NEW TRAINING / BREAKROOM FACILITY FOR

Washington County VA
Solid Waste Disposal

14579 Industrial Park Road, Bristol, Virginia 24202

BID DOCUMENTS / CONSTRUCTION DOCUMENTS

COMMONWEALTH OF VIRGINIA — D. MICHAEL WEAVER — LIC. NO. 9031 — 09-29-2023 — ARCHITECT
ARCHITECTURE

COMMONWEALTH OF VIRGINIA — D. MICHAEL WEAVER — LIC. NO. 9031 — 09-29-2023 — ARCHITECT
STRUCTURAL

COMMONWEALTH OF VIRGINIA — DERWIN EUGENE CARTMEL — Lic. No. 31491 — 9/29/23 — PROFESSIONAL ENGINEER
MECHANICAL

COMMONWEALTH OF VIRGINIA — JOE W. RIGGS — Lic. No. 22741 — 9-29-23 — PROFESSIONAL ENGINEER
ELECTRICAL

the LANE GROUP
engineering
architecture
environmental
310 Valley Street N.W.
Abingdon, VA 24210
276.206.8571 - office
Abingdon I Big Stone Gap I Galax
www.thelanegroupinc.com

GENERAL PROJECT INFORMATION

PROJECT DATA

PROJECT
NEW TRAINING / BREAKROOM FACILITY FOR
WASHINGTON COUNTY VA
SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

OWNER / DEVELOPER
WASHINGTON COUNTY, VIRGINIA

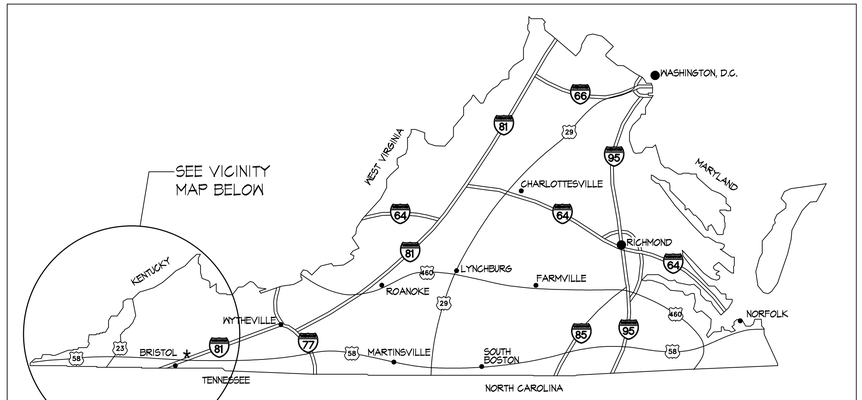
OWNER CONTACT PERSON: BRYAN McALLISTER
TELEPHONE NO.: 276-525-1353

OWNER CONTACT PERSON: KEVIN HILL, GENERAL SERVICES MANAGER
TELEPHONE NO.: 276-525-1355

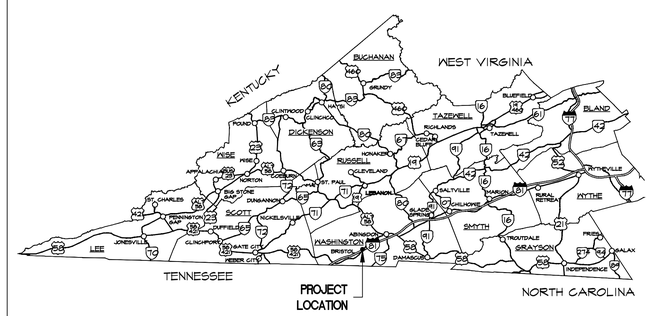
DESIGNERS OF RECORD

DISCIPLINE	NAME	LICENSE NO.	TELEPHONE NO:
ARCHITECT	D. MICHAEL WEAVER, AIA	VA. 009031	276-206-8571
LANDSCAPE	N.A.		
CIVIL ENGR.	MATTHEW LANE, P.E.	VA. 034173	276-206-8571
STRUCTURAL	D. MICHAEL WEAVER, AIA	VA. 009031	276-206-8571
PLUMBING	DERWIN CARTMEL, P.E.	VA. 031491	423-926-5991
HVAC	DERWIN CARTMEL, P.E.	VA. 031491	423-926-5991
SPRINKLER	N.A.		
ELECTRICAL	JOE W. RIGGS, P.E.	VA. 022741	423-926-5991
FIRE ALARM	N. A.		

DRAWING INDEX



STATE MAP



VICINITY MAP

PROJECT
NEW TRAINING FACILITY FOR
WASHINGTON COUNTY VA
SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK RD.
BRISTOL, VA 24202
TLG PROJECT NO. 22135

TITLE SHEET
DRAWING INDEX
LOCATION INFORMATION

T-100

Date 09-29-2023

ABBREVIATIONS

&	AND
@	At the Rate of (refers to spacing)
AB	Anchor Bolt
ABV	Above
ADJ	Adjustable
AFF	Above Finish Floor
AHU	Air Handling Unit
ALT	Alternative, Alternate
ALUM	Aluminum
APPROX. ~	Approximately
ARCH	Architect, Architectural
ASPH	Asphalt
BD	Board
BLDG	Building
BLKG	Blocking
BLW	Below
BM	Beam
BRK	Brick
BTU	British Thermal Unit
BUR	Built-up Roofing
CFM	Cubic Feet Per Minute (Air Flow)
CG	Corner Guard
C.I.P.	Cast-in-Place
CJ	Control Joint
CL	Center Line
CLG	Ceiling
CLOS.	Closet
CLR	Clear
CMU	Concrete Masonry Unit
CO	Cleanout
C.H.	Coat Hook
COL	Column
CONC	Concrete
CONT	Continuous
CONTR	Contractor
CORR	Corridor
CPT	Carpet
C.S.	Concrete Sealer, Concrete Stain
C.T.	Ceramic Tile
CTB	Ceramic Tile Base
CTR	Center
CW	Cold Water
DEMO	Demolish, Demolition
DET	Detail
DF	Drinking Fountain
DIA	Diameter
DIF	Determine in Field
DIFF	Diffuser
DIM	Dimension
DISCH	Discharge
DN	Down
DO	Ditto
DR	Door
DRN	Drain
DS	Downspout
DW	Dishwater
DWG	Drawing
DWR	Drawer
E	East
EA	Each
EW	Exhaust Fan or Each Face
EUH	Electric Unit Heater
EJ	Expansion Joint
EL.	Elevation
ELEC	Electric, Electrical
ELEV	Elevator
EMER	Emergency
ENGR	Engineer
EOS	Edge of Slab
EP	Epoxy Paint
EQ	Equal
EQUIP	Equipment
EW	Each Way
EWC	Electric Water Cooler
EXH	Exhaust
EXIST	Existing
EXP	Exposed
EXT	Exterior
F	Fahrenheit
FCU	Fan Coil Unit
FD	Fire Damper or Floor Drain
FE	Fire Extinguisher
FEC	Fire Extinguisher Cabinet
FFE	Finish Floor Elevation
FF&E	Finishes, Fixtures, & Equipment
FHC	Fire Hose Cabinet
FIN	Finish
FLUOR	Fluorescent
FRP	Fiberglass Reinforced Panel
FRSWB	Fire-Rated Gypsum Wallboard
FT	Feet
FTG.	Footing
FURR	Furring
GA	Gauge
GAL	Gallon
GALV	Galvanized
G.B.	Grab Bar
G.C.	General Contractor
GHM	Galvanized Hollow Metal
GPM	Gallons Per Minute
GRV	Gravity Roof Ventilator
GWB	Gypsum Wallboard
HC	Handicapped
HDWR	Hardware
HDWD	Hardwood
HM	Hollow Metal
HORIZ.	Horizontal
HP	Horse Power / Heat Pump
HR	Handrail
HT	Height
HTG	Heating
HTR	Heater
HVAC	Heating / Ventilating / Air Cond.
HW	Hot Water
HWD	Hardwood
IN	Inches
INCL	Included, Inclusive
INS	Insulation
INT	Interior
JAN	Janitor
JT	Joint
KIT	Kitchen
KW	Kilowatts
L	Length, Lintel
LAM	Laminated
LAV	Lavatory
LBS	Pounds
LF	Linear Feet
LKR	Locker
LT	Light
MAS	Masonry
MATL	Material
MAX	Maximum
MECH	Mechanical
MFG	Manufacturer
MIN	Minimum
MIR	Mirror
MISC	Miscellaneous
MO	Masonry Opening
MRSWB	Moisture Resistant Gypsum Wallboard
MTD	Mounted
MTL	Metal
MTR	Motor
MUL	Mullion
N	North
N/A	Not Applicable
NIC	Not in Contract
NO., #	Number
NOM.	Nominal
NR	Non-Rated
NRCA	National Roofing Contractors Association
NTS	Not to Scale
OC	On Center
O.H.	Overhead, Opposite Hand
O.H.E.	Overhead Electric
OPNG	Opening
OSB	Oriented Strand Board
P	Paint
PC	Precast
PH	Phase
PL	Plate
PLAM	Plastic Laminate
PLAS	Plaster
PP	Power Pole
PNL	Panel
POLYISO.	Polyisocyanurate
PROJ	Projection, Project
PRT	Pre-cast Resilient Terrazzo Tile
PSI	Pounds Per Square Inch
PT	Porcelain Tile
PTD	Painted or Paper Towel Dispenser
PWD	Plywood
QT	Quarry Tile
R	Radius
RA	Return Air
RB	Rubber Base, Resilient Base
RC	Resilient Channel
RD	Roof Drain
REF	Reference
REFRIG	Refrigerator
REINF	Reinforced, Reinforcement
REQD	Required
RET	Return
REV	Revise / Revised
RM	Room
R.O.W.	Right of Way
RO	Rough Opening
RPM	Revolution Per Minutes
RTU	Roof Top Unit
S	South
SATC	Suspended Acoustical Tile Ceiling
SCH	Schedule
SD	Smoke Damper or Soap Dispenser
SECT	Section
SF	Square Foot (feet)
SHT	Sheet
SHT MTL	Sheet Metal
SIM	Similar
SPECS	Specifications
SQ	Square
SS, S/S	Stainless Steel
STD	Standard
STL	Steel
STOR	Storage
STRUCT	Structure or Structural
SUSP	Suspended
SV	Sheet Vinyl
T/	Top of
T/CONC	Top of Concrete
T/STL	Top of Steel
T/W	Top of Wall
T&G	Tongue and Groove
TBD	To Be Determined
TEL	Telephone
TEMP	Temperature
TH	Thermometer
THK	Thick(ness)
THOLD	Threshold
TLT	Toilet
TPD	Toilet Paper Dispenser
TSTAT	Thermostat
TV	Television
TYP	Typical
UC	Undercut
UG	Underground
UH	Unit Heater
UL	Underwriters Laboratory
UR	Urinal
V	Volts
VA	Virginia
VAV	Variable Air Volume
VCT	Vinyl Composition Tile
VERT	Vertical
VEST	Vestibule
VHDA	Virginia Housing Development Authority
VIF	Verify in Field
VOL	Volume
VT	Virginia Tech (Go Hokies!)
VTR	Vent Thru Roof
VWC	Vinyl Wall Covering
W	West or Width
W/	With
W/O	Without
WC	Water Closet
WD	Wood
WH	Water Heater
WT	Weight
WTR	Water
WWF	Welded Wire Fabric

MATERIALS & SYMBOLS

ACOUSTICAL TILE

BATT INSULATION

CARPET

CAST STONE

CERAMIC TILE

CMU

CONCRETE

EARTH

FACE BRICK

FOAM INSULATION

GLASS BLOCK

GRAVEL

MARBLE

STEEL

STONE

STRUCTURAL CLAY TILE

STRUCTURAL STEEL

PLYWOOD

RIGID INSULATION

TERRAZZO

WOOD FINISH

WOOD BLOCKING

WOOD ROUGH FRAMING

2 / A102 A402 — DETAIL TAG

A / A201 — EXTERIOR ELEVATIONS

2 / A301 — SECTION "CUT" LINE

A / B / A401 — INTERIOR ELEVATIONS

2 / A402 — DETAIL — DWG IDENTIFICATION / SCALE

INTERNATIONAL SYMBOL OF ACCESSIBILITY

NORTH — PROJECT NORTH

25 — DOOR TAG

A — WINDOW TAG

B — PARTITION TYPE TAG

2 — ROOM SIGNAGE TAG

ELEVATION DESIGNATION

+20.00" — SPOT ELEVATION (distance above (+) or below (-) main floor level)

BREAK LINE

2 — REVISION TAG

ROOM NAME 100 — ROOM IDENTIFICATION

DETAIL AREA

DISCIPLINE CODES

DESIGNATION	DRAWING TYPE
G	GENERAL INFORMATION
D	DEMOLITION (ARCH.) / DETAILS (CIVIL)
C	CIVIL / SITE
L	LANDSCAPE
S	STRUCTURE
A	ARCHITECTURE
I	INTERIORS
P	PLUMBING
M	MECHANICAL
E	ELECTRICAL

SHEET CODES / DESIGNATORS

DESIGNATION	DRAWING TYPE
0	GENERAL INFORMATION
1	PLANS
2	ELEVATIONS
3	SECTIONS
4	LARGE SCALE PLANS
5	DETAILS
6	SCHEDULES & DIAGRAMS
7	INTERIORS (F F & E)
8	DESIGNER DEFINED

MISC. PROJECT NOTES

CONTRACTOR IS RESPONSIBLE FOR PROVIDING PERMITS, WORK, AND MATERIALS IN ACCORDANCE WITH ALL CODES, ORDINANCES, AND REGULATIONS APPLICABLE AT THE PROJECT LOCATION.

THESE DRAWINGS ARE INTENDED TO PROVIDE SUFFICIENT INFORMATION TO OBTAIN A BUILDING PERMIT AND TO CONVEY GENERAL DESIGN INTENT TO THE CONTRACTOR. ADDITIONAL TECHNICAL ADVICE AND DETAILING MAY BE REQUIRED FOR SUCCESSFUL COMPLETION OF THIS PROJECT AND IS THE CONTRACTOR'S RESPONSIBILITY.

CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING CONTRACT DOCUMENTS, FIELD CONDITIONS, AND DIMENSIONS FOR ACCURACY AND CONFIRMING THAT ALL WORK IS BUILDABLE, AS INDICATED, BEFORE PROCEEDING WITH CONSTRUCTION.

DO NOT SCALE DRAWINGS! USE ONLY THE DIMENSIONS INDICATED ON THE DRAWINGS. IF DIMENSIONS ON THE DRAWINGS ARE AT VARIANCE WITH ACTUAL CONDITIONS, SUCH THAT WORK CANNOT PROCEED AS INDICATED, REQUEST CLARIFICATION FROM THE ARCHITECT BEFORE PROCEEDING WITH CONSTRUCTION AND / OR FABRICATION OF ANY ITEM SCHEDULED FOR INSTALLATION.

CONTRACTOR IS RESPONSIBLE FOR THE MEANS, METHODS, AND TECHNIQUES OF CONSTRUCTION, SAFETY PRECAUTIONS IN CONNECTION WITH THE WORK, AND FOR THE ACTS OR OMISSIONS OF SUBCONTRACTORS.

INSTALL ALL MANUFACTURED ITEMS, MATERIALS, AND EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDED SPECIFICATIONS.

UNLESS NOTED OTHERWISE, DIMENSIONS ARE FACE TO FACE OF WOOD STUDS, EXCEPT AT EXTERIOR WALLS WHERE DIMENSION IS TO FACE OF EXISTING GYPSUM WALLBOARD FINISH.

MASONRY DIMENSIONS ARE FACE TO FACE OF CONCRETE MASONRY UNITS.

CONCRETE DIMENSIONS ARE FACE TO FACE OF CONCRETE SURFACE.

ELEVATIONS AND LEVELS ARE SHOWN TO TOP OF FINISHED HARD SURFACES (i.e., TOP OF FINISHED WOOD FLOORING, ETC.). THIN-SET FINISH MATERIALS, SUCH AS CARPET, TILE, ETC. ARE IN ADDITION TO THE DIMENSION INDICATED.

ALL VERTICAL PIPING SHALL BE FURRED AND FINISHED TO MATCH ADJACENT WALLS. EXCEPTIONS ARE IN MECHANICAL / ELECTRICAL ROOM WHERE PIPING MAY REMAIN EXPOSED.

CEILING ACCESS PANELS SHALL BE PROVIDED IN OTHERWISE NON-ACCESSIBLE CEILINGS BELOW THE FOLLOWING MECHANICAL AND PLUMBING DEVICES:

A. VALVES
B. FLOW MEASURING DEVICES
C. MIXING BOXES
D. POWER OPERATED DAMPERS
E. ACCESS PANELS IN DUCTWORK
F. VOLUME AND BALANCING DEVICES
G. WATER FLOW SWITCHES
H. SPRINKLER SYSTEM DRAINS AND TEST CONNECTIONS
I. PRESSURE SWITCHES

CODES & ORDINANCES

2018 - VIRGINIA CONSTRUCTION CODE
(VIRGINIA UNIFORM STATEWIDE BUILDING CODE)
2018 - VIRGINIA EXISTING BUILDING CODE
2018 - VIRGINIA ENERGY CONSERVATION CODE
2018 - INTERNATIONAL PLUMBING CODE
2018 - INTERNATIONAL MECHANICAL CODE
2014 - NATIONAL ELECTRICAL CODE
2010 - ADA STANDARDS FOR ACCESSIBLE DESIGN

OCCUPANCY

BUSINESS GROUP - "B"

TOTAL OCCUPANT LOAD

LESS THAN 50 PERSONS.

CONSTRUCTION TYPE

TYPE V-B

FIRE PROTECTION

NO AUTOMATIC SPRINKLER SYSTEM IS REQUIRED.
NO FIRE ALARM SYSTEM IS REQUIRED.

BUILDING HEIGHT / AREA

1 STORY, ACTUAL / 3 STORIES ALLOWED BY CODE.
9,000 SQ. FT. PER STORY ALLOWED BY CODE / 9,000 SQ. FT. PER BLDG. ALLOWED

PROJECT AREA

FLOOR AREA: 1,152 SQUARE FEET / 9,000 SQ. FT. ALLOWED BY CODE.

AREA INCREASE? NO

INTERIOR FINISHES

FLAME SPREAD RATING SHALL BE IN ACCORDANCE WITH ASTM E84 AND GROUPED IN THE FOLLOWING CLASSES:

CLASS A: FLAME SPREAD 0-25, SMOKE-DEVELOPED 0-450.
CLASS B: FLAME SPREAD 26-75, SMOKE-DEVELOPED 0-450.
CLASS C: FLAME SPREAD 76-200, SMOKE-DEVELOPED 0-450.

THE RATINGS FOR THIS GROUP "B" OCCUPANCY SHALL BE IN ACCORDANCE WITH THE "NON-SPRINKLERED" PORTION OF THE VIRGINIA CONSTRUCTION CODE, TABLE 803.5, INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY.

EXIT ENCLOSURES AND PASSAGEWAYS: A
CORRIDORS: B
ROOMS AND ENCLOSED SPACES: C

ENERGY CONSERVATION

PER THE VIRGINIA ENERGY CONSERVATION CODE, CHAPTER 3, SECTION 301, "CLIMATE ZONES", THE ENTIRE COMMONWEALTH OF VIRGINIA LIES WITHIN CLIMATE ZONE 4. THIS PROJECT SITE FALLS WITHIN SUB-ZONE "A",MOIST.

IN ACCORDANCE WITH THE VIRGINIA ENERGY CONSERVATION CODE, CHAPTER 5, TABLE 502.2, "BUILDING ENVELOPE REQUIREMENTS- OPAQUE ASSEMBLIES", THE FOLLOWING MINIMUM INSULATION REQUIREMENTS APPLY TO ZONE 4:

ATTIC AND OTHER ROOF INSULATION:	R-38
WALLS AND ABOVE GRADE INSULATION:	R-13 + R7.5 CONTINUOUS INSULATION
UNHEATED SLABS ON GRADE:	R-10 FOR 24" BELOW GRADE
SWINGING OPAQUE DOORS:	U-0.61
SWINGING ENTRANCE DOORS:	U-0.77
WINDOWS (FIXED)	U-0.38
WINDOWS (OPERABLE)	U-0.45
FENESTRATION SHGC	0.40
FENESTRATION % OF EXTERIOR WALL	11.28%

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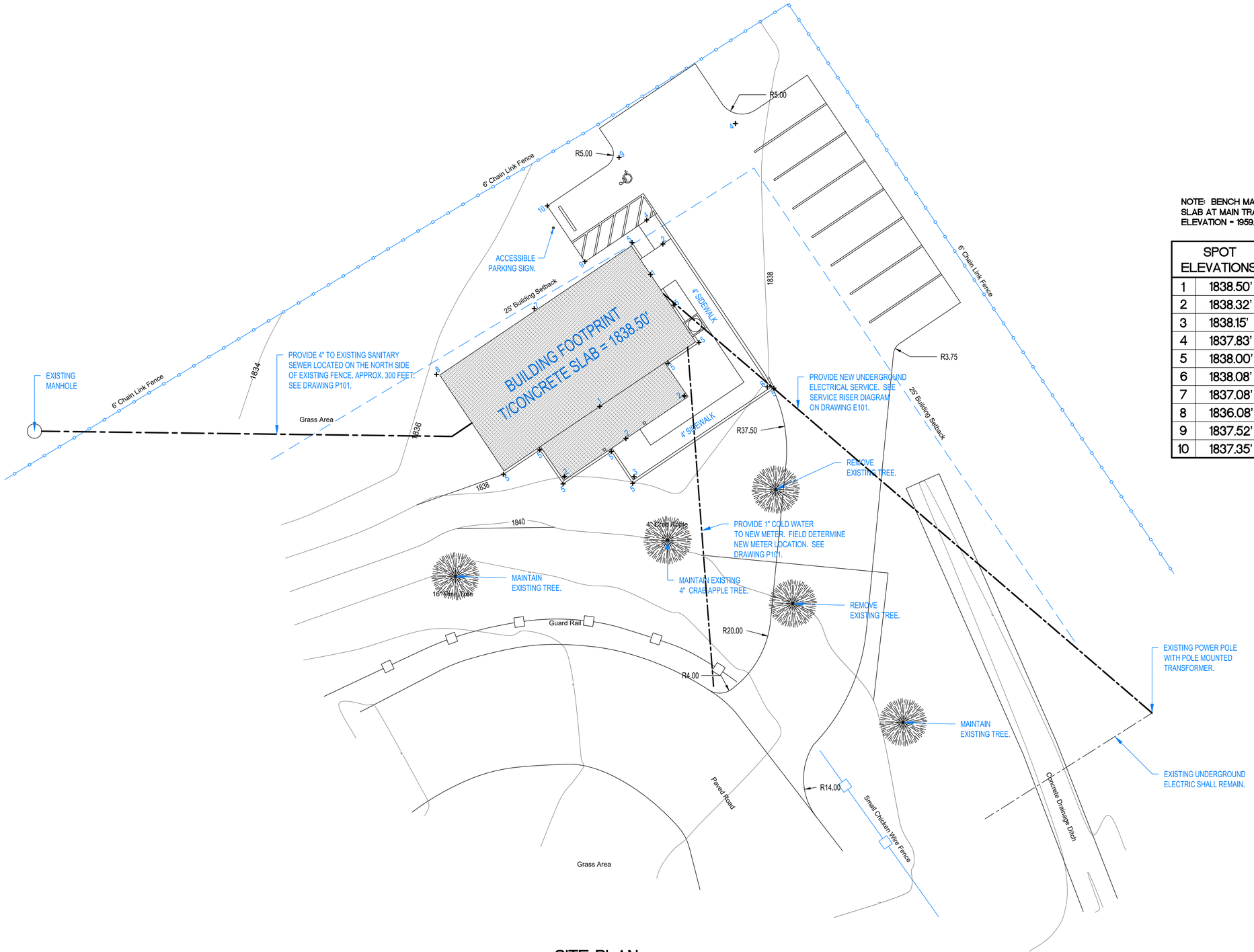
NEW TRAINING FACILITY FOR WASHINGTON COUNTY SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

PROJECT INFORMATION

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE:	09-29-2023
NO.	REVISION DATE
1	-
2	
3	
SHEET:	G101
DRAWN BY	CHECKED BY
PROJECT NO.	TLG-22135

THE LANE GROUP INC.



NOTE: BENCH MARK IS TOP OF CONCRETE FLOOR SLAB AT MAIN TRANSFER BUILDING "TIPPING FLOOR." ELEVATION = 1959.00'.

SPOT ELEVATIONS	
1	1838.50'
2	1838.32'
3	1838.15'
4	1837.83'
5	1838.00'
6	1838.08'
7	1837.08'
8	1836.08'
9	1837.52'
10	1837.35'

SITE PLAN

SCALE: 1" = 10'

0 10' 20'

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SITE PLAN

DATE:	09-29-2023
NO.	REVISION DATE
1	*
2	
3	

SHEET: C101

DRAWN BY: | CHECKED BY:

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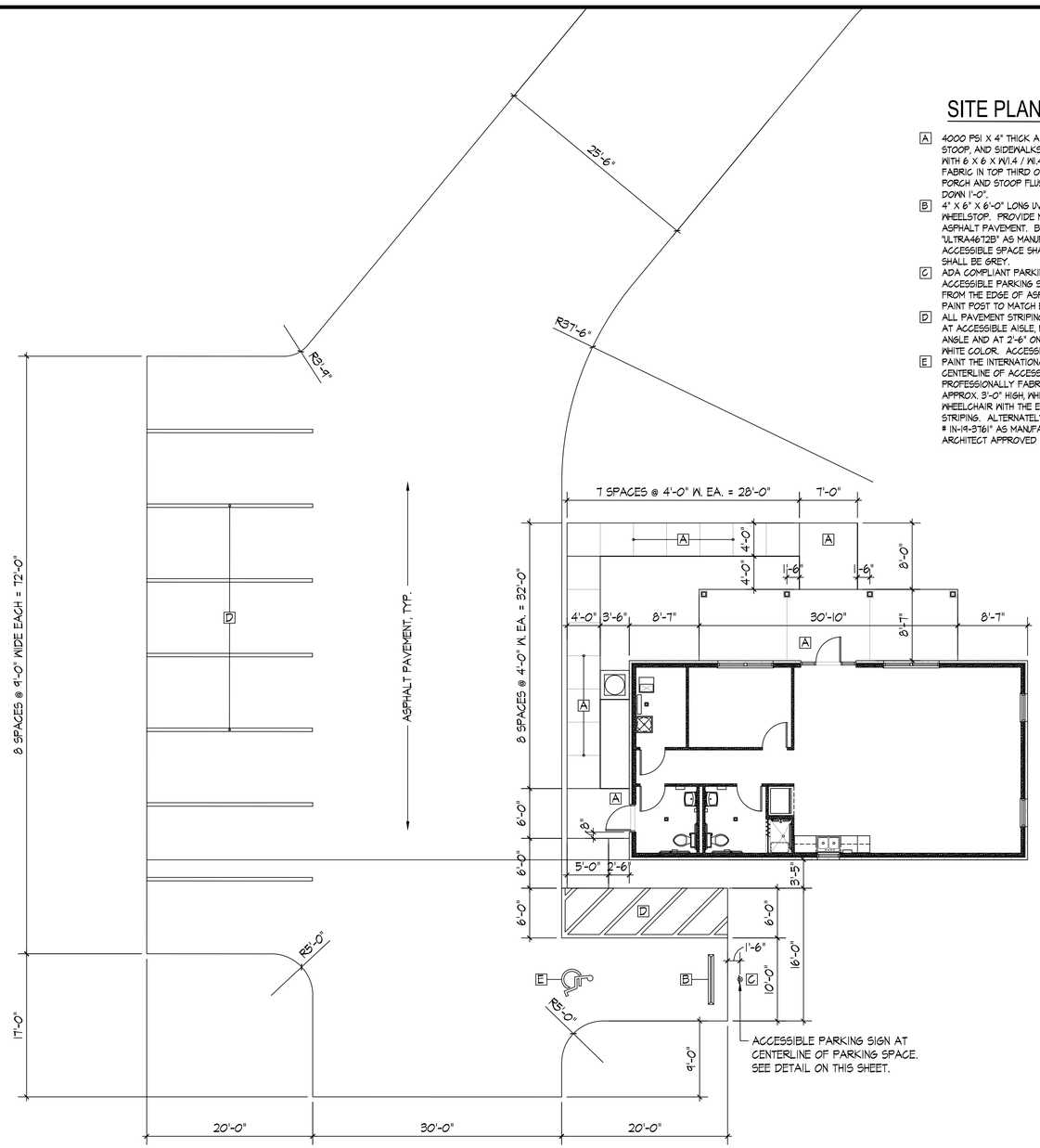


SITE PLAN KEY NOTES

A. 4000 PSI X 4" THICK AIR-ENTRAINED CONCRETE PORCH, STOOP, AND SIDEWALKS ON 4" NO. 57 STONE BASE. REINFORCE WITH 6 X 6 X W1.4 / W1.4 WELDED WIRE FABRIC. PLACE WIRE FABRIC IN TOP THIRD OF CONCRETE. TOP OF CONCRETE PORCH AND STOOP FLUSH WITH FLOOR LEVEL. TURN EDGES DOWN 1'-0".

B. 4" X 6" X 6'-0" LONG UV RESISTANT RECYCLED PLASTIC WHEELSTOP. PROVIDE MOUNTING HARDWARE SUITABLE FOR ASPHALT PAVEMENT. BASIS OF DESIGN SHALL BE ITEM # "ULTRA4612B" AS MANUFACTURED BY IDEALSHIELD. COLOR AT ACCESSIBLE SPACE SHALL BE BLUE. ANY OTHERS PROVIDED SHALL BE GREY.

C. ADA COMPLIANT PARKING SIGNAGE AT CENTERLINE OF ACCESSIBLE PARKING SPACE. LOCATE SIGNAGE 1'-6" BACK FROM THE EDGE OF ASPHALT. SEE SIGN DETAIL ON THIS SHEET. PAINT POST TO MATCH BOLLARD COVER.

D. ALL PAVEMENT STRIPING SHALL BE 4" WIDE, WHITE COLOR. AT ACCESSIBLE AISLE, PAINT DIAGONAL LINES AT A 45-DEGREE ANGLE AND AT 2'-6" ON CENTER. STRIPES SHALL BE 4" WIDE, WHITE COLOR. ACCESSIBLE AISLE SHALL BE 6'-0" WIDE.

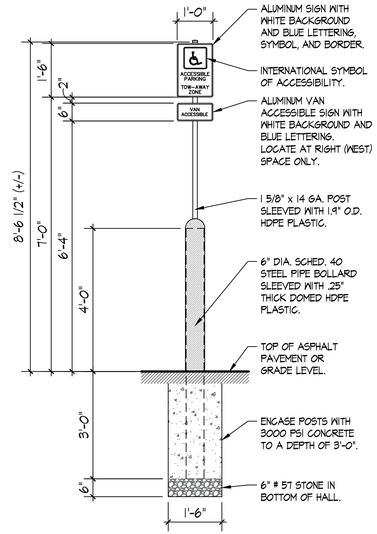
E. PAINT THE INTERNATIONAL HANDICAPPED SYMBOL AT THE CENTERLINE OF ACCESSIBLE PARKING SPACE USING A PROFESSIONALLY FABRICATED STENCIL. PAINT SYMBOL APPROX. 3'-0" HIGH, WHITE COLOR. ALIGN THE BOTTOM OF THE WHEELCHAIR WITH THE END OF ADJACENT PARKING LOT STRIPING. ALTERNATELY, PROVIDE AN ADA PAVEMENT "DEGAL" # IN-18-3761" AS MANUFACTURED BY STOP-PAINTING.COM, OR ARCHITECT APPROVED EQUAL.

PARKING LAYOUT PLAN

SCALE: 1/8" = 1'-0" 1,152.00 SQ. FT.

0 4' 8' 16'

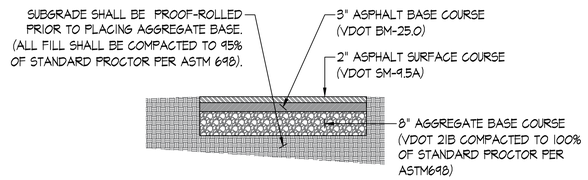
NORTH



ACCESSIBLE PARKING SIGN POST DETAIL

2 / C102

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



TYPICAL ASPHALT PAVEMENT SECTION

1 / C102

NOT TO SCALE

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PARKING LAYOUT PLAN
SITE DETAILS

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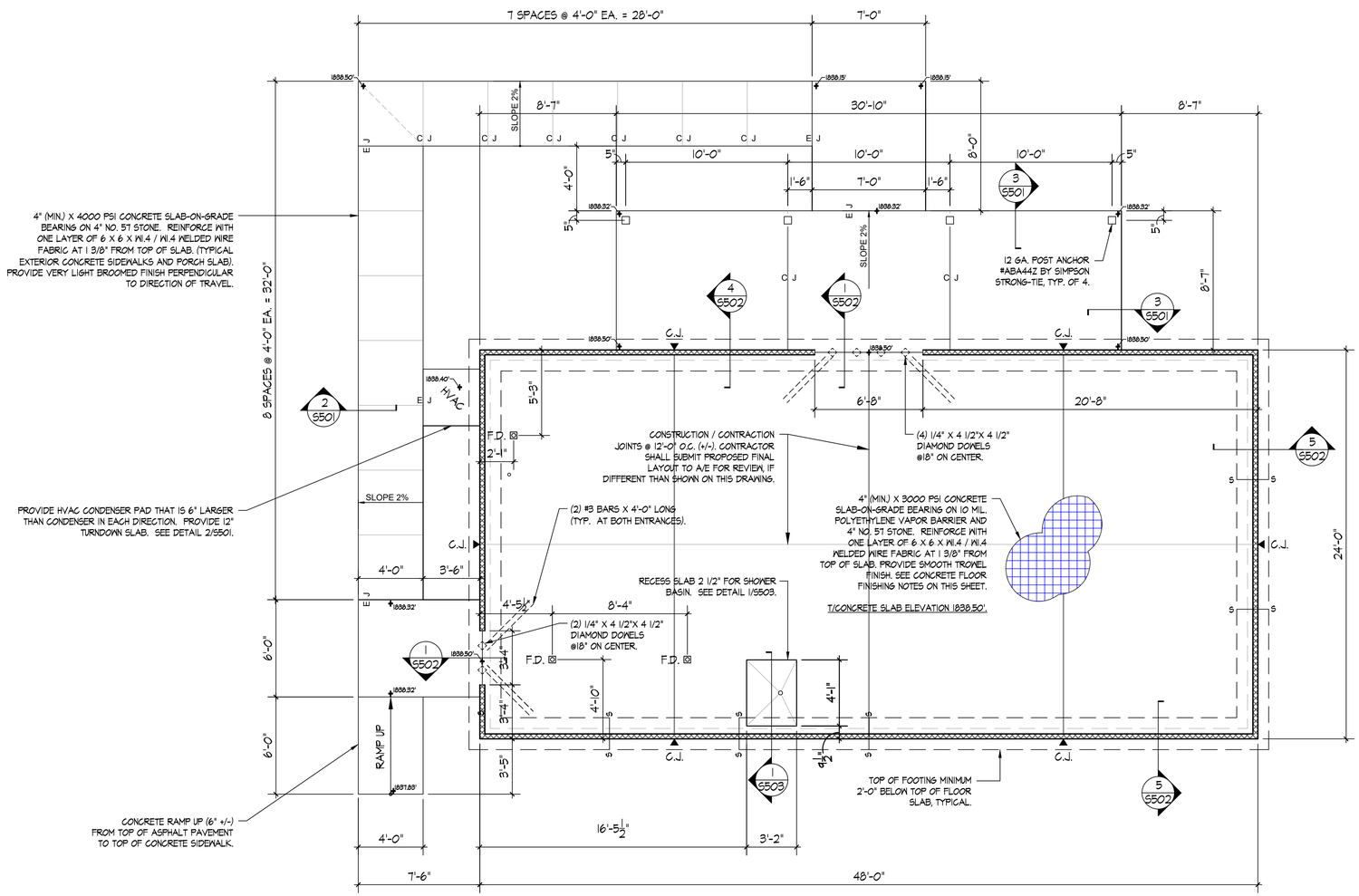

CONCRETE FLOOR FINISHING

INTERIOR CONCRETE FLOOR FINISHING SHALL BE COMPLETED PRIOR TO PARTITION FRAMING TO SIMPLIFY THE POLISHING PROCESS. THE FLOOR FINISHING PROCESS SHALL BE A FIVE (5) STEP PROCESS AS FOLLOWS:

1. FINISH THE CONCRETE FLOOR TO A SMOOTH TROWEL FINISH. SOFT CUT CONTROL JOINTS. CLEAN CONCRETE OF ANY DIRT, RESIDUE, OR SOFT CUT SAW DEBRIS. ALLOW SURFACE TO DRY.
2. APPLY PROSOCO "CONSOLIDECK LS" CONCRETE SEALER / HARDENER / DENSIFIER TO CONCRETE SURFACE. USE A CLEAN MICROFIBER PAD TO SPREAD THE "CONSOLIDECK LS" PRODUCT EVENLY AND TO ENSURE UNIFORM WETTING. AVOID SPREADING AFTER DRYING BEGINS. DO NOT ALLOW "CONSOLIDECK LS" TO PUDDLE ON THE FLOOR SURFACE. ALLOW TREATED SURFACE TO DRY. DIAMOND GRIND AND POLISH CONCRETE FLOOR TO EQUIVALENT OF #200 GRIT RESIN DIAMONDS. CLEAN FLOOR WITH A FLOOR-SCRUBBING MACHINE AND FRESH WATER. ALLOW SURFACE TO DRY.
3. USE A LOW-PRESSURE SPRAYER WITH CONICAL SPRAY PATTERN TO APPLY PROSOCO "GEMTONE" STAIN OVER "CONSOLIDECK LS". PROVIDE "SERPENTINE" GREEN COLOR. APPLY THREE (3) THIN COATS RATHER THAN ONE HEAVY COAT WITH A MINIMUM OF 1-HOUR DRYING TIME BETWEEN COATS. DO NOT WALK ON FRESHLY STAINED FLOOR.
4. USING A CLEAN LOW-PRESSURE SPRAYER FITTED WITH A 0.5 GPM CONICAL OR FAN SPRAY TIP, SPRAY-APPLY PROSOCO "POLISH GUARD" PROTECTIVE SEALER, WORKING FROM ONE CONTROL JOINT TO ANOTHER. MACHINE POLISH TO A HIGH-GLOSS FINISH.
5. USING A CLEAN LOW-PRESSURE SPRAYER, WORKING FROM ONE CONTROL JOINT TO ANOTHER, APPLY PROSOCO "CONCRETE PROTECTOR SB" OVER THE "POLISH GUARD" TO PROTECT AGAINST FOOD / OIL STAINS. USE A DAMP MICROFIBER PAD TO MAINTAIN A WET EDGE. ALLOW TREATED SURFACES TO DRY TACK-FREE, TYPICALLY 60 TO 90 MINUTES. ONCE DRY, BURNISH USING A HIGH-SPEED BURNISHER FITTED WITH "CONSOLIDECK HEAT BURNISHING PAD" OR 1500 TO 3000 GRIT DIAMOND POLISHING PAD SUITABLE FOR USE ON HIGH-GLOSS FINISHES. PROTECT CONCRETE FLOOR SLAB THROUGHOUT REMAINDER OF CONSTRUCTION.

FOUNDATION PLAN

SCALE: 1/4" = 1'-0" 1,152.00 SQ. FT.

0 2' 4' 8'

NORTH

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NEW TRAINING FACILITY FOR
WASHINGTON COUNTY
SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

FOUNDATION PLAN

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE:	09-29-2023
NO.	REVISION DATE
1	*
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SHEET:	S101
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PROJECT NO.	TLG-22135

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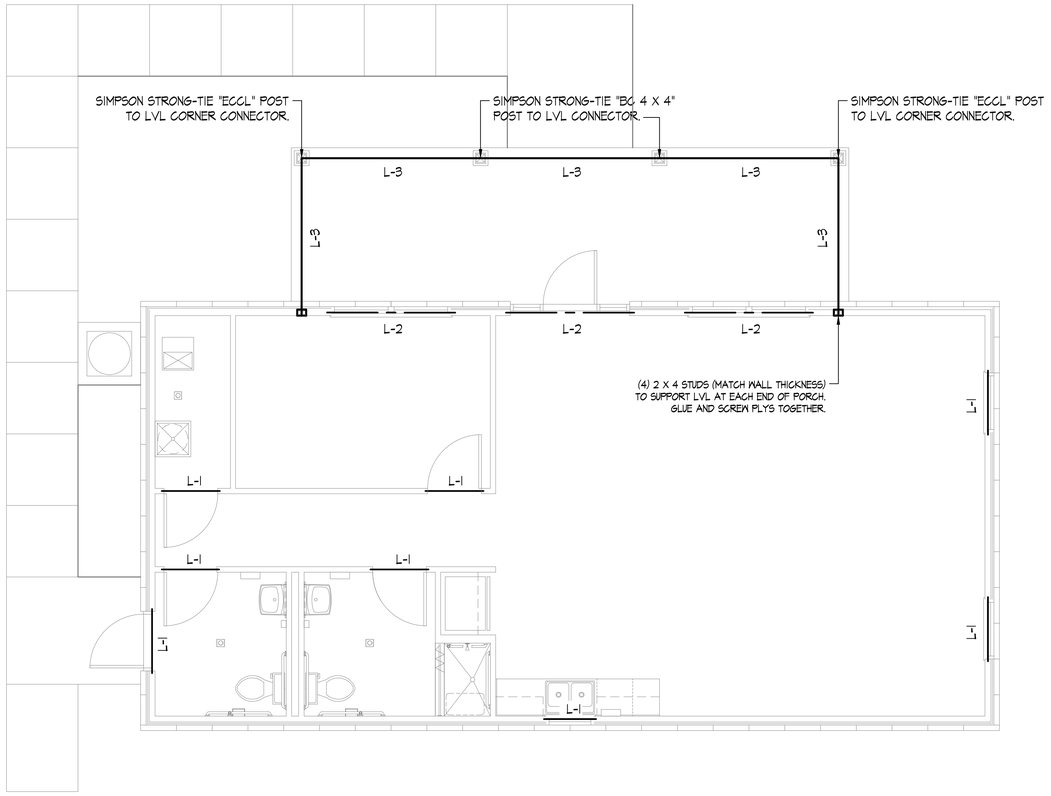

LINTEL PLAN

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

0 2' 4' 8'

1,152.00 SQ. FT.

NORTH

LINTEL SCHEDULE

MARK	SHAPE	DESCRIPTION	BEARING (EACH END)
L-1		(2) 2 x 8's WITH 1/2" PLYWOOD SPACER. TOTAL WIDTH = 3-1/2".	1-1/2 INCHES
L-2		(2) 2 x 10's WITH 1/2" PLYWOOD SPACER. TOTAL WIDTH = 3-1/2".	3 INCHES.
L-3		(2) 1-3/4" X 9-1/4" 2.1E LVL. TOTAL WIDTH = 3-1/2".	3 INCHES.

PROVIDE LINTELS OVER ALL WALL OPENINGS. LINTELS NOT IDENTIFIED SHALL BE TYPE L-1.

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LINTEL PLAN

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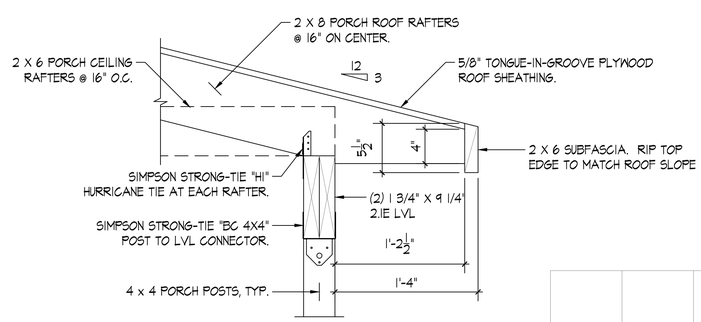
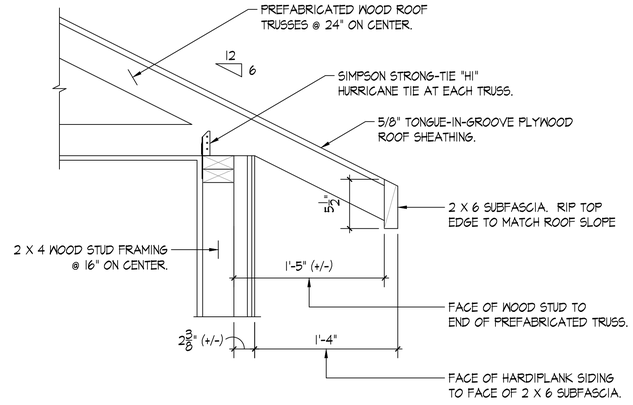


TYPICAL PORCH RAFTER BEARING DETAIL

3 / S103

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

0 1/2" 1' 1 1/2"

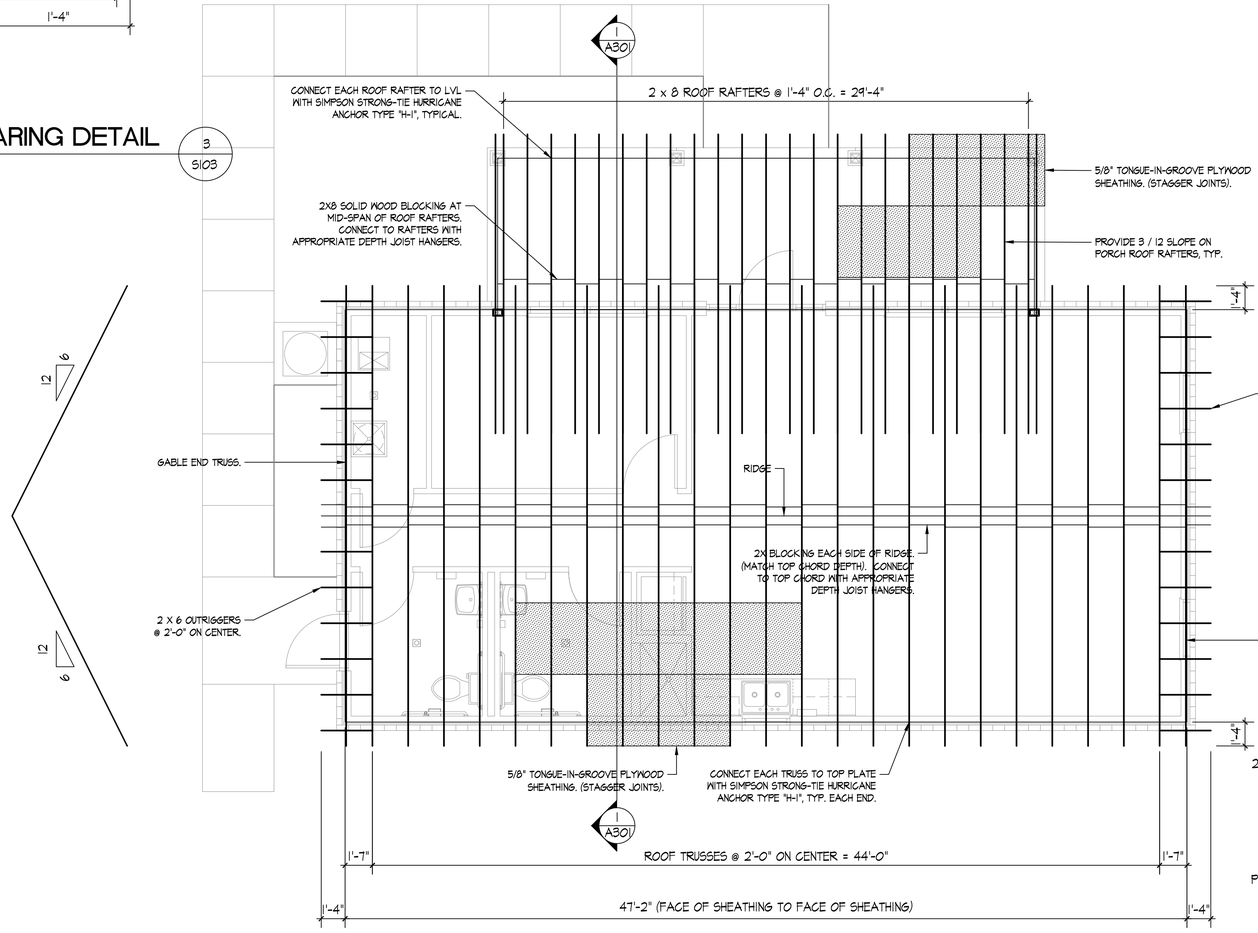


TYPICAL TRUSS BEARING DETAIL

2 / S103

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

0 1/2" 1' 1 1/2"

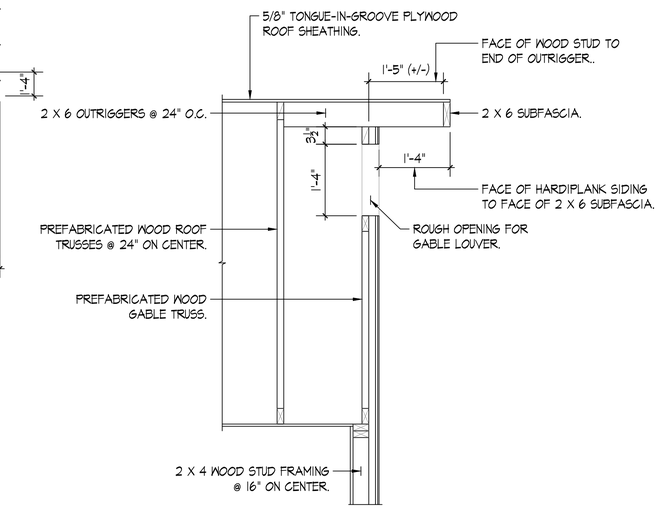


ROOF FRAMING PLAN

SCALE: 1/4" = 1'-0" 1,152.00 SQ. FT.

0 2' 4' 8'

NORTH



GABLE TRUSS DETAIL

1 / S103

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

0 1' 2' 3'

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ROOF FRAMING PLAN

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
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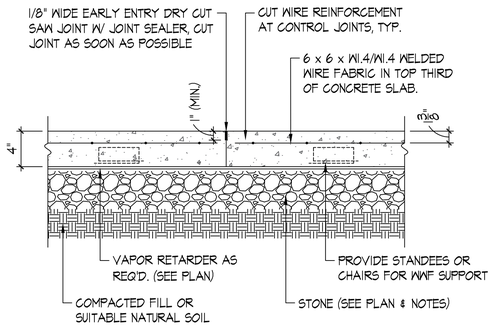
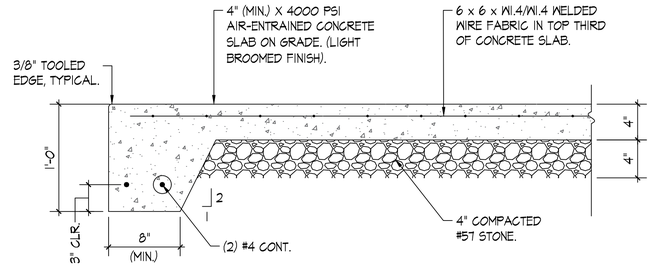


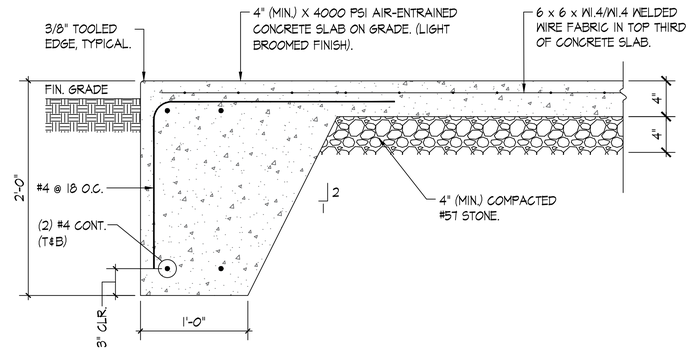
TYPICAL SLAB CONTRACTION JOINT (CTJ)

0 1/8" 1' 1 1/8" SCALE 1 1/2" = 1'-0" — 1 / S501



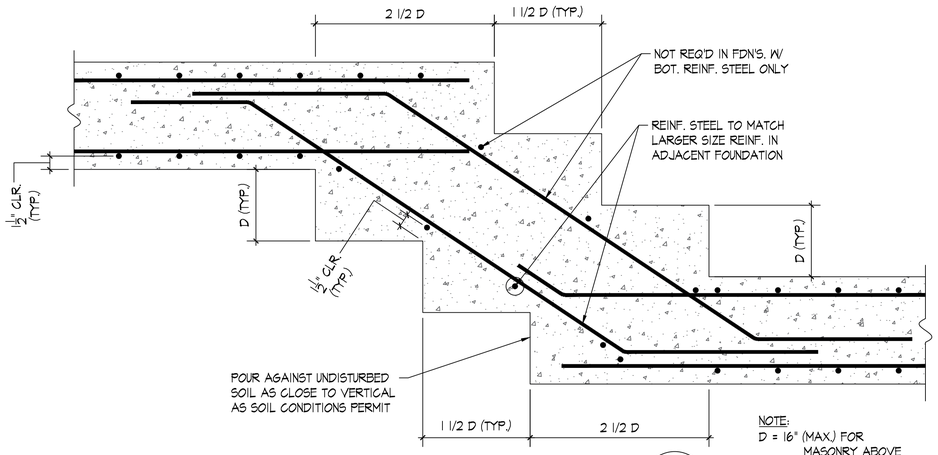
TYPICAL 12" SLAB TURN DOWN

0 1/8" 1' 1 1/8" SCALE 1 1/2" = 1'-0" — 2 / S501



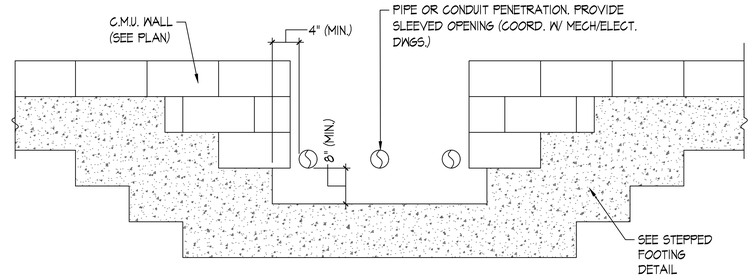
TYPICAL 24" SLAB TURN DOWN

0 1/8" 1' 1 1/8" SCALE 1 1/2" = 1'-0" — 3 / S501



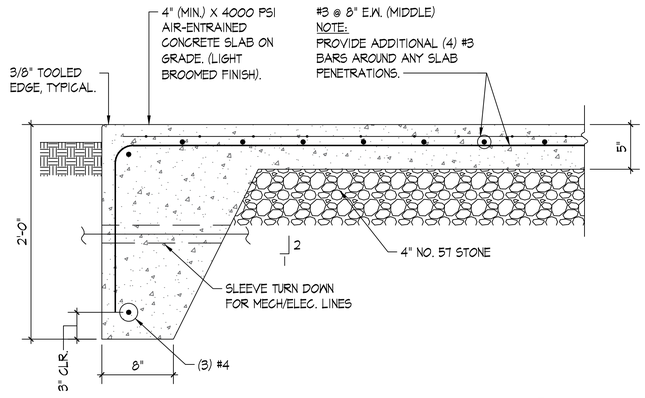
STEPPED FOOTING DETAIL

0 1/8" 1' 1 1/8" SCALE 1 1/2" = 1'-0" — 4 / S501



STEPPED FOUNDATION AT UTILITIES

0 1' 2' 3' SCALE 3/4" = 1'-0" — 5 / S501



EXTERIOR EQUIPMENT PAD DETAIL

SCALE 1 1/2" = 1'-0" — 6 / S501

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NEW TRAINING FACILITY FOR WASHINGTON COUNTY SOLID WASTE DISPOSAL

14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

FOUNDATION DETAILS

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE: 09-29-2023

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1	*
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SHEET: S501

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PROJECT NO. TLG-22135

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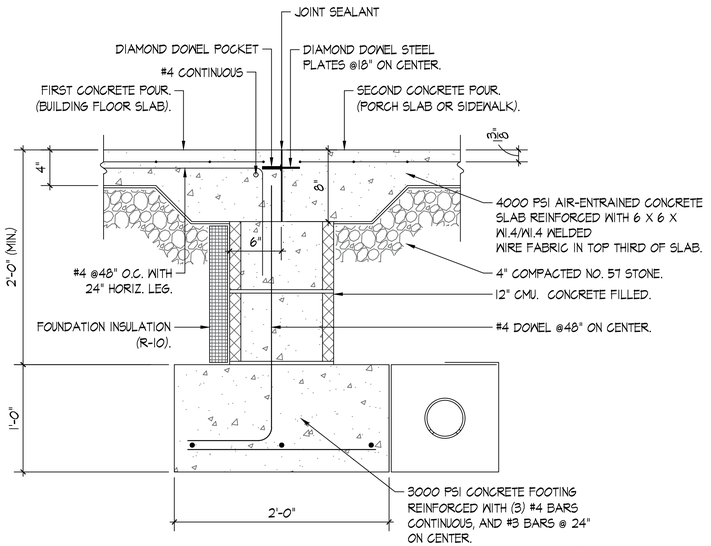
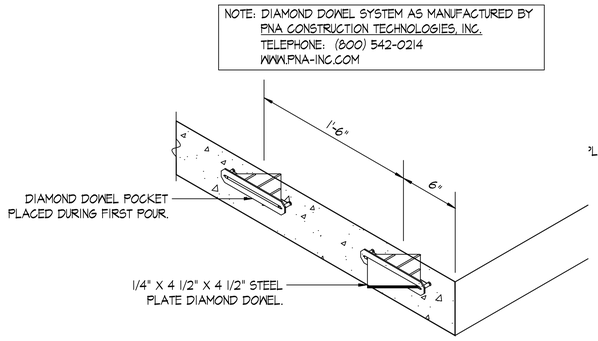


DIAMOND DOWEL SYSTEM - CONST. JTS. AT DOORS

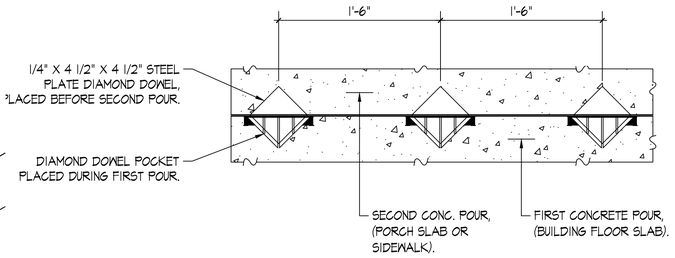
SCALE 1 1/2" = 1'-0" — 1 / S502

NOTE: DIAMOND DOWEL SYSTEM AS MANUFACTURED BY PNA CONSTRUCTION TECHNOLOGIES, INC.
TELEPHONE: (800) 542-0214
WWW.PNA-INC.COM



DIAMOND DOWEL SYSTEM - ISOMETRIC

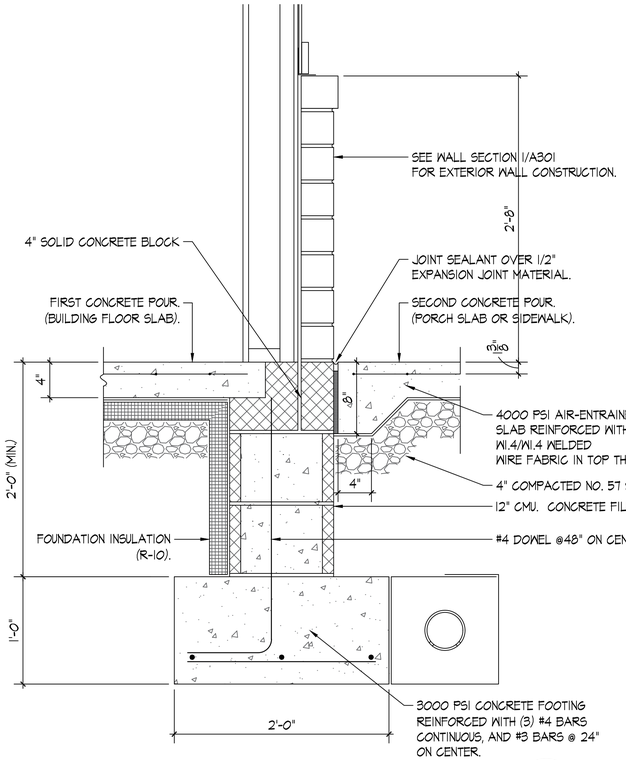
SCALE 1 1/2" = 1'-0" — 2 / S502



PROVIDE A MINIMUM OF 2 DIAMOND DOWELS AT 3'-4" WIDE DOOR OPENINGS AND A MINIMUM OF 4 DIAMOND DOWELS AT 6'-4" WIDE DOOR OPENINGS.

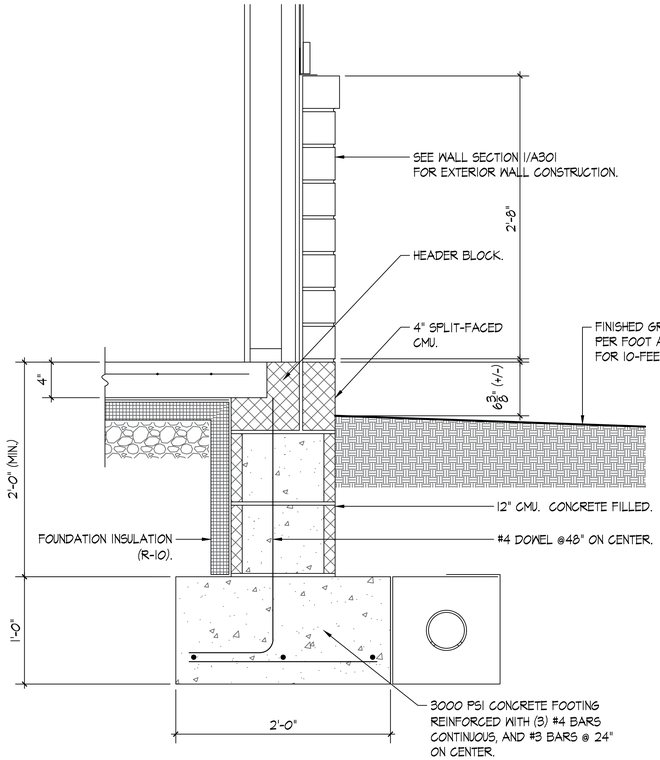
DIAMOND DOWEL SYSTEM - PLAN VIEW

SCALE 1 1/2" = 1'-0" — 3 / S502



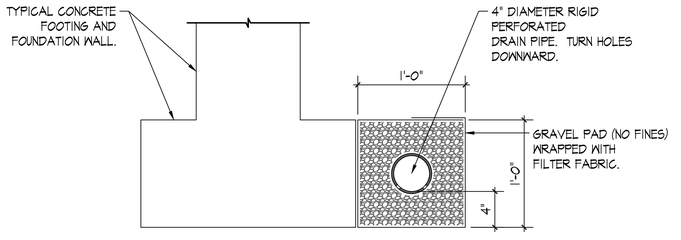
TYPICAL FOUNDATION DETAIL AT FRONT PORCH

SCALE 1 1/2" = 1'-0" — 4 / S502



TYPICAL FOUNDATION DETAIL

SCALE 1 1/2" = 1'-0" — 5 / S502



TYPICAL FOUNDATION DRAIN DETAIL

SCALE 1 1/2" = 1'-0" — 6 / S502

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NEW TRAINING FACILITY FOR WASHINGTON COUNTY SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK ROAD
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STRUCTURAL DETAILS

DATE: 09-29-2023

NO.	REVISION DATE
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PROJECT NO. TLG-21170

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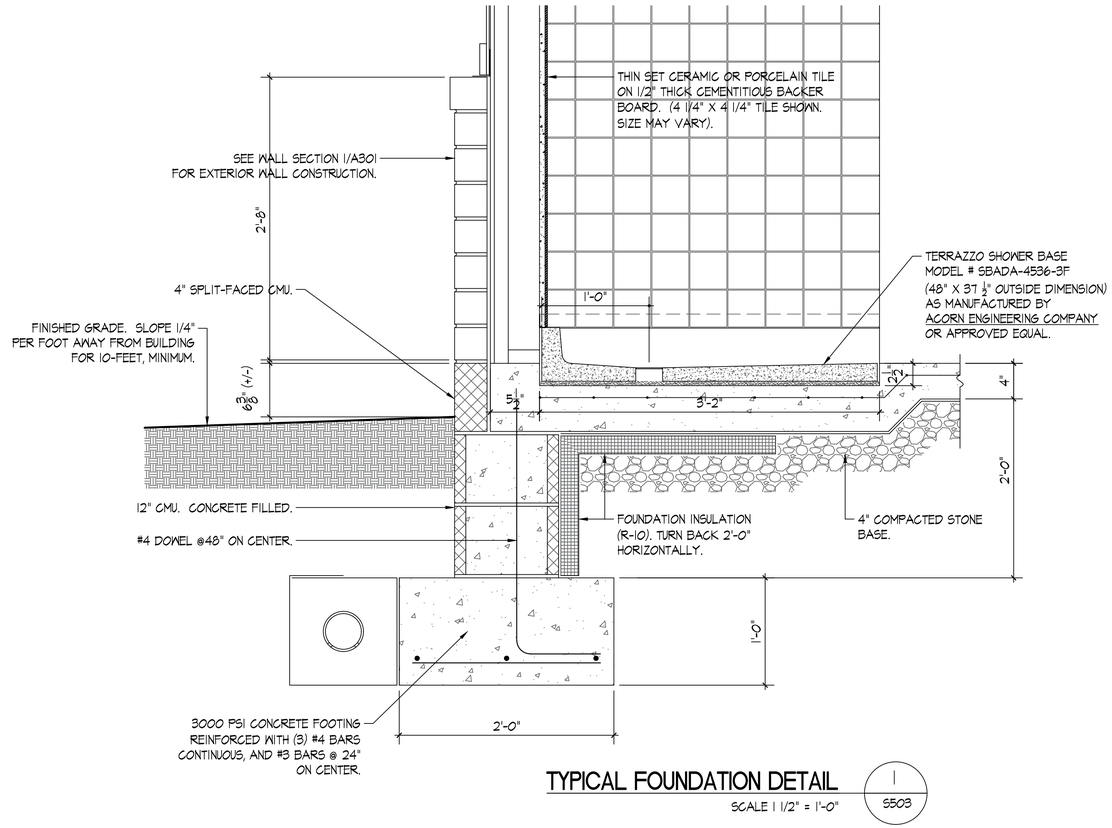

TYPICAL FOUNDATION DETAIL

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

1 / S503

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NEW TRAINING FACILITY FOR
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14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

STRUCTURAL DETAILS

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE: 09-29-2023

NO.	REVISION DATE
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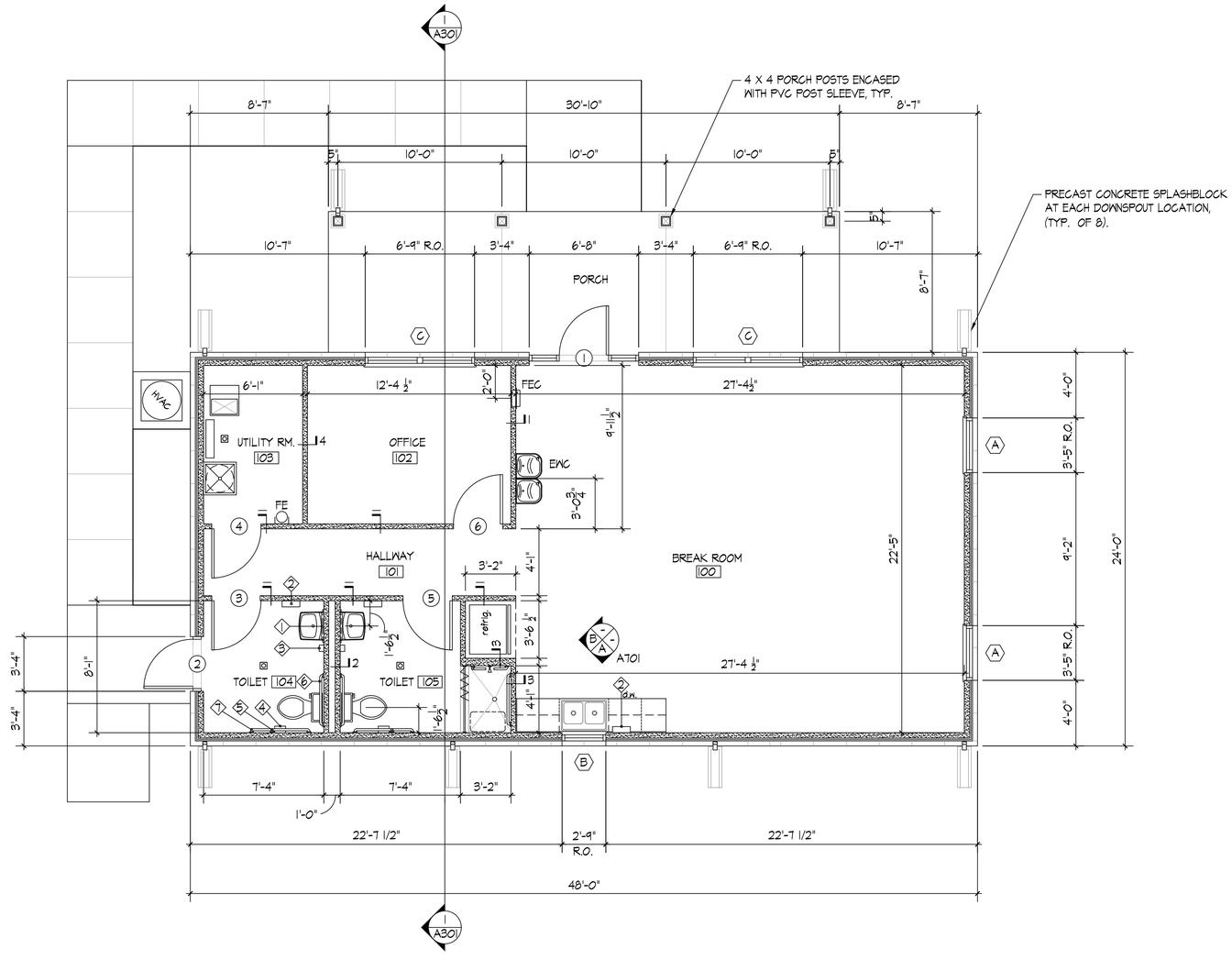

FLOOR PLAN

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

0 2' 4' 8'

1,152.00 SQ. FT.

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NEW TRAINING FACILITY FOR WASHINGTON COUNTY SOLID WASTE DISPOSAL

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BRISTOL, VIRGINIA 24202

FLOOR PLAN

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE: 09-29-2023

NO.	REVISION DATE
1	*
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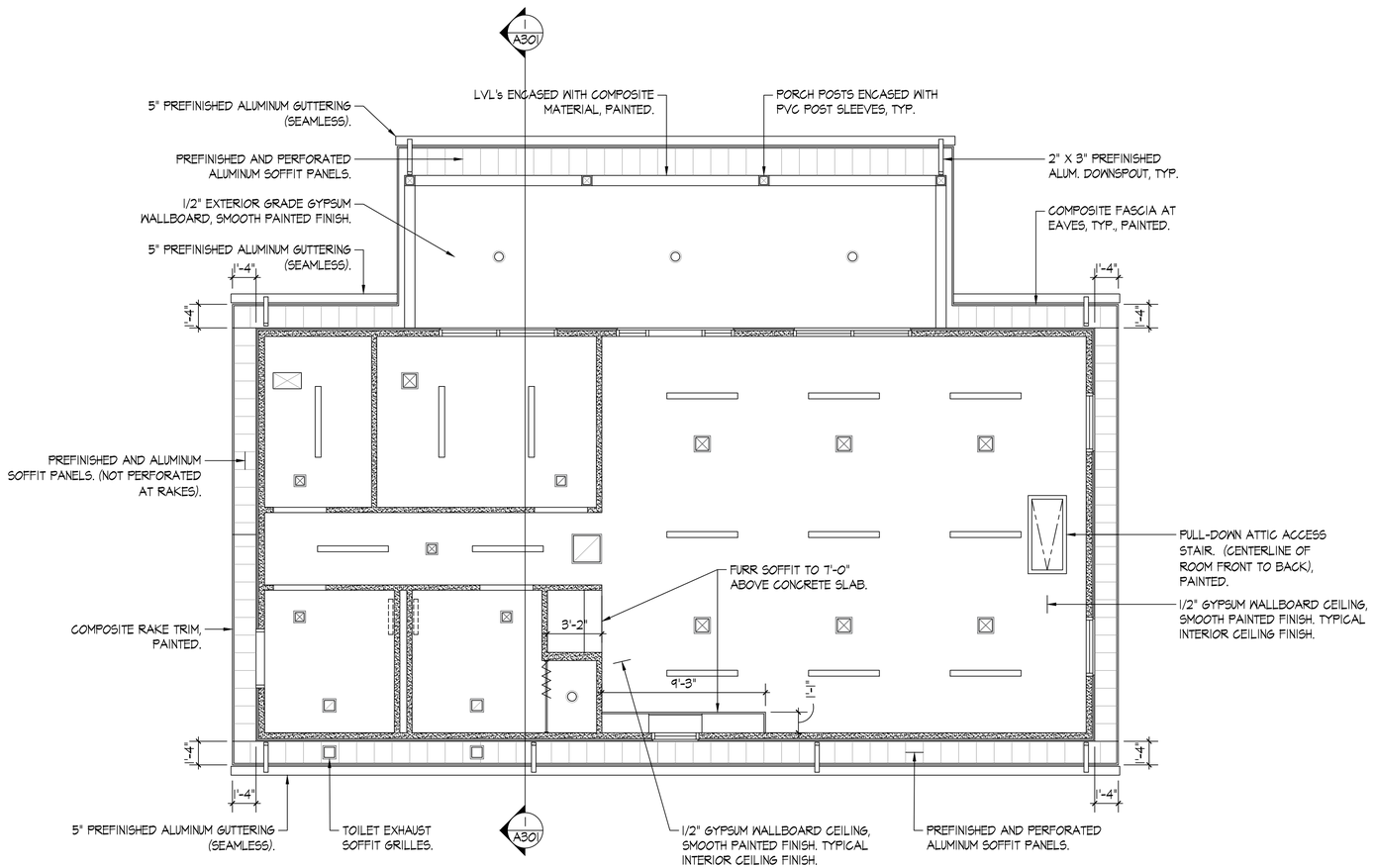

REFLECTED CEILING PLAN

SCALE: 1/4" = 1'-0" 1,152.00 SQ. FT.

0 2' 4' 8'

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REFLECTED CEILING PLAN

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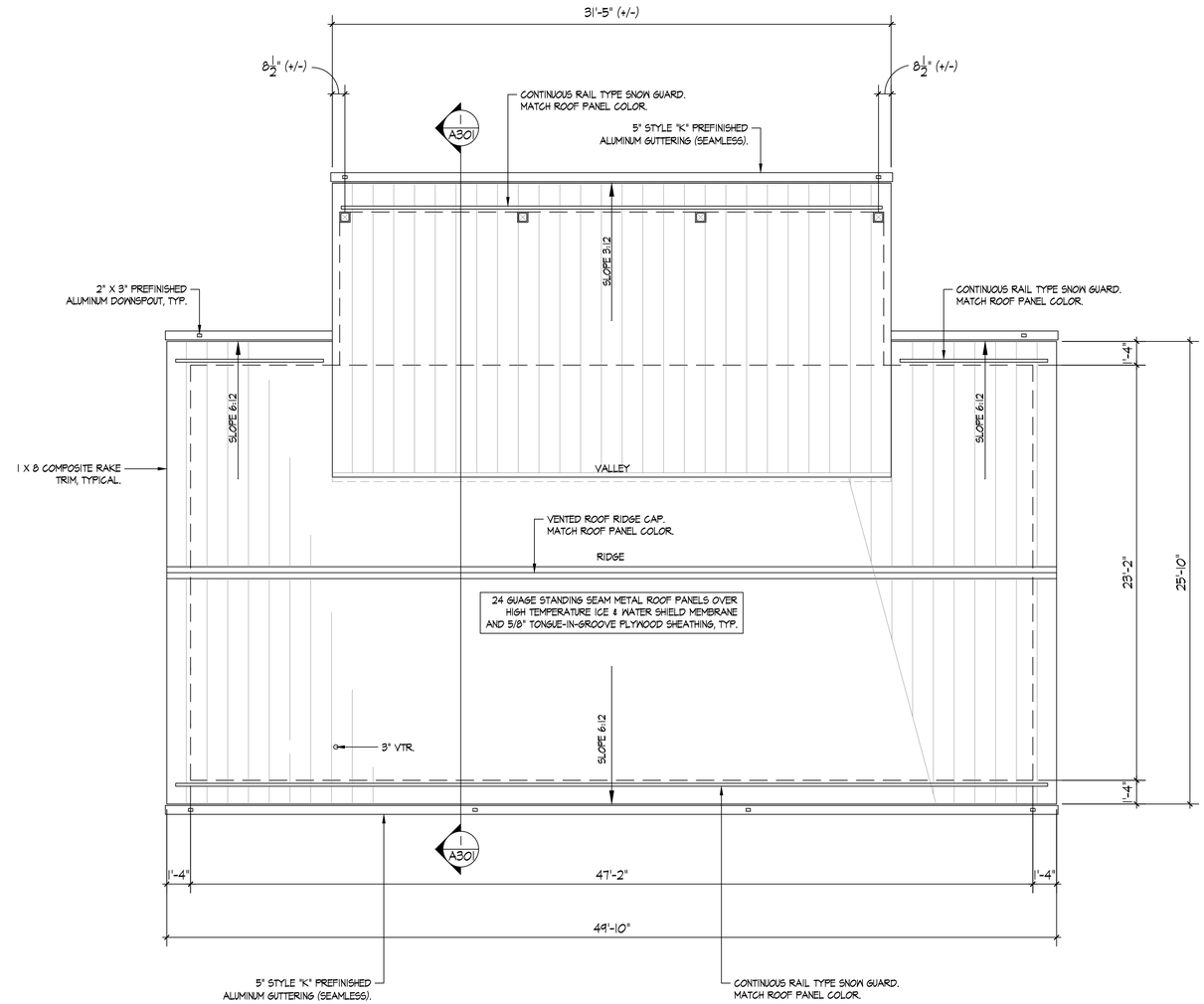

ROOF PLAN

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

0 2' 4' 8'

1,152.00 SQ. FT.

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ROOF PLAN

COMMONWEALTH OF VIRGINIA
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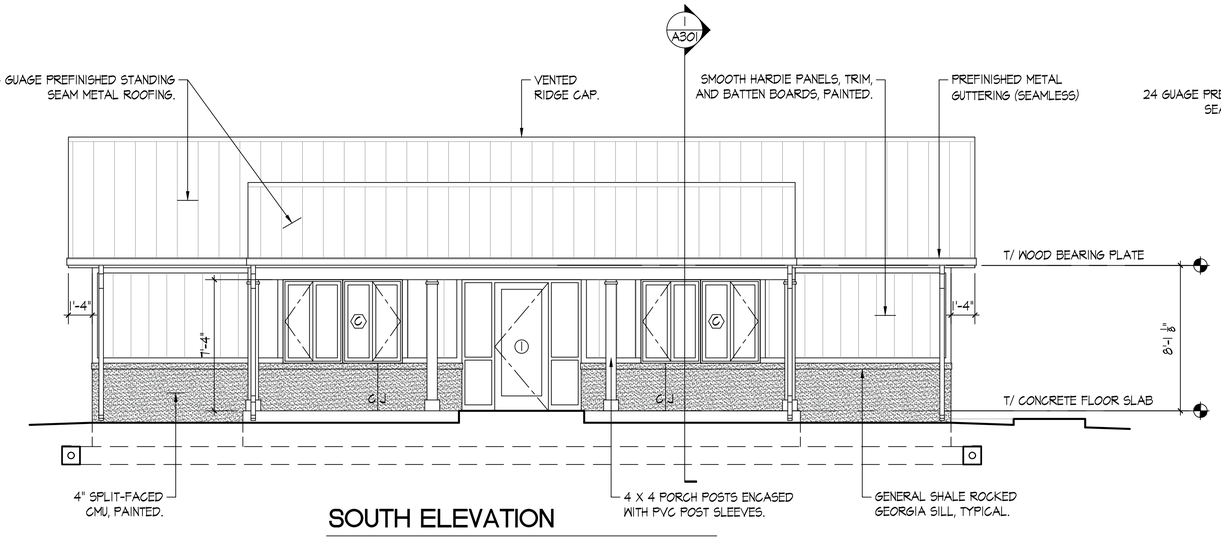
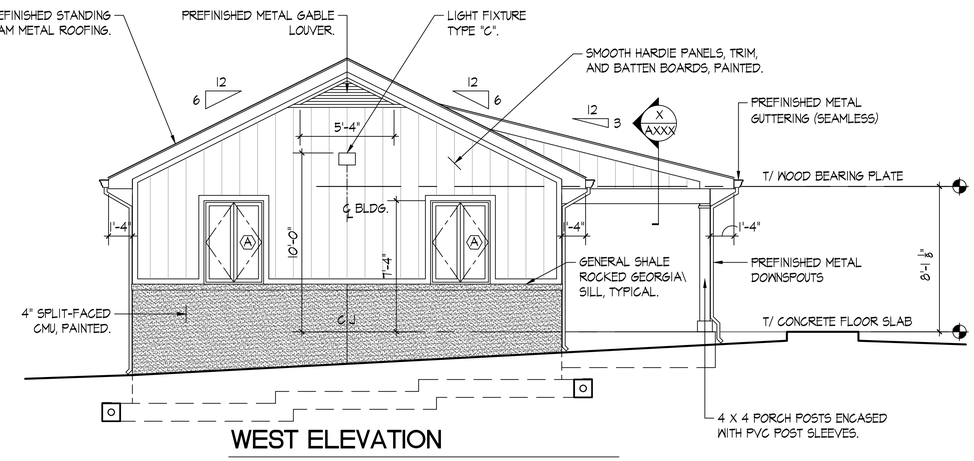
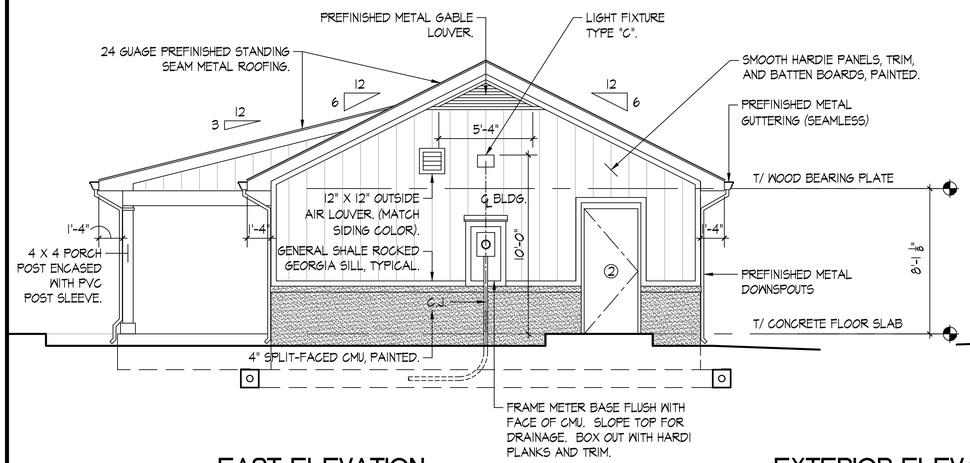


SOUTH ELEVATION



WEST ELEVATION

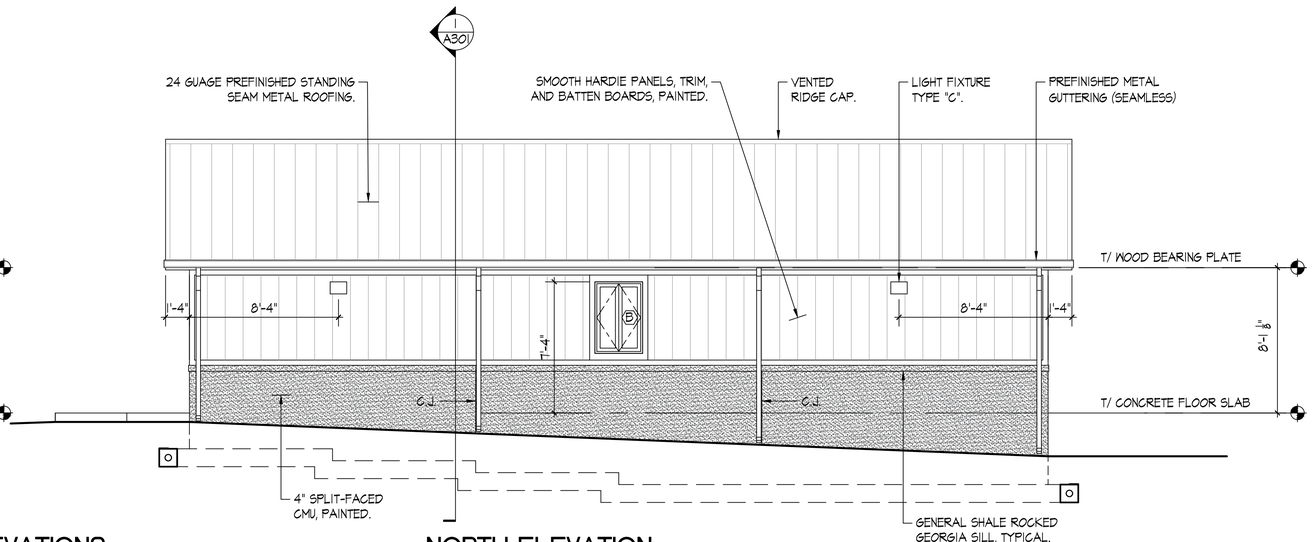


EAST ELEVATION

EXTERIOR ELEVATIONS

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

0 2' 4' 8'



NORTH ELEVATION

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EXTERIOR ELEVATIONS

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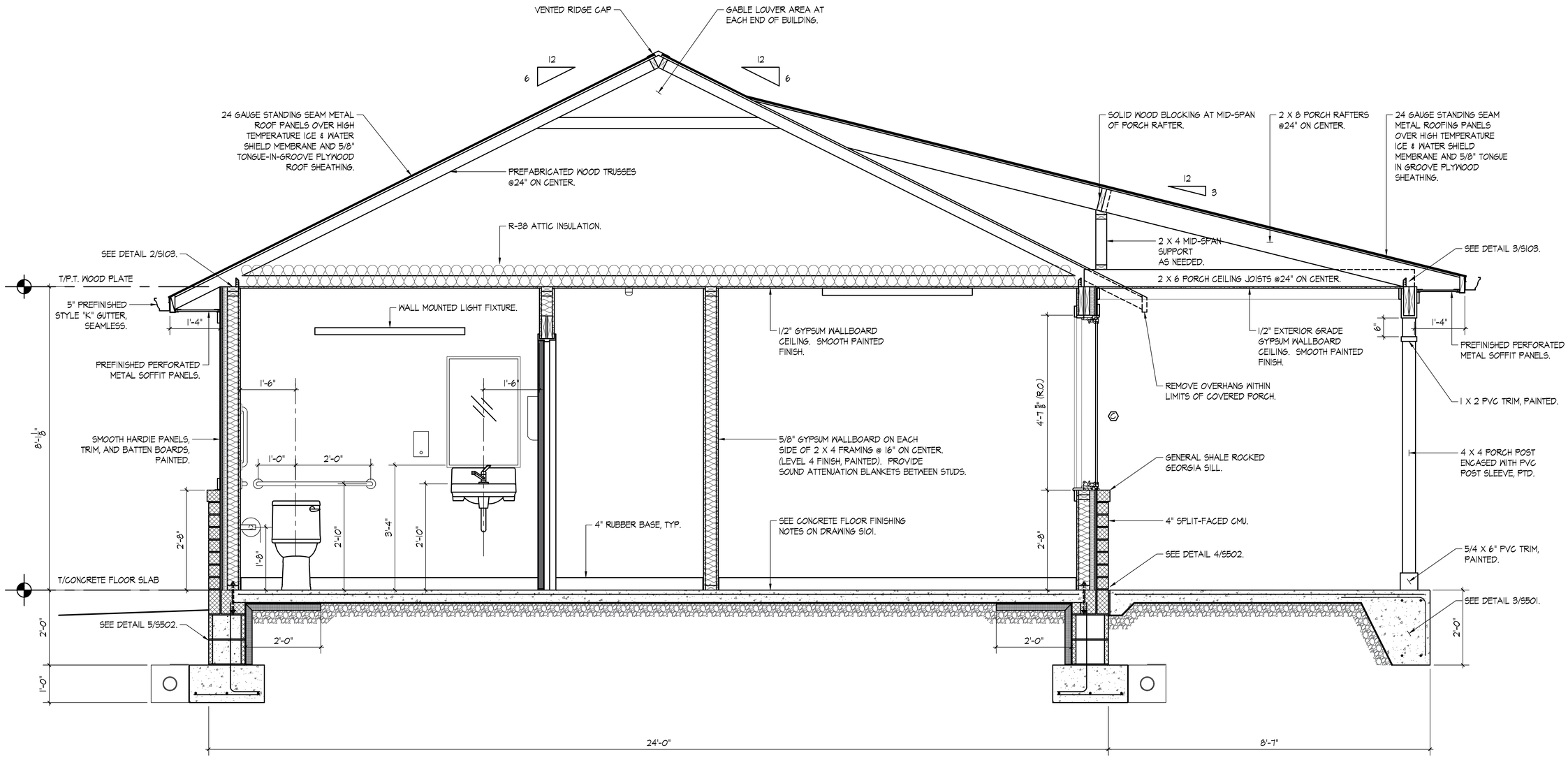

BUILDING SECTION

1 / A301

SCALE 3/4" = 1'-0"

0 1' 2' 3'

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BUILDING SECTION

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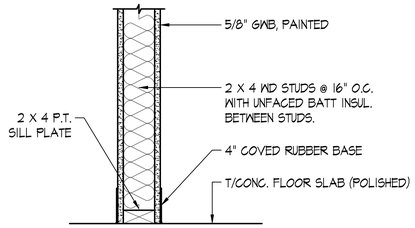

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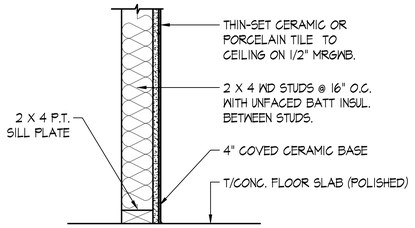

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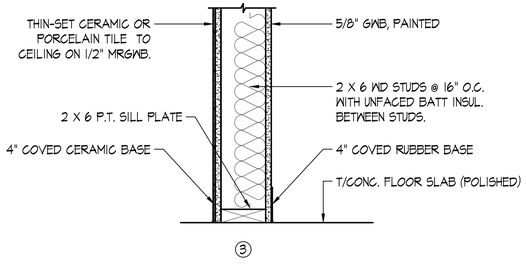

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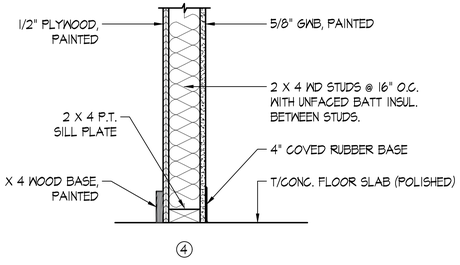


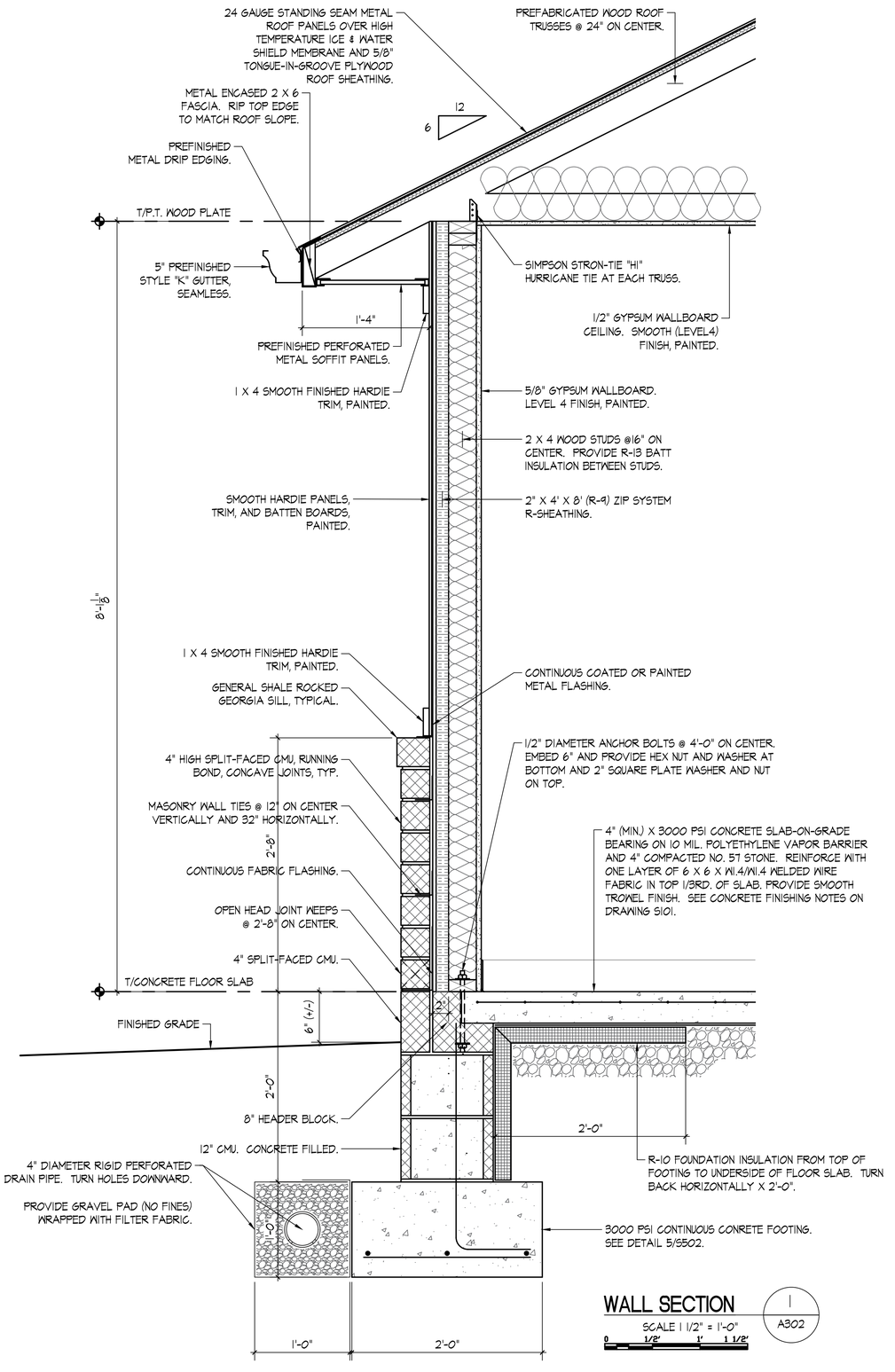
④

PARTITION TYPES

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

0 1/2" 1" 1 1/2"

2 / A302



WALL SECTION

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

0 1/2" 1" 1 1/2"

1 / A302

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BRISTOL, VIRGINIA 24202

WALL SECTION
PARTITION TYPES

DATE:	09-29-2023
NO.	REVISION DATE
1	*
2	
3	

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CHECKED BY: *

PROJECT NO. TLG-21170

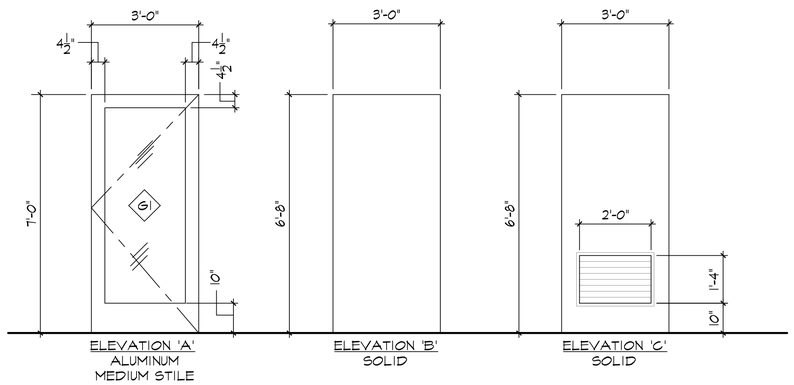
THE LANE GROUP INC.

DOOR SCHEDULE

MARK	FROM ROOM	TO ROOM	DOORS								FRAMES					FIRE RATING	HARDWARE SET NO.	REMARKS
			WIDTH	HEIGHT	THK.	MATERIAL	CORE	TYPE	FINISH	GLASS	MATERIAL	FINISH	JAMB	HEAD	ELEV.			
1	BREAK ROOM #100	EXTERIOR	3'-0"	6'-8"	1 3/4"	ALUMINUM STOREFRONT	--	A	PREFINISHED	GI	ALUMINUM STOREFRONT	KYNAR	--	--	I	--	HW-1	KYNAR FINISHED WITH 1" CLEAR INSUL. GLASS.
2	TOILET # 104	EXTERIOR	3'-0"	6'-8"	1 3/4"	GALV. HOLLOW METAL	INSUL.	B	PAINT	--	HOLLOW METAL	PAINT	--	--	II	--	HW-2	SEE NOTE #1, BELOW.
3	HALLWAY #101	TOILET # 104	3'-0"	6'-8"	1 3/4"	FLUSH WOOD VENEER	SOLID	B	PAINT	--	HOLLOW METAL	PAINT	--	--	II	--	HW-3	
4	UTILITY ROOM # 103	HALLWAY #101	3'-0"	6'-8"	1 3/4"	FLUSH WOOD VENEER	SOLID	C	PAINT	--	HOLLOW METAL	PAINT	--	--	II	--	HW-4	
5	HALLWAY #101	TOILET #105	3'-0"	6'-8"	1 3/4"	FLUSH WOOD VENEER	SOLID	B	PAINT	--	HOLLOW METAL	PAINT	--	--	II	--	HW-3	
6	HALLWAY #101	OFFICE #102	3'-0"	6'-8"	1 3/4"	FLUSH WOOD VENEER	SOLID	B	PAINT	--	HOLLOW METAL	PAINT	--	--	II	--	HW-5	

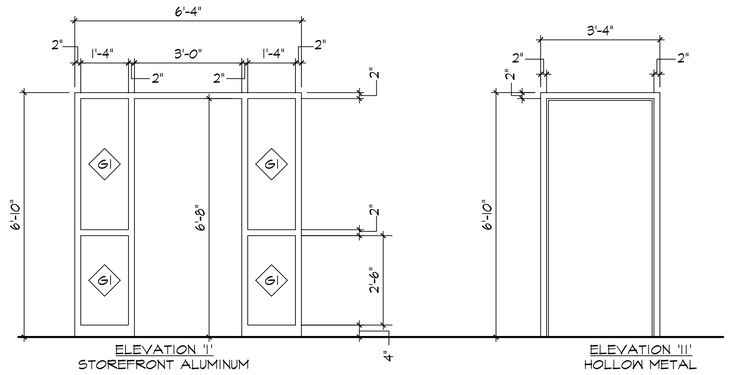
DOOR SCHEDULE NOTES:

1. PROVIDE POLYURETHANE INSULATION CORE IN EXTERIOR HOLLOW METAL DOOR. FILL FRAME JAMB AND HEAD WITH UNFACED BATT INSULATION.



DOOR TYPES

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



FRAME TYPES

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

WINDOW SCHEDULE

MARK	MANUFACTURER	UNIT NO.	R.O. DIMENSION (WxH)	UNIT TYPE	MATERIAL	GLASS	REMARKS
A	MARVIN	ELCA2155 2W	3'-5" x 4'-7 5/8"	CASEMENT	FIBERGLASS EXTERIOR WOOD INTERIOR	11/16" IG LOW E3 AIR	SEE DRAWING A201 - WEST ELEVATION
B	MARVIN	ELCAI743 2W	2'-9" x 3'-7 3/4"	CASEMENT	FIBERGLASS EXTERIOR WOOD INTERIOR	11/16" IG LOW E3 AIR	SEE DRAWING A201 - NORTH ELEVATION
C	MARVIN	ELCA2155 4W	6'-9" X 4'-7 5/8"	CASEMENT	FIBERGLASS EXTERIOR WOOD INTERIOR	11/16" IG LOW E3 AIR	SEE DRAWING A201 - SOUTH ELEVATION

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NEW TRAINING FACILITY FOR
WASHINGTON COUNTY
SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

DOOR AND WINDOW
SCHEDULES AND
DOOR ELEVATIONS

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE: 09-29-2023

NO.	REVISION DATE
1	*
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SHEET: A601

DRAWN BY | CHECKED BY

PROJECT NO. TLG-22135

THE LANE GROUP INC.

CABINET ABBREVIATION INDEX

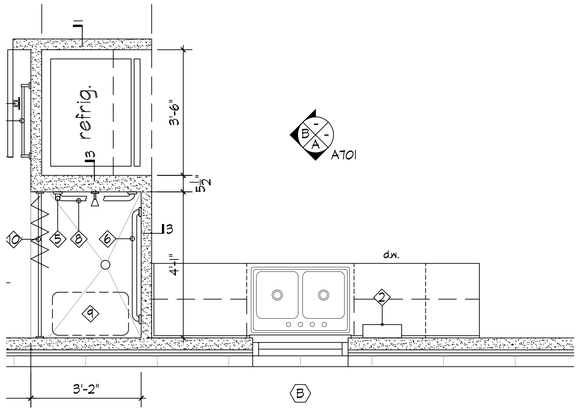
BC	BASE CABINET (32 1/2" HIGH x 24" DEEP CABINET, TYPICAL)
CBC	COUNTER BASE CABINET (38 1/2" HIGH x 24" DEEP CABINET, TYPICAL)
CDBC	COUNTER DRAWER BASE CABINET (38 1/2" HIGH x 24" DEEP CABINET, TYPICAL)
DBC	DRAWER BASE CABINET (32 1/2" HIGH x 24" DEEP CABINET, TYPICAL)
DKD	DESK KNEE DRAWER (KNEE SPACE WIDTH x 24" DEEP, TYPICAL)
ODBC	OPEN-FRONT DESK BASE CABINET (30 1/2" HIGH x 24" DEEP CABINET TYPICAL)
OCBC	OPEN-FRONT COUNTER BASE CABINET (38 1/2" " HIGH x 24" DEEP CABINET, TYPICAL)
SBC	SINK BASE CABINET (32 1/2" HIGH x 24" DEEP CABINET, TYPICAL)
WC	WALL CABINET (12" DEEP CABINET, TYPICAL)

APPLIANCE SCHEDULE

DESCRIPTION	MANUFACTURER	MODEL NO.	NOTES
REFRIGERATOR	GE "PROFILE"	GTS22JSNRSS	NOTES 1, AND 2.
DISHWASHER	GE "PROFILE"	GDT650SYVFS	NOTES 1, AND 2.
FIRE EXTINGUISHER CABINET	LARSEN	2712-RL	NOTE 3.

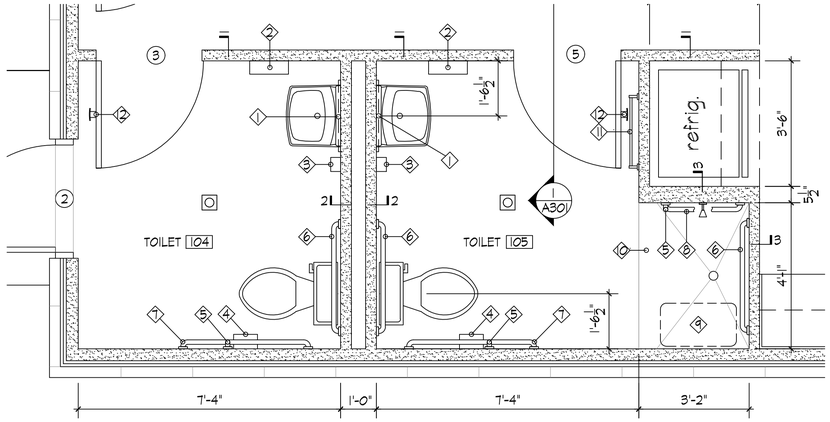
APPLIANCE SCHEDULE NOTES

1. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL APPLIANCES AND ACCESSORIES, UNLESS NOTED OTHERWISE.
2. IN THE EVENT THAT THE MODEL NUMBER SCHEDULED FOR ANY DEVICE IS NO LONGER AVAILABLE, CONTACT THE ARCHITECT FOR A REPLACEMENT MODEL NUMBER.
3. FIRE EXTINGUISHERS AND FIRE EXTINGUISHER CABINETS SHALL BE PROVIDED AND INSTALLED BY THE GENERAL CONTRACTOR. BASIS OF DESIGN FOR FIRE EXTINGUISHER CABINETS SHALL BE MODEL # 2712-RL SEMI-RECESSED CABINET AS MANUFACTURED BY LARSEN'S MANUFACTURING COMPANY. INSTALL CABINETS AT AN ADA COMPLIANT HEIGHT.



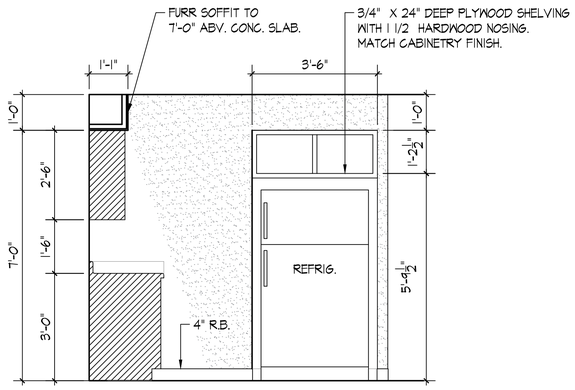
ENLARGED CASEWORK

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



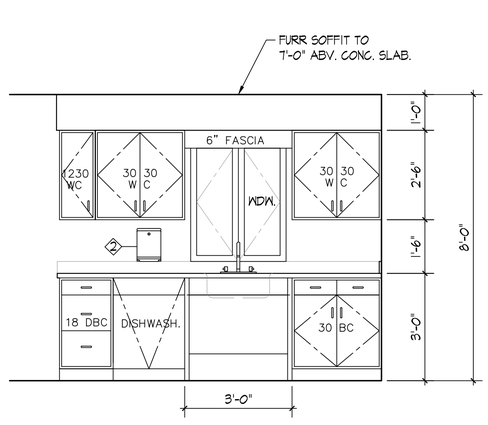
ENLARGED TOILET PLAN

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



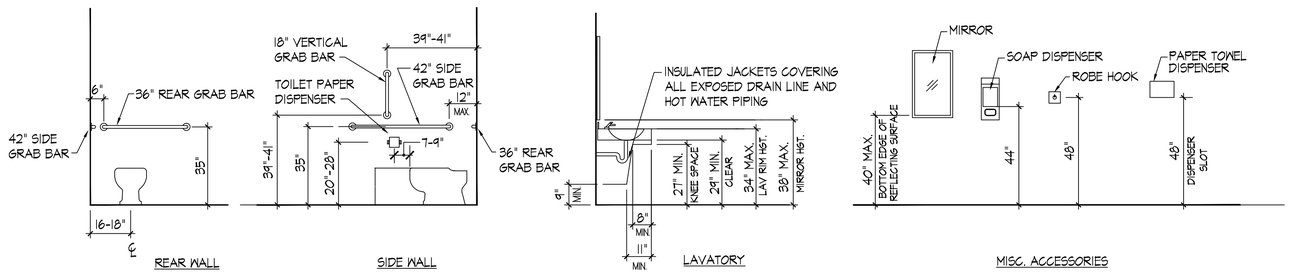
CASEWORK ELEVATION "B"

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



CASEWORK ELEVATION "A"

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



TYPICAL ACCESSIBLE MOUNTING HEIGHTS

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

TOILET ACCESSORY SCHEDULE

MARK	ITEM	MOUNTING LOCATION
1	24"x36" SURFACE MOUNTED MIRROR	40" AFF TO BOTTOM OF REFLECTING SURFACE
2	PAPER TOWEL DISPENSER	48" AFF TO DISPENSER SLOT
3	LIQUID SOAP DISPENSER	44" AFF TO DISPENSER OPERATOR
4	TOILET TISSUE DISPENSER	20"-28" TO CENTERLINE OF ROLL
5	18" VERTICAL GRAB BAR (SIDE WALL)	39-41" AFF TO BOTTOM OF BAR
6	36" HORIZONTAL GRAB BAR (REAR WALL)	35" AFF TO CENTERLINE OF BAR
7	42" HORIZONTAL GRAB BAR (SIDE WALL)	35" AFF TO CENTERLINE OF BAR
8	24" HORIZONTAL GRAB BAR	35" AFF TO CENTERLINE OF BAR
9	SHOWER SEAT	19" FROM FLOOR TO TOP OF SEAT
10	CURTAIN ROD WITH CURTAIN & HOOKS	75" AFF TO CENTERLINE OF BAR
11	TOWEL BAR	48" AFF TO CENTERLINE OF BAR
12	ROBE HOOK	75" AFF TO CENTERLINE OF HOOK
13	INSULATED PIPE WRAP	LAVATORY P-TRAP
NOTE:	PROVIDE SOLID WOOD BLOCKING IN WALLS TO SUPPORT WALL MOUNTED ACCESSORIES.	

FINISH SCHEDULE

ROOM NO.		FLOOR: POLISHED CONCRETE	BASE: 4" RESILIENT RUBBER COVE	WALL: 5/8" GYP. BOARD (PAINT)	WALL: THIN-SET TILE ON MR.GWB	WALL: 1/2": PLYWOOD (PAINT)	CEILING: 1/2" GYP. BOARD (PAINT)	CEILING HEIGHT: 8'-0" ±	NOTES
100	BREAK ROOM	●	●	●			●	●	1
101	HALLWAY	●	●	●			●	●	1
102	OFFICE	●	●	●			●	●	1
103	UTILITY ROOM	●	●	◐		◑	●	●	1
104	TOILET	●	●	◐	◑		●	●	1
105	TOILET	●	●	◐	◑		●	●	1

1. SEE DRAWING S101 FOR POLISHED CONCRETE FLOOR FINISHING DIRECTIONS.

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FINISH SCHEDULE
ENLARGED PLANS
ACCESSORIES SCHEDULE

COMMONWEALTH OF VIRGINIA
D. MICHAEL WEAVER
LIC. NO. 9031
09-29-2023
ARCHITECT

DATE: 09-29-2023

NO.	REVISION DATE
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SHEET: A701

DRAWN BY | CHECKED BY

PROJECT NO. TLG-22135

THE LANE GROUP INC.

ELECTRICAL & MECHANICAL GENERAL PROVISIONS

GENERAL: The General Conditions and Supplemental General Conditions are part of this division. The Contractor shall and hereby agrees that he will read carefully all paragraphs and be bound by their conditions.

WORK DESCRIPTION: Provide all labor, equipment, material, (tools, services), etc. required to complete installation specified herein and/or shown or scheduled on the drawings. This section supplements all sections of this Division and shall apply to all phases of work hereinafter specified, shown on the drawings or required to provide a complete installation of systems shown. The specifications and drawings are complementary and are for the complete interpretation of the work. Unless noted or modified by specific notation to the contrary, the modification and/or description of any item in the documents carries with it the instruction to furnish, install and connect same. It shall be understood that the intent governs the work, regardless of whether or not this instruction is explicitly stated. No exclusion from, or limitation in the drawings or specifications, for the work shall be the reason for omitting the appurtenances or accessories necessary to complete any required system or item of equipment.

SPECIAL CONDITIONS: By the act of submitting a bid, this Contractor agrees that all of the "Contract Documents" in each of the Divisions of the complete specifications have been reviewed and studied and all requirements and coordination resulting therefrom are included in his proposal. The Contractor further acknowledges that he has visited the site to become familiar with existing conditions. In the Mechanical Division, the word "Contractor" means the Mechanical/Plumbing Contractor. In the Electrical Division, the word "Contractor" means the Electrical Contractor. The word "provide" means furnish, install and connect. Do not scale drawings having 1/4" or smaller scale. Because of small scale, it is not possible to indicate all offsets, fittings and accessories; provide such as are required for complete installation. The right is reserved to move any element as much as ten (10) feet at no increase in cost provided the Contractor is notified before work in question is started. The Contractors shall coordinate between trades responsible for determining and verifying the characteristics of electrical current available to operate all the mechanical and plumbing equipment prior to ordering such equipment.

RELATED WORK SPECIFIED ELSEWHERE: Foundations and pads required for equipment furnished under this Division of the Specifications are specified elsewhere. Field painting, except such painting as is required to maintain shop coat painting and factory finish painting are specified elsewhere. Flashing of conduits into roofing and outside walls are specified elsewhere. Heating, ventilating, and air-conditioning equipment are specified elsewhere. Plumbing equipment is specified elsewhere.

REGISTRATION: Contractors and Sub-Contractors furnishing and installing work under the Mechanical and Electrical divisions of these specifications shall be registered in the Commonwealth of Virginia whether they are bound by legal contracts with the Owner of the project, with the General Contractor or another Sub-Contractor.

CODES AND STANDARDS: The intent is that the complete installation shall comply with applicable laws and ordinances, utility company regulations, and applicable requirements of the latest editions of the following:

1. Virginia Statewide Uniform Building Code, Plumbing Code, Mechanical Code, Gas Code.
2. NFPA: National Fire Protection Association.
3. AGA: American Gas Association.
4. FM: Association of Factory Mutual Fire Insurance Company.
5. ASME: American Society of Mechanical Engineers.
6. ASTM: American Society of Testing Materials.
7. NSF: National Sanitary Foundation.
8. PDI: Plumbing Drainage Institute.
9. UL: Underwriters Laboratories.
10. NEC: National Electrical Code.
11. NEMA: National Electrical Manufacturer's Association.
12. SMACNA: Sheet Metal and Air Conditioning Contractors National Association.
13. ARI: American Refrigeration Institute.
14. PFMA: Power Fan Manufacturer's Association.
15. MSS: Manufacturer's Standard Society of Valve and Fittings Ind.
16. ANSI: American National Standard Institute.
17. ASHRAE: American Society of Heating, Refrigerating and Air Conditioning Engineers.
18. ADA: Americans with Disabilities Act.
19. NESC: National Electrical Safety Code.
20. OSHA: Occupational Safety and Health Act.

Where the contract documents exceed minimum requirements, the contract documents take precedence. Comply with all requirements for permits, licenses, fees and codes. Permits, licenses, fees, inspections and arrangements required for the work under this contract shall be obtained at the completion of the work unless otherwise specified. Comply with the requirements of the applicable utility companies serving this work. Make all arrangements with the utility companies for proper coordination of the work. Pay all charges required by the utility.

COORDINATION OF WORK: Plan all work so that it proceeds with a minimum of interference with other trades. Inform all parties concerned, of the openings required for equipment or conduit in the building construction for work and provide all special frames, sleeves, inserts, supports, anchor bolts, etc. as required. Coordinate the work with all tradesmen. Conceal all work where possible. All work shall be installed as neatly as possible in the locations shown but shall be subject to such deviations, modifications and relocations as may be necessary to conform to the requirements of the architectural drawings and as necessary to avoid interferences with the structural work and the work of other trades, and interferences between the various trades. This shall be done at no cost to the Owner. No work or equipment shall be installed which would require ceilings to be lower than required by drawings, unless approval is obtained from the Architect. It is the responsibility of the General Contractor to coordinate the work of his subcontractors. To this end, the General Contractor shall require that the various subcontractors carefully examine and familiarize themselves with the architectural and structural drawings and drawings covering all other trades so that the work may be coordinated. If necessary to coordinate and expedite the work, the Contractor shall prepare "interference drawings" and submit them to the Architect for approval. Such drawings shall shown the work of the various trades involved, illustrate proposed details of construction and arrangement of equipment and apparatus, and clearly indicate any deviations from contract requirements.

EXECUTION OF THE WORK: Prior to installation, submit certified prints and/or descriptive brochures for all major electrical and mechanical pieces of equipment, fixtures, materials, etc. Submittals shall show: manufacturer's catalog number, finishes, optional features and modifications. When work in accordance with manufacturer's recommendation is specified, a copy of recommendations will be kept in the job office. Reference shall be made to drawing schedules and details for: manufacturer, model, catalog number, size, capacity, performance, installation, etc. of equipment, fixtures and materials. Equipment of manufacturers other than those named will be acceptable provided, in the opinion of the Engineer, it is of equal substance, function, performance and appearance.

CHOICE OF MATERIALS AND EQUIPMENT: In submitting substitutions, bidders should note the following minimum considerations:

1. Capacities shown are absolute minimum and must be equaled.
2. Physical size limitations for space allotted.
3. Structural properties.
4. Static and dynamic weight limitation.
5. Noise level.
6. Interchange ability.
7. Vibration generation.
8. Accessibility for maintenance and replacement.
9. Compatibility with other materials, assemblies and equipment.
10. Similar items shall be same manufacturer and style, etc. except where specifically exempted.

All material and equipment, for which a UL Standard, a NEMA Standard, an AGA approval, or an ASME requirement is established, shall be so approved and labeled or stamped. Label or stamp shall be conspicuous and not covered, painted or otherwise obscured from visual inspection. Adhesives are not acceptable as a mounting, supporting, or assembling technique. The Contractor shall pay any costs added to the total contract as a result of any substitutions. Equipment, etc. shall not be purchased without the Engineer's written approval (shop drawings).

EXISTING SERVICES: No service shall be interrupted without permission of the Owner. When encountered in work, protect existing active: sewer, water, gas, electric, other utility service, structures; when required for proper execution of work, relocate them as directed. If existing active services are not indicated, request Engineer for instructions. When encountered in work, whether or not indicated, cap or plug or otherwise discontinue existing inactive: sewer, water, gas, electric, other utility services, structures which interfere with work execution. Notify the Engineer of action taken. If removal is required, request instructions.

DRAWINGS: Drawings are diagrammatic. The Contractor shall install the work in such manner that the equipment, piping, vents, conduit, panels, ductwork, etc. will fit in space provided, maintain head room, and if in finished areas, be neatly installed and as "out-of-the-way" as physically possible. All equipment, piping, ductwork, conduits, etc., shall be installed to provide needed maintenance and passage space.

FEES: The Contractor shall pay for fees and inspections as may be required for electric, H.V.A.C., plumbing, etc and all other systems requiring inspections by agencies having jurisdiction.

COMPLETION ITEMS: Provide all labor, equipment, materials, etc. required to complete installation specified herein and/or shown on the scheduled drawings.

EQUIPMENT OPERATION: This Division is responsible for: proper rotation, observing that lubricating has been properly performed, motors operate within nameplate limits, overload heater elements properly sized, and reporting observed discrepancies to the Engineer. Operate all motors for at least one hour. At the end of this hour's run, check for motor temperature. On equipment furnished by other sections, if lubricating is not correct, or if motors do not operate within proper limits, this Division is responsible for notifying the General Contractor as to the deficiencies and for leaving the piece of equipment involved in a locked "OFF" condition.

OPERATING INSTRUCTIONS: Furnish to the Owner written operating and maintenance instructions for each system and each piece of equipment. Include in the equipment data binder specified above, instructions to start and stop each piece of equipment, itemized maintenance schedule and submittals. When systems are completely adjusted, furnish personnel for one full day to instruct the Owner's operators.

CUTTING AND PATCHING: All cutting of surfaces will be by the General Contractor except for minor cutting for piping, conduit, etc. which shall be accomplished by these contractors. All major patching back will be by the General Contractor. Minor patching for piping, etc. shall be by these contractors. It will be the contractor's responsibility to advise the General Contractor of all locations and to size all openings. The contractors shall coordinate with the General Contractor for the best routing of piping and ductwork to clear existing construction. The contractors shall provide sleeves where required. The contractors shall coordinate with the General Contractor prior to bid and advise the General Contractor of anticipated requirements for cutting and patching so that the General Contractor may include these in his bids.

BACKFILLING: For earth backfill, remove from spaces to be filled all unsuitable material, including all rubbish, trash, refuse, and other debris. Place no backfill until foundations are braced and have cured sufficiently to develop adequate strength to withstand pressures of backfilling operations. Trenches shall not remain open for extended periods of time during set weather. Secure approval of the Local Authority prior to commencing this work. Material for backfill shall be clean and unfrozen, free from substance subject to rot, corrosion, or termite attack and rock. If fill is required on both sides of a wall, it shall be brought up simultaneously and evenly on both sides. Backfilling around piping shall be by hand and for a depth of one foot above the pipe, taking care not to disturb the pipe or injure pipe coatings. Deposit backfill in horizontal layers not to exceed 6" depth, measured loose, compacting each layer thoroughly by approved mechanical devices. Work shall be at once discontinued if damage to waterproofing, piping or other construction occurs, and such damage shall be satisfactorily repaired before work is resumed. Bring all backfill to required subgrades. Unless otherwise noted on the drawings or in the Specifications, see paragraph "COMPACTION" below, backfill to be compacted by suitable mechanical means in 6" layers to be at least 95% maximum density at optimum moisture content as determined by Standard Proctor Density Test. (A.S.T.M. Designation D-1557-58T).

COMPACTION: Fill material at optimum moisture content shall be placed in uniform horizontal layers not more than 6" thick, measured loose, over the fill areas involved. Compact each layer fully and uniformly at optimum moisture content to a minimum density in percentage of Standard Proctor Maximum As determined by ASTM D-698 or AASHO Standard Method T-99 as follows:

1. Top two (2) feet of fill under roadways, and fill below footings of buildings supported on compacted earth fill.............................100%
2. Fill under floor slabs and surfaced areas such as walks, steps, concrete paving, parking

Fill material shall be allowed to air dry to proper moisture content as each layer is placed, if necessary, prior to compaction. For the guidance of the Contractor: The following method is suggested as procedure for achieving the specified degree of compaction. Compact each layer of fill material fully and uniformly by making continuous runs over material with a sheeps foot roller containing teeth not less than 7" long and having an end area of not less than 5 square inches each. The sheeps foot roller weight should impose a load upon each tooth between 1000 and 2200 pounds. Sheeps foot rollers should be made of not less than two sections, operated side by side and mounted in such a manner that each section may oscillate independently of the other. Continue rolling until the teeth of the roller penetrate a maximum of 3/4" over the entire surface of each lift. The moisture content of the fill material must be rigidly controlled during compaction by additional wetting to obtain a ratio to within 2% of the optimum as determined by the field tests. Material containing excessive moisture must be permitted to dry to proper moisture content before being rolled. If soil classification is proper for its use, a 10 ton vibrating type roller may be used for compaction of fill to obtain required degree of compaction, subject to approval by the Local Authority of such equipment.

GUARANTEE AND WARRANTY: Provide all labor, equipment, material, etc. required to complete installation specified herein and/or shown or scheduled on the drawings. Each piece of equipment shall meet performance specifications after one (1) year actual operation. The Contractor shall replace or make good any defect due to faulty workmanship or material which shall develop within one (1) year from date of acceptance. This guaranty shall cover both materials and labor. For the first year after final acceptance, the Contractor shall provide, at no cost to the Owner, any required maintenance and service necessary to assure the proper operation of the system. Date of acceptance shall be that date on which the contract has been satisfactorily completed in accord with contract documents and verified by the Engineer. If a whole or partial system, or equipment, is put into use for benefit of any party, other than the Contractor, and with prior written permission of the Owner, this agreed date shall become the "date of acceptance".

END OF SECTION

MECHANICAL PROVISIONS

GENERAL PROVISIONS: See the Electrical and Mechanical General Provisions which are a part of this specification Division.

SCOPE: Furnish and install all labor, materials and equipment shown on the mechanical drawings and as specifications herein pertain, including all items and specialties required for complete working systems whether specified or not. Power wiring and connections required for this work will be furnished and installed under the electrical work.

SHEET METAL WORK AND AIR DISTRIBUTION: Install sheet metal work of galvanized steel erected according to details and standards as follows. Cross break all rectangular sheet metal work, install transitions with side angles not over 30 degrees from run, and turns and elbows with centerline radius equal to 1-1/2 times duct width unless factory built turning vanes are installed. Provide vibration isolator hangers and fireproof flexible duct connections at fans and air handling units.

All sheet metal installations shall meet the following standards:

1. ASHRAE Guide and Data Book - Equipment, current chapter on duct construction.
2. ADC Standard 1062R2, Air Diffusing Equipment Test Code.
3. ADC Standard 1062:GRD-84, Test Code for Grilles, Registers and Diffusers.
4. ADC Test Code FD 72-R1, Flexible Air Duct Test Code.
5. AMCA Standard 210, Test Code for Air Moving Devices.
6. ASHRAE Standard 70-72, Method of Testing for Rating the air flow performance of outlets and inlets.
7. NFPA 90-A, Standard for the installation of Air Conditioning & Ventilating Systems, 1980 edition
8. NFPA 101
9. SMACNA Publications as follows:
   a. High Pressure Duct Construction Standards, 3rd edition, 1975
   b. Low Pressure Duct Construction Standards, 5th edition, 1976
10. SMACNA HVAC Duct Construction Standard - Metal & Flexible, First Edition,1985
11. Fire and Smoke Rating Test Standard: ASTM E84, NFPA 255 and UL 723
12. All duct sizes given are clear outside sizes.

Seal all ductwork joints("S" locks, drives, etc.) with Durkee-Atwood "insta-seal" class I; Hardcast #P301; Tremco 440; or United Mcgill, Uni-Cast Tape.

For all ducts with longest side 24 IN and over: Construct using the Ductmate: Nexus: Quicduc: Traverse Duct Connection(TDC) or Pyramid-Lok duct connection systems.

A. Seal flanged ends with pressure sensitive, high density, closed cell, neoprene or polyurethane tape gasket or "tremco 440".
B. For smaller duct sizes:Above systems are optional.
C. For smaller duct sizes(longest side 23 IN or less): Above systems are optional.

All ductwork hangers & supports must be in accordance with SMACNA HVAC duct construction standard section IV.

Install registers and air diffusers in accordance with schedule and with opposed blade volume control and sponge rubber gaskets for each unit. A certified Independent Balancing Contractor shall balance air flows according to drawings reporting on AABA forms - See equipment start up. Duct sizes given on drawings are "clear outside" sheet metal sizes.

Externally insulate supply, return, relief and outside air ductwork with 2" thick fiberglass 25/50 foil faced duct wrap per UL 723. All seams shall be stapled 6" on centers with outward clinching staples then sealed vapor tight with foil tape in strict accordance with the manufacturer's recommendations. See legend.

SPLIT SYSTEM HEAT PUMP: Furnish and install at location shown and as detailed and specified herein a "split system" all electric reverse cycle (heat pump) heating, ventilation and air conditioning unit.

All components shall be UL listed and carry a UL label. Unit to have filter frames to accept throwaway filters.

Auxiliary heaters shall consist of nichrome elements with controls necessary for operation. Safety controls shall include primary over temperature and over current protection. Heaters shall be UL listed.

Unit compressor shall be serviceable semi-heremetic or welded, fully hermetic with crankcase heaters and suitable vibration isolators.

Indoor and outdoor coils shall be of nonferrous construction with plate fins mechanically bonded to seamless copper tubes with all joints brazed.

Indoor blower shall be forward curved, centrifugal, belt-driven if available. Motor pulleys shall be adjustable pitch. Indoor blower motor with permanently lubricated bearings. Outdoor fans shall be of the propeller type, with direct driven permanently lubricated motor. Outdoor fans shall discharge upward.

Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a baked enamel finish. Cabinet interiors shall be insulated with 1" thick neoprene coated fiberglass. Cabinet panels shall be easily removable for service to all operating components. A condensate drain for indoor coil shall be provided.

The heat pump cooling/heating system shall be protected with high pressurestat, low pressurestats, loss of charge protection, indoor coil freezestats, and current and temperature sensitive overload devices. Unit to be provided with low ambient controls to operate cooling at 0° F.

Each of these devices shall be wired through the Signal LOC circuit to prevent compressor restart until reset at the thermostat. Units shall have built-in electric strip heat lock out to prevent resistance heat operation above 40°F ambient.

An outdoor coil defrost control system shall be incorporated into the base unit to prevent frost accumulation during heating cycle. The defrost cycle shall function on the basis of time and coil temperature.

A 90 minute timer shall actuate a defrost mode only if coil temperature is low enough to indicate a heavy frost condition. Defrost shall have a positive termination time of a maximum of 10 minutes or when the defrost thermostat is satisfied to prevent prolonged operation of a defrost cycle. Electric resistance heaters shall be operational automatically during the defrost cycle.

Each section shall have single point power connection to a terminal block. If multiple point connection is required, the HVAC tradesman shall coordinate With the electrical tradesman and arrange for multipoint connection with all costs born by the H.V.A.C. tradesman. Cabinets shall contain suitable openings for routing of all utility connections. The base units shall contain a terminal strip in the control compartment to allow for terminal-to-terminal connection of controls and field-installed accessories.

Thermostat shall provide staged heating and cooling, manual or automatic changeover and fan control. Standard sub-base shall include compressor malfunction light designed to illuminate if compressor lockout is activated.

Emergency heat control shall consist of emergency heat control box containing emergency heat relays and outdoor thermostats. Control shall allow for manual bypass of compressor and outdoor thermostats if compressor becomes inoperative, or for service. Outdoor thermostats shall provide for staging of electric resistance heat according to outdoor temperature. Thermostats shall be wired into the electric heater contactors and shall have an adjustable set point to provide economical resistance heat staging.

Time guard circuit to prevent compressor short cycling as a result of a rapid change in thermostat setting. Also, automatically prevents compressor restart at least 5 minutes after shutdown.

REFRIGERANT PIPING: Type K hard drawn copper with sweat wrought copper fittings except piping 3/8" O.D. and smaller may be soft drawn. Clean joint surfaces to bright finish and make up with non-acid flux and silver brazing compound. Run dry nitrogen through joint while brazing. Pre-charged refrigeration piping may be used at the Contractor's option. Install in strict conformance with the manufacturer's recommendations. Insulate suction piping with 1/2" cellular foam and paint all exterior insulation with tow coats cellular foam paint.

Furnish all required accessories such as expansion valves, refrigerant specialties, high capacity dryers, refrigerant line adapters and connections, and any and all accessories for complete and operating systems, with the piping sized by the manufacturer. Unit to be provided with indoor/outdoor interlocking controls and all accessories for a complete and operating system. See H.V.A.C. schedule on drawings.

EXHAUST FANS: Exhaust fans shall be equal to Acme sizes as indicated on schedule; approved equivalents will be acceptable. Provide starters as a part of this section or as shown on the drawings. Air deliveries shall be as indicated; units shall bear the AMCA Certified Performance Ratings Seal, AMCA Certified Sones Rating Seal and U.L. Label. Wheels shall be of centrifugal, forward curved design and shall be statically and dynamically balanced. Generally, all fans shall be provided with back draft dampers. For cabinet type, above ceiling fan housings shall be reinforced phosphatized steel construction; interior surfaces shall be finished in a dark color and grille for ceiling-installed fans shall be white metal with three-dimensional grid and shall have symmetrical, finished appearance. Grille screws shall be concealed from view. Grids shall have a minimum of 80% free area. Electrical connections - see Electrical Provisions of the Specifications & electrical drawings.

Exhaust Fans: Exhaust fan on/off controls by electrical tradesmen.

EQUIPMENT START-UP: Initial start-up and service, including heat balance, of all operating equipment, together with any components factory-furnished, shall be done by service employees of equipment manufacturer according to the printed service and installation manuals for the equipment. A written report of start-up and service data, together with copies of the service and installation manuals, will be required by the designer prior to Final Inspection. After start-up a certified independent balancing contractor must ballance all H.V.A.C. systems Prior to balancing install clean air filters throughout and furnish owner with two (2) full sets of filters or filter media.

CONTROLS: Except as noted, install under this division heating and air conditioning controls as described and as detailed with all wiring, conduit, control devices, connections, calibration, check-out and adjustment for a complete working system and with installation according to the electrical work specifications. Prior to final inspection, install an "As Built" diagram and description of controls, including operating instructions in the maintenance manuals. Whether field or factory installed, install relays and contactors equal to ASCO, electric controls equal to Mercoid & Honeywell and breakers and starters equal to Square D.

HVAC system shall be furnished and installed with programmable thermostats equal to Honeywell Pro-8000, with sub-bases which shall be wall mounted in locations as shown on the drawings. Programmable thermostat assemblies shall provide staged heating and cooling, automatic changeover, fan control with programming to operate all HVAC blower fans continuously during occupied schedules, day/night programmable schedules, holiday schedules, etc. Time guard circuit to prevent compressor short cycling as a result of a change in the thermostat setting. Also, automatically prevents compressor restart at least 5 minutes after shutdown. Each unit controller shall include a display and key pad for 7-day programming. Each unit controller to open motorized outside air damper during occupied times and close when unoccupied. Each unit controller to maintain space temperature and humidity set point control capabilities. Energizing first stage heating while in cooling mode.

Control wiring between the remote thermostat and the unit will be required and must be installed in conduit continuously.

Provide and install in HVAC unit 1 and unit 2 an auxiliary 20 amp single pole relay for control of toilet exhaust fan circuit. Relay to be normally open and close upon HVAC unit activation in occupied mode.

Units require connection between thermostat and outdoor section. Provide all interlocking controls. Coordinate shut down requirements with equipment manufacturer.

FIELD TOUCH UP PAINTING: Field touch up painting of all equipment furnished must maintain factory shop coat painting and factory finish painting as required per equipment manufacturers recommdations.

END OF SECTION

PLUMBING PROVISIONS

RELATED DOCUMENTS: Drawings and general provisions of contract, including General Conditions and General Requirement sections, apply to work of this Section. General Conditions apply to work of this Section.

SCOPE - PLUMBING: Furnish and install all labor, materials, and equipment shown on the Plumbing Drawings and specified herein, including all items and specialties required, whether specified or not, for complete working systems. In general, the Plumbing Work consists of the following:

1. Sanitary soil, waste, and vent piping systems and related items with connections as shown on the drawings.
2. Domestic hot and cold water piping and and related items with hot and cold water connections as shown on the drawings.

WORK UNDER OTHER SPECIFICATIONS: All electrical connections required for plumbing work will be furnished and installed under the Electrical Work Specifications. Electrical Contractor to furnish all power wiring required for the equipment except as shown or noted. Under this work, rough out any additional items of equipment furnished under other sections of work. Coordinate closely with the Owner's representative.

VALVES, DRAINS AND SPECIALTIES - GENERAL PLUMBING: Approved equivalents by Walworth, Powell, Crane, Josam, Wade and Zurn acceptable as they apply. Valves and strainers shall be full size of pipe run; install valve stems vertical up.

1. Check Valves: Crane #36 threaded and #1342 solder.
2. Escutcheons: Split, chrome plated brass with deep recess where required for sleeves extending above finished floor. Install at sleeves in finished areas.
3. Gate Valves: Crane #424 threaded 2-1/2" and smaller; #7-1/2E flanged 3" and larger; and #1334 solder. Jenkins #32A and #1100R ball type acceptable except as noted.
4. Pipe Cleanouts: Zurn Supremo, Series 1400, with cast iron ferrule, all bronze plug and with nickel bronze covers to match surrounding finish.
5. Pipe Hangers: Either adjustable trapeze type, ring type, clevis type or "auto-grip" with minimum 1/4" hanger rod. Install copper plated hangers for uninsulated copper piping. Size hangers to clear insulation on pipework; no cutting of insulation is permitted. See a detail on the drawings for piping supports above new ceilings, where the detail is applicable.
6. Pipe Sleeves: Galvanized Schedule 40 steel pipe set flush with surface for horizontal and 1" above finish floor for sleeves through upper floors. Sleeves will not be required where openings are core drilled. Size sleeves to clear insulation on pipework; no cutting of insulation is permitted. Fire seal all piping extending through fire walls with 3M, or equal, Fire Barrier Penetration Sealing System #CP 25N/S for 2 hour penetrations. Submit the UL Assembly shop drawings for approval.
7. Pipe Unions: Crane ground joint brass-to-iron seat type through 1-1/2" size and flanged 2" and larger, except dielectric unions equal to EPCO shall be installed where different pipe materials join and at each water heater on both cold water and hot water piping.
8. Support Points: Inserts, ramsets, expansion shields, or anchors equal to Phillips Redhead. Power drive is permissible.

PIPE, FITTINGS AND JOINTS: Pipe and fittings to be according to ASTM Standards for the duty and use. Where piping materials are noted on the plans other than specified herein, make up joints according to manufacturer's directions. Install according to use as follows:

1. Domestic Water: Type "L" ASTM B88 hard drawn copper with wrought solder fittings, except piping exterior of the building, under slabs-on-grade shall be Type "K" soft drawn copper without joints. Clean joint surfaces to bright finish and make up with non-acid flux and no lead #95-5 solder. 50-50 solder will not be allowed. All piping under slabs on grade shall be encased with 1/2" Armaflex insulation. PEX as specified below will be acceptable alternate for copper.
2. Sanitary Soil, Waste and Vent: Schedule 40 P.V.C. with long sweep elbows except through fire rated walls or ceilings provide metal pipe.

DOMESTIC WATER PIPING HOT AND COLD POTABLE WATER DISTRIBUTION:
REFERENCES:
A. ASTM International
   ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
   ASTM F876 Standard Specification for Cross-linked Polyethylene (PEX) Tubing
   ASTM F877 Standard Specification for Cross-linked Polyethylene (PEX) Plastic Hot and Cold Water Distribution Systems
   ASTM F1807 Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing
   ASTM F2159 Standard Specification for Plastic Insert Fittings Utilizing a Copper Crimp Ring for SDR9 Cross-linked Polyethylene (PEX) Tubing
B. National Sanitation Foundation (NSF)
   Standard 14 Plastics Piping System Components and Related Materials
   Standard 61 Drinking Water System Components - Health Effects
C. International Code Council (ICC)
   International Mechanical Code
   International Plumbing Code
D. International Association of Plumbing Officials (IAPMO)
   Uniform Plumbing Code
   Uniform Mechanical Code
E. Plastic Pipe Institute (PPI)
   Technical Report TR-3 Policies and Procedures for Developing Recommended Hydrostatic Design Stresses for Thermoplastic Pipe Materials
   Technical Report TR-4 Recommended Hydrostatic Strengths and Design Stresses for Thermoplastic Piping and Fitting Compounds
F. Zurn PEX Inc.
   Plumbing Installation Guide

SYSTEM DESCRIPTION
A. Design Requirements:
   Standard Grade hydrostatic pressure ratings from the Plastic Pipe Institute in accordance with TR-3 and listed in TR-4. The following three standard-grade hydrostatic ratings are required;
   1. 200 degrees F at 80 psi
   2. 180 degrees F at 100 psi
   3. 73 degrees F at 160 psi

   Tubing tested in general accordance with ASTM E84 for a flame spread/smoke developed index of 25/50 or less for the following PEX tube sizes encased with 1/2 inch fiberglass insulation;
   1. 1-1/4 inch
   2. 1-1/2 inch
   3. 2 inch

   Tubing tested in general accordance with ASTM E84 for a flame spread/smoke developed index of 25/50 or less for the following PEX tube sizes;
   1. 3/8 inch
   2. 1/2 inch
   3. 5/8 inch
   4. 3/4 inch
   5. 1 inch

B. Performance Requirements: To provide a PEX tubing hot and cold potable water distribution system, which is manufactured, fabricated and installed to comply with regulatory agencies and to maintain performance criteria stated by the PEX tubing manufacturer without defects, damage or failure
   1. Comply with NSF Standard 14
   2. Comply with NSF Standard 61
   3. Show compliance with ASTM F877

QUALITY ASSURANCE
A. Installer Qualifications: Utilize an installer having demonstrated experience on projects of similar size and complexity and possesses the skills and knowledge to install a PEX potable water distribution system. Installer will utilize skilled workers holding a trade qualification license or equivalent or apprentices under the supervision of a licensed tradesperson

DELIVERY, STORAGE AND HANDLING
A. Delivery - Deliver materials in manufacture's original, unopened, undamaged containers with identification labels intact until ready for installation

B. Storage and Protection - Store materials protected from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

   Store PEX tubing indoors, in cartons or under cover to avoid dirt or foreign material from entering the tubing.

   Do not expose PEX tubing to direct sunlight for more than six months. If construction delays are encountered, cover the tubing that is exposed to direct sunlight.

WARRANTY
Manufacturer's Warranty: Shall cover the repair or replacement of properly installed tubing and fittings proven defective as well as incidental damages

Warranty period for PEX tubing and subsequent system shall be 25 year non-prorated warranty against failure due to defect in material or workmanship, beginning with the date of installation.

It is the installer's responsibility to avoid mixing fittings manufactured by others as it will reduce the owner's warranty

HOT AND COLD POTABLE WATER DISTRIBUTION SYSTEM: All products, components, etc. specified herein are manufactured by and/or are available from Zurn PEX, Inc. tubing manufacturer

PRODUCT SUBSTITUTION: No substitutions are permitted

MATERIALS
A. Tubing
   1. Cross-linked polyethylene (PEX) manufactured by the Silane method
   2. Non barrier type
      a. Shall have a pressure and temperature rating of 160 PSI at 73°F, 100 PSI at 180°F and 80 PSI at 200°F
      b. Tubing shall have a minimum of 6 months UV protection
   3. Manufactured in accordance with ASTM F876 and ASTM F877 and tested for compliance by an independent third-party agency
   4. Must have Pex 5006 chlorine designation
   5. Plenum tested in accordance with ASTM E84
   6. Must have a 25 year non-prorated warranty

B. Fittings: Fittings shall be manufactured by Zurn PEX Inc, identified by the letters "Q" or "Z".

   Manufactured in accordance with ASTM F1807 or ASTM F2159 and/or comply with ASTM F877 system standard as identified on the fitting

C. Crimp Systems
   Qickclamp: Listed to ASTM F877, identified as a Zurn PEX Inc, Qickclamp by the "Qickclamp" and "Q" marking.

   Copper Crimp Ring: Listed to ASTM F1807 and/or ASTM F877, black in color and identified as a Zurn PEX Inc, ring by the letter "Q."

D. Tools
   Qickclamp tools shall be supplied by the PEX tubing manufacturer, identified by the name "Zurn" on the tool.

   Copper Crimp Ring tools shall be supplied by the PEX tubing manufacturer or approved by the PEX tubing manufacturer for use.

E. Manifold
   1. QickPort Preassembled Manifold
   2. Copper Manifold System
   3. CR Manifold
   4. Multi Port Fittings
   5. Copper Manifold Header

F. Valves: Shall be of the plastic or metal type, meeting the requirements of ASTM F877, identified as such with the appropriate mark on the product

SEE SHEET MPE102 FOR CONTINUATION OF SPECIFICATIONS

HE HOLSTON ENGINEERING, INC.
301 MONTGOMERY ST., SUITE #4, JOHNSON CITY, TN 37604 (423)926-5991 holston.engineering@holsteng.com

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PLOT DATE: 09-29-2023 HE PROJECT # 23-018

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MECHANICAL, PLUMBING &
ELECTRICAL SPECIFICATIONS

DATE:	09-29-2023
NO.	REVISION DATE
1	*
2	
3	
SHEET:	MPE101
DRAWN BY: JAP	CHECKED BY: DEC
PROJECT NO.	TLG-22135

THE LANE GROUP INC.

MANUFACTURER'S INSTRUCTIONS: Comply with manufacture's product data, including product technical bulletins, technical memo's, installation instructions and design drawings, including; Zurn PEX Plumbing Installation Guide

EXAMINATION:
A. Site Verification of Conditions

Verify that site conditions are acceptable for the installation of the PEX potable water system

Do not proceed with installations of the PEX potable water system until unacceptable conditions are corrected

INSTALLATION
A. Install Zurn PEX tubing in accordance with tubing manufacturer's recommendations and as indicated in the Zurn PEX Plumbing Installation Guide

B. Do not install PEX tubing within 6 inches of gas appliance vents or within 12 inches of any recessed light fixtures

C. Do not solder within 18 inches of PEX tubing in the same waterline. Make sweat connections prior to making PEX connections

D. Ensure no glues, solvents, sealants or chemicals come in contact with the tubing without prior permission from the tubing manufacturer

E. Do not expose PEX tubing to direct sunlight for more than 6 months

F. Use grommets or sleeves at the penetration for PEX tubing passing through metal studs

G. Use a PEX manufacturer recommended fire stop sealant manufacturer

H. Protect PEX tubing with sleeves where abrasion may occur

I. Use nail plates where PEX tubing penetrates wall stud or joists and has the potential for being struck with a screw or nail

J. Allow slack of approximately 1/8 inch per foot of tube length to compensate for expansion and contraction

K. Minimum horizontal supports are to be installed not less than 32 inches between hangers in accordance with model plumbing codes and the Zurn PEX Plumbing Installation Guide

L. Pressurize Zurn PEX tubing in accordance with applicable codes or in the absence of applicable codes, test pressure shall be at least equal to normal system working pressure, but not less than 40 PSI water or air and not greater than 225 PSI water, 125 PSI air

M. Refer to other sections listed in Related Sections paragraph herein for related products installation

FIELD QUALITY CONTROL
A. Site Tests

To ensure system integrity, pressure test the system before covering tubing in concrete and after other trades have worked in the vicinity of the tubing

Repair and replace any product that has been damaged according to manufacturer's recommendation

PROTECTION: Protect installed work from damage due to subsequent construction activity on the site

PLUMBING FIXTURES: Fixtures and trim shall be American-Standard, Crane, Eljer or Kohler according to Schedule. Install fixtures and trim of one make and design in each area or location and with Zurn chair carriers, Josam Bulldog Carriers or Smith for fixtures at chases and for all lavatories, urinal and water coolers. Where walls supporting plumbing fixtures without chases are built of steel studs, install fixture carriers with block bases in the wall for fixture support, setting the block bases flush with or below the finished floor line and connecting minimum of three (3) studs with steel plates for support of fixture. Install minimum 1/2" water supplies with stops to fixtures. Install P-traps at any fixture of 17 gauge semi-cast brass with cleanouts. P-traps below floor shall be cast iron. Plumbing fixture trim shall be chrome plated.

INSTALLATION – PLUMBING PIPING: Cut pipe square, ream, and thread with sharp dies for threaded fittings. Install piping straight, plumb, without sags and parallel with building elements, maintaining minimum 1/4" per foot grade on gravity systems. Install hangers on maximum centers of 5' for cast iron pipe, 6' for other pipes 1-1/2" and smaller, 10' for other pipes 2" and larger and at elbows or as recommended by the manufacturer for the material. Support stacks at base. Fill space between pipe and sleeves through floor slabs on grade with poured compound. Install cleanouts on sewer within the building line at a minimum distance of 50'-0" and set flush with finished floor materials. Install unions and manual valves, whether shown or not, at each side of operating equipment, maintenance points, water heaters, and as shown in details. Install shut-off valves in water supplies to groups of fixtures. Where required for valves, install Milcor aluminum access panels inside primed paint grade where ceiling system is not accessible.

TESTS: After complete erection of piping systems and before installation of fixtures or equipment completely test piping, check for leaks and make tight. No caulking or peening-over of leaking fittings shall be permitted. After completion of tests piping systems shall be flushed as indicated herein and domestic water piping system sterilized as specified herein. Tests may be made in sections, but flushing and sterilization shall be accomplished after complete erection. Where state code specifies method of test, such code shall take precedence over the test specified herein.

1. Sanitary, Soil, Waste and Vent: Isolate or close with test plugs and fill with water for minimum 5 PSIG (10'-0" foot head) hydrostatic pressure placed on the highest joint for minimum of 24 hours. No exfiltration allowed.

2. Domestic Water and Treated Water: Water test with water furnished for the service at 150 PSIG for domestic and 50 PSI for treated for minimum of 24 hours, flushing before and after test. No exfiltration allowed.

3. Gas: In strict accordance with NFPA 54.

DOMESTIC WATER PIPING STERILIZATION: Flush out the pipe lines until the water runs clear. This shall be done after the pressure test and before disinfection. Drain and clean strainers and dirt pockets. After the domestic piping system has been tested and cleaned, the system shall be sterilized in accordance with the State Department of Public Health by the following methods:

1. Introduce HTH solution, chlorine gas, or similar chlorination agent in sufficient quantity to produce a residual of 50 ppm of chlorine as determined by residual chlorine tests at the ends of the lines, and allow to stand for not less than 24 hours. Fill the lines slowly and open and close all valves while the chlorine is being introduced into the system. Operate valves, pumps, etc. at least 5 times, or 5 minutes.

2. After the disinfecting solution has been left standing for 24 hours, flush out the system until chlorine content is less than 1.0 ppm and/or water is comparable to that supplied by the water utility. If after flushing out the system, bacteriological samples are not satisfactory, repeat the disinfection process until satisfactory bacteriological samples can be obtained.

Disinfection of new supply mains shall be performed before these mains are connected to the existing water supply mains. Where connecting into the existing mains and it is not practical to include the connection pieces (i.e. pipe, fittings and valves) in normal disinfecting process, these connecting pieces shall be swabbed with chlorine solution containing not less than 100 ppm available chlorine prior to making connection. Have samples obtained from the end of the longest piping run, analyzed by the water utility chemist and submit a copy of the test to the Engineer.

END OF SECTION

INSULATION PROVISIONS

RELATED DOCUMENTS: Drawings and general provisions of contract, including General Conditions and General Requirement sections, apply to work of this Section.

SCOPE – INSULATION SYSTEMS: Furnish and install all labor, materials and equipment shown on the mechanical drawings and as specified herein, including all items and specialties required, whether specified or not, for complete systems of pipe insulation. External ductwork insulation specified in other sections of this DIVISION are not a part of this section and will be furnished and installed under other sections of this DIVISION. In general, the insulation work consists of the following work:

1. Insulation of domestic hot and cold water piping systems.

INSULATION: HOT AND COLD PIPING: Install molded fiberglass insulation with vapor-barrier jacket and butted solidly together with joints and seams staggered. Cover fittings with molded insulation sections. For hot piping, seal joints and flaps with Lagtone and cover fittings with 8 oz. canvas jacket over Lagtone sealer and sealed on with Lagtone, sealing off insulation ends with jacket and Lagtone. For cold piping, seal joints and flaps with adhesive, sealing off insulation ends with mastic. Cover insulated fittings with 0.002" thick aluminum foil sealed on with adhesive and cover with 8 oz. canvas jacket and coat of mastic. Fitting covers equal to one piece PVC "Zeston" covers shall be used.

Install insulation thickness on piping as follows:
1. Domestic Water Systems and Condensate Piping .... 1/2"

Equal materials, mastic, adhesives, and sealers made by Manville, Gustin-Bacon, Foster, Armstrong and PPG Industries are acceptable when labeled and/or listed. Adhesives, mastics and insulation materials used shall be Underwriter's labeled and/or listed for a maximum rating of 25 for flame and 50 for smoke.

INSTALLATION – INSULATION SYSTEMS: Install this work using mechanics experienced in the trade. Systems shall be completely erected and tested and all surfaces shall be clean and dry prior to application of insulation. For insulation, install saddles between support and insulation at all piping support points equal to Fee & Mason, Figure 171, for hot piping and minimum 20 gage galvanized steel saddles 18" long for cold piping. Install rigid insulation sections in cold piping insulation at saddles, sealing the rigid section to the run of insulation. Install insulation continuous through sleeves or core drilled holes for cold piping. Stapling of pipe insulation on cold water is not acceptable unless all staples are vapor sealed with mastic to the Engineer's satisfaction. No duct tape will be allowed on any insulation system. A continuous vapor barrier seal will be required on all cold water systems. Failure to maintain this barrier will not be allowed.

END OF SECTION

ELECTRICAL PROVISIONS

RELATED DOCUMENTS: Drawings and General Provisions of Contract, including General Conditions and Division I General Requirement Sections, apply to work of this section.

DESCRIPTION OF WORK: Furnish and install all labor, materials, and equipment shown on the drawings and specified herein, including all items and specifications required, whether specified or not, for complete working systems. In general, the Electrical Work consists of the following:

1. Secondary distribution with connections as detailed up to service.

2. Wiring and equipment for lighting and power, together with lighting fixtures and devices.

3. Wiring and connecting equipment of other trades.

4. Power service shall be 1 phase 3 wire 120/240 volts.

CONNECTION TO OTHER SPECIFICATION WORK: Under this work division, furnish and install all labor and materials, together with the required switches, for connecting power to heating, air conditioning and ventilation, plumbing, and Owner-supplied equipment.

SECONDARY WIRE AND CABLE: Except as noted, install minimum #12 AWG 600-volt copper Type THHN/ THWN or as noted on the drawings. Install solid conductors for #10 size and smaller. No aluminum wire will be allowed. #8 wire and larger shall be stranded copper. Although not necessarily shown, provide a complete "green" ground throughout bonded and grounded as per NEC. Type "MC" cable is acceptable.

RACEWAYS: Install conduit, wireways and surface metal raceways of malleable steel material and with electric or hot dip galvanized or rust resistant finish. Use no aluminum conduit. Conceal all raceways where possible. Install liquid-tight "Greenfield" with grounding conductors in outdoor, or wet locations and at all motor connections and other points subject to vibration. Install rigid conduit with threaded fittings as required by the National Electrical Code on service conduits to above the building floor line or as noted. Other conduit runs may be electric metallic tubing with malleable steel compression or set screw type connectors. Bushings for conduit 2" and smaller shall be plastic. Bushings for conduit 2-1/2" and larger shall be equal to Appleton Efcor Series 55 or OZ type "B" with metal ring and insulator as an integral part of the bushing.

BOXES, CABINETS, SUPPORTS AND SPECIALTIES: Install of galvanized malleable steel alloy. Install cabinets with grey baked finish on exposed surfaces and removable trim with hinged doors and flush locks, all keyed alike. Install boxes underground, for exterior outlets and as required by the National Electric Code with threaded cast hubs and gasketed covers attached with screws. Pressed boxes will not be allowed. Unless noted otherwise, install other switches, receptacles, and lighting outlets of pressed steel box with proper cover and size and with ears and studs where required. Ceiling outlet boxes shall be minimum 4" octagon 2-1/8" deep and with extension rings where additional volume is required. Single gang wall boxes shall be minimum 4" high X 2-1/8" wide X 2-1/8" deep except boxes in masonry shall be 2-1/2" deep. Boxes shall be equal to Steel City, Appleton or Raco. Use solid gang box for two gangs or more.

PANELBOARD & BREAKERS: Install safety dead front breaker type, surface mounting as required and shown. All breakers quick-make and quick-break with trip free handles, thermal-magnetic trip. Two/Three pole breakers shall have a common trip. All breakers ambient compensated and all interiors with integrated capacity bussing. All branch breaker handles shall operate in the same plane. Furnish all "spare" breakers. All H.V.A.C. equipment breakers shall be H.A.C.R. rated. See the plans for schedules indicating number of branch circuits, ratings, arrangements, etc. Provide neutral bars for all system feeders isolated from the panel box. Provide separate "ground" bars installed with lugs or connectors on the bar grounded to the panel box. Bus bars shall be of sequence phase type arranged for the specified service. All circuits shown as common neutral shall be installed as per N.E.C. Where relays, time clocks or contactors are called for, provide panelboard with oversized can for installation. Separate cans adjacent to the panelboard, and mounted same as the panelboard, are acceptable.

SAFETY SWITCHES: Install safety switches of heavy duty rating, and with dual element, time lag, cartridge type fuses. Except as noted, install all units with general purpose enclosures inside or NEMA 3R outside. Furnish owner with 1 set of "spare" fuses in addition to all required fuses.

LIGHTING FIXTURES: Install according to schedule and complete with lamps and any hangers, plaster frames and other accessories. Verify ceiling systems for recessed fixture trim. Ceiling system suspension shall not be used for Luminaire suspension. All Luminaires shall be independently hung by wire or other approved means./ Guarantee electronic's replacement for 12 months after final acceptance of project. Support all lay-in type fixtures from structure above with wire hangers. LED luminaries shall meet or exceed IES LM-79, IES LM-80, and IES TM-21.

DATA/VIDEO/PHONE SERVICE: Coordinate with owner for all service requirements.

INSTALLATION: Install gear with operating handles maximum 6-feet from floor and trims in line. Provide typed directory for panelboard and engraved laminated plastic labels for switches and main service breakers. Install raceways parallel or perpendicular to building members. Close conduit runs during construction. Apply waterproofing compound to joints in rigid conduit runs. Install fittings and supports of same material and finish as conduit. Support raceways with brackets, hangers, or other approved devices. Use no perforated strap or wire hangers. Install pull boxes or points for maximum 200' run and 3 quarter bends in wiring conduit runs and 100' of run and 2 quarter bends in signal and communications conduit runs. Install long sweep elbows in signal and communications conduit runs. Use expansion fittings for crossing building expansion joints. Except for terminations in threaded hubs, lock conduit in place with proper fittings and install bushing. Leave bare copper pull wires in all empty conduit runs. Bond and ground all systems in accordance with N.E.C. As required or as shown on plans, install boxes and devices on surface or flush with building finish, with units rigidly fastened in pl properly aligned. Box extensions may be used. Verify door swings prior to roughing for lighting switches. Install a plate for all devices, including blank plates over blank boxes, plates to be in continuous contact with building finish and not to support box. Pull wire only after areas are cleaned and pull with proper lubricants and continuous between boxes without splice. Make up splices in Wire #10 or smaller with Ideal "Wing Nuts" and in larger wire with approved mechanical connectors and tape. After installation, megger electrical work for grounds and shorts and correct as required. Color code conductors as directed by Owner. Install Health Care type MN cable per N.E.C.

TESTING: In conjunction with his work, the Contractor shall do the following:
1. Check outlets for proper polarity and correct as required.

2. Megger all motor and solenoid windings before connection for insulation resistance and record readings. If found low, advise supplier so that steps may be taken to dry out insulation or otherwise raise insulation resistance to an acceptable value.

3. Check running currents of all motors and if there is any major unbalance or variation from rated, determine the cause.

END OF SECTION

END OF ELECTRICAL & MECHANICAL PROVISIONS

JOE N. RI[illegible]S — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 022298 — STATE OF TENNESSEE — 9-29-23

ERWIN E. CARTMELL — REGISTERED ENGINEER — AGRICULTURE — COMMERCE — No. 00101273 — STATE OF TENNESSEE — 9/29/23

HOLSTON ENGINEERING, INC.
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PLOT DATE: 09-29-2023 HE PROJECT # 23-018

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NEW FACILITY FOR WASHINGTON COUNTY SOLID WASTE DISPOSAL
14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

MECHANICAL, PLUMBING & ELECTRICAL SPECIFICATIONS

DATE: 09-29-2023

NO.	REVISION DATE
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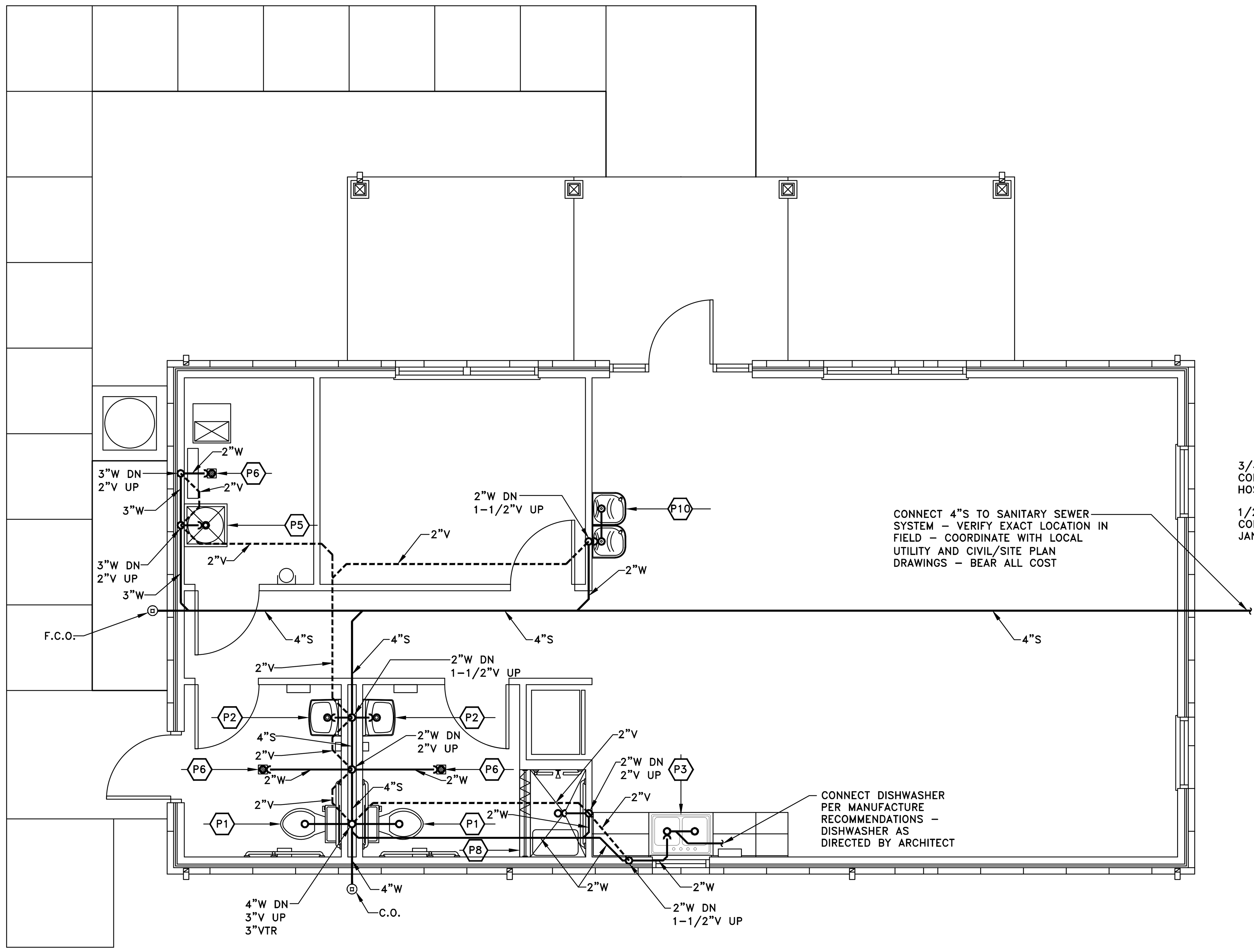
SHEET: MPE102

DRAWN BY: JAP | CHECKED BY: DEC

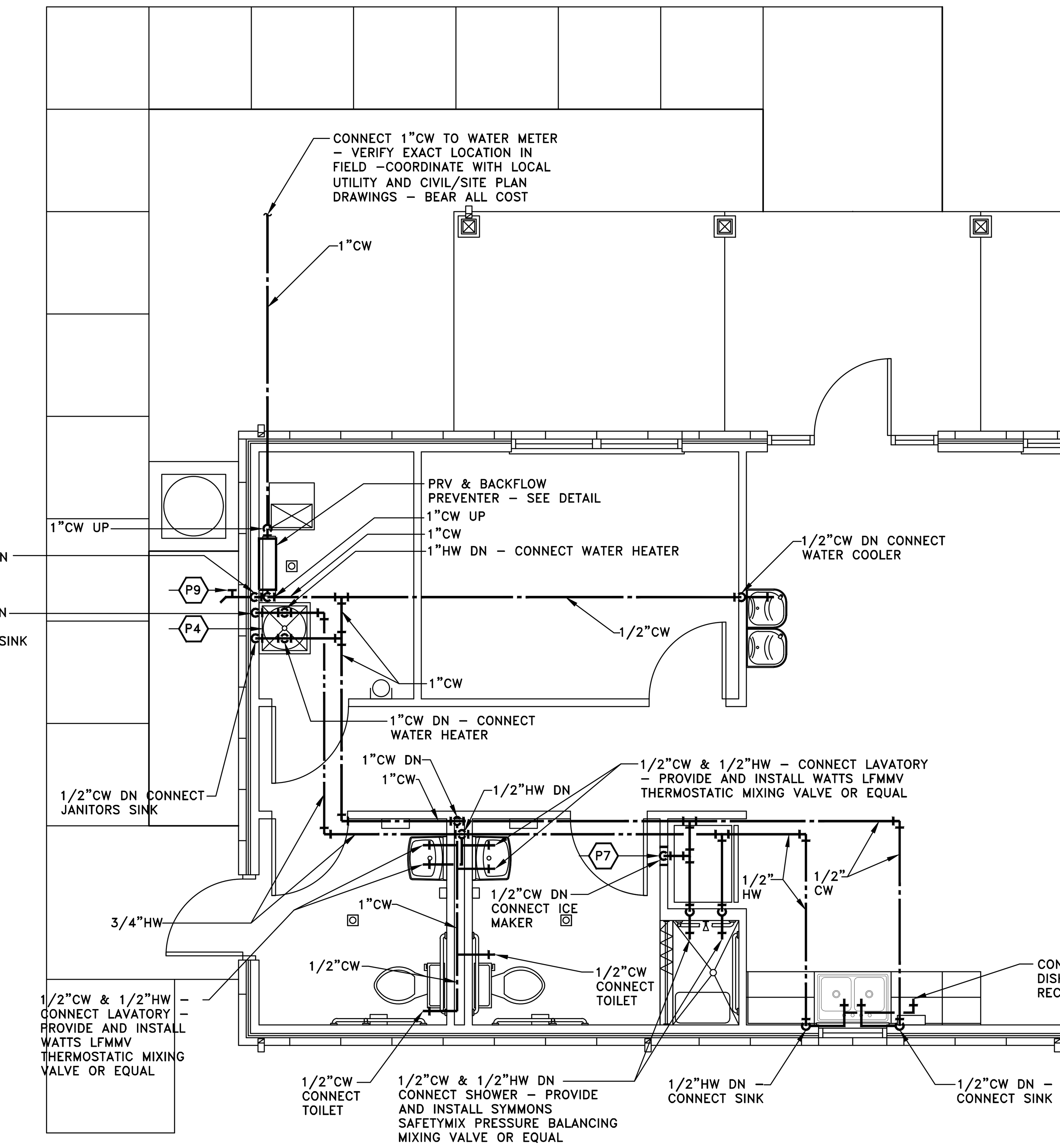
PROJECT NO. TLG-22135

THE LANE GROUP INC.



SANITARY SEWER, WASTE AND VENT PIPING FLOOR PLAN

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



DOMESTIC WATER PIPING FLOOR PLAN

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

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NEW FACILITY FOR
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14579 INDUSTRIAL PARK ROAD
BRISTOL, VIRGINIA 24202

PLUMBING FLOOR PLANS

COMMONWEALTH OF VIRGINIA
DERWIN EUGENE CARTMEL
Lic. No. 31491
9/29/23
PROFESSIONAL ENGINEER

DATE: 09-29-2023

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PROJECT NO. TLG-22135

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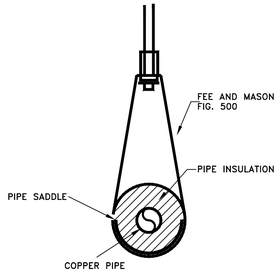
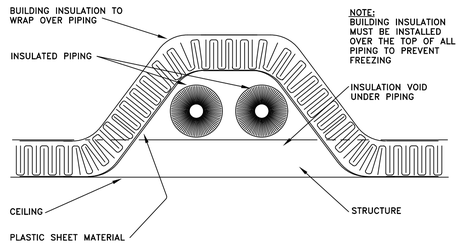
PLUMBING FIXTURE SCHEDULE

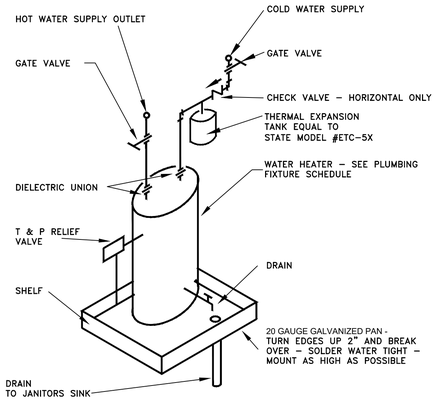
NO.	TYPE	SIZE	REMARKS	MAKE	MODEL
P1	WATER CLOSET HANDICAPPED	16-½" H.	EVERCLEAN FLOOR MOUNTED, PRESSURE ASSISTED SIPHON JET, ELONGATED 16-½" HIGH TANK TYPE WITH WHITE MOLTEX SEAT WITH OPEN FRONT. CONNECT 1/2" COLD WATER AND 4" SOIL. 1.6 GALLON FLUSH.	AMERICAN STANDARD	2467.016
P2	WALL-HUNG LAVATORY HANDICAPPED	20"X18"	VITREOUS CHINA, WALL-HUNG WITH #7385.043 SINGLE LEVER FAUCET ON 4" CENTERS WITH INTEGRAL GRID DRAIN AND AERATOR FOR 2-1/2 GPM FLOW. CONNECT 1/2" HOT AND COLD WATER, 1-1/4" WASTE. MOUNT 34" ABOVE FINISHED FLOOR. NEATLY INSULATE ALL EXPOSED PIPING WITH FACTORY INSULATION KIT EQUAL TO "LAV-GUARD 2" BY TRUEBRO INC. MODEL #102 E-Z (WHITE). PROVIDE CHAIR CARRIER.	AMERICAN-STANDARD	0355.012
P3	DOUBLE COMPARTMENT SINK	33"X19-1/2"	18 GAUGE STAINLESS STEEL, BUILT-IN SELF RIMMING WITH TWO #LK-35 STRAINERS AND ONE #LK-4301-F SINGLE LEVER FAUCET WITH RETRACTABLE SPRAY AND AERATOR FOR 4-HOLE INSTALLATION. CONNECT 1/2" HOT AND COLD WATER, 1-1/2" WASTE.	ELKAY	LR-3319
P4	ELECTRIC WATER HEATER	50 GAL.	STATE 50 GALLON LOW BOY WATER HEATER WITH 6 YEAR GUARANTEE, FACTORY INSTALLED AUTOMATIC RESETTING RELIEF VALVE WITH WASTE TO DRAIN, DIELECTRIC UNIONS GATE VALVES ON EACH WATER CONNECTION AND DRAIN VALVE. SEE DETAIL FOR INSTALLATION. MAKE 3/4" WATER CONNECTIONS. UNIT FOR 1 PHASE, 240 VOLTS, 4.5 KW	STATE	PCE-50-20LS
P5	SQUARE FLOOR SERVICE SINK	24"X24" 12" DEEP	FLOOR MOUNTED, TERRAZZO, WITH STRAINER, RIM GUARD; SPEAKMAN #SC-5811-RCP FAUCET FOR HOT AND COLD WATER WITH STOPS IN SHANKS, VACUUM BREAKER, TOP BRACE AND 3'-0" HOSE WITH WALL HOOK AND MOP HANGER. CONNECT 1/2" HOT AND COLD WATER, 3" WASTE THRU CAST IRON P-TRAP.	STERN-WILLIAMS	SB-900
P6	FLOOR DRAIN W/ WATERLESS TRAP		FLOOR DRAIN WITH TYPE "B" STRAINER, DEEP SEAL TRAP, POLISHED NICKEL STRAINER. WITH ZURN BARRIER TRAP SEAL #Z1072	ZURN	Z415
P7	ICE MAKER CONNECTION BOX		ICE MAKER CONNECTION BOX WITH COVER, HIGH IMPACT PLASTIC. BOTTOM SUPPLY. FURNISHED WITH 1/2" FIP INLET ANGLE VALVE.	IPS	87967
P8	SHOWER BASE HANDICAPPED - FAUCET AND DRAIN	48"X36"	SHOWER BASE BY ARCHITECT - CONNECT DRAIN MODEL# KDG2 2" NEOPRENE FLEXIBLE DRAIN GASKET FOR 2"IPS WASTE PIPE - PROVIDE AND INSTALL SYMMONS #1-217-FS-X SHOWER SYSTEM WITH LEVER HANDLE, SYMMONS SAFETYMIX PRESSURE BALANCING MIXING VALVE WITH ADJUSTABLE STOP SCREW TO LIMIT HANDLE TURN. LEVER DIVERTER WITH INTEGRAL VOLUME CONTROL. WALL/HAND SHOWER WITH 5'-0" METAL HOSE. WALL HOOK FOR HAND SHOWER MOUNTING. 2.5 GPM FLOW RATE. CONNECT 1/2" HOT AND COLD WATER	ACORN	SBR-4836-3F
P9	WALL HYDRANT		AUTOMATIC DRAINING, FREEZELESS WALL HYDRANT. CONNECT 1/2" COLD WATER. MOUNT 24" ABOVE FINISHED GRADE	WOODFORD	17
P10	WATER COOLER DUAL LEVEL BARRIER FREE		BI-LEVEL ADA COOLER REFRIGERATED STAINLESS HUGH CAPACITY LEAD REDUCTION QUICK FILTER CHANGE AND BOTTLE FILLER, ANTIMICROBIAL, AUTOMATIC FILTER STAUS, GREEN TICKER, HANDS FREE, LAMINAR FLOW, REAL DRAIN, FLEXI-GUARD SAFETY BUBBLER, ELECTRONIC FILLER SENSOR WITH ELECTRONIC FRONT AND SIDE BUBBLER ACTIVATION, 5 YEAR GUARANTEE, PROVIDE AND INSTALL IN-WALL CHAIR CARRIER MODEL #MLP200. CONNECT 1/2" COLD WATER AND 1-1/2" WASTE	ELKAY	LZSTL8WSSP



PIPE SUPPORT DETAIL
NO SCALE

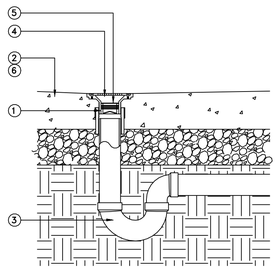


DOMESTIC HOT & COLD WATER LINES IN ATTIC DETAIL
NO SCALE



NOTE: SEE FLOOR PLANS FOR PIPE SIZES.

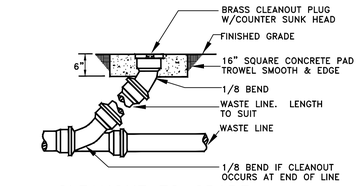
DETAIL OF WATER HEATER ON SHELF WITH PAN
NO SCALE



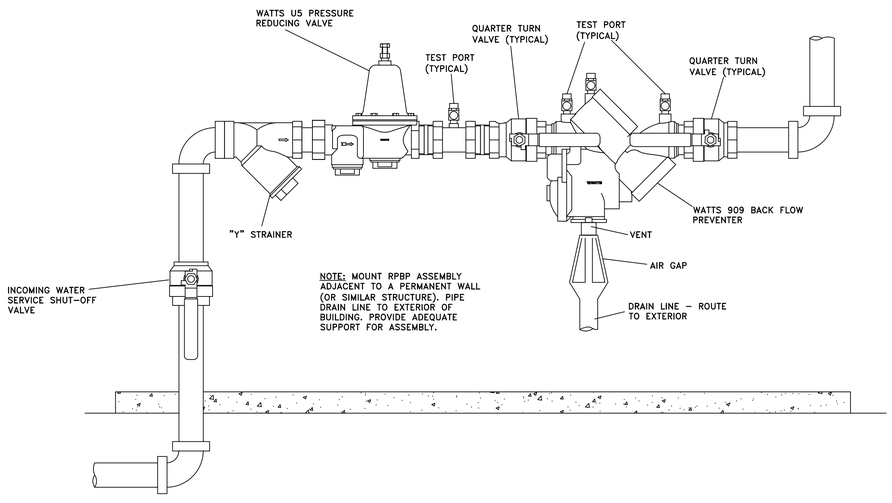
NUMBERED NOTES

1. ADJUSTABLE FLOOR DRAIN ASSEMBLY, SEE SCHEDULE, COORDINATE ELEVATION WITH STRUCTURAL AND ARCHITECTURAL, COORDINATE FLOOR FINISH
2. CONCRETE FLOOR
3. PVC P-TRAP
4. BRASS COVER AND RING
5. WATERLESS TRAP SEAL
6. FLOOR SLOPE- COORDINATE

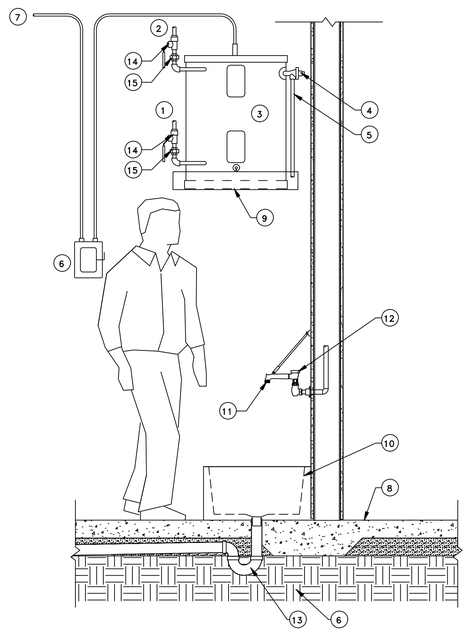
FLOOR DRAIN WITH WATERLESS TRAP DETAIL
NO SCALE



CLEANOUT TO GRADE
NO SCALE



PRESSURE REDUCER AND BACKFLOW PREVENTER DETAIL
NOT TO SCALE



NUMBERED NOTES

1. FROM WATER SUPPLY
2. TO BUILDING HOT WATER SYSTEM
3. ELECTRICAL WATER HEATER SEE FIXTURE SCHEULDE
4. A.S.M.E. COMBINATION TEMPERATURE AND PRESSURE RELIEF VALVE
5. FULL SIZE DISCHARGE, EXTEND AND SPILL INTO WATER HEATER DRAIN PAN
6. ELECTRIC DISCONNECT, BY OTHERS
7. TO ELECTRIC PANEL, BY OTHERS
8. FINISH FLOOR
9. PROVIDE MOUNTING SHELF, SHELF TO BE CONSTUCTED TO BE WATER TIGHT AND ACT AS DRAIN PAN, DRAIN TO MOP SINK BELOW
10. MOP SINK
11. THREADED SPOUT w/ PAIL HOOK
12. HEAVY DUTY WALL MOUNTED FAUCET w/ VACUUM BREAKER, PROVIDE WALL BRACING AS REQUIRED
13. DRAIN ASSEMBLY w/ P-TRAP
14. BALL VALVE
15. DIELECTRIC UNION

NOTES:
SEE PLUMBING SCHEDULE FOR SPECIFICATIONS

ELECTRIC WATER HEATER & MOP SINK DETAIL
NO SCALE

PLUMBING LEGEND

	CW	COLD WATER SUPPLY PIPING
	HW	HOT WATER SUPPLY PIPING (110°F MAX)
	S&W	SANITARY SOIL & WASTE PIPING
		GATE OR BALL VALVE
	FD	FLOOR DRAIN WITH P-TRAP AND WATERLESS TRAP PRIMER
	FCO	FLUSH CLEANOUT
	VTR	VENT THRU ROOF
P1		PLUMBING FIXTURES - SEE PLUMBING FIXTURE SCHEDULE
		PIPE ELBOW AND TEE IN PLANE
		PIPE ELBOW AND TEE TURNED DOWN
		PIPE ELBOW AND TEE TURNED UP

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BRISTOL, VIRGINIA 24202

PLUMBING SCHEDULE & DETAILS

COMMONWEALTH OF VIRGINIA
DERWIN EUGENE HARTMEL
PROFESSIONAL ENGINEER
9/27/23

DATE: 09-29-2023

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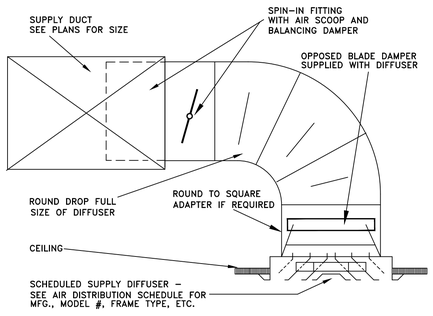
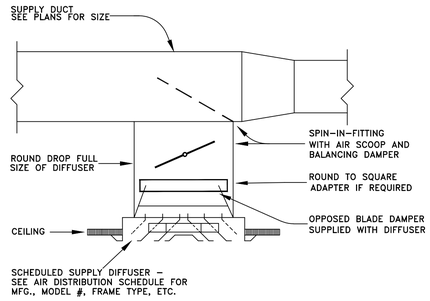


CEILING SUPPLY DIFFUSER CONNECTION DETAIL
NO SCALE



CEILING SUPPLY DIFFUSER CONNECTION DETAIL
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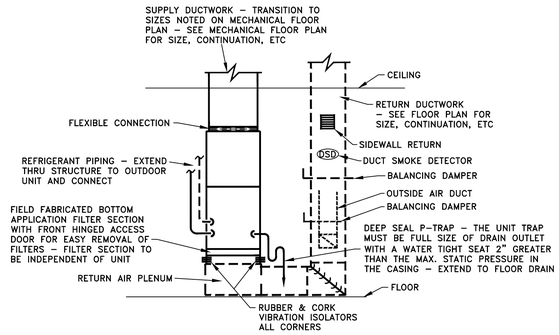
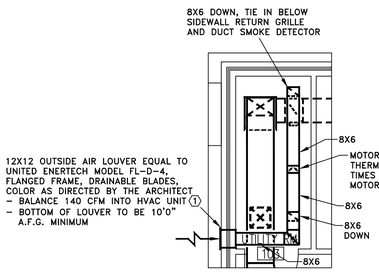


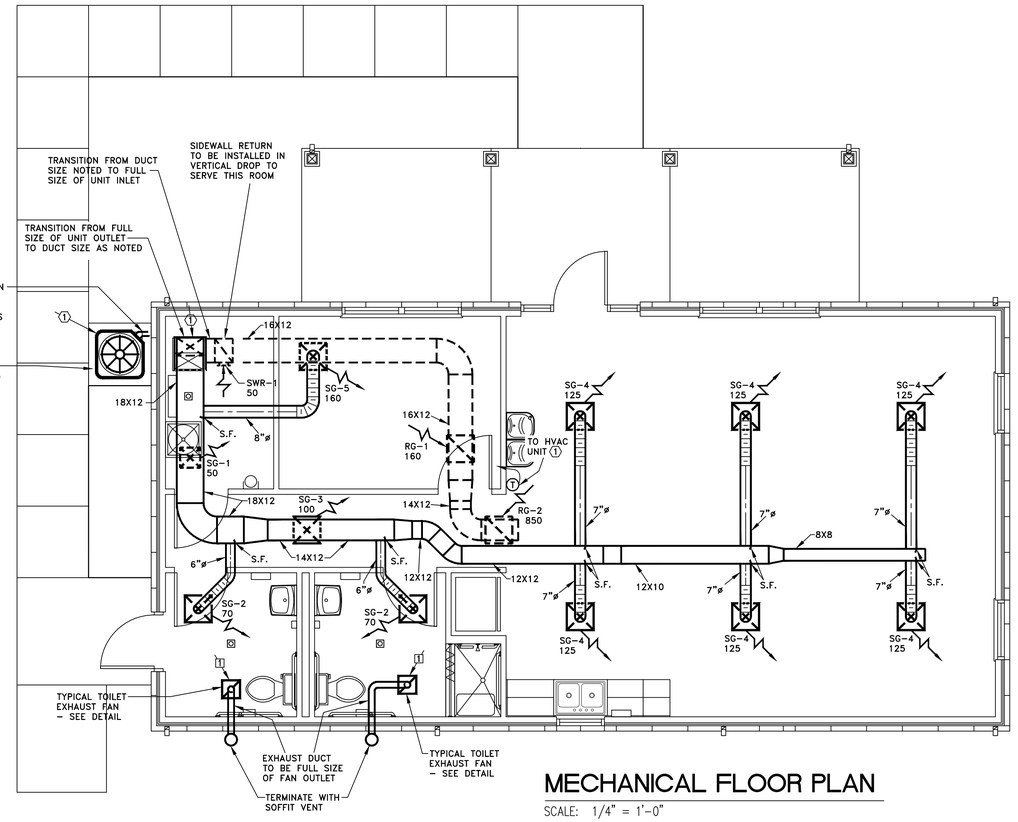
INDOOR H.V.A.C. UNIT ⟨1⟩ DETAIL
NO SCALE

H.V.A.C. EQUIPMENT SCHEDULE

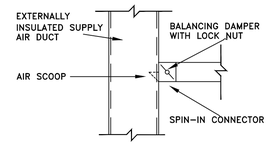
UNIT DESIGNATION	⟨1⟩
TYPE INDOOR UNIT	SPLIT SYSTEM HEAT PUMP
MANUFACTURER	CARRIER
INDOOR MODEL #	FX4DNF037010
HEATER KW	10KW @ 230V/1ø
MOTOR HP	1/2
CFM	1200
E.S.P.	.50" AFTER WET COIL
VOLTAGE	230V/1ø
M.C.A.	55.1A
M.O.C.P.	60A
OUTDOOR UNIT MODEL #	25HBC536A0030
TOTAL COOLING	35,000
SENSIBLE COOLING	27,340
HEATING 47°	35,000
C.O.P.	3.92
HEATING 17°	19,260
C.O.P.	2.51
S.E.E.R.	15.0
SYSTEM KW	2.80
VOLTAGE	230V/1ø
M.C.A.	22.1A
D.E.F./HACR BREAK	35A



OUTSIDE AIR DUCT PLAN
SCALE: 1/4" = 1'-0"



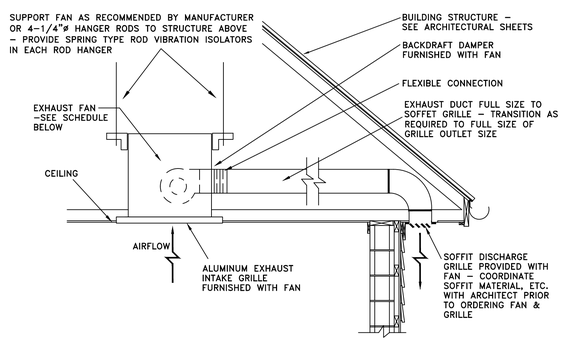
MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"



TYPICAL SPIN-IN-FITTING
NO SCALE

H.V.A.C. LEGEND

- SUPPLY DUCTWORK WITH 2" EXTERNAL INSULATION
- RETURN/RELIEF DUCTWORK WITH 2" EXTERNAL INSULATION
- FLEXIBLE DUCTWORK EQUAL TO GENFLEX 1L-1
- ROUND DUCTWORK WITH 2" EXTERNAL INSULATION
- O.A. OUTSIDE AIR DUCTWORK WITH 2" EXTERNAL INSULATION
- (T) ROOM THERMOSTAT – SEE CONTROL SPECIFICATION
- H.V.A.C. UNIT – SEE SCHEDULE AND DETAILS
- AIR DISTRIBUTION OUTLET – SEE SCHEDULE
- EXHAUST FAN – SEE SCHEDULE AND DETAIL
- S.F. SPIN-IN FITTING WITH AIR SCOOP
- B.D. BALANCING DAMPER – SEE DETAIL
- (DSD) DUCT MOUNTED SMOKE DETECTOR – TIE INTO H.V.A.C. UNIT FAN CIRCUIT FOR EMERGENCY SHUT DOWN CONTROL



TYPICAL TOILET EXHAUST FAN DETAIL
NO SCALE

FAN NO.	MFG.	MODEL	CFM	S.P.	WATTS	PH/V.
1	ACME	VQ090ESa	70	1/4"	32	1ø/120

AIR DISTRIBUTION SCHEDULE

MARK	MANUFACTURER & MODEL NO.	SERVICE	SIZE	C.F.M.	F.P.M.	DESCRIPTION	MATERIAL	FINISH	ACCESSORIES & FEATURES
SG-1	KRUEGER SHPC-04	SUPPLY	6X6	50	200	FOUR WAY THROW DIFFUSER	STEEL	WHITE	FULLY ADJUSTABLE WITH AIR
SG-2			6X6	70	280	WITH FLANGED FRAME			PATTERN CONTROLLERS AND
SG-3			6X6	100	400				OPPOSED BLADE DAMPER
SG-4			9X9	125	225				WITH FLANGED FRAME
SG-5			9X9	160	285				
SG-6	NOT USED								
RG-1	KRUEGER S580	RETURN	10X6	160	385	RETURN GRILLE WITH	ALUMINUM	WHITE	HORIZONTAL BLADES ANGLED
RG-2	KRUEGER S580	RETURN	18X18	850	380	FLANGED FRAME	ALUMINUM	WHITE	TO PREVENT SEE THROUGH
RG-3	NOT USED								AND OPPOSED BLADE DAMPER
SWR-1	KRUEGER S480	RETURN	6X6	50	200	SIDEWALL RETURN GRILLE	STEEL	WHITE	HEAVY DUTY STEEL WITH
SWR-2	NOT USED								OPPOSED BLADE DAMPER

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MECHANICAL FLOOR PLANS

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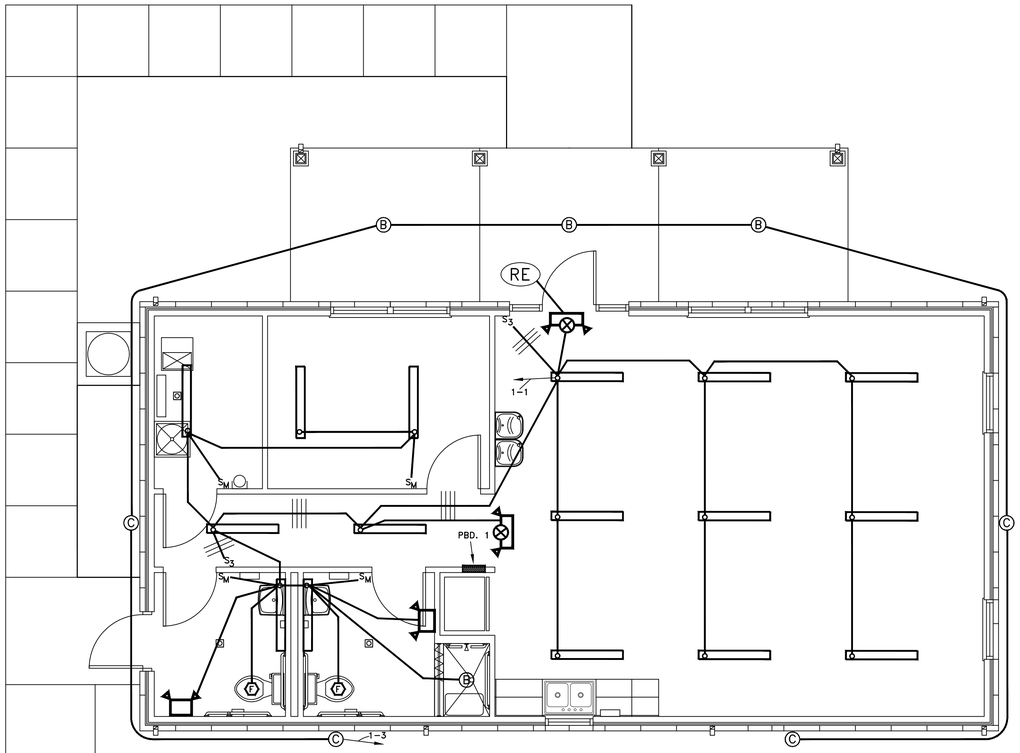
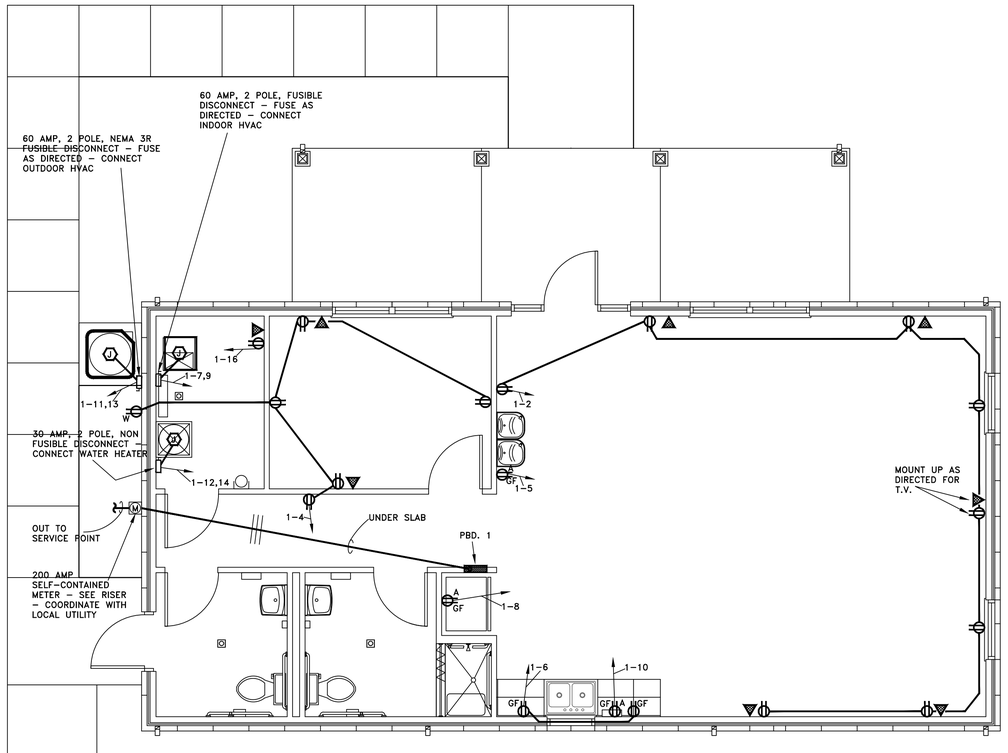


LIGHTING FLOOR PLAN

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

NOTE: ALL LIGHTING THIS PLAN TYPE "A" UNLESS OTHERWISE NOTED.



POWER AND COMM FLOOR PLAN

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

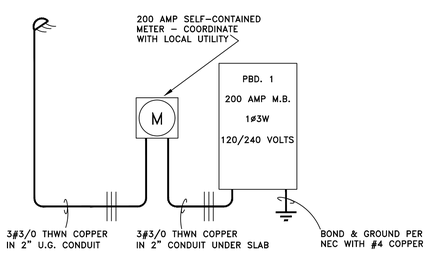
ELECTRIC LEGEND

- LIGHTING OUTLET LED. INSERT IS TYPE.
- EXIT LIGHTS, WITH ARROW AND REMOTE EMERGENCY HEAD WHERE NOTED. SEE LIGHTING FIXTURE SCHEDULE.
- DUPLEX 20 AMPERE WEATHERPROOF GROUND-FAULT CONVENIENCE OUTLET. BRYANT #GFR53FT WITH #GFRWPV WEATHERPROOF COVER.
- DUPLEX 15 AMPERE CONVENIENCE OUTLET WITH GROUND. BRYANT #5262-I. SUBSCRIPT "A" INDICATES 20 AMPERE SIZE.
- DUPLEX 15 AMPERE GROUND-FAULT CONVENIENCE OUTLET. BRYANT #GFR52FT-I.
- JUNCTION BOX OUTLET. CONNECT POWER. VERIFY LOCATION AND SERVICE PRIOR TO ROUGH-IN.
- FAN OUTLET. CONNECT POWER. VERIFY LOCATION AND SERVICE PRIOR TO ROUGH-IN.
- WALL MOUNTED DATA OUTLET WITH STAINLESS STEEL PLATE WITH OPENING AS REQUIRED BY OWNER/VENDOR. EXTEND 3/4" CONDUIT TO ABOVE CEILING
- FUSIBLE SAFETY DISCONNECT SWITCH.
- BRANCH CIRCUIT PANELBOARD.
- S_3S_4 3 AND 4 WAY QUIET ACTION 20 AMPERE TOGGLE SWITCHES. BRYANT #4903-I AND #4904-I.
- S_M WALL MOUNTED MOTION DETECTOR SWITCH WITH TIME DELAY OFF SETTING, MANUAL ON/OFF SWITCH AND DIMMING. nLIGHT nWSX LV
- CONDUIT CONCEALED. GROUND NOT SHOWN BUT REQUIRED.
- CONDUIT AND 3 WIRES. NO MARKS INDICATE 2 WIRES. GROUND NOT SHOWN BUT REQUIRED.
- 1-1,3 CONDUIT AND WIRE HOME RUN. NUMBERS INDICATE PANELBOARD AND CIRCUIT NUMBERS. GROUND NOT SHOWN BUT REQUIRED.

1. INSTALL SWITCHES 48"± ABOVE FINISHED FLOOR AND RECEPTACLES AND PHONE/LAN OUTLETS 18"± ABOVE FINISHED FLOOR AND 8"± ABOVE COUNTERS UNLESS NOTED OTHERWISE. ALL DEVICES FLUSH MOUNTED UNLESS OTHERWISE REQUIRED.
2. ALL SWITCH AND DEVICE PLATES SATIN FINISH STAINLESS STEEL.
3. EQUAL SPEC GRADE DEVICES OF BRYANT, HUBBELL, P & S, LEVITON, AND GENERAL ELECTRIC MAKE ACCEPTABLE. NONE OTHER ACCEPTABLE, EXCEPT WITH WRITTEN PERMISSION.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION
RE	SURFACE MOUNTED EMERGENCY EXIT/LIGHTING UNIT WITH EXTERIOR REMOTE EMERGENCY HEAD, LED LAMPS, NICAD BATTERY, RED FACE, WHITE HOUSING, & ELECTRONIC CHARGING/SWITCHING. LITHONIA-ECRG
	EMERGENCY BATTERY BACKUP LUMINAIRE WITH SOLID STATE CHARGING & SWITCHING AND ALL CATALOGUED FEATURES LITHONIA-ERE
A	4' SURFACE-MOUNTED LED STRIP LIGHT WITH 4,500 LUMENS, 4000K COLOR TEMP, 80 CRI, & 120 VOLTS. [35 WATTS] LITHONIA CSS-L48-4000LM-MVOLT-40K-80CRI
B	6" ROUND RECESSED LED DOWNLIGHT WITH 1,500 LUMENS, 4000K COLOR TEMPERATURE, MEDIUM WIDE DIST, & 120 VOLTS [18.8 WATTS] LITHONIA-LBR6-15LM-40K-AR-LSS-MWD-MVOLT
C	LED WALL PACK LUMINAIRE WITH 2,912 LUMENS, 4000K COLOR TEMP, DARK BRONZE FINISH & 120 VOLTS [24.4 WATTS] LITHONIA-WPX1-LED-P2-40K-MVOLT-DDBXD-M4



ELECTRIC SERVICE RISER DIAGRAM

NOT TO SCALE

BRANCH CIRCUIT PANELBOARD

PANELBOARD NO. 1

FEEDING	WIRE	CIRCUIT AMPS	CIRCUIT NO.	PBD.	CIRCUIT NO.	CIRCUIT AMPS	WIRE	FEEDING	PHASE LOADING-KW A	PHASE LOADING-KW B
LIGHTS	12	20	1		2	20	12	RECEPTACLE	2.1	
EXTERIOR LIGHTS	↓	↓	3		4	↓	↓	↓	↓	1.5
WATER COOLER			5		6				1.6	
INDOOR HVAC	6	60	7		8					7.0
			9		10				7.0	
OUTDOOR HVAC	8	35	11		12	30	10	WATER HEATER		4.8
			13		14				4.7	
SPARE	–	20	15		16	20	12	LT. RECEPTACLE		1.0
SPARE	–	20	17		–	–	–	SPACE	–	
SPACE	–	–	–		–	–	–			–
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								PANELBOARD LOADING	15.4	14.3

LOCATION	SEE PLANS	MAINS	200 AMPS W/ 200 AMP M.B.
MOUNTING	RECESSED	TYPE	NQ
SERVICE	1ø3W 120/240 VOLTS	TOTAL LOAD	29.7 KW

NOTE: PROVIDE & INSTALL PHOTOCELL CONTROL FOR EXTERIOR LIGHTING CIRCUIT 1-3.

DESIGN DATA

SERVICE CHARACTERISTICS 1ø 3W 120/240 VOLTS

CONNECTED LOADS:

LIGHTS	1.5 KW
HVAC	16.6 KW
WATER HEATER	4.5 KW
MISC. POWER	7.6 KW
TOTAL ESTIMATED CONNECTED LOAD	30.0 KW
ESTIMATED DEMAND	15.0 KW
ESTIMATED FUTURE LOAD	NONE
SERVICE CAPACITY	200 AMPS

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PLOT DATE: 03/05/2024 HE PROJECT # 23-018

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COMMONWEALTH OF VIRGINIA
JOE W. RIGGS
Lic. No. 22741
9-29-23
PROFESSIONAL ENGINEER

DATE: 09-29-2023

NO.	REVISION DATE
1	
2	
3	

SHEET: E101

DRAWN BY: TWH CHECKED BY: JWR

PROJECT NO. TLG-22135

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