



REQUEST FOR PROPOSAL

Project Title: Cooley Laboratory Renovation
Location: Montana State University

PPA No.: 10-0023
RFP No.: 55R
Date: July 13, 2012

To: Dick Anderson Construction
4498 Jackrabbit Lane
Bozeman, MT 59718

Attention: Platisha

From: Cecilia Vaniman, Project Manager
Cooley Lab Renovation
Montana State University

Attention:

In order to expedite the Work and avoid or minimize delays in the Work the following information is requested. Please return a response by: 07/20/2012 Date Sent: 07/13/2012 Date Received:

Proposal Requested:

REVISE THE HVAC ACCESS DOORS – KEY SWITCHES FOR SMOKE DETECTORS

Notwithstanding the requirements of the Contract Documents . Please provide the revisions to the HVAC access as depicted on the attached sheets and relocation of Fire Smoke Detectors Key switches. Access to Phoenix valves.

Note: Some of the revisions contained on the attached sheets are within the contract requirements –Do not include Those access doors in the price proposal.

Relocate Key test switches for Smoke Detectors where required.

SEE ATTACHED SHEETS RFP 55R 1-10

This RFP is for pricing purposes only. The contractor shall not proceed with the scope of work described within until pricing is approved by the owner in writing.

Distribution: [] Owner [] Agency [x] Architect [x] Contractor [] Engineer [] Other

224 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.432.8558
FAX 406.773.8720



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4121 FAX: 406.994.6572

Architects Design Group PC
1 SUNSET PLAZA, KALISPELL, MT 446 257 1725

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Cooley Lab Renovation
Bozeman, Montana**



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APPROVED BY: MJB



M.B. PFA 15-003
ADD 15-003

BASEMENT MECHANICAL PLAN (WEST)

M2.0.2

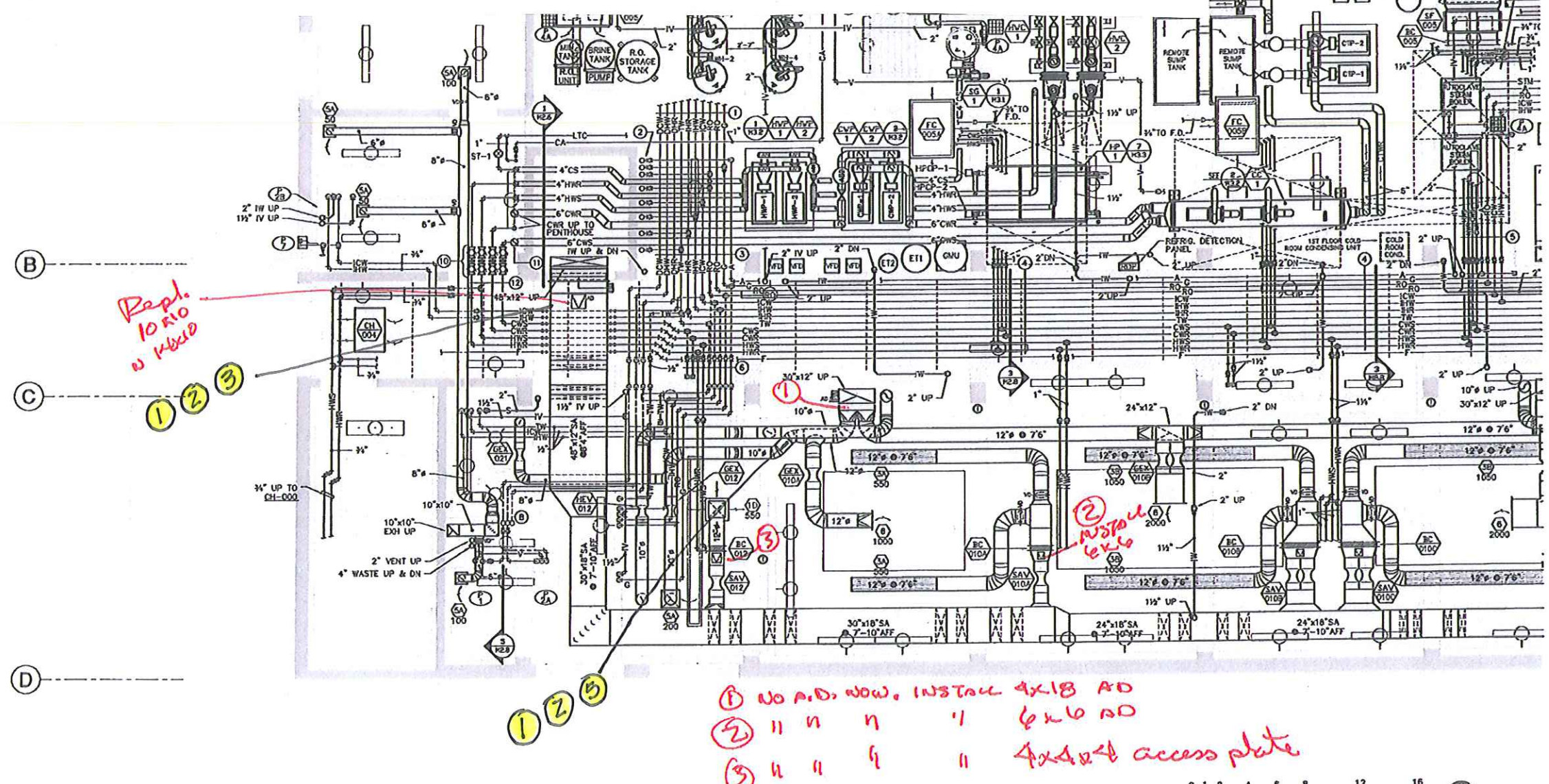
March 14, 2011

SPECIFIC SHEET NOTES:

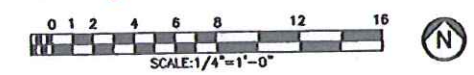
- 1 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
DCW = 3" BFW = 1 1/2"
DIW = 1" ICW = 2"
DHR = 3/4" RO = 1 1/4"
TW = 1 1/2" G = 2"
HR = 1 1/4" O = 2"
- 2 FOR RISER SIZES SEE THE FOLLOWING:
A = 1" ICW = 2"
G = 2" BFW = 1 1/2"
RO = 1 1/4" HR = 1 1/4"
RO = 1 1/4" TW = 1 1/2"
- 3 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
DCW = 3" BFW = 3/4"
DIW = 1" RO = 1 1/4"
DHR = 3/4" HR = 1 1/4"
TW = 1 1/2" G = 1 1/4"
HR = 3/4" A = 3/4"
- 4 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" HR = 3/4"
G = 1 1/4" TW = 1 1/2"
RO = 1 1/4" CWS = 2"
RO = 1 1/4" CWR = 2"
ICW = 3/4" HWS = 1 1/2"
BFW = 3/4" HHR = 1 1/2"
- 5 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWS = 1 1/4" RO = 1 1/4"
HHR = 1 1/4" ICW = 3/4"
CWS = 1" BFW = 3/4"
CWR = 1" A = 3/4"
- 6 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
CWS = 1 1/4" BFW = 1 1/2"
CWR = 1 1/4" RO = 1 1/2"
TW = 1 1/2" G = 1 1/2"
ICW = 3/4"
- 7 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWS = 3/4" ICW = 3/4"
HHR = 3/4" BFW = 1 1/2"
TW = 1 1/2" RO = 1 1/2"
G = 1 1/2"
- 8 FOR RISER SIZES SEE THE FOLLOWING:
DCW = 3"
DIW = 1"
DHR = 3/4"
- 9 PROVIDE ISOLATION VALVE AND SOLENOID VALVE WITH TIME CLOCK FOR TRAP PRIMER.
- 10 HEATING WATER AND CHILLED WATER FLOOR SUPPLY ISOLATION VALVES AND DIELECTRIC FLANGES FOR PIPE MATERIAL CHANGE. SEE DETAIL 2, SHEET M2.2.1.
- 11 FOR RISER SIZES SEE THE FOLLOWING:
CA = 1" HWS = 4"
LTC = 1" CWR = 6"
CS = 4" CWR = 2"
HHR = 4" CWS = 6"
- 12 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HHR = 2"
HWS = 2"
CWR = 2"
CWS = 2"

NOTE: COORDINATE ALL DUCT AND PIPE HANDERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONTACTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.

- 1 Move **ALL** fire/smoke dampers Test Switches to the height of those in the labs (verify at 5'-0"). Provide wiring inside walls cavities where possible. Only surface mounted locations are to be on concrete or CMU walls. Verify locations of each one with Cecilia Vaniman.
- 2 Enlarge removable insulation at locations of fire/smoke dampers,
- 3 Provide removable insulation at the locations of Fire Relay boxes, to allow access.
- 4 Check **EVERY** Phoenix Valve and make revisions where required. All valves must have a clear space of 14 inches in front of the valve for access, as required by the manufacturer. They must be accessible as well. Some valves facing piping or walls will have to be relocated, typical throughout.
- 5 Remove fire sprinkler piping to allow access to fire/smoke damper.
- 6 Add Valves at meter.
- 7 Move/ reconfigure condensate to allow access to fire/smoke damper and actuator, etc.
- 8 Add 8"x6" oval access to duct.



1 BASEMENT MECHANICAL PLAN (WEST)
1/4"=1'-0"



324 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.432.9508
FAX 406.777.8720



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4121 FAX: 406.994.6572

Architects Design Group PC
150 WEST PLAZA, KALISPELL, MT 59717

**Montana State University
Cooley Lab Renovation
Bozeman, Montana**



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APPROVED BY	MJB	
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1	ISSUE FOR PERMITS	



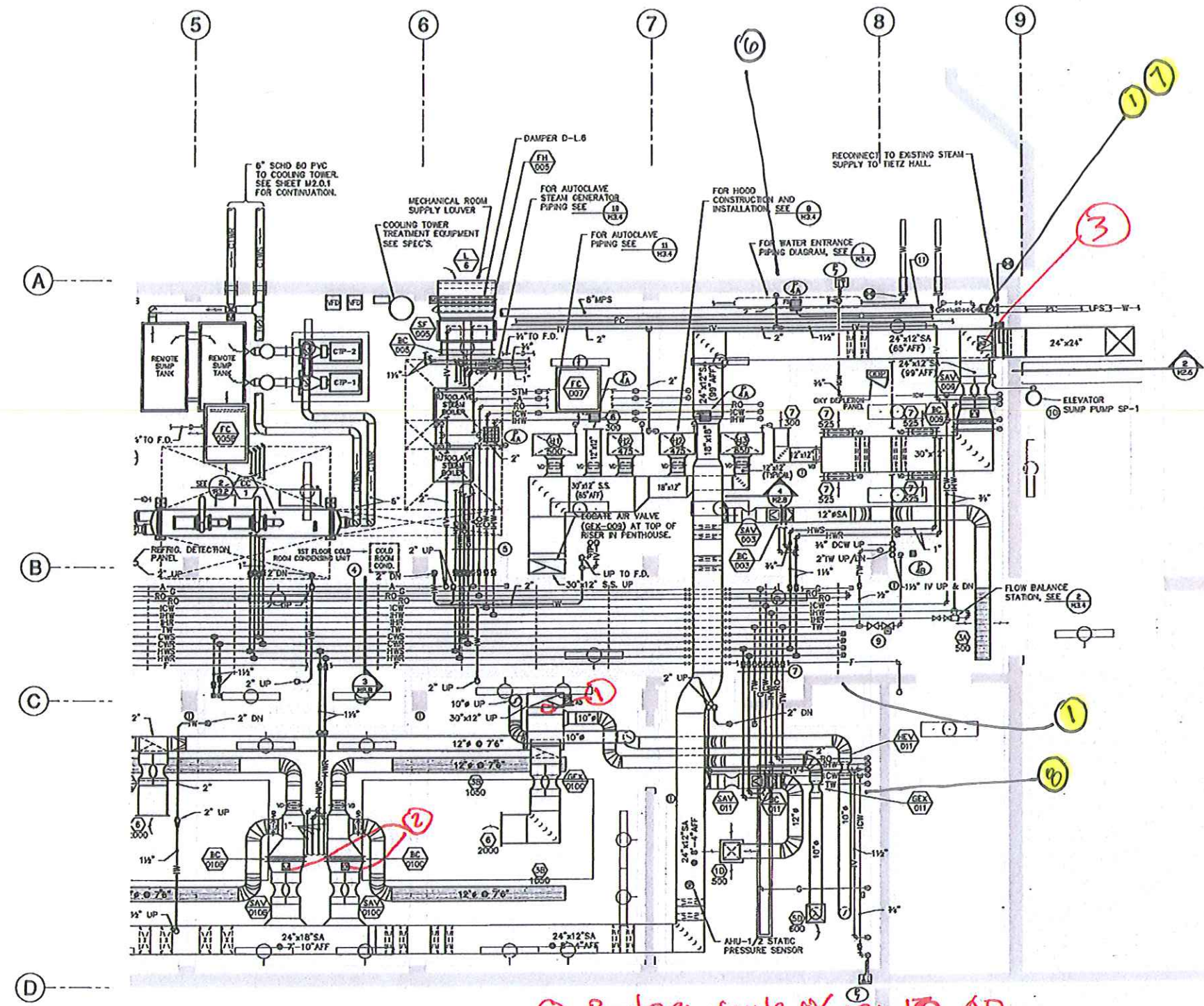
MOUNTAIN ENGINEERS
MONTANA PROFESSIONAL ENGINEERS
MONTANA PERMITS DIVISION
APR 14 2011

BASEMENT MECHANICAL PLAN (EAST)

M2.0.3
March 14, 2011

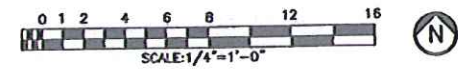
SPECIFIC SHEET NOTES:

- 1 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
DCW = 3" BHW = 1 1/2"
DHW = 1" ICW = 2"
DHR = 3/4" RO = 1 1/4"
TW = 1 1/4" RO = 1 1/4"
HR = 1 1/4" G = 2"
- 2 FOR RISER SIZES SEE THE FOLLOWING:
A = 1" ICW = 2"
G = 2" BHW = 1 1/2"
RO = 1 1/4" BHR = 1 1/4"
RO = 1 1/4" TW = 1 1/4"
- 3 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
DCW = 3" ICW = 3/4"
DHW = 1" RO = 1 1/4"
DHR = 3/4" RO = 1 1/4"
TW = 1 1/4" G = 1 1/4"
HR = 3/4" A = 3/4"
- 4 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BHR = 3/4"
G = 1 1/4" TW = 1 1/4"
RO = 1 1/4" CWS = 2"
RO = 1 1/4" CWR = 2"
ICW = 3/4" HWS = 1 1/4"
DHW = 3/4" HHR = 1 1/4"
- 5 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWS = 1 1/4" A = 3/4"
HHR = 1 1/4" RO = 1 1/4"
CWS = 1" ICW = 3/4"
CWR = 1" DHW = 3/4"
- 6 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
CWS = 1 1/4" BHW = 1 1/2"
CWR = 1 1/4" RO = 1 1/4"
TW = 1 1/4" G = 1 1/2"
ICW = 3/4"
- 7 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWS = 3/4" ICW = 3/4"
HHR = 3/4" BHW = 3/4"
TW = 1 1/4" RO = 3/4"
G = 3/4" TW = 3/4"
- 8 FOR RISER SIZES SEE THE FOLLOWING:
DCW = 3"
DHW = 1"
DHR = 3/4"
- 9 TEMPERED WATER PURGE ASSEMBLY. SEE DETAIL 9, SHEET M3.4.
- 10 ROUTE 1 1/4" TYPE 'L' COPPER ELEVATOR SUMP PUMP DISCHARGE TO NEAREST FLOOR DRAIN.
- 11 RELOCATE EXISTING ISOLATION VALVE AND ACTUATOR AND PRESSURE SENSOR FROM EXISTING TETZ HALL STEAM SUPPLY LINE TO THE NEW LINE IN A SIMILAR ARRANGEMENT AND LOCATION.



1 BASEMENT MECHANICAL PLAN (EAST)
1/4"=1'-0"

- 1 Replace 6x6 w/ 18x18 AD.
- 2 Replace 6x6 w/ 12x8 AD
- 3 ADD 12x12 AD.



NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS WHERE COLLISIONS OCCUR. BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.

354 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.432.9508
F 406.727.8720
2201 W BROADWAY, STE. 4
BOZEMAN, MT 59708
PH 406.721.5239
F 406.721.8718



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6772

Architects Design Group PC
1 SUNSET PLAZA, KALISPELL, MT 59612-7115

**Montana State University
Cooley Lab Renovation
Bozeman, Montana**



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CHECKED BY:	DJB	
APPROVED BY:	MJB	
REV	DESCRIPTION	DATE
1	ISSUE	12/11/10
2	ISSUE	12/11/10
3	ISSUE	12/11/10
4	ISSUE	12/11/10
5	ISSUE	12/11/10
6	ISSUE	12/11/10

MONTANA STATE UNIVERSITY
MICHAEL J. BENDER
REGISTERED PROFESSIONAL ENGINEER
M.S.U. P.E. 10-0033
AUG 18-99

FIRST FLOOR MECHANICAL PLAN (WEST)
M2.1.1
March 14, 2011

SPECIFIC SHEET NOTES:

- ① FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
CA	= 1"	HWS	= 2"
LTC	= 1"	HWR	= 2"
CS	= 4"	CWR	= 2"
HWS	= 4"	CWS	= 2"
HWR	= 4"		
CWR	= 4"		
CHR	= 2" DN, 3" UP		
CWS	= 6"		
- ② FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
DCW	= 2"	DCW	= 2"
DHW	= 2"	DHW	= 1 1/2"
DWR	= 1"	DWR	= 3/4"
- ③ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWS	= 3/4"
HWR	= 3/4"
- ④ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

CWS	= 2"	HWS	= 2"
CHR	= 2"	F	= 4"
HWR	= 2"		
- ⑤ FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
A	= 3/4"	ICW	= 1"
G	= 1 1/4"	BHW	= 1 1/4"
RO	= 1"	BHR	= 1"
RO	= 1"	TW	= 1 1/2"
		RO	= 1"
		TW	= 1 1/2"
- ⑥ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR	= 1"
HWS	= 1"
- ⑦ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR	= 1 1/2"
HWS	= 1 1/2"
- ⑧ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

RO	= 3/4"
IV	= 1 1/2"
ICW	= 3/4"
BHW	= 3/4"
TW	= 3/4"
- ⑨ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 3/4"	ICW	= 1"	CWS	= 2"	HWS	= 1 1/2"
G	= 1"	BHW	= 1"	CHR	= 2"	TW	= 1 1/2"
RO	= 1"	BHR	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	CWS	= 2"				
- ⑩ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

TW	= 1 1/2"	IV	= 1 1/2"
BHW	= 1 1/2"	RO	= 1 1/2"
ICW	= 1 1/2"	TW	= 1 1/2"
- ⑪ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

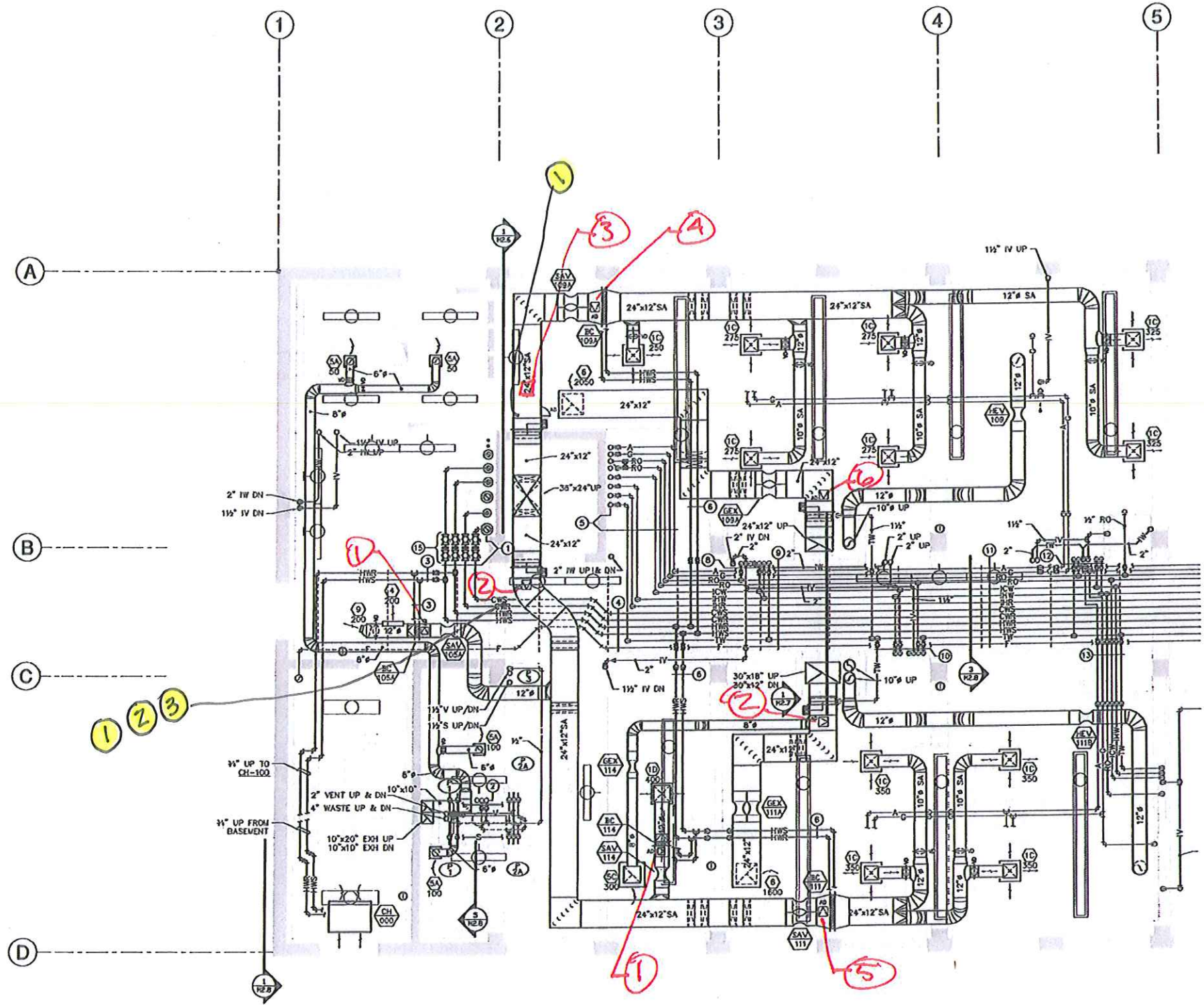
A	= 1/2"	ICW	= 1"	CHR	= 2"	TW	= 1 1/2"
G	= 1"	BHW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BHR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 2"				
- ⑫ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 1/2"	RO	= 1 1/2"
G	= 3/4"	ICW	= 3/4"
TW	= 1 1/2"	BHW	= 3/4"
- ⑬ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 1/2"	ICW	= 1/2"
G	= 3/4"	BHW	= 1/2"
RO	= 1/2"	TW	= 1/2"
- ⑭ ROUTE 3/4" CONDENSATE DRAINS TO EXTRA P-TRAP UNDER SINK.
- ⑮ HEATING WATER AND CHILLED WATER FLOOR SUPPLY ISOLATION VALVES AND DIELECTRIC FLANGES FOR PIPE MATERIAL CHANGE. SEE DETAIL 2, SHEET M2.2.1.

- ① 4x4x4 PLATE
- ② REPLACE 10x10 W/12x12
- ③ ADD 12x12 A.D. BELOW SMOKE DETECTOR
- ④ ADD 12x8 UPSTREAM OF COIL
- ⑤ REPLACE COIL W/8x12
- ⑥ EXISTING 10x10 TO REMAIN

NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.



① FIRST FLOOR MECHANICAL PLAN (WEST)
1/4"=1'-0"



124 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.433.8508
FX 406.727.9729

229 W BROADWAY, S.W. 4
MISSOULA, MT 59808
PH 406.728.5828
FX 406.721.8718



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6572

Architects Design Group PC
130 WEST PLAZA
KALISPELL, MT 44827-7195

**Montana State University
Cooley Lab Renovation
Bozeman, Montana**



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CHECKED BY:	DJB	
APPROVED BY:	MJB	
REV	DESCRIPTION	DATE

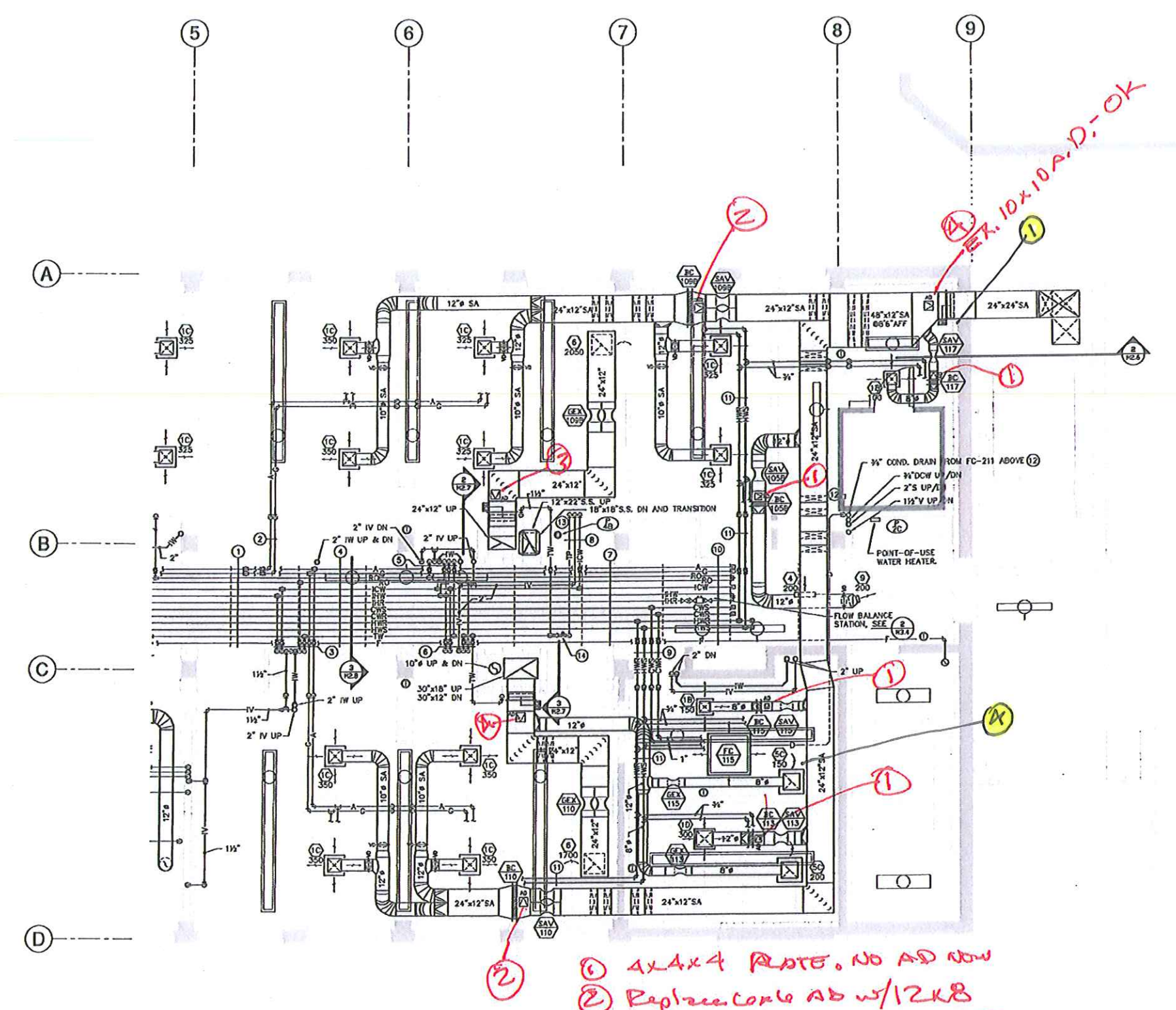


FIRST FLOOR MECHANICAL PLAN (EAST)

M2.1.2

March 14, 2011

- SPECIFIC SHEET NOTES:**
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 1" HWS = 1 1/2"
G = 1" BFR = 3/4" TF = 1 1/2"
RO = 1" CWS = 2" F = 4"
ICW = 1" CWR = 2"
ICW = 1" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4"
G = 3/4"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4"
G = 3/4"
RO = 3/4"
TF = 3/4"
ICW = 3/4"
BFW = 3/4"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 1" HWS = 1 1/2"
G = 1" BFR = 3/4" TF = 1 1/2"
RO = 1" CWS = 2" F = 4"
ICW = 1" CWR = 2"
ICW = 1" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
RO = 3/4"
IV = 3/4"
ICW = 3/4"
BFW = 3/4"
TF = 3/4"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 3/4" HWS = 1 1/2"
G = 1" BFR = 3/4" TF = 1 1/2"
RO = 1" CWS = 2" F = 4"
ICW = 3/4" CWR = 2"
ICW = 3/4" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
ICW = 3/4"
TP = 3/4"
IV = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1 1/2"
HWS = 1 1/2"
CWR = 1"
CWS = 1"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 3/4" HWS = 1"
G = 1" BFR = 3/4" F = 4"
RO = 1" CWS = 1 1/2"
ICW = 3/4" CWR = 1 1/2"
ICW = 3/4" HWR = 1"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
 - ROUTE 3/4" CONDENSATE DRAINS TO EXTRA P-TRAP UNDER SINK.
 - 3/4" TRAP PRIMER, TYPE 'L' COPPER.
 - TEMPERED WATER PURGE ASSEMBLY, SEE DETAIL 9, SHEET M3.4.



① FIRST FLOOR MECHANICAL PLAN (EAST)
1/4"=1'-0"

554 FIRST ANGLE S
GREAT FALLS, MT 59401
406.433.8058
406.727.8729

2291 W BROADWAY, STE. 4
MISSOULA, MT 59803
406.729.5634
406.721.8718



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6572

Architects Design Group PC
1300 SWEET PLAZA
KALISPELL, MT 446 257 7925

**Montana State University
Cooley Lab Renovation
Bozeman, Montana**



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APPROVED BY:	MJB
REV DESCRIPTION	DATE



SECOND FLOOR MECHANICAL PLAN (WBST)

M2.2.1

March 14, 2011

SPECIFIC SHEET NOTES:

- 1 FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
CA	= 1"	HWS	= 2"
LTC	= 1"	HWR	= 2"
CS	= 4"	CWR	= 1 1/2"
HBR	= 4"	CWS	= 1 1/2"
CHR	= 6"		
CWR	= 3"		
CWS	= 6"		
- 2 FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
DCW	= 2"	DCW	= 2"
DHW	= 2"	DHW	= 1 1/2"
DHR	= 1"	DHR	= 3/4"
- 3 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

ICW	= 3/4"
IFW	= 3/4"
- 4 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

CWS	= 1 1/2"	HWS	= 2"
CWR	= 1 1/2"	F	= 4"
HWR	= 2"		
- 5 FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES					
A	= 1"	ICW	= 1 1/2"	A	= 3/4"	ICW	= 1"
G	= 1 1/4"	IFW	= 1 1/2"	G	= 1"	IFW	= 1"
RO	= 1"	BR	= 1"	RO	= 1"	BR	= 3/4"
RO	= 1"	TW	= 1 1/2"	RO	= 1"	TW	= 1 1/2"
- 6 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR	= 1"
HWS	= 1"
- 7 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

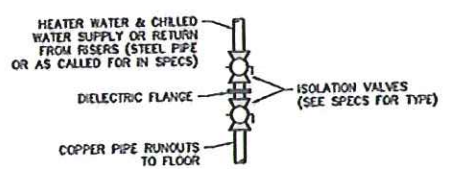
HWR	= 3/4"
HWS	= 3/4"
- 8 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 3/4"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
G	= 1"	IFW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 9 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 1 1/2"
G	= 3/4"
- 10 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

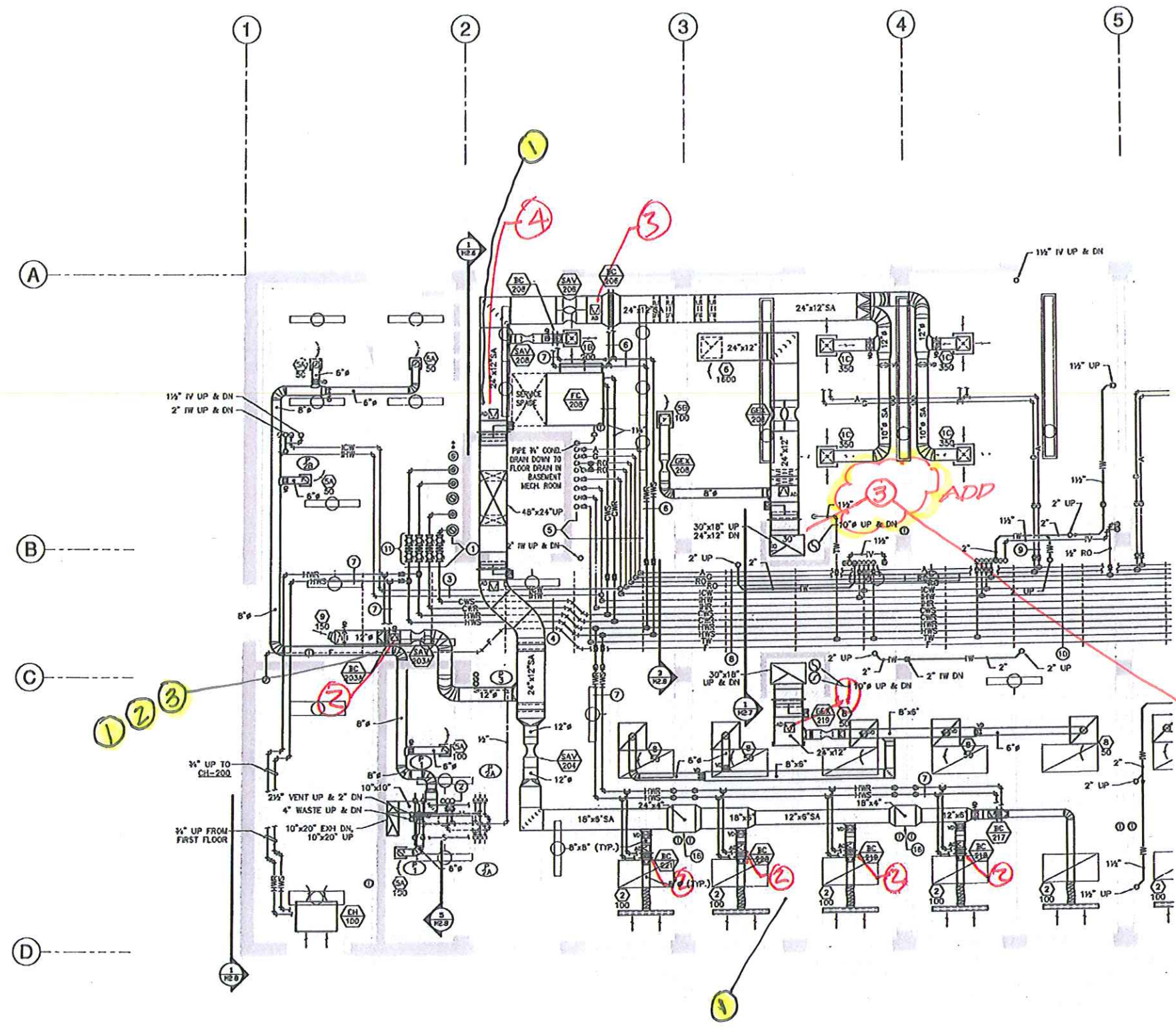
A	= 3/4"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
G	= 1"	IFW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 11 HEATING WATER AND CHILLED WATER FLOOR SUPPLY ISOLATION VALVES AND DIELECTRIC FLANGES FOR PIPE MATERIAL CHANGE. SEE DETAIL 2, SHEET M2.2.1.
- 12 ROUTE 3/4" CONDENSATE DRAINS TO EXTRA P-TRAP UNDER SINK ON FIRST FLOOR.
- 13 HOLD DUCT TRIGHT TO BOTTOM OF BEAM.

- 1 Replace 10x10 A.D. w/ 12x12 A.D.
- 2 4x4x4 plate
- 3 Replace 8x8 w 12x8
- 4 10 K10 TO REMAIN

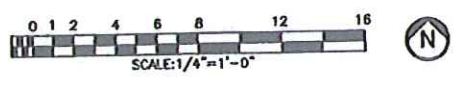


2 FLOOR SUPPLY ISOLATION VALVES
NO SCALE

NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL BEARING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.



1 SECOND FLOOR MECHANICAL PLAN (WEST)
1/4"=1'-0"



534 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.433.8008
FAX 406.727.8720



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4331 FAX: 406.994.6272

Architects Design Group PC
1 SUNSET PLAZA KALISPELL, MT 49629-7425

**Montana State University
Cooley Lab Renovation
Bozeman, Montana**



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CHECKED BY	DJB	
APPROVED BY	MJB	
REV	DESCRIPTION	DATE



SECOND FLOOR MECHANICAL PLAN (EAST)

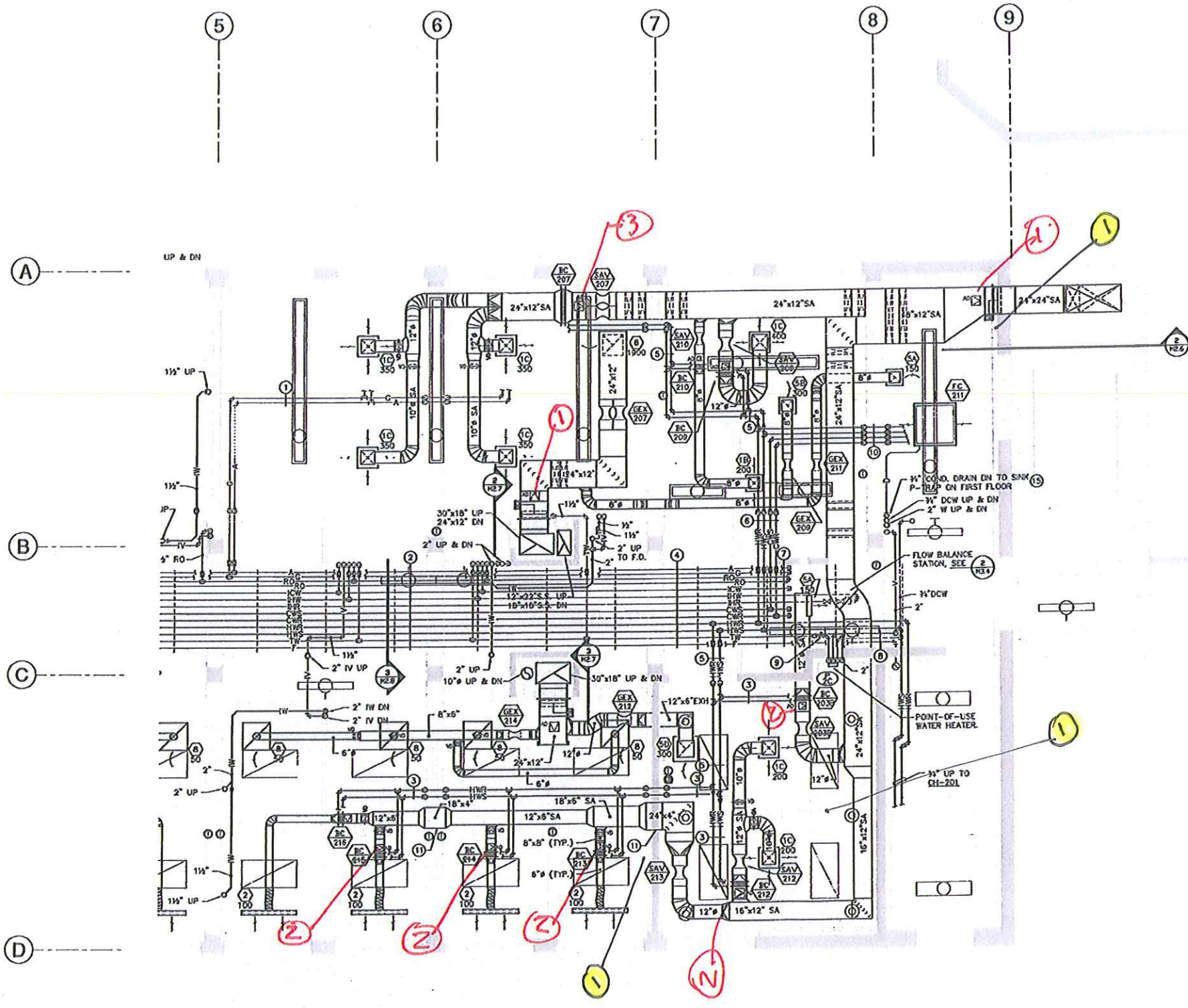
M2.2.2

March 14, 2011

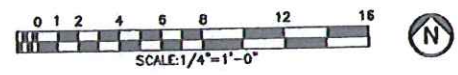
SPECIFIC SHEET NOTES:

- ① FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 1/2" BFW = 3/4" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" CWR = 1 1/2"
HWR = 1 1/2"
- ② FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 1/2" BFW = 3/4" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" CWR = 1 1/2"
HWR = 1 1/2"
- ③ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 3/4"
HWS = 3/4"
- ④ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 1/2" BFW = 3/4" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" CWR = 1 1/2"
HWR = 1 1/2"
- ⑤ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
- ⑥ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1 1/2"
HWS = 1 1/2"
CWS = 1"
CWR = 1"
- ⑦ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 1/2" BFW = 3/4" HWS = 1"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" CWR = 1"
- ⑧ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
V = 1 1/2"
TW = 3/4"
F = 4"
- ⑨ TEMPERED WATER PURGE ASSEMBLY, SEE DETAIL 9, SHEET M3.4.
- ⑩ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
CWS = 1"
CWR = 1"
- ⑪ HOLD DUCT TIGHT TO BOTTOM OF BEAM.

① EXISTING 10x10. Replace w/12x12
② ADD 4x4x4 plate
③ REPLACE 6x6 with 12x8 A.D.



① SECOND FLOOR MECHANICAL PLAN (EAST)
1/4"=1'-0"



NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.

524 FIRST AVENUE S
GREAT FALLS, MT 59401
PH 406.433.8558
FX 406.727.8720

2291 W BROADWAY, S.W. 4
MISSOULA, MT 59809
PH 406.721.5838
FX 406.721.8718



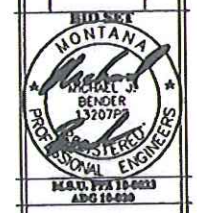
MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6272

Architects
Design Group PC
1 SUNSET PLAZA
KALISPELL, MT 49627-1225

Montana State University
Cooley Lab Renovation
Bozeman, Montana



DRAWN BY	MJB	
CHECKED BY	DJB	
APPROVED BY	MJB	
REV	DESCRIPTION	DATE



THIRD FLOOR MECHANICAL PLAN (WBST)

M2.3.1

March 14, 2011

SPECIFIC SHEET NOTES:

- ① FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES	BRANCH PIPE SIZES
CA = 1"	HWS = 2"
LTC = 1"	HWR = 2"
CS = 4"	CWR = 1 1/2"
HWS = 4"	CWS = 1 1/2"
HWR = 4"	
CWR = 6"	
CWR = 3"	
CWS = 6"	
- ② FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES	BRANCH PIPE SIZES
DCW = 2"	DCW = 2"
DHW = 2"	DHW = 1 1/2"
DHR = 1"	DHR = 3/4"
- ③ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

ICW = 3/4"	
DHW = 3/4"	
- ④ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

CWS = 1 1/2"	HWS = 2"
CWR = 1 1/2"	F = 4"
HWR = 2"	
- ⑤ FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES	BRANCH PIPE SIZES		
A = 1"	ICW = 1 1/2"	A = 3/4"	ICW = 1"
G = 1 1/2"	BHW = 1 1/2"	A = 1"	DHW = 1"
RO = 1"	BWR = 1"	RO = 1"	BWR = 3/4"
RO = 1"	TW = 1 1/2"	RO = 1"	TW = 1 1/2"
- ⑥ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR = 1"	
HWS = 1"	
- ⑦ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR = 3/4"	
HWS = 3/4"	
- ⑧ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A = 3/4"	ICW = 1"	CWR = 1 1/2"	TW = 1 1/2"
C = 1"	BHW = 1"	HWS = 1 1/2"	DHW = 1"
RO = 1"	BWR = 3/4"	HWS = 1 1/2"	F = 4"
RO = 1"	CWS = 1 1/2"		
- ⑨ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

RO = 3/4"	
ICW = 3/4"	
DHW = 3/4"	
TW = 3/4"	
- ⑩ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

TW = 1 1/2"	
BHW = 3/4"	
ICW = 3/4"	
RO = 3/4"	
TW = 3/4"	
- ⑪ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A = 3/4"	ICW = 1"	CWR = 1 1/2"	TW = 1 1/2"
C = 1"	BHW = 1"	HWR = 1 1/2"	F = 4"
RO = 1"	BWR = 3/4"	HWS = 1 1/2"	
RO = 1"	CWS = 1 1/2"		
- ⑫ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

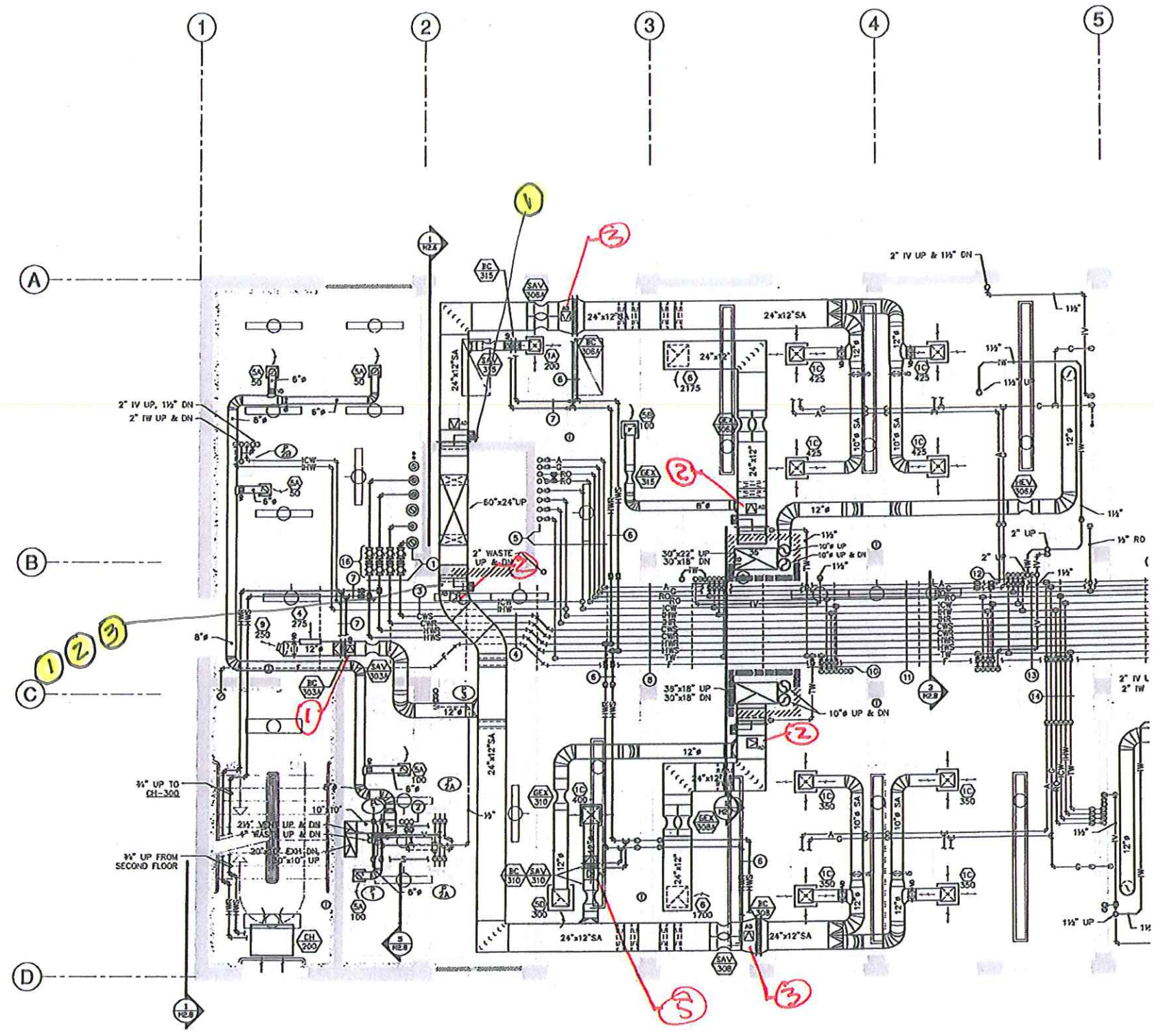
A = 3/4"	ICW = 3/4"		
G = 1"	BHW = 3/4"		
RO = 1/2"	TW = 3/4"		
- ⑬ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A = 3/4"	ICW = 1"	CWR = 1 1/2"	TW = 1 1/2"
C = 1"	BHW = 1"	HWR = 1 1/2"	F = 4"
RO = 1"	BWR = 3/4"	HWS = 1 1/2"	
RO = 1"	CWS = 1 1/2"		
- ⑭ FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

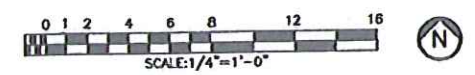
A = 3/4"	ICW = 3/4"		
G = 1"	BHW = 3/4"		
RO = 1/2"	TW = 3/4"		
- ⑮ ROUTE 3/4" CONDENSATE DRAINS TO EXTRA P-TRAP UNDER SINK.
- ⑯ HEATING WATER AND CHILLED WATER FLOOR SUPPLY ISOLATION VALVES AND DIELECTRIC FLANGES FOR PIPE MATERIAL CHANGE. SEE DETAIL 2, SHEET M2.2.1.

- ① 4x4 A.D. TO REMOVE
- ② REPLACE 10x10 w/ 12x12
- ③ REPLACE 606 w/ 8x12
- ④ 10x10 TO REMAIN
- ⑤ ADD 8x8 A.D.

NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.



① THIRD FLOOR MECHANICAL PLAN (WEST)
1/4"=1'-0"



524 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.432.8558
FAX 406.727.8720



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6572

Architects
Design Group PC
1 SUMMIT PLAZA
KALISPELL, MT 49727 TDS

Montana State University
Cooley Lab Renovation
Bozeman, Montana



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CHECKED BY	DJB
APPROVED BY	MJB
REV DESCRIPTION	DATE
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THIRD FLOOR MECHANICAL PLAN (EAST)

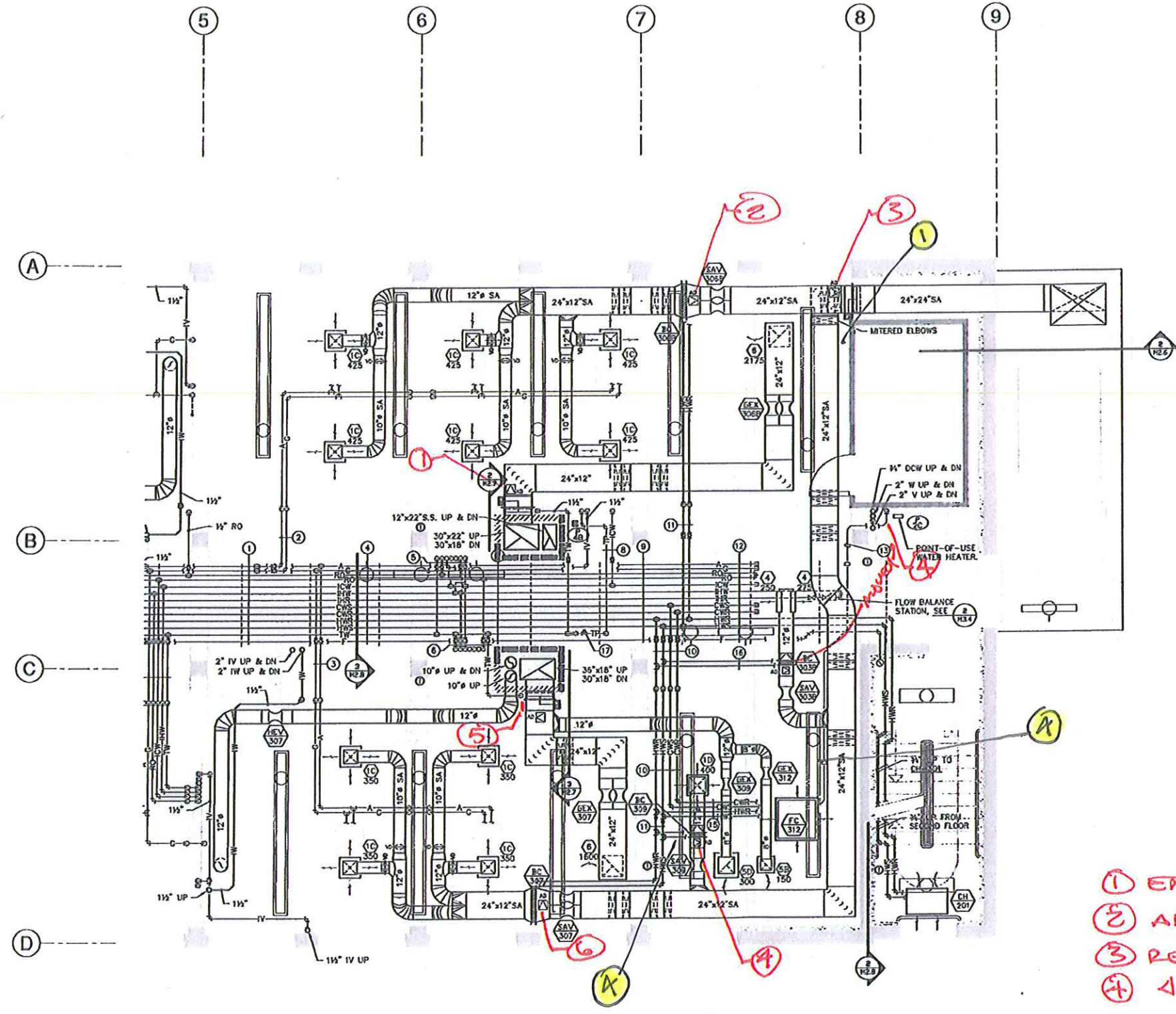
M2.3.2

March 14, 2011

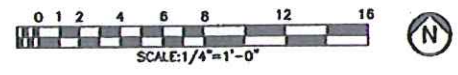
- SPECIFIC SHEET NOTES:**
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 1" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
RD = 1" CWR = 1 1/2"
ICW = 1" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4"
G = 3/4"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4"
G = 3/4"
RO = 3/4"
ICW = 3/4"
BFW = 3/4"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 1" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
RD = 1" CWR = 1 1/2"
ICW = 1" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
TW = 3/4"
RO = 3/4"
A = 3/4"
ICW = 3/4"
BFW = 3/4"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
TW = 3/4"
BFW = 3/4"
ICW = 3/4"
RO = 3/4"
TW = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 3/4" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
RD = 1" CWR = 1 1/2"
ICW = 3/4" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
ICW = 3/4"
TP = 3/4"
IV = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 3/4" HWS = 1 1/2"
G = 1" BFR = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
RD = 1" CWR = 1 1/2"
ICW = 3/4" HWR = 1 1/2"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1 1/2"
HWS = 1 1/2"
CWR = 1"
CWS = 1"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
CWR = 1"
CWS = 1"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" BFW = 3/4" HWS = 1"
G = 1" BFR = 3/4" F = 4"
RO = 1" CWS = 1 1/2"
RD = 1" CWR = 1 1/2"
ICW = 3/4" HWR = 1"
 - ROUTE 3/4" CONDENSATE DRAINS TO EXTRA P-TRAP UNDER SINK
 - 1/2" TRAP PRIMER, TYPE 1" COPPER
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
CWR = 1"
CWS = 1"
 - FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 3/4"
HWS = 3/4"
 - TEMPERED WATER PURGE ASSEMBLY, SEE DETAIL 9, SHEET M3.4

- ① EXISTING 10x10 A.D. TO REMAIN.
② ADD. 12x8 A.D.
③ REPLACE CORR w/ 10x10 A.D.
④ 4x4x4 PLATE
⑤ ADD 10x10 AD ON WEST SIDE OF DUCT
⑥ REPLACE CORR w/ 12x8 A.D.

NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.



1 THIRD FLOOR MECHANICAL PLAN (EAST)
1/4"=1'-0"



524 FIRST AVENUE S
GREAT FALLS, MT 59401
PH 408.432.8508
FX 408.727.8722



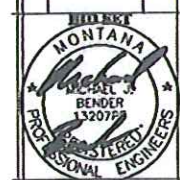
MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6572

Architects Design Group PC
KALISPELL, MT 408.737.7125
1 SUNSET PLAZA

**Montana State University
Cooley Lab Renovation
Bozeman, Montana**



DRAWN BY: MJB
CHECKED BY: DJB
APPROVED BY: MJB



MSU PFA 15-003
ADD 15-003
FOURTH FLOOR MECHANICAL PLAN (WEST)

M2.4.1

March 14, 2011

SPECIFIC SHEET NOTES:

- 1 FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
CA	= 1"	HWS	= 2"
LTC	= 1"	HWR	= 2"
CS	= 4"	CWR	= 1 1/2"
HWS	= 4"	CWS	= 1 1/2"
HWR	= 4"		
CWR	= 6"		
CWR	= 3"		
CWS	= 6"		
- 2 FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
DCW	= 2"	DCW	= 2"
DHW	= 2"	DHW	= 1 1/2"
DHR	= 1"	DHR	= 3/4"
- 3 (NOT USED)
- 4 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

CWS	= 1 1/2"	HWS	= 2"
CWR	= 1 1/2"	F	= 4"
HWR	= 2"		
- 5 FOR PIPING RISERS AND BRANCH SIZES SEE THE FOLLOWING:

RISER PIPE SIZES		BRANCH PIPE SIZES	
A	= 3/4"	ICW	= 1"
G	= 1"	BHW	= 1"
RO	= 1"	BHR	= 3/4"
RO	= 1"	RO	= 1"
		RO	= 1"
		TW	= 1 1/2"
		TW	= 1 1/2"
- 6 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR	= 1"
HWS	= 1"
- 7 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

HWR	= 3/4"
HWS	= 3/4"
- 8 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 1"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
G	= 1"	BHW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BHR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 9 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

RO	= 1/2"
ICW	= 1/2"
BHW	= 1/2"
TW	= 1/2"
- 10 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 3/4"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
G	= 1"	BHW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BHR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 11 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

RO	= 1/2"
BHW	= 1/2"
ICW	= 1/2"
TW	= 1/2"
- 12 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 3/4"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
G	= 1"	BHW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BHR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 13 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

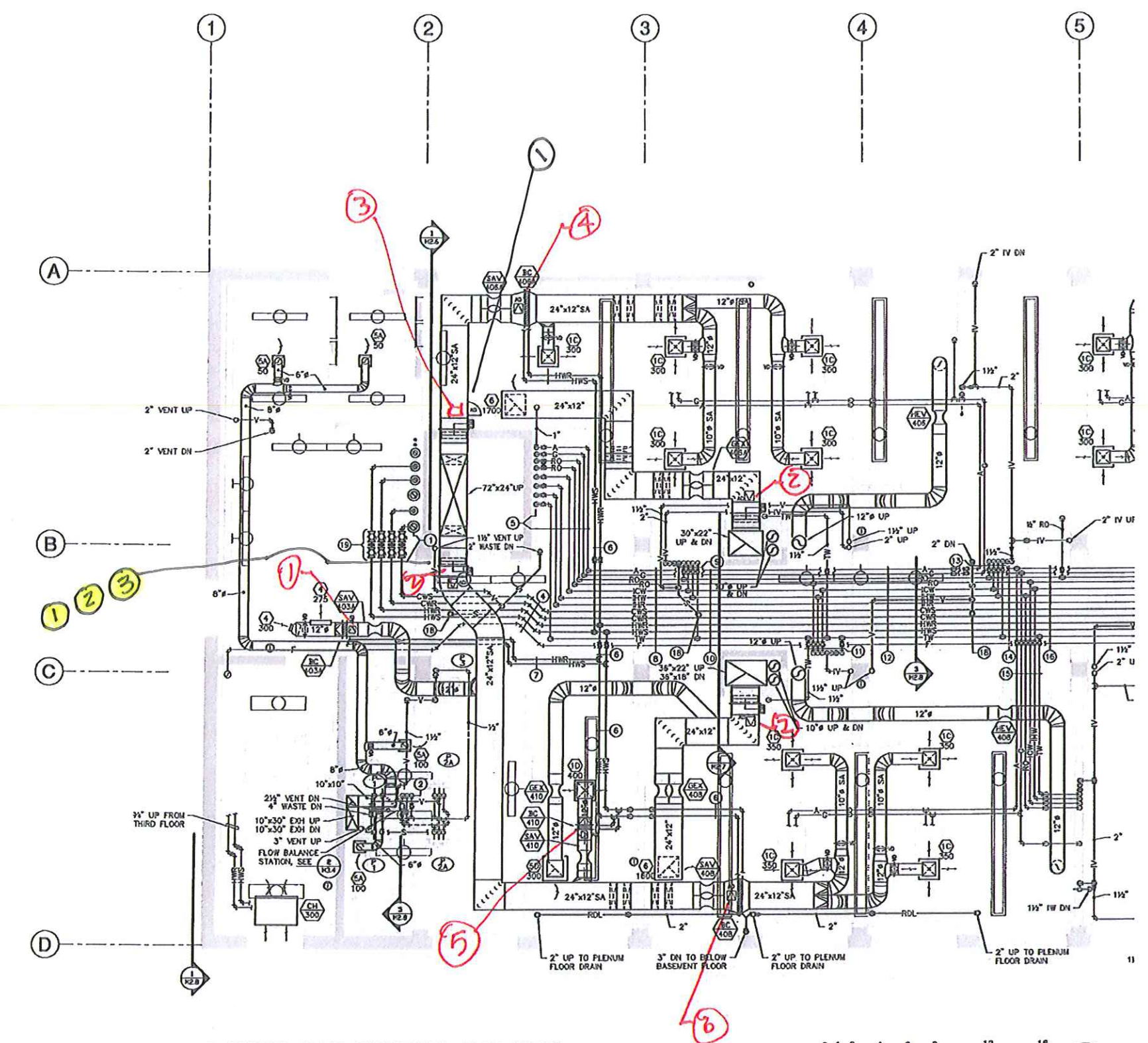
A	= 1/2"	ICW	= 1/2"
G	= 3/4"	BHW	= 1/2"
RO	= 1/2"	TW	= 1/2"
- 14 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 3/4"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
G	= 1"	BHW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BHR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 15 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

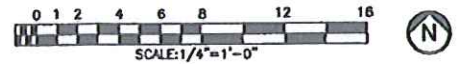
A	= 1/2"	ICW	= 1/2"
G	= 3/4"	BHW	= 1/2"
RO	= 1/2"	TW	= 1/2"
- 16 FOR PIPING BRANCH SIZES SEE THE FOLLOWING:

A	= 3/4"	ICW	= 1"	CWR	= 1 1/2"	TW	= 1 1/2"
C	= 1"	BHW	= 1"	HWR	= 1 1/2"	F	= 4"
RO	= 1"	BHR	= 3/4"	HWS	= 1 1/2"		
RO	= 1"	CWS	= 1 1/2"				
- 17 1/2" TRAP PRIMER, TYPE 'L' COPPER.
- 18 2" UP TO FLOOR DRAIN IN PENTHOUSE.
- 19 HEATING WATER AND CHILLED WATER FLOOR SUPPLY ISOLATION VALVES AND DIELECTRIC FLANGES FOR PIPE MATERIAL CHANGE. SEE DETAIL 2, SHEET M2.2.1.

1 ADD 4x4x4 PLATE
 2 REPLACE 10x10 AD W/8x12
 3 ADD R2x2 A.D.
 4 REPLACE 6x6 W/8x12
 5 ADD 8x8 A.D.
 6 LOOK AS IS



1 **FOURTH FLOOR MECHANICAL PLAN (WEST)**
1/4"=1'-0"



NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.

524 FIRST AVENUE S
GREAT FALLS, MT 59404
PH 406.432.8558
FAX 406.777.8720



MONTANA STATE UNIVERSITY
FACILITIES PLANNING, DESIGN & CONSTRUCTION
BOZEMAN, MONTANA
PHONE: 406.994.4131 FAX: 406.994.6572

Architects
Design Group PC
1 SUNSET PLAZA
MUSKIELL, MT 496-757175

Montana State University
Cooley Lab Renovation
Bozeman, Montana



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CHECKED BY	DJB	
APPROVED BY	MJB	
REV	DESCRIPTION	DATE
1	ISSUED FOR PERMIT	
2	REVISED	
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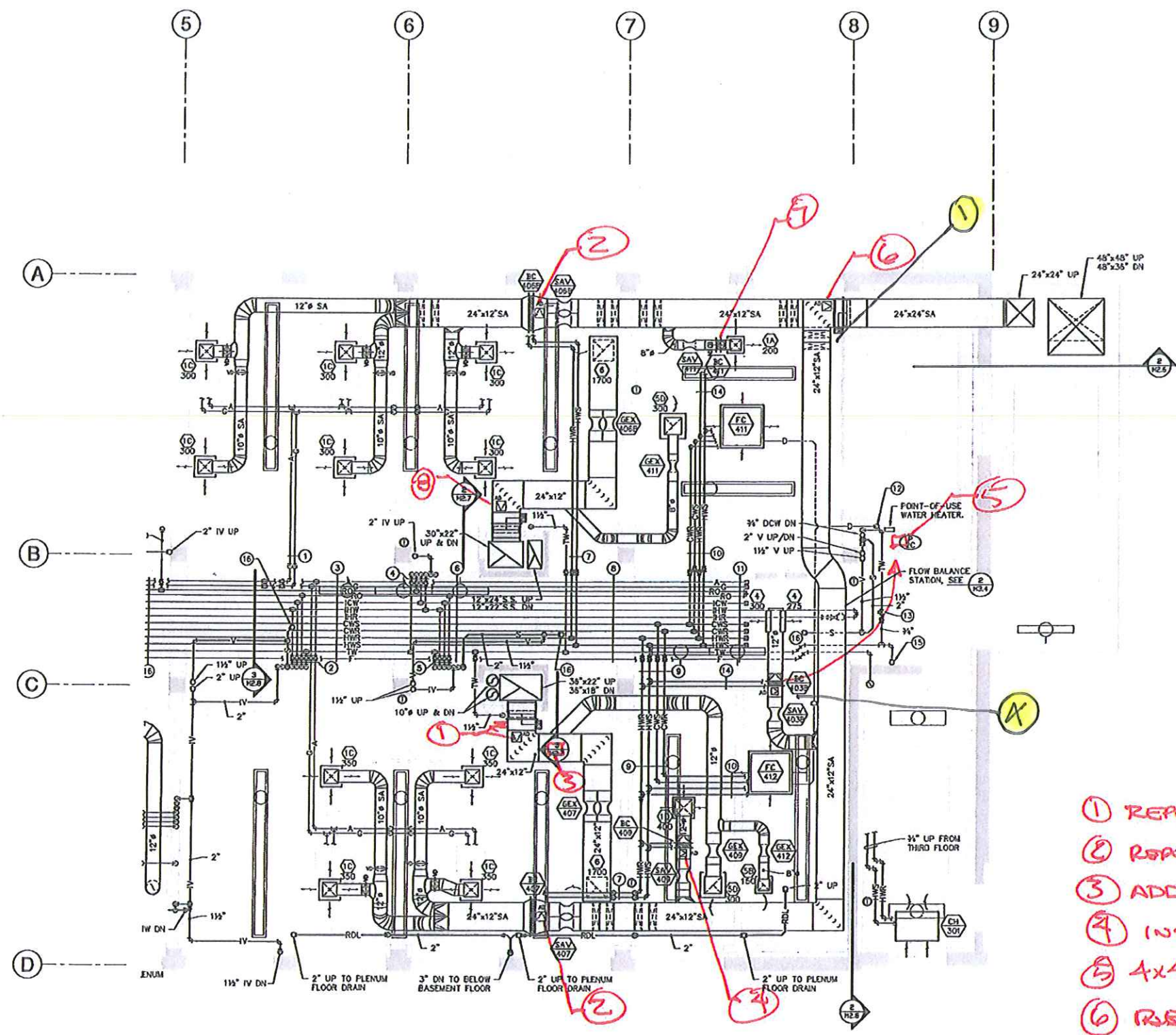
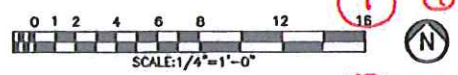
M.S.U. PFA 10-023
ADD 10-029
FOURTH FLOOR MECHANICAL PLAN (EAST)
M2.4.2
March 14, 2011

SPECIFIC SHEET NOTES:

- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4"
G = 3/4"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4"
G = 3/4"
TW = 3/4"
RO = 1/2"
ICW = 1"
H/W = 1/2"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" B/W = 3/4" HWS = 1 1/2"
G = 1" B/R = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" C/R = 1 1/2"
H/R = 1 1/2"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
RO = 3/4"
ICW = 3/4"
H/W = 3/4"
TW = 3/4"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
TW = 3/4"
B/W = 3/4"
ICW = 3/4"
RO = 3/4"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" B/W = 3/4" HWS = 1 1/2"
G = 1" B/R = 3/4" TW = 1 1/2"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" C/R = 1 1/2"
H/R = 1 1/2"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" B/W = 3/4" HWS = 1 1/2"
G = 1" B/R = 3/4" TW = 3/4"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" C/R = 1 1/2"
H/R = 1"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1 1/4"
HWS = 1 1/4"
C/R = 1"
CWS = 1"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 1"
HWS = 1"
C/R = 1"
CWS = 1"
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
A = 3/4" B/W = 3/4" HWS = 1"
G = 1" B/R = 3/4" TW = 3/4"
RO = 1" CWS = 1 1/2" F = 4"
ICW = 3/4" C/R = 1 1/2"
H/R = 1"
- ROUTE 3/4" CONDENSATE DRAINS TO EXTRA P-TRAP UNDER SINK.
- TEMPERED WATER PURGE ASSEMBLY, SEE DETAIL D, SHEET M3.4.
- FOR PIPING BRANCH SIZES SEE THE FOLLOWING:
HWR = 3/4"
HWS = 3/4"
- 3/4" TEMPERED & TRAP PRIMER WATER UP TO TRAP PRIMER ASSEMBLY IN PENTHOUSE. SEE DETAIL 5/M3.4.
- 2" UP TO FLOOR DRAIN IN PENTHOUSE.

- REPLACE 6x6 w/ 6x12 A.D.
- REPLACE 6x6 AD w/ 12x8
- ADD 12x12 A.D. UNDER NEW DETECTOR
- INSTALL 8x8 A.D.
- 4x4x4 PLATE
- REPLACE 6x6 w/ 6x16 A.D.
- 6x6 A.D. TO REMAIN
- REPLACE 10x10 w/ 12x12 A.D.

NOTE: COORDINATE ALL DUCT AND PIPE HANGERS TO AVOID STRUCTURAL CEILING STRIPS. WHERE CONFLICTS OCCUR, BRIDGE OVER THE STRUCTURAL STRIPS WITH UNISTRUT AND SPACERS.



1 FOURTH FLOOR MECHANICAL PLAN (EAST)
1/4"=1'-0"