

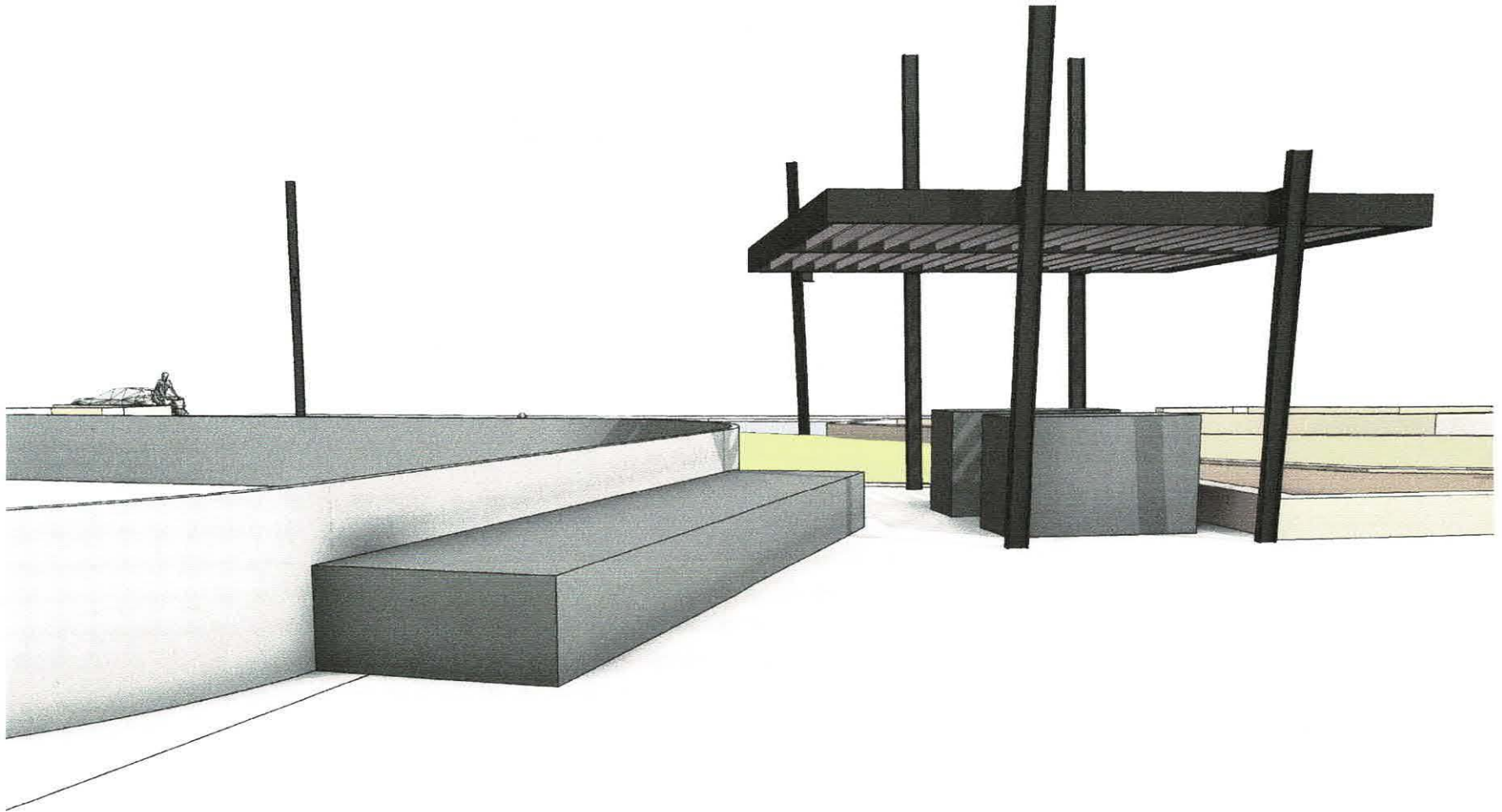


# DICKINSON TOWN SQUARE

Chillers and Manifold Box

05/18/22 | JLG 17245 | © 2021 JLG ARCHITECTS





# DICKINSON TOWN SQUARE

Chillers and Manifold Box

05/18/22 | JLG-17245 | © 2021 JLG ARCHITECTS



Iron Sleek, Inc.  
2101 Executive Dr.  
Addison, IL 60101  
P: 877.825.2334



[www.ironstleek.com](http://www.ironstleek.com)

# Quotation

June 8, 2023

4 Pages

Contact: Kristi Schwartz  
Board President  
Downtown Improvement District  
Dickinson, ND 58601  
701-290-4148  
Email: [klschwa@hotmail.com](mailto:klschwa@hotmail.com)

## RE: Custom Iron Sleek Portable Rink Kit 48' X 72' Estimated Square Feet 3456

Iron Sleek is pleased to offer the following contract for a 48' wide x 72' long refrigerated portable ice-skating rink for your community in Dickson North Dakota.

Iron Sleek proposes to provide a fully operational refrigerated portable ice rink floor and refrigeration system to create a 48' x 72' outdoor ice-skating rink suitable for up to 4-5 months of ice under typical weather conditions of 8-10°C (45-50°F) or less.

The rink configuration will include a new Roll-Out-Rink™ portable ice floor piping system (2) new RinkMate™ Kit 10-ton air cooled packaged refrigeration units. This configuration is suitable for seasonal takedown and storage or expansion in future.

Our contract includes the following Main Components:

### 1. Main Components:

#### A. Ice Rink Floor System - Iron Sleek Ice will supply only:

- One (1) 48' x 72' Roll-Out-Rink™ portable ice rink floor piping system consisting of 12 rolls of 1/2" polyethylene refrigeration tubes spaced at 1.5" c/c, 4' wide x 72' long.
- Plastic spacer strips will be used to keep the pipes straight and level for maximum efficiency.

Ph. 877.825.2334  
F. 877.825.2336  
Prepared by: Sean Dieden

[www.ironstleek.com](http://www.ironstleek.com)

Backyard Rinks by  
Iron Sleek, Inc. © 2021

-Poly-Steel Hybrid- 3 Sides Tall boards mounted on Concrete (72 feet of 20" Tall Boards) ....	\$ 12,299.99
-Custom Header Box for Supply and Return Pipes .....	\$ 2,499.99
-Estimated Straight Truck 26' .....	\$ 2,799.99
-Estimated Installation .....	\$ 7,499.99*
-Estimated Travel for 1-2 days travel .....	\$ 2,000.00**
<b>Total.....</b>	<b>\$ 118,805.87</b>

**Optional Board Options**

-Total with Poly-Steel 42" Tall All-Around w/ two access points mounted on Concrete ..... \$ 120,755.87

\* Pricing is subject to change upon completion of a site review by Iron Sleek engineering staff.

\*\* Final Travel cost to be determined after installation dates have been established.

Please feel free to contact us if you have any questions at 847 902-3573.

Sincerely,

Sean Dieden  
Iron Sleek, Inc.

**Exclusions (Items which may be required but not supplied by Iron Sleek, Inc.)**

1. Building permit, electrical permit, any required licenses, or fees
2. Sales and use tax
3. Off-loading of rink materials
4. Equipment required to off-load material (Forklift or Bobcat w/ extended forks is recommended)
5. Any traffic control, flagmen or permits for unloading trucks if required
6. Electrical service and all wiring and connections to refrigeration unit, pump starter and/or lights
7. Trenching and backfilling for power lines
8. Excavation and leveling of rink subbase to Iron Sleek specifications (TBD)
9. Level Pad for the chiller
10. Fencing or walls to secure refrigeration equipment if required
11. Water supply for ice making
12. Hot water heating for ice resurfacing

- Each piping roll will be finished at one end with 1" copper supply and return subheaders and 1" copper reversing subheaders at the other end.
- These supply and return subheaders will then connect to 3" SCH 10 steel supply and return headers via two (2) flexible hoses per 4' Roll-Out-Rink™ section for simple setup, takedown, and glycol charging.
- Cam Locks will be provided to permit fast and simple installation.
- This system is suitable for rolling up and storing for seasonal take down or relocating as required.
- Rink floor piping will be placed on level grade (**leveling by others**) with the waterproof liner supplied by Iron Sleek.
- The perimeter will be finished with a containment frame or dasher boards with support brackets all by Iron Sleek. (*Optional, if purchased with kit*)

**B. Refrigeration System:** Iron Sleek will supply only:

- Two (2) Rinkmate™ refrigeration chillers capable of approximately 20 tons of refrigeration using R404a at design conditions.
- This refrigeration capacity is suitable for up to 4-5 months of outdoor ice operation up to 8-10°C (45-50° F).
- Refrigeration units will be controlled by automatic ice temperature control systems which will start and stop the chillers to maintain the desired ice temperature (ex. 23° F)
- Unit shall be connected to ice rink piping using 2" flexible hoses.
- **Refrigeration units will be placed on level minimum 10' x 12' 4" concrete pad (By Others).**
- **Units require 3' of clearance on all sides for service access and air flow.**
- Refrigeration systems will include one (1) internal glycol circulation pump per unit, external expansion tank, all required valves, fittings, gauges and connections and complete charge of ethylene glycol solution.
- **Each RinkMate™(10-Ton) Kit refrigeration system requires one (1) 100-amp breaker, 230 vac, 1 ph, 60 hz.**
- **Each Chiller Unit Dimensions: 80" x 36" x 48"**

**Please Note: Electrical service and connections to chiller and pump are by others.**

**C. Main Piping:** Iron Sleek will supply only:

- **3" flexible main hoses connecting the refrigeration equipment to the ice rink headers up to 20' away with standard rink design.**
- **The steel headers will sit outside of the rink area at one end only on a level area on grade with the rink that is approximately 3' width.**
- **Main hose connections at the headers and refrigeration equipment will also use Cam Lock fittings for fast and simple installation.**

**D. Ice Making and Maintenance:** Iron Sleek will supply only:

- Complete Installation, Operations and Maintenance Manual and first time install hook up
- One (1) manual ice resurfer, 4' wide complete with flow control valve, towel bar and towel to maintain and flood your ice.
- This resurfer connects to any common garden hose and can easily be passed around the ice to maintain a high-quality ice surface.

**Supply of Refrigeration Equipment (Includes Glycol) ..... \$ 91,705.91**

13. Any retaining wall or landscaping if required
14. Any special work required for drainage design may be extra
15. Any specific work required for access to site
16. Full depth ice making
17. Seasonal takedown, set up and/or storage of equipment
18. Regular ice maintenance; including flooding, resurfacing and removal of snow, ice, and debris.

**Warranty:**

All equipment included in this proposal is guaranteed for one (1) Winter Season of completion of the delivery and payment of contract in full. Any item that is defective, under normal working conditions, during this time will be repaired or replaced, at our option.

**Terms & Conditions:**

- All pricing in USD Funds
- 12-16 weeks lead time required from receipt of approved customer drawings
- Applicable taxes are extra
- Customer is responsible for sales and use tax remitted to the state
- Pricing is valid for 30 days from above noted date
- Local permits or licensing are not included and are the responsibility of the buyer

**Payment Schedule:**

- 60% Deposit with signed contract
- 40% 1 week prior to shipping of rink materials

**Poly-Steel Rinks**



*20" Tall Boards mounted with Iron Sleek Brackets*



*Refrigerated Rink with 42" Tall Boards*



*Poly-Steel PLUS Rink*



*Example of Poly-Steel Hockey Hybrid Rink (42" Tall boards on ends & 20" Tall along Length)*





*3 Sides Tall Mounted on Grass*



*Kenosha Wisconsin Iron Slek Poly-Steel Refrigerated Rink 2017-18 Season 42" Tall Boards with Hard court Brackets*

32

5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1
5	5	4	4	3	3	2	2	2	1	1

72'

Foam Boards

48'

288 Total 1" sheets  
 @ \$11.79 = \$3615



JLG 17245 Dickinson Town Square

RE: PR 004 - Ice Infrastructure Power

Issued: June 22, 2022

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## Proposal Request 004

Please submit an itemized proposal for changes in the Contract Sum and Contract Time for proposed modifications to the Contract Documents described herein. Within fourteen (7) days, the Contractor must submit this proposal or notify the Architect, in writing, of the date on which proposal submission is anticipated.

*THIS IS NOT A CHANGE ORDER, A CONSTRUCTION DIRECTIVE, OR A DIRECTION TO PROCEED WITH THE WORK DESCRIBED IN THE PROPOSED MODIFICATIONS. ONCE THE PROPOSAL REQUEST IS RECEIVED, REVIEWED BY ALL PARTIES, AND ACCEPTED BY THE OWNER, A FULLY EXECUTED CHANGE ORDER WILL BE ISSUED TO FORMALLY APPROVE THE WORK TO COMMENCE.*

### DESCRIPTION:

1. Power infrastructure for supporting Owner provided Ice Rink Chillers.
2. See attached Engineers Proposal Request: EPR #E-4, for electrical description of work.
3. See revised Sheet A502, new details 3C and 6C, for location details of power infrastructure.

### ATTACHMENTS:

1. EPR #E-4, Revised Sheet A502

Requested by:

Owner

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**ENGINEER'S PROPOSAL REQUEST**

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**PROJECT:** Dickinson Town Square

**EPR #:** E-4

**PROJECT NO.:** 20583

**ARCHITECT:** JLG Architects

**DATE:** 6/22/2022

**CONTRACTOR:** Denny's Electric

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Please submit an itemized proposal for changes in the Contract Sum and Contract Time for the proposed modifications to the Contract Documents as described herein. If your proposal is found to be satisfactory and in proper order, it will be incorporated into the Contract by a Change Order. Obtain "Notice-to-Proceed" directly from the Architect before proceeding with this work.

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**Description:**

1. Sheet E101, Electrical Site Plan
  - a. Detail 1/E101: Provide power connections in planting bed north of Pergola 2 as follows for portable ice chillers:
    - i. Provide two WP 100/3 fused disconnect switches. Provide (4) #2 AWG conductors (3 hot, 1 neutral) and one #8 AWG equipment grounding conductor from each disconnect to spare breakers in MDP (2 thus). Each chiller disconnect to be served from separate breaker.
    - ii. Provide neutral bar in each disconnect to terminate neutral conductor. Neutral conductor to be for future use.
    - iii. Disconnects to be mounted such that they are a minimum 24" AFG, and provide 3' of clearance in front of disconnects from front face of planter. Provide two treated 4x4 posts for each disconnect for mounting. Provide galvanized or painted uni-strut across posts for mounting of disconnects.
    - iv. Verify fuse sizes required for chiller equipment and provide fuses per manufacturer recommendations.
2. See attached Sheet A502 for detailed installation requirements and locations.

**Attachments:** Sheet A502

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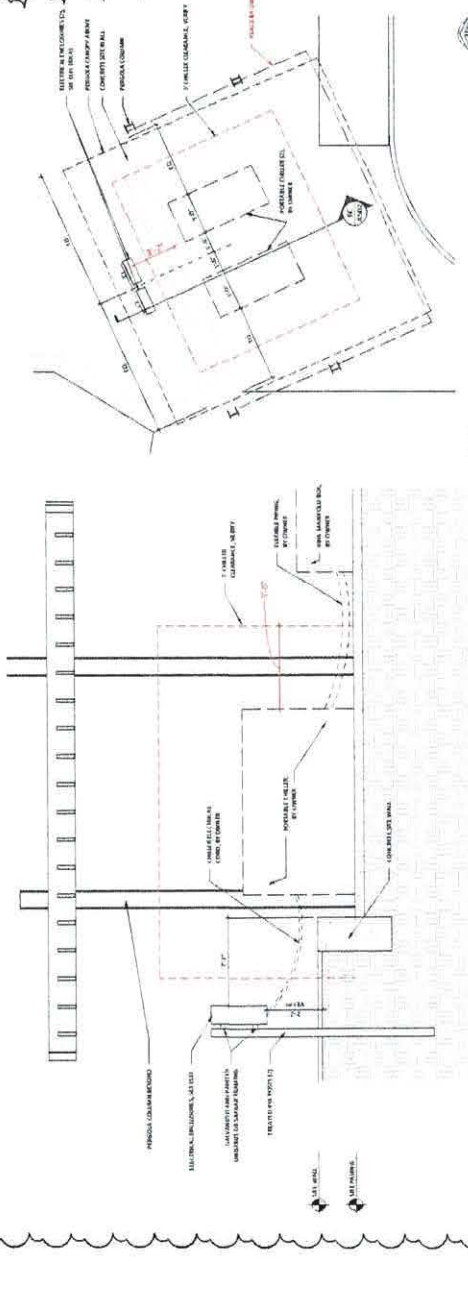
**By:** Jeremy J. Butman, P.E.

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**cc:** File

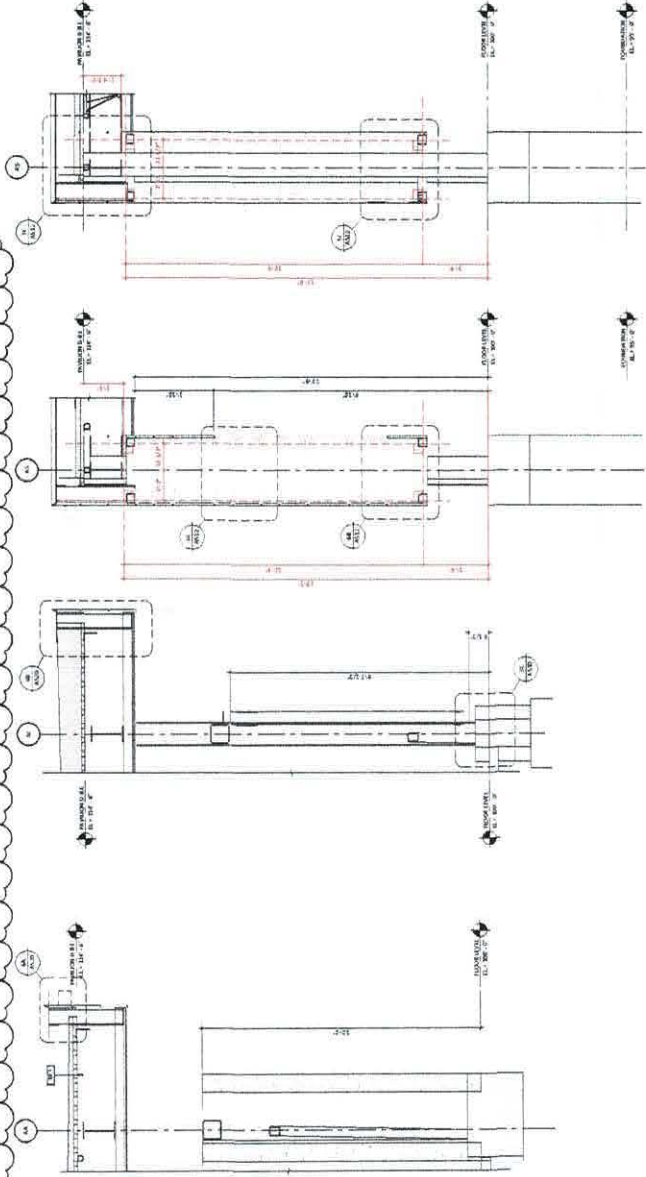
**SHEET MATERIAL ID LIST**

1 2 3 4 5 6



**ICE CHILLER ENLARGED PLAN**  
 SCALE: 1/4" = 1'-0"

**ICE CHILLER SECTION**  
 SCALE: 1/4" = 1'-0"



**1A PAVILION WALL SECTION** SCALE: 1/4" = 1'-0"  
**2A PAVILION WALL SECTION** SCALE: 1/4" = 1'-0"  
**3A PAVILION WALL SECTION** SCALE: 1/4" = 1'-0"  
**4A PAVILION WALL SECTION** SCALE: 1/4" = 1'-0"  
**5A PAVILION WALL SECTION** SCALE: 1/4" = 1'-0"

**MARKET SETUP**

THE INFORMATION ON THIS SHEET IS FOR INFORMATION ONLY. THE CITY OF DICKINSON IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION ON THIS SHEET. THE CITY OF DICKINSON IS NOT RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION ON THIS SHEET.

**WINTER SKATE RINK**

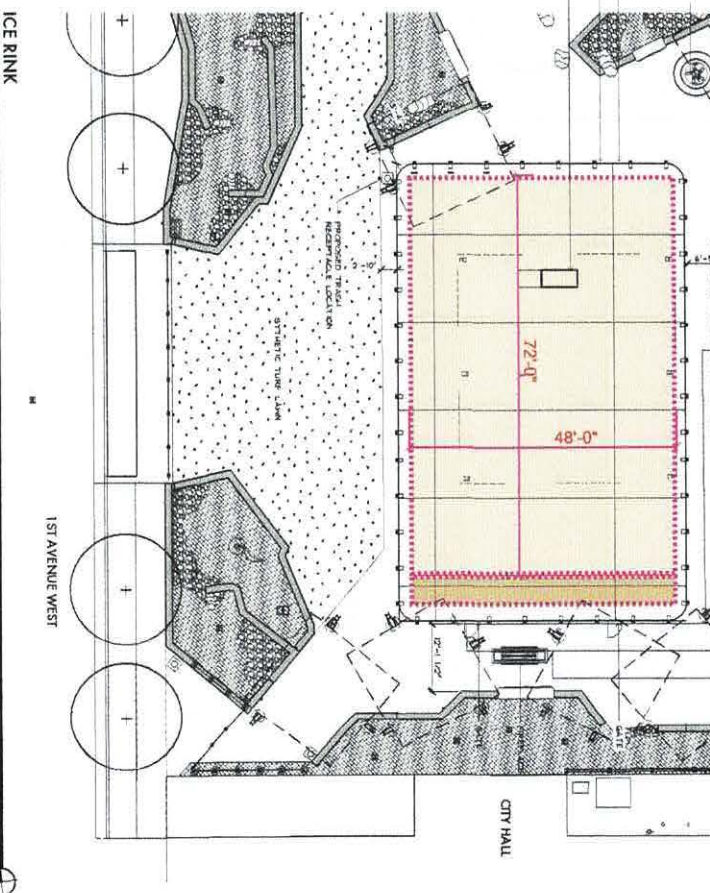
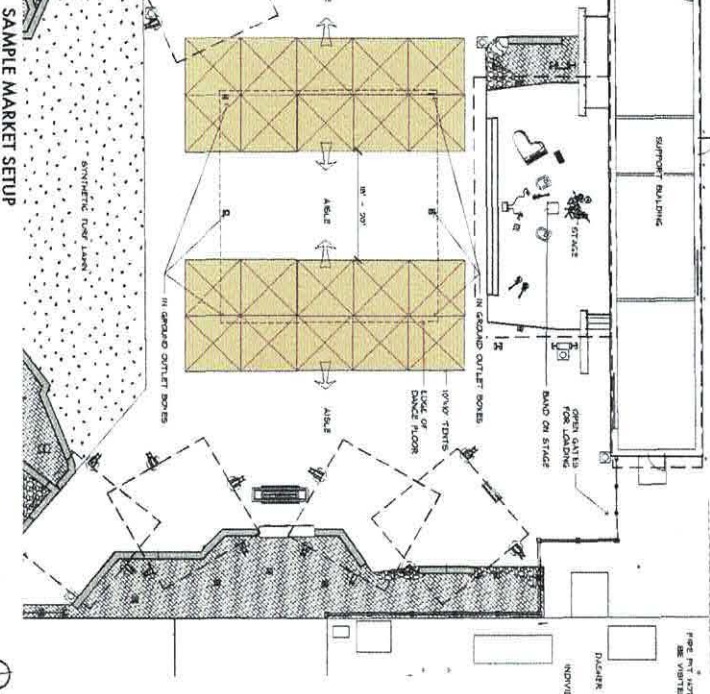
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**NOTE**

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ADDITIONAL RIBBED FLOORING IS RECOMMENDED TO COVER THE ENTIRE SKATE RINK AREA.

- INCLUDES:
- 1. FLOORING
  - 2. LIGHT FIXTURES
  - 3. ELECTRICAL PANELS
  - 4. HANGERS FOR EQUIPMENT
  - 5. RAMPING FOR EQUIPMENT
  - 6. FLOORING FOR EQUIPMENT
  - 7. FLOORING FOR EQUIPMENT
  - 8. FLOORING FOR EQUIPMENT
  - 9. FLOORING FOR EQUIPMENT
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  - 11. FLOORING FOR EQUIPMENT
  - 12. FLOORING FOR EQUIPMENT
  - 13. FLOORING FOR EQUIPMENT
  - 14. FLOORING FOR EQUIPMENT
  - 15. FLOORING FOR EQUIPMENT



**klschwa@hotmail.com**

**From:** Sean Dieden <sean@ironsleek.com>  
**Sent:** Monday, March 28, 2022 3:19 PM  
**To:** Kristi Schwartz  
**Subject:** Re: Proposed Refrigerated Ice Skating 44' X 75'



**Sean Dieden**  
**Iron Sleek, Inc.**  
**2101 Executive Dr.**  
**Addison, IL 60101**  
**877-825-2334**

**847-902-3573 Cell**  
[www.ironsleek.com](http://www.ironsleek.com)



*Imagine, Your very own Backyard Ice Rink!*

# RinkMate Kit Chiller Service Information

**Model#:** 9TR4DXS1K      **Serial#'s:** up to -63

**3 Compressors:** Compressor #1 (C1) is located closest to the electrical panel

**ZS38K4E-PFV-250** Copeland Scroll Compressor 230V, 1PH, 5hp, 24A

**OHM Readings:**

C - R =	0.323
C - S =	0.593
S - R =	0.916

014-0006-10 Start Capacitor, 270-324 MFD, 330VAC  
 014-0037-38 Run Capacitor, 80uF, 370VAC  
 040-0001-79 Potential Relay

**Refrig. Components:**

063212 Emerson HFES10SC 5'5/8 x 7/8 ODFS/T. TX Valve  
 062537 Emerson EKP415S POE/HFC Approved Filter Drier  
 018-0095-03 Emerson Crankcase Heater, 240V 70W  
 AC120-60EQ S62 Alfa Laval Plate Heat Exchanger

**Electrical:**

Rating: 230/1/60, 16 hp, 80A (Unit will run at 60-65A at Glycol temperature of 15-20 deg F)

Compressor Contactors:	XTCE032C10B	EATON XT IEC 3-Pole Contactor, 230V Coil
Compressor Overload Relays:	XTOB032CC1	EATON XT IEC Overload Relay, 24-32A
Fan Contactors:	C25BNB220B	EATON DP CONTACTOR 20A 230VAC COIL
Pump Contactor:	C25BNB220B	EATON DP CONTACTOR 20A 230VAC COIL
Programmable LOGO:	EZ719ACRC	EATON Control Relay, 120/240V, 8 Relay O/P
Temperature Controller:	A419AEC1C	Johnson A419 AEC-1C, NEMA4 Enclosure
Condenser Fans:	FE1056S	A.O. SMITH, 1075RPM, 208-230/1/60, 1/2hp, 2.8A
Condenser Fan Capacitor:	REC-0004	Run Capacitor 10 MFD 370 VAC
Glycol PSI Switch	193738	Boshart Pressure Switch, <b>up to Serial#: -58</b>
Low Pressure Safety:	25RML1535	Low Pressure Cut-Out Switch 15-35 PSI
High Pressure Safety:	25RMH375275	375-275 PSI High Pressure Cut Out Switch
Fan Cycle Switch:	25RMF190275	190-275 PSI Fan Cycle Switch

**Pump:**

2ST1G4D4 Gould, 50 GPM @ 70 TDH, 230/1/60, 2hp, 9.4A  
 Operating pressure: +/- 25 PSI

**Refrigerant:**

R404A 25lbs  
 Operating Pressures: 35/175 @ 20 deg F Glycol temperature (40 deg F Ambient)

**Glycol:**

45% mixture of inhibited Ethylene glycol and water.  
 Contact Custom Ice for MSDS sheet.

**Temperature Controller:** located on the front of the electrical panel

Part#: Johnson A419AEC-1 (NEMA 4X Watertight enclosure)


**Settings:** Press MENU to view Control Functions, up and down arrows to change


<u>Symbol</u>	<u>Control Function</u>	<u>Set Value</u>	
SP	Setpoint	20-24	to be determined by user. See Custom Ice manual
dIF	Differential	2	
Asd	Anti-short cycle delay	0	
OFS	Temperature Offset	0	
SF	Sensor Fail Operation	0	output de-energized on failure, change to 1 for energize on failure

Refer to Custom Ice Operation and Maintenance Manual for more information



## CONTACT US

 403-826-8334

 Email Us



## ICE NV

 [Download Spec Sheet \(.pdf\)](#)

Introducing the ICE NV, our unique high-quality ice resurfacing machine developed by Chris Yenna. This smaller machine will give you professional grade results, transforming your rough outdoor ice into a surface that is smooth as glass. This game-changing service is now available for outdoor communities, your own private backyard rink, events, and tournaments.

## ICE NV Specs





# ICE NV | SPEC SHEET

## SNOW CAPACITY

.425 m<sup>3</sup> (15 cu Ft)

## WATER CAPACITY

491 L (130 GAL)

## HYDRAULIC OIL CAPACITY

7.57 L (2 gal)

## DRIVE MOTOR

36-volt motor driven by 6 x 6-volt deep cycle  
245 A/H batteries

## HYDRAULICS

Powerful single pump with 2 hydraulic cylinders  
enables you to lift the conditioner for ease of  
snow removal

## BRAKES

Brakes will automatically engage when you release  
the acceleration pedal

## SHAVING BLADE

L 121.9 cm (48 in) x W 5.1 cm (2 in) x H .32 cm (.125 in)

## MANOEUVRABILITY

### WHEEL BASE

81.3 cm (32 in)

### TURNING RADIUS

140 cm (55 in)

### WEIGHT

Empty: 725.7 kg (1600 lbs)  
With H<sub>2</sub>O: 1262.8 kg (2784 lbs)

### DIMENSIONS

L: 90" W: 53" H: 49"

**PORTA ICE LTD.**

[www.portaiceltd.ca](http://www.portaiceltd.ca)

[info@portaiceltd.ca](mailto:info@portaiceltd.ca)

403-826-8334

Ice Rink Budget

<i>Budget Item / Hard Costs</i>	<i>Est Cost</i>
<i>Ice Rink</i>	<i>\$121,000</i>
<i>Leveling materials</i>	<i>\$3615</i>
<i>Electrical Completion</i>	<i>\$15,000</i>
<i>Ice NV Ice Reconditioner</i>	<i>\$36,000</i>
<i>Rubber Matts – (aprox)864 Sq Ft</i>	<i>\$11,200</i>
<i>Ice Skates</i>	<i>\$16,000</i>
<i>Ice Skate Sharpeners</i>	<i>\$2200</i>
<i>2 Racks for Skates</i>	<i>\$6432</i>
<b><i>Total</i></b>	<b><i>\$211,447</i></b>
<i>Budget Item / Soft Costs</i>	<i>Est Cost</i>
<i>Electricity for Chillers</i>	<i>\$800/mo</i>
<i>4hr/dayX2X7 days/wkX\$15/hr = \$840/wk</i> <i>Staff for Operations of rink</i>	<i>\$3,360/mo</i>
<i>Staff for Maintenance of Rink</i>	<i>Current Staff</i>
<i>Set up and tear down of rink</i>	<i>\$5000</i>
<b><i>Total additional operating cost per season based on 4 months usage</i></b>	<b><i>\$21,640</i></b>
<i>Budget Item / Revenues</i>	<i>Est Rev</i>
<i>25/dayX120 days X \$3 fee</i> <i>Skate Rentals</i>	<i>\$9000</i>
	<i>Concessions</i>
	<i>\$25,000</i>
<b><i>Total Revenue per Season</i></b>	<b><i>\$34,000</i></b>