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ERIE COUNTY DEPARTMENT OF PUBLIC WORKS
OFFICE OF THE COMMISSIONER
WILLIAM E. GEARY
COMMISSIONER OF PUBLIC WORKS

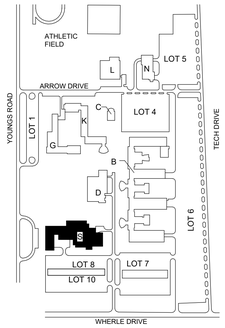
COUNTY OF ERIE
DEPARTMENT OF PUBLIC WORKS

SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER
CAFETERIA HVAC UPGRADE PROJECT

6205 MAIN ST., WILLIAMSVILLE, NY 14221

ISSUE FOR BID

IBC PROJECT #: **23539**
ECDPW PROJECT # 2024-956-01



SITE PLAN
NTS

BUILDINGS IN SCOPE:
BUILDING S - SPRING STUDEN CENTER

BUILDINGS NOT IN SCOPE:
BUILDING B - BRETSCHGER HALL
BUILDING C - CHILD CARE CENTER
BUILDING D - DRY LIBRARY
BUILDING G - GLEASNER HALL
BUILDING K - KITTINGER HALL
BUILDING L - BELL GYMNASIUM
BUILDING N - NUNAN
BUILDING T - STEM BUILDING

ISSUE DATE: **08/05/24**

ENUMERATION OF DRAWINGS

ARCHITECTURAL:

AG-101 GENERAL NOTES, ABBREVIATIONS, AND LEGENDS
A1-110 FIIRST FLOOR PLAN, ELEVATIONS, AND DETAILS

STRUCTURAL:

S-001 STRUCTURAL NOTES
S-100 STRUCTURAL PLANS AND DETAILS FOR EQUIPMENT SUPPORT
S-101 STRUCTURAL DETAILS FOR SUPPLEMENTARY FRAMING SUPPORT

HAZARDOUS MATERIALS:

HM-100 BASEMENT ABATEMENT PLAN
HM-101 BASEMENT MECHANICAL ROOM ABATEMENT PLAN
HM-102 FIRST FLOOR MECHANICAL ROOM ABATEMENT PLAN

ELECTRICAL:

E-000 ELECTRICAL SYMBOLS, GENERAL NOTES AND SCHEDULES
ED-101 PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA A - POWER & SYSTEMS
ED-102 PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA C - POWER & SYSTEMS
E-101 PARTIAL FIRST FLOOR PLAN - AREA A - POWER & SYSTEMS
E-102 PARTIAL FIRST FLOOR PLAN - AREA C - POWER & SYSTEMS
E-103 PARTIAL ROOF PLAN - AREA B - ELECTRICAL
E-400 ENLARGED DEMOLITION PLAN - BASEMENT AND MECHANCIAL - ELECTRICAL
E-401 ENLARGED PLANS - BASEMENT & MECHANICAL ROOM - ELECTRICAL
E-500 ONE-LINE DIAGRAMS
E-600 SCHEDULES
E-601 PANELBOARD SCHEDULES
E-901 DETAILS

MECHANICAL:

H-000 HVAC SYMBOLS, GENERAL NOTES AND ABBREVIATIONS
HD-100 BASEMENT DEMOLITION PLAN - AREA A
HD-101 BASEMENT DEMOLITION PLAN - AREA B AND C
HD-102 FIRST FLOOR DEMOLITION PLAN - AREA A
HD-103 FIRST FLOOR DEMOLITION PLAN - AREA B AND C
HD-104 SECOND FLOOR DEMOLITION PLAN - AREA A
HD-105 ROOF DEMOLITION PLAN - AREA B
H-100 BASEMENT PLAN - AREA A
H-101 BASEMENT PLAN - AREA B AND C
H-102 FIRST FLOOR PLAN - AREA A
H-103 FIRST FLOOR PLAN - AREA B AND C
H-104 SECOND FLOOR -AREA A
H-105 ROOF PLAN - AREA B
H-400 ENLARGED FLOOR PLANS
H-500 HVAC DETAILS
H-501 HVAC DETAILS & SECTIONS
H-800 HVAC SCHEDULES
H-801 HVAC CONTROLS - COMMON ELEMENTS & CHILLER
H-802 HVAC - AIR HANDLING UNIT CONTROLS
H-803 HVAC CONTROLS

GENERAL STAGING/SITE NOTES:

1. ON SITE PARKING IS AVAILABLE.
2. STAGING AREAS AND CRANE LOCATIONS SHALL BE DISCUSSED AT THE PRE-BID WALKTHROUGH AND PRE-CONSTRUCTION MEETING.
3. CONTRACTOR SHALL BARRICADE IN THE FORM OF AM 8'-0" HIGH CHAIN LINK FENCE AROUND THE PERIMETER OF ALL STAGING AREAS TO PREVENT PUBLIC ACCESS. THE FENCE SHALL HAVE A 12' WIDE LOCKABLE DOUBLE GATE.
4. CONTRACTOR SHALL PROVIDE A FLAG MAN AT CONTRACTOR'S COST, TO DIRECT TRAFFICE WHEN ACCEPTING MATERIAL DELIVERIES.
5. ALL BUILDING EGRESS SHALL BE MAINTAINED AT ALL TIMES.
6. THE CONTRACTOR SHALL COORDINATE CRANE STAGING, CONTRACTOR STAGING AREA, ACCESS PARKING, DELIVERY AND STORAGE WITH OWNER'S REPRESENTATIVE.
7. EXTERIOR EGRESS PATHS, WALKWAYS AND ECTRANCES SHALL REMAIN UNOBSTRUCTED AND OPEN FOR OCCUPANT CIRCULATION DURING THE WORK OF THIS PROJECT. PROVIDE OVERHEAD PROTECTION. COORDINATE EXACT LOCATIONS WITH EGRESS DOORS AT SITE.
8. IN COORDINATION WITH THE OWNER'S REPRESENTATIVE, REPAIR ANY DAMAGE TO EXISTING CONSTRUCTION AND SITE WORK (INCLUDING BUT NOT LIMITED TO GRASSED AREAS, LANDSCAPING, CURBS, CONCRETE WALKWAYS, AND ASPHALT PAVING.) CAUSED BY THE WORK OF THIS PROJECT. REPAIRS TO MATCH ADJACENT SURFACES.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ARCHITECT OR PROFESSIONAL ENGINEER TO ALTER ANY ITEM ON THIS DOCUMENT IN ANY WAY. ANY LICENSE WHO ALTERS THIS DOCUMENT IS REQUIRED BY LAW TO AFFIX HIS OR HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS OR HER SIGNATURE AND SPECIFIC DESCRIPTION OF THE ALTERATIONS.

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ABBREVIATIONS:

ACT	ACOUSTICAL TILE OR PANEL
APPROX	APPROXIMATELY
BLDG	BUILDING
BTWN	BETWEEN
BTM	BOTTOM
C/C	CENTER TO CENTER
CL	CENTERLINE
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR / CORRUGATED
CPT	CARPET
CT	CERAMIC TILE
D	DEPTH
DEMO	DEMOLISH / DEMOLITION
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
E	EAST
EA	EACH
EQ	EQUAL
EQUIP	EQUIPMENT
EXIST	EXISTING
EXT	EXTERIOR
FCNYS	FIRE CODE OF NEW YORK STATE
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FFE	FINISHED FLOOR ELEVATION
FIN	FINISH
FLR	FLOOR
FRP	FIBERGLASS REINFORCED PLASTIC
FT	FEET / FOOT
G	GAS
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GSF	GROSS SQUARE FEET
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEIGHT
HC	HANDICAPPED
HDW	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
ID	INSIDE DIAMETER
IN	INCH
INCL	INCLUDING / INCLUDED
INSUL	INSULATION / INSULATED
INT	INTERIOR
JAN	JANITOR
LAM	LAMINATED
LAV	LAVATORY
LF	LINEAR FEET
LGH	LENGTH
LH	LEFT HAND
LHR	LEFT HAND REVERSE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MFG	MANUFACTURING
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NO	NUMBER
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OFCI	OWNER FURNISHED-CONTRACTOR INSTALLED
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
OPH	OPPOSITE HAND
P-LAM	PLASTIC LAMINATE
PLBG	PLUMBING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PORCELAIN TILE / PAVER TILE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
R	RADIUS / RISER / THERMAL RESISTANCE
RB	RUBBER BASE
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REC	RECESSED
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
RES	RESILIENT
RFG	ROOFING
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RM	ROOM
RO	ROUGH OPENING
RTU	ROOF TOP UNIT
S	SOUTH
SCH	SCHEDULE
SECT	SECTION
SF	SQUARE FOOT / SQUARE FEET
SHT	SHEET
SIM	SIMILAR
SPECS	SPECIFICATIONS
SS	STAINLESS STEEL
STC	SOUND TRANSMISSION COEFFICIENT
STD	STANDARD
STL	STEEL
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
SYMB	SYMBOL
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOJ	TOP OF JOIST
TOP	TOP OF PIER
TOS	TOP OF STEEL
TOW	TOP OF WALL
TP	TOP OF PAVEMENT
TYP	TYPICAL
UH	UNIT HEATER
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY
VCT	VINYL COMPOSITION TILE
VEST	VESTIBULE
W	WEST / WIDE FLANGE / WIDE
W/	WITH
W/O	WITHOUT
WD	WOOD
WT	WEIGHT / TEE CUT FROM W SHAPE
XHM	EXISTING HOLLOW METAL FRAME

NOTE: ABBREVIATIONS AND SYMBOLS LISTED ON THIS DRAWING ARE FOR REFERENCE ONLY. SOME ABBREVIATIONS AND SYMBOLS MAY NOT BE USED IN THE FOLLOWING DOCUMENTS.

GRAPHICS LEGEND:

- NEW DOOR
- NEW PARTITION WALL
- EXISTING EQUIPMENT
- PENDANT LIGHT FIXTURE
- SMOKE DETECTOR
- INDICATES DOWN SLOPE DIRECTION OF ROOF
- BOLLARD

NOTE: ABBREVIATIONS & SYMBOLS LISTED ON THIS DRAWING ARE FOR REFERENCE ONLY. SOME SYMBOLS MAY NOT BE USED IN THE FOLLOWING DOCUMENTS.

GENERAL ARCHITECTURAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL FIELD CONDITIONS PRIOR TO THE START OF CONSTRUCTION, AND SHALL NOTIFY THE DIRECTOR'S REPRESENTATIVE OF ANY DISCREPANCIES.
2. THE CONTRACTOR IS RESPONSIBLE FOR CONFORMING TO BUILDING CODES AND SHALL NOT KNOWINGLY EXECUTE WORK WHICH IS NOT IN CONFORMANCE.
3. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE REQUIRED SHORING SUPPORTS, BRACING AND ENGINEERING AS REQUIRED TO COMPLETE CONSTRUCTION WITHOUT DAMAGING OR DISTURBING EXISTING CONSTRUCTION TO REMAIN.
4. CONTRACTOR SHALL REMOVE, TRANSPORT AND LEGALLY DISPOSE OF MATERIALS OFF SITE AS REQUIRED BY LOCAL AND STATE AUTHORITIES. IF HAZARDOUS MATERIALS ARE ENCOUNTERED DURING DEMOLITION/CONSTRUCTION OPERATIONS, COMPLY WITH APPLICABLE REGULATIONS, LAWS AND ORDINANCES CONCERNING REMOVALS, HANDLING AND PROTECTION AGAINST EXPOSURE OR ENVIRONMENTAL POLLUTION.
5. INTERIOR DIMENSIONS ARE TAKEN FROM FACE OF FINISH MATERIAL.
6. CONTRACTOR TO PROVIDE CUTTING, PATCHING AND/OR FIRE-STOPPING REQUIRED TO ACCOMPLISH THE WORK SHOWN ON THE DRAWINGS OR SPECIFICATIONS. PATCH AND SEAL OPENINGS TO MATCH ADJACENT CONSTRUCTION UNLESS OTHERWISE INDICATED.

DRAWING SYMBOLS

NOTATION: DETAIL NO. / TITLE / SCALE: X"=1'-0"

ELEVATION: ELEVATION NO. / SHEET NO.

SECTION CUT: VIEWING DIRECTION / DETAIL NO. / SHEET NO.

INTERIOR ELEVATIONS: ELEVATIO N NUMBER / SHEET NO.

DETAIL-BLOW UP: DETAIL NO. / SHEET NO.

STRUCTURAL GRID

GRAPHIC SCALE: 0' 4' 8' 16' 32'

- 001 OR 101 — DOOR NUMBERS
- 101 — ROOM NUMBER
- REVISION
- C12 OR C12 A — PARTITION TYPE
- 1 — DEMOLITION KEY NOTE
- 1 — PLAN KEY NOTE
- 8'-0" AFF — CEILING TYPE & ELEVATION
- 1 — LOUVER NO.
- VV — EQUIPMENT DESIGNATION

MATERIAL SYMBOLS

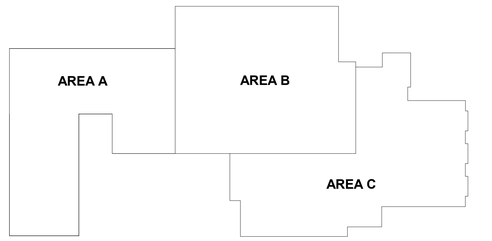
	CONCRETE
	STEEL-LARGE-SCALE
	FINISHED WOOD
	PLYWOOD
	WOOD BLOCKING OR FRAMING (CONT.)
	RIGID INSULATION
	BATT INSULATION
	FLOOR INFILL
	EARTH
	GRAVEL

CODE COMPLIANCE PER 2020 NYS BC

1.	OCCUPANCY:		B
2.	CONSTRUCTION (EXISTING):		IIA
3.	NUMBER OF STORIES:		2
4.	AREA MODIFICATION:		
	A. SPRINKLER:		NOT SPRINKLERED
	B. BUILDING FRONTAGE:		100%
	C. MAXIMUM BUILDING AREA PER FLOOR (TABLE 506.2)		
	FLOOR	ALLOWED	EXISTING ACTUAL
	1	37,500	78,000 SF
	2	37,500	12,000 SF
5.	BUILDING CONSTRUCTION TYPE IIA FIRE-RATINGS (TABLE 601)		FR/HR
	STRUCTURAL FRAMES & PRIMARY MEMBERS		1
	EXTERIOR BEARING WALLS		1
	INTERIOR BEARING WALLS		1
	NON-BEARING WALLS & PARTITIONS		0
	FLOOR CONSTRUCTION		1
	ROOF CONSTRUCTION		1
6.	ALLOWABLE TRAVEL DISTANCE		300 FEET
7.	DEAD END CORRIDOR		50 FEET
8.	FIRE BARRIERS: VERT. ENCLOSURE	SERVING 2 FLOORS	1
9.	FIRE BARRIERS: SHAFT ENCLOSURE	THROUGH 2 FLOORS	1
10.	SMOKE BARRIERS FIRE RATING:		0
	W/ DOOR ASSEMBLY RATINGS OF:		N/A
11.	CORRIDOR FIRE RESISTANCE RATING:		0

APPLICABLE CODES & DESIGN GUIDELINES

- 2020 BUILDING CODE OF NEW YORK STATE
- 2020 EXISTING BUILDING CODE OF NEW YORK STATE
- 2020 PLUMBING CODE OF NEW YORK STATE
- 2020 MECHANICAL CODE OF NEW YORK STATE
- 2020 FIRE CODE OF NEW YORK STATE
- 2020 FUEL GAS CODE OF NEW YORK STATE
- 2020 ENERGY CONSERVATION CODE OF NEW YORK STATE
- NFPA 70 (2020) NATIONAL ELECTRIC CODE

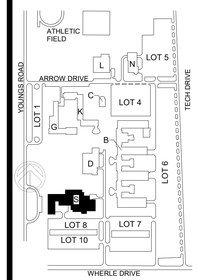


KEY PLAN

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Watts Architects & Engineers
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Buffalo, NY 14203



SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name: SPRING STUDENT CENTER

Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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Revisions

No.	Date	Description

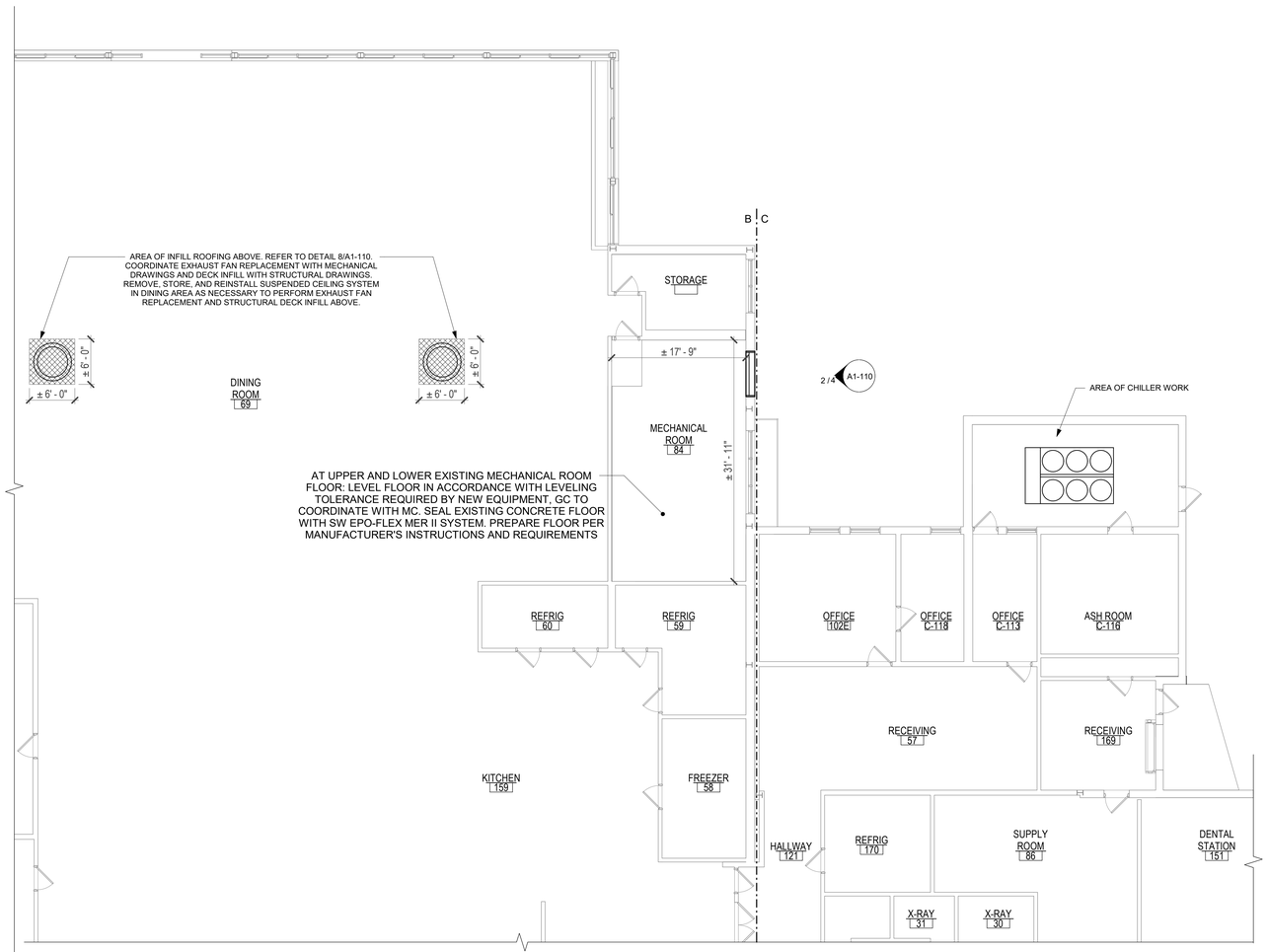
Title: **GENERAL NOTES, ABBREVIATIONS, AND LEGENDS**

Project Number: 20240180

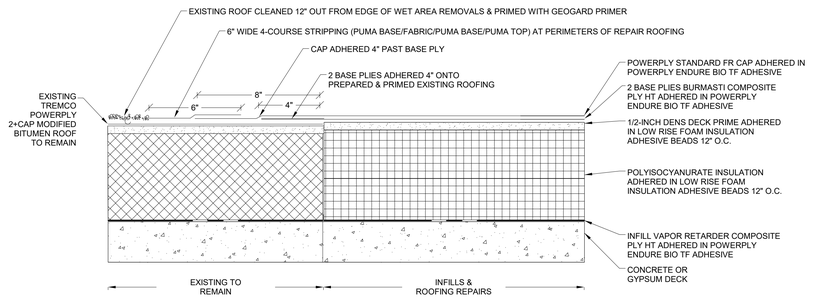
Drawn By: JLZ

Date: 08/05/2024

Sheet: **AG-101**



1 PARTIAL FIRST FLOOR PLAN
1/8" = 1'-0"

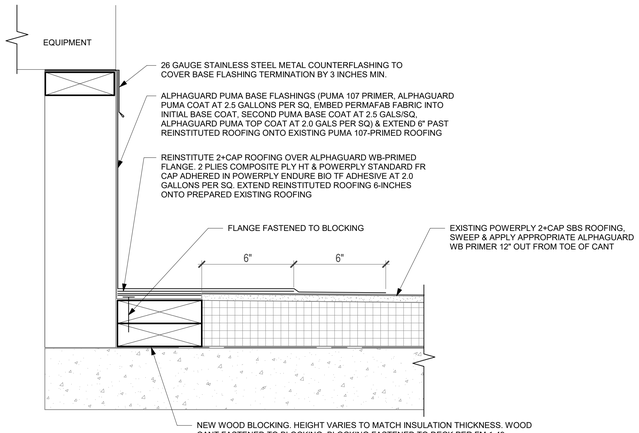


NOTES:
1. SIZE OF REPAIR AREA SHOWN IN DETAIL ABOVE IS NOT TO SCALE AND DOES NOT INDICATE SIZE OF REPAIR REQUIRED. REFER TO ROOF PLAN FOR SIZE OF REMOVALS, INFILLS AND REPAIRS.

2. ROOFING WORK MUST BE COMPLETED BY A TREMCO-CERTIFIED ROOFING CONTRACTOR & INSPECTED BY TREMCO TECHNICAL INSPECTOR (CONTACT MIKE WAHLER 716-846-4331) TO MAINTAIN EXISTING WARRANTY.

CONTRACTOR RESPONSIBLE FOR MAINTAINING EXISTING ROOF WARRANTY: TREMCO - BUILT UP SBS MODIFIED WARRANTY NO. 183392, 25 YEAR WARRANTY, INSTALLED 2020

8 TYPICAL ROOF INFILL
3" = 1'-0"



NOTES:
1. TO ENSURE EXISTING WARRANTY IS RETAINED, ONLY TREMCO-CERTIFIED CONTRACTORS MAY INSTALL NEW PENETRATION FLASHINGS OR TIE-INS ON A TREMCO-WARRANTED ROOFING SYSTEM.

2. INSTALLING CONTRACTOR MUST ENSURE THAT TREMCO'S TECHNICAL INSPECTOR IS PRESENT TO REVIEW ALL NEWLY REINSITUTED ROOFING AND NEWLY COMPLETED FLASHINGS. WRITTEN ACCEPTANCE FROM THE TREMCO TECHNICAL INSPECTOR IS REQUIRED TO KEEP EXISTING WARRANTY INTACT.

3. CONTRACTOR TO INSTALL ADDITIONAL BASE PLIES TO ENSURE THAT NEW INFILL ROOFING IS NOT LOWER THAN SURROUNDING ROOFING SECTION AND POND OR COLLECT STANDING WATER WHEN COMPLETED.

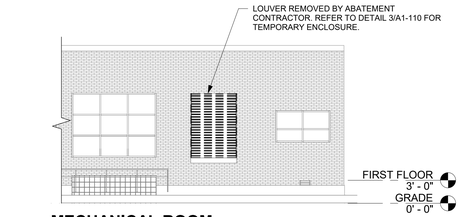
4. EXISTING TREMCO-WARRANTED ROOFING MUST BE TEMPORARILY PROTECTED FROM DAMAGE DURING EQUIPMENT OR PENETRATION INSTALLATION. ANY DAMAGED AREAS ROOFING AREAS WILL BE REPLACED, TO TREMCO WARRANTY STANDARDS, AT THE SOLE EXPENSE OF THE INSTALLING CONTRACTOR.

5. ANY TEMPORARY SEALS MUST BE MADE WITH TREMCO GEOGARD SEAM SEALER (POLYURETHANE) WHERE ALPHAGUARD FLUID FLASHINGS WILL BE INSTALLED. ASPHALT MASTIC IS NOT COMPATIBLE WITH ALPHAGUARD FLASHINGS AND IS PROHIBITED.

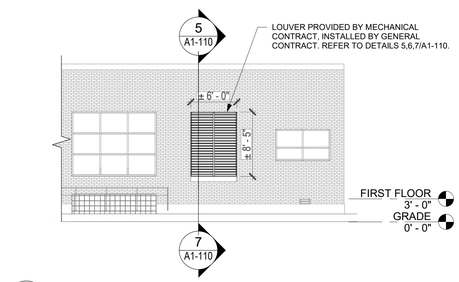
9 TYPICAL CURB FLASHING
3" = 1'-0"

GENERAL CONSTRUCTION NOTES

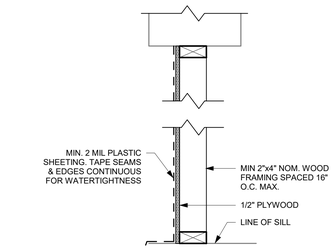
1. REFER TO SHEET AG-101 FOR GENERAL ARCHITECTURAL NOTES.
2. COORDINATE INSTALLATION OF NEW EXHAUST FANS WITH MECHANICAL, ELECTRICAL, AND STRUCTUAL DRAWINGS. EXACT LOCATION TO BE DETERMINED BY MECHANICAL. REFER TO STRUCTURAL DRAWINGS FOR ROOF DECK INFILL.



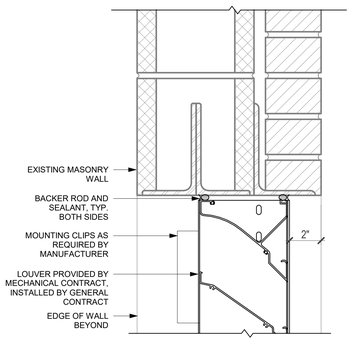
2 MECHANICAL ROOM REMOVAL ELEVATION
1/8" = 1'-0"



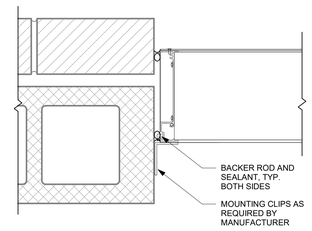
4 MECHANICAL ROOM ELEVATION
1/8" = 1'-0"



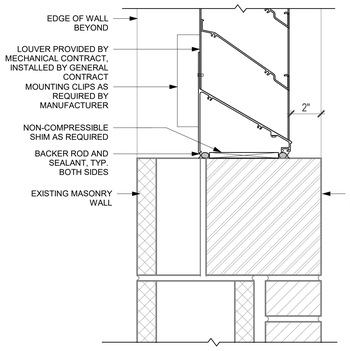
3 TEMPORARY ENCLOSURE DETAIL
1 1/2" = 1'-0"



5 LOUVER HEAD DETAIL
3" = 1'-0"

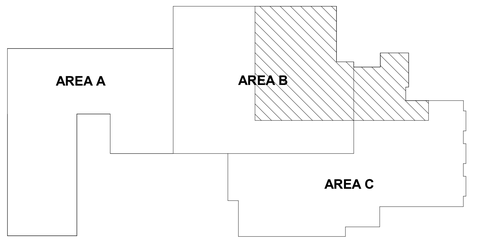


6 LOUVER JAMB DETAIL
3" = 1'-0"



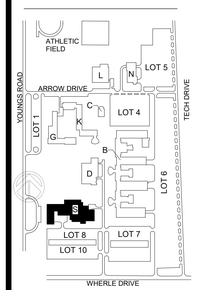
7 LOUVER SILL DETAIL
3" = 1'-0"

REFERENCED FROM SHEET: A1-110



KEY PLAN

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Title: FIRST FLOOR PLAN, ELEVATIONS, AND DETAILS

Project Number: 20240180
Drawn By: JLZ
Date: 08/05/2024
Sheet: A1-110

LEGEND

ABBREVIATIONS

ABBREV.	DESCRIPTION
A	AMPERE
AC	ALTERNATING CURRENT
AC	ABOVE COUNTER
AFF	ABOVE FINISHED FLOOR
AG	ABOVE FINISHED GRADE
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AIC	AMPERES INTERRUPTING CAPACITY
AL	ALUMINUM
ASYM	ASYMMETRICAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BR	BRANCH
C	CONDUIT
CAB	CABINET
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CER	COMMUNICATIONS EQUIPMENT ROOM
CKT	CIRCUIT
CLG	CEILING
CONT	CONTACTOR
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CU	COPPER
CUH	CABINET UNIT HEATER
DC	DIRECT CURRENT
Δ	DELTA CONNECTED
DISC	DISCONNECT
DF	DRINKING FOUNTAIN
DPST	DOUBLE POLE, SINGLE THROW
DPDT	DOUBLE POLE, DOUBLE THROW
EC	ELECTRICAL CONTRACTOR
EG	EQUIPMENT GROUND
EM	EMERGENCY
EPR	ETHYLENE PROPYLENE RUBBER
EQUIP	EQUIPMENT
ETR	EXISTING TO REMAIN
ERL	EXISTING TO BE RELOCATED
EXIST	EXISTING
(E)	EXISTING
EXP	EXPLOSION PROOF
ELECT	ELECTRIC
EMT	ELECTRIC METALLIC TUBING
EWH	ELECTRIC WALL HEATER
FC	FOOTCANDLE
FCAN	FULL CAPACITY ABOVE NORMAL
FCBN	FULL CAPACITY BELOW NORMAL
FLUOR	FLUORESCENT
FVNR	FULL VOLTAGE, NON-REVERSING
FVR	FULL VOLTAGE, REVERSING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPERES
GEN	GENERATOR
GF	GROUND FAULT
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HV	HIGH VOLTAGE
HZ	HERTZ
INCAD	INCANDESCENT
IG	ISOLATED GROUND
IC	INTERCOM
IMC	INTERMEDIATE METAL CONDUIT
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CAPACITY
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
K	KILO (THOUSAND)
KCM	THOUSAND CIRCULAR MILS
KCMIL	THOUSAND CIRCULAR MILS
L	PILOT LIGHT
LTG	LIGHTING
LV	LOW-VOLTAGE
M	MEGA (MILLION)
MATV	MASTER ANTENNA TELEVISION
MFS	MAIN FUSED SWITCH
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	METAL HALIDE
MLO	MAIN LUGS ONLY
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM-VOLTAGE
MVA	MEGAVOLT-AMPERE
NEC	NATIONAL ELECTRICAL CODE
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NL	NIGHT LIGHT (UNSWITCHED)
N	NEUTRAL
NF	NON-FUSED
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
OL	OVERLOAD
OH	OVERHEAD
PB	PULLBOX
PF	POWER FACTOR
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
Ø	PHASE
P	POLE
PH	PHASE
PL	PILOT LIGHT
PP	POWER PANEL
PWR	POWER
PKGD	PACKAGED
RVNR	REDUCED VOLTAGE, NON-REVERSING
RM	ROOM
RMS	ROOT MEAN SQUARED
SE	SERVICE ENTRANCE
SPD	SURGE PROTECTIVE DEVICE
SS	SURGE SUPPRESSION
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
STR	STARTER
TDR	TIME DELAY RELAY
TYP	TYPICAL
TCP	TEMPERATURE CONTROL PANEL
TSTAT	THERMOSTAT
TV	TELEVISION
UG	UNDERGROUND
UH	UNIT HEATER
UV	UNIT VENTILATOR
V	VOLT
VA	VOLT-AMPERE
VP	VAPORPROOF
W	WATT
WG	WIRE GUARD
WP	WEATHERPROOF
XFMR	TRANSFORMER
XLP	CROSS LINKED POLYETHYLENE
XP	EXPLOSION PROOF
Y	WYE CONNECTED

COMMUNICATIONS

SYMBOL	DESCRIPTION
▽	WALL MOUNTED TELEPHONE BRACKET OUTLET WITH CABLING
▼	COMPUTER/DATA COMMUNICATION OUTLET WITH CABLING
(XD) ▼ OR (XD) ▽	PROVIDE RJ-45 CAT. 6A JACK AND CABLE DROP QUANTITIES INDICATED BY "X" FROM OUTLET BACK TO PATCH PANEL IN INDICATED CER FOR DATA
WAP ▼	WIRELESS ACCESS POINT OUTLET. PROVIDE (2) CAT. 6A CABLES BACK TO PATCH PANEL IN INDICATED CER. LEAVE 10-FOOT COIL OF CABLE AT INDICATED LOCATION. REFER TO DETAIL.
TV	TELEVISION OUTLET WITH COAXIAL CABLE DISTRIBUTION
TV	CEILING MOUNTED TELEVISION OUTLET WITH COAXIAL CABLE DISTRIBUTION
V	AUDIO/VIDEO OUTLET WITH CABLING. REFER TO DETAILS.
	PROJECTOR WITH MOUNTING PLATE, 120V RECEPTACLE, AND AUDIO/VIDEO OUTLET

FIRE ALARM

SYMBOL	DESCRIPTION
S	SMOKE DETECTOR
H	HEAT DETECTOR
F	MANUAL PULL STATION
▽ F	WALL MOUNTED AUDIBLE/VISUAL NOTIFICATION APPLIANCE (CANDELA OUTPUT SHALL BE 75 UNLESS NOTED OTHERWISE ON PLAN ADJACENT TO DEVICE)
△ F	WALL MOUNTED VISUAL NOTIFICATION APPLIANCE (CANDELA OUTPUT SHALL BE 75 UNLESS NOTED OTHERWISE ON PLAN ADJACENT TO DEVICE)
DH	ELECTROMAGNETIC DOOR HOLD OPEN
AIM	ADDRESSABLE INPUT MODULE
AOM	ADDRESSABLE OUTPUT MODULE
ZAM	ZONE ADDRESSABLE MODULE
	ADJACENT LABEL INDICATES TYPE OF PANEL: FACP = FIRE ALARM CONTROL PANEL FATC = FIRE ALARM TERMINAL CABINET NAC = NOTIFICATION APPLIANCE CIRCUIT PANEL RAP = REMOTE ANNUNCIATOR PANEL VCCP = VOICE COMMUNICATION CONTROL PANEL

LIGHTING

SYMBOL	DESCRIPTION
$	SINGLE POLE SWITCH
$3	THREE WAY SWITCH
$K	KEY OPERATED SWITCH
a,b	INDICATES MULTI-LEVEL SWITCHING
	2'x4' LUMINAIRE (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	2'x2' LUMINAIRE (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	1'x4' LUMINAIRE (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	STRIP LUMINAIRE (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	WALL MOUNTED LUMINAIRE (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	WALL SCONCE (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	DOWNLIGHT (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	SINGLE FACE WALL MOUNTED EXIT SIGN. SOLID WEDGE INDICATES CHEVRON DIRECTION(S). (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	DOUBLE FACE WALL MOUNTED EXIT SIGN. SOLID WEDGE INDICATES CHEVRON DIRECTION(S). (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	SINGLE FACE CEILING MOUNTED EXIT SIGN. SOLID WEDGE INDICATES CHEVRON DIRECTION(S). (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	DOUBLE FACE CEILING MOUNTED EXIT SIGN. SOLID WEDGE INDICATES CHEVRON DIRECTION(S). (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
	EMERGENCY BATTERY PACK (DESIGNATION REFERS TO LUMINAIRE SCHEDULE)
OS	EXISTING CEILING MOUNTED OCCUPANCY SENSOR
	LUMINAIRE ON EMERGENCY BRANCH CIRCUIT, REFER TO FLOOR PLAN FOR CIRCUIT INFORMATION

LIGHTNING PROTECTION

SYMBOL	DESCRIPTION
A	AIR TERMINAL
C	BONDING CLAMP
	GROUND ROD

LINE STYLES

SYMBOL	DESCRIPTION
	INDICATES NEW DEVICE OR EQUIPMENT
	INDICATES EXISTING DEVICE OR EQUIPMENT
	INDICATES EXISTING DEVICE OR EQUIPMENT TO BE REMOVED
	PLUGMOLD
	SURFACE RACEWAY (ONE-PIECE)
	SURFACE RACEWAY (TWO-CHANNEL)

MISCELLANEOUS

SYMBOL	DESCRIPTION
	REFERENCE TO DRAWING NOTE
	REFERENCE TO REMOVAL NOTE
	REFERENCE TO FEEDER SCHEDULE
	DETAIL/PLAN REFERENCE SYMBOL

POWER

SYMBOL	DESCRIPTION
	DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
X	HARD WIRED CONNECTION "X" INDICATES CIRCUIT NUMBER
J	JUNCTION BOX
MX	MOTOR CONNECTION "X" DESIGNATION REFERS TO ELECTRIC EQUIPMENT CONTROL SCHEDULE
$M	MANUAL MOTOR STARTER OR MOTOR RATED SWITCH
	NON-FUSED DISCONNECT SWITCH DESIGNATION REFERS TO ELECTRIC EQUIPMENT AND CONTROL SCHEDULE
	FUSED DISCONNECT SWITCH DESIGNATION REFERS TO ELECTRIC EQUIPMENT AND CONTROL SCHEDULE
⊠	MAGNETIC MOTOR STARTER DESIGNATION REFERS TO ELECTRIC EQUIPMENT AND CONTROL SCHEDULE
	COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH DESIGNATION REFERS TO ELECTRIC EQUIPMENT AND CONTROL SCHEDULE
PB	PULLBOX
	PUSHBUTTON
F2 L2 E2	EXAMPLE: INDICATES 20AMP BRANCH CIRCUIT CONNECTION FROM PANELBOARD, CIRCUIT #2 TO LUMINAIRE(S) AND CONTROLS, OR WIRING DEVICE(S). PROVIDE (2)-#12, (1)-#12EG IN RACEWAY FOR BRANCH CIRCUIT HOMERUNS
RA 2a RB 2a	LOWER CASE LETTER ADJACENT TO LUMINAIRE INDICATES SWITCHING ARRANGEMENT PREFIX: NO PREFIX = NORMAL BRANCH L = LIFE-SAFETY BRANCH E = STANDBY BRANCH REFER TO BRANCH CIRCUIT NOTES FOR ADDITIONAL INFORMATION

POWER DISTRIBUTION

SYMBOL	DESCRIPTION
	EXISTING PANELBOARD
	BRANCH CIRCUIT PANELBOARD, REFER TO PANELBOARD SCHEDULES
	DISTRIBUTION PANELBOARD, REFER TO PANELBOARD SCHEDULES
T	TRANSFORMER

PUBLIC ADDRESS

SYMBOL	DESCRIPTION
S	CEILING MOUNTED SPEAKER
S	WALL MOUNTED SPEAKER

SECURITY

SYMBOL	DESCRIPTION
CR	CARD READER
DC	DOOR CONTACT
DS	DOOR STRIKE
EB	EXIT BUTTON
ER	EXIT REQUEST MOTION DETECTOR
KP	KEY PAD
LR	LATCH RETRACTION DEVICE
ML	MAGNETIC LOCK
MD	MOTION DETECTOR
P	PANIC BUTTON
PR	PROXIMITY READER
CCTV	SECURITY CAMERA (FIXED)
CCTV PTZ	SECURITY CAMERA (PAN-TILT-ZOOM)
RIM	READER INTERFACE MODULE
IDCP	INTRUSION DETECTION CONTROL PANEL
IC	INTERCOM ENTRY CONTROL STATION

GENERAL ELECTRICAL NOTES:

A. DISCONNECT AND REMOVE ALL EXISTING ELECTRICAL EQUIPMENT, WIRING, AND RACEWAYS IN DASHED LINE STYLE UNLESS NOTED TO REMAIN OR BE RELOCATED. DISCONNECT AND REMOVE ALL EXISTING LIGHT FIXTURES, HVAC EQUIPMENT, STARTERS, WIRING DEVICES, SPECIAL SYSTEMS DEVICES (PUBLIC ADDRESS, FIRE ALARM, TELECOM, SECURITY, NURSE CALL), AND ALL ASSOCIATED BRANCH CIRCUIT WIRING, SPECIAL SYSTEMS WIRING, AND RACEWAYS. WHERE EXISTING DEVICES ARE NOT BEING REUSED, THEY AND THEIR ASSOCIATED WIRING AND RACEWAYS SHALL BE COMPLETELY REMOVED BACK TO SOURCE.

B. DISCONNECT AND REMOVE ALL EMPTY AND ABANDONED RACEWAYS UNLESS NOTED OTHERWISE. CUT FLUSH WITH FLOOR WHERE APPLICABLE AND PLUG WITH GROUT.

C. COORDINATE ALL REMOVAL WORK WITH OTHER TRADES. PROVIDE ALL WIRING AND CONNECTIONS REQUIRED TO MAINTAIN BRANCH CIRCUIT OR SPECIAL SYSTEMS CIRCUIT CONTINUITY TO DEVICES AND EQUIPMENT TO REMAIN WHETHER LOCATED WITHIN OR OUTSIDE OF THE PROJECT BOUNDARY.

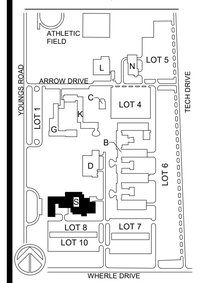
D. PARTIAL BRANCH CIRCUIT WIRING DENOTING EXISTING CIRCUITING OR CONTROL IS SHOWN FOR REFERENCE ONLY, AND IS NOT INTENDED TO ILLUSTRATE COMPLETE WIRING SYSTEM. FIELD VERIFY EXISTING WIRING AND CONNECTIONS.

E. ALL DATA, CATV, AND TELEPHONE CABLING SHALL BE REMOVED BACK TO PORT ON TERMINATION EQUIPMENT UNLESS OTHERWISE INDICATED. DO NOT CUT CABLING AND LEAVE COILED UNLESS OTHERWISE CALLED FOR. UPDATE PORT SCHEDULE WITH NEW SPARE PORTS.

F. "ETR" ADJACENT TO A DEVICE, FIXTURE, OR PIECE OF EQUIPMENT INDICATES ITEM SHALL REMAIN. MAINTAIN EXISTING ELECTRICAL CONNECTIONS UNLESS OTHERWISE NOTED.

G. "ERL" ADJACENT TO A DEVICE, FIXTURE, OR PIECE OF EQUIPMENT INDICATES EXISTING ITEM SHALL BE RELOCATED. DISCONNECT AND REMOVE, REINSTALL AT NEW LOCATION AND RECONNECT ITEM AS REQUIRED.

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ECDPW PROJECT NO. 2024-956-01

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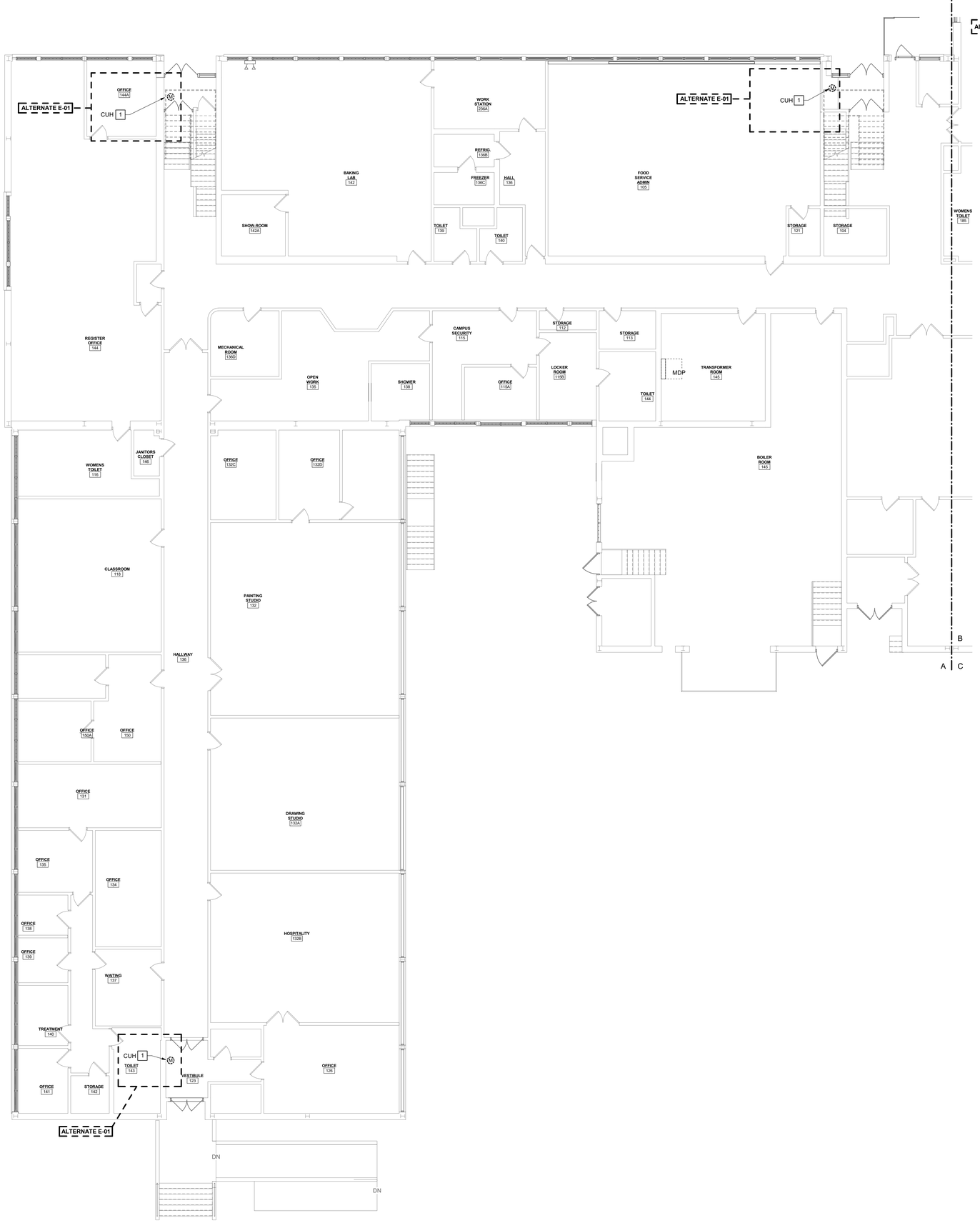
ISSUE FOR BID

Revisions

No.	Date	Description

Title: **ELECTRICAL SYMBOLS, GENERAL NOTES AND SCHEDULES**

Project Number: 23539
Drawn By: EEH
Date: 08/05/2024
Sheet: **E-000**

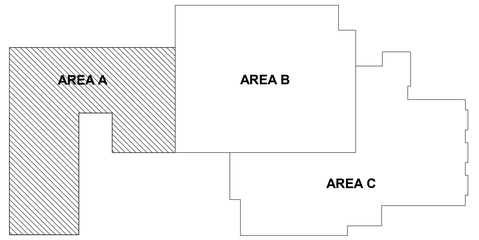


1 PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA A
1/8" = 1'-0"

ALTERNATE E-01

REMOVAL NOTES:

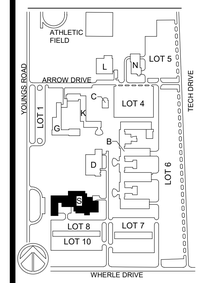
1. DISCONNECT AND REMOVE CABINET UNIT HEATER. MAINTAIN EXISTING BRANCH CIRCUIT FOR RECONNECTION TO NEW CUH.



KEY PLAN

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No.	Date	Description

Title
PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA A - POWER & SYSTEMS

Project Number
23539

Drawn By
EEH

Date
08/05/2024

Sheet
ED-101

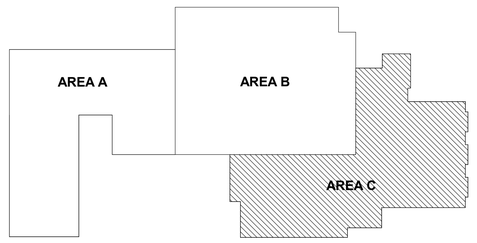
ALTERNATE E-01

REMOVAL NOTES:

1. DISCONNECT AND REMOVE CABINET UNIT HEATER. MAINTAIN EXISTING BRANCH CIRCUIT FOR RECONNECTION TO NEW CUH.



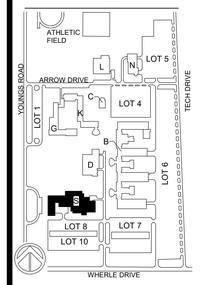
1 PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA C
1/8" = 1'-0"



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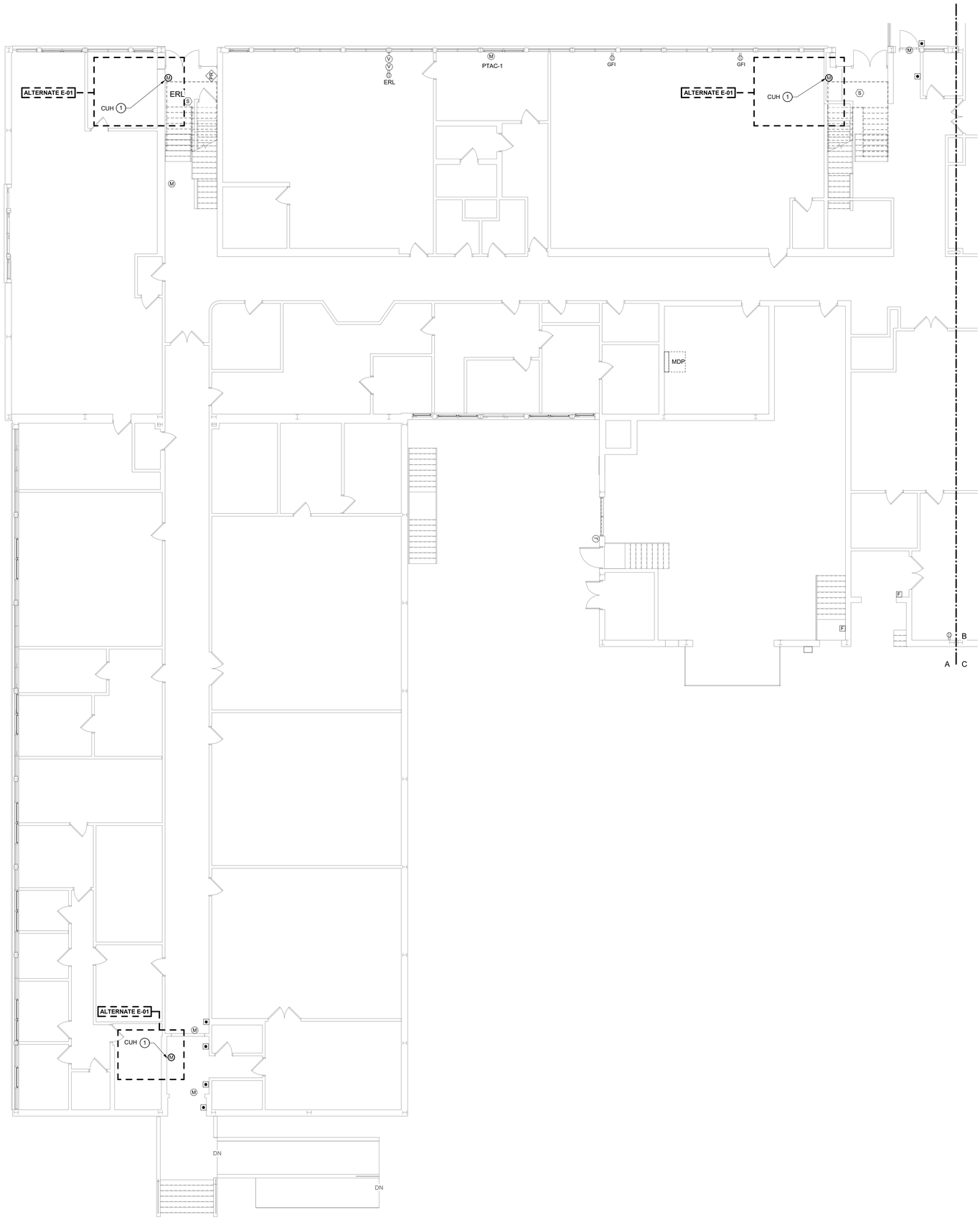
Title: PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA C - POWER & SYSTEMS

Project Number: 23539

Drawn By: EEH

Date: 08/05/2024

Sheet: ED-102

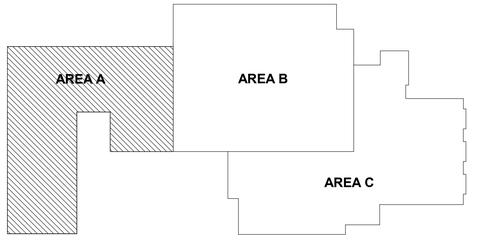


1 PARTIAL FIRST FLOOR PLAN - AREA A - POWER & SYSTEMS
1/8" = 1'-0"

ALTERNATE E-01

DRAWING NOTES:

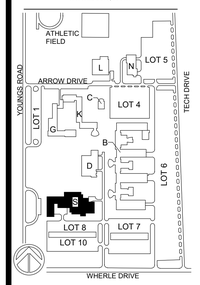
1. PROVIDE (2)-#12, (1)-#12EG IN 3/4" CONDUIT AS NEEDED TO EXTEND EXISTING MAINTAINED BRANCH CIRCUIT TO NEW NEW CABINET UNIT HEATER.



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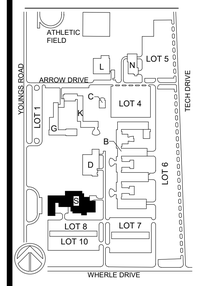
Sheet: **E-101**



1 FIRST FLOOR PLAN - POWER & SYSTEMS
1/8" = 1'-0"

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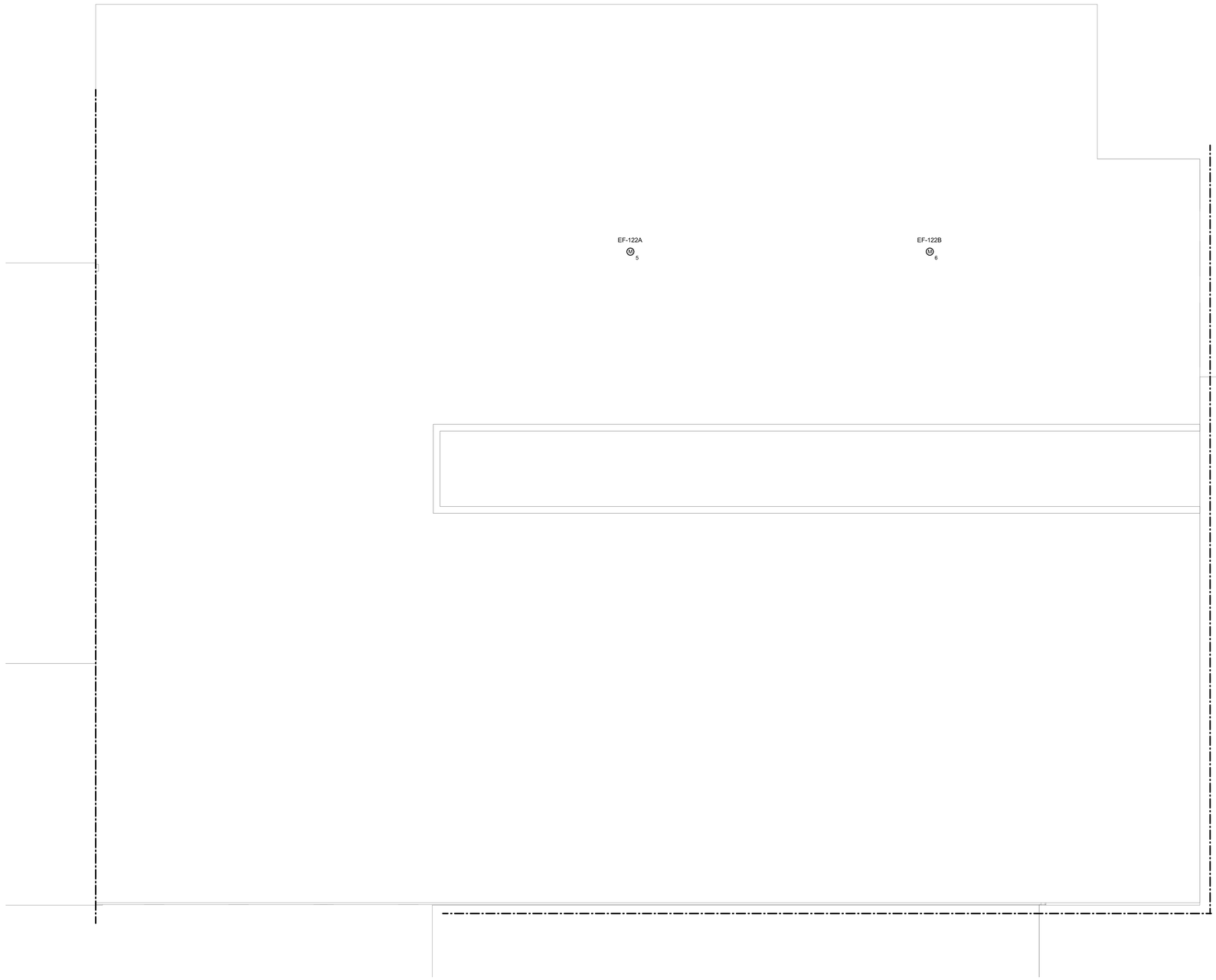
Title
PARTIAL FIRST FLOOR PLAN - AREA C - POWER & SYSTEMS

Project Number
23539

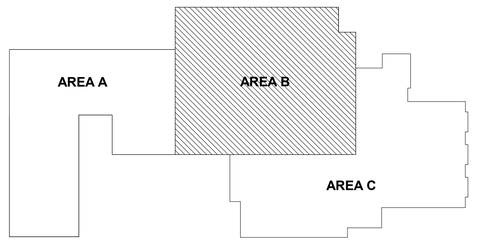
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Date
08/05/2024

Sheet
E-102



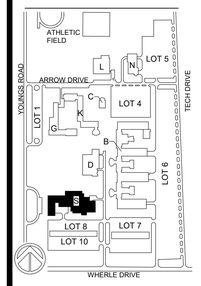
1 ROOF - Pow & Sys - AREA B - PH2
1/8" = 1'-0"



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ISSUE FOR BID

Revisions

No.	Date	Description

Title
PARTIAL ROOF PLAN - AREA B - ELECTRICAL

Project Number
23539

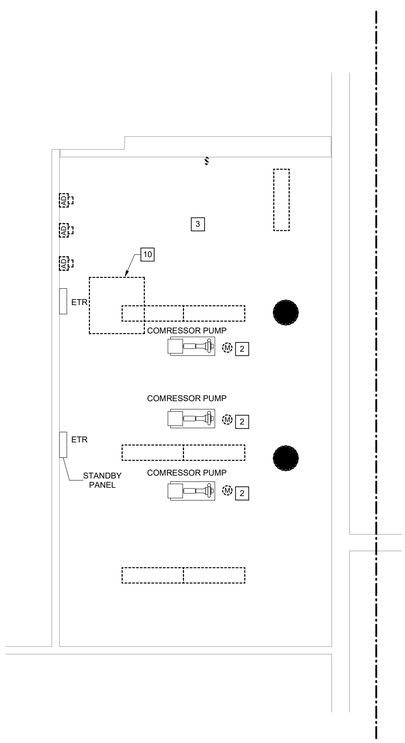
Drawn By
EEH

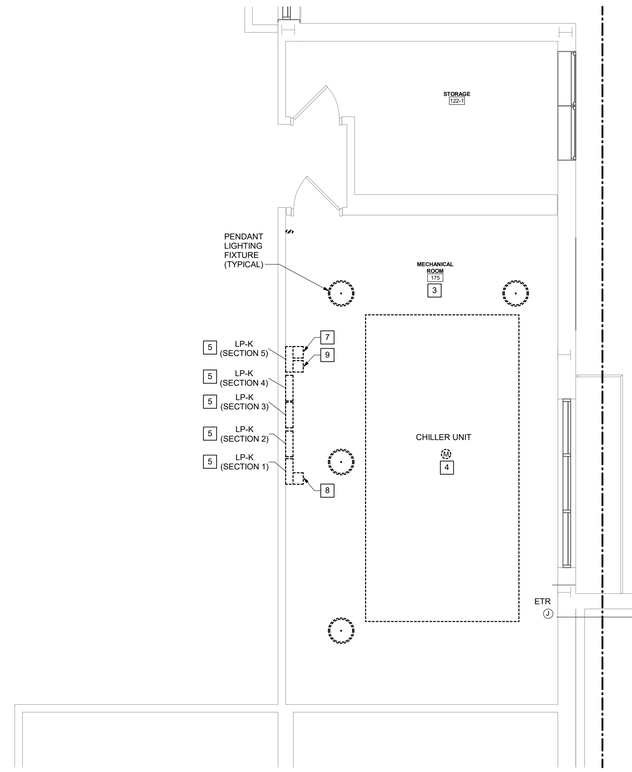
Date
08/05/2024

Sheet
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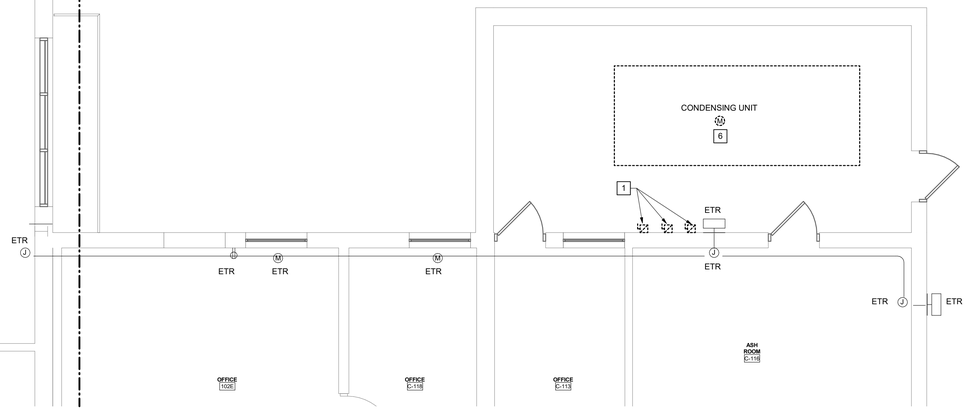
REMOVAL NOTES:

1. DISCONNECT AND REMOVE DISCONNECT SWITCHES FOR COOLING FANS IN CHILLER UNIT IN ENCLOSURE.
2. DISCONNECT AND REMOVE COMPRESSOR PUMP, CIRCUITS, AND ASSOCIATED DEVICES IN THEIR ENTIRETY.
3. DISCONNECT AND REMOVE LIGHTING FIXTURES IN THIS AREA. MAINTAIN LIGHTING BRANCH CIRCUIT FOR RECONNECTION TO NEW FIXTURES.
4. CHILLER UNIT IN ENCLOSURE AND CONDENSING UNIT IN MECHANICAL ROOM 175 FED FROM MDP IN TRANSFORMER ROOM S113. DISCONNECT UNITS AND ASSOCIATED DEVICES. MAINTAIN CIRCUIT AND FEEDERS FOR RECONNECTION.
5. DISCONNECT AND REMOVE PANELBOARD INTERIOR AND ENCLOSURE. TAG AND LABEL EXISTING BRANCH CIRCUITS FOR RECONNECTION TO NEW REPLACEMENT PANELBOARD. REFER TO ONE-LINE DIAGRAM FOR FEEDER REQUIREMENTS.
6. DISCONNECT AND REMOVE CONDENSING UNIT AND ASSOCIATED DEVICES. MAINTAIN BRANCH CIRCUIT AND FEEDERS FOR RECONNECTION TO NEW UNIT.
7. DISCONNECT AND REMOVE DISHWASHER LOAD CENTER AND ASSOCIATED 30A/3P BRANCH CIRCUITING.
8. DISCONNECT AND REMOVE LOAD CENTER AND ASSOCIATED 30A/1P BRANCH CIRCUITING. FOLLOW CIRCUIT TO END POINT AND NOTE DEVICE BEING POWERED FOR RECONNECTION TO NEW PANELBOARD.
9. DISCONNECT AND REMOVE DBL CONVECTION OVEN LOAD CENTER AND ASSOCIATED 70A/3P BRANCH CIRCUITING.
10. CUT AND REMOVE 6-FOOT SECTION OF EMT CONDUITS WITH BRANCH CIRCUITING TO ALLOW FOR BEAM INSTALLATION. COORDINATE WITH GC. PROVIDE JUNCTION BOXES AND NEW RACEWAYS AFTER NEW BEAM INSTALLATION. FOR BIDDING PURPOSES ASSUME (5) 1-1/4" EMT CONDUITS EACH WITH (8) #10AWG THHN CONDUCTORS AND (3) 2" EMT CONDUITS.

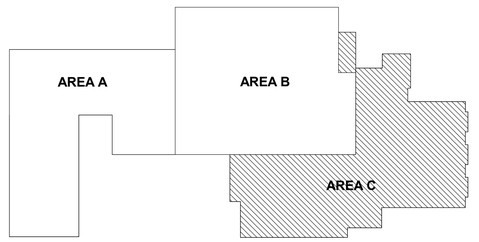




1 PARTIAL BASEMENT DEMOLITION PLAN - ELECTRICAL
1/4" = 1'-0"



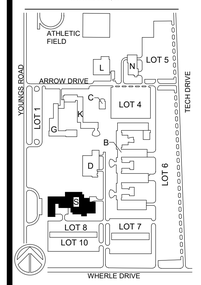
2 PARTIAL FIRST FLOOR DEMOLITOIN PLAN
1/4" = 1'-0"



KEY PLAN

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS
Building Name: STUDENT CENTER
Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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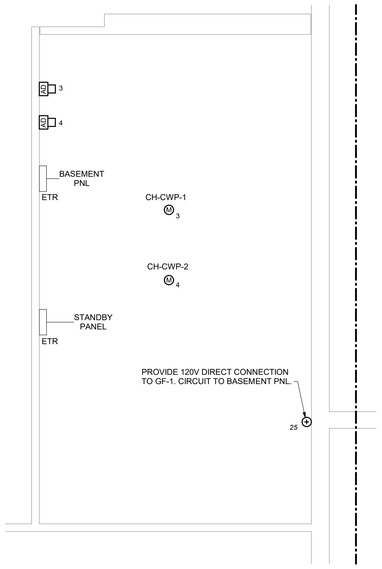
ISSUE FOR BID

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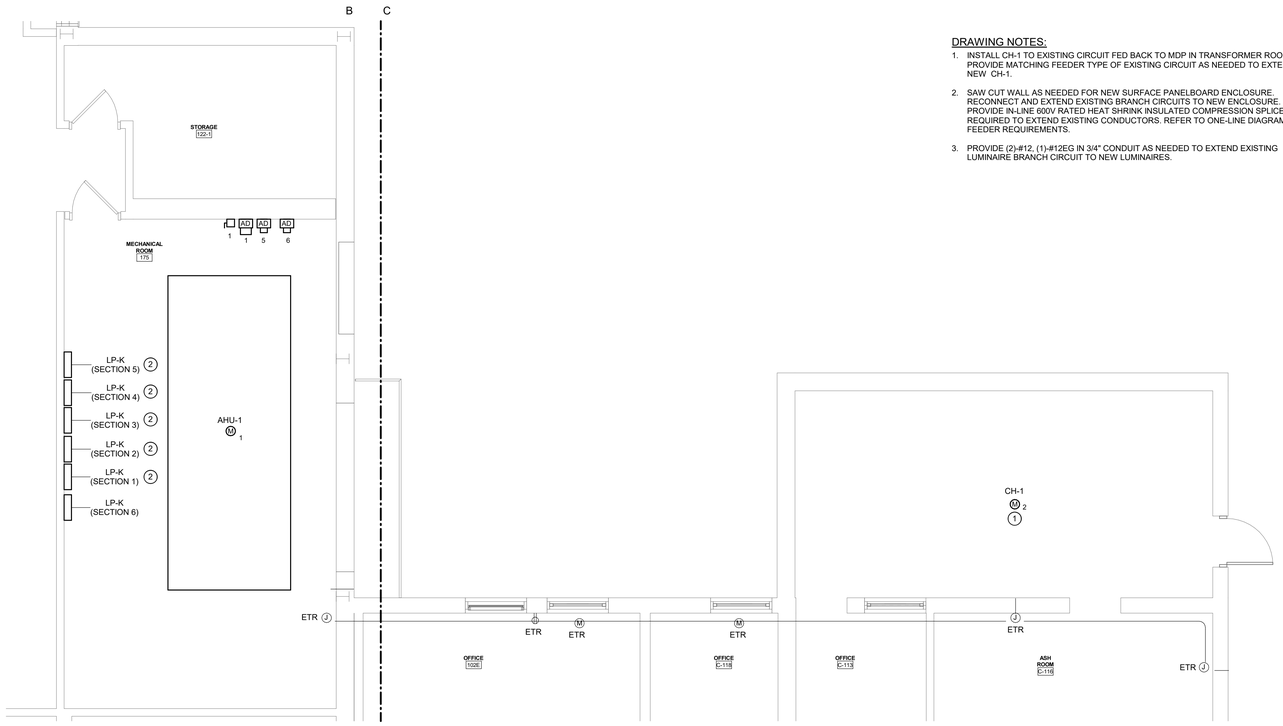
No.	Date	Description

Title: ENLARGED DEMOLITION PLAN - BASEMENT AND MECHANICAL- ELECTRICAL

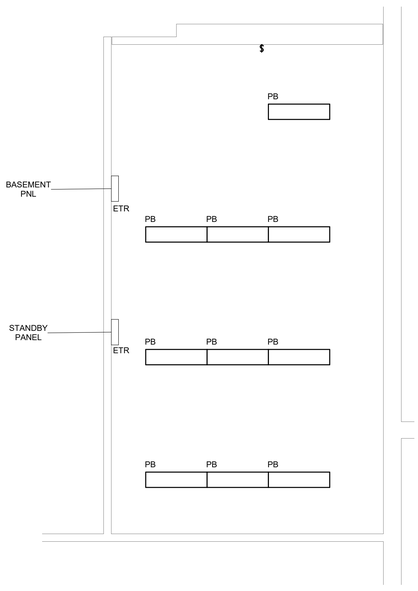
Project Number: 23539
Drawn By: EEH
Date: 08/05/2024
Sheet: E-400



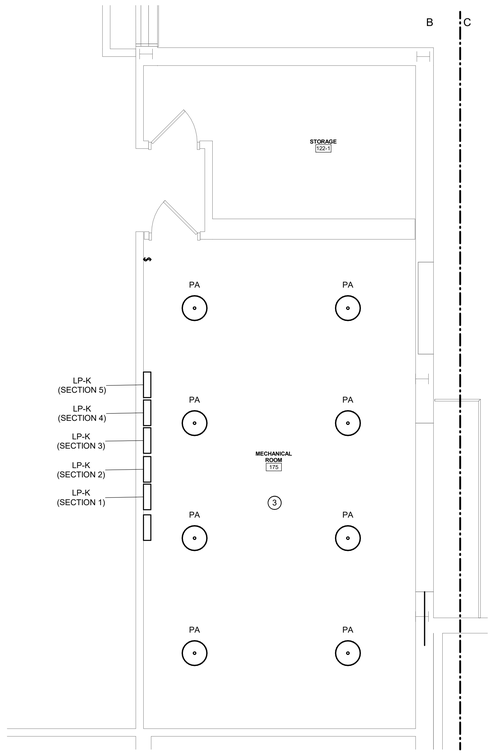
1 BASEMENT - POWER & SYSTEMS
1/4" = 1'-0"



2 FIRST FLOOR PLAN - POWER & SYSTEMS
1/4" = 1'-0"



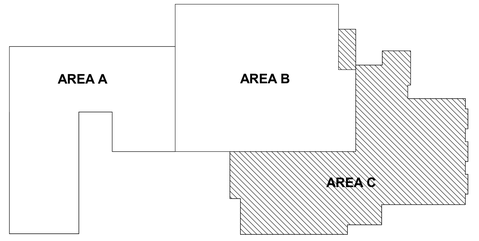
3 BASEMENT - LIGHTING
1/4" = 1'-0"



4 FIRST FLOOR PLAN - LIGHTING
1/4" = 1'-0"

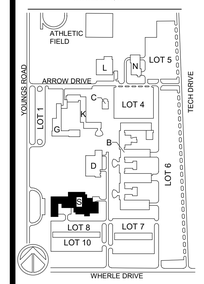
DRAWING NOTES:

1. INSTALL CH-1 TO EXISTING CIRCUIT FED BACK TO MDP IN TRANSFORMER ROOM S113. PROVIDE MATCHING FEEDER TYPE OF EXISTING CIRCUIT AS NEEDED TO EXTEND TO NEW CH-1.
2. SAW CUT WALL AS NEEDED FOR NEW SURFACE PANELBOARD ENCLOSURE. RECONNECT AND EXTEND EXISTING BRANCH CIRCUITS TO NEW ENCLOSURE. PROVIDE IN-LINE 600V RATED HEAT SHRINK INSULATED COMPRESSION SPLICES AS REQUIRED TO EXTEND EXISTING CONDUCTORS. REFER TO ONE-LINE DIAGRAM FOR FEEDER REQUIREMENTS.
3. PROVIDE (2)-#12, (1)-#12EG IN 3/4" CONDUIT AS NEEDED TO EXTEND EXISTING LUMINAIRE BRANCH CIRCUIT TO NEW LUMINAIRES.



KEY PLAN

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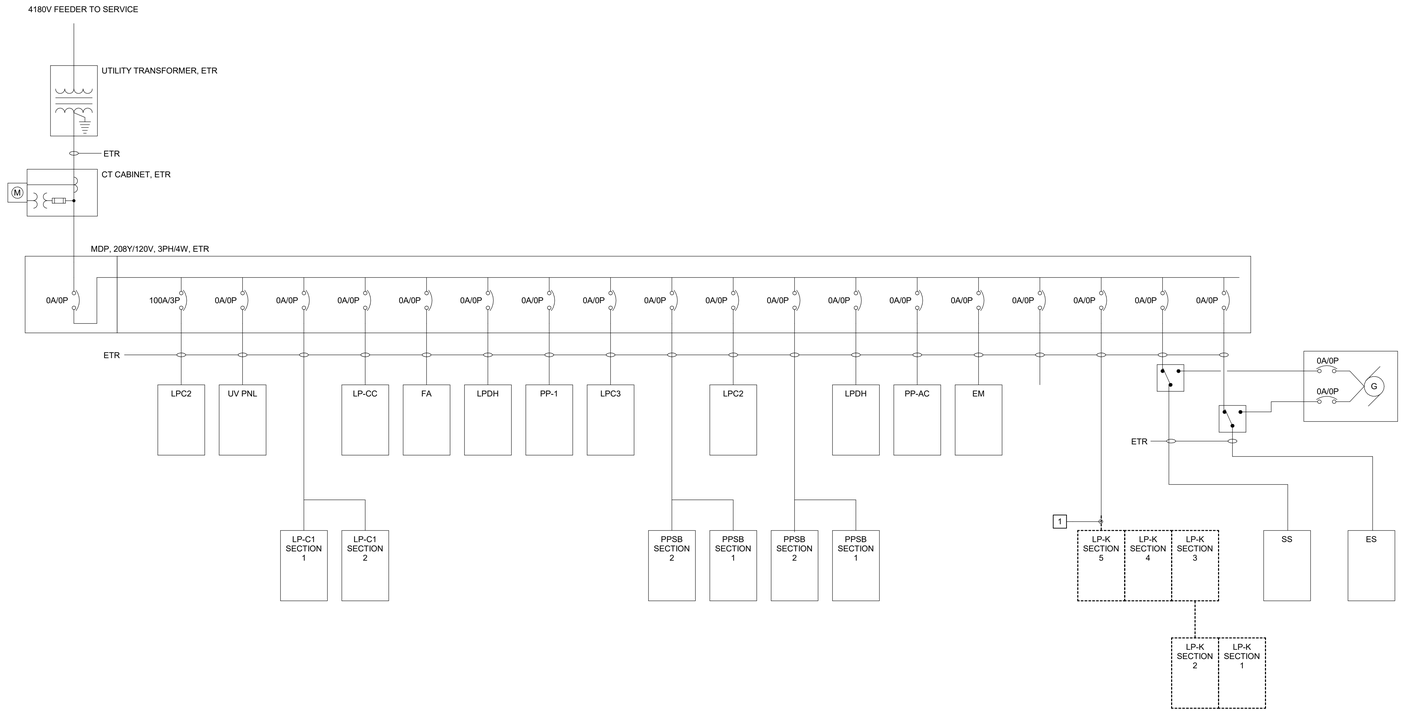
Title
ENLARGED PLANS - BASEMENT & MECHANICAL ROOM - ELECTRICAL

Project Number
23539

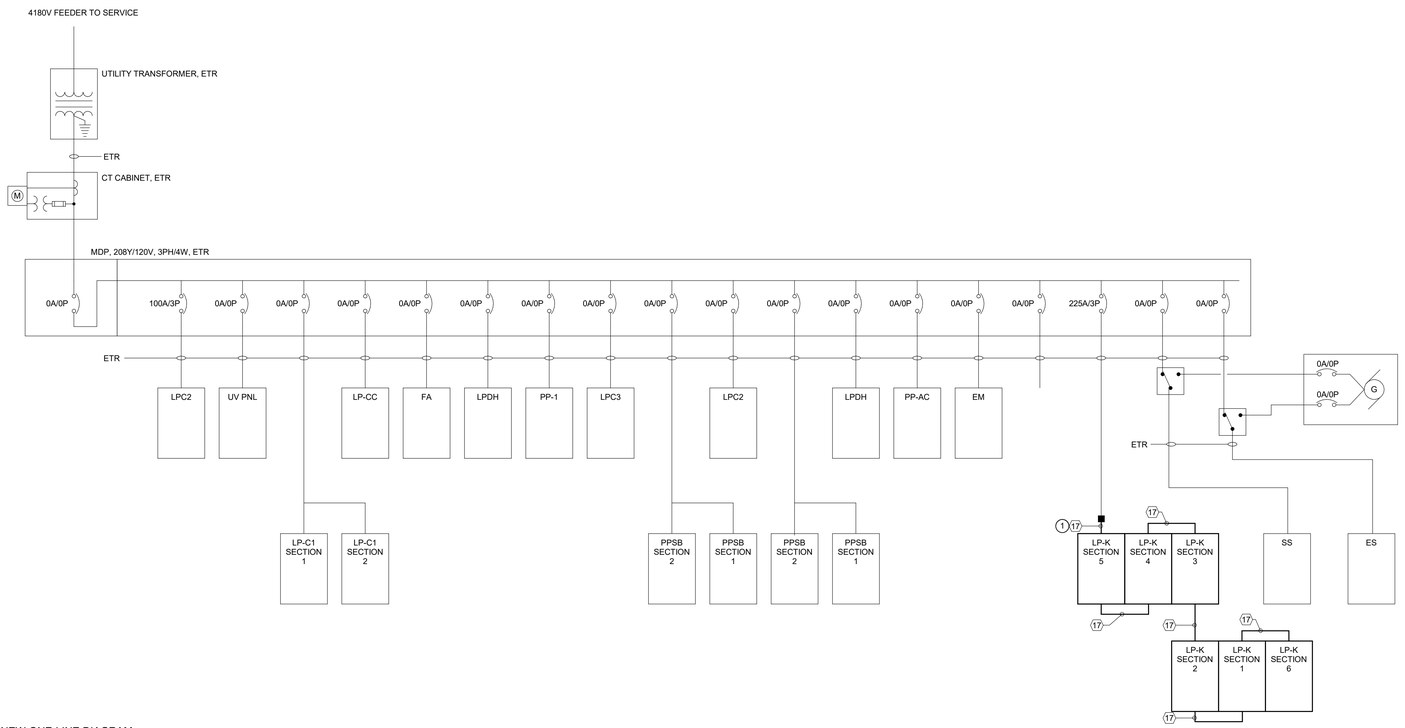
Drawn By
EEH

Date
08/05/2024

Sheet
E-401



1 EXISTING ONE-LINE DIAGRAM
NTS



2 NEW ONE-LINE DIAGRAM
NTS

REMOVAL NOTES:

1. DISCONNECT FEEDER AT PANELBOARD. PROVIDE PULLBOX AND LUGS AS REQUIRED TO EXTEND FEEDER TO NEW PANEL.

DRAWING NOTES:

1. PROVIDE NOTED FEEDER AS NEEDED TO EXTEND EXISTING FEEDER TO NEW PANELBOARD.

FEEDER SCHEDULE

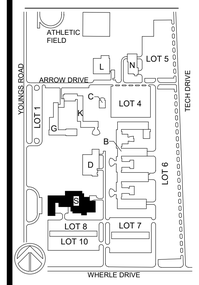
DESIGNATION	OCPD	PHASE	NEUTRAL	GROUND	CONDUIT	NOTES
1	20A/3P	(3)-#12	(1)-#12	(1)-#12	1/2"	
2	30A/3P	(3)-#10	(1)-#10	(1)-#10	3/4"	
3	40A/3P	(3)-#8	(1)-#8	(1)-#10	3/4"	
4	50A/3P	(3)-#6	(1)-#6	(1)-#10	1"	
5	60A/3P	(3)-#6	(1)-#6	(1)-#10	1"	
6	70A/3P	(3)-#4	(1)-#4	(1)-#8	1 1/4"	
7	80A/3P	(3)-#2	(1)-#2	(1)-#8	1 1/2"	
8	90A/3P	(3)-#2	(1)-#2	(1)-#8	1 1/2"	
9	100A/3P	(3)-#2	(1)-#2	(1)-#8	1 1/2"	
10	125A/3P	(3)-#1	(1)-#1	(1)-#6	1 1/2"	
11	150A/3P	(3)-#1/0	(1)-#1/0	(1)-#6	1 1/2"	
12	175A/3P	(3)-#2/0	(1)-#2/0	(1)-#6	2"	
13	200A/3P	(3)-#3/0	(1)-#3/0	(1)-#4	2"	
14	225A/3P	(3)-#4/0	(1)-#4/0	(1)-#2	2 1/2"	
15	250A/3P	(3)-#250 KCM	(1)-#250 KCM	(1)-#2	2 1/2"	
16	300A/3P	(3)-#350 KCM	(1)-#350 KCM	(1)-#2	3"	
17	400A/3P	(3)-#500 KCM	(1)-#500 KCM	(1)-#1/0	4"	
18	600A/3P	(2) SETS, (3)-#350 KCM	(2)-#350 KCM	(2)-#1/0	(2) 3"	
19	800A/3P	(2) SETS, (3)-#500 KCM	(2)-#500 KCM	(2)-#1/0	(2) 4"	
20	1000A/3P	(3) SETS, (3)-#500 KCM	(3)-#500 KCM	(3)-#2/0	(3) 4"	
21	1200A/3P	(4) SETS, (3)-#500 KCM	(4)-#500 KCM	(4)-#3/0	(4) 4"	
22	1600A/3P	(5) SETS, (3)-#500 KCM	(5)-#500 KCM	(5)-#4/0	(5) 4"	
23	2000A/3P	(6) SETS, (3)-#500 KCM	(6)-#500 KCM	(6)-#250 KCM	(6) 4"	
24	3000A/3P	(8) SETS, (3)-#500 KCM	(8)-#500 KCM	(8)-#350 KCM	(8) 4"	
25	4000A/3P	(11) SETS, (3)-#500 KCM	(11)-#500 KCM	(11)-#500 KCM	(11) 4"	

FEEDER NOTES:

A. NEUTRAL NOT REQUIRED FOR ALL DELTA TRANSFORMER CONNECTIONS.

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ECDPW PROJECT NO. 2024-956-01

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No.	Date	Description

Title: ONE-LINE DIAGRAMS

Project Number: 23539

Drawn By: EEH

Date: 08/05/2024

Sheet: E-500

ELECTRIC EQUIPMENT AND CONTROL SCHEDULE - PHASE 2															
ITEM NO.	NAME	LOCATION	HP	PHASE	VOLTAGE	PANEL	CIRCUIT BREAKER	WIRING FROM PANEL TO CONTROL UNIT	WIRING FROM CONTROL UNIT TO EQUIPMENT	FUSE SIZE	DISCONNECT SWITCH	MOTOR STARTER/CONTROLLER NOTES	CONTROLLER LOCATION	NEMA RATING	NOTES
1	AHU-1	MECHANICAL 175	40	3	208 V	BASEMENT PNL	150 A	(3)-#4, (1)-#8EG, IN 1-1/4" CONDUIT	(3)-#4, (1)-#8EG, IN 1-1/4" CONDUIT	200A	NF	6	AU	1	
2	CH-1	ENCLOSURE	---	3	208 V	MDP	400 A	(3)-#12, (1)-#12EG, IN 3/4" CONDUIT	(3)-#12, (1)-#12EG, IN 3/4" CONDUIT	400A	NF	PKGD VFD BY MC	AU	3R	
3	CH-CWP-1	BASEMENT	7 1/2	3	208 V	BASEMENT PNL	30 A	(3)-#12, (1)-#12EG, IN 3/4" CONDUIT	(3)-#12, (1)-#12EG, IN 3/4" CONDUIT	-	-	6	AU	1	
4	CH-CWP-2	BASEMENT	7 1/2	3	208 V	BASEMENT PNL	30 A	(3)-#12, (1)-#12EG, IN 3/4" CONDUIT	(3)-#12, (1)-#12EG, IN 3/4" CONDUIT	-	-	6	AU	1	
5	EF-122A	ROOF	3	2	208 V	LP-K (SECTION 6)	20 A	(2)-#12, (1)-#12EG IN 3/4" CONDUIT	(2)-#12, (1)-#12EG IN 3/4" CONDUIT	-	-	6	MECH. 175	3R	
6	EF-122B	ROOF	3	2	208 V	LP-K (SECTION 6)	20 A	(2)-#12, (1)-#12EG IN 3/4" CONDUIT	(2)-#12, (1)-#12EG IN 3/4" CONDUIT	-	-	6	MECH. 175	3R	

MOTOR STARTER/CONTROLLER NOTES:

1. MOTOR RATED SWITCH
2. MANUAL MOTOR STARTER
3. MANUAL MOTOR STARTER WITH RELAY
4. MAGNETIC STARTER
5. COMBINATION MAGNETIC STARTER
6. VARIABLE FREQUENCY DRIVE
7. COMBINATION TWO SPEED MAGNETIC STARTER
8. COMBINATION REDUCED VOLTAGE MAGNETIC STARTER
9. DUPLEX CONTROLLER WITH ALTERNATION CIRCUIT
10. PACKAGED CONTROL UNIT
11. H-O-A SELECTOR SWITCH IN COVER
12. PILOT LIGHT IN COVER
13. REMOTE START-STOP PUSHBUTTONS
14. FIRE ALARM FAN SHUTDOWN
15. LINE-VOLTAGE THERMOSTAT

GENERAL NOTES:

A. ALL DEVICES PROVIDE BY THE DIVISION 26 CONTRACTOR.
B. ITEM NUMBER INDICATES EQUIPMENT NUMBER.
C. ALL CONTROL DEVICES ARE TO BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
D. PROVIDE OVERLOADS. SIZE AS REQUIRED BY DIVISION 25 CONTRACTOR.
E. "AU" INDICATES CONTROL DEVICE IS LOCATED AT UNIT.
F. "NF" INDICATES NON-FUSED.

NOTES:

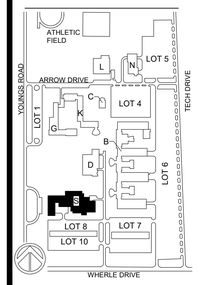
1. N/A

LUMINAIRE SCHEDULE - Cafe Project						
TYPE	DESCRIPTION	DRIVER	LOAD/DELIVERED LUMENS/CCT	VOLTAGE	DESIGN MAKE	ACCEPTABLE MANUFACTURER
PA	19" DIAMETER ROUND LUMINAIRE, PRECISION MOLDED ACRYLIC LENS, NATURAL ALUMINUM FINISH, MEDIUM DISTRIBUTION, DAMP LOCATION LISTED, MOTION/AMBIENT SENSOR, AIRCRAFT CABLE WITH WHITE 6' CORD (ADJUST TO 6" MOUNT LENGTH)	DIMMABLE LED DRIVER, 10% - 100%, 0-10V	3500K, 4537 LUMENS, 34W	MVOLT	LITHONIA LIGHTING VCVL LED SERIES	LITHONIA LIGHTING, APPROVED EQUAL
PB	4' SEALED INDUSTRIAL LED, WET LOCATION LISTED, NON-CORROSIVE LUMINAIRE, ACRYLIC LENS, WHITE FINISH. WITH 6' LONG WHITE CORD KIT AND 6' LONG ADJUSTABLE AIR CRAFT CABLE HANGERS OR OTHER APPROVED SUSPENSION METHOD.	INTEGRAL DRIVER WITH 0-10V DIMMING STANDARD.	3500K, 3500LUMENS, 32W	UNV 120-277V	DAY-BRITE CFI VAPORLUME LED DW SERIES	APPROVED E

ADJUSTABLE-SPEED DRIVE SCHEDULE										
ITEM NO.	ITEM NAME	LOCATION	MOTOR HP	VOLTAGE	PHASE	DRIVE TYPE	BYPASS	UL ENCLOSURE RATING	DESIGN MAKE	REMARKS
1	AHU-1	STORAGE 122	20	208 V	3	STANDARD 6-PULSE	YES	NEMA 1	ABB ACH580	
3	CH-CWP-1	BASEMENT	7-1/2	208 V	3	STANDARD 6-PULSE	NO	NEMA 1	ABB ACH580	
4	CH-CWP-2	BASEMENT	7-1/2	208 V	3	STANDARD 6-PULSE	NO	NEMA 1	ABB ACH580	
5	EF-122A	STORAGE 122	3	208 V	3	STANDARD 6-PULSE	YES	NEMA 1	ABB ACH580	
6	EF-122B	STORAGE 122	3	208 V	3	STANDARD 6-PULSE	YES	NEMA 1	ABB ACH580	

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No.	Date	Description

Title
SCHEDULES

Project Number
23539

Drawn By
EEH

Date
08/05/2024

Sheet
E-600

Branch Panelboard: BASEMENT PNL

Location: Space 359 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10K
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD NQ | **Lug Accessory:** Feed-Thru Lugs

Notes:
1. THIS IS AN EXISTING PANELBOARD.
2. PROVIDE NEW CIRCUIT BREAKERS FOR ITEMS NOTED IN BOLD/ITALIC TEXT.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				2.9	2.9								2
3	***CH-CWP-1***	***40 A***	***3***			2.9	2.9			***3***	***40 A***	***CH-CWP-2***	4
5								2.9	2.9				6
7				0.0	0.0								8
9	***SPARE***	20 A	3			0.0	0.0			3	20 A	***SPARE***	10
11								0.0	0.0				12
13				0.0	0.0								14
15	***SPARE***	100 A	3			0.0	0.0			3	100 A	***SPARE***	16
17								0.0	0.0				18
19				13.7	0.0								20
21	***AHU-1***	***150 A***	***3***			13.7	0.0			3	100 A	***Spare***	22
23								13.7	0.0				24
25	***GF-1***	***20 A***	***1***	0.2									26
27													28
29													30
		Total Load:		19.7 kVA		19.5 kVA		19.5 kVA					
		Total Amps:		164 A		163 A		163 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	41070 VA	100.00%	41070 VA		
Receptacle	180 VA	100.00%	180 VA	**Total Conn. Load:**	58.7 kVA
HVAC	17437 VA	100.00%	17437 VA	**Total Est. Demand:**	58.7 kVA
				Total Conn. Current:	163 A
				Total Est. Demand Current:	163 A

Branch Panelboard: LP-K (SECTION 3)

Location: Space 3 | **Volts:** 120/208 Wye | **A.I.C. Rating:**
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 225 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD I-LINE | **Lug Accessory:** Feed-Thru Lugs

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	KIT SW WALL PLUGS	20 A	1	0.0	0.0					1	20 A	CUP LOWERATOR	2
3	KIT SW WALL PLUGS	20 A	1			0.0	0.0			1	20 A	REFRIG	4
5	LOWERATOR	20 A	1					0.0	0.0	1	20 A	RCPT - RESTROOM FLOOR PLUG	6
7	ERIE ROOM (REF UNIT)	20 A	1	0.0	0.0					1	20 A	LOWERATOR	8
9	ROLL AMATIS	20 A	1			0.0	0.0			1	20 A	ICE CREAM FREEZER SNACK BAR	10
11	RCPT - NEAR RESTROOM	20 A	1					0.0	0.0	1	20 A	LOWERATOR FAN SNACK BAR	12
13	RCPT - RESTROOM (ERIE ROOM)	20 A	1	0.0	0.0					1	20 A	PLUGS - OFFICE	14
15	RCPT - RESTROOM (ICE CREAM/COFFEE)	20 A	1			0.0	0.0			1	20 A	PLUGS - OFFICE	16
17	RCPT - FLOOR PLUG RESTROOM	20 A	1					0.0	0.0	1	20 A	PLUGS - OFFICE	18
19	BOOSTER HEATER CONTROL	20 A	1	0.0	0.0					1	20 A	RCPT - WEST WALL	20
21	DISH ROOM PLUGS - WEST	20 A	1			0.0	0.0			1	20 A	RCPT - WEST WALL	22
23	COUNTER LIGHTS	20 A	1					0.0	0.0	1	20 A	LGTS - WALKIN	24
25	Spare	20 A	1	0.0	0.0					1	20 A	RCPT - DRY STORES, SAFE LIGHT, TECH...	26
27	PLUG NEAR ITEM 125	20 A	1			0.0	0.0			1	20 A	DOOR HEATER	28
29	SPARE	20 A	1					0.0	0.0	1	20 A	RCPT - ISLAND NEAR WALKIN	30
31	FOOD WARMER PLUG DISH ROOM	20 A	1	0.0	0.0								32
33	FOOD WARMER PLUG DISH ROOM	20 A	1			0.0	0.0			3	20 A	ICE CREAM STAND OUTLETS	34
35	FOOD WARMER PLUG DISH ROOM	20 A	1					0.0	0.0				36
37				0.0	0.0								38
39	LGTS - ICE CREAM STAND	20 A	3			0.0	0.0			3	20 A	LGTS - STOREROOM ICE CREAM	40
41								0.0	0.0				42
		Total Load:		0.0 kVA		0.0 kVA		0.0 kVA					
		Total Amps:		0 A		0 A		0 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0.0 kVA
				Total Est. Demand:	0.0 kVA
				Total Conn. Current:	0 A
				Total Est. Demand Current:	0 A

Branch Panelboard: LP-K (SECTION 6)

Location: Space 3 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10K
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD NQ | **Lug Accessory:** Feed-Thru Lugs

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	EF-122A	20 A	2	1.9	1.9					2	20 A	EF-122B	2
3						1.9	1.9						4
5								0.0	0.0				6
7	DISHWASHER	30 A	3	0.0	0.0					3	70 A	DBL CONVECTION OVENS	8
9						0.0	0.0						10
11	CIRCUIT TO EXISTING LOAD CENTER...	30 A	1					0.0	0.0	1	20 A	SPARE	12
13	SPARE	20 A	1	0.0	0.0					1	20 A	SPARE	14
15	SPARE	20 A	1			0.0	0.0			1	20 A	SPARE	16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42
		Total Load:		3.9 kVA		3.9 kVA		0.0 kVA					
		Total Amps:		37 A		37 A		0 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	7779 VA	100.00%	7779 VA		
				Total Conn. Load:	7.8 kVA
				Total Est. Demand:	7.8 kVA
				Total Conn. Current:	22 A
				Total Est. Demand Current:	22 A

Branch Panelboard: LP-K (SECTION 1)

Location: Space 3 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10K
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD NQ | **Lug Accessory:** Feed-Thru Lugs

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	LGTS - RESTROOMS	20 A	1	0.0	0.0					1	20 A	LGTS - CAFE	2
3	LGTS - RESTROOMS	20 A	1			0.0	0.0			1	20 A	LGTS - CAFE	4
5	LGTS - RESTROOMS	20 A	1					0.0	0.0	1	20 A	LGTS - CAFE	6
7	LGTS - CAFE	20 A	1	0.0	0.0					1	20 A	LGTS - CAFE	8
9	LGTS - CAFE	20 A	1			0.0	0.0			1	20 A	LGTS - CAFE	10
11	LGTS - CAFE	20 A	1					0.0	0.0	1	20 A	LGTS - CAFE	12
13	LGTS - CAFE	20 A	1	0.0	0.0					1	20 A	ACTIVE LOAD	14
15	ACTIVE LOAD	20 A	1			0.0	0.0			1	20 A	ACTIVE LOAD	16
17	ACTIVE LOAD	20 A	1					0.0	0.0	1	20 A	ACTIVE LOAD	18
19	ACTIVE LOAD	20 A	1	0.0	0.0					1	20 A	LGTS - KITCHEN	20
21	SPOT LIGHTING	20 A	1			0.0	0.0			1	20 A	SPOT LIGHTING	22
23	ACTIVE LOAD	20 A	1					0.0	0.0	1	20 A	LGTS - BEVERAGE	24
25	LGTS - SERVING COUNTER	20 A	1	0.0	0.0					1	20 A	LGTS - KITCHEN	26
27	LGTS - SERVING COUNTER	20 A	1			0.0	0.0			1	20 A	LGTS - KITCHEN	28
29	LGTS - KITCHEN	20 A	1					0.0	0.0	1	20 A	LGTS - KITCHEN	30
31	LGTS - KITCHEN	20 A	1	0.0	0.0					1	20 A	LGTS - KITCHEN	32
33	LGTS - KITCHEN	20 A	1			0.0	0.0			1	20 A	LGTS - KITCHEN	34
35	LGTS - KITCHEN	20 A	1					0.0	0.0	1	20 A	LGTS - KITCHEN	36
37	ACTIVE LOAD	20 A	1	0.0	0.0					1	20 A	LGTS - OFFICE	38
39	ACTIVE LOAD	20 A	1			0.0	0.0			1	50 A	ACTIVE LOAD	40
41	ACTIVE LOAD	50 A	1					0.0	0.0	1	20 A	ACTIVE LOAD	42
		Total Load:		0.0 kVA		0.0 kVA		0.0 kVA					
		Total Amps:		0 A		0 A		0 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0.0 kVA
				Total Est. Demand:	0.0 kVA
				Total Conn. Current:	0 A
				Total Est. Demand Current:	0 A

Branch Panelboard: LP-K (SECTION 4)

Location: Space 3 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10K
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD I-LINE | **Lug Accessory:** Feed-Thru Lugs

Notes:
1. Panelboard maximum dimensions and design make: I-Line Panelboard, HCJ, 400A, main lugs, 99in CB space, for 32in W x 91in H x 9.5in D box.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				0.0	0.0								2
3	WATER - EAST & WEST	20 A	2			0.0	0.0			2	20 A	PLUGS ON TABLE	4
5								0.0	0.0				6
7	ACTIVE LOAD	20 A	2	0.0	0.0					2	20 A	PLUGS ON TABLE	8
9						0.0	0.0						10
11	NEW REF 1996	20 A	2					0.0	0.0	2	20 A	PLUGS ON TABLE - TOASTER	12
13				0.0	0.0								14
15	NEW 220V	30 A	2			0.0	0.0			2	30 A	PLUGS ON TABLE	16
17								0.0	0.0				18
19	ALTO-SHAAM	30 A	2	0.0	0.0					2	30 A	COFFEE MAKER (LEFT)	20
21						0.0	--			1	--	SPACE	22
23	ACTIVE LOAD	30 A	2					0.0	0.0	1	20 A	FREEZER FANS	24
25				0.0	0.0								26
27	ACTIVE LOAD	20 A	3			0.0	0.0			3	20 A	PLUG ON ISLAND NEAR WALK-INS	28
29								0.0	0.0				30
31				0.0	0.0								32
33	GARKEL NEAR WALK-IN	20 A	3			0.0	0.0			3	20 A	ICE MACHINE IN HALLWAY	34
35								0.0	0.0				36
37				0.0	0.0								38
39	MELTMASTER PLUG (NEAR GRIDDLE)	20 A	3			0.0	0.0			3	20 A	DISH DISPOSAL	40
41								0.0	0.0				42
43				0.0	0.0								44
45	ACTIVE LOAD	40 A	3			0.0	0.0			3	20 A	ACTIVE LOAD	46
47								0.0	0.0				48
49				0.0	0.0								50
51	ACTIVE LOAD	40 A	3			0.0	0.0			3	20 A	ICE CREAM MACHINE	52
53								0.0	0.0				54
55				0.0	0.0								56
57	FRYER - EAST	40 A	3			0.0	0.0			3	40 A	FREEZER #6 CONDENSING UNIT	58
59								0.0	0.0				60
61				0.0	0.0								62
63	COOLER ASC BOX	70 A	3			0.0	0.0			3	70 A	FRYERS CAFETERIA (RIGHT)	64
65								0.0	0.0				66
		Total Load:		0.0 kVA		0.0 kVA		0.0 kVA					
		Total Amps:		0 A		0 A		0 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0.0 kVA
				Total Est. Demand:	0.0 kVA
				Total Conn. Current:	0 A
				Total Est. Demand Current:	0 A

Branch Panelboard: LP-K (SECTION 2)

Location: Space 3 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10K
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD NQ | **Lug Accessory:** Feed-Thru Lugs

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	RESTAURANT TRACK LIGHTS	20 A	1	0.0	0.0					1	20 A	RCPT - NEAR SINK	2
3	RCPT - NEAR DISHWASHING ROOM	20 A	1			0.0	0.0			1	20 A	RCPT - ON ISLAND	4
5	RESTAURANT TRACK LIGHTS	20 A	1					0.0	0.0	1	20 A	RCPT - NEAR GARBEL WALKIN	6
7	LGTS - DISHWASHING ROOM	20 A	1	0.0	0.0					1	20 A	RCPT - NEAR WALKIN	8
9	ERIE ROOM COUNTER LIGHTS	20 A	1			0.0	0.0			1	20 A	LGTS - EMPLOYEE	10
11	RCPT - CENTER FLOOR, SERVING ISLAND	20 A	1					0.0	0.0	1	20 A	BAKER AND FANS	12
13	SPARE	20 A	1	0.0	0.0					1	20 A	ACTIVE LOAD	14
15	RCPT - EAST WALL COOLER ICE CREAM	20 A	1			0.0	0.0			1	20 A	RCPT - BAKERS TABLE	16
17	RCPT - CASH REGISTER	20 A	1					0.0	0.0	1	20 A	RCPT - MIXER BAKERS	18
19	RCPT - CLOCK CONTROL & NORTH WALL	20 A	1	0.0	0.0					1	20 A	RCPT - PASTRY TABLE	20
21	CUP WARMER	20 A	1			0.0	0.0			1	20 A	VICTORY - 3 DOOR	22
23	RCPT - SALAD UNIT	20 A	1					0.0	0.0	1	20 A	TRUE REFRIG	24
25	FOOD WARMER	20 A	1	0.0	0.0					1	20 A	UNDER CABINET SALAD UNIT	26
27	FOOD WARMER	20 A	1			0.0	0.0			1	20 A	LOWERATOR IN CABINET	28
29	COFFE EAST	20 A	1					0.0	0.0	1	20 A	RCPT - WATER (WEST)	30
31	LOWERATOR PLUG NEAR ICE MACHINE	20 A	1	0.0	0.0					1	20 A	LGTS - HOOD	32
33	LOWERATOR	20 A	1			0.0	0.0			1	20 A	LGTS - COUNTER	34
35	LGTS - MACHINE ROOM	20 A	1					0.0	0.0	1	20 A	HEAT LAMPS	36
37	RCPT - LOWERATOR	20 A	1	0.0	0.0					1	20 A	RCPT - NEAR WAFFLE IRON	38
39	ACTIVE LOAD	20 A	1			0.0	0.0			1	20 A	WAFFLE IRON	40
41	ACTIVE LOAD	20 A	1					0.0	0.0	1	20 A	ACTIVE LOAD	42
		Total Load:		0.0 kVA		0.0 kVA		0.0 kVA					
		Total Amps:		0 A		0 A		0 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0.0 kVA
				Total Est. Demand:	0.0 kVA
				Total Conn. Current:	0 A
				Total Est. Demand Current:	0 A

Branch Panelboard: LP-K (SECTION 5)

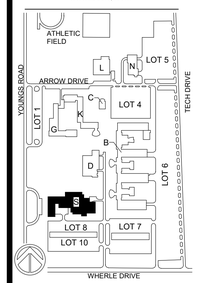
Location: Space 3 | **Volts:** 120/208 Wye | **A.I.C. Rating:** 10K
Supply From: | **Phases:** 3 | **Mains Type:** MLO
Mounting: Surface | **Wires:** 4 | **Mains Rating:** 400 A
Enclosure: NEMA 1, Hinged Cover | **MCB Rating:**
Design Make: SQD I-LINE | **Lug Accessory:** Feed-Thru Lugs

Notes:
1. Panelboard maximum dimensions and design make: I-Line Panelboard, HCJ, 400A, main lugs, 99in CB space, for 32in W x 91in H x 9.5in D box.

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				0.0	0.0								2
3	BOOSTER COFFEE HEATER	20 A	3			0.0	0.0			3	20 A	DISHWASHER WEST	4
5								0.0	0.0				6
7				0.0	0.0								8
9	ICE MACHINE	20 A	3			0.0	0.0			3	20 A	SOAP DISHROOM ISLAND	10
11								0.0	0.0				12
13				0.0	0.0								14
15	ACTIVE LOAD	20 A	3			0.0	0.0			3	20 A	DISHWASHER ISLAND INFRONT	16
17								0.0	0.0				18
19				0.0	0.0								20
21	TOASTER PLUG	20 A	3			0.0	0.0			3	20 A	DISHWASHER - CAF. TOASTER PLUG	22
23								0.0	0.0				24
25				0.0	0.0								26
27	TOASTER PLUG	20 A	3			0.0	0.0			3	20 A	BAKER	28
29								0.0	0.0				30
31				0.0	0.0								32
33	ACTIVE LOAD	20 A	3			0.0	0.0			3	20 A	110V OUTLET	34
35								0.0	0.0				36
37				0.0	0.0								38
39	GARBEL NEAR RESTROOM	30 A	3			0.0	0.0			3	20 A	DISH GARBEL	40
41								0.0	0.0				42
43				0.0	0.0								44
45	CHAR BROILER	30 A	3			0.0	0.0			3	30 A	HOT PLATE	46
47								0.0	0.0				48
49				0.0	0.0								50
51	AUTO-SHAAM	40 A	3			0.0	0.0			3	30 A	ICE MACHINE	52
53								0.0	0.0				54
55				0.0	0.0								56
57	ELECTRIC OVER BAKE SHOP	50 A	3			0.0	0.0			3	40 A	RADAR RANGE	58
59								0.0	0.0				60
61				0.0	0.0								62
63	DEEP FRYER - ERIE ROOM	70 A	3			0.0	0.0			3	100 A	ERIE ROOM	64
65								0.0	0.0				66
		Total Load:		0.0 kVA		0.0 kVA		0.0 kVA					
		Total Amps:		0 A		0 A		0 A					

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
				Total Conn. Load:	0.0 kVA
				Total Est. Demand:	0.0 kVA
				Total Conn. Current:	0 A
				Total Est. Demand Current:	0 A

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS
Building Name: STUDENT CENTER
Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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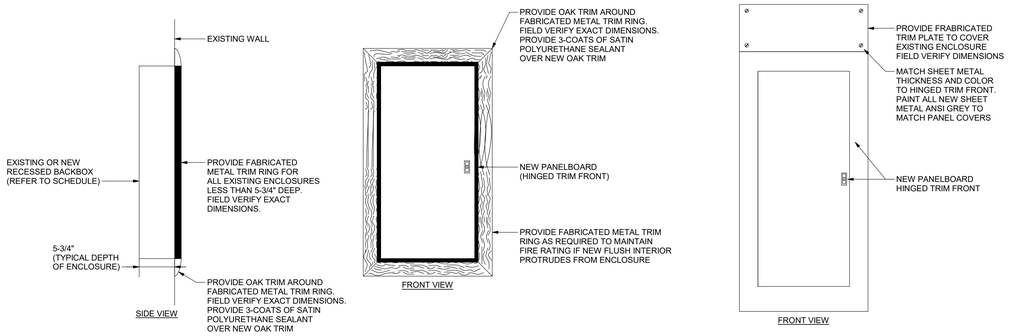
ISSUE FOR BID

Revisions

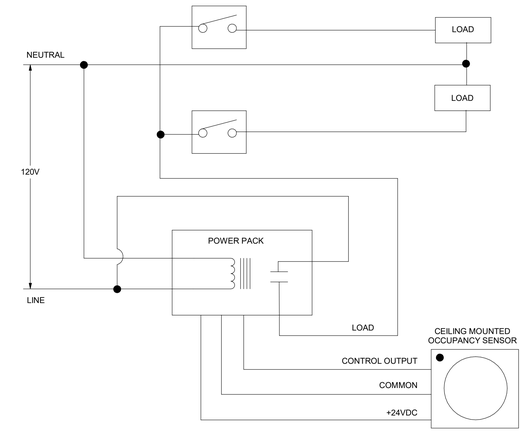
No.	Date	Description

Title: **PANELBOARD SCHEDULES**

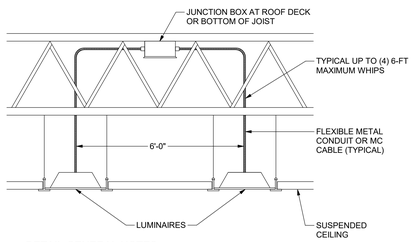
Project Number: 23539
Drawn By: EEH
Date: 08/05/2024
Sheet: **E-601**



1 FABRICATED TRIM PANELBOARD INSTALLATION DETAIL
NTS



2 OCCUPANCY SENSOR WITH DUAL LEVEL LIGHTING DETAIL
NTS



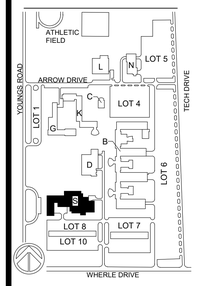
DETAIL GENERAL NOTES:

A. HOMERUN TO PANELBOARD OR BRANCH CIRCUIT TO NEXT JUNCTION BOX OR ROOM SHALL BE IN EMT CONDUIT.

3 TYPICAL LUMINAIRE BRANCH CIRCUITING INSTALLATION DETAIL
NTS

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client
SUNY ERIE COMMUNITY
COLLEGE NORTH CAMPUS

Building Name
STUDENT CENTER

Address
SUNY Erie North Campus
6205 Main Street
Williamsville, NY 14221

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Revisions

No.	Date	Description

Title
DETAILS

Project Number
23539

Drawn By
EEH

Date
08/05/2024

Sheet
E-901

CONTROL/SYMBOLS LEGEND

SYMBOL	DESCRIPTION
BI #	BINARY INPUT (GENERAL)
BO #	BINARY OUTPUT (GENERAL)
AI #	ANALOG INPUT (GENERAL)
AO #	ANALOG OUTPUT (GENERAL)
A	ALARM
S	STATUS
FS	FLOW SWITCH
DP	DIFFERENTIAL PRESSURE
R	RELAY
WFS	WATER FLOW SWITCH
E	ELECTRIC ACTUATOR
E/P	ELECTRIC / PNEUMATIC SWITCH OR RELAY
P/E	PNEUMATIC / ELECTRIC SWITCH OR RELAY
CT	CURRENT TRANSDUCER
O/C	OPEN/CLOSE
E/D	ENABLE/DISABLE
TS	TEMPERATURE SENSOR (DUCT OR PIPE)
HS	HUMIDITY SENSOR (DUCT / AHU MOUNTED)
FT	FLOW TRANSMITTER
P	STATIC PRESSURE TRANSMITTER
EPT	ELECTRIC / PNEUMATIC TRANSDUCER
EET	ELECTRONIC / ELECTRIC TRANSDUCER
FZ	FREEZE - STAT
M	MAIN CONTROL AIR (TEMP. CONTROL)
ES	END SWITCH
FM	FLOW METER (HYDRONIC)
CO2	CARBON DIOXIDE TRANSMITTER
O2	OXYGEN SENSOR
CCM	NETWORK COMMUNICATIONS INTERFACE
MOD	MODULATING
CAP	CAPACITY FEEDBACK
SC	SPEED CONTROL
DL	DEMAND LIMITING
MB	VSD MANUAL BYPASS
	ELECTRICAL INTERFACE
ASD	ADJUSTABLE SPEED DRIVE
ECM	EC MOTOR
MS	MOTOR STARTER
BDD	BACKDRAFT DAMPER
S	SPACE TEMPERATURE SENSOR
OS	OCCUPANCY SENSOR
H	SPACE HUMIDITY SENSOR
P	SPACE DIFFERENTIAL PRESSURE SENSOR
T	THERMOSTAT
T_G	THERMOSTAT WITH GUARD
CO2	CARBON DIOXIDE OR DCV SENSOR
DSD	DUCT SMOKE DETECTOR
	PROBE SENSOR (DUCT)
	AVERAGING SENSOR (DUCT)
	FAN OR BASE-MOUNTED PUMP
	INLINE PUMP
X / Y	COIL (X,Y) H,C = HEATING COIL C,C = COOLING COIL D,X = DIRECT EXPANSION COIL G,B = GAS BURNER H,G = HOT GAS REHEAT COIL
	FILTER BANK
	DAMPER (OPPOSED BLADE)
	DAMPER (PARALLEL BLADE)
H	HUMIDIFIER DISPERSION GRID/TUBE
	CONTROL VALVE - 2 WAY
	CONTROL VALVE - 3 WAY
	PIPE WELL

ABBREVIATIONS AND TAGS

SYMBOL	DESCRIPTION
(E)	EXISTING
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
APD	AIR PRESSURE DROP
AFF	ABOVE FINISHED FLOOR
ARCH	ARCHITECT
ASD	ADJUSTABLE SPEED DRIVE
AWT	AVERAGE WATER TEMPERATURE
BOD	BOTTOM OF DUCT (ELEVATION)
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CFM	CUBIC FEET PER MINUTE
CL	CENTER LINE
CMS	COMBINATION MOTOR STARTER
COP	COEFFICIENT OF PERFORMANCE
DAT	DISCHARGE AIR TEMPERATURE
DB	DRYBULB AIR TEMPERATURE
DIA	DIAMETER
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EC	ELECTRICAL CONTRACTOR
ERL	EXISTING TO BE RELOCATED
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
FLA	FULL LOAD AMPS
FPM	FEET PER MINUTE
GAL	GALLONS
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HM	HAZARDOUS MATERIAL CONTRACTOR
HP	HORSEPOWER
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
INWC	INCHES WATER COLUMN
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
MAN	MANUAL MOTOR STARTER WITH RELAY
MAT	MIXED AIR TEMPERATURE
MBH	1,000 BTUH
MC	MECHANICAL CONTRACTOR
MCA	MINIMUM CIRCUIT AMPACITY
MOP	MAXIMUM OVERCURRENT PROTECTION
NC	NORMALLY CLOSED
NC	NOISE CRITERIA
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
PC	PLUMBING CONTRACTOR
PH	PHASE
PSI	POUNDS PER SQUARE INCH
PSIA	PSI ATMOSPHERIC
PSIG	PSI GAUGE
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
REA	RELIEF AIR
RH	RELATIVE HUMIDITY
RPM	REVOLUTIONS PER MINUTE
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SEER	SEASONAL EER
SMBH	SENSIBLE MBH
TC	TEMPERATURE CONTROL
TCC	TEMPERATURE CONTROL CONTRACTOR
TMBH	TOTAL MBH
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
V	VOLTAGE
WB	WETBULB AIR TEMPERATURE
WPD	WATER PRESSURE DROP

PIPING SYSTEMS LEGEND

SYMBOL	DESCRIPTION
	EXISTING PIPING
	NEW PIPING
	REMOVAL / DEMOLISHED PIPING
	AIR SEPARATOR
	AIR VENT - AUTOMATIC
	AIR VENT - MANUAL
	BALANCE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	CONTROL VALVE TWO WAY
	CONTROL VALVE THREE WAY
	GATE VALVE
	GLOBE VALVE
	PRESSURE REDUCING VALVE
	PRESSURE RELIEF VALVE
	ANGLE VALVE
	STRAINER WITH BLOW DOWN
	TRIPLE DUTY VALVE
	PRESSURE SWITCH
	FLOW SWITCH
	TEMPERATURE SWITCH
	PIPE WELL
	PRESSURE GAUGE
	THERMOMETER
	PIPE CAP OR PLUG
	PIPE BREAK OR CONTINUATION
	REDUCER
	FLOW DIRECTION ARROW
	FLEXIBLE CONNECTION
	TEE - BOTTOM CONNECTION
	TEE - TOP CONNECTION
	ELBOW - UP, DOWN
	UNION
	SPOOL PIECE
	PIPE GUIDE
	PIPE ANCHOR - INTER.
	PIPE ANCHOR - MAIN
	INLINE PUMP
	BACKFLOW PREVENTER
	THERMOSTATIC TRAP
	FLOAT AND THERMOSTATIC TRAP
	BUCKET TRAP
	THERMODYNAMIC TRAP
	STEAM CONDENSATE TRAP

EQUIPMENT ABBREVIATIONS

SYMBOL	DESCRIPTION
ACCU	AIR COOLED CONDENSING UNIT
AHU	AIR HANDLING UNIT
AS	AIR SEPARATOR
ASHP	AIR-SOURCE HEAT PUMP
B	BOILER
BP	BOILER PUMP
BT	BUFFER TANK
CB	CHILLED BEAM
CC	COOLING COIL
CH	CHILLER
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CONV	CONVECTOR
CV	CONTROL VALVE
DOAS	DEDICATED OUTDOOR AIR SYSTEM
EAV	EXHAUST AIR VALVE
EBB	ELECTRIC BASEBOARD
EDC	ELECTRIC DUCT COIL
EF	EXHAUST FAN
EH	EXHAUST HOOD
ERU	ENERGY RECOVERY UNIT
ERV	ENERGY RECOVER VENTILATOR
ET	EXPANSION TANK
EVAP	EVAPORATOR UNIT
EWH	ELECTRIC WALL HEATER
F	FURNACE
F	FAN
FCU	FAN COIL UNIT
FTR	FIN TUBE RADIATION
GMU	GLYCOL MAKE-UP UNIT
H	HUMIDIFIER
HC	HEATING COIL
HP	HEAT PUMP
HRC	HEAT RECOVERY COIL
HRU	HEAT RECOVERY UNIT
IU	INDUCTION UNIT
KEF	KITCHEN EXHAUST FAN
LV	LOUVER
MAU	MAKE-UP AIR UNIT
P	PUMP
PH	PENTHOUSE
PHC	PREHEAT COIL
RAV	RETURN AIR VALVE
RCP	RADIANT CEILING PANEL
REF	RELIEF FAN
RF	RETURN FAN
RGD	REGISTER, GRILLE, AND DIFFUSER
RH	RELIEF HOOD
RHC	REHEAT COIL
RTH	RADIANT TUBE HEATER
RTU	ROOFTOP UNIT
SAV	SUPPLY AIR VALVE
SF	SUPPLY FAN
SS	SPLIT SYSTEM
TU	TERMINAL UNIT
UH	UNIT HEATER
VAV	VARIABLE VOLUME TERMINAL UNIT
VRF	VARIABLE REFRIGERANT FLOW TERMINAL UNIT
WSHP	WATER SOURCE HEAT PUMP

PIPING ABBREVIATIONS

SYMBOL	DESCRIPTION
—(E)—	EXISTING PIPING
—A—	COMPRESSED AIR
—ATV—	ATMOSPHERIC VENT
—BBD—	BOILER BLOW DOWN
—BFW—	BOILER FEED WATER
—CDR—	CONDENSER WATER RETURN
—CDS—	CONDENSER WATER SUPPLY
—CWR—	CHILLED WATER RETURN
—CWS—	CHILLED WATER SUPPLY
—D—	DRAIN
—DCW—	DOMESTIC COLD WATER
—FILL—	FILL LINE
—FOD—	FUEL OIL DISCHARGE
—FOG—	FUEL OIL GAGE
—FOR—	FUEL OIL RETURN
—FOS—	FUEL OIL SUPPLY
—FOV—	FUEL OIL VENT
—GCWR—	GLYCOL CHILLED WATER RETURN
—GCWS—	GLYCOL CHILLED WATER SUPPLY
—GHWR—	GLYCOL HOT WATER RETURN
—GHWS—	GLYCOL HOT WATER SUPPLY
—H—	HUMIDIFICATION LINE
—HCS—	HOT/CHILLED WATER SUPPLY
—HCR—	HOT/CHILLED WATER RETURN
—HPC—	HIGH PRESSURE CONDENSATE
—HPS—	HIGH PRESSURE STEAM
—HPWR—	HEAT PUMP WATER RETURN
—HPWS—	HEAT PUMP WATER SUPPLY
—HWR—	HOT WATER RETURN
—HWS—	HOT WATER SUPPLY
—IW—	INDIRECT WASTE
—MPC—	MEDIUM PRESSURE CONDENSATE
—MPS—	MEDIUM PRESSURE STEAM
—MU—	MAKE-UP WATER
—NG—	NATURAL GAS
—LPC—	LOW PRESSURE CONDENSATE
—LPS—	LOW PRESSURE STEAM
—LTCWS—	LOW TEMPERATURE CHILLED WATER SUPPLY
—LTCWR—	LOW TEMPERATURE CHILLED WATER RETURN
—PC—	PUMPED CONDENSATE
—RD—	REFRIGERANT DISCHARGE
—RL—	REFRIGERANT LIQUID
—RS—	REFRIGERANT SUCTION
—RHG—	REFRIGERANT HOT GAS
—SW—	SOFTENED WATER
—VAC—	VACUUM
—VC—	VACUUM CONDENSATE

DUCTWORK LEGEND

SYMBOL	DESCRIPTION
	EXISTING DUCTWORK
	REMOVAL / DEMOLISHED DUCTWORK
	NEW DUCTWORK
	DUCT SECTION - SUPPLY
	DUCT SECTION - RETURN OR EXHAUST
A" B"	WIDTH A" x DEPTH B"
	DUCT TRANSITION
A"ø	ROUND DUCT IN INCHES
A"xB"ø	FLAT OVAL DUCT IN INCHES
	ACOUSTIC / THERMAL LINING
	FLEXIBLE DUCTWORK
	RISE IN DUCT
	DROP IN DUCT
	RETURN OR EXHAUST REGISTER OR GRILLE
	SUPPLY DIFFUSER WITH FLEX DUCT CONNECTION
	SUPPLY DIFFUSER WITH HARD DUCT CONNECTION
	SUPPLY DIFFUSER WITH PLENUM BOX
L	VOLUME DAMPER
FD	FIRE DAMPER
SD	SMOKE DAMPER
CFSD	COMBINATION FIRE / SMOKE DAMPER
FC	FLEXIBLE CONNECTION
AAD	AUTOMATIC AIR DAMPER (OPPOSED BLADE)
AAD	AUTOMATIC AIR DAMPER (PARALLEL BLADE)
	AIRFLOW DIRECTION ARROW
REG GRD DIFF	REGISTER, GRILLE, DIFFUSER TAG TYPE NECK = NECK SIZE
	AIR TERMINAL UNIT TAG TYPE MAA = MAXIMUM CFM MIN = MINIMUM CFM

MISCELLANEOUS

SYMBOL	DESCRIPTION
	REFERENCE TO DRAWING NOTE
	REFERENCE TO REMOVAL NOTE
	CONNECTION TO EXISTING
	REMOVE TO THIS POINT
	DETAIL/PLAN REFERENCE SYMBOL

GENERAL HVAC NOTES:

A. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS WITHIN THE BUILDING PRIOR TO COMMENCEMENT OF ALL DEMOLITION AND NEW WORK.

B. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REMOVE AND REPLACE EXISTING CEILINGS, UNLESS OTHEWRWISE NOTED ON THE ARCHITECTURAL DRAWINGS, FOR PERFORMING DEMOLITION OR NEW WORK WITHIN THE BUILDING. THE EXISTING CEILINGS SHALL BE REMOVED IN A MANNER TO AVOID DAMAGE TO THE CEILING SYSTEMS. STORAGE OF CEILING SYSTEM COMPONENTS FOR REINSTALLATION IS THE RESPONSIBILITY OF THE CONTRACTOR. THE STORAGE OF ALL MATERIAL SHALL BE IN AREAS OR LOCATIONS APPROVED BY THE OWNER. THE OWNER WILL NOT COMPENSATE FOR ANY DAMAGED OR LOST MATERIAL WHILE IN STORAGE. AFTER COMPLETION OF ALL DEMOLITION OR NEW WORK, THE CONTRACTOR SHALL REINSTALL THE CEILING SYSTEMS TO MATCH THE ORIGINAL INSTALLATION. ANY CEILING SYSTEM COMPONENT DAMAGED DURING DEMOLITION, STORAGE OR REINSTALLATION SHALL BE REPLACED WITH NEW AT NO EXPENSE TO THE OWNER.

C. DEMOLITION DRAWINGS SHOW IN GENERAL MAJOR EQUIPMENT, PIPING AND DUCTWORK REMOVALS.

D. THE INTENT IS NOT TO IDENTIFY ALL MISCELLANEOUS PIPING, PIPING ACCESSORIES, DUCTWORK ACCESSORIES, SUPPORTS, CONTROLS, CONTROL ACCESSORIES, CONTROL WIRING AND CONDUIT, AND PNEUMATIC CONTROL TUBING AND ACCESSORIES TO BE DISCONNECTED AND REMOVED, BUT IS THE REQUIREMENT UNDER THIS CONTRACT. NO EQUIPMENT, PIPING OR DUCTWORK SHALL BE ABANDONED IN PLACE, UNLESS OTHERWISE NOTED ON THE DRAWINGS.

E. ALL EQUIPMENT INDICATED TO BE TURNED OVER TO THE OWNER SHALL BE DISCONNECTED AND REMOVED FROM THE EXISTING SYSTEMS AND DELIVERED (INCLUDING LOADING AND UNLOADING) TO A STORAGE AREA WITHIN THE BUILDING AS SELECTED BY THE OWNER. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR ANY EQUIPMENT DAMAGED DURING REMOVAL AND DELIVERY FOR STORAGE. ANY DAMAGE TO EQUIPMENT PRIOR TO DISCONNECTING SHOULD BE REPORTED TO THE OWNER'S REPRESENTATIVE. IF NOT REPORTED, THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR REPAIRS TO THE EQUIPMENT.

F. BEFORE DISCONNECTING, REMOVING OR SERVICING ANY AIR CONDITIONING EQUIPMENT OR SYSTEMS CONTAINING REFRIGERANTS, THE EQUIPMENT OR SYSTEMS SHALL BE EVACUATED OF ALL REFRIGERANT, PER THE LATEST ADOPTED RULES AND REGULATIONS BY THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (EPA). THE CONTRACTOR OR TECHNICIAN PERFORMING ALL WORK SHALL BE CERTIFIED BY AN EPA APPROVED CERTIFYING AGENCY OR ORGANIZATION.

G. ALL DUCTWORK, PIPING AND CONDUIT PENETRATIONS THROUGH RATED WALLS OR FLOORS SHALL BE PROVIDED WITH FIRE/SMOKE STOPPING'S PER SPECIFICATION. REFER TO THE CODE ANALYSIS OR LIFE SAFETY DRAWINGS FOR ALL RATED WALL LOCATIONS. ALL FLOORS SHALL BE CONSIDERED RATED.

H. UNLESS SHOWN ON THE ARCHITECTURAL DRAWINGS, IT IS THE RESPONSIBILITY OF THIS CONTRACTOR TO PATCH AND FINISH ALL EXISTING DUCTWORK OR PIPE PENETRATIONS THROUGH FLOORS, ROOFS, INTERIOR WALLS AND EXTERIOR WALLS AFTER DEMOLITION TO MATCH EXISTING INCLUDING EQUAL FIRE RATINGS.

I. IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL AIR VENTS OR DRAINS ON THE PIPING SYSTEMS THROUGHOUT THE BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE AIR VENTS AT ALL SYSTEM HIGH POINTS AND AT AREAS WITHIN THE PIPING SYSTEMS THAT COULD ACCUMULATE OR TRAP AIR WHICH WOULD PREVENT PROPER VENTING OR OPERATION OF THE SYSTEMS. DRAINS SHALL BE PROVIDED AT ALL LOW POINTS WITHIN THE PIPING SYSTEM TO FACILITATE DRAINING OF THE SYSTEM COMPLETELY.

J. ALL NEW PENETRATIONS SHALL BE PROVIDED FOR INSTALLATION OF MECHANICAL SYSTEMS INCLUDING, BUT NOT LIMITED TO, EQUIPMENT, DUCTWORK, PIPING, ETC.

K. THIS CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW ALL ABATEMENT SERIES DRAWINGS FOR THEIR SCOPE OF WORK TO RE-INSULATE ALL MECHANICAL SYSTEM AFTER ABATEMENT.

L. ALL CONTROLS CALLED FOR REMOVAL SHALL BE COMPLETE, INCLUDING PNEUMATIC AIR LINE REMOVAL BACK TO MAIN AIR SOURCE. ALL LINES SHALL BE CAPPED AIR TIGHT. PROVIDE AIR TEST AT COMPLETION OF THE WORK. SUBMIT TEST RESULTS AS PART OF CLOSEOUT DOCUMENTATION.

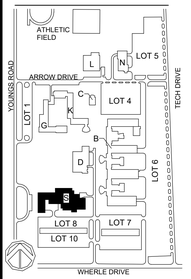
M. ALL ROOM THERMOSTATS AND TEMPERATURE SENSORS CALLED FOR REMOVAL SHALL BE COMPLETE, BACK TO SOURCE. PATCHING AND PAINTING OF WALLS SHALL MATCH EXISTING.

N. PRIOR TO DEMOLITION OF ANY HVAC EQUIPMENT, REMOVE ALL ASSOCIATED CONTROLS. WHICH INCLUDES REMOVAL OF CONTROLLERS, CONTROL WIRING BACK TO SOURCE, DEPROGRAMMING OF ALL CONTROL POINTS AND GRAPHICAL USER INTERFACE ASSOCIATED WITH THESE DEVICES FROM THE SYSTEM. PROVIDE ALL WORK REQUIRED TO MAINTAIN CONTINUITY OF EXISTING COMMUNICATION NETWORKS FOR REMAINING CONTROL DEVICES. COORDINATE ALL CONTROL DISCONNECT WORK WITH FACILITIES.

O. COORDINATE ALL SHUT DOWNS WITH OWNER PRIOR TO CONSTRUCTION.

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name: STUDENT CENTER

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6205 Main Street
Williamsville, NY 14221

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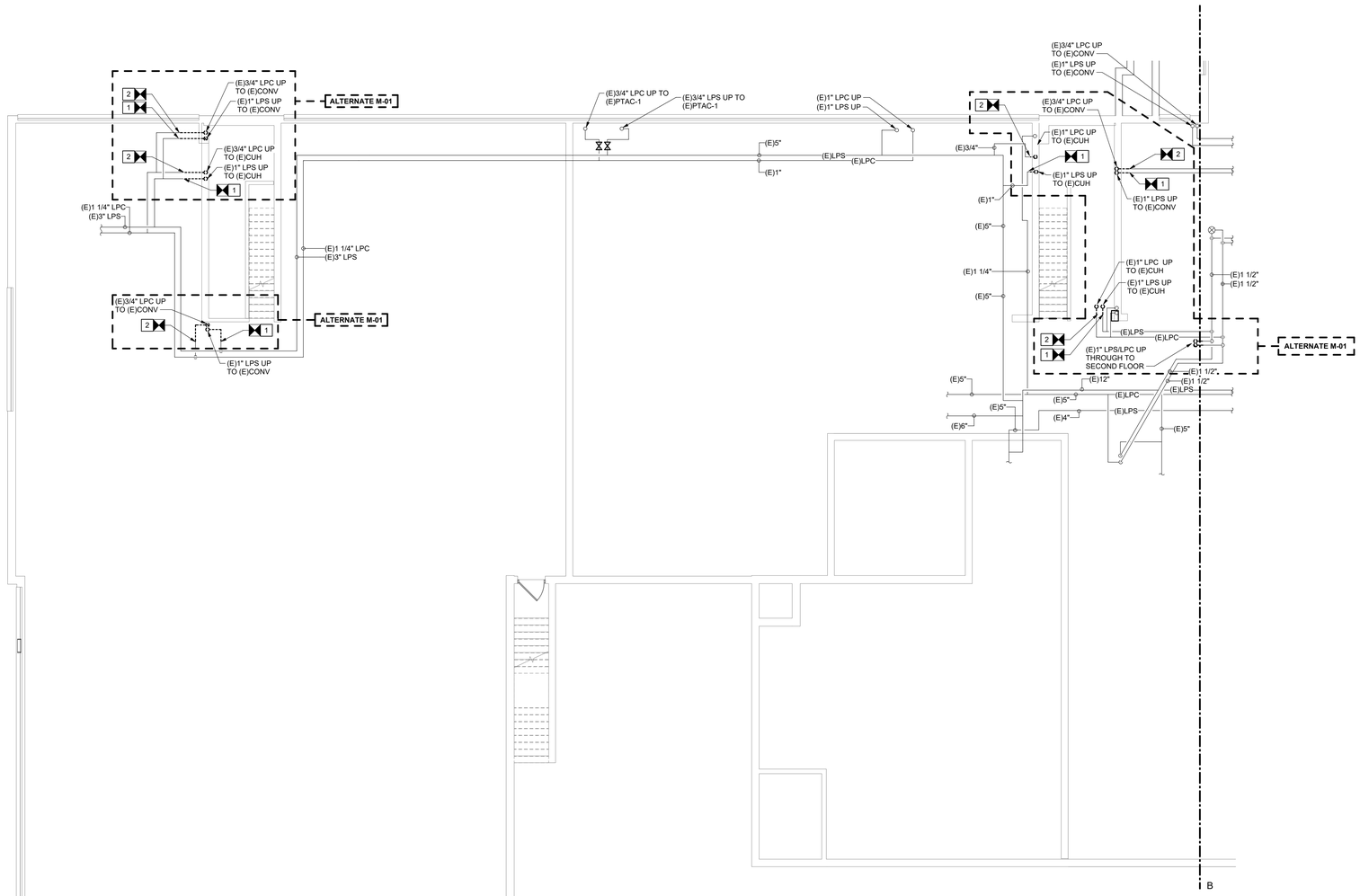
Title: **HVAC SYMBOLS, GENERAL NOTES AND ABBREVIATIONS**

Project Number: 23539

Drawn By: RBE

Date: 08/05/2024

Sheet: **H-000**



1 BASEMENT DEMOLITION PLAN - AREA A
1/8" = 1'-0"

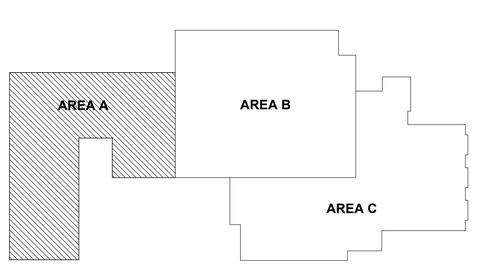
GENERAL SHEET NOTES:

A. ONLY PIPING AND MECHANICAL INFORMATION RELEVANT TO THE SCOPE OF WORK IN THIS AREA HAS BEEN SHOWN ON THE DRAWING.

ALTERNATE M-01

REMOVAL NOTES:

1. DISCONNECT AND REMOVE EXISTING LOW PRESSURE STEAM, PIPING, INSULATION AND APPURTENANCES TO POINT INDICATED. REMOVE EXISTING CONTROLS, AND VALVES ASSOCIATED WITH EXISTING STEAM SUPPLY PIPING UP TO EQUIPMENT ABOVE.
2. DISCONNECT AND REMOVE EXISTING CONDENSATE PIPING, AND APPURTENANCES TO POINT INDICATED. REMOVE ALL VALVES, F&T TRAPS, AND FITTINGS.

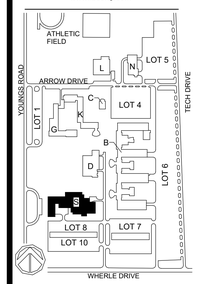


KEY PLAN

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No.	Date	Description

Title
BASEMENT DEMOLITION PLAN - AREA A

Project Number
23539

Drawn By
RBE/TAL

Date
08/05/2024

Sheet
HD-100

GENERAL SHEET NOTES:

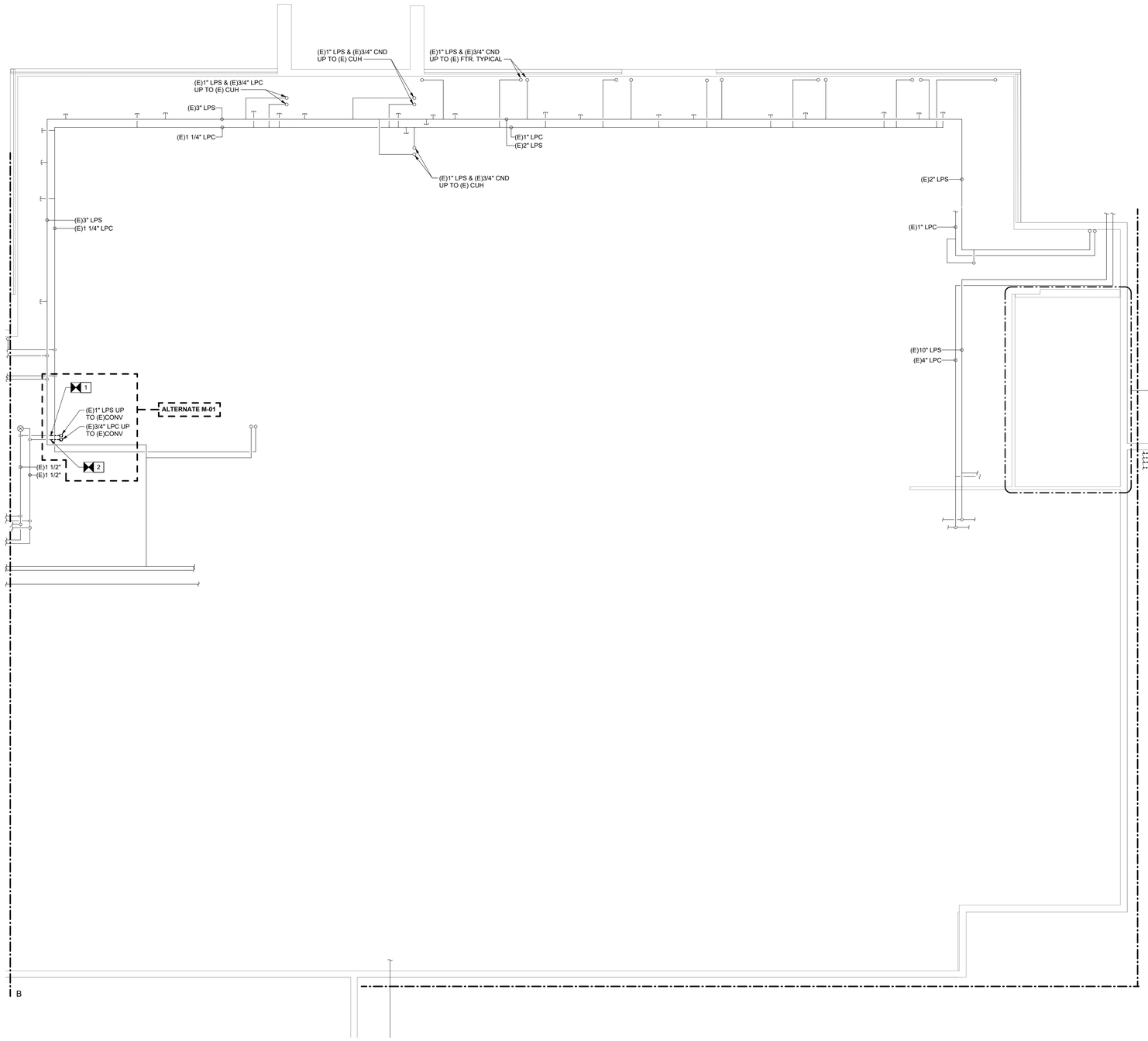
A. REFER TO ENLARGED VIEWS THIS SHEET FOR SCOPE OF WORK IN BASEMENT MECHANICAL ROOM.

B. ONLY PIPING AND MECHANICAL INFORMATION RELEVANT TO THE SCOPE OF WORK IN THIS AREA HAS BEEN SHOWN ON THE DRAWING.

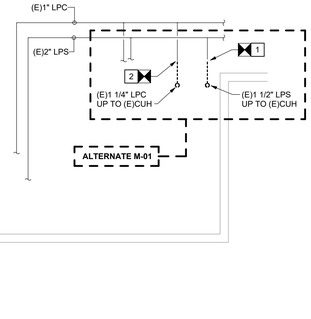
REMOVAL NOTES:

1. DISCONNECT AND REMOVE EXISTING LOW PRESSURE STEAM, PIPING, INSULATION AND APPURTENANCES TO POINT INDICATED. REMOVE EXISTING CONTROLS, AND VALVES ASSOCIATED WITH EXISTING STEAM SUPPLY PIPING UP TO EQUIPMENT ABOVE.
2. DISCONNECT AND REMOVE EXISTING CONDENSATE PIPING, AND APPURTENANCES TO POINT INDICATED. REMOVE ALL VALVES, F&T TRAPS, AND FITTINGS.
3. DISCONNECT AND REMOVE ALL EXISTING REFRIGERANT PIPING, SUPPORTS, INSULATION, AND APPURTENANCES.

ALTERNATE M-01

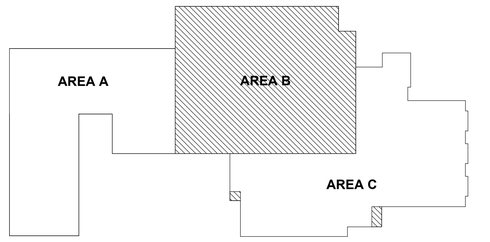


1 BASEMENT DEMOLITION PLAN - AREA B AND C
1/8" = 1'-0"



2 BASEMENT DEMOLITION PLAN - AREA B AND C
1/8" = 1'-0"

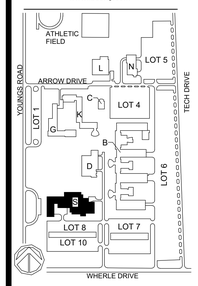
3 BASEMENT DEMOLITION PLAN - AREA C
1/8" = 1'-0"



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No.	Date	Description

Title: BASEMENT DEMOLTION PLAN - AREA B AND C

Project Number: 23539
Drawn By: RBE/TAL
Date: 08/05/2024
Sheet: HD-101



1 FIRST FLOOR DEMOLITION PLAN - AREA A
1/8" = 1'-0"

GENERAL SHEET NOTES:

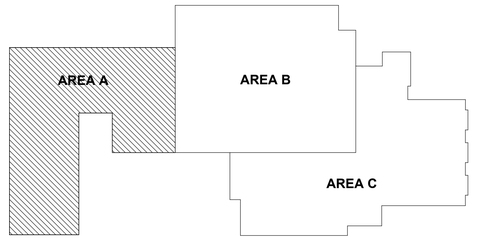
A. WHERE PNEUMATIC CONTROLS ARE REMOVE, DISCONNECTED AND REMOVE EXISTING PNEUMATIC TUBING COMPLETE BACK TO SOURCE.

B. WHERE STEAM OR CONDENSATE PIPING HAS BEEN DISCONNECTED AND REMOVED THROUGH FLOOR, AND PENETRATIONS WILL NOT BE RE-USED IN NEW WORK PHASE, PATCH HOLES TO MATCH EXISTING AND SEAL WATER TIGHT.

ALTERNATE M-01

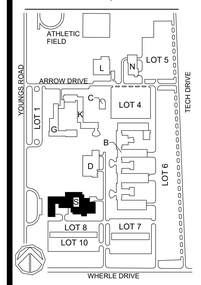
REMOVAL NOTES:

1. DISCONNECT AND REMOVE EXISTING CABINET UNIT HEATER, GRILLE, CONTROLS, PIPING, FITTINGS AND APPURTENANCES. REMOVE AND SAVE CABINET UNIT HEATER GRILLE COVER FOR RE-USE IN NEW WORK PHASE.
2. DISCONNECT AND REMOVE EXISTING THERMOSTAT.
3. DISCONNECT AND REMOVE EXISTING CONVECTOR, GRILLE, PIPING, FITTINGS AND APPURTENANCES.



KEY PLAN

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ISSUE FOR BID

Revisions

No.	Date	Description

Title: FIRST FLOOR DEMOLITION PLAN - AREA A

Project Number: 23539
Drawn By: RBE/TAL
Date: 08/05/2024
Sheet: HD-102

GENERAL SHEET NOTES:

A. WHERE PNEUMATIC CONTROLS ARE REMOVE, DISCONNECTED AND REMOVE EXISTING PNEUMATIC TUBING COMPLETE BACK TO SOURCE.

B. ALL REFRIGERANT SHALL BE REMOVED PER EPA REQUIREMENTS.

C. REFER TO ENLARGED VIEW THIS SHEET FOR SCOPE OF WORK IN FIRST FLOOR MECHANICAL ROOM.

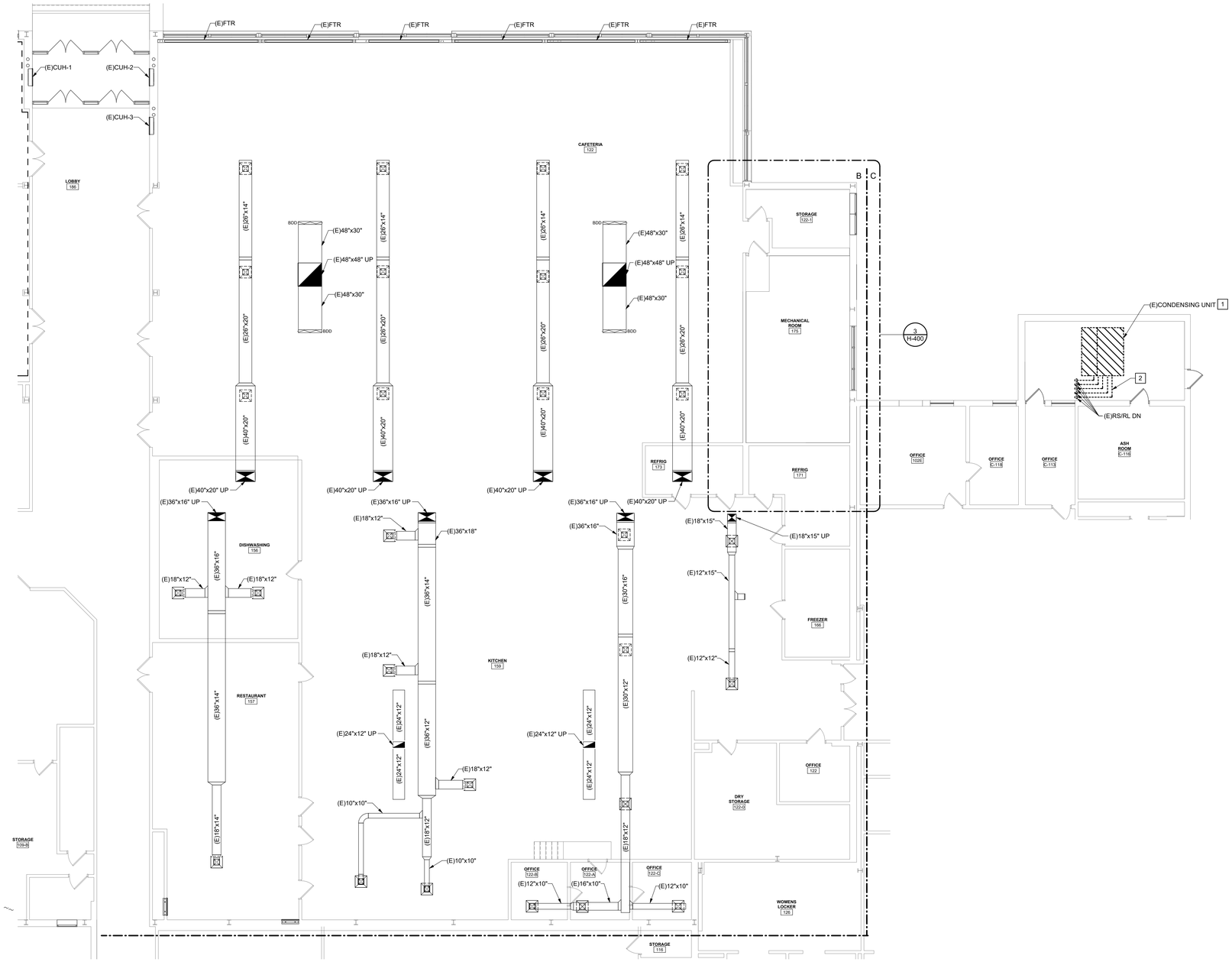
D. WHERE STEAM OR CONDENSATE PIPING HAS BEEN DISCONNECTED AND REMOVED THROUGH FLOOR, AND PENETRATIONS WILL NOT BE RE-USED IN NEW WORK PHASE, PATCH HOLES TO MATCH EXISTING AND SEAL WATER TIGHT.

REMOVAL NOTES:

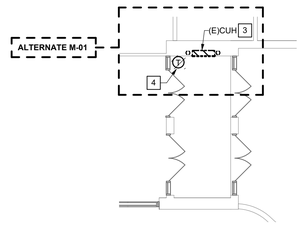
1. DISCONNECT AND REMOVE EXISTING AIR COOLED CONDENSOR AND ASSOCIATED WIRING, CONTROLS, AND APPURTENANCES. CONTRACTOR RESPONSIBLE FOR REMOVING EXISTING SUPPORT FRAME IN ITS ENTIRETY. COORDINATE WITH STRUCTURAL AS REQUIRED TO REMOVE FRAME AND PREPARE AREA FOR NEW SUPPORT DUNNAGE AND EQUIPMENT.
2. DISCONNECT AND REMOVE ALL EXISTING REFRIGERANT PIPING, SUPPORTS, INSULATION, AND APPURTENANCES. EXTERIOR GROUND AND FOUNDATION WALL PENETRATION TO BE RE-USED IN NEW WORK PHASE.

ALTERNATE MP-01

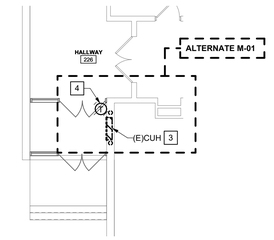
3. DISCONNECT AND REMOVE EXISTING CABINET UNIT HEATER, GRILLE, CONTROLS, PIPING, FITTINGS AND APPURTENANCES. REMOVE AND SAVE CABINET UNIT HEATER GRILLE COVER FOR RE-USE IN NEW WORK PHASE.
4. DISCONNECT AND REMOVE EXISTING THERMOSTAT.
5. DISCONNECT AND REMOVE EXISTING CONVECTOR, GRILLE, PIPING, FITTINGS AND APPURTENANCES.



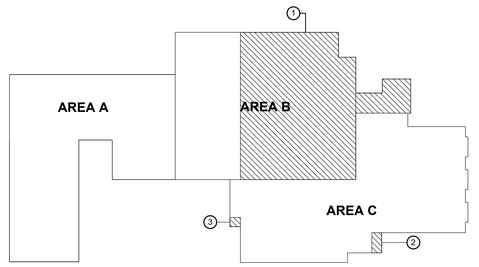
1 FIRST FLOOR DEMOLITION PLAN - AREA B AND C
1/8" = 1'-0"



2 PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA C
1/8" = 1'-0"



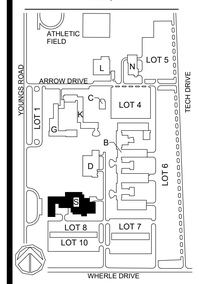
3 PARTIAL FIRST FLOOR DEMOLITION PLAN - AREA C
1/8" = 1'-0"



KEY PLAN

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3444 Winton Place, Suite 219
Rochester, NY 14623
www.ibceng.com



SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS
Building Name: STUDENT CENTER
Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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ISSUE FOR BID

Revisions

No.	Date	Description

Title: FIRST FLOOR DEMOLITION PLAN - AREA B AND C

Project Number: 23539
Drawn By: RBE/TAL
Date: 08/05/2024
Sheet: HD-103

GENERAL SHEET NOTES:

A. ONLY PIPING AND MECHANICAL INFORMATION RELEVANT TO THE SCOPE OF WORK IN THIS AREA HAS BEEN SHOWN ON THE DRAWING.

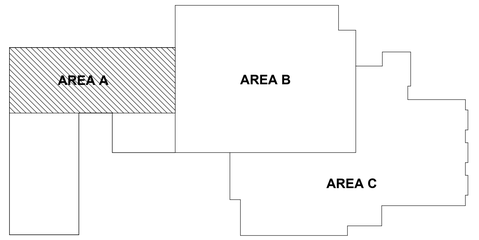
ALTERNATE M-01

REMOVAL NOTES:

1. DISCONNECT AND REMOVE EXISTING WALL MOUNTED CONVECTOR GRILLE COVER. DISCONNECT AND REMOVE ABANDONED STEAM AND CONDENSATE PIPING DOWN TO CRAWLSPACE BELOW. REFER TO DRAWING HD-100.



1 SECOND FLOOR DEMOLITION PLAN - AREA A
1/8" = 1'-0"

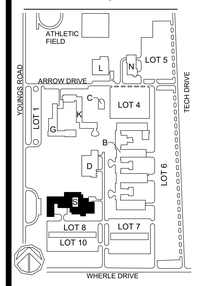


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ECDPW PROJECT NO. 2024-956-01

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No.	Date	Description

Title: SECOND FLOOR DEMOLITION PLAN - AREA A

Project Number: 23539

Drawn By: RBE/TAL

Date: 08/05/2024

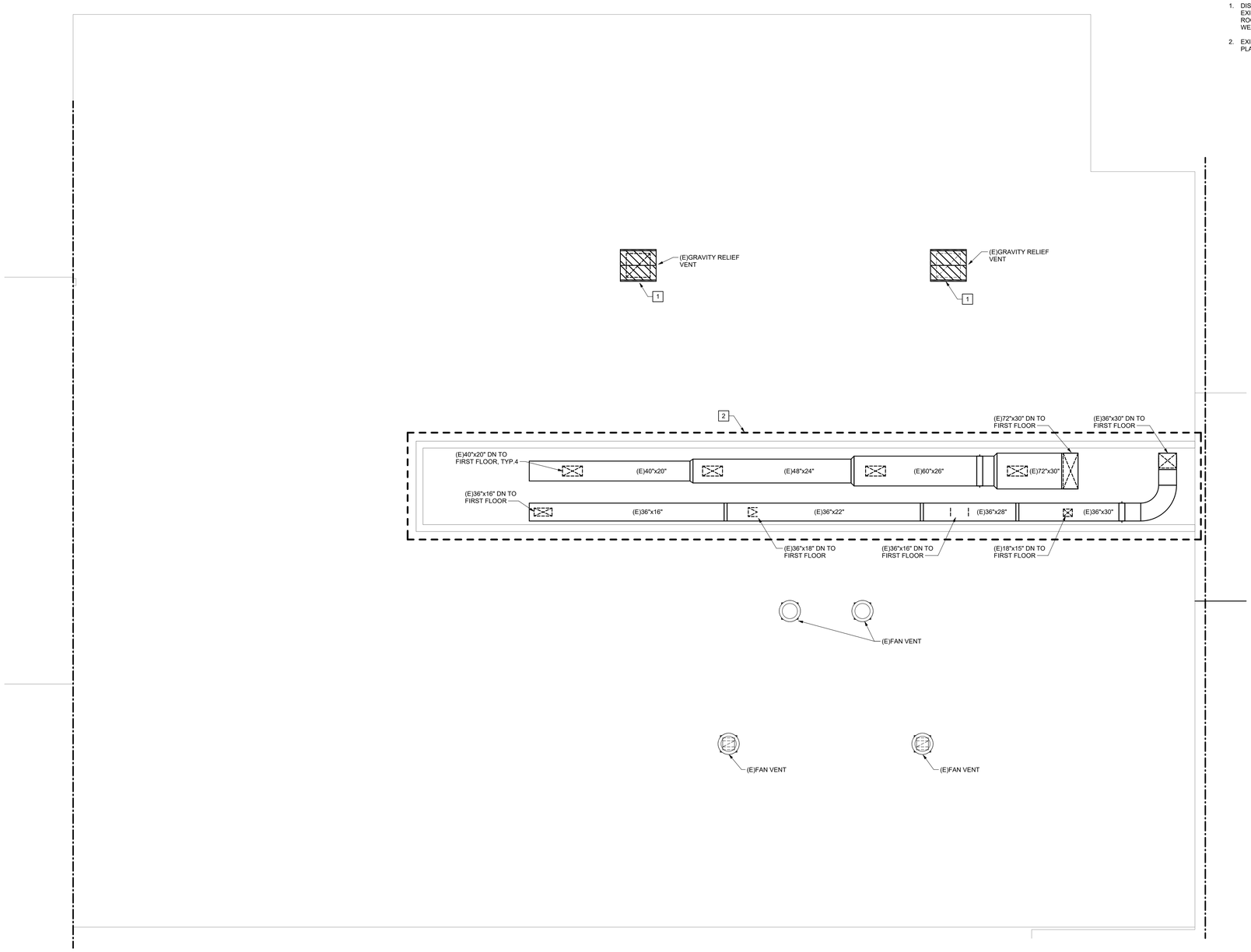
Sheet: HD-104

GENERAL SHEET NOTES:

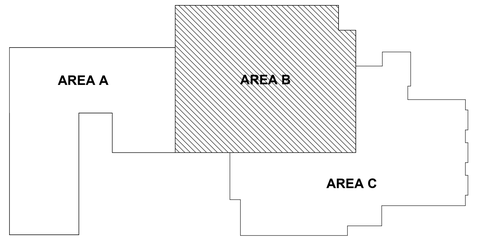
1. ROOF IS CURRENTLY UNDER WARRANTY BY TREMCO, WARRANTY NUMBER 183392. ANY ROOF WORK MUST BE INSPECTED BY ROOF MANUFACTURER TO MAINTAIN WARRANTY.

REMOVAL NOTES:

1. DISCONNECT AND REMOVE EXISTING GRAVITY RELIEF VENT AND CURB. REMOVE EXISTING DAMPER AND ANY ACTUATORS. ANY PNEUMATIC TUBING TO BE CAPPED AT ROOF PENETRATION. TEMPORARILY SEAL ROOF AND DUCT OPENING BELOW WEATHER TIGHT FOR RE-USE IN NEW WORK PHASE.
2. EXISTING DUCTWORK CONCEALED WITHIN ROOFTOP PENTHOUSE. SHOWN ON ROOF PLAN FOR CLARITY.



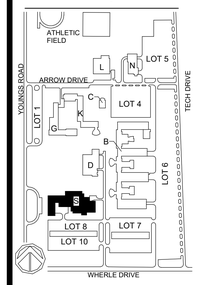
2 ROOF DEMOLITION PLAN - AREA B
1/8" = 1'-0"



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SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT ECDPW PROJECT NO. 2024-956-01

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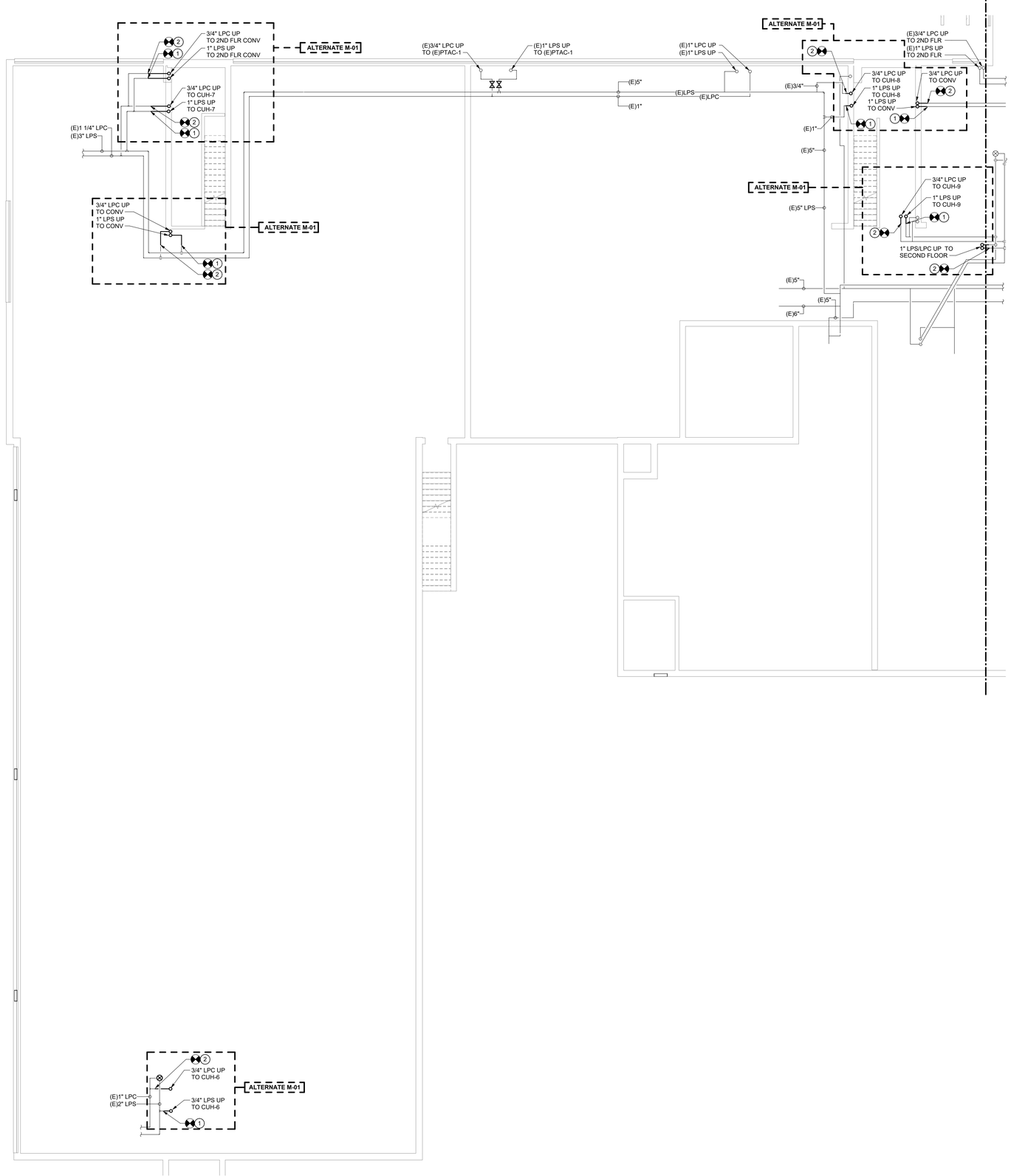
Title: **ROOF DEMOLITION PLAN - AREA B**

Project Number: 23539

Drawn By: RBE/TAL

Date: 08/05/2024

Sheet: **HD-105**



1 BASEMENT PLAN - AREA A
1/8" = 1'-0"

GENERAL SHEET NOTES:

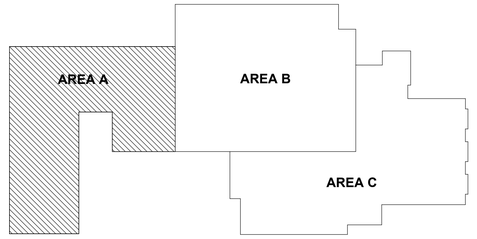
A. ONLY PIPING AND MECHANICAL INFORMATION RELEVANT TO THE SCOPE OF WORK IN THIS AREA HAS BEEN SHOWN ON THE DRAWING

B. REFER TO DETAILS AND SPECIFICATIONS FOR VALVE AND FITTING REQUIREMENTS.

ALTERNATE M-01

DRAWING NOTES:

1. PROVIDE NEW LOW PRESSURE STEAM, PIPING, INSULATION, CONTROLS AND APPURTENANCES. CONNECT TO EXISTING PIPING AT POINT INDICATED.
2. PROVIDE NEW CONDENSATE PIPING, INSULATION AND APPURTENANCES. CONNECT TO EXISTING PIPING AT POINT INDICATED.

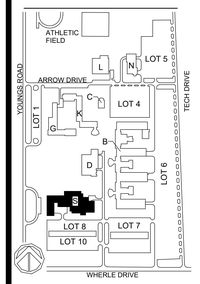


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STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client
SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name
STUDENT CENTER

Address
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Revisions

No.	Date	Description

Title
BASEMENT PLAN - AREA A

Project Number
23539

Drawn By
RBE/TAL

Date
08/05/2024

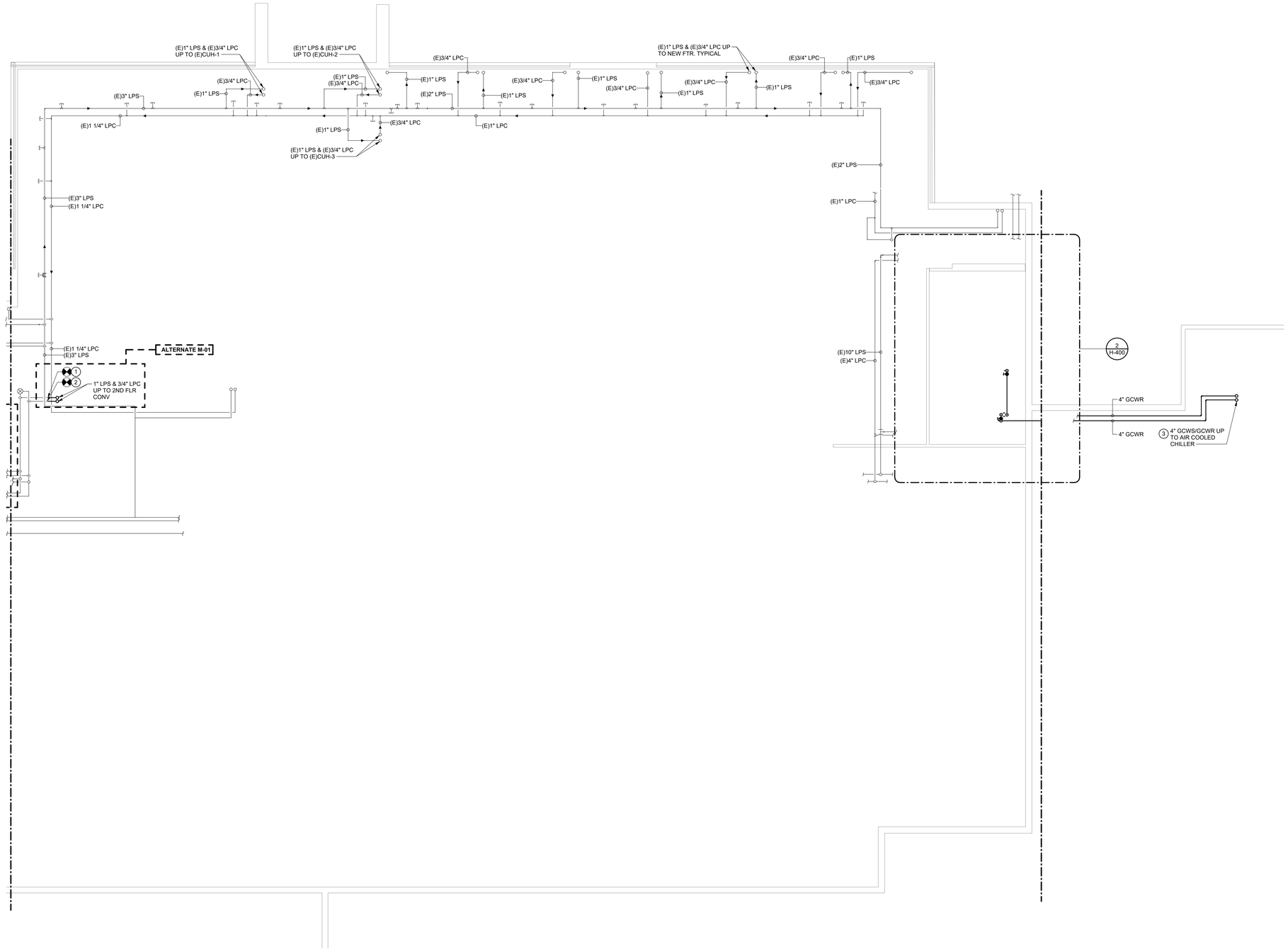
Sheet
H-100

GENERAL SHEET NOTES:

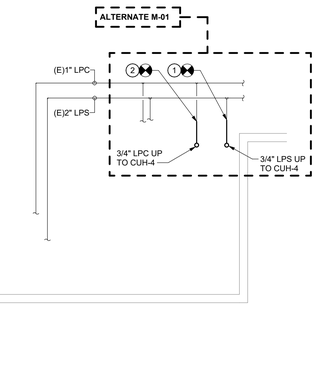
A. REFER TO ENLARGED VIEW SHEET FOR SCOPE OF WORK IN BASEMENT MECHANICAL ROOM.

DRAWING NOTES:

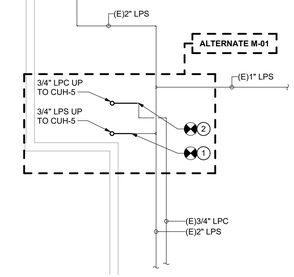
1. PROVIDE AND INSTALL NEW LOW PRESSURE STEAM, PIPING, INSULATION, CONTROLS AND APPURTENANCES.
2. PROVIDE AND INSTALL NEW CONDENSATE PIPING AND APPURTENANCES.
3. ENLARGE EXISTING FOUNDATION OPENING FOR NEW GCWS & GCWR AND INSULATION AS REQUIRED. REFER TO DRAWING S-100 DETAIL 5.



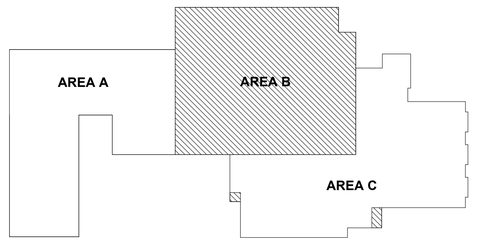
1 BASEMENT PLAN - AREA B AND C
1/8" = 1'-0"



2 PARTIAL BASEMENT PLAN - AREA C
1/8" = 1'-0"

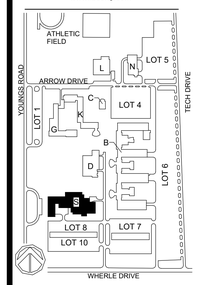


3 PARTIAL BASEMENT PLAN - AREA C
1/8" = 1'-0"



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SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT ECDPW PROJECT NO. 2024-956-01

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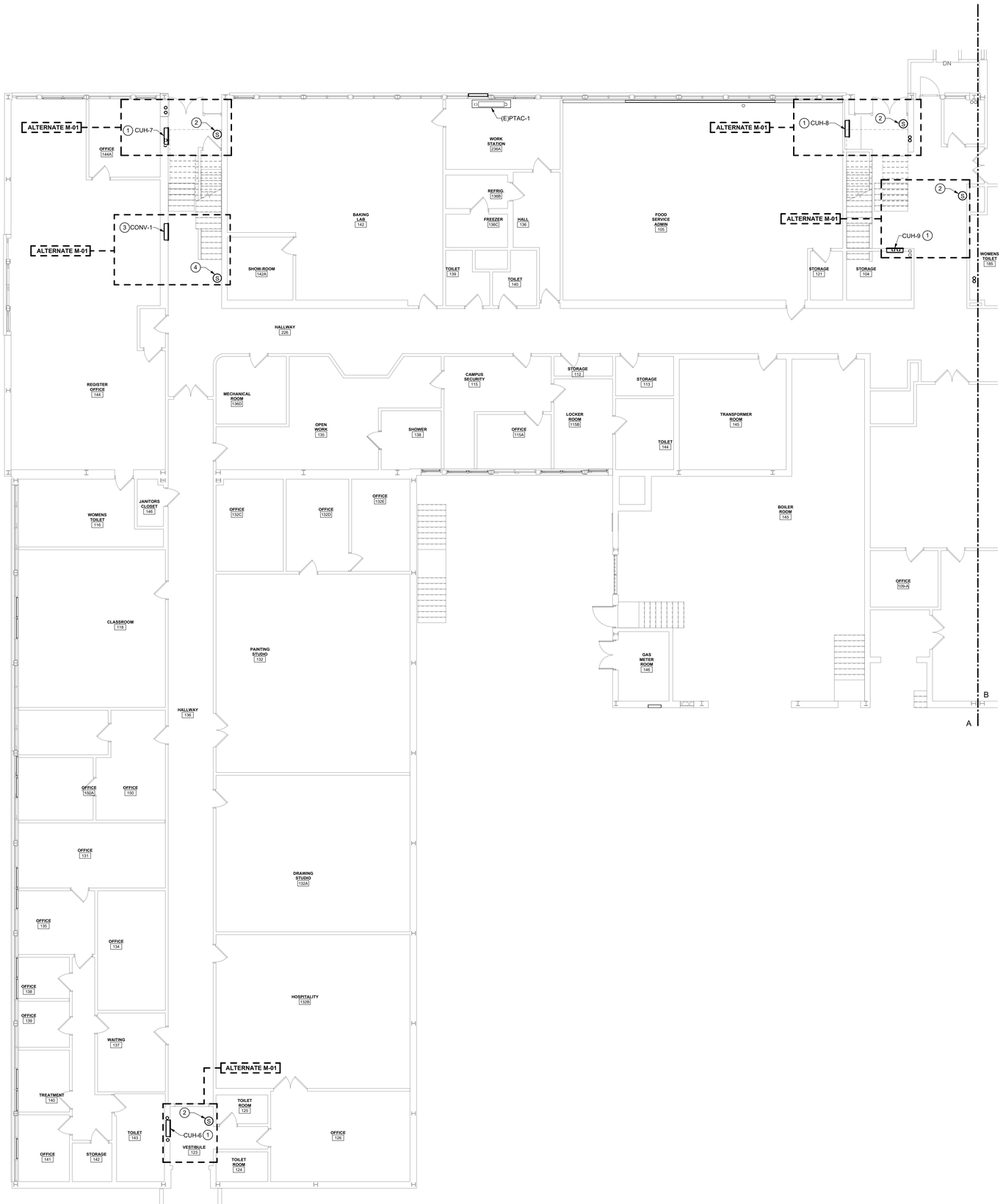
Title: **BASEMENT PLAN - AREA B AND C**

Project Number: 23539

Drawn By: RBE/TAL

Date: 08/05/2024

Sheet: **H-101**

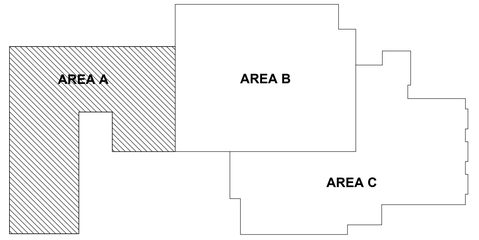


1 FIRST FLOOR PLAN - AREA A
1/8" = 1'-0"

ALTERNATE M-01

DRAWING NOTES:

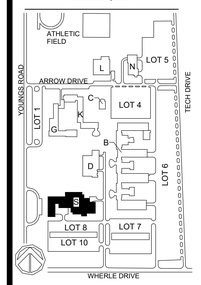
1. PROVIDE NEW WALL RECESSED CABINET UNIT HEATER, CONTROLS, PIPING AND APPURTENANCES. CABINET UNIT HEATER TO RE-USE EXISTING WALL OPENING. PROVIDE NEW GRILLE COVER TO FULLY COVER EXISTING WALL OPENING.
2. PROVIDE NEW TEMPERATURE SENSOR FOR NEW CABINET UNIT HEATER.
3. PROVIDE NEW WALL RECESSED CONVECTOR, CONTROLS, PIPING AND APPURTENANCES. CONVECTOR TO RE-USE EXISTING WALL OPENING. PROVIDE NEW GRILLE COVER TO FULLY COVER EXISTING WALL OPENING.
4. PROVIDE NEW TEMPERATURE SENSOR FOR NEW CONVECTOR.



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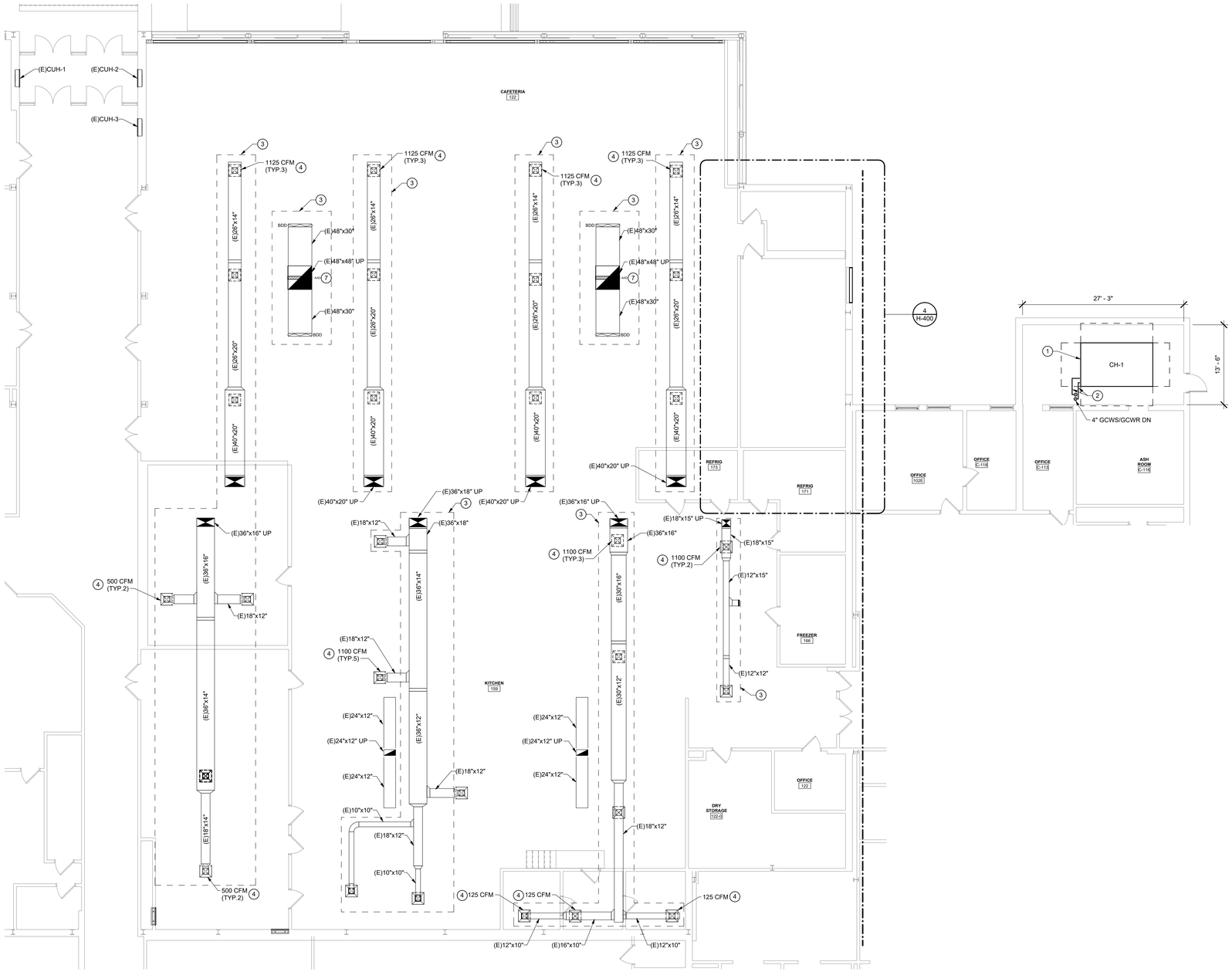
Title: FIRST FLOOR PLAN - AREA A

Project Number: 23539

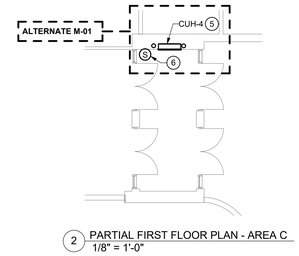
Drawn By: RBE/TAL

Date: 08/05/2024

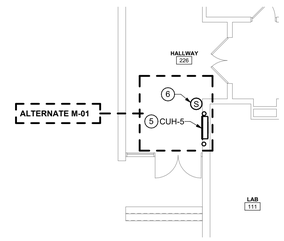
Sheet: H-102



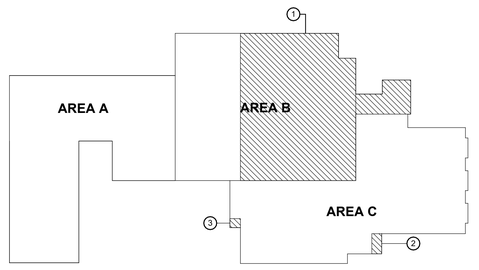
1 FIRST FLOOR PLAN - AREA B AND C
1/8" = 1'-0"



2 PARTIAL FIRST FLOOR PLAN - AREA C
1/8" = 1'-0"



3 PARTIAL FIRST FLOOR PLAN - AREA C
1/8" = 1'-0"



KEY PLAN

GENERAL SHEET NOTES:

1. REFER TO ENLARGED VIEW THIS SHEET FOR SCOPE OF WORK IN FIRST FLOOR MECHANICAL ROOM.

DRAWING NOTES:

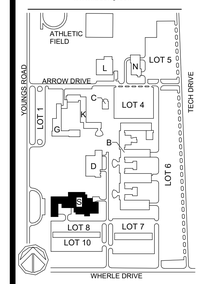
1. PROVIDE NEW AIR COOLED CHILLER, SUPPORTS, PIPING, CONTROLS, AND APPURTENANCES.
2. PROVIDE NEW 4" GCWS & GCWR PIPING, SUPPORT, AND INSULATION. ENLARGE EXISTING GROUND AND FOUNDATION PENETRATIONS AS REQUIRED. REFER TO DRAWING S-100 DETAIL 5.
3. CLEAN EXISTING TO REMAIN DUCTWORK, INCLUDING ANY BACKDRAFT DAMPERS AND/OR VOLUME DAMPERS.
4. REBALANCE EXISTING DIFFUSERS TO CFM INDICATED.

ALTERNATE M-01

5. PROVIDE NEW WALL RECESSED CABINET UNIT HEATER, CONTROLS, PIPING AND APPURTENANCES. CABINET UNIT HEATER TO RE-USE EXISTING WALL OPENING. PROVIDE NEW GRILLE COVER TO FULLY COVER EXISTING WALL OPENING.
6. PROVIDE NEW TEMPERATURE SENSOR FOR NEW CABINET UNIT HEATER.
7. PROVIDE DUCT TRANSITION AS REQUIRED TO CONNECT TO NEW EXHAUST FAN ABOVE. PROVIDE AUTOMATIC AIR DAMPER IN EXHAUST RISER.

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ISSUE FOR BID

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No.	Date	Description

Title: FIRST FLOOR PLAN - AREA B AND C

Project Number: 23539
Drawn By: RBE/TAL
Date: 08/05/2024
Sheet: H-103

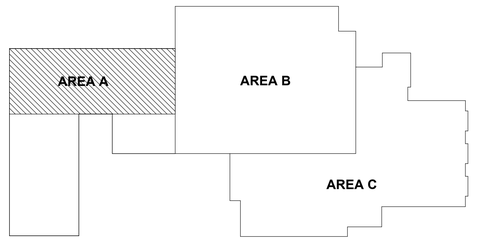
ALTERNATE M-01

DRAWING NOTES:

1. PROVIDE NEW WALL RECESSED CONVECTOR, CONTROLS, PIPING AND APPURTENANCES. CONVECTOR TO RE-USE EXISTING WALL OPENING. PROVIDE NEW GRILLE COVER TO FULLY COVER EXISTING WALL OPENING.
2. PROVIDE NEW TEMPERATURE SENSOR FOR NEW CONVECTOR.



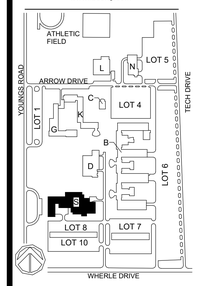
1 SECOND FLOOR PLAN - AREA A
1/8" = 1'-0"



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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name: STUDENT CENTER

Address: SUNY Erie North Campus
6205 Main Street
Williamsville, NY 14221

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No.	Date	Description

Title: **SECOND FLOOR PLAN - AREA A**

Project Number: 23539

Drawn By: RBE/TAL

Date: 08/05/2024

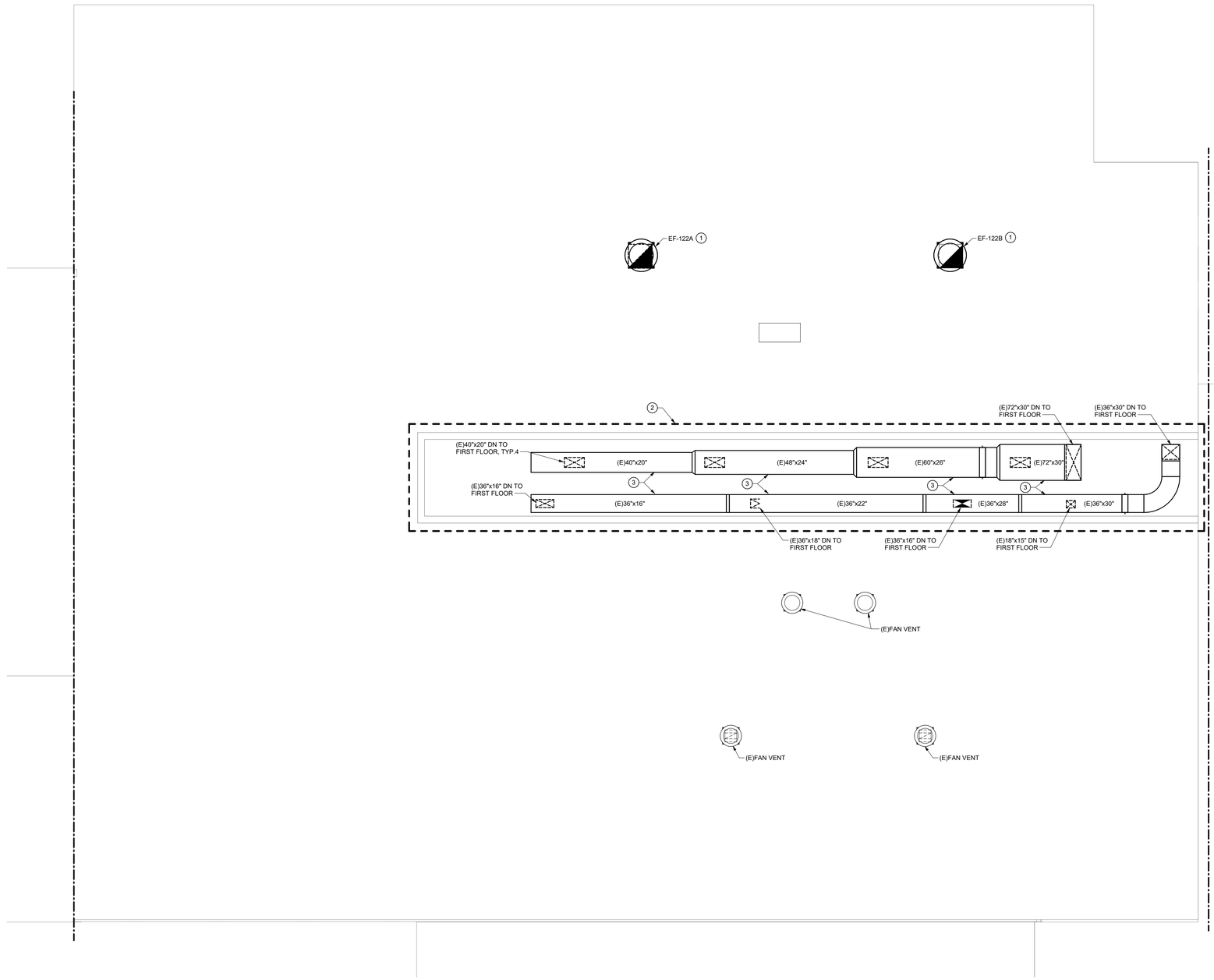
Sheet: **H-104**

GENERAL SHEET NOTES:

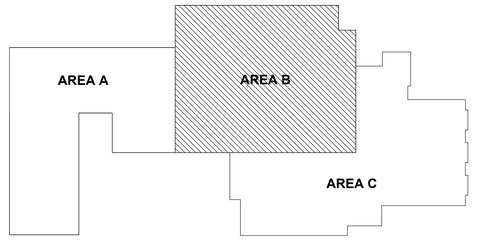
1. ROOF IS CURRENTLY UNDER WARRANTY BY TREMCO, WARRANTY NUMBER 183392. ANY ROOF WORK MUST BE INSPECTED BY ROOF MANUFACTURER TO MAINTAIN WARRANTY.

DRAWING NOTES:

1. PROVIDE NEW EXHAUST FAN, WIND RATED CURB, AUTOMATIC AIR DAMPER, ACTUATOR, AND APPURTENANCES. PROVIDE DUCT TRANSITION AS REQUIRED TO RECONNECT TO EXISTING DUCTWORK BELOW AND SEAL AIR TIGHT.
2. EXISTING DUCTWORK CONCEALED WITHIN ROOFTOP PENTHOUSE. SHOWN ON ROOF PLAN FOR CLARITY.
3. CLEAN EXISTING TO REMAIN DUCTWORK, INCLUDING ANY BACKDRAFT DAMPERS AND/OR VOLUME DAMPERS.



1 ROOF PLAN - AREA B
1/8" = 1'-0"

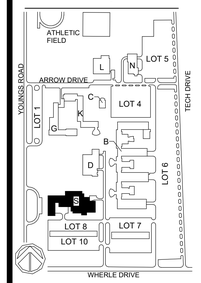


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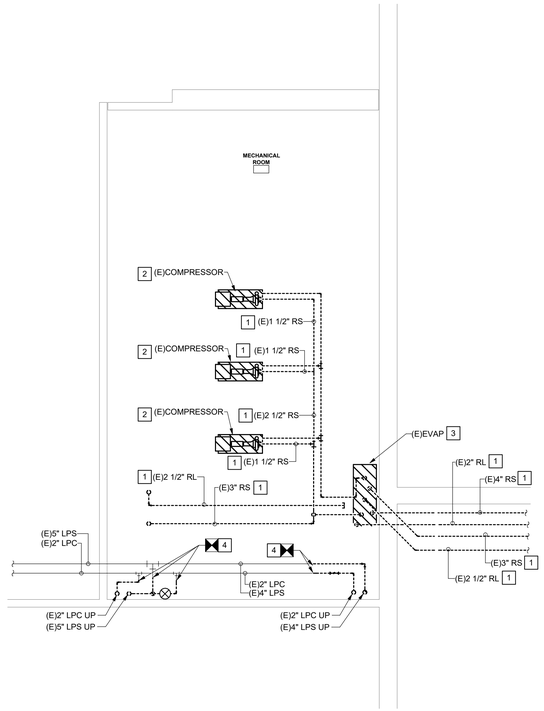
Title
ROOF PLAN - AREA B

Project Number
23539

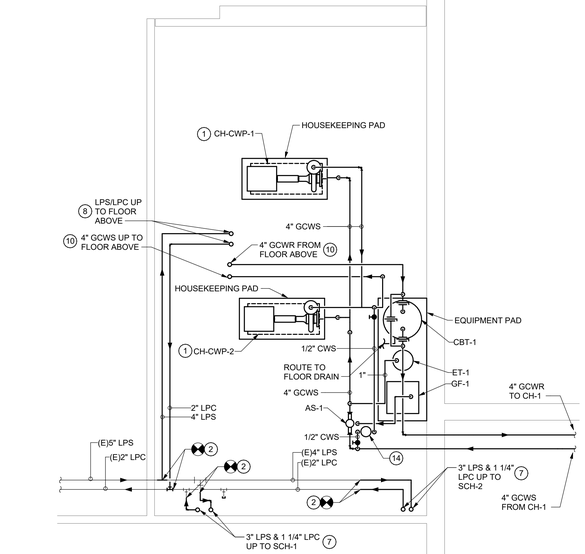
Drawn By
RBE/TAL

Date
08/05/2024

Sheet
H-105



1 BASEMENT MECHANICAL ROOM DEMOLITION PLAN
1/4" = 1'-0"



2 BASEMENT MECHANICAL ROOM PLAN
1/4" = 1'-0"

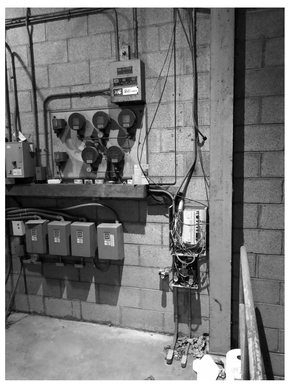
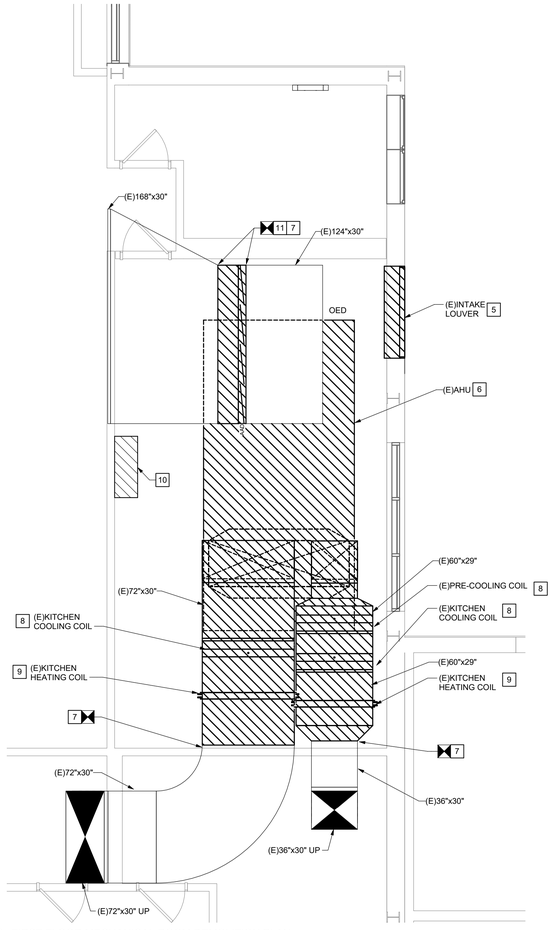
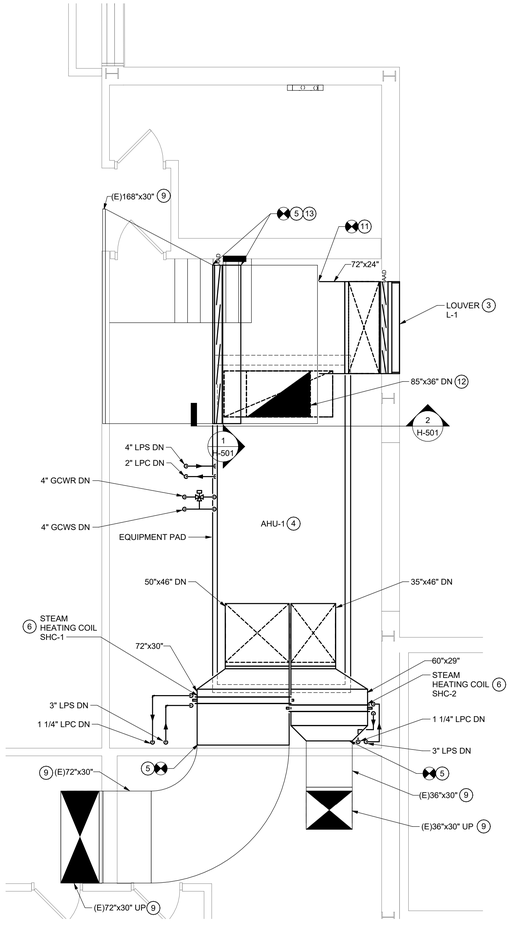


FIG. 1 EXISTING PNUMATIC CONTROL PANEL



3 FIRST FLOOR MECHANICAL ROOM DEMOLITION PLAN
1/4" = 1'-0"



4 FIRST FLOOR MECHANICAL ROOM PLAN
1/4" = 1'-0"

GENERAL SHEET NOTES:

A. WHERE PNEUMATIC CONTROLS ARE REMOVED, DISCONNECT AND REMOVE EXISTING PNEUMATIC TUBING COMPLETE BACK TO SOURCE.

B. ALL REFRIGERANT SHALL BE REMOVED PER EPA REQUIREMENTS.

C. WHERE REFRIGERANT, STEAM, OR CONDENSATE PIPING HAS BEEN DISCONNECTED AND REMOVED THROUGH FLOOR OR BASEMENT WALL PENETRATIONS, PATCH HOLES TO MATCH EXISTING AND SEAL WATER TIGHT UNLESS NOTED OTHERWISE.

D. WHERE EXISTING EQUIPMENT PADS ARE BEING REMOVED, AS WELL AS WHERE NEW CONCRETE PADS WILL BE INSTALLED, SCARIFY EXISTING CONCRETE SURFACE, OR OTHERWISE ABRASIVELY BLAST EXISTING SURFACE TO REMOVE ALL CONTAINMENTS. CLEAN AND LEVEL FLOOR IN PREPARATION FOR SEALING AND NEW MECHANICAL EQUIPMENT PADS. ANY HOLES IN SURFACE ARE TO BE FILLED WITH SYSTEM COMPATIBLE FILLER. ANY PROTRUSIONS TO BE GROUND SMOOTH. APPLY BONDING AGENT PRIOR TO POURING NEW PADS.

REMOVAL NOTES: □

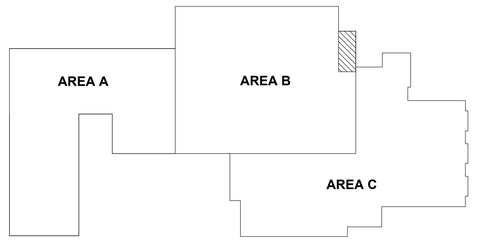
1. DISCONNECT AND REMOVE ALL EXISTING REFRIGERANT PIPING, SUPPORTS, INSULATION AND APPURTENANCES.
2. DISCONNECT AND REMOVE EXISTING COMPRESSOR AND ALL ASSOCIATED REFRIGERANT PIPING, INSULATION, SUPPORTS, HANGERS AND APPURTENANCES. REMOVE CONCRETE PAD BELOW COMPRESSOR.
3. DISCONNECT AND REMOVE EXISTING REMOTE EVAPORATOR TANK AND ALL ASSOCIATED SUPPORTS, REFRIGERANT PIPING, INSULATION, HANGERS, AND APPURTENANCES.
4. DISCONNECT AND REMOVE EXISTING STEAM AND CONDENSATE PIPE. INSULATION, SUPPORTS, HANGERS AND APPURTENANCES TO POINT INDICATED. PREPARE PIPING FOR RECONNECTION IN NEW WORK PHASE. EXISTING FLOOR OPENINGS ABOVE TO BE RE-USED IN NEW WORK PHASE.
5. DISCONNECT AND REMOVE EXISTING LOUVER, DAMPERS, AND TWO (2) PNEUMATIC DAMPER ACTUATORS. REMOVE PNEUMATIC TUBING BACK TO ENTRY INTO ROOM AND CAP. EXISTING OPENING TO BE TEMPORARILY SEALED FOR RE-USE IN NEW WORK PHASE.
6. DISCONNECT AND REMOVE EXISTING AIR HANDLING UNIT, SUPPORTS, PNEUMATIC CONTROLS AND APPURTENANCES.
7. DISCONNECT AND REMOVE ALL DUCTWORK, HANGERS, SUPPORTS, INSULATION AND APPURTENANCES TO POINT INDICATED. TEMPORARILY SEAL DUCTWORK AIR TIGHT FOR RE-USE IN NEW WORK PHASE.
8. DISCONNECT AND REMOVE EXISTING REFRIGERANT COILS AND ASSOCIATED PIPING, INSULATION, FITTINGS, AND CONTROLS. DISPOSE OF REFRIGERANT PER EPA REQUIREMENTS.
9. DISCONNECT AND REMOVE EXISTING STEAM HEATING COIL, PIPING, INSULATION, FITTINGS AND PNEUMATIC CONTROL VALVES.
10. DISCONNECT AND REMOVE EXISTING PNUMATIC CONTROL PANEL, TUBING AND APPURTNENANCES COMPLETE. DISOCNNECT PNEUMATIC TUBING BACK TO WALL PENETRATIONS INTO SPACE AND CAP. REFER TO FIGURE 1, THIS DRAWING.
11. DISCONNECT AND REMOVE TWO (2) EXISTING RETURN AIR DAMPERS AND ASSOCIATED PNEUMATIC ACTUATORS. PATCH AND SEAL REMAINING RETURN AIR DUCT OPENING AIR TIGHT. REFER TO FIGURE 2 THIS DRAWING.

DRAWING NOTES: ○

1. PROVIDE NEW CHILLED WATER PUMP, CONCRETE PAD, CONTROLS AND APPURTENANCES. COORDINATE FINAL PUMP INSTALLATION LOCATION WITH NEW STRUCTURAL SUPPORT BEAM. REFER TO DRAWING S-101.
2. PROVIDE NEW STEAM PIPING AND CONNECT AT POINT INDICATED.
3. PROVIDE NEW LOUVER IN EXISTING WALL OPENING.
4. PROVIDE NEW AIR HANDLING UNIT, SUPPORTS, CONTROLS, AND APPURTENANCES.
5. CONNECT NEW DUCTWORK TO EXISTING AT POINT INDICATED AND SEAL AIR TIGHT.
6. PROVIDE NEW DUCT MOUNTED STEAM HATING COIL, PIPING, INSULATION, FITTINGS, CONTROLS AND APPURTENANCES.
7. PROVIDE LPS/LPC UP THROUGH TO FLOOR ABOVE. RE-USE EXISTING OPENINGS.
8. PROVIDE LPS/LPC UP THROUGH TO FLOOR ABOVE. CORE DRILL FLOOR TO PROVIDE NEW OPENINGS AS REQUIRED.
9. CLEAN EXISTING TO REMAIN DUCTWORK, INCLUDING ANY BACKDRAFT DAMPERS AND/OR VOLUME DAMPERS.
10. PROVIDE CWS/R UP THROUGH TO FLOOR ABOVE. CORE DRILL FLOOR TO PROVIDE NEW OPENINGS AS REQUIRED.
11. PROVIDE ~1" DEEP PLENUM BOX BEHIND LOUVER L-1. PROVIDE DUCT CONNECTION TO EXISTING RETURN AIR DUCT AT CEILING.
12. PROVIDE DUCT TRANSITION AND DROP DOWN TO AHU-1 INTAKE CONNECTION.
13. INSTALL NEW AUTOMATIC AIR DAMPER IN EXISTING RETURN AIR MAIN, UPSTREAM OF OUTDOOR AIR CONNECTION AND DROP TO AHU-1 INTAKE CONNECTION.
14. PROVIDE CHEMICAL POT FEEDER. CALGON #20 MICROMET. COORDINATE FINAL LOCATION WITH EXISTING CONDITIONS AND OWNER PREFERENCES. ROUTE DRAIN LINE TO NEAREST FLOOR DRAIN.

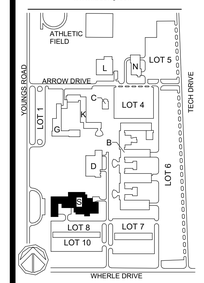


FIG. 2 EXISTING 124"x30" RETURN AIR OPENING AND DAMPER



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Building Name: STUDENT CENTER
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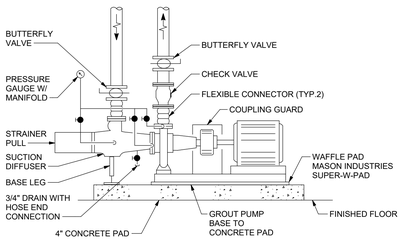
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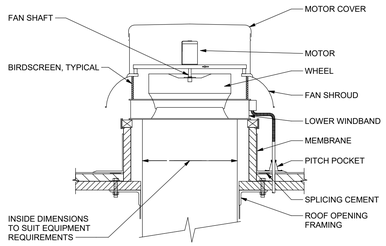
No.	Date	Description

Title: **ENLARGED FLOOR PLANS**

Project Number: 23539
Drawn By: MMB/RBE
Date: 08/05/2024
Sheet: **H-400**



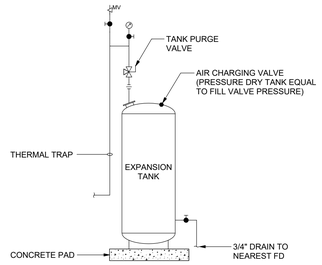
1 BASE MOUNTED PUMP DETAIL - END SUCTION
NTS



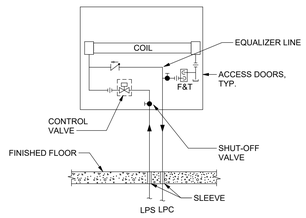
NOTES:

1. PROVIDE ATTACHMENT OF ROOF CURB TO STRUCTURE AND ATTACHMENT OF EQUIPMENT TO ROOF CURB PER SECTION 230550.
2. BUILT UP ROOF SIMILAR, PROVIDE CANTS.
3. MAINTAIN EXISTING ROOF WARRANTY OR WARRANTY FOR 5 YEARS, WHICHEVER IS GREATER.
4. DIRECT DRIVE AND EC MOTOR FANS SIMILAR.

2 DOWN BLAST EXHAUST FAN DETAIL - FLAT ROOF
NTS



3 EXPANSION TANK DETAIL
NTS

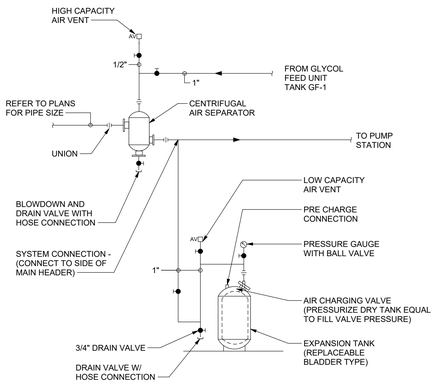


UP FEED

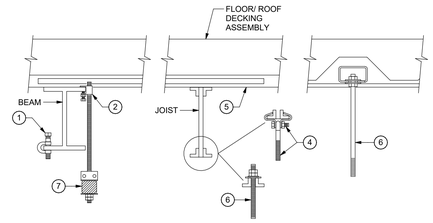
NOTES:

1. ACCESS DOORS ARE NOT REQUIRED ON CONVECTORS WITH HINGED TYPE MOUNTING OF CABINET FRONT PANEL.

4 CONVECTOR PIPING DETAIL
NTS



5 EXPANSION TANK PIPING SCHEMATIC
NTS



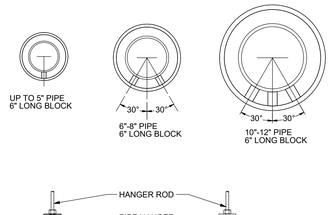
GENERAL NOTES:

A. PROVIDE LINKED EYELETS WITH STUDS AT CONNECTION TO SLOPING STRUCTURE WITH PITCH OF 1 IN 2 OR GREATER. BENDING OF HANGER RODS NOT ALLOWED.

DRAWING NOTES:

1. BOTTOM FLANGED MOUNTED "C" CLAMP WITH SET SCREW, LOCKNUT, AND RETAINING STRAP (FOR USE ON BEAMS ONLY, NOT ALLOWED ON JOISTS).
2. TOP FLANGED MOUNTED "C" CLAMP WITH SET SCREW AND LOCKNUT (FOR USE ON BEAMS ONLY, NOT ALLOWED ON JOISTS).
3. STEEL PLATE WASHER WITH DOUBLE NUT.
4. CONCENTRIC BEAM CLAMP WITH THREADED, WELDED EYEROD. FOR USE WITH JOIST AND BEAMS.
5. CHANNEL SPANNING BETWEEN BEAMS AND/OR JOISTS IN DECKING "CAVITY". SET ON AND SECURE TO BEAMS AND JOISTS.
6. STEEL ALL-THREAD RODS.
7. VIBRATION ISOLATION DEVICE ASSEMBLY FOR FANS, AIR-HANDLING UNITS, FAN COIL UNITS, ETC.

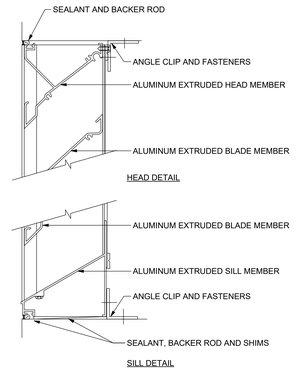
6 HANGERS SUPPORT FASTENING DETAIL
NTS



NOTES:

1. "H-BLOCK" BY ICA, INC. OR APPROVED EQUAL.

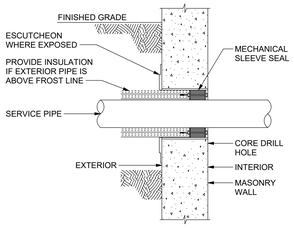
7 INSULATION SHIELD & BLOCKING DETAIL
NTS



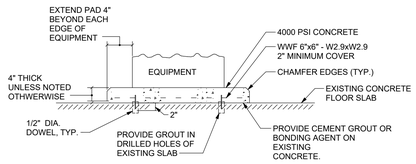
NOTES:

1. THIS DETAIL SHOWS TYPICAL SUGGESTED INSTALLATION AND ANCHORING METHODS FOR MOUNTING LOUVERS IN AN OPENING. LOUVERS ARE DESIGNED TO RESIST UP TO A 100 MPH WIND LOCAD. LOUVER MUST BE POSITIONED PLUMB AND SQUARE AND INSTALLED WITHIN THE OPENING USING UP CLIP ANGLES POSITIONED 18" ON-CENTER.

8 LOUVER DETAIL
NTS



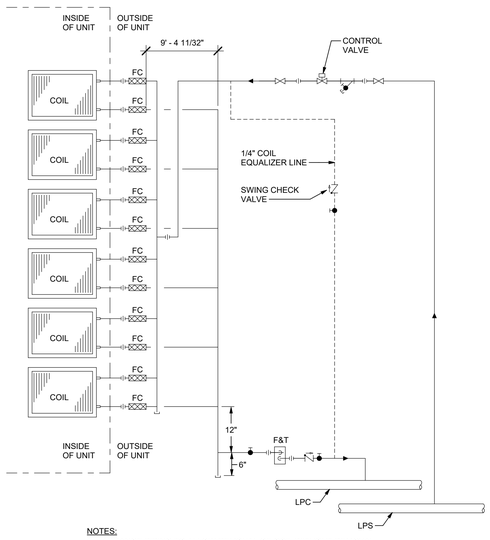
9 PIPE SLEEVE DETAIL
NTS



NOTES:

1. PROVIDE CONCRETE BASES FOR ALL FLOOR MOUNTED EQUIPMENT.
2. PROVIDE TROWEL FINISH.
3. SET ANCHOR BOLTS IN SLEEVES BEFORE POURING.
4. PROBVIDE 1/2" REBAR DOWEL EVERY 2 SQ. FT. OF BASE AREA, MIN 2 PER SIDE.

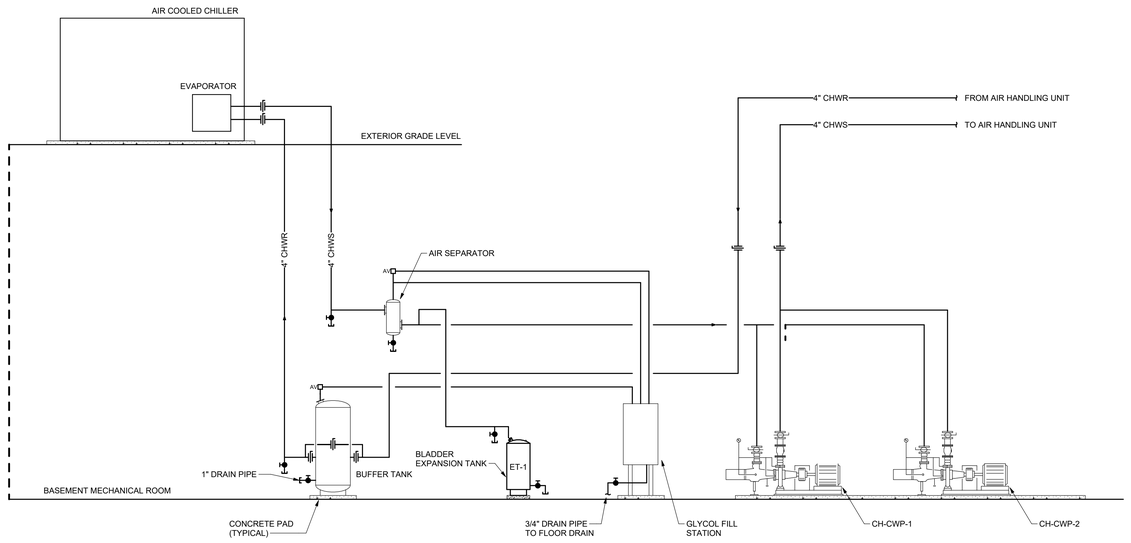
10 HOUSEKEEPING PAD DETAIL
NTS



NOTES:

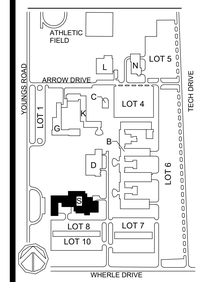
1. ARRANGE PIPING TO ALLOW REMOVAL OF COIL WITHOUT REMOVAL OF PIPING AHEAD OF UNIONS AND TO ALLOW ACCESS TO FILTER AND ACCESS PANEL.

11 DUAL STEAM COIL PIPING DETAIL
NTS



12 CHILLED WATER SYSTEM PIPING SCHEMATIC
NTS

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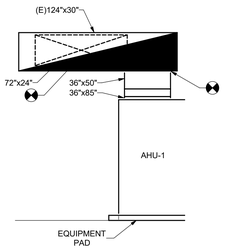
Title
HVAC DETAILS

Project Number
23539

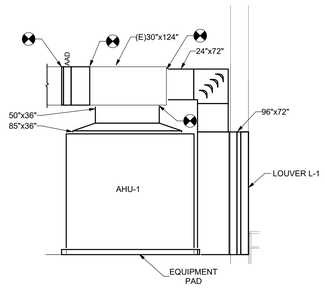
Drawn By
RBE

Date
08/05/2024

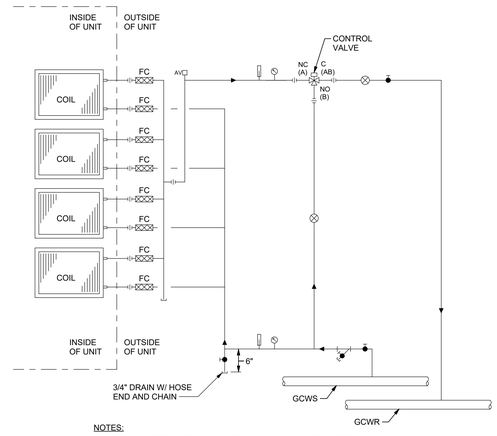
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H-500



1 FIRST FLOOR MECHANICAL ROOM SECTION 1
1/4" = 1'-0"

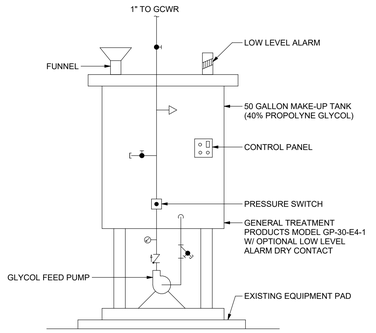


2 FIRST FLOOR MECHANICAL ROOM SECTION 2
1/4" = 1'-0"



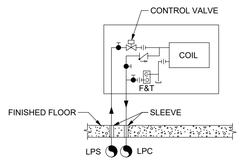
NOTES:
1. ARRANGE PIPING TO ALLOW REMOVAL OF COIL WITHOUT REMOVAL OF PIPING AHEAD OF UNIONS AND TO ALLOW ACCESS TO FILTER AND ACCESS PANEL.

3 GLYCOL CHILLED WATER COIL PIPING DETAIL
NTS



NOTES:
1. WIRING OF LOW LEVEL ALARM TO BMS BY DIV. 23.

4 GLYCOL FILL DETAIL
NTS



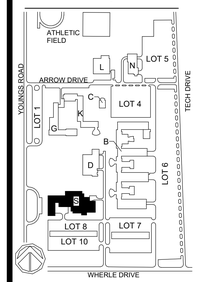
UP FEED

NOTES:
1. PIPING FOR CEILING MOUNTED UNITS IS SIMILAR.

5 CABINET UNIT HEATER PIPING DETAIL - STEAM
NTS

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client
SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

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ISSUE FOR BID

Revisions

No.	Date	Description

Title
HVAC DETAILS & SECTIONS

Project Number
23539

Drawn By
Author

Date
08/05/2024

Sheet
H-501

AIR HANDLING UNIT SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	MINIMUM OA (CFM)	DCV OA (CFM)	SUPPLY FAN MIN (CFM)	MAX (CFM)	S.P. (IN. W.G.) EXT.	TOTAL	FAN QNT.	FAN DIA (IN)	FAN (RPM)	MOTOR(S) RPM	HP	QNT.	VOLTS	PH	STARTER	HEATING COIL(S) TOP & MIDDLE - STEAM - 4 PSIG TOTAL AIRFLOW (CFM)	CAP. (MBH)	FLOW (LBS/HR)	ROWS	COILS PER BANK	EAT (°F)	LAT (°F)	FACE VEL. (FPM)	APD (IN)	HEATING COIL - BOTTOM - STEAM - 4 PSIG TOTAL AIRFLOW (CFM)	CAP. (MBH)	FLOW (LBS/HR)	ROWS	COILS PER BANK	EAT (°F)	LAT (°F)	FACE VEL. (FPM)	APD (IN)
AHU-1	MECHANICAL ROOM 175	CAFETERIA & KITCHEN	13,575	1,275	22,500	27,000	2.0	4.02	2	27.0	1681	1800	20	2	200-208/3	3	ASD BY E.C.	14,728	588.9	611.6	1	4	37.0	73.7	499.3	0.11	12,272	490.7	509.6	1	2	37.0	73.2	499.2	0.11

COOLING COIL - 40% PG AIRFLOW (CFM)	TOTAL (MBH)	SENS. (MBH)	FLOW (GPM)	WPD (FT)	ROWS	EWT (°F)	LWT (°F)	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	FACE... (FPM)	APD (IN)	UNIT ELECTRIC DATA V	PH	FLA	FILTRATION	WEIGHT (LBS)	DESIGN EQUIPMENT	REMARKS
27,000	1087.0	805.9	169.4	21.08	10	44.0	58.0	81.5	67.2	54.2	53.8	500	1.19	200-208	3	65	2" MERV 8	8,310	TRANE PSCA	1, 2, 3

REMARKS

1. UNIT IS BASE MOUNTED WITH TOP RETUN INLET AND TOP SUPPLY OUTLET.
2. UNIT SHALL BE SHIPPED IN 5 PIECES FOR FIELD INSTALLATION. COMPONENETS TO BE BROUGHT INTO MECHANICAL ROOM THROUGH EXTERIOR WALL OPENING WHERE EXISTING LOUVER HAS BEEN REMOVED.
3. UNIT HAS SIX (6) STEAM COILS AND FOUR (4) CHILLED WATER COILS. CONTRACTOR RESPONSIBLE FOR PIPING COILS THAT TERMINATE INSIDE THE UNIT TO THE EXTERIOR OF THE UNIT AND PROVIDING A COMMON HEADER FOR SINGLE PIPE CONNECTION.

40% PG CHILLED WATER AIR SEPARATOR SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	FLOW RATE (GPM)	P.D. (FT)	CONNECTION SIZE (IN)	DESIGN EQUIPMENT	REMARKS
AS-1	BSMT MECH RM	CHW SYSTEM	169.4	1.0	4	BELL & GOSSETT ROLAIRTROL R-4F	1

REMARKS

1. AIR SEPARATOR TO HAVE 304 STAINLESS STEEL STRAINER.

40% PG CHILLED WATER PUMP SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	FLOW (GPM)	WPD (FT)	MAX WP	RPM	BHP	EFF. (%)	PUMP TYPE	MOTOR DATA HP	RPM	V	PH	STARTER	DESIGN EQUIPMENT	REMARKS
CH-CWP-1	BSMT MECH RM	CHW SYSTEM	169.4	70.0	250	1614	4.5	69.1	BASE MOUNTED END SUCTION	7 1/2	1,750	208	3	ASD BY EC	BELL AND GOSSETT E-1510 2BD	1
CH-CWP-2	BSMT MECH RM	CHW SYSTEM	169.4	70.0	250	1614	4.5	69.1	BASE MOUNTED END SUCTION	7 1/2	1,750	208	3	ASD BY EC	BELL AND GOSSETT E-1510 2BD	1

REMARKS

1. PROVIDE NEW 4" HOUSEKEEPING PAD.

FAN SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	MIN AIRFLOW (CFM)	MAX AIRFLOW (CFM)	SP (IN WC)	BLADE TYPE	FAN (RPM)	DRIVE TYPE	MOTOR DATA HP	RPM	V	PH	STARTER	DESIGN EQUIPMENT	REMARKS
EF-122-A	CAFETERIA ROOF	CAFETERIA RELIEF	4700	14,250	0.50	BI	574	BELT	5	1,725	460	3	PKG	GREENHECK LB-36-50	1, 2
EF-122-B	CAFETERIA ROOF	CAFETERIA RELIEF	4700	14,250	0.50	BI	574	BELT	5	1,725	460	3	PKG	GREENHECK LB-36-50	1, 2

REMARKS

1. PROVIDE WITH WIND RATED CURB. SECURE FAN AND CURB TO STRUCTURE TO MEET ALL NYS WIND RESTRAINT REQUIREMENTS.
2. PROVIDE WITH COMBINATION MOTOR STARTER/DISCONNECT.

40% PG EXPANSION TANK SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	REQUIRED VOLUME (GAL)	REQUIRED ACCEPTANCE VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	TANK VOLUME (GAL)	DIMENSIONS (IN) DIA	HEIGHT	SYSTEM CONNECTION (IN.)	DESIGN EQUIPMENT	REMARKS
ET-1	BSMT MECH RM	CHW SYSTEM	14.5	5.9	23	23	16	37	1	BELL & GOSSETT B85	1

REMARKS

1. PROVIDE NEW 4" HOUSEKEEPING PAD.

40% PG CHILLED WATER BUFFER TANK SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	DIMENSIONS (IN) HEIGHT	DIAMETER	TANK VOLUME (GAL)	DESIGN EQUIPMENT	REMARKS
CBT-1	BSMT MECH RM	CHW SYSTEM	72	30	200	CEMLINE V200 CWB4-F-C-0-I	1

REMARKS

1. PROVIDE NEW 4" HOUSEKEEPING PAD. INSTALL PER MANUFACTURER INSTRUCTIONS ON HOUSEKEEPING PAD.

40% PROPYLENE GLYCOL MAKE-UP UNIT SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	TANK VOLUME (GAL)	ELECTRICAL V	PH	HZ	DESIGN EQUIPMENT	REMARKS
GF-1	BSMT MECH RM	CHW SYSTEM	55	115	1	60	JOHN WOOD JWGP-53-055	1

REMARKS

1. PROVIDE NEW 4" HOUSEKEEEPING PAD. UNIT REQUIRES SINGLE 115V 1-PHASE POWER CONNECTION.

AIR COOLED CHILLER SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	CAPACITY (TONS)	FLUID	FLOW (GPM)	WPD (FT)	EWT (°F)	LWT (°F)	CIRCUITS	EER	IPLV	REFRIGERANT TYPE	CKT 1...	CKT 2...	UNIT ELECTRIC DATA V	PH	KW	MCA	WEIGHT (LBS)	DESIGN EQUIPMENT	REMARKS
CH-1	OUTDOOR ENCLOSURE - AREA C	AHU-1	90	40% PG	158.1	11.60	58.0	44.0	2	10.0	16.1	R-454B	69 LBS	69 LBS	208	3	102.00	396.0	5,961	TRANE CGAM	1

REMARKS

1. UNIT TO BE INSTALLED WITH STRUCTURAL STEEL SUPPORTS TO ELEVATE ABOVE GROUND IN EXISTING ENCLOSURE. COORDINATE WITH STRUCTURAL DRAWING S-100.

LOUVER SCHEDULE - BUILDING S

TAG	LOCATION	SERVICE	AIRFLOW (CFM)	APD (IN WC)	FREE AREA (SQFT)	FACE VEL. (FPM)	BIRD SCREEN	SIZE (IN) LENG...	HEIGHT	DEPTH	DESIGN EQUIPMENT	REMARKS
L-1	MECH RM 175	AHU-1	27,000	0.15	6,048.0	1,222	YES	72.0	96.0	6.0	GREENHECK EMH-601	1

REMARKS

1. INSTALL LOUVER IN EXISTING EXTERIOR WALL OPENING.

CONVECTOR SCHEDULE - STEAM - 4 PSIG

TAG	LOCATION	MOUNT TYPE	HEATING CAPACITY BTU/H	UNIT DIMENSIONS (IN) LENGTH	HEIGHT	DEPTH	DESIGN EQUIPMENT	REMARKS
CONV-1	AREA A - 1ST FLR - HALLWAY 226	WALL - RECESSED	11,400	46	24	6	RITTLING MODEL PL	1
CONV-2	AREA A - NW STAIR - 2ND LEVEL	WALL - RECESSED	12,720	48	32	6	RITTLING MODEL PL	1
CONV-3	AREA A - NE STAIR - 2ND LEVEL	WALL - RECESSED	12,720	48	32	6	RITTLING MODEL PL	1
CONV-4	CORRIDOR 214	WALL - SLOPE TOP	18,960	64	24	8	RITTLING MODEL SL	1

REMARKS

1. CONTRACTOR TO CONFIRM ALL DIMENSIONS OF EQUIPMENT AND FACE GRILLES PRIOR TO RELEASE SO THAT EXISTING WALL OPENINGS ARE FULLY COVERED WHEN NEW CONVECTOR IS INSTALLED.

CABINET UNIT HEATER SCHEDULE - STEAM

TAG	LOCATION	TYPE	AIRFLOW (CFM)	HEATING COIL - STEAM MBH	PSIG	EAT (°F)	LAT (°F)	MOTOR DATA HP	QNT	V	PH	FLA	STARTER	DIMENSIONS (IN.) LENGTH	HEIGHT	DEPTH	DESIGN EQUIPMENT	REMARKS
CUH-4	VESTIBULE 101	WALL RECESSED	220	18.7	4.0	40.0	118.0	1/4	1	120	1	0.9	ECM	38	24	10	RITTLING RFRW-340-02	1, 2
CUH-5	VESTIBULE - AREA C - WEST	WALL RECESSED	220	18.7	4.0	40.0	118.0	1/4	1	120	1	0.9	ECM	38	24	10	RITTLING RFRW-340-02	1, 2
CUH-6	VESTIBULE 123	WALL RECESSED	220	18.7	4.0	40.0	118.0	1/4	1	120	1	0.9	ECM	38	24	10	RITTLING RFRW-340-02	1, 2
CUH-7	VESTIBULE 124	WALL RECESSED	300	25.5	4.0	40.0	118.0	1/4	1	120	1	0.8	ECM	44	24	10	RITTLING RFRW-340-03	1, 2
CUH-8	VEST. - AREA A - NORTHEAST	WALL RECESSED	300	25.5	4.0	40.0	118.0	1/4	1	120	1	0.8	ECM	44	24	10	RITTLING RFRW-340-03	1, 2
CUH-9	AREA A - NORTHEAST	WALL RECESSED	300	25.5	4.0	40.0	118.0	1/4	1	120	1	0.8	ECM	44	24	10	RITTLING RFRW-340-03	1, 2

REMARKS

1. CABINET UNIT HEATER TO BE INSTALLED IN EXISTING CABINET UNIT HEATER LOCATION. FIELD VERIFY ALL DIMENSIONS PRIOR TO ORDERING NEW EQUIPMENT. NEW CABINET UNIT HEATER MUST FIT WITHIN EXISTING WALL CAVITY. PROVIDE WALL SEAL KIT TO COMPLETELY COVER EXISTING WALL OPENING.
2. PROVIDE ECM MOTOR CONTROLLER WITH LOCAL SPEED POTENTIOMETER CAPABLE OF DRY CONTACT ENABLE / DISABLE CONTROL BY BMS.

REHEAT COIL SCHEDULE - STEAM - 4 PSIG

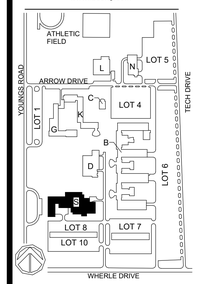
TAG	AREA SERVED	AIRFLOW (CFM)	CAP (MBH)	FLOW (LBS)	ROWS	EAT (°F)	LAT (°F)	FACE... (FPM)	APD (IN)	DIMENSIONS (IN) WIDTH	HEIGHT	DESIGN EQUIPMENT	REMARKS
SHC-1	CAFETERIA	13,500	409.9	425.4	1	57.0	85.0	900	0.31	72	30	TRANE DNSB30072G0AA	1
SHC-2	KITCHEN	13,500	409.9	425.5	1	57.0	85.0	893	0.30	66	33	TRANE DNSB33066G0AA	1

REMARKS

1. INSTALL IN DUCTWORK AND SUPPORT FROM STURCTURE ABOVE.

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ISSUE FOR BID

Revisions
No. Date Description

Title: HVAC SCHEDULES

Project Number: 23539
Drawn By: RBE
Date: 08/05/2024
Sheet: H-800

COMMON ELEMENTS

GENERAL

a. SPACES WITH MULTIPLE SPACE TEMPERATURE SENSORS SHALL CALCULATE AN AVERAGE SPACE TEMPERATURE TO BE USED FOR OPERATION OF THE SYSTEM(S).

b. DURING OCCUPIED TIMES, ALL VENTILATION EQUIPMENT SHALL OPERATE AT NO LESS THAN MINIMUM OUTSIDE AIR VENTILATION RATE, SUBJECT TO SEQUENCE EMERGENCY AND FAILURE MODE OPERATIONS DESCRIBED WITHIN THE CONTRACT DOCUMENTS.

c. ALL CONTROL PARAMETERS NOTED WITHIN THESE SEQUENCES ARE TO BE USER ADJUSTABLE AND SHALL BE FINE-TUNED FOR BEST OPERATION DURING SYSTEM STARTUP, TEST AND BALANCE, AND FUNCTIONAL PERFORMANCE TESTING. ALL ALARMS SHALL BE PROVIDED AT THE OPERATOR 'S WORKSTATION AND COORDINATED WITH OWNER 'S NEEDS FOR CRITICAL ALARMS, SUCH AS PAGERS, TEXT MESSAGING, ETC.

d. SHUTDOWN OF AIR HANDLING UNITS AND FANS DUE TO A FIRE ALARM SHALL BE BY DIVISION 26. THE FIRE ALARM SYSTEM COMMON ALARM CONDITION SHALL BE MONITORED BY THE BMS FOR MONITORING PURPOSES ONLY. THE BMS WILL PROVIDE AN ORDERLY SHUTDOWN ON ALARM, AND STAGGERED RESTART OF THE EQUIPMENT ONCE THE ALARM IS CLEARED.

e. UNLESS STATED TO THE CONTRARY, ALL HARDWARE POINTS (AI, AO, BI AND BO) SHALL BE HARDWIRED TO BMS CONTROLLERS. DATA POINTS SUCH AS ANALOG AND BINARY VARIABLES SHALL BE ACCESSED THROUGH EQUIPMENT INTEGRATION AS BACNET OBJECTS SPECIFICALLY WHERE CALLED FOR.

f. ALL GLOBAL SYSTEM POINTS (TYPICALLY OUTDOOR AIR TEMPERATURE, HUMIDITY AND / OR CO2, REFER TO CONTROL DIAGRAMS AND POINT MATRICES FOR ADDITIONAL INFORMATION) SHALL BE INTEGRATED INTO CONTROLLER OPERATION THROUGH USE OF DEFINED ANALOG VARIABLES RATHER THAN DIRECT NETWORK POINT REFERENCE. THE ANALOG VARIABLES SHALL BE UPDATED AT AN ADJUSTABLE RATE, INITIALLY ONCE EVERY 120 SECONDS, AND SHALL BE CAPABLE OF BEING OVERRIDDEN ON AN INDIVIDUAL CONTROLLER BASIS TO FACILITATE SYSTEM COMMISSIONING AND MANUAL SYSTEM OPERATION.

ISOLATION DAMPER CONTROL:

a. EQUIPMENT WITHOUT ADJUSTABLE SPEED DRIVES: THE BMS SHALL COMMAND THE ISOLATION DAMPER OPEN. THE DAMPER ACTUATOR END SWITCH SHALL MAKE ONCE THE DAMPER IS FULLY OPENED, COMPLETING THE STARTER CIRCUIT AND ENABLING EQUIPMENT OPERATION. THIS SHALL BE WIRED SUCH THAT THE FAN(S) WILL NOT START IN HAND, AUTOMATIC OR BYPASS WITHOUT THE DAMPER BEING PROVEN OPEN.

b. EQUIPMENT WITH ADJUSTABLE SPEED DRIVES: THE BMS SHALL COMMAND THE VFD "RUN ENABLE" DIGITAL INPUT. IF NO VFD OR SAFETY INTERLOCK ERRORS / LOCKOUTS ARE IN PLACE, THE VFD "DRIVE READY" OUTPUT RELAY SHALL MAKE, ROTATING THE ISOLATION DAMPER OPEN. THE DAMPER ACTUATOR END SWITCH SHALL MAKE ONCE THE DAMPER IS FULLY OPENED, COMPLETING THE VFD SECONDARY SAFETY INTERLOCK CIRCUIT AND ENABLING EQUIPMENT OPERATION. THIS SHALL BE WIRED SUCH THAT THE FAN(S) WILL NOT START IN HAND, AUTOMATIC OR BYPASS WITHOUT THE DAMPER BEING PROVEN OPEN.

SPACE TEMPERATURE SETPOINTS SHALL BE AS FOLLOWS:

a. OCCUPIED MODE:

1. 75ºF (ADJ) COOLING SETPOINT
2. 70ºF (ADJ) HEATING SETPOINT

b. UNOCCUPIED MODE (NIGHT SETBACK):

1. 85ºF (ADJ) COOLING SETPOINT
2. 55ºF (ADJ) HEATING SETPOINT

SAFETIES:

a. AIR HANDLERS EQUIPPED WITH SMOKE DETECTORS IN THE SUPPLY AND/OR RETURN DUCTWORK, AND A FREEZESTAT DOWNSTREAM OF THE HEATING COIL. ALL SAFETY DEVICES SHALL BE HARD WIRED IN SERIES THROUGH THE "DRIVE INHIBIT"(OR SAFETY INTERLOCK IF AVAILABLE) VFD INPUTS OF BOTH SUPPLY AND RETURN FANS TO SHUT THEM DOWN IMMEDIATELY ON SAFETY TRIP. AN AUXILIARY CONTACT ON ALL DEVICES SHALL BE MONITORED INDIVIDUALLY TO PROVIDE SPECIFIC TRIP INFORMATION AT THE OPERATOR'S CONSOLE. ON TRIP OF ANY SAFETY DEVICE, ALL PID LOOPS SHALL AUTOMATICALLY ENTER SHUTDOWN MODE. ON MANUAL (FIELD) RESET OF THE SAFETY DEVICE(S), THE FAN PID LOOPS SHALL RAMP UP, FOLLOWED BY THE LOOPS CONTROLLING THE BALANCE OF THE AIR HANDLING SYSTEM IN THE ORDER DESCRIBED IN THE STARTUP SEQUENCE. PROGRAMMING SHALL PRECLUDE THE "WIND UP" OF PID LOOPS DURING SHUTDOWN CONDITIONS.

GLOBAL SENSORS:

a. EXCEPT WHERE SHOWN TO THE CONTRARY ON THE CONTRACT DOCUMENTS, A SINGLE SET OF OUTDOOR TEMPERATURE AND HUMIDITY SENSORS SHALL BE UTILIZED AS "GLOBAL SENSORS" FOR HVAC EQUIPMENT.

OPTIMIZED SYSTEM STARTUP

a. ALL EQUIPMENT OVER 1,000 CFM SHALL USE AN OPTIMIZED STARTUP WITH ASSOCIATED MORNING WARMUP / COOL DOWN ROUTINE.

B. ALL EQUIPMENT UNDER 1,000 CFM SHALL USE SIMPLE OCCUPIED / UNOCCUPIED SCHEDULING WITH ADEQUATE PRE-START TO ACHIEVE OCCUPIED TEMPERATURE SETPOINTS PRIOR TO OCCUPIED TIME.

C. WARM-UP MODE — OPTIMIZED STARTUP:

1. THE BMS SHALL CALCULATE THE REQUIRED WARM-UP TIME BASED ON EACH ZONE 'S OCCUPIED HEATING SET POINT, THE CURRENT ZONE TEMPERATURE, THE OUTDOOR AIR TEMPERATURE, AND A MASS/CAPACITY FACTOR. THE MASS FACTOR SHALL BE TUNED BY THE BMS. WARM-UP MODE SHALL START BASED ON ZONE WITH THE LONGEST CALCULATED WARM-UP REQUIREMENT, BUT NO LESS THAN 30 MINUTES PRIOR TO SCHEDULED OCCUPANCY.
2. SUPPLY FAN SHALL OPERATE AT MAXIMUM FLOW FOR VARIABLE VOLUME SINGLE ZONE UNITS, OR CONTROL TO DUCT STATIC PRESSURE FOR VAV SYSTEMS.
3. THE ECONOMIZER DAMPER (AS APPLICABLE) SHALL BE POSITIONED TO 100% RETURN AIR [SUBJECT TO THE REQUIREMENTS OF DEMAND CONTROLLED VENTILATION PRE-PURGE].
4. WHERE SUPPLY TO RETURN FAN CFM TRACKING IS SPECIFIED, THE RETURN FAN SHALL REVERT TO A FIXED PERCENTAGE SPEED OF SUPPLY DURING WARMUP OPERATION DURING 100% RETURN AIR OPERATION. WHERE RELIEF/EXHAUST FANS ARE SPECIFIED, THESE SHALL REMAIN DISABLED.
5. LEAVING AIR TEMPERATURE SETPOINT SHALL BE FIXED TO 85 ºF UNTIL ALL SYSTEM SPACE TEMPERATURE SENSORS REACH OCCUPIED HEATING SETPOINT, AT WHICH TIME THE UNIT SHALL ENTER NORMAL OCCUPIED OPERATION.
6. UPON COMPLETION OF THE WARMUP CYCLE, AS INDICATED BY ALL SPACE SENSORS REACHING WITHIN 1 ºF OF HEATING SPACE TEMPERATURE SETPOINT, THE UNIT SHALL SWITCH TO OCCUPIED MODE OPERATION.

D. COOL-DOWN MODE:

1. THE BMS SHALL CALCULATE THE REQUIRED COOL-DOWN TIME BASED ON EACH ZONE 'S OCCUPIED COOLING SET POINT, THE CURRENT ZONE TEMPERATURE, THE OUTDOOR AIR TEMPERATURE, AND THE MASS/CAPACITY FACTOR. THE MASS FACTOR SHALL BE TUNED BY THE BMS. COOL-DOWN MODE SHALL START BASED ON THE ZONE WITH THE LONGEST CALCULATED COOL-DOWN TIME REQUIREMENT, BUT NO LESS THAN 30 MINUTES PRIOR TO SCHEDULED OCCUPANCY.
2. THE LEAVING AIR TEMPERATURE SET POINT SHALL BE 55°F, AND THE ECONOMIZER AND COOLING COIL (WHERE APPLICABLE) SHALL BE CONTROLLED IN SEQUENCE, SUBJECT TO ECONOMIZER LOCKOUT CONTROL, TO MAINTAIN A 55°F LEAVING AIR TEMPERATURE.
3. SUPPLY FAN SHALL OPERATE AT MAXIMUM FLOW FOR VARIABLE VOLUME SINGLE ZONE UNITS, OR CONTROL TO DUCT STATIC PRESSURE FOR VAV SYSTEMS.
4. ECONOMIZER COOLDOWN IS NOT AVAILABLE - WHERE SUPPLY TO RETURN FAN CFM TRACKING IS SPECIFIED, THE RETURN FAN SHALL REVERT TO A FIXED PERCENTAGE SPEED OF SUPPLY. WHERE RELIEF/EXHAUST FANS ARE SPECIFIED, THESE SHALL REMAIN DISABLED. MINIMUM VENTILATION RATE SHALL BE SET TO ZERO.
5. ECONOMIZER COOLING IS AVAILABLE — MINIMUM VENTILATION RATE SHALL BE SET PER OCCUPIED MODE. FAN TRACKING (RETURN AND / OR EXHAUST/RELIEF) TO OPERATE PER OCCUPIED MODE
6. UPON COMPLETION OF THE COOL-DOWN CYCLE, AS INDICATED BY ALL SPACE SENSORS REACHING WITHIN 1 ºF OF COOLING SPACE TEMPERATURE SETPOINT, UNIT OPERATION SHALL SWITCH TO OCCUPIED MODE OPERATION.

DEMAND CONTROL VENTILATION (DCV):

a. THE CO_2 LEVEL SHALL BE MEASURED USING A TOTAL OF FOUR SPACE CO $_2$ SENSOR(S) AS LOCATED ON THE PROJECT DRAWINGS (TWO IN THE RESTAURANT, TWO IN THE CAFETERIA) AND A RETURN AIR CO_2 SENSOR. THE SPACE CO_2 SENSOR(S) AND RETURN AIR CO_2 SENSOR SHALL BE CONTINUOUSLY MONITORED, AND THE SENSOR WITH THE HIGHEST READING FOR THE UNIT UNDER CONTROL SHALL BE DEFINED AS THE "CONTROL CO_2 LEVEL."

b. THE HVAC SYSTEM SEQUENCE OF OPERATION FOR NORMAL THERMAL CONTROL IS UNCHANGED BY INCORPORATION OF THE DCV SEQUENCE BELOW. DCV REPRESENT A FUNCTION THAT RECALCULATED THE MINIMUM VENTILATION RATE IN ORDER TO MAINTAIN CO2 LEVELS WITHIN DESIRED LEVELS.

c. THE CALCULATED OA VENTILATION REQUIREMENT: SHALL BE DYNAMICALLY CALCULATED USING THE CONTROL CO $_2$ LEVEL. AS THE CONTROL CO2 LEVEL RISES FROM 700 PPM TO A LEVEL OF 1100 PPM, THE SYSTEM SHALL DYNAMICALLY RESET THE CALCULATED OA VENTILATION REQUIREMENT BETWEEN THE SCHEDULED "DCV MIN OA" AND "MIN OA" VALUES.

UNIT TAG	DCV MIN OA	MIN OA
CAFETERIA	1275 CFM	5300 CFM

d. THE DDC SYSTEM SHALL CONTROL THE OUTDOOR AIR INTAKE VOLUME AT NO LESS THAN THE CALCULATED OA VENTILATION REQUIREMENT BY MODULATING THE RETURN AND OUTSIDE AIR DAMPERS.

e. IF THE DDC SYSTEM DETERMINES THAT IT IS BENEFICIAL TO USE ADDITIONAL OUTSIDE AIR FOR VENTILATION ("ECONOMIZER") COOLING, THEN IT SHALL OVERRIDE THE DEMAND-CONTROLLED VENTILATION ALGORITHM TO MODULATE THE DAMPERS TO AN INCREASED OUTDOOR AIR POSITION AS REQUIRED.

SEQUENCE OF OPERATION - CHILLER

A. GENERAL:

1. AIR COOLED GLYCOL CHILLED WATER (GCW) SYSTEM.
2. CHILLED WATER PUMP AND GLYCOL MAKEUP UNIT (GMU)
3. DEDICATED SERVICE TO CAFETERIA / KITCHEN AIR HANDLING UNIT.
4. ALL PARAMETERS WITHIN THIS SEQUENCE SHALL BE USER ADJUSTABLE, TO BE OPTIMIZED DURING SYSTEM COMMISSIONING.

B. OCCUPIED OPERATION

1. LEAD GCW PUMP SHALL BE ENABLED AT ALL TIMES THAT THE OUTDOOR AIR TEMPERATURE IS ABOVE 55 DEGREES LOCKOUT(ADJ) AND THE CAFETERIA AIR HANDLER IS IN OCCUPIED OR COOLDOWN OPERATION. THE PUMP SHALL MODULATE TO A FIXED SPEED EQUATING TO THE DESIGN GCW FLOW TO BE DETERMINED DURING TAB ACTIVITY.
2. CHILLER OPERATION SHALL BE SUBJECT TO DEMAND FOR COOLING.
   a. DEMAND FOR COOLING SHALL BE BASED UPON UNIT CHILLED WATER VALVE POSITION RISING ABOVE 35% OPEN TO COIL.
   b. UNIT SHALL BE DISABLED AS THE CHILLED WATER VALVE POSITION FALLS BELOW 20% OPEN TO COIL.
3. CHILLER OPERATION SHALL BE SUBJECT TO CONFIRMED RUN STATUS OF THE LEAD CHILLED WATER PUMP AND INTERLOCK TO FLOW STATUS SWITCH.

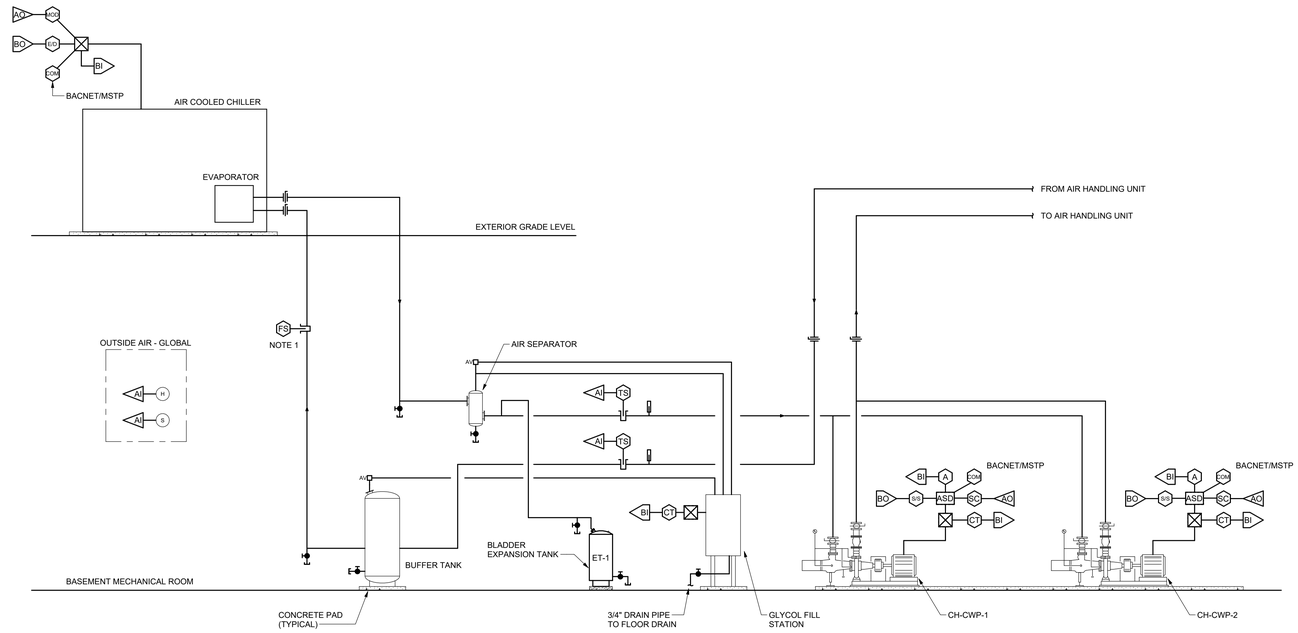
C. CHILLED WATER PUMP OPERATION

1. THE LEAD TO LAG PUMP ROTATION SHALL TAKE PLACE EACH SUBSEQUENT RESTART OF THE CHILLED WATER SYSTEM WHEN THE LEAD PUMP RUNTIME HAS EXEEDED 192 HOURS.
2. IN THE EVENT OF LEAD PUMP FAILURE, THE LAG PUMP SHALL BE ENABLED AND OPERATED AT A SPEED EQUATING TO DESIGN GCW FLOW OF THE SYSTEM. THE LEAD PUMP SHALL REMAIN ENABLED.
3. IF LEAD PUMP OPERATION IS RESTORED, THE LAG PUMP SHALL BE DISABLED AND A RETURN TO OPERATION NOTIFICATION PROVIDED AT THE OWS.
4. THE OPERATOR SHALL HAVE THE ABILITY TO FLAG EITHER PUMP OFFLINE, CAUSING THE REMAINING PUMP TO OPERATE AS LEAD AND DISABLING RUNTIME ROTATION AND FAILURE BACKUP STRATEGIES.
5. ON SYSTEM SHUTDOWN, THE OPERATING CHILLED WATER PUMP SHALL CONTINUE TO RUN FOR 5 MINUTES AFTER CHILLER STATUS IS CONFIRMED TO BE FULLY OFF.

D. CHILLED WATER TEMPERATURE RESET

1. THE GCW CONTROL SETPOINT SHALL BE 50 DEGREES UPON INITIAL SYSTEM STARTUP.
2. RESET OF GCW CONTROL SETPOINT:
   a. IF THE AHU GCW VALVE IS OPENED MORE THAN 80% TO COIL, THE GCW SETPOINT SHALL BE INCREMENTED DOWNWARD 0.5 DEGREES EACH 2 MINUTES UNTIL THE VALVE IS NO LONGER MORE THAN 80% OPEN OR A MINIMUM SETPOINT OF 44 DEGREES IS ACHIEVED.
   b. IF THE AHU GCW VALVE IS OPENEND LESS THAN 60% TO COIL, THE GCW SETPOINT SHALL BE INCREMETNED UPWARD 0.5 DEGREES EACH 2 MINUTES UNTIL THE VALVE IS NO LONGER LESS THAN 60% OPEN TO COIL OR A MAXIMUM SETPOINT OF 55 DEGREES IS ACHIEVED.

CHILLED WATER SYSTEM CONTROL POINTS LIST	HARDWARE POINTS				SOFTWARE POINTS						NOTES
POINT NAME	BI	BO	AI	AO	AV	BV	SCH	ALARMS	TREND	DESCRIPTION	
PUMP CH-CWP-1 STATUS	X							PUMP FAILURE	X		
PUMP CH-CWP-1 START/STOP		X							X		
PUMP CH-CWP-1 ASD SPEED CONTROL				X					X		
PUMP CH-CWP-1 ALARM					X			MULTISTATE ALARM			
PUMP CH-CWP-2 STATUS	X							PUMP FAILURE	X		
PUMP CH-CWP-2 START/STOP		X							X		
PUMP CH-CWP-2 ASD SPEED CONTROL				X					X		
PUMP CH-CWP-2 ALARM					X			MULTISTATE ALARM			
CHILLER SETPOINT CONTROL				X					X		
CHILLER ENABLE/DISABLE		X							X		
CHILLER ALARM					X			MULTISTATE ALARM			
GCWS TEMPERATURE			X								
GCWR TEMPERATURE			X						X		
CHILLER PERCENT LOADING	X				X				X	BacNet Value	
CHILLER EVAPORATOR SUPPLY TEMPERATURE					X				X	BacNet Value	
CHILLER EVAPORATOR RETURN TEMPERATURE											
HS-CW-GMU LOW LEVEL ALARM	X							LOW LEVEL	X		
OUTDOOR TEMPERATURE			X						X	SYSTEM GLOBAL VALUE	
OUTDOOR HUMIDITY			X						X	SYSTEM GLOBAL VALUE	



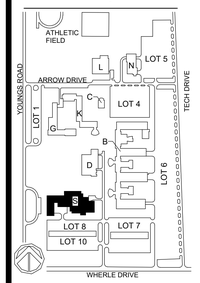
NOTES:

1. FLOW SWITCH FURNISHED BY MANUFACTURER, INSTALLED AND WIRED BY THIS CONTRACTOR.

1 CHILLED WATER SYSTEM CONTROL SCHEMATIC
1/8" = 1'-0"

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name: STUDENT CENTER

Address: SUNY Erie North Campus
6205 Main Street
Williamsville, NY 14221

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ISSUE FOR BID

Revisions

No.	Date	Description

Title: HVAC CONTROLS - COMMON ELEMENTS & CHILLER

Project Number: 23539

Drawn By: RBE

Date: 08/05/2024

Sheet: H-801

SEQUENCE OF OPERATIONS — AIR HANDLING UNIT

A. GENERAL
1. VARIABLE VOUME "SINGLE ZONE" AIR HANDLER WITH SUPPLY FAN
2. STEAM PRE-HEAT COIL WITH INTEGRAL FACE AND BYPASS DAMPER.
3. STEAM REHEAT COILS (TYP 2 ZONES)
4. GLYCOL CHILLED WATER COOLING.
5. SERVES AS MAKEUP AIR FOR EXISTING KITCHEN HOOD SYSTEMS (TYP 3)
6. ECONOMIZER OPERATION
7. MECHANICAL RELIEF
8. DEMAND CONTROLLED VENTILATION
9. ALL PARAMETERS OF THIS SEQUENCE SHALL BE USER ADJUSTABLE AND OPTIMIZED DURING SYSTEM COMMISSIONING.

B. OCCUPIED OPERATION
1. FAN CONTROL
   a. SYSTEM STARTUP SHALL USE AN OPTIMIZED STARTUP ROUTINE. REFER TO COMMON ELEMENTS.
   b. THE AIR HANDLER SHALL BE PLACE IN OCCUPIED OPERATION WHEN ANY OF THE THREE KITCHEN HOODS ARE ACTIVATED.
   c. THE SUPPLY FAN SHALL RUN CONTINUOUSLY ON START COMMAND, NORMALLY AT MINIMUM SCHEDULED AIR FLOW. IF THE SUPPLY FAN IS MANUALLY STOPPED AT THE OPERATORS WORKSTATION ALL ALARMS SHALL BE DISABLED EXCLUDING THE FREEZE STAT.
   d. THE SUPPLY FAN SHAL MODULATE BETWEEN MINIMUM AND MAXIMUM SCHEDULED AIR FLOW RATES AS DESCRIBED WITHIN THE REHEAT COIL PARAGRAPH OF THIS SEQUENCE.

2. CALCULATED LEAVING AIR TEMPERATURE SETPOINT
   a. IF BOTH ZONE REHEAT COIL VALVES ARE OPEN MORE THAN 50%, CALCULATED VALUE T1 SHALL BE INCREMENTED UP (INITIAL VALUE 0.5 DEG / 5 MIN) UNTIL AT LEAST ONE VALVE IS LESS THAN 50% OPEN OR A MAXIMUM VALUE OF 65 DEGREES IS ATTAINED.
   b. IF EITHER REHEAT COIL VALVES IS OPEN LESS THAN 10%, CALCULATED VALUE T2 SHALL BE INCREMENTED DOWN (INITIAL VALUE 0.5 DEG / 5 MIN) UNTIL ALL ONE REHEAT COIL VALVES ARE OPEN MORE THAN 10% OR A MINIMUM OF 57 DEGREES IS ATTAINED
   c. AS THE GREATER HUMIDITY VALUE OF EITHER REHEAT ZONE OR THE RETURN AIR RISES FROM 55% TO 60%, CALCULATED VALUE T2 SHALL BE RESET FROM A HIGH VALUE OF 65 DEREES TO A LOW VALUE OF 57 DEGREES.
   d. THE LESSER OF T1 OR T2 SHALL BE USED FOR THE AHU LEAVING AIR TEMPERATURE CONTROL SETPOINT.

3. PREHEAT COIL:
   a. THE PREHEAT COIL VALVE SHALL MODULATE IN SEQUENCE WITH THE ECONOMIZER AND CHILLED WATER COOLING FOR CONTROL OF CALCULATED LEAVING AIR TEMPERATURE SETPOINT WITHOUT OVERLAP.
   b. WHEN THE OUTDOOR AIR TEMPERATURE RISES ABOVE 35 DEGREES, THE FACE AND BYPASS DAMPER SHALL OPEN FULLY TO FACE, AND THE STEAM VALVE SHALL MODULATE FOR CONTROL OF CALCULATED LEAVING AIR TEMPERATURE SETPOINT.
   c. WHEN THE OUTDOOR AIR TEMPERATURE FALLS BELOW 32 DEGREES:
      i. STEAM VALVE SHALL OPEN FULLY
      ii. THE FACE AND BYPASS DAMPER SHALL MODULATE FOR CONTROL OF CALCULATED LEAVING AIR TEMPERATURE SETPOINT
      iii. IN THE EVENT THAT THE FACE AND BYPASS DAMPERS HAVE MODUATED TO FULL BYPASS AND LEAVING AIR TEMPERATURE REMAINS ABOVE SETPOINT, THE STEAM VALVE SHALL BE MODULATED CLOSED IN SEQUENCE, SUBJECT TO A MINIMUM OPEN POSITION OF 50%.

4. COOLING OPERATION:
   a. ECONOMIZER NOT AVAILABLE — SUBJECT TO CHILLER OPERATION, THE GLYCOL CHILLED WATER CONTROL VALVE SHALL MODULATE TO MAINTAIN CALCULATED COOLING COIL DISCHARGE AIR TEMPERATURE SETPOINT.
   b. ECONOMIZER COOLING IS AVAILABLE — ECONOMIZER SHALL BE USED FOR INITIAL STAGE OF COOLING. IF THE ECONOMIZER IS FULLY OPEN TO OUTDOOR AIR AND ADDITIONAL COOLING IS REQUIRED, CHILLED WATER SHALL BE USED AS TRIM CAPACITY TO ACHIEVE CALCULATED COOLING COIL DISCHARGE AIR TEMPERATURE SETPOINT.

5. RELIEF FAN OPERATION (EF-122-A & EF-122-B)
   a. THE EXISTING MECHANICAL RELIEF SHALL HAVE THE EXISTING BACKDRAFT DAMPERS AND RELIEF HOODS REMOVED AND AUTOMATIC AIR DAMPERS, ACTUATORS AND VARIABLE SPEED RELIEF FANS INSTALLED.
   b. FAN ENABLE COMMAND SHALL OPEN THE ISOLATION DAMPER. THE FAN SHALL BE ENABLED BY HARD WIRE INTERLOCK TO THE ISOLATION DAMPER ACTUATOR END SWITCH.
   c. THE RELIEF FANS SHALL BE ADJUSTED DURING TESTING AND BALANCING ACTIVITY TO TRACK OUTDOOR AIR INTAKE RATE PER THE ECONOMIZER SECTION OF THIS SEQUENCE.

6. OUTSIDE AND RETURN AIR DAMPERS [ECONOMIZER]:
   a. ECONOMIZER LOCKOUT SHALL BE DETERMINED BY COMPARATIVE DRY BULB LOCKOUT. WHEN THE RETURN AIR TEMPERATURE IS MORE THAN 4 DEGREES COOLER THAN OUTDOOR AIR, ECONOMIZER OPERATION SHALL BE PERMITTED.
   b. MINIMUM OUTDOOR AIR MODE: WHEN ECONOMIZER NOT REQUIRED OR NOT AVAILABLE — THE ECONOMIZER SHALL MODULATE TO MAINTAIN CALCULATED MINIMUM OUTDOOR AIR RATE.
   c. ECONOMIZER MODE: WHEN ECONOMIZER IS AVAIABLE AND REQUIRED FOR COOLING — ECONOMIZER SHALL OPERATED AS DESCRIBED UNDER COOLING OPERATION.
   d. CALCULATION OF MINIMUM OUTDOOR AIR INTAKE RATE:
      i. MINIMUM OUTOOR AIR INTAKE RATE SHALL BE THE GREATER OF THAT CALCULATED FOR DEMAND CONTROLLED VENTILATION OR AS NECESSARY PER THE TABLE BELOW FOR MAKEUP AIR TO THE EXHAUST FAN EF-5 AND KITCHEN HOODS:

FAN DESIGNATION	REQUIRED MAKE UP AIR FLOW
HOOD #1 (EF 13 / EF14)	5300 CFM
HOOD #2 (EF 12)	2650 CFM
HOOD #3 (EF 15 / EF16)	N/A (DEDICATED MUA UNIT IN PLACE)
GENERAL EF-5	650 CFM

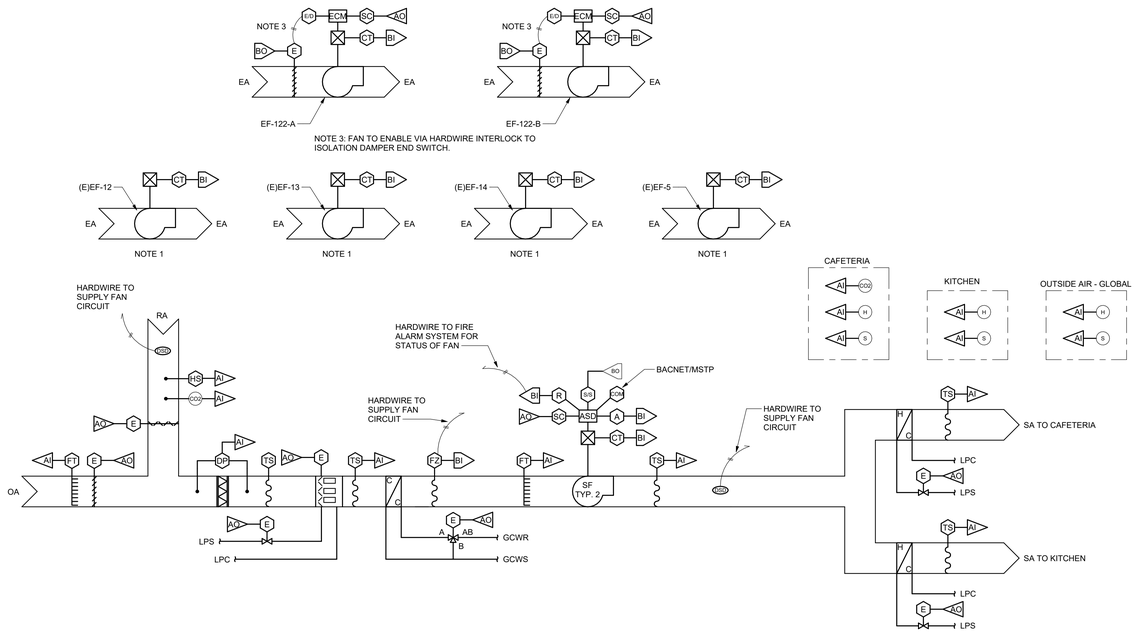
   e. AS ECONOMIZER INTAKE RATE RISES IN EXCESS OF THE REQUIRED MAKEUP AIR FLOW FOR THE KITCHEN EXHAUST FANS, THE RELIEF FANS SHALL BE MODULATED 1500 CFM GREATER THAN THE EXCESS.
      1. EXAMPLE 1:, HOOD 1 AND E661 ACTIVE, HOOD 2 INACTIVE — REQUIRED MUA 5950 CFM. ECONOMIZER INTAKE 17000 CFM. REIEF FANS CONTROL AT (17000 +1500 - 5950) = 12550 CFM.
      2. EXAMPLE 2: HOOD 1 OPERATING, DCV IS REQUIRING 8000 CFM OF OUTDOOR AIR INTAKE. RELIEF FANS CONTROL AT (8000+1500-5300)=3550 CFM.
      3. EXAMPLE 3: HOOD 2 ACTIVE AND EF661 OPERATING, UNIT AT 100% OUTDOOR AIR, TOTAL CFM 18000. RELIEF FANS CONTROL AT (18000 + 1500 - (2650 + 650)) = 16200 CFM
   f. THE POWER RELIEF FANS SHALL BE CONTROLLED TO 1500 CFM GREATER THAN THE OUTDOOR AIR INTAKE RATE FOR THE CAFETERIA .
      1. EF-122-A / EF-122-B SHALL BE OPERATED LEAD / LAG OVER THE RANGE OF RELIEF VOLUME REQUIREMENTS.
      2. FANS SHALL ROTATE LEAD TO LAG EACH SUBSEQUENT SYSTEM RESTART BASED ON THE FAN WITH THE LOWEST RUN HOURS AS LEAD.
      3. IN THE EVENT THAT THE LEAD FAN FAILS, THE LAG FAN SHALL ROTATE TO LEAD AND ECONOMIZER OPERATION SHALL BE DISABLED.
      4. RANGE OF RELIEF FAN OPERATION AND COORDINATION WITH ECONOMIZER INTAKE / KITCHEN EXHAUST OPERATION SHALL BE COORDINATED DURING SYSTEM TESTING AND BALANCING ACTIVITY.

7. DEMAND CONTROLLED VENTILIATION — REFER TO COMMON ELEMENTS.

8. REHEAT COIL / FAN SPEED OPERATION:
   a. THE SUPPLY FAN SHALL NORMALY OPERATE AT MINIMUM AIR FLOW AS SCHEDULED.
   b. THE ASSOCIATED SPACE TEMPERATURE SENSORS SHALL BE AVERAGED, AND THIS VALUE VERSUS SPACE HEATING TEMPERATURE SETPOINT USED TO CALCULATED REQUIRED REHEAT COIL LEAVING AIR TEMPERATURE.
   c. IF THE SPACE TEMPERATURE IS MORE THAN 0.5 DEG BELOW HEATING SPACE TEMPERATURE SETPOINT, THE REHEAT COIL LEAVING AIR TEMPERATURE SHALL BE INCREMENTED FROM A LOW VALUE EQUAL TO SPACE TEMPERATURE TO A HIGH VALUE OF 85 DEGREES AT A RATE OF 0.5 DEG EACH MINUTE.
   d. IF THE SPACE TEMPERATURE IS MORE THAN 0.5 DEG ABOVE COOLING SPACE TEMPERATURE SETPOINT, THE REHEAT COIL LEAVING AIR TEMPERATURE SHALL BE INCREMENTED FROM A HIGH VALUE EQUAL TO SPACE TEMPERATURE TO A LOW VALUE OF 57 DEGREES AT A RATE OF 0.5 DEG EACH MINUTE.
   e. IF THE SPACE TEMPERATURE IS BETWEEN HEATING AND COOLING SPACE TEMPERATURE SETPOINTS, THE REHEAT COIL LEAVING AIR TEMPERATURE SHALL BE EQUAL TO SPACE TEMPERATURE.
   f. IF EITHER COIL LEAVING AIR TEMPERATURE MINIMUM OR MAXIMUM VALUES HAVE BEEN REACHED AND THE SPACE REQUIRES ADDITIONAL HEATING OR COOLING, THE AIR HANDLER AIR FLOW SHALL BE RAMPED IN RESPONSE TO HEATING OR COOLING DEMAND FOR ADDITIONAL HEATING / COOLING CAPACITY TO SATISFY ZONE TEMPERATURE CONDITIONS.

C. UNOCCUPIED MODE:
1. SUPPLY FAN DISABLES
2. ECONOMIIZER POSITIONS TO 100% RETURN AIR
3. RELIEF FANS OFF, DAMPERS CLOSED
4. GLYCOL CHILLED WATER VALVE CLOSED
5. PREHEAT COIL
   a. CLOSE DAMPERS TO FULL FACE POSITION
   b. IF THE OUTDOOR AIR TEMPERATURE RISES ABOVE 38 DEGREES, CLOSE VALVE.
   c. IF THE OUTDOOR AIR TEMPERATURE FALLS BELOE 35 DEGREES, MODULATE VALVE TO MAINTAIN TEMPERATURE AT MIXED AND DISCHARGE AIR SENSORS AT 65 DEGREES.
   d. ON A CALL FOR NIGHT SETBACK HEATING FROM ANY ZONE:
      i. SUPPLY FAN ENABLED AT MINIMUM AIR FLOW
      ii. UNIT OPERATES AT 100% RETURN AIR
      iii. AHU LEAVING AIR TEMPERATURE AT FIXED 65 DEGREES
      iv. REHEAT COIL LEAVING AIR TEMPERATURES FIXED AT 85 DEGREES.
      v. RELIEF FANS DISABLED, DAMPERS CLOSED
      vi. ONCE ALL SPACE TEMPERATURES EXCEED SETBACK LEVELS PLUS 2 DEGREES, THE UNIT SHALL RETURN TO UNOCCUPIED SHUTDOWN.

D. SAFETIES AND ALARM
1. FREEZESTAT
2. FAN FAILURE
3. ASD FAILURE
4. LOW MIXED AIR TEMPERATURE
5. HIGH / LOW SPACE TEMPERATURE
6. REHEAT COIL FAILURE

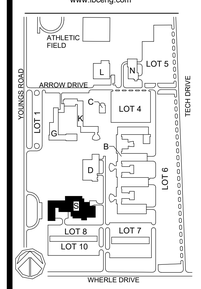


AIR HANDLING UNIT CONTROL POINTS LIST	HARDWARE POINTS				SOFTWARE POINTS				NOTES
POINT NAME	BI	BO	AI	AO	AV	BV	TREND	ALARM DESCRIPTION	
SUPPLY FAN START/STOP		X					X		NOTE 2
SUPPLY FAN STATUS	X						X	MOTOR FAILURE	NOTE 2, TYP 2
SUPPLY FAN SPEED COMMAND				X			X		NOTE 2
SUPPLY FAN ASD ALARM					X			MULTISTATE VALUE	NOTE 2
SUPPLY FAN KW					X		X		NOTE 2
SUPPLY FAN SPEED (RPM)					X				NOTE 2
SUPPLY AIR FLOW			X				X		
EF-122-A ENABLE/DISABLE		X							
EF-122-A STATUS	X								
EF-122-A SPEED COMMAND				X					
EF-122-B ENABLE/DISABLE		X							
EF-122-B STATUS	X								
EF-122-B SPEED COMMAND				X					
EXISTING KITCHEN HOOD EXHAUST FAN EF-12 STATUS	X								NOTE 1
EXISTING KITCHEN HOOD EXHAUST FAN EF-13 STATUS	X								NOTE 1
EXISTING KITCHEN HOOD EXHAUST FAN EF-14 STATUS	X								NOTE 1
EXISTING KITCHEN HOOD EXHAUST FAN EF-5 STATUS	X								NOTE 1
GLYCOL CHILLED WATER COIL VALVE				X			X		
FREEZE STAT STATUS	X						X	FREEZE STAT FAN SHUTDOWN	
FAN FIRE ALARM RELAY	X						X	FAN SHUT DOWN ON FIRE ALARM	
SUPPLY AIR TEMPERATURE			X				X	(+/-) 4deg FROM SETPOINT	
RETURN AIR TEMPERATURE			X				X		
RETURN AIR RH			X				X	RH > 65%	
RETURN AIR CO2			X				X	CO2 > 1100PPM	
MIXED AIR TEMPERATURE			X				X		
RETURN AIR DAMPER				X					
OUTSIDE AIR DAMPER				X			X		
PREHEAT COIL STEAM VALVE CONTROL				X			X		
PREHEAT COIL INTEGRAL F/B CONTROL				X			X		
PREHEAT COIL DISCHARGE AIR TEMPERATURE			X				X	(-) 5deg. FROM SETPOINT	
CAFETERIA REHEAT COIL STEAM CONTROL VALVE				X			X		
CAFETERIA REHEAT COIL LEAVING AIR TEMPERATURE			X				X		
CAFETERIA SPACE TEMPERATURE			X				X	HIGH / LOW SPACE TEMPERATURE	
CAFETERIA SPACE HUMIDITY			X				X	RH > 65%	
CAFETERIA CO2			X				X	CO2>1100PPM	TYP 2
RESTAURANT CO2			X				X	CO2>1100PPM	TYP 2
KITCHEN REHEAT COIL STEAM CONTROL VALVE				X			X		
KITCHEN REHAT COIL LEAVING AIR TEMPERATURE			X				X		
KITCEN SPACE TEMPERATURE			X				X		
KITCHEN SPACE HUMIDITY			X				X	RH > 65%	
OUTSIDE AIR TEMPERATURE			X				X		GLOBAL VALUE
OUTSIDE AIR RH			X				X		GLOBAL VALUE
OUTSIDE AIR FLOW RATE			X				X	(+/-) 10% DEVIATION FROM SET POINT	
FILTER STATUS			X				X	EXCEED DIFFERENTIAL PRESSURE SETPOINT	

NOTES:
1. EXISTING KITCHEN EXHAUST FAN CONTROLLED BY EXISTING LOCAL SWITCH AT HOOD
2. TWO SUPPLY FANS ON SINGLE ASD. PROVIDE SEPARTE FAN STATUS INDICATIONS VIA CT

1 AIR HANDLING UNIT CONTROL SCHEMATIC
1/8" = 1'-0"

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UPGRADE PROJECT
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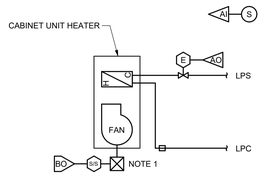
ISSUE FOR BID

Revisions

No.	Date	Description

Title: **HVAC CONTROLS - AIR HANDLING UNIT**

Project Number: 23539
Drawn By: RBE
Date: 08/05/2024
Sheet: **H-802**



NOTES:
1. PROVIDE HARD WIRE INTERLOCK TO ENABLE/DISABLE FAN VIA CONTROL VALVE END SWITCH INTERLOCK.

SEQUENCE OF OPERATIONS

A. CONVECTOR RADIATION (STEAM):

B. TEMPERATURE SETPOINTS:
   1. OCCUPIED HEATING = 70 DEG. F (ADJ.)
      a. UNOCCUPIED HEATING = 55 DEG. F (ADJ.)

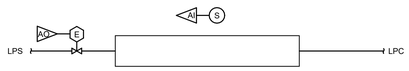
C. OPERATION
   1. STEAM CONTROL VALVE SHALL MODULATE AS REQUIRED TO MAINTAIN SPACE TEMPERTURE SETPOINT.

D. SAFETIES / OTHER CONTROL FUNCTIONS
   1. SPACE TEMPERATURE LOW / HIGH LIMITS.

TYPICAL STEAM CABINET UNIT HEATER CONTROL POINTS LIST	HARDWARE POINTS				SOFTWARE POINTS				NOTES
POINT NAME	BI	BO	AI	AO	AV	BV	TREND	ALARM	
CABINET UNIT HEATER FAN START/STOP		X							1
CABINET UNIT HEATER STEAM CONTROL VALVE		X					X		1
SPACE TEMPERATURE			X				X	SPACE TEMPERATURE BELOW 65°F (ADJ.)	1

NOTES:
1. TYPICAL FOR 17 UNITS.

1 CABINET UNIT HEATER CONTROL SCHEMATIC
1/8" = 1'-0"



SEQUENCE OF OPERATIONS

A. CABINET UNIT HEATER (STEAM):

   a. THE CABINET UNIT HEATER FAN SHALL BE ENABLED UPON CALL AS SPACE TEMPERATURE DROPS BELOW HEATING SETPOINT.
   b. THE FAN SHALL OPERATE AND THE STEAM CONTROL VALVE MODULATED UNTIL SPACE TEMPERATURE RISES 2 DEG (ADJ) ABOVE SETPOINT, AT WHICH TIME THE VALVE SHALL CLOSE AND THE FAN DISABLED AFTER AN ADJUSTABLE TIME DELAY.
   c. IF SPACE TEMPERATURE FALLS BELOW 50 DEG (ADJ.) OR UNIT HEAT STATUS DOES NOT EQUAL COMMAND, AN ALARM SHALL BE RECORDED AT THE OPERATORS WORKSTATION.

STEAM CONVECTOR CONTROL POINTS LIST	HARDWARE POINTS				SOFTWARE POINTS		NOTES
POINT NAME	BI	BO	AI	AO	TREND	ALARM DESCRIPTION	
SPACE TEMPERATURE			X			+/- 3 DEG F FROM SETPOINT	1
STEAM RADIATION CONTROL VALVE				X			1

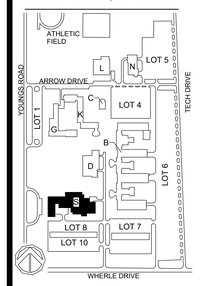
NOTES:
1. TYPICAL OF 5 CONVECTORS TOTAL IN CORRIDORS. REFER TO DRAWINGS FOR LOCATIONS.

2 CONVECTOR CONTROL SCHEMATIC
1/8" = 1'-0"

SUNY ERIE
State University of New York

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SUNY ECC NORTH CAMPUS SPRING
STUDENT CENTER CAFETERIA HVAC
UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client
SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name
STUDENT CENTER

Address
SUNY Erie North Campus
6205 Main Street
Williamsville, NY 14221

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ISSUE FOR BID

Revisions

No.	Date	Description

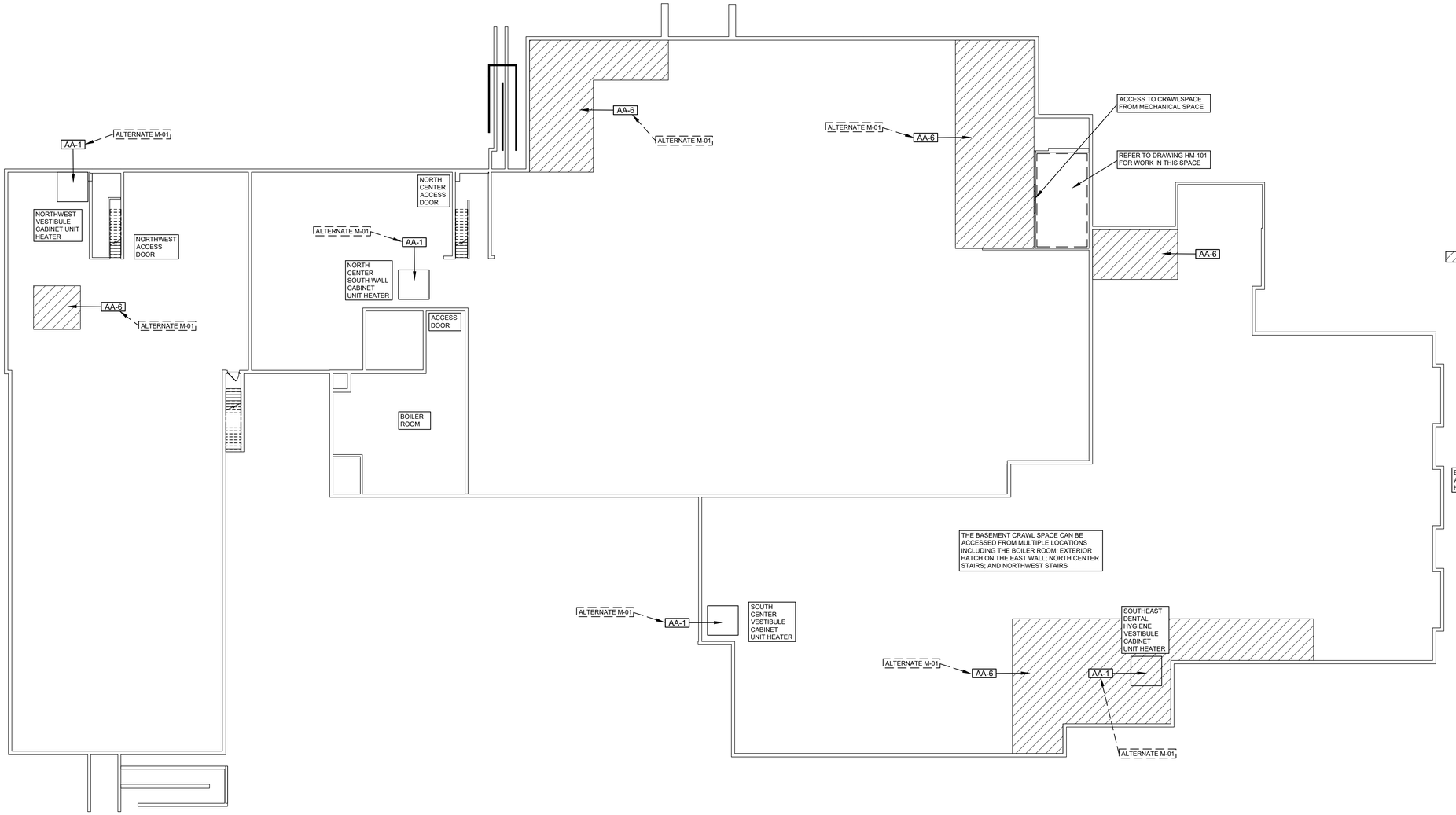
Title
HVAC CONTROLS

Project Number
23539

Drawn By
RBE

Date
08/05/2024

Sheet
H-803



1 BASEMENT HAZARDOUS MATERIALS REMOVAL PLAN

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

N

ASBESTOS ABATEMENT NOTES

AA-1 CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF MUDDED FITTINGS ON STEAM SUPPLY AND CONDENSATE RETURN PIPES LEADING TO FIRST FLOOR CABINET UNIT HEATERS IN VESTIBULES PROPOSED FOR REPLACEMENT. THE MECHANICAL CONTRACTOR SHALL DELINEATE PRECISE LIMITS OF PIPING TO BE REMOVED. REMOVE INSULATION APPROXIMATELY 6" BEYOND MUDDED FITTINGS AND SEAL WITH WETTED CLOTH. REMAINING INSULATION ON PIPING IS TO REMAIN AND SHALL BE PROTECTED DURING ABATEMENT OF MUDDED FITTINGS. CONTRACTOR SHALL ALSO ABATE ANY ASBESTOS DEBRIS IMMEDIATELY BELOW EACH LOCATION. DISPOSE OF REMOVED MUD FITTINGS ABUTTING PIPE INSULATION AND ASSOCIATED DEBRIS AS FRIABLE ASBESTOS-WASTE. EACH LOCATION REQUIRES REMOVAL OF LESS THAN 5 LINEAR FEET OF INSULATION.

AA-2 NOT USED.

AA-3 NOT USED.

AA-4 NOT USED.

AA-5 NOT USED.

AA-6 REMOVE ALL INSULATION FROM PIPES, ASSOCIATED DEBRIS ON FLOOR AND ANY POROUS MATERIALS WITHIN THE DESIGNATED AREAS. THE CURRENT CONDITION IS AN INCIDENTAL DISTURBANCE OF FRIABLE ASBESTOS WHICH WILL REQUIRE A VARIANCE FROM ICR-56 TO ADDRESS. SUBMIT A DRAFT VARIANCE PETITION TO THE OWNER AND THEIR REPRESENTATIVE FOR REVIEW PRIOR TO SUBMISSION TO NYSDOL ENGINEERING SERVICES.

AA-7 NOT USED.



PHOTO 1

VIEW OF AREA A BASEMENT CRAWL SPACE PIPING CONNECTED TO THE CABINET UNIT HEATER IN THE NORTHWEST VESTIBULE BY THE REGISTRARS OFFICE. MUDDED FITTINGS WERE OBSERVED ON THE PIPING TO THIS UNIT (ARROWS).



PHOTO 2

VIEW OF AREA B BASEMENT CRAWL SPACE ASBESTOS-CONTAINING MUDDED FITTINGS CONNECTED TO THE CABINET UNIT HEATER ON THE CORRIDOR WALL BY THE NORTH CENTER VESTIBULE.

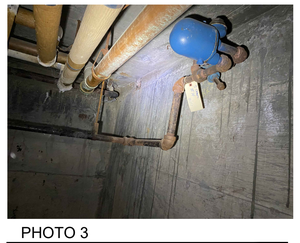


PHOTO 3

VIEW OF AREA B BASEMENT CRAWL SPACE BARE STEEL PIPING CONNECTED TO THE CABINET UNIT HEATER IN THE NORTH CENTER VESTIBULE. NEARBY PIPING ON ADJACENT BUT SEPARATE LINES WAS OBSERVED TO HAVE ASBESTOS-CONTAINING MUD FITTINGS.

GENERAL NOTES

A. CONTRACTOR SHALL PERFORM ALL WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL RULES, REGULATIONS, GUIDELINES, AND THE CONTRACT DOCUMENTS.

B. IF ANY PREVIOUSLY UNIDENTIFIED OR OTHERWISE UNANTICIPATED SUSPECT MATERIAL (I.E. SUSPECT ASBESTOS-CONTAINING MATERIAL, SUSPECT PCB-CONTAINING MATERIAL, MOLD GROWTH, ETC.) IS IDENTIFIED DURING CONSTRUCTION, STOP WORK AND NOTIFY THE OWNER OR THEIR REPRESENTATIVE FOR FURTHER DIRECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COLLECT AND/OR ANALYZE BULK SAMPLES OF SUSPECT MATERIALS WITHOUT THE APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.

C. THE DISTURBANCE OF ANY ASBESTOS-CONTAINING MATERIAL (ACM), OR SUSPECT ACM, SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR.

D. ALL MATERIAL MEASUREMENTS AND/OR QUANTITIES AND LOCATIONS ARE APPROXIMATE AND FOR GENERAL ORIENTATION ONLY.

E. THE LOCATION OF SITE STORAGE OF MATERIAL, EQUIPMENT, WASTE TRAILER/DUMPSTER(S), AS WELL AS CONTRACTOR PARKING, ETC. SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.

F. CONTRACTOR IS RESPONSIBLE FOR ALL TOOLS, EQUIPMENT, AND SUPPLIES. CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING LADDERS, SCAFFOLDING, LIFTS, PLANKING, ETC. AS REQUIRED TO PERFORM WORK. THE OWNER OR THEIR REPRESENTATIVE WILL NOT BE RESPONSIBLE FOR LOST, DAMAGED, OR STOLEN ITEMS.

G. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE WORK AREA IN A CLEAN AND SAFE CONDITION, PROVIDING TEMPORARY PROTECTION, PROTECTING BUILDING MATERIALS SCHEDULED TO REMAIN, AND TO PREVENT UNAUTHORIZED ACCESS DURING THE DURATION OF THE PROJECT. REPAIR OF DAMAGE CAUSED AS A RESULT OF INADEQUATE TEMPORARY PROTECTION OR CONTRACTOR ACTIVITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

H. WHERE FEASIBLE, NON-POROUS CLEANABLE MATERIALS REMOVED DURING ABATEMENT ACTIVITIES SHALL BE PROPERLY CLEANED AND RECYCLED OR DISPOSED OF AS C & D DEBRIS, AS APPROPRIATE. PROJECT MONITOR SHALL VISUALLY INSPECT ALL SUCH MATERIALS TO ENSURE PROPER CLEANING/DECONTAMINATION HAS OCCURRED PRIOR TO BEING REMOVED FROM THE REGULATED ABATEMENT WORK AREA.

I. ALL REMOVED ASBESTOS-CONTAINING MATERIALS AND ASBESTOS-CONTAMINATED WASTE SHALL BE PROPERLY PACKAGED PRIOR TO BEING REMOVED FROM THE WORK AREA(S). WARNING LABELS SHALL BE APPLIED TO ASBESTOS WASTE CONTAINERS AS APPROPRIATE. ALL ASBESTOS-CONTAINING MATERIALS/ASBESTOS-CONTAMINATED WASTE REMOVED FROM THE WORK AREA(S) SHALL BE ACCOMPANIED BY A WASTE SHIPMENT RECORD. COMPLETED WASTE SHIPMENT RECORDS MUST BE PROVIDED TO THE OWNER AS PART OF THE CLOSEOUT DOCUMENTATION. ALL ORIGINAL WASTE SHIPMENT RECORDS MUST BE PROVIDED TO THE OWNER WITHIN 35 DAYS OF THE WASTE LEAVING THE SITE.

J. COORDINATE ALL WORK ACTIVITIES WITH THE OWNER/OWNER'S REPRESENTATIVE TO ENSURE ONSITE ACTIVITIES ARE ACCEPTABLE TO THE OWNER, AND THAT REMOVALS ARE SUFFICIENT TO ACCOMMODATE THE PROJECT ACTIVITIES. THE ECC CAMPUS BUILDINGS WILL BE PARTIALLY OCCUPIED DURING ABATEMENT. CONTRACTOR SHALL COORDINATE ABATEMENT ACTIVITIES AND SCHEDULING WITH THE FACILITY. USE OF REMOTE DECONTAMINATION UNITS SHALL NOT BE ALLOWED UNLESS EXPRESSLY AUTHORIZED BY ERIE COUNTY DPW AND ECC REPRESENTATIVES.

K. REFER TO SPECIFICATION SECTION 028213 AND THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND COORDINATION.

L. THE PROVISIONS OF ANY SITE-SPECIFIC VARIANCE(S) OBTAINED BY THE CONTRACTOR MAY NOT BE IMPLEMENTED UNTIL APPROVAL IS GIVEN BY THE OWNER OR THE OWNER'S REPRESENTATIVE.

M. ALL CLEARANCE AIR SAMPLES WILL BE ANALYZED BY TRANSMISSION ELECTRON MICROSCOPY (TEM) USING THE METHOD SPECIFIED UNDER THE ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA).

N. ACTIVE FIRE DETECTION/PROTECTION SYSTEM COMPONENTS SHALL NOT BE CONSIDERED FIXED OBJECTS SUBJECT TO PLASTICIZATION, AND SHALL NOT BE SEALED WITH CRITICAL BARRIERS OR ISOLATION BARRIERS. THE FIRE DETECTION/PROTECTION SYSTEM IS TO BE FULLY OPERATIONAL DURING ABATEMENT ACTIVITIES AND IN ORIGINAL WORKING ORDER AFTER COMPLETION OF THE PROJECT. EXPOSED FIRE DETECTION/PROTECTION SYSTEM DEVICES SHALL BE PROTECTED DURING ACTIVE ABATEMENT WITH PLASTIC SHEETING DRAPED FROM ABOVE THE FIXTURE TO LOOSELY HANG DOWN BEYOND THE FACE ON ALL SIDES. FIRE DETECTION/PROTECTION SYSTEM DEVICES SHALL BE CLEANED BY HEPA-VACUUMING DURING EACH REQUIRED STAGE OF CLEANING. ENSURE THAT ALL FIRE DETECTION/PROTECTION SYSTEM COMPONENTS THAT MAY BE DETACHED DUE TO ABATEMENT AND/OR DEMOLITION ACTIVITIES ARE TEMPORARILY SECURED IN PLACE.

O. CONTRACTOR SHALL PROTECT AND NOT DAMAGE GAS SUPPLY LINES, STEAM HEAT SUPPLY AND RETURN LINES TO THE UNIT VENTILATORS, HVAC DUCTS OR OTHER PIPING, EQUIPMENT AND FITTINGS WITHIN THE REGULATED ABATEMENT AREAS.

P. CONTRACTOR IS RESPONSIBLE FOR ALL CONFINED SPACE ENTRY PROCEDURES FOR ENTERING CRAWL SPACES. THE CRAWL SPACES ARE NOT A PERMIT REQUIRED CONFINED SPACE.

Q. COORDINATE ANY PHASING, ABATEMENT AND DEMOLITION ACTIVITIES CLOSELY WITH THE GENERAL CONTRACTOR AND OTHER TRADES.

ASBESTOS AWARENESS NOTES

1. IF ASBESTOS-CONTAINING MATERIALS ARE ACCIDENTALLY DISTURBED OR IF UNIDENTIFIED SUSPECT ASBESTOS-CONTAINING MATERIALS ARE DISCOVERED WITHIN PROJECT LIMITS OR UNKNOWN HAZARDOUS MATERIALS ARE FOUND, CEASE WORK WITHIN THE AFFECTED AREA; CORDON OFF THE AFFECTED AREA OR ROOM AT THE LIMITS OF DISTURBANCE OR THE UNKNOWN MATERIALS AND CONTACT THE CONSTRUCTION MANAGER AND ENVIRONMENTAL CONSULTANT IMMEDIATELY.

2. ANY DISTURBANCE TO REGULATED ASBESTOS CONTAINING MATERIALS SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR EMPLOYING CERTIFIED WORKERS.

3. ALL CONTRACTORS/SUBCONTRACTORS SHALL BE AWARE THAT THE FOLLOWING ASBESTOS-CONTAINING MATERIALS ARE PRESENT WITHIN PROJECT LIMITS. REFER TO THE PRE-RENOVATION SURVEY FOR TEST RESULTS AND APPROXIMATE QUANTITIES.

   - MUDDED INSULATION ON STEAM SUPPLY AND CONDENSATE LINES AND PIPING TO CABINET UNIT HEATERS IN THE BASEMENT AND ON DOMESTIC WATER LINES THROUGHOUT THE BASEMENT AND ON MUDDED FITTINGS ABOVE SUSPENDED CEILING TILES.
   - BLACK TAR ON STRUCTURAL STEEL BEAMS ABOVE SUSPENDED CEILINGS THROUGHOUT THE BUILDING.
   - INSULATION ON LEAD WHIP WIRING TO ALL RECESSED INCANDESCENT LIGHT FIXTURES INCLUDING ENTRANCE CANOPY ROOFS.

LEAD BASED PAINT HANDLING AND AWARENESS NOTES

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR CONDUCTING ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS, INCLUDING OSHA 29 CFR 1926.62: LEAD EXPOSURE IN CONSTRUCTION: INTERIM FINAL RULE FOR ALL ACTIVITIES DURING WHICH AN EMPLOYEE MAY BE OCCUPATIONALLY EXPOSED TO LEAD.

2. ALL CONTRACTORS AND SUBCONTRACTORS SHALL ENSURE THAT THEIR EMPLOYEES WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT AND/OR UTILIZE APPROPRIATE WORK METHODS TO PREVENT ELEVATED BLOOD LEAD LEVELS OR EXPOSURE ABOVE THE PERMISSIBLE EXPOSURE LIMIT. DISPOSAL OF GENERATED PAINT CHIPS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE FEDERAL AND STATE REGULATIONS REGARDING LEAD.

3. FURNISHING THIS INFORMATION IS NOT INTENDED TO RELIEVE THE CONTRACTOR/SUBCONTRACTOR OF ITS RESPONSIBILITIES UNDER OSHA TO DETERMINE IF THEIR EMPLOYEES AND SUBCONTRACTORS MAY BE EXPOSED TO LEAD AND TO WARN THEIR EMPLOYEES OF THE POTENTIAL DANGERS OF THE DISTURBANCE OF LEAD-CONTAINING MATERIALS.

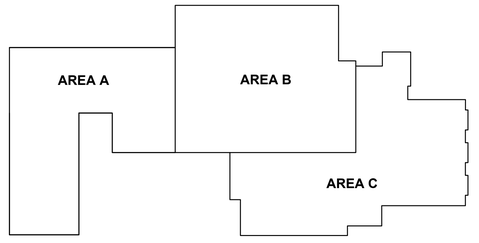
4. THE CONTRACTOR/SUBCONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE EPA'S LEAD RENOVATION REPAIR AND PAINTING (RRP RULE). USE OF HEAT GUNS SHALL BE LIMITED TO A TEMPERATURE LESS THAN 1,000°F AS NOT TO GENERATE LEAD FUMES. USE OF CHEMICAL STRIPPING AGENTS IS ALLOWED AT THIS FACILITY WHEN MSDS ARE SUBMITTED AND ARE APPROVED BY THE FACILITY MANAGEMENT AND THE ENVIRONMENTAL CONSULTANT.

5. IF PENETRATIONS AND/OR CUTTING OF STRUCTURAL STEEL BEAMS IS REQUIRED OR WILL DISTURB LEAD-BASED PAINT, CONTRACTOR SHALL PROPERLY COLLECT AND STORE ALL REMOVED PAINT (CHIPS, PAINT SLURRY, ETC.) AND ASSOCIATED DEBRIS GENERATED AT THESE COMPONENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR LABORATORY ANALYSIS FOR TCLP RCRA LEAD AND ANY OTHER REQUIRED DISPOSAL CHARACTERIZATION. PROPERLY DISPOSE OF ANY DEBRIS DETERMINED TO BE RCRA LEAD AS HAZARDOUS WASTE.

6. BASED ON TESTING THE FOLLOWING COMPONENTS IN PROJECT LIMITS HAVE BEEN IDENTIFIED TO BE COATED OR CONTAIN LEAD-BASED PAINT:

   - RED PRIMER ON STRUCTURAL STEEL BEAMS ABOVE SUSPENDED CEILING TILES.

NOTE: ALL REMAINING SURFACES WITHIN PROJECT LIMITS HAVE BEEN DETERMINED TO BE COATED WITH NON-LEAD BASED PAINT.



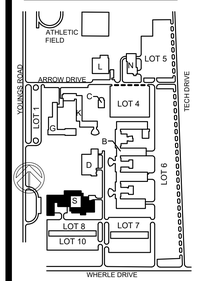
KEY PLAN

N

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SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS
Building Name: SPRING STUDENT CENTER
Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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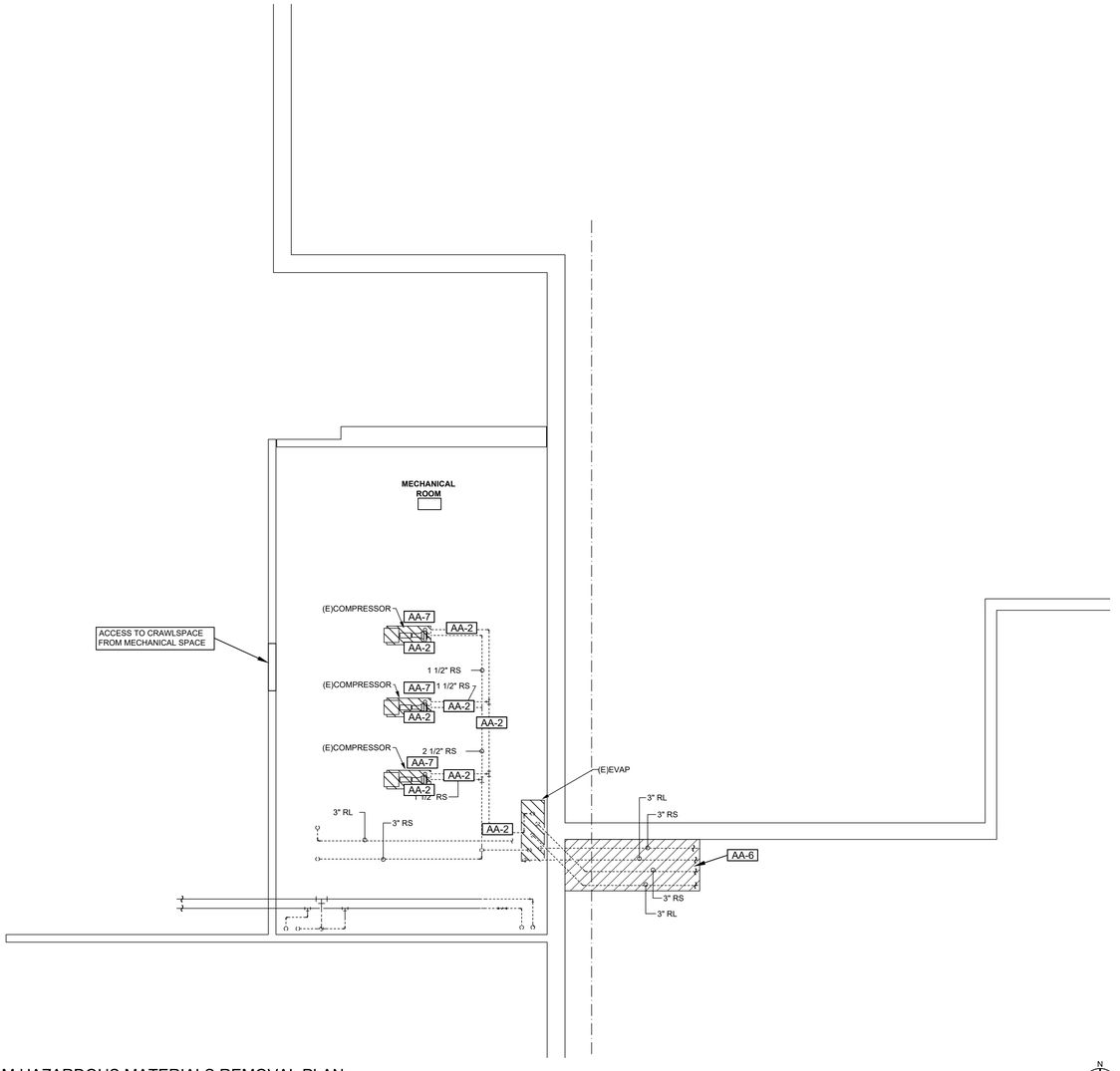
ISSUE FOR BID

Revisions No.	Date	Description

Title: **BASEMENT ABATEMENT PLAN**

Project Number: 20240180
Drawn By: NAK
Date: 08/05/2024
Sheet: **HM-100**

R:\2024\20240180 ECC Spring Cafeteria\18. CADD\Arch\20240180-HM.dwg Aug 01, 2024 - 8:59am



1 PARTIAL BASEMENT MECHANICAL ROOM HAZARDOUS MATERIALS REMOVAL PLAN

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

N

GENERAL NOTES

A. CONTRACTOR SHALL PERFORM ALL WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL RULES, REGULATIONS, GUIDELINES, AND THE CONTRACT DOCUMENTS.

B. IF ANY PREVIOUSLY UNIDENTIFIED OR OTHERWISE UNANTICIPATED SUSPECT MATERIAL (I.E. SUSPECT ASBESTOS-CONTAINING MATERIAL, SUSPECT PCB-CONTAINING MATERIAL, MOLD GROWTH, ETC.) IS IDENTIFIED DURING CONSTRUCTION, STOP WORK AND NOTIFY THE OWNER OR THEIR REPRESENTATIVE FOR FURTHER DIRECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COLLECT AND/OR ANALYZE BULK SAMPLES OF SUSPECT MATERIALS WITHOUT THE APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.

C. THE DISTURBANCE OF ANY ASBESTOS-CONTAINING MATERIAL (ACM), OR SUSPECT ACM, SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR.

D. ALL MATERIAL MEASUREMENTS AND/OR QUANTITIES AND LOCATIONS ARE APPROXIMATE AND FOR GENERAL ORIENTATION ONLY.

E. THE LOCATION OF SITE STORAGE OF MATERIAL, EQUIPMENT, WASTE TRAILER/DUMPSTER(S), AS WELL AS CONTRACTOR PARKING, ETC. SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.

F. CONTRACTOR IS RESPONSIBLE FOR ALL TOOLS, EQUIPMENT, AND SUPPLIES. CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING LADDERS, SCAFFOLDING, LIFTS, PLANKING, ETC. AS REQUIRED TO PERFORM WORK. THE OWNER OR THEIR REPRESENTATIVE WILL NOT BE RESPONSIBLE FOR LOST, DAMAGED, OR STOLEN ITEMS.

G. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE WORK AREA IN A CLEAN AND SAFE CONDITION, PROVIDING TEMPORARY PROTECTION, PROTECTING BUILDING MATERIALS SCHEDULED TO REMAIN, AND TO PREVENT UNAUTHORIZED ACCESS DURING THE DURATION OF THE PROJECT. REPAIR OF DAMAGE CAUSED AS A RESULT OF INADEQUATE TEMPORARY PROTECTION OR CONTRACTOR ACTIVITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

H. WHERE FEASIBLE, NON-POROUS CLEANABLE MATERIALS REMOVED DURING ABATEMENT ACTIVITIES SHALL BE PROPERLY CLEANED AND RECYCLED OR DISPOSED OF AS C & D DEBRIS, AS APPROPRIATE. PROJECT MONITOR SHALL VISUALLY INSPECT ALL SUCH MATERIALS TO ENSURE PROPER CLEANING/DECONTAMINATION HAS OCCURRED PRIOR TO BEING REMOVED FROM THE REGULATED ABATEMENT WORK AREA.

I. ALL REMOVED ASBESTOS-CONTAINING MATERIALS AND ASBESTOS-CONTAMINATED WASTE SHALL BE PROPERLY PACKAGED PRIOR TO BEING REMOVED FROM THE WORK AREA(S), WARNING LABELS SHALL BE APPLIED TO ASBESTOS WASTE CONTAINERS AS APPROPRIATE. ALL ASBESTOS-CONTAINING MATERIALS/ASBESTOS-CONTAMINATED WASTE REMOVED FROM THE WORK AREA(S) SHALL BE ACCOMPANIED BY A WASTE SHIPMENT RECORD. COMPLETED WASTE SHIPMENT RECORDS MUST BE PROVIDED TO THE OWNER AS PART OF THE CLOSEOUT DOCUMENTATION. ALL ORIGINAL WASTE SHIPMENT RECORDS MUST BE PROVIDED TO THE OWNER WITHIN 35 DAYS OF THE WASTE LEAVING THE SITE.

J. COORDINATE ALL WORK ACTIVITIES WITH THE OWNER/OWNER'S REPRESENTATIVE TO ENSURE ONSITE ACTIVITIES ARE ACCEPTABLE TO THE OWNER, AND THAT REMOVALS ARE SUFFICIENT TO ACCOMMODATE THE PROJECT ACTIVITIES. THE ECC CAMPUS BUILDINGS WILL BE PARTIALLY OCCUPIED DURING ABATEMENT. CONTRACTOR SHALL COORDINATE ABATEMENT ACTIVITIES AND SCHEDULING WITH THE FACILITY. USE OF REMOTE DECONTAMINATION UNITS SHALL NOT BE ALLOWED UNLESS EXPRESSLY AUTHORIZED BY ERIE COUNTY DPW AND ECC REPRESENTATIVES.

K. REFER TO SPECIFICATION SECTION 028213 AND THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND COORDINATION.

L. THE PROVISIONS OF ANY SITE-SPECIFIC VARIANCE(S) OBTAINED BY THE CONTRACTOR MAY NOT BE IMPLEMENTED UNTIL APPROVAL IS GIVEN BY THE OWNER OR THE OWNER'S REPRESENTATIVE.

M. ALL CLEARANCE AIR SAMPLES WILL BE ANALYZED BY TRANSMISSION ELECTRON MICROSCOPY (TEM) USING THE METHOD SPECIFIED UNDER THE ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA).

N. ACTIVE FIRE DETECTION/PROTECTION SYSTEM COMPONENTS SHALL NOT BE CONSIDERED FIXED OBJECTS SUBJECT TO PLASTICIZATION, AND SHALL NOT BE SEALED WITH CRITICAL BARRIERS OR ISOLATION BARRIERS. THE FIRE DETECTION/PROTECTION SYSTEM IS TO BE FULLY OPERATIONAL DURING ABATEMENT ACTIVITIES AND IN ORIGINAL WORKING ORDER AFTER COMPLETION OF THE PROJECT. EXPOSED FIRE DETECTION/PROTECTION SYSTEM DEVICES SHALL BE PROTECTED DURING ACTIVE ABATEMENT WITH PLASTIC SHEETING DRAPED FROM ABOVE THE FIXTURE TO LOOSELY HANG DOWN BEYOND THE FACE ON ALL SIDES. FIRE DETECTION/PROTECTION SYSTEM DEVICES SHALL BE CLEANED BY HEPA-VACUUMING DURING EACH REQUIRED STAGE OF CLEANING. ENSURE THAT ALL FIRE DETECTION/PROTECTION SYSTEM COMPONENTS THAT MAY BE DETACHED DUE TO ABATEMENT AND/OR DEMOLITION ACTIVITIES ARE TEMPORARILY SECURED IN PLACE.

O. CONTRACTOR SHALL PROTECT AND NOT DAMAGE GAS SUPPLY LINES, STEAM HEAT SUPPLY AND RETURN LINES TO THE UNIT VENTILATORS, HVAC DUCTS OR OTHER PIPING, EQUIPMENT AND FITTINGS WITHIN THE REGULATED ABATEMENT AREAS.

P. CONTRACTOR IS RESPONSIBLE FOR ALL CONFINED SPACE ENTRY PROCEDURES FOR ENTERING CRAWL SPACES. THE CRAWL SPACES ARE NOT A PERMIT REQUIRED CONFINED SPACE.

Q. COORDINATE ANY PHASING, ABATEMENT AND DEMOLITION ACTIVITIES CLOSELY WITH THE GENERAL CONTRACTOR AND OTHER TRADES.

ASBESTOS AWARENESS NOTES

1. IF ASBESTOS-CONTAINING MATERIALS ARE ACCIDENTALLY DISTURBED OR IF UNIDENTIFIED SUSPECT ASBESTOS-CONTAINING MATERIALS ARE DISCOVERED WITHIN PROJECT LIMITS OR UNKNOWN HAZARDOUS MATERIALS ARE FOUND, CEASE WORK WITHIN THE AFFECTED AREA; CORDON OFF THE AFFECTED AREA OR ROOM AT THE LIMITS OF DISTURBANCE OR THE UNKNOWN MATERIALS AND CONTACT THE CONSTRUCTION MANAGER AND ENVIRONMENTAL CONSULTANT IMMEDIATELY.

2. ANY DISTURBANCE TO REGULATED ASBESTOS CONTAINING MATERIALS SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR EMPLOYING CERTIFIED WORKERS.

3. ALL CONTRACTORS/SUBCONTRACTORS SHALL BE AWARE THAT THE FOLLOWING ASBESTOS-CONTAINING MATERIALS ARE PRESENT WITHIN PROJECT LIMITS. REFER TO THE PRE-RENOVATION SURVEY FOR TEST RESULTS AND APPROXIMATE QUANTITIES.

   - MUDDED INSULATION ON STEAM SUPPLY AND CONDENSATE LINES AND PIPING TO CABINET UNIT HEATERS IN THE BASEMENT AND ON DOMESTIC WATER LINES THROUGHOUT THE BASEMENT AND ON MUDDED FITTINGS ABOVE SUSPENDED CEILING TILES.
   - BLACK TAR ON STRUCTURAL STEEL BEAMS ABOVE SUSPENDED CEILINGS THROUGHOUT THE BUILDING.
   - INSULATION ON LEAD WHIP WIRING TO ALL RECESSED INCANDESCENT LIGHT FIXTURES INCLUDING ENTRANCE CANOPY ROOFS.

LEAD BASED PAINT HANDLING AND AWARENESS NOTES

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR CONDUCTING ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS, INCLUDING OSHA 29 CFR 1926.62: LEAD EXPOSURE IN CONSTRUCTION: INTERIM FINAL RULE FOR ALL ACTIVITIES DURING WHICH AN EMPLOYEE MAY BE OCCUPATIONALLY EXPOSED TO LEAD.

2. ALL CONTRACTORS AND SUBCONTRACTORS SHALL ENSURE THAT THEIR EMPLOYEES WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT AND/OR UTILIZE APPROPRIATE WORK METHODS TO PREVENT ELEVATED BLOOD LEAD LEVELS OR EXPOSURE ABOVE THE PERMISSIBLE EXPOSURE LIMIT. DISPOSAL OF GENERATED PAINT CHIPS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE FEDERAL AND STATE REGULATIONS REGARDING LEAD.

3. FURNISHING THIS INFORMATION IS NOT INTENDED TO RELIEVE THE CONTRACTOR/SUBCONTRACTOR OF ITS RESPONSIBILITIES UNDER OSHA TO DETERMINE IF THEIR EMPLOYEES AND SUBCONTRACTORS MAY BE EXPOSED TO LEAD AND TO WARN THEIR EMPLOYEES OF THE POTENTIAL DANGERS OF THE DISTURBANCE OF LEAD-CONTAINING MATERIALS.

4. THE CONTRACTOR/SUBCONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE EPA'S LEAD RENOVATION REPAIR AND PAINTING (RRP RULE). USE OF HEAT GUNS SHALL BE LIMITED TO A TEMPERATURE LESS THAN 1,000°F AS NOT TO GENERATE LEAD FUMES. USE OF CHEMICAL STRIPPING AGENTS IS ALLOWED AT THIS FACILITY WHEN MSDS ARE SUBMITTED AND ARE APPROVED BY THE FACILITY MANAGEMENT AND THE ENVIRONMENTAL CONSULTANT.

5. IF PENETRATIONS AND/OR CUTTING OF STRUCTURAL STEEL BEAMS IS REQUIRED OR WILL DISTURB LEAD-BASED PAINT, CONTRACTOR SHALL PROPERLY COLLECT AND STORE ALL REMOVED PAINT (CHIPS, PAINT SLURRY, ETC.) AND ASSOCIATED DEBRIS GENERATED AT THESE COMPONENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR LABORATORY ANALYSIS FOR TCLP RCRA LEAD AND ANY OTHER REQUIRED DISPOSAL CHARACTERIZATION. PROPERLY DISPOSE OF ANY DEBRIS DETERMINED TO BE RCRA LEAD AS HAZARDOUS WASTE.

6. BASED ON TESTING THE FOLLOWING COMPONENTS IN PROJECT LIMITS HAVE BEEN IDENTIFIED TO BE COATED OR CONTAIN LEAD-BASED PAINT:

   - RED PRIMER ON STRUCTURAL STEEL BEAMS ABOVE SUSPENDED CEILING TILES.

NOTE: ALL REMAINING SURFACES WITHIN PROJECT LIMITS HAVE BEEN DETERMINED TO BE COATED WITH NON-LEAD BASED PAINT.

ASBESTOS ABATEMENT NOTES

AA-1 NOT USED.

AA-2 CONTRACTOR SHALL PROPERLY REMOVE AND DISPOSE OF THE BLACK CELLULAR GLASS INSULATION ON ALL FITTINGS AND PIPING IN THE BASEMENT MECHANICAL CONDENSER ROOM. CONTRACTOR SHALL ALSO REMOVE THE BLACK FOAM INSULATION ABUTTING THE ACM CELLULAR GLASS INSULATION. AT PROJECT LIMITS INTO THE CRAWL SPACE AND UP INTO THE VERTICAL PIPE CHASE SEAL REMAINING INSULATION WITH WETTED CLOTH. DISPOSE OF REMOVED PIPE INSULATION AND ASSOCIATED DEBRIS AS FRIABLE ASBESTOS-WASTE.

AA-3 NOT USED.

AA-4 NOT USED.

AA-5 NOT USED.

AA-6 REMOVE ALL INSULATION FROM PIPES, ASSOCIATED DEBRIS ON FLOOR AND ANY POROUS MATERIALS WITHIN THE DESIGNATED AREAS. THE CURRENT CONDITION IS AN INCIDENTAL DISTURBANCE OF FRIABLE ASBESTOS WHICH WILL REQUIRE A VARIANCE FROM ICR-56 TO ADDRESS. SUBMIT A DRAFT VARIANCE PETITION TO THE OWNER AND THEIR REPRESENTATIVE FOR REVIEW PRIOR TO SUBMISSION TO NYSDOL ENGINEERING SERVICES.

AA-7 PROPERLY REMOVE INTACT THE SMALL BLUE REFRIGERANT TANKS ON EACH OF THE COMPRESSORS IN THE BASEMENT COMPRESSOR ROOM. THE SMALL TANKS ARE COATED WITH FRIABLE ASBESTOS INSULATION. TANKS ARE TO BE DETACHED FROM THE COMPRESSORS AND WRAPPED IN 6-MIL POLY SHEETING AND DISPOSED OF AS FRIABLE ASBESTOS-WASTE.



PHOTO 1

VIEW OF THE BASEMENT MECHANICAL ROOM AIR COMPRESSORS. GASKETS IN THE COMPRESSORS WERE DETERMINED TO BE NON-ACM. INSULATION ON THE SMALL BLUE REFRIGERANT TANKS AT EACH COMPRESSOR WAS DETERMINED TO BE AN ASBESTOS-CONTAINING MATERIAL. INSULATION ON PIPING WAS EITHER ASBESTOS-CONTAINING BLACK CELLULAR GLASS INSULATION OR NON-ACM BLACK FOAM.



PHOTO 2

VIEW OF ASBESTOS-CONTAINING BLACK CELLULAR GLASS INSULATION IN THE BASEMENT MECHANICAL COMPRESSOR ROOM. THIS INSULATION WAS OBSERVED ON PIPING FROM THE COMPRESSORS AND ON RELATED MANIFOLD PIPING AND LINES EXTENDING UP TO THE FIRST FLOOR MECHANICAL ROOM.



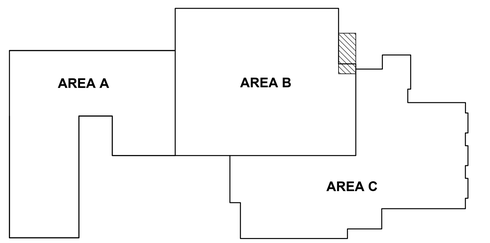
PHOTO 3

VIEW OF STEAM SUPPLY AND CONDENSATE LINES ALONG THE SOUTH WALL IN THE BASEMENT MECHANICAL CONDENSER ROOM. MUDDED FITTINGS ON THE STEAM LINES WERE DETERMINED TO BE NON-ACM.



PHOTO 4

VIEW OF ONE OF THE COMPRESSORS IN THE BASEMENT MECHANICAL ROOM. GASKETS ON THE COMPRESSORS WERE DETERMINED TO BE NON-ACM. INSULATION ELECTRICAL WIRING WAS OBSERVED TO BE THERMOPLASTIC AND NOT TO BE SUSPECT ACM MATERIAL.

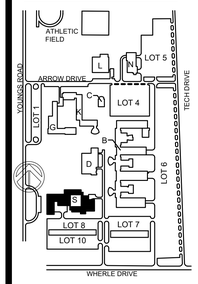


KEY PLAN

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SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT
ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS
Building Name: SPRING STUDENT CENTER
Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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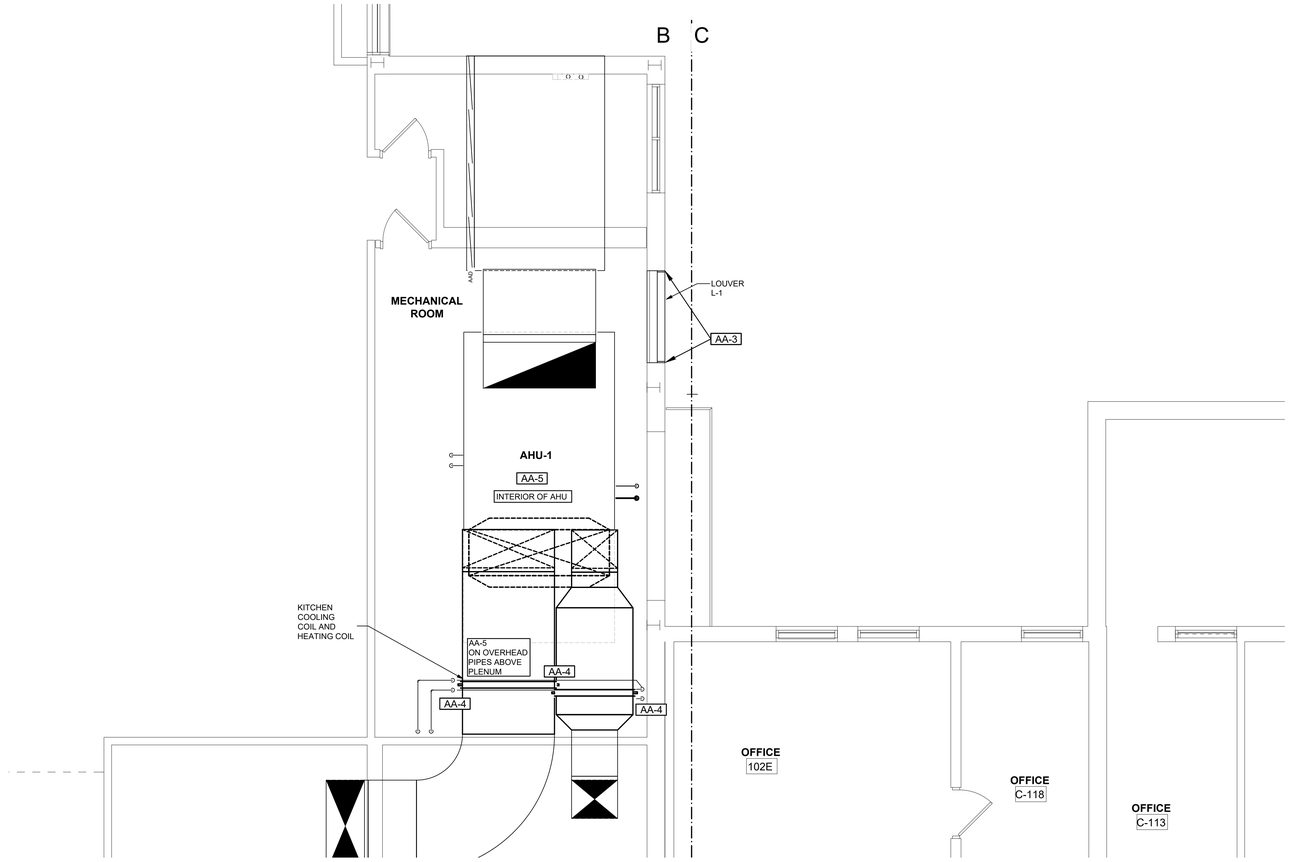
ISSUE FOR BID

Revisions		
No.	Date	Description

Title: BASEMENT MECHANICAL ROOM ABATEMENT PLAN

Project Number: 20240180
Drawn By: NAK
Date: 08/05/2024
Sheet: HM-101

R:\2024\20240180 ECC Spring Cafeteria\1.8 CAD\Arch\20240180_AbtPlan.dwg Aug 01, 2024 - 9:00am



1 PARTIAL FIRST FLOOR HAZARDOUS MATERIALS REMOVAL PLAN

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

N

GENERAL NOTES

A. CONTRACTOR SHALL PERFORM ALL WORK IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL RULES, REGULATIONS, GUIDELINES, AND THE CONTRACT DOCUMENTS.

B. IF ANY PREVIOUSLY UNIDENTIFIED OR OTHERWISE UNANTICIPATED SUSPECT MATERIAL (I.E. SUSPECT ASBESTOS-CONTAINING MATERIAL, SUSPECT PCB-CONTAINING MATERIAL, MOLD GROWTH, ETC.) IS IDENTIFIED DURING CONSTRUCTION, STOP WORK AND NOTIFY THE OWNER OR THEIR REPRESENTATIVE FOR FURTHER DIRECTION. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COLLECT AND/OR ANALYZE BULK SAMPLES OF SUSPECT MATERIALS WITHOUT THE APPROVAL OF THE OWNER OR THEIR REPRESENTATIVE.

C. THE DISTURBANCE OF ANY ASBESTOS-CONTAINING MATERIAL (ACM), OR SUSPECT ACM, SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR.

D. ALL MATERIAL MEASUREMENTS AND/OR QUANTITIES AND LOCATIONS ARE APPROXIMATE AND FOR GENERAL ORIENTATION ONLY.

E. THE LOCATION OF SITE STORAGE OF MATERIAL, EQUIPMENT, WASTE TRAILER/DUMPSTER(S), AS WELL AS CONTRACTOR PARKING, ETC. SHALL BE COORDINATED WITH AND APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.

F. CONTRACTOR IS RESPONSIBLE FOR ALL TOOLS, EQUIPMENT, AND SUPPLIES. CONTRACTOR IS ALSO RESPONSIBLE FOR PROVIDING LADDERS, SCAFFOLDING, LIFTS, PLANKING, ETC. AS REQUIRED TO PERFORM WORK. THE OWNER OR THEIR REPRESENTATIVE WILL NOT BE RESPONSIBLE FOR LOST, DAMAGED, OR STOLEN ITEMS.

G. THE CONTRACTOR IS RESPONSIBLE FOR KEEPING THE WORK AREA IN A CLEAN AND SAFE CONDITION, PROVIDING TEMPORARY PROTECTION, PROTECTING BUILDING MATERIALS SCHEDULED TO REMAIN, AND TO PREVENT UNAUTHORIZED ACCESS DURING THE DURATION OF THE PROJECT. REPAIR OF DAMAGE CAUSED AS A RESULT OF INADEQUATE TEMPORARY PROTECTION OR CONTRACTOR ACTIVITIES WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

H. WHERE FEASIBLE, NON-POROUS CLEANABLE MATERIALS REMOVED DURING ABATEMENT ACTIVITIES SHALL BE PROPERLY CLEANED AND RECYCLED OR DISPOSED OF AS C & D DEBRIS, AS APPROPRIATE. PROJECT MONITOR SHALL VISUALLY INSPECT ALL SUCH MATERIALS TO ENSURE PROPER CLEANING/DECONTAMINATION HAS OCCURRED PRIOR TO BEING REMOVED FROM THE REGULATED ABATEMENT WORK AREA.

I. ALL REMOVED ASBESTOS-CONTAINING MATERIALS AND ASBESTOS-CONTAMINATED WASTE SHALL BE PROPERLY PACKAGED PRIOR TO BEING REMOVED FROM THE WORK AREA(S). WARNING LABELS SHALL BE APPLIED TO ASBESTOS WASTE CONTAINERS AS APPROPRIATE. ALL ASBESTOS-CONTAINING MATERIALS/ASBESTOS-CONTAMINATED WASTE REMOVED FROM THE WORK AREA(S) SHALL BE ACCOMPANIED BY A WASTE SHIPMENT RECORD. COMPLETED WASTE SHIPMENT RECORDS MUST BE PROVIDED TO THE OWNER AS PART OF THE CLOSEOUT DOCUMENTATION. ALL ORIGINAL WASTE SHIPMENT RECORDS MUST BE PROVIDED TO THE OWNER WITHIN 35 DAYS OF THE WASTE LEAVING THE SITE.

J. COORDINATE ALL WORK ACTIVITIES WITH THE OWNER/OWNER'S REPRESENTATIVE TO ENSURE ONSITE ACTIVITIES ARE ACCEPTABLE TO THE OWNER, AND THAT REMOVALS ARE SUFFICIENT TO ACCOMMODATE THE PROJECT ACTIVITIES. THE ECC CAMPUS BUILDINGS WILL BE PARTIALLY OCCUPIED DURING THE ABATEMENT. CONTRACTOR SHALL COORDINATE ABATEMENT ACTIVITIES AND SCHEDULING WITH THE FACILITY. USE OF REMOTE DECONTAMINATION UNITS SHALL NOT BE ALLOWED UNLESS EXPRESSLY AUTHORIZED BY ERIE COUNTY DPW AND ECC REPRESENTATIVES.

K. REFER TO SPECIFICATION SECTION 028213 AND THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND COORDINATION.

L. THE PROVISIONS OF ANY SITE-SPECIFIC VARIANCE(S) OBTAINED BY THE CONTRACTOR MAY NOT BE IMPLEMENTED UNTIL APPROVAL IS GIVEN BY THE OWNER OR THE OWNER'S REPRESENTATIVE.

M. ALL CLEARANCE AIR SAMPLES WILL BE ANALYZED BY TRANSMISSION ELECTRON MICROSCOPY (TEM) USING THE METHOD SPECIFIED UNDER THE ASBESTOS HAZARD EMERGENCY RESPONSE ACT (AHERA).

N. ACTIVE FIRE DETECTION/PROTECTION SYSTEM COMPONENTS SHALL NOT BE CONSIDERED FIXED OBJECTS SUBJECT TO PLASTICIZATION, AND SHALL NOT BE SEALED WITH CRITICAL BARRIERS OR ISOLATION BARRIERS. THE FIRE DETECTION/PROTECTION SYSTEM IS TO BE FULLY OPERATIONAL DURING ABATEMENT ACTIVITIES AND IN ORIGINAL WORKING ORDER AFTER COMPLETION OF THE PROJECT. EXPOSED FIRE DETECTION/PROTECTION SYSTEM DEVICES SHALL BE PROTECTED DURING ACTIVE ABATEMENT WITH PLASTIC SHEETING DRAPED FROM ABOVE THE FIXTURE TO LOOSELY HANG DOWN BEYOND THE FACE ON ALL SIDES. FIRE DETECTION/PROTECTION SYSTEM DEVICES SHALL BE CLEANED BY HEPA-VACUUMING DURING EACH REQUIRED STAGE OF CLEANING. ENSURE THAT ALL FIRE DETECTION/PROTECTION SYSTEM COMPONENTS THAT MAY BE DETACHED DUE TO ABATEMENT AND/OR DEMOLITION ACTIVITIES ARE TEMPORARILY SECURED IN PLACE.

O. CONTRACTOR SHALL PROTECT AND NOT DAMAGE GAS SUPPLY LINES, STEAM HEAT SUPPLY AND RETURN LINES TO THE UNIT VENTILATORS, HVAC DUCTS OR OTHER PIPING, EQUIPMENT AND FITTINGS WITHIN THE REGULATED ABATEMENT AREAS.

ASBESTOS AWARENESS NOTES

1. IF ASBESTOS-CONTAINING MATERIALS ARE ACCIDENTALLY DISTURBED OR IF UNIDENTIFIED SUSPECT ASBESTOS-CONTAINING MATERIALS ARE DISCOVERED WITHIN PROJECT LIMITS OR UNKNOWN HAZARDOUS MATERIALS ARE FOUND, CEASE WORK WITHIN THE AFFECTED AREA; CORDON OFF THE AFFECTED AREA OR ROOM AT THE LIMITS OF DISTURBANCE OR THE UNKNOWN MATERIALS AND CONTACT THE CONSTRUCTION MANAGER AND ENVIRONMENTAL CONSULTANT IMMEDIATELY.

2. ANY DISTURBANCE TO REGULATED ASBESTOS CONTAINING MATERIALS SHALL BE PERFORMED BY A LICENSED ASBESTOS ABATEMENT CONTRACTOR EMPLOYING CERTIFIED WORKERS.

3. ALL CONTRACTORS/SUBCONTRACTORS SHALL BE AWARE THAT THE FOLLOWING ASBESTOS-CONTAINING MATERIALS ARE PRESENT WITHIN PROJECT LIMITS. REFER TO THE PRE-RENOVATION SURVEY FOR TEST RESULTS AND APPROXIMATE QUANTITIES.

   - MUDDED INSULATION ON STEAM SUPPLY AND CONDENSATE LINES AND PIPING TO CABINET UNIT HEATERS IN THE BASEMENT AND ON DOMESTIC WATER LINES THROUGHOUT THE BASEMENT AND ON MUDDED FITTINGS ABOVE SUSPENDED CEILING TILES.
   - BLACK TAR ON STRUCTURAL STEEL BEAMS ABOVE SUSPENDED CEILINGS THROUGHOUT THE BUILDING.
   - INSULATION ON LEAD WHIP WIRING TO ALL RECESSED INCANDESCENT LIGHT FIXTURES INCLUDING ENTRANCE CANOPY ROOFS.

LEAD BASED PAINT HANDLING AND AWARENESS NOTES

1. ALL CONTRACTORS AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR CONDUCTING ALL WORK IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE, AND LOCAL REQUIREMENTS, INCLUDING OSHA 29 CFR 1926.62: LEAD EXPOSURE IN CONSTRUCTION: INTERIM FINAL RULE FOR ALL ACTIVITIES DURING WHICH AN EMPLOYEE MAY BE OCCUPATIONALLY EXPOSED TO LEAD.

2. ALL CONTRACTORS AND SUBCONTRACTORS SHALL ENSURE THAT THEIR EMPLOYEES WEAR PROPER PERSONAL PROTECTIVE EQUIPMENT AND/OR UTILIZE APPROPRIATE WORK METHODS TO PREVENT ELEVATED BLOOD LEAD LEVELS OR EXPOSURE ABOVE THE PERMISSIBLE EXPOSURE LIMIT. DISPOSAL OF GENERATED PAINT CHIPS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE FEDERAL AND STATE REGULATIONS REGARDING LEAD.

3. FURNISHING THIS INFORMATION IS NOT INTENDED TO RELIEVE THE CONTRACTOR/SUBCONTRACTOR OF ITS RESPONSIBILITIES UNDER OSHA TO DETERMINE IF THEIR EMPLOYEES AND SUBCONTRACTORS MAY BE EXPOSED TO LEAD AND TO WARN THEIR EMPLOYEES OF THE POTENTIAL DANGERS OF THE DISTURBANCE OF LEAD-CONTAINING MATERIALS.

4. THE CONTRACTOR/SUBCONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE EPA'S LEAD RENOVATION REPAIR AND PAINTING (RRP RULE). USE OF HEAT GUNS SHALL BE LIMITED TO A TEMPERATURE LESS THAN 1,000°F AS NOT TO GENERATE LEAD FUMES. USE OF CHEMICAL STRIPPING AGENTS IS ALLOWED AT THIS FACILITY WHEN MSDS ARE SUBMITTED AND ARE APPROVED BY THE FACILITY MANAGEMENT AND THE ENVIRONMENTAL CONSULTANT.

5. IF PENETRATIONS AND/OR CUTTING OF STRUCTURAL STEEL BEAMS IS REQUIRED OR WILL DISTURB LEAD-BASED PAINT, CONTRACTOR SHALL PROPERLY COLLECT AND STORE ALL REMOVED PAINT (CHIPS, PAINT SLURRY, ETC.) AND ASSOCIATED DEBRIS GENERATED AT THESE COMPONENTS. CONTRACTOR SHALL BE RESPONSIBLE FOR LABORATORY ANALYSIS FOR TCLP RCRA LEAD AND ANY OTHER REQUIRED DISPOSAL CHARACTERIZATION. PROPERLY DISPOSE OF ANY DEBRIS DETERMINED TO BE RCRA LEAD AS HAZARDOUS WASTE.

6. BASED ON TESTING THE FOLLOWING COMPONENTS IN PROJECT LIMITS HAVE BEEN IDENTIFIED TO BE COATED OR CONTAIN LEAD-BASED PAINT:

   - RED PRIMER ON STRUCTURAL STEEL BEAMS ABOVE SUSPENDED CEILING TILES.

NOTE: ALL REMAINING SURFACES WITHIN PROJECT LIMITS HAVE BEEN DETERMINED TO BE COATED WITH NON-LEAD BASED PAINT.



PHOTO 1

EXTERIOR VIEW OF THE INTAKE LOUVER OUTSIDE THE FIRST FLOOR MECHANICAL ROOM. THE CAULK ALONG THE PERIMETER OF THE LOUVER WAS DETERMINED TO BE AN ASBESTOS-CONTAINING MATERIAL AND TO BE NON-PCB CONTAINING.

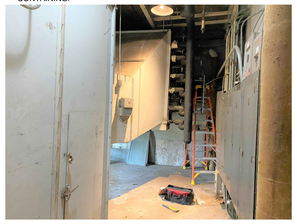


PHOTO 2

VIEW OF AHU-1, SHEET METAL DUCTWORK AND ASBESTOS-CONTAINING BLACK CELLULAR GLASS INSULATION IN THE FIRST FLOOR MECHANICAL ROOM BY THE CAFETERIA. THE SHEET METAL DUCTS AND ASSOCIATED PLENUM WERE BARE METAL WITH NO INSULATION OR PIN MASTIC.



PHOTO 3

VIEW OF YELLOW CAULK ALONG SEAMS INSIDE AHU-1 IN THE FIRST FLOOR MECHANICAL ROOM. THE YELLOW CAULK ON SEAMS WAS DETERMINED TO BE AN ASBESTOS-CONTAINING MATERIAL.

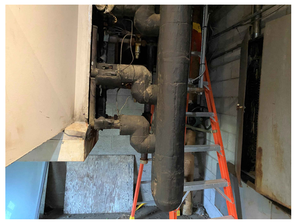


PHOTO 4

VIEW OF ASBESTOS-CONTAINING BLACK CELLULAR GLASS INSULATION ON FITTINGS AND THE KITCHEN HEATING COIL ON THE WEST SIDE OF THE AHU-1 PLENUM IN THE FIRST FLOOR MECHANICAL ROOM.

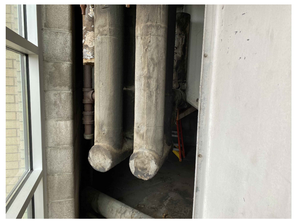


PHOTO 5

VIEW OF ASBESTOS-CONTAINING BLACK CELLULAR GLASS INSULATION ON THE KITCHEN COOLING COIL AND HEATING COIL ON THE EAST SIDE OF THE AHU-1 PLENUM IN THE FIRST FLOOR MECHANICAL ROOM.

ASBESTOS ABATEMENT NOTES

AA-1 NOT USED.

AA-2 NOT USED.

AA-3 CONTRACTOR SHALL REMOVE ALL EXTERIOR CAULK AT THE INTAKE LOUVER. CAULK IS BETWEEN THE METAL FRAME AND BRICK FAÇADE IS AN ACM MATERIAL. CONTRACTOR SHALL REMOVE THE ENTIRE LOUVER, CAULK AND ALL LOOSE MORTAR/BRICK WITH ADHERING CAULK. REMOVE ALL CAULK FROM THE LOUVER FRAME FOR RECYCLING OR DISPOSAL AS CONSTRUCTION DEBRIS. THE INDEPENDENT PROJECT MONITOR SHALL VERIFY REMOVAL OF ALL CAULK FROM THE LOUVER. PROPERLY DISPOSE OF THE REMOVED CAULK ADHERING MORTAR, BRICK AND ASSOCIATED DEBRIS AD ASBESTOS-WASTE.

AA-4 CONTRACTOR SHALL REMOVE ALL OF THE BLACK CELLULAR GLASS INSULATION ON ALL FITTINGS, ON THE HEATING AND COOLING COILS BY AHU-1 AND ON ALL ASSOCIATED PIPING. CONTRACTOR SHALL ALSO REMOVE THE NON-ACM WHITE MUDDED INSULATION AND ALL PAPER AND FIBERGLASS INSULATION ON PIPING WITHIN PROJECT LIMITS DURING ASBESTOS ABATEMENT. DISPOSE OF REMOVED INSULATION AND ASSOCIATED DEBRIS AS FRIABLE ASBESTOS-WASTE.

AA-5 CONTRACTOR SHALL REMOVE ALL ASBESTOS-CONTAINING CAULK FROM THE INNER SEAMS INSIDE THE AIR HANDLING UNIT AHU-1. CONTRACTOR IS RESPONSIBLE FOR ALL DISASSEMBLY OF AHU TO ACCESS AND REMOVE CAULK, SCRAPE ALL CAULK DOWN TO AND FROM THE SHEET METAL. THE INDEPENDENT PROJECT MONITOR SHALL VERIFY REMOVAL ALL CAULK FROM AHU-1 SEAMS PRIOR TO REMOVAL FOR RECYCLING OR DISPOSAL AND CONSTRUCTION DEBRIS. PROPERLY DISPOSE OF ALL CAULK AND ASSOCIATED DEBRIS AS ASBESTOS-WASTE. CONTRACTOR IS RESPONSIBLE FOR DISASSEMBLY OF AHU TO ACCESS AND REMOVE CAULK.

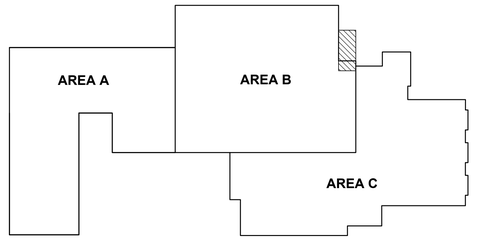
AA-6 NOT USED.

AA-7 NOT USED.



PHOTO 6

VIEW OF NON-ACM WHITE MUDDED FITTINGS ABUTTING NON-ACM FIBERGLASS INSULATION ON PIPING IN THE FIRST FLOOR MECHANICAL ROOM. GASKETS AT VALVE FLANGES AT PROPOSED CONNECTION POINTS WERE DETERMINED TO BE NON-ACM.

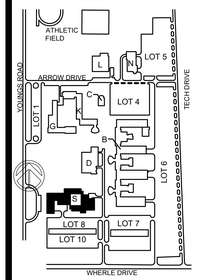


KEY PLAN

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SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name: SPRING STUDENT CENTER

Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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ISSUE FOR BID

Revisions

No.	Date	Description

Title: **FIRST FLOOR MECHANICAL ROOM ABATEMENT PLAN**

Project Number: 20240180

Drawn By: NAK

Date: 08/05/2024

Sheet: **HM-102**

R:\2024\20240180 ECC Spring Cafeteria\18 CADD\Hab\20240180_HM.dwg Aug 01, 2024, 9:00am

STRUCTURAL NOTES
GENERAL NOTES

A. ALL STRUCTURAL WORK WILL BE COORDINATED WITH ARCHITECTURAL, ENVIRONMENTAL, MECHANICAL, AND ALL OTHER TRADE DRAWINGS AND SHALL CONFORM TO THE PROJECT SPECIFICATIONS INCLUDING THE 2020 BUILDING CODE OF NEW YORK STATE.

B. DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION SHOWN IN THE STRUCTURAL DRAWINGS ARE BASED ON INFORMATION OBTAINED IN VARIOUS ORIGINAL DESIGN AND CONSTRUCTION DOCUMENTS PROVIDED BY THE OWNER AND LIMITED FIELD OBSERVATIONS AND MEASUREMENTS. THE CONTRACTOR SHALL VERIFY ALL INFORMATION PERTAINING TO EXISTING CONDITIONS BY ACTUAL MEASUREMENT AND OBSERVATION AT THE SITE. ALL DISCREPANCIES BETWEEN ACTUAL CONDITIONS AND THOSE SHOWN ON THE CONTRACT DOCUMENTS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE OF RECORD FOR EVALUATION BEFORE THE AFFECTED CONSTRUCTION IS PUT IN PLACE.

C. CHECK ALL DIMENSIONS AGAINST THE REQUIREMENTS OF OTHER CONTRACT DOCUMENTS. RESOLVE APPARENT INCONSISTENCIES IN THE CONTRACT DOCUMENTS WITH THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH WORK.

D. PROMPTLY NOTIFY THE CONSTRUCTION MANAGER, ARCHITECT, AND ENGINEER-OF-RECORD OF ANY STRUCTURAL MEMBER CALLED OUT ON THE ARCHITECTURAL, MECHANICAL, PLUMBING OR ELECTRICAL DRAWINGS THAT IS NOT IDENTIFIED ON THE STRUCTURAL DRAWINGS. DESIGN OF THESE MEMBERS WILL BE PROVIDED AS NECESSARY BY THE STRUCTURAL ENGINEER UPON NOTIFICATION.

E. NO MODIFICATIONS, ALTERATION, OR REPAIR SHALL BE MADE WITHOUT PRIOR REVIEW BY STRUCTURAL ENGINEER. ANY CHANGES MADE TO THE STRUCTURAL SYSTEMS NOT UNDER THE DIRECTION OF THE PROJECT STRUCTURAL ENGINEER SHALL BE SUBMITTED TO THE OWNER. THE SUBMITTAL SHALL INCLUDE: DETAILS AND CALCULATIONS PREPARED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF NEW YORK.

F. WHERE INCIDENTAL WORK IS REQUIRED TO ACCOMPLISH WORK SHOWN ON THE DRAWINGS, THIS WORK IS IMPLIED AND SHALL BE INCLUDED AS PART OF THE BASE BID.

G. ALL COSTS OF INVESTIGATION AND/OR REDESIGN, DUE TO CONTRACTOR ERRORS OR MIS-LOCATION OF STRUCTURAL ELEMENTS OR OTHER LACK OF CONFORMANCE WITH THE PROJECT DOCUMENTS, SHALL BE AT THE CONTRACTOR'S EXPENSE.

H. CONTRACTOR IS TO BE AWARE THAT EXISTING STEEL AND OTHER BUILDING ELEMENTS MAY BE COATED WITH LEAD PAINT. REFER TO ENVIRONMENTAL REPORT FOR SUSPECTED LEAD PAINT LOCATIONS. ALL NECESSARY PRECAUTIONS SHALL BE TAKEN WHEN MODIFYING EXISTING STEEL. ALL DISTURBANCE ACTIVITIES INCLUDING BUT NOT LIMITED TO PENETRATION OF THESE SURFACES, SHALL COMPLY WITH ALL APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS. CONTRACTOR SHALL TAKE APPROPRIATE PRECAUTIONS TO PROTECT WORKERS WHEN PERFORMING RELATED WORK ADJACENT TO THESE SURFACES.

I. WASTE MATERIAL CREATED FROM MASONRY, CONCRETE, AND STRUCTURAL STEEL REMOVAL OPERATIONS SHALL DISPOSED OF BY THE CONTRACTOR IN ACCORDANCE WITH ALL FEDERAL, STATE, LOCAL, AND SITE LAWS AND REQUIREMENTS.

STRUCTURAL STEEL

A. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE FOLLOWING STANDARDS:

1. AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" 15th EDITION (ANSI/AISC 360-16) AND "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303-16).
2. THE AMERICAN WELDING SOCIETY (AWS D1.1) "STRUCTURAL WELDING CODE-STEEL", 2020.

B. ALL STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:

1. WIDE FLANGE BEAMS, COLUMNS, STRUCTURAL TEES: ASTM A992, GRADE 50.
2. CHANNELS, ANGLES, AND PLATES: ASTM A36 UNLESS OTHERWISE NOTED.
3. STRUCTURAL BOLTS: ASTM F3125, GRADE A325; NUTS: ASTM A563, GRADE DH HEAVY HEX; WASHERS: ASTM F436.

C. STEEL CONNECTIONS SHALL BE STANDARD AISC FRAMED BEAM CONNECTIONS AND MOMENT CONNECTIONS AS NOTED:

1. CONNECTIONS SHALL BE DESIGNED FOR SHEAR AND ECCENTRICITY, CONSIDERING THAT THE CONNECTION IS AN EXTENSION OF THE BEAM AND GIRDERS.
2. CONNECTIONS TO HAVE A MINIMUM OF TWO ¾" Ø ASTM F3125, GRADE A325 BOLTS, UNLESS NOTED OTHERWISE.
3. ALL CONNECTION PLATES AND ANGLES SHALL BE A MINIMUM OF ¼" THICK UNLESS NOTED OTHERWISE.
4. NEW STEEL FRAMED BETWEEN EXISTING MEMBERS ARE TO HAVE AT LEAST ONE END OF THE NEW MEMBER BOLTED WITH SLOTTED HOLES IN THE LEG OF THE CLIP ANGLE SO AS TO ALLOW FOR FIELD ADJUSTMENT.
5. BOLTED CONNECTIONS SHALL UTILIZE A325 BOLTS IN BEARING TYPE CONNECTIONS, UNLESS OTHERWISE NOTED. WHERE SLIP CRITICAL (SC) BOLTS ARE NOTED OR SPECIFIED, PROVIDE MIN. ¾" Ø A325 BOLTS UNLESS NOTED OTHERWISE. PROVIDE MINIMUM CLASS A FINISH AT ALL FAYING SURFACES WHERE S.C. BOLTS OCCUR.

D. CONNECTION DETAILS SHOWN ON THE DRAWINGS ARE CONCEPTUAL AND DO NOT INDICATE ALL REQUIRED COMPONENT SIZES, WELD SIZES, OR DIMENSIONS. FINAL DETAILING IS THE RESPONSIBILITY OF THE FABRICATOR. PERFORM DETAILING USING INDUSTRY STANDARDS AND FOLLOWING THE CRITERIA SET FORTH IN THE CONTRACT DOCUMENTS.

E. WELDING SHALL BE PERFORMED BY CERTIFIED LICENSED WELDERS THAT ARE AWS QUALIFIED FOR WELD TYPE AND POSITION. WELDING ELECTRODES SHALL BE AWS E70XX.

F. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINALLY BOLTED OR WELDED.

G. FIELD CUTTING OF STRUCTURAL STEEL OR ANY FIELD MODIFICATIONS OF STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT PRIOR WRITTEN APPROVAL BY ENGINEER FOR EACH SPECIFIC CASE.

H. A QUALITY CONTROL PROGRAM OF SHOP AND FIELD TESTING AND INSPECTION WILL BE PERFORMED ON STRUCTURAL STEEL FABRICATION, ERECTION, AND CONNECTIONS IN ACCORDANCE WITH SPECIFICATIONS. SCHEDULE WORK AND PROVIDE ACCESS TO ALLOW THE TESTING REQUIREMENTS TO BE COMPLETED.

I. PRIOR TO SUBMISSION OF SHOP AND FABRICATION DRAWINGS, CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS OF STRUCTURAL STEEL INCLUDING VERIFYING DIMENSIONS AND GEOMETRY OF THE EXISTING FRAMING.

J. SHOW ALL OPENINGS THROUGH STRUCTURAL MEMBERS ON THE SHOP DRAWINGS SUBMITTED FOR REVIEW. OPENINGS WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS ARE SUBJECT TO REVIEW AND ACCEPTANCE AND SHALL BE CLEARLY INDICATED FOR REVIEW AND ACCEPTANCE ON THE SHOP DRAWINGS.

K. SHOP AND FABRICATION DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL. NO FABRICATION OF STEEL SHALL COMMENCE WITHOUT APPROVED SHOP DRAWINGS.

L. STRUCTURAL STEEL TO BE SHOP PRIMED USING FABRICATOR'S STANDARD RUST-INHIBITING PRIMER. APPLY COATING PER MANUFACTURER'S WRITTEN RECOMMENDATIONS. ALL LINTELS INSTALLED IN EXTERIOR WALLS SHALL BE HOT DIP GALVANIZED PER ASTM A123. REPAIR DAMAGED COATING AREAS AFTER INSTALLATION PER PAINT MANUFACTURERS RECOMMENDATION OR ASTM A780 FOR GALVANIZED SURFACES.

M. ALL BAR GRATING SHALL BE HOT-DIP GALVANIZED PER ASTM A123. DAMAGES TO GALVANIZED COATING SHALL BE TOUCHED UP W/ 93% ZINC RICH PAINT AFTER INSTALLATION TO THE SATISFACTION OF THE OWNER.

N. HANDRAILS SHALL BE PAINTED THE COLOR "SAFETY YELLOW" WITH (2) COATS OF MACROPOXY 646-100 MANUFACTURED BY SHERWIN WILLIAMS, OR APPROVED EQUAL.

O. ERECTION PROCEDURES, SEQUENCES AND COORDINATION OF WORK WITH OTHER TRADES IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE ANY ADDITIONAL STEEL REQUIRED FOR ERECTION PURPOSES AT NO COST TO THE OWNER. REMOVE THIS ADDITIONAL STEEL UNLESS DIRECTED OTHERWISE BY THE OWNER/ENGINEER IN WRITING.

POST-INSTALLED ANCHOR NOTES

1. POST-INSTALLED ANCHORS SHALL BE AS INDICATED ON THE DRAWINGS AND SHALL BE INSTALLED IN ACCORDANCE WITH THEIR RESPECTIVE ICC-ES REPORT AND MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS.
2. ANCHOR CAPACITY USED IN DESIGN IS BASED ON THE TECHNICAL DATA PUBLISHED BY ANCHOR MANUFACTURER, THE APPLICABLE ICC-ES REPORT OR SUCH OTHER METHOD AS APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHALL PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT INCLUDING AN ICC-ES REPORT SHOWING COMPLIANCE WITH THE RELEVANT BUILDING CODE, SEISMIC USE, LOAD RESISTANCE, INSTALLATION CATEGORY, IN-SERVICE TEMPERATURE, INSTALLATION TEMPERATURE, ETC.
3. HOLE DRILLING AND CLEANING OPERATIONS FOR POST INSTALLED ANCHORS SHOULD CAPTURE CRYSTALLINE SILICA DUST IN ACCORDANCE WITH OSHA 29 CFR 1926.1153 USING AN APPROVED METHOD AS DESCRIBED IN TABLE 1 OF THE SAME OSHA REGULATION.
4. ADHESIVE ANCHORS INSTALLED IN A HORIZONTALLY OR UPWARDLY INCLINED ORIENTATION INTO CONCRETE AND SUPPORTING A SUSTAINED TENSION LOAD SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER. THE INSTALLER SHALL BE CERTIFIED THROUGH THE ACI/CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM OR APPROVED EQUAL.
5. ANCHOR CAPACITY IS DEPENDENT UPON SPACING BETWEEN ADJACENT ANCHORS AND PROXIMITY OF ANCHORS TO EDGE OF CONCRETE. INSTALL ANCHORS IN ACCORDANCE WITH SPACING AND EDGE CLEARANCES INDICATED ON THE DRAWINGS.
6. ALL EPOXY ANCHORS SHALL BE ½" Ø HAS ANCHOR RODS EMBEDDED 6" INTO SOUND CONCRETE IN HIT-HY 200 V3 MANUFACTURED BY HILTI, OR APPROVED EQUAL. ALL ANCHORS SHALL BE INSTALLED PER MANUFACTURES INSTRUCTIONS. STANDARD THREADED ROD WILL NOT BE ACCEPTED ALL ANCHORS AND ACCESSORIES SHALL BE IN CONFORMANCE WITH EPOXY MANUFACTURER REQUIREMENTS.

INSPECTION

A. OWNER SHALL PROVIDE AN OUTSIDE TESTING AGENCY TO PERFORM THE FOLLOWING SPECIAL INSPECTIONS IN ACCORDANCE WITH THE 2020 BUILDING CODE OF NEW YORK STATE:

1. WELDING
2. STRUCTURAL STEEL
3. CONCRETE AND REINFORCEMENT
4. GROUT
5. POST-INSTALLED ANCHORS

SEE THE STATEMENT OF SPECIAL INSPECTIONS INCLUDED IN THE PROJECT MANUAL FOR A COMPLETE LIST OF REQUIRED SPECIAL INSPECTIONS.

B. THE TESTING AGENCY FOR THE INSPECTIONS WILL FILE ALL APPROPRIATE FORMS WITH THE CODE ENFORCEMENT OFFICIAL, ARCHITECT AND ENGINEER-OF-RECORD.

C. CONTRACTOR SHALL COORDINATE WITH THE TESTING AGENCY, PROVIDE ACCESS WHERE NEEDED, AND PROVIDE A MINIMUM OF FORTY-EIGHT HOURS ADVANCE NOTIFICATION,

STRUCTURAL DESIGN CRITERIA	
BUILDING CODE:	NYSBC 2020 ASCE 7-16
BUILDING RISK CATEGORY	II
DEAD LOAD DATA	
CHILLER OPERATING WEIGHT	5,961 LBS
SNOW DESIGN DATA	
GROUND SNOW LOAD, P_g	50 PSF
SNOW EXPOSURE FACTOR, C_e	1.0
SNOW IMPORTANCE FACTOR, I_s	1.0
THERMAL FACTOR, C_t	1.2
FLAT ROOF SNOW LOAD, P_f=0.7(C_e)(C_t)(I_s)(P_g)	42 PSF
ROOF SLOPE FACTOR, C_s	1.0
SLOPED ROOF SNOW LOAD P_s=C_s*P_f	42 PSF
SEISMIC DESIGN DATA	
SITE CLASSIFICATIONS	D
SEISMIC IMPORTANCE FACTOR, I_e	1
SPECTRAL RESPONSE ACCELERATIONS	
S_s	0.162
S_1	0.044
DESIGN SPECTRAL RESPONSE ACCELERATIONS	
S_{DS}	0.173
S_{D1}	0.071
SEISMIC DESIGN CATEGORY	B
WIND DESIGN DATA	
BASIC WIND SPEED	
ULTIMATE	109 MPH
NOMINAL	85 MPH
WIND EXPOSURE	C
INTERNAL PRESSURE COEFFICIENT, GC_{pi}	N/A
RAIN DESIGN DATA	
RAIN INTENSITY (I)	2.5 IN/HR

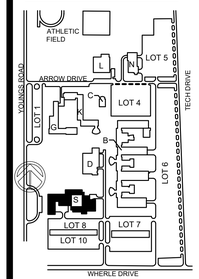
ABBREVIATIONS

AB	ANCHOR BOLT	FDN	FOUNDATION	REF	REFERENCE
AFF	ABOVE FINISH FLOOR	FF	FINISH FLOOR	REINF	REINFORCING
AFG	ABOVE FINISH GRADE	F/F	FACE TO FACE	REQD	REQUIRED
B/B	BACK TO BACK	FIN	FINISH	RO	ROUGH OPENING
BLDG	BUILDING	FLR	FLOOR	SC	SLIP CRITICAL
BLK	BLOCK	FOC	FACE OF CONCRETE	SCH	SCHEDULE
BM	BEAM/BENCH MARK	FOM	FACE OF MASONRY	SCN	SHEAR CONNECTOR
BS	BOTH SIDES	FTG	FOOTING	SF	SQUARE FOOT/SQUARE FEET
BTWN	BETWEEN	GA	GAUGE	SHT	SHEET
BTM	BOTTOM	GALV	GALVANIZED	SIM	SIMILAR
BW	BOTH WAYS	GC	GENERAL CONTRACTOR	SJ	SAWCUT JOINT
C/C	CENTER TO CENTER	GND	GROUND	SPECS	SPECIFICATIONS
CI	CAST IRON	ID	INSIDE DIAMETER	SQ	SQUARE
CJ	CONTROL JOINT	IJ	ISOLATION JOINT	SS	STAINLESS STEEL
CLG	CEILING	INV	INVERT	STD	STANDARD
CLR	CLEAR	LLH	LONG LEG HORIZONTAL	STL	STEEL
CMP	CORRUGATED METAL PIPE	LLV	LONG LEG VERTICAL	SYM	SYMMETRICAL
CMU	CONCRETE MASONRY UNIT	LL	LIVE LOAD	T&B	TOP AND BOTTOM
CO	CLEAN OUT	MATL	MATERIAL	TC	TOP OF CURB
COL	COLUMN	MAX	MAXIMUM	THK	THICK
CONC	CONCRETE	MC	MISCELLANEOUS CHANNEL	TOC	TOP OF CONCRETE
CP	CONCRETE PIPE	MEZZ	MEZZANINE	TOF	TOP OF FOOTING
CRS	COLD ROLLED STEEL	MIN	MINIMUM	TOJ	TOP OF JOIST
CS	CARBON STEEL	MISC	MISCELLANEOUS	TOP	TOP OF PIER
DIA	DIAMETER	ML	MATCH LINE	TOW	TOP OF WALL
DIM	DIMENSION	MO	MASONRY OPENING	TOS	TOP OF STEEL
DN	DOWN	NTS	NOT TO SCALE	TYP	TYPICAL
DWG	DRAWING	OC	ON CENTER	UG	UNDERGROUND
EA	EACH	OD	OUTSIDE DIAMETER	UNO	UNLESS NOTED OTHERWISE
EJ	EXPANSION JOINT	OPG	OPENING	VERT	VERTICAL
EL	ELEVATION	OPP	OPPOSITE	W/	WITH
EQ	EQUAL	PSF	POUNDS PER SQUARE FOOT	W/O	WITHOUT
EW	EACH WAY	PSI	POUNDS PER SQUARE INCH	WWF	WELDED WIRE FABRIC
EXIST	EXISTING	QTY	QUANTITY		
EXP	EXPANSION	RD	ROOF DRAIN		

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SUNY ECC NORTH CAMPUS SPRING STUDENT CENTER CAFETERIA HVAC UPGRADE PROJECT ECDPW PROJECT NO. 2024-956-01

Client: SUNY ERIE COMMUNITY COLLEGE NORTH CAMPUS

Building Name: SPRING STUDENT CENTER

Address: SUNY Erie North Campus, 6205 Main Street, Williamsville, NY 14221

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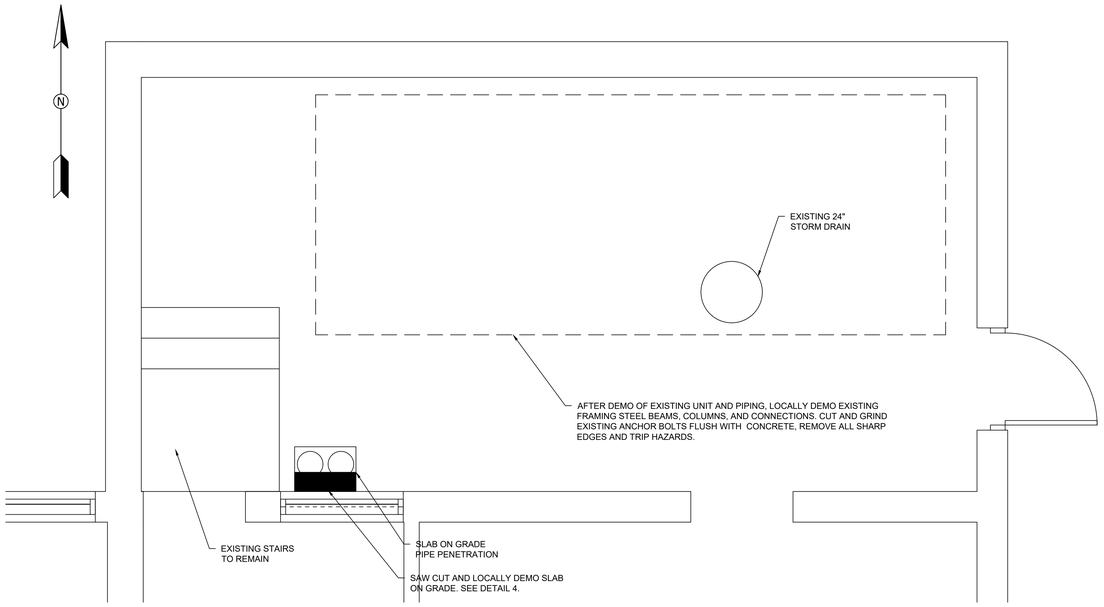
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Project Number: 20240180

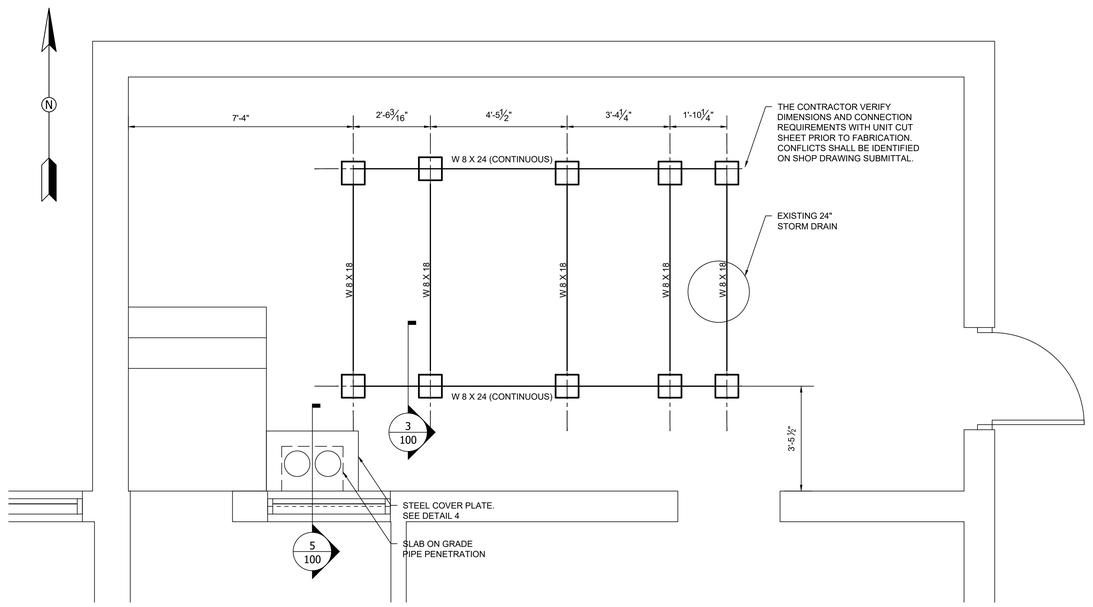
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Date: 08/05/2024

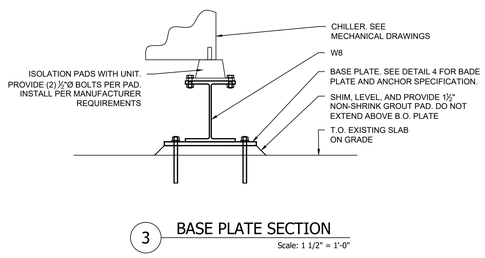
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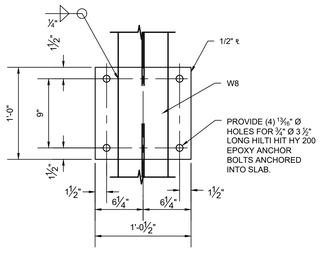
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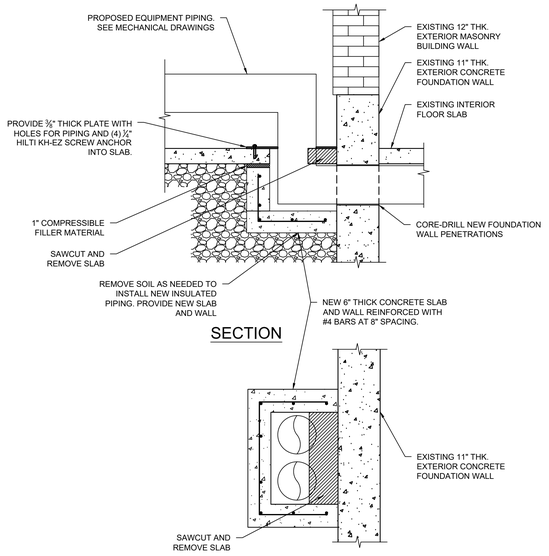
2 FRAMING PLAN
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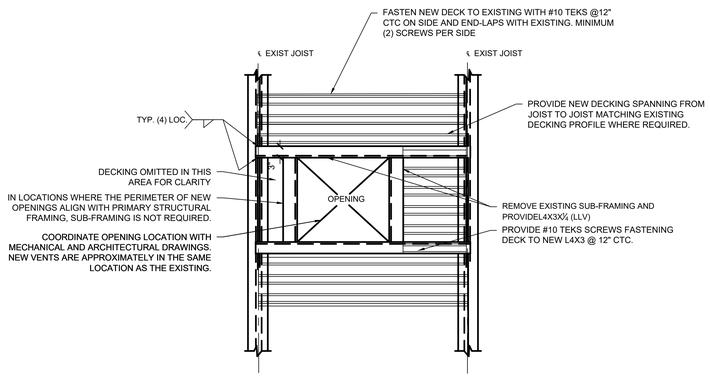
3 BASE PLATE SECTION
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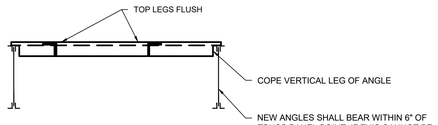
4 BASE PLATE DETAIL
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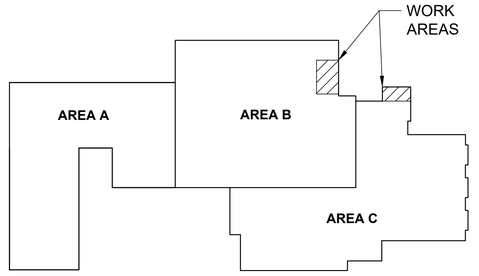


5 PIPE PIT DETAIL
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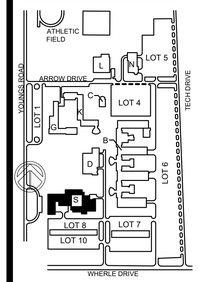
6 ROOF OPENING SUB-FRAMING DETAIL
Scale: 3/4" = 1'-0"





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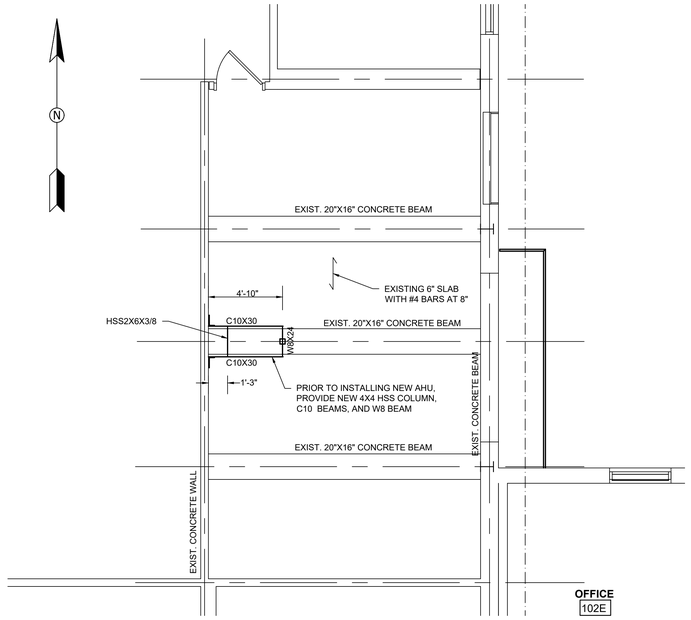
Title: **STRUCTURAL PLANS AND DETAILS FOR EQUIPMENT SUPPORT**

Project Number: 20240180

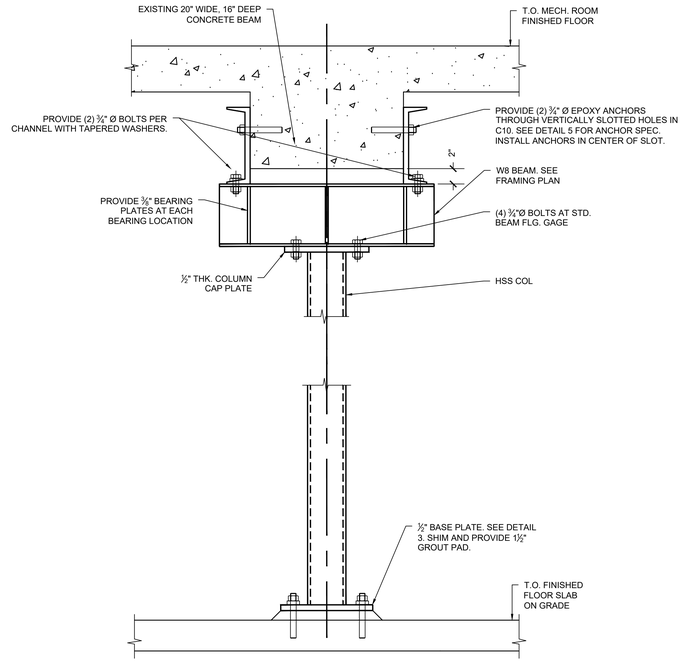
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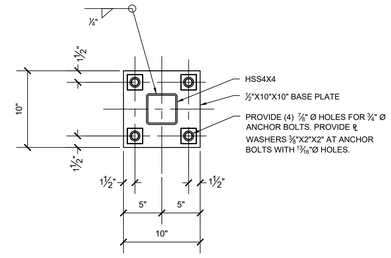
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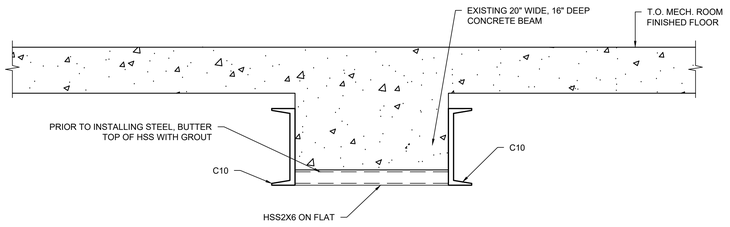
1 MECHANICAL ROOM FRAMING PLAN
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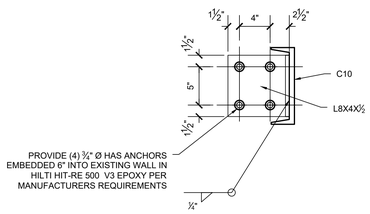
2 SUPPLEMENTARY FRAMING DETAIL 1
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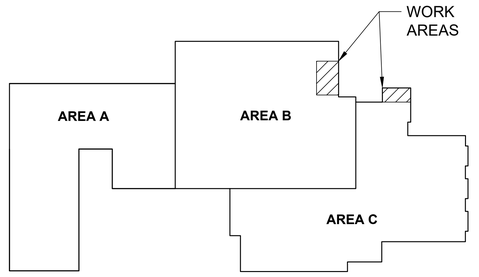
3 BASE PLATE DETAIL
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4 SUPPLEMENTARY FRAMING DETAIL 2
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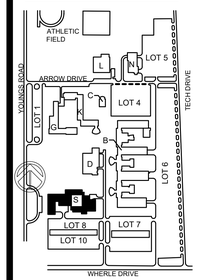


5 C10 TO WALL CONNECTION
Scale: 1-1/2" = 1'-0"



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No.	Date	Description

Title: **STRUCTURAL DETAILS FOR SUPPLEMENTARY FRAMING SUPPORT**

Project Number: 20240180
Drawn By: AJC
Date: 08/05/2024
Sheet: **S-101**