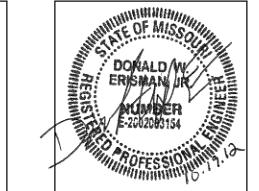


LOWER LEVEL DEMOLITION FLOOR PLAN-MECHANICAL SCALE: 1/8"=1'-0"





MECH / PLUMB / ELECTRICAL ENGINEER:

LANKFORD + associates 1730 WALNUT STREET KANSAS CITY, MISSOURI 64108 TEL. (816) 221-1411

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INTERIOR RENOVATION

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PROJECT NO.		
DATE	10-19-201	
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CHECKED BY	LD	
REVISED DATE	DESCRIPTION	
SHEET TITLE	& NUMBER	

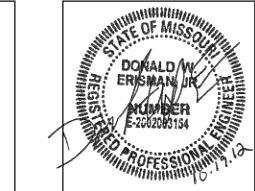
LOWER LEVEL DEMO FLOOR PLAN MECH.

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MD-100







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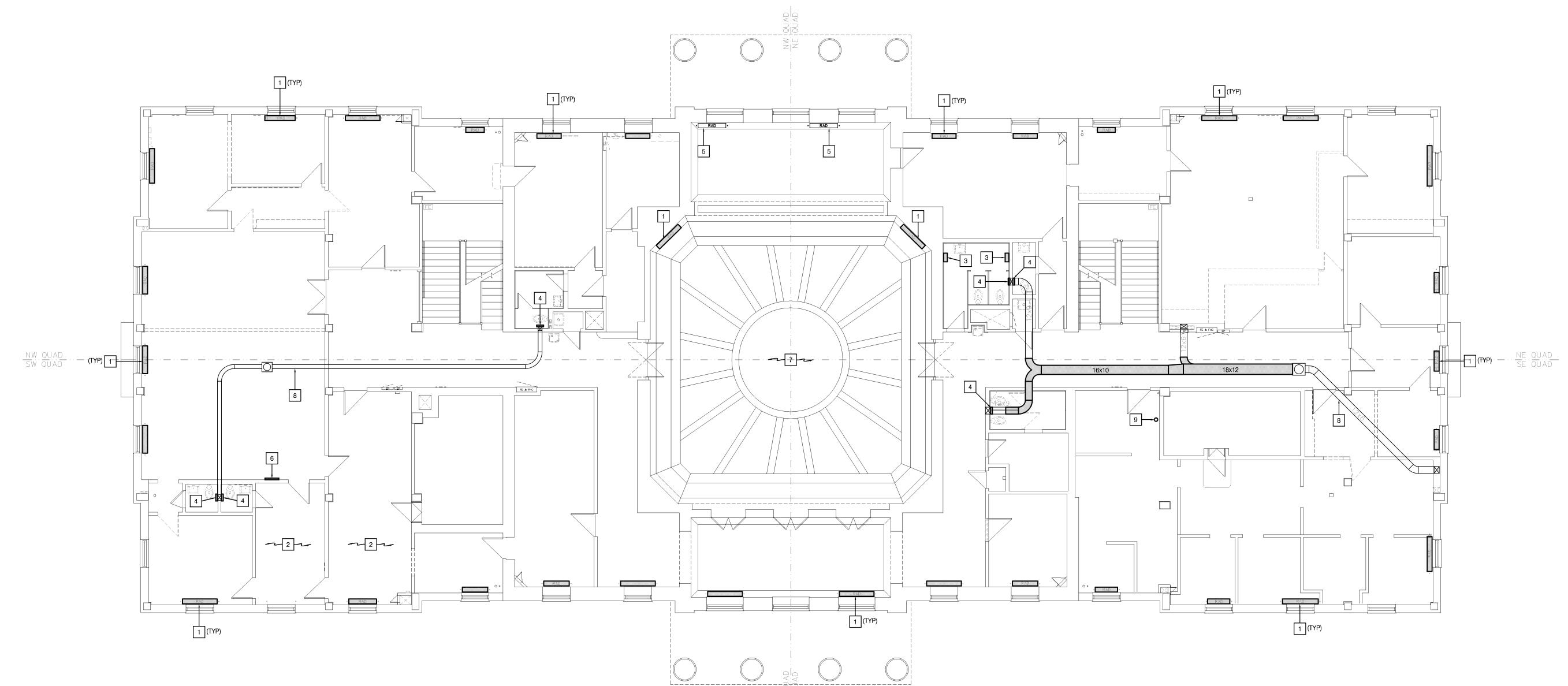
## **ISSUED FOR** CONSTRUCTION

PROJECT NO.	
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REVISED DATE	DESCRIPTION
SHEET TITLE	& NUMBER

FIRST FLOOR DEMO PLAN MECHANICAL

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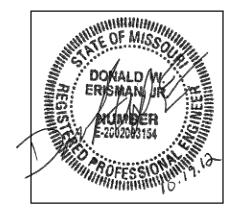




SECOND FLOOR DEMOLITION PLAN-MECHANICAL

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





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# C TRUMAN COURTHOUSE INTERIOR RENOVATION

ISSUED FOR CONSTRUCTION

PROJECT NO.	
DATE	10-19-201
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CHECKED BY	DW
CHECKED BY	LD
REVISED DATE	DESCRIPTION
SHEET TITLE	& NUMBER

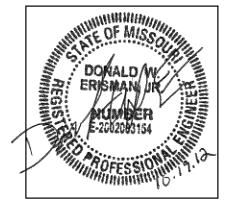
SECOND FLOOR DEMO PLAN MECHANICAL

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MD-102

# FLOOR PLAN NOTES

- REMOVE EXISTING RADIATOR UNITS IN THEIR ENTIRETY. REMOVE ANY REMAINING PIPE, HANGERS, AND ACCESSORIES.
- SAW CUT OPENING IN PREPARATION OF EXHAUST AIR LOUVER INSTALLATION. RE: NEW WORK PLAN
- REMOVE EXISTING WINDOW AND PREPARE AREA FOR INSTALLATION OF NEW OUTSIDE AIR LOUVER. RE: NEW WORK PLAN
- REMOVE ROOF VENTILATOR. LEAVE VENTILATOR CURB IN PLACE FOR INSTALLATION OF NEW EXHAUST FAN.
- REMOVE CONDENSING UNIT, SUPPORTS AND LINE SET COMPLETELY.



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CONSTRUCTION

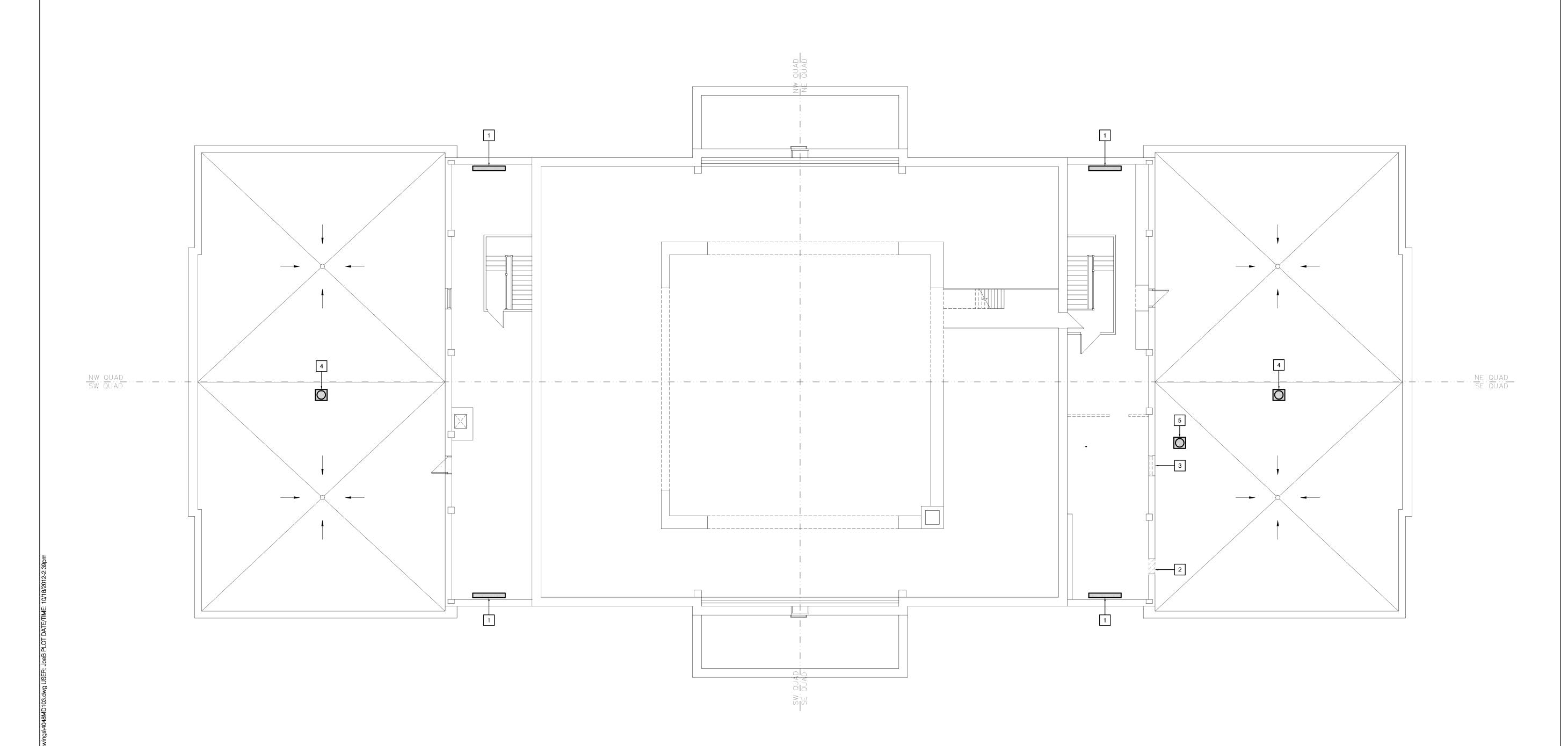
SHEET TITLE & NUMBER

ATTIC/ROOF DEMO PLAN MECHANICAL

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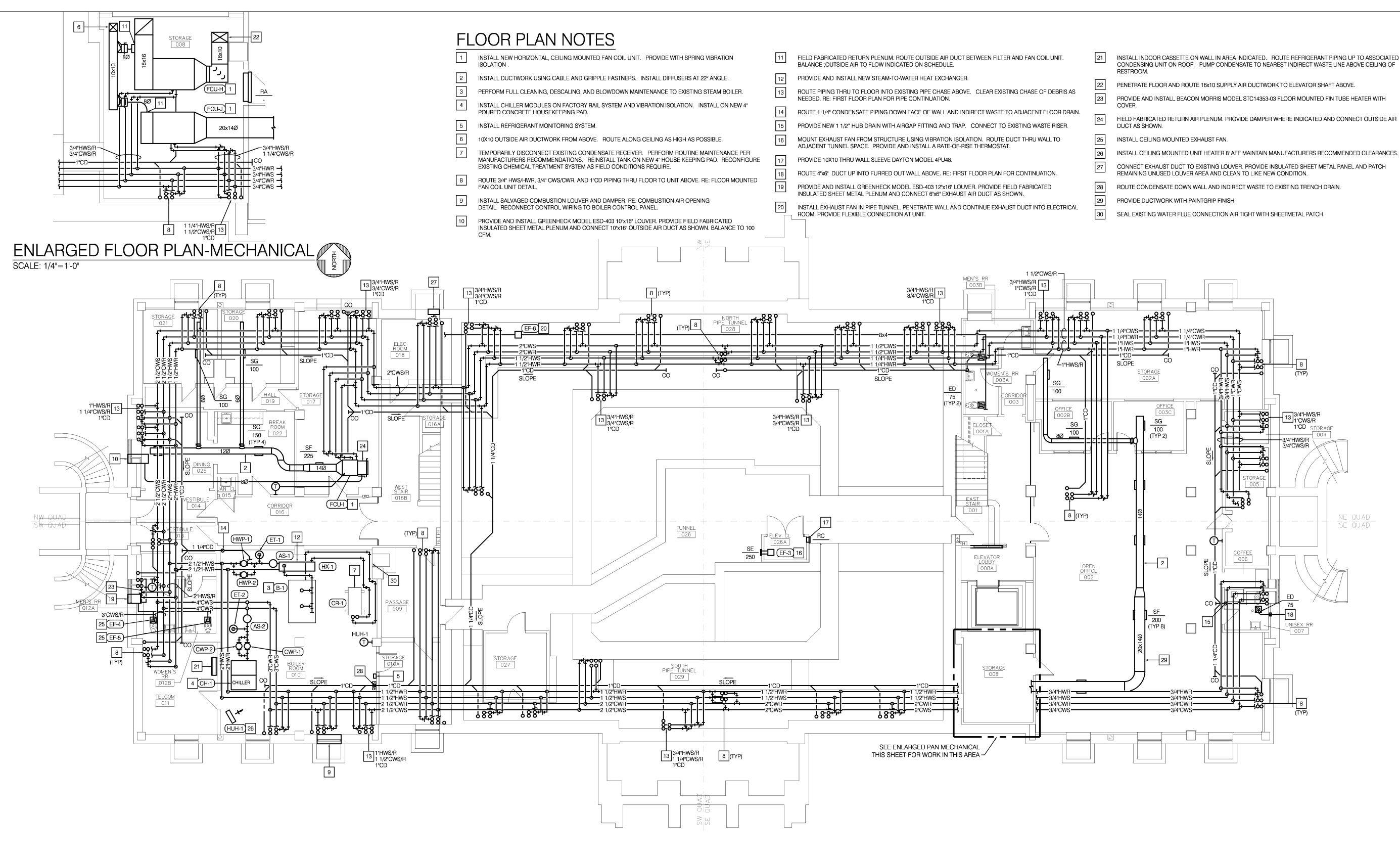
MD-103





ATTIC/ROOF DEMOLITION PLAN-MECHANICAL SCALE: 1/8"=1'-0"





LOWER LEVEL FLOOR PLAN-MECHANICAL SCALE: 1/8"=1'-0"





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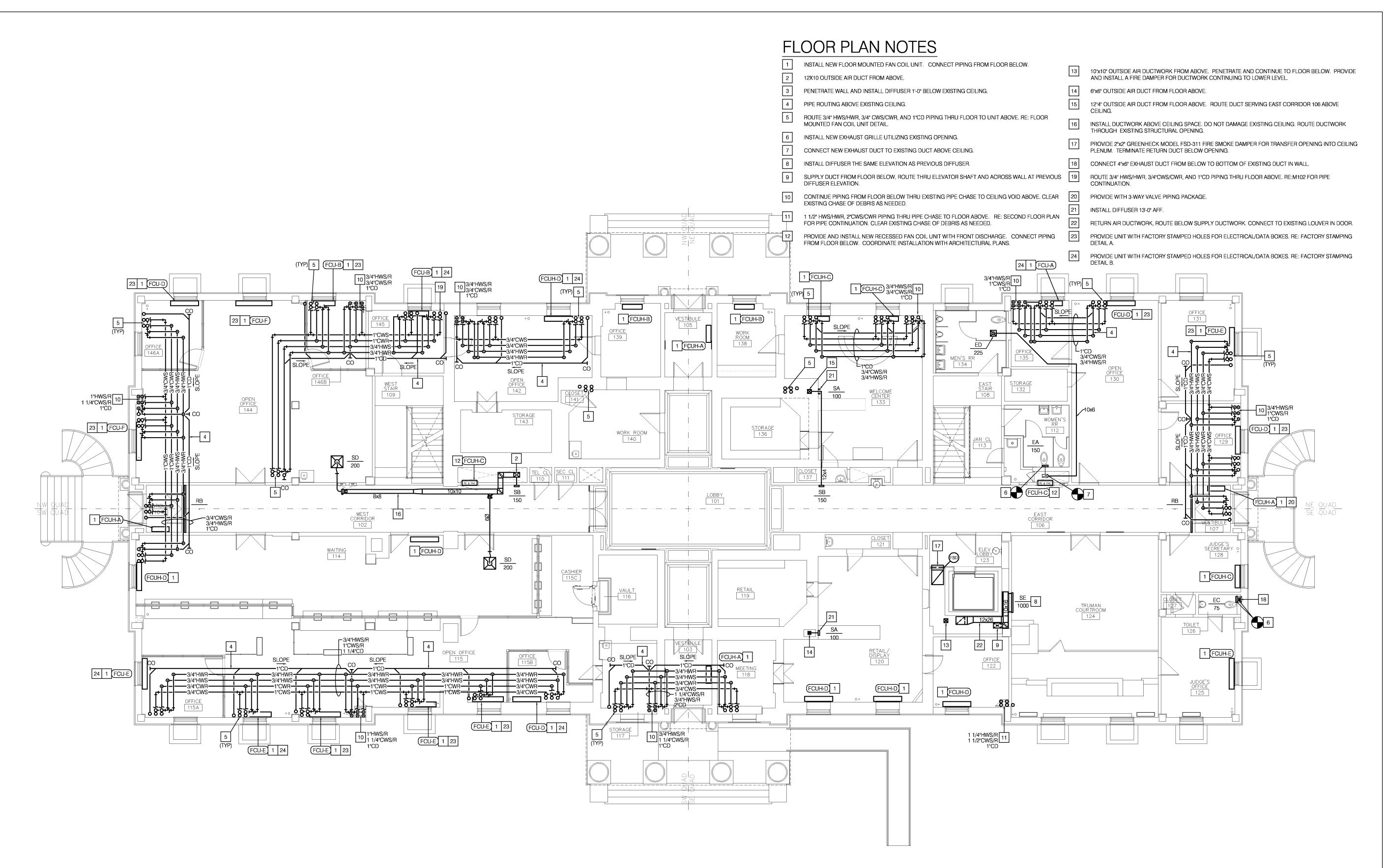
# N COURTHOUSE

ISSUED FOR CONSTRUCTION

PROJECT NO.	
DATE	10-19-2012
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CHECKED BY	DWI
CHECKED BY	LDF
REVISED DATE	DESCRIPTION
SHEET TITLE	& NUMBER

LOWER LEVEL FLOOR PLAN MECH.

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





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# FAX. (816) 221-1429

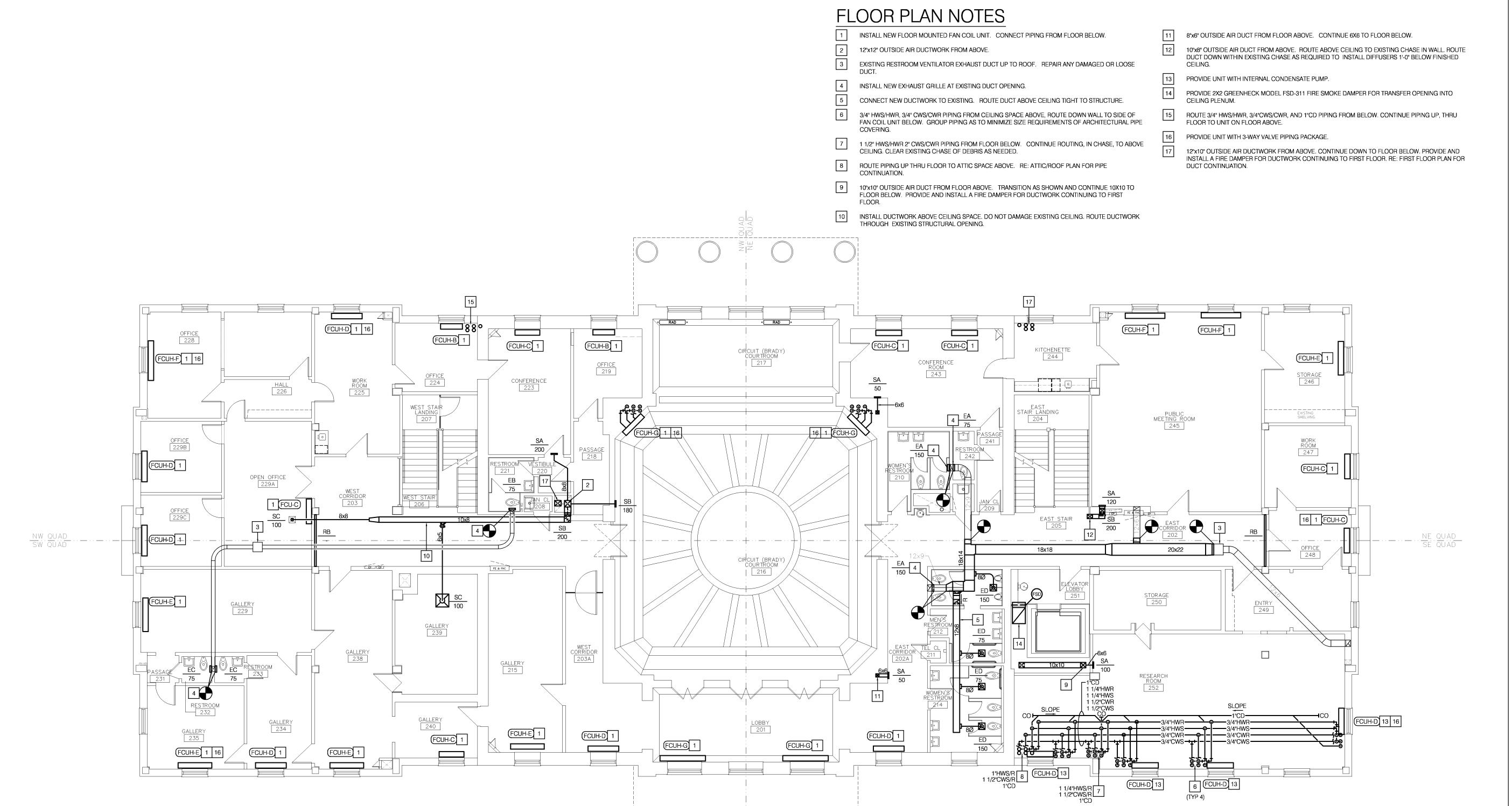
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# ISSUED FOR CONSTRUCTION

PROJECT NO. DATE	10-19-2
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REVISED DATE	DESCRIPTION
SHEET TITL	E & NUMBER

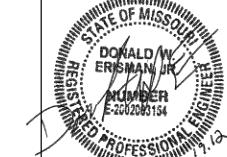
FIRST FLOOR PLAN MECHANICAL

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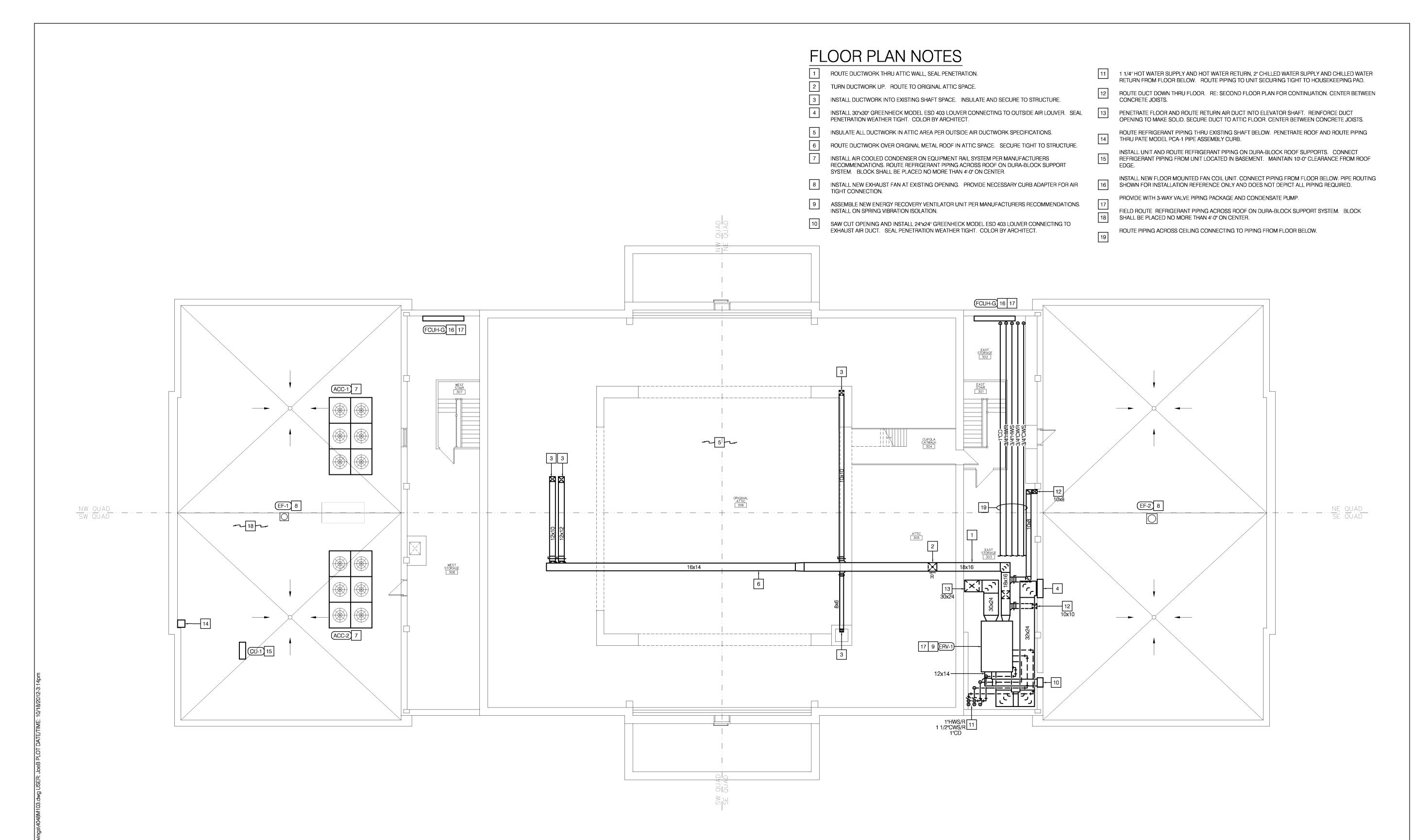
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CHECKED BY	LDR	
REVISED DATE	DESCRIPTION	
SHEET TITLE &	& number	

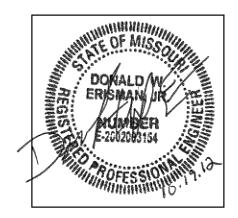
SECOND FLOOR PLAN MECHANICAL

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# (816) 221-1429

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CHECKED BY	LD	
REVISED DATE	DESCRIPTION	
SHEET TITLE	& number	

ROOF PLAN MECHANICAL

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PIPER-WIND ARCHITECTS, II

### SYSTEM NO. 49 F RATINGS - 2 AND 3 HR. (SEE ITEM 2A) T RATING - O HR.

- FLOOR OR WALL ASSEMBLY MINIMUM 4 1/2" THICK LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE. WALL ASSEMBLY MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAXIMUM DIAMETER OF CIRCULAR THROUGH OPENING SEE CONCRETE BLOCK (CAZT) CATEGORY IN FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- 1A.) STEEL SLEEVE (OPTIONAL, NOT SHOWN) NOMINAL 12" DIAMETER (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL PIPÉ SLEEVE CAST INTO CONCRETE FLOOR OR WALL. SLÉEVE TO BE FLUSH WITH OR PROJECT MAX 2" FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL.
- PIPE OR CONDUIT NOMINAL 20" DIAMETER (OR SMALLER) SCHEDULE 10S (OR HEAVIER) STEEL PIPE, NOMINAL 6" DIAMETER (OR SMALLER) RIGID STEEL CONDUIT, NOMINAL 6" DIAMETER (OR SMALLER) TYPE L (OR HEAVIER) COPPER TÜBE, NOMINAL 4" DIAMETER. (OR SMALLER) CAST IRON PIPÉ OR NOMINAL. 4" DIAMETER. (OR SMALLER) STEEL EMT. MAXIMUM ONE PIPÉ OR CONDUIT PER THROUGH OPENING. MAXIMUM ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND EDGE OF THROUGH OPENING IS ZERO IN (POINT CONTACT). PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.
- 2A.) STEEL VENT DUCT (NOT SHOWN) AS AN ALTERNATE TO THE PIPE OR CONDUIT, NOMINAL 4" DIAMETER (OR SMALLER) NO. 28 GAUGE (OR HEAVIER) GALVANIZED STEEL VENT DUCT MAY BE USED IN THROUGH OPENINGS OF FLOOR ASSEMBLIES PROVIDED MAXIMUM ANNULAR SPACE DOES NOT EXCEED 7/8". WHEN STEEL VENT DUCT IS USED, F RATING
- PACKING MATERIAL POLYETHYLENE BACKER ROD OR NOMINAL 1" THICKNESS OF TIGHTLY-PACKED CERAMIC (ALUMINA SILICA) FIBER BLANKET, MINERAL-WOOL BATT OF GLASS FIBER INSULATION MATERIAL USED AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF CAULK FILL MATERIAL (ITEM 4) AS AN ALTERNATE WHEN MAXIMUM PIPE SIZE IS 10" DIAMETER AND WHEN MAXIMUM ANNULÂR SPACE IS 1" OR LESS, A MINIMUM 1" THICKNESS OF TIGHTLY-PACKED CERAMIC FIBER BLANKET OR MINERAL-WOOL BATT PACKING MATERIAL MAY BE RECESSED MINIMUM 1/2" FROM BOTTOM SURFACE OF FLOOR OR FROM EITHER SIDE OF WALL.
- FILL, VOID OR CAVITY MATERIALS\* -CAULK- APPLIED TO FILL THE ANNULAR SPACE TO THE MINIMUM THICKNESS SHOWN IN THE FOLLOWING TABLE:

MAXIMUM PIPE	MAXIMUM ANNULAR	PACKING MATERIAL	MINIMUM CAULK
DIAMETER. (IN.)	SPACE (IN.)	TYPE (a)	THICKNESS (IN.)
10	1 1	BR, CF, GF or MW	1/2 (b)
10		CF or MW	1/2 (C)
20	2 1/2	BR, CF, GF or MW	1 (b)

- BR = POLYETHYLENE BACKER ROD.CF = CERAMIC FIBER BLANKET.GF = GLASS FIBER INSULATION
- MW = MINERAL-WOOL BATT.CAULK INSTALLED FLUSH WITH TOP SURFACE OF FLOOR OR BOTH SURFACE OF WALL CAULK INSTALLED FLUSH WITH BOTTOM SURFACE OF FLOOR OR ONE SURFACE OF WALL.

\* BEARING THE UL CLASSIFICATION MARKING

SECTION A-A (FLOOR ASSEMBLY

SYSTEM NO. CAJ1012 (FORMERLY SYSTEM NO. 129) F RATINGS - 1 HR.

T RATING - O HR.

- FLOOR OR WALL ASSEMBLY MINIMUM 5" THICK REINFORCED NORMAL WEIGHT (100 -150 PCF) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS\*. MAXIMUM DIAMETER OF OPENING IS 6". SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.
- THROUGH PENETRANTS ONE METALLIC PIPE OR CONDUIT TO BE CENTERED WITHIN THE FIRESTOP SYSTEM. A NOMINAL ANNULAR SPACE OF 3/4" IS REQUIRED WITHIN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:
  - A. STEEL PIPE NOMINAL 4" DIAMETER (OR SMALLER) SCHEDULE 5 (OR HEAVIER) CONDUIT - NOMINAL 4" DIAMETER (OR SMALLER) ELECTRICAL METALLIC TUBING
- PACKING MATERIAL MINIMUM 3" THICKNESS OF MINIMUM 4.4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM, PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. PACKING MATERIAL TO BE CENTERED IN WALL'S MID-DEPTH AND RECESSED TO ALLOW FOR INSTALLATION

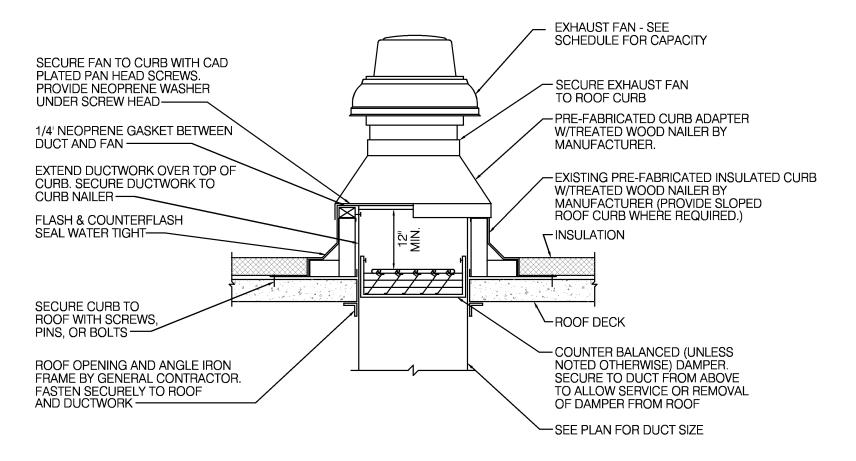
OR STEEL CONDUIT.

4.) FILL, VOID OR CAVITY MATERIAL\* - SEALANT OR FOAM - MINIMUM 1/2" THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR. IN WALL, FILL MATERIAL TO BE APPLIED ON EACH SIDE OF PACKING MATERIAL. FOAMED SILICONE TO BE INSTALLED AS DESCRIBED IN THE MANUFACTURER'S APPLICATION INSTRUCTIONS AT A DENSITY OF 14 PCF MINIMUM TO 21 PCF MAXIMUM. THE THICKNESS OF FILL MATERIAL IS DEPENDENT UPON THE TYPE OF FILL MATERIAL AS SHOWN IN THE TABLE BELOW.

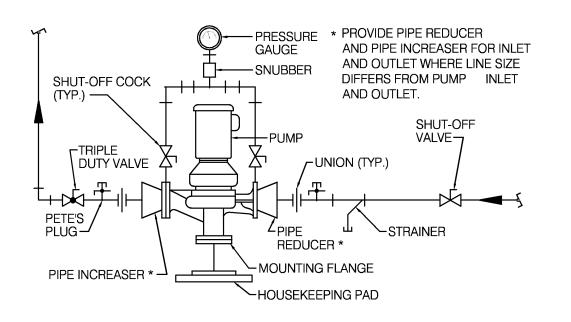
7.0 011011111111111111111111111111111111	
FILL MATERIAL IDENTIFICATION	MINIMUM THICK OF FILL MATERIAL, (IN.)
TYPE FS FOAM TYPE FS SEALANT OR FS SEALANT SL	1 1/2

DOW CORNING CORP. - TYPES FS SEALANT, FS SEALANT SL (FLOOR ONLY) OR FS \* BEARING THE UL CLASSIFICATION MARKING.

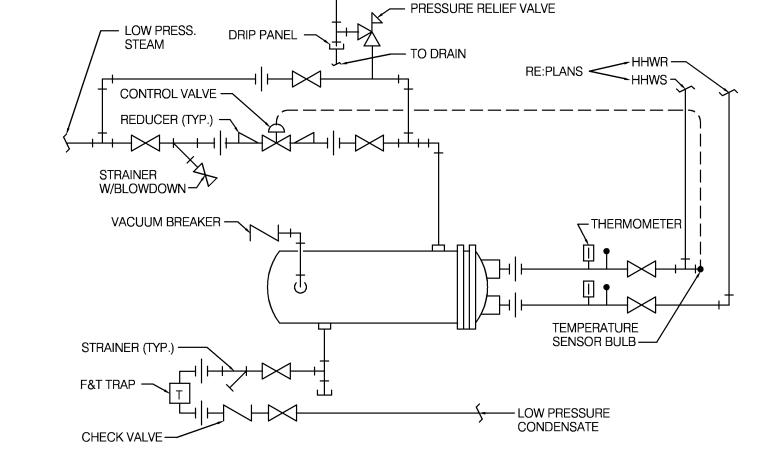
CONCRETE WALL/FLOOR FIRE STOPPING DETAIL



3 ROOF MOUNTED EXHAUST FAN DETAIL



\IN-LINE PUMP DETAIL



FLAT FACE WHERE

-MANUAL AIR VENT

AUTOMATIC FLOW

CONTROL VALVE

-PRIMARY DRAIN

- SHUT-OFF VALVE

(TYPICAL)

- DRAIN VALVE

(TYPICAL)

ROUTE PIPING UP

2X CORE Ø

SECTION A-A

TYPICAL FLOOR PENETRATION LAYOUT

RE: PIPE THRU FLOOR DETAIL FOR

ADDITIONAL REQUIREMENTS

2X CORE Ø (TYP)→

PIPE INSULATION (TYP)

WITHIN ENCLOSURE

-"PETE PLUG"

— 2-WAY CONTROL VALVE UNLESS OTHERWISE NOTED.

RE: FLOOR PLAN NOTES. PROVIDE BYPASS

SAW CUT/CORE DRILL FLOOR BELOW NEW FAN COIL UNIT

AND REGULATIONS OF THE ARCHITECTS AND OR

**CUTTING OF JOISTS OR BEAMS IS ALLOWED** 

CONNECTIONS IN STRICT ACCORDANCE WITH THE RULES

STRUCTURAL ENGINEERS SPECIFICATIONS. NO CORING OR

➤ ROUTE PIPING UP THROUGH

EXISTING FLOOR SLAB BELOW

NEW FAN COIL CONNECTION (TYP)

BALANCING VALVE FOR 3-WAY APPLOCATIONS.

SPECIFIED WITH GRILLE.

**ELECTRIC HEATING** 

- WHERE SPECIFIED.

SECONDARY

CONDENSATE DRAIN PIPING

**ROUTE & INDIRECT WASTE** 

AS SHOWN ON PLANS. -

PIPING TO MAINS

SHOWN AS 2 PIPE SYSTEM FOR CLARITY.

2 FLOOR MOUNTED FAN COIL UNIT DETAIL
NO SCALE

— VENT TO ATMOSPHERE

HOT/CHILLED WATER

DRAIN PAN -

COIL (BEHIND)

- CONTROL PANEL

W/ACCESS DOOR

FAN

EXISTING FLOOR SLAB

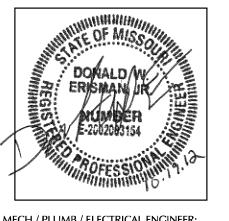
EXISTING STRUCTURAL SYSTEM ~

REMOVABLE FILTER-

HOT/CHILLED

WATER COIL

5 HEAT EXCHANGER DETAIL
NO SCALE



MECH / PLUMB / ELECTRICAL ENGINEER:

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> **MECHANICAL DETAILS**

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M-200

Lanktord + associates Consulting Engineers, Inc Kansas City, Missouri 64108 St. Joseph, Missouri 64501 Phone: 816.221.1411 / Fax: 816.221.1429 COPYRIGHT © 2012 LANKFORD + ASSOCIATES, INC.

L+a Project No. 4048

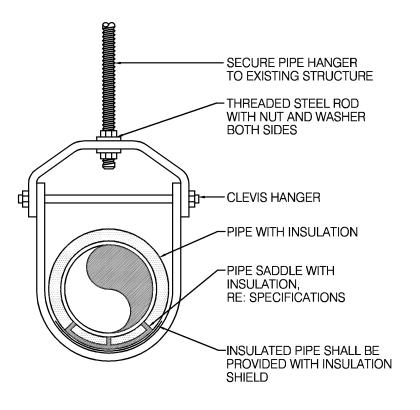
CLAMP- DO NOT CLAMP PIPE TIGHT. PROVIDE CLAMP ONE SIZE LARGER THAN PIPE DIAMETER. – 14 GAUGE GALVANIZED CHANNEL 100% RECYCLED RUBBER BASE - UV RESISTANT (MIN 4" HIGH) — BUILT-UP ROOFING -ROOF INSULATION **ROOF DECK** PLACE SUPPORTS ON ROOF BEFORE GRAVEL. SET SUPPORT BLOCK IN

3 ROOF PIPE SUPPORT DETAIL
NO SCALE

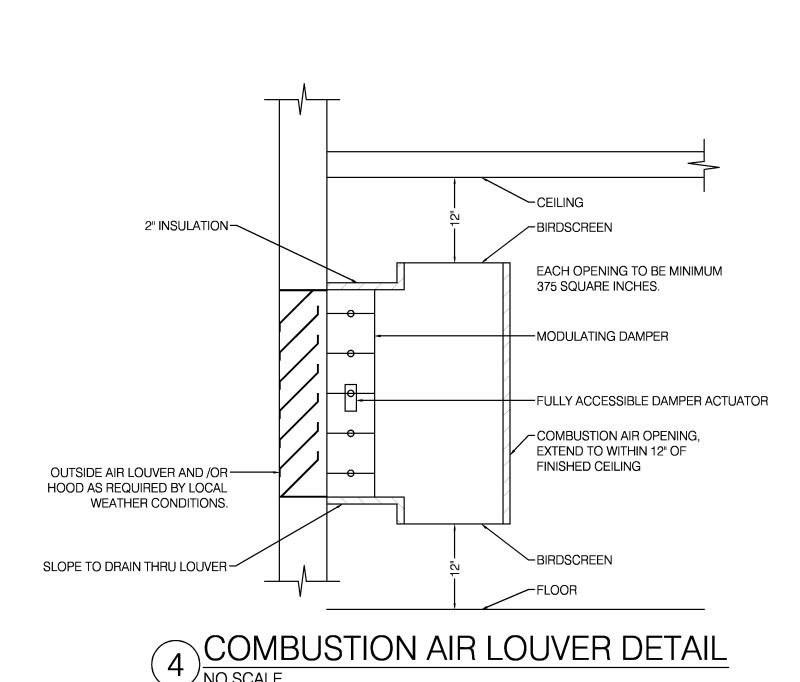
MASTIC ON WALKWAY MATERIAL. SUPPORTS SPACED NOT MORE THAN 10 FEET APART FOR COPPER AND SCH. 40 BLACK STEEL PIPE

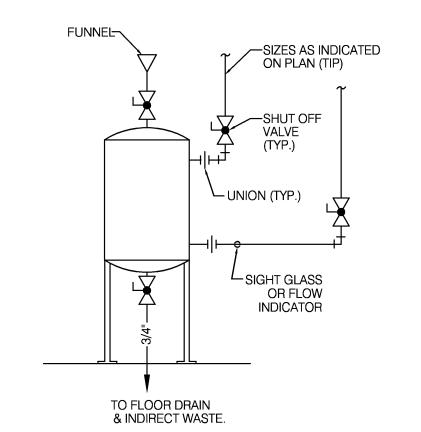
AND 5 FEET FOR PVC & AT EVERY FITTING. INSTALL PIPE TO ALLOW

FOR EXPANSION & CONTRACTION. SET BLOCKS FREE ON BASE SHEET.

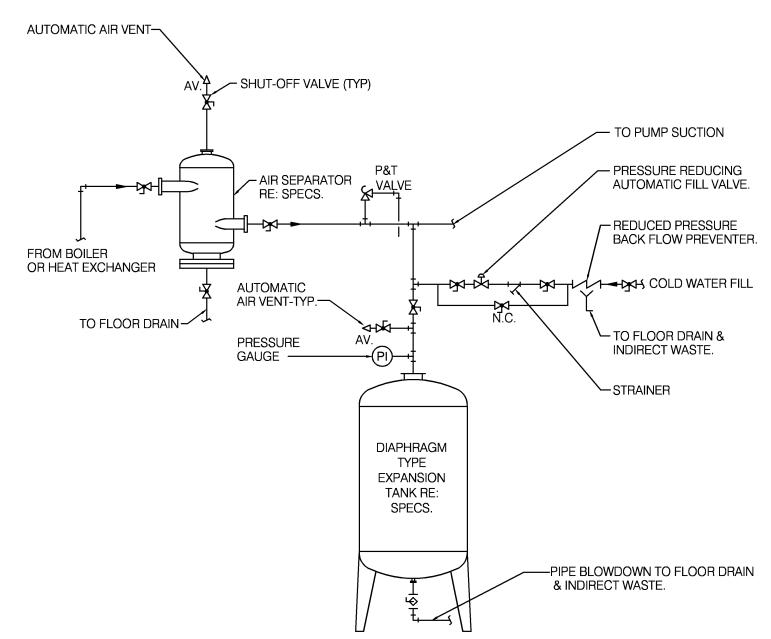


6 CHILLED /HOT WATER CLEVIS PIPE HANGER DETAIL





CHEMICAL BYPASS FEEDER DETAIL



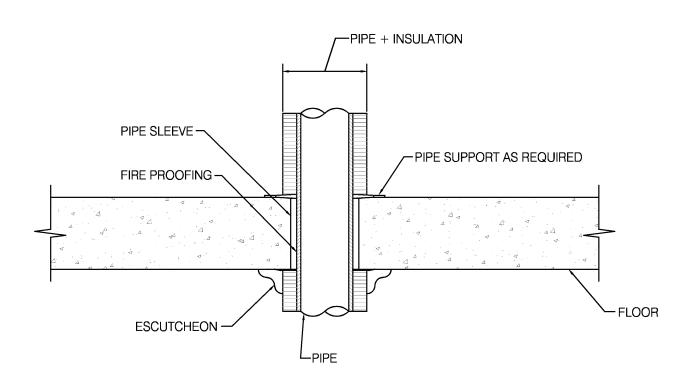
TO BUILDING LOAD

FROM BUILDING LOAD

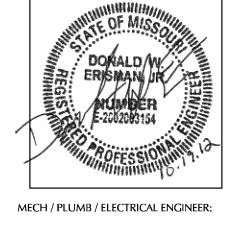
-MAKE-UP WATER

TO FLOOR DRAIN

5 AIR SEPARATOR AND EXPANSION NO SCALE



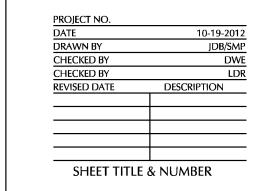
8 PIPE THRU FLOOR DETAIL



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SCHEDULES, SYMBOLS & GENERAL NOTES

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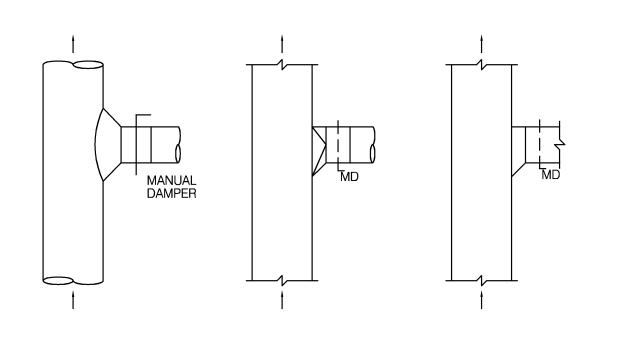
-associates

Ansas City, Missouri 64108 St. Joseph, Missouri 64501
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Consulting Engineers, Inc



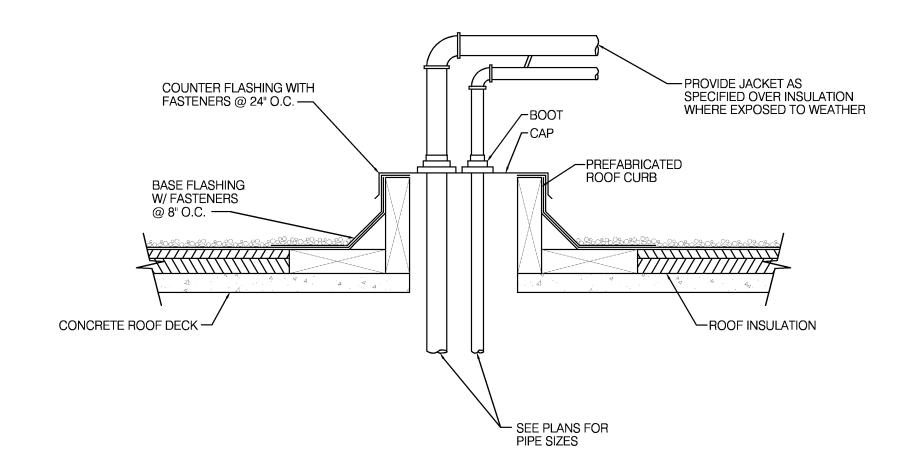
ROUND
SUPPLY BRANCH
"TAKE-OFFS"

(20% OR LESS AIRFLOW TO BRANCH LOW & HIGH VELOCITY)

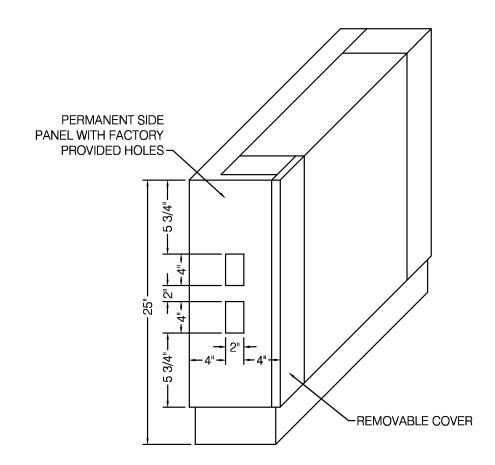
SUPPLY BRANCH
"TAKE-OFFS"
(20% OR LESS AIRFLOW TO BRANCH LOW & HIGH VELOCITY

ROUND

RECTANGULAR
SUPPLY BRANCH
"TAKE-OFFS"
(20% OR LESS AIRFLOW TO BRANCH LOW & HIGH VELOCITY)



# 2 MULTIPLE PIPE ROOF PENETRATIONS NO SCALE



3 FACTORY STAMPING DETAIL A



						SUPPLY FAN				EXHAUST FA	N			HEATING			COOLING			EL	ECTRICA	Ĺ	
MARK	MANUFACTURER	UNIT	AIRFLOW			EXT. S.P.	SUMMER	WINTER	AIRFLOW			EXT. S.P.	TEMP.	OUTPUT	FLOW	TEMP.	OUTPUT	FLOW	DRIVES				
NO.		MODEL	(CFM)	RPM	HP	(IN W.G.)	°F	۴	(CFM)	RPM	HP	(IN W.G.)	RISE (°F)	(MBH)	GPM	RISE (°F)	(MBH)	GPM		VOLT	Ø	HZ N	NOTES
ERV-1	GREENHECK	ERCH-45L-15	2800	1079	1.54	0.50	54.20	79.50	1700	735	0.42	0.50	39.50	119.90	12.30	29.80	145.60	29.10	BELT	208	3	60	1,2

NOTES: 1. PROVIDE WITH THE FOLLOWING ACCESSORIES: DIRTY FILTER SENSOR, TIMED EXHAUST, AND RETURN AND SUPPLY DUCT SMOKE SENSORS. 2. UNIT SHALL BE FULLY ASSEMBLED AND FACTORY TESTED. FACTORY SHALL DISASSEMBLE AND SHIP IN SECTIONS TO ALLOW FOR ASSEMBLY IN FINAL LOCATION. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING MANUFACTURER REPRESENTATIVE TO SUPERVISE REASSEMBLY PROCESS.

FAN COIL	UNII	SCH	HEDU	JLE.
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								COOLING (@ 45°F	EWT)			HEATING (@ 180°F	EWT)		El	LECTRICA	AL '	1	
MARK NO.	MANUFACTURER	MODEL	SIZE	AIRFLOW (CFM)	MIN. OA	FLOW (GPM)	MAX. WPD HOSES (FT.)	EAT (°F) D.B./W.B.	TOT. CAP. (MBH)	SEN. CAP. (MBH)	FLOW (GPM)	MAX. WPD HOSES (FT.)	EAT (°F) DB	CAPACITY (MBH)	VOLT	Ø	HZ	MOTOR (HP)	NO.
FCU-A	MCQUAY	FCVC	102	200	-	1.1	0.4	80/67	5.5	4.4	0.6	0.4	70	9.5	115	1	60	1/30	1,2
FCUH-A	MCQUAY	FCVH	102	200	-	1.1	0.4	80/67	5.5	4.4	0.6	0.4	70	9.5	115	1	60	1/30	1,2
FCU-B	MCQUAY	FCVC	103	275	-	1.3	0.6	80/67	6.4	5.5	0.9	0.6	70	13.1	115	1	60	1/30	1,2
FCUH-B	MCQUAY	FCVH	103	275	-	1.3	0.6	80/67	6.4	5.5	0.9	0.6	70	13.1	115	1	60	1/30	1,2
FCU-C	MCQUAY	FCVC	104	350	-	2.0	1.5	80/67	10.0	8.1	1.1	1.5	70	16.5	115	1	60	1/25	1,2
FCUH-C	MCQUAY	FCVH	104	350	-	2.0	1.5	80/67	10.0	8.1	1.1	1.5	70	16.5	115	1	60	1/25	1,2
FCU-D	MCQUAY	FCVC	106	525	-	3.3	4.3	80/67	16.6	12.4	1.5	4.3	70	22.4	115	1	60	1/12	1,2
FCUH-D	MCQUAY	FCVH	106	525	-	3.3	4.3	80/67	16.6	12.4	1.5	4.3	70	22.4	115	1	60	1/12	1,2
FCU-E	MCQUAY	FCVC	108	600	-	4.1	6.8	80/67	20.4	14.8	1.9	6.8	70	27.9	115	1	60	1/12	1,2
FCUH-E	MCQUAY	FCVH	108	600	-	4.1	6.8	80/67	20.4	14.8	1.9	6.8	70	27.9	115	1	60	1/12	1,2
FCU-F	MCQUAY	FCVC	110	750	-	5.2	7.1	80/67	25.8	18.6	2.3	7.1	70	35.3	115	1	60	1/25	1,2
FCUH-F	MCQUAY	FCVH	110	750	-	5.2	7.1	80/67	25.8	18.6	2.3	7.1	70	35.3	115	1	60	1/25	1,2
FCU-G	MCQUAY	FCVH	112	975	-	6.5	12.9	80/67	32.5	23.3	2.9	12.9	70	44.1	115	1	60	1/12	1,2
FCUH-G	MCQUAY	FCVH	112	975	-	6.5	12.9	80/67	32.5	23.3	2.9	12.9	70	44.1	115	1	60	1/12	1,2
FCU-H	MCQUAY	FSHD	S12	1000	150	6.8	6.9	80/67	33.8	24.3	1.7	2.5	70	24.3	115	1	60	1/3	1,4
FCU-I	MCQUAY	FSHD	S12	1025	-	8.0	10.2	80/67	40.3	27.4	1.7	2.5	70	24.6	115	1	60	1/3	1,4
FCU-J	MCQUAY	FSHD	S20	1900	200	14.0	8.7	80/67	70.4	48.6	2.9	0.6	70	42.3	115	1 1	60	1/3	1,4

NOTES: 1. PROVIDE WITH THE FOLLOWING FACTORY INSTALLED PIPING PACKAGE OPTIONS: AUTOMATIC FLOW VALVES, DDC SYSTEM COMPATIBLE CONTROL VALVES, SHUTOFF VALVES, STRAINERS, AND CONDENSATE OVERFLOW SWITCH.

ALL PIPING SHALL BE SAME SIDE CONNECITONS.

2. PROVIDE UNITS WITH LEVELING LEG, INTEGRAL THERMOSTAT, INTERFACE MODULE FOR CONNECITON TO BUILDING AUTOMATION SYSTEM, AND SECONDARY DRAIN PAN OPTIONS. 3. PROVIDE COVER WITH 4" END EXTENSTION ON BOTH SIDES, FLAT TOP AND FACTORY STAMPED HOLES FOR ELECTRICAL/DATA BOXES. RE: PLANS AND DETAILS.

4. PROVIDE WITH INTEGRAL DISCONNECT SWITCH.

5. PROVIDE WITH FULL SIZED FIELD FABRICATED SUPPLY DUCT COLLAR EXTENDING TO THE TOP OF ARCHITECTURAL COVER. ATTACH NEOPRENE GASKET TO DUCT AS FINAL CONNECTION TO COVER.

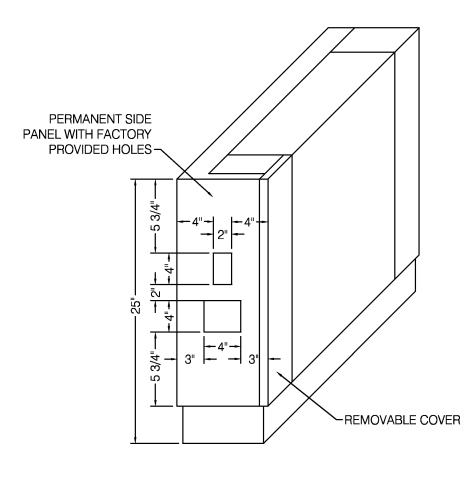
6. PROVIDE WITH DDC SYSTEM COMPATIBLE THERMOSTAT.

7. PROVIDE WITH RETURN DUCT MOUNTED, DDC SYSTEM COMPATIBLE THERMOSTAT.

PUMP SCHEDULE

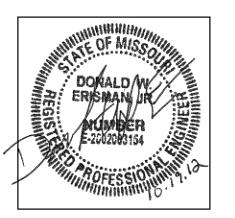
				— <b>—</b>								
					FLOW		MOTOR	El	_ECTRIC	AL		
MARK	MANUFACTURER	MODEL	USE	RESERVOIR SIZE	RATE	HEAD	SPEED					
NO.		NO.		(GALLONS)	(GPM)	(FT.)	(RPM)	VOLT	Ø	HZ	POWER	NOTES
P-1	LITTLE GIANT	VCMA-15ULS	CONDENSATE	1/2	1/2	9	-	120	1	60	1/50HP	1

NOTES: 1 CONTRACTOR SHALL WIRE AUXILARY SAFTEY SWITCH INTO CONTROL CIRCUIT FOR COOLING UNIT SHUTDOWN UPON PUMP FAILURE.



FACTORY STAMPING DETAIL B
NO SCALE





MECH / PLUMB / ELECTRICAL ENGINEER:

LANKFORD + associates 1730 WALNUT STREET KANSAS CITY, MISSOURI 64108 TEL. (816) 221-1411

# FAX. (816) 221-1429

**ISSUED FOR** CONSTRUCTION

DATE	10-19-20
DRAWN BY	JDB/S/
CHECKED BY	D\
CHECKED BY	L
REVISED DATE	DESCRIPTION

SCHEDULES, SYMBOLS & GENERAL NOTES

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AIR	SEPARAT	OR S	CHE	DULE		
MARK NO.	MANUFACTURER	MODEL	FLOW (GPM)	PRESS DROP (FT. H20)	BRANCH PIPE SIZE (IN.)	NOTES
AS-1	BELL & GOSSETT	RL-3FB	130	6	2 1/2	1
AS-2	BELL & GOSSETT	RL-4FB	266.5	7.5	4	1
NOTES:	PROVIDE WITH BRACKE	ET SUPPORT FOR	R MOUNTING.			

	FUSER S							
MARK NO.	MANUFACTURER	MODEL	FACE SIZE (IN.)	NECK SIZE (IN.)	NO. OF SLOTS	FRAME TYPE*	FINISH	NOTES
SA	PRICE	520D	8x7	6x5	1	SURFACE	WHITE	2,5
SB	PRICE	520D	10x10	8x8	-	SURFACE	WHITE	2,5
SC	PRICE	SPD	12x12	6	1	GYP	WHITE	4
SD	PRICE	SPD	24x24	8	-	GYP	WHITE	4
SE	PRICE	510Z	12x12	10x10	1	SURFACE	WHITE	-
SF	PRICE	SDGE	14x6	12x4	-	OVAL	CA	2
SG	PRICE	SDGE	12X6	10X4	1	OVAL	CA	2
EA	PRICE	82 EC	14x12	12x10	-	SURFACE	WHITE	2,3
EB	PRICE	82 EC	12x10	12x8	1	SURFACE	WHITE	2,3
EC	PRICE	82 EC	8x8	6x6	-	SURFACE	WHITE	2,3
ED	PRICE	PDDR	12x12	8	1	GYP	WHITE	3,4
RA	PRICE	510Z	50x20	30x18	-	SURFACE	WHITE	-
RB	PRICE	LBP 25B	98x5	96X3	1	GYP	WHITE	1
RV	PRICE	510Z	12x12	10x10	-	GYP	WHITE	-

4. PROVIE WITH OPTIONAL VOLUME CONTROLLER 5. COORDINATE FINAL INSTALLATION ELEVATION WITH ARCHITECT

PROVIDE WITH OPPOSED BLADE DAMPER 3. ALL ALUMINUM CONSTRUCTION

\*CONTRACTOR SHALL VERIFY CEILING TYPE PRIOR TO ORDERING DIFFUSERS.

HEAT EXCHANGER SCHEDULE									
				LOOP	LOOP	HEATIING	STEAM	LOOP SIDE	
M	IARK	MANUFACTURER	MODEL	SIDE	SIDE	AREA	SIDE	FLOW	NOTES

MARK	MANUFACTURER	MODEL	LOOP SIDE	LOOP SIDE	HEATIING AREA	STEAM SIDE	LOOP SIDE FLOW	NOTES
NO.			EWT (°F)	LWT (°F)	(SQ FT.)	PSIG	(GPM)	
HX-1	THRUSH	S 1248(2)A	160	180	84	10	114.6	1

CONDENSING UNIT SCHEDULE											
						SAT.		EL	ECTRIC.	AL	
MARK	MANUFACTURER	INDOOR	OUTDOOR	TOTAL	AMB.	SUCTION					NOTES
NO.		MODEL	MODEL	(MBH)	(°F)	TEMP (°F)	SEER	VOLT	Ø	HZ	
CU-1	DAIKIN	FAQ18PVJU	RZR18PVJU	18.0	105	45	18.60	208	1	60	1
NOTES:	PROVIDE WITH DISCON	INECT SWITCH, (	COMPRESSOR C	RANKCASE HEA	TER, LOW A	MBIENT KIT,					
	COMPRESSOR TIME-OF	FF CONTROL, AN	ID HAIL GUARDS								

PUN	MP SCHEE	DULE											
					FLOW		PUMP	MOTOR	MOTOR	EL	ECTRIC.	<b>A</b> L	
MARK	MANUFACTURER	MODEL	FLUID	TEMP.	RATE	HEAD	EFFICIENCY	SPEED	SIZE				
NO.				(°F)	(GPM)	(FT. H20)	(%)	(RPM)	(HP)	VOLT	Ø	HZ	NOTES
CWP-1	GRUNDFOS	30957 VL	WATER	45	261.0	75	75.97	1775	7.5	230	3	60	1,2,3
CWP-2	GRUNDFOS	30957 VL	WATER	<b>4</b> 5	261.0	75	75.97	1775	7.5	230	3	60	1,2,3
HWP-1	GRUNDFOS	30957 VL	WATER	180	115.0	75	61.00	1775	5	230	3	60	1,2,3
HWP-2	GRUNDFOS	30957 VL	WATER	180	115.0	75	61.00	1775	5	230	3	60	1,2,3

NOTES: 1. PROVIDE WITH PUMP BASE WITH SPRING VIBRATION ISOLATORS.

2. PROVIDE WITH VARIABLE FREQUENCY DRIVE. RE: ELECTRICAL SPECIFICATIONS FOR REQUIREMENTS.

3. PROVIDE WITH DUPLEX CONTROLLER WITH AUTO ALTERNATOR.

СН	CHILLER UNIT SCHEDULE													
MARK NO.	MANUFACTURER	MODEL	TOTAL MODULE UNITS	MAX. GPM	MIN. GPM	TOTAL (MBH)	AMB. (°F)	SAT. SUCTION TEMP (°F)	STAGES	EER	VOLT EL	ECTRICA Ø	AL HZ	NOTES
CU-1	MULTISTACK	MS70XN	2	291	97	1457	105	45	4	13.10	208	3	60	1,2,3

NOTES: 1. PROVIDE WITH COMPRESSOR CRANKCASE HEATER, LOW AMBIENT KIT, AND COMPRESSOR TIME-OFF CONTROL.

2. PROVIDE INDIVIDUAL REFRIGERATION CIRCUITS FROM EACH MODULE TO CONDENSER ON ROOF. 3. CONTRACTOR SHALL VERIFY FINAL REFRIGERANT LINE SIZE PER MANUFACTURERS RECOMMENDATION.

FAN SCHEDULE													
									EL	_ECTRIC	AL.		
Mark No.	MANUFACTURER	MODEL	TYPE	AIRFLOW (CFM)	S.P. (IN W.G.)	FAN TYPE	RPM	DRIVE	VOLT	Ø	HZ	HP/ WATTS	NOTES
EF-1	GREENHECK	G-080-VG	DOWNBLAST	375	0.250	DIRECT	1550	DIRECT	115	1	60	1/20	1
EF-2	GREENHECK	G-123-VG	DOWNBLAST	1500	0.500	DIRECT	1725	DIRECT	115	1	60	1/2	1
EF-3	GREENHECK	SP-A200	INLINE	250	0.125	DIRECT	900	DIRECT	115	1	60	48	2,4
EF-4	GREENHECK	SP-B70	CEILING	75	0.15	CEILING	675	DIRECT	115	1	60	45	3
EF-5	GREENHECK	SP-B70	CEILING	75	0.15	CEILING	675	DIRECT	115	1	60	45	3
EF-6	GREENHECK	SQ-60-VG	INLINE	150	0.15	DIRECT	1581	DIRECT	115	1	60	1/6	2

NOTES: 1. PROVIDE WITH ROOF CURB ADAPTER, DISCONNECT SWITCH, UNIT MOUNTED SPEED CONTROLLER, CURB SEAL, BIRD SCREEN, AND BACKDRAFT DAMPER.

PROVIDE WITH DISCONNECT SWITCH, UNIT MOUNTED SPEED CONTROLLER, VIBRATION ISOLATION AND BACKDRAFT DAMPER.

3. PROVIDE WITH DISCONNECT SWITCH, UNIT MOUNTED SPEED CONTROLLER AND BACKDRAFT DAMPER.

4. PROVIDE WITH DAYTON MODEL 4PU48 RATE-OF-RISE THERMOSTAT.

BOILER SCHEDULE												
MARK MANUFACTURER MODEL INPUT OUTPUT STEAM THERMAL NOTES NO. MBH MBH PSIG EFF. (%) VOLT Ø HZ												
B-1 SMITH 28A-9 2836 2232 10 - 208 3 60 1,2												
NOTES: 1 EVISTING FOLLIDMENT DROVIDE FLILL MANUFACTUREDS RECOMMENDED												

NOTES: 1. EXISTING EQUIPMENT. PROVIDE FULL MANUFACTURERS RECOMMENDED MAINTENANCE.

2. RE: SPECIFICATIONS FOR CONTROL REQUIREMENTS.

AIR	COOLED	CON	DEN	SER				
MARK NO.	MANUFACTURER	MODEL	NO. FANS	CAPACITY MBH	VOLT	ECTRIC. Ø	AL HZ	NOTES
ACC-1	CHANDLER	HNH-D06	6	953	208	3	60	1,2
ACC-2	CHANDLER	HNH-D06	6	953	208	3	60	1,2

NOTES: 1. PROVIDE WITH EQUIPMENT RAILS. 2. 105 DEGREE AMBIENT

	HYC	PONIC U	NIT H	IEATER	SCH	IEDU	ILE												
					AIR					180	°F EWT			SOURCE FLUID		El	_ECTRIC	AL	
	IARK	MANUFACTURER	MODEL	TYPE	FLOW	MOTOR	RPM	DRIVE	TOTAL	EADB	LADB	LWT	FLOW	WPD	BRANCH PIPE				NOTES
1	NO.				(CFM)	(HP)			(MBH)	(°F)	(°F)	(°F)	(GPM)	(FT)	SIZE (IN.)	VOLT	Ø	HZ	
Н	UH-1	VULCAN	HV-280	HORIZONTAL	3500	1/2	1100	DIRECT	209	0	55	160	6.3	0.3	-	115	1	60	1,2,3

NOTES: 1. PROVIDE WITH 4PU48 RATE-OF-RISE THERMOSTAT, DISCONNECT SWITCH AND CEILING MOUNTING BRACKET.

2. PROVIDE WITH INTEGRAL DISCONNECT SWITCH. 3. PROVIDE WITH AUTOMATIC FLOW CONTROL VALVE PACKAGE INCLUDING STRAINER.

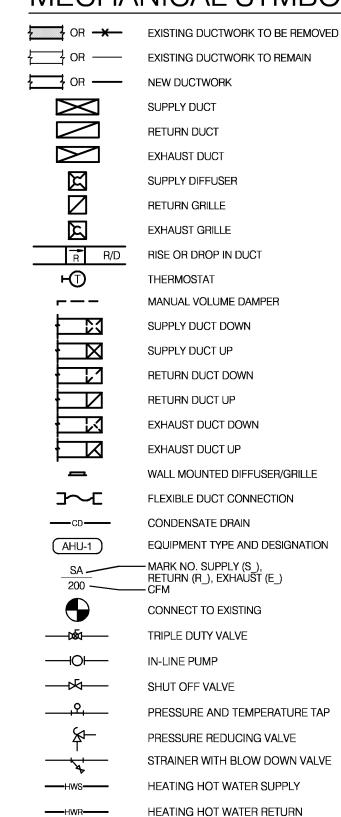
2. INSTALL ROOF MOUNTED EQUIPMENT ON DURA-BLOK EQUIPMENT SUPPORTS.

### EXPANSION TANK SCHEDULE MANUFACTURER MODEL VOLUME SERVED (GAL.) HW BLADDER BELL & GOSSETT B-200 B-400 BLADDER BELL & GOSSETT CW 106 NOTES: 1. PROVIDE ASME CERTIFIED TANK

### GENERAL NOTES (TYPICAL ALL SHEETS)

- A. MECHANICAL CONTRACTOR IS RESPONSIBLE TO SEE THAT WORK MEETS AND IS IN ACCORDANCE WITH ALL REQUIREMENTS OF FEDERAL, STATE, AND LOCAL LAWS AND CODES AND/OR REQUIREMENTS, INCLUDING HEALTH CODES AND BUILDING OWNER.
- B. ALL EXISTING DUCTWORK SHOWN ON DRAWINGS IS SCHEMATIC AND IS BASED ON EXISTING RECORD DRAWINGS PROVIDED BY THE OWNER AND DO NOT REFLECT EXACT EXISTING CONDITIONS. CONTRACTOR TO FIELD VERIFY EXACT DEPTH AND/OR LOCATIONS ON JOB SITE. CONTRACTOR SHALL REPOUTE NEW WORK TO ACCOMMODATE EXACT LOCATIONS OF EXISTING UTILITIES, STUBOUTS AND/OR CONNECTIONS.
- C. CUTTING AND PATCHING OF FLOORS, WALLS, CEILING, ETC., REQUIRED IN STRICT ACCORDANCE WITH THE RULES AND REGULATIONS OF THE ARCHITECT'S SPECIFICATIONS.
- D. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION TO AVOID ROUTING CONFLICTS.
- ANY MATERIAL REMOVED THAT OWNER DOES NOT WISH TO RETAIN SHALL BE REMOVED FROM PROJECT SITE AND DISPOSED OF BY CONTRACTOR.
- MECHANICAL CONTRACTOR SHALL REMOVE, PATCH AIR TIGHT AND REINSULATE ALL DUCTWORK TAPS NOT REUSED WITH SAME MATERIAL AS EXISTING DUCTWORK.
- G. ALL REMOVED DEVICES THAT ARE BEING REUSED FOR NEW CONSTRUCTION SHALL BE CLEANED OF ALL DIRT AND STORED ON SITE.
- H. MECHANICAL CONTRACTOR SHALL AIR BALANCE ALL GRILLES TO CFM'S SHOWN ON PLANS.
- ALL THERMOSTATS SHALL BE MOUNTED TO MATCH BUILDING STANDARDS UNLESS OTHERWISE NOTED.
- MECHANICAL CONTRACTOR SHALL PROVIDE NEW 1" FARR TYPE PLEATED FILTERS ON ALL TERMINAL BOXES WHICH ARE IN PROJECT SCOPE OF WORK PRIOR TO BALANCING. PROVIDE TEMPORARY FILTERS ON RETURN AIR OPENINGS DURING CONSTRUCTION.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING AND RETAINING ALL TEMPERATURE CONTROLS FROM EXISTING FAN POWERED BOXES AND VAV BOXES FOR REINSTALLATION UNDER NEW WORK. UPON REINSTALLATION, CONTRACTOR SHALL VERIFY PROPER OPERATION AND NOTIFY THE OWNER'S REPRESENTATIVE IN WRITING IF PROBLEMS ARE FOUND.
- ALL DUCTWORK, DIFFUSERS, ETC. ARE EXISTING TO REMAIN, UNLESS NOTED OTHERWISE.
- M. MECHANICAL CONTRACTOR COORDINATE WORK/TIMES WITH THE OWNER'S REPRESENTATIVE.
- INSTALL ELASTOMERIC JOINT SEALER AROUND ALL DUCTS, PIPES, ETC. PASSING THRU INTERIOR NON-RATED CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS. FOR FIRE RATED INTERIOR CONCRETE AND MASONRY WALLS, GYPSUM-BOARD PARTITIONS, AND CONCRETE FLOOR/ROOF SLABS SEAL ALL DUCTS, PIPES, ETC. INSTALL FIRESTOP MATERIALS IN ALL GAPS PRIOR TO SEALANT APPLICATION. INSTALL SEALER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
- MECHANICAL CONTRACTOR SHALL SCAN FLOOR UTILIZING GROUND PENETRATING RADAR PRIOR TO ANY CORE DRILLING OR SAW CUTTING OF SLAB AND SHALL VERIFY PLACEMENT WITH BUILDING OWNER'S REPRESENTATIVE PRIOR TO DRILLING.
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL TEMPERATURE CONTROL WORK WITH BUILDING OWNER. BUILDING SYSTEM SHALL REMAIN OPERATIONAL AT ALL TIMES.
- Q. UPON REQUEST FOR ELECTRONIC FILES, CONTRACTOR SHALL FILL OUT, SIGN AND RETURN ELECTRONIC MEDIA RELEASE FORM FROM ENGINEER AND PROVIDE PAYMENT FOR FEES STIPULATED ON ELECTRONIC MEDIA RELEASE FORM. UPON RECEIPT OF COMPLETED RELEASE FORM AND PAYMENT, ELECTRONIC FILES WILL BE RELEASED.
- APPLIED CONSTRUCTION LOADS OVER EXISTING PLASTER CEILINGS SHALL BE LIMITED TO NOT MORE THAN 175 POUNDS. THIS LOAD SHALL BE APPLIED DIRECTLY TO THE EXISTING CEILING JOISTS. NO LOAD SHALL BE PERMITTED TO BE IN DIRECT CONTACT WITH THE CEILING GRID BETWEEN JOISTS. IF LOADS IN EXCESS OF 175 POUNDS MUST BE APPLIED ABOVE THE CEILING, THE CONTRACTOR SHALL PROVIDE A TEMPORARY PLATFORM FRAMING BACK TO THE EXISTING VERTICAL STUDS THAT PRESENTLY SUPPORT THE EXISTING CEILING JOISTS. CONSTRUCTION DOCUMENTS FOR SUCH A PLATFORM SHALL BE DESIGNED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER AND SHALL BEAR HIS MISSOURI SEAL. THESE PLANS SHALL BE SUBMITTED TO THE PROJECT ARCHITECT AND STRUCTURAL ENGINEER FOR

# MECHANICAL SYMBOLS

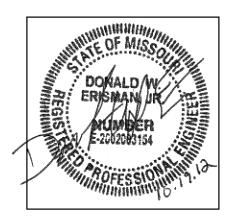


CHILLED WATER SUPPLY

CHILLED WATER RETURN

---cws----

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FAX. (816) 221-1429

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SCHEDULES, SYMBOLS & GENERAL NOTES

SHEET TITLE & NUMBER

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