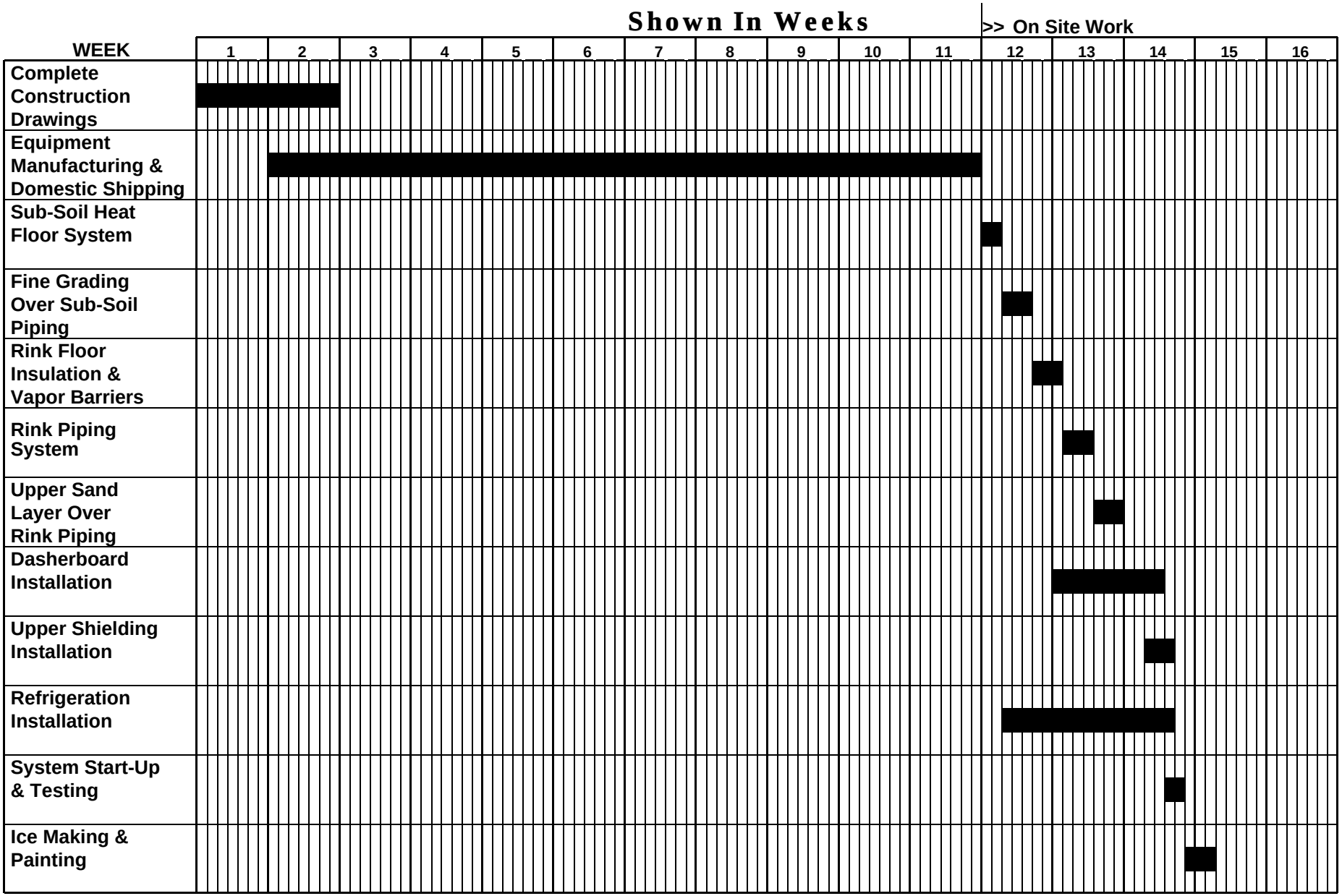
Typical Ice Rink System Design Drawings

Project Schedule, Typical Estimate 200' x 85'
Permanent Sand Base Rink System Installation



* Dehumidification System Installed By Mechanical Contractor Not Shown

All Scheduling Based Upon 7 Day On site 10 Hour Per Day Work Schedule By Qualified Personnel

MAN HOURS REQUIRED FOR TYPICAL INSTALLATION PROCESS

Listed is estimated man hours along with equipment required on-site to complete the job. Supervision is not included.

	ESTIMATED MAN HOURS
SUB-SOIL (FLOOR PORTION ONLY) **Air Compressor** **Fluid Charging Pump** **Assorted Hand Tools**	60
FINE GRADING **Payloader, 2 YD Bucket minimum** **LaserGrader If Available** **Vibatory Plate Compactors** **Laser Level Device** **Assorted Hand Tools**	250
INSULATION & VAPOR BARRIER **Cutting Tools** **Assorted Hand Tools**	125
RINK PIPING SYSTEM **Fork Truck** **Air Compressor** **Assorted Hand Tools** **Electric Socket Drivers** **Fluid Charging Pump**	225
DASHER BOARD SYSTEM & UPPER SHIELDING **Rotary Hammer Drill** **Assorted Hand Tools** **Fork Truck**	450
SUB-HEAT MECHANICAL **Standard Refrigeration Tools** **Air Compressor** **Fluid Charging Pump**	80
REFRIGERATION UNIT **Standard Refrigeration Tools** **Air Compressor** **Fluid Charging Pump** **Standard Plumbing Tools** **Crane For Rigging & Placement**	200

Ice Rink Refrigerant Flow Diagrams
Design Drawings

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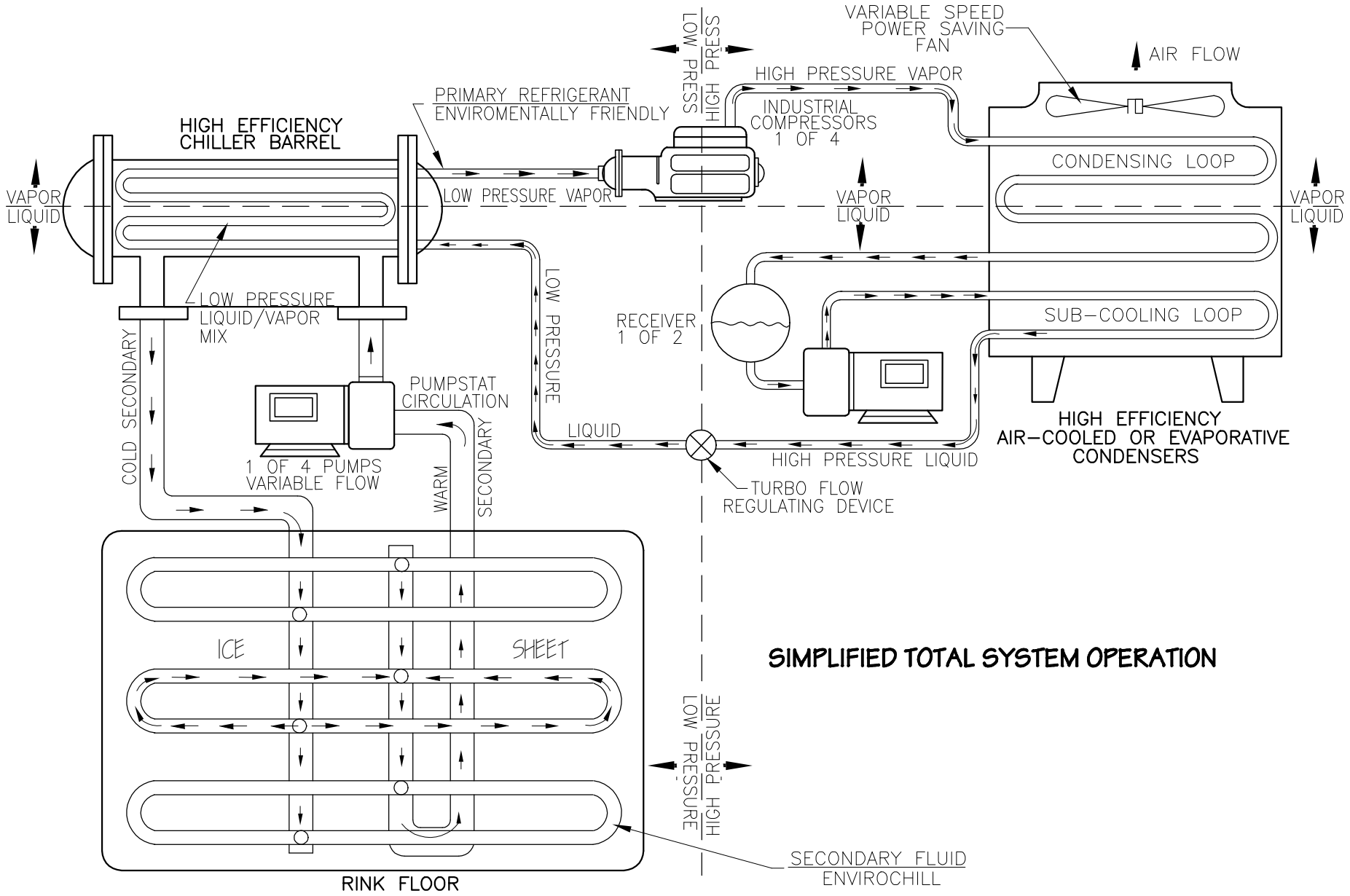
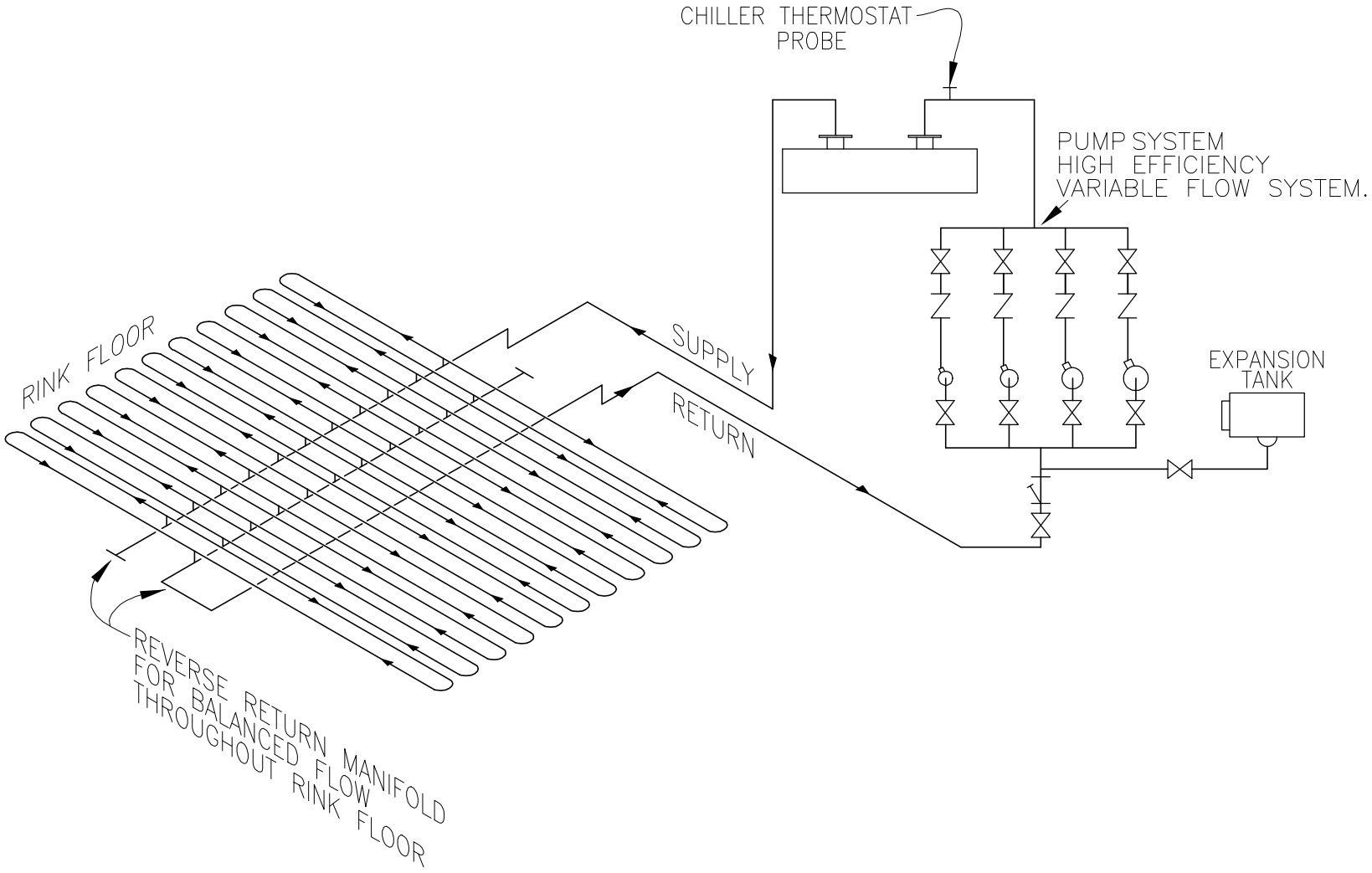
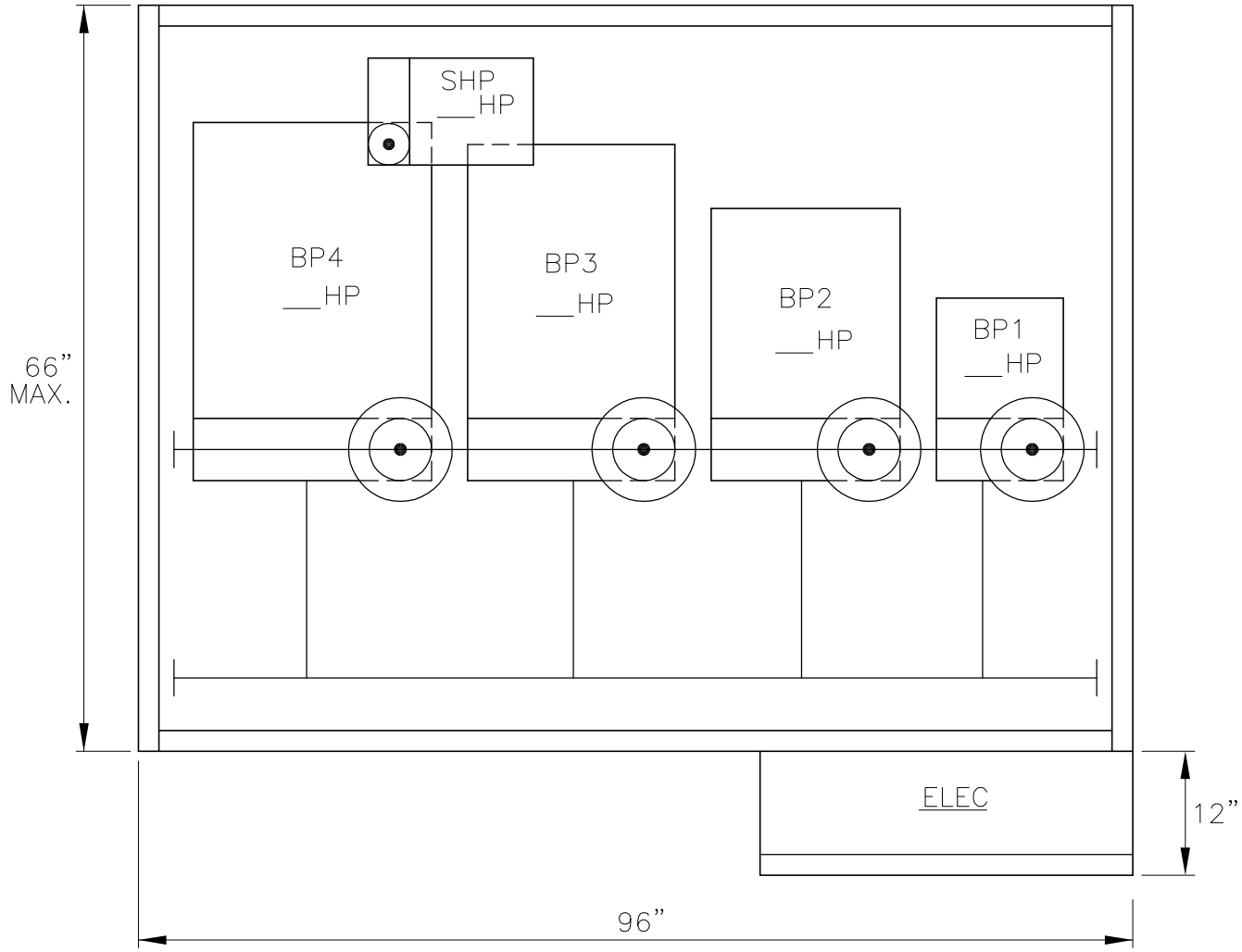




SINGLE RINK SECONDARY FLUID FLOW DIAGRAM

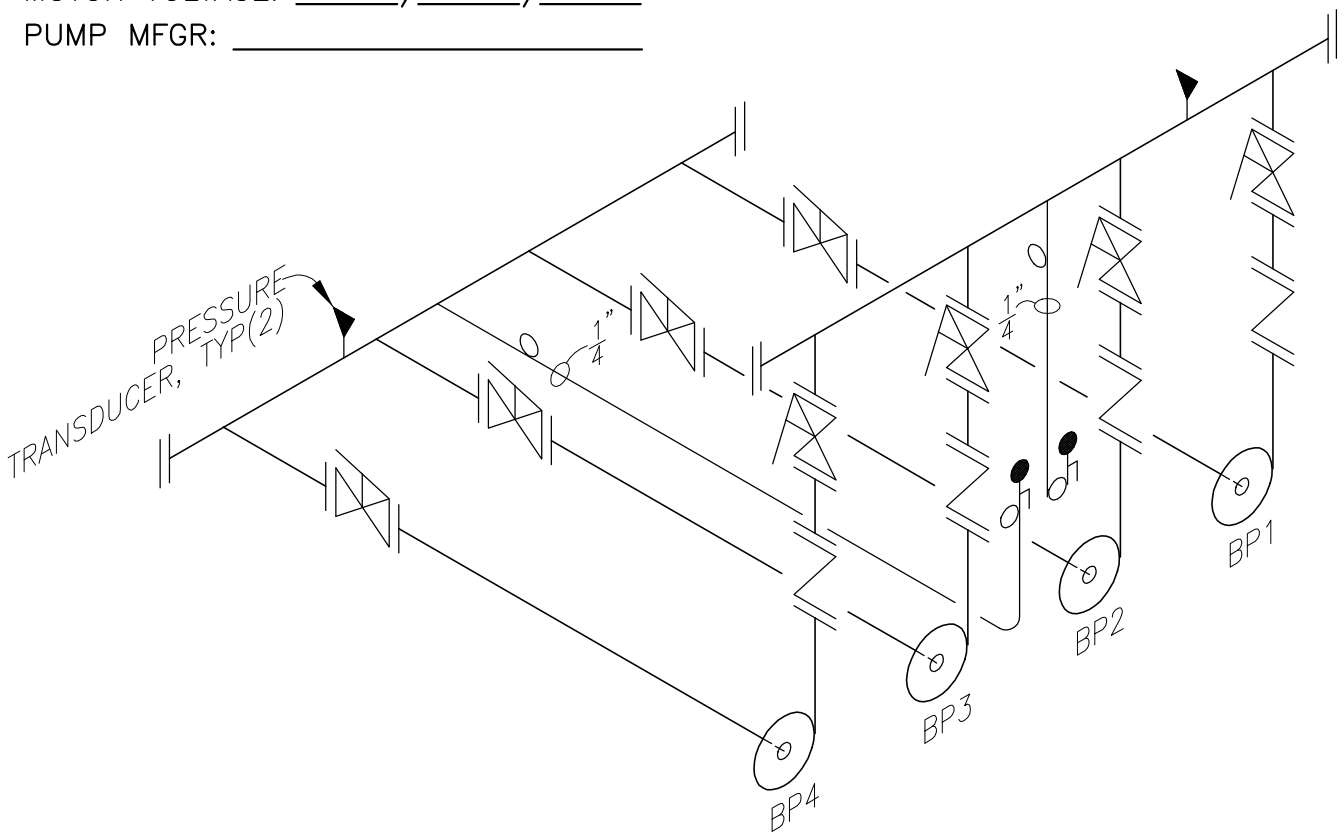


4 PUMPSKID LAYOUT TEMPLATE

PUMPSTAT SKID: _____

BP4: _____HP; _____GPM @ _____FT. HD. _____x_____; _____
BP3: _____HP; _____GPM @ _____FT. HD. _____x_____; _____
BP2: _____HP; _____GPM @ _____FT. HD. _____x_____; _____
BP1: _____HP; _____GPM @ _____FT. HD. _____x_____; _____

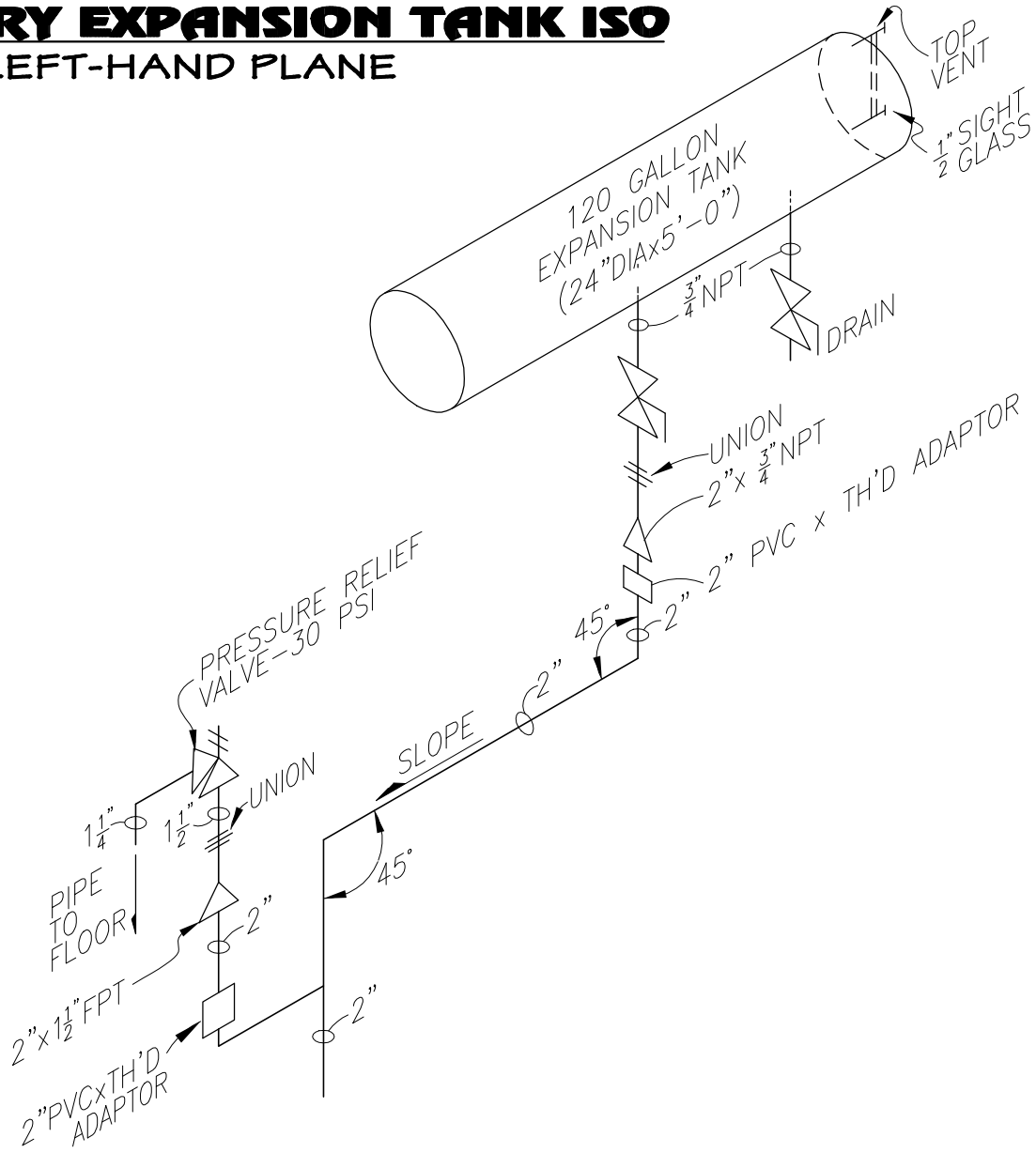
SECONDARY FLUID: _____% _____
MOTOR VOLTAGE: _____/_____/_____
PUMP MFGR: _____

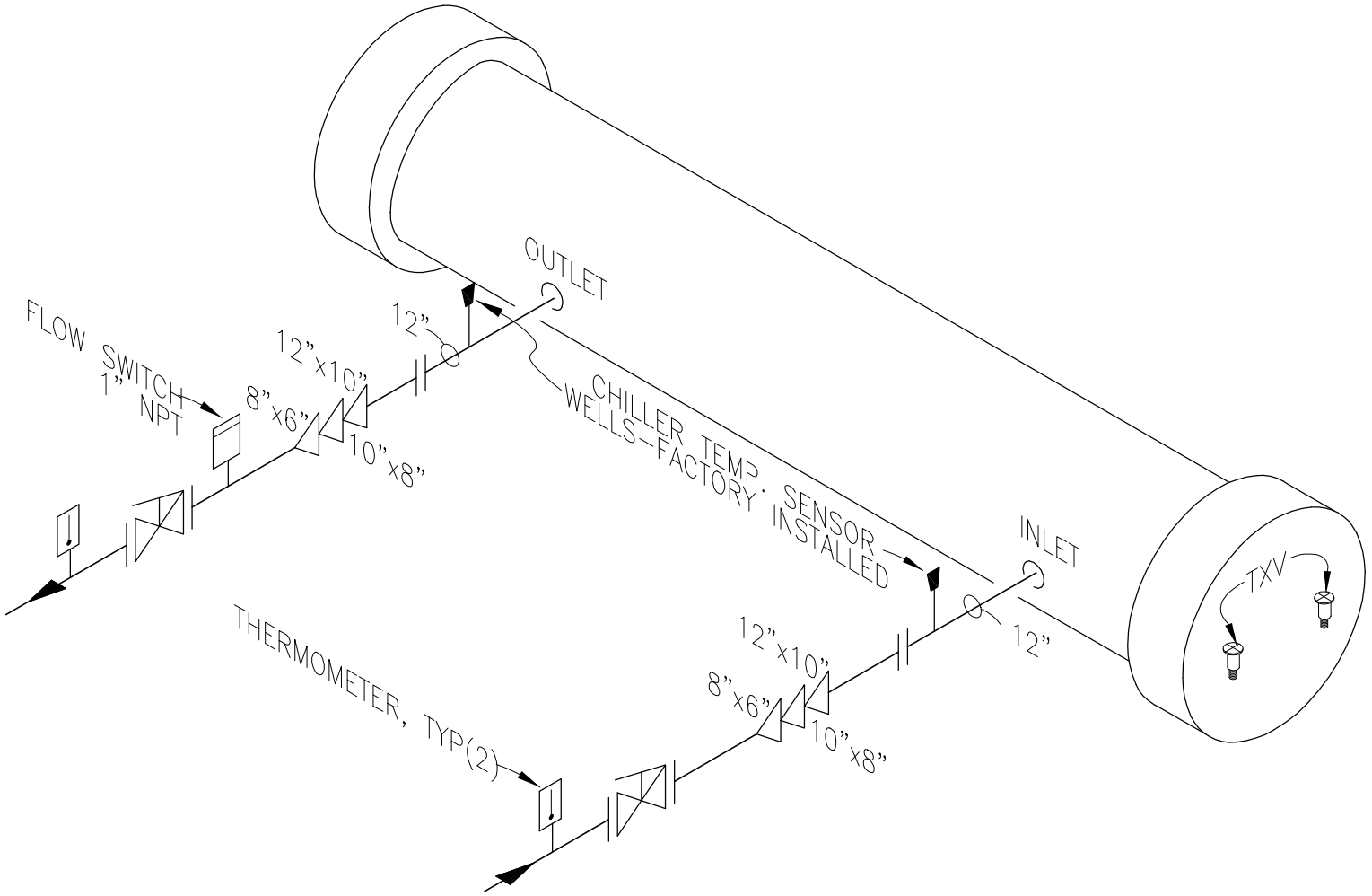


4 PUMP-PUMPSTAT SKID ISO
REVERSED LEFT HAND PLANE

SECONDARY EXPANSION TANK ISO

LEFT-HAND PLANE





EVAPORATOR ISO

RIGHT-HAND PLANE

Ice Rink Refrigeration
Mechanical Room Layout
Design Drawings

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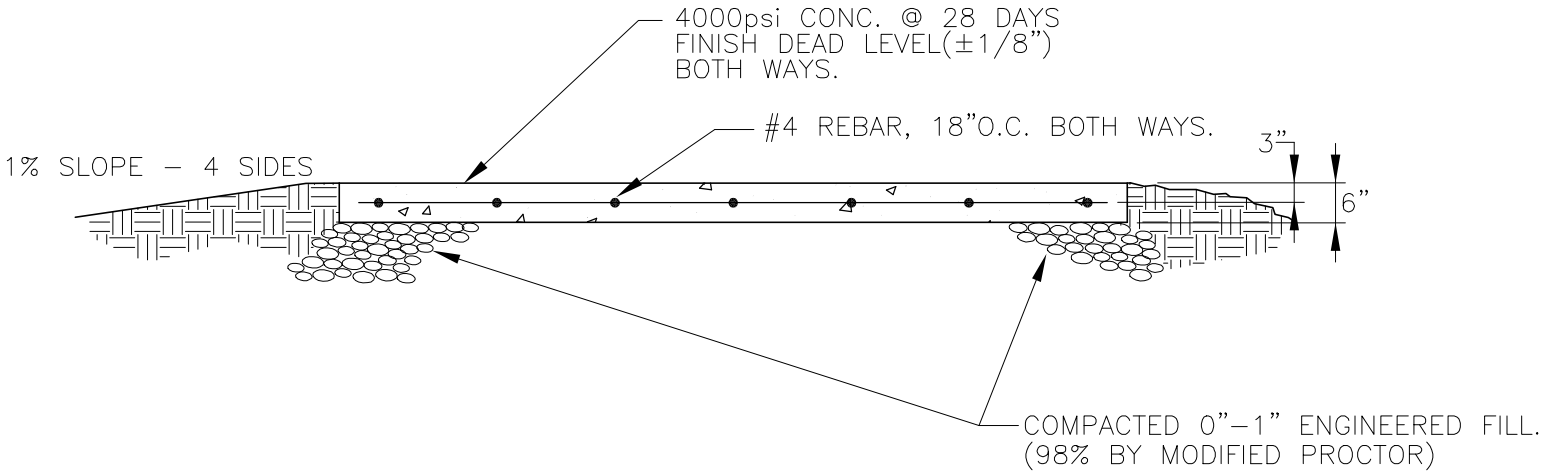
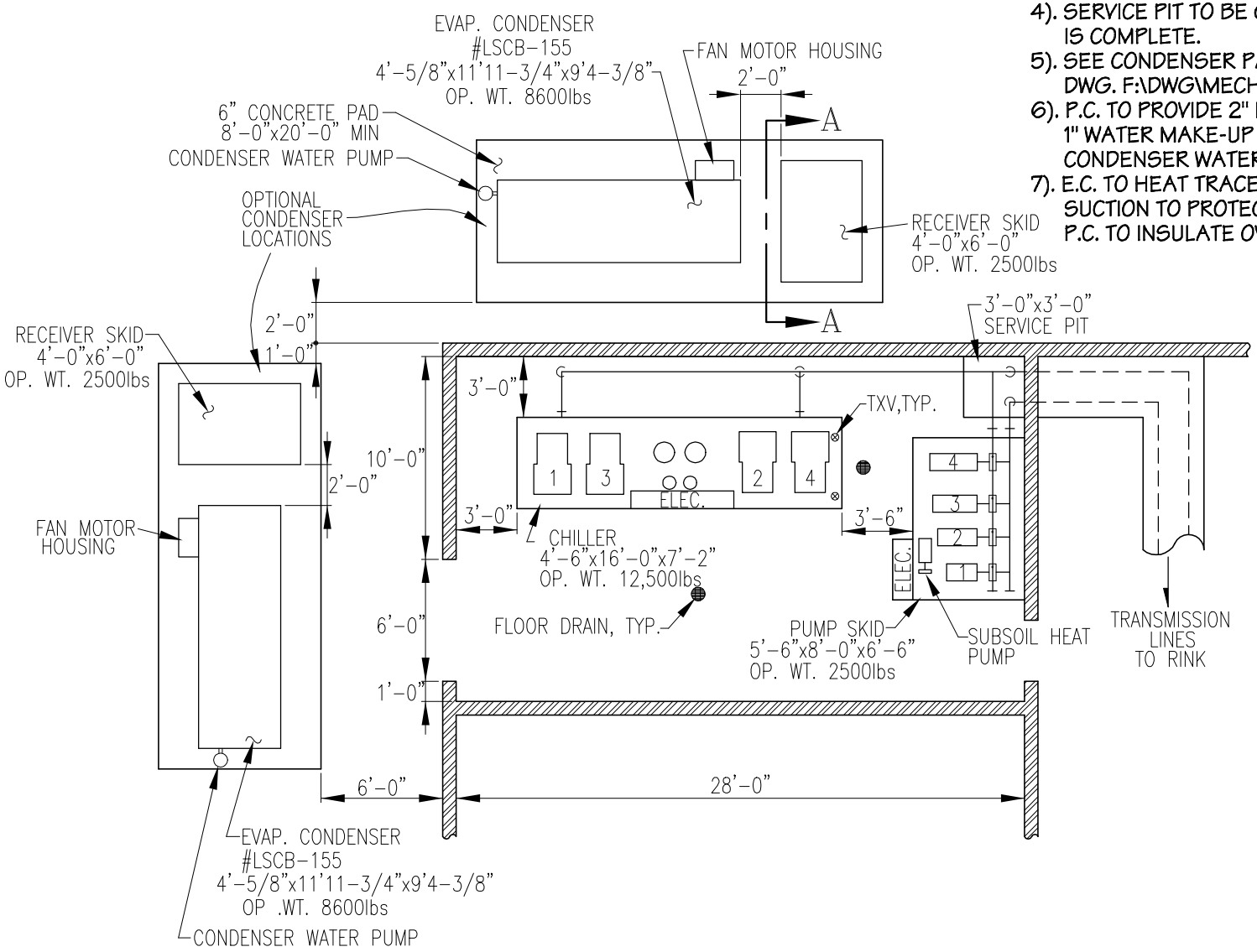


ST'D 6" CONCRETE CONDENSER PAD

SECTION A-A

NOTES
1). MECHANICAL ROOM TO BE VENTILATED, PER CODE.
2). MECHANICAL ROOM HEATED TO MIN. 50°F
3). CONCRETE FLOORS/PADS UNDER ALL EQUIPMENT SHALL BE FINISHED DEAD LEVEL, ±1/8"OVERALL. CONCRETE TO BE MIN. 4000 PSI @ 28 DAYS.
4). SERVICE PIT TO BE GRAVEL FILLED AFTER PIPING WORK IS COMPLETE.
5). SEE CONDENSER PAD SECTION A-A ON DWG. F:\DWG\MECH-RM\MR-100
6). P.C. TO PROVIDE 2" DRAIN\OVERFLOW CONNECTION & 1" WATER MAKE-UP LINE TO EVAP. CONDENSER @ CONDENSER WATER PUMP END.
7). E.C. TO HEAT TRACE WATER MAKE-UP LINE & PUMP SUCTION TO PROTECT AGAINST FREEZING. P.C. TO INSULATE OVER HEAT TRACE.



TYPICAL MECHANICAL ROOM LAYOUT

SELF-CONTAINED EVAP. COOLED

NOTES

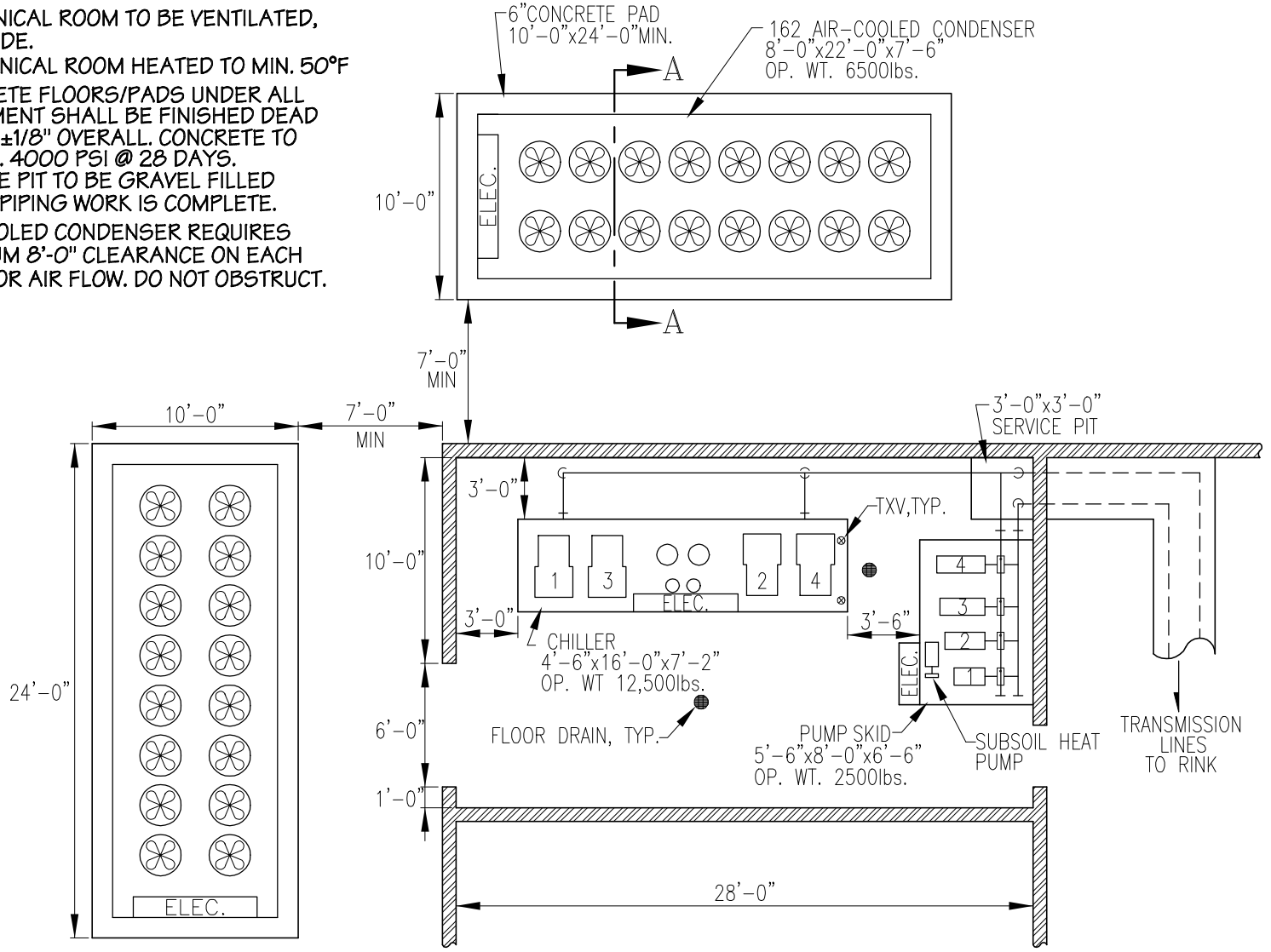
1). MECHANICAL ROOM TO BE VENTILATED, PER CODE.

2). MECHANICAL ROOM HEATED TO MIN. 50°F

3). CONCRETE FLOORS/PADS UNDER ALL EQUIPMENT SHALL BE FINISHED DEAD LEVEL, ±1/8" OVERALL. CONCRETE TO BE MIN. 4000 PSI @ 28 DAYS.

4). SERVICE PIT TO BE GRAVEL FILLED AFTER PIPING WORK IS COMPLETE.

5). AIR-COOLED CONDENSER REQUIRES MINIMUM 8'-0" CLEARANCE ON EACH SIDE FOR AIR FLOW. DO NOT OBSTRUCT.



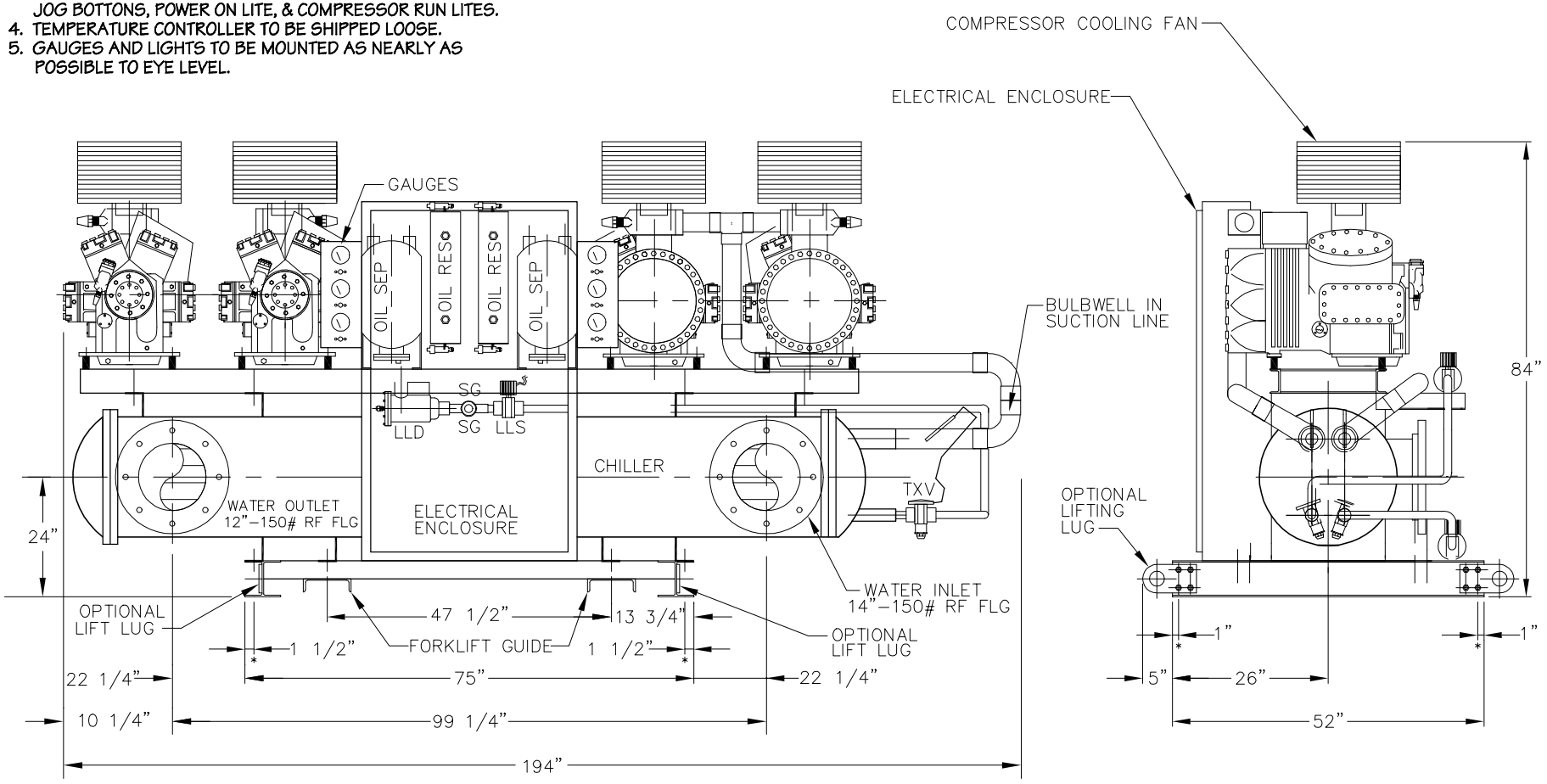
TYPICAL MECHANICAL ROOM LAYOUT

CHILLER/AIR-COOLED

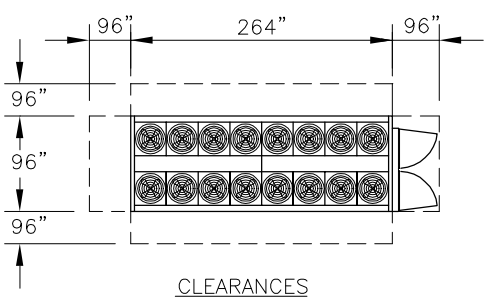
Ice Rink Refrigeration System
Design Drawings

NOTES

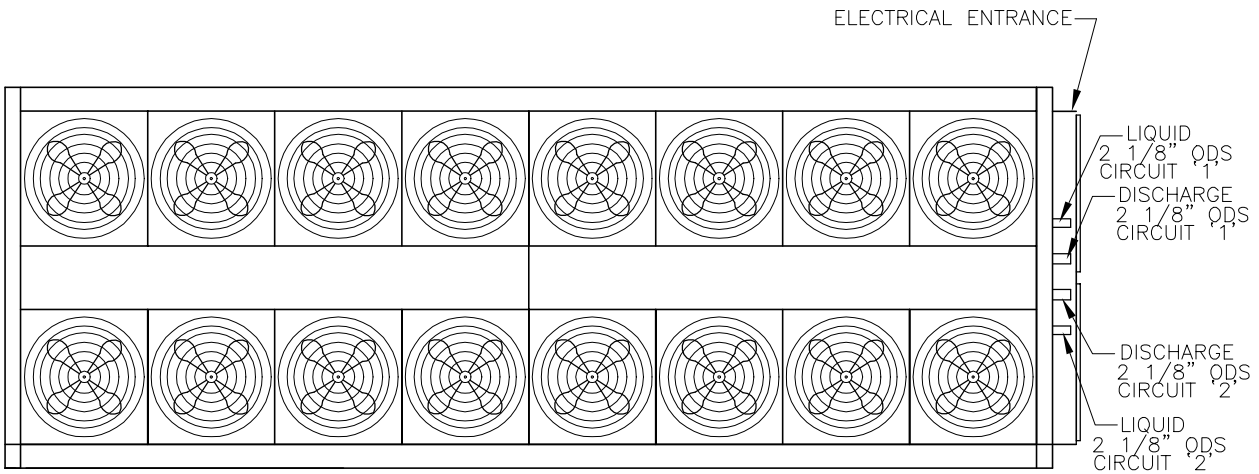
1. PAINT COLOR TO BE "BRS" BLUE
   CLEAN ALL PIPING SOLDER JOINTS FOR PAINT ADHESION
   COVER ALL IDENTIFICATION PLATES PRIOR TO PAINTING
2. COMPRESSOR CONDUITS TO BE ROUTED UNDER MOTORS NOT OVER.
3. CONTROL ITEMS TO BE MOUNTED IN DOOR:
   HOUR METERS, LEAD LAG SWITCHES, PUMP DOWN SWITCHES,
   JOG BOTTONS, POWER ON LITE, & COMPRESSOR RUN LITES.
4. TEMPERATURE CONTROLLER TO BE SHIPPED LOOSE.
5. GAUGES AND LIGHTS TO BE MOUNTED AS NEARLY AS
   POSSIBLE TO EYE LEVEL.

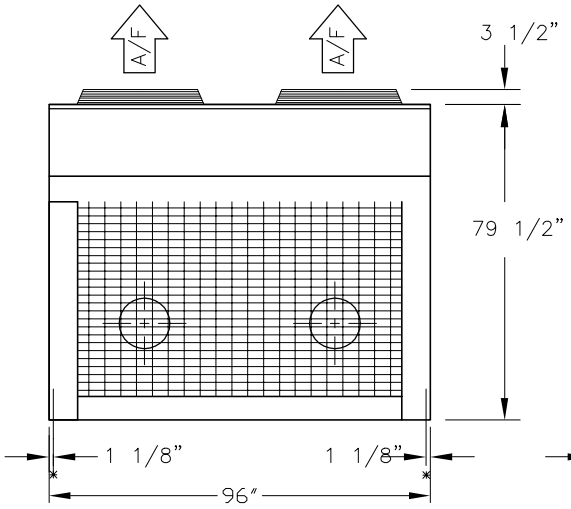


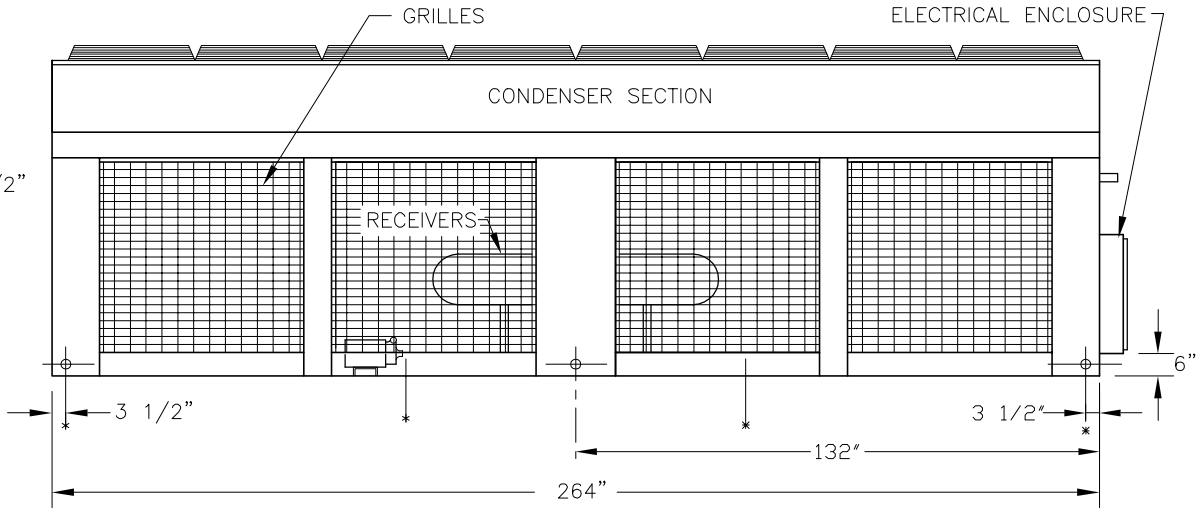
⊕ 2-1/2" DIA. RIGGING HOLES
* 5/8" DIA. UNIT MOUNTING HOLES
EST. UNIT WT. 10,100 LBS.



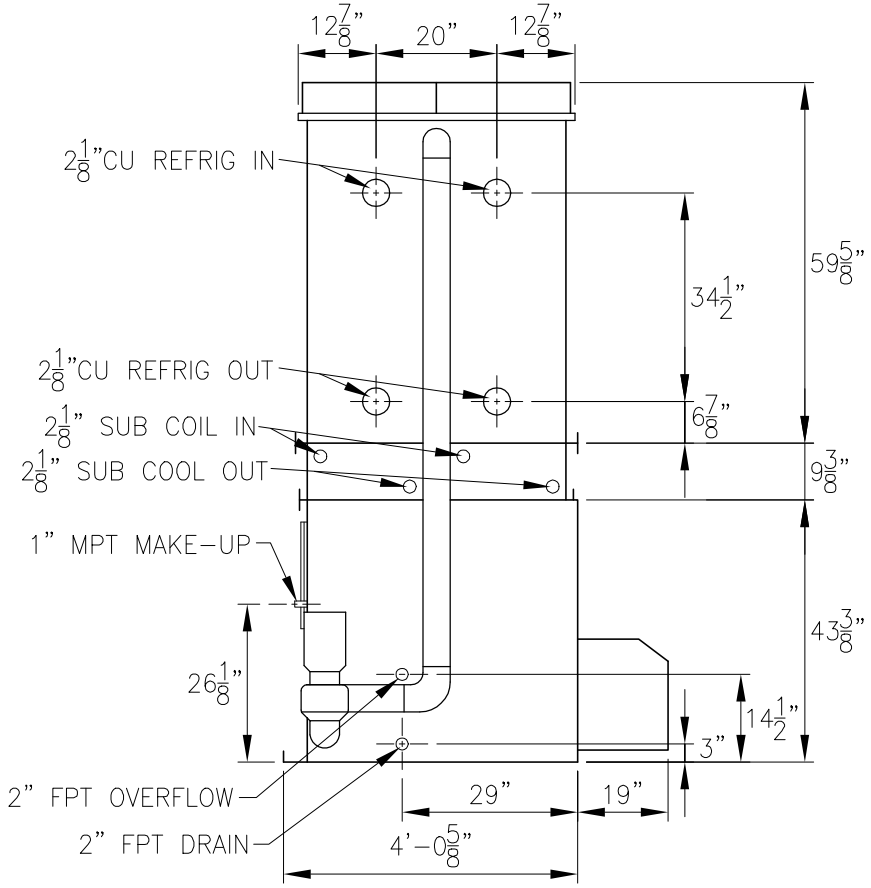
CLEARANCES
(FOR SERVICE ONLY)

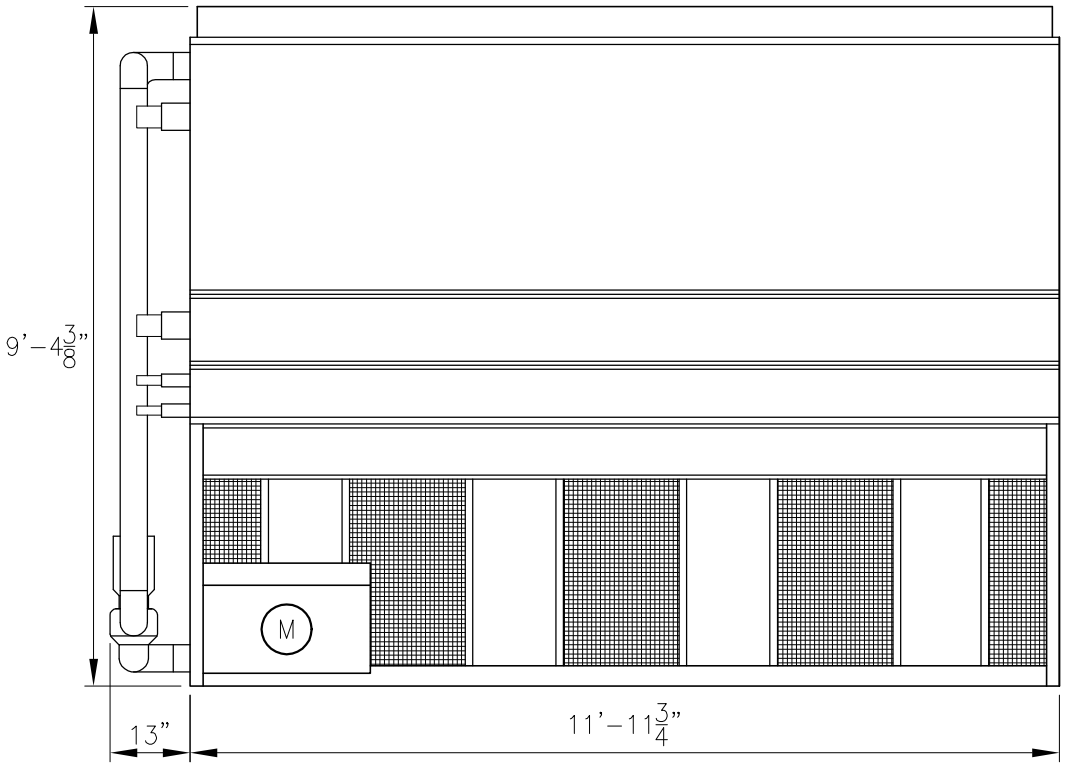






⊕ 2 1/2" DIA. RIGGING HOLES
* 5/8" DIA. UNIT MOUNTING HOLES
EST. UNIT WT. __5,480___ LBS.

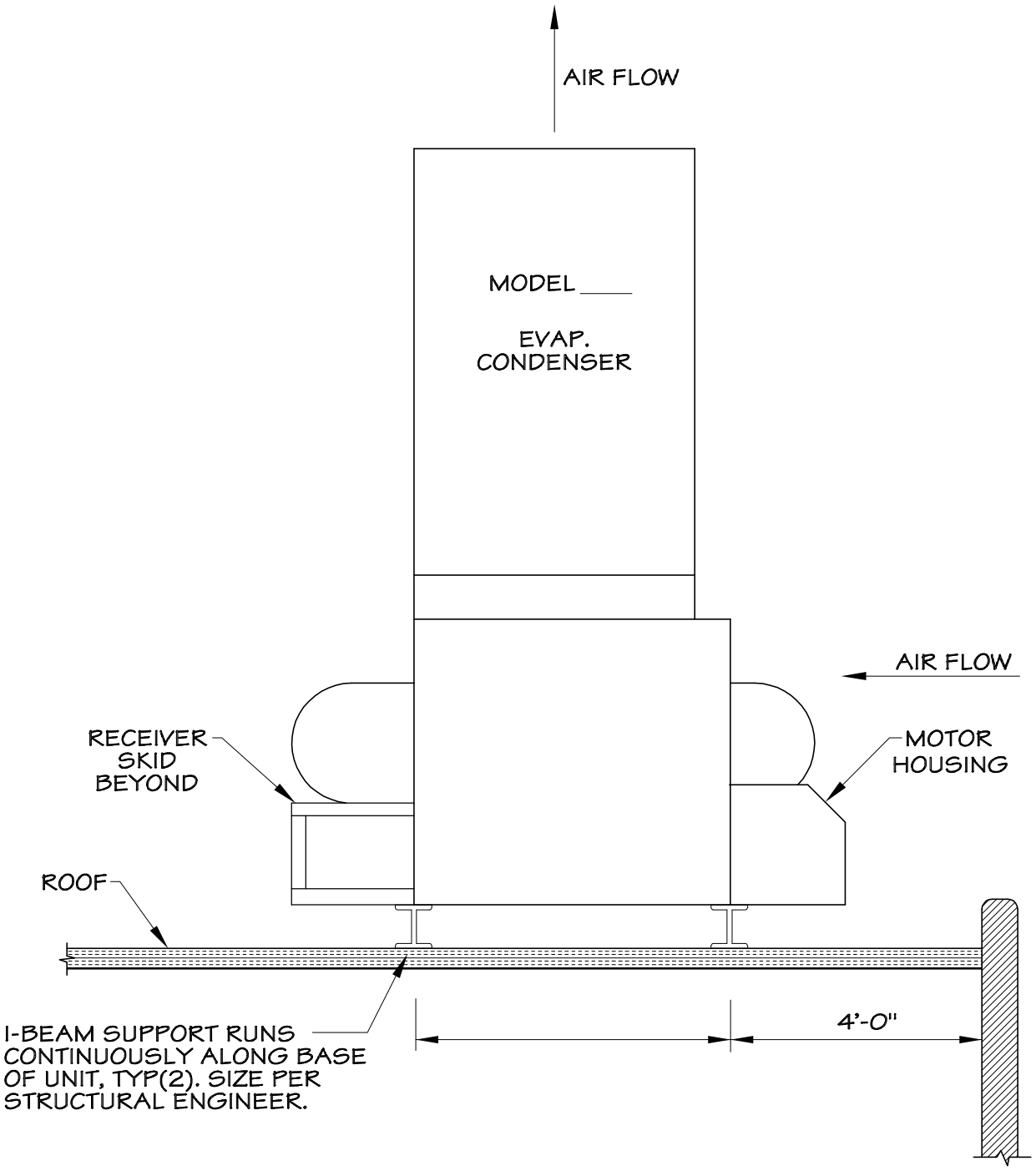




MAIN FAN MOTOR:	10	HP	SPEED	NO. SHIPPING SECTIONS:	2 EA
PONY FAN MOTOR:	3	HP	SPEED	SHIPPING WEIGHT:	6650 LBS
SPRAY PUMP MOTOR:	1.5	HP 345	GPM	OPERATING WEIGHT:	8560 LBS
				HEAVIEST SECTION:	4750 LBS
PAN HEATER:	1	@ 3	KW EA	CAPACITY:	142 EVAPORATOR TONS
FAN TYPE:	☐ AXIAL	☑ CENTRIFUGAL		QTY REFRIGERANT CIRCUITS:	2

EVAPORATIVE CONDENSER

MODEL LSCB-155 200E50L



ROOF LOADS

RECEIVER SKID: _____ LBS

EVAP CONDENSER: _____ LBS

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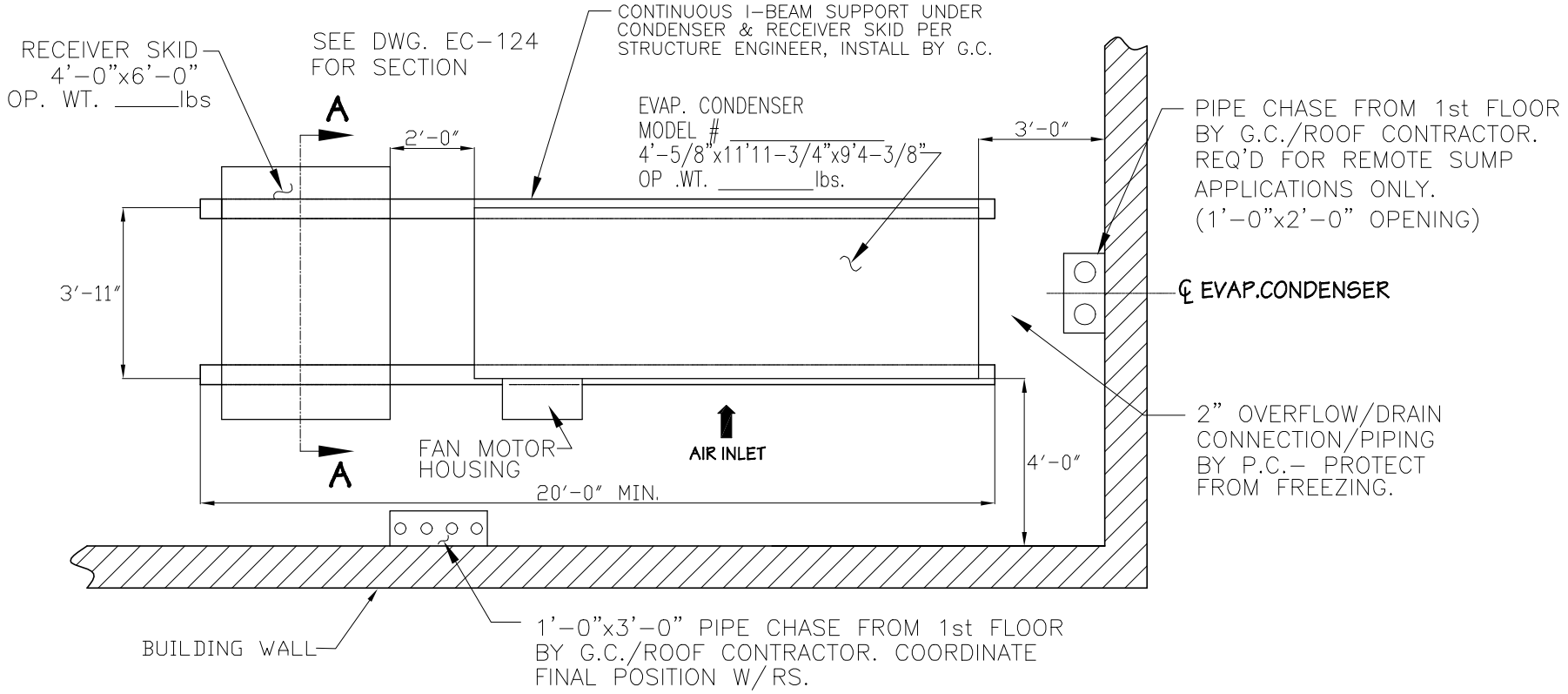
TYP ROOFTOP EVAP CONDENSER INSTALLATION

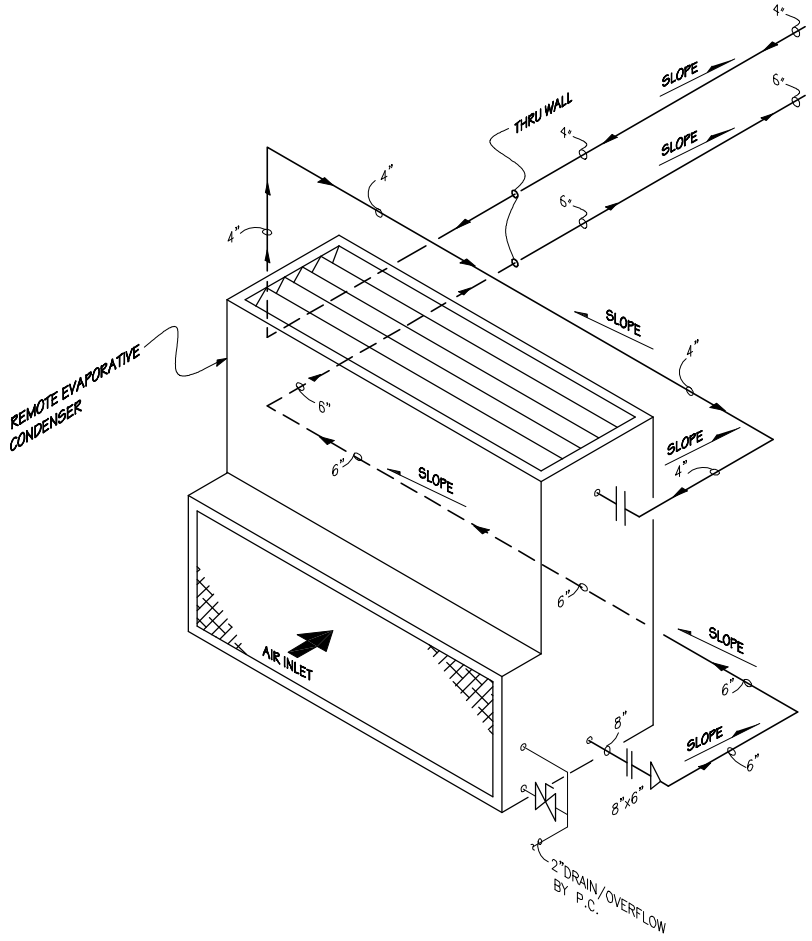
NOTES:

1) BEAMS SHOULD BE SIZED IN ACCORDANCE WITH ACCEPTED STRUCTURAL PRACTICES. MAXIMUM DEFLECTION OF BEAM UNDER UNIT TO BE 1/360 OF LENGTH, NOT TO EXCEED 1/2" OVERALL. DEFELCTION MAY BE CALCULATED USING 55% OF THE TOTAL OPERATING WEIGHT AS A UNIFORM LOAD ON EACH BEAM.
2) STEEL BEAM MUST RUN CONTINUOUSLY UNDER FAN SECTION OF CONDENSER, AND MUST BE LEVEL WITHIN 1/8" IN 6". CONDENSER UNIT CANNOT BE LEVELED BY SHIMMING.
3) STRUCTURAL STEEL BASE TO BE DESIGNED BY OWNER'S ENGINEER. INSTALLATION BY G.C. STRUCTURE MUST BE IN PLACE BEFORE EQUIPMENT DELIVERY BY BRS.
4) OWNER'S ENGINEER SHALL VERIFY ROOF LOAD CAPABILITY & PROVIDE STRUCTURAL SUPPORT FOR TOTAL OPERATING WEIGHT OF EVAP CONDENSER AND RECEIVER SKID. COORDINATE ANY REQUIRED COLUMNS WITH EQUIPMENT LOCATIONS IN ROOM BELOW.
5) UNIT MUST BE LOCATED FOR UNOBSTRUCTED AIRFLOW & AIR INLET & DISCHARGE.



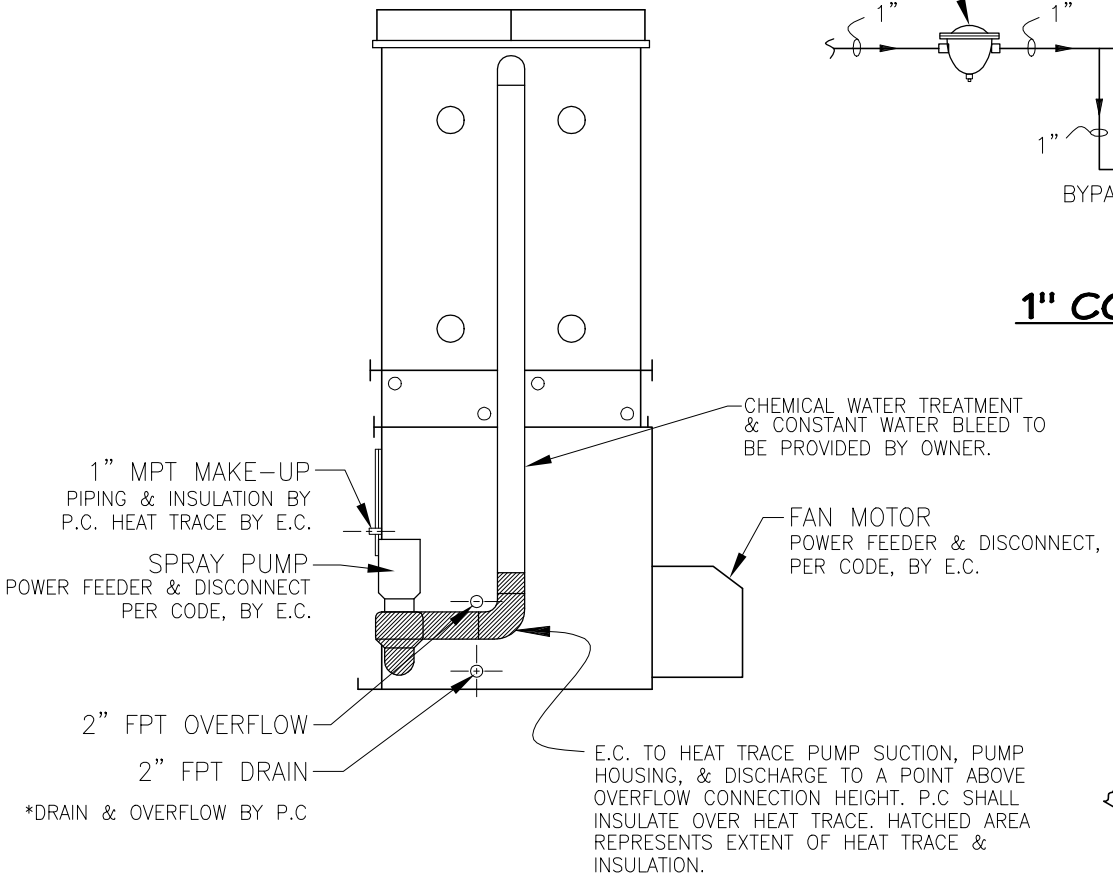
EVAPORATIVE CONDENSER

TYPICAL ROOF LAYOUT

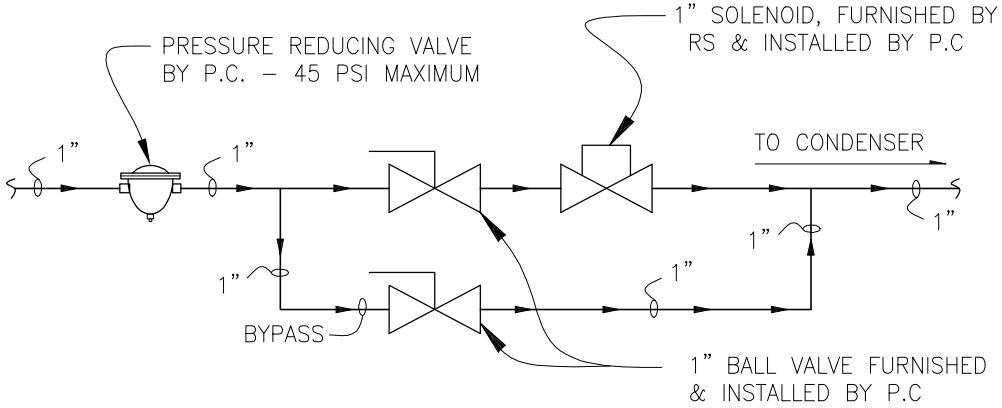


EVAPORATIVE CONDENSER

TYPICAL SPLIT SUMP APPLICATION

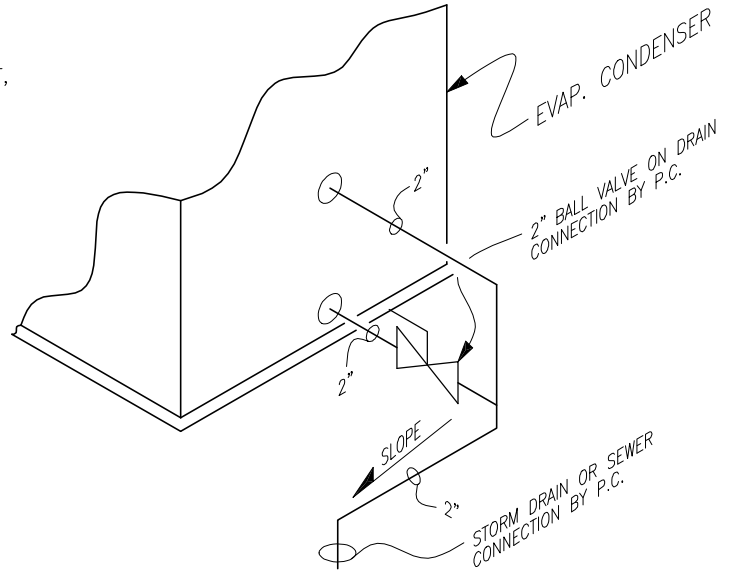


EVAP. CONDENSER END VIEW



1" COPPER WATER MAKE UP LINE

BACKFLOW PREVENTION, PIPING & INSULATION BY P.C. HEAT TRACE BY E.C.

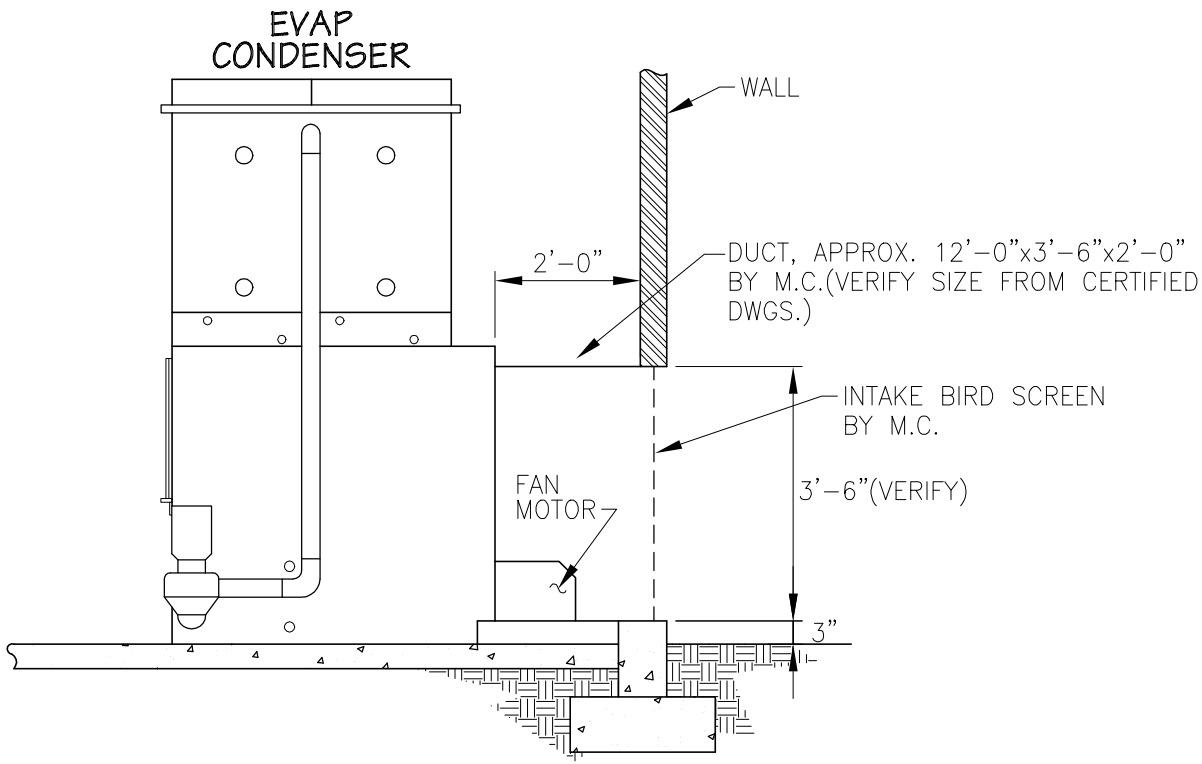


2" DRAIN/OVERFLOW

PIPING BY P.C.

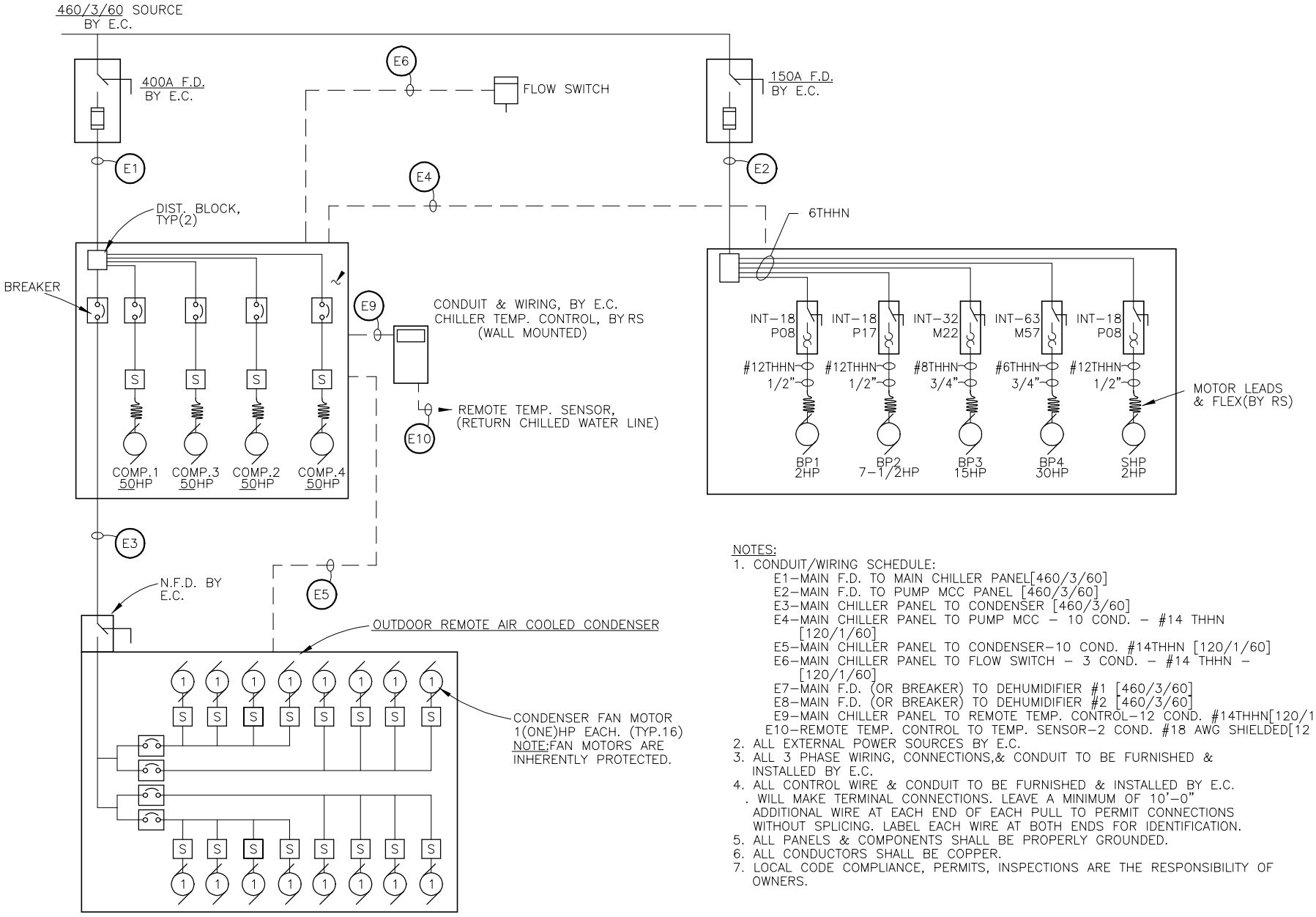
EVAPORATIVE CONDENSER

FIELD WORK BY OTHER CONTRACTORS



EVAP. CONDENSER INTAKE DUCT

Ice Rink Refrigeration
Electrical Design Drawings



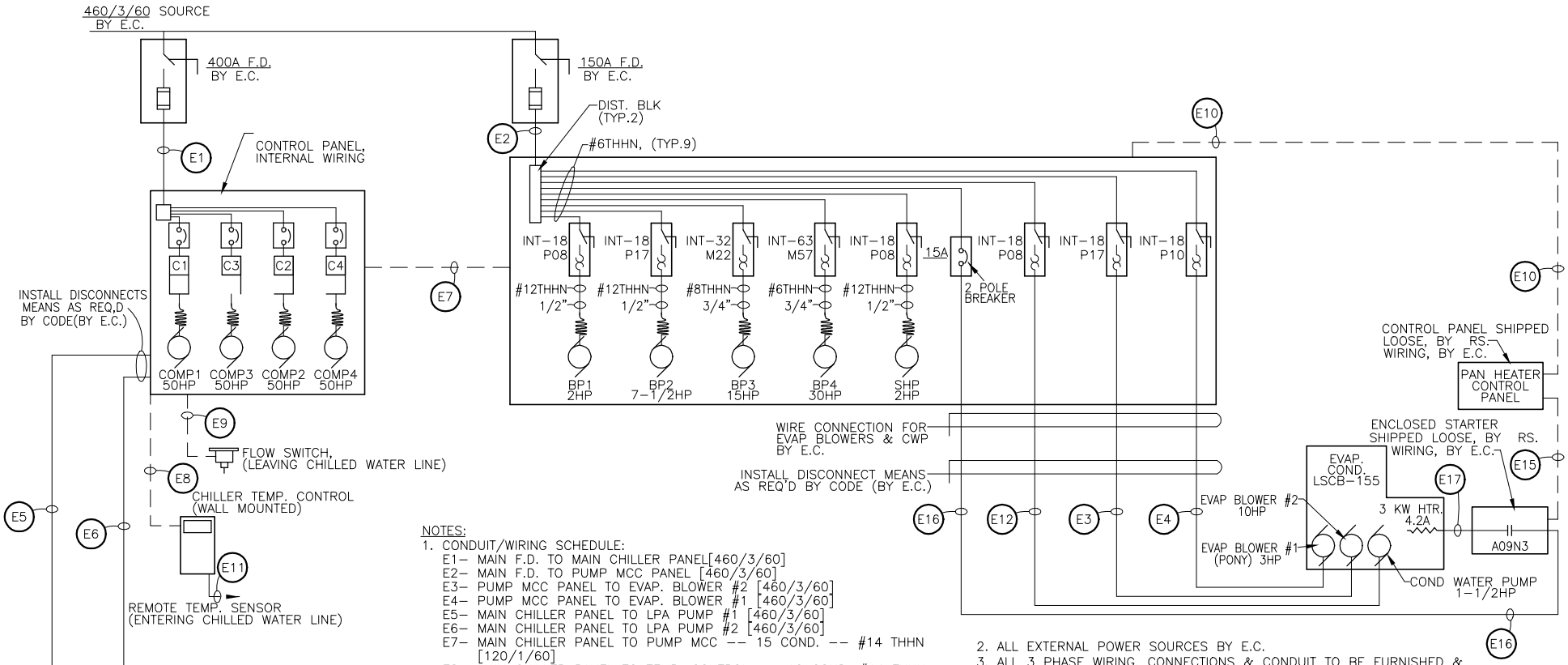
NOTES:

1. CONDUIT/WIRING SCHEDULE:
   - E1–MAIN F.D. TO MAIN CHILLER PANEL[460/3/60]
   - E2–MAIN F.D. TO PUMP MCC PANEL [460/3/60]
   - E3–MAIN CHILLER PANEL TO CONDENSER [460/3/60]
   - E4–MAIN CHILLER PANEL TO PUMP MCC – 10 COND. – #14 THHN [120/1/60]
   - E5–MAIN CHILLER PANEL TO CONDENSER–10 COND. #14THHN [120/1/60]
   - E6–MAIN CHILLER PANEL TO FLOW SWITCH – 3 COND. – #14 THHN – [120/1/60]
   - E7–MAIN F.D. (OR BREAKER) TO DEHUMIDIFIER #1 [460/3/60]
   - E8–MAIN F.D. (OR BREAKER) TO DEHUMIDIFIER #2 [460/3/60]
   - E9–MAIN CHILLER PANEL TO REMOTE TEMP. CONTROL–12 COND. #14THHN[120/1/60]
   - E10–REMOTE TEMP. CONTROL TO TEMP. SENSOR–2 COND. #18 AWG SHIELDED[12 VAC]
2. ALL EXTERNAL POWER SOURCES BY E.C.
3. ALL 3 PHASE WIRING, CONNECTIONS,& CONDUIT TO BE FURNISHED & INSTALLED BY E.C.
4. ALL CONTROL WIRE & CONDUIT TO BE FURNISHED & INSTALLED BY E.C. . WILL MAKE TERMINAL CONNECTIONS. LEAVE A MINIMUM OF 10'–0" ADDITIONAL WIRE AT EACH END OF EACH PULL TO PERMIT CONNECTIONS WITHOUT SPLICING. LABEL EACH WIRE AT BOTH ENDS FOR IDENTIFICATION.
5. ALL PANELS & COMPONENTS SHALL BE PROPERLY GROUNDED.
6. ALL CONDUCTORS SHALL BE COPPER.
7. LOCAL CODE COMPLIANCE, PERMITS, INSPECTIONS ARE THE RESPONSIBILITY OF OWNERS.

ELEC-MECH POWER WIRING

AIR COOLED

200 HP 4 Compressor Rink Chiller w/4 Pump System



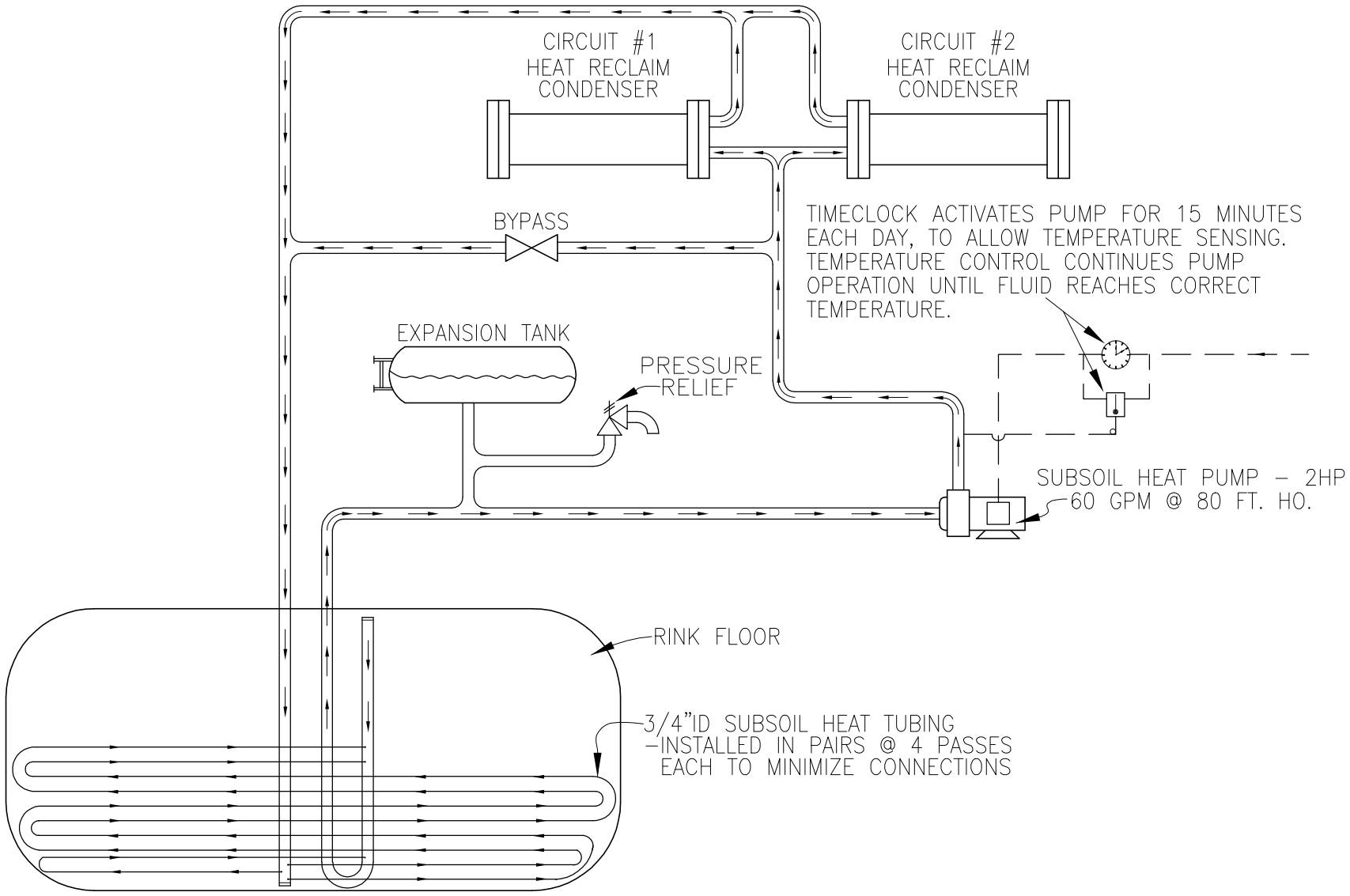
NOTES:

1. CONDUIT/WIRING SCHEDULE:
   - E1- MAIN F.D. TO MAIN CHILLER PANEL[460/3/60]
   - E2- MAIN F.D. TO PUMP MCC PANEL [460/3/60]
   - E3- PUMP MCC PANEL TO EVAP. BLOWER #2 [460/3/60]
   - E4- PUMP MCC PANEL TO EVAP. BLOWER #1 [460/3/60]
   - E5- MAIN CHILLER PANEL TO LPA PUMP #1 [460/3/60]
   - E6- MAIN CHILLER PANEL TO LPA PUMP #2 [460/3/60]
   - E7- MAIN CHILLER PANEL TO PUMP MCC -- 15 COND. -- #14 THHN [120/1/60]
   - E8- MAIN CHILLER PANEL TO TEMP. CONTROL -- 12 COND. #14 THHN [120/1/60]
   - E9- MAIN CHILLER PANEL TO FLOW SWITCH -- 2 COND. -- #14 THHN [120/1/60]
   - E10- PUMP MCC PANEL TO CONDENSER PAN HEATER & LIQUID LEVEL CONTROL. 6 COND. - #14 THHN [120/1/60]
   - E11- TEMP. CONTROL TO REMOTE TEMP. SENSOR -- #18 SHIELD 2 COND. WIRE [12VAC.]
   - E12- PUMP MCC TO CONDENSER WATER PUMP [460/3/60]
   - E13- F.D. (OR BREAKER) TO DEHUMIDIFIER #1 [460/3/60]
   - E14- F.D. (OR BREAKER) TO DEHUMIDIFIER #2 [460/3/60]
   - E15- PAN HEATER CONTROL PANEL TO PAN HEATER STARTER-3 COND. #14THHN [120/1/60]
   - E16- PUMP MCC PANEL TO PAN HEATER STARTER [460/2/60]
   - E17- PAN HEATER STARTER TO PAN HEATER ELEMENTS [460/2/60]
2. ALL EXTERNAL POWER SOURCES BY E.C.
3. ALL 3 PHASE WIRING, CONNECTIONS & CONDUIT TO BE FURNISHED & INSTALLED BY E.C.
4. ALL CONTROL WIRE & CONDUIT TO BE FURNISHED & INSTALLED BY E.C. BRS, INC. WILL MAKE TERMINAL CONNECTIONS. LEAVE A MINIMUM OF 10'-0" ADDITIONAL WIRE AT EACH END OF EACH PULL TO PERMIT CONNECTIONS WITHOUT SPLICING. LABEL EACH WIRE AT BOTH ENDS FOR IDENTIFICATION.
5. ALL PANELS & COMPONENTS SHALL BE PROPERLY GROUNDED.
6. ALL CONDUCTORS SHALL BE COPPER.
7. LOCAL CODE COMPLIANCE, PERMITS, INSPECTIONS ARE THE RESPONSIBILITY OF OWNER.
8. ELECTRICAL INSTALLATION BY E.C. SHALL COMMENCE IMMEDIATELY AFTER PLACEMENT OF CHILLER AND PUMP SKID BY RS PERSONNEL. A FUNCTIONAL SERVICE WILL BE REQUIRED FOR CHARGING & TESTING THE SYSTEM.
9. MAKE UP WATERLINE TO EVAP. CONDENSER (BY P.C.) & CONDENSER WATER PUMP PIPING/HOUSING MUST BE HEAT TRACED FOR FREEZE PROTECTION BELOW 35° BY E.C.

ELEC-MECH POWER WIRING

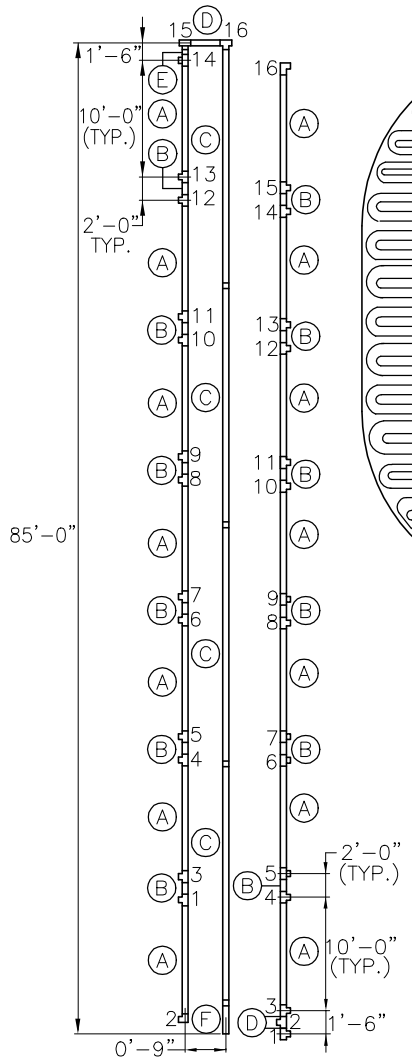
EVAP COOLED
200E50L/460 VOLT-4 PUMP

Ice Rink Sub-Soil Heat
Design Drawings

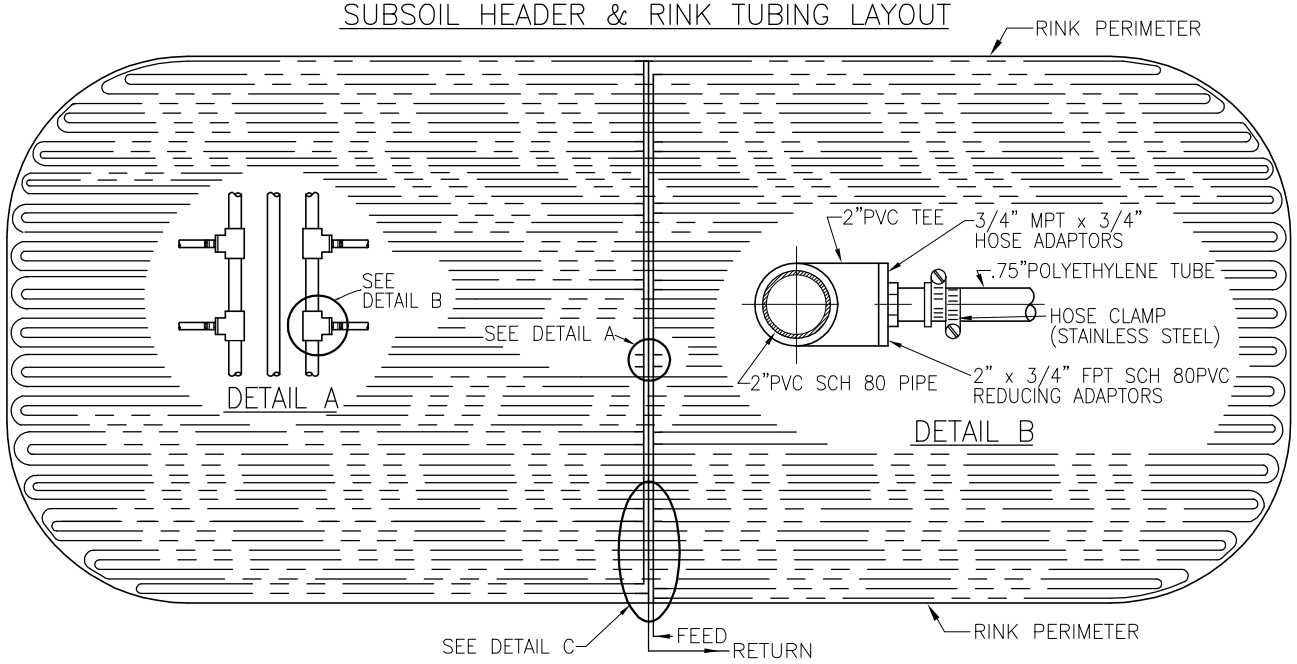


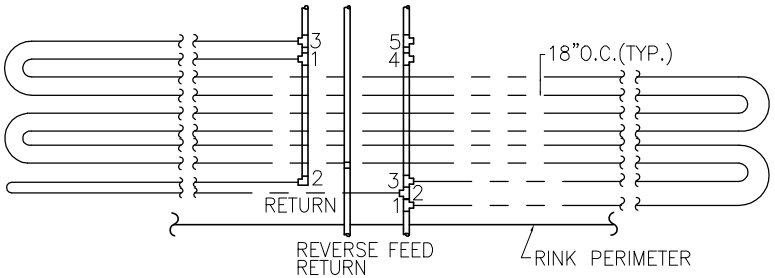
SUBSOIL FROST PREVENTION

PIPING SCHEMATIC



SUBSOIL HEADER & RINK TUBING LAYOUT





DETAIL C

PIPE CHART		
LTR	QTY.	LENGTH
A	14	9'-9"
B	12	1'-9"
C	4	20'-0"
D	3	0'-6"
E	1	1'-3"
F	1	V.I.F.

SUBSOIL HEAT SYSTEM

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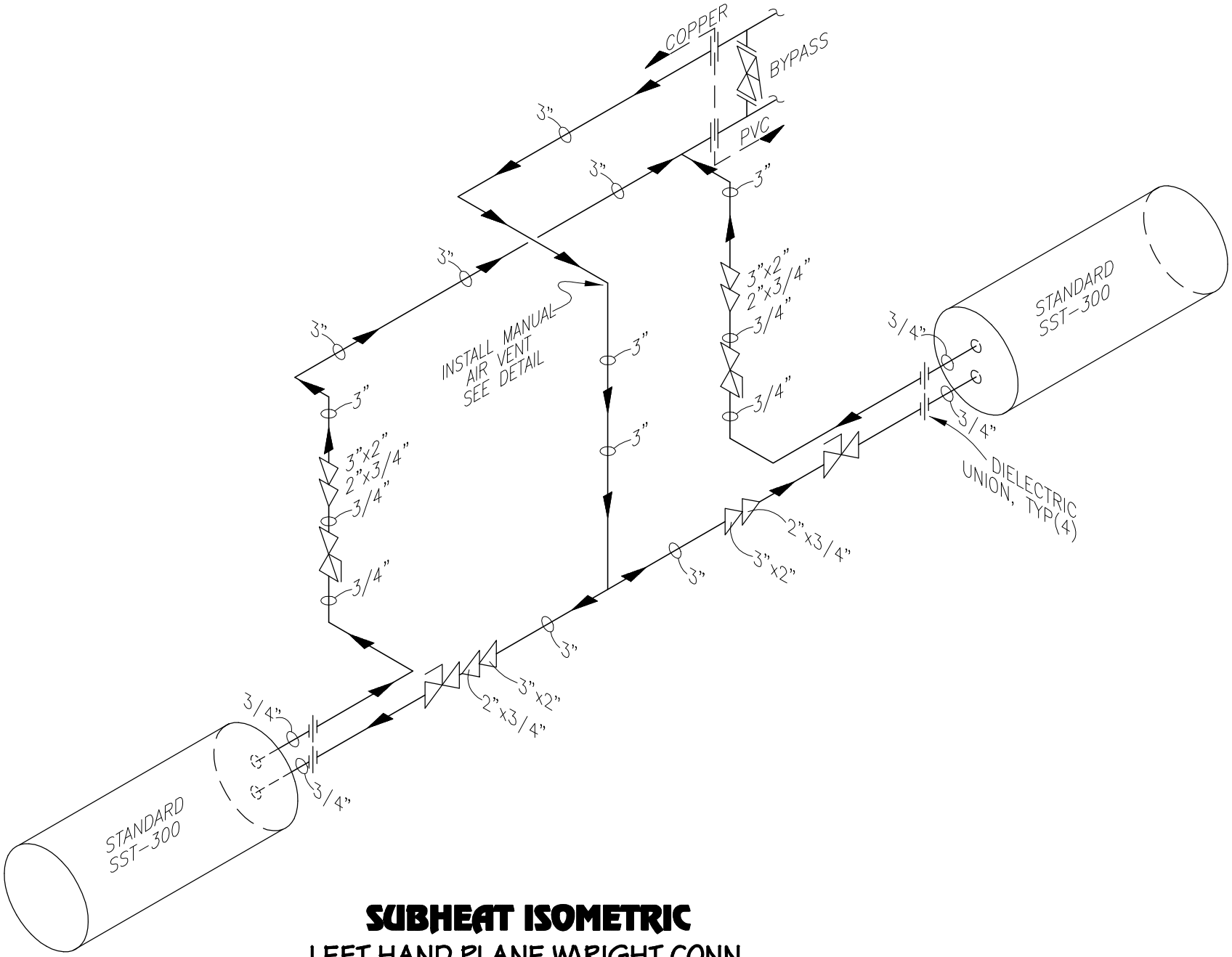
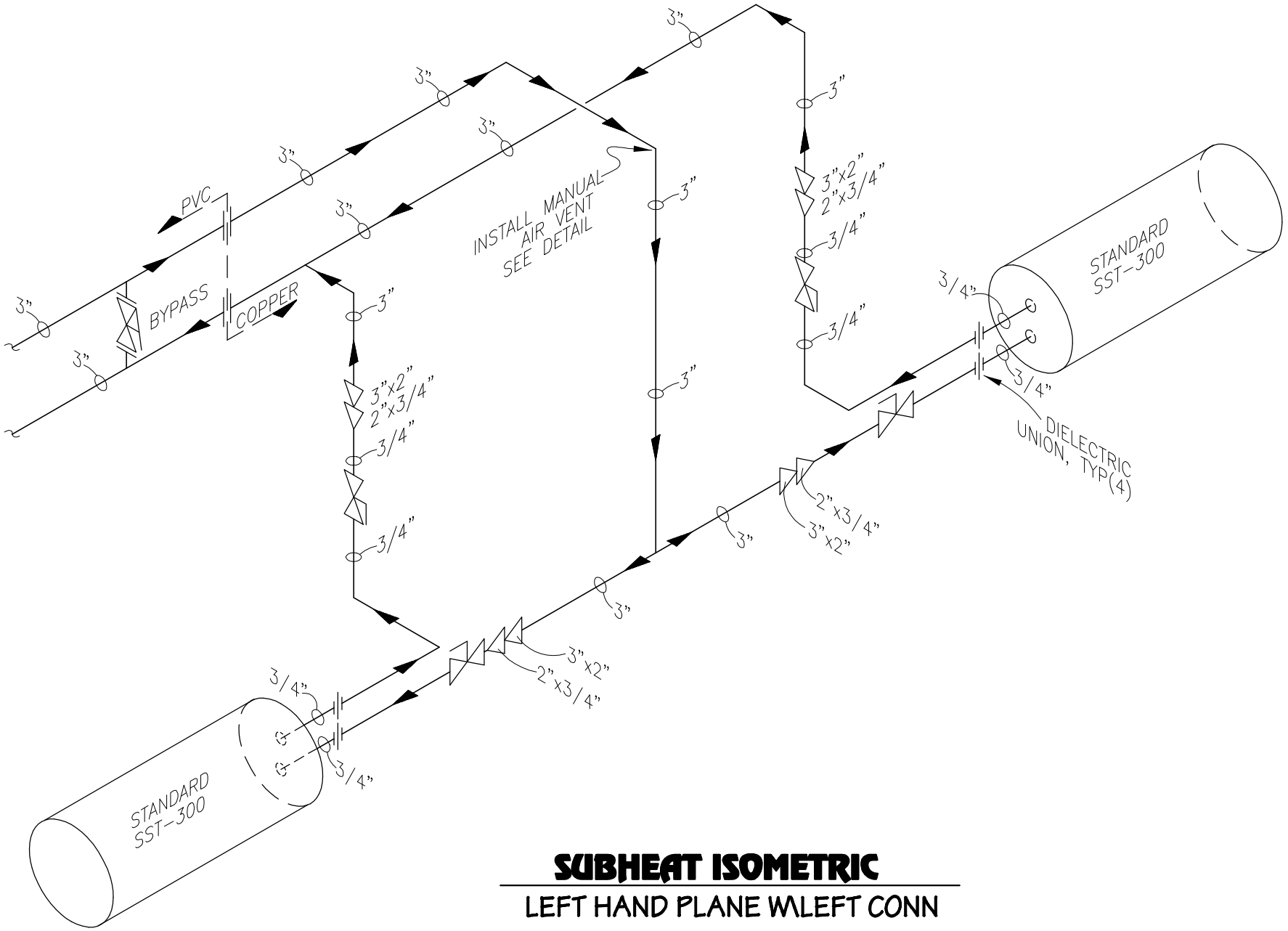


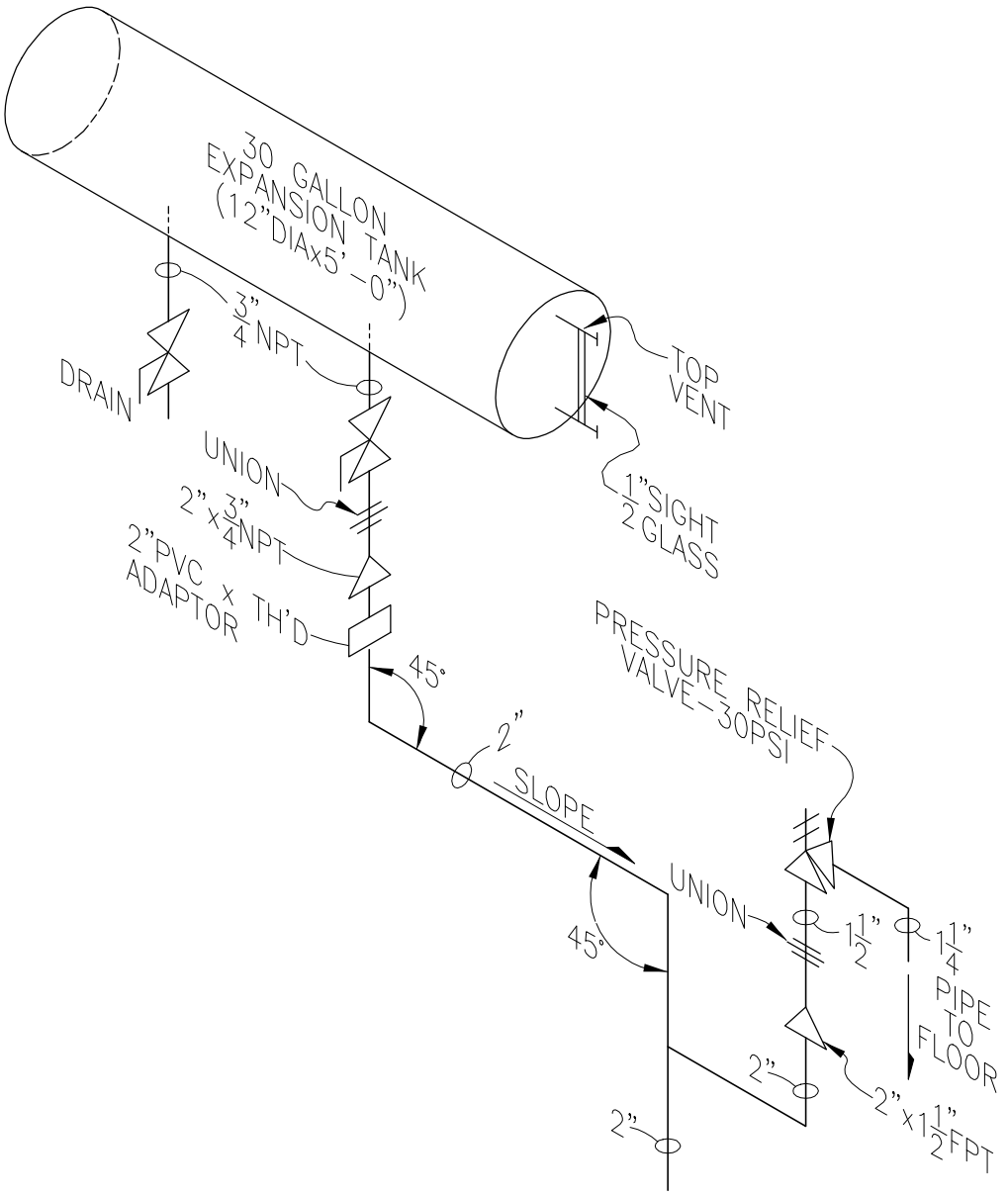
SUBHEAT ISOMETRIC

LEFT HAND PLANE WRIGHT CONN



SUBHEAT ISOMETRIC

LEFT HAND PLANE W\LEFT CONN



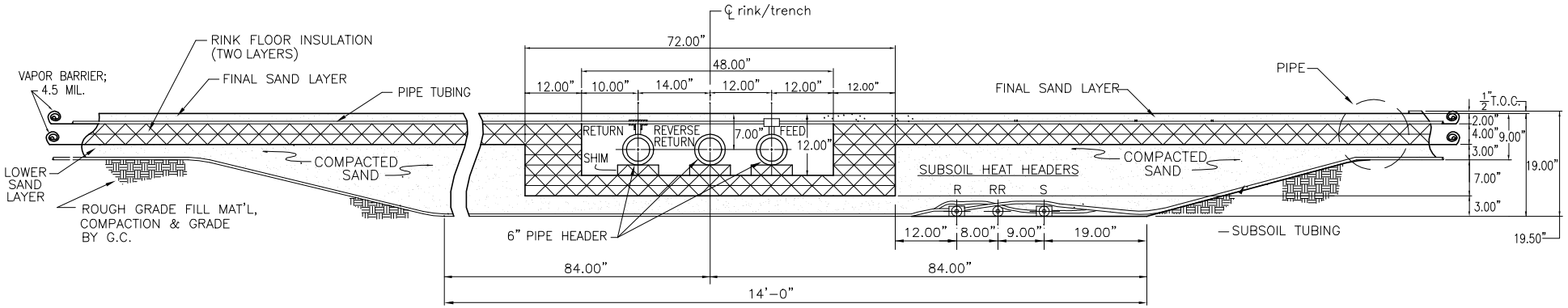
SUB-SOIL HEAT EXPANSION TANK ISO

RIGHT-HAND PLANE

Ice Rink Floor Piping Sand Base Design Drawings

NOTE:

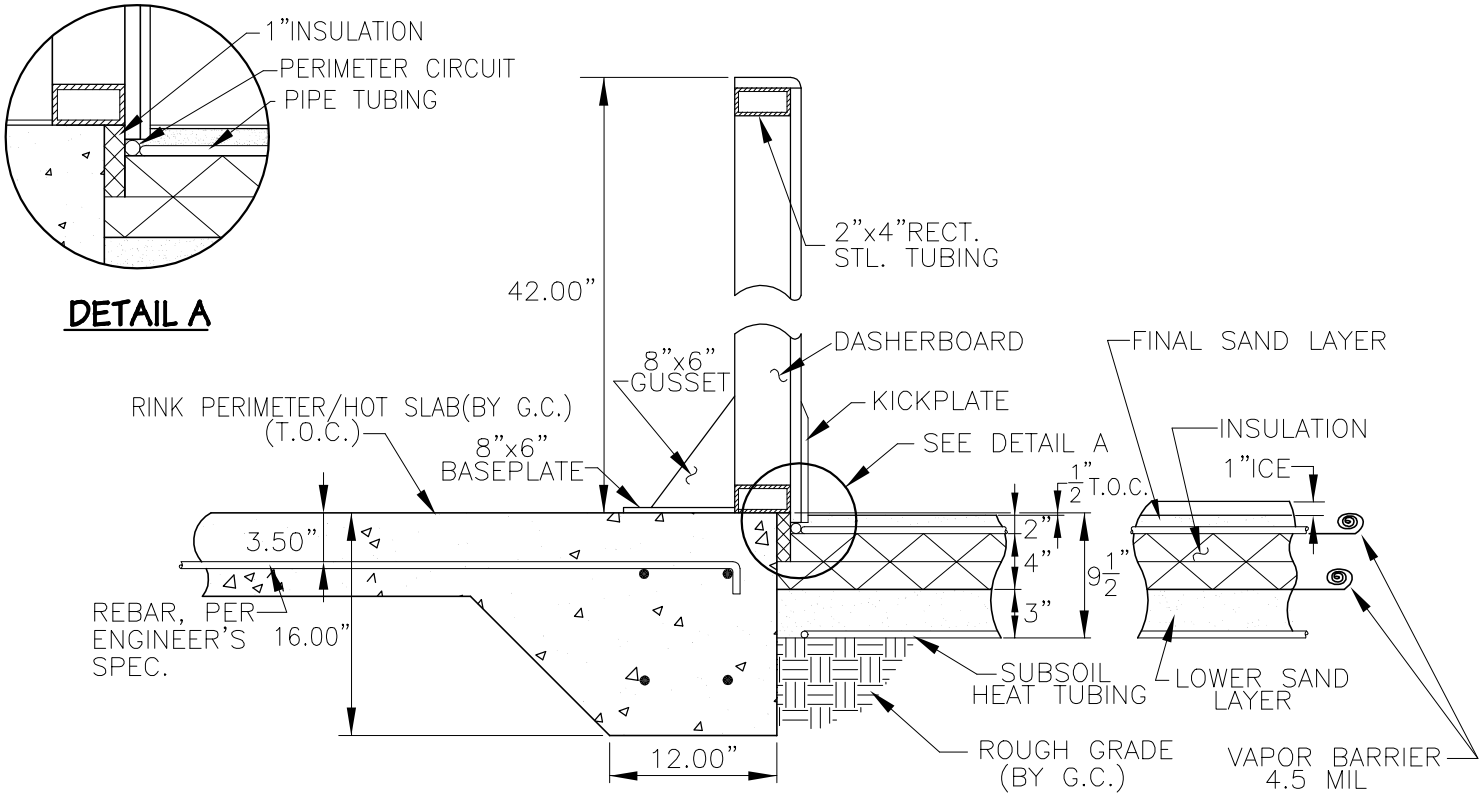
1) ALL ELEVATIONS MEASURED FROM LOWEST POINT IN TOP OF CURB(T.O.C.).
2) EXCAVATION OF MAIN HEADER TRENCH BY G.C.
3) RINK ROUGH GRADE (BY G.C.) TO BE FINISHED TO +0/-1" TOLERANCE.
4) ROUGH GRADE COMPACTION (BY G.C.) MINIMUM 98% BY MODIFIED PROCTOR.
5) SEE PERMA-PIPE CURB DWG #SF-102 FOR ADDITIONAL INFO.
6) EXCAVATION, BACKFILL, & CONCRETE OVER TRANSMISSION LINE TRENCH (BY G.C.)



HEADER TRENCH FLOOR CROSS SECTION

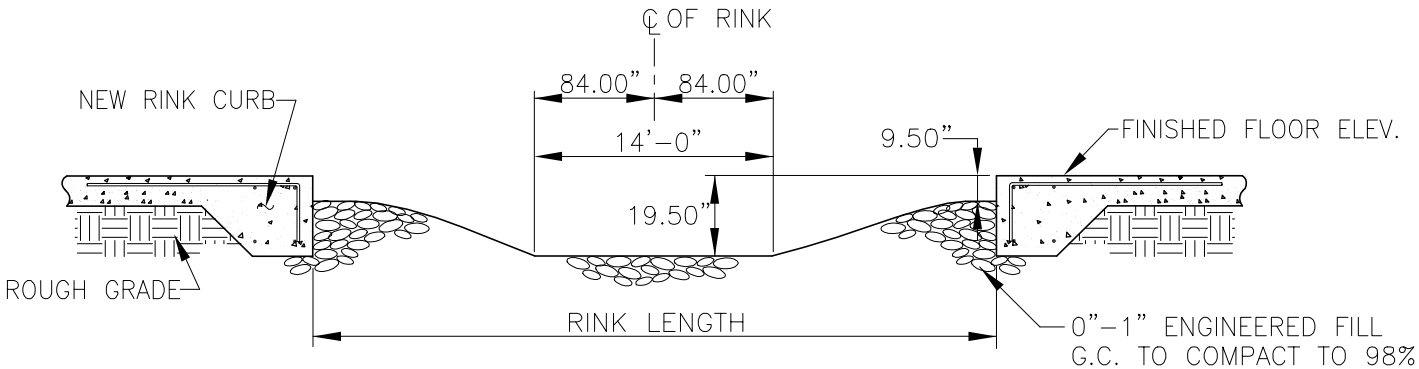
PERMANENT SAND BASE RINK

NOTES:
1. ALL ELEV. MEASURED FROM LOWEST POINT IN TOP OF CURB(T.O.C.)
2. PERIMETER CONCRETE MIN. 4000 psi @ 28 DAYS ELEV.
   ±1/8"/10'-0"; 3/8" OVERALL.

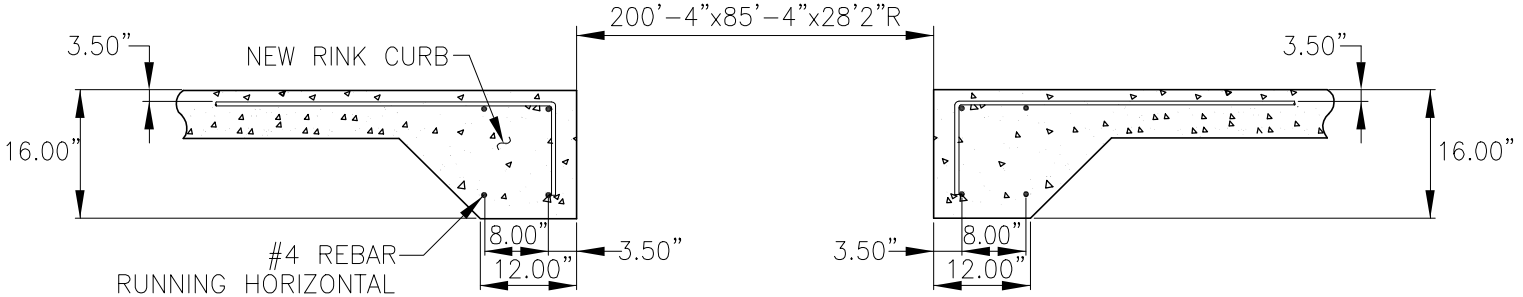


PERIMETER CURB/DASHER CROSS SECTION

SAND BASE FLOOR



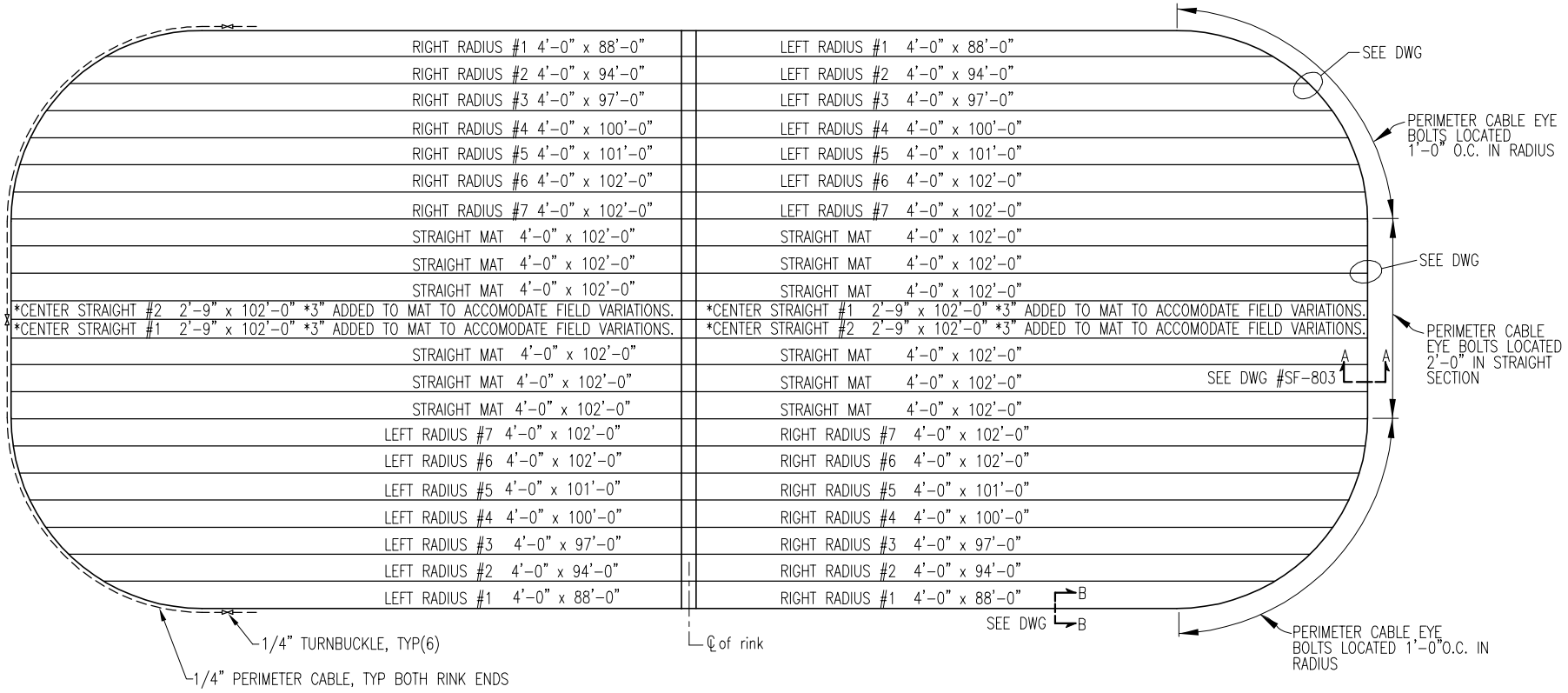
ROUGH GRADE PREP



NEW CONCRETE RINK PERIMETER CURB
MIN. 4000 PSI @ 28 DAYS. FINISH TO ±1/8"
IN 10'-0".

EXCAVATION & CURB SECTION

SAND BASE FLOOR

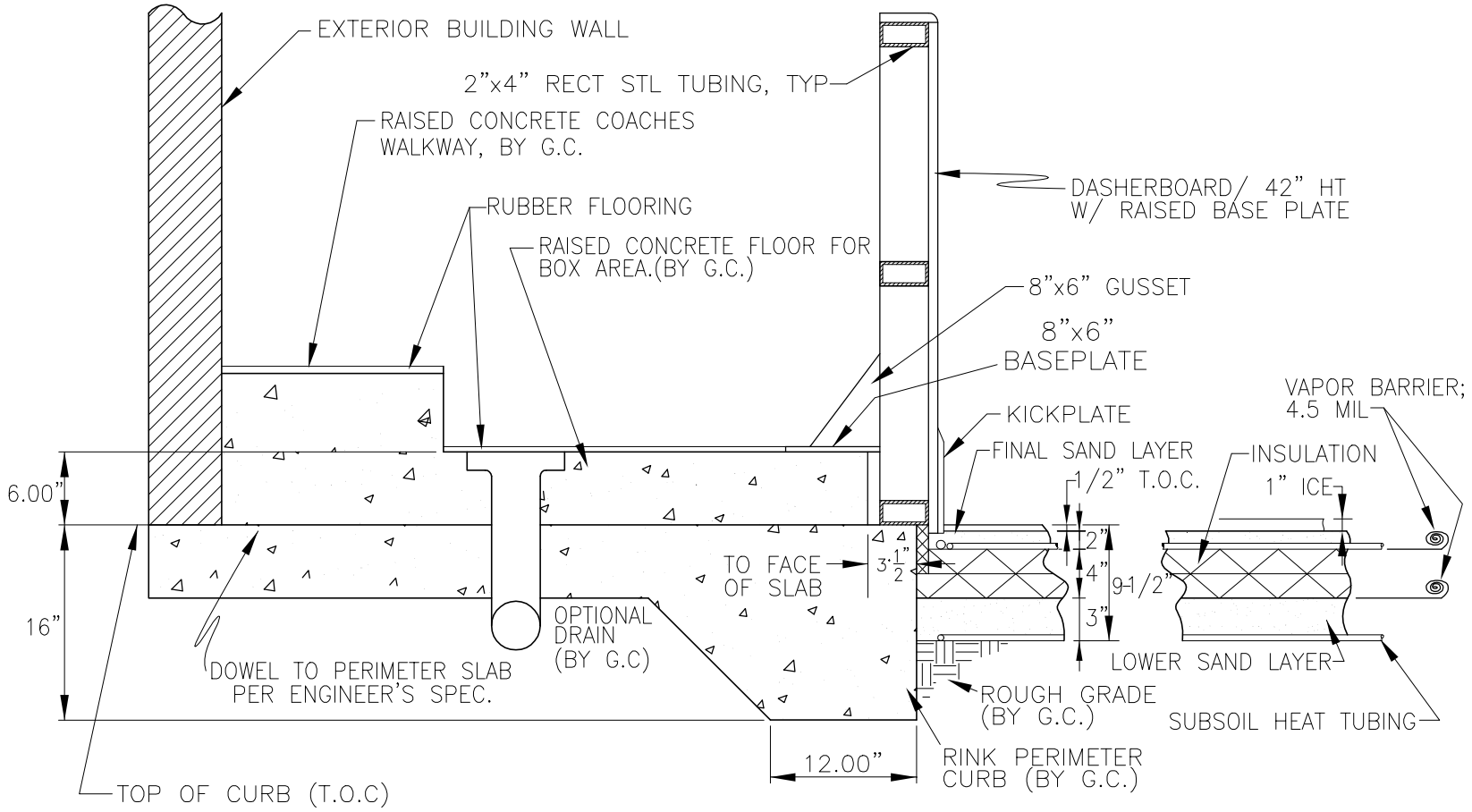


FINISHED RINK
200'-0"x85'-0"28'-0"P

PIPE MAT LAYOUT

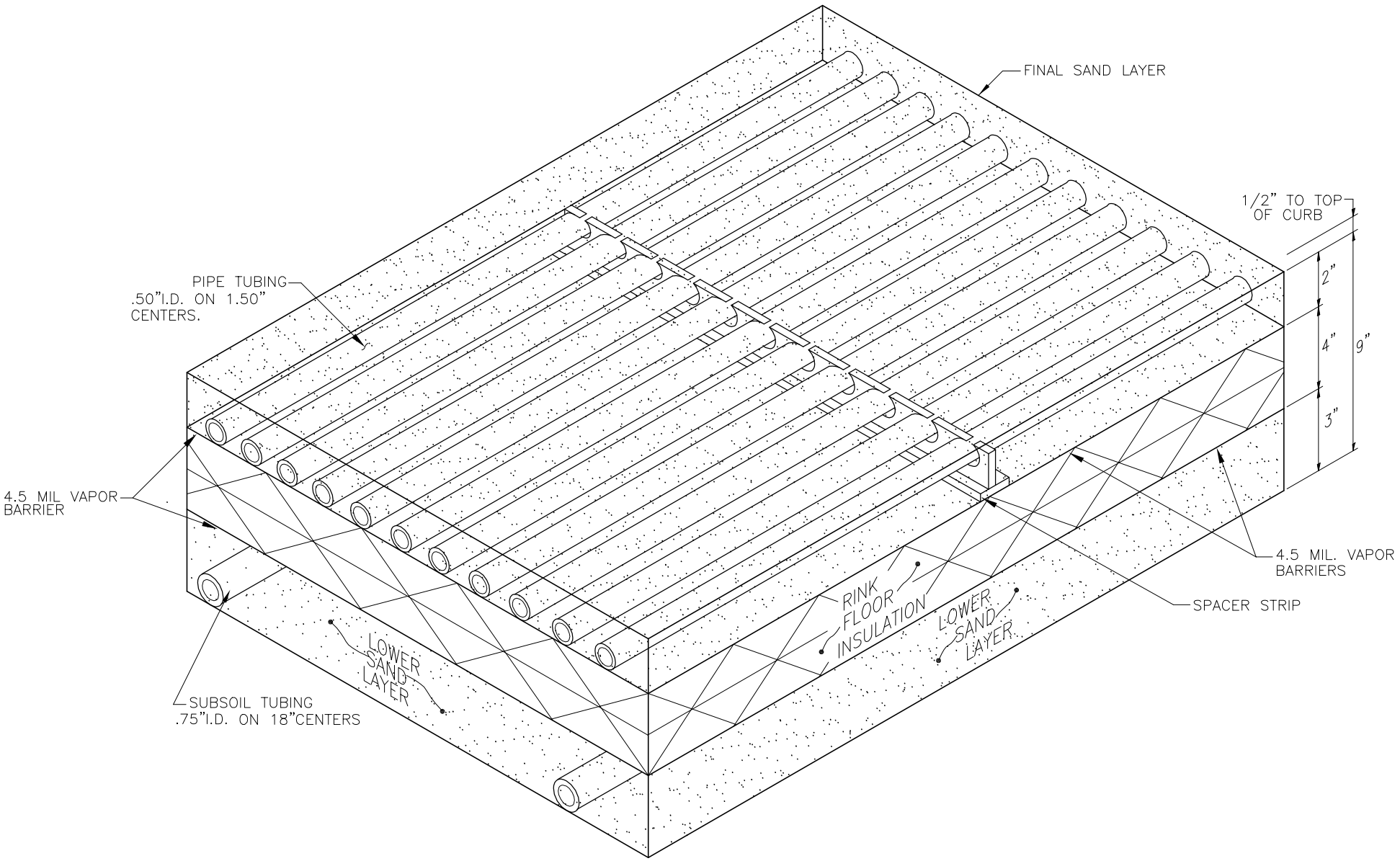
PERMANENT SAND BASE RINK

NOTES:
1. ALL ELEV. MEASURED FROM LOWEST POINT IN TOP OF CURB(T.O.C.)
2. PERIMETER CONCRETE MIN. 4000 psi @ 28 DAYS ELEV.
   ±1/8"/10'-0"; 3/8" OVERALL.



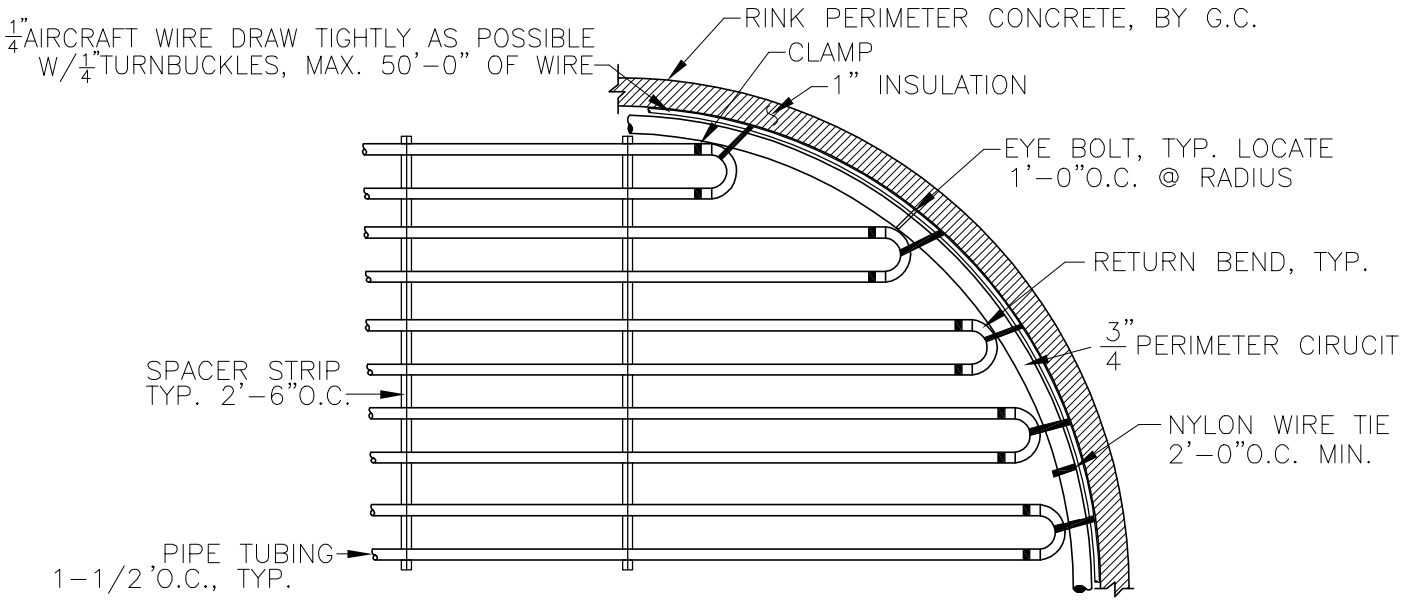
RAISED CONCRETE FLOOR/BOX AREA

SAND BASE FLOOR



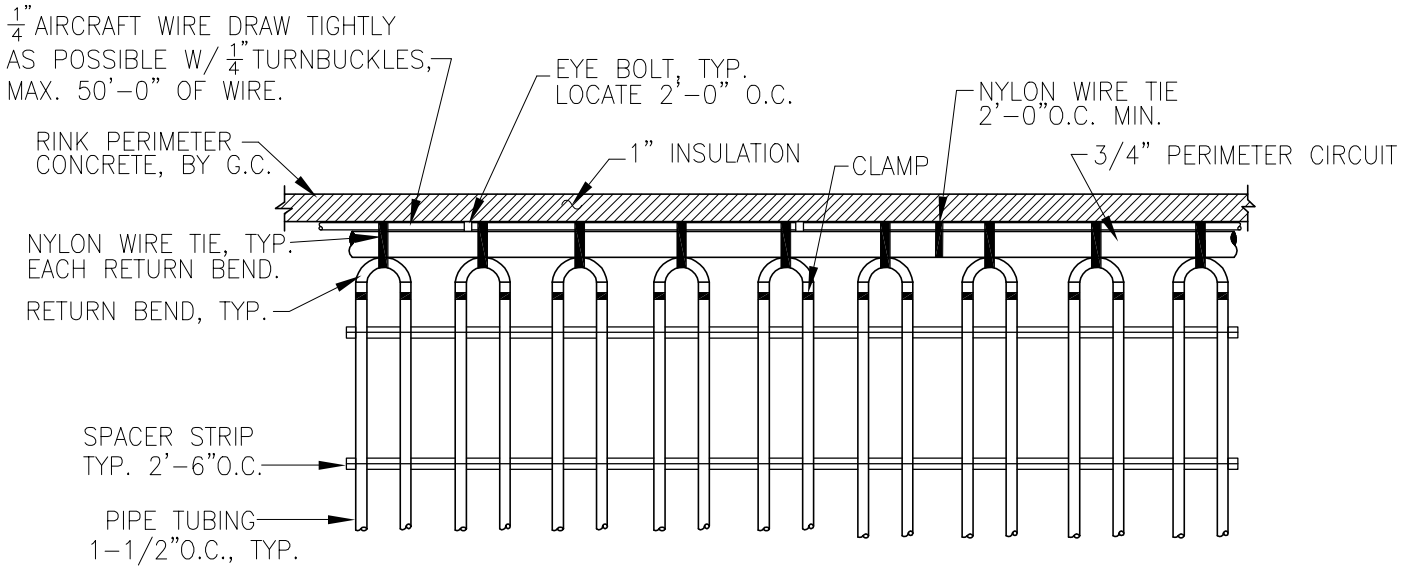
PIPE FLOOR ISOMETRIC

PERMANENT SAND BASE RINK



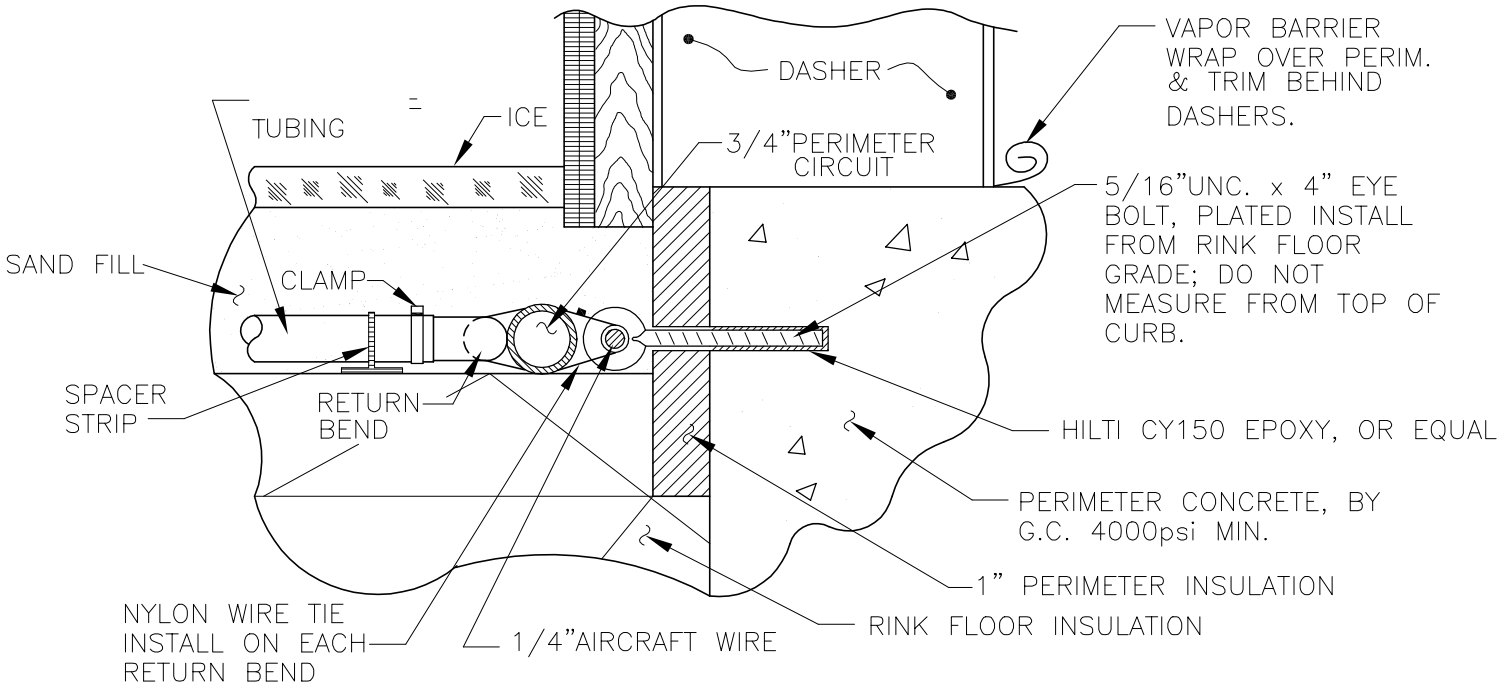
RADIUS PERIMETER CABLE @ RINK END

PIPE SAND BASE RINK FLOOR



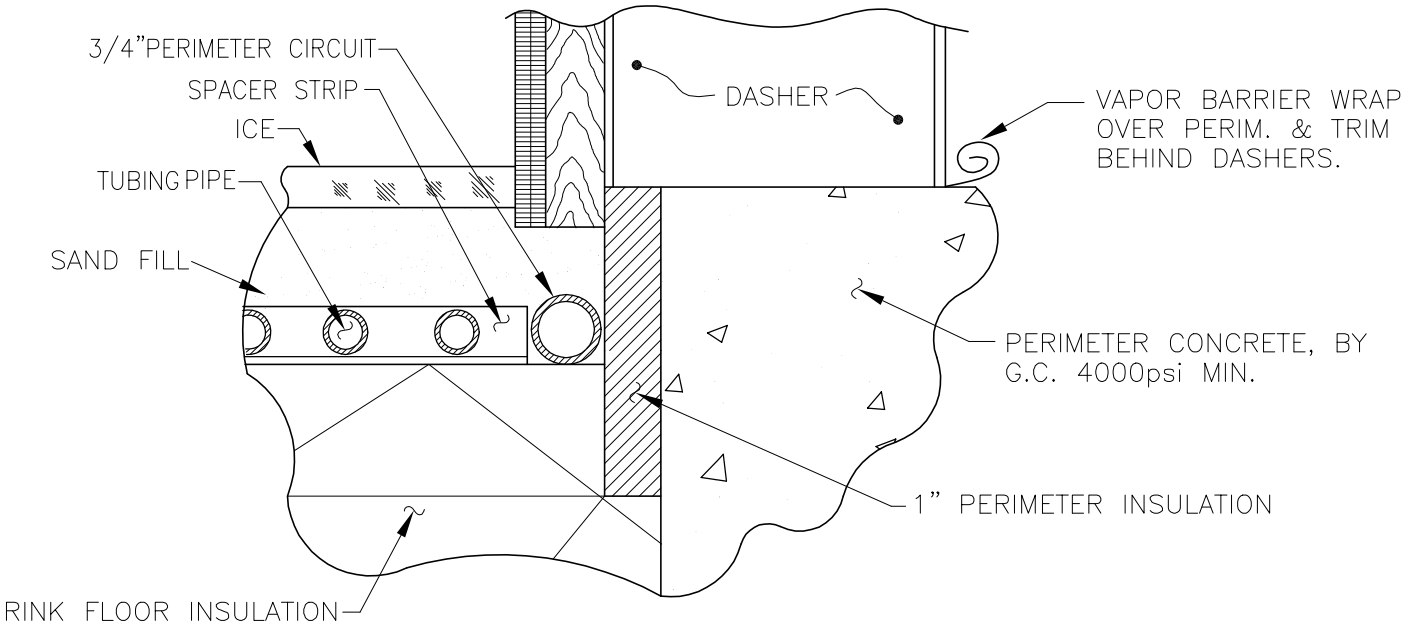
STRAIGHT SECTION PERIMETER CABLE

PIPE SAND BASE RINK FLOOR



RINK END PERIMETER CIRCUIT

PIPE SAND BASE RINK FLOOR



RINK SIDE PERIMETER CIRCUIT

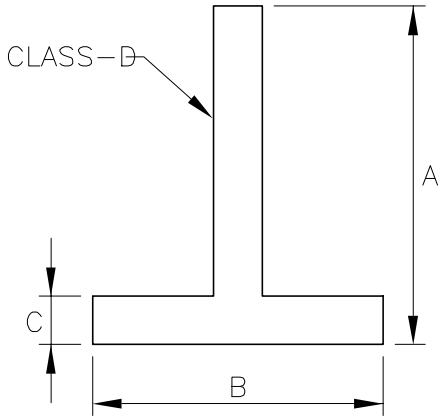
PIPE SAND BASE RINK FLOOR

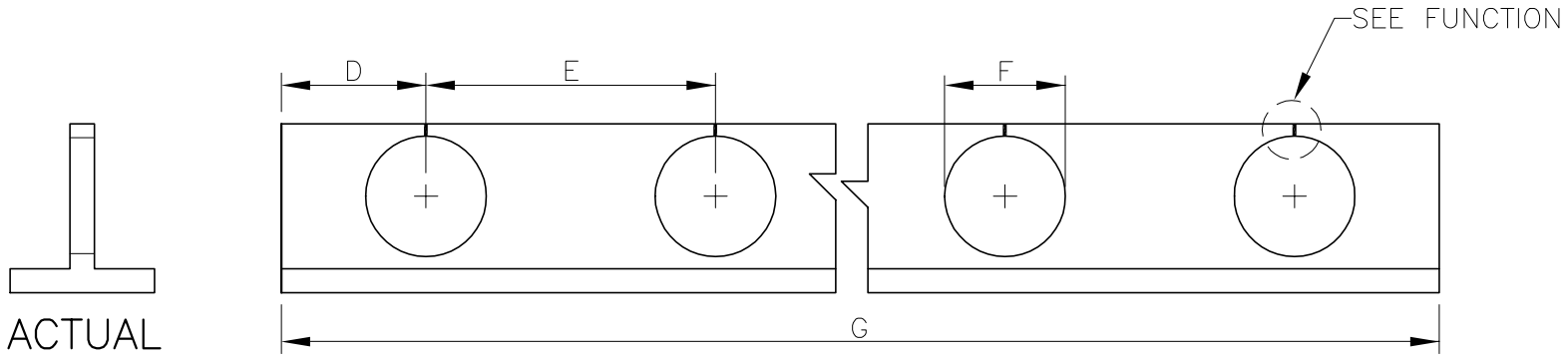
FINISH	SEE BACK OF PRINT
SHAPE	SYMMETRICAL & PERPENDICULAR
CUT	MUST HAVE 32 HOLES PER LENGTH
BOW	N/A
FUNCTION	PART MUST SEPARATE COMPLETELY AT TOP OF THE HOLE.

PART: T-SPACER
MATERIAL: SANTOPRENE 70089051

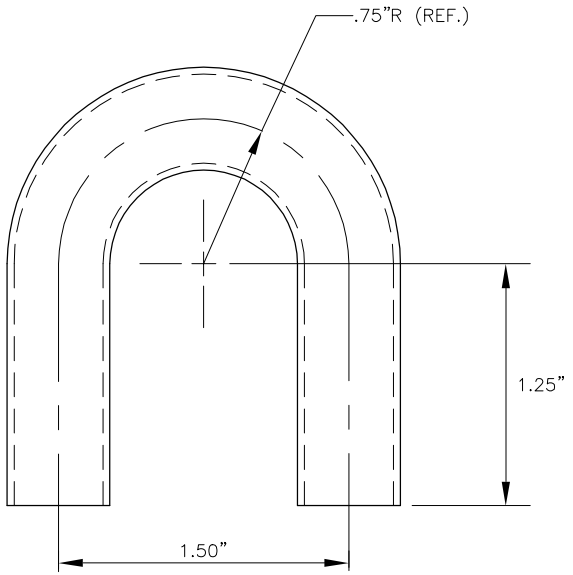
(A) .860 TO .920
(B) .720 TO .780
(C) .110 TO .140 TYP
(D) .750 REF TYP
(E) 1.500 REF TYP
(F) .615 TO .635
(G) 47-1/2" TO 48"

NOTE : MUST HAVE 32 HOLES PER LENGTH.

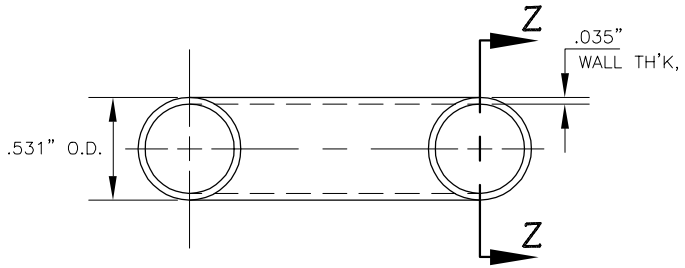


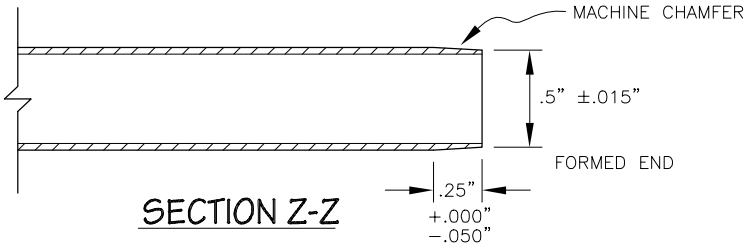


PIPE SPACER STRIP



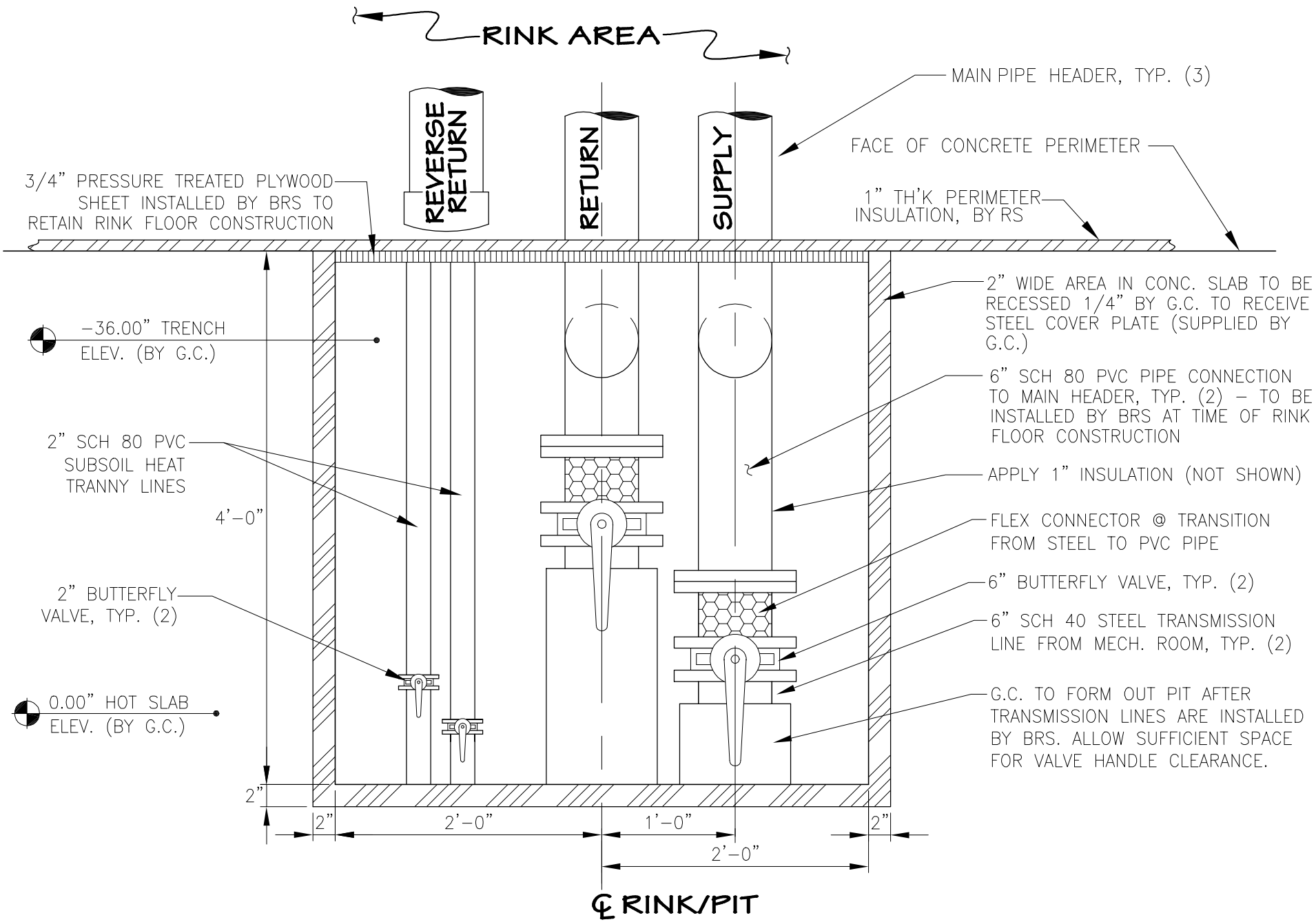
NOTE:
1) MAT'L: DMP 122 COPPER





SECTION Z-Z

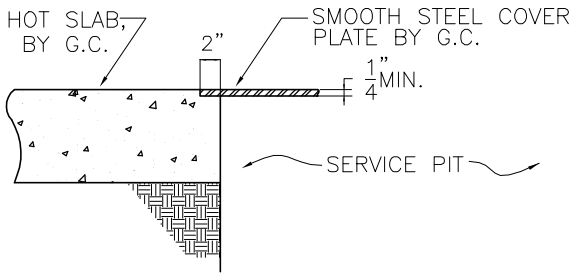
U BEND
PIPE SYSTEM



RINK SERVICE PIT

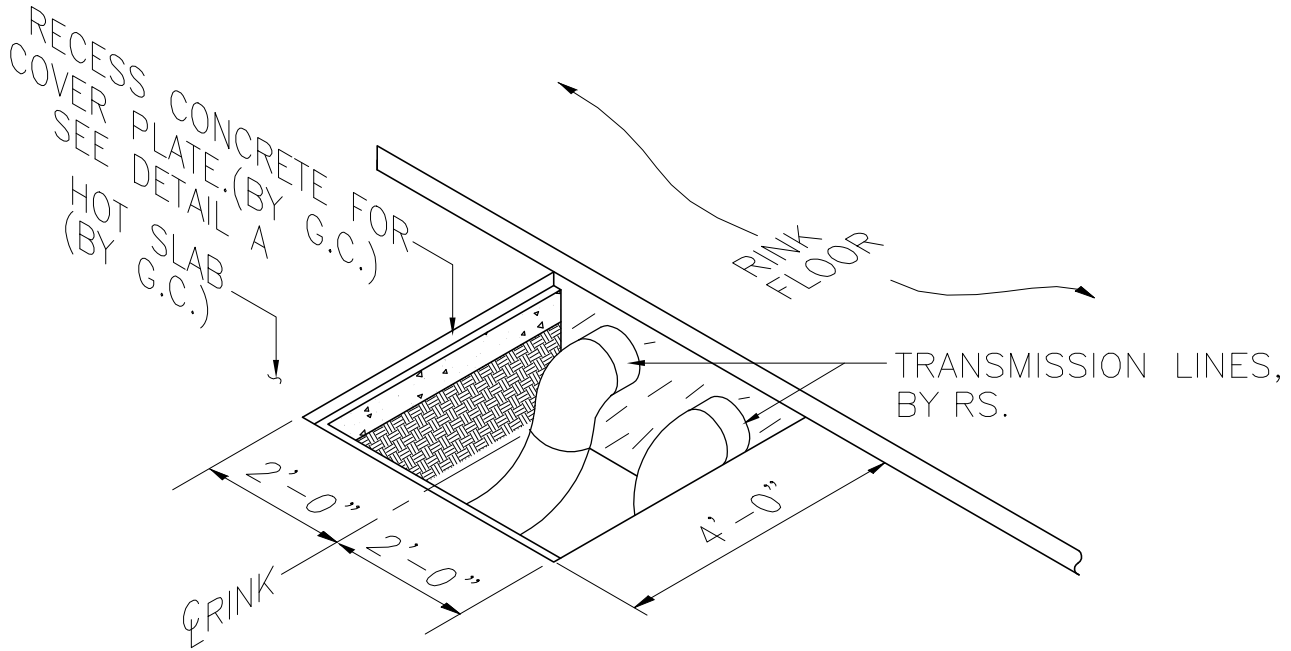
PLAN VIEW

Ice Rink Transmission Line Piping Design Drawings



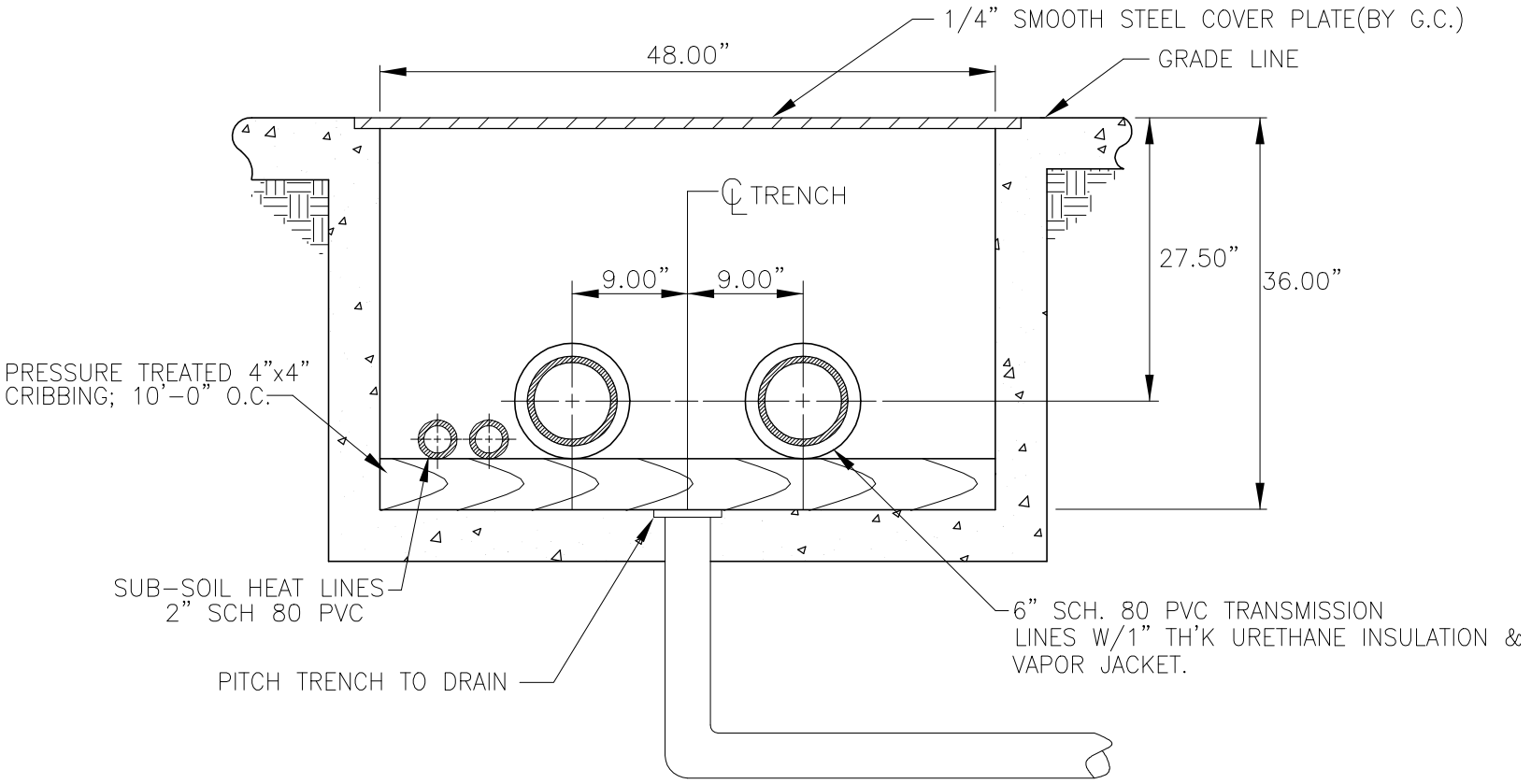
DETAIL A

*4'-0"x4'-0" AREA OF HOT SLAB TO BE FORMED OUT AT CENTER LINE OF RINK FOR VALVE ACCESS.



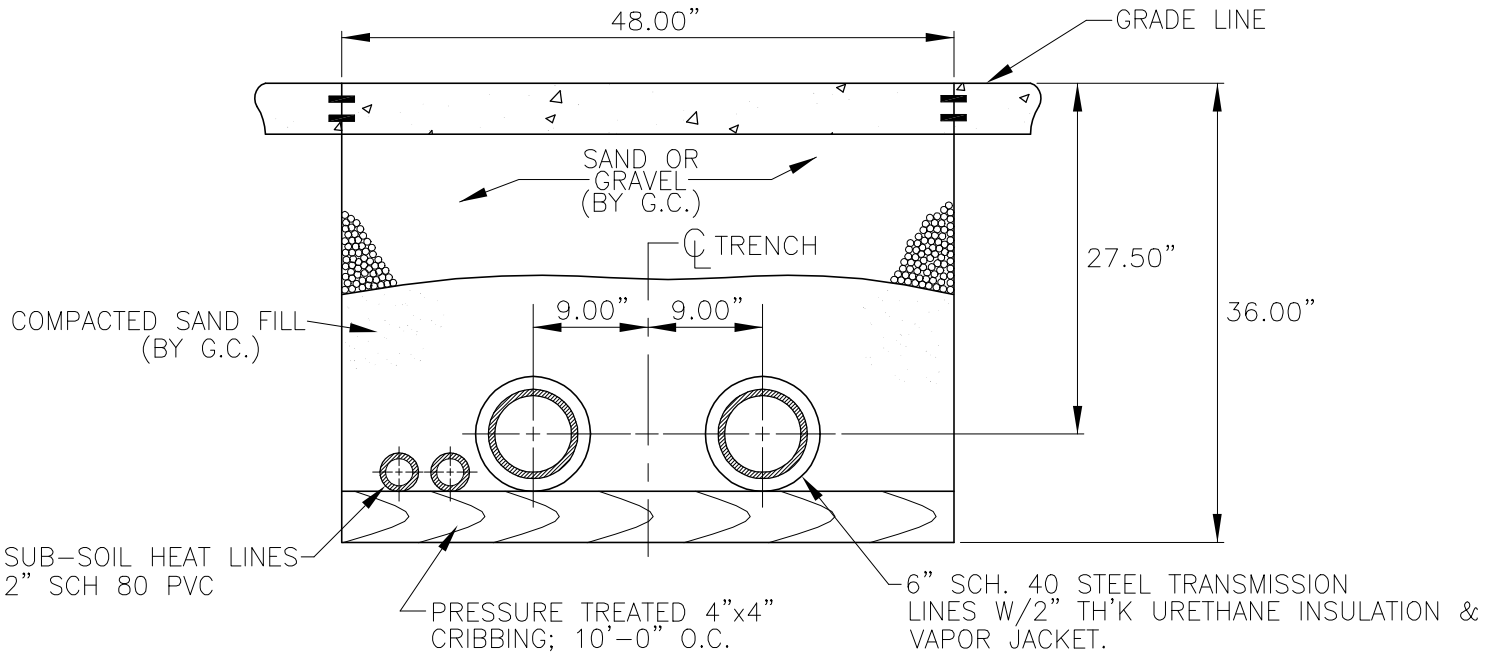
TRANSMISSION LINE SERVICE PIT DETAIL

NOTE: EXCAVATION, FORMING, & CONCRETE WORK FOR TRENCH BY G.C.

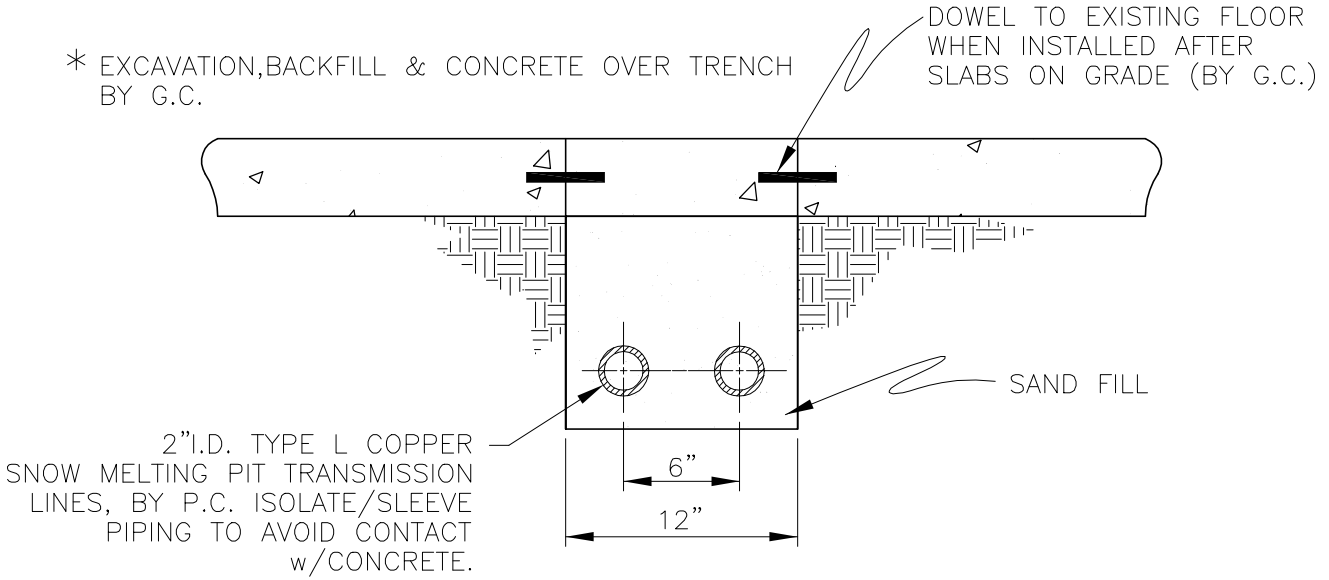


6" TRANSMISSION LINE TRENCH CROSS SECTION

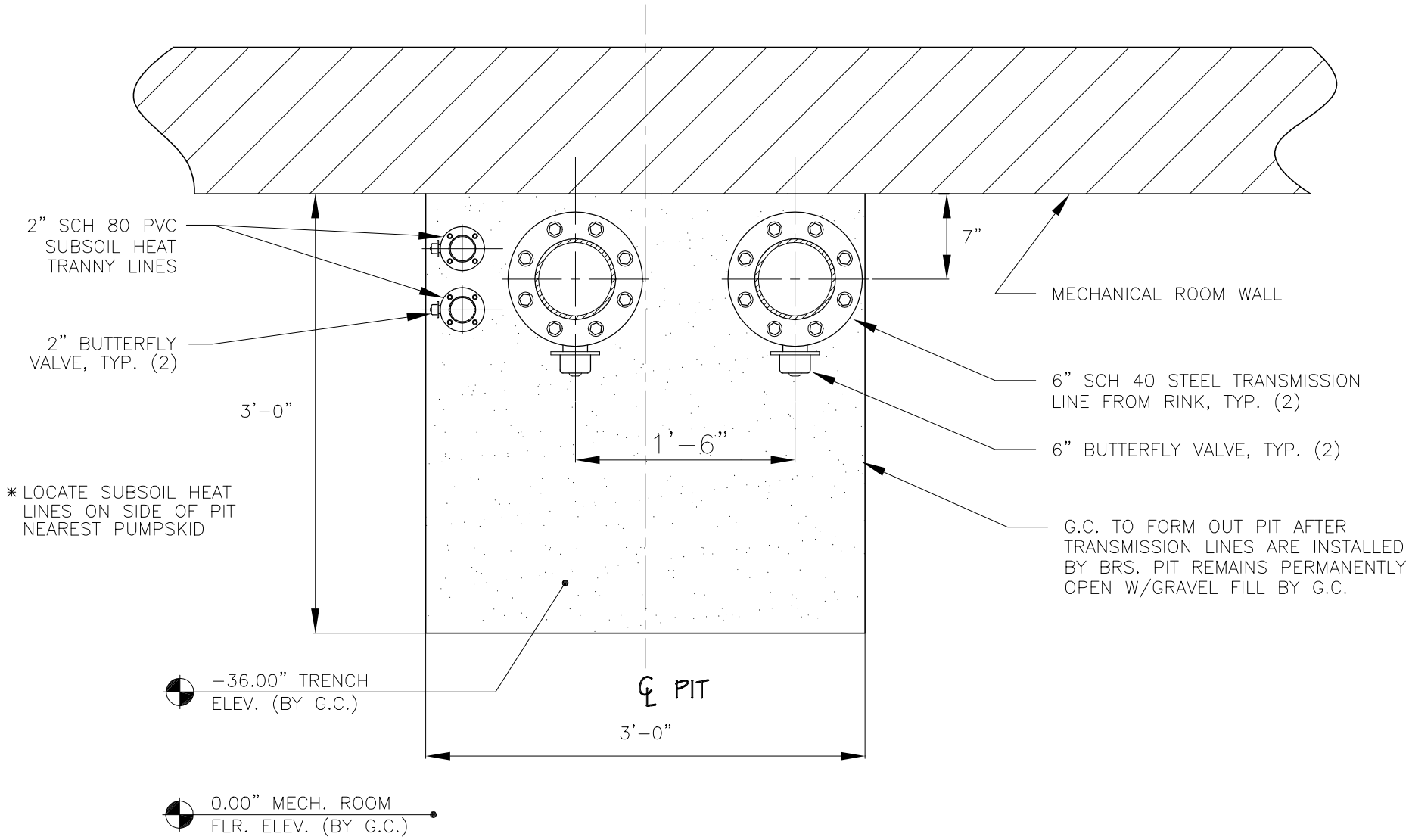
NOTE: EXCAVATION, BACKFILL, & CONCRETE OVER TRANSMISSION LINE TRENCH BY G.C.



6" TRANSMISSION LINE TRENCH CROSS SECTION



SNOW PIT SUPPLY/RETURN LINES



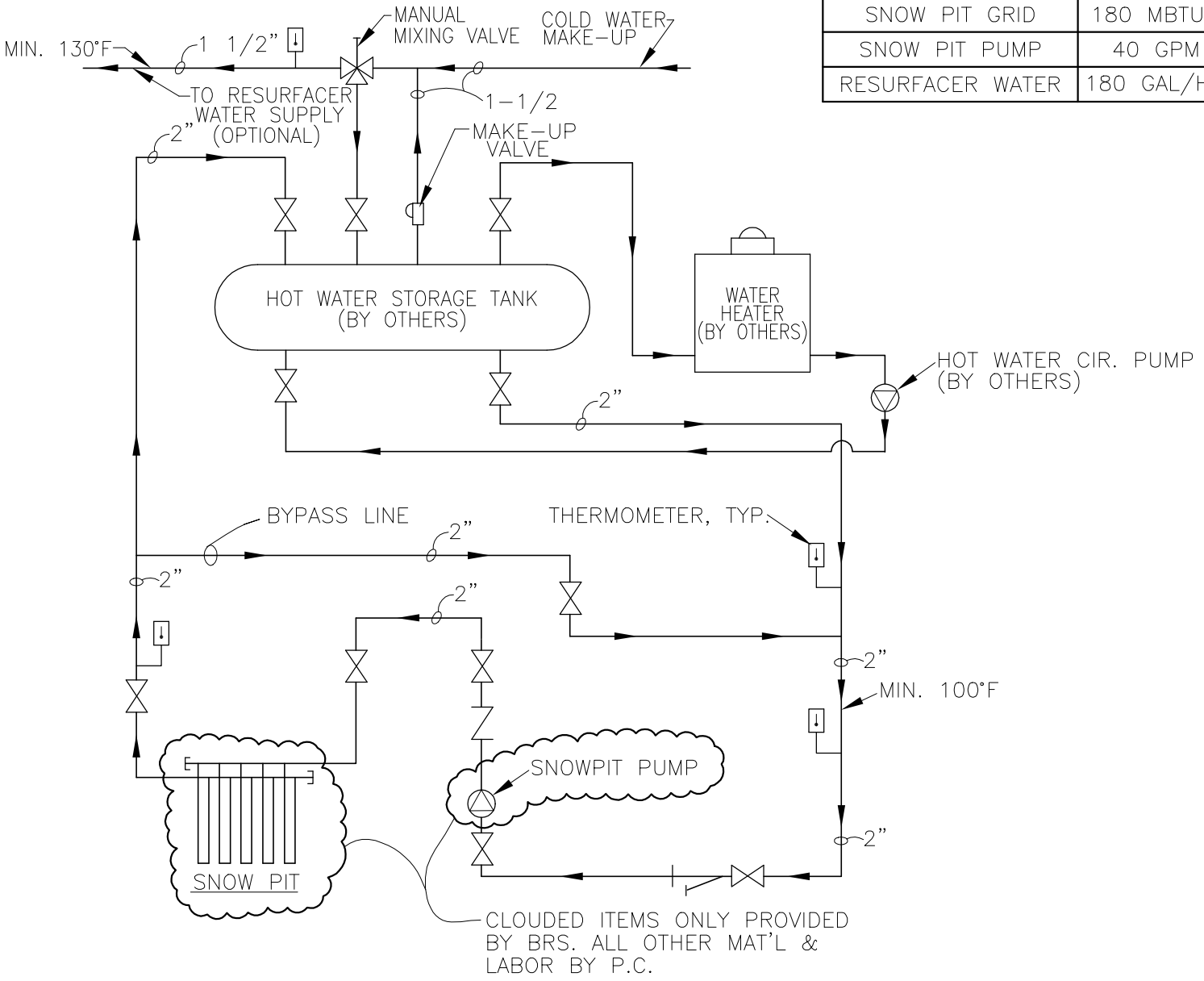
MECHANICAL ROOM SERVICE PIT

6" & 2" TRANSMISSION LINES PLAN VIEW

Ice Rink Snow Melting Pit
Design Drawings

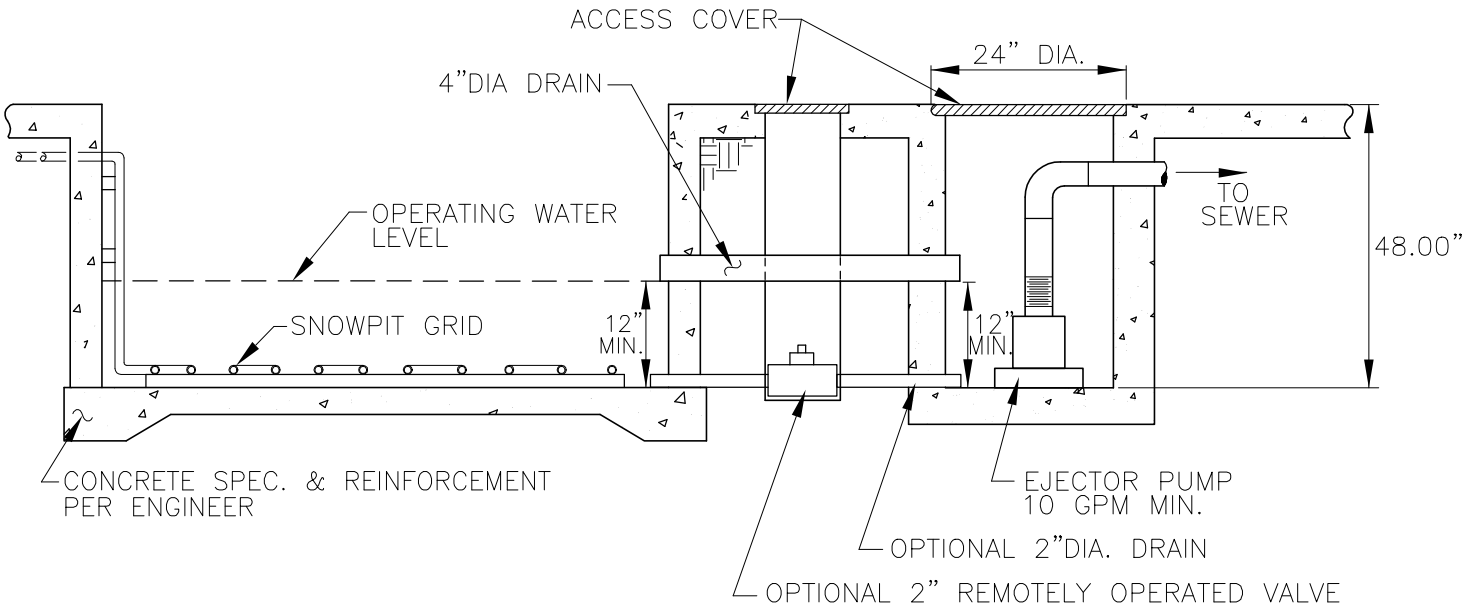
Everything Ice™
www.everything-ice.com
(888)-543-0921

ITEM	SINGLE RINK	TWIN RINK
SNOW PIT GRID	180 MBTUH	360 MBTUH
SNOW PIT PUMP	40 GPM	80 GPM
RESURFACER WATER	180 GAL/HR	360 GAL/HR



SNOW PIT SYSTEM PIPING DIAGRAM

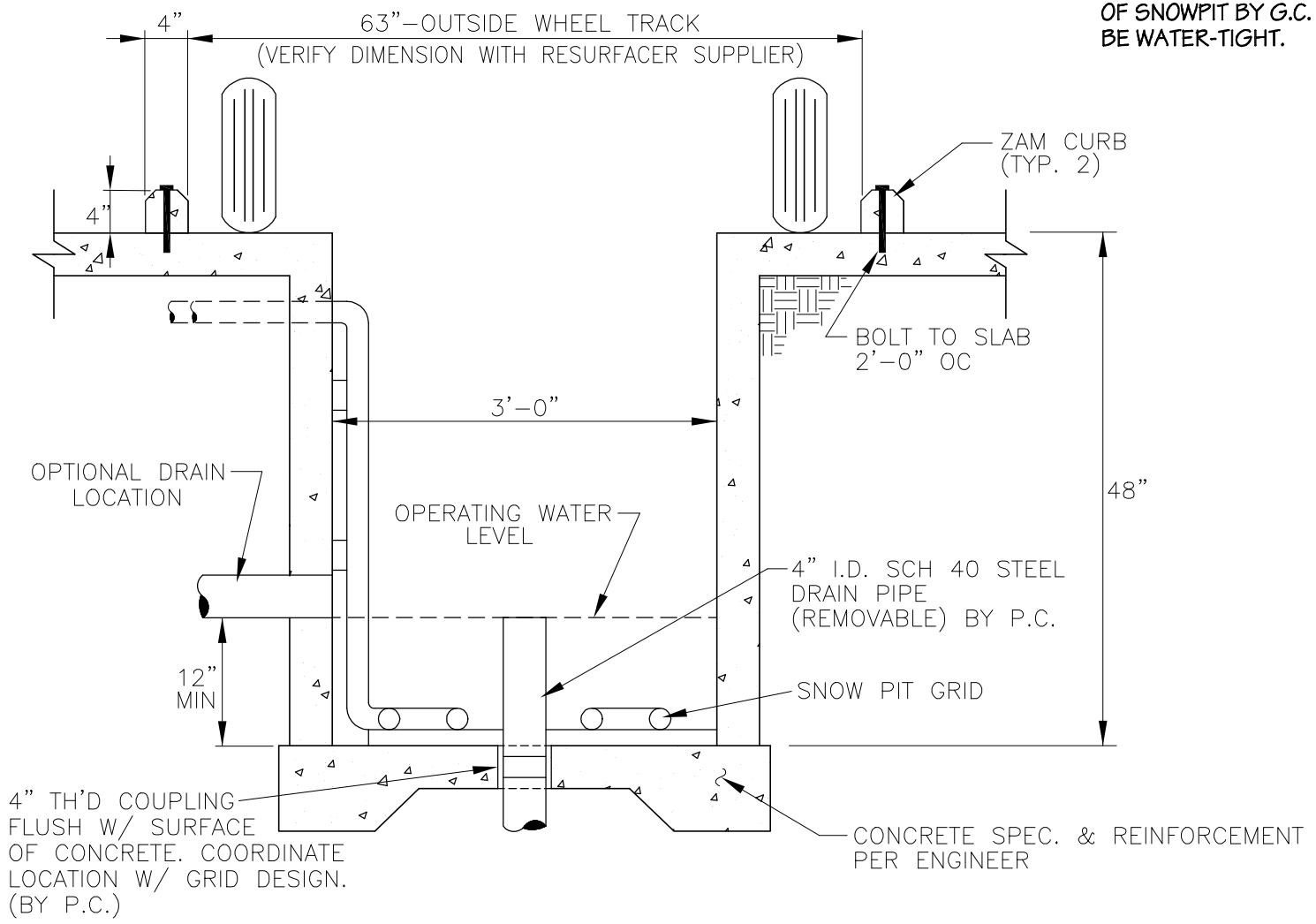
NOTE: EXCAVATION,FORMING,&POURING OF SNOWPIT BY G.C.
PIT MUST BE WATER TIGHT.



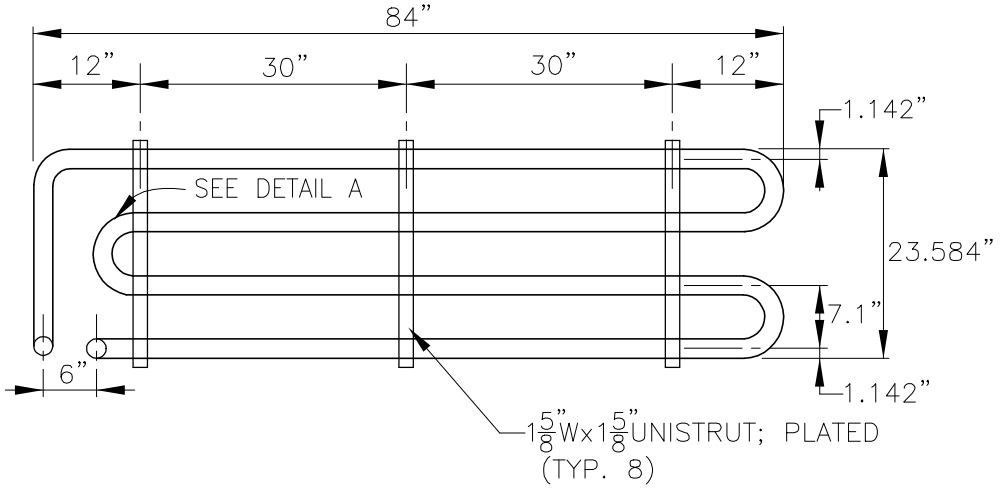
SNOW MELTING PIT W/EJECTOR PUMP

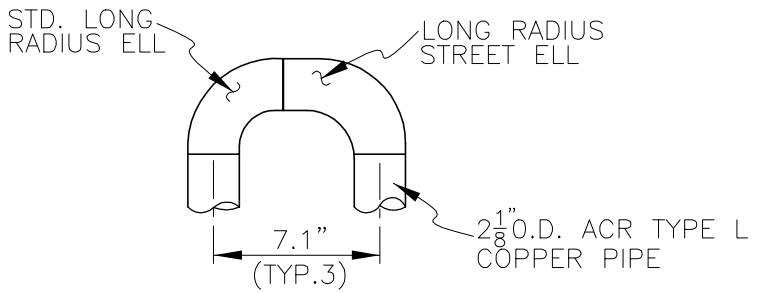
PIT AREA
TWIN RINK 3'-0"x20'-0"x4'-0"
SINGLE RINK 3'-0"x8'-0"x4'-0"

NOTE: EXCAVATION, FORMING & POURING OF SNOWPIT BY G.C. PIT MUST BE WATER-TIGHT.



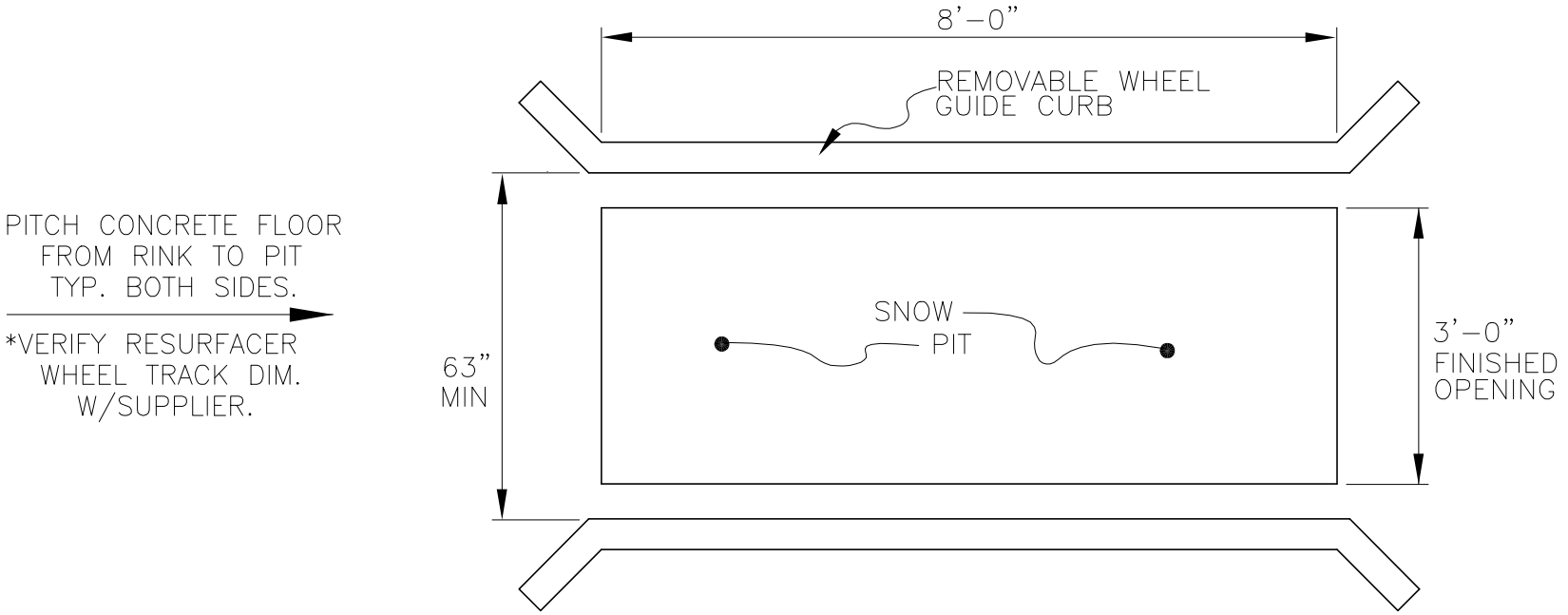
3' SNOWPIT CROSS SECTION





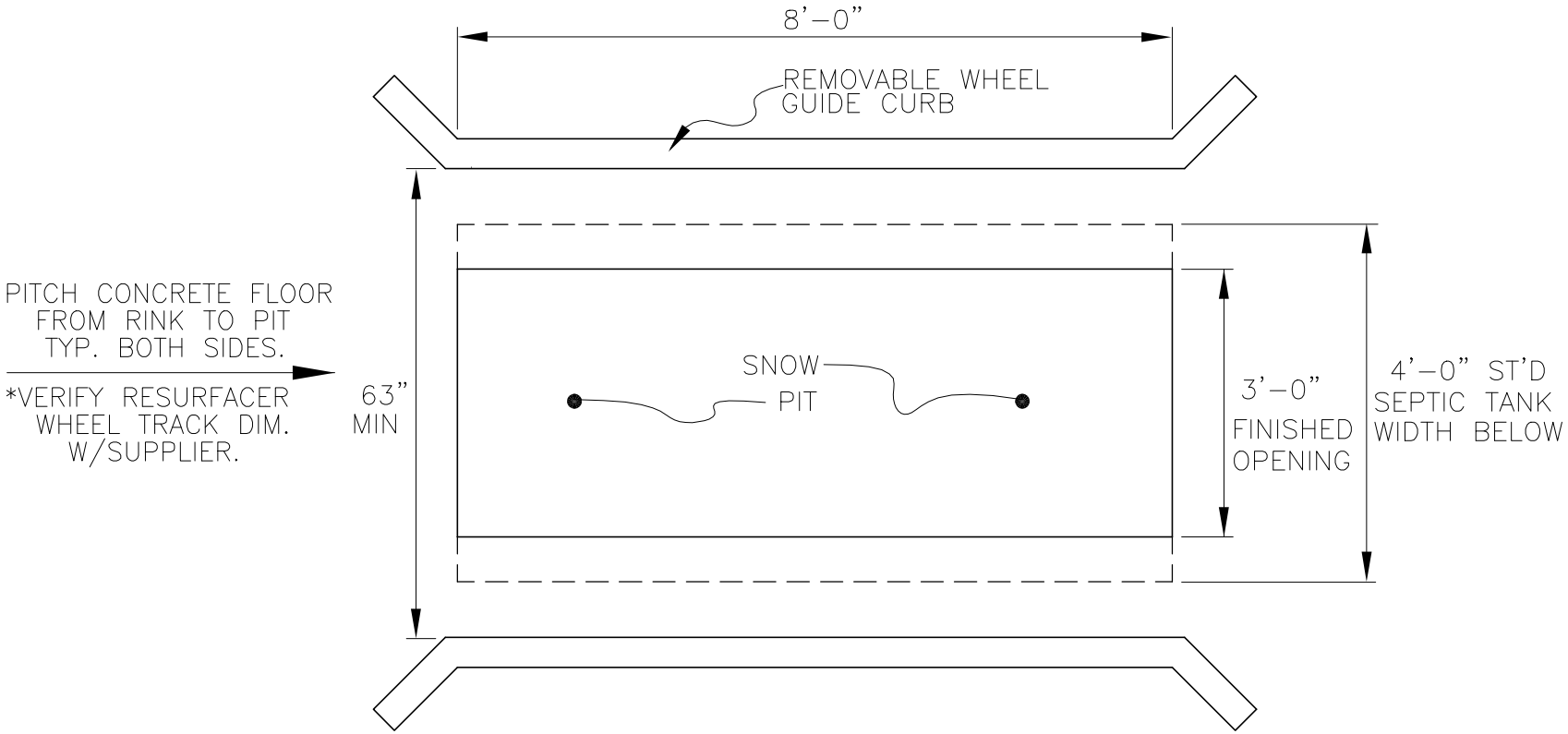
DETAIL A

GRID FOR 3'x8' SNOWPIT



STANDARD SNOW MELTING PIT

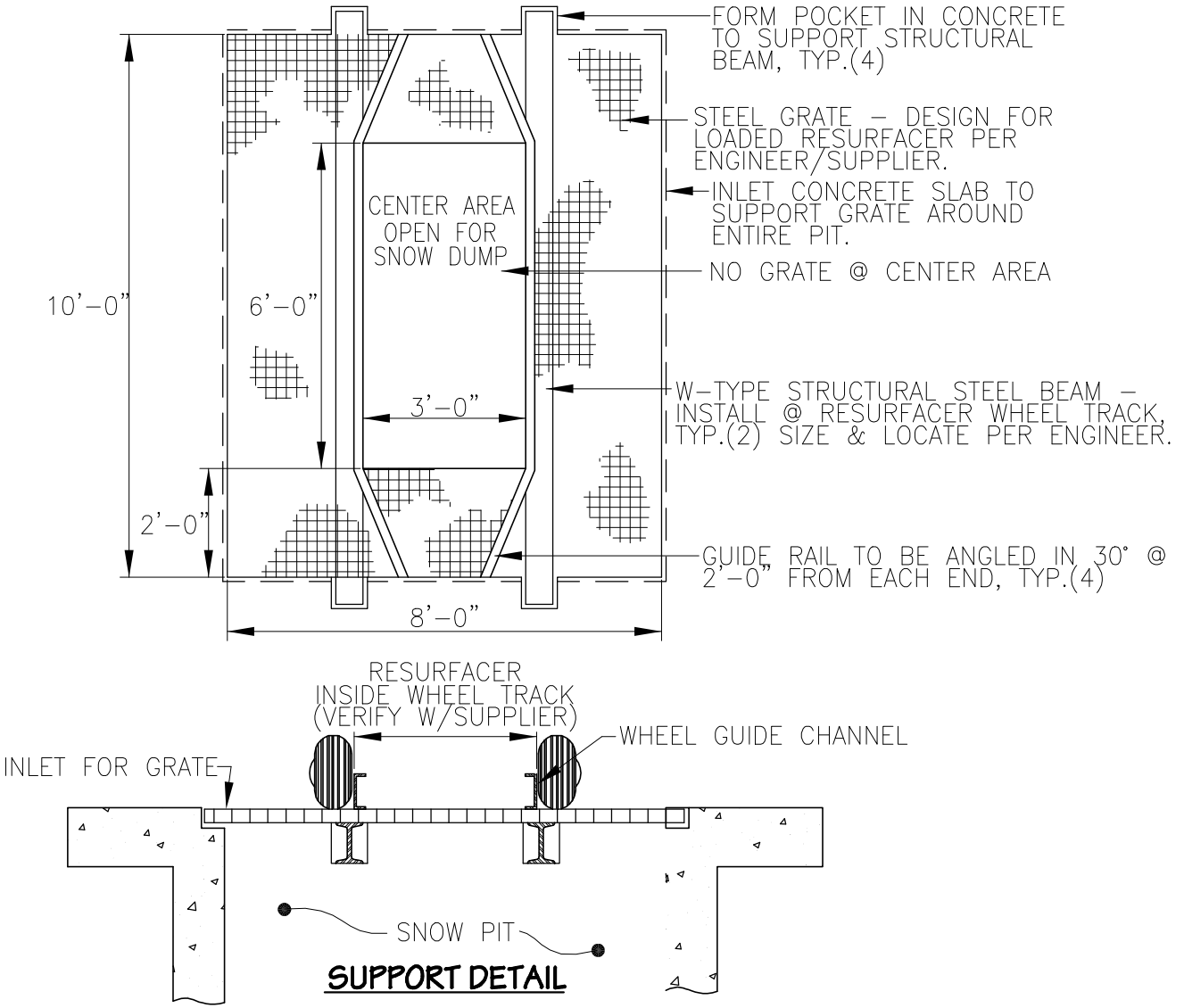
PLAN-VIEW SINGLE RINK



SINGLE RINK SNOW MELTING PIT

PLAN-VIEW SEPTIC TANK CONSTRUCTION

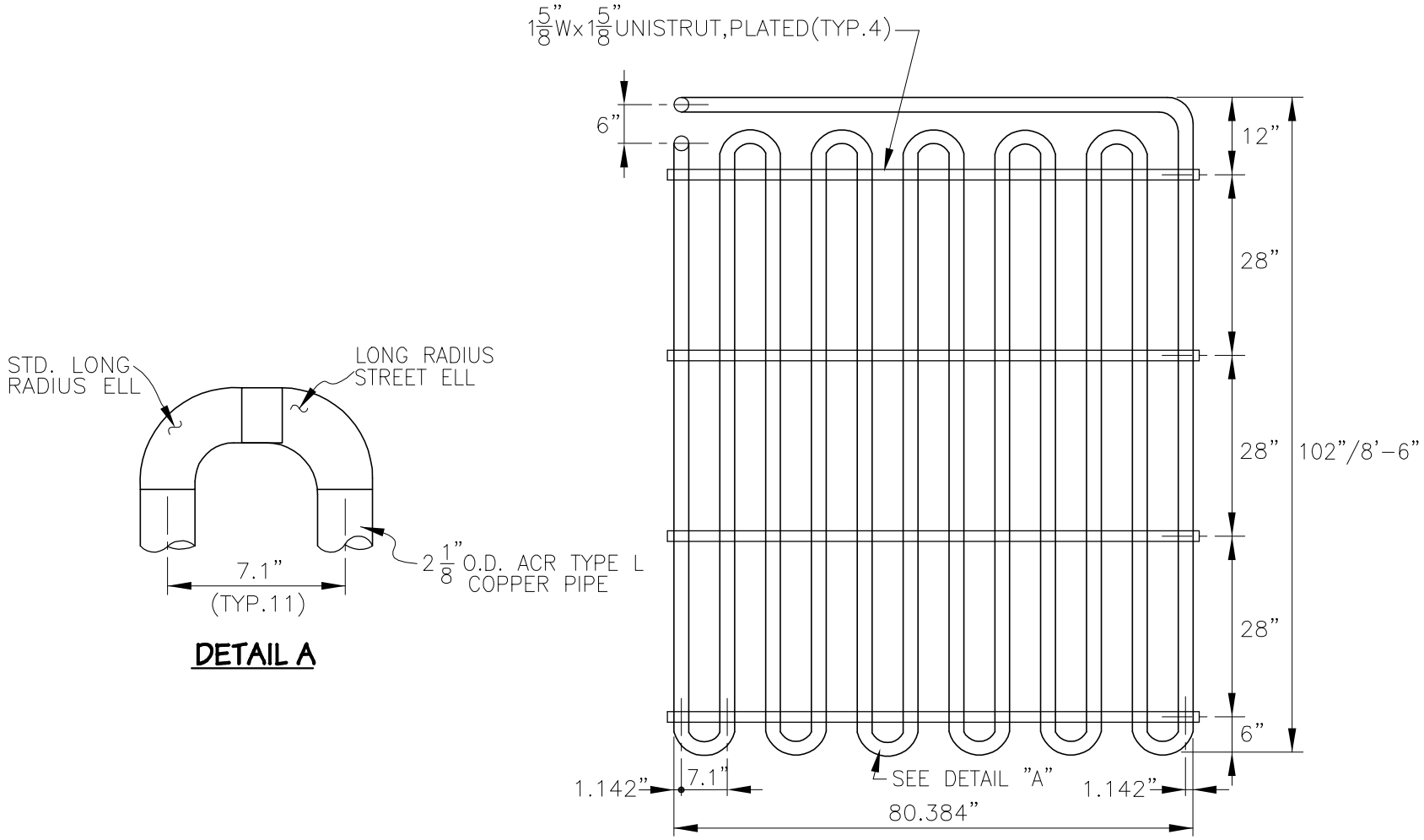
NOTE:
OWNER'S ENGINEER SHALL CONSULT W/RESURFACER SUPPLIER & CONFIRM DESIGN OF ALL STRUCTURAL COMPONENTS.



SUPPORT DETAIL

DRIVE OVER SNOW MELTING PIT

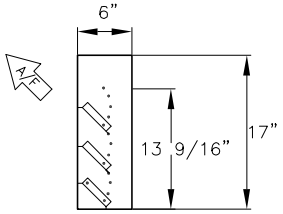
PLAN VIEW



GRID FOR 8'x10' SNOW PIT

Ice Rink Dehumidification
Design Drawings

www.everything-ice.com
(888)-543-0921

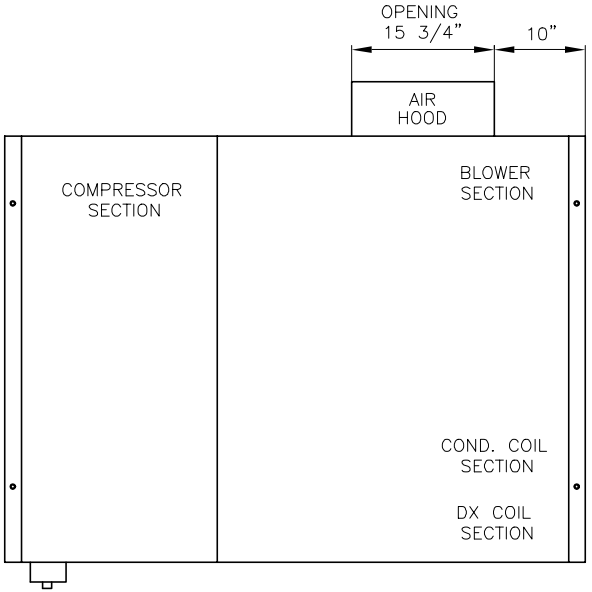


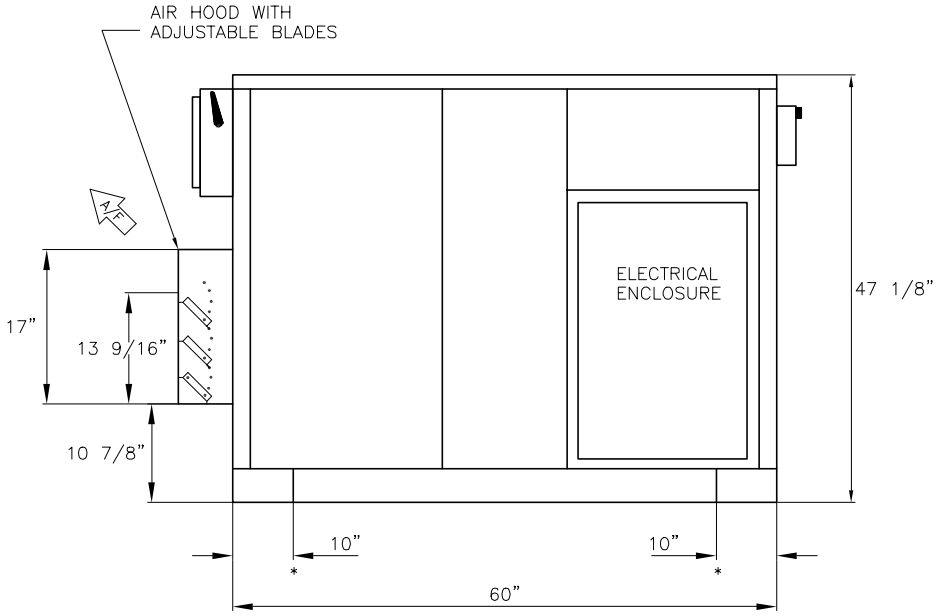
AIR DEFLECTION CAN BE
45 DEGREES UP.
22 1/2 DEGREES UP
HORIZONAL
22 1/2 DEGREES DOWN
45 DEGREES DOWN

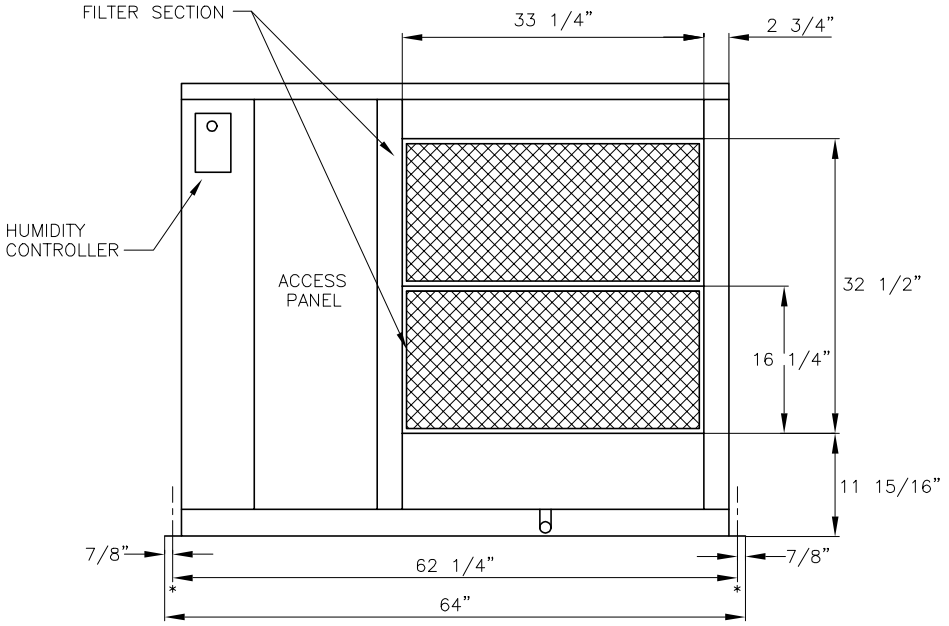
7/8" DIA. MOUNTING HOLES
EST. UNIT WT. 2920 LBS.

*–

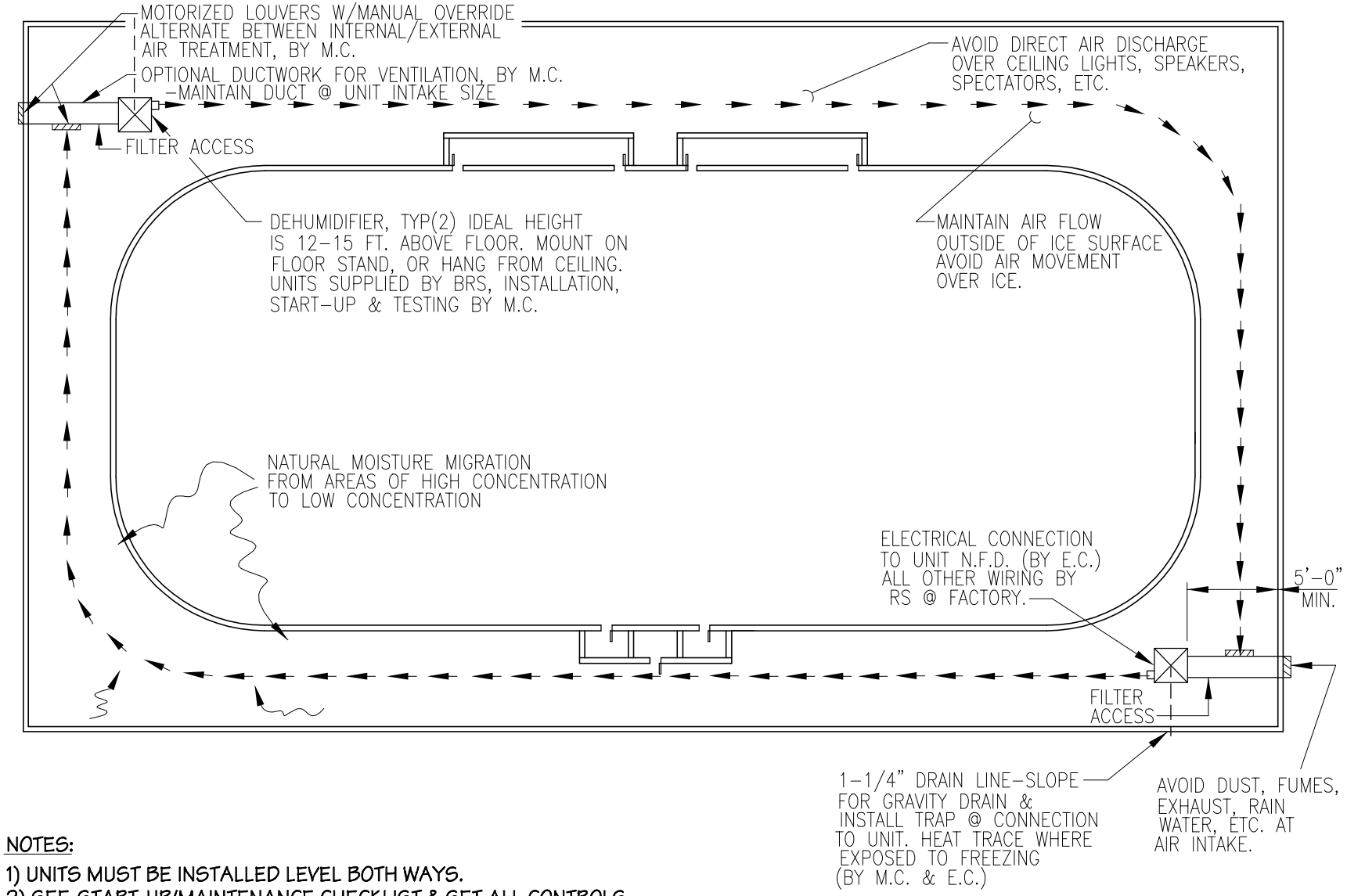
AIR HOOD WITH ADJUSTABLE BLADES







DEHUMIDIFIER

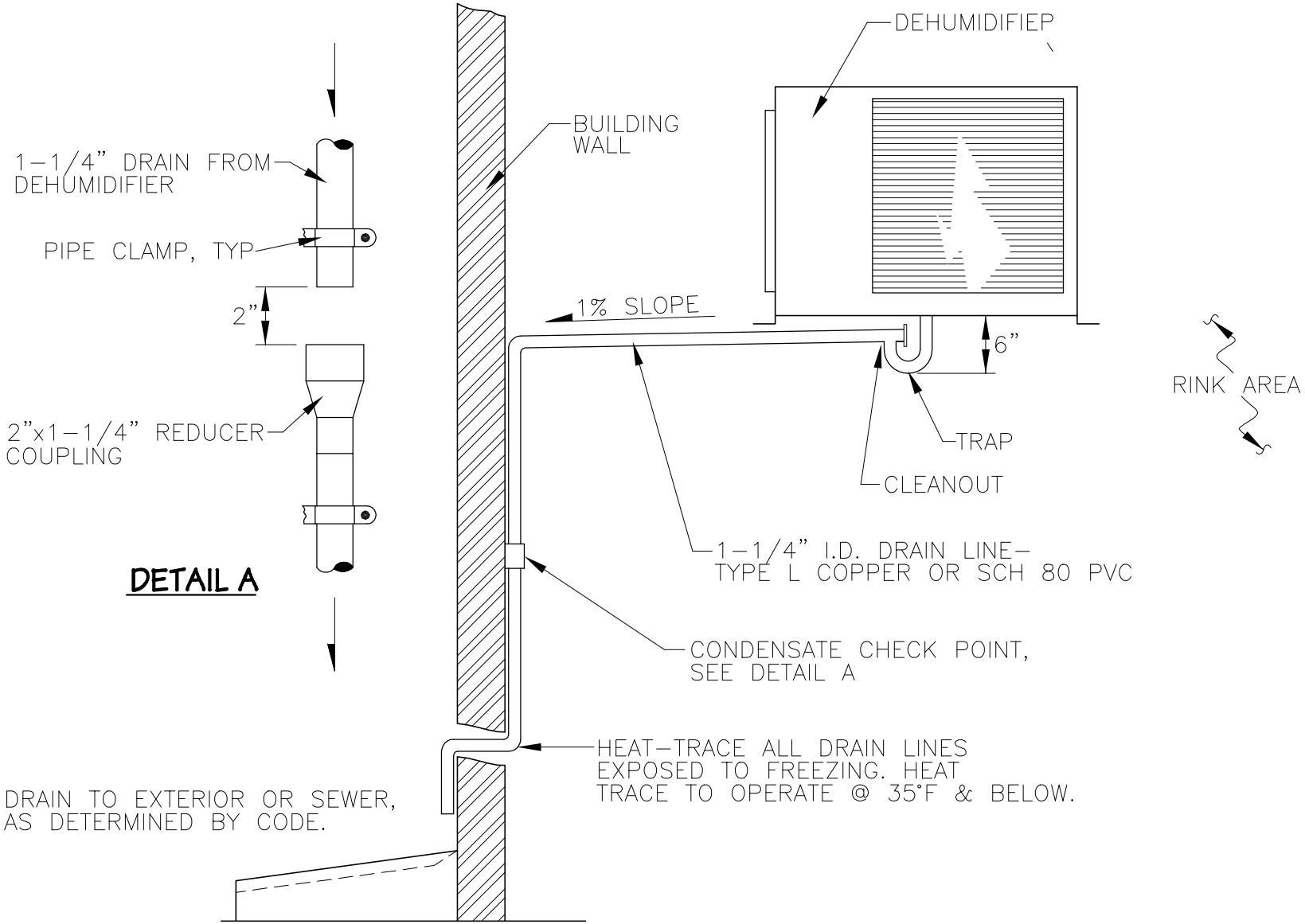


NOTES:

1) UNITS MUST BE INSTALLED LEVEL BOTH WAYS.
2) SEE START-UP/MAINTENANCE CHECKLIST & SET ALL CONTROLS CORRECTLY BEFORE STARTING.
3) CONSULT PROJECT ENGINEER FOR STAND CONSTRUCTION OR ROOF LOAD CAPABILITY.
4) SEE DEHUMIDIFIER DETAIL DRAWINGS FOR ADDITIONAL INFORMATION.
5) LOCATE UNITS MINIMUM 5'-0" FROM ANY AIR FLOW OBSTRUCTION. DISCHARGE PATH MUST BE CLEAR ENTIRE LENGTH OF ARENA

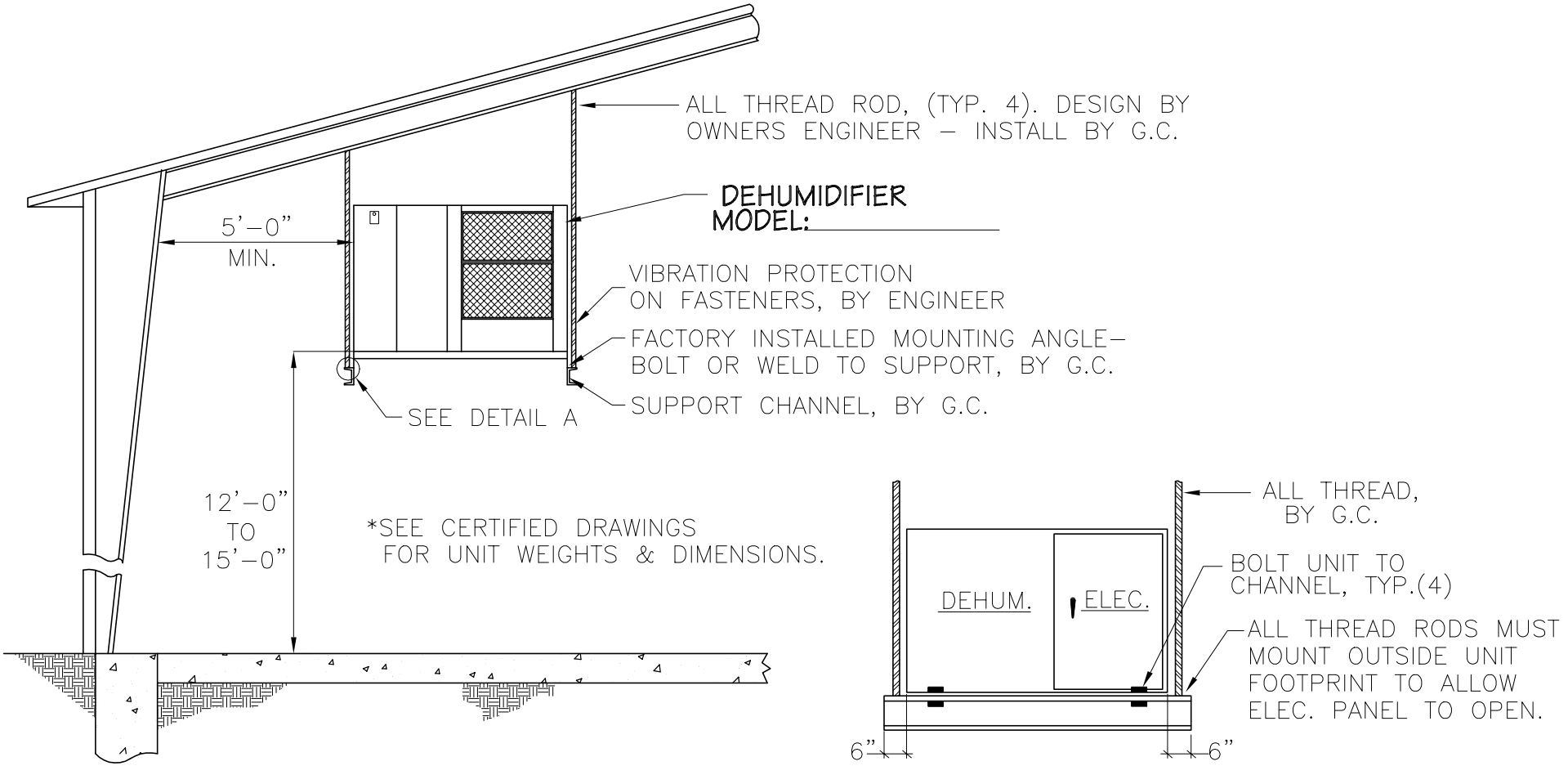
TYPICAL DEHUMIDIFIER LAYOUT/AIR FLOW PATTERN.

REFRIGERATED MODEL

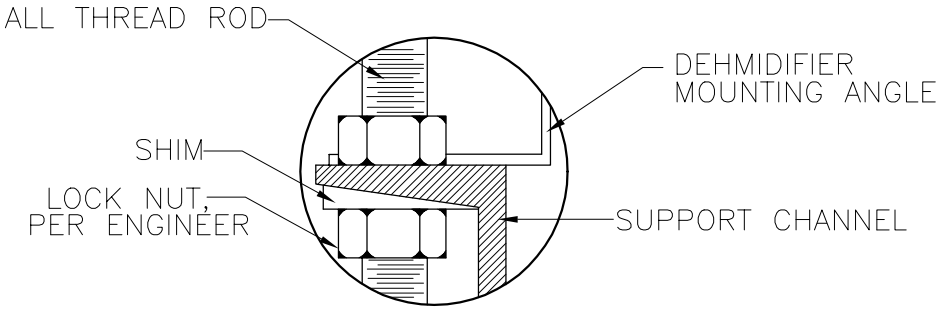


DEHUMIDIFIER DRAIN DETAIL

REFRIGERATED MODEL



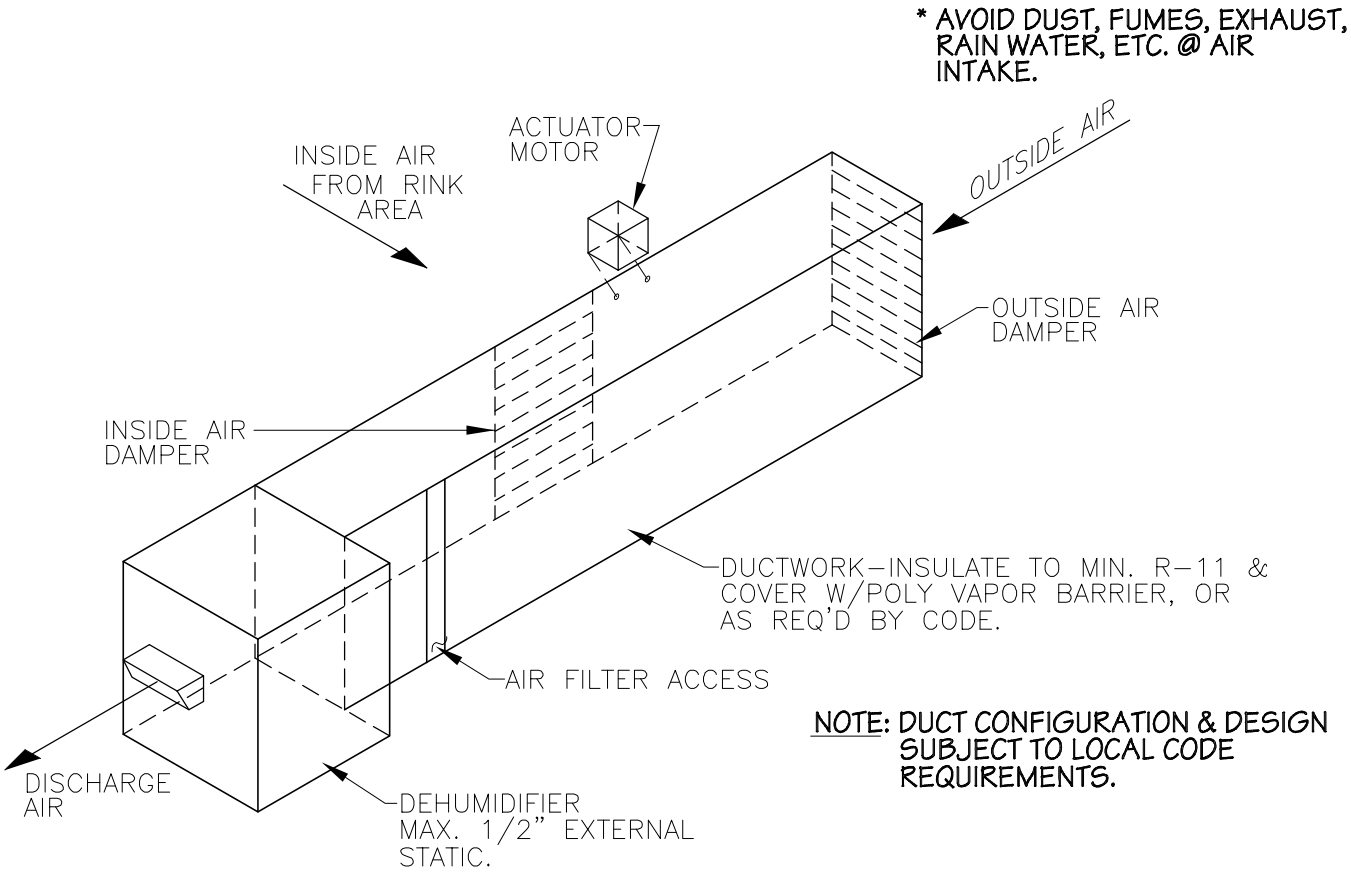
SIDE VIEW



DETAIL A

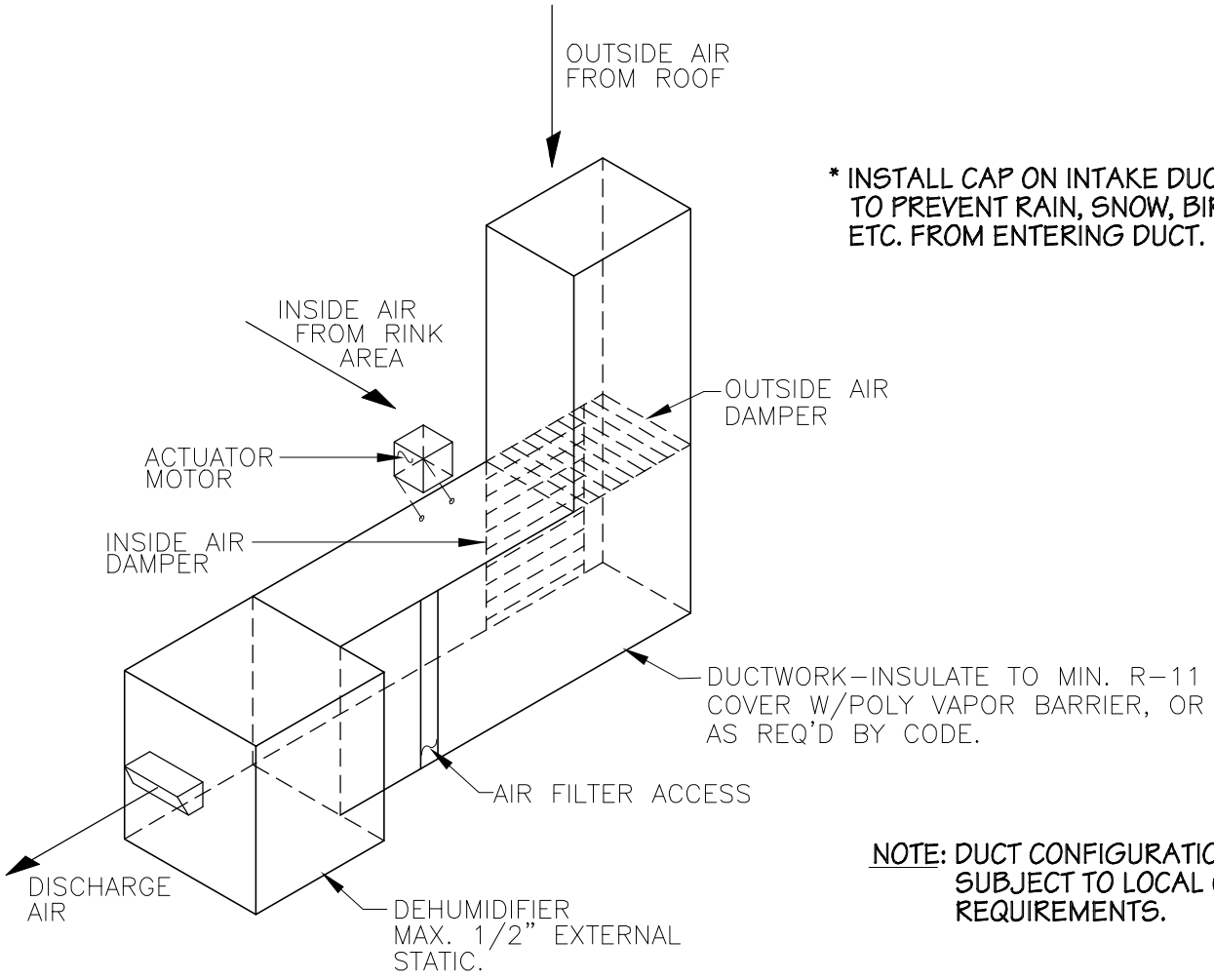
DEHUMIDIFIER ROOF SUSPENSION DRAWING

REFRIGERATED MODEL



DEHUM WALL INTAKE LAYOUT

REFRIGERATED MODEL

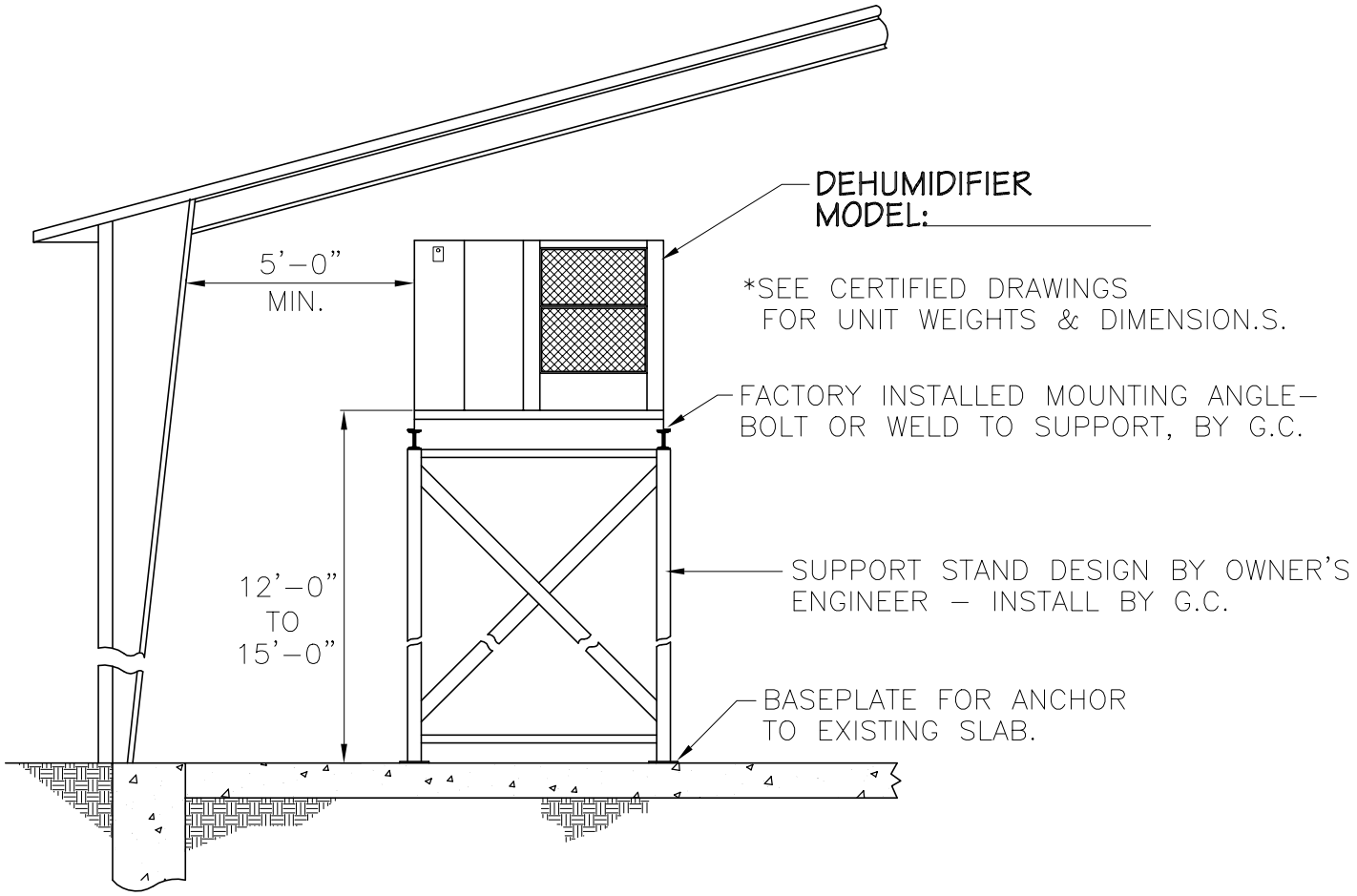


* INSTALL CAP ON INTAKE DUCT TO PREVENT RAIN, SNOW, BIRDS, ETC. FROM ENTERING DUCT.

NOTE: DUCT CONFIGURATION & DESIGN SUBJECT TO LOCAL CODE REQUIREMENTS.

DEHUM ROOF INTAKE LAYOUT

REFRIGERATED MODEL

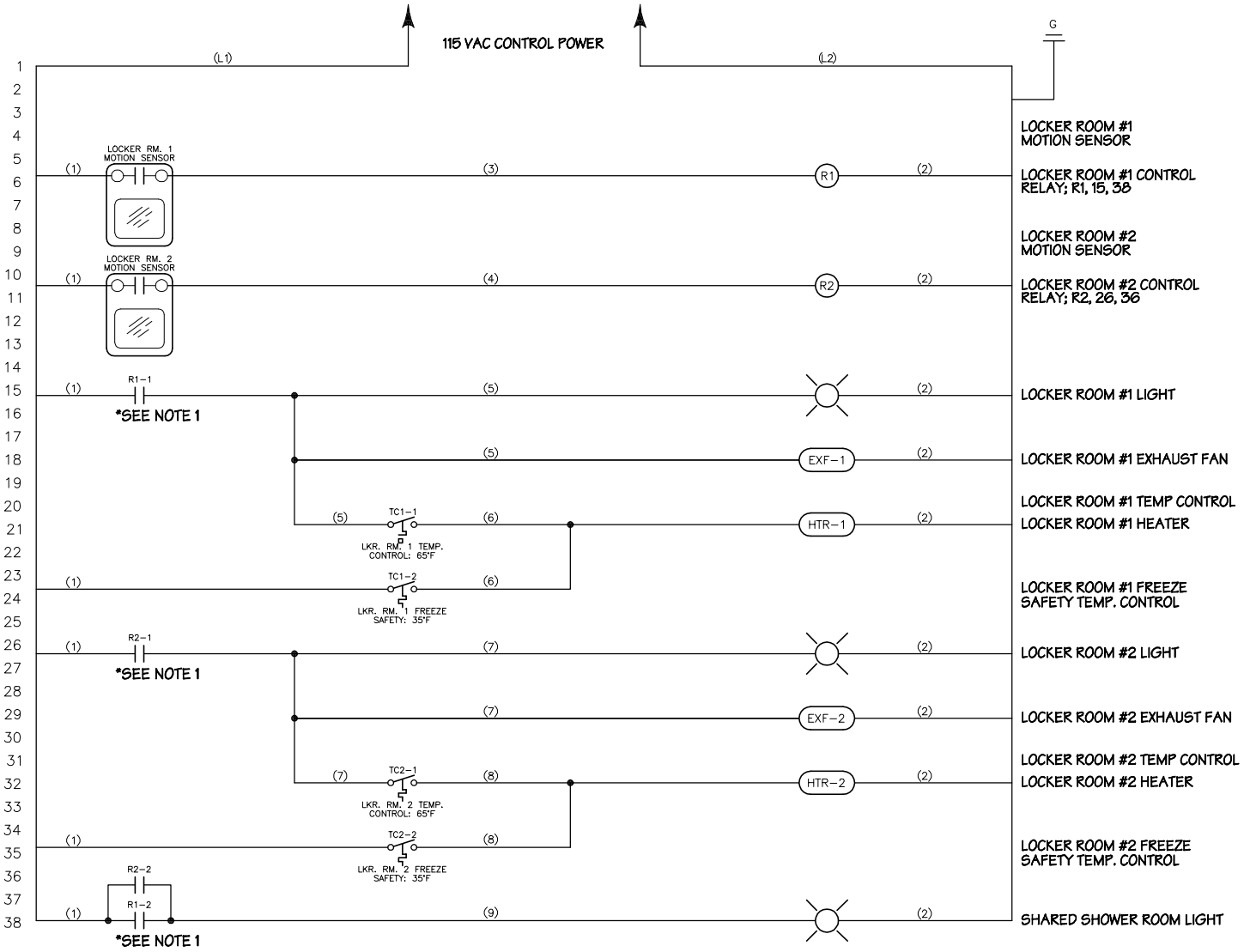


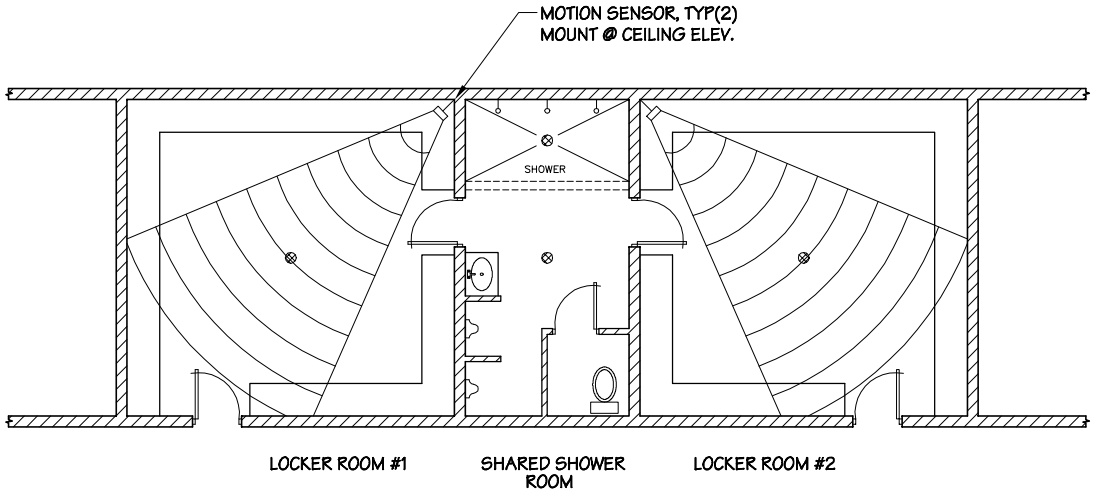
DEHUMIDIFIER MOUNTING STAND DRAWING

REFRIGERATED MODEL

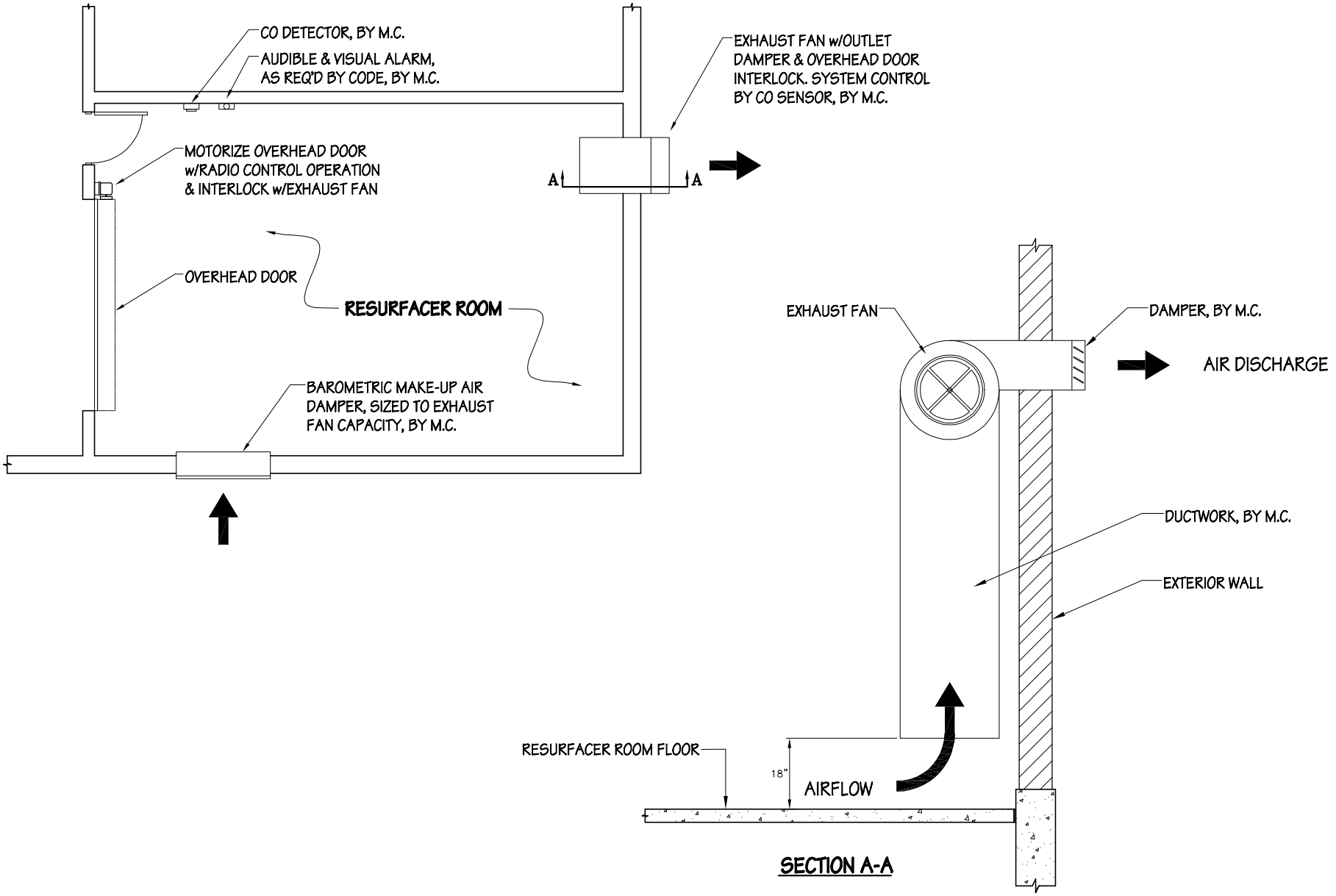
MOTION SENSOR CONTROL DIAGRAM

LOCKER ROOM HEATING, VENTILATION, & LIGHTING



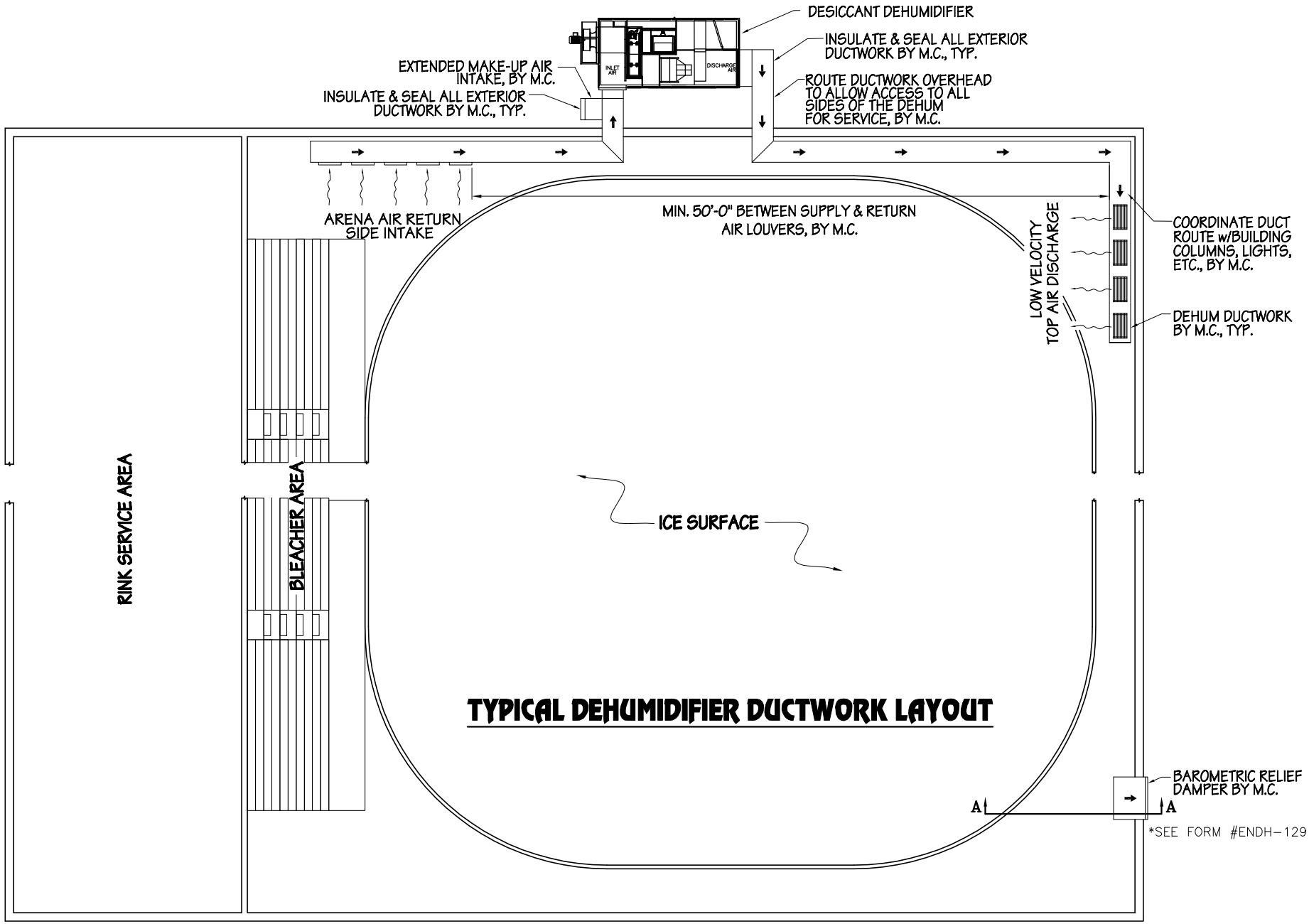


NOTE 1: FOR 277 VAC APPLICATIONS, R1 & R2 MUST BE 3 POLE RELAYS FOR REQUIRED ADDED CONTROL VOLTAGE CONTACTS.

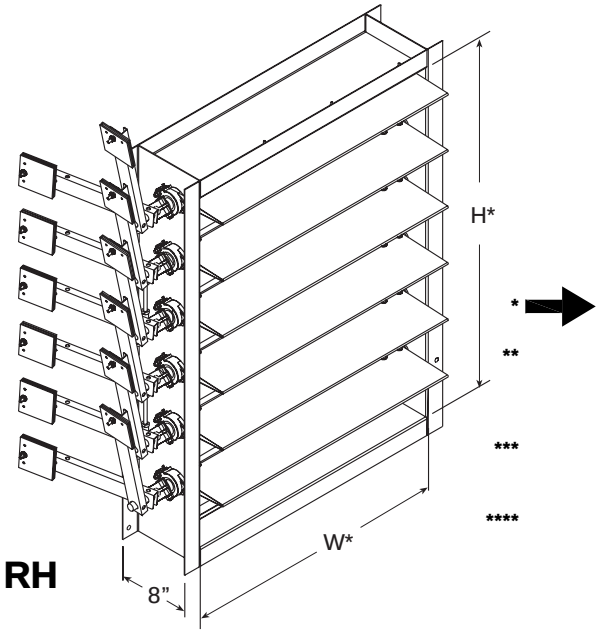


RESURFACER ROOM VENTILATION

TYPICAL DESIGN



TYPICAL DEHUMIDIFIER DUCTWORK LAYOUT



HIGH QUALITY, INSULATED
BAROMETRIC RELIEF DAMPER, BY M.C.

AIR DISCHARGE

DUCTWORK, BY M.C. LOCATE AT
MOST DISTANT POINT FROM
DEHUMIDIFIER SUPPLY AIR.

EXTERIOR WALL

GLASS ELEVATION

DASHERBOARD UPPER
SHIELDING SYSTEM

AIRFLOW

DASHERBOARD

HOT SLAB, BY G.C.

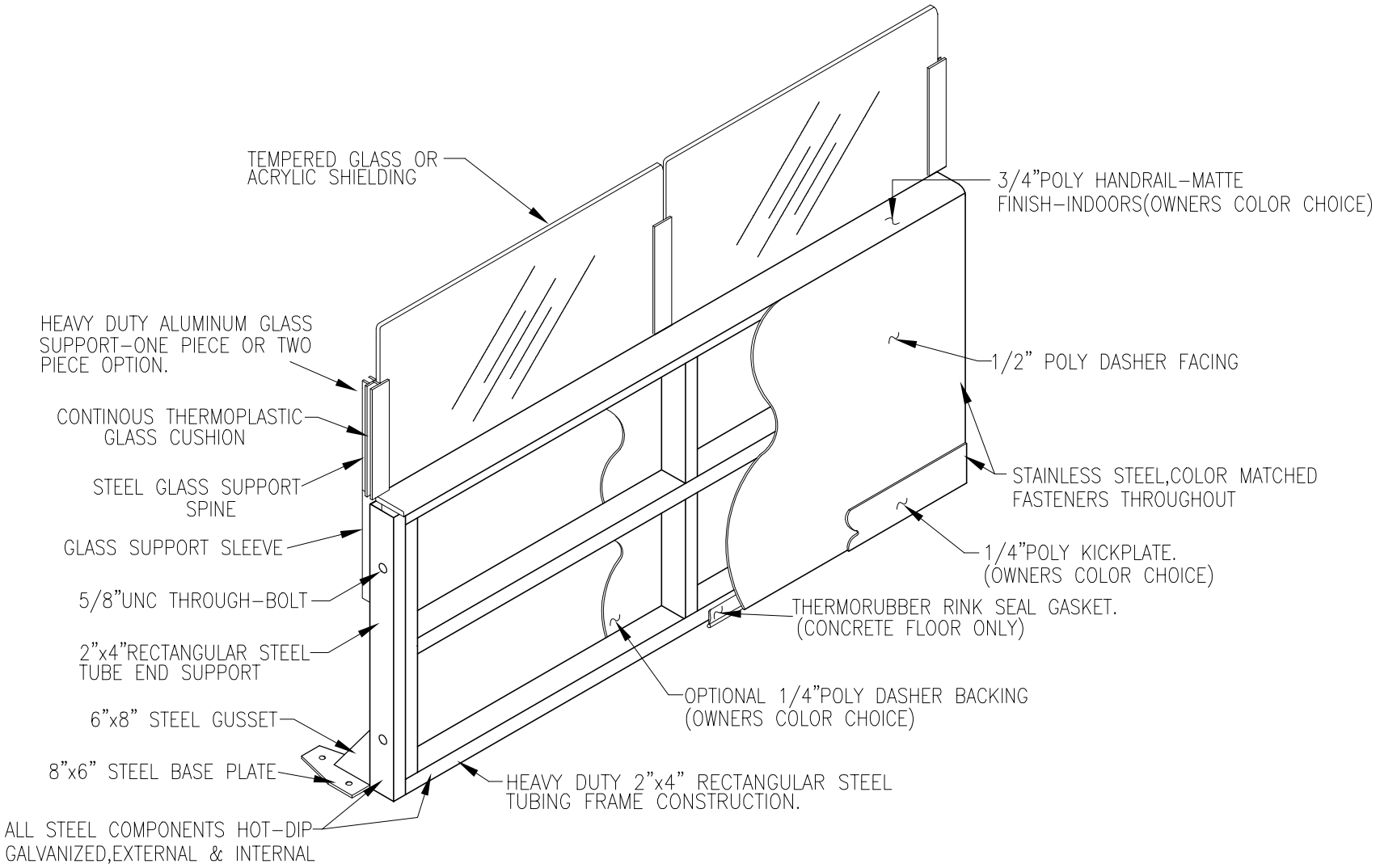
ICE SURFACE

TYPICAL BAROMETRIC DAMPER

SECTION A-A

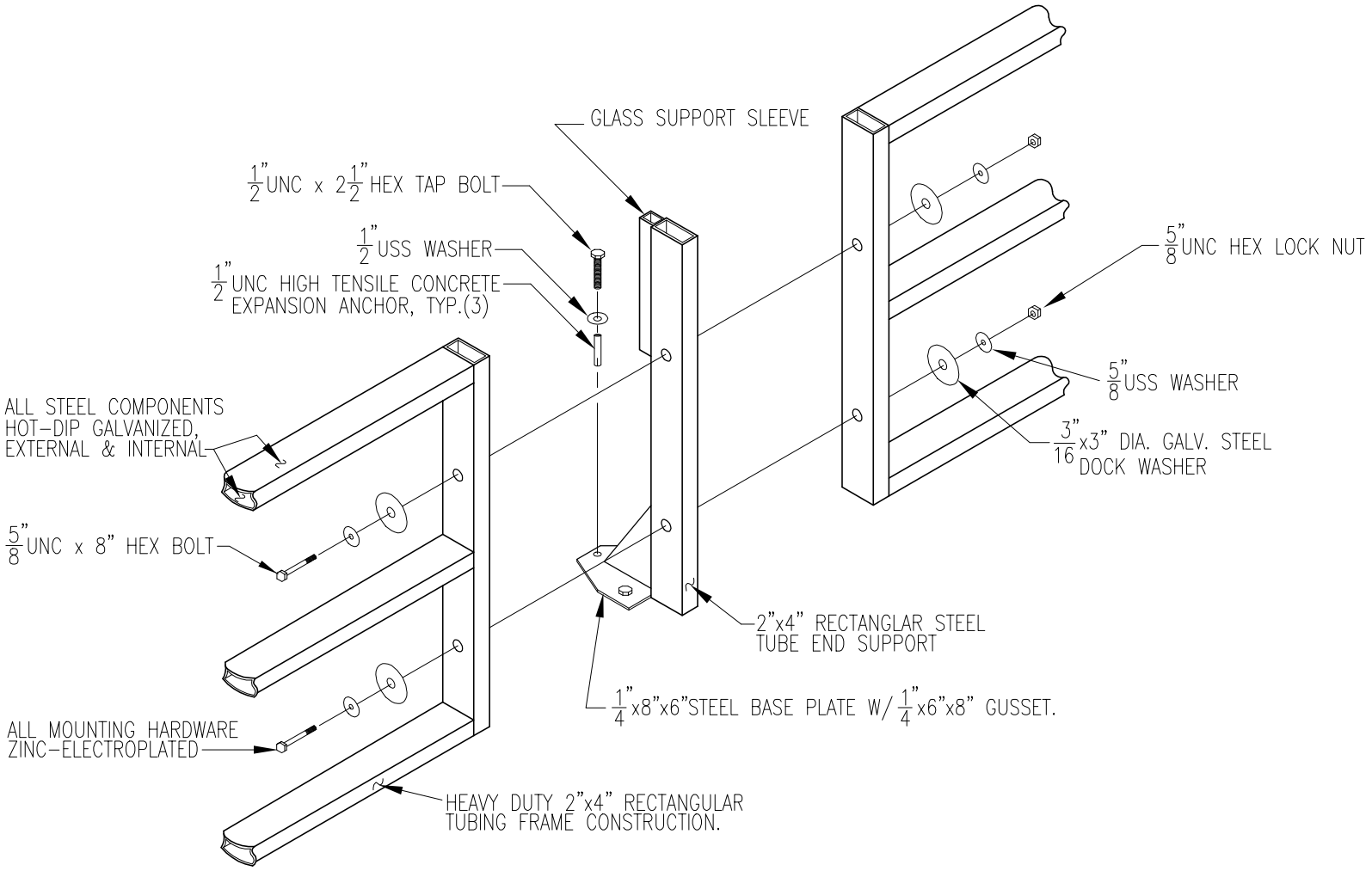
Ice Rink Dasherboards
Design Drawings

www.everything-ice.com
(888)-543-0921



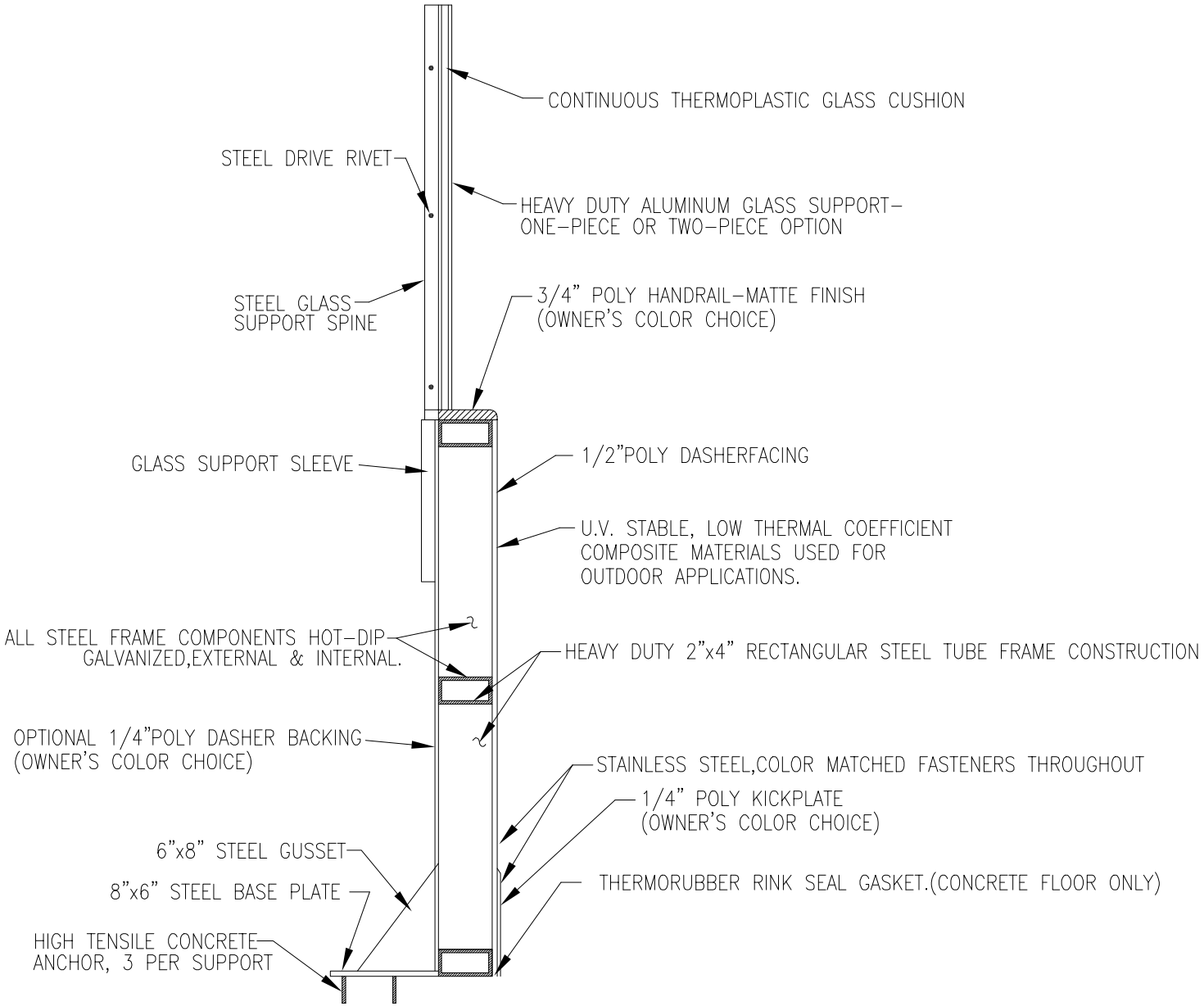
STANDARD PROFESSIONAL STEEL FRAME DASHER

STEEL TUBING SYSTEM W/POLY ONLY



STANDARD PROFESSIONAL STEEL FRAME DASHER

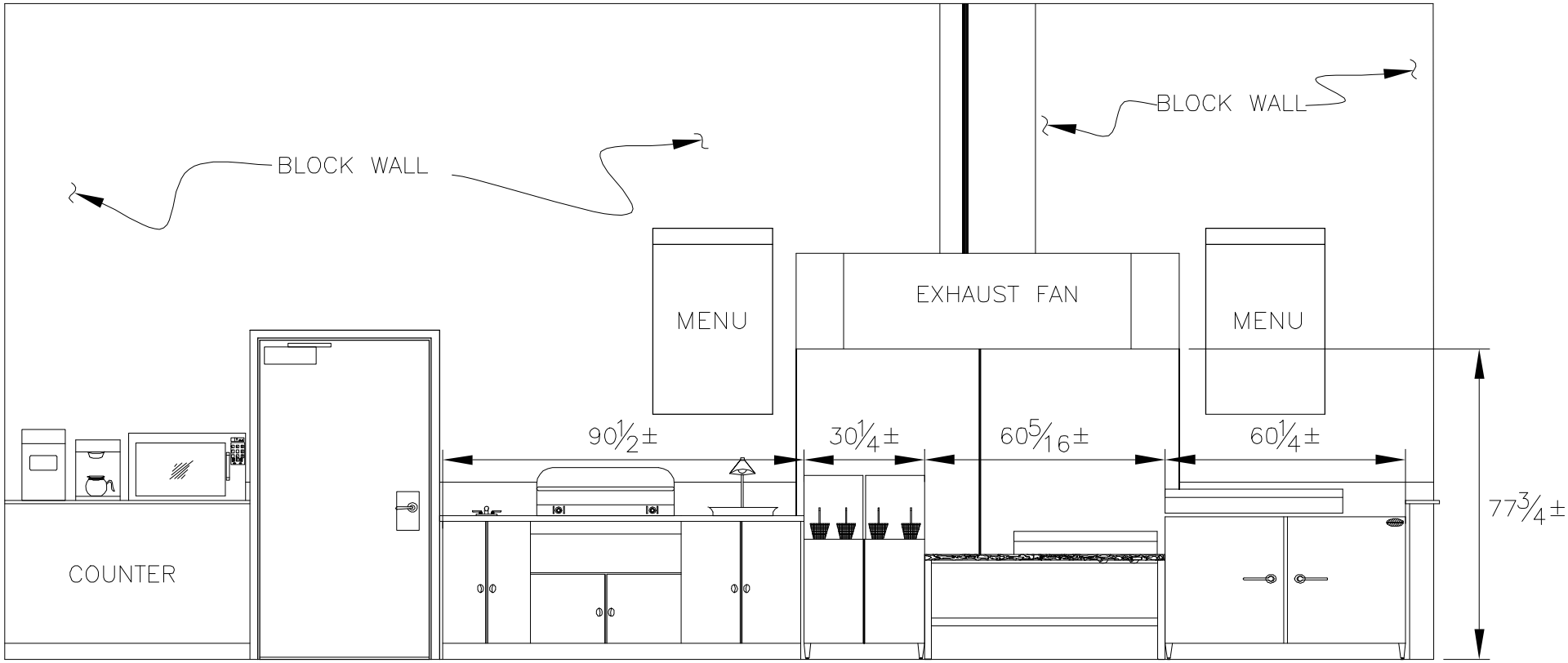
ASSEMBLY DRAWING



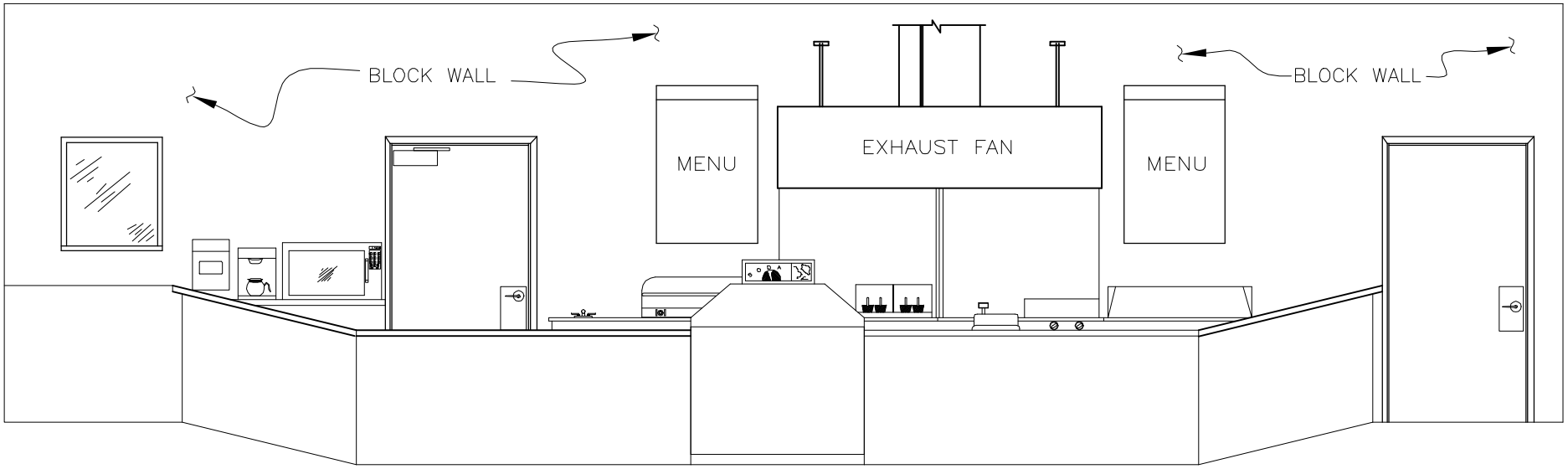
STANDARD PROFESSIONAL STEEL FRAME DASHER SECTION

STEEL TUBE SYSTEM W/POLY ONLY

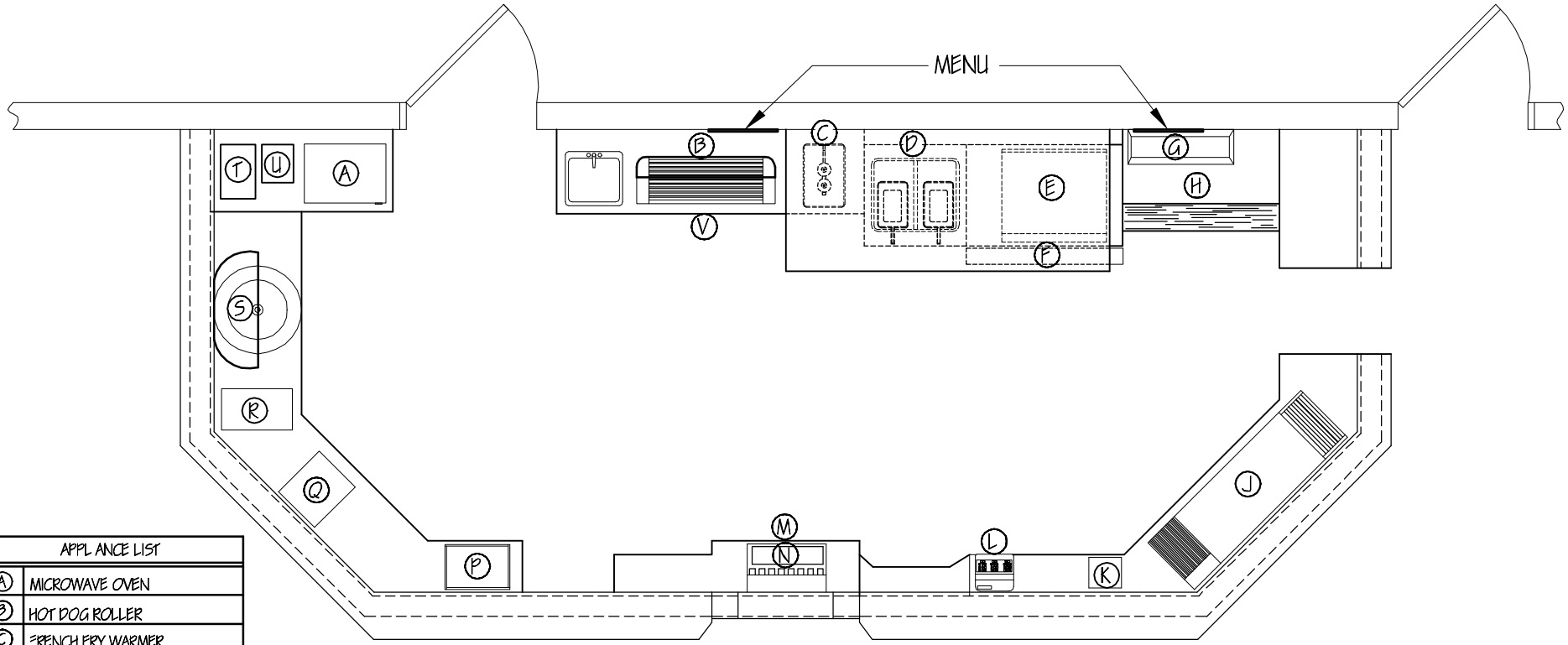
Ice Rink General Application
Design Drawings



Typical Ice Rink Concession Stand Layout



Typical Ice Rink Concession Stand Layout



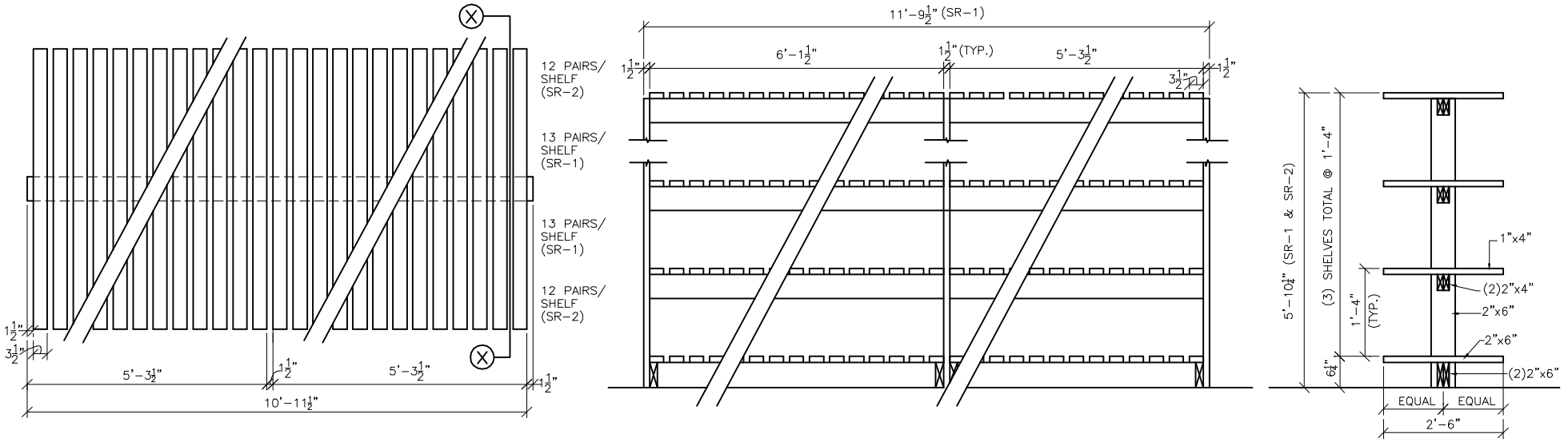
APPL ANCE LIST	
A	MICROWAVE OVEN
B	HOT DOG ROLLER
C	=RENCH FRY WARMER
D	=RENCH FRIER
E	GRILL
F	GRILL COUNTER
G	CONDIMENT CRISPER
H	REFR GERATOR
J	PIZZA/ PRETZEL OVEN
K	PIZZA WARMER
L	CASH REGISTER
M	ICE B N
N	SODA FOUNTAIN
P	POPCORN POPPER
Q	PRETZEL WARMER

R	NAC-O C-EESE WARMER
S	COTTON CANDY MACHINE
T	CAPICCINO MAKER
U	CO=EE MAKER
V	BUN WARMER

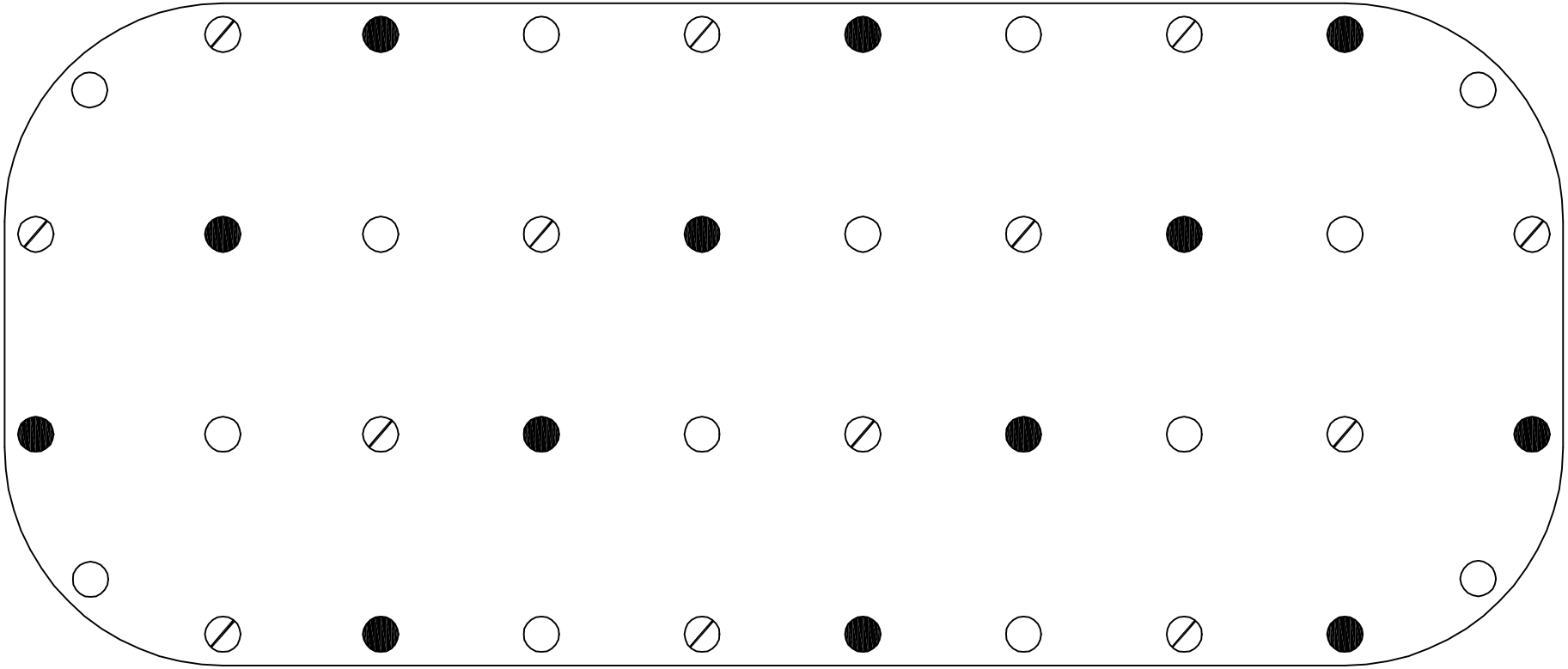
Typical Ice Rink Concession Stand Layout

TYPICAL RENTAL SKATE QUANTITY BREAKDOWN

		HOCKEY		*FIGURE*	
TOTAL DESIRED QUANTITY	**800**				
PERCENTAGES REQUESTED		**50%**		**50%**	
ACTUAL TOTALS		**400**		**400**	
SIZES:	**9c**	**N/A**	**0.0%**	**4**	**1.0%**
	10c	**0**	**0.0%**	**4**	**1.0%**
	11c	**4**	**1.0%**	**8**	**2.0%**
	12c	**4**	**1.0%**	**8**	**2.0%**
	13	**4**	**1.0%**	**16**	**4.0%**
	1	**8**	**2.0%**	**20**	**5.0%**
	2	**20**	**5.0%**	**24**	**6.0%**
	3	**24**	**6.0%**	**28**	**7.0%**
	4	**36**	**9.0%**	**32**	**8.0%**
	5	**36**	**9.0%**	**32**	**8.0%**
	6	**40**	**10.0%**	**40**	**10.0%**
	7	**40**	**10.0%**	**40**	**10.0%**
	8	**40**	**10.0%**	**40**	**10.0%**
	9	**40**	**10.0%**	**40**	**10.0%**
	10	**40**	**10.0%**	**24**	**6.0%**
	11	**32**	**8.0%**	**20**	**5.0%**
	12	**32**	**8.0%**	**20**	**5.0%**
PERCENTAGE TOTALS		**400**	**100%**	**400**	**100%**

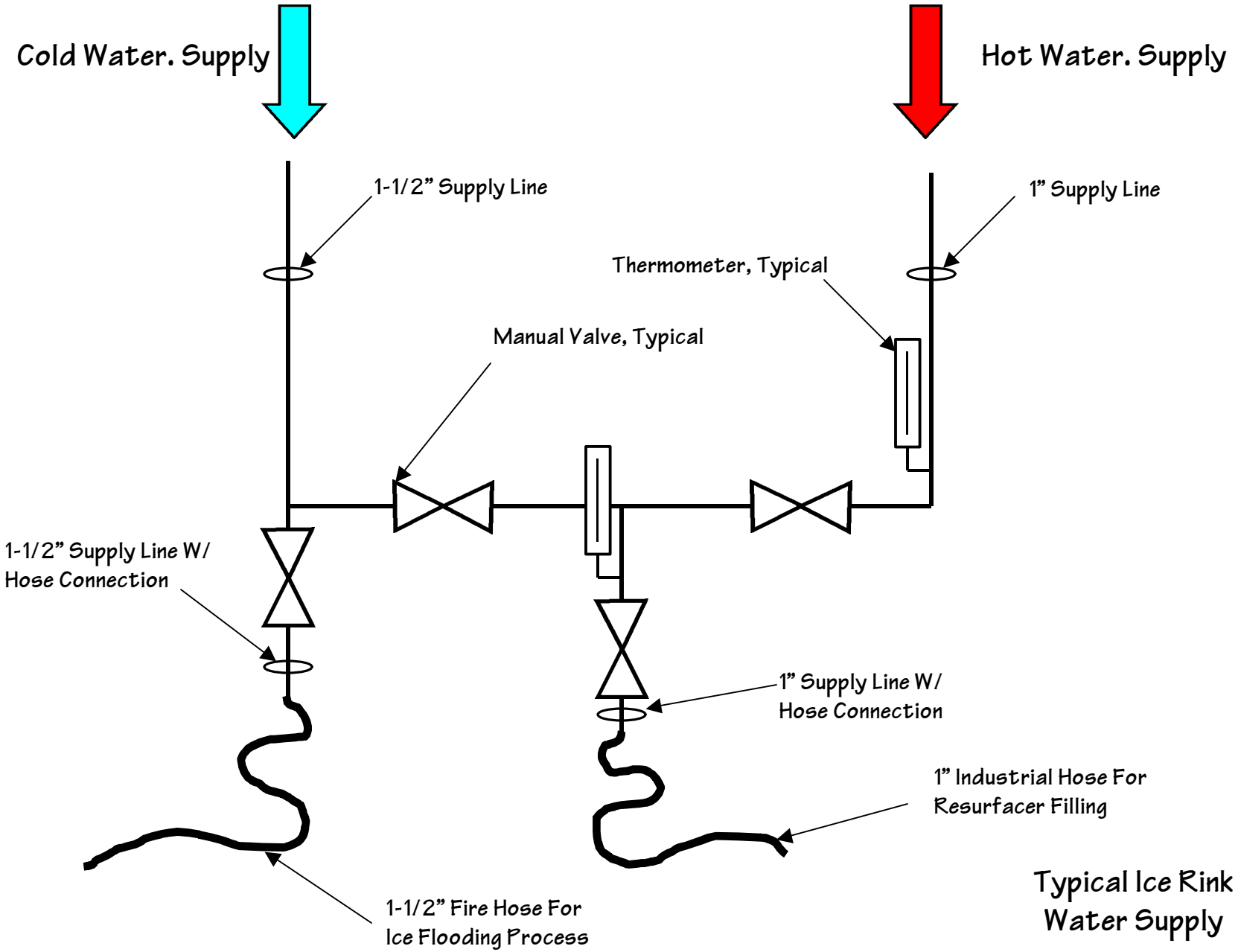


Typical Rental Skate Storage Rack Design



AS YOU CAN SEE, WE USER 40 LIGHT FIXIURES. IHE DIFFERENI SHADES REPRESENI IHE THREE BREAKERS (SWITCHES) AND THE FACT THAT THEY ARE SPREAD EVENLY AS APPOSED SWITCHING ROWS WHICH ALLOWS US TO DIM THE LIGHT LEVEL EVENLY FOR THE EVENTS THAT DO NOT REQUIRE AS MUCH LIGHT. THE FOUR CORNER FIXTURES ARE BROUGHT IN SLIGHTLY SO NO SHADOW IS CAST AND REFLECTION FROM THE GLASS IS NOT AN ISSUE.

ICE RINK LIGHTING CIRCUITING

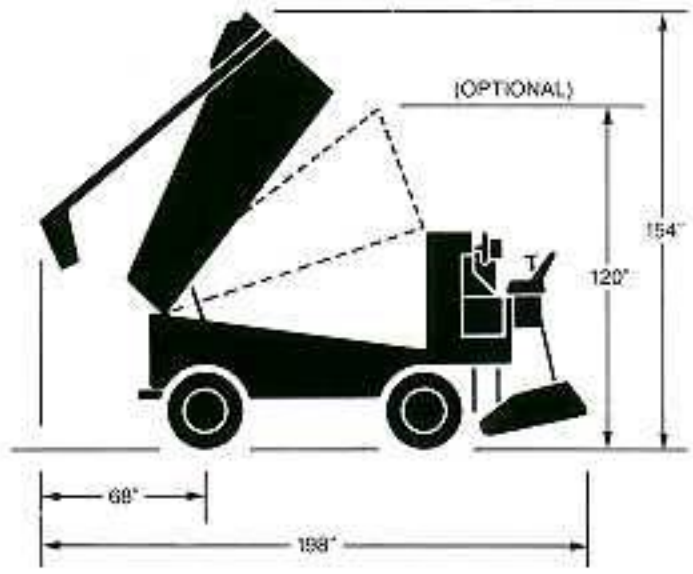


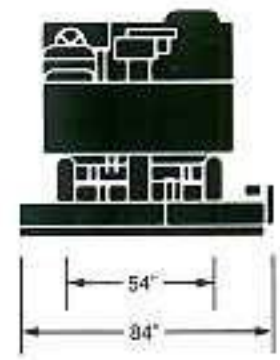
Typical Ice Rink
Water Supply

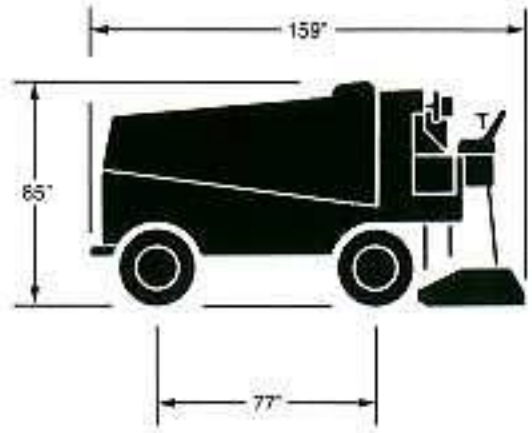
500

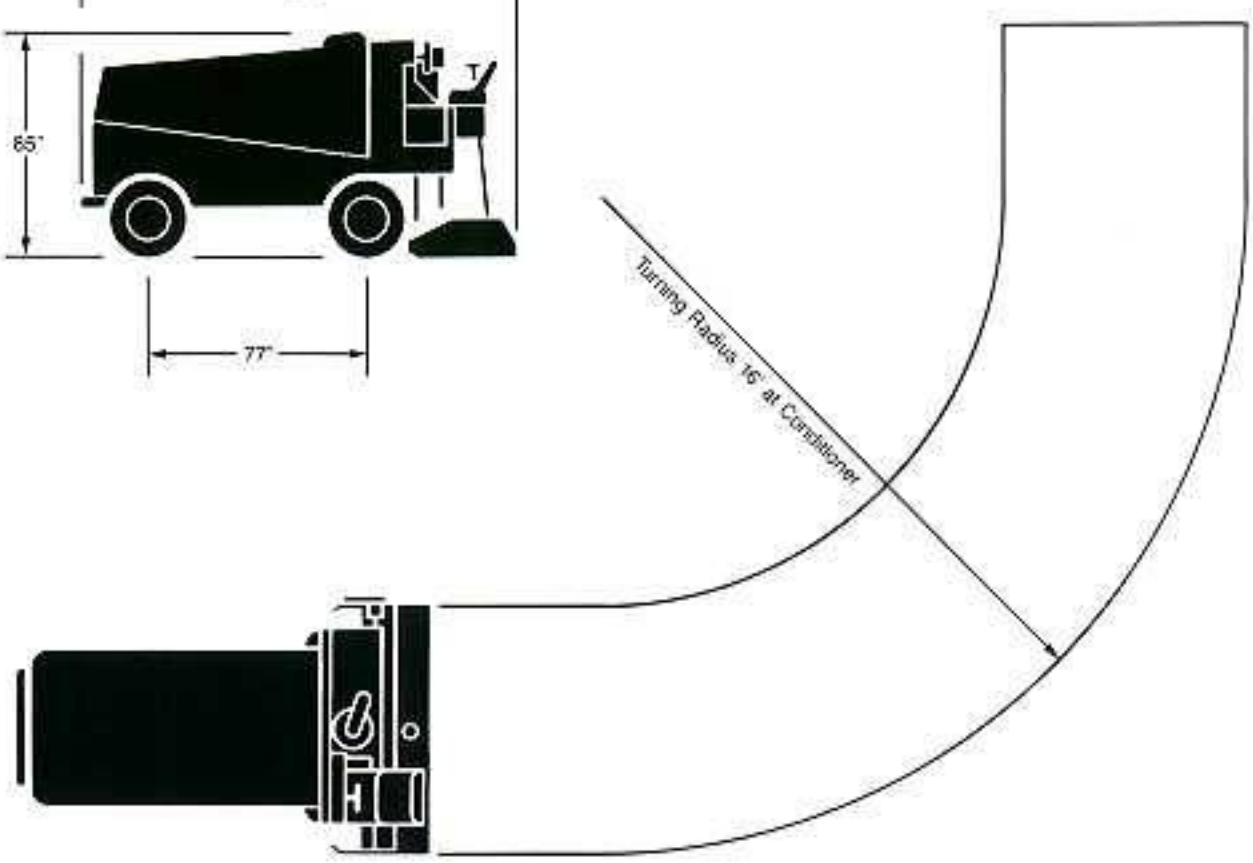
Capacities/Dimensions

Snow Tank		
Actual Volume	2.83 m³	(100 cu. ft.)
Compacted	3.54 m³	(125 cu. ft.)
Excess Water	416 L	(110 USG, 92 IMP)
Water		
Ice Making	727 L	(192 USG, 160 IMP)
Wash Water	273 L	(72 USG, 60 IMP)
Total	1000 L	(264 USG, 220 IMP)
Hydraulic Oil	95 L	(25 USG, 21 IMP)
Conveyor System		
Horizontal Auger	25.4 cm	(10 in.) dia.
Vertical Auger	25.4 cm	(10 in.) dia.
Overall Length		
Snow Tank Down	4.04 m	(159 in.)
Snow Tank Up	5.03 m	(198 in.)
Overall Height		
Snow Tank Down	2.16 m	(85 in.)
Snow Tank Up	3.91 m	(154 in.)
Overall Width	2.13 m	(84 in.)
Wheelbase	1.95 m	(77 in.)
Wheel Track	1.37 m	(54 in.)
Turning Radius		
At Conditioner	4.86 m	(16 ft.)
Shaving Blade	1.27 x 12.7 x 195.6 cm ½" x 5" x 77"	
Vehicle Weight		
Empty	2939 kg	(6480 lb.)
w/Water	3937 kg	(8680 lb.)









Store Room/Facilities

Adequate ventilation of any engine emissions must be provided in the storage room and the ice rink(s). The storage room should be heated and have adequate floor drainage. The room should be located close to an end of the ice surface(s) to minimize turning and ramps, and include outdoor access for snow dumping and machine/building maintenance. All doors should be minimum of 2.74 m (9 ft.) wide by 2.74 m (9 ft.) high. Dimensions of the room should include a minimum 1.22 m (4 ft.) clearance on all sides of the machine. A snow melting pit should be capable of processing 3.54 m^3 (125 cu. ft.) of snow per hour, per ice surface. Ice making water requirements are approximately 757 L (200 USG, 167 IMP) per hour, per ice surface. Most operators, especially in cold climates, use hot water for their ice making that is heated to 60° to 71°C (140° to 160°F).

This brochure has been prepared only as a general guide to the customer. Every effort has been made to insure that all information is correct at the time of printing. Zamboni reserves the right to change prices, colors, materials, specifications and models. Some features described, or shown, may be optional at extra cost. Some options are required in combination with other options.

ZAMBONI®

GL 9/95 • 5M
Printed in Canada

ZAMBONI®

Nothing else is even close

The Ultimate Machine

Over 50 years ago, Frank Zamboni set out to create the first ice resurfacer for his own ice rink.

Trusted & proven performers, Zamboni® ice resurfacers bring unequalled quality & superior value to the rink every day.

In the early 1940's, Frank Zamboni saw the need for a machine to quickly produce an attractive sheet of ice at his rink in Southern California. Through his experiments and persistence, the Zamboni ice resurfacer was invented. The machine he developed for his own facility was soon recognized as being indispensible for an efficient operation and has had a tremendous impact on skating and ice sports. Zamboni ice resurfacers continue as the overwhelming choice of arena operators throughout the world... Frank Zamboni's belief in ongoing product improvement and innovation lives on today in the company he founded.

The employees of Zamboni honor the spirit of Frank Zamboni by closely examining every detail on the Zamboni ice resurfacer and then putting it to the test. There is no part on this machine which has not faced the challenge: "How can we make it better?" Most companies may think that this commitment to detail is unnecessary, but we know that it is this "innovative spirit" that made Frank Zamboni what he was then... and makes Zamboni what it is now:

The maker of the world's leading ice resurfacing machine.

Nothing else is even close.




Proven Value

The highest residual value speaks to Zamboni's construction and durability. The industry's lowest cost of operation reflects Zamboni's superior design and execution.

Uncompromising and Unparalleled

Tough materials and fabrication. Strong and hardy components. Efficient and powerful engines, motors and pumps. Zamboni remains the overwhelming choice for professional, private and municipal ice rink operators throughout the world.

Zamboni's powerful conveyor system provides the industry's highest snow compaction.

The Evolution of a Dream

Zamboni ice resurfacers have always offered unparalleled shaving and snow conveyor performance.

Our Attention to Detail is Legendary

Nothing about the Zamboni ice resurfacer is taken for granted.
No detail is overlooked, which is why Zamboni remains the overwhelming industry leader.

Proven Reliability

Operating an ice resurfacer in a busy single or double rink is a tough job in a harsh environment. Hourly cold starting cycles often extend for 18 hours and can severely test any equipment. Zamboni ice resurfacers meet this challenge every day. Our network of dealers around the globe stands ready to provide timely, excellent support.

"The principal product you have to sell is the ice itself."
- Frank Zamboni

ZAMBONI®

Proven Performance

Knowledgeable arena operators know that a quality sheet of ice is an arena's primary selling feature. Successful operators choose Zamboni ice resurfacing machines because they know Zamboni is the only real choice for unparalleled shaving and snow conveyor performance. Every feature on the 500 Series is deliberately designed to make ice resurfacing easier and to ensure that the result is always *a perfect sheet of ice*.

Frank Zamboni wouldn't have wanted it any other way.

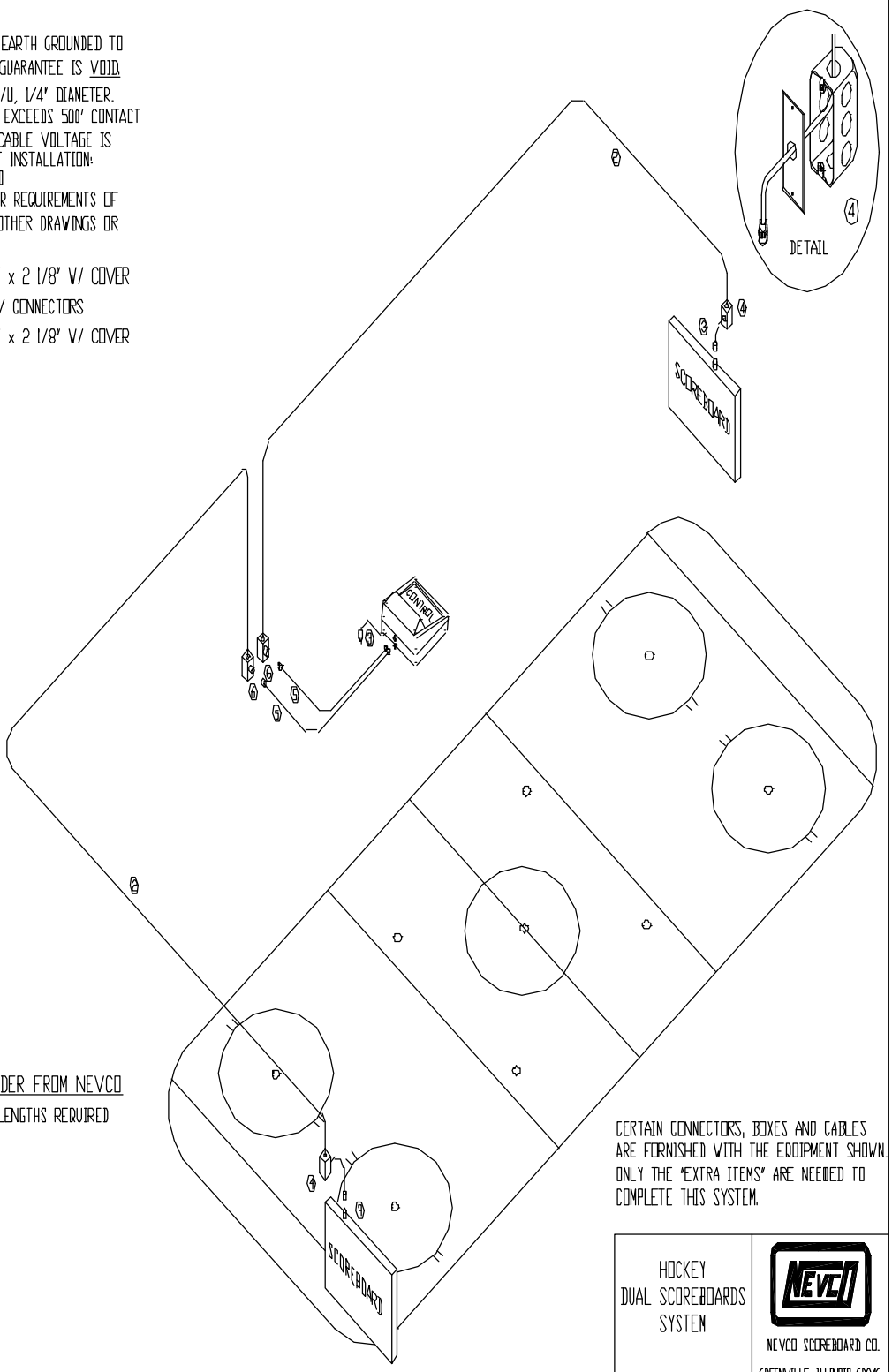
ZAMBONI®

Nothing else is even close

GL 05

NOTES

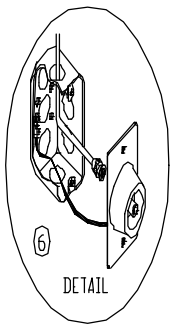
1. WALL BOXES MUST BE EARTH GROUNDED TO THE SAME GROUND OR GUARANTEE IS VOID.
2. CONTROL CABLE RG-58/U, 1/4" DIAMETER. IF ANY CABLE LENGTH EXCEEDS 500' CONTACT THE NEVCO FACTORY. CABLE VOLTAGE IS 5 VOLTS. FOR CONDUIT INSTALLATION: 1/2" CONDUIT REQUIRED
3. FOR ELECTRICAL POWER REQUIREMENTS OF EACH ITEM REFER TO OTHER DRAWINGS OR SPECIFICATIONS.
4. WALL BOX 4" x 2 1/8" x 2 1/8" W/ COVER
5. CONTROL CABLE 25' W/ CONNECTORS
6. WALL BOX 4" x 2 1/8" x 2 1/8" W/ COVER



EXTRA ITEMS TO ORDER FROM NEVCO

2. 009-0084 (2 EA.) LENGTHS REQUIRED

CERTAIN CONNECTORS, BOXES AND CABLES ARE FURNISHED WITH THE EQUIPMENT SHOWN. ONLY THE "EXTRA ITEMS" ARE NEEDED TO COMPLETE THIS SYSTEM.



HOCKEY DUAL SCOREBOARDS SYSTEM	NEVCO SCOREBOARD CO. GREENVILLE, ILLINOIS 62246
	DRAWING NO. C5931
DRAWN HW DATE 7/22/92	SHEET 1 OF 1

NOTES

1. WALL BOXES MUST BE EARTH GROUNDED TO THE SAME GROUND OR GUARANTEE IS VOID.
2. CONTROL CABLE RG-58/U, 1/4" DIAMETER. IF ANY CABLE LENGTH EXCEEDS 500' CONTACT THE NEVCO FACTORY. CABLE VOLTAGE IS 5 VOLTS. FOR CONDUIT INSTALLATION: 1/2" CONDUIT REQUIRED
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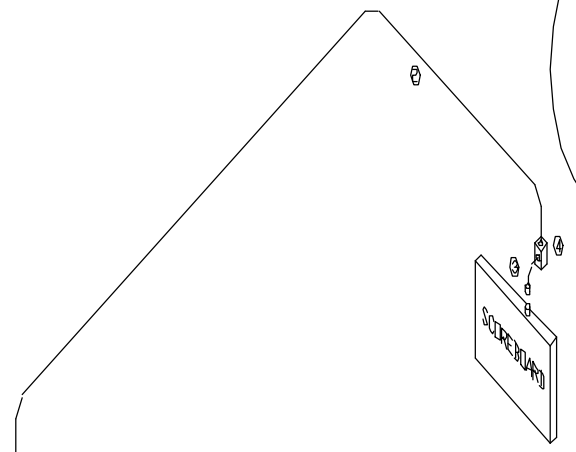

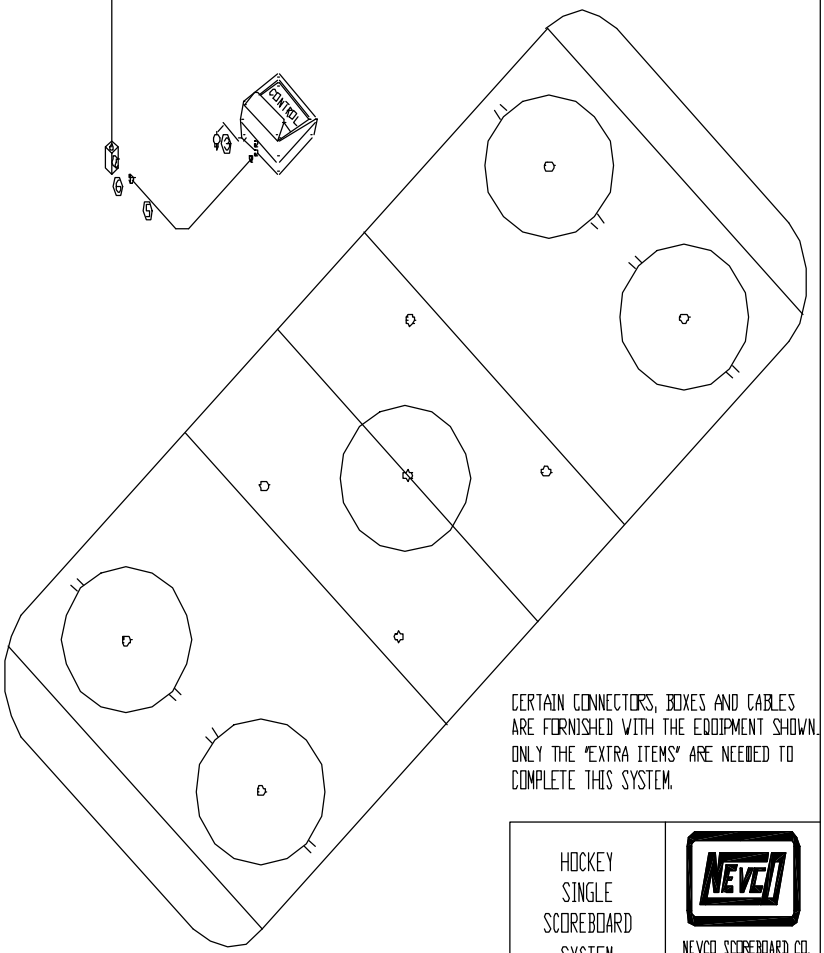

EXTRA ITEMS TO ORDER FROM NEVCO

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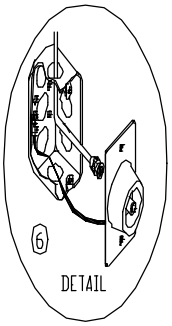
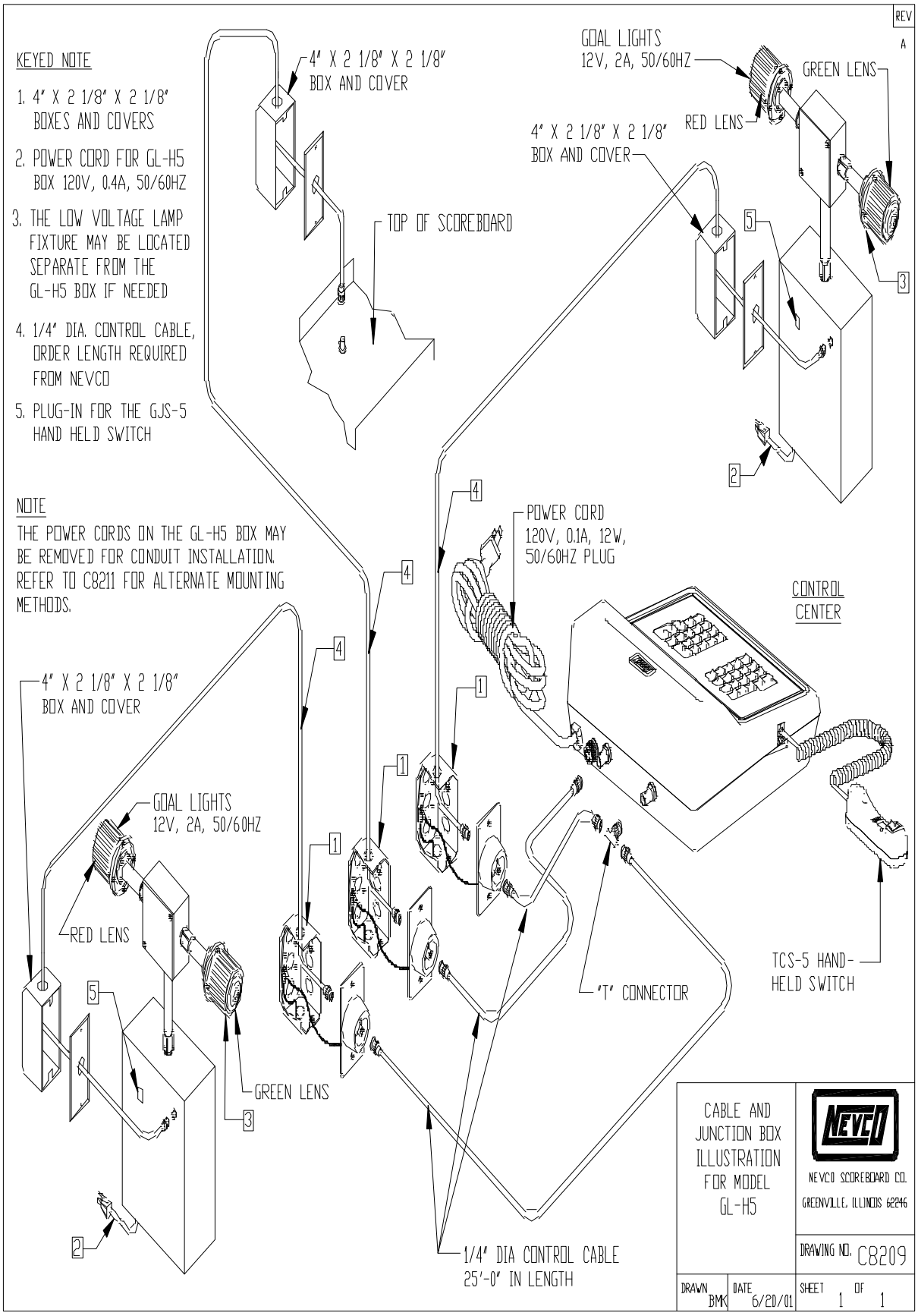
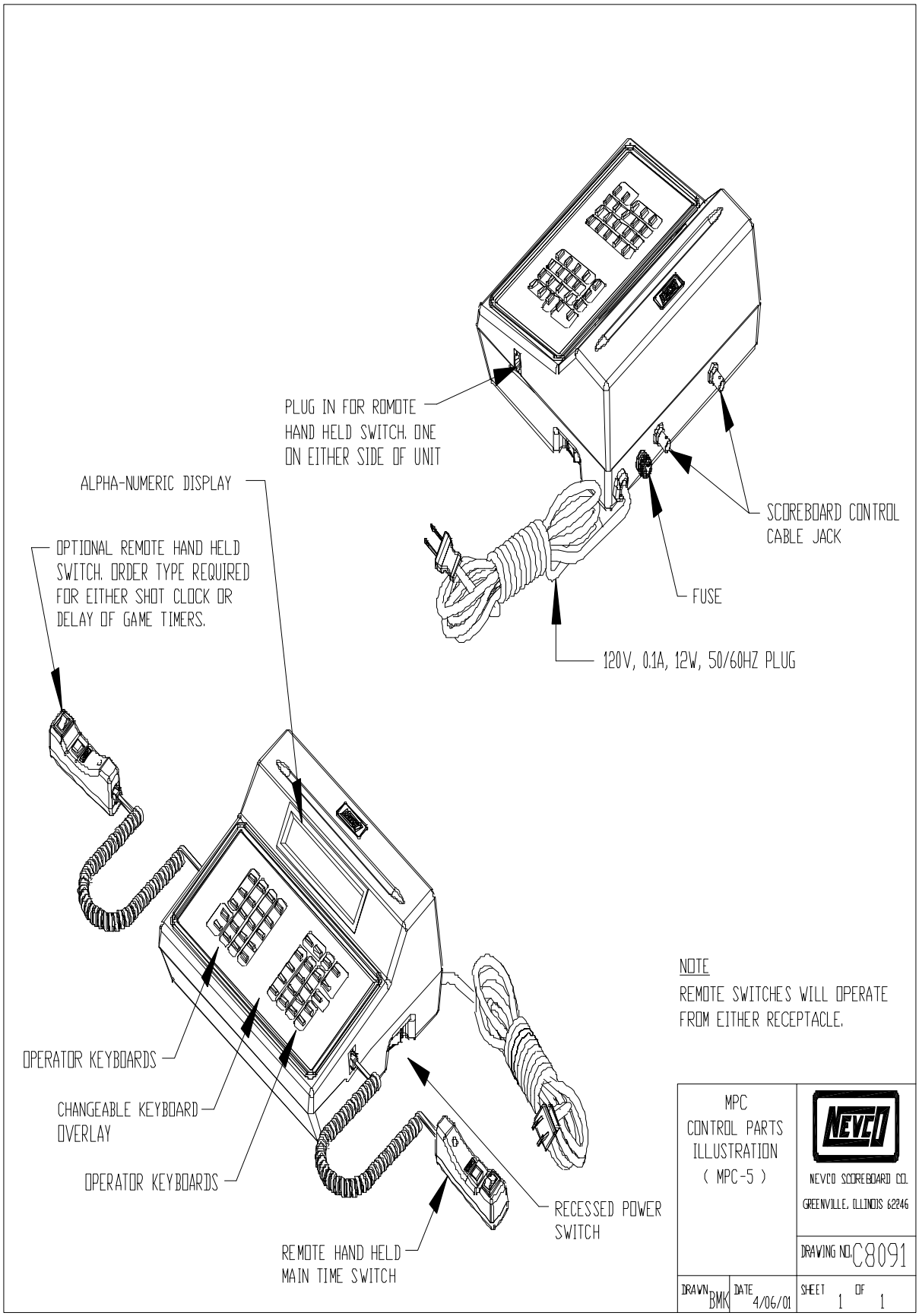
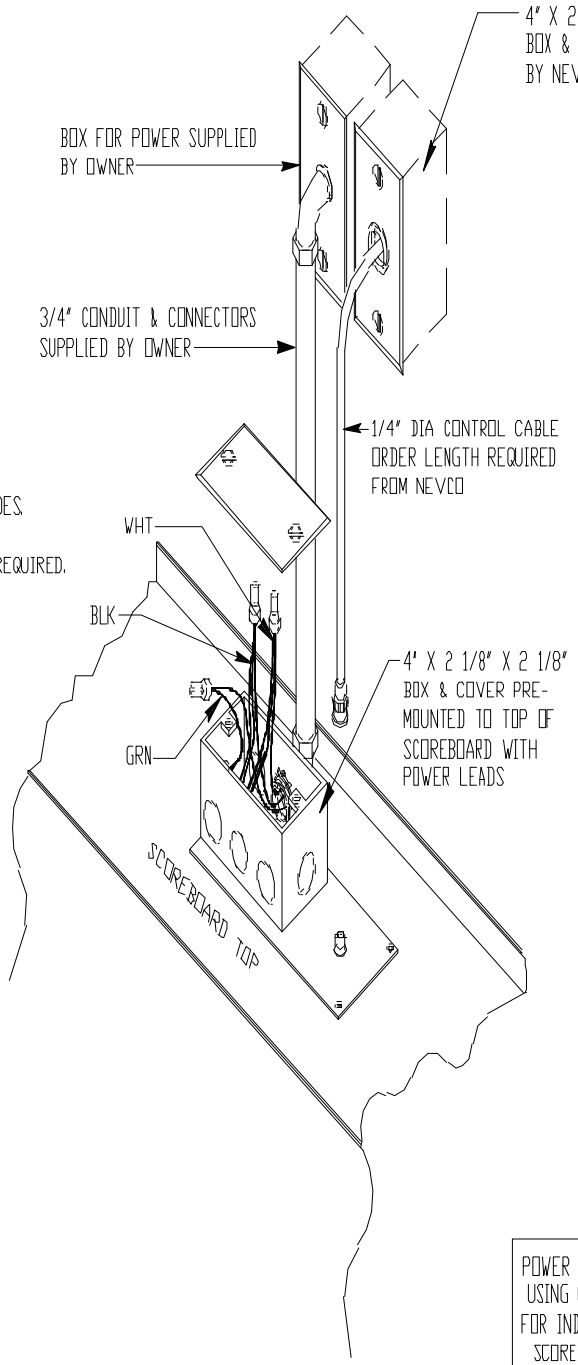


HOCKEY SINGLE SCOREBOARD SYSTEM	NEVCO SCOREBOARD CO. GREENVILLE, ILLINOIS 62246
	DRAWING NO. C5930
DRAWN HW DATE 7/22/92	SHEET 1 OF 1


REV
A
KEYED NOTE
1. 4" X 2 1/8" X 2 1/8" BOXES AND COVERS
2. POWER CORD FOR GL-H5 BOX 120V, 0.4A, 50/60HZ
3. THE LOW VOLTAGE LAMP FIXTURE MAY BE LOCATED SEPARATE FROM THE GL-H5 BOX IF NEEDED
4. 1/4" DIA. CONTROL CABLE, ORDER LENGTH REQUIRED FROM NEVCO
5. PLUG-IN FOR THE GJS-5 HAND HELD SWITCH
4" X 2 1/8" X 2 1/8" BOX AND COVER
TOP OF SCOREBOARD
GOAL LIGHTS 12V, 2A, 50/60HZ
GREEN LENS
RED LENS
4" X 2 1/8" X 2 1/8" BOX AND COVER
NOTE
THE POWER CORDS ON THE GL-H5 BOX MAY BE REMOVED FOR CONDUIT INSTALLATION. REFER TO C8211 FOR ALTERNATE MOUNTING METHODS.
POWER CORD 120V, 0.1A, 12W, 50/60HZ PLUG
CONTROL CENTER
4" X 2 1/8" X 2 1/8" BOX AND COVER
GOAL LIGHTS 12V, 2A, 50/60HZ
RED LENS
GREEN LENS
"T" CONNECTOR
TCS-5 HAND-HELD SWITCH
1/4" DIA CONTROL CABLE 25'-0" IN LENGTH
CABLE AND JUNCTION BOX ILLUSTRATION FOR MODEL GL-H5
NEVCO SCOREBOARD CO.
GREENVILLE, ILLINOIS 62246
DRAWING NO. C8209
DRAWN BMK
DATE 6/20/01
SHEET 1 OF 1


PLUG IN FOR REMOTE HAND HELD SWITCH. ONE ON EITHER SIDE OF UNIT
ALPHA-NUMERIC DISPLAY
OPTIONAL REMOTE HAND HELD SWITCH. ORDER TYPE REQUIRED FOR EITHER SHOT CLOCK OR DELAY OF GAME TIMERS.
SCOREBOARD CONTROL CABLE JACK
FUSE
120V, 0.1A, 12W, 50/60HZ PLUG
OPERATOR KEYBOARDS
CHANGEABLE KEYBOARD OVERLAY
OPERATOR KEYBOARDS
RECESSED POWER SWITCH
REMOTE HAND HELD MAIN TIME SWITCH
NOTE
REMOTE SWITCHES WILL OPERATE FROM EITHER RECEPTACLE.
MPC
CONTROL PARTS
ILLUSTRATION
(MPC-5)
NEVCO SCOREBOARD CO.
GREENVILLE, ILLINOIS 62246
DRAWING NO. C8091
DRAWN BMK
DATE 4/06/01
SHEET 1 OF 1

REV
A



120V, 50/60HZ

2 BLK - HOT
2 WHT - NEUTRAL
1 GRN - GROUND

CONNECT POWER PER NATIONAL ELECTRICAL CODES AND LOCAL CODES.

GFI CIRCUIT PROTECTION MAY BE REQUIRED.

FOR CURRENT REQUIRED SEE SCOREBOARD SPECIFICATIONS FOR THE PARTICULAR MODEL

POWER HOOK UP USING CONDUIT FOR INDOOR LED SCOREBOARDS W/ TWO MODULES SINGLE PHASE	NEVCO SCOREBOARD CO. GREENVILLE, ILLINOIS 62246
	DRAWING NO. C7112
DRAWN PEF DATE 9-5-97	SHEET 1 OF 1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