

SIMSBURY FARMS ICE RINK
100 Old Farms Road
West Simsbury, CT 06092



Scope and Specifications
For
Modifications to Ice Rink Refrigeration
System

January 19, 2024

Prepared by:

VAN ZELM
E N G I N E E R S

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Connecticut | Massachusetts | North Carolina

van Zelm# 2020004.03

TOWN OF SIMSBURY
DEPARTMENT OF PUBLIC WORKS
933 HOPMEADOW STREET
SIMSBURY, CT 06070

INVITATION TO BID FOR
MODIFICATIONS TO ICE RINK REFRIGERATION SYSTEM
DPW 2024-01

The Town of Simsbury is soliciting bids for MODIFICATION TO ICE RINK REFRIGERATION SYSTEM. Work will consist of pumping down, removal and storage of ammonia charge, removal of existing chiller and surge drum, preparation of site for new chiller, procurement and installation of the new chiller. Bids are to include all work, labor and equipment required to bring the new system online. The Town is seeking qualified, licensed ammonia refrigeration contractors.

Sealed proposals will be accepted by Amy Meriwether, Director of Finance, 933 Hopmeadow Street (Rt. 10/202), Simsbury, CT until 10:00 a.m., Thursday, February 1, 2024.

Specifications and bidding documents may be obtained electronically via the Town's website at the following link: <http://www.simsbury-ct.gov/finance/pages/public-bids-and-rfp>. Bid documents will not be mailed or faxed.

STANDARD INSTRUCTIONS TO BIDDERS
MODIFICATIONS TO ICE RINK REFRIGERATION SYSTEM

1. Project Overview:

The MODIFICATION TO ICE RINK REFRIGERATION Requires the contractor to pump down and remove the system ammonia charge, drain brine from existing chiller and store on site for re-use. Cut away and remove existing chiller and surge drum. Clean existing housekeeping pad and make any necessary repairs to prepare the housekeeping pad to accept new equipment. Provide and install new chiller. Make all piping connections from chiller to existing refrigeration system. Leak check and pressure test all new piping connections. Insulate new chiller, surge drum and associated piping. Label all new equipment and associated piping in accordance with IIAR standards. Recharge the system with ammonia. Refill the existing cold floor and new chiller with brine, purge air and perform system startup.

There is an add alternate for Replacing Cold Floor Secondary Heat Exchange Fluid from Brine to Ethylene Glycol.

The scope of work for this project includes furnishing all labor, materials and equipment required to complete the project as specified.

2. Key Event Dates:

Invitation to Bid Issued January 19, 2024

Bids Due February 1, 2024

Commencement of Work Within ten (10) calendar days of Notice to Proceed

3. Bid Submission Instructions:

- A. One (1) original and one (1) copy of all bids must be submitted in a sealed envelope with the bidder's name on the outside of the envelope and clearly marked "Sealed Bid for Town of Simsbury – for MODIFICATION TO ICE RINK REFRIGERATION SYSTEM". If forwarded by mail or courier, the sealed envelope must be addressed to "Amy Meriwether, Director of Finance, 933 Hopmeadow Street (Rt. 10/202), Simsbury, CT 06070". Bids must be at the office of the Director of Finance prior to 10 a.m., February 1, 2024. Postmarks are NOT an acceptable waiver of this policy. Once the first bid is opened, all bids are deemed final and no corrections or alterations may be made.
- B. Ditto marks or words such as "SAME" must not be used for the bid to be considered.
- C. All information must be submitted in ink or typewritten. Errors, alterations or corrections must be shown on both the original and all required copies and each must be initialed by the person signing the bid.
- D. Bids are considered valid for ninety (90) days after bids are opened. Bidders may not withdraw, cancel or modify their bid during this ninety (90) day period after bids are opened.
- E. An authorized person representing the legal entity of the bidder must sign bids.
- F. The inability to meet any specified requirement(s) must be stated in writing and attached

to the bid form or written on the bid form. If no exceptions are noted, it shall be assumed that the terms of the Invitation to Bid have been accepted.

- G. The Town of Simsbury reserves the right to waive any minor informality in a bid when such a waiver is in the best interest of the Town.
- H. Bidder must fill out the following BID RESPONSE FORM in triplicate and submit with the bid package.

BID RESPONSE FORM

FORM OF BID to be submitted on Bidder's letterhead.

Date: _____

Mr. Thomas J. Roy, P.E.
Director of Public Works/Town Engineer
The Town of Simsbury
933 Hopmeadow Street
Simsbury, CT 06070

E-Mail: pubworks@simsbury-ct.gov

Re: Town of Simsbury MODIFICATION TO ICE RINK REFRIGIRATION SYSTEM

Dear Mr. Roy:

I have examined the Bid Documents for the **MODIFICATIONS TO ICE RINK REFRIGIRATION SYSTEM** and submit this Bid.

I also acknowledge receipt of addendum's, (If none, so state).

No. _____ Date _____, No. _____ Date _____, No. _____ Date _____.

I agree:

- * To accept all provisions of the Contract Documents listed;
- * To adhere to the work schedule under risk of penalty for failing to complete required work within the specified period;
- * To hold my Bid open for 90 days after Bid due date;
- * To enter into and execute a Contract if awarded on the basis of this Bid;

MODIFICATIONS TO ICE RINK REFRIGIRATION SYSTEM

BASE BID

1. The Modifications to Ice Rink Chiller Refrigeration,
All worked described in this bid for, Base Bid Scope

\$ _____

ADD ALTERNATE 1

2. Replace cold floor secondary heat exchange fluid
from brine to ethylene glycol, all work described
in this bid for, Add Alternate 1 Scope

\$ _____

BASE BID + ADD ALTERNATE 1:

\$ _____

SIGNED _____

TITLE _____

FOR _____
(Company Name)

DATE _____

END OF SECTION

4. Questions:

Any questions about this project should be directed to: Mr. Thomas J. Roy, Director of Public Works/Town Engineer by fax at (860) 408-5416, via email at Pubworks@simsbury-ct.gov, or by mail to Department of Public Works, 66 Town Forest Road, West Simsbury, CT 06092. To receive consideration, such questions must be received by end of business day on Tuesday, January 29, 2024. No oral interpretations shall be made to any respondent as to the meaning of any of the bid documents. Every request for an interpretation shall be made in writing.

The Town will respond to all appropriate questions received via an addendum available to all prospective bidders. Such addenda will become part of this Invitation to Bid and the resulting contract. At least two (2) days prior to the receipt of bids, the Town will post a copy of any addenda to its website, located at: www.simsbury-ct.gov/finance/pages/public-bids-and-rfp. It shall be the responsibility of each bidder to determine whether addenda have been issued, and if so, to download copies directly from the Town's website.

5. Presumption of Bidder Being Fully Informed:

At the time the first bid is opened, each bidder is presumed to have read and is thoroughly familiar with all bidding documents as well as all contract documents for this project. Failure or omission of the bidder to receive or examine any documentation or information concerning this bid shall in no way relieve any bidder from obligations with respect to their bid.

6. Pre-Bid Walk-Through:

No walkthrough is schedule at this time, if a bidder is interested in seeing the site please contact Ray Harris phone 860 658 3222 or email rharris@simsbury-ct.gov

7. Interpretation of Acceptable Work:

All work on this project is to be in accordance with the specifications, bidding and contract documents are to be interpreted as meaning those acceptable to the Town of Simsbury. Work is to be done in a clean and workmanlike fashion and meet industry best practices for quality and performance.

8. Wage Rates:

State of Connecticut Department of Labor Prevailing Wage rates apply for any contract for new construction over \$1,000,000, and contracts for renovations of over \$100,000. Copies of these wage rates are incorporated in the Contract Documents for reference, contractor is responsible for confirm current rates with Connecticut Department of Labor. Each CONTRACTOR or Subcontractor performing Work on this Project shall comply in all respects with all laws governing the employment of labor, Social Security, and Unemployment insurance of both State and Federal government. Contractors must submit certified payroll documentation with each payment application for processing. Payment applications will not be approved without certified payroll.

9. Tax Exemptions:

The bidder shall be aware that the Town of Simsbury is exempt from Federal Excise Taxes and Connecticut Sales and Use Taxes. Appropriate tax-exempt forms will be provided to the successful bidder(s) as part of the contract award process.

10. Insurance Requirements:

The firm must carry insurance under which the Town is named as an additional insured, as follows:

Such insurance must be by insurance companies licensed to write such insurance in Connecticut against the following risks with the following minimum amounts and minimum durations.

- A. Workman's Compensation, as required by State Statute & \$100,000 employers liability limit.
- B. Public Liability, Bodily Injury Liability and Property Damage Liability as follows:
 - Injury or death of one person: \$2,000,000
 - Injury to more than one person in a single accident: \$1,000,000
 - Property damage in one accident: \$1,000,000
 - Property damage in all accidents: \$2,000,000
- C. Automobile and Truck (Vehicular) Public Liability, Bodily Injury Liability and Property Damage Liability as follows:
 - Injury or death of one person: \$1,000,000
 - Injury to more than one person in a single accident: \$1,000,000
 - Property damage in one accident: \$1,000,000
 - Property damage in all accidents: \$1,000,000

Insurance under B, and C above must provide for a 30-day notice to the Town of cancellation/or restrictive amendment.

Insurance under B and C above must be for the whole duration of the contract and for twelve (12) months after acceptance of the project by the Town.

Subcontractors must carry A, B, and C in the same amounts as above for the duration of the project and until acceptance by the Town.

Certificates of insurance must be submitted to the Director of Public Works/ Town Engineer prior to the signing of the contract and within ten (10) days of notification of award of contract. Should any insurance expire or be terminated during the period in which the same is required by this contract, the Director of Public Works/ Town Engineer shall be notified and such expired or terminated insurance must be replaced with new insurance and a new certificate furnished to the Director of Public Works/ Town Engineer.

Failure to provide the required insurance and certificates may, at the option of the Town, be held to be a willful and substantial breach of this contract.

11. Substitution for Name Brands:

~~Should brand name items appear in this bid, the bidder must attach specifications for any substitutions and explain how the substitution compares with the specifications of the named brand. The decision on whether to use the substitution or the named brand rests solely with the Town of Simsbury.~~

12. Awarding the Bid:

The Town reserves the right to accept any bid or any part of bids, to reject any, all, or any part of bids, and to waive formalities and informalities in the bidding process. The Town at its discretion will award the bid to the lowest responsible bidder. That bidder is the person or firm who is qualified and competent to do the work, whose past performance is satisfactory to the Town and whose bid documents comply with the procedural requirements stated herein.

Bid Alternates will be awarded if it is determined to be in the best interest of the Town. The Town reserves the right to award any and all alternatives in the order that best suits the Town.

13. Rejection and/or Cancellation of Bids:

The Town reserves the right to reject or cancel any and all bids, or any part of any or all bids, if such action is deemed to be in the best interest of the Town.

14. Delivery Arrangements: Not applicable

15. Bid Bond: Not applicable

16. Performance Bond: Not applicable

17. W-9 Form

The successful bidder must provide the Town of Simsbury with a completed W-9 Form prior to commencing work.

18. Submittals:

The Bidder shall, as soon as practicable, but not exceeding fifteen (15) calendar days after notification of selection of the award of the bid, furnish to the Owner, in writing, the following:

- A. Designation of the Work to be performed by the Contractor's own forces
- ~~B. Names of the manufacturers, products and suppliers of the principal items of materials proposed for the work~~
- C. Project work schedule

19. Agreement Documents:

The Agreement Documents are defined as:

- The Standard Instructions to Bidders
- The Agreement as executed
- The General Specifications
- Any Addenda, if issued

20. Appendices:

- a. Appendix A: Standard Testing Record Form
- b. Appendix B: Ammonia Refrigeration Safety Inspection Checklist

END OF STANDARD INSTRUCTION TO BIDDERS

BID FORM
MODIFICATIONS TO ICE RINK REFRIGIRATION SYSTEM

Pursuant to and in compliance with the "Invitation to Bid" and Standard Instructions to Bidders relating thereto, the undersigned, having visited the sites and carefully examined all Bidding Documents and complete General Specifications together with all Addenda issued and received prior to the scheduled closing time for receipt of Bids, hereby offers and agrees as follows:

- To provide all labor, materials, and anything else reasonably necessary to complete all work per the attached specifications.
- If awarded this Contract, we will execute a Contract with the Town of Simsbury, Owner of the property.

In submitting this BID, the BIDDER acknowledges that:

1. Each lump sum price includes all labor, materials, transportation, hauling, overhead, fees and insurances, profit, and all other costs to cover the finished work called for regarding the specified section of Town as stated in the Contract Documents. No additional payment of any kind in the form of a surcharge will be made for work accomplished under the lump sum prices, as bid.
2. No representation of warranty has been made by the OWNER that the estimated quantities used for comparison of BIDS will even approximate the actual quantities required to satisfactorily complete the WORK required under this CONTRACT.
3. Upon receipt of written notice of acceptance of this BID by the OWNER, the BIDDER shall execute the CONTRACT attached to these documents within ten (10) calendar days and other documents as required in these documents.
4. In regard to all conditions affecting the WORK to be done and the labor and materials to be furnished, this BID is based solely on the BIDDER'S investigations and findings and neither the OWNER nor its officers, employees or agents shall be held responsible for the accuracy of, or be bound by any information contained in these Contract Documents.

Submitted By: _____
Company *Phone*

Street *City* *Zip*

Authorized Signature: _____
Signature *Printed Name*

IF A SOLELY OWNED COMPANY:

Company Name _____
Address _____
Town _____
By _____
(Authorized Signature)
Title _____ Date _____

IF A CORPORATION OR LIMITED LIABILITY COMPANY:

A corporation or limited liability company organized under the laws of
_____, composed of officers as follows:

President

Secretary

Vice President

Treasurer

IF A PARTNERSHIP:

A partnership doing business under the firm name and style of
_____, composed of partners as follows:

Name & Title (if any)

Name & Title (if any)

Name & Title (if any)

Name & Title (if any)

This Bill must bear the written signature of the BIDDER. If the BIDDER is a partnership, the Bid must be signed by a partner. If the BIDDER is a corporation or limited liability company, the Bid must be signed by a duly authorized officer of such corporation or Limited Liability Company.

BIDDER'S QUALIFICATIONS STATEMENT

The BIDDER shall answer all of the following questions, as part of the Bid, so that the OWNER can judge the BIDDER's ability, experience and facilities for performing the proposed work.

1. Name of BIDDER: _____
 2. BIDDER's Tax Identification Number: _____
 3. What year was company organized/formed? _____
 4. How many years has the BIDDER been engaged in business under the present firm or trade name?

 5. What is the general character or type of work performed by the BIDDER? _____

 6. Has a claim ever been brought in court or to arbitration against the BIDDER for failure to complete any contracted work or default on a contract? _____
If yes, explain with whom and why: _____

 7. For other similar projects the BIDDER has under contract at the present time: Attach list with description of work; the name of the client/owner with telephone number; and the approximate value of the work to be performed.
- NOTE:** The BIDDER is required to have completed a minimum of five (5) similar projects as a demonstration of competency and experience for the project proposed herein. Such projects are to be listed below.
8. Attach a list of all projects that the BIDDER's present organization has completed within the past ten years or is presently working on, including name of project, owner, and name and telephone number of the owner's representative. Indicate here how many additional pages attached: _____pages.
 9. Attach a list of the names, addresses and the background/experience of all principal or key members of the BIDDER's organization, including its officers:

Indicate the number of pages attached: _____pages

NOTE: If requested, the BIDDER agrees to furnish the OWNER with a detailed financial statement and other relevant information that may be required by the Town of Simsbury to properly evaluate the qualifications of the BIDDER.

PROPOSED SUBCONTRACTORS

BIDDER intends to utilize the following subcontractors on this project:

If none, write "None" here: _____

NAME AND ADDRESS
OF SUBCONTRACTOR _____

DESCRIPTION OF WORK:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

NON-COLLUSION AFFIDAVIT OF BIDDER

State of _____, County of _____, being first duly sworn, disposes and says that:

1. He is the owner, officer, representative or agent of: _____ the BIDDER that has submitted the attached BID;
2. The attached BID is genuine; it is not a collusive or sham BID.
3. He is fully informed respecting the preparation, and contents of, and knowledgeable of all pertinent circumstances respecting the attached BID.
4. Neither the BIDDER nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other bidder, firm or person to submit a collusive or sham BID in connection with the AGREEMENT for which the attached BID has been submitted or to refrain from bidding in connection with any contract, or has in any manner, directly or indirectly, sought by agreement, collusion, communication or conference with any other bidder, firm or person to fix the price or prices in the attached BID or of any other bidder, or to fix any overhead, profit or cost element of the BID prices or the bid price of any other bidder, or to secure through collusion, conspiracy, connivance or unlawful agreement any advantage against the Town of Simsbury or any other person interested in the proposed AGREEMENT.
5. The price(s) quoted in the attached BID are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the BIDDER or any of their agents, representatives, owners, employees, or parties in interest, including this affiant; and
6. That no elected or appointed official or other officer or employee of the Town of Simsbury, who is directly or indirectly interested in this BID, or in the supplies, materials, equipment, work or labor to which it relates, or in any of the profits thereof.

(Signed) _____

(Name of Bidder)

Subscribed and sworn to before me this
_____ Day of _____, 20__

Title
My Commission expires _____, 20__

MODIFICATIONS TO ICE RINK REFRIGERATION SYSTEM

TOWN OF SIMSBURY

**Acknowledgement Form and
Charter Section 1103 Code of
the Town of Simsbury**

ACKNOWLEDGEMENT FORM

I have read Section 1103 of the Charter of the Town of Simsbury, the Code of Ethics Ordinance, and the Guidelines issued thereunder. I understand my responsibilities as a Contractor retained by the Town of Simsbury, and I am in compliance with the Charter and the Code of Ethics. I have indicated in the space below any areas of conflict should they arise in matters before our board, commission, agency or department, and I agree to report any future conflicts under the provisions of Section 1103 of the Charter.

Areas of Exception

**CONFLICTS OF INTEREST
SECTION 1103**

CONFLICTS OF INTEREST. It is hereby declared to be the policy of the Town that any elected or appointed officer, any member of any board or commission or any employee of the Town who has a financial interest, direct or indirect, in any contract, transaction or decision of any officer or agent of the Town or any board or commission, shall disclose that interest to the Board of Selectmen, which shall record such disclosure upon the official record of its meetings. Such disclosure of a financial interest, direct or indirect, in any contract, transaction or decision of any officer or agent of the town or of any board or commission shall disqualify such elected or appointed official or such member of a board of commission or such town employee from participation in the awarding, assignment or discussion of said contract, transaction or decision. Violation by any such official, board or commission member or employee of the provisions of this section shall be grounds for their removal.

Signature

Name (Please Print)

Date

A copy of the Town Code is available from the Office of the Town Clerk or is available on line at
http://www.simsbury-ct.gov/sites/simsburyct/files/file/file/towncode_1.pdf

**STATEMENT OF BIDDERS COMPLIANCE WITH
EQUAL EMPLOYMENT OPPORTUNITY LAW AND
REGULATION INCLUDING EXECUTIVE ORDER NO. 3**

This statement must be completed by the Bidder and shall accompany his bid for this project.

IT IS HEREBY CERTIFIED THAT:

NAME OF BIDDER: _____

BUSINESS ADDRESS: _____

To the extent required by law, the Bidder has complied on past Contracts and will fully comply on this project with all applicable laws and regulation regarding equal employment opportunities for minorities and women, and;

Has_____has not_____previously performed work under the conditions of the Governor's Executive Order No. 3 of the State of Connecticut, or any preceding similar Executive Order with regards to Non-Discrimination.

Signature Title

Subscribed and sworn to before me this
_____Day of _____, 20__

Title

My Commission expires _____, 20__

IMPORTANT: THIS STATEMENT MUST BE SUBMITTED WITH BID

END OF SECTION

MODIFICATIONS TO ICE RINK REFRIGERATION SYSTEM

MODIFICATIONS TO ICE RINK REFRIGIRATION SYSTEM

**STANDARD CONTRACT DOCUMENTS FOR THE DEPARTMENT OF
PUBLIC WORKS**

TOWN OF SIMSBURY
MODIFICATIONS TO ICE RINK REFRIGERATION SYSTEM

THIS AGREEMENT, made this day of _____ by and between THE TOWN OF SIMSBURY, 933 Hopmeadow Street, Simsbury, Connecticut hereinafter referred to as the OWNER and _____ with an address at _____ hereinafter referred to as the CONTRACTOR

WITNESSETH:

That for and in consideration of the mutual covenants and promises between the parties hereto, it is hereby agreed that:

1. The CONTRACTOR will furnish all of the materials and supplies, equipment, and labor and other services necessary in conformance with these contract documents for the construction and completion of the project described in general as follows: **MODIFICATIONS TO ICE RINK REFRIGERATION SYSTEM**, as defined in the Standard Instruction for Bidders.
2. COMPLETION OF WORK. The Contractor shall commence the work covered by this contract within ten (10) calendar days after the date of receipt of the Notice to Proceed and shall complete the same within _____ calendar days unless the period for completion is extended as provided for in the General Conditions.
3. CONTRACT SUM. The Owner shall pay the Contractor for the performance of said work the sum of \$_____, subject to additions or deductions provided herein in conformity with the bid schedule of prices.
4. The Contract Documents include the following:
 - (a) Notice and Instructions to Bidders dated **May 30, 2023** _____
 - (b) Bidder's Proposal dated _____
 - (c) Notice of Award dated _____
 - (d) Contract
 - (e) General Conditions
 - (f) Supplemental General Conditions
 - (g) ~~Plans prepared by: Town of Simsbury DPW~~ _____
 - (h) Technical Specifications prepared or issued by the Van Zelm Engineers **May 22, 2023**
5. The OWNER will pay to the CONTRACTOR in the manner and at such times as set forth in the General Conditions and in such amounts as required by the Contract Documents.
6. This Contract shall be binding upon all parties hereto and their respective heirs, executors, administrators, successors, and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Contract in duplicate, on the date first above written.

OWNER:

Signed, Sealed and
Delivered in the presence of:

Town of Simsbury by:
Lee Erdman, Interim Town Manager

CONTRACTOR:

Printed Name: _____

Title: _____

PROJECT: MODIFICATIONS TO ICE RINK REFRIGIRATION SYSTEM

Information Needed for Communications on the Project

Name of Company:

Location of Company Office:

Street

City/State Zip Code

Mailing Address of Company Office (if different than location):

Street

City/State Zip Code

Phone No. of Company's Office (include area code):

Phone No. of Company's Project Office (if applicable):

Company Official Responsible for this Project:

Name Title

Phone No. ()

Project Supervisor or Foreman:

Name

Phone No. ()

Person to be Contacted in Emergencies after Work Hours:

Name

Phone No. ()

Person to be Contacted in Emergencies on Weekends and Holidays:

Name

Phone No. ()

If any changes to the above information occur during the progress of the work, the Director of Public Works/Town Engineer shall be immediately notified.

Town of Simsbury

SUPPLEMENTAL CONTRACT SECTION

CODE OF ETHICS

Chapter 13 of the Code of Ordinances, the Simsbury Code of Ethics, is hereby incorporated by reference as if fully set forth, and is made a part of the Contract Documents. All Contractors shall sign the Acknowledgement Form.

TOWN OF SIMSBURY

**Acknowledgement Form and
Charter Section 1103 Code of the Town of Simsbury**

ACKNOWLEDGEMENT FORM

I have read Section 1103 of the Charter of the Town of Simsbury, the Code of Ethics Ordinance, and the Guidelines issued thereunder. I understand my responsibilities as a Contractor retained by the Town of Simsbury, and I am in compliance with the Charter and the Code of Ethics. I have indicated in the space below any areas of conflict should they arise in matters before our board, commission, agency or department, and I agree to report any future conflicts under the provisions of Section 1103 of the Charter.

Areas of Exception

**CONFLICTS OF INTEREST SECTION
1103**

CONFLICTS OF INTEREST. It is hereby declared to be the policy of the Town that any elected or appointed officer, any member of any board or commission or any employee of the Town who has a financial interest, direct or indirect, in any contract, transaction or decision of any officer or agent of the Town or any board or commission, shall disclose that interest to the Board of Selectmen, which shall record such disclosure upon the official record of its meetings. Such disclosure of a financial interest, direct or indirect, in any contract, transaction or decision of any officer or agent of the town or of any board or commission shall disqualify such elected or appointed official or such member of a board of commission or such town employee from participation in the awarding, assignment or discussion of said contract, transaction or decision. Violation by any such official, board or commission member or employee of the provisions of this section shall be grounds for his/her removal.

Signature

Name (Please Print) Date

CONTRACTOR'S EXEMPT PURCHASE CERTIFICATE

I hereby certify, under penalties of perjury, that I am engaged in the performance of a construction contract on a project for the following named exempt agency or organization:

Town of Simsbury

Full Name of Agency of Organization

**933 Hopmeadow Street
Simsbury, CT. 06070**

Address of Same

That such agency is, to the best of my knowledge and belief, exempt from the Sales and Use Tax because it is a

Town

(Town, School, Fire or Police Department, Library etc., or other branch
of State or Federal Government)

In accordance with Regulation No. 16 of Sales and Use Tax.

That this certificate is issued to cover all purchases of materials and supplies, designated by me, for use of the project referred to above.

Permit No. Date: (if any) (signed) Contractor

Place:

Firm Name

Address:

GENERAL CONDITIONS

1. DEFINITIONS

- 1.1 Wherever used in the CONTRACT DOCUMENTS, the following terms shall have the meanings indicated which shall be applicable to both the singular and plural thereof.
- 1.2 ADDENDA - Written or Graphic Instruments issued prior to the execution of the Agreement which modify or interpret the Contract Documents, Drawings and Specifications, by additions, deletions, clarifications or corrections.
- 1.3 BID - The offer or proposal of the BIDDER submitted on the prescribed form setting forth the prices for the WORK to be performed.
- 1.4 BIDDER - Any person, firm, or corporation submitting a BID for the WORK.
- 1.5 ~~BONDS - Bid, Performance, and Payment Bonds and other instruments of security, furnished by the CONTRACTOR in accordance with the CONTRACT DOCUMENTS.~~
- 1.6 CHANGE ORDER - A written order to the CONTRACTOR authorizing an addition, deletion, or revision in the WORK within the general scope of the CONTRACT TIME.
- 1.7 CONTRACT DOCUMENTS - The contract including Advertisement for Bids, Information for Bidders, BID, ~~Bid Bond, Agreement, Payment Bond, Performance Bond,~~ NOTICE OF AWARD, NOTICE TO PROCEED, CHANGE ORDER, DRAWINGS, SPECIFICATIONS, AND ADDENDA.
- 1.8 CONTRACT PRICE - The total monies payable to the CONTRACTOR under the terms and conditions of the CONTRACT DOCUMENTS.
- 1.9 CONTRACT TIME - The number of calendar days stated in the CONTRACT DOCUMENTS for the completion of the WORK.
- 1.10 CONTRACTOR - The person, firm, or corporation with whom the OWNER has executed the Agreement.
- 1.11 DRAWINGS - The part of the CONTRACT DOCUMENTS which show the characteristics and scope of the WORK to be performed and which have been prepared or approved by the ENGINEER.
- 1.12 ENGINEER - The Director of Public Works/Town Engineer for the Town of Simsbury, Connecticut.
- 1.13 FIELD ORDER - A written order affecting a change in the WORK not involving an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, issued by the ENGINEER to the CONTRACTOR during construction.
- 1.14 INSPECTOR - The person appointed by the Town of Simsbury, Conn. to supervise the WORK and shall extend to and include any assistant whom he/she may designate to act in the premises.
- 1.15 NOTICE OF AWARD - The written notice of the acceptance of the Bid from the OWNER to the successful BIDDER.

- 1.16 NOTICE TO PROCEED - Written communication issued by the OWNER to the CONTRACTOR authorizing him/her to proceed with the WORK and establishing the date of commencement of the work.
- 1.17 OWNER - The Town of Simsbury, Connecticut (A Public Body) for whom the WORK is to be performed.
- 1.18 PROJECT - The undertaking to be performed as provided in the CONTRACT DOCUMENTS.
- 1.19 SHOP DRAWINGS - All Drawings, Diagrams, Illustrations, Brochures, Schedules, and other data which are prepared by the CONTRACTOR, A SUBCONTRACTOR, manufacturer SUPPLIER or Distributor which illustrate how specific portions of the WORK shall be fabricated or installed.
- 1.20 SPECIFICATIONS - A part of the CONTRACT DOCUMENTS consisting of written descriptions of a technical nature of materials, equipment, construction systems, standards and workmanship.
- 1.21 SUBCONTRACTOR - An individual firm or corporation having a direct contract with the CONTRACTOR or with any other SUBCONTRACTOR for the performance of a part of the work at the site.
- 1.22 SUBSTANTIAL COMPLETION- That date as certified by the ENGINEER when the construction of the PROJECT or a specified part thereof is sufficiently completed, in accordance with the CONTRACT DOCUMENTS, so that the PROJECT or specified part can be utilized for the purposes for which it is intended.
- 1.23 SUPPLEMENTAL GENERAL CONDITIONS - Special provisions required by the funding program or Agency (Federal, State, or Local) for participation in the PROJECT and included in the CONTRACT DOCUMENTS. Also, such requirements that may be imposed by Applicable State Laws and special characteristics of the PROJECT.
- 1.24 SUPPLIER - Any person or organization who supplies materials or equipment for the WORK, including that fabricated to a special design, but who does not perform labor at the site.
- 1.25 WORK - All labor necessary to produce the construction required by the CONTRACT DOCUMENTS, all construction tools, machinery, and equipment, and all materials and equipment incorporated or to be incorporated in the PROJECT.
- 1.26 WRITTEN NOTICE - Any notice to any party of the Agreement relative to any part of this Agreement in writing and considered delivered and the service thereof completed, when posted by Mail to the said party at his/her last given address or delivered in person to said party or his/her authorized representative on the WORK.

2. PAYMENT

- 2.1 On the first of each month, the Contractor may submit an itemized estimate of work completed up to that time, including an estimate of the portion of lump sum items completed.

He/she must, if requested by the Engineer, submit satisfactory evidence that he/she has paid in full for all labor, materials and equipment included in the monthly estimate. The estimates shall be made on forms furnished by the Town and the Contractor shall certify that the estimate is

correct, and the work performed is in conformity with the plans and specifications. No later than 31 days after submission by the Contractor, and acceptance by the Town, of the estimate, the Town will pay the estimated cost, less five percent (5%) retained by the Town.

After completion of the project and acceptance by the Town, the Contractor shall submit an itemized final estimate. No later than 31 days after acceptance of the final estimate by the Town, the Town shall pay ninety-five (95%) percent of the Contract price. No later than six months after acceptance of the final estimate, the Town will pay the five (5%) percent retained, unless in that time the materials or workmanship in the project shall have been found to be defective.

3. PERMITS DURATION

- 3.1 The Contractor must obtain all necessary permits and pay the fee for them. (Town portion of permit fees are waived. The State of Connecticut portion of building permits will not be waived.)
- 3.2 Should the Town be prevented or enjoined from proceeding with work either before or after the start of construction by reason of any litigation or other reason beyond the control of the Town, the Contractor shall not be entitled to or assert claim for damage by reason of said delay; but time for completion of the work will be extended to such reasonable time as the Owner may determine will compensate for time lost by such delay with such determination to be set forth in writing.

4. SUPERVISION

- 4.1 The Town will be represented at all times by the TOWN DIRECTOR OF PUBLIC WORKS/ TOWN ENGINEER or an employee authorized by the TOWN DIRECTOR OF PUBLIC WORKS/ TOWN ENGINEER to represent him/her; and the DIRECTOR OF PUBLIC WORKS/ TOWN ENGINEER or is/her authorized representative shall have sole authority in the interpretation and execution of the contract.
- 4.2 The Contractor must have a competent Field Supervisor on the job during all working hours and notify the Town of his/her name and address in writing, and where he/she may be reached normally after working hours. In the event of the absence of the Field Supervisor, the Contractor must appoint a second in command to take responsible charge of the job. The actual performance of work and superintendence shall be performed by the Contractor, but the owner shall, at all times, have access to the premises for the purpose of observing or inspecting the work performed by the Contractor.

5. LAYOUT

- ~~5.1 The Town will provide line and grade by means of offset points. However, the Contractor will protect these offset points and may be charged for replacing of same. Any additional field work required to reestablish these offset points to facilitate construction will be paid for by the Contractor.~~

6. SITE WORK

- 6.1 The Contractor will be responsible for maintenance of adequate barricades, signs, and warning systems to protect the job and the public.
- 6.2 The Contractor shall properly protect all underground and above ground utilities from damage. No interruption shall be caused to any utility without the knowledge of the TOWN DIRECTOR OF PUBLIC WORKS/ TOWN ENGINEER.
- 6.3 Contractor will maintain site in a clean and professional manner. Contractor will clean area of work at the end of the day including sweeping adjacent pavement.
- 6.4 Contractor will use standard dust control methods when requested by the Engineer.

7. STANDARDS

- 7.1 Whenever a material, article, or piece of equipment is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue numbers, etc., it is intended merely to establish a standard and, any material, article, or equipment of other manufacturers and vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or equipment so proposed, is, in the opinion of the Town Engineer, of equal substance and function. It shall not be purchased or installed by the Contractor without written approval.

8. CHANGES IN WORK

- 8.1 The Owner, without invalidating the Contract, may order extra work or make changes by altering, adding to or deducting from the work, the Contract Sum being adjusted accordingly.

9. CORRECTION OF WORK AFTER FINAL PAYMENT

- 9.1 Neither the final Certificate nor payment nor any provision in the Contract Documents shall relieve the contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, he shall remedy any defects due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one year from the date of substantial completion.
- 9.2 The Owner shall give notice of observed defects with reasonable promptness. All questions arising under this article shall be decided by the DIRECTOR OF PUBLIC WORKS/ TOWN ENGINEER subject to mediation.

10. INSURANCE REQUIREMENTS

The Contractor must carry the following types of insurance under which the Town is named as an additional insured on a primary and non-contributory basis, as follows:

Such insurance must be by insurance companies licensed to write such insurance in Connecticut against the following risks with the following minimum amounts and minimum durations.

A. Workman's Compensation, as required by Connecticut State Statute.

Employer's Liability: at least \$100,000 per employee/ \$100,000 per incident, and \$500,000 per policy.

Public Liability, Bodily Injury Liability and Property Damage Liability as follows:

Injury or death of one person:	\$2,000,00
Injury to more than one person in a single accident:	\$1,000,00
Property damage in one	\$1,000,00
Property damage in all accidents:	\$1,000,00

B. Automobile (including owned, hired, non- owned) and Truck (Vehicular) Public Liability, Bodily Injury Liability, and Property Damage Liability as follows:

Injury or death of one person:	\$1,000,000
Injury to more than one person in a single accident:	\$1,000,00
Property damage in one	\$1,000,00
Property damage in all accidents:	\$1,000,00

C. Builders Risk including Fire and Extended coverage:

In an amount equal to the value of construction completed plus materials delivered to the site.

Insurance under B, C, and D above must provide for a 30-day notice to the Town of cancellation/or restrictive amendment.

Insurance under B and C above must be for the whole duration of the contract and for at least twenty-four (24) months after acceptance of the project by the Town.

Insurance under D above must be carried for the whole duration of the project and until final acceptance by the Town.

A waiver of subrogation is required in favor of the Town of Simsbury on all insurance policies, including workers' compensation.

Subcontractors must carry A, B and C in at least the same amounts as above for the duration of the project and until acceptance by the Town.

Certificates of insurance must be submitted to the Director of Public Works/ Town Engineer prior to the signing of the contract and within ten days of notification of award of contract. Should any insurance expire or be terminated during the period in which the same is required by this contract, the Director of Public Works/ Town Engineer shall be notified and such expired or terminated insurance must be replaced with new insurance and a new certificate furnished to the Director of Public Works/ Town Engineer.

Failure to provide the required insurance and certificates may, at the option of the Town, be held to be a willful and substantial breach of this contract.

NOTE: Coverage under "B" shall include XCU coverage as necessary, Collapse and Underground shall be provided for ALL Contracts. Explosion will be provided if specified, or prior to any blasting being performed under the Contract.

Indemnification: To the fullest extent permitted by law, Contractor shall defend, indemnify and hold harmless the Town of Simsbury from and against all claims, bodily injury and property damage, judgments and expenses, including attorney fees that arise from and are alleged to arise from the performance of this Agreement.

This provision shall survive termination of this Agreement.

11. OWNER'S RIGHT TO DO WORK

If the Contractor fails to prosecute the work properly or fails to perform any provisions of this contract, the Owner, after three days written notice to the Contractor may, without prejudice to any other remedy it may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor. Provided, however, that Director of Public Works/ Town Engineer shall approve both such action and the amount charged to the Contractor.

12. ACCEPTANCE OF FINAL PAYMENT AS RELEASE

The acceptance by the Contractor of final payment shall be and shall operate as a release to the OWNER of all claims and all liability to the CONTRACTOR other than claims in stated amounts as may be specifically excepted by the CONTRACTOR for all things done or furnished in connection with this WORK and for every act and neglect of the OWNER and others relating to or arising out of this WORK. Any payment however, final or otherwise, shall not release the CONTRACTOR or his sureties from any obligations under the CONTRACT DOCUMENTS ~~or the Performance BOND and Payment BONDS.~~

13. ~~CONTRACT SECURITY~~

~~The Contractor shall within ten (10) days after the receipt of the NOTICE OF AWARD furnish the OWNER with a performance BOND and a payment BOND in penal sums equal to the amount of the CONTRACT PRICE, conditioned upon the performance by the CONTRACTOR of all undertakings, covenants, terms, conditions, and agreements of the CONTRACT DOCUMENTS, and upon the prompt payment by the CONTRACTOR to all persons supplying labor and materials in the prosecution of the WORK provided by the CONTRACT DOCUMENTS. Such BONDS~~

~~shall be executed by the CONTRACTOR and shall be in a Form acceptable to the Town Director of Finance. When Surety Company Bonds are used, the corporate bonding company shall be licensed to transact such business in the State of Connecticut and named on the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Treasury Department Circular Number 570. The expense of these BONDS shall be borne by the CONTRACTOR. If at any time a surety on any such bond is declared as bankrupt or loses its right to do business in the State in which the WORK is to be performed or is removed from the list of surety companies accepted on FEDERAL BONDS, CONTRACTOR shall within ten (10) days after notice from the OWNER to do so, substitute an acceptable BOND (or BONDS) in such form and sum as may be satisfactory to the OWNER. The premiums on such BOND shall be paid by the CONTRACTOR. No further payments shall be deemed due nor shall be made until the CONTRACTOR shall have furnished an acceptable BOND to the OWNER.~~

14. ASSIGNMENT

Neither the CONTRACTOR nor the OWNER shall sell, transfer, assign, or otherwise dispose of the CONTRACT or any portion thereof, or of his/her right title or interest therein, or his obligations there under, without written consent of the other party.

15. DRAWINGS AND SPECIFICATIONS

- 15.1 The intent of the DRAWINGS and SPECIFICATIONS is that the CONTRACTOR shall furnish all labor, materials, tools, equipment, and transportation necessary for the proper execution of the WORK in accordance with the CONTRACT DOCUMENTS and all incidental work necessary to complete the PROJECT in an acceptable manner ready for use, occupancy, or operation by the OWNER.
- 15.2 In case of conflict between the DRAWINGS AND SPECIFICATIONS, the SPECIFICATIONS shall govern. Figure dimensions on DRAWINGS shall govern over scale dimensions, and detailed DRAWINGS shall govern over general DRAWINGS.
- 15.3 Any discrepancies found between the DRAWINGS AND SPECIFICATIONS and site conditions or any inconsistencies or ambiguities in the DRAWINGS or SPECIFICATIONS shall be immediately reported to the ENGINEER, in writing, who shall promptly correct such inconsistencies or ambiguities in writing. WORK done by the CONTRACTOR after his/her discovery of such discrepancies, inconsistencies or ambiguities shall be done at the CONTRACTOR'S risk.
- 15.4 ~~The OWNER will furnish free of charge to the contractor up to three (3) copies of the DRAWINGS and SPECIFICATIONS as necessary for the proper execution of the WORK.~~

16. MATERIALS, WORKMANSHIP, SERVICES, AND FACILITIES

- 16.1 It is understood that except as otherwise specifically stated in the CONTRACT DOCUMENTS, the CONTRACTOR shall provide and pay for all materials, tools, equipment, sanitary conveniences, light, power, transportation, supervision, temporary construction of any nature, and

all other services and facilities of any nature whatsoever necessary to execute, complete, and deliver the WORK within the specified time.

- 16.2 All materials furnished shall be new and of the best quality customarily used in or furnished for work of the character of that herein proposed. Many features of the proposed work are described in detail herein, but the failure to so describe any part of the proposed work or any details or appurtenance thereof shall not be an exception to the above rule. The absence of requirements in drawings or specifications covering details usually included in first class installations of this kind shall not excuse the contractor for their omission in this work.
- 16.3 All workmanship shall be of the best quality for WORK of the character of that herein proposed. The CONTRACTOR shall employ only competent employees to do the WORK required.
- 16.4 Materials and equipment shall be so stored as to insure the preservation of their quality and fitness for the WORK. Stored materials and equipment to be incorporated in the WORK shall be located so as to facilitate prompt inspection.
- 16.5 Materials, supplies, or equipment to be incorporated into the WORK shall not be purchased by the CONTRACTOR or the SUBCONTRACTOR subject to a chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
- 16.6 Drinking water furnished for the employees on the job shall comply with O.S.H.A. regulations.

17. PROTECTION OF WORK AND PROPERTY

- 17.1 The CONTRACTOR will be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the WORK—he/she will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to all employees on the site and other persons who may be affected thereby, all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site, and other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.
- 17.2 The CONTRACTOR will comply with all applicable laws, ordinances, rules, regulations, and orders of any public body having jurisdiction. He/she will erect and maintain, as required by the conditions and progress of the WORK, all necessary safeguards for safety and protection. He/she will notify owners of adjacent utilities when prosecution of the work may affect them. The CONTRACTOR will remedy all damage, injury, or loss to any property caused, directly or indirectly, in whole or in part, by the CONTRACTOR, and SUBCONTRACTOR or anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, except damage or loss attributable to the fault of the CONTRACT DOCUMENTS or the acts or omissions, of the OWNER or the ENGINEER or anyone employed by either of them or anyone for whose acts either of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of the CONTRACTOR.
- 17.3 The CONTRACTOR will notify the OWNER at least one week prior to the start of construction.
- 17.4 The CONTRACTOR shall be responsible for verifying the location of any existing utilities. The CONTRACTOR shall notify "Call Before You Dig" at 1-800-922-4455 such that any utility lines can be marked.

- 17.5 In emergencies affecting the safety of persons or the work or property at the site or adjacent thereto, the CONTRACTOR, without special instruction or authorization from the ENGINEER or OWNER, shall act to prevent threatened damage, injury or loss. He/she will give the ENGINEER prompt WRITTEN NOTICE of any significant changes in the WORK or deviations from the CONTRACT DOCUMENTS caused thereby, and a CHANGE ORDER shall thereupon be issued covering the changes and deviations involved.

18. CHANGES IN CONTRACT PRICE

The CONTRACT PRICE may be changed only by a CHANGE ORDER. The value of any WORK covered by a CHANGE ORDER or of any claim for increase or decrease in the CONTRACT PRICE shall be determined by one

or more of the following methods in the order of precedence listed below:

- (a) Unit prices previously approved
- (b) An agreed lump sum
- (c) The actual cost for labor, direct overhead, materials, supplies, equipment, and other services necessary to complete the work. In addition, there shall be added an amount to be agreed upon but not to exceed fifteen (15) percent of the actual cost of the WORK to cover the cost of general overhead and profit.

19. TIME FOR COMPLETION

- 19.1 The date of beginning and the time for completion of the WORK are essential conditions of the CONTRACT DOCUMENTS and the WORK embraced shall be commenced on a date specified in the NOTICE TO PROCEED.
- 19.2 The CONTRACTOR will proceed with the work at such rate of progress to insure full completion within the CONTRACT TIME. It is expressly understood and agreed, by and between the CONTRACTOR and the OWNER, that the CONTRACT TIME for the completion of the WORK described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the WORK.
- 19.3 If the CONTRACTOR is delayed at any time in the progress of the WORK by changes ordered in the WORK, by labor disputes, fire, unusual delay in transportation, unavoidable casualties, causes beyond the CONTRACTOR'S control, or by any cause which the ENGINEER may determine justifies the delay, then the CONTRACT TIME shall be extended by CHANGE ORDER for such reasonable time as the ENGINEER may determine.

20. SUSPENSION OF WORK, TERMINATION AND DELAY

- 20.1 The OWNER may suspend the WORK or any portion thereof for a period of not more than ninety days, or such further time as agreed upon by the CONTRACTOR, by WRITTEN NOTICE to the CONTRACTOR and the ENGINEER which notice shall fix the date on which work shall be

resumed. The CONTRACTOR will resume that WORK on the date so fixed. The CONTRACTOR will be allowed an increase in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both, directly attributable to any suspension.

- 20.2 If the CONTRACTOR is adjudged as bankrupt or insolvent, or if he/she makes a general assignment for the benefit of their creditors, or if a trustee or receiver is appointed for the CONTRACTOR or for any of his property, or if he/she files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or applicable laws, or if he/she repeatedly fails to supply sufficient skilled workmen or suitable materials or equipment, or if he/she repeatedly fails to make prompt payments to SUBCONTRACTORS or for labor, materials, or equipment or if he/she disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction of the WORK or if he/she disregards the authority of the ENGINEER, or if he/she otherwise violates any provision of the CONTRACT DOCUMENTS, then the OWNER may, without prejudice to any other right or remedy and after giving the CONTRACTOR and his/her surety a minimum of ten (10) days from delivery of a WRITTEN NOTICE, terminate the services of the CONTRACTOR and take possession of the PROJECT and of all materials, equipment, tools, construction equipment, and machinery thereon owned by the CONTRACTOR and finish the WORK by whatever method he/she may deem expedient. In such case the CONTRACTOR shall not be entitled to receive any further payment until the WORK is finished.

If the unpaid balance of the CONTRACT PRICE exceeds the direct and indirect costs of completing the PROJECT, including compensation for additional professional services, such excess SHALL BE PAID TO THE CONTRACTOR. If such costs exceed such unpaid balance, the CONTRACTOR will pay the difference to the OWNER. Such costs incurred by the OWNER will be determined by the ENGINEER and incorporated in a CHANGE ORDER.

- 20.3 Where the CONTRACTOR'S services have been so terminated by the OWNER, said termination shall not affect any right of the OWNER against the CONTRACTOR then existing or which may thereafter accrue. Any retention or payment of monies by the OWNER due the CONTRACTOR will not release the CONTRACTOR from compliance with the CONTRACT DOCUMENTS.
- 20.4 After ten (10) days from delivery of a WRITTEN NOTICE to the CONTRACTOR and the ENGINEER, the OWNER may, without cause and without prejudice to any other right or remedy, elect to abandon the PROJECT and terminate the contract. In such case, the CONTRACTOR shall be paid for all WORK executed and any expense sustained plus reasonable profit.
- 20.5 If, through no act or fault of the CONTRACTOR, the WORK is suspended for a period of more than ninety (90) days by the OWNER or under an order of court or other public authority, or the ENGINEER fails to act on any request for payment within thirty(30) days after it is submitted, or the OWNER fails to pay the CONTRACTOR substantially the sum approved by the ENGINEER or awarded by arbitrators within (30) days of its approval and presentation, then the Contractor may, after ten (10) days from delivery of a WRITTEN NOTICE to the OWNER and the ENGINEER, terminate the CONTRACT and recover from the OWNER payment for all WORK executed to date. In addition and in lieu of terminating the CONTRACT, if the ENGINEER has failed to act on a request for payment or if the OWNER has failed to make any payment as aforesaid, the CONTRACTOR may upon Ten (10) Days written notice to the OWNER and the ENGINEER stop the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK until he has been paid all amounts then due, in which event and upon resumption of the WORK, CHANGE ORDERS shall be issued for adjusting the CONTRACT PRICE or extending the CONTRACT TIME or both to compensate for the costs and delays attributable to the stoppage of the WORK. In no event shall Contractor be entitled for costs and expenses for work not yet completed.
- 20.6 If the performance of all or any portion of the WORK is suspended, delayed, or interrupted as a result of a failure of the OWNER or ENGINEER to act within the time specified in the

CONTRACT DOCUMENTS, or if no time is specified, within a reasonable time, an adjustment in the CONTRACT PRICE or an extension of the CONTRACT TIME, or both shall be made by CHANGE ORDER to compensate the CONTRACTOR for the costs and delays necessarily caused by the failure of the OWNER or ENGINEER.

21. INDEMNIFICATION

- 21.1 The CONTRACTOR will defend and hold harmless the OWNER and their agents and employees from and against all Claims, Damage, Loss, or Expense including Attorney's fees arising out of or resulting from the performance of the WORK, provided that any such Claims, Damage, Loss or Expense is attributed to Bodily Injury, Sickness, Disease or Death, or to injury to or destruction of tangible property including the loss of use resulting therefrom; and is caused in whole or in part by any negligent or willful act or omission of the CONTRACTOR, and SUBCONTRACTOR, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.
- 21.2 In any and all claims against the OWNER or any of their agents or employees, by any employee of the CONTRACTOR or SUBCONTRACTOR, anyone directly or indirectly employed by any of them, or anyone for whose acts any of them may be liable, the INDEMNIFICATION OBLIGATION shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the CONTRACTOR or any SUBCONTRACTOR under Workmen's Compensation Acts, Disability Benefit Acts or other Employee Benefits Acts.
- 21.3 The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the OWNER or any of its agents or employees arising out of the preparation or approval of MAPS, DRAWINGS, Opinions, Reports, Surveys, CHANGEORDERS, Designs, or SPECIFICATIONS.

22. SEPARATE CONTRACTS

- 22.1 The OWNER reserves the right to let other contracts in connection with this PROJECT. The CONTRACTOR shall afford other CONTRACTORS reasonable opportunity for the introduction and storage of their materials and the execution of their WORK and shall properly connect and coordinate his WORK with theirs. If the proper execution or results of any part of the CONTRACTOR's WORK depends upon the WORK of any other CONTRACTOR, the CONTRACTOR shall inspect and promptly report to the ENGINEER any defects in such WORK that render it unsuitable for such proper execution and results.
- 22.2 The OWNER may perform additional WORK related to the PROJECT by himself, or he may let other Contracts containing provisions like these. The CONTRACTOR will afford the other CONTRACTORS who are Parties to such CONTRACTS (or the OWNER, if he is performing the additional WORK himself), reasonable opportunity for the introduction and storage of materials and equipment and the execution of WORK, and shall properly connect and coordinate his WORK with theirs.
- 22.3 If the performance of Additional WORK by other CONTRACTORS or the OWNER is not noted

in the CONTRACT DOCUMENTS prior to the execution of the CONTRACT, written notice thereof shall be given to the CONTRACTOR prior to starting any such additional WORK. If the CONTRACTOR believes that the performance of such additional WORK by the OWNER or others involves him in additional expense or entitles him to an extension of the CONTRACT TIME, he may make a Claim therefore as provided in Sections 22 and 23.

23. SUBCONTRACTING

- 23.1 The CONTRACTOR may utilize the services of Specialty SUBCONTRACTORS on those parts of the WORK which, under normal contracting practices, are performed by Specialty CONTRACTORS.
- 23.2 The CONTRACTOR shall not award WORK to SUBCONTRACTOR(s) in excess of Fifty (50) Percent of the CONTRACT PRICE, without prior written approval of the OWNER.
- 23.3 The CONTRACTOR shall be fully responsible to the OWNER for the Acts and omissions of his SUBCONTRACTORS, and of persons either directly or indirectly employed by him
- 23.4 The CONTRACTOR shall cause appropriate provisions to be inserted in all subcontracts relative to the WORK to bind SUBCONTRACTORS, as applicable to the WORK OF SUBCONTRACTORS and to give the CONTRACTOR the same power as regards terminating any subcontract that the OWNER may exercise of the CONTRACTOR under any provision of the CONTRACT DOCUMENTS.
- 23.5 Nothing contained in this CONTRACT shall create any contractual relation between any SUBCONTRACTOR and the OWNER.

24. GUARANTY

The CONTRACTOR shall guarantee all materials and equipment furnished and WORK performed for a period of one (1) year from the date of SUBSTANTIAL COMPLETION. The CONTRACTOR warrants and

guarantees for a period of one (1) year from the date of SUBSTANTIAL COMPLETION of the PROJECT that the completed PROJECT is free from all defects due to faulty materials or WORKMANSHIP and the CONTRACTOR shall promptly make such corrections as may be necessary by reason of such defects including the repairs of any damage to other parts of the PROJECT resulting from such defects. The OWNER will give notice of observed defects with reasonable promptness. In the event that the CONTRACTOR should fail to make such repairs, adjustments, or other WORK that may be made necessary by such defects, the OWNER may do so and charge the CONTRACTOR the cost thereby incurred.

~~The PERFORMANCE BOND or a MAINTENANCE BOND shall remain in force at a value of 25% of the completed WORK through the GUARANTEE PERIOD.~~

25. DISPUTE RESOLUTION

- 25.1 All claims, disputes and other matters in questions arising out of, or relating to, the CONTRACT DOCUMENTS or the breach thereof, except for claims which have been waived by the making and acceptance of Final Payment as provided by Section 16, shall be decided by Arbitration in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. This agreement to arbitrate shall be specifically enforceable under the prevailing Connecticut Arbitration law.
- 25.2 Notice of the Demand for Arbitration shall be filed in writing with the Other Party to the CONTRACT DOCUMENTS and with the American Arbitration Association, and a copy shall be filed with the Engineer. The Demand for Arbitration shall in no event be made on any claim, dispute, or other matter in question which would be barred by the applicable Statute of Limitations.
- 25.3 The CONTRACTOR will carry on the WORK and maintain the Progress Schedule during any Mediation proceedings, unless otherwise mutually agreed in writing.

26. TAXES

The CONTRACTOR will pay all consumer, use, and other similar taxes required by the Law of the Place where the WORK is performed. This WORK is being performed for a Municipal Government and is exempt from Sales Tax.

SUPPLEMENTAL GENERAL CONDITIONS

1. PA 86-87, AAC Workers' Compensation Insurance Requirements for Contractors on Public Works projects and State licenses, prohibits municipalities from entering into a public works contract with an employer without receiving sufficient evidence from the employer that he has workers' compensation insurance and a statement from the state treasurer that the employer does not owe the Second Injury and Compensation Assurance Fund any money.
2. The Town of Simsbury Public Works Department shall be notified at least five (5) days prior to beginning work.
3. ~~Prior to beginning work, the "Call Before You Dig" service shall be notified by the Contractor by calling 811 or 1-800-922-4455, or, if the contractor is registered, by e-ticket entry, such that any underground utilities in the immediate vicinity of the work can be marked.~~
4. All staking and surveying will be the responsibility of the Contractor.
5. ~~All road monuments and lot pins shall be PRESERVED. Cost of resetting will be back charged to the Contractor.~~
6. Sales and Use Tax Exempt Purchase Certificate/ The Contractor's attention is called to Regulation 18 as amended promulgated by the Sales and Use Tax Division of the State Tax Department, which provided for the Exemption of the sales and use tax on the purchase of such materials and supplies as are to be physically incorporated in and become a permanent part of the project being performed under this contract. The Contractor or Subcontractor shall furnish his suppliers with a completed certificate, in the prescribed form; a copy of which is attached to these specifications
7. Upon completion or termination of the work, the Contractor shall remove from the vicinity of the work all equipment and all temporary structures, waste materials and rubbish resulting from its operations, leaving the premises in a neat and acceptable condition. In the event of failure to do so, the same may be done by the Owner at the expense of the Contractor.
8. The Contractor shall pay for any broken utility lines, except where the utility company may be liable under the "Call Before You Dig" law. The Owner will only pay for relocations necessary to complete the work of this project
9. In accordance with Executive Order 11246, the Contractor is obliged not to discriminate against any employee or applicant for employment because of race, color, creed, or national origin. This obligation not to discriminate in employment includes, but is not limited to, the following: hiring, placement, upgrading, transfer, demotion, recruitment, advertising, solicitation for employment training during employment, rates of pay or other forms of compensation, selection for training including apprenticeship, layoff, or termination.
10. For all new underground facilities installed after January 1, 1989 which is practicable and for all repairs, replacements or modifications involving an exposure of existing underground facilities at least 100 feet longitudinally after January 1, 1989, of which the utility has knowledge of such exposure, the utility shall install a warning tape located above the facility, and keep appropriate records thereof. The minimum separation between the facility and the warning tape shall be 12 inches unless the depth, other underground facilities or other engineering considerations make the minimum separation infeasible. The warning tape shall be durable, designed to withstand extended underground exposure, be of color assigned to the type of facility for surface markings in Section 16-345-5 (h) and durable imprinted with an appropriate warning or message.

11. BIDDER'S RESPONSIBILITY

Bidder will be held to have carefully and diligently examined the existing building and to have made all necessary investigations, to inform themselves thoroughly and fully as to the facilities for delivery of materials and equipment, and to have informed themselves fully as to all difficulties that may be encountered in complete execution of all work.

No consideration or allowance will be granted for failure to visit the site or for any alleged misunderstanding of materials to be furnished, or work to be done and executed, it being that tender of a proposal carries with it agreement to all items and conditions referred to herein.

12. LAWS AND PERMITS

Contractor shall comply with all Federal, State and Local Municipal Laws and Ordinances, prepare all documents, give all notices, pay all fees, secure all permits, conduct all tests and inspections, and obtain all approvals from agencies having jurisdiction. Prior to commencement of work, copies of all required filings and approvals shall be furnished to the Town of Simsbury.

All work and materials shall be in full accordance with the rules of all other departments having jurisdiction.

The Contractor shall immediately inform the Town of Simsbury of any work or materials which violate any of the above laws and regulations, and all work done by the Contractor causing such violations shall be corrected by the Contractor at his own expense.

PART 1 - GENERAL

1.1 GENERAL

- A. All work shall be done in strict accordance with all applicable Codes and Regulations of local and State Agencies and utility companies. This Contractor shall bear the cost of all fees, permits, licenses and taxes and any utility company charges in connection with the work. All equipment installed shall be UL listed.
- B. AIA Document A201-current version, "General Conditions of the Contract for Construction" is hereby made part of these Specifications.
- C. Prime Contractor shall be the Mechanical Contractor who shall arrange and be responsible for all work in Contract Documents including any subcontracted work.

1.2 SCOPE

A. BASE BID – New Cold Floor Chiller

- 1. Requires the contractor to pump down and remove the system ammonia charge, drain brine from existing chiller and store on site for re-use. Cut away and remove existing chiller and surge drum. Clean up existing housekeeping pad and make any necessary repairs to make housekeeping pad ready to accept new equipment. Provide and install new chiller. Make all piping connections from chiller to existing refrigeration system. Leak check and pressure test all new piping connections. Insulate new chiller, surge drum and associated piping. Label all new equipment and associated piping in accordance with IIAR standards. Recharge the system with ammonia. Refill the existing cold floor and new chiller with brine, purge air and perform system startup.

B. ADD ALTERNATE #1: Replace Cold Floor Secondary Heat Exchange Fluid from Brine to Ethylene Glycol

- 1. Pump out, remove and properly dispose of the entire cold floor brine charge. Flush cold floor piping system with water, properly disposal of water/brine solution resulting from cold floor piping flush. Refill the Cold Floor piping system with ethylene glycol/water solution to a concentration of 40% ethylene glycol by volume. Run cold floor pumps to circulate ethylene glycol solution and purge air.

C. GENERAL REQUIREMENTS

- 1. Provide all coring of holes, sealing and patching.
- 2. Provide all rigging and crane work required for equipment removal and placement of new equipment.
- 3. Provide all piping supports for new work. Pipe support spacing to be in accordance with ANSI/IIAR 2-2021.
- 4. Provide service/purge valves on all piping mains to facilitate system servicing and ammonia pump out.

5. Provide ¼" MPT x FPT Long Neck Angle Purge Valves on all capped refrigeration isolation valves.
6. Provide isolation valves on all serviceable refrigeration components.
7. Provide drain valves on all ammonia piping low spots and purge valves on all ammonia piping high points. All drain and purge valves to be ¾" and provided with threaded plugs or caps at valve outlets.
8. Provide and install all seismic restraints as required by code.
9. Provide refrigeration system start-up at completion and approval of work.
10. Provide all equipment and component submittals to Owner or Owner's representative for review and approval prior to purchase and/or installation.
11. Provide documented operator training of system operation.
12. Provide electronic copies of all manufacture's equipment Installation, Operation and Maintenance manuals along with any other equipment documentation and drawings.

D. BASE BID CHILLER REPLACEMENT

1. Obtain all applicable permits required for the performance of the work.
2. Pump down, remove and properly dispose of existing refrigeration system ammonia charge.
 - a. Ammonia system pump down to be performed by licensed ammonia refrigeration technicians.
 - b. Removal and disposal of system ammonia charge to be performed by a qualified and licensed anhydrous ammonia distributor.
3. Drain brine from existing chiller and associated piping into 275-gallon totes. Store on site for refilling of the system following completion of chiller replacement.
4. Cut and remove piping to/from existing chiller back to nearest isolation valves or as far as needed to allow for existing chiller removal. All ammonia piping cut back for existing chiller removal connected to any portion of the system that still contains ammonia shall be temporarily capped. No portions of the system containing ammonia refrigerant are to be left open to atmosphere even if isolated by a closed refrigeration valve.
5. Remove and properly dispose of existing Brine Chiller and surge drum.
6. Remove and properly dispose of existing Brine Chiller piping, valves and fittings required for chiller replacement.
7. Repair or replace existing chiller concrete housekeeping pad as needed.
8. Provide and install new HT Industrial Chiller W/Surge Drum.
9. Connect existing ammonia and brine piping systems to new chiller.
10. Re-install any and all control devices, temperature sensors, pressure gauges, pressure transmitters, level controls, high level cut-outs, etc.
11. Insulate, paint and label new refrigeration piping in accordance with IIAR 2 standards.
12. Pressure test and evacuate new system components and piping.
13. Provide and install new system ammonia charge (approximately 800# +/-). Anhydrous ammonia to be used for system charging shall be a minimum of 99.5% pure and meet additional purity requirements as stated in ANSI/IIAR 2-2021 section 5.2, table 5.2.12.
14. Provide system start-up and operator training.

E. ADD ALTERNATE #1: Replace Cold Floor Secondary Heat Transfer Fluid from Brine to Ethylene Glycol

1. Pump out, remove and properly dispose of entire Cold Floor Brine charge.
2. Flush existing Cold Floor piping system with water as many times as needed to remove residual calcium chloride.
3. Refill Cold Floor piping and new chiller with new inhibited ethylene glycol/water solution.
4. Run Cold Floor Pump to circulate heat transfer fluid and purge air from system.
5. Once all air has been removed, install any additional 40% ethylene glycol/water solution as needed to bring system charge up to proper operating level.
6. Run system and monitor for proper operation.
7. Take a sample of final secondary heat transfer solution mixture. Send sample to local chemical lab for analysis. Provide a written report confirming ethylene glycol and rust inhibitor concentrations along with a list of contaminants and quantities if any.

1.3 CONTRACTOR QUALIFICATIONS

- A. The Contractor must have completed five similar projects within the past 8 years. All isolation and pump outs of ammonia refrigeration equipment/components shall be performed by licensed ammonia refrigeration technicians. All pipe welding shall be performed by NCPWB/AWS certified welders holding welder qualification test records for the appropriate welding methods used for the joining of refrigeration piping systems in accordance with ASTM B31.5 and ANSI/IIAR 2, latest revisions.

1.4 PERMITTING

- A. Contractor shall obtain and pay for all applicable permits.

1.5 PRE-BID MEETING

- A. Bidding contractors will be required at the Owner's discretion to attend an onsite pre-bid meeting with the Owner and/or Owner's representative to review project scope and details.

1.6 DESIGN CRITERION

- A. System design pressure and materials of construction shall be in accordance with IIAR 2 section 5.5.3 Minimum design pressure shall be 250PSIG.

1.7 SUBMITTALS

A. General

1. The contractor shall submit product information and shop drawings for all major project components including heat exchangers, piping components, valves, insulation, compressors, evaporative condensers, safety mechanisms, etc. to the owner no more than 30 days from the contract award date and prior to the contractor's initial request for payment. One (1) electronic copy shall be provided. Each submission shall contain a cover sheet with the following information:
 - a. Project Name
 - b. Date
 - c. Contractor Name
 - d. Sub-Contractor Name
 - e. Supplier Name
 - f. Product Name
 - g. Line for Owner's Approval and Date Stamp

B. Product Data Submittals

1. Product information submittals for approval shall include the following (as applicable):
 - a. Materials
 - b. Quantities
 - c. Capacities
 - d. Surface/Coil Areas
 - e. Heat Transfer Rates
 - f. Operating Pressures and Temperatures
 - g. Ratings
 - h. Fluid Capacities and Compatibilities
 - i. Physical Dimensions and Weights

C. Material/Equipment Procurement Note

1. The contractor must have approval from the Owner or the Owner's representative in writing prior to proceeding with the ordering of materials/equipment.

1.8 GUARANTEE

- A. Materials, equipment and workmanship shall have standard warranty against defects in material and workmanship. Any failure due to defective or improper material, equipment, workmanship or design shall be made good, forthwith, by and at the expense of the Contractor, including any damage done to areas, materials and other systems resulting from this failure. Guarantee period shall extend for one year from the Date of Acceptance.

- B. The HVAC Contractor shall provide a guarantee covering all material and workmanship for 1 year following the Date of Acceptance.

1.9 DEFINITION

- A. As used on Contract Documents, the term “to provide” shall mean “to furnish, install and connect completely in the specified or approved manner the item or material described.”

1.10 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Upon completion of the project, the HVAC Contractor shall fully instruct the Owner in the operation, adjustment and maintenance of all equipment and systems furnished.
- B. The HVAC Contractor shall provide the Owner with three (3) sets of complete maintenance and operating instructions, and technical data, in booklet form, of all equipment and devices furnished in the Contract.
- C. Manuals shall include all of the following:
 - 1. Contact Information
 - a. Name, Address and contact numbers of installing refrigeration contractor
 - b. Name, Address and contact numbers of refrigeration consultant
 - c. Phone numbers for emergency refrigeration services
 - d. Phone numbers for all emergency responders
 - 2. Equipment Suppliers
 - a. Manufacturer
 - b. Model and Serial Number
 - c. Duty withing system
 - d. Sales office contact numbers
 - e. Equipment data sheets
 - f. Normal operating parameters
 - g. Shop drawings
 - h. Spare Parts List
 - i. Maintenance requirements and intervals
 - j. Troubleshooting guide
 - 3. Drawings
 - a. Copy of manufacture’s equipment drawings
 - b. Parts breakdown drawings
 - c. Update of existing system P & ID with line and valve markings and highlighting emergency isolation valves. One copy of P & ID to be laminated and mounted in the Engine Room.
 - d. Markup of existing wiring diagrams identifying changes if any.

1.11 INSURANCE

- A. Furnish insurance certificates required by the Owner.

1.12 ARRANGEMENT OF WORK

- A. Work shall be coordinated between trades to prevent unnecessary interference. Work shall present a neat coordinated appearance. Install work as necessary to provide maximum possible headroom, adequate clearance and ready access for inspection, operation, safe maintenance and repair, and Code conformance. Where space appears inadequate, consult the Owner before proceeding with installation.

1.13 PERMITS, LAWS, ORDINANCES, CODES AND STANDARDS

- A. Obtain and pay for permits, inspections, licenses and certificates required. Work of this Contract shall meet current accepted editions of the State Building Code, State Fire Safety Code and other laws, rules and regulations of local, State and Federal authorities including, but not limited to: National Fire Protection Association #13; National Fire Protection Association #90A; National Fire Protection Association #90B; National Fire Protection Association #99; International Plumbing Code; International Mechanical Code; National Fire Protection Association #70 (National Electrical Code); and local utility company requirements. Pay utility company backcharges. Equipment, materials and components listed UL Product Directories, shall bear UL labels.

1.14 FILTERS AND STRAINERS

- A. Any equipment which operates with filters or strainers shall have filters and strainers installed at all times.

1.15 WORK BY OTHERS

- A. The HVAC Contractor shall install all motors provided under the HVAC Contract ready for wiring by the Electrical Contractor and shall furnish and deliver to the Electrical Contractor wiring diagrams for all motor starters for installation and wiring. The HVAC Contractor shall furnish motor starters, relays and all temperature control equipment to the Electrical Contractor for installation and wiring. The General Contractor shall perform all excavation, backfill, chases, openings, cutting, patching and finish work.

1.16 FIELD MEASUREMENTS

- A. The HVAC Contractor shall verify in the field all measurements necessary for the work. Verify thermostat locations with the Owner before installation.

1.17 WORKMANSHIP

- A. Equipment and materials shall be new, of first quality, selected and arranged to fit properly into spaces indicated. Install equipment and materials in accordance with manufacturer's recommendations.

1.18 COORDINATION WITH OWNER

- A. All work shall be scheduled with the Owner. Interruptions in the Owner's access to the site shall be subject to Owner limitations of date and duration.

1.19 OPERATION OF SERVICES AND UTILITIES

- A. Shutdown of existing services and utilities shall, without exception, be coordinated with the proper utility and with the Owner as to date, time of day, and duration before any service is interrupted. Notify the Owner of estimated duration of shutdown period at least ten days in advance of proposed shutdown.

1.20 PROTECTION

- A. Close open ends of work with temporary covers or plugs during construction to prevent entry of obstructing material or damaging water. Protect existing property, equipment and finishes from damage. Repair, to original condition, existing property that has been damaged during execution of the work.

1.21 CLEANING

- A. Work site must be kept clean. Rubbish, debris and leftover or excess materials shall be removed daily.

1.22 CUTTING AND PATCHING

- A. Areas disturbed by new construction or demolition shall be patched and repaired to match existing conditions. Patch painting of ceilings shall include painting of entire ceiling of room involved. Patch painting of other surfaces shall be to nearest cut-off point.

1.23 BASES AND SUPPORTS

- A. Provide necessary supports, pads, bases and piers required. Equipment shall be securely attached to building structure in acceptable manner. Attachments shall be of strong and durable nature, as determined by the Owner.

1.24 ACCESS

- A. Provide adequately sized access doors, for access to concealed equipment and components requiring servicing or inspection. Doors shall have fire ratings equal to construction in which they are located.

1.25 TESTS

- A. Perform tests required by the Owner, legal authorities and agencies. Each piece of equipment, including motors and controls, shall be operated continuously for minimum one-hour test. Correct all defects appearing during tests, and repeat tests until no defects are disclosed. Final tests shall be made in the Owner's presence.

1.26 CUSTOMER TRAINING

- A. Commissioning does not necessarily require full performance operation. At commissioning, the system shall be operated with the available heat load.
- B. During the commissioning of the system the trained start-up technician shall involve the persons responsible for the day-to-day operation of the system.
- C. The system shall be operated to demonstrate correct function. During the commissioning, pressures and temperatures shall be recorded and all level controls shall be checked for satisfactory operation.
- D. Following the training of the system operators, and after safety and function have been demonstrated, and there has been a period of continuous and fault free running, the refrigeration system may be handed over to the persons responsible for the day-to-day operation of the system.
- E. The manufacturer's instructions on oil and filter changes during start-up and the first weeks of operation shall be observed.
- F. The operating staff shall log pressures, temperatures and levels, and inspect the system for leaks, oil consumption and other faults if any, at frequent intervals. This procedure shall not be confined to the machinery room but should also include the entire refrigerating system.
- G. The Commission shall be considered complete when the requirements of items 1 thru 6 above are satisfied.

1.27 APPLICABLE CODES AND STANDARDS

- A. Contractor supplied work shall comply with all applicable local, State and Federal requirements including but not limited to the latest version of the following specific codes and associations:
 - 1. ASME B31.1 – Power Piping
 - 2. ASME B31.5 – Refrigeration Piping and Heat Transfer Components.
 - 3. ANSI/ASHRAE Standard 15 – Safety Standards for Refrigeration Systems.
 - 4. ANSI/ASHRAE Standard 34 – Designation and Safety Classification of Refrigerants.
 - 5. ANSI/IIAR 2 – Standard for Safe Design of Closed Loop Ammonia Refrigeration Systems
 - 6. IIAR Bulletin 114 – Identification of Ammonia Refrigeration Piping and System components
 - 7. IMC

8. NFPA
9. NEC
10. IBC

PART 2 - PRODUCTS

2.1 CHILLER

- A. (1) HT Industrial Model FA-20186-210 Flooded Chiller w/Horizontal Surge Drum
- B. Vessel to be designed and constructed in accordance with ASME section VIII Division 1, 2021 edition, UW-12(d) and CSA B-51 codes and TEMA Class N/A.
- C. Vessel to be clean and free of all dirt and scale.
- D. All exposed inside edges to be chamfered or rounded.
- E. Exterior finish: One coat grey rust inhibitive primer.
- F. Unit to be pneumatically tested.
- G. Corrosion Allowance: Shell Side – None, Tube Side - None
- H. Design Conditions:
 1. Shell Side D.W.P.: 250PSIG Tube Side D.W.P.: 150PSIG
 2. Shell Side D.W.T.: -20°F/200°F Tube Side D.W.T.: -20°F/150°F
 3. Min. D. Metal T.: -20°F @ 250PSIG Min. D. Metal T.: -20°F @ 150PSIG
- I. Primary Refrigerant: Ammonia
- J. Capacity: 110TR @ 5°F SST
- K. Heat Transfer Fluid: 21% CaCl₂ with Z-5760 (10X) inhibitor
- L. Flow: 1000 USGPM
- M. Fluid Inlet/Outlet Temperature: 17.1°F / 14°F
- N. Materials:
 1. Shell: SA 53B ERW
 2. Nozzles: SA 106B SMLS/SA 105N
 3. Tube Sheets: SA 516 70
 4. Heads: SA 516 70
 5. Flange Rings: SA 516 70
 6. Bolting: SA 193 B7 / SA 194 2H
 7. Tubes: SA 179 SMLS - Plain

2.2 CHILLER CONTROLS

- A. Re-install existing chiller liquid make-up controls.
- B. Install refrigerant liquid level float switch on new chiller level column at manufacturer's recommended position.
- C. Install High Level Cut Out switch on new chiller level column at manufacturer's recommended position and wire in series with compressor shutdown circuit.

2.3 ADD ALTERNATE #1: Replace brine heat transfer fluid with glycol

- A. Flush existing Cold Floor piping system with water as many times as needed to remove residual calcium chloride brine solution from Cold Floor until Ph of rinse water is within .01Ph of fresh water used for flushing.
- B. Refill Cold Floor piping and new chiller with new inhibited ethylene glycol/water solution to a concentration of 40% ethylene glycol by volume.

2.4 REFRIGERATION PIPING

- A. All ammonia piping shall be in accordance with IIAR 2 guidelines and specifications as follows:
- B. Pipe used for ammonia refrigerating systems shall be:
 - 1. Clean, new and free of rust, scale, sand, dirt, etc. Pipe which has been stored inside, out of the weather, and which has been capped and charged with dry nitrogen by the manufacturer is recommended, if available.
 - 2. Of domestic or foreign manufacture meeting or exceeding ASME/ANSI B31.5 specifications, the specifications below, and if supplied with suitable and traceable mill certifications. Any grade F pipe is prohibited.
 - 3. Pipe 1 1/2" diameter and smaller shall be Schedule 80, SA106, grade B, seamless.
 - 4. 2" diameter pipe shall be schedule 40, SA106 grade B, seamless.
 - 5. Pipe 2-1/2" diameter through 10" diameter shall be schedule 40, SA53, grade B, ERW, or SA106 grade B, seamless.
 - 6. Pipe 12" diameter and larger shall be standard wall, SA53, grade B, ERW, or SA106, grade B, seamless.
 - 7. For systems where pipe temperatures below -20°F will be encountered, particular reference to ASME/ANSI B31.5 paragraph 523.2.2 is required. In these cases, impact tested pipe and fitting materials such as SA333, grade 6, is required or stress analysis must be made of the piping system in accordance with the above paragraphs.
- C. Pipe connections shall be as follows:
 - 1. All piping 2" diameter and larger shall be joined by welding.
 - 2. Piping 1 1/2" diameter and smaller may be joined by threaded fittings, or welding.

D. Pipe fittings shall be as follows:

1. Fittings for pipe 1 ½" diameter and smaller may be:
 - a. 2000# forged steel threaded fittings, SA105
 - b. 3000# forged steel socket weld fittings, SA105
 - c. Schedule 80, butt weld fittings, SA234.
 - d. It is imperative that any welder joining pipe with these fittings be qualified under an approved procedure for these small sizes.
2. For piping 2" in diameter and larger, butt weld fittings, SA234 shall be used, compatible with the wall thickness of the pipe.
 - a. 2" piping may also be joined by using 3000# forged steel socket weld fittings, SA105.
3. All pipe nipples shall be Schedule 80, SA106, grade B, seamless. Close nipples shall not be used.
4. When using any socket weld fittings, the pipe must be withdrawn from the shoulder of the fitting approximately 1/16" before welding.

E. Refrigeration valves and control devices:

1. All refrigeration valves shall be from one of the following manufacturers: Hansen, Refrigerating Specialties or Danfoss
2. All valve stems shall be seal capped unless otherwise specified.
3. All service/purge valves ¾" and smaller used for interface with other system components shall be threaded. All valve open ends shall be plugged or gapped when not in use.
4. All valves 2-1/2" and smaller shall be socket weld.
5. All valves 3" and larger shall be Butt-Weld.
6. All High side and Low side pressure relief valves shall be Hansen Pop-Eye indicating relief valves designed for 250 PSI.

PART 3 - EXECUTION

3.1 REMOVAL, RELOCATION AND/OR ABANDONMENT

- A. Certain items of existing equipment and piping may be indicated for removal, relocation or abandonment. Items noted for removal shall be disconnected and turned over to the Owner or disposed of by the Contractor if the Owner so requests. Items noted for relocation are intended for reuse in another location as designated on the Drawings. It shall be the responsibility of the Contractor to remove the material from its present location, store the material in a safe place and reinstall the material in its new location. Questions regarding the suitability of the material or equipment shall be brought to the attention of the Architect/Engineer in writing. Abandonment shall be defined as abandoning in place any item so designated and shall include proper piping or ductwork termination within any occupied or open area. All abandoned pipes shall be disconnected and capped at their mains.

3.2 BALANCING WATER SYSTEMS

- A. This contract is for all labor, materials and equipment required for the water systems.
- B. The Balancing Contractor shall attend a coordination meeting with the HVAC and ATCS Contractors to coordinate sensor locations.
- C. Upon completion of all tests and balancing operations, the Contractor shall submit five (5) copies of the certified Balancing Report to the General Contractor. This report shall include all data for the rink chilled water system.

3.3 AMMONIA (NH₃) REMOVAL/DISPOSAL

- A. Prior to disconnecting any system piping or equipment, pump down and remove system ammonia charge as follows:
 - 1. Prior to system pump out, contractor shall submit detailed written pump out procedure to Owner and/or Owner's representative for review and approval.
 - 2. If tank truck is to be used for the removal of the ammonia charge, coordinate with owner and/or owner's representative where the tank truck will be parked and what connections will be used on the refrigeration system so that ammonia can be transferred from the system to the tank truck.
 - 3. Remove and properly dispose of system ammonia charge, including ammonia/water solutions generated in the removal and purging of the system ammonia charge.

3.4 PIPING

- A. All piping removed to provide for existing chiller removal is to be re-installed with new piping appropriately sized for new chiller capacities. The piping layout shall be modified as needed to accommodate installation of the new equipment. The contractor shall be responsible for providing and installing all piping components required to provide a complete and fully functional system.

3.5 INSULATION

- A. All piping and equipment shall be insulated to match existing. Insulating materials and installation shall be in accordance with IIAR 2 – Standard for Design of Safe Close Circuit Ammonia Refrigeration System.

3.6 PAINTING

- A. All new uninsulated piping systems, piping support supplemental steel and equipment support frames shall be painted in accordance with the project drawings and/or specification and in accordance with IIAR 2 recommendations.

3.7 IDENTIFICATION

- A. All new piping and equipment installed as part of this project shall be labelled and identified in accordance with IIAR Bulletin No. 114.

3.8 START UP AND COMMISSIONING

A. General

- 1. Upon completion of installation, the ammonia refrigerating system shall be field tested to ensure that it is leak free. All parts of the system not factory tested shall be exposed to field test pressures based on minimum design pressures stated in Section 2 of this specification or actual high and low side design pressures, whichever are greater. A pre-test inspection shall be made to verify that all components in the section of piping under examination have a pressure rating which meets or exceeds the specified field test pressure. All leaks shall have been repaired and defective material shall have been replaced. Pressure test shall be documented and approved by Owner or Owner's designated representative using the Standard Testing Record Form provided in Appendix A of this specification.

B. Preparation for Leak Testing

- 1. All joints shall remain un-insulated until field leak testing has been completed. Note that some jurisdictions require welded joints to remain unpainted until field leak testing has been completed and witnessed by a representative of the jurisdiction. Prior to testing, the following preparations shall be made:
 - a. Valve off and isolate from any test pressures any refrigeration component that has been factory tested and may be harmed by test pressure, such as pressure switches and pressure transducers.
 - b. Remove all safety pressure relief devices and cap or plug the openings.
 - c. Open all solenoid, pressure-regulating, check or other control devices by means of their manual lifting stems.
 - d. Open all other valves except those leading to the atmosphere.

C. Pressurization Procedure

- 1. The test gas shall be introduced into the system gradually through the charging valve, or other suitable injection point installed with a stop valve. The test pressure shall be verified using a calibrated pressure gauge located on the part of the system being tested. No leak repairs shall be made while that part of the system is under pressure. A suitable dry gas such as nitrogen or air shall be used for field leak testing. The following fluids shall not be used for field leak testing an ammonia refrigeration system:
 - a. Oxygen or any combustible gas or combustible mixture of gases
 - b. Carbon dioxide
 - c. Halocarbon refrigerants
 - d. Water or water solutions.

D. Evacuation

1. Upon completion of the leak test, evacuate the system to a vacuum of at least 16" Hg (about 406,000 microns) and hold for charging.

E. Termination of Evacuation

1. At the completion of evacuation, break the vacuum with gaseous ammonia and introduce a sufficient amount to subject the system to approximately 100 psi (689.5 kPa gauge) (6.9 bar gauge) ammonia pressure. At the completion of evacuation and final leak check, return all automatic and electrically controlled valves to their normal operating positions. Any other controls or valves which were manually opened for the evacuation procedure shall also be returned to their normal operating state.

F. Pre-charging Check List

1. Prior to charging the system with ammonia, the following items must be completed:
 - a. Ammonia Safety Training Complete
 - b. Hazard Review Complete
 - c. Ventilation System Operational
 - d. Alarms Operational
 - e. Adequate Water Supply Available
 - f. Eye Wash Station Operational
 - g. Ammonia Detection System Operational
 - h. Emergency Shutdown Operational
 - i. Evacuation and Pressure Testing Complete
 - j. Appropriate State and Federal Registration Forms Submitted

G. Pre-Start-up Check List

1. Prior to system start-up, ensure that the following items are completed:
 - a. Condenser Passivation Completed
 - b. High Level Cut-Outs Operational
 - c. Condenser Operational
 - d. Ammonia Inventory Recorded
 - e. Water Treatment System Operational
 - f. Note all temporary conditions or settings
 - g. Test all NH₃ monitoring devices and calibrate as needed.
 - h. Test all Emergency shut offs for proper operation.

H. Equipment Startup

1. All startup and testing shall be performed by Trained and Licensed ammonia refrigeration technicians.

2. General

- a. Startup and test all related mechanical systems. Complete Equipment Pre-Start Check Lists provided in Appendix B. and provide documentation of the following:
- 1) Rated and running amperage of all motors
 - 2) Record quantity of Ammonia charge into applicable systems
 - 3) Record operating levels of ammonia and Brine where applicable
 - 4) Set and record set points for all compressor and condenser safeties
 - 5) When ice rink is down to normal operating temperature, record all operating pressures.
 - 6) Record all temperatures, levels and pressures at normal operating conditions.

END OF SECTION

Appendix A

Simsbury Farms Ice Rink 100 Old Farm Road, West Simsbury, CT 06092

Standard Testing Record Form

Project: _____ Job No. _____

Project Location: _____

Test Date: _____ Ambient Temperature: _____

System Tested: _____

Piping Specification: _____

Design Pressure: _____ PSIG

Operating Pressure: _____ PSIG

Test Pressure: _____ PSIG

Test Method: ☐ Pneumatic ☐ Hydrostatic ☐ Combination

Test Results

Time Test Started: _____ Initial Pressure: _____ Initial Temp: _____ °F

Time Test Completed: _____ Final Pressure: _____ Final Temp: _____ °F

Signatures

Installing Mechanic: _____

Witness: _____ Title: _____

Witness: _____ Title: _____

Remarks: _____

Job Supervisor's Signature: _____ Date: _____

Appendix B

Ammonia Refrigeration Safety Inspection Checklist

HEAT EXCHANGERS

Location: _____ ID/Tag No.: _____
Property Owner: _____
Address: _____
Contact: _____ Phone: _____
Inspector: _____ Date: _____

Type:

Shell & Tube	<input type="checkbox"/>	Falling Film	<input type="checkbox"/>
Shell & Coil	<input type="checkbox"/>	Scraped Surface	<input type="checkbox"/>
Plates in Shell	<input type="checkbox"/>	Plate Freezer	<input type="checkbox"/>
Plate-Heat Exchanger	<input type="checkbox"/>	Jacketed Tank	<input type="checkbox"/>
Pipe in a Pipe	<input type="checkbox"/>	Other (Describe)	<input type="checkbox"/>
Vessel w/Bare Pipe Coil	<input type="checkbox"/>		

Function:

Cascade Condenser	<input type="checkbox"/>	Product Freezer or Cooler	<input type="checkbox"/>
Product Condenser	<input type="checkbox"/>	Air Dryer	<input type="checkbox"/>
NH3 Condenser	<input type="checkbox"/>	Subcooler	<input type="checkbox"/>
Chiller	<input type="checkbox"/>	Ice Builder	<input type="checkbox"/>
Oil Still	<input type="checkbox"/>	Anhydrator	<input type="checkbox"/>
Oil Cooler	<input type="checkbox"/>	Other (Describe)	<input type="checkbox"/>
Dehumidifier	<input type="checkbox"/>		

Equipment Data and Limits:

Manufacturer: _____ Model #: _____ Serial #: _____
ASME Cert. Stamp? ☐ Yes, ☐ No Year Mfg.: _____ National Board #: _____
Refrigerant Side ☐ Shell, ☐ Plates, ☐ Tubes, ☐ Jacket, ☐ Both Sides, ☐ Other: _____
Refrigerant Side MAWP (psig): _____ @ °F _____ MDMT (°F): _____ @ psig _____
Secondary Side MAWP (psig): _____ @ °F _____ MDMT (°F): _____ @ psig _____
Operating (psig /°F): _____ / _____ Normal Liquid Level: _____
Total Internal Vol: _____ Cu. Ft. Normal Ammonia Inventory (lbs.): _____
Material: ☐ Carbon Steel ☐ Stainless Steel ☐ Aluminum ☐ Other: _____
Level Indicator Type: ☐ None, ☐ Armored Bullseye, ☐ Level Column w/Bullseye, ☐ Flat Armored,
☐ Level Column Only, ☐ Level Column w/ Veri/Techni Level

Relief Valve Data:

Manufacturer: _____ Model: _____ Year Installed: _____
 Assembly: ☐ Dual w/change over valve, ☐ Single Type of Relief Valve: ☐ Internal, ☐ External
 Pressure Setting (psig): _____ Capacity (lbs. air per min/SCFM): _____

Ammonia Refrigeration Safety Inspection Checklist

HEAT EXCHANGERS

1:

ID/Tag No.:

Inspection Items	Conforms	Safety Status	Recommended Action, or Comments	Target
Equipment is labeled and the nameplate and ASME # are legible per ASME/IIAR 2?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Equipment suitable for ammonia?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Operating within limits?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Connections tight, adequately anchored, supported?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Easy access for Inspection, Testing, Maintenance (ITM)?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Free of excessive ice buildup?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Free of abnormal sounds/vibration?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Free of ammonia leaks?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Equipment has markers per ANSI/IIAR 2?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Valves in good condition?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Critical manual and control valves tested, exercised, and stems lubricated?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Adequate pressure/temperature gauges or transducers are present and functioning adequately?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Identification drawings on file?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Manufacturer data report on file?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Free of modifications, alterations, damage or repairs such that casing integrity is or has been affected?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Equipment, has it been recertified and documentation filed?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Vertical tubular liquid level sight glasses protected from traffic, have 360° guards and internal check shutoff valves?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			
Insulation free of damage, moisture, frost, or retarder leaks, etc.? If so, note damage level:	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Slight <input type="checkbox"/> Extensive <input type="checkbox"/> <input type="checkbox"/> Not insulated			
Free of pitting and surface damage and free of dirt? If so, note damage level:	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Slight <input type="checkbox"/> Extensive <input type="checkbox"/>			
Free of any other conditions that adversely affect safe operation?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>			