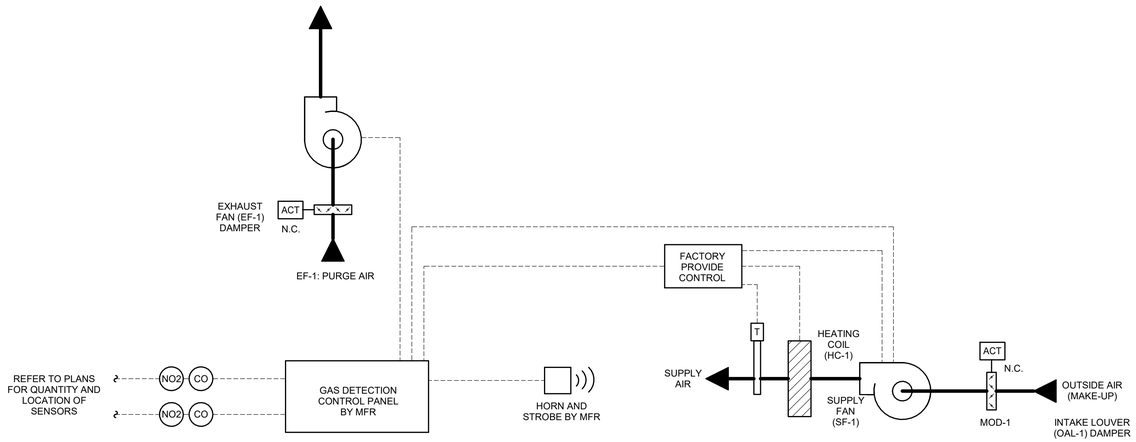


1 MAINTENANCE BAY - EXHAUST FAN CONTROL

NO SCALE

SEQUENCE OF OPERATION:

A 24v CONTROL SIGNAL FROM THE GAS DETECTION CONTROL PANEL TURNING THE EXHAUST FAN (EF-1) STATER PROVIDE BY EC AND THE ASSOCIATED DUCT HEATING COIL (HC-1) AND SUPPLY FAN (SF-1) CONTROL STATER PROVIDE BY EC.

DURING OCCUPIED SCHEDULE:

IF CARBON MONOXIDE LEVELS ARE BELOW 20 PPM (ADJ.) AND NITROGEN DIOXIDE LEVELS ARE BELOW 1 PPM (ADJ.)
THE FOLLOWING SHALL OCCUR.
- DOAS-2 EXHAUST SHALL BE ENABLED AND RUN CONTINUOUSLY. DOAS-2 EXHAUST PROVIDES THE CODE REQUIRED MINIMUM VENTILATION. THE ASSOCIATED MAKE-UP AIR IS ACCOMMODATED BY DOAS-2 SUPPLY.
- THE PURGE FANS SHALL BE DISABLED AND ASSOCIATED DAMPERS SHALL BE CLOSED.
- ACCORDINGLY SUPPLY FANS (SF-1) ALONG WITH THE HEATING COIL (HC-1) SHALL BE DISABLED AND THE INTAKE LOUVER (OAL-1) DAMPERS SHALL BE CLOSED.

IF CARBON MONOXIDE LEVELS ARE ABOVE 25 PPM (ADJ.) OR NITROGEN DIOXIDE LEVELS ARE ABOVE 3 PPM (ADJ.)
THE FOLLOWING SHALL OCCUR.
- THE DOAS-2 EXHAUST SHALL REMAIN OPERATING AND THE ASSOCIATED MAKE-UP AIR IS ACCOMMODATED BY DOAS-2 SUPPLY.
- INTAKE LOUVER (OAL-1) DAMPERS SHALL OPEN .
- THE SUPPLY FAN (SF-1) AND THE ASSOCIATED HEATING COIL (HC-1) SHALL BE ENABLED.
- THE PURGE FANS (EF-1) SHALL BE ENABLED.

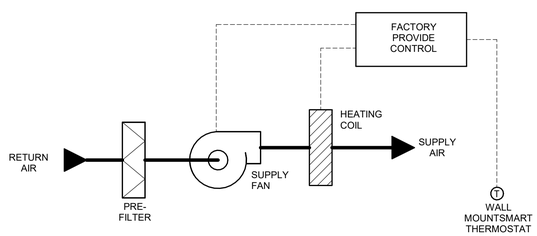
DURING UNOCCUPIED SCHEDULE:

IF CARBON MONOXIDE LEVELS ARE BELOW 20 PPM (ADJ.) AND NITROGEN DIOXIDE LEVELS BELOW 1 PPM (ADJ.)
THE FOLLOWING SHALL OCCUR.
- THE DOAS-2 EXHAUST SHALL BE DISABLED.
- THE PURGE FANS SHALL BE DISABLED AND ASSOCIATED DAMPERS SHALL BE CLOSED.
- INTAKE LOUVER (OAL-1) DAMPERS SHALL CLOSED.
- THE SUPPLY FAN (SF-1) AND THE ASSOCIATED HEATING COIL (HC-1) SHALL BE DISABLED.

IF CARBON MONOXIDE LEVELS ARE ABOVE 25 PPM (ADJ.) OR NITROGEN DIOXIDE LEVELS ARE ABOVE 3PPM (ADJ.)
THE FOLLOWING SHALL OCCUR.
- THE DOAS-2 EXHAUST SHALL BE DISABLED.
- INTAKE LOUVER (OAL-1) DAMPERS SHALL OPEN.
- THE SUPPLY FAN (SF-1) AND THE ASSOCIATED HEATING COIL (HC-1) SHALL BE ENABLED.
- THE PURGE FANS (EF-1) SHALL BE ENABLED.

ALARMS, INTERLOCKS, AND SAFETIES:

- AN ALARM SHALL BE INDICATE AT THE STAND ALONE CONTROLLER WHEN THE GAS DETECTION SYSTEM ALARMS.
- IF HAZARDOUS GAS LEVELS REACH 100 PPM (ADJ.) CARBON MONOXIDE OR 5 PPM (ADJ) NITROGEN DIOXIDE, THE HIGH ALARM INDICATOR LIGHTS ON THE MAIN PANEL SHALL ACTIVATE. REMOTE HORN AND STROBE SHALL ACTIVATE.



SEQUENCE OF OPERATION:

THE CABINET HEATER SHALL BE FURNISHED WITH A UNIT MOUNTED FAN SPEED SELECTOR SWITCH (OFF-HIGH-MED-LOW). THE UNIT SHALL MAINTAIN A SPACE TEMPERATURE OF NO MORE THAN 60°F

THE UNIT SHALL BE PROVIDED WITH A WALL-MOUNTED SMART THERMOSTAT. THE CONTROLS CONTRACTOR SHALL INSTALL AND SETUP THE THERMOSTAT. THE CONTRACTOS SHALL SETUP THE INITIAL TEMPERATURE SETPOINT TO 60F. THE THERMOSTAT SHALL ENABLE THE HEATER AND CONTROL THE OUTPUT OF THE HEATER TO MAINTAIN SETPOINT. THE CONTROLS CONTRACTOR SHALL PROGRAM A 3-DEGREE DEADBAND BETWEEN THE TEMPERATURE SETPOINT AND HEATER ACTIVATION.

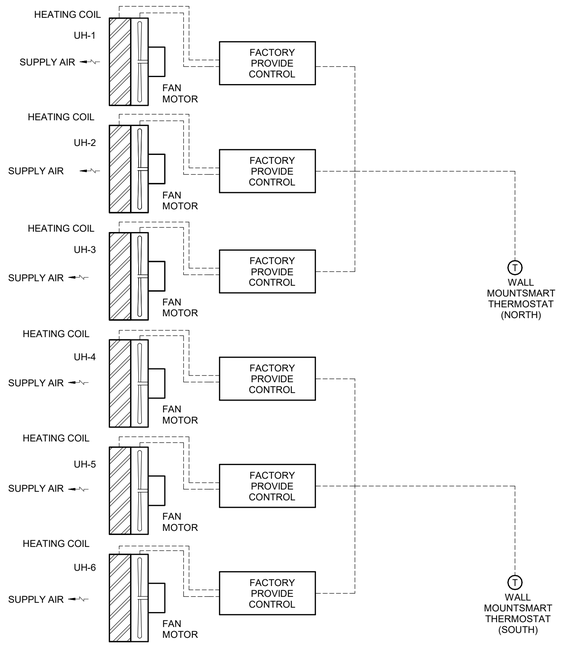
THE UNIT SHALL COME FACTORY PROVIDED WITH ALL NECESSARY EQUIPMENT & SQUENCE OF OPERATION FOR CONTROL OF FAN, HEATING COIL, ETC..

ALARMS, INTERLOCKS & SAFETIES:

- UNIT SHALL COME WITH BUILT-IN SAFETY SHUT-OFFS IN THE CASE OF UNIT ALARMS/FAILURE.

3 CABINET HEATER CONTROL - ELECTRIC

NO SCALE



2 UNIT HEATER CONTROL - ELECTRIC

NO SCALE

SEQUENCE OF OPERATION:

THE UNIT HEATER SHALL BE FURNISHED WITH A UNIT MOUNTED FAN SPEED SELECTOR SWITCH (OFF-HIGH-MED-LOW).

THE UNIT SHALL BE PROVIDED WITH A WALL-MOUNTED SMART THERMOSTAT. THE CONTROLS CONTRACTOR SHALL INSTALL AND SETUP THE THERMOSTAT. THE CONTRACTOS SHALL SETUP THE INITIAL TEMPERATURE SETPOINT TO 70F. THE THERMOSTAT SHALL ENABLE THE HEATER AND CONTROL THE OUTPUT OF THE HEATER TO MAINTAIN SETPOINT. THE CONTROLS CONTRACTOR SHALL PROGRAM A 3-DEGREE DEADBAND BETWEEN THE TEMPERATURE SETPOINT AND HEATER ACTIVATION.

THE UNIT SHALL COME FACTORY PROVIDED WITH ALL NECESSARY EQUIPMENT & SQUENCE OF OPERATION FOR CONTROL OF FAN, HEATING COIL, ETC.

ALARMS, INTERLOCKS & SAFETIES:

- UNIT SHALL COME WITH BUILT-IN SAFETY SHUT-OFFS IN THE CASE OF UNIT ALARMS/FAILURE.

GENERAL SHEET NOTES:

1. CONTRACTOR SHALL EXTEND AND TERMINATE WIRING AS REQUIRED FOR PROPER EQUIPMENT OPERATION.
2. UNIT SHALL COME WITH FACTORY CONTROLS. CONTRACTOR IS RESPONSIBLE TO INSTALL/WIRE ANY LOOSE COMPONENTS AND INTEGRATE WITH PACKAGED CONTROL SYSTEM.
3. ALL WIRING, CONTROL COMPONENTS, DEVICES AND PROGRAMMING SHOWN ON THESE CONTROL DRAWINGS SHALL BE PROVIDED BY THE TCC UNLESS SPECIFICALLY NOTED OTHERWISE.
4. ALL ACTUATORS SHALL BE OF THE ELECTRICAL TYPE FOR THIS PROJECT UNLESS AN ACTUATOR IS SPECIFICALLY INDICATED ON THE DRAWINGS OR SPECIFICATIONS TO BE PNEUMATIC.

CONTROL SYMBOLS LIST

SYMBOL:	DESCRIPTION:
	FAN
T	PROBE TEMPERATURE SENSOR
	OPPOSED BLADE DAMPER
	HEATING/ COOLING COIL
	FILTER
T	THERMOSTAT
T	TEMPERATURE SENSOR (DUCT MOUNTED)
ACT	ACTUATOR
H	HUMIDISTAT/SENSOR (DUCT MOUNTED)
T	TEMPERATURE SENSOR (DUCT MOUNTED)
SP	STATIC PRESSURE SWITCH
EA	EXHAUST/RELIEF AIR
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR

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MECHANICAL DIAGRAMS

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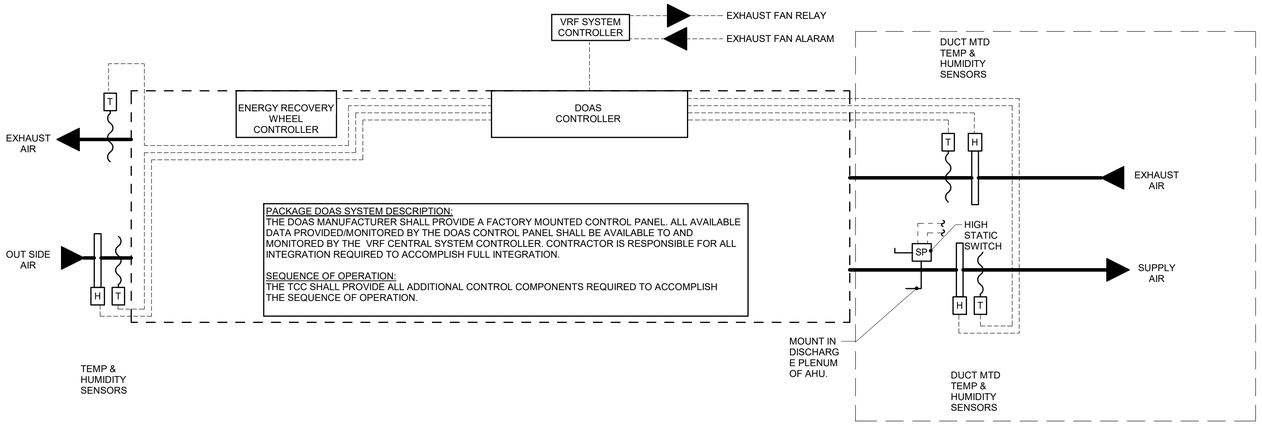


PACKAGE DOAS SYSTEM DESCRIPTION:
THE DOAS MANUFACTURER SHALL PROVIDE A FACTORY MOUNTED CONTROL PANEL. ALL AVAILABLE DATA PROVIDED/MONITORED BY THE DOAS CONTROL PANEL SHALL BE AVAILABLE TO AND MONITORED BY THE VRF CENTRAL SYSTEM CONTROLLER. CONTRACTOR IS RESPONSIBLE FOR ALL INTEGRATION REQUIRED TO ACCOMPLISH FULL INTEGRATION.

SEQUENCE OF OPERATION:
THE TCC SHALL PROVIDE ALL ADDITIONAL CONTROL COMPONENTS REQUIRED TO ACCOMPLISH THE SEQUENCE OF OPERATION.

DOAS CONTROL PANEL SEQUENCE OF OPERATION:
- REFER TO SECTION 23 74 16.15 FOR A DESCRIPTION OF THE DOAS COMPONENTS.
- THE DOAS MANUFACTURER SHALL PROVIDE A FACTORY CONTROLLER WHICH SHALL MONITOR AND CONTROL THE DOAS IN A STAND-LONE MODE.
- THE TCC SHALL WIRE ALL LOOSE CONTROLS PROVIDED BY THE DOAS MANUFACTURER AS SHOWN ON THE CONTROL DIAGRAM.
- THE TCC SHALL PROVIDE ALL ADDITIONAL CONTROL COMPONENTS REQUIRED TO ACCOMPLISH THE SEQUENCE OF OPERATION LISTED BELOW.
- TCC AND DOAS MANUFACTURER SHALL COORDINATE DURING BIDDING TO CONFIRM ALL SCOPE IS COVERED AND NOT DUPLICATED.

DOAS OPERATION SHALL BE SCHEDULED AT THE DOAS CONTROLLER.
DOAS UNITARY CONTROLLER SHALL BE PROGRAMMED WITH THE FOLLOWING ADJUSTABLE OCCUPANCY SCHEDULE:
(EXACT OCCUPANCY SCHEDULE DETERMINED WITH OWNER)

• OCCUPIED MODE:	MONDAY THROUGH FRIDAY	6:01AM-9:00PM (ADJ.)
	SATURDAY THROUGH SUNDAY	8:01AM-6:00PM (ADJ.)
• UNOCCUPIED MODE:	MONDAY THROUGH FRIDAY	9:01PM-6:00AM (ADJ.)
	SATURDAY THROUGH SUNDAY	6:01PM-8:00AM (ADJ.)

SUPPLY FAN OPERATION:
DOAS CONTROL PANEL SHALL MODULATE SIGNAL TO SUPPLY FAN VFD AS REQUIRED TO MAINTAIN AT LEAST SCHEDULED OUTPUT AIR CFM AS MEASURED BY AIR FLOW MEASURING STATION.

EXHAUST FAN OPERATION:
EXHAUST FAN SHALL BE INDEXED TO RUN WHENEVER THE SUPPLY FAN IS INDEXED TO RUN. DOAS CONTROL PANEL SHALL MODULATE SIGNAL TO EXHAUST FAN VFD AS REQUIRED TO MAINTAIN THE SCHEDULED CFM.

VENTILATION CONTROL:
WHENEVER THE UNIT IS IN OCCUPIED MODE THE OUTSIDE AIR DAMPER SHALL BE FULLY OPEN.

DISCHARGE AIR TEMPERATURE CONTROL:
AT FULL HEATING THE ENERGY RECOVERY WHEEL SHALL BE ROTATING AT FULL SPEED AND THE SCR HEATING ELEMENT SHALL BE MODULATING TO MAINTAIN SETPOINT. WHENEVER THE DISCHARGE AIR TEMPERATURE IS ABOVE SETPOINT THE FOLLOWING SHALL OCCUR:
- THE SCR HEATING ELEMENT SHALL MODULATE OFF.
- THE ENERGY RECOVERY WHEEL VFD SHALL MODULATE THE SPEED OF THE WHEEL TO MAINTAIN SETPOINT. A PID-LOOP SHALL BE ACTIVATED TO CONTROL THE SPEED OF THE WHEEL TO MAINTAIN THE WHEEL DISCHARGE AIR TEMPERATURE AT THE EFFECTIVE DOAS DISCHARGE AIR TEMPERATURE SETPOINT.
- THE ENERGY RECOVERY WHEEL SHALL BE DISABLED.
- THE DOAS SHALL ENTER 'FAN ONLY' OPERATING MODE.

AT FULL COOLING THE ENERGY RECOVERY WHEEL SHALL BE ROTATING AT FULL SPEED AND THE DOAS COMPRESSORS MODULATING TO MAINTAIN SETPOINT. WHENEVER THE DISCHARGE AIR TEMPERATURE IS 1.0°F (ADJ.) BELOW THE DEAD BAND, THE FOLLOWING SHALL OCCUR IN THE SEQUENCE:
- THE DOAS COMPRESSORS SHALL MODULATE OFF.
- THE ENERGY RECOVERY WHEEL VFD SHALL MODULATE THE SPEED OF THE WHEEL TO MAINTAIN SETPOINT. A PID-LOOP SHALL BE ACTIVATED TO CONTROL THE SPEED OF THE WHEEL TO MAINTAIN THE WHEEL DISCHARGE AIR TEMPERATURE AT THE EFFECTIVE DOAS DISCHARGE AIR TEMPERATURE SETPOINT.
- THE ENERGY RECOVERY WHEEL SHALL BE DISABLED.
- THE DOAS SHALL ENTER 'FAN ONLY' OPERATING MODE.

MODULATING HOT GAS REHEAT (HGRH) CONTROL:
- IN THE COOLING AND 'FAN ONLY' STATES, A PID-LOOP SHALL CONTROL THE HGRH VALVE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE AT THE DEHUMIDIFICATION REHEAT SETPOINT. THE PID-LOOP IS ENABLED WHEN THE UNIT IS IN THE COOLING OR 'FAN ONLY' OPERATING STATE AND DEHUMIDIFICATION BECOMES ACTIVE. UNIT WILL COOL TO APPROXIMATELY 55° AND THEN REHEAT TO 72° F.

ENERGY RECOVERY WHEEL CONTROL:
THE MANUFACTURER SHALL CONTROL PREHEAT AND WHEEL SPEED TO PREVENT FROST FROM THE WHEEL.

ALARMS, INTERLOCKS AND SAFETIES:
SEND AN ALARM TO THE DOAS CONTROLLER SHALL INDICATE ALARAM IN THE EVENT ANY OF THE FOLLOWING OCCUR:
- GENERAL ALARM: IF ANY OF THE DOAS ALARMS ARE TRIGGERED THE CONTROLLER SHALL BE NOTIFIED AND A MESSAGE SHOULD OCCUR AT
  THE VRF SYSTEM CONTROLLER INDICATING THE OPERATOR SHALL REVIEW THE DOAS CONTROLLER.
- DIFFERENTIAL PRESSURE SWITCH ACROSS FILTER BANK INDICATES AN ALARM.
- IF DISCHARGE AIR TEMPERATURE IS MORE THAN 10°F (ADJ.) ABOVE OR BELOW SETPOINT.
- IF THE FIRE ALARM SYSTEM IS ACTIVATED
- EMERGENCY STOP

WHENEVER DOAS IS SHUTDOWN THE DOAS CONTROLLER SHALL COMMAND THE FOLLOWING TO OCCUR:
- SUPPLY FAN AND EXHAUST FAN VFDS SHALL BE DE-ENERGIZED.
- OUTSIDE AIR AND RELIEF AIR DAMPERS SHALL FULLY CLOSE. THE RETURN AIR DAMPER SHALL FULLY OPEN.
- HEATING AND COOLING SHALL BE DISABLED.
- THE ENERGY RECOVERY WHEEL SHALL STOP.

UNOCCUPIED MODE:
PROVIDE TIME OF DAY SCHEDULE TO ALLOW DOAS TO ENTER UNOCCUPIED MODE PER SCHEDULE.
- IN UNOCCUPIED MODE THE DOAS SHALL BE SHUT DOWN. REFER TO THE SHUTDOWN SEQUENCE ABOVE.

1 PACKAGED DOAS UNIT WITH ENERGY RECOVERY WHEEL CONTROL - DOAS-1 & DOAS-2
NO SCALE

DOAS SEQUENCE OF OPERATION:
THE DOAS CONTROL SEQUENCE OF OPERATION IS AS PER THE MANUFACTURER'S RECOMMENDATION.

DISCHARGE AIR SETPOINT:
DISCHARGE AIR TEMPERATURE SETPOINT SHALL BE 72°F (ADJ.).
THE MAXIMUM EXHAUST AIR HUMIDITY SHALL BE 60% RH (ADJ.).
ONCE THE EXHAUST REACHES 55% RH (ADJ.), THE HOT GAS REHEAT CONTROL SEQUENCE SHALL BE ENABLED TO DEHUMIDIFY AND REHEAT THE SUPPLY AIR IN ORDER TO MAINTAIN THE DAT WHILE ALSO MAINTAINING THE EXHAUST AIR HUMIDITY LEVEL BELOW THE MAXIMUM.

EXTERNAL CONTROLS PROVIDED BY AND/OR WIRED BY TCC:
- SUPPLY AND EXHAUST TEMPERATURE SENSOR
- SUPPLY AND EXHAUST HUMIDITY SENSOR
- OUTSIDE AIR TEMPERATURE SENSOR
- OUTSIDE AIR HUMIDITY SENSOR
- EXHAUST AIR HUMIDITY SENSOR LEAVING THE DOAS

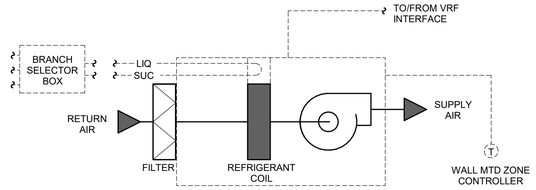
ALARMS, INTERLOCKS AND SAFETIES:
WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, DOAS CONTROLLER SHALL SHUTDOWN UNIT.

THE FOLLOWING SAFETIES SHALL BE INSTALLED BY THE TCC IN THE FIELD.
- HIGH STATIC SWITCH (WIRED TO SUPPLY FAN)
- FIRE ALARM RELAY (WIRED TO SUPPLY AND EXHAUST FAN)

WHENEVER DOAS IS SHUTDOWN THE UNIT CONTROLLER:
- OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL FULLY CLOSE.
- INTERLOCKED EXHAUST FAN SHALL BE DE-ENERGIZED.

THE FOLLOWING MONITORING POINTS SHALL BE VISIBLE AT THE REMOTE VRF CONTROLLER INTERFACE.

- FILTER STATUS OF EACH INDOOR UNIT
- GENERAL ALARM
- ZONE TEMPERATURE (REFER TO DRAWINGS FOR QUANTITY)
- ZONE THERMOSTAT STATUS
- AIR-CONDITIONING MODE STATUS (HEAT/COOL)
- FAN STATUS
- TERMINAL UNIT START/STOP (REFER TO DRAWINGS FOR QUANTITY)
- TERMINAL UNIT MODE (HEAING OR COOLING)
- ZONE TEMPERATURE SETPOINT (REFER TO DRAWINGS FOR QUANTITY)
- ZONE SCHEDULING (REFER TO DRAWINGS FOR QUANTITY)
- ZONE OCCUPANCY OVERRIDE
- FILTER ALARM RESET
- TERMINAL UNIT FAN SETTING (HIGH/MEDIUM/LOW)
- DOAS ENABLE/DISABLE
- DOAS DISCHARGE AIR TEMPERATURE SET POINT
- DOAS GENERAL ALARM
- DOAS DIRTY FILTER ALARM



TERMINAL UNIT CONTROL
EACH TERMINAL UNIT SHALL BE PROVIDED WITH A WALL MOUNTED ZONE CONTROLLER, WITH INTEGRAL ZONE TEMPERATURE SENSOR, CAPABLE OF THE FUNCTIONS DESCRIBED BELOW. THE ZONE CONTROLLER SHALL SEND THE PROPER CONTROL SIGNAL TO ITS ASSOCIATED TERMINAL UNIT TO MODULATE THE ELECTRONIC EXPANSION VALVE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT. THE OWNER SHALL HAVE THE ABILITY TO 'LOCK-OUT' OR LIMIT AN INDIVIDUAL ZONE CONTROLLER ADJUSTMENT TO THE PUBLIC. REFER TO THE TERMINAL UNIT SCHEDULE FOR MORE INFORMATION.

AUTO MODE FUNCTION: PROVIDES AUTOMATIC CHANGEOVER FROM COOLING MODE TO HEATING MODE BASED ON RETURN AIR TEMPERATURE. TERMINAL UNIT CAPACITY WILL MODULATE AS REQUIRED TO MAINTAIN SPACE SETPOINT.
COOL MODE FUNCTION: LOCKS THE TERMINAL UNIT INTO COOLING MODE AND WILL MODULATE CAPACITY AS REQUIRED TO MAINTAIN SPACE SETPOINT. IF THERE IS A DEMAND FOR HEATING, THE UNIT WILL NOT CHANGE OVER INTO HEATING MODE.
DRY MODE FUNCTION: THE DRY MODE FUNCTION SHALL DEHUMIDIFY THE SPACE, AT REDUCED COOLING CAPACITY, TO AVOID THE ROOM TEMPERATURE FROM DROPPING TO UNCOMFORTABLE LEVELS. IN DRY MODE, THE SYSTEM SHALL MAINTAIN AN AUTOMATICALLY PROGRAMMED TEMPERATURE AND FAN SPEED (NON-USER ADJUSTABLE). IN ORDER TO ENTER THE DRY MODE, THE UNIT MUST BE IN FAN ONLY OR HEAT MODE.
HEAT MODE FUNCTION: LOCKS THE TERMINAL UNIT INTO HEATING MODE. IF THERE IS DEMAND FOR COOLING, THE UNIT WILL NOT CHANGE OVER INTO COOLING MODE.

IN ADDITION, THE SYSTEM AUTOMATICALLY CONTROLS THE FOLLOWING OPERATING MODES:
FAN ONLY MODE FUNCTION: LOCKS THE INDOOR FAN COIL UNIT INTO FAN ONLY MODE, BOTH THE HEATING AND COOLING SHALL BE DISABLED.
SCHEDULING FUNCTION: THE ZONE CONTROLLER SHALL BE CAPABLE OF PROVIDING BUILT IN 7, 5+2, 5+1+1 WEEKLY SCHEDULE TIMER WITH UP TO 5 ACTIONS PER DAY WITH INDEPENDENT COOL/HEAT OR SETBACK SETPOINTS. IN ADDITION A 7-DAY, 12/24 TIME CLOCK SHALL BE BUILT IN. THE UNIT SHALL CONTROL TO THE OCCUPIED OR UNOCCUPIED SETPOINTS AS DETERMINED BY THE SCHEDULING FUNCTION.
DIRTY FILTER FUNCTION: THE ZONE CONTROLLER SHALL BE CAPABLE OF PROVIDING AN INDICATION WHEN IT IS TIME TO REPLACE FILTER OR THE UNIT SHALL BE PROVIDED WITH A TIMER STYLE REMINDER TO KNOW WHEN TO CHANGE THE FILTERS.
ALARM INDICATION FUNCTION: THE ZONE CONTROLLER SHALL BE CAPABLE OF PROVIDING AN INDICATION OF A 2-DIGIT, CODE SPECIFIC ALARM FOR EASE OF TROUBLESHOOTING AND SERVICE. AN ALARM ON ANY INDIVIDUAL TERMINAL UNIT SHALL NOT INHIBIT THE OPERATION OF OTHER TERMINAL UNITS ON THE SYSTEM. AN ERROR ON THE OUTDOOR CONDENSING UNITS SHALL DISABLE THE ENTIRE SYSTEM.

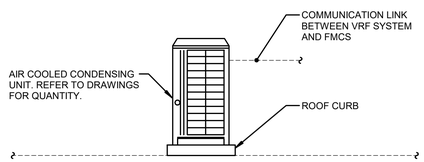
OCCUPANT INPUTS AT THE WALL MTD ZONE CONTROLLER SHALL BE LIMITED TO:
- TEMPERATURE SETPOINT ADJUSTMENT
- TERMINAL UNIT FAN SPEED ADJUSTMENT (I.E. - HIGH/MED/LOW)

THE ZONES SHALL BE SET-UP WITH THE FOLLOWING TEMPERATURE SETPOINTS:
OCCUPIED COOLING: 75°F (ADJ.)
OCCUPIED HEATING: 70°F (ADJ.)

IN ADDITION, THE WALL MTD ZONE CONTROLLER SHALL LIMIT THE RANGE THAT THE USER IS ALLOWED TO ADJUST THE TEMPERATURE SETPOINT. THIS RANGE SHALL BE +/- 2°F (ADJ.). THIS RANGE ADJUSTMENT LIMIT SHALL BE AVAILABLE THROUGH THE LOCAL REMOTE CONTROLLERS.

ALL FUNCTIONS LISTED ABOVE SHALL BE CONTROLLABLE FROM THE VRF INTERFACE REFER TO 2/M5.1 FOR MORE INFORMATION.

2 VRF TERMINAL UNIT CONTROL
NO SCALE



SEQUENCE OF OPERATION:
OUTDOOR CONDENSING UNITS AND DISTRIBUTED TERMINAL UNITS SHALL BE CONTROLLED BY FACTORY PROVIDED CONTROL SYSTEM. THE MANUFACTURER SHALL PROVIDE A REMOTE USER INTERFACE. THIS INTERFACE LOCATION SHALL BE COORDINATED WITH OWNER. THE FACTORY PROVIDED CONTROL SYSTEM SHALL BE CAPABLE OF ACCEPTING AND CONTROLLING INPUTS/OUTPUTS AS INDICATED ON THE CONTROL DIAGRAMS.

VRF SYSTEM CONTROL:
EACH HEAT RECOVERY UNIT SHALL PROVIDE SIMULTANEOUS HEATING AND COOLING AT ALL POINTS IN THE SYSTEM. THE HEAT RECOVERY UNIT COMPRESSOR(S) AND CONDENSER FAN(S) SPEEDS SHALL BE MODULATED BY THE UNIT'S CONTROLLER AS REQUIRED TO MINIMIZE SYSTEM ENERGY USAGE AND SATISFY THE INDOOR TERMINAL UNIT CAPACITY REQUIREMENTS. THE UNIT OPERATION SHALL BE AUTOMATICALLY CONTROLLED TO MAINTAIN PROPER REFRIGERANT TEMPERATURE AND PRESSURE REQUIREMENTS, IN THE EVENT THE UNIT CANNOT MAINTAIN THE PROPER OPERATIONAL PARAMETERS AN ALARM SHALL BE GENERATED AND UNIT OPERATION SUSPENDED UNTIL CORRECTIVE ACTION CAN BE TAKEN. IN ADDITION, THE OUTDOOR HEAT RECOVERY UNIT SHALL BE CAPABLE OF THE FOLLOWING FUNCTIONS:
- OIL RECOVERY FUNCTION: THE HEAT RECOVERY UNIT CONTROLLER SHALL AUTOMATICALLY ENABLE THE COOLING MODE OR HEATING MODE OIL RECOVERY FUNCTION ACCORDING TO THE INTERNAL ALGORITHIMS/PARAMETERS BEING MONITORED BY THE UNIT CONTROLLER. THE SYSTEM CONTROLS SHALL PROVIDE CONTINUOUS HEATING OPERATION DURING THE OIL RECOVERY FUNCTION.
- DEFROST MODE FUNCTION: THE HEAT RECOVERY UNIT CONTROLLER SHALL AUTOMATICALLY ENABLE DEFROST MODE FUNCTION IN HEATING MODE ACCORDING TO THE INTERNAL ALGORITHIMS/PARAMETERS BEING MONITORED BY THE UNIT CONTROLLER. THE SYSTEM CONTROLS SHALL PROVIDE CONTINUOUS HEATING OPERATION DURING THE DEFROST MODE OPERATION.

VRF SYSTEM CONTROLLER:
CONTRACTOR SHALL INTERFACE THE VRF SYSTEM CONTROLLERS WITH THE DOAS CONTROLLER. DOAS SHALL INTEGRATE WITH ACCU-1 SYSTEM CONTROLLER. EACH VRF SYSTEM CONTROLLER TO SHOW ALL LISTED POINTS AND ALARMS PER CONTROL SEQUENCE DETAIL. CONTROLLER SHALL ALLOW USER TO PROGRAM UNIT SET POINTS AND UNIT OPERATION SCHEDULE. CONTRACTOR SHALL INCLUDE 2 TRAINING SESSIONS FOR THE VRF, AND VRF SYSTEM CONTROLLER.

3 VRF SYSTEM CONTROL
NO SCALE

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
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WA No. 2020-008
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Drawn ABR
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GRAPHIC NORTH

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MECHANICAL DIAGRAMS

M5.1

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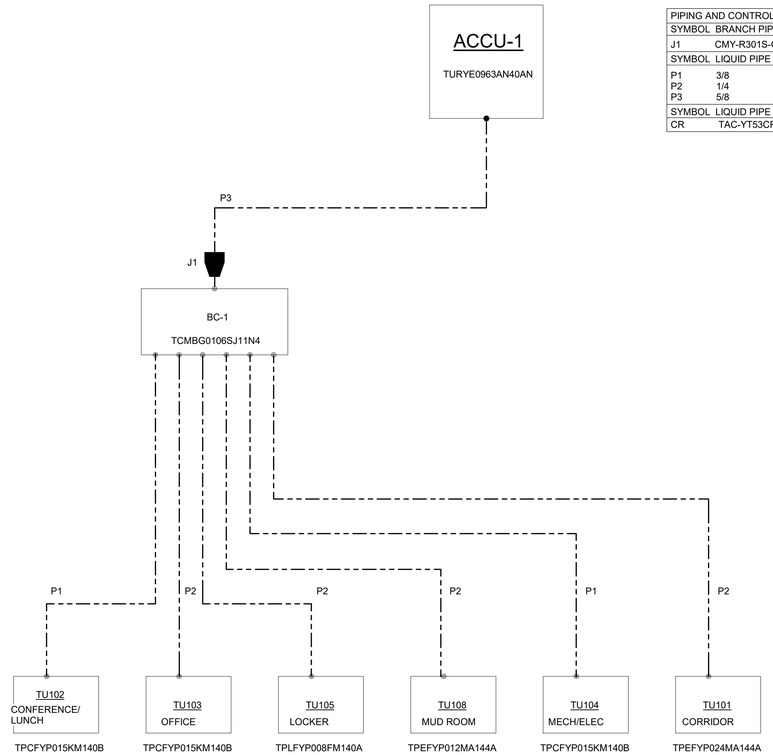

PIPING AND CONTROLS		
SYMBOL	BRANCH PIPE MODEL NAME	
J1	CMY-R301S-G	
SYMBOL	LIQUID PIPE	GAS PIPE SIZE
P1	3/8	5/8
P2	1/4	1/2
P3	5/8	3/4
SYMBOL	LIQUID PIPE	GAS PIPE SIZE
CR	TAC-YT53CRAU-J	

1 VRF SYSTEM DIAGRAM

NO SCALE

NOTES:

1. ALL SIZES SHOWN ABOVE SHALL BE VERIFIED AND PROVIDED BY FINAL SUBMITTED & APPOROVED VRF MANUFACTURER. SIZES ARE SUBJECT TO CHANGE PER MANUFACTURER REQUIREMENTS.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 06 APR 2023
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ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

VRF SYSTEM DIAGRAM

M5.2

DEDICATED OUTSIDE AIR UNIT

SYMBOL	DOAS-1
SERVICE	ADMINISTRATION AREA
SUPPLY FAN	
CFM	1,000
BALANCED CFM	765
EXTERNAL STATIC PRESSURE	1
TYPE	DIRECT DRIVE PLENUM
FAN RPM (NOTE D)	1,696
BHP (NOTE E)	0.42
MHP (NOTE E)	1
EXHAUST FAN	
CFM	1000
BALANCED CFM	765
EXTERNAL STATIC PRESSURE	1
TYPE	DIRECT DRIVE PLENUM
FAN RPM (NOTE D)	1,685
BHP (NOTE E)	0.42
MHP (NOTE E)	1
HEATING - SCR ELECTRIC	
MINIMUM OAT °F	50.8
MAX. LAT °F DB	82.4
CONTROL	SCR
MINIMUM KW	10
HOT GAS REHEAT COIL - DX	
EAT °F DB	53.9
EAT °F WB	53.4
LAT °F DB	74.4
LAT °F WB	61.4
TOTAL MBH	22.5
MAX. A.P.D. IN. W.C.	0.02
COOLING COIL - DX	
EAT °F DB	79.6
EAT °F WB	67.3
MAX. LAT °F DB	53.9
LAT °F WB	53.4
TOTAL MBH	42.9
MAX. A.P.D. IN. W.C.	0.1
REFRIGERANT	R410A
COMPRESSOR	DIGITAL
ENERGY RECOVERY (ENTHALPY WHEEL)	
SUMMER OUTSIDE EAT (DB°F/WB°F)	95/78
SUMMER EXHAUST EAT (DB°F/WB°F)	75/63
SUMMER LAT (DB°F/WB°F)	79.6/67.3
SUMMER TOTAL EFFECTIVENESS (%)	81
WINTER OUTSIDE EAT (DB°F/WB°F)	-10
WINTER EXHAUST EAT (DB°F/WB°F)	72/51
WINTER LAT (DB°F/WB°F)	50.8/38.8
WINTER TOTAL EFFECTIVENESS (%)	84
CORE PRESSURE DROP (IN. W.C.) (SUPPLY/EXHAUST)	.64/.58
FILTER	
TYPE - PRE	MERV 8
VELOCITY	239
MAX. A.P.D. IN. W.C. PRE-FILTER CLEAN	0.05
ELECTRICAL - RTU POWER	
VOLT-PHASE	208-3
MCA	47
MOCP	50
DISCONNECT BY (NOTE A)	MFG
DISCONNECT TYPE (NOTE B)	NON FUSED
MANUFACTURER	TRANE
MODEL NUMBER	OAB
REMARKS	ALL

NOTES:

1. SINGLE POINT POWER CONNECTION, PROVIDE FIELD-WIRED 20 AMP GFCI OUTLET WHILE-IN-USE WEATHERPROOF COVER.
2. REFER TO 1/M5.1 FOR DOAS CONTROL DIAGRAM.
3. PROVIDE GATEWAY THAT WILL ALLOW A FULL INTERFACE WITH THE FUTURE BAS USING THE PROTOCOL SPECIFIED IN TRANE SUMMIT.
4. ALL OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL BE LOW LEAKAGE PER CODE.
5. DOAS UNIT TO BE CAPABLE OF OVERCOMING A DIRTY FILTER AND ASSOCIATED PRESSURE DROP,A CLOGGED FILTER/PRESSURE SWITCH TO BE INCLUDED TO INDICATE A DIRTY FILTER.
6. MANUFACTURER TO PERFORM START-UP.
7. PROVIDE WITH AFMS ON SUPPLY, EXHUAST, AND OUTDOOR AIR.
8. PROVIDE WITH DIGITAL SCROLL PER CIRCUIT.
9. PROVIDE WITH 2" DOUBLE WALL CONSTRUCTION.
10. PROVIDE WITH MODULATING HOT GAS REHEAT.
11. PROVIDE WITH 5 YEAR COMPRESSOR WARRANTY, 25 YEAR HEAT EXCHANGER WARRANTY.
12. UNIT SHALL BE CAPABLE OF ACCEPTING CUSTOM SEQUENCE AND IO PER CONTROLS DRAWING.

DEDICATED OUTSIDE AIR UNIT

SYMBOL	DOAS-2
SERVICE	VEHICAL MAINTANENCE BAY
SUPPLY FAN	
CFM	1,100
BALANCED CFM	1,080
EXTERNAL STATIC PRESSURE	1
TYPE	DIRECT DRIVE PLENUM
FAN RPM (NOTE D)	0.44
BHP (NOTE E)	1,705
MHP (NOTE E)	1
EXHAUST FAN	
CFM	1100
BALANCED CFM	1,080
EXTERNAL STATIC PRESSURE	1
TYPE	DIRECT DRIVE PLENUM
FAN RPM (NOTE D)	1,684
BHP (NOTE E)	0.42
MHP (NOTE E)	1
HEATING - SCR ELECTRIC	
MINIMUM OAT °F	46.1
MAX. LAT °F DB	89.2
CONTROL	SCR
MINIMUM KW	15
COOLING COIL - DX	
EAT °F DB	N/A
EAT °F WB	N/A
MAX. LAT °F DB	N/A
LAT °F WB	N/A
TOTAL MBH	N/A
MAX. A.P.D. IN. W.C.	N/A
REFRIGERANT	N/A
COMPRESSOR	N/A
ENERGY RECOVERY (ENTHALPY WHEEL)	
SUMMER OUTSIDE EAT (DB°F/WB°F)	N/A
SUMMER EXHAUST EAT (DB°F/WB°F)	N/A
SUMMER LAT (DB°F/WB°F)	N/A
SUMMER TOTAL EFFECTIVENESS (%)	N/A
WINTER OUTSIDE EAT (DB°F/WB°F)	-10
WINTER EXHAUST EAT (DB°F/WB°F)	72/51
WINTER LAT (DB°F/WB°F)	46.1
WINTER TOTAL EFFECTIVENESS (%)	0.87
CORE PRESSURE DROP (IN. W.C.) (SUPPLY/EXHAUST)	.7/.58
FILTER	
TYPE - PRE	MERV 8
TYPE - FINAL	–
VELOCITY	255
MAX. A.P.D. IN. W.C. PRE-FILTER CLEAN	0.07
ELECTRICAL - RTU POWER	
VOLT-PHASE	208-3
MCA	63.9
MOCP	70
DISCONNECT BY (NOTE A)	MFG
DISCONNECT TYPE (NOTE B)	NON FUSED
MANUFACTURER	TRANE
MODEL NUMBER	OAB
REMARKS	ALL

NOTES:

1. SINGLE POINT POWER CONNECTION, PROVIDE FIELD-WIRED 20 AMP GFCI OUTLET WITH WHILE-IN-USE WEATHERPROOF COVER.
2. REFER TO 1/M5.1 FOR DOAS CONTROL DIAGRAM.
3. PROVIDE GATEWAY THAT WILL ALLOW A FULL INTERFACE WITH THE BAS USING THE PROTOCOL SPECIFIED IN TRANE SUMMIT.
4. ALL OUTSIDE AIR AND EXHAUST AIR DAMPERS SHALL BE LOW LEAKAGE PER CODE.
5. DOAS UNIT TO BE CAPABLE OF OVERCOMING A DIRTY FILTER AND ASSOCIATED PRESSURE DROP, A CLOGGED FILTER/PRESSURE SWITCH TO BE INCLUDED TO INDICATE A DIRTY FILTER.
6. MANUFACTURER TO PERFORM START-UP.
7. PROVIDE WITH AFMS ON SUPPLY, EXHUAST, AND OUTDOOR AIR.
8. PROVIDE WITH DIGITAL SCROLL PER CIRCUIT.
9. PROVIDE WITH 2" DOUBLE WALL CONSTRUCTION.
10. PROVIDE WITH 5 YEAR COMPRESSOR WARRANTY, 25 YEAR HEAT EXCHANGER WARRANTY.
11. UNIT SHALL BE CAPABLE OF ACCEPTING CUSTOM SEQUENCE AND IO PER CONTROLS DRAWING.

SCHEDULE GENERAL NOTES:

A. DISCONNECT AND CONTROLLER STARTER FURNISHED AND INSTALLED BY:
- MFR = MANUFACTURER
- EC = ELECTRICAL CONTRACTOR.
- MC = FURNISHED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR
- MFR/EC = FURNISHED LOOSE BY MANUFACTURER INSTALLED BY ELECTRICAL CONTRACTOR
- TCC = TEMPERATURE CONTROL CONTRACTOR

B. DISCONNECT TYPE:
- F = FUSED
- NF = NON-FUSED

C. CONTROLLER STARTER TYPE:
- FV = FULL VOLTAGE
- WYE = WYE-DELTA
- SS = SOLID STATE (SOFT START)
- MS = MANUAL STARTER
- VFD = VARIABLE FREQUENCY DRIVE
- VFD/B = VARIABLE FREQUENCY DRIVE WITH BYPASS

D. FAN RPM SHALL NOT EXCEED 110% OF SCHEDULED VALUE, WITH THE SCHEDULED WHEEL TYPE. SUBSTITUTION OF BI OR BIA FANS FANS FOR FC IS ACCEPTABLE IF EFFICIENCY IS NOT LOWER.

E. NO EQUIPMENT SHALL BE SELECTED ABOVE 90% OF MOTOR NAME PLATE RATING.

F. MUST BE WITHIN +/- 10% OF SCHEDULED RPM.

G. CURB TYPE:
- MFR = STANDARD CURB BY MANUFACTURER
- GC = BY GENERAL CONTRACTOR
- SAC = SOUND ATTENUATOR CURB

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MECHANICAL SCHEDULES

M6.0

INDOOR UNIT SCHEDULE - VRF

SYMBOL	AREA SERVED	CFM	EXTERNAL STATIC (IN WG)	DESIGN COOLING	DESIGN HEATING	NOMINAL COOLING	NOMINAL HEATING	ELECTRICAL				MANUFACTURER	MODEL	UNIT STYLE	REMARKS
				TOTAL BTUH	TOTAL BTUH	TOTAL BTUH	TOTAL BTUH	VOLT-PHASE	DISCONNECT BY (NOTE A)	CONTROLLER/STARTER BY (NOTE A)	MOCP				
TU-101	CORRIDOR	880	0.6	17,200	19,400	24,000	27,000	208-1	E.C.	MFR	15	MITSUBISHI	TPEFYP024MA144A	DUCTED CONCELLED	NOTES 1, 2, 3, 4, 5, 6, 7
TU-102	CONFERENCE/LUNCH	455	_	16,900	17,100	15,000	17,000	208-1	E.C.	MFR	15	MITSUBISHI	TPCFYP015KM140B	CEILING-SUSPENDED	NOTES 1, 2, 3, 4, 5, 6
TU-103	OFFICE	455	_	4,000	4,300	15,000	17,000	208-1	E.C.	MFR	15	MITSUBISHI	TPCFYP015KM140B	CEILING-SUSPENDED	NOTES 1, 2, 3, 4, 5, 6
TU-104	MECH/ELECTRICAL	455	_	10,400	11,600	15,000	17,000	208-1	E.C.	MFR	15	MITSUBISHI	TPCFYP015KM140B	CEILING-SUSPENDED	NOTES 1, 2, 3, 4, 5, 6
TU-105	LOCKER	280	_	3,600	4,400	5,000	5,600	208-1	E.C.	MFR	15	MITSUBISHI	TPLFYP005FM140A	CEILING-CASSETTE (FOUR WAY)	NOTES 1, 2, 3, 4, 5, 6
TU-108	MUD ROOM	370	0.6	11,500	10,300	12,000	13,500	208-1	E.C.	MFR	15	MITSUBISHI	TPEFYP012MA144A	DUCTED CONCELLED	NOTES 1, 2, 3, 4, 5, 6, 7

NOTES:
1. INDOOR UNITS SELECTED FOR SPACE PEAK LOADS.
2. PROVIDE 30% FILTERS FOR EACH UNIT. FILTER SHOULD BE INTEGRAL WITH THE UNIT.
3. UNIT SHALL BE PROVIDED WITH BUILT-IN CONDENSATE PUMP.
4. CONFIRM ORIENTATION OF UNITS ON PLAN AND VERIFY MANUFACTURER RECOMMENDED MAINTENANCE CLEARANCE IS MAINTAINED.
5. REFER TO SPECIFICATION 23 81 45 FOR DESCRIPTION OF CONTROLS.
6. REFER TO 2/M5.1 FOR VRF CONTROL DIAGRAM.
7. INDOOR UNIT CFM SELECTED AT HIGH CFM. INDOOR UNIT SHALL HAVE CAPABILITY TO ADJUST CFM FOR FINAL AIR BALANCING UP OR DOWN THROUGH FIELD ADJUSTMENT.
8. EASY MAINTENANCE WITH SERVICE ACCESS FROM BELOW.
9. DUCTED CONCEALED UNITS SHALL BE PROVIDED WITH SUPPLY AND RETURN DUCT FLANGES.
10. BRANCH SELECTOR BOXES ARE ARRANGED TO INDICATE SIMILARLY LOADED SPACES. REFER TO DRAWINGS FOR EXACT ZONING AND PIPING ARRANGEMENT AND LAYOUT.

VRF MODULAR OUTDOOR UNIT SCHEDULE

SYMBOL	SERVICE	NOMINAL DESIGN TONS	REFRIGERANT	COOLING		HEATING		MAX NET WEIGHT LBS.	NUMBER OF CONNECTED INDOOR UNITS	CONNECTION RATIO (%)	ELECTRICAL (NOTE 2)							MANUFACTURER	MODEL	REMARKS
				NOMINAL MBH (NOTE 3)	DESIGN MBH (NOTE 4)	NOMINAL MBH (NOTE 3)	DESIGN MBH (NOTE 5)				VOLT-PHASE	SCCR	MODULE 2 MCA	MODULE 2 MOCP	DISCONNECT BY (NOTE A)	CONTROLLER/STARTER BY (NOTE A)	CONTROLLER/STARTER SCCR			
ACCU-1	ADMINISTRATION AREA	8	R410-A	96,000	88100	108000	68723.1	613	6	89.58	208-3	5kA	31	45	E.C.	MFR	_	MITSUBISHI	TURYE0963AN40AN	NOTES 1,2,3,4,5,6,7,8,9,10

NOTES:
1. UNITS SHALL BE SELECTED FOR DESIGN COOLING LOAD.
2. COORDINATE ELECTRICAL CONNECTIONS WITH MFR. UNIT IS SUPPLIED AS MULTIPLE MODULES. EACH MODULE REQUIRES A SEPARATE ELECTRICAL CONNECTION AND DISCONNECT.
3 NOMINAL HEATING CAPACITY RATED AT: INDOOR TEMP = 70°FDB, OUTDOOR TEMP = 47°FDB.
4 NOMINAL COOLING CAPACITY RATED AT: INDOOR TEMP = 80°FDB/67°FWB, OUTDOOR TEMP = 95°FDB.
5 DESIGN COOLING CAPACITY SHALL BE RATED AT: INDOOR TEMP = 74°FDB/61.7°FWB, OUTDOOR TEMP = 95°FDB.
6 DESIGN HEATING CAPACITY SHALL BE RATED AT: INDOOR TEMP = 70°FDB, OUTDOOR TEMP = -10°FDB.
7 ADD FIELD CHARGE LISTED IS IN ADDITION TO FACTORY CHARGE, THIS MUST BE UPDATED BASED UPON FINAL AS-BUILT PIPING LAYOUT.
8 PROVIDE PANEL HEATER KIT TO PREVENT ICE BUILDUP ON THE OUTDOORDRAIN PAN.
9 PROVIDE SNOW/HAIL KIT TP PREVENT DAMAGE OR SNOW BUILD-UP IN SEVERE WINTER CLIMATES.
10. REFER TO 3/M5.1 FOR VRF CONTROL DIAGRAM.

CABINET HEATER SCHEDULE - ELECTRIC

SYMBOL	SERVICE	TYPE	NOMINAL CFM	CONTROL	CABINET			ELECTRICAL								MANUFACTURER	MODEL	REMARKS
					H	W	D	FAN HP	RPM	ELEMENT KW	VOLT/ PHASE/ WIRE	FLA/ RLA	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/ STARTER BY (NOTE A)	CONTROLLER/ STARTER SCCR		
CAB-1	VESTIBULE	HORIZONTAL DUCTED TYP.	1,200	24v	18	18	36	1/4	–	10	208-3	1.7	MFR	NF	MFR	5kA	BRASCH	P-962	NOTES 1,2

NOTES:
1. COORDINATE COLOR SELECTION WITH ARCHITECT.
2. REFER TO 3/M5.0 FOR CONTROL DIAGRAM.

VRF BRANCH SELECTOR BOX SCHEDULE

SYMBOL	ASSOCIATED CONDENSING UNIT	REFRIGERANT	NUMBER OF PORTS	ELECTRICAL					WEIGHT (LBS)	MANUFACTURER	MODEL	REMARKS
				MCA	MOCP	VOLT-PHASE	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)				
BC-1	ACCU-1	R-410A	6	0.6	20	208-1	EC	NF	64	MITSUBISHI	TCMBG0106SJ11N4	NOTES 1,2,3,4,5

NOTES:
1. INCLUDE DIAMONDBACK BALL VALVES BV-SERIES, 700PSIG WORKING PRESSURE, FULL PORT, 410A RATED.
2. FOR SUB BC CONTROLLER CMB-P-NU-GB1 OR -GB, THE TOTAL CONNECTABLE INDOOR UNIT CAPACITY CAN BE 126,000 BTUS OR LESS. IF TWO SUB BC CONTROLLERS ARE USED, THE TOTAL INDOOR UNIT CAPACITY CONNECTED TO BOTH SUB BC CONTROLLERS ALSO CANNOT 126,000 BTUS. FOR SUB BC CONTROLLER CMB-P1016NU-1016NU-HB1, THE TOTAL UNIT CAPACITY CONNECTED TO BOTH SUB CONTROLLERS MUST NOT EXCEED 168,000 BTUS.
3. FOR DETAILS REGARDING INSTALLATION SPECIFICS, PLEASE REFER TO THE PRODUCT'S INSTALLATION MANUAL.
4. PROVIDE UNIT WITH A CONDENSATE PUMP.
5. BRANCH SELECTOR BOXES ARE ARRANGED TO INDICATE SIMILARLY LOADED SPACES. REFER TO DRAWINGS FOR EXACT ZONING AND PIPING ARRANGEME...

FAN SCHEDULE

SYMBOL	SERVICE	CFM	S.P. IN. W.C.	WHEEL DIA. INCHES	FAN RPM (NOTE F)	DRIVE	MAX. AMCA SONES	BACKDRAFT DAMPER	CURB TYPE (NOTE G)	VIBRATION ISOLATION		ELECTRICAL								MANUFACTURER	MODEL	CONTROL
										TYPE	DEFL.	BHP (NOTE E)	MHP (NOTE E)	VOLT-PHASE	DISCONNECT BY (NOTE A)	DISCONNECT TYPE (NOTE B)	CONTROLLER/STARTER BY (NOTE A)	CONTROLLER/STARTER TYPE (NOTE C)	CONTROLLER/STARTER SCCR			
EF-1	VEHICAL MAINTANENCE BAY	4,500	0.75	33.5	1,031	BELT	29	ELECTRIC	–	–	–	1.83	3.0	208-3	EC	F	EC	FV	5kA	LOREN COOK	XMPH	1/M5.0
SF-1	VEHICAL MAINTANENCE BAY	4,500	1	26.0	1,222	BELT	18.5	ELECTRIC	–	SPRING	1.1	1.68	2.0	208-3	EC	F	EC	FV	5kA	LOREN COOK	SQN-B	1/M5.0

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 06 APR 2023
Drawn ABR
Checked BLH

REVISIONS
NO. | DATE | DESCRIPTION

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MECHANICAL SCHEDULES

M6.1

UNIT HEATER SCHEDULE - ELECTRIC

SYMBOL	SERVICE	TYPE	CFM	EAT °F	LAT °F	STAGES	ELECTRICAL								CONTROL	MANUFACTURER	MODEL	REMARKS
							FAN HP	RPM	KW	VOLT/ PHASE/ WIRE	FLA/ RLA	DISCONNECT		CONTROLLER/STARTER				
												BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)				
UH-1	VEHICAL MAINTANENCE BAY	HORIZONTAL PROJECTION	700	45	90	1	1/50	1,550	10.0	208-3	27.1	MFR.	NF	MFR.	2/M5.0	TRANE	UHEC	NOTE 1
UH-2	VEHICAL MAINTANENCE BAY	HORIZONTAL PROJECTION	700	45	90	1	1/50	1,550	10.0	208-3	27.1	MFR.	NF	MFR.	2/M5.0	TRANE	UHEC	NOTE 1
UH-3	VEHICAL MAINTANENCE BAY	HORIZONTAL PROJECTION	700	45	90	1	1/50	1,550	10.0	208-3	27.1	MFR.	NF	MFR.	2/M5.0	TRANE	UHEC	NOTE 1
UH-4	VEHICAL MAINTANENCE BAY	HORIZONTAL PROJECTION	700	45	90	1	1/50	1,550	10.0	208-3	27.1	MFR.	NF	MFR.	2/M5.0	TRANE	UHEC	NOTE 1
UH-5	VEHICAL MAINTANENCE BAY	HORIZONTAL PROJECTION	700	45	90	1	1/50	1,550	10.0	208-3	27.1	MFR.	NF	MFR.	2/M5.0	TRANE	UHEC	NOTE 1
UH-6	VEHICAL MAINTANENCE BAY	HORIZONTAL PROJECTION	700	45	90	1	1/50	1,550	10.0	208-3	27.1	MFR.	NF	MFR.	2/M5.0	TRANE	UHEC	NOTE 1

NOTES:
1. COORDINATE COLOR SELECTION WITH THE ARCHITECT.

COIL SCHEDULE - ELECTRIC HEATING

SYMBOL	SERVICE	CFM	SIZE (IN.) L x H	EAT °F	LAT °F	ELECTRICAL							TYPE OF CONTROL	MANUFACTURER	MODEL	REMARKS
						KW	NO. OF STEPS	VOLT-PHASE	DISCONNECT		CONTROLLER/ STARTER					
									BY (NOTE A)	TYPE (NOTE B)	BY (NOTE A)	SCCR				
HC-1	VEHICAL GARAGE	2,700	28X20	-10	60	59.8	NOTE-2	208-3	E.C.	NF	MFR	_	1/M5.0	CHROMALOX	DHOC	NOTES 1,2,3,4,5

NOTES:
1. REFER TO REFERENCED CONTROL DIAGRAM FOR ADDITIONAL INFORMATION.
2. ELECTRIC HEATING COIL SHALL BE PROVIDED WITH SCR CONTROL FOR INFINITE STEPS OF HEATING.
3. ELECTRIC HEATING COIL SHALL BE PROVIDED WITH FAN RELAY DEVICE.
4. ELECTRIC HEATING COIL SHALL BE PROVIDED WITH CONTROL TRANSFORMER.
5. PROVIDE WITH CONTROL SECTION AND ASSOCIATED POWER RELAY.

LOUVER SCHEDULE

SYMBOL	SERVICE	CFM	SIZE W x H (IN.)	FREE AREA VEL. FPM	S.P. IN. W.C.	FINISH	MANUFACTURER	MODEL	REMARKS
OAL-1	VEHICAL MAINTANENCE BAY	4,500	42x48	614	0.1	TYPE-1	RUSKIN	ELF375DX	–

FINISH TYPE:

TYPE 1 PVDF (KYNAR 500, HYLAR 5000, OR DURANAR). STANDARD COLOR - SELECTION BY ARCHITECT.

LINEAR DIFFUSER SCHEDULE

SYMBOL	MATERIAL	SLOT WIDTH	NO. SLOTS	BAR WIDTH	BAR SPACING	WIDTH INCHES	LENGTH FEET	PLENUM REQUIRED	PLENUM INSULATION	PLENUM INLET SIZE	PATTERN CONTROL REQUIRED	BALANCING DAMPER REQUIRED	FINISH	MANUFACTURER	MODEL	REMARKS
LD-1	ALUMINUM	1.5"	1	N/A	N/A	3-3/4	4	YES	LINED	SEE DWG.	YES	NO	WHITE	TITUS	FL-HT	NOTES 1, 2, 3, 4
LD-2	ALUMINUM	2.5"	1	N/A	N/A	5-3/4	5	YES	LINED	SEE DWG.	YES	NO	WHITE	TITUS	FL-HT	NOTES 1, 2, 3, 4
LDR-1	ALUMINUM	1.5"	1	N/A	N/A	3-3/4	4	YES	LINED	SEE DWG.	YES	NO	WHITE	TITUS	FL-JT	NOTES 1, 2, 3, 4
LDR-2	ALUMINUM	2.5"	1	N/A	N/A	5-3/4	5	YES	LINED	SEE DWG.	YES	NO	WHITE	TITUS	FL-HT	NOTES 1, 2, 3, 4

NOTES:
1. CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING CONSTRUCTION.
2. PROVIDE WITH CONCEALED FASTENERS.
3. DIFFUSERS WITH MULTIPLE SLOTS SHALL HAVE THE INNER MOST SLOT DIRECTED TOWARDS THE INTERIOR OF THE BUILDING, THE REMAINING SHALL BE DIRECTED TOWARDS THE EXTERIOR UNLESS NOTED OTHERWISE.
4. PROVIDE WITH CUSTOM PLENUM HEIGHT OR EXTENSION COLLER WITHIN THE DIFFUSER WHERE APPLICABLE IN THE FIELD.

GRILLES REGISTERS & DIFFUSERS SCHEDULE

SYMBOL	MAT'L	TYPE	MARGIN (NOTE 1)	INLET SIZE (INCH)	FACE SIZE (INCH)	VOLUME DAMPER REQ'D	FINISH	MANUFACTURER	MODEL	REMARKS
RG-1	STEEL	35° DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350R	–
SG-1	STEEL	DOUBLE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	300R	FRONT BLADES VERTICAL UNLESS NOTED OTHERWISE
SG-2	ALUMINIUM	DOUBLE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	S300FS	DUCT MOUNTED
EG-1	STEEL	35° DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	350R	–
EG-2	ALUMINIUM	DOUBLE DEFLECTION	1 1/4"	SEE DWG.	INLET +2	NO	WHITE	TITUS	S300FS	DUCT MOUNTED

NOTES:
1. CONTRACTOR SHALL DETERMINE PROPER MARGIN STYLE TO MATCH CEILING CONSTRUCTION.
2. ALL RUN OUT DUCTWORK TO DIFFUSERS SHALL BE NECK SIZE UNLESS OTHERWISE NOTED.

MOTOR OPERATED DAMPER SCHEDULE

SYMBOL	SERVICE	SIZE W x H (IN.)	CFM		OPPOSED OR PARALLEL BLADES	HORIZONTAL OR VERTICAL BLADES	INSULATED	ACTUATOR TYPE	ACTUATOR STYLE	POWER FAILURE POSITION	POSITIVE POSITION FEEDBACK	REMARKS
			MAX.	MIN.								
MOD-1	VEHICAL MAINTANENCE BAY	28x20	4,500	0	OPPOSED BLADES	HORIZONTAL	NO	ELECTRIC	MODULATING	CLOSED	YES	NOTE 1

NOTES:
1. COORDINATE DAMPER ACTUATOR LOCATION AND MOUNTING REQUIREMENTS WITH TEMPERATURE CONTROL CONTRACTOR.

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
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WA No. 2020-008
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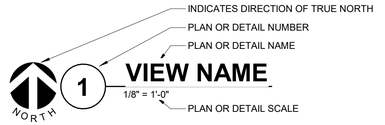
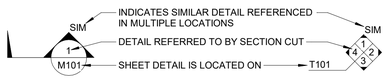
MECHANICAL SCHEDULES

M6.2

VIEW KEY

(1) — INDICATES NOTE USED TO DESCRIBE ADDITIONAL INFORMATION ABOUT WORK REQUIRED, SPECIFIC TO THE SHEET AND/OR DETAIL





LINE TYPE AND TAG KEY:

NEW WORK BY THIS CONTRACTOR (WIDE LINE)
NEW

EXISTING TO REMAIN OR WORK BY OTHERS (NARROW LINE)
EXISTING

HALFTONING DOES NOT MODIFY SCOPE.

TAG — UNDERLINED TAG INDICATES OBJECT IS IN-SCOPE. IF NEW, ADDITIONAL INFORMATION IS AVAILABLE IN A SCHEDULE, MATERIAL LIST, OR SYMBOL LIST

INDICATES AN EXISTING SYSTEM'S POINT OF CONNECTION/REMOVAL

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
S_3	SW-3W	26 09 33	SWITCH - THREE WAY
S_O	SW-OC-P-O	26 09 33	SWITCH - OCCUPANCY SENSOR WALL SWITCH
SW	SW	26 09 33	WALL CONTROL STATION
LS	SW-LS	26 09 33	DAYLIGHT LEVEL SENSOR
OC VS	SW-OC-D	26 09 33	OCCUPANCY/VACANCY SENSOR - DUAL TECHNOLOGY
OC_{HB}	SW-OC-P-HB	26 09 33	OCCUPANCY SENSOR - HIGH BAY
PC	SW-PC	26 09 33	PHOTOCELL - BUILDING MOUNTED
	TC-#	26 09 33	TIMECLOCK

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
E / E	ECONN	26 05 33	ELECTRICAL CONNECTION
J / J	JB	26 05 33	JUNCTION BOX
	PANEL '####'	26 24 16	PANELBOARD - SURFACE MOUNT
	MX-#/FCS-#	26 24 19	MANUAL SWITCH / COMBINATION STARTER. REFER TO DISC/STA SCHEDULE
	TR-#	26 22 00	TRANSFORMER. REFER TO TRANSFORMER SCHEDULE
	FDS-#	26 28 16	DISCONNECT. REFER TO DISC/STA SCHEDULE

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	REC-DUP	26 27 26	DUPLEX RECEPTACLE, 125V
	REC-DUP-GFI	26 27 26	DUPLEX GFI RECEPTACLE, 125V
W	REC-DUP-WP	26 27 26	DUPLEX GFI WEATHERPROOF RECEPTACLE
	REC-SIM-520R	26 27 26	SIMPLEX RECEPTACLE, 125V
	REC-SIM-620R	26 27 26	RECEPTACLE, 6-20R, 250V
	REC-SIM-1430R	26 27 26	RECEPTACLE, 14-30R, 125/250V
	REC-QUAD	26 27 26	QUAD RECEPTACLE, 125V
	REC-QUAD-GFI	26 27 26	QUAD GFI RECEPTACLE, 125V
O	REC-DUP-O	26 27 26	DUPLEX RECEPTACLE SPLIT CONTROLLED BY OCCUPANCY
O	REC-QUAD-O	26 27 26	QUAD RECEPTACLE SPLIT CONTROLLED BY OCCUPANCY

ELECTRICAL EQUIPMENT TAGS

TAG:	DESCRIPTION:	RELATED SPECIFICATION
MDP-#	MAIN DISTRIBUTION PANEL	26 24 16
HH-#	HANDHOLE	26 05 33
SPD-#	SURGE PROTECTION DEVICE	26 43 00

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	FACP-#	28 31 00	FIRE ALARM CONTROL PANEL
S	FA-120	28 31 00	FIRE ALARM SMOKE DETECTOR, CEILING MOUNT
	FA-121	28 31 00	GAS DETECTION, CEILING MOUNT CARBON MONOXIDE
F	FA-130	28 31 00	FIRE ALARM MANUAL PULL STATION
#	FA-200	28 31 00	FIRE ALARM VISUAL ALARM DEVICE, WALL MOUNT # = CANDELA RATING.
F	FA-263	28 31 00	ELECTRIC BELL FOR SPRINKLER SYSTEM
F #	FA-211	28 31 00	COMBINATION AUDIO HORN/CHIME AND VISUAL ALARM DEVICE, CEILING OR WALL MOUNTED # = CANDELA RATING
MM	FA-160	28 31 00	FIRE ALARM ADDRESSABLE MONITOR MODULE
CM	FA-161	28 31 00	FIRE ALARM ADDRESSABLE CONTROL MODULE

ELECTRICAL SYMBOL LIST

SYMBOL:	TAG:	SPEC SECTION:	DESCRIPTION:
	REFER TO LUMINAIRE SCHEDULE		LINEAR LUMINAIRES
			DOWNLIGHT LUMINAIRE
			POLE MOUNTED LUMINAIRE
			SINGLE FACE EXIT SIGN
			DOUBLE FACE EXIT SIGN
			WALL/CEILING EMERGENCY EXIT SIGN
			EMERGENCY UNIT

ELECTRICAL SHEET INDEX

E0.0	ELECTRICAL COVERSHEET
E0.1	ELECTRICAL SITE PLAN
E0.2	SITE PLAN PHOTOMETRICS
E1.1	FIRST FLOOR PLAN - LIGHTING
E2.1	FIRST FLOOR PLAN - POWER
E3.1	FIRST FLOOR PLAN - SYSTEMS
E4.0	ELECTRICAL DETAILS
E4.1	ELECTRICAL DETAILS
E5.0	ELECTRICAL DIAGRAMS
E6.0	ELECTRICAL SCHEDULES
E7.0	ELECTRICAL PANEL SCHEDULES
GRAND TOTAL: 11	

ELECTRICAL GENERAL NOTES:

1. **{L###}** INDICATES THE LIGHTING SEQUENCE OF OPERATION FOR THE SPACE. REFER TO THE LIGHTING SEQUENCE OF OPERATION MATRIX ON SHEET E6.0
2. REFER TO SHEET E6.0 FOR LUMINAIRE SCHEDULE.
3. VACANCY/OCCUPANCY SENSOR LAYOUT: SENSORS ARE SHOWN ON THE PLANS FOR DESIGN INTENT AND MAY NOT REPRESENT EVERY DEVICE. PROVIDE MANUFACTURER SPECIFIC FLOOR PLAN LAYOUTS SHOWING LOCATION, ORIENTATION, AND COVERAGE AREA OF EACH CONTROL DEVICE, SENSOR, AND CONTROLLER/INTERFACE. AREAS REQUIRING MULTIPLE SENSOR DEVICES FOR APPROPRIATE COVERAGE, SUBMIT SPECIFIC MANUFACTURER-APPROVED SENSOR LAYOUT AS AN OVERLAY DIRECTLY ON THE PROJECT DRAWINGS, EITHER IN PRINT OR APPROVED ELECTRONIC FORM.

LUMINAIRE KEY:

LUMINAIRE — F1 = FIXTURE TAG; 1 = CIRCUIT NUMBER; a = SWITCH DESIGNATION; NL = SUBSCRIPT (IF APPLICABLE)

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: F1 / 1 / a / NL

DEVICE KEY:

DEVICE — A = MOUNTING (IF APPLICABLE); 1 = CIRCUIT NUMBER

*IF LABEL IS ORIENTED HORIZONTALLY A SLASH WILL SEPARATE THIS INFORMATION. EX: A / 1

ELECTRICAL MOUNTING SUBSCRIPT KEY:

A MOUNT AT +6" TO CENTERLINE ABOVE COUNTER OR BACKSPLASH
C MOUNT AT CEILING
EWC ELECTRIC WATER COOLER

ELECTRICAL INSTALLATION NOTES:

1. THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE ADA STANDARDS FOR ACCESSIBLE DESIGN.
2. CIRCUIT NUMBERS ARE SHOWN FOR CIRCUIT IDENTIFICATION. CIRCUITING SHALL AGREE WITH NUMBERING ON THE PANEL PROVIDED. COMMON NEUTRALS MAY NOT BE USED FOR BRANCH CIRCUITS. BALANCE THE LOAD ON PANEL AS EVENLY AS POSSIBLE BETWEEN EACH PHASE.
3. FLUSH MOUNT ALL LIGHTING CONTROL DEVICES AT +42" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED.
4. FLUSH MOUNT ALL DUPLEX RECEPTACLES AT +18" FROM FLOOR (CENTERLINE DIMENSION), EXCEPT WHERE OTHERWISE NOTED. MOUNT EXTERIOR LOCATED RECEPTACLES WITH WHILE-IN-USE COVERS AT +20" FROM FINISHED GRADE (CENTER DIMENSIONS) TO MAINTAIN INSTALLATION ADA COMPLIANCE.
5. ALL MATERIALS USED TO SEAL PENETRATIONS OF FIRE RATED WALLS AND FLOORS SHALL BE TESTED AND CERTIFIED AS A SYSTEM PER ASTM E814 STANDARDS FOR FIRE TESTS OF THROUGH-PENETRATION FIRESTOPS. REFER TO 26 05 03 FOR ADDITIONAL INFORMATION AND REQUIREMENTS SPECIFIC TO FIRESTOPPING.
6. CONNECTION FOR ELECTRIC WATER COOLERS (EWC) SHALL BE A JUNCTION BOX CONCEALED BEHIND WATER COOLER ACCESS PLATE OR BE A GFI RECEPTACLE LOCATED DIRECTLY BELOW AND CENTERED ON EWC. CONTRACTOR SHALL VERIFY TYPE OF EWC TO BE INSTALLED.
7. MOUNT ALL FIRE ALARM PULL STATIONS AT +42" FROM FLOOR (CENTERLINE DIMENSION) EXCEPT WHERE OTHERWISE NOTED.
8. INSTALL ALL WALL MOUNTED FIRE ALARM NOTIFICATION DEVICES AT 90" ABOVE FINISHED FLOOR OR 6" BELOW THE CEILING, WHICHEVER IS LOWER, EXCEPT WHERE OTHERWISE NOTED. HEIGHT SHALL BE MEASURED TO THE TOP OF THE DEVICE.
9. CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CEILING MOUNTED DEVICES AND EQUIPMENT WITH LUMINAIRES, SPRINKLER, AND CEILING DIFFUSERS. CENTER ALL DEVICES IN CEILING TILE PATTERN. SMOKE DETECTORS AND OCCUPANCY/VACANCY SENSORS SHALL BE LOCATED NO CLOSER THAN 3 FEET TO AN AIR SUPPLY DIFFUSER OR RETURN GRILLE.
10. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OPENINGS REQUIRED IN WALLS. ALL OPENINGS SHALL BE REPAIRED TO MATCH EXISTING BY A QUALIFIED CONTRACTOR AT THE EXPENSE OF THIS CONTRACTOR. ALL CONDUITS THROUGH WALLS SHALL BE GROUTED OR SEALED INTO OPENINGS.
11. ALL WELDING SHALL BE ACCORDING TO AMERICAN WELDING SOCIETY STANDARDS. CONTRACTOR SHALL FURNISH TO THE ARCHITECT/ENGINEER CERTIFICATES QUALIFYING EACH WELDER, PRIOR TO START OF WORK. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO REQUIRE QUALIFYING DEMONSTRATION, AT THE CONTRACTOR'S EXPENSE, OF ANY WELDERS ASSIGNED TO THE JOB.
12. EACH CONTRACTOR IS RESPONSIBLE FOR DAMAGE CAUSED BY THEIR ACTIONS TO THE WALLS, FLOORS, CEILINGS, AND ROOFS. THE CONTRACTOR WHOSE WORK CAUSES DAMAGE IS RESPONSIBLE FOR PATCHING TO MATCH ORIGINAL CONSTRUCTION, FIRE RATING, AND FINISH.
13. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN, ELECTRICAL, TECHNOLOGY AUDIO/VISUAL, AND OTHER ELECTRICAL PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED DEVICES, OTHER THAN SPRINKLERS.
14. ELECTRICAL IDENTIFICATION. REFER TO SPECIFICATION SECTION 26 05 53 FOR COLOR/LABEL REQUIREMENTS FOR CONDUIT, BOX, CABLE/WIRE, AND EQUIPMENT.

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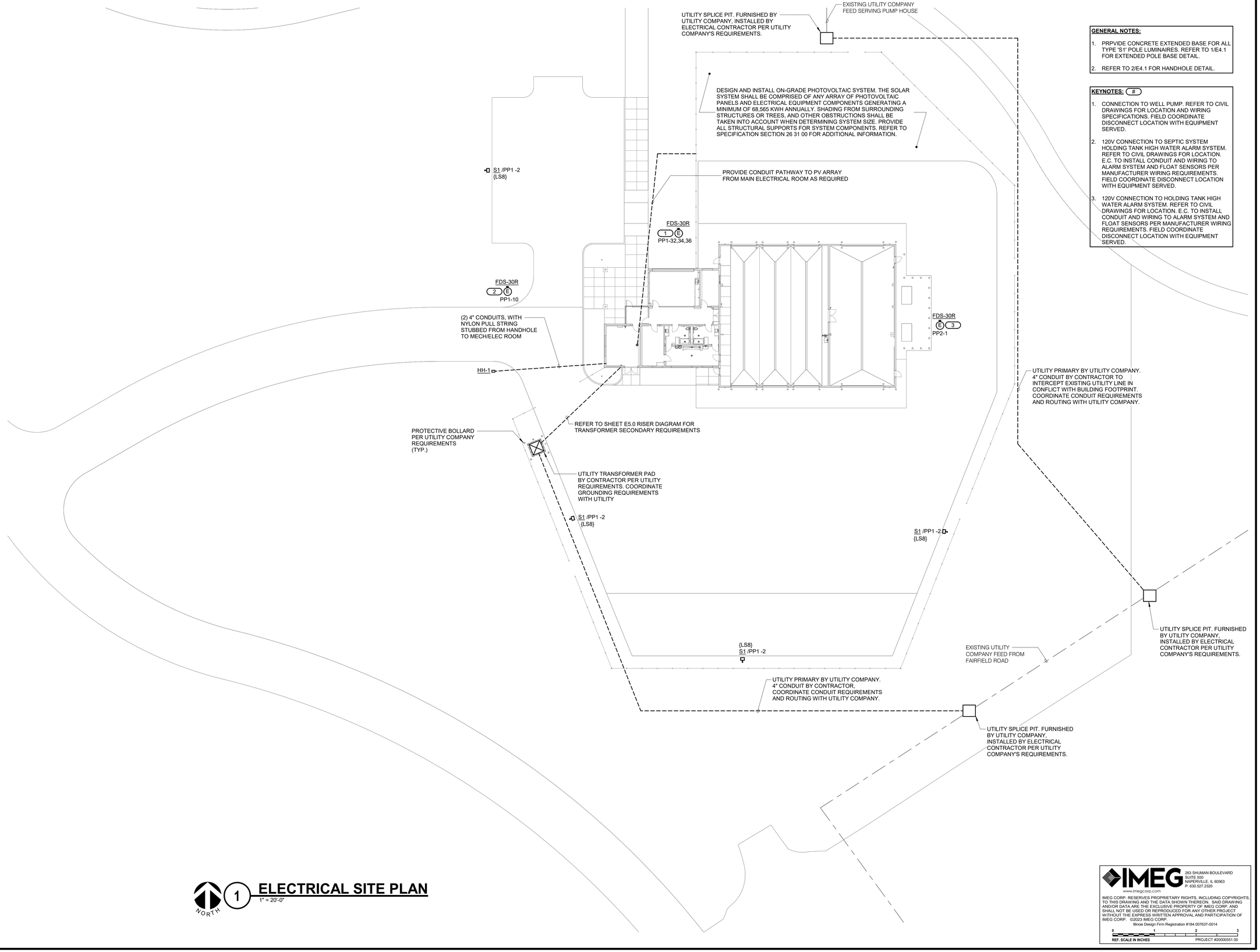
ELECTRICAL COVERSHEET

E0.0



GENERAL NOTES:

1. PRPVIDE CONCRETE EXTENDED BASE FOR ALL TYPE 'S1' POLE LUMINAIRES. REFER TO 1/E4.1 FOR EXTENDED POLE BASE DETAIL.
2. REFER TO 2/E4.1 FOR HANDHOLE DETAIL.

KEYNOTES: (#)

1. CONNECTION TO WELL PUMP. REFER TO CIVIL DRAWINGS FOR LOCATION AND WIRING SPECIFICATIONS. FIELD COORDINATE DISCONNECT LOCATION WITH EQUIPMENT SERVED.
2. 120V CONNECTION TO SEPTIC SYSTEM HOLDING TANK HIGH WATER ALARM SYSTEM. REFER TO CIVIL DRAWINGS FOR LOCATION. E.C. TO INSTALL CONDUIT AND WIRING TO ALARM SYSTEM AND FLOAT SENSORS PER MANUFACTURER WIRING REQUIREMENTS. FIELD COORDINATE DISCONNECT LOCATION WITH EQUIPMENT SERVED.
3. 120V CONNECTION TO HOLDING TANK HIGH WATER ALARM SYSTEM. REFER TO CIVIL DRAWINGS FOR LOCATION. E.C. TO INSTALL CONDUIT AND WIRING TO ALARM SYSTEM AND FLOAT SENSORS PER MANUFACTURER WIRING REQUIREMENTS. FIELD COORDINATE DISCONNECT LOCATION WITH EQUIPMENT SERVED.

NORTH 1 **ELECTRICAL SITE PLAN**
1" = 20'-0"

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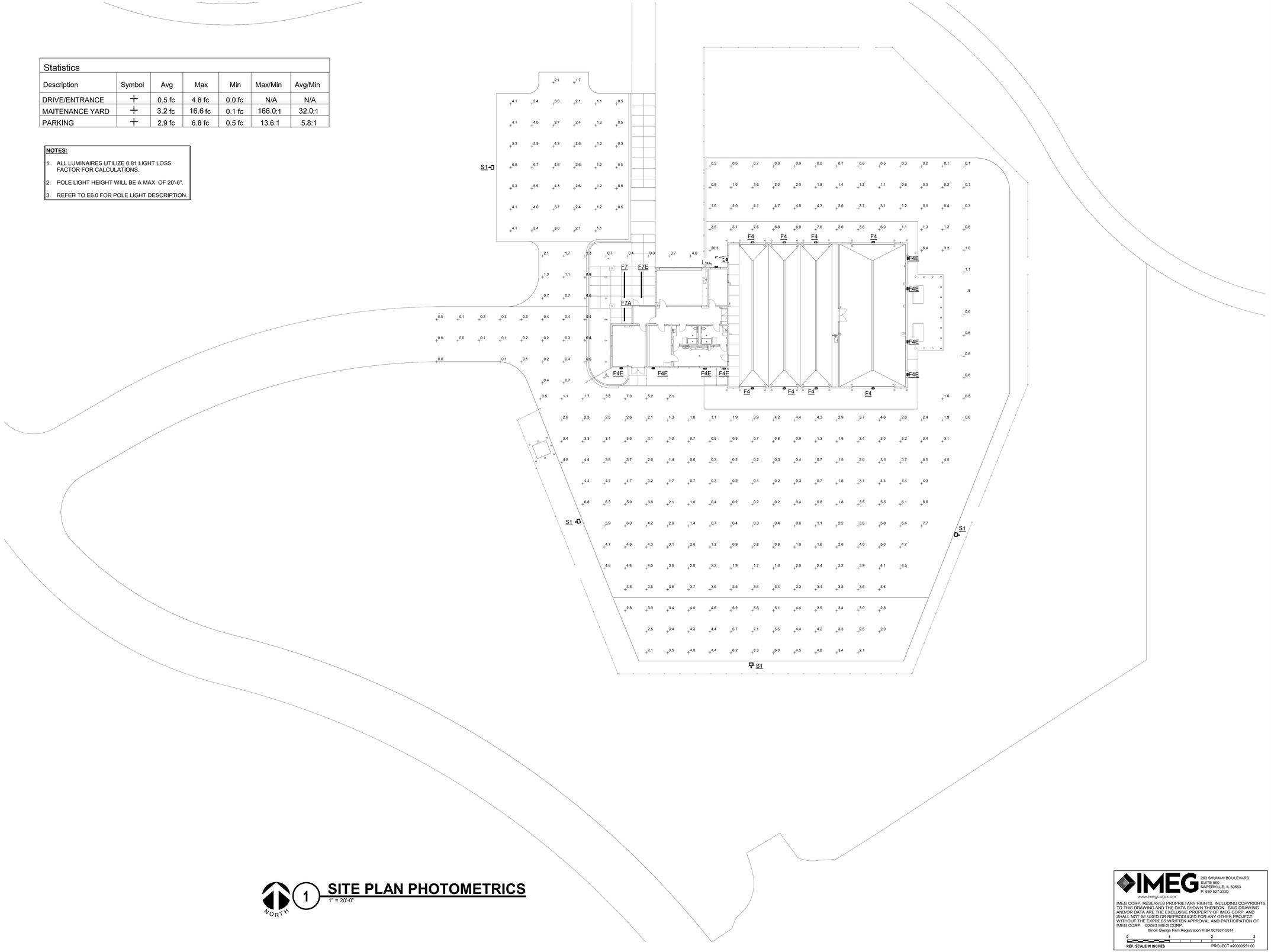
ELECTRICAL SITE PLAN

E0.1

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
DRIVE/ENTRANCE	+	0.5 fc	4.8 fc	0.0 fc	N/A	N/A
MAITENANCE YARD	+	3.2 fc	16.6 fc	0.1 fc	166.0:1	32.0:1
PARKING	+	2.9 fc	6.8 fc	0.5 fc	13.6:1	5.8:1

NOTES:

1. ALL LUMINAIRES UTILIZE 0.81 LIGHT LOSS FACTOR FOR CALCULATIONS.
2. POLE LIGHT HEIGHT WILL BE A MAX. OF 20'-6".
3. REFER TO E6.0 FOR POLE LIGHT DESCRIPTION.



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1 **SITE PLAN PHOTOMETRICS**
1" = 20'-0"

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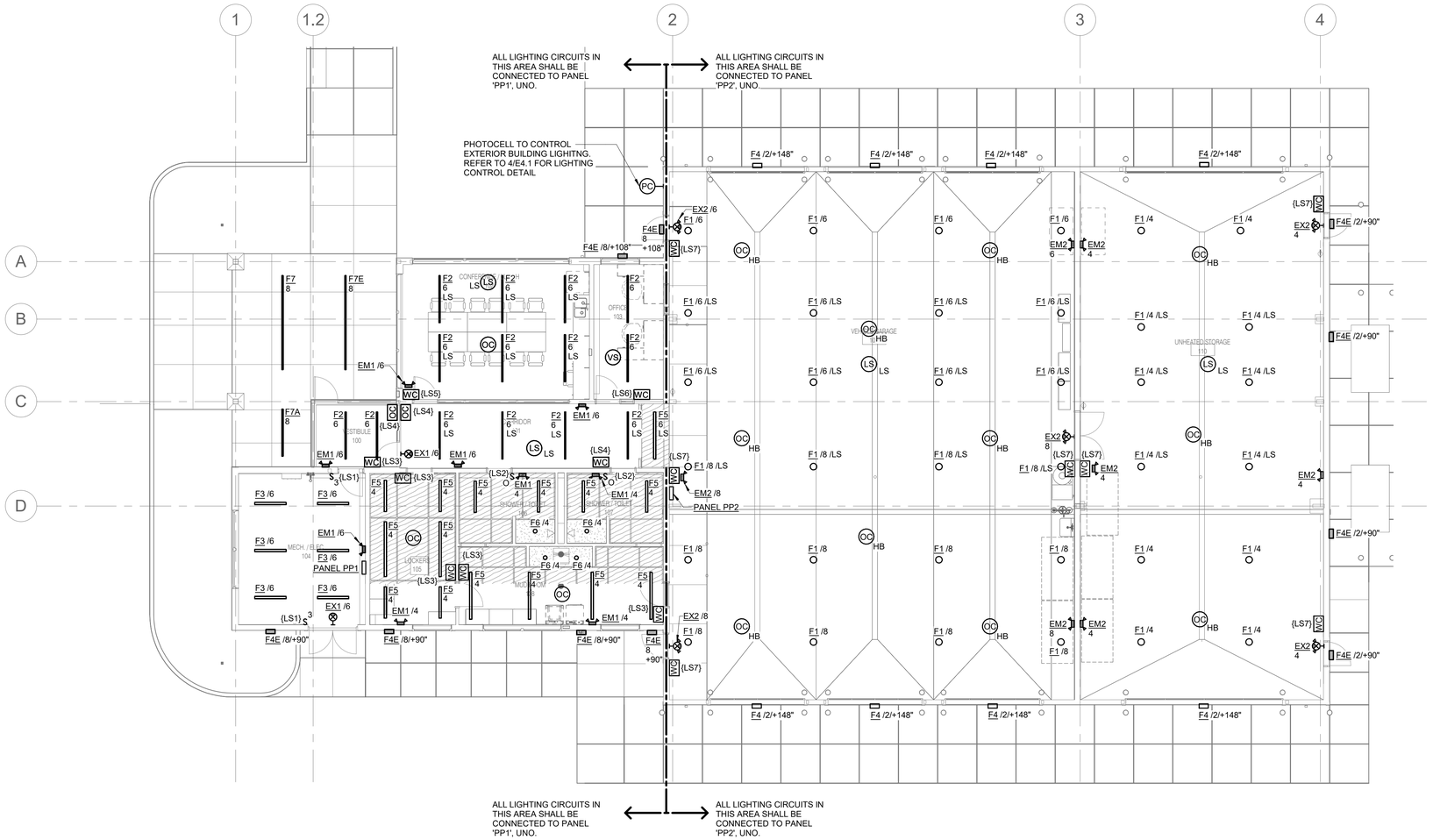
SITE PLAN PHOTOMETRICS

E0.2

GENERAL NOTES:

1. EXTERIOR BUILDING LIGHTING SHALL BE CONTROLLED BY LIGHTING SEQUENCE OF OPERATION {LS9}.



1 FIRST FLOOR PLAN - LIGHTING

1/8" = 1'-0"

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FIRST FLOOR PLAN - LIGHTING

E1.1

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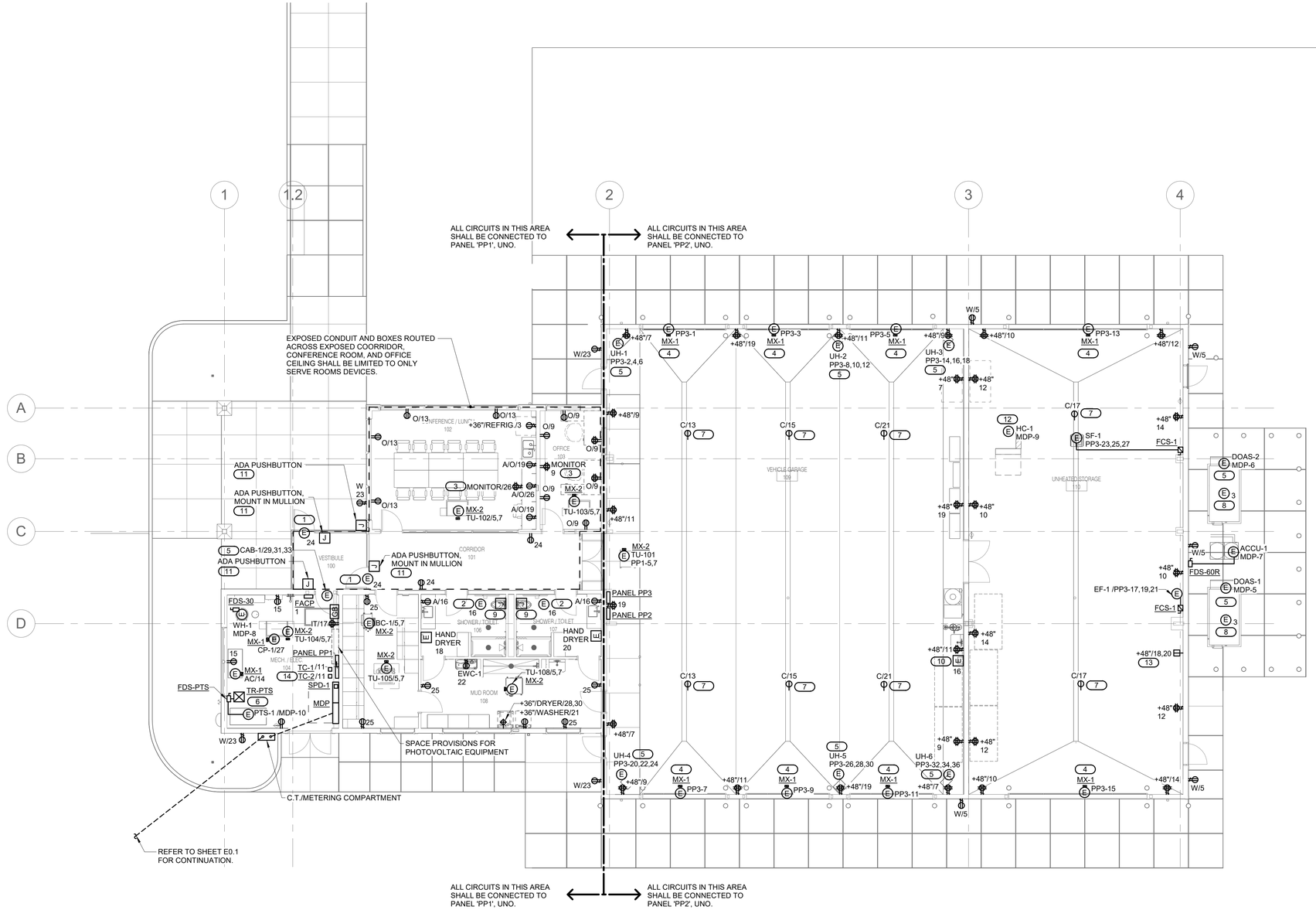
GENERAL SHEET NOTES:

1. REFER TO TECHNOLOY SERIES T DRAWINGS FOR TECHNOLOGY DEVICE BOX AND CONDUIT REQUIREMENTS.

KEYNOTES: (#)

1. CONNECTION TO DOOR OPERATOR AND TO PUSHPLATES PER MANUFACTURER'S WIRING REQUIREMENTS.
2. CONNECTION TO PLUMBING SENSOR TRANSFORMER FURNISHED BY P.C. AND INSTALLED BY E.C. ABOVE CEILING IN AN ACCESSIBLE LOCATION.
3. RECEPTACLE TO SERVE MONITOR. COORDINATE LOCATION WITH TECHNOLOGY DEVICES AND MONITOR MOUNTING BRACKET.
4. CONNECTION TO OVERHEAD DOOR. INSTALL ALL SAFETY AND CONTROL DEVICES PER MANUFACTURER'S REQUIREMENTS. ROUTE CONTROL WIRING IN 1/2" C. FROM MOTOR TO DOOR CONTROLLER. DOOR CONTROLLER SHALL BE LOCATED ON RIGHT SIDE OF DOOR.
5. DISCONNECT/STARTER PROVIDED WITH EQUIPMENT, WIRED BY E.C.
6. PUMP [PTS] SHALL BE FED FROM BUCK/BOOST TRANSFORMER, REFER TO RISER DIAGRAM AND TRANSFORMER SCHEDULE FOR ADDITIONAL INFORMATION. WALL MOUNT TRANSFORMER ABOVE DISCONNECT SWITCH. MOUNT PER MANUFACTURER'S REQUIREMENTS.
7. MOUNT RECEPTACLE AT CEILING SUPPORTS. RECEPTACLE PROVIDED FOR FUTURE OWNER FURNISHED CORD REEL.
8. 120V CONNECTION TO MANUFACTURER PROVIDED CONVENIENCE RECEPTACLE.
9. CONNECTION TO PLUMBING SENSOR. PROVIDE WIRING FROM PLUMBING SESNOR TRANSFORMER IN CONDUIT PER MANUFACTURER'S REQUIREMENTS.
10. 120V CONNECTION TO GAS DETECTION CONTROL PANEL. COORDINATE WIRING REQUIREMENTS WITH MECHANICAL CONTRACTOR.
11. COORDINATE EXACT LOCATION OF ADA PUSH PLATES WITH ARCHITECT PRIOR TO ROUGH-IN.
12. DISCONNECT AND FAN RELAY SWITCH PROVIDED WITH EQUIPMENT, WIRED BY E.C. PER MANUFACTURER'S WIRING REQUIREMENTS.
13. NEMA 6-20R TO SERVE OWNER FURNISHED LAWN MOWER CHARGER. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
14. MOUNT TIMECLOCKS ABOVE PANEL.



1 FIRST FLOOR PLAN - POWER

1/8" = 1'-0"

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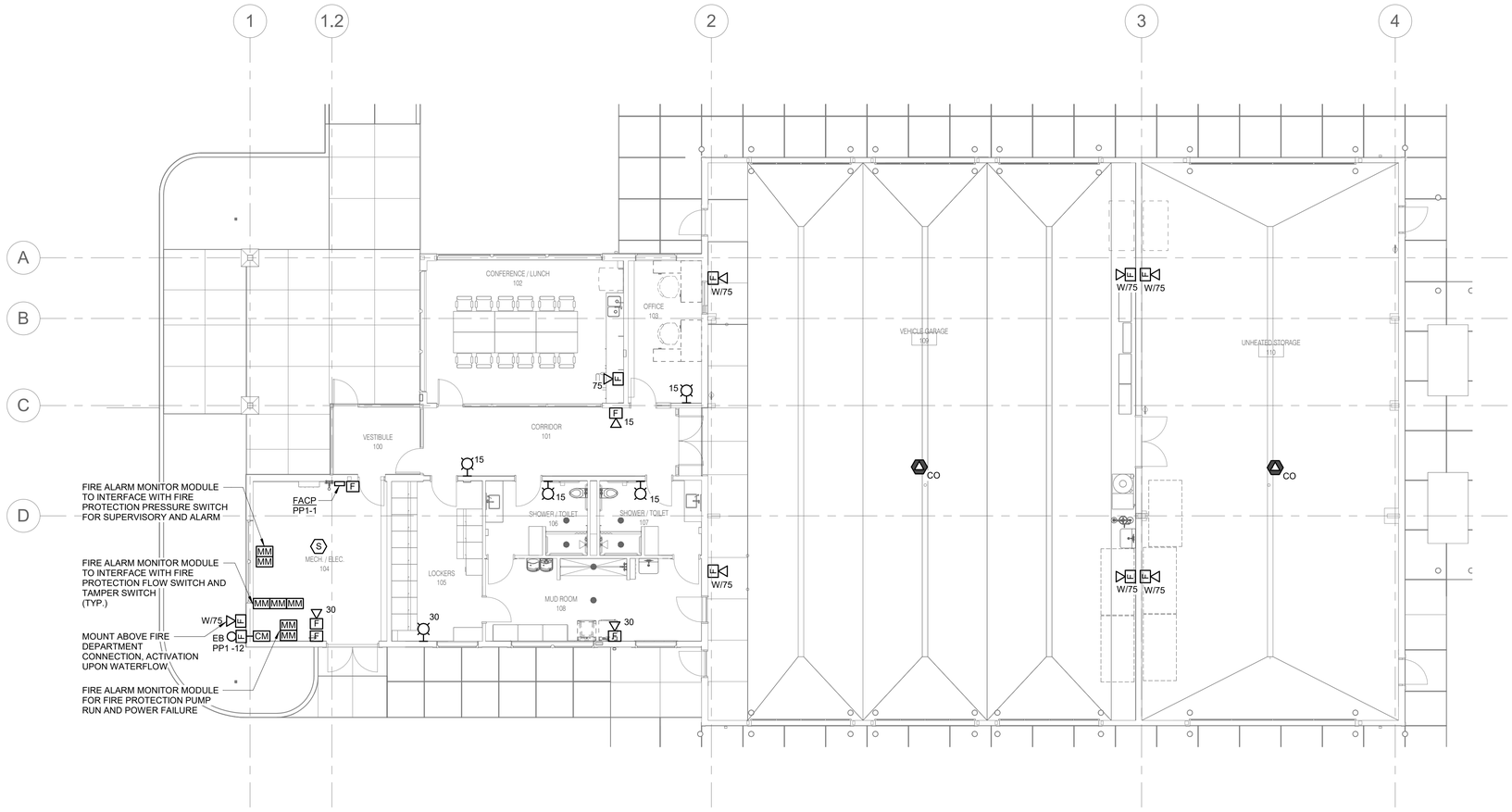
FIRST FLOOR PLAN - POWER

E2.1



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1 FIRST FLOOR PLAN - SYSTEMS

1/8" = 1'-0"

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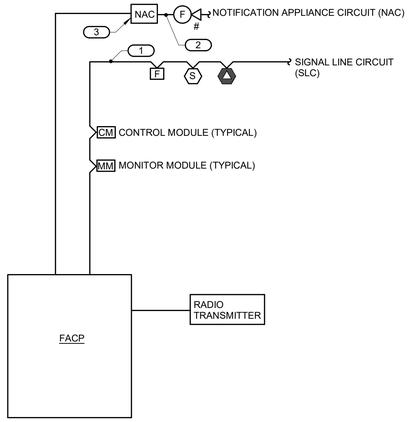
FIRST FLOOR PLAN - SYSTEMS

E3.1

SYSTEM INPUTS / SEQUENCE OF OPERATION		PANEL/ANNUNCIATOR ALARM INDICATION	PANEL/ANNUNCIATOR SUPERVISORY INDICATION	PANEL/ANNUNCIATOR TROUBLE INDICATION	AUDIBLE ALARMS SEQUENCE	VISUAL ALARMS SEQUENCE	CM ELECTRIC SPRINKLER BELL SEQUENCE	CM SPRINKLER PREACTION ACTIVATION SEQUENCE
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL LOW BATTERY			X					
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL BATTERY OR CHARGER FAILURE				X				
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL ABNORMAL SWITCH OR CONTROL POSITION.			X					
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT				X				
FIRE ALARM PANEL, TRANSPONDER, NAC PANEL AC POWER LOSS OR IRREGULARITY				X				
NOTIFICATION APPLIANCE CIRCUIT OR SLC LOOP GROUND FAULT, OPEN CIRCUIT, SHORT CIRCUIT				X				
INITIATING DEVICE FAILURE OR COMMUNICATION ERROR				X				
FIRE ALARM PANEL MANUAL FIRE DRILL			X		X	X		
MANUAL PULL STATION	F	X			X	X		
SMOKE DETECTOR	S	X			X	X		
SPRINKLER SYSTEM FLOW SWITCH	MM	X			X	X	X	X
SPRINKLER SYSTEM TAMPER SWITCH	MM		X					
CARBON MONOXIDE DETECTOR		X						

1 FIRE ALARM OPERATION MATRIX
NO SCALE



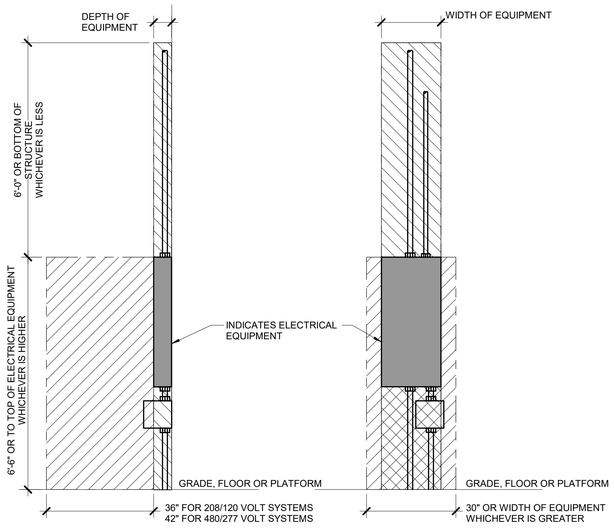
NOTES :

1. THE RISER DIAGRAM IS INTENDED TO CONVEY THE TYPES OF FIRE ALARM CONNECTIONS AND SPECIFICALLY DOES NOT INDICATE QUANTITIES, NUMBER OF CIRCUITS REQUIRED OR DISTANCES.
2. THE COMPLETE FIRE ALARM SYSTEM SHALL MEET ALL APPLICABLE CODES AND MANUFACTURER'S RECOMMENDATIONS.
3. CONTRACTOR SHALL COORDINATE ALL WIRE SIZES, TYPES AND REQUIREMENTS WITH THE VENDOR PRIOR TO BID. REFER TO SPECIFICATIONS TO DETERMINE CIRCUIT STYLES AND IF CONDUIT IS REQUIRED OR PLENUM RATED CABLE IS ACCEPTABLE.
4. ALL +120VAC WIRING REQUIRED FOR OPERATION OF THE SYSTEM AS DESCRIBED IN THE CONSTRUCTION DOCUMENTS SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.
5. ALL NECESSARY RELAYS MAY NOT BE SHOWN ON THIS PLAN, BUT WHERE REQUIRED FOR PROPER OPERATION OF THE SYSTEM THEY SHALL BE PROVIDED BY THE CONTRACTOR.

KEYNOTES: (#)

1. REFER TO SPECIFICATION FOR REQUIREMENTS OF EACH INITIATION LOOP AND WIRING STYLE. REFER TO FLOOR PLANS FOR DEVICES AND THEIR LOCATIONS.
2. REFER TO SPECIFICATION FOR REQUIREMENTS OF EACH NOTIFICATION APPLIANCE CIRCUIT AND WIRING STYLE. REFER TO FLOOR PLANS FOR DEVICES AND THEIR LOCATIONS.
3. PROVIDE NOTIFICATION APPLIANCE EXTENDER PANELS AS REQUIRED. DETERMINATION OF NEED TO BE MADE BY FIRE ALARM VENDOR. REFER TO SPECIFICATIONS FOR REQUIREMENTS AND ACCEPTABLE MOUNTING LOCATIONS.

2 FIRE ALARM RISER
NO SCALE



3 PANELBOARD EQUIPMENT CLEARANCES
NO SCALE

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ELECTRICAL DETAILS

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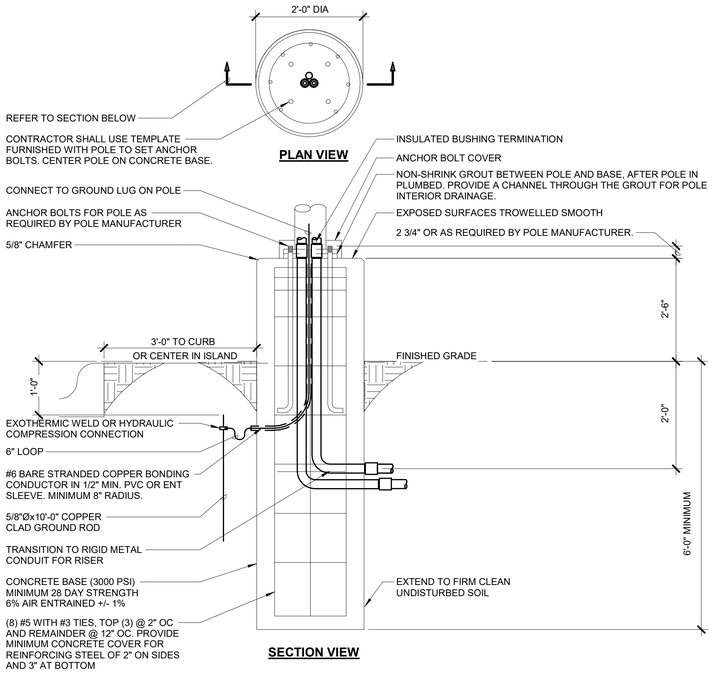
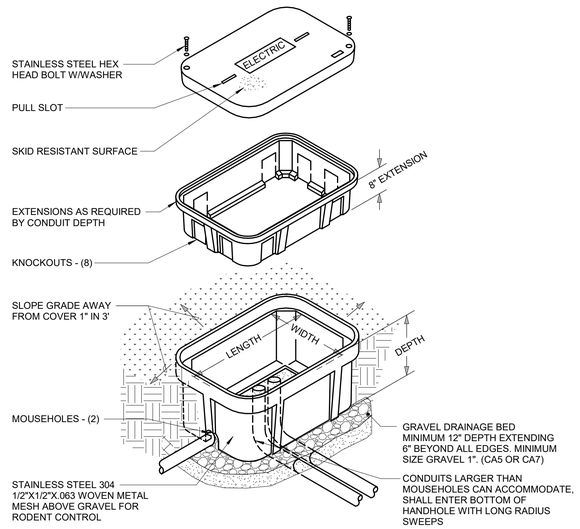


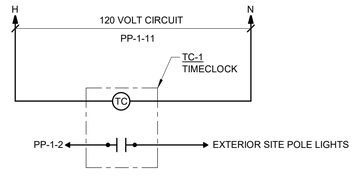
1 EXTENDED POLE BASE DETAIL
NO SCALE



NOTES:

1. ANY SPLICES OR DEVICES IN HANDHOLE SHALL BE UL LISTED FOR SUBMERSIBLE.

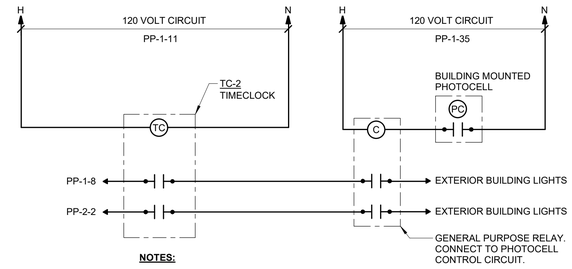
2 EXTERIOR HANDHOLE DETAIL
NO SCALE



NOTES:

1. COORDINATE TIMECLOCK SCHEDULE WITH OWNER.

3 EXTERIOR SITE LIGHTING CONTROL DETAIL
NO SCALE



NOTES:

1. COORDINATE TIMECLOCK SCHEDULE WITH OWNER.

4 EXTERIOR BUILDING LIGHTING CONTROL DETAIL
NO SCALE

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WA No. 2020-008
Date 06 APR 2023
Drawn PAS
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REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH
WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
Phone 630-221-1212 / Fax 630-221-1220

ELECTRICAL DETAILS

E4.1

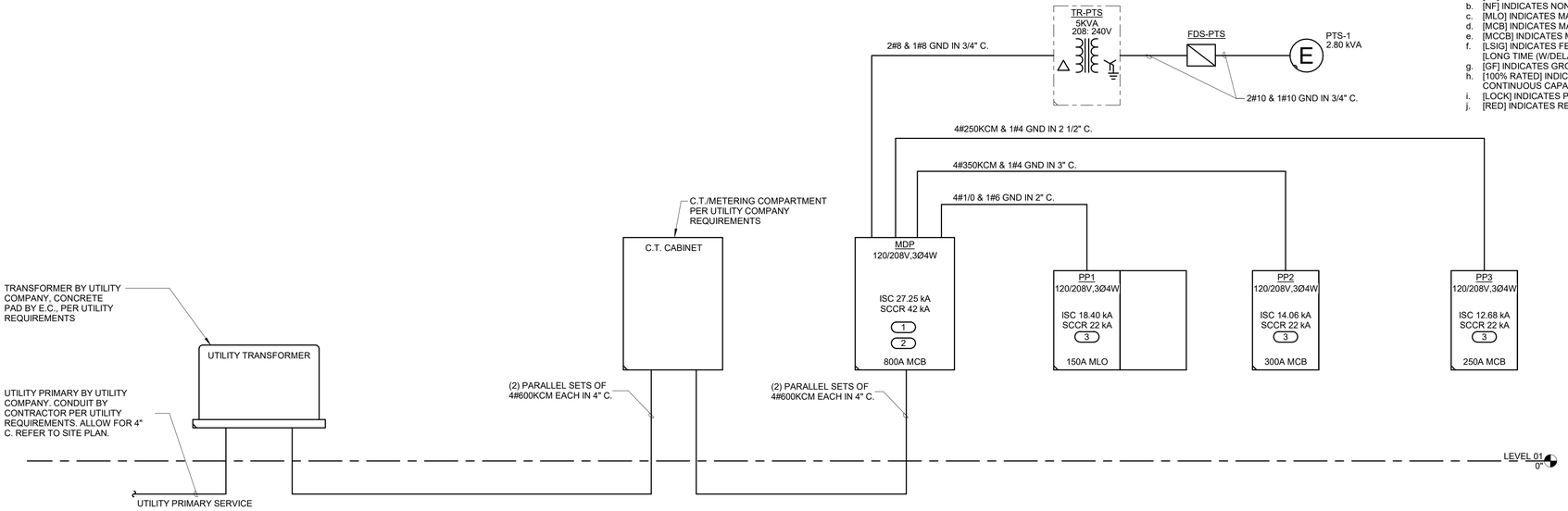
KEYNOTES: (#)

1. REFER TO 2/E5.0 SERVICE ENTRANCE GROUNDING DETAIL.
2. PROVIDE DIGITAL POWER METER. REFER TO 26 09 13 FOR ADDITIONAL INFORMATION.
3. REFER TO PANEL SCHEDULE. PROVIDE INDIVIDUAL BRANCH CURRENT POWER METERING CAPABILITY. REFER TO 26 09 13 FOR ADDITIONAL INFORMATION.

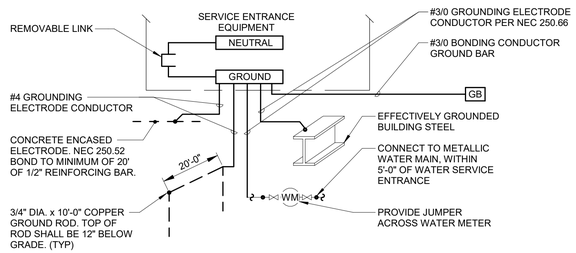
ELECTRICAL - RISER DIAGRAM NOTES:

1. THE RISER DIAGRAM IS INTENDED TO CONVEY THE COMPONENTS OF THE ELECTRICAL DISTRIBUTION SYSTEM. REFER TO ELECTRICAL DRAWINGS, DETAILS, DISTRIBUTION / PANEL / EQUIPMENT / EQUIPMENT CONNECTION SCHEDULES, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
2. SHORT CIRCUIT CURRENT RATINGS (SCCR) FOR EQUIPMENT ARE MINIMUM REQUIREMENTS FOR BUSS BRACING AND DEVICE RATING. ALL EQUIPMENT SHALL BE FULLY RATED UNLESS SPECIFICALLY NOTED AS SERIES RATED.
3. THE BASIS OF DESIGN: THE CONTRACTOR SHALL BE RESPONSIBLE FOR DERATING AND SIZING CONDUCTORS AND CONDUITS TO EQUAL OR EXCEED AMPACITY OF THE BASIS OF DESIGN CIRCUITS WHEN ALTERNATIVE METHODS OR MATERIALS OTHER THAN THE BASIS OF DESIGN ARE APPLIED.
   a. RACEWAY: EMT UNLESS OTHERWISE NOTED
   b. FEEDER CHARACTERISTICS: ALL CURRENT CARRYING CONDUCTORS SHALL BE COPPER UNLESS NOTED OTHERWISE. CONDUCTOR SIZES ARE BASED ON AMERICAN WIRE GAUGE AWG AND KCMIL THOUSANDS OF CIRCULAR MIL. REFER TO SPECIFCIATION SECTION 25 05 13 WIRE AND CABLE FOR ADDITIONAL INFORMATION
   c. GROUNDING AND BONDING CONDUCTORS SHALL BE COPPER.
   d. CONDUCTORS (MOTORS): COPPER
4. PROVIDE GROUNDING ELECTRODE AND BONDING SYSTEM PER CODE REQUIREMENTS. PROVIDE THE FOLLOWING MINIMUM CONNECTIONS AND COMPONENTS. REFER TO SPECIFICATION SECTION 26 05 26 GROUNDING AND BONDING AND DETAILS WHEN APPLICABLE.
5. REFER TO GROUNDING ELECTRODE SYSTEM AND BONDING DETAILS
6. PROVIDE O.Z. GEDNEY OR EQUAL GROUND BUSHING FOR ALL SERVICE AND FEEDER RACEWAYS BONDED TO GROUND BUS WITH CONDUCTOR SIZED TO MAXIMUM FEEDER GROUND CAPACITY.
7. CONDUCTORS AND GROUND SIZES ON THE LINE AND LOAD SIDES OF ALL DISCONNECT SWITCHES SHALL BE IDENTICAL UNLESS NOTED OTHERWISE.
8. REFER TO COVER SHEET FOR ADDITIONAL EQUIPMENT TAG INFORMATION (SPD-#, M-#, ETC).

1. CIRCUIT BREAKER CHARACTERISTICS AND ACCESSORIES:
   a. [FU] INDICATES FUSED SWITCH
   b. [NF] INDICATES NON-FUSED SWITCH
   c. [MLO] INDICATES MAIN LUG ONLY
   d. [MCB] INDICATES MAIN CIRCUIT BREAKER
   e. [MCCB] INDICATES MOLDED CASE CIRCUIT BREAKER
   f. [LSIG] INDICATES FEATURES PROVIDED WITH SOLID STATE CIRCUIT BREAKER [LONG TIME (W/DELAY), SHORT TIME (W/DELAY), INSTANTANEOUS, GROUND FAULT]
   g. [GF] INDICATES GROUND FAULT RELAY
   h. [100% RATED] INDICATES INSULATED CASE BREAKER RATED FOR FULL CONTINUOUS CAPACITY OF CIRCUIT BREAKER NAMEPLATE
   i. [LOCK] INDICATES PADLOCK HASP
   j. [RED] INDICATES RED HANDLE



1 ELECTRICAL RISER DIAGRAM
NO SCALE



2 SERVICE ENTRANCE GROUNDING DETAIL
NO SCALE

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Illinois Design Firm Registration #184.007637-0014

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PROJECT #20000551.00

LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

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ELECTRICAL DIAGRAMS

E5.0

LED LUMINAIRE SCHEDULE

(DESC) DOOR:	**DISTRIBUTION:**	**BEAMWIDTH:**	**(L/L) LENS/LOUVER:**	K19 - KSH19 .156" ACRYLIC
FA - FLAT ALUMINUM	II - ANSI/IES TYPE 2 DISTRIBUTION	NSP - VERY NARROW SPOT	A - .125" ACRYLIC	M - MATTE DIFFUSE CLEAR
FS - FLAT STEEL	III - ANSI/IES TYPE 3 DISTRIBUTION	SP - SPOT	B - BAFFLE/LOUVER	N - NONE
RA - REGRESSED ALUMINUM	IV - ANSI/IES TYPE 4 DISTRIBUTION	MD - MEDIUM	C - CLEAR ALZAK	P - POLYCARBONATE
RS - REGRESSED STEEL	V - ANSI/IES TYPE 5 DISTRIBUTION	WD - WIDE	F - FROSTED ACRYLIC	R - HIGH IMPACT DR ACRYLIC
FINISH:		VWD - VERY WIDE	G - TEMPERED GLASS	SS - SEMI-SPECULAR CLEAR
PAF - PAINT AFTER FABRICATION		WW - WALL WASH	K - KSH12 .125" ACRYLIC	O - OTHER (SEE DESCRIPTION)
CFSA - COLOR-FINISH SELECTION BY ARCHITECT				[DESIGN SPECIFIC BLANKS]
(MTG) MOUNTING:	RE - RECESSED		**(WATT) PER:**	FIX - FIXTURE, FT - FOOT, LAMP
CL - CEILING SURFACE	SP - SUSPENDED		**(TYPE) LED**	RGB - COLOR CHANGING LED
CV - COVE	SU - SURFACE		LED - LIGHT EMITTING DIODE	RGBW - COLOR CHANGING + WHITE
FR - FLANGED RECESSED	UC - UNDER CABINET		TLED - TUBULAR LED LAMP	RGBA - COLOR CHANGING + AMBER
P - PERIMETER	WL - WALL		OLED - ORGANIC LED	RLED - RETROFIT LED
PL - POLE	O - OTHER (SEE DESCRIPTION)		DLED - DYNAMIC TUNABLE LED	WLED - WARM DIM LED
(TYPE) DRIVER:				
0-10V - 0-10V DIMMING	EB - ELECTRONIC	HL - HIGH/LOW (100%/50%) STEP DIM		MV - MULTI-VOLTAGE ELECTRONIC
DALI - DIGITAL ADDRESSABLE	ELV - ELECTRONIC LOW VOLTAGE	LINE - LINE VOLTAGE DIMMING		REM - REMOTE
DMX - DIGITAL MULTIPLEX	EM - EMERGENCY BATTERY	ML - MULTI-LEVEL SWITCHING		O - OTHER (SEE DESCRIPTION)

CATALOG NUMBER SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. THE COMPLETE DESCRIPTION AND THE SPECIFICATION SHALL BE COORDINATED WITH THE CATALOG NUMBER TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN.

VERIFY AND COORDINATE ALL CEILING TYPES WITH LUMINAIRE MOUNTING AND TRIM REQUIREMENTS PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.
CONFIRM ALL COLORS AND FINISHES OF ALL LUMINAIRE COMPONENTS WITH ARCHITECT AND INTERIOR DESIGNER PRIOR TO THE RELEASE OF THE LUMINAIRE ORDER.
UNLESS INDICATED ON LIGHTING PLANS OR BELOW, REFER TO ARCHITECTURAL AND INTERIOR DESIGN ELEVATIONS, SECTIONS AND DETAILS FOR ALL SUSPENDED AND WALL MOUNTED LUMINAIRE MOUNTING HEIGHTS.

REFER TO SPECIFICATION SECTIONS LED LIGHTING 26 51 19 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
INTERIOR CORRELATED COLOR TEMPERATURE 3500K, COLOR RENDERING INDEX (CRI) AT OR ABOVE 80, UNLESS NOTED OTHERWISE.
EXTERIOR CORRELATED COLOR TEMPERATURE 3000K, COLOR RENDERING INDEX (CRI) AT OR ABOVE 80, UNLESS NOTED OTHERWISE.

				DIMENSIONS				WATT		LED			DRIVER		
ITEM	DESCRIPTION	L/L	MTG	L	W	H	DIA.	ANSI WATTS	PER	TYPE	QTY	DELIVERED LUMENS (MIN)	VOLTS	TYPE	MANUFACTURER AND MODEL
EM1	EMERGENCY UNIT, WHITE THERMOPLASTIC HOUSING, SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS.	O	WL	1'-2"	6"	3 205/256"		3 W	FIX	LED	1	220 LM	120 V	EM	SURE-LITES SEL LITHONIA DUAL-LITE CHLORIDE LSL
EM2	HEAVY DUTY EMERGENCY UNIT, DIE-CAST ALUMINUM HOUSING. SELF TEST & DIAGNOSTICS OF INVERTER AND LAMPS. UL924 WET LOCATION LISTED.	O	WL	1'-2"	6"	3 205/256"		3 W	FIX	LED	1	220 LM	120 V	EM	SURE-LITES SELD LITHONIA DUAL-LITE CHLORIDE LSL
EX1	SINGLE FACED EXIT SIGN, WHITE THERMOPLASTIC BODY, RED LETTERS. MOUNTS TO STANDARD BOX. VERIFY BACK OR CEILING MOUNTING AND ARROWS WITH PLANS. PROVIDE WITH BATTERY BACKUP. SELF TEST & DIAGNOSTICS OF INVERTER AND LAMP.	O	WL	1'-1"	2"	9"		3 W	FIX	LED	1	L.E.D.	120 V	EM	SURE-LITES APX LITHONIA DUAL-LITE CHLORIDE LSL
EX2	SINGLE FACED COMBINATION EXIT SIGN AND EMERGENCY LIGHTING UNIT, IMPACT-RESISTANT, CORROSION-PROOF, WHITE THERMOPLASTIC BODY, RED LETTERS. MOUNTS TO STANDARD BOX. BACK MOUNTING. UL WET LOCATION LISTED. PROVIDE WITH BATTERY BACKUP. SELF TEST & DIAGNOSTICS OF INVERTER AND LAMP.	O	WL	1'-1"	2"	9"		3 W	FIX	LED	1	L.E.D.	120 V	EM	LITHONIA WLTC DUAL-LITE DYNC LSL LSCWLEZXTEU
F1	ROUND LED HIGH BAY. DIST ALUMINUM, HEAT SINK, PROVIDE WITH DIFFUSED REFLECTOR, WHITE POWDER COAT FINISH. IP65 RATED. SUSPEND FIXTURE LEVEL WITH BUTTOM OF TRUSS BY RIGID CONDUIT CONNECTED TO SWIVEL HANGER CEILING BOX.	O	SP			7 177/256"	10 23/128"	99 W	FIX	LED	1	12000 LM	120 V	0-10V	METALUX UHB SPECGRADE LED HBF SOLAS RAY SLIMLINE HS COLUMBIA CRN
F2	LED SUSPENDED DIRECT/INDIRECT LINEAR. CONTEMPORARY STYLE HOUSING. DIFFUSED WHITE DOWNLIGHT LENS, CLEAR FROSTED UPLIGHT LENS. END FEED POWER CORD. SUBMIT WOOD FINISH SAMPLES FOR ARCHITECTURAL SELECTION. FIELD COORDINATE SUSPENSION CABLE LENGTH WITH ARCHITECT.	O	SP	6'-0"	1 189/256"	2 1/2"		12 W	FT	LED	1	INDIRECT: 435LM/FT DIRECT: 600LM/FT	120 V	0-10V	PURE EDGE GLUDE OR APPROVED EQUAL
F3	LINEAR LED STRIP, ROUND DIFFUSE LENS. PROVIDE ALL MOUNTING HARDWARE AS REQUIRED. SUSPENDED AT 9'-0" AFF.	O	SP	4'-0"	3 113/256"	3 37/64"		65 W	FIX	LED	1	9000 LM	120 V	0-10V	LITHONIA CLX METALUX COLUMVIA DAY-BRITE HEW
F4	WALL MOUNTED ARCHITECTURAL STYLING BUILDING LED LUMINAIRE. DIE-CAST ALUMINUM HOUSING. IP65 RATED. FINISH SELECTION COORDINATED WITH ARCHITECT.	O	WL	1'-2"	9 1/4"	10 1/2"		24 W	FIX	LED	1	3206 LM	120 V	EB	LITHONIA ARC2 MCGRAW-EDISON IST
F4E	SIMILAR TO F4, WITH EMERGENCY COLD TEMPERATURE BATTERY BACKUP.	O	WL	1'-2"	9 1/4"	10 1/2"		24 W	FIX	LED	1	3206 LM	120 V	EM	REFER TO F4
F5	RECESSED LOW PROFILE LINEAR, CONTINUOUS FROSTED FLUSH DIRECT LENS, REFER TO DRAWINGS FOR LENGTHS. PROVIDE MOUNTING HARDWARE WITH TRIM FLANGE FOR MOUNTING IN PLYWOOD CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING SYSTEM.	O	RE	<varies>	3 51/128"	4"		10 W	FT	LED	1	788 LM	120 V	0-10V	CORONET LSR4 LUMENWERX FOCAL POINT AXIS FINELITE STARTEK RBEAM ALL 3R
F6	6" LENSED SHOWER DOWNLIGHT. MEDIUM DISTRIBUTION (1.0 SC), FROSTED FLUSH LENS WITH WHITE FLANGE TRIM. WET LISTED.	O	RE			7 1/2"	6"	10 W	FIX	LED	1	1000 LM	120 V	0-10V	GOTHAM EV06SH PORTFOLIO PRESCOLITE LIGHTOLIER HEW
F7	EXTERIOR DIRECT/INDIRECT SUSPENDED LINEAR. WOOD LINEAR GLULAM CONSTRUCTION. WET LOCATION LISTED. EXTERIOR RATED POWER SUPPLY WITH INTEGRAL SHORT CIRCUIT PROTECTION. SUBMIT WOOD FINISH SAMPLES FOR ARCHITECTURAL SELECTION. SUSPEND AT 10'-0" AFF. COORDINATE SUSPENSION HEIGHT IN FIELD PRIOR TO INSTALLATION.	O	SP	12'-0"	2"	4"		10 W	FT	LED	1	500LM/FT	120 V	EB	STRUCTURA LNR OR APPROVED EQUAL
F7A	SIMILAR TO F7, DIFFERENT LENGTH.	O	SP	6'-0"	2"	4"		5 W	FT	LED	1	500LM/FT	120 V	EB	REFER TO F7
F7E	SIMILAR TO F7, PROVIDE SINGLE EXTERNAL BATTERY BACKUP UNIT TO SERVE LUMINAIRE IN POWER LOSS SITUATION. LOCATE BATTERY IN ELECTRICAL ROOM CEILING SPACE. PROVIDE WITH TEST SWITCH AND CHARGE INDICATOR. BATTERY BACKUP UNIT SHALL BE UL 924 LISTED, 120V, 60HZ SUPPLY INPUT AND 120-WATT OF CONNECTED CONTINUOUS OUTPUT FOR NO LESS THAN 90 MINUTES.	O	SP	12'-0"	2"	4"		10 W	FT	LED	1	500LM/FT	120 V	EM	FIXTURE: REFER TO F7 EXTERNAL BATTERY: IOTA OR APPROVED EQUAL
S1	POLE MOUNTED LED SITE LUMINAIRE, FOUR LIGHT SQUARES WITH TYPE FOUR WIDE DISTRIBUTION OPTICS. INTEGRAL OCCUPANCY HIGH/LOW SENSOR AND PHOTOCELL. 10KV SURGE PROTECTION. MOUNT ON 18'-0" SQUARE STRAIGHT ALUMINUM POLE. FINISH SELECTION BY ARCHITECT.	O	PL	1'-3 1/2"	1'-9 3/4"	3 15/16"		225 W	FIX	LED	1	28000 LM	120 V	0-10V	MCGRAW-EDISON GLEON BEACON VIPER LITHONIA D SERIES

DISCONNECT AND STARTER SCHEDULE

NOTE: ALL DISCONNECTS (EXCEPT MANUAL STARTERS) SHALL BE HEAVY DUTY TYPE.

DISCONNECT TYPE:	**ACCESSORIES & OPTIONS**	
FU - FUSED	SA - STANDARD ACCESSORIES (INCLUDES * ITEMS)	PF - PHASE LOSS PROTECTION (5 HP OR GREATER, 3 PHASE...
NF - NON-FUSED	*CT - CONTROL TRANSFORMER, FUSED 120V	TO - MELTING THERMAL OVERLOADS (1 PHASE)
CB - CIRCUIT BREAKER	*EO - ELECTRONIC OVERLOAD (3 PHASE MOTORS)	TS - 2 SPEED SELECTOR SWITCH IN DOOR
	*HA - HAND-OFF-AUTO IN DOOR	GP - GREEN (OFF) PILOT LIGHT IN DOOR
STARTER TYPE:	*RP - RED (RUN) PILOT LIGHT IN DOOR	FA - 4-CONVERTIBLE AUXILIARY CONTACTS
FV - FULL VOLTAGE	*TA - TWO CONVERTIBLE AUXILIARY CONTACTS	EI - ELECTRICAL INTERLOCK (2)-N.O. & (2)-N.C.
YD - WYE - DELTA	S/N - INSULATED NEUTRAL ASSEMBLY	SS - START-STOP PUSHBUTTON IN DOOR
RE - REVERSING		HL - HANDLE PADLOCK HASP
TW - 2 SPEED, 2 WINDING		
SW - 2 SPEED, 1 WINDING		
RV - REDUCED VOLTAGE AUTOXFMR		
SS - SOLID STATE		
MS - MANUAL STARTER		
MX - MANUAL SWITCH		
FS - FUSED SWITCH		
AMS-ASSEMBLED MOTOR STARTER		

	DISCONNECT TYPE & RATING					STARTER			REQUIRED	
ITEM	TYPE	RATING	TRIP RATING	VOLTAGE	POLES	NEMA SIZE	TYPE	ENCLOSURE	ACCESSORIES & OPTIONS	COMMENTS
MX-1		30 A		120 V	1	0	MX	NEMA 1	HL	
MX-2		30 A		208 V	2	0	MX	NEMA 1	HL	
FDS-30	FU	30 A	25 A	208 V	3			NEMA 1	HL	
FDS-30R	FU	30 A	15 A	208 V	3			NEMA 4	HL	
FDS-PTS	FU	30 A	30 A	240 V	2			NEMA 1	HL	COORDINATE FUSE SIZE WITH MOTOR NAMEPLATE
FCS-1	FU	30 A	20 A	208 V	3	1	FV	NEMA 1	SA	COORDINATE FUSE SIZE WITH MOTOR NAMEPLATE
FDS-60R	FU	60 A	45 A	208 V	3			NEMA 3R	HL	

TRANSFORMER SCHEDULE

TYPE:		**ACCESSORIES & OPTIONS**
K1 - DOE 2016 DRY TYPE	AUT - AUTOTRANSFORMER	AL - ALUMINUM WINDINGS
K4 - K4 RATED DRY TYPE	BB - BUCK BOOST	CU - COPPER WINDINGS
K13 - K13 RATED DRY TYPE	LIQ - LIQUID FILLED	RS - EPOXY RESIN ENCAPSULATED
HM - HARMONIC MITIGATING		FL - FILTERED
PE - NEMA PREMIUM EFFICIENCY		NV - NON-VENTILATED
		NL - 200% RATED NEUTRAL
		EL - ELECTROSTATIC SHIELD

				MAX. TEMP. RISE C.	PRIMARY		SECONDARY			
ITEM	KVA RATING	TYPE	ENCLOSURE		VOLTS	PH	VOLTS	PH	REQUIRED ACCESSORIES & OPTIONS	COMMENTS
TR-PTS	5 kVA	BB	NEMA 1	150	208	1	240	1	AL	WALL MOUNTED

LIGHTING SEQUENCE OF OPERATION

NOTES:
1. {L##} DENOTES THE LIGHTING SEQUENCE OF OPERATIONS FOR THIS SPACE.
2. a = SWITCH DESIGNATION FOR LIGHTING CONTROL

PLAN ID	LIGHTING SWITCHED
{LS1}	Sequence: Switched lights are controlled in this space. ON: The lights turn on using a wall switch. OFF: The lights turn off using a wall switch. EMERGENCY: Emergency lighting units shall turn on upon loss of power.
{LS2}	Sequence: Lights are occupancy controlled in this space. ON: The lights turn on by occupancy wall switch. OFF: After the space has been vacant for 15 minutes, the lights automatically turn off. EMERGENCY: Emergency lighting units shall turn on upon loss of power.
{LS3}	Sequence: Lights are occupancy controlled in this space. ON: The lights turn on automatically to 50% output via occupancy sensor or manually to 100% output using wall controller. OFF: After the space has been vacant for 15 minutes, the lights automatically turn off. EMERGENCY: Emergency lighting units shall turn on upon loss of power.
{LS4}	Sequence: Lights are occupancy controlled in this space. ON: The lights turn on automatically via corridor occupancy sensor or manually by wall controller. DAYLIGHT: Lights within daylight zone, indicated with subscript 'LS', continuously adjust to daylight to maintain 25 FC at +30" AFF. OFF: After the space has been vacant for 15 minutes, the lights automatically turn off. 'NL' lights shall remain on at all times. EMERGENCY: Emergency lighting units shall turn on upon loss of power.
{LS5}	Sequence: Lights are dimmed and occupancy controlled in this space. ON: The lights turn on automatically to 50% output via occupancy sensor or manually to 100% output using wall controller. ADJUST: The lights are raised / lowered using wall controller. RECEPTACLE CONTROL: Provide occupancy control of split controlled receptacles noted with "O" subscript. Split controlled outlet shall energized when occupant is detected and automatically de-energized after the space has been vacant for 15 minutes. OFF: After the space has been vacant for 15 minutes, the lights automatically turn off.

LIGHTING SEQUENCE OF OPERATION

NOTES:
1. {L##} DENOTES THE LIGHTING SEQUENCE OF OPERATIONS FOR THIS SPACE.
2. a = SWITCH DESIGNATION FOR LIGHTING CONTROL

PLAN ID	LIGHTING SWITCHED
{LS6}	Sequence: Lights are dimmed and vacancy controlled in this space. ON: The lights turn on manually using wall controller. ADJUST: The lights are raised / lowered using wall controller. RECEPTACLE CONTROL: Provide occupancy control of split controlled receptacles noted with "O" subscript. Split controlled outlet shall energized when occupant is detected and automatically de-energized after the space has been vacant for 15 minutes. OFF: After the space has been vacant for 15 minutes, the lights automatically turn off.
{LS7}	Sequence: Switched lights are occupancy controlled in this space. (For lighting controls devices located in Unheated Storage, provide high humidity sensor and cold rated relays/controllers). ON: The lights turn on automatically to 50% output via occupancy sensor. ADJUST: Wall controller shall have pushbutton for ON / OFF / 50% / 100%. DAYLIGHT: Lights within daylight zone, indicated with subscript 'LS', continuously adjust to daylight to maintain 35 FC at +30" AFF. OFF: After the space has been vacant for 15 minutes, the lights automatically turn off. EMERGENCY: Emergency lighting units shall turn on upon loss of power.
{LS8}	Sequence: Exterior site pole lights are dimmed, time scheduled, and controlled by integral daylight sensor. Refer to timeclock control detail 3/E4.1. (Coordinate schedule with Owner) ON: The lights are automatically turned on to 50% output based on available daylight and schedule. ADJUST: The fixture output shall be raised to 100% upon activation of the fixture's integral occupancy sensor or reduced to 50% output after the space has been vacant for 15 minutes via fixture's integral occupancy sensor. OFF: The lights are automatically turned off based on available daylight and schedule.
{LS9}	Sequence: Exterior building lighting is time scheduled and controlled by building mounted daylight sensor. Refer to timeclock control detail 4/E4.1. (Coordinate schedule with Owner) ON: The lights are automatically turned on based on available daylight and schedule. OFF: The lights are automatically turned off based on available daylight and schedule. EMERGENCY: Luminaires with integral battery backup.

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Illinois Design Firm Registration #184.007637-0014

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

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Phone 630-221-1212 / Fax 630-221-1220

ELECTRICAL SCHEDULES

E6.0

DISTRIBUTION PANEL MDP

ENCLOSURE: NEMA PB 1
FED FROM: UTILITY TRANSFORMER
LOCATION: MECH. / ELEC. 104

SOLID NEUTRAL GROUND BUS

MAIN: 800 A MCB
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
SCCR: 42 kA
ISC: 27.25 kA

NOTES: PROVIDE 100% MAIN CIRCUIT BREAKER WITH [LSI]. PROVIDE DIGITIAL POWER METER. REFER TO 26 09 13 FOR ADDITIONAL INFORMATION. PROVIDE FUTURE SPACE PROVISIONS FOR (1) 100A AND (1) 200A FRAME CIRCUIT BREAKERS. COORDINATE REQUIREMENTS FOR PV GRID-TIED CIRCUIT BREAKER.

CKT	LOAD DESCRIPTION	Load	POLES	FRAME	TRIP	TYPE	ACC.	WIRE AND RACEWAY	CIRCUIT KEY
1	SPD-1	0.1 kVA	3	100 A	60 A	MCCB		4#6 & 1#10 GND IN 1" C.	
2	PANEL PP1	40.3 kVA	3	200 A	150 A	MCCB		4#1/0 & 1#6 GND IN 2" C.	
3	PANEL PP2	20.4 kVA	3	400 A	300 A	MCCB		4#350KCM & 1#4 GND IN 3" C.	
4	PANEL PP3	73.14 kVA	3	250 A	250 A	MCCB		4#250KCM & 1#4 GND IN 2 1/2" C.	
5	DOAS-1	13.5 kVA	3	100 A	50 A	MCCB		3#6 & 1#8 GND IN 3/4" C.	
6	DOAS-2	18.4 kVA	3	100 A	70 A	MCCB	*PM	3#4 & 1#8 GND IN 1" C.	
7	ACCU-1	9 kVA	3	100 A	45 A	MCCB	*PM	3#8 & 1#10 GND IN 3/4" C.	
8	WH-1	6 kVA	3	100 A	25 A	MCCB	*PM	3#10 & 1#10 GND IN 3/4" C.	
9	HC-1	60 kVA	3	250 A	225 A	MCCB	*PM	4#4/0 & 1#4 GND IN 2" C.	
10	PTS-1	2.8 kVA	2	100 A	45 A	MCCB	*PM	2#6 & 1#8 GND IN 3/4" C.	[LOCK]

LOAD SUMMARY (INCLUDES ALL TUBS IN THIS PANEL)

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
HVAC	53.657 kVA	100.00%	53.657 kVA		
HVAC Heating Only	120 kVA	100.00%	120 kVA	**TOTAL CONNECTED LOAD:**	243.44 kVA
Lighting	8.259 kVA	100.00%	8.259 kVA	**TOTAL ESTIMATED DEMAND LOAD:**	229.196 kVA
Motor	12.24 kVA	100.00%	12.24 kVA	**TOTAL CONNECTED AMPS:**	675.71 A
Other	0.2 kVA	100.00%	0.2 kVA	**TOTAL ESTIMATED DEMAND AMPS:**	636.2 A
Power	10.6 kVA	100.00%	10.6 kVA		
Receptacles	38.48 kVA	62.99%	24.24 kVA		

*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES: [LOCK] INDICATES PADLOCK HASP

PANEL PP1

MOUNTING: SURFACE
ENCLOSURE: NEMA PB 1
FED FROM: 150 A/3P MCCB @ MDP
LOCATION: MECH. / ELEC. 104

SOLID NEUTRAL GROUND BUS

MAIN: 150 A MLO
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
SCCR: 22 kA
ISC: 18.40 kA

NOTES: PROVIDE PANEL WITH INDIVIDUAL BRANCH CURRENT POWER METERING CAPABILITY. REFER TO 26 09 13 FOR ADDITIONAL INFORMATION.

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H	WIRE SIZE N	WIRE SIZE G	A	B	C	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY
	1	FACP - Fire Alarm Control Panel [RED]	20 A	1	12	12	12	0.2 / 1			1	20 A	Lighting	2	
	3	REFRIG.	20 A	1	12	12	12		1 / 0.84		1	20 A	Lighting	4	
	5	VRF TU'S	15 A	2	12	12	12			0.63 / 1.64	1	20 A	Lighting	6	
--	7	--	--	--	--	--	--	0.63 / 0.46			1	20 A	Lighting	8	
	9	Receptacles	20 A	1	10	10	10		1.8 / 0.5		1	15 A	SEPTIC TANK ALARM [LOCK]	10	
	11	TC-1, TC-2	20 A	1	12	12	12			0.2 / 0.2	1	20 A	ELECTRIC BELL [RED]	12	
	13	Receptacles	20 A	1	12	12	12	0.72 / 1.13			1	20 A	AIR COMPRESSOR [LOCK]	14	
	15	Receptacles	20 A	1	12	12	12		0.54 / 0.56		1	20 A	Receptacles	16	
	17	Receptacles	20 A	1	12	12	12			1 / 1.4	1	15 A	HAND DRYER [GF] [LOCK]	18	
	19	Receptacles	20 A	1	12	12	12	0.36 / 1.4			1	15 A	HAND DRYER [GF] [LOCK]	20	
	21	WASHER	20 A	1	12	12	12		0.5 / 0.6		1	20 A	EWC	22	
	23	Receptacles	20 A	1	10	10	10			0.72 / 0.76	1	20 A	DOOR OPERATOR & Receptacles	24	
	25	Receptacles	20 A	1	12	12	12	0.9 / 0.54			1	20 A	Receptacles	26	
	27	CP-1	15 A	1	12	12	12		0.67 / 2.8		2	30 A	DRYER	28	
	29	CAB-1	35 A	3	8	8	10			3.33 / 2.8	--	--	--	30	--
--	31	--	--	--	--	--	--	3.33 / 1.27			10	--	WELL PUMP [LOCK]	32	
--	33	--	--	--	--	--	--		3.33 / 1.27		--	--	--	34	--
--	35	PHOTOCELL CONTROL CIRCUIT	20 A	1	--	--	--			0 / 1.27	--	--	--	36	--
--	37	SPARE	20 A	1	--	--	--	0 / 0			--	--	SPARE	38	--
--	39	SPARE	20 A	1	--	--	--		0 / 0		--	--	SPARE	40	--
--	41	SPARE	20 A	1	--	--	--			0 / 0	--	--	SPARE	42	--
--	43	SPARE	20 A	1	--	--	--	0 / 0			--	--	SPARE	44	--
--	45	SPARE	20 A	1	--	--	--		0 / 0		--	--	SPARE	46	--
--	47	SPARE	20 A	1	--	--	--			0 / 0	--	--	SPARE	48	--
--	49	SPACE	--	1	--	--	--	-- / --			--	--	SPACE	50	--
--	51	SPACE	--	1	--	--	--		-- / --		--	--	SPACE	52	--
--	53	SPACE	--	1	--	--	--			-- / --	--	--	SPACE	54	--
							Total Load:	11.94 kVA	14.41 kVA	13.95 kVA					
							Total Amps:	99.49	122.63	118.85					

LOAD SUMMARY

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
HVAC	1.257 kVA	100.00%	1.257 kVA		
Lighting	3.939 kVA	100.00%	3.939 kVA	**TOTAL CONNECTED LOAD:**	40.10 kVA
Motor	1.8 kVA	100.00%	1.8 kVA	**TOTAL ESTIMATED DEMAND LOAD:**	33.846 kVA
Other	0.2 kVA	100.00%	0.2 kVA	**TOTAL CONNECTED AMPS:**	111.29 A
Power	10.4 kVA	100.00%	10.4 kVA	**TOTAL ESTIMATED DEMAND AMPS:**	93.9 A
Receptacles	22.5 kVA	72.22%	16.25 kVA		

*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES: [GF] INDICATES GFCI CIRCUIT BREAKER, [LOCK] INDICATES PADLOCK HASP, [RED] INDICATED RED LOCKABLE HANDLE

PANEL PP2

MOUNTING: SURFACE
ENCLOSURE: NEMA PB 1
FED FROM: 300 A/3P MCCB @ MDP
LOCATION: VEHICLE GARAGE 109

SOLID NEUTRAL GROUND BUS

MAIN: 300 A MCB
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
SCCR: 22 kA
ISC: 14.06 kA

NOTES: PROVIDE PANEL WITH INDIVIDUAL BRANCH CURRENT POWER METERING CAPABILITY. REFER TO 26 09 13 FOR ADDITIONAL INFORMATION.

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H	WIRE SIZE N	WIRE SIZE G	A	B	C	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY
	1	HOLDING TANK ALARM [LOCK]	15 A	1	10	10	10	0.5 / 0.32			1	20 A	Lighting	2	
	3	DOAS Receptacles	20 A	1	10	10	10		0.36 / 1.34		1	20 A	Lighting	4	
	5	Receptacles	20 A	1	10	10	10			0.9 / 1.33	1	20 A	Lighting	6	
	7	Receptacles	20 A	1	10	10	10	1.44 / 1.33			1	20 A	Lighting	8	
	9	Receptacles	20 A	1	10	10	10		1.44 / 1.44		1	20 A	Receptacles	10	
	11	Receptacles	20 A	1	10	10	10			1.44 / 1.44	1	20 A	Receptacles	12	
	13	Receptacles	20 A	1	10	10	10	0.4 / 1.08			1	20 A	Receptacles	14	
	15	Receptacles	20 A	1	10	10	10		0.4 / 0.1		12	12	GAS DETECTION PANLE [LOCK]	16	
	17	Receptacles	20 A	1	10	10	10			0.4 / 1.45	10	10	LAWN MOWER CHARGER	18	
	19	Receptacles	20 A	1	10	10	10	1.44 / 1.45			--	--	--	20	--
	21	Receptacles	20 A	1	10	10	10		0.4 / 0		--	--	SPARE	22	--
--	23	SPARE	20 A	1	--	--	--			0 / 0	--	--	SPARE	24	--
--	25	SPARE	20 A	1	--	--	--	0 / 0			--	--	SPARE	26	--
--	27	SPARE	20 A	1	--	--	--		0 / 0		--	--	SPARE	28	--
--	29	SPARE	20 A	1	--	--	--			0 / 0	--	--	SPARE	30	--
--	31	SPARE	20 A	1	--	--	--	0 / 0			--	--	SPARE	32	--
--	33	SPARE	20 A	1	--	--	--		0 / 0		--	--	SPARE	34	--
--	35	FUTURE SPACE FOR LEVEL 2 EV CHARGER	--	1	--	--	--			-- / --	--	--	FUTURE SPACE FOR LEVEL 2 EV CHARGER	36	--
--	37	FUTURE SPACE FOR LEVEL 2 EV CHARGER	--	1	--	--	--	-- / --			--	--	FUTURE SPACE FOR LEVEL 2 EV CHARGER	38	--
--	39	FUTURE SPACE FOR LEVEL 2 EV CHARGER	--	1	--	--	--		-- / --		--	--	FUTURE SPACE FOR LEVEL 2 EV CHARGER	40	--
--	41	FUTURE SPACE FOR LEVEL 2 EV CHARGER	--	1	--	--	--			-- / --	--	--	FUTURE SPACE FOR LEVEL 2 EV CHARGER	42	--
							Total Load:	7.96 kVA	5.48 kVA	6.96 kVA					
							Total Amps:	68.25	45.67	59.87					

LOAD SUMMARY

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
HVAC	0 kVA	0.00%	0 kVA		
Lighting	4.32 kVA	100.00%	4.32 kVA	**TOTAL CONNECTED LOAD:**	20.40 kVA
Power	0.1 kVA	100.00%	0.1 kVA	**TOTAL ESTIMATED DEMAND LOAD:**	17.41 kVA
Receptacles	15.98 kVA	81.29%	12.99 kVA	**TOTAL CONNECTED AMPS:**	56.62 A
				TOTAL ESTIMATED DEMAND AMPS:	48.3 A

*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES: [LOCK] INDICATES PADLOCK HASP

PANEL PP3

MOUNTING: SURFACE
ENCLOSURE: NEMA PB 1
FED FROM: 250 A/3P MCCB @ MDP
LOCATION: VEHICLE GARAGE 109

SOLID NEUTRAL GROUND BUS

MAIN: 250 A MCB
VOLTS: 120/208 Wye
PHASE: 3
WIRE: 4
SCCR: 22 kA
ISC: 12.68 kA

NOTES: PROVIDE PANEL WITH INDIVIDUAL BRANCH CURRENT POWER METERING CAPABILITY. REFER TO 26 09 13 FOR ADDITIONAL INFORMATION.

KEY	CKT NO.	LOAD DESCRIPTION	OCPD AMPS	P	WIRE SIZE H	WIRE SIZE N	WIRE SIZE G	A	B	C	P	OCPD AMPS	LOAD DESCRIPTION	CKT NO.	KEY
	1	OVERHEAD DOOR	15 A	1	12	12	12	0.83 / 3.33			3	35 A	UH-1	2	
	3	OVERHEAD DOOR	15 A	1	12	12	12		0.83 / 3.33		--	--	--	4	--
	5	OVERHEAD DOOR	15 A	1	12	12	12			0.83 / 3.33	--	--	--	6	--
	7	OVERHEAD DOOR	15 A	1	12	12	12	0.83 / 3.33			3	35 A	UH-2	8	
	9	OVERHEAD DOOR	15 A	1	12	12	12		0.83 / 3.33		--	--	--	10	--
	11	OVERHEAD DOOR	15 A	1	12	12	12			0.83 / 3.33	--	--	--	12	--
	13	OVERHEAD DOOR	15 A	1	10	10	10	0.83 / 3.33			3	35 A	UH-3	14	
	15	OVERHEAD DOOR	15 A	1	10	10	10		0.83 / 3.33		--	--	--	16	--
	17	EF-1	20 A	3	10	--	10			1.27 / 3.33	--	--	--	18	--
--	19	--	--	--	--	--	--	1.27 / 3.33			3	35 A	UH-4	20	
--	21	--	--	--	--	--	--		1.27 / 3.33		--	--	--	22	--
	23	SF-1	20 A	3	10	--	10			0.9 / 3.33	--	--	--	24	--
--	25	--	--	--	--	--	--	0.9 / 3.33			3	35 A	UH-5	26	
--	27	--	--	--	--	--	--		0.9 / 3.33		--	--	--	28	--
--	29	SPARE	20 A	1	--	--	--			0 / 3.33	--	--	--	30	--
--	31	SPARE	20 A	1	--	--	--	0 / 3.33			3	35 A	UH-6	32	
--	33	SPARE	20 A	1	--	--	--		0 / 3.33		--	--	--	34	--
--	35	SPARE	20 A	1	--	--	--			0 / 3.33	--	--	--	36	--
--	37	SPARE	20 A	1	--	--	--	0 / 0			--	--	--	38	--
--	39	SPACE	--	1	--	--	--		-- / --		--	--	--	40	--
--	41	SPACE	--	1	--	--	--			-- / --	--	--	--	42	--
							Total Load:	24.66 kVA	24.66 kVA	23.83 kVA					
							Total Amps:	206.54	206.54	198.56					

LOAD SUMMARY

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	TOTALS*	
HVAC	2.7 kVA	100.00%	2.7 kVA		
HVAC Heating Only	60 kVA	100.00%	60 kVA	**TOTAL CONNECTED LOAD:**	73.14 kVA
Motor	10.44 kVA	100.00%	10.44 kVA	**TOTAL ESTIMATED DEMAND LOAD:**	73.14 kVA
				TOTAL CONNECTED AMPS:	203.02 A
				TOTAL ESTIMATED DEMAND AMPS:	203 A

*TOTAL DEMAND CALCS SUBTRACT ANY REDUNDANT LOAD AND THE SMALLER OF ANY NONCOINCIDENT HVAC LOADS. THIS CALC IS DONE AT EACH PANEL.

CIRCUIT KEY NOTES:

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT

27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 06 APR 2023
Drawn PAS
Checked JML

REVISIONS

NO.	DATE	DESCRIPTION

GRAPHIC NORTH

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
500 Park Boulevard, Suite 800, Itasca, IL 60143
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ELECTRICAL PANEL SCHEDULES

E7.0

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Illinois Design Firm Registration #184.007637-0014

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REF. SCALE IN INCHES

PROJECT #20000551.00

TELECOMMUNICATIONS GROUNDING NOTES:

1. REFER TO E-SERIES DRAWINGS FOR PANEL SCHEDULING INFORMATION AND GROUNDING ELECTRODE SYSTEM DATA.

2. A SINGLE GROUND SOURCE SHALL BE PROVIDED FOR GROUNDING ALL RACKS, TRAYS AND METAL FRAMES IN THE MAIN DISTRIBUTION FRAME. A TELECOMMUNICATIONS MAIN GROUNDING BUSBAR (TMGB) SHALL BE PROVIDED AND INSTALLED ON THE MAIN CROSS-CONNECT WALL AT A HEIGHT OF 8-FEET AFF. THE TMGB SHALL CONSIST AT A MINIMUM OF A PREDRILLED COPPER BUSBAR WITH HOLES FOR USE WITH STANDARD-SIZED LUGS, AND HAVE MINIMUM DIMENSIONS OF 1/4-INCH THICK BY 4-INCHES WIDE WITH A MINIMUM OF FORTY-EIGHT (48) CONNECTION POINTS. THE TMGB SHALL BE DIRECTLY BONDED TO THE ELECTRICAL SERVICE GROUND AND TO THE BUILDING STEEL.

3. A TELECOMMUNICATIONS GROUNDING BUSBAR (TGB) SHALL BE INSTALLED IN ANY/ALL TELECOM ROOMS. THE TGB SHALL BE MOUNTED ON THE HORIZONTAL CROSS-CONNECT WALL AT A HEIGHT OF 8-FEET AFF. THE TGB SHALL CONSIST OF A PREDRILLED COPPER BUSBAR WITH HOLES FOR USE WITH STANDARD-SIZED LUGS, AND HAVE MINIMUM DIMENSIONS OF 1/4-INCH THICK BY 2-INCHES WIDE WITH A MINIMUM OF TWELVE (12) CONNECTION POINTS.

4. A GROUND CABLE FROM THE TMGB TO EACH TGB SHALL BE INSTALLED TO CREATE A FORMAL TELECOMMUNICATIONS BONDING BACKBONE (TBB). THE TBB MAY NOT BE DAISY-CHAINED, BUT CAN BE TAPPED-OFF USING A SHORT BONDING CONDUCTOR. BARE COPPER CABLING IS ACCEPTABLE. THE TBB SHALL BE SIZED BASED ON THE LENGTH OF THE CABLE RUN.

5. THE CONTRACTOR SHALL PROVIDE AND INSTALL A MINIMUM #6 AWG GROUND WIRE FROM EACH OPEN RELAY RACK AND CABLE TRAY TO THE MAIN TELECOMMUNICATIONS GROUNDING BUSBAR OR TELECOMMUNICATIONS GROUNDING BUSBAR.

6. ANY PENETRATION THROUGH A FIRE-RATED WALL SHALL BE PROPERLY FIRE-STOPPED BY THE CONTRACTOR WITH THE APPROPRIATE FIRE-STOP MATERIAL PER APPLICABLE BUILDING AND ELECTRICAL CODES.

7. THE CONTRACTOR SHALL COORDINATE GROUND CABLE INSTALLATION WITH THE ARCHITECTS, MEP ENGINEERS AND THE OTHER TRADES ON THE PROJECT.

8. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR ANY DAMAGE TO ANY COMPONENT OF THE TELECOMMUNICATIONS GROUNDING SYSTEM DURNING INSTALLATION.

9. THE CONTRACTOR SHALL ENSURE THAT THE SIZE OF THE TMGB AND THE TGB ARE ADEQUATE TO SUPPORT THE TELECOMMUNICATIONS GROUNDING REQUIREMENTS FOR THE PROJECT.

COMMUNICATIONS & LOW VOLTAGE CONDUIT REQUIREMENTS:

ALL CONDUIT RUNS SHALL BE 1" EMT, UNLESS NOTED OTHERWISE.

ALL BOXES SHALL BE A MINIMUM OF 4-11/16" x 4-11/16" x 2-1/8" DEEP BOX WITH A SINGLE GANG TRIM RING MOUNTED FLUSH TO THE WALL SURFACE, UNLESS NOTED OTHERWISE.

ALL MOUNTING HEIGHTS ARE TO THE CENTERLINE OF THE BACKBOX UNLESS NOTED OTHERWISE.

ALL CONDUIT SHALL BE ROUTED ABOVE CEILINGS, BELOW FLOORS, OR STUBBED UP WITHIN WALLS; NO CONDUIT SHALL BE EXPOSED UNLESS APPROVED BY THE ARCHITECT.

ALL CONDUITS IN WALLS SHALL STUB UP AT LEAST 6-INCHES ABOVE THE FINISHED CEILING. ALL STUBS SHALL BE REAMED AND BUSHED AT BOTH ENDS.

ALL CONDUIT PENETRATIONS THROUGH FIRE-RATED PARTITIONS SHALL BE SEALED AS REQUIRED BY CODE. ALL BACKBOXES MOUNTED WITHIN FIRE-RATED PARTITIONS SHALL MEET THE FIRE RATING OF THE PARTITION AS REQUIRED BY CODE.

PROVIDE PULL STRINGS IN ALL CONDUIT RUNS LONGER THAN 10-FEET.

PROVIDE PULL BOXES EVERY 100 LINEAR FEET OR AFTER TWO SUCCESSIVE 90° BENDS.

ALL JUNCTION AND PULL BOXES SHALL BE FURNISHED WITH ACCOMPANYING BLANK COVER PLATE.

ALL BOXES IN EXTERIOR LOCATIONS SHALL BE WEATHERPROOF AND WATERPROOF.

INSTRUCTIONS SHOWN IN DIMENSION LINES, DETAILS, ELEVATIONS, AND PLANS (IN THIS ORDER) TAKE PRECEDENCE OVER INSTRUCTIONS SHOWN IN LEGENDS.

CONDUIT AND CABLE ROUTING SHOWN IS SCHEMATIC AND IS NOT INTENDED TO REPRESENT INSTALLATION PATHS OR DISTANCES. ACTUAL ROUTING AND BOX LOCATIONS SHALL BE FIELD-VERIFIED FOR FEASIBILITY AND COORDINATED WITH OTHER DISCIPLINES BY THE INSTALLATION CONTRACTOR.

HORIZONTAL CONDUITS INTO EACH TECHNOLOGY AREA FROM THE EXTERIOR CEILING PLENUM ARE REQUIRED FOR CABLE ACCESS INTO THE ROOM FROM ALL LOCATIONS THROUGHOUT THE SPACE. THE ENDS OF THE CONDUITS SHALL BE REAMED AND BUSHED, AND EXTEND A MINIMUM OF 2-INCHES INTO THE ROOM.

CABLE O.D. (")	CONDUIT TRADE SIZE AND MAXIMUM QUANTITIES OF CABLES OF THAT O.D.					
	1"	1-1/4"	1-1/2"	2"	3"	4"
0.16	19	33	46	75	200	333
0.18	13	23	32	52	139	231
0.20	11	19	25	42	112	187
0.25	6	12	16	27	71	120
0.27	6	10	14	22	60	102
0.30	4	8	10	18	48	82
0.33	4	6	8	14	40	68
0.35	3	6	8	12	36	60
0.38	2	5	7	10	30	50
0.40	2	4	6	10	28	46
0.45	1	3	5	8	22	38
0.50	1	2	4	6	16	30
0.55	1	1	3	5	14	24
0.60	1	1	2	4	12	20
0.67	1	1	1	3	10	16
0.70	1	1	1	3	8	14
0.75	N/A	1	1	2	7	12

NUMBER AND SIZE OF OF CONDUITS	PULL BOX SIZE (W x L x H IN INCHES)	FOR EACH ADDITIONAL CONDUIT ENTERING THE PULL BOX, INCREASE THE WIDTH
ONE 1-INCH	4 X 16 X 3	2 INCHES
ONE 1-1/4-INCH	6 X 20 X 3	3 INCHES
ONE 1-1/2-INCH	8 X 27 X 4	4 INCHES
ONE 2-INCH	8 X 36 X 4	5 INCHES
ONE 4-INCH	15 X 60 X 8	8 INCHES

CONDUIT DIAMETER	MINIMUM BEND RADIUS
1-INCH	4 INCHES
1-1/4-INCH	8 INCHES
1-1/2-INCH	9 INCHES
2-INCH	12 INCHES
4-INCH	40 INCHES

ABBREVIATIONS USED IN THESE DRAWINGS:

AVIC = AUDIOVISUAL CABLING CONTRACTOR
EC = ELECTRICAL INSTALLATION CONTRACTOR
LVI = CABLING INSTALLATION CONTRACTOR
PIC = PAGING INSTALLATION CONTRACTOR
SIC = SECURITY INSTALLATION CONTRACTOR
CM = CONSTRUCTION MANAGER

THE ASSOCIATED TRADE CONTRACTORS SHALL FURNISH AND INSTALL ALL LOW VOLTAGE CABLING, FACEPLATES, JACKS, PATCH CORDS, PATCH PANELS, CONDUITS, CONDUIT STUBS, BACKBOXES, CORES, SLEEVES, AND BUSHINGS UNLESS NOTED OTHERWISE.

THE OWNER WILL FURNISH AND INSTALL ANY GENERAL PURPOSE SERVERS, NETWORK SWITCHES, ROUTERS, OTHER ACTIVE EQUIPMENT, TELECOMMUNICATIONS DEVICES, EQUIPMENT CABINETS, TELEPHONES, HANDSETS, AND WIRELESS ACCESS POINTS (UNLESS NOTED OTHERWISE)

▲X MOUNTING INFORMATION, WHERE *X* =

- C ABOVE CEILING
- D TO THE DESK
- F FLUSH-MOUNTED
- H HIDDEN UNDER WORKSURFACE
- M TO THE MULLION
- R TO THE RACK ITSELF
- S PLACED ON THE WORKSURFACE

AV ▲X MOUNTING INFORMATION, WHERE *X* =

- C ABOVE CEILING
- D TO THE DESK
- F FLUSH-MOUNTED
- H HIDDEN UNDER WORKSURFACE
- M TO THE MULLION
- P TO THE PODIUM
- R TO THE RACK ITSELF
- S PLACED ON THE WORKSURFACE
- TX TRANSMITTER
- RX RECEIVER

NOTE: THE INSTALLATION CONTRACTOR SHALL COORDINATE WITH THE ARCHITECT AND CONSTRUCTION MANAGER FOR EXACT MOUNTING LOCATIONS PRIOR TO INSTALLATION OF ANY COMPONENTS.

TECHNOLOGY LEGEND:

AV — AUDIOVISUAL INTERFACE WALL-MOUNTED AT STANDARD BUILDING HEIGHT, CONSISTING OF HDMI JACK IN DECORA FITTING. REFER TO SPECIFICATIONS FOR DETAILS. EC TO FURNISH AND INSTALL 4-11/16" X 4-11/16" X 3" DEEP (11-B) BOX WITH SINGLE-GANG TRIM RING.

AVP — AUDIOVISUAL PASS-THROUGH, WALL-MOUNTED AT STANDARD BUILDING HEIGHT UNLESS NOTED OTHERWISE. EC TO FURNISH AND INSTALL 4-11/16" X 4-11/16" X 3" DEEP (11-B) BOX WITH TWO-GANG TRIM RING. AVIC TO FURNISH AND INSTALL TWO (2) LEVITON DECORA 41075-DBW BRUSHED INSERTS OR EQUIVALENT. CONFIRM FACEPLATE COLOR WITH ARCHITECT PRIOR TO ORDERING.

C — WALL-MOUNTED CAMERA LOCATION. DASHED LINES INDICATE DESIRED FIELD OF VIEW. NUMBER(S) INDICATED MOUNTING HEIGHT (AFF). REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

CR — CARD READER LOCATION. MOUNT AT 42" AFF U.N.O.

J — JUNCTION BOX MOUNTED ABOVE THE FINISHED CEILING. EC TO FURNISH AND INSTALL 4-11/16" X 4-11/16" X 3" DEEP (11-B) BOX WITH COVER. AVIC TO FURNISH AND INSTALL ALL WIRING.

J — EC TO FURNISH AND INSTALL 4-11/16" X 4-11/16" X 3" DEEP (11-B) BOX WITH COVER AT STANDARD BUILDING HEIGHT U.N.O. AVIC TO FURNISH AND INSTALL ALL WIRING.

▲WAP — CEILING DATA LOCATION CONSISTING OF TWO (2) CATEGORY 6A 8P8C (RJ45) JACKS AND TWO (2) CATEGORY 6A CABLES TO SUPPORT CUSTOMER PROVIDED AND LVI INSTALLED WIRELESS ACCESS POINTS. IN ACT CEILINGS, LVI TO FURNISH AND INSTALL TWO (2) CATEGORY 6A CABLES AND TWO (2) CATEGORY 6A 8P8C (RJ45) JACKS WITH A 25-FOOT SERVICE LOOP AT THIS LOCATION. LVI SHALL FURNISH AND INSTALL A PLENUM-RATED TWO-JACK RJ-45 (8P8C) HUBBELL ISB2WP (OR EQUIVALENT) MODULE AT END OF THE 25-FOOT SERVICE LOOP COIL. OVER OPEN AREAS, EC TO FURNISH AND INSTALL A 4-11/16" X 4-11/16" X 2-1/8" DEEP BOX WITH SINGLE GANG TRIM RING MOUNTED TO THE UNDERSIDE OF STRUCTURAL SUPPORT TO SUPPORT CUSTOMER PROVIDED WIRELESS ACCESS POINTS. LVI TO FURNISH AND INSTALL TWO (2) CATEGORY 6A CABLES AND TWO (2) CATEGORY 6A 8P8C (RJ45) JACKS AT THESE LOCATION. ALL ACCESS POINTS SHALL BE LOWER THAN SURROUNDING DUCTWORK AND CONDUITS TO MAINTAIN SIGNAL INTEGRITY.

▲W — WALLPHONE LOCATION. LVI TO FURNISH AND INSTALL ONE (1) CATEGORY 6 CABLE AND ONE (1) CATEGORY 6 8P8C (RJ45) JACK IN A FACEPLATE WITH WALLPHONE MOUNTING LUGS. REFER TO THE SPECIFICATION DOCUMENT FOR CABLE AND JACK REQUIREMENTS. LVI TO COORDINATE FACEPLATE FINISH AND HEIGHT WITH ARCHITECTS.

▲TV — TELEVISION LOCATION. LVI TO FURNISH AND INSTALL TWO (2) CATEGORY 6 CABLES, ONE (1) COAXIAL CABLE, TWO (2) CATEGORY 6 8P8C (RJ45) JACKS, AND ONE (1) F-TYPE CONNECTOR AT THIS LOCATION. REFER TO THE SPECIFICATION DOCUMENT FOR CABLE AND JACK REQUIREMENTS. LVI TO COORDINATE FACEPLATE FINISH AND HEIGHT WITH ARCHITECTS.

▲C — ONE (1) CABLE AND ONE (1) JACK LOCATION TO SUPPORT SIC FURNISHED AND INSTALLED SURVEILLANCE CAMERA. LVI TO FURNISH AND INSTALL ONE (1) CATEGORY 6 CABLE AND ONE (1) CATEGORY 6 8P8C (RJ45) JACK AT THIS LOCATION. REFER TO THE SPECIFICATION DOCUMENT FOR CABLE AND JACK REQUIREMENTS. LVI TO COORDINATE FACEPLATE FINISH AND HEIGHT WITH ARCHITECTS. NOTE: SOME EXTERIOR LOCATIONS ARE BEYOND SAFE ETHERNET-OPERATING DISTANCES; UTILIZE INTEGRATED POWER/DATA OR POWER/FIBER TRANSCEIVERS AS REQUIRED.

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LAKE COUNTY FOREST PRESERVE DISTRICT
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WAUCONDA, ILLINOIS 60084

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LEGEND AND GENERAL NOTES

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REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER Bicsi
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LEGEND AND GENERAL NOTES

GENERAL SCOPE REQUIREMENTS FOR DATA CABLING:

1. ALL CABLE, ASSOCIATED MATERIALS AND LABOR REQUIRED FOR A COMPLETE INSTALLATION OF THE COMMUNICATIONS CABLING SYSTEM SHALL BE PROVIDED BY THE LVI UNLESS OTHERWISE STATED IN THE DRAWINGS.
2. WHERE APPLICABLE, THE LVI SHALL REMOVE ALL PREVIOUSLY INSTALLED AND ABANDONED CABLE BEFORE THE INSTALLATION OF NEW CABLE TAKES PLACE. THIS MAY CONSIST OF ABANDONED COMMUNICATIONS CABLING NOT REMOVED DURING DEMOLITION AS WELL AS ANY TEMPORARY CABLING INSTALLED BY THE LVI AS PART OF THE INSTALLATION.
3. DUE CARE AND DILIGENCE HAVE BE USED IN PREPARATION OF THE DRAWINGS, AND THEY ARE BELIEVED TO BE SUBSTANTIALLY CORRECT. HOWEVER, THE RESPONSIBILITY FOR DETERMINING THE FULL EXTENT OF EXPOSURE AND THE VERIFICATION OF ALL INFORMATION PRESENTED HEREIN SHALL REST SOLELY WITH THE LVI. THE OWNER, SENTINEL TECHNOLOGIES, AND ANY OTHER REPRESENTATIVES WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THESE DRAWINGS, NOR FOR THE FAILURE ON THE PART OF THE LVI TO DETERMINE THE FULL EXTENT OF THE EXPOSURES.
4. THE LVI SHALL NOT BE ALLOWED TO TAKE ADVANTAGE OF ANY ERRORS OR OMISSIONS IN THESE DRAWINGS. WHERE ERRORS OR OMISSIONS APPEAR IN THESE DRAWINGS, THE LVI SHALL PROMPTLY NOTIFY SENTINEL TECHNOLOGIES IN WRITING OF SUCH ERROR OR OMISSIONS. ANY SIGNIFICANT ERROR, OMISSIONS, OR INCONSISTENCIES IN THE DRAWINGS SHALL BE REPORTED NO LATER THAN FIVE (5) DAYS BEFORE THE SUBMISSION DEADLINE. THE OWNER, SENTINEL TECHNOLOGIES, AND ANY OTHER REPRESENTATIVES SHALL NOT BE RESPONSIBLE FOR ERRORS THAT GO UNDISCOVERED.
5. THE LVI SHALL PROTECT ALL STORED AND INSTALLED MATERIALS AS PART OF THESE SYSTEMS BEFORE, DURING, OR AFTER INSTALLATION FROM DAMAGE CAUSED BY OTHER TRADES UNTIL TURNOVER AND FINAL ACCEPTANCE. IF DAMAGE OCCURS DESPITE SUCH PROTECTIONS, REMOVE AND REPLACE ALL DAMAGED COMPONENTS FOR THE ENTIRE UNIT(S) AS REQUIRED TO PROVIDE A SOLUTION IN AN ORIGINAL, UNDAMAGED CONDITION.
6. THE T568B WIRING PATTERN SHALL BE USED FOR ALL UTP CABLE TERMINATIONS.
7. IN DISTRIBUTED TELECOMMUNICATIONS ROOMS THAT ARE VERTICALLY STACKED, ALL LVI-INSTALLED CABLE SHALL BE INSTALLED IN SLEEVES OR CONDUITS (FURNISHED AND INSTALLED BY OTHERS). IF SLEEVES ARE USED, THEN ALL ALL CABLES SHALL BE SECURED TO THE WALL EVERY FORTY-EIGHT INCHES (48").
8. ALL LVI-INSTALLED CABLE RUNS SHALL CONTAIN NO SPLICE OR TRANSITION POINTS FROM CROSS-CONNECT TO CROSS-CONNECT OR FROM CROSS-CONNECT TO EACH OUTLET LOCATION.
9. ALL CABLES SHALL BE INSTALLED SUCH THAT THE RESPECTIVE MANUFACTURERS' RECOMMENDED BEND RADIUS FOR EACH CABLE TYPE IS NOT EXCEEDED.
10. THE LVI SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL DISTANCES FOR EACH LVI-INSTALLED CABLE RUN FROM CROSS-CONNECT TO CROSS-CONNECT.
11. ALL LVI-INSTALLED CABLES SHALL BE PROPERLY DRESSED, TIED, AND TRIMMED.
12. CABLE PULLING LUBRICANTS, WHERE USED, SHALL BE APPROVED BY THE CABLE MANUFACTURER SO THAT THE LUBRICATING COMPOUNDS DO NOT DETERIORATE THE CABLE JACKET.
13. THE LVI SHALL PROVIDE AND INSTALL ALL JACKS AND APPROPRIATE INSERTS FOR ALL LOCATIONS INCLUDING THOSE INSIDE FLOOR, TABLE-TOP BOXES, AND MODULAR FURNITURE SYSTEMS.

DRAWINGS:

1. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT REPRESENT EXACT FIELD CONDITIONS. THE LVI SHALL FIELD-VERIFY CRITICAL INSTALLATION REQUIREMENTS AND PROVIDE NECESSARY ASSOCIATED WORK.
2. THE LOCATIONS OF TELECOMMUNICATION EQUIPMENT AND DEVICES SHOWN ARE APPROXIMATE. THE LVI SHALL, PRIOR TO INSTALLATION, VERIFY EXACT LOCATIONS BY CROSS-CHECKING ARCHITECTURAL AND ELECTRICAL DRAWINGS, FIELD CONDITIONS, AND APPROVED SHOP DRAWINGS.
3. THE LVI SHALL TAKE FIELD MEASUREMENTS AS REQUIRED TO FIT THE WORK PROPERLY. RECHECK MEASUREMENTS BEFORE INSTALLING EACH PRODUCT. WHERE PORTIONS OF THE WORK ARE INDICATED TO FIT OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENTS BEFORE FABRICATION. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID DELAYING THE WORK.
4. LOCATIONS AND ROUTES OF PATHWAYS SHOWN ON DRAWINGS ARE SCHEMATIC AND NOT NECESSARILY REFLECTIVE OF CONDITIONS AT TIME OF INSTALLATION, OR WERE POSITIONED FOR CLARITY RATHER THAN EXACT SPACING, BENDING, OR DESIRED SEPARATION. THE LVI SHALL REVIEW ANY AND ALL SUCH PATHWAYS SHOWN ON THE DRAWINGS TO ENSURE THAT THE PROPOSED SOLUTION WILL FUNCTION AS INTENDED WITH REGARD TO QUANTITIES, SIZES, LOCATIONS, ETC.
5. THE LVI SHALL REVIEW THE ACTUAL CONDUIT PLANS PROPOSED BY THE MEP ENGINEER OR EC TO ENSURE THAT CONDUITS INTENDED FOR THE COMMUNICATIONS CABLING SYSTEM ARE CORRECTLY SIZED, ADEQUATELY POSITIONED, AND HAVE THE REQUISITE NUMBER OF PULL BOXES AS REQUIRED BY THE ACTUAL MATERIALS PROPOSED BY THE LVI, AND/OR AS THE LVI DESIRES AS OPTIMAL FOR INSTALLATION. THE LVI SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS ASSOCIATED WITH CONDUIT CHANGES RESULTING FROM FAILURE TO PREVIEW AND APPROVE THE PATHWAYS INSTALLED BY OTHERS.
6. THE LVI SHALL BE PREPARED TO RELOCATE EQUIPMENT OR DEVICES PROVIDED UNDER THIS SCOPE OF WORK WHEN DIRECTED BY THE PROJECT TEAM WITHOUT COST, PROVIDED EQUIPMENT HAS NOT BEEN INSTALLED AND THE NEW LOCATION IS NOT GREATER THAN TWENTY FIVE FEET (25') FROM THE LOCATION ORIGINALLY SHOWN.
7. OUTLETS SHALL BE LOCATED AT SAME HEIGHT, AND OF SAME ORIENTATION UNLESS OTHERWISE NOTED.
8. WIRING, SIGNAL AND CONTROL DEVICES WHERE PROVIDED SHALL BE FLUSH-MOUNTED IN FINISHED AREAS.

QUALITY ASSURANCE:

1. ALL MATERIALS AND LABOR PROVIDED BY THE LVI SHALL BE OF THE HIGHEST QUALITY.
2. THE LVI SHALL BE CERTIFIED TO INSTALL THE SOLUTION THAT THE LVI HAS PROPOSED AS SPECIFIED IN THESE DRAWINGS. THE LVI SHALL INSTALL ALL MATERIALS IN COMPLIANCE WITH MANUFACTURER'S WRITTEN DIRECTIONS.
3. ONLY THE HIGHEST GRADE COMPONENTS SHALL BE CONSIDERED, AND ALL COMPONENTS SHALL BE BALANCED WITH EACH OTHER FROM AN ELECTRICAL AND PERFORMANCE CHARACTERISTIC STANDPOINT.
4. THE COMMUNICATIONS CABLING SYSTEM SHALL BE END-TO-END CERTIFIED BY THE LVI AND THE MANUFACTURER. A WRITTEN DOCUMENT ADDRESSING THE COMMUNICATION CABLING SYSTEM'S CERTIFICATION SHALL BE PROVIDED BY THE MANUFACTURER ONCE THE INSTALLATION IS COMPLETE.
5. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER ACCORDING TO GENERALLY ACCEPTED TRADE PRACTICES.
6. APPROPRIATE UNION (OR PREVAILING WAGE) REQUIREMENTS SHALL BE STRICTLY FOLLOWED AND ALL LVI EMPLOYEES ON SITE SHALL HAVE APPROPRIATE UNION LICENSES IF REQUIRED BY THE GC.
7. ALL WORK TO BE PERFORMED BY THE LVI SHALL BE COORDINATED WITH THE OTHER TRADES AND THE GC.
8. THE LVI SHALL CONFORM AND ADHERE TO ALL JOB SITE REQUIREMENTS AS DEFINED BY THE GC. IT IS THE RESPONSIBILITY OF THE LVI TO OBTAIN THESE REQUIREMENTS FROM THE GC.
9. ALL NECESSARY PERMITS ARE TO BE SECURED BY THE LVI.
10. APPROPRIATE LEVELS OF INSURANCE AND BONDING SHALL BE MAINTAINED. CERTIFICATES OF INSURANCE MAY BE REQUESTED AND SHALL BE PROVIDED AT THE LVI'S EXPENSE.
11. ANY VARIATIONS TO THE INSTALLATION OF THE COMMUNICATIONS CABLING SYSTEM AS DESCRIBED IN THESE DRAWINGS SHALL BE SUBJECT TO THE CONTROL OF THE GC, THE OWNER, AND SENTINEL TECHNOLOGIES.
12. SUBSTITUTION OF ANY MATERIALS SPECIFIED IN THIS DOCUMENT SHALL ONLY BE CONSIDERED ONCE A REQUEST TO DO SO HAS BEEN SUBMITTED IN WRITING TO THE GC, THE OWNER, AND SENTINEL TECHNOLOGIES FOR APPROVAL. THIS SUBMITTAL SHALL DISCUSS THE SCOPE OF THE CHANGE, THE RAMIFICATIONS ON THE OVERALL COMMUNICATIONS CABLING SYSTEM AND THE ADVANTAGES TO BE GAINED BY THE OWNER.
13. THE LVI SHALL CONFORM TO THE FOLLOWING STANDARDS AND ALL CURRENT ADDENDA WHEN PROVISIONING AND INSTALLING THE COMMUNICATIONS CABLING SYSTEM:
    - 13.1. TIA-568.0-E, GENERIC TELECOMMUNICATIONS CABLING FOR CUSTOMER PREMISES
    - 13.2. TIA-568.1-E, COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARD
    - 13.3. TIA-568.2-D, BALANCED TWISTED-PAIR TELECOMMUNICATIONS CABLING AND COMPONENTS STANDARD
    - 13.4. TIA-568.4-D, BROADBAND COAXIAL CABLING COMPONENTS
    - 13.5. TIA-569-D, TELECOMMUNICATIONS PATHWAYS AND SPACES
    - 13.6. ANSI/NECA/BICSI 568-2006, STANDARD FOR INSTALLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING
    - 13.7. ANSI/TIA-570-C, RESIDENTIAL TELECOMMUNICATIONS INFRASTRUCTURE STANDARD
    - 13.8. TIA-606-D, ADMINISTRATION STANDARD FOR TELECOMMUNICATIONS INFRASTRUCTURE
    - 13.9. TIA-607-C, GENERIC TELECOMMUNICATIONS BONDING AND GROUNDING (EARTHING) FOR CUSTOMER PREMISES
    - 13.10. ANSI/TIA-1005-A, TELECOMMUNICATIONS INFRASTRUCTURE STANDARD FOR INDUSTRIAL PREMISES
    - 13.11. ANSI/TIA-1152-A, REQUIREMENTS FOR FIELD TEST INSTRUMENTS AND MEASUREMENTS FOR BALANCED TWISTED-PAIR CABLING
    - 13.12. ANSI/TIA-758-B, CUSTOMER-OWNED OUTSIDE PLANT TELECOMMUNICATIONS INFRASTRUCTURE STANDARD
    - 13.13. BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL (BICSI) TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL (LATEST EDITION)
    - 13.14. BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL (BICSI) INFORMATION TRANSPORT SYSTEMS INSTALLATION MANUAL (LATEST EDITION)
    - 13.15. NFPA 70 NATIONAL ELECTRICAL CODE (NEC) 2020 (WHERE MORE STRINGENT THAN LOCAL CODES)
    - 13.16. ALL APPLICABLE LOCAL, COUNTY, AND STATE BUILDING AND ELECTRICAL CODES
    - 13.17. UL 444, COMMUNICATION CABLES
    - 13.18. FCC PART 68 REGULATIONS
    - 13.19. IEEE 802.3, ETHERNET STANDARD

FIRST-NAMED MANUFACTURER:

1. WITHIN THESE DRAWINGS, THE FIRST-NAMED APPROVED MANUFACTURER INDICATES THAT ITS RESPECTIVE DEVICE, EQUIPMENT OR SYSTEM MAY HAVE BEEN USED TO MEET THE JOB REQUIREMENTS AND TO DETERMINE THE SPACE AND DIMENSIONAL REQUIREMENTS. THE LVI'S USE OF ANOTHER PRE-APPROVED SYSTEM SHALL REQUIRE THAT THE LVI VERIFY THAT THE RESPECTIVE DEVICES, EQUIPMENT, SYSTEMS, OR PRODUCTS WILL MEET THE JOB REQUIREMENTS AND WILL FIT THE ALLOCATED SPACE.
2. THE LISTING OF A MANUFACTURER AS ACCEPTABLE OR PRE-APPROVED DOES NOT IN ANY WAY RELIEVE THE LVI FROM THE RESPONSIBILITY FOR PROVIDING DEVICES, EQUIPMENT, OR SYSTEMS THAT MEET THE REQUIREMENTS OF THE SPECIFICATIONS. THE LVI SHALL VERIFY THAT PERFORMANCE REQUIREMENTS ARE MET, AS NO TWO MANUFACTURERS SHOULD BE TRUSTED AS EXACTLY IDENTICAL IN FUNCTION, FIT, OR FINISH.

COORDINATION:

1. THE LVI SHALL COORDINATE THE ARRANGEMENT, INSTALLATION, AND FINISHING OF THE COMMUNICATIONS CABLING SYSTEM:
    - 1.1. ALL FACEPLATE COLORS AND FINISHES SHALL BE COORDINATED WITH THE ARCHITECT
    - 1.2. ANY CONDUIT, PATHWAY, OR SLEEVE REQUIREMENTS SHALL BE COORDINATED WITH THE MEP ENGINEER
    - 1.3. THE ALIGNMENT AND POSITIONING OF PULL BOXES, JUNCTION BOXES, BACK BOXES, CONDUIT ENDS, STUBS, SLEEVES, ETC., WITH LVI-INSTALLED RACEWAYS, HORIZONTAL OR VERTICAL TRAYS, RACKS, AND CABINETS, ETC.
    - 1.4. ANY EQUIPMENT CUT INTO, MOUNTED ON, OR SUSPENDED FROM ARCHITECTURAL ELEMENTS SUCH AS WALLS OR CEILINGS SHALL BE COORDINATED WITH THE ARCHITECT TO ENSURE THAT THERE IS NO CONFLICT WITH DESIGN INTENT OR FUNCTIONALITY.
    - 1.5. ANY OTHER ELEMENTS THAT MIGHT OR WILL INTERFERE WITH ELEMENTS INSTALLED BY OTHER TRADES SHALL BE COORDINATED WITH THE GC AND THOSE RESPECTIVE TRADES
2. CONFLICTS REQUIRING NOTICEABLE DEVIATION FROM THE DRAWINGS SHALL BE COORDINATED WITH SENTINEL.

SUBMITTALS:

1. UPON AWARD OF THE PROJECT, SHOP DRAWINGS AND PRODUCT DATA OF STANDARD CATALOGED PRODUCTS SHALL BE SUBMITTED WITH APPLICABLE DATA THAT MEET THE PROJECT REQUIREMENTS. SUBMITTALS THAT INCLUDE INFORMATION ON MULTIPLE DEVICES OR EQUIPMENT ARE ACCEPTABLE ONLY WHEN ITEMS APPLICABLE TO THE PROJECT ARE IDENTIFIED WITH ARROWS, CHECK MARKS OR OTHER CALL OUTS. THE LVI SHALL CLEARLY IDENTIFY WHICH MANUFACTURER SOLUTIONS ARE BEING PROPOSED AT THE TIME OF THE BID RESPONSE.
2. WHEN SHOP DRAWINGS ARE CREATED FROM OR INCORPORATED WITH SENTINEL'S DRAWINGS, THE LVI SHALL REMOVE THE ARCHITECT'S, ENGINEER'S, AND SENTINEL'S TITLE BLOCKS AND REPLACE THEM WITH THE LVI'S OWN, UNIQUE TITLE BLOCK. THE LVI'S TITLE BLOCK SHALL INCLUDE AT A MINIMUM THE LVI'S NAME, ADDRESS AND TELEPHONE NUMBER, AND PROJECT NAME.
3. SHOP DRAWINGS OF RELATED EQUIPMENT, DEVICES, AND MATERIAL SHALL BE SUBMITTED AT THE SAME TIME SO THE PROJECT TEAM CAN COORDINATE RELATED COMPONENTS.
4. NO MATERIAL OR EQUIPMENT SHALL BE PURCHASED, RELEASED FOR MANUFACTURE, OR SHIPMENT WITHOUT FIRST OBTAINING THE APPROVAL OF THE PROJECT TEAM. ONLY THE LVI SHALL BE RESPONSIBLE FOR COSTS AND COORDINATION OF RETURNING ITEMS PURCHASED PRIOR TO APPROVAL.
5. THE LVI SHALL SUBMIT AN ELECTRONIC COPY OF THE SUBMITTALS UNLESS DIRECTED OTHERWISE BY THE GC OR THE OWNER. THESE SUBMITTALS SHALL BE SUBJECT TO APPROVAL OR REJECTION WITH COMMENTARY. SUBMITTALS MAY CONSIST OF BUT NOT BE LIMITED TO ONE OR ANY APPROPRIATE COMBINATION OF THE FOLLOWING:
    - 5.1. MANUFACTURER CUT-SHEETS
    - 5.2. SHOP DRAWINGS (INCLUDING SINGLE-LINE DIAGRAMS)
    - 5.3. CATALOG SHEETS
    - 5.4. WRITTEN SPECIFICATIONS
    - 5.5. ORIGINALS OR COPIES OF THE ABOVE
6. IF HARD COPIES OF THE SUBMITTALS ARE REQUESTED, THEY SHOULD BE BOUND IN A STANDARD THREE-RING BINDER WITH A MINIMUM OF THE LVI'S NAME, ADDRESS, TELEPHONE NUMBER, AND THE PROJECT NAME.

TESTING, IDENTIFICATION, AND ADMINISTRATION REQUIREMENTS:

1. UTP HORIZONTAL AND BACKBONE CABLING
    - 1.1. A LEVEL IIIe CERTIFIED TESTING DEVICE SHALL BE USED. THE TESTER SHALL HAVE BEEN FIELD CALIBRATED WITHIN THE LAST MONTH.
    - 1.2. THE LVI SHALL ENSURE THAT THE APPROPRIATE ADAPTERS AND TEST CORDS ARE USED.
    - 1.3. ALL PAIRS OF HORIZONTAL STATION AND BACKBONE CABLING SHALL BE TESTED FROM THE JACK TO THE PATCH PANEL OR BLOCK, AND FROM PATCH PANEL TO PATCH PANEL IN A BI-DIRECTIONAL MANNER.
    - 1.4. ALL TESTING SHALL BE CONDUCTED ON THE PERMANENT LINK.
    - 1.5. ALL TESTING SHALL BE IN CONFORMANCE WITH THE MANUFACTURER'S REQUIREMENTS TO OBTAIN APPLICATION PERFORMANCE WARRANTY CERTIFICATION.
2. THE LVI SHALL PROVIDE TEST RESULTS AND CERTIFICATION AS TO THE COMMUNICATIONS CABLING SYSTEM'S ADHERENCE TO THE STANDARDS AND PERFORMANCE REQUIREMENTS REFERENCED IN THESE DRAWINGS.
3. LABELS SHALL MEET THE LEGIBILITY, EXPOSURE, DEFACEMENT, AND ADHESION REQUIREMENTS OF UL969.
4. LABELS SHALL BE PREPRINTED OR PRINTED BY A COMPUTER. LABELS WRITTEN BY HAND ARE NOT ACCEPTABLE.
5. THE LVI SHALL THOROUGHLY LABEL THE ENTIRE COMMUNICATIONS CABLNG SYSTEM FOR FUTURE MAINTAINABILITY.
6. ALL CABLES SHALL BE LABELED AT THE FACEPLATE, THE PATCH PANEL JACK/PORT.
7. THE LVI SHALL PROVIDE RECORD DRAWINGS IN AN AUTOCAD COMPATIBLE FORMAT AND IN PDF FORMAT.
8. THE LVI SHALL THOROUGHLY DOCUMENT THE ENTIRE COMMUNICATIONS CABLING SYSTEM FOR FUTURE MAINTAINABILITY AND TROUBLESHOOTING.

CUTOVER AND TRAINING REQUIREMENTS:

1. THE LVI SHALL COORDINATE ALL TRAINING WITH THE CUSTOMER TO DETERMINE THE EXTENT, DURATION, AND SCHEDULE OF THE TRAINING SESSIONS.
2. THE LVI SHALL PROVIDE TRAINING FOR CUSTOMER PERSONNEL TO ENSURE KNOWLEDGE TRANSFER REGARDING DOCUMENTATION AND OPERATION OF THE COMMUNICATIONS CABLING SYSTEM.
3. AT CLOSEOUT, CLEAN OR RE-CLEAN ENTIRE WORK TO NORMAL LEVEL FOR "FIRST CLASS" MAINTENANCE/CLEANING OF BUILDOUT PROJECTS OF A SIMILAR NATURE. REMOVE NON-PERMANENT PROTECTION AND LABELS, CLEAN EXPOSED FINISHES, TOUCH-UP MINOR FINISH DAMAGE, REMOVE DEBRIS AND BROOM-CLEAN SPACES, SANITIZE WORK, AND PERFORM SIMILAR CLEANUP OPERATIONS NEEDED TO PRODUCE A CLEAN CONDITION.

SUPPORT AND WARRANTY REQUIREMENTS:

1. THE COMMUNICATIONS CABLING SYSTEM SHALL BE END-TO-END CERTIFIED BY THE LVI AND THE MANUFACTURER.
2. AN EXTENDED MATERIAL, LABOR, AND PERFORMANCE WARRANTY SHALL BE PROVIDED BY THE MANUFACTURER. THE LVI SHALL DELIVER TO THE OWNER THE DOCUMENTATION OUTLINING THE TERMS AND CONDITIONS OF THE WARRANTY. A MINIMUM 20-YEAR APPLICATION PERFORMANCE WARRANTY IS REQUIRED.
3. ONCE THE COMMUNICATIONS CABLING SYSTEM IS CERTIFIED, THE LVI SHALL REPAIR - AT NO ADDITIONAL CHARGE - ANY PART OF THE COMMUNICATIONS CABLING SYSTEM THAT IS NOT WORKING PROPERLY WITHIN 24 HOURS OF THE REPORT OF THE PROBLEM, UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE MANUFACTURER ISSUING THE WARRANTY.

COAXIAL BACKBONE CABLE:

1. RG11 COAXIAL CABLE SHALL CONSIST OF A 14 AWG SOLID COPPER CORE QUAD-SHIELDED SOLUTION THAT HAS BEEN SWEPT-TESTED TO 3000MHZ.
2. ALL COAXIAL CABLE SHALL BE CATVP (CATV PLENUM CABLE) FOR PLENUM SPACES AS SPECIFIED IN NEC SECTION 820-50.
3. ONLY COAXIAL CABLES FROM THE FOLLOWING MANUFACTURERS SHALL BE CONSIDERED:
    - 3.1. BELDEN - 1153A
    - 3.2. GEPCO - C3529
    - 3.3. COMMSCOPE/UNIPRISE - 2287K
    - 3.4. LIBERTY - RG11-QUAD PL
    - 3.5. PRE-APPROVED EQUIVALENT
4. ALL COAXIAL CABLE SHALL BE CATV (CATV NON-PLENUM CABLE) FOR NON-PLENUM SPACES AS SPECIFIED IN NEC SECTION 820-50.
5. ONLY COAXIAL CABLES FROM THE FOLLOWING MANUFACTURERS SHALL BE CONSIDERED:
    - 5.1. BELDEN - 1617A
    - 5.2. GEPCO - C5044
    - 5.3. COMMSCOPE/UNIPRISE - 5940R
    - 5.4. LIBERTY - RG11-QUAD
    - 5.5. PRE-APPROVED EQUIVALENT
6. THE LVI SHALL REVIEW THE ASSOCIATED PROJECT DRAWINGS AND IDENTIFY ALL CUMULATIVE DB LOSSES OR GAINS THROUGH THE ENTIRE COAXIAL SYSTEM TO DEVELOP A COMPREHENSIVE FRAMEWORK INDICATING TE NEED FOR LINE AMPLIFICATION.
7. THE LVI SHALL FURNISH AND INSTALL ALL NECESSARY SPLITTERS, TAPS, DIRECTIONAL COUPLERS, ETC., TO PROVIDE A COMPLETE COAXIAL DISTRIBUTION SYSTEM. DIRECTIONAL COUPLERS, TAPS, SPLITTERS AND COMBINERS, WHERE USED, SHALL MEET THE FOLLOWING REQUIREMENTS:
    - 7.1. THE LVI SHALL REVIEW THE ASSOCIATED DRAWINGS. IF THE LVI'S PROPOSED SOLUTION PROVIDES BETTER PERFORMANCE THAN THE MINIMAL GUIDELINES PROVIDED, THE LVI MAY REVISE THE QUANTITIES AND PLACEMENT OF COUPLERS, TAPS , SPLITTERS, AND COMBINERS.
    - 7.2. ALL COMPONENTS SHALL PROVIDE FOR A MINIMUM OF 3000MHZ FREQUENCY RANGE.

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WAUCONDA, ILLINOIS 60084

WA No.	2020-008
Date	6 APR 2023
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CABLING SPECIFICATIONS 1

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7.3. ALL COMPONENTS SHALL BE MOUNTED SECURELY TO A PLYWOOD WALL WITHIN THE DISTRIBUTED TELECOMMUNICATIONS ROOM - REFER TO DRAWINGS.
7.4. ALL COMPONENTS SHALL SUPPORT FEMALE F-TYPE CATV CONNECTORS FOR BOTH RF INPUT AND OUTPUTS.
7.5. TAP VALUES SHALL BE APPROPRIATELY RATED FOR THE ESTIMATED SIGNAL STRENGTH AT THAT POINT OF INSERTION.
7.6. THUR-LINE LOSSES SHALL BE CALCULATED FOR 3000MHZ FREQUENCIES.
7.7. ALL COAXIAL BACKBONE RUNS SHALL BE APPROPRIATELY TERMINATED WITH 75-OHM TERMINATORS AS REQUIRED.
8. THE LVI SHALL NOT FURNISH OR INSTALL ANY AMPLIFIERS, LINE DISTRIBUTION AMPLIFIERS, OR MULTISWITCHES FOR DISTRIBUTION, THESE SHALL BE PROVIDED BY EITHER THE CATV OR SATV PROVIDER UNDER THE DIRECTION OF THE OWNER.
9. F-TYPE CATV CONNECTORS SHALL BE USED, EITHER COMPRESSION OR HIGH-STRENGHT SCREW-ON.
10. CONNECTORS SHALL BE RATE TO AT LEAST 3000MHZ.

UTP HORIZONTAL STATION CABLE:

1. ALL CABLE AND PANELS SHALL BE RATED AT CATEGORY 6A
2. ALL UTP CABLE SHALL BE CMP (COMMUNICATIONS PLENUM CABLE) FOR PLENUM SPACES AS SPECIFIED IN NEC SECTION 800-50.
3. ALL UTP CABLE SHALL BE FROM THE SAME MANUFACTURER AND BE THE SAME TYPE.
4. ALL CATEGORY 6A (10GB) UTP CABLE AND CONNECTORS SHALL MEET OR EXCEED THE CHANNEL REQUIREMENTS AS DEFINED BY THE LATEST STANDARDS.
5. ONLY UTP CABLES FROM THE FOLLOWING MANUFACTURERS SHALL BE CONSIDERED:
   5.1. BERK-TEK
   5.2. GENERAL CABLE
   5.3. HUBBELL
   5.4. SYSTIMAX/UNIPRISE
6. ONLY 8 POSITION, 8 CONDUCTOR (8P8C) CATEGORY 6A (10GB) CONNECTORS CONNECTORS SHALL BE USED.
7. ONLY UTP CONNECTORS FROM THE FOLLOWING MANUFACTURERS SHALL BE CONSIDERED:
   7.1. HUBBELL
   7.2. LEVITON
   7.3. SYSTIMAX/UNIPRISE

COAXIAL HORIZONTAL STATION CABLE:

1. RG6 COAXIAL CABLE SHALL CONSIST OF A 18 AWG SOLID COPPER CORE QUAD-SHIELDED SOLUTION THAT HAS BEEN SWEPT-TESTED TO 3000MHZ.
2. ALL COAXIAL CABLE SHALL BE CATVP (CATV PLENUM CABLE) FOR PLENUM SPACES AS SPECIFIED IN NEC SECTION 820-50.
3. ONLY COAXIAL CABLES FROM THE FOLLOWING MANUFACTURERS SHALL BE CONSIDERED:
   3.1. BELDEN - 1189AP
   3.2. GEPCO - C3525
   3.3. COMMSCOPE/UNIPRISE - 2229V
   3.4. LIBERTY - RG6-QUAD PL
   3.5. PRE-APPROVED EQUIVALENT
4. ALL COAXIAL CABLE SHALL BE CATV (CATV NON-PLENUM CABLE) FOR NON-PLENUM SPACES AS SPECIFIED IN NEC SECTION 820-50.
5. ONLY COAXIAL CABLES FROM THE FOLLOWING MANUFACTURERS SHALL BE CONSIDERED:
   5.1. BELDEN - 1322R
   5.2. GEPCO - C5889
   5.3. COMMSCOPE/UNIPRISE - 5740
   5.4. LIBERTY - RG6-QUAD
   5.5. PRE-APPROVED EQUIVALENT
6. ALL STATION RUNS SHALL BE CALCULATED TO ENSURE THAT A SIGNAL STRENGTH OF +5DBMV OR GREATER EXISTS AT THE FAR END COAXIAL CONNECTOR.
7. IF THE SIGNAL STRENGTH AT THE CONNECTOR IS EXCESSIVE AND CAUSES SIGNAL DISTORTION, THE LVI SHALL FURNISH AND INSTALL THE APPROPRIATE ATTENUATOR PAD TO REDUCE THE SIGNAL AS CLOSE TO +5DBMV AS POSSIBLE.
8. THE LVI MAY USE ADJUSTABLE ATTENUATOR PADS IN THE STANDARD -1DBMV TO -20DBMV RANGE.
9. IT IS NOT NECESSARY FOR THE LVI TO PROVIDE ATTENUATOR PADS AT EACH STATION LOCATION - ONLY FOR THOSE OUTLETS THAT EXCEED A STANDARD NTSC TELEVISION MONITOR'S OR FLAT PANEL DISPLAY'S ABILITY TO COMPENSATE.
10. F-TYPE CATV CONNECTORS SHALL BE USED, EITHER COMPRESSION OR HIGH-STRENGHT SCREW-ON.
11. CONNECTORS SHALL BE RATE TO AT LEAST 3000MHZ.

PATCH CORDS:

1. THE LVI SHALL PROVIDE AND INSTALL ALL NECESSARY UTP AND FIBER OPTIC PATCH CORDS UNLESS DIRECTED OTHERWISE BY THE OWNER OR SENTINEL. FOR PURPOSES OF THE BID RESPONSE PROVIDE TWO (2) 7-FOOT PATCH CORDS AT THE FACEPLATE AND ONE (1) 7-FOOT PATCH CORD AT THE PATCH PANEL FOR EACH LOCATION SHOWN ON THE DRAWINGS. IN ADDITION, PROVIDE XXX (XX) 2-METER DUPLEX MULTIMODE FIBER OPTIC PATCH CORDS WITH LC CONNECTORS.
2. ALL PATCH CORDS SHALL BE PRE-MANUFACTURED AND TESTED AT THE FACTORY BY THE SAME MANUFACTURER THAT FURNISHED THE COMMUNICATIONS CABLING SYSTEM; FIELD CONSTRUCTION OF THESE PATCH CORDS IS NOT ACCEPTABLE.
3. FOR ALL FACEPLATES WITH COAXIAL CABLING, THE LVI SHALL FURNISH AND INSTALL ONE (1) 3-FOOT RG59 PATCH CORD.
4. THE LVI SHALL BE RESPONSIBLE FOR COORDINATING THE FINAL QUANTITIES, LENGTHS, AND COLORS OF PATCH CORDS WITH THE OWNER.

INFRASTRUCTURE COMPONENTS:

1. FURNISH AND INSTALL A CPI 15320-724 OPEN-FRAME 20-RACK-UNIT WALL-MOUNT RACK TO SUPPORT PATCH PANELS, ACTIVE EQUIPMENT, AND SECURITY EQUIPMENT. REFER TO ASSOCIATED DRAWINGS FOR EXACT PLACEMENT. ALL RACKS SHALL BE SECURELY BOLTED TO THE WALL IN ACCORDANCE WITH THE REQUIREMENTS OF THE RACK MANUFACTURER. THESE RACKS SHALL ALSO BE GROUNDED TO THE TELECOMMUNICATIONS GROUNDING BUSBAR (BUSBAR BY EC).
   1.1. THE LVI SHALL INSTALL ALL HORIZONTAL CABLE MANAGERS AND THEIR CORRESPONDING COVERS PER THE ASSOCIATED DRAWINGS, LEVEL HORIZONTALLY.
   1.2. AFTER INSTALLATION, PROTECT THE COMPONENTS FROM DAMAGE DURING CONSTRUCTION. IF DAMAGE OCCURS DESPITE SUCH PROTECTIONS, REMOVE AND REPLACE ALL DAMAGED COMPONENTS OR THE ENTIRE UNIT AS REQUIRED TO PROVIDE COMPONENTS IN ORIGINAL, UNDAMAGED CONDITION
2. FURNISH AND INSTALL HORIZONTAL CABLE MANAGERS PER THE ASSOCIATED DRAWINGS.
   2.1. ACCEPTABLE MANUFACTURERS INCLUDE:
      2.1.1. ORTRONICS
      2.1.2. CHATSWORTH
      2.1.3. B-LINE
      2.1.4. PRE-APPROVED EQUIVALENT
   2.2. THE LVI SHALL PROVIDE THE APPROPRIATE COVERS FOR THE HORIZONTAL WIRE MANAGEMENT. COVERLESS SYSTEMS ARE NOT ACCEPTABLE. D-RING-STYLE, FRONT/REAR COMBINATION UNITS, ROD (G-RING) STYLE, OR VELCRO®-STYLE MANAGERS ARE NOT ACCEPTABLE.
   2.3. THE LVI SHALL INSTALL HORIZONTAL WIRE MANAGERS PER THE ASSOCIATED DRAWINGS AND ENSURE THAT COVERS ARE CLOSED AND READY FOR OWNER-INSTALLED PATCH CORDS. AFTER INSTALLATION, PROTECT THE COMPONENTS FROM DAMAGE DURING CONSTRUCTION. IF DAMAGE OCCURS DESPITE SUCH PROTECTIONS, REMOVE AND REPLACE ALL DAMAGED COMPONENTS OR THE ENTIRE UNIT AS REQUIRED TO PROVIDE COMPONENTS IN ORIGINAL, UNDAMAGED CONDITION.
3. FURNISH AND INSTALL PATCH PANELS TO SUPPORT THE UTP HORIZONTAL CABLING. PATCH PANELS SHALL BE RATED TO THE CATEGORY RATING OF CABLING USED. PATCH PANELS SHALL MATCH THE CONNECTIVITY SOLUTION.

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LAKE COUNTY FOREST PRESERVE DISTRICT
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CABLING SPECIFICATIONS 2

T0.2

GENERAL SCOPE REQUIREMENTS FOR THE PHYSICAL SECURITY SYSTEM:

1. THE SIC SHALL FURNISH AND INSTALL A NEW PHYSICAL SECURITY SYSTEM INCLUDING THE FOLLOWING COMPONENTS AS SPECIFIED IN THESE DRAWINGS.
2. ALL ASSOCIATED MATERIALS AND LABOR REQUIRED FOR A COMPLETE INSTALLATION OF THE PHYSICAL SECURITY SYSTEM SHALL BE PROVIDED BY THE SIC UNLESS OTHERWISE STATED IN THESE DRAWINGS.
3. DUE CARE AND DILIGENCE HAVE BEEN USED IN PREPARATION OF THIS INFORMATION, AND IT IS BELIEVED TO BE SUBSTANTIALLY CORRECT. HOWEVER, THE RESPONSIBILITY FOR DETERMINING THE FULL EXTENT OF EXPOSURE AND THE VERIFICATION OF ALL INFORMATION PRESENTED HEREIN SHALL REST SOLELY WITH THE SIC. THE OWNER, SENTINEL TECHNOLOGIES, OR ANY OTHER REPRESENTATIVES SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THESE DRAWINGS, NOR FOR THE FAILURE ON THE PART OF THE SIC TO DETERMINE THE FULL EXTENT OF THE EXPOSURES.
4. THE SIC SHALL NOT BE ALLOWED TO TAKE ADVANTAGE OF ANY ERRORS OR OMISSIONS IN THESE DRAWINGS. WHERE ERRORS OR OMISSIONS APPEAR IN THESE DRAWINGS, THE SIC SHALL PROMPTLY NOTIFY SENTINEL TECHNOLOGIES IN WRITING OF SUCH ERRORS OR OMISSIONS. ANY SIGNIFICANT ERRORS, OMISSIONS, OR INCONSISTENCIES IN THE DRAWINGS SHALL BE REPORTED NO LATER THAN FIVE (5) DAYS BEFORE THE SUBMISSION DEADLINE. THE OWNER, SENTINEL TECHNOLOGIES, AND ANY OTHER REPRESENTATIVES SHALL NOT BE RESPONSIBLE FOR ERRORS THAT GO UNDISCOVERED.

DRAWINGS:

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT REPRESENT EXACT FIELD CONDITIONS. THE SIC SHALL FIELD-VERIFY CRITICAL INSTALLATION REQUIREMENTS AND PROVIDE NECESSARY ASSOCIATED WORK.
2. THE LOCATIONS OF THE SECURITY EQUIPMENT AND DEVICES SHOWN ARE APPROXIMATE. THE SIC SHALL PRIOR TO INSTALLATION, VERIFY EXACT LOCATIONS BY CROSS-CHECKING SECURITY, ARCHITECTURAL, ELECTRICAL AND COMMUNICATIONS DRAWINGS, FIELD CONDITIONS, AND APPROVED SHOP DRAWINGS.
3. THE SIC SHALL BE PREPARED TO RELOCATE EQUIPMENT OR DEVICES PROVIDED UNDER THIS SCOPE OF WORK WHEN DIRECTED BY THE PROJECT TEAM WITHOUT COST, PROVIDED EQUIPMENT HAS NOT BEEN INSTALLED AND THE NEW LOCATION IS NOT GREATER THAN TWENTY-FIVE FEET (25') FROM THE LOCATION ORIGINALLY SHOWN.
4. INSTALLED DEVICES SHALL BE LOCATED AT THE SAME HEIGHT, AND OF THE SAME ORIENTATION, UNLESS OTHERWISE NOTED.
5. WIRING, SIGNAL AND CONTROL DEVICES, WHERE PROVIDED, SHALL BE FLUSH-MOUNTED IN FINISHED AREAS.

QUALITY ASSURANCE:

1. ALL MATERIALS AND LABOR PROVIDED BY THE SIC SHALL BE OF THE HIGHEST QUALITY.
2. THE SIC SHALL BE CERTIFIED TO INSTALL THE SECURITY SOLUTIONS THAT THE SIC HAS PROPOSED AS SPECIFIED IN THESE DRAWINGS.
3. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER ACCORDING TO GENERALLY ACCEPTED TRADE PRACTICES.
4. THE SIC SHALL PROTECT ALL STORED OR INSTALLED MATERIALS AS PART OF THESE SYSTEMS BEFORE, DURING, AND AFTER INSTALLATION FROM DAMAGE CAUSED BY OTHER TRADES UNTIL TURNOVER AND FINAL ACCEPTANCE. IF DAMAGE OCCURS DESPITE SUCH PROTECTIONS, REMOVE AND REPLACE ALL DAMAGED COMPONENTS OR THE ENTIRE UNIT(S) AS REQUIRED TO PROVIDE A SOLUTION IN AN ORIGINAL, UNDAMAGED CONDITION.
5. ANY VARIATIONS OR SUBSTITUTIONS TO THE INSTALLATION OF THE SECURITY SYSTEM AS DESCRIBED IN THESE DRAWINGS SHALL BE SUBJECT TO THE CONTROL AND APPROVAL OF THE GC, THE OWNER, AND SENTINEL TECHNOLOGIES AND SHALL ONLY BE CONSIDERED ONCE A REQUEST TO DO SO HAS BEEN SUBMITTED IN WRITING TO THE GC, THE OWNER, AND SENTINEL TECHNOLOGIES FOR PRIOR APPROVAL. THIS SUBMITTAL SHALL DISCUSS THE SCOPE OF THE CHANGE, THE RAMIFICATIONS ON THE OVERALL PHYSICAL SECURITY SYSTEM, AND THE ADVANTAGES TO BE GAINED BY THE OWNER.
6. THE SIC SHALL CONFORM TO THE FOLLOWING STANDARDS WHEN FURNISHING AND INSTALLING THE NEW PHYSICAL SECURITY SYSTEM:
   - 6.1. NFPA 101, LIFE SAFETY CODE (LATEST EDITION)
   - 6.2. NFPA 101A, ALTERNATIVE APPROACHES TO LIFE SAFETY (LATEST EDITION)
   - 6.3. NFPA 101B, CODE FOR MEANS OF EGRESS FOR BUILDINGS AND STRUCTURES (LATEST EDITION)
   - 6.4. NFPA 70 NATIONAL ELECTRICAL CODE (NEC) 2014 - WHERE MORE STRINGENT THAN LOCAL CODES
   - 6.5. ALL APPLICABLE LOCAL, COUNTY, AND STATE BUILDING AND ELECTRICAL CODES WITH LOCAL ADDENDA
   - 6.6. UL 444 COMMUNICATIONS CABLES (LATEST EDITION)
   - 6.7. FCC PART 68 REGULATIONS
   - 6.8. THE AMERICAN WITH DISABILITIES ACT (ADA)
   - 6.9. NFPA 731, STANDARD FOR THE INSTALLATION OF ELECTRONIC PREMISES SECURITY SYSTEMS (LATEST EDITION)

FIRST-NAMED MANUFACTURER:

1. WITHIN THESE DRAWINGS, THE FIRST-NAMED APPROVED MANUFACTURER INDICATES THAT ITS RESPECTIVE DEVICE, EQUIPMENT, OR SYSTEM MAY HAVE BEEN USED TO MEET THE JOB REQUIREMENTS AND TO DETERMINE THE SPACE AND DIMENSIONAL REQUIREMENTS. THE SIC'S USE OF ANOTHER PRE-APPROVED SYSTEM MAY REQUIRE THAT THE SIC VERIFY THAT THE RESPECTIVE DEVICES, EQUIPMENT, SYSTEMS, OR PRODUCTS WILL MEET THE JOB REQUIREMENTS AND WILL FIT THE ALLOCATED SPACE.
2. THE LISTING OF A MANUFACTURER AS ACCEPTABLE OR PRE-APPROVED DOES NOT IN ANY WAY RELIEVE THE SIC FROM THE RESPONSIBILITY FOR PROVIDING DEVICES, EQUIPMENT, OR SYSTEMS THAT MEET THE REQUIREMENTS OF THE DRAWINGS. THE SIC SHALL VERIFY THAT PERFORMANCE REQUIREMENTS ARE MET, AS NO TWO MANUFACTURERS SHOULD BE TRUSTED AS EXACTLY IDENTICAL IN FUNCTION, FIT, OR FINISH.

SUBMITTALS:

1. UPON PROJECT AWARD, SHOP DRAWINGS AND PRODUCT DATA OF STANDARD CATALOGUED PRODUCTS SHALL BE SUBMITTED WITH APPLICABLE DATA THAT MEET THE JOB REQUIREMENTS. SUBMITTALS THAT INCLUDE INFORMATION ON MULTIPLE DEVICES OR EQUIPMENT ARE ACCEPTABLE ONLY WHEN ITEMS APPLICABLE TO THE JOB ARE IDENTIFIED WITH ARROWS, CHECK MARKS, OR OTHER CALL OUTS. THE SIC SHALL CLEARLY IDENTIFY WHICH MANUFACTURER SOLUTIONS ARE BEING PROPOSED AT THE TIME OF BID RESPONSE.
2. WHEN SHOP DRAWINGS ARE CREATED FROM OR INCORPORATED WITH SENTINEL TECHNOLOGIES' DRAWINGS, THE SIC SHALL REMOVE THE ARCHITECT'S, ENGINEER'S, AND SENTINEL'S TITLE BLOCKS AND REPLACE IT WITH THE SIC'S OWN UNIQUE TITLE BLOCK. THE SIC'S TITLE BLOCK SHALL INCLUDE AT A MINIMUM THE SIC'S NAME, ADDRESS, TELEPHONE NUMBER, AND THE PROJECT NAME.
3. SHOP DRAWINGS OF RELATED EQUIPMENT, DEVICES, AND MATERIAL SHALL BE SUBMITTED AT THE SAME TIME SO THE PROJECT TEAM CAN COORDINATE THE RELATED COMPONENTS.
4. NO MATERIAL OR EQUIPMENT SHALL BE RELEASED FOR MANUFACTURE OR SHIPMENT WITHOUT FIRST OBTAINING THE APPROVAL OF THE PROJECT TEAM. ONLY THE SIC SHALL BE RESPONSIBLE FOR COSTS AND COORDINATION OF RETURNING ITEMS PURCHASED PRIOR TO APPROVAL.

COORDINATION:

1. THE SIC SHALL COORDINATE THE ARRANGEMENT, INSTALLATION, AND FINISHING OF THE PHYSICAL SECURITY SYSTEM:
2. WHERE A GIVEN COMPONENT OFFERS MULTIPLE COLOR OPTIONS, ALL SUCH FINISHES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO FINAL ORDERING.
3. THE ALIGNMENT AND POSITIONING OF PULL BOXES, JUNCTION BOXES, BACK BOXES, CONDUIT ENDS, STUBS, SLEEVES, ETC., WITH SIC INSTALLED DEVICES.
4. ANY EQUIPMENT CUT INTO, MOUNTED ON, OR SUSPENDED FROM ARCHITECTURAL ELEMENTS SUCH AS WALLS OR CEILING SHALL BE COORDINATED WITH THE ARCHITECT TO ENSURE THEIR IS NO CONFLICT WITH DESIGN INTENT OR FUNCTIONALITY.
5. ANY OTHER ELEMENTS THAT MIGHT OR WILL INTERFERE WITH ELEMENTS INSTALLED BY OTHER TRADES SHALL BE COORDINATED WITH THE GC AND THOSE RESPECTIVE TRADES.
6. THE SIC SHALL TAKE FIELD MEASUREMENTS AS REQUIRED TO FIT THE WORK PROPERLY. RECHECK MEASUREMENTS BEFORE INSTALLING EACH PRODUCT. WHERE PORTIONS OF THE WORK ARE INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENT BEFORE FABRICATION. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID DELAYING THE PROJECT.
7. VERIFY SPACE REQUIREMENTS AND DIMENSIONS OF ITEMS SHOWN DIAGRAMMATICALLY ON THE DRAWINGS.
8. NETWORK-BASED DEVICES REQUIRING IP ADDRESSES SHALL BE COORDINATED WITH THE OWNER.

TESTING, IDENTIFICATION, AND ADMINISTRATION REQUIREMENTS:

1. THE SIC SHALL TEST ALL DEVICES FOR CORRECT FUNCTIONALITY AS RECOMMENDED BY THE RESPECTIVE MANUFACTURER.
2. THE SIC SHALL TEST ALL WIRING FOR CONTINUITY, AND WHERE APPLICABLE FOR WIREMAP.
3. THE SIC SHALL THOROUGHLY LABEL THE ENTIRE PHYSICAL SECURITY SYSTEM FOR FUTURE MAINTAINABILITY.
4. ALL WIRES AND CABLES SHALL BE LABELED AT BOTH ENDS.
5. DEVICES SHALL BE LABELED CONSISTENTLY THROUGHOUT.
6. LABELS SHALL MEET THE LEGIBILITY, EXPOSURE DEFACEMENT, AND ADHESION REQUIREMENTS OF UL969.
7. LABELS SHALL BE PREPRINTED OR PRINTED BY A COMPUTER. LABELS WRITTEN BY HAND ARE NOT ACCEPTABLE.
8. THE SIC SHALL THOROUGHLY DOCUMENT THE ENTIRE PHYSICAL SECURITY SYSTEM FOR FUTURE MAINTAINABILITY AND TROUBLESHOOTING. DOCUMENTATION SHALL INCLUDE BUT NOT BE LIMITED TO:
   - 8.1. AUTOCAD OR PDF SCALE DRAWINGS OF THE PROJECT CLEARLY SHOWING:
     - 8.1.1. PRECISE DEVICE LOCATIONS AND IDENTIFICATION NUMBERS.
     - 8.1.2. APPROXIMATE PATHWAYS OF HORIZONTAL CABLE RUNS TO THEIR NEAREST POINTS OF TERMINATION.
     - 8.1.3. PRECISE LOCATIONS OF INSTALLED PULL BOXES, JUNCTION BOXES, AND ENCLOSURES RELATED TO ANY SECURITY CONDUITS THAT MAY BE INSTALLED.
     - 8.1.4. CONDUIT SIZES FOR ANY CONDUIT ABOVE ONE INCH (1") IN SIZE.
     - 8.1.5. DETAILED ELEVATION VIEWS OF ANY WALL-MOUNTED EQUIPMENT, INCLUDING BUT NOT LIMITED TO CONTROL PANELS, ALARM PANELS, AND HEAD END CABINETS.
     - 8.1.6. ANY EXTERIOR DEVICES, DIMENSIONED FROM BUILDING CORNERS OR OTHER PERMANENT STRUCTURES (TREES, PLANTS, PARKING LOT CURBING, FENCING, ETC., ARE NOT ACCEPTABLE LANDMARKS).
   - 8.2. PRODUCT CUT SHEETS, SHOP DRAWINGS, ETC.
9. DOCUMENTATION SHALL BE SUBMITTED TO THE OWNER PRIOR TO FINAL PAYMENT.

CUTOVER AND TRAINING REQUIREMENTS:

1. THE SIC SHALL BE AVAILABLE OR ON-CALL WITH A 2-HOUR RESPONSE TIME FOR TWO (2) BUSINESS DAYS AFTER THE PHYSICAL SECURITY SYSTEM IS CERTIFIED IN ORDER TO INVESTIGATE AND REPAIR ANY COMPONENTS OF THE SYSTEM THAT DO NOT FUNCTION PROPERLY.
2. THE SIC SHALL PROVIDE A PROGRAMMING, AS WELL AS, A TRAINING SESSION WITH THE APPROPRIATE OWNER STAFF TO EXPLAIN AND ORIENT THE STAFF IN THE USE AND MAINTENANCE OF THE PHYSICAL SECURITY SYSTEM:
3. ACCESS CONTROL SYSTEM - BASIC USERS
   - 3.1. ENROLLMENT OF THE ACCESS CONTROL SYSTEM
   - 3.2. CREATING, CHANGING, AND DELETING CARDHOLDER ACCOUNTS
   - 3.3. ALARM CLEARANCE
   - 3.4. PRINTING REPORTS
4. ACCESS CONTROL SYSTEM - ADVANCED USERS
   - 4.1. IMPORTING CARD HOLDER PHOTOGRAPHS
   - 4.2. IMPORTING OTHER DATA INTO THE CARDHOLDER ACCOUNT
   - 4.3. TROUBLESHOOTING THE BADGE PRINTER
5. ACCESS CONTROL SYSTEM - ADMINISTRATIVE USERS
   - 5.1. CREATING, CHANGING, AND DELETING ADMINISTRATOR ACCOUNTS
   - 5.2. CHANGING PASSWORDS
   - 5.3. CREATING, CHANGING, AND DELETING NEW ACCOUNT GROUPS AND PROFILES
   - 5.4. SETTING, REMOVING, AND MODIFYING RESTRICTIONS AND PERMISSIONS FOR CARDHOLDERS.
   - 5.5. SETTING, CHANGING, AND REMOVING HOLIDAYS AND SPECIAL EVENTS.
   - 5.6. CREATING AND MODIFYING ALARM REPORTING EVENTS AND THE MANNERS WITH WHICH A REPORT BEHAVES.
   - 5.7. CREATING, CHANGING, AND DELETING REPORT FORMATS.
   - 5.8. MODIFYING CARD LABEL TEMPLATES
   - 5.9. IDENTIFYING ISSUES AND PROBLEMS WITH THE SYSTEM WHICH WARRANT A SUPPORT CALL TO THE SIC.
   - 5.10. SYSTEM BACKUP.
6. VIDEO SURVEILLANCE SYSTEM - BASIC USERS
   - 6.1. VIEWING CAMERAS.
   - 6.2. SEARCHING FOR STORED VIDEO.
   - 6.3. EXPORTING VIDEO.
7. VIDEO SURVEILLANCE SYSTEM - ADMINISTRATIVE USERS
   - 7.1. CREATING, CHANGING, AND DELETING ADMINISTRATOR ACCOUNTS.
   - 7.2. CHANGING PASSWORDS
   - 7.3. CHANGING A CAMERA'S WEB BROWSER CONFIGURATION TO GRANT OR DENY ACCESS TO OTHER USERS ON THE NETWORK.
   - 7.4. CONFIGURING A NEW CAMERA SOFTWARE CONFIGURATION ON THE SYSTEM.
   - 7.5. IDENTIFYING ISSUES AND PROBLEMS WITH THE SYSTEM WHICH WARRANT A SUPPORT CALL TO THE SIC.
   - 7.6. SYSTEM BACKUP.
   - 7.7. DATA ARCHIVING.
8. AT CLOSEOUT, CLEAN OR RE-CLEAN ENTIRE WORK TO NORMAL LEVEL FOR "FIRST CLASS" MAINTENANCE/CLEANING OF BUILDING PROJECTS OF A SIMILAR NATURE. REMOVE NON-PERMANENT PROTECTION AND LABELS, CLEAN EXPOSED FINISHES, TOUCH-UP MINOR FINISH DAMAGE, REMOVE DEBRIS AND BROOM-CLEAN SPACES, SANITIZE WORK, AND PERFORM SIMILAR CLEANUP OPERATIONS NEEDED TO PRODUCE A CLEAN CONDITION.

SUPPORT AND WARRANTY REQUIREMENTS:

1. THE PHYSICAL SECURITY SYSTEM SHALL BE END-TO-END CERTIFIED BY THE SIC.
2. AN EXTENDED MATERIAL, LABOR, AND PERFORMANCE WARRANTY SHALL BE PROVIDED BY THE SIC FOR A PERIOD OF AT LEAST ONE (1) YEAR.
3. THE SIC SHALL PROVIDE ONGOING SUPPORT FOR WARRANTY WORK AS WELL AS MODIFICATIONS AND ENHANCEMENTS THAT MAY BE REQUIRED AS PART OF THE WARRANTY.
4. THE SIC SHALL REPAIR - AT NO ADDITIONAL CHARGE - ANY PART OF THE PHYSICAL SECURITY SYSTEM THAT IS NOT WORKING PROPERLY WITHIN 24 HOURS OF THE REPORT OF THE PROBLEM.
5. THE SIC SHALL DELIVER TO THE OWNER ALL DOCUMENTATION OUTLINING THE TERMS AND CONDITIONS OF THE WARRANTY.

SECURITY SYSTEM CABLING REQUIREMENTS:

1. THE SIC SHALL FURNISH AND INSTALL ALL SECURITY-RELATED WIRING AND CABLING FOR ALL COMPONENTS DESCRIBED HEREIN, EXCEPT FOR THOSE CABLING AND WIRING RUNS THAT WILL BE FURNISHED AND INSTALLED BY OTHERS. CABLING AND WIRING FURNISHED AND INSTALLED BY OTHERS WILL BE CLEARLY NOTED IN THESE DRAWINGS.
2. WHERE OTHERS ARE FURNISHING AND INSTALLING THE WIRING OR CABLING, THE SIC SHALL COORDINATE WITH THOSE RESPECTIVE TRADES TO ENSURE THAT ALL SECURITY REQUIREMENTS ARE MET, THAT THERE ARE ADEQUATE QUANTITIES INSTALLED, AND THAT THE INSTALLED SOLUTION WILL PERFORM AS EXPECTED FOR WARRANTY PURPOSES.
3. WHERE THE SIC IS TO FURNISH AND INSTALL CABLING AND WIRING, ALL MANUFACTURERS' RESPECTIVE REQUIREMENTS SHALL BE MET. WHERE MANUFACTURER REQUIREMENTS DIFFER FROM ANY REQUIREMENTS PROVIDED WITHIN THESE DRAWINGS, THE MORE STRINGENT OF THE TWO SHALL BE FOLLOWED.
3. LOCATIONS AND ROUTES OF PATHWAYS SHOWN ON THE DRAWINGS ARE SCHEMATIC AND NOT NECESSARILY REFLECTIVE OF CONDITIONS AT TIME OF INSTALLATION, OR WERE POSITIONED FOR CLARITY RATHER THAN EXACT SPACING, BENDING, OR DESIRED SEPARATION. THE SIC SHALL REVIEW ANY AND ALL SUCH PATHWAYS SHOWN ON THE DRAWINGS TO ENSURE THAT THE PROPOSED SOLUTION WILL FUNCTION AS INTENDED WITH REGARD TO QUANTITIES, SIZES, LOCATIONS, ETC.
4. THE SIC SHALL REVIEW THE ACTUAL CONDUIT PLANS PROPOSED BY THE MEP OR EC TO ENSURE THAT CONDUITS INTENDED FOR THE PHYSICAL SECURITY CABLING ARE CORRECTLY SIZED, ADEQUATELY POSITIONED, AND HAVE THE REQUISITE NUMBER OF PULL BOXES REQUIRED BY THE ACTUAL MATERIALS PROPOSED BY THE SIC, AND/OR THE SIC DESIRES AS OPTIMAL FOR INSTALLATION. THE SIC SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS ASSOCIATED WITH CONDUIT CHANGES RESULTING FROM FAILURE TO PREVIEW AND APPROVE THE PATHWAYS INSTALLED BY OTHERS.
5. BRIDLE RINGS OR OTHER EQUIVALENT SUPPORTS SHALL BE FURNISHED AND INSTALLED BY THE SIC IN AREAS WHERE DUCTS, CONDUITS, OR CABLE TRAYS ARE NOT AVAILABLE.
6. CABLES SHALL NEVER REST UPON CEILING TILES, LIGHTING FIXTURES, STUD WALLS, OR PIPING. ALL CABLES SHALL BE PROPERLY SUPPORTED TO PREVENT THIS, AND SHALL BE SUPPORTED AT A MINIMUM OF EVERY TEN FEET (10') TO REDUCE SAG.
7. ALL SECURITY CABLES SHALL BE PROPERLY DRESSED, TIED, AND TRIMMED.
8. CABLE RUNS SHALL CONTAIN NO SPLICE OR TRANSITION POINTS FROM THE ENDPOINT TO THE CONTROLLER UNLESS NOTED OTHERWISE.
9. ALL CABLES SHALL BE INSTALLED SUCH THAT THE RESPECTIVE MANUFACTURERS' RECOMMENDED BEND RADIUS FOR EACH CABLE TYPE IS NOT EXCEEDED.
10. CABLE PULLING LUBRICANTS, WHERE USED, SHALL BE APPROVED BY THE CABLE MANUFACTURER SO THAT THE LUBRICATING COMPOUND CANNOT DETERIORATE THE CABLE JACKET.
11. THE SIC SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL DISTANCES AND VOLTAGE DROPS FOR EACH CABLE RUN FROM ONE POINT TO ANOTHER.
12. THE WIRING AND CABLING SHALL BE PLENUM-RATED.

VIDEO SURVEILLANCE SYSTEM:

1. THE SIC SHALL FURNISH AND INSTALL A HEAD END SYSTEM TO HOST THE VMS AND NVR CAPABILITIES OF THE SYSTEM.
2. THE HEAD END FOR THIS SYSTEM SHALL BE LOCATED IN ROOM 104 IN THE DATA RACK NEAR THE DOOR.
3. THE SIC IS RESPONSIBLE TO SELECT THE NVR HARDWARE--WHICH MAY BE AN OPEN SYSTEM OR PRE-ASSEMBLED APPLIANCE--AND INSTALL THE VMS SOFTWARE IF REQUIRED BY THE PROPOSED SOLUTION. THE SIC IS THEREFORE REQUIRED TO PERFORM ALL NECESSARY CALCULATIONS TO DETERMINE THE APPROPRIATE NUMBER OF CAMERA CONNECTIONS, PROCESSOR TYPE AND SPEED, RAM, HARD DRIVE STORAGE, SOFTWARE LEVEL, AND OTHER PERIPHERALS NECESSARY TO MEET THE FOLLOWING REQUIREMENTS:
   - 3.1. THE HARDWARE SHALL SUPPORT VIRTUALIZATION.
   - 3.2. THE SYSTEM SHALL SUPPORT CLOUD-BASED DATA STORAGE
   - 3.3. NINETY (90) DAYS OF STORAGE (ON SIC-FURNISHED RAID-BASED OR EXTERNAL STORAGE APPLIANCES)
   - 3.4. 12-15 IMAGES PER SECOND (AS A BASELINE AVERAGE) PER CAMERA
   - 3.5. THE ABILITY TO PROVIDE A GRAPHIC MAP OF THE FACILITY SHOWING CAMERA LOCATIONS
   - 3.6. THE NVR SHALL FEATURE REDUNDANT POWER SUPPLIES
4. REMOTE VIEWING
   - 4.1. THE SYSTEM SHALL BE CONFIGURED SO THAT APPROVED USERS MAY VIEW CAMERAS THROUGH A CONVENTIONAL WEB BROWSER.
   - 4.2. THE SIC SHALL COORDINATE WITH THE OWNER TO ENSURE THAT ALL APPROVED USERS AND CAMERAS ARE IDENTIFIED FOR SUCH SHARING, AS NOT ALL CAMERAS MAY BE APPROVED FOR SHARING TO ALL USERS. THE SYSTEM SHALL SUPPORT THE ABILITY TO VIEW CAMERAS VIA REMOTE WEB BROWSING, IOS DEVICES, WINDOWS DEVICES, AND ANDROID DEVICES (TO PRE-APPROVED CLIENTS)
5. APPROVED MANUFACTURERS INCLUDE THE LATEST VERSIONS OF:

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LAKEWOOD NET ZERO MAINTENANCE FACILITY
LAKE COUNTY FOREST PRESERVE DISTRICT
27277 N. FOREST PRESERVE ROAD
WAUCONDA, ILLINOIS 60084

WA No. 2020-008
Date 6 APR 2023
Drawn JM/STI
Checked MCR

REVISIONS

NO.	DATE	DESCRIPTION

WILLIAMS ARCHITECTS
ARCHITECTURE | PLANNING | AQUATICS | INTERIORS
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SECURITY SPECIFICATIONS 1

T0.3

REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
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5.1. HANWHA WISENET

5.2. AVIGILON

5.3. MILESTONE

5.4. SALIENT

5.5. EXACQ

6. THE HARDWARE SHALL BE EQUIPPED WITH FULL 10/100/1000 ETHERNET FUNCTIONALITY, SO THAT NETWORK OPERATIONS CAN BE PERFORMED USING STANDARD TCP/IP-COMPATIBLE CONTROLS.

CAMERAS:

1. CAMERAS SHALL FEATURE THE FOLLOWING:
   - 1.1. POWER-OVER-ETHERNET, USED FOR POWER AND DATA
   - 1.2. MOTORIZED VARIFOCAL LENSES
   - 1.3. WIDE DYNAMIC RANGE (WDR) UNLESS ASSOCIATED PROJECT DRAWINGS CALL FOR SOME LOCATIONS WITH SUPER WIDE DYNAMIC RANGE ON A CAMERA-BY-CAMERA BASIS; REFER TO PROJECT DRAWINGS FOR ANTICIPATED AREAS OF COVERAGE.
   - 1.4. MINIMUM RESOLUTION OF 1920 X 1080 AT THE MAXIMUM FRAME RATE (GREATER THAN OR EQUAL TO 15 FPS); MOST CAMERA FRAME RATES ARE EXPECTED TO BE 4-5 FPS UNLESS NOTE OTHERWISE ON A CAMERA-BY-CAMERA BASIS
   - 1.5. MINIMUM ILLUMINATION (50 IRE) OF 0.1 LUX IN BLACK AND WHITE
   - 1.6. ABILITY TO SUPPORT H.264 VIDEO COMPRESSION FORMAT SUPPORT
   - 1.7. SD MEMORY SLOT
   - 1.8. RECORD ON MOTION DETECTION. THE SIC SHALL ENSURE THE MOTION ACTIVATION FEATURES ARE OPERATING. FOR EACH FIXED VIEW CAMERA, THE SIC SHALL MASK ANY AREAS OF PREDICTABLE FREQUENT MOVEMENT, SO THAT MOTION ACTIVATION IS NOT NEEDLESSLY UTILIZED. EXTERIOR CAMERAS THAT LOOK INTO NON-THE OWNER FACILITY WINDOWS OR RESIDENTIAL AREAS SHALL ALSO BE MASKED TO PREVENT INVASIONS OF PRIVACY.
   - 1.9. ONVIF COMPLIANCE
   - 1.10. OPERATING TEMPERATURE RANGE MEETING OR EXCEEDING A WINDOW OF 15° FAHRENHEIT TO 130° FAHRENHEIT WITHOUT ADDITIONAL HEATER OR BLOWER
   - 1.11. ABILITY TO PROVIDE AN INTEGRATED WEBPAGE SO THAT MINIMUM OF 5 CLIENTS CAN VIEW A CAMERA IMAGE ON A STANDARD WEB BROWSER AT THE SAME TIME. THE SIC SHALL ENSURE THAT ALL IP-BASED CAMERA IMAGES WILL BE VISIBLE THROUGH AN IP-BASED NETWORK VIA A STANDARD WEB BROWSER. THE SIC SHALL COORDINATE WITH THE OWNER TO DETERMINE WHICH CAMERAS ARE VISIBLE VIA BROWSER TO THE GENERAL PUBLIC (IF ANY), WHICH ARE VIEWABLE TO ALL THE OWNER NETWORK OR REMOTE USERS, AND WHICH ARE RESTRICTED (AND TO WHOM).
   - 1.12. INSTALL ALL COMPONENTS ACCORDING TO THEIR MANUFACTURERS' RESPECTIVE REQUIREMENTS.
2. THE SIC SHALL ENSURE THAT THE CAMERA IMAGE IS STABLE, CLEAR, AND WORKS IN ALL ANTICIPATED LIGHTING CONDITIONS. THE SIC SHALL ENSURE THAT ALL CAMERA IMAGES ARE EQUALLY VISIBLE FROM THE NVR AND ANY VIEWING MONITORS. THE SIC SHALL INSTALL ALL REQUIRED SOFTWARE UPDATES, PATCHES, FIXES, AND DRIVERS TO ENSURE THE ENTIRE SOLUTION IS UP-TO-DATE TO MANUFACTURER RECOMMENDATIONS.
9. DOME CAMERAS
   - 9.1. DOME CAMERAS MAY BE CEILING-MOUNTED (ON EITHER GYPSUM WALLBOARD OR ACOUSTICAL CEILING TILES), OR SIDE-MOUNTED TO BACK BOXES ON WALL SURFACES. THE SIC SHALL MOUNT EACH CEILING CAMERA FLUSH AND LEVEL WITHIN THE CEILING SURFACE. COORDINATE LOCATIONS WITH THE ARCHITECT TO VERIFY CEILING TYPE IN EACH LOCATION.
   - 9.2. DOME-CAMERAS SHALL BE ENCLOSED IN A SMOKED DOME. EACH CAMERA HOUSING SHALL BE TIGHT TO THE CEILING AND WHITE IN COLOR; TOTAL WIDTH OF THE TRIM RING SHALL NOT EXCEED 9-INCHES IN DIAMETER.
10. MULTI-LENS CAMERAS
   - 10.1. MULTI-LENS CAMERAS SHALL FEATURE 90°, 180°, 270°, AND 360° VIEWS AS SHOWN ON THE SECURITY DRAWINGS.
   - 10.2. POSITION LENSES AS REQUIRED TO ACHIEVE THE AREAS OF COVERAGE INDICATED. IT IS PERMISSIBLE TO HAVE DIFFERENT FOCUS POINTS BASED ON THE AREA A SPECIFIC CAMERA SERVES (FOR EXAMPLE, ONE LENS MAY FOCUS ON A DOOR WHILE OTHERS COVER A MORE GENERAL VIEW).
11. OUTDOOR CAMERAS SHALL HAVE:
   - 11.1. AN OPERATING TEMPERATE RANGE MEETING OR EXCEEDING A WINDOW OF -50° FAHRENHEIT TO 130° FAHRENHEIT WITH INTEGRATED 24V HEATER AND BLOWER
   - 11.2. VANDAL-RESISTANT IP66- AND IK10-RATED ENCLOSURES
   - 11.3. UTP-BASED POWER AND SIGNALING; IF OPTICAL FIBER IS USED DUE TO DISTANCE, THE SIC SHALL FURNISH AND INSTALL ALL NECESSARY MEDIA CONVERTERS AND MEANS TO POWER THE CONVERTERS AS PART OF THEIR SOLUTION.
   - 11.4. THE SIC IS SOLELY RESPONSIBLE TO COORDINATE WITH THE EC FOR LIGHTNING PROTECTION BASED ON THE EC'S REQUIREMENTS.
   - 11.5. HOUSINGS SHALL FEATURE:
     - 11.5.1. ALUMINUM CONSTRUCTION
     - 11.5.2. MINIMUM SIZING TO DE-EMPHASIZE THE APPEARANCE OF THE CAMERA ON ARCHITECTURAL SURFACES
     - 11.5.3. NYLON GLAND CABLE ENTRIES
   - 11.6. THE SIC SHALL FURNISH AND INSTALL 24 VAC POWER SUPPLY PANELS FOR ALL EXTERIOR CAMERAS. SELF-RESETTING CIRCUIT BREAKERS ARE REQUIRED ON THE PANEL. INPUT VOLTAGE SHALL BE 120 VAC. POWER SUPPLIES SHALL SUPPORT 24 HOURS UNINTERRUPTED OPERATION IN THE EVENT OF POWER LOSS.
12. WALL-MOUNTS
   - 12.1. ALL WALL MOUNTS SHALL FEATURE PAINTABLE METAL
   - 12.2. MOUNTS SHALL BE SECURELY MOUNTED TO THE WALL SURFACE AS WELL AS THE CAMERA HOUSING
   - 12.3. MOUNTS SHALL ALLOW FOR THE CAMERA HOUSING TO BE POSITIONED TO THE CORRECT VANTAGE POINT AND THEN LOCKED INTO A FINAL POSITION
13. CEILING OR SOFFIT-MOUNTS
   - 13.1. ALL CEILING OR SOFFIT MOUNTS SHALL BE FULLY RECESSED IN A RATED ENCLOSURE; IF FIELD CONDITIONS PREVENT FULL RECESSION, THE SIC SHALL UTILIZE A PENDANT-MOUNT
   - 13.2. MOUNTING METHODS SHALL BE SECURE TO PREVENT INJURY OR DAMAGE
   - 13.3. SMOKED DOMES SHALL BE USED TO CONCEAL THE CAMERA'S ORIENTATION
14. CORNER OR PARAPET-MOUNTS
   - 14.1. ALL CORNER AND/OR PARAPET MOUNTS SHALL FEATURE PAINTABLE METAL
   - 14.2. MOUNTS SHALL BE SECURELY MOUNTED TO THE WALL OR ROOF SURFACE AS WELL AS THE CAMERA HOUSING
   - 14.3. MOUNTS SHALL ALLOW FOR THE CAMERA HOUSING TO BE POSITIONED TO THE CORRECT VANTAGE POINT AND THEN LOCKED INTO A FINAL POSITION

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SECURITY SPECIFICATIONS 2

T0.4

GENERAL SCOPE REQUIREMENTS FOR THE AUDIOVISUAL SYSTEMS:

1. ALL COMPONENTS (SOURCE, AUDIO, VIDEO, CONTROL, CABLE) AND ASSOCIATED MATERIALS AND LABOR REQUIRED FOR A COMPLETE INSTALLATION OF THE AUDIOVISUAL SYSTEM SHALL BE PROVIDED BY THE AVIC UNLESS OTHERWISE STATED IN THIS DOCUMENT.
2. DUE CARE AND DILIGENCE HAVE BEEN USED IN PREPARATION OF THIS INFORMATION, AND IT IS BELIEVED TO BE SUBSTANTIALLY CORRECT. HOWEVER, THE RESPONSIBILITY FOR DETERMINING THE FULL EXTENT OF EXPOSURE AND THE VERIFICATION OF ALL INFORMATION PRESENTED HEREIN SHALL REST SOLELY WITH THE AVIC. THE OWNER, SENTINEL TECHNOLOGIES, AND ANY OTHER REPRESENTATIVES WILL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THESE SPECIFICATIONS, NOR FOR THE FAILURE ON THE PART OF THE AVIC TO DETERMINE THE FULL EXTENT OF THE EXPOSURES.
3. THE AVIC SHALL NOT BE ALLOWED TO TAKE ADVANTAGE OF ANY ERRORS OR OMISSIONS IN THESE SPECIFICATIONS AND ASSOCIATED PROJECT DRAWINGS. WHERE ERRORS OR OMISSIONS APPEAR IN THESE SPECIFICATIONS OR DRAWINGS, THE AVIC SHALL PROMPTLY NOTIFY SENTINEL TECHNOLOGIES IN WRITING OF SUCH ERRORS OR OMISSIONS. ANY SIGNIFICANT ERRORS, OMISSIONS, OR INCONSISTENCIES IN THE SPECIFICATIONS SHALL BE REPORTED NO LATER THAN FIVE (5) DAYS BEFORE THE SUBMISSION DEADLINE. THE OWNER, SENTINEL TECHNOLOGIES, AND ANY OTHER REPRESENTATIVES WILL NOT BE RESPONSIBLE FOR ERRORS THAT GO UNDISCOVERED.

DRAWINGS:

1. ASSOCIATED DRAWINGS ARE DIAGRAMMATIC IN NATURE AND MAY NOT REPRESENT EXACT FIELD CONDITIONS. THE AVIC SHALL FIELD-VERIFY CRITICAL INSTALLATION REQUIREMENTS AND PROVIDE NECESSARY ASSOCIATED WORK.
2. LOCATIONS AND ROUTES OF PATHWAYS SHOWN ON DRAWINGS ARE SCHEMATIC AND NOT NECESSARILY REFLECTIVE OF CONDITIONS AT TIME OF INSTALLATION, OR WERE POSITIONED FOR CLARITY RATHER THAN EXACT SPACING, BENDING, OR DESIRED SEPARATION. THE AVIC SHALL REVIEW ANY AND ALL SUCH PATHWAYS SHOWN ON THE DRAWINGS TO ENSURE THAT THE PROPOSED SOLUTION WILL FUNCTION AS INTENDED WITH REGARD TO QUANTITIES, SIZES, LOCATIONS, ETC.
3. THE AVIC SHALL, PRIOR TO INSTALLATION, VERIFY EXACT LOCATIONS BY CROSS-CHECKING ARCHITECTURAL, ELECTRICAL, AND COMMUNICATIONS DRAWINGS, FIELD CONDITIONS AND APPROVED SHOP DRAWINGS.
4. THE AVIC SHALL BE PREPARED TO RELOCATE EQUIPMENT OR DEVICES PROVIDED UNDER THIS SCOPE OF WORK WHEN DIRECTED BY THE PROJECT TEAM WITHOUT COST, PROVIDED EQUIPMENT HAS NOT BEEN INSTALLED AND THE NEW LOCATION IS NOT GREATER THAN TWENTY FIVE FEET (25') FROM THE LOCATION ORIGINALLY SHOWN.
5. INSTALLED DEVICES SHALL BE LOCATED AT SAME HEIGHT, AND OF SAME ORIENTATION, UNLESS OTHERWISE NOTED

QUALITY ASSURANCE:

1. THE AVIC SHALL BE CERTIFIED TO INSTALL THE AUDIOVISUAL SOLUTIONS THAT THE AVIC HAS PROPOSED AS SPECIFIED IN THIS DOCUMENT.
2. ONLY THE HIGHEST GRADE COMPONENTS SHALL BE CONSIDERED, AND ALL COMPONENTS SHALL BE BALANCED WITH EACH OTHER FROM AN ELECTRICAL AND PERFORMANCE CHARACTERISTIC STANDPOINT.
3. ALL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER ACCORDING TO GENERALLY ACCEPTED TRADE PRACTICES.
4. APPROPRIATE UNION REQUIREMENTS SHALL BE STRICTLY FOLLOWED AND ALL AVIC EMPLOYEES ON SITE SHALL HAVE APPROPRIATE UNION LICENSES.
5. THE AVIC SHALL CONFORM AND ADHERE TO ALL JOB SITE REQUIREMENTS AS DEFINED BY THE GENERAL CONTRACTOR. IT IS THE RESPONSIBILITY OF THE AVIC TO OBTAIN THESE REQUIREMENTS FROM THE GENERAL CONTRACTOR.
6. ALL NECESSARY PERMITS ARE TO BE SECURED BY THE AVIC.
7. APPROPRIATE LEVELS OF INSURANCE AND BONDING SHALL BE MAINTAINED. CERTIFICATES OF INSURANCE MAY BE REQUESTED, AND SHALL BE PROVIDED AT THE AVIC'S EXPENSE.
8. THE AVIC SHALL PROTECT ALL STORED OR INSTALLED MATERIALS AS PART OF THESE SYSTEMS BEFORE, DURING, OR AFTER INSTALLATION FROM DAMAGE CAUSED BY OTHER TRADES UNTIL TURNOVER AND FINAL ACCEPTANCE. IF DAMAGE OCCURS DESPITE SUCH PROTECTIONS, REMOVE AND REPLACE ALL DAMAGED COMPONENTS OR THE ENTIRE UNIT(S) AS REQUIRED TO PROVIDE A SOLUTION IN AN ORIGINAL, UNDAMAGED CONDITION.
9. ANY VARIATIONS TO THE INSTALLATION OF THE AUDIOVISUAL SYSTEM AS DESCRIBED IN THIS SPECIFICATION AND THE ASSOCIATED PROJECT DRAWINGS SHALL BE SUBJECT TO THE CONTROL AND APPROVAL OF THE GENERAL CONTRACTOR, THE OWNER AND SENTINEL.
10. SUBSTITUTION OF ANY MATERIALS SPECIFIED IN THIS DOCUMENT SHALL ONLY BE CONSIDERED ONCE A REQUEST TO DO SO HAS BEEN SUBMITTED IN WRITING TO THE GENERAL CONTRACTOR, THE OWNER AND SENTINEL FOR PRIOR APPROVAL. THIS SUBMITTAL SHALL DISCUSS THE SCOPE OF THE CHANGE, THE RAMIFICATIONS ON THE OVERALL AUDIOVISUAL SYSTEMS AND THE ADVANTAGES TO BE GAINED BY THE OWNER.
11. THE AVIC SHALL CONFORM TO THE FOLLOWING STANDARDS WHEN PROVISIONING AND INSTALLING THE NEW AUDIOVISUAL SYSTEM:
    - 11.1. ALL APPLICABLE LOCAL, COUNTY AND STATE BUILDING AND ELECTRICAL CODES WITH LOCAL ADDENDA
    - 11.2. THE AMERICANS WITH DISABILITIES ACT (ADA)
    - 11.3. BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL (BICSI) *AV DESIGN REFERENCE MANUAL* (AVDRM) (LATEST EDITION)
    - 11.4. BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL (BICSI) *INFORMATION TRANSPORT SYSTEMS INSTALLATION MANUAL* (LATEST EDITION)
    - 11.5. BUILDING INDUSTRY CONSULTING SERVICES INTERNATIONAL (BICSI) *TELECOMMUNICATIONS DISTRIBUTION METHODS MANUAL* (TDMM) (LATEST EDITION)
    - 11.6. NFPA 70 *NATIONAL ELECTRICAL CODE* (NEC) 2020 (WHERE MORE STRINGENT THAN LOCAL CODES)
    - 11.7. UL 444 2008, COMMUNICATION CABLES
    - 11.8. ANSI/NECA/BICSI 568-2006, STANDARD FOR INSTALLING COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING
    - 11.9. ANSI/TIA-568.0-D, GENERIC TELECOMMUNICATIONS CABLING FOR CUSTOMER PREMISES
    - 11.10. FCC PART 68 REGULATIONS
    - 11.11. ANSI/TIA-568.1-D, COMMERCIAL BUILDING TELECOMMUNICATIONS CABLING STANDARD
    - 11.12. IEEE 802.3, *ETHERNET STANDARD*
    - 11.13. ANSI/TIA-568.2-D, BALANCED TWISTED-PAIR TELECOMMUNICATIONS CABLING AND COMPONENTS STANDARD
    - 11.14. ANSI/TIA-569-D, TELECOMMUNICATIONS PATHWAYS AND SPACES
    - 11.15. ANSI/TIA-606-C, ADMINISTRATION STANDARD FOR COMMERCIAL TELECOMMUNICATIONS INFRASTRUCTURE
    - 11.16. ANSI/TIA-607-C-1, GENERIC TELECOMMUNICATIONS BONDING AND GROUNDING (EARTHING) FOR CUSTOMER PREMISES
    - 11.17. NECA/BICSI-607, STANDARD FOR TELECOMMUNICATIONS BONDING AND GROUNDING PLANNING AND INSTALLATION METHODS FOR COMMERCIAL BUILDINGS
    - 11.18. ANSI/TIA-1152-A, REQUIREMENTS FOR FIELD TEST INSTRUMENTS AND MEASUREMENTS FOR BALANCED TWISTED-PAIR CABLING

FIRST-NAMED MANUFACTURER:

1. WITHIN THESE SPECIFICATIONS AND ASSOCIATED DRAWINGS, THE FIRST-NAMED APPROVED MANUFACTURER INDICATES THAT ITS RESPECTIVE DEVICE, EQUIPMENT OR SYSTEM MAY HAVE BEEN USED TO MEET THE JOB REQUIREMENTS AND TO DETERMINE THE SPACE AND DIMENSIONAL REQUIREMENTS. THE AVIC'S USE OF ANOTHER PRE-APPROVED SYSTEM MAY REQUIRE THAT THE AVIC VERIFY THAT THE RESPECTIVE DEVICES, EQUIPMENT, SYSTEMS OR PRODUCTS WILL MEET THE JOB REQUIREMENTS AND WILL FIT THE ALLOCATED SPACE.
2. THE LISTING OF A MANUFACTURER AS ACCEPTABLE OR PRE-APPROVED DOES NOT IN ANY WAY RELIEVE THE AVIC FROM THE RESPONSIBILITY FOR PROVIDING DEVICES, EQUIPMENT OR SYSTEMS THAT MEET THE REQUIREMENTS OF THE SPECIFICATIONS. THE AVIC SHALL VERIFY THAT PERFORMANCE REQUIREMENTS ARE MET, AS NO TWO MANUFACTURERS SHOULD BE TRUSTED AS EXACTLY IDENTICAL IN FUNCTION, FIT, OR FINISH.

SUBMITTALS IF AWARDED:

1. SHOP DRAWINGS AND PRODUCT DATA OF STANDARD CATALOGED PRODUCTS SHALL BE SUBMITTED WITH APPLICABLE DATA THAT MEET THE JOB REQUIREMENTS. SUBMITTALS THAT INCLUDE INFORMATION ON MULTIPLE DEVICES OR EQUIPMENT ARE ACCEPTABLE ONLY WHEN ITEMS APPLICABLE TO THE JOB ARE IDENTIFIED WITH ARROWS, CHECK MARKS OR OTHER CALL OUTS. THE AVIC SHALL CLEARLY IDENTIFY WHICH MANUFACTURER SOLUTIONS ARE BEING PROPOSED AT THE TIME OF BID RESPONSE.
2. WHEN SHOP DRAWINGS ARE CREATED FROM OR INCORPORATED WITH SENTINEL'S DRAWINGS, THE AVIC SHALL REMOVE THE ARCHITECT'S, ENGINEER'S, AND SENTINEL'S TITLE BLOCKS AND REPLACE IT WITH THE AVIC'S OWN, UNIQUE TITLE BLOCK. THE AVIC'S TITLE BLOCK SHALL INCLUDE, AT A MINIMUM, THE AVIC'S NAME, ADDRESS AND TELEPHONE NUMBER, AND THE PROJECT NAME.
3. SHOP DRAWINGS OF RELATED EQUIPMENT, DEVICES AND MATERIAL SHALL BE SUBMITTED AT SAME TIME SO THE PROJECT TEAM CAN COORDINATE THE RELATED COMPONENTS.
4. NO MATERIAL OR EQUIPMENT SHALL BE RELEASED FOR MANUFACTURE OR SHIPMENT WITHOUT FIRST OBTAINING THE APPROVAL OF THE PROJECT TEAM. ONLY THE AVIC SHALL BE RESPONSIBLE FOR COSTS AND COORDINATION OF RETURNING ITEMS PURCHASED PRIOR TO APPROVAL.
5. THE AVIC SHALL SUBMIT AN ELECTRONIC COPY OF THE SUBMITTALS UNLESS DIRECTED OTHERWISE BY THE GC OR THE OWNER. THESE SUBMITTALS MAY BE SUBJECT TO APPROVAL, OR REJECTION WITH COMMENTARY. SUBMITTALS MAY CONSIST OF BUT NOT BE LIMITED TO ONE OR ANY APPROPRIATE COMBINATION OF THE FOLLOWING:
    - 5.1. MANUFACTURER CUT-SHEETS
    - 5.2. SHOP DRAWINGS (INCLUDING SINGLE-LINE DIAGRAMS)
    - 5.3. CATALOG SHEETS (AGGREGATED WITH A SPREADSHEET-STYLE INDEX SHOWING WHICH CATALOG SHEETS PERTAIN TO WHICH ROOM, RATHER THAN ROOM-BY-ROOM PACKETS OF REPETITIVE PAGES)
    - 5.4. WRITTEN SPECIFICATIONS
    - 5.5. ORIGINALS OR COPIES OF THE ABOVE
6. IF HARD COPIES OF THE SUBMITTALS ARE REQUESTED, THEY SHOULD BE BOUND IN A STANDARD THREE-RING BINDER WITH A MINIMUM OF THE AVIC'S NAME, ADDRESS AND TELEPHONE NUMBER, AND THE PROJECT NAME.

COORDINATION:

1. THE AVIC SHALL COORDINATE THE ARRANGEMENT, INSTALLATION, AND FINISHING OF THE AUDIOVISUAL SYSTEM.
2. WHERE A GIVEN COMPONENT OFFERS MULTIPLE COLOR OPTIONS, ALL SUCH FINISHES SHALL BE COORDINATED WITH THE ARCHITECT IN ADVANCE OF PURCHASE.
3. ANY CONDUIT, PATHWAY, OR SLEEVE REQUIREMENTS SHALL BE COORDINATED WITH THE MEP ENGINEER. THE AVIC SHALL REVIEW THE ACTUAL CONDUIT PLANS PROPOSED BY THE MEP OR EC TO ENSURE THAT CONDUITS INTENDED FOR THE AUDIOVISUAL SYSTEM ARE CORRECTLY SIZED, ADEQUATELY POSITIONED, AND HAVE THE REQUISITE NUMBER OF PULL BOXES AS REQUIRED BY THE ACTUAL MATERIALS PROPOSED BY THE AVIC, AND/OR AS THE AVIC DESIRES AS OPTIMAL FOR INSTALLATION. THE AVIC SHALL BE RESPONSIBLE FOR ANY AND ALL COSTS ASSOCIATED WITH CONDUIT CHANGES RESULTING FROM FAILURE TO PREVIEW AND APPROVE THE PATHWAYS INSTALLED BY OTHERS.
4. THE FINAL ALIGNMENT AND POSITIONING OF PULL BOXES, JUNCTION BOXES, BACK BOXES, CONDUIT ENDS, STUBS, SLEEVES, ETC., WITH AVIC-INSTALLED DEVICES SHALL BE COORDINATED WITH THE MEP ENGINEER AND ARCHITECT.
5. ANY EQUIPMENT CUT INTO, MOUNTED ON, OR SUSPENDED FROM ARCHITECTURAL ELEMENTS SUCH AS WALLS OR CEILING SHALL BE COORDINATED WITH THE ARCHITECT TO ENSURE THERE IS NO CONFLICT WITH DESIGN INTENT OR FUNCTIONALITY.
6. ANY OTHER ELEMENTS THAT MIGHT OR WILL INTERFERE WITH ELEMENTS INSTALLED BY OTHER TRADES SHALL BE COORDINATED WITH THE GC AND THOSE RESPECTIVE TRADES.
7. NETWORK-BASED DEVICES REQUIRING IP ADDRESSES OR SIP INTEGRATION SHALL BE COORDINATED WITH THE OWNER.
8. CONFLICTS REQUIRING NOTICEABLE DEVIATION FROM THE ASSOCIATED PROJECT DRAWINGS OR THESE SPECIFICATIONS SHALL BE COORDINATED WITH SENTINEL.

COMMON WORK RESULTS FOR INSTALLATION:

1. TAKE FIELD MEASUREMENTS AS REQUIRED TO FIT THE WORK PROPERLY. RECHECK MEASUREMENTS BEFORE INSTALLING EACH PRODUCT. WHERE PORTIONS OF THE WORK ARE INDICATED TO FIT TO OTHER CONSTRUCTION, VERIFY DIMENSIONS OF OTHER CONSTRUCTION BY FIELD MEASUREMENTS BEFORE FABRICATION. COORDINATE FABRICATION SCHEDULE WITH CONSTRUCTION PROGRESS TO AVOID DELAYING THE WORK.
2. VERIFY SPACE REQUIREMENTS AND DIMENSIONS OF ANY ITEMS SHOWN DIAGRAMMATICALLY ON THE ASSOCIATED PROJECT DRAWINGS.
3. IMMEDIATELY ON DISCOVERY OF THE NEED FOR CLARIFICATION OF THE CONTRACT DOCUMENTS CAUSED BY DIFFERING FIELD CONDITIONS OUTSIDE THE CONTROL OF THE AVIC, SUBMIT A REQUEST FOR INFORMATION.

AUDIOVISUAL CABLING:

1. THE AVIC SHALL FURNISH AND INSTALL ALL AUDIOVISUAL-RELATED WIRING AND CABLING FOR ALL COMPONENTS DESCRIBED HEREIN, EXCEPT FOR THOSE CABLE OR WIRING RUNS THAT WILL BE FURNISHED AND INSTALLED BY OTHERS. RUNS INSTALLED BY OTHERS WILL BE CLEARLY NOTED WITHIN THESE SPECIFICATIONS.
    - 1.1. WHERE OTHERS ARE PROVIDING THE WIRING OR CABLING, THE AVIC SHALL COORDINATE WITH THOSE RESPECTIVE TRADES TO ENSURE THAT ALL AUDIOVISUAL REQUIREMENTS ARE MET, THAT THERE ARE ADEQUATE QUANTITIES INSTALLED, AND THAT THE INSTALLED SOLUTION WILL PERFORM AS EXPECTED FOR WARRANTY PURPOSES.
    - 1.2. WHERE THE AVIC IS TO FURNISH AND INSTALL CABLING, ALL MANUFACTURERS' RESPECTIVE REQUIREMENTS SHALL BE MET. WHERE MANUFACTURER REQUIREMENTS DIFFER FROM ANY REQUIREMENTS PROVIDED WITHIN THIS SPECIFICATION, THE MORE STRINGENT OF THE TWO SHALL BE FOLLOWED.
2. PERMANENTLY FIXED WIRING AND CABLING IN PLENUM SPACES SHALL BE PLENUM-RATED.
3. ALL CABLING NOT INSTALLED IN CONDUIT OR CONDUIT STUBS SHALL BE PROPERLY SUPPORTED.
4. CABLE RUNS SHALL CONTAIN NO SPLICE OR TRANSITION POINTS FROM THE ENDPOINT TO THE SOURCE UNLESS NOTED OTHERWISE.
5. THE AVIC SHALL BE RESPONSIBLE FOR VERIFYING THE ACTUAL DISTANCES AND VOLTAGE DROPS FOR EACH CABLE RUN FROM ONE POINT TO ANOTHER.
6. ALL EXPOSED OR UNSUPPORTED AUDIOVISUAL CABLES SHALL BE PROPERLY DRESSED, TIED AND TRIMMED ACCORDING TO BEST PRACTICES.
7. WHERE APPLICABLE, ALL CABLE ENDS SHALL BE WRAPPED WITH SHRINK TUBING AND EACH SHIELD OR DRAIN WIRE SHALL BE SHEATHED IN CLEAR TUBING.
8. VELCRO® WRAPS SHALL BE USED IN LIEU OF PLASTIC TIE WRAPS.
9. ALL CABLING AND WIRING SHALL BE GROUPED AND BUNDLED ACCORDING TO THE SIGNAL LEVEL IN ALL ENCLOSURES AND RACKS.
    - 9.1. CABLING CARRYING SPEAKER-LEVEL SIGNALS (+24DBU OR HIGHER) SHALL BE KEPT SEPARATE FROM ALL OTHER GROUPS.
    - 9.2. CABLING CARRYING MICROPHONE-LEVEL SIGNALS SHALL BE KEPT SEPARATED FROM ALL OTHER GROUPS
    - 9.3. CABLING CARRYING LINE-LEVEL OR INTERCOM AUDIO SIGNALS SHALL BE KEPT SEPARATED FROM ALL OTHER GROUPS.
    - 9.4. VIDEO CABLING, HDMI, SIGNALS TRAVELING OVER UTP OR F/UTP, CONTROL SYSTEM WIRING, ETC., MAY BE GROUPED TOGETHER.
10. AUDIOVISUAL CABLING SHALL BE KEPT PHYSICALLY SEPARATED FROM POWER CABLING, WHETHER OR NOT THE CABLING TRAVELS IN CONDUITS: POWER AND SIGNAL SHALL BE KEPT PHYSICALLY SEPARATED BELOW TABLES, WITHIN CREDENZAS, INSIDE RACKS, AND SO ON.
11. INSPECT FOR AND REPLACE ALL WIRES AND CABLES SUFFERING FROM DEFORMED, BRITTLE, OR CRACKED INSULATION, STRIPPING IN EXCESS OF 1/8-INCH FROM POINT OF CONNECTION, COLD SOLDER JOINTS, FLUX JOINTS, SOLDER SPLATTER, UN-GROMMETTED, UN-BUSHED, OR UN-INSULATED WIRE OR CABLE ENTRIES, DEFORMATION OR IMPROPER RADIUS BENDING.
12. SHIELDED CABLES SHALL BE INSULATED, AND SHIELDS SHALL BE PREVENTED FROM ANY CONTACT WITH CONDUIT, RACEWAYS, BOXES, PANELS, OR EQUIPMENT ENCLOSURES.
13. SERVICE LOOPS SHALL BE USED AT ALL EQUIPMENT TERMINATION POINTS TO ALLOW FOR EASE OF INSTALLATION, CLEANING, SERVICE, INSPECTION, AND MODIFICATION.
14. CABLE PULLING LUBRICANTS, WHERE USED, SHALL BE APPROVED BY THE CABLE MANUFACTURER SO THAT THE LUBRICATING COMPOUND CANNOT DETERIORATE THE CABLE JACKET.
15. BRIDLE RINGS OR OTHER EQUIVALENT SUPPORTS SHALL BE INSTALLED IN AREAS WHERE DUCTS, CONDUITS OR CABLE TRAYS ARE NOT AVAILABLE.
16. CABLES SHALL NEVER REST UPON CEILING TILES, LIGHTING FIXTURES, STUD WALLS,

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OR PIPING. ALL CABLES SHALL BE PROPERLY SUPPORTED TO PREVENT THIS, AND SHALL BE SUPPORTED AT A MINIMUM OF EVERY TEN FEET TO REDUCE SAG.

17. LOCATIONS AND ROUTES OF PATHWAYS SHOWN ON DRAWINGS ARE SCHEMATIC AND NOT NECESSARILY REFLECTIVE OF CONDITIONS AT TIME OF INSTALLATION, OR WERE POSITIONED FOR CLARITY RATHER THAN EXACT SPACING, BENDING, OR DESIRED SEPARATION. THE AVIC SHALL REVIEW ANY AND ALL SUCH PATHWAYS SHOWN ON THE DRAWINGS TO ENSURE THAT THE PROPOSED SOLUTION WILL FUNCTION AS INTENDED WITH REGARD TO QUANTITIES, SIZES, LOCATIONS, ETC.

HDMI CABLING:

1. ALL HDMI CABLES SHALL BE CERTIFIED BY THE MANUFACTURER TO CONFORM TO THE HDMI COMPLIANCE TEST SPECIFICATION.
2. ALL HDMI CABLES SHALL OPERATE UP TO AND INCLUDING 4K SIGNALS.
3. ALL HDMI CABLES SHALL BE 22 AWG OR 24 AWG (INCLUDING DRAIN WIRE). THE AUDIOVISUAL DESIGNS ASSUME A 20-FOOT RUN LIMITATION. THE AVIC MAY UTILIZE OTHER GAUGED CABLING PROVIDED THE TOTAL RUN LENGTH DISTANCES ARE SHORT ENOUGH TO SUPPORT 4K OR BETTER.
   3.1. FOR RUNS EXCEEDING 20-FEET, UTILIZE OPTICAL HDMI CABLE.
   3.2. FOR RUNS EXCEEDING 50-FEET, UTILIZE HD-BASE-T TRANSMISSION.
4. TIN PLATED HDMI CONDUCTORS SHALL NOT BE USED UNLESS THE AVIC CAN DEMONSTRATE 4K PROGRAMMING DUE TO THE SHORTER CABLE LENGTHS.
5. THE AVIC SHALL ENSURE THAT THE CABLE CAN SEND 4K FROM THE SOURCE AND RECEIVE 4K PROGRAMMING AT THE FAR END WITH NO STEP DOWN TO INTERLACED VIDEO OR LOWER RESOLUTION. THE AVIC SHALL USE TEST 4K-SOURCE CONTENT TO VERIFY THAT THE MAXIMUM RESOLUTION FOR THE VIDEO DISPLAY IS PROPERLY EXCHANGED THROUGH EDID.
6. VERIFY THAT VERTICALLY ORIENTED HDMI CONNECTORS WILL NOT DISLODGE AND FALL OUT OF THE HDMI PORTS ON ANY COMPONENT. THE AVIC SHALL UTILIZE STRAIN RELIEF AND/OR PORT SAVERS TO MITIGATE THIS RISK.
7. MAINTAIN A BEND RADIUS OF FOUR INCHES (4") UNLESS THE MANUFACTURER SPECIFIES A GREATER BEND RADIUS. IN ALL CASES, THE AVIC SHALL FOLLOW THE MORE STRINGENT REQUIREMENT.

GENERAL REQUIREMENTS:

1. INSTALL ALL COMPONENTS IN ACCORDANCE WITH MANUFACTURER DIRECTIONS.
2. ALL FACEPLATES SHALL BE INSTALLED FLUSH, TRIM, AND LEVEL, WITH LESS THAN 1/8-INCH DEVIATION.
3. ALL GROMMET OPENINGS SHALL BE CHECKED TO PREVENT DAMAGE TO THE CABLE JACKETING FROM EITHER BACK BOX KNOCKOUTS, CONDUIT ENDS, OR OTHER SHARP EDGES.
4. PROTECT ALL EQUIPMENT FROM DAMAGE. IF ANY ITEM IS MARRED OR DAMAGED, REPORT THIS TO THE GC AND REPAIR OR REPLACE ALL AFFECTED COMPONENTS UNTIL TURNOVER.
5. CEILING-MOUNTED DEVICES OF ANY TYPE SHALL BE ANCHORED TO STRUCTURE, AND NOT REST FULLY OR PARTIALLY SUPPORTED ON CEILING GRID OR TILES. SECURE PENCIL ROD ATTACHMENTS SHALL BE MADE TO STRUCTURE AND TO THE DEVICE.
6. FOR EACH LOCATION MARKED AS "AVP" ON THE DRAWINGS, THE AVIC SHALL FURNISH AND INSTALL A TWO-GANG DECORA®-STYLE FACEPLATE FEATURING A SPLIT-BRUSHED, GROMMETED OPENING (COLOR SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO MAKING PURCHASES). THIS FACEPLATE SHALL SERVE ONLY AS A CABLING PASS-THROUGH. THE PRODUCT MAY CONSIST OF A LEVITON 41075-DBW, GE 87698, VANCO 120827, OR PRE-APPROVED EQUIVALENT
7. FURNISH AND INSTALL FLAT PANEL DISPLAYS, SIZED AS SHOWN. EACH DISPLAY SHALL HAVE AT LEAST TWO (2) HDMI INPUTS. EACH DISPLAY SHALL FEATURE ULTRA-HIGH DEFINITION (UHD), INTEGRATED SPEAKERS, AND A MANUFACTURER-MADE HANDHELD REMOTE CONTROL TO BE SECURED UNTIL TURNOVER. ALL DISPLAYS SHALL FEATURE AN ENERGY STAR SERVICE MARKING, AND HAVE VESA-COMPLIANT MOUNTING ARCHITECTURE AND NO FOOT STANDS. DISPLAY APPEARANCE SHALL NOT BE MARRED BY THE REMOVAL OF ANY FOOT STAND. ALL DISPLAYS SHALL BE MOUNTED LEVEL AND CENTERED AS SHOWN IN THE DRAWINGS SO THAT ALL CABLES AND CORDS, BACK BOXES, FACEPLATES, AND OTHER MOUNTING ELEMENTS OR DEVICES ARE FULLY CONCEALED BEHIND THE RESPECTIVE DISPLAY. VERIFY THE PROPOSED MOUNT SOLUTION IS DESIGNED TO HOLD DISPLAYS OF THIS CLASS AND WEIGHT. ENSURE THE MOUNTED DISPLAYS ARE NOT SUBJECT TO WOBBLE OR VIBRATION, AND THAT ALL MOUNTING HARDWARE WAS USED AS DIRECTED.
8. FOR OFFICE 103, FURNISH AND INSTALL A DECORA®-STYLE WALL PLATE WITH AN HDMI INSERT ("AV"). EXTEND AN HDMI CABLE FROM THE WALL PLATE TO THE FLAT PANEL DISPLAY, UTILIZING THE "AVP" PASSTHROUGH BEHIND THE DISPLAY. KEEP ALL CABLING CONCEALED, AND ENSURE THE WALL PLATE IS LEVEL AND THE INSERT FLUSH TO THE WALL PLATE.

AUDIOVISUAL SYSTEM IDENTIFICATION:

1. THE AVIC SHALL THOROUGHLY LABEL THE ENTIRE AUDIOVISUAL SYSTEM FOR FUTURE MAINTAINABILITY.
2. EACH DEVICE SHALL BE GIVEN A UNIQUE IDENTIFIER AND LABELED ACCORDINGLY.
3. LABELS SHALL MEET THE LEGIBILITY, EXPOSURE DEFACEMENT AND ADHESION REQUIREMENTS OF UL969.
4. LABELS SHALL BE PREPRINTED OR PRINTED BY A COMPUTER. LABELS WRITTEN BY HAND ARE NOT ACCEPTABLE.
5. ALL REFERENCES TO THIS DEVICE IN AVIC-PREPARED DOCUMENTATION, DRAWINGS, AND LABELS SHALL BE CONSISTENT, EXCEPT:
   5.1. O&M MANUALS OR GENERIC DOCUMENTATION
   5.2. TRAINING MATERIALS, WHICH SHOULD USE NAMES RECOGNIZABLE TO THE USER, RATHER THAN MANUFACTURER NAMES AND PART NUMBERS.
   5.3. CONTROL SYSTEM INTERFACES SHALL ALSO USE MATCHING NAMES.
6. RECORD DRAWINGS SHALL INDICATE THE DEVICE IDENTIFIER, AND BE IN AGREEMENT BETWEEN THE DRAWINGS AND THE LABELS ON THE EQUIPMENT OR LABELS.
7. ALL WIRES AND CABLES SHALL BE LABELED AT BOTH ENDS.

AUDIOVISUAL SYSTEM ADMINISTRATION:

1. THE AVIC SHALL PROVIDE RECORD DRAWINGS IN AN AUTOCAD COMPATIBLE FORMAT OR IN PDF FORMAT.
2. THE AVIC SHALL THOROUGHLY DOCUMENT THE ENTIRE AUDIOVISUAL SYSTEM FOR FUTURE MAINTAINABILITY AND TROUBLESHOOTING.
3. PRIOR TO TURNOVER, THE AVIC SHALL PROVIDE THE OWNER A DETAILED TECHNICAL SPECIFICATION FOR ANY SERVER, REAL OR VIRTUALIZED, RUNNING MANAGEMENT APPLICATIONS. THIS SHALL INCLUDE ANY ADDITIONAL SOFTWARE, SUCH AS BROWSER OR SQL DATABASE, REQUIREMENTS UNLESS THE AVIC IS FURNISHING THAT SERVER AS PART OF THEIR PROPOSED PACKAGE. THE AVIC SHALL SO NOTE WHETHER OR NOT SERVER HARDWARE OR SOFTWARE IS BEING PROVIDED CLEARLY IN THE BID RESPONSE.
4. DOCUMENTATION SHALL INCLUDE BUT NOT BE LIMITED TO:
   4.1. AUTOCAD OR PDF SCALE DRAWINGS OF THE PROJECT (BACKGROUNDS AVAILABLE FROM SENTINEL) CLEARLY SHOWING:
   4.2. PRECISE DEVICE LOCATIONS AND IDENTIFICATION NUMBERS
   4.3. APPROXIMATE PATHWAYS OF HORIZONTAL CABLE RUNS TO THEIR NEAREST POINTS OF TERMINATION
   4.4. PRECISE LOCATIONS OF INSTALLED PULL BOXES, JUNCTION BOXES, AND ENCLOSURES RELATED TO ANY AUDIOVISUAL CONDUITS THAT MAY BE INSTALLED
   4.5. CONDUIT SIZES FOR ANY CONDUIT ABOVE THREE QUARTER INCH (3/4") IN SIZE (IF USED)
   4.6. DETAILED ELEVATION VIEWS OF ANY WALL-MOUNTED EQUIPMENT, INCLUDING BUT NOT LIMITED TO CONTROL PANELS AND HEAD END CABINETS
   4.7. PRODUCT CUT SHEETS, SHOP DRAWINGS, ETC.
   4.8. DOCUMENTATION SHALL BE SUBMITTED TO THE OWNER PRIOR TO FINAL PAYMENT.

AUDIOVISUAL SYSTEM TESTING:

1. REVIEW ALL TESTING REQUIREMENTS AS DESCRIBED IN THIS SPECIFICATION FOR EACH TYPE OF PRODUCT LISTED.
2. ALL DEVICES SHALL BE TESTED FOR CORRECT FUNCTIONALITY AS RECOMMENDED BY THE RESPECTIVE MANUFACTURER.
3. ALL WIRING SHALL BE TESTED FOR WIREMAP, WHERE APPLICABLE, AND CONTINUITY.
4. INSPECT FOR AND REPLACE ALL WIRES AND CABLES SUFFERING FROM DEFORMED, BRITTLE, OR CRACKED INSULATION, STRIPPING IN EXCESS OF 1/8-INCH FROM POINT OF CONNECTION, COLD SOLDER JOINTS, FLUX JOINTS, SOLDER SPLATTER, UN-GROMMETTED, UN-BUSHED, OR UN-INSULATED WIRE OR CABLE ENTRIES, DEFORMATION OR IMPROPER RADIUS BENDING.

CUTOVER SERVICES:

1. BY DESIGN OF THE PROJECT SCHEDULE, THE OWNER UNDERSTANDS AND EXPECTS THAT NOT ALL AUDIOVISUAL SYSTEMS OR SERVICES MAY BE UNDERGOING FINAL INSTALLATION, CONFIGURATION, REFINEMENT, OR TESTING BY THE DATE OF THEIR OCCUPANCY. THEREFORE, PRIOR TO THE OWNER'S OCCUPANCY OF THE FACILITY, THE AVIC SHALL ISSUE A DETAILED LIST TO SENTINEL ANY AND ALL SYSTEMS WHICH WILL NOT BE FULLY OPERATIONAL BY THE MOVE-IN DATE, AS WELL AS AN EXPECTED DATE OF COMPLETION.
2. THE AVIC SHALL TURN OVER ALL OPERATIONS AND MAINTENANCE MANUALS IN THE QUANTITIES AND FORMATS DIRECTED BY THE GC. THE AVIC SHOULD EXPECT TO PROVIDE ONE PAPER COPY FOR EACH TYPE OF DEVICE, AND ELECTRONIC VERSIONS ON DISC TO REDUCE PAPER USAGE.
3. CODE AND PROGRAMMING FOR THE CONTROL SYSTEMS, DEVICE DRIVERS, PATCHES, UPGRADES, ETC., SHALL BE SUBMITTED ON COMPACT DISC. ALL DISCS FOR PRODUCT SOFTWARE, BACKUPS, ETC., SHALL BE SUBMITTED IN A SINGLE BINDER DESIGNED TO HOLD COMPACT DISCS OR DVDS AND LABELED CLEARLY.
4. AT CLOSEOUT, CLEAN OR RE-CLEAN ENTIRE WORK TO NORMAL LEVEL FOR "FIRST CLASS" MAINTENANCE/CLEANING OF BUILDING PROJECTS OF A SIMILAR NATURE. REMOVE NON-PERMANENT PROTECTION AND LABELS, CLEAN EXPOSED FINISHES, TOUCH-UP MINOR FINISH DAMAGE, REMOVE DEBRIS AND BROOM-CLEAN SPACES, SANITIZE WORK, AND PERFORM SIMILAR CLEANUP OPERATIONS NEEDED TO PRODUCE A CLEAN CONDITION.

SUPPORT AND WARRANTY:

1. THE AUDIOVISUAL SYSTEM SHALL BE END-TO-END CERTIFIED BY THE AVIC.
2. AN EXTENDED MATERIAL, LABOR AND PERFORMANCE WARRANTY SHALL BE PROVIDED BY THE INSTALLER FOR PERIOD OF AT LEAST ONE (1) YEAR.
3. THE AVIC SHALL REPAIR OR REPLACE ALL DEFECTIVE EQUIPMENT OR WORKMANSHIP (WITH NO COST TO THE OWNER) FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF THE ACCEPTANCE DEMONSTRATION, REGARDLESS OF WHEN THE EQUIPMENT WAS ORIGINALLY PURCHASED OR WORKMANSHIP PERFORMED BY THE AVIC . THE COMMENCEMENT DATE OF THE WARRANTY SHALL BEGIN AND ONLY BEGIN WITH THE ACCEPTANCE DEMONSTRATION.
4. THE AVIC SHALL RESPOND TO ANY REPORTS OF DEFECTIVE SYSTEM PERFORMANCE BY THE OWNER WITHIN FORTY-EIGHT (48) BUSINESS HOURS. THE AVIC SHALL RESPOND BY ASSESSING AND DIAGNOSING THE PROBLEM. THE TIME TO REPAIR OR REPLACE ANY DEFECTIVE ITEM COVERED BY THE WARRANTY SHALL BE NO LONGER THAN IS REQUIRED TO RECEIVE REPLACEMENT PARTS PLUS FORTY-EIGHT (48) HOURS.

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AUDIOVISUAL SPECIFICATIONS 2

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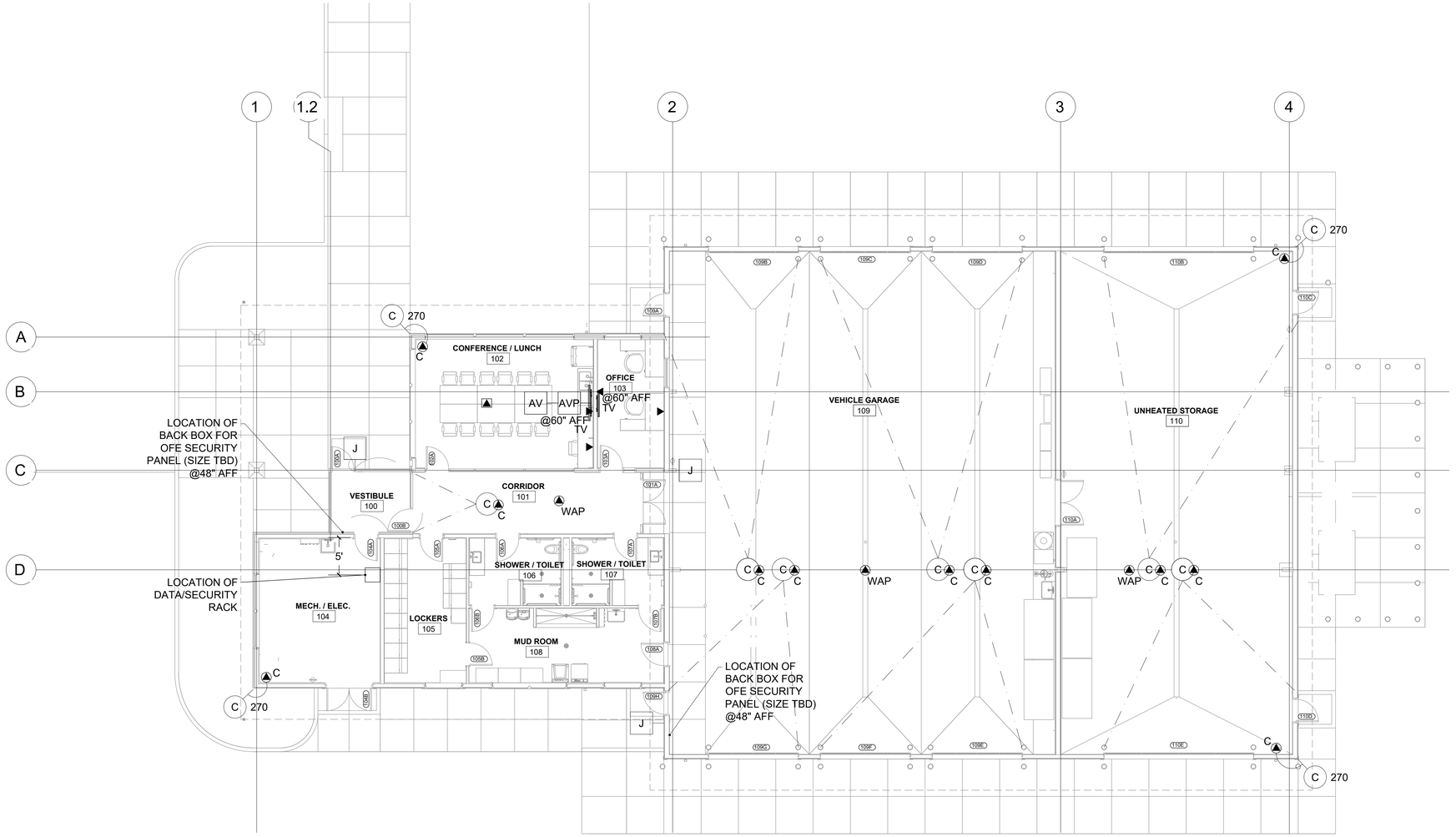

TECHNOLOGY PLAN

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

1

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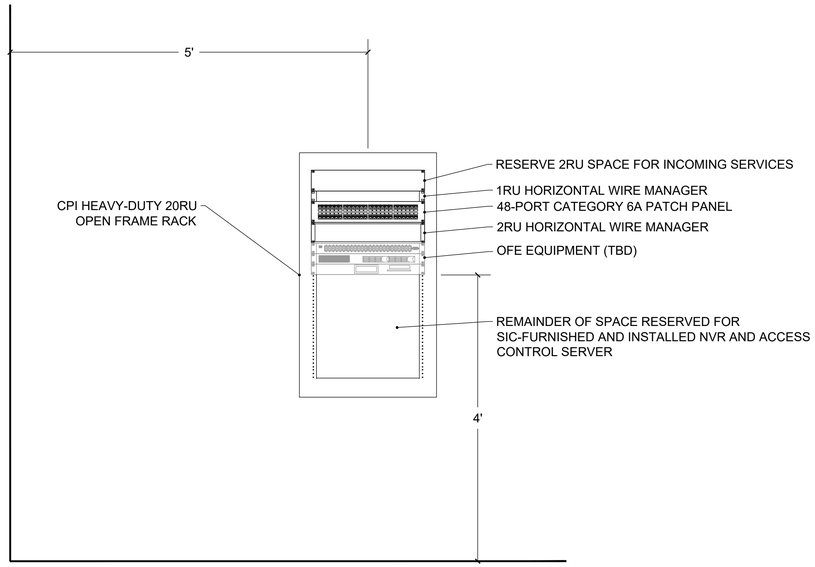
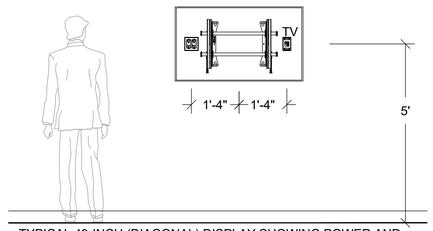


RACK ELEVATION FOR ROOM 104

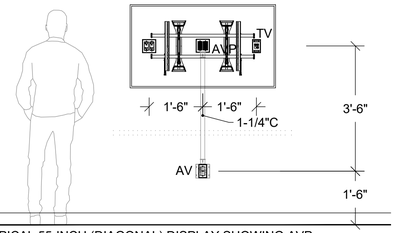
SCALE: 1" = 1'-0" **10**



TYPICAL 49-INCH (DIAGONAL) DISPLAY SHOWING POWER AND DATA POSITIONED BY DISPLAY MOUNT. ALL CONTENT BY OWNER VIA CATV.

ELEV/ DISPLAY IN OFFICE 103

SCALE: 1/2" = 1'-0" **5**

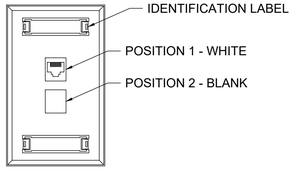


TYPICAL 55-INCH (DIAGONAL) DISPLAY SHOWING AVP (PASSTHROUGH), POWER AND DATA POSITIONED BY DISPLAY MOUNT. CONNECT HDMI INPUT ("AV") TO AVP WITH 1-1/4"C.

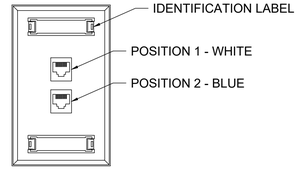
ELEV/ DISPLAY IN CONFERENCE ROOM 102

SCALE: 1/2" = 1'-0" **1**

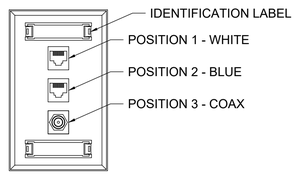
SINGLE DATA-PORT LOCATIONS
CAMERAS, E.G.,



TWO DATA-PORT LOCATIONS
TYPICAL AREAS AND WAPS, E.G.

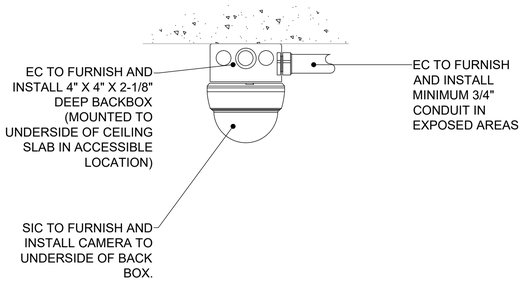


TV LOCATIONS



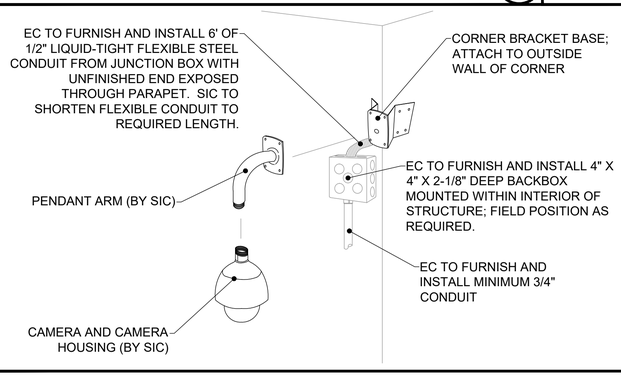
ELEV/ TYPICAL DATA FACEPLATES

SCALE: 6" = 1'-0" **2**



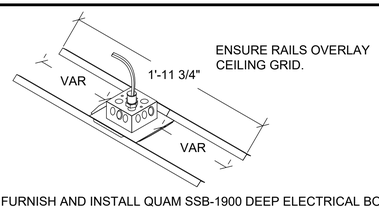
DETAIL/ CAMERAS IN EXPOSED OR OPEN CEILING AREAS

SCALE: NONE **15**



DETAIL/ EXTERIOR CORNER-MOUNT CAMERAS

SCALE: NONE **7**

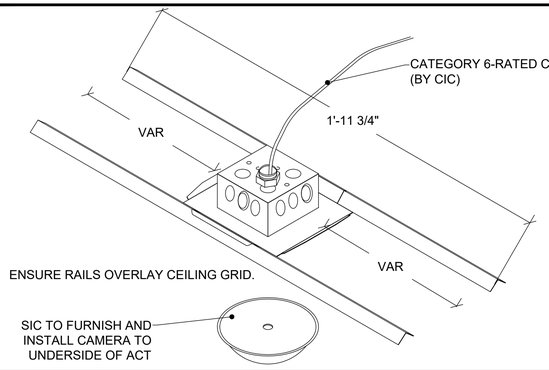


FURNISH AND INSTALL QUAM SSB-1900 DEEP ELECTRICAL BOX SUPPORT BRIDGE. ADJUST BOX AS REQUIRED LEFT-RIGHT AND FORWARD-BACK TO POSITION BOX IN FINAL POSITION. USE PENCIL ROD TO SECURE BOX TO PERMANENT STRUCTURE (NOT THE CEILING GRID) WHEN IN FINAL POSITION. COVER WITH BLANK FACEPLATE OR APPROPRIATE LOW VOLTAGE FACEPLATE AS INDICATED IN THE ASSOCIATED PROJECT DRAWINGS.

PROTECT CABLING FROM ENTERING BACKBOX BY USING 3/4" BUSHING.THROUGH APPROPRIATE KNOCKOUT.

DETAIL/ GUIDELINES FOR MOUNTING WIRELESS ACCESS POINTS ON ACT CEILINGS

SCALE: NONE **16**



DETAIL/ CAMERAS ON ACT CEILINGS

SCALE: NONE **8**

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