GENERAL NOTES - MECHANICAL

A. COORDINATE THE LOCATION OF DRAINS, THERMOSTATS, GAS OUTLETS, ETC., WITH ALL CASEWORK EQUIPMENT, MECHANICAL ROOM EQUIPMENT, ETC., PRIOR TO COMMENCING INSTALLATION. WORK NOT SO COORDINATED SHALL BE REMOVED AND PROPERLY INSTALLED AT THE EXPENSE OF THE CONTRACTOR.
B. THE CONTRACTOR SHALL EXERCISE EXTREME CARE IN THE COURSE OF THEIR WORK SO AS TO ENSURE THAT THEY DO NOT INTERRUPT ANY EXISTING SERVICE. FOR SAFETY PURPOSES, PAY PARTICULAR ATTENTION TO THIS PRECAUTION RELATIVE TO NATURAL GAS AND ELECTRICAL LINES. VERIFY THE LOCATION, SIZE, TYPE, ETC., OF EACH UNDERGROUND OR OVERHEAD UTILITY. ALL WORK SHALL BE PERFORMED IN ACCORD WITH ALL FEDERAL, STATE AND/OR LOCAL RULES, REGULATIONS, STANDARD AND SAFETY REQUIREMENTS. UTILITIES SHALL BE INSTALLED IN ACCORD WITH THE APPLICABLE MUNICIPALITY OR UTILITY COMPANY STANDARDS. IN ALL CASES, THE MOST STRINGENT REQUIREMENT SHALL APPLY.
C. WHERE WORK IS REQUIRED ABOVE EXISTING LAY-IN, PLASTER OR GYPSUM BOARD CEILINGS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL AND REINSTALLATION (OR REPLACEMENT, IF DAMAGED) OF ALL CEILING OR TILE AND GRID MEMBERS NECESSARY TO PERFORM HIS WORK. NEW TILE AND GRID SHALL MATCH THE SURROUNDING AREAS. ALL PATCHING WORK SHALL MATCH ADJACENT SURFACES.
D. ALL NEW WORK SHALL BE HUNG FROM STRUCTURE, NOT FROM THE WORK OF OTHER TRADES, WHETHER EXISTING OR NEW.
E. COORDINATE ALL WORK WITH PROJECT PHASING REQUIREMENTS.
F. PATCH, REPAIR AND PAINT OR PROVIDE WALL COVERING FOR (TO OWNER'S STANDARDS) EXISTING WALLS, CEILINGS, ETC., THAT ARE TO REMAIN IF DAMAGED DURING CONSTRUCTION. REPAIRS SHALL MATCH ADJACENT SURFACES TO THE SATISFACTION OF THE ARCHITECT AND OWNER.
G. OBSERVE ALL APPLICABLE CODES, RULES AND REGULATIONS THAT MAY APPLY TO THE WORK UNDER THIS CONTRACT. (CITY, COUNTY, LOCAL, FEDERAL, MUNICIPALITY, UTILITY COMPANY, STATE OF MARYLAND, ETC.)
H. CONTRACTOR SHALL BE AWARE OF UNSEEN PLUMBING, HVAC AND ELECTRICAL WORK DURING DEMOLITION. IF ITEMS ARE UNCOVERED DURING DEMOLITION THEN FIELD VERIFY THE USE OF THE ITEMS AND PLAN AN ALTERNATE ROUTE TO RUN THESE ITEMS. THEN CONTACT THE ENGINEERS TO REVIEW THE ROUTING.
I. IF AREA OF CONSTRUCTION HAS A POST TENSION FLOOR SLAB. CONTRACTOR SHALL USE ULTRA SOUND OR OTHER APPROVED METHODS TO SURVEY THE EXISTING FLOOR STRUCTURE BEFORE MAKING ANY AND ALL FLOOR PENETRATIONS.
J. WHERE FIRE PROOFING IS SPRAYED ON EXISTING STRUCTURE ALL EXISTING CONDUITS, WATER, HYDRONIC, STEAM, CHILLED WATER, FIRE PROTECTION LINES, MED GAS, ETC. SHALL BE LOWERED TO BE BELOW FULL THICKNESS OF FIRE PROOFING WITH NO INTERFERENCE.
K. ALL PENETRATIONS OF FIRE AND SMOKE RATED ASSEMBLIES SHALL BE APPROPRIATELY FIRE STOPPED PER AN APPROVED U.L. LISTED STANDARD. CONTRACTOR SHALL PAY PARTICULAR ATTENTION TO INSULATED PIPING PENETRATIONS.
L. ALL WORK REQUIRING DOWNTIME OF ANY AREA IN THE BUILDING SHALL BE SCHEDULED 2 WEEKS IN ADVANCE, AND SHALL COMPLY WITH INTERIM LIFE SAFETY MEASURES.
M. ALL DUCTWORK, PIPING, CONDUITS, ETC. IN ROOMS WITH CEILINGS SHALL BE ABOVE CEILING EXCEPT AS NOTED.
N. INSTALL AIR VENTS AT HIGH POINTS IN PIPING AND DRAINS IN LOW POINTS. USE CARE TO AVOID FREEZING OF EXTERIOR VENTS.
O. LOCATIONS OF PIPING, DUCTS AND EQUIPMENT ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. DO NOT SCALE THE DRAWINGS.
P. ALL OFFSETS IN DUCTS AND PIPING ARE NOT NECESSARILY SHOWN. PROVIDE ADDITIONAL OFFSETS WHERE NECESSARY.
Q. COORDINATE ALL HVAC WORK WITH ELECTRICAL, PLUMBING AND OTHER TRADES TO AVOID INTERFERENCE WITH PIPING, DUCTS, CONDUIT AND OTHER EQUIPMENT.
R. INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTION. IF IN CONFLICT WITH THE DESIGN INDICATED IN CONTRACT DOCUMENTS, ADVISE THE ENGINEERS PRIOR TO INSTALLATION FOR CLARIFICATION. PROVIDE RECOMMENDED ACCESS AND SERVICE CLEARANCES FOR ALL EQUIPMENT.
S. SEAL AIRTIGHT AROUND ALL DUCTS AND PIPING PENETRATIONS THROUGH WALLS, FLOORS AND ROOF. PROVIDE FIRE STOPPING IN FIRE PARTITION.
T. SEAL ALL NEW DUCTWORK JOINTS WITH UNITED MCGILL, IRONGRIP 601 OR EQUAL WATER BASED SEALANT.
U. ALL MOTOR DRIVEN EQUIPMENT SHALL BE INSTALLED WITH FLEXIBLE CONNECTIONS TO DUCTWORK, PIPING, ETC., UNLESS OTHERWISE NOTED.
V. THE CONTRACTOR SHALL RELOCATE OR AVOID ANY EXISTING EQUIPMENT APPURTENANCES, ETC., THAT CONFLICT WITH NEW WORK.
W. WHERE MOUNTING HEIGHTS ARE NOT INDICATED OR ARE IN CONFLICT WITH ANY OTHER BUILDING SYSTEM, CONTACT THE ENGINEERS BEFORE INSTALLATION. REFER ALSO TO ARCHITECTURAL WALL INTERIOR AND EXTERIOR WALL ELEVATIONS, CEILING HEIGHTS AND OTHER DETAIL OF THESE DOCUMENTS.
X. DOUBLE WIDTH TURNING VANES SHALL BE INSTALLED IN ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK ELBOWS. TURNING VANES NOT REQUIRED FOR KITCHEN EXHAUSTS.
Y. ANY VIBRATING, OSCILLATING OR OTHER NOISE OR MOTION PRODUCING EQUIPMENT SHALL BE ISOLATED FROM SURROUNDING SYSTEMS IN AN APPROVED MANNER. NOISY OR STRUCTURALLY DAMAGING INSTALLATIONS SHALL BE SATISFACTORILY REPLACED OR REPAIRED AT THE INSTALLING CONTRACTOR'S EXPENSE. THE FINAL DECISION ON THE SUITABILITY OF A PARTICULAR INSTALLATION'S ACCEPTABILITY SHALL BE THAT OF THE ENGINEER.
Z. DEVIATIONS IN SIZE, CAPACITIES, FIT, FINISH, ETC. FOR EQUIPMENT FROM THAT USED AS BASIS OF DESIGN SHALL BE THE RESPONSIBILITY OF THE PURCHASER OF THAT EQUIPMENT. ANY PROVISIONS REQUIRED TO ACCOMMODATE A DEVIATION, WHETHER APPROVED BY THE ENGINEERS OR NOT, SHALL BE THE RESPONSIBILITY OF THE PURCHASER.
AA. VALVES, BALANCING DAMPERS OR ANY MECHANICAL/ELECTRICAL ITEM REQUIRING ACCESS SHALL NOT BE LOCATED ABOVE A HARD CEILING. IF THIS IS NOT POSSIBLE, THEN AN APPROPRIATELY SIZED ACCESS DOOR SHALL BE PLACED UNDER THE ITEM TO ALLOW EASY MAINTENANCE AND ADJUSTMENT. ADDITIONALLY ALL SUCH ITEMS SHALL NOT BE LOCATED AN UNREASONABLE DISTANCE ABOVE THE CEILINGS. IN GENERAL ALL SUCH ITEMS UNLESS INDICATED OTHERWISE SHALL BE MOUNTED SIX TO TWELVE INCHES ABOVE THE CEILING. IF IN DOUBT, CONTACT ENGINEER PRIOR TO INSTALLING.
BB. ALL MANHOLES, VAULTS AND SIMILAR UNDERGROUND STRUCTURES SHALL HAVE THE TOP ELEVATION SET FLUSH WITH FINISHED GRADE UNLESS SPECIFICALLY NOTED OTHERWISE.
CC. WHEN RUNNING ANY TYPE OF PIPING BELOW A FOOTER, OR IN THE ZONE OF INFLUENCE THE PIPING SHALL BE BACKFILLED WITH CEMENTITIOUS FLOWABLE FILL PER SPECIFICATIONS. WHENEVER POSSIBLE, LOCATE PIPING OUTSIDE OF THE ZONE OF INFLUENCE. THE ZONE OF INFLUENCE IS THE AREA UNDER THE FOOTER WITHIN A 45 DEGREE ANGLE PROJECTING DOWN FROM THE BOTTOM EDGE OF THE FOOTER OF ALL SIDES OF THE FOOTER. ADDITIONALLY, GREASE TRAPS, MANHOLES, VAULTS AND OTHER UNDERGROUND STRUCTURES SHALL BE HELD AWAY FROM BUILDING WALLS FAR ENOUGH TO BE OUTSIDE OF THE ZONE OF INFLUENCE.
DD. WORK IN CONFINED AREAS SHALL BE IN ACCORDANCE WITH THE OWNER'S SAFETY POLICY REQUIREMENTS.

GENERAL NOTES - DEMOLITION

A. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR AREAS IN WHICH THE CEILING IS REMAINING. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE EXISTING CEILING AS REQUIRED AND REINSTALLATION. TEMPORARILY SUPPORT LIGHTS, DIFFUSERS, CEILING ETC. REPLACE BROKEN CEILING TILES WITH NEW AT NO ADDITIONAL COST TO OWNER. FIELED VERIFY EXACT REQUIREMENTS.
B. ALL OUTAGES SHALL BE SCHEDULED THROUGH THE PROJECT REPRESENTATIVE FOR PROPER COORDINATION. A REQUEST FOR AN OUTAGE SHALL BE SUBMITTED IN WRITING A MINIMUM OF TWO WEEKS IN ADVANCE.
C. DURING SPRINKLER SYSTEM OUTAGES THE CONTRACTORS SHALL PROVIDE FIRE WATCH OF AREAS WITH OUTAGES.
D. ALL WALLS AND FLOOR SLABS SHALL BE REPAIRED TO MATCH EXISTING AND TO A LIKE NEW CONDITION. ALL RATED WALLS AND FLOOR SLABS SHALL BE PATCHED AND REPAIRED TO MAINTAIN RATING.
E. ALL EXISTING BUILDING FINISHES SHALL BE PROTECTED DURING THE DEMOLITION PHASE.
F. HEAVY DASHED LINES INDICATE ITEMS FOR REMOVAL (U.O.N) AND LIGHT SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.
G. COORDINATE DISPOSAL OF ALL FIXTURES, DEVICES, ETC. (INDICATED FOR DEMOLITION) WITH THE OWNER.

PHASING NOTES

A. THIS PROJECT INTERFACES EXTENSIVELY WITH EXISTING BUILDING SERVICES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND PHASE ALL TIE-INS AND INTERRUPTIONS OF EXISTING SERVICES TO MINIMIZE OR ELIMINATE DOWNTIME. AS AN EXAMPLE, MAIN GAS SERVICE, WATER SERVICE, ELECTRICAL SERVICE, HVAC SERVICES, STEAM GENERATION, ETC., WILL BE AFFECTED AND REPLACED OR MOVED DURING THIS PROJECT. THE CONTRACTOR SHALL INSTALL ALL NEW SERVICES AND EQUIPMENT AND HAVE THEM TESTED AND FULLY AND RELIABLY FUNCTIONAL PRIOR TO INTERRUPTING, RELOCATING OR REMOVING ANY EXISTING SERVICES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO BARE ANY AND ALL COSTS ASSOCIATED WITH THIS PHASING, INCLUDING TEMPORARY SERVICES, TEMPORARY RELOCATION, PREMIUM TIME WORK, ETC. CONTRACTOR SHALL COORDINATE ALL SAID WORK WITH THE OWNER AND APPLICABLE UTILITIES PER THE CONTRACT DOCUMENTS.

HAZARDOUS MATERIALS NOTES

A. THE CONTRACTOR IT IS HEREBY ADVISED THAT IS POSSIBLE THAT ASBESTOS AND/OR OTHER HAZARDOUS MATERIALS ARE OR WERE PRESENT IN THIS BUILDING(S). ANY WORKER, OCCUPANT, VISITOR, ETC., WHO ENCOUNTERS ANY MATERIAL OF WHOSE CONTENT THEY ARE NOT CERTAIN SHALL PROMPTLY REPORT THE EXISTENCE AND LOCATION OF THAT MATERIAL TO THE OWNER. FURTHERMORE, THE CONTRACTOR SHALL INSURE THAT NO ONE COMES NEAR TO OR IN CONTACT WITH ANY SUCH MATERIAL OR FUMES THEREFROM UNTIL ITS CONTENT CAN BE ASCERTAINED TO BE NON-HAZARDOUS.
B. CMTA, INC. HAS NO EXPERTISE IN THE DETERMINATION OF THE PRESENCE OF ANY HAZARDOUS MATERIAL. THEREFORE, NO ATTEMPT HAS BEEN MADE BY CMTA TO IDENTIFY THE EXISTENCE OR LOCATION OF ANY SUCH HAZARDOUS MATERIAL. FURTHERMORE, CMTA NOR ANY AFFILIATE HEREOF WILL NOT OFFER OR MAKE ANY RECOMMENDATIONS RELATIVE TO THE REMOVAL, HANDLING OR DISPOSAL OF SUCH MATERIAL.
C. IF THE WORK WHICH IS TO BE PERFORMED INTERFACES, CONNECTS OR RELATES IN ANY PHYSICAL WAY WITH OR TO EXISTING COMPONENTS WHICH CONTAIN OR BEAR ANY HAZARDOUS MATERIAL, ASBESTOS BEING ONE, THEN IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO CONTACT THE OWNER AND SO ADVISE HIM/HER IMMEDIATELY.
D. THE CONTRACTOR BY EXECUTION OF THE CONTRACT FOR ANY WORK AND/OR BY THE ACCOMPLISHMENT OF ANY WORK THEREBY AGREE TO BRING NO CLAIM RELATIVE TO HAZARDOUS MATERIALS FOR NEGLIGENCE, BREACH OF CONTRACT, INDEMNITY, OR ANY OTHER SUCH ITEM AGAINST CMTA, ITS PRINCIPALS, EMPLOYEES, AGENTS OR CONSULTANTS. ALSO, THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD CMTA, ITS PRINCIPALS, EMPLOYEES, AGENTS AND CONSULTANTS HARMLESS FROM ANY SUCH RELATED CLAIMS WHICH MAY BE BROUGHT BY ANY SUBCONTRACTORS, SUPPLIERS OR ANY OTHER THIRD PARTIES.
E. THE CONTRACTOR IS DIRECTED TO THE SPECIFICATIONS FOR FURTHER INFORMATION.

ABBREVIATIONS

AC	ALTERNATING CURRENT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AFR	ABOVE FINISHED ROOF
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPERE (AMP, AMPS)
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE
APD	AIR PRESSURE DROP
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR-CONDITIONING ENGINEERS
ATU	AIR TERMINAL UNIT
AVG	AVERAGE
BAS	BUILDING AUTOMATION SYSTEM
BHP	BREAK HORSEPOWER
BTU	BRITISH THERMAL UNIT
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
C.I.	CAST IRON
CLG	CEILING
CLR	CLEAR
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COND	CONDENS (-ER, -ING, -ATION, -ATE)
CONT	CONTINU (-ED, -OUS)
CU FT	CUBIC FEET
CU IN	CUBIC INCHES
CV	VALVE FLOW COEFFICIENT
dB	DECIBEL
DB	DRY BULB
DBT	DRY BULB TEMPERATURE
DC	DIRECT CURRENT
DD	DUCT SMOKE DETECTOR
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE (-S)
DIA	DIAMETER (-S)
DN	DOWN
DWG	DRAWING
EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
ELEV	ELEVA (-TION, -TOR)
ENGR	ENGINEER
EQ	EQUAL
ESP	EXTERNAL STATIC PRESSURE
ETR	EXISTING TO REMAIN
EVAP	EVAPORAT (-E, -ING, -ED, -OR, -ION)
EWT	ENTERING WATER TEMPERATURE
EXP	EXPANSION
EXT	EXTERIOR
FA	FREE AREA

ABBREVIATIONS (CONTINUED)

FD	FIRE DAMPER
FL	FLOOR
FLA	FULL LOAD AMPS
FOB	FLAT ON BOTTOM
FOT	FLAT ON TOP
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET **OR** FOOT
FUT	FUTURE
FV	FACE VELOCITY
GA	GAGE/GAUGE
GAL	GALLON (-S)
GC	GENERAL CONTRACTOR
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GRAINS
H	HUMIDITY
HD	HEAD
HG	MERCURY
HORIZ	HORIZONTAL
HP	H (-ORSEPOWER, -EAT PUMP)
HR	HOUR (-S)
HVAC	HEATING, VENTILATING, & AIR-CONDITIONING
Hz	HERTZ
ID	I (-DENTIFICATION, -NSIDE DIAMETER, -NSIDE DIMENSION)
IN	INCH (-ES)
INSUL	INSULAT (-ED, -ION)
INT	INTER (-IOR, -ERVAL)
IPS	IRON PIPE SIZE
kW	KILOWATT
kWh	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LF	LINEAR FEET/FOOT
LRA	LOCKED ROTOR AMPS
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	BTU PER HOUR [THOUSANDS]
MCA	MINIMUM CIRCUIT AMPS
MFG	MANUFACTURER
MIN	MIN (-IMUM, -UTE)
MISC	MISCELLANEOUS
MOCP	MAXIMUM OVERCURRENT PROTECTION [AMPS]
MTG	MOUNTING
N/A	NOT APPLICABLE
NC	NOISE CRITERIA **OR** NORMALLY CLOSED
NEBB	NATIONAL ENVIRONMENTAL BALANCING BUREAU
NIC	NOT IN CONTRACT

ABBREVIATIONS (CONTINUED)

NO	NORMALLY OPEN **OR** NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DI (-AMETER, -MENSION)
OFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OR	OPEN RECEPTACLE
OZ	OUNCE (-S)
PC	PLUMBING CONTRACTOR
PD	PRESSURE DROP
PH	PHASE [ELECTRICAL]
PLBG	PLUMBING
PPM	PARTS PER MILLION
PRS	PRESSURE REDUCING STATION
PRV	PRESSURE REDUCING VALVE (STEAM, WATER, GAS)
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIG	PPSI GAUGE
RH	RELATIVE HUMIDITY [%]
RLA	RUNNING LOAD AMPS
RPM	REVOLUTIONS PER MINUTE
SD	SMOKE DAMPER
SP	STATIC PRESSURE
SQ	SQUARE
SQ FT	SQUARE FEET **OR** FOOT
SQ IN	SQUARE INCH **OR** INCHES
TAB	TESTING AND BALANCING
TBD	TO BE DETERMINED
TE	TOP ELEVATION
TEMP	TEMPERATURE
TSP	TOTAL STATIC PRESSURE
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
V	VOLT (-AGE, -S)
VAR	VARI (-ABLE, -IES)
VAV	VARIABLE AIR VOLUME
VEL	VELOCITY
VFD	VARIABLE FEQUENCY DRIVE
W	WATT (-AGE, -S)
WB	WET BULB
WBT	WET BULB TEMPERATURE
WPD	WATER PRESSURE DROP
WT	WEIGHT
W/	WITH
W/O	WITHOUT
%	PERCENT
ΔP	DIFFERENTIAL PRESSURE
ΔT	TEMPERATURE DIFFERENCE
℄	CENTERLINE

GENERAL SYMBOLS

#	TAGGED NOTE DESIGNATOR
1	REVISION TRIANGLE
ROOM NAME (REF.#)	ROOM TAG
TAG XXX-# INSTANCE XXXX	EQUIPMENT TAG
	POINT OF CONNECTION / CONNECT TO EXISTING
	POINT OF DEMOLITION

HVAC LEGEND

	SUPPLY AIR DIFFUSER
	RETURN AIR DIFFUSER
	EXHAUST AIR DIFFUSER
	TRANSFER AIR DIFFUSER W/ SOUND ATTENUATING BOOT
	SIDEWALL DIFFUSER/GRILLE
	SIDEWALL DIFFUSER/GRILLE
TAG XXX ABYLOW #_###	AIR DEVICE TAG (REGISTER, GRILLE, DIFFUSER,LOUVER)
##/##	RECTANGULAR DUCT
#ø	ROUND/SPIRAL DUCT
##/##Ø	FLAT OVAL DUCT
SA	SUPPLY AIR DUCT
RA	RETURN AIR DUCT
EA	EXHAUST AIR DUCT
OA	OUTSIDE AIR DUCT
TA	TRANSFER AIR DUCT
CAE	COMBUSTION AIR EXHAUST DUCT
CAI	COMBUSTION AIR INTAKE DUCT
SA	SA AIR DUCT TURNING UP
SA	SA AIR DUCT TURNING DOWN
RA	RA AIR DUCT TURNING UP
RA	RA AIR DUCT TURNING DOWN
EA	EA AIR DUCT TURNING UP
EA	EA AIR DUCT TURNING DOWN
E(XXX)	EXISTING DUCT - (XXX) DENOTES SYSTEM
D(XXX)	DUCT TO BE DEMOLISHED - (XXX) DENOTES SYSTEM
A(XXX)	DUCT TO BE ABANDONED IN PLACE - (XXX) DENOTES SYSTEM
	MITERED ELBOW WITH TURNING VANES
	FLEXIBLE DUCT
T	THERMOSTAT
T	TEMPERATURE SENSOR
H	HUMIDITY SENSOR
C	CARBON DIOXIDE SENSOR
TC	TEMPERATURE & CARBON DIOXIDE SENSOR
VERT. HORIZ.	MANUAL BALANCING/VOLUME DAMPER
VERT. HORIZ.	MOTORIZED DAMPER
VERT. HORIZ.	FIRE DAMPER
VERT. HORIZ.	SMOKE DAMPER
VERT. HORIZ.	COMBINATION FIRE & SMOKE DAMPER

MECHANICAL PIPING LEGEND

	PIPE ELBOW TURNING UP
	PIPE ELBOW TURNING DOWN
	PIPE TEE; CONNECTION ON TOP
	PIPE TEE; CONNECTION ON BOTTOM
	PIPE CAP
BFW	BOILER FEEDWATER
CAI/E	COMBUSTION AIR INTAKE/EXHAUST
CBS/R	CHILLED BEAM SUPPLY/RETURN
CD	CONDENSATE DRAIN
CHWS/R	CHILLED WATER SUPPLY/RETURN
CST	CLEAN STEAM PIPING
CWS/R	CONDENSER WATER SUPPLY/RETURN
DTS/R	DUAL TEMP. WATER SUPPLY/RETURN
GS/R	GEOTHERMAL WATER SUPPLY/RETURN
HPC	HIGH PRESSURE STEAM CONDENSATE
HPS(#)	HIGH PRESSURE STEAM; (#) DENOTES PRESSURE
HPS/R	HEAT PUMP WATER SUPPLY/RETURN
HRS/R	HEAT RECOVERY SUPPLY/RETURN PIPING
HWS/R	HEATING WATER SUPPLY/RETURN
LPC	LOW PRESSURE STEAM CONDENSATE
LPS(#)	LOW PRESSURE STEAM; (#) DENOTES PRESSURE
MPC	MEDIUM PRESSURE STEAM RETURN
MPS(#)	MEDIUM PRESSURE STEAM; (#) DENOTES PRESSURE
RFS/R	REFRIGERANT SUPPLY/RETURN
SPD	STEAM CONDENSATE PUMPED DISCHARGE
SVT	STEAM VENT PIPING
D(XXX)	PIPING TO BE DEMOLISHED - (XXX) DENOTES SYSTEM
E(XXX)	EXISTING PIPING - (XXX) DENOTES SYSTEM
A(XXX)	ABANDONED IN PLACE PIPING - (XXX) DENOTES SYSTEM
	TWO-WAY CONTROL VALVE
	THREE-WAY CONTROL VALVE
	AUTOMATIC AIR VENT (AAV)
	MANUAL AIR VENT (MAV)
	MANUAL BALANCING VALVE (BV)
	BALL VALVE
	BUTTERFLY VALVE
	TRIPLE DUTY VALVE (TDV)
	STRAINER
	MANUAL ISOLATION VALVE
	GLOBE VALVE
	OS&Y (GATE) VALVE
	PRESSURE REDUCING VALVE (STEAM, GAS, WATER, ETC.)
	AUTO-FLOW CONTROL VALVE
	CHECK VALVE
	DOUBLE CHECK VALVE ASSEMBLY
	FLEXIBLE PIPE CONNECTION
	FLOW METER (VENTURI)
	PIPING UNION
P	FLOW SWITCH
P	PRESSURE SWITCH
P	TAMPER SWITCH
	THERMOMETER
T	PETE'S PLUG; TEMPERATURE/PRESSURE PORT

APPLICABLE BUILDING CODES

APPLICABLE BUILDING CODES	DOCUMENT	YEAR
ACCESSIBLE AND USEABLE BUILDINGS AND FACILITIES	ANSI A117.1	2009
FIRE SPRINKLER CODE		2010
INTERNATIONAL BUILDING CODE (IBC)	STATE EDITION	2018
INTERNATIONAL ENERGY CONSERVATION CODE (IECC)	STATE EDITION	2018
INTERNATIONAL FIRE CODE (IFC)	STATE EDITION	?
INTERNATIONAL FUEL GAS CODE (IFGC)	STATE EDITION	2018
INTERNATIONAL MECHANICAL CODE (IMC)	STATE EDITION	2018
INTERNATIONAL PLUMBING CODE (IPC)	STATE EDITION	2018
INTERNATIONAL EXISTING BUILDING CODE (IEBC)	STATE EDITION	2015
NATIONAL ELECTRIC CODE (NEC)	NFPA 70	2017
NATIONAL FIRE ALARM & SIGNALING CODE	?	2010
UNIFORM STATEWIDE BUILDING CODE		?

SHEET LIST - MECHANICAL

SHEET #	SHEET NAME
M-001	MECHANICAL LEGEND
M-101	MECHANICAL DEMOLITION - FIRST FLOOR PLAN- DUCTWORK
M-102	MECHANICAL DEMOLITION - SECOND FLOOR PLAN - DUCTWORK
M-103	MECHANICAL DEMOLITION - ROOF PLAN
M-111	MECHANICAL DEMOLITION - FIRST FLOOR PLAN - PIPING
M-112	MECHANICAL DEMOLITION - SECOND FLOOR PLAN - PIPING
M-201	MECHANICAL NEW WORK - FIRST FLOOR PLAN - DUCTWORK
M-202	MECHANICAL NEW WORK - SECOND FLOOR PLAN - DUCTWORK
M-203	MECHANICAL NEW WORK - ROOF PLAN
M-211	MECHANICAL NEW WORK - FIRST FLOOR PLAN - PIPING
M-301	MECHANICAL DEMOLITION - FIRST FLOOR PLAN - ADD-ALT
M-302	MECHANICAL DEMOLITION - SECOND FLOOR PLAN - ADD-ALT
M-303	MECHANICAL DEMOLITION - ROOF PLAN - ADD-ALT
M-311	MECHANICAL DEMOLITION - FIRST FLOOR PLAN - PIPING - ADD-ALT
M-312	MECHANICAL DEMOLITION - SECOND FLOOR PLAN - PIPING - ADD-ALT
M-401	MECHANICAL NEW WORK - FIRST FLOOR PLAN - DUCTWORK - ADD-ALT
M-402	MECHANICAL NEW WORK - SECOND FLOOR PLAN - DUCTWORK - ADD-ALT
M-411	MECHANICAL NEW WORK - FIRST FLOOR PLAN - PIPING - ADD-ALT
M-412	MECHANICAL NEW WORK - SECOND FLOOR PLAN - PIPING - ADD-ALT
M-501	MECHANICAL ENLARGED PLANS - ADD ALT
M-601	MECHANICAL DETAILS
M-602	MECHANICAL DETAILS
M-603	MECHANICAL DETAILS
M-701	MECHANICAL SCHEDULES
M-801	MECHANICAL CONTROLS
M-802	MECHANICAL CONTROLS
M-901	MECHANICAL BASE BID - HOT WATER PIPING DIAGRAM
M-902	MECHANICAL - ADD ALT - HOT WATER PIPING DIAGRAM

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CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646
OWNER: COLLEGE OF SOUTHERN MARYLAND
STATE PROJ. NO. Project Number

SEAL

KEY PLAN

REVISIONS

MARK	DATE	ISSUE

ISSUES

DATE	ISSUE
02.14.2022	BID DOCUMENTS
07.21.2022	IFC DOCUMENTS

MECHANICAL LEGEND

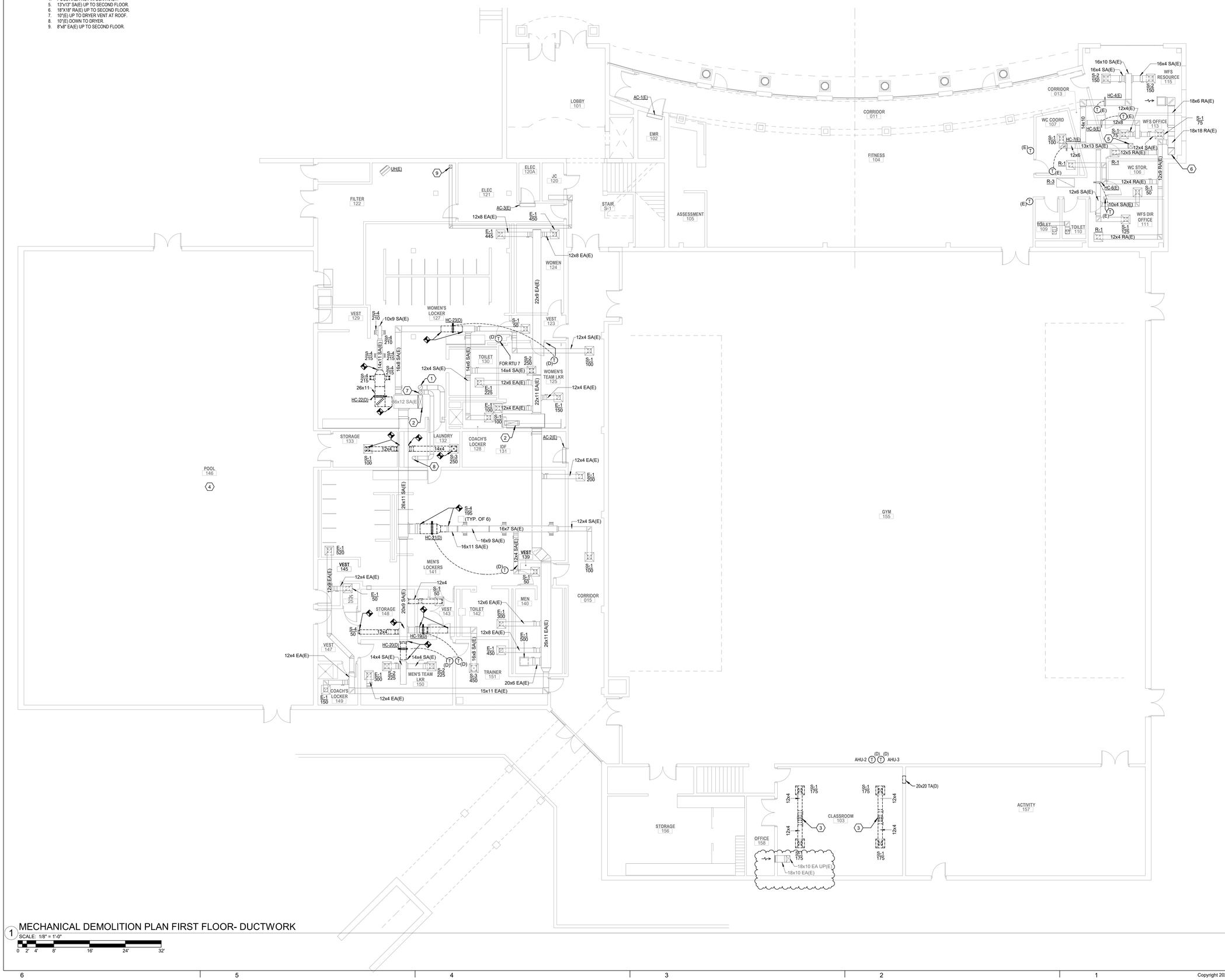
M-001

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS MAY BE USED ON THIS PROJECT

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KEYED SHEET NOTES

1. 12"(E) UP TO DRYER INTAKE.
2. 36"x12"(E) UP TO RTU-7(D) AT ROOF.
3. 6"x14" SA(D) UP TO SECOND FLOOR.
4. POOL AREA NOT IN CONTRACT.
5. 13"x13" SA(E) UP TO SECOND FLOOR.
6. 18"X18" RA(E) UP TO SECOND FLOOR.
7. 10"(E) UP TO DRYER VENT AT ROOF.
8. 10"(E) DOWN TO DRYER.
9. 6"x8" EA(E) UP TO SECOND FLOOR.



1 MECHANICAL DEMOLITION PLAN FIRST FLOOR- DUCTWORK

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

0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
22630 DAVIS DRIVE, SUITE 175
STERLING, VIRGINIA 20164
703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

STATE PROJ. NO: Project Number

SEAL

KEY PLAN

REVISIONS

MARK	DATE	ISSUE
5	07/21/2022	IFC Changes

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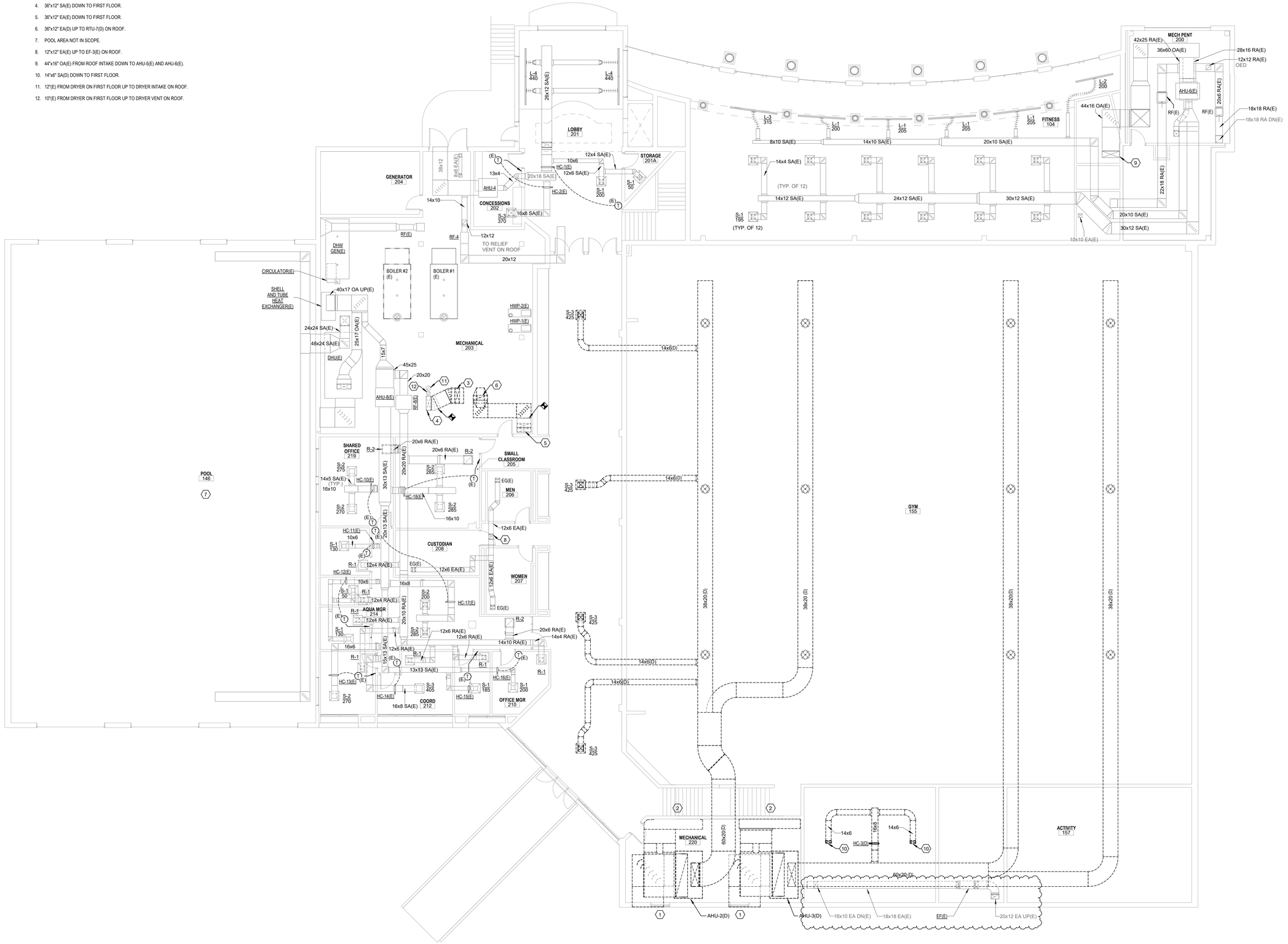
MECHANICAL DEMOLITION - FIRST FLOOR PLAN- DUCTWORK

M-101

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KEYED SHEET NOTES

1. EXISTING LOUVER TO BE BLANKED OFF/BLOCKED IN. SEE ARCHITECTURAL PLANS.
2. EXISTING RETURN LOUVERS TO BE DEMOLISHED AND FILLED IN.
3. 36"x12" SA(D) UP TO RTU-7(D) ON ROOF.
4. 36"x12" SA(E) DOWN TO FIRST FLOOR.
5. 36"x12" EA(E) DOWN TO FIRST FLOOR.
6. 36"x12" EA(D) UP TO RTU-7(D) ON ROOF.
7. POOL AREA NOT IN SCOPE.
8. 12"x12" EA(E) UP TO EF-3(E) ON ROOF.
9. 44"x16" OA(E) FROM ROOF INTAKE DOWN TO AHU-5(E) AND AHU-6(E).
10. 14"x6" SA(D) DOWN TO FIRST FLOOR.
11. 12"(E) FROM DRYER ON FIRST FLOOR UP TO DRYER INTAKE ON ROOF.
12. 10"(E) FROM DRYER ON FIRST FLOOR UP TO DRYER VENT ON ROOF.



1 MECHANICAL DEMOLITION PLAN SECOND FLOOR

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

0 2' 4' 8' 16' 24' 32'

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STERLING, VIRGINIA 20164
703.437.6600

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MECHANICAL DEMOLITION - SECOND FLOOR PLAN - DUCTWORK

M-102

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KEYED SHEET NOTES

1. LOUVERED RELIEF VENT(E)
2. 36x48 DOWN TO DHU AND AHU-8
3. 24x24 DOWN TO AHU-8
4. 36x48 DOWN TO AHU-5 AND AHU-6
5. 32x40 DOWN TO SECOND FLOOR.
6. 20x50 DOWN TO SECOND FLOOR.
7. SEE SHEET M-102 FOR DUCTWORK AND SHEET M-112 FOR PIPING UP FROM BELOW.



1 MECHANICAL DEMOLITION - ROOF PLAN

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

0 2' 4' 8' 16' 24' 32'

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703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

STATE PROJ. NO: Project Number

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2	05/27/2022	Revision 2

ISSUES

DATE	ISSUE
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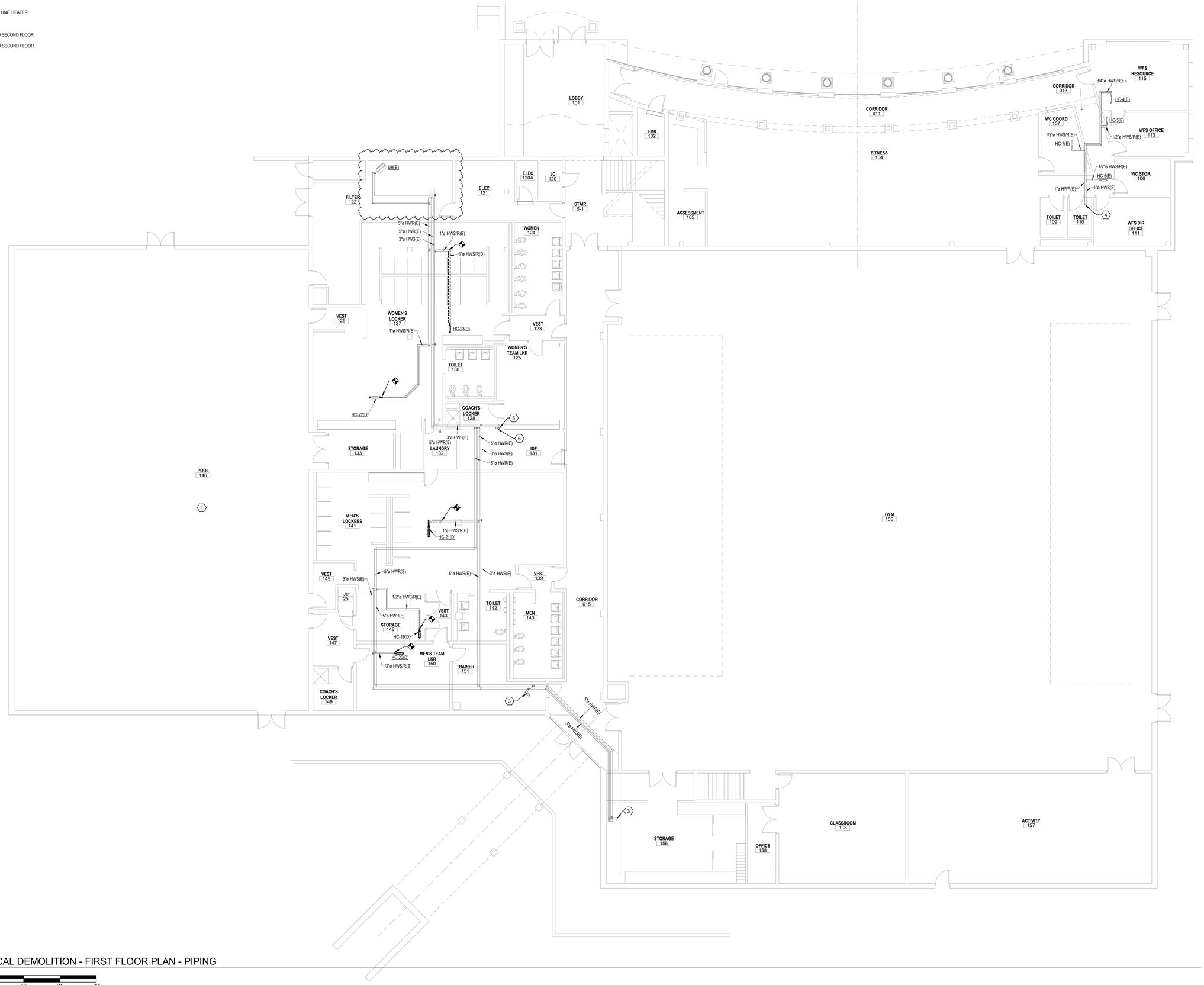
MECHANICAL DEMOLITION - ROOF PLAN

M-103

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KEYED SHEET NOTES

1. POOL AREA NOT IN CONTRACT.
2. NOT USED.
3. HWS/R(E) UP TO UNIT HEATER.
4. 1" HWS/R(E) UP.
5. 3" HWS(E) UP TO SECOND FLOOR.
6. 5" HWR(E) UP TO SECOND FLOOR.



1 MECHANICAL DEMOLITION - FIRST FLOOR PLAN - PIPING

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

0 2' 4' 8' 16' 24' 32'

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07.21.2022	IFC DOCUMENTS

MECHANICAL DEMOLITION - FIRST FLOOR PLAN - PIPING

M-111

KEYED SHEET NOTES

1. DEMOLISH EXISTING HWS/R PIPING TO AHU-2(D) AND AHU-3(D) AND ASSOCIATED CIRCULATION PUMPS.
2. CAPPED FOR FUTURE USE.
3. 4" HWS/R(E) DOWN.
4. DEMOLISH EXISTING 1 1/4" HWS/R PIPING UP TO AHU-7(D)



1 MECHANICAL DEMOLITION PLAN SECOND FLOOR

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

0 2' 4' 8' 16' 24' 32'

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MECHANICAL DEMOLITION - SECOND FLOOR PLAN - PIPING

M-112

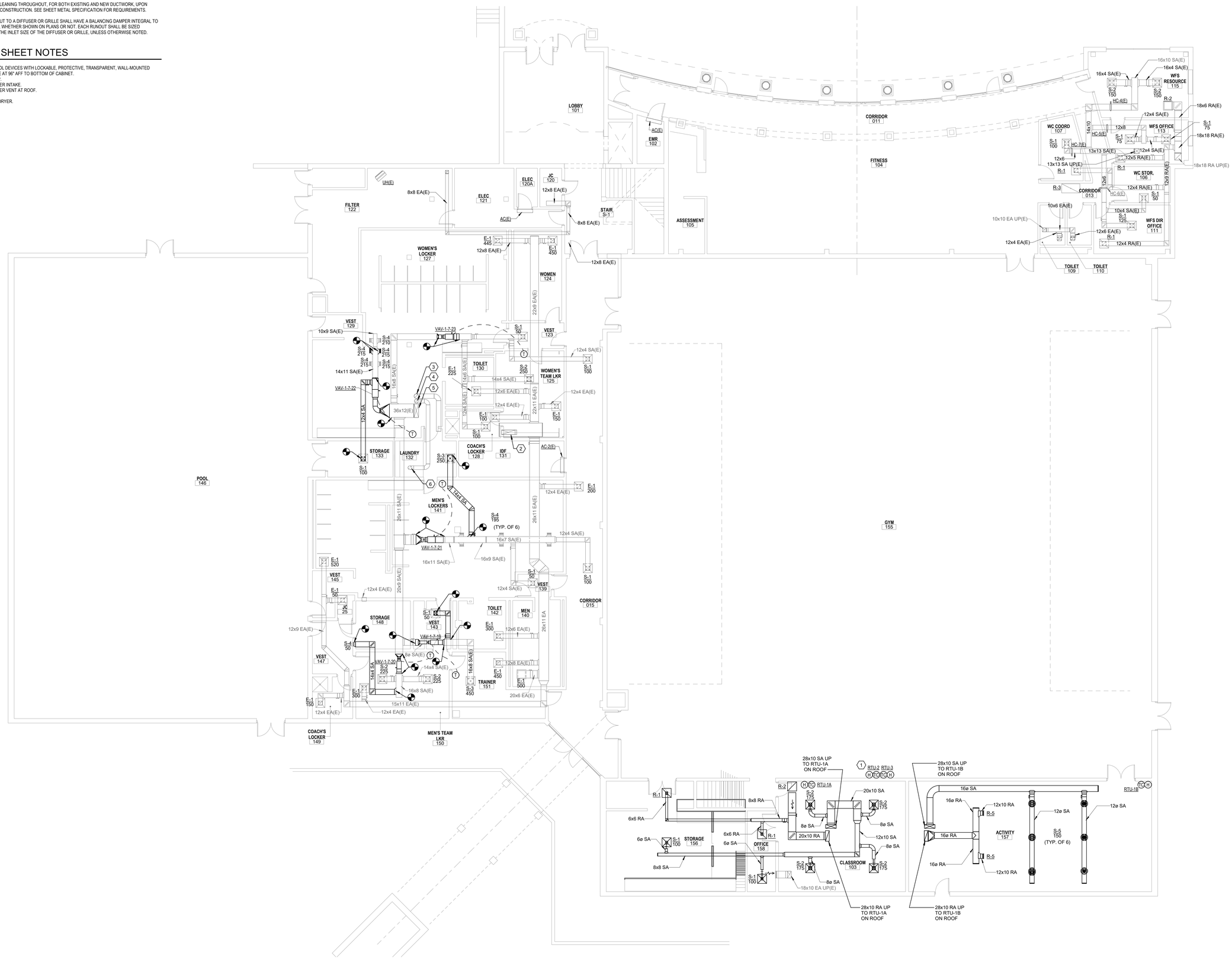
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GENERAL SHEET NOTES

1. PROVIDE DUCT CLEANING THROUGHOUT, FOR BOTH EXISTING AND NEW DUCTWORK, UPON COMPLETION OF CONSTRUCTION. SEE SHEET METAL SPECIFICATION FOR REQUIREMENTS.
2. EACH NEW RUNOUT TO A DIFFUSER OR GRILLE SHALL HAVE A BALANCING DAMPER INTEGRAL TO THE TAP FITTING, WHETHER SHOWN ON PLANS OR NOT. EACH RUNOUT SHALL BE SIZED EQUIVALENT TO THE INLET SIZE OF THE DIFFUSER OR GRILLE, UNLESS OTHERWISE NOTED.

(#) KEYED SHEET NOTES

1. PROVIDE CONTROL DEVICES WITH LOCKABLE, PROTECTIVE, TRANSPARENT, WALL-MOUNTED CABINET. LOCATE AT 96" AFF TO BOTTOM OF CABINET.
2. 36"x12" EXH(E) UP.
3. 12"(E) UP TO DRYER INTAKE.
4. 10"(E) UP TO DRYER VENT AT ROOF.
5. 36"x12" SA(E) UP.
6. 10"(E) DOWN TO DRYER.



1 MECHANICAL NEW WORK - FIRST FLOOR PLAN - DUCTWORK

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

0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
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CSM PE BUILDING REFURBISHMENT

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MECHANICAL NEW WORK - FIRST FLOOR PLAN - DUCTWORK

M-201

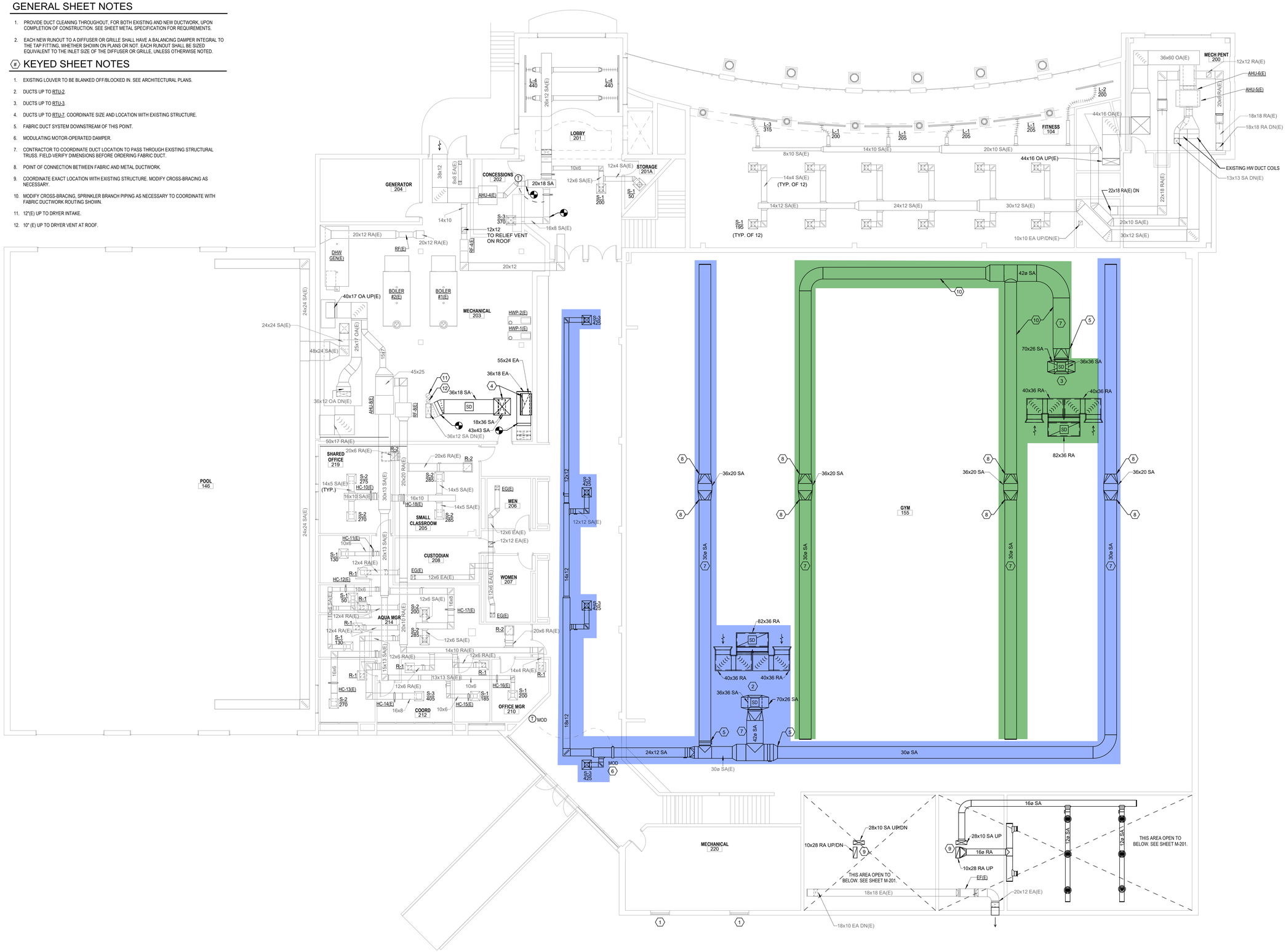
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GENERAL SHEET NOTES

1. PROVIDE DUCT CLEANING THROUGHOUT, FOR BOTH EXISTING AND NEW DUCTWORK, UPON COMPLETION OF CONSTRUCTION. SEE SHEET METAL SPECIFICATION FOR REQUIREMENTS.
2. EACH NEW RUNOUT TO A DIFFUSER OR GRILLE SHALL HAVE A BALANCING DAMPER INTEGRAL TO THE TAP FITTING, WHETHER SHOWN ON PLANS OR NOT. EACH RUNOUT SHALL BE SIZED EQUIVALENT TO THE INLET SIZE OF THE DIFFUSER OR GRILLE, UNLESS OTHERWISE NOTED.

(#) KEYED SHEET NOTES

1. EXISTING LOUVER TO BE BLANKED OFF/BLOCKED IN. SEE ARCHITECTURAL PLANS.
2. DUCTS UP TO RTU-2.
3. DUCTS UP TO RTU-3.
4. DUCTS UP TO RTU-7. COORDINATE SIZE AND LOCATION WITH EXISTING STRUCTURE.
5. FABRIC DUCT SYSTEM DOWNSTREAM OF THIS POINT.
6. MODULATING MOTOR-OPERATED DAMPER.
7. CONTRACTOR TO COORDINATE DUCT LOCATION TO PASS THROUGH EXISTING STRUCTURAL TRUSS. FIELD-VERIFY DIMENSIONS BEFORE ORDERING FABRIC DUCT.
8. POINT OF CONNECTION BETWEEN FABRIC AND METAL DUCTWORK.
9. COORDINATE EXACT LOCATION WITH EXISTING STRUCTURE. MODIFY CROSS-BRACING AS NECESSARY.
10. MODIFY CROSS-BRACING, SPRINKLER BRANCH PIPING AS NECESSARY TO COORDINATE WITH FABRIC DUCTWORK ROUTING SHOWN.
11. 12"(E) UP TO DRYER INTAKE.
12. 10" (E) UP TO DRYER VENT AT ROOF.



1 MECHANICAL NEW WORK - SECOND FLOOR PLAN - DUCTWORK

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

0 2' 4' 8' 16' 24' 32'

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3	07/07/2022	RFI #07
4	07/11/2022	RFI #09

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MECHANICAL NEW WORK - SECOND FLOOR PLAN - DUCTWORK

M-202

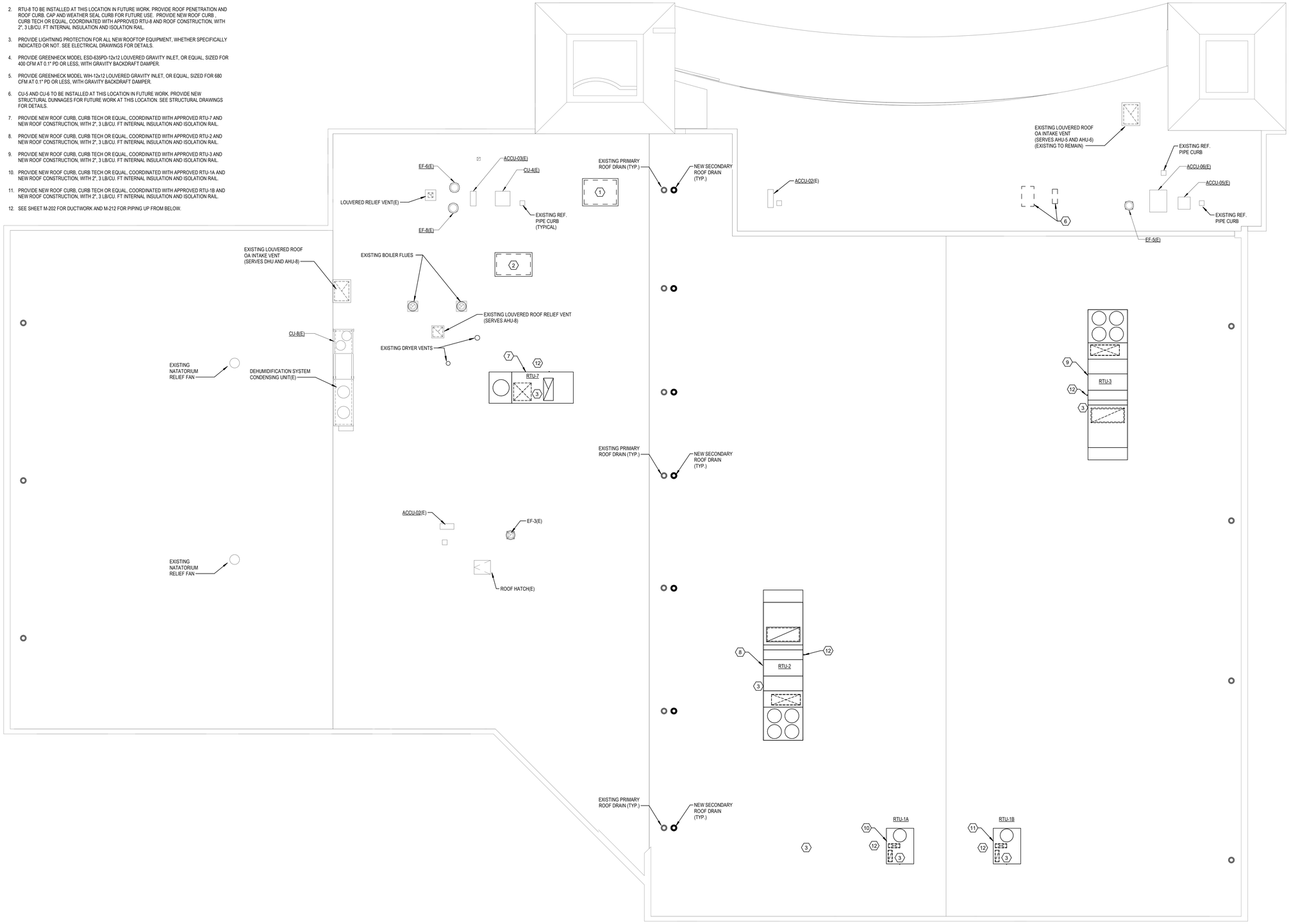
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GENERAL SHEET NOTES

1. PROVIDE DUCT CLEANING THROUGHOUT, FOR BOTH EXISTING AND NEW DUCTWORK, UPON COMPLETION OF CONSTRUCTION. SEE SHEET METAL SPECIFICATION FOR REQUIREMENTS.

(#) KEYED SHEET NOTES

1. RTU-4 TO BE INSTALLED AT THIS LOCATION IN FUTURE WORK. PROVIDE ROOF PENETRATION AND ROOF CURB. CAP AND WEATHER SEAL CURB FOR FUTURE USE. PROVIDE NEW ROOF CURB, CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-4 AND ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
2. RTU-8 TO BE INSTALLED AT THIS LOCATION IN FUTURE WORK. PROVIDE ROOF PENETRATION AND ROOF CURB. CAP AND WEATHER SEAL CURB FOR FUTURE USE. PROVIDE NEW ROOF CURB , CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-8 AND ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
3. PROVIDE LIGHTNING PROTECTION FOR ALL NEW ROOFTOP EQUIPMENT, WHETHER SPECIFICALLY INDICATED OR NOT. SEE ELECTRICAL DRAWINGS FOR DETAILS.
4. PROVIDE GREENHECK MODEL ESD-635PD-12x12 LOUVERED GRAVITY INLET, OR EQUAL, SIZED FOR 400 CFM AT 0.1" PD OR LESS, WITH GRAVITY BACKDRAFT DAMPER.
5. PROVIDE GREENHECK MODEL WIH-12x12 LOUVERED GRAVITY INLET, OR EQUAL, SIZED FOR 680 CFM AT 0.1" PD OR LESS, WITH GRAVITY BACKDRAFT DAMPER.
6. CU-5 AND CU-6 TO BE INSTALLED AT THIS LOCATION IN FUTURE WORK. PROVIDE NEW STRUCTURAL DUNNAGES FOR FUTURE WORK AT THIS LOCATION. SEE STRUCTURAL DRAWINGS FOR DETAILS.
7. PROVIDE NEW ROOF CURB, CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-7 AND NEW ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
8. PROVIDE NEW ROOF CURB, CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-2 AND NEW ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
9. PROVIDE NEW ROOF CURB, CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-3 AND NEW ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
10. PROVIDE NEW ROOF CURB, CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-1A AND NEW ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
11. PROVIDE NEW ROOF CURB, CURB TECH OR EQUAL, COORDINATED WITH APPROVED RTU-1B AND NEW ROOF CONSTRUCTION, WITH 2", 3 LB/CU. FT INTERNAL INSULATION AND ISOLATION RAIL.
12. SEE SHEET M-202 FOR DUCTWORK AND M-212 FOR PIPING UP FROM BELOW.



1 MECHANICAL NEW WORK - ROOF PLAN
SCALE: 1/8" = 1'-0"
0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
22630 DAVIS DRIVE, SUITE 175
STERLING, VIRGINIA 20164
703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646
OWNER: COLLEGE OF SOUTHERN MARYLAND
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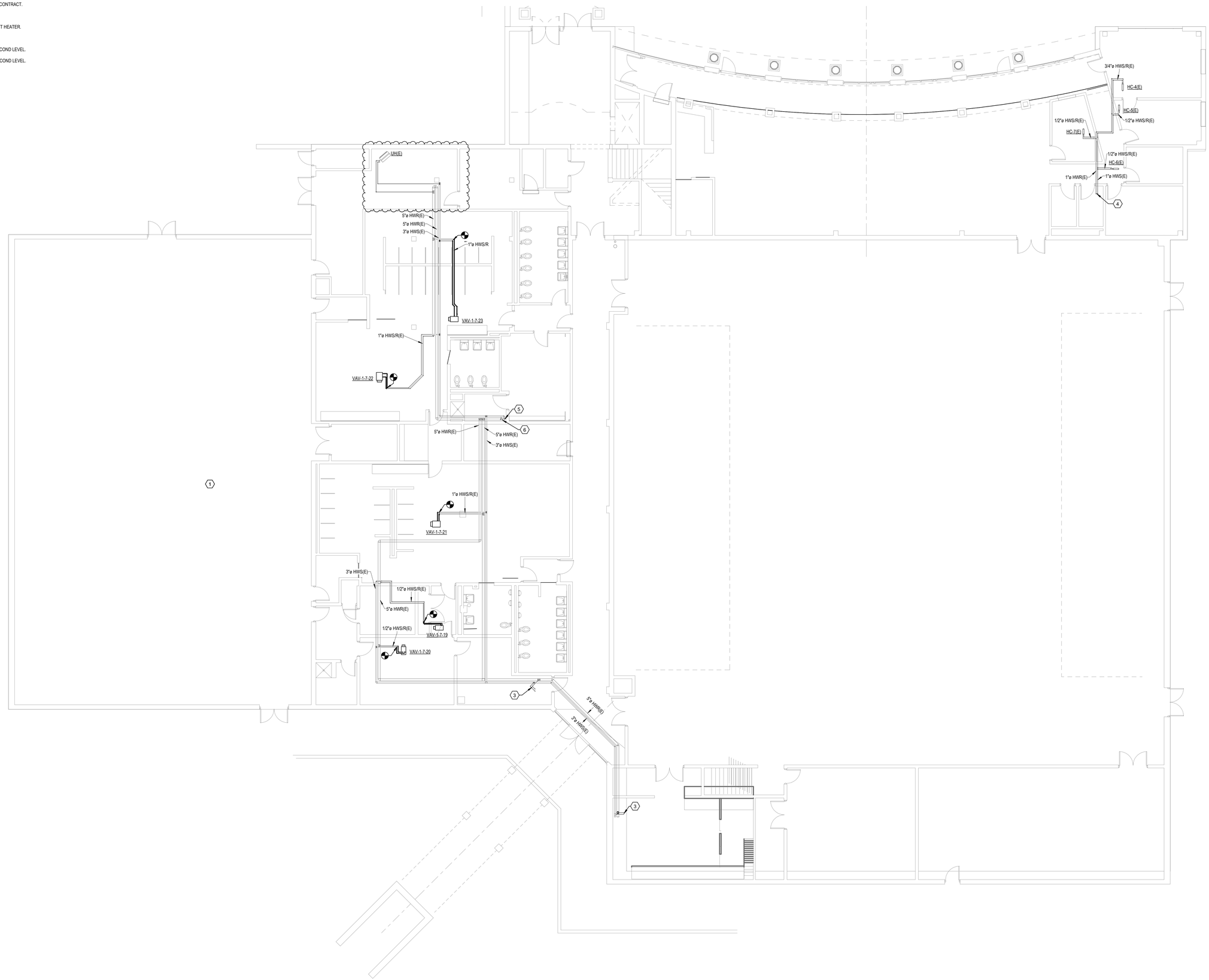
MECHANICAL NEW WORK - ROOF PLAN

M-203

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KEYED SHEET NOTES

1. POOL AREA NOT IN CONTRACT.
2. NOT USED.
3. HWS/R(E) UP TO UNIT HEATER.
4. 1" HWS/R(E) UP.
5. 3" HWS(E) UP TO SECOND LEVEL.
6. 5" HWR(E) UP TO SECOND LEVEL.



1 MECHANICAL FIRST FLOOR PIPING
SCALE: 1/8" = 1'-0"
0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
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CSM PE BUILDING REFURBISHMENT

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OWNER: COLLEGE OF SOUTHERN MARYLAND

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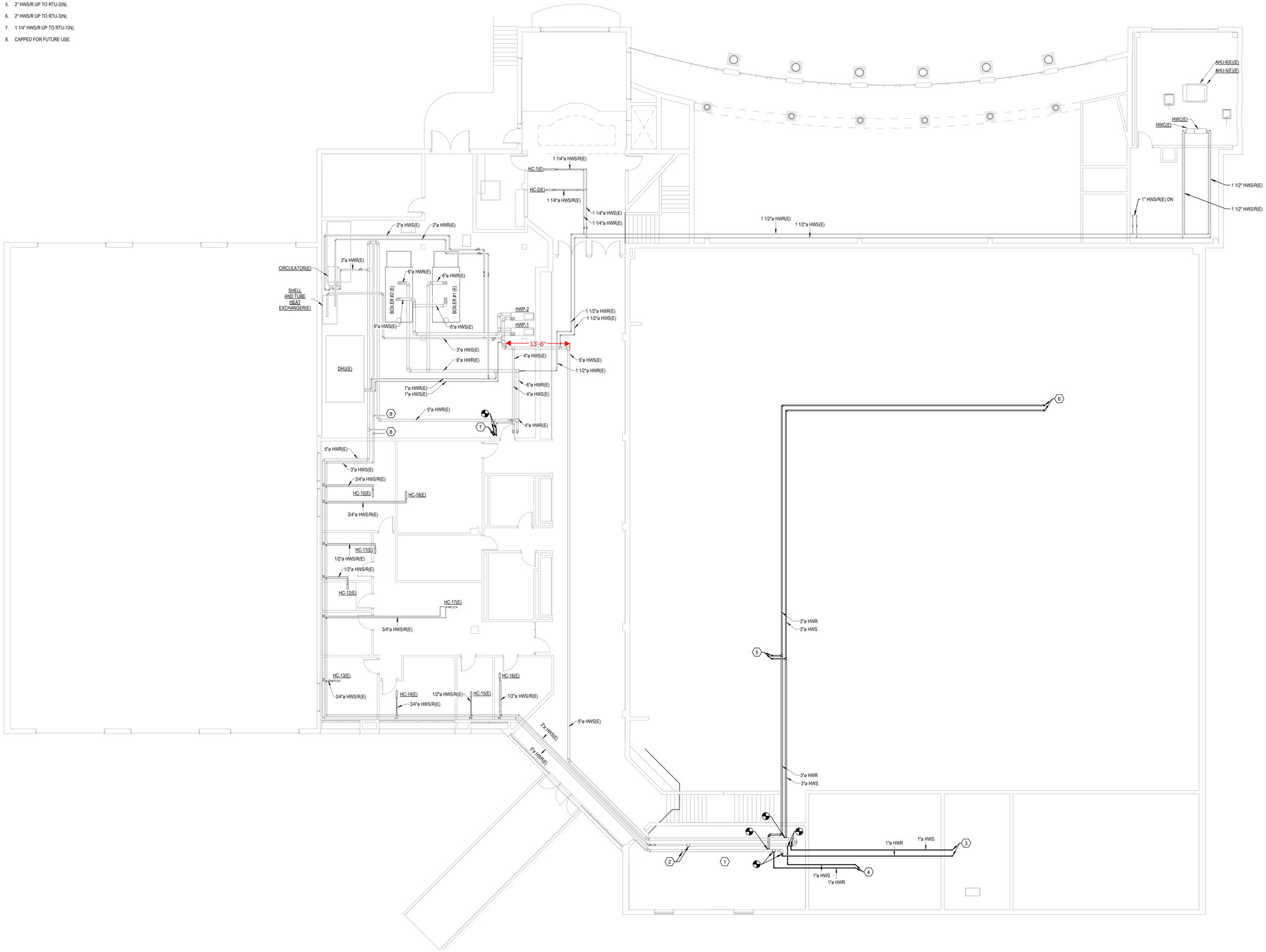
MECHANICAL NEW WORK - FIRST FLOOR PLAN - PIPING

M-211

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KEYED SHEET NOTES

1. CONTRACTOR TO VERIFY EXISTING CONDITION OF PIPING IN THE FIELD.
2. CAP PIPE FOR FUTURE USE.
3. 1" HWS/R UP TO RTU-1B(N).
4. 1" HWS/R UP TO RTU-1A(N).
5. 2" HWS/R UP TO RTU-2(N).
6. 2" HWS/R UP TO RTU-3(N).
7. 1 1/4" HWS/R UP TO RTU-7(N).
8. CAPPED FOR FUTURE USE.



1 MECHANICAL NEW WORK - SECOND FLOOR PLAN - PIPING

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

0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
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CSM PE BUILDING REFURBISHMENT

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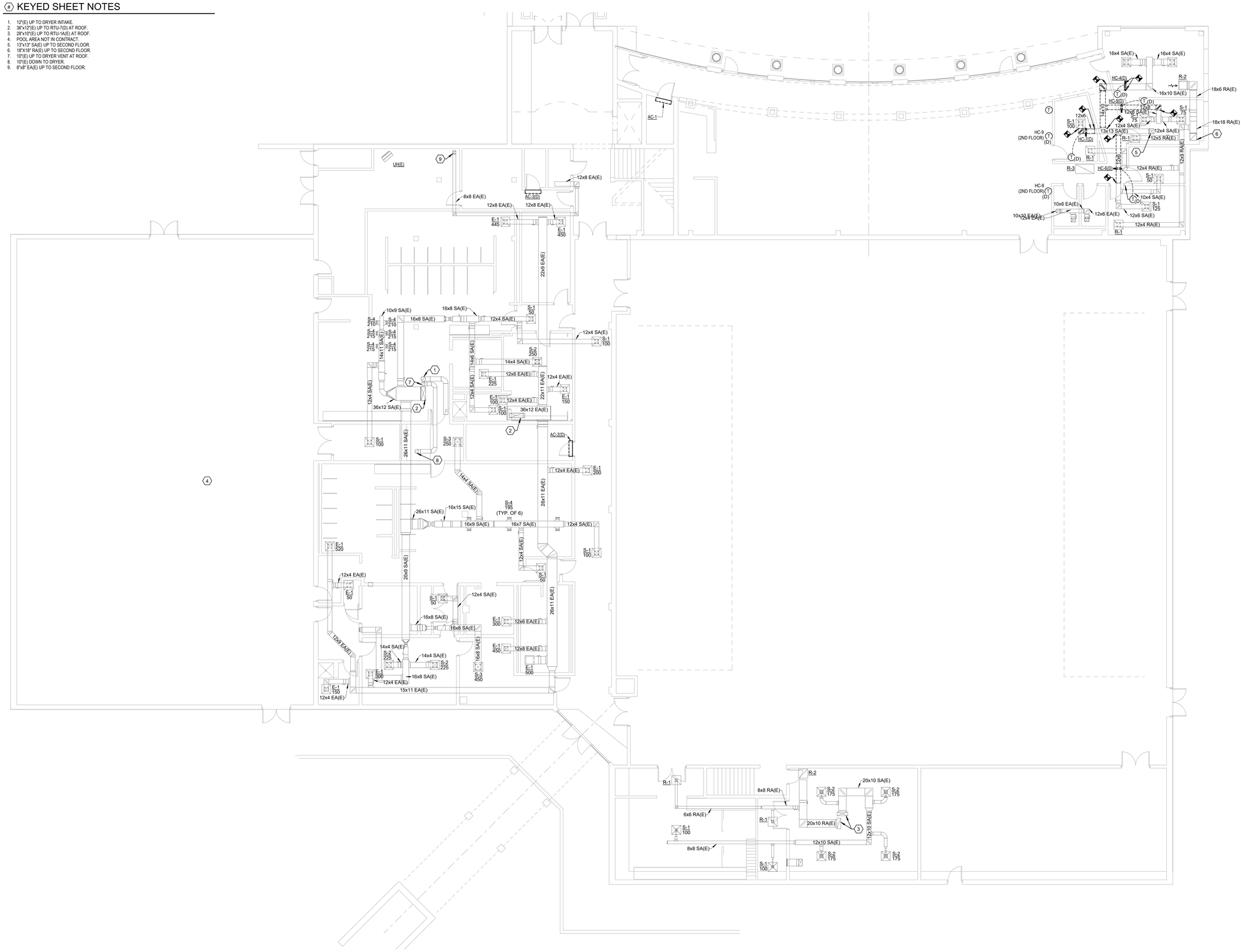
MECHANICAL NEW WORK - SECOND FLOOR PLAN - PIPING

M-212

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KEYED SHEET NOTES

1. 12"(E) UP TO DRYER INTAKE.
2. 36"x12"(E) UP TO RTU-7(D) AT ROOF.
3. 28"x10"(E) UP TO RTU-1A(E) AT ROOF.
4. POOL AREA NOT IN CONTRACT.
5. 13"x13" SA(E) UP TO SECOND FLOOR.
6. 18"X18" RA(E) UP TO SECOND FLOOR.
7. 10"(E) UP TO DRYER VENT AT ROOF.
8. 10"(E) DOWN TO DRYER.
9. 8"x8" EA(E) UP TO SECOND FLOOR.



1 MECHANICAL DEMOLITION - FIRST FLOOR PLAN - DUCTWORK - ADD-ALTERNATE

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

0 2' 4' 8' 16' 24' 32'

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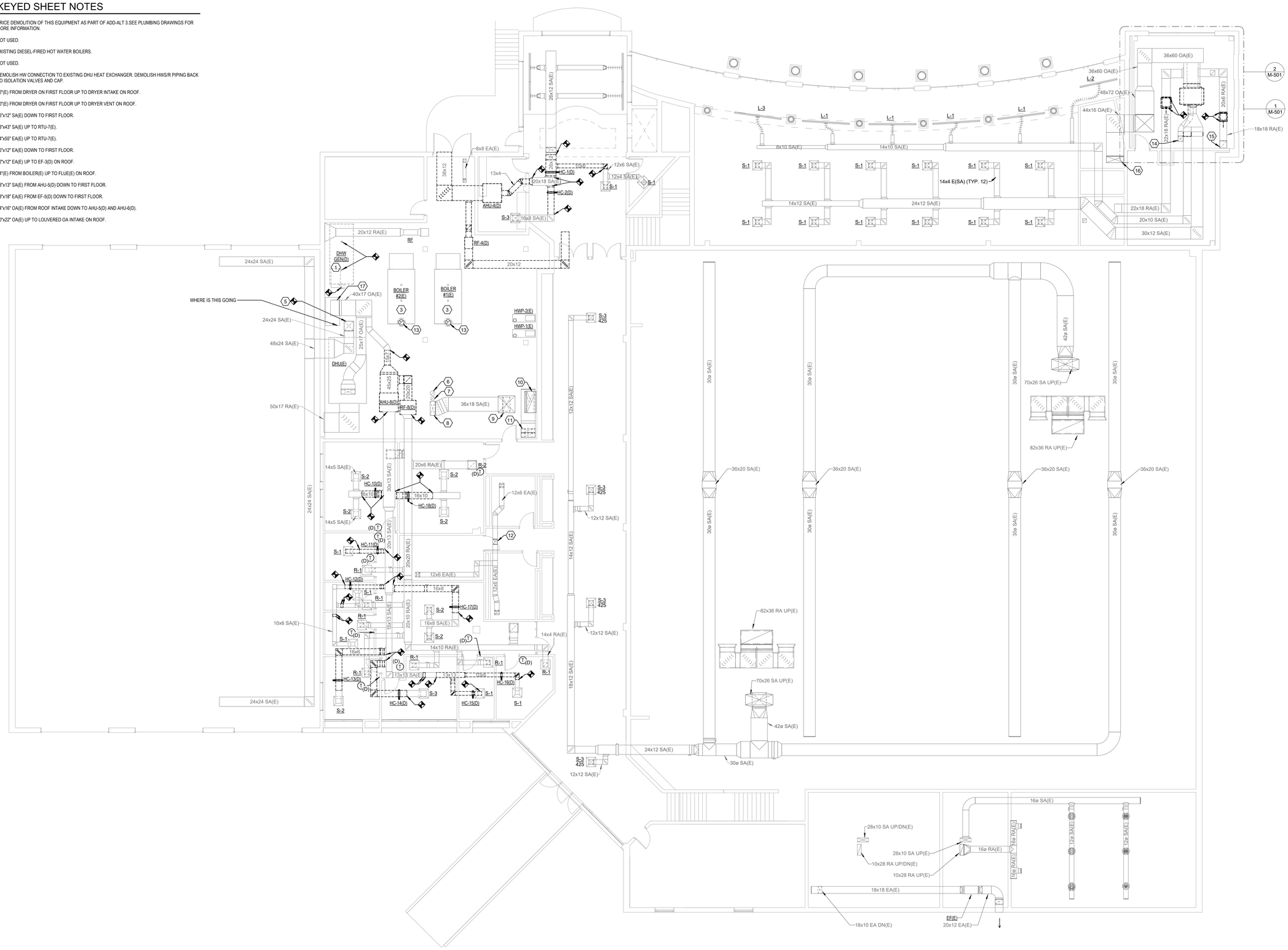
MECHANICAL DEMOLITION - FIRST FLOOR PLAN - ADD-ALT

M-301

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KEYED SHEET NOTES

1. PRICE DEMOLITION OF THIS EQUIPMENT AS PART OF ADD-ALT 3.SEE PLUMBING DRAWINGS FOR MORE INFORMATION.
2. NOT USED.
3. EXISTING DIESEL-FIRED HOT WATER BOILERS.
4. NOT USED.
5. DEMOLISH HW CONNECTION TO EXISTING DHU HEAT EXCHANGER. DEMOLISH HWS/R PIPING BACK TO ISOLATION VALVES AND CAP.
6. 12"(E) FROM DRYER ON FIRST FLOOR UP TO DRYER INTAKE ON ROOF.
7. 10"(E) FROM DRYER ON FIRST FLOOR UP TO DRYER VENT ON ROOF.
8. 36"x12" SA(E) DOWN TO FIRST FLOOR.
9. 43"x43" SA(E) UP TO RTU-7(E).
10. 24"x55" EA(E) UP TO RTU-7(E).
11. 36"x12" EA(E) DOWN TO FIRST FLOOR.
12. 12"x12" EA(E) UP TO EF-3(D) ON ROOF.
13. 14"(E) FROM BOILER(E) UP TO FLUE(E) ON ROOF.
14. 13"x13" SA(E) FROM AHU-5(D) DOWN TO FIRST FLOOR.
15. 18"x18" EA(E) FROM EF-5(D) DOWN TO FIRST FLOOR.
16. 44"x16" OA(E) FROM ROOF INTAKE DOWN TO AHU-5(D) AND AHU-6(D).
17. 40"x22" OA(E) UP TO LOUVERED OA INTAKE ON ROOF.



1 MECHANICAL DEMOLITION - SECOND FLOOR PLAN - DUCTWORK - ADD-ALTERNATE

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

0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
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CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

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MECHANICAL DEMOLITION - SECOND FLOOR PLAN - ADD-ALT

M-302

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1 MECHANICAL DEMOLITION - ROOF PLAN - ADD-ALTERNATE

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

0 2' 4' 8' 16' 24' 32'

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OWNER: COLLEGE OF SOUTHERN MARYLAND

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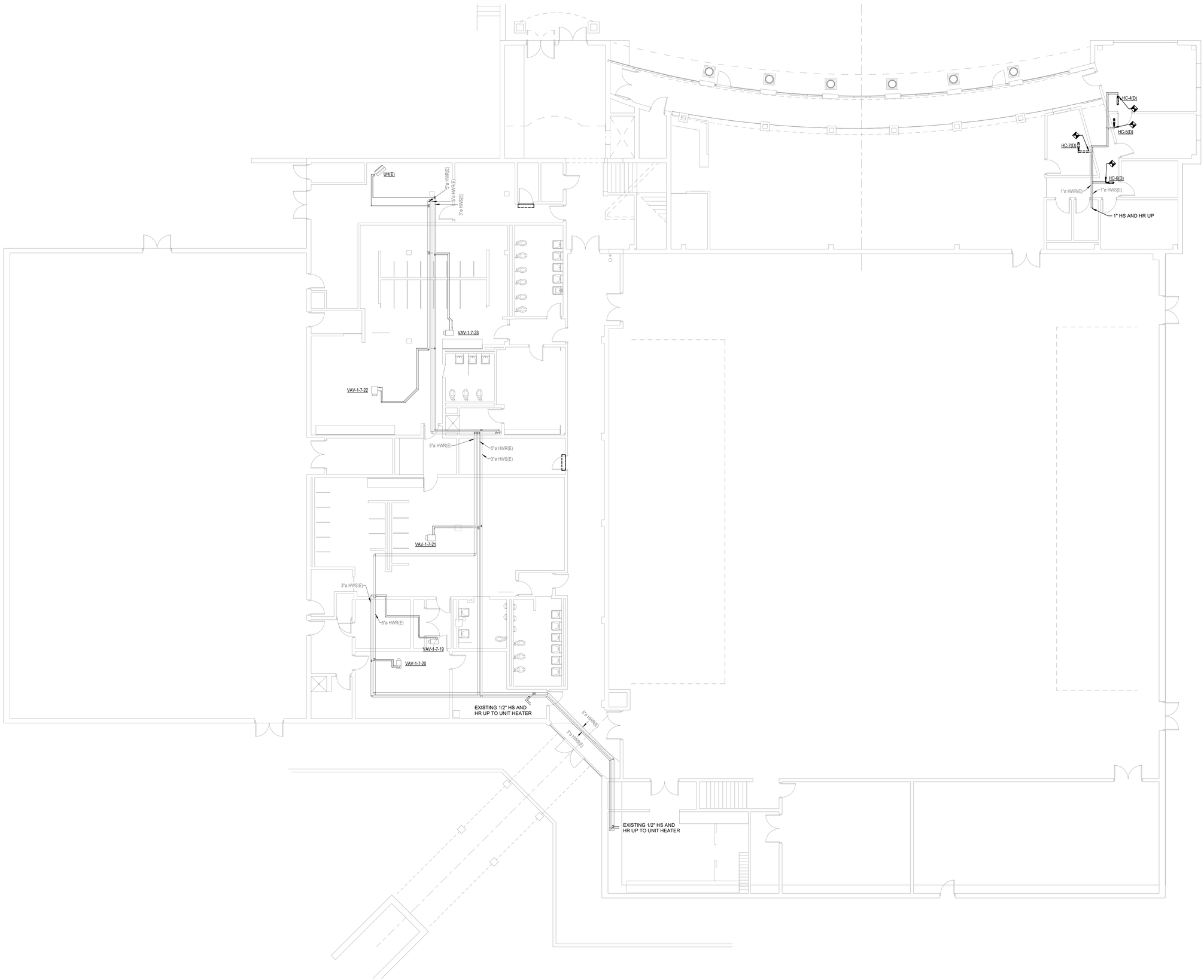
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MECHANICAL DEMOLITION - ROOF PLAN - ADD-ALT

M-303



1 MECHANICAL DEMOLITION - FIRST FLOOR PLAN - PIPING

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

0 2' 4' 8' 16' 24' 32'

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703.437.6600

CSM PE BUILDING REFURBISHMENT

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07.21.2022	IFC DOCUMENTS

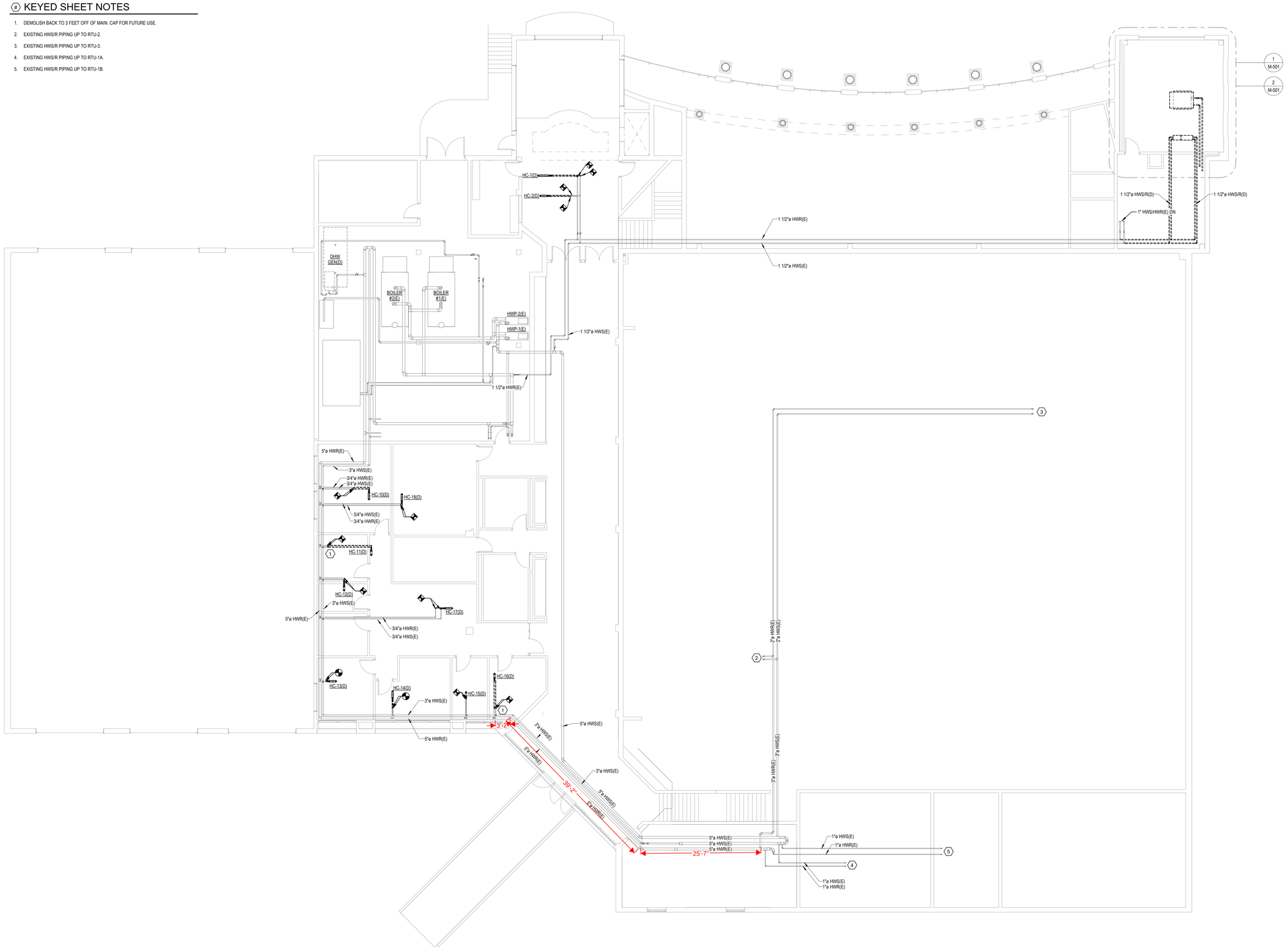
MECHANICAL DEMOLITION - FIRST FLOOR PLAN - PIPING - ADD-ALT

M-311

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KEYED SHEET NOTES

1. DEMOLISH BACK TO 3 FEET OFF OF MAIN. CAP FOR FUTURE USE.
2. EXISTING HWS/R PIPING UP TO RTU-2.
3. EXISTING HWS/R PIPING UP TO RTU-3.
4. EXISTING HWS/R PIPING UP TO RTU-1A.
5. EXISTING HWS/R PIPING UP TO RTU-1B.



1 MECHANICAL DEMOLITION PLAN SECOND FLOOR

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

0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
22630 DAVIS DRIVE, SUITE 175
STERLING, VIRGINIA 20164
703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

STATE PROJ. NO: Project Number

SEAL

KEY PLAN

REVISIONS

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ISSUES

DATE	ISSUE
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07.21.2022	IFC DOCUMENTS

MECHANICAL DEMOLITION - SECOND FLOOR PLAN - PIPING - ADD-ALT

M-312

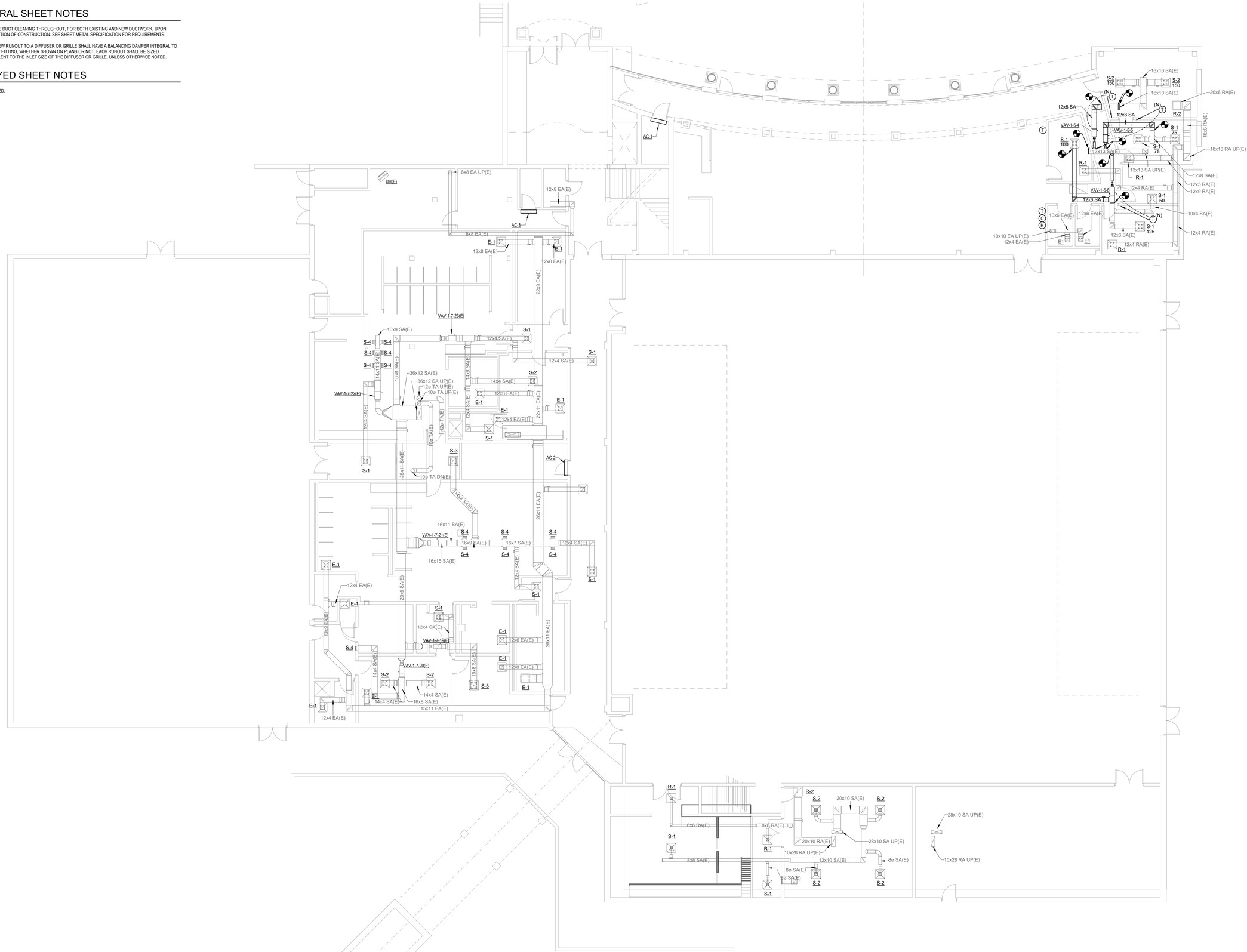
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GENERAL SHEET NOTES

1. PROVIDE DUCT CLEANING THROUGHOUT, FOR BOTH EXISTING AND NEW DUCTWORK, UPON COMPLETION OF CONSTRUCTION. SEE SHEET METAL SPECIFICATION FOR REQUIREMENTS.
2. EACH NEW RUNOUT TO A DIFFUSER OR GRILLE SHALL HAVE A BALANCING DAMPER INTEGRAL TO THE TAP FITTING, WHETHER SHOWN ON PLANS OR NOT. EACH RUNOUT SHALL BE SIZED EQUIVALENT TO THE INLET SIZE OF THE DIFFUSER OR GRILLE, UNLESS OTHERWISE NOTED.

(#) KEYED SHEET NOTES

1. NOT USED.



1 MECHANICAL NEW WORK - FIRST FLOOR PLAN - DUCTWORK - ADD-ALTERNATE

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

0 2' 4' 8' 16' 24' 32'

HUGHES GROUP ARCHITECTS
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STERLING, VIRGINIA 20164
703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

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MECHANICAL NEW WORK - FIRST FLOOR PLAN - DUCTWORK - ADD-ALT

M-401

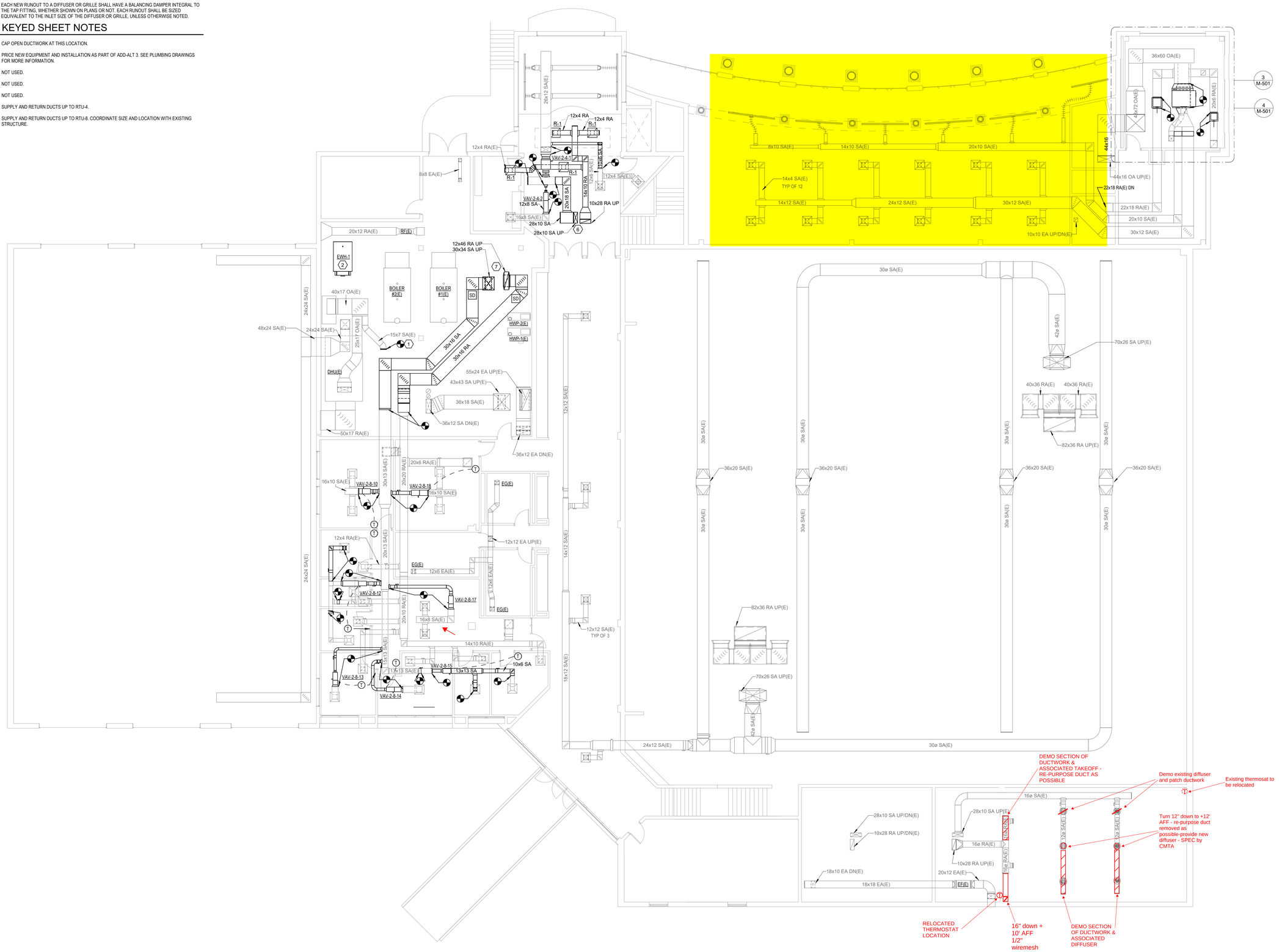
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GENERAL SHEET NOTES

1. PROVIDE DUCT CLEANING THROUGHOUT, FOR BOTH EXISTING AND NEW DUCTWORK, UPON COMPLETION OF CONSTRUCTION. SEE SHEET METAL SPECIFICATION FOR REQUIREMENTS.
2. EACH NEW RUNOUT TO A DIFFUSER OR GRILLE SHALL HAVE A BALANCING DAMPER INTEGRAL TO THE TAP FITTING, WHETHER SHOWN ON PLANS OR NOT. EACH RUNOUT SHALL BE SIZED EQUIVALENT TO THE INLET SIZE OF THE DIFFUSER OR GRILLE, UNLESS OTHERWISE NOTED.

(#) KEYED SHEET NOTES

1. CAP OPEN DUCTWORK AT THIS LOCATION.
2. PRICE NEW EQUIPMENT AND INSTALLATION AS PART OF ADD-ALT 3. SEE PLUMBING DRAWINGS FOR MORE INFORMATION.
3. NOT USED.
4. NOT USED.
5. NOT USED.
6. SUPPLY AND RETURN DUCTS UP TO RTU-4.
7. SUPPLY AND RETURN DUCTS UP TO RTU-8. COORDINATE SIZE AND LOCATION WITH EXISTING STRUCTURE.



1 MECHANICAL NEW WORK - SECOND FLOOR PLAN - DUCTWORK - ADD-ALTERNATE

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

0 2' 4' 8' 16' 24' 32'

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703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

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MECHANICAL NEW WORK - SECOND FLOOR PLAN - DUCTWORK - ADD-ALT

M-402

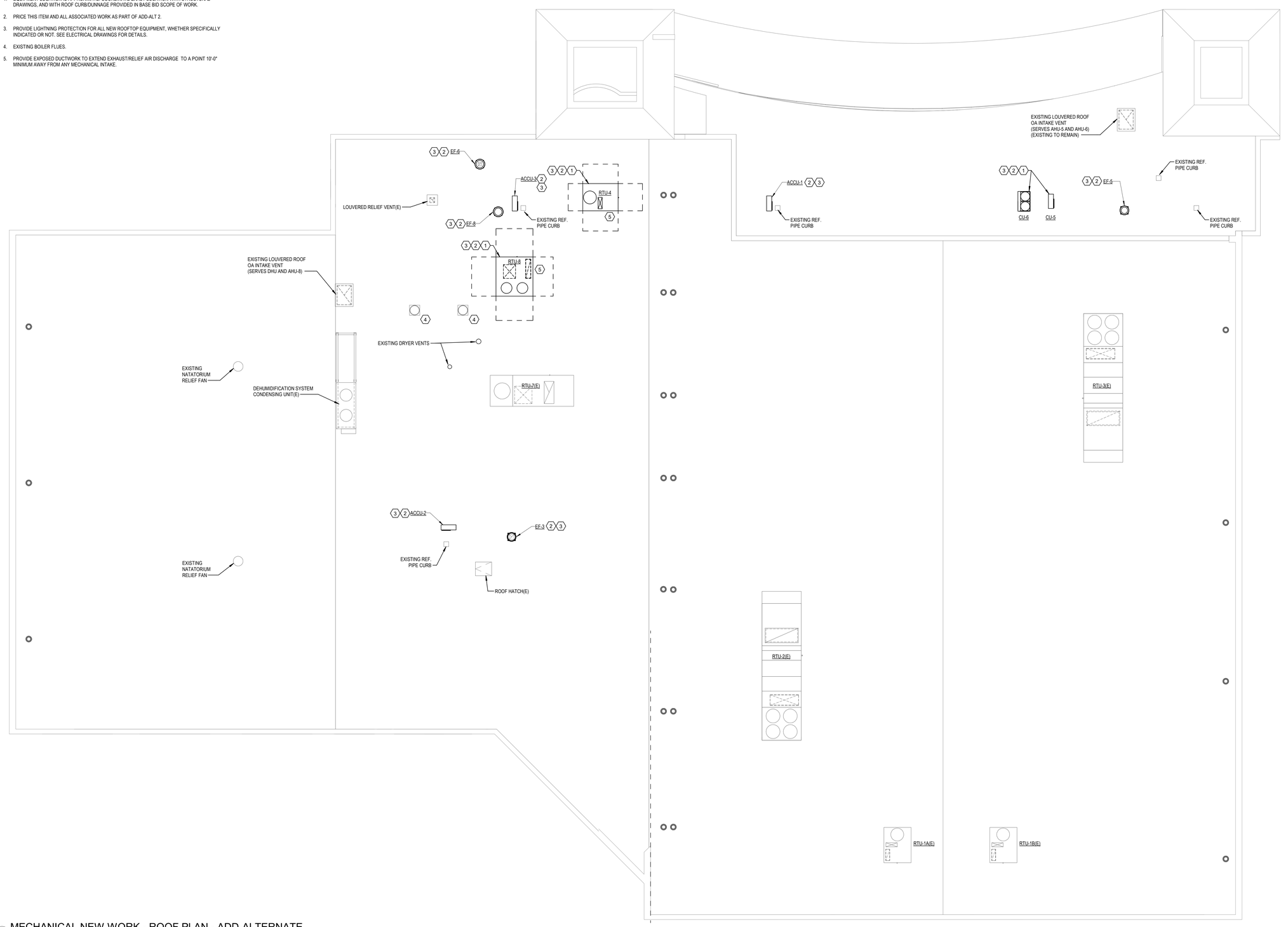
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GENERAL SHEET NOTES

1. PROVIDE DUCT CLEANING THROUGHOUT, FOR BOTH EXISTING AND NEW DUCTWORK, UPON COMPLETION OF CONSTRUCTION. SEE SHEET METAL SPECIFICATION FOR REQUIREMENTS.

(#) KEYED SHEET NOTES

1. EQUIPMENT LOCATION IS APPROXIMATE. COORDINATE EXACT LOCATION WITH STRUCTURAL DRAWINGS, AND WITH ROOF CURB/DUNNAGE PROVIDED IN BASE BID SCOPE OF WORK.
2. PRICE THIS ITEM AND ALL ASSOCIATED WORK AS PART OF ADD-ALT 2.
3. PROVIDE LIGHTNING PROTECTION FOR ALL NEW ROOFTOP EQUIPMENT, WHETHER SPECIFICALLY INDICATED OR NOT. SEE ELECTRICAL DRAWINGS FOR DETAILS.
4. EXISTING BOILER FLUES.
5. PROVIDE EXPOSED DUCTWORK TO EXTEND EXHAUST/RELIEF AIR DISCHARGE TO A POINT 10'-0" MINIMUM AWAY FROM ANY MECHANICAL INTAKE.



1 MECHANICAL NEW WORK - ROOF PLAN - ADD-ALTERNATE

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

0 2' 4' 8' 16' 24' 32'

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22630 DAVIS DRIVE, SUITE 175
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703.437.6600

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STATE PROJ. NO: Project Number

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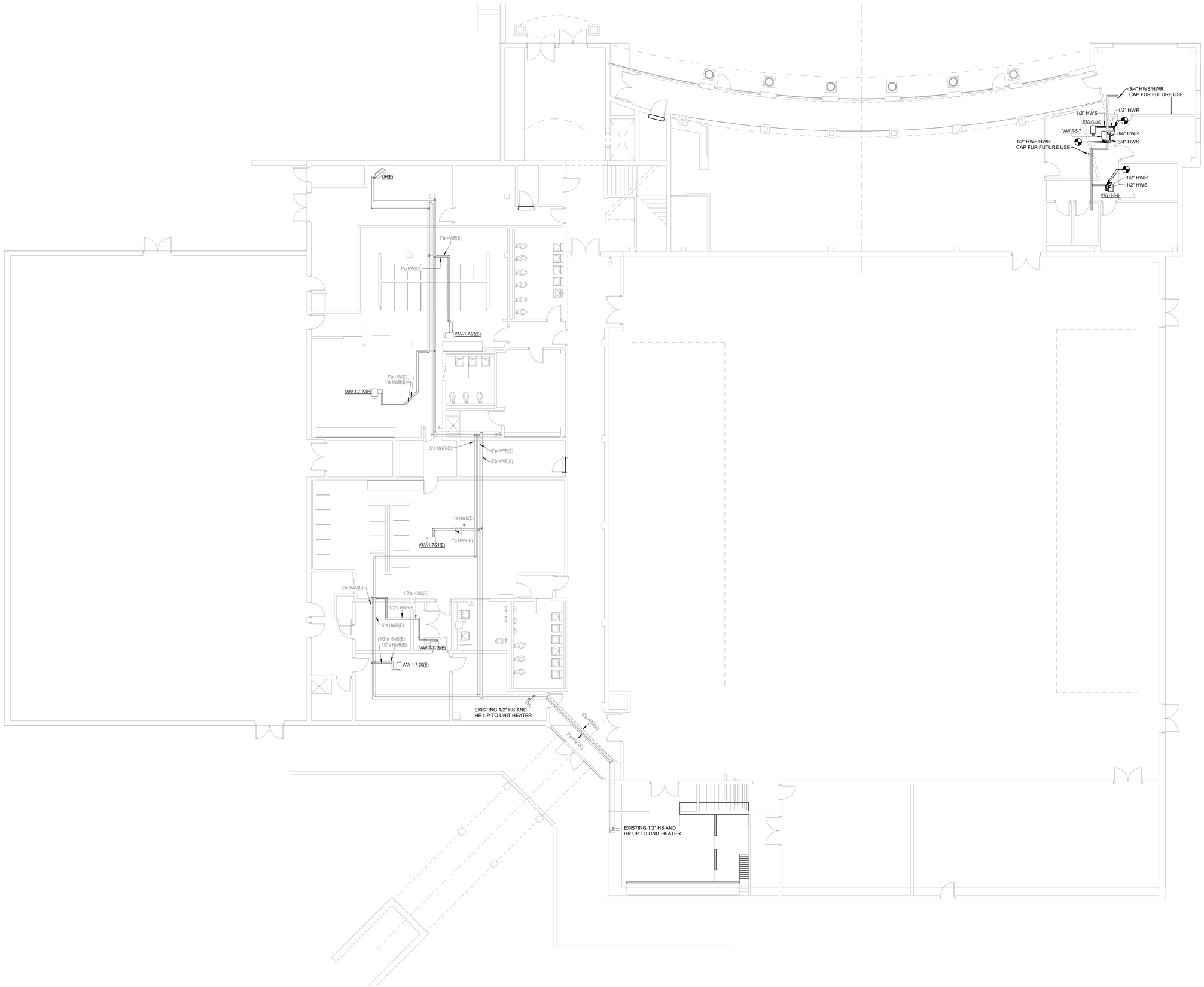
ISSUES

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07.21.2022	IFC DOCUMENTS

MECHANICAL NEW WORK - ROOF PLAN - ADD-ALT

M-403

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1 MECHANICAL FIRST FLOOR PIPING - ADD-ALT

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

0 2' 4' 8' 16' 24' 32'

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CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

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DATE	ISSUE
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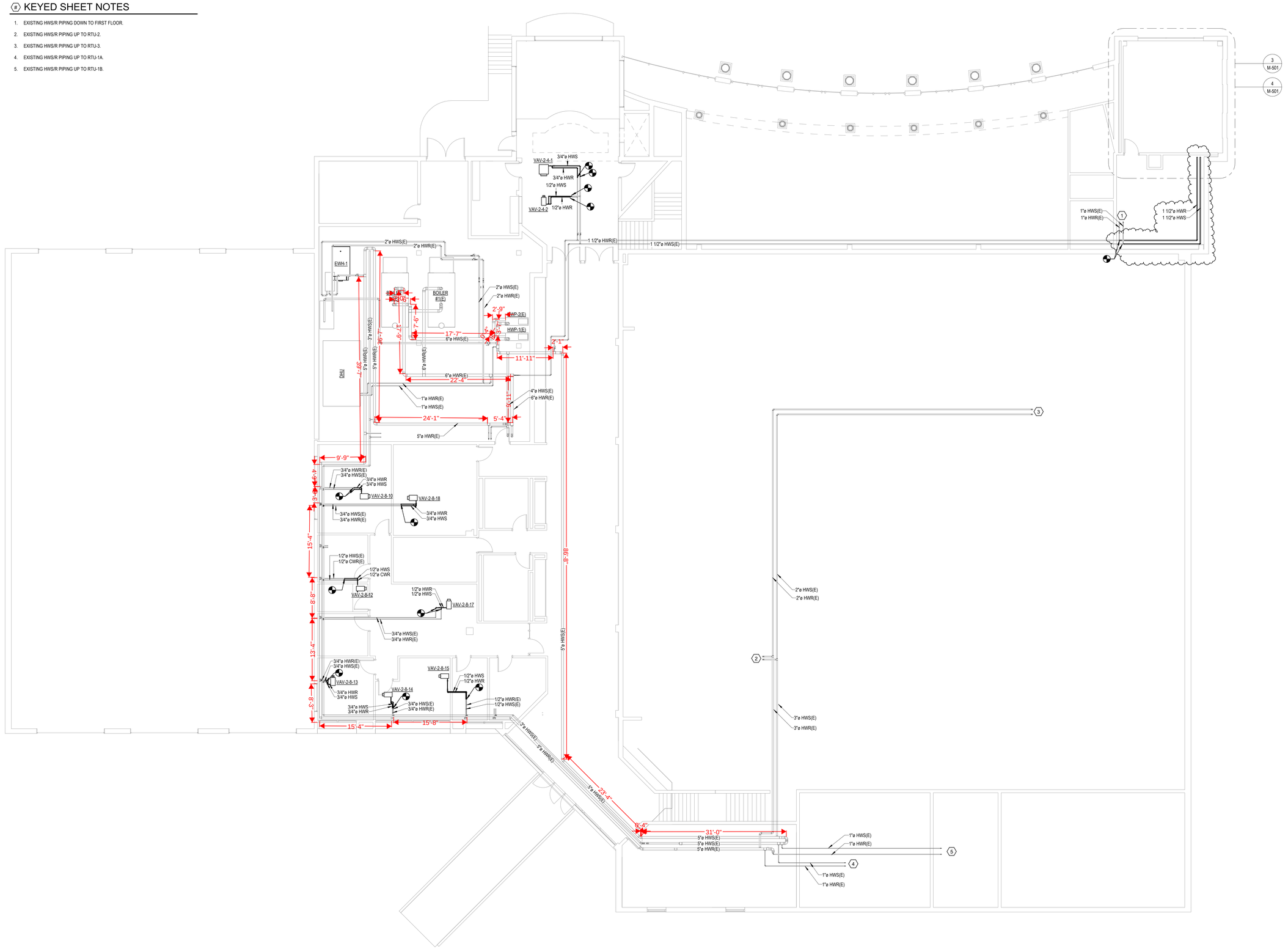
MECHANICAL NEW WORK - FIRST FLOOR PLAN - PIPING - ADD-ALT

M-411

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KEYED SHEET NOTES

1. EXISTING HWS/R PIPING DOWN TO FIRST FLOOR.
2. EXISTING HWS/R PIPING UP TO RTU-2.
3. EXISTING HWS/R PIPING UP TO RTU-3.
4. EXISTING HWS/R PIPING UP TO RTU-1A.
5. EXISTING HWS/R PIPING UP TO RTU-1B.



1 MECHANICAL NEW WORK - SECOND FLOOR PLAN - PIPING - ADD-ALT

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

0 2' 4' 8' 16' 24' 32'

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703.437.6600

CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

STATE PROJ.: NO: Project Number

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KEY PLAN

REVISIONS

MARK	DATE	ISSUE
5	07/21/2022	IFC Changes

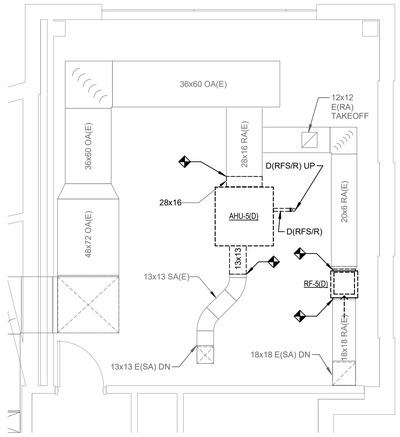
ISSUES

DATE	ISSUE
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07.21.2022	IFC DOCUMENTS

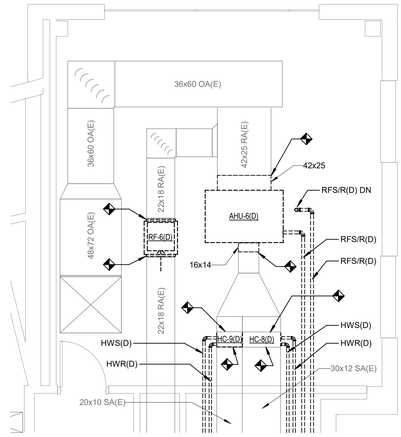
MECHANICAL NEW WORK - SECOND FLOOR PLAN - PIPING - ADD-ALT

M-412

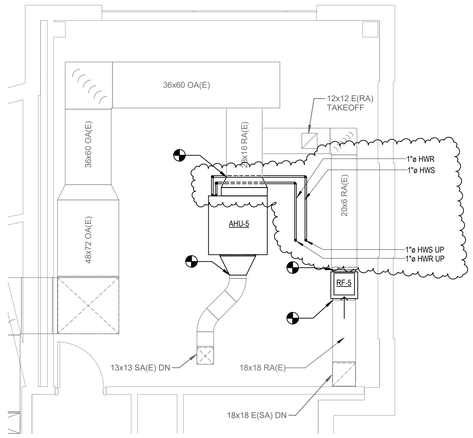
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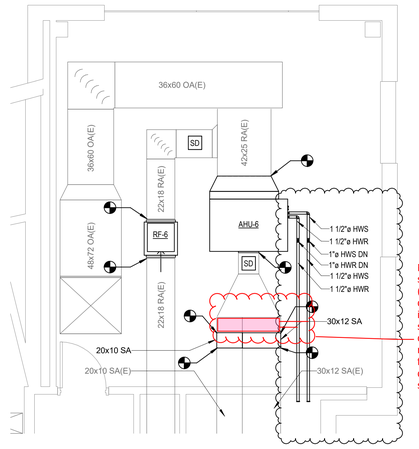
1 MECHANICAL DEMOLITION - SECOND FLOOR EQUIPMENT PLATFORM LOWER PLAN - ADD-ALTERNATE
1/4" = 1'-0"



2 MECHANICAL DEMOLITION - SECOND FLOOR EQUIPMENT PLATFORM UPPER PLAN - ADD-ALTERNATE
1/4" = 1'-0"



3 MECHANICAL NEW WORK - SECOND FLOOR EQUIPMENT PLATFORM LOWER PLAN - ADD-ALTERNATE
1/4" = 1'-0"



New Re-Heat Coil & Associated strainer, balance, and control valve (this location may vary slightly based on field conditions). The existing duct is 50x20" immediately upstream of the split/transitions. The intent is to add one HW coil upstream of the split and reuse as much of the existing duct and fittings as possible. New piping connections will need to be added with shutoff valves.

4 MECHANICAL NEW WORK - SECOND FLOOR EQUIPMENT PLATFORM UPPER PLAN - ADD-ALTERNATE
1/4" = 1'-0"

HOT WATER COIL SCHEDULE

CFM	EAT (Fdb)	LAT (Fdb)	THC (MBH)	APD (in H2O)	GPM	EWT (F)	LWT (F)	WPD (ft H2O)	FACE VEL (fpm)	COIL AREA (sqft)	COIL WIDTH	COIL HEIGHT
3670	54	90	142.7	0.2	14.27	180	160	5	525	6.99	50	20

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CSM PE BUILDING REFURBISHMENT

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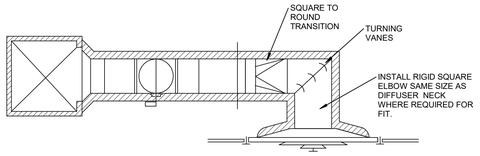
ISSUES

DATE	ISSUE
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MECHANICAL ENLARGED PLANS - ADD ALT

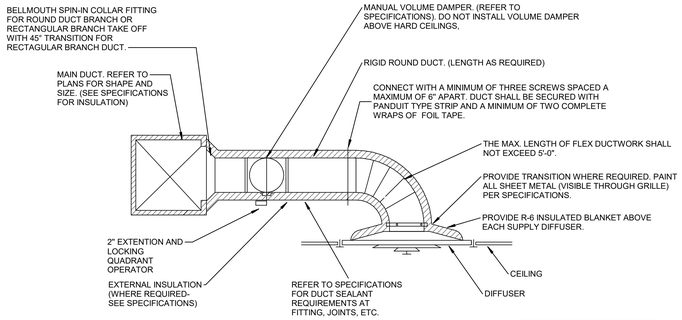
M-501

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PLAN VIEW REPRESENTATION



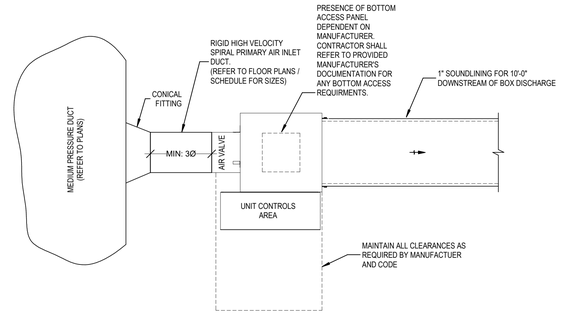
MANUAL VOLUME DAMPER NOT REQUIRED FOR EXHAUST AIR DUCTS USED FOR TRANSFER AIR OR RETURN AIR DUCTS.

NOTE- SUPPORT DUCTWORK, DIFFUSERS, ETC. INDEPENDENTLY OF CEILING SYSTEM.



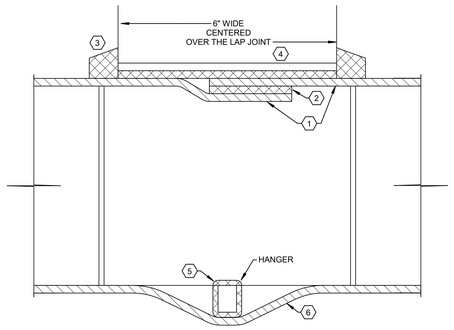
PLAN VIEW REPRESENTATION

1 TYPICAL BRANCH DUCT DETAIL
SCALE: NONE



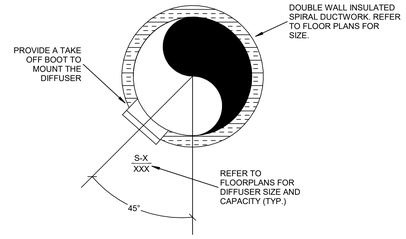
NOTES:
1. BRANCH DUCT SIZE TO MATCH UNIT INLET CONNECTION. FOR BRANCH DUCTS OVER SIX FEET IN LENGTH, INCREASE BRANCH DUCT ONE SIZE AND PROVIDE TRANSITION IMMEDIATELY UPSTREAM OF MINIMUM STRAIGHT DUCT RUN.
2. REFER TO SPECIFICATIONS FOR FURTHER INFORMATION.

2 SINGLE DUCT SHUTOFF VAV DETAIL
SCALE: NONE

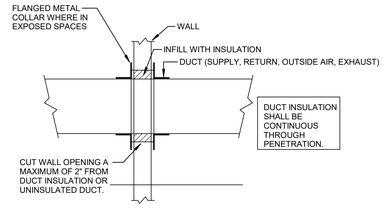


1. THE INSULATION SHALL BE PRE CUT BY THE MANUFACTURER OR FIELD CUT TO PROVIDE A MINIMUM 2 INCH FACING OVERLAP AT BUTT JOINTS. TRANSVERSE AND LOGITUDINAL EDGES SHALL BE TIGHTLY BUTTED.
2. THE APPROVED ADHESIVES/SEALANT SHALL SECURE THE LAP JOINT MATERIAL TO THE ADJACENT INSULATION.
3. ALL JOINTS AND OVERLAP SHALL BE COVERED WITH AN APPROVED ADHESIVE/SEALANT WHICH IS CONTINUOUS AND SHALL EXTEND A MINIMUM OF 1 INCH BEYOND THE EDGE OF THE PRESSURE SENSITIVE TAPE IN EACH DIRECTION. ADHESIVE/SEALANT CAN BE APPLIED BY EITHER BRUSH OR SPRAY AT THE CONTRACTOR'S OPTION.
4. PROVIDE A MINIMUM 6 INCH WIDE PRESSURE SENSITIVE TAPE ON TOP OF THE APPROVED ADHESIVE/SEALANT TO COVER ALL JOINTS AND OVERLAP. THE 6" WIDE PRESSURE SENSITIVE TAPE SHALL BE CENTERED OVER THE LAP JOINT. PRESSURE SENSITIVE TAPE SHALL BE APPLIED WITH MOVING PRESSURE USING A SQUEEGEE OR OTHER APPROPRIATE SEALING TOOL AS RECOMMENDED BY THE INSTALLATION MANUFACTURER TO PREVENT "FISH-MOUNTING" OR CREATING AN AIR POCKET BENEATH THE TAPE.
5. INSULATION SHALL BE CONTINUOUS OVER HANGERS. IN ORDER TO MAINTAIN THE PERFORMANCE INTEGRITY OF OF THE INSULATION VAPOR BARRIER, PENETRATIONS AND DAMAGE TO THE DUCT WRAP INSULATION FACING SHALL BE SEALED OR OTHERWISE REPAIRED USING PRESSURE SENSITIVE TAPE MATCHING THE DUCT WRAP INSULATION FACING. THE APPROVED ADHESIVE/SEALANT SHALL BE CONTINUOUS AND EXTEND A MINIMUM OF 1 INCH BEYOND THE EDGE OF THE PRESSURE SENSITIVE TAPE IN EACH DIRECTION. PRESSURE SENSITIVE TAPE SHALL BE A MINIMUM OF 3 INCHES WIDE AND SHALL BE APPLIED WITH MOVING PRESSURE USING A SQUEEGEE OR OTHER APPROPRIATE SEALING TOOL AS RECOMMENDED BY THE INSULATION MANUFACTURER TO PREVENT CREATING AN AIR POCKET BENEATH THE TAPE.
6. DUCT WRAP INSULATION SHALL BE SECURED TO THE BOTTOM OF THE DUCT WITH APPROVED MECHANICAL FASTENERS SUCH AS STICK PINS OR WELD PINS ON 18 INCH CENTERS ALONG A LINE 3 INCHES FROM THE LEADING EDGE OF THE INSULATION. CONTRACTOR'S OPTION FOR DUCTWORK LESS THAN INCHES IN WIDTH - IN LIEU OF MECHANICAL FASTENERS, THE DUCT WRAP INSULATION SHALL BE SECURED TO THE DUCTS WITH A BENJAMIN FOSTER NO. 85-60 ADHESIVE APPLIED IN 6 INCH WIDE STRIPS ON 12 INCH CENTERS.
7. INSULATION REFERS TO THE COMPLETE INSULATION SYSTEM; INCLUDING BUT NOT LIMITED TO INSULATION, FACING,TAPES, ADHESIVES, MASTICS, FASTENERS, ATTACHMENT DEVICES, AND OTHER MATERIALS REQUIRED FOR A COMPLETE INSTALLATION. INSULATION SHALL BE INSTALLED IN ACCORDANCE WITH THE INSULATION MANUFACTURER'S RECOMMENDATIONS. INSULATION AS INSTALLED ON THIS PROJECT SHALL FORM A CONTINUOUS THERMAL VAPOR BARRIER TO MINIMIZE HEAT TRANSFER AND PREVENT CONDENSATION AND MOISTURE SWEATING FROM FORMING ON THE INTERIOR AND EXTERIOR SURFACES OF THE DUCTWORK AND DUCTWORK INSULATION. INSULATION DAMAGED BY CONDENSATION OR MOISTURE SHALL BE REPLACED AT NO ADDITIONAL COST TO THE OWNER.
8. DUCT WRAP INSULATION SHALL BE APPLIED ON CLEAN, DRY SURFACES ONLY AFTER DUCT LEAK TESTS AND INSPECTIONS HAVE BEEN COMPLETED.
9. ALL DUCT WRAP INSULATION SHALL BE CONTINUOUS THROUGH ALL WALL AND SLAB PENETRATIONS EXCEPT AT FIRE DAMPERS. INSULATION SHALL BE APPLIED TO ALL SIDES OF DUCTWORK.
10. THE USE OF STAPLES SHALL NOT BE ACCEPTABLE.
11. AVOID OVER COMPRESSION OF THE INSULATION DURING INSTALLATION AND AVOID DAMAGE TO THE DUCT WRAP INSULATION. INSULATION SHALL NOT BE COMPRESSED BEYOND 25% OF ITS NOMINAL THICKNESS. INSULATION SHALL BE INSTALLED WITH FACING ON THE OUTSIDE SURFACE.

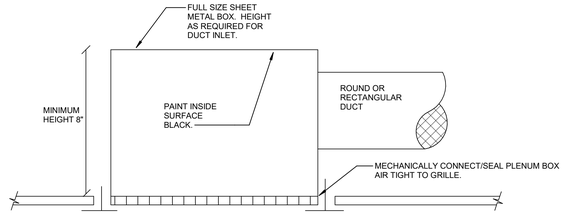
3 TYPICAL DUCT WRAP INSULATION INSTALLATION DETAIL
SCALE: NONE



4 SIDEWALL DIFFUSER DUCT TAKEOFF DETAIL
SCALE: NONE



5 DUCT PENETRATION THRU NON-RATED WALL DETAIL
SCALE: NONE



DETAIL NOTES:
1. PROVIDE MANUAL VOLUME DAMPER IN ALL BRANCH RETURN AND EXHAUST DUCTS SERVING RETURN/EXHAUST GRILLES.

6 DUCTED RETURN/EXHAUST AIR GRILLE DETAIL
SCALE: NONE

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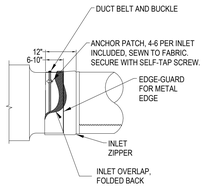
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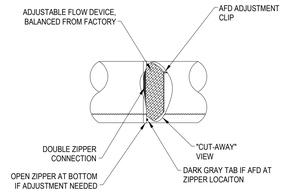
MECHANICAL DETAILS

M-601

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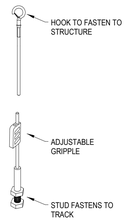


ATTACHMENT TO METAL DUCT DETAIL

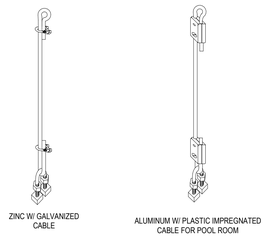


ADJUSTABLE FLOW DEVICE (AFD) DETAIL

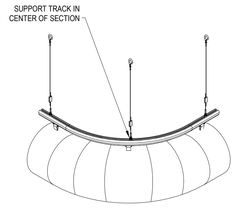
INSTALLED AT ZIPPER LOCATION AT INLET OR AS SPECIFIED IN OTHER LOCATIONS. ZIPPER TO ZIPPER CONNECTION AS SHOWN. EXTERNAL LABEL IDENTIFIES LOCATION.



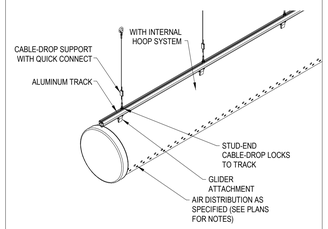
FABRIC DUCT TRACK HANGER DETAIL



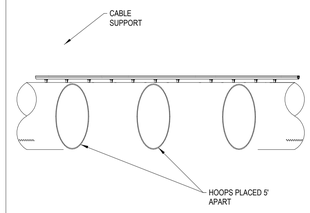
FABRIC DUCT TRACK HANGER DETAIL



FABRIC DUCT RADIUS ELBOW SUSPENSION DETAIL



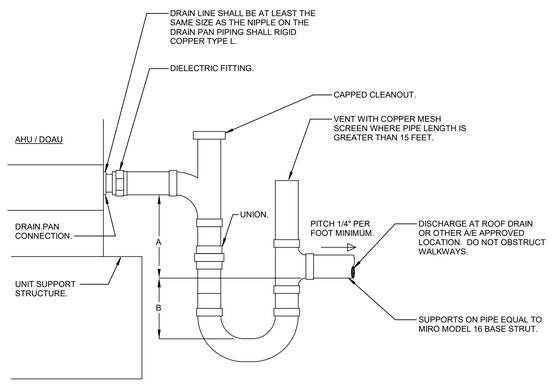
SUSPENSION DETAIL



CUT AWAY VIEW OF INTERNAL HOOP SYSTEM

7 FABRIC DUCT DETAIL

SCALE: NONE



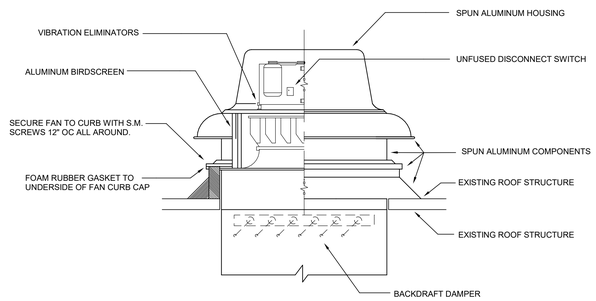
UNIT TYPE	A	B
DRAW THRU	2" PLUS X	X
BLOW THRU	1" MINIMUM	2X

WHERE X = STATIC PRESSURE IN PAN

DETAIL NOTES:
1. DIELECTRIC FITTING TO BE USED WHEN TWO DISSIMILAR METALS ARE TO BE CONNECTED.

8 CONDENSATE TRAP DETAIL

SCALE: NONE



NOTE: CURBS AND FANS SHALL BE FROM THE SAME MANUFACTURER.

9 ROOF MOUNTED EXHAUST FAN DETAIL

SCALE: NONE

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CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

STATE PROJ. NO. Project Number

SEAL

KEY PLAN

REVISIONS

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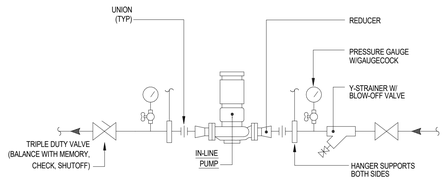
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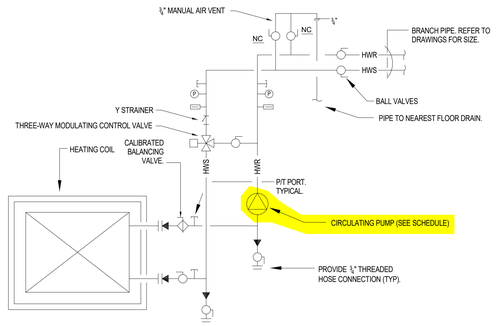
MECHANICAL DETAILS

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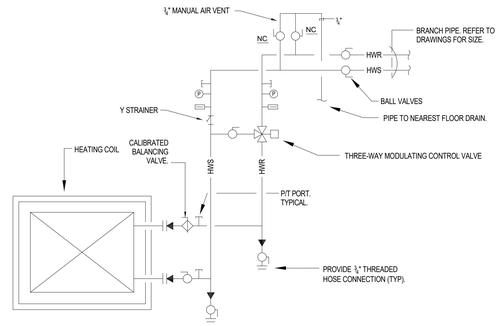
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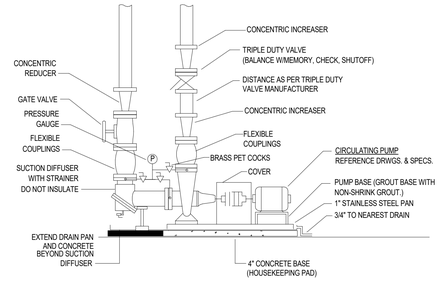
10 IN-LINE PUMP DETAIL
SCALE: NONE



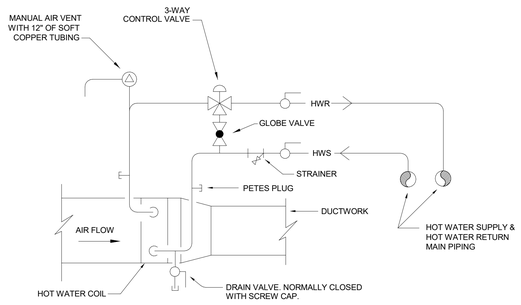
11 HOT WATER COIL CONNECTION WITH CIRCULATING PUMP DETAIL
SCALE: NONE



12 TYPICAL HOT WATER COIL CONNECTION DETAIL
SCALE: NONE



13 BASE MOUNTED PUMP DETAIL
SCALE: NONE



14 VAV HW THREE-WAY VALVE PIPING CONNECTION DETAIL
SCALE: NONE

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MECHANICAL DETAILS

M-603

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BASE BID EQUIPMENT SCHEDULES

23.74.16 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS - PART 1

			SUPPLY AIR FAN								EXHAUST AIR FAN								ENERGY RECOVERY PERFORMANCE									DX EVAP COIL		HEAT PUMP PERFORMANCE									
																														NET COOLING PERFORMANCE							HEATING PERFORMANCE			
MARK	MANUFACTURER	MODEL	CFM	OA CFM	# OF FANS	RPM	ESP (IN WG)	HP	VOLT.	Φ	VFD	CFM	# OF FANS	RPM	ESP (IN WG)	HP	VOLT.	Φ	VFD	DESIGN OA (CFM)	DESIGN EXH (CFM)	TOT CLG (MBH)	SENS CLG (MBH)	HTG (MBH)	CLG MIXED AIR LAT (°F)	HTG MIXED AIR LAT (°F)	AIR PRESS. DROP (in. W.C.)	TOTAL CLG EFFECTIVENESS	SENS CLG EFFECTIVENESS	HTG EFFECTIVENESS	# OF ROWS	FPI	TOTAL (MBH)	SEN (MBH)	COIL EAT DB	COIL EAT WB	COIL LAT DB	COIL LAT WB	OA DESIGN DB	OA DESIGN WB	FACE VELOCITY (FPM)	CAPACITY (MBH)	EAT DB	LAT DB	OA DESIGN DB
RTU-1A	DAIKIN	DPS003A	900	400	1	1458	0.5	1.3	460 V	3	Yes								No											3	16	33.7	25.2	79	66	54	54	95	78	186.3	17.7	57	75	10
RTU-1B	DAIKIN	DPS005A	900	340	1	1093	0.5	4	460 V	3	Yes								No											4	14	67.3	36.5	90	75	53	53	95	78	149.0	47.6	47	96	40
RTU-2	DAIKIN	DPSA050	14000	7000	2	1856	3.0	11.6 EA	460 V	3	Yes	12900	2	1410	1.0	5 EA	460 V	3	Yes	11000	9900	305.3		539.9	81.8	51.3	0.64	0.53		0.65	4	14	587.9	385.2	82	70	57	57	95	78	395.5	0	0		0
RTU-3	DAIKIN	DPSA050	14000	7000	2	1856	3.0	11.6 EA	460 V	3	Yes	12900	2	1410	1.0	5 EA	460 V	3	Yes	11000	9900	305.3		539.9	81.8	51.3	0.64	0.53		0.65	4	14	587.9	385.2	82	70	57	57	95	78	395.5	0	0		
RTU-7	DAIKIN	DPS016A	4500	4500	1	3040	2.0	7.5	460 V	3		4800	1	1483	2.0	8	460 V	3	Yes	4500	4800	184.5		272.6	80.1	53.6	0.59	.69	.72	.68	4	15	178.2	126.2	80	67	54	54	95	78	238.1	95.7	54	73	10

23.74.16 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS - PART 2

			AUXILIARY HYDRONIC HEATING COIL										HGRN CAPACITY (MBH)	DEHUMID CAPACITY (LB/HR)	FILTERS							ELECTRICAL						DIMENSIONAL DATA				
					EAT		LAT		OA DESIGN						PRE-FILTERS				FINAL FILTERS													
MARK	MANUFACTURER	MODEL	CONTROL	CAPACITY (MBH)	DB	WB	DB	WB	DB	EWT	LWT	GPM	PD (FT. HD)			TYPE	EFFICIENCY	VELOCITY	QTY	TYPE	EFFICIENCY	VELOCITY	QTY	VOLTAGE	Φ	Hz	FLA	MCA	MOCP	LENGTH	WIDTH	HEIGHT	WEIGHT	COMMENTS
RTU-1A	DAIKIN	DPS003A	3-WAY	30.8	57		55	54		180	160	3.1	.2	15.8	7.3		MERV-8				MERV-14			460 V	3	60 Hz	5 A	6 A	15	5'-7"	7'-3"	3'-5"	1,283 lb	
RTU-1B	DAIKIN	DPS005A	3-WAY	74.0	25		55	54		180	160	7.4	1.6	18.5	26.0		MERV-8				MERV-14			460 V	3	60 Hz	10 A	12 A	15	5'-7"	7'-3"	3'-5"	1,387 lb	
RTU-2	DAIKIN	DPSA050	3-WAY	428.2	59		87	58		180	162.0	47.5	9.0	282	153.3		MERV-8				MERV-13			460 V	3	60 Hz		132 A	150	28'-1"	8'-1"	6'-6"	8,949 lb	PROVIDE WITH HW CIRC PUMP EQUIVALENT TO BELL & GOSSETT e-80 3x3x7C, 47.5 GPM, 10 FT. HD, 0.5 HP
RTU-3	DAIKIN	DPSA050	3-WAY	428.2	59		87	58		180	162.0	47.5	9.0	282	153.3		MERV-8				MERV-13			460 V	3	60 Hz		132 A	150	28'-1"	8'-1"	6'-6"	8,949 lb	PROVIDE WITH HW CIRC PUMP EQUIVALENT TO BELL & GOSSETT e-80 3x3x7C, 47.5 GPM, 10 FT. HD, 0.5 HP
RTU-7	DAIKIN	DPS016A	3-WAY	164.0	52		57	55		180	160.3	18.0	1.8	76.1	44.9									460 V	3	60 Hz	43 A	49 A	70	15'-2"	6'-5"	6'-11"	4,105 lb	

23.37.13 - DIFFUSERS, REGISTERS, AND GRILLES

MARK	MANUFACTURER	MODEL #	TYPE	GRILLE SIZE	INLET SIZE	MAX CFM	MAX PD	MAX NC	THROW	REMARKS
R-1	TITUS	350 FL		24"x24"	12"x12"					
R-2	TITUS	350 FL		24"x24"	20"x20"					
R-5	TITUS	350 FL		12"x10"	12"x10"					
S-1	TITUS	TDC		24"x24"	6"					
S-2	TITUS	TDC		24"x24"	8"					
S-3	TITUS	TDC		24"x24"	12"x12"					
S-5	TITUS	TMRA-AA		16"	8"					

23.36.13 - SINGLE DUCT ATUs W/ HYDRONIC HEATING COILS

				AIR FLOW DAMPER		VOLUME DAMPER	HOT WATER COIL						
MARK	MANUFACTURER	MODEL	INLET SIZE	MIN	MAX	MAX LEAKAGE @ 4.0"	EAT [°F DB]	LAT [°F DB]	EWT [°F]	LWT [°F]	GPM	WATER PD [FT.]	CAPACITY [MBH]	REMARKS
VAV-1-7-19	PRICE	SDV	8"	125	1100	0.01	55	90	180	160	0.5	0.20	9.8	
VAV-1-7-20	PRICE	SDV	8"	125	1100	0.01	55	90	180	160	0.5	0.20	9.8	
VAV-1-7-21	PRICE	SDV	12"	300	2600	0.01	55	90	180	160	2	0.50	30.3	
VAV-1-7-22	PRICE	SDV	12"	300	2600	0.01	55	90	180	160	2	0.50	29.1	
VAV-1-7-23	PRICE	SDV	10"	210	1800	0.01	55	90	180	160	1	0.12	17.0	

ADD-ALTERNATE EQUIPMENT SCHEDULES

23.74.16 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS (ADD-ALT) - PART 1

			SUPPLY AIR FAN								EXHAUST AIR FAN								ENERGY RECOVERY PERFORMANCE									DX EVAP COIL		HEAT PUMP PERFORMANCE									
																														NET COOLING PERFORMANCE							HEATING PERFORMANCE			
MARK	MANUFACTURER	MODEL	CFM	# OF FANS	RPM	ESP (IN WG)	HP	VOLT.	Φ	VFD	CFM	# OF FANS	RPM	ESP (IN WG)	HP	VOLT.	Φ	VFD	DESIGN OA (CFM)	DESIGN EXH (CFM)	TOT CLG (MBH)	SENS CLG (MBH)	HTG (MBH)	CLG MIXED AIR LAT (°F)	HTG MIXED AIR LAT (°F)	AIR PRESS. DROP (in. W.C.)	TOTAL CLG EFFECTIVENESS	SENS CLG EFFECTIVENESS	HTG EFFECTIVENESS	# OF ROWS	FPI	TOTAL (MBH)	SEN (MBH)	COIL EAT DB	COIL EAT WB	COIL LAT DB	COIL LAT WB	OA DESIGN DB	OA DESIGN WB	FACE VELOCITY (FPM)	CAPACITY (MBH)	EAT DB	LAT DB	OA DESIGN DB
RTU-4	DAIKIN	DPS004A	1400	1	2059	2.5	2.3	460 V	3																					4	16	48.7	36.4	79	67	56	56			289.9	23.4	57	72	10
RTU-8	DAIKIN	DPS012A	3800	1	1538	2.7	4.0	460 V	3																					4	15	142.7	103.4	78	66	54	54			246.3	77.2	45	64	10

23.74.16 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS (ADD-ALT) - PART 2

			AUXILIARY HYDRONIC HEATING COIL										HGRN CAPACITY (MBH)	DEHUMID CAPACITY (LB/HR)	FILTERS							ELECTRICAL						DIMENSIONAL DATA				
					EAT		LAT		OA DESIGN						PRE-FILTERS				FINAL FILTERS													
MARK	MANUFACTURER	MODEL	CONTROL	CAPACITY (MBH)	DB	WB	DB	WB	DB	EWT	LWT	GPM	PD (FT. HD)			TYPE	EFFICIENCY	VELOCITY	QTY	TYPE	EFFICIENCY	VELOCITY	QTY	VOLTAGE	Φ	Hz	FLA	MCA	MOCP	LENGTH	WIDTH	HEIGHT	WEIGHT	COMMENTS
RTU-4	DAIKIN	DPS004A												25.0	10.6		MERV-8				MERV-14			460 V	3	60 Hz	7 A	8 A	15	5'-7"	7'-3"	3'-5"	1,302 lb	
RTU-8	DAIKIN	DPS012A												76.2	34.0		MERV-8				MERV-14			460 V	3	60 Hz	21 A	23 A	30	7'-7"	8'-1"	4'-9"	2,277 lb	

23.81.26 - SPLIT SYSTEM INDOOR UNIT SCHEDULE

					AIRFLOW (CFM)	E.S.P. (IN WC)	COOLING CAPACITY					SECONDARY COIL (HW HEATING)					DIMENSIONS (IN)				ELECTRICAL					
MARK	MANUFACTURER	MODEL	LOCATION	TYPE			EAT (°Fdb)	EAT (°Fwb)	TOTAL (MBH)	SENSIBLE (MBH)	FILTER	EWT (DEG F)	LWT (DEG F)	FLOWRATE (GPM)	PD (FT HD)	HTG CAPACITY	LENGTH	WIDTH	HEIGHT	WEIGHT (LBS)	VOLTAGE	Φ	Hz	FLA	MCA	MOCP
AC-1	DAIKIN	FAQ18TAVJU	EMR 102	WALL-MOUNTED	500		87	60	18.0								41 3/8	9 1/4	11 3/8	31	208 V	1	60 Hz	0.4 A	0.5 A	15
AC-2	DAIKIN	FAQ18TAVJU	IDF 131	WALL-MOUNTED	500		87	60	18.0								41 3/8	9 1/4	11 3/8	31	208 V	1	60 Hz	0.4 A	0.5 A	15
AC-3	DAIKIN	FAQ18TAVJU	ELEC 121	WALL-MOUNTED	500		87	60	18.0								41 3/8	9 1/4	11 3/8	31	208 V	1	60 Hz	0.4 A	0.5 A	15
AHU-5	DAIKIN	BCHD0161	MECH PENTHOUSE	VRV BLOWER COIL	1200	1.00	79.3	65.4	47.7	34.9	MERV 13	180	160	6.8	13.3	66.2	46	45 1/2	18	469	277 V	1	60 Hz	7.0 A	7.8 A	15
AHU-6	DAIKIN	BCHD0501	MECH PENTHOUSE	VRV BLOWER COIL	3600	1.50	79.7	67.0	162.4	106.3	MERV 13	180	160	21.7	35.2	210.9	41	61	32	823	460 V	3	60 Hz	6.6 A	8.2 A	15

23.36.13 - SINGLE DUCT ATUs W/ HYDRONIC HEATING COILS (ADD ALT)

				AIR FLOW DAMPER		VOLUME DAMPER	HOT WATER COIL						
MARK	MANUFACTURER	MODEL	INLET SIZE	MIN	MAX	MAX LEAKAGE @ 4.0"	EAT [°F DB]	LAT [°F DB]	EWT [°F]	LWT [°F]	GPM	WATER PD [FT.]	CAPACITY [MBH]	REMARKS
VAV-1-5-4	PRICE	SDV	6"	65	550	0.01	55	90	180	160	1	0.14	16.7	
VAV-1-5-5	PRICE	SDV	4"	45	400	0.01	55	90	180	160	2	1.73	8.6	
VAV-1-5-6	PRICE	SDV	6"	65	550	0.01	55	90	180	160	1	0.14	16.0	
VAV-2-4-1	PRICE	SDV	12"	300	2600	0.01	55	90	180	160	2	0.50	27.7	
VAV-2-4-2	PRICE	SDV	6"	65	550	0.01	55	90	180	160	0.5	0.14	8.2	
VAV-2-8-10	PRICE	SDV	9"	160	1400	0.01	55	90	180	160	2	0.42	17.6	
VAV-2-8-12	PRICE	SDV	8"	125	1100	0.01	55	90	180	160	0.5	0.20	10.4	
VAV-2-8-13	PRICE	SDV	6"	65	550	0.01	55	90	180	160	0.5	0.14	8.8	
VAV-2-8-14	PRICE	SDV	7"	95	800	0.01	55	90	180	160	1	0.68	13.1	
VAV-2-8-15	PRICE	SDV	7"	95	800	0.01	55	90	180	160	1	0.68	11.1	
VAV-2-8-17	PRICE	SDV	8"	125	1100	0.01	55	90	180	160	0.5	0.20	15.0	
VAV-2-8-18	PRICE	SDV	9"	160	1400	0.01	55	90	180	160	2	0.68	19.0	

23.81.26 - SPLIT SYSTEM OUTDOOR UNIT SCHEDULE

				MAX. PIPING LENGTH (FT)		DIMENSIONS				ELECTRICAL					
MARK	MANUFACTURER	MODEL	LOCATION		EER	LENGTH (IN)	WIDTH (IN)	HEIGHT (IN)	WEIGHT (LBS)	VOLTAGE	Φ	Hz	FLA	MCA	MOCP
CU-1	DAIKIN	RZR18TAVJUA	ROOF	230	13.0	37	12 5/8	39	172	208 V	1	60 Hz	16 A	17 A	25
CU-2	DAIKIN	RZR18TAVJUA	ROOF	230	13.0	37	12 5/8	39	172	208 V	1	60 Hz	16 A	17 A	25
CU-3	DAIKIN	RZR18TAVJUA	ROOF	230	13.0	37	12 5/8	39	172	208 V	1	60 Hz	16 A	17 A	25
CU-5	DAIKIN	RXTQ48TAVJUA	ROOF	50		37	12 5/8	39	176	208 V	1	60 Hz	19 A	29 A	35
CU-6	DAIKIN	RXYQ144XAYDA	ROOF	50	11.5	49	30	67	710	460 V	3	60 Hz	15 A	26 A	35

NOTE: PROVIDE CONDENSING UNITS WITH ISOLATION RAILS.

23.34.23 - HVAC ELECTRIC FANS

									ELECTRICAL						
MARK	MANUFACTURER	MODEL	DESCRIPTION	AIR FLOW	E.S.P.	MOTOR HP	DRIVE	RPM	SONES	VOLTAGE	Φ	Hz	FLA	MCA	MOCP	REMARKS
EF-3	Greenheck	CUE-090-D	Direct Drive Upblast Centrifugal Roof Exhaust Fan	300	0.50	0.07	DIRECT	1550	8.0	115 V	1	60 Hz				
EF-5	Greenheck	CUE-080-E	Direct Drive Upblast Centrifugal Roof Exhaust Fan	200	0.50	0.05	DIRECT	1550	7.7	115 V	1	60 Hz				
EF-6	Greenheck	CUBE-100HP	Belt Drive Upblast Centrifugal Roof Exhaust Fan	200	0.75	0.25	BELT	1429	6.3	115 V	1	60 Hz	6 A			
EF-8	Greenheck	CUBE-100HP	Belt Drive Upblast Centrifugal Roof Exhaust Fan	420	0.75	0.25	BELT	1608	7.9	115 V	1	60 Hz	6 A			
RF-5	Greenheck	BSQ-130HP	Rectangular Inline Duct Fan	920	1.50	0.75	BELT	1918	13.0	460 V	3	60 Hz	1 A			
RF-6	Greenheck	BSQ-160	Rectangular Inline Duct Fan	3300	1.00	1.50	BELT	1430	17.2	460 V	3	60 Hz	3 A			

NOTE: PROVIDE FANS WITH FACTORY-MOUNTED DISCONNECTS.

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CSM PE BUILDING REFURBISHMENT

PROJECT ADDRESS: COLLEGE OF SOUTHERN MARYLAND WELLNESS CENTER LA PLATA, MD 20646

OWNER: COLLEGE OF SOUTHERN MARYLAND

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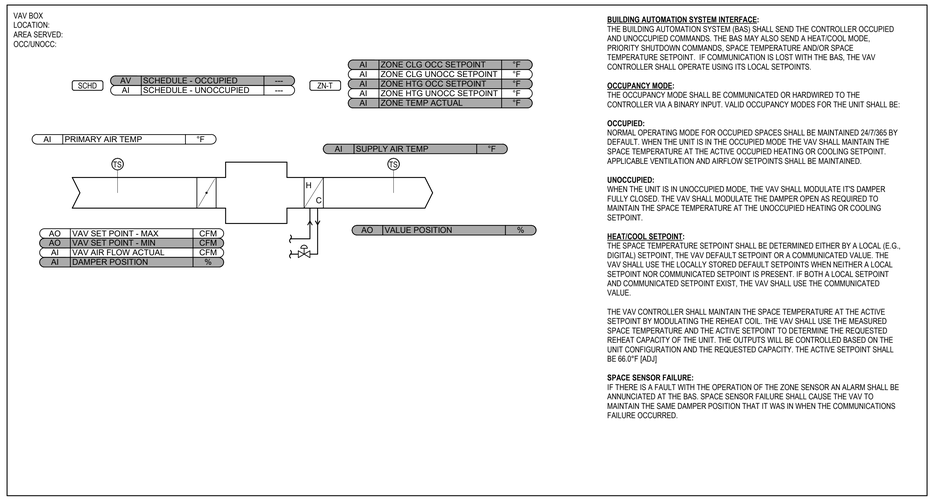
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MECHANICAL SCHEDULES

M-701

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BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED AND UNOCCUPIED COMMANDS. THE BAS MAY ALSO SEND A HEAT/COOL MODE, PRIORITY SHUTDOWN COMMANDS, SPACE TEMPERATURE AND/OR SPACE TEMPERATURE SETPOINT. IF COMMUNICATION IS LOST WITH THE BAS, THE VAV CONTROLLER SHALL OPERATE USING ITS LOCAL SETPOINTS.

OCCUPANCY MODE:
THE OCCUPANCY MODE SHALL BE COMMUNICATED OR HARDWIRED TO THE CONTROLLER VIA A BINARY INPUT. VALID OCCUPANCY MODES FOR THE UNIT SHALL BE:

OCCUPIED:
NORMAL OPERATING MODE FOR OCCUPIED SPACES SHALL BE MAINTAINED 24/7/365 BY DEFAULT. WHEN THE UNIT IS IN THE OCCUPIED MODE THE VAV SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE OCCUPIED HEATING OR COOLING SETPOINT. APPLICABLE VENTILATION AND AIRFLOW SETPOINTS SHALL BE MAINTAINED.

UNOCCUPIED:
WHEN THE UNIT IS IN UNOCCUPIED MODE, THE VAV SHALL MODULATE IT'S DAMPER FULLY CLOSED. THE VAV SHALL MODULATE THE DAMPER OPEN AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE AT THE UNOCCUPIED HEATING OR COOLING SETPOINT.

HEAT/COOL SETPOINT:
THE SPACE TEMPERATURE SETPOINT SHALL BE DETERMINED EITHER BY A LOCAL (E.G., DIGITAL) SETPOINT, THE VAV DEFAULT SETPOINT OR A COMMUNICATED VALUE. THE VAV SHALL USE THE LOCALLY STORED DEFAULT SETPOINTS WHEN NEITHER A LOCAL SETPOINT NOR COMMUNICATED SETPOINT IS PRESENT. IF BOTH A LOCAL SETPOINT AND COMMUNICATED SETPOINT EXIST, THE VAV SHALL USE THE COMMUNICATED VALUE.

THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE SETPOINT BY MODULATING THE REHEAT COIL. THE VAV SHALL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE SETPOINT TO DETERMINE THE REQUESTED REHEAT CAPACITY OF THE UNIT. THE OUTPUTS WILL BE CONTROLLED BASED ON THE UNIT CONFIGURATION AND THE REQUESTED CAPACITY. THE ACTIVE SETPOINT SHALL BE 66.0°F [ADJ]

SPACE SENSOR FAILURE:
IF THERE IS A FAULT WITH THE OPERATION OF THE ZONE SENSOR AN ALARM SHALL BE ANNUNCIATED AT THE BAS. SPACE SENSOR FAILURE SHALL CAUSE THE VAV TO MAINTAIN THE SAME DAMPER POSITION THAT IT WAS IN WHEN THE COMMUNICATIONS FAILURE OCCURRED.

1 SINGLE DUCT ATU W/ HOT WATER REHEAT COIL
12" = 1'-0"

POINTS LIST - SINGLE DUCT ATU W/ HW REHEAT

POINT DESCRIPTION	HARDWARE				SOFTWARE					DEFAULT VALUE	GRAPHIC
	AI	AO	DI	DO	AV	DV	SCHED	TREND	ALARM		
DAMPER POSITION	•							•			•
PRIMARY AIR TEMP	•										
SCHEDULE - OCCUPIED					•		•				
SCHEDULE - UNOCCUPIED	•										
SUPPLY AIR TEMP	•							•	•		
VALUE POSITION		•									
VAV AIR FLOW ACTUAL	•							•			
VAV SET POINT - MAX		•									
VAV SET POINT - MIN		•									
ZONE CLG OCC SETPOINT	•						•				
ZONE CLG UNOCC SETPOINT	•						•				
ZONE HTG OCC SETPOINT	•						•				
ZONE HTG UNOCC SETPOINT	•						•				
ZONE TEMP ACTUAL	•							•			

BUILDING AUTOMATION SYSTEM INTERFACE:
THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED AND UNOCCUPIED COMMANDS. THE BAS MAY ALSO SEND A COOL MODE, PRIORITY SHUTDOWN COMMANDS, SPACE TEMPERATURE AND/OR SPACE TEMPERATURE SETPOINT. IF COMMUNICATION IS LOST WITH THE BAS, THE VAV CONTROLLER SHALL OPERATE USING ITS LOCAL SETPOINTS.

OCCUPANCY MODE:
THE OCCUPANCY MODE SHALL BE COMMUNICATED OR HARDWIRED TO THE CONTROLLER VIA A BINARY INPUT. VALID OCCUPANCY MODES FOR THE UNIT SHALL BE:

OCCUPIED:
NORMAL OPERATING MODE FOR OCCUPIED SPACES SHALL BE MAINTAINED 24/7/365 BY DEFAULT. WHEN THE UNIT IS IN THE OCCUPIED MODE THE VAV SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE OCCUPIED COOLING SETPOINT. APPLICABLE VENTILATION AND AIRFLOW SETPOINTS SHALL BE MAINTAINED.

UNOCCUPIED:
WHEN THE UNIT IS IN UNOCCUPIED MODE, THE VAV SHALL MODULATE IT'S DAMPER FULLY CLOSED. THE VAV SHALL MODULATE THE DAMPER OPEN AS REQUIRED TO MAINTAIN THE SPACE TEMPERATURE AT THE UNOCCUPIED HEATING OR COOLING SETPOINT.

COOL SETPOINT:
THE SPACE TEMPERATURE SETPOINT SHALL BE DETERMINED EITHER BY A LOCAL (E.G., DIGITAL) SETPOINT, THE VAV DEFAULT SETPOINT OR A COMMUNICATED VALUE. THE VAV SHALL USE THE LOCALLY STORED DEFAULT SETPOINTS WHEN NEITHER A LOCAL SETPOINT NOR COMMUNICATED SETPOINT IS PRESENT. IF BOTH A LOCAL SETPOINT AND COMMUNICATED SETPOINT EXIST, THE VAV SHALL USE THE COMMUNICATED VALUE.

SPACE SENSOR FAILURE:
IF THERE IS A FAULT WITH THE OPERATION OF THE ZONE SENSOR AN ALARM SHALL BE ANNUNCIATED AT THE BAS. SPACE SENSOR FAILURE SHALL CAUSE THE VAV TO MAINTAIN THE SAME DAMPER POSITION THAT IT WAS IN WHEN THE COMMUNICATIONS FAILURE OCCURRED.

2 SINGLE DUCT ATU COOLING ONLY
12" = 1'-0"

POINTS LIST - SINGLE DUCT ATU COOLING ONLY

POINT DESCRIPTION	HARDWARE				SOFTWARE					DEFAULT VALUE	GRAPHIC
	AI	AO	DI	DO	AV	DV	SCHED	TREND	ALARM		
DAMPER POSITION	•							•			•
PRIMARY AIR TEMP	•										
SCHEDULE - OCCUPIED					•		•				
SCHEDULE - UNOCCUPIED	•										
SUPPLY AIR TEMP	•							•	•		
VAV AIR FLOW ACTUAL	•							•			
VAV SET POINT - MAX		•									
VAV SET POINT - MIN		•									
ZONE CLG OCC SETPOINT	•						•				
ZONE CLG UNOCC SETPOINT	•						•				
ZONE TEMP ACTUAL	•							•			

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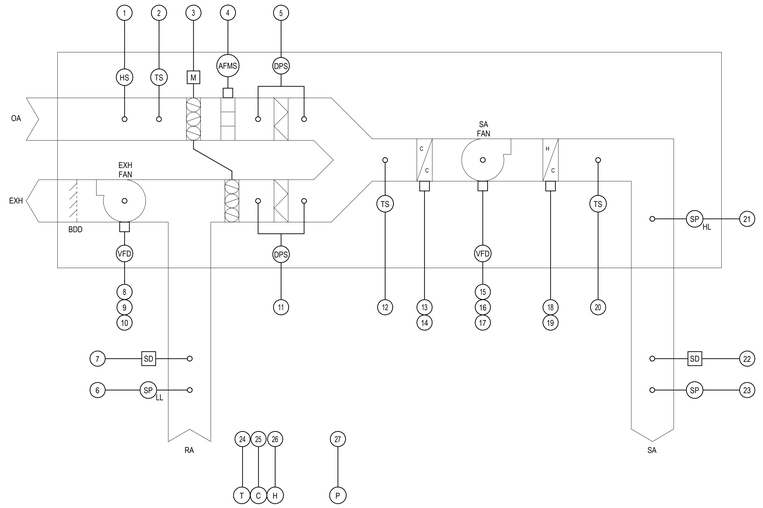
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MECHANICAL CONTROLS

M-801

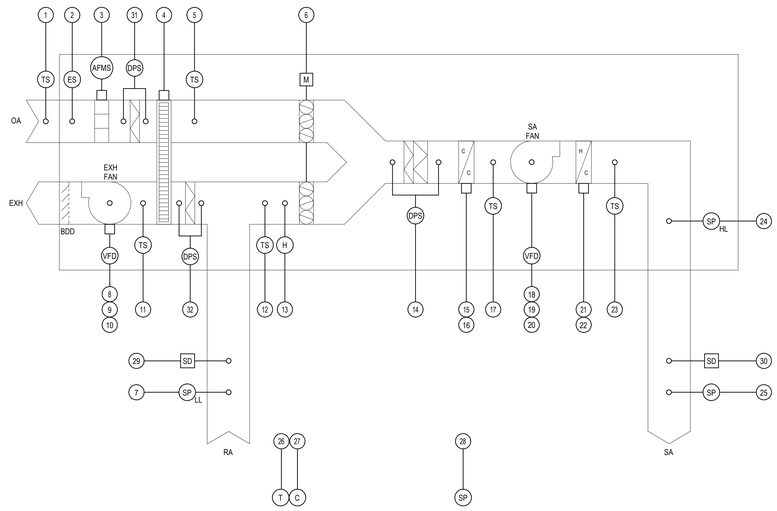
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POINTS LIST FOR RTU-								
#	DESCRIPTION	ANALOG INPUT	ANALOG OUTPUT	DIGITAL INPUT	DIGITAL OUTPUT	ALARM	TREND	GRAPHIC
1	OUTSIDE AIR HUMIDITY SENSOR (RH%)	●					●	●
2	OUTSIDE AIR TEMPERATURE SENSOR (°F)	●					●	●
3	ECONOMIZER DAMPER POSITION		●				●	●
4	OUTSIDE AIR AIRFLOW MONITORING STATION (CFM)	●					●	●
5	OUTSIDE AIR FILTER STATUS			●		●	●	●
6	DUCT STATIC PRESSURE LOW LIMIT SENSOR	●				●	●	●
7	RETURN DUCT SMOKE DETECTOR			●		●	●	●
8	EXHAUST FAN START/STOP				●		●	●
9	EXHAUST FAN VFD SPEED CONTROL		●				●	●
10	EXHAUST FAN VFD STATUS			●			●	●
11	RETURN AIR FILTER STATUS			●		●	●	●
12	MIXED AIR TEMPERATURE SENSOR (°F)	●					●	●
13	COMPRESSOR STAGING CONTROL		●				●	●
14	COMPRESSOR STATUS	●					●	●
15	SUPPLY FAN START/STOP				●		●	●
16	SUPPLY FAN VFD SPEED CONTROL		●				●	●
17	SUPPLY FAN VFD STATUS			●			●	●
18	HW HEATER ON/OFF				●		●	●
19	HW HEATER MODULATION CONTROL		●				●	●
20	SUPPLY AIR TEMPERATURE SENSOR (°F)	●					●	●
21	DUCT STATIC PRESSURE HIGH LIMIT SENSOR	●				●	●	●
22	SUPPLY DUCT SMOKE DETECTOR			●		●	●	●
23	SUPPLY DUCT STATIC PRESSURE SENSOR	●					●	●
24	SPACE TEMPERATURE SENSOR (°F)	●					●	●
25	SPACE CO2 SENSOR (PPM)	●				●	●	●
26	SPACE RELATIVE HUMIDITY SENSOR (RH%)	●					●	●
27	SPACE STATIC PRESSURE SENSOR	●					●	●

ALL POINTS LISTED ARE TO BE MONITORED THROUGH BACNET INTERFACE.

3 MULTI-ZONE VAV RTU CONTROL DIAGRAM AND POINTS LIST (RTU-1A, RTU-1B, RTU-4, RTU-8)
SCALE: NONE



POINTS LIST FOR RTU-								
#	DESCRIPTION	ANALOG INPUT	ANALOG OUTPUT	DIGITAL INPUT	DIGITAL OUTPUT	ALARM	TREND	GRAPHIC
1	OUTSIDE AIR TEMPERATURE SENSOR (°F)	●					●	●
2	OUTSIDE AIR ENTHALPY SENSOR	●					●	●
3	OUTSIDE AIR AIRFLOW MONITORING STATION (CFM)	●					●	●
4	ENERGY RECOVERY WHEEL START/STOP				●		●	●
5	SUPPLY LEAVING WHEEL TEMP SENSOR (°F)	●					●	●
6	ECONOMIZER DAMPER		●				●	●
7	LOW LIMIT DUCT STATIC PRESSURE SENSOR	●				●	●	●
8	EXHAUST FAN START/STOP				●		●	●
9	EXHAUST FAN VFD SPEED CONTROL		●				●	●
10	EXHAUST FAN VFD STATUS			●			●	●
11	EXHAUST AIR LEAVING WHEEL TEMP SENSOR (°F)	●					●	●
12	RETURN AIR TEMPERATURE SENSOR (°F)	●					●	●
13	RETURN AIR RELATIVE HUMIDITY SENSOR (%RH)	●					●	●
14	MIXED AIR FILTER STATUS			●		●	●	●
15	COMPRESSOR STAGING CONTROL		●				●	●
16	COMPRESSOR STATUS	●					●	●
17	LEAVING COIL/ENTERING FAN TEMP SENSOR (°F)	●					●	●
18	SUPPLY FAN START/STOP				●		●	●
19	SUPPLY FAN VFD SPEED CONTROL		●				●	●
20	SUPPLY FAN VFD STATUS			●			●	●
21	HW HEATER ON/OFF				●		●	●
22	HW HEATER MODULATION CONTROL		●				●	●
23	SUPPLY AIR TEMPERATURE SENSOR (°F)	●					●	●
24	HIGH LIMIT DUCT STATIC PRESSURE SENSOR	●				●	●	●
25	DUCT STATIC PRESSURE SENSOR	●					●	●
26	SPACE TEMPERATURE SENSOR (°F)	●						
27	SPACE CO2 SENSOR (PPM)	●				●	●	●
28	SPACE STATIC PRESSURE SENSOR	●					●	●
29	RETURN DUCT SMOKE DETECTOR			●		●	●	●
30	SUPPLY DUCT SMOKE DETECTOR			●		●	●	●
31	OUTSIDE AIR PRE-WHEEL FILTER STATUS			●		●	●	●
32	EXHAUST AIR PRE-WHEEL FILTER STATUS			●		●	●	●

ALL POINTS LISTED ARE TO BE MONITORED THROUGH BACNET INTERFACE.

4 MULTI-ZONE VAV RTU WITH ERW - CONTROL DIAGRAM AND POINTS LIST (RTU-2, RTU-3, RTU-7)
SCALE: NONE

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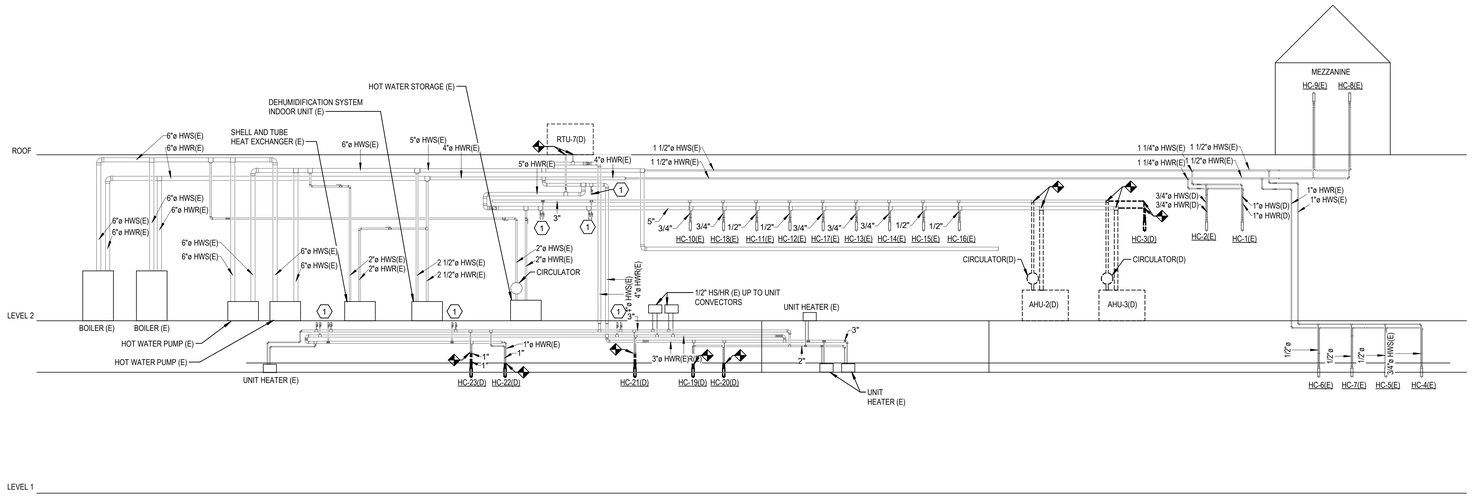
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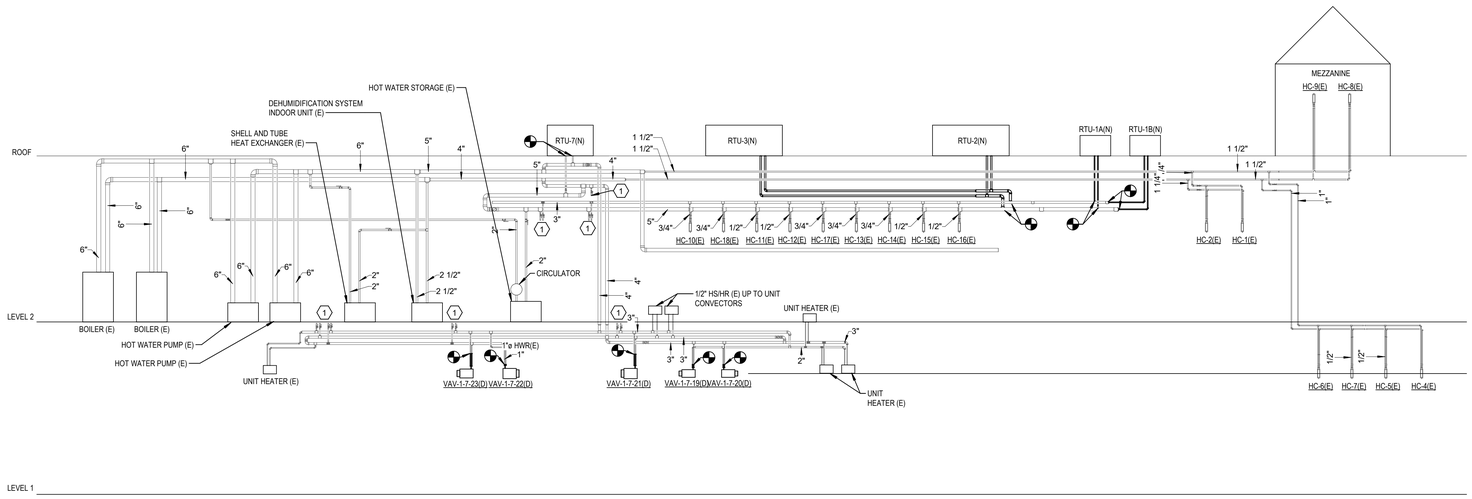
MECHANICAL CONTROLS

M-802

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1 MECHANICAL DEMOLITION - HOT WATER PIPING DIAGRAM
1/8" = 1'-0"



2 MECHANICAL NEW WORK - HOT WATER PIPING DIAGRAM
1/8" = 1'-0"

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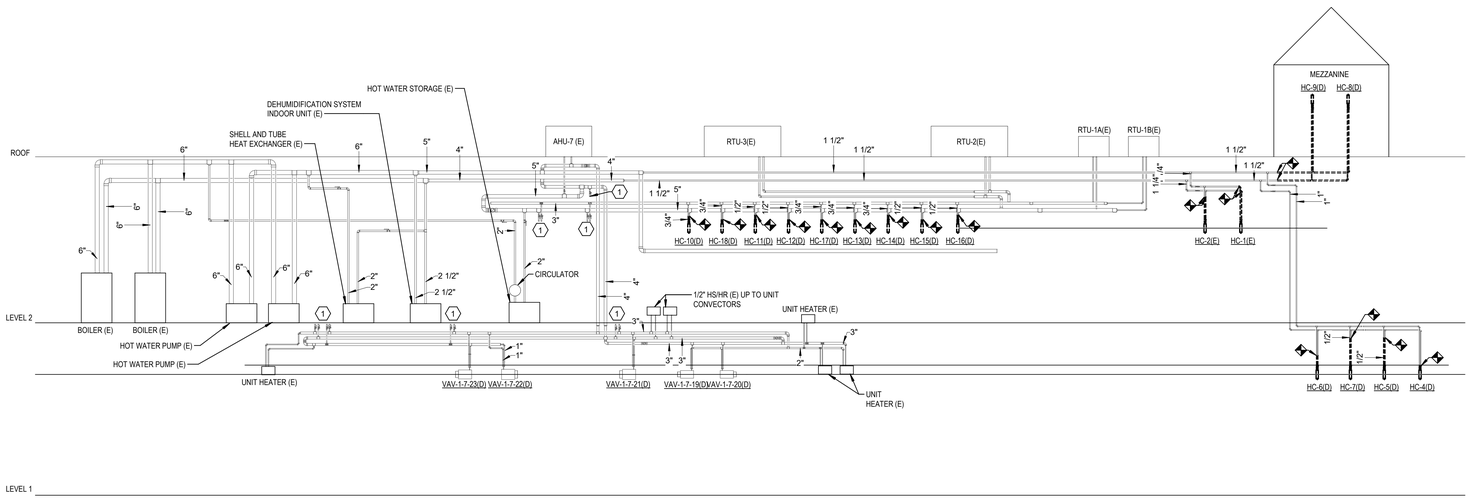
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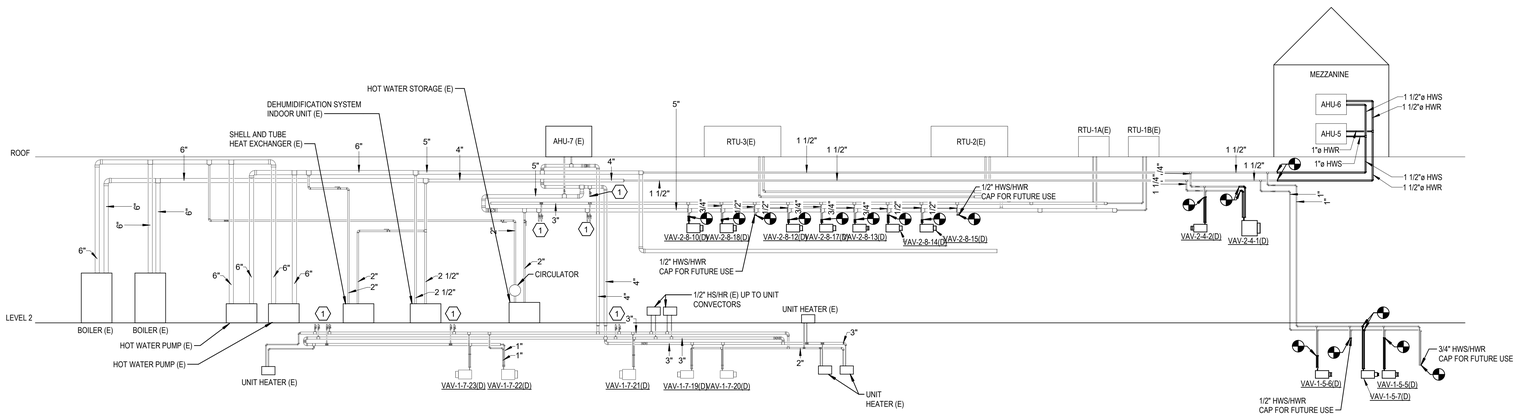
MECHANICAL BASE BID - HOT WATER PIPING DIAGRAM

M-901

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1 MECHANICAL DEMOLITION - HOT WATER PIPING DIAGRAM - ADD ALT
1/8" = 1'-0"



2 MECHANICAL NEW WORK - HOT WATER PIPING DIAGRAM - ADD ALT
1/8" = 1'-0"

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MECHANICAL - ADD ALT - HOT WATER PIPING DIAGRAM

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