

RAMA ROAD ELEMENTARY

RESOURCE DRAWINGS FROM EXISTING CONDITIONS

OWNER INFORMATION

CHARLOTTE-MECKLENBURG SCHOOLS
1035 RAMA RD.
CHARLOTTE, NC 28211

ENGINEER INFORMATION

TMG CONSULTING ENGINEERS
401 HAWTHORNE STREET
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CHARLOTTE, NC 28204

SHEET INDEX

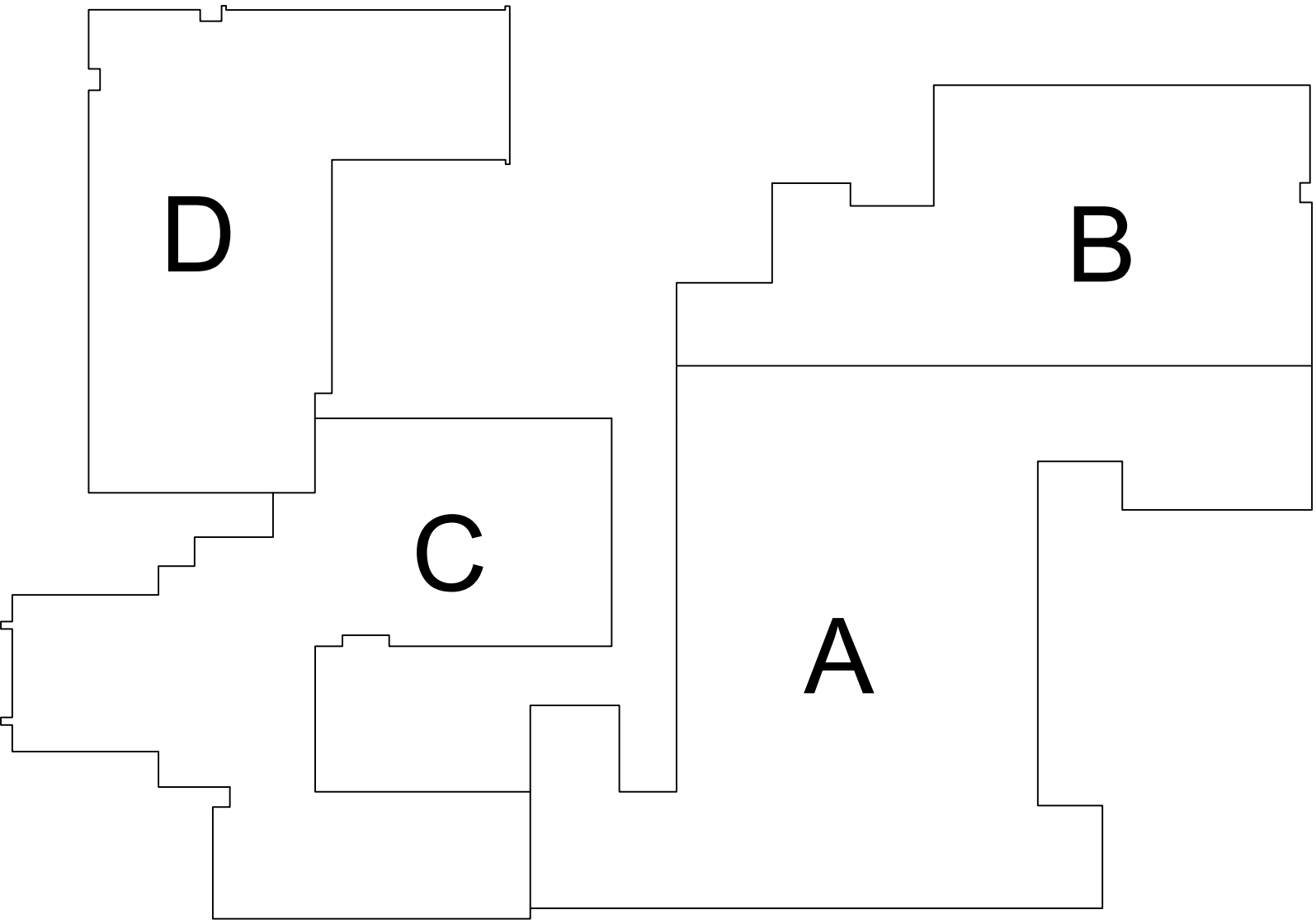
RM-001	TITLE SHEET
RM-101	MECHANICAL FLOOR PLAN AREA A
RM-102	MECHANICAL FLOOR PLAN AREA B
RM-103	MECHANICAL FLOOR PLAN AREA C
RM-104	MECHANICAL FLOOR PLAN AREA D
RM-105	CENTRAL PLANT PLANS
RM-106	MECHANICAL DETAILS



1 SITE PLAN
NOT TO SCALE



TRUE NORTH



2 KEY PLAN
NOT TO SCALE

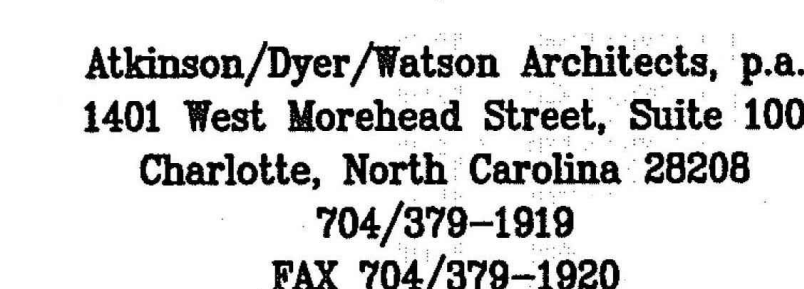


PLAN NORTH

NO.	DESCRIPTION	DATE
1	ISSUED FOR CONSTRUCTION	01/06/23

SHEET INFORMATION	
DATE	01/06/2023
JOB NUMBER	2202-01-003
DRAWN	ALG
APPROVED	CTM

COVER PAGE



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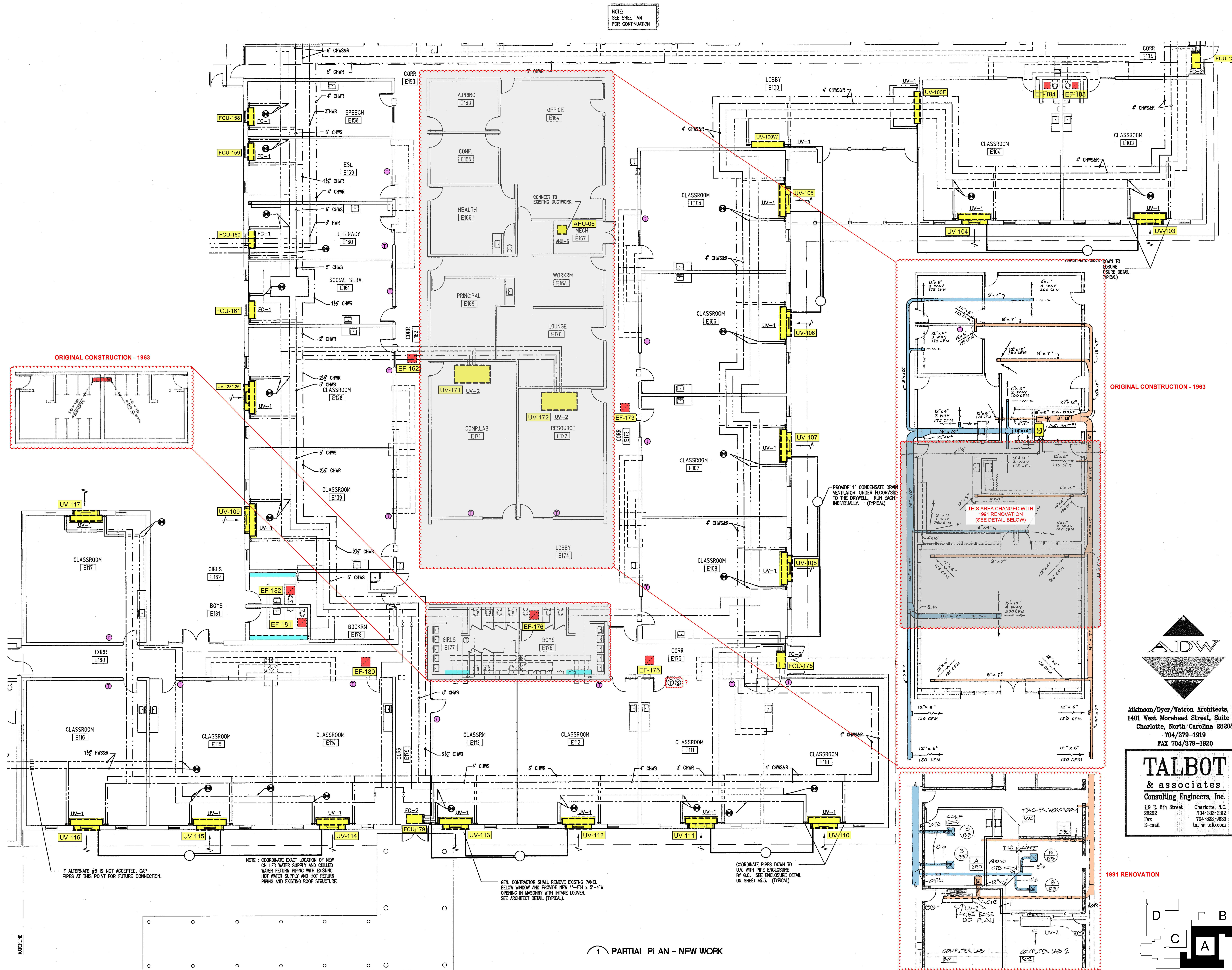
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SHEET INFORMATION									
DATE		01/06/20							
JOB NUMBER		2202-01-0							
DRAWN		A							
APPROVED		C							

MECHANICAL
FLOOR PLAN AREA A

RM-101

SHEET 2 OF 7



MECHANICAL FLOOR PLAN AREA A

SCALE: $\frac{1}{8}"=1'-0"$



CHARLOTTE-MECKLENBURG SCHOOLS

SHEET INFORMATION	
DATE	01/06/2022
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APPROVED	CT

RM-102

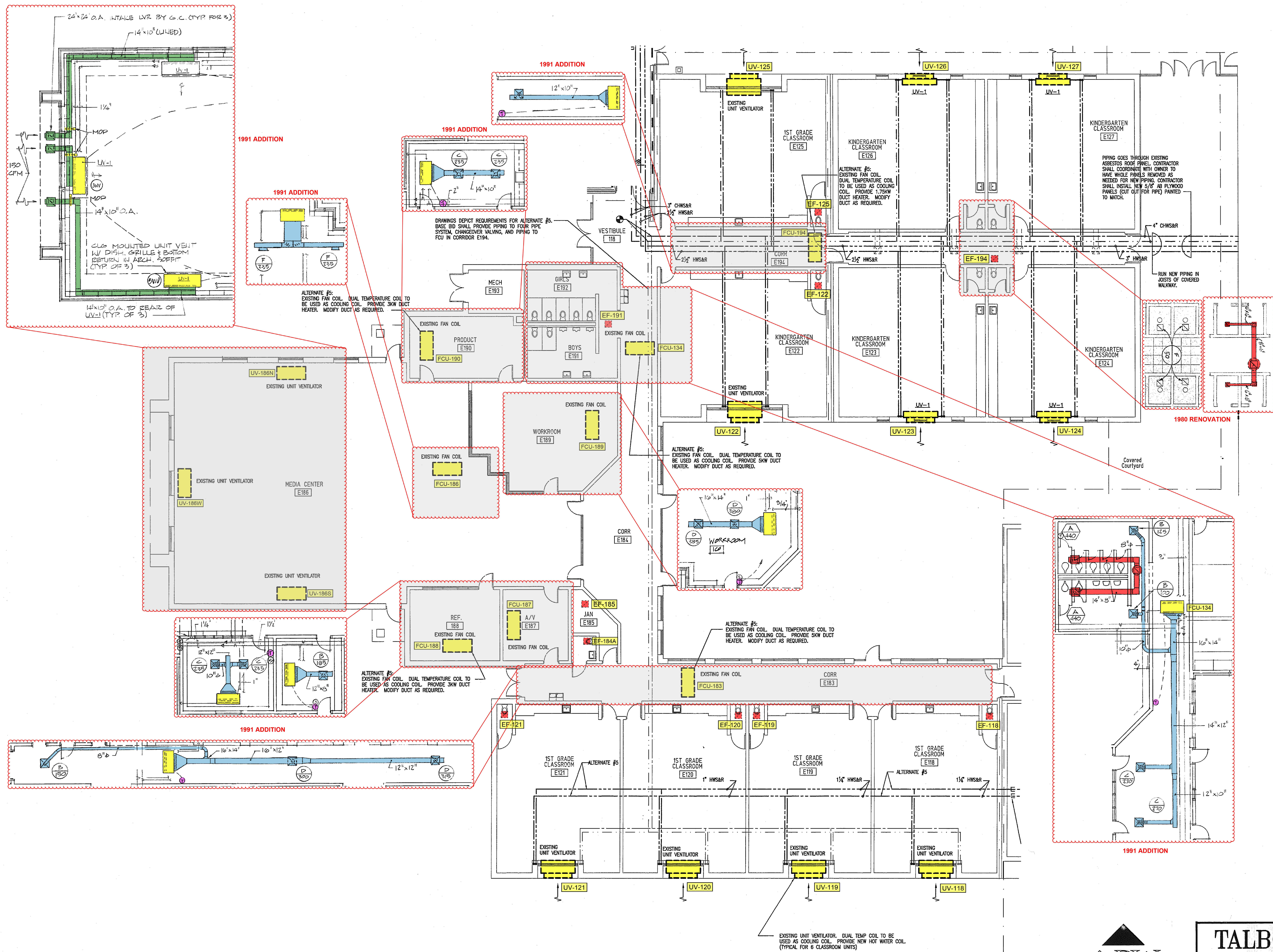
SHEET 3 OF 7



KEYPLAN

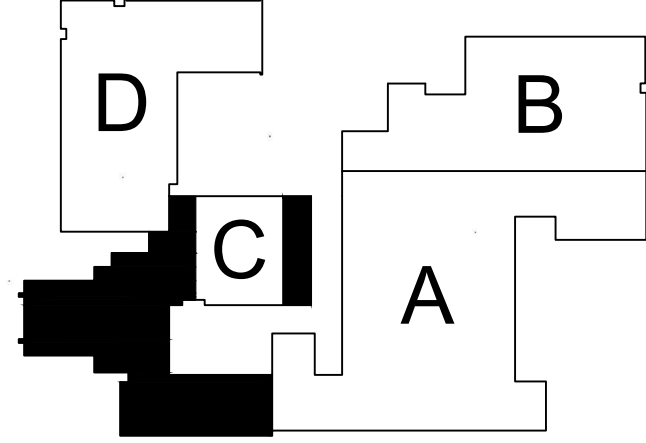
REVISIONS	DATE	DESCRIPTION
1	01/06/2023	ISSUED FOR CONSTRUCTION

MECHANICAL FLOOR PLAN AREA C

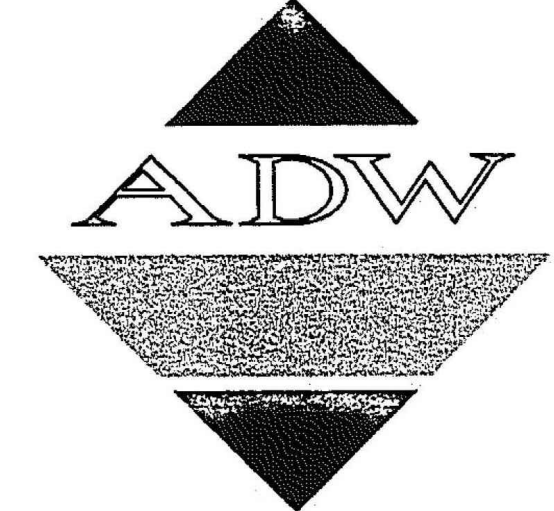


1 PARTIAL FLOOR PLAN - NEW WORK
 1/8" = 1'-0"

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

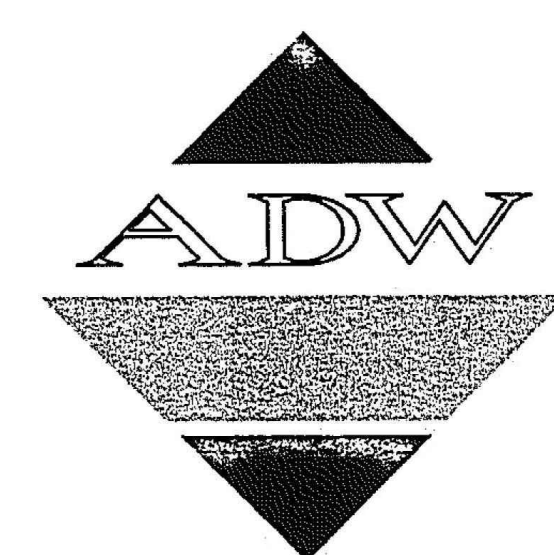


KEYPLAN



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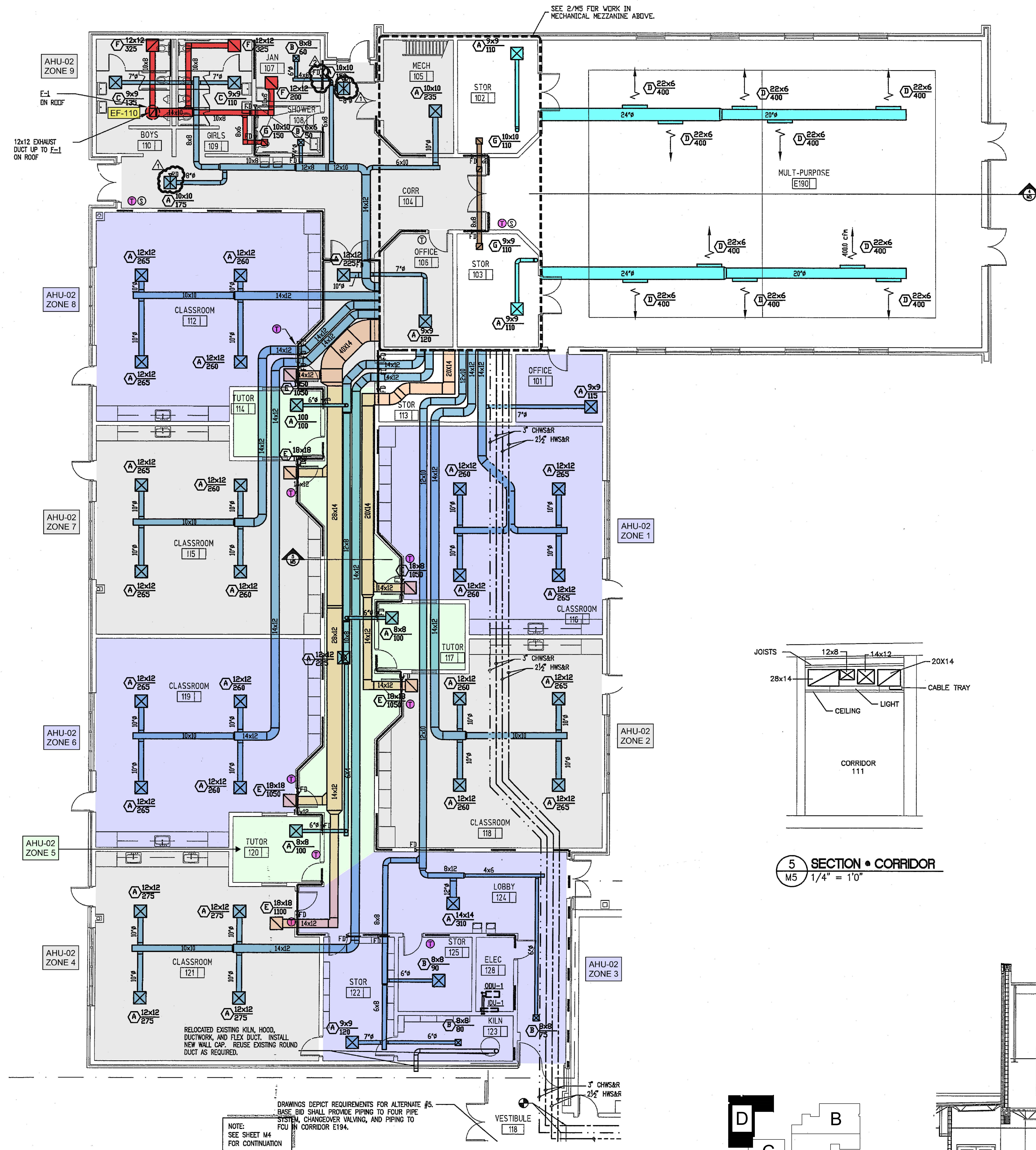
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MECHANICAL
FLOOR PLAN AREA D

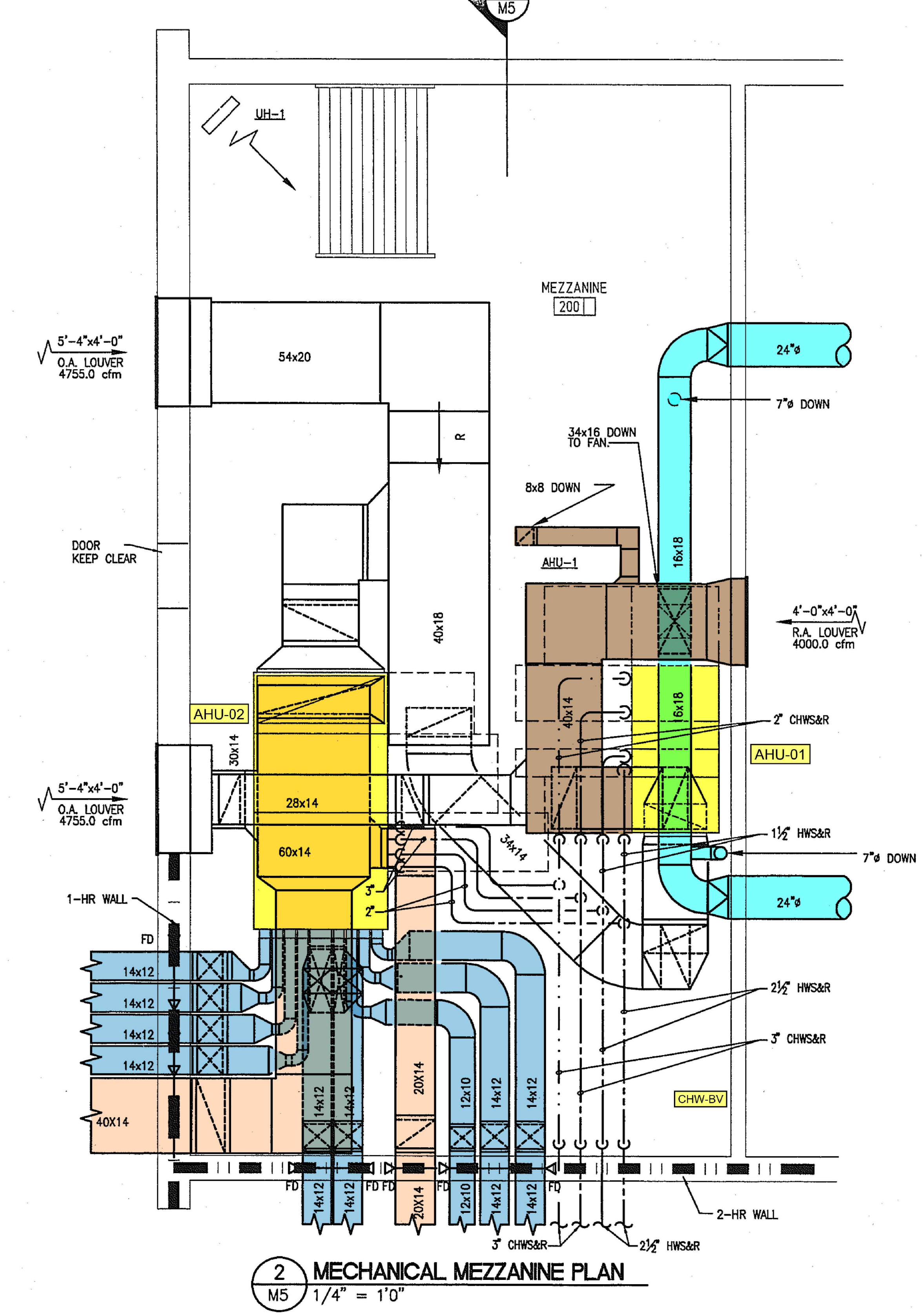


1 NEW ADDITION PLAN
M5 1/8" = 1'0"

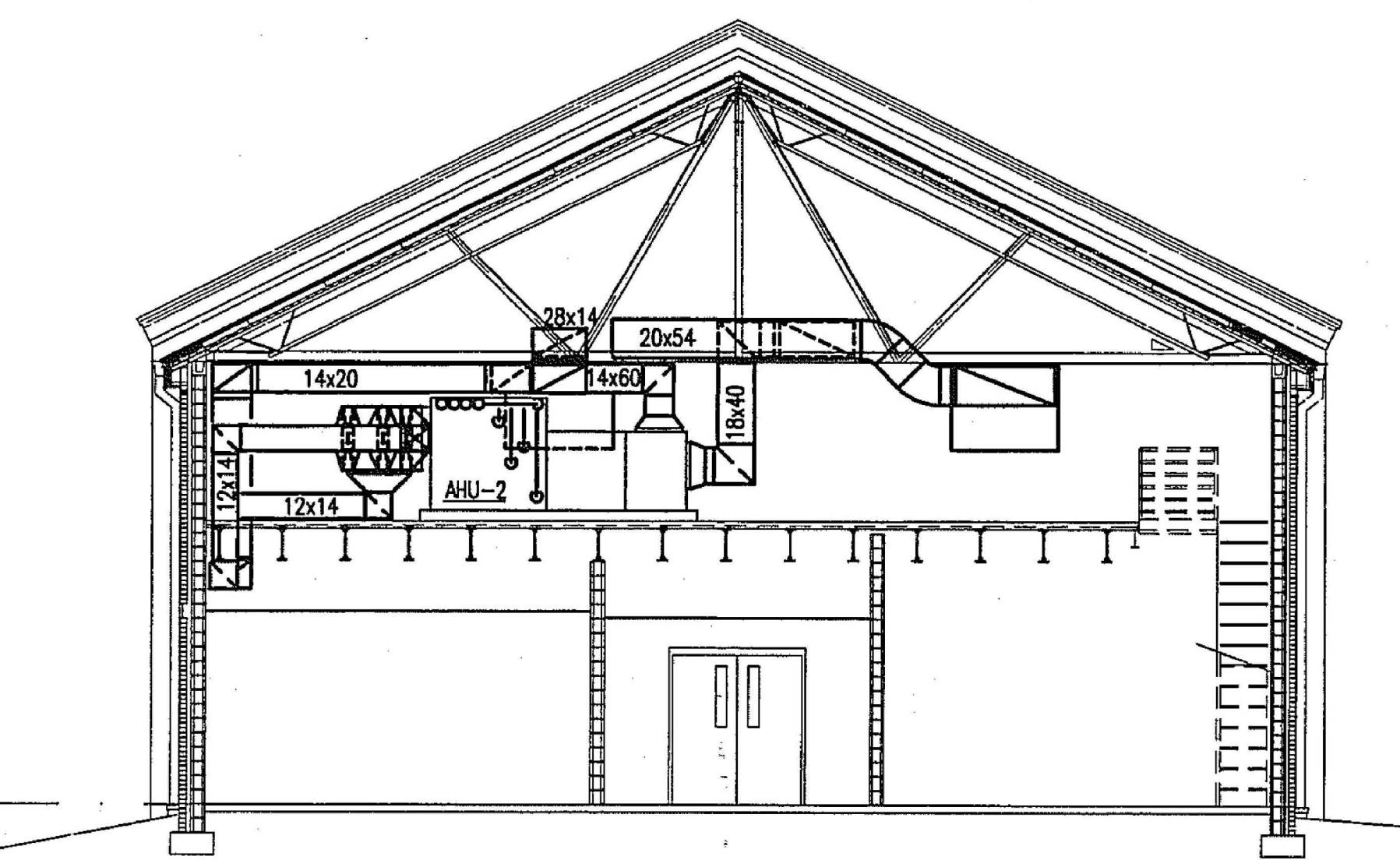
1 MECHANICAL FLOOR PLAN AREA D

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

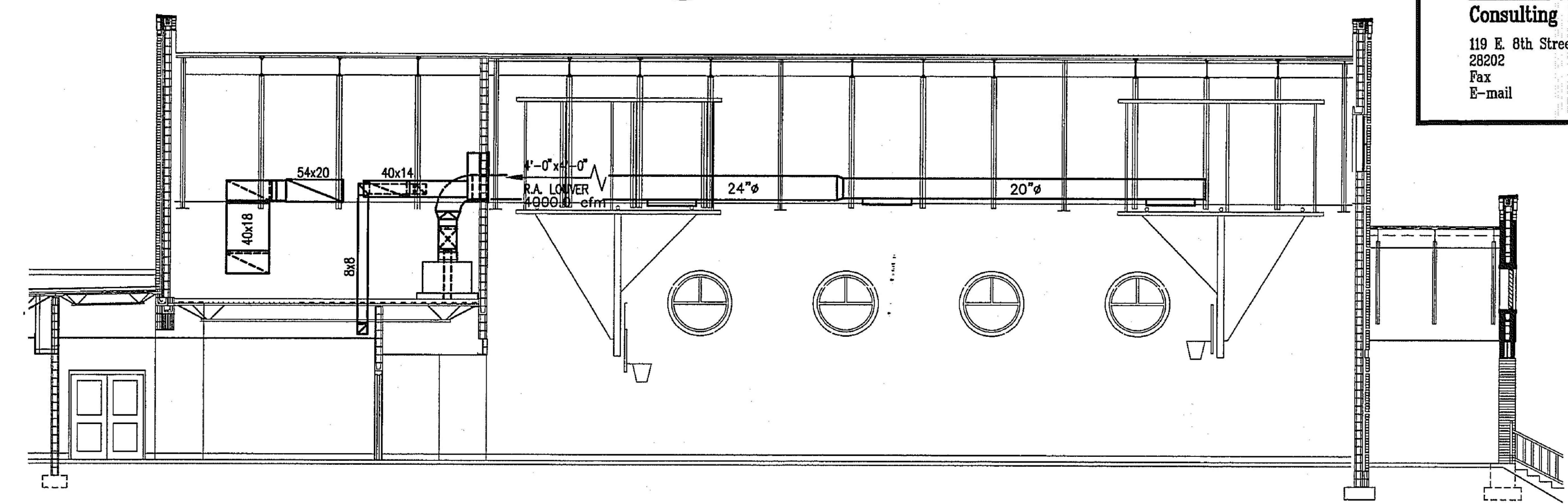
KEYPLAN



2 MECHANICAL MEZZANINE PLAN
M5 1/4" = 1'0"

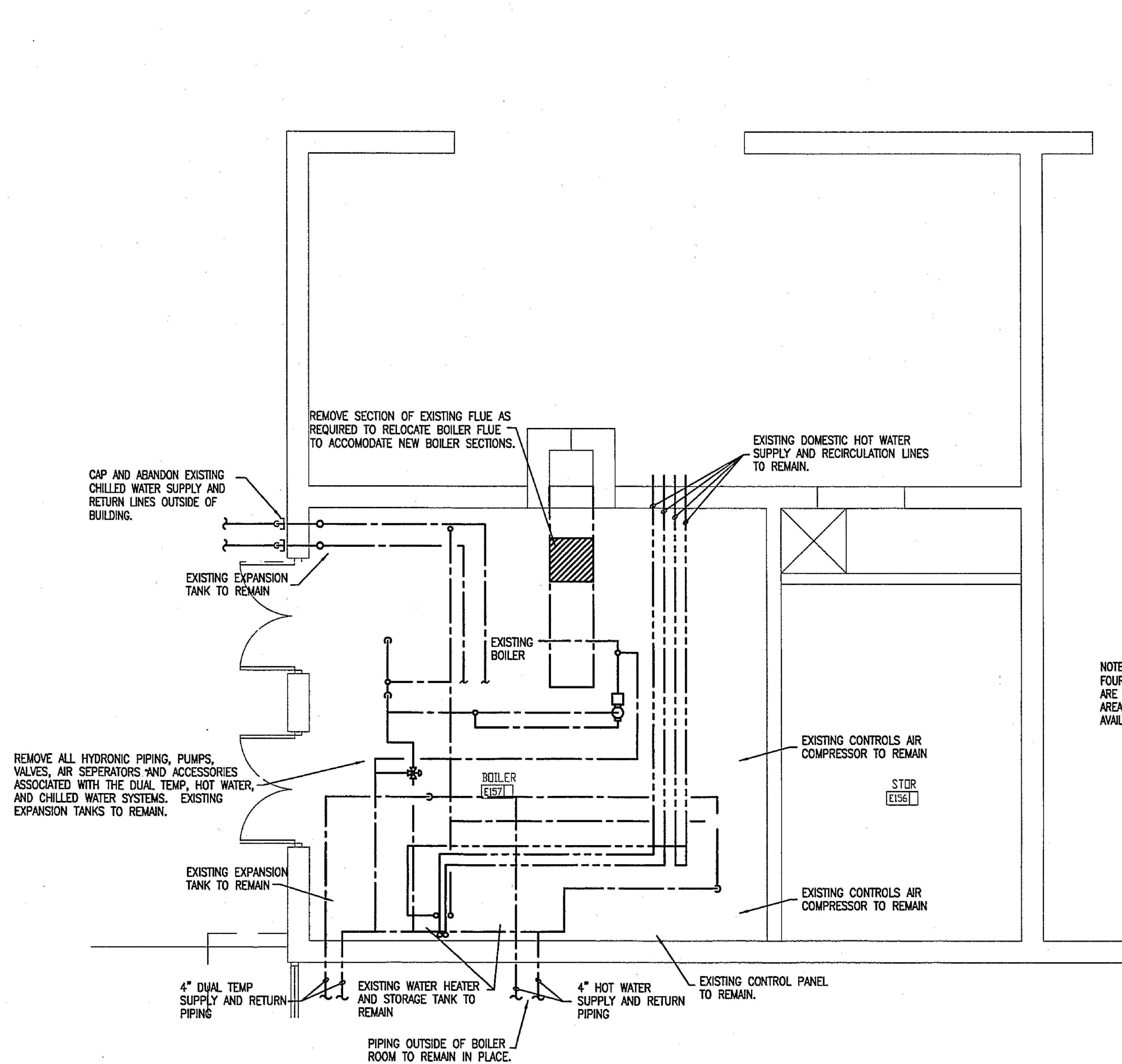


3 SECTION • MECHANICAL MEZZANINE
M5 1/8" = 1'0"

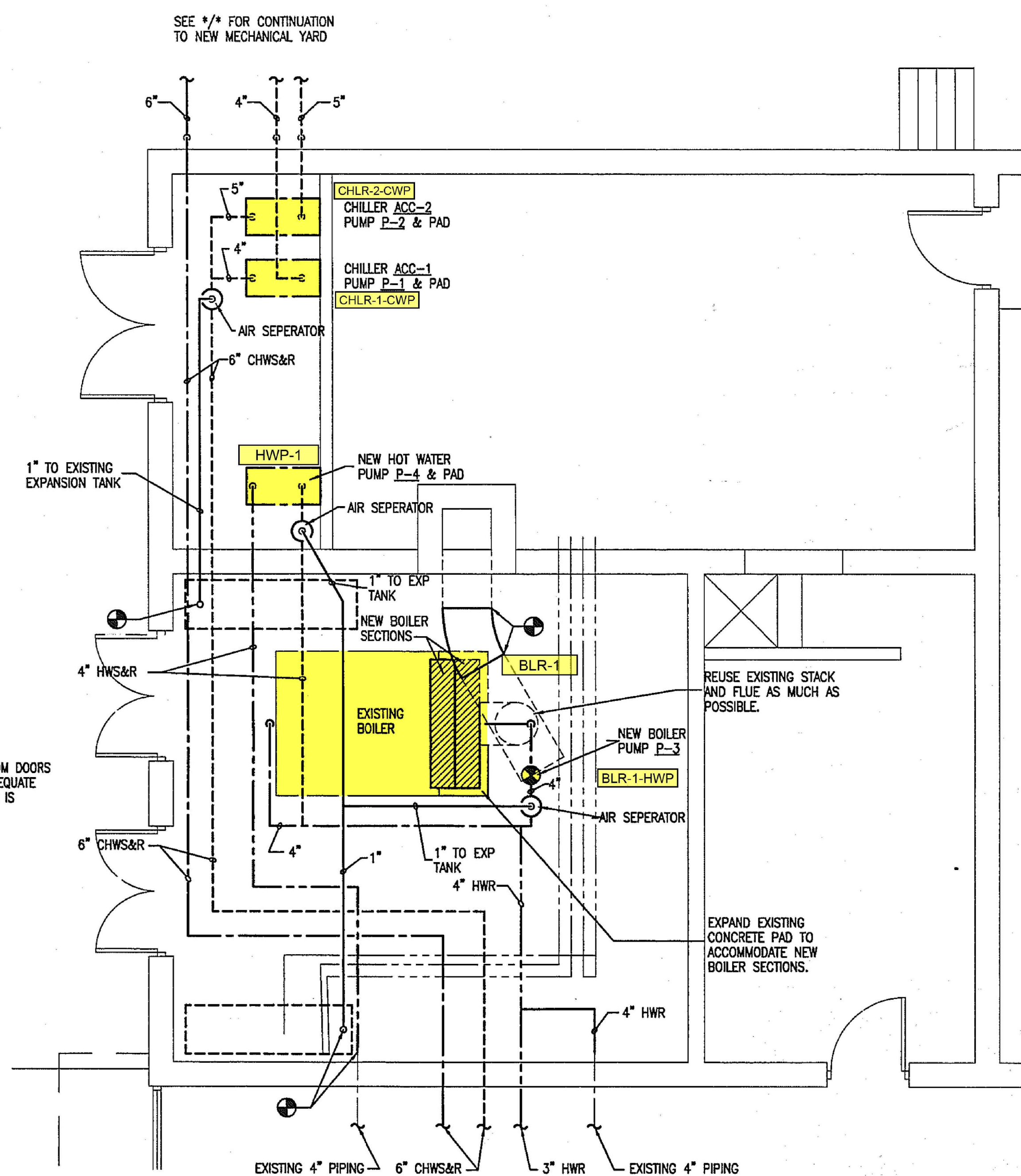


4 SECTION • MULTIPURPOSE ROOM
M5 1/8" = 1'0"

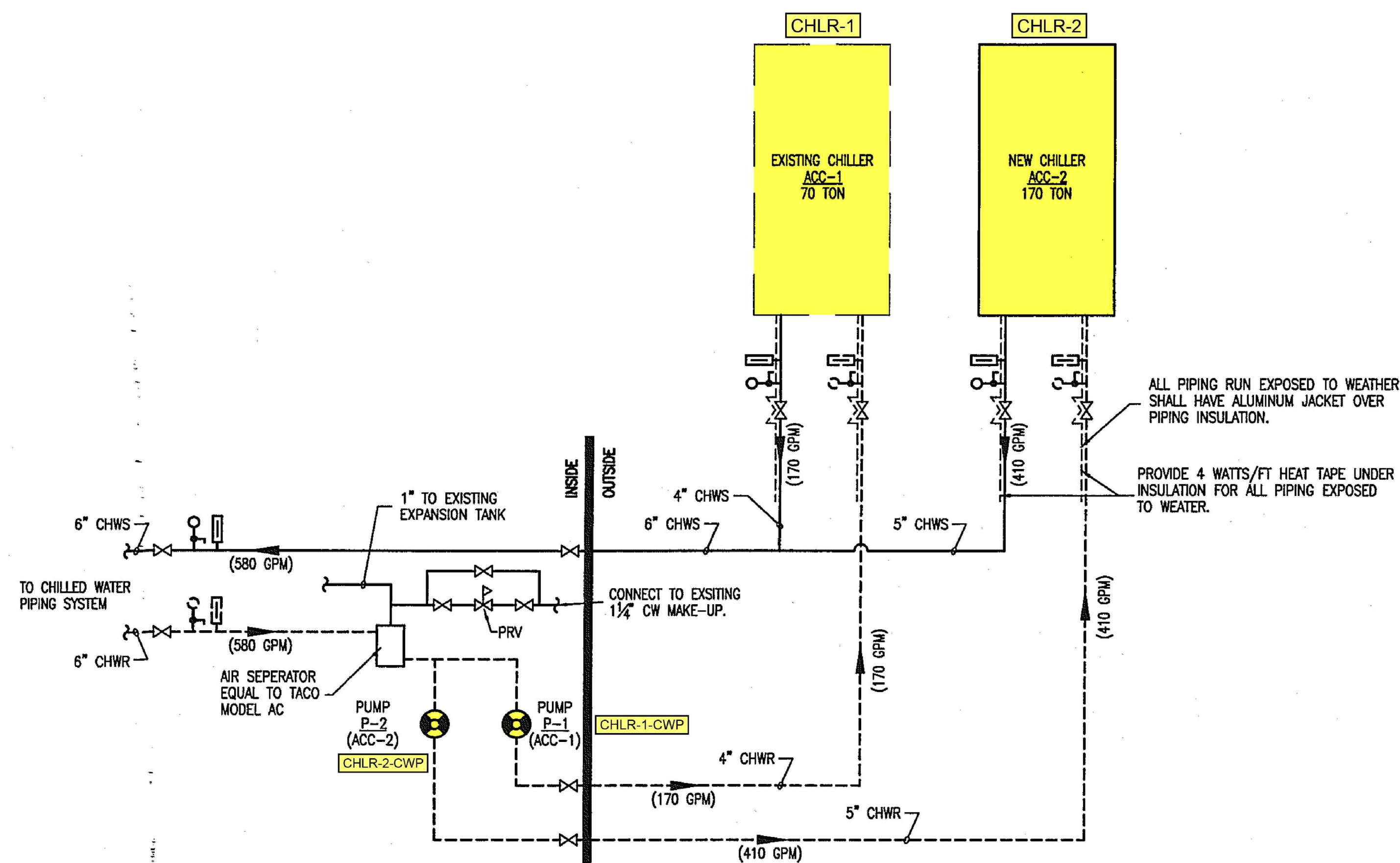
5 SECTION • CORRIDOR
M5 1/4" = 1'0"



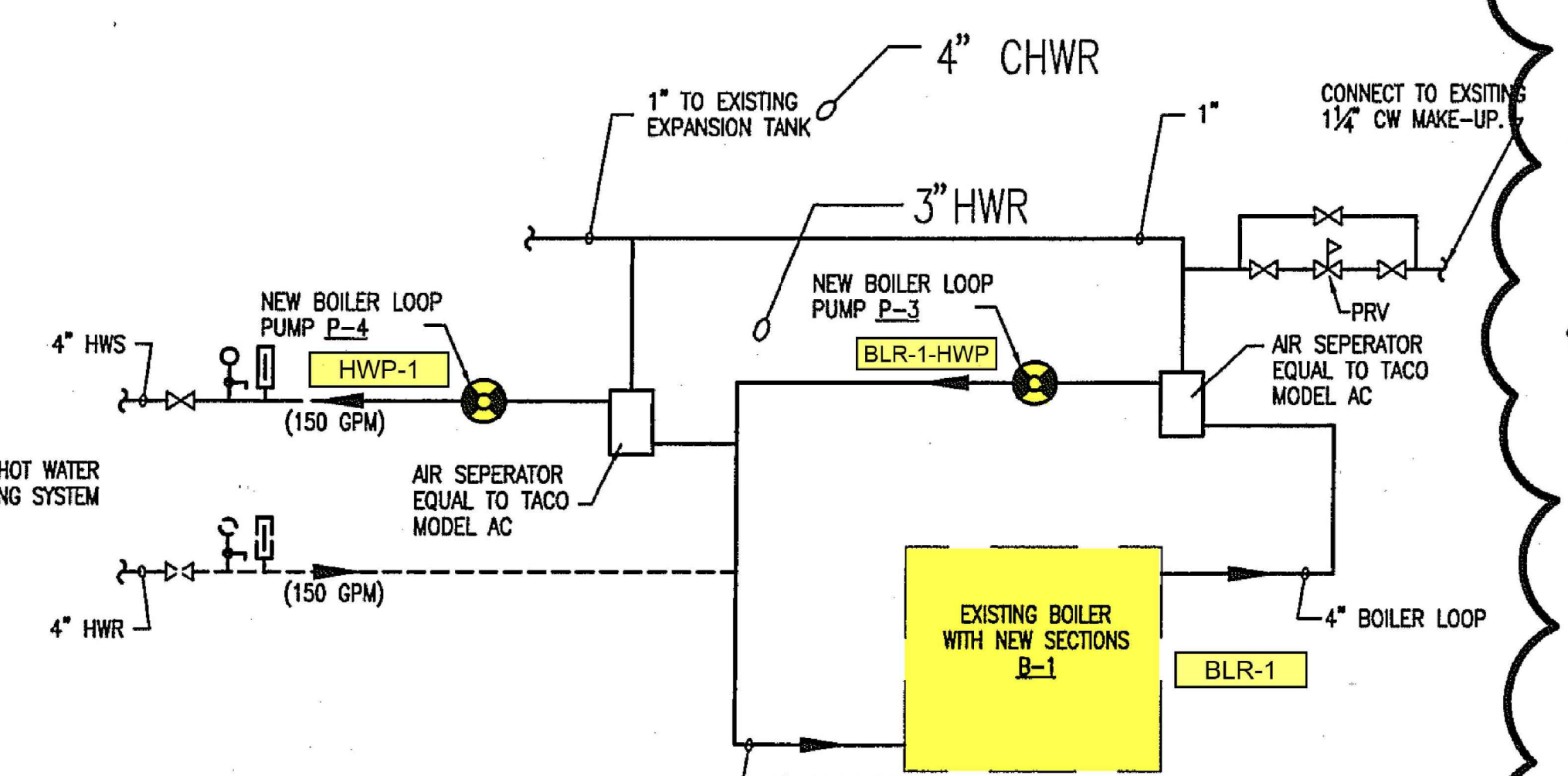
1 ENLARGED BOILER ROOM PLAN - DEMOLITION
 M6 1/4"=1'-0"



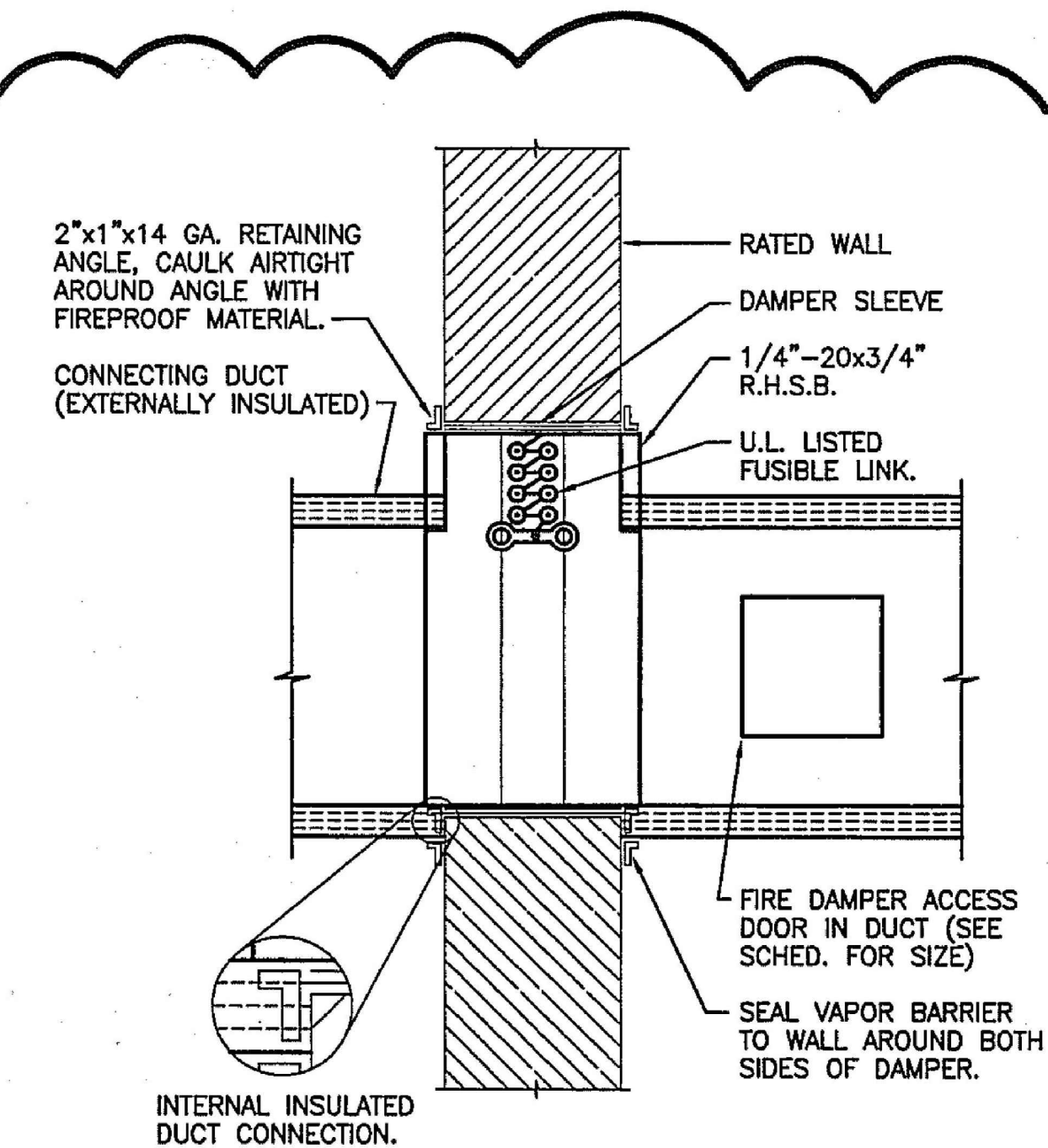
2 ENLARGED BOILER ROOM PLAN
 M6 1/4"=1'-0"



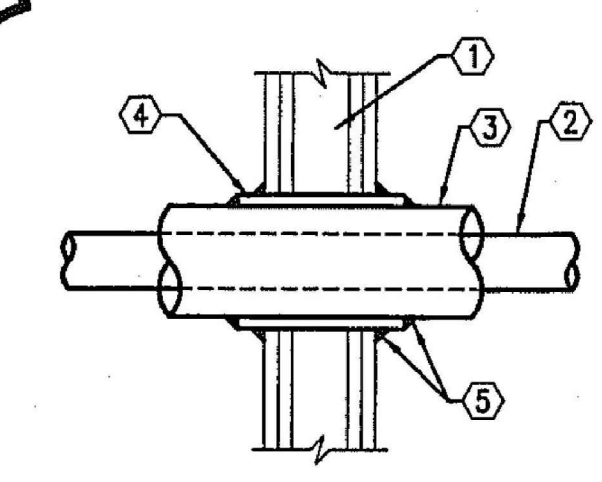
3 CHILLED WATER PIPING SCHEMATIC
 M6 NO SCALE



4 HOT WATER PIPING SCHEMATIC
 M6 NO SCALE

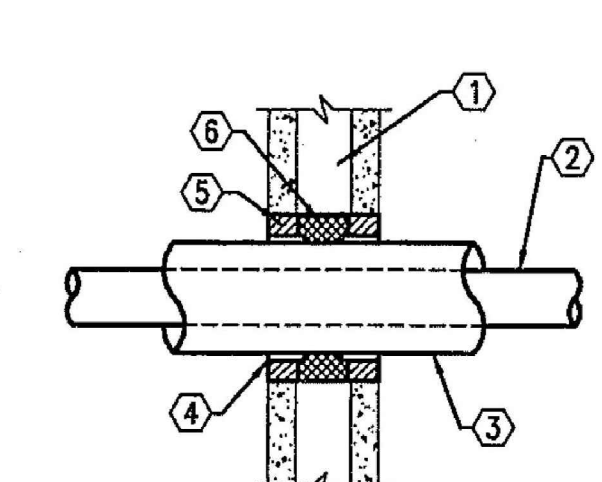


5 FIRE DAMPER DETAIL
 M6 NO SCALE



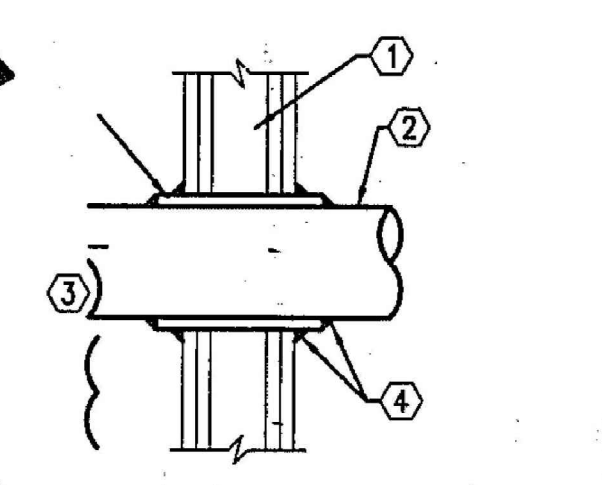
- 1 WALL ASSEMBLY (1 HR. OR 2 HR.)
- 2 PIPE (4" TYPE L COPPER OR SMALLER)
- 3 PIPE INSULATION
- 4 NOMINAL 1/4" THK. INTUMESCENT MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL
- 5 MIN. 1/4" BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND THE EXPOSED EDGE OF WRAP.

FOR ADDITIONAL INFORMATION SEE UL SYSTEM NO. NL5001



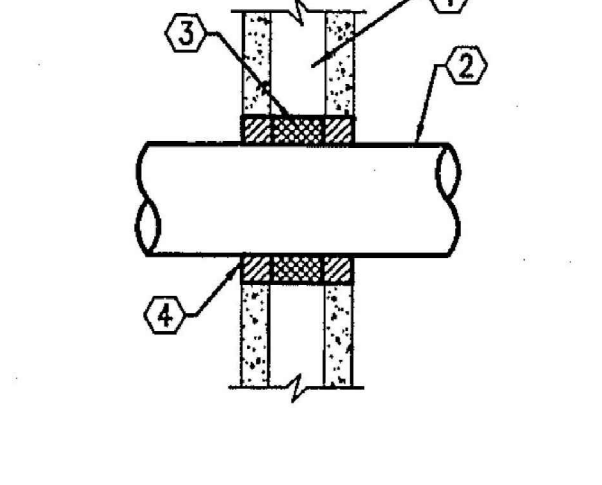
- 1 MAX. 1HR. WALL OR FLOOR ASSEMBLY
- 2 COPPER PIPE
- 3 PIPE INSULATION
- 4 NOMINAL 1/4" THK. INTUMESCENT MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL. ENDS BUTTED AND HELD IN PLACE BY ALUMINUM TAPE. THEN THE ASSEMBLY IS WRAPPED WITH A SINGLE WIRE TO HOLD ASSEMBLY IN PLACE.
- 5 NOMINAL 1/4" THK. MINERAL WOOL BATTS, MIN. DENSITY OF 4.0 PCF, CUT TO COMPLETELY FILL THE OPENING IN, AROUND AND BETWEEN PENETRATING ITEMS
- 6 FILL THE VOID BETWEEN THE LAYERS OF VOID WITH CAULK MIN. 1" THICK.

FOR ADDITIONAL INFORMATION SEE UL SYSTEM NO. CAJ5038



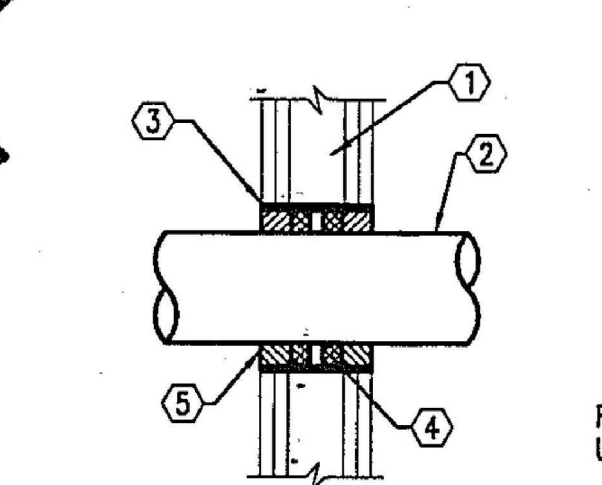
- 1 WALL ASSEMBLY (1 HR. OR 2 HR.)
- 2 PIPE (4" TYPE L COPPER OR SMALLER)
- 3 PIPE INSULATION
- 4 NOMINAL 1/4" THK. INTUMESCENT MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL
- 5 MIN. 1/4" BEAD APPLIED TO THE WRAP STRIP/WALL INTERFACE AND THE EXPOSED EDGE OF WRAP.

FOR ADDITIONAL INFORMATION SEE UL SYSTEM NO. NL1002



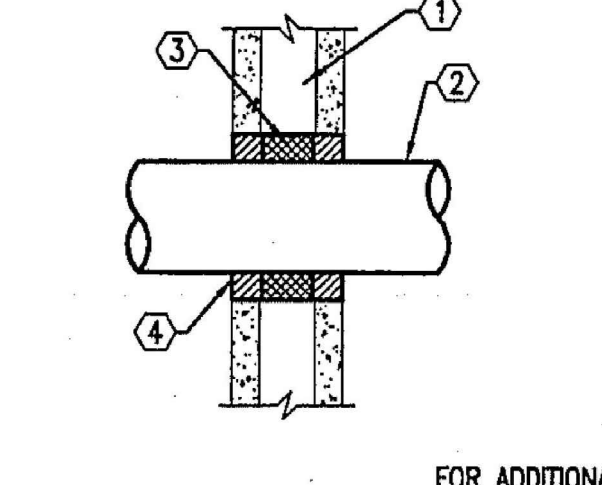
- 1 MAX. 1HR. WALL OR FLOOR ASSEMBLY
- 2 PIPE
- 3 NOMINAL 3/4" THK. MINERAL WOOL BATTS, MIN. DENSITY OF 4.4 PCF, FIRMLY PACKED AND CENTERED IN OPENING.
- 4 UL LISTED FILL MATERIAL TROWELED OR PUMPED INTO THE OPENING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. MIN 1/2" THICK.

FOR ADDITIONAL INFORMATION SEE UL SYSTEM NO. CAJ1132



- 1 WALL ASSEMBLY (2 HR.)
- 2 PIPE (3" OR SMALLER)
- 3 STEEL SLEEVE OR WIRE MESH
- 4 PACKING MATERIAL
- 5 CAULK

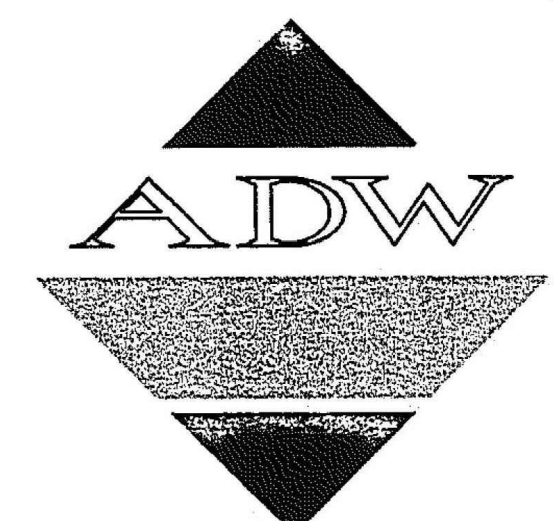
FOR ADDITIONAL INFORMATION SEE UL SYSTEM NO. NL1014



- 1 MAX. 2HR. WALL OR FLOOR ASSEMBLY
- 2 PIPE
- 3 NOMINAL 3/4" THK. MINERAL WOOL BATTS, MIN. DENSITY OF 4.4 PCF, FIRMLY PACKED AND CENTERED IN OPENING.
- 4 UL LISTED FILL MATERIAL TROWELED OR PUMPED INTO THE OPENING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. MIN 1/2" THICK.

FOR ADDITIONAL INFORMATION SEE UL SYSTEM NO. CAJ1017

6 PIPE PENETRATION DETAILS
 M6 NO SCALE



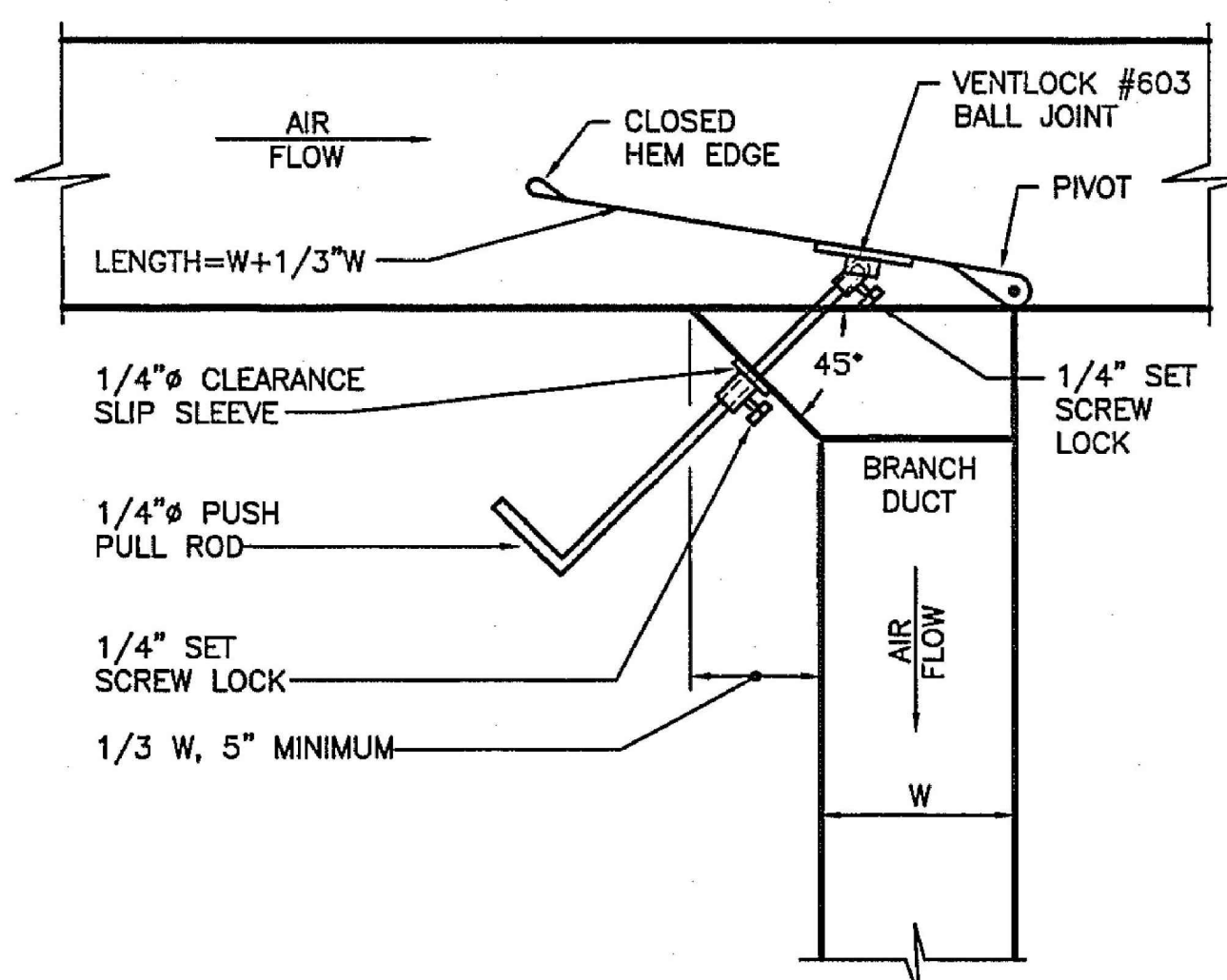
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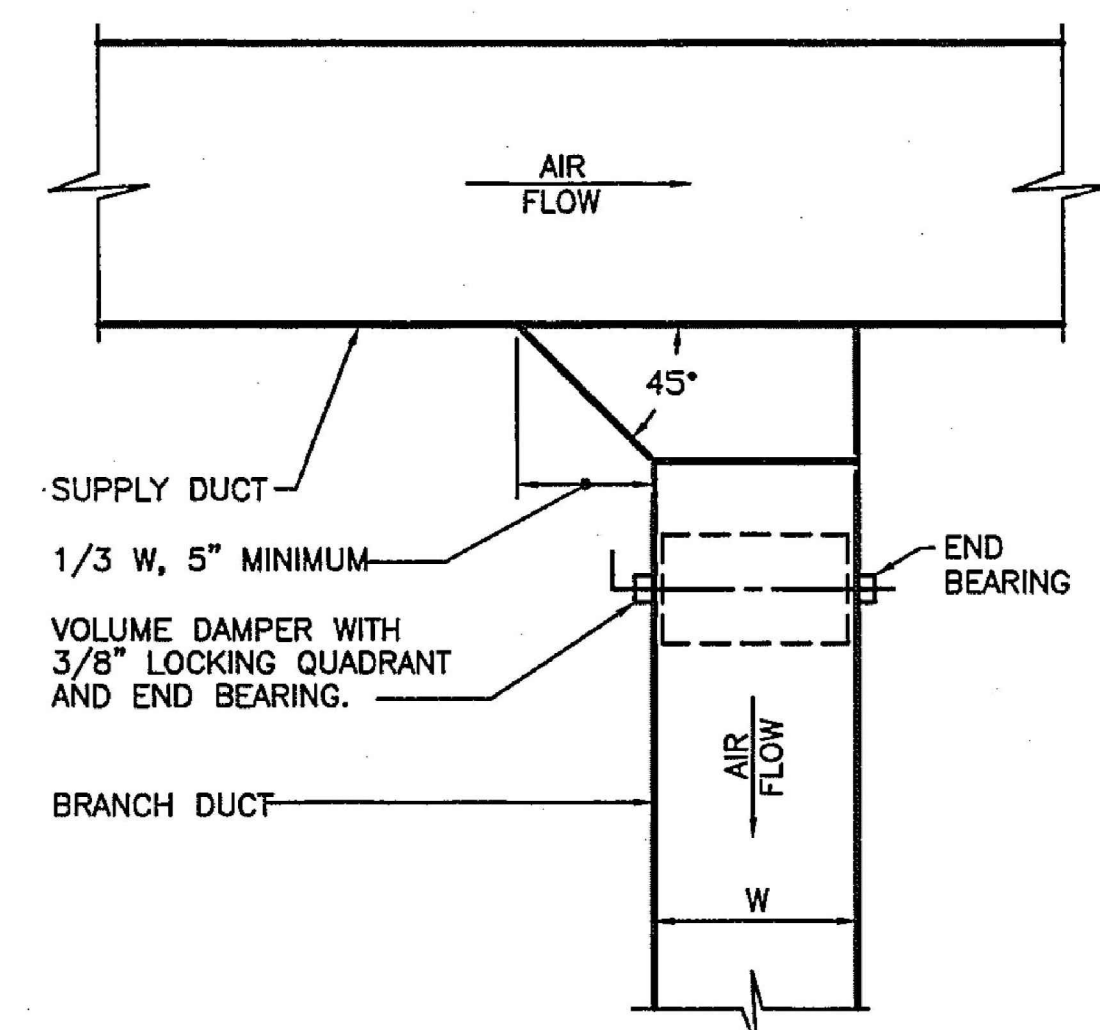
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CENTRAL PLANT CONTROLS



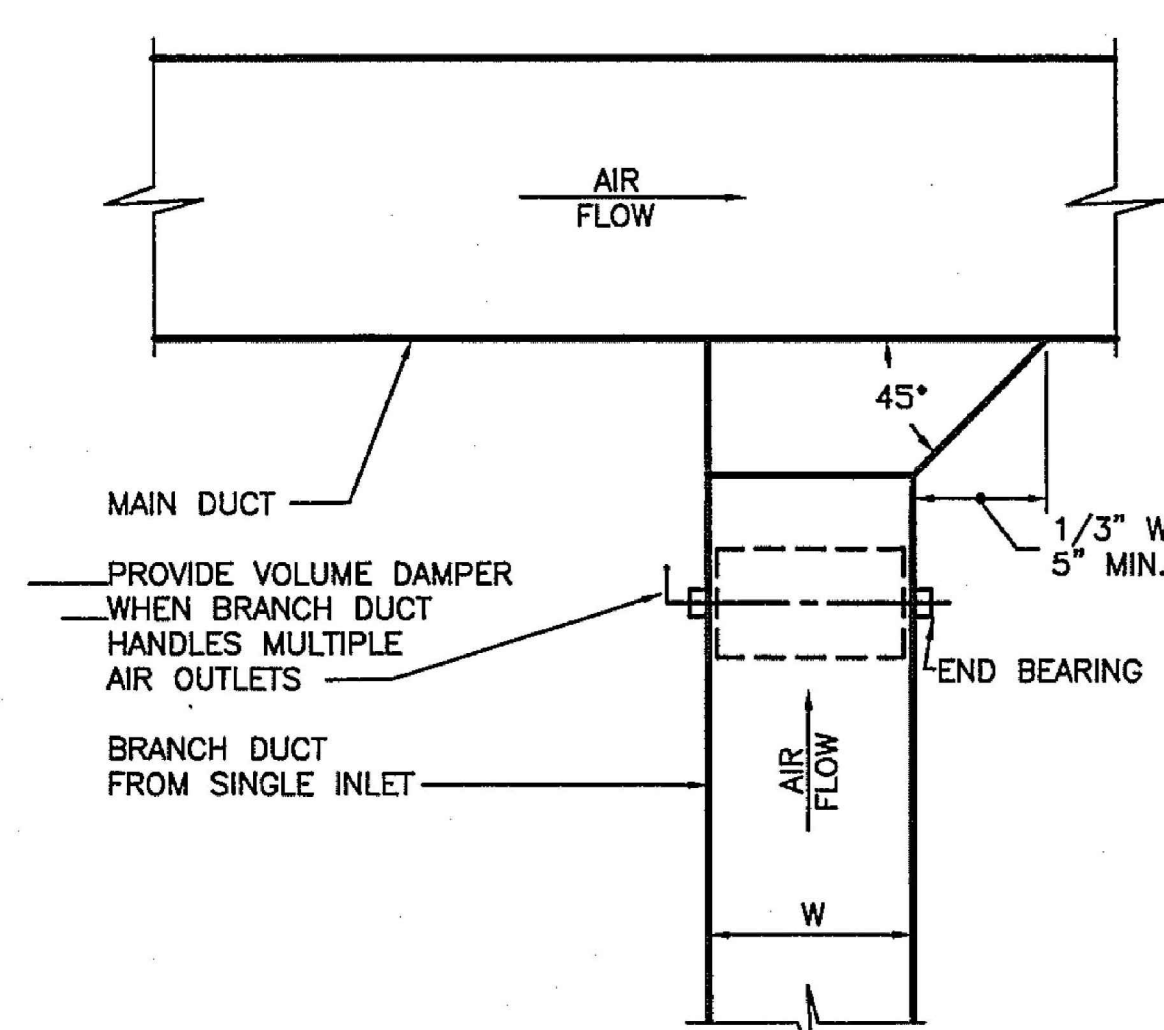
NOTES:
 1. THIS DETAIL IS TO BE USED IF BRANCH DUCT SERVES MORE THAN ONE OUTLET.

1 RECTANGULAR SUPPLY DUCT W/ CLINCH COLLAR
 M8 NO SCALE



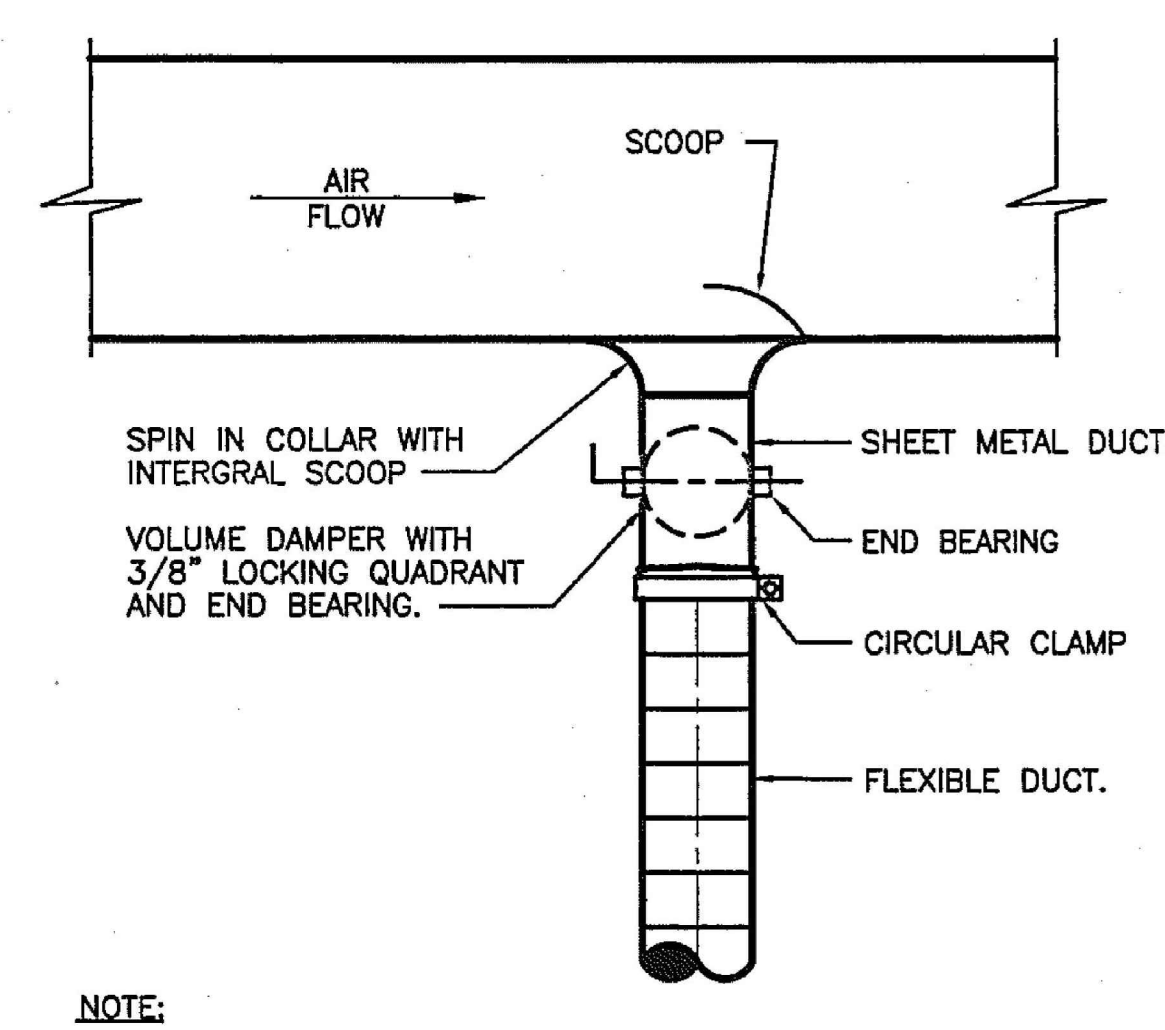
NOTES:
 1. ROUND DUCT TAKEOFFS ARE SIMILAR EXCEPT HAVE SPIN-IN COLLAR WITH INTEGRAL SCOOP.

2 RECTANGULAR SUPPLY DUCT TO SINGLE AIR OUTLET
 M8 NO SCALE



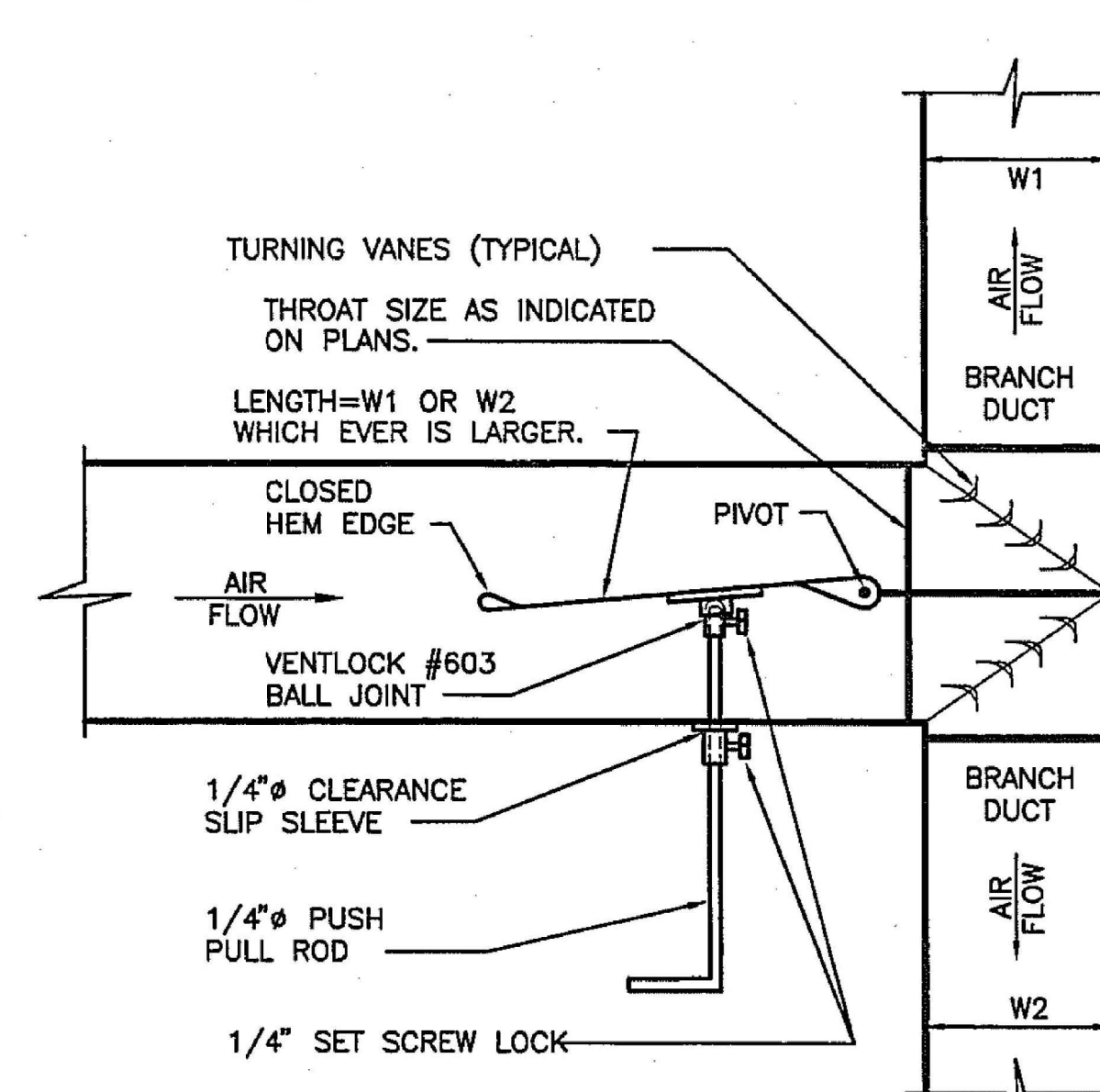
NOTE:
 1. NOT PERMITTED AT END OF DUCT. SINGLE OR DOUBLE ELBOWS REQUIRED.

3 RECTANGULAR RETURN/EXHAUST DUCT TAP
 M8 NO SCALE

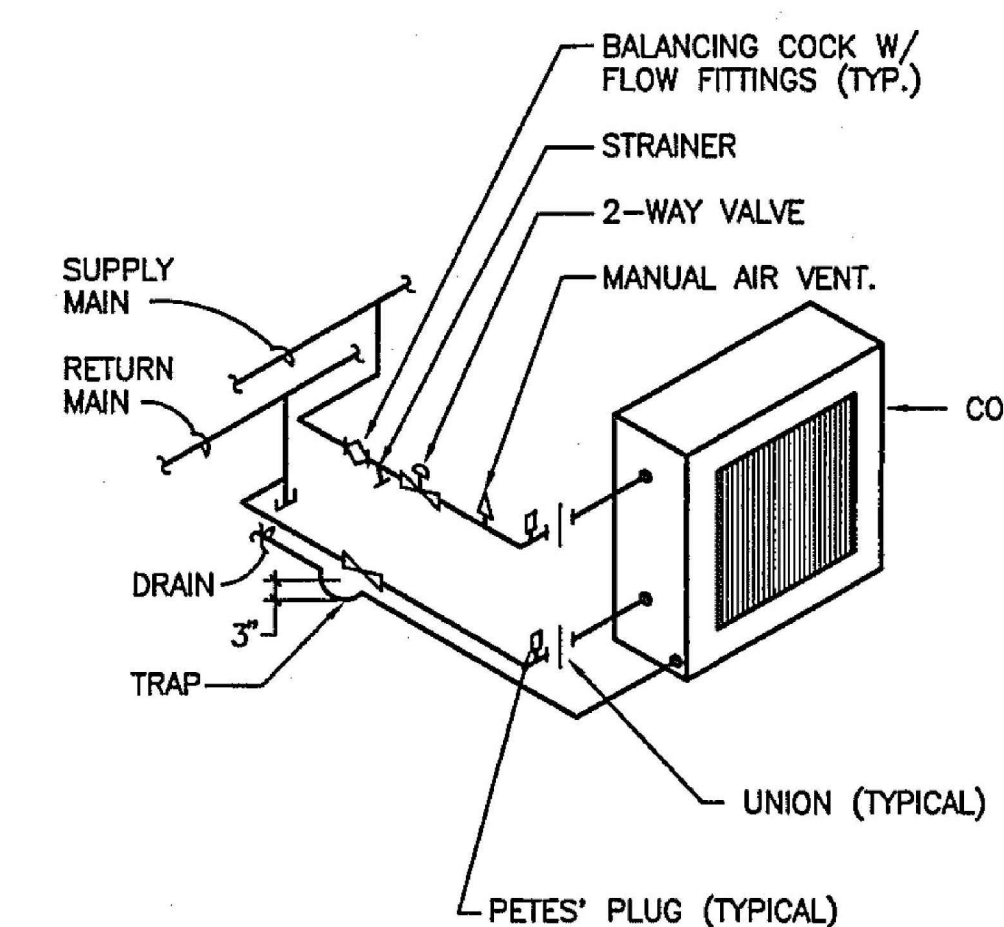


NOTE:
 1. SEE FLOOR PLANS AND SPECIFICATIONS FOR DUCT INSULATION REQUIREMENTS.
 2. TAP OFF TOP/DISE/BOTTOM OF DUCT AS REQUIRED

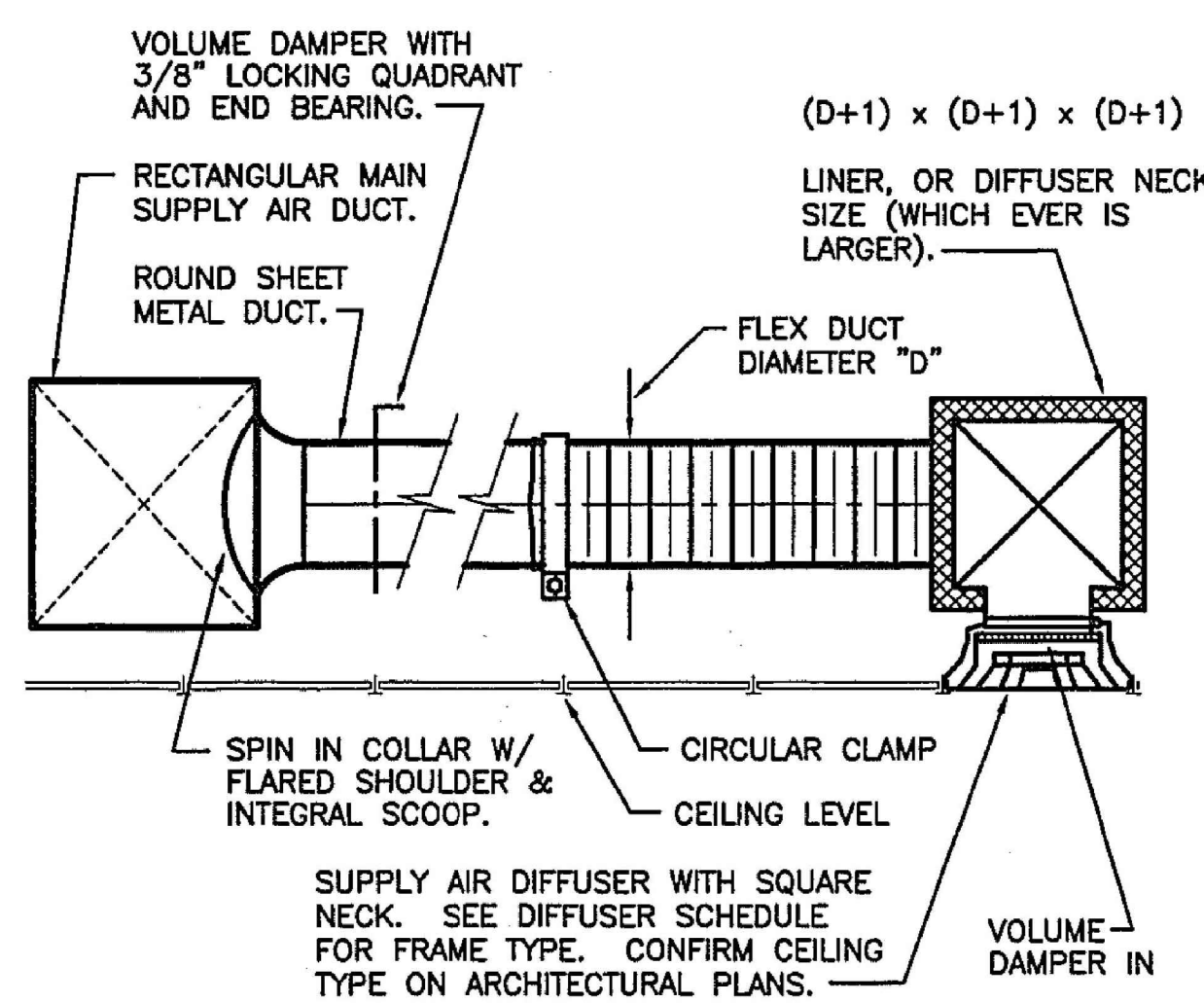
4 ROUND SUPPLY TAP TO SINGLE AIR OUTLET
 M8 NO SCALE



5 RECT. SUPPLY DUCT W/SPLITTER DAMPER
 M8 NO SCALE

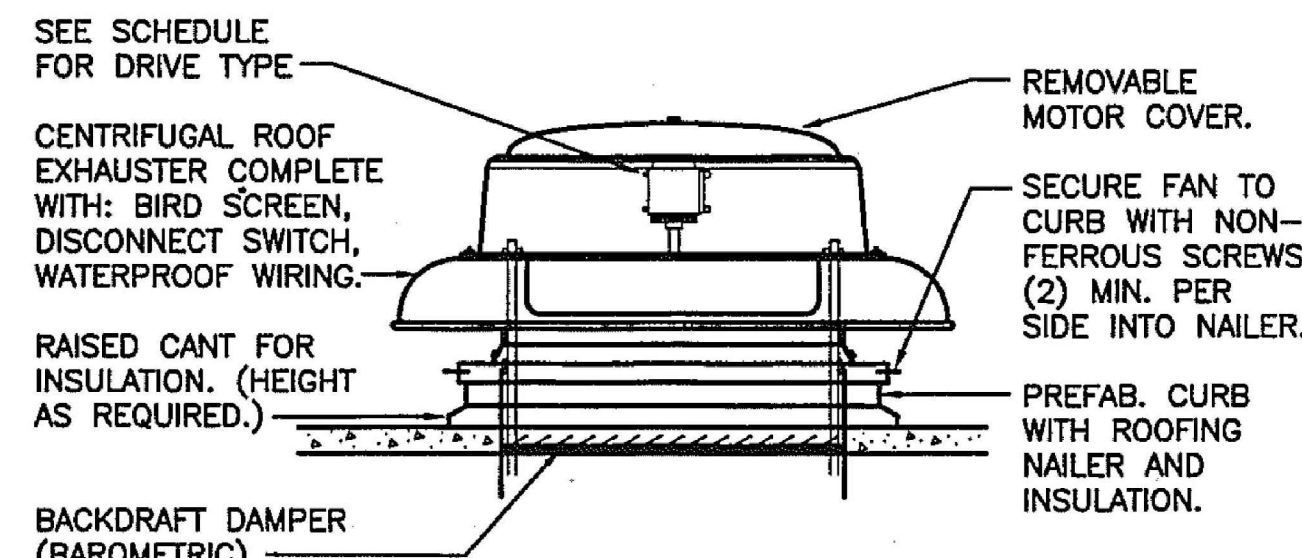


6 TYPICAL COIL PIPING DETAIL
 M8 NO SCALE

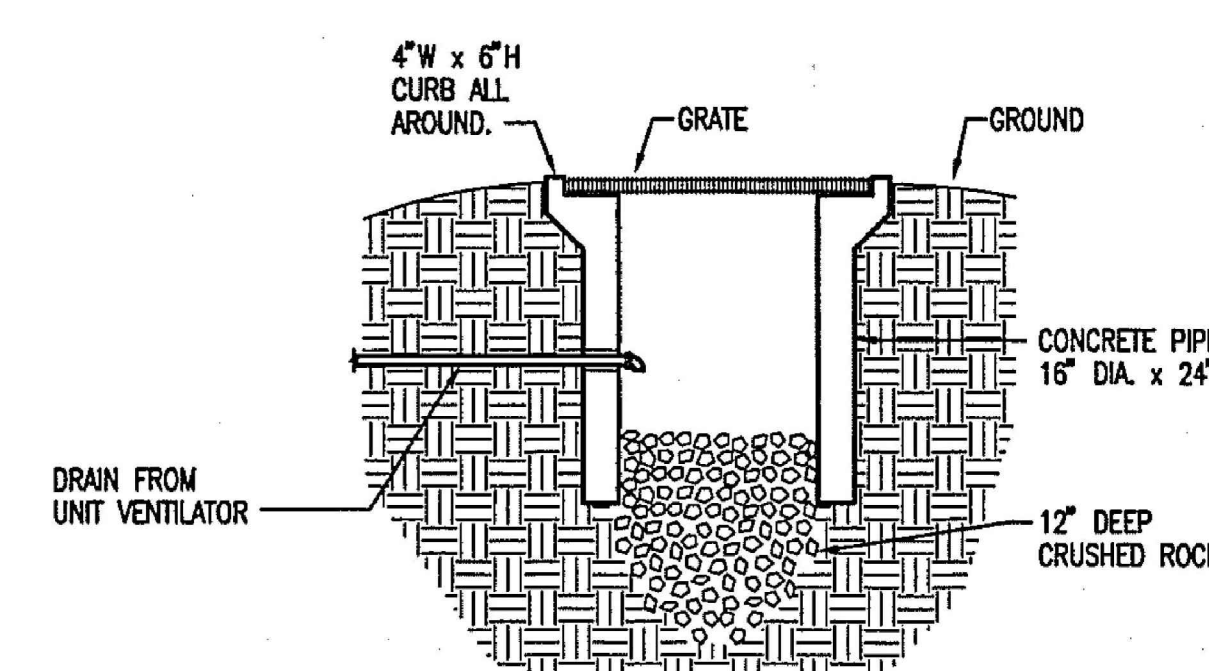


NOTE:
 1. SEE FLOOR PLANS AND SPECIFICATIONS FOR DUCT INSULATION REQUIREMENTS.

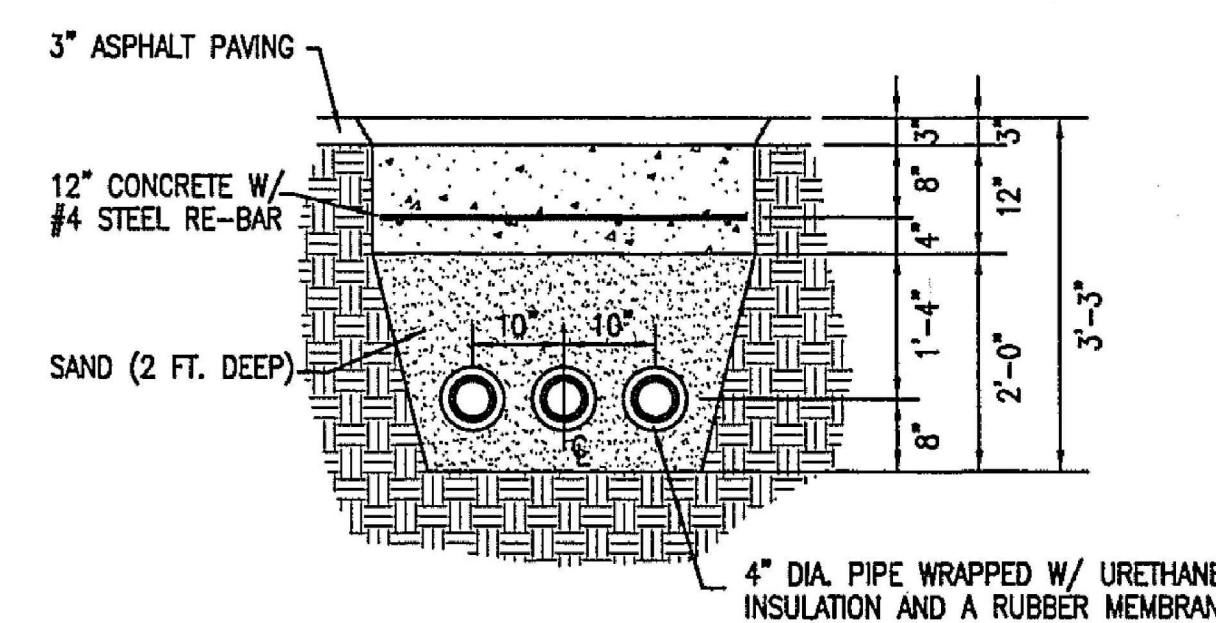
7 SUPPLY AIR DIFFUSER DETAIL
 M8 NO SCALE



8 CENTRIFUGAL ROOF EXHAUSTER
 M8 NO SCALE



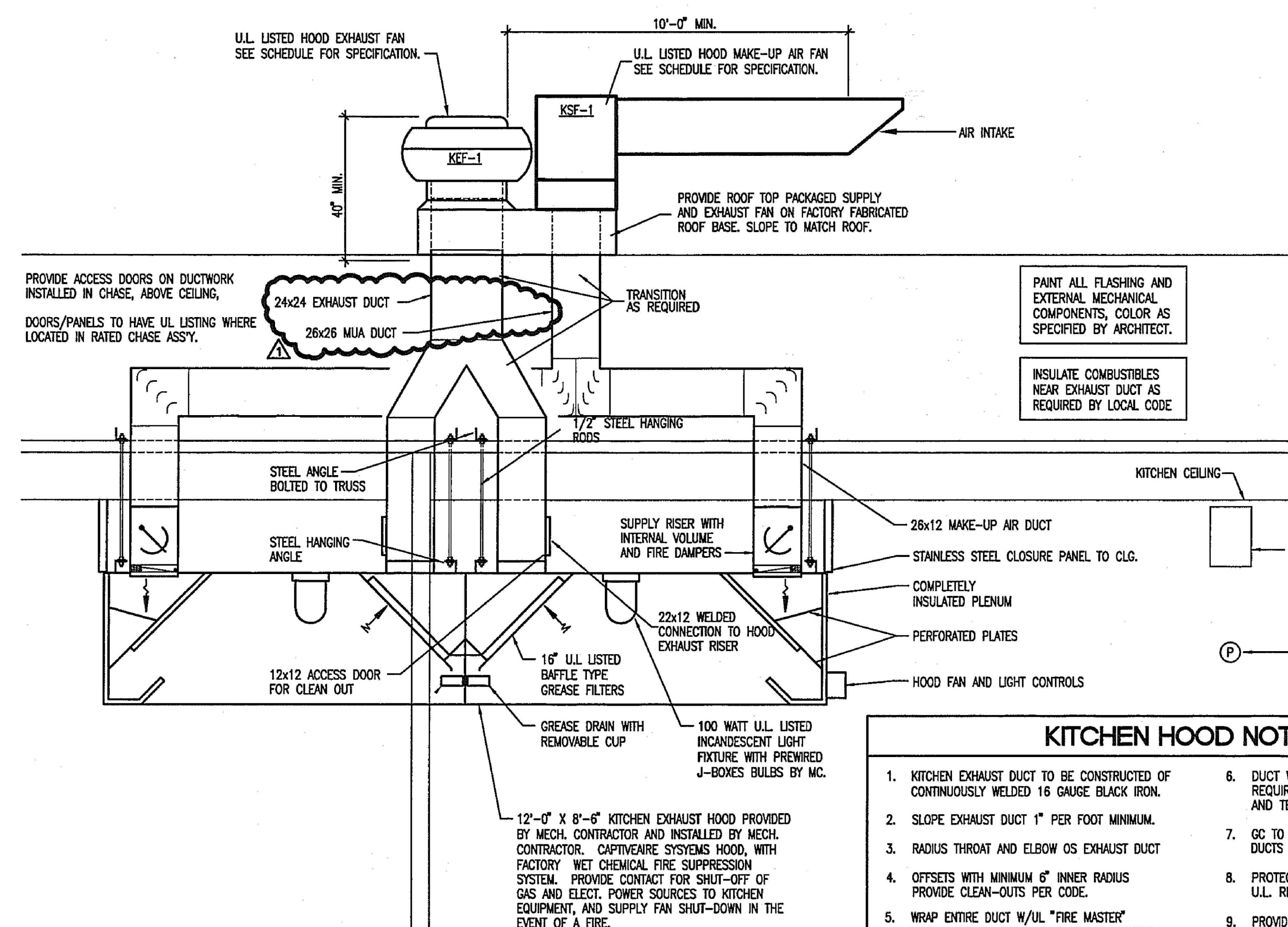
9 DRYWELL
 M8 NO SCALE



10 BURIED PIPE DETAIL
 M8 NO SCALE

HVAC GENERAL NOTES

- FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR THE COMPLETION AND OPERATION OF ALL SYSTEMS IN THIS SECTION OF WORK IN ACCORDANCE WITH ALL APPLICABLE CODES.
- MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 4'-0". ALL FLEXIBLE DUCT SHALL CONFORM TO THE REQUIREMENTS OF U.L. 181 FOR CLASS 1 FLEXIBLE AIR DUCTS.
- ALL AIR HANDLING UNITS SHALL BE INSTALLED AS SHOWN & PER MFG. REQUIREMENTS. NEW FILTERS FOR EACH AIR HANDLING UNIT.
- DO NOT SCALE DRAWINGS. SEE ARCHITECTURAL DRAWINGS & REFLECTED CEILING PLANS FOR EXACT LOCATION OF DOORS, WINDOWS, CEILING DIFFUSERS, ETC.
- ALL PIPING, DUCTS, VENTS, ETC., EXTENDING THROUGH WALLS & ROOF SHALL BE FLASHED & COUNTERFLASHED IN A WATERPROOF MANNER.
- ALL DUCT & PIPE INSULATION SHALL BE RUN CONTINUOUSLY THROUGH FLOORS, ROOF AND PARTITIONS.
- ALL PIPING AND DUCTWORK LOCATIONS SHALL BE COORDINATED W/WORK UNDER OTHER DIVISIONS OF THE SPECIFICATIONS, TO AVOID INTERFERENCE.
- LOCATE ALL TSTATS & SWITCHES 4'-0" ABOVE FINISHED FLOOR (PER ADA). ANY DEVICE REQUIRING A THERMOSTAT FOR CONTROL SHALL BE FURNISHED WITH A THERMOSTAT WHETHER INDICATED ON THE DRAWINGS OR NOT.
- MECHANICAL CONTRACTOR SHALL BALANCE SYSTEM TO AIR QTY. INDICATED ON PLANS AND PROVIDE OWNERS REPRESENTATIVE WITH COMPLETE BALANCE REPORT.
- ALL SQUARE ELBOWS SHALL HAVE TURNING VANES.
- PROVIDE A MANUAL VOLUME DAMPER AT ALL BRANCH TAKE-OFFS.
- ALL DUCTWORK SHALL BE GALVANIZED SHEET METAL CONSTRUCTED IN ACCORDANCE WITH SMACNA STANDARDS.
- ALL DUCT DIMENSIONS SHOWN ARE INTERIOR DUCT DIMENSIONS.
- LOW PRESSURE DUCTWORK SHALL BE CONSTRUCTED FOR A 2" STATIC PRESSURE RATING WITH A CLASS "C" SEAL.
- CONTRACTOR SHALL PROVIDE SEISMIC SUPPORTS AS REQUIRED BY NCSC, VOLUME I, SECTION 1607.
- ROOF CURBS SHALL HAVE A BASE THAT FITS SLOPE OF ROOF AS REQUIRED. TOP OF CURB SHALL BE LEVEL. SEE STRUCTURAL PLANS FOR SLOPE INFORMATION.
- EACH AIR DISTRIBUTION SYSTEM SHALL BE EQUIPPED WITH A MANUAL CONTROL TO STOP SUPPLY AND RETURN FANS IN CASE OF AN EMERGENCY. THE CONTROL DEVICE SHALL BE MOUNTED IN A READILY ACCESSIBLE LOCATION AND CLEARLY IDENTIFIED.
- PROTECT ALL DUCT AND PIPING PENETRATIONS OF FIRE RATED WALLS/ FLOORS PER CODE. PROTECTION SYSTEM SHALL BE UL LISTED.
- M.C. SHALL COORDINATE ALL MECHANICAL EQUIPMENT CONNECTIONS & REQ'TS. W/EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN & INSTALLATION.
- EXTEND COND. DRAIN LINES TO FLOOR DRAIN/DRYWELL OR AS INDICATED ON PLANS. ROUTE SO AS TO AVOID INTERFERENCE WITH PASSAGEWAYS, EQUIP. & SERVICE AREAS, ETC. DRAINS FROM AHU'S SHALL BE TRAPPED.
- MAINTAIN MIN. 10' BETWEEN OUTDOOR AIR INTAKES AND EXHAUST FAN DISCHARGE, PLUMBING VENTS, GAS FLUES, ETC.
- ALL EQUIPMENT SHALL BE INSTALLED WITH CODE & MFG. REQUIRED SERVICE/ACCESS SPACE. PROVIDE ACCESS PANELS WHERE REQ'D.
- SPACE ABOVE CEILING IS EXTREMELY TIGHT. COORD. ALL WORK IN THE FIELD PRIOR TO FABRICATION.
- RUN DUCT UP WITHIN STRUCTURE/THRU JOIST WEBS WHERE POSSIBLE & WHERE REQUIRED TO MAINTAIN CEILING HEIGHTS, PROVIDE OFFSETS IN DUCT WHERE REQ'D. (KEEP NUMBER TO MINIMUM), MAKE BRANCH TAPS OFF TOP, SIDE, ETC., AS REQ'D.
- WHERE WALLS EXTEND TO THE FLOOR/ROOF STRUCTURE ABOVE AND/OR CONTAIN SOUND ATTENUATION MATERIALS, PROVIDE RETURN AIR DUCT/ SOUND TRAP FOR FULL RETURN AIR CAPABILITY FROM ALL SPACES. FIELD VERIFY ALL LOCATIONS.
- PROVIDE CONC. HOUSEKEEPING PADS AT ALL FLOOR MOUNTED EQUIP. REFER TO CONCRETE SPECIFICATION SECTION FOR CONC. WORK. COORD. ALL LOCATIONS W/ARCH. PLANS, GC, ETC.



9 WALL KITCHEN HOOD DETAIL
 M8 NOT TO SCALE

KITCHEN HOOD NOTES

- KITCHEN EXHAUST DUCT TO BE CONSTRUCTED OF CONTINUOUSLY WELDED 16 GAUGE BLACK IRON.
- SLOPE EXHAUST DUCT 1" PER FOOT MINIMUM.
- RADIUS THROAT AND ELBOW OS EXHAUST DUCT
- OFFSETS WITH MINIMUM 6" INNER RADIUS PROVIDE CLEAN-OUTS PER CODE.
- WRAP ENTIRE DUCT W/UL "FIRE MASTER" BY THERMAL COVINGS, FROM HOOD EXHAUST TO FAN DISCHARGE.
- DUCT WRAP TO BE INSTALLED PER MFG'S REQUIREMENTS AND UL CLASSIFICATION AND TESTS.
- GC TO SPACE STRUCTURE TO ACCOMMODATE DUCTS W/WRAP.
- PROTECT CLEAN-OUTS PER MFG'S AND U.L. REQUIREMENTS.
- PROVIDE WITH FACTORY PRE-WIRED MOTOR CONTROL PACKAGE.

MECHANICAL LEGEND

— DTS — DUEL TEMP. WATER SUPPLY	— R — RISE IN ELEVATION OF HORIZONTAL DUCTWORK IN DIRECTION OF AIRFLOW
— DTR — DUEL TEMP. WATER RETURN	— D — DROP IN ELEVATION OF HORIZONTAL DUCTWORK IN DIRECTION OF AIRFLOW
— GATE VALVE (G.V.)	— MOD — MOTOR OPERATED DAMPER (MOD)
— BALANCING VALVE (B.V.) — DEZURICK	— MVD — MANUAL VOLUME DAMPER (MVD)
— BALL VALVE	— DMS — DUCT MOUNTED SMOKE DETECTOR — PROVIDED AND WIRED BY E.C. AND INSTALLED BY M.C.
— BUTTERFLY VALVE (B.F.V.)	— FSD — FIRE DAMPER WITH ACCESS DOOR, (UL 555 S)
— MOTOR OP. BUTTERFLY VALVE	— SD — SMOKE DAMPER (UL 555 S)
— GLOBE VALVE (G.L.V.)	— FSD/SD — COMBINATION FIRE AND SMOKE DAMPER (UL 555 S) WITH ACCESS DOOR.
— SWING CHECK VALVE	— AD — ACCESS DEVICE — SEE SPECIFICATIONS
— NON-SLAM CHECK VALVE	— SUPPLY DUCT — TURNING UP
— METERING AND BALANCING FITTING (CIRCUIT SETTER)	— SD — SUPPLY DUCT — TURNING DOWN
— FLOW METERING FITTING	— RETURN/EXHAUST/RELIEF/OA DUCT TURNING UP
— "Y" PATTERN STRAINER W/ BLOWDOWN	— RETURN/EXHAUST/RELIEF/OA DUCT TURNING DOWN
— BASKET STRAINER	— § — SWITCH
— UNION	— (H) — HUMIDISTAT
— HOSE END DRAIN VALVE	— (T) — THERMOSTAT
— DIRECTION OF FLOW	— MC — MECHANICAL CONTRACTOR
— PITCH PIPE DOWN IN DIRECTION OF FLOW	— EC — ELECTRICAL CONTRACTOR
— PIPE EXPANSION JOINT	— PC — PLUMBING CONTRACTOR
— PIPE GUIDES	— GC — GENERAL CONTRACTOR
— PIPE ANCHOR	— AFF — ABOVE FINISHED FLOOR
— ECCENTRIC REDUCER	— DETAIL OR SECTION NUMBER
— PIPE TURNING DOWN	— SHEET ON WHICH DETAIL OR SECTION APPEARS
— PIPE TURNING UP	— (A) 12x12 250 — GRILLE, REGISTER OR DIFFUSER DESIGNATION
— TEE WITH BRANCH OFF TOP OF MAIN	— 21x12 — RECTANGULAR DUCT
— TEE WITH BRANCH OFF BOTTOM OF MAIN	— 12" — ROUND DUCT
— CONNECT NEW TO EXISTING	
— E.T.R. — EXISTING TO REMAIN	
— △ — SPECIFIC NOTES	

KITCHEN FAN SCHEDULE

UNIT DESIG.	SERVICE	AREA SERVED	MANUFACTURER & MODEL #	FAN TYPE & ARRANGEMENT	CFM	S.P.	DRIVE TYPE	ELECTRICAL DATA			CONTROL SCHEME	NOTES
								HP	VOLTS/PH	WATTS		
KEF-1	HOOD EXHAUST	KITCHEN	CAPTIVEWARE CA-24B	CENTRIFUGAL UPBLAST	6000	0.75"	BELT	2	208V/3ø	—	ON-OFF	1 2 3 4 5
KSF-1	MAKE-UP	KITCHEN	CAPTIVEWARE RIF-24	FILTERED SUPPLY	4800	0.50"	BELT	1.5	208V/3ø	—	ON-OFF	1 2 3 5

NOTES:

- INTERLOCK WITH HOOD CONTROLS
- PROVIDE BACKDRAFT DAMPER
- PROVIDE WITH LOCAL DISCONNECT SWITCH
- UL LISTED FOR GREASE REMOVAL
- PROVIDE WITH FLAT ROOF CURB

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DRAWN	ALC
APPROVED	CTM

MECHANICAL DETAILS