ARCHITECTURE

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DISTRICT ADMINISTRATION BUILDING

Troy School District

Troy, Michigan 48098

Project Number 22106

BID PACKAGE 5 - CONSTRUCTION DOCUMENTS

CONSULTANTS:

MECHANICAL ENGINEER
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LIST OF DRAWINGS

GENERAL INFORMATION
TG.1 General Information
TS.1 Cover Sheet

LS.1 First Level Life Safety Plan

ARCHITECTURAL
AD.1 Door & Frame Schedule
AD.2 Typical Frame Details

A0.1 First Level Demolition Plan

A1.1 First Level Floor Plan
A1.3 Roof Plan

A2.1 First Level Reflected Ceiling Plan

A6.1 Enlarged Floor Plans & Plan Details

A7.1 Interior Elevations

A9.1 First Level Casework & Equipment Plan

A10.1 First Level Finish Plan

A12.1 First Level Furniture Plan (FOR REFERENCE ONLY)

MECHANICAL
M0.1 Mechanical Standards and Drawing Index

MD2.0 Underground Level Plumbing Demolition Plan
MD2.1 First Level Plumbing Demolition Plan
MD3.1 First Level HVAC Piping Demolition Plan
MD4.1 First Level Sheet Metal Demolition Plan
MD5.1 Roof Level Mechanical Demolition Plan

M2.0 Underground Level Plumbing Plan
M2.1 First Level Plumbing Plan

M3.1 First Level HVAC Piping Plan

M4.1 First Level Sheet Metal Plan

M5.1 Roof Level Mechanical Plan

M6.1 Mechanical Details and Diagrams
M6.2 Mechanical Details and Diagrams

M7.1 Mechanical Schedules
M7.2 Mechanical Schedules
M7.3 Mechanical Schedules

M8.1 Temperature Controls
M8.2 Temperature Controls
M8.3 Temperature Controls

ELECTRICAL
E0.1 Electrical Standards and Drawing Index
E0.2 Electrical Standard Schedules
E0.3 Electrical Standard Schedules

ED1.1 First Level Electrical Demolition Plan
ED1.2 Roof Level Electrical Demolition Plan

E2.1 First Level Lighting Plan

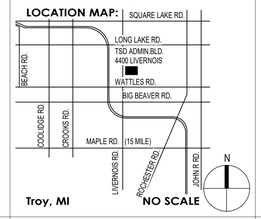
E3.1 First Level Power and Auxiliary Systems Plan
E3.2 Roof Level Power and Auxiliary Systems Plan

E5.1 One Line Diagram - Demolition
E5.2 One Line Diagram - New Work
E5.3 Panel Schedules

E7.1 Electrical Details and Diagrams
E7.2 Electrical Details and Diagrams
E7.3 Electrical Details and Diagrams

PROJECT DATA:

LOCATION MAP:



Troy, MI NO SCALE

ADDRESS: Troy School District
4400 Livernois
Troy, Michigan 48098

BUILDING:

BUILDING AREA(S) = 11,670 SF (TOTAL)

9,769 SF (EXISTING ALTERED)

CODE:

GOVERNING CODES:

- **2016 SCHOOL FIRE SAFETY RULES** (2012 Life Safety Code, plus amendments)
- **2021 MICHIGAN BUILDING CODE**
- **2021 REHABILITATION CODE FOR EXISTING BUILDINGS**
- **2021 MICHIGAN PLUMBING CODE**
- **2021 MICHIGAN MECHANICAL CODE**
- **2021 MICHIGAN COMMERCIAL ENERGY CODE** (ANSI/ASHRAE/IES Standard 90.1-2019)
- **2023 MICHIGAN ELECTRICAL CODE** (2023 NEC; plus Part 8 Rules)
- **2010 MICHIGAN ELEVATOR RULES** (ASME A17.1-2016, ASME A18.1-2017)
- **MICHIGAN BARRIER FREE CODE** (Michigan Building Code 2021 and ICC A117.1-2017)
- **2013 MICHIGAN BOILER CODE RULES** (ASME Boiler and Pressure Vessel Code, 2019 edition) (National Board Inspection Code [NBIC], 2019 edition)

USE GROUP CLASSIFICATION: "B" BUSINESS

CONSTRUCTION CLASSIFICATION: TYPE II (000) LSC TYPE II-B (MBC)

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS
05-27-2025	OWNER REVIEW

LICENSEE'S STATEMENT:

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REGISTRATION SEALS

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PROJECT TITLE
DISTRICT ADMINISTRATION BUILDING
PROJECT NO.
22106
DRAWING NO.
TS.1

ABBREVIATIONS

A

ABV	ABOVE
AFF	ABOVE FINISH FLOOR
ARF	ABOVE REFERENCE FLOOR
ABR	ABRASIVE
ABS	ABSORBING
ACC	ACCESS
ACC PNL	ACCESS PANEL
AC	ACOUSTIC/ACOUSTICAL
ACT	ACOUSTIC TILE
AC INSUL	ACOUSTIC INSULATION
ADD	ADDENDUM
ADDN	ADDITION
ADDNL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE
AGGR	AGGREGATE
ACB	AIR CIRCUIT BREAKER
A/C	AIR CONDITIONING
ACC	AIR CONDITIONING COMPRESSOR
ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM/AL	ALUMINUM
AMT	AMOUNT
AMP	AMPHERE
AMPL	AMPLIFIER
ANCH	ANCHOR
AB	ANCHOR BOLT
&	AND
ANG/L	ANGLE
ANOD	ANODIZED
APT	APARTMENT
APPR	APPROVED
APPROX	APPROXIMATE
ARCH	ARCHITECT/ARCHITECTURAL
A-	ARCHITECTURAL DRAWING-NO
AT	ASH TRAY
ATM	AUTOMATIC TELLER MACHINE
ASPH	ASPHALT
ASSY	ASSEMBLY
@	AT
AUTO	AUTOMATIC
ASR	AUTOMATIC SPRINKLER RISER
AUX	AUXILIARY
AVG	AVERAGE

B

B/B	BACK-TO-BACK
BFP	BACK FLOW PREVENTER
BDD	BACK DRAFT DAMPER
BF	BARRIER FREE
BBR	BASE BOARD RADIATION
BPL	BASE PLATE
BSMT	BASEMENT
B	BATH ROOM
BM	BEAM
B/C	BACK OF CURB
BRG	BEARING
BR	BEDROOM
BM	BENCH MARK
BT	BENT
BETW	BETWEEN
BEV	BEVEL
BIT	BITUMINOUS
BI	BLACK-IRON
BLK	BLOCK
BLKG	BLOCKING
BD	BOARD
BLR	BOILER
BLR F	BOILER FEED
BLR H	BOILER HOUSE
BK SH	BOOK SHELVES
BS	BOTH SIDES
BW	BOTH WAYS
BOT	BOTTOM
BOT EL	BOTTOM ELEVATION
BLVD	BOULEVARD
BDRY	BOUNDARY
BRKT	BRACKET
BR	BRASS
BRKR	BREAKER
BRK	BRICK
BTU	BRITISH THERMAL UNIT
BRZ	BRONZE
BLDG	BUILDING
BL	BUILDING LINE
BUR	BUILT-UP ROOFING
BN	BULLNOSE
BLKD	BULKHEAD
BULL	BULLETIN
BA	BURGLAR ALARM
BUZZ	BUZZER

C

CAB	CABINET
CUH	CABINET UNIT HEATER
CAP	CAPACITY
CPT	CARPET
CRS	CARPET REDUCER STRIP
CSMT	CASEMENT
CSWRK	CASEWORK
CSG	CASING
CI	CAST IRON
CIF	CAST IRON FRAME
CIP	CAST IRON PIPE/CAST IN PLACE
CSTG	CASTING
CAT NO	CATALOG NUMBER
CB	CATCH BASIN
CLG	CEILING
CD	CEILING DIFFUSER
CLG HT	CEILING HEIGHT
CEM	CEMENT
CEM PLAS	CEMENT PLASTER
CTR	CENTER
C/C	CENTER-TO-CENTER
CER	CERAMIC
CT	CERAMIC TILE
CBD	CHALKBOARD
CHAM	CHAMFER
CHG	CHANGE
CHAN	CHANNEL
CHKD PL	CHECKERED PLATE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CHD	CHORD
CIRCUM	CIRCUMFERENCE
CIR	CIRCLE/CIRCULAR
CIRC	CIRCUIT
CBR	CIRCUIT BREAKER
C-	CIVIL DRAWING-NO
CL	CLASS
CLRM	CLASSROOM
CO	CLEAN OUT
CLR	CLEAR
CLR GL	CLEAR GLASS
CLR WGL	CLEAR WIRE GLASS
CL	CLOSET
CLO	CLOSURE
CCL	COAT CLOSET
COEF	COEFFICIENT
CW	COLD WATER
COL	COLUMN
CO	COMPANY
COMPT	COMPARTMENT
COMPO	COMPOSITION
CA	COMPRESSED AIR
COMPR	COMPRESSOR
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CWR	CONDENSING WATER RETURN
CWS	CONDENSING WATER SUPPLY
COND	CONDUIT
CONF	CONFERENCE
CONN	CONNECT
CONST	CONSTRUCTION
CJ	CONTROL JOINT
CONT	CONTINUE/CONTINUOUS
CONTR	CONTRACTOR
CP	CONTROL PANEL
CONV	CONVECTOR
CNVYR	CONVEYOR
COR	CORNER
CG	CORNER GUARD
CORR	CORRIDOR/CORRUGATED
CPR	COPPER
CNTR	COUNTER
CTSK	COUNTERSINK
CRS	COURSE
COV	COVER
COV PL	COVER PLATE
CCT	CUBICAL CURTAIN TRACK
CUFT	CUBIC FEET/CUBIC FOOT
CFM	CUBIC FEET PER MINUTE
CY	CUBIC YARD
CULV	CULVERT
CD	CUP DISPENSER
CYL	CYLINDER
CYC	CYCLES

D

DMPR	DAMPER
DMPFG	DAMPPROOFING
DL	DEAD LOAD
DB	DECIBLE
D	DEEP
DGL	DOOR GLAZING
DWG	DRAWING
DMT PARTN	DEMOUNTABLE PARTITION
DEPT	DEPARTMENT
DEPR	DEPRESSED
DES	DESIGN
DET	DETAIL
DE CO	DETROIT EDISON COMPANY
DIAG	DIAGONAL
DGM	DIAGRAM
DIA	DIAMETER
DIFF	DIFFUSER
DIM	DIMENSION
DR	DINING ROOM
DIR	DIRECTORY
DISC	DISCONNECT
DISCONT	DISCONTINUOUS
DW	DISHWASHER
DISP	DISPENSER
DIST	DISTANCE
DP	DISTRIBUTION PANEL
DO	DITTO (DO OVER)
DIV	DIVIDER/DIVISION
DR	DOOR
DO	DOOR OPENING
DR OP	DOOR OPERATOR
DBL	DOUBLE
DA	DOUBLE ACTING
DH	DOUBLE HUNG
DWL	DOWEL
DN	DOWN
DS	DOWNSPOUT
DRN	DRAIN
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTOR
DWR	DRAWER
DF	DRINKING FOUNTAIN
DB	DRY BULB
DSP	DRY STAND PIPE
DBWTR	DUMBWAITER
DUP	DUPLICATE
DDR	DUTCH DOOR

E

EA	EACH
EF	EACH FACE
EW	EACH WAY
E	EAST
EIFS	EXTERIOR INSULATION FINISH SYSTEM
ELAST	ELASTOMERIC
ELAST FLASH	ELASTOMERIC FLASHING
ELAST WP	ELASTOMERIC WATERPROOFING
ESR	ELASTOMERIC SHEET ROOFING
ELEC	ELECTRIC/ELECTRICAL
ELEC CL	ELECTRICAL CLOSET
ELEC CAB	ELECTRICAL CABINET
EC	ELECTRICAL CONTRACTOR
E-	ELECTRICAL DRAWING-NO
EP	ELECTRICAL PANEL
EWC	ELECTRICAL WATER COOLER
ELEC OPER	ELECTRICALLY OPERATED
EL	ELEVATION
ELEV	ELEVATOR
EMERG	EMERGENCY
ENCL	ENCLOSURE
ENGR	ENGINEER
E/E	END-TO-END
ENTR	ENTRANCE/ENTRY
EP	EPOXY
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ESC	ESCALATOR
EST	ESTIMATE
EXC	EXCAVATED
EXH	EXHAUST
ED	EXHAUST DUCT
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
EXIST	EXISTING
EXP	EXPANSION
EXPB	EXPANSION BOLT
EJ	EXPANSION JOINT
EXPLP	EXPLOSION PROOF
EXP'D	EXPOSED
EXT'N	EXTENSION
EXT	EXTERIOR
EH	EXTRA HEAVY
EXTR	EXTRUDED
ESP	EXTERNAL STATIC PRESSURE

F

FAB	FABRICATED/FABRIC
F/F	FACE-TO-FACE
FFIN	FACTORY FINISH
FCU	FAN COIL UNIT
FS	FAR SIDE
FAS	FASTENER
FDR	FEEDER
FT or '	FEET/FOOT
FPM	FEET PER MINUTE
FN	FENCE
FBD	FOAM BOARD
FIG	FIGURE
FIN	FINISH/FINISHED
FIN FLR/FF	FINISHED FLOOR
FTR	FINNED TUBE RADIATION
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
F BRK	FIRE BRICK
FD	FIRE DAMPER
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FHC	FIRE HOSE CABINET
FH	FIRE HYDRANT
FL	FIRE LINE
FR	FIRE RETARDANT/FIRE RATED
FRTWD	FIRE RETARDANT TREATED WOOD
FVC	FIRE VALVE CABINET
FP	FIREPLACE
FPRFG	FIREPROOFING
FIXT	FIXTURE
FLASH	FLASHING
FHMS	FLAT HEAD MACHINE SCREW
FHWS	FLAT HEAD WOOD SCREW
FC	FLEXIBLE CONNECTION
FLR	FLOOR
FCO	FLOOR CLEAN OUT
FD	FLOOR DRAIN
FLR FIN	FLOOR FINISH
FLUOR	FLUORESCENT
FLDG	FOLDING
FTG	FOOTING
FM BD	FOAMBOARD
FDN	FOUNDATION
FR	FRAME
FR/COV	FRAME AND COVER
FRMG	FRAMING
FRZR	FREEZER
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FULL SIZE
FURN	FURNISH/FURNISHED
FURR	FURRING/FURRED
FUT	FUTURE

G

GA	GAUGE
GAL	GALLON
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GALV	GALVANIZED
GALV I	GALVANIZED IRON
G	GAS
GSKT	GASKET
GV & B	GATE VALVE AND BOX
GEN'L	GENERAL
GL	GLASS
GLZ	GLAZING
GHT	GLAZED HOLLOW TILE
GB	GRAB BAR
GR	GRADE/GRILLE
GB	GRADE BEAM
GRAT	GRATING
GL	GRID LINE
GRN	GRANITE
GS	GREASE SEPARATOR
FT	GREASE TRAP
GND	GROUND
GFI	GROUND FAULT INTERRUPTOR
GT	GROUT
G	GUTTER ELEVATION
GYP	GYPSUM
GYPBD	GYPSUM BOARD

H

HNDCP	HANDICAPPED
HR	HANDRAIL
HBD	HARDBOARD
HDWE	HARDWARE
HDWD	HARDWOOD
HD	HEAD
HDR	HEADER
HA GL	HEAT ABSORBING GLASS
HRU	HEAT RECOVERY UNIT
HTR	HEATER
HTG	HEATING
H/V	HEATING AND VENTILATING
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HGT	HEIGHT
HEX	HEXAGON
H	HIGH
HID	HIGH INTENSITY DISCHARGE
HP	HIGH POINT
HPR	HIGH PRESSURE
HS	HIGH STRENGTH
HSB	HIGH STRENGTH BOLT
HV	HIGH VOLTAGE
HWY	HIGHWAY
HSTWY	HOISTWAY
HC	HOLLOW CORE
HM	HOLLOW METAL
HNYCB	HONEYCOMB
HK	HOOK
HORIZ	HORIZONTAL
HP	HORSEPOWER
HB	HOSE BIBB
HSP	HOSE STAND PIPE
HVC	HOSE VALVE CABINET
HOSP	HOSPITAL
HW	HOT WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HR	HOUR
HO	HUB OUTLET
HYD	HYDRANT/HYDRAULIC
H	HYDROGEN

I

ID	IDENTIFICATION
INCAND	INCANDESCENT
IN OR "	INCH/INCHES
INCIN	INCINERATOR
INCL	INCLUDE / INCLUDING
IW	INDIRECT WASTE
INFO	INFORMATION
ID	INSIDE DIAMETER
IF	INSIDE FACE
INST'L	INSTALL/INSTALLATION
INSUL	INSULATE/INSULATION
INT	INTERIOR
INTER	INTERMEDIATE
INV	INVERT
IE	INVERT ELEVATION

J

JC	JANITOR CLOSET
JT	JOINT
JST	JOIST
JB	JUNCTION BOX
JR	JUNIOR

K

KP	KICK PLATE
KV	KILOVOLT
KVA	KILOVOLT AMHERE
KW	KILOWATT
K	KIP (100#)
KIT	KITCHEN
KS	KNEE SPACE
KD	KNOCK DOWN
KOP	KNOCK-OUT PANEL

L

LBL	LABEL
LAB	LABORATORY
LAD	LADDER
LB	LAG BOLT
LAM	LAMINATE/LAMINATED
LDG	LANDING
L-	LANDSCAPE DRAWING-NO
LGE	LARGE
LDRY	LAUNDRY
LAV	LAVATORY
LH	LEFT HAND
LHRB	LEFT HAND REVERSE BEVEL
LGTH	LENGTH
LEV	LEVEL
LIB	LIBRARY
LT	LIGHT
LPRF	LIGHTPROOF
LTG	LIGHTING
LP	LIGHTING PANEL
LRP	LIGHTING RECEPTACLE PANEL
LTWT	LIGHTWEIGHT
LTWT CONC	LIGHTWEIGHT CONCRETE
LMS	LIMESTONE
LTL	LINTEL
LIN DIFF	LINEAR DIFFUSER
LF	LINEAR FEET/FOOT
LIN SD	LINEAR SLOT DRAIN
LIQ	LIQUID
LPG	LIQUID PROPANE GAS
LPG	LIQUID PETROLEUMM GAS
LL	LIVE LOAD
LR	LIVING ROOM
LOC	LOCATION
LKR	LOCKER
LG	LONG
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LVR	LOUVER
LO	LOUVER OPENING
LP	LOW POINT
LPR	LOW PRESSURE
LBR	LUMBER
LBS OR #	POUNDS

M

MACH	MACHINE
MB	MACHINE BOLT
MACH RM	MACHINE ROOM
MAU	MAKE-UP AIR UNIT
MDP	MAIN DISTRIBUTION PANEL
MSB	MAIN SWITCH BOARD
MAINT	MAINTENANCE
MH	MANHOLE
MFR	MANUFACTURER
MAR	MARBLE
MK	MARK
MAS	MASONRY
MO	MASONRY OPENING
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
M-	MECHANICAL DRAWING-NO
MC	MEDICINE CABINET
MED	MEDIUM
MEMB	MEMBRANE
MET	METAL
MDS	METAL DIVIDER STRIP
MES	METAL EDGE STRIP
ML	METAL LATH
ML & PLAS	METAL LATH AND PLASTER
MT	METAL THRESHOLD
MET WP	METALLIC WATERPROOFING
MEZZ	MEZZANINE
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
MWK	MILLWORK
MIN	MINIMUM
MIR	MIRROR
M&S	MIRROR AND SHELF
MOD	MOTOR OPERATED DAMPER
MLDG	MOULDING
MTD	MOUNTED
MTG	MEETING/MOUNTING
MOV	MOVEABLE
MOV PARTN	MOVEABLE PARTITION
MULL	MULLION
M	THOUSAND (1000)

N

NAT	NATURAL
NS	NEAR SIDE
NEUT	NEUTRAL
NRC	NOISE REDUCTION COEFFICIENT
NOM	NOMINAL
NOR	NORMAL
N	NORTH
NOS	NOSING
NIC	NOT-IN-CONTRACT
NTS	NOT-TO-SCALE
NO OR #	NUMBER

O

OBS	OBSCURE
OBSGL	OBSCURE GLASS
OFF	OFFICE
OC	ON CENTER
OPQ	OPAQUE
OPG	OPENING
OPER	OPERATOR
OPP	OPPOSITE
OPP HD	OPPOSITE HAND
ORIG	ORIGINAL
ORN	ORNAMENTAL
OZ	OUNCE
O/O	OUT-TO-OUT
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OHS	OVAL HEAD SCREW
OA	OVERALL
OHD	OVERHEAD
OHDDR	OVERHEAD DOOR
OXY	OXYGEN

P

PTD	PAINTED
PR	PAIR
PG	PAGE
PNL	PANEL
PTD	PAPER TOWEL DISPENSER
PTWR	PAPER TOWEL WASTE RECEPTACLE
PRL	PARALLEL
PKG	PARKING
PBD	PARTICLE BOARD
PRTN	PARTITION
PASS	PASSAGE
PAT	PATENT
PVMT	PAVEMENT
PVG	PAVING
PED	PEDESTAL
PERF	PERFORATED
PERIM	PERIMETER
PERM	PERMANENT
PERP	PERPENDICULAR
P	PHASE
PHOTO	PHOTOGRAPH
PH	PHYSICALLY HANICAPPED
PC	PIECE
PCS	PIECES
PLAS	PLASTER
PL LAM	PLASTIC LAMINATE
PL	PLATE
PL GL	PLATE GLASS
PLAT	PLATFORM
PLBG	PLUMBING
PLWD	PLYWOOD
PT	POINT
PT	POINT OF TANGENCY
PC	POINT OF CURVATURE
POL	POLISH/POLISHED
PVC	POLYVINYLCLORIDE
PORC	PORCELAIN
PORC ENAM	PORCELAIN ENAMEL
POR	POROUS
PORT	PORTABLE
POS	POSITION
PIV	POST INDICATOR VALVE
PLF	POUNDS PER LINEAR FOOT
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PCF	POUNDS PER CUBIC FOOT
PP	POWER PANEL
P/C	PRECAST
PTR	PRECAST TERRAZZO RECEPTOR
PREFAB	PREFABRICATED
PFN	PREFINISHED
PTWD	PRESERVATIVE TREATED WOOD
PG	PRESSURE GAUGE
PRV	PRESSURE REDUCING VALVE
PRIM	PRIMARY
PROJ	PROJECT/PROJECTION
PROP	PROPERTY/PROPOSED
PL	PROPERTY LINE
PA	PUBLIC ADDRESS
PS	PURSE SHELF
PB	PUSH BUTTON

Q

QTY	QUANTITY
QT	QUARRY TILE
QTR	QUARTER
QTR RD	QUARTER ROUND

R

RBT	RABBET
RAD or R	RADIUS
RWC	RAIN WATER CONDUCTOR
RR	RAILROAD
RECV	RECEIVE/RECEIVING
RECPT	RECEPTACLE
RP	RECEPTACLE PANEL
REC	RECESS
RECT	RECTANGLE/RECTANGULAR
RED	REDUCER
RWD	REDWOOD
REF	REFER/REFERENCE
REFL	REFLECTED/REFECTIVE
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE/REINFORCING/ REINFORCEMENT
REM	REMOVE/REMOVABLE
REP	REPAIR
REQ'D	REQUIRED
RESIL	RESILIENT
RET	RETURN
PA	RETURN AIR
RAD	RETURN AIR DIFFUSER
RAF	RETURN AIR FAN
REV	REVISED/REVISION
RPM	REVOLUTIONS PER MINUTE
R	RISER
RH	RIGHT HAND
RHRB	RIGHT HAND REVERSE BEVEL
ROW	RIGHT OF WAY
RVT	RIVET
RD	ROAD
RSC	ROLLING STEEL CURTAIN
RF	ROOF
RC	ROOF CONDUCTOR
RD	ROOF DRAIN
RFH	ROOF HATCH
RS	ROOF SUMP
RV	ROOF VENTILATOR
RFG	ROOFING
RTU	ROOF TOP UNIT
RM	ROOM
RO	ROUGH OPENING
RND	ROUND
RHMS	ROUND HEAD MACHINE SCREW
RHWS	ROUND HEAD WOOD SCREW
RT	RUBBER TILE

S

SAN	SANITARY
SND	SANITARY NAPKIN DISPENSER
SNR	SANITARY NAPKIN RECEPTACLE
SCHED	SCHEDULE
SCN	SCREEN
STG	SEATING
SECT	SECTION
SERV	SERVICE
SS	SERVICE SINK
SHTHG	SHEATHING
SHT	SHEET
SHT MET	SHEET METAL
SH & R	SHELF AND ROD
SHWR	SHOWER
SCR	SHOWER CURTAIN ROD
SDR	SHOWER DOOR
SW	SIDEWALK
SIM	SIMILAR
SGL	SINGLE
SK	SINK
SD	SOAP DISPENSER
SC	SOLID CORE
SS	SOLID SURFACE
STC	SOUND TRANSMISSION CLASS
S	SOUTH
SP	SPACE
SPR	SPARE
SPKR	SPEAKER
SPEC	SPECIFICATIONS
SD	SPLITTER DAMPER
SPRYD	SPRAYED
SPKLR	SPRINKLER
SQ	SQUARE
SF	SQUARE FEET/SQUARE FOOT
STAG	STAGGERED
STSTL	STAINLESS STEEL
STD	STANDARD
SP	STANDPIPE
SP	STATIC PRESSURE
STA	STATION
STM	STEAM
STL	STEEL
STL PL	STEEL PLATE
STIFF	STIFFENER
STO FR	STOREFRONT
STOR	STORAGE
STR	STRAIGHT
ST	STREET
STRUCT	STRUCTURAL
S-	STRUCTURAL DRAWING-NO
SGFT	STRUCTURAL GLAZED FACING TILE
SSTL	STRUCTURAL STEEL
SSD	SUBSOIL DRAIN
SSDC	SUBSOIL DRAIN CONNECTION
SUB	SUBSTATION
SAG	SUPPLY AIR GRILLE
SD	SUPPLY DIFFUSER/DUCT
SUBST	SUBSTITUTE
SAR	SUPPLY AIR REGISTER
SF	SUPPLY FAN
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMBOL/SYMMETRICAL
SYS	SYSTEM
SUPP	SUPPORT
SURF	SURFACE/SURFACING
SUSP	SUSPEND/SUSPENSION

T

TBD	TACKBOARD
TAN	TANGENT
TECH	TECHNICAL
TEL	TELEPHONE
TEL CAB	TELEPHONE CABINET
TV	TELEVISION
TVM	TELEVISION MONITOR
TEMP	TEMPERATURE
TEMP GL	TEMPERED GLASS
TU	TERMINAL UNIT
TERR	TERRAZZO
TB	TEST BORING
T	THERMOSTAT
THK	THICK/THICKNESS
TS	THICKENED SLAB
THD	THREAD
THRESH	THRESHOLD
THRU	THROUGH
T/TOIL	TOILET
TPD	TOILET PAPER DISPENSER
TPH	TOILET PAPER HOLDER
T & G	TOUNGE AND GROOVE
T & B	TOP AND BOTTOM
T/C	TOP OF CURB
T/EL	TOP ELEVATION
T/F	TOP OF FOOTING
T/G	TOP OF GUTTER
T/M	TOP OF MASONRY
T/P	TOP OF PARAPET
T/P	TOP OF PAVEMENT
T/R	TOP OF RIM
T/S	TOP OF STEEL
T/W	TOP OF WALL
TB	TOWEL BAR
TD	TOWEL DISPENSER
TD & WR	TOWEL DISPENSER AND WASTE RECEPTACLE
TG	TRANSFER GRILLE
TRFR	TRANSFORMER
TRAN	TRANSOM
T	TREAD
TD	TRENCH DRAIN
TS	TUBE SECTION
TV	TURNING VANE
TT	TWIN TEE
TYP	TYPICAL

U

UC	UNDERCUT
UG	UNDER GROUND
UL	UNDERWRITERS LABORATORY
ULT	ULTIMATE
UNFIN	UNFINISHED
UH	UNIT HEATER
USUB	UNIT SUBSTATION
UV	UNIT VENTILATOR
USGS	UNITED STATES GEOLOGICAL SURVEY
UON	UNLESS OTHERWISE NOTED
UR	URINAL

V

VAC	VACUUM
VB	VACUUM BREAKER
VCO	VACUUM CLEANER OUTLET
V BARR	VAPOR BARRIER
VAR	VARIABLE
VARN	VARNISH
VNR	VENEER
V PLAS	VENEER PLASTER
V	VENT
VTR	VENT THRU ROOF
VENT	VENTILATE/VENTILATION
VIF	VERIFY IN FIELD
VS	VERSUS
VERT	VERTICAL/VERTICALLY
VERT C	VERTICAL CURVE
VEST	VESTIBULE
VI	VIBRATION ISOLATOR
VNY	VINYL
VCT	VINYL COMPOSITION TILE
VIN FAB	VINYL FABRIC
VRS	VINYL REDUCER STRIP
VIT	VITREOUS
VCP	VITRIFIED CLAY PIPE
VOL	VOLUME
VD	VOLUME DAMPER
V	VOLTS

W

WAINS	WAINSCOT
WCAB	WALL CABINET
WCO	WALL CLEAN OUT
WH	WALL HYDRANT
W/W	WALL-TO-WALL
WV	WALL VENT
WHSE	WAREHOUSE
WF	WASH FOUNTAIN
W	WASTE/WATTS
W & V	WASTE AND VENT
WR	WASTE RECEPTACLE
WC	WATER CLOSET
WG	WATER GUAGE
WH	WATER HEATER
WP	WATERPROOFING
WSTPG	WEATHERSTRIPPING
WT	WEIGHT
WWF	WELDED WIRE FABRIC
W	WEST
WB	WET BULB
W	WIDE/WIDTH
W_x_	WIDE FLANGE SECTION
WT	WIDE FLANGE TEE SECTION
WO	WINDOW OPENING
WGL	WIRE GLASS
WM	WIRE MESH
w/	WITH
w/o	WITHOUT
WD	WOOD
WL	WORK LINE
WP	WORK POINT
WI	WROUGHT IRON

X

Y

YD	YARD
YP	YIELD POINT
YS	YIELD STRENGTH
YR	YEAR

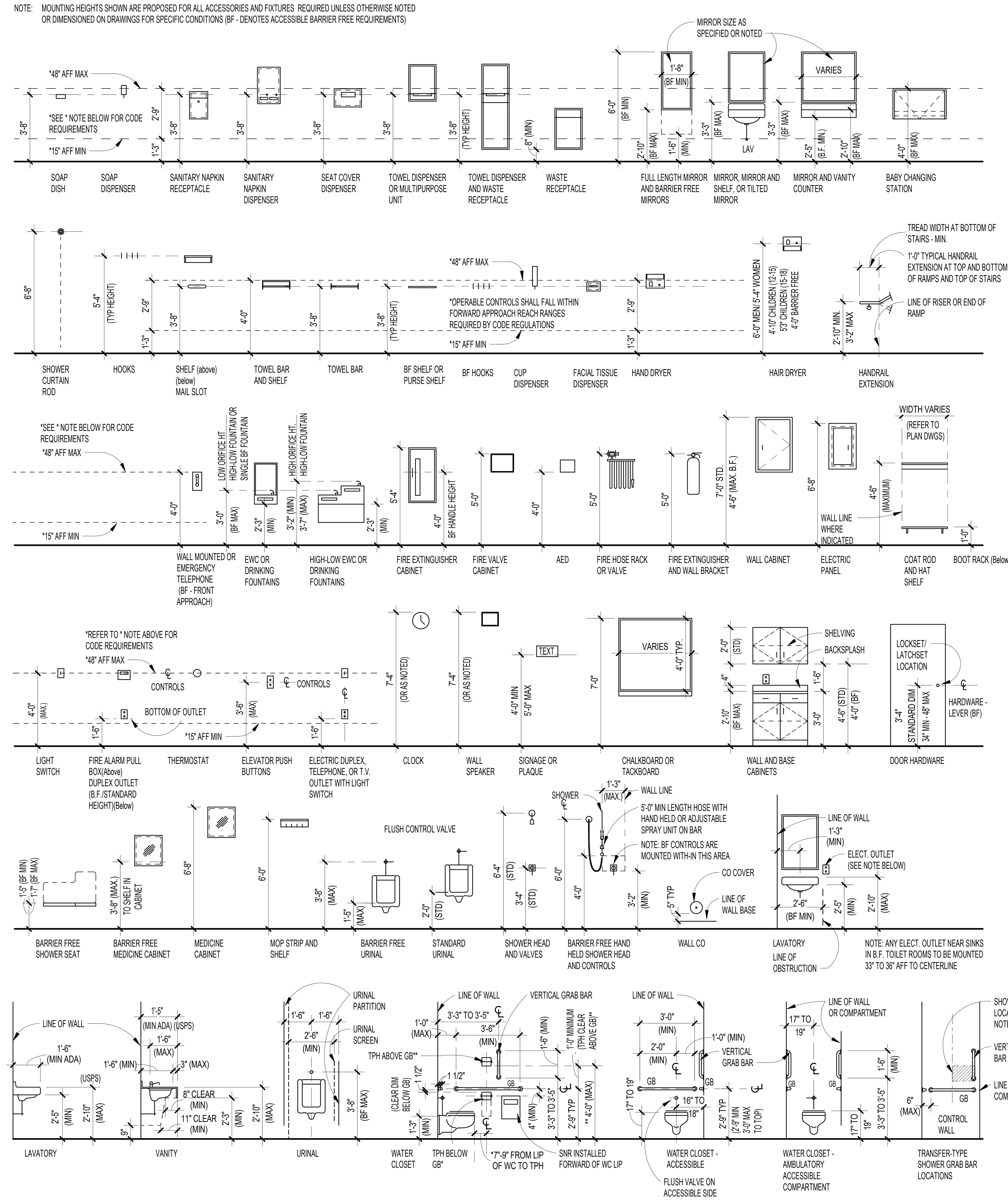
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ZC	ZINC

TYPICAL MOUNTING HEIGHTS

MISCELLANEOUS ACCESSORIES, TOILET ACCESSORIES AND FIXTURES

NOTE: MOUNTING HEIGHTS SHOWN ARE PROPOSED FOR ALL ACCESSORIES AND FIXTURES REQUIRED UNLESS OTHERWISE NOTED OR DIMENSIONED ON DRAWINGS FOR SPECIFIC CONDITIONS (BF - DENOTES ACCESSIBLE BARRIER FREE REQUIREMENTS)



MATERIAL DESIGNATIONS

ELEVATION | SECTION | MATERIAL

- BRICK
- CONCRETE MASONRY UNITS (BLOCK)
- SOLID CONCRETE MASONRY UNITS
- PREFACED CONCRETE MASONRY UNITS
- STRUCTURAL GLAZED FACING TILE
- CONCRETE
- STONE/ SLATE/ OR GRANITE
- EARTH
- POROUS FILL (GRAVEL OR STONE)
- COMPACTED DRAINAGE FILL (SAND)
- MARBLE
- STEEL AND FERROUS METAL (LARGE SCALE)
- ALUMINUM AND NON-FERROUS METAL (LARGE SCALE)
- FINISH HARDWOOD
- WOOD BLOCKING/ NAILER (CONTINUOUS)
- WOOD BLOCKING/ NAILER (NON-CONTINUOUS)
- PARTICLE BOARD (Large Scale)
- PLYWOOD (Large Scale)
- HARDWOOD VENEER PLYWOOD (Large Scale)
- PLASTIC LAMINATE CLAD PLYWOOD OR PARTICLE BOARD
- BATT OR BLANKET INSULATION
- RIGID INSULATION
- ACOUSTICAL CEILING TILE OR PANEL
- GLASS (Large Scale)
- GLASS (Small Scale)
- GYPSUM DRYWALL (WALLBOARD)
- PLASTER OR VENEER PLASTER
- CEMENT PLASTER AND METAL LATH
- CERAMIC TILE (LARGE SCALE)
- TERRAZZO (LARGE SCALE)
- CARPET (LARGE SCALE)
- VINYL COMPOSITION TILE (VCT)
- SEALANT AND BACKER ROD (LARGE SCALE) (DEPTH EQUAL TO HALF JOINT WIDTH)
- JOINT FILLER MATERIAL OR ISOLATION JOINT FILLER (LARGE SCALE)
- COLD FORMED METAL FRAMING
- STRUCTURAL STEEL SHAPES (CONTINUOUS SECTIONS HATCHED OR SOLID, NON-CONTINUOUS SECTIONS OPEN)

REFERENCE

DETAIL IDENTIFICATION

DETAIL IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE DRAWN OR REFERENCED)

1. / A1.1 — DETAIL TITLE — SCALE:1/8" = 1'-0"

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DETAIL IS DRAWN SHEET NUMBER(S) TO REFER TO WHEN REFERENCED ON THE SHEET WHERE THE DETAIL IS DRAWN)

DETAIL LOCATION INDICATION

DETAIL IDENTIFICATION NUMBER

1 / A1.1 (WALL SECTIONS) — 1 / A1.1 (PLAN SECTIONS)

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DETAIL IS DRAWN)

DETAIL LOCATION INDICATION FOR ENLARGED PLANS

DETAIL IDENTIFICATION NUMBER

1 / A1.1

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DETAIL IS DRAWN)

SECTION IDENTIFICATION

SECTION IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE DRAWN OR REFERENCED)

1. / A1.1 — SECTION TITLE — SCALE:1/8" = 1'-0"

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE SECTION IS DRAWN SHEET NUMBER(S) TO REFER TO WHEN REFERENCED ON THE SHEET WHERE THE SECTION IS DRAWN)

SECTION LOCATION INDICATION

SECTION IDENTIFICATION NUMBER

1. / A1.1 — 1. / A1.1

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DETAIL IS DRAWN)

ELEVATION IDENTIFICATION

ELEVATION IDENTIFICATION NUMBER (SAME NUMBER ON SHEET WHERE DRAWN OR REFERENCED)

1. / A1.1 — ELEVATION TITLE — SCALE:1/8" = 1'-0"

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE ELEVATION IS DRAWN SHEET NUMBER(S) TO REFER TO WHEN REFERENCED ON THE SHEET WHERE THE ELEVATION IS DRAWN)

ELEVATION INDICATION

ELEVATION IDENTIFICATION NUMBER(S) (SAME NUMBER ON SHEET WHERE DRAWN OR REFERENCED)

1 / A1.1 — INDICATES DIRECTION OF VIEW OR MULTIPLE VIEWS — 1. 2. 3. 4. A1.1

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DETAIL IS DRAWN)

MATCHLINE INDICATION

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER OF DRAWING)

A1.1A / A1.1B — ZONE - A / ZONE - B — ZONE - A / ZONE - B — A1.1A / A1.1B

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DRAWING IS CONTINUED))

DOOR INDICATION

DOOR SWING INDICATION - NEW DOOR

DOOR SWING INDICATION - EXISTING DOOR

DOOR SWING INDICATION - EXISTING DOOR TO BE REMOVED

ROOM NAME AND NUMBER INDICATION

ROOM NAME / A101 — TMP ROOM IDENTIFICATION NUMBER — OWNER ROOM NUMBER

ROOM IDENTIFICATION BY FLOOR AND/OR ZONE SHALL BE AS FOLLOWS:

BASEMENT ROOMS	001	ZONE A	A101
FIRST FLOOR ROOMS	101	ZONE B	B101
SECOND FLOOR ROOMS	201	ZONE C	C101
THIRD FLOOR ROOMS	301		

...
CONTINUE FOR AS MANY FLOORS AS REQUIRED.

DOOR IDENTIFICATION

DOOR TO ROOM SHALL REPEAT ROOM NUMBER ASSIGNED TO ROOM. MULTIPLE DOORS TO ROOM SHALL REPEAT ROOM NUMBER WITH A POSTSCRIPT LETTER FOR EACH ADDITIONAL DOOR REQUIRED.

101/101A/101B FOR NUMBER NEEDED.

DOOR IDENTIFICATION BY FLOOR AND/OR ZONE SHALL BE AS FOLLOWS:

BASEMENT DOORS	001	ZONE A	A101
FIRST FLOOR DOORS	101	ZONE B	B101
SECOND FLOOR DOORS	201	ZONE C	C101
THIRD FLOOR DOORS	301		

...
CONTINUE FOR AS MANY FLOORS AS REQUIRED.

COLUMN INDICATION

A — COLUMN INDICATION NUMBER OR NUMBER FOR NEW CONSTRUCTION

A — COLUMN INDICATION LETTER OR NUMBER FOR EXISTING CONSTRUCTION

NORTH INDICATION

N — ASSUMED NORTH IF NOT TRUE NORTH OR PLAN NORTH WHERE TRUE NORTH IS INDICATED BY ARROW ANNOTATION

TRUE NORTH

WALL TYPE NOTATION

3A — WALL CONSTRUCTION TYPE NUMBER AS LISTED IN 'WALL TYPE LEGEND'

DESCRIPTION ORIGINATES AT WALL SURFACE DESIGNATED

CASEWORK NOTATION

CASEWORK IDENTIFICATION NUMBER BASED ON MANUFACTURERS CATALOG NUMBERS AS NOTED IN SPECIFICATION OR 'CASEWORK LEGEND'

A1-100-36

KEYED NOTE INDICATION

? — KEYED NOTE IDENTIFICATION NUMBER AS LISTED IN 'NOTES' LEGEND (PLAN NOTATION)

? — KEYED NOTE IDENTIFICATION NUMBER AS LISTED IN 'NOTES' LEGEND (DEMOLITION NOTATION)

? — KEYED NOTE IDENTIFICATION NUMBER AS LISTED IN 'NOTES' LEGEND (LIFE SAFETY PLAN NOTATION)

ADDENDUM INDICATION

1 — ADDENDUM NUMBER

(CURRENT REVISIONS SHALL BE SHOWN ENCIRCLED BY A FREEFORM LINE)

BULLETIN INDICATION

1 — BULLETIN NUMBER

(CURRENT REVISIONS SHALL BE SHOWN ENCIRCLED BY A FREEFORM LINE)

ASI/CCD/RFI INDICATION

ASI 01 — ASI/CCD/RFI NUMBER

(CURRENT REVISIONS SHALL BE SHOWN ENCIRCLED BY A FREEFORM LINE)

STAIR DIRECTION NOTATION

UP (DN) — STAIR DIRECTION TO FLOOR ABOVE (UP) OR BELOW (DN)

NUMBER OF TREADS (OR RISERS) IN STAIR RUN

drawing dimension line indication

10'-0".

NOTE: DO NOT SCALE DRAWINGS WITHOUT GRAPHIC SCALES WITH PROPORTIONS OTHER THAN 1:1

MATERIAL OR WORK DIVISION NOTATION

MATERIAL 'A' (NEW CONST) | MATERIAL ' B' (EXIST CONST)

JOINT BETWEEN MATERIALS (OR CONSTRUCTION WORK DIVISION LINE)

drawing NOTATION indication

MATERIAL NOTATION AND INFORMATION (REFER TO TECHNICAL SPECIFICATIONS FOR MATERIAL DESCRIPTIONS AND METHODS OF CONSTRUCTION)

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

General Information

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS
05-27-2025	OWNER REVIEW

DRAWN	Author
CHECKED	Checker
APPROVED	Approver

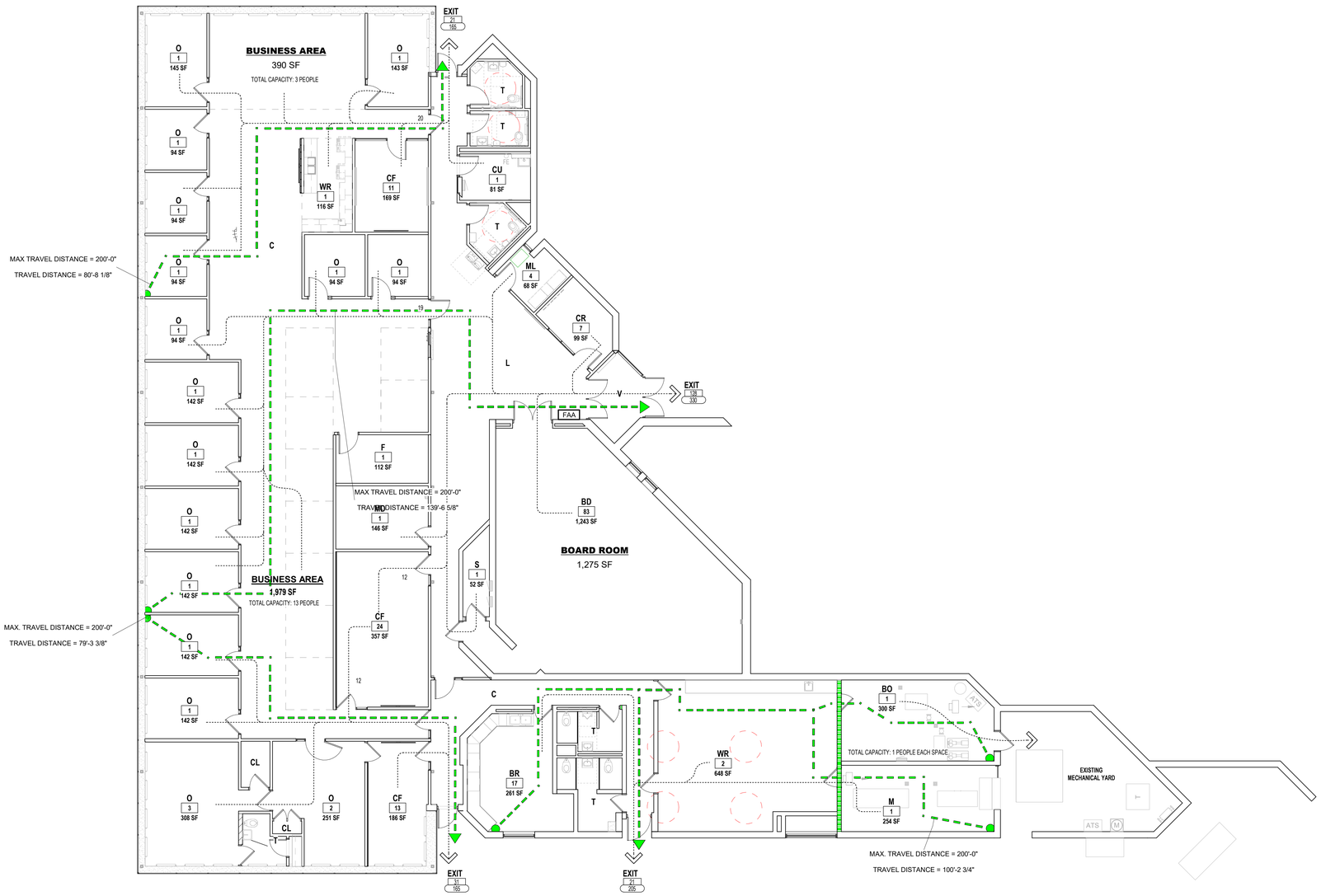
PROJECT NO.

22106

DRAWING NO.

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FIRST LEVEL LIFE SAFETY PLAN

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

LIFE SAFETY PLAN LEGEND

EXISTING 1-HOUR FIRE PARTITIONS FOR MECHANICAL ROOMS (MBC 708.2, 708.3, 708.4)
- FIRE DAMPERS ARE REQUIRED IN DEMISING WALLS (MBC 717.5.4)

O / 120 — ROOM USE KEY / OCCUPANT LOAD

75 / 100 — CALCULATED OCCUPANT LOAD OF ROOM OR CUMULATIVE OCCUPANT LOAD AT EGRESS COMPONENT (LSC 7.3.1.2, MBC TABLE 1004.5) / CAPACITY OF EGRESS COMPONENT
- PER NFPA 101 (2012), TABLE 7.3.3.1
- PER MBC (2021), SECTIONS 1005.3.1 AND 1005.3.2

LINE OF TRAVEL
- TRAVEL DISTANCE TO EXITS = 200' MAX. NOT SPRINKLED (LSC 38.2.6.2 / MBC TBL 1017.2)
- COMMON PATH OF TRAVEL = 75' MAX. SPRINKLED (LSC 38.2.5.3 / MBC TBL 1006.2.1)
- DEAD ENDS = 20' MAX. (LSC 38.2.5.2.2 / MBC 1020.4)

FE — **FIRE EXTINGUISHER, SURFACE MOUNT**

FES — **FIRE EXTINGUISHER, CABINET (SEMI-RECESSED)**

FEC — **FIRE EXTINGUISHER, CABINET (RECESSED)**

STORAGE ROOMS
- PER MBC 311.1.1 ACCESSORY STORAGE SPACES LESS THAN 100 SQ. FT. SHALL BE CLASSIFIED AS PART OF THAT OCCUPANCY.
- PER MBC 508.2 ACCESSORY OCCUPANCIES THAT ARE ANCILLARY TO THE MAIN OCCUPANCY SHALL BE NOT MORE THAN 10 PERCENT OF THE FLOOR AREA AND SHALL NOT EXCEED THE TABULAR VALUE FOR NON-SPRINKLERED BUILDINGS OF THAT ACCESSORY OCCUPANCY.
- PER MBC 508.2.4 NO SEPARATION IS REQUIRED BETWEEN ACCESSORY OCCUPANCIES AND THE MAIN OCCUPANCY.
- PER MBC TABLE 508.4, NO SEPARATION IS REQUIRED BETWEEN OCCUPANCY TYPE B AND S-1 (MODERATE-HAZARD STORAGE).

OCCUPANT LOAD FACTORS (LSC TABLE 7.3.1.2 / MBC TABLE 1004.5)

ASSEMBLY	
BOARD ROOM (TABLES & CHAIRS)	1/15sf (net)
COMMON AREAS	1/15sf (net)
CONFERENCE ROOMS	1/15sf (net)
LOUNGE / BREAK ROOM	1/15sf (net)
BUSINESS AREAS,	
OFFICES	1/150sf (gross)
STAFF PLANNING,WORKROOMS	1/150sf (gross)
RECEPTION AREAS	1/150sf (gross)
STORAGE	
ELECTRICAL	1/300sf (gross)
GENERAL STORAGE	1/300sf (gross)
RECEIVING AREAS	1/300sf (gross)
MECHANICAL	1/300sf (gross)

BUILDING DATA

1. NO AUTOMATIC SPRINKLER SYSTEM

2. CONSTRUCTION CLASSIFICATION TYPE II(000) (NFPA 220) & II-B (MBC 2021)

3. USE CLASSIFICATION "B"

4. MICHIGAN REHABILITATION CODE FOR EXISTING BUILDINGS LEVEL 2 ALTERATION

ROOM USE LEGEND

BD	BOARD ROOM
BO	BOILER ROOM
BR	BREAK ROOM
C	CORRIDOR
CF	CONF.
CL	CLOSET
CR	CONFERENCE
CU	CUSTODIAL
F	FLEX
L	LOBBY
M	MECH.
MD	MDF
ML	MAIL
O	<varies>
S	STORAGE
T	<varies>
V	VESTIBULE
W.S.	<varies>
WR	WORK RM.

AREA CALCULATIONS

AREA (NEW CONSTRUCTION)	23,000 sf
ALLOWABLE AREA PER FLOOR (MBC TBL 506.2 MBC)	
- TYPE II(000) (NFPA 220 - 2012 EDITION)	
-TYPE II-B (MBC 2021)	
-SINGLE STORY, NOT SPRINKLED	
FRONTAGE INCREASE (MBC 506.3) = 0%	0 sf
ADJUSTED ALLOWABLE AREA PER FLOOR	23,000 sf
ACTUAL FLOOR AREA (LARGEST LEVEL)	11,670 sf

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Life Safety Plan

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS
05-27-2025	OWNER REVIEW

DRAWN	AAR
CHECKED	JW
APPROVED	DL

PROJECT NO.

22106

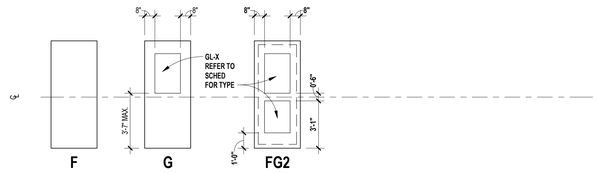
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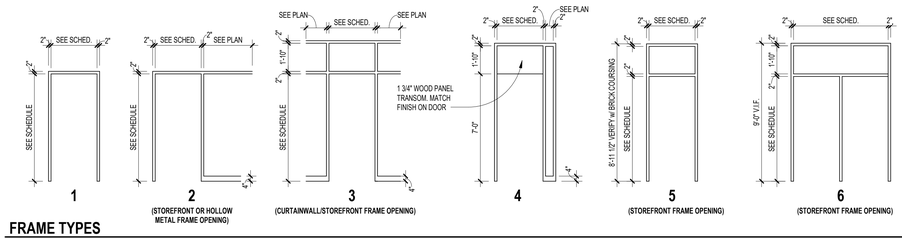
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DOOR & FRAME SCHEDULE

Opening		Door				Frame				Details			Threshold	U.L. Label	Hdwe. Set	Remarks
No.	Opening Size (Width x Height)	Type	Material	Finish	Glass	Type	Material	Finish	Glass	Head	Jamb	Sill				
101	3'-0" x 7'-0"	FG2	ALGL	PFN	SSGL-3	6	ALGL	PFN	SSGL-2	23/AD.2	22/AD2		MET		1.01	
101A	3'-0" x 7'-0"	FG2	ALGL	PFN	SSGL-3	*	ALGL	PFN	*	23/AD.2	21,22/AD.2		MET		1.00	
101B	3'-0" x 7'-0"	FG2	ALGL	PFN	SSGL-3	6	ALGL	PFN	SSGL-1	19/AD.2	17/AD.2				2.01	
101C	3'-0" x 7'-0"	FG2	ALGL	PFN	SSGL-3	*	ALGL	PFN	*	19/AD.2	12/AD.2				2.00	
102	3'-0" x 6'-10"	G	FRP	PFN	SSGL-3	1	AL	PFN		14/AD.2	12/AD.2		MET		4.00	NEW DOOR AND FRAME IN EXISTING OPENING, VERIFY OPENING SIZE IN FIELD
102B	3'-0" x 7'-0"	F	EX	EX		EX	EX	EX							5.00	PROVIDE CARD READER IN EXISTING DOOR
102C	3'-0" x 7'-0"	F	EX	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
103	3'-0" x 6'-10"	FG2	ALGL	PFN	GL-2	2	ALGL	PFN	GL-2	19&20/AD.2	17&18/AD.2				3.00	
104	3'-0" x 6'-10"	FG2	ALGL	PFN	GL-2	1	AL	PFN		19/AD.2	17/AD.2				3.00	
106	3'-0" x 6'-10"	F	WD	NAT	-	1	HM	PTD	-	9/AD.2	7/AD.2		MTR		8.00	
107	3'-0" x 6'-10"	F	WD	NAT		1	HM	PTD		9/AD.2	7/AD.2				6.00	
109	3'-0" x 6'-10"	F	WD	NAT	-	1	HM	PTD	-	9/AD.2	7/AD.2		MTR		8.00	
110A	3'-8" x 7'-0"	F	FRP	PFN		1	AL	PFN		14/AD.2	12/AD.2				04.00	NEW DOOR AND FRAME IN EXISTING OPENING, VERIFY OPENING SIZE IN FIELD
110B	3'-0" x 7'-0"	G	FRP	PFN	SSGL-3	1	AL	PFN							04.00	
110C	3'-0" x 6'-10"	FG2	ALGL	PFN	GL-2	2	ALGL	PFN	GL-2	17&18/AD.2	19&20/AD.2	11/AD.2			02.02	PROVIDE CARD READER
111	3'-0" x 6'-10"	F	WD	NAT	-	1	HM	PTD	-	9/AD.2	7/AD.2		MTR		8.00	
112	3'-0" x 7'-0"	F	EX	EX		EX	EX	EX							06.01	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
112A	3'-0" x 7'-0"	F	EX	EX		EX	EX	EX							06.01	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
119A	3'-0" x 6'-10"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
119B	3'-0" x 7'-0"	F	EX	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
120	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
121	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
121B	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							08.01	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
121C	2'-8" x 6'-10"	F	WD	NAT		1	HM	PTD							09.00	CLOSET DOOR
122	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
123	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
124	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
125	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
126	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
127	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
128	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
129	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
130	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
131	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
132	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
134	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
136	3'-0" x 6'-10"	F	WD	NAT		3	ALGL	PFN	GL-2	19&20/AD.2	18/AD.2	11/AD.2			9.00	
137	3'-0" x 6'-10"	F	WD	NAT	-	4	HM	PTD	GL-2	9/AD.2	7/AD.2	1/AD.2			7.00	
138	3'-0" x 6'-10"	F	WD	NAT	-	4	HM	PTD	GL-2	9/AD.2	7/AD.2	1/AD.2			7.00	
139	2'-0" x 3'-8"		ALGL	PFN		*	ALGL	PFN		20/AD.2	18/AD.2					*SEE INTERIOR ELEVATION SLIDING SERVICE WINDOW. SEE SPECS FOR HARDWARE INFO.
143	3'-0" x 6'-10"	F	WD	NAT		1	HM	PTD		9/AD.2	7/AD.2				7.00	
144	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
146	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							09.01	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
146A	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
147	3'-0" x 7'-0"	F	WD	EX		EX	EX	EX							09.00	
152	(2) 3'-0" x 7'-0"	FG2	ALGL	PFN	GL-2	5	ALGL	PFN	GL-2	24/AD.2	21/AD.2				2.50	
152A	3'-0" x 7'-0"	F	EX	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
154	2'-8" x 6'-10"	F	WD	EX		EX	EX	EX							07.02	EXISTING DOOR AND FRAME. NEW HARDWARE. DOOR KEYNOTE 1
C1	3'-0" x 6'-10"	FG2	ALGL	PFN	GL-2	2	ALGL	PFN	GL-2	17&18/AD.2	19&20/AD.2	11/AD.2			2.02	



DOOR TYPES



FRAME TYPES

DOOR SCHEDULE ABBREVIATIONS AND NOTES

(REFER TO SPECIFICATIONS FOR ADDTIONAL DOOR INFORMATION)

DOOR SCHEDULE ABBREVIATIONS

AL	ALUMINUM
ALGL	ALUMINUM AND GLASS
EX	EXISTING
FRAF	FIRE RATED ALUMINUM FRAMING
FRP	FIBERGLASS REINFORCED POLYESTER
HM	HOLLOW METAL
LAM	PLASTIC LAMINATE CLAD
MET	METAL THRESHOLD
MTR	METAL TRIM THRESHOLD
NAT	NATURAL FINISHED WOODWORK
PFN	PREFINISHED BY MANUFACTURER
PTD	PAINTED
SDSF	SOLID SURFACE THRESHOLD
STL	STEEL
STSTL	STAINLESS STEEL
WD	SOLID CORE HARDWOOD

DOOR SCHEDULE GENERAL NOTES

1. GALVANIZED METAL TO BE PROVIDED FOR HOLLOW METAL DOOR AND/OR FRAME AT EXTERIOR LOCATIONS.
2. DOORS ARE 1-3/4" THICKNESS UNLESS OTHERWISE NOTED
3. DETAIL NUMBERS NOTED SIM. REFER TO DETAILS SHOWING HEAD, JAMB, AND/OR SILL DETAILS THAT REPRESENT CONDITIONS SIMILAR TO THOSE NOTED.
4. HOLLOW METAL FRAMES SET IN MASONRY WALLS ARE 5-3/4" WIDE.
5. HOLLOW METAL FRAMES SET IN GYPSUM BD./METAL STUD PARTITIONS SHALL BE "DOUBLE BACK-BEND" FRAMES WITH A THROAT DIMENSION EQUAL TO THE PARTITION THICKNESS PLUS 9/16" RETURNS ON EACH SIDE OF THE PARTITION. PROVIDE EQUAL RABBETS.
6. AN ASTERICK (*) CALLS ATTENTION TO THE REMARKS COLUMN OF THE SCHEDULE.

U.L. DOOR LABEL DESIGNATIONS

U.L. LABEL**	MIN. OPENING PROTECTION ASSEMBLY
180	3 HR. RATING
90	1-1/2 HR. RATING
60	1 HR. RATING
45	3/4 HR. RATING
20	1/3 HR. RATING

**ALL FIRE RATED DOORS SHALL BE SMOKE AND DRAFT CONTROL LABELED IN ADDITION TO U.L. LABELS INDICATED.

GLAZING TYPES

NOTE: SKIPPED GL-NUMBERS ARE NOT USED.

GL-2	1/4" (6mm) CLEAR TEMPERED MONOLITHIC GLASS
SSGL1	MONOLITHIC SECURITY GLAZING
SSGL2	INSULATED SECURITY GLAZING
SSGL3	LAMINATED SECURITY GLAZING

DOOR KEYNOTE

1. STAIN EXISTING WOOD DOOR AND TRANSOM (WHERE APPLICABLE).

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REGISTRATION SEAL

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

Door & Frame Schedule

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS
05-27-2025	OWNER REVIEW

DRAWN	AAR
CHECKED	JW
APPROVED	DL

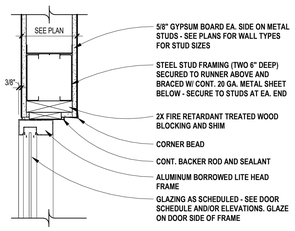
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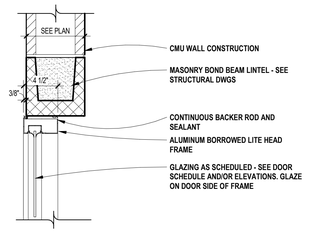
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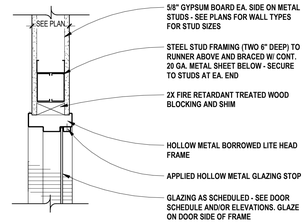
20 ALUMINUM SIDELITE HEAD DETAIL AT STUD

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



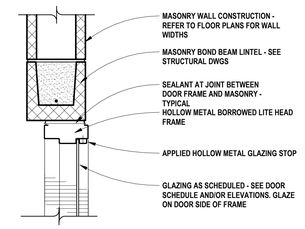
15 ALUMINUM SIDELITE HEAD DETAIL AT CMU

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



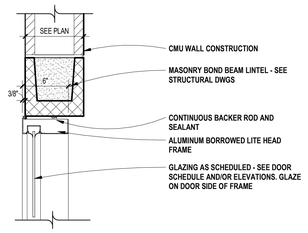
10 HOLLOW METAL SIDELITE HEAD DETAIL AT STUD

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



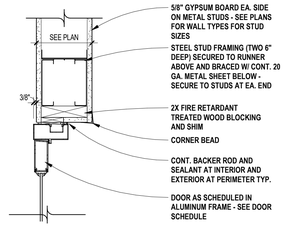
5 HOLLOW METAL SIDELITE HEAD DETAIL AT CMU

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



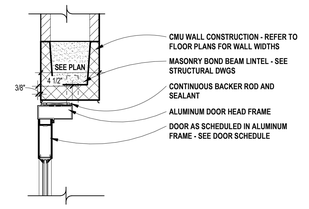
24 ALUMINUM SIDELITE HEAD DETAIL AT CMU - 6"

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



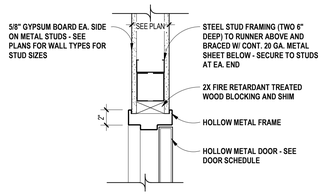
19 ALUMINUM DOOR HEAD DETAIL AT STUD

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



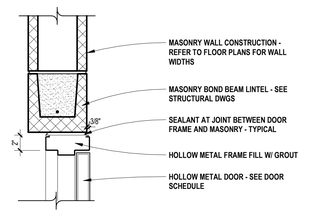
14 ALUMINUM DOOR HEAD AT CMU

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



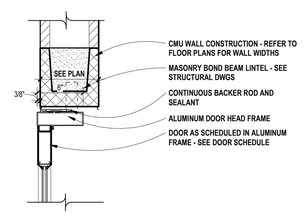
9 HOLLOW METAL DOOR HEAD DETAIL AT STUD

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



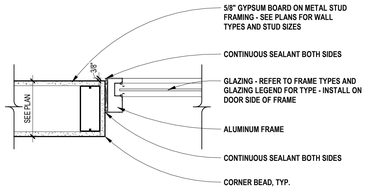
4 HOLLOW METAL DOOR HEAD DETAIL AT CMU

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



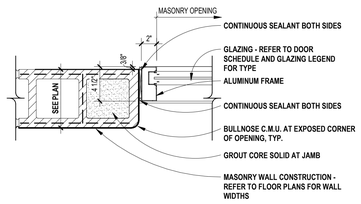
23 ALUMINUM DOOR HEAD AT CMU - 6"

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



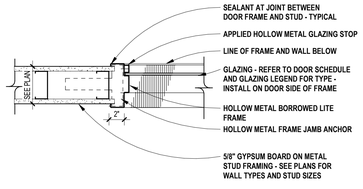
18 ALUMINUM SIDELITE JAMB DETAIL AT STUD

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



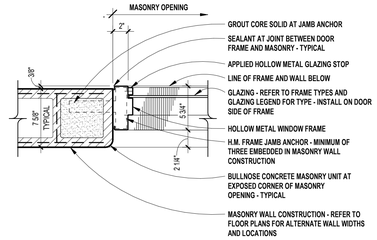
13 ALUMINUM SIDELITE JAMB DETAIL AT CMU

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



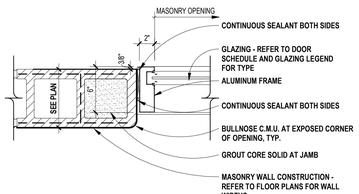
8 HOLLOW METAL SIDELITE JAMB DETAIL AT STUD

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



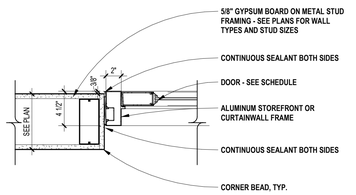
3 HOLLOW METAL WINDOW FRAME JAMB DETAIL

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



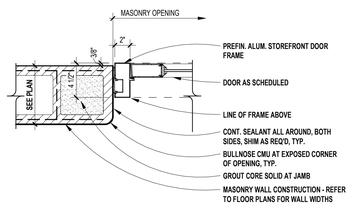
22 ALUMINUM SIDELITE JAMB DETAIL AT CMU - 6"

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



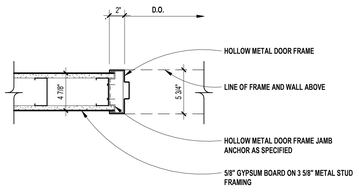
17 ALUMINUM DOOR JAMB DETAIL AT STUD

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



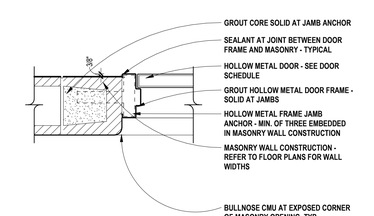
12 ALUMINUM DOOR JAMB AT CMU

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



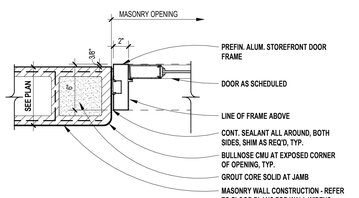
7 HOLLOW METAL DOOR FRAME JAMB DETAIL

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



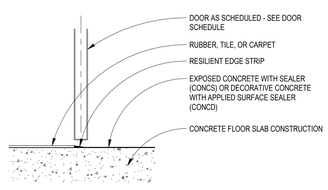
2 HOLLOW METAL DOOR JAMB DETAIL AT CMU

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



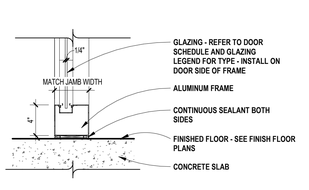
21 ALUMINUM DOOR JAMB AT CMU

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



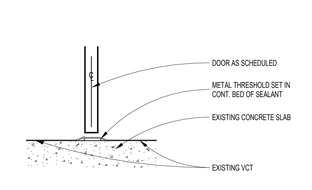
16 RUBBER REDUCER TRANSITION DETAIL

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



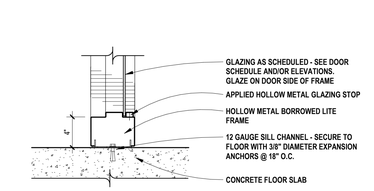
11 ALUMINUM SIDELITE SILL DETAIL

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



6 SILL DETAIL - HM FRAME METAL THRESHOLD

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



1 HOLLOW METAL SIDELITE SILL DETAIL

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

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

Typical Frame Details

ISSUE DATES

06-23-2025	CONSTRUCTION DOCUMENTS
05-27-2025	OWNER REVIEW
DATE:	ISSUED FOR:
DRAWN	Author
CHECKED	Checker
APPROVED	Approver

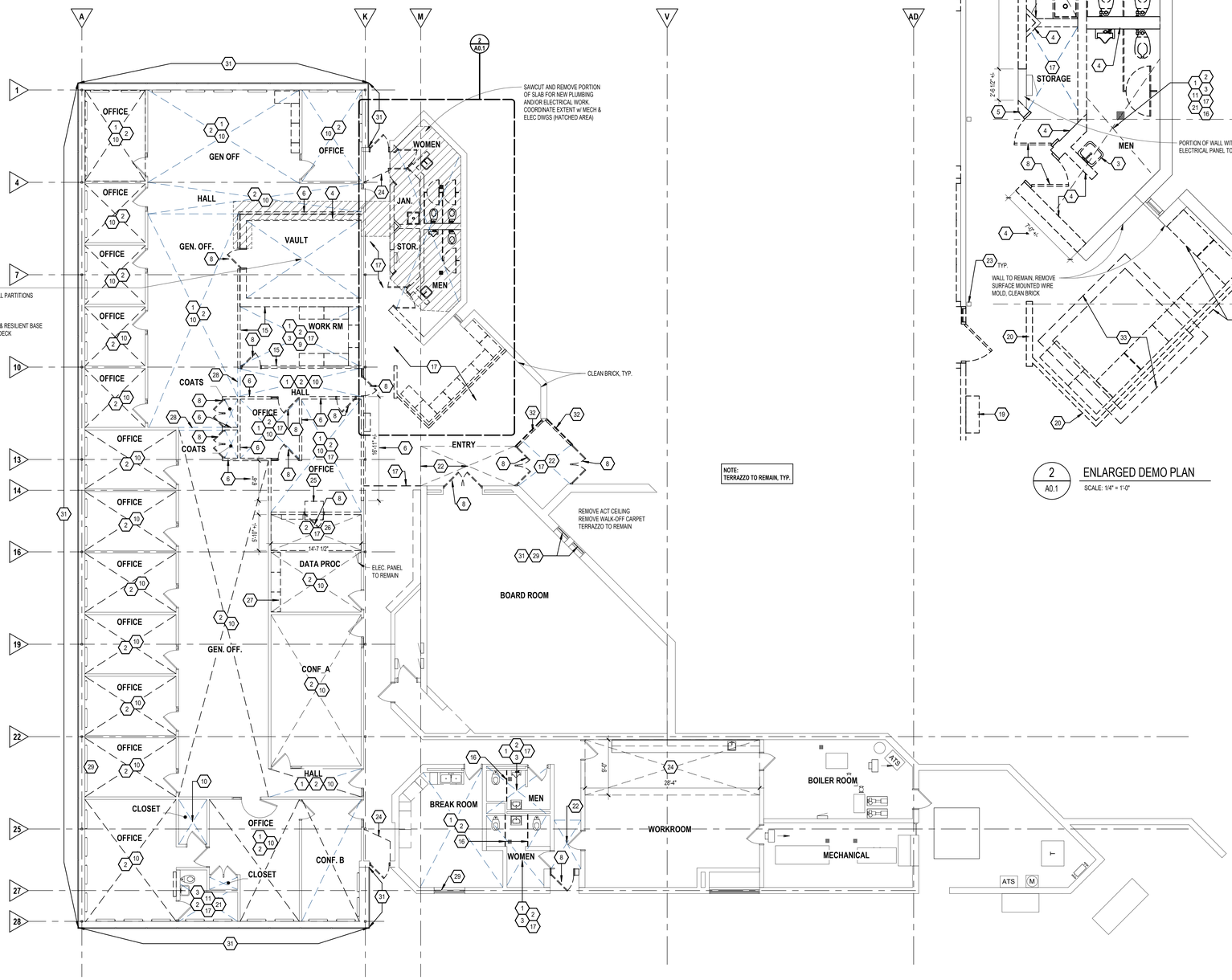
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FIRST LEVEL DEMOLITION PLAN

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

2 / A0.1 ENLARGED DEMO PLAN

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

GENERAL DEMOLITION NOTES

1. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR RELATED AND ADDITIONAL DEMOLITION AND PATCHING WORK BY MECHANICAL AND ELECTRICAL TRADES.
2. REFER TO ROOF PLANS FOR THE EXTENT OF ROOFING DEMOLITION.
3. SEE CIVIL DRAWINGS FOR SITE DEMOLITION AND PATCHING WORK.
4. SEE EXTERIOR ELEVATIONS FOR ADDITIONAL DEMOLITION AND PATCHING WORK AT EXTERIOR OF BUILDING, INCLUDING (BUT NOT LIMITED TO) DEMOLITION NOTES RELATED TO NEW FENESTRATION OPENINGS.
5. WHERE REMOVAL OF CASEWORK, MILLWORK, CHALKBOARD, TACKBOARD, OR EQUIPMENT, IS INDICATED, FILL HOLES AND PATCH EXISTING WALLS, BASES AND CEILINGS WHICH ARE TO REMAIN EXPOSED.
6. UNLESS OTHERWISE INDICATED, TOOTH NEW MATERIAL INTO EXISTING WHEREVER INFILL REMAINS EXPOSED.
7. SEE SPECIFICATION SECTIONS 01 7329 FOR ADDITIONAL DEMOLITION AND PATCHING REQUIREMENTS.
8. REFER ALSO TO ARCHITECTURAL WALL SECTIONS FOR ADDITIONAL SELECTIVE DEMOLITION.

DEMOLITION KEYNOTES

1 REMOVE MECHANICAL EQUIPMENT. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL NOTES AND DETAILS. PATCH, REPAIR, AND/OR FILL EXPOSED ADJACENT SURFACES TO MATCH EXISTING U.O.N.
2 REMOVE ELECTRICAL EQUIPMENT. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL NOTES AND DETAILS. PATCH, REPAIR, AND/OR FILL EXPOSED ADJACENT SURFACE TO MATCH EXISTING U.O.N.
3 REMOVE PLUMBING EQUIPMENT. REFER TO PLUMBING DRAWINGS FOR ADDITIONAL NOTES AND DETAILS. PATCH, REPAIR, AND/OR FILL EXPOSED ADJACENT SURFACE TO MATCH EXISTING U.O.N.
4 REMOVE CMU WALL. COORDINATE EXTENT WITH THE NEW WORK.
5 REMOVE PORTION OF CMU WALL FOR NEW OPENING. COORDINATE OPENING REQUIRED WITH THE NEW WORK.
6 REMOVE DEMOUNTABLE WALL PARTITION. IF ONLY REMOVING PORTION OF DEMOUNTABLE WALL PARTITION; CUT AND REMOVE SUBSEQUENT CHANNEL FRAMING ASSOCIATED WITH WALL ASSEMBLY.
7 REMOVE GYPSUM BOARD PARTITION.
8 REMOE DOOR AND FRAME, INCLUDING SIDELITE, TRANSOM, AND GLAZING WHERE APPLICABLE.
9 REMOVE VCT FLOORING AND BASE (WHERE APPLICABLE). PREP SUBFLOOR TO RECEIVE NEW FINISH.
10 REMOVE CARPET AND BASE (WHERE APPLICABLE). PREP SUBFLOOR TO RECEIVE NEW FINISH.
11 REMOVE CERAMIC TILE FLOOR & BASE (WHERE APPLICABLE). PREPARE SLAB FOR NEW FLOOR FINISH.
12 REMOVE TACKBOARD, CHALKBOARD, AND/OR MARKERBOARD.
13 REMOVE CASEWORK AND/OR MILLWORK. FINISH EXPOSED SURFACES TO MATCH EXISTING.
14 REMOVE SHELVING. SALVAGE AND RETURN TO OWNER UPON REQUEST. PATCH AND FILL HOLES IN EXISTING WALLS TO REMAIN.
15 REMOVE ACOUSTIC WALL PANELS. PATCH AND FILL HOLES IN EXISTING WALLS TO REMAIN. PREP WALL TO RECEIVE NEW FINISH.
16 REMOVE TOILET PARTITIONS.
17 REMOVE LAY-IN CEILING IN ENTIRE ROOM OR AREA INDICATED, INCLUDING LIGHT FIXTURES AND OTHER CEILING MOUNTED ITEMS. COORDINATE WITH NEW WORK.
18 SAWCUT AND REMOVE PORTION OF CONCRETE SLAB FOR NEW SANITARY PLUMBING AND/OR ELECTRICAL WORK. COORDINATE WITH NEW MECHANICAL AND ELECTRICAL WORK. (HATCH AREA).
19 REMOVE DISPLAY CASE.
20 REMOVE MILLWORK, CASEWORK INCLUDING SUPPORTING WALL AND COUNTERTOPS AT RECEPTION DESK.
21 REMOVE TOILET ROOM ACCESSORIES. SALVAGE AND TURN OVER TO OWNER UPON REQUEST.
22 REMOVE WALK-OFF CARPET IN AREA INDICATED. PREP SUBFLOOR TO RECEIVE NEW FINISH.
23 EXISTING COLUMN TO REMAIN - PROTECT DURING WORK.
24 REMOVE GYPSUM BOARD CEILING IN ENTIRE ROOM OR AREA INDICATED, INCLUDING LIGHT FIXTURES AND OTHER CEILING MOUNTED ITEMS. COORDINATE WITH NEW WORK.
25 REMOVE RAISED FLOOR RAMP.
26 REMOVE RAISED FLOOR AND/OR PORTION OF RAISED FLOOR, RAISED FLOOR FINISH, SUBSQUENT FRAMING AND TRIM ACCESSORIES ASSOCAITED WITH RAISED FLOOR CONSTRUCTION AS INDICATED.
27 REMOVE MAIL MACHINES AND MAIL CASEWORK. SALVAGE FOR REINSTALLATION.
28 REMOVE GYP. BD. BULKHEAD.
29 REMOVE ROLLER SHADES. SALVAGE AND RETURN TO OWNER.
30 NOT USED.
31 REMOVE WINDOW STOOLS. PREP SURFACE TO RECIEVE NEW WINDOW STOOL AS REQUIRED.
32 REMOVE STOREFRONT, INCLUDING GLAZING WHERE APPLICABLE. PATCH, REPAIR, AND/OR FILL EXPOSED ADJACENT SURFACE TO MATCH EXISTING U.O.N.
33 REMOVE ACCENT LIGHT FEATURE INCLUDING LIGHTS, WOOD HOUSING, AND ANY ATTACHMENTS ABOVE CEILING.

SALVAGED ITEMS

- TOILET ROOM ACCESSORIES UPON REQUEST
- MAIL MACHINES - SALVAGE & PROTECT FOR REINSTALLATION
- CASEWORK MAIL CUBBY - SALVAGE & PROTECT FOR REINSTALLATION

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Demolition Plan

ISSUE DATES

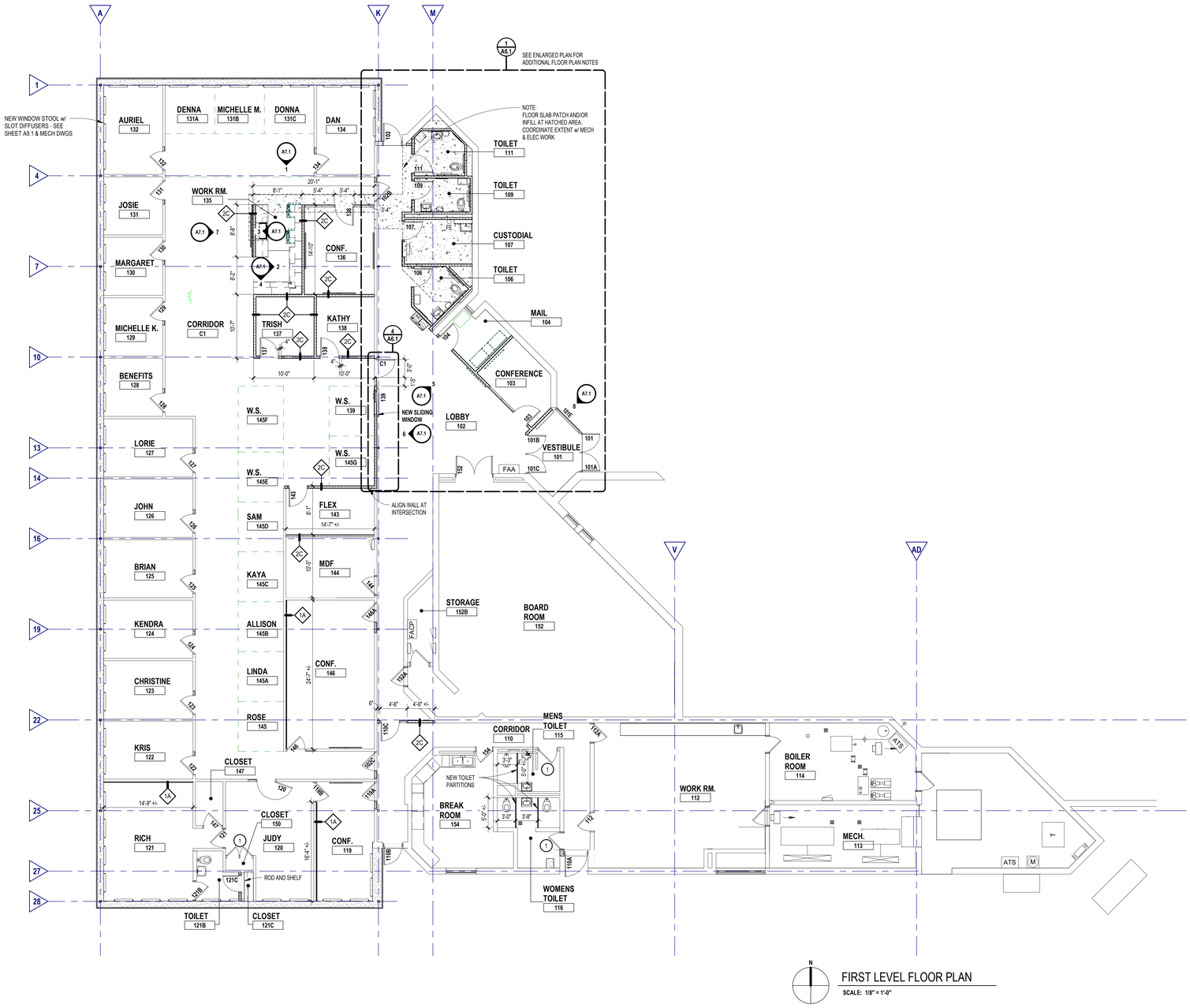
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WALL / PARTITION KEY

- EXISTING WALL CONSTRUCTION
- METAL STUD PARTITION
- CONCRETE MASONRY UNIT WALL w/ HORIZONTAL REINFORCEMENT AT 16" OC

WALL / PARTITION LEGEND

- 1A 7/8" METAL FURRING @ 16" OC (MAX) W/ 5/8" GYP BOARD ONE SIDE TO 6" ABOVE CEILING
- 1B 2 1/2" METAL STUDS AT 16" O.C. (MAX.) WITH 5/8" GYPSUM BOARD ONE SIDE. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALL AS REQUIRED. TYPICAL AT COLUMN ENCLOSURES
- 1C 3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 5/8" GYPSUM BOARD ONE SIDE. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALL AS REQUIRED
- 1G 3 5/8" METAL STUDS @ 16" OC (MAX) W/ 5/8" GYP BOARD ONE SIDE TO STRUCTURE ABOVE
- 2A 3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 5/8" GYPSUM BOARD EACH SIDE. 3" ACOUSTICAL BATT INSULATION FULL HEIGHT. HEIGHT: FROM FLOOR TO 4" ABOVE CEILING. BRACE TO ADJACENT WALLS AS REQUIRED.
- 2C 3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 5/8" GYPSUM BOARD EACH SIDE. 3" ACOUSTICAL BATT INSULATION FULL HEIGHT. HEIGHT: FROM FLOOR TO DECK ABOVE. COPE AROUND STRUCTURE, SEAL ALL GAPS AND PENETRATIONS.
- 2CR 3 5/8" METAL STUDS AT 16" O.C. (MAX.) WITH 1 LAYER 1/2" RESILIENT CHANNEL ON CIRCULATION SIDE OF WALL & 1 LAYER 5/8" GYPSUM BOARD EACH SIDE. 3-1/2" ACOUSTICAL BATT INSULATION FULL HEIGHT. HEIGHT: FROM FLOOR TO DECK ABOVE. COPE AROUND STRUCTURE, SEAL ALL GAPS AND PENETRATIONS.

NOTES:

1. COORDINATE WITH THE REFLECTED CEILING PLANS FOR RATED WALLS, WALLS WHICH EXTEND UP TO THE STRUCTURE ABOVE AND WALLS WHICH EXTEND ONLY A MINIMUM OF 4" ABOVE THE ADJACENT HIGHEST CEILING. DIMENSIONS OF WALLS ARE SHOWN ACTUAL U.N.O. IN PLAN FOR DETERMINING THE CMU THICKNESS. REFER TO BUILDING SECTIONS, WALL SECTIONS AND INTERIOR ELEVATIONS FOR BANDING OF SPECIAL CMU TYPES OR ANY OTHER SPECIAL CONDITIONS. PARTIAL HEIGHT CMU WALLS WILL BE NOTED AS SUCH ON THE FLOOR PLANS.
2. REFER TO MASONRY SPECIFICATION FOR VERTICAL REINFORCEMENT AND WALL BRACING NOT INDICATED ON DRAWINGS.
3. AT FIRE-RATED AND SMOKE-RESISTING WALLS (MASONRY OR GYPSUM BOARD), PROVIDE U.L. APPROVED, FIRE-RATED, HEAD-OF-WALL TERMINATIONS AS INDICATED. IF NOT INDICATED, PROVIDE "BASIS OF DESIGN", HEAD-OF-WALL FIRESTOP JOINT SYSTEM AS INDICATED IN SPECIFICATION SECTION 078446 (1 OR 2 HOUR AS APPROPRIATE). PROVIDE MINIMUM 1 HOUR TERMINATION AT SMOKE-RESISTING WALLS.
4. ALL CMU IS 8" THICK (ACTUAL= 7 5/8") UNLESS DIMENSIONED OTHERWISE.
5. PROVIDE BULLNOSE CMU UNITS AT ALL OUTSIDE COURNERS WHEN CORNERS ARE EXPOSED IN FINAL CONSTRUCTION. DO NOT BULLNOSE CORNERS WHEN ABUTTING CONSTRUCTION (i.e. GYPSUM BOARD) IS INTENDED TO BE FLUSH WITH CMU.
6. ALL GYPSUM WALLS TO RECEIVE ABUSE RESISTANT GYPSUM BOARD BELOW 4'-0" AFF, TYPICAL.
7. WHERE FINISH PLANS (A10 SERIES DRAWINGS) CALL FOR WALL TILE, PROVIDE CEMENT BOARD SUBSTRATE IN LIEU OF GYPSUM BOARD.
8. ALL DOORS LOCATED 4" FROM JAMB TO ADJACENT WALL UNLESS OTHERWISE INDICATED.

GENERAL NOTES

1. COORDINATE SIZE AND LOCATION OF ALL CONCRETE HOUSEKEEPING PADS AND / OR EQUIPMENT SUPPORTS WITH APPROPRIATE EQUIPMENT MANUFACTURER.
2. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH TRADE REQUIRING THE SAME. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE REQUIRED TO BE PROVIDED BY EACH TRADE. ALL LOCATIONS MUST BE COORDINATED AND APPROVED BY THE ARCHITECT'S FIELD REPRESENTATIVE.
3. CONTRACTORS SHALL VERIFY ALL EXISTING BUILDING DIMENSIONS, PARTITION AND WALL LOCATIONS, AND FLOOR ELEVATIONS IN THE FIELD AND NOTIFY THE ARCHITECTS REPRESENTATIVE OF ANY DISCREPANCIES BEFORE START OF WORK.
4. FLOOR PLANS ARE DIMENSIONED TO ACTUAL WALL THICKNESS - TYPICAL.
5. DIMENSIONS FOLLOWED BY ± SHOULD BE REVIEWED AND ALL NECESSARY ADJUSTMENTS MADE PRIOR TO FABRICATION AND / OR INSTALLATION OF AFFECTED WORK. NOTIFY ARCHITECTS REPRESENTATIVE IF DISCREPANCIES ARISE BEFORE PROCEEDING WITH THE WORK.
6. INSTALL CONTROL JOINTS IN GYPSUM BOARD AND METAL STUD-FRAMED PARTITIONS, WALLS, CEILINGS, BULKHEADS, FASCIAE AND SOFFITS IN COMPLIANCE WITH SPECIFICATIONS, AND WITH GENERAL REQUIREMENTS OF ASTM C840. PRIOR TO COMMENCEMENT OF FRAMING INSTALLATION SUBMIT COORDINATION DRAWINGS INDICATING PROPOSED LOCATIONS OF ALL CONTROL JOINTS, AS SPECIFIED.
7. PROVIDE CONTROL JOINTS WHERE INTERIOR CMU (ON SLAB) ABUTS EXTERIOR / INTERIOR MASONRY (ON FOUNDATIONS OR FOOTINGS).
8. VERIFY QUANTITY, SIZE, AND LOCATION OF ALL FLOOR, ROOF, AND WALL OPENINGS FOR MECHANICAL AND ELECTRICAL WORK WITH THE APPROPRIATE TRADE. PROVIDE ALL OPENINGS SHOWN OR REQUIRED FOR THE COMPLETION OF THE WORK. PROVIDE ALL LINTELS REQUIRED FOR THESE OPENINGS PER SPECIFICATIONS.
9. REFER TO LIFE SAFETY PLANS FOR LOCATIONS OF REQUIRED FIRE RESISTANCE RATINGS. BECAUSE OF THE DRAWING SCALE OF THE LIFE SAFETY PLANS, COORDINATE THE REQUIRED FIRE RESISTANCE RATINGS WITH THOSE SHOWN ON THE REFLECTED CEILING PLANS.
10. REFER WALL PARTITION LEGEND FOR EXTENSION OF PARTITION WALLS TO ROOF CONSTRUCTION ABOVE AND WALL FIRE RESISTANCE RATING REQUIREMENTS.
11. REFER TO STRUCTURAL DRAWINGS FOR ALL WIND FRAME LOCATIONS AT INTERIOR AND EXTERIOR WALLS.
12. REFER TO A10_ SERIES DRAWINGS FOR FLOOR FINISH PATTERNS AND ROOM FINISHES.
13. REFER TO STRUCTURAL DRAWINGS FOR ORIENTATION AND SIZES OF ALL STRUCTURAL COLUMNS.
14. REFER TO DRAWING A8_ FOR TYPICAL DETAILS PERTAINING TO WALL TERMINATIONS AT STRUCTURE ABOVE AND MASONRY CONTROL JOINT DETAILS.
15. VERIFY ALL DIMENSIONS IN FIELD.
16. PROVIDE WOOD BLOCKING WITHIN STUD WALLS FOR WALL MOUNTED ITEMS i.e. GRAB BARS, TOWEL DISPENSERS, PENCIL SHARPENERS, WALL STOPS, ACCORDION PARTITION JAMBS, ETC. REFER ALSO TO A9_ SERIES AND A6_ SERIES DRAWINGS.

PATCHING NOTES

1. REFER TO DEMOLITION PLANS FOR ADDITIONAL PATCHING NOTES.
2. FOR ALL FLOOR SURFACES RECEIVING NEW FLOOR FINISHES, PREPARE SUBSTRATE BY PROVIDING LEVELING AND PATCHING COMPOUNDS RECOMMENDED BY FINISH FLOORING MANUFACTURERS. CONTRACTOR'S BASE BID PROPOSAL SHALL ASSUME THAT ALL AREAS, INDICATED TO RECEIVE NEW FINISHES, WILL REQUIRE FLOOR PREPERATION.
3. PATCH AND REPAIR ALL FLOOR AND WALL SURFACES LEFT DAMAGED OR INCOMPLETE FROM REMOVAL OF EXISTING PARTITIONS, MILLWORK, CASEWORK, CHALKBOARDS, TACKBOARDS, DISPLAY CASES OR OTHER FIXED EQUIPMENT WITH MATERIALS TO MATCH EXISTING, AS ACCEPTABLE TO THE ARCHITECT.
4. MATCH EXISTING MASONRY COURSING ADJACENT IN EACH AREA AND TOOTH NEW WORK INTO EXISTING, UNLESS OTHERWISE INDICATED.
5. AT EXISTING FLOOR FINISHES TO REMAIN THAT BECOME SUBSTRATES FOR NEW FLOOR FINISHES, PATCH AND FILL EXISTING AS REQUIRED TO PREPARE FOR NEW FLOOR FINISH UNTIL ACCEPTABLE TO NEW FLOOR FINISH CONTRACTOR.
6. PATCH AND FILL FLOOR LOCATIONS WHERE CERAMIC TILE WAS REMOVED TO BE LEVEL WITH EXISTING ADJACENT CONCRETE SLAB OR UNTIL ACCEPTABLE TO NEW FLOOR FINISH CONTRACTOR.
7. TOOTH-IN MASONRY INTO EXISTING, U.O.N., INCLUDING JAMBS OF DOORS AND OTHER OPENINGS.

DOOR FINISH NOTES

1. STAIN EXISTING WOOD DOOR AND TRANSOM (WHERE APPLICABLE).

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Floor Plan

ISSUE DATES

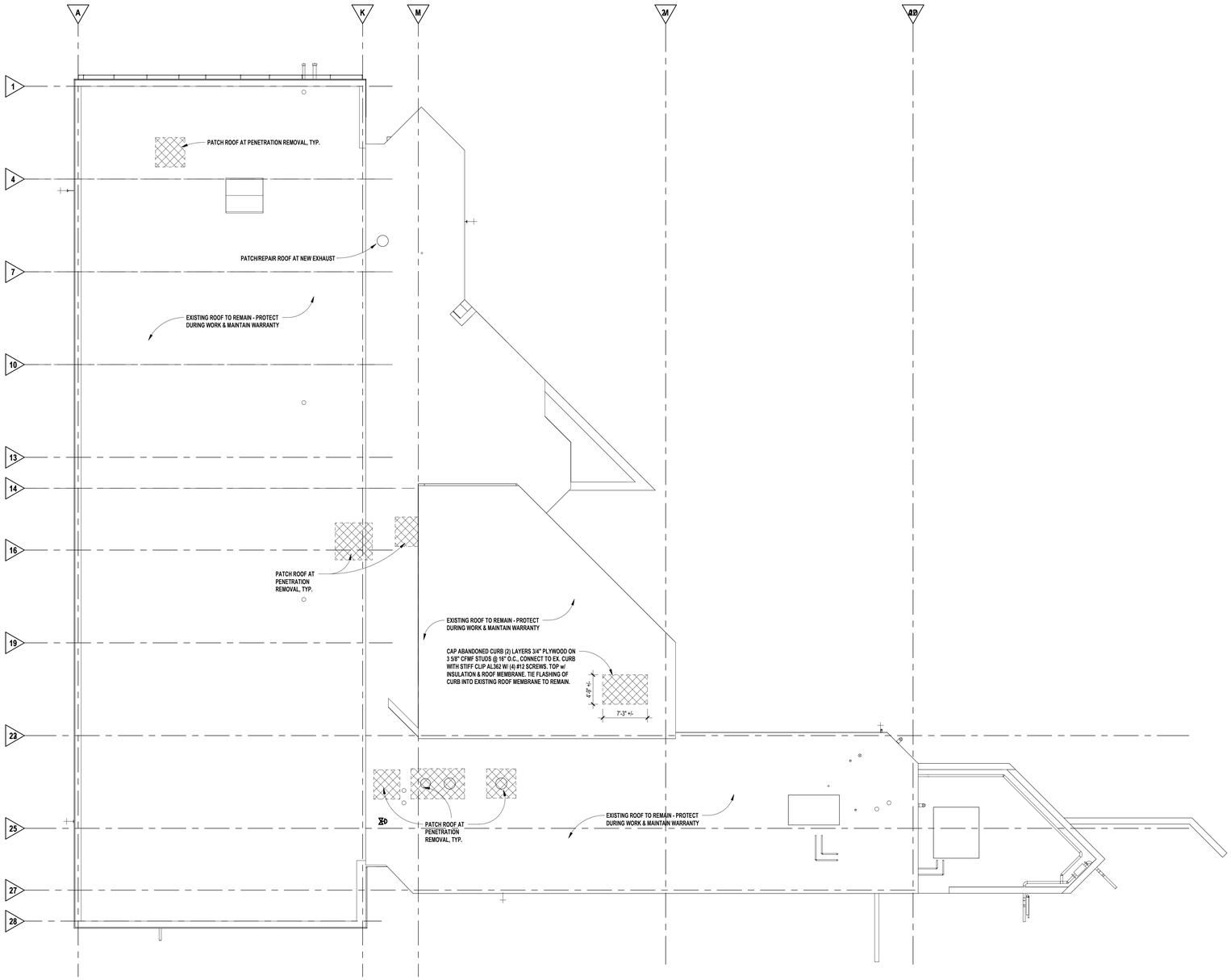
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ROOF LEVEL PLAN

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

ROOF PLAN LEGEND

- RD/OD — COMBINATION PRIMARY / SECONDARY ROOF DRAIN
- RD — ROOF DRAIN (PRIMARY)
- OD — ROOF DRAIN (SECONDARY)
- EXHAUST FAN [RELIEF VENT] [INTAKE HOOD]
- EF[RV], [IH]
- RTU — ROOF TOP MECHANICAL UNIT
- CU — CONDENSING UNIT (CU) ON EQUIPMENT RAILS
- ROOF PATCH / TIE-IN (SEE GENERAL NOTE 3)

ROOF PLAN NOTES

1. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF PLUMBING VENTS (FLASH AS PER S.M.A.C.N.A. AND N.R.C.A. STANDARDS).
2. REFER TO MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, IF ANY, IN NEW AND/OR EXISTING ROOFS. DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE.
3. WHERE NEW OPENINGS OCCUR IN EXISTING ROOF AREAS, INSTALL SUPPLMENTAL FRAMING UNDER SHEATHING PRIOR TO CUTTING HOLE IN SHEATHING. REPAIR ROOFING TO 2'-0" (MIN) AROUND OPENING.
4. INFORMATION FOR EXISTING CONDITIONS TAKEN FROM HISTORICAL DRAWINGS AND VISUAL INSPECTIONS OF EACH BUILDING. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD PRIOR TO INSTALLATION OF NEW WORK AND REPORT ALL DISCREPANCIES TO THE ARCHITECT.
5. LOCATIONS AND QUANTITIES OF ALL EXISTING ROOF PENETRATIONS ARE APPROXIMATE AND MUST BE VERIFIED BY CONTRACTOR PRIOR TO WORK IN THOSE AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR PROPER FLASHING OF ALL EXISTING DRAINS, CURBS, VENT STACKS, ETC., AFFECTED WITHIN THE PROJECT SCOPE.
7. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF NEW PENETRATIONS, FLASH AS SPECIFIED.
8. SEE MECHANICAL DRAWINGS FOR ADDITIONAL OPENINGS, IF ANY, IN NEW AND/OR EXISTING ROOFS. DETAILS OF SIMILAR OPENINGS REFERENCED ON THIS SHEET ARE APPLICABLE.
9. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES ON OR NEAR PROJECT ROOFS DURING THE WORK. PROVIDE PROPER SAFETY MEASURES NEAR ELECTRICAL SERVICE LINES.

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

Roof Plan

ISSUE DATES

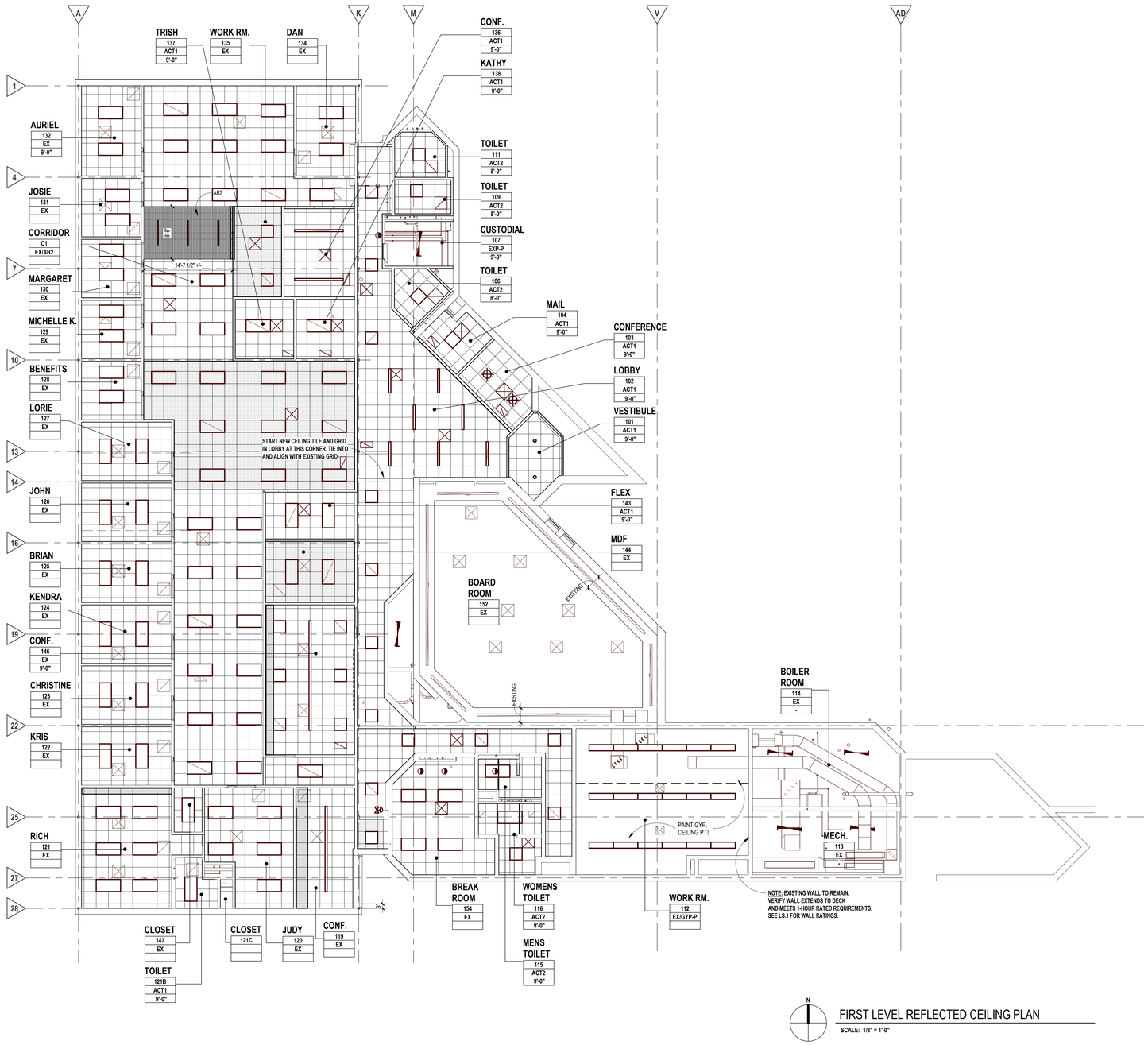
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FIRST LEVEL REFLECTED CEILING PLAN

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

FIXTURE LEGEND

- RECESSED L.E.D. TROFFER (2'x4' / 1'x4')
- L.E.D. INDUSTRIAL FIXTURE
- SURFACE MOUNTED LINEAR L.E.D. FIXTURE
- PENDANT MOUNTED LINEAR L.E.D. FIXTURE
- RECESSED DOWNLIGHT
- EXIT SIGN
- SPEAKER

FIRE / LIFE SAFETY FIXTURES: SEE ELECTRICAL, FIRE PROTECTION, PLUMBING, AND TECHNOLOGY DRAWINGS & SPECIFICATIONS

MECHANICAL EQUIPMENT / FIXTURES - SEE MECHANICAL DRAWINGS & SPECIFICATIONS

- SUPPLY DIFFUSER
- RETURN-AIR / EXHAUST GRILLE

CEILING KEY

- GYPSUM BOARD (PAINTED) OR INTERIOR / EXTERIOR FINISH SYSTEM CEILING / SOFFIT
- 24" x 24" SUSPENDED LAY-IN ACOUSTICAL CEILING
- 24" x 48" SUSPENDED LAY-IN ACOUSTICAL CEILING
- EXPOSED OR EXISTING CONSTRUCTION TO REMAIN (PAINTED U.O.N.)
- 3" ACOUSTIC MINERAL WOOL BATT OVER LAY-IN CEILING
- REWORKED 24" x 24" SUSPENDED LAY-IN ACOUSTICAL CEILING. CUT, TIE AND ALIGN NEW T-GRIDS INTO EXISTING GRID. PROVIDE NEW TILES TO MATCH EXISTING TILES.
- REWORKED SUSPENDED LAY-IN ACOUSTICAL CEILING TO ACCOMMODATE NEW WALL FURRING.

CEILING LEGEND

ROOM/CEILING TAGS

ROOM NAME AND NUMBER PLUS GENERAL CEILING FINISH AND HEIGHT UNLESS OTHERWISE NOTED CEILING FINISH TAGS.

CEILING FINISH TAG

SPECIFIC FINISH / HEIGHT WHERE VARYING FROM GENERAL ROOM / CEILING TAGS.

ROOM NAME ← ROOM NAME
101 ← ROOM NUMBER
ACT ← CEILING FINISH ABBREVIATION (SEE BELOW) → ACT
Height ← CEILING HEIGHT (AFF) → Height

CEILING FINISH ABBREVIATIONS

AB	ACOUSTICAL BAFFLE PANEL - SUSPENDED
ACT	ACOUSTICAL LAY-IN CEILING TILE
EX	EXISTING
EX-G	EXISTING GRID TO REMAIN - PAINT
EX-P	EXISTING - PAINTED
EXP-P	EXPOSED CONSTRUCTION - PAINTED
EXP-UF	EXPOSED CONSTRUCTION - UNFINISHED
GYP-P	GYPSUM BOARD - PAINTED
GYP-EP	GYPSUM BOARD - EPOXY PAINTED
PT	PAINTED
RCP	RADIANT CEILING PANELS RE:MECHANICAL DRAWINGS
UF	UNFINISHED

NOTES

1. REFER TO FINISH PLANS FOR INFORMATION ON ROOM FINISHES.
2. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION ON MATERIALS AND CONSTRUCTION.
3. WHERE EXPOSED CONSTRUCTION IS INDICATED TO BE PAINTED, THIS SHALL INCLUDE ALL STRUCTURAL MEMBERS, ROOF / FLOOR DECK, DUCTWORK, DIFFUSERS, GRILLES, PIPING, SUSPENDED EQUIPMENT, CONDUITS, ETC. (U.O.N.).

WALL FIRE RATING LEGEND

- EXISTING 1-HOUR FIRE PARTITION FOR MECHANICAL ROOMS
- NON RATED WALLS - HEIGHT AS CALLED FOR IN WALL PARTITION LEGEND

GENERAL NOTES

1. REFER TO ELECTRICAL DRAWINGS FOR FIXTURE TYPES. REFER ELECTRICAL AND MECHANICAL DRAWINGS FOR ADDITIONAL INFORMATION PERTAINING TO ELECTRICAL AND MECHANICAL WORK.
2. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH TRADE REQUIRING THE SAME. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE REQUIRED TO BE PROVIDED BY TRADE. SPOT ALL LOCATIONS WITHIN FIXED GYPSUM BOARD CEILINGS AND RECEIVE APPROVAL FROM THE ARCHITECT'S FIELD REPRESENTATIVE BEFORE PLACEMENT.
3. COORDINATE CEILING SUSPENSION SYSTEMS WITH OTHER CEILING SPACE EQUIPMENT SUPPORTS.
4. ALL FIRE WALLS, FIRE BARRIERS, FIRE PARTITIONS, SMOKE BARRIERS AND SMOKE PARTIONS (ABOVE ACCESSIBLE CEILINGS) SHALL BE MARKED EVERY 30'-0" HORIZONTALLY AND WITHIN 15'-0" OF ENDS OF WALLS: "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS", REFER TO CURRENT BUILDING CODE FOR LETTERING HEIGHT, STROKE AND CONTRAST.
5. ALL GYPSUM BOARD FASCIAS AT SOFFITS OR BULKHEADS, ADJACENT TO LAY-IN CEILINGS, SHALL EXTEND 4" MINIMUM ABOVE LAY-IN CEILINGS.
6. INSTALL CONTROL JOINTS IN GYPSUM BOARD AND METAL STUD-FRAMED PARTITIONS, WALLS, CEILINGS, BULKHEADS, FASCIAE AND SOFFITS IN COMPLIANCE WITH SPECIFICATIONS, AND WITH GENERAL REQUIREMENTS OF ASTM C840. PRIOR TO COMMENCEMENT OF FRAMING INSTALLATION SUBMIT COORDINATION DRAWINGS INDICATING PROPOSED LOCATIONS OF ALL CONTROL JOINTS, AS SPECIFIED.
7. PROVIDE FIRE RETARDANT WOOD BLOCKING, ABOVE GYPSUM BOARD CEILINGS, AS REQUIRED FOR MISCELLANEOUS SUSPENDED ITEMS (e.g. CURTAIN TRACKS, WINDOW SHADES, ACOUSTICAL BAFFLES, ETC.).
8. REFER TO DRAWINGS A8_ FOR TYPICAL DETAILS PERTAINING TO WALL TERMINATIONS AT STRUCTURE ABOVE.
9. SEE LIFE SAFETY PLANS FOR DAMPERING REQUIREMENTS.
10. SEE SHEET A1.1 FOR WALL TYPES.
11. WHERE EXISTING CEILING TILE IS TO REMAIN, IDENTIFY AND REPLACE MISMATCHING CEILING TILE WITH MATCHING TILE.
12. WHERE THE REMOVAL OF CEILINGS ARE REQUIRED - TO ACCOMMODATE THE DEMO AND/OR NEW MECHANICAL/ELECTRICAL WORK - BUT NOT TO RECEIVE NEW CEILING WILL REQUIRE REINSTALLAION UPON COMPLETION OF RELATED WORK ABOVE CEILING. REINSTALLED WORK SHOULD MATCH EXISTING CONDITIONS BEFORE REMOVAL.

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REGISTRATION SEAL

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Reflected Ceiling Plan

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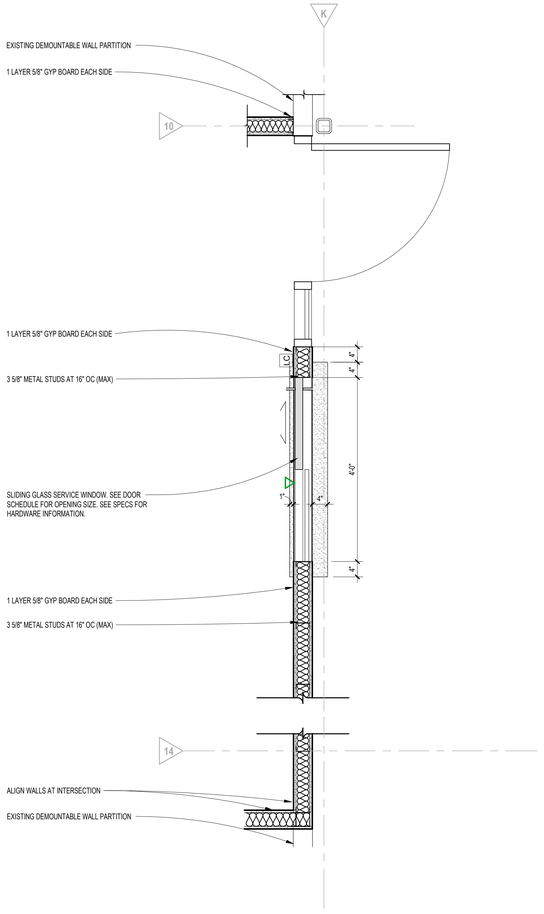
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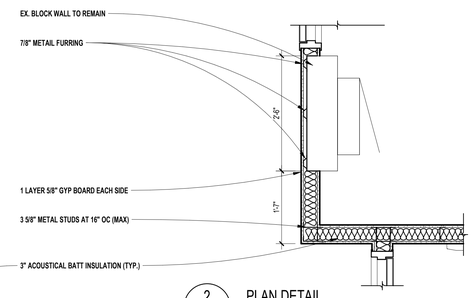
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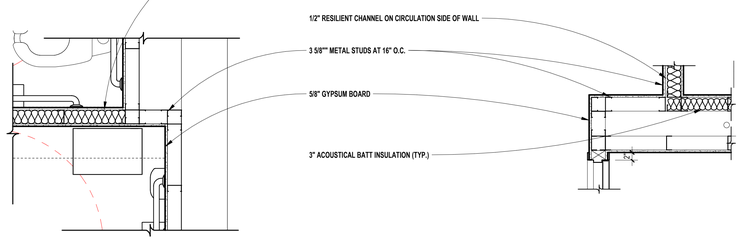
4 A1.1 PLAN DETAIL

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



2 A6.1 PLAN DETAIL

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

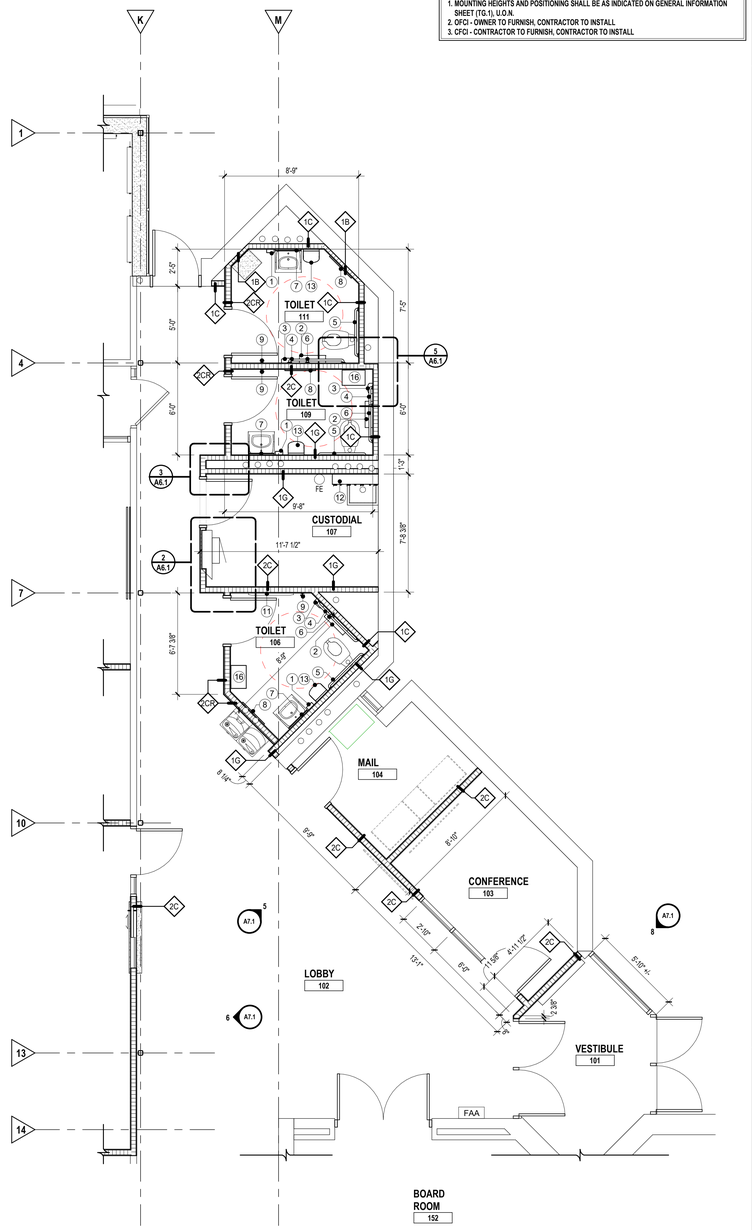


5 A6.1 PLAN DETAIL

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

3 A6.1 PLAN DETAIL

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



1 A1.1 FIRST LEVEL ENLARGED FLOOR PLAN

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

ACCESSORIES LEGEND

1	SURFACE-MOUNTED , LIQUID SOAP DISPENSER (40 OZ. CAPACITY). (BOTTOM OF UNIT 4" ABOVE LAVATORY RIM OR COUNTER) - (OFCI)
2	SURFACE-MOUNTED, DOUBLE ROLL, TOILET PAPER HOLDER - (OFCI)
3	SURFACE-MOUNTED, SANITARY NAPKIN DISPOSAL UNIT - (CFCI)
4	GRAB BAR (42" LONG) - (CFCI)
5	GRAB BAR (36" LONG) - (CFCI)
6	GRAB BAR (18" TALL VERTICAL) - (CFCI)
7	POLISHED PLATE GLASS MIRROR ABOVE SINK (20"W x 36"T)
8	POLISHED PLATE GLASS FULL LENGTH MIRROR (24"W x 60"T), TOP AT 6'-6" A.F.F.
9	ROBE HOOK - CFCI
10	SURFACE WARM-AIR HAND DRYER - (CFCI)
11	BABY CHANGING STATION - (CFCI)
12	UTILITY SHELF WITH MOP AND BROOM HOLDER - (CFCI)
13	PAPER TOWEL DISPENSER - (OFCI)
14	NOT USED
15	FOUR SHELVES ON ADJUSTABLE STANDARDS - (CFCI) (SEE SPECIFICATION SECTION 06 4023)
16	PLASTIC LAMINATE SHELF (PL4) w/ STANDARDS - (CFCI) 18" LONG X 12" DEEP. MOUNT AT 44" A.F.F. (SEE SPECIFICATION SECTION 06 4023)

GENERAL NOTES

1. MOUNTING HEIGHTS AND POSITIONING SHALL BE AS INDICATED ON GENERAL INFORMATION SHEET (TG.1), U.O.N.
2. OFCI - OWNER TO FURNISH, CONTRACTOR TO INSTALL
3. CFCI - CONTRACTOR TO FURNISH, CONTRACTOR TO INSTALL

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REGISTRATION SEAL

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

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Enlarged Floor Plans & Plan Details

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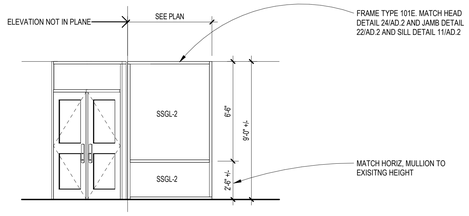
GLAZING TYPES

NOTE:
SKIPPED GL-NUMBERS ARE NOT USED.

GL-2	1/4" (6mm) CLEAR TEMPERED MONOLITHIC GLASS
SSGL1	MONOLITHIC SECURITY GLAZING
SSGL2	INSULATED SECURITY GLAZING
SSGL3	LAMINATED SECURITY GLAZING

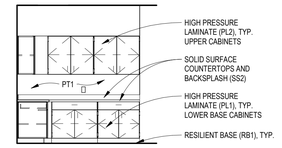
DOOR KEYNOTE

1 STAIN EXISTING WOOD DOOR AND TRANSOM (WHERE APPLICABLE).



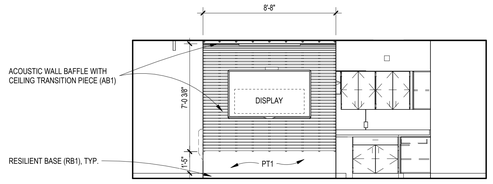
8 A1.1 INTERIOR ELEVATION - VESTIBULE

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



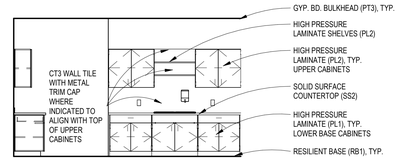
4 A1.1 INTERIOR ELEVATION - WORK ROOM

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



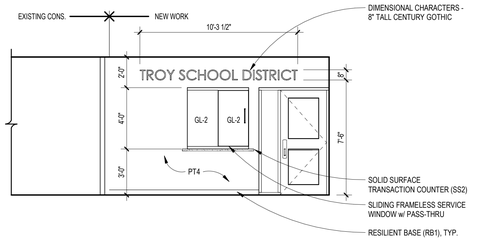
7 A1.1 INTERIOR ELEVATION - WORK ROOM

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



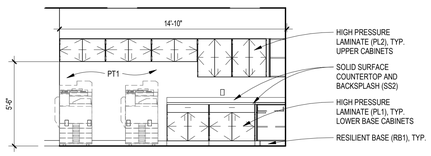
3 A1.1 INTERIOR ELEVATION - WORK ROOM

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



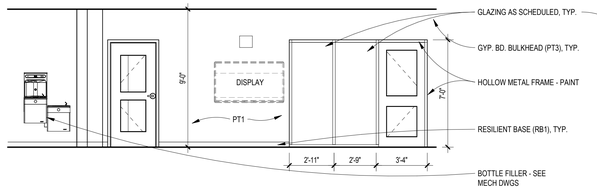
6 A1.1 INTERIOR ELEVATION - LOBBY

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



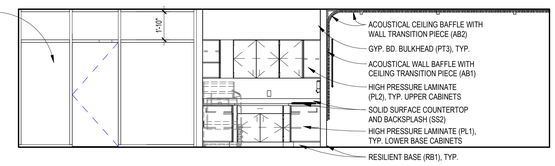
2 A1.1 INTERIOR ELEVATION - WORK ROOM

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



5 A1.1 INTERIOR ELEVATION - LOBBY

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



1 A1.1 INTERIOR ELEVATION - WORK ROOM

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

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REGISTRATION SEAL

CONSULTANT

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

Interior Elevations

ISSUE DATES

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APPROVED	DL

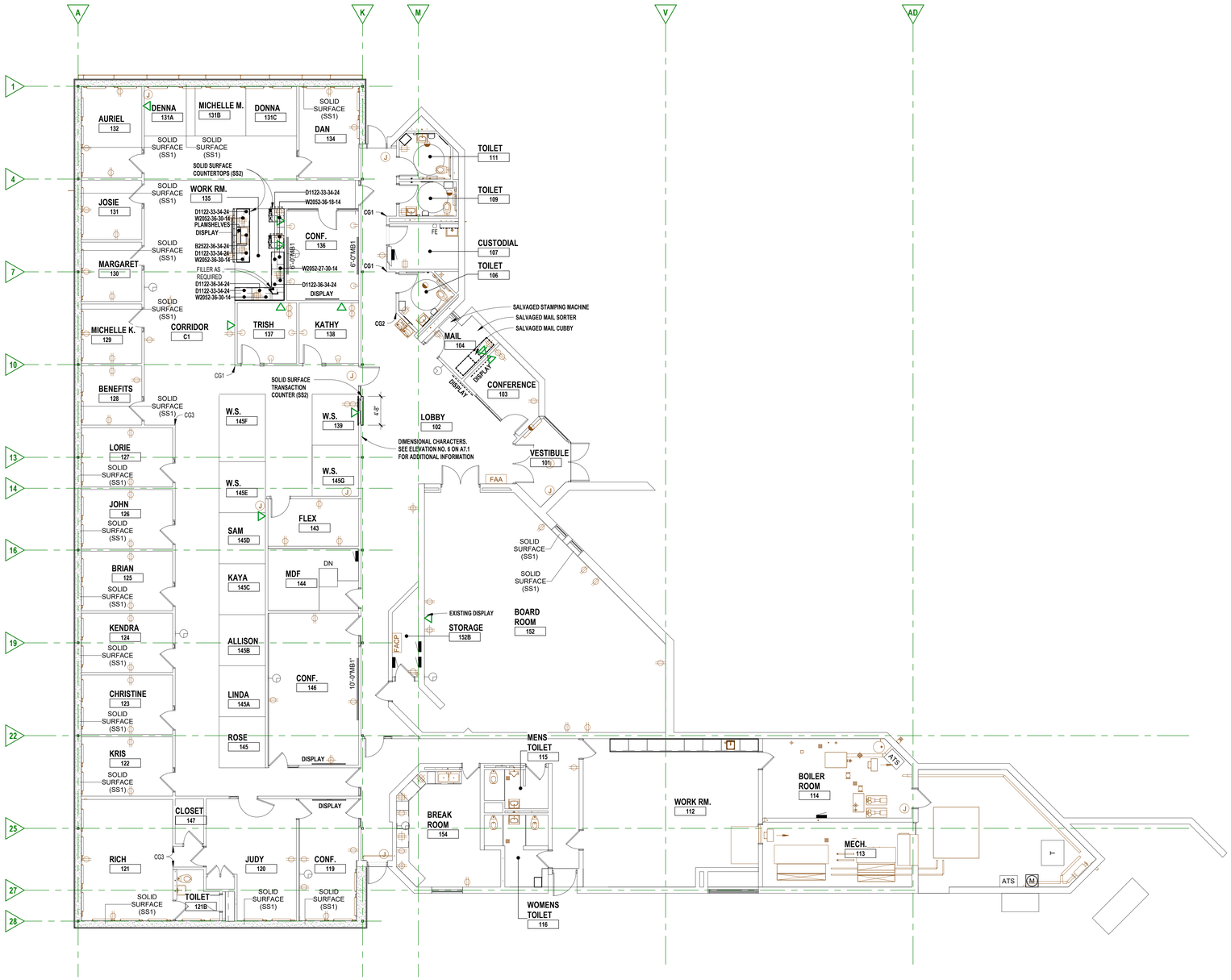
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FIRST LEVEL CASEWORK AND EQUIPMENT PLAN

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

LEGEND

T.V. MONITOR (N.I.C.) & OVERHEAD SUSPENDED MOUNT (N.I.C.).

FES FEC — FIRE EXTINGUISHER IN CABINET (FEC)

FE — FIRE EXTINGUISHER ON WALL BRACKET (FE)

VISUAL DISPLAY BOARD NOTES

TYPE OF BOARD — 6'-0" MB — WIDTH OF BOARD/STRIP

HEIGHT OF ALL BOARDS ARE 4'-0" (UON)

NOTES:

1. MB = MARKERBOARD
   TB = TACKBOARD
   TS = TACK STRIP
   SB = SMART BOARD (BY OTHERS)
2. MOUNTING HEIGHTS (UON):
   MB/TB = 3'-0" AFF TO BOTTOM
   TS = 7'-0" AFF TO BOTTOM
3. ALL MARKERBOARDS SHALL BE PROVIDED WITH TRAYS & MAP RAILS.

NOTE: MARKERBOARDS TO BE IN FURNITURE PACKAGE.

CASEWORK NOTES

1. ALL PREFABRICATED CABINETS INDICATED ARE BASED ON TMI STORAGE SYSTEMS CORPORATION PRODUCTS. REFER TO TMI CATALOG FOR TYPICAL NUMBERING FORMAT.
2. ALL TMI CABINETS ARE DESIGNATED USING THE TYPICAL TMI ELEVEN (11) DIGIT NOTATION SYSTEM. THE FIRST FIVE DIGITS ARE THE MODEL NUMBER FOLLOWED BY THREE SETS OF TWO DIGIT NUMBERS FOR THE WIDTH, HEIGHT AND DEPTH.
3. WIDTH, HEIGHT AND DEPTH OF PREFABRICATED CABINETS IS INDICATED IN INCHES UNLESS NOTED OTHERWISE. MODEL DIMENSIONS ARE NOMINAL UNLESS SPECIFICALLY NOTED. "00000-00-00-00-M" INDICATES MODIFIED CASEWORK.
4. PROVIDE PLASTIC LAMINATE COUNTERTOPS (WITH BACK/END SPLASHES) AT ALL BASE CABINETS (U.O.N.), RADIUS ALL OUTSIDE CORNERS (U.O.N.)
5. ALL EXPOSED SURFACES OF CASEWORK TO BE FINISHED, TYPICAL.
6. WALL CABINETS (OVER COUNTERS) ARE TYPICALLY MOUNTED AT 7'-0" AFF TO TOP (UON).
7. PROVIDE FINISHED END PANELS ON ALL EXPOSED CASEWORK ENDS.
8. PROVIDE RESTRAINING CHAINS ON ALL ENT BASE AND WALL CABINET DOORS WHICH OPEN AGAINST PERPENDICULAR WALLS.
9. WHERE CASEWORK IS HELD AWAY FROM WALLS, TO FLUSH-OUT WITH ADJACENT CABINETS, SCRIBE END/FILLER PANELS TO WALLS.
10. PROVIDE FILLER PANELS WHERE SHOWN AND/OR OTHERWISE REQUIRED FOR A COMPLETE INSTALLATION.
11. PROVIDE LOCKS AT CABINET DOORS AND DRAWERS EXCEPT AT BREAK ROOM 154.
12. MODIFY SINK BASE CABINETS AS REQUIRED TO ACCOMMODATE OVERSIZED SINKS (SEE MECHANICAL FOR OVERSIZED SINK LOCATIONS.
13. WHERE BF 34" HIGH BASE CABINETS ARE INDICATED, MODIFY CABINET CONSTRUCTION BY REDUCING THE HEIGHT OF ALL COMPARTMENTS EQUALLY (INDICATE ON SHOP DWGS.)
14. PROVIDE INTERMEDIATE PLASTIC LAMINATE CLAD SUPPORT PANELS @ 4'-0" OC MAXIMUM AT ALL UNSUPPORTED COUNTER TOPS (UON).
15. PROVIDE GROMMETS AT ALL COUNTERS WITH KNEESPACES, WHERE POWER/DATA OUTLETS ARE LOCATED BELOW (REFER TO ELECTRICAL DRAWINGS FOR LOCATIONS). PROVIDE (1) ONE GROMMET PER KNEESPACE (UON). FINAL LOCATION(S) WILL BE MARKED-UP ON THE SHOP DRAWING SUBMITTAL.
16. PROVIDE MOISTURE RESISTANT PARTICLE BOARD AT SINK BASE, COUNTERTOP, AND SPLASH WITHIN 18" OF SINK.
17. APPLIANCES BY OTHERS, TYPICAL.
18. CG1A INDICATES CORNER GUARD. SEE SPECIFICATIONS FOR TYPE, HEIGHT, ETC.

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REGISTRATION SEAL

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DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Casework & Equipment Plan

ISSUE DATES

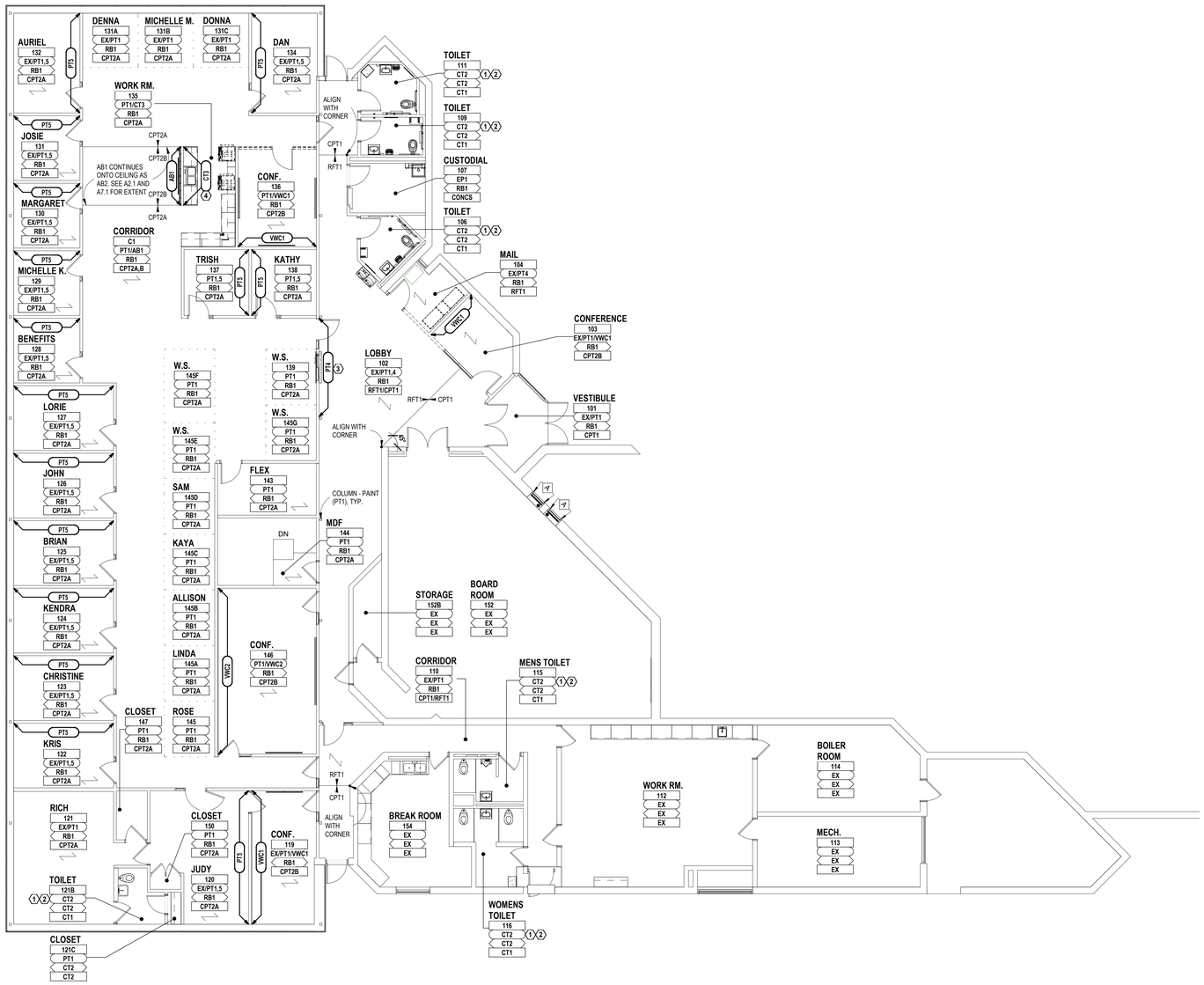
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FIRST LEVEL FINISH PLAN

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

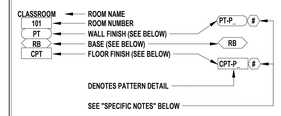
FINISH LEGEND

ROOM FINISH TAGS

ROOM NAME AND NUMBER PLUS GENERAL ROOM FINISH INFORMATION. FINISH TAGS SHALL APPLY TO ALL LIKE MATERIALS WITHIN A ROOM (UON)

FINISH LEGEND

FINISH LEGEND IS GENERAL SEE SPECIFICATIONS FOR SPECIFIC FINISH INFORMATION. MULTIPLE FINISH TYPES ARE DENOTED BY NUMBER FOLLOWING ABBREVIATION.



WALL FINISH ABBREVIATIONS

AB	ACOUSTIC BAFFLE
CT	CERAMIC TILE
EP	EPOXY PAINT
EX	EXISTING (NO NEW FINISH)
PT	PAINT
VWC	VINYL WALL COVERING

BASE FINISH ABBREVIATIONS

CT	CERAMIC TILE
EX	EXISTING (NO NEW FINISH)
RB	RESILIENT BASE

FLOOR FINISH ABBREVIATIONS

CONCS	CONCRETE - WITH APPLIED SURFACE SEALER
CPT	CARPET
CT	CERAMIC TILE
EX	EXISTING (NO NEW FINISH)
RFT	RUBBER FLOOR TILE

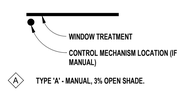
GENERAL NOTES

1. REFER TO REFLECTED CEILING PLANS FOR CEILING TYPES, HEIGHTS AND FINISH INFORMATION.
2. AT CERAMIC TILE LOCATIONS, INSTALLER TO USE APPROPRIATE TROWEL TO ACCOMMODATE DIFFERENT TILE THICKNESSES.
3. REFER TO STRUCTURAL DRAWINGS FOR DEPRESSED SLAB LOCATIONS, INDICATIVE OF MUDSET BEDS AT CERAMIC TILE. SLOPE MUDSET TO DRAINS. REFER TO ARCHITECTURAL DRAWINGS FOR DRAIN ELEVATIONS AND LOCATIONS.
4. PROVIDE ANTI-FRACTURE MEMBRANE AT ALL THINSET CERAMIC TILE LOCATIONS, UNLESS OTHERWISE NOTED.
5. PROVIDE RESILIENT BASE AT TOE KICK OF ALL CASEWORK AND BEHIND ALL MOVABLE EQUIPMENT/APPLIANCES, WHEN SCHEDULED WITHIN A ROOM.
6. ALL WALL MOUNTED MECHANICAL EQUIPMENT (DIFFUSERS, GRILLES, ETC) AND ELECTRICAL EQUIPMENT (PANELS, ETC) SHALL BE PAINTED TO MATCH THE ADJACENT WALL COLOR. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR QUANTITIES AND LOCATIONS.
7. REFER TO SPEC, SECTION 012300 FOR COMPLETE LIST AND DESCRIPTION OF ALTERNATIVES.
8. WHERE REMOVAL OR MODIFICATION TO A FINISH MATERIAL IS SHOWN, BUT NEW FINISHES ARE NOT SCHEDULED, PATCH AND REPAIR TO MATCH EXISTING FINISH CONDITION AS REQUIRED
9. PROVIDE APPROPRIATE TRANSITION STRIPS BETWEEN DISSIMILAR FLOORING MATERIALS AT VERTICAL AND/OR HORIZONTAL APPLICATIONS.
10. CARPET EDGES SHALL BE CAPTURED BY NOSING, NOSING SHALL BE MITERED AT ALL OUTSIDE AND INSIDE CORNER CONDITIONS. ALL EDGES OF CARPET SHALL BE SEALED WITH A SEAM-SEALER.
11. FLOORING CONTRACTOR SHALL INSTALL INSERTS TO MATCH ADJACENT FLOORING MATERIAL AT ALL ELECTRICAL FLOOR BOX COVERS AS REQUIRED.
12. FOR MORE INFORMATION REGARDING THRESHOLDS AT TILE INSTALLATIONS, SEE DOOR SCHEDULE SHEET.
13. ALL EXISTING INTERIOR BRICK TO REMAIN UNPAINTED UNLESS OTHERWISE NOTED.

SPECIFIC NOTES

1. WALL TILE TO BE INSTALLED FULL HEIGHT OF WALL(S) AT LOCATIONS INDICATED ON DRAWINGS UNLESS OTHERWISE INDICATED.
2. CT2 WALL TILE TO RUN DIRECTLY DOWN TO SCHLUTER DILEX-AHK METAL COVE BASE AT FLOOR TILE.
3. PT4 EXTENT: WHERE INDICATED, TO THE NEAREST EXISTING VERTICAL GYPSUM WALL SEAM.
4. SEE ELEVATION ON A7.1 FOR WALL TILE EXTENT.

WINDOW TREATMENT LEGEND



PATTERN DETAILS (FLOORS)

FLOORING DIRECTION SYMBOL

= INDICATES FLOORING MATERIAL INSTALLATION DIRECTION

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REGISTRATION SEAL

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Finish Plan

ISSUE DATES

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CHECKED	NAK
APPROVED	NAK

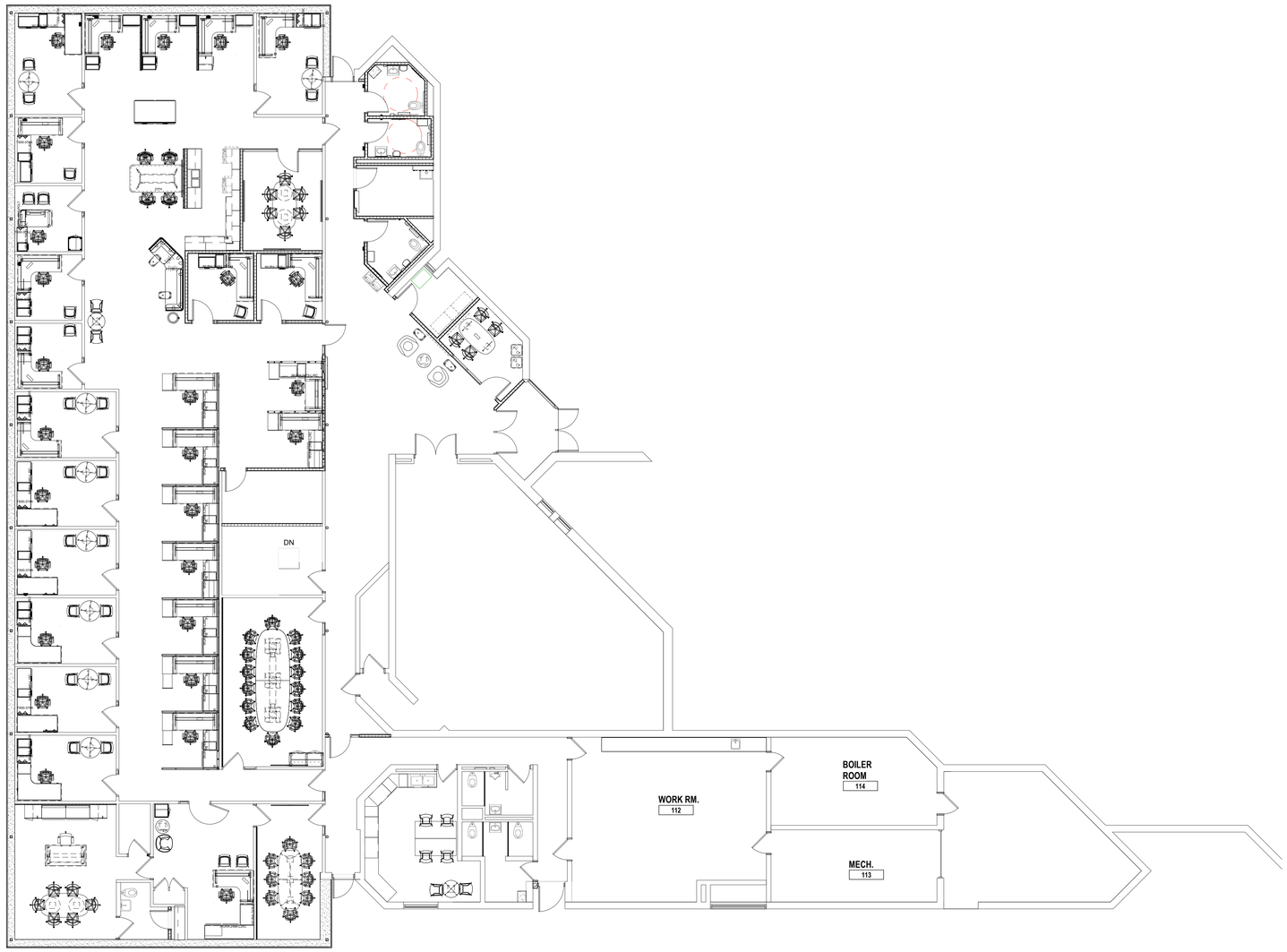
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FIRST LEVEL FURNITURE PLAN - ZONE 'A'

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

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DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

First Level Furniture Plan (FOR REFERENCE ONLY)

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CHECKED	Checker
APPROVED	Approver

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MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(__#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSER UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
ATD	AIR TRANSFER DUCT
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACK DRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BVC	BEVERAGE CONDUIT
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (__#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWF	DOMESTIC COLD WATER - FILTERED
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DMPR	DAMPER
DN	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECM	ELECTRONICALLY COMMUTATED MOTOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EES	EMERGENCY EYE WASH / SHOWER
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW METER
FMS	FLOW MEASURING STATION
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GSAN	GREASE SANITARY WASTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPCW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(__)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KA	THOUSAND AMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAT	MIXED AIR TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MEDICAL COMPRESSED AIR
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MECH	MECHANICAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MH	MANHOLE
MIL	1/1000th INCH
MIN	MINIMUM
MISC	MISCELLANEOUS
MMBH	MILLION BRITISH THERMAL UNITS PER HOUR
MOP	MAXIMUM OVERCURRENT PROTECTION
M/S	MOTOR STARTER
MTD	MOUNTED
MTR	MOTOR
MV	MANUAL AIR VENT
MVAC	MEDICAL VACUUM
N	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION AGENCY
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER
O	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OB	OUTLET BOX
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OED	OPEN ENDED DUCT
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
OWS	OPERATOR WORKSTATION
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
PST	PUMPED STORM
PW	PURIFIED WATER
PWR	PURIFIED WATER RETURN
PWS	PURIFIED WATER SUPPLY
(R)	RELOCATED
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
RPM	REVOLUTIONS PER MINUTE
RPDA	REDUCED PRESSURE BACKFLOW DETECTION ASSY
RPZA	REDUCED PRESSURE BACKFLOW ZONE ASSY
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SCCA	SHORT CIRCUIT CURRENT RATING
SECT	SECTION
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(__#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TK	TANK
TMR	TIMER SWITCH
TPD	TEPID WATER
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TW	TEMPERED WATER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VTU	VENTURI TERMINAL UNIT
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WAGD	WASTE ANESTHETIC GAS DISPOSAL
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WMSD	WASHING MACHINE SUPPLY AND DRAIN BOX
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER
ZVB	ZONE VALVE BOX

TEMPERATURE CONTROL - PARTIAL SYMBOLS LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CO2	CARBON DIOXIDE SENSOR	OS	OCCUPANCY SENSOR
CO	CARBON MONOXIDE SENSOR	PT	PRESSURE TRANSMITTER
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	SP	STATIC PRESSURE SENSOR OR PROBE
FM	FLOW METER		VALVE - 2 WAY CONTROL VALVE
	GUARD FOR STAT OR SENSOR		VALVE - 3 WAY CONTROL VALVE
H	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)	T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)

NOTE: LIST OF ADDITIONAL SYMBOLS & ABBREVIATIONS ASSOCIATED WITH TEMPERATURE CONTROLS ARE IDENTIFIED ON TC DRAWINGS.

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
FE	FLOW MEASURING DEVICE (FOR TEST AND BALANCING)
FS	FLOW SWITCH
FM	FLOW METER
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STRAINER
	STRAINER WITH VALVE AND BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - BUTTERFLY
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT
WM	WATER METER
GM	GAS METER

DOUBLE LINE PIPING SYMBOLS

SYMBOL	DESCRIPTION
	FLANGE
	FLEX CONNECTION
	STRAINER - BASKET
	STRAINER - Y TYPE
	VALVE - 2 WAY CONTROL
	VALVE - 3 WAY CONTROL
	VALVE - BUTTERFLY
	VALVE - CHECK
	VALVE - DETECTOR CHECK
	VALVE - OS&Y HORIZONTAL STEM
	VALVE - OS&Y VERTICAL STEM

DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
TU-101	AIR TERMINAL UNIT
TU-101	AIR TERMINAL UNIT WITH HEATING COIL
VTU-101	VENTURI AIR TERMINAL UNIT
VTU-101	VENTURI AIR TERMINAL UNIT WITH HEATING COIL
	DAMPER - HORIZONTAL FIRE (EXISTING, NEW)
	DAMPER - HORIZONTAL FIRE / SMOKE (EXISTING, NEW)
	DAMPER - SMOKE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE / SMOKE (EXISTING, NEW)
BDD	DAMPER - BACK DRAFT
M	DAMPER - MOTORIZED
	DAMPER - VOLUME (MANUALLY ADJUSTABLE)
	DIFFUSER - BLANK OFF
	DIFFUSER - LINEAR SLOT
	DIFFUSER - SQUARE OR RECTANGULAR
	DUCT CROSS SECTION - SUPPLY
	DUCT CROSS SECTION - RETURN
	DUCT CROSS SECTION - EXHAUST
	DUCT - FLEXIBLE CONNECTION
	DUCT - FLEXIBLE DUCT
	DUCT TAKE-OFF - ROUND CONICAL
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR/ ROUND SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	FAN - AXIAL
	FAN - CENTRIFUGAL (ELEVATION)
VFC XX-#	VARIABLE FREQUENCY CONTROLLER SERVING EQUIPMENT XX-#
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	INTAKE OR RELIEF HOOD
	REGISTER - RETURN OR EXHAUST
	REGISTER - RETURN WITH BOOT
	REGISTER - TRANSFER GRILLE
	ROOF EXHAUST FAN
	TRANSITION - CONCENTRIC
	TRANSITION - ECCENTRIC
	UNIT HEATER - HORIZONTAL THROW
	UNIT HEATER - VERTICAL THROW

DOUBLE LINE DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	DUCT TAKE-OFF - ROUND CONICAL
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR SHORT RADIUS WITH SPLITTER VANES
	ELBOW - ROUND
	ELBOW - RECTANGULAR SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	TRANSITION - CONCENTRIC
	TRANSITION -ECCENTRIC

MECHANICAL DRAWING INDEX

SHEET NO.	SHEET TITLE
M0.1	MECHANICAL STANDARDS AND DRAWING INDEX
M2.0	UNDERGROUND LEVEL PLUMBING DEMOLITION PLAN
M2.1	FIRST LEVEL PLUMBING DEMOLITION PLAN
M3.1	FIRST LEVEL HVAC PIPING DEMOLITION PLAN
M4.1	FIRST LEVEL SHEET METAL DEMOLITION PLAN
M5.1	ROOF LEVEL MECHANICAL DEMOLITION PLAN
M2.0	UNDERGROUND LEVEL PLUMBING PLAN
M2.1	FIRST LEVEL PLUMBING PLAN
M3.1	FIRST LEVEL HVAC PIPING PLAN
M4.1	FIRST LEVEL SHEET METAL PLAN
M5.1	ROOF LEVEL MECHANICAL PLAN
M6.1	MECHANICAL DETAILS AND DIAGRAMS
M6.2	MECHANICAL DETAILS AND DIAGRAMS
M7.1	MECHANICAL SCHEDULES
M7.2	MECHANICAL SCHEDULES
M7.3	MECHANICAL SCHEDULES
M8.1	TEMPERATURE CONTROLS
M8.2	TEMPERATURE CONTROLS
M8.3	TEMPERATURE CONTROLS

STANDARD METHODS OF NOTATION

S-1
10ø
350-4
SUPPLY DIFFUSER WITH SCHEDULE TAG "1",
10" DIAMETER NECK SIZE
350 CFM TYPICAL FOR 4

R-1
22x22
640
RETURN REGISTER WITH SCHEDULE TAG "1",
22"x 22" NECK SIZE
640 CFM TYPICAL FOR 2
EXHAUST REGISTER E DESIGNATION SIMILAR.

TU-101
AIR TERMINAL UNIT WITH HEATING COIL NO. 101
WITH SERVICE CLEARANCE SHOWN

VTU-101
VENTURI AIR TERMINAL WITH HEATING COIL NO. 101
WITH SERVICE CLEARANCE SHOWN

(2)WC-1
FD-1
PLUMBING FIXTURE UNIT IDENTIFICATION TAG
WATER CLOSET TYPE "1"
TYPICAL FOR 2

8
PIPE DIAMETER NOTATION
ALL SIZES IN INCHES

8ø
22x10
18x14ø
DUCT SIZE NOTATION
ALL SIZES IN INCHES
OVAL DUCT
RECTANGULAR DUCT

1
CONSTRUCTION KEY NOTE (NUMBER) OR
DEMOLITION KEY NOTE (LETTER)

EF
1
EQUIPMENT DESIGNATION,
(i.e. EXHAUST FAN NUMBER 1)

HW-1
PIPING RISER DESIGNATION,
(i.e. HOT WATER RISER NUMBER 1)

NEW SYSTEM COMPONENT
EXISTING SYSTEM COMPONENT TO REMAIN
POINT OF NEW CONNECTION SYMBOL

1
M5.1
SECTION OR PLAN NUMBER
SHEET WHERE SECTION IS DRAWN

AREA OF ENLARGEMENT
1
M5.1
PLAN NUMBER
SHEET WHERE ENLARGED PLAN IS DRAWN

1
M5.1
SECTION OR PLAN NUMBER
SECTION OR ENLARGED PLAN
SCALE: 1/8" = 1' - 0"
SHEET WHERE SECTION IS CUT OR
ENLARGED PLAN IS REFERENCED

SHEET M1.0
SHEET M1.1
MATCHLINE

HEAVY LINE WEIGHT INDICATES NEW WORK

LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT OR REFERENCED INFORMATION

GRAY LINE INDICATES BACKGROUND INFORMATION

DASHED LINES INDICATE PIPING ROUTED BELOW SLAB OR GRADE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

MECHANICAL STANDARDS AND DRAWING INDEX

ISSUE DATES

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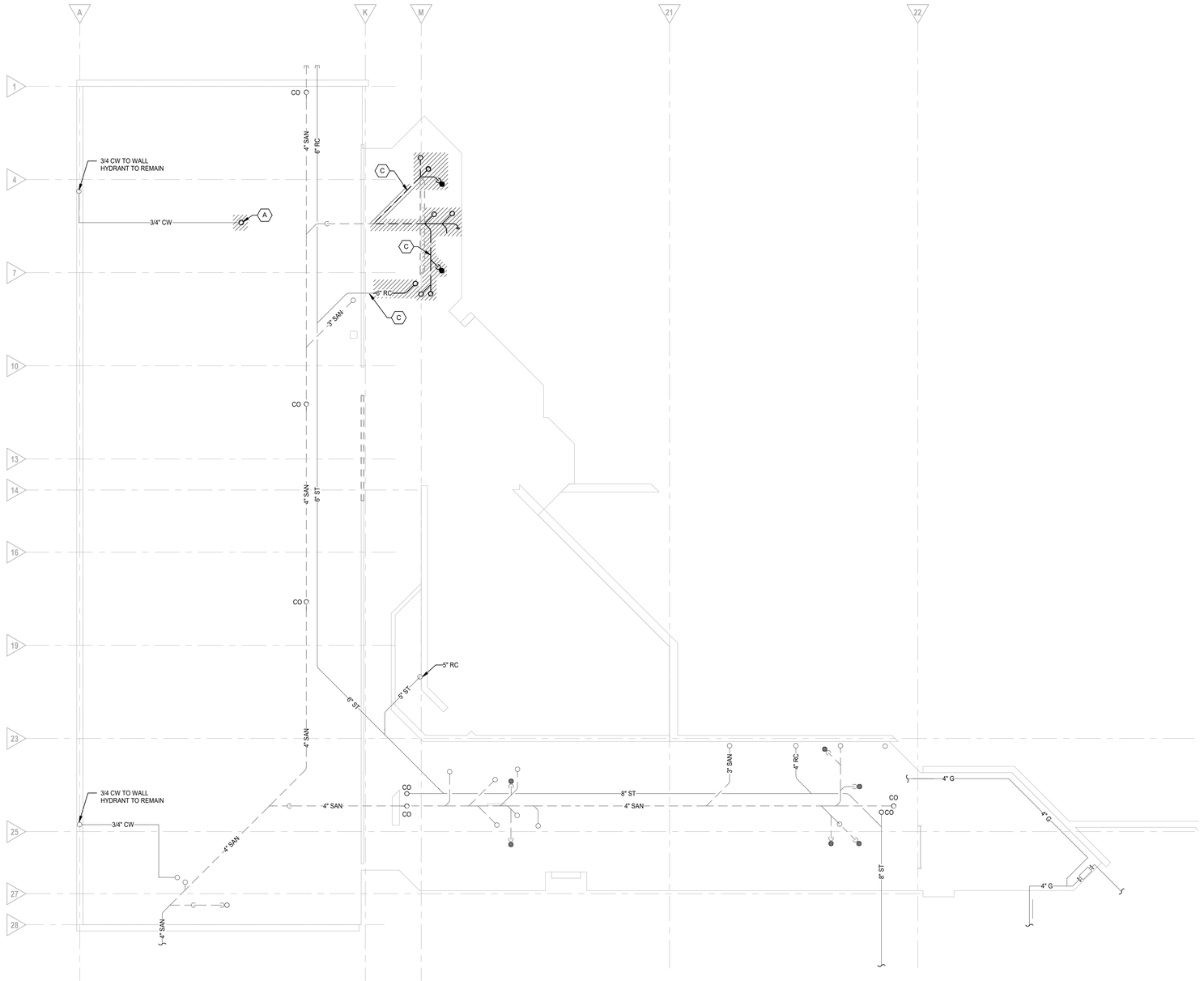
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PROJECT NO.
22106

DRAWING NO.
M0.1

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



UNDERGROUND PLUMBING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1 ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.

2 THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.

3 THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.

4 ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A REMOVE EXISTING 3/4 CW PIPING AND PREPARE FOR RECONNECTION. REFER TO NEW WORK PLAN.

B REMOVE EXISTING PLUMBING FIXTURE COMPLETE, INCLUDE ALL PIPING, HANGERS, SUPPORTS AND FITTINGS.

C REMOVE PIPING COMPLETE BACK TO NEAREST MAIN BRANCH AND CAP BACK AT SOURCE.

D REMOVE PUMPED CONDENSATE PIPING COMPLETE. REMOVE ALL FITTINGS, HANGERS AND SUPPORTS.

E REMOVE EXISTING PLUMBING FIXTURE COMPLETE. MODIFY/EXTEND EXISTING PIPING TO ALLOW FOR INSTALLATION OF NEW PLUMBING FIXTURE.

F REMOVE EXISTING HWRP LOCATED IN MECHANICAL ROOM. PREPARE PIPING FOR NEW HWRP. EXTEND/MODIFY PIPING AS NEEDED TO MAKE FINAL CONNECTIONS.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

UNDERGROUND LEVEL PLUMBING DEMOLITION PLAN

ISSUE DATES

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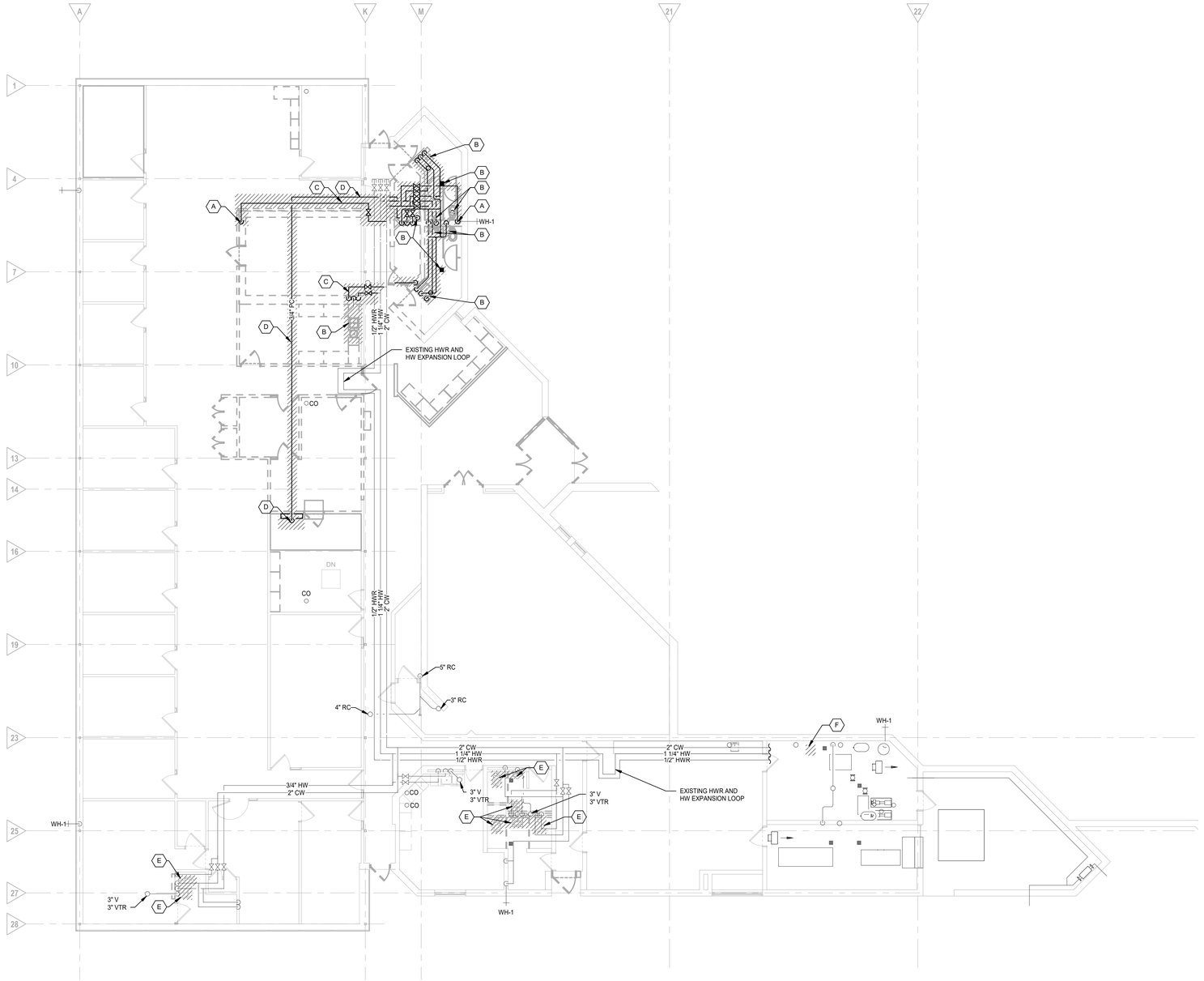
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FIRST LEVEL PLUMBING DEMOLITION PLAN

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

MECHANICAL DEMOLITION GENERAL NOTES:

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3 THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.

4 ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A REMOVE EXISTING 3/4 CW PIPING AND PREPARE FOR RECONNECTION. REFER TO NEW WORK PLAN.

B REMOVE EXISTING PLUMBING FIXTURE COMPLETE, INCLUDE ALL PIPING, HANGERS, SUPPORTS AND FITTINGS.

C REMOVE PIPING COMPLETE BACK TO NEAREST MAIN BRANCH AND CAP BACK AT SOURCE.

D REMOVE PUMPED CONDENSATE PIPING COMPLETE. REMOVE ALL FITTINGS, HANGERS AND SUPPORTS.

E REMOVE EXISTING PLUMBING FIXTURE COMPLETE. MODIFY/EXTEND EXISTING PIPING TO ALLOW FOR INSTALLATION OF NEW PLUMBING FIXTURE.

F REMOVE EXISTING HWRP LOCATED IN MECHANICAL ROOM. PREPARE PIPING FOR NEW HWRP. EXTEND/MODIFY PIPING AS NEEDED TO MAKE FINAL CONNECTIONS.

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Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL PLUMBING DEMOLITION PLAN

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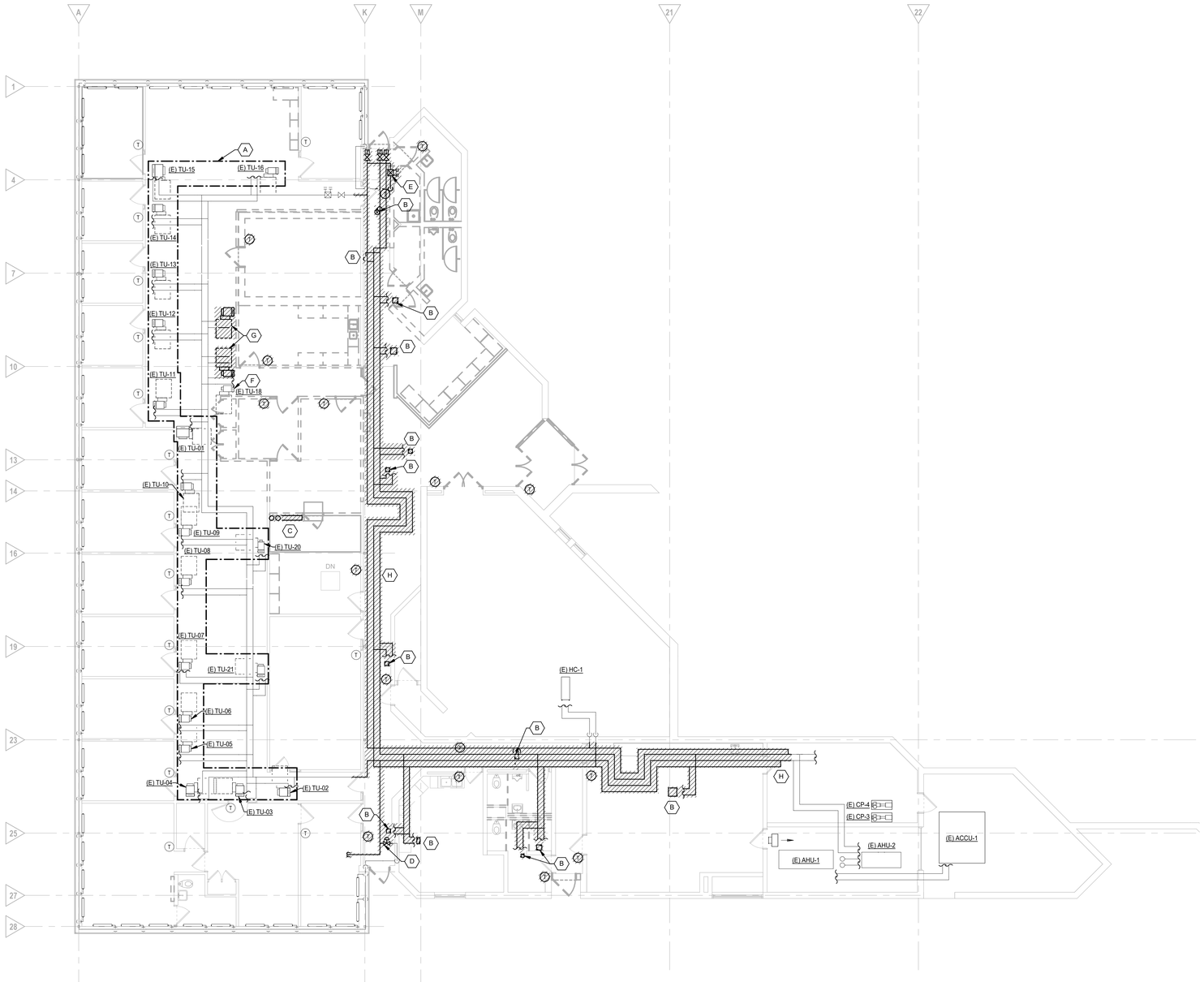
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FIRST LEVEL HVAC PIPING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1 ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.

2 THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.

3 THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.

4 ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A REMOVE EXISTING TERMINAL UNIT CIRCUIT SETTERS FOR REPLACEMENT AND PREPARE ASSOCIATED PIPING FOR NEW WORK. TEST AND BALANCE CONTRACTOR TO PERFORM PRE-CONSTRUCTION HWH WATER FLOW READINGS ON TERMINAL UNITS AND FORWARD REPORTS TO THE ENGINEERING PRIOR TO DEMOLITION.

B REMOVE EXISTING HEATING COIL, CONTROLS, AND ASSOCIATED HWHS/R PIPING.

C REMOVE EXISTING AIR CONDITIONING UNIT, CONTROLS, AND ASSOCIATED REFRIGERANT PIPING.

D REMOVE EXISTING CONTROL VALVE AND PIPING TO PERIMETER FINNED TUBE LOOP. PREPARE UNDERFLOOR PIPING FOR RECONNECTION.

E REMOVE EXISTING BALANCE VALVE AND PIPING DOWN THROUGH WALL TO SERVE PERIMETER FINNED TUBE LOOP. PREPARE UNDERFLOOR PIPING FOR RECONNECTION.

F REMOVE EXISTING TERMINAL UNIT CIRCUIT SETTER AND ASSOCIATED CONTROLS FOR REPLACEMENT AND PREPARE FOR NEW WORK.

G REMOVE EXISTING TERMINAL UNIT, CONTROLS, AND ASSOCIATED HWHS/R PIPING.

H REMOVE EXISTING HWHS/R PIPING MAINS BACK TO BOILER ROOM AND PREPARE FOR RECONNECTION.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL HVAC PIPING DEMOLITION PLAN

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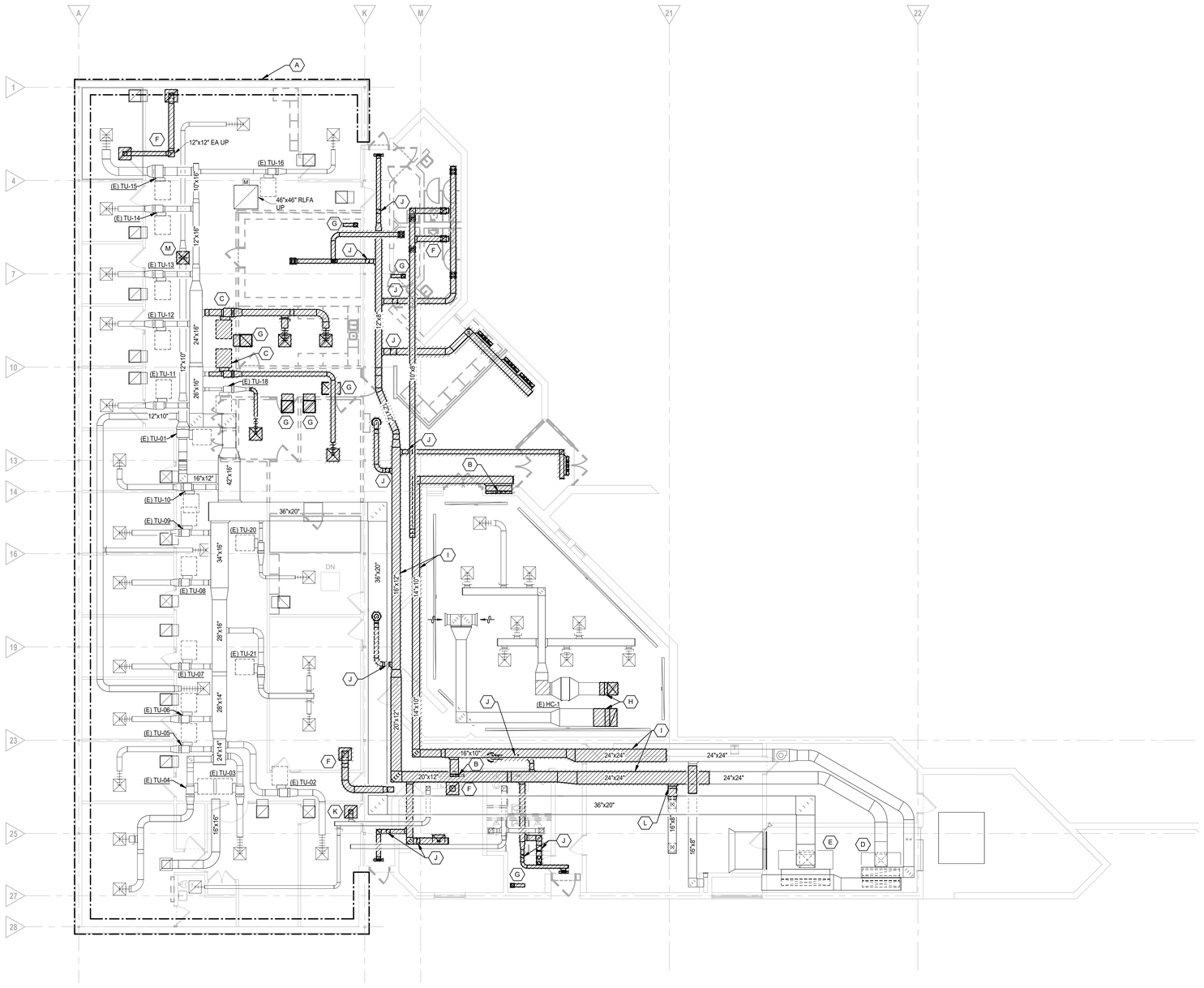
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22106

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MD3.1

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FIRST LEVEL SHEET METAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1 ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.

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3 THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.

4 ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A REMOVE EXISTING FINNED TUBE RADIATOR GRILLES BUILT INTO SILL FOR REPLACEMENT. COORDINATE WITH ARCHITECTURAL TRADES.

B CAP AND ABANDON EXISTING DUCTWORK IN CHASE.

C REMOVE TERMINAL UNIT AND ASSOCIATED DUCTWORK. CAP BRANCH DUCTWORK BACK AT MAIN.

D REMOVE EXISTING SUPPLY FAN MOTOR, BELTS AND SHAVES AND PREPARE FOR REPLACEMENT.

E TEST AND BALANCE CONTRACTOR TO PERFORM PRE-CONSTRUCTION AIRFLOW READINGS AT SIMULATED FULL LOAD FOR (E) AHU-1 AND AT ALL AIR DEVICES SERVED BY (E) AHU-1. FORWARD REPORTS TO ENGINEERING PRIOR TO DEMOLITION WORK.

F REMOVE EXISTING EXHAUST GRILLE(S) AND ASSOCIATED DUCTWORK BACK TO EXHAUST FAN.

G REMOVE EXISTING RETURN GRILLE AND ASSOCIATED DUCTWORK.

H REMOVE EXISTING DUCT DROPS AND DUCT SILENCERS. PREPARE SUPPLY DUCT FOR RECONNECTION. ABANDON RETURN DUCTWORK IN PLACE.

I REMOVE EXISTING (E) AHU-2 MAIN AND BRANCH DUCTWORK BACK TO STORAGE I12.

J REMOVE EXISTING DUCT MOUNTED HEATING COIL, DUCTWORK AND SUPPLY DIFFUSERS AND GRILLES.

K REMOVE EXISTING EXHAUST GRILLE AND BRANCH DUCTWORK AND CAP BACK AT MAIN.

L REMOVE EXISTING DUCT MOUNTED HEATING COIL. PREPARE EXISTING DISTRIBUTION DUCTWORK AND DIFFUSERS FOR RECONNECTION

M REMOVE EXISTING DIFFUSER AND CAP DUCT BACK AT MAIN.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL SHEET METAL DEMOLITION PLAN

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

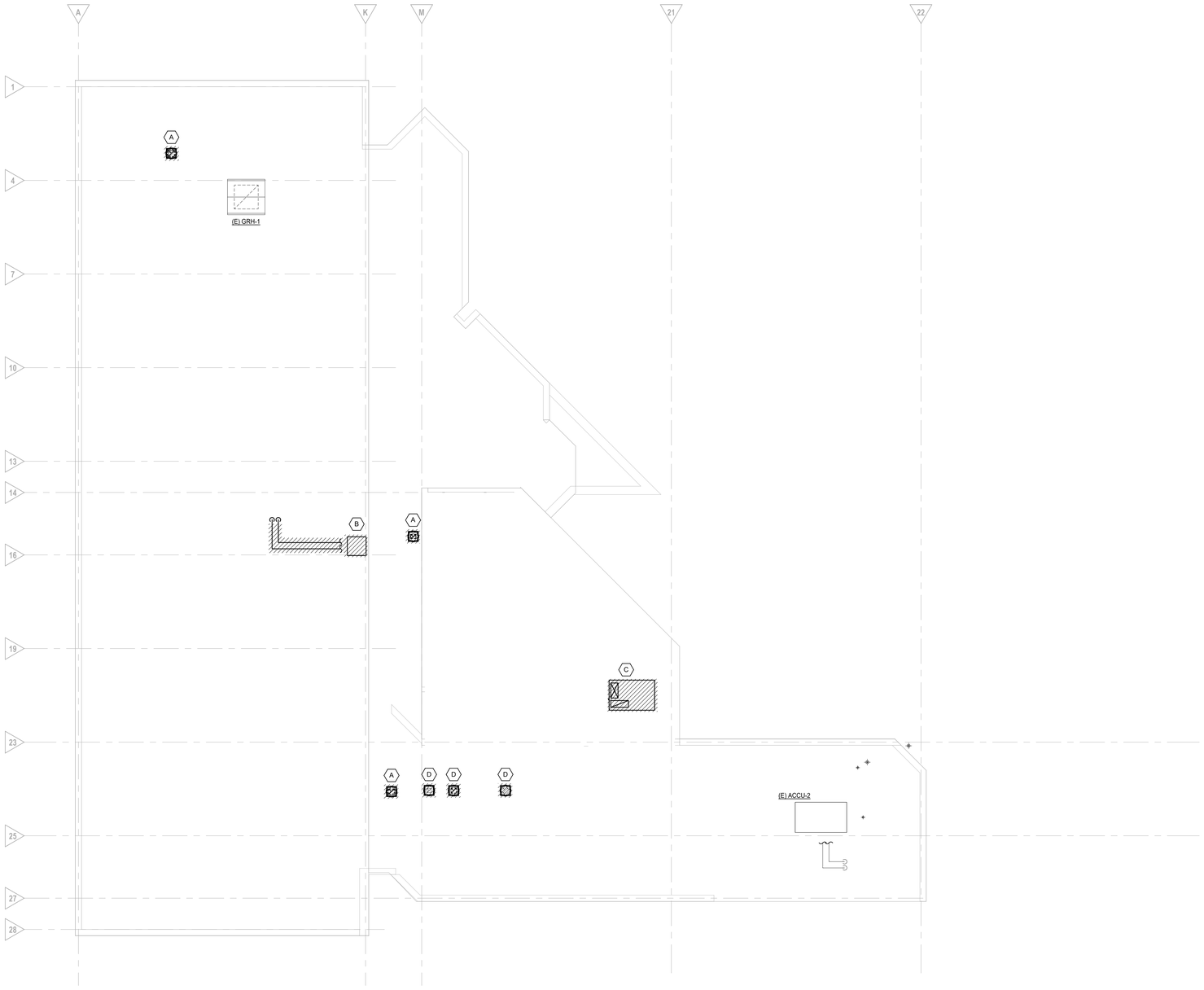
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ROOF MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

MECHANICAL DEMOLITION GENERAL NOTES:

1 ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.

2 THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.

3 THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.

4 ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A REMOVE EXISTING EXHAUST FAN AND ASSOCIATED CONTROLS AND DAMPER. CAP EXISTING ROOF CURB.

B REMOVE EXISTING CONDENSING UNIT AND ASSOCIATED REFRIGERANT PIPING. CAP EXISTING PIPING PORTAL.

C SALVAGE EXISTING ROOFTOP UNIT AND RETURN TO OWNER. INFIL CURB OPENING WITH METAL STUD FRAMING 362S162-33 AT 16" ON CENTER. CONNECT TO EXISTING CURB WITH STIFF CLIP AL362 WITH (4) #12 SCREWS AND CAP EXISTING ROOF CURB.

D REMOVE EXISTING EXHAUST FAN AND ASSOCIATED CONTROLS AND DAMPER. PREPARE EXISTING ROOF CURB FOR REUSE.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

ROOF LEVEL MECHANICAL DEMOLITION PLAN

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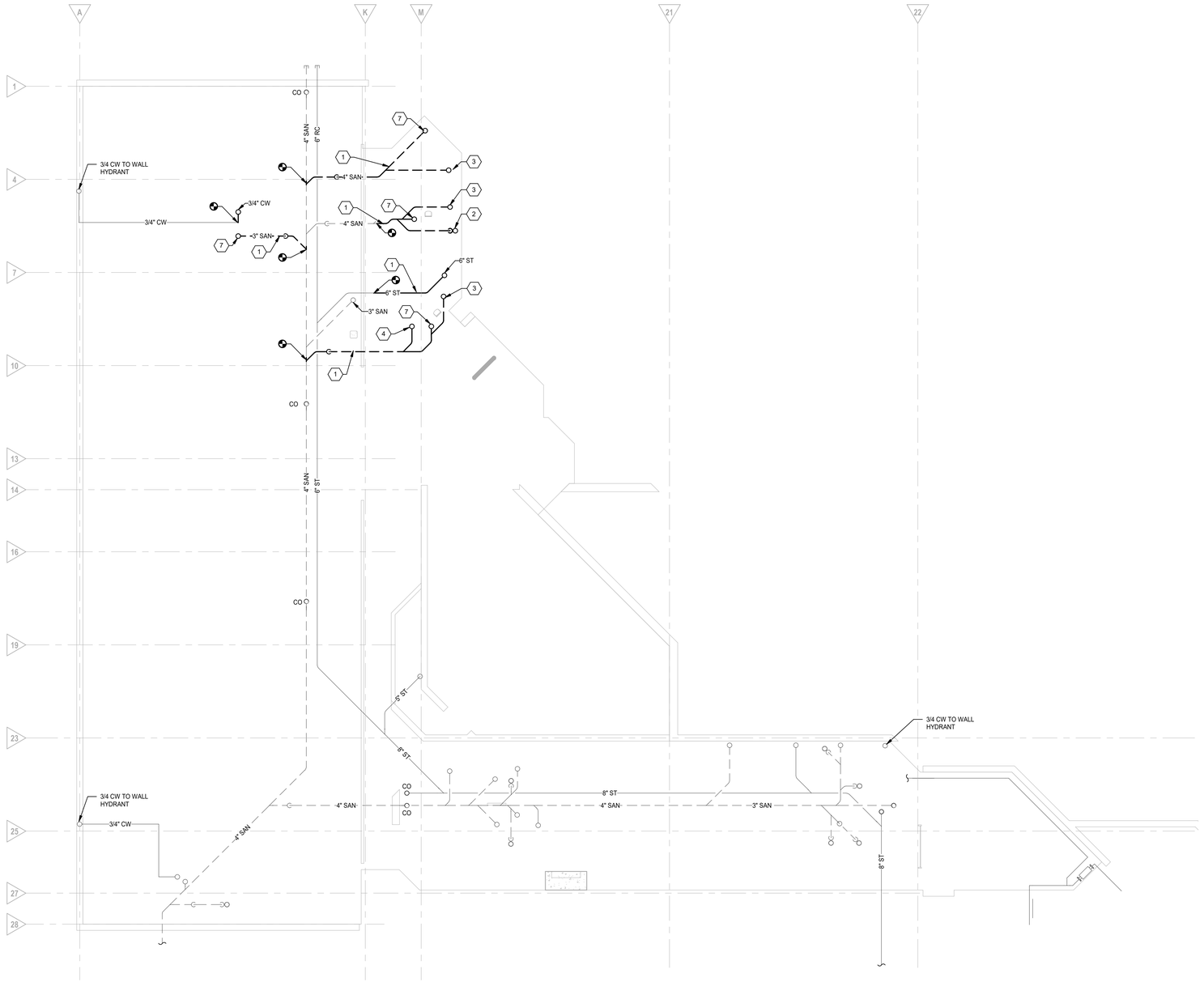
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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



UNDERGROUND PLUMBING PLAN
SCALE: 1/8" = 1'-0"

PLUMBING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<<72">>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

(#) CONSTRUCTION KEY NOTES:

1 SAWCUT FLOORS FOR REQUIRED UNDERGROUND WORK. PATCH AND REPAIR FLOORS AS NEEDED TO MATCH EXISTING.

2 3 SAN TO SERVICE SINK.

3 4 SAN TO WATER CLOSET.

4 3 SAN FOR EWC.

5 CONNECT 3/4 CW TO EXISTING WALL HYDRANT LOCATION. EXTEND PIPING AS NEEDED TO MAKE A FINAL CONNECTION.

6 PROVIDE NEW HOT WATER RETURN CIRCULATION PUMP IN BOILER ROOM 114. REPLACE EXISTING PUMP. BALANCE PUMP TO 1.5 GPM.

7 3 SAN FOR SINK/LAV.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

UNDERGROUND LEVEL PLUMBING PLAN

ISSUE DATES

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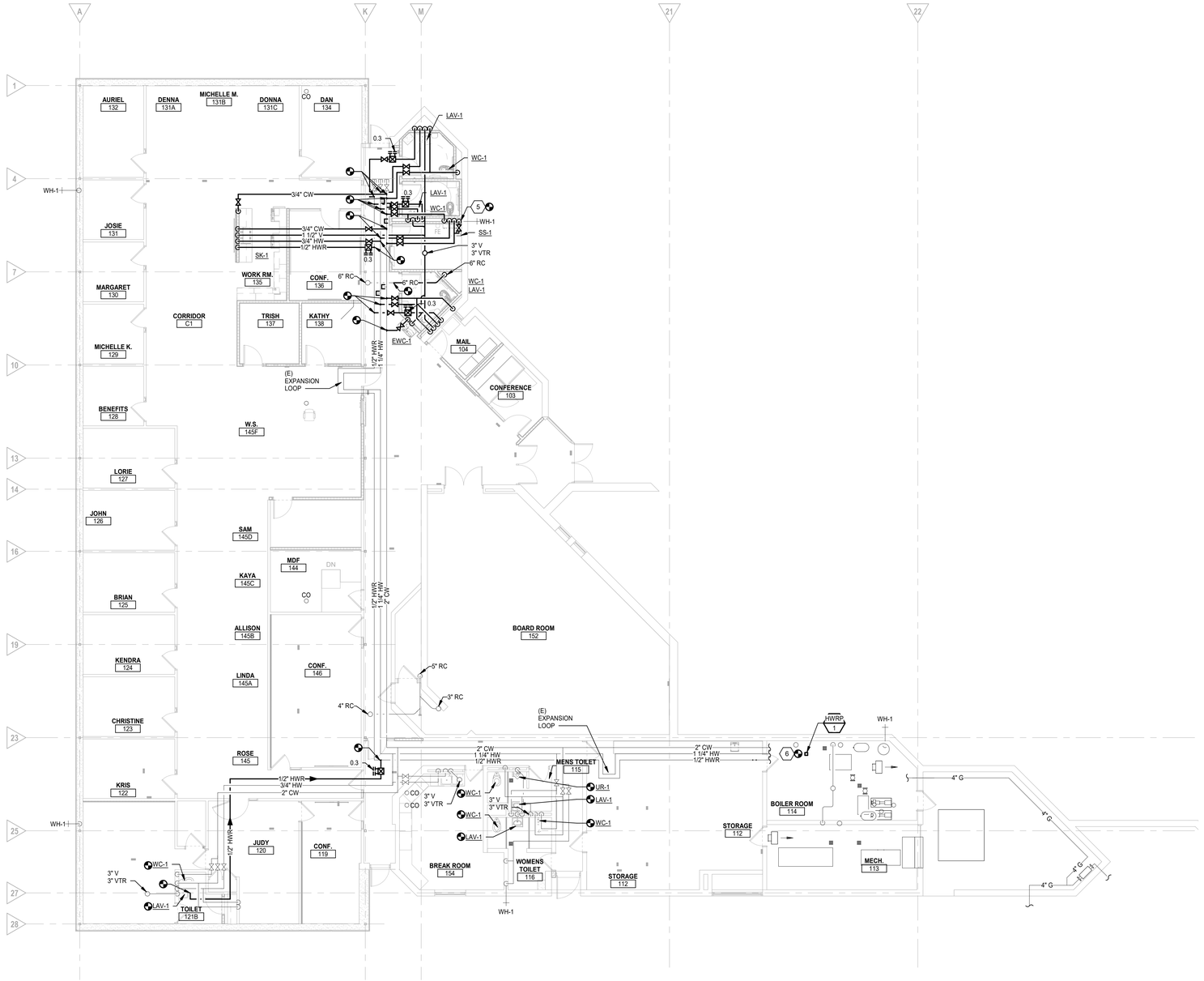
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FIRST LEVEL PLUMBING PLAN
SCALE: 1/8" = 1'-0"

PLUMBING GENERAL NOTES:

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2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.

7 HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.

8 PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.

9 PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.

10 MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".

11 WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST <<<72">>>, OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

(#) CONSTRUCTION KEY NOTES:

1 SAWCUT FLOORS FOR REQUIRED UNDERGROUND WORK. PATCH AND REPAIR FLOORS AS NEEDED TO MATCH EXISTING.

2 3 SAN TO SERVICE SINK.

3 4 SAN TO WATER CLOSET.

4 3 SAN FOR EWC.

5 CONNECT 3/4 CW TO EXISTING WALL HYDRANT LOCATION. EXTEND PIPING AS NEEDED TO MAKE A FINAL CONNECTION.

6 PROVIDE NEW HOT WATER RETURN CIRCULATION PUMP IN BOILER ROOM 114. REPLACE EXISTING PUMP. BALANCE PUMP TO 1.5 GPM.

7 3 SAN FOR SINK/LAV.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL PLUMBING PLAN

ISSUE DATES

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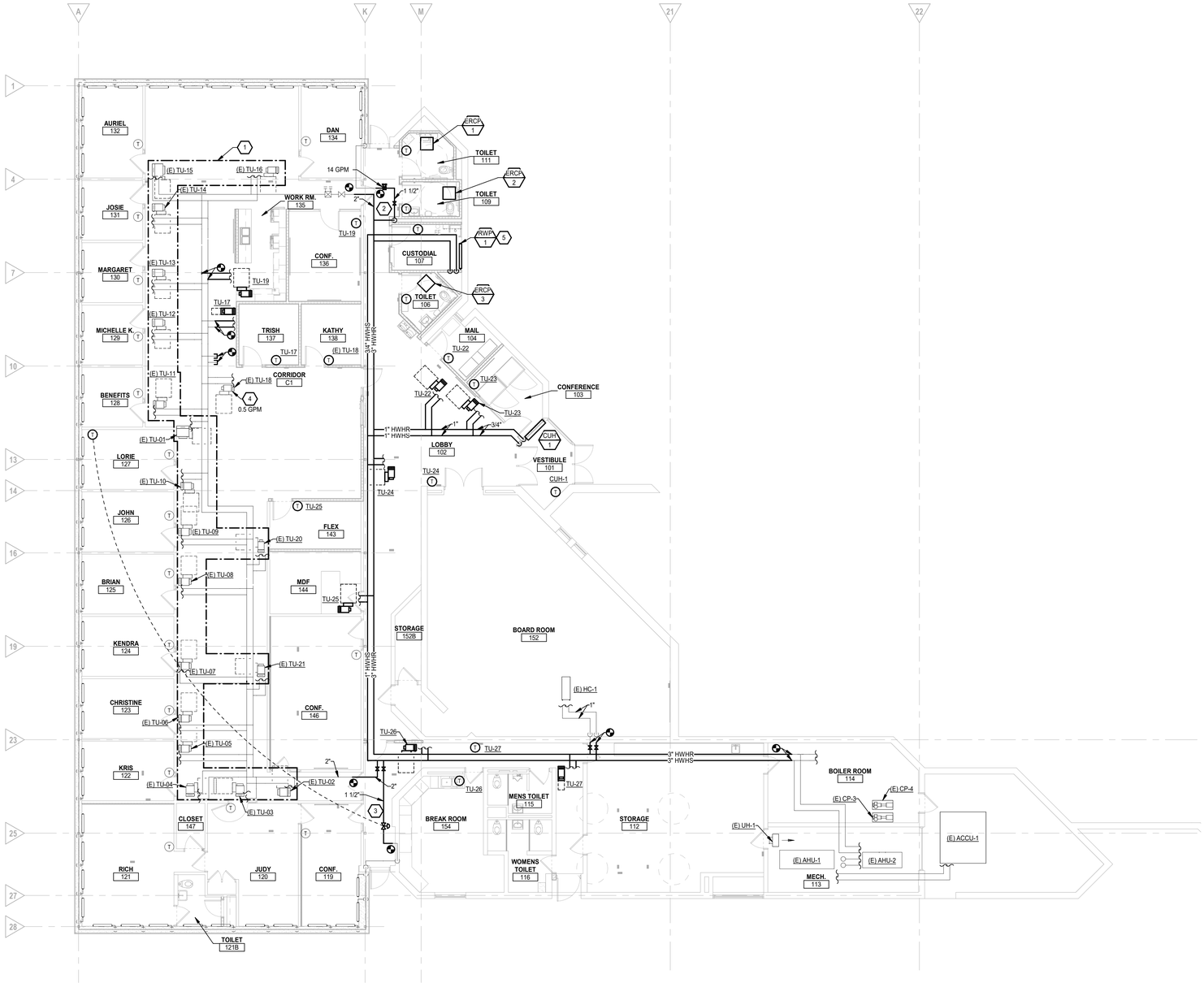
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FIRST LEVEL HVAC PIPING PLAN
SCALE: 1/8" = 1'-0"

HVAC PIPING GENERAL NOTES:

1 THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.

4 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 SUBMIT PROPOSED METHODS OF ANCHORING AND GUIDING PIPING SYSTEMS TO STRUCTURAL ENGINEER FOR APPROVAL.

7 COORDINATE LOCATION OF DUCT-MOUNTED HYDRONIC DEVICES WITH SHEET METAL TRADES.

8 BRANCH PIPING SERVING TERMINAL UNIT HEATING COILS OR RADIANT CEILING PANELS SHALL BE 3/4" UNLESS OTHERWISE NOTED. BRANCH PIPING SERVING MORE THAN ONE TERMINAL UNIT HEATING COIL SHALL BE 1" UNLESS OTHERWISE NOTED. BRANCH PIPING SERVING HOT WATER UNIT HEATERS AND CABINET UNIT HEATERS SHALL BE 1" UNLESS OTHERWISE NOTED.

9 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

(#) CONSTRUCTION KEY NOTES:

1 PROVIDE NEW CIRCUIT SETTERS FOR EXISTING TERMINAL UNITS REBALANCE TO PRE-CONSTRUCTION WATER FLOW.

2 ROUTE NEW HWHR PIPING DOWN THROUGH WALL AND RECONNECT TO EXISTING UNDERGROUND HWHR PIPING.

3 PROVIDE NEW CONTROL VALVE TO SERVE EXISTING PERIMETER FIN TUBE RADIATOR LOOP.

4 PROVIDE NEW CIRCUIT SETTER AND CONTROLS FOR EXISTING TERMINAL UNIT. REBALANCE TO INDICATED WATER FLOW.

5 MOUNT RADIANT WALL PANEL 8' ABOVE FINISH FLOOR.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL HVAC PIPING PLAN

ISSUE DATES

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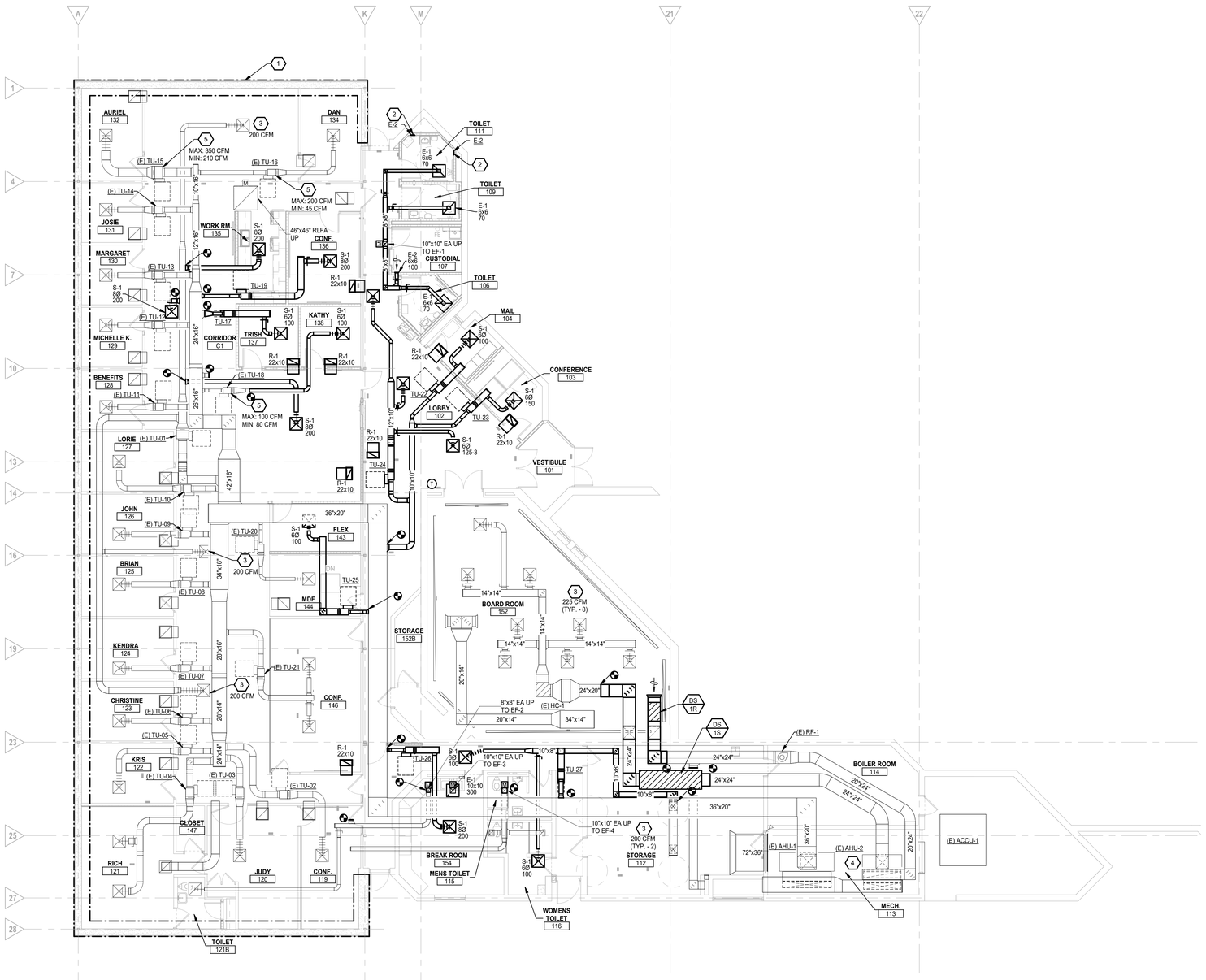
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FIRST LEVEL SHEET METAL PLAN
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SHEET METAL GENERAL NOTES:

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5 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

6 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

(#) CONSTRUCTION KEY NOTES:

1 PROVIDE FORTY-NINE (49) NEW S-2 LINEAR GRILLES IN NEW WINDOW SILL. COORDINATE LOCATIONS WITH ARCHITECTURAL TRADES.

2 PROVIDE (2) 8X8 GRILLES. LOCATE ONE GRILLE 8" A.F.F. AND 8" BELOW CEILING.

3 REBALANCE EXISTING DIFFUSER TO INDICATED AIRFLOW.

4 REFURBISH (E) AHU-2 WITH NEW 2 HP SUPPLY FAN MOTOR, BELT AND SHEAVES. REBALANCE AIRFLOW TO 1800 CFM SA AND 500 CFM OA.

5 REBALANCE EXISTING TERMINAL UNIT TO INDICATED MAXIMUM AND MINIMUM AIRFLOWS.

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Troy School District
Troy, MI

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FIRST LEVEL SHEET METAL PLAN

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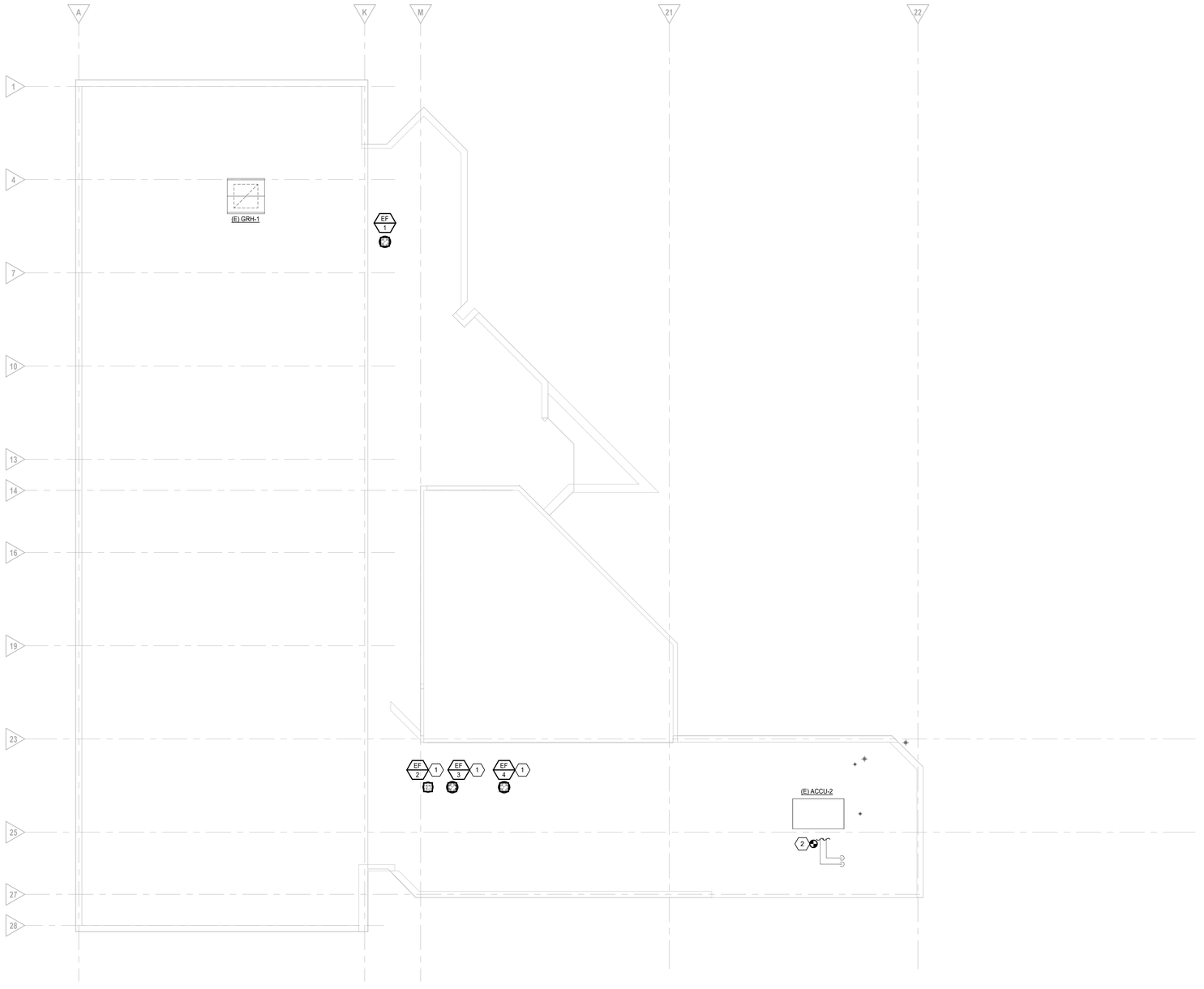
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ROOF MECHANICAL PLAN
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6 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

7 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

HVAC PIPING GENERAL NOTES:

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9 REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

(#) CONSTRUCTION KEY NOTES:

1 PROVIDE NEW EXHAUST FAN WITH CURB ADAPTER.
2 PROVIDE NEW HOT GAS BYPASS SYSTEM (RAWAL DEVICES' APR CONTROL OR APPROVED EQUIVALENT) FOR EXISTING ACCU-2 (DAIKIN MODEL #: RCS11F125C, 9 TONS).

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

ROOF LEVEL MECHANICAL PLAN

ISSUE DATES

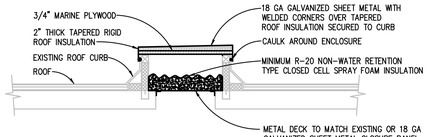
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06-23-2025	CONSTRUCTION DOCUMENTS

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22106

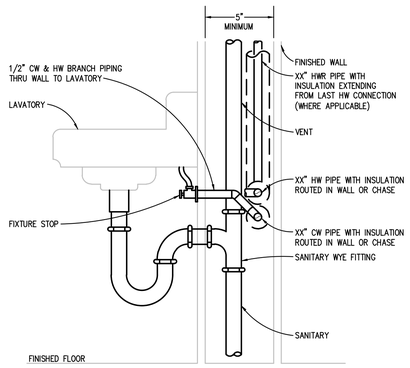
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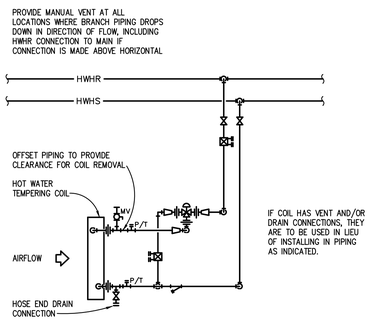


NOTE:
1. FASTEN TOP CLOSURE, WITH SCREWS THROUGH SIDE.
2. NOT TO BE USED FOR CURBS GREATER THAN 24" IN ANY DIMENSION

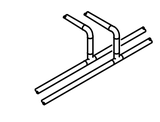
SMALL ROOF CURB CAP DETAIL
NO SCALE



TYPICAL LAVATORY DETAIL
NO SCALE

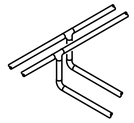


HOT WATER TEMPERING COIL WITH THREE-WAY CONTROL VALVE PIPING DIAGRAM
NO SCALE



BRANCH CONNECTION OFF TOP

APPLIES TO THE FOLLOWING SYSTEMS:
DOMESTIC WATER
STEAM & CONDENSATE
LABORATORY GASES
LABORATORY VACUUM
COMPRESSED AIR
NATURAL GAS

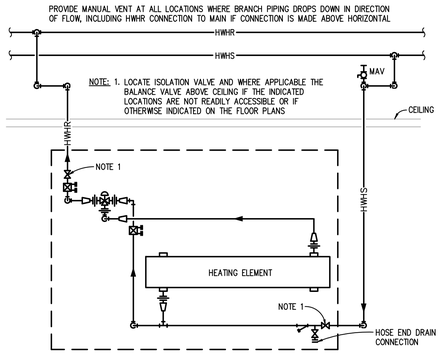


BRANCH CONNECTION OFF BOTTOM

APPLIES TO THE FOLLOWING SYSTEMS:
HOT WATER HEATING
CHILLED WATER
CONDENSER WATER
ENERGY RECOVERY
PROCESS COOLING WATER

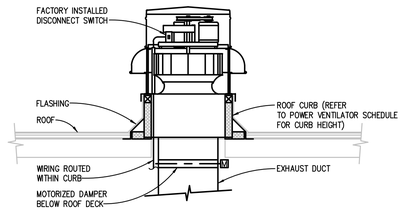
NOTE: BOTTOM AS INDICATED OR SIDE CONNECTION IS ACCEPTABLE. CONNECTION ABOVE CENTERLINE OF MAINS IS NOT ACCEPTABLE.

TYPICAL BRANCH TAKE-OFF CONNECTION PIPING DETAIL
NO SCALE



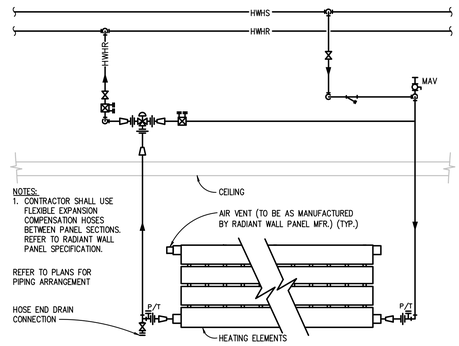
DOWNFEED CONV. OR CUH WITH THREE WAY CONTROL VALVE PIPING DIAGRAM
NO SCALE

PROVIDE MANUAL VENT AT ALL LOCATIONS WHERE BRANCH PIPING DROPS DOWN IN DIRECTION OF FLOW, INCLUDING HWHR CONNECTION TO MAIN IF CONNECTION IS MADE ABOVE HORIZONTAL

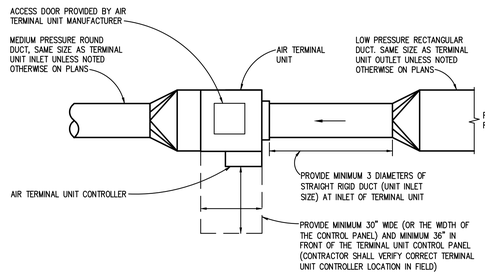


ROOF MOUNTED POWER VENTILATOR EXHAUST FAN DETAIL
NO SCALE

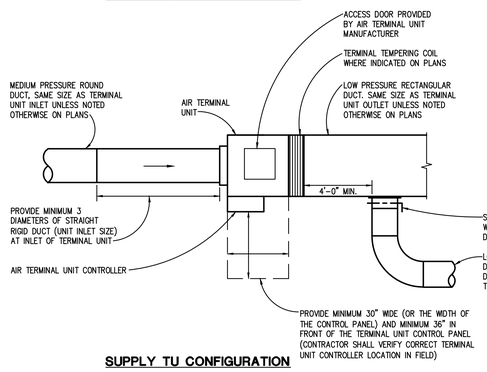
PROVIDE MANUAL VENT AT ALL LOCATIONS WHERE BRANCH PIPING DROPS DOWN IN DIRECTION OF FLOW, INCLUDING HWHR CONNECTION TO MAIN IF CONNECTION IS MADE ABOVE HORIZONTAL



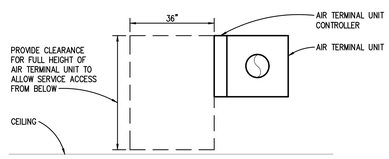
RADIANT WALL PANEL PIPING DIAGRAM
NO SCALE



EXHAUST TU CONFIGURATION

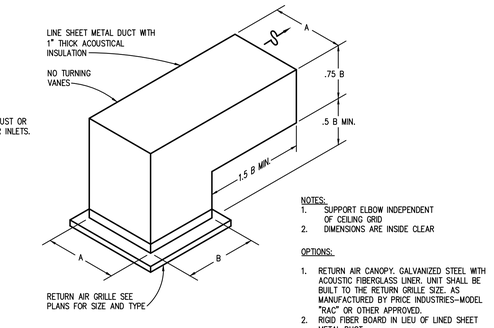


SUPPLY TU CONFIGURATION

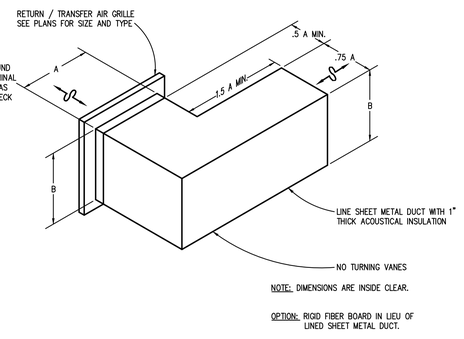


TERMINAL UNIT SECTION

AIR TERMINAL UNIT (TU) DETAIL
NO SCALE



CEILING GRILLE TO/FROM PLENUM



PLENUM TO / FROM WALL GRILLE

PLENUM RETURN AIR GRILLE DETAILS
NO SCALE

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE
MECHANICAL DETAILS AND DIAGRAMS

ISSUE DATES

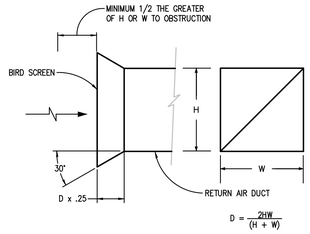
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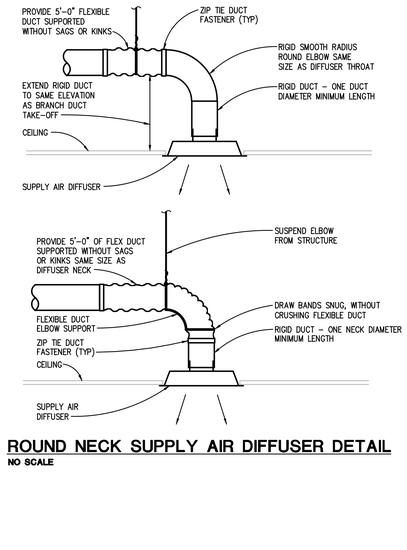
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BELLMOUTH DETAIL
NO SCALE



ROUND NECK SUPPLY AIR DIFFUSER DETAIL
NO SCALE

RETURN OR EXHAUST AIR DEVICE INSTALLATION DETAIL
NO SCALE

NOTE: PAINT INTERIOR SURFACE OF PLENUM BOX FLAT BLACK.

RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS
NO SCALE

DUCT TRANSITION AND OFFSET DETAILS
NO SCALE

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DUCT SYSTEM APPLICATION SCHEDULE

AIR SYSTEMS	G90 GALV. SHEET METAL	DOUBLE-WALL LINED G90 GALV. SHEET METAL (SOLID INNER WALL)	DOUBLE-WALL LINED G90 GALV. SHEET METAL (PERF. INNER WALL)	G90 GALV. SHEET METAL WITH 1-INCH LINING	GALVANNEALED SHEET METAL	ALUMINUM	TYPE 304 STAINLESS STEEL	TYPE 316 STAINLESS STEEL	PVC COATED GALV. SHEET METAL (4X1)	PVC COATED GALV. SHEET METAL (1X4)	PVC COATED GALV. SHEET METAL (4X4)	16 GA. CARBON STEEL	ZERO-CLEARANCE PREFABRICATED RANGE HOOD EXHAUST DUCT	FABRIC	DESIGN PRESSURE CLASS (INCHES WG)	SEAL CLASS	MAX. ALLOWABLE LEAKAGE RATE (PERCENT)	KEYED NOTES
SUPPLY AIR WITHOUT TERMINAL UNITS	X														+2	A	5	
SUPPLY AIR UPSTREAM OF TERMINAL UNITS	X														+6	A	5	
SUPPLY AIR DOWNSTREAM OF TERMINAL UNITS	X														+2	A	5	
RETURN AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
EXHAUST AIR WITHOUT TERMINAL UNITS	X														-2	A	5	

GENERAL NOTES:
1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. 4 X 1 PVC-COATED GALVANIZED STEEL: FACTORY-APPLIED PVC COATINGS SHALL BE 4 MILS (0.10 MM) THICK ON EXTERIOR SHEET METAL SURFACES OF DUCTS AND FITTINGS EXPOSED TO CORROSIVE CONDITIONS AND MINIMUM 1 MIL (0.025 MM) THICK ON INTERIOR SURFACES.
3. 1 X 4 (4 X 1 REVERSE COATED) PVC-COATED GALVANIZED STEEL: FACTORY-APPLIED PVC COATINGS SHALL BE 4 MILS (0.10 MM) THICK ON INTERIOR SHEET METAL SURFACES OF DUCTS AND FITTINGS EXPOSED TO CORROSIVE CONDITIONS AND MINIMUM 1 MIL (0.025 MM) THICK ON EXTERIOR SURFACES.
4. 4 X 4 PVC-COATED GALVANIZED STEEL: FACTORY-APPLIED PVC COATINGS SHALL BE 4 MILS (0.10 MM) THICK ON SHEET METAL SURFACES OF DUCTS AND FITTINGS EXPOSED TO CORROSIVE CONDITIONS AND 4 MILS (0.10 MM) THICK ON OPPOSITE SURFACES.

KEYED NOTES:
A. SCREWS, DAMPERS, OR PROJECTIONS OF ANY TYPE ON INTERIOR OF DUCT SURFACE ARE PROHIBITED
B. DUCT SHALL BE LINED WITHIN 25 FEET UPSTREAM OF FANS.
C. ALL WELDED CONSTRUCTION.

ABOVEGROUND HVAC PIPING & VALVE APPLICATION SCHEDULE

PIPE SIZE (INCHES)	MATERIAL: SOFT COPPER TYPE K	MATERIAL: HARD COPPER TYPE L	MATERIAL: HARD COPPER TYPE M	MATERIAL: CARBON STEEL (SCHED. 40)	MATERIAL: CARBON STEEL (SCHED. 80)	MATERIAL: CARBON STEEL (STD.)	MATERIAL: COPPER TYPE DWV	CONNECTION: SOLDERED	CONNECTION: BRAZED	CONNECTION: WELDED	CONNECTION: THREADED	CONNECTION: FLANGED	CONNECTION: GROOVED	CONNECTION: PRESSURE SEAL	CONNECTION: MECHANICALLY FORMED TEE	ISOLATION VALVES: BALL	ISOLATION VALVES: GENERAL SERVICE BUTTERFLY	ISOLATION VALVES: HI-PERF BUTTERFLY	ISOLATION VALVES: GATE	KEYED NOTES
HEATING HOT WATER SUPPLY & RETURN - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F																				
UP TO 2		X						X	X					X	X	X				
2-1/2 TO 4				X						X		X	X				X			A

GENERAL NOTES:
1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS. IF A BRONZE VALVE CONNECTS THE DISSIMILAR METALS NO FURTHER DIELECTRIC ISOLATION IS REQUIRED.
   a. NPS 2 AND SMALLER: USE BRASS COUPLING, NIPPLE, OR UNION.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. HVAC EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES:
A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS FOR THIS PIPING SYSTEM ONLY. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
B. BALL VALVE WITH 250 PSIG STEAM TRIM.
C. BALL VALVE WITH 150 PSIG STEAM TRIM.

SCHEDULES GENERAL NOTES:

TYPICAL FOR ALL SCHEDULE SHEETS:

1 REFER TO ELECTRICAL STANDARD SCHEDULES, ONE LINE DIAGRAM AND PANEL SCHEDULES FOR ADDITIONAL ELECTRICAL INFORMATION

2 PROVIDE THE FOLLOWING FACTORY-WIRED ELECTRICAL OPTIONS/ACCESSORIES WHERE INDICATED IN SCHEDULE:
A - NON-FUSED DISCONNECT SWITCH
B - UNIT SHALL BE SINGLE POINT ELECTRICAL CONNECTION WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS
C - SERVICE RECEPTACLE
D - FUSED DISCONNECT SWITCH
E - COMBINATION STARTER
F - UNIT SHALL HAVE (2) SINGLE POINT CONNECTIONS WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS. (1) CONNECTION SHALL BE FOR CONDENSING SECTION AND (1) CONNECTION SHALL BE FOR THE REMAINDER OF THE UNIT.

3 FOR MODULATION/CONTROL TYPE COLUMN, "VFC" INDICATES VARIABLE FREQUENCY CONTROLLERS, "AUTO" INDICATES AUTOMATIC OPERATION (CONTROLLED BY TEMPERATURE CONTROLS OR SELF CONTAINED CONTROLS), "MANUAL" INDICATES HAND OPERATION.

4 IF VARIABLE FREQUENCY CONTROLLERS ARE INDICATED TO BE PROVIDED AND ARE NOT INSTALLED INTEGRAL TO THE UNIT, VARIABLE FREQUENCY CONTROLLERS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR (UNLESS OTHERWISE NOTED) AND INSTALLED BY THE ELECTRICAL CONTRACTOR INCLUDING THE LINE SIDE AND LOAD SIDE WIRING TO THE MOTOR AND INCLUDING MISCELLANEOUS STEEL REQUIRED FOR THE SUPPORT AND MOUNTING OF THE VFC. REFER TO FLOOR PLANS FOR LOCATION.

5 WHERE EQUIPMENT IS INDICATED TO HAVE A SINGLE POINT ELECTRICAL CONNECTION, THAT EQUIPMENT SHALL COME COMPLETE WITH FACTORY INSTALLED STARTERS, MOTOR OVERLOAD PROTECTION, CONTACTORS, FUSING AND ALL NECESSARY INTERNAL WIRING AND CONTROLS. PROVIDE A FACTORY MOUNTED UNIT DISCONNECTING MEANS WHERE THE ELECTRICAL CONTRACTOR SHALL MAKE SINGLE POINT CONNECTION. INSTALL PACKAGED EQUIPMENT SUCH THAT THE ELECTRICAL CONNECTION AND CONTROLS ARE ACCESSIBLE AND HAVE CLEARANCES MEETING THE NATIONAL ELECTRICAL CODE.

6 WHERE PACKAGED EQUIPMENT IS PROVIDED, NAMEPLATE MUST INDICATE MAXIMUM OVERCURRENT PROTECTION BY HACR RATED CIRCUIT BREAKERS OR FUSES. IF FUSE PROTECTION ONLY IS INDICATED, PROVIDE A FUSIBLE DISCONNECT AND FUSES WITH THE UNIT.

7 WHERE EQUIPMENT IS DESIGNATED BY MANUFACTURER AND MODEL NUMBER, THIS IS THE BASIS OF DESIGN. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT BY OTHER SPECIFIED MANUFACTURERS OR PROPOSED ALTERNATE EQUIPMENT BY THE BASIS OF DESIGN MANUFACTURER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS TO ELECTRICAL REQUIREMENTS, STRUCTURAL LOADING, OR ARCHITECTURAL APPURTENANCES AND SHALL INCLUDE THE COST OF SUCH REVISIONS IN HIS BID.

8 WHERE EQUIPMENT IS SCHEDULED TO INCLUDE A SERVICE RECEPTACLE, PROVIDE A FACTORY MOUNTED SERVICE RECEPTACLE WITH APPROPRIATE FUSES AND TRANSFORMERS CONNECTED ON THE LINE SIDE OF THE UNIT DISCONNECT. PROVIDE A NAMEPLATE ON THE DISCONNECT SWITCH INDICATING THE PRESENCE OF LIVE POWER TO THE SERVICE RECEPTACLE WHEN HE UNIT DISCONNECT IS IN THE OFF POSITION.

9 <Designer Note: Standard mechanical specifications indicate that service receptacles are factory wired. If this note needs to change so that service receptacles are powered by individual 120v circuits, please coordinate this change with the mechanical specifications' sections.> SIZE ALL EQUIPMENT FEEDERS BASED ON THE LISTED MOP (MAXIMUM OVERCURRENT PROTECTION). REFER TO THE FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE ON THE ELECTRICAL STANDARD SCHEDULES SHEET.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

MECHANICAL SCHEDULES

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DUCT SYSTEM INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FIBERGLASS BLANKET 0.75 LB/CU FT	FIBERGLASS BLANKET 1.0 LB/CU FT	FIBERGLASS BOARD 2.25 LB/CU FT	FIBERGLASS BOARD 6.0 LB/CU FT	FLEXIBLE ELASTOMERIC	ASTM E2336 2-HOUR FIRE RATED BLANKET	2-HOUR FIRE RATED BLANKET	FIELD APPLIED JACKET MATERIAL: ALUMINUM	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	KEYED NOTES
DUCT SYSTEMS LOCATED INDOORS										
SUPPLY AIR, EXCEPT AS NOTED BELOW		1.5								A,E
EXHAUST AND RELIEF AIR BETWEEN ISOLATION DAMPER AND PENETRATION OF BUILDING EXTERIOR, EXCEPT AS NOTED BELOW		1.5								

PLENUMS, DUCTS, AND DUCT ACCESSORIES NOT REQUIRING INSULATION:
FIBROUS-GLASS DUCTS
DOUBLE-WALL METAL DUCTS WITH INSULATION OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE / IESNA 90.1 - 2013
METAL DUCTS WITH DUCT LINER OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE / IESNA 90.1 - 2013
FABRIC SUPPLY DUCTS
FACTORY-INSULATED FLEXIBLE DUCTS
FACTORY-INSULATED PLENUMS AND CASINGS
FLEXIBLE CONNECTORS
VIBRATION-CONTROL DEVICES
FACTORY-INSULATED ACCESS PANELS AND DOORS

GENERAL NOTES:
1. 'X' OR THICKNESS IN INCHES INDICATE ACCEPTABLE SELECTION. IF MORE THAN ONCE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. REFER TO METAL DUCT SECTION OF SPECIFICATIONS FOR DUCT LINING AND DOUBLE-WALL INSULATED DUCT.
3. REFER TO HVAC CASINGS SECTION OF SPECIFICATIONS FOR DOUBLE-WALL INSULATED PLENUMS.

KEYED NOTES:
A. INCLUDE INSULATION AROUND DUCT MOUNTED COILS AND AIR TERMINAL UNITS COILS.
B. NUMBER OF LAYERS AND TOTAL INSULATION THICKNESS AS RECOMMENDED BY SELECTED MANUFACTURER.
C. DOES NOT APPLY TO PREFABRICATED, ZERO-CLEARANCE GREASE DUCT.
D. PROVIDE MANUFACTURER;S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMERIC THERMAL DUCT INSULATION.
E. EXPOSED SUPPLY DUCTWORK LOCATED IN A CONDITIONED SPACE SERVED BY THE SAME AIR HANDLING SYSTEM IS NOT REQUIRED TO BE INSULATED.

ABOVEGROUND HVAC PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD-APPLIED JACKET MATERIAL: ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES):														
HEATING HOT WATER SUPPLY & RETURN 200 DEG F.AND LOWER														
• NPS 1-1/4 AND SMALLER		1.5						X		X				A
• NPS 1-1/2 AND LARGER		2						X		X				A

UNLESS OTHERWISE INDICATED OR SCHEDULED, THE FOLLOWING DO NOT REQUIRE INSULATION:
DIRECT BURIED COOLING SYSTEM PIPING.
PIPING THAT CONVEYS FLUIDS HAVING DESIGN OPERATING TEMPERATURE RANGE BETWEEN 60 DEG F. AND 105 DEG F., INCLUSIVE.

GENERAL NOTES:
1. 'X' OR THICKNESS IN INCHES INDICATED ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED, CONTACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.
3. FOR PIPING NPS 1-1/4 AND SMALLER WITHIN PARTITIONS IN CONDITIONED SPACES INSULATION MAY BE REDUCED BY ONE-INCH THICKNESS, BUT NOT TO LESS THAN ONE-INCH THICKNESS.
4. FOR PIPING NPS 1 AND SMALLER, INSULATION IS NOT REQUIRED FOR STRAINERS, CONTROL VALVES, AND BALANCING VALVES.

KEYED NOTES:
A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.
B. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMETRIC THERMAL INSULATION.
C. STEAM AND CONDENSATE PIPING JACKET SHALL BE STUCCO EMBOSSED.
D. PIPING WITHIN ENERGY RECOVERY UNITS SHALL BE TYPE 304 STAINLESS STEEL, SMOOTH; 0.010 INCH THICK. SEAMS AND JOINTS CAULKED WITH CHEMICALLY RESISTANT SEALER.

HORIZONTAL PIPING AND SUPPORT APPLICATION SCHEDULE

METAL PIPE TYPE & SIZE	HANGER OR SUPPORT TYPE: MSS TYPE 1 CLEVIS HANGER	MSS TYPE 10 SWIVEL RING BAND HANGER	MSS TYPE 41 DOUBLE ROD PIPE ROLLER	MSS TYPE 43 SINGLE ROD ROLLER HANGER	MSS TYPE 44 PIPE ROLLER & STAND	MSS TYPE 46 ADJUSTABLE PIPE ROLL STAND	SHIELD TYPE: MSS TYPE 39 PROTECTION SADDLE	MSS TYPE 40 INSULATION PROTECTION SHIELD	THERMAL-HANGER SHIELD	KEYED NOTES
UNINSULATED SINGLE PIPE										
UP TO 2 INCH	X	X								
2-1/2 INCH TO 4 INCH	X	X								
6 INCH TO 8 INCH	X									
10 INCH	X									
12 INCH			X							
14 INCH AND LARGER			X							
INSULATED SINGLE COLD PIPES										
UP TO 2 INCH	X	X						X	X	A
2-1/2 INCH TO 4 INCH	X								X	
6 INCH TO 8 INCH	X								X	
10 INCH	X								X	
12 INCH	X								X	
14 INCH AND LARGER	X								X	
INSULATED SINGLE HOT PIPES										
UP TO 2 INCH	X	X					X	X	X	A, C
2-1/2 INCH TO 4 INCH			X	X	X	X	X		X	B, C
6 INCH TO 8 INCH			X	X	X	X	X		X	B, C
10 INCH			X	X	X	X	X		X	B, C
12 INCH			X		X	X	X		X	B, C
14 INCH AND LARGER			X				X		X	B, C

GENERAL NOTES:
1. 'X' INDICATES APPROVED HANGER OR SUPPORT ELEMENTS. IF MORE THAN ONE HANGER OR SUPPORT ELEMENT IS INDICATED, SELECTION FROM APPROVED ELEMENTS IS CONTRACTOR'S OPTION.
2. REFER TO HANGER AND SUPPORT SECTION FOR APPROVED MANUFACTURERS.
3. HANGERS AND SUPPORTS USED FOR FIRE PROTECTION SERVICES SHALL BE UL LISTED OR FMG APPROVED.
4. HANGER ELEMENTS IN CONTACT WITH BARE COPPER PIPE SHALL BE COPPER PLATED, PLASTIC COATED, FELT LINED, OR USE MANUFACTURED COPPER TUBE ISOLATORS.
5. REFER TO INDIVIDUAL PIPING SPECIFICATION SECTIONS FOR HANGER SPACING.
6. MULTIPLE PARALLEL COLD PIPES MAY BE TRAPEZE SUPPORTED FROM BELOW USING U-BOLTS OR STRUT CLAMPS AND THERMAL HANGER SHIELDS. REFER TO KEYED NOTE A.
7. MULTIPLE PARALLEL COLD PIPES MAY BE TRAPEZE SUPPORTED FROM ABOVE USING STANDARD HANGER ELEMENTS INDICATED FOR SINGLE COLD PIPES.
8. MULTIPLE PARALLEL HOT PIPES MAY BE TRAPEZE SUPPORTED FROM BELOW USING ROLLER ELEMENTS AND THERMAL HANGER SHIELD OR INSULATION PROTECTION SADDLE. REFER TO KEYED NOTES B AND C.
9. MULTIPLE PARALLEL HOT PIPES MAY BE TRAPEZE SUPPORTED FROM ABOVE USING STANDARD ROLLER HANGERS INDICATED AND THERMAL HANGER SHIELD OR INSULATION PROTECTION SADDLE. REFER TO KEY NOTES B AND C.
10. REFER TO INDIVIDUAL PIPING SPECIFICATION SECTIONS FOR ADDITIONAL SYSTEM SPECIFIC HANGER APPLICATIONS.

KEYED NOTES:
A. USE THERMAL HANGER SHIELD ON TRAPEZE SUPPORTED INSULATED PIPE TO PREVENT CRUSHING OF INSULATION.
B. USE THERMAL HANGER SHIELD DESIGNED FOR USE ON ROLLER SUPPORTS FOR INSULATED HOT PIPE.
C. USE TYPE 39 PROTECTION SADDLES IF INSULATION WITHOUT VAPOR BARRIER IS INDICATED. FILL INTERIOR VOIDS WITH INSULATION MATCHING ADJOINING INSULATION.

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ABOVEGROUND PLUMBING PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES)							FIELD-APPLIED JACKET MATERIAL						KEYED NOTES
	FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	
INDOOR PIPE SYSTEM AND SIZE (INCHES):														
DOMESTIC COLD WATER	1	1						X		X				A
DOMESTIC HOT WATER SUPPLY & RETURN 140 DEG AND LESS:														
• NPS 1-1/4 AND SMALLER	1	1						X		X				A
• NPS 1-1/2 AND LARGER	1.5	1.5						X		X				A
STORM WATER & OVERFLOW	1	1						X		X				A
ROOF DRAIN AND OVERFLOW DRAIN BODIES	1	1												

UNLESS OTHERWISE INDICATED OR SCHEDULED, DO NOT INSULATE THE FOLLOWING:
- FIRE SUPPRESSION PIPING
- UNDERGROUND PIPING
- LABORATORY GAS AND VACUUM PIPING
- MEDICAL GAS AND VACUUM PIPING
- FUEL GAS PIPING
- FUEL OIL PIPING

GENERAL NOTES:
1. 'X' OR THICKNESS IN INCHES INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONCE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.

KEYED NOTES:
A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.
B. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMETRIC THERMAL INSULATION.

PLUMBING CONNECTION SCHEDULE

UNIT IDENTIFICATION						KEYED NOTES
DES.	NO.	CW INCHES	HW INCHES	SAN INCHES	VENT INCHES	
EWC	1	1/2	-	1 1/2	1 1/2	
LAV	1	1/2	1/2	1 1/2	1 1/2	
SK	1	3/4	3/4	1 1/2	1 1/2	
SS	1	3/4	3/4	3	-	
UR	1	3/4	-	2	1 1/2	
WC	1	1 1/2	-	4	2	

GENERAL NOTES:
1. INDIVIDUAL WATER LINE BRANCHES, WASTE LINES, VENTS, AND TRAPS FOR CONNECTION TO INDIVIDUAL FIXTURES, FIXTURE FITTINGS, AND SPECIALTIES SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE OR AS INDICATED ON DRAWINGS, WHICHEVER IS GREATER.

KEYED NOTES:
1. PROVIDE MIXING VALVE.

PUMP SCHEDULE

UNIT IDENTIFICATION								MOTOR		ELECTRICAL					
DES.	NO.	SYSTEM SERVED	LOCATION	WATERFLOW GPM	FLUID TYPE	COLDEST SYSTEM OPERATING TEMP. °F. FOR PUMP SELECTION	PUMP HEAD FT.	RPM	MODULATION TYPE	VOLTS	PHASE	SCCR KA (NOTE 4)	OPTIONS / ACCESSORIES	MODEL NUMBER	KEYED NOTES
HWRP	1	HWR	MECHANICAL ROOM	2	WATER	40	10	2650	AUTO	120	1	5	-	PL-30B	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBER ARE BELL & GOSSETT UNLESS OTHERWISE NOTED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL.
4. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

PLUMBING PIPING & VALVE APPLICATION SCHEDULE

	MATERIAL																															PRESSURE CONNECTIONS																				GRAVITY DWV CONNECTIONS				ISOLATION VALVES				KEYED NOTES
PIPE SIZE (INCHES)	SOFT COPPER TYPE K	HARD COPPER TYPE L	HARD COPPER TYPE M	CARBON STEEL (SCHED. 40)	CARBON STEEL (STD.)	GALV. STEEL (SCHED. 40)	STAINLESS S STEEL (SCHED. 10)	PEX	PE PIPE	PE SHEATHED CARBON STEEL PIPE	CSST	NO-HUB CISP	PVC TYPE DWV	PP DRAINAGE PIPE	COPPER TYPE DWV	DUCTILE IRON PIPE	SOLDERED	BRAZED	WELDED	THREADED	FLANGED	GROOVED	INSERT & CRIMP	FUSION	PRESSURE-SEAL	MECHANICALLY-FORMED TEE	MECHANICAL JOINT	PUSH-ON-JOINT	SOLVENT WELDED	SOLDERED	FUSION	CISP HUBLESS	HEAVY-DUTY HUBLESS	BALL	AGA BALL	GENERAL SERVICE BUTTERFLY	LUBRICATED PLUG	GATE	
ABOVEGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F																																																																
UP TO 4		X																X	X		X	X		X	X									X		X			A
UNDERGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 150 DEG F																																																																
UP TO 1-1/2	X																																																												B
2 TO 2-1/2	X																																																												B
ABOVEGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																																																		
1-1/2 TO 15												X																																																							
UNDERGROUND SANITARY WASTE & VENT - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																																																	
3 TO 12												X																																																						
3 TO 12													X																																																				
15												X																																																						
ABOVEGROUND STORM DRAINAGE - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																																																
3 TO 15												X																																																					
UNDERGROUND STORM DRAINAGE - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																																																
3 TO 12												X																																																				

GENERAL NOTES:
1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS.
   a. NPS 2 AND SMALLER : USE DIELECTRIC NIPPLE/WATERWAY.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. PLUMBING EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES:
A. GROOVED AND FLANGED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS ONLY FOR THIS PIPING SYSTEM. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS.
B. JOINTS ARE NOT PERMITTED ON UNDERGROUND WATER PIPING.
C. USE CAST IRON DRAINAGE PATTERN (DURHAM) FITTINGS.
D. INSTALL IN CONTAINMENT JACKET. REFER TO SPECIFICATIONS.
E. VALVES, UNIONS, AND FLANGED JOINTS MAY BE USED IN ACCESSIBLE LOCATIONS ONLY, EXCLUDING CEILINGS USED AS AIR PLENUMS. ACCESSIBLE LOCATIONS ARE DEFINED AS EXPOSED CONSTRUCTION OR ABOVE LAY-IN CEILINGS. USE ONLY STEEL WELDED FITTINGS AND WELDED JOINTS IN CEILING USED AS AIR PLENUMS.
F. NO JOINTS ALLOWED UNDERGROUND.

VIBRATION ISOLATOR APPLICATION SCHEDULE

EQUIPMENT CATEGORY	HORSEPOWER AND OTHER	RPM	EQUIPMENT LOCATION: SLAB ON GRADE BASE TYPE	SLAB ON GRADE ISOLATOR TYPE	SLAB ON GRADE MIN. DEFL., IN. (MM)	UP TO 40 FT (12 M) FLOOR SPAN BASE TYPE	UP TO 40 FT (12 M) FLOOR SPAN ISOLATOR TYPE	UP TO 40 FT (12 M) FLOOR SPAN MIN. DEFL., IN. (MM)	KEYED NOTES
CENTRIFUGAL FANS									
UP TO 22 IN. DIAMETER	ALL	ALL	B	2	0.25 (6)	B	3	1.50 (38)	NOTES 1, 3, 4
24 IN. DIAMETER AND UP	≤ 40	UP TO 300	B	3	2.50 (64)	B	3	3.50 (89)	NOTES 1, 3, 4
		301 TO 500	B	3	1.50 (38)	B	3	2.50 (64)	
		500 AND UP	B	3	0.75 (19)	B	3	1.50 (38)	
24 IN. DIAMETER AND UP	≥ 50	UP TO 300	C	3	2.50 (64)	C	3	3.50 (89)	NOTES 1, 3, 4
		301 TO 500	C	3	1.50 (38)	C	3	2.50 (64)	
		500 AND UP	C	3	1.00 (25)	C	3	2.50 (64)	

KEYED NOTES:
1. THRUST RESTRAINTS: PROVIDE THRUST RESTRAINTS BETWEEN FAN DISCHARGE AND DUCT (IN PAIRS, LOCATED ON THE CENTERLINE OF THE DISCHARGE OUTLET OF THE FAN, BRIDGING THE FLEXIBLE DUCT CONNECTOR) FOR ALL FAN HEADS, FOR AXIAL AND CENTRIFUGAL FANS UNITS OPERATING AT 2 INCHES OR GREATER TOTAL STATIC PRESSURE AND AS SHOWN ON DRAWINGS. SPRING DEFLECTION SHALL BE SAME AS THE SUPPORT ISOLATORS.
2. PIPING RISER ISOLATION: PROVIDE PIPE RISER RESILIENT ANCHORS, SPRING MOUNTS AND RESILIENT PIPE GUIDES CAPABLE OF DISTRIBUTING THE LOADS WITHIN THE BUILDING DESIGN LIMITS AT THE SUPPORT POINTS.
3. HORIZONTAL PIPING VIBRATION ISOLATION: PROVIDE TYPE 8a OR 8b SPRING HANGERS FOR PIPING CONNECTED TO VIBRATION ISOLATED EQUIPMENT FOR ALL PIPING IN MECHANICAL ROOMS OR THE FOLLOWING MINIMUM HORIZONTAL DISTANCES FROM THE ISOLATED EQUIPMENT: UP TO 6" - 50 FEET (1 1/2" MINIMUM DEFLECTION), 8" AND LARGER - 100 FEET (2 1/2" MINIMUM DEFLECTION), WHICHEVER IS GREATER, AND AS SHOWN ON DRAWINGS. THE FIRST 4 HANGERS FROM THE ISOLATED EQUIPMENT SHALL BE TYPE 8b.
4. DUCTWORK VIBRATION ISOLATION: PROVIDE TYPE 8a OR 8b SPRING HANGERS FOR DUCTWORK WITH A CROSS SECTION OF 2 SQUARE FEET OR GREATER CONNECTED TO AIR HANDLING UNITS, RETURN OR RELIEF FANS, AND VIBRATION ISOLATED EQUIPMENT FOR ALL SUCH DUCTWORK IN MECHANICAL ROOMS OR FOR A MINIMUM HORIZONTAL DISTANCE OF 100 FEET FROM THE ISOLATED EQUIPMENT, WHICHEVER IS GREATER, AND AS SHOWN ON DRAWINGS (3/4" MINIMUM DEFLECTION).
5. IF SPAN DOES NOT EXCEED 20 FT, SPRING DEFLECTION MAY BE 1.0 IN AND TYPE D BASE MAY BE USED. FOR SPANS GREATER THAN 20 FT, USE SPRING DEFLECTION INDICATED AND TYPE E BASE.

BASE TYPES:
BASE TYPE A - NO BASE, ISOLATORS ATTACHED DIRECTLY TO EQUIPMENT.
BASE TYPE B - STRUCTURAL, STEEL RAILS OR BASE.
BASE TYPE C - CONCRETE INERTIA BASE.
BASE TYPE D - CURB - MOUNTED ALUMINUM BASE WITH 1" DEFL. SPRING ISOLATORS
BASE TYPE E - CURB - MOUNTED STEEL BASE WITH ADJUSTABLE 1", 2" OR 3" DEFL. SPRING ISOLATORS

ISOLATOR TYPES:
ISOLATOR TYPE 1a - ELASTOMERIC ISOLATION PAD.
ISOLATOR TYPE 1b - ELASTOMERIC ISOLATION PAD WITH STEEL LOAD BEARING PLATE.
ISOLATOR TYPE 2 - ELASTOMERIC FLOOR ISOLATOR.
ISOLATOR TYPE 3 - FREE STANDING SPRING FLOOR ISOLATOR.
ISOLATOR TYPE 4 - RESTRAINED SPRING ISOLATOR.
ISOLATOR TYPE 5 - THRUST RESTRAINT.
ISOLATOR TYPE 6 - AIR SPRING.
ISOLATOR TYPE 7 - ELASTOMERIC HANGERS.
ISOLATOR TYPE 8a - SPRING HANGERS.
ISOLATOR TYPE 8b - SPRING HANGERS WITH VERTICAL-LIMIT STOP.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

MECHANICAL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

DRAWN	WTF
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22106

DRAWING NO.
M7.2

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AIR TERMINAL TYPE

DUCT CONNECTIONS		DISCHARGE SOUND POWER/RADIATED SOUND POWER - dB							
INLET SIZE INCHES	OUTLET SIZE INCHES	125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	MODEL NUMBER	KEYED NOTES
6Ø	12x8	73/66	69/63	62/52	56/42	53/40	49/36	ESV	A
8Ø	12x10	72/68	70/59	66/53	63/47	57/46	53/46	ESV	B
10Ø	14x12-1/2	78/71	70/61	65/56	61/50	58/47	53/45	ESV	C
12Ø	16x15	76/72	73/63	69/59	65/53	61/48	57/46	ESV	D
16Ø	24x18	78/70	73/63	70/58	68/53	64/52	59/50	ESV	E
24x16	38x18	83/74	81/69	76/63	74/54	73/48	68/41	ESV	F

GENERAL NOTES:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
2. MAXIMUM SOUND POWER LEVEL BASED ON 2" PRESSURE DROP ACROSS UNIT WITH NO ALLOWANCE FOR EXTERNAL ATTENUATION.

KEYED NOTES:
A. BASED ON 350 CFM
B. BASED ON 650 CFM
C. BASED ON 900 CFM
D. BASED ON 1500 CFM
E. BASED ON 2500 CFM
F. BASED ON 5300 CFM

AIR TERMINAL UNIT WITH HOT WATER COIL SCHEDULE

UNIT IDENTIFICATION					AIRFLOW					HEATING COIL (NOTE 3)											
												AIR		WATER							
DES.	NO.	INLET SIZE INCHES	AREA SERVED	UNIT SERVED FROM	COOLING MAX. CFM	COOLING MIN. CFM	HEATING MIN. CFM	HEATING MAX. CFM	MAXIMUM A.P.D. W/COIL IN. W.G.	CAPACITY MBH	NUMBER ROWS	E.D.B. °F	L.D.B. °F	FLOW GPM	E.W.T. °F	L.W.T. °F	MAXIMUM W.P.D. FT. HEAD	CONTROL VALVE W.P.D. FT. HEAD	CONTROL VALVE TYPE	CONTROL DIAGRAM	KEYED NOTES
TU	17	6	TRISH 137	AHU-1	100	80	80	100	0.50	3.3	1	50	80	0.5	150	127	3.0	11.5	3-Way		1
TU	19	6	CONFERENCE 136	AHU-1	200	80	80	100	0.50	3.3	1	50	80	0.5	150	127	3.0	11.5	3-Way		
TU	22	6	MAIL 104	AHU-1	100	80	80	100	0.50	3.3	1	50	80	0.5	150	127	3.0	11.5	3-Way		
TU	23	6	CONFERENCE 103	AHU-1	150	80	80	150	0.50	5.0	1	50	80	0.6	150	134	3.0	11.5	3-Way		
TU	24	8	LOBBY 102	AHU-1	375	310	310	310	0.50	10.2	2	50	80	0.5	150	100	3.0	11.5	3-Way		
TU	25	6	FLEX 143	AHU-1	100	80	80	100	0.00	3.3	1	50	80	0.5	150	127	0.0	11.5	3-Way		
TU	26	6	BREAK ROOM 154	AHU-1	200	200	200	200	0.50	7.7	2	50	80	1.4	150	140	3.0	11.5	3-Way		
TU	27	8	STORAGE 112	AHU-1	600	400	400	600	0.50	24.8	2	50	88	2.6	150	130	3.0	11.5	3-Way		1

GENERAL NOTES:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
2. MAXIMUM PRESSURE DROP SCHEDULED SHALL BE THE MAXIMUM ALLOWABLE STATIC PRESSURE FOR BOX AND COIL, AT THE MAXIMUM CFM.
3. HEATING COIL SELECTION BASED ON HEATING MAXIMUM AIR FLOW.

KEYED NOTES:
1. PROVIDE WITH BOTTOM ACCESS OPTION.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

UNIT IDENTIFICATION										
DES.	NO.	TYPE	FACE SIZE	NECKSIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH	MODEL NUMBER	KEYED NOTES
S	1	DIFFUSER	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	SCD	
S	2	GRILLE	48x3	46x2	NOTE 2	-	STEEL	NOTE 3	LBP	
R	1	GRILLE	24x12	22x10	NOTE 2	-	STEEL	WHITE	PDDR	
E	1	GRILLE	24x24	SEE PLANS	NOTE 2	-	STEEL	WHITE	PDDR	
E	2	GRILLE	NECK SIZE + 1-1/4"	SEE PLANS	NOTE 2	-	STEEL	WHITE	530	

GENERAL NOTES:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.
2. COORDINATE EXACT FRAME TYPE WITH ARCHITECTURAL TRADES.
3. COLOR SELECTION BY ARCHITECT.

POWER VENTILATOR SCHEDULE

UNIT IDENTIFICATION								MOTOR						ELECTRICAL				UNIT INLET Lw BY OCTAVE BAND									
DES.	NO.	SYSTEM SERVED	TYPE	AIRFLOW CFM	T.S.P. IN. W.G.	TIP SPEED FPM	FAN RPM	BHP	HP	RPM	DRIVE TYPE	CURB HEIGHT INCHES	MODULATION / CONTROL TYPE	VOLTS	PHASE	SCCR KA (NOTE 3)	OPTIONS / ACCESSORIES	63 Hz (DB)	125 Hz (DB)	250 Hz (DB)	500 Hz (DB)	1000 Hz (DB)	2000 Hz (DB)	4000 Hz (DB)	8000 Hz (DB)	MODEL NUMBER	KEYED NOTES
EF	1	TOILET ROOMS	CENTRIFUGAL	310	0.50	4827	1695	0.07	0.10	1725	DIRECT	14	AUTO	120	1	5	B	69	75	71	64	62	59	54	49	G-80-VG	
EF	2	TOILET ROOMS	CENTRIFUGAL	70	0.30	3167	1489	0.01	0.07	1725	DIRECT	14	AUTO	120	1	5	B	57	60	58	48	46	47	39	32	G-60-VG	
EF	3	BREAK ROOM	CENTRIFUGAL	300	0.30	3975	1396	0.05	0.10	1725	DIRECT	14	AUTO	120	1	5	B	66	72	66	59	57	55	49	43	G-90-VG	
EF	4	TOILET ROOMS	CENTRIFUGAL	300	0.50	4473	1677	0.07	0.10	1725	DIRECT	14	AUTO	120	1	5	B	69	75	71	64	62	59	54	48	G-80-VG	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE GREENHECK UNLESS OTHERWISE NOTED.
3. CONTROLLER (E.G. VARIABLE FREQUENCY CONTROLLER, MOTOR STARTER) FOR SPECIFIED EQUIPMENT SHALL BE MANUFACTURED AND MARKED PER NEC WITH A MINIMUM SHORT CIRCUIT CURRENT RATING AS INDICATED.

DUCT SILENCER SCHEDULE

UNIT IDENTIFICATION							DYNAMIC INSERTION LOSS (DIL) dB								TARGET NOISE CRITERIA	DIMENSIONS			CONSTRUCTION				MODEL NUMBER	KEYED NOTES
DES.	NO.	SYSTEM SERVED	AIRFLOW CFM	A.P.D. IN. W.G.	MAX P.D. IN. W.G.	VELOCITY AT DIL RATING FPM	63	125	250	500	1K	2K	4K	8K		W INCHES	H INCHES	L INCHES	TYPE	OUTER CASING TYPE	FILL MATERIAL	LINER	CASING MATERIAL		
DS	1R	RA	1700	0.05	0.15	425	8	11	12	16	13	11	10	8	30	24	24	36	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RL36/ZD	
DS	1S	SA	1800	0.09	0.15	450	24	32	42	55	55	44	29	19	30	36	36	120	RS	STANDARD	GLASS FIBER	NO	22 GA GALVANIZED	RLX120/WG	

GENERAL NOTES:
1. DUCT SILENCER MODEL NUMBERS ARE BASED ON PRICE UNLESS OTHERWISE NOTED.
2. LENGTH SHOWN FOR ELBOW SILENCERS IS CENTERLINE LENGTH.
3. VELOCITY SHOWN IS +(FORWARD FLOW) OR -(REVERSE FLOW) AS DEFINED BY ASTM E477-99.
4. PRESSURE DROP, DYNAMIC INSERTION LOSS AND SELF GENERATED NOISE PER ASTM E477-99.
5. MAXIMUM PRESSURE DROP WITH SYSTEM EFFECTS = SILENCER PRESSURE DROP PER ASTM E477-99 + SYSTEM EFFECTS FOR NEARBY DUCT ELEMENTS.
6. TYPE: RS = RECTANGULAR STRAIGHT; RE = RECTANGULAR ELBOW; REE = RECTANGULAR EXTENDED ELBOW; CS = CIRCULAR STRAIGHT; CE = CIRCULAR ELBOW.
7. FABRICATE SILENCER CASINGS OF STAINLESS STEEL WHERE SILENCERS ARE CONNECTED TO A PVC COATED OR STAINLESS STEEL DUCT SYSTEM.

RADIANT WALL PANEL SCHEDULE

UNIT IDENTIFICATION		CAPACITY BTUH / LINEAR FT.	WATER TEMP.		DIMENSIONS				FINISH	CONSTRUCTION	CONTROL VALVE W.P.D. FT. HEAD	MODEL NUMBER	KEYED NOTES
DES.	NO.		E.W.T. °F	L.W.T. °F	LENGTH INCHES	LENGTH INCHES	HEIGHT INCHES	DEPTH INCHES					
RWP	1	350	150	130	SEE PLANS	48	12	5	BY ARCH.	ALUMINUM	11.50	UFLT-2	

GENERAL NOTES:
1. MODEL NUMBERS ARE RUNTAL UNLESS OTHERWISE NOTED.

ELECTRIC RADIANT CEILING PANEL SCHEDULE

UNIT IDENTIFICATION			DIMENSIONS		ELECTRICAL						MODEL NUMBER	KEYED NOTES
DES.	NO.	CAPACITY WATTS	LENGTH INCHES	WIDTH INCHES	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS / ACCESSORIES		
ERCP	1	375	24	24	208	1	1.8	15	5	A	CP803	
ERCP	2	375	24	24	208	1	1.8	15	5	A	CP803	
ERCP	3	375	24	24	208	1	1.8	15	5	A	CP803	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL MUMBERS ARE MARKEL UNLESS OTHERWISE NOTED.

HOT WATER CABINET UNIT HEATER SCHEDULE

UNIT IDENTIFICATION			AIR			FAN		WATER					CONTROL VALVE W.P.D. FT. HEAD	DIMENSIONS			RECESS DEPTH INCHES	FILTER		MODULATION / CONTROL TYPE	ELECTRICAL				MODEL NUMBER	KEYED NOTES
DES.	NO.	CAPACITY MBH	AIRFLOW CFM	E.D.B. °F	L.D.B. °F	HP	RPM	FLOW GPM	FLUID TYPE	E.W.T. °F	L.W.T. °F	MAXIMUM W.P.D. FT. HEAD		LENGTH INCHES	HEIGHT INCHES	DEPTH INCHES		TYPE	AREA SQ. FT.		VOLTS	PHASE	SCCR KA	OPTIONS / ACCESSORIES		
CUH	1	19.2	430	60.0	101.0	0.1	1050	1.9	W	150	130	0.4	11.5	47	18	9.5	4	THROWAWAY	1.9	AUTO	120	1	5	A	RWI-1130-04	

GENERAL NOTES:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE STERLING UNLESS OTHERWISE NOTED.
3. FLUID TYPE: W = WATER, PGXX = PROPYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL, EGXX = ETHYLENE GLYCOL SOLUTION XX PERCENTAGE OF GLYCOL.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

MECHANICAL SCHEDULES

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

DRAWN	WTF
CHECKED	KLH
APPROVED	SVM

PROJECT NO.
22106

DRAWING NO.
M7.3

TEMPERATURE CONTROL - SYMBOLS LIST

SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
AFC	AIR FLOW CONTROLLER
AQ	AQUASTAT, STRAP ON BULB
CO2	CARBON DIOXIDE SENSOR – WALL MOUNTED
CO2	CARBON DIOXIDE SENSOR – DUCT MOUNTED
CO	CARBON MONOXIDE SENSOR – WALL MOUNTED
CS	CURRENT SWITCH
CT	CURRENT TRANSMITTER
	DAMPER – OPPOSED BLADE
	DAMPER – PARALLEL BLADE
M	DAMPER MOTOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DPS	DIFFERENTIAL PRESSURE SWITCH
CM	FIRE ALARM SYSTEM, ADDRESSABLE CONTROL MODULE
IM	FIRE ALARM SYSTEM, ADDRESSABLE INTERFACE MODULE
FMS	FLOW MEASURING STATION
FM	FLOW METER
FS	FLOW SWITCH
FZ	FREEZESTAT
F	GAUGE – FLOW
P	GAUGE – PRESSURE
T	GAUGE – TEMPERATURE
	GUARD FOR STAT OR SENSOR
	HUMIDIFIER
H	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)
H	HUMIDITY SENSOR, DUCT MOUNTED
LVL	LEVEL SWITCH OR TRANSMITTER
LSD	LIMIT SWITCH
	LINE – ELECTRIC
	LINE – INSTRUMENT AIR
M/S	MOTOR STARTER
OS	OCCUPANCY SENSOR
AI	SIGNAL – DDC/BAS, ANALOG INPUT
AO	SIGNAL – DDC/BAS, ANALOG OUTPUT
DI	SIGNAL – DDC/BAS, DIGITAL INPUT
DO	SIGNAL – DDC/BAS, DIGITAL OUTPUT
AI	SIGNAL – PACKAGED EQUIPMENT, ANALOG INPUT
AO	SIGNAL – PACKAGED EQUIPMENT, ANALOG OUTPUT
DI	SIGNAL – PACKAGED EQUIPMENT, DIGITAL INPUT
DO	SIGNAL – PACKAGED EQUIPMENT, DIGITAL OUTPUT

NOTE: REFER TO MECHANICAL STANDARDS ON DRAWING M0.1 FOR ADDITIONAL SYMBOLS & ABBREVIATIONS THAT MAY BE USED ON TEMPERATURE CONTROL DRAWINGS.

SCHEMATIC SYMBOLS (CONT.)

SYMBOL	DESCRIPTION
DD	SMOKE DETECTOR – DUCT MOUNTED
SD	SMOKE DETECTOR – SPACE MOUNTED
S/S	START/STOP RELAY
SPT	STATIC PRESSURE TRANSMITTER
SP	STATIC PRESSURE SENSOR OR PROBE
SW	SWITCH
T	TEMPERATURE SENSOR – RIGID ELEMENT IN WELL
T	TEMPERATURE SENSOR – STRAP ON BULB
T	TEMPERATURE SENSOR – DUCT MOUNTED AVG ELEMENT
T	TEMPERATURE SENSOR – DUCT MOUNTED RIGID ELEMENT
T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)
T N	THERMOSTAT FOR NIGHT SETBACK
XF	TRANSFORMER
	VALVE – 2 WAY CONTROL VALVE
	VALVE – 3 WAY CONTROL VALVE
VSD	VARIABLE SPEED DRIVE
VS	VELOCITY SENSOR
VIB	VIBRATION SWITCH
V	VOLTAGE SENSOR

WIRING SYMBOLS

SYMBOL	DESCRIPTION
	AUDIBLE DEVICE (AS DEFINED ON TC DRAWINGS)
M/S	COIL – MOTOR STARTER CONTACTOR
R	COIL – RELAY
TDR	COIL – TIME DELAY RELAY
VSD	COIL – VARIABLE SPEED DRIVE CONTACTOR
	COIL – EP OR SOLENOID VALVE
	CONTACT – INSTANT OPERATING, NO
	CONTACT – INSTANT OPERATING, NC
	CONTACT – TIMED AFTER COIL IS ENERGIZED, NOTC
	CONTACT – TIMED AFTER COIL IS ENERGIZED, NCTO
	CONTACT – TIMED AFTER COIL IS DE-ENERGIZED, NOTO
	CONTACT – TIMED AFTER COIL IS DE-ENERGIZED, NCTC
	GROUND
	MOTOR, SINGLE PHASE
R	PILOT LIGHT OR BEACON R – RED LENS A – AMBER LENS B – BLUE LENS G – GREEN LENS
R	PILOT LIGHT, WITH PUSH-TO-TEST
	PUSH BUTTON – MOMENTARY CONTACT, NO
	PUSH BUTTON – MOMENTARY CONTACT, NC
	PUSH BUTTON – MOMENTARY CONTACT, NO & NC
	PUSH BUTTON – MOMENTARY, NO (MUSHROOM HEAD)
	PUSH BUTTON – MOMENTARY, NC (MUSHROOM HEAD)

WIRING SYMBOLS (CONT.)

SYMBOL	DESCRIPTION
1 2	SWITCH – 2 POSITION SELECTOR
H O A	SWITCH – 3 POSITION SELECTOR HAND/OFF/AUTO
	SWITCH – FLOW (AIR, WATER, ETC.), NO
	SWITCH – FLOW (AIR, WATER, ETC.), NC
	SWITCH – LIMIT, NO
	SWITCH – LIMIT, NO, HELD CLOSED
	SWITCH – LIMIT, NC
	SWITCH – LIMIT, NC, HELD OPEN
	SWITCH – LIQUID LEVEL, NO
	SWITCH – LIQUID LEVEL, NC
	SWITCH – MANUAL SPST, NO
	SWITCH – MANUAL DPDT, NO
	SWITCH – MANUAL SPST, NC
	SWITCH – MANUAL DPDT, NC
	SWITCH – MANUAL SPDT
	SWITCH – MANUAL DPDT
	SWITCH – PRESSURE & VACUUM, NO
	SWITCH – PRESSURE & VACUUM, NC
	SWITCH – TEMPERATURE ACTUATED, NO
	SWITCH – TEMPERATURE ACTUATED, NC
	THERMAL OVERLOAD, SINGLE PHASE
OL'S	THERMAL OVERLOAD CONTACTS – 3 PHASE
	TRANSFORMER
	WIRE TERMINATION AT DEVICE
	WIRE TO WIRE TERMINATION
	WIRING NOT CONNECTED

WIRING TERMS

ABBREVIATION	DESCRIPTION
SPT	SINGLE POLE SINGLE THROW
SPDT	SINGLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DPDT	DOUBLE POLE DOUBLE THROW
NO	NORMALLY OPEN
NC	NORMALLY CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NOTC	NORMALLY OPEN TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NCTC	NORMALLY CLOSED TIMED CLOSED

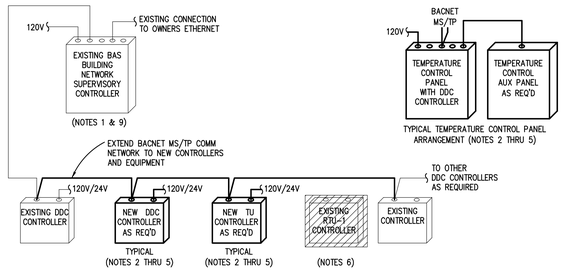
NOTE: SOME SYMBOLS & ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

ROOM SENSORS ON EXTERIOR WALLS REQUIRE AN INSULATED SUB-BASE FOR MOUNTING. IF REQUIRED, PROVIDE AN EXTRA LARGE STAINLESS STEEL TRIM RING TO PREVENT PATCHING/PAINTING THE WALL.

ALL DDC SENSOR WIRING MUST BE CONCEALED WITHIN THE WALLS.

ANY USE OF EXPOSED WIRING WHETHER IN RACEWAY OR WIREMOLD IS PROHIBITED WITHOUT THE CONSENT OF THE ARCHITECT.

ANY SENSOR LOCATION NOT RE-USED SHALL BE PROVIDED WITH A BLANK STAINLESS STEEL COVER. PROVIDE AN EXTRA LARGE STAINLESS STEEL TRIM RING, IF REQUIRED, TO PREVENT PATCHING/PAINTING THE WALL.

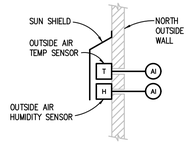


BLDG AUTOMATION SYSTEM ARCHITECTURE

NO SCALE

NOTES:

1. EXISTING BUILDING AUTOMATION SYSTEM IS COMPRISED OF SCHNEIDER ELECTRIC CONTROLLERS CONNECTED TO SCHNEIDER BUILDING AUTOMATION SYSTEM SOFTWARE AS PROVIDED BY MCM. THE EXISTING BAS SHALL BE MODIFIED AND EXPANDED AS REQUIRED TO ACCOMMODATE PROJECT SCOPE OF WORK.
2. REFER TO TEMPERATURE CONTROL SCHEMATICS FOR THE REQUIRED POINTS ASSOCIATED FOR EACH NEW HVAC SYSTEM PER MECHANICAL DRAWINGS.
3. TC CONTRACTOR SHALL DETERMINE DDC CONTROLLER QUANTITY AND AUXILIARY PANEL REQUIREMENTS BASED ON POINT DENSITIES AND LOCATIONS PER AVAILABLE MOUNTING SPACE. UNLESS SPECIFICALLY NOTED IN DESIGN DRAWINGS, TC CONTRACTOR SHALL LOCATE TEMPERATURE CONTROL PANELS WITH CONTROLLERS AND AUX COMPONENTS AS REQUIRED. COORDINATE WITH OTHER TRADES.
4. TC CONTRACTOR SHALL PROVIDE REQUIRED 120V POWER SUPPLIES FROM SPARE CIRCUITS OR CIRCUITS DEDICATED TO TEMPERATURE CONTROLS WHERE IDENTIFIED ON ELECTRICAL PANEL SCHEDULES. COORDINATE WITH ELEC CONTRACTOR. REFER TO ELECTRICAL DWGS FOR PANEL LOCATIONS. (SEE GENERAL NOTES).
5. TC CONTRACTOR SHALL PROVIDE 24V TRANSFORMERS REQUIRED FOR TC CONTRACTOR PROVIDED CONTROLLERS AS REQUIRED. TRANSFORMERS SHALL BE LOCATED WITHIN EQUIPMENT ENCLOSURES OR OTHER TC PROVIDED ENCLOSURES TO BE LOCATED IN MECHANICAL OR ELECTRICAL ROOMS – COORDINATE LOCATIONS. MAXIMUM TRANSFORMER SIZE SHALL BE 100VA.
6. REMOVE EXISTING RTU–1 FROM THE EXISTING NETWORK. REWORK EXISTING NETWORK AS NEEDED TO KEEP NETWORK OPERATIONAL. REMOVE RTU–1 FROM BAS GRAPHIC.

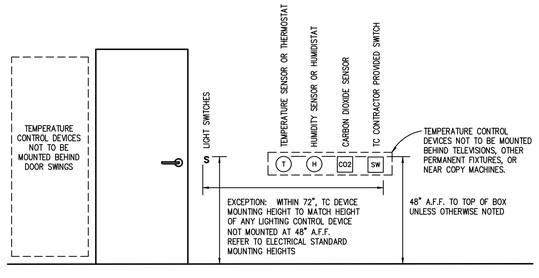


OA SENSOR INSTALLATION DETAIL

NO SCALE

NOTES:

1. TC CONTRACTOR SHALL REPLACE THE EXISTING OA TEMP AND HUMIDITY SENSORS FOR BUILDING.
2. CALCULATE OA ENTHALPY OR DEW POINT TEMPERATURE AS REQUIRED PER SEQUENCE OF OPERATION REQUIREMENTS.
3. BROADCAST OUTSIDE AIR TEMPERATURE, HUMIDITY, AND CALCULATED OA ENTHALPY OR DEWPOINT TEMPERATURE, AS REQUIRED, THROUGH BAS COMMUNICATION NETWORK TO CONTROLLERS REQUIRING INFORMATION FOR DDC PROGRAMMING LOGIC.

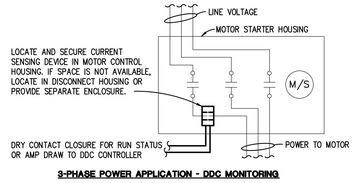


TC DEVICE STANDARD MOUNTING HEIGHTS DETAIL

NO SCALE

TC GENERAL NOTES

1. THESE GENERAL NOTES SHALL BE APPLICABLE FOR ALL TEMPERATURE CONTROL (TC) DRAWINGS AND ARE DESIGNATED AS M8.N.
2. "PROVIDE" IS DEFINED AS "FURNISH AND INSTALL".
3. TC CONTRACTOR SHALL BE RESPONSIBLE TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS.
4. FOR TEMPERATURE CONTROL DRAWINGS ONLY: ALL DETAILED INFORMATION IDENTIFIED WITH HEAVY LINE WEIGHT SHALL BE PROVIDED BY TC CONTRACTOR. ALL OTHER INFORMATION IDENTIFIED WITH LIGHT LINE WEIGHT SHALL BE PROVIDED BY OTHER TRADES.
5. ALL CONTROL SCHEMATICS AND WIRING DIAGRAMS ARE FOR THE CLARIFICATION OF EQUIPMENT INTERLOCKING FUNCTIONS AND THE INTERFACE OF VARIOUS CONTRACTORS'S WORK AND SHALL NOT BE MISTAKEN AS SHOP DRAWINGS FOR ACTUAL INSTALLATION.
6. TC CONTRACTOR SHALL PROVIDE DDC CONTROLLERS AS REQUIRED TO MEET INTENT OF DESIGN DOCUMENTS. REFER TO THE PLANS FOR THE DDC FUNCTIONS THAT APPLY TO EACH MECHANICAL SYSTEM.
7. ALL TC PROVIDED COMPONENTS AND ALL TC CONTRACTOR INSTALLED WIRING SHALL BE LABELED PER SPECIFICATIONS.
8. ALL WIRING AND SYSTEM CONTROL VOLTAGES SHALL BE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATION AND THE ELECTRICAL SPECIFICATIONS.
9. VARIABLE SPEED DRIVES, FAN AND PUMP MOTOR STARTERS, STARTER WIRING, CONTROL VOLTAGE TRANSFORMERS AND ASSOCIATED POWER WIRING SHALL BE PROVIDED BY OTHER TRADES.
10. DUCT SMOKE DETECTORS SHALL BE FURNISHED, INSTALLED AND WIRED TO THE FIRE ALARM SYSTEM BY THE ELECTRICAL CONTRACTOR. ELECTRICAL SHALL PROVIDE FIRE ALARM SYSTEM CONTROL MODULES FOR REQUIRED SAFETIES TO MOTOR STARTERS OR VFC'S AS INDICATED. CONTROL MODULES SHALL BE LOCATED NEAR RESPECTIVE MOTOR STARTERS OR VFC'S. TC CONTRACTOR SHALL PROVIDE INTERLOCK WIRING FROM CONTROL MODULES TO MOTOR STARTERS OR VFC'S.
11. ALL DDC AND CONTROL INTERLOCK WIRING SHALL BE BY TC CONTRACTOR UNLESS OTHERWISE NOTED. TC CONTRACTOR SHALL COORDINATE WITH VFC AND MOTOR STARTER SUPPLIERS TO DETERMINE EXACT WIRING REQUIREMENTS AND TERMINATION POINTS.
12. ALL DDC AND CONTROL INTERLOCK WIRING BETWEEN COMPONENTS SHALL BE INSTALLED WITHOUT INTERMEDIATE STOPS. WIRE SPLICING AT INTERMEDIATE TERMINAL STRIPS IS NOT ACCEPTABLE.
13. ALL ELECTRICAL WIRING AND RACEWAY SYSTEMS SHALL COMPLY WITH ELECTRICAL SPECIFICATION REQUIREMENTS. WHERE RACEWAY IS REQUIRED, TWO SEPARATE ELECTRICAL RACEWAY SYSTEMS SHALL BE PROVIDED: ONE FOR 120V WIRING AND THE OTHER FOR 24V WIRING.
14. TC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER SUPPLIES REQUIRED FOR TC SYSTEM UNLESS OTHERWISE NOTED. REFER TO ELECTRICAL PANEL SCHEDULES FOR SPARE CIRCUITS OR CIRCUITS DEDICATED TO TEMPERATURE CONTROLS. COORDINATE CIRCUIT USE WITH ELECTRICAL CONTRACTOR.
15. TC CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL FIELD MOUNTED COMPONENTS.
16. THERMOSTATS AND SPACE TEMPERATURE SENSORS SHALL BE MOUNTED 4'–0" ABOVE FINISHED FLOOR UNLESS NOTED OTHERWISE. PROVIDE GUARDS FOR SPACE SENSORS LOCATED IN PUBLIC AREAS SUCH AS CORRIDORS AND BATHROOMS. PROVIDE FLAT–PLATE TEMP SENSORS IN GYMNASIUMS AND NATATORIUMS WITH STAINLESS STEEL COVERS.
17. TC CONTRACTOR SHALL PROVIDE AUXILIARY PANELS FOR REQUIRED PANEL MOUNTED EQUIPMENT SUCH AS RELAYS, TRANSDUCERS, CONTROL TRANSFORMERS, ETC. AUXILIARY PANELS SHALL BE LOCATED NEXT TO ASSOCIATED DDC PANEL.
18. REMOTELY MOUNTED FIELD DEVICES SUCH AS RELAYS, CONTROL TRANSFORMERS, ETC., SHALL BE HOUSED IN AN ENCLOSURE PROVIDED BY THE TC CONTRACTOR.
19. CONTROL TRANSFORMERS WHEN REQUIRED SHALL BE SIZED FOR 150% OF ACTUAL LOAD.
20. FREEZESTATS SHALL BE MOUNTED ON UPSTREAM FACE OF COOLING COILS. FREEZESTAT QUANTITY SHALL BE ONE PER 20 SQ. FT OF CROSS SECTIONAL AREA.
21. CURRENT SWITCHES USED FOR OPERATIONAL STATUS SHALL HAVE CURRENT THRESHOLD SETPOINT ADJUSTED TO INDICATE BELT OR DRIVE FAILURE.
22. ALL CONTROL VALVES, CONTROL DAMPERS AND ASSOCIATED CONTROL ACTUATORS IDENTIFIED ON TC DRAWINGS SHALL BE FURNISHED BY TC CONTRACTOR UNLESS OTHERWISE NOTED. DAMPER SIZE AND LOCATIONS ARE INDICATED ON MECHANICAL FLOOR PLAN DRAWINGS.
23. ALL CONTROL VALVES AND DAMPERS FURNISHED BY THE TC CONTRACTOR SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR. ALL PIPE PENETRATIONS AND BASIC FITTINGS REQUIRED FOR SENSOR INSTALLATIONS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.
24. DAMPER ACTUATORS SHALL BE INSTALLED BY TC CONTRACTOR UNLESS FACTORY INSTALLED. COORDINATE FACTORY INSTALLED EQUIPMENT WITH THE CONTRACTOR/MANUFACTURER.
25. ALL INSTRUMENTATION TUBING REQUIRED FOR AFS, AFMS, DPS, AND DPT COMPONENT INSTALLATIONS SHALL BE PROVIDED BY TC CONTRACTOR.
26. TC CONTRACTOR SHALL FIELD MOUNT ALL REQUIRED PACKAGED CONTROL COMPONENTS FURNISHED BY EQUIPMENT SUPPLIERS WHERE INDICATED. ALL REQUIRED 24V AND 120V FIELD WIRING SHALL BE PROVIDED BY TC CONTRACTOR UNLESS NOTED OTHERWISE. TC CONTRACTOR SHALL COORDINATE SPECIFIC SYSTEM WIRING REQUIREMENTS WITH PACKAGED EQUIPMENT SUPPLIERS.
27. TC CONTRACTOR SHALL FIELD MOUNT ALL REQUIRED "SHIPPED LOOSE" PACKAGED CONTROL COMPONENTS FURNISHED BY EQUIPMENT SUPPLIERS WHERE INDICATED. ALL REQUIRED 24V AND 120V FIELD WIRING SHALL BE PROVIDED BY TC CONTRACTOR UNLESS NOTED OTHERWISE. TC CONTRACTOR SHALL COORDINATE SPECIFIC SYSTEM WIRING REQUIREMENTS WITH PACKAGED EQUIPMENT SUPPLIERS.



3-PHASE POWER APPLICATION - DDC MONITORING

CURRENT SWITCH INSTALLATION DETAILS

TYPICAL

NOTES:

1. CURRENT SWITCH (CS) OR CURRENT TRANSDUCER (CT) AMP. MONITORING AS APPLICABLE PER CONTROL DETAILS SHALL BE INSTALLED FOR DDC SYSTEM STATUS INDICATION OF FAN OR PUMP OPERATION. APPROPRIATE TIME DELAY FOR STATUS FEEDBACK UPON DDC START AND STOP COMMANDS SHALL BE INCLUDED WITH THE DDC LOGIC TO AVOID NUISANCE OPERATIONAL ALARMS.
2. REVIEW EQUIPMENT SHOP DRAWINGS TO DETERMINE POTENTIAL AMPERAGE RANGE OF FAN OR PUMP OPERATION FOR AMPERAGE TRIP SETTING REQUIREMENTS PRIOR TO SELECTING APPROPRIATE CURRENT SWITCH (MINIMUM SPEED AMPERAGE FOR FPTU WITH ECM CAN BE VERY LOW).
3. FOR ECM CURRENT SWITCH APPLICATIONS: PROVIDE CURRENT SWITCH RATED FOR ECM OPERATION WITH AMPERAGE TRIP SETTING HIGHER THAN TRICKLE/IDLE/STANDBY AMPERAGE ASSOCIATED WITH ECM WHEN OFF AND AMPERAGE TRIP SETTING LOWER THAN THE MINIMUM SPEED OPERATION OF FAN OR PUMP AS SET BY THE TAB CONTRACTOR.
4. FOR INDUCTION MOTOR CURRENT SWITCH APPLICATIONS (AS APPLICABLE): AMPERAGE TRIP SETTING SHALL BE ADJUSTABLE TO ACCOMMODATE VFC MINIMUM SPEED SETTING, TO DETECT FAN BELT LOSS, OR TO DETECT PUMP COUPLING DETACHMENT.
5. WHEN FAN OR PUMP IS ON AND NOT IN ALARM, DDC SYSTEM SHALL TOTALIZE RUN TIME HOURS FOR OPERATOR INFORMATION FROM BUILDING AUTOMATION SYSTEM OPERATOR INTERFACE.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE
TEMPERATURE CONTROLS

ISSUE DATES

DATE:	ISSUED FOR:
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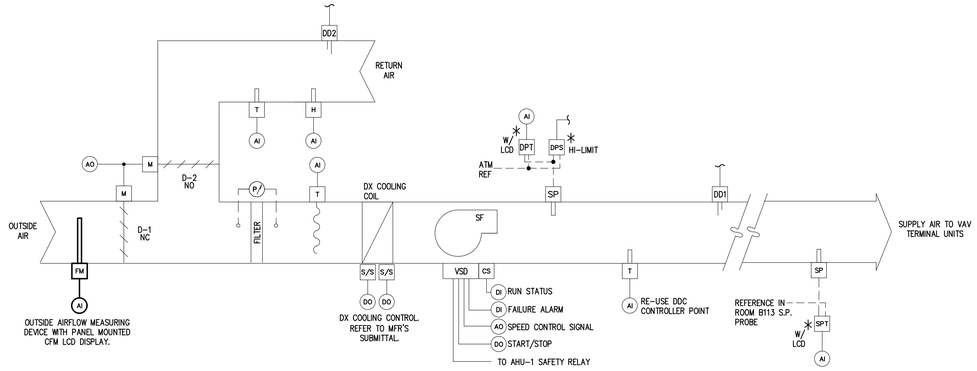
PROJECT NO.
22106

DRAWING NO.
M8.1

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TC GENERAL NOTES

TC GENERAL NOTES ON DRAWING M8.1 APPLY TO THIS DRAWING.



(E)AHU-1 VAV AIR HANDLING UNIT

AHU-1 SERVES: OFFICE AREA

NOTES:

1. PROVIDE AN OUTSIDE AIR AIRFLOW DEVICE W/REMOTE DISPLAY AND WIRING. MOUNT DISPLAY IN TEMPERATURE CONTROL PANEL.
2. PROVIDE SAFETY RELAY AND WIRING.

SEQUENCE OF OPERATION

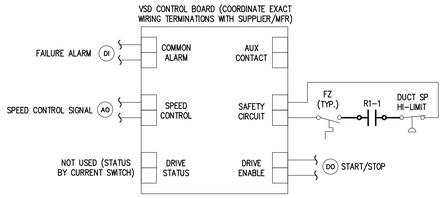
NOTES:

1. REUSE THE EXISTING SEQUENCE OF OPERATION WITH THE FOLLOWING MODIFICATIONS:
   - 1.1. DDC SHALL DISPLAY OA CFM AND CFM SETPOINT ON BAS GRAPHIC.
   - 1.2. REWIRE THE FAS CM TO SAFETY RELAY AS SHOWN. DDC SHALL DISPLAY RELAY DI POINT ON BAS GRAPHIC.

SEQUENCE OF OPERATION:

NOTE: ALL SETPOINTS INCLUDING RESET SCHEDULED SETPOINTS, TIME DELAYS, AND DEADBANDS DESCRIBED IN SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY BUILDING AUTOMATION SYSTEM (BAS) OPERATORS. DDC CONTROL PROGRAMMING SHALL PREVENT "LOOP WINDUP". REFER TO M4.1 FOR INITIAL OA CFM SETPOINT.

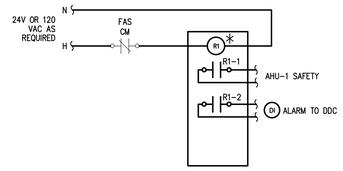
1. WHEN IN ECONOMIZER, OA AIRFLOW CONTROL SHALL BE DISABLED.
2. DDC SHALL MONITOR THE OUTSIDE AIR (OA) AIRFLOW MEASURING DEVICE AND MODULATE THE MIXED AIR DAMPERS TO MAINTAIN OA CFM SETPOINT. DELAY BETWEEN MEASUREMENT AND MAKING AN ADJUSTMENT OF 5 MINUTES (ADJ.).



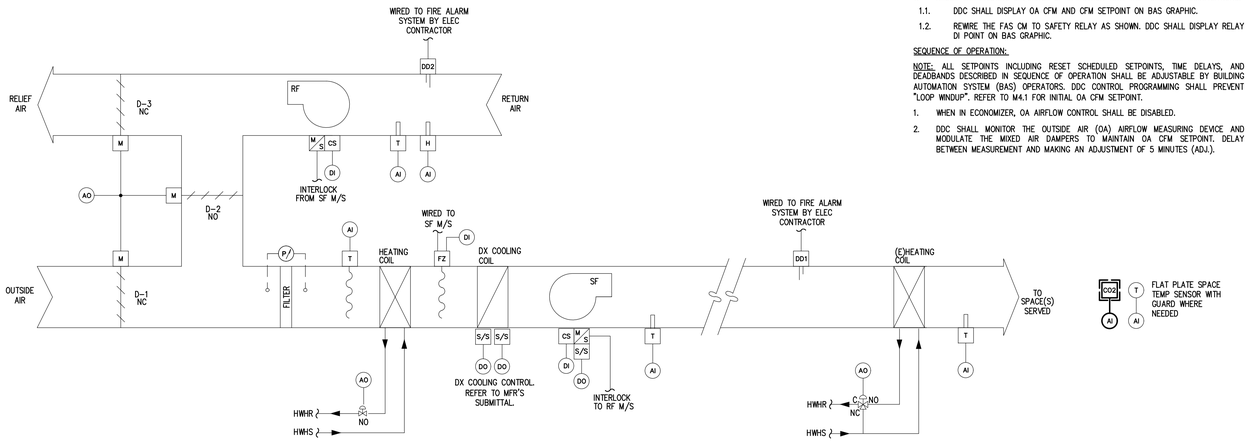
AHU-1 SF-1 VSD WIRING

NOTE:

1. WIRING DETAIL IDENTIFIES INTENT AND DOES NOT INDICATE ACTUAL WIRING REQUIREMENTS. CONSULT WITH VSD SUPPLIER FOR THE ACTUAL WIRING REQUIREMENTS.
2. INSTALL CURRENT SWITCH ON MOTOR LEADS TO MONITOR FAN STATUS.



FIRE ALARM SAFETY RELAY WIRING



(E)AHU-2 (BOARDROOM) CAV AIR HANDLING UNIT

NOTES:

1. TC CONTRACTOR SHALL PROVIDE THE SEQUENCE OF OPERATION FOR AHU-2 AS SHOWN BELOW.
2. VERIFY THAT ALL CONTROLS ARE WORKING AND OPERATIONAL. PROVIDE THE OWNER WITH A WRITTEN REPORT INCLUDING DEFICIENCIES.
3. ALL EXISTING SAFETIES REMAIN "AS IS" – FREEZESTAT AND FAS SHUTDOWN.

SEQUENCE OF OPERATION

AIR HANDLING UNIT – AHU-2:

NOTES:

1. ALL SETPOINTS, RESET SETPOINTS, TIME DELAYS (INTERVALS, AND DEADBANDS DESCRIBED IN THE SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY SYSTEM OPERATORS. APPROPRIATE DEADBANDS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS. ALL MOTOR CONTROL SWITCHES SHALL BE IN "AUTO" POSITION. ALL CONTROL LOOPS SHALL BE ENABLED AND DISABLED BASED ON SYSTEM STATUS TO PREVENT LOOP WINDUP.
2. TC CONTRACTOR SHALL NOT REUSE THE EXISTING S.O.O. "AS IS". PROVIDE AND VERIFY ALL OF THE FOLLOWING.
3. PROVIDE A NEW CO2 SENSOR NEXT TO THE EXISTING ROOM TEMPERATURE SENSOR FOR DCV.

SEQUENCE OF OPERATION:

1. DDC SHALL PROVIDE CONSTANT VOLUME CONTROL OF SUPPLY FAN AND RETURN FAN (SF/RF).
2. SF/RF SHALL HAVE START/STOP CAPABILITY FROM THE DDC/BAS SYSTEM. AHU SHALL OPERATE BASED ON BAS TIME OF DAY SCHEDULED OCCUPIED MODE, COMPENSATED BY AN OPTIMUM START PROGRAM, AND UNOCCUPIED CYCLE MODE.
3. DDC SHALL PROVIDE OPTIMUM START CONTROL BASED ON TREND DATA FROM OUTSIDE AIR TEMPERATURE AND BOARDROOM SPACE TEMPERATURE SENSORS.
4. SF/RF STATUSES SHALL BE MONITORED BY DDC THRU RESPECTIVE CURRENT SWITCHES. SF CURRENT SWITCH SHALL PROVIDE FEEDBACK TO ENABLE TEMPERATURE CONTROLS. ABNORMAL STATUS CONDITION FOR SF OR RF SHALL ACTIVATE ALARM.
5. WHEN AHU IS ACTIVATED DURING OCCUPIED MODE; OUTSIDE, EXHAUST, & RETURN AIR DAMPERS (REFERRED TO AS DAMPERS HEREIN) SHALL BE ALLOWED TO MODULATE AS DESCRIBED. WHEN AHU IS DEACTIVATED OR OPERATING IN UNOCCUPIED CYCLE MODE OR OPTIMUM START MODE, DAMPERS SHALL REMAIN IN NORMAL POSITIONS (OUTSIDE AIR DAMPER FULLY CLOSED).
6. DDC SHALL CONTROL DAMPERS FOR MIN/MIN OA POSITION AND MAX/MIN OA POSITION.
7. ECONOMIZER MODE SHALL BE ENABLED WHEN OA TEMP IS LESS THAN RA TEMP AND OA DEW POINT IS LESS THAN OR EQUAL TO ECONOMIZER LOCKOUT SETPOINT OF 52°F.
8. WHEN DISCHARGE AIR TEMP (DAT) IS ABOVE DAT SETPOINT AND ECONOMIZER IS AVAILABLE, DDC SHALL MODULATE DAMPERS ABOVE MINIMUM OA POSITION TO MAINTAIN DAT SETPOINT. IF DAMPERS ARE 100% OPEN AND DAT SETPOINT IS NOT MAINTAINED, DDC SHALL CYCLE DX CONTROL TO MAINTAIN DAT SETPOINT. HWH COIL VALVE SHALL BE CLOSED TO THE COIL.
9. WHEN DAT IS ABOVE DAT SETPOINT AND ECONOMIZER IS NOT AVAILABLE, DAMPERS SHALL REMAIN AT OA MINIMUM POSITION AND DDC SHALL MODULATE DX CONTROL TO MAINTAIN DAT SETPOINT. HWH COIL VALVE SHALL BE CLOSED TO THE COIL.
10. WHEN DAT IS BELOW DAT SETPOINT, DAMPERS SHALL REMAIN AT OA MINIMUM POSITION AND DDC SHALL MODULATE HWH COIL CONTROL VALVE TO MAINTAIN DAT SETPOINT. DX COOLING SHALL BE DISABLED UNLESS IN DCV CONTROL.
11. A MIXED AIR TEMP LOW LIMIT SETPOINT 45°F SHALL PROVIDE OVERRIDE CONTROL OF MIXED AIR DAMPERS AND ALLOW MODULATION BELOW MINIMUM OA DAMPER POSITION SETPOINT.
12. DAT SETPOINT SHALL BE BASED ON THE FOLLOWING OUTSIDE AIR TEMPERATURE RESET SCHEDULE:

OAT	DAT
≤ 30°F	60°F
≥ 55°F	55°F

13. DEMAND CONTROLLED VENTILATION: THE MINIMUM OA DAMPER SETPOINT SHALL BE RESET PROPORTIONALLY BETWEEN MIN/MIN CFM POSITION (BASE LOAD VENTILATION REQUIREMENT) AND MAX/MIN POSITION (FULL OCCUPANCY REQUIREMENT) BASED ON SPACE CARBON DIOXIDE LEVEL AS FOLLOWS:

CO2	OA DAMPER POSITION
600 PPM	MIN/MIN CFM SETPOINT
1,100 PPM	MAX/MIN CFM SETPOINT

14. DEHUMIDIFICATION MODE: IF THE RETURN AIR RELATIVE HUMIDITY RISES ABOVE 52%RH (ADJ.), WHETHER THERE IS NO CALL FOR COOLING IN SPACE, DDC SHALL STAGE DX COOLING CONTROL ON/OFF TO MAINTAIN A COIL LEAVING AIR TEMPERATURE OF 50°F (ADJ.) TO DEHUMIDIFY THE SPACE UNTIL THE RETURN AIR RELATIVE HUMIDITY DECREASES BELOW 48%RH (ADJ.). SPACE DRY BULB SETPOINT CONTROL SHALL BE MAINTAINED BY THE DUCT-MOUNTED REHEAT COIL.
15. DDC SHALL PROVIDE ANTI-SHORT CYCLE CONTROL OF THE DX SYSTEM WITH A MAXIMUM OF SIX STARTS PER HOUR (ADJ.) AND A MINIMUM OF 10 MINUTES (ADJ.) RUN TIME.
16. FREEZESTAT(S) SHALL DEACTIVATE SUPPLY AND RETURN FANS WHEN TEMPERATURE IS 35°F OR BELOW.
17. DUCT SMOKE DETECTOR(S) SHALL DEACTIVATE SUPPLY AND RETURN FANS WHEN PRODUCTS OF COMBUSTION ARE DETECTED.
18. FILTER STATUS SHALL BE MONITORED BY DDC THRU DIFFERENTIAL PRESSURE (DP) SWITCH (DPS). WHEN DP IS ABOVE DP SETPOINT, DDC SHALL PROVIDE ALARM TO THE BAS. TC CONTRACTOR SHALL ADJUST THE DPS TO THE MFR'S LOADED FILTER DATA.

UNOCCUPIED MODE:

19. WHEN AHU IS DEACTIVATED BY BAS TOD, A SAFETY DEVICE. OR DDC/BAS COMMAND, SUPPLY AND RETURN FANS SHALL BE OFF, DAMPERS SHALL CLOSE TO OUTSIDE AIR, AND DX COOLING SHALL REMAIN OFF. IF OA IS LESS THAN 40°F (ADJ.), DDC SHALL MODULATE THE HWH COIL VALVE TO MAINTAIN 50°F (ADJ.) AT THE MA TEMP SENSOR.
20. DDC SHALL NIGHT CYCLE THE AHU BASED ON SPACE TEMPERATURE CONDITIONS.

(E)BOARD ROOM REHEAT COIL HEATING CONTROL (TYP.)

FOR BOARDROOM SPACE TEMPERATURE CONTROL

SEQUENCE OF OPERATION

NOTE: ALL SETPOINTS, RESET SETPOINTS, TIME DELAYS (INTERVALS, AND DEADBANDS DESCRIBED IN THE SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY SYSTEM OPERATORS. APPROPRIATE DEADBANDS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS. ALL MOTOR CONTROL SWITCHES SHALL BE IN "AUTO" POSITION. ALL CONTROL LOOPS SHALL BE ENABLED AND DISABLED BASED ON SYSTEM STATUS TO PREVENT LOOP WINDUP.

1. TC CONTRACTOR SHALL PROVIDE A BAS SCHEDULE FOR "NORMAL" OCC/UNOCC CONTROL AND A "BOARDROOM" SCHEDULE. SEE BELOW FOR SETPOINTS.
2. DDC SHALL MAINTAIN SPACE HEATING/COOLING SETPOINTS AND TIME OF DAY SCHEDULE FROM THE BAS.
3. DDC SHALL PROVIDE DAT HIGH LIMIT CONTROL AT 90°F (ADJ.) AS SENSED AT HWH COIL VEAVING AIR TEMPERATURE SENSOR.
4. "NORMAL" MODE SETPOINTS SHALL BE:
   - UNOCCUPIED HEATING SETPOINT: 62°F (ADJUSTABLE)
   - OCCUPIED HEATING SETPOINT: 70°F (ADJUSTABLE)
   - OCCUPIED COOLING SETPOINT: 75°F (ADJUSTABLE)
   - UNOCCUPIED COOLING SETPOINT: 80°F (ADJUSTABLE)

   4.1. DDC SHALL PROVIDE 1.5°F DEADBAND FOR CONTROL AROUND SETPOINTS IN "NORMAL" MODE.
5. "BOARDROOM" MODE SETPOINTS SHALL BE:
   - MEETING HEATING SETPOINT: 72°F (ADJUSTABLE)
   - MEETING COOLING SETPOINT: 74°F (ADJUSTABLE)

   5.1. DDC SHALL PROVIDE 1.0°F DEADBAND FOR CONTROL AROUND SETPOINTS IN "BOARDROOM" MODE.
6. IN "NORMAL" UNOCCUPIED MODE, DDC SHALL PROVIDE 2°F DEADBAND FOR CONTROL AROUND SETPOINTS IN UNOCCUPIED MODE, AND NIGHT CYCLE THE AHU.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE
TEMPERATURE CONTROLS

ISSUE DATES

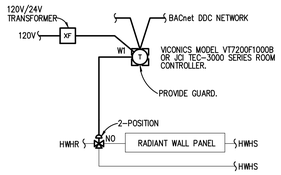
06-23-2025	CONSTRUCTION DOCUMENTS
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DRAWN	NJC
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PROJECT NO.
22106

DRAWING NO.
M8.2

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CUSTODIAL 107 HW RADIANT WALL PANEL

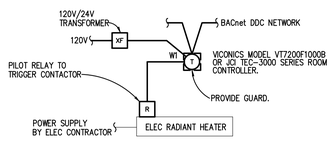
NOTES:

1. REFER TO FLOOR PLANS FOR LOCATION OF UNITS.
2. COORDINATE WIRING REQUIREMENTS AND TERMINATIONS WITH EQUIPMENT SUPPLIER.
3. TC CONTRACTOR SHALL PROVIDE 24VAC POWER AND BACnet MS/TP OPEN PROTOCOL COMMUNICATION WIRING TO EACH THERMOSTAT AND EXTEND TO THE BUILDING SUPERVISORY CONTROLLER.

SEQUENCE OF OPERATION:

NOTE: ALL SET POINTS, RESET SET POINTS, DEADBANDS, DELAY TIMERS, MODE POINTS, ETC., DESCRIBED IN THE SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY BUILDING AUTOMATION SYSTEM (BAS) OPERATORS.

1. BACNET THERMOSTAT SHALL CONTROL HW RADIANT WALL PANEL CONTROL VAVLE AS REQUIRED TO MAINTAIN SPACE TEMP SETPOINT OF 68°F DURING BLDG OCCUPANCY AND 55°F DURING BLDG UNOCCUPANCY BASED ON BAS TIME OF DAY SCHEDULE.
2. THERMOSTAT SHALL PROVIDE A 2°F DEADBAND AROUND SETPOINTS FOR CONTROL.



TOILET 106, 109, & 111
ELECTRIC RADIANT CEILING PANEL

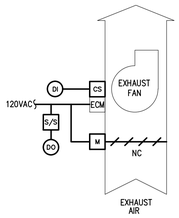
NOTES:

1. REFER TO FLOOR PLANS FOR LOCATION OF UNITS.
2. COORDINATE WIRING REQUIREMENTS AND TERMINATIONS WITH EQUIPMENT SUPPLIER.
3. TC CONTRACTOR SHALL PROVIDE 24VAC POWER AND BACnet MS/TP OPEN PROTOCOL COMMUNICATION WIRING TO EACH THERMOSTAT AND EXTEND TO THE BUILDING SUPERVISORY CONTROLLER.

SEQUENCE OF OPERATION:

NOTE: ALL SET POINTS, RESET SET POINTS, DEADBANDS, DELAY TIMERS, MODE POINTS, ETC., DESCRIBED IN THE SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY BUILDING AUTOMATION SYSTEM (BAS) OPERATORS.

1. BACNET THERMOSTAT SHALL CONTROL ELECTRIC RADIANT CEILING PANEL CONTROL CIRCUIT AS REQUIRED TO MAINTAIN SPACE TEMP SETPOINT OF 68°F DURING BLDG OCCUPANCY AND 55°F DURING BLDG UNOCCUPANCY BASED ON BAS TIME OF DAY SCHEDULE.
2. THERMOSTAT SHALL PROVIDE A 2°F DEADBAND AROUND SETPOINTS FOR CONTROL.

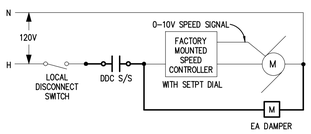


EXHAUST FAN EF-1, 2, 3 & 4 CONTROL

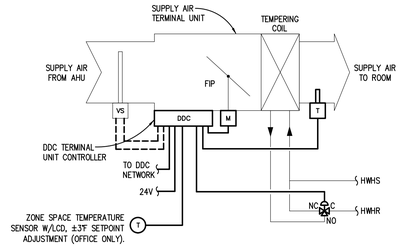
TYPICAL

SEQUENCE OF OPERATION:

1. EXHAUST FAN SHALL BE STARTED AND STOPPED BY DDC BASED ON BAS TIME OF DAY BUILDING OCCUPANCY SCHEDULE.
2. DDC SHALL MONITOR EF RUN STATUS THRU CURRENT SWITCH. ABNORMAL STATUS CONDITION SHALL ACTIVATE ALARM.
3. DDC SHALL TOTALIZE FAN MOTOR RUNTIME HOURS OF OPERATION.



EF-1 & -2 M/S WIRING



AIR TERMINAL UNIT CONTROL

REFER TO AIR TERMINAL UNIT SCHEDULE FOR APPLICATION.

NOTES:

1. REFER TO TERMINAL UNIT SCHEDULE FOR QUANTITY OF UNITS AND MECH FLOOR PLANS FOR LOCATION OF TERMINAL UNITS AND LOCATION OF ASSOCIATED ROOM TEMP SENSORS.
2. TC CONTRACTOR SHALL PROVIDED A FULLY PROGRAMMABLE TERMINAL UNIT CONTROLLER THAT IS CAPABLE OF ACCOMPLISHING THE INDICATED SEQUENCE OF OPERATION.
3. TC CONTRACTOR SHALL PROVIDE 24V POWER SUPPLY TO TERMINAL UNIT CONTROLLER.
4. TC CONTRACTOR SHALL FURNISH & INSTALL BACnet MS/TP OPEN PROTOCOL COMMUNICATION WIRING TO EACH TU CONTROLLER AND EXTEND TO THE BUILDING SUPERVISORY CONTROLLER.
5. TC CONTRACTOR SHALL FURNISH HWH CONTROL VALVES FOR TU HEATING COILS. REFER TO FLOOR PLANS AND MECHANICAL DETAILS FOR VALVE SELECTION CRITERIA.
6. WHERE INDICATED ON FLOOR PLANS, A COMMON ZONE TEMP SENSOR SHALL BE USED WHEN MULTIPLE TERMINAL UNITS THAT SERVE THE SAME ZONE AND SHALL BE CONTROLLED IN UNISON.

SEQUENCE OF OPERATION

AIR TERMINAL UNIT:

NOTE: ALL SET POINTS, RESET SET POINTS, DEADBANDS, DELAY TIMERS, MODE POINTS, ETC., DESCRIBED IN THE SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY BUILDING AUTOMATION SYSTEM (BAS) OPERATORS. APPROPRIATE DEADBANDS SHALL BE USED TO PREVENT SHORT CYCLING SITUATIONS. PROVIDE CONTROL STATEMENTS TO PREVENT "LOOP WINDUP".

1. ALL TU'S ASSOCIATED WITH A SINGLE SPACE TEMP SENSOR SHALL CONTROL IN UNISON.
2. SUPPLY AIR TERMINAL UNIT'S (TU) VAV MINIMUM AND MAXIMUM AIRFLOW SETTINGS SHALL BE AS INDICATED ON THE MECHANICAL SCHEDULES. WHERE MINIMUM AND MAXIMUM AIRFLOW SETTINGS ARE THE SAME, THE TU CONTROLLER SHALL PERFORM CONSTANT AIR VOLUME CONTROL.
3. IN ALL MODES OF HEATING, TU DISCHARGE AIR TEMP SENSOR SHALL PROVIDE HIGH LIMIT SETPOINT CONTROL AT 90°F DAT.
4. WHEN SPACE TEMP RISES ABOVE THE COOLING SETPOINT, THE SUPPLY AIR TU CONTROLLER SHALL KEEP THE TEMPERING COIL VALVE (AND PERIMETER HEATING CONTROL VALVE WHERE APPLICABLE) CLOSED AND SHALL MODULATE THE SUPPLY AIRFLOW BETWEEN ITS MINIMUM AND MAXIMUM SETTINGS.
5. SPACE TEMPERATURE SETPOINTS SHALL BE AS FOLLOWS:

   HEATING UNOCCUPIED SETPOINT = 62°F

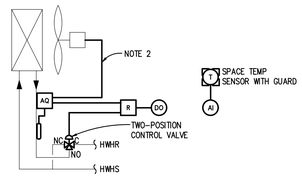
   HEATING OCCUPIED SETPOINT = 70°F

   COOLING OCCUPIED SETPOINT = 75°F

   COOLING UNOCCUPIED SETPOINT = 80°F
6. DURING BUILDING UNOCCUPANCY, RELATED AHU SHALL CYCLE AS REQUIRED TO MAINTAIN BUILDING SETBACK AND SETUP TEMP SETPOINTS.
7. WHEN RESPECTIVE AHU IS DEACTIVATED, THE TERMINAL UNIT TEMPERING COIL CONTROL VALVE SHALL REMAIN CLOSED.
8. WHEN RESPECTIVE AHU IS OPERATING IN OPTIMUM START MODE, THE TERMINAL UNIT SHALL MAINTAIN ITS MAXIMUM AIRFLOW SETTING UNTIL SPACE OCCUPIED TEMPERATURE SETPOINT IS ACHIEVED.
9. THE DDC TU CONTROLLER SHALL RECALIBRATE THE AIRFLOW SENSOR AND RESET FLOATING CONTROL DAMPER AND CONTROL VALVE ACTUATORS ONCE A WEEK MINIMUM. THE RECALIBRATION AND RESET PROCESS SHALL OCCUR WHEN RESPECTIVE AHU IS DEACTIVATED. IF AHU OPERATES CONTINUOUSLY, THE RECALIBRATION AND RESET PROCESS SHALL BE STAGGERED AMONGST THE TERMINAL UNITS SO THE DUCT STATIC PRESSURE DOES NOT EXCEED LIMITS.
10. DISCHARGE AIR TEMP SHALL BE MONITORED FOR SYSTEM DIAGNOSTICS AND PROVIDE HIGH LIMIT CONTROL AS DESCRIBED.
11. CONTROL SIGNALS FOR AIR TERMINAL UNIT DAMPER ACTUATOR AND HEATING CONTROL OUTPUT(S) SHALL BE DISPLAYED WITH SYSTEM GRAPHICS.

TC GENERAL NOTES

TC GENERAL NOTES ON DRAWING M8.1 APPLY TO THIS DRAWING.



HWH CUH-1 CONTROL

NOTES:

1. REFER TO FLOOR PLANS FOR QUANTITY AND LOCATION OF UNITS.
2. AQUASTAT SHALL BE WIRED IN SERIES WITH FAN CONTROL WIRING CIRCUIT.

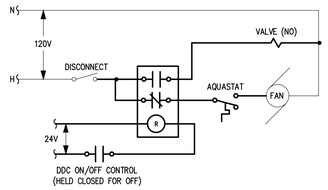
SEQUENCE OF OPERATION:

NOTE: ALL SETPOINTS, RESET SCHEDULE SETPOINTS, DEADBANDS, AND TIME INTERVALS DESCRIBED IN SEQUENCE SHALL BE ADJUSTABLE BY BAS OPERATORS. ALL MOTOR CONTROL SWITCHES SHALL BE IN "AUTO" POSITION.

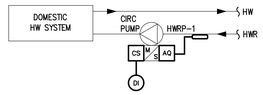
1. **ASHRAE 90.1-2013 AND LATER VESTIBULES:**

   1.1. DDC SHALL ENABLE/DISABLE UH/CUH FAN CIRCUIT AND OPEN/CLOSE HEATING VALVE AS REQUIRED TO MAINTAIN SPACE TEMPERATURE SETPOINT OF 60°F. FAN SHALL ACTIVATE UPON PROOF OF HWHR FLOW BY AQUASTAT. AQUASTAT SHALL PROVIDE 4°F DEADBAND FOR CONTROL. DDC SHALL PROVIDE 2°F DEADBAND FOR CONTROL.

   1.2. WHEN OUTSIDE AIR TEMPERATURE INCREASES ABOVE 45°F, DDC SHALL DISABLE CONTROL OF THE UH/CUH.



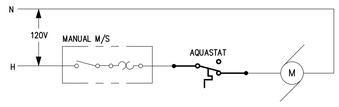
HWH CUH-1 WIRING



DOM HW SYSTEM MONITORING & CONTROL

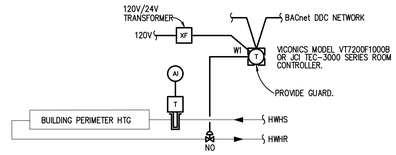
SEQUENCE OF OPERATION:

1. AQUASTAT SHALL ACTIVATE DOMESTIC HW CIRC PUMP BASED ON AQUASTAT SETPOINT. INITIAL SETPOINT FOR PUMP ON SHALL BE 126°F AND FOR PUMP OFF AT 130°F.



DOMESTIC HW CP M/S WIRING

TYPICAL.



BUILDING HW PERIMETER CONTROL

NOTES:

1. REFER TO FLOOR PLANS FOR VALVE LOCATION. .
2. TC CONTRACTOR SHALL PROVIDE 24VAC POWER AND BACnet MS/TP OPEN PROTOCOL COMMUNICATION WIRING TO EACH THERMOSTAT AND EXTEND TO THE BUILDING SUPERVISORY CONTROLLER.

SEQUENCE OF OPERATION:

NOTE: ALL SETPOINTS, RESET SETPOINTS, DEADBANDS, DELAY TIMERS, MODE POINTS, ETC., DESCRIBED IN THE SEQUENCE OF OPERATION SHALL BE ADJUSTABLE BY BUILDING AUTOMATION SYSTEM (BAS) OPERATORS.

1. BACNET THERMOSTAT SHALL CONTROL HW FTR CONTROL VALVE AS REQUIRED TO MAINTAIN SPACE TEMP SETPOINT OF 68°F DURING BLDG OCCUPANCY AND 55°F DURING BLDG UNOCCUPANCY BASED ON BAS TIME OF DAY SCHEDULE.
2. THERMOSTAT SHALL PROVIDE A 2°F DEADBAND AROUND SETPOINTS FOR CONTROL.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

TEMPERATURE CONTROLS

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

DRAWN	NJC
CHECKED	KLH
APPROVED	SVM

PROJECT NO.

22106

DRAWING NO.

M8.3

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ELECTRICAL SYMBOL LIST (NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.)

SYMBOL	DESCRIPTION
X (NL)	X DENOTES FIXTURE TYPE (NL INDICATES NIGHT LIGHT)
	FILL DENOTES EMERGENCY LIGHTING FIXTURE
	TROFFER LIGHT
	STRIP LIGHT
	LINEAR LIGHT
	MULTIHEAD ADJUSTABLE LIGHT
	DOWN LIGHT
	DIRECTIONAL DOWN LIGHT
	DECORATIVE LIGHT
	DECORATIVE LIGHT
	WALL MOUNTED LIGHT
	WALL SCONCE
	ARM MOUNTED LIGHT
	LIGHTING TRACK
	TRACK LIGHT
	ADJUSTABLE FLOOD LIGHT
	STEP LIGHT
	LED TAPE LIGHT
	REMOTE DRIVER
	HIGH BAY LIGHT
	POLE MOUNTED LIGHT
	POST TOP LIGHT
	BOLLARD LIGHT
	EMERGENCY LIGHT
	EXIT LIGHT WITH DIRECTIONAL ARROWS (FILLED AREA INDICATES FACE)
	EXIT LIGHT WITH DIRECTIONAL ARROWS (FILLED AREA INDICATES FACE)
	EXIT LIGHT - WALL MOUNTED (FILLED AREA INDICATES FACE)
	EXIT/EMERGENCY LIGHT COMBO - WALL MOUNTED (FILLED AREA INDICATES FACE)
ALCR	AUTOMATIC LOAD CONTROL RELAY
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
LC	LIGHTING CONTROL DEVICE - REFER TO LIGHTING CONTROL SCHEDULE
XX	ROOM CONTROL DESIGNATION - REFER TO LIGHTING CONTROL SCHEDULE
S	SINGLE POLE TOGGLE SWITCH
S_2	TWO POLE TOGGLE SWITCH
S_3	3 WAY TOGGLE SWITCH
S_4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K_3	3 WAY KEY OPERATED SWITCH
K_4	4 WAY KEY OPERATED SWITCH
D	DIMMER SWITCH
D_O	DIMMER OCCUPANCY SENSOR SWITCH
D_L	LOW VOLTAGE DIMMER SWITCH
D_3	3 WAY DIMMER SWITCH
S_P	PILOT SWITCH

SYMBOL	DESCRIPTION
TWC	TWO-WAY COMMUNICATION SYSTEM CALL STATION
TWCD	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER
TWCA	TWO-WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL
TWCP	TWO-WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK-UP
TWCDP	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK-UP
RGP	REMOTE GENERATOR ANNUNCIATOR PANEL
ATS	AUTOMATIC TRANSFER SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE
	SINGLE / DUPLEX RECEPTACLE OUTLET "X" INDICATES TYPE
	SINGLE / DUPLEX RECEPTACLE OUTLET CONTROLLED BY AUTOMATIC CONTROL DEVICE / SYSTEM
	QUAD RECEPTACLE OUTLET
	ABOVE COUNTER DUPLEX RECEPTACLE OUTLET (SIMILAR FOR TAMPER RESISTANT, CONTROLLED, QUADS, EMERGENCY, UPS, USB, AND GFCI RECEPTACLE OUTLETS)
	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE OUTLET
	DEAD FRONT GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX EMERGENCY RECEPTACLE OUTLET
	DUPLEX TAMPER RESISTANT RECEPTACLE OUTLET
	QUAD TAMPER RESISTANT RECEPTACLE OUTLET
	DUPLEX UPS RECEPTACLE OUTLET
	DUPLEX RECEPTACLE OUTLET WITH 2 USB PORTS
	USB 4 PORT CHARGING STATION
	CEILING MOUNTED DUPLEX / QUAD RECEPTACLE OUTLET
	MULTI-OUTLET SURFACE RACEWAY
	POWER POLE
	WALL / CEILING MOUNTED SPECIAL RECEPTACLE OUTLET - REFER TO ELECTRICAL STANDARD SCHEDULES
	MULTI-SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
PTX	POKE-THROUGH ASSEMBLY "X" INDICATES TYPE
FBX	FLOOR SERVICE FITTING "X" INDICATES TYPE
AFX	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE
RX	CORD REEL "X" INDICATES TYPE
	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	3-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED
	4-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
ST	DIGITAL TIME SWITCH
SI	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER-ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION
SL	LOW VOLTAGE SWITCH
SO	OCCUPANCY SENSOR
S_{O2}	OCCUPANCY SENSOR - REFER TO ELECTRICAL STANDARD SCHEDULE
OS X	OCCUPANCY SENSOR - REFER TO ELECTRICAL STANDARD SCHEDULES - "X" INDICATES TYPE

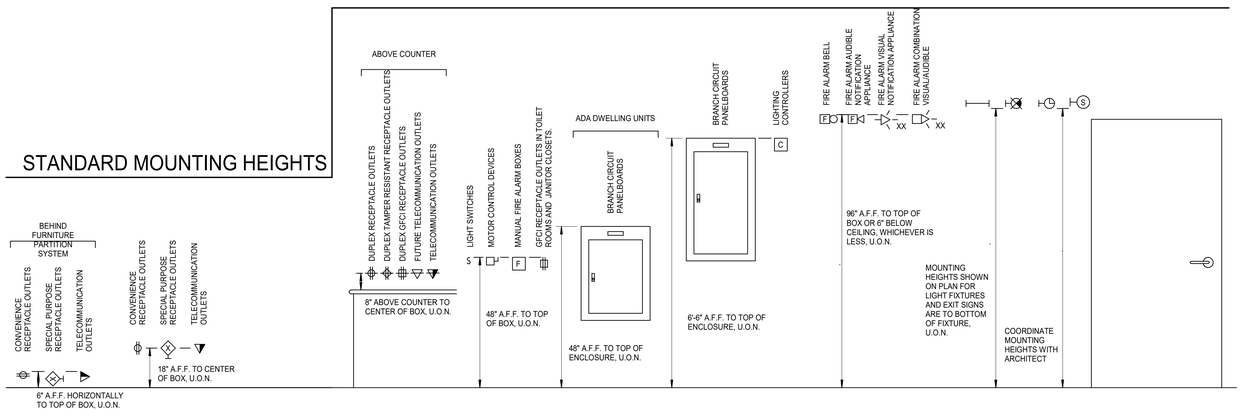
SYMBOL	DESCRIPTION
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER
	NON-FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
	JUNCTION BOX
	HARD WIRE POWER CONNECTION
	GROUND ROD
	GROUND CONNECTION
HH	HANDHOLE
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET MOUNTED 8" ABOVE COUNTERTOP
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION OUTLET MOUNTED 8" ABOVE COUNTERTOP "X" INDICATES TYPE
X	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR
IC	INTERCOM OUTLET
S	SPEAKER
S	SPEAKER - WALL MOUNTED
MIC	MICROPHONE
VC	VOLUME CONTROL
B	SIGNALING BELL
	SINGLE FACE CLOCK - CEILING MOUNTED
	SINGLE FACE CLOCK - WALL MOUNTED
	DOUBLE FACE CLOCK - CEILING MOUNTED
	DOUBLE FACE CLOCK - WALL MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED
	TIME CLOCK
C	CONTACTOR
P	PHOTOCELL
TT	TWIST TIMER
EVSE	ELECTRICAL VEHICLE SUPPLY EQUIPMENT
DCFC	DC FAST CHARGER - STANDALONE
DCPM	DC FAST CHARGER - POWER MODULE
DCDP	DC FAST CHARGER - DISPENSER

REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
CR	CARD READER
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
DO	DOOR OPERATOR
DA	DOOR ACTUATOR
AC	ACCESS CONTROL STATION
ACCP	ACCESS CONTROL CONTROL PANEL
ACPS	ACCESS CONTROL POWER SUPPLY
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
X	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	SECURITY KEY INTERLOCK
G	ENGINE GENERATOR
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE
CR	CONTROL RELAY
PRM	PHASE ROTATION MONITOR
	CAMLOK - MALE
	CAMLOK - FEMALE
TDR	TIME DELAY RELAY
	THERMAL OVERLOAD RELAY
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	N.O. PUSH BUTTON SINGLE CIRCUIT
	N.C. PUSH BUTTON SINGLE CIRCUIT
X-X	CABLE VAULT "X-X" INDICATES TYPE

SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
RT	REMOTE TEST STATION (FOR DUCT DETECTOR)
HD	HEAT DETECTOR
BD	PROJECTED BEAM DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
F XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE NOTIFICATION APPLIANCE - CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE - CEILING MOUNTED
F	FIREFIGHTERS PHONE JACK
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
MM	ADDRESSABLE MONITORING MODULE
CM	ADDRESSABLE CONTROL MODULE
TS	ADDRESSABLE MONITORING MODULE FOR TAMPER SWITCH
FS	ADDRESSABLE MONITORING MODULE FOR FLOW SWITCH
DR	MAGNETIC DOOR RELEASE
	BRANCH CIRCUIT PANEL BOARD
	LOAD CENTER
	MOTOR CONTROL CENTER
T	TRANSFORMER
	DISTRIBUTION EQUIPMENT
GB	ELECTRICAL GROUNDING BUS BAR
PB	PLUG IN BUSWAY
FB	FEEDER BUSWAY
12x4	CABLE TRAY - ALL SIZES IN INCHES

STANDARD MOUNTING HEIGHTS



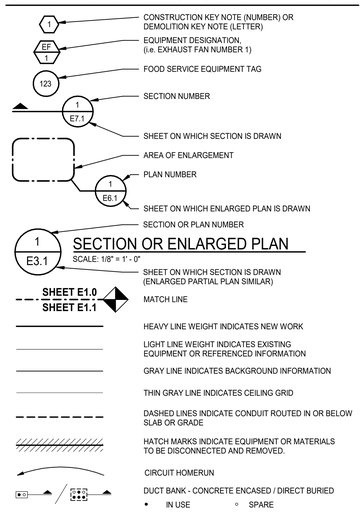
ELECTRICAL DRAWING INDEX

SHEET NO.	SHEET TITLE
E0.1	ELECTRICAL STANDARDS AND DRAWING INDEX
E0.2	ELECTRICAL STANDARD SCHEDULES
E0.3	ELECTRICAL STANDARD SCHEDULES
ED1.1	FIRST LEVEL ELECTRICAL DEMOLITION PLAN
ED1.2	ROOF LEVEL ELECTRICAL DEMOLITION PLAN
E2.1	FIRST LEVEL LIGHTING PLAN
E3.1	FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN
E3.2	ROOF LEVEL POWER AND AUXILIARY SYSTEMS PLAN
E5.1	ONE LINE DIAGRAM - DEMOLITION
E5.2	ONE LINE DIAGRAM - NEW WORK
E5.3	PANEL SCHEDULES
E7.1	ELECTRICAL DETAILS AND DIAGRAMS
E7.2	ELECTRICAL DETAILS AND DIAGRAMS
E7.3	ELECTRICAL DETAILS AND DIAGRAMS

ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A	AMPERES	JB	JUNCTION BOX	P	POLE
AER	ARC ENERGY REDUCTION			PB	PUSHBUTTON STATION
AF	AMPERES FRAME (BREAKER RATING)	KA	THOUSAND AMP	PH	PHASE
AFCI	ARC FAULT CIRCUIT INTERRUPTER	KV	KILOVOLT	PT	POTENTIAL TRANSFORMER
A.F.F.	ABOVE FINISH FLOOR	KVA	KILOVOLT - AMPERES	PDP	POWER DISTRIBUTION PANEL
AIC	AMPS INTERRUPTING CAPACITY	KW	KILOWATT		
AL	AUDIENCE LEFT	KWH	KILOWATT - HOURS	RECEPT.	RECEPTACLE
ALCR	AUTOMATIC LOAD CONTROL RELAY			RDP	RECEPTACLE DISTRIBUTION PANEL
AR	AUDIENCE RIGHT	LA	LIGHTING ARRESTOR	RP	RECEPTACLE PANEL
AT	AMPERES TRIP (BREAKER SETTING)	LP	LIGHTING PANEL	RSC	RIGID STEEL CONDUIT
ATS	AUTOMATIC TRANSFER SWITCH	LDP	LIGHTING DISTRIBUTION PANEL		
AUX	AUXILIARY			SCCR	SHORT CIRCUIT CURRENT RATING
		MAX	MAXIMUM	SCHED	SCHEDULE
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH	MCA	MINIMUM CIRCUIT AMPACITY	SPD	SURGE PROTECTION DEVICE
		MCB	MAIN CIRCUIT BREAKER	ST	SHUNT TRIP
BKR	BREAKER	MCC	MOTOR CONTROL CENTER	SW	SWITCH
BPS	BOLTED PRESSURE SWITCH	MDP	MAIN DISTRIBUTION PANEL	SWBD	SWITCHBOARD
		MECH	MECHANICAL	SWGR	SWITCHGEAR
C	CONDUIT	MIN	MINIMUM		
CB	CIRCUIT BREAKER	MISC.	MISCELLANEOUS	TB	TERMINAL BOX
CKT	CIRCUIT	MLO	MAIN LUGS ONLY	TELECOM	TELECOMMUNICATIONS
CT	CURRENT TRANSFORMER	MOP	MAXIMUM OVERCURRENT PROTECTION	TR	TAMPER RESISTANT
		MTD	MOUNTED	TTP	TELEPHONE TERMINAL BACKBOARD
DEMO	DEMOLITION	MTG	MOUNTING	TYP	TYPICAL
DIM	DIMENSION	MTR	MOTOR		
DISC	DISCONNECT			U.O.N.	UNLESS OTHERWISE NOTED
DP	DISTRIBUTION PANEL	N	NEUTRAL	US	UPSTAGE
DS	DOWNSTAGE	NC	NORMALLY CLOSED		
DWG	DRAWING	NEC	NATIONAL ELECTRICAL CODE	V	VOLTS
		NF	NON-FUSIBLE		
EBU	EMERGENCY BATTERY UNIT	NIC	NOT IN CONTRACT	W	WIRE OR WATTS
EC	ELECTRICAL CONTRACTOR	NL	NIGHT LIGHT	WAP	WIRELESS ACCESS POINT
ECM	ELECTRONICALLY COMMUTATED MOTOR	NO	NORMALLY OPEN	WG	WIRE GUARD
ELEC	ELECTRICAL	NTS	NOT TO SCALE	WP	WEATHERPROOF
EM/ EMERG	EMERGENCY			WR	WEATHER RESISTANT
EMT	ELECTRICAL METALLIC TUBING	OC	ON CENTER		
EO	ELECTRICALLY OPERATED	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED	XFMR	TRANSFORMER
EPO	EMERGENCY POWER OFF			XP	EXPLOSION PROOF
EWC	ELECTRIC WATER COOLER	OFOI	OWNER FURNISHED, OWNER INSTALLED		
EXIST	EXISTING			(E)	EXISTING
				(R)	RELOCATED
FA	FIRE ALARM				
FLA	FULL LOAD AMPS				
FLR	FLOOR				
FOH	FRONT OF HOUSE				
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR				
FU	FUSE				
G/GRD/EG	GROUND				
GFCI	GROUND FAULT CIRCUIT INTERRUPTER				
GFP	GROUND FAULT PROTECTION				
HOA	HAND-OFF-AUTO				
HP	HORSEPOWER				
HV	HIGH VOLTAGE				
HZ	HERTZ				
IG	ISOLATED GROUND				

STANDARD METHODS OF NOTATION



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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

ELECTRICAL STANDARDS AND DRAWING INDEX

ISSUE DATES

06-23-2025	CONSTRUCTION DOCUMENTS
DATE:	ISSUED FOR:

DRAWN	ZDB
CHECKED	ZDB
APPROVED	STP

PROJECT NO.

22106

DRAWING NO.

E0.1

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FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						KEYED NOTES	ALUMINUM CONDUCTORS					
	WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE					WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE			
	PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)		PHASE & NEUTRAL	GROUND	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)
15-20	12	12	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A
25-30	10	10	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A
35-40	8	10	3/4"	3/4"	3/4"	3/4"		N/A	N/A	N/A	N/A	N/A
45-50	8 (6)	10	3/4"	3/4"	3/4"	3/4"	1	N/A	N/A	N/A	N/A	N/A
60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	1" (1 1/4")	1	N/A	N/A	N/A	N/A	N/A
70	4	8	1"	1 1/4"	1 1/4"	1 1/4"		N/A	N/A	N/A	N/A	N/A
80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"	1	N/A	N/A	N/A	N/A	N/A
90-100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1	1	6	1 1/2"	1 1/4"	1 1/2"
110	2 (1)	6	-	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1	1/0	4	1 1/2"	1 1/2"	2"
125	1 (1/0)	6	-	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	1	2/0	4	1 1/2"	1 1/2"	2"
150	1/0	6	-	1 1/2"	1 1/2"	1 1/2"		3/0	4	2"	2"	2 1/2"
175	2/0	6	-	2"	2"	2"		4/0	4	2"	2"	2 1/2"
200	3/0	6	-	2"	2"	2 1/2"		250	4	2"	2"	3"
225	4/0	4	-	2"	2"	2 1/2"		300	2	2 1/2"	2 1/2"	3"
250	250	4	-	2 1/2"	2 1/2"	2 1/2"		350	2	2 1/2"	2 1/2"	3"
300	350	4	-	2 1/2"	2 1/2"	3"		500	2	3"	3"	3 1/2"
350	500	3	-	3"	3"	3"		2-4/0	2-1/0	2-2"	2-2"	2-2"
400	500	3	-	3"	3"	3"		2-250	2-1/0	2-2 1/2"	2-2 1/2"	2-2 1/2"
450	2-4/0	2-2	-	2-2"	2-2"	2-2 1/2"		2-300	2-1/0	2-2 1/2"	2-2 1/2"	2-3"
500	2-250	2-2	-	2-2 1/2"	2-2 1/2"	2-2 1/2"		2-350	2-1/0	2-2 1/2"	2-2 1/2"	2-3"
600	2-350	2-1	-	2-2 1/2"	2-2 1/2"	2-3"		2-500	2-2/0	2-3"	2-3"	2-3 1/2"
700	2-500	2-1/0	-	2-3"	2-3"	2-3 1/2"		2-600	2-3/0	2-3"	2-3"	2-3 1/2"
800	2-500	2-1/0	-	2-3"	2-3"	2-3 1/2"		3-400	3-3/0	3-3"	3-3"	3-3 1/2"
1000	3-400	3-2/0	-	3-3"	3-3"	3-3"		3-600	3-4/0	-	3-3 1/2"	3-3 1/2"
1200	3-600	3-3/0	-	3-3 1/2"	3-3 1/2"	3-3 1/2"		4-500	4-250	-	4-3"	4-3 1/2"
1600	4-600	4-4/0	-	4-3 1/2"	4-3 1/2"	4-3 1/2"		5-600	5-350	-	5-3 1/2"	5-4"
2000	5-600	5-250	-	5-3 1/2"	5-3 1/2"	5-3 1/2"		6-600	6-400	-	6-3 1/2"	6-4"

GENERAL NOTES:
1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. CONDUCTORS ARE BASED ON THHN/THWN-2 UP TO AND INCLUDING #4/0. LARGER THAN #4/0 ARE BASED ON TYPE XHHW-2.
4. CONDUIT SIZES ARE VALID FOR EMT OR RSC. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
5. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
6. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.

KEYED NOTES:
1. CONDUCTORS ARE BASED ON 90°C, 600V INSULATED WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS

BRANCH CIRCUIT RATING (A)	WIRE SIZE (AWG)	MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET)				
		120V	208V	240V	277V	480V
20A	12	83	143	165	191	331
20A	10	128	222	256	295	511
20A	8	201	348	402	464	804
20A	6	313	542	625	721	1250
30A	10	85	148	170	197	341
30A	8	134	232	268	309	536
30A	6	208	361	417	481	833
30A	4	313	542	625	721	1250

GENERAL NOTES:
1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD POWER FACTOR OF 0.85 PER NEC CHAPTER 9, TABLE 9.
2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 9 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT.
4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH ASHRAE 90.1 AND THE NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

MOTOR CIRCUIT SIZING SCHEDULE (208V, 3 PHASE)

MOTOR HP	SWITCH/FUSE	CIRCUIT BREAKER	STARTER SIZE/TYPE	MOTOR DISCONNECT (NOTE 3)
1/2	30/6A	15A	1	30A
3/4	30/6A	15A	1	30A
1	30/10A	15A	1	30A
1 1/2	30/10A	15A	1	30A
2	30/10A	15A	1	30A
3	30/20A	20A	1	30A
5	30/25A	35A	1	30A
7 1/2	60/40A	50A	1	60A
10	60/50A	60A	2	60A
15	60/60A	90A	3	60A
20	100/90A	100A	3	100A
25	100/100A	110A	3	100A
30	200/125A	125A	4	200A
40	200/175A	175A	4	200A
50	200/200A	200A	5	200A
60	400/250A	250A	5	400A
75	400/300A	300A	5	400A
100	400/400A	400A	6	400A
125	600/500A	600A	6	600A
150	600/600A	600A	6	600A

GENERAL NOTES:
1. BASED ON MOTOR FULL LOAD AMPERES AS PROVIDED BY THE NEC
2. BASED ON MOTOR RUNNING OVERLOAD PROTECTIONS PROVIDED BY THERMAL OVERLOAD RELAYS.
3. WHERE THE STARTER IS LOCATED REMOTE FROM THE MOTOR, PROVIDE DISCONNECT LOCATED AT THE MOTOR, SIZE AS INDICATED.

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

	WIRE		RACEWAY									CABLE/CORD					
	COPPER, TYPE THWN/THWN-2	COPPER, TYPE XHHW-2	ALUMINUM, TYPE XHHW-2 (100A AND ABOVE ONLY)	ELECTRICAL METALLIC TUBING (EMT)	INTERMEDIATE METAL CONDUIT (IMC)	RIGID STEEL CONDUIT (RSC)	PVC COATED RIGID STEEL CONDUIT	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-40	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-80	FLEXIBLE METAL CONDUIT (FMC)	LIQUID TIGHT FLEXIBLE METAL CONDUIT (LFMC)	SURFACE RACEWAY	METAL CLAD TYPE CABLE WITH INSULATED GROUND WIRE (TYPE MC)	TWO HOUR FIRE RATED MINERAL INSULATED CABLE (TYPE MI) (KEYED NOTE 2)	TWO HOUR FIRE RATED CABLE (RHH-2) (KEYED NOTE 3)	TWO HOUR FIRE RATED MC POWER CABLE (KEYED NOTE 3)	VFC CABLE	POWER LIMITED CABLE
FEEDERS - EXTERIOR																		
EXPOSED, SURFACE MOUNTED TO STRUCTURE		X	X		X	X	X											
EXPOSED, WITH FREESTANDING SUPPORT		X	X		X	X	X											
CONCEALED IN RETAINING WALL OR SIMILAR ELEMENT		X	X			X	X	X	X									
WITHIN 5' OF FOUNDATION WALL		X	X			X	X											
FEEDERS - INTERIOR																		
CONCEALED, ACCESSIBLE CEILINGS	X		X	X	X													
CONCEALED, INACCESSIBLE CEILINGS	X		X	X	X													
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X		X	X	X													
CONCEALED IN CMU WALLS	X		X	X	X													
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X		X		X	X	X							X				
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X		X	X										X				
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X	X	X									X				
DAMP AND WET LOCATIONS	X		X		X	X	X											
BRANCH CIRCUITS - EXTERIOR																		
EXPOSED, SURFACE MOUNTED TO STRUCTURE		X			X	X	X		X									
EXPOSED, WITH FREESTANDING SUPPORT		X			X	X	X											
CONCEALED IN RETAINING WALL OR SIMILAR ELEMENT		X				X	X	X										
BRANCH CIRCUITS - INTERIOR																		
CONCEALED, ACCESSIBLE CEILINGS	X			X	X								X					
CONCEALED, INACCESSIBLE CEILINGS	X			X	X													
CONCEALED IN GYPSUM BOARD PARTITION WALLS	X			X	X					X			X					
CONCEALED IN CMU WALLS	X			X	X													
EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X				X	X	X											
EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X			X	X							X		X				
EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X			X	X													
EXPOSED, FINISHED SPACES	X											X						
BELOW SLAB ON GRADE	X							X										
DAMP AND WET LOCATIONS	X				X	X	X	X			X							
SPECIAL APPLICATIONS																		
CONNECTION BETWEEN VFC AND MOTORS (KEYED NOTE 1)																	X	
CLASS 1 CONTROL CIRCUITS	X			X	X	X												
CLASS 2 CONTROL CIRCUITS	X			X	X	X												X
CLASS 3 CONTROL CIRCUITS	X			X	X	X												X
EMERGENCY FEEDERS UNDER NEC 700.10(D) (KEYED NOTE 2)		X	X	X	X	X	X	X	X					X	X	X		
CONNECTIONS TO TRANSFORMERS, MOTORS AND VIBRATING EQUIPMENT		X										X						

GENERAL NOTES:
1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL OR RTRC SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, CONCRETE BASES, AND ASPHALT.
2. REFER TO SPECIFICATIONS FOR RESTRICTIONS ON MC/AC CABLE INSTALLATION.
3. EMT SHALL NOT BE USED ON THE EXTERIOR OF A BUILDING OR IN AREAS SUBJECT TO DAMAGE BELOW 10' AFF.
4. INSTALL SURFACE RACEWAYS ONLY WHERE SHOWN ON DRAWINGS.

KEYED NOTES:
1. NON-ARMORED CABLE SHALL BE INSTALLED IN RACEWAY. ARMORED CABLE SHALL BE INSTALLED IN TRAY OR FREE-AIR AS APPLICABLE.
2. EMERGENCY FEEDERS IN OCCUPANCIES THAT ARE UNDER 700.10(D) SHALL HAVE A TWO HOUR RATING. RATING SHALL BE OBTAINED BY ROUTING CONDUIT AND BUILDING WIRE IN SPRINKLERED SPACE, IN A TWO HOUR SHAFT, OUTSIDE OF THE BUILDING, IN A LISTED TWO HOUR RATED RACEWAY, OR UNDER A MINIMUM OF 2" OF CONCRETE; OR BY USING A LISTED TWO-HOUR RATED CABLE ASSEMBLY.
3. SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS BASED ON UL TESTING AND RATING.

FLOOR SERVICE FITTING SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER (SEE NOTE #2)	MODEL	DEVICE CONFIGURATION	FLANGE/COVER MATERIAL & COLOR	SERVICE PLATE TYPE	MINIMUM DEPTH	MAXIMUM CONDUIT
FB4D	MULTI FUNCTION FOUR GANG, MULTI SERVICE. STAMPED STEEL FOR SLAB ON GRADE APPLICATIONS, RECESSED FLOOR BOX. 2 DUPLEX RECEPTACLES AND 2 TELECOM OUTLETS,	WIREMOLD	RFB4E-OG	2D / 2T	COLOR SELECTED BY ARCHITECT	CF	3 1/2"	2"

GENERAL NOTES:
1. PROVIDE 1 1/4"C. FROM EACH TELECOM FLOOR BOX (GANG) TO ACCESSIBLE LOCATION IN CEILING.
2. OTHER ACCEPTABLE MANUFACTURERS ARE STEEL CITY, OR HUBBELL-RACO.
3. ALL PRODUCTS IN THIS SCHEDULE SHALL MEET AND EXCEED THE UL514A or UL514C SCRUB WATER EXCLUSION REQUIREMENT.
4. COORDINATE ALL TELECOM AND A/V OUTLETS WITH COMMUNICATIONS AND A/V CONTRACTORS.

ABBREVIATIONS:

PF = PARTITION FEED
D = DUPLEX RECEPTACLE
T = 2 TELECOM OPENINGS

BS = BRASS
AL = ALUMINUM
BK = BLACK
GY = GRAY (CONCRETE)
BZ = BRONZE
NK = NICKEL

RF = RECTANGULAR FLIP COVER
RFC = RECTANGULAR FLIP COVER WITH CUTOUT FOR CARPET/TILE INSERT
CF = ROUND FLIP COVER
RPF = RECTANGULAR FURNITURE FEED COVER
CPF = ROUND FURNITURE FEED COVER

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT

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DISTRICT ADMINISTRATION BUILDING

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DRAWING TITLE

ELECTRICAL STANDARD SCHEDULES

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INTERIOR LIGHTING CONTROL SCHEDULE

PLAN REFERENCE	ROOM TYPE	LOCAL CONTROL		CONTROL ON / OFF	SENSOR TYPE	TURN ON LIGHTING TO %	BI-LEVEL CONTROL	DAYLIGHT			NO DETECTION FULL OFF (MIN)	RECEPTACLE CONTROL	EMERGENCY LIGHTING CIRCUIT CONTROL	HVAC CONTROL	NOTES
		SWITCH TYPE	SWITCH CONTROL					SIDE LIGHT	TOP LIGHT	MAINTAIN FC LEVEL					
A	CONFERENCE/MEETING/MULTIPURPOSE ROOM	LOW VOLTAGE	ON-OFF-DIM	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	PARTIAL 50%	CONTINUOUS DIM	N/A	N/A	N/A	20	YES	ALCR	YES	CONTROLLED RECEPTACLES INIDCATED ON PLANS.
B	CORRIDOR (ALL OTHER CORRIDORS)	LINE VOLTAGE	ON-OFF	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	N/A	N/A	N/A	N/A	20	N/A	ALCR	N/A	
C	ELECTRICAL/MECHANICAL ROOM	LINE VOLTAGE	ON-OFF	MANUAL ON / MANUAL OFF	N/A	FULL 100%	N/A	N/A	N/A	N/A	N/A	N/A	ALCR	N/A	
D	LOBBY (ALL OTHER LOBBIES)	LOW VOLTAGE	ON-OFF-DIM	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	PARTIAL 50%	CONTINUOUS DIM	N/A	N/A	N/A	20	N/A	ALCR	N/A	
E	OFFICE (ENCLOSED)	LOW VOLTAGE	ON-OFF-DIM	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	PARTIAL 50%	CONTINUOUS DIM	N/A	N/A	N/A	20	YES	ALCR	YES	CONTROLLED RECEPTACLES INIDCATED ON PLANS.
F	OFFICE (OPEN PLAN)	LOW VOLTAGE	ON-OFF-DIM	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	PARTIAL 50%	CONTINUOUS DIM	N/A	N/A	N/A	20	N/A	ALCR	YES	
G	RESTROOM (ALL OTHER RESTROOMS)	LINE VOLTAGE	ON-OFF	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	N/A	N/A	N/A	N/A	20	N/A	ALCR	N/A	
H	STORAGE ROOM (>50 FT2 AND ≤ 1000 SQFT)	LINE VOLTAGE	ON-OFF	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	FULL 100%	N/A	N/A	N/A	N/A	20	N/A	ALCR	N/A	
I	LOUNGE/BREAKROOM (ALL OTHER LOUNGES/BREAKROOMS)	LOW VOLTAGE	ON-OFF-DIM	SENSOR ON / SENSOR OFF	DUAL TECHNOLOGY	PARTIAL 50%	CONTINUOUS DIM	N/A	N/A	N/A	20	N/A	ALCR	YES	

N/A = NOT APPLICABLE

NOTE:
1. REFER TO PLANS FOR LOCATION OF LOCAL CONTROL.
2. REFER TO PLANS FOR PRIMARY AND SECONDARY DAYLIGHT ZONES.
3. PROVIDE EMERGENCY LIGHTING CIRCUIT CONTROL (BCELTS OR ALCR) PER SWITCHING CIRCUIT AS REQUIRED.
4. CONTRACTOR SHALL PROVIDE FLOOR PLAN INDICATING SENSOR AND EQUIPMENT LOCATIONS OF CHOSEN CONTROL SYSTEM.
5. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE CHARACTERISTICS.
6. LIGHTING SENSOR SHALL HAVE CONTACT FOR HVAC CONTROL WHEN A "YES" SELECTION IS MADE IN THE HVAC CONTROL COLUMN.
7. REFER TO TEMPERATURE CONTROL DRAWINGS AND DIAGRAMS FOR ADDITIONAL SENSOR REQUIREMENTS.
8. PROVIDE WIRING CONTROL DIAGRAM FOR APPLICABLE CONTROL SYSTEM(S).

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LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER(S)	WATTAGE	VOLTAGE	LIGHT CHARACTERISTICS	CONTROLS	REMARKS
L1	2'X2' RECESSED FLAT PANEL LIGHT FIXTURE: ALUMINUM BEZEL, STEEL BACKING AND WHITE FROST ACRYLIC DIFFUSER.	1. LITHONIA CPX SERIES 2. METALUX CGTX SERIES 3. ORACLE FPL-BL SERIES	36.3	MULTI	LED 4000K 80CRI 3,200 LUMENS	0-10V TO 10% DIMMING	FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE AUTOMATIC LOAD CONTROL RELAY (ALCR)
L2	2'X4' RECESSED FLAT PANEL LIGHT FIXTURE: ALUMINUM BEZEL, STEEL BACKING AND WHITE FROST ACRYLIC DIFFUSER.	1. LITHONIA CPX SERIES 2. METALUX CGTX SERIES 3. ORACLE FPL-BL SERIES	37.3	MULTI	LED 4000K 80CRI 4,000 LUMENS	0-10V TO 10% DIMMING	
L3	4" WIDE RECESSED LINEAR LIGHT FIXTURE: EXTRUDED ALUMINUM HOUSING AND DIE CAST END CAPS WITH FROSTED ACRYLIC LENS. FIXTURE SHALL BE WHITE. FIXTURE LENGTHS AS INDICATED ON PLAN.	1. FINELITE HP4 SERIES 2. AXIS BEAM 4 SERIES 3. NULITE REGOLO SERIES	7.1 PER FOOT	MULTI	LED 4000K 80CRI 700 LUMENS PER FOOT	0-10V TO 10% DIMMING	FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE AUTOMATIC LOAD CONTROL RELAY (ALCR)
L4	2" WIDE SURFACE MOUNT LINEAR LIGHT FIXTURE: EXTRUDED ALUMINUM HOUSING AND DIE CAST END CAPS WITH FROSTED ACRYLIC LENS. FIXTURE SHALL BE WHITE. FIXTURE LENGTHS AS INDICATED ON PLAN.	1. FINELITE HP2 SERIES 2. AXIS BEAM SERIES 3. NULITE REGOLO SERIES	7.1 PER FOOT	MULTI	LED 4000K 80CRI 700 LUMENS PER FOOT	0-10V TO 10% DIMMING	
L5	24" DIAMETER DIRECT/INDIRECT BARREL STYLE PENDANT LIGHT FIXTURE: 16" TALL SPUN ALUMINUM HOUSING, POWER CORD WITH INTEGRAL AIRCRAFT CABLE. BLACK OUTER FINISH AND WHITE INNER FINISH.	1. BROWNLEE BARREL SERIES 2. 3. LEDOLOGY NOVA SERIES	39	MULTI	LED 4000K 80CRI 1750 LUMENS DIRECT 1600 LUMENS INDIRECT	0-10V TO 10% DIMMING	
L6	6" DIAMETER DOWNLIGHT LIGHT FIXTURE: VENTILATED DIE CAST ALUMINUM HEAT SINK, SELF FLANGED WHITE TRIM RING WITH SEMI-SPECULAR REFLECTOR, DIFFUSED LENS WIDE DISTRIBUTION.	1. GOTHAM EVO SERIES 2. PORTFOLIO LD6C SERIES 3. MAXILUME HH6 SERIES	14.7	MULTI	LED 1,000 LUMENS 4000K, 80CRI	0-10V 10% DIMMING	
L7	4' CHAIN HUNG STRIP LIGHT FIXTURE: STEEL HOUSING PAINTED AFTER FABRICATION. FROSTED LENS WITH WIRE GUARD. FIXTURE SHALL BE WHITE	1. LITHONIA CLX SERIES 2. METALUX FP SERIES 3. ORACLE OEC SERIES	31.8	MULTI	LED 4000K 80CRI 5,000 LUMENS		FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE AUTOMATIC LOAD CONTROL RELAY (ALCR).
L8	4" WIDE PENDANT MOUNT LINEAR LIGHT FIXTURE: EXTRUDED ALUMINUM HOUSING AND DIE CAST END CAPS WITH FROSTED ACRYLIC LENS AIRCRAFT CABLE MOUNTED. FIXTURE SHALL BE WHITE. FIXTURE LENGTHS AS INDICATED ON PLAN.	1. FINELITE HP4 SERIES 2. AXIS BEAM SERIES 3. NULITE REGOLO SERIES	7.1 PER FOOT	MULTI	LED 4000K 80CRI 500 LUMENS/FOOT INDIRECT 400 LUMENS/FOOT DIRECT	0-10V TO 10% DIMMING	
EXIT SIGN	WHITE DIE CAST ALUMINUM FACE, RED LETTERS, HIGH OUTPUT LED DIFFUSE LIGHT PANEL. SINGLE OR DOUBLE STENCIL WITH DIRECTIONAL ARROWS AS INDICATED ON PLAN. PROVIDE MOUNTING AS INDICATED ON PLAN.	1. LITHONIA SIGNATURE SERIES 2. SURELITE CX SERIES 3. MAXILUME ELX SERIES	2	MULTI	HIGH OUTPUT LED LIGHT PANEL		

GENERAL NOTES:
1. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING TYPES.
2. WATTAGE LISTED IS FROM THE BASIS OF DESIGN MANUFACTURER.
3. FINISH TO BE APPROVED BY INTERIOR DESIGNER, ARCHITECT OR CLIENT.

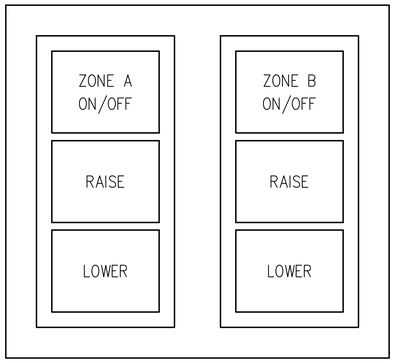
DTE LIGHTING INCENTIVES PROGRAM

THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MEETING ALL REQUIREMENTS FOR THE OWNER TO PARTICIPATE IN THE CURRENT DTE ENERGY SAVINGS PROGRAM. THE FOLLOWING ITEMS WILL BE REQUIRED BUT NOT LIMITED TO PARTICIPATE IN THIS PROGRAM:

1. ON BEHALF OF THE OWNER, PROVIDE ALL REQUIRED INFORMATION FOR THE RESERVATION APPLICATION. REFER TO DTE ENERGY PROGRAM APPLICATION AT **www.dtetrodedly.com**
2. CONTRACTOR BUSINESS INFORMATION.
3. LIGHTING INCENTIVES WORKSHEET.
4. TYPE OF FIXTURES REMOVED, WATTAGE AND LAMP SIZE.
5. EASY TO READ ITEMIZED INVOICES WITH PART NUMBERS OF ALL LED LIGHT FIXTURES, AND CONTROLS.
6. MANUFACTURERS CUT SHEETS WITH HIGHLIGHTED FIGURES, TYPES OF LED FIXTURES, DRIVERS, AND CONTROLS, ETC. AS REQUIRED BY DTE.
7. MEASURES ARE COMPLETELY INSTALLED WITH 90 DAYS OF PROJECT APPROVAL.

IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO CONTACT DTE'S ENERGY SAVINGS TEAM OR ASSIGNED REPRESENTATIVE IF A PROJECT IS DELAYED, OR SUBSTANTIALLY CHANGED.

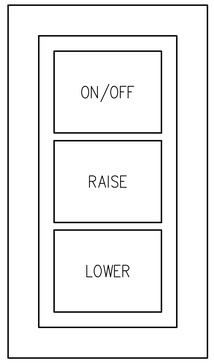
THE ELECTRICAL CONTRACTOR SHALL WORK WITH AND COORDINATE WITH THE OWNER FOR THE RESERVATION PROCESS PRIOR TO SITE WORK BEING CONDUCTED AND POST REVIEW INSPECTION FOR REMOVAL AND INSTALLATION OF ALL EQUIPMENT RELATED TO THE INCENTIVE PROGRAM.



TYPICAL MULTI-ZONE DIMMING LIGHTING CONTROL STATION

NO SCALE

NOTES:
1. FOR LIGHTING CONTROL DEVICES IN REMOTE LOCATIONS DEVICES SHALL HAVE PILOT LIGHT AND LABELING FOR FIXTURES BEING CONTROLLED.



TYPICAL DIMMING LIGHTING CONTROL STATION

NO SCALE

NOTES:
1. FOR LIGHTING CONTROL DEVICES IN REMOTE LOCATIONS DEVICES SHALL HAVE PILOT LIGHT AND LABELING FOR FIXTURES BEING CONTROLLED.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE
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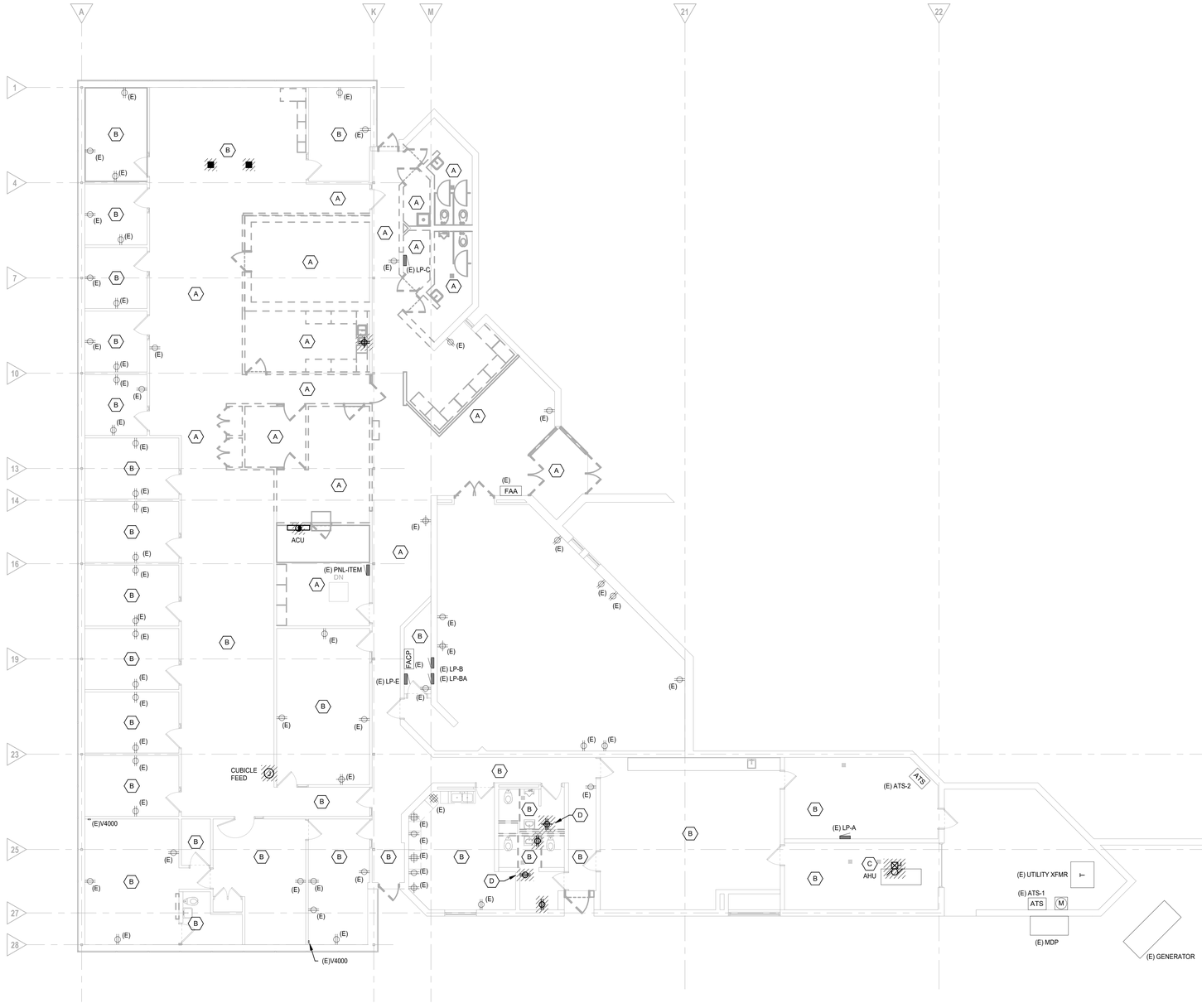
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FIRST LEVEL ELECTRICAL DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

ELECTRICAL DEMOLITION GENERAL NOTES:

1 VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.

2 EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.

3 REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.

4 COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK

5 PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.

6 REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.

7 MAINTAIN ELECTRICAL SERVICE TO ALL LIGHTING FIXTURES, DEVICES AND EQUIPMENT THAT ARE TO REMAIN. EXTEND CONDUIT AND WIRE AS REQUIRED WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DOWNSTREAM LOADS THAT ARE TO REMAIN.

8 DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.

9 PROVIDE BLANK COVER PLATES WHERE SWITCHES AND DEVICES ARE REMOVED BUT EXISTING WALLS REMAIN INTACT.

10 RING OUT AND TAG ALL CIRCUITS AFFECTED BY THIS ALTERATION AT BOTH ENDS. MARK ALL UNUSED CIRCUIT BREAKERS "SPARE".

11 PROVIDE UPDATED TYPED-IN DIRECTORIES FOR ALL PANELS AFFECTED BY THIS ALTERATION.

12 VERIFY ALL UNDERGROUND AND IN SLAB UTILITY LOCATIONS PRIOR TO SAW-CUTTING OR PENETRATING ANY FLOOR SLAB.

13 COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION KEY NOTES:

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B REMOVE LIGHTING AND ASSOCIATED CONTROLS IN SPACE. MAINTAIN LIGHTING BRANCH CIRCUIT FOR REUSE.

C DISCONNECT POWER TO MECHANICAL EQUIPMENT. MAINTAIN BRANCH CIRCUIT FOR REUSE.

D REMOVE AND REPLACE RECEPTACLE WITH GFCI RECEPTACLE. CONNECT TO EXISTING BRANCH CIRCUIT.

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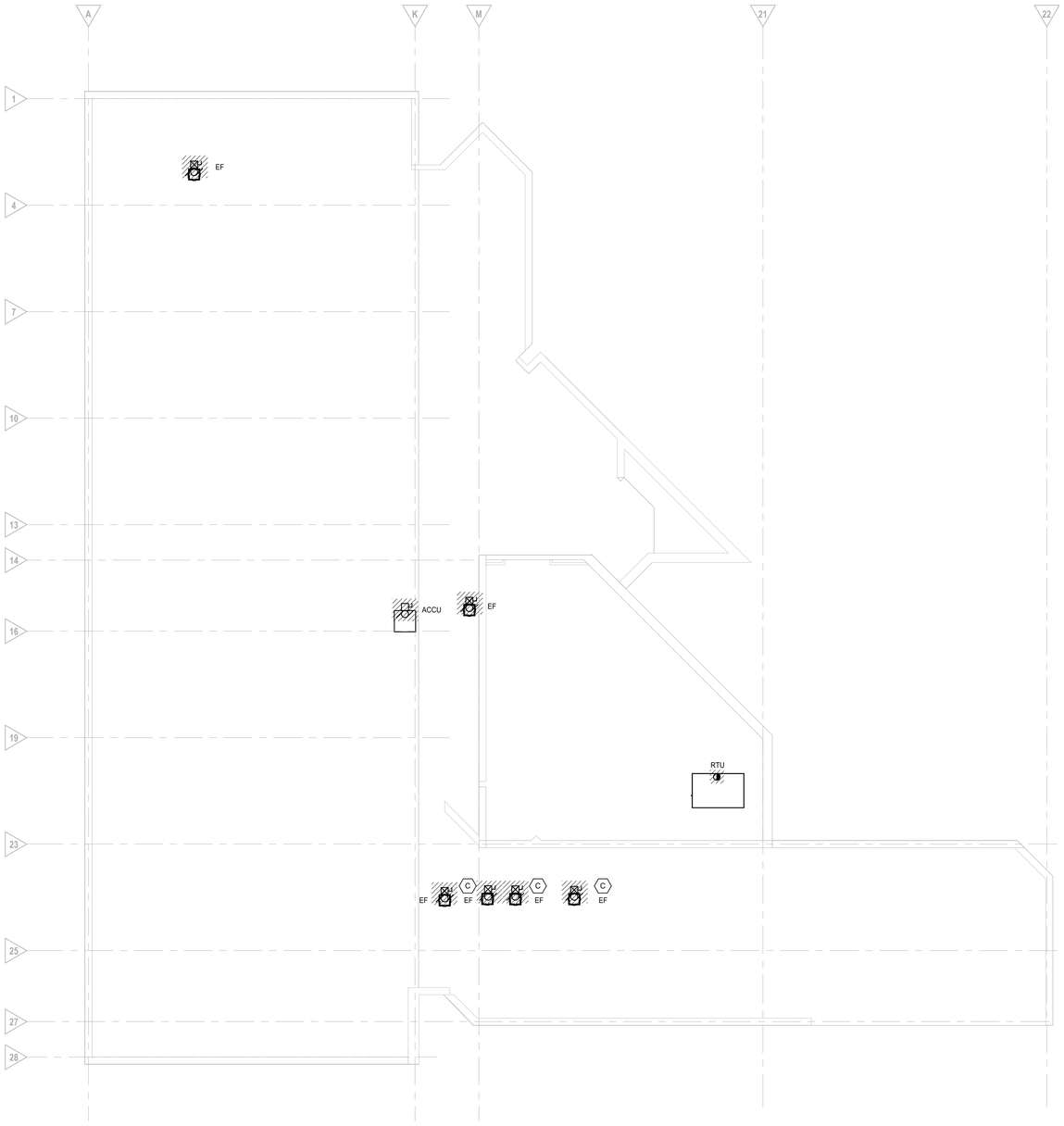
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ROOF ELECTRICAL DEMOLITION PLAN
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ELECTRICAL DEMOLITION GENERAL NOTES:

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Troy, MI

DRAWING TITLE

ROOF LEVEL ELECTRICAL DEMOLITION PLAN

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

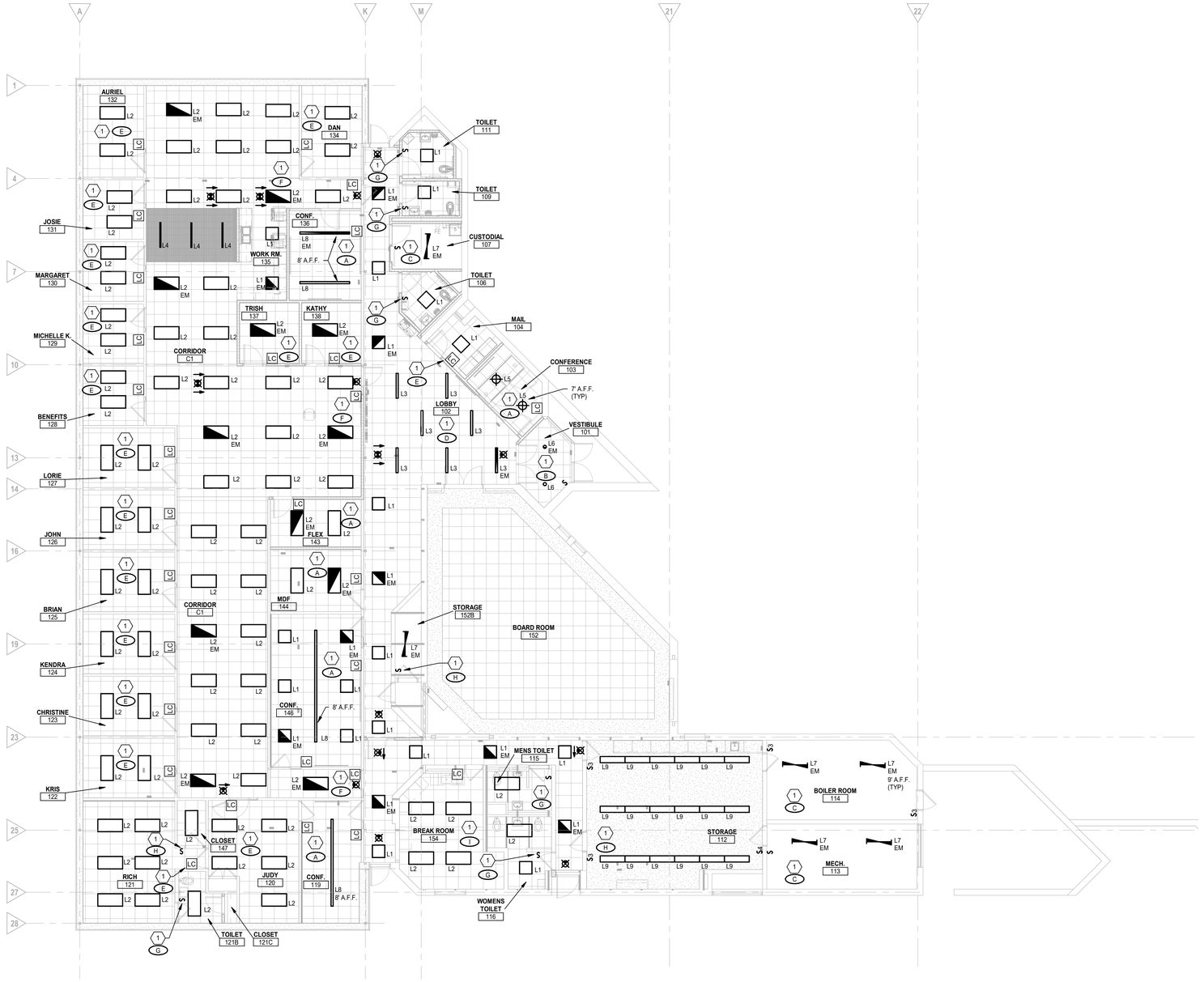
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PROJECT NO.
22106

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



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

ELECTRICAL GENERAL NOTES:

1 THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.

2 INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.

3 COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.

4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

7 COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.

8 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

9 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

10 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

11 REFER TO LIGHTING CONTROL SCHEDULE FOR ROOM CONTROL AND EMERGENCY LIGHTING CIRCUIT CONTROL REQUIREMENTS. DESIGNATION FOR ROOM IS INDICATED AS A LETTERED OVAL SYMBOL.

12 CONNECT EXIT SIGNS TO EMERGENCY LIGHTING BRANCH CIRCUIT SERVING THE AREA. CONNECT AHEAD OF ANY LIGHTING CONTROL DEVICE OR SYSTEM.

13 PROVIDE SINGLE GANG JUNCTION BOX WITH 3/4"C. PULL STRING AND BUSHINGS TO ACCESSABLE CEILING SPACE AT CLOCK LOCATIONS. COORDINATE MOUNTING HEIGHT WITH TECHNOLOGY CONTRACTOR.

(#) CONSTRUCTION KEY NOTES:

1 CONNECT LIGHT FIXTURES TO MAINTAINED BRACH CIRCUIT. MODIFY SWITCHLEG AS REQUIRED FOR WORK INDICATED. EXTEND CONDUIT AND WIRE AS REQUIRED.

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL LIGHTING PLAN

ISSUE DATES

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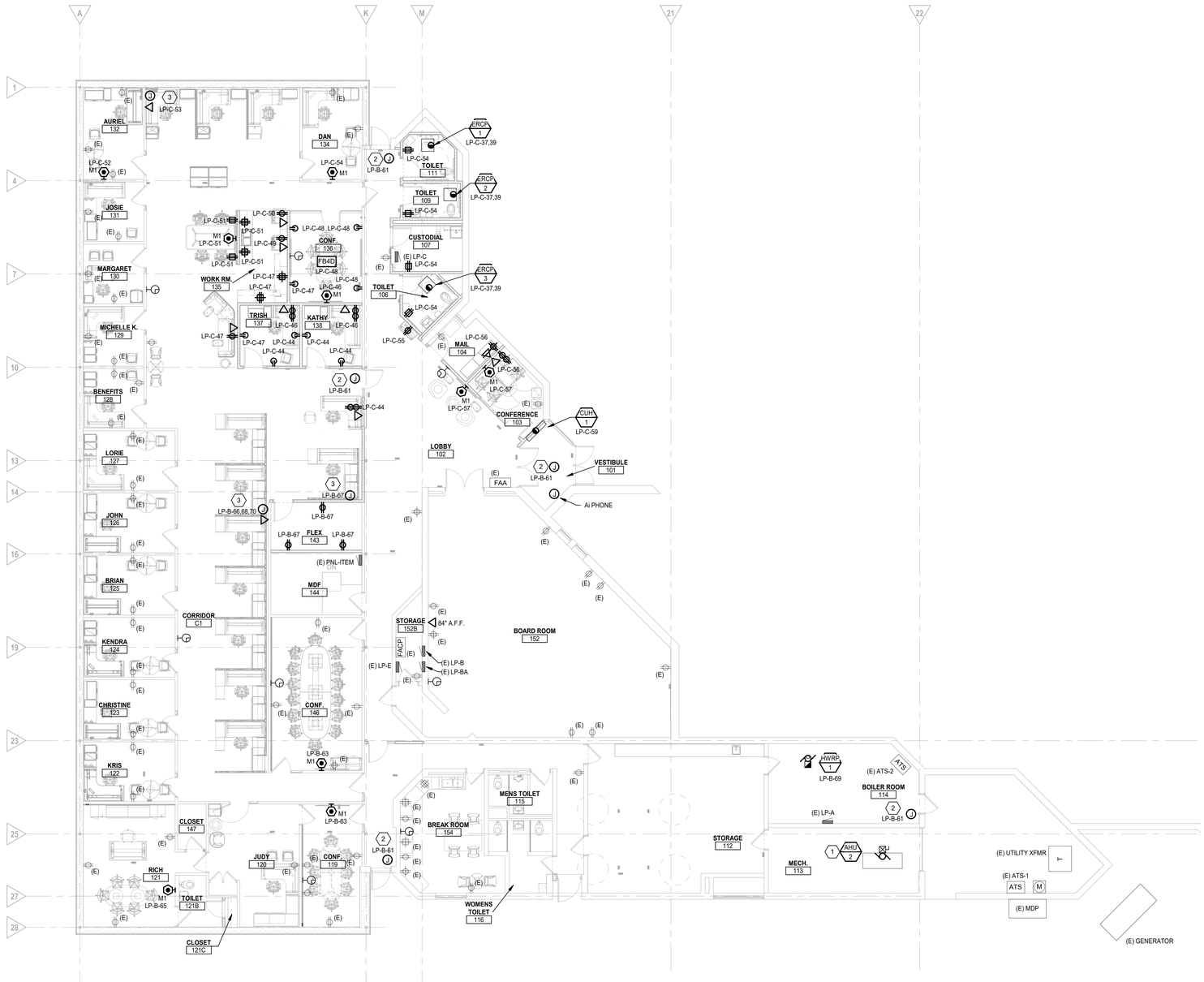
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FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN
SCALE: 1/8" = 1'-0"

ELECTRICAL GENERAL NOTES:

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4 PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.

5 MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.

6 COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.

7 COORDINATE EXACT LOCATIONS OF ALL FLOOR SERVICE FITTINGS AND POKE-THROUGH ASSEMBLIES WITH FINAL FURNITURE LAYOUT DRAWINGS.

8 REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

9 REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.

10 THE FIRE ALARM DEVICES SHOWN ON PLAN ARE A PARTIAL REPRESENTATION OF THE FIRE ALARM SYSTEM. PROVIDE THE DESIGN AND INSTALLATION OF A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS, AND ALL APPLICABLE CODES. THE FIRE ALARM VENDOR SHALL PROVIDE LAYOUT DRAWINGS INDICATING THE REQUIRED QUANTITIES AND LOCATIONS OF MANUAL PULL STATIONS, NOTIFICATION APPLIANCES, SMOKE AND HEAT DETECTORS, CONTROL MODULES, INTERFACE MODULES, MODULES FOR SPRINKLER FLOW AND TAMPER SWITCHES, ALL CONTROL PANELS, POWER SUPPLIES, AND ADDITIONAL DEVICES AND EQUIPMENT REQUIRED. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL FINISHES AND REFLECTED CEILING PLANS, INCLUDING ADDITIONAL SMOKE AND HEAT DETECTORS REQUIRED FOR NON-SMOOTH CEILING APPLICATIONS. INCLUDE ALLOWANCES FOR ADJUSTMENT OF DEVICES BY THE ARCHITECT AT THE TIME OF SUBMITTAL TO COORDINATE WITH BUILDING FINISHES AND OTHER CEILING ELEMENTS.

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(#) CONSTRUCTION KEY NOTES:

1 CONNECT NEW MECHANICAL EQUIPMENT TO MAINTAINED BRANCH CIRCUIT. EXTEND CONDUIT AND WIRE AS REQUIRED.

2 REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AMBD BACKBOXES REQUIRED. COORDINATE WITH DOOR HARDWARE AND SECURITY CONTRACTORS.

3 PROVIDE RECESSED JUNCTION BOX AND PLATE FOR HARDWIRE CONNECTION TO SYSTEMS FURNITURE. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH FURNITURE VENDOR.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

FIRST LEVEL POWER AND AUXILIARY SYSTEMS PLAN

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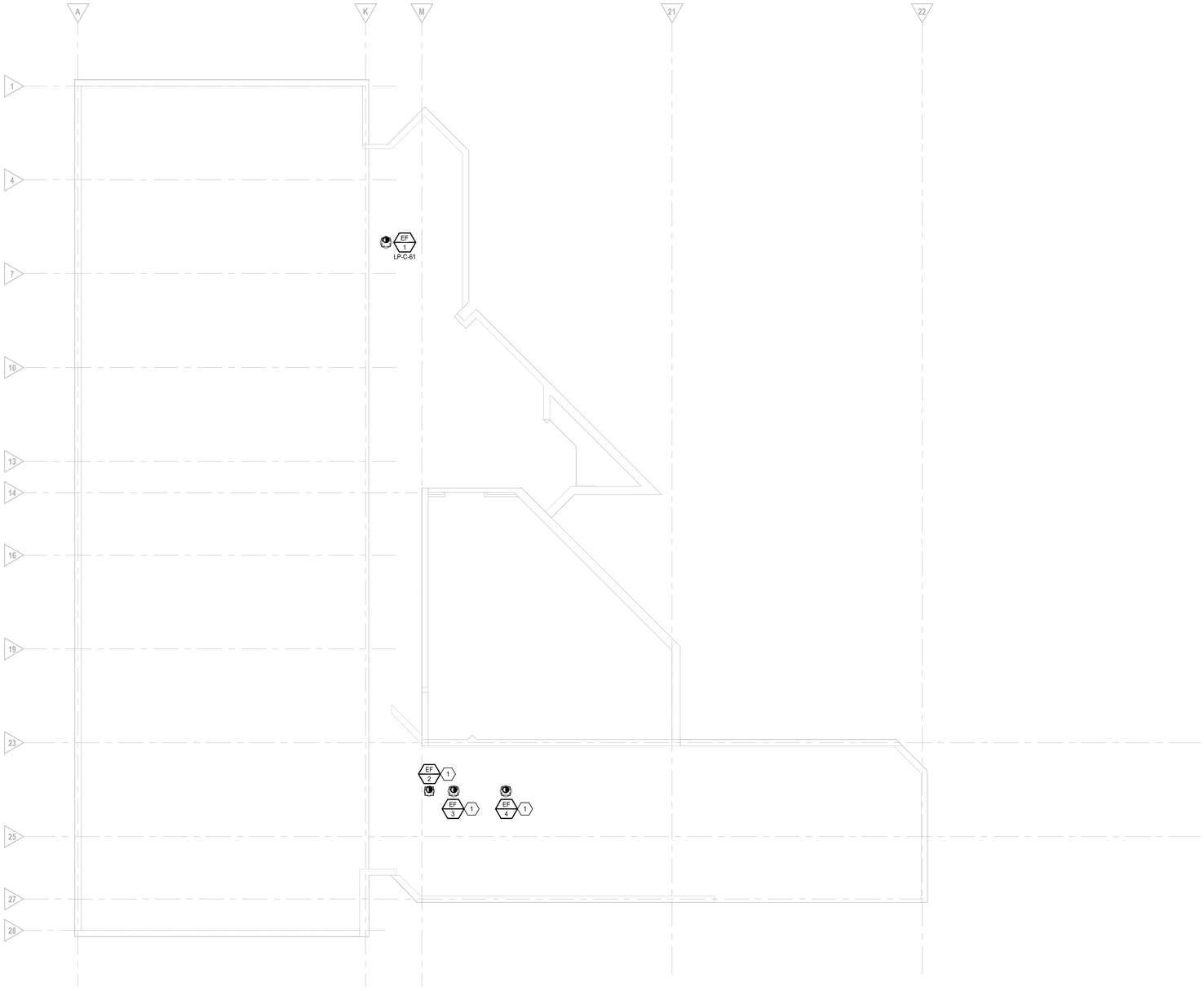
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Troy, MI

DRAWING TITLE

ROOF LEVEL POWER AND AUXILIARY SYSTEMS PLAN

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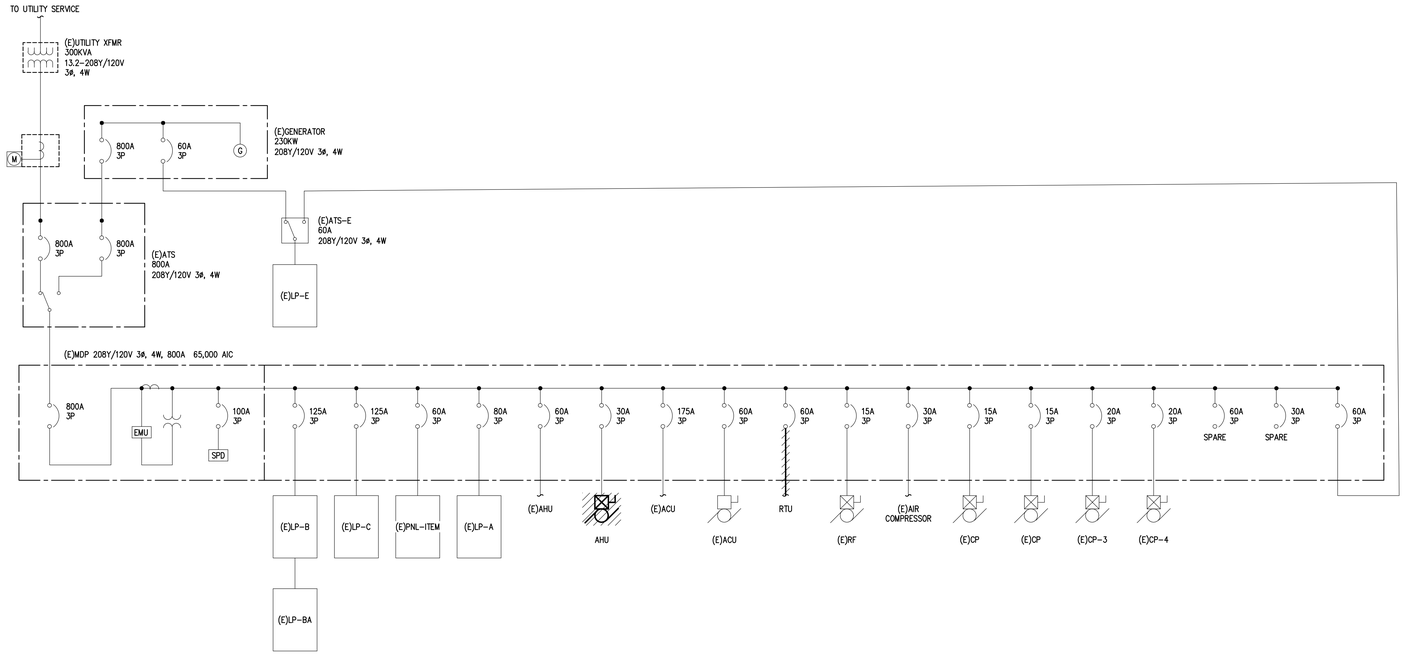


DIAGRAM GENERAL NOTES:

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2. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE-GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
3. TRANSFORMER SECONDARY CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "TRANSFORMER CIRCUIT SIZING SCHEDULE-GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
4. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH THE MOTOR CIRCUIT SIZING SCHEDULES ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
5. BASIS OF DESIGN IS SQUARE D DISTRIBUTION EQUIPMENT AND ASCO TRANSFER SWITCHES. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT FROM OTHER APPROVED MANUFACTURERS, THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE LAYOUT AND CLEARANCE REQUIREMENTS IN ALL SPACES CONTAINING ELECTRICAL EQUIPMENT AND PROVIDE EQUIPMENT MEETING THE SPECIFICATIONS AND ACHIEVING CODE REQUIRED CLEARANCES WITHIN THE SPACE PROVIDED.
6. VARIABLE FREQUENCY CONTROLLERS (VFC) FURNISHED BY MECHANICAL TRADES. ELECTRICAL CONTRACTOR SHALL INSTALL VFC, PROVIDE POWER FEEDER FROM DISTRIBUTION EQUIPMENT TO VFC AND PROVIDE POWER FEEDER FROM VFC TO MOTOR. REFER TO SPECIFICATIONS FOR APPLICATION OF VFC POWER CABLE FROM VFC TO MOTOR.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE
ONE LINE DIAGRAM - DEMOLITION

ISSUE DATES

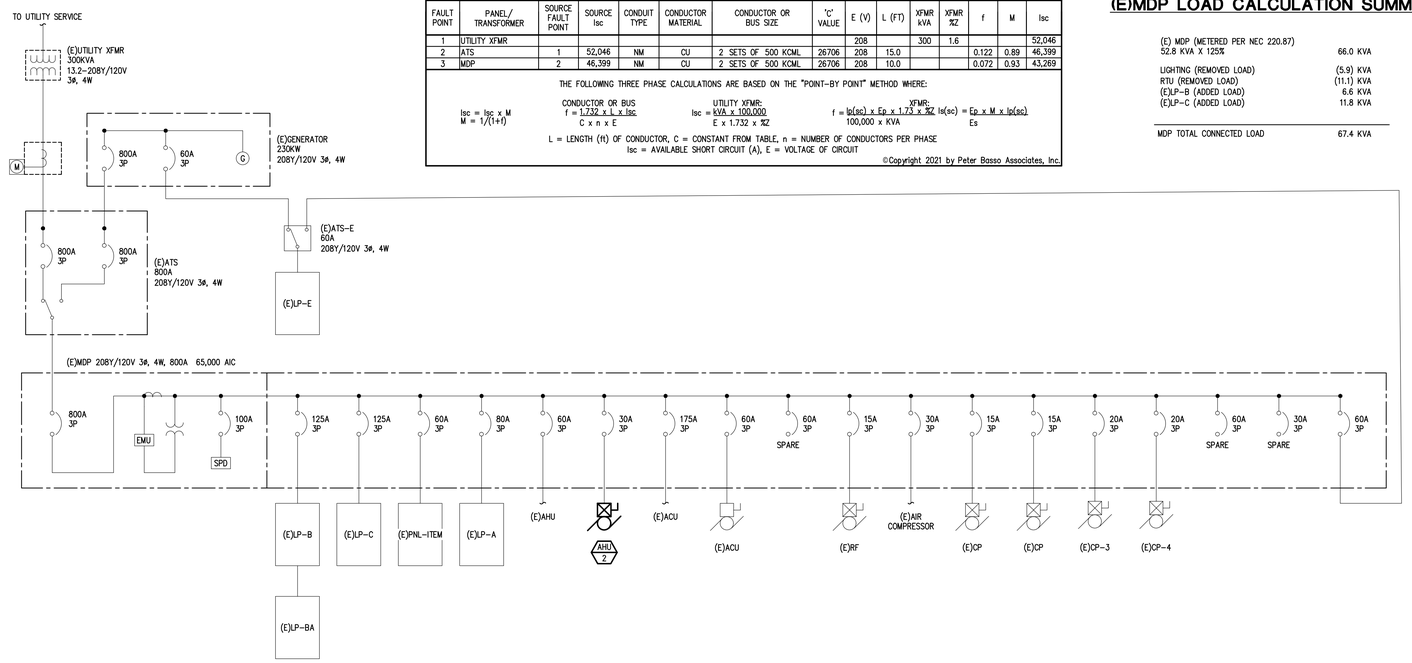
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SHORT-CIRCUIT CALCULATIONS

FAULT POINT	PANEL/ TRANSFORMER	SOURCE FAULT POINT	SOURCE Isc	CONDUIT TYPE	CONDUCTOR MATERIAL	CONDUCTOR OR BUS SIZE	'C' VALUE	E (V)	L (FT)	XFMR kVA	XFMR %Z	f	M	Isc
1	UTILITY XFMR							208		300	1.6			52,046
2	ATS	1	52,046	NM	CU	2 SETS OF 500 KCML	26706	208	15.0			0.122	0.89	46,399
3	MDP	2	46,399	NM	CU	2 SETS OF 500 KCML	26706	208	10.0			0.072	0.93	43,269

THE FOLLOWING THREE PHASE CALCULATIONS ARE BASED ON THE "POINT-BY POINT" METHOD WHERE:

$Isc = Isc \times M$ where $M = 1/(1+f)$

CONDUCTOR OR BUS: $f = \frac{1.732 \times L \times Isc}{C \times n \times E}$

UTILITY XFMR: $Isc = \frac{kVA \times 100{,}000}{E \times 1.732 \times \%Z}$

XFMR: $f = \frac{Ip(sc) \times Ep \times 1.73 \times \%Z}{100{,}000 \times KVA}$ $Is(sc) = \frac{Ep \times M \times Ip(sc)}{Es}$

L = LENGTH (ft) OF CONDUCTOR, C = CONSTANT FROM TABLE, n = NUMBER OF CONDUCTORS PER PHASE
Isc = AVAILABLE SHORT CIRCUIT (A), E = VOLTAGE OF CIRCUIT

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(E)MDP LOAD CALCULATION SUMMARY

(E) MDP (METERED PER NEC 220.87) 52.8 KVA X 125%	66.0 KVA
LIGHTING (REMOVED LOAD)	(5.9) KVA
RTU (REMOVED LOAD)	(11.1) KVA
(E)LP-B (ADDED LOAD)	6.6 KVA
(E)LP-C (ADDED LOAD)	11.8 KVA
MDP TOTAL CONNECTED LOAD	67.4 KVA

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DISTRICT ADMINISTRATION BUILDING

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Troy, MI

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ONE LINE DIAGRAM - NEW WORK

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EXISTING PANELBOARD LP-B

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	2
3	NC	EXISTING LOAD		20			500	500							4
5	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	6
7	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	8
9	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	10
11	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	12
13	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	14
15	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	16
17	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	18
19	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	20
21	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	22
23	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	24
25	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	26
27	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	28
29	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	30
31	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	32
33	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	34
35	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	36
37					1000	500					20		EXISTING LOAD	NC	38
39	NC	EXISTING LOAD		40			1000	500							40
41									1000	500	20		EXISTING LOAD	NC	42
43	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	44
45	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	46
47	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	48
49	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	50
51	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	52
53	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	54
55	NC	EXISTING LOAD		20	500	500					20		EXISTING LOAD	NC	56
57	NC	EXISTING LOAD		20			500	500			20		EXISTING LOAD	NC	58
59	NC	EXISTING LOAD		20					500	500	20		EXISTING LOAD	NC	60
61	NC	DOOR ACCESS		20	500	1250					50		EXISTING LOAD	NC	62
63	R	RECEPTACLES		20			720	1250							64
65	R	RECEPTACLES		20					360	1260					66
67	R	RECEPTACLES		20	1080	1260					20		CUBICLES	R	68
69	M	HWCP-1		15			150	1260							70
71	--	SPACE	--	--					--	--	--	--	SPACE	--	72
					14590		13880		12120						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OCPD SIZING	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	225A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	34500	100%	34500	100% 34500	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	FLUSH	RECEPT BASE LOAD (R):	5940	100%	5940	100% 5940	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING LOAD:				100% 0	
		MOTORS, HIGHEST LOAD (M):	150	125 %	187.5	100% 187.5	
PANELBOARD LOCATION		MOTORS, REMAINING	0	100 %	0	100 % 0	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED FROM CONNECTED LOAD		TOTAL (kVA):	40.63		
				TOTAL (AMPS):	112.77	TOTAL (AMPS): 112.77	

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EXISTING PANELBOARD LP-C

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	A		B		C		CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC	EXISTING LOAD	EXIST	20	500	500					20	EXIST	EXISTING LOAD	NC	2
3	NC	EXISTING LOAD	EXIST	20			500	500			20	EXIST	EXISTING LOAD	NC	4
5	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	6
7	NC	EXISTING LOAD	EXIST	20	500	500					20	EXIST	EXISTING LOAD	NC	8
9	NC	EXISTING LOAD	EXIST	20			500	500			20	EXIST	EXISTING LOAD	NC	10
11	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	12
13	NC	EXISTING LOAD	EXIST	20	500	500					20	EXIST	EXISTING LOAD	NC	14
15	NC	EXISTING LOAD	EXIST	20			500	500			20	EXIST	EXISTING LOAD	NC	16
17	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	18
19	NC	EXISTING LOAD	EXIST	20	500	500					20	EXIST	EXISTING LOAD	NC	20
21	NC	EXISTING LOAD	EXIST	20			500	500			20	EXIST	EXISTING LOAD	NC	22
23	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	24
25	NC	EXISTING LOAD	EXIST	20	500	500					20	EXIST	EXISTING LOAD	NC	26
27	NC	EXISTING LOAD	EXIST	20			500	500			20	EXIST	EXISTING LOAD	NC	28
29	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	30
31	NC	EXISTING LOAD	EXIST	20	500	500					20	EXIST	EXISTING LOAD	NC	32
33	NC	EXISTING LOAD	EXIST	20			500	500			20	EXIST	EXISTING LOAD	NC	34
35	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	36
37	M	ERCP-1,2,3	NEW	15	563	500					20	EXIST	EXISTING LOAD	NC	38
39							563	500			20	EXIST	EXISTING LOAD	NC	40
41	NC	EXISTING LOAD	EXIST	20					500	500	20	EXIST	EXISTING LOAD	NC	42
43	NC	EXISTING LOAD	EXIST	20	500	1080					20	EXIST	RECEPTACLE	R	44
45	NC	EXISTING LOAD	EXIST	20			500	1080			20	EXIST	RECEPTACLE	R	46
47	R	RECEPTACLE	EXIST	20					900	900	20	EXIST	RECETPACLE	R	48
49	R	RECEPTACLE	EXIST	20	180	180					20	EXIST	RECEPTACLE	R	50
51	R	RECEPTACLE	EXIST	20			1080	360			20	EXIST	RECEPTACLE	R	52
53	R	RECEPTACLE	EXIST	20					1620	1080	20	EXIST	RECEPTACLE	R	54
55	R	RECEPTACLE	GFCI	20	180	540					20	EXIST	RECEPTACLE	R	56
57	R	RECEPTACLE	EXIST	20			720	0							58
59	M	CUH-1	NEW	15					375	0	20	--	SPARE	--	60
61	M	EF-1	NEW	15	375	--					--	--	SPACE	--	62
63	--	SPACE	--	--			--	--			--	--	SPACE	--	64
65	--	SPACE	--	--					--	--	--	--	SPACE	--	66
67	--	SPACE	--	--	--	--					--	--	SPACE	--	68
69	--	SPACE	--	--			--	--			--	--	SPACE	--	70
71	--	SPACE	--	--					--	--	--	--	SPACE	--	72
					10098		10803		11875						
					ØA		ØB		ØC						

PANELBOARD INFORMATION		BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED LOAD	FEEDER AND OCPD SIZING	NOTES
VOLTAGE:	208Y/120V	CONTINUOUS LOAD (C):	0	100%	0	125% 0	
BUS AMPACITY:	225A	ELECTRIC HEAT (E)	0	100%	0	100% 0	
MAIN TYPE:	MLO	NON-CONTINUOUS LOAD (NC):	21000	100%	21000	100% 21000	
MINIMUM A.I.C.:	22,000	KITCHEN LOAD (K):	0		0	100% 0	
MOUNTING:	SURFACE	RECEPT BASE LOAD (R):	9900	100%	9900	100% 9900	
		RECEPT DEMAND LOAD (R):	0	50%	0	100% 0	
		LIGHTING LOAD (L):	0	100%	0	125% 0	
		ADDITIONAL TRACK LIGHTING LOAD:				100% 0	
		MOTORS, HIGHEST LOAD (M):	375	125 %	468.75	100% 468.75	
PANELBOARD LOCATION		MOTORS, REMAINING	1500	100 %	1500	100 % 1500	
		NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED FROM CONNECTED LOAD		TOTAL (kVA):	32.87		
				TOTAL (AMPS):	91.23	TOTAL (AMPS): 91.23	

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

PANEL SCHEDULES

ISSUE DATES

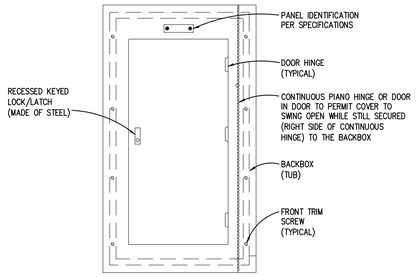
DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

DRAWN	ZDB
CHECKED	ZDB
APPROVED	STP

PROJECT NO.
22106

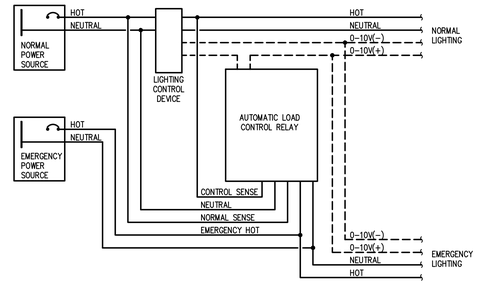
DRAWING NO.
E5.3

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PANELBOARD FRONT COVER DETAIL

NO SCALE

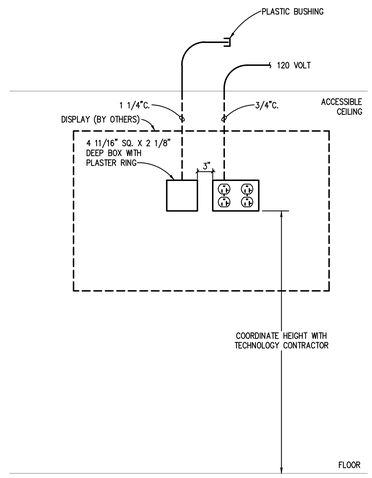


AUTOMATIC LOAD CONTROL RELAY FOR 0-10V DIMMING

NO SCALE

NOTES:

1. BASIS OF DESIGN IS LVS CONTROLS EPC-2-D. REFER TO SPECIFICATIONS FOR APPROVED MANUFACTURERS. ADJUST WIRING AS NECESSARY FOR OTHER APPROVED MANUFACTURERS.
2. PROVIDE ONE AUTOMATIC LOAD CONTROL RELAY FOR EACH CONTROL CIRCUIT.



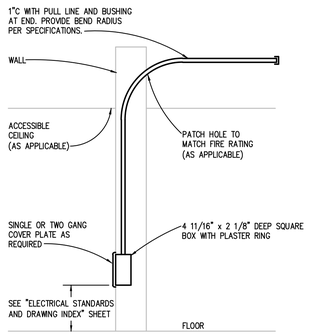
M1

WALL MOUNTED DISPLAY DETAIL

NO SCALE

NOTES:

1. COORDINATE FINAL TECHNOLOGY OUTLET AND ASSOCIATED POWER LOCATIONS WITH TECHNOLOGY CONTRACTOR PRIOR TO ROUGH-IN.
2. TECHNOLOGY DEVICES SHALL BE PROVIDED BY THE TECHNOLOGY CONTRACTOR.
3. IF CEILING IN ROOM IS NOT ACCESSIBLE, ROUTE CONDUIT TO NEAREST ACCESSIBLE CEILING IN DIRECTION OF AND WITH PATHWAY OR ACCESS TO TELECOMMUNICATION ROOM
4. COORDINATE SIZE OF MUD RING WITH TECHNOLOGY CONTRACTOR.
5. PROVIDE NYLON PULLSTRINGS IN TECHNOLOGY CONDUITS.
6. FOR INSTALLATION ON EXISTING WALLS WHERE RECESSED INSTALLATION CAN NOT BE DONE. USE SPLIT CHANNEL SURFACE RACEWAY.

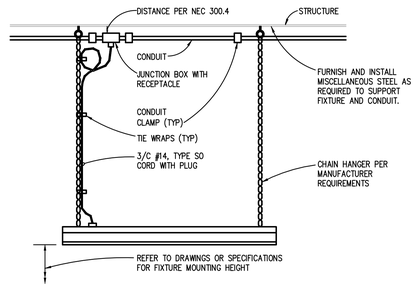


TELECOMMUNICATION OUTLET DETAIL

NO SCALE

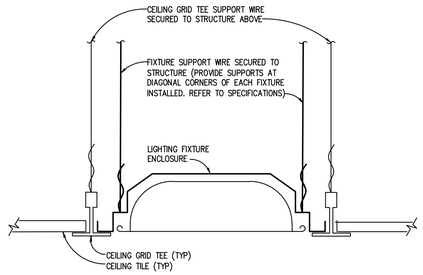
NOTES:

1. IF CEILING IN ROOM IS NOT ACCESSIBLE, ROUTE CONDUIT TO NEAREST ACCESSIBLE CEILING IN DIRECTION OF AND WITH PATHWAY OR ACCESS TO TELECOMMUNICATION ROOM.



TYPICAL MOUNTING DETAIL FOR CHAIN HUNG LIGHTING FIXTURES

NO SCALE



RECESSED LIGHTING FIXTURE INSTALLATION DETAIL

NO SCALE

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PBA Project No.: 2023.0158

PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE

ELECTRICAL DETAILS AND DIAGRAMS

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

DRAWN	ZDB
CHECKED	ZDB
APPROVED	STP

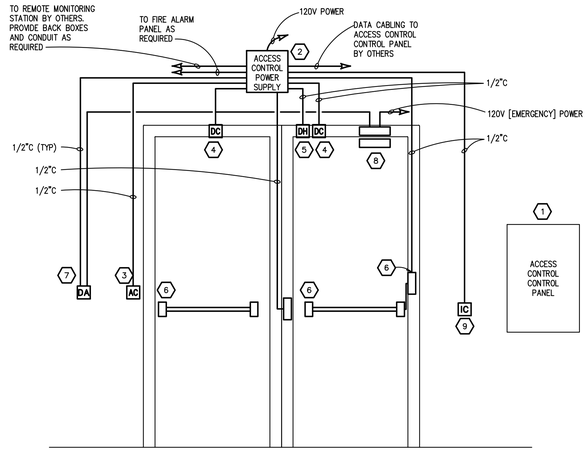
PROJECT NO.

22106

DRAWING NO.

E7.1

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DOOR HARDWARE DOUBLE DOOR CONNECTION DIAGRAM

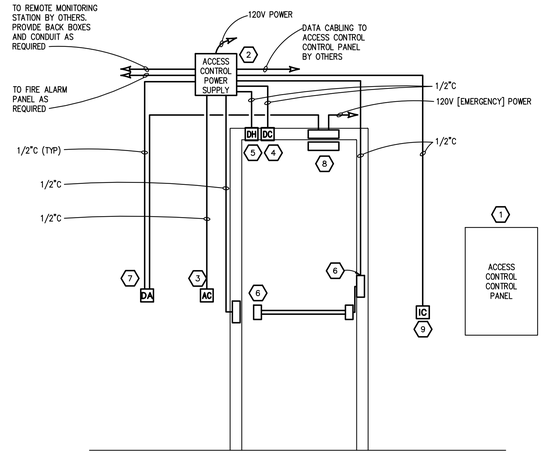
NO SCALE

GENERAL NOTES:

1. REFER TO ELECTRICAL FLOOR PLANS FOR DOOR LOCATIONS.
2. PROVIDE BACK BOXES, CONDUIT, 120 VOLT WIRING AND TERMINATIONS AS REQUIRED BY MANUFACTURER. COORDINATE EXACT REQUIREMENTS AND SCOPE OF WORK WITH OWNER AND ACCESS CONTROL CONTRACTOR.
3. SOME DEVICES INDICATED MAY NOT APPLY. REFER TO DOOR HARDWARE AND DOOR SCHEDULE. COORDINATE ALL WORK WITH HARDWARE CONTRACTOR.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE INTERCONNECTION WITH FIRE ALARM PANEL TO RELEASE DOORS (I.E. ELECTROMAGNETIC LOCKS) UPON AN ALARM CONDITION, AS REQUIRED.

(#) KEYED NOTES:

1. ACCESS CONTROL CONTROL PANEL, BY OTHERS.
2. ACCESS CONTROL POWER SUPPLY, BY OTHERS.
3. ACCESS CONTROL STATION, BY OTHERS. (EXAMPLE DEVICES: CARD READER, KEYPAD, REQUEST TO EXIT PUSH PAD, MOTION DETECTOR, ETC)
4. DOOR MONITOR CONTACT SWITCH, BY OTHERS.
5. DOOR HOLDER, BY OTHERS. ELECTROMAGNETIC SWITCH MOUNTED ON/IN DOOR AND FRAME. [FOR DELAYED OPERATION] IN LIEU OF ELECTRIC STRIKE.
6. ELECTRIC STRIKE, PANIC HARDWARE, POWER TRANSFER, BY OTHERS.
7. DOOR OPERATOR ACTUATOR, BY OTHERS.
8. DOOR OPERATOR, BY OTHERS. (EXAMPLE DEVICES: PUSH PAD, TOUCHLESS, ETC)
9. INTERCOM STATION, BY OTHERS.



DOOR HARDWARE SINGLE DOOR CONNECTION DIAGRAM

NO SCALE

GENERAL NOTES:

1. REFER TO ELECTRICAL FLOOR PLANS FOR DOOR LOCATIONS.
2. PROVIDE BACK BOXES, CONDUIT, 120 VOLT WIRING AND TERMINATIONS AS REQUIRED BY MANUFACTURER. COORDINATE EXACT REQUIREMENTS AND SCOPE OF WORK WITH OWNER AND ACCESS CONTROL CONTRACTOR.
3. SOME DEVICES INDICATED MAY NOT APPLY. REFER TO DOOR HARDWARE AND DOOR SCHEDULE. COORDINATE ALL WORK WITH HARDWARE CONTRACTOR.
4. ELECTRICAL CONTRACTOR SHALL PROVIDE INTERCONNECTION WITH FIRE ALARM PANEL TO RELEASE DOORS (I.E. ELECTROMAGNETIC LOCKS) UPON AN ALARM CONDITION, AS REQUIRED.

(#) KEYED NOTES:

1. ACCESS CONTROL CONTROL PANEL, BY OTHERS.
2. ACCESS CONTROL POWER SUPPLY, BY OTHERS.
3. ACCESS CONTROL STATION, BY OTHERS. (EXAMPLE DEVICES: CARD READER, KEYPAD, REQUEST TO EXIT PUSH PAD, MOTION DETECTOR, ETC)
4. DOOR MONITOR CONTACT SWITCH, BY OTHERS.
5. DOOR HOLDER, BY OTHERS. ELECTROMAGNETIC SWITCH MOUNTED ON/IN DOOR AND FRAME. [FOR DELAYED OPERATION] IN LIEU OF ELECTRIC STRIKE.
6. ELECTRIC STRIKE, PANIC HARDWARE, POWER TRANSFER, BY OTHERS.
7. DOOR OPERATOR ACTUATOR, BY OTHERS.
8. DOOR OPERATOR, BY OTHERS. (EXAMPLE DEVICES: PUSH PAD, TOUCHLESS, ETC)
9. INTERCOM STATION, BY OTHERS.

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APPROVED	STP

PROJECT NO.
22106

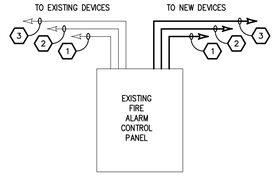
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			SYSTEM OUTPUTS																												
			ANNUNCIATION										NOTIFICATION									FIRE SAFETY									
			INITIATE FIRE ALARM SIGNAL	INITIATE CARBON MONOXIDE ALARM SIGNAL	IDENTIFY ALARM AT FACP	IDENTIFY ALARM AT REMOTE ANNUNCIATOR(S)	ANNUNCIATE SUPERVISORY SIGNAL AT FACP	ANNUNCIATE SUPERVISORY SIGNAL AT REMOTE ANNUNCIATOR(S)	ANNUNCIATE TROUBLE SIGNAL AT FACP	ANNUNCIATE TROUBLE SIGNAL AT REMOTE ANNUNCIATOR(S)	RING TROUBLE BELL (WHEN PROVIDED)	ACTIVATE ALARM SEQUENCE ON EXISTING FACP	OPERATE ALARM NOTIFICATION APPLIANCES CONTINUOUSLY	ACTIVATE VOICE/ALARM COMMUNICATION SYSTEM	TRANSMIT ALARM SIGNAL TO REMOTE ALARM RECEIVING STATION	TRANSMIT SUPERVISORY SIGNAL TO REMOTE ALARM RECEIVING STATION	TRANSMIT TROUBLE SIGNAL TO REMOTE ALARM RECEIVING STATION	TRANSMIT ALARM SIGNAL TO BUILDING AUTOMATION SYSTEM	TRANSMIT TROUBLE SIGNAL TO BUILDING AUTOMATION SYSTEM	RECORD EVENTS IN THE SYSTEM MEMORY	UNLOCK ELECTRIC DOOR LOCKS IN DESIGNATED EGRESS PATHS	DISABLE SOUND MASKING, PAGING, OR AUDIO SYSTEMS	RELEASE FIRE AND SMOKE DOORS	TURN ON EGRESS LIGHTING TO FULL BRIGHTNESS	SHUTDOWN HVAC UNIT SERVING ZONE IN ALARM VIA CONTROL MODULE (INTERLOCK)	SWITCH HVAC EQUIPMENT CONTROLS TO FIRE ALARM MODE	CLOSE SMOKE DAMPERS IN AIR DUCT SYSTEM SERVING ZONE WHERE ALARM WAS INITIATED
SYSTEM INPUTS	INITIATION	MANUAL FIRE BOX OPERATION	●		●	●						●	●	●	●			●			●	●	●	●	●					
		SMOKE DETECTOR OPERATION	●		●	●						●	●	●	●			●			●	●	●	●	●					
		CARBON MONOXIDE DETECTOR OPERATION		●								●	●	●	●			●			●	●	●	●	●					
		DUCT DETECTOR OPERATION	●		●	●						●	●	●	●			●			●	●	●	●	●	●	●	●		
	EXTERNAL SYSTEM INPUT	FIRE EXTINGUISHING SYSTEM OPERATION	●		●	●						●	●	●	●			●			●	●	●	●	●					
		FIRE PROTECTION SYSTEM VALVE TAMPER OPERATION					●	●			●					●					●									
	STATUS	OPEN CIRCUIT, SHORT CIRCUIT, OR GROUND FAULT ON INITIATING DEVICE, SIGNALING LINE, OR NOTIFICATION APPLIANCE CIRCUIT.							●	●	●						●		●	●	●								
		OPENING, TAMPERING, OR REMOVAL OF ALARM-INITIATING DEVICES							●	●	●						●		●	●	●								
		OPENING, TAMPERING, OR REMOVAL OF SUPERVISORY SIGNAL INITIATING DEVICES							●	●	●						●		●	●	●								
		LOSS OF PRIMARY POWER OF FACP							●	●	●						●		●	●	●								
		GROUND OR SIGNAL BREAK IN FACP INTERNAL CIRCUITS							●	●	●						●		●	●	●								
		ABNORMAL AC VOLTAGE AT THE FACP							●	●	●						●		●	●	●								
		STANDBY BATTERY CIRCUITRY BREAK							●	●	●						●		●	●	●								
		FAILURE OF BATTERY CHARGING SYSTEM							●	●	●						●		●	●	●								
		ABNORMAL POSITION OF ANY SWITCH AT THE FACP							●	●	●						●		●	●	●								
		ABNORMAL POSITION OF ANY SWITCH AT THE ANNUNCIATOR							●	●	●						●		●	●	●								
		GENERATOR FAULT							●	●	●						●		●	●	●								
		GENERATOR SWITCH IN NON AUTOMATIC POSITION							●	●	●						●		●	●	●								
		GENERATOR RUNNING					●	●								●					●									
		KNOX BOX OPEN					●	●								●					●									

FIRE ALARM MATRIX

NO SCALE



FIRE ALARM RISER DIAGRAM

NO SCALE

(#) KEYED NOTES-

1. ADDRESSABLE INITIATING DEVICE LOOP (SIGNALING LINE CIRCUIT), CLASS B, STYLE 4 WIRING. INCLUDES MANUAL PULL STATIONS, SMOKE DETECTORS, THERMAL DETECTORS, WATER FLOW SWITCHES, TAMPER SWITCHES, ETC. SEE PLAN DRAWINGS FOR DEVICE LOCATIONS AND QUANTITIES. PROVIDE WIRING AS SPECIFIED BY SYSTEM MANUFACTURER.
2. VISUAL NOTIFICATION APPLIANCE CIRCUIT, CLASS B, STYLE Y WIRING. SEE PLAN DRAWINGS FOR FOR DEVICE LOCATION AND QUANTITIES. PROVIDE WIRING AND NUMBER OF CIRCUITS AS REQUIRED BY SYSTEM MANUFACTURER BASED ON MANUFACTURERS CIRCUIT LOAD CALCULATIONS.
3. AUDIBLE NOTIFICATION APPLIANCE CIRCUIT, CLASS B, STYLE Y WIRING. SEE PLAN DRAWINGS FOR FOR DEVICE LOCATION AND QUANTITIES. PROVIDE WIRING AS SPECIFIED BY SYSTEM MANUFACTURER.

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PROJECT TITLE

DISTRICT ADMINISTRATION BUILDING

Troy School District
Troy, MI

DRAWING TITLE
ELECTRICAL DETAILS AND DIAGRAMS

ISSUE DATES

DATE:	ISSUED FOR:
06-23-2025	CONSTRUCTION DOCUMENTS

DRAWN	ZDB
CHECKED	ZDB
APPROVED	STP

PROJECT NO.
22106

DRAWING NO.
E7.3

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