

1930 GLENVIEW ROAD
GLENVIEW, ILLINOIS 60025

ISSUED FOR CONSTRUCTION
FOR PHASE 2 AND PHASE 3

MAY 27, 2009

VOLUME 2 OF 2

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1930 - ROAD - 60075

55.

KEY PL

SCA

FORCED TO HIS SEAT

6 08/2

REV031

DRAWN

APPENDIX

CHARGE

1

1

1

1

1

1

Keywords: child sexual abuse; disclosure; disclosure strategies

F
E
D
C
B
A

PLUMBING SYMBOLS

	COLD WATER (CW) NEW
	HOT WATER (HW) NEW
	HOT WATER RETURN (HWR) NEW
	VENT (V) NEW
	SANITARY (SS) NEW
	PIPING UNDERGROUND () INDICATES SERVICE
	STORM (SD) NEW
	NATURAL GAS (G) NEW
	DRAIN TILE (DT) NEW

	WATER MAIN (W) EXTERIOR
	PUMP DISCHARGE LINE (PD)
	GATE VALVE
	BALANCING FITTING
	GAS COCK
	BALL VALVE
	GAS PRESSURE REGULATOR
	PRESSURE REDUCING VALVE
	CHECK VALVE (CK.V)

	BUTTERFLY VALVE
	UNION
	HOSE BIBB (HB)
	NON-FREEZE WALL HYDRANT (WH)
	METER
	PUMP
	ROOF DRAIN
	FLOOR DRAIN W/ P-TRAP
	LINE/FLOOR CLEANOUT
	WALL CLEANOUT
	STRAINER
	THERMOMETER (TH)
	PRESSURE GAUGE WITH GAUGE COCK (PG)
	AQUASTAT
	WATER HAMMER ARRESTER (LETTER DESIGNATES SIZE)
	BACKFLOW PREVENTER (BFP)
	CAP ON END OF PIPE
	PLUG IN END OF PIPE
	SLEEVE
	PIPE ANCHOR

	PIPE GUIDE
	PITCH DOWN - IN DIRECTION OF ARROW
	DIRECTION OF FLOW
	NEW CONNECTION
	EXPANSION JOINT (EJ)
	RELIEF VALVE
	CONCENTRIC REDUCER
	ECCENTRIC REDUCER
	PRESSURE TEMPERATURE RELIEF VALVE
	VALVE IN RISER (TYPE AS SPECIFIED OR NOTED)
	ELBOW DOWN
	ELBOW UP
	RISE OR DROP
	BRANCH-TOP CONNECTION
	BRANCH-BOTTOM CONNECTION
	BRANCH-SIDE CONNECTION
	RISER REFERENCE
	SHEET REFERENCE
	DETAIL REFERENCE
	SHEET REFERENCE

PLUMBING ABBREVIATIONS

AC	-AIR COMPRESSOR
AD	-AREA DRAIN
BC	-BALANCING COCK
BFP	-BACKFLOW PREVENTER
BP	-BOOSTER PUMP (DOMESTIC WATER)
BT	-BUTTERFLY VALVE
BV	-BALL VALVE
CEB	-CONCRETE EQUIPMENT BASE
CI	-CAST IRON
CO	-CLEANOUT
CP	-CIRCULATING PUMP
CW	-COLD WATER
D	-DRAIN LINE
DN	-DOWN
DSN	-DOWNSPOUT NOZZEL
DSS	-DOWNSPOUT SHOE
DT	-DRAIN TILE
EXT	-EXPANSION TANK
EW	-ELECTRIC WATER COOLER
EW	-ELECTRIC WATER HEATER

FBO	-FURNISHED BY OWNER
FD	-FLOOR DRAIN
FL	-FIRE LINE
FS	-FLOOR SINK
G	-NATURAL GAS
GLV	-GLOBE VALVE
GWH	-GAS WATER HEATER
HB	-HOSE BIBB
HW	-HOT WATER
HWR	-HOT WATER RETURN
IE	-INVERT ELEVATION
L	-LAVATORY
MSB	-MOP SINK BASIN
NC	-NORMALLY CLOSED
NIC	-NOT IN CONTRACT
OB	-OUTLET BOX (ICE MAKER)
OSW	-OPEN SITE WASTE
OS & Y	-OUTSIDE SCREW & YOKE
PD	-PUMP DISCHARGE

PRV	-PRESSURE REDUCING VALVE
PT	-PLASTER TRAP
RD	-ROOF DRAIN
SAN	-SANITARY SEWER (EXTERIOR)
SCW	-SOFT COLD WATER
SK	-SINK
SD	-STORM SEWER
SK	-SINK
SH	-SHOWER
SHD	-SHOWER DRAIN
TWV	-THERMOSTATIC MIXING VALVE
TW	-TEMPERED WATER
TYP	-TYPICAL
UR	-URINAL
V	-VENT
VTR	-VENT THROUGH ROOF
W	-WASTE
WC	-WATER CLOSET
WH	-WALL HYDRANT
WS	-WATER SOFTENER
YCO	-YARD HYDRANT

GENERAL NOTES:

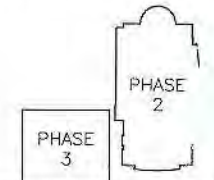
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5	01/09/09	DAP	BID AND PERMIT SET

DRAWN BY	CSM
APPROVED BY	TJK
CHECKED BY	ECB
DATE	01/09/2009

TITLE PLUMBING SYMBOLS AND ABBREVIATIONS

PROJECT NO. 50002241

P-001

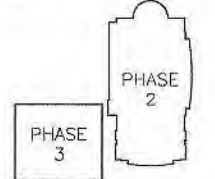
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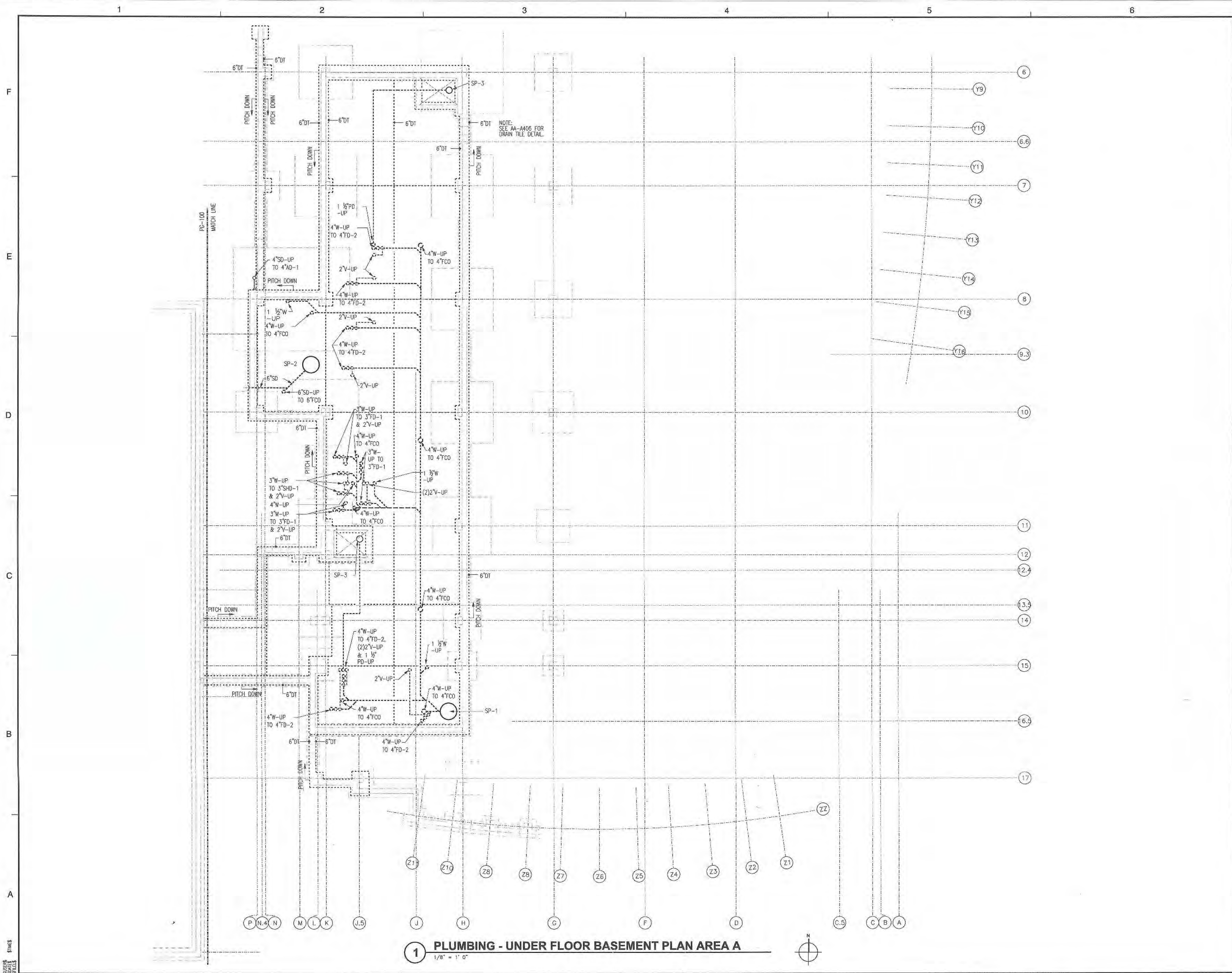
REVISIONS
DRAWN BY CSM
APPROVED BY TJK
CHECKED BY ECB
DATE 01/09/2009

TITLE
PLUMBING
UNDER FLOOR
BASEMENT PLAN
AREA A

PROJECT NO. 50002241

P-001A

SHEET NO.



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SHEET NO. _____

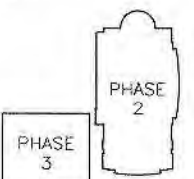




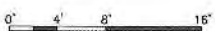
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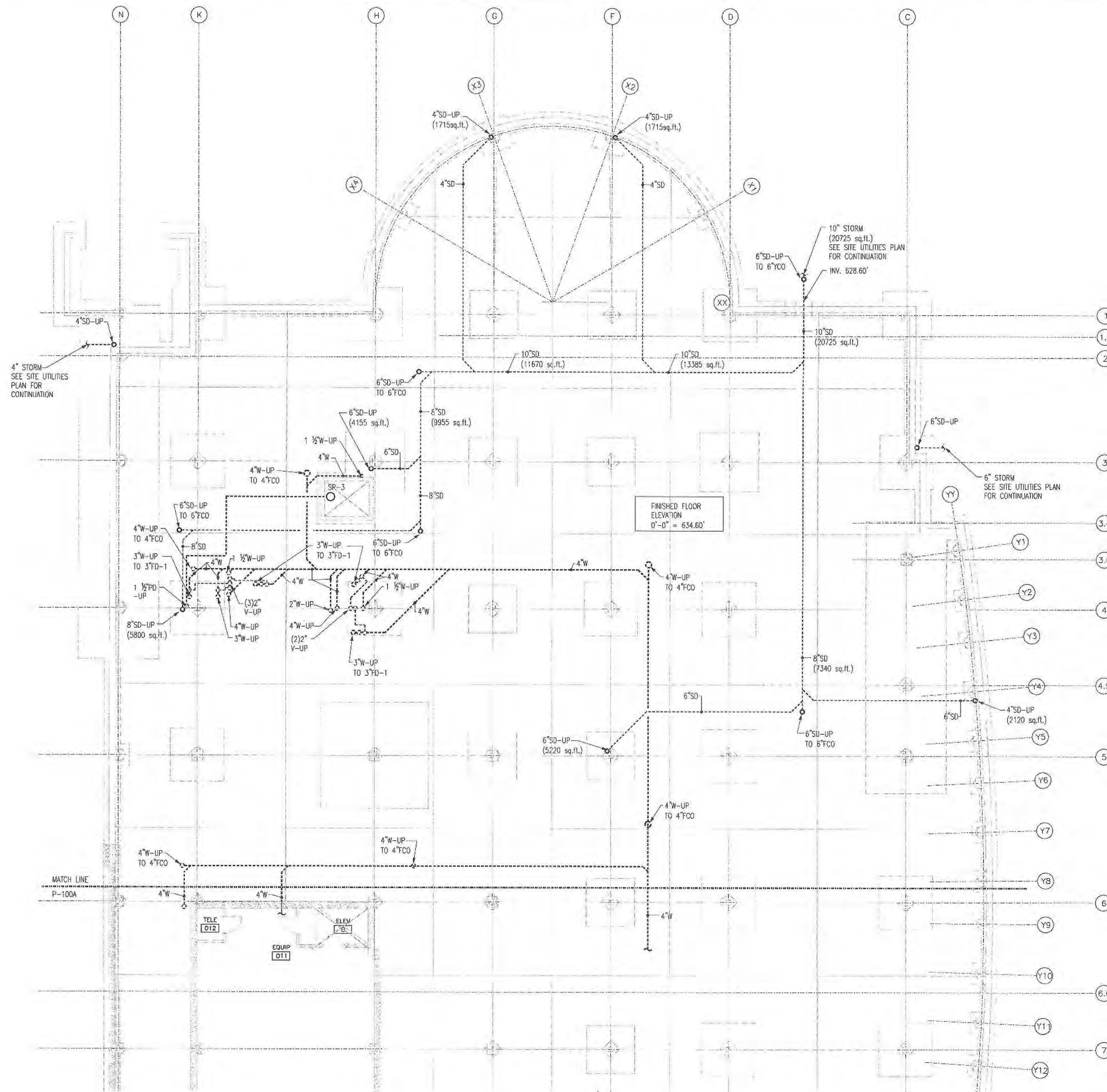
DRAWN BY: CSM
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2009

TITLE
**PLUMBING
UNDER FLOOR
PLAN
AREA B**

PROJECT NO. 50002241

P-100B

SHEET NO.



1 PLUMBING - UNDER FLOOR PLAN AREA B
1/8" = 1' 0"





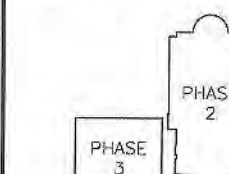
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CHECKED BY	ECB
DATE	01/09/2008

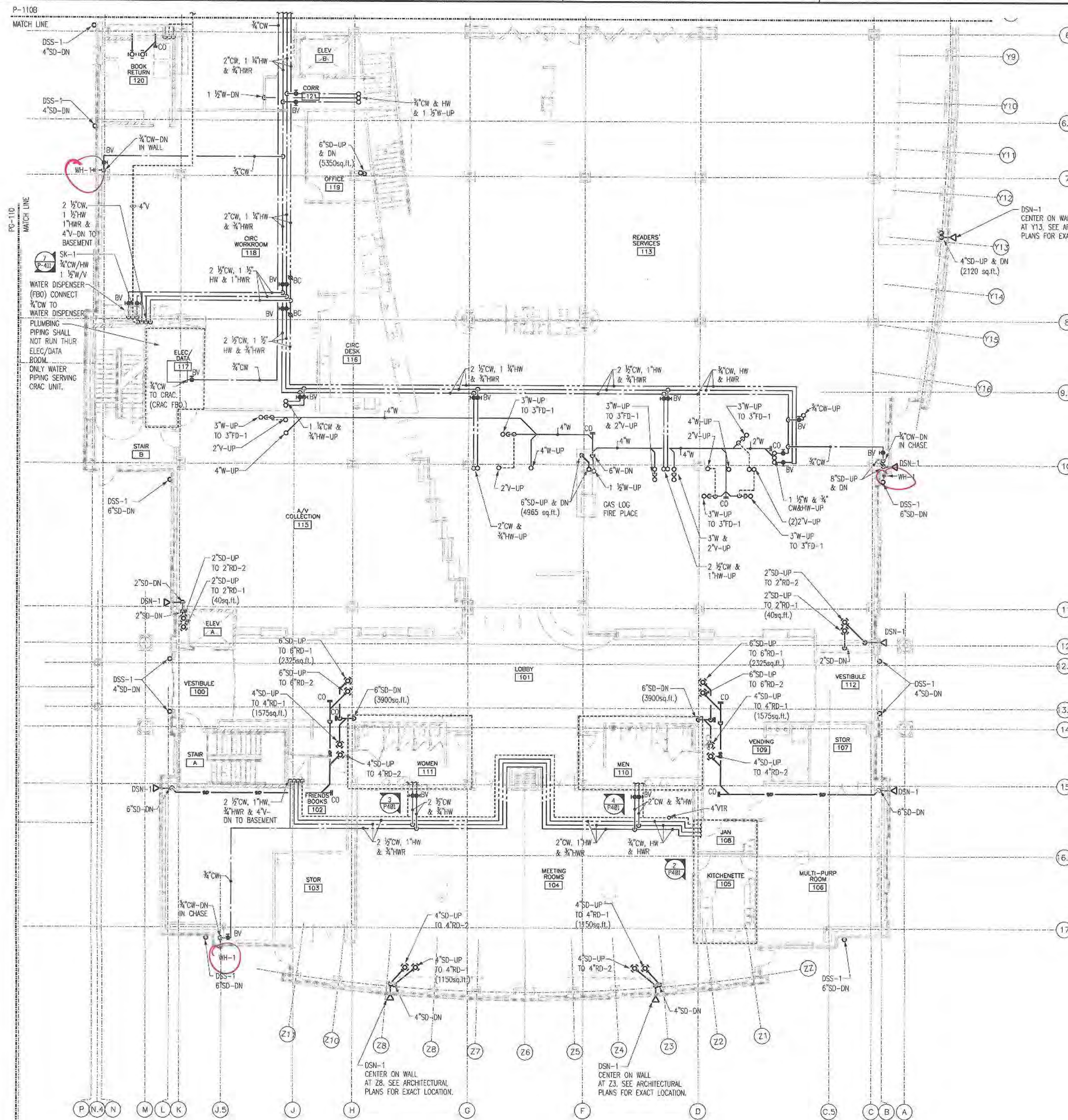
TITLE

PLUMBING
FIRST FLOOR
PLAN
AREA A

PROJECT NO. 50002241

P-110A

SHEET NO.



1 PLUMBING - FIRST FLOOR PLAN AREA A
1/8" = 1' 0"

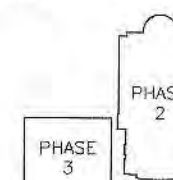




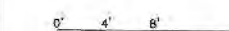
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2	04/06/09	DAP	CONSTRUCTION SET

REVISIONS

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CHECKED BY	ECB
DATE	01/09/2009

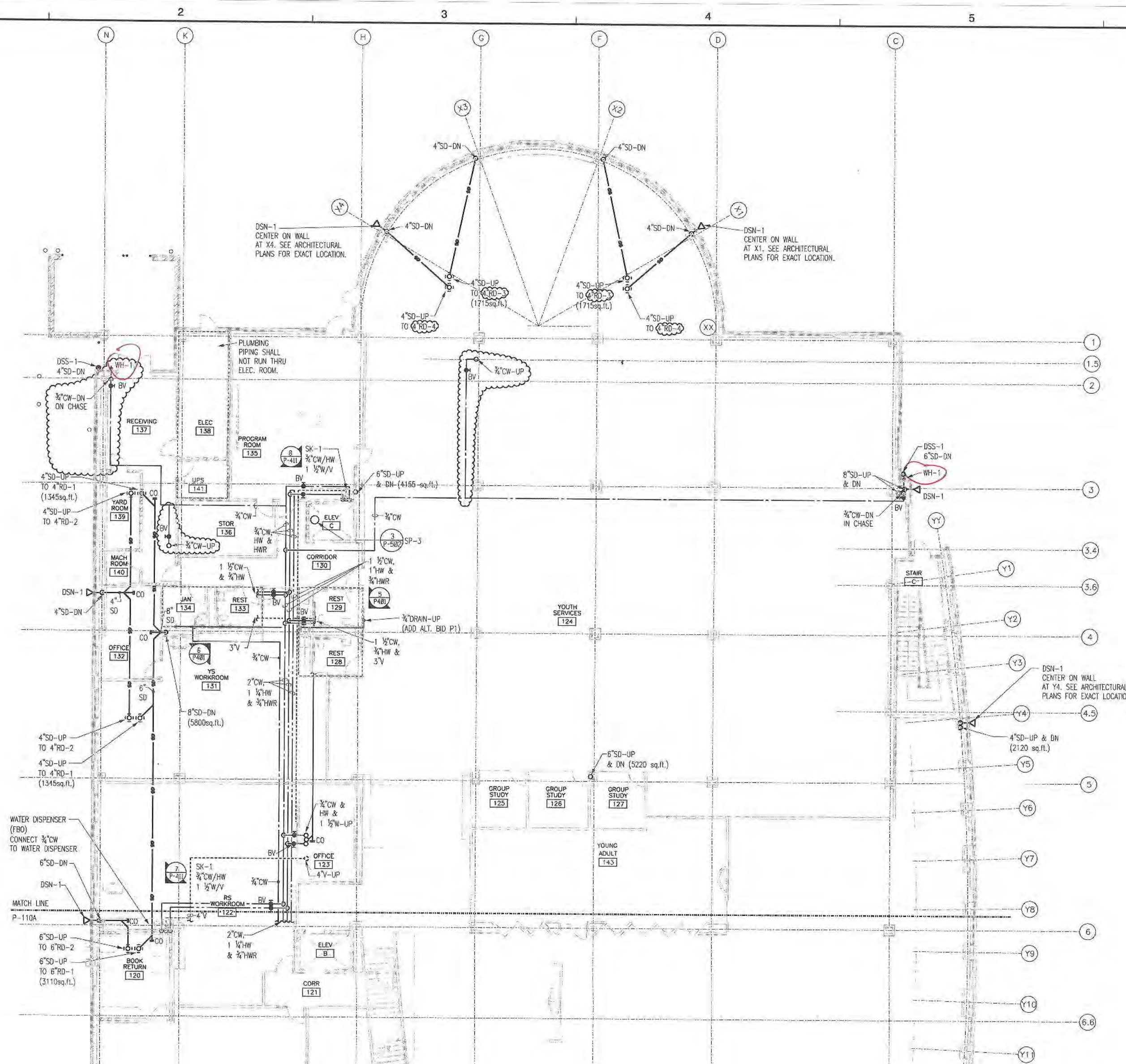
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**PLUMBING
FIRST FLOOR
PLAN
AREA B**

PROJECT NO. S0002241

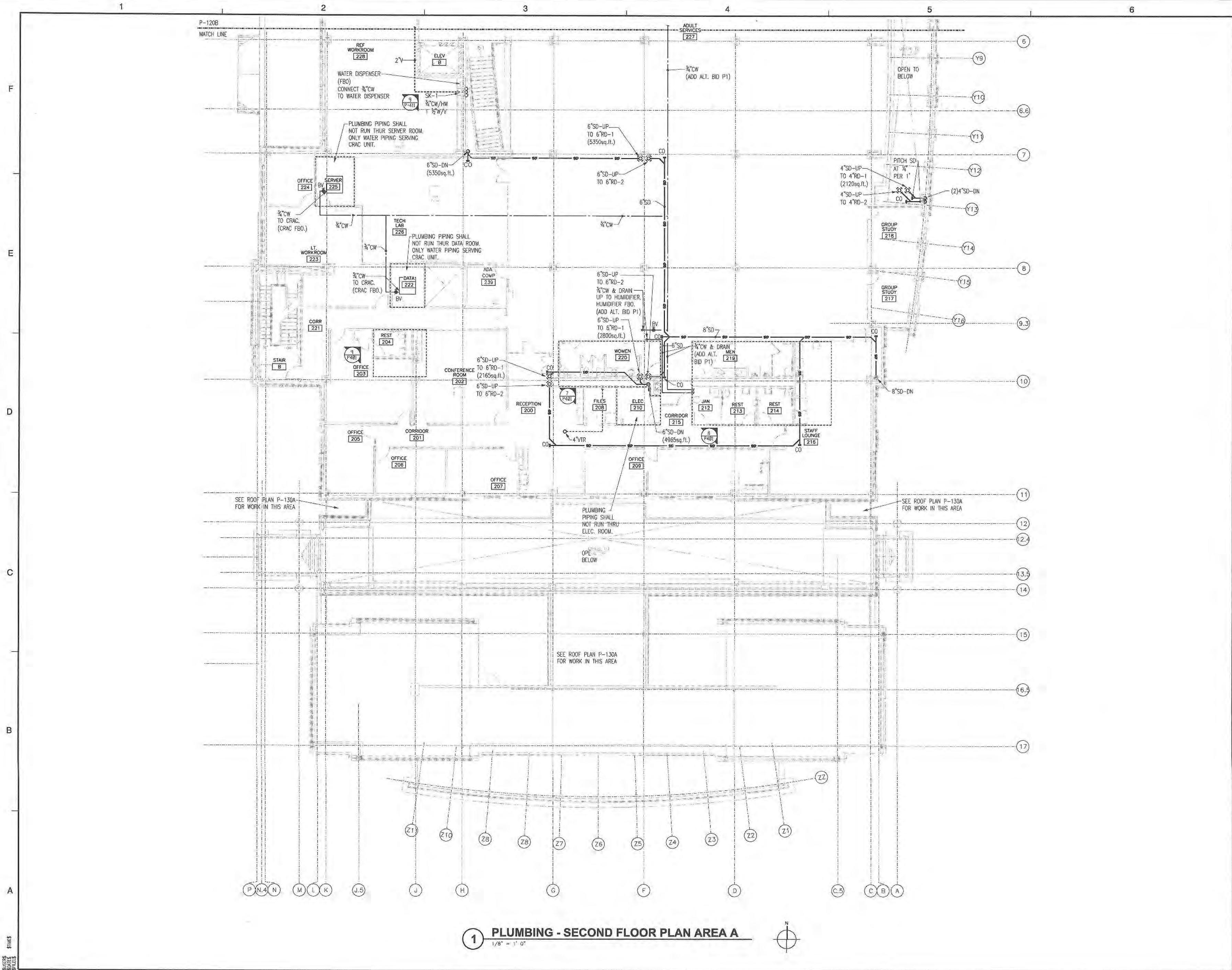
P-110B

SHEET NO.



1 PLUMBING - FIRST FLOOR PLAN AREA B
1/8" = 1' 0"





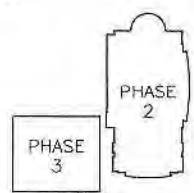
1 PLUMBING - SECOND FLOOR PLAN AREA A
1/8" = 1' 0"



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1	04/06/09	DAP	CONSTRUCTION SET
2	01/08/09	DAP	BID AND PERMIT SET
No.	DATE	BY	Description

REVISIONS

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APPROVED BY	TJK
CHECKED BY	ECB
DATE	01/09/2009

TITLE
**PLUMBING
SECOND FLOOR
PLAN
AREA A**

PROJECT NO. 50002241

P-120A

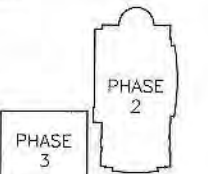
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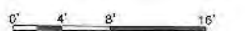
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DATE	01/09/2009

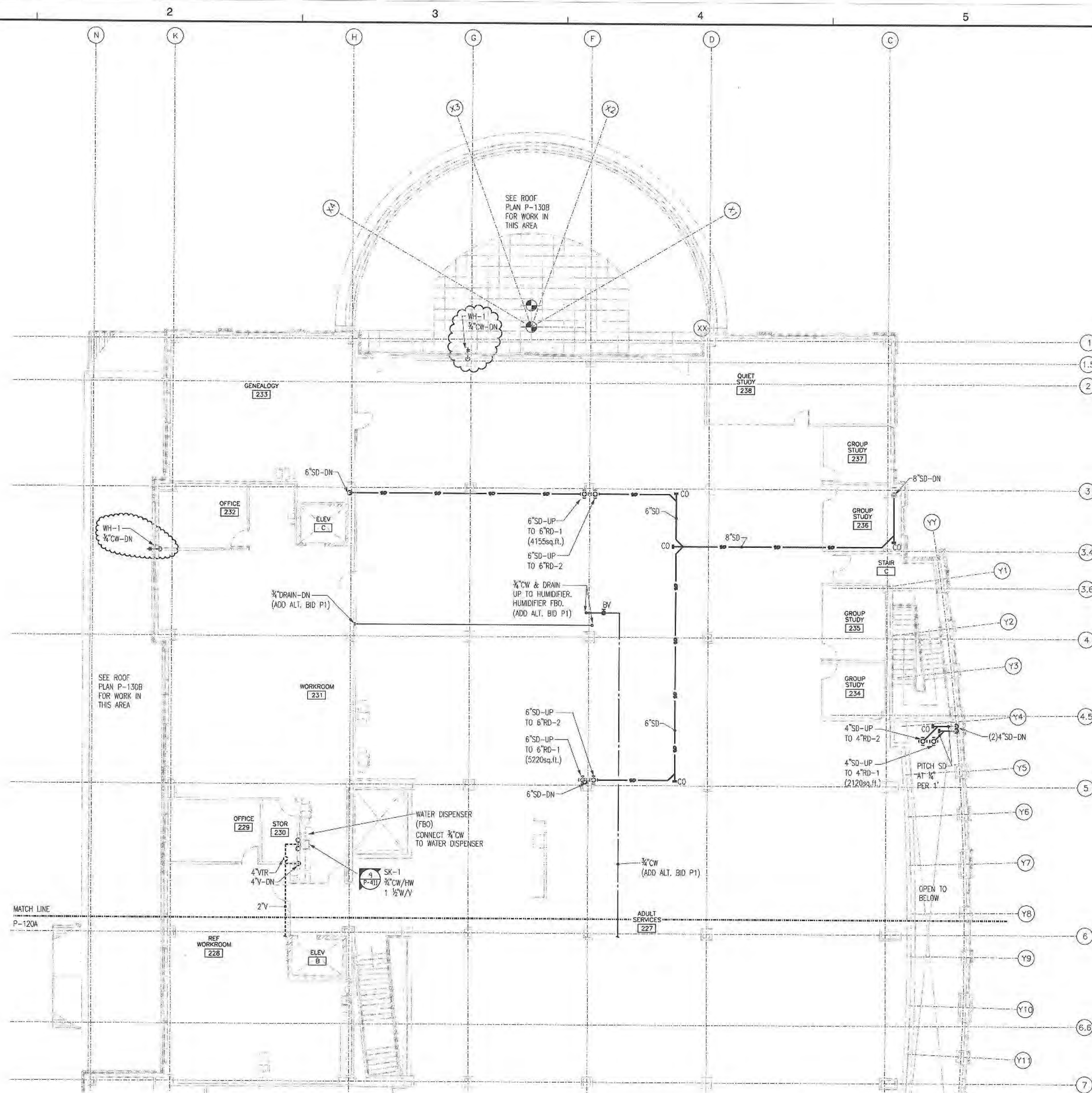
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**PLUMBING
SECOND FLOOR
PLAN
AREA B**

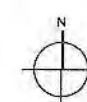
PROJECT NO. 50002241

P-120B

SHEET NO.



1 PLUMBING - SECOND FLOOR PLAN AREA B
1/8" = 1' 0"



P-130A
MATCH LINE

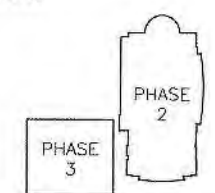
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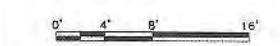
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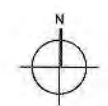
PLUMBING
ROOF
PLAN
AREA A

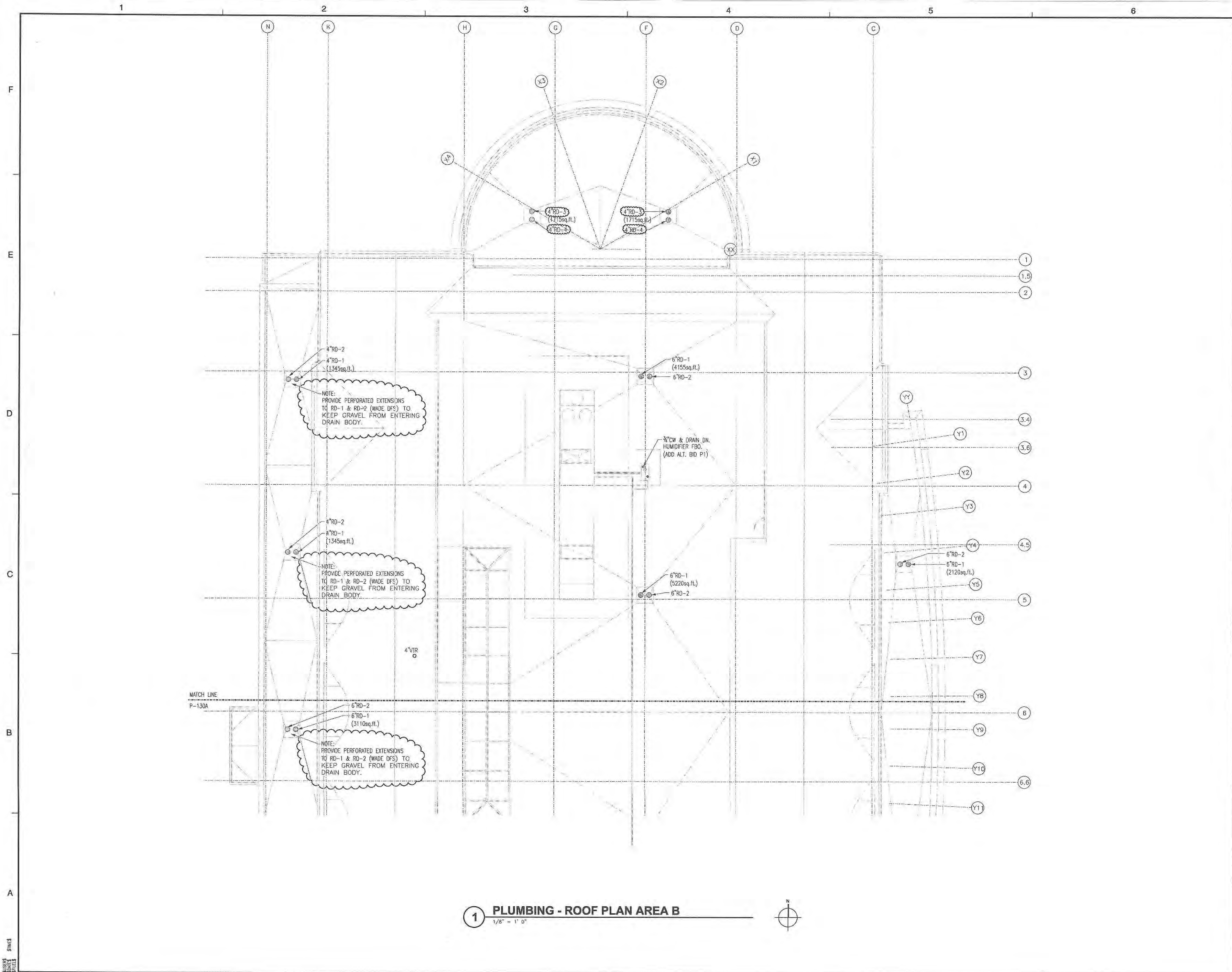
PROJECT NO. 50002241

P-130A

SHEET NO.

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1/8" = 1' 0"

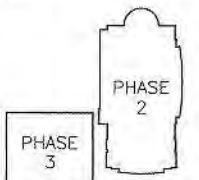




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5	01/08/09	DAP	BID AND PERMIT SET

REVISIONS
DRAWN BY: CSM
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2009

TITLE
**PLUMBING
ROOF
PLAN
AREA B**

PROJECT NO. 50002241

P-130B

SHEET NO.

1 PLUMBING - ROOF PLAN AREA B
1/8" = 1' 0"

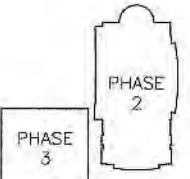




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SCALE

0' 2' 4' 8'

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No.	DATE	BY	Description
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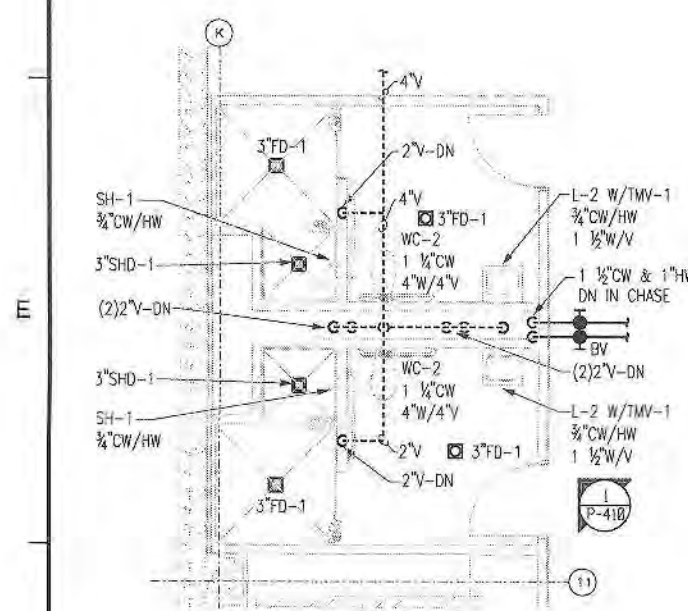
REVISIONS
DRAWN BY CSM
APPROVED BY TJK
CHECKED BY ECB
DATE 01/06/2009

TITLE
**PLUMBING
LARGE SCALE
FLOOR PLANS**

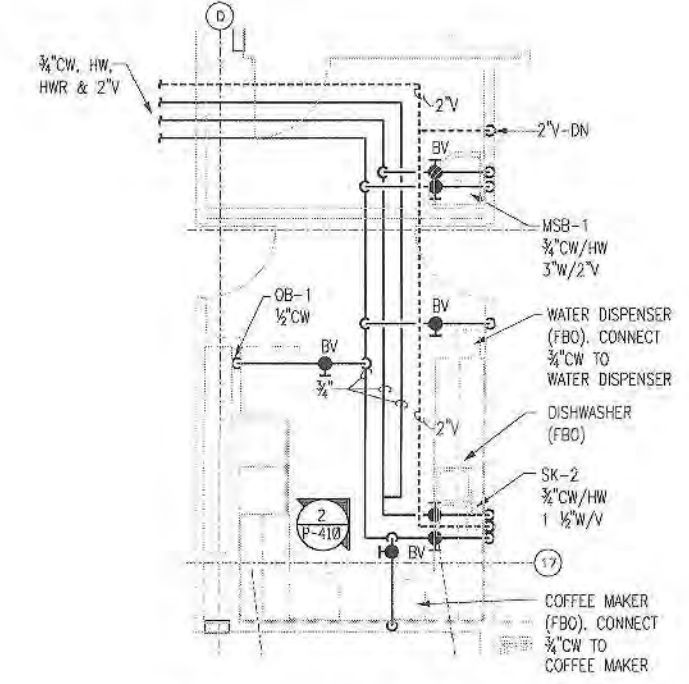
PROJECT NO. 50002241

P-401

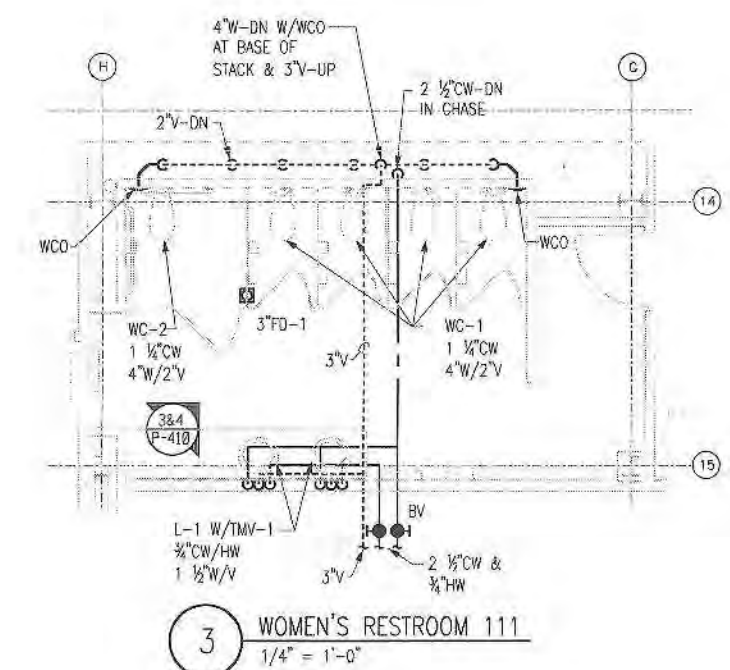
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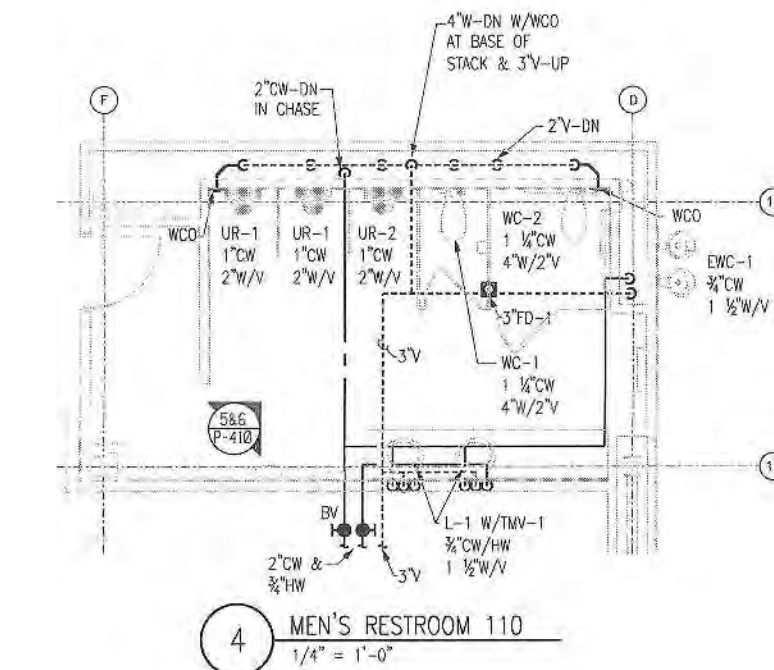
1 RESTROOMS 006 & 007
1/4" = 1'-0"



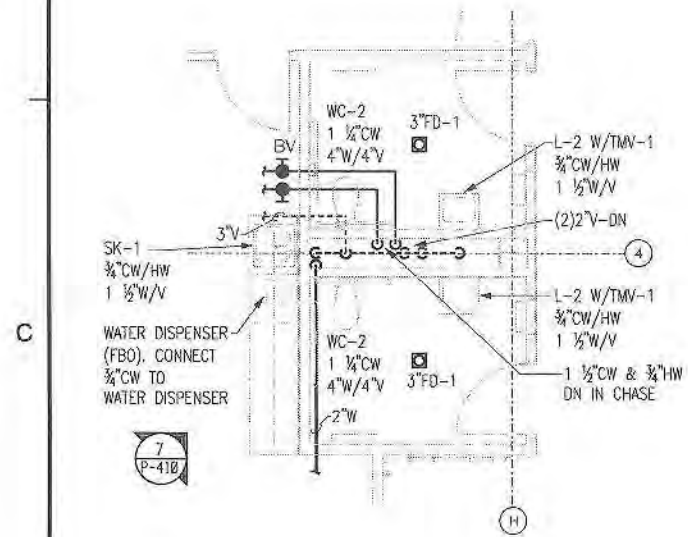
2 KITCHENETTE 105, JAN 108
1/4" = 1'-0"



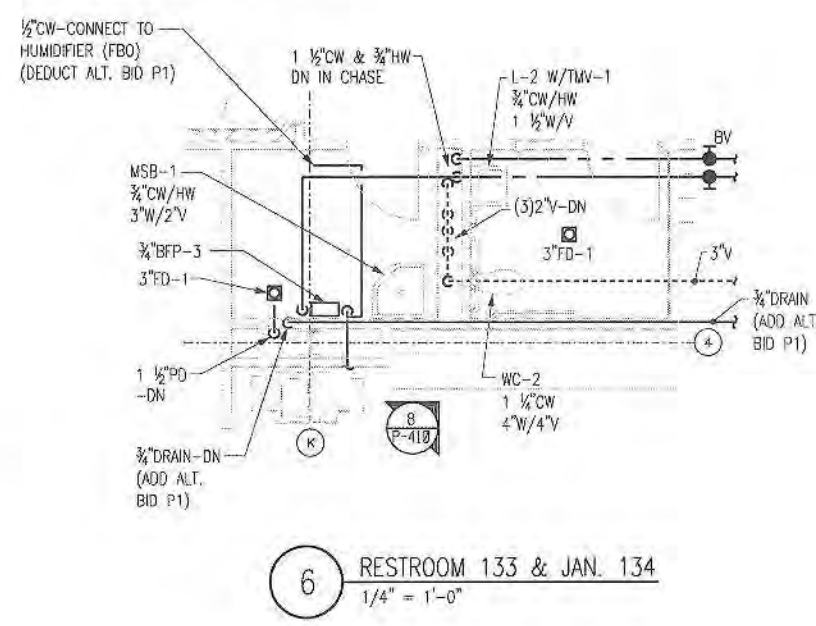
3 WOMEN'S RESTROOM 111
1/4" = 1'-0"



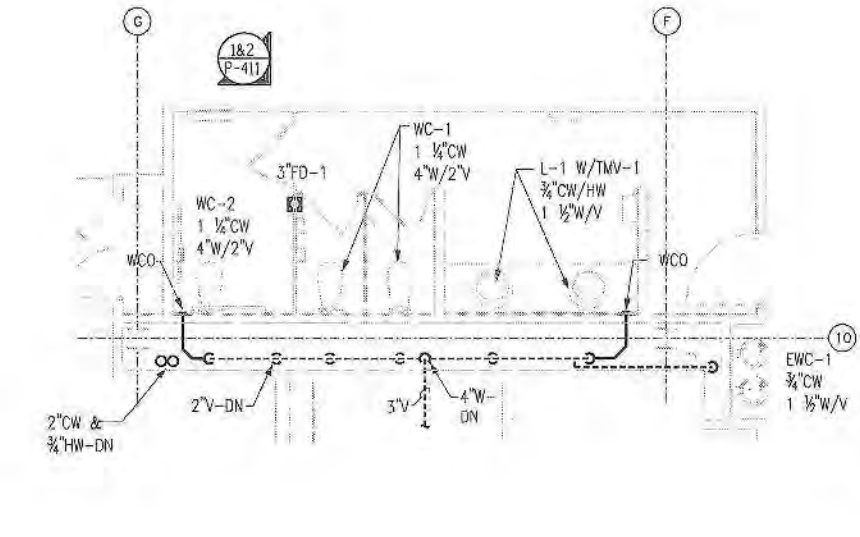
4 MEN'S RESTROOM 110
1/4" = 1'-0"



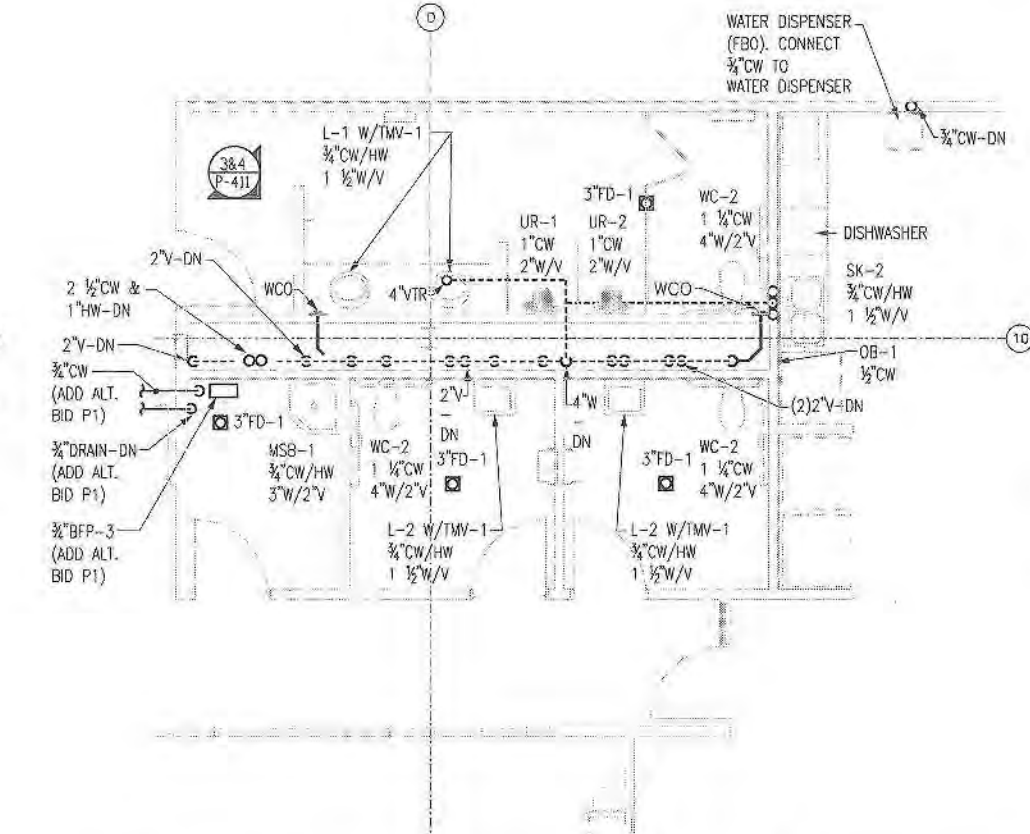
5 RESTROOMS 128 & 129, YS WOOKROOM 131
1/4" = 1'-0"



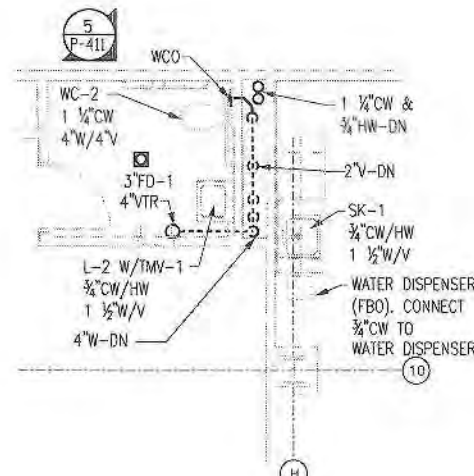
6 RESTROOM 133 & JAN. 134
1/4" = 1'-0"



7 WOMEN'S RESTROOM 220
1/4" = 1'-0"



8 STAFF LOUNGE 216, JAN 212, RESTROOMS 213 & 214, MEN'S RESTROOM 219
1/4" = 1'-0"



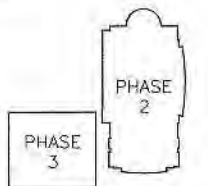
9 RESTROOM 204, CONF. ROOM 202
1/4" = 1'-0"



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REVISIONS				

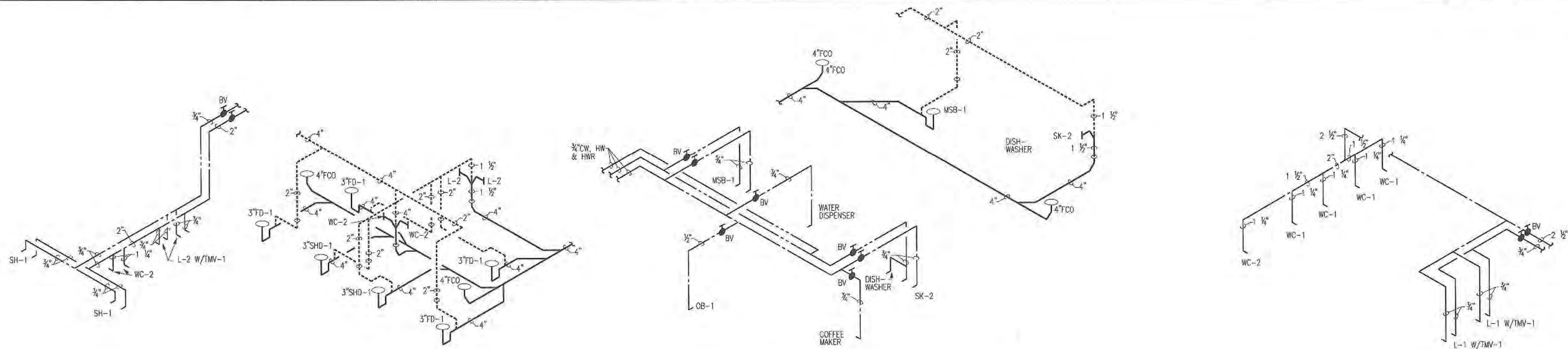
DRAWN BY: CSM
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2009

TITLE:
**PLUMBING
RISER
DIAGRAMS**

PROJECT NO: 50002241

P-410

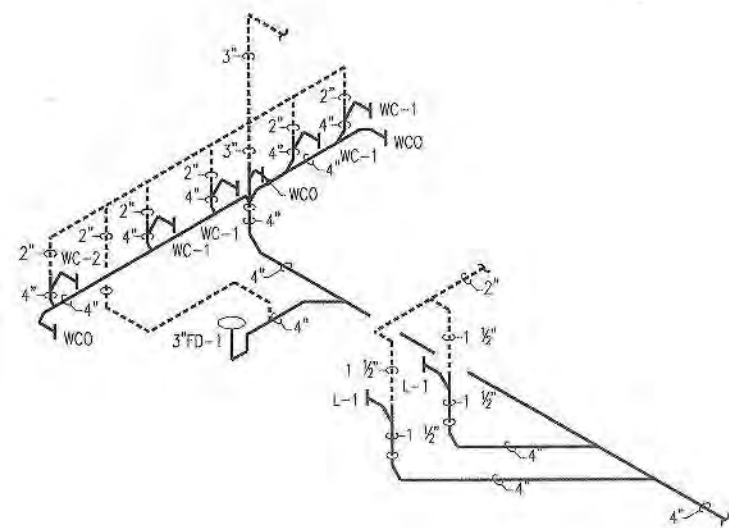
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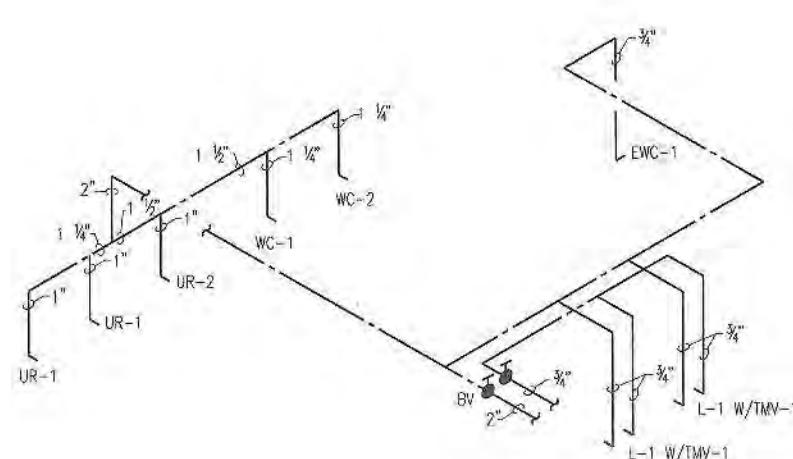
1 DOMESTIC WATER, WASTE/VENT RISER DIAGRAM
P410/NO SCALE

2 DOMESTIC WATER, WASTE/VENT RISER DIAGRAM
P410/NO SCALE

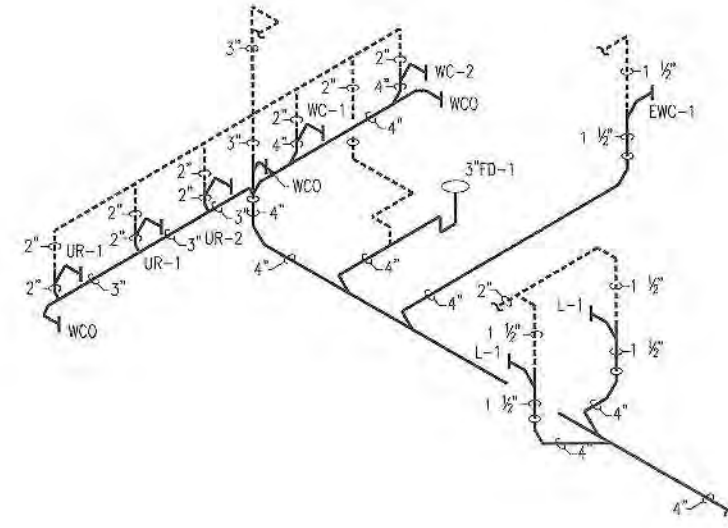
3 DOMESTIC WATER RISER DIAGRAM
P410/NO SCALE



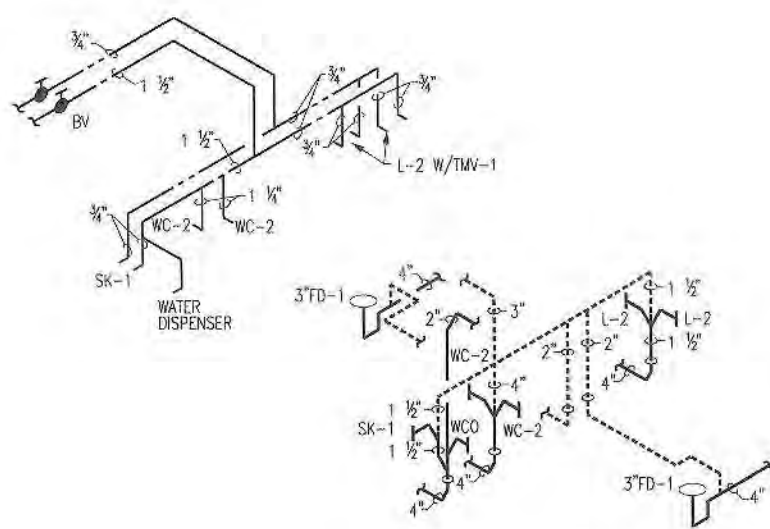
4 WASTE/VENT RISER DIAGRAM
P410/NO SCALE



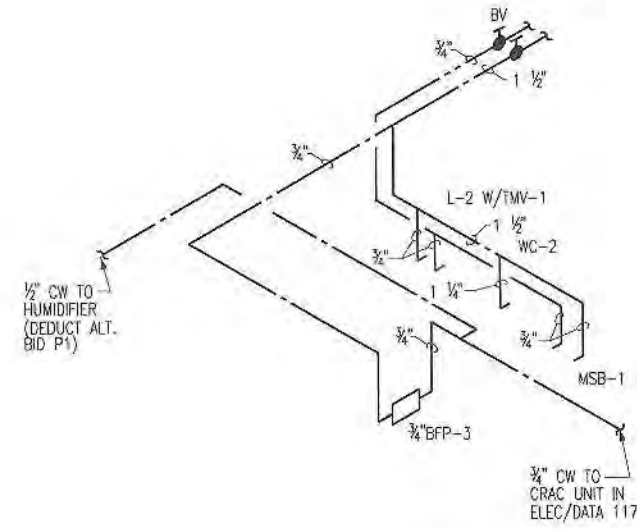
5 DOMESTIC WATER RISER DIAGRAM
P410/NO SCALE



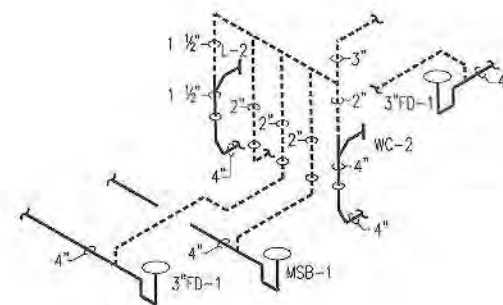
6 WASTE/VENT RISER DIAGRAM
P410/NO SCALE



7 DOMESTIC WATER, WASTE/VENT RISER DIAGRAM
P410/NO SCALE



8 DOMESTIC WATER, WASTE/VENT RISER DIAGRAM
P410/NO SCALE

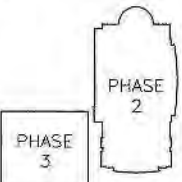




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SCALE

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No.	DATE	BY	DESCRIPTION	
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5	01/09/09	DAP	BID AND PERMIT SET	

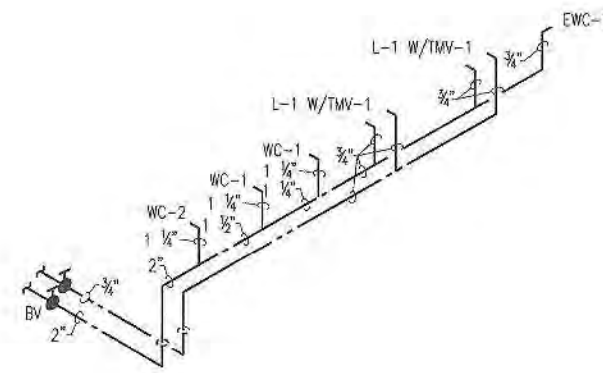
REVISIONS				
No.	DATE	BY	DESCRIPTION	
				CSM
				TJK
				ECB
	01/09/2009			

TITLE
PLUMBING
RISER
DIAGRAMS

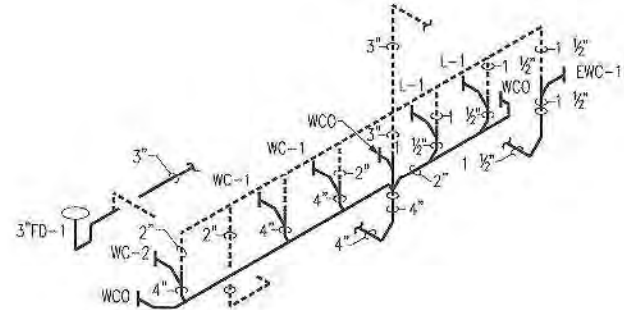
PROJECT NO. 50002241

P-411

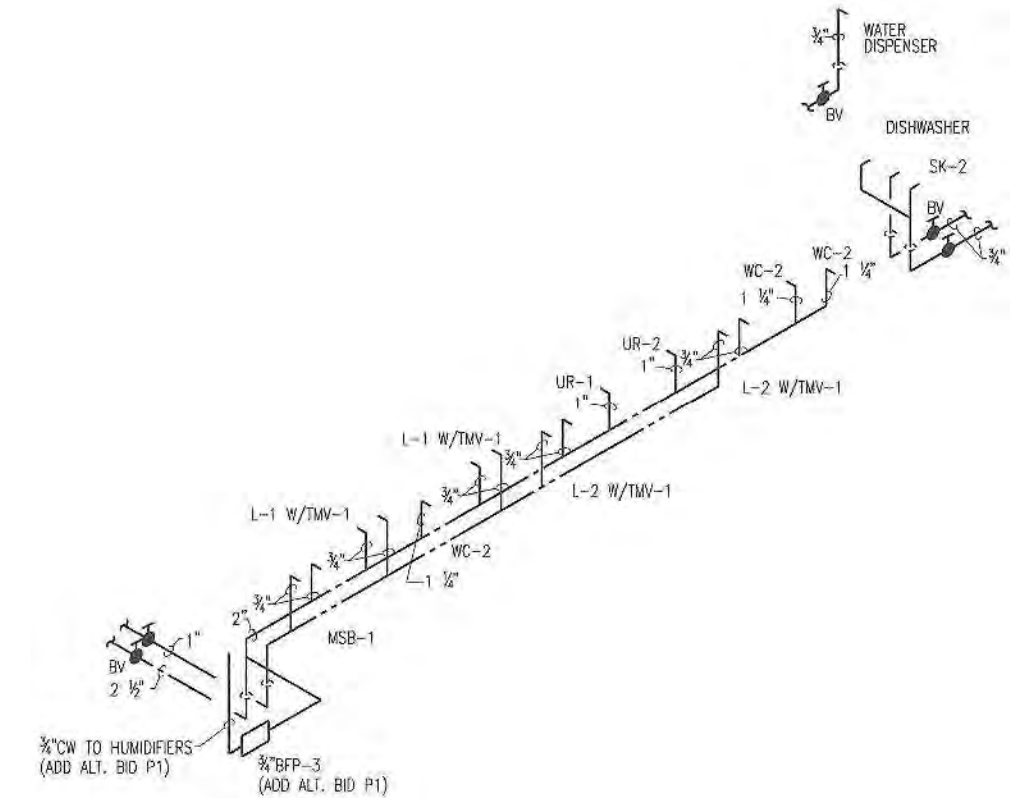
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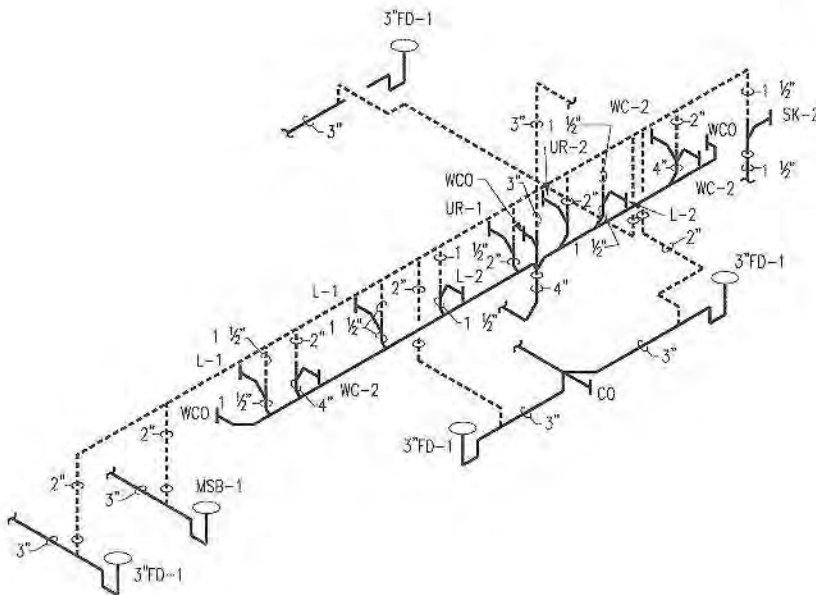
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(P411) NO SCALE



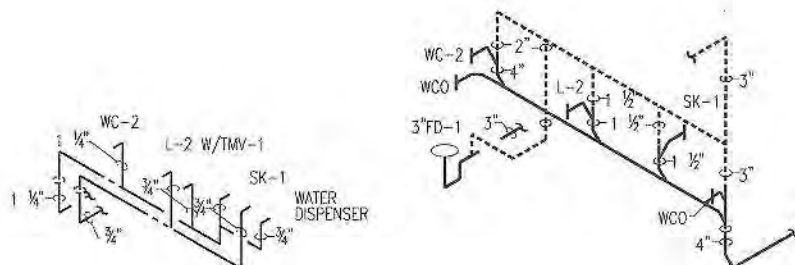
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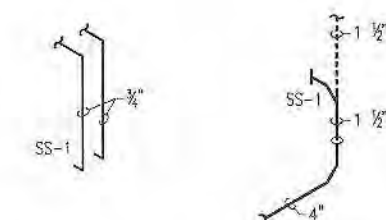
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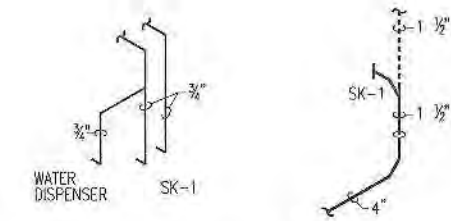
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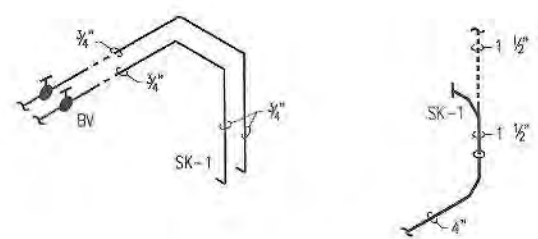
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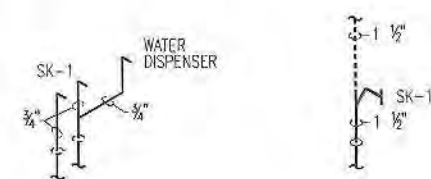
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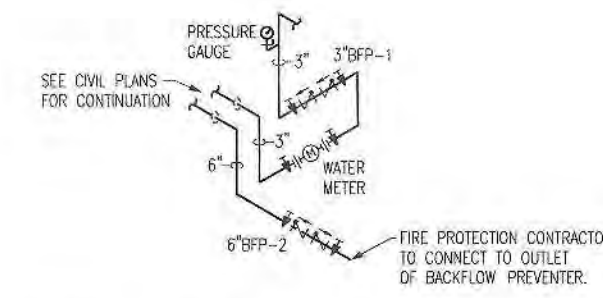
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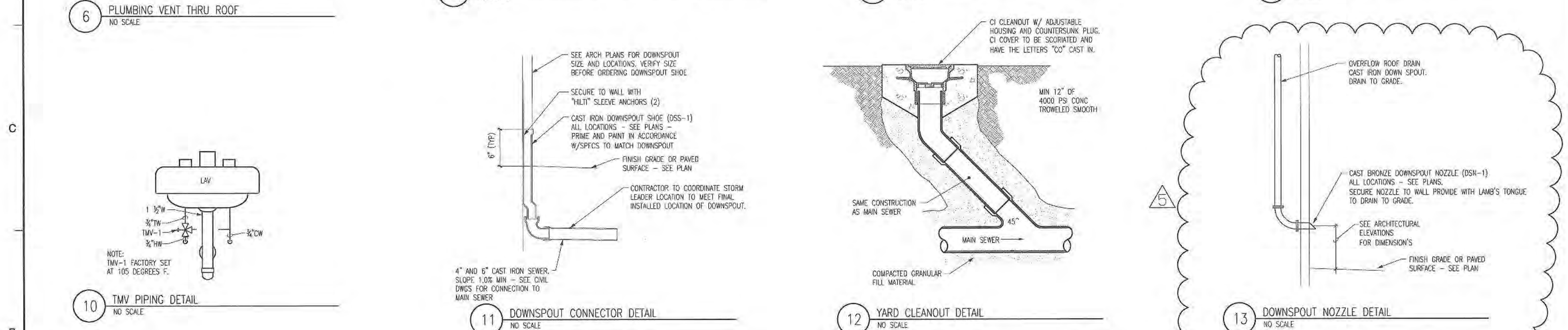
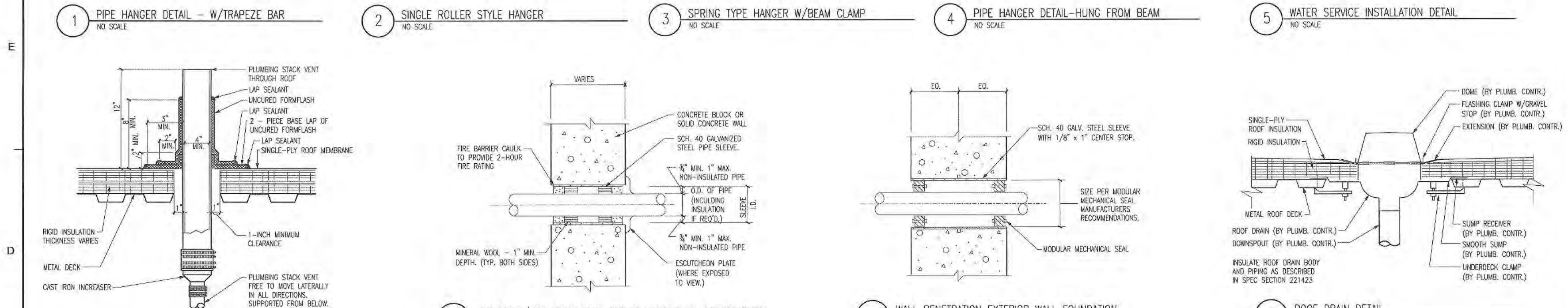
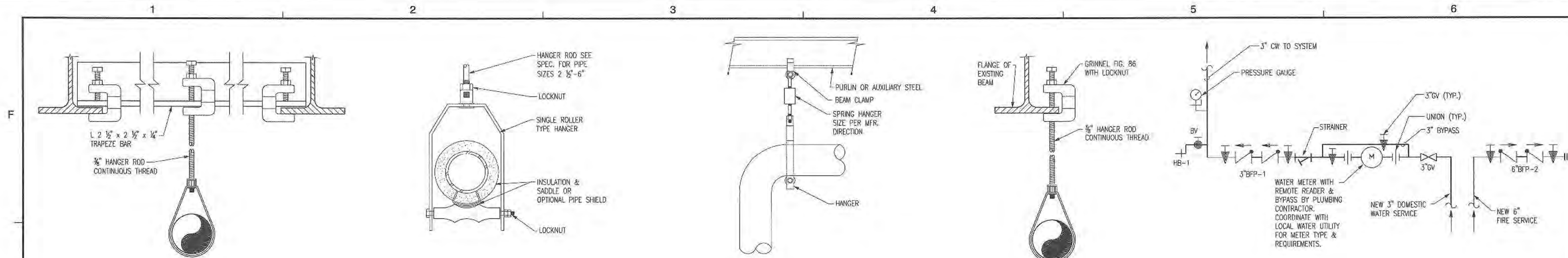
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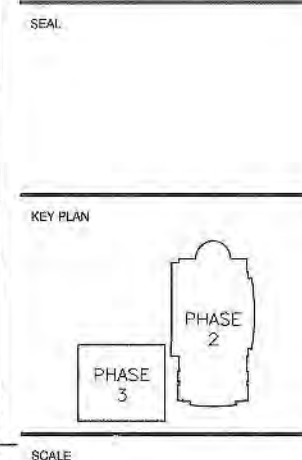
9 DOMESTIC WATER, WASTE/VENT RISER DIAGRAM
(P411) NO SCALE



10 DOMESTIC WATER SERVICE RISER DIAGRAM
(P411) NO SCALE



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REVISIONS

NO.	DATE	BY	DESCRIPTION

DRAWN BY CSM
APPROVED BY TJK
CHECKED BY ECB
DATE 01/03/2009

TITLE
PLUMBING
DETAILS

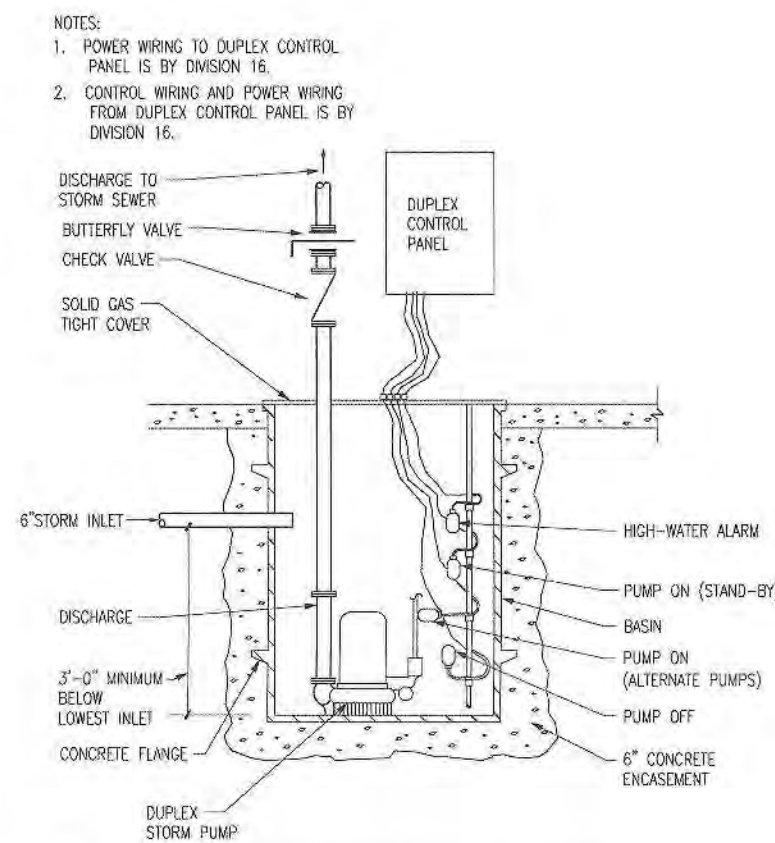
PROJECT NO. 50002241

P-501

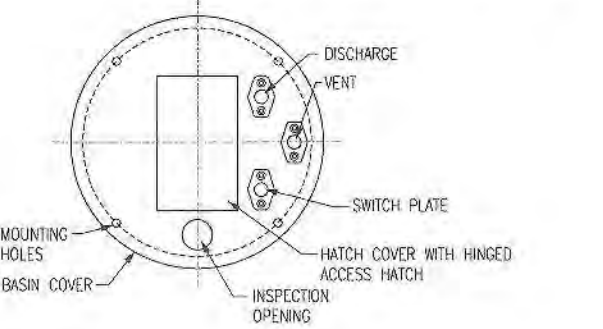
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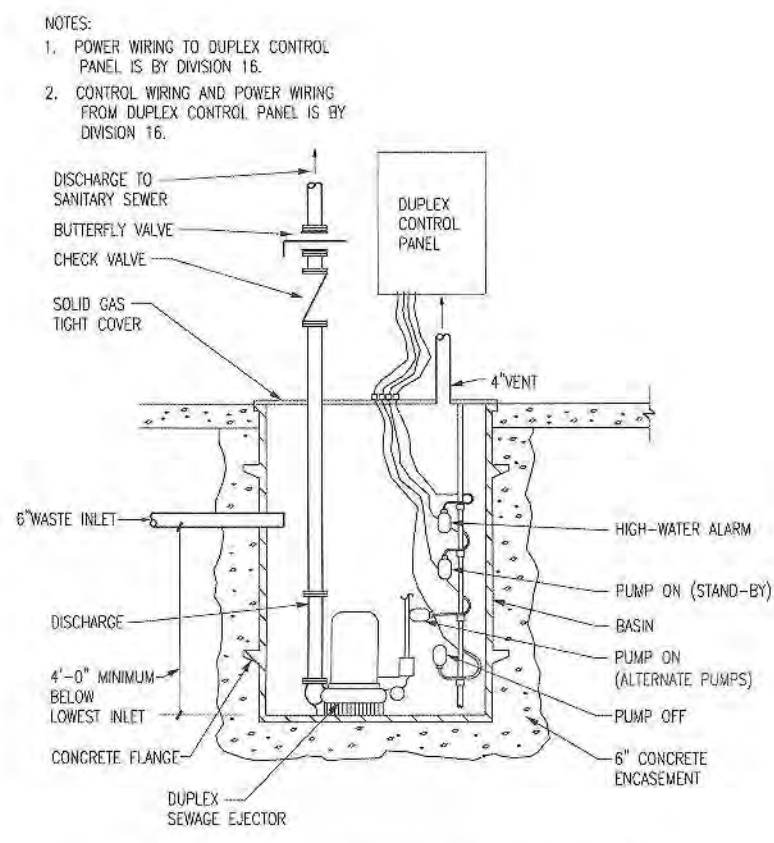
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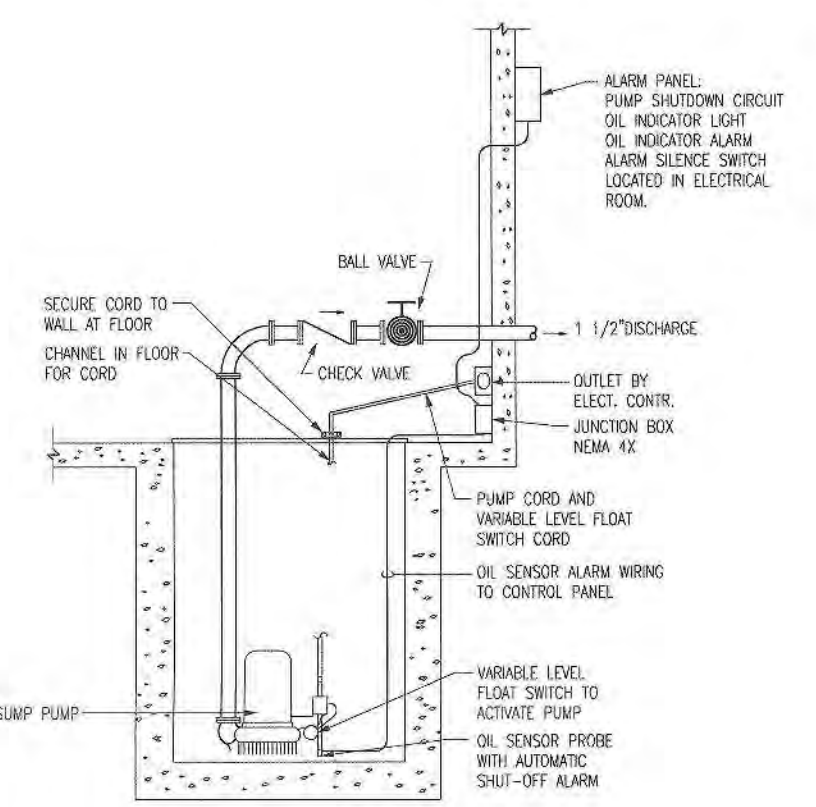
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NO SCALE
TOPP IND. 8'-FEET DEEP FIBERGLASS BASIN & ANTI FLOAT FLANGE.
TOPP IND. C42HSS STEEL BASIN COVER WITH ACCESS HATCH
TOPP IND. 3300 C.I. LIFT OUT COUPLING



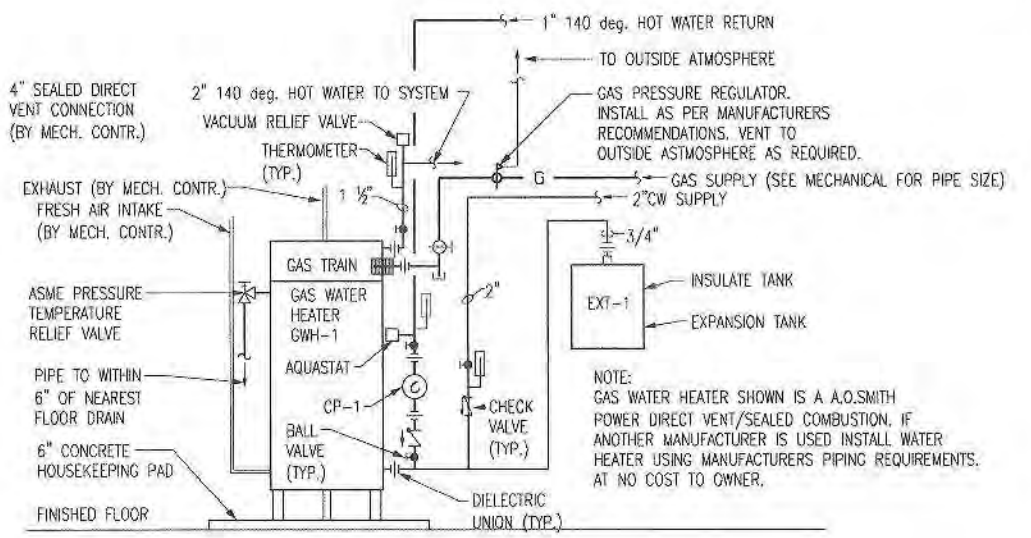
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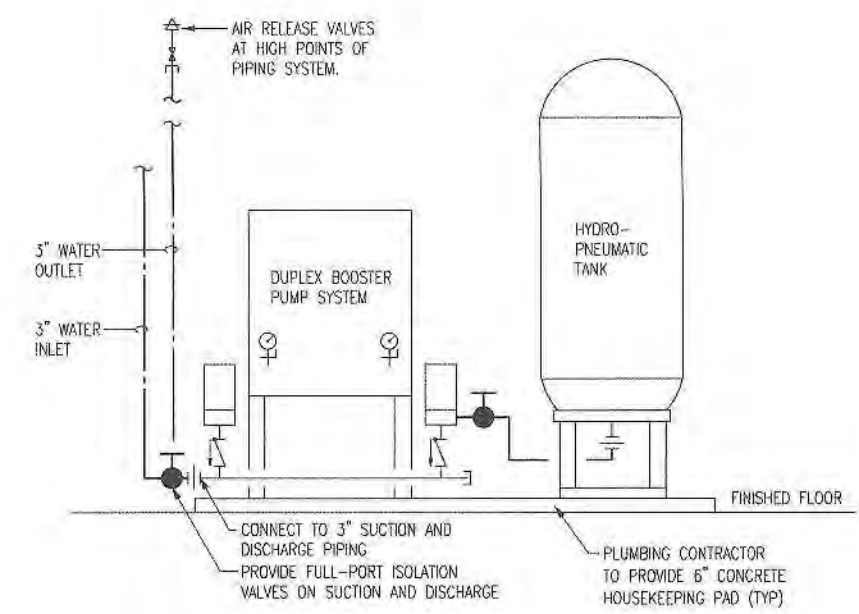
2 DUPLEX SEWAGE EJECTOR ELEVATION SCHEMATIC
NO SCALE
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TOPP IND. C42HSS STEEL BASIN COVER WITH ACCESS HATCH
TOPP IND. 3300 C.I. LIFT OUT COUPLING



3 ELEVATOR SUMP PUMP DETAIL
NO SCALE



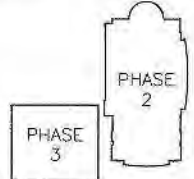
5 GAS WATER HEATER SCHEMATIC
NO SCALE



6 DOMESTIC WATER BOOSTER PUMP SCHEMATIC
NO SCALE

SEAL

KEY PLAN



SCALE

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5	01/09/09	DAP	BID AND PERMIT SET	

REVISIONS
DRAWN BY CSM
APPROVED BY TJK
CHECKED BY ECR
DATE 01/09/2009

TITLE
PLUMBING
DETAILS

PROJECT NO. 50002241

P-502

SHEET NO.

	1					2					3					4					5					6														
	FIXTURE SCHEDULE										FIXTURE SCHEDULE										FIXTURE SCHEDULE										FIXTURE SCHEDULE									
	TAG MANUFACTURER AND DESCRIPTION										TAG MANUFACTURER AND DESCRIPTION										TAG MANUFACTURER AND DESCRIPTION										TAG MANUFACTURER AND DESCRIPTION									
F	AD-1 AREA DRAIN WADE W-1100 JOSAM ZURN J.R. SMITH CAST IRON DRAIN WITH SEEPAGE FLANGE, FLASHING RING AND CLAMPING COLLAR, 7" DIAMETER HEEL PROOF ADJUSTABLE NICKEL BRONZE STRAINER. OUTLET SIZE AS INDICATED ON DRAWINGS.										FD-1 FLOOR DRAIN WADE W-1100 JOSAM ZURN J.R. SMITH CAST IRON DRAIN WITH SEEPAGE FLANGE, FLASHING RING AND CLAMPING COLLAR, 7" DIAMETER HEEL PROOF ADJUSTABLE NICKEL BRONZE STRAINER AND DEEP SEAL P-TRAP. OUTLET SIZE AS INDICATED ON DRAWINGS.										OB-1 OUTLET BOX (ICE MAKER) GUY GRAY (IPS CORP) BM 875 ACORN GATEY RECESSED MOUNTED BEHIND REFRIGERATOR OR UNDERCOUNTER ICE MAKER, STAINLESS STEEL BOX AND FACEPLATE. VALVED FITTING COMPLYING WITH ASME A112.18.1, INCLUDE 1/2" OR SMALLER COPPER TUBE OUTLET AND 1/2" SUPPLY COPPER BALL SHUT-OFF VALVE.										SS-1 SERVICE SINK FIAT L-1 MUSTEE SWANSTONE ZURN CHICAGO FAUCET 895-3177C MOEN COMMERCIAL ZURN COMMERCIAL BRASS DELTA COMMERCIAL T & S BRASS WALL HUNG WHITE MOLDED STONE, 20"x17"x13" DEEP SINGLE COMPARTMENT WITH BACK LEDGE DRAIN TRAY, 4-INCH SUPPLY FITTING, METAL HANDLES, BASKET STRAINER, ANGLE STOPS, 17ga 1 1/2" O.D. TAILPIECE, 17ga 1 1/2" P-TRAP, WITH CLEANOUT PLUG, 9-INCH RIGID/SWING GOOSENECK SPOUT, 1.6 GPM FLOW RATE, SUPPORT SINK ON BRACKET FOR WALL HANGING INSTALLATION. EXPOSED TRIM SHALL BE HEAVILY CHROME PLATED.									
	BFP-1 BACKFLOW PREVENTER (DOMESTIC WATER SYSTEM) WATTS 909-AG-EL WILKENS FEBCO REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, BRONZE CONSTRUCTION WITH DOUBLE CHECK VALVE ASSEMBLY. PROVIDE WITH STRAINER, STAINLESS STEEL INTERNAL TRIM, AIR GAP DRAIN, RELIEF OPENINGS, TEST COCKS, INLET AND OUTLET OS&Y GATE VALVES. CAPABLE OF OPERATING UP TO 175 PSI, WITH A SUPPLY TEMPERATURE OF 180 deg. F. UNIT SHALL CONFORM TO ASSE 1013.										FD-2 FLOOR DRAIN WADE W-1210 JOSAM ZURN J.R. SMITH CAST IRON FLOOR DRAIN WITH DUCTILE IRON TRACTOR GRATE, FLASHING FLANGE, INTEGRAL CLAMPING COLLAR AND DEEP SEAL P-TRAP. OUTLET SIZE AS INDICATED ON DRAWINGS.										RD-1 ROOF DRAIN (PRIMARY ROOF DRAIN) WADE W-3000-AE JOSAM ZURN J.R. SMITH CAST IRON ROOF DRAIN AND CAST IRON MUSHROOM DOME STRAINER, INTEGRAL GRAVEL STOP, FLASHING RING WITH NON-CORROSIVE CLAMPING DEVICE, INSULATION EXTENSION, DECK CLAMP AND FLASHING. PROVIDE DECK HARDWARE AND FLASHING SUITABLE FOR ROOF DECK CONSTRUCTION. OUTLET SIZE AS INDICATED ON DRAWINGS.										TMV-1 THERMOSTATIC MIXING VALVE POWERS 480 ZURN LEONARD LAWLER BELOW LAVATORY, 1/2" INLETS AND OUTLET. TEMPERATURE ADJUSTMENT STEM SET AT 105 deg. F. WITH A LOCKING NUT, INTEGRAL CHECKS, SOLID BRASS CONSTRUCTION AND CORROSION RESISTANT. VALVE CAPACITY SHALL BE 3.65 GPM AT 45 PSIG DIFFERENTIAL AND A MINIMUM FLOW OF 0.5 GPM.									
E	BFP-2 BACKFLOW PREVENTER (FIRE SYSTEM) WATTS 909RPOA WILKENS FEBCO REDUCED PRESSURE DETECTOR ASSEMBLY, CAST IRON WITH EPOXY COATED CAST IRON BODY WITH BRONZE SEAT AND DISC HOLDER, STAINLESS STEEL TRIM, RUBBER CHECK VALVE DISC, TEST COCKS, AIR GAP DRAIN, INLET AND OUTLET OS&Y GATE VALVES. BYPASS LINE HAVING A GALLON PER MINUTE METER AND A REDUCED PRESSURE BACKFLOW PREVENTER. UNIT SHALL CONFORM TO ASSE 1047.										FD-3 FLOOR DRAIN (PARKING DECK) ZURN 537 CAST IRON FLOOR DRAIN WITH DUCTILE IRON TRACTOR GRATE, FLASHING FLANGE, INTEGRAL CLAMPING COLLAR AND DEEP SEAL P-TRAP. OUTLET SIZE AS INDICATED ON DRAWINGS.										RD-2 ROOF DRAIN (SECONDARY ROOF DRAIN) WADE W-3000-SD-AE JOSAM ZURN J.R. SMITH CAST IRON ROOF DRAIN AND CAST IRON MUSHROOM DOME STRAINER, INTEGRAL GRAVEL STOP, FLASHING RING WITH NON-CORROSIVE CLAMPING DEVICE, ADJUSTABLE PLASTIC STANDPIPE, INSULATION EXTENSION, DECK CLAMP AND FLASHING. PROVIDE DECK HARDWARE AND FLASHING SUITABLE FOR ROOF DECK CONSTRUCTION. OUTLET SIZE AS INDICATED ON DRAWINGS.										UR-1 URINAL ZURN Z5738 SLOAN WEUS 1000.1401 WALL MOUNTED, 0.125 GALLON PER FLUSH, WHITE VITREOUS CHINA, WASHOUT WITH INTEGRAL FLUSHING RIM, 3/4" TOP SPOUT INLET AND INTEGRAL TRAP. FLUSH VALVE SHALL BE EXPOSED, CHROME PLATED, DIAPHRAGM TYPE WITH BATTERY POWERED SENSOR OPERATOR, ESCUTCHEON, METAL COVER, INTEGRAL SCREWDRIWER STOP AND VACUUM BREAKER, PROVIDE WITH CARRIER.									
	BFP-3 BACKFLOW PREVENTER (MAKE-UP WATER) WATTS 909-AG-EL-HW WILKENS FEBCO REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER, BRONZE CONSTRUCTION WITH DOUBLE CHECK VALVE ASSEMBLY. PROVIDE WITH STRAINER, STAINLESS STEEL INTERNAL TRIM, AIR GAP DRAIN, RELIEF OPENINGS, TEST COCKS, INLET AND OUTLET OS&Y GATE VALVES. CAPABLE OF OPERATING UP TO 175 PSI, WITH A SUPPLY TEMPERATURE OF 180 deg. F. UNIT SHALL CONFORM TO ASSE 1013.										L-1 LAVATORY (SOLID SURFACE COUNTERTOP WITH INTEGRAL BOWL) CHICAGO FAUCET/CEBERT 116.201.21.1 SLOAN OPTIMA EAF-150-ETI-607-A-EAF-12 HYDROTEK MOEN COMMERCIAL ZURN COMMERCIAL BRASS INFRARED SELF-ADJUSTING SENSOR. SINGLE HOLE MOUNTINGS WITH 4-INCH CHROME BOLT DOWN PLATE, 0.5 GPM VANDAL RESISTANT AERATOR, SOLID BRASS SPOUT, LITHIUM BATTERY MOUNTED WITHIN SPOUT CAVITY. PROVIDE WITH UNDER COUNTER TMV, ANGLE STOPS, 17ga 1-1/4" O.D. TAILPIECE, FLAT STRAINER, 17ga 1-1/4" P-TRAP. PIPING EXPOSED BELOW LAVATORY SHALL BE COVERED WITH AN ADA INSULATOR KIT, *MOUNT FOR HANDICAPPED ACCESSIBILITY*										SHD-1 SHOWER DRAIN WADE W-1100-G-179 JOSAM J.R. SMITH ZURN CAST IRON DRAIN WITH SEEPAGE FLANGE, FLASHING RING AND CLAMPING COLLAR, 5"x5" SQUARE HEEL PROOF ADJUSTABLE NICKEL BRONZE STRAINER, VANDAL PROOF FASTENERS AND DEEP SEAL P-TRAP. OUTLET SIZE AS INDICATED ON DRAWINGS.										WC-1 WATER CLOSET AMERICAN STANDARD AFWALL FLOWISE 3351.128 & 6065.121.002 ZURN Z5615 OLSONITE 10SSC1FR BEMIS CHURCH WALL MOUNTED, 1.28 GALLON FLUSH, WHITE VITREOUS CHINA, SIPHON JET CLOSET WITH ELONGATED BOWL AND 1-1/2" TOP SPOUT INLET. FLUSH VALVE SHALL BE EXPOSED, CHROME PLATED, DIAPHRAGM TYPE WITH BATTERY POWERED SENSOR OPERATOR, ESCUTCHEON, METAL COVER, OVERRIDE BUTTON, INTEGRAL SCREWDRIWER STOP, AND VACUUM BREAKER. PROVIDE WITH CHAIR CARRIER AND WHITE ANTI-MICROBIAL ELONGATED HINGED OPEN FRONT SEAT WITH OUT COVER.									
D	CD CLEANOUT WADE JOSAM ZURN J.R. SMITH FLOOR: CAST IRON, ADJUSTABLE HOUSING, CUT-OFF FERRULE, BRASS COUNTERSUNK TAPERED SCREW TYPE PLUG WITH NEOPRENE SEAL. ABOVE CEILING EXPOSED VERTICAL OR HORIZONTAL LINES: CAST IRON, FERRULE WITH ROUGH BRASS RAISED HEAD TAPERED PLUG. WHEN LOCATED IN SECURE AREAS: VANDAL RESISTANT FASTENERS SHALL BE USED. RECESSED TILE OR CARPET AREAS: ROUND, NICKEL BRASS SECURED FRAME WITH TILE FLANGE AND COVER. PROVIDE CARPET MARKERS ON FCO IN CARPETED AREAS. IN CONCRETE FLOORS: ROUND, NICKEL BRASS SECURED FRAME WITH NON-SKID SCORATED NICKEL BRASS COVER SECURED TO FRAME WITH BRASS SCREWS. RISER CLEANOUTS: CAST IRON TEE WITH COUNTERSUNK BRASS PLUG WITH ROUND SECURED 18ga STAINLESS STEEL COVER WITH STAINLESS STEEL SETTING SCREW. YARD CLEANOUT: CAST IRON WITH CUT-OFF FERRULE, TAPERED BRASS PLUG, ADJUSTABLE HOUSING AND EXTRA HEAVY SECURED FRAME, SCORATED TRACTOR COVER.										L-2 LAVATORY AMERICAN STANDARD Q355.012 ZURN CHICAGO FAUCET/CEBERT 116.201.21.1 SLOAN OPTIMA EAF-150-ETI-607-A-EAF-12 HYDROTEK MOEN COMMERCIAL ZURN COMMERCIAL BRASS WALL HUNG WHITE VITREOUS CHINA, 20"x18" MINIMUM RECTANGULAR BASIN, 4"HIGH BACK, SINGLE HOLE DRILLING, OVERFLOW, FLAT STRAINER, INFRARED SELF-ADJUSTING SENSOR, CONCEALED ARM CARRIERS. SINGLE HOLE MOUNTINGS WITH 4-INCH CHROME BOLT DOWN PLATE, 0.5 GPM VANDAL RESISTANT AERATOR, SOLID BRASS SPOUT, LITHIUM BATTERY MOUNTED WITHIN SPOUT CAVITY. PROVIDE WITH UNDER COUNTER TMV, ANGLE STOPS, 17ga 1-1/4" O.D. TAILPIECE, 17ga 1-1/4" P-TRAP. PIPING EXPOSED BELOW LAVATORY SHALL BE COVERED WITH AN ADA INSULATOR KIT, *MOUNT FOR HANDICAPPED ACCESSIBILITY*										SK-1 SINK (SINGLE BOWL) ELKAY LR-2219 JUST DAYTON PRODUCTS CHICAGO FAUCET 201-AGNBAE35-317CP DELTA COMMERCIAL MOEN COMMERCIAL T & S BRASS ZURN COMMERCIAL BRASS SELF-RIMMING, 18ga TYPE 304 STAINLESS STEEL 22"x19"x7-1/2" DEEP SINGLE COMPARTMENT, UNDERCOATED AND THREE HOLE DRILLING, 8" SUPPLY FITTINGS, 4"WHIST BLADES, 1.5 GPM AERATOR, BASKET STRAINER, ANGLE STOPS, 17ga 1-1/2" O.D. TAILPIECE, 17ga 1-1/2" P-TRAP AND GOOSENECK SPOUT, ALL EXPOSED TRIM SHALL BE HEAVILY CHROME PLATED.										WC-2 WATER CLOSET AMERICAN STANDARD AFWALL FLOWISE 3351.128 & 6065.121.002 ZURN Z5615 OLSONITE 10SSC1FR BEMIS CHURCH WALL MOUNTED 18" HIGH FOR HANDICAPPED ACCESSIBILITY, 1.28 GALLON FLUSH, WHITE VITREOUS CHINA, SIPHON JET CLOSET WITH ELONGATED BOWL AND 1-1/2" TOP SPOUT INLET. FLUSH VALVE SHALL BE EXPOSED, CHROME PLATED, DIAPHRAGM TYPE WITH BATTERY POWERED SENSOR OPERATOR, ESCUTCHEON, METAL COVER, OVERRIDE BUTTON, INTEGRAL SCREWDRIWER STOP, AND VACUUM BREAKER. PROVIDE WITH CHAIR CARRIER AND WHITE ANTI-MICROBIAL ELONGATED HINGED OPEN FRONT SEAT WITH OUT COVER.									
C	DSN-1 DOWNSPOUT NOZZLE WADE 3940 JOSAM ZURN J.R. SMITH CAST BRONZE DOWNSPOUT NOZZLE WITH THREADED OUTLET AND FLANGE TO SECURE NOZZLE TO WALL PROVIDE WITH LAMEY'S TONGUE.										MSB-1 MOP SERVICE BASIN FIAT MSB-2424-889 CC-E-77-AA-1453 BB-832 AA-MSC 2424 SWANSTONE MUSTEE ZURN CHICAGO FAUCET 897-CP DELTA COMMERCIAL MOEN COMMERCIAL T & S BRASS ZURN COMMERCIAL BRASS FLOOR MOUNTED WHITE MOLDED STONE, 24"x24"x10" DEEP WITH 1" WIDE SHOULDERS STAINLESS STEEL STRAINER AND BUMPER GUARDS. CHROME PLATED CAST BRASS VACUUM BREAKER SPOUT, 3/4" HOSE THREADED OUTLET, PAIL HOOK WITH WALL SUPPORT, INTEGRAL SCREWDRIWER STOPS WITH COVERING CAPS. ADJUSTABLE SUPPLY ARMS AND INDEXED LEVER HANDLES. PROVIDE WITH 5 FEET OF 1/2" PLAIN END REINFORCED RUBBER HOSE, HOSE CLAMP, MOP HANGER, AND STAINLESS STEEL WALL GUARDS (TWO PANELS FOR CORNER INSTALLATION).										SK-2 SINK (DOUBLE BOWL) ELKAY LR-3322 JUST DAYTON PRODUCTS CHICAGO FAUCET 201-AGNBAE35-317CP DELTA COMMERCIAL MOEN COMMERCIAL T & S BRASS ZURN COMMERCIAL BRASS SELF-RIMMING, 18ga TYPE 302 STAINLESS STEEL 33"x22"x8" DEEP DOUBLE COMPARTMENT, UNDERCOATED AND THREE HOLE DRILLING, 8" SUPPLY FITTINGS, 4"WHIST BLADES, 1.5 GPM AERATOR, BASKET STRAINER, ANGLE STOPS, 17ga 1-1/2" O.D. TAILPIECE, 17ga 1-1/2" P-TRAP AND GOOSENECK SPOUT, ALL EXPOSED TRIM SHALL BE HEAVILY CHROME PLATED.										WH-1 WALL HYDRANT WADE JOSAM ZURN J.R. SMITH 55090T-NB NON-FREEZE KEY OPERATED WITH 1-5/8" BRASS CASTINGS, BRASS OPERATING MECHANISM, ADJUSTABLE LOCK NUT, REMOVABLE NYLON SEAT, NICKEL BRASS DEEP BOX WITH KEY HANDLE, INTEGRAL ANTI-SIPHON, NON-FREEZE VACUUM BREAKER AND WALL CLAMP, LENGTH OF WALL CLAMP AS REQUIRED BY WALL CONSTRUCTION AND ALL OTHER MOUNTING AS REQUIRED BY MANUFACTURER.									
B	FWC-1 ELECTRIC WATER COOLER ELKAY ER99M29C HALSEY TAYLOR HAWES BARRIER FREE, WALL HUNG, TWO LEVEL, 18ga STAINLESS STEEL TWIN OVAL FOUNTAINS, RECESSED IN THE WALL REFRIGERATION SYSTEM & STAINLESS STEEL GRILLE. PUSH BUTTON CONTROL, ANTI-SOULT BUBBLER WITH STREAM GUARD AND AUTOMATIC STREAM REGULATOR. PROVIDE STAINLESS STEEL PERFORATED STRAINER, WATER SUPPLY CHROME PLATED BRASS STEM WITH LOOSE KEY STOP AND CHROME PLATED P-TRAP, 115 VOLTS, 60 HZ, 1 PHASE. MOTOR THERMALLY OVERLOAD PROTECTED. PROVIDE SUPPORTS AS REQUIRED TO SUPPORT EWC. CAPACITY EQUAL TO 7.5 GPH OF 50 deg. F. DRINKING WATER, AT AN INLET WATER TEMP. OF 80 deg. F. AND A ROOM TEMP. OF 90 deg. F.										DSS-1 DOWNSPOUT SHOE NEENAH FOUNDRY MANUFACTURED GRAY IRON CASTING, WITH STRAP FOR ATTACHING TO BUILDING, 4-INCH OUTLET, INLET TO MATCH DOWNSPOUT AND 4-INCH OUTLET, WITH SHOP APPLIED BITUMINOUS COATING.																													

FIXTURE SCHEDULE									
TAG	MANUFACTURER AND DESCRIPTION								
EW-1	120V, 60 HZ, 1 PH. --- 1/2" 1 1/2" 1 1/2"								
L-1	--- 1/2" 1/2" 1 1/2" 1 1/2"								
L-2	--- 1/2" 1/2" 1 1/2" 1 1/2"								
MSB-1	--- 3/4" 3/4" 3" 2"								
SH-1	--- 3/4" 3/4" 3" 2"								
SK-1	--- 1/2" 1/2" 1 1/2" 1 1/2"								
SK-2	--- 1/2" 1/2" 1 1/2" 1 1/2"								
SS-1	--- 1/2" 1/2" 1 1/2" 1 1/2"								
UR-1	--- 1" 2" 2"								
UR-2	--- 1" 2" 2"								
WC-1	--- 1 1/4" 4" 2"								
WC-2	--- 1 1/4" 4" 2"								

SUBMERSIBLE PUMP SCHEDULE										
TAG	MANUFACTURER & MODEL NO.	BASIN	GPM	TOTAL DYNAMIC HEAD	MOTOR DATA			PUMP DISCHARGE, MAX. SOLIDS	LOCATION	REMARKS
SP-1	WEIL 2515	TOPP FIBERGLASS 8" DEEP, 42" DIA.	80	14	(2) 1.5	480	3	3", 2 1/4"	PUMP RM 002	DUPLEX, CONTROL PANEL
SP-2	WEIL 1626	TOPP FIBERGLASS 8" DEEP, 48" DIA.	200	18	(2) 3	480	3	3", 1/2"	BOILER RM 009	DUPLEX, CONTROL PANEL
SP-3	WEIL 1422 W/ OIL SENSOR AUTO. SHUT-OFF & ALARM	BASIN BY OTHERS	30	30	(1)3/4	120	1	1 1/2", 1/2"	ELEVATOR PIT (1TP)	SIMPLEX SUMP PUMP, OIL SENSOR WITH ALARM PANEL
NOTES: 1. DUPLEX SEWAGE & SUMP PUMP SYSTEMS WITH NEMA-1 UL LABELED DUPLEX CONTROL PANEL. 2. CONTRACTOR TO PROVIDE FOR FACTORY AUTHORIZED START-UP IN CONTRACT. 3. REFER TO SPECIFICATIONS AND PIPING DIAGRAMS FOR ADDITIONAL REQUIREMENTS.										
BOOSTER PUMP SCHEDULE										
MARK	MANUFACTURER & MODEL NO.	SYSTEM GPM @ P.S.I.	MINIMUM NET SUCTION PRESSURE	PUMP 1	PUMP 2	PRESSURIZED BLADDER TANK SIZE	MOTOR CHARACTERISTICS	REMARKS		
BP-1	METROPOLITAN TITAN-PLUS TP-17-S	165 @ 80	25-PSI	140 GPM @ 80-FT. TDH	140 GPM @ 80-FT. TDH	119 GALLONS	5-HP, 3-PHASE, 480 VOLT	---		
NOTES: 1. FURNISH AND INSTALL UL LISTED VARIABLE SPEED PREFABRICATED DUPLEX PUMPING SYSTEM. 2. SYSTEM SHALL BE FACTORY WIRED, TESTED AND CALIBRATED PRIOR TO SHIPPING. CONTRACTOR TO PROVIDE FOR FACTORY AUTHORIZED START-UP IN CONTRACT. 3. REFER TO SPECIFICATIONS AND PIPING DIAGRAM FOR ADDITIONAL REQUIREMENTS.										

EXPANSION TANK SCHEDULE									
MARK	MANUFACTURER	MODEL NO.	SIZE (GAL)	CONNECTION SIZE	PRECHARGE PRESSURE	REMARKS			
EXT-1	AMTROL INC.	ST-12	4.0	3/4"	40 PSIG	---			

CIRCULATING PUMP SCHEDULE									
MARK	MANUFACTURER & MODEL NO.	GPM	HEAD (FT.)	RPM	FLANGE SIZE	MOTOR			REMARKS
CP-1	BELL & GOSSETT BRONZE BOOSTER PR SERIES	10	16	1750	1"	1/6	1	120	

GAS WATER HEATER SCHEDULE										
MARK	MANUFACTURER & MODEL NO.	GALLONS	GAS BTU/H	GAS CONN.	RECOVERY GPH @ 90°F RISE	TEMP. SETTING	INLET OUTLET CONN.	DIMENSIONS	LOCATION	REMARKS
GWH-1	A.O. SMITH BTH-120	60	120,000	1/2"	154	140deg.F.	1 1/2"	28" x 56"	BOILER 009	4"DIRECT VENT/SEALED COMBUSTION

PLUMBING CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND COMPENSATING OTHER TRADES FOR INCREASED ELECTRICAL, GAS, ETC. REQUIREMENTS WHICH MAY OCCUR FROM UTILIZING OTHER ACCEPTABLE EQUIPMENT.

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NO.	DATE	BY	DESCRIPTION
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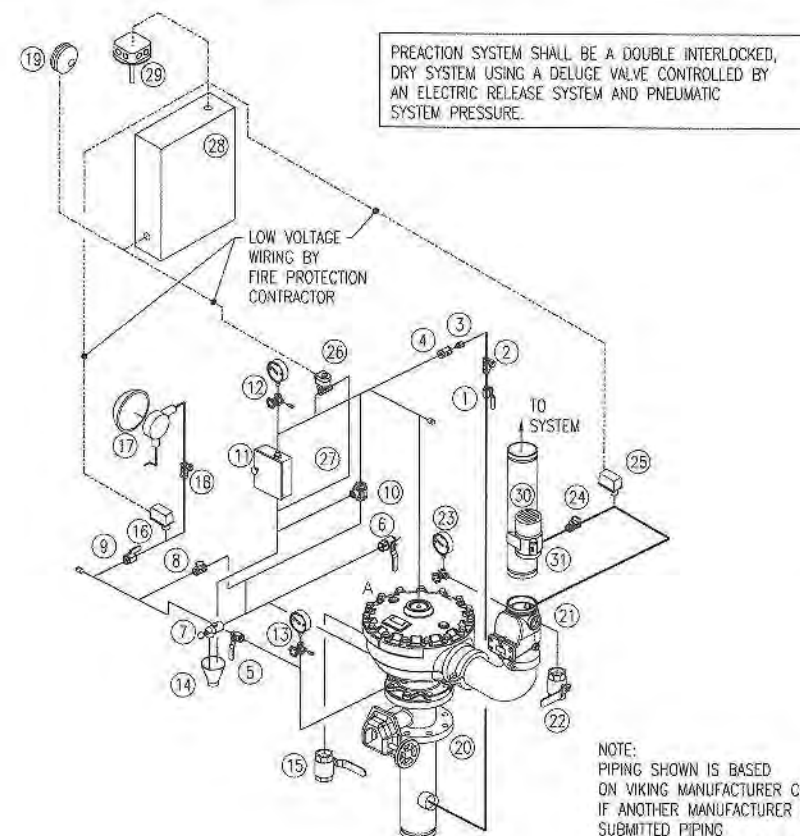
PLUMBING SCHEDULES

PROJECT NO.

50002241

SHEET NO.

P-601

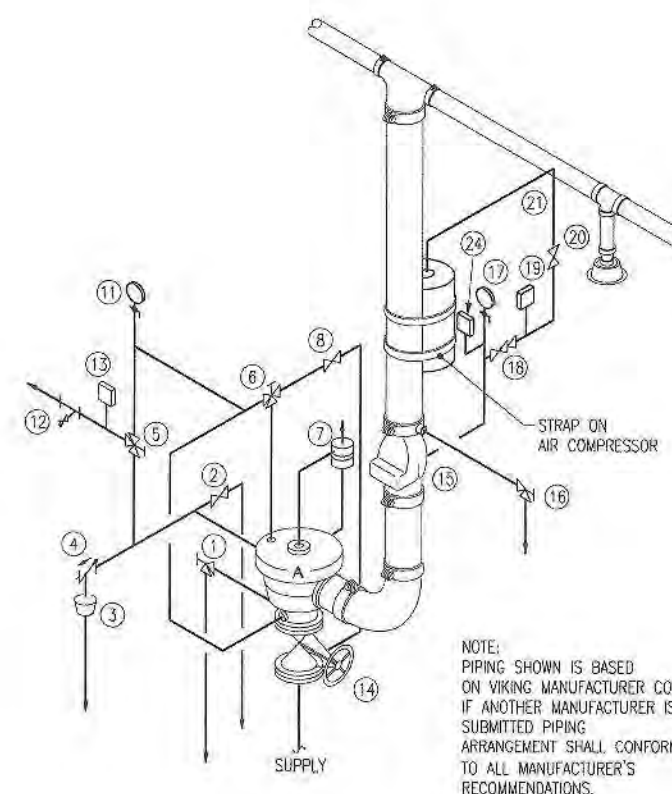


1 PRE-ACTION SYSTEM RISER
NO SCALE

- SYSTEM COMPONENTS
- A. DELUGE VALVE
- B. DELUGE VALVE TRIM
1. PRIMING VALVE
 2. STRAINER
 3. 1/16" RESTRICTED ORIFICE
 4. SPRING LOADED CHECK VALVE
 5. ALARM TEST VALVE (NORMALLY CLOSED)
 6. AUXILIARY DRAIN VALVE (NORMALLY CLOSED)
 7. DRIP CHECK VALVE
 8. DRAIN CHECK VALVE
 9. ALARM SHUT-OFF VALVE (NORMALLY OPEN)
 10. PRESSURE OPERATED RELIEF VALVE
 11. EMERGENCY RELEASE
 12. PRIMING PRESSURE WATER GAUGE AND VALVE
 13. WATER SUPPLY PRESSURE GAUGE AND VALVE
 14. DRAIN CUP
 15. FLOW TEST VALVE (NORMALLY CLOSED)
- C. WATER FLOW ALARM EQUIPMENT
16. ALARM PRESSURE SWITCH
 17. WATER MOTOR ALARM (STRAINER REQUIRED)
 18. STRAINER
 19. ELECTRIC ALARM BELL
- D. RISER
20. WATER SUPPLY CONTROL VALVE
 21. RUBBER SEAT CHECK VALVE
 22. SYSTEM MAIN DRAIN VALVE
- E. SUPERVISORY AIR SUPPLY
23. SYSTEM PRESSURE GAUGE AND VALVE
 24. SOFT SEAT SWING CHECK VALVE
 25. AIR PRESSURE SUPERVISORY SWITCH
- F. RELEASE SYSTEM
26. SOLENOID VALVE (NORMALLY CLOSED)
 27. ELECTRIC RELEASE TRIM
 28. SYSTEM CONTROL PANEL
 29. ELECTRIC DETECTION SYSTEM
- G. AIR SUPPLY
30. RISER MOUNTED AIR COMPRESSOR
 31. AIR SUPERVISORY PRESSURE SWITCH

NOTE: PIPING SHOWN IS BASED ON VIKING MANUFACTURER CO. IF ANOTHER MANUFACTURER IS SUBMITTED PIPING ARRANGEMENT SHALL CONFORM TO ALL MANUFACTURER'S RECOMMENDATIONS.

2 LEGEND FOR PRE-ACTION SYSTEM
NO SCALE

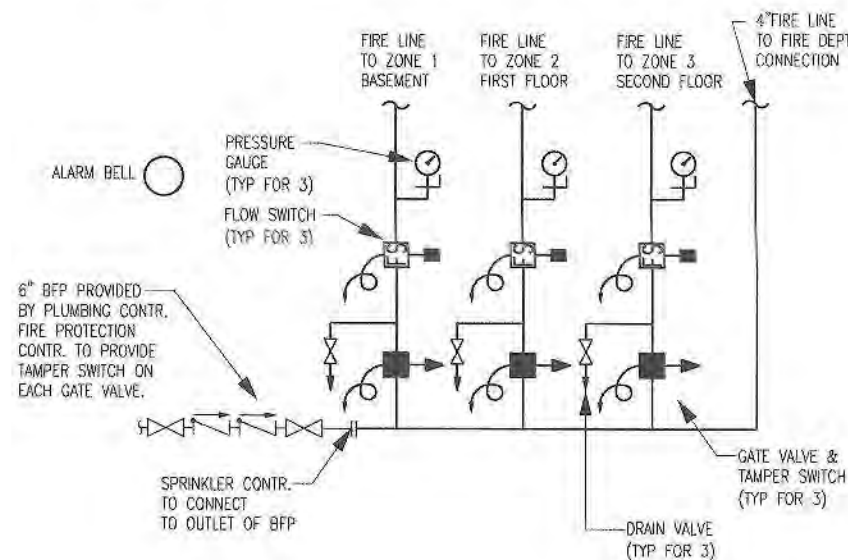


3 DRY PIPE SYSTEM RISER
NO SCALE

- SYSTEM COMPONENTS
- A. DELUGE VALVE
- B. DELUGE VALVE STANDARD TRIM
1. TEST DRAIN VALVE
 2. AUXILIARY DRAIN VALVE
 3. DRAIN CUP
 4. DRIP CHECK
 5. ALARM TEST SHUT OFF VALVE
 6. STRAINER ORIFICE CHECK VALVE
 7. PRESSURE OPERATED RELIEF VALVE
 8. PRIMING VALVE
 9. NOT USED
 10. NOT USED
 11. WATER SUPPLY PRESSURE GAUGE AND VALVE
 12. WATER MOTOR ALARM STRAINER IS REQUIRED
 13. ALARM PRESSURE SWITCH
- D. RISER VALVES
14. WATER SUPPLY CONTROL VALVE
 15. RUBBER SEAT CHECK VALVE
 16. SYSTEM MAIN DRAIN VALVE
- E. SYSTEM AIR SUPPLY TRIM
17. SYSTEM PRESSURE GAUGE AND VALVE
 18. SOFT SEAT CHECK VALVE
 19. AIR SUPERVISORY PRESSURE SWITCH (SPRINKLER SYSTEM)
 20. AIR SUPPLY CONTROL VALVE
 21. DRY SYSTEM AIR SUPPLY FROM STRAP ON AIR COMPRESSOR
- F. RELEASE TRIM
22. NOT USED
 23. NOT USED
 24. ACCELERATOR

NOTE: PIPING SHOWN IS BASED ON VIKING MANUFACTURER CO. IF ANOTHER MANUFACTURER IS SUBMITTED PIPING ARRANGEMENT SHALL CONFORM TO ALL MANUFACTURER'S RECOMMENDATIONS.

4 LEGEND FOR DRY PIPE SYSTEM
NO SCALE



5 SPRINKLER SERVICE RISER DIAGRAM
NO SCALE

FIRE PROTECTION SYMBOLS

	FIRE MAIN		SPRINKLER HEAD - SEMI-RECESSED PENDENT (WHITE FINISH)
	STANDPIPE		SPRINKLER HEAD - CONCEALED (WHITE FINISH)
	BUTTERFLY VALVE		SPRINKLER HEAD - UPRIGHT
	BALL VALVE		SPRINKLER HEAD - SIDEWALL RECESSED ESCUTCHEON (WHITE FINISH)
	CHECK VALVE (CKV)		SPRINKLER HEAD - SIDEWALL
	GATE VALVE (GV)		SPRINKLER RISER ASSEMBLY
	FLOW SWITCH		FIRE DEPARTMENT CONNECTION
	SUPERVISED GATE VALVE		FIRE HOSE CONNECTION
	UNION		ELBOW DOWN
	PRESSURE GAUGE WITH GAUGE COCK (PG)		ELBOW UP
	BACKFLOW PREVENTER (BFP)		RISE OR DROP
	CAP ON END OF PIPE		BRANCH-TOP CONNECTION
	SLEEVE		BRANCH-BOTTOM CONNECTION
			BRANCH-SIDE CONNECTION

FIRE PROTECTION ABBREVIATIONS

BFP	-BACKFLOW PREVENTER
BTM	-BUTTERFLY VALVE
BY	-BALL VALVE
CEB	-CONCRETE EQUIPMENT BASE
CKV	-CHECK VALVE
DN	-DOWN
FBO	-FURNISHED BY OWNER
FDC	-FIRE DEPARTMENT CONNECTION
FL	-FIRE LINE
GV	-GATE VALVE
QLV	-GLOBE VALVE
NC	-NORMALLY CLOSED
MC	-NOT IN CONTRACT
OS & Y	-OUTSIDE SCREW & YOKE
SD	-STANDPIPE
TYP	-TYPICAL

GENERAL NOTES:

- THIS SYMBOLS AND ABBREVIATIONS SHEET IS FOR THE FIRE PROTECTION CONTRACTORS REFERENCE ONLY. NOT ALL SYMBOLS AND/OR ABBREVIATIONS MAY APPLY TO THIS PARTICULAR PROJECT. ADDITIONS OR OMISSIONS FROM THIS SYMBOLS AND ABBREVIATIONS SHEET DO NOT IMPLY INCLUSION AND/OR EXCLUSION OF ANY PARTICULAR ITEM FROM THE PROJECT.
- ALL PHYSICAL ATTRIBUTES OF EQUIPMENT AND DEVICES ARE BASED ON THOSE LISTED IN THE EQUIPMENT SCHEDULES. THE RESPECTIVE CONTRACTORS ARE RESPONSIBLE FOR ALL CHANGES BROUGHT ABOUT BY USE OF ITEMS BY OTHER MANUFACTURERS. THE ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ITEMS BY OTHER MANUFACTURERS IF THOSE ITEMS DO NOT MATCH THE PHYSICAL ATTRIBUTES OF THE MANUFACTURERS LISTED.
- SPRINKLER HEADS:
 - PROVIDE CONCEALED TYPE IN ROOMS WITH HARD CEILINGS AND IN LAY-IN CEILINGS IN MEETING ROOMS 104, LOBBY 101 AND CONFERENCE ROOM 202.
 - PROVIDE SEMI-RECESSED TYPE IN ROOMS WITH LAY-IN CEILINGS.
 - PROVIDE UPRIGHT WITH GUARDS IN ROOMS WITHOUT CEILINGS.
- THE ENTIRE LIBRARY TO BE PROVIDED WITH A FIRE SUPPRESSION SYSTEM. THE LOWER LEVEL OF THE PARKING GARAGE TO BE SPRINKLED FROM A DRY PIPE SYSTEM. THE DRY VALVE TO BE LOCATED IN THE BASEMENT WATER SERVICE ROOM. THE SERVER ROOM TO BE SPRINKLED FROM A PRE-ACTION SYSTEM.
- AN INSPECTOR'S TEST CONNECTION SHALL BE PROVIDED AT THE HYDRAULICALLY MOST REMOTE PART OF EACH AUTOMATIC SPRINKLER SYSTEM. THE TEST CONNECTION SHALL BE PIPED FROM THE END OF THE MOST REMOTE BRANCH LINE AND DISCHARGE TO AN AREA WHERE THE FLOW CAN BE READILY OBSERVED.
- A PERMANENT METAL PLACARD SHALL BE PROVIDED AT THE BASE OF EACH RISER FEEDING EACH SYSTEM, INDICATING THE DESIGN, AREA, FLOW AND PRESSURE REQUIRED FOR EACH SYSTEM.
- THE SPRINKLERS SHALL NOT BE OBSTRUCTED BY LIGHTS, DUCTWORK, PLUMBING, PIPINGS, FIXTURES OR OTHERWISE.
- FLOW TEST INFORMATION:
12/30/08 AT 9:00 AM
58 PSI STATIC PRESSURE, 56 PSI RESIDUAL PRESSURE AND 2507 GPM.
A MINIMUM 10 PSI PRESSURE CUSHION SHALL BE MAINTAINED BETWEEN THE AVAILABLE WATER SUPPLY AND THE COMBINED DEMAND OF THE SPRINKLER SYSTEM AND HOSE ALLOWANCE.
- ALL FIRE SPRINKLER PROTECTION SYSTEMS TO MEET THE STANDARDS OF NFPA-13, EDITION 2002.
- THE MANUAL DRY PIPE CLASS 1 STANDPIPE SYSTEM DOES NOT HAVE A PERMANENT WATER SUPPLY. PIPING IS DRY. WATER MUST BE PUMPED INTO STANDPIPES TO SATISFY DEMAND. PROVIDE STANDPIPE SYSTEM INCLUDING PIPING, FIRE DEPARTMENT CONNECTION, HOSE VALVES, ETC. IN ACCORDANCE WITH NFPA 14 AND THE VILLAGE OF GLENVIEW STANDARDS.
- THE MANUAL WET PIPE CLASS 1 STANDPIPE SYSTEM IS CONNECTED TO THE WET PIPE SPRINKLER SYSTEM. WATER MUST BE PUMPED INTO SPRINKLER/STANDPIPE SYSTEM TO SATISFY DEMAND. PROVIDE STANDPIPE SYSTEM INCLUDING PIPING, HOSE VALVES, ETC. IN ACCORDANCE WITH NFPA 14 AND THE VILLAGE OF GLENVIEW STANDARDS.



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4	02/29/09	CSM	REVIEW COMMENTS	
5	01/09/09	DAP	BID AND PERMIT SET	

REVISIONS

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DATE

TITLE

FIRE PROTECTION
SYMBOLS,
ABBREVIATIONS
AND DETAILS

PROJECT NO. 50002241

FP-001

SHEET NO.

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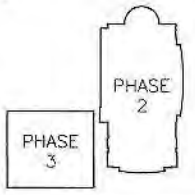
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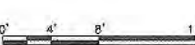
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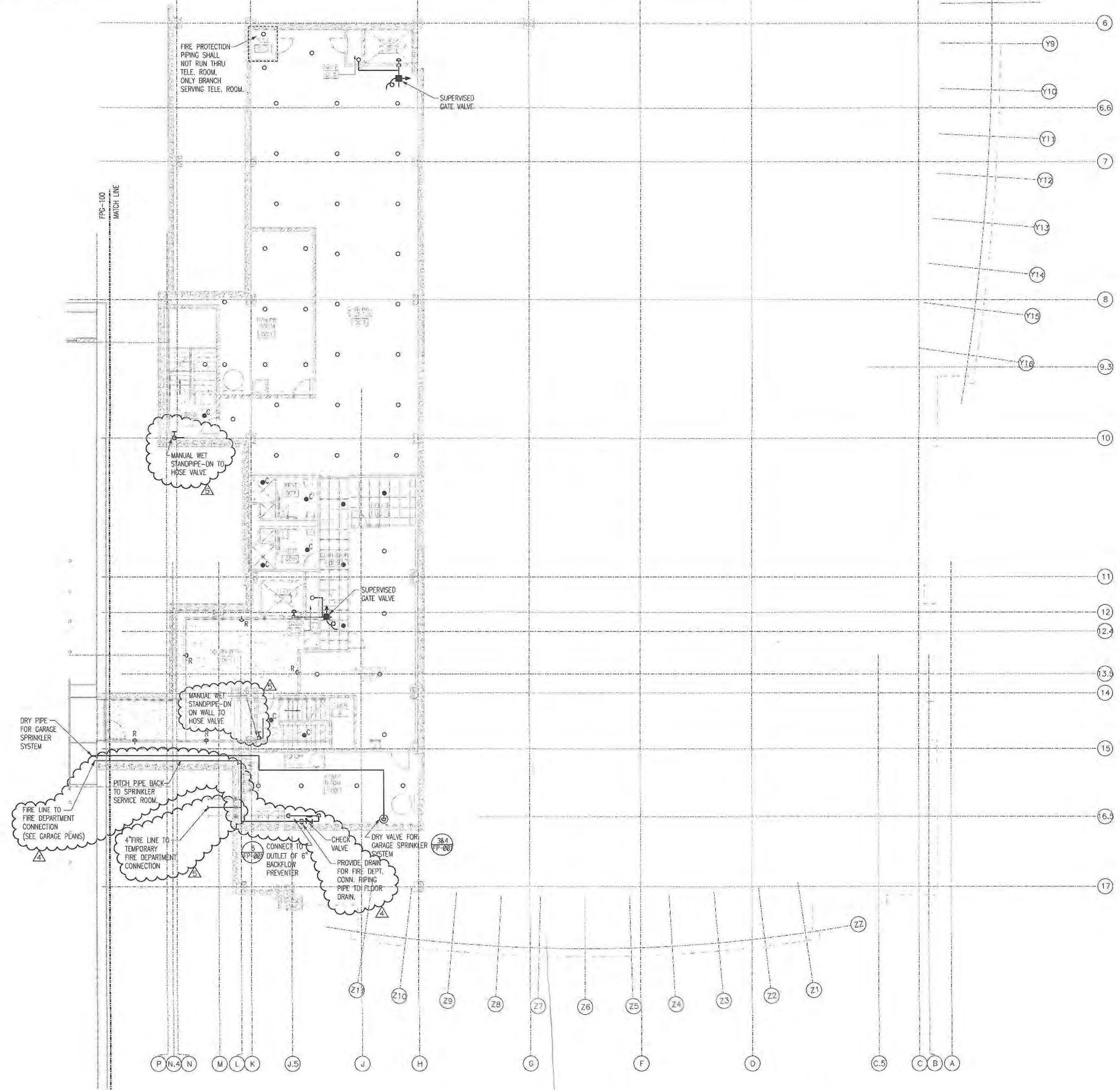
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DRAWN BY CSM
APPROVED BY TJK
CHECKED BY ECB
DATE 01/09/2009

TITLE
FIRE PROTECTION
BASEMENT
FLOOR PLAN
AREA A

PROJECT NO. 50002241

FP-100A

SHEET NO.



1 FIRE PROTECTION - BASEMENT FLOOR PLAN AREA A
1/8" = 1' 0"



F
E
D
C
B
A

SUSSES
SUSSES
SUSSES

FP-1108
MATCH LINE

FIRE PROTECTION -
PIPING SHALL NOT
RUN THRU ELEC/DATA
ROOM. ONLY BRANCH
SERVING ELEC/DATA
ROOM.

MANUAL WET
STANDPIPE-ON ON
WALL TO HOSE VALVE

SUPERVISED
GATE VALVE

MANUAL WET
STANDPIPE-ON ON
WALL TO HOSE VALVE

1 FIRE PROTECTION - FIRST FLOOR PLAN AREA A

1/8" = 1' 0"



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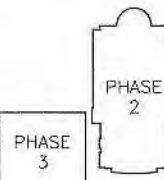


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SCALE

0' 4' 8' 16'

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No.	DATE	BY	DESCRIPTION

TITLE
FIRE PROTECTION
FIRST FLOOR
PLAN
AREA A

PROJECT NO. 50002241

FP-110A

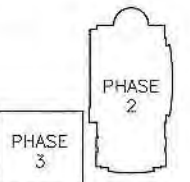
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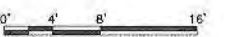
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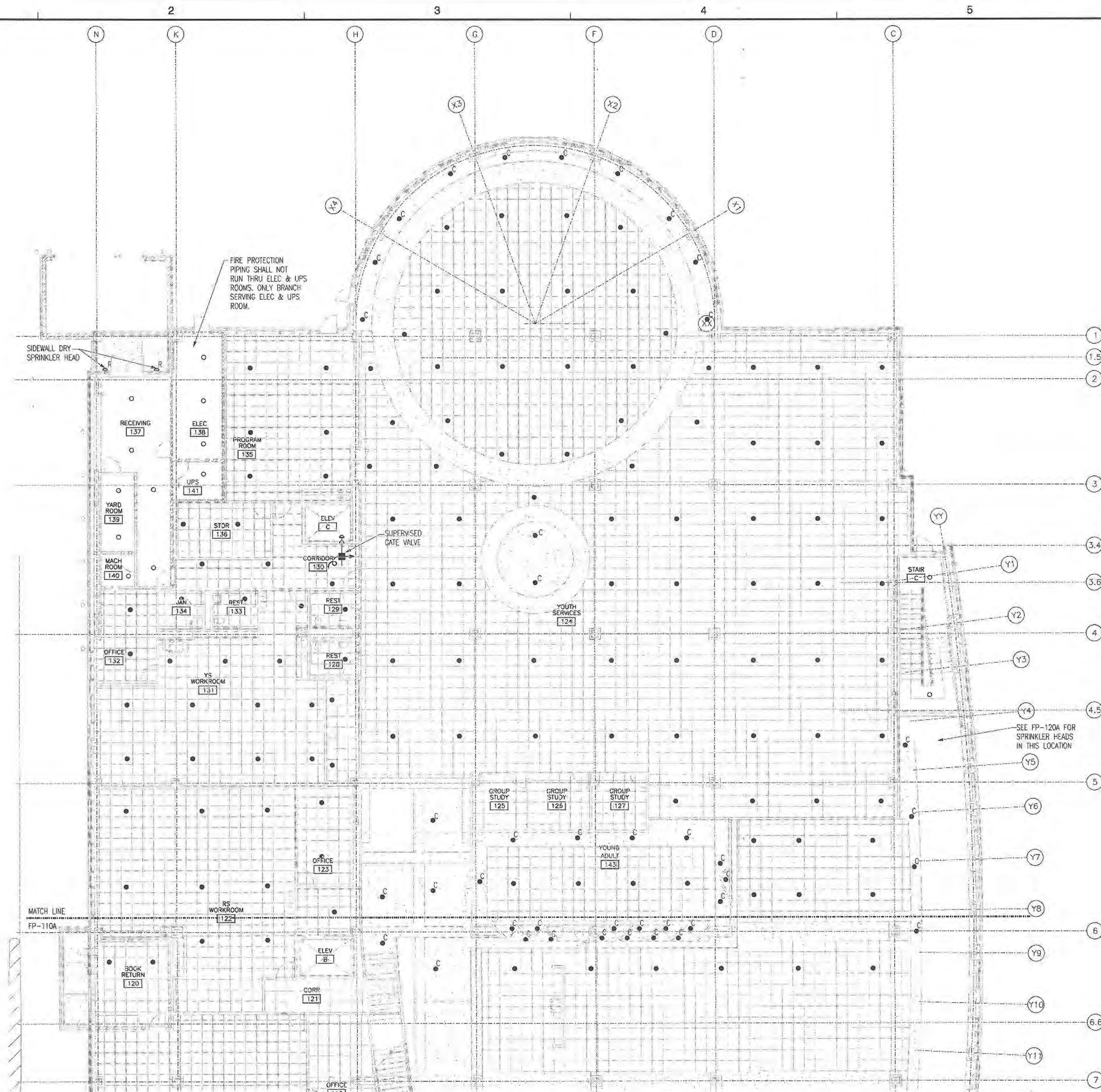
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TITLE
FIRE PROTECTION
FIRST FLOOR
PLAN
AREA B

PROJECT NO. 50002241

FP-110B

SHEET NO.



1 FIRE PROTECTION - FIRST FLOOR PLAN AREA B
1/8" = 1' 0"





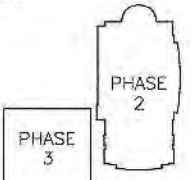
1 FIRE PROTECTION - SECOND FLOOR PLAN AREA A
1/8" = 1' 0"



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DATE	01/09/2009			

TITLE
FIRE PROTECTION
SECOND FLOOR
PLAN
AREA A

PROJECT NO. 50002241

FP-120A

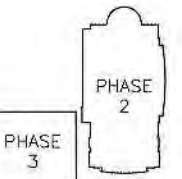
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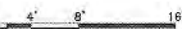
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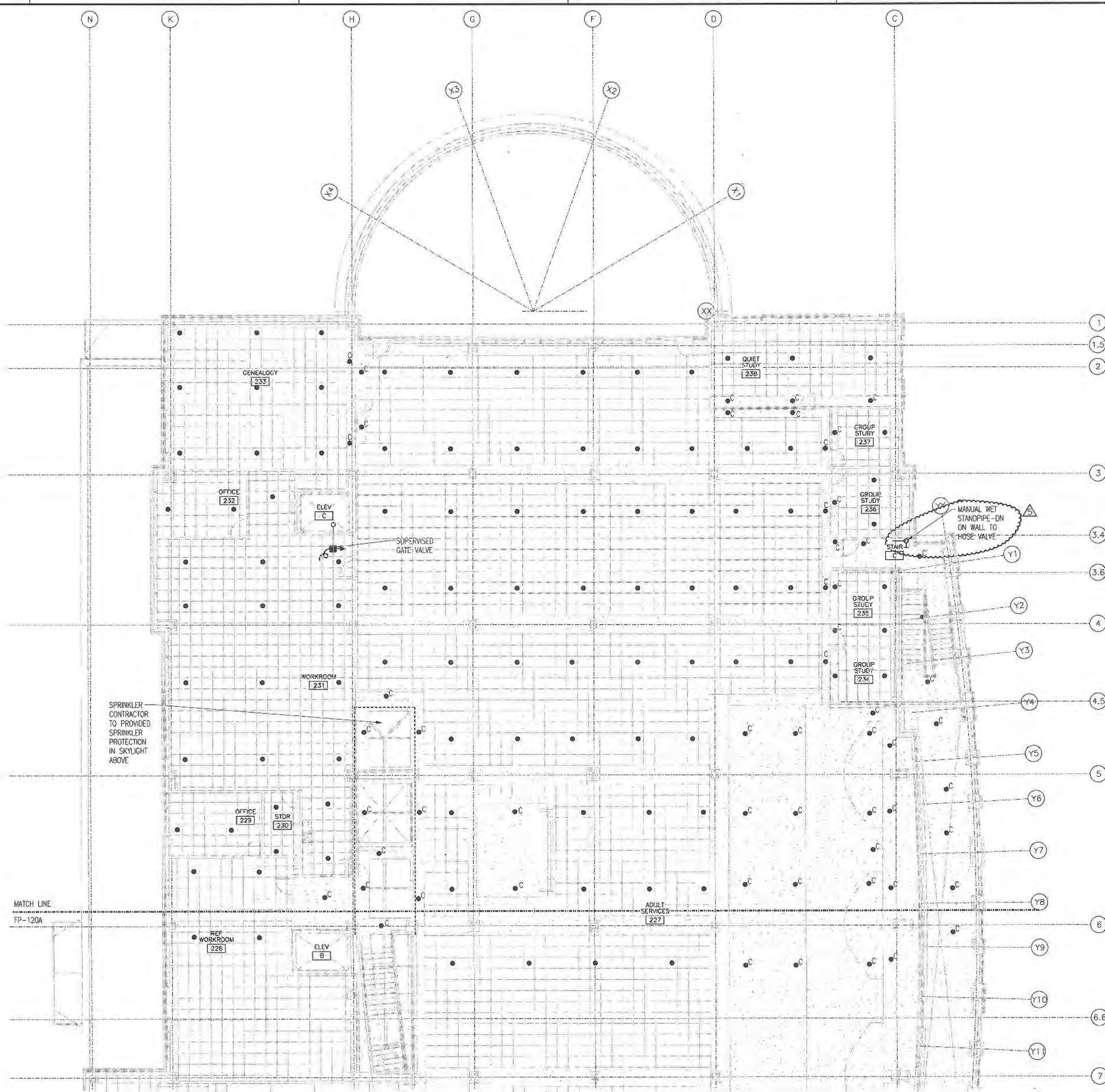
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TITLE
FIRE PROTECTION
SECOND FLOOR
PLAN
AREA B

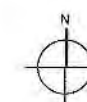
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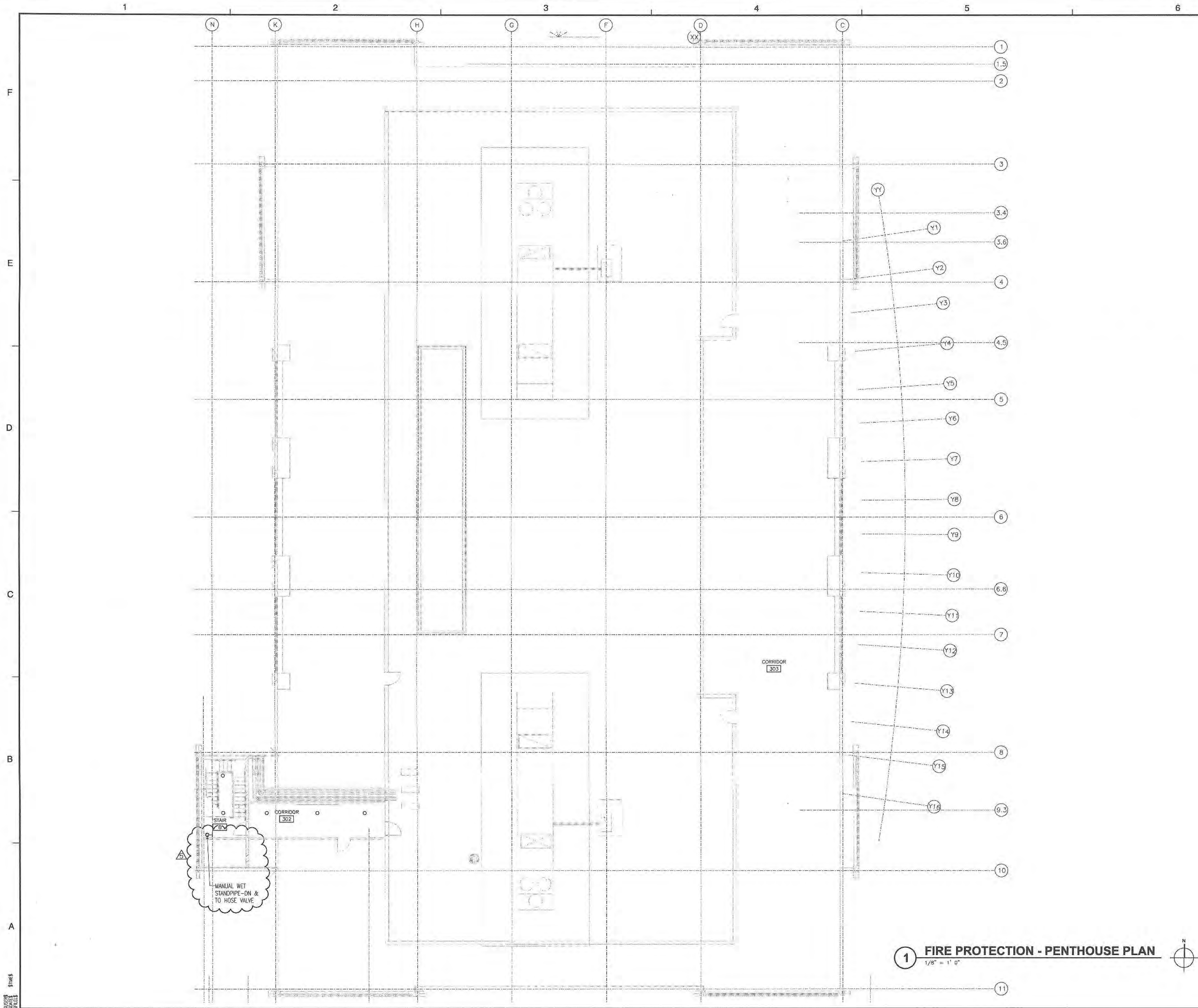
FP-120B

SHEET NO.



1 FIRE PROTECTION - SECOND FLOOR PLAN AREA B
1/8" = 1' 0"

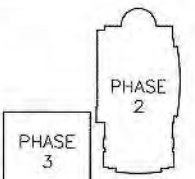




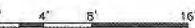
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TITLE
FIRE PROTECTION
PENTHOUSE
PLAN

PROJECT NO. 50002241

FP-130

SHEET NO.

VENTILATION SYMBOLOGY

GRILLES, REGISTERS, DIFFUSERS, DAMPERS

SYMBOL DESCRIPTION

	SUPPLY DIFFUSER
	RETURN GRILLE AND REGISTER
	EXHAUST GRILLE AND REGISTER
	LINEAR DIFFUSER, GRILLE, AND REGISTER
	SUPPLY DIFFUSER TAG: X=TYPE (SEE AIR INLETS AND OUTLETS SCHEDULE), XX=CFM
	RETURN AND EXHAUST GRILLE TAG: X=TYPE (SEE AIR INLETS AND OUTLETS SCHEDULE), XX=CFM
	EQUIPMENT TAG: XXX=TYPE, X=NUMBER (SEE SCHEDULE)
	MOTOR OPERATED DAMPER
	STATIC PRESSURE SENSOR
	FIRE DAMPER
	FIRE/SMOKE DAMPER
	SMOKE DAMPER
	VOLUME DAMPER

RECTANGULAR DUCTWORK

DOUBLE LINE DESCRIPTION

	DUCT UP OR DN AND CONTINUE
	DUCT UP OR DN AND CONTINUE
	RADIUS ELL
	SQUARE ELL WITH TURNING VANES
	RIGHT ANGLE TAKEOFF
	CONICAL TAP
	COLLAR TAP
	ELBOW UP
	ELBOW DN
	TRANSITION
	RECTANGULAR TO ROUND TRANSITION

ROUND DUCTWORK

	FLEXIBLE DUCTWORK
	DUCT UP OR DN AND CONTINUE
	DUCT UP OR DN AND CONTINUE
	RADIUS ELL
	RIGHT ANGLE TAKEOFF
	45-90 DEGREE TAKEOFF
	ELBOW UP
	ELBOW DN
	TRANSITION

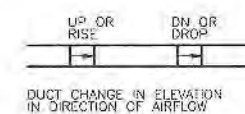
HEATING SYMBOLOGY

SYMBOL DESCRIPTION

	CONDENSATE DRAIN
	COLD WATER
	NATURAL GAS
	HEATING WATER RETURN
	HEATING WATER SUPPLY
	LOW PRESSURE CONDENSATE RETURN
	LOW PRESSURE STEAM SUPPLY
	REFRIGERANT SUCTION
	REFRIGERANT DISCHARGE
	GATE VALVE
	BALL VALVE
	GLOBE VALVE
	CHECK VALVE
	TWO WAY CONTROL VALVE
	THREE WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
	RELIEF VALVE
	BALANCING FITTING
	PIPE ANCHOR
	PIPE GUIDE
	FLEXIBLE CONNECTION
	PIPE UNION
	FLUID VALVE
	FLOW IN DIRECTION OF ARROW
	TEE DN
	TEE UP
	ELBOW UP OR DN AND CONTINUE
	TEE UP
	TEE DN
	ELBOW DN
	ELBOW UP
	THERMOSTAT/TEMPERATURE SENSOR
	HUMIDISTAT/HUMIDITY SENSOR
	PRESSURE SENSOR
	CARBON MONOXIDE SENSOR

ADDITIONAL SYMBOLS

	ELBOW UP	ELBOW DOWN
SUPPLY DUCT		
RETURN DUCT		
EXHAUST DUCT		



DESIGN CONDITIONS

	WINTER		SUMMER	
	*F DB	*F WB	*F DB	*F WB
OUTDOOR	-10	-	95	78
OFFICE	70	-	75	64

ABBREVIATIONS

AD	ACCESS DOOR
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AP	ACCESS PANEL
AS	AIR SEPARATOR
B	BOILER
BDI	BOTTOM OF DUCT
C	COMMON
CC	COOLING COIL
CFM	CUBIC FEET PER MINUTE
CRAC	COMPUTER ROOM AIR CONDITIONER
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
DN	DOWN
EAT	ENTERING AIR TEMPERATURE
EF	EXHAUST FAN
ET	EXPANSION TANK
EUN	ELECTRIC UNIT HEATER
EWI	ENTERING WATER TEMPERATURE
F	FAHRENHEIT (DEGREES)
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FTC	FIN TUBE CONVECTOR
G	NATURAL GAS
GPM	GALLONS PER MINUTE
GW	GAS FIRED WATER HEATER
H	HUMIDIFIER
HC	HEATING COIL
HUH	HYDRONIC UNIT HEATER
HWP	HOT WATER PUMP
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HX	HEAT EXCHANGER
LAT	LEAVING AIR TEMPERATURE
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LWT	LEAVING WATER TEMPERATURE
MFG	MANUFACTURER
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NC	NOISE CRITERIA
DN	OUTDOOR AIR
RA	RETURN AIR
RCD	RECTANGULAR CEILING DIFFUSER
RG	RETURN GRILLE
RR	RETURN REGISTER
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SD	SMOKE DAMPER
SF	SUPPLY FAN
SR	SUPPLY REGISTER
TAO	TRANSFER AIR OPENING
TD	TRANSFER DUCT
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TOD	TOP OF DUCT
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME BOX
VO	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
WG	WATER GAUGE
WLS	WALL LOUVER AND SCREEN

GENERAL NOTES:

- ALL WORK SHALL BE IN CONFORMANCE WITH THE INTERNATIONAL MECHANICAL CODE - LATEST EDITION ADOPTED BY ILLINOIS, THE ILLINOIS AMENDMENTS, LOCAL/MUNICIPAL CODES, AND THE AUTHORITY HAVING JURISDICTION.
- THE INFORMATION CONTAINED ON THE MECHANICAL DRAWINGS IS IN ITSELF INCOMPLETE, AND VOID UNLESS USED IN CONJUNCTION WITH ALL OTHER DISCIPLINE DRAWINGS, THE SPECIFICATIONS, TRADE PRACTICES, APPLICABLE STANDARDS, CODES, ETC., AND SHALL BE CONSIDERED THE CONTRACT DOCUMENTS WITH ALL THEREIN BY REFERENCE, WHICH THE CONTRACTOR CERTIFIES KNOWLEDGE OF BY SIGNING THE CONTRACT.
- ALL PHYSICAL ATTRIBUTES OF EQUIPMENT AND DEVICES ARE BASED ON THOSE MANUFACTURERS LISTED IN THE EQUIPMENT SCHEDULES. THE RESPECTIVE CONTRACTORS ARE RESPONSIBLE FOR ALL CHANGES BROUGHT ABOUT BY THE USE OF ITEMS BY OTHER MANUFACTURERS. THE ARCHITECT/ENGINEER HAS RESERVED THE RIGHT TO REJECT ITEMS BY OTHER MANUFACTURERS IF THOSE ITEMS DO NOT MATCH THE PHYSICAL ATTRIBUTES OF THE MANUFACTURERS LISTED.
- CONNECTIONS TO AND INSTALLATION OF EQUIPMENT SHALL CONFORM TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL CONNECTIONS AND APPURTENANCES AS REQUIRED.
- PROVIDE ACCESS DOORS FOR FIRE AND CONTROL DAMPERS, HYDRONIC VALVES, EQUIPMENT, AND MAINTENANCE REQUIREMENTS. COORDINATE LOCATION AND INSTALLATION WITH OTHER TRADES.
- COORDINATE ALL POWER AND COMMUNICATION WIRING REQUIREMENTS FOR THE BUILDING HVAC SYSTEMS WITH THE ELECTRICAL TRADE. PROVIDE ALL HVAC CONTROL WIRING UNLESS OTHERWISE NOTED. ALL WIRING FOR THE BUILDING MANAGEMENT SYSTEM SHALL CONFORM TO ELECTRICAL TRADE REQUIREMENTS.
- ALL STRUCTURAL OPENINGS SHALL BE COORDINATED WITH THE STRUCTURAL TRADES. COORDINATE ANY STRUCTURAL SUPPORTS FOR OPENINGS WITH STRUCTURAL TRADES.
- ALL HANGER SYSTEMS FOR PIPING AND EQUIPMENT SHALL BE SECURED TO BUILDING STRUCTURAL SYSTEM.
- CUT, FIT, AND PLACE MISCELLANEOUS METAL MECHANICAL SUPPORTS ACCURATELY IN LOCATION, ALIGNMENT, AND ELEVATION TO SUPPORT AND ANCHOR MECHANICAL MATERIALS AND EQUIPMENT. REFER TO STRUCTURAL TRADE FOR STEEL FRAMING AND SUPPORT MATERIAL REQUIREMENTS.
- ALL DUCTWORK SHALL BE HUNG AS HIGH AS POSSIBLE TO ALLOW FOR PIPING, CONDUIT, LIGHTS, AND DUCT CROSSINGS.
- ALL HORIZONTAL PIPE RUNS SHALL BE RUN LEVEL WITHOUT POCKETS. WHERE POCKETS OCCUR DUE TO BUILDING CONFIGURATION, PROVIDE MANUAL AIR VENTS AT THE TOP OF EACH DROP IN THE DIRECTION OF FLOW.
- ALL PIPING AND DUCTS IN FINISHED ROOMS AND SPACES SHALL BE CONCEALED IN CHASES OR ABOVE THE CEILING, UNLESS OTHERWISE NOTED.
- VOLUME DAMPERS SHALL BE INSTALLED IN ALL BRANCH DUCTS AS REQUIRED TO FACILITATE SYSTEM BALANCING. A BRANCH IS WHERE ONE DUCT CONNECTS TO ANOTHER.
- PIPE SHALL NOT BE LOCATED IN THE EXTERIOR WALL UNLESS SHOWN OTHERWISE.
- ALL LISTED DUCTWORK DIMENSIONS ARE CLEAR AIRFLOW DIMENSIONS. THE CONTRACTOR SHALL INCREASE THE SHEETMETAL SIZE AS REQUIRED TO ACCOUNT FOR DUCT LINERS.
- MAXIMUM LENGTH OF FLEX DUCT SHALL BE 5'-0".
- ELBOWS FOR RECTANGULAR DUCTWORK SHALL BE RADIAL UNLESS SHOWN TO HAVE TURNING VANES.



SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY			
No.	DATE	BY	Description
6	04/06/09	DAP	CONSTRUCTION SET
5	01/08/09	DAP	BID AND PERMIT SET

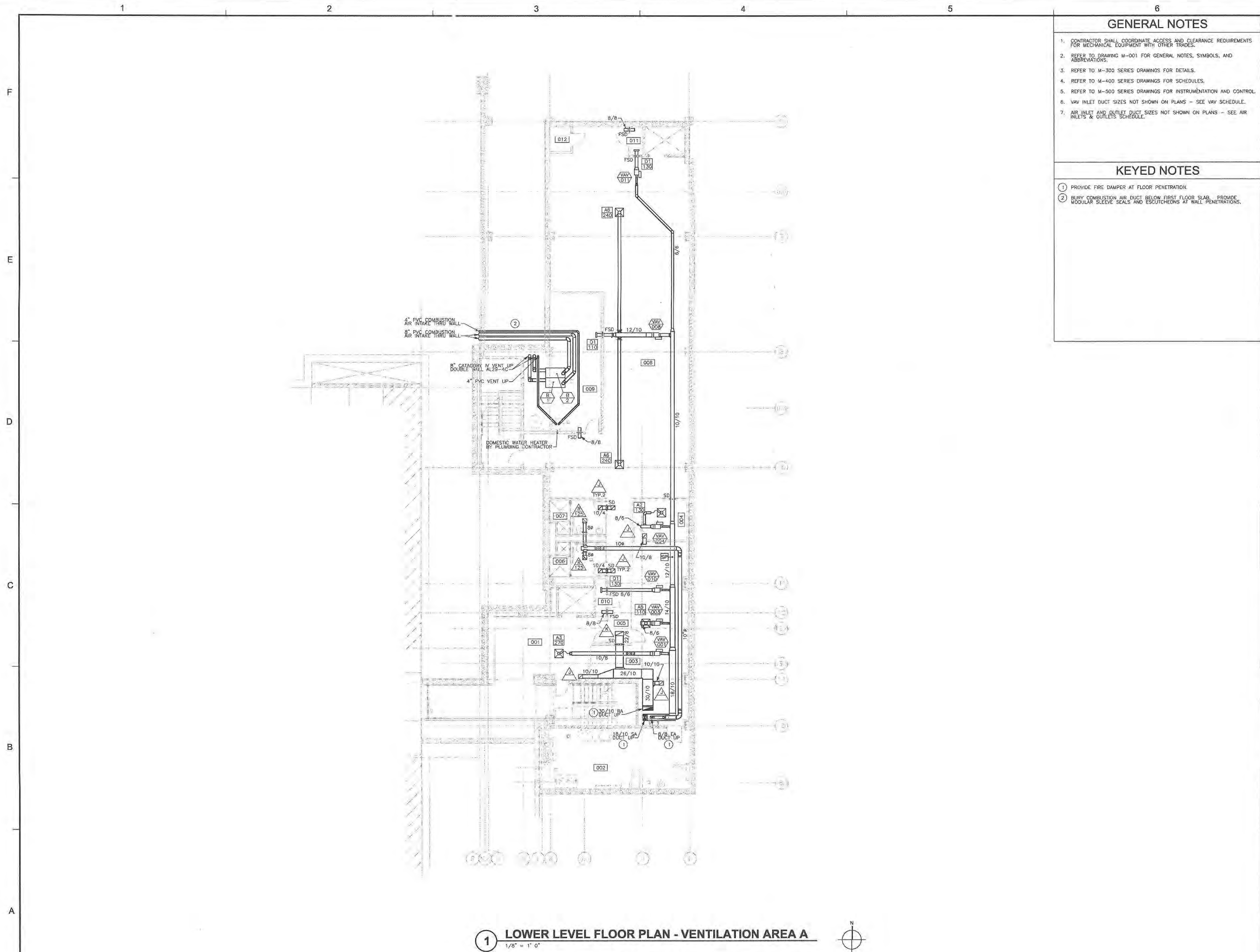
REVISIONS
DRAWN BY: LEW
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2009

TITLE
MECHANICAL
SYMBOLS AND
ABBREVIATIONS

PROJECT NO. 50002241

M-001

SHEET NO.



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.
6. VAV INLET DUCT SIZES NOT SHOWN ON PLANS - SEE VAV SCHEDULE.
7. AIR INLET AND OUTLET DUCT SIZES NOT SHOWN ON PLANS - SEE AIR INLETS & OUTLETS SCHEDULE.

KEYED NOTES

- 1 PROVIDE FIRE DAMPER AT FLOOR PENETRATION.
- 2 BURY COMBUSTION AIR DUCT BELOW FIRST FLOOR SLAB. PROVIDE MODULAR SLEEVE SEALS AND ESCUTCHEONS AT WALL PENETRATIONS.

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6	04/06/09	DAP	CONSTRUCTION SET	
5	01/09/09	DAP	BID AND PERMIT SET	

REVISIONS

DRAWN BY LEW
APPROVED BY TJK
CHECKED BY ECB
DATE 01/09/2009

TITLE
LOWER LEVEL
FLOOR PLAN
VENTILATION
AREA A

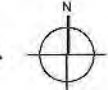
PROJECT NO. 50002241

M-101A

SHEET NO.



1 LOWER LEVEL FLOOR PLAN - HEATING AREA A
1/8" = 1' 0"



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

- 1 SEAL PIPE PENETRATIONS THRU FLOOR.
- 2 SEE BOILER CONNECTION DETAIL.
- 3 PROVIDE GAS REGULATOR FOR INLET PRESSURE OF 2 PSI. FLOW RATE AND OUTLET PRESSURE SHALL MEET EQUIPMENT REQUIREMENTS. PROVIDE GAS REGULATOR VENT TO OUTDOORS.
- 4 COOLING ONLY VAV TERMINAL UNIT.
- 5 PROVIDE TAMPER RESISTANT FLUSH MOUNTED TEMPERATURE SENSOR IN PUBLIC AREAS.

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6	04/06/09	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

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CHECKED BY ECB
DATE 01/09/2009

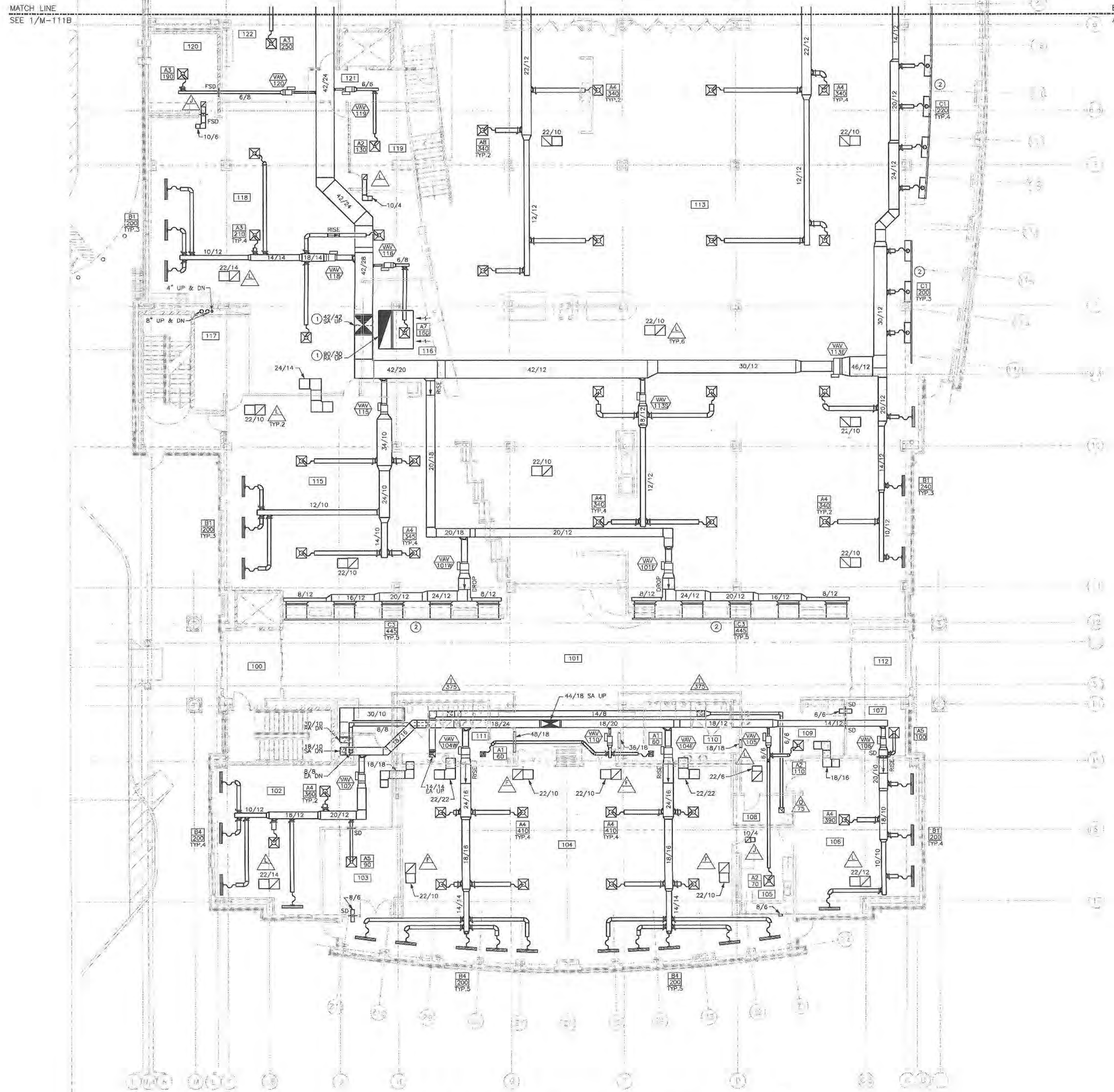
TITLE
LOWER LEVEL
FLOOR PLAN
HEATING
AREA A

PROJECT NO. 50002241

M-102A

SHEET NO.

MATCH LINE
SEE 1/M-111B



1 FIRST FLOOR PLAN - VENTILATION AREA A
1/8" = 1' 0"

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.
6. VAV INLET DUCT SIZES NOT SHOWN ON PLANS - SEE VAV SCHEDULE.
7. AIR INLET AND OUTLET DUCT SIZES NOT SHOWN ON PLANS - SEE AIR INLETS & OUTLETS SCHEDULE.

KEYED NOTES

- 1 PROVIDE FIRE DAMPER AT FLOOR PENETRATION.
- 2 CONTINUOUS BAR GIRLLE - RETURN AIR AT EMPTY SECTIONS.

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KEY PLAN

SCALE



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No.	DATE	BY	Description
8	04/08/08	DAP	CONSTRUCTION SET
5	01/09/08	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY	LEW
APPROVED BY	TJK
CHECKED BY	ECB
DATE	01/09/2009

TITLE
**FIRST
FLOOR PLAN
VENTILATION
AREA A**

PROJECT NO. 50002241

M-111A

SHEET NO.

1

2

3

4

5

6

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.
6. VAV INLET DUCT SIZES NOT SHOWN ON PLANS - SEE VAV SCHEDULE.
7. AIR INLET AND OUTLET DUCT SIZES NOT SHOWN ON PLANS - SEE AIR INLETS & OUTLETS SCHEDULE.

KEYED NOTES

- 1 NO DUCTWORK OR PIPING IN ELECTRICAL ROOM.
- 2 CONTINUOUS BAR GRILLE - RETURN AIR AT EMPTY SECTIONS.

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5 01/09/09 DAP BID AND PERMIT SET

No. DATE BY Description

REVISIONS

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CHECKED BY ECB

DATE 01/09/2009

TITLE

FIRST
FLOOR PLAN
VENTILATION
AREA B

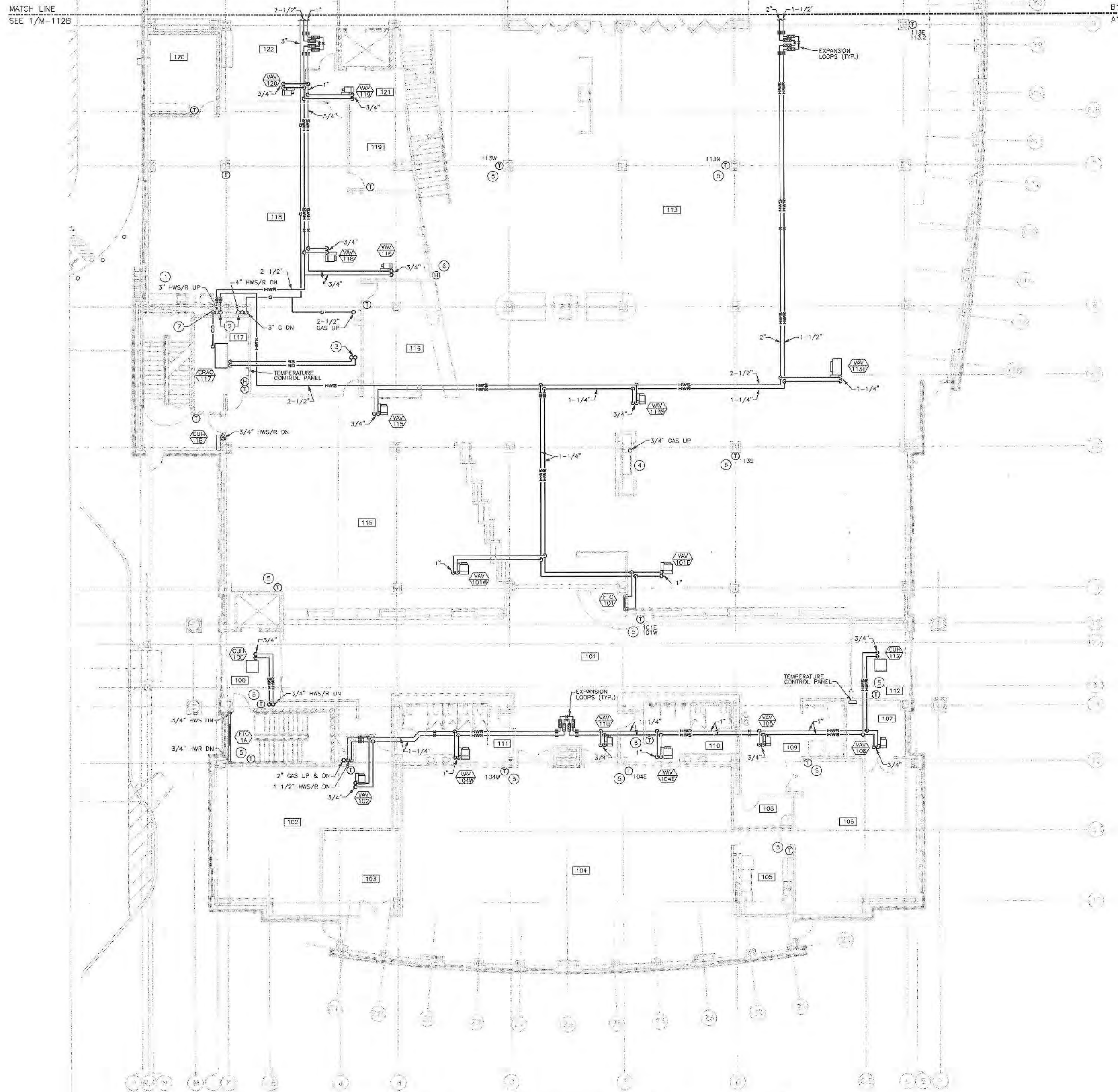
PROJECT NO. 50002241

M-111B

SHEET NO.

MATCH LINE
SEE 1/M-111A1 FIRST FLOOR PLAN - VENTILATION AREA B
1/8" = 1' 0"

MATCH LINE
SEE 1/M-112B



1 FIRST FLOOR PLAN - HEATING AREA A
1/8" = 1' 0"



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

- 1 SEAL PIPE PENETRATIONS THRU FLOOR.
- 2 PROVIDE PIPE OFFSET IN CHASE TO LOCATION SHOWN.
- 3 PROVIDE REFRIGERANT PIPING UP TO CONDENSING UNIT ON ROOF. SIZE AND ROUTE PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- 4 GAS FIREPLACE BY GENERAL CONTRACTOR. COORDINATE GAS CONNECTION SIZE AND LOCATION.
- 5 PROVIDE TAMPER RESISTANT FLUSH MOUNTED TEMPERATURE SENSOR IN PUBLIC AREAS.
- 6 PROVIDE LOCKABLE HUMIDISTAT PROTECTIVE COVER.
- 7 PROVIDE 3/4" CONDENSATE DRAIN DRAIN DOWN TO BASEMENT MECHANICAL ROOM. TERMINATE AT FLOOR DRAIN NEAR SOUTH WALL.

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SEAL

KEY PLAN

SCALE

0' 4' 8' 16'

REFER TO BID SET FOR PREV. DWG. HISTORY

6 04/06/09 DAP CONSTRUCTION SET

5 01/09/09 DAP BID AND PERMIT SET

No.	DATE	BY	Description
REVISIONS			

DRAWN BY LEW

APPROVED BY TJK

CHECKED BY ECB

DATE 01/09/2009

TITLE

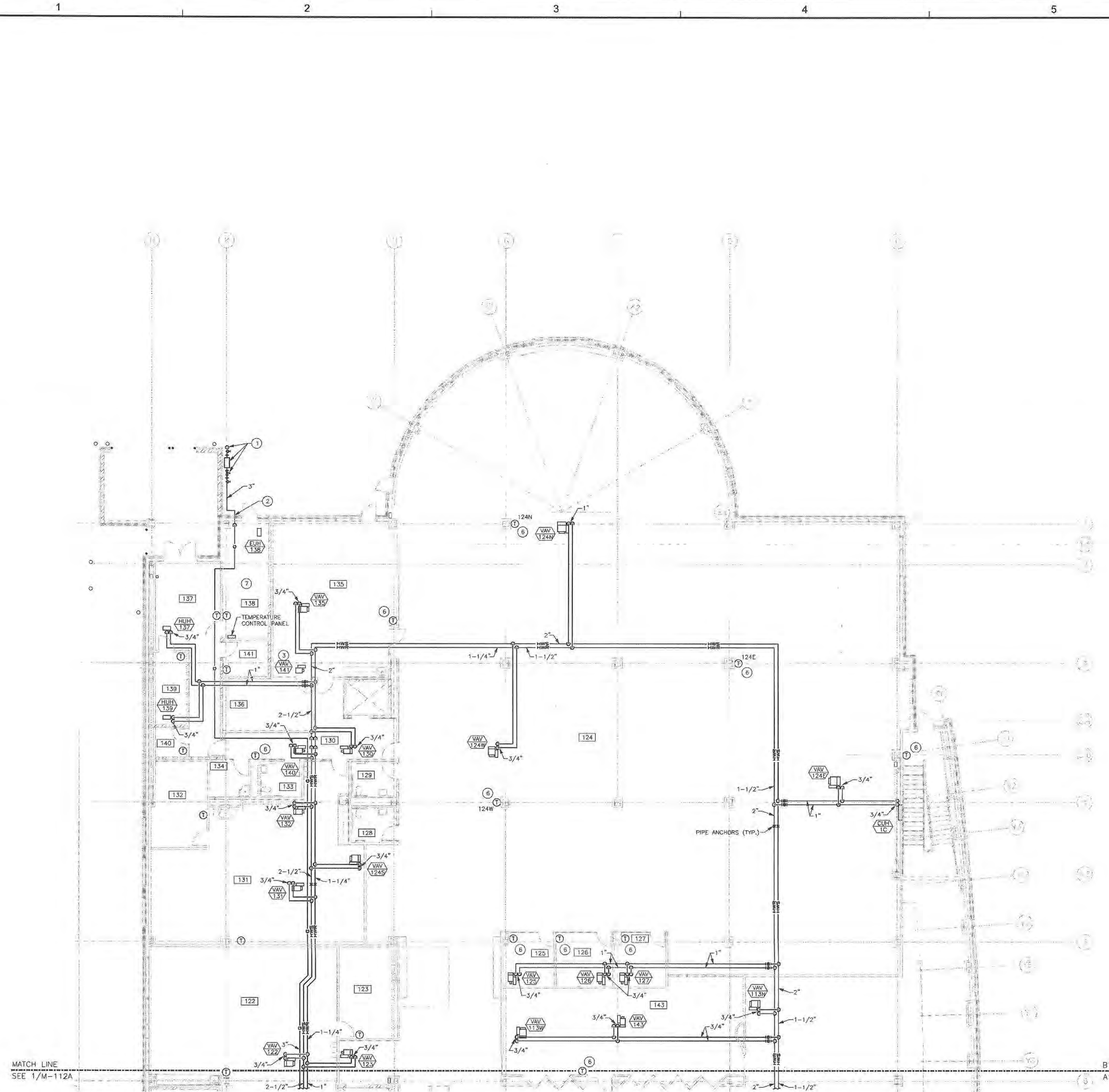
**FIRST
FLOOR PLAN
HEATING
AREA A**

PROJECT NO. 50002241

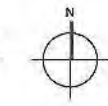
M-112A

SHEET NO.

F
E
D
C
B
A



1 FIRST FLOOR PLAN - HEATING AREA B
1/8" = 1' 0"



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

- 1 GAS SERVICE PIPING, METER AND REGULATOR INSTALLED BY NICOR.
- 2 SEAL PIPE PENETRATIONS THRU EXTERIOR WALL.
- 3 COOLING ONLY VAV TERMINAL UNIT.
- 4 NOT USED.
- 5 NOT USED.
- 6 PROVIDE TAMPER RESISTANT FLUSH MOUNTED TEMPERATURE SENSOR IN PUBLIC AREAS.
- 7 NO DUCTWORK OR WATER PIPING IN ELECTRICAL ROOM.

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REVISIONS			
DRAWN BY	LEW		
APPROVED BY	TJK		
CHECKED BY	ECH		
DATE	01/09/2009		

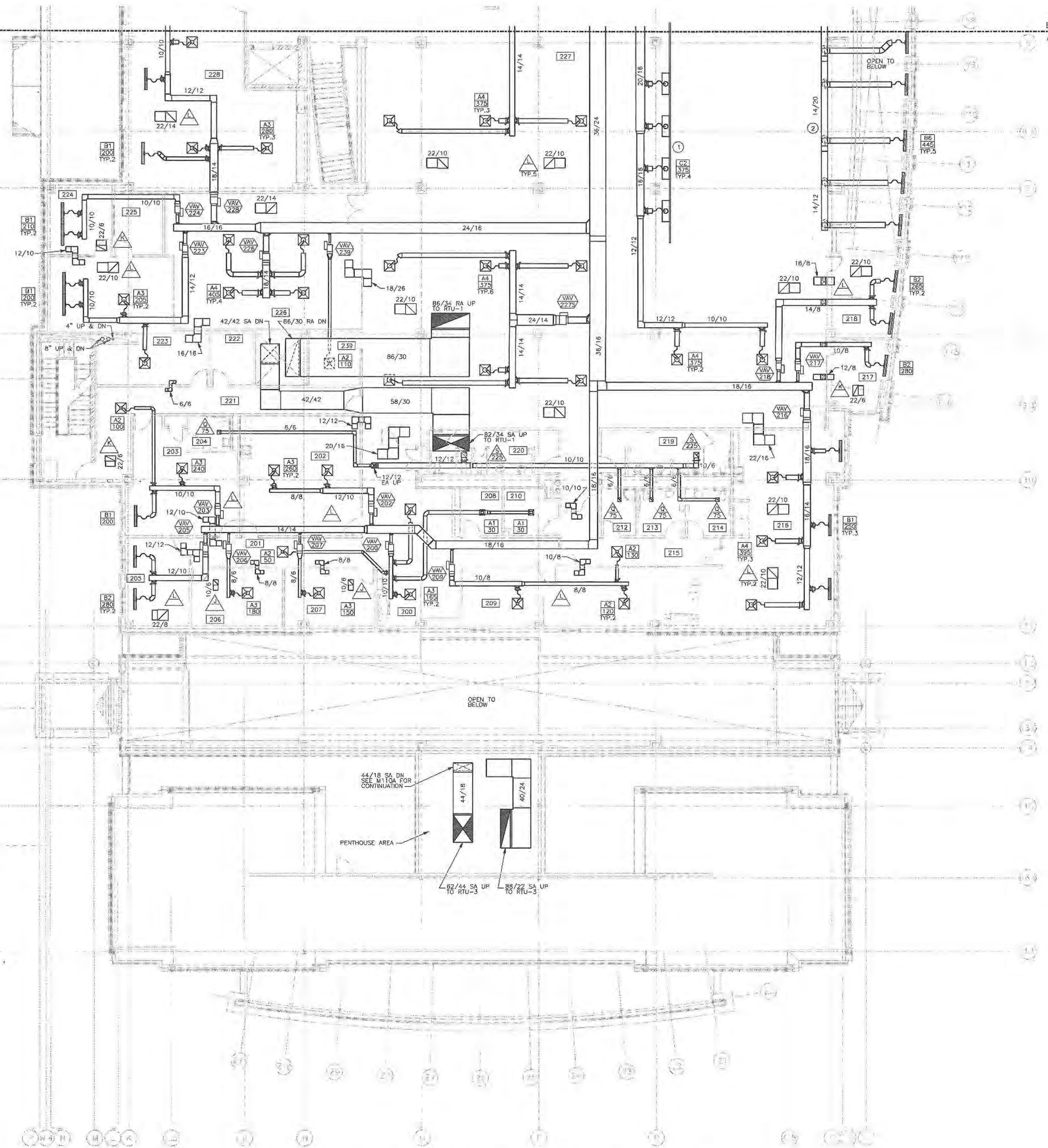
TITLE
FIRST FLOOR PLAN
HEATING
AREA B

PROJECT NO. 50002241

M-112B

SHEET NO.

MATCH LINE
SEE 1/M-121B



1 SECOND FLOOR PLAN - VENTILATION AREA A
1/8" = 1' 0"

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.
6. VAV INLET DUCT SIZES NOT SHOWN ON PLANS - SEE VAV SCHEDULE.
7. AIR INLET AND OUTLET DUCT SIZES NOT SHOWN ON PLANS - SEE AIR INLETS & OUTLETS SCHEDULE.

KEYED NOTES

- 1 CONTINUOUS BAR GRILLE - RETURN AIR AT EMPTY SECTIONS.
- 2 COORDINATE DUCT INSTALLATION WITH ARCHITECTURAL SOFFIT.

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5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS
DRAWN BY: LEW
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2009

TITLE
SECOND FLOOR PLAN
VENTILATION
AREA A

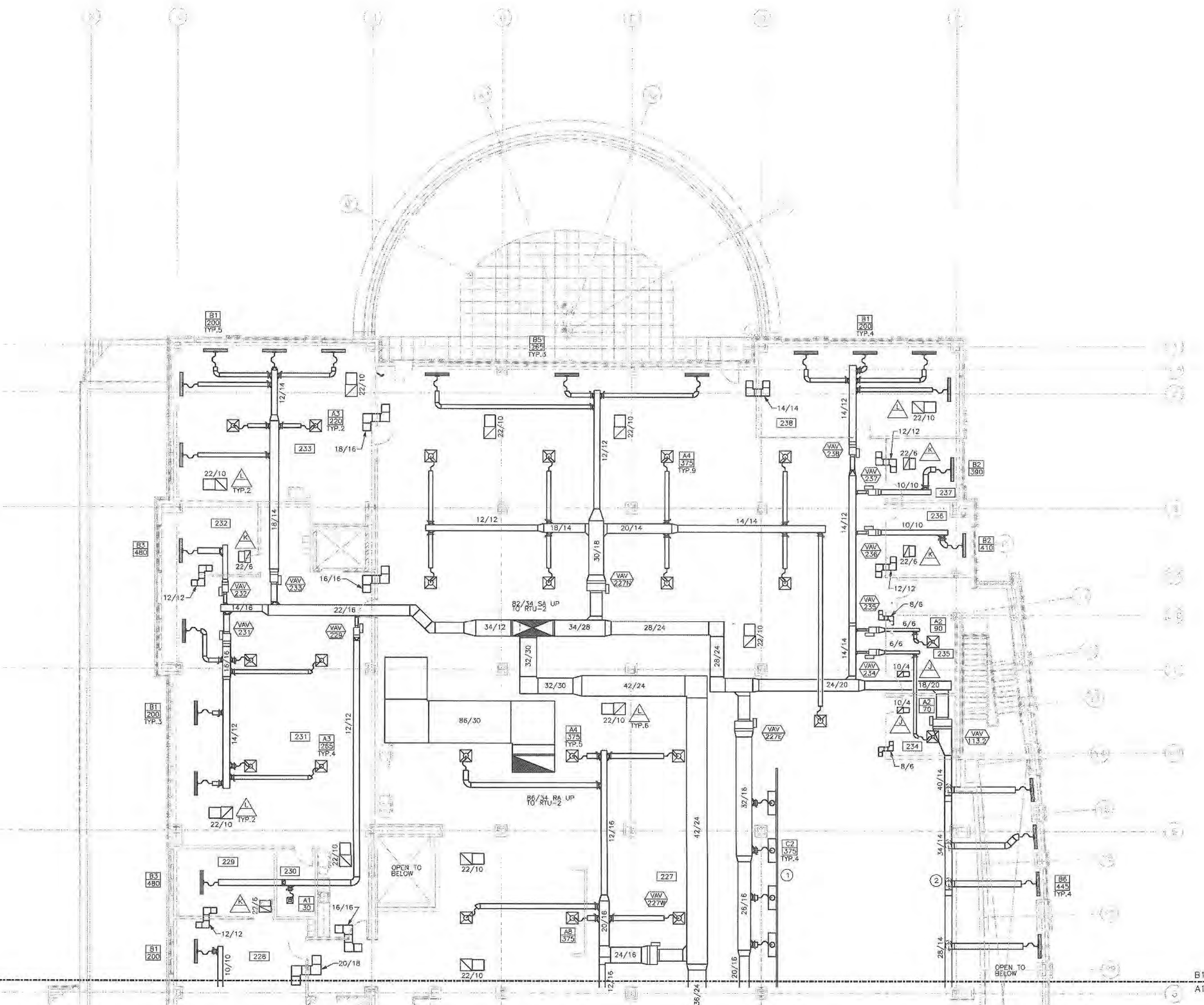
PROJECT NO. 50002241

M-121A

SHEET NO.

F
E
D
C
B
A

MATCH LINE
SEE 1/M-121A



1 SECOND FLOOR PLAN - VENTILATION AREA B
1/8" = 1' 0"



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.
6. VAV INLET DUCT SIZES NOT SHOWN ON PLANS - SEE VAV SCHEDULE.
7. AIR INLET AND OUTLET DUCT SIZES NOT SHOWN ON PLANS - SEE AIR INLETS & OUTLETS SCHEDULE.

KEYED NOTES

1. CONTINUOUS BAR GRILLE - RETURN AIR AT EMPTY SECTIONS.
2. COORDINATE DUCT INSTALLATION WITH ARCHITECTURAL SOFFIT.

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SEAL

KEY PLAN

SCALE

0' 4' 8' 16'

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REVISIONS
DRAWN BY LEW
APPROVED BY TJK
CHECKED BY ECR
DATE 01/09/2009

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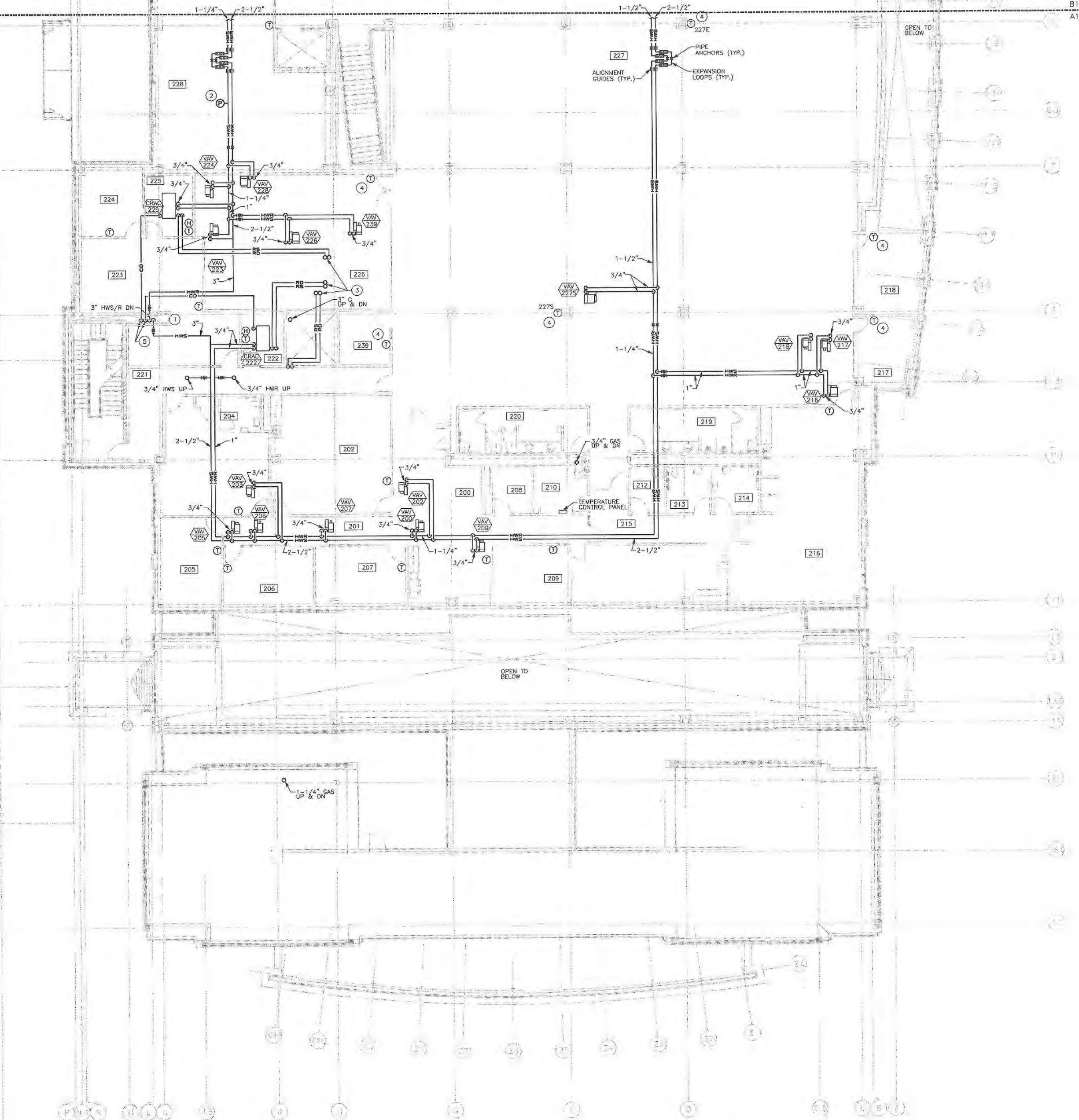
**SECOND
FLOOR PLAN
VENTILATION
AREA B**

PROJECT NO. 50002241

M-121B

SHEET NO.

MATCH LINE
SEE 1/M-122B



1 SECOND FLOOR PLAN - HEATING AREA A
1/8" = 1' 0"

GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

- 1 SEAL PIPE PENETRATIONS THRU FLOOR.
- 2 HEATING HOT WATER PRESSURE SENSOR.
- 3 PROVIDE REFRIGERANT PIPING UP TO CONDENSING UNIT ON ROOF. SIZE AND ROUTE PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
- 4 PROVIDE TAMPER RESISTANT FLUSH MOUNTED TEMPERATURE SENSOR IN PUBLIC AREAS.
- 5 PROVIDE 3/4" CONDENSATE DRAIN DRAIN DOWN TO BASEMENT MECHANICAL ROOM. TERMINATE AT FLOOR DRAIN NEAR SOUTH WALL.

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SEAL

KEY PLAN

SCALE

0' 4' 8' 16'

REFER TO BID SET FOR PREV. DWG HISTORY

No.	DATE	BY	Description
6	04/05/09	DAP	CONSTRUCTION SET
5	01/05/09	DAP	BID AND PERMIT SET

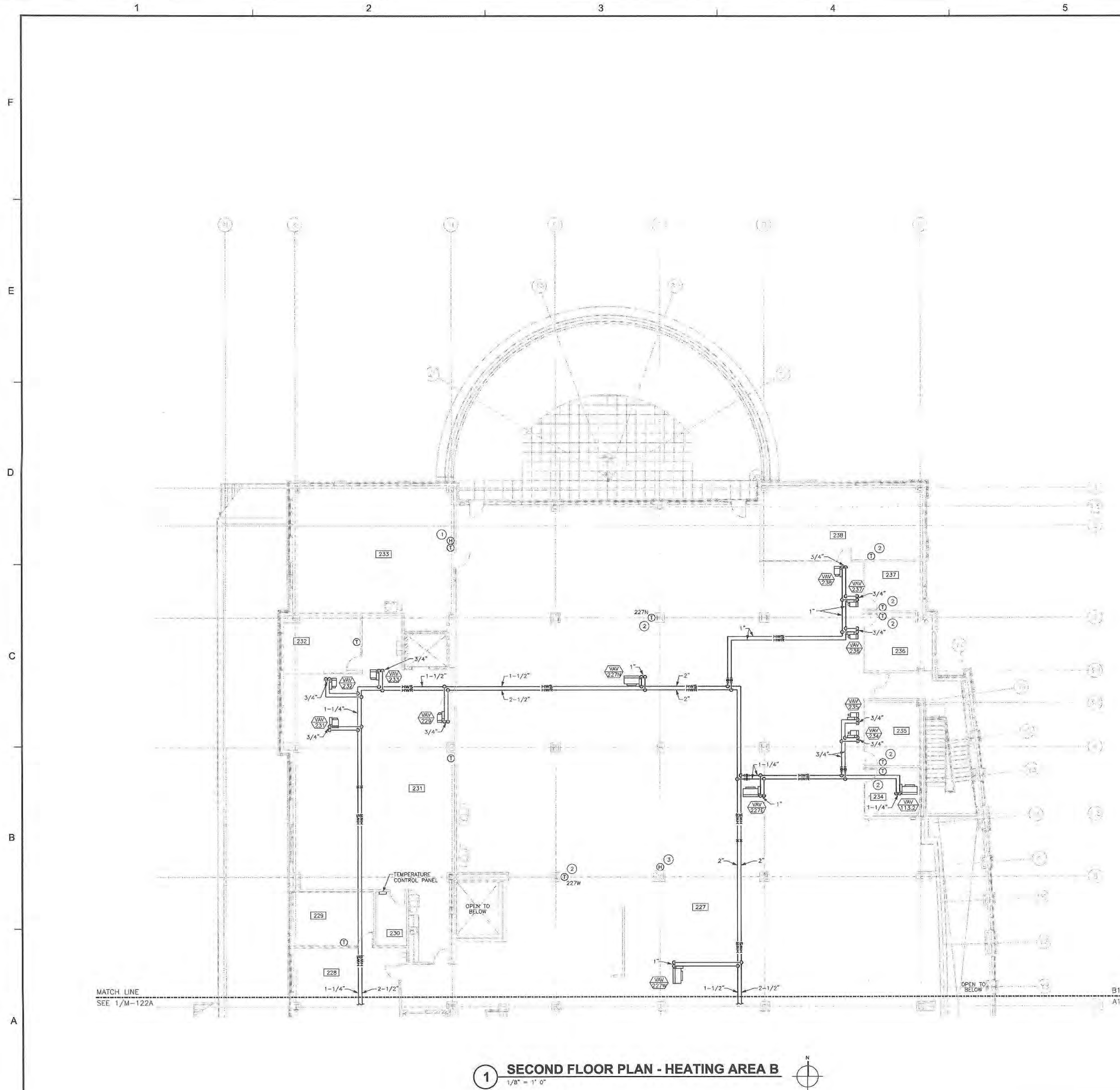
DRAWN BY LEW
APPROVED BY TJK
CHECKED BY ECB
DATE 01/08/2009

TITLE
SECOND FLOOR PLAN
HEATING
AREA A

PROJECT NO. 50002241

M-122A

SHEET NO.



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

- ① NOT USED.
- ② PROVIDE TAMPER RESISTANT FLUSH MOUNTED TEMPERATURE SENSOR IN PUBLIC AREAS.
- ③ PROVIDE LOCKABLE HUMIDISTAT PROTECTIVE COVER.

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SEAL

KEY PLAN

SCALE

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REFER TO BID SET FOR PREV. DWG HISTORY

8 04/06/09 DAP CONSTRUCTION SET

5 01/06/09 DAP BID AND PERMIT SET

No. DATE BY Description

REVISIONS

DRAWN BY LEW

APPROVED BY TJK

CHECKED BY ECB

DATE 01/09/2009

TITLE

**SECOND
FLOOR PLAN
HEATING
AREA B**

PROJECT NO. 50002241

M-122B

SHEET NO.

MATCH LINE
SEE 1/M-131B

46 PVC VENT DN
86 CATACORY IV VENT DN
DOUBLE WALL AL29-4C

ROUTE VENTS IN CHASE SPACE
302
3/4" HWS/DN
3/4" HWR DN

PIPE STATND (TYP.)
1-1/4" G DN
1-1/4"

2-1/2" G DN
PIPE STATND (TYP.)
1-1/2"
1-1/2"
3" LPS
3/4" G DN

1 ROOF PLAN - MECHANICAL AREA A
1/8" = 1' 0"



GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

- 1 NOT USED.
- 2 SEAL PENETRATION THRU EXTERIOR WALL.
- 3 FIELD INSTALL SHORT ABSORPTION MANIFOLD IN RTU PER MANUFACTURER'S INSTRUCTIONS.
- 4 PROVIDE GAS REGULATOR FOR 2 PSI INLET PRESSURE, FLOW RATE, AND OUTLET PRESSURE SHALL MEET EQUIPMENT REQUIREMENTS.
- 5 PROVIDE ALUMINUM JACKET ON EXPOSED PIPING.

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SEAL

KEY PLAN

SCALE

0' 4' 8' 16'

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No.	DATE	BY	Description
6	04/06/09	DAP	CONSTRUCTION SET

No.	DATE	BY	Description
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY LEW
APPROVED BY TJK
CHECKED BY ECB

DATE 01/09/2009

TITLE
ROOF PLAN
MECHANICAL
AREA A

PROJECT NO. 50002241

M-131A

SHEET NO.

1

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3

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GENERAL NOTES

1. CONTRACTOR SHALL COORDINATE ACCESS AND CLEARANCE REQUIREMENTS FOR MECHANICAL EQUIPMENT WITH OTHER TRADES.
2. REFER TO DRAWING M-001 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
3. REFER TO M-300 SERIES DRAWINGS FOR DETAILS.
4. REFER TO M-400 SERIES DRAWINGS FOR SCHEDULES.
5. REFER TO M-500 SERIES DRAWINGS FOR INSTRUMENTATION AND CONTROL.

KEYED NOTES

1. NOT USED.
2. FIELD INSTALL SHORT ABSORPTION MANIFOLD IN RTU PER MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE GAS REGULATOR FOR 2 PSI INLET PRESSURE. FLOW RATE AND OUTLET PRESSURE SHALL MEET EQUIPMENT REQUIREMENTS.
4. PROVIDE ALUMINUM JACKET ON EXPOSED PIPING.

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No.	DATE	BY	Description
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY LEW

APPROVED BY TJK

CHECKED BY ECB

DATE 01/09/2009

TITLE

ROOF
PLAN
MECHANICAL
AREA B

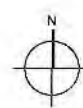
PROJECT NO. 50002241

M-131B

SHEET NO.

MATCH LINE
SEE 1/M-131A

1 ROOF PLAN - MECHANICAL AREA B
1/8" = 1' 0"

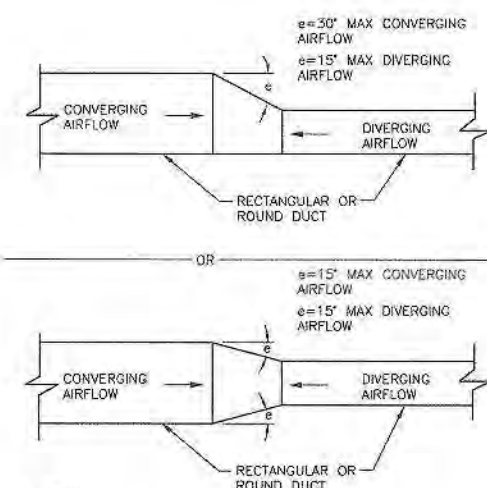




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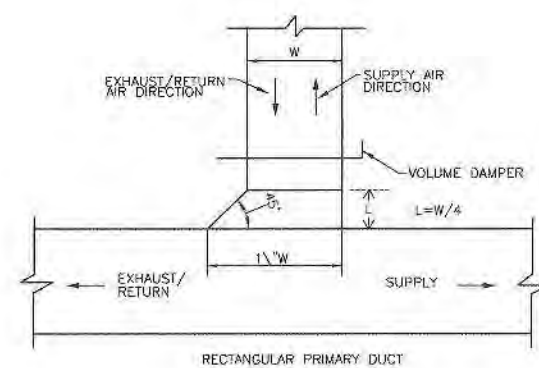
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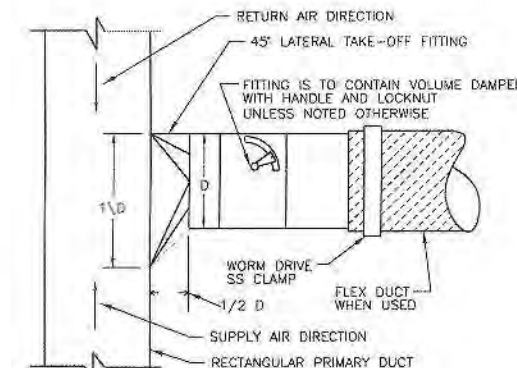
- NOTES:
1. DETAIL APPLIES TO ALL DUCTWORK.
2. ON DUCTWORK TRANSITIONING ON ALL FOUR SIDES, NONE OF THE TRANSITION ANGLES MAY EXCEED 15°.

1 DUCT TRANSITION
SCALE: NTS



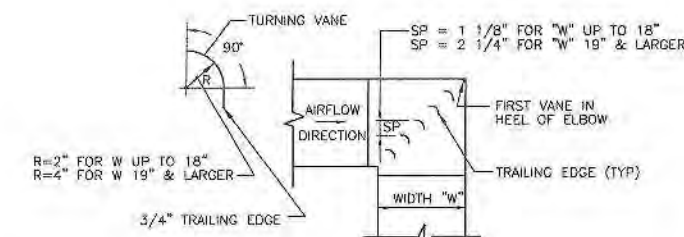
- NOTES:
1. THIS DETAIL APPLIES TO BOTH HORIZONTAL AND VERTICAL INSTALLATIONS.

2 DUCT TAKE-OFF - RECTANGULAR
SCALE: NTS



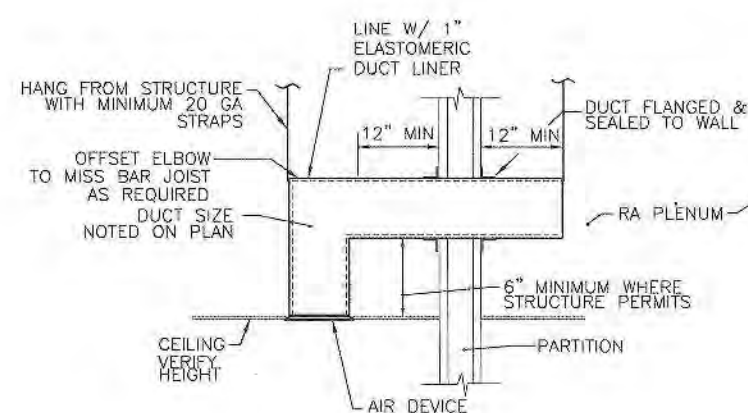
- NOTES:
1. THIS DETAIL APPLIES TO BOTH HORIZONTAL AND VERTICAL INSTALLATIONS.

3 DUCT TAKE-OFF - ROUND
SCALE: NTS



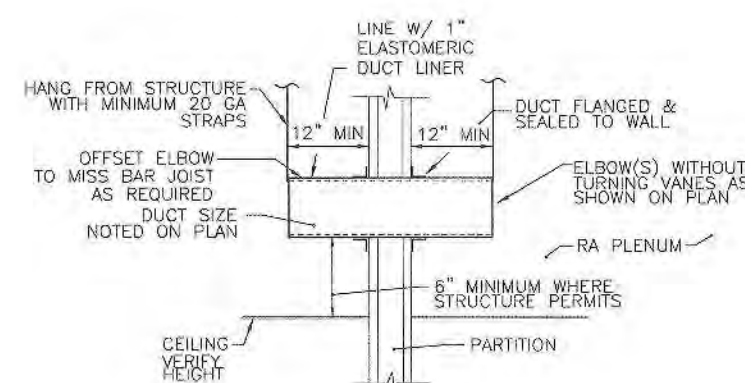
- NOTES:
1. ELBOWS SHALL BE LONG RADIUS OR HAVE TURNING VANES.
2. APPLIES TO ALL RECTANGULAR ELBOWS GREATER THAN 45°.
3. SUPPLY, RETURN, AND EXHAUST DUCTS. REFER TO SMAGNA DUCT CONSTRUCTION STANDARDS.

4 TURNING VANE
SCALE: NTS



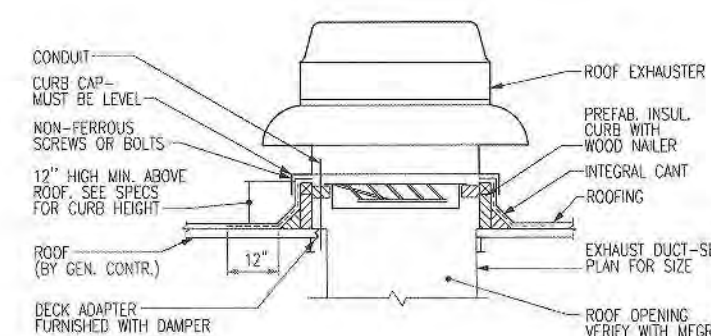
- NOTES:
1. FIRE/SMOKE CAULK AT WALL PENETRATIONS AS REQUIRED.
2. FIRE AND/OR SMOKE DAMPER AT WALL PENETRATIONS AS REQUIRED.

5 RETURN AIR DEVICE EXTENSION
SCALE: NTS

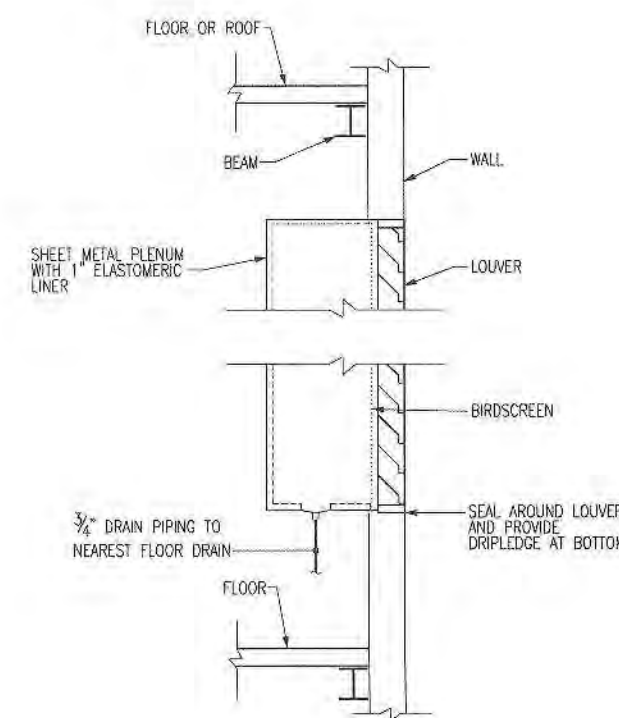


- NOTES:
1. FIRE/SMOKE CAULK AT WALL PENETRATIONS AS REQUIRED.
2. FIRE AND/OR SMOKE DAMPER AT WALL PENETRATIONS AS REQUIRED.
3. ADDITIONAL ELBOWS/BENDS FOR SOUND DETONATION AS SHOWN ON PLAN DRAWINGS.

6 RETURN AIR TRANSFER DUCT
SCALE: NTS



7 ROOF EXHAUSTER
SCALE: NTS



8 LOUVER AND PLENUM
SCALE: NTS

SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY				
No.	DATE	BY	DESCRIPTION	
6	04/06/09	DAP	CONSTRUCTION SET	
5	01/09/09	DAP	BID AND PERMIT SET	

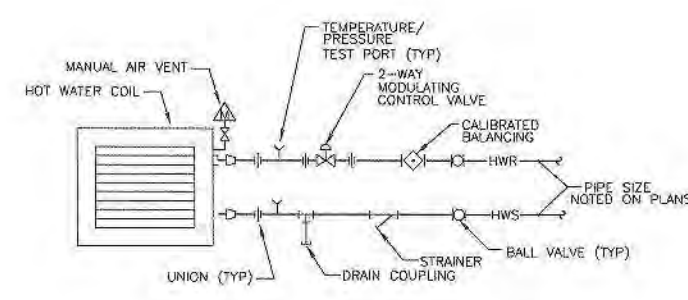
REVISIONS
DRAWN BY LEW
APPROVED BY TJK
CHECKED BY ECB
DATE 01/09/2009

TITLE
MECHANICAL
DETAILS - 1

PROJECT NO. 50002241

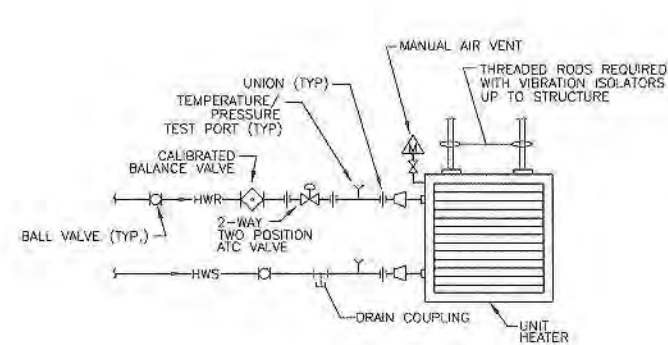
M-301

SHEET NO.

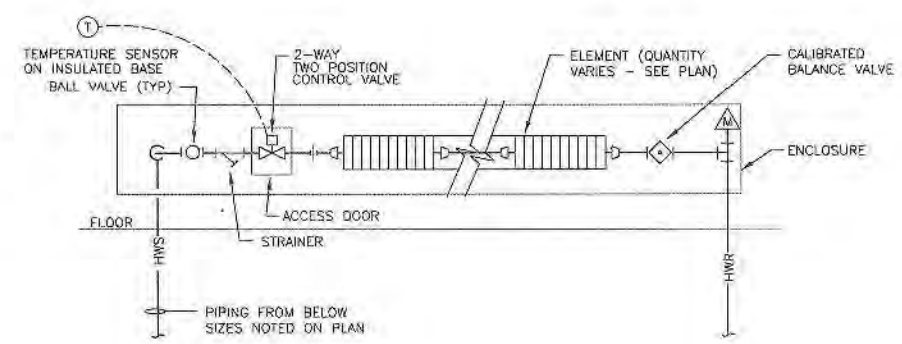


NOTE: APPLIES TO ALL HOT WATER COILS UNLESS OTHERWISE NOTED.

1 HOT WATER COIL (2-WAY VALVE) PIPING SCHEMATIC
NO SCALE

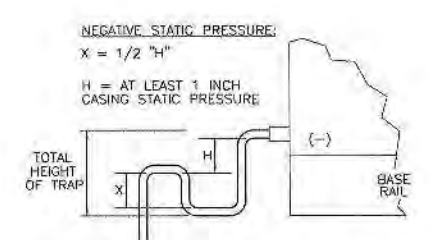


2 HYDRONIC UNIT HEATER PIPING W/ 2-WAY VALVE
NO SCALE



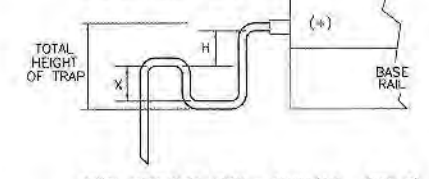
NOTES:
1. TYPICAL FOR UNITS PIPED FROM BELOW. UNITS PIPED FROM ABOVE SIMILAR.

3 FIN-TUBE CONVACTOR (FTC) PIPING
SCALE: NTS



NEGATIVE STATIC PRESSURE:
 $X = 1/2 \text{ "H"}$
H = AT LEAST 1 INCH CASING STATIC PRESSURE

TOTAL HEIGHT OF TRAP = $X + H + (1.5 \times \text{PIPE DIA})$ (WITHOUT INSULATION)

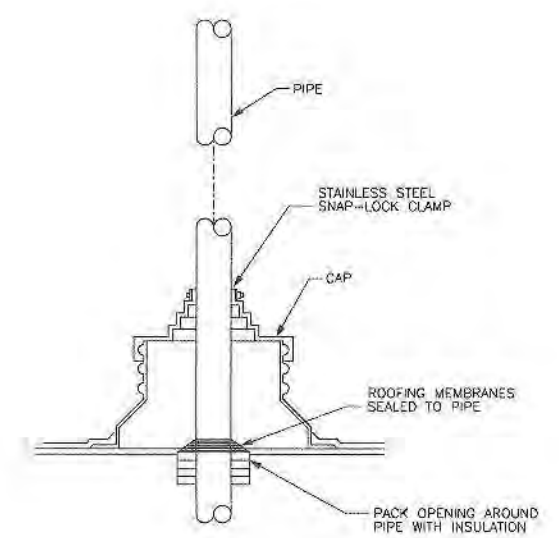


POSITIVE STATIC PRESSURE:
X = AT LEAST 1 INCH PLUS CASING STATIC PRESSURE
H = AT LEAST 1 INCH

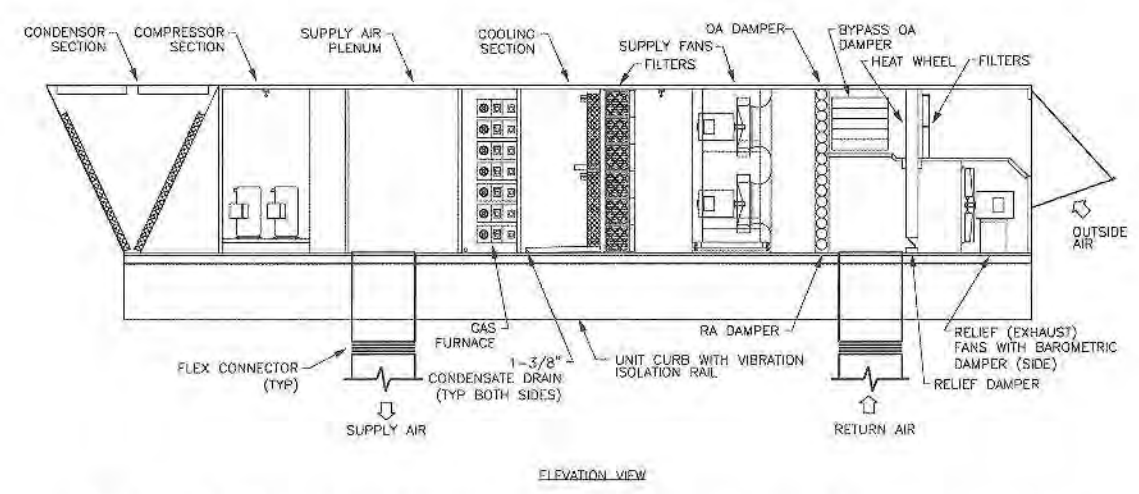
TOTAL HEIGHT OF TRAP = $X + H + (1.5 \times \text{PIPE DIA})$ (WITHOUT INSULATION)

NOTE: RUN CONDENSATE DRAIN TO NEARBY FLOOR DRAIN.

4 CONDENSATE DRAIN TRAP
SCALE: NTS

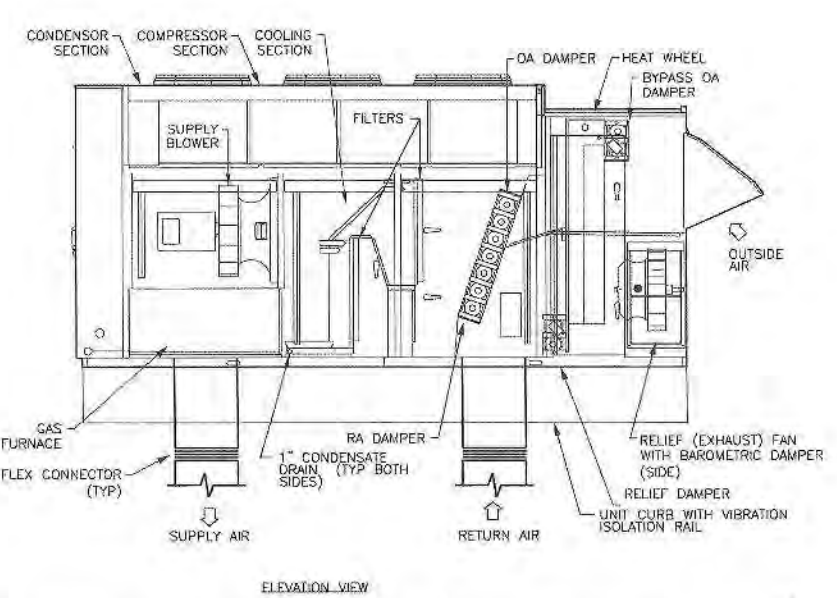


7 PIPE SEAL AT ROOF
SCALE: NTS



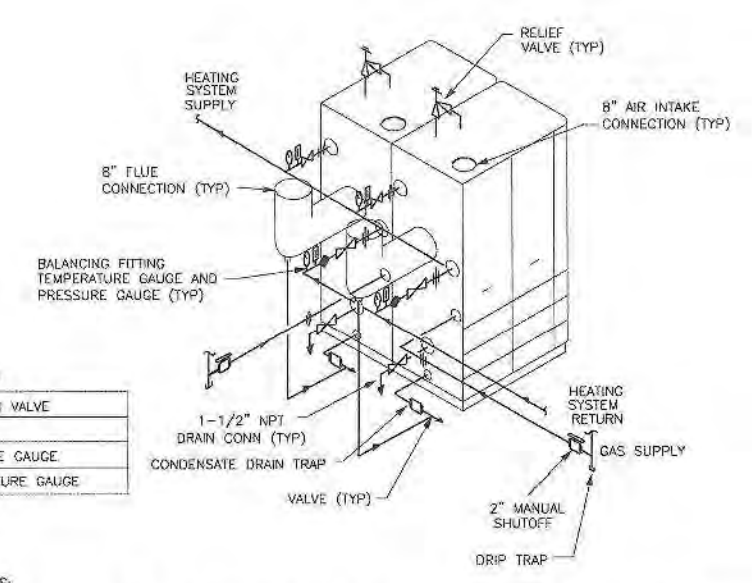
NOTES:
1. CURB CAP REQUIRED ON UNITS TO PREVENT ANY WATER LEAKS FROM ENTERING A FINISHED SPACE.
2. PERIMETER BASE RAIL IS NOT WATER TIGHT. DO NOT DEPEND ON PERIMETER BASE RAIL FOR WATER SEAL.
3. SEE SHAWNA ARCHITECTURAL SHEET METAL MANUAL AND HVAC DUCT CONSTRUCTION STANDARDS FOR CURB INSTALLATION DETAILS.
4. PROVIDE INDIVIDUAL CONDENSATE TRAPS AND DRAIN LINES AT ALL UNIT CONNECTION POINTS. RUN DRAINS TO NEARBY ROOF DRAIN.

8 ROOFTOP UNIT (RTU-1 AND RTU-2)
SCALE: NTS



NOTES:
1. CURB CAP REQUIRED ON UNITS TO PREVENT ANY WATER LEAKS FROM ENTERING A FINISHED SPACE.
2. PERIMETER BASE RAIL IS NOT WATER TIGHT. DO NOT DEPEND ON PERIMETER BASE RAIL FOR WATER SEAL.
3. SEE SHAWNA ARCHITECTURAL SHEET METAL MANUAL AND HVAC DUCT CONSTRUCTION STANDARDS FOR CURB INSTALLATION DETAILS.
4. PROVIDE INDIVIDUAL CONDENSATE TRAPS AND DRAIN LINES AT ALL UNIT CONNECTION POINTS. RUN DRAINS TO NEARBY ROOF DRAIN.

9 ROOFTOP UNIT (RTU-3)
SCALE: NTS



LEGEND	
	ISOLATION VALVE
	UNION
	PRESSURE GAUGE
	TEMPERATURE GAUGE

NOTES:

- 1) PIPING DIAGRAM FOR DESIGN BASE BOILER SYSTEM. AFRCO, BWK 2.0, GAS FIRED BOILER. MULTIPLE INSTALLATION WITH ZERO SLP CLEARANCE. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THIS BOILER SYSTEM WITH ALL MANUFACTURER REQUIREMENTS.
- 2) THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL CHANGES CAUSED DUE TO THE SUBSTITUTION OF A DIFFERENT BOILER SYSTEM. THE CONTRACTOR IS RESPONSIBLE TO INSTALL ANY SUBSTITUTED BOILER SYSTEMS PER MANUFACTURER REQUIREMENTS. ANY CHANGES IN COST DUE TO THE SUBSTITUTION OF A NON-DESIGN BASE BOILER SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 3) REFER TO MANUFACTURER DATA FOR SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO THE BOILER.
- 4) SHUT DOWN VALVE AND CONDENSATE DRAIN TRAP SHOULD BE ARRANGED TO PERMIT THE FLUIDS TO DRAIN FREELY, BY GRAVITY, TO A CONVENIENT FLOOR DRAIN. RELIEF VALVE SHOULD BE PIPED VERTICALLY TO A HEIGHT 18\"/>
- 5) LOCATE WATER INLET AND OUTLET FITTINGS (I.E. UNIONS, ELBOWS, ETC.) A MINIMUM OF 6\"/>
- 6) ROUTE CONDENSATE LINE TO NEARBY FLOOR DRAIN. AT THE CONTRACTORS OPTION, EACH CONDENSATE PORT CAN BE PIPED INDIVIDUALLY TO MAIN DRAIN.
- 7) REFER TO PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
- 8) REFER TO DRAWING M-303 FOR HOT WATER SYSTEM SCHEMATIC.
- 9) REFER TO DRAWING M-303 FOR HOT WATER SYSTEM CONTROLS.
- 10) REFER TO DRAWING M-401 FOR BOILER SCHEDULES.

10 BOILER PIPING
NO SCALE



SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY				
No.	DATE	BY	Description	REVISIONS
6	04/08/09	DAP	CONSTRUCTION SET	
5	01/09/09	DAP	BID AND PERMIT SET	

DRAWN BY: LEW
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/08/2009

TITLE
MECHANICAL
DETAILS - 2

PROJECT NO. 50002241

M-302

SHEET NO.



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SCALE

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6	04/06/08	DAP	CONSTRUCTION SET	
5	01/09/08	DAP	BID AND PERMIT SET	
No.	DATE	BY	Description	
REVISIONS				

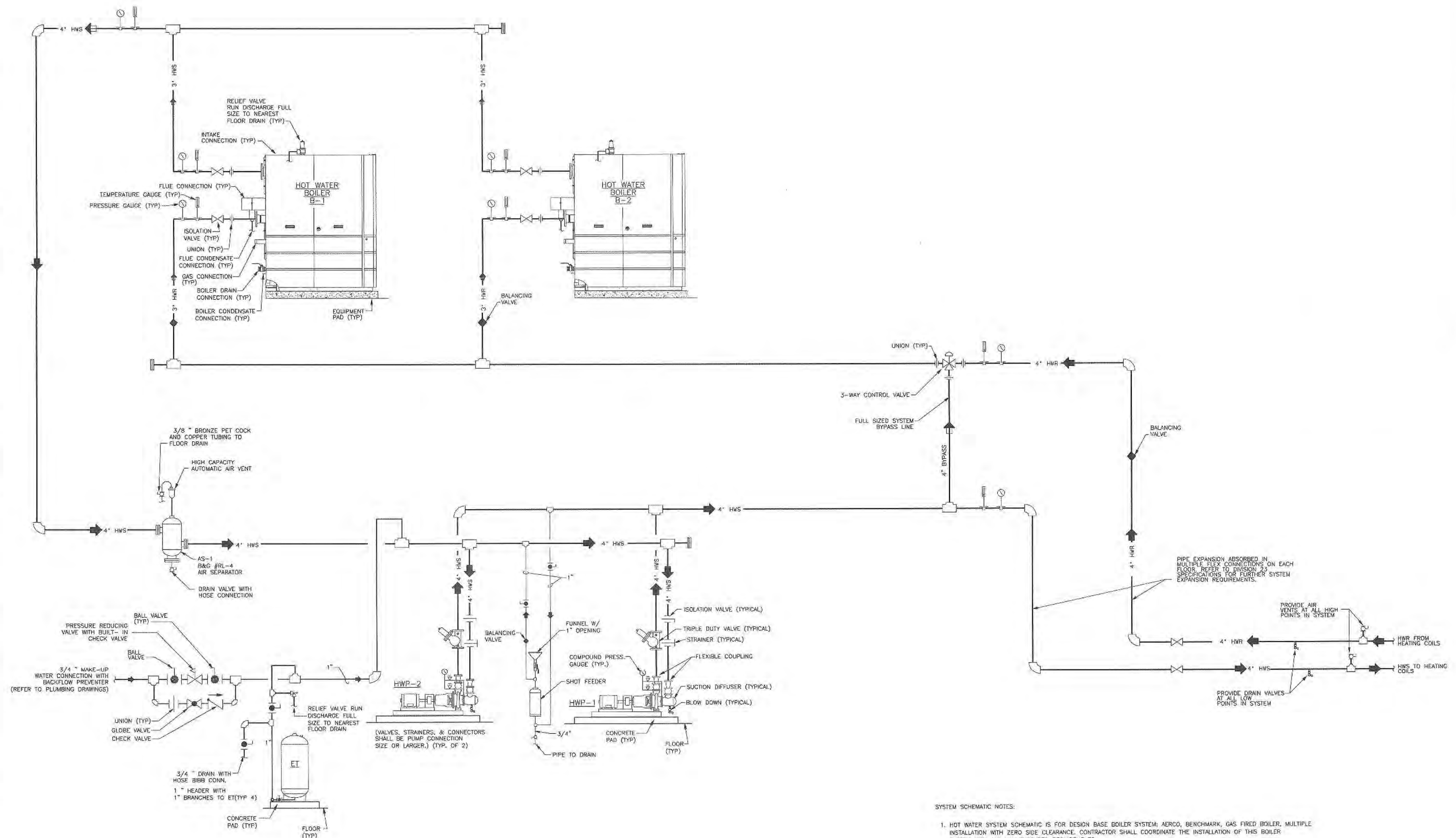
DRAWN BY: LEW
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2008

TITLE
MECHANICAL
DETAILS - 3

PROJECT NO: 50002241

M-303

SHEET NO.



2. REFER TO SHEET M-001, MECHANICAL SYMBOLS AND ABBREVIATIONS, FOR DESCRIPTIONS OF GRAPHIC SYMBOLS USED ON DRAWINGS.

1 HOT WATER SYSTEM PIPING SCHEMATIC
NO SCALE

SYSTEM SCHEMATIC NOTES:

- HOT WATER SYSTEM SCHEMATIC IS FOR DESIGN BASE BOILER SYSTEM: AERCO, BENCHMARK, GAS FIRED BOILER, MULTIPLE INSTALLATION WITH ZERO SIDE CLEARANCE. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF THIS BOILER SYSTEM WITH ALL MANUFACTURER REQUIREMENTS.
- HOT WATER SYSTEM SCHEMATIC IS DIAGRAMMATIC. ALL REQUIRED PIPING AND EQUIPMENT ACCESSORIES MAY NOT BE INDICATED. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION AND COORDINATION OF ALL MANUFACTURER RECOMMENDED ACCESSORIES, THE CONTRACT DRAWINGS, AND THE CONTRACT SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL DIFFERENCES CAUSED DUE TO THE SUBSTITUTION OF A DIFFERENT BOILER SYSTEM. THE CONTRACTOR IS RESPONSIBLE TO INSTALL ANY SUBSTITUTED BOILER SYSTEMS PER MANUFACTURER REQUIREMENTS. ANY CHANGES IN COST DUE TO THE SUBSTITUTION OF A NON-DESIGN BASE BOILER SYSTEM SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- REFER TO MANUFACTURER DATA FOR SIZES AND LOCATIONS OF PIPING AND OTHER CONNECTIONS TO EQUIPMENT.
- REFER TO PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
- REFER TO DRAWING M-503 FOR HOT WATER SYSTEM CONTROLS.
- REFER TO M-300 SERIES DRAWINGS FOR HEATING AND VENTILATION DETAILS.
- REFER TO DRAWING M-401 FOR BOILER SCHEDULES.

F

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D

C

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A

HOT WATER BOILER SCHEDULE																	
MARK	MANUFACTURER & MODEL NO.	TYPE	OUTPUT MBH	GAS INPUT MBH	WATER PRESS DROP FT. OF H2O	GPM	MIN. GAS PRESS @ GAS TRAIN	SUPPLY TAPPING (NO.) SIZE	RETURN TAPPING (NO.)	VENT CONNECTION SIZE	COMBINATION AIR SIZE	PRESSURE RATING PSIG	PERCENT GLYCOL	ELECTRICAL			REMARKS
														VOLT	PHASE	FLA	
B-1	AERCO BENCHMARK 2.0	CONDENSING WATER TUBE	1,720	2,000	1.5	200	4-10"	4	4	8	8	160	0%	208	3	6	DISCONNECT BY DIVISION 26
B-2	AERCO BENCHMARK 2.0	CONDENSING WATER TUBE	1,720	2,000	1.5	200	4-10"	4	4	8	8	160	0%	208	3	6	DISCONNECT BY DIVISION 25

PUMP SCHEDULE													
MARK	MANUFACTURER & MODEL NO.	SERVICE	PERCENT GLYCOL	GPM	DESIGN HEAD FT OF H2O	MIN. EFFICIENCY	IMPELLER DIA.	MOTOR DATA				REMARKS	
								RPM	BHP	HP	VOLTS	PHASE	
HWP-1	BELL & GOSSETT SERIES 1510	HOT	0	160	110	65	10.5	1,750	6.4	10	460	3	PROVIDE VFD/DISCONNECT
HWP-2	BELL & GOSSETT SERIES 1510	HOT	0	160	110	65	10.5	1,750	6.4	10	460	3	PROVIDE VFD/DISCONNECT

DIAPHRAGM EXPANSION TANK SCHEDULE										
MARK	MANUFACTURER & MODEL NO.	TYPE	LENGTH	DIAMETER	MIN. TANK VOLUME (GAL.)	ACCEPTANCE CAPACITY (GAL.)	INITIAL FILL PRESSURE (PSIG)	RELIEF PRESSURE (PSIG)	SYSTEM CONN. SIZE	REMARKS
ET-1	BELL & GOSSETT D-80	DIAPHRAGM	56-7/8"	16-1/4"	44.4	22.6	20	110	1/2"	SEE M300 SERIES DRAWINGS FOR DETAILS

AIR SEPARATOR SCHEDULE							
MARK	MANUFACTURER & MODEL NO.	USE	FLOW (GPM)	OPENING SIZE	Cv	PRESSURE LOSS (FT H2O)	REMARKS
AS-1	BELL & GOSSETT ROLAIR TROL RL-4	HEATING	160	4"	8000	0.5	SEE M300 SERIES DRAWINGS FOR DETAILS

HOT WATER FINNED TUBE RADIATION SCHEDULE												
MARK	MANUFACTURER & MODEL NO.	NO. TIERS	TUBE SIZE	FIN SIZE	FINS/FT.	ENTERING AIR TEMP.	EWI	LWI	BTU/HLIN. FT.	ENCLOSURE HEIGHT	ENCLOSURE TYPE	REMARKS
FTC-1A	STERLING VERSA-LINE KS-R01	1	3/4	2-1/4 x 2-1/2	50	65	180	150	430	8	SLOPE TOP	WALL TO WALL (APPROX. 10') ENCLOSURE, 4" ELEMENT
FTC-101	STERLING VERSA-LINE KS-R01	1	3/4	2-1/4 x 2-1/2	50	65	180	150	430	8	SLOPE TOP	3" ENCLOSURE, 2" ELEMENT
FTC-302	STERLING VERSA-LINE KS-R01	1	3/4	2-1/4 x 2-1/2	50	65	180	150	430	8	SLOPE TOP	10' ENCLOSURE, 4" ELEMENT

HOT WATER CABINET UNIT HEATER														
MARK	MANUFACTURER & MODEL NO.	CFM	EAT	GPM	EWI	LWI	PD FT. OF H2O	HEATING MBH	MOTOR DATA			FACTORY MOUNTED DISCONNECT	REMARKS	
									HP	VOLT	PHASE			
CUH-100	TRANE FFEB030	365	60	1.6	180	150	11	16	0.08	120	1	YES		HORIZONTAL RECESSED CABINET
CUH-112	TRANE FFEB030	365	60	1.6	180	150	11	16	0.08	120	1	YES		HORIZONTAL RECESSED CABINET
CUH-1B	TRANE FFEB040	338	60	1.6	180	142	3.6	30	0.06	120	1	YES		VERTICAL CABINET
CUH-1C	TRANE FFEB040	338	60	1.6	180	142	3.6	30	0.06	120	1	YES		VERTICAL RECESSED CABINET

HOT WATER SUSPENDED UNIT HEATER SCHEDULE														
MARK	MANUFACTURER & MODEL NO.	CFM	EAT	HEATING MBH	GPM	EWI	LWI	PD. FT. OF H2O	TAT	MOTOR DATA			FACTORY MOUNTED DISCONNECT	REMARKS
										W	VOLTS	PHASE		
HUH-002	TRANE UHSBA08	245	60	6.2	0.5	180	150	1	91	16	120	1	Y	HORIZONTAL DISCHARGE
HUH-137	TRANE UHSBA18	500	60	14	1	180	150	2	94	16	120	1	Y	HORIZONTAL DISCHARGE
HUH-139	TRANE UHSBA18	500	60	14	1	180	150	2	94	16	120	1	Y	HORIZONTAL DISCHARGE

GAS FIRED STEAM HUMIDIFIER SCHEDULE														
MARK	MANUFACTURER & MODEL NO.	CFM	MANIFOLD		GAS		STEAM OUTPUT		ELECTRICAL DATA			DISCONNECT	REMARKS	
			NO. TUBES	ABSORPTION DISTANCE	INPUT (MBH)	PRESS. AT INLET (IN. W.C.)	MINIMUM (LBS./HR.)	MAXIMUM (LBS./HR.)	VOLTS	PHASE	AMP			
H-1	NORTEC GSTC200	9,015	84"x84"	25	2"	280	YES	25	200	YES	208	1	4.8	OUTDOOR UNIT
H-2	NORTEC GSTC200	10,005	84"x84"	25	2"	280	YES	25	200	YES	208	1	4.8	OUTDOOR UNIT

ELECTRIC UNIT HEATER SCHEDULE									
MARK	MANUFACTURER & MODEL NO.	CFM	EAT	HEATING KW	MOTOR DATA			FACTORY MOUNTED DISCONNECT	REMARKS
					HP	VOLTS	PHASE		
EUH-138	QMARK MUH03	350	60	3	1/100	208	1	YES	DISCONNECT BY DIVISION 26

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No.	DATE	BY	Description
8	04/06/09	DAP	CONSTRUCTION SET
5	01/06/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY LEW
APPROVED BY TJK
CHECKED BY ECB
DATE 01/06/2008

TITLE
MECHANICAL
SCHEDULES - 1

PROJECT NO. 50002241

M-401

SHEET NO.

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ROOFTOP UNIT SCHEDULE

MARK	MANUFACTURER & MODEL NO.	CFM	MIN OA	UNIT ELECTRICAL DATA			SUPPLY FAN DATA					RETURN/EXHAUST FAN DATA					FILTER		FACTORY MOUNTED DISCONNECT	ONE POINT CONNECTION	SERVICE OUTLET
				VOLT	PHASE	MCA/MOCP	TYPE	E.S.P.	RPM	BHP	HP	TYPE	E.S.P.	RPM	BHP	HP	TYPE	E.F.F.			
RTU-1	AAON RL-075	50,040	6,715	460	3	252/300	PLUG	3.00	1698	(2)25.3	(2)30	PROP	0.75	1678	(2)16.5	(2)7.5	2" PLEATED	30	YES	YES	YES
RTU-2	AAON RL-095	33,350	7,060	460	3	225/350	PLUG	3.00	1647	(3)21.5	(3)25	PROP	0.75	1602	(2)15.4	(2)10	2" PLEATED	30	YES	YES	YES
RTU-3	AAON RN-031	9,590	3,605	460	3	87/100	FC	2.75	1637	11.9	15	FC	0.75	1203	4.2	5	2" PLEATED	30	YES	YES	YES

ROOFTOP UNIT SCHEDULE - CONTINUED

MARK	FACE VELOCITY	ROWS	FFP	EVAPORATOR DATA				MBH TOTAL	MBH SENS	COMPRESSOR		CONDENSOR DATA		GAS HEAT SECTION		STAGES	BURNER TYPE	GAS PRESS. AT INLET	REMARKS
				EAT-(DB)	EAT-(WB)	LAT-(DB)	LAT-(WB)			NO.	TOTAL TONS	FANS-(NO.) HP	STEP OF CAPACITY	OUTPUT (MBH)	INPUT (MBH)				
RTU-1	560	6	144	80.2	65.4	56.9	56.4	808	742	4	75	(3)3		657	796	FULLY MODULATING	NAT. GAS	7-14"	ENERGY RECOVERY VENTILATOR, SINGLE POINT POWER CONNECTION
RTU-2	628	6	144	81.0	65.8	56.6	56.1	908	863	4	95	(4)3		913	1096	FULLY MODULATING	NAT. GAS	7-14"	ENERGY RECOVERY VENTILATOR, SINGLE POINT POWER CONNECTION
RTU-3	301	6	144	76.3	64.5	56.0	54.1	320	239	4	30	(4)0.75		432	540	FULLY MODULATING	NAT. GAS	7-14"	ENERGY RECOVERY VENTILATOR, SINGLE POINT POWER CONNECTION

GENERAL NOTES:

1. ALL PHYSICAL ATTRIBUTES OF EQUIPMENT AND DEVICES ARE BASED ON THOSE MANUFACTURERS LISTED IN THE EQUIPMENT SCHEDULES. THE RESPECTIVE CONTRACTORS ARE RESPONSIBLE FOR ALL CHANGES BROUGHT ABOUT BY THE USE OF ITEMS BY OTHER MANUFACTURERS. THE ARCHITECT/ENGINEER HAS RESERVED THE RIGHT TO REJECT ITEMS BY OTHER MANUFACTURERS IF THOSE ITEMS DO NOT MATCH THE PHYSICAL ATTRIBUTES OF THE MANUFACTURERS LISTED.

VAV BOX SCHEDULE

VAV BOX SCHEDULE																				
MARK	MANUFACTURER & MODEL NO.	MAX CFM	MIN CFM	HEATING CFM	INLET DIA	STATIC PRESSURE ("W.G.)			CONTROLS	HOT WATER COIL DATA							FACTORY MOUNTED DISCONNECT	CONTROL TRANSFORMER	PRIMARY VOLTAGE	REMARKS
						INLET	DOWN	MIN.		MBH	EAT	LAT	ENT	LWT	GPM	PD FT OF H2O				
(RTU-1)																				
VAV-101E	TTUS - DESV	2210	995	995	14	1.00	0.25	0.45	DDC	61.1	55.0	112.0	180.0	150.2	4.1	2.1	2	YES	NO	24
VAV-101W	TTUS - DESV	2210	995	995	14	1.00	0.25	0.45	DDC	61.1	55.0	112.0	180.0	150.2	4.1	2.1	2	YES	NO	24
VAV-113E	TTUS - DESV	3940	1400	2,220	24x16	1.00	0.25	0.40	DDC	131.1	55.0	110.0	180.0	149.9	8.7	3.8	2	YES	NO	24
VAV-113S	TTUS - DESV	1320	400	400	10	1.00	0.25	0.53	DDC	25.3	55.0	113.0	180.0	150.3	1.7	0.5	2	YES	NO	24
VAV-113W	TTUS - DESV	1650	500	500	12	1.00	0.25	0.49	DDC	33.7	55.0	117.0	180.0	149.4	2.2	1.0	2	YES	NO	24
VAV-113N	TTUS - DESV	1650	500	500	12	1.00	0.25	0.49	DDC	33.7	55.0	117.0	180.0	149.4	2.2	1.0	2	YES	NO	24
VAV-115	TTUS - DESV	1970	590	590	12	1.00	0.25	0.67	DDC	37.7	55.0	114.0	180.0	149.9	2.5	1.3	2	YES	NO	24
VAV-116	TTUS - DESV	160	90	90	4	1.00	0.25	0.07	DDC	5.1	55.0	108.0	180.0	159.4	0.5	0.2	1	YES	NO	24
VAV-118	TTUS - DESV	1430	430	570	12	1.00	0.25	0.38	DDC	37.0	55.0	115.0	180.0	150.4	2.5	1.3	2	YES	NO	24
VAV-119	TTUS - DESV	150	45	65	4	1.00	0.25	0.06	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-120	TTUS - DESV	1170	360	660	10	1.00	0.25	0.47	DDC	34.4	55.0	103.0	180.0	150.1	2.3	0.9	2	YES	NO	24
VAV-122	TTUS - DESV	1100	470	470	10	1.00	0.25	0.42	DDC	28.4	55.0	111.0	180.0	151.6	2.0	0.7	2	YES	NO	24
VAV-123	TTUS - DESV	130	65	65	4	1.00	0.25	0.05	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-124N	TTUS - DESV	2840	860	2,230	14	1.00	0.25	0.71	DDC	98.3	55.0	96.0	180.0	149.8	6.5	4.7	2	YES	NO	24
VAV-124E	TTUS - DESV	2070	620	1,320	14	1.00	0.25	0.40	DDC	72.6	55.0	106.0	180.0	149.7	4.8	2.7	2	YES	NO	24
VAV-124S	TTUS - DESV	1740	525	525	12	1.00	0.25	0.54	DDC	34.9	55.0	116.0	180.0	149.7	2.3	1.1	2	YES	NO	24
VAV-124W	TTUS - DESV	1740	525	525	12	1.00	0.25	0.54	DDC	34.9	55.0	116.0	180.0	149.7	2.3	1.1	2	YES	NO	24
VAV-125	TTUS - DESV	65	45	65	4	1.00	0.25	0.02	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-126	TTUS - DESV	65	45	65	4	1.00	0.25	0.02	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-127	TTUS - DESV	65	45	65	4	1.00	0.25	0.02	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-130	TTUS - DESV	60	40	60	4	1.00	0.25	0.02	DDC	4.3	55.0	121.0	180.0	162.8	0.5	0.2	1	YES	NO	24
VAV-131	TTUS - DESV	330	250	330	8	1.00	0.25	0.52	DDC	19.5	55.0	110.0	180.0	150.6	1.3	0.6	2	YES	NO	24
VAV-132	TTUS - DESV	380	120	260	6	1.00	0.25	0.32	DDC	14.5	55.0	107.0	180.0	150.9	1.0	0.8	2	YES	NO	24
VAV-135	TTUS - DESV	950	730	730	9	1.00	0.25	0.37	DDC	36.7	55.0	102.0	180.0	150.6	2.5	1.0	2	YES	NO	24
VAV-140	TTUS - DESV	140	45	70	4	1.00	0.25	0.06	DDC	4.6	55.0	116.0	180.0	161.5	0.5	0.2	1	YES	NO	24
VAV-141	TTUS - DESV	570	170	0	7	1	0.25	0.11	DDC	-	-	-	-	-	-	-	YES	NO	24	
VAV-143	TTUS - DESV	420	130	130	6	1.00	0.25	0.27	DDC	5.9	55.0	97.0	180.0	156.4	0.5	0.2	1	YES	NO	24
(RTU-2)																				
VAV-1132	TTUS - DESV	4060	1400	2,100	24x16	1.00	0.25	0.41	DDC	126.9	55.0	111.0	180.0	150.1	8.5	3.6	2	YES	NO	24
VAV-200	TTUS - DESV	430	130	370	6	1.00	0.25	0.40	DDC	17.8	55.0	100.0	180.0	150.3	1.2	0.4	2	YES	NO	24
VAV-202	TTUS - DESV	520	440	440	7	1.00	0.25	0.51	DDC	23.4	55.0	104.0	180.0	150.7	1.6	0.8	2	YES	NO	24
VAV-203	TTUS - DESV	430	135	260	6	1.00	0.25	0.40	DDC	14.5	55.0	107.0	180.0	150.9	1.0	0.8	2	YES	NO	24
VAV-205	TTUS - DESV	560	170	460	7	1.00	0.25	0.55	DDC	23.9	55.0	103.0	180.0	150.1	1.6	0.8	2	YES	NO	24
VAV-206	TTUS - DESV	220	70	220	4	1.00	0.25	0.17	DDC	13.1	55.0	110.0	180.0	150.9	0.9	0.2	2	YES	NO	24
VAV-207	TTUS - DESV	150	50	110	4	1.00	0.25	0.06	DDC	6.1	55.0	106.0	180.0	166.5	0.9	0.4	1	YES	NO	24
VAV-209	TTUS - DESV	310	100	240	5	1.00	0.25	0.19	DDC	13.6	55.0	108.0	180.0	149.7	0.9	0.2	2	YES	NO	24
VAV-216	TTUS - DESV	1930	580	1,180	12	1.00	0.25	0.65	DDC	57.5	55.0	100.0	180.0	149.7	3.8	2.7	2	YES	NO	24
VAV-217	TTUS - DESV	290	90	290	5	1.00	0.25	0.17	DDC	15.3	55.0	104.0	180.0	149.5	1.0	0.3	2	YES	NO	24
VAV-218	TTUS - DESV	530	160	310	7	1.00	0.25	0.32	DDC	18.9	55.0	111.0	180.0	150.9	1.3	0.6	2	YES	NO	24
VAV-223	TTUS - DESV	870	270	470	8	1.00	0.25	0.56	DDC	24.2	55.0	102.0	180.0	149.8	1.6	0.8	2	YES	NO	24
VAV-224	TTUS - DESV	420	130	400	6	1.00	0.25	0.39	DDC	18.4	55.0	98.0	180.0	149.3	1.2	0.4	2	YES	NO	24
VAV-226	TTUS - DESV	1620	490	490	12	1.00	0.25	0.48	DDC	33.6	55.0	118.0	180.0	150.8	2.3	1.1	2	YES	NO	24
VAV-227S	TTUS - DESV	2250	680	680	14	1.00	0.25	0.47	DDC	47.4	55.0	120.0	180.0	149.4	3.1	1.3	2	YES	NO	24
VAV-227E	TTUS - DESV	3750	1400	1,400	24x16	1.00	0.25	0.37	DDC	97.4	55.0	119.0	180.0	150.0	6.5	2.3	2	YES	NO	24
VAV-227W	TTUS - DESV	5250	1600	1,600	24x16	1.00	0.25	0.67	DDC	106.7	55.0	117.0	180.0	150.4	7.2	2.7	2	YES	NO	24
VAV-227N	TTUS - DESV	4165	1400	1,710	24x16	1.00	0.25	0.44	DDC	111.4	55.0	115.0	180.0	150.3	7.5	2.9	2	YES	NO	24
VAV-228	TTUS - DESV	1450	430	890	12	1.00	0.25	0.38	DDC	48.9	55.0	106.0	180.0	150.3	3.3	2.1	2	YES	NO	24
VAV-229	TTUS - DESV	500	150	290	6	1.00	0.25	0.53	DDC	15.3	55.0	104.0	180.0	149.5	1.0	0.3	2	YES	NO	24
VAV-231	TTUS - DESV	1650	500	1,270	12	1.00	0.25	0.49	DDC	60.1	55.0	99.0	180.0	150.0	4.0	2.9	2	YES	NO	24
VAV-232	TTUS - DESV	480	150	290	6	1.00	0.25	0.49	DDC	15.3	55.0	104.0	180.0	149.5	1.0	0.3	2	YES	NO	24
VAV-233	TTUS - DESV	1440	440	1,310	12	1.00	0.25	0.39	DDC	60.9	55.0	98.0	180.0	149.5	4.0	2.9	2	YES	NO	24
VAV-234	TTUS - DESV	70	45	65	4	1.00	0.25	0.02	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-235	TTUS - DESV	90	45	65	4	1.00	0.25	0.05	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-236	TTUS - DESV	410	130	280	6	1.00	0.25	0.37	DDC	15.0	55.0	105.0	180.0	149.9	1.0	0.3	2	YES	NO	24
VAV-237	TTUS - DESV	390	120	220	6	1.00	0.25	0.34	DDC	13.1	55.0	110.0	180.0	150.9	0.9	0.2	2	YES	NO	24
VAV-238	TTUS - DESV	1000	300	1,000	9	1.00	0.25	0.41	DDC	44.0	55.0	96.0	180.0	150.7	3.0	1.4	2	YES	NO	24
VAV-239	TTUS - DESV	110	45	65	4	1.00	0.25	0.04	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
(RTU-3)																				
VAV-001	TTUS - DESV	270	90	270	5	1.00	0.25	0.15	DDC	14.7	55.0	106.0	180.0	150.2	1.0	0.2	2	YES	NO	24
VAV-003	TTUS - DESV	110	45	65	4	1.00	0.25	0.04	DDC	4.5	55.0	119.0	180.0	162.1	0.5	0.2	1	YES	NO	24
VAV-004	TTUS - DESV	130	45	70	4	1.00	0.25	0.05	DDC	4.6	55.0	116.0	180.0	161.5	0.5	0.2	1	YES	NO	24
VAV-008	TTUS - DESV	590	200	200	7	1.00	0.25	0.26	DDC	8.3	55.0	94.0	180.0	152.2	0.6	0.3	1	YES	NO	24
VAV-010	TTUS - DESV	130	50	0	4	1.00	0.25	0.03	DDC	-	-	-	-	-	-	-	YES	NO	24	
VAV-011	TTUS - DESV	130	50	0	4	1.00	0.25	0.03	DDC	-	-	-	-	-	-	-	YES	NO	24	
VAV-102	TTUS - DESV	1520	1100	1,100	12	1.00	0.25	0.43	DDC	55.4	55.0	102.0	180.0	150.1	3.7	2.5	2	YES	NO	24
VAV-104E	TTUS - DESV	2635	1315	1,315	14	1.00	0.25	0.62	DDC	73.1	55.0	106.0	180.0	150.8	5.0	3.0	2	YES	NO	24
VAV-104W	TTUS - DESV	2635	1315	1,315	14	1.00	0.25	0.62	DDC	73.1	55.0	106.0	180.0	150.8	5.0	3.0	2	YES	NO	24
VAV-105	TTUS - DESV	190	60	130	4	1.00	0.25	0.10	DDC	5.9	55.0	97.0	180.0	156.4	0.5	0.2	1	YES	NO	24
VAV-106	TTUS - DESV	1250	370	1,120	10	1.00	0.25	0.51	DDC	46.5	55.0	93.0	180.0	150.0	3.1	1.5	2	YES	NO	24
VAV-110	TTUS - DESV	130	45	120																

GENERAL NOTES:

J. ALL PHYSICAL ATTRIBUTES OF EQUIPMENT AND DEVICES ARE BASED ON THOSE MANUFACTURERS LISTED IN THE EQUIPMENT SCHEDULES. THE RESPECTIVE CONTRACTORS ARE RESPONSIBLE FOR ALL CHANGES BROUGHT ABOUT BY THE USE OF ITEMS BY OTHER MANUFACTURERS. THE ARCHITECT/ENGINEER HAS RESERVED THE RIGHT TO REJECT ITEMS BY OTHER MANUFACTURERS IF THOSE ITEMS DO NOT MATCH THE PHYSICAL ATTRIBUTES OF THE MANUFACTURERS LISTED.

AIR-COOLED COMPUTER ROOM AIR CONDITIONER SCHEDULE																			
MARK	MANUFACTURER & MODEL NO.	CFM [HIGH/LOW]	TOTAL STATIC PRESSURE [IN WC]	DX COOLING COIL		SCR REHEAT ELEMENT		MATCHING ACC	HUMIDIFIER		FILTER		UNIT ELECTRICAL			REMARKS			
				TOT. MDL	EAT [°F] [DBWB]	LAT [°F] [DBWB]	REFRIG. TYPE		CAPACITY [KW]	EAT [°F] [°DB]	LAT [°F] [°DB]	RELATIVE HUMIDITY [%]	LEADER	TYPE	EFF		VOLTS	PHASE	FLA
CRAC-117	LEBERT MMD36	1,250/1,000	0.8	35	76/64	55/55	R407C	7.9	35	75	CU-117	50%	4.3	PLEATED MEDIA	30%	208	3	35.3	NOTES 1 AND 2
CRAC-222	LEBERT MMD36	1,250/1,000	0.8	35	76/64	55/55	R407C	7.9	35	75	CU-222	50%	4.3	PLEATED MEDIA	30%	208	3	35.3	NOTES 1 AND 2
CRAC-225	LEBERT MMD36	1,250/1,000	0.8	35	76/64	55/55	R407C	7.9	35	75	CU-225	50%	4.3	PLEATED MEDIA	30%	208	3	35.3	NOTES 1 AND 2

NOTES

2. OPTIONS AND ACCESSORIES:
- REFRIGERANT LINE SETS AND SWEAT ADAPTOR KIT. CEILING SUPPLY AND RETURN FACE PANEL DISCONNECT SWITCH. CONDENSATE PUMP. HOT-GAS BYPASS. TEMPERATURE AND HUMIDITY CONTROLS. SINGLE POINT POWER KIT. SCR ELECTRIC REHEAT.

AIR-COOLED CONDENSING UNIT SCHEDULE										
MARK	MANUFACTURER & MODEL NO.	NOMINAL CAPACITY TONS				AMBIENT AIR TEMP (°F)	INDOOR UNIT TAG	FACTORY MOVED/DISCONNECT	REFRIGERANT TYPE	REMARKS
			VOLT	PHASE	FLA					
CU-117	LIEBERT PFC037A	3	208	3	12.8	95	CRAC-117	YES	R407C	NOTES 1.2, AND 3
CU-222	LIEBERT PFC037A	3	208	3	12.8	95	CRAC-222	YES	R407C	NOTES 1.2, AND 3
CU-225	LIEBERT PFC037A	3	208	3	12.8	95	CRAC-225	YES	R407C	NOTES 1.2, AND 3

NOTES

1. REFER TO DRAWING M-502 FOR INSTRUMENTATION AND CONTROL.
2. PROVIDE REFRIGERANT PIPING AND CONNECTIONS AT MANUFACTURERS SUGGESTED SIZES.
3. PROVIDE CONDENSOR COIL PROTECTIVE GUARDS.

AIR DEVICES										
MARK	MANUFACTURER & MODEL NO.	FUNCTION	FACE SIZE	NECK SIZE	FACE STYLE	MATERIAL	FRAME TYPE	DAMPER	MAX PRESS DROP	REMARKS
A1	TITUS OMNI	SUPPLY	12"x12"	6"	PLAQUE	ALUMINUM	LAYIN	YES		
A2	TITUS OMNI	SUPPLY	24"x24"	6"	PLAQUE	ALUMINUM	LAYIN	YES		
A3	TITUS OMNI	SUPPLY	24"x24"	8"	PLAQUE	ALUMINUM	LAYIN	YES		
A4	TITUS OMNI	SUPPLY	24"x24"	10"	PLAQUE	ALUMINUM	LAYIN	YES		
A5	TITUS OMNI	SUPPLY	24"x24"	6"	PLAQUE	ALUMINUM	DUCT	YES		
A6	TITUS OMNI	SUPPLY	24"x24"	8"	PLAQUE	ALUMINUM	DUCT	YES		
A7	TITUS OMNI	SUPPLY	24"x24"	8"	PLAQUE	ALUMINUM	SURFACE	YES		
A8	TITUS OMNI	SUPPLY	24"x24"	10"	PLAQUE	ALUMINUM	SURFACE	YES		
B1	TITUS MP-39	SUPPLY	48" LONG	8"	3 SLOT (1")	ALUMINUM	LAYIN	YES		PROVIDE SUPPLY PLENUM
B2	TITUS MP-39	SUPPLY	48" LONG	10"	4 SLOT (1")	ALUMINUM	LAYIN	YES		PROVIDE SUPPLY PLENUM
B3	TITUS MP-39	SUPPLY	48" LONG	12"	4 SLOT (1")	ALUMINUM	LAYIN	YES		PROVIDE SUPPLY PLENUM
B4	TITUS MP-39	SUPPLY	48" LONG	8"	3 SLOT (1")	ALUMINUM	SURFACE	YES		PROVIDE SUPPLY PLENUM
B5	TITUS MP-39	SUPPLY	48" LONG	10"	4 SLOT (1")	ALUMINUM	SURFACE	YES		PROVIDE SUPPLY PLENUM
B6	TITUS MP-39	SUPPLY	48" LONG	12"	4 SLOT (1")	ALUMINUM	SURFACE	YES		PROVIDE SUPPLY PLENUM
C1	TITUS CT-581	SUPPLY	48" LONG	48"x2"	BAR	ALUMINUM	SURFACE	YES		PROVIDE SUPPLY PLENUM
C2	TITUS CT-581	SUPPLY	48" LONG	48"x2"	BAR	ALUMINUM	SURFACE	YES		PROVIDE SUPPLY PLENUM
C3	TITUS CT-581	SUPPLY	48" LONG	48"x4"	BAR	ALUMINUM	SURFACE	YES		PROVIDE SUPPLY PLENUM
D1	TITUS 300RL	SUPPLY	10"x10"	8"x8"	DBI DEFLECT	STEEL	SURFACE	YES		
D2	TITUS 300RL	SUPPLY	18"x12"	16"x10"	DBI DEFLECT	STEEL	SURFACE	YES		
J	TITUS 50F	RETURN	12"x12"	10"x10"	EGGCRATE	ALUMINUM	SURFACE	NO		
K	TITUS 50F	RETURN	24"x12"	22"x10"	EGGCRATE	ALUMINUM	LAYIN	NO		
L	TITUS 50F	RETURN	24"x24"	22"x22"	EGGCRATE	ALUMINUM	LAYIN	NO		
M	TITUS 350RL	RETURN	10"x10"	8"x8"	GRILLE	STEEL	SURFACE	NO		
N	TITUS 350RL	RETURN	18"x12"	16"x10"	GRILLE	STEEL	SURFACE	NO		
Q	TITUS 50F	EXHAUST	8"x8"	6"x6"	EGGCRATE	ALUMINUM	SURFACE	YES		
R	TITUS 50F	EXHAUST	10"x10"	8"x8"	EGGCRATE	ALUMINUM	SURFACE	YES		
S	TITUS 50F	EXHAUST	12"x12"	10"x10"	EGGCRATE	ALUMINUM	SURFACE	YES		
T	TITUS 50F	EXHAUST	14"x14"	12"x12"	EGGCRATE	ALUMINUM	SURFACE	YES		

FAN SCHEDULE										
MARK	MANUFACTURER & MODEL NO.	MAX CFM	EXT. S.P. IN. OF W.C.	FAN DATA						REMARKS
				TYPE	RPM	BHP	H.P.	VOLT	PHASE	
EF-1	COOK	300	0.50	INLINE	1312	0.144	1/6	115	1	PROVIDE DISCONNECT
EF-2	COOK 100ACEB	750	0.25	DOWNBLAST	1590	0.134	1/6	115	1	PROVIDE DISCONNECT
EF-3	COOK 120ACEB	1075	0.40	DOWNBLAST	1310	0.185	1/4	115	1	PROVIDE DISCONNECT
EF-4	COOK	17,460	0.50	UTILITY SET	982	7.110	7.5	460	3	GARAGE EXHAUST, REFER TO DRAWING MG-100
EF-5	COOK	17,460	0.50	UTILITY SET	982	7.119	7.5	460	3	GARAGE EXHAUST, REFER TO DRAWING MG-100

110	6157							
119	194							
120	208							
122	1276							
123	191							
124	1046							
125	99							
126	115							
127	100							
128	63							
129	63							
131	1125							
132	192							
133	56							
134	57	-	-	75 CFM	75	75	EF-1	MECHANICAL EXHAUST.
135	730	20	-	20	730	460	RTU-1	75 CFM PER PER PLUMBING FIXTURE. MECHANICAL EXHAUST.
143	874	50	-	15	262	262	RTU-1	DEMAND CONTROL VENTILATION VIA OCCUPANCY SENSOR.
200	609	-	7	15	105	175	RTU-2	
202	506	-	23	20	440	440	RTU-2	
203	368	143	-	20	51	215	RTU-2	
204	50	-	-	75 CFM	75	75	EF-2	75 CFM PER PER PLUMBING FIXTURE MECHANICAL EXHAUST.
205	203	143	-	20	28	280	RTU-2	
206	194	143	-	20	27	96	RTU-2	
207	191	143	-	20	27	75	RTU-2	
209	411	143	-	20	57	153	RTU-2	
212	56	-	-	75 CFM	75	75	EF-2	75 CFM PER PER PLUMBING FIXTURE/ MECHANICAL EXHAUST.
213	70	-	-	75 CFM	75	75	EF-2	75 CFM PER PER PLUMBING FIXTURE MECHANICAL EXHAUST.
214	79	-	-	75 CFM	75	75	EF-2	75 CFM PER PER PLUMBING FIXTURE MECHANICAL EXHAUST.
216	875	-	30	15	450	965	RTU-2	
217	136	50	-	15	41	145	RTU-2	
218	179	50	-	15	54	265	RTU-2	
219	201	-	-	225 CFM	225	225	EF-2	75 CFM PER PER PLUMBING FIXTURE MECHANICAL EXHAUST.
220	200	-	-	225 CFM	225	225	EF-2	75 CFM PER PER PLUMBING FIXTURE MECHANICAL EXHAUST.
223	517	-	5	15	75	405	RTU-2	
224	162	143	-	20	23	210	RTU-2	
226	927	-	25	15	375	810	RTU-2	
227	16633	-	181	15	2715	6785	RTU-2	
228	1161	-	12	15	180	715	RTU-2	
229	196	143	-	20	27	240	RTU-2	
231	1845	-	19	15	285	825	RTU-2	
232	190	143	-	20	27	240	RTU-2	
233	951	-	9	15	135	720	RTU-2	
234	127	50	-	15	38	38	RTU-2	
235	173	50	-	15	52	52	RTU-2	
236	176	50	-	15	53	205	RTU-2	
237	183	50	-	15	41	195	RTU-2	
238	531	50	-	15	159	500	RTU-2	
239	98	50	-	15	29	55	RTU-2	

* OCCUPANCY BASED ON 2006 INTERNATIONAL MECHANICAL CODE

* FOR ROOMS NOT LISTED IN 2006 INTERNATIONAL MECHANICAL CODE, THE VENTILATION AND OCCUPANCY IS PER ASHRAE STANDARD 62.2004 AND DRAWING G-010, RESPECTIVELY.



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SCALE

REFER TO BID SET FOR PREV. DWG HISTORY

6	04/08/09	DAP	CONSTRUCTION SET
5	01/09/08	DAP	BID AND PERMIT SET
No.	DATE	BY	Description

DRAWN BY

APPROVED BY _____

CHECKED BY _____

DATE _____

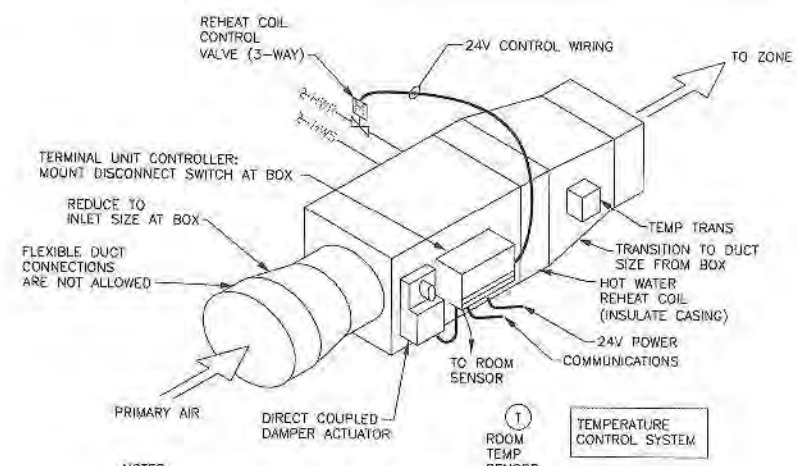
TITLE

MECHANICAL
SCHEDULES - 3

PROJECT NO. 50002241

M-403

SHEET NO.



NOTES:
1. SEE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
2. SEE DRAWING M-302 FOR HEATING DETAILS.
3. PROVIDE LINK(S) TO TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.

VARIABLE AIR VOLUME BOX (VAV) CONTROL SCHEMATIC

1 SINGLE DUCT, VAV TERMINAL BOX (VAV'S) SEQUENCE OF CONTROL

OPERATION:
UPON SENSING A ROOM TEMPERATURE ABOVE SETPOINT, THE ROOM SENSOR WILL SIGNAL THE TERMINAL UNIT CONTROLLER TO MODULATE THE PRIMARY AIR DAMPER OPEN TO MEET ROOM TEMP SETPOINT.

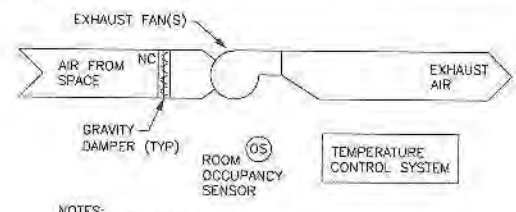
UPON INITIAL SENSING OF A ROOM TEMPERATURE BELOW SETPOINT, THE ROOM SENSOR WILL SIGNAL THE TERMINAL UNIT CONTROLLER TO MODULATE THE PRIMARY AIR DAMPER CLOSED TO MEET ROOM TEMPERATURE SETPOINT.

UPON A FURTHER CALL FOR HEAT, THE ROOM SENSOR WILL SIGNAL THE TERMINAL UNIT CONTROLLER TO OPEN THE PRIMARY AIR DAMPER TO HEATING POSITION AND MODULATE THE REHEAT COIL CONTROL VALVE OPEN TO MEET ROOM TEMPERATURE SETPOINT.

NIGHT SETBACK:
VAV BOXES WILL OPERATE TO MAINTAIN 80°F (ADJ) SPACE TEMPERATURE IN THE SUMMER AND 65°F (ADJ) IN THE WINTER.

TERMINAL UNIT CONTROLLER:
THE UNIT CONTROLLER SHALL BE PROVIDED BY THE TEMPERATURE CONTROLS CONTRACTOR AND FACTORY MOUNTED BY THE VAV BOX MANUFACTURER. 24V POWER SUPPLY, PROVIDE TRANSFORMER(S) WITHIN CONTROL PANEL(S) FOR 24V POWER AND CONTROLS. PROVIDE WITH LOCAL DISCONNECT SWITCH. COORDINATE ELECTRICAL REQUIREMENTS WITH ELECTRICAL TRADE.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.



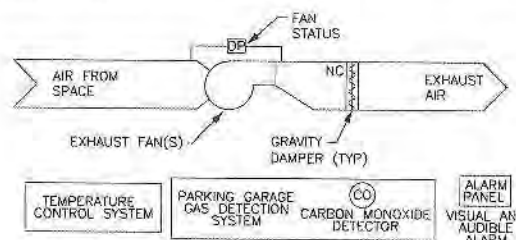
NOTES:
1. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.

EXHAUST FAN (EF-1, EF-2, AND EF-3) CONTROL SCHEMATIC

4 EXHAUST FAN (EF-1, EF-2, AND EF-3) SEQUENCE OF CONTROL

OPERATION:
FANS SHALL BE ACTIVATED BY THE SPACE OCCUPANCY SENSOR DURING NORMAL OPERATIONS. FANS SHALL HAVE OVERRIDE CAPABILITY TO BE ACTIVATED AND DEACTIVATED BY THE BUILDING MANAGEMENT SYSTEM AND HAVE TIME-AND-DAY SCHEDULING.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.



NOTES:
1. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.
2. REFER TO DIVISION 26 FOR PARKING GARAGE GAS DETECTION SYSTEM.

EXHAUST FAN (EF-4 AND EF-5) CONTROL SCHEMATIC

5 EXHAUST FAN (EF-4 AND EF-5) SEQUENCE OF CONTROL

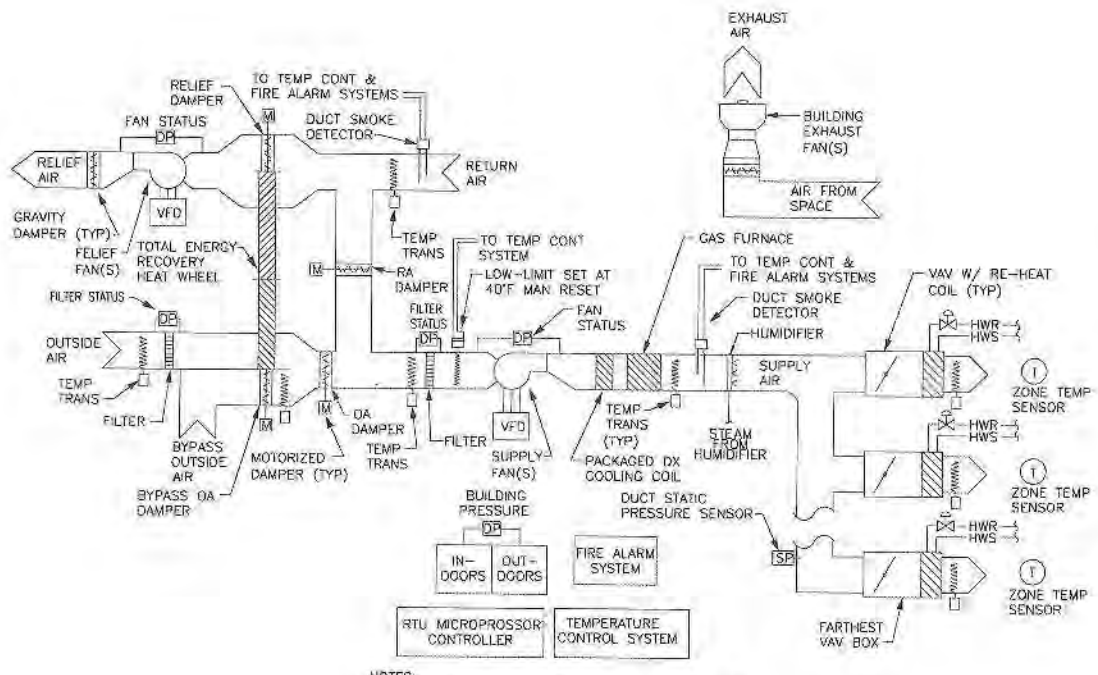
OPERATION:
CO PURGE MODE:
THE FANS SHALL BE OFF AND DAMPERS CLOSED WHEN THE PARKING GARAGE GAS DETECTION SYSTEM (REFER TO DIVISION 26 DRAWINGS AND SPECIFICATIONS) SENSES A CO LEVEL BELOW 25PPM (ADJ). WHEN THE PARKING GARAGE GAS DETECTION SYSTEM SENSES A CO LEVEL ABOVE 25PPM (ADJ), THE FANS SHALL COME ON AND DAMPERS SHALL OPEN. FANS SHALL DEACTIVATE AND DAMPERS SHALL CLOSE WHEN A CO LEVEL OF BELOW 10PPM (ADJ) IS REACHED.

MANUAL OVERRIDE:
A MANUAL OVERRIDE SWITCH LOCATED ON THE PARKING GARAGE GAS DETECTION SYSTEM PANEL SHALL HAVE THE CAPABILITY TO START THE EXHAUST FANS WHEN THE SWITCH IS IN THE "ON" POSITION. THE EXHAUST FANS SHALL START AND THE ASSOCIATED DAMPERS SHALL OPEN. WHEN THE SWITCH IS IN THE "AUTO" POSITION, THE FANS SHALL FUNCTION IN CO PURGE MODE.

NO AIRFLOW ALARM:
A MANUAL OVERRIDE SWITCH WITH LIGHT, HORN, AND ACKNOWLEDGE SWITCH, UPON SENSING NO AIRFLOW (EXHAUST FAN PRESSURE SENSOR) AND THE PARKING GARAGE GAS DETECTION SYSTEM SENSES A CO LEVEL ABOVE 25PPM (ADJ), VISUAL DEVICES SHALL ALARM IN THE GARAGE AND THE TEMPERATURE CONTROLS WORKSTATION SHALL ALARM. UPON A FURTHER RISE IN CO ABOVE 200PPM (ADJ), VISUAL DEVICES SHALL REMAIN ON AND AUDIBLE DEVICES SHALL ALARM IN THE GARAGE AND THE TEMPERATURE CONTROLS WORKSTATION. WHEN THE ACKNOWLEDGE SWITCH IS DEPRESSED THE AUDIBLE ALARM SHALL BE OFF AND THE VISUAL LIGHT SHALL REMAIN ON.

PARKING GARAGE GAS DETECTION SYSTEM:
REFER TO DIVISION 26 DRAWINGS AND SPECIFICATIONS FOR PARKING GARAGE GAS DETECTION SYSTEM. COORDINATE AUXILIARY CONTACTS AND DEVICES WITH THE PARKING GARAGE GAS DETECTION SYSTEM. IF ALARM AND CONTROL POINTS ARE NOT AVAILABLE, PROVIDE INSTRUMENTATION AND CONTROL.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.



NOTES:
1. PROVIDE LINK(S) TO TEMPERATURE CONTROLS, RTU MICROPROCESSOR CONTROLLER, AND FIRE ALARM SYSTEMS FOR ALARM, MONITORING, AND CONTROL.
2. REFER TO DRAWING M-502 FOR HUMIDIFIER (HU) CONTROLS.

VARIABLE AIR VOLUME ROOF TOP UNIT (RTU-1 & 2) CONTROL SCHEMATIC

2 VARIABLE AIR VOLUME ROOF TOP UNIT (RTU-1 AND RTU-2) SEQUENCE OF CONTROL

OPERATION:
OCCUPIED COOLING MODE (OAT > 55°F DB ADJ.):
THE SUPPLY FAN(S) OPERATE CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE (VSD) TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC (ADJ). DUCT STATIC PRESSURE SENSORS SHALL BE LOCATED APPROXIMATELY 2/3 THE DISTANCE TO THE FARTHEST POSITIVE BUILDING PRESSURE (+0.02 IN WC, ADJ) COMPARED TO OUTDOORS (FIELD COORDINATE SENSOR LOCATIONS). THE GAS FURNACE SHALL BE OFF. THE RETURN AIR DAMPER SHALL BE OPEN. THE OUTSIDE AIR DAMPER SHALL BE AT MINIMUM POSITION (SEE SCHEDULE ON DRAWING M-402). THE HEAT WHEEL SHALL BE ON. THE HEAT WHEEL RELIEF AIR AND BYPASS OUTSIDE AIR DAMPERS SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT (55°F MIN, ADJ). UPON A FURTHER CALL FOR COOLING THE REFRIGERANT SYSTEM SHALL OPERATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F DB ADJ). THE HUMIDIFIER SHALL OPERATE TO MAINTAIN SPACE HUMIDITY SETPOINT (REFER TO HUMIDIFIER CONTROLS ON DRAWING M-502). THE VAV BOX CONTROLS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (75°F DB ADJ, SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

ECONOMIZER MODE:
ECONOMIZER MODE WILL BE AVAILABLE AT ALL TIMES WHEN THE OUTDOOR AIR TEMPERATURE IS 54°F DB (ADJ) OR LESS. THE SUPPLY FAN(S) OPERATE CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC (ADJ). THE RELIEF AIR FAN(S) SHALL BE MODULATED BY A VSD TO MAINTAIN POSITIVE BUILDING PRESSURE (+0.02 IN WC, ADJ) COMPARED TO OUTDOORS. THE GAS FURNACE SHALL BE OFF. THE REFRIGERANT SYSTEM SHALL BE OFF. THE HEAT WHEEL SHALL BE OFF. THE RETURN AND OUTSIDE AIR DAMPERS WILL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F DB ADJ) & RESETTABLE BY THE TEMPERATURE CONTROLS SYSTEM. THE HEAT WHEEL BYPASS OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL BE OPEN TO ALLOW AIR TO BYPASS THE HEAT WHEEL. THE HUMIDIFIER SHALL OPERATE TO MAINTAIN SPACE HUMIDITY SETPOINT (REFER TO HUMIDIFIER CONTROLS ON DRAWING M-502). THE VAV BOX CONTROLS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (72°F DB ADJ, SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

OCCUPIED HEATING MODE (OAT < 55°F DB ADJ.):
THE SUPPLY FAN(S) OPERATE CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC (ADJ). THE RELIEF AIR FAN(S) SHALL BE MODULATED BY A VSD TO MAINTAIN POSITIVE BUILDING PRESSURE (+0.02 IN WC, ADJ) COMPARED TO OUTDOORS. THE OUTSIDE AIR DAMPER SHALL BE AT MINIMUM POSITION (SEE SCHEDULE ON DRAWING M-401). THE REFRIGERANT SYSTEM SHALL BE OFF. THE HEAT WHEEL SHALL BE ON. THE RETURN AIR DAMPER SHALL BE OPEN. THE HEAT WHEEL RELIEF AIR AND BYPASS OUTSIDE AIR DAMPERS SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT (55°F, ADJUSTABLE AND RESETTABLE BASED ON THE ZONE WITH THE MINIMUM HEATING LOAD). UPON A FURTHER CALL FOR HEATING THE GAS FURNACE SHALL OPERATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F, ADJUSTABLE AND RESETTABLE BASED ON THE ZONE WITH THE MINIMUM HEATING LOAD). THE ZONE WITH THE MINIMUM HEATING LOAD SHALL HAVE THE HIGHEST ZONE TEMPERATURE AND LEAST OPEN RE-HEAT COIL CONTROL VALVE. THE HUMIDIFIER SHALL OPERATE TO MAINTAIN SPACE HUMIDITY SETPOINT (REFER TO HUMIDIFIER CONTROLS ON DRAWING M-502). THE VAV BOX CONTROLS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (70°F DB ADJ, SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

NIGHT SETBACK:
THE SUPPLY FAN(S) OPERATE CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC. THE RELIEF FAN(S) SHALL BE OFF. THE RELIEF AIR DAMPER SHALL BE CLOSED. THE RETURN AIR DAMPER SHALL BE FULLY OPEN. THE OUTSIDE AIR AND BYPASS OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED. THE HEAT WHEEL SHALL BE OFF. THE REFRIGERANT SYSTEM (SUMMER) OR GAS FURNACE (WINTER) SHALL OPERATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F DB ADJ). THE VAV BOXES WILL OPERATE TO MAINTAIN THE NIGHT SET BACK TEMPERATURE (SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

UNIT SHUTDOWN:
THE SUPPLY FAN(S) SHALL STOP. THE RELIEF FAN(S) SHALL STOP. THE REFRIGERANT SYSTEM SHALL BE OFF. THE GAS FURNACE SHALL BE OFF. THE HEAT WHEEL SHALL BE STOP. THE RETURN AIR DAMPER SHALL OPEN. THE OUTSIDE, BYPASS OUTSIDE, AND RELIEF AIR DAMPERS SHALL CLOSE. THE HUMIDIFIER SHALL BE OFF (REFER TO HUMIDIFIER CONTROLS ON DRAWING M-502).

LOW LIMIT:
UPON SENSING AN AIR TEMPERATURE BELOW 40°F DB (ADJ) A MANUAL RESET LOW LIMIT SENSOR WILL SIGNAL UNIT SHUTDOWN MODE AND ALARM THE BUILDING MANAGEMENT SYSTEM.

SMOKE ALARM:
WHEN THE DUCT SMOKE DETECTOR(S) ALARM, THE AIR HANDLING UNIT SHALL GO INTO UNIT SHUTDOWN MODE. ALL OTHER MODES OF CONTROL SHALL BE LOCKED OUT. SMOKE DETECTORS PROVIDED BY DIVISION 26 AND INSTALLED BY DIVISION 23.

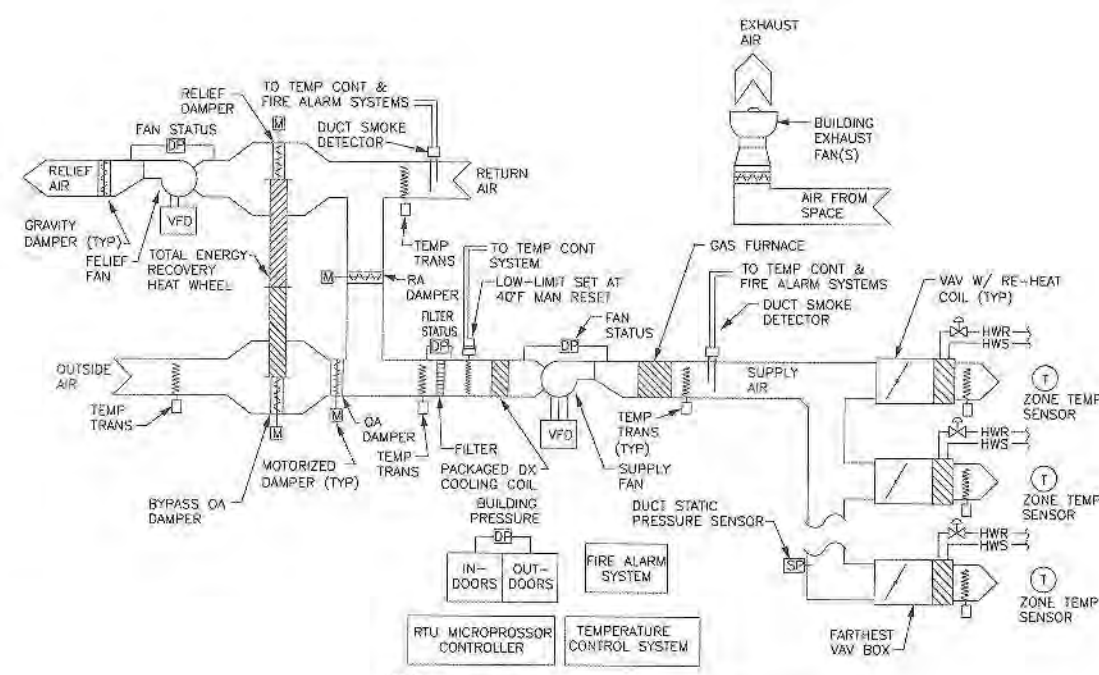
HIGH STATIC ALARM:
WHEN STATIC PRESSURE HIGH LIMIT SENSES 5.0 IN WC, SIGNAL UNIT SHUTDOWN MODE AND ALARM THE BUILDING MANAGEMENT SYSTEM.

FAN STATUS ALARM:
UPON NO AIR FLOW STATUS (FAN PRESSURE SENSORS), SIGNAL UNIT SHUTDOWN AND ALARM THE BUILDING MANAGEMENT SYSTEM.

FILTER DP:
FILTER DP TO BE VISUAL ONLY.

RTU MICROPROCESSOR CONTROLLER:
PROVIDE AUXILIARY CONTACTS TO PASS ALARM, MONITORING, AND CONTROL POINTS FROM THE RTU MICROPROCESSOR CONTROLLER TO THE BAS AND FIRE ALARM SYSTEMS. IF POINTS ARE NOT AVAILABLE, PROVIDE INSTRUMENTATION AND CONTROL.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.



NOTES:
1. PROVIDE LINK(S) TO TEMPERATURE CONTROLS, RTU MICROPROCESSOR CONTROLLER, AND FIRE ALARM SYSTEMS FOR ALARM, MONITORING, AND CONTROL.

VARIABLE AIR VOLUME ROOF TOP UNIT (RTU-3) CONTROL SCHEMATIC

3 VARIABLE AIR VOLUME ROOF TOP UNIT (RTU-1 AND RTU-2) SEQUENCE OF CONTROL

OPERATION:
OCCUPIED COOLING MODE (OAT > 55°F DB ADJ.):
THE SUPPLY FAN OPERATES CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE (VSD) TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC (ADJ). DUCT STATIC PRESSURE SENSORS SHALL BE LOCATED APPROXIMATELY 2/3 THE DISTANCE TO THE FARTHEST POSITIVE BUILDING PRESSURE (+0.02 IN WC, ADJ) COMPARED TO OUTDOORS (FIELD COORDINATE SENSOR LOCATIONS). THE GAS FURNACE SHALL BE OFF. THE RETURN AIR DAMPER SHALL BE OPEN. THE OUTSIDE AIR DAMPER SHALL BE AT MINIMUM POSITION (SEE SCHEDULE ON DRAWING M-402). THE HEAT WHEEL SHALL BE ON. THE HEAT WHEEL RELIEF AIR AND BYPASS OUTSIDE AIR DAMPERS SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT (55°F MIN, ADJ). UPON A FURTHER CALL FOR COOLING THE REFRIGERANT SYSTEM SHALL OPERATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F DB ADJ). THE VAV BOX CONTROLS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (75°F DB ADJ, SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

ECONOMIZER MODE:
ECONOMIZER MODE WILL BE AVAILABLE AT ALL TIMES WHEN THE OUTDOOR AIR TEMPERATURE IS 54°F DB (ADJ) OR LESS. THE SUPPLY FAN OPERATES CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC (ADJ). THE RELIEF AIR FAN SHALL BE MODULATED BY A VSD TO MAINTAIN POSITIVE BUILDING PRESSURE (+0.02 IN WC, ADJ) COMPARED TO OUTDOORS. THE OUTSIDE AIR DAMPER SHALL BE AT MINIMUM POSITION (SEE SCHEDULE ON DRAWING M-401). THE REFRIGERANT SYSTEM SHALL BE OFF. THE HEAT WHEEL SHALL BE OFF. THE RETURN AND OUTSIDE AIR DAMPERS WILL MODULATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F DB ADJ) & RESETTABLE BY THE TEMPERATURE CONTROLS SYSTEM. THE HEAT WHEEL BYPASS OUTSIDE AIR DAMPER AND RELIEF AIR DAMPER SHALL BE OPEN TO ALLOW AIR TO BYPASS THE HEAT WHEEL. THE VAV BOX CONTROLS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (72°F DB ADJ, SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

OCCUPIED HEATING MODE (OAT < 55°F DB ADJ.):
THE SUPPLY FAN OPERATES CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC (ADJ). THE RELIEF AIR FAN SHALL BE MODULATED BY A VSD TO MAINTAIN POSITIVE BUILDING PRESSURE (+0.02 IN WC, ADJ) COMPARED TO OUTDOORS. THE OUTSIDE AIR DAMPER SHALL BE AT MINIMUM POSITION (SEE SCHEDULE ON DRAWING M-401). THE REFRIGERANT SYSTEM SHALL BE OFF. THE HEAT WHEEL SHALL BE ON. THE RETURN AIR DAMPER SHALL BE OPEN. THE HEAT WHEEL RELIEF AIR AND BYPASS OUTSIDE AIR DAMPERS SHALL MODULATE TO MAINTAIN THE SUPPLY AIR TEMPERATURE SETPOINT (55°F, ADJUSTABLE AND RESETTABLE BASED ON THE ZONE WITH THE MINIMUM HEATING LOAD). UPON A FURTHER CALL FOR HEATING THE GAS FURNACE SHALL OPERATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F, ADJUSTABLE AND RESETTABLE BASED ON THE ZONE WITH THE MINIMUM HEATING LOAD). THE ZONE WITH THE MINIMUM HEATING LOAD SHALL HAVE THE HIGHEST ZONE TEMPERATURE AND LEAST OPEN RE-HEAT COIL CONTROL VALVE. THE VAV BOX CONTROLS SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE SETPOINT (70°F DB ADJ, SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

NIGHT SETBACK:
THE SUPPLY FAN OPERATES CONTINUOUSLY AND SHALL BE MODULATED BY A VARIABLE SPEED DRIVE TO MAINTAIN THE DUCT STATIC PRESSURES AT 1.5 IN WC. THE RELIEF FAN SHALL BE OFF. THE RELIEF AIR DAMPER SHALL BE CLOSED. THE RETURN AIR DAMPER SHALL BE FULLY OPEN. THE OUTSIDE AIR AND BYPASS OUTSIDE AIR DAMPERS SHALL BE FULLY CLOSED. THE HEAT WHEEL SHALL BE OFF. THE REFRIGERANT SYSTEM (SUMMER) OR GAS FURNACE (WINTER) SHALL OPERATE TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT (55°F DB ADJ). THE VAV BOXES WILL OPERATE TO MAINTAIN THE NIGHT SET BACK TEMPERATURE (SEE VAV BOX CONTROL SEQUENCE THIS DRAWING).

UNIT SHUTDOWN:
THE SUPPLY FAN SHALL STOP. THE RELIEF FAN SHALL STOP. THE REFRIGERANT SYSTEM SHALL BE OFF. THE GAS FURNACE SHALL BE OFF. THE HEAT WHEEL SHALL BE STOP. THE RETURN AIR DAMPER SHALL OPEN. THE OUTSIDE, BYPASS OUTSIDE, AND RELIEF AIR DAMPERS SHALL CLOSE.

LOW LIMIT:
UPON SENSING AN AIR TEMPERATURE BELOW 40°F DB (ADJ) A MANUAL RESET LOW LIMIT SENSOR WILL SIGNAL UNIT SHUTDOWN MODE AND ALARM THE BUILDING MANAGEMENT SYSTEM.

SMOKE ALARM:
WHEN THE DUCT SMOKE DETECTOR(S) ALARM, THE AIR HANDLING UNIT SHALL GO INTO UNIT SHUTDOWN MODE. ALL OTHER MODES OF CONTROL SHALL BE LOCKED OUT. SMOKE DETECTORS PROVIDED BY DIVISION 26 AND INSTALLED BY DIVISION 23.

HIGH STATIC ALARM:
WHEN STATIC PRESSURE HIGH LIMIT SENSES 5.0 IN WC, SIGNAL UNIT SHUTDOWN MODE AND ALARM THE BUILDING MANAGEMENT SYSTEM.

FAN STATUS ALARM:
UPON NO AIR FLOW STATUS (FAN PRESSURE SENSORS), SIGNAL UNIT SHUTDOWN AND ALARM THE BUILDING MANAGEMENT SYSTEM.

FILTER DP:
FILTER DP TO BE VISUAL ONLY.

RTU MICROPROCESSOR CONTROLLER:
PROVIDE AUXILIARY CONTACTS TO PASS ALARM, MONITORING, AND CONTROL POINTS FROM THE RTU MICROPROCESSOR CONTROLLER TO THE BAS AND FIRE ALARM SYSTEMS. IF POINTS ARE NOT AVAILABLE, PROVIDE INSTRUMENTATION AND CONTROL.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.

REFER TO BID SET FOR PREV. DWG HISTORY

NO.	DATE	BY	DESCRIPTION
6	04/06/09	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

NO.	DATE	BY	DESCRIPTION
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DRAWN BY: LEW
APPROVED BY: TJK
CHECKED BY: ECB
DATE: 01/09/2009

MECHANICAL INSTRUMENTATION AND CONTROL - 1

PROJECT NO. 50002241

F

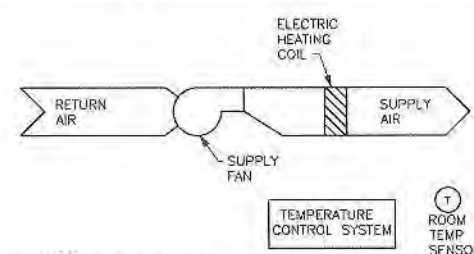
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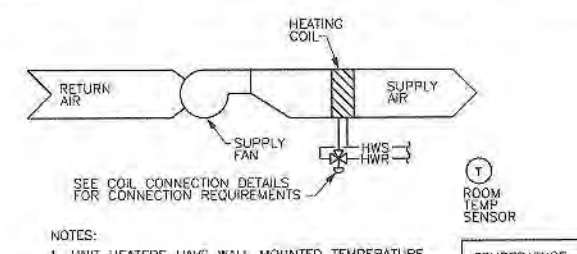


NOTES:
1. ELECTRIC UNIT HEATERS HAVE WALL MOUNTED TEMPERATURE SENSORS.
2. SEE PLAN DRAWINGS LOCATIONS.
3. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.

1 ELECTRIC UNIT HEATER (EUH'S) SEQUENCE OF CONTROL

ELECTRIC UNIT HEATER (EUH'S) SEQUENCE OF OPERATIONS

OPERATION:
COOLING MODE:
THE SUPPLY FAN AND ELECTRIC HEATING COIL SHALL BE OFF.
HEATING MODE:
THE SUPPLY FAN SHALL CYCLE AND THE ELECTRIC HEATER SHALL OPERATE TO MAINTAIN A SPACE TEMPERATURE OF 65°F (ADJ).
UNIT SHUTDOWN:
THE SUPPLY FAN SHALL STOP AND THE ELECTRIC HEATER SHALL BE OFF.
WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.

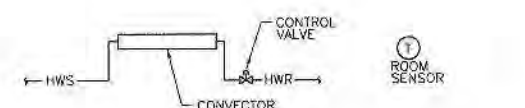


NOTES:
1. UNIT HEATERS HAVE WALL MOUNTED TEMPERATURE SENSORS.
2. SEE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
3. SEE DRAWING M-502 FOR HEATING DETAILS.
4. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.

2 SUSPENDED UNIT HEATER (HUH'S) SEQUENCE OF CONTROL

SUSPENDED UNIT HEATER (HUH'S) SEQUENCE OF OPERATIONS

OPERATION:
COOLING MODE:
THE SUPPLY FAN SHALL BE OFF AND THE HEATING WATER VALVE SHALL BE CLOSED.
HEATING MODE:
THE SUPPLY FAN SHALL CYCLE AND THE HEATING WATER VALVE SHALL OPEN TO MAINTAIN A SPACE TEMPERATURE OF 65°F (ADJ).
UNIT SHUTDOWN:
THE SUPPLY FAN SHALL STOP AND HEATING WATER VALVE SHALL CLOSE.
WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.

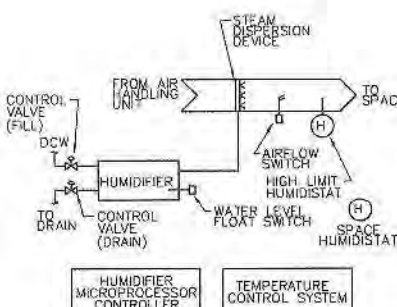


NOTES:
1. FIN TUBE CONVACTORS HAVE WALL MOUNTED TEMPERATURE SENSORS.
2. SEE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
3. SEE DRAWING M-502 FOR HEATING DETAILS.
4. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.

4 FIN TUBE CONVACTOR (FTC'S) SEQUENCE OF CONTROL

FIN TUBE CONVACTOR (FTC'S) SEQUENCE OF OPERATIONS

COOLING MODE:
THE CONTROL VALVE SHALL BE CLOSED.
HEATING MODE:
THE CONTROL VALVE SHALL MODULATE TO MAINTAIN SPACE TEMPERATURE OF 70°F (ADJ).
WIRING:
THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.



NOTES:
1. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR ALARM, MONITORING, AND CONTROL. COORDINATE REQUIREMENTS WITH HUMIDIFIER MICROPROCESSOR CONTROLLER.

6 GAS STEAM HUMIDIFIER (H-1 AND H-2) SEQUENCE OF CONTROL

GAS STEAM HUMIDIFIER (H-1 AND H-2) SEQUENCE OF CONTROL (ADD ALTERNATE BID M1)

OCCUPIED MODE:
AFTER AIRFLOW IS PROVEN, THE HUMIDIFIER MICROPROCESSOR CONTROLLER SHALL OPERATE THE HUMIDIFIER AND ASSOCIATED DEVICES TO MAINTAIN HUMIDITY SETPOINT. REFER TO PLAN DRAWINGS FOR SENSOR LOCATION. SETPOINT SHALL BE A STRAIT-LINE RELATIONSHIP BETWEEN THE FOLLOWING CONDITIONS:
A. 20% RH (ADJ) WHEN OUTDOOR AIR TEMPERATURE IS -10°F.
B. 40% RH (ADJ) WHEN OUTDOOR AIR TEMPERATURE IS 95°F.

CONTROLLER SHALL OPERATE THE FILL CONTROL VALVE TO MAINTAIN WATER LEVEL AS SENSED BY THE FLOAT SWITCH.

CONTROLLER SHALL OPERATE THE DRAIN CONTROL VALVE TO DRAIN THE HUMIDIFIER. THE INTERNAL DRAIN WATER COOLER SHALL TEMPER WATER TO BELOW 140°F BEFORE DRAINING. HUMIDIFIER SHALL DRAIN IF NOT OPERATIONAL FOR MORE THAN 72 HOURS.

UNOCCUPIED MODE:
HUMIDIFIER MICROPROCESSOR CONTROLLER SHALL OPERATE THE HUMIDIFIER TO MAINTAIN HUMIDITY SETPOINT. SETPOINT SHALL BE 20% RH (ADJ) FOR ALL UNOCCUPIED MODES. ALL OTHER MODES OF OPERATION SHALL BE THE SAME.

UNIT SHUTDOWN:
HUMIDIFIER MICROPROCESSOR CONTROLLER SHALL SHUTDOWN THE HUMIDIFIER WHEN SIGNALLED.

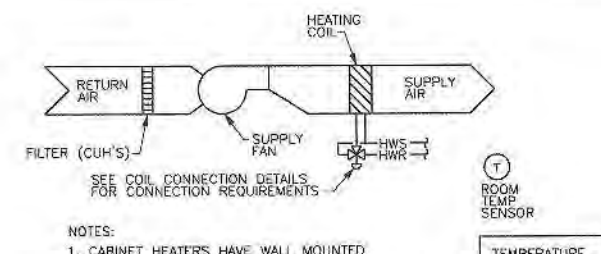
ALARMS:
THE HUMIDIFIER SHALL HAVE THE FOLLOWING ALARMS:

- WATER LEVEL FAULT.
- DRAIN PUMP FAULT.
- HIGH LIMIT (80% RH, ADJ).
- AIR FLOW PROOF.
- GAS IGNITION FAULT.

THE MICROPROCESSOR CONTROLLER AND CENTRAL BAS WORKSTATION SHALL ALARM. THE HUMIDIFIER SHALL SHUTDOWN PER "UNIT SHUTDOWN" ABOVE.

COORDINATION:
COORDINATE INSTRUMENTATION AND CONTROLS PROVIDED BY THE HUMIDIFIER MANUFACTURER. IF NOT PROVIDED BY THE MANUFACTURER, PROVIDE INSTRUMENTATION AND CONTROLS.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION-26 SPECIFICATIONS.

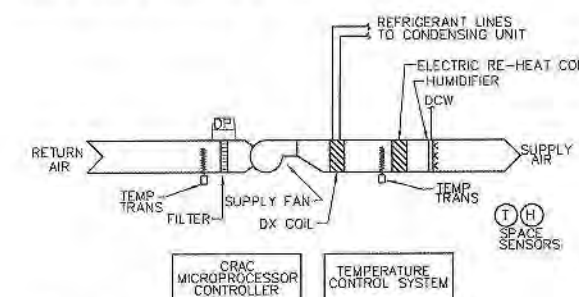


NOTES:
1. CABINET HEATERS HAVE WALL MOUNTED TEMPERATURE SENSORS.
2. SEE PLAN DRAWINGS FOR PIPE SIZES AND ROUTING.
3. SEE DRAWING M-502 FOR HEATING DETAILS.
4. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR MONITORING AND CONTROL.

3 CABINET UNIT HEATER (CUH'S) SEQUENCE OF CONTROL

CABINET UNIT HEATER (CUH'S) SEQUENCE OF OPERATIONS

OPERATION:
COOLING MODE:
THE SUPPLY FAN SHALL BE OFF AND THE HEATING WATER VALVE SHALL BE CLOSED.
HEATING MODE:
THE SUPPLY FAN SHALL CYCLE AND THE HEATING WATER VALVE SHALL OPEN TO MAINTAIN A SPACE TEMPERATURE OF 65°F (ADJ).
UNIT SHUTDOWN:
THE SUPPLY FAN SHALL STOP AND HEATING WATER VALVE SHALL CLOSE.
WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.



NOTES:
1. PROVIDE LINK(S) TO THE TEMPERATURE CONTROLS SYSTEM FOR ALARM, MONITORING, AND CONTROL. COORDINATE REQUIREMENTS WITH CRAC MICROPROCESSOR CONTROLLER.

5 COMPUTER ROOM UNITS (CRAC'S) SEQUENCE OF CONTROL

COMPUTER ROOM UNITS (CRAC'S) SEQUENCE OF CONTROL

OCCUPIED MODE:
THE CRAC MICROPROCESSOR CONTROLLER SHALL SIGNAL THE SUPPLY FAN TO RUN CONTINUOUSLY AND THE CONDENSING UNIT, DX COIL, ELECTRIC RE-HEAT COIL, AND HUMIDIFIER TO MAINTAIN A SPACE TEMPERATURE OF 72°F DB. (ADJ) AND A SPACE RELATIVE HUMIDITY OF 50% (ADJ).

ALARMS:
HIGH SPACE TEMPERATURE - UPON SENSING A SPACE TEMPERATURE ABOVE 80°F (ADJ), ALARM THE BUILDING MANAGEMENT SYSTEM.

WIRING:
PROVIDE ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL. WIRING SHALL CONFORM TO DIVISION-26 SPECIFICATIONS.



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KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY			
6	04/06/09	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET
No.	DATE	BY	Description
REVISIONS			

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**MECHANICAL
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AND CONTROL - 2**

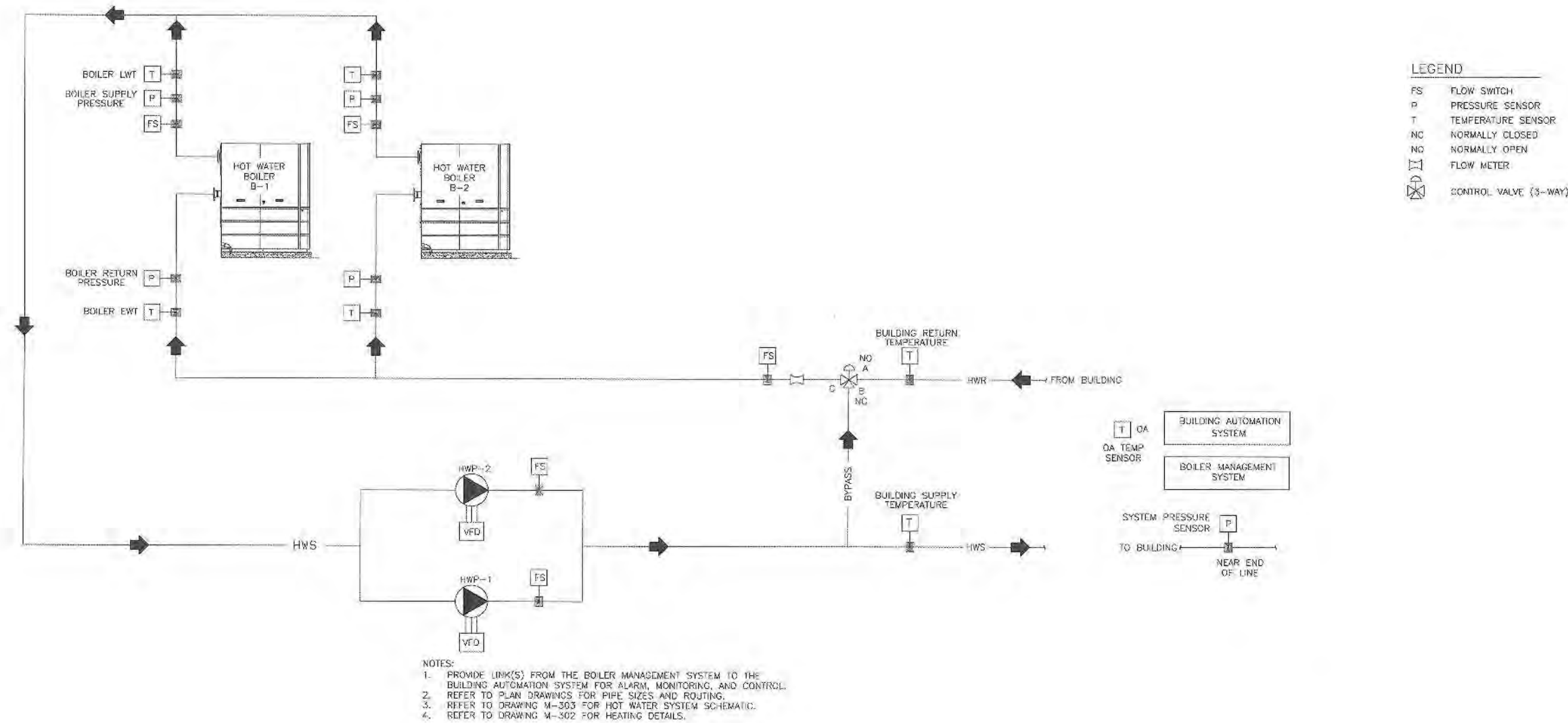
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HEATING HOT WATER CONTROL SCHEMATIC

HEATING HOT WATER SEQUENCE OF CONTROL

INITIAL START UP:
WHEN SIGNALLED FROM THE BOILER MANAGEMENT/BUILDING AUTOMATION SYSTEM, THE HOT WATER SYSTEM SHALL BE ENABLED. UPON START-UP, THE SYSTEM SHALL FOLLOW THE SEQUENCE AS DESCRIBED BELOW:
1. THE LEAD HOT WATER PUMP SHALL START AND INCREASE VFD SPEED TO MEET SYSTEM PRESSURE SETPOINT.
2. AFTER SYSTEM PRESSURE SETPOINT IS REACHED, AFTER MINIMUM FLOW IS VERIFIED VIA THE FLOWMETER, AND AFTER A SET TIME PERIOD (5MIN, ADJ) THE MODULAR BOILER SYSTEM SHALL BE ENERGIZED.

OPERATION:
MODULAR BOILER SYSTEM:
THE MODULAR BOILER SYSTEM SHALL BE AVAILABLE AT ALL TIMES AND OPERATE CONTINUOUSLY TO MAINTAIN HOT WATER SUPPLY TEMPERATURE AS SENSED BY THE TEMPERATURE SENSOR IN THE HOT WATER SUPPLY PIPE. HOT WATER SUPPLY TEMPERATURE SHALL BE ADJUSTABLE AND RESETTABLE BASED ON THE FOLLOWING SCHEDULE:

OUTDOOR AIR TEMPERATURE	HOT WATER SUPPLY TEMPERATURE
90 F	90 F (ADJ)
BELOW 32 F	180 F (ADJ)

THE BOILERS SHALL STAGE ON AS SIGNALLED BY THE BOILER MANAGEMENT/BUILDING AUTOMATION SYSTEM TO OPTIMIZE SYSTEM PERFORMANCE, EFFICIENCY, AND TO SATISFY THE BUILDING LOAD. IN THE EVENT OF A BOILER FAILURE, THE REMAINING BOILER SHALL PROVIDE THE REQUIRED CAPACITY AS POSSIBLE.

MINIMUM FLOW:
THE HOT WATER MIXING VALVE (FAL OPEN TO THE HEATING LOOP) SHALL MODULATE TO ALLOW WATER TO BYPASS THE SYSTEM COILS AND MAINTAIN A MINIMUM FLOW RATE OF 50 GPM (ADJ), THROUGH THE BOILERS, AS SENSED BY THE FLOW METER. THE FLOW METER SHALL BE LOCATED AS SHOWN ON THE SCHEMATICS.

HOT WATER PUMPS:
VARIABLE SPEED LEAD HOT WATER PUMP (HWP-1) SHALL BE STARTED AS DESCRIBED ABOVE. PUMP VFD SHALL VARY PUMP SPEED TO MAINTAIN A MINIMUM SYSTEM PRESSURE OF 30 PSIG (ADJ) AS SENSED BY THE SYSTEM PRESSURE SENSOR. THE SYSTEM PRESSURE SHALL BE LOCATED AS SHOWN ON THE PLAN DRAWINGS (M-122A). IN THE EVENT OF LEAD PUMP FAILURE (NO FLOW), THE STANDBY PUMP (HWP-2) SHALL START. TIME OF DAY SCHEDULING SHALL ALTERNATE LEAD/STANDBY PUMPS ON A MONTHLY BASIS (ADJ). PROVIDE A MANUAL OVERRIDE FOR STARTING PUMPS INDEPENDENTLY OF THE BUILDING AUTOMATION SYSTEM.

SYSTEM SHUTDOWN:
WHEN SIGNALLED FROM THE BOILER MANAGEMENT/BUILDING AUTOMATION SYSTEM, THE HOT WATER SYSTEM SHALL SHUT DOWN AS FOLLOWS:
1. THE MODULAR BOILER SYSTEM SHALL SHUT DOWN.
2. THE LEAD HOT WATER PUMP SHALL STOP AFTER A SET TIME PERIOD (5MIN, ADJ).
3. THE HOT WATER MIXING VALVE SHALL BE OPEN TO THE SYSTEM HEATING COILS.

ALARMS:
IN ADDITION TO ALL BOILER FACTORY ALARMS AS DESCRIBED IN THE SPECIFICATIONS, THE BUILDING AUTOMATION SYSTEM SHALL ALARM WHEN THE HOT WATER SYSTEM EXPERIENCES THE FOLLOWING:
1. PUMP FAILURE - NO FLOW (FLOW SWITCH).
2. BOILER FAILURE - FACTORY ALARMS (BOILER MANAGEMENT SYSTEM), NO FLOW (FLOW SWITCH), HIGH TEMP (TEMP SENSOR), HIGH PRESSURE (PRESSURE SENSOR).
3. EXTENDED HIGH/LOW SYSTEM HOT WATER SUPPLY TEMPERATURES - ABOVE 200°F OR BELOW 80°F FOR 30 MINUTES (ADJ, HWS TEMP SENSOR).
4. HIGH SYSTEM PRESSURE - ABOVE 100 PSIG (ADJ, SYSTEM PRESSURE SENSOR).
5. LOW FLOW - BELOW 50 GPM (ADJ, FLOW METER).

AUXILIARY CONTACTS SHALL BE PROVIDED TO PASS ALL BOILER CONTROL PANEL ALARMS TO THE BAS. ALARMS SHALL BE VISIBLE AND AUDIBLE WITHIN THE MECHANICAL ROOM AND THE MAIN GAS WORKSTATION.

WIRING:
THIS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRING TO IMPLEMENT THE SEQUENCE OF CONTROL AND TO INTEGRATE THE BOILER MANAGEMENT SYSTEM WITH THE BUILDING AUTOMATION SYSTEM. ALL WIRING SHALL CONFORM TO DIVISION 26 SPECIFICATIONS.

HEATING HOT WATER POINT LIST

POINT NAME	AI	AO	BI	BO	AV	BV	SCHED/TREND	ALARM	SHOW ON GRAPHIC	REMARKS
HEATING WATER BUILDING SUPPLY PRESSURE	X							X	X	
HEATING WATER BUILDING SUPPLY PRESSURE SETPOINT		X						X	X	
HEATING WATER BUILDING SUPPLY PRESSURE HIGH						X		X	X	100 PSIG
HEATING WATER BUILDING SUPPLY TEMPERATURE	X							X	X	
HEATING WATER BUILDING SUPPLY TEMPERATURE SETPOINT		X						X	X	
HEATING WATER BUILDING SUPPLY TEMPERATURE HIGH						X		X	X	> 200 °F & > 30 MIN.
HEATING WATER BUILDING SUPPLY TEMPERATURE LOW						X		X	X	< 80 °F & > 30 MIN.
HEATING WATER BUILDING RETURN TEMPERATURE	X							X	X	
HEATING WATER BUILDING RETURN FLOW SWITCH			X					X	X	
HEATING WATER BUILDING RETURN FLOW RATE	X							X	X	
HEATING WATER BUILDING RETURN FLOW RATE LOW ALARM						X		X	X	< 50 GPM
HEATING WATER PUMP 1 VFD SPEED		X						X	X	
HEATING WATER PUMP 2 VFD SPEED		X						X	X	
HEATING WATER PUMP 1 VFD FAULT			X					X	X	
HEATING WATER PUMP 2 VFD FAULT			X					X	X	
HEATING WATER PUMP 1 FLOW SWITCH			X					X	X	PUMP STATUS
HEATING WATER PUMP 2 FLOW SWITCH			X					X	X	PUMP STATUS
HEATING WATER PUMP 1 SCHEDULING				X			X		X	LEADLAG
HEATING WATER PUMP 2 SCHEDULING				X			X		X	LEADLAG
CONTROL VALVE POSITION		X							X	
OUTSIDE AIR TEMP	X							X	X	TO BOILER CNTL SYS
BOILER STATUS (TYP 2)			X					X	X	ON/OFF
BOILER SCHEDULING (TYP 2)				X				X	X	LEADLAG
BOILER 1 RETURN PRESSURE	X							X	X	SEE NOTE 1
BOILER 1 SUPPLY PRESSURE	X							X	X	SEE NOTE 1
BOILER 1 RETURN TEMPERATURE	X							X	X	SEE NOTE 1
BOILER 1 SUPPLY TEMPERATURE	X							X	X	SEE NOTE 1
BOILER 1 FLOW SWITCH			X					X	X	SEE NOTE 1
BOILER 1 ALARM			X					X	X	SEE NOTE 1
BOILER 1 HIGH TEMPERATURE ALARM			X					X	X	SEE NOTE 1
BOILER 1 HIGH PRESSURE ALARM			X					X	X	SEE NOTE 1
BOILER 2 RETURN PRESSURE	X							X	X	SEE NOTE 1
BOILER 2 SUPPLY PRESSURE	X							X	X	SEE NOTE 1
BOILER 2 RETURN TEMPERATURE	X							X	X	SEE NOTE 1
BOILER 2 SUPPLY TEMPERATURE	X							X	X	SEE NOTE 1
BOILER 2 FLOW SWITCH			X					X	X	SEE NOTE 1
BOILER 2 ALARM			X					X	X	SEE NOTE 1
BOILER 2 HIGH TEMPERATURE ALARM			X					X	X	SEE NOTE 1
BOILER 2 HIGH PRESSURE ALARM			X					X	X	SEE NOTE 1
TOTALS	13	5	13	4	0	4	4	17	19	39
TOTAL HARDWARE	35									
TOTAL SOFTWARE								44		

1. POINT CAN BE PROVIDED FROM BOILER MANAGEMENT SYSTEM.
PROVIDE INSTRUMENTATION AND CONTROL IF POINT IS NOT AVAILABLE FROM BOILER MANAGEMENT SYSTEM.

SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY

No.	DATE	BY	Description
6	04/08/09	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET

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MECHANICAL
INSTRUMENTATION
AND CONTROL - 3

PROJECT NO. 50002241

M-503

SHEET NO.

SYMBOLS AND ABBREVIATIONS (NOT ALL USED)

LIGHTING:

ALL FIXTURE TYPES AS NOTED ON DRAWINGS
2X4 FLUORESCENT CEILING LIGHT FIXTURE
1X4 FLUORESCENT CEILING LIGHT FIXTURE
1X3 FLUORESCENT CEILING LIGHT FIXTURE
2X2 FLUORESCENT CEILING LIGHT FIXTURE
1X2 FLUORESCENT CEILING LIGHT FIXTURE
1X8 FLUORESCENT CEILING LIGHT FIXTURE
2X4 FLUORESCENT PENDANT LIGHT FIXTURE
1X4 FLUORESCENT PENDANT LIGHT FIXTURE
1X3 FLUORESCENT PENDANT LIGHT FIXTURE
2X2 FLUORESCENT PENDANT LIGHT FIXTURE
1X2 FLUORESCENT PENDANT LIGHT FIXTURE
1X8 FLUORESCENT PENDANT LIGHT FIXTURE
1X4 FLUORESCENT WALL LIGHT FIXTURE
1X3 FLUORESCENT WALL LIGHT FIXTURE
1X2 FLUORESCENT WALL LIGHT FIXTURE
1X8 FLUORESCENT WALL LIGHT FIXTURE
FLUORESCENT FIXTURE WITH EMERGENCY BATTERY BACK-UP NL = NIGHT LIGHT (24 HOUR OPERATION)
2X4 FLUORESCENT CEILING DIRECT/INDIRECT FIXTURE
2X2 FLUORESCENT CEILING DIRECT/INDIRECT FIXTURE
1X4 FLUORESCENT CEILING DIRECT/INDIRECT FIXTURE
STRIP FLUORESCENT LIGHT FIXTURE WITH 1 LAMP
STRIP FLUORESCENT LIGHT FIXTURE WITH 2 LAMPS
STRIP FLUORESCENT LIGHT FIXTURE WITH 3 LAMPS
WALL SCONCE
EMERGENCY WALL SCONCE
STEP LIGHT
CEILING MOUNTED LIGHT FIXTURE
PENDANT MOUNTED LIGHT FIXTURE
CEILING MOUNTED EMERGENCY LIGHT FIXTURE
CEILING MOUNTED LIGHT FIXTURE
CEILING MOUNTED WALL WASHER
WALL MOUNTED BRACKET FIXTURE
WALL MOUNTED EMERGENCY BRACKET FIXTURE
TRACK LIGHT
TRACK FOR TRACK LIGHTS
CEILING MOUNTED EXIT SIGN
WALL MOUNTED EXIT SIGN
EXIT SIGN ARROW
CEILING MOUNTED EMERGENCY BATTERY UNIT- (2 HEADS)
CEILING MOUNTED REMOTE BATTERY EMERGENCY LIGHT- (2 HEADS)
WALL MOUNTED EMERGENCY BATTERY UNIT- (2 HEADS)
WALL MOUNTED EMERGENCY BATTERY UNIT- (NO HEADS)
WALL MOUNTED REMOTE BATTERY EMERGENCY LIGHT- (2 HEADS)
WALL MOUNTED REMOTE BATTERY EMERGENCY LIGHT- (1 HEAD)
42" UNDERCABINET LIGHT
21" UNDERCABINET LIGHT
F1 1a LIGHT FIXTURE TYPE (F1), CIRCUIT (1), SWITCH (a) OR
F1 1:R1 LIGHT FIXTURE TYPE (F1), CIRCUIT (1), RELAY (R1)
S SWITCH - "2"=TWO POLE; "3"=THREE WAY; "4"=FOUR WAY; "D"=DIMMER; "DM"=MASTER DIMMER; "SM"=SLAVE DIMMER; "K"=KEYED; "P"=PILOT LIGHT
S2 MULTIPLE SWITCHES IN SAME WALL PLATE # OF SWITCHES
SL LOW VOLTAGE SWITCH
SWITCHPLATE - REFER TO DETAIL FOR SWITCH ARRANGEMENTS
PUSHBUTTON CONTROL
PHOTOCELL
WALL MOUNTED "IN-USE" LIGHT
X-RAY FILM VIEW BOX
CEILING MOUNTED OCCUPANCY SENSOR
WALL MOUNTED OCCUPANCY SENSOR

POWER:

SINGLE RECEPTACLE
DUPLEX RECEPTACLE- "S"=SAFETY, "D"=DUST AND MOISTURE RESISTANT "GF"=GROUND FAULT INTERRUPTER, "WP"=WEATHERPROOF
SPLIT WIRED DUPLEX RECEPTACLE
QUADRAPLEX RECEPTACLE
CLOCK RECEPTACLE
RANGE RECEPTACLE
DRYER RECEPTACLE
SPECIAL PURPOSE OUTLET-NEMA TYPE AS NOTED
FLOOR BOX WITH QUAD RECEPTACLE FIRE RATED POKE-THRU IN ABOVE GRADE SLABS
PLUGMOLD RECEPTACLE (SPACING AS NOTED)
120 VOLT PANELBOARD
120 VOLT EMERGENCY PANELBOARD
277 VOLT PANELBOARD
277 VOLT EMERGENCY PANELBOARD
1-LINE PANELBOARD
EMERGENCY 1-LINE PANELBOARD
TRANSIENT VOLTAGE SURGE SUPPRESSOR
SWITCHBOARD
TRANSFORMER
EQUIPMENT-TYPE AS SHOWN
MOTOR OUTLET - SIZE AND TYPE AS SHOWN
FRACTIONAL MOTOR STARTER - SEE SCHEDULE
MANUAL MOTOR STARTER - SEE SCHEDULE
COMBINATION MOTOR STARTER - SEE SCHEDULE
DISCONNECT SWITCH - NON-FUSED - SIZE AS SHOWN
DISCONNECT SWITCH - FUSED - SIZE AS SHOWN
TIME CLOCK
THERMOSTAT (LINE VOLTAGE TYPE)
MAGNETIC CONTACTOR- "LG"=LIGHTING; "MP"=MULTIPURPOSE; "E"=ELECTRICAL; "M"=MECHANICAL
CABLE TRAY - SIZE AS SHOWN
UNDERFLOOR DUCT - SIZE AS SHOWN

FIRE ALARM

HORN/ALARM
CHIME
BELL
ADA STROBE - CANDELA AS NOTED
HORN/STROBE - CANDELA AS NOTED
SMOKE DETECTOR
HEAT DETECTOR
DUCT DETECTOR
CO DETECTOR
REMOTE TEST SWITCH FOR DUCT DETECTOR
BEAM DETECTOR RECEIVER
BEAM DETECTOR TRANSMITTER
RELAY
CONTROL RELAY
MONITOR RELAY
ISOLATION RELAY
FLOW SWITCH
SUPERVISORY SWITCH
PRESSURE SWITCH
END OF LINE RESISTOR
FIRE ALARM CONTROL PANEL (120V REQUIRED)
FIRE ALARM ANNUNCIATOR PANEL
SMOKE CONTROL CABINET
FIRE ALARM BATTERY REMOTE CABINET (EMER OR NORMAL 120V)
NAC PANEL (120V REQUIRED)
COMMUNICATION DEVICE TRANSPONDER
DOOR HOLDER
MANUAL PULL STATION
REFUGE ASSISTANCE CALL STATION

FIRE ALARM SYSTEM NOTE:
VERIFY DEVICE ROUGH-IN SIZE WITH SELECTED
MANUFACTURER'S COMPONENTS.

WIRING AND CONDUIT:

CONDUIT AND WIRING CONCEALED ABOVE CEILING OR IN WALL
CONDUIT AND WIRING INSTALLED IN FLOOR SLAB
HOWERUN TO PANEL
CONDUIT OR CABLE TURNED UP
CONDUIT OR CABLE TURNED DOWN
CONDUIT CAP
CONDUIT STUB TO CEILING SPACE
INDICATES NUMBER OF WIRE IN CONDUIT (LONGER HATCHMARK INDICATES NEUTRAL CONDUCTOR AND LONGER HATCH-MARK WITH "G" INDICATES GROUND CONDUCTOR)
JUNCTION BOX
WALL MOUNTED JUNCTION BOX
FIXTURE WHIP
DISTRIBUTION BOX
PULL BOX
MANHOLE
HANDHOLE (CONCRETE, CAST-IN-PLACE, OR PRE-CAST)
HANDHOLE (POLYCARBONATE)
UNDERGROUND ELECTRICAL
UNDERGROUND TELEPHONE/DATA

CONDUIT SYSTEM NOTE:

CONDUITS EMBEDDED IN STRUCTURAL CONCRETE
(FLOORS, SLABS, ETC.) SHALL BE LOCATED SO AS
NOT TO UNDULY IMPAIR THE STRENGTH OF THE
CONSTRUCTION. CONDUIT SHALL BE PLACED A
MINIMUM OF TWO TIMES THE CONDUIT OUTSIDE
DIAMETER BETWEEN ADJACENT CONDUITS EXCEPT
WHERE APPROVED BY ENGINEER. REFER TO
GENERAL STRUCTURAL NOTES FOR ADDITIONAL
REQUIREMENTS.

ABBREVIATIONS:

THIS IS A MASTER ELECTRICAL ABBREVIATIONS LIST. SOME ABBREVIATIONS MAY NOT APPLY TO THIS PROJECT.	AC ABOVE COUNTER
AFF ABOVE FINISH FLOOR	AFG ABOVE FINISH GRADE
AHU AIR HANDLING UNIT	ALUM ALUMINUM
AUX CNT AUXILIARY CONTACTS	C CONDUIT
CHWP CHILLED WATER PUMP	CKT CIRCUIT
CL CENTERLINE	CLG CEILING
COMB COMBINATION MOTOR STARTER	CNT CONTACTS
CP CIRCULATING PUMP	CRI COLOR RENDERING INDEX
CUH CABINET UNIT HEATER	CWP COLD WATER PUMP
DD DUCT DETECTOR	DET DETECTOR
DK DARK	DN DOWN
DP DISTRIBUTION PANEL	DWG DRAWING
ETEN DETENTION	E EXISTING
EA EACH	EC ELECTRICAL CONTRACTOR
EM EMERGENCY	EMT ELECTRICAL METALLIC TUBING
EOL END OF LINE RESISTOR	EQ EQUIPMENT
EWG ELECTRIC WATER COOLER	FAP FIRE ALARM ANNUNCIATOR PANEL
FA CNT FIRE ALARM RELAY CONTACTS	FACP FIRE ALARM CONTROL PANEL
FCU FAN COIL UNIT	FFB FROM FLOOR BELOW
FLEX FLEXIBLE CONDUIT CONNECTION	FS FLOW SWITCH
FTU FAN TERMINAL UNIT	FSD FUSED
FVNR FULL VOLTAGE NON-REVERSING	GALV GALVANIZED
GFI GROUND FAULT INTERRUPTER	GRS GALVANIZED RIGID STEEL CONDUIT
GWAF GAS WARM AIR FURNACE	GWH GAS WATER HEATER
HID HIGH INTENSITY DISCHARGE	HL HORN LIGHT
HOA HAND OFF AUTO	HORIZ HORIZONTAL
HT HEAT	HWP HOT WATER PUMP
IC INSULATED CAN	IMC INTERMEDIATE METALLIC CONDUIT
INCAN INCANDESCENT	JUNCTION BOX
JB JUNCTION BOX	K KELVIN
LED LIGHT EMITTING DIODE	LP LIGHTING PANEL
LT LIQUID TIGHT	LTG LIGHTING
LVRG LOW VOLTAGE RELAY CABINET	MAN MANUFACTURER
MANUF MANUFACTURER	MAT MATERIAL
MDP MAIN DISTRIBUTION PANEL	MZU MULTI-ZONE UNIT
N/A NOT APPLICABLE	N.C. NORMALLY CLOSED
NIC NOT IN CONTRACT	N.O. NORMALLY OPEN
NO. NUMBER	NL NIGHT LIGHTING
OL OVERALL LENGTH	ORIENT ORIENTATION
PB PULL BOX	PH PHASE
PMCP PIPE MOUNTED CIRCULATING PUMP	POS POSITION
PP POWER PANEL	PRE POWER ROOF EXHAUSTER
PS PRESSURE SWITCH	PVC POLYVINYL CHLORIDE
QUAN QUANTITY	R REMOVE
RAF RETURN AIR FAN	RECP RECEPTACLE
RHC REHEAT COIL	RP RECEPTACLE PANEL
RR REMOVE AND RELOCATE	RTU ROOF TOP UNIT
SCC SHORT CIRCUIT CAPACITY	SSG STAINLESS STEEL CABLE
SMK SMOKE	SPEC SPECIFICATION
SSU SWITCH & FUSE UNIT (BUSS)	SUS SUSPENDED UNIT HEATER
SUP SUPERVISORY SWITCH	T THERMOSTAT
TCC TEMPERATURE CONTROL CONTRACTOR	TFA TO FLOOR ABOVE
TR TAMPER RESISTANT	TTB TELEPHONE TERMINAL BOARD
UH UNIT HEATER	VERT VERTICAL
WEF WALL EXHAUST FAN	WHEU WALL HUNG EVAPORATOR UNIT
WG WIRE GUARD / SECURITY GUARD	WP WEATHER PROOF



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**ELECTRICAL
SYMBOLS AND
ABBREVIATIONS**

PROJECT NO. 50002241

E-001

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GLENVIEW, ILLINOIS 60025

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SHEET NO. XXX

APPROVED FILED SEE DETAIL 6 ON SHEET E-503.

REMOVE MOUNTED FLUORESCENT BATTERY PACK (LITHONIA #PS14000 OR EQUIVALENT) MOUNTED ABOVE ACCESSIBLE CEILING FOR EMERGENCY OPERATION OF FIXTURE TYPE WB2. MOUNT 9'-0" AFF IN STAIRWELLS. PROVIDE REMOVED TEST SWITCH/PILOT LIGHT AND MOUNTING PLATE (ELA TSP/LP) ADJACENT TO DOOR ON BUILDING OUTSIDE.

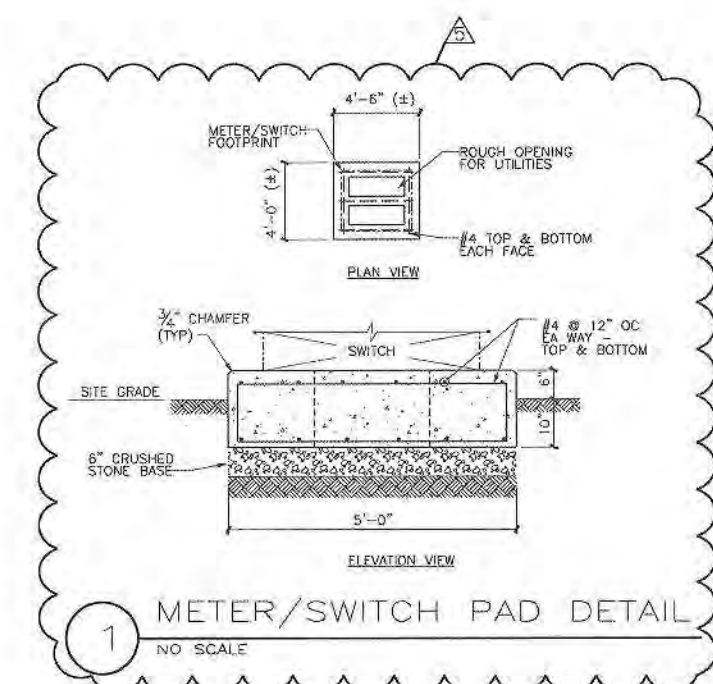
INSTALL FIXTURES TYPE 012 2'-0" FROM THE FACE OF THE SIGN. FIXTURES SHALL BE SPACED 3'-6" W/18" AND 4" CENTERED ON THE SIGN.

INSTALL FIXTURES TYPE 0B2 1'-6" O.C. FROM THE FACE OF THE COLUMN.

INSTALL FIXTURES TYPE 0B2 1'-0" O.C. FROM THE FLAG POLE.

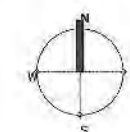
SEE DETAIL 7 ON SHEET E-503 FOR IN-CRANT MAIN WIRE DETAIL

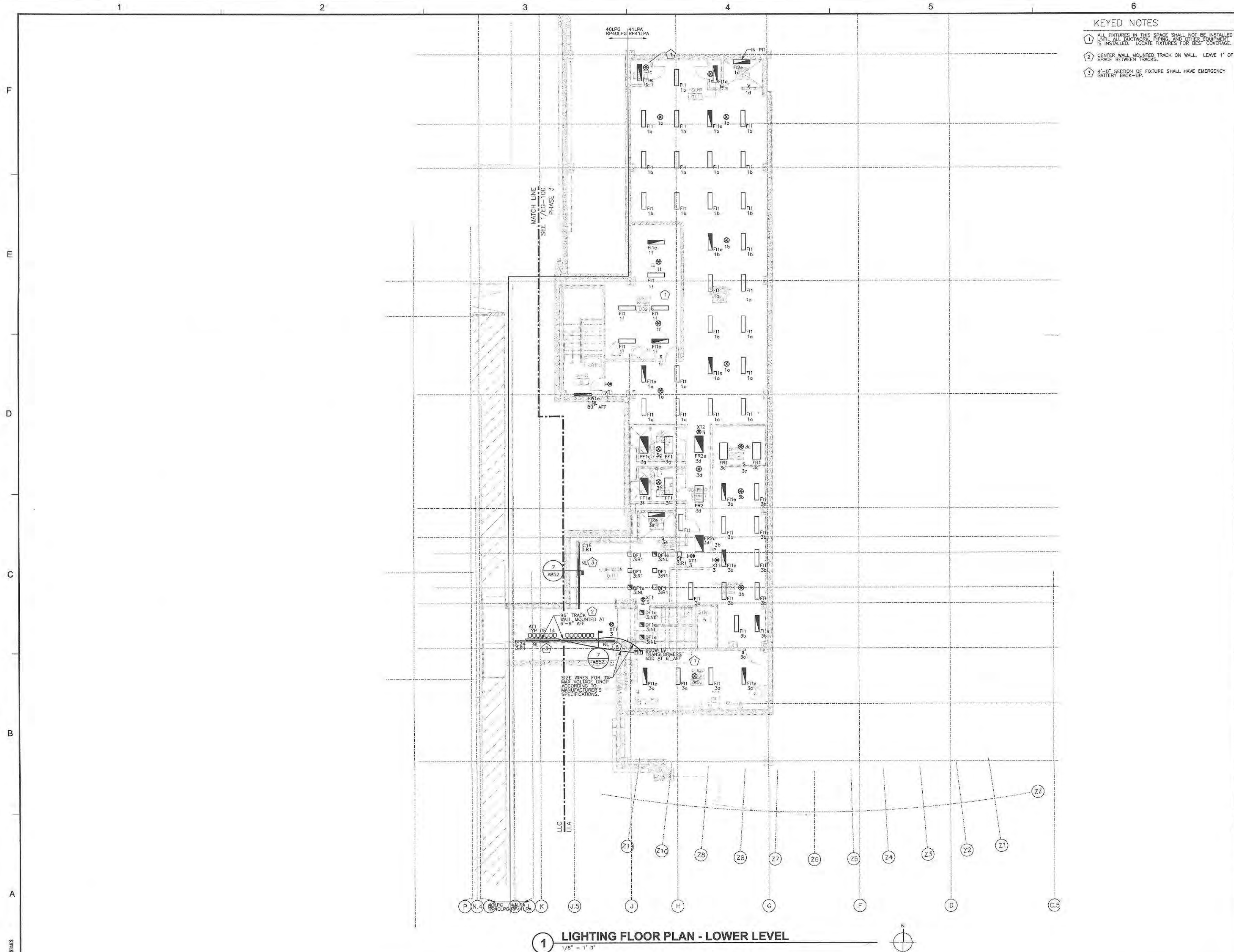
PAD MOUNTED METER AND MAIN FUSED DISCONNECT SWITCH. ERICKSON



METER/SWITCH PAD DETAIL

NO SCALE

$$1'' = 20'-0''$$




KEYED NOTES

1. ALL FIXTURES IN THIS SPACE SHALL NOT BE INSTALLED UNTIL ALL DUCTWORK, PIPING, AND OTHER EQUIPMENT IS INSTALLED. LOCATE FIXTURES FOR BEST COVERAGE.
2. CENTER WALL MOUNTED TRACK ON WALL. LEAVE 1" OF SPACE BETWEEN TRACKS.
3. 4'-0" SECTION OF FIXTURE SHALL HAVE EMERGENCY BATTERY BACK-UP.

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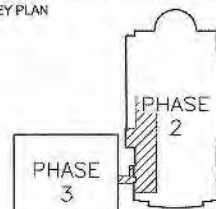
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SEAL

KEY PLAN



SCALE

0' 4' 8' 16'

REFER TO BID SET FOR PREV. DWG HISTORY

6 04/06/09 DAP CONSTRUCTION SET

5 01/09/08 DAP BID AND PERMIT SET

REVISIONS

DRAWN BY M-M, SEC
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2008

TITLE

LIGHTING
FLOOR PLAN
LOWER LEVEL

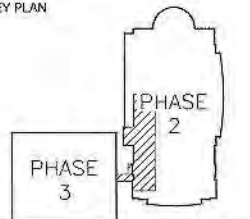
PROJECT NO. 50002241

E-100A

SHEET NO.

EAL

KEY PLAN



SCALE



REF TO BID SET FOR PREV. DWG HISTORY

3	04/06/09	DAP	CONSTRUCTION SET
2	01/28/09	M-M	ADDENDUM #2
5	01/09/08	DAP	BID AND PERMIT SET
b.	DATE	BY	Description

DRAWN BY M-M
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2008

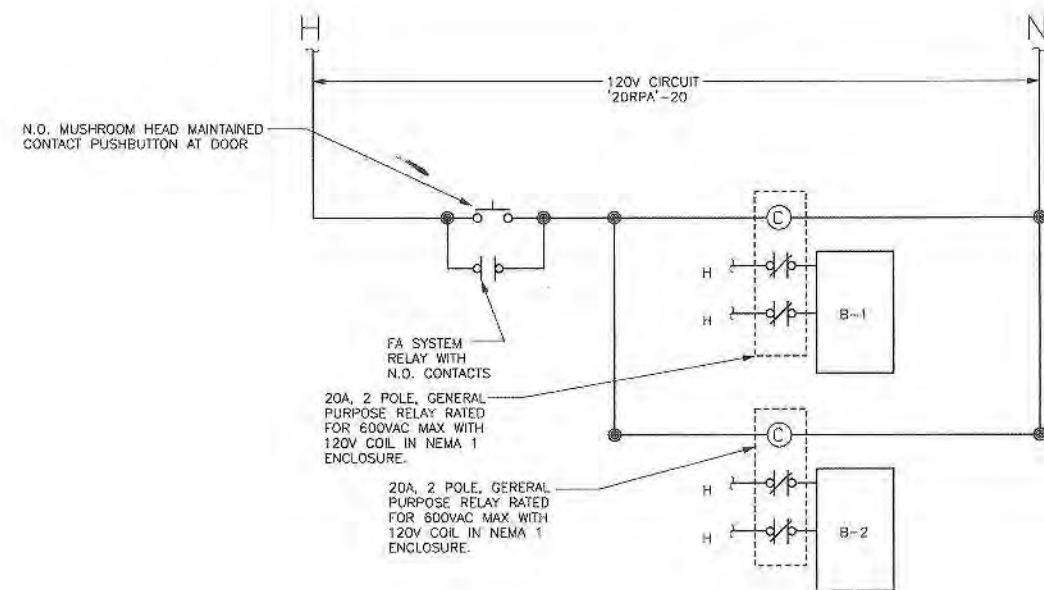
TITLE
POWER
FLOOR PLAN
LOWER LEVEL
AREA A

PROJECT NO. 50002241

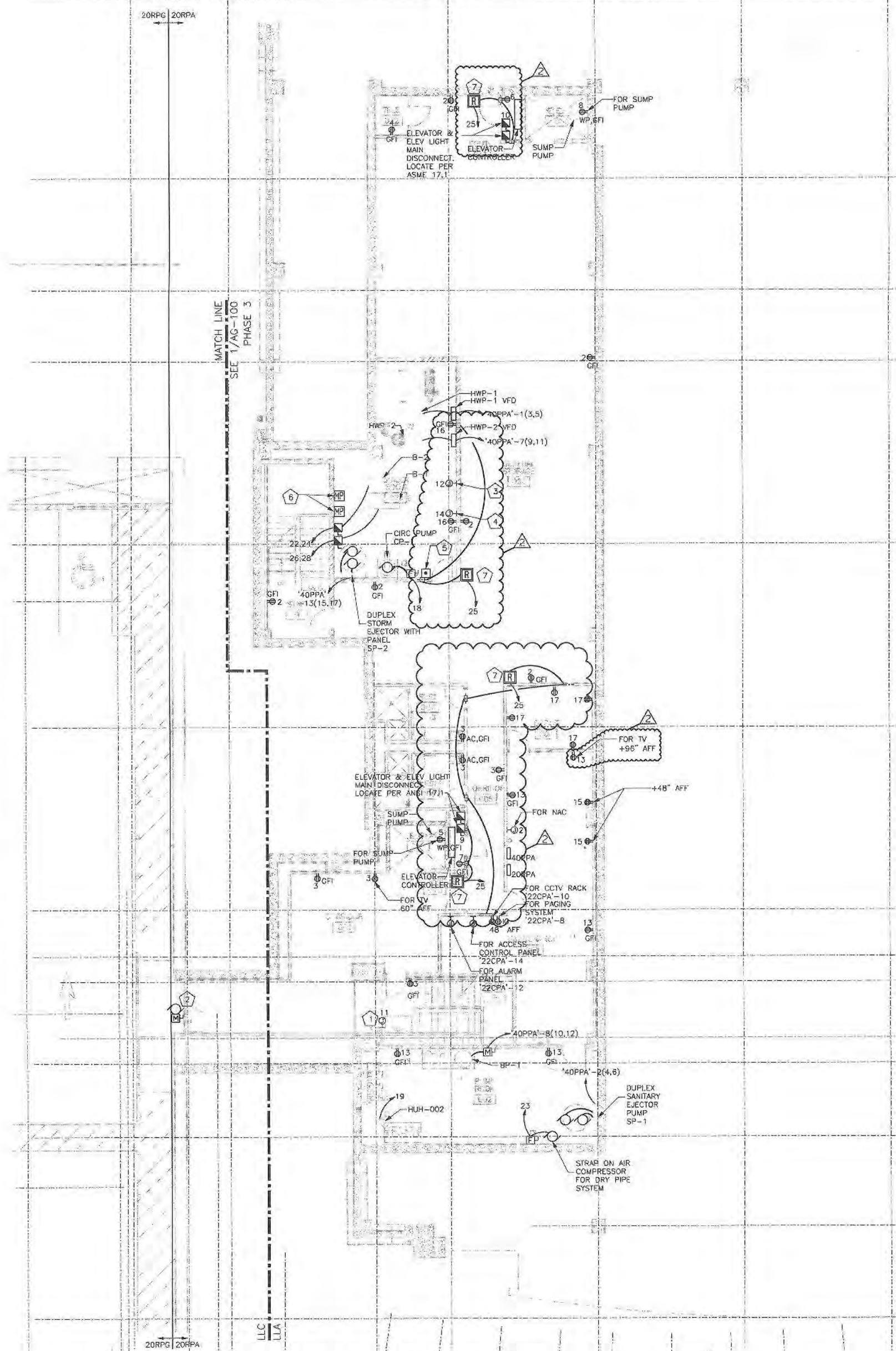
E-101A

SHEET NO. _____

- 1 PROVIDE POWER TO FIRE SHUTTER. COORDINATE CONNECTION REQUIREMENTS WITH EQUIPMENT PROVIDER.
- 2 PROVIDE POWER TO SLIDING GLASS DOOR OPERATOR. COORDINATE CONNECTION REQUIREMENTS WITH DOOR HARDWARE INSTALLER.
- 3 PROVIDE 120V KCT TO DOILER CONTROL PANEL. COORDINATE CONNECTION REQUIREMENTS WITH MECH CONTRACTOR.
- 4 PROVIDE 120V KCT TO TEMPERATURE CONTROL PANEL. COORDINATE CONNECTION REQUIREMENTS WITH MECH CONTRACTOR.
- 5 N.O. MUSHROOM HEAD MAINTAINED CONTACT PUSH BUTTON AT DOOR WITH EXTENDED GROUND LABEL. PROVIDE 120V BOLLER SHUT-DOWN. PROVIDE 55 SS SERIES OR APPROVED EQUAL.
- 6 CONTACTORS FOR BOLLER SHUT-DOWN. SEE DETAIL 2 FOR SHUT-SHEET FOR DETAIL.
- 7 GENERAL PURPOSE RELAY FOR MOTORIZED DAMPER SHUT-DOWN. SEE DETAIL 6 ON SHEET E-504.



2 BOILER SHUT-DOWN DETAIL
1/8" = 1' 0"



1 POWER FLOOR PLAN - LOWER LEVEL
1/8" = 1' 0"



KEYED NOTES

- CONTROL RELAYS FOR PRIMARY RECALL, SECONDARY RECALL, AND SHUNT TRIP CONTROL.
- SUPERVISORY SWITCH TO MONITOR FIRE PROTECTION GATE VALVE.
- SPRINKLER SYSTEM SUPERVISORY AND MONITOR RELAYS FOR FLOW AND DAMPER SWITCHES. FIELD COORDINATE LOCATIONS WITH FIRE PROTECTION CONTRACTOR.
- RELAY SHALL CLOSE FIRE SHUTTER WHEN FIRE IS DETECTED IN FACILITY.
- FIRE SPRINKLER BELL. PROVIDE LOW VOLTAGE POWER FROM PA CABINET TO BELL. BELL SHALL ACTIVATE WHEN WATER FLOW IS DETECTED IN SPRINKLER SYSTEM.
- DUCT DETECTOR LOCATED WITHIN 8' OF FIRE/SMOKE DAMPER. DETECTION OF SMOKE BY DETECTOR SHALL ACTIVATE CONTROL RELAY FOR SHUT DOWN OF DAMPER MOTOR.
- FIRE ALARM CONTROL RELAY FOR SHUT-DOWN OF DAMPER MOTOR. SEE DETAIL 9 ON SHEET E-504.
- LOCATION OF DUCT DETECTOR TEST SWITCHES FOR THIS LEVEL. LABEL SWITCHES TO INDICATE WHICH DETECTOR THE SWITCH CORRESPONDS.

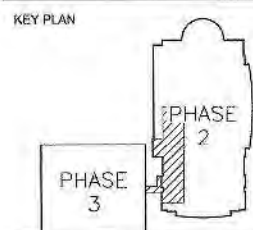
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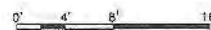
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No.	DATE	BY	Description
6	04/06/09	DAP	CONSTRUCTION SET
4	02/27/09	M-M	REVIEW COMMENTS
2	01/28/09	M-M	ADDENDUM #2
1	01/19/09	M-M	ADDENDUM #1
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY	M-M, SEC
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/09/2008

TITLE
**ELEC SYSTEMS
FLOOR PLAN
LOWER LEVEL
AREA A**

PROJECT NO. 50002241

E-102A

SHEET NO.

1 SYSTEMS FLOOR PLAN - LOWER LEVEL
1/8" = 1' 0"



KEYED NOTES

1. BOTTOM OF PENDANT FIXTURE SHALL BE AT 8'-6" COORDINATE PENDANT STEM LENGTH WITH CEILING.
2. SWITCHED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 3 ON SHEET E-502.
3. RE-232 JACK FOR LIGHTING/AV INTERFACE. SEE DETAIL 1 ON SHEET E-502.
4. LOCATE FIXTURES 3' FROM THE WALL AND SPACE THEM 4' O.C. FIXTURES SHALL BE CENTERED ON WALL.
5. LOCATE FIXTURES 3' FROM THE WALL CENTER THEM IN CEILING.
6. LOCATE FIXTURES 3' FROM THE WALL.
7. PHOTOCELL SHALL BE MOUNTED TO UNDERSIDE OF IL2 COMPONENT.
8. DIMMED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 2 ON SHEET E-502 FOR GENERAL WIRING DIAGRAM.
9. A01 FIXTURES SHALL BE INSTALLED 2' O.C. AND BE CENTERED WITHIN THE DISPLAY CASES. SEE DETAIL 3 ON SHEET E-503.
10. OUTER 2 LAMPS OF FIXTURE SHALL HAVE EM BACKUP. LAMPS SHALL BE SWITCHED. PROVIDE UNSWITCHED MONITORING.
11. LOW VOLTAGE SWITCH "M1" SEE DETAIL 4 ON SHEET E-504.
12. LOW VOLTAGE SWITCH "M1" SEE DETAIL 2 ON SHEET E-504.
13. TWO 0-10V FLUORESCENT DIMMERS FOR USE WITH FIXTURES TYPE FRS IN SAME FACEPLATE.
14. 4" SECTION OF FIXTURE SHALL HAVE EMERGENCY BATTERY BACK-UP.

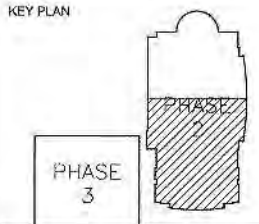
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NO.	DATE	BY	DESCRIPTION
6	04/05/09	DAP	CONSTRUCTION SET
1	01/19/09	M-M	ADDENDUM #1
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS
DRAWN BY: M-M, SEG
APPROVED BY: JMP
CHECKED BY: M-M
DATE: 01/09/2009

TITLE LIGHTING FLOOR PLAN FIRST FLOOR AREA A

PROJECT NO.: 50002241

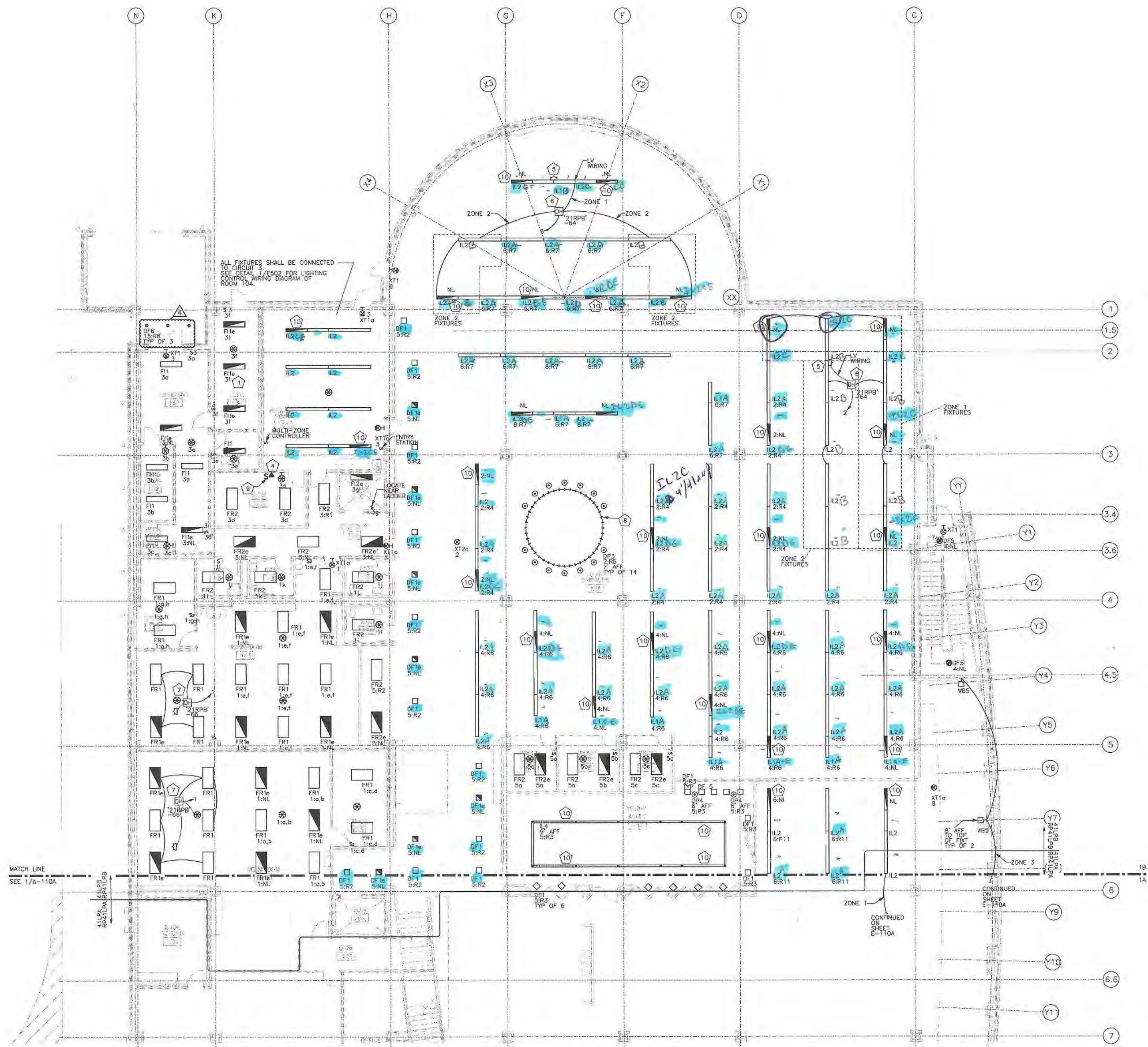
E-110A

SHEET NO.

1 LIGHTING FLOOR PLAN - FIRST FLOOR AREA A
1/8" = 1' 0"

1 2 3 4 5 6

F
E
D
C
B
A



1 LIGHTING FLOOR PLAN - FIRST FLOOR AREA B
1/8" = 1' 0"

KEYED NOTES

- 1 ALL FIXTURES IN THIS SPACE SHALL NOT BE INSTALLED UNTIL ALL DUCTWORK, PIPING, AND OTHER EQUIPMENT IS INSTALLED. LOCATE FIXTURES FOR BEST COVERAGE.
- 2 600W LV TRANSFORMER MOUNTED ABOVE ACCESSIBLE CEILING FOR TRACK POWER.
- 3 PROVIDE EM BATTERY PACK IN THIS 4' SECTION OF THE FIXTURE.
- 4 RS-232 JACK FOR LIGHTING/AV INTERFACE. SEE DETAIL 3 ON SHEET E-502.
- 5 PHOTOCELL SHALL BE MOUNTED TO UNDERSIDE OF IL2 FIXTURE AND AIMED AWAY FROM DOWNLIGHT COMPONENT.
- 6 DIMMED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 2 ON SHEET E-502 FOR GENERAL WIRING DIAGRAM.
- 7 SWITCHED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 3 ON SHEET E-502 FOR GENERAL WIRING DIAGRAM.
- 8 400W DAYLIGHT HARVESTING CONTROLLER. SEE DETAIL 4 ON SHEET E-503 FOR WIRING DIAGRAM AND DETAIL 5 ON SHEET E-503 FOR INSTALLATION DETAIL. PROVIDE POWER FROM 21RFB-6 VIA RELAY 41RFB-13.
- 9 LIGHT DRIVE RGB COLOR CHANGING CONTROLLER. PROVIDE 100W LED ENGINE SMART POWER SUPPLY. NEAR CONTROLLER. SEE DETAIL 4 ON SHEET E-503.
- 10 4' SECTION OF FIXTURE SHALL HAVE EMERGENCY BATTERY BACK-UP.

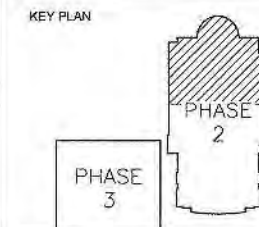
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SEAL

KEY PLAN



SCALE

0' 4' 8' 16'

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No.	DATE	BY	Description
5	04/06/09	DAP	CONSTRUCTION SET
4	02/05/09	M-M	ADDENDUM #4
5	01/09/09	DAP	BID AND PERMIT SET
REVISIONS			

DRAWN BY: M-M, SEC
APPROVED BY: JWP
CHECKED BY: M-M
DATE: 01/09/2009

TITLE
LIGHTING
FLOOR PLAN
FIRST FLOOR
AREA B

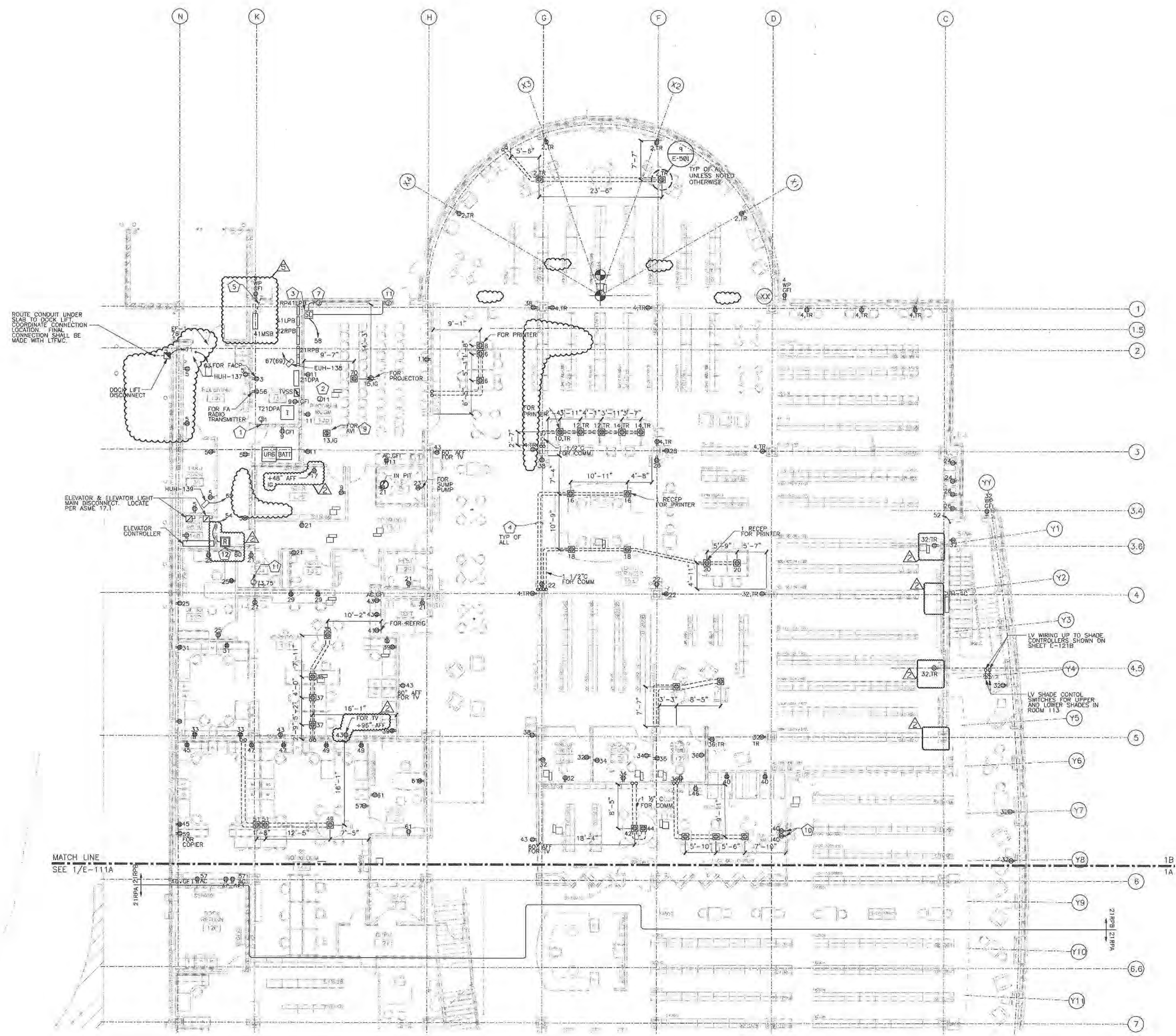
PROJECT NO. 50002241

E-110B

SHEET NO.

1 2 3 4 5 6

F
E
D
C
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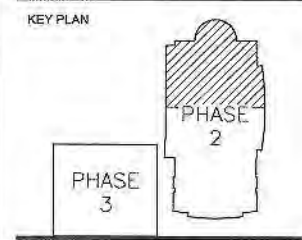
- KEYED NOTES**
- 1 PROVIDE 120V CKT TO TEMPERATURE CONTROL PANEL. COORDINATE CONNECTION REQUIREMENTS WITH UNIT PROVIDED.
 - 2 MAKE CONNECTION TO PROJECTION SCREEN. PROVIDE J-BOXES AND WIRING FOR SCREEN CONTROLS.
 - 3 SHADING CONTROLLER INSTALLED ABOVE NEAREST ACCESSIBLE CEILING. SEE DETAIL 5 ON SHEET E-503.
 - 4 1 POWER CONDUIT AND 1 DATA CONDUIT. ALL POWER AND DATA CONDUITS INSTALLED UNDER FLOOR SHALL BE 1" MINIMUM UNLESS OTHERWISE NOTED. CONDUITS SHALL NOT CROSS EACH OTHER.
 - 5 TO UTILITY METER/SWITCH AND TRANSFORMER. SEE SHEET E-010 FOR CONTINUATION.
 - 6 PROVIDE POWER TO HUMIDIFIER H-3. COORDINATE CONNECTION REQUIREMENTS WITH UNIT PROVIDED.
 - 7 J-BOX FOR CONNECTION TO MOTORIZED SHADE. FIELD COORDINATE EXACT LOCATION WITH SHADE INSTALLER. SEE DETAIL 5 ON SHEET E-503.
 - 8 NOT USED.
 - 9 ANY FLOOR BOX IS DIFFERENT FROM STANDARD FLOOR BOX. SEE TECHNOLOGY SHEETS FOR ADDITIONAL INFORMATION.
 - 10 RECEPTACLES FOR TV AND GAMING EQUIPMENT. COORDINATE LOCATIONS WITH CASEWORK.
 - 11 J-BOX FOR CONNECTION TO HUMIDIFIER H-3. PART OF DUCTUVE ALTERNATE #1.
 - 12 RELAY FOR SHUT DOWN OF MOTORIZED DAMPERS. SEE DETAIL 6 ON SHEET E-504.

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SCALE
0' 4' 8' 16'

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No.	DATE	BY	Description
8	04/06/09	DAP	CONSTRUCTION SET
5	04/05/09	M-M	RFP #2
2	01/28/09	M-M	ADDENDUM #2
5	01/08/09	DAP	BID AND PERMIT SET

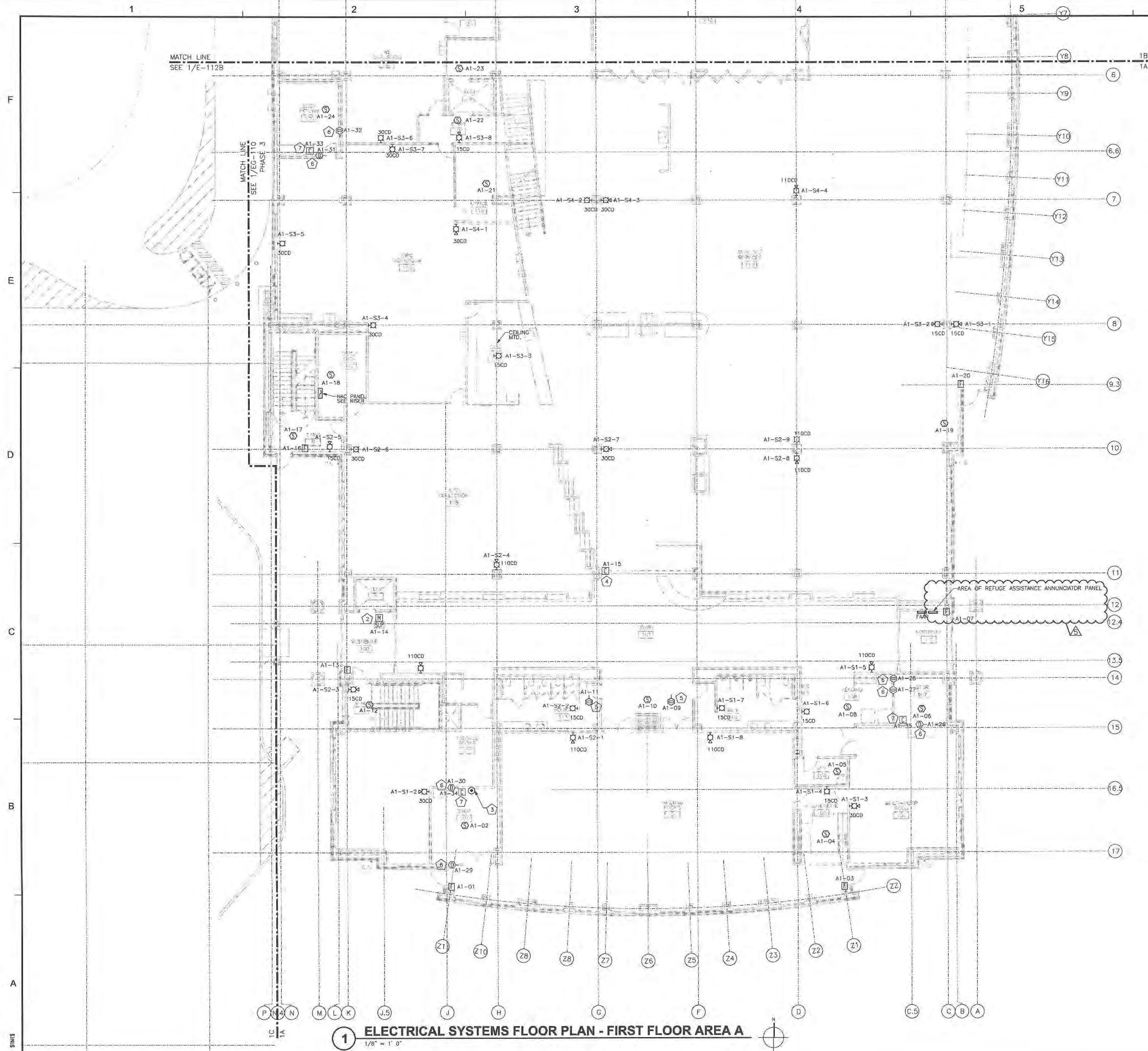
REVISIONS

DRAWN BY	M-M/BES
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/08/2009

TITLE
**POWER
FLOOR PLAN
FIRST FLOOR
AREA B**

PROJECT NO. 50002241

E-111B
SHEET NO.



KEYED NOTES

1. PROVIDE 110V-4 WEATHERPROOF HORN/STROBE DEVICE NEAR TEMPORARY FIRE DEPARTMENT CONNECTION. COORDINATE LOCATION WITH FIRE PROTECTION CONTRACTOR. ALSO PROVIDE LOW VOLTAGE POWER FROM FIRE ALARM CABINET TO THE NEW FIRE PROTECTION BELL AT THIS LOCATION. BELL SHALL ACTIVATE WHEN WATER FLOW IS DETECTED IN SPRINKLER SYSTEM.

KEYED NOTES

- 1 NOT USED

- 2 SUPERVISORY SWITCH TO MONITOR FIRE PROTECTION GATE VALVE.
- 3 TEST SWITCHES FOR DUCT DETECTORS ON THIS FLOOR ARE GROUPED TOGETHER. TEST SWITCHES SHALL BE LABELED TO INDICATE WHICH DETECTOR THE SWITCH BELONGS TO.
- 4 RELAY SHALL RAISE COILING DOOR IN EVENT OF FIRE.
- 5 DUCT DETECTOR, LOCATED PER NFPA 72 MINIMUM 6" DUCT DIAMETERS FROM BEND, ELBOW, BRANCH TAKE-OFF OR TRANSITION. LOCATE IN ACCESSIBLE LOCATION.
- 6 DUCT DETECTOR LOCATED WITHIN 6' OF FIRE/SMOKE DAMPER. DETECTION OF SMOKE BY DETECTOR SHALL ACTIVATE CONTROL RELAY FOR SHUT DOWN OF DAMPER MOTOR.
- 7 FIRE ALARM CONTROL RELAY FOR SHUT DOWN OF DAMPER MOTOR. SEE DETAIL 6 ON SHEET E-504.

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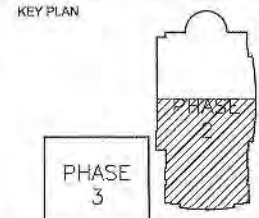
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KEY PLAN



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No.	DATE	BY	Description
6	04/06/09	DAP	CONSTRUCTION SET
4	02/27/09	M-M	REVIEW COMMENTS
2	01/28/09	M-M	ADDENDUM #2
5	01/08/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY: M-M, SEG
APPROVED BY: JWP
CHECKED BY: M-M
DATE: 01/09/2009

TITLE
**ELEC SYSTEMS FLOOR PLAN
FIRST FLOOR
AREA A**

PROJECT NO. 50002241

E-112A

SHEET NO.

1 ELECTRICAL SYSTEMS FLOOR PLAN - FIRST FLOOR AREA A
1/8" = 1' 0"

- KEYED NOTES
- 1 CONTROL RELAYS FOR PRIMARY RECALL, SECONDARY RECALL, AND SHUNT TRIP CONTROL.
 - 2 SUPERVISORY SWITCH TO MONITOR FIRE PROTECTION GATE VALVE.
 - 3 DUCT DETECTOR LOCATED WITHIN 6' OF FIRE/SMOKE DAMPER. DETECTION OF SMOKE BY DETECTOR SHALL ACTIVATE CONTROL RELAY FOR SHUT-DOWN OF DAMPER MOTOR.
 - 4 FIRE ALARM CONTROL RELAY FOR SHUT-DOWN OF DAMPER MOTOR. SEE DETAIL 6 ON SHEET E-504.

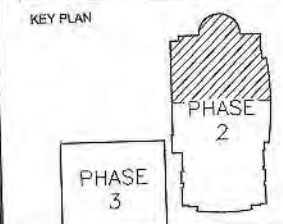
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No.	DATE	BY	Description
6	04/06/08	DAP	CONSTRUCTION SET
2	01/28/09	M-M	ADDENDUM #2
6	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY	M-M, SEG
APPROVED BY	JMP
CHECKED BY	JMP
DATE	01/08/2009

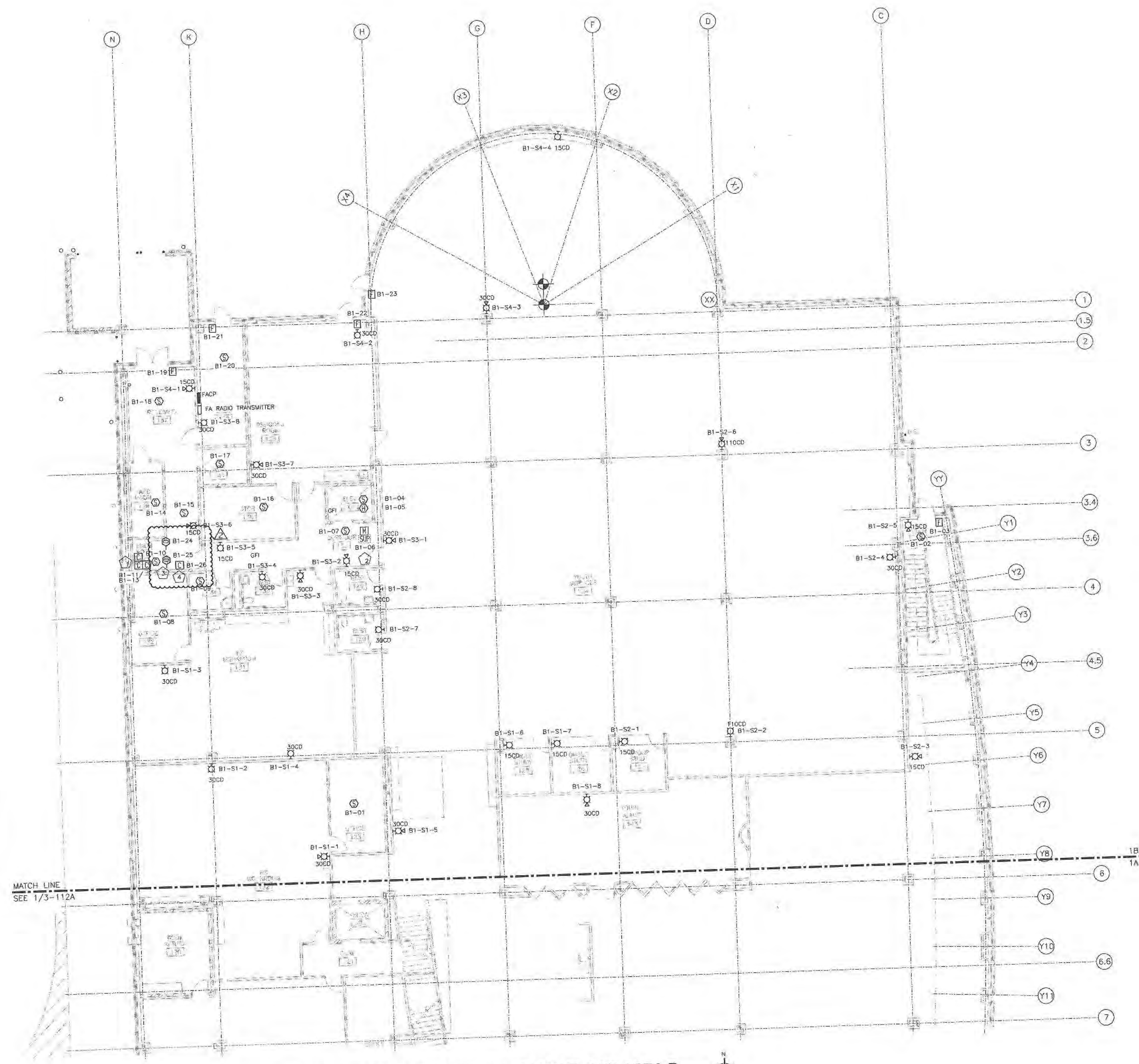
TITLE

**ELEC SYSTEMS FLOOR PLAN
FIRST FLOOR
AREA B**

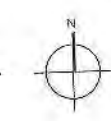
PROJECT NO. 50002241

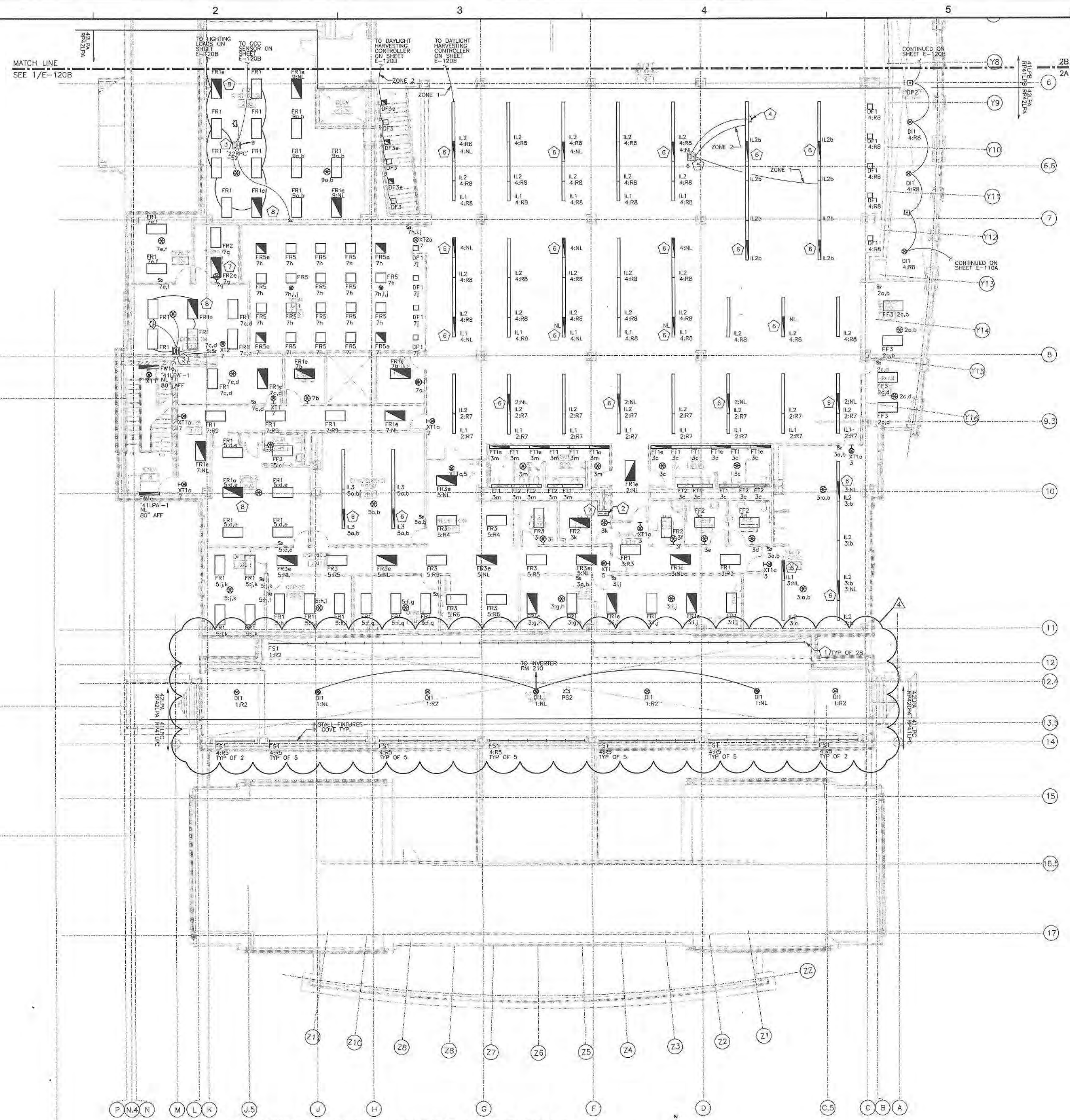
E-112B

SHEET NO.



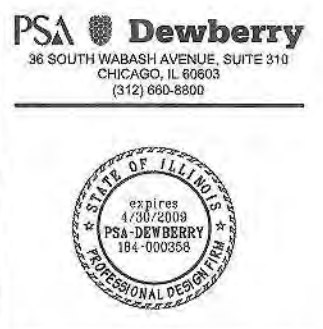
1 ELECTRICAL SYSTEMS FLOOR PLAN - FIRST FLOOR AREA B
1/8" = 1' 0"





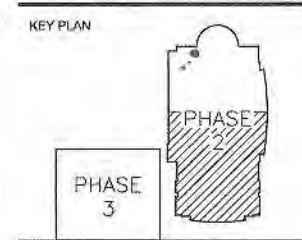
KEYED NOTES

1. LINEAR STRIP FIXTURE MOUNTED IN SHELF ABOVE FIRST FLOOR. SEE DETAIL 9 ON SHEET E502.
2. 300VA ONLINE POWER INVERTER MOUNTED ON FLOOR FOR MAIN LOBBY EMERGENCY LIGHTING. SURGE-PROTECTED. CMPTD05-277-277-B 0 20 01-T OR PRE-APPROVED EQUAL.
3. SWITCHED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 3 ON SHEET E-502.
4. PHOTOCELL SHALL BE MOUNTED TO UNDERSIDE OF IL2b FIXTURE AND AIMED AWAY FROM DOWNLIGHT COMPONENT.
5. DIMMED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 2 ON SHEET E-502 FOR GENERAL WIRING DIAGRAM.
6. 4' SECTION OF FIXTURE SHALL HAVE EMERGENCY BATTERY BACK-UP.



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REV	DATE	BY	DESCRIPTION
6	04/06/09	DAP	CONSTRUCTION SET
4	02/05/09	M-M	ADDENDUM #4
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY	M-M, BES, SEG
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/09/2009

TITLE
LIGHTING
FLOOR PLAN
SECOND FLOOR
AREA A

PROJECT NO. 50002241

E-120A

SHEET NO.

1 LIGHTING FLOOR PLAN - SECOND FLOOR AREA A
1/8" = 1' 0"

1 2 3 4 5 6

KEYED NOTES

- 1 SWITCHED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 3 ON SHEET E-502.
- 2 OPEN LOOP PHOTOCELL LOCATED IN SKYLIGHT OPENING.
- 3 DIMMED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 3 ON SHEET E-502 FOR GENERAL WIRING DIAGRAM.
- 4 SWITCHED DAYLIGHT HARVESTING CONTROLLER LOCATED ABOVE ACCESSIBLE CEILING MOUNTED TO BUILDING STRUCTURE. SEE DETAIL 3 ON SHEET E-502.
- 5 PHOTOCELL SHALL BE MOUNTED TO UNDERSIDE OF IL2 FIXTURE AND AIMED AWAY FROM DOWNLIGHT COMPONENT.
- 6 MASTER LOW VOLTAGE SWITCH MA INSTALLED IN HALF-HEIGHT WALL. SEE DETAIL 5 ON SHEET E-504.
- 7 4' SECTION OF FIXTURE SHALL HAVE EMERGENCY BATTERY BACK-UP.

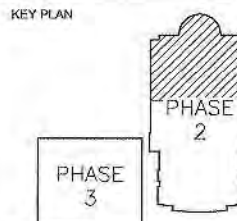
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6	04/08/09	DAP	CONSTRUCTION SET

No.	DATE	BY	Description
5	01/08/08	DAP	BID AND PERMIT SET

REVISIONS

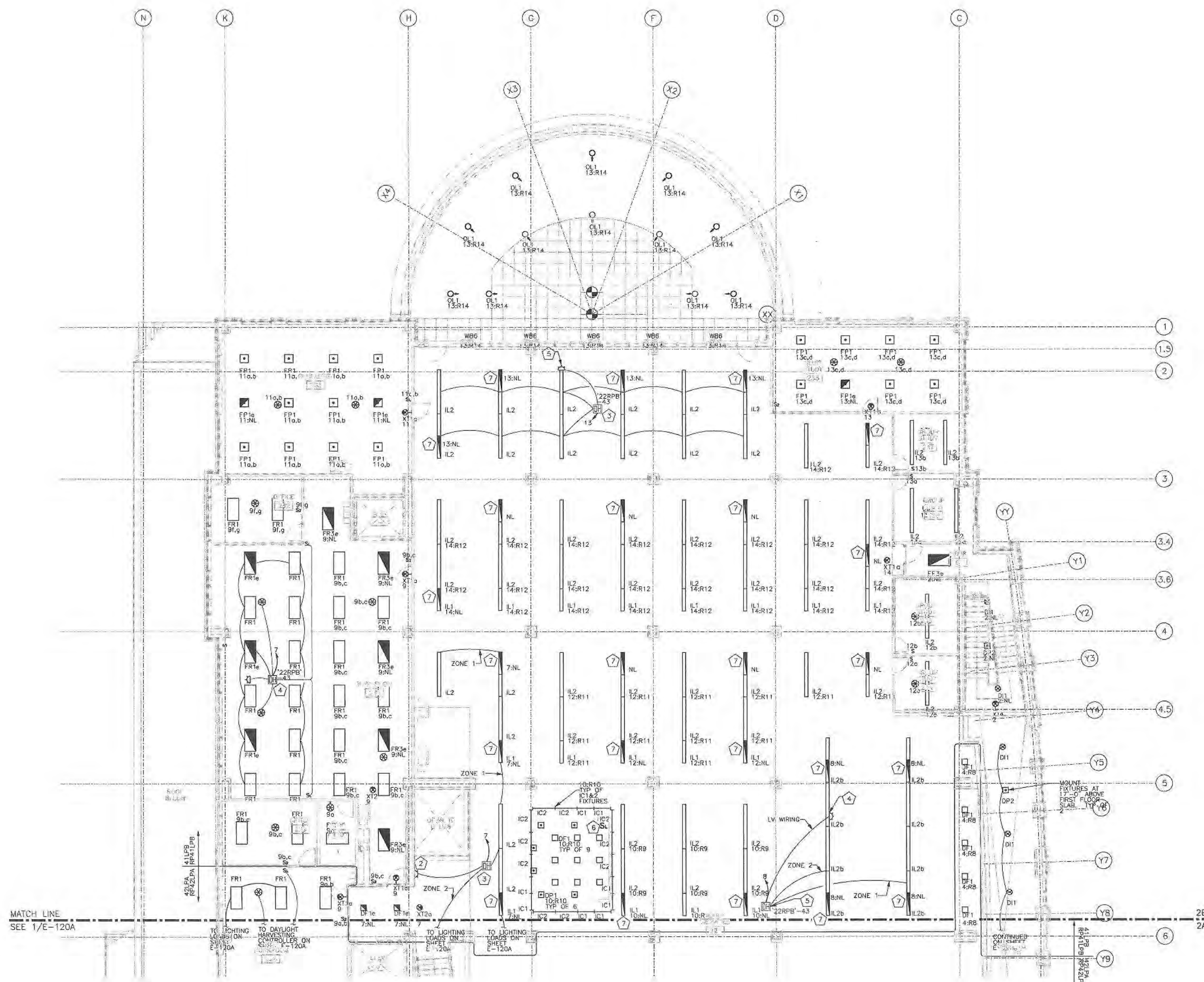
DRAWN BY	M-M, SEC
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/09/2009

TITLE
LIGHTING
FLOOR PLAN
SECOND FLOOR
AREA B

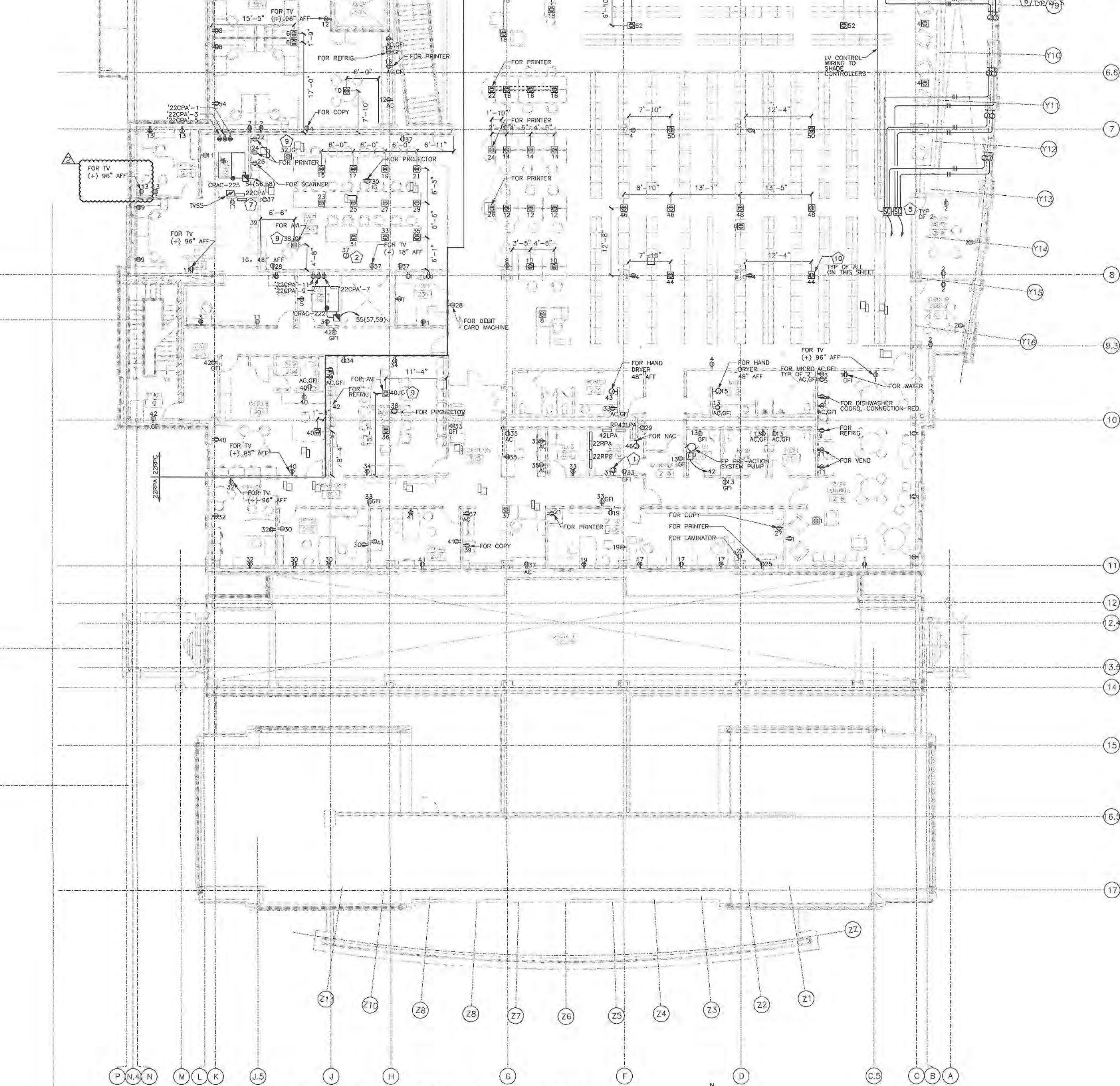
PROJECT NO. 50002241

E-120B

SHEET NO.



MATCH LINE
SEE 1/E-121B



1 POWER FLOOR PLAN - SECOND FLOOR AREA A
1/8" = 1' 0"

KEYED NOTES

1. PROVIDE 120V CKT TO TEMPERATURE CONTROL PANEL. COORDINATE CONNECTION REQUIREMENTS WITH UNIT PROVIDER.
2. PROVIDE POWER TO PROJECTION SCREEN. PROVIDE J-BOXES AND WIRING FOR SCREEN CONTROLS.
3. 1. POWER CONDUIT AND 1. DATA CONDUIT. ALL POWER AND DATA CONDUITS INSTALLED UNDER FLOOR SHALL BE 1" (MINIMUM) UNLESS OTHERWISE NOTED. CONDUITS SHALL NOT CROSS EACH OTHER.
4. J-BOX FOR CONNECTION TO UPPER MOTORIZED SHADE. FIELD COORDINATE EXACT LOCATION WITH SHADE INSTALLER. SEE DETAIL 5 ON SHEET E-503.
5. SHADING CONTROLLER INSTALLED ABOVE NEAREST ACCESSIBLE CEILING. SEE DETAIL 5 ON SHEET E-503.
6. J-BOX FOR CONNECTION TO UPPER MOTORIZED SHADE. FIELD COORDINATE EXACT LOCATION WITH SHADE INSTALLER. SEE DETAIL 5 ON SHEET E-503.
7. FIRE PROTECTION PRE-ACTION SYSTEM PANEL. PROVIDE 120V CIRCUIT SHOWN. COORDINATE CONNECTION REQUIREMENTS.
8. ROUTE FLEX CONDUIT IN MILLWORK CAVITY TO NEAREST WALL.
9. AM FLOOR BOX IS DIFFERENT THAN STANDARD FLOOR BOX. SEE TECHNOLOGY SHEETS FOR DETAILS ON AM FLOOR BOX.
10. FIRE RATED POKE-THRU DEVICE. ROUTE CONDUIT TO POKE-THRU ABOVE CEILING OF FLOOR BELOW. SEE DETAIL 6 ON SHEET E-501.

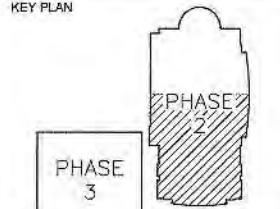
PSA Dewberry
36 SOUTH WABASH AVENUE, SUITE 310
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SEAL

KEY PLAN



SCALE



REFER TO BID SET FOR PREV. DWG. HISTORY

No.	DATE	BY	Description
6	04/06/09	DAP	CONSTRUCTION SET
2	01/26/08	M-M	ADDENDUM #2
5	01/08/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY	M-M, BES
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/06/2009

TITLE

POWER
FLOOR PLAN
SECOND FLOOR
AREA A

PROJECT NO. 50002241

E-121A

SHEET NO.

1 2 3 4 5 6

KEYED NOTES

- 1 PROVIDE 120V GKT TO TEMPERATURE CONTROL PANEL. COORDINATE CONNECTION REQUIREMENTS WITH UNIT PROVIDER.
- 2 FIRE RATED POKE-THRU DEVICE. ROUTE CONDUITS TO POKE-THRU ABOVE CEILING TO FLOOR BELOW. SEE DETAIL 6 ON SHEET E-501.
- 3 J-BOX FOR CONNECTION TO UPPER MOTORIZED SHADE. FIELD COORDINATE EXACT LOCATION WITH SHADE INSTALLER. SEE DETAIL 5 ON SHEET E-503.
- 4 SHADING CONTROLLER INSTALLED ABOVE NEAREST ACCESSIBLE CEILING.
- 5 J-BOX FOR CONNECTION TO LOWER MOTORIZED SHADE. FIELD COORDINATE EXACT LOCATION WITH SHADE INSTALLER. SEE DETAIL 5 ON SHEET E-503.
- 6 COORDINATE LOCATION OF FLOOR BOXES WITH SECURITY SYSTEM. PVC CONDUIT TO BOXES ONLY.
- 7 LV WIRING TO SWITCHES SHOWN ON SHEET E-111B FOR SHADE RAISE/LOWER CONTROLS.

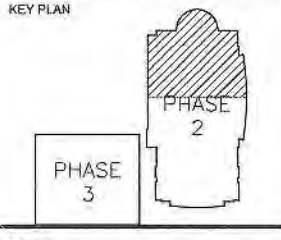
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(312) 660-8800



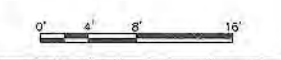
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KEY PLAN



SCALE



REFER TO BID SET FOR PREV. DWG. HISTORY

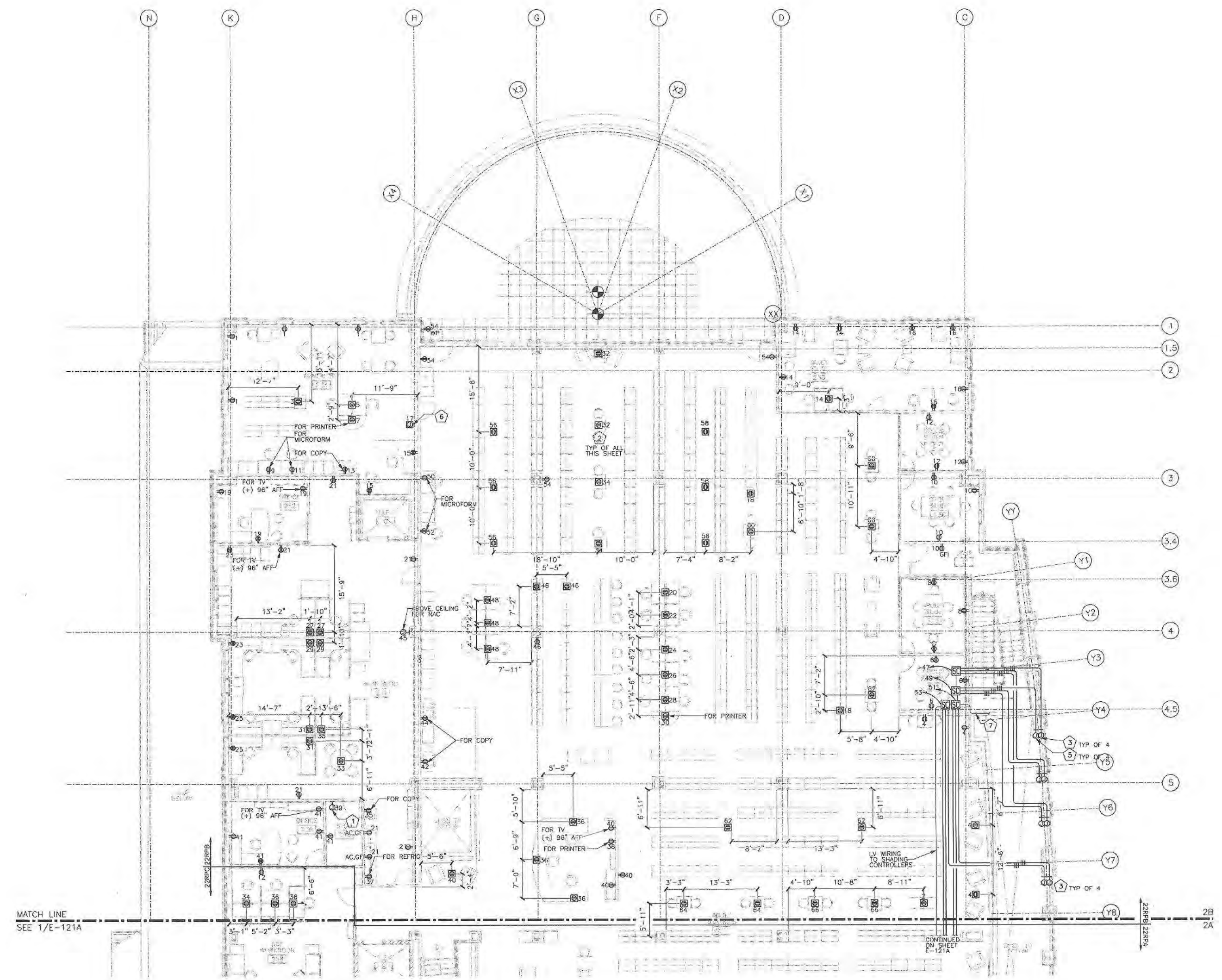
No.	DATE	BY	Description
6	04/08/09	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS
DRAWN BY M-M.BES
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2009

TITLE
POWER
FLOOR PLAN
SECOND FLOOR
AREA B

PROJECT NO. 50002241

E-121B
SHEET NO.



1 POWER FLOOR PLAN - SECOND FLOOR AREA B
1/8" = 1' 0"

MATCH LINE
SEE 1/E-122B

KEYED NOTES

- 1 SUPERVISORY SWITCH TO MONITOR FIRE PROTECTION RATE VALVE.
- 2 CONTROL RELAY FOR UNIT SHUT-DOWN.
- 3 TEST SWITCHES FOR DUCT DETECTORS ON THIS FLOOR ARE GROUPED TOGETHER. TEST SWITCHES SHALL BE LABELED TO INDICATE WHICH DETECTOR THE SWITCH BELONGS TO.
- 4 PROVIDE ADDRESSABLE F.A. MONITOR RELAYS CONNECTED TO PREACTION SYSTEM PANEL. AUX. CONTACTS FOR TROUBLE AND ALARM CONDITIONS.

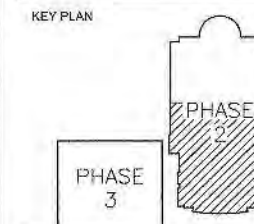
PSA Dewberry
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SEAL

KEY PLAN



SCALE



REFER TO BID SET FOR PREV. DWG. HISTORY

No.	DATE	BY	Description
1	04/06/08	DAP	CONSTRUCTION SET
4	02/27/09	M-M	REVIEW COMMENTS
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS

DRAWN BY	M-M, SEG
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/09/2009

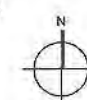
TITLE
ELEC SYSTEMS
FLOOR PLAN
SECOND FLOOR
AREA A

PROJECT NO. 50002241

E-122A

SHEET NO.

1 ELECTRICAL SYSTEMS FLOOR PLAN - SECOND FLOOR AREA A 1/8" = 1' 0"



1 2 3 4 5 6

KEYED NOTES

- 1 SUPERVISORY SWITCH TO MONITOR FIRE PROTECTION DATE VALVE.
- 2 NAC PANEL LOCATED ABOVE ACCESSIBLE CEILING. SEE RISER DIAGRAM ON SHEET E-602.
- 3 DUCT DETECTOR. LOCATED PER NFPA 72 MINIMUM 6 DUCT DIAMETERS FROM BEND, ELBOW, BRANCH TAKE-OFF OR TRANSITION. LOCATE IN ACCESSIBLE LOCATION.

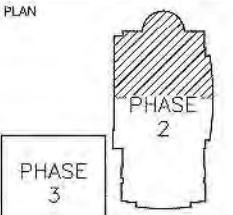
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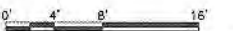
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SEAL

KEY PLAN



SCALE



REFER TO BID SET FOR PREV. DWG HISTORY

No.	DATE	BY	Description
6	04/08/09	DAP	CONSTRUCTION SET
4	02/27/09	M-M	REVIEW COMMENTS
5	01/09/09	DAP	BID AND PERMIT SET

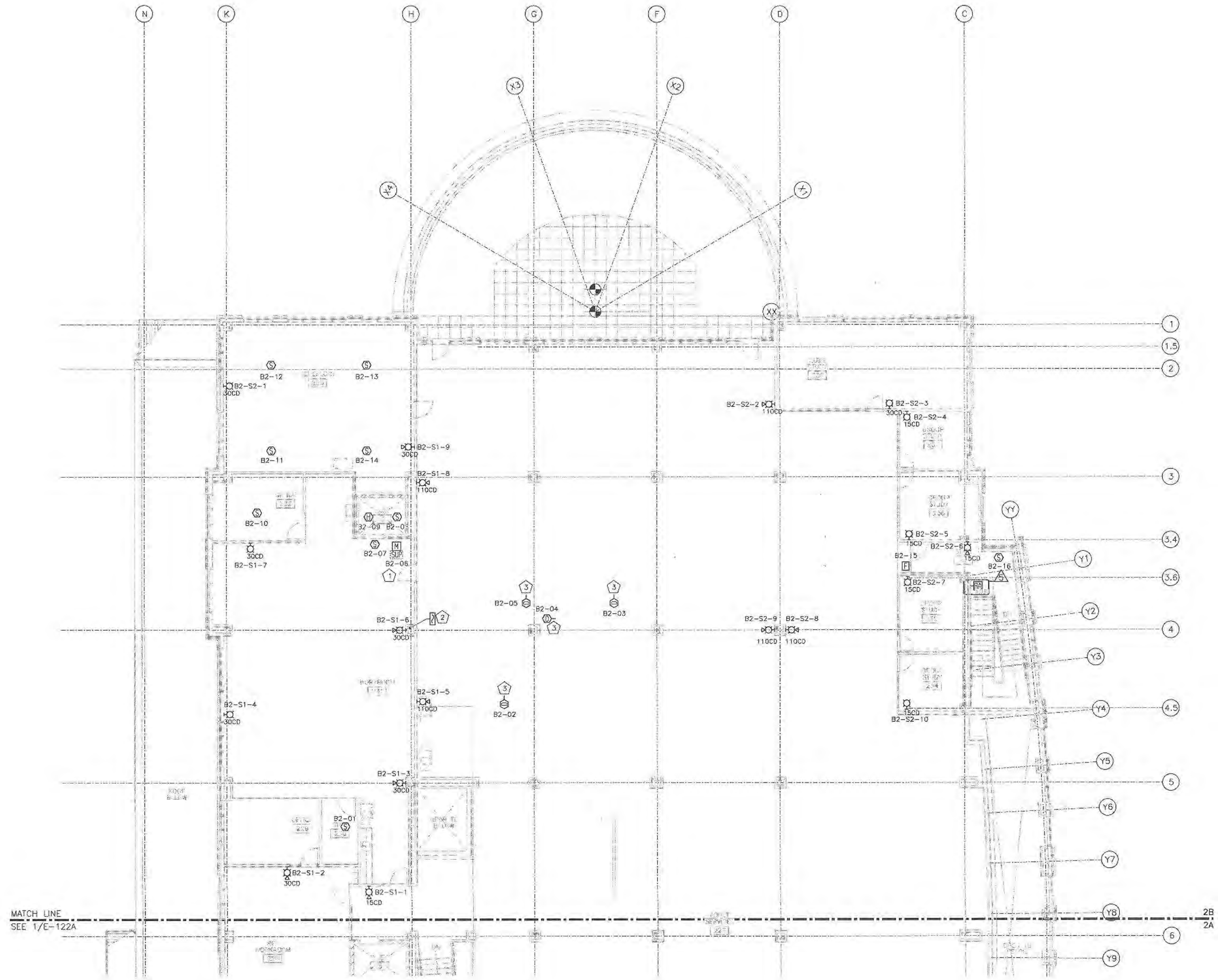
REVISIONS
DRAWN BY M-M
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2009

TITLE
ELEC SYSTEMS
FLOOR PLAN
SECOND FLOOR
AREA B

PROJECT NO. 50002241

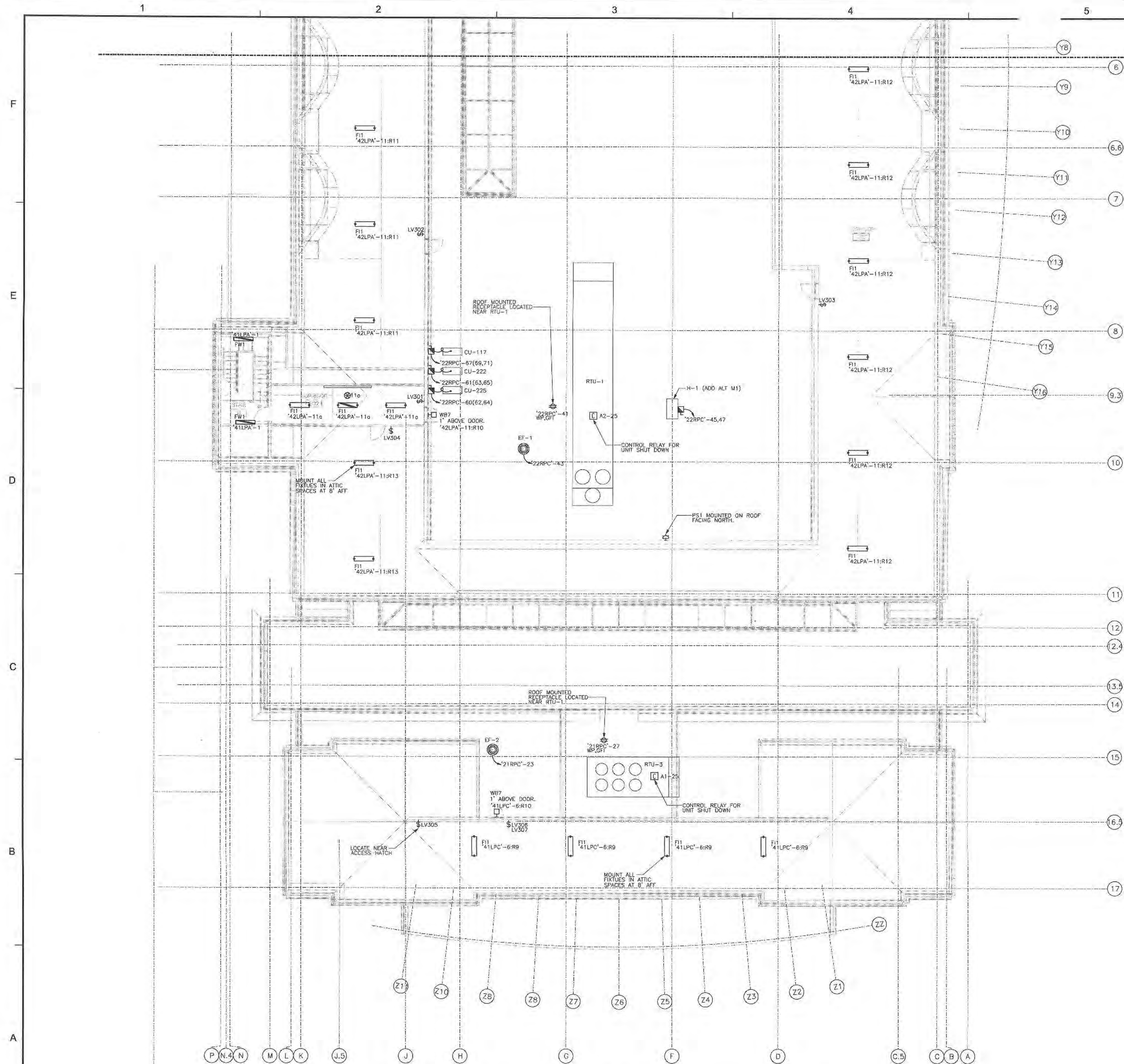
E-122B

SHEET NO.



1 ELECTRICAL SYSTEMS FLOOR PLAN - SECOND FLOOR AREA B
1/8" = 1' 0"





1 ROOF PLAN - ELECTRICAL AREA A
1/8" = 1' 0"

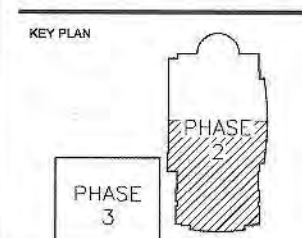
KEYED NOTES
17 NOT USED.

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SCALE
0' 4' 8' 12'

REFER TO BID SET FOR PREV. DWG HISTORY			
No	DATE	BY	Description
6	04/08/09	DAP	CONSTRUCTION SET
3	08/04/08	DAP	DD SUBMITTAL
2	06/02/08	DAP	FINAL SITE PLAN REVIEW
5	09/09/08	DAP	BIDDER REVIEW SET

REVISIONS
DRAWN BY M-M
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2009

TITLE
ROOF PLAN
ELECTRICAL
AREA A
PROJECT NO. 50002241

E-130A
SHEET NO.

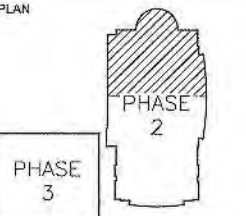
1 2 3 4 5 6



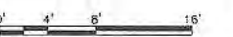
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SEAL

KEY PLAN



SCALE



REFER TO BID SET FOR PREV. DWG. HISTORY

No.	DATE	BY	Description
6	04/08/08	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET

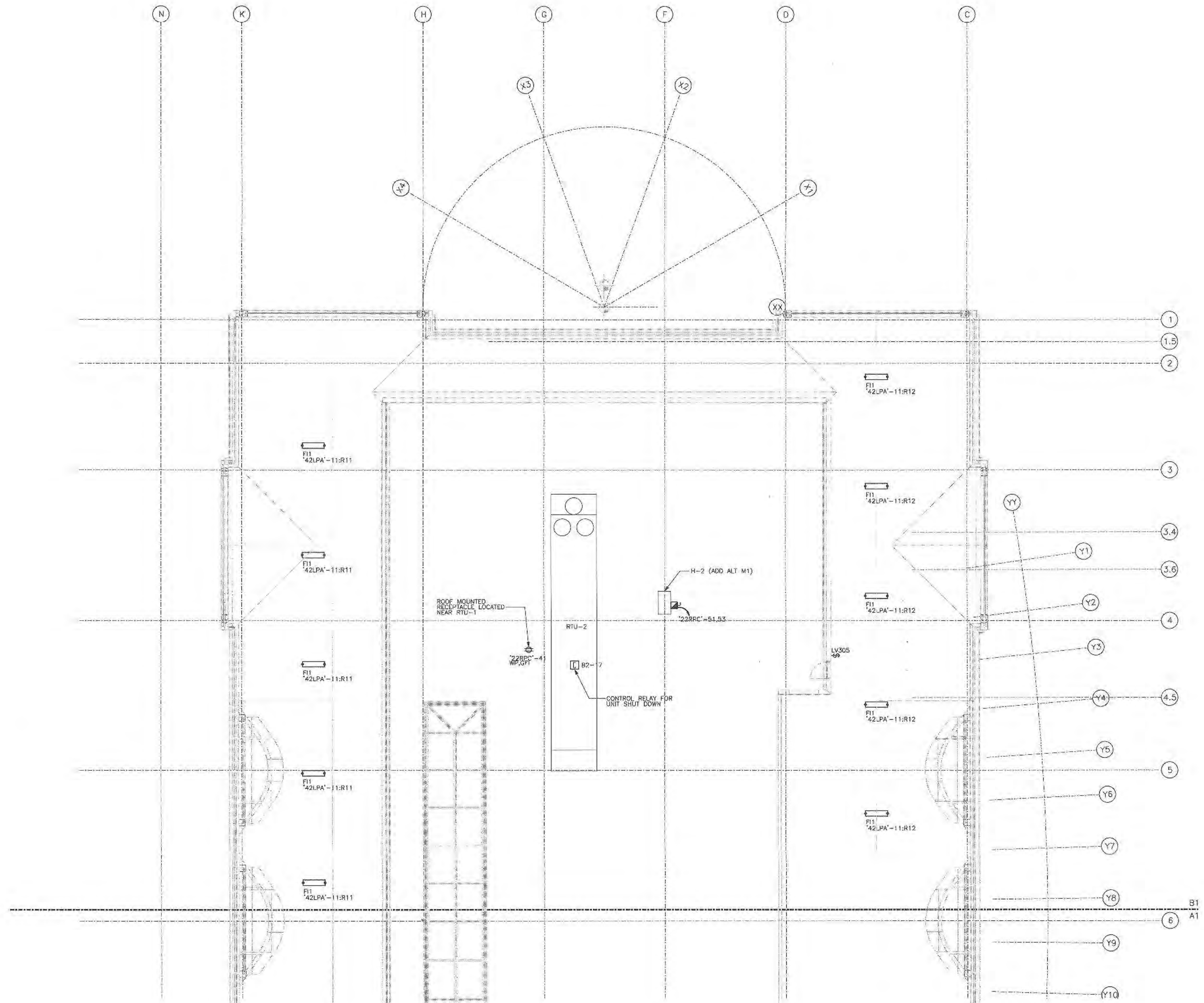
DRAWN BY	M-M
APPROVED BY	JMP
CHECKED BY	M-M
DATE	01/09/2009

TITLE
ROOF
PLAN
ELECTRICAL
AREA B

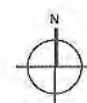
PROJECT NO. 50002241

E-130B

SHEET NO.



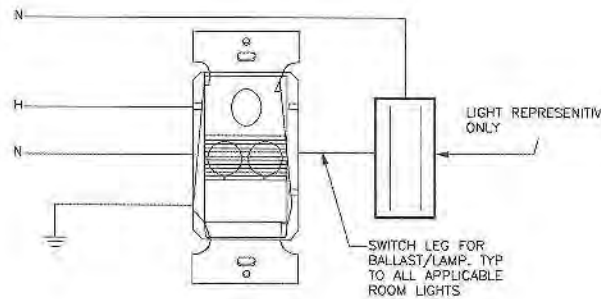
1 ROOF PLAN - ELECTRICAL AREA B
1/8" = 1' 0"



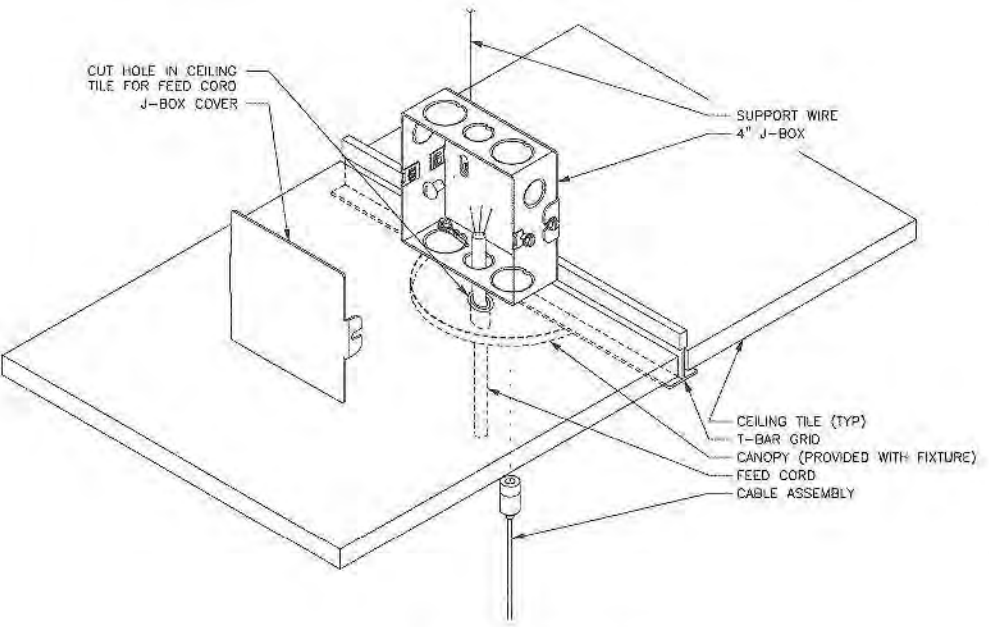
1 2 3 4 5 6



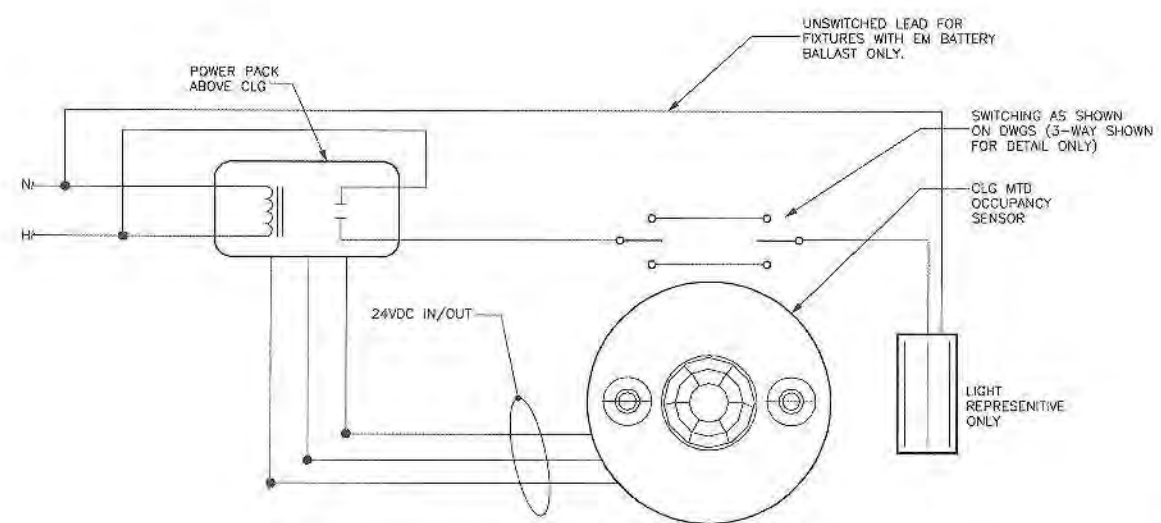
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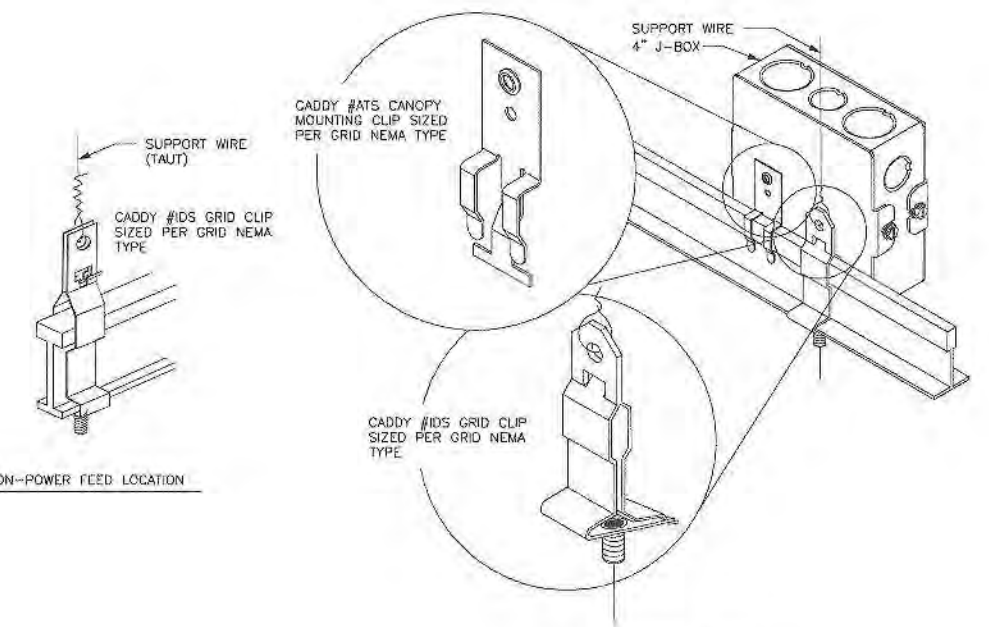
DESIGN BASED ON WATTSTOPPER DW100
1 SINGLE SWITCH WALL SENSOR
NO SCALE



POWER FEED LOCATION - FRONT



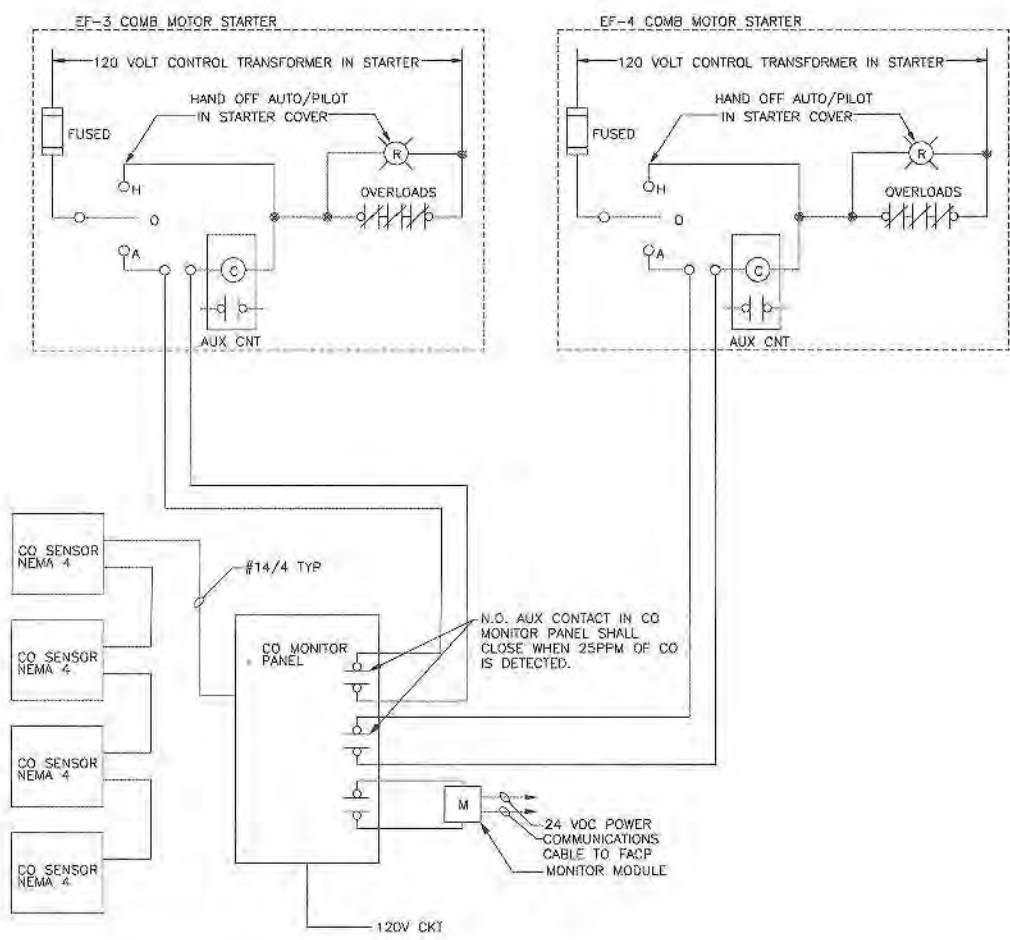
2 CEILING OCCUPANCY SENSOR DETAIL
NO SCALE



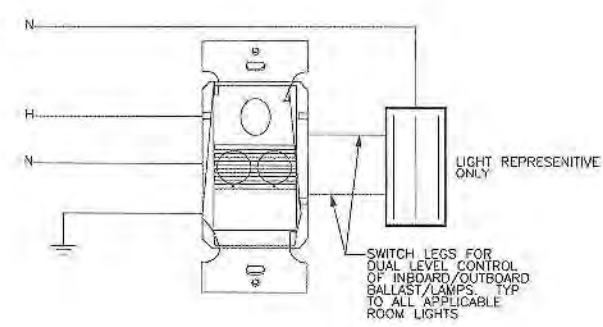
POWER FEED LOCATION - BACK

3 LINEAR INDIRECT T-GRID MOUNTING DETAIL
NO SCALE

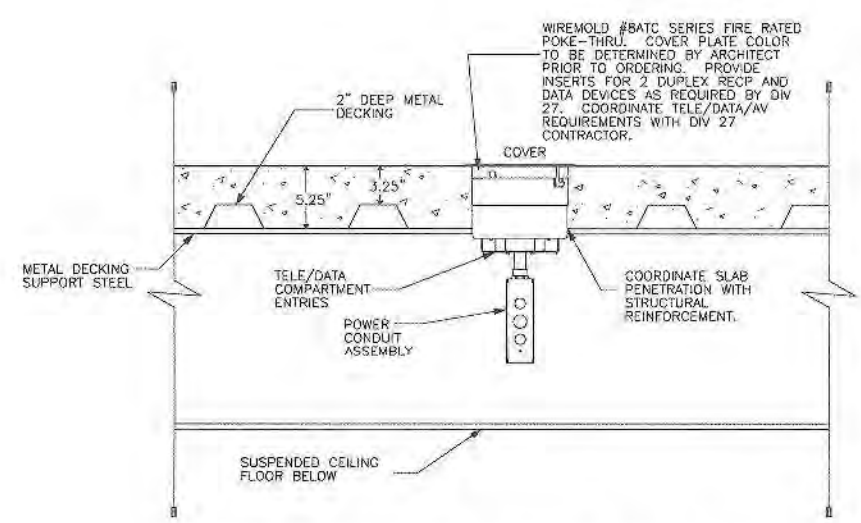
NOTES:
ALL DEVICES SHALL BE SURFACE MOUNTED.
COORDINATE WIRE SIZES, TYPES AND INTERCONNECTION OF DEVICES WITH MANUFACTURERS.
MOTOR STARTER AUX CONTACT SHALL ACTIVATE TROUBLE SIGNAL TO FIRE ALARM CONTROL PANEL.



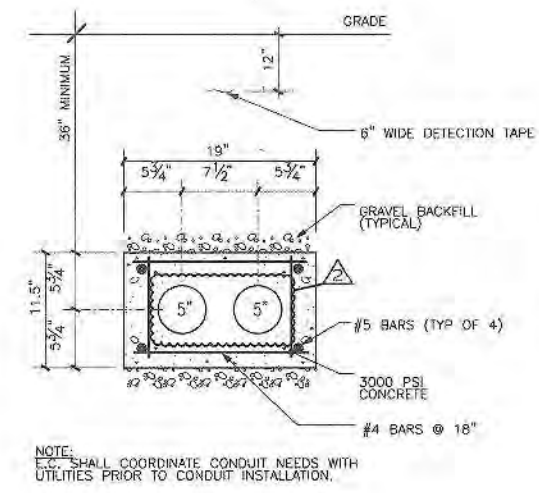
5 CO SENSOR WIRING DIAGRAM
NO SCALE



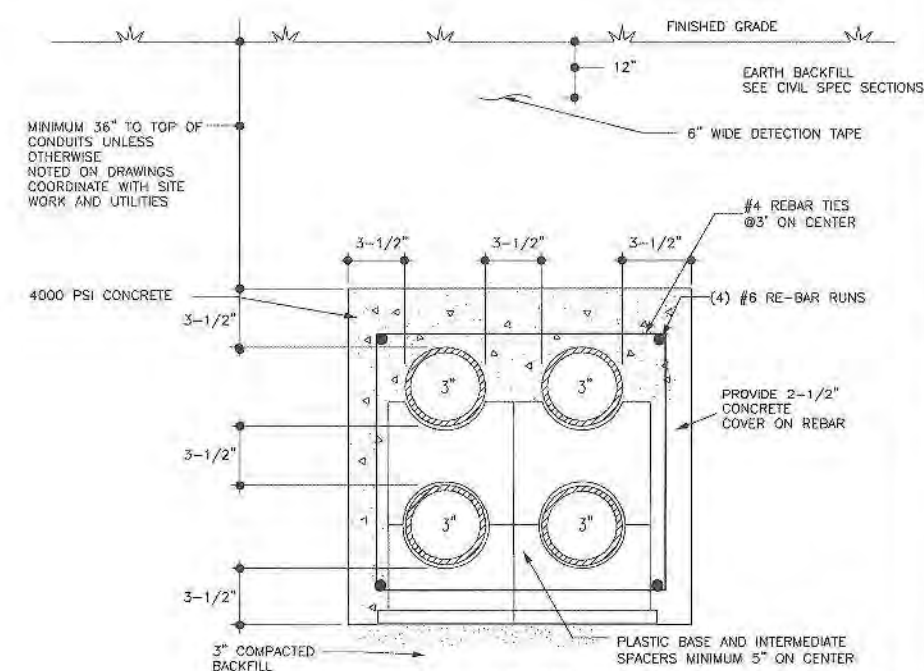
DESIGN BASED ON WATTSTOPPER DW200
4 DUAL SWITCHING WALL SENSOR
NO SCALE



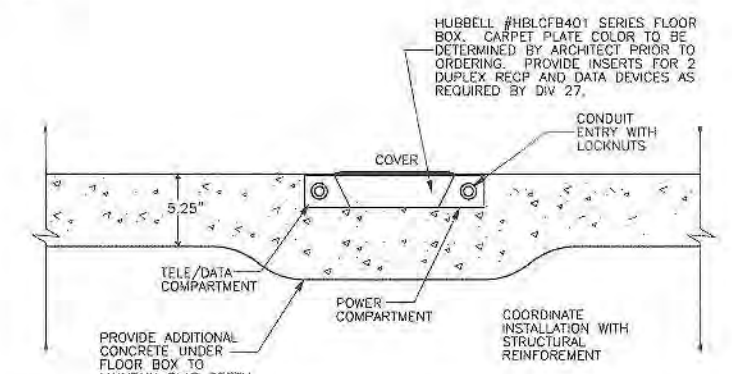
6 SLAB ABOVE GRADE FLOOR BOX DETAIL
NO SCALE



7 DUCT BANK DETAIL
NO SCALE



8 ELECTRICAL SERVICE ENTRANCE CONDUCTORS DETAIL
NO SCALE



9 SLAB ON GRADE FLOOR BOX DETAIL
NO SCALE

Mark Thorson

SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY				
No.	DATE	BY	Description	REVISIONS
6	04/09/09	DAP	CONSTRUCTION SET	
2	01/28/09	M-M	ADDENDUM #2	
5	01/09/09	DAP	BID AND PERMIT SET	

DRAWN BY M-M
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2009

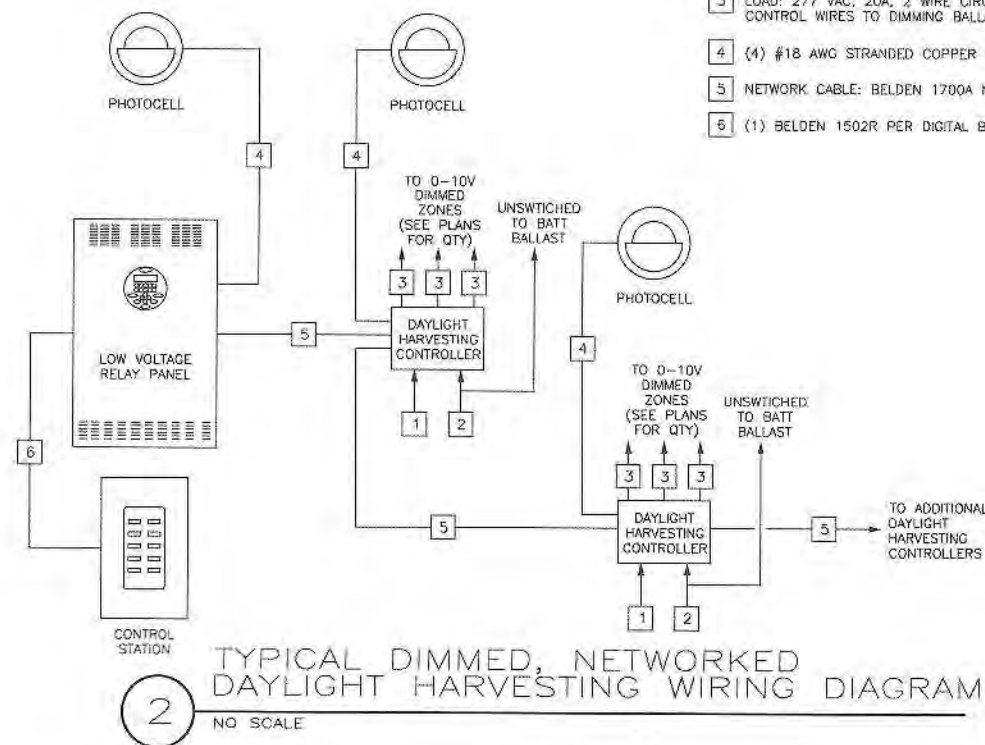
TITLE
ELECTRICAL
DETAILS

PROJECT NO. 50002241

E-501

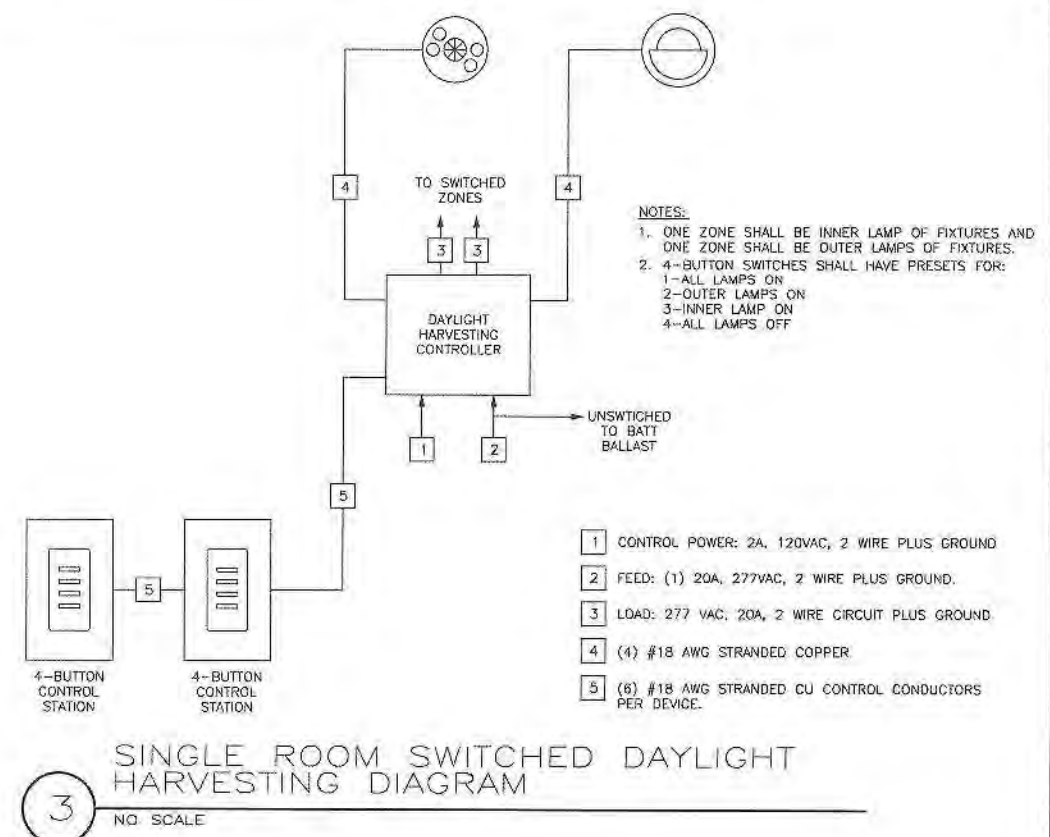
SHEET NO.

- 1 CONTROL POWER: 2A, 120VAC, 2 WIRE PLUS GROUND
- 2 FEED: (1) 20A, 277VAC, 2 WIRE PLUS GROUND.
- 3 LOAD: 277 VAC, 20A, 2 WIRE CIRCUIT PLUS 0-10VDC CONTROL WIRES TO DIMMING BALLAST
- 4 (4) #18 AWG STRANDED COPPER
- 5 NETWORK CABLE: BELDEN 1700A MASTER/S�AVE BUS
- 6 (1) BELDEN 1502R PER DIGITAL BUTTON STATION



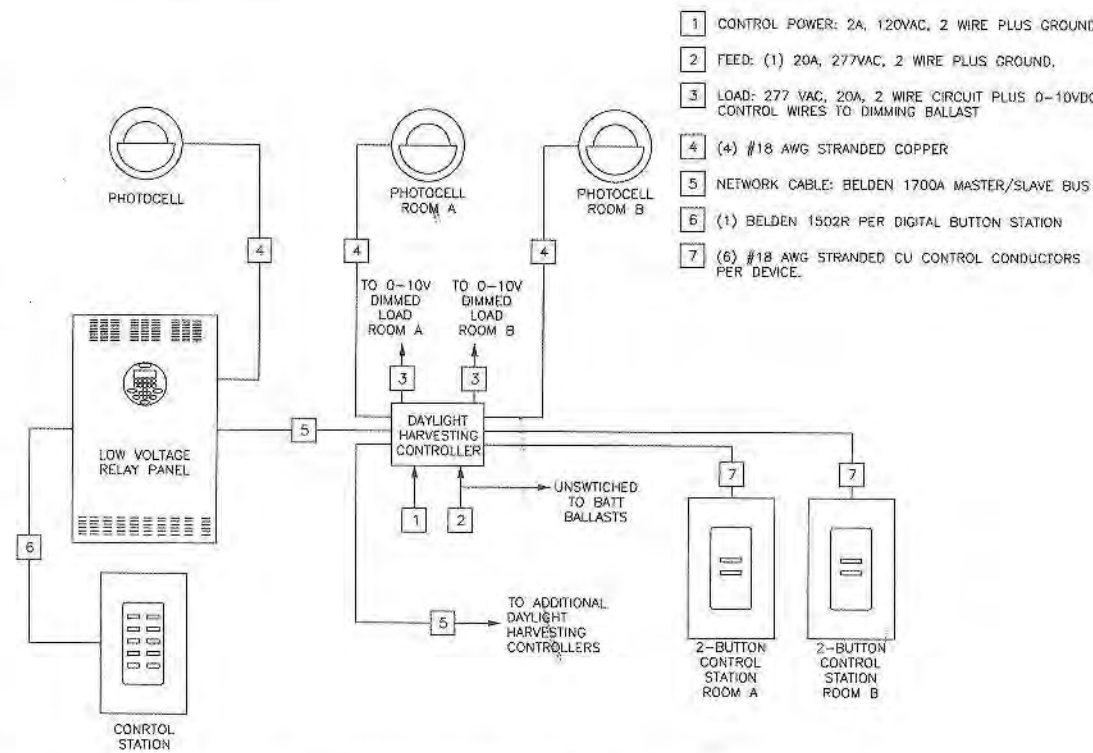
2 TYPICAL DIMMED, NETWORKED DAYLIGHT HARVESTING WIRING DIAGRAM

NO SCALE



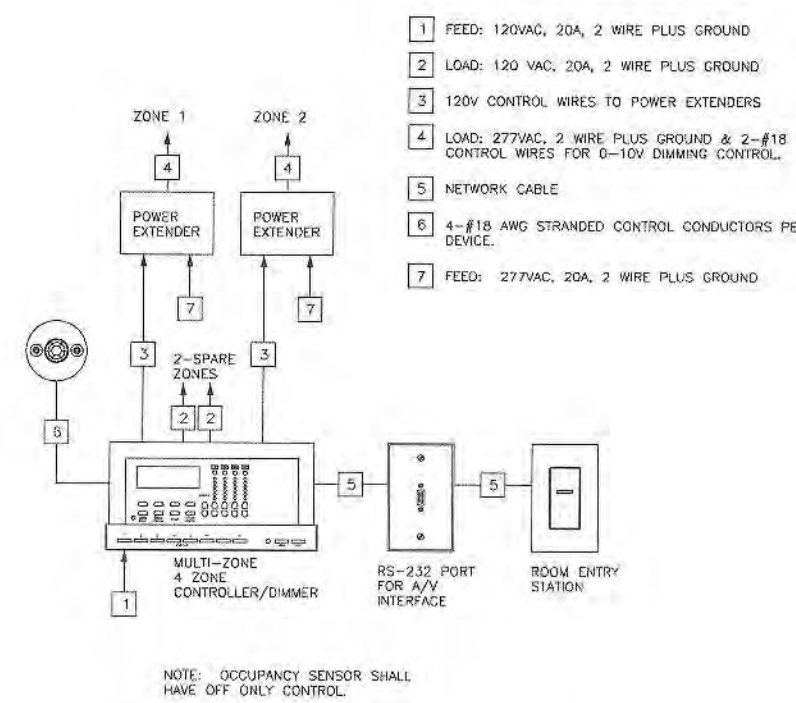
3 SINGLE ROOM SWITCHED DAYLIGHT HARVESTING DIAGRAM

NO SCALE



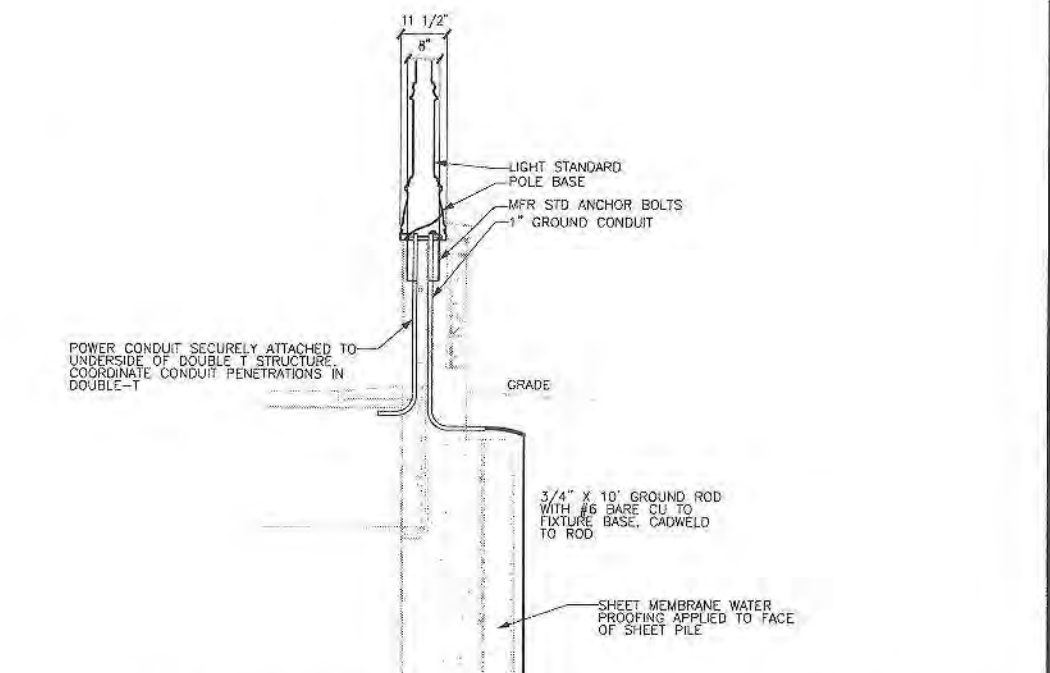
4 DUAL ROOM DIMMED, NETWORKED DAYLIGHT HARVESTING WIRING DIAGRAM

NO SCALE



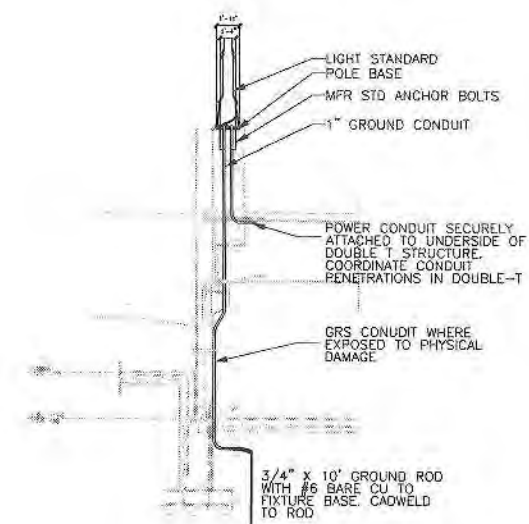
5 RM 135 LIGHTING CONTROL DIAGRAM

NO SCALE



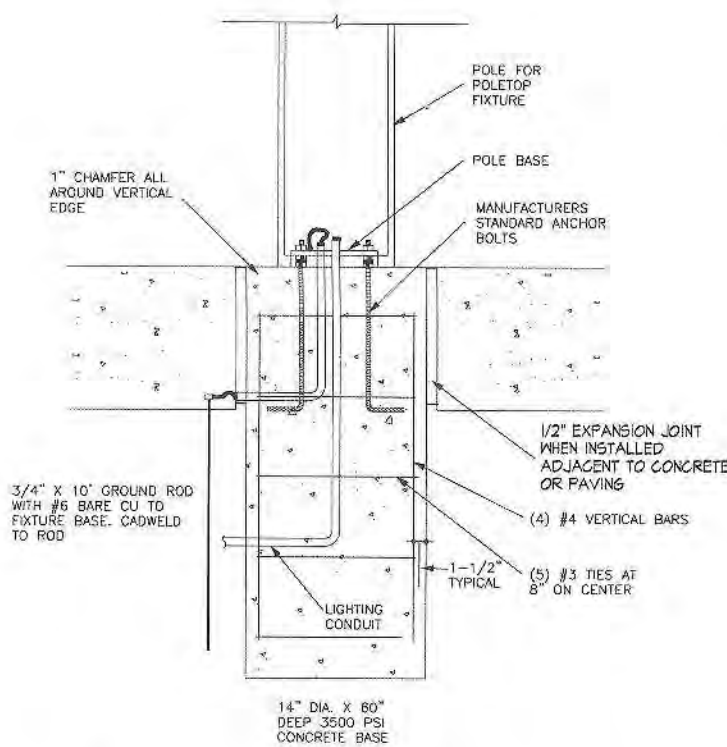
6 POLE MOUNTING DETAIL - SOUTH AND WEST WALLS

NO SCALE



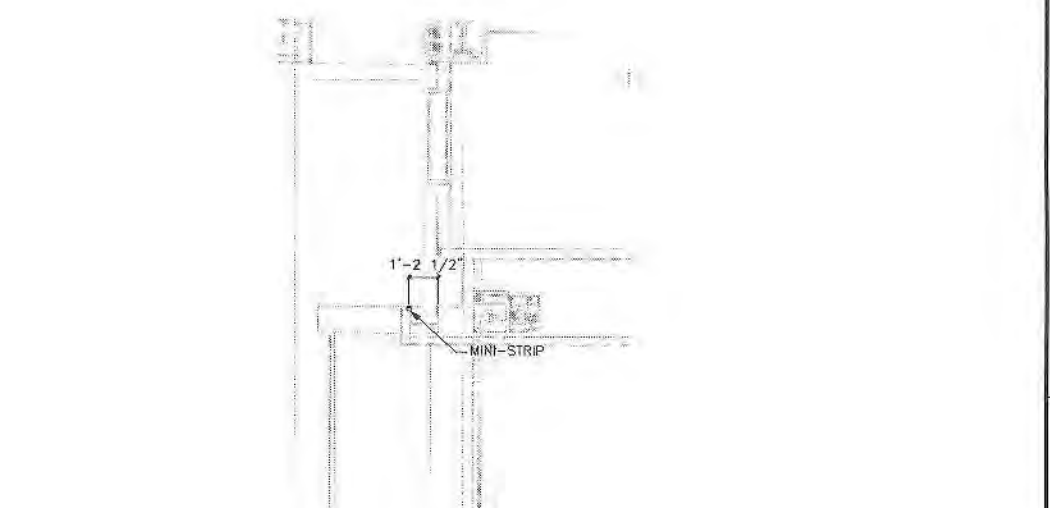
7 POLE MOUNTING DETAIL - RAMP AREA

NO SCALE



8 POLE MOUNTING DETAIL - PAVED AREA

NO SCALE



9 FS1 FIXTURE MOUNTING DETAIL

NO SCALE



SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY			
No.	DATE	BY	Description
6	04/08/09	DAP	CONSTRUCTION SET
5	01/09/09	DAP	BID AND PERMIT SET

REVISIONS			
No.	DATE	BY	Description

DRAWN BY: M-M
APPROVED BY: JMP
CHECKED BY: M-M
DATE: 01/09/2009

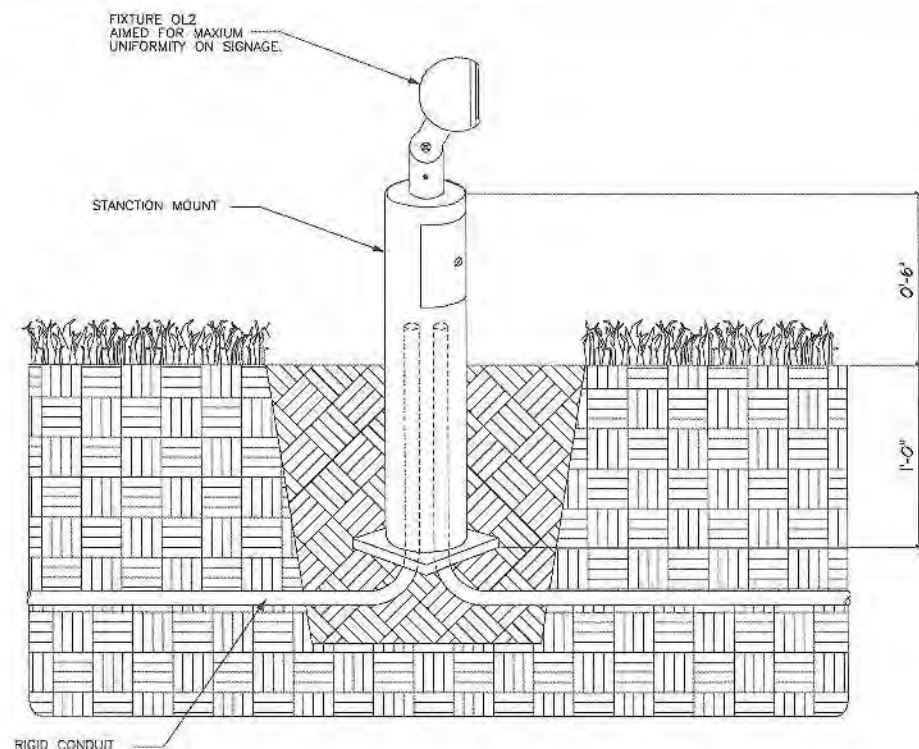
TITLE
ELECTRICAL DETAILS

PROJECT NO. 50002241

E-502

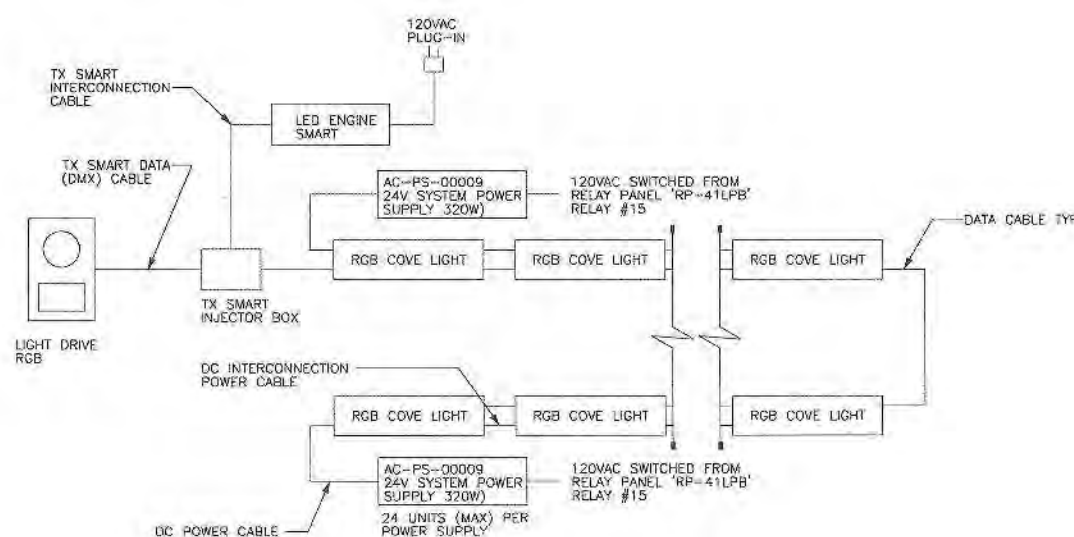
SHEET NO.

F
E
D
C
B
A

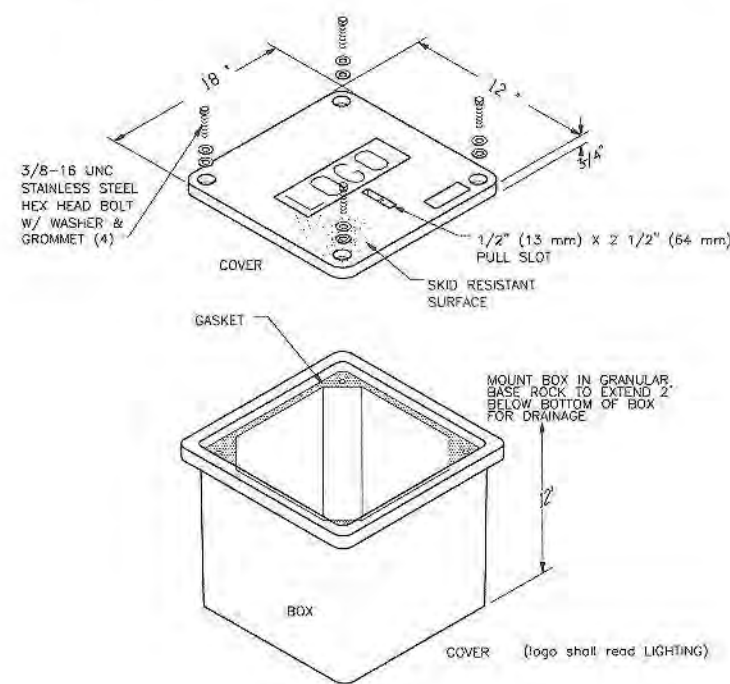


1 FIXTURE TYPE OL2 MOUNTING DETAIL
NO SCALE

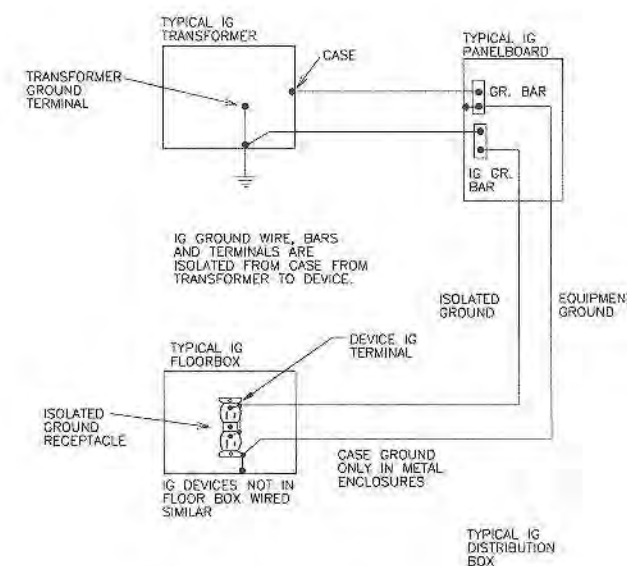
NOTE:
ALL PART NUMBERS REFER TO
TRAXON PRODUCTS. TRAXON IS
THE BASIS OF DESIGN PRODUCT.



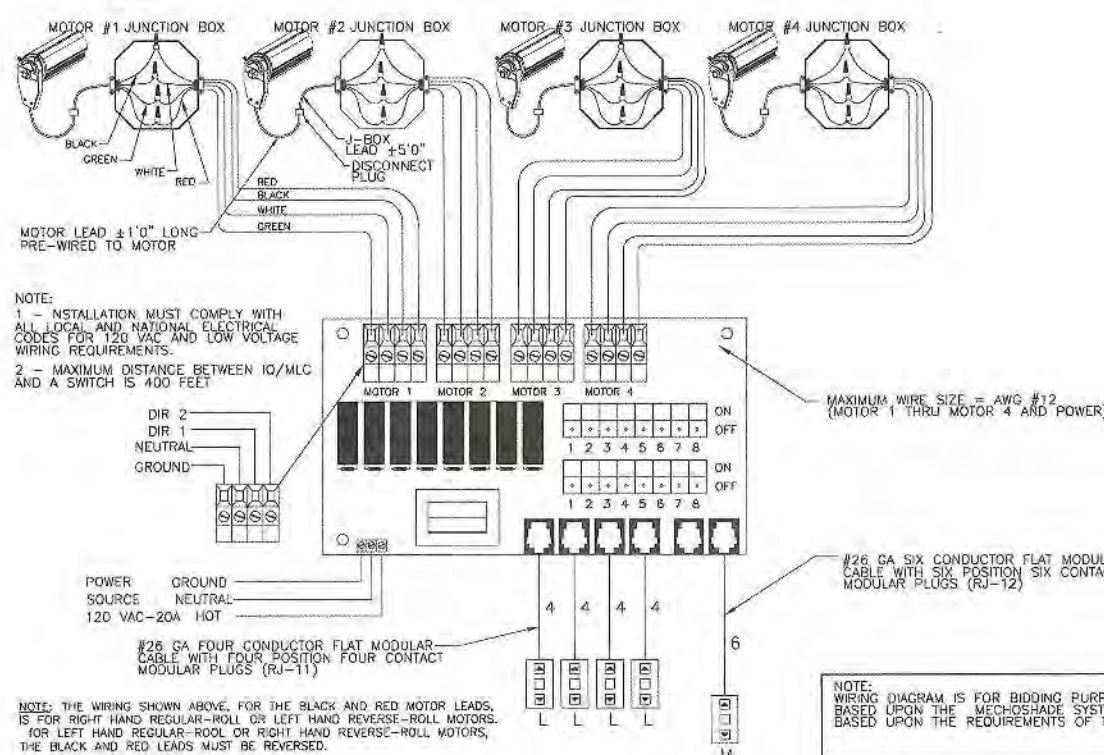
4 RGB LED COVE LIGHT WIRING DIAGRAM
NO SCALE



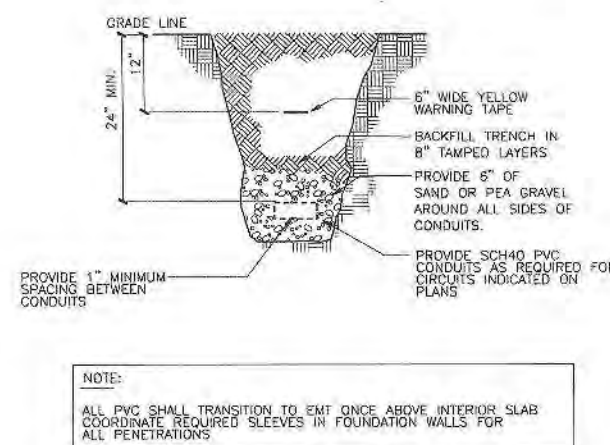
7 18"X12" GRADE MTD PULL BOX
NO SCALE



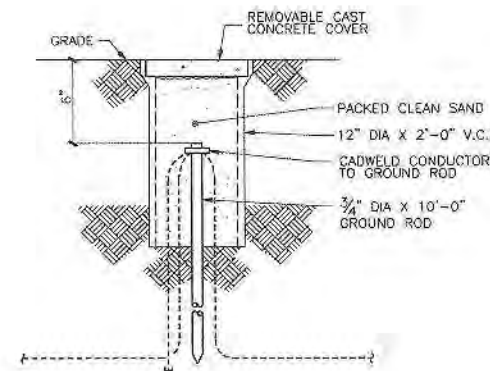
2 ISOLATED GROUND WIRING DIAGRAM
NO SCALE



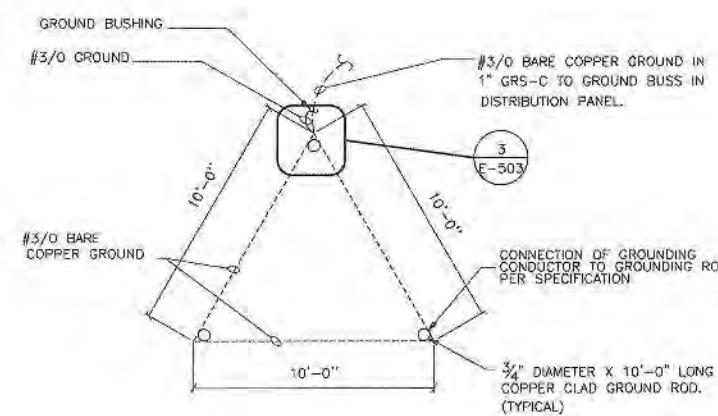
5 MOTORIZED SHADE WIRING DIAGRAM
NO SCALE



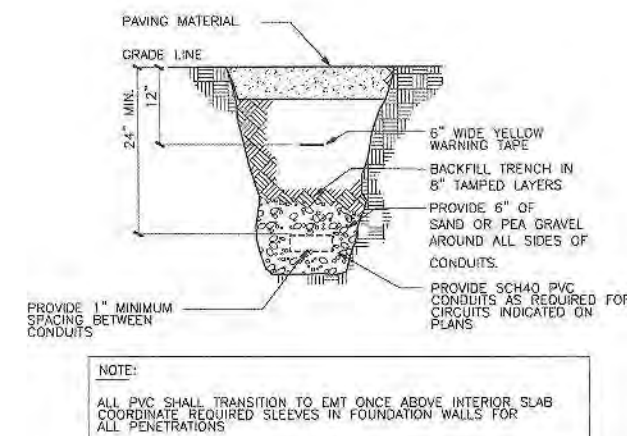
8 SITE BRANCH RACEWAY UNPAVED AREA
NO SCALE



3 GROUND TEST WELL
NO SCALE



6 GROUND FIELD DETAIL
NO SCALE



9 SITE BRANCH RACEWAY PAVED AREA
NO SCALE



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KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY			
11	04/06/09	DAP	CONSTRUCTION SET
5	01/09/08	DAP	BID AND PERMIT SET
No.	DATE	BY	Description
REVISIONS			

DRAWN BY: M-M
APPROVED BY: JMP
CHECKED BY: M-M
DATE: 01/09/2009

ELECTRICAL
DETAILS

PROJECT NO. 50002241

E-503

SHEET NO.



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KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY

DATE	BY	DESCRIPTION
04/08/09	DAP	CONSTRUCTION SET
01/26/09	N-M	ADDENDUM #2
01/19/09	M-M	ADDENDUM #1
01/09/09	DAP	BID AND PERMIT SET

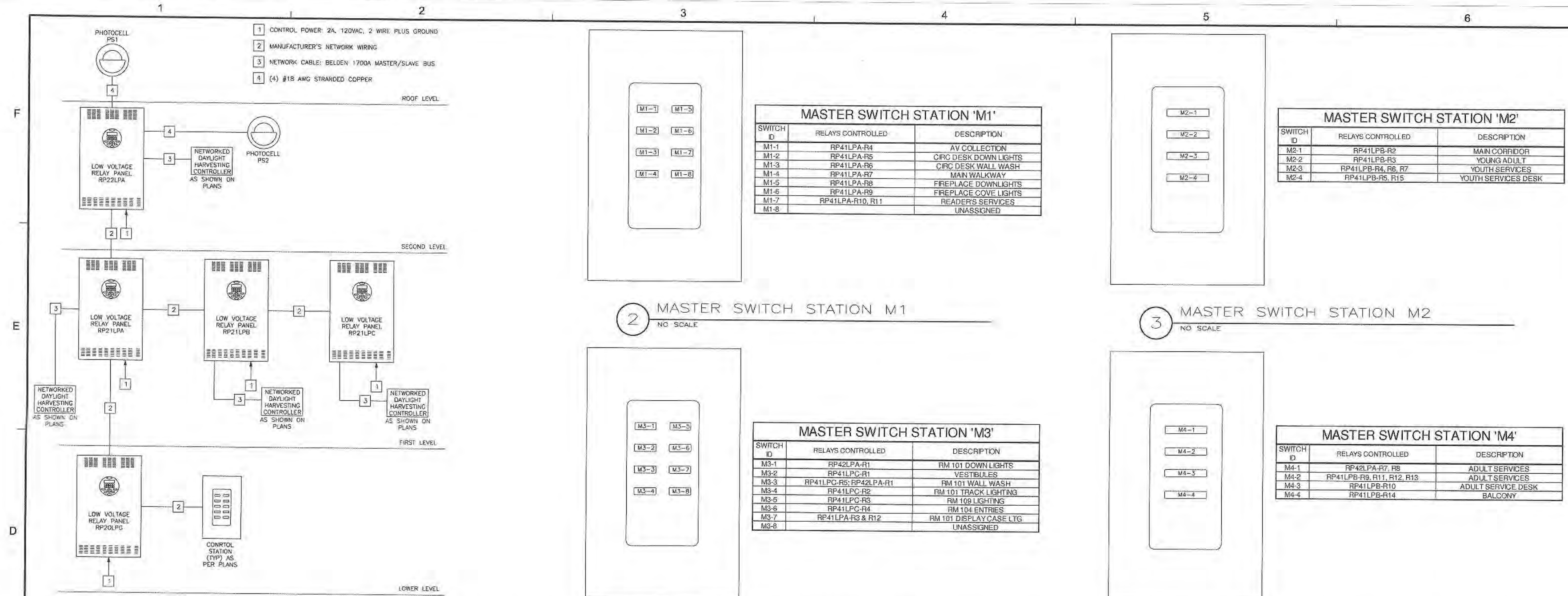
REVISIONS
DRAWN BY: M-M
APPROVED BY: JWP
CHECKED BY: M-M
DATE: 01/09/2009

ELECTRICAL
DETAILS

PROJECT NO. 50002241

E-504

SHEET NO.



1 NETWORKED LV RELAY PANEL RISER
NO SCALE

2 MASTER SWITCH STATION M1
NO SCALE

3 MASTER SWITCH STATION M2
NO SCALE

LOW VOLTAGE RELAY SCHEDULE - 'RP40LPG'

RELAY NO.	PANEL & CIRCUIT	AREA SERVED	WALL SWITCH	DIMMER CONTROL	TIME ON	TIME OFF	PHOTO ON	PHOTO OFF	OCC. SENS.	COMMENTS
R1	40LP-1	RM 014 PARKING NORTH	N	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R2	40LP-3	RM 014 RAMP ENTRY	N	N	Y	Y	N	N	N	ON AT DAWN, OFF AT DUSK
R3	40LP-2	RM 014 PARKING SOUTH	N	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R4	40LP-2	RM 013 BIKE STORAGE	LV001	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R5	40LP-4	PARKING LOT	N	N	N	N	Y	Y	N	
R6	40LP-4	PARKING LOT	N	N	N	N	Y	Y	N	COORD OFF TIME WITH OWNER
R7	SPARE									
R8	SPARE									
R9	SPARE									
R10	SPARE									
R11	SPARE									
R12	SPARE									

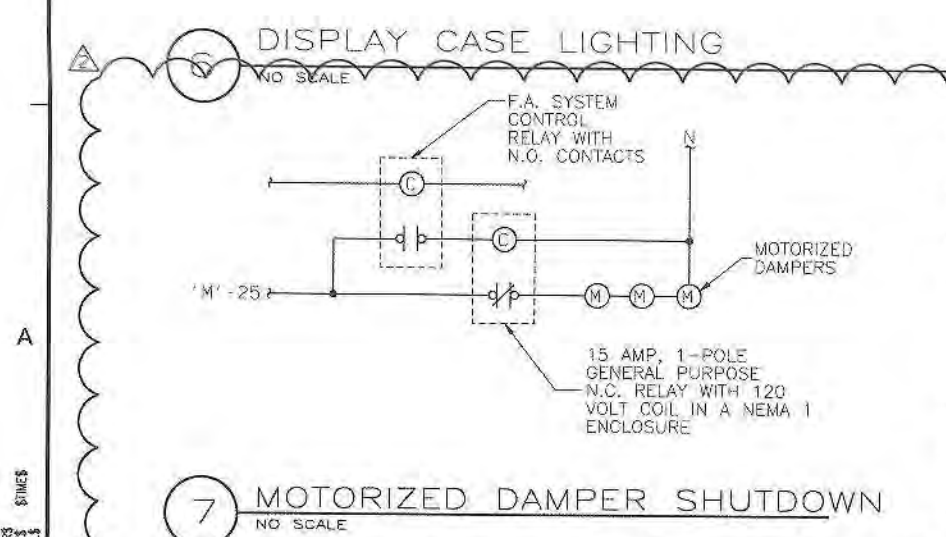
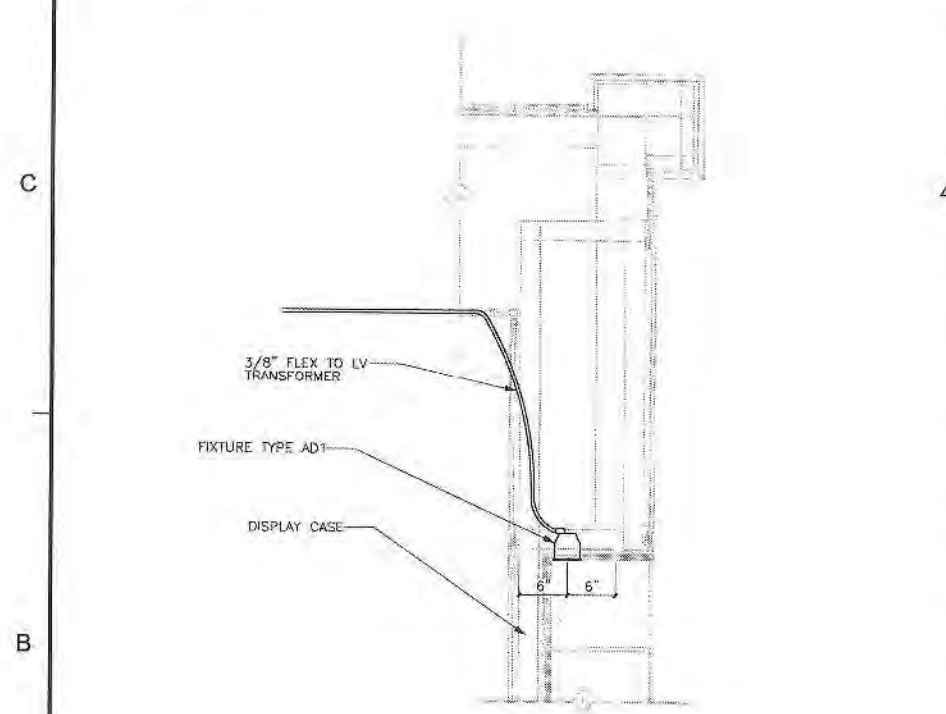
LOW VOLTAGE RELAY SCHEDULE - 'RP41LPB'

RELAY NO.	PANEL & CIRCUIT	AREA SERVED	WALL SWITCH	DIMMER CONTROL	TIME ON	TIME OFF	PHOTO ON	PHOTO OFF	OCC. SENS.	COMMENTS
R1	41LPB-3	RM 130 CORRIDOR	N	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R2	41LPB-5	RM 124 CORRIDOR	M2-1	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R3	41LPB-5	RM 143 YOUNG ADULT	M2-2	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R4	41LPB-2	RM 124 YOUTH SERVICES	M2-3	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R5	41LPB-2	RM 124 YOUTH SERVICES DESK	M2-4	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R6	41LPB-4	RM 124 YOUTH SERVICES	M2-3	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R7	41LPB-6	RM 124 YOUTH SERVICES	M2-3	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R8	41LPB-15	EXTERIOR LIGHTING	N	N	N	Y	PS1	PS1	N	COORD OFF TIME WITH OWNER
R9	41LPB-10	RM 227 ADULT SERVICES	M4-2	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R10	41LPB-10	RM 227 ADULT SERV DESK	M4-3	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R11	41LPB-12	RM 226 ADULT SERVICES	M4-2	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R12	41LPB-14	RM 227 ADULT SERVICES	M4-2	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R13	41LPB-13	RM 227 ADULT SERVICES	M4-2	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R14	41LPB-13	BALCONY	N	N	Y	Y	PS1	PS1	N	COORD ON/OFF TIME WITH OWNER
R15	21RPB-60	RM 124 LED COVE	M2-4	N	Y	Y	N	N	N	COORD ON/OFF TIME WITH OWNER
R16	21RPB-78	SITE MONUMENT SIGN	N	N	N	Y	PS1	PS1	N	COORD OFF TIME WITH OWNER
R17	SPARE									
R18	SPARE									
R19	SPARE									
R20	SPARE									
R21	SPARE									
R22	SPARE									
R23	SPARE									
R24	SPARE									

LOW VOLTAGE RELAY SCHEDULE - 'RP42LPA'

RELAY NO.	PANEL & CIRCUIT	AREA SERVED	WALL SWITCH	DIMMER CONTROL	TIME ON	TIME OFF	PHOTO ON	PHOTO OFF	OCC. SENS.	COMMENTS
R1	42LPA-1	LOBBY WALL WASH NORTH	M3-3	N	Y	Y	PS2	PS2	N	SEE NOTES 1 & 2
R2	42LPA-1	LOBBY DOWN LIGHTING	M3-1	N	Y	Y	N	N	N	SEE NOTES 1 & 2
R3	42LPA-3	RM 215 CORRIDOR	N	N	Y	Y	N	N	N	SEE NOTE 1
R4	42LPA-5	RM 200 RECP	LV201	N	N	Y	N	N	N	SEE NOTE 1
R5	42LPA-5	RM 201 CORRIDOR	LV202	N	N	Y	N	N	N	SEE NOTE 1
R6	42LPA-5	RM 200 CORRIDOR	LV203	N	N	Y	PS2	PS2	N	SEE NOTE 1
R7	42LPA-2	RM 227 ADULT SERVICES	M4-1	N	Y	Y	N	N	N	SEE NOTE 1
R8	42LPA-4	RM 227 ADULT SERVICES	M4-1	N	Y	Y	N	N	N	SEE NOTE 1
R9	42LPA-7	RM 221 CORRIDOR	N	N	Y	Y	N	N	N	SEE NOTE 1
R10	42LPA-11	ROOF LIGHTING	LV301	N	N	Y	N	N	N	SEE NOTE 1
R11	42LPA-11	ATTIC LIGHTING	LV302	N	N	Y	N	N	N	SEE NOTE 1
R12	42LPA-11	ATTIC LIGHTING	LV303	N	N	Y	N	N	N	SEE NOTE 1
R13	42LPA-11	ATTIC LIGHTING	LV304	N	N	Y	N	N	N	SEE NOTE 1
R14	SPARE									
R15	SPARE									
R16	SPARE									
R17	SPARE									
R18	SPARE									
R19	SPARE									
R20	SPARE									
R21	SPARE									
R22	SPARE									
R23	SPARE									
R24	SPARE									

NOTES
1. COORDINATE ON/OFF TIMES WITH OWNER.
2. PHOTOCELL SHALL TURN LIGHTS OFF WHEN DAYLIGHTING ALONE CAN PROVIDE GREATER F.C. LEVELS ON THE FLOOR OF ROOM 101 THAN THE ARTIFICIAL LIGHTING CAN ALONE.



50002241

F
E
D
C
B
A

1 2 3 4 5 6

PLAN NOTES

- 1 VFD PROVIDED BY DIVISION 15, INSTALLATION AND POWER WIRING BY DIVISION 16. CONTROL WIRING BY DIVISION 15.
- 2 PROVIDE INSULATED #3/0 GROUNDING ELECTRODE CONDUCTOR AND CONNECT TO BUILDING WATER SERVICE. SEE DRAWING E001 FOR LOCATION.
- 3 PROVIDE INSULATED #3/0 GROUNDING ELECTRODE CONDUCTOR AND CONNECT TO BUILDING PERIMETER GROUND GRID WITH EXOTHERMIC WELD. SEE DRAWING E001 FOR LOCATION.
- 4 PROVIDE INSULATED #3/0 GROUNDING ELECTRODE CONDUCTOR AND CONNECT TO BUILDING STEEL WITH EXOTHERMIC WELD. SEE DRAWING E001 FOR LOCATION.
- 5 MAIN BUILDING TRANSFORMER BY UTILITY. SEE E010 FOR LOCATION.
- 6 DISCONNECT SHALL BE IN NEMA 3R ENCLOSURE, HEAVY DUTY TYPE RATED FOR USE AS SERVICE DISCONNECT. SHALL BE LOCKABLE IN THE ON POSITION WITH GROUND FAULT PROTECTION AND NEUTRAL-GROUND BOND. ERICKSON ELECTRIC #PACMS-46BNG6 OR APPROVED EQUAL.

PSA Dewberry
36 SOUTH WABASH AVENUE, SUITE 310
CHICAGO, IL 60603
(312) 660-8800



GLENVIEW PUBLIC LIBRARY PHASE 2 1930 GLENVIEW ROAD GLENVIEW, ILLINOIS 60025

SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY				
No.	DATE	BY	Description	
6	04/08/09	DAP	CONSTRUCTION SET	
5	04/06/09	M-M	REF #2	
4	10/27/08	M-M	REVIEW COMMENTS	
5	01/08/08	DAP	BID AND PERMIT SET	

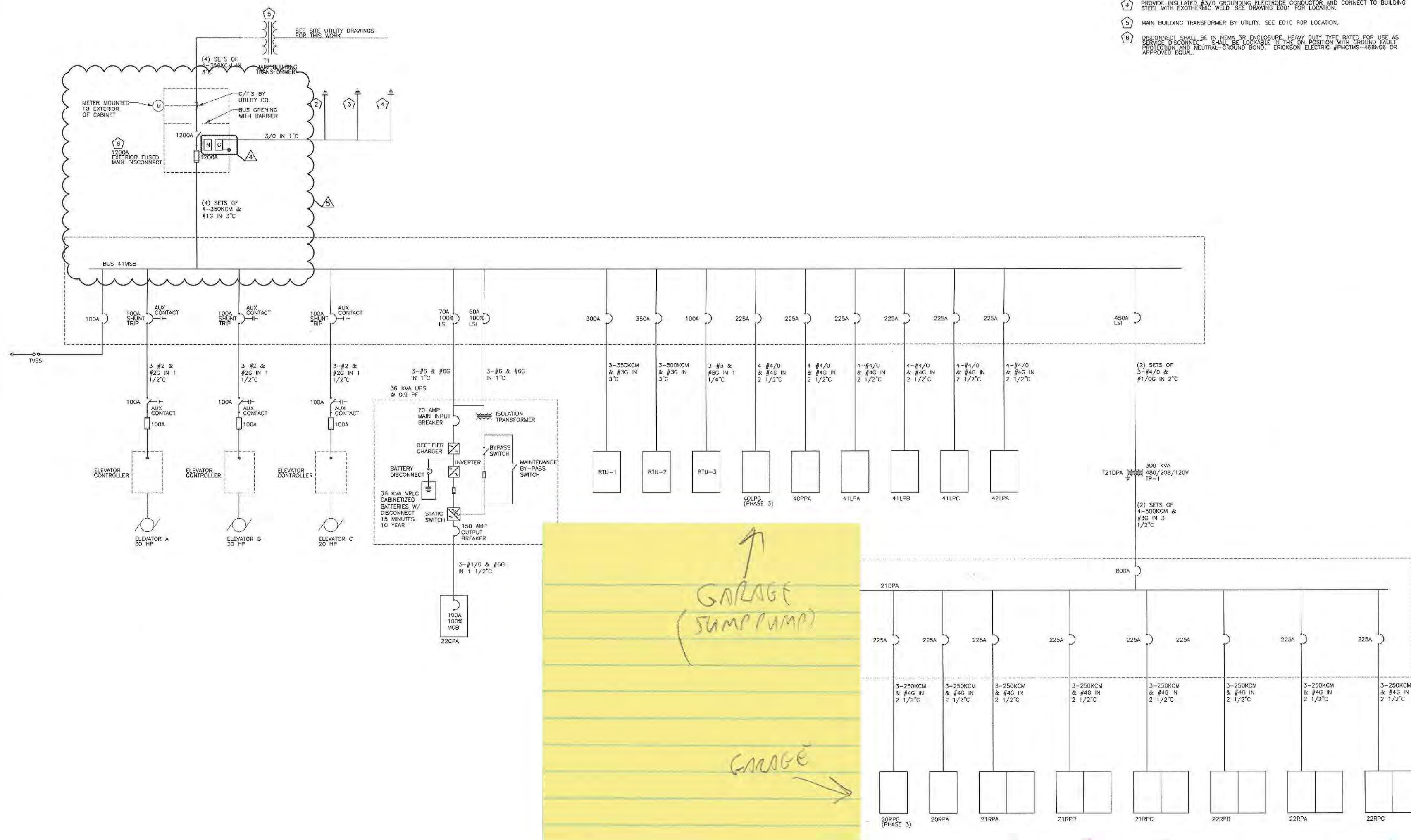
REVISIONS
DRAWN BY M-M
APPROVED BY JMP
CHECKED BY M-M
DATE 01/09/2009

TITLE
**ELECTRICAL
ONE-LINE
DIAGRAM**

PROJECT NO. 50002241

E-601

SHEET NO.





GLENVIEW PUBLIC LIBRARY
PHASE 2
1930 GLENVIEW ROAD
GLENVIEW, ILLINOIS 60025

SEAL

KEY PLAN

SCALE

REFER TO BID SET FOR PREV. DWG HISTORY				
No.	DATE	BY	Description	
8	04/08/08	DAP	CONSTRUCTION SET	
5	01/09/08	DAP	BID AND PERMIT SET	

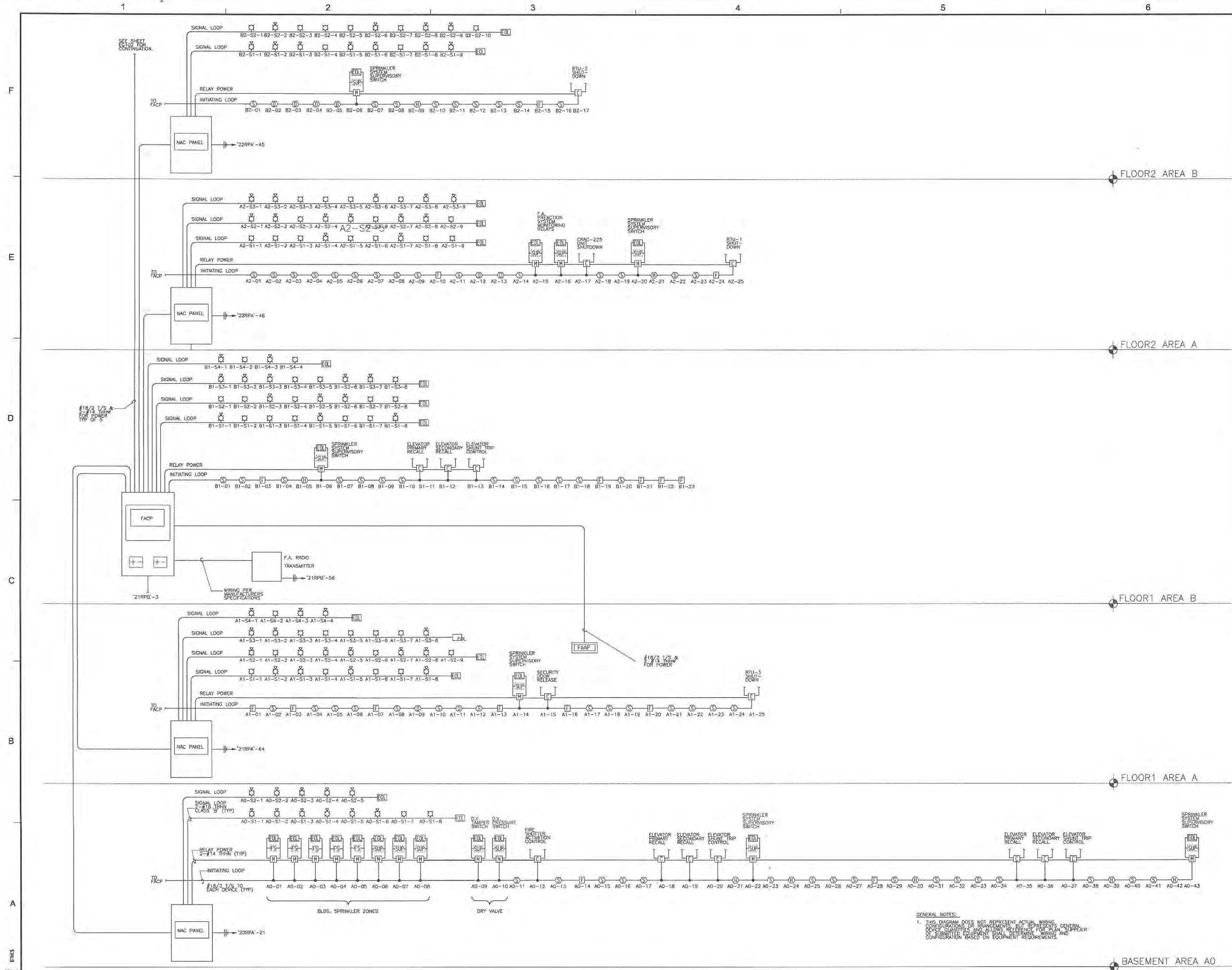
REVISIONS
DRAWN BY S-C
APPROVED BY J-M
CHECKED BY M-M
DATE 01/09/2009

TITLE
FIRE ALARM
RISER
DIAGRAM

PROJECT NO. 50002241

E-602

SHEET NO.



GENERAL NOTES:
1. THIS DIAGRAM DOES NOT REPRESENT ACTUAL WIRING. CONFIGURATIONS OR CHANGES, BUT REPRESENTS GENERAL DEVICE QUANTITIES AND ALLOW REFERENCE FOR PLANS, SUPPLIER OF SUBMITTED EQUIPMENT SHALL DETERMINE WIRING AND CONFIGURATION BASED ON EQUIPMENT REQUIREMENTS.

WALL EXTERIOR														WB-BUILDING WS = WALL SCOUNGE													
ID	HOUSING		LAMPS						BALLAST				NOTES	APPROVED MANUFACTURERS / SERIES	ID												
	SIZE	TYPE	QUAN	WATT	TYPE	COLOR	CHL(min)	START	QUAN	VOLTS	TYPE	EMER															
WB1	6" ROUND	ALUMINUM	1	70	T5 MH	3500K	81		1	277	ELEC		1,2	BEGA 208841 OR APPROVED EQUAL	WB1												
WB2	6"X14"	ALUMINUM	1	42	CF	3500K	81		1	277	ELEC		1,2	CANIMAN CW3356 OR PRE-APPROVED EQUAL	WB2												
WB3	6" X 17" MAX	ALUMINUM	1	175	MH	3500K	81		1	277	HPF		1,2	LUMARK #P OR PRE-APPROVED EQUAL	WB3												
WB4	11" L LONG	ALUMINUM	2	25	CF	4100K	81		1	277	CM 0.10V		1,3	CANIMAN 72582	WB4												
WB5	8"	ALUMINUM	39	2	LED	3000K	81		1	277	EO DRYER		1,3	CO-E F189	WB5												
WB6	9" X 17" MAX	ALUMINUM	2	26	CF	4100K	81		1	277	EM		1,2	LUMARK #P OR APPROVED EQUAL	WB6												

NOTES

1. FIXTURE SHALL BE TUBED.

2. FIXTURE SHALL HAVE COLD TEMPERATURE BALLAST.

3. HOUSING SHALL HAVE PSELED THROUGH WIPING WITHOUT ADDITIONAL PROX.

4. HOUSING COLOR SHALL BE DARK BRONZE.

NOTES

1. FIXTURE SHALL BE FUSED.
2. FIXTURE SHALL HAVE COLD TEMPERATURE BALLAST.
3. HOUSING SHALL HAVE FEED THROUGH WIRING WITHOUT ADDITIONAL J-BOX.
4. HOUSING COLOR SHALL BE DARK BRONZE.

DOWNLIGHTING																						
DF=FLUORESCENT						DI=INCANDESCENT						DL=LOW VOLTAGE				DA=ADJUSTABLE		DH=HD				
ID	HOUSING				TRIM				LAMPS				BALLAST/TRANSFORMER				NOTES	APPROVED MANUFACTURER / SERIES				ID
	MOUNTING	TYPE	OPTICS	FINISH	SIZE	COLOR	FINISH	LENS	QUAN	TYPE	COLOR	CFI (mm)	DSTRB	DRENT	QUAN	VOLTS		TYPE	EMER	DESIGN IS BASED ON FIRST MANUFACTURER LISTED		
DF1	RECESSED	CAN	MEDIUM	N/A	4"	CLEAR ALZAK	MATTE	NONE	ONE	32W THT	4100K	82 MM		HORIZONTAL	1	120/277	ELECTRONIC 4PIN		1	IRS P406TA7 / PRESQUOTE / GOTHAM	DF1	
DF1a	RECESSED	CAN	MEDIUM	N/A	4"	CLEAR ALZAK	MATTE	NONE	ONE	32W THT	4100K	80 MM		HORIZONTAL	1	120/277	ELECTRONIC 4PIN	YES	1	IRS P406TA7 / PRESQUOTE / GOTHAM	DF1a	
DF2	RECESSED	CAN	WALL WASH	N/A	4"	CLEAR ALZAK	MATTE	NONE	ONE	32W THT	4100K	82 MM		HORIZONTAL	1	120/277	ELECTRONIC 4PIN		1	IRS P406TA7 / PRESQUOTE / GOTHAM	DF2	
DF2a	RECESSED	CAN	WALL WASH	N/A	4"	CLEAR ALZAK	MATTE	NONE	ONE	32W THT	4100K	82 MM		HORIZONTAL	1	120/277	ELECTRONIC 4PIN	YES	1	IRS P406TA7 / PRESQUOTE / GOTHAM	DF2a	
DF3	RECESSED	CAN	MEDIUM	N/A	4"	CLEAR ALZAK	MATTE	NONE	ONE	42W THT	4100K	82 MM		HORIZONTAL	1	120/277	3-10V DIMMING		1	IRS P406TA7 / PRESQUOTE / GOTHAM	DF3	
DF3a	RECESSED	CAN	MEDIUM	N/A	4"	CLEAR ALZAK	MATTE	NONE	ONE	42W THT	4100K	82 MM		HORIZONTAL	1	120/277	3-10V DIMMING	YES	1	IRS P406TA7 / PRESQUOTE / GOTHAM	DF3a	
DF4	RECESSED	CAN	WIDE	N/A	8"	CLEAR ALZAK	MATTE	NONE	TWO	42W THT	4100K	80 MM		HORIZONTAL	1	120/277	ELECTRONIC 4PIN		1	PORTFOLIO C6842 / PRESQUOTE / GOTHAM	DF4	
DF5	SURFACE	CYLINDER	MEDIUM	WHITE	9"	CLEAR ALZAK	MATTE	NONE	TWO	42W THT	3500K	80 MM		N/A	1	120/277	ELECTRONIC 4PIN		1	PORTFOLIO C1042 / PRESQUOTE / GOTHAM	DF5	
DF6	RECESSED	CAN	MEDIUM	WHITE	8"	CLEAR ALZAK	MATTE	CLEAR GLASS	TWO	26W THT	4100K	80 MM		HORIZONTAL	1	120/277	UL1250 LONG 4PIN	YES	1,2	PORTFOLIO C1042 / PRESQUOTE / GOTHAM	DF6	
DF7	RECESSED	CAN	MEDIUM	N/A	4"	CLEAR ALZAK	SPECULAR COGN	NONE	ONE	16W Q.L. LED	3000K	90 MM		VERTICAL	1	120/277	UL1250 LONG 4PIN	YES	1,2	PORTFOLIO C1042 / PRESQUOTE / GOTHAM	DF7	
DF8	RECESSED	CAN	MEDIUM	N/A	9"	CLEAR ALZAK	SPECULAR COGN	NONE	ONE	85W Q.L. LED	3000K	80 MM		VERTICAL	1	277	HIGH-IPRO GEN		1	KELIN P4010079	DF8	
DF1	PENDANT	SQUARE	MEDIUM	DR BRONZE	6"	N/A	N/A	ACRYLIC	TWO	25W THT	4100K	82 MM		VERTICAL	1	277	ELECTRONIC 4PIN		1,3,5	CAMMAN P4470	DF1	
DF2	PENDANT	SQUARE	MEDIUM	DR BRONZE	12"	N/A	N/A	ACRYLIC	FOUR	21W 15.6-4PIN	4100K	82 MM		VERTICAL	1	277	ELECTRONIC 4PIN		1	CAMMAN P4470-48V1 OF PRE-APPROVED EQUAL	DF2	
DF3	PENDANT	ROUND	MEDIUM	WHT	8"	N/A	N/A	NONE	ONE	50W 14.0-0.0-4PIN	3000K	82 MM		VERTICAL	1	277	UL1250 LONG 4PIN		1	TESTED 700K-IP65 CANOPY OF PRE-APPROVED EQUAL	DF3	
DF4	PENDANT	ROUND	MEDIUM	SATIN	2.5"	N/A	N/A	NONE	ONE	50W N1016-B-PIN	3000K	82 MM		VERTICAL	1	277/24V	ELEC TRANS		1	TESTED 700K-IP65 CANOPY OF PRE-APPROVED EQUAL	DF4	

EXIT & EMERGENCY																	
XT= THERMOPLASTIC XA= ALUMINUM XH= HIGH ABUSE XR= REMOTE HEAD																	
ID	HOUSING				FACE				LAMPS			BATTERY		NOTES	ACCEPTABLE MANUF / SERIES	ID	
	TYPE	MATERIAL	COLOR	MOUNTING	SIDES	TYPE	COLOR	READS	TYPE	QUAN	WATT	TYPE	VOLTS				
X1	EXIT	POLYCARBONATE	WHITE	UNIVERSAL					1-RAIL	3	NI-CAD	277	2	SURE-LITES LPX / DUAL / LITHONIA		X1	
X1A	EXIT	POLYCARBONATE	WHITE	UNIVERSAL	1	STENCIL	RED	EXIT	LED	1-RAIL	3	NI-CAD	277	SURE-LITES ES RECESSED		X1A	
X12	EXIT	POLYCARBONATE	WHITE	UNIVERSAL	2	STENCIL	RED	EXIT	LED	2-RAIL	6	NI-CAD	277	SURE-LITES LPX / DUAL LITE / LITHONIA		X12	
X1B	EXIT	POLYCARBONATE	WHITE	UNIVERSAL	2	STENCIL	RED	EXIT	LED	2-RAIL	6	NI-CAD	277	SURE-LITES ES RECESSED		X1B	
X13	EXIT	POLYCARBONATE	WHITE	UNIVERSAL	4	STENCIL	RED	EXIT	LED	4-RAIL	3	NI-CAD	277	SURE-LITES LPX / DUAL LITE / LITHONIA		X13	
X14	EXIT	ALUMINUM	SILVER	BACK				EXIT	LED	1-RAIL	3	NI-CAD	277	1	SURE-LITES LPX / DUAL LITE / LITHONIA		X14
X15	EXIT	POLYCARBONATE	WHITE	UNIVERSAL	1	STENCIL	RED	EXIT	LED	1-RAIL	3	NI-CAD	277	2	SURE-LITES LPX / DUAL LITE / LITHONIA		X15
X16	EXIT/EMT COMBO	POLYCARBONATE	WHITE	UNIVERSAL	1	STENCIL	RED	EXIT	LED	1-RAIL	3	NI-CAD	277	2	SURE-LITES LPX / DUAL LITE / LITHONIA		X16

INDIRECT		IL=LINEAR IC=HIDDEN COVE FL=TUBULAR FT=WALL SLOT																					
ID	HOUSING										REFLECTOR		LAMPS PER 3' OR 4' SECTION				BALLAST PER SECTION				NOTES	APPROVED MANUFACTURERS / SERIES DESIGN IS BASED ON FIRST MANUFACTURER LISTED	ID
	NOM O.L.	MATL	TREATMENT	PROFILE	SECT SIZE	COLOR	MOUNTING	%UP/DN	END CAP	MATL	DIFUSER	QUAN	3' TYPE	QUAN	4' TYPE	COLOR	CRI (min)	QUAN	VOLTS	TYPE			
IL1	4"	STEEL	LOUVERS	CURVES	3/8"	WHITE	ADJUST SS CABLE	70/30	YES	AZ/AK	PAPA LOUVER	2	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,2,3,4,7	FOCAL POINT VERVE 3	4.1		
IL2	8"	STEEL	LOUVERS	CURVES	5/8"	WHITE	ADJUST SS CABLE	70/30	YES	AZ/AK	PAPA LOUVER	2	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,2,3,4,7,8	FOCAL POINT VERVE 3	4.2		
IL2S	8"	STEEL	LOUVERS	CURVES	5/8"	WHITE	ADJUST SS CABLE	20/80	YES	AZ/AK	PAPA LOUVER	2	F32-T8	4100K	80	1	120V/277	DIMMING 1%	1,2,3,4,7,8	FOCAL POINT VERVE 3	4.3		
IL3	8"	STEEL	LOUVERS	CURVES	3/8"	WHITE	ADJUST SS CABLE	70/30	YES	AZ/AK	PAPA LOUVER	3	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,2,3,4,7,8	FOCAL POINT VERVE 3	4.4		
IL5	8"	STEEL	LOUVERS	CURVES	3/8"	WHITE	ADJUST SS CABLE	60/30	YES	AZ/AK	PAPA LOUVER	3	R32-T8	4100K	80	2	120V/277	DIMMING 1%	1,2,3,6,7,9	FOCAL POINT VERVE 3	4.5		
IL4	36"	ALUM	SOLID	BEAMS	3.8"x4.5"	WHITE	ADJUST SS CABLE	100/0	YES	AZ/AK	N/A	1	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,2,3,10	FOCAL POINT AVENUE C	4.6		
FT1	4"	STEEL			8X10		RECESSED	0/100	YES	AZ/AK	N/A	1	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,5	FOCAL POINT FWA	4.7		
FT1S	4"	STEEL			8X10		RECESSED	0/100	YES	AZ/AK	N/A	1	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,5,11	FOCAL POINT FWA	4.8		
FT1S	3"	STEEL			8X10		RECESSED	0/100	YES	AZ/AK	N/A	1	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,5	FOCAL POINT FWA	4.9		
IC1	3"	STEEL			3"x4" MAX	WHITE	IN COVE	0/100	N/A	N/A	N/A	1	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1	METALUX SN	IC1		
IC2	4"	STEEL			3"x4" MAX	WHITE	IN COVE	0/100	N/A	N/A	N/A	1	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1	METALUX SN	IC2		
IC1S	16"	STEEL			4"x4" MAX	WHITE	IN COVE	0/100	N/A	ALUM	N/A	2	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,7	FOCAL POINT FC047	IC3		
IC2S	3"	STEEL			3"x4" MAX	WHITE	IN COVE	0/100	N/A	N/A	N/A	2	F32-T8	4100K	80	1	120V/277	ELFC <10% THD	1,7	FOCAL POINT FC047	IC4		

ACCENT		AD=DISPLAY AS=SCIENCE AT=TRACK AV=VANITY AL=LED																				
ID	HOUSING				MOUNTING		ACCESSORIES		LAMPS				BALLAST/TRANSFORMER				FIXTURE WATTS		NOTES	APPROVED MANUFACTURERS / SERIES		ID
	MATERIAL/TYPE	COLOR	SIZE	TRIM/COLOR	METHOD	DESCRIPTION	QUAN	TYPE	COLOR	CRI (min)	START	QUAN	VOLTS	TYPE				DESIGN IS BASED ON FIRST MANUFACTURER LISTED.				
ATI	FLEXIBLE TRACK	SALIN NICKEL	96"	N/A	WALL	CANTILEVER HEADS	1	75W MR16	3150K			1	127/24V 60WZ	MAG	600	1,2		TECH LIGHTING 7070AC/AS/VS/7070W/MS/RS HEADS		ATI		
ALT	PROSTED PICK LENS	N/A	14.10.35"	N/A	GONE	RGB LIGHT DRIVE DIMM CONTROLLER	12	LED	1609K			1	120VAC LED DRIVER	ELEC	3	2,5		TECHNIX MOUNT WITH LIGHT-DRIVEN LED CONTROLLER OR APPROVED EQUAL		ALT		
					PLATE	RGB/CMY/RGB		24W MR16	1609K									BARRIS LIGHTING				

OUTDOOR		OA=AREA	EA=EXISTING AREA	OB=BOLLARD																					ID
ID	LUMINAIRE						OPTICS				POLE		LAMPS				BALLAST		NOTES	ACCEPTABLE MANUFACTURERS / SERIES	ID				
	SIZE	MATL	STYLE	COLOR	QUAN	ARRANGE	MOUNT	TYPE	NEMA	MATL	HEIGHT	DIA	SHAPE	TYPE	WATT	COLOR	GPI (min)	OTHER				BURN POS	TYPE	VOLTS	
CA1	LARGE	ALUM	DECORATIVE	VERDE GRN	1	SINGLE	30' ARM	CUTOFF	TYPE II	POLYCARB	NOTE 1	4"	S/STRAIGHT FLUTED	MH	175	3500K	81	VERT	COLD WEATHER HFF	277	2.3	STERNBERG 1010/LTG/LSM/PMCC3958 ON 9000 SERIES POLE	OA1		
CA2	LARGE	ALUM	DECORATIVE	VERDE GRN	2	SINGLE	30' ARM	CUTOFF	TYPE II	POLYCARB	NOTE 1	4"	S/STRAIGHT FLUTED	MH	175	3500K	81	VERT	COLD WEATHER HFF	277	2.3	STERNBERG 1010/LTG/LSM/PMCC3958 ON 9000 SERIES POLE	OA2		
CA3	LARGE	ALUM	DECORATIVE	VERDE GRN	1	SINGLE	30' ARM	CUTOFF	TYPE II	POLYCARB	NOTE 1	4"	S/STRAIGHT FLUTED	MH	175	3500K	81	VERT	COLD WEATHER HFF	277	2.3	STERNBERG 1010/LTG/LSM/PMCC3958 ON 9000 SERIES POLE	OA3		
OB1	6"	ALUM	DECORATIVE	VERDE GRN	1	SINGLE	30' ARM	CUTOFF	TYPE II	POLYCARB	NOTE 1	4"	S/STRAIGHT FLUTED	MH	70	3500K	81	VERT	COLD WEATHER HFF	277	2.3	STERNBERG 3801/R/HMS/70MH/277V/1 NO ALTERNATES	OB1		
OB2	10"	POLYCARB	ROUND	BRONZE	1	SINGLE	SPOT	NONE	TEMP GLASS	NONE	M-HTS	70	3500K	81	UNIV	COLD WEATHER	277	1.5	LUMIERE 8000A / KM / LITHUANIA	OB2					
OB3	10"	POLYCARB	ROUND	BRONZE	1	SINGLE	SPOT	NONE	TEMP GLASS	NONE	M-HTS	70	3500K	81	UNIV	COLD WEATHER	277	1.5	LUMIERE 8000A / KM / LITHUANIA	OB3					
CL1	SMALL	ALUM	PLATE FLOOD	BLACK	1	SINGLE	STEM	FLOOD	NONE	TEMP GLASS	NONE	LED	15	5000K	81	UNIV	LED DRIVER	277	9	KIK #5-LED 50077	CL1				
CL2	SMALL	ALUM	FLOOD	BLACK	1	SINGLE	STEM	FLOOD	NONE	TEMP GLASS	NONE	LED	15	5000K	81	UNIV	LED DRIVER	277	9	KIK #5-LED 50077	CL2				

NOTES

1. POLE HEIGHT WILL BE SIZED SO THAT BOTTOM OF FIXTURE IS 14' AFS
2. FIXTURE SHALL BE FUSED.
3. PROVIDE ARRESTERS IN POLE BASE PER SPECIFICATIONS.
4. FIXTURE SHALL HAVE CAST ALUMINUM LOUVERS TO DRAIN LIGHT DOWNWARD.
5. FIXTURE SHALL HAVE CONCRETE POUR OVER WHERE INSTALLED IN CONCRETE
6. FIXTURE SHALL HAVE NON-SLIP LENS AND HEX CELL LOUVER.
7. PROVIDE MOUNTING GROUND SPIKE.
8. FIXTURE SHALL HAVE POLYESTER SHIELD TO LIMIT SPILL BEYOND PROPERTY LINES
9. SELECTED, CONSULT SHEET FOR INSTALLATION DETAIL.

USERS	DATES	FUEL\$	STIMES
1	1/1/78	100	1
2	2/1/78	200	2
3	3/1/78	300	3
4	4/1/78	400	4
5	5/1/78	500	5
6	6/1/78	600	6
7	7/1/78	700	7
8	8/1/78	800	8
9	9/1/78	900	9
10	10/1/78	1000	10
11	11/1/78	1100	11
12	12/1/78	1200	12
13	1/1/79	1300	13
14	2/1/79	1400	14
15	3/1/79	1500	15
16	4/1/79	1600	16
17	5/1/79	1700	17
18	6/1/79	1800	18
19	7/1/79	1900	19
20	8/1/79	2000	20
21	9/1/79	2100	21
22	10/1/79	2200	22
23	11/1/79	2300	23
24	12/1/79	2400	24
25	1/1/80	2500	25
26	2/1/80	2600	26
27	3/1/80	2700	27
28	4/1/80	2800	28
29	5/1/80	2900	29
30	6/1/80	3000	30
31	7/1/80	3100	31
32	8/1/80	3200	32
33	9/1/80	3300	33
34	10/1/80	3400	34
35	11/1/80	3500	35
36	12/1/80	3600	36
37	1/1/81	3700	37
38	2/1/81	3800	38
39	3/1/81	3900	39
40	4/1/81	4000	40
41	5/1/81	4100	41
42	6/1/81	4200	42
43	7/1/81	4300	43
44	8/1/81	4400	44
45	9/1/81	4500	45
46	10/1/81	4600	46
47	11/1/81	4700	47
48	12/1/81	4800	48
49	1/1/82	4900	49
50	2/1/82	5000	50
51	3/1/82	5100	51
52	4/1/82	5200	52
53	5/1/82	5300	53
54	6/1/82	5400	54
55	7/1/82	5500	55
56	8/1/82	5600	56
57	9/1/82	5700	57
58	10/1/82	5800	58
59	11/1/82	5900	59
60	12/1/82	6000	60
61	1/1/83	6100	61
62	2/1/83	6200	62
63	3/1/83	6300	63
64	4/1/83	6400	64
65	5/1/83	6500	65
66	6/1/83	6600	66
67	7/1/83	6700	67
68	8/1/83	6800	68
69	9/1/83	6900	69
70	10/1/83	7000	70
71	11/1/83	7100	71
72	12/1/83	7200	72
73	1/1/84	7300	73
74	2/1/84	7400	74
75	3/1/84	7500	75
76	4/1/84	7600	76
77	5/1/84	7700	77
78	6/1/84	7800	78
79	7/1/84	7900	79
80	8/1/84	8000	80
81	9/1/84	8100	81
82	10/1/84	8200	82
83	11/1/84	8300	83
84	12/1/84	8400	84
85	1/1/85	8500	85
86	2/1/85	8600	86
87	3/1/85	8700	87
88	4/1/85	8800	88
89	5/1/85	8900	89
90	6/1/85	9000	90

PANEL C		480V/3P/3		CONNECTED LOAD PER			FOUR WIRE SYSTEM	
VOLTAGE	277 / 480	PHASE			GROUND BUS		TYPE	VE
PHASE	3	A	B	C			" TYPE "	
RATED AMPERAGE	325				VA		GROUND	
WIRING	LIST ONLY	7054	8558	8776			TRIP	
MOUNTING	SURFACE	26	24	24	Amp-6		CONTACTOR	
CKT	DIRECTORY	LOAD	W	PHASE	SIZE	LOAD	DIRECTORY	CKT
1	LTG RM101	2520	1	200	4340	200	1	1940
3	LTG RMS 208-210-212-216-218-220	171	1	200	4940	200	1	2628
6	LTG RMS 200-203-205-207	2794	1	200	4716	200	1	2003
7	LTG RM221-228-229	2794	1	200	4716	200	1	2003
8	LTG RM228	1598	1	200	1598	200	1	1598
11	LTG ROOF LEVEL	2050	1	200	2050	200	1	2050
13	SPARE	0	1	200	0	200	1	SPARE
15	SPARE	0	1	200	0	200	1	SPARE
17	SPARE	0	1	200	0	200	1	SPARE
19	SPARE	0	1	200	0	200	1	SPARE
21	SPARE	0	1	200	0	200	1	SPARE
23	SPARE	0	1	200	0	200	1	SPARE
25	SPARE	0	1	200	0	200	1	SPARE
27	SPARE	0	1	200	0	200	1	SPARE
29	SPARE	0	1	200	0	200	1	SPARE
31	SPARE	0	1	200	0	200	1	SPARE
33	SPARE	0	1	200	0	200	1	SPARE
35	SPARE	0	1	200	0	200	1	SPARE
37	SPARE	0	1	200	0	200	1	SPARE
39	SPARE	0	1	200	0	200	1	SPARE
41	SPARE	0	1	200	0	200	1	SPARE
AC RATING: 14,000		TOTAL CONNECTED VA:		20316	TOTAL CONNECTED AMPS:		24	

INDICATES DISCREPANCY TYPE: 1-STANDARD, 2-HIGH (W/AC RATED), 3-0.8VA (GFCI), 4-350A GFCI, 5-SLIP TRIP, 6-10 (FATED), 7-AFCI
 ** SEE SPECIFICATION FOR PANEL TYPE

PANEL ID VOLTAGE PHASE RATED AMPERE		220V/120		CONNECTED LOAD PER PHASE		GROUND BUS		TYPE NO		SECTION		SHUNT TRIP		CONTACTOR		NO	
		120		120		120		120		120		120		120		120	
		225		225		225		225		225		225		225		225	
		225		225		225		225		225		225		225		225	
MOUNTING SURFACE		LUGS ONLY		173		180		174		174		174		174		174	
LOAD		BKR		A		B		C		BKR		LOAD		BKR		LOAD	
SIZE		SIZE		SIZE		SIZE		SIZE		SIZE		SIZE		SIZE		SIZE	
1		2		3		4		5		6		7		8		9	
10		11		12		13		14		15		16		17		18	
19		20		21		22		23		24		25		26		27	
28		29		30		31		32		33		34		35		36	
37		38		39		40		41		42		43		44		45	
46		47		48		49		50		51		52		53		54	
55		56		57		58		59		60		61		62		63	
64		65		66		67		68		69		70		71		72	
73		74		75		76		77		78		79		80		81	
82		83		84		85		86		87		88		89		90	
91		92		93		94		95		96		97		98		99	
100		101		102		103		104		105		106		107		108	
109		110		111		112		113		114		115		116		117	
118		119		120		121		122		123		124		125		126	
127		128		129		130		131		132		133		134		135	
136		137		138		139		140		141		142		143		144	
145		146		147		148		149		150		151		152		153	
154		155		156		157		158		159		160		161		162	
163		164		165		166		167		168		169		170		171	
172		173		174		175		176		177		178		179		180	
181		182		183		184		185		186		187		188		189	
190		191		192		193		194		195		196		197		198	
199		200		201		202		203		204		205		206		207	
208		209		210		211		212		213		214		215		216	
217		218		219		220		221		222		223		224		225	
226		227		228		229		230		231		232		233		234	
235		236		237		238		239		240		241		242		243	
244		245		246		247		248		249		250		251		252	
253		254		255		256		257		258		259		260		261	
262		263		264		265		266		267		268		269		270	
271		272		273		274		275		276		277		278		279	
280		281		282		283		284		285		286		287		288	
289		290		291		292		293		294		295		296		297	
298		299		300		301		302		303		304		305		306	
307		308		309		310		311		312		313		314		315	
316		317		318		319		320		321		322		323		324	
325		326		327		328		329		330		331		332		333	
334		335		336		337		338		339		340		341		342	
343		344		345		346		347		348		349		350		351	
352		353		354		355		356		357		358		359		360	
361		362		363		364		365		366		367		368		369	
370		371		372		373		374		375		376		377		378	
379		380		381		382		383		384		385		386		387	
388		389		390		391		392		393		394		395		396	
397		398		399		400		401		402		403		404		405	
406		407		408		409		410		411		412		413		414	
415		416		417		418		419		420		421		422		423	
424		425		426		427		428		429		430		431		432	
433		434		435		436		437		438		439		440		441	
442		443		444		445		446		447		448		449		450	
451		452		453		454		455		456		457		458		459	
460		461		462		463		464		465		466		467		468	
469		470		471		472		473		474		475		476		477	
478		479		480		481		482		483		484		485		486	
487		488		489		490		491		492		493		494		495	
496		497		498		499		500		501		502		503		504	
505		506		507		508		509		510		511		512		513	
514		515		516		517		518		519		520		521		522	
523		524		525		526		527		528		529		530		531	
532		533		534		535		536		537		538		539		540	
541		542		543		544		545		546		547		548		549	
550		551		552		553		554		555		556		557		558	
559		560		561		562		563		564		565		566		567	
568		569		570		571		572		573		574		575		576	
577		578		579		580		581		582		583		584		585	
586		587		588		589		590		591		592		593		594	
595		596		597		598		599		600		601		602		603	
604		605		606		607		608		609		610		611		612	
613		614		615		616		617		618		619		620		621	
622		623		624		625		626		627		628		629		630	
631		632		633		634		635		636		637		638		639	
640		641		642		643		644		645		646		647		648	
649		650		651		652		653		654		655		656		657	
658		659		660		661		662		663		664		665		666	
667		668		669		670		671		672		673		674		675	
676		677		678		679		680		681		682		683		684	
685		686		687		688		689		690		691		692		693	
694		695		696		697		698		699		700		701		702	
703		704		705		706		707		708		709		710		711	
712		713		714		715		716		717		718		719		720	
721		722		723		724		725		726		727		728		729	
730		731		732		733		734		735		736		737		738	
739		740		741		742		743		744		745		746		747	
748		749		750		751		752		753		754		755		756	
757		758		759		760		761		762		763		764		765	
766		767		768		769		770		771		772		773		774	
775		776		777		778		779		780		781		782		783	
784		785		786		787		788		789		790		791		792	
793		794		795		796		797		798		799		800		801	
802		803		804		805		806		807		808		809		810	
811		812		813		814		815		816		817		818		819	
820		821		822		823		824		825		826		827		828	
829		830		831		832		833		834		835		836		837	
838		839		840		841		842		843		844		845		846	
847		848		849		850		851		852		853		854		855	
856		857		858		859		860		861		862		863		864	
865		866		867		868		869		870		871		872		873	
874		875		876		877		878		879		880		881		882	
883		884		885		886		887		888		889		890		891	
892		893		894		895		896		897		898		899		900	
901		902		903		904		905		906		907		908		909	
910		911		912		913		914		915		916		917		918	
919		920		921		922		923		924		925		926		927	
928		929		930		931		932		933		934		935		936	
937		938		939		940		941		942		943		944		945	
946		947		948		949		950		951		952		953		954	
955		956		957		958		959		960		961		962		963	
964		965		966		967		968		969		970		971		972	
973		974		975		976		977		978		979		980		981	
982		983		984		985		986		987		988		989		990	
991		992		993		994		995		996		997		998		999	
1000		1001		1002		1003		1004		1005		1006		1007		1008	
1009		1010		1011		1012		1013		1014		1015		1016		1017	
1018		1019		1020		1021		1022		1023		1024		1025		1026	
1027		1028		1029													

PANEL VOLTAGE PHASE RATED AMPERAGE		210V ¹ 120° / 208		CONNECTED LOAD PER PHASE			VA	GROUND BUS		TYPE NO	
		208	208	A	B	C		SECTION	SHUNT TRIP	NO	NO
MOUNTING		WALL	UNDER SURFACE	128	128	128	APPS	BPR SIZE		CHECK	
CRKT	DIRECTORY	LOAD	A 120V 1-600A	B 120V 1-600A	C 120V 1-600A	128	128	128	128	128	128
1	RM107 TEMP CONT. PANEL	500	1	201	1700			201	1	1200	RM104.110 RECEPT
2	RM107 AW EQUIPMENT RACK	500	1	201	1700			201	1	1200	RM104.110 RECEPT
3	RM106 RECEPT	1000	1	201	1500			201	1	500	RM104.110 RECEPT
4	RM106 PROJECTOR	500	1	201	1500			201	1	500	RM104.110 RECEPT
5	RM106 AW PANEL	500	1	201	1500			201	1	500	RM104.110 RECEPT
6	RM109 EWC	500	1	201	1500			201	1	500	RM104.110 RECEPT
7	RM105.108.106 RECEPT	1000	1	201	1500			201	1	500	RM104.110 RECEPT
8	RM104 WENDING	500	1	201	1500			201	1	500	RM104.110 RECEPT
9	RM105 REFRIG	1000	1	201	1500			201	1	500	RM104.110 RECEPT
10	RM105 MICRO	1000	1	201	1500			201	1	500	RM104.110 RECEPT
11	RM105 COFFEE	700	1	201	1500			201	1	500	RM104.110 RECEPT
12	EXTERIOR SIGN LIGHTING	60	1	201	1500			201	1	500	RM104.110 RECEPT
13	ROOF RECEPT	480	1	201	1500			201	1	500	RM104.110 RECEPT
14	RM104.108.106 RECEPT	1200	1	201	1500			201	1	500	RM104.110 RECEPT
15	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
16	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
17	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
18	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
19	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
20	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
21	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
22	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
23	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
24	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
25	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
26	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
27	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
28	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
29	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
30	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
31	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
32	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
33	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
34	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
35	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
36	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
37	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
38	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
39	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
40	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
41	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
42	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
43	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
44	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
45	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
46	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
47	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
48	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
49	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
50	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
51	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
52	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
53	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
54	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
55	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
56	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
57	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
58	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
59	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
60	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
61	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
62	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
63	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
64	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
65	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
66	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
67	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
68	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
69	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
70	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
71	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
72	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
73	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
74	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
75	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
76	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
77	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
78	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
79	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
80	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
81	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
82	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
83	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
84	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
85	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
86	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
87	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
88	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
89	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
90	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
91	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
92	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
93	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
94	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
95	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
96	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
97	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
98	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
99	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
100	RM104 FLOOR BOX	1200	1	201	1500			201	1	500	RM104.110 RECEPT
AC RATING 10.000		TOTAL CONNECTED VA		45840		TOTAL CONNECTED APPS		128			
30% NEUTRAL BUS		GROUND BUS PLUS ISOLATED GROUND BUS									
1. STANDARD, 2. 3-WH/2-WH RATED, 3. 0-MA GFCI, 4. 30-MA GFCI, 5. SHUNT TRIP, 6. 8-10 RECEPT, 7. 4-FCI											
* INDICATES BREAKER TYPE											
* INDICATES SPECIFICATION FOR PANEL TYPE											

[illegible][illegible]

PANEL ID VOLTAGE PHASE RATED AMPERE MAIN MOUNTING		228VAC		CONNECTED LOAD PER PHASE						FOUR BAY BNIES GROUND BUSIES + TYPE SECTION 2 SHUNT TRIP NO CONTACTOR			
		120	208	A		B		C		A		B	
		225		11700	12040	12040	12040	12040	12040	12040	12040	12040	12040
		LOGS USED SURFACE	38	100	93	100	93	100	93	100	93	100	93
OKT	DIRECTORY	LOAD	1" BKR SIZE	A	B	C	1" BKR SIZE	A	B	C	LOAD	DIRECTORY	OK
1	RM228 RECP	1400	1 201	2200	1540		201	1	400		RM228 RECP		
2	RM228 RECP	100	1 201				201	1	800		RM228 COOPER		
3	RM228 CATV	200	1 201			1000	201	1	800		RM228 RECP		
4	RM228 RECP	800	1 201	1600			201	1	900		RM228 RECP		
5	RM228 RECP	800	1 201		1200		201	1	900		RM228 RECP		
6	RM228 RECP	800	1 201			1600	201	1	900		RM228 RECP		
7	RM228 RECP	1000	1 201				201	1	1200		RM228 RECP		
8	RM228 RECP	1000	1 201	2000			201	1	1350		RM228 PRINTER		
9	RM228 RECP	900	1 201		2220		201	1	900		SPARE		
10	RM228 RECP	900	1 201			900	201	1	0		SPARE		
11	RM228 RECP	900	1 201	900			201	1	1350		RM228 PRINTER		
12	RM228 RECP	900	1 201		2250		201	1	1350		RM228 PRINTER		
13	RM228 RECP	900	1 201			2250	201	1	1350		RM228 PRINTER		
14	RM228 RECP	900	1 201				201	1	1000		RM228 SCANNER		
15	RM228 RECP	900	1 201				201	1	1200		RM228 AV EQUIP		
16	RM228 RECP	900	1 201			2100	201	1	1200		RM228 PROJECTOR		
17	RM228 RECP	900	1 201				201	1	500		RM228 AV		
18	RM228 RECP	900	1 201	1400			201	1	900		RM228 RECP		
19	RM228 RECP	900	1 201		1700		201	1	1200		RM228 RECP		
20	RM228 RECP	900	1 201			2100	201	1	1200		RM228 RECP		
21	RM228 RECP	1200	1 201	1700			201	1	1200		RM228 RECP		
22	RM228 RECP	1200	1 201		1700		201	1	1200		RM228 RECP		
23	RM228 RECP	1200	1 201			1700	201	1	1200		RM228 RECP		
24	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
25	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
26	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
27	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
28	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
29	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
30	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
31	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
32	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
33	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
34	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
35	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
36	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
37	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
38	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
39	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
40	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
41	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
42	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
43	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
44	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
45	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
46	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
47	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
48	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
49	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
50	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
51	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
52	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
53	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
54	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
55	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
56	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
57	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
58	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
59	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
60	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
61	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
62	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
63	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
64	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
65	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
66	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
67	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
68	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
69	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
70	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
71	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
72	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
73	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
74	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
75	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
76	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
77	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
78	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
79	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
80	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
81	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
82	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
83	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
84	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
85	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
86	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
87	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
88	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
89	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
90	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
91	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
92	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
93	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
94	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
95	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
96	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
97	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
98	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
99	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
100	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
101	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
102	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
103	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
104	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
105	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
106	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
107	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
108	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
109	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
110	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
111	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
112	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
113	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
114	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
115	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
116	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
117	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
118	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
119	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
120	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
121	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
122	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
123	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
124	RM228 RECP	1200	1 201				201	1	1200		RM228 RECP		
125	RM228 RECP	1200	1 201										

CONNECTED LOAD PER PHASE												FOUR WIRE SERVICES				
PANEL ID		200VA	PHASE			PHASE			GROUND BUS		TYPE		GROUND BUS		TYPE	
VOLTAGE	PHASE		A	B	C											
RATED AMPERAGE	100	100	6000	4000	4000	VA										
MAIN MOUNTING	LUGS ONLY	100	6000	4000	4000	VA										
	SURFACE															
CKT	DIRECTORY	LOAD	1	SIZE	2400	A	B	C	BRF	SIZE	LOAD	DIRECTORY	CKT			
1	RM255 SERVER	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	1			
2	RM255 SERVER	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	2			
3	RM255 SERVER	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	3			
4	RM255 SERVER	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	4			
5	RM255 TELECOM RACK	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	5			
6	RM255 TELECOM RACK	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	6			
7	RM255 TELECOM RACK	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	7			
8	RM255 TELECOM RACK	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	8			
9	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	9			
10	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	10			
11	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	11			
12	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	12			
13	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	13			
14	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	14			
15	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	15			
16	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	16			
17	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	17			
18	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	18			
19	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	19			
20	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	20			
21	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	21			
22	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	22			
23	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	23			
24	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	24			
25	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	25			
26	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	26			
27	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	27			
28	SPARE	1200	1	201	2400	2400	2400	2400	201	1	1200	RM117 TELECOM RACK	28			
TOTAL CONNECTED VA			15600			TOTAL CONNECTED AMPS:			43							
MC RATING: 10,000																
TOTAL BUS PLUS ISOLATED GROUND BUS																
S - INDICATES BREAKER TYPE: 1-STANDARD, 2-HARC (HARC RATED), 3-BM GP, 4-SOIA GP, 5-SHUNT TRIP, 6-RHO RATED, 7-AFCI																
REF SPECIFICATION FOR PANEL TYPE																