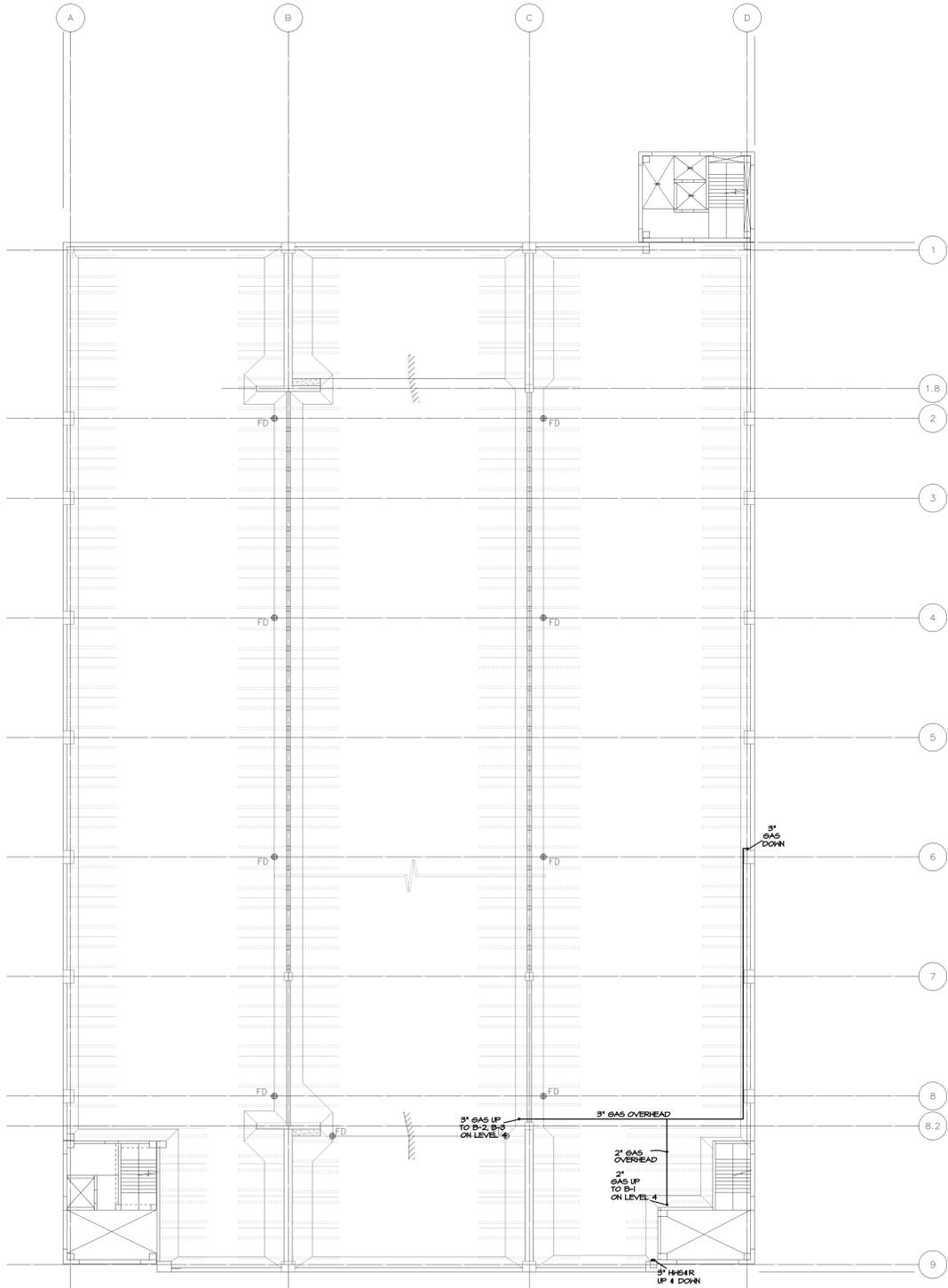


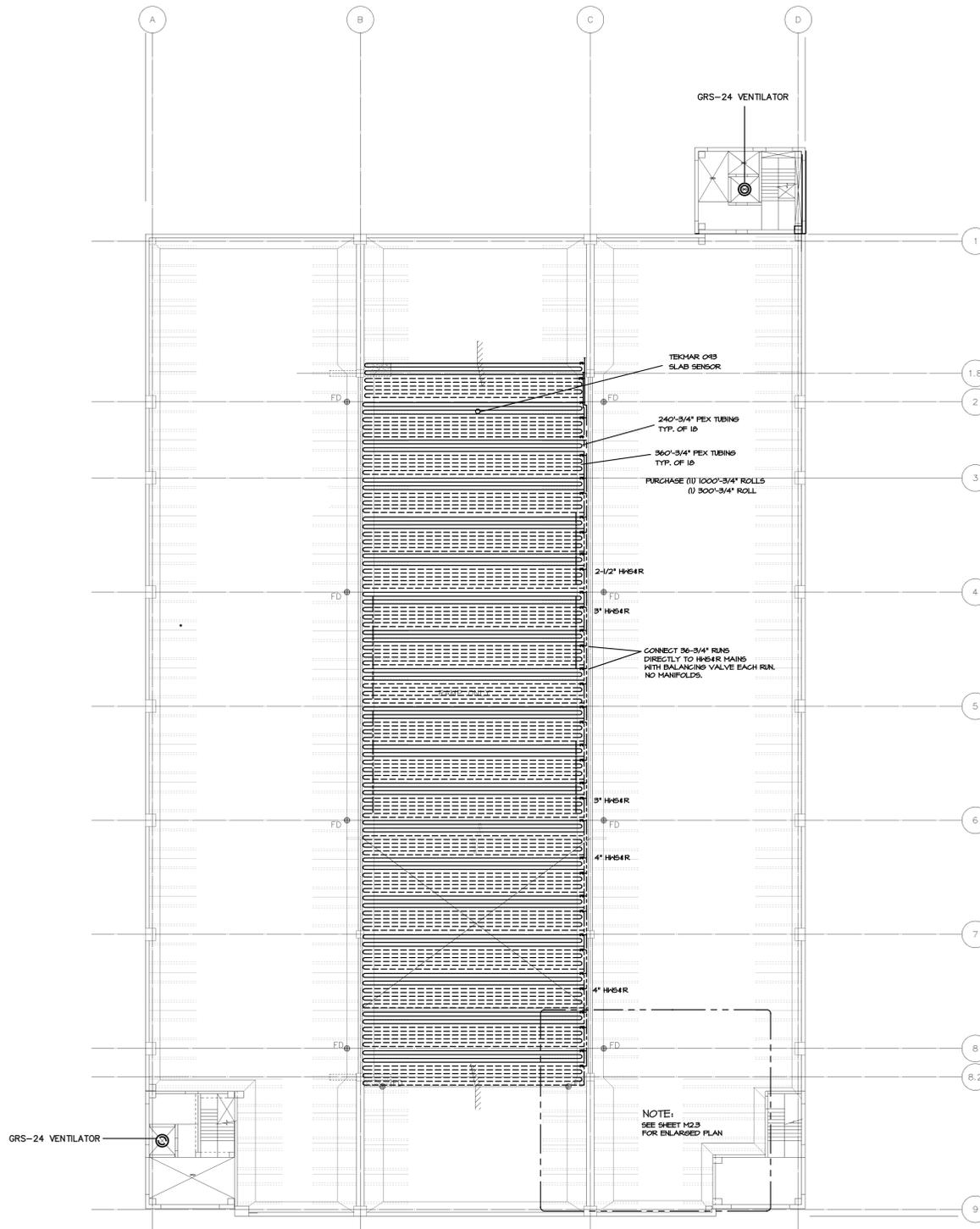
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THE PARK STREET PROJECT
PARKING STRUCTURE
TRAVERSE CITY, MICHIGAN



LEVEL 3 PLAN
1/16"=1'-0"



LEVEL 4 PLAN
1/16"=1'-0"



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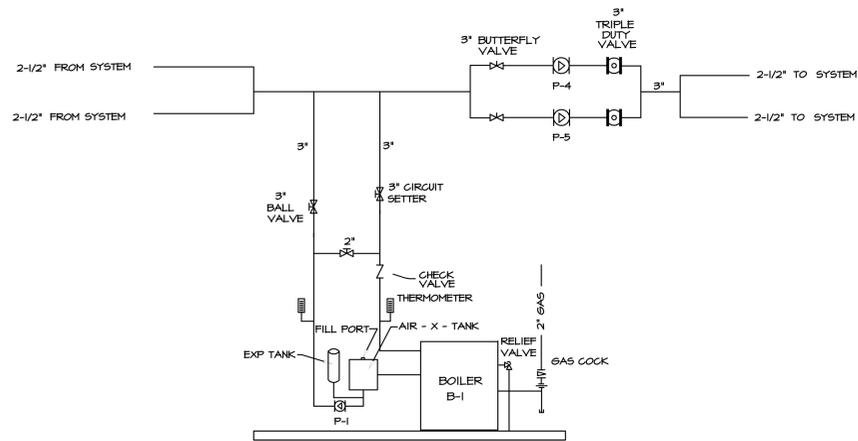
DRAWING TITLE
LEVEL 3 & 4 MECHANICAL PLAN

PROJECT NO. 01-1997-901
DRAWING NO. **M2.2**

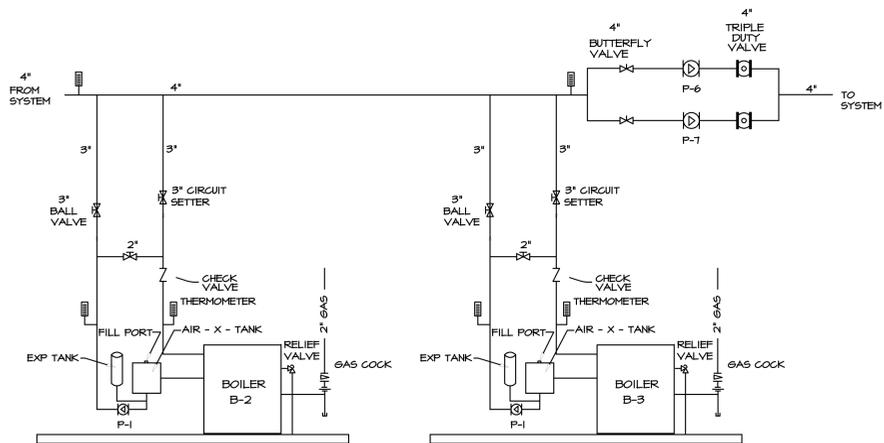
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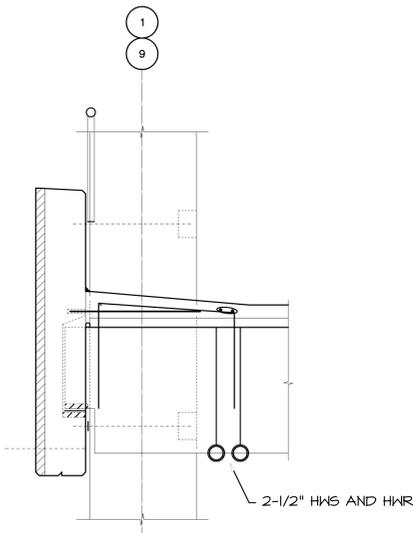
**THE PARK STREET
PROJECT
PARKING STRUCTURE
TRAVERSE CITY, MICHIGAN**



LEVEL 1 - B-1 BOILER PIPING DETAIL
NO SCALE



LEVEL 4 - B-2, B-3 BOILER PIPING DETAIL
NO SCALE



HWS AND HWR PIPING DETAIL
NO SCALE

BOILER SCHEDULE								
MARK	LOCATION & SERVICE	MODEL & TYPE	MEH INPUT	MEH OUTPUT	GAS CONN.	WATER CONN.	CONTROLS	REMARKS
B-1	BOILER	RAYPAK H-1750	1750	1441	1-1/4"	2-1/2"	Y3B IN NEMA 4 ENCLOSURE	OUTDOOR BOILER ① ②
B-2	BOILER	RAYPAK H-12B1	1287	1055	1-1/4"	2-1/2"	Y3B IN NEMA 4 ENCLOSURE	OUTDOOR BOILER ① ②
B-3	BOILER	RAYPAK H-12B1	1287	1055	1-1/4"	2-1/2"	Y3B IN NEMA 4 ENCLOSURE	OUTDOOR BOILER ① ②

① 115 VOLTS, 1 PHASE ② TEKMAR 661 CONTROLLER IN NEMA 4 ENCLOSURE

PUMP SCHEDULE								
MARK	LOCATION & SERVICE	MODEL & TYPE	GPM	HEAD	HP.	RPM	IMPELLER	REMARKS
P-1	LEVEL 1 BOILER B-1 PUMP	B46 60 SERIES IN-LINE	40	20'	1	1750	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR
P-2	LEVEL 4 BOILER B-2 PUMP	B46 60 SERIES IN-LINE	40	15'	3/4	1750	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR
P-3	LEVEL 4 BOILER B-3 PUMP	B46 60 SERIES IN-LINE	40	15'	3/4	1750	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR
P-4	LEVEL 1 SYSTEM PUMP	B46 60 SERIES IN-LINE	165	205'	20	3500	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR ④
P-5	LEVEL 1 SYSTEM PUMP	B46 60 SERIES IN-LINE	165	205'	20	3500	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR ④
P-6	LEVEL 4 SYSTEM PUMP	B46 60 SERIES IN-LINE	242	140'	20	3500	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR ④
P-7	LEVEL 4 SYSTEM PUMP	B46 60 SERIES IN-LINE	242	140'	20	3500	CAST BRONZE	30% ETHYLENE GLYCOL TEGC MOTOR ④

① 115 VOLTS, 1 PHASE ② 208 VOLTS, 1 PHASE ③ 208 VOLTS, 3 PHASE ④ PROVIDE EXP. TANK & AIR-X-TANK AS SHOWN ON DETAIL

ELECTRIC HEATER SCHEDULE								
TAG	MODEL	LOCATION	PANEL LENGTH	PANEL WIDTH	WATTS	VOLT/PH	AMPS	REMARKS
EH-1	CSLALB	SERVICE AREA 105	6'	3'	4000	240/1Ø	16.7	INCLUDE 24V TRANSFORMER FOR TEMPERATURE CONTROL
EH-2	CSLALB	STAFF LOCKER 101	6'	3'	3000	240/1Ø	12.5	INCLUDE 24V TRANSFORMER FOR TEMPERATURE CONTROL

① BASED ON BERKO

EXHAUST FAN SCHEDULE										
TAG	DESCRIPTION	MODEL	GPM	S.P.	HP.	RPM	DRIVE	HOUSING	CONTROL	REMARKS
EF-1	TOILET RMS	SP-6	75	0.25	40 H	1500	DIRECT	STLV. STEEL	W/LIGHT SWITCH	

① BASED ON GREENECK ② 115V, 1-PHASE, 60 HZ.

HEAT PUMP SCHEDULE													
TAG	DISCUSSION	MODEL OUTDOOR	MODEL INDOOR	COOLING			HEATING			VOLTAGE OUTDOOR	MCA OUTDOOR	VOLTAGE INDOOR	MCA INDOOR
				CFM	MEH	SEER	MEH	SEER					
HP-1	SPLIT SYSTEM HEAT PUMP	3BAYCOB0	FBMANB010	2000	54.6		33.4		230V-1Ø	41.5	115V-1Ø	6.6	
HP-2	SPLIT SYSTEM HEAT PUMP	3BAYCO24	FBMANCO24	800	21.0		12.5		230V-1Ø	16.1	115V-1Ø	2.6	
HP-3	SPLIT SYSTEM HEAT PUMP	3BAYCO24	FBMANCO24	800	21.0		12.5		230V-1Ø	16.1	115V-1Ø	2.6	

① BASED ON CARRIER

DIFFUSER, LOUVER & GRILLE SCHEDULE						
TAG	DESCRIPTION	MODEL	VOLUME DAMPER	FINISH	MATERIAL	REMARKS
SAD-1	CEILING SUPPLY AIR DIFFUSER, SOLID RECS. LAY-IN CEILING, 4-WAY DISCHARGE	6500	①	YES	OFF WHITE BAKED ENAMEL	STEEL 24"x24" LAY-IN
RAG-1	RETURN AIR GRILLE, LAY-IN CEILING	61 RGS	①	NO	OFF WHITE BAKED ENAMEL	STEEL 24"x24" LAY-IN
L-1	INTAKE LOUVER	ESD-408	②	NO	ANODIZED	ALUMINUM 16"x16" VERIFY W/ ARCH
H-1	VENTILATOR HOOD	GRS-24	②	NO	PROTECTIVE COATING	ALUMINUM 36" DIA. CAP 24" DIA. THROAT

① BASED ON NAJLOR ② BASED ON GREENECK

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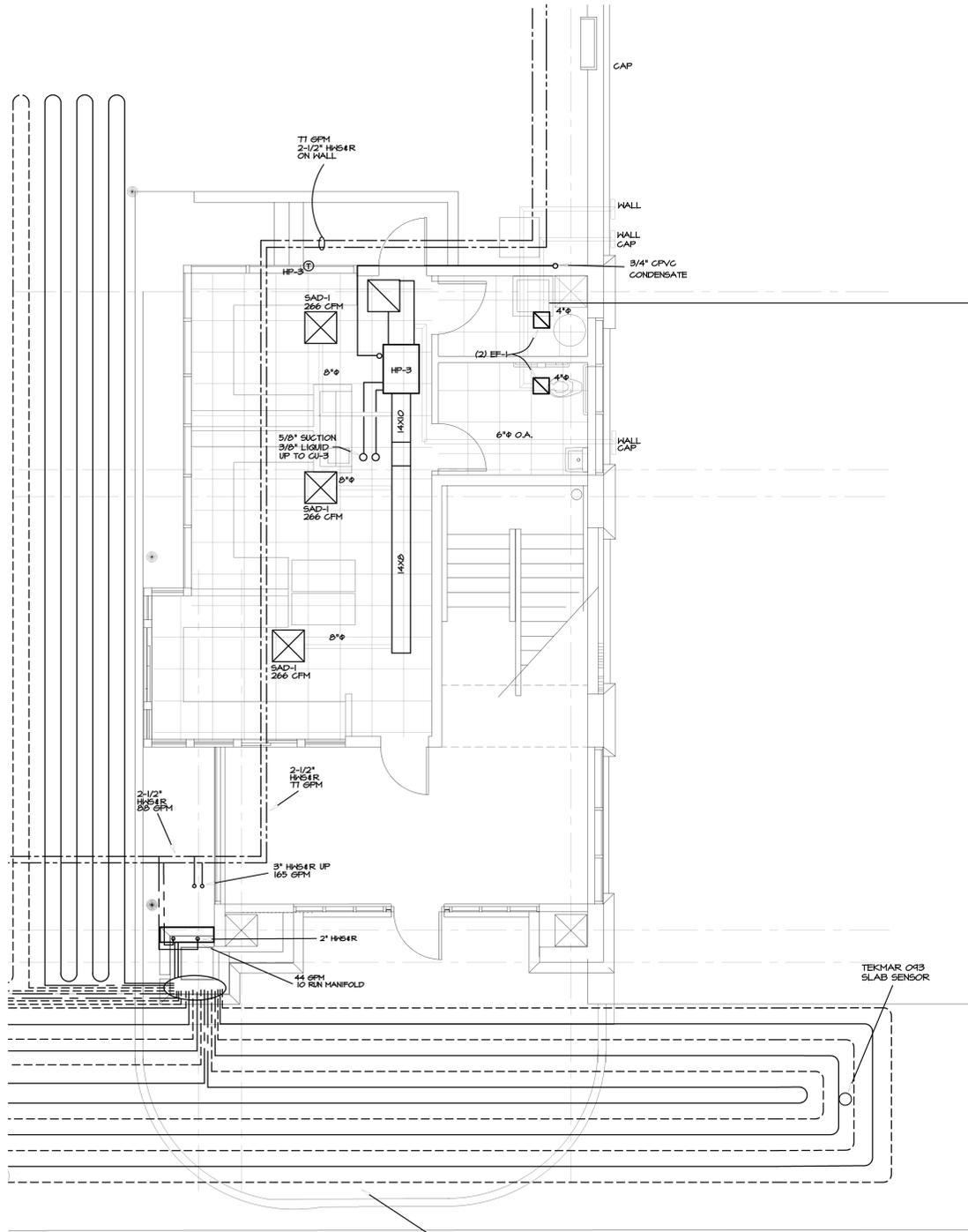
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**MECHANICAL
SCHEDULES
& DETAILS**

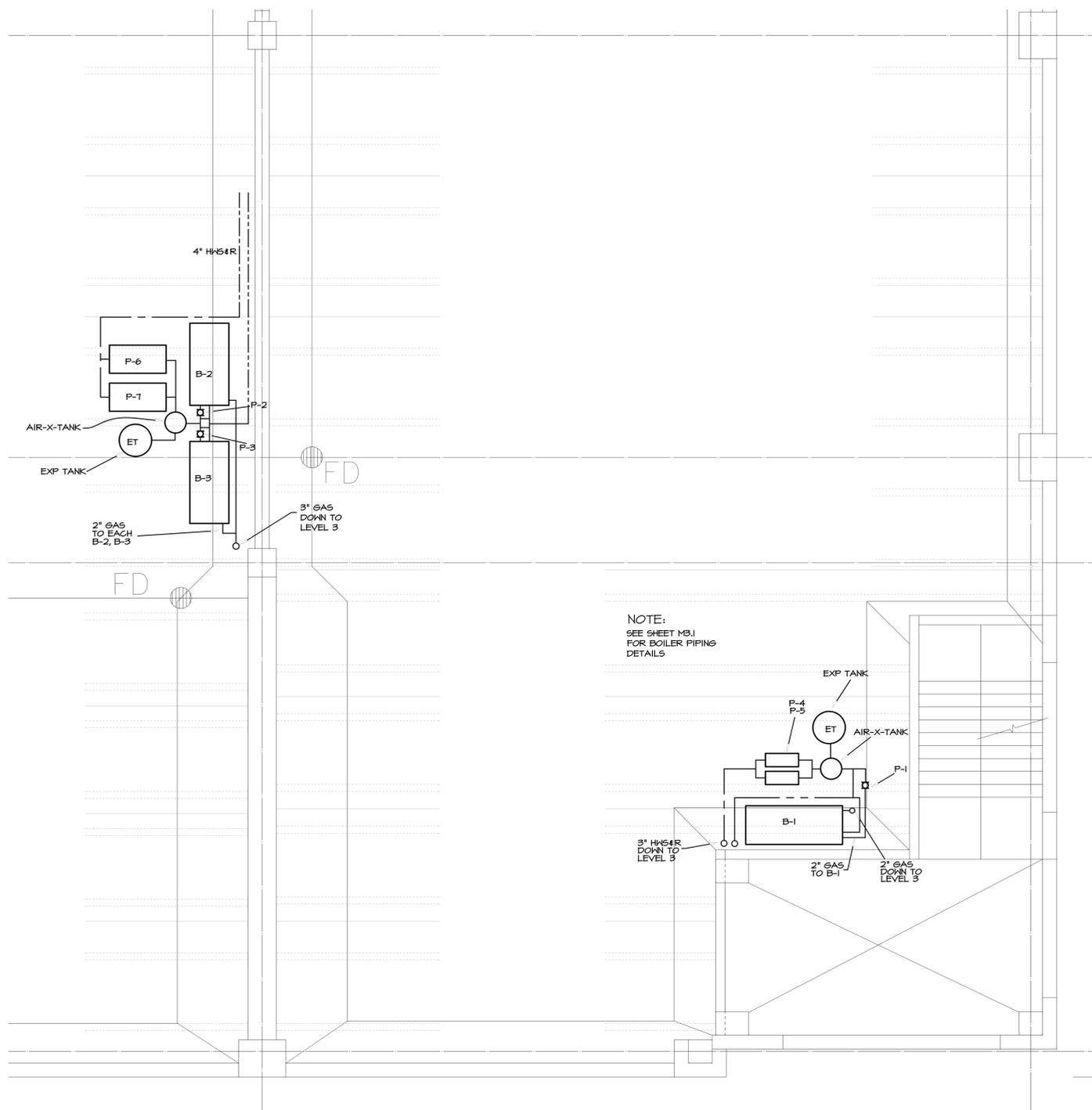
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THE PARK STREET PROJECT
PARKING STRUCTURE
 TRAVERSE CITY, MICHIGAN



ENLARGED OFFICE PLAN
 1/4" = 1'-0"



ENLARGED BOILER PLAN
 1/4" = 1'-0"



NOTE:
 SEE SHEET M3.1
 FOR BOILER PIPING
 DETAILS

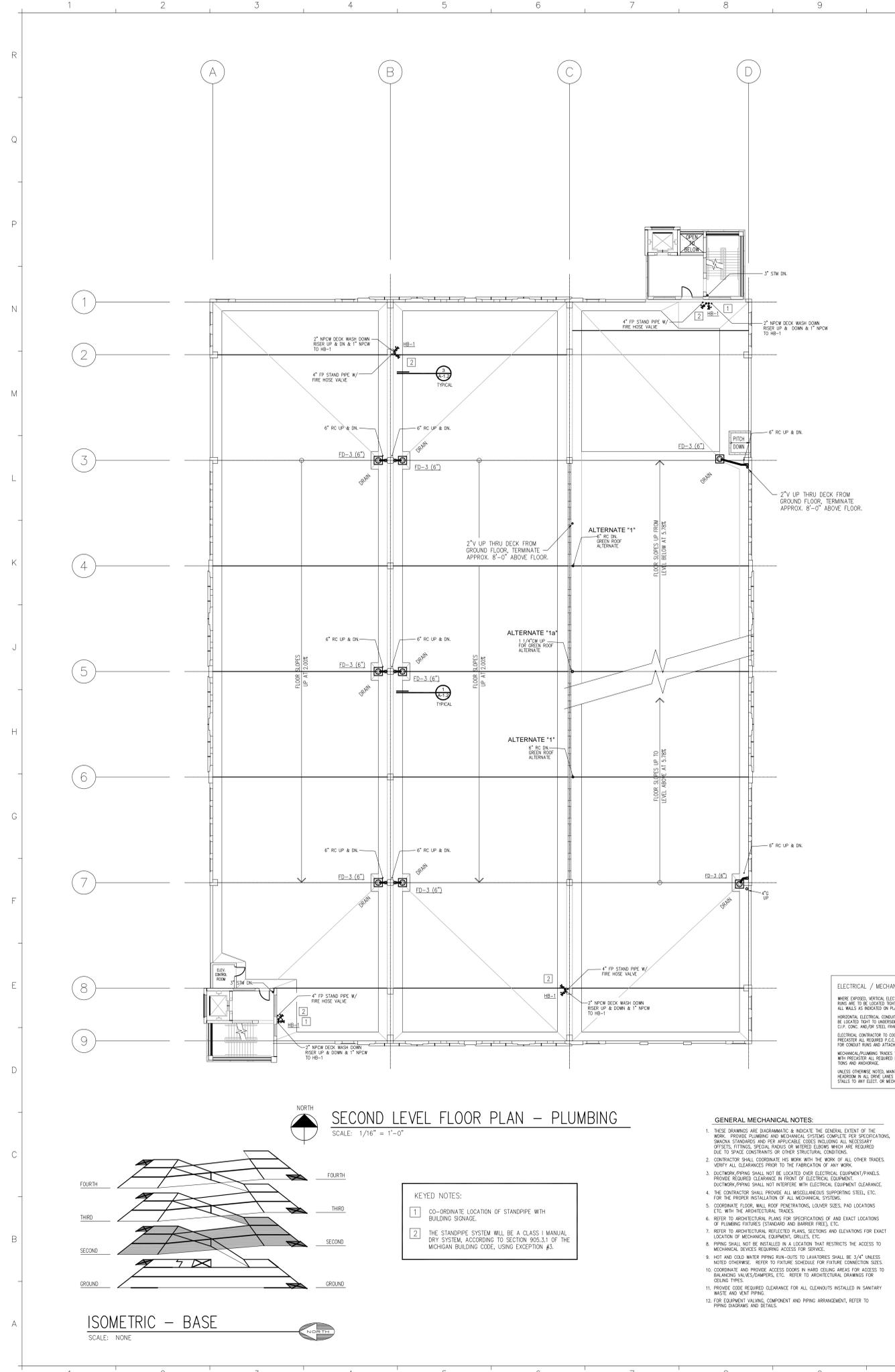
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ISSUED/REV. NO.	DATE	DESCRIPTION
	01/07/02	ISSUED FOR BIDS

DRAWING TITLE
PARTIAL MECHANICAL PLAN
 1/4" SCALE

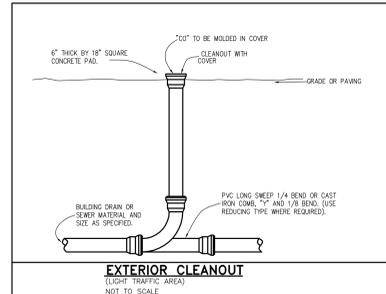
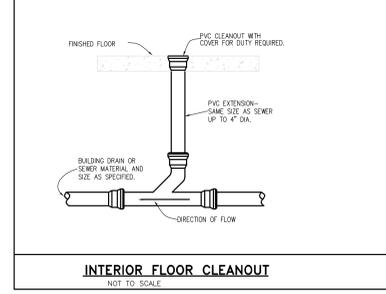
PROJECT NO. 01-1997-901
 DRAWING NO. **M2.3**



PLUMBING SCHEDULE

MARK	FIXTURE	MANU.	MODEL	SAN.	HOT	COLD	MAXIMUM FLOW RATE	REMARKS
WC-1	WATER CLOSET ADA HEIGHT	AM. STANDARD	2257-103, WALL MOUNTED	3"	-	1"	1.1/1.6 GPM/CYCLE	W/ SLOAN ECOS DUAL FLUSH VALVE, OLSONITE #10SSC OPEN FRONT TOILET SEAT, 16.5" HIGH, INCLUDE ZURN #2729-104 DUAL CARRIER
L-1	LAVATORY - WALL MTD	AM. STANDARD	0355-012	1 1/2"	1/2"	1/2"	5 GPM	W/ SLOAN #EAF-275 SOLAR POWERED FAUCET, SENSOR ACTIVATED FAUCET, SEE NOTE#4 W/ WAITS USG-B THERMOSTATIC MIXING VALVE, CONCEALED ARM SUPPORT
FD-1	FLOOR DRAIN	ZURN	Z-415-58	2"	-	-	-	W/ TYPE 87 5" STRAINER, NICKEL BRONZE TOP
FD-2	FLOOR DRAIN	ZURN	Z-662	6"/8"	-	-	-	16" SQUARE HEAVY DUTY PARKING DECK DRAIN, W/ HEAVY DUTY SLOTTED GRATE W/ SEDIMENT BUCKET
FD-3	FLOOR DRAIN	ZURN	Z-537	6"/8"	-	-	-	16" SQUARE HEAVY DUTY PARKING DECK DRAIN, W/ HEAVY DUTY SLOTTED GRATE
RS-1	ROOF SUMP	ZURN	2100-0P-85	3"	-	-	-	15" DIA., LOW SILHOUETTE DOME W/ TOP-SET DECK PLATE, AND PERFORATED EXTENSION - CO-ORDINATE WITH TYPE OF ROOF
RD-1	ALTERNATE GREEN ROOF DRAIN	ZURN	2100-0P-85	6"	-	-	-	15" DIA., LOW SILHOUETTE DOME W/ TOP-SET DECK PLATE, AND PERFORATED EXTENSION - CO-ORDINATE WITH TYPE OF ROOF
OS-1	ROOF OVERFLOW DRAIN	ZURN	Z-121-89	3"	-	-	-	12" DIA., DURACOATED CAST IRON W/ SUMP, GRAVEL GUARD AND 2" HIGH EXTERNAL WATER DAM, CO-ORDINATE WITH TYPE OF ROOF
DS-1	DOWNSPOUT NOZZLE	ZURN	Z-199	3"	-	-	-	NICKEL-BRONZE BODY, THREADED INLET AND DECORATIVE FACE OF WALL FLANGE AND OUTLET NOZZEL W/ STAINLESS STEEL SCREEN
HB-1	HOSE BIBB/WALL HYDRANT	NIBCO	T-585-70-PL	-	-	1"	-	BRONZE BALL VALVE, THREADED ENDS, REMOVABLE HANDLE
HB-2	HOSE BIBB/WALL HYDRANT	NIBCO	T-585-70-PL	-	-	3/4"	-	BRONZE BALL VALVE, THREADED ENDS, REMOVABLE HANDLE
TP-2	TRAP PRIMER	ZURN	Z-1022-DU-2	-	-	1/2"	-	TWO OUTLET DISTRIBUTION UNIT
ETW-1	ELECTRIC TANKLESS WATER HEATER	CHRONOMITE LABORATORIES, INC.	M-30L, PRESET @ 104 DEG	-	-	1/2"	-	.5 GPM, 49 DEG. RISE, 3600W, 1 POLE BREAKER
TP-1	TRAP PRIMER	ZURN	Z-1022-DU-3	-	-	1/2"	-	THREE OUTLET DISTRIBUTION UNIT
BP-1	BOOSTER PUMP - DECK WASHDOWN	BELL & GOSSET	3530-30-1, INLINE	-	-	-	30 GPM @ 60'HD	1HP, @ 3500RPM, 208V, 3 PH, PROVIDE BOOSTER PUMP WITH 2A82-6.9 AMP, AQUABOOST II CONTROLLER.
WH-1	WATER HEATER-TANK	A.O. SMITH	DEL-15	-	-	3/4"	-	15 GALLON STORAGE, DUAL 3000W ELEMENTS, 208V, 1 PH, 14-4A
SS-1	SERVICE SINK	FLORESTONE	81	1 1/2"	1/2"	1/2"	-	W/ MR370, MR371, MR372 & MR373

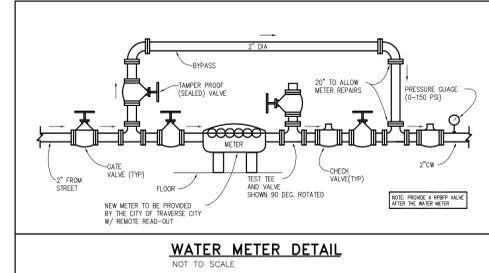
NOTES:
 1. SEE ARCHITECTURAL DRAWINGS FOR ALL ROUGH-IN LOCATIONS OF PLUMBING FIXTURES.
 2. WC-1 TO CONFORM TO ADA REQUIREMENTS.
 3. VERIFY COLOR WITH ARCHITECT BEFORE ORDERING.
 4. COVER ALL EXPOSED LAVATORY SANITARY AND DOMESTIC HOT AND COLD WATER PIPING W/ TRUEBRO MODEL #102.
 5. INSTALL FLOOR DRAINS SQUARE TO TILE PATTERN.
 6. PROVIDE A WAITS USG-B MIXING VALVE AT EACH LAVATORY.



DOUBLE CHECK BACKFLOW PREVENTION DEVICE SCHEDULE

EQUIPMENT TAG NO.	DESCRIPTION	TYPE	SIZE	MANUFACTURER	MODEL NUMBER	MATERIAL	MATERIAL SPECIFICATION	NOTES
BFP-1	BACKFLOW PREVENTION ASSY	BCA	2"	WATTS	SERIES 007	BRONZE	N/A	NOTES 1, 2, 3 & 6
BFP-2	BACKFLOW PREVENTION ASSY	BCA	1"	WATTS	SERIES 007	BRONZE	N/A	NOTES 1, 2, 3 & 6
BFP-3	BACKFLOW PREVENTION ASSY	BCA	1 1/4"	WATTS	SERIES 007	BRONZE	N/A	NOTES 1, 2, 3 & 6

NOTES:
 1) TWO POSITIVE SEATING CHECK MODULES W/ CAPTURED SPRINGS & RUBBER SEAT DISCS, ENCLOSED IN A CAST BRONZE BODY.
 2) END CONNECTIONS, TRIM, ACCESSORIES AND OTHER OPTIONS SHALL COMPLY W/ LOCAL REQUIREMENTS, AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.
 3) INSTALL AND TEST PER MANUFACTURER'S INSTRUCTIONS.
 4) CAST BRASS BODY W/ BOTTOM INLET & 18" HIGH BRASS SEAMLESS TUBING, BRASS BRANDING PLATE, CAST BRASS CAPS AND CHAINS.
 5) ASSE 1012, AN/VA, JAPMO, CSA & UPC APPROVED.
 6) DR EQUAL.



ELECTRICAL / MECHANICAL NOTE:
 WHERE EXPOSED, VERTICAL ELECTRICAL CONDUIT RUNS ARE TO BE LOCATED TO THE FACE OF WALLS AS INDICATED ON PLANS.
 HORIZONTAL ELECTRICAL CONDUIT RUNS ARE TO BE LOCATED TO THE REAR OF ALL P.C.C., C.P.J. CONCRETE AND/OR STEEL FRAMING MEMBERS.
 ELECTRICAL CONTRACTOR TO COORDINATE WITH PRECASTER RE: REQUIRED P.C.C. PENETRATIONS FOR CONDUIT RUNS AND ATTACHMENTS.
 MECHANICAL PLUMBING SHALL BE COORDINATE WITH PRECASTER ALL REQUIRED P.C.C. PENETRATIONS AND HOLES.
 UNLESS OTHERWISE NOTED, MAINTAIN 6"-2" CLEAR HEADROOM IN ALL DRIVE LINES AND PARKING STALLS TO ANY ELEC. OR MECH. FIXTURES.

GENERAL MECHANICAL NOTES:
 1. THESE DRAWINGS ARE DIAGNOSTIC & INDICATE THE GENERAL EXTENT OF THE WORK. PROVIDE PLUMBING AND MECHANICAL SYSTEMS COMPLETE FOR OPERATIONS, SMACNA STANDARDS AND PER APPLICABLE CODES INCLUDING ALL NECESSARY OFFSETS, FITTINGS, SPECIAL FINISHES OR WELDED LEGS WHEN REQUIRED DUE TO SPACE CONSTRAINTS OR OTHER STRUCTURAL CONDITIONS.
 2. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. VERIFY ALL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK.
 3. DUCTWORK/PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT.
 4. CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
 5. COORDINATE FLOOR, WALL, ROOF PENETRATIONS, LOWER SIZES, PAD LOCATIONS ETC. WITH THE ARCHITECTURAL TRADES.
 6. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS OF AND EXACT LOCATIONS OF PLUMBING FIXTURES (STANDARDS AND BARBER TRAYS), ETC.
 7. REFER TO ARCHITECTURAL REFLECTED PLANS, SECTIONS AND ELEVATIONS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT, GRILLES, ETC.
 8. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS FOR SERVICE.
 9. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES SHALL BE 3/4" UNLESS NOTED OTHERWISE. REFER TO FUTURE SCHEDULE FOR FUTURE CONNECTION SIZES.
 10. COORDINATE AND PROVIDE ACCESS DOORS IN HARD CEILING AREAS FOR ACCESS TO BALANCING VALVES/CHANGERS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
 11. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
 12. FOR EQUIPMENT VALVING, COMPONENT AND PIPING ARRANGEMENT, REFER TO PIPING DIAGRAMS AND DETAILS.

KEYED NOTES:
 1 CO-ORDINATE LOCATION OF STANDPIPE WITH BUILDING SIGNAGE.
 2 THE STANDPIPE SYSTEM WILL BE A CLASS I MANUAL DRY SYSTEM, ACCORDING TO SECTION 905.3.1 OF THE MICHIGAN BUILDING CODE, USING EXCEPTION #3.

ISOMETRIC - BASE
SCALE: NONE

PLUMBING SYSTEM CALCULATIONS

(PER IPC 2003, APPENDIX E, SECTION E103, SEGMENTED LOSS METHOD)

DEMAND LOAD:		NUMBER OF UNITS	WATER SUPPLY LOAD	DEMAND	BLD'G TOTAL WSFU	DRAINAGE TOTAL DPU	NOTES
WC-1	WATER CLOSET - FLUSH VALVE	2	2.00	0.00	2.00	4.00	DUAL FLUSH VALVE (1.1/1.6 GPF)
L-1	LAVATORY - RESTROOM	2	0.50	0.50	0.70	1.40	PUBLIC - FAUCET
FD-1	FLOOR DRAIN	4	0.00	0.00	0.00	2.00	PUBLIC - FAUCET
					TOTAL 5.40	TOTAL 18.0	

WATER SUPPLY CALCULATIONS:		SIZE CALCULATIONS AT: 60 PSI
TOTAL WATER SUPPLY FIXTURE UNITS THIS PROJECT:	5.40	
ALLOWANCE FOR FUTURE EXPANSION:	0	
TOTAL DESIGN SUPPLY FIXTURE UNITS:	5.40	
TOTAL LPM FOR DESIGN SFDU THIS PROJECT:	16.0	(REFERENCE IPC APPENDIX E, TABLE E 103.3)
IRRIGATION FOR GREEN ROOF ALTERNATE:	40.0	
HOSE BIBBS/DECK WASHING (1):	20.0	
TOTAL BUILDING DEMAND FLOW:	76.0 GPM	

MINOR LOSSES:		WATER METER:	10.00 PSI
ELEVATION ABOVE MAIN LINE:	36.0 FEET		15.57 PSI
BACKFLOW PREVENTION DEVICE:	10.00 PSI		10.00 PSI
FIXTURE ELEVATION:	1.08 PSI		1.08 PSI
RESIDUAL PRESSURE:	2.50 PSI		2.50 PSI
TOTAL MINOR LOSSES:	51.65 PSI		51.65 PSI

EQUIVALENT LENGTH OF PIPE:		DESIGN PRESSURE-DROPS X 100 = 13.8 PSI/100 FT.
TOTAL DEVELOPED LENGTH:	340 FEET (INCLUDES MINOR FITTING LOSSES)	
FRICITION LOSSES @ 10%:	34 FEET	
TOTAL EQUIVALENT LENGTH:	374 FEET	

DESIGN PRESSURE DROP PER 100 FT. (DESIGN PRESSURE-LOSSES) X 100 = 13.8 PSI/100 FT.
 REFERENCE IPC APPENDIX E, CHART E103.3, USE: 2" IPS TYPE L COPPER PIPE, NEW WATER SUPPLY LINE IS 2".

WASTEWATER CALCULATIONS:
 CAPACITY OF 4" DNV LINE: 172 DPU @ 1/8" PER FT. SLOPE
 DRAINAGE UNITS THIS PROJECT: 18
 REMAINING CAPACITY: 154 DPU

PLUMBING LEGEND

---	S	SANITARY SEWER
---	V	SANITARY VENT
---	W	COLD WATER LINE
---	NPCW	NON-POTABLE COLD WATER LINE
---	HW	HOT WATER LINE
---	ST	STORM SEWER - ABOVE GRADE
---	ST	STORM SEWER - BELOW GRADE
---	SV	VENT THRU ROOF
---	ADA	AMERICAN DISABILITIES ACT
---	TYP	TYPICAL

OLD TOWN PARKING DECK

TRAVERSE CITY, MICHIGAN

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 Southfield, Michigan 48034
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513 South Union
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 ANY CHANGE INCLUDING ALTERATION, MODIFICATION, ADDITION, DELETION OR OMISSION BY THE OWNER, ARCHITECT, CONTRACTOR, DESIGN CONSULTANT OR ANY OTHER PARTY OF ANY OF THE CONTRACT DOCUMENTS INCLUDING, BUT NOT LIMITED TO, THE PLANS AND SPECIFICATIONS AS SUBMITTED BY THE ENGINEER, SHALL NOT BE BINDING UNLESS APPROVED IN WRITING BY THE ENGINEER. ANY SUCH CHANGES SHALL BE CONSIDERED TO BE THE WORK OF THE ENGINEER, AND SHALL BE THE RESPONSIBILITY OF THE ENGINEER. THE PARTIES WHO MADE THE CHANGE SHALL BE RESPONSIBLE AND HOLD HARMLESS THE ENGINEER FROM ANY AND ALL LIABILITY RESULTING FROM SUCH CHANGE.

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PROJECT NO. 0901-02

Date	ISSUED FOR:	By
07-02-09	DESIGN DEVELOPMENT	
08-06-09	50% CONSTRUCTION DOCUMENTS	
08-20-09	FINAL OWNER REVIEW	
09-03-09	BIDDING	
10-06-09	PERMIT	
08-31-10	RECORD SET	

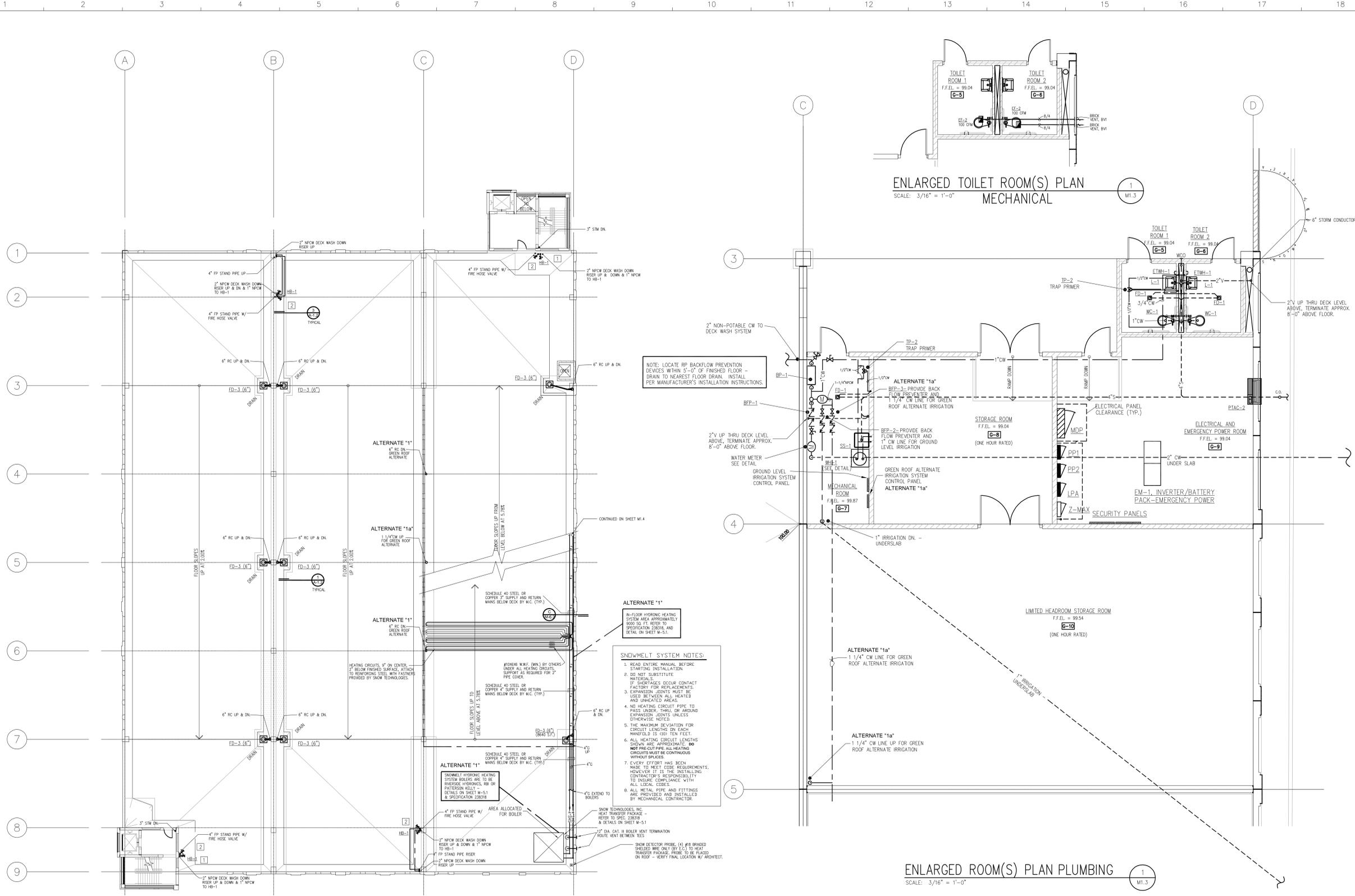
Drawn By	Checked By	File Name	Plot Date
LEM	LEM	0923A-1_2	08-31-10

Sheet Title:
SECOND LEVEL FLOOR PLAN MECHANICAL/ PLUMBING

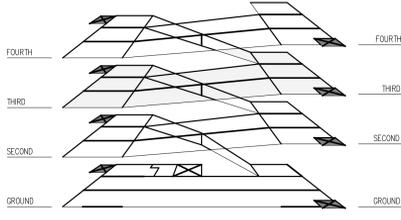
Drawn By: LEM
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 File Name: 0923A-1_2
 Plot Date: 08-31-10

File No: 0923
 Date: 09-03-09
 Scale: AS NOTED
 Last Rev: 08-31-10

Sheet Number:
M - 1.2



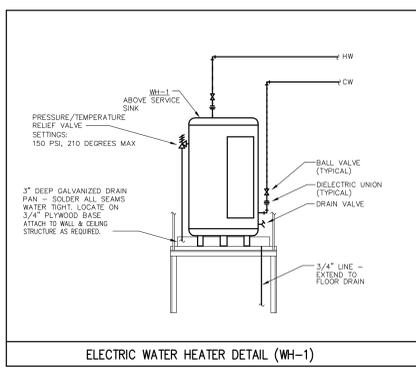
THIRD LEVEL FLOOR PLAN - MECHANICAL/PLUMBING
SCALE: 1/16" = 1'-0"



- KEYED NOTES:**
- 1 CO-ORDINATE LOCATION OF STANDPIPE WITH BUILDING SIGNAGE.
 - 2 THE STANDPIPE SYSTEM WILL BE A CLASS I MANUAL DRY SYSTEM, ACCORDING TO SECTION 905.3.1 OF THE MICHIGAN BUILDING CODE, USING EXCEPTION #3.

ELECTRICAL / MECHANICAL NOTE:
WHERE EXPOSED, METAL ELECTRICAL CONDUIT RINGS ARE TO BE LOCATED TO THE FACE OF ALL CONCRETE, MASONRY OR STEEL FRAMING MEMBERS. HORIZONTAL ELECTRICAL CONDUIT RINGS ARE TO BE LOCATED TO THE FACE OF ALL CONCRETE, MASONRY OR STEEL FRAMING MEMBERS. MECHANICAL PLUMBING TRADES TO COORDINATE WITH PRECASTER ALL EXPOSED P.C.D. PENETRATIONS AND JOINTS. UNLESS OTHERWISE NOTED, MAINTAIN 6"-3" CLEAR HEADROOM IN ALL DRIVE LINES AND PAVING STALLS TO ANY ELECT. OR MECH. TRAFFIC.

- GENERAL MECHANICAL NOTES:**
1. THESE DRAWINGS ARE DIAGNOSTIC AND INDICATE THE GENERAL EVENT OF THE WORK. PROVIDE PLUMBING AND MECHANICAL SYSTEMS COMPLETE PER SPECIFICATIONS, SMASHA STANDARDS AND PER APPLICABLE CODES INCLUDING ALL NECESSARY OFFSETS, FITTINGS, SPECIAL TRADES OR MECHANICAL WORK AS REQUIRED. DUE TO SPACE CONSTRAINTS OR OTHER STRUCTURAL CONDITIONS.
 2. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. VERIFY ALL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK.
 3. OUTWORK/PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT/PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. OUTWORK/PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
 4. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
 5. COORDINATE FLOOR, WALL, ROOF PENETRATIONS, LOWER SIZES, PAD LOCATIONS ETC. WITH THE ARCHITECTURAL DRAWINGS.
 6. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS OF AND EXACT LOCATIONS OF PLUMBING FIXTURES (STANDPIPE AND BARRIER FREE), ETC.
 7. REFER TO ARCHITECTURAL REFLECTED PLANS, SECTIONS AND ELEVATIONS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT, DRILLS, ETC.
 8. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS FOR SERVICE.
 9. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES SHALL BE 3/4" UNLESS NOTED OTHERWISE. REFER TO FINISH SCHEDULES FOR FUTURE CONNECTION SIZES.
 10. COORDINATE AND PROVIDE ACCESS DOORS IN HARD CEILING AREAS FOR ACCESS TO BALANCING VALVES/DAMPERS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
 11. PROVIDER CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
 12. FOR EQUIPMENT VALVING, COMPONENT AND PIPING ARRANGEMENT, REFER TO PIPING DIAGRAMS AND DETAILS.



PLUMBING LEGEND

---	S	SANITARY SEWER
---	V	SANITARY VENT
---	CW	COLD WATER LINE
---	NPCW	NON-POTABLE COLD WATER LINE
---	HW	HOT WATER LINE
---	ST	STORM SEWER - ABOVE GRADE
---	ST	STORM SEWER - BELOW GRADE
---	---	BALL VALVE
---	---	RP BACKFLOW PREVENTER

WCO WALL CLEAN OUT
FCO FLOOR CLEAN OUT
YCO YARD CLEAN OUT
TYP TYPICAL

V VENT
VTR VENT THRU ROOF
ADA AMERICAN DISABILITIES ACT

OLD TOWN PARKING DECK

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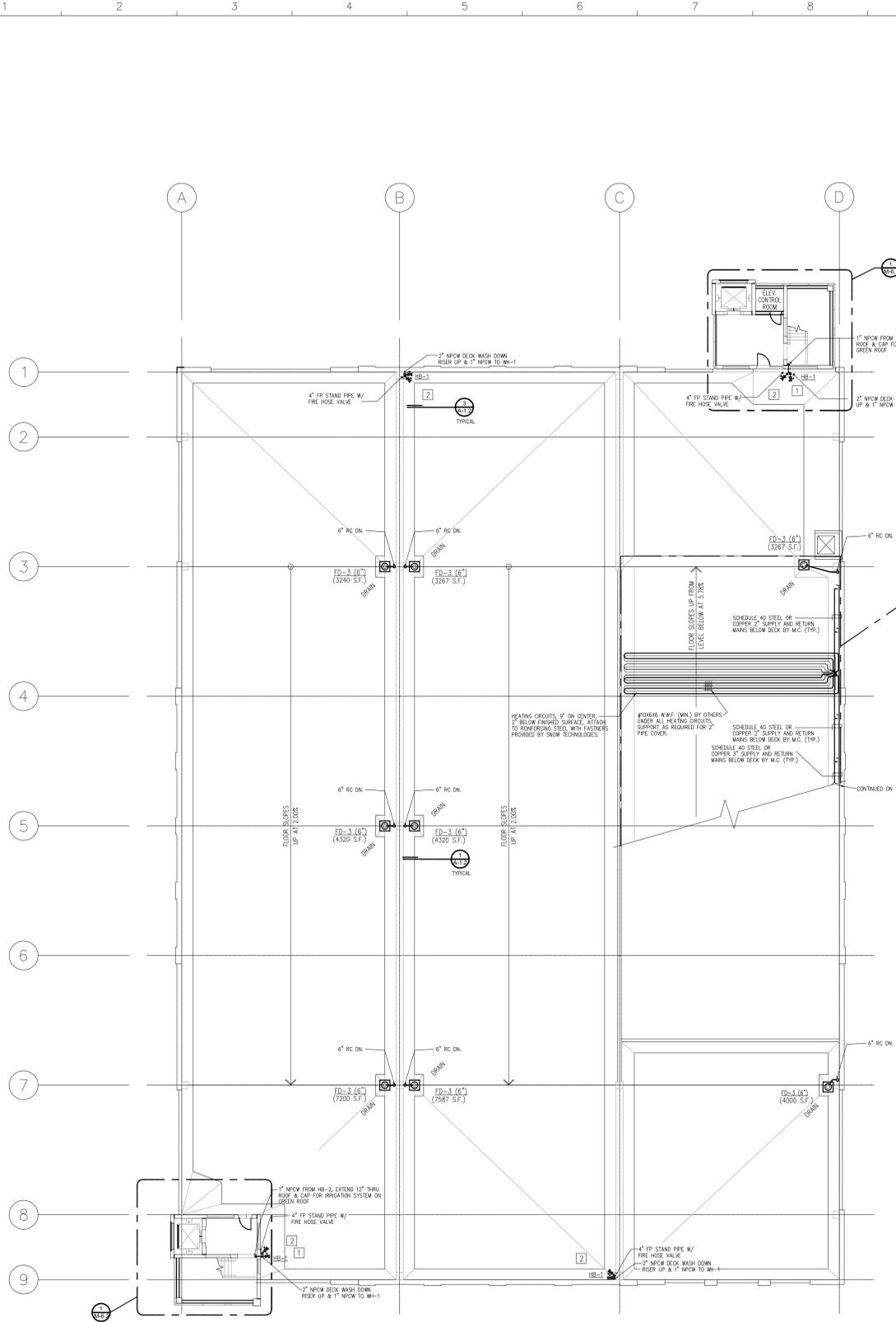
Date	ISSUED FOR:	By
07-02-09	DESIGN DEVELOPMENT	
08-06-09	50% CONSTRUCTION DOCUMENTS	
08-20-09	FINAL OWNER REVIEW	
09-03-09	BIDDING	
10-06-09	PERMIT	
08-31-10	RECORD SET	

THIRD LEVEL FLOOR PLAN MECHANICAL/PLUMBING

Drawn By	LEM	Detail Number	
Checked By	LEM		Detail Sheet
File Name	0923A-1-2		
Plot Date	08-31-10		

File No	0923	NORTH
Date	09-03-09	
Scale	AS NOTED	
Last Rev.	08-31-10	

Sheet Number: **M - 13**

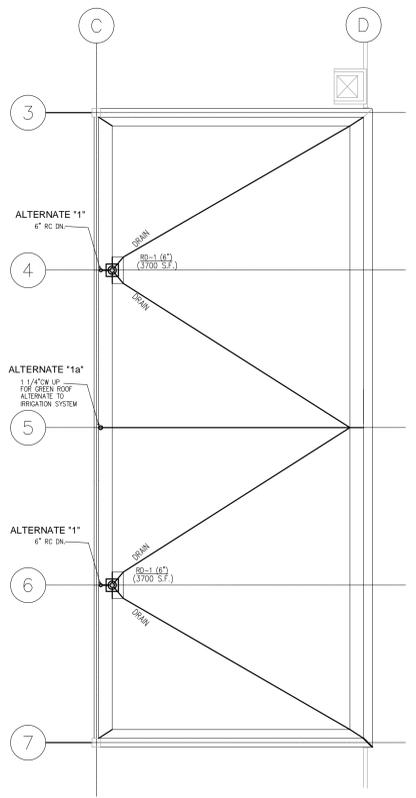


ALTERNATE '1'

ALL-FLOOR HYDRONIC HEATING SYSTEM AREA APPROXIMATELY 3000 SQ. FT. REFER TO SPECIFICATION 230310, AND DETAIL ON SHEET M-11.

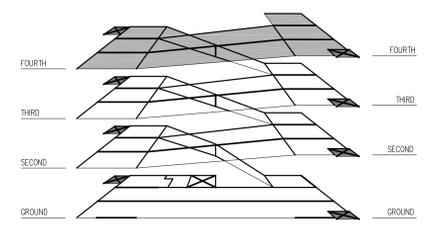
SNOWMELT SYSTEM NOTES:

1. READ ENTIRE MANUAL BEFORE STARTING INSTALLATION.
2. DO NOT SUBSTITUTE MATERIALS.
3. IF SHORTAGES OCCUR CONTACT FACTORY FOR REPLACEMENTS.
4. EXPANSION JOINTS MUST BE USED BETWEEN ALL HEATED AND UNHEATED AREAS.
5. NO HEATING CIRCUIT PIPE TO PASS UNDER, THRU, OR AROUND EXPANSION JOINTS UNLESS OTHERWISE NOTED.
6. THE MAXIMUM DEVIATION FOR CIRCUIT LENGTHS ON EACH MANIFOLD IS 100 FEET.
7. ALL HEATING CIRCUIT LENGTHS SHOULD BE APPROXIMATELY 1/4" UP FOR GREEN ROOF ALTERNATE TO IRRIGATION SYSTEM.
8. NOT PRE-CUT PIPE. ALL HEATING CIRCUITS MUST BE CONTINUOUS WITHOUT SPLICES.
9. EVERY EFFORT HAS BEEN MADE TO MEET CODE REQUIREMENTS, HOWEVER IT IS THE INSTALLING CONTRACTOR'S RESPONSIBILITY TO INSURE COMPLIANCE WITH ALL LOCAL CODES.
10. ALL METAL PIPE AND FITTINGS ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.



GREEN ROOF ALTERNATE FLOOR PLAN – MECH./PLUMBING
SCALE: 1/16" = 1'-0"

FOURTH LEVEL FLOOR PLAN – MECH./PLUMBING
SCALE: 1/16" = 1'-0"



ISOMETRIC – BASE
SCALE: NONE

KEYED NOTES:

1 CO-ORDINATE LOCATION OF STANDPIPE WITH BUILDING SIGNAGE.

2 THE STANDPIPE SYSTEM WILL BE A CLASS I MANUAL DRY SYSTEM, ACCORDING TO SECTION 905.3.1 OF THE MICHIGAN BUILDING CODE, USING EXCEPTION #3.

- GENERAL MECHANICAL NOTES:**
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 2. CONTRACTOR SHALL COORDINATE HIS WORK WITH THE WORK OF ALL OTHER TRADES. VERIFY ALL CLEARANCES PRIOR TO THE FABRICATION OF ANY WORK.
 3. DUCTWORK/PIPING SHALL NOT BE LOCATED OVER ELECTRICAL EQUIPMENT PANELS. PROVIDE REQUIRED CLEARANCE IN FRONT OF ELECTRICAL EQUIPMENT. DUCTWORK/PIPING SHALL NOT INTERFERE WITH ELECTRICAL EQUIPMENT CLEARANCE.
 4. THE CONTRACTOR SHALL PROVIDE ALL MISCELLANEOUS SUPPORTING STEEL, ETC. FOR THE PROPER INSTALLATION OF ALL MECHANICAL SYSTEMS.
 5. COORDINATE FLOOR, WALL, ROOF PENETRATIONS, LOWER SIZES, AND LOCATIONS ETC. WITH THE ARCHITECTURAL TRADES.
 6. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS OF AND EXACT LOCATIONS OF PLUMBING FIXTURES (STANDARDS AND BARBER FRED), ETC.
 7. REFER TO ARCHITECTURAL REFLECTED PLANS, SECTIONS AND ELEVATIONS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT, GRILLS, ETC.
 8. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL SERVICES REQUIRING ACCESS FOR SERVICE.
 9. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES SHALL BE 3/4" UNLESS NOTED OTHERWISE. REFER TO FUTURE SCHEDULE FOR FUTURE CONNECTION SIZES.
 10. COORDINATE AND PROVIDE ACCESS DOORS IN HARD CEILING AREAS FOR ACCESS TO BALANCING VALVES/DAMPERS, ETC. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
 11. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
 12. FOR EQUIPMENT VALVING, COMPONENT AND PIPING ARRANGEMENT, REFER TO PIPING DIAGRAMS AND DETAILS.

ELECTRICAL / MECHANICAL NOTE:

WHERE EXPOSED, VERTICAL ELECTRICAL CONDUIT RINGS ARE TO BE LOCATED TO THE FACE OF ALL WALLS AS NOTED ON PLANS.

HORIZONTAL ELECTRICAL CONDUIT RINGS ARE TO BE LOCATED TO THE UNDERSIDE OF ALL P.C.C. (P.C. CONG.) AND/OR STEEL FRAMING MEMBERS.

ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR FOR CONDUIT RINGS AND ATTACHMENTS.

MECHANICAL/PLUMBING TRADES TO COORDINATE WITH PRECASTER ALL REQUIRED P.C.C. PENETRATIONS AND ANCHORAGE.

UNLESS OTHERWISE NOTED, MAINTAIN 6"-2" CLEAR HEADROOM IN ALL DRIVE LINES AND PARKING STALLS TO ANY ELECT. OR MECH. FIXTURES.

PLUMBING LEGEND

---	S	SANITARY SEWER
---	V	SANITARY VENT
---	CW	COLD WATER LINE
---	NPCW	NON-POTABLE COLD WATER LINE
---	HW	HOT WATER LINE
---	ST	STORM SEWER - ABOVE GRADE
---	ST	STORM SEWER - BELOW GRADE
---	BV	BALL VALVE
---	RP	RP BACKFLOW PREVENTER
WCO		WALL CLEAN OUT
FCD		FLOOR CLEAN OUT
YCO		YARD CLEAN OUT
TYP		TYPICAL
V		VENT
VTR		VENT THRU ROOF
ADA		AMERICAN DISABILITIES ACT

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10-06-09	PERMIT	
08-31-10	RECORD SET	

Sheet Title:

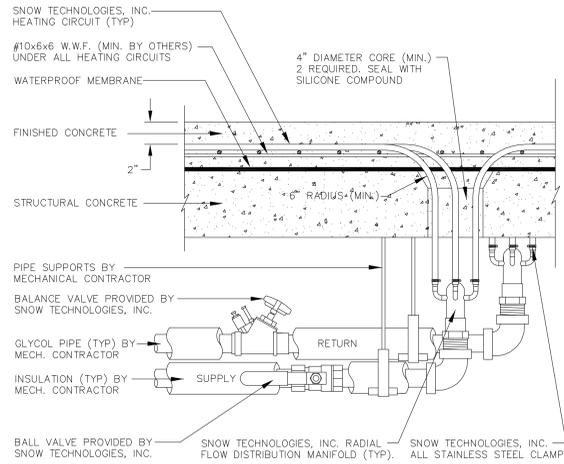
FOURTH LEVEL FLOOR PLAN MECHANICAL/PLUMBING

Drawn By	LEM	Detail Number
Checked By	LEM	Detail Sheet
File Name	0923A-1_2	
Plot Date	08-31-10	

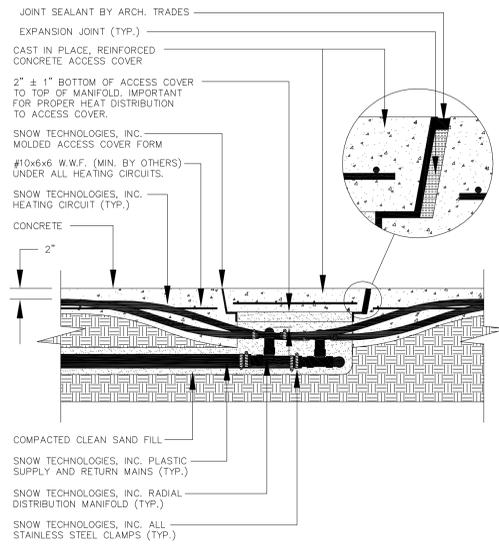
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File No	0923	
Date	09-03-09	
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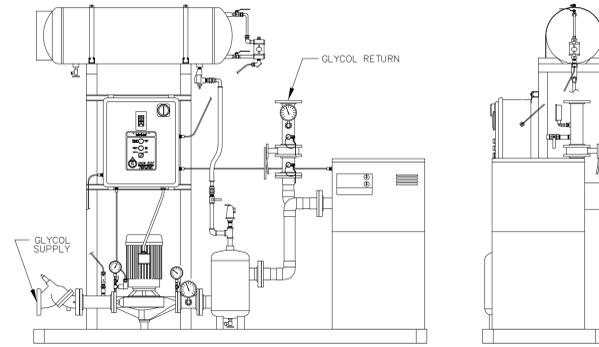
Sheet Number: **M - 14**



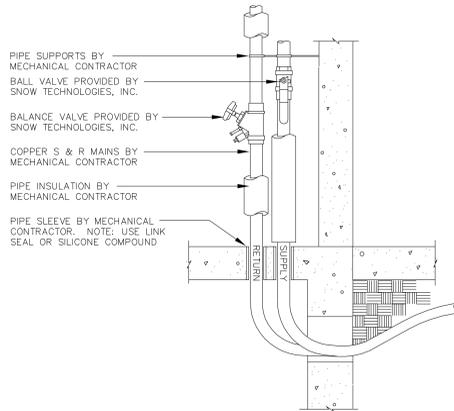
A
01 SECTION - SNOWMELT MANIFOLD
SCALE: NONE



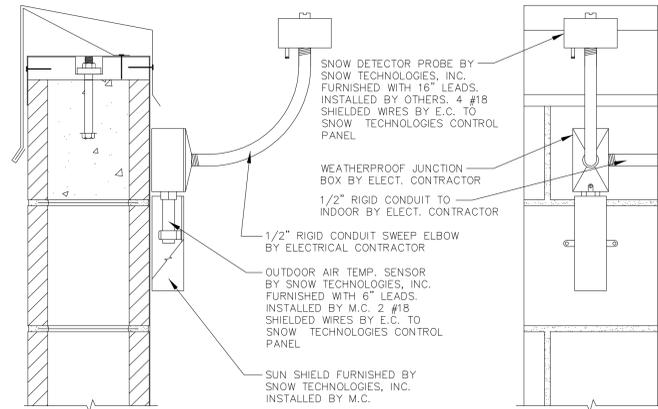
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01 SECTION - SNOWMELT MANIFOLD
SCALE: NONE



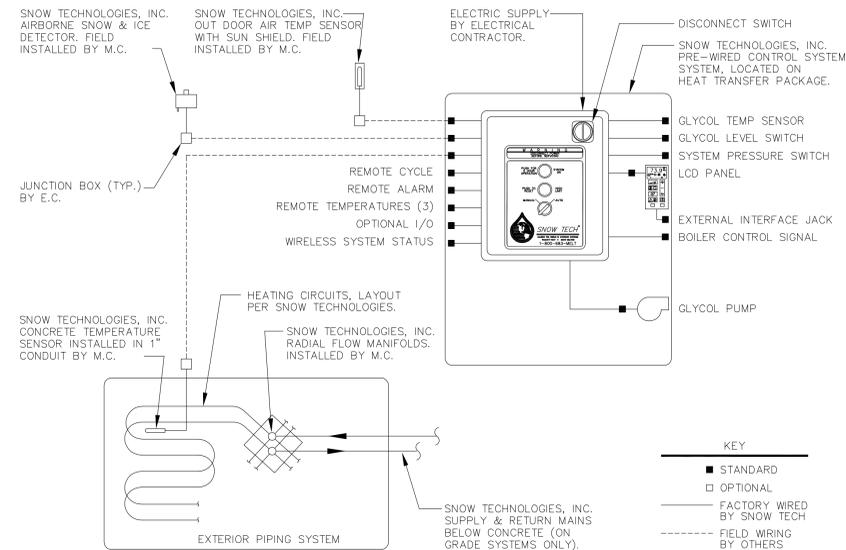
HEAT TRANSFER PACKAGE
SCALE: NONE



C
01 SECTION - MAINS ENTERING BUILDING
SCALE: NONE



DETAIL - SNOW DETECTOR AND OUTSIDE AIR TEMP. SENSOR
SCALE: NONE

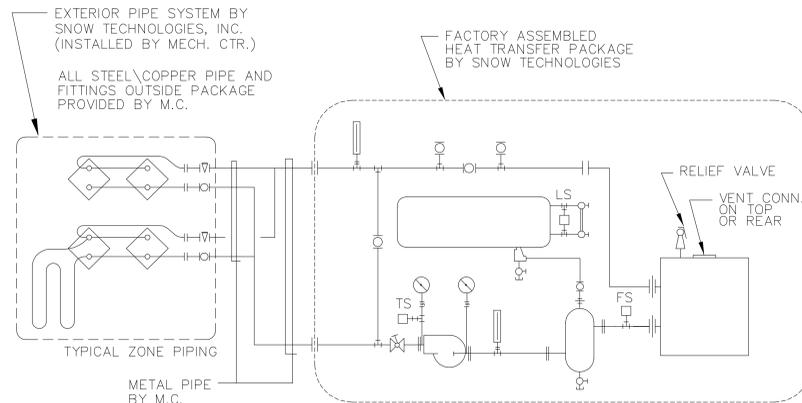


SNOW MELTING SYSTEM CONTROL SCHEMATIC

NOTE:
REFER TO SPECIFICATION SECTION 238318 FOR ADDITIONAL INFORMATION AND REQUIREMENTS

SNOWMELT SYSTEM NOTES:

1. READ ENTIRE MANUAL BEFORE STARTING INSTALLATION.
2. DO NOT SUBSTITUTE MATERIALS. IF SHORTAGES OCCUR CONTACT FACTORY FOR REPLACEMENTS.
3. EXPANSION JOINTS MUST BE USED BETWEEN ALL HEATED AND UNHEATED AREAS.
4. NO HEATING CIRCUIT PIPE TO PASS UNDER, THRU, OR AROUND EXPANSION JOINTS UNLESS OTHERWISE NOTED.
5. THE MAXIMUM DEVIATION FOR CIRCUIT LENGTHS ON EACH MANIFOLD IS (10) TEN FEET.
6. ALL HEATING CIRCUIT LENGTHS SHOWN ARE APPROXIMATE. **DO NOT PRE-CUT PIPE. ALL HEATING CIRCUITS MUST BE CONTINUOUS WITHOUT SPLICES.**
7. EVERY EFFORT HAS BEEN MADE TO MEET CODE REQUIREMENTS, HOWEVER IT IS THE INSTALLING CONTRACTORS RESPONSIBILITY TO INSURE COMPLIANCE WITH ALL LOCAL CODES.
8. ALL METAL PIPE AND FITTINGS ARE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR.



NOTE: ADEQUATE COMBUSTION AND VENTILATION AIR MUST BE PROVIDED. COMPLIANCE WITH ALL LOCAL CODES IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.

SYSTEM PIPING SCHEMATIC

OLD TOWN PARKING DECK

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PROJECT NO. 0901-02

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09-03-09	BIDDING	
10-04-09	PERMITS	
08-31-10	RECORD SET	

Date	ISSUED FOR:	By

Sheet Title:
MECHANICAL DETAILS/SECTIONS

Drawn By	LEM	
Checked By	LEM	
File Name	0923A-6_2	
Plot Date	08-31-10	

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Date	09-03-09	
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Last Rev.	08-31-10	

Sheet Number:
M - 51

PACKAGE TERMINAL AIR CONDITIONING UNIT SCHEDULE (PTAC)

MARK	MODEL No.	CFM	TOTAL	O.A.	NOMINAL C.L.G. CAP	HTG. MBH	ELECTRICAL	REMARKS
PTAC-1	AZ29E150	310	75	14,600	17,000	208V/1ϕ	20.4 30	SEE NOTES
PTAC-2	AZ29E150	310	75	14,600	17,000	208V/1ϕ	20.4 30	SEE NOTES

- NOTES:
- BASED ON GE (TRANE, OR AMANA TO BE EQUALS).
 - PROVIDE OPTIONAL GRILLE, STEEL WALL CASE, LINE CORD CONNECTION.
 - PROVIDE GE DIGITAL PROGRAMMABLE THERMOSTAT MODEL #RAK164P1.
 - PROVIDE GE SUB-BASE, MODEL #RAK204D30P AND DIRECT CONNECTION KIT, MODEL #RAK4307.

EXHAUST FAN SCHEDULE

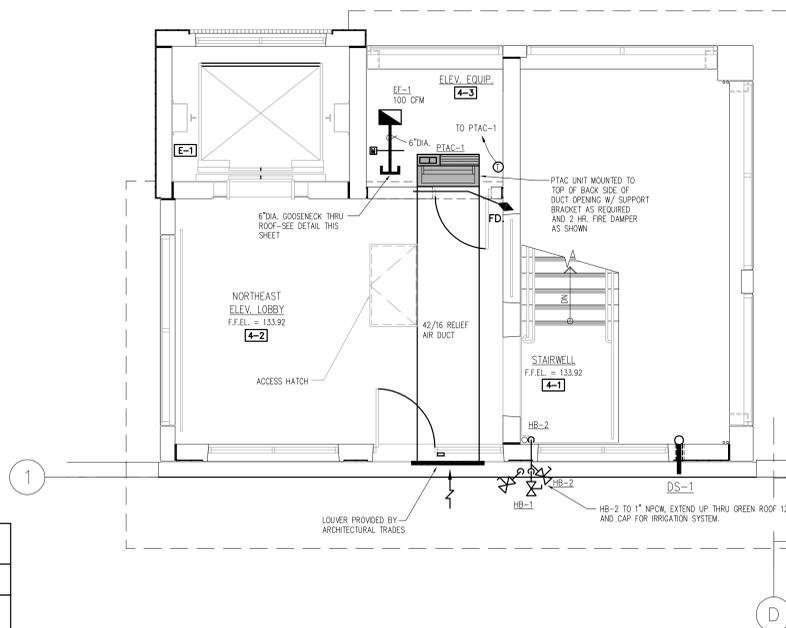
MARK	MODEL No.	CFM	E.S.P.	RPM	BOULDED SPINES	ELECTRICAL	APPROX. WISCH	REMARKS
EF-1	GC-142	100 @ 1.0"	978	1.7	115V, 1ϕ, 59W	15		CEILING FAN, CONTROLLED BY A SMOKE DETECTOR, VENT THRU ROOF W/ GOOSENECK
EF-2	GC-142	100 @ 1.0"	978	1.7	115V, 1ϕ, 59W	15		CEILING FAN, CONTROLLED BY LIGHT SWITCH, VENT THRU A BRICK VENT - MODEL NO. 801

- NOTES:
- EXHAUST FANS ARE BASED ON LOREN COOK (GREENHECK AND ACME MAY BE BID AS EQUALS).

SEQUENCE OF OPERATION

CEILING EXHAUST FAN (EF-1)

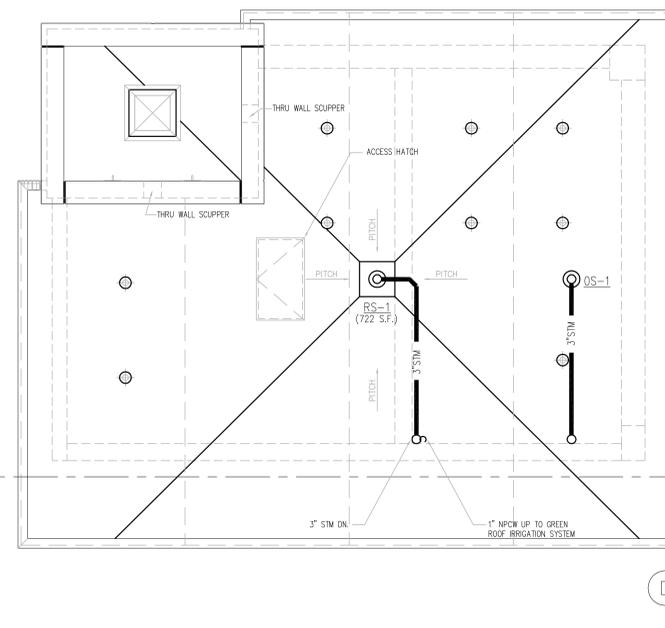
- GENERAL:
- THE EXHAUST FAN SHALL BE CONTROLLED BY A SMOKE DETECTOR.
- SMOKE DETECTION MODE:
- IF SMOKE IS DETECTED IN THE SPACE, THE MOTORIZED DAMPER SHALL FULLY OPEN AND THE EXHAUST FAN SHALL ENERGIZE AND RUN CONTINUOUSLY.



**NORTHEAST STAIR TOWER
FOURTH LEVEL PLAN – MECHANICAL**

SCALE: 1/4" = 1'-0"

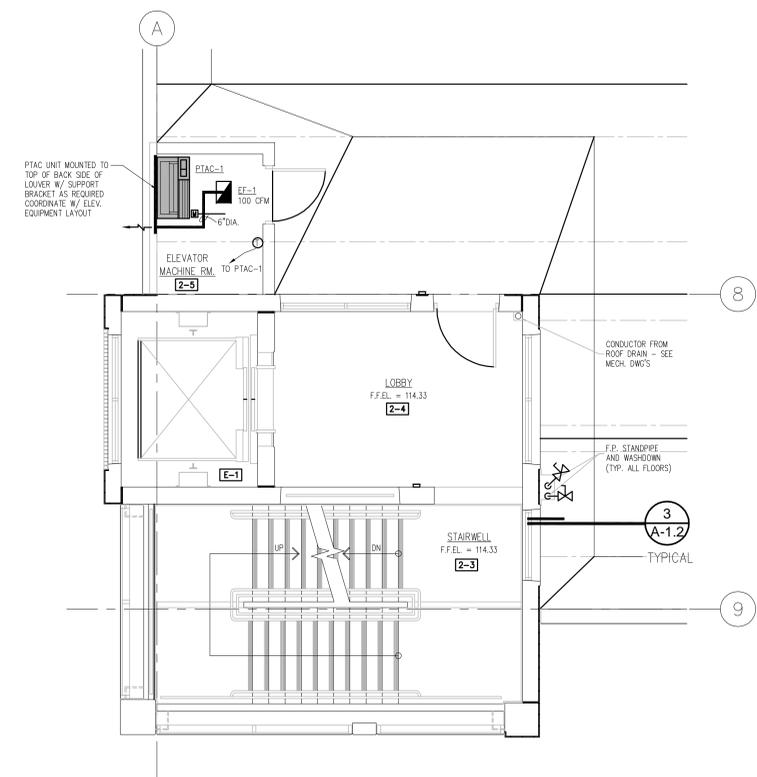
M-6.1



**NORTHEAST STAIR TOWER
ROOF LEVEL PLAN – MECHANICAL**

SCALE: 1/4" = 1'-0"

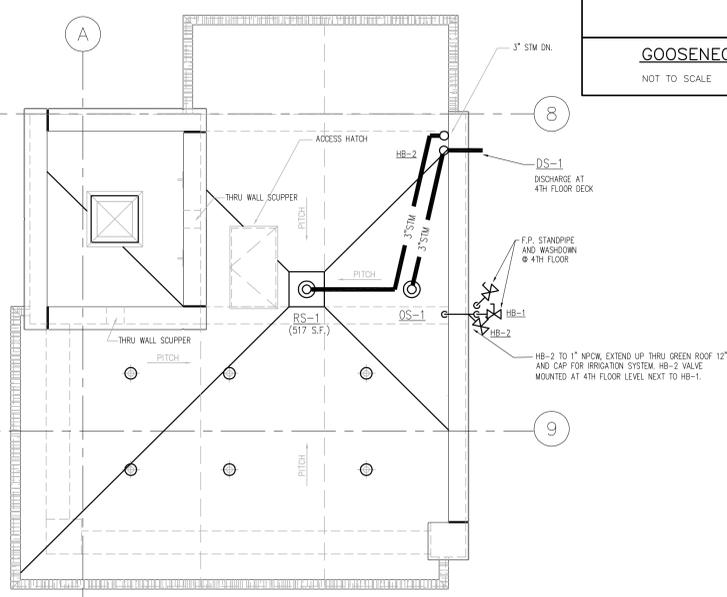
M-6.1



**SOUTHWEST STAIR/ELEVATOR TOWER
SECOND LEVEL PLAN – MECHANICAL**

SCALE: 1/4" = 1'-0"

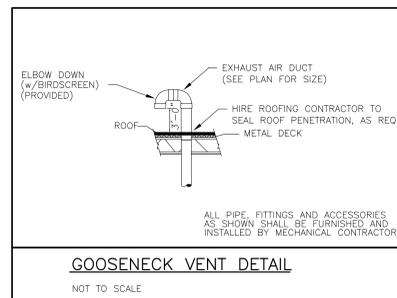
M-6.1



**SOUTHWEST STAIR/ELEVATOR TOWER
ROOF LEVEL PLAN – MECHANICAL**

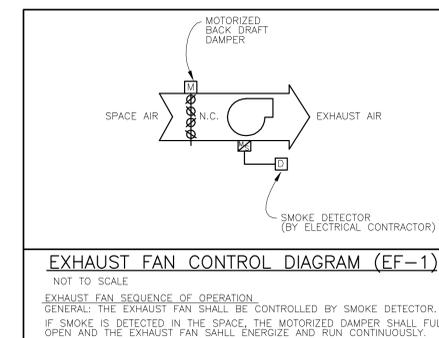
SCALE: 1/4" = 1'-0"

M-6.1



GOOSENECK VENT DETAIL

NOT TO SCALE



EXHAUST FAN CONTROL DIAGRAM (EF-1)

NOT TO SCALE

EXHAUST FAN SEQUENCE OF OPERATION:
GENERAL: THE EXHAUST FAN SHALL BE CONTROLLED BY SMOKE DETECTOR.
IF SMOKE IS DETECTED IN THE SPACE, THE MOTORIZED DAMPER SHALL FULLY OPEN AND THE EXHAUST FAN SHALL ENERGIZE AND RUN CONTINUOUSLY.

GENERAL MECHANICAL NOTES:

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- PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
- FOR EQUIPMENT VALVING, COMPONENT AND PIPING ARRANGEMENT, REFER TO PIPING DIAGRAMS AND DETAILS.

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PROJECT NO. 0901-02

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Date	ISSUED FOR:	By
07-02-09	DESIGN DEVELOPMENT	
08-06-09	50% CONSTRUCTION DOCUMENTS	
08-20-09	FINAL OWNER REVIEW	
09-03-09	BIDDING	
10-04-09	PERMITS	
08-31-10	RECORD SET	

**NORTHEAST AND
SOUTHWEST STAIR
TOWER PLANS -
MECHANICAL**

Drawn By	LEM	Detail Number
Checked By	LEM	Number
File Name	0923A-6_2	Detail Sheet
Plot Date	08-31-10	

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File No	0923	DATE
Date	09-03-09	
Scale	AS NOTED	
Last Rev.	08-31-10	

Sheet Number:

M - 6.1