2014 RCCSD CAPITAL IMPROVEMENTS

CONRAD SCHOOL OF SCIENCE

201 JACKSON AVENUE

WILMINGTON, DELAWARE 19804

RED CLAY CONSOLIDATED SCHOOL DISTRICT — **OWNER**
1502 SPRUCE AVENUE
WILMINGTON, DELAWARE 19805

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DRAWING LIST

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SYMBOLS

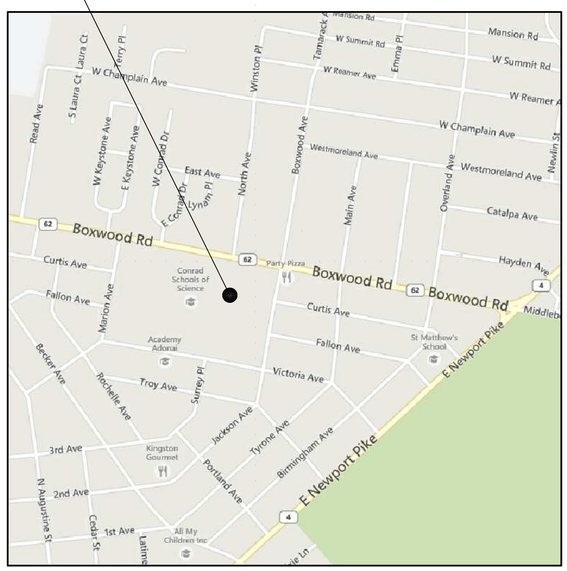
- C1 / A110 — SECTION NUMBER / SHEET WHERE SECTION IS DRAWN
- B4 / A101 — DETAIL NUMBER / SHEET WHERE DETAIL IS DRAWN
- 2 — WALL TYPE
- 117A — DOOR NUMBER
- 3 — WINDOW/LOUVER TYPE
- 1 — COLUMN NUMBER OR LETTER
- 2 — REVISION INDICATOR
- 3 — KEYNOTE INDICATOR
- OFFICE / 001 — ROOM NAME / ROOM NUMBER
- A1 / A4 A111 A2 / A3 — ELEVATION NUMBER / SHEET WHERE ELEVATION IS DRAWN
- WORK POINT, CONTROL POINT

&	AND
∠	ANGLE
@	AT
Ø	DIAMETER OR ROUND
#	POUND OR NUMBER
℄	CENTER LINE
PL	PLATE
+/-	PLUS OR MINUS
	CONCRETE MASONRY UNIT
	BRICK
	CONCRETE
	DRAINAGE FILL
	EARTH
	INSULATION - BATT
	INSULATION - RIGID
	WOOD - ROUGH
	WOOD - FINISH
	PLYWOOD
	GYPSUM WALL BOARD
	STEEL

ABBREVIATIONS

AB	ANCHOR BOLT
ACST	ACOUSTIC
AD	AREA DRAIN
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AGGR	AGGREGATE
ALUM	ALUMINUM
ALT	ALTERNATE
APPROX	APPROXIMATE
ARCH	ARCHITECT
BD	BOARD
BOF	BOTTOM OF FOOTING
BOS	BOTTOM OF STEEL
BITUM	BITUMINOUS
BLDG	BUILDING
BM	BEAM
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BRG	BEARING
BU	BUILT-UP
BW	BOTH WAYS
BLKG	BLOCKING
CAB	CABINET
CB	CATCH BASIN
CEM	CEMENT
CER	CERAMIC
CI	CAST IRON
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CLG	CEILING
CLO	CLOSET
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
COL	COLUMN
CONC	CONCRETE
CONSTR	CONSTRUCTION
CORR	CORRIDOR
CT	CERAMIC TILE
DBL	DOUBLE
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DN	DOWN *****
DS	DOWNSPOUT
DWG	DRAWING
E	EAST
EA	EACH
EXP BT	EXPANSION BOLT
EJ	EXPANSION JOINT
ELEC	ELECTRIC
EL	ELEVATION
EMER	EMERGENCY
ENCL	ENCLOSURE
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXP	EXPANSION
EXIST	EXISTING
EXPO	EXPOSED
EXT	EXTERIOR
FA	FIRE ALARM
FD	FLOOR DRAIN
FDTN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CAB.
FHC	FIRE HOSE CABINET
FIN	FINISH
FLR	FLOOR
FLUOR	FLUORESCENT
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FP	FIREPROOF
FS	FULL SIZE
FT	FOOT OR FEET
FTG	FOOTING
FURG	FURRING
FUT	FUTURE
GA	GAGE
GALV	GALVANIZED
GB	GRAB BAR
GL	GLASS
G	GROUND
GSU	GLAZED STRUCTURAL UNIT
GYP BD	GYPSUM BOARD
GYP	GYPSUM
HB	HOSE BIBB
HC	HOLLOW CORE
HDWD	HARDWOOD
HDW	HARDWARE
HT	HEIGHT
HM	HOLLOW METAL
HORIZ	HORIZONTAL
ID	INSIDE DIAMETER (DIM.)
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
JAN	JANITOR
JT	JOINT
JST	JOIST
LAB	LABORATORY
LAM	LAMINATE
LAV	LAVATORY
LKR	LOCKER
LPT	LOW POINT
LT	LIGHT
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
MAX	MAXIMUM
MECH	MECHANICAL
MED	MEDIUM
MEMB	MEMBRANE
MTL	METAL
MH	MANHOLE
MIN	MINIMUM
MIRR	MIRROR
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MRT	MARBLE THRESHOLD
MTD	MOUNTED
MULL	MULLION
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER (DIM.)
OFF	OFFICE
OPNG	OPENING
OPP	OPPOSITE
PCC	PRECAST CONCRETE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER
PLYWD	PLYWOOD
PR	PAIR
PSF	POUNDS/SQ. FOOT
PSI	POUNDS/SQ. INCH
PT	PAINT
PVG	PAVING
QT	QUARRY TILE
R	RISER
R	RADIUS
RD	ROOF DRAIN
REF	REFERENCE
REF	REFRIGERATOR
REG	REGISTER
REINF	REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RET	RETURN
RM	ROOM
RO	ROUGH OPENING
RWD	REDWOOD
S	SOUTH
SC	SOLID CORE
SCHED	SCHEDULE
SECT	SECTION
SHR	SHOWER
SIM	SIMILAR
STL	STEEL
SPEC	SPECIFICATION
SQ	SQUARE
SST	STAINLESS STEEL
STA	STATION
STD	STANDARD
STOR	STORAGE
STRUCT	STRUCTURAL
SUSP	SUSPEND
SYMM	SYMMETRICAL
TOC	TOP OF CURB
TEL	TELEPHONE
TER	TERRAZZO
T & G	TONGUE AND GROOVE
TOM	TOP OF MASONRY
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TP	TOP OF PAVEMENT
TV	TELEVISION
TOW	TOP OF WALL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VEST	VESTIBULE
VIF	VERIFY IN FIELD
VWC	VINYL WALL COVERING
W	WEST
W/	WITH
WC	WATER CLOSET
WD	WOOD
WI	WROUGHT IRON
W/O	WITHOUT
WP	WORKING POINT
WSCT	WAINSCOT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

SITE



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MARK	DATE	DESCRIPTION
2	02/27/15	ADDENDUM No. 1
1	02/16/15	BID PAC A

PROJECT NO: 1426
FILE NAME —
DRAWN BY: SMM
CHECKED BY: CN

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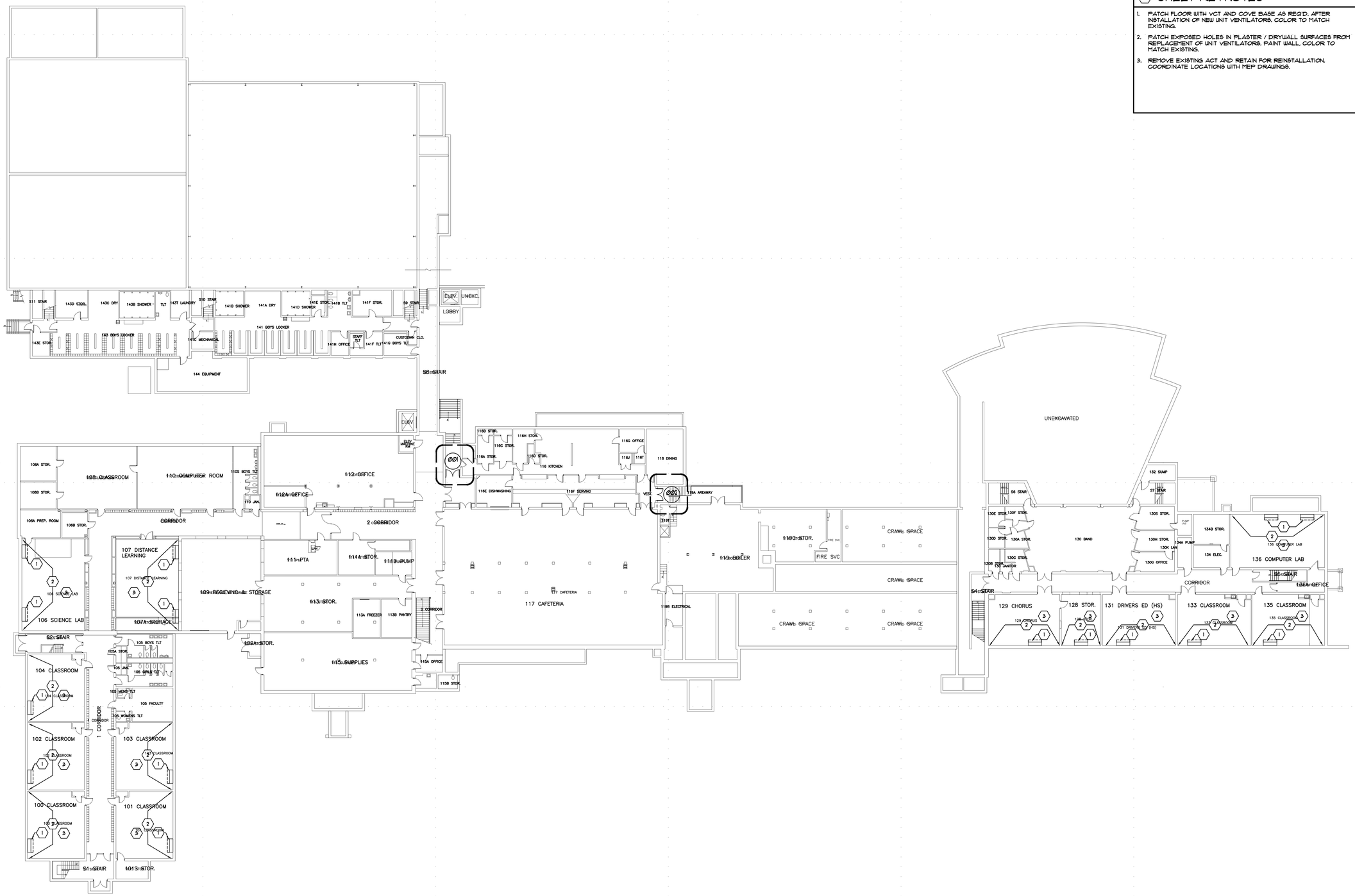
SHEET TITLE

COVER SHEET

G-001



A1 BASEMENT PLAN
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

A. VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH WORK.

B. SEAL ALL PENETRATIONS THRU RATED PARTITIONS AND FLOOR SLABS WITH FIRE BARING INSULATION AND SEALANT AS REQ'D TO MAINTAIN RATED SEPARATION. COORDINATE LOCATIONS WITH MECHANICAL DRAWINGS.

C. SEE MEP DRAWINGS FOR EXTENT OF MECHANICAL, ELECTRICAL, & PLUMBING DEMOLITION.

LEGEND:

146 E1 — DOOR TAG - SEE SHEET A-610

SHEET KEYNOTES

1. PATCH FLOOR WITH VCT AND COVE BASE AS REQ'D. AFTER INSTALLATION OF NEW UNIT VENTILATORS. COLOR TO MATCH EXISTING.
2. PATCH EXPOSED HOLES IN PLASTER / DRYWALL SURFACES FROM REPLACEMENT OF UNIT VENTILATORS. PAINT WALL, COLOR TO MATCH EXISTING.
3. REMOVE EXISTING ACT AND RETAIN FOR REINSTALLATION. COORDINATE LOCATIONS WITH MEP DRAWINGS.

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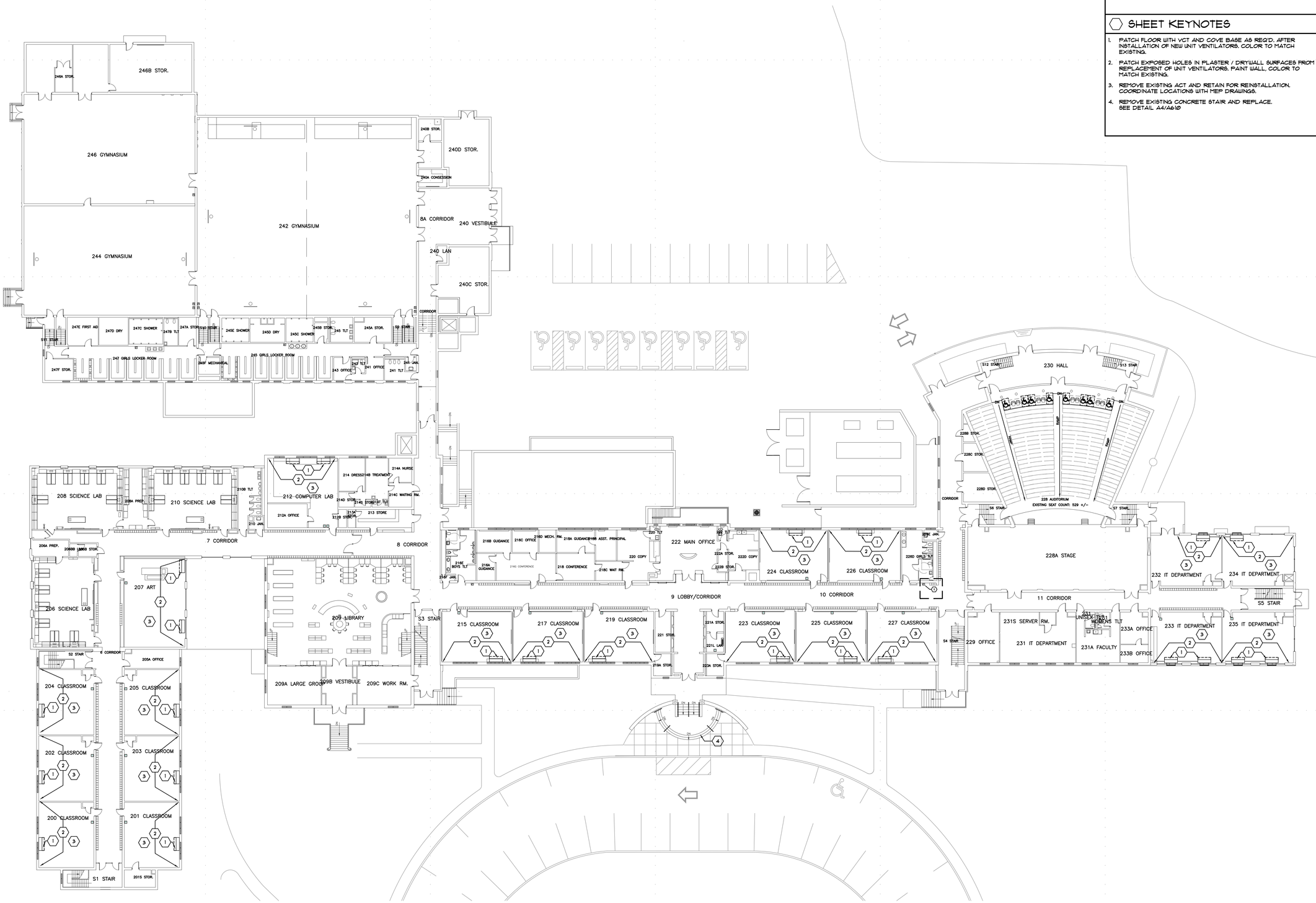
SHEET TITLE
BASEMENT PLAN

A-101



A1 FIRST FLOOR PLAN
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

A. VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH WORK.

B. SEAL ALL PENETRATIONS THRU RATED PARTITIONS AND FLOOR SLABS WITH FIRE BARING INSULATION AND SEALANT AS REQ'D TO MAINTAIN RATED SEPARATION. COORDINATE LOCATIONS WITH MECHANICAL DRAWINGS.

C. SEE MEP DRAWINGS FOR EXTENT OF MECHANICAL, ELECTRICAL, & PLUMBING DEMOLITION.

LEGEND:

146 E1 — DOOR TAG - SEE SHEET A-610

SHEET KEYNOTES

1. PATCH FLOOR WITH VCT AND COVE BASE AS REQ'D. AFTER INSTALLATION OF NEW UNIT VENTILATORS. COLOR TO MATCH EXISTING.
2. PATCH EXPOSED HOLES IN PLASTER / DRYWALL SURFACES FROM REPLACEMENT OF UNIT VENTILATORS. PAINT WALL, COLOR TO MATCH EXISTING.
3. REMOVE EXISTING ACT AND RETAIN FOR REINSTALLATION. COORDINATE LOCATIONS WITH MEP DRAWINGS.
4. REMOVE EXISTING CONCRETE STAIR AND REPLACE. SEE DETAIL A4/A610

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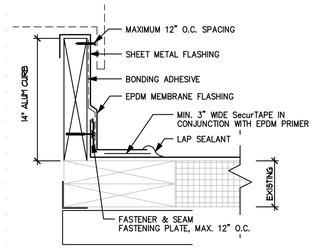
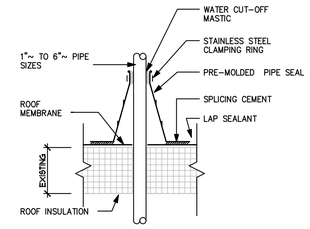
SHEET TITLE
FIRST FLOOR PLAN

A-102



E4 CURB DETAIL , TYP.
SCALE: 3" = 1'-0"



E5 PIPE PENETRATION, TYP.
SCALE: 3" = 1'-0"

GENERAL SHEET NOTES

A. VERIFY ALL DIMENSIONS & CONDITIONS IN THE FIELD BEFORE PROCEEDING WITH WORK.

B. SEAL ALL PENETRATIONS THRU RATED PARTITIONS AND FLOOR SLABS WITH FIRE BARING INSULATION AND SEALANT AS REQ'D TO MAINTAIN RATED SEPARATION. COORDINATE LOCATIONS WITH MECHANICAL DRAWINGS.

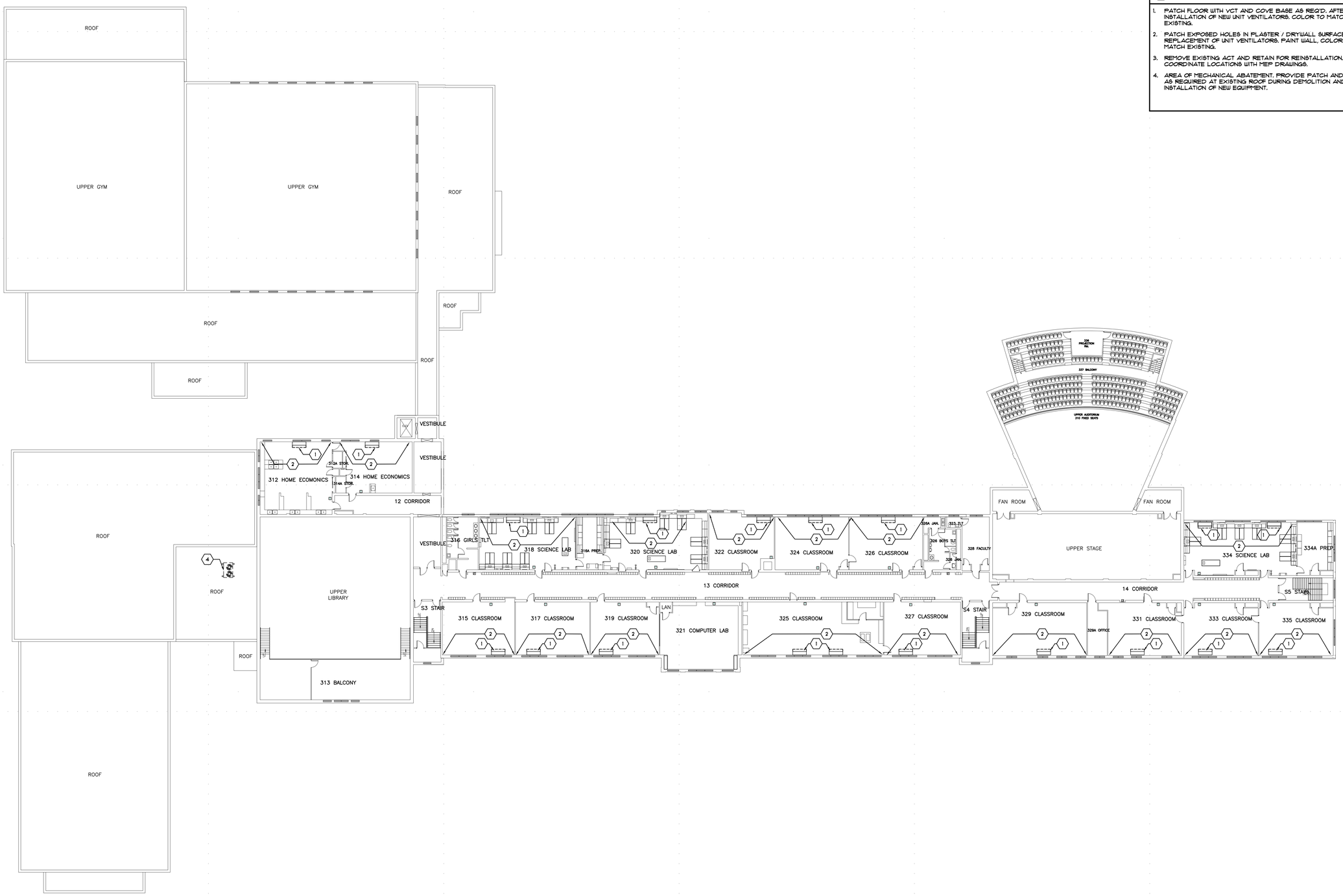
C. SEE MEP DRAWINGS FOR EXTENT OF MECHANICAL, ELECTRICAL, & PLUMBING DEMOLITION.

LEGEND:

146 / E1 — DOOR TAG - SEE SHEET A-610

SHEET KEYNOTES

1. PATCH FLOOR WITH VCT AND COVE BASE AS REQ'D. AFTER INSTALLATION OF NEW UNIT VENTILATORS. COLOR TO MATCH EXISTING.
2. PATCH EXPOSED HOLES IN PLASTER / DRYWALL SURFACES FROM REPLACEMENT OF UNIT VENTILATORS. PAINT WALL, COLOR TO MATCH EXISTING.
3. REMOVE EXISTING ACT AND RETAIN FOR REINSTALLATION. COORDINATE LOCATIONS WITH MEP DRAWINGS.
4. AREA OF MECHANICAL ABATEMENT. PROVIDE PATCH AND REPAIR AS REQUIRED AT EXISTING ROOF DURING DEMOLITION AND INSTALLATION OF NEW EQUIPMENT.



A1 SECOND FLOOR PLAN
SCALE: 1/16" = 1'-0"

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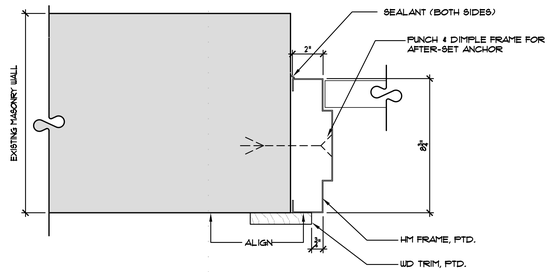
SHEET TITLE
SECOND FLOOR PLAN

A-103

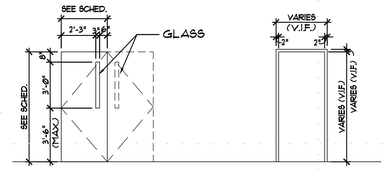


E2 HEAD/JAMB DETAIL - TYP.
SCALE: 3" = 1'-0"

DOOR AND FRAME SCHEDULE

Number	DOOR Size Width x Height	DOOR Rating	DOOR Material	DOOR Type	DOOR Finish	DOOR Glass Type	FRAME Material	FRAME Type	FRAME Finish	FRAME DETAIL Head	FRAME DETAIL Jamb	FRAME DETAIL Threshold	HW Set	Notes
001	(2)3'-0" x 7'-0"	--	HM	DD	P	A	HM	1	P	E2	E2	AL	1	01 / 07
002	(2)2'-8" x 7'-0"	--	HM	DD	P	A	HM	1	P	E2	E2	AL	1	01 / 07

DOORS



D (SINGLE)
DD (DOUBLE)

FRAMES

TYPE 1

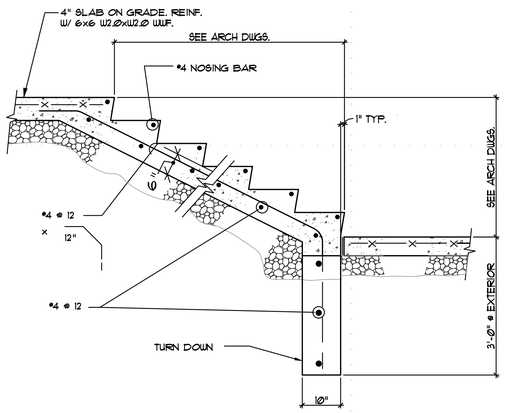
DOOR SCHEDULE-GENERAL NOTES:

A. SEE PROJECT MANUAL FOR:
   HARDWARE GROUPS
   GLASS TYPES
   DOOR AND FRAME FINISHES
   ACOUSTICAL TREATMENT
B. SEE FLOOR PLANS FOR DIRECTION OF SWING.
C. ALL FRAME SIZES DETERMINED BY DOOR SIZE (UNLESS OTHERWISE NOTED.)
D. LABEL FRAMES SAME AS CORRESPONDING DOORS.
E. ALL DOORS TO BE 1-3/4" THICK (UNLESS OTHERWISE NOTED)
F. GROUT ALL HOLLOW METAL FRAMES AT MASONRY CONDITIONS SOLID.
G. GLASS STOPS AT HOLLOW METAL FRAMES ARE TO BE REMOVABLE.
H. PROVIDE SEALANT BOTH SIDES OF ALL FRAMES.
I. (NOT USED)
J. FINISH LEGEND:
   ETR = EXISTING TO REMAIN
   P = PAINT
   F = FACTORY FINISH
   S = STAIN
   N = NATURAL (TRANSPARENT)
K. DASH LINE (--) IN SCHEDULE INDICATES ITEM NOT REQUIRED.
L. ALL HOLLOW METAL FRAMES ARE WELDED TYPE (UNLESS OTHERWISE NOTED)
M. MATERIAL LEGEND:
   WD = WOOD
   HM = HOLLOW METAL
   AL = ALUMINUM
   STL = STEEL
   SS = STAINLESS STEEL
N. DOOR LABEL RATINGS SHOWN ARE IN MINUTES.
O. DETAIL NUMBERS IN DOOR SCHEDULE REFERENCE DETAILS ON SHEET A610 (UNLESS OTHERWISE NOTED)
P. ALL EXISTING DOOR & FRAME SIZES TO BE VERIFIED IN FIELD

DOOR SCHEDULE-SPECIAL NOTES:

OPENING NOTES:

1. REPLACE DOOR, FRAME & HARDWARE
2. NOT USED
3. NOT USED
4. NOT USED
5. NOT USED
6. NOT USED
7. PAINT DOOR & FRAME



A4 CONCRETE STAIR DETAIL
SCALE: 3/4" = 1'-0"

CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO ACI 318 (LATEST EDITION).
2. CONCRETE COMPRESSIVE STRENGTH AT 28 DAYS SHALL BE:
   4000 PSI
   ALL EXTERIOR EXPOSED CONCRETE SHALL BE AIR-ENTRAINED (6 7)%
3. CONCRETE SHALL NOT BE PLACED IN WATER OR ON FROZEN GROUND.
4. REINFORCING BARS SHALL CONFORM TO ASTM A615, GRADE 60 DEFORMED BARS AND SHALL BE DETAILED, FABRICATED AND PLACED IN ACCORDANCE WITH ACI 315, LATEST EDITION. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185 AND BE PROVIDED IN FLAT SHEETS.
5. CLEARANCES FOR REINFORCEMENT:
   CONCRETE PLACED DIRECTLY ON EARTH, FOOTINGS: 3"
   SLABS, FROM TOP UNLESS NOTED OTHERWISE: 1"
   FORMED SURFACES EXPOSED TO WEATHER OR EARTH:
   1 1/2" #5 BAR OR SMALLER
   2" #6 BAR OR LARGER
6. CONTROL JOINTS IN SLABS ON GRADE:
   a) CONTROL JOINTS SHALL BE LOCATED TO MATCH EXISTING JOINTS.
   b) CONTROL JOINTS SHALL BE SAW CUT (1/8" x 1/3 SLAB DEPTH) DEEP AND FILLED WITH JOINT SEALER CUT JOINTS AS SOON AS POSSIBLE WITHOUT FRAYING THE CONCRETE SURFACE.
   c) CONSTRUCTION JOINTS SHALL INCLUDE A "1x2" SHEAR KEY AT MID-HEIGHT OF SLAB.
7. LAP ALL BARS MINIMUM 40 DIAMETERS. LAP ALL W.W.F A MINIMUM OF 6 INCHES.

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SHEET TITLE

DOOR SCHEDULE
& DETAILS

A-610

ABBREVIATIONS

AC	AIR CONDITIONING UNIT/ACCESS SECTION
ACC	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AF	AFTER FILTER
AFCV	AIR FLOW CONTROL VALVE
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFM	AIR FLOW MEASURING DEVICE
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
ATC	AUTOMATIC TEMPERATURE CONTROL
B	BOILER
BDD	BACKDRAFT DAMPER
BF	FEED WATER PUMP DISCHARGE
BLW	BELOW
BO	BLOW OFF/BLOW DOWN
BOS	BOTTOM OF STEEL/STRUCTURE
BRD	BAROMETRIC DAMPER
BS	BASKET STRAINER
C	CONDENSER WATER SUPPLY
CAF	COMBUSTION AIR FAN
CC	COOLING COIL
CD	CONDENSATE DRAIN/CEILING DIFFUSER
CF	CENTRIFUGAL FAN
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CIR	CAST IRON RADIATOR
CO	CLEAN OUT
COMP	COMPRESSOR UNIT
CONC	CONCRETE
CP	CONDENSATE PUMP
CR	CONDENSER WATER RETURN/ CEILING RETURN
CRU	COMPUTER ROOM UNIT
CT	COOLING TOWER
CU	CONDENSING UNIT/COOLING UNIT
CUH	CABINET UNIT HEATER
CV	CONVECTOR
CW	COLD WATER
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
D	DRAIN/DEEP
Db	DRY BULB TEMPERATURE, °F
dB	DECIBELS
DDC	DIRECT DIGITAL CONTROL
DISCH	DISCHARGE
DHU	DEHUMIDIFIER
DN	DOWN
DP	DEW POINT TEMPERATURE, °F
DSD	DUCT SMOKE DETECTOR
DTR	DUAL TEMP WATER RETURN
DTS	DUAL TEMP WATER SUPPLY
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EVAPORATIVE CONDENSER
ECC	ENGINEERING CONTROL CENTER
EDH	ELECTRIC COIL DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EL	ELBOW
EGW	ETHYLENE GLYCOL-WATER SOLUTION
ERC	ENERGY RECOVERY COIL
ER	EXHAUST REGISTER
ERP	ELECTRIC RADIANT CEILING PANEL
ESP	EXTERNAL STATIC PRESSURE
EWF	ELECTRIC WALL FIN
ECH	ELECTRIC CABINET HEATER
ET	EXPANSION TANK
EUH	ELECTRIC UNIT HEATER
EWC	EVAPORATIVE WATER COOLER
EWH	ELECTRIC WALL HEATER
EWT	ENTERING WATER TEMPERATURE
(EX)	EXISTING
EXH	EXHAUST
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FDR	FLOOR DRAIN
FLA	FULL LOAD AMPS
FLR	FLOOR
FMB	FILTER MIXING BOX
FM	WATER FLOW MEASURING DEVICE
FPM	FEET PER MINUTE
FT-A	FIN TUBE RADIATION-TYPE A
FV	FACE VELOCITY
GCR	GLYCOL CHILLED-WATER RETURN
GC	GLYCOL CHILLED-WATER SUPPLY
GDF	GAS DUCT FURNACE
GHP	GEOTHERMAL HEAT PUMP
GHR	GLYCOL HOT-WATER RETURN
GHS	GLYCOL HOT-WATER SUPPLY
GPM	GALLONS PER MINUTE
GUH	GAS UNIT HEATER
H	HIGH
HC	HEATING COIL
HD	HOOD
HE	AIR TO AIR HEAT EXCHANGE
HEF	HIGH EFFICIENCY FURNACE
HF	HEPA FILTER
HP	HORSEPOWER
HPC	HIGH PRESSURE STEAM CONDENSATE RETURN
HPS	HIGH PRESSURE STEAM (16 PSIG & ABOVE)
HPWS	HEAT PUMP WATER SUPPLY
HRP	HYDRONIC RADIANT CEILING PANEL
HPWR	HEAT PUMP WATER RETURN
HTWR	HIGH TEMP. HOT WATER RETURN
HTWS	HIGH TEMP. HOT WATER SUPPLY
HU	HUMIDIFIER
HVU	HEATING AND VENTILATING UNIT
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HX	HEAT EXCHANGER
ID	INSIDE DIAMETER
IEF	INDUSTRIAL EXHAUST FAN
IFB	INTEGRAL FACE AND BYPASS
IR	INFRA RED
IU	INDUCTION UNIT
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LD	LINEAR DIFFUSER
LCD	LINEAR CEILING DIFFUSER
LPC	LOW PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM (15 PSIG & BELOW)
LR	LINEAR RETURN
LRA	LOCKED ROTOR AMPS
LTCP	LOCAL TEMPERATURE CONTROL PANEL
LWT	LEAVING WATER TEMPERATURE
MA	MIXED AIR
MAX	MAXIMUM
MB	MIXING BOX
MBH	THOUSAND BTU PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MCC	MOTOR CONTROL CENTER
MO	MASONRY OPENING
MOD	MOTOR OPERATED DAMPER
MOCP	MAXIMUM OVERCURRENT PROTECTION
MIN	MINIMUM
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
P	PUMP
PD	PRESSURE DROP (FEET OF WATER)
PD	CONDENSATE PUMP DISCHARGE
PLBG	PLUMBING
PF	PRE-FILTER
PGW	PROPYLENE GLYCOL-WATER SOLUTION
PHC	PREHEAT COIL
PRV	PRESSURE REDUCING VALVE
PSIG	POUNDS/SQUARE INCH
PVC	POLYVINYL CHLORIDE
(R)	REMOVE
RA	RETURN AIR
RF	RETURN AIR FAN/RELIEF
RG	RETURN GRILLE
RHC	REHEAT COIL
Rh	RELATIVE HUMIDITY
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RR	RETURN REGISTER
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
RV	POWER TYPE ROOF VENTILATOR
SA	SUPPLY AIR
SAU	SOUND ATTENUATING UNIT
SD	SMOKE DAMPER
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SL	STORM LOUVER
SP	STATIC PRESSURE (INCHES OF WATER)
SPP	SINGLE POINT POWER
SPS	STATIC PRESSURE SENSOR
SR	SUPPLY REGISTER
Sp Gr	SPECIFIC GRAVITY
SRV	SAFETY RELIEF VALVE
SS	SOLIDS SEPARATOR
STDBY	STANDBY
STL	STEEL
TG	TRANSFER GRILLE
THK	THICK
TOD	TOP OF DUCT
TSP	TOTAL STATIC PRESSURE
TWU	THRU WALL UNIT
TYP	TYPICAL
UC	UNIT COOLER
U/C	UNDER CUT
UH	UNIT HEATER
UV	UNIT VENTILATOR
VD	VOLUME DAMPER (MANUAL)
VI	VIBRATION ISOLATOR
VAV	VARIABLE AIR VOLUME
VIV	VARIABLE INLET VANE
VP	VACUUM PUMP
VR	VACUUM STEAM CONDENSATE RETURN
V	VALVE, VENT
VTR	VENT THROUGH ROOF
Wb	WET BULB TEMPERATURE, °F
WC	WALL CAP
WH	WALL HEATER
W	WIDE
W/	WITH
WMS	WIRE MESH SCREEN
W/W ENCL	WALL TO WALL ENCLOSURE
WSHP	WATER SOURCE HEAT PUMP

DUCTWORK SYMBOLS

	DEMOLITION OF DUCTWORK/EQUIPMENT
	EXISTING DUCTWORK/EQUIPMENT TO REMAIN
	NEW DUCTWORK/EQUIPMENT
UP DN	SUPPLY DUCT (UP & DOWN)
UP DN	RETURN OR RELIEF (UP & DOWN)
UP DN	EXHAUST (UP & DOWN)
	SUPPLY DIFFUSER
	RETURN GRILLE
	EXHAUST GRILLE
A" ø	ROUND DUCT
A" X B"	FLAT - OVAL DUCT
	SOUND ATTENUATOR
R	INCLINED RISE, IN DIRECTION OF AIR FLOW
D	INCLINED DROP, IN DIRECTION OF AIR FLOW
FC	FLEXIBLE CONNECTION
FC	FLEXIBLE CONNECTOR
	VANED ELBOW (PROVIDE ALL SQUARE OR RECTANGULAR ELBOWS WITH VANES)
	STANDARD RADIUS ELBOWS
	LOUVER
# X # DG # CFM	DOOR GRILLE
1" U.C. # CFM	1" UNDERCUT DOOR

FD/SD	COMBINATION FIRE & SMOKE DAMPER
FD	FIRE DAMPER
SD	SMOKE DAMPER
VD	VOLUME DAMPER (BALANCING)
BDD	BACK DRAFT DAMPER
MOD	MOTOR OPERATED DAMPER
	ACOUSTIC - THERMAL LINING
	TRANSITION SQUARE TO ROUND
	FLEXIBLE DUCT
	COIL
AD -AD	DUCT ACCESS DOOR
	MANUAL VOLUME DAMPER
CD-# CFM	FOR TYPICAL 24"x24" SUPPLY'S AND RETURNS
CR CFM	FOR TYPICAL 24"x24" SUPPLY'S AND RETURNS
# X # EG # CFM	EXHAUST GRILLE
# X # SG # CFM	SUPPLY GRILLE
# X # RG # CFM	RETURN GRILLE
CD-# # CFM	3-WAY BLOW
CD-# # CFM	2-WAY CORNER BLOW
CD-# # CFM	2-WAY BLOW
CD-# # CFM	1-WAY BLOW

CONTROLS

T H	ROOM CONTROL: THERMOSTAT, HUMIDISTAT (MOUNTING HEIGHT 48" AFF)
T	REMOTE BULB THERMOSTAT
T	DUCT OR PIPE THERMOSTAT (NOTE: PROVIDE (12" MIN LENGTH IN DUCT WHEN SPACE PERMITS)
T	DUCT THERMOSTAT WITH AVERAGING ELEMENT
T H	ROOM SENSOR: TEMPERATURE, HUMIDITY (MOUNTING HEIGHT 48" AFF)
T	DUCT OR PIPE TEMP. SENSOR (12" MIN LENGTH IN DUCT WHEN SPACE PERMITS)
H	DUCT HUMIDITY SENSOR (12" MIN LENGTH IN DUCT WHEN SPACE PERMITS)
Dp	DUCT DEWPOINT SENSOR (12" MIN LENGTH IN DUCT WHEN SPACE PERMITS)
Sp	DUCT STATIC PRESSURE SENSOR (12" MIN LENGTH IN DUCT WHEN SPACE PERMITS)
T	DUCT TEMP SENSOR WITH AVERAGING ELEMENT
T G T G	GUARD ON THERMOSTAT/SENSOR (MOUNTING HEIGHT 48" AFF)
DSD DSD	DUCT SMOKE DETECTOR
FS	FLOW SWITCH
	INDICATOR LIGHT
OR	OVERRIDE SWITCH
CO2 TH	CO2 SENSOR/ROOM SENSOR TEMPERATURE, HUMIDITY. MOUNTING HEIGHT 48" AFF.

GENERAL NOTES

1. MECHANICAL CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, FEES AND PERMITS FOR A COMPLETE INSTALLATION. ALL WORK SHALL COMPLY WITH APPLICABLE CODES AND STANDARDS.
2. ALL COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION ARE NOT SHOWN ON THE DRAWINGS. REFER TO EQUIPMENT INSTALLATION INSTRUCTIONS FOR ADDITIONAL REQUIREMENTS, INCLUDING REQUIRED CONNECTION LOCATIONS, TYPES, & SIZES.
3. UNLESS SPECIFICALLY DIMENSIONED, THE WORK SHOWN ON THE DRAWINGS IS DIAGRAMMATIC ONLY TO SHOW GENERAL ARRANGEMENTS. THE DRAWINGS ARE NOT TO BE SCALED. PIPE AND DUCT ROUTING AND EQUIPMENT CONNECTION LOCATIONS SHOWN ON DRAWINGS ARE APPROXIMATE. FIELD VERIFY CLEARANCES, DIMENSIONS, MATERIALS, AND EQUIPMENT REQUIREMENTS PRIOR TO CONSTRUCTION. RELOCATE CONDUITS, PIPING HANGERS, ETC. AS REQUIRED.
4. IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO PERFORM ALL WORK NECESSARY TO PREPARE STRUCTURES FOR THE INSTALLATION OF MECHANICAL SYSTEMS. ALL HOLES, OPENINGS, AND DAMAGED MATERIALS CREATED DURING CONSTRUCTION SHALL BE PATCHED AND FINISHED.
5. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, FINISHING, AND PENETRATIONS REQUIRED BY THE INSTALLATIONS. ALL PENETRATIONS SHALL BE PATCHED AND SEALED. CUTTING OF BUILDING CONSTRUCTION MATERIALS SHALL CONFORM TO THE CHARACTERISTICS OF THE PARTICULAR MATERIAL INVOLVED AND SHALL NOT CREATE ANY STRUCTURAL WEAKNESS OR UNSIGHTLY APPEARANCE. ALL CUTTING SHALL MEET THE APPROVAL OF THE ARCHITECT AND/OR OWNER'S REPRESENTATIVE: COORDINATE WITH THIS PARTY BEFORE COMMENCING.
6. WHENEVER CONNECTIONS TO EXISTING FACILITIES ARE REQUIRED, THE MECHANICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER'S REPRESENTATIVE AND SCHEDULE THE WORK TO MINIMIZE INTERRUPTION OF SERVICE AND AVOID INTERFERENCE WITH NORMAL FUNCTION OF THE BUILDING AND/OR SURROUNDING WORK AREA. RELOCATED ITEMS SHALL BE INSTALLED IN COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS.
7. ALL WORK, EQUIPMENT AND MATERIALS SHALL BE PROTECTED AT ALL TIMES. ALL DUCT AND PIPE OPENINGS SHALL BE PROPERLY CAPPED OR PLUGGED DURING INSTALLATION.
8. WHERE REQUIRED FOR CLEARANCE, TO AVOID INTERFERENCE OR EQUIPMENT CONNECTIONS, THE MECHANICAL CONTRACTOR SHALL OFFSET PIPES, DUCTS OR CONDUITS. NECESSARY SPECIAL FITTINGS OR ADAPTERS SHALL BE PROVIDED TO MAINTAIN GOOD FLOW CHARACTERISTICS. PROPERLY DRAIN AND DRIP WHERE NECESSARY.
9. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF HIS OWN PEOPLE. COMPLY WITH ALL OWNER'S SITE SAFETY CONDITIONS.
10. MECHANICAL CONTRACTOR SHALL MOUNT ALL THERMOSTATS AND ADJUSTABLE SENSORS IN FINISHED OCCUPIED ROOMS AT ADA HEIGHT OF 48 INCHES.
11. ALL VALVES SHALL HAVE EXTENDED STEMS TO PLACE THE HANDLE OUTSIDE OF PIPE INSULATION.
12. FOR ANY MATERIALS AND EQUIPMENT REMOVED DURING THE DEMOLITION PHASE OF THE PROJECT, THE OWNER'S REPRESENTATIVE SHALL APPROVE FINAL DISPOSITION OF ALL SUCH MATERIAL FOR RETENTION AND STORAGE, OR REMOVAL FROM THE SITE BY THE CONTRACTOR.

PIPING SYMBOLS

HEATING

HPS	HIGH PRESSURE STEAM (16 PSIG & ABOVE)
HPC	HIGH PRESSURE STEAM CONDENSATE RETURN
LPS	LOW PRESSURE STEAM (15 PSIG & BELOW)
LPC	LOW PRESSURE STEAM CONDENSATE RETURN
VR	VACUUM STEAM CONDENSATE RETURN
PD	CONDENSATE PUMP DISCHARGE
BF	FEED WATER PUMP DISCHARGE
BO	BLOW OFF/BLOW DOWN
HWS	HOT WATER SUPPLY
HWR	HOT WATER RETURN
HTWS	HIGH TEMP. HOT WATER SUPPLY
HTWR	HIGH TEMP. HOT WATER RETURN
GHS	HOT GLYCOL-WATER HEATING SUPPLY
GHR	HOT GLYCOL-WATER HEATING RETURN
V	VENT LINE, ATMOSPHERIC
GTWS	GEO THERMAL WATER SUPPLY
GTWR	GEO THERMAL WATER RETURN

AIR CONDITIONING

RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
RHG	REFRIGERANT HOT GAS
C	CONDENSER WATER SUPPLY
CR	CONDENSER WATER RETURN
CWS	CHILLED WATER SUPPLY
CWR	CHILLED WATER RETURN
GC	CHILLED GLYCOL-WATER SUPPLY
GCR	CHILLED GLYCOL-WATER RETURN
—	MAKE-UP WATER
D	DRAIN LINE

COMBINATION AIR CONDITIONING AND HEATING

DTS	DUAL TEMPERATURE (CHILLED WATER/HOT WATER HEATING) SUPPLY
DTR	DUAL TEMPERATURE (CHILLED WATER/HOT WATER HEATING) RETURN
HPWS	HEAT PUMP WATER SUPPLY
HPWR	HEAT PUMP WATER RETURN

VALVES

	GATE VALVE
	GLOBE VALVE
	CHECK VALVE
	BALL VALVE
	BUTTERFLY VALVE
CV	CONTROL VALVE
	BALANCING VALVE
	TRIPLE DUTY VALVE
	TWO WAY CONTROL VALVE (ELECTRONIC ACTUATOR)
	THREE WAY CONTROL VALVE (ELECTRONIC ACTUATOR)
	TWO WAY CONTROL VALVE (PNEUMATIC ACTUATOR)
	THREE WAY CONTROL VALVE (PNEUMATIC ACTUATOR)
	PRESSURE REDUCING VALVE
	SAFETY RELIEF VALVE

GENERAL

D	DIRECTION OF PIPE PITCH (DOWN)
U	DIRECTION OF PIPE PITCH (UP)
	DIRECTION OF FLOW
	ANCHOR
	REDUCER OR INCREASER
	ECCENTRIC REDUCER
	TOP CONNECTION
	BOTTOM CONNECTION
	CAP OR PLUG
	BLANK FLANGE
	ELBOW DOWN
CO	CLEANOUT
	UNION OR FLANGE
	ELBOW UP
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	POINT BETWEEN EXISTING REMOVAL WORK AND EXISTING TO REMAIN
BT	INVERTED BUCKET TRAP SET INCLUDING PIPING ACCESSORIES (SEE STD. DETAIL)
F & T	FLOAT & THERMOSTATIC TRAP SET INCLUDING PIPING ACCESSORIES (SEE STD. DETAIL)
TS	THERMOSTATIC TRAP
TD	THERMODYNAMIC TRAP
	STRAINER
T	THERMOMETER
	PRESSURE GAUGE WITH GAUGE COCK
	WATER FLOW MEASURING DEVICE
	EXISTING WORK TO BE REMOVED
V	AIR VENT
	MOMENT GUIDE
	FLEXIBLE COUPLING
EC	EXPANSION COMPENSATOR WITH GUIDES
EJ	EXPANSION JOINT WITH GUIDES
	HOSE END CONNECTION
4.0 L	DOOR LOUVERED (INDICATES SQ FT OF AN AREA)
	FIN TUBE ENCLOSURE WITH END CAPS
	PUMP
	UNIT HEATER
	AIR SEPARATOR

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MARK	DATE	DESCRIPTION
3	02/27/15	ADDENDUM NO. 1
2	02/16/15	BID PAC A
1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
DRAWN BY: DEG
CHECKED BY: SAJ

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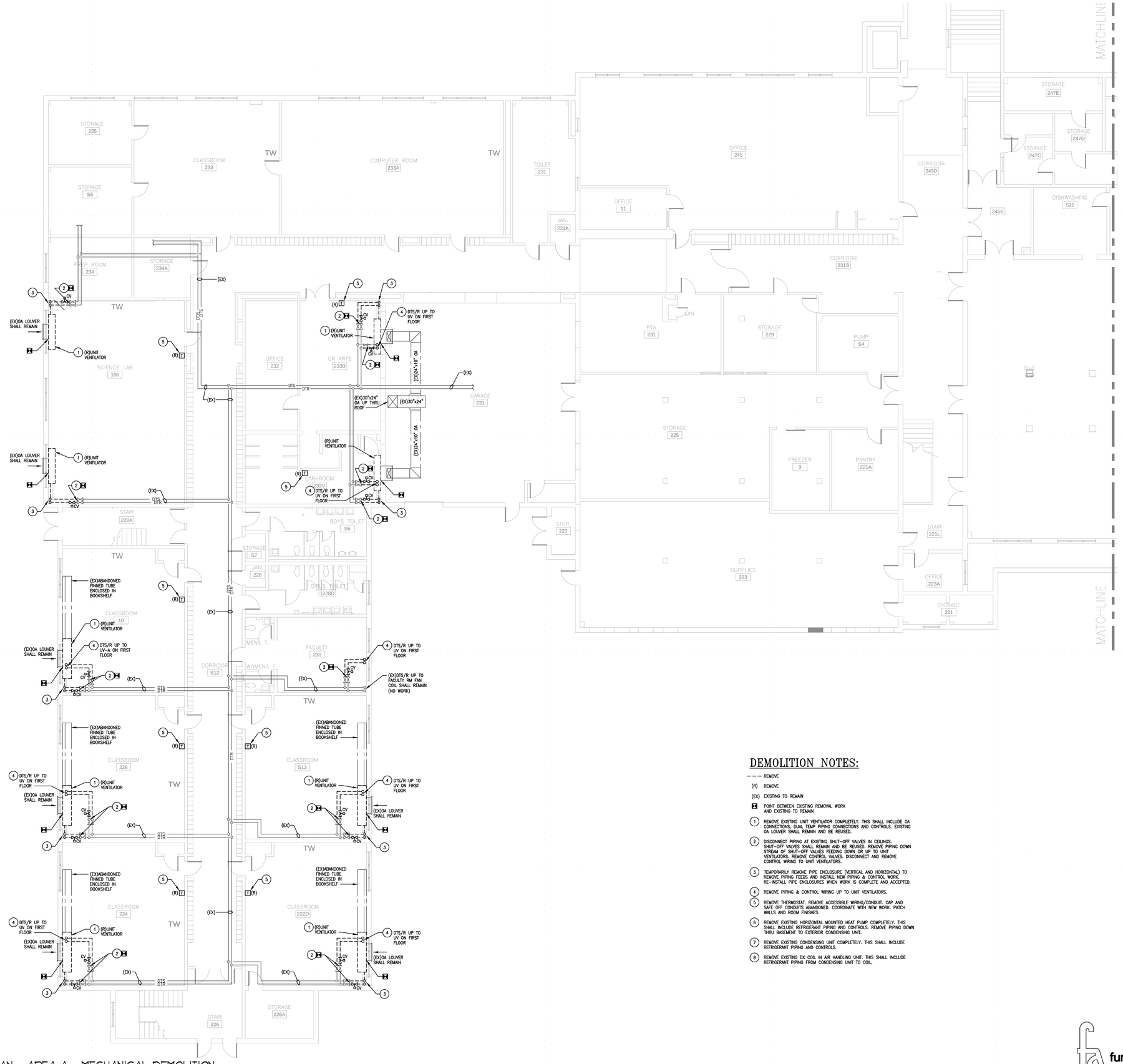
SHEET TITLE
LEGEND SHEET
MECHANICAL

M-001



A1 BASEMENT PLAN - AREA A - MECHANICAL DEMOLITION

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

DEMOLITION NOTES:

- - - REMOVE

(R) REMOVE

(EX) EXISTING TO REMAIN

POINT BETWEEN EXISTING REMOVAL WORK AND EXISTING TO REMAIN

1. REMOVE EXISTING UNIT VENTILATOR COMPLETELY. THIS SHALL INCLUDE OA CONNECTIONS, DUAL TEMP PIPING CONNECTIONS AND CONTROLS. EXISTING OA LOUVER SHALL REMAIN AND BE REUSED.
2. DISCONNECT PIPING AT EXISTING SHUT-OFF VALVES IN CEILINGS. SHUT-OFF VALVES SHALL REMAIN AND BE REUSED. REMOVE PIPING DOWN STREAM OF SHUT-OFF VALVES FEEDING DOWN OR UP TO UNIT VENTILATORS. REMOVE CONTROL VALVES. DISCONNECT AND REMOVE CONTROL WIRING TO UNIT VENTILATORS.
3. TEMPORARILY REMOVE PIPE ENCLOSURE (VERTICAL AND HORIZONTAL) TO REMOVE PIPING FEEDS AND INSTALL NEW PIPING & CONTROL WORK. RE-INSTALL PIPE ENCLOSURES WHEN WORK IS COMPLETE AND ACCEPTED.
4. REMOVE PIPING & CONTROL WIRING UP TO UNIT VENTILATORS.
5. REMOVE THERMOSTAT. REMOVE ACCESSIBLE WIRING/CONDUIT. CAP AND SAFE OFF CONDUITS ABANDONED. COORDINATE WITH NEW WORK. PATCH WALLS AND ROOM FINISHES.
6. REMOVE EXISTING HORIZONTAL MOUNTED HEAT PUMP COMPLETELY. THIS SHALL INCLUDE REFRIGERANT PIPING AND CONTROLS. REMOVE PIPING DOWN THRU BASEMENT TO EXTERIOR CONDENSING UNIT.
7. REMOVE EXISTING CONDENSING UNIT COMPLETELY. THIS SHALL INCLUDE REFRIGERANT PIPING AND CONTROLS.
8. REMOVE EXISTING DX COIL IN AIR HANDLING UNIT. THIS SHALL INCLUDE REFRIGERANT PIPING FROM CONDENSING UNIT TO COIL.

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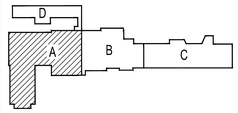

KEY PLAN

PROJECT

2014 RCCSD
CAPITAL IMPROVEMENTS

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FILE NAME
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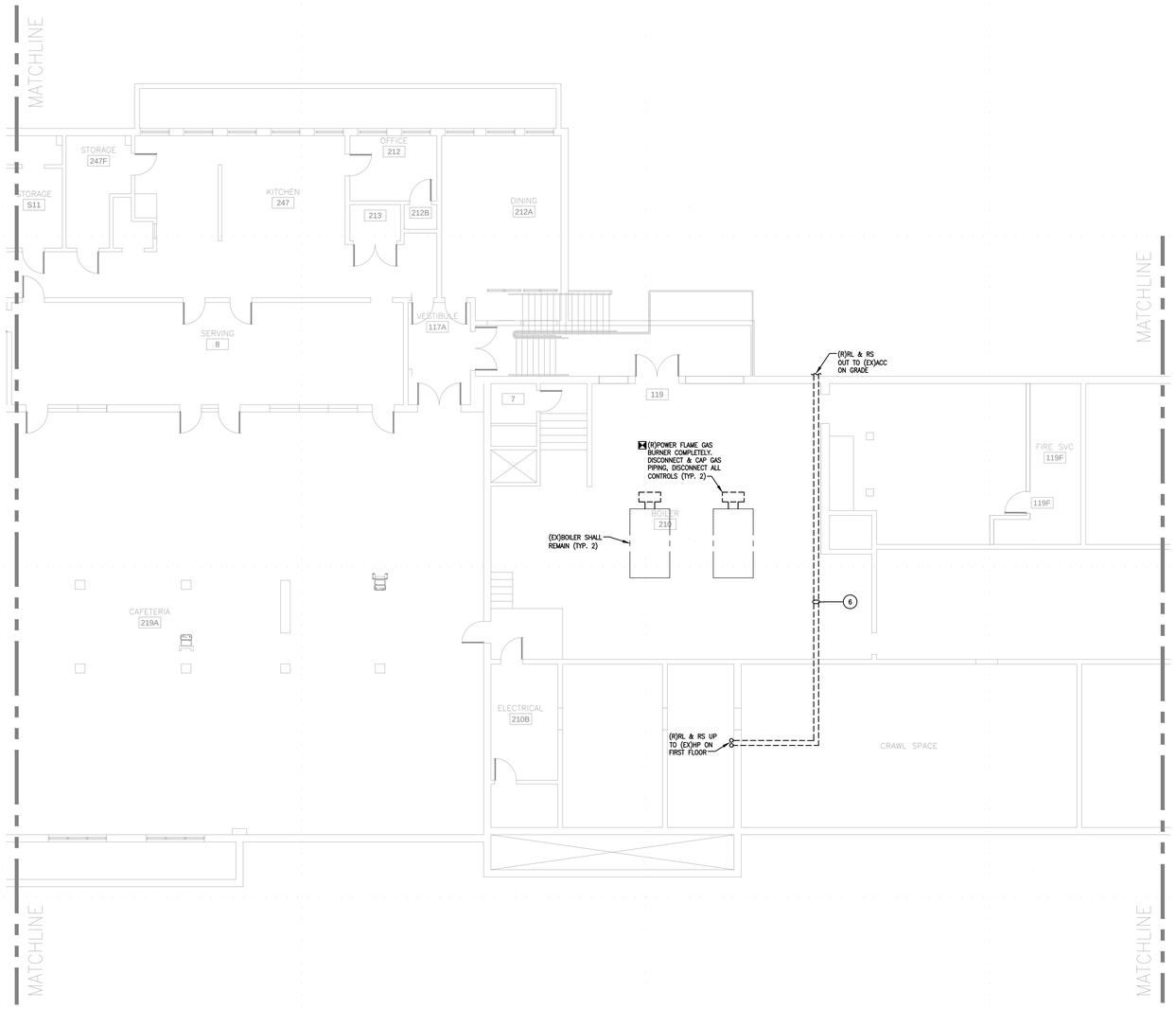
SHEET TITLE

BASEMENT FLOOR PLAN
AREA A DEMOLITION
MECHANICAL

MD-100



A1 BASEMENT PLAN - AREA B - MECHANICAL DEMOLITION
SCALE: 1/8" = 1'-0"

DEMOLITION NOTES:

- - - REMOVE

(R) REMOVE

(EX) EXISTING TO REMAIN

POINT BETWEEN EXISTING REMOVAL WORK AND EXISTING TO REMAIN

1. REMOVE EXISTING UNIT VENTILATOR COMPLETELY. THIS SHALL INCLUDE OA CONNECTIONS, DUAL TEMP PIPING CONNECTIONS AND CONTROLS. EXISTING OA LOUVER SHALL REMAIN AND BE REUSED.
2. DISCONNECT PIPING AT EXISTING SHUT-OFF VALVES IN CEILINGS. SHUT-OFF VALVES SHALL REMAIN AND BE REUSED. REMOVE PIPING DOWN STREAM OF SHUT-OFF VALVES FEEDING DOWN OR UP TO UNIT VENTILATORS. REMOVE CONTROL VALVES. DISCONNECT AND REMOVE CONTROL WIRING TO UNIT VENTILATORS.
3. TEMPORARILY REMOVE PIPE ENCLOSURE (VERTICAL AND HORIZONTAL) TO REMOVE PIPING FEEDS AND INSTALL NEW PIPING & CONTROL WORK. RE-INSTALL PIPE ENCLOSURES WHEN WORK IS COMPLETE AND ACCEPTED.
4. REMOVE PIPING & CONTROL WIRING UP TO UNIT VENTILATORS.
5. REMOVE THERMOSTAT. REMOVE ACCESSIBLE WIRING/CONDUIT. CAP AND SAFE OFF CONDUITS ABANDONED. COORDINATE WITH NEW WORK. PATCH WALLS AND ROOM FINISHES.
6. REMOVE EXISTING HORIZONTAL MOUNTED HEAT PUMP COMPLETELY. THIS SHALL INCLUDE REFRIGERANT PIPING AND CONTROLS. REMOVE PIPING DOWN THRU BASEMENT TO EXTERIOR CONDENSING UNIT.
7. REMOVE EXISTING CONDENSING UNIT COMPLETELY. THIS SHALL INCLUDE REFRIGERANT PIPING AND CONTROLS.
8. REMOVE EXISTING DX COIL IN AIR HANDLING UNIT. THIS SHALL INCLUDE REFRIGERANT PIPING FROM CONDENSING UNIT TO COIL.

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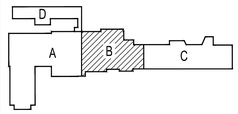

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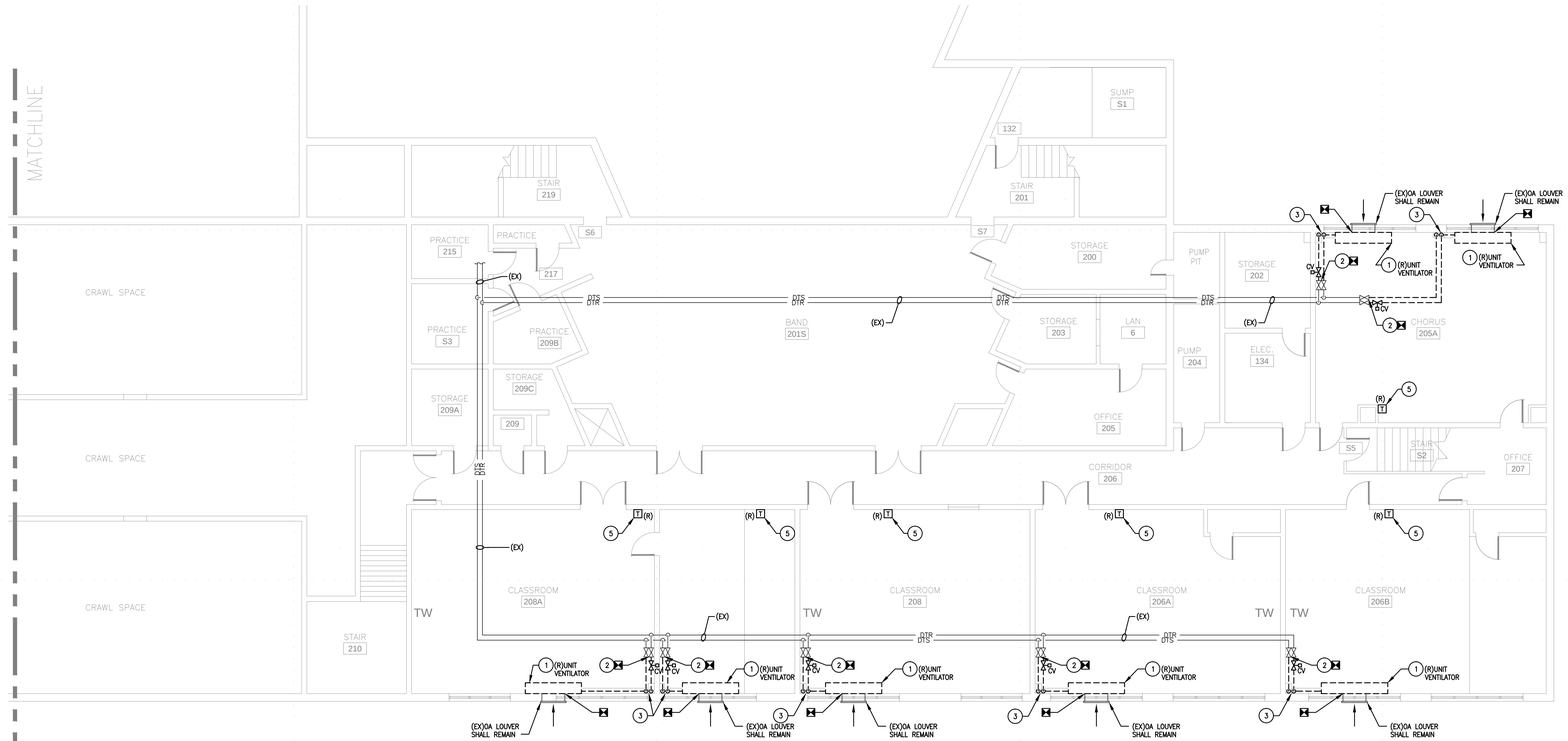
SHEET TITLE
BASEMENT FLOOR PLAN
AREA B DEMOLITION
MECHANICAL

MD-101



A1 BASEMENT PLAN - AREA C - MECHANICAL DEMOLITION
SCALE: 1/8" = 1'-0"

DEMOLITION NOTES:

- - - REMOVE
(R) REMOVE
(EX) EXISTING TO REMAIN
POINT BETWEEN EXISTING REMOVAL WORK AND EXISTING TO REMAIN

1. REMOVE EXISTING UNIT VENTILATOR COMPLETELY. THIS SHALL INCLUDE OA CONNECTIONS, DUAL TEMP PIPING CONNECTIONS AND CONTROLS. EXISTING OA LOUVER SHALL REMAIN AND BE REUSED.
2. DISCONNECT PIPING AT EXISTING SHUT-OFF VALVES IN CEILINGS. SHUT-OFF VALVES SHALL REMAIN AND BE REUSED. REMOVE PIPING DOWN STREAM OF SHUT-OFF VALVES FEEDING DOWN OR UP TO UNIT VENTILATORS. REMOVE CONTROL VALVES. DISCONNECT AND REMOVE CONTROL WIRING TO UNIT VENTILATORS.
3. TEMPORARILY REMOVE PIPE ENCLOSURE (VERTICAL AND HORIZONTAL) TO REMOVE PIPING FEEDS AND INSTALL NEW PIPING & CONTROL WORK. RE-INSTALL PIPE ENCLOSURES WHEN WORK IS COMPLETE AND ACCEPTED.
4. REMOVE PIPING & CONTROL WIRING UP TO UNIT VENTILATORS.
5. REMOVE THERMOSTAT. REMOVE ACCESSIBLE WIRING/CONDUIT. CAP AND SAFE OFF CONDUITS ABANDONED. COORDINATE WITH NEW WORK. PATCH WALLS AND ROOM FINISHES.
6. REMOVE EXISTING HORIZONTAL MOUNTED HEAT PUMP COMPLETELY. THIS SHALL INCLUDE REFRIGERANT PIPING AND CONTROLS. REMOVE PIPING DOWN THRU BASEMENT TO EXTERIOR CONDENSING UNIT.
7. REMOVE EXISTING CONDENSING UNIT COMPLETELY. THIS SHALL INCLUDE REFRIGERANT PIPING AND CONTROLS.
8. REMOVE EXISTING DX COIL IN AIR HANDLING UNIT. THIS SHALL INCLUDE REFRIGERANT PIPING FROM CONDENSING UNIT TO COIL.

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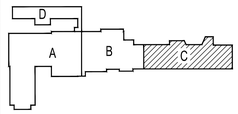

KEY PLAN

PROJECT
2014 RCCSD
CAPITAL IMPROVEMENTS

201 JACKSON AVENUE
WILMINGTON, DELAWARE 19804

CONRAD SCHOOL
OF SCIENCE

OWNER
RED CLAY CONSOLIDATED
SCHOOL DISTRICT
1502 SPRUCE AVENUE
WILMINGTON, DE 19805

MARK	DATE	DESCRIPTION
3	02/27/15	ADDENDUM NO. 1
2	02/16/15	BID PAC A
1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
DRAWN BY: DEG
CHECKED BY: SAJ

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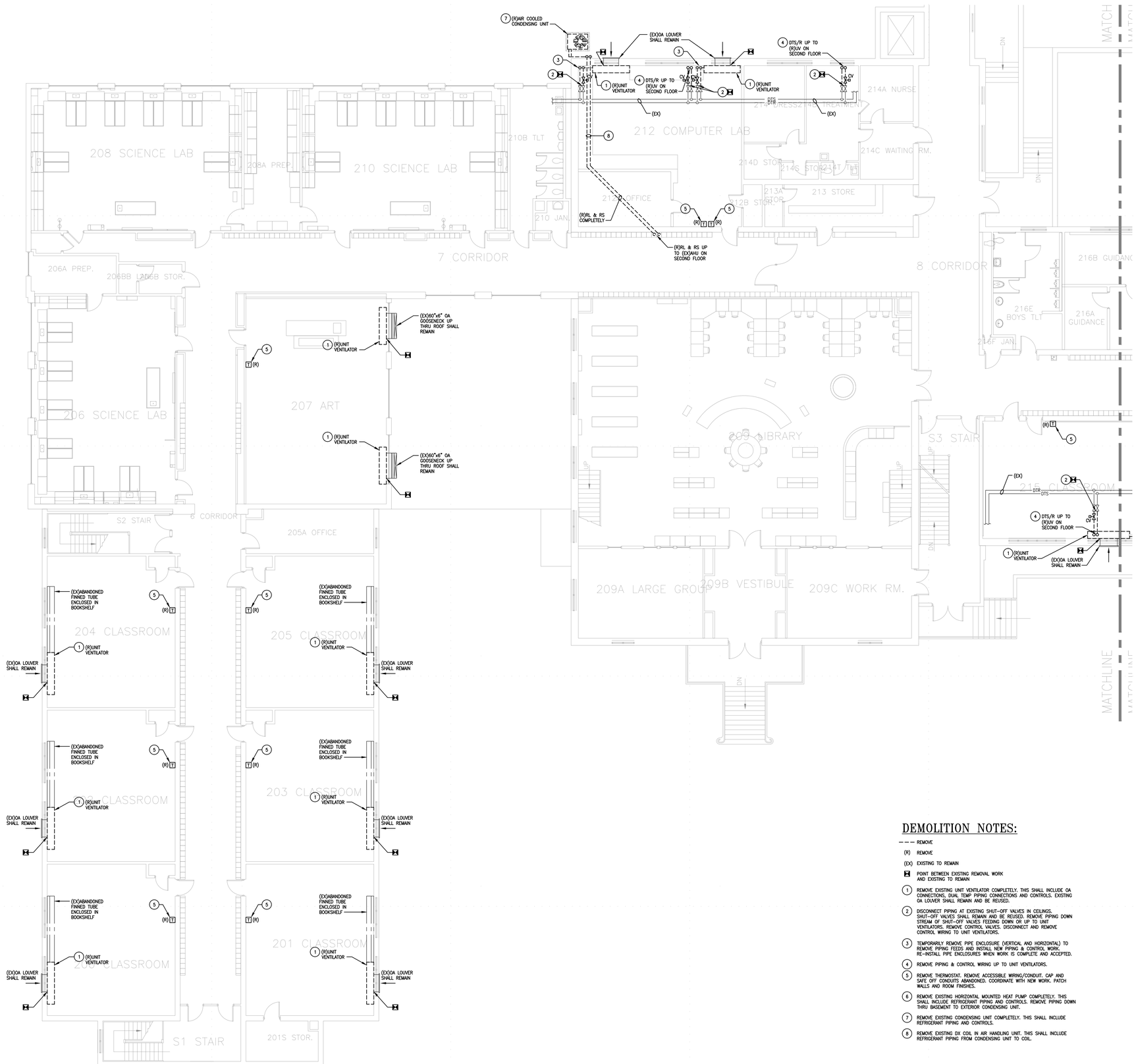
SHEET TITLE
BASEMENT FLOOR PLAN
AREAS C & D
DEMOLITION
MECHANICAL

MD-102



A1 FIRST FLOOR PLAN - AREA A - MECHANICAL DEMOLITION

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

DEMOLITION NOTES:

- - - REMOVE

(R) REMOVE

(EX) EXISTING TO REMAIN

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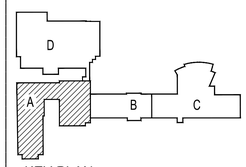

KEY PLAN

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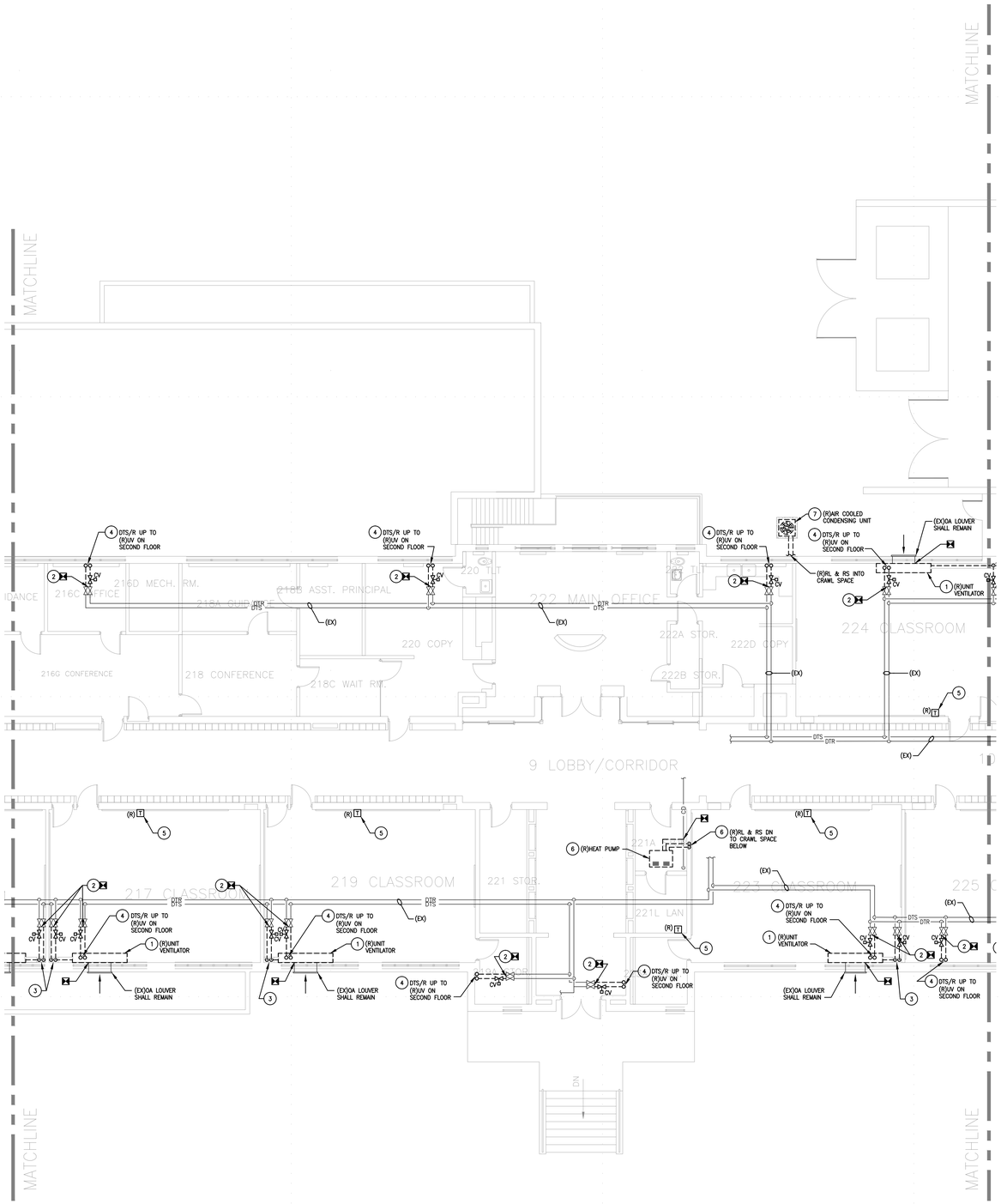
SHEET TITLE

FIRST FLOOR PLAN
AREA A DEMOLITION
MECHANICAL

MD-110



A1 FIRST FLOOR PLAN - AREA B - MECHANICAL DEMOLITION

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

DEMOLITION NOTES:

- - - REMOVE

(R) REMOVE

(EX) EXISTING TO REMAIN

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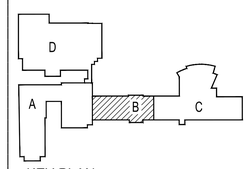

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1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426

FILE NAME

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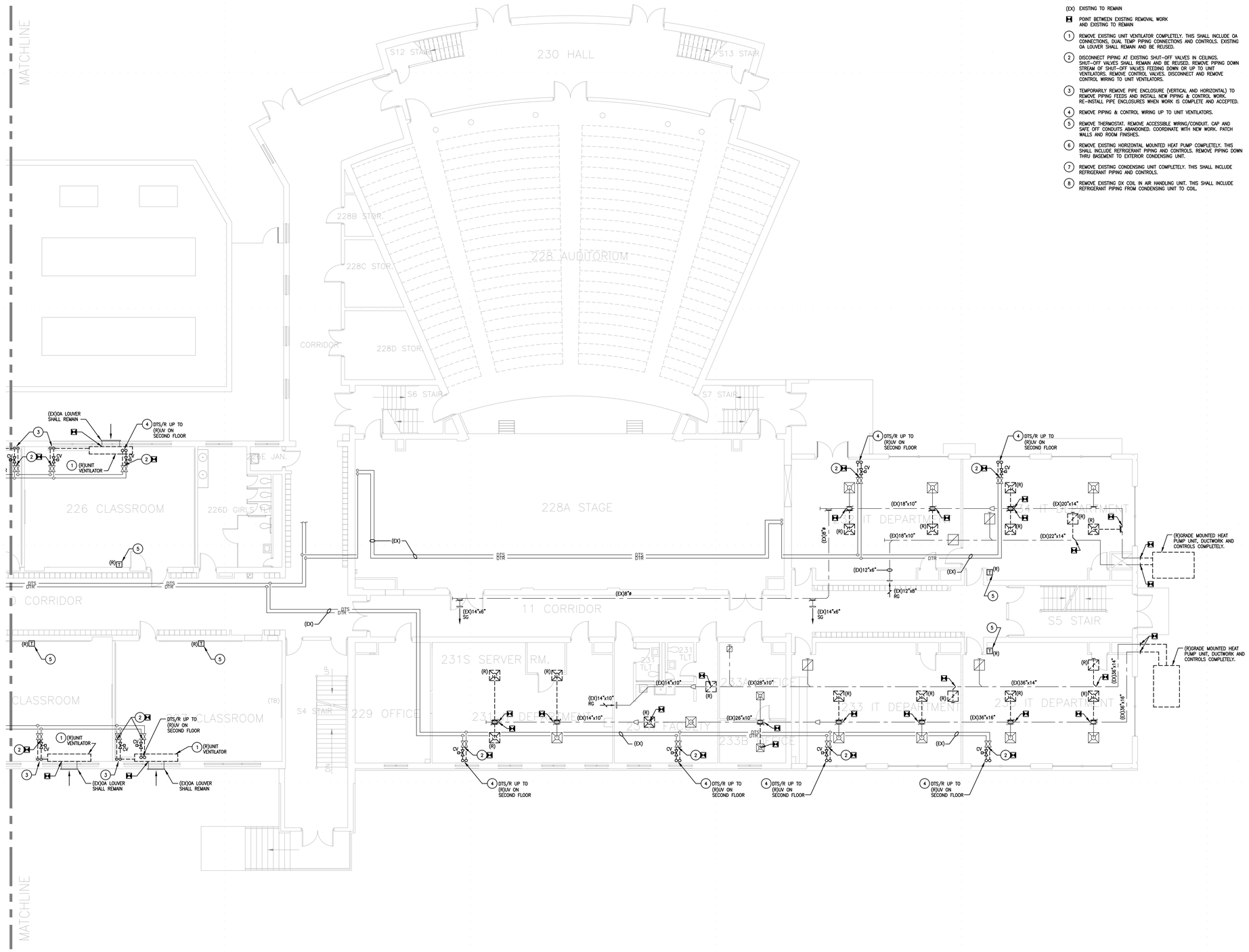
SHEET TITLE

FIRST FLOOR PLAN
AREA B DEMOLITION
MECHANICAL

MD-111



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A1 FIRST FLOOR PLAN - AREA C - MECHANICAL DEMOLITION
SCALE: 1/8" = 1'-0"

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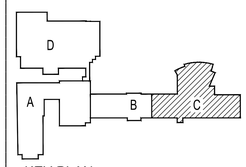

KEY PLAN

PROJECT
2014 RCCSD
CAPITAL IMPROVEMENTS

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OF SCIENCE

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1502 SPRUCE AVENUE
WILMINGTON, DE 19805

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1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
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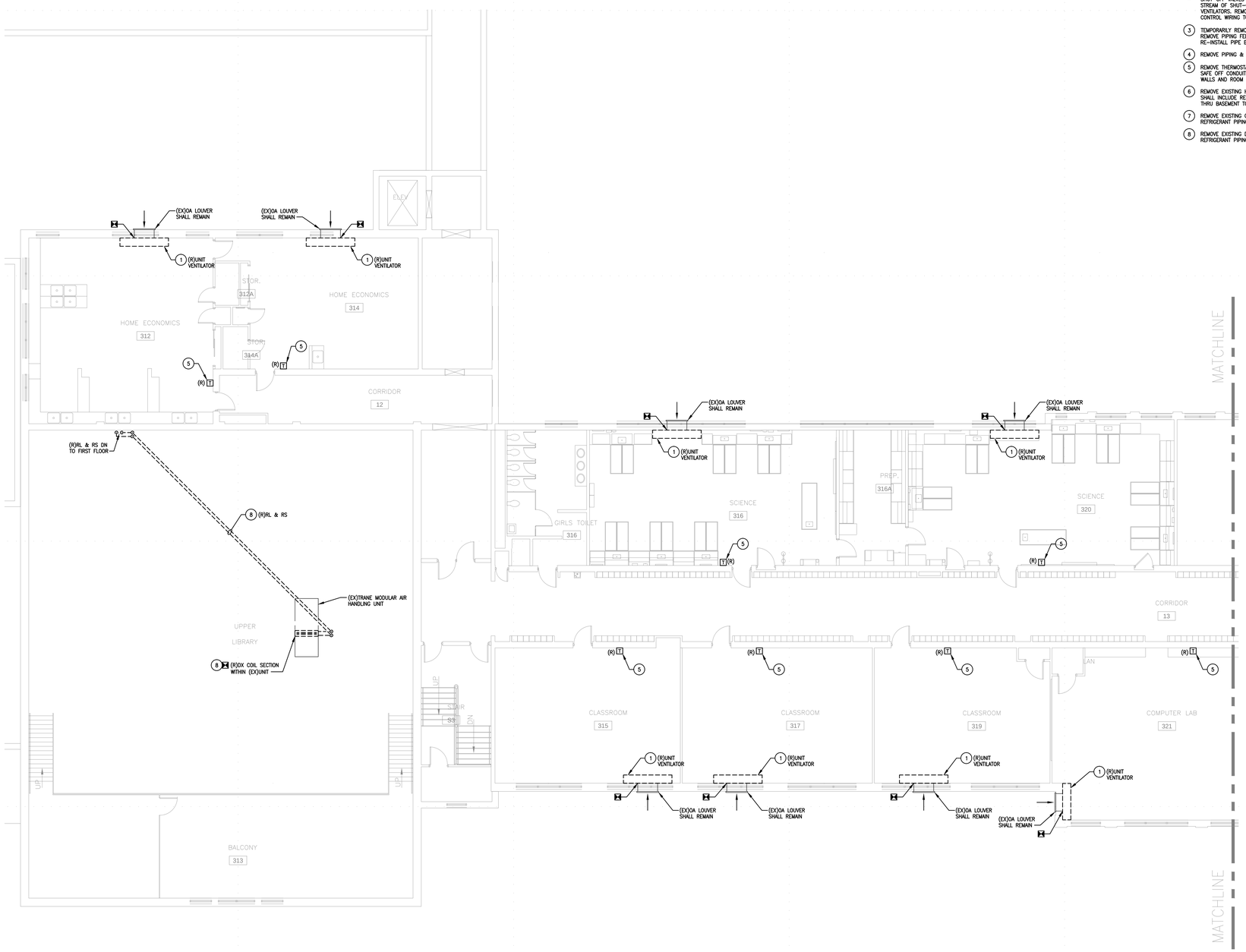
SHEET TITLE
FIRST FLOOR PLAN
AREA C DEMOLITION
MECHANICAL

MD-112



A1 SECOND FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8" = 1'-0"

DEMOLITION NOTES:

--- REMOVE

(R) REMOVE

(EX) EXISTING TO REMAIN

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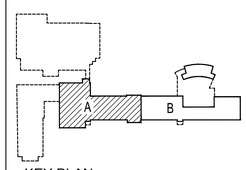

KEY PLAN

PROJECT
2014 RCCSD
CAPITAL IMPROVEMENTS

201 JACKSON AVENUE
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CONRAD SCHOOL
OF SCIENCE

OWNER
RED CLAY CONSOLIDATED
SCHOOL DISTRICT
1502 SPRUCE AVENUE
WILMINGTON, DE 19805

MARK	DATE	DESCRIPTION
3	02/27/15	ADDENDUM NO. 1
2	02/16/15	BID PAC A
1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
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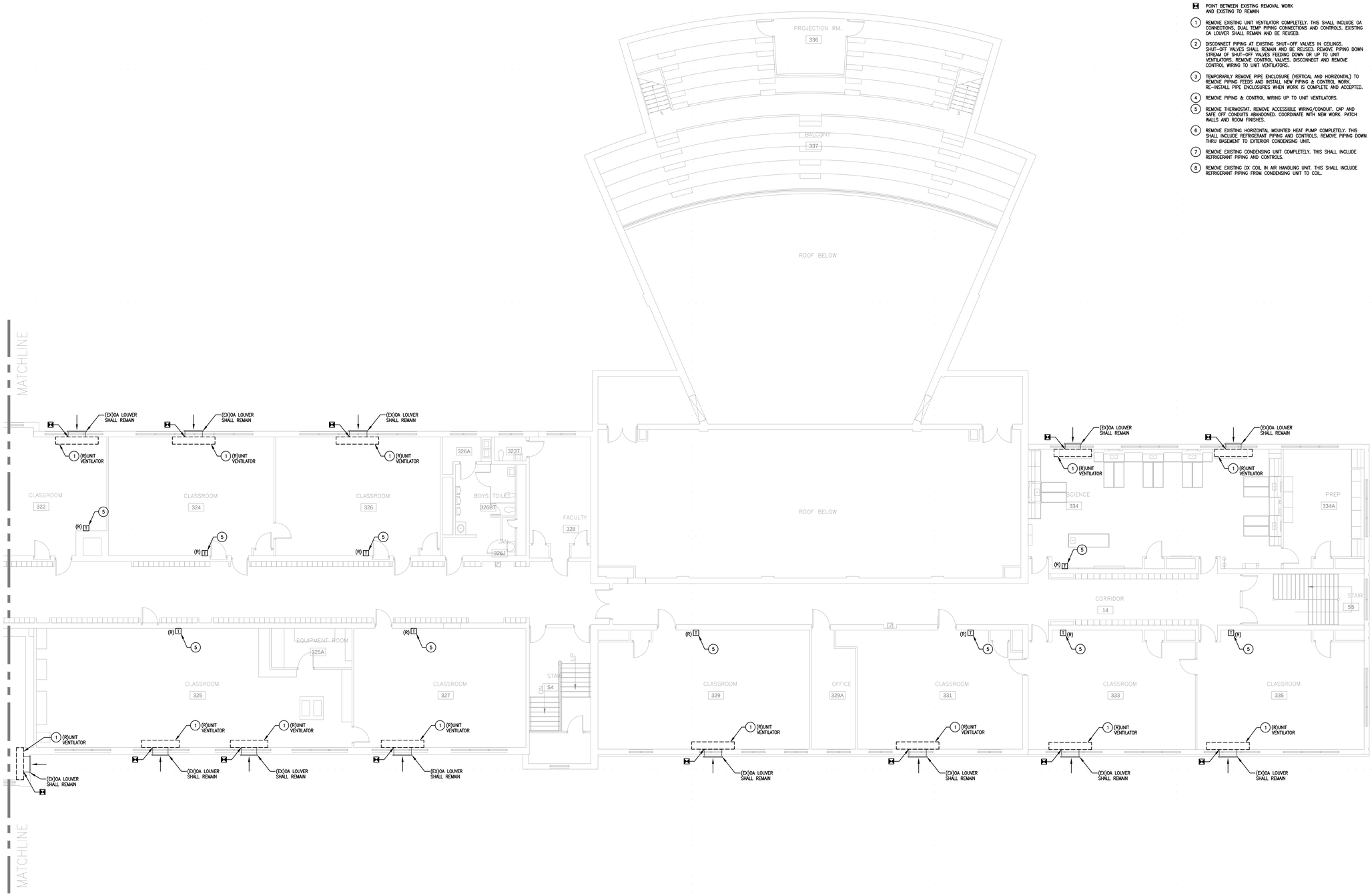
SHEET TITLE
SECOND FLOOR PLAN
AREA A DEMOLITION
MECHANICAL

MD-120



DEMOLITION NOTES:

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(A1) SECOND FLOOR PLAN - MECHANICAL DEMOLITION
SCALE: 1/8" = 1'-0"

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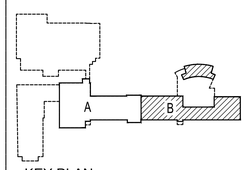

KEY PLAN

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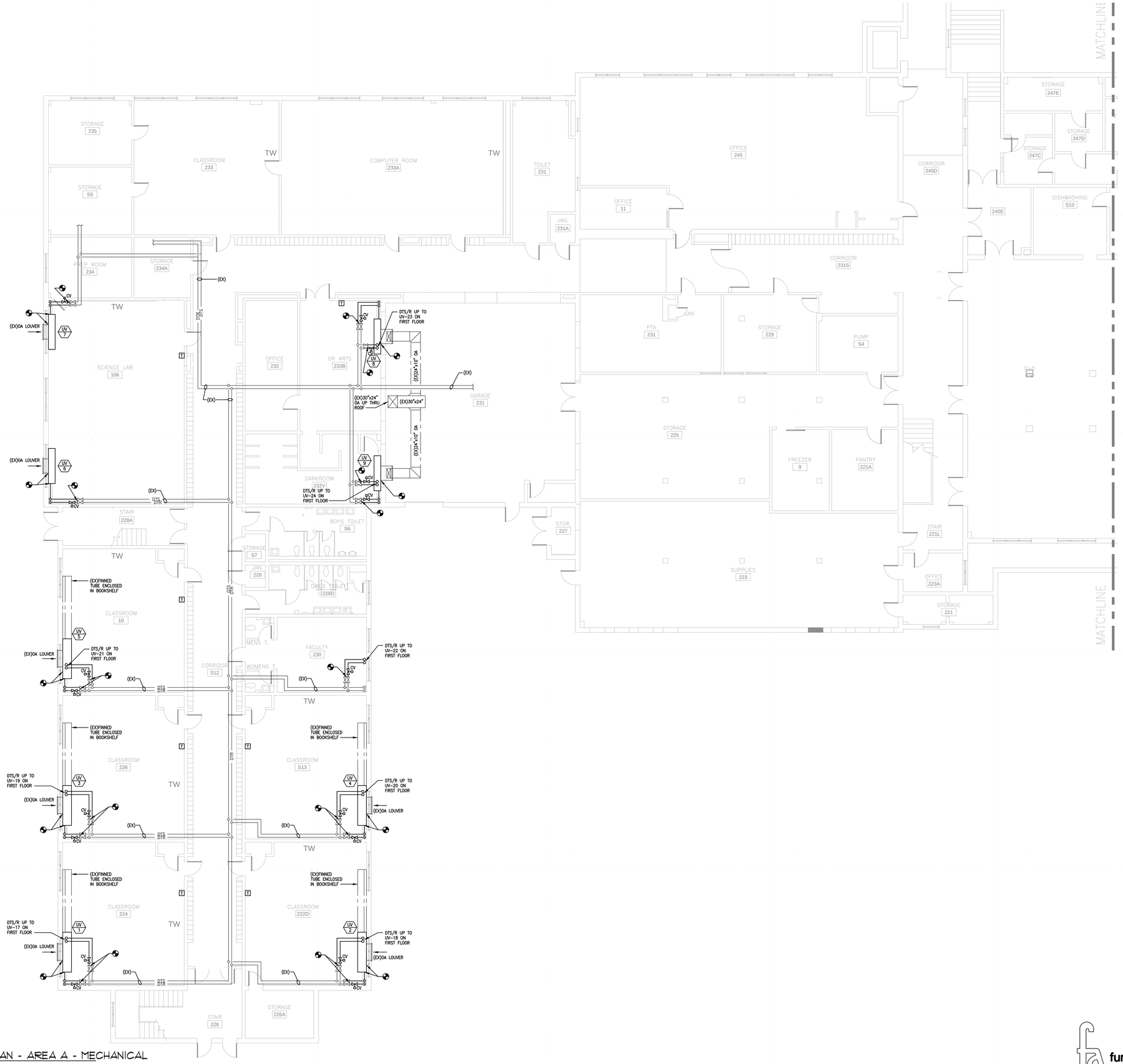
SHEET TITLE
SECOND FLOOR PLAN
AREA B DEMOLITION
MECHANICAL

MD-121



A1 BASEMENT PLAN - AREA A - MECHANICAL
SCALE: 1/8" = 1'-0"

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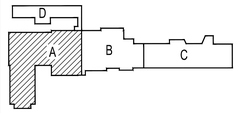

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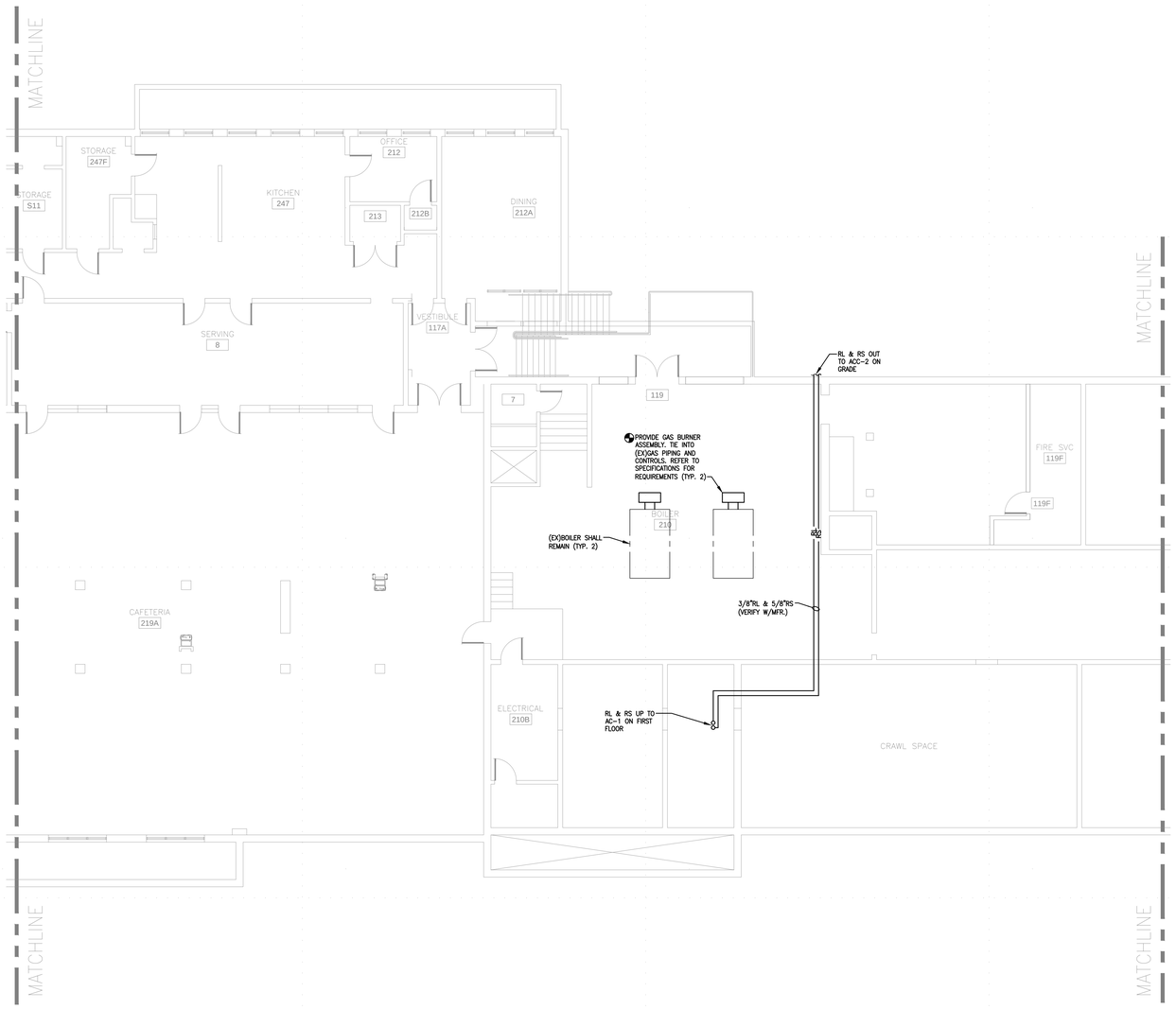
SHEET TITLE
BASEMENT FLOOR PLAN
AREA A
MECHANICAL

M-100



A1 BASEMENT PLAN - AREA B - MECHANICAL
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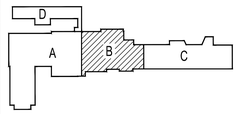

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2	02/16/15	BID PAC A
1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
DRAWN BY: DEG
CHECKED BY: SAJ

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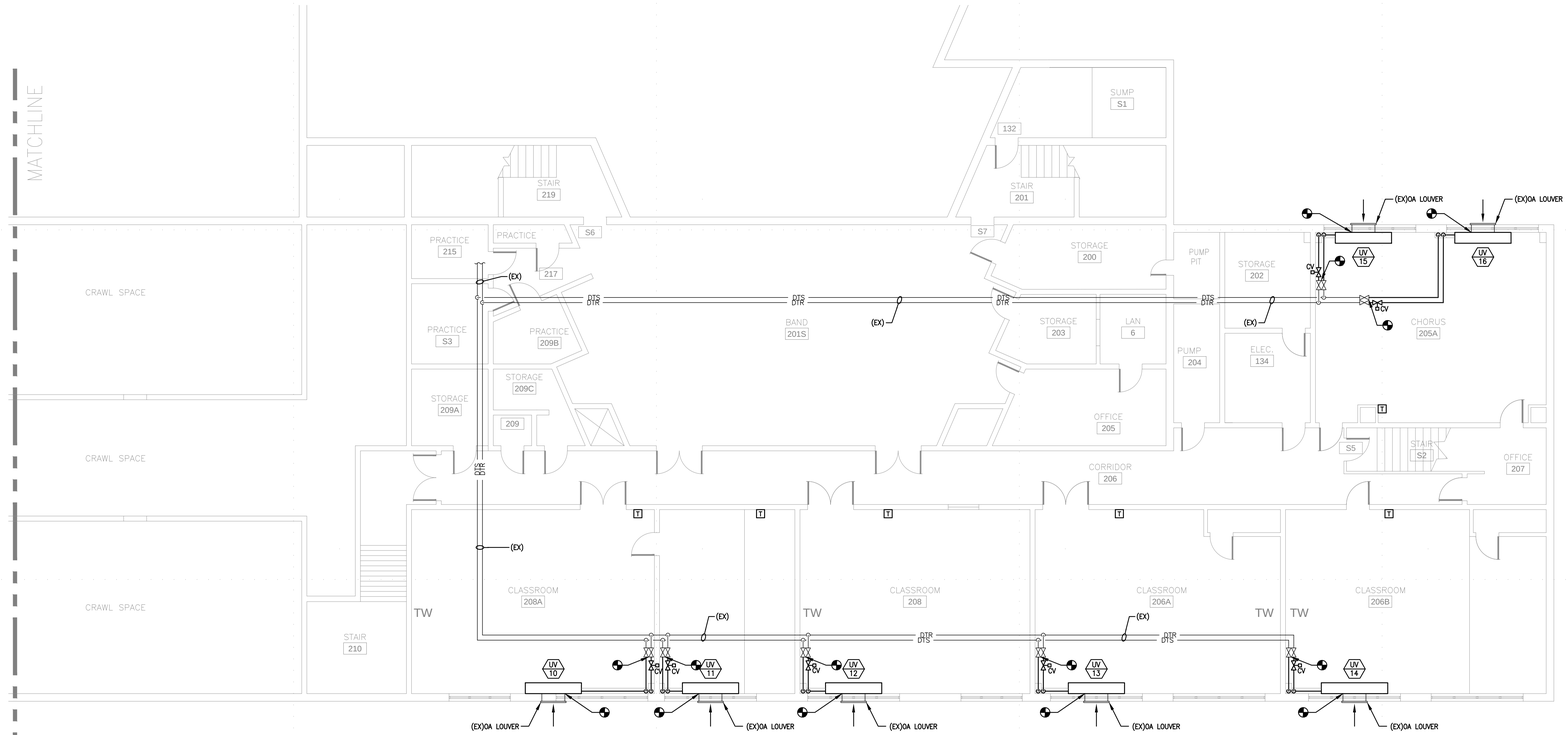
SHEET TITLE
BASEMENT FLOOR PLAN
AREA B
MECHANICAL

furlow associates
consulting engineers
14.082

M-101



A1 BASEMENT PLAN - AREA C - MECHANICAL
SCALE: 1/8" = 1'-0"

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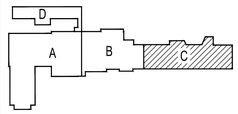

KEY PLAN

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2014 RCCSD
CAPITAL IMPROVEMENTS

201 JACKSON AVENUE
WILMINGTON, DELAWARE 19804

CONRAD SCHOOL
OF SCIENCE

OWNER
RED CLAY CONSOLIDATED
SCHOOL DISTRICT
1502 SPRUCE AVENUE
WILMINGTON, DE 19805

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SHEET TITLE
BASEMENT FLOOR PLAN
AREA C & D
MECHANICAL

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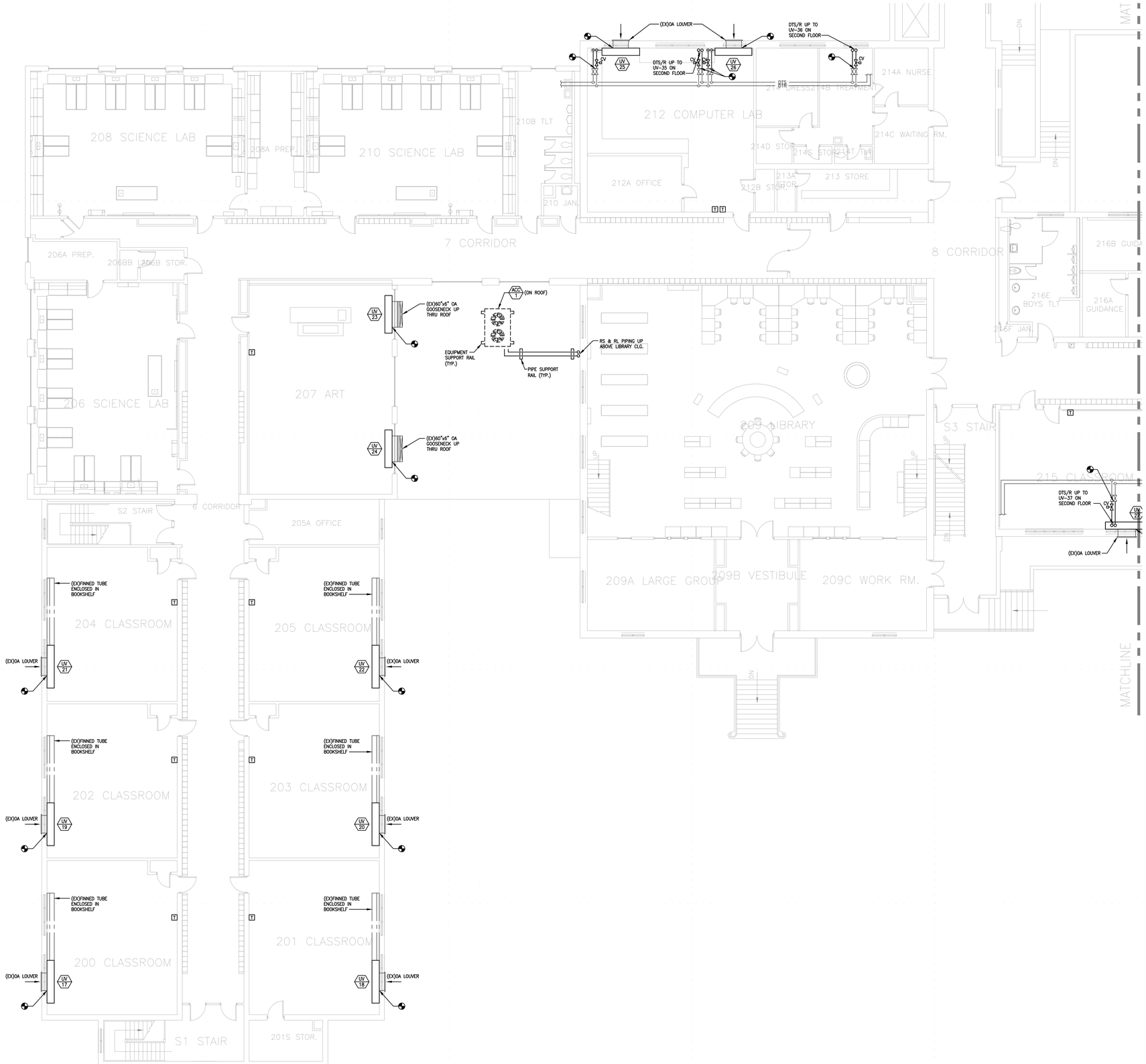
M-102



A1 FIRST FLOOR PLAN - AREA A - MECHANICAL
SCALE: 1/8" = 1'-0"

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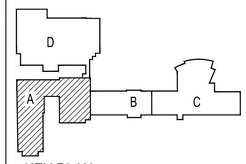

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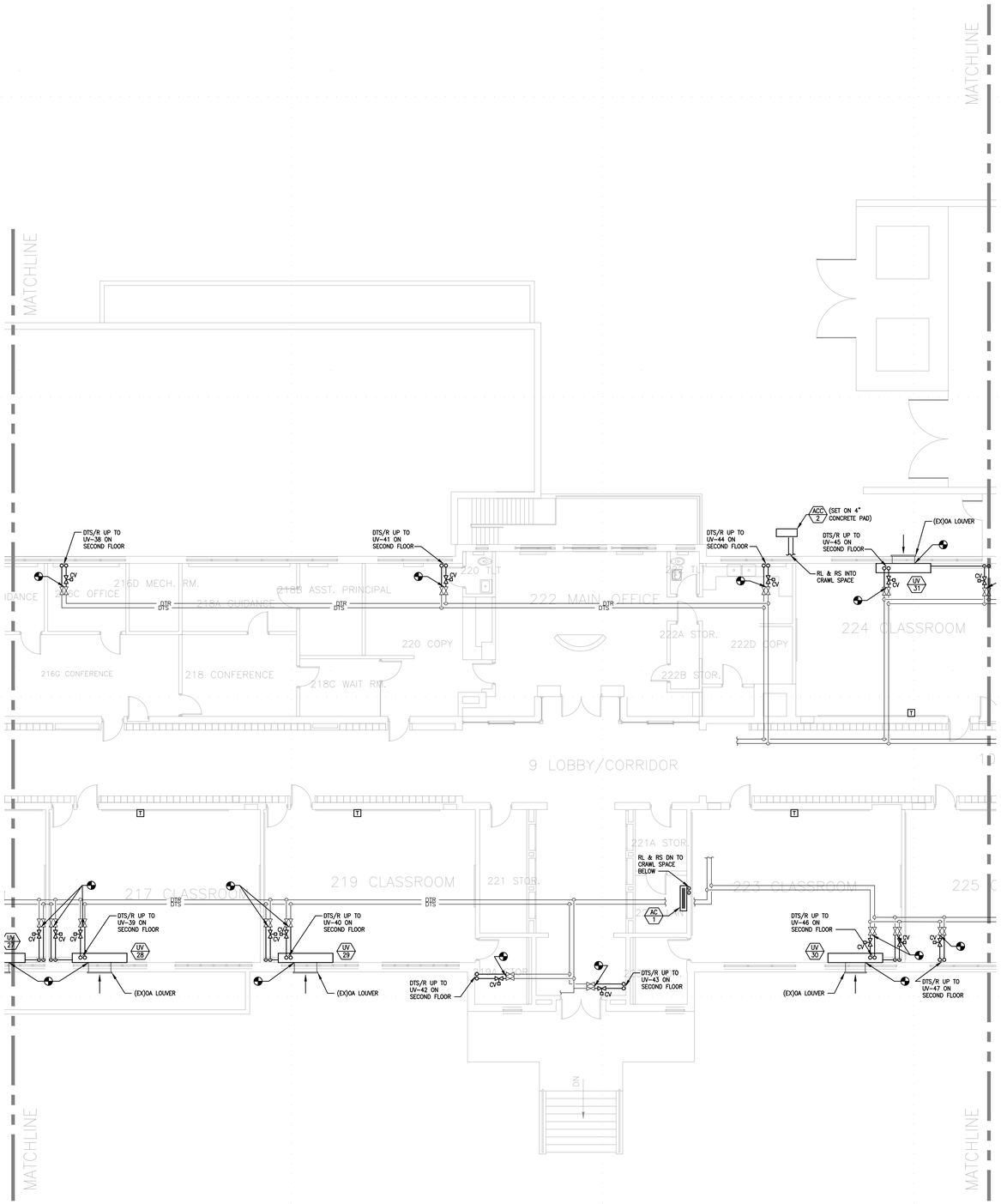
SHEET TITLE
FIRST FLOOR PLAN
AREA A
MECHANICAL

M-110



A1 FIRST FLOOR PLAN - AREA B - MECHANICAL
SCALE: 1/8" = 1'-0"

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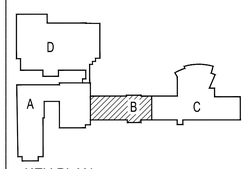

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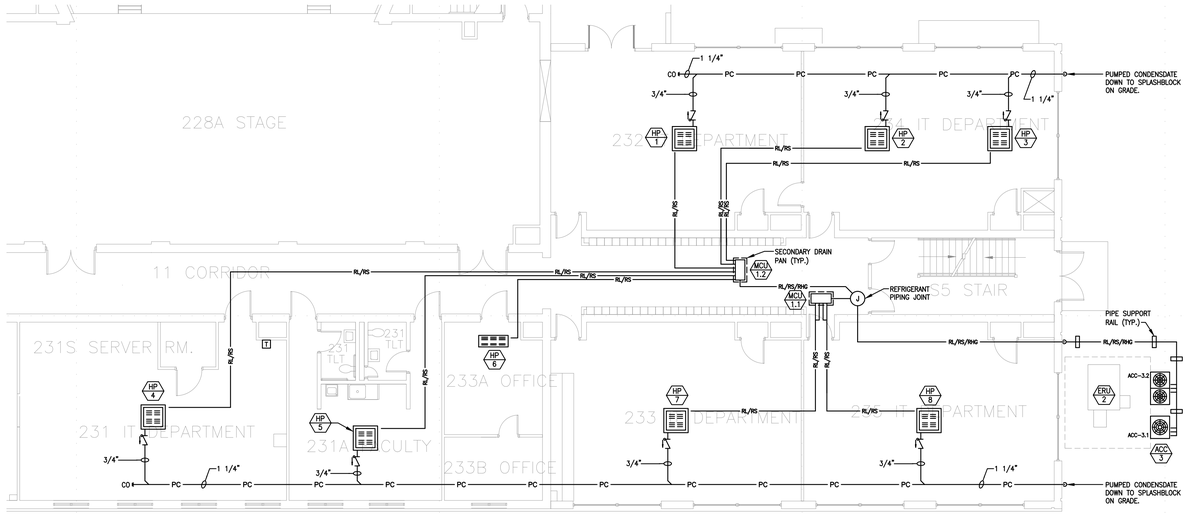
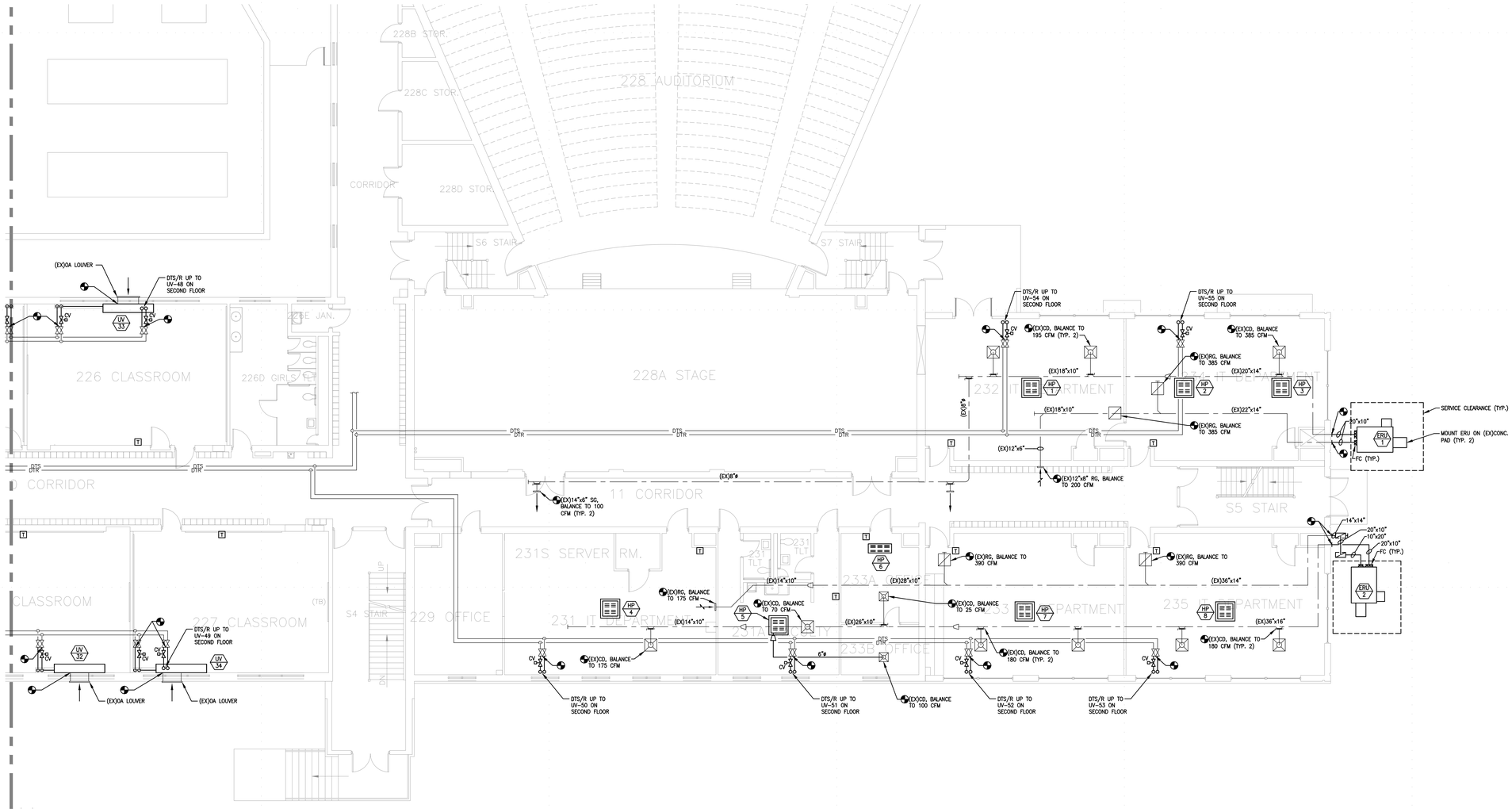
SHEET TITLE
FIRST FLOOR PLAN
AREA B
MECHANICAL

M-111



D3 FIRST FLOOR PIPING PLAN - AREA C - MECHANICAL
SCALE: 1/8" = 1'-0"



A1 FIRST FLOOR PLAN - AREA C - MECHANICAL
SCALE: 1/8" = 1'-0"

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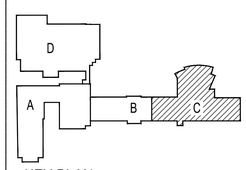

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SHEET TITLE
FIRST FLOOR PLAN
AREA C
MECHANICAL

M-112

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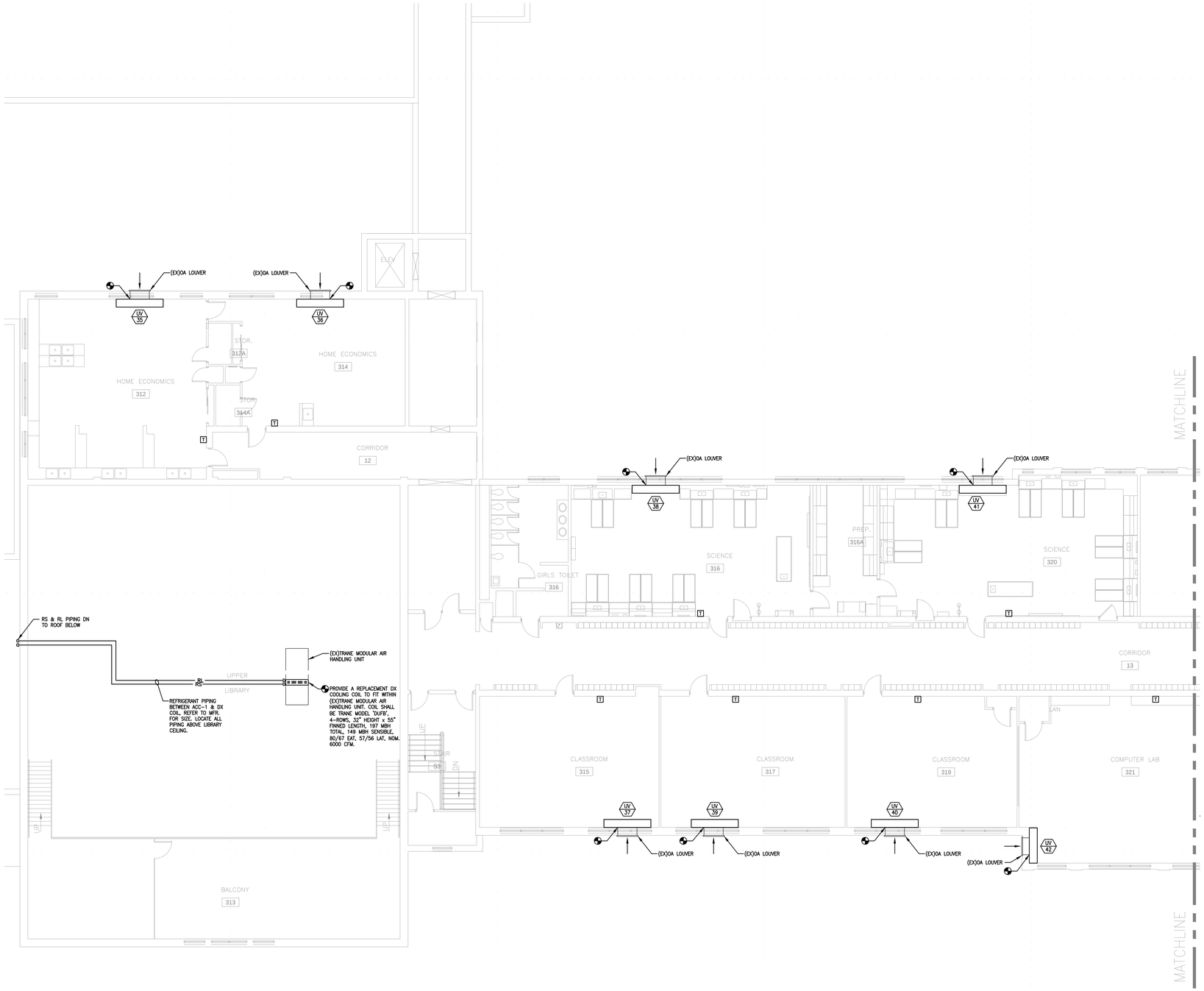

A1 SECOND FLOOR PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"

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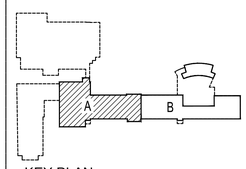

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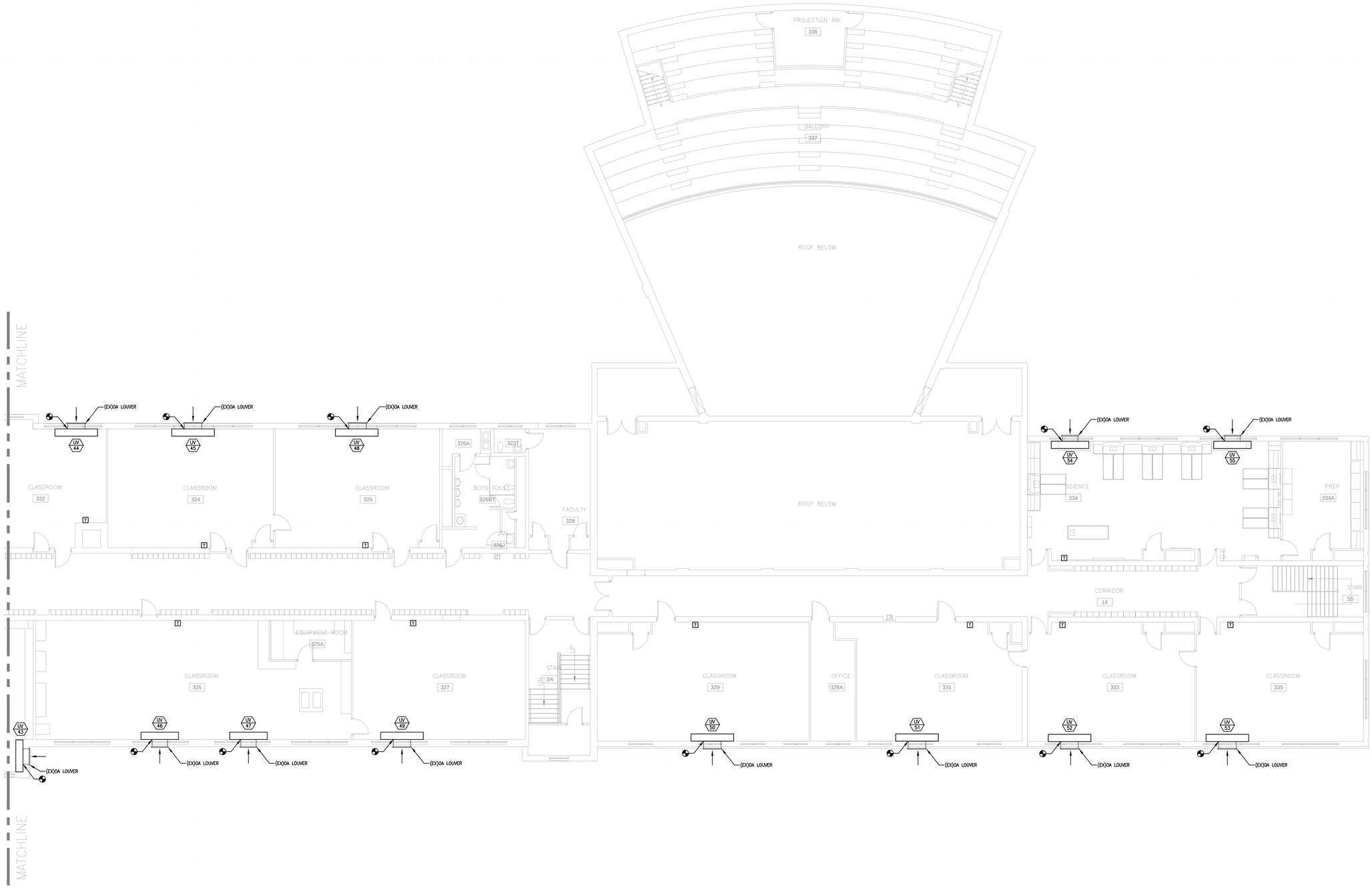
SHEET TITLE
SECOND FLOOR PLAN
AREA A
MECHANICAL

M-120



A1 SECOND FLOOR PLAN - MECHANICAL
SCALE: 1/8" = 1'-0"

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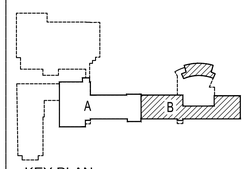

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SHEET TITLE
SECOND FLOOR PLAN
AREA B
MECHANICAL

M-121

BRANCH MODULE UNIT

MCU N PLAN SYMBOL

EQUIPMENT NUMBER	ACC UNIT SERVED	QTY INDOOR CONNECTION	MAX. TOTAL CAPACITY MBH	VOLTS/ PHASE	RLA	FACTORY DISCONNECT	BASIS OF DESIGN MANUFACTURER & MODEL	WEIGHT LBS	NOTES
MCU-1.1	ACC-2	4	150	208/1	0.4	NO	SAMSUNG "MCU-S4NEE1N"	57	1
MCU-1.2	ACC-2	6	152	208/1	0.4	NO	SAMSUNG "MCU-S6NEE1N"	60	1

NOTES:
1. PROVIDE UNIT WITH CONDENSATE PUMP.

AIR COOLED CONDENSING UNIT SCHEDULE

ACC N PLAN SYMBOL

EQUIPMENT NUMBER	SYSTEM SERVED	COMPRESSOR MOTOR(S)		CONDENSER FAN MOTOR(S)			ELECTRICAL DATA					MBH	MEDIUM	SATURATED COND. TEMP. (°F)	CONDENSER E.A.T.	EER	MAKE & MODEL	NOTES
		NO.	VOLT/ PHASE	NO.	HP (EACH)	VOLT/ PHASE	MCA	MOCP	FACTORY STARTER	FACTORY DISCONNECT	SPP				DB(°F)			
ACC-1	LIBRARY AHU	2	208/3	2	1	208/3	102	125	NO	NO	YES	240	R-410A	44	95	11.7	TRANE MODEL "RAUJC20EB"	1

NOTES:
1. UNIT SHALL BE PROVIDED WITH LOW AMBIENT CONTROLS AND HOT GAS-BYPASS.

DUCTLESS SPLIT SYSTEM SCHEDULE

AC N ACC N PLAN SYMBOL

EQUIPMENT NUMBER	UNIT TYPE	LOCATION	FAN DATA		COOLING @ 95° COND. (R-410A)						ELECTRICAL DATA					MAKE & MODEL	NOTES
			SA CFM	OA CFM	TOTAL MBH	SENS MBH	EAT (°F)		LAT (°F)		VOLTS PHASE	MCA	MOCP	FACTORY DISCONNECT	SPP		
							Db	Wb	Db	Wb							
AC-1	WALL MOUNT EVAPORATOR	LAN 221L	300	–	30	24	80	67	55	54	208/1	–	–	NO	YES	MITSUBISHI MODEL "PKA-A30KA4"	1
ACC-2	CONDENSING UNIT	GRADE	–	–	–	–	95	–	–	–	208/1	25	40	NO	YES	MITSUBISHI MODEL "PUY-A30NHA4"	2

NOTES:
1. PROVIDE UNIT WITH A WIRED CONTROLLER.
2. PROVIDE UNIT WITH LOW AMBIENT CONTROLS.

AIR COOLED CONDENSING UNIT SCHEDULE

ACC N PLAN SYMBOL

SYSTEM NUMBER	LOCATION	SYTSEM CLG. CAP. MBH	SYSTEM HTG. CAP. MBH	SYSTEM EER/ COP	REFRIGERANT	LBS. OF REFRIGERANT SYSTEM (NOTE 1)	EQUIP. TAG	NOMINAL TONNAGE	ELECTRICAL DATA						BASIS OF DESIGN MANUFACTURER & MODEL	BASIS OF DESIGN MANUFACTURER & MODEL FOR SYSTEM	WEIGHT (LBS)	NOTES
									MCA	MOCP	VOLT/PHASE	FACTORY STARTER	FACTORY DISCONNECT	SPP				
ACC-3	GRADE	192	216	14/ 4.47	R-410A	28.44	ACC-3.1	6	71	85	208/3	YES	NO	NO	SAMSUNG "AM072FXVAFR/AA"	SAMSUNG "AM192FXVAFR/AA"	1067	ALL
							ACC-3.2	10							SAMSUNG "AM120FXVAFR/AA"			

NOTES:
1. QUANTITY OF REFRIGERANT IS FOR PIPING AND CONDENSER UNIT(S) IN THE SYSTEM. MECHANICAL CONTRACTOR SHALL PROVIDE ADDITIONAL REFRIGERANT FOR PIPING AND EQUIPMENT FOR PROPER CHARGE DEFINED BY SYSTEM MANUFACTURER.
2. PROVIDE SYSTEM WITH A S-NET 3 CONTROLLER AND TIE INTO THE EXIST. BUILDING MANAGEMENT SYSTEM.

HEAT PUMP UNIT SCHEDULE

HP N PLAN SYMBOL

EQUIPMENT NUMBER	UNIT TYPE	AREA SERVED	SA CFM	OA CFM (NOTE 1)	COOLING @ 95° COND. (R-410A)						HEATING @ 10°			ELECTRICAL DATA					MAKE & MODEL	NOTES
					TOTAL MBH	SENS MBH	EAT (°F)		LAT (°F)		TOTAL MBH	EAT (°F)	MIN. LAT (°F)	VOLTS PHASE	AMPS	INPUT WATTS	FACTORY DISCONNECT	SPP		
							Db	Wb	Db	Wb										
HP-1	4-WAY CASSETTE	CLASSROOM 232	689	385	30	22	80	67	55	54	34	70	95	208/1	0.5	65	NO	YES	SAMSUNG MODEL "AM030FN4DCH/AA"	1,2,3
HP-2	4-WAY CASSETTE	CLASSROOM 234	689	195	28	23	80	67	55	54	34	70	95	208/1	0.5	65	NO	YES	SAMSUNG MODEL "AM030FN4DCH/AA"	1,2,3
HP-3	4-WAY CASSETTE	CLASSROOM 234	689	195	28	23	80	67	55	54	34	70	95	208/1	0.5	65	NO	YES	SAMSUNG MODEL "AM030FN4DCH/AA"	1,2,3
HP-4	4-WAY CASSETTE	IT DEPARTMENT 231	689	175	30	25	80	67	55	54	34	70	95	208/1	0.5	65	NO	YES	SAMSUNG MODEL "AM030FN4DCH/AA"	1,2,3
HP-5	4-WAY CASSETTE	FACULTY ROOM 231A	495	70	17	14	80	67	55	54	20	70	95	208/1	0.25	32	NO	YES	SAMSUNG MODEL "AM018FN4DCH/AA"	1,2,3
HP-6	1-WAY CASSETTE	OFFICE 233A	212	25	3	2	80	67	55	54	8.5	70	95	208/1	0.23	40	NO	YES	SAMSUNG MODEL "AM007FN1DCH/AA"	1,2,3
HP-7	4-WAY CASSETTE	CLASSROOM 233	775	390	32	25	80	67	55	54	40	70	95	208/1	0.56	75	NO	YES	SAMSUNG MODEL "AM036FN4DCH/AA"	1,2,3
HP-8	4-WAY CASSETTE	CLASSROOM 235	775	390	36	28	80	67	55	54	40	70	95	208/1	0.56	75	NO	YES	SAMSUNG MODEL "AM036FN4DCH/AA"	1,2,3

NOTES:
1. OUTSIDE AIR IS PROVIDED FROM ERU-1 AND 2.
2. PROVIDE UNIT WITH A WIRED REMOTE SENSOR.
3. PROVIDE UNIT WITH A CONDENSATE PUMP.

PIPING SUPPORT SPACING TABLE

PIPING MATERIAL	MAXIMUM HORIZONTAL SPACING (FEET)	MAXIMUM VERTICAL SPACING (FEET)
ABS PIPE	4	10 [b]
ALUMINUM PIPE AND TUBING	10	15
BRASS PIPE	10	10
BRASS TUBING, 1 1/4"ø AND SMALLER	6	10
BRASS TUBING, 1 1/2"ø AND LARGER	10	10
CAST-IRON PIPE[a]	5	15
COPPER OR COPPER-ALLOY PIPE	12	10
COPPER OR COPPER-ALLOY TUBING, 1 1/4"ø AND SMALLER	6	10
COPPER OR COPPER-ALLOY TUBING, 1 1/2"ø AND LARGER	10	10
CPVC PIPE OR TUBING, 1" AND SMALLER	3	10 [b]
CPVC PIPE OR TUBING, 1 1/4" AND LARGER	4	10 [b]
STEEL PIPE	12	15
STEEL TUBING	8	10
LEAD PIPE	CONTINUOUS	4
PB PIPE OR TUBING	2 2/3 (32 INCHES)	4
PEX TUBING	2 2/3 (32 INCHES)	10 [b]
PVC PIPE	4	10 [b]

NOTES:

a. THE MAXIMUM HORIZONTAL SPACING OF CAST-IRON PIPE HANGERS SHALL BE INCREASED TO 10 FEET WHERE 10 FOOT LENGTHS OF PIPE ARE INSTALLED.

b. MID-STORY GUIDE.

TABLE OF MINIMUM ROD DIAMETER FOR SINGLE RIGID ROD HANGERS[1][2]

NOMINAL PIPE OR TUBING SIZE		(3) NOMINAL ROD #		(4) NOMINAL ROD #	
IN	MM	IN	MM	IN	MM
1/4	(6)			3/8	M10
3/8	(10)	3/8	M10	3/8	M10
1/2	(15)	3/8	M10	3/8	M10
3/4	(20)	3/8	M10	3/8	M10
1	(25)	3/8	M10	3/8	M10
1 1/4	(32)	3/8	M10	3/8	M10
1 1/2	(40)	3/8	M10	3/8	M10
2	(50)	3/8	M10	3/8	M10
2 1/2	(65)	1/2	M12	1/2	M12
3	(80)	1/2	M12	1/2	M12
3 1/2	(90)	1/2	M12	1/2	M12
4	(100)	5/8	M16	1/2	M12
5	(125)	5/8	M16	1/2	M12
6	(150)	3/4	M20	5/8	M16
8	(200)	3/4	M20	3/4	M20
10	(250)	7/8	M20	3/4	M20
12	(300)	7/8	M20	3/4	M20
14	(350)	1	M24		
16	(400)	1	M24		
18	(450)	1	M24		
20	(500)	1 1/4	M30		
24	(600)	1 1/4	M30		
30	(750)	1 1/4	M30		

NOTES:

1. FOR CALCULATED LOADS, ROD DIAMETERS MAY BE SIZED IN ACCORDANCE WITH MSS SP-58, TABLE 3 PROVIDED TABLE 1 AND SECTION 7.3 OF MSS SP-58 ARE SATISFIED.
2. RODS MAY BE REDUCED ONE SIZE FOR DOUBLE ROD HANGERS. MINIMUM ROD DIAMETER SHALL BE 3/8" (M10).
3. FOR STANDARD WEIGHT STEEL PIPE, WATER AND VAPOR SERVICE.
4. FOR COPPER TUBE, WATER SERVICE.

UNIT VENTILATOR SCHEDULE

UV N PLAN SYMBOL

EQUIPMENT NUMBER	AREA SERVED	OA CFM	SUPPLY AIR			DUAL TEMPERATURE COIL CAPACITY															ELECTRICAL DATA				MAKE & MODEL	NOTES
			CFM	SPEED	HP	COOLING								CIRCULATING WATER		HEATING					VOLT/ PHASE	FACTORY STARTER	FACTORY DISCONNECT	SPP		
						TOTAL MBH	SENS MBH	EAT (°F)		LAT (°F)		EWT (°F)	LWT (°F)	GPM	WPD (FT HD)	TOTAL MBH (MIN)	EAT (°F)	MIN LAT (°F)	EWT (°F)	LWT (°F)						
								Db	Wb	Db	Wb															
UV-1	CLASSROOM 100	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-2	CLASSROOM 101	450	1000	LOW	1/4	45	29	83	70	56	55	42	55	8.0	4.2	55	37	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-3	CLASSROOM 102	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-4	CLASSROOM 103	450	1000	LOW	1/4	45	29	83	70	56	55	42	55	8.0	4.2	55	37	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-5	CLASSROOM 104	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-6	SCIENCE LAB 106	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-7	SCIENCE LAB 106	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-8	GR ARTS 107	210	750	LOW	1/4	23	15	82	69	56	55	42	55	5.0	2.0	53	39	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-9	DARKROOM 107C	90	750	LOW	1/4	9.3	6	84	70	56	55	42	55	5.5	2.4	9.3	37	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-10	CLASSROOM 129	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-11	CLASS OFFICE 129A	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-12	CLASSROOM 131	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-13	CLASSROOM 133	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-14	CLASSROOM 135	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-15	CHORUS 136	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-16	CHORUS 136	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	1,2,3,4
UV-17	CLASSROOM 200	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-18	CLASSROOM 201	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-19	CLASSROOM 202	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-20	CLASSROOM 203	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	1,2,3,4
UV-21	CLASSROOM 204	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-22	CLASSROOM 205	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-23	ART 207	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-24	ART 207	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-25	COMPUTER LAB 212	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-26	COMPUTER LAB 212	225	750	LOW	1/4	41	30	79	65	56	55	42	55	5.5	2.6	28	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-27	CLASSROOM 215	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-28	CLASSROOM 217	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-29	CLASSROOM 219	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-30	CLASSROOM 223	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-31	CLASSROOM 224	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-32	CLASSROOM 225	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-33	CLASSROOM 226	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-34	CLASSROOM 227	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-35	HOME ECONOMICS 312	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-36	HOME ECONOMICS 314	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-37	CLASSROOM 315	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-38	SCIENCE 316	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-39	CLASSROOM 317	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-40	CLASSROOM 319	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-41	SCIENCE 320	450	1500	HIGH	1/4	77	59	77	66	56	55	42	55	10.0	9.1	90	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-42	COMPUTER LAB 321	225	1000	HIGH	1/4	47	30	83	70	56	55	42	55	7.0	4.1	124	37	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S10"	1,2,3,4
UV-43	COMPUTER LAB 321	225	1000	HIGH	1/4	47	30	83	70	56	55	42	55	7.0	4.1	124	37	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S10"	1,2,3,4
UV-44	CLASSROOM 322	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-45	CLASSROOM 324	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-46	CLASSROOM 325	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-47	CLASSROOM 325	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-48	CLASSROOM 326	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-49	CLASSROOM 327	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-50	CLASSROOM 329	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-51	CLASSROOM 331	450	1250	MED	1/4	52	36	82	69	56	55	42	55	9.0	5.3	55	44	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-52	CLASSROOM 333	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL
UV-53	SCIENCE 334	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-54	SCIENCE 334	450	1250	HIGH	1/4	40	25	77	66	56	55	42	55	6.0	3.1	117	55	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S13"	ALL
UV-55	CLASSROOM 335	450	1500	HIGH	1/4	57	40	81	68	56	55	42	55	10.0	6.5	55	48	95	180	160	120/1	NO	NO	YES	DAIKIN MODEL "UAVS6S15"	ALL

NOTES:
1. UNIT VENTILATOR SHALL BE PROVIDED WITH FREEZESTAT, TERMINAL STRIP, DEMAND CONTROL VENTILATION, WALL BOX, FACE & BYPASS OPERATION, END CAPS.
2. UNIT VENTILATOR SHALL BE 21 7/8" DP.
3. COORDINATE LEFT/RIGHT HAND PIPING CONNECTIONS WITH DRAWING.
4. MANUFACTURER REPRESENTATIVE IS RESPONSIBLE TO FIELD COORDINATE PIPING LOCATION FOR EACH UNIT VENTILATOR.
5. PROVIDE 2" SUBBASE.

ENERGY RECOVERY HEAT PUMP SCHEDULE

ERU N PLAN SYMBOL

EQUIPMENT NUMBER	MODE	ELECTRICAL DATA					MIN. SUPPLY AIR EFF.	SUPPLY AIR								ENERGY RECOVERY WHEEL MOTOR		EXHAUST AIR						HEAT PUMP SECTION								MAKE & MODEL	WEIGHT (LBS)	NOTES
		MCA	MOCP	FACTORY STARTER	FACTORY DISCONNECT	SPP		SUPPLY CFM	O.A. CFM	ESP (IN. W.C.)	TSP (IN. W.C.)	EAT (°F)		FAN MOTOR						EAT (°F)		FAN MOTOR			COOLING			HEATING						
												Db	Wb	HP	FAN RPM	VOLT/ PHASE	FLA	VOLT/ PHASE	EXHAUST CFM	ESP (IN. W.C.)	TSP (IN. W.C.)	Db	Wb	HP	FAN RPM	VOLT/ PHASE	TOTAL MBH	SENS. MBH	LAT (°F) DB/WB	EER	TOTAL MBH	LAT (°F)	COP			
ERU-1	SUMMER	39	45	YES	YES	YES	55%	970	970	0.5	2.03	95	78	1	1988	208/3	--	208/3	970	0.5	2	75	62	2	2111	208/3	58	38	65/59	11.53	73	70	3.05	REZNOR MODEL "ZQYRA-8"	867	1
	WINTER											10	9									70	54													
ERU-2	SUMMER	39	45	YES	YES	YES	55%	1050	1050	0.5	2.15	95	78	1	2070	208/3	--	208/3	955	0.5	1.97	75	62	2	2086	208/3	59	40	65/59	11.63	79	70	3.09	REZNOR MODEL "ZQYRA-8"	867	1
	WINTER											10	9									70	54													

NOTES:
1. UNIT SHALL BE PROVIDED WITH ECM MOTORS FOR SUPPLY & EXHAUST, MOTORIZED OA DAMPER, GRAVITY EA DAMPER, OA & RA FILTERS (MERV 8), DIRTY FILTER SENSOR, 5-KW PRE-HEATER, REMOTE DISPLAY/CONTROL MODULE AND BACNET MODULE.

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2014 RCCSD
CAPITAL IMPROVEMENTS

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MARK	DATE	DESCRIPTION
3	02/27/15	ADDENDUM NO. 1
2	02/16/15	BID PAC A
1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
DRAWN BY: DEG
CHECKED BY: SAJ

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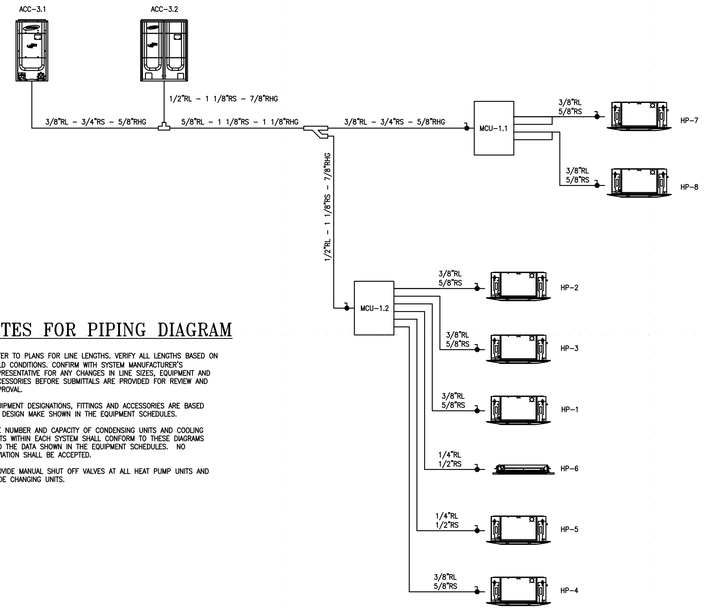
SHEET TITLE
SCHEDULES
MECHANICAL

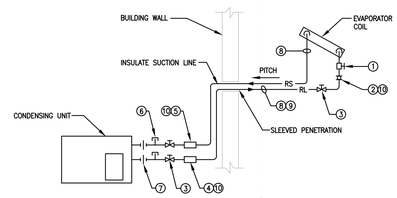
M-500



NOTES FOR PIPING DIAGRAM

1. REFER TO PLANS FOR LINE LENGTHS. VERIFY ALL LENGTHS BASED ON FIELD CONDITIONS. CONFIRM WITH SYSTEM MANUFACTURER'S REPRESENTATIVE FOR ANY CHANGES IN LINE SIZES, EQUIPMENT AND ACCESSORIES BEFORE SUBMITTALS ARE PROVIDED FOR REVIEW AND APPROVAL.
2. EQUIPMENT DESIGNATIONS, FITTINGS AND ACCESSORIES ARE BASED ON DESIGN MAKE SHOWN IN THE EQUIPMENT SCHEDULES.
3. THE NUMBER AND CAPACITY OF CONDENSING UNITS AND COOLING UNITS WITHIN EACH SYSTEM SHALL CONFORM TO THESE DIAGRAMS AND THE DATA SHOWN IN THE EQUIPMENT SCHEDULES. NO DEVIATION SHALL BE ACCEPTED.
4. PROVIDE MANUAL SHUT OFF VALVES AT ALL HEAT PUMP UNITS AND MODE CHANGING UNITS.

ACC-3 SYSTEM PIPING DIAGRAM

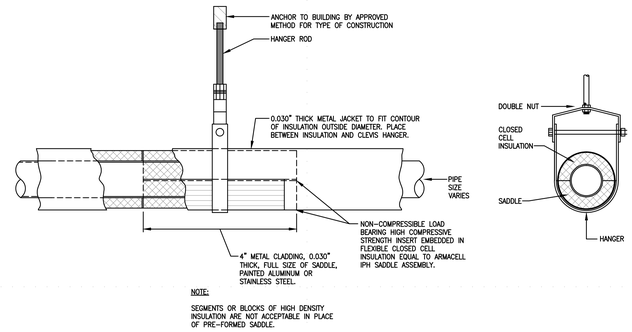


COMPONENTS LIST

1. THERMOSTATIC EXPANSION VALVE
2. MOISTURE INDICATOR/SIGHT GLASS
3. DIAPHRAM PACKLESS VALVE
4. FILTER DRIER (REPLACEABLE CORE)
5. SUCTION LINE FILTER
6. PURGE/CHARGE CONNECTION
7. QUICK COUPLING
8. LINE SIZE AS PER MANUFACTURER'S REQUIREMENT.
9. INSULATE LIQUID LINE IF METERING DEVICE IS MOUNTED IN CONDENSING UNIT.
10. COORDINATE INLINE DEVICES WITH THE SYSTEM MANUFACTURER'S INSTALLATION INSTRUCTIONS. DELETE THESE ITEMS IF SO INDICATED BY THE MANUFACTURER.

REFRIGERATION PIPING DETAIL

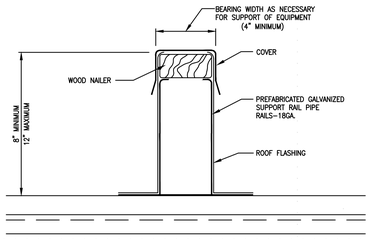
NOT TO SCALE



NOTE:
SEGMENTS OR BLOCKS OF HIGH DENSITY INSULATION ARE NOT ACCEPTABLE IN PLACE OF PRE-FORMED SADDLE.

PIPE HANGER DETAIL

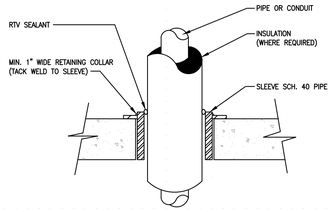
NOT TO SCALE



NOTE:
FOR PIPING RAILS: PROVIDE SADDLES, PIPE ROLLERS, CLAMPS, ETC. & SECURE TO RAIL.

ROOF PIPING SUPPORT RAILS DETAIL

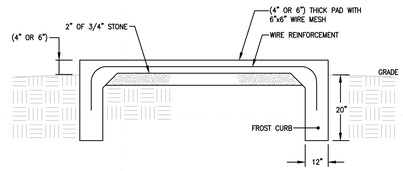
NOT TO SCALE



NOTE:
PROVIDE SLEEVES AT ALL WALL AND FLOOR PENETRATIONS. EXTEND SLEEVE 1" A.F.F. AT FLOOR PENETRATIONS.

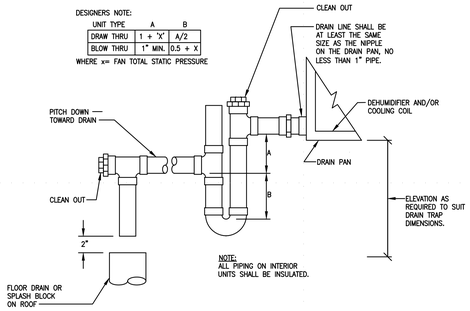
SLEEVE DETAIL

NOT TO SCALE



FROST CURB DETAIL

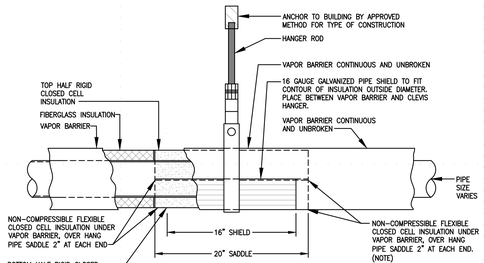
NOT TO SCALE



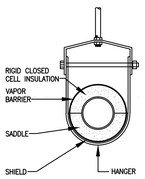
NOTE:
ALL PIPING ON INTERIOR UNITS SHALL BE INSULATED.

CONDENSATE DRAIN TRAP DETAIL

NOT TO SCALE

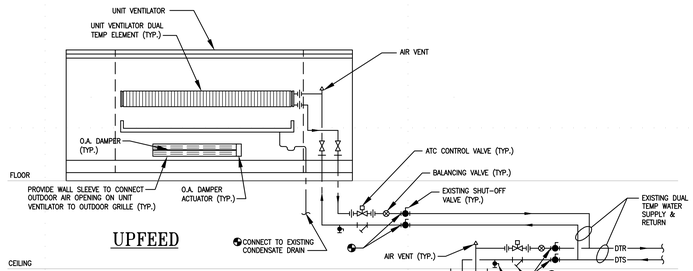


NOTE:
SEGMENTS OR BLOCKS OF HIGH DENSITY INSULATION ARE NOT ACCEPTABLE IN PLACE OF PRE-FORMED SADDLE.

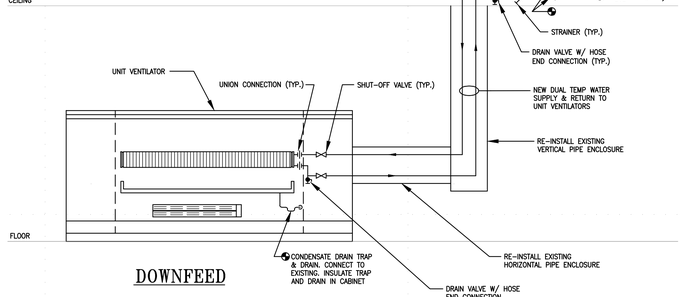


PIPE HANGER DETAIL

NOT TO SCALE



UPFEED



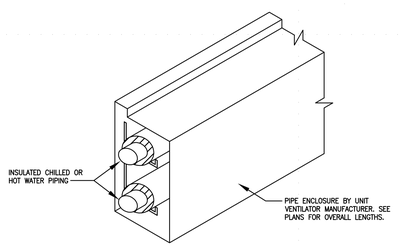
DOWNFEED

NOTES:

1. MAINTAIN FULL LINE SIZE FOR SUPPLY AND RETURN PIPING AND ACCESSORIES FOR THE COIL, AS SHOWN ON THE FLOOR PLANS, REGARDLESS OF COIL HEADER AND CONTROL VALVE CONNECTION SIZES.
2. ALL PIPING AND VALVES WITHIN CABINETS AND ENCLOSURES SHALL BE INSULATED. INSULATION INCLUDES CONDENSATE DRAIN & TRAP.
3. REMOVE AND RE-INSTALL VERTICAL AND HORIZONTAL PIPE ENCLOSURES. TOUCH UP PAINT & FINISH.

CLASSROOM UV CONNECTION DETAILS

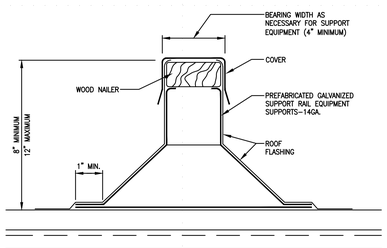
NOT TO SCALE



NOTE:
PIPE ENCLOSURE SHALL BE MOUNTED SUCH THAT TOP IS LEVEL WITH TOP OF UNIT VENTILATOR.

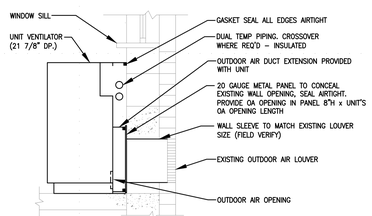
UNIT VENTILATOR PIPE ENCLOSURE DETAIL

NOT TO SCALE



ROOF EQUIPMENT SUPPORT RAILS DETAIL

NOT TO SCALE



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2014 RCCSD
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MARK	DATE	DESCRIPTION
3	02/27/15	ADDENDUM NO. 1
2	02/16/15	BID PAC A
1	02/13/15	DESIGN DEVELOPMENT

PROJECT NO: 1426
FILE NAME
DRAWN BY: DEG
CHECKED BY: SAJ

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MECHANICAL

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