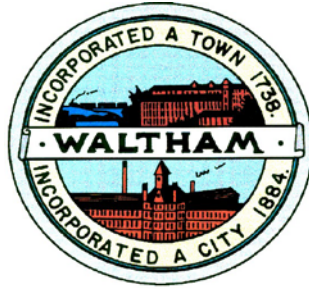


# The City of Waltham



**Invites  
Interested Parties  
To propose the best offer and or bid  
For the service or product herewith described:**

**EQUIPMENT INSTALLATION (MATERIALS) ONLY.  
Veterans Memorial Ice Rink,  
Mechanical Improvements  
(295 Totten Pond Road, Waltham)**

**Bid Opening for GCs: 10:00 AM Wednesday February 7, 2018,**

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Mechanical Improvements**

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**SECTION 000020  
NOTICE TO BIDDERS**

**EQUIPMENT INSTALLATION (MATERIALS) ONLY.**

**Veterans Memorial Ice Rink,  
Mechanical Improvements  
295 Totten Pond Rd.  
WALTHAM, MASSACHUSETTS**

The City of Waltham, Massachusetts invites sealed bids from Contractors for the **EQUIPMENT ONLY (MATERIALS ONLY). Veterans Memorial Ice Rink, Mechanical Improvements, 295 Totten Pond Rd. Waltham, Massachusetts.**

**PLANS, SPECIFICATIONS** and other Contract Documents may be obtained by visiting the City's Web Site at [www.city.waltham.ma.us/open-bids](http://www.city.waltham.ma.us/open-bids)

Copies of Addenda will be e- mailed to the registered Bidders without charge. Addenda will also be posted on the web site above

Sealed **GENERAL BIDS** for this project will be accepted from eligible bidders at the Purchasing Department, Waltham City Hall, 610 Main Street, Waltham, MA 02452 until **10:00 AM FEBRUARY 7 2018**, at which place and time they shall be publicly opened, read aloud and recorded for presentation to the Awarding Authority.

Each general bid shall be accompanied by a bid deposit in the form of a bid bond, certified check, or a treasurer's or cashier's check issued by a responsible bank or trust company, payable to the City of Waltham in the amount of five percent (5%) of the value of the bid

Bids shall be made on the basis of the Minimum Wage Rates as determined by the Commissioner of Labor and Industries, Pursuant to the Provisions of Chapter 30B inclusive of Massachusetts General Laws, a copy of which is found in the City's Web site at [www.city.waltham.ma.us/open-bids](http://www.city.waltham.ma.us/open-bids) .

Bidders' selection procedures and contract award shall be in conformity with the rules of Commonwealth of Massachusetts statute Chapter 30B

A Materials payment bond in the full amount of the contract price will be required from the successful bidder.

The Awarding Authority reserves the right to reject any or all general bids, if it be in the public interest to do so, and to reject any sub-bid on any sub-trade if it determines that such sub-bid does not represent the sub-bid of a person competent to perform the work as specified or that less than three such sub-bids were received and that the prices are not reasonable for acceptance without further competition.

The successful bidder will be required to furnish a Certificate of Insurance, naming the City of Waltham as an Additional Named Insured with a waiver of subrogation, for General Liability and Vehicle Liability

**EQUIPMENT ONLY. Veterans Memorial Ice Rink,  
Mechanical Improvements**

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in the amount of \$1,000,000 per occurrence and \$1,000,000 in the aggregate and Worker's Compensation Insurance as prescribed by law.

**CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.**

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

CITY OF WALTHAM

Joseph Pedulla, CPO  
Purchasing Department  
City Hall, 610 Main Street  
Waltham, MA 02452

## **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

### **SECTION 000025 INSTRUCTION TO BIDDERS**

#### **PART 1 - GENERAL**

##### **1.01 SCHEDULE OF DATES**

- A. Advertisement appears in Central Register, Plans and Specifications ready for Bidders at the Offices of the Waltham Purchasing Agent after 4:30 P.M. on January 22, 2018.
- B. Addenda will be issued with interpretations as determined by the Purchasing Department only via e-mail and posting on the web site.
- C. **General Bids Deadline: 10:00 A.M. February 7, 2018**, in the Purchasing Department, City Hall, 610 Main Street, Waltham, MA 02452, Attn: J. Pedulla, CPO, where the bids will be publicly open and read.

##### **1.02 BIDDING PROCEDURE**

- A. Bids for the work are subject to the provisions of General Laws, Chapter 30B as amended. Regulations governing the bidding procedures as set forth in the above mentioned amended General Laws must be followed.
- B. In the event of any inconsistencies between any of the provisions of these Contract Documents and of the cited statute, anything herein to the contrary notwithstanding, the provisions of the said statute shall control.
- C. No General Bid received by the Awarding Authority after the time respectively established herein for the opening of General Bids will be considered, regardless of the cause for the delay in the receipt of any such bid.

##### **1.03 WITHDRAWAL OF BIDS**

- A. Bids may be withdrawn prior to the time respectively established for the opening of General Bids only on written request to the Awarding Authority.

##### **1.04 INTERPRETATION OF CONTRACT DOCUMENTS**

- A. No oral interpretation will be made to any bidder. All questions or requests for interpretations must be made in writing to the Architect.
- B. Every interpretation made to a bidder will be in the form of an Addendum to the drawings and/or specifications, which will be made available to all persons to whom Contract Documents have been issued.
- C. Failure of the Awarding Authority to send, or of any bidder to receive any such Addendum shall not relieve any bidder from obligation under his bid as submitted.

## **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

- D. All such Addenda shall become a part of the Contract Documents.

### **1.05 CONTRACT DOCUMENTS**

- A. By submitting a bid, the bidder agrees that the Contract Documents are adequate. The successful bidder shall furnish any and all labor, materials, insurance, permits and all other items needed to produce the required result to the satisfaction of the Awarding Authority.

### **1.06 BID SECURITY**

- A. The General Contractor's bid must be accompanied by bid security in the amount of five percent (5%) of the bid.
- B. At the option of the bidder, the security may be bid bond, certified, treasurer's or cashier's check issued by a responsible bank or trust company. No other type of bid security is acceptable.

Bid Bonds shall be issued by a Surety Company qualified to do business under the laws of the Commonwealth of Massachusetts.

- C. Certified, Treasurer's or Cashier's check shall be made payable to the City of Waltham, Massachusetts.
- D. The bid security shall secure the execution of the Contract and the furnishing of a Performance and Payment Bond by the successful General Bidder for 100% of the contract value.
- E. Should any General Bidder to whom an award is made fail to enter into a contract therefore within five (5) days, Saturdays, Sundays and Legal Holidays, excluded, after notice of award has been mailed to him or fail within such time to furnish a Performance Bond and also a Labor and Materials or Payment Bond as required, the amount so received from such General Bidder through his Bid Bond, Certified, Treasurer's or Cashier's check as bid deposit shall become the property of the City of Waltham, Massachusetts as liquidated damages; provided that the amount of the bid deposit, which becomes the property of the City of Waltham, Massachusetts, shall not in any event exceed the difference between his bid price and the bid price of the next lowest responsible and eligible bidder; and provided further that, in case of death, disability, bona fide clerical error or mechanical error of a substantial nature, or other unforeseen circumstances affecting the General Bidder, his deposit shall be returned to him.

### **1.07 BID FORM**

- A. General Bids shall be submitted on the "FORM FOR GENERAL BID, Section 001010" enclosed. Erasures or other changes must be explained or noted over the signature of the bidder.

## **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

- B. Bid forms must be completely filled in. Bids which are incomplete, conditional, or obscure, or which contain additions not called for will be rejected.
- C. General Bidders shall submit one set of executed bid forms to the Awarding Authority.

### **1.08 SUBMISSION OF BIDS AND BID SECURITIES**

- A. Each bid submitted by a General Contractor shall be enclosed in a sealed envelope that shall be placed with the bid security in an outer envelope. The outer envelope shall be sealed and clearly marked as follows:

(Firm Name): \_\_\_\_\_  
General Bid and Bid Security for:

#### **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

### **1.09 AWARD OF CONTRACT**

- A. The Contract shall be awarded to the lowest responsible and eligible General Bidder on the basis of competitive bids in accordance with the procedure set forth in the provision of Chapter 30B of the General Laws of the Commonwealth of Massachusetts.
- B. If the bidder selected as the General Contractor fails to perform his agreement to execute a contract in accordance with the terms of his General Bid, and furnish a Performance Bond and also a Labor and Materials or Payment Bond, as stated in his General Bid an award shall be made to the next lowest responsible and eligible bidder.
- C. The words "lowest responsible and eligible bidder" shall be the bidder whose name is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work and who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed, or to be employed, on the work. Essential information in regard to such qualifications shall be submitted in such form as the Awarding Authority may require.
- D. Action on the award will be taken within sixty (60) days, Saturdays, Sundays and Legal Holidays excluded after the opening of the bids.

### **1.10 SECURITY FOR FAITHFUL PERFORMANCE**

- A. The successful bidder must deliver to the Awarding Authority simultaneously with his delivery of the executed contract, an executed Performance Bond, and also a Labor and materials or Payment Bond, each issued by a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the Awarding Authority and each in the sum of One Hundred Percent (100%) of the Contract Price, as surety for the faithful performance of his contract, and for the payment of all persons performing labor or furnishing materials in connection therewith. Said bonds shall provide that, if

## EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements

the General Contractor fails or refuses to complete the Contract, the Surety Company will be obligated to do so.

- B. Premiums are to be paid by the General Contractor, and are to be included in the Contract Price.

### 1.11 EQUAL OPPORTUNITY

- A. The City of Waltham is an Equal Opportunity employer and will require compliance with the minority business enterprise plan (MBE) on file in the Purchasing Department

### 1.12 INTENTIONALLY LEFT BLANK

### 1.13 INTENTIONALLY LEFT BLANK

### 1.14 CONTRACT DOCUMENTS

- A. The Awarding Authority shall make available the bid documents and addenda in the City Web site at [www.city.waltham.ma.us/bids](http://www.city.waltham.ma.us/bids). No plans will be mailed.

### 1.15 EQUALITY

- A. Except where otherwise specifically provided to the contrary, the words “or approved equal” are hereby inserted immediately following the name or description of each article, assembly, system, or any component part thereof in the Contract Documents. It is the Contractor’s responsibility to provide all the research and documentation that would prove a product or assembly is “equal”. Failure to provide research or documentation does not alleviate the Contractor’s responsibility to meet the schedule.

### 1.16 TAX FREE NUMBER

- A. The City of Waltham has a tax-free number.

### 1.17 SCHEDULE

- A. The work of the Contract shall be Fully Completed in **90 calendar days** after the date of the Notice-to-Proceed.

### 1.18 GENERAL CONDITIONS CHARGES.

General Condition charged to the Payment application for AIA 702 shall be spread over a period of 7 months or 7 Payment application cycles whichever is later

### 1.19 INTENTIONALLY LEFT BLANK

## **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

### **1.20 PROJECT SUPERINTENDENT**

- A. The Contractor shall provide the same person as Superintendent for the entire duration of the project. Failure to maintain the same person in this position shall result in a One Thousand Dollar (\$1,000.00) penalty per incident which shall cover the Architect's time to re-orient new personnel.

### **1.21 AWARD**

- A. The Awarding Authority reserves the right to reject any or all bids if it be in the public interest to do so, and to act upon the bids and make its award in any lawful manner.

### **1.22 INTENTIONALLY LEFT BLANK**

### **1.23 CONFLICT OF INTEREST**

- A. A bidder filing a proposal thereby certifies that the proposal is made in good faith, without fraud, collusion, or connection of any kind with any other bidder for the same work, and that the bidder is competing solely on its own behalf without connection with, or obligation to, any undisclosed person or firm.

### **1.24 PROCEED ORDERS**

- A. No bidder is to proceed without a proceed order as set out in the contract.

### **1.25 INTENTIONALLY LEFT BLANK**

### **1.26 COMPLIANCE WITH MASSACHUSETTS GENERAL LAWS**

- A. Pursuant to Massachusetts General Laws, Chapter 62C, Section 49A, I certify under the penalty of perjury that I, to the best of my knowledge and belief have filed all state tax returns and paid all the state taxes required under law.

### **1.27 CONSTRUCTION BARRICADES**

- A. The General Contractor shall provide all barricades to enclose the work area to prevent unauthorized access to the site.
  - 1. The barricades shall provide enough room for all construction activities to be performed while separated from pedestrians, students, and staff on site.
  - 2. Safety is the sole responsibility of the Contractor and any barricades necessary to protect the work and the public shall be provided.
  - 3. Provide entrance protection.

## EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements

### 1.28 INSURANCE

- A. The contractor shall purchase and maintain, at his expense all insurance required by the Contract. Documents and all insurance required by the applicable laws of Massachusetts, including but not limited to, General Laws, Chapter 146, in connection with all hoisting equipment.
- B. The Contractor shall purchase and maintain such insurance as will protect him from claims under workmen's compensation acts and from claims for damages because of bodily injury, including death and all property damage including, without limitation, damage to buildings and adjoining the site of construction which might arise from and during operations under this contract, whether such operations be by himself or by any subcontractor or anyone directly or indirectly employed by either of them including:
  - 1. **Statutory Worker's Compensation and Employer's Liability**  
The contractor shall provide insurance for the payment of compensation and the furnishing of other benefits under Chapter 152 of the General Laws (so-called Worker's Compensation Act) to all persons to be employed under this contract and shall continue in force such insurance as aforesaid shall be deemed a material breach of this Contract and shall operate as an immediate termination thereof. The contractor shall, without limiting the generality of the foregoing, conform to the provisions of Section 34A of Chapter 149 of the General Laws, which Section is incorporated herein by reference and made a part of hereof.
  - 2. **Comprehensive General Liability Insurance**  
Minimum bodily injury limits of \$ 1,000,000 per person and \$ 1,000,000 per accident, and property damage limits of \$ 500,000 per accident and \$ 1,000,000 aggregate during any 12 month period, shall include the following:
    - a. Public liability (bodily injury and property damage)
    - b. X.C.U. (explosion, collapse, and underground utilities)
    - c. Independent contractor's protective liability.
    - d. Products and completed operations.
    - e. Save harmless agreement for Owner and Architects set forth in ARTICLE 10.11 of the GENERAL CONDITIONS.
  - 3. **Comprehensive All Risk Motor Vehicle Liability Insurance**  
Minimum bodily injury limits of \$ 500,000 per person, \$ 1,000,000 per accident, and property damage limit of \$ 1,000,000 per accident.
  - 4. **All Risk Insurance**  
Covering all Contractors' equipment with a provision for Waiver of Subrogation against the Owner.
  - 5. **Excess Liability Insurance in Umbrella Form with combined Bodily Injury and Property Damage Limit of \$ 1,000,000.**
  - 6. **City of Waltham shall be a Named Additional Insured for General Liability only with a Waiver of Subrogation on the insurance policy for this project.**

## EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements

### 1.29 SITE ACCESS

- A. The General Contractor shall gain access to the site via routes approved by the Owner.
  - 1. The General Contractor as part of the bid price will restore all roads, curbs, driveways, walks and grassed or landscaped areas damaged during construction.

### 1.30 CONSTRUCTION TRAILER (if Applicable)

- A. The General Contractor shall locate the construction trailer at locations approved by the Owner.
- B. The General Contractor shall locate all on site stored or staged materials within the enclosed area designated by the Owner.

### 1.31 INTENTIONALLY LEFT BLANK

### 1.32 COMPLETE BID FORMS

- A. Please Note: Each bidder must fill in all the blanks on all the bid forms, even if the information is “zero dollars” or “not applicable”. Also, please acknowledge all Addenda issued by the Awarding Authority

### 2.00 FUNDS APPROPRIATION and LOAN AUTHORIZATION.

- A THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

### 3.0 CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.

- A All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor

### 4.0 ORIGINAL SIGNATURES

Where a signature is required in the bid documents, the vendor is required to place an original “wet” signature. The Certificate of Vote Authorization, Certificate of Non-Collusion Certificate, Tax Compliance Certificate, Debarment Certification, Notary Public Certification and the Bid Form (price form) MUST bear an original “Wet” signature by the authorized corporate officer. The Notary Public Certification must be from a notary permitted to practice in this country. No certifications by a foreign Notary public will be accepted.

**EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

**5.0. PRINTING AND ASSEMBLY BID SUBMISSION**

Bid responses shall be submitted in single page printing format. No double sided printing is accepted by the City. The response binding shall be with an appropriately sized clip binder. No staples, no metal or plastic binding is accepted.

Signature of Individual or Corporate Name

By:

\_\_\_\_\_

(Signature of Corporate Officer if applicable)

Title: \_\_\_\_\_

Federal Identification Number: \_\_\_\_\_

**END OF SECTION**

**FORM 000091**

## **COMPLIANCE FORMS**

**(PLEASE COMPLETE AND SUBMIT THESE FORMS WITH YOUR RESPONSE)**

**ORIGINAL "WET" SIGNATURES ARE REQUIRED IN ALL OF THE FOLLOWING DOCUMENTS**

**CERTIFICATE OF VOTE OF AUTHORIZATION**

Date:

I \_\_\_\_\_, Clerk of \_\_\_\_\_ hereby certify that at a meeting of the Board of Directors of said Corporation duly held on the \_\_\_\_\_ day of \_\_\_\_\_ at which time a quorum was present and voting throughout, the following vote was duly passed and is now in full force and effect:

VOTED: That \_\_\_\_\_ (*name*) is hereby authorized, directed and empowered for the name and on behalf of this Corporation to sign, seal with the corporate seal, execute, acknowledge and deliver all contracts and other obligations of this Corporation; the execution of any such contract to be valid and binding upon this Corporation for all purposes, and that this vote shall remain in full force and effect unless and until the same has been altered, amended or revoked by a subsequent vote of such directors and a certificate of such later vote attested by the Clerk of this Corporation.

I further certify that \_\_\_\_\_ is duly elected/appointed \_\_\_\_\_ of said corporation whose signature appears below as an officer

\_\_\_\_\_  
Signature of Officer

SIGNED:

\_\_\_\_\_  
(Corporate Seal)

\_\_\_\_\_  
Clerk of the Corporation:

Print Name: \_\_\_\_\_

---

COMMONWEALTH OF MASSACHUSETTS

County of \_\_\_\_\_

Date:

Then personally appeared the above named and acknowledged the foregoing instrument to be his/her free act and deed before me, and provided to me through satisfactory evidence of identification which were \_\_\_\_\_ to be the person whose name is signed on the preceding or attached document in my presence.

Notary Public;

My Commission expires: \_\_\_\_\_

# **NON-COLLUSION FORM AND TAX COMPLIANCE FORM**

## **CERTIFICATE OF NON-COLLUSION**

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity or group of individuals. The undersigned certifies that no representations made by any City officials, employees, entity, or group of individuals other than the Purchasing Agent of the City of Waltham was relied upon in the making of this bid

\_\_\_\_\_, \_\_\_\_\_  
(Signature of person signing bid or proposal) Date

\_\_\_\_\_  
(Name of business)

---

## **TAX COMPLIANCE CERTIFICATION**

Pursuant to M.G.L. c. 62C, & 49A, I certify under the penalties of perjury that, to the best of my knowledge and belief, I am in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.

\_\_\_\_\_, \_\_\_\_\_  
Signature of person submitting bid or proposal Date

\_\_\_\_\_  
Name of business

### **NOTE**

Failure to submit any of the required documents, in this or in other sections, with your bid response package may cause the disqualification of your proposal.

**WEEKLY PAYROLL RECORDS REPORT  
& STATEMENT OF COMPLIANCE**

In accordance with Massachusetts General Law c. 149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided, A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract. In addition, every contractor and subcontractor is required to submit, on a weekly basis, a copy of his or her weekly payroll records to the awarding authority. For every week in which an apprentice is employed, a photocopy of the apprentice's identification card must be attached to the payroll report. Once collected, the awarding authority is also required to preserve those reports for three years. In addition, each such contractor, subcontractor, or public body shall furnish to the awarding authority directly, within fifteen days after completion of its portion of the work, a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

**STATEMENT OF COMPLIANCE**

\_\_\_\_\_, 201\_\_

I \_\_\_\_\_,  
(Name of signatory party) (Title)

I do hereby state that I pay or supervise the payment of the persons employed by

\_\_\_\_\_ On the \_\_\_\_\_  
(Contractor, subcontractor or public body) (Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature \_\_\_\_\_, Title \_\_\_\_\_

Print \_\_\_\_\_, Date \_\_\_\_\_

### **DEBARMENT CERTIFICATION**

In connection with this bid and all procurement transactions, by signature thereon, the respondent certifies that neither the company nor its principals are suspended, debarred, proposed for debarment, declared ineligible, or voluntarily excluded from the award of contracts, procurement or non procurement programs from the Commonwealth of Massachusetts, the US Federal Government and /or the City of Waltham. "Principals" means officers, directors, owners, partners and persons having primary interest, management or supervisory responsibilities with the business entity.

Vendors shall provide immediate written notification to the Purchasing Agent of the City of Waltham at any time during the period of the contract of prior to the contract award if the vendor learns of any changed condition with regards to the debarment of the company or its officers. This certification is a material representation of fact upon which reliance will be placed when making the business award. If at any time it is determined that the vendor knowingly misrepresented this certification, in addition to other legal remedies available to the City of Waltham, the contract will be cancelled and the award revoked.

---

Company Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_, State \_\_\_\_\_, Zip Code \_\_\_\_\_

Phone Number (\_\_\_\_) \_\_\_\_\_

E-Mail Address \_\_\_\_\_

Signed by Authorized Company Representative: \_\_\_\_\_

\_\_\_\_\_ Print name. Date \_\_\_\_\_

## Request for Taxpayer Identification Number and Certification

Give Form to the  
requester. Do not  
send to the IRS.

Print or type See Specific Instructions on page 2.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only <b>one</b> of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ <b>Note.</b> For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> Other (see instructions) ▶ _____	
	4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3): Exempt payee code (if any) _____ Exemption from FATCA reporting code (if any) _____ <small>(Applies to accounts maintained outside the U.S.)</small>	
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional) Office of the Chief Procurement Officer Purchasing Department Waltham City Hall 610 Main Street Waltham, MA 02452
	6 City, state, and ZIP code	
	7 List account number(s) here (optional)	

### Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

**Note.** If the account is in more than one name, see the instructions for line 1 and the chart on page 4 for guidelines on whose number to enter.

Social security number									
				-				-	
or									
Employer identification number									
				-					

Fill in SS#  
or EIN

### Part II Certification

Under penalties of perjury, I certify that:

- The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
- I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
- I am a U.S. citizen or other U.S. person (defined below); and
- The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

**Certification instructions.** You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions on page 3.

Sign Here	Signature of U.S. person ▶	Date ▶

### General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

**Future developments.** Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at [www.irs.gov/fw9](http://www.irs.gov/fw9).

#### Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following:

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)

- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

*If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding? on page 2.*

By signing the filled-out form, you:

- Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
- Certify that you are not subject to backup withholding, or
- Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
- Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

## CERTIFICATE OF AUTHORITY LIMITED LIABILITY COMPANY

**The undersigned**, being (a/the) duly elected, qualified and active (member / manager) of \_\_\_\_\_,  
a Massachusetts limited Liability Company (hereinafter "the Company")

### Does Hereby Certify that

1. The Articles of Organization of the Company were duly filed with the Office of the Secretary of State of the State of Massachusetts on \_\_\_\_\_,  
and the Articles of Organization have not been (further) amended.
2. The Company has complied with the publication requirements contained in Section 67 of the Limited Liability Company Law.
3. There exists an Operating Agreement of the Company and that the said Operating Agreement has not been amended or repealed and that the said Operating Agreement remains in full force and effect as of this date.
4. Neither the Articles of Organization nor the Operating Agreement (as amended) require any further act to be taken or a meeting to be held by its members other than as follows:
5. All said requirements, whether as contained in the Articles of Organization or in the Operating Agreement or by operation of law as to the transaction of \_\_\_\_\_,  
20\_\_\_\_ have been met.
6. The following person or persons has/have been duly authorized by the Company to execute all documents in connection with said transaction and that the signature appearing to the right of their name(s) is his/her genuine signature.

NAME	OFFICE HELD	SIGNATURE
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**IN Witness Whereof**, the undersigned has executed this Certificate of Authority this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(Signature)

STATE OF MASSACHUSETTS, COUNTY OF \_\_\_\_\_

On the \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, before me, the undersigned personally appeared \_\_\_\_\_, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name(s) is (are) subscribed to the within instrument and acknowledged to me that he/she/ they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public: \_\_\_\_\_

My Commission Expires: \_\_\_\_\_

Notary Stamp:

**PROVIDE THREE (3) SERVICE APPROPRIATE REFERENCES**

1. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

2. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

3. Company Name:

Address:

Contact Name:

Phone #

Type of service/product provided to this Company:

Dollar value of service provided to this Company:

**NOTE**

**Failure to submit any of the required documents, in this or in other sections, with your bid response package will be cause for the disqualification of your company.**

**EQUIPMENT PROCUREMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

**SECTION 001010  
FORM FOR GENERAL BID**

- A.** The undersigned proposes to furnish all labor and materials required for the project

**EQUIPMENT PROCUREMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

295 Totten Pond Rd  
Waltham, MA 02451

In accordance with the documents dated June 15, 2017 prepared by  
Southgate Consulting  
85 Wester Avenue  
Essex, MA 01929

- B.** This bid includes Addenda numbered \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

- C. BASE BID.** The Proposed Contract Price is: Base \$ \_\_\_\_\_

- D. ALLOWANCES (See section 8-A)**

*(Used with the prior approval and at the sole discretion of the City. This is pass-thru expense marked up by the allowed percent indicated below)*

1. Supplemental Refrigeration Materials	<u>\$20,000.00</u>
2. Electrical Controls & Wiring Materials	<u>\$27,500.00</u>
3. Plumbing & Gas Piping Materials	<u>\$24,500.00</u>
4. Ductwork	<u>\$24,000.00</u>

**GRAND TOTAL** \$ \_\_\_\_\_

- E. MAXIMUM % MARK UP ON ALL ALLOWANCES (D)** 15%

The undersigned agrees that each of the above named sub-bidders will be used for the work indicated at the amount stated, unless a substitution is made. The undersigned further agrees to pay the premiums for the performance and payment bonds furnished by sub-bidders as requested herein and that all of the cost of all such premiums is included in the amount set forth in Item I of this bid.

The undersigned agrees that if selected as general contractor, they will promptly confer with the awarding authority on the question of sub-bidders; and that the awarding authority may substitute for any sub-bid listed above a sub-bid filed with the awarding authority by another sub-bidder for the sub-trade against whose standing and ability the undersigned makes no objection; and that the undersigned will use all such finally selected sub-bidders at the amounts named in their respective sub-bids and be in every way as responsible for them and their work as if they had been originally named in this general bid, the total contract price

**EQUIPMENT PROCUREMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

being adjusted to conform thereto.

- F.** The undersigned agrees that, if selected as general contractor, he will within five days, Saturdays, Sundays, and legal holidays excluded, after presentation thereof by the awarding authority, execute a contract in accordance with the terms of this bid and furnish a performance bond and also a labor and materials or payment bond, each of a surety company qualified to do business under the laws of the Commonwealth and satisfactory to the awarding authority and each in the sum of the contract price, the premiums for which are to be paid by the general contractor and are included in the contract price, provided, however, that if there is more than 1 surety company, the surety companies shall be jointly and severally liable.

The undersigned hereby certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work; that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and that he will comply fully with all laws and regulations applicable to awards made subject to section 44A.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

**G.** Final Completion

The work of the Contract shall be completed in **Ninety (90) calendar days from the date of the Notice-to-Proceed (NTP)**.

- H.** In accordance with M.G.L., the undersigned certifies that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by **OSHA** that is at least 10 hours in duration at the time the employee begins work and shall furnish documentation of successful completion of said course with the first certified payroll report for each employee.

**EQUIPMENT PROCUREMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

Sincerely,

\_\_\_\_\_  
(Bidder)

\_\_\_\_\_  
(Address of Bidder)

By: \_\_\_\_\_  
(Title - Owner\*, Partner\*)

(Seal, if Corporation)

By: \_\_\_\_\_  
(If Corporation - Name and Office)

\* If the business owned by the individual or partnership is conducted under a trade or assumed name, a certified copy of doing business under an assumed name should be annexed.

Date \_\_\_\_\_

\_\_\_\_\_  
(Name of Bidder)

By \_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Business Address)

\_\_\_\_\_

END OF SECTION

**SECTION 005000**

**AGREEMENT**

**CITY OF WALTHAM**

**ARTICLE 1.** This agreement, made this \_\_\_\_\_ day of \_\_\_\_\_, 2018 by and between the CITY OF WALTHAM, party of the first part, hereinafter called the CITY, by its MAYOR, and

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hereinafter called the CONTRACTOR.

**ARTICLE 2.** Witnesseth, that the parties to this agreement, each in consideration of the agreement on the part of the others herein contained, do hereby agree, the CITY OF WALTHAM for itself, and said contractor for his heirs, executors, administrators and assigns as follows:

To furnish all equipment, machinery, tools and labor, to furnish and deliver all materials required to be furnished (except as otherwise specified) and deliver in and about the project and to do and perform all work in strict conformity with the provisions of this Contract and of the Notice to Bidders, bid, Project Manual, and Drawings hereto annexed. The said Notice to Bidders, bid, Project Manual, and Drawings are hereby made a part of this contract as fully and to the same effect as if the same had been set forth at length and incorporated in the contracts.

**ARTICLE 3.** In consideration of the foregoing premises the CITY agrees to pay and the CONTRACTOR agrees to receive as full compensation for everything furnished and done by the CONTRACTOR under this contract, including all work required by not included in the items herein mentioned, and also for all loss or damage arising out of the nature of the work aforesaid, or from the action of the elements, or from any unforeseen obstruction or difficulty encountered in the prosecution of the work, and for all expenses incurred by or in consequence of the suspension or discontinuance of the work specified, and for well and faithfully completing the work, and the whole thereof, as herein provided, such prices as are set forth in the accompanying bid.

This Agreement entered into as of the day and year first written above.

CITY OF WALTHAM, MASSACHUSETTS

**FOR THE CITY**

\_\_\_\_\_  
Jeannette A. McCarthy, MAYOR,  
City of Waltham  
Date: \_\_\_\_\_

\_\_\_\_\_  
John Cervone, City Solicitor  
Date: \_\_\_\_\_

APPROVED AS TO FORM ONLY

\_\_\_\_\_  
Nick Abruzzi, Recreation Director  
Date: \_\_\_\_\_

\_\_\_\_\_  
Joseph Pedulla, Purchasing Agent  
Date: \_\_\_\_\_

\_\_\_\_\_  
Paul Centofanti, Auditor  
Date: \_\_\_\_\_

I CERTIFY THAT SUFFICIENT FUNDS  
ARE AVAILABLE FOR THIS CONTRACT

**FOR THE COMPANY**

\_\_\_\_\_  
CONTRACTOR (Signature),  
Date: \_\_\_\_\_

\_\_\_\_\_  
Company

\_\_\_\_\_  
Address

**Section 005000  
AGREEMENT**

## EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements

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### SECTION 005030

#### GENERAL CONDITIONS

**1. INFORMATION**

All information shall come from the Office of the City Purchasing Agent. The Contractor shall inquire at this office for any information needed. Wherever the words “or equal as approved” are used, it is to be understood that the opinion of the City Purchasing Agent shall govern.

**2. SUITS**

The Contractor shall assume defense of and shall indemnify and hold the City and its agents harmless from all suits and claims against the City and its sub-contractors arising from the use of any invention, patent right labor or employment, or from any act of omission or neglect of the City, its agents, employees or any subcontractor in performing the work, under this contract.

**3. LAWS AND REGULATIONS**

The Contractor shall conform to all the applicable rules, regulations, laws and ordinances of the City of Waltham, the Commonwealth of Massachusetts, the United States of America and all agencies having jurisdiction over this contract.

**4. PROTECTION OF PROPERTY**

The Contractor shall take all proper precautions to protect the City’s property from damage and unnecessary inconvenience. Any City property damaged by the Contractor in carrying out the provisions of this contract shall be restored to its original condition, by and at the expense of the Contractor.

**5. PROTECTION OF PERSONS**

The Contractor shall take all proper precautions to protect persons from injury, unnecessary inconvenience, and shall be responsible for his failure to do so. The Contractor agrees to hold the City harmless from any and all liabilities of every nature and description, which may be suffered through bodily injury, including death, to any person, by reason of negligence of the Contractor, his agents or employees, or any subcontractor.

**6. INSURANCE**

A. WORKMAN’S COMPENSATION: The Contractor shall provide by insurance for the payment of compensation and furnishing of other benefits under Chapter 152 of the General Laws of the Commonwealth of Massachusetts to all persons to be employed under this contract, the premiums for which shall be paid by the Contractor.

B. COMPREHENSIVE GENERAL LIABILITY

Bodily Injury:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate
Property Damage:	\$1,000,000 Each Occurrence
	\$2,000,000 Aggregate

C. AUTOMOBILE (VEHICLE) LIABILITY

Bodily Injury	\$2,000,000 Each Occurrence
Property Damage	\$1,000,000 Aggregate

D. UMBRELLA POLICY

General liability	\$2,000,000
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Your bid response must include a Certificate of Insurance with the above limits as a minimum. In addition, the Certificate of Insurance must have the following text contained in the bottom left box of the Certificate: “The City of Waltham is a Named Additional Insured for all Insurance”. The Certificate of Insurance must be mailed directly to:

### SECTION 005030

#### GENERAL CONDITIONS

## **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

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Office of the Purchasing Agent  
Purchasing Department  
City of Waltham  
610 Main Street  
Waltham, MA 02452

### **7. LABOR AND MATERIALS BOND**

The Contractor agrees to execute and deliver to the City, a Performance Bond and a Labor and Materials Bond EACH equal to 100% of the contract value. This contract shall not be in force until said bond has been delivered and accepted by the City. Bond to be issued by a company licensed by the Commonwealth of Massachusetts.

### **8. PERSONNEL:**

The Contractor shall employ a competent supervisor and all properly licensed personnel necessary to perform the services required in this contract. The City Purchasing Agent shall have the right to require the Contractor to remove and/or replace any of the personnel for nonperformance or for unprofessional behavior. The City Purchasing Agent may require the Contractor to submit a weekly performance record of the areas and of the work performed, on forms approved by the City Purchasing Agent. The Contractor or his supervisor shall be available to inspect such work as required by the City Purchasing Agent.

### **9. MATERIALS**

The City or its Agent reserves the right to approve or reject any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any supplies, material or equipment used by the Contractor. The Contractor agrees to replace any rejected supplies, materials or equipment, to the satisfaction of the City or its Agents.

### **10. TERMINATION OF CONTRACT**

This contract may be terminated by the City upon deliverance to the Contractor of a five-day written notice of said termination.

### **11. CONTRACT OBLIGATIONS**

Contract obligations on behalf of the City are subject to an annual appropriation to cover the contract obligation and shall be in force until the date of Final acceptance excluding any guarantee period.

### **12. BIDDER EXPERIENCE EVALUATION**

Each bidder shall submit with his bid, all the information relative to their experience and qualifications in performing the work required under this contract and shall have been in business for a minimum of five (5) years, in order for their bid to be considered.

### **13. NOT-TO-EXCEED AMOUNT**

The bid amount proposed in your company's response is a "not-to- Exceed" amount unless the City makes changes, in writing, to the scope of work to be performed. The Change Order must be signed and approved by the City's Purchasing Agent, City Auditor, Law Department and the Mayor prior to the commencement of the change order work. No work is to begin until the proper approvals have been obtained. A change order will be priced at the unit price. Failure to comply with this procedure will result in the cancellation of the contract and the non-payment of services provided

### **16. FINANCIAL STATEMENTS.**

The City may require, within five (5) days after the bid opening, a complete and detailed Financial Statement prepared by a Certified Public Account, to determine a bidder's financial stability.

## **EQUIPMENT ONLY. Veterans Memorial Ice Rink, Mechanical Improvements**

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### **17 BREACH OF CONTRACT/ NON PERFORMANCE**

If the Contractor shall provide services in a manner, which is not to the satisfaction of the City, the City may request that the Contractor refurnish services at no additional cost to the City until approved by the City. If the Contractor shall fail to provide services, which are satisfactory to the City, the City in the alternative may make any reasonable purchase or Contract to purchase services in substitution for those due from the Contractor. The City may deduct the cost of any substitute Contract for nonperformance of services together with incidental and consequential damages from the Contract price and shall withhold such damages from sums due or to become due to the Contractor. If the damages sustained by the City exceed sums due or to become due, the Contractor shall pay the difference to the City upon demand. The Contractor shall not be liable for any damages sustained by the City due to the Contractor's failure to furnish services under the terms of this Contract if such failure is in fact caused by the occurrence of a contingency the nonoccurrence of which was a basic assumption under which this Contract was made, including a state of war, embargoes, expropriation of labor strike or any unanticipated federal, state or municipal governmental regulation of order, provided that the Contractor has notified the City in writing of such cause within seven (7) days after its occurrence.

### **18 RIGHT TO AUDIT**

The City of Waltham has the right to review and audit documents related to this contract. This right extends to any subcontractor, supplier or other entity used by the prime contractor to fulfill the obligations under this contract.

### **19. CITY ORDINANCE. APPROVAL OF CONTRACTS BY MAYOR, SEC. 3-12 OF THE CITY ORDINANCES.**

All contract made by any department, board or commission where the amount involved is two thousand dollars (\$2,000) or more shall be in writing, and no such contract shall be deemed to have been made or executed until the approval of the Mayor is affixed thereto. Any construction contract shall, and all other contracts may, where the contract exceed five thousand dollars (\$5,000) be required to be accompanied by a bond with sureties satisfactory to the Mayor.

### **20. BID OPENING INCLEMENT WEATHER**

If, at the time of the originally scheduled bid opening, City Hall is closed to inclement weather or another unforeseeable event, the bid opening will be extended until 2:00 PM on the next normal business day. Bids will be accepted until that date and time.

### **21 FUNDS APPROPRIATION.**

THE CONTRACT OBLIGATION ON BEHALF OF THE CITY IS SUBJECT TO PRIOR APPROPRIATION OF MONIES FROM THE GOVERNMENTAL BODY AND AUTHORIZATION BY THE MAYOR.

THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS, OR ANY PART OF ANY BID, WHICH IN THE OPINION OF THE AWARDING AUTHORITY, IS IN THE BEST INTERESTS OF THE CITY OF WALTHAM.

Section 006100

PERFORMANCE BOND

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount:

Description (*name and location*):

BOND

Bond Number:

Date (*not earlier than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 16

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

SURETY

\_\_\_\_\_  
(seal)

Contractor's Name and Corporate Seal

\_\_\_\_\_  
(seal)

Surety's Name and Corporate Seal

By: \_\_\_\_\_

Signature

By: \_\_\_\_\_

Signature (*attach power of attorney*)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Attest:** \_\_\_\_\_

**Attest:** \_\_\_\_\_

\_\_\_\_\_

Signature

Signature

\_\_\_\_\_

Title

\_\_\_\_\_

Title

***Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.***

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

2. If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Paragraph 3.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after:

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the

Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the

amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall

be construed as a statutory bond and not as a common law bond.

#### 14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

Section 006150

**PAYMENT BOND**

CONTRACTOR (*name and address*):

SURETY (*name and address of principal place of business*):

OWNER (*name and address*):

**CONSTRUCTION CONTRACT**

Effective Date of the Agreement:

Amount:

Description (*name and location*):

**BOND**

Bond Number:

Date (*not earlier than the Effective Date of the Agreement of the Construction Contract*):

Amount:

Modifications to this Bond Form: ☐ None ☐ See Paragraph 18

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

**CONTRACTOR AS PRINCIPAL**

**SURETY**

\_\_\_\_\_  
(seal)

Contractor's Name and Corporate Seal

\_\_\_\_\_  
(seal)

Surety's Name and Corporate Seal

By: \_\_\_\_\_

\_\_\_\_\_  
Signature

By: \_\_\_\_\_

Signature (*attach power of attorney*)

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Print Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Title

**Attest:** \_\_\_\_\_

Signature

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***Notes: (1) Provide supplemental execution by any additional parties, such as joint venturers. (2) Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.***

1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.
2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.
3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.
4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.
5. The Surety's obligations to a Claimant under this Bond shall arise after the following:
  - 5.1 Claimants who do not have a direct contract with the Contractor,
    - 5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
    - 5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).
  - 5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).
6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.
7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:
  - 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and

the basis for challenging any amounts that are disputed; and

- 7.2 Pay or arrange for payment of any undisputed amounts.
- 7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.
8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.
10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the

Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.
12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.
14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be

deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

## 16. Definitions

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default:** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the

agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

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# **PROJECT MANUAL**

**CITY of WALTHAM, MA.**  
**Veteran's Memorial Ice Rink.**  
**Mechanical Upgrades**  
**(MATERIALS ONLY)**  
**PROJECT MANUAL**

<b>Section 1</b>	GENERAL SCOPE
<b>Section 2</b>	DEMOLITION SCOPE
<b>Section 3</b>	RINK CHILLER SPECIFICATIONS <ul style="list-style-type: none"><li>a) Ice Rink Refrigeration System</li><li>b) Heat Reclaim System &amp; Water Tank Modification</li><li>c) Replace Secondary Fluid</li></ul>
<b>Section 4</b>	SUBSOIL FROST PREVENTION SYSTEM <ul style="list-style-type: none"><li>a) System Overview</li><li>b) Control System</li></ul>
<b>Section 5</b>	NEW BOILER FOR HEATING SYSTEM
<b>Section 6</b>	DEHUMIDIFICATION <ul style="list-style-type: none"><li>a) New Desiccant Dehumidifier</li><li>b) Dehumidifier Ductwork</li><li>c) Rink Air Management System</li></ul>
<b>Section 7</b>	INTENTIONALLY LEFT BLANK
<b>Section 8</b>	MISCELLANEOUS MATERIALS <ul style="list-style-type: none"><li>a) Supplemental materials for refrigeration plant</li><li>b) Electrical materials and supplies</li><li>c) Plumbing, gas piping materials and supplies</li><li>d) Exterior and interior ductwork</li></ul>

## SECTION 1 - GENERAL SCOPE

In accordance with sound engineering practices and acceptable methods of design associated with the ice rink industry generally, and the requirements of the City of Waltham specifically, the supplier shall furnish and install the all materials and equipment described within the context of this specification.

All products shall be custom manufactured to conform with the existing conditions of the Veteran's Memorial Ice Rink as represented in the project drawings. The supplier will assume all duties required to supply all materials, equipment and supplies for a fully operational Indirect Ice Rink Refrigeration System, inclusive of dehumidification, electrical, plumbing and HVAC in strict adherence to the specifications herein and as described in Section 8 of this specification.

### QUALIFICATION STATEMENT

It is the intention of this contract to have a fully functional ice rink refrigeration system constructed on proven technologies which reflect the demands of the attached specifications. The bidding contractor shall include the talents of a responsible supplier which specializes in indirect refrigeration systems and has no less than 5 years experience specifically with the design set forth by these documents.

The refrigeration system specified has certain high energy performance criteria which must be met by the bidding supplier. These stipulations of energy efficiency are mandatory prerequisites to bid. With no exception, the bidding supplier must provide no less than 3 referenced projects in which the ice making system operates in accordance with the high energy efficiency standards of the Rink Chiller described in these documents. The system and references must prove their design provides for a Low KW per ton performance by having the system operate to as low as a 50 degree condensing temperature when weather conditions dictate. A copy of references for systems which operate in this manner must be included with the bid documents.

## **CODES**

All materials, and designs set forth by the supplier shall be in compliance with the latest published codes governed by local jurisdiction.

- A) OSHA
- B) CITY of WALTHAM SPECIFIC BUILDING & MECHANICAL CODES
- C) AMERICAN STANDARD OF REFRIGERATION PIPING ASA B31.5
- D) AMERICAN STANDARD OF PRESSURE PIPING ASA B31.1
- E) AMERICAN STANDARD CODE FOR PRESSURE VESSELS
- F) AMERICAN NATIONAL STANDARD B9.1, SAFETY CODE FOR MECHANICAL ENGINEERING
- G) NATIONAL ELECTRIC CODE
- H) ASME CODE
- I) ARI AMERICAN STANDARD 590
- J) UL LISTED
- K) ASHRAE HANDBOOK FOR MECHANICAL ENGINEERING

## **SHOP DRAWINGS**

The supplier shall submit comprehensive shop drawings depicting overall design and installation procedure in electronic format to the Owner's Project Manager. The following drawings shall be submitted:

- A) Fabrication drawings and full submittal package of the equipment manufactured by the supplier and associated accessories.
- B) Piping isometrics & flow diagrams.
- C) Electrical power and control diagrams depicting the equipment design as well as site electrical work.
- D) Complete dehumidification system to include unit data, performance, ductwork, insulation
- E) Complete Cooling Tower data, piping, insulation and performance.

## **MUNICIPAL PLANCHECK**

Submittal of sealed plans, engineering calculations, data, etc., as required by the City of Waltham for the purpose of plancheck and approval shall remain the responsibility of Owner's Project Manager. Owner's Engineer and/or Architect shall be responsible for seals, required attendance at plancheck meetings, coordination, and all other functions necessary to produce a complete set of rink construction plans conforming to, and approved by, local/state codes, ordinances, and regulations. Supplier shall be responsible for providing necessary plans, documents, and information requested by the Owner's Project Manager for the purpose of plancheck and approval. Supplier shall provide such plans on CD-ROM in Autocad 14 or later format upon the request of Owner's Project Manager

-end of section-

## SECTION 3 -A Rink Refrigeration System

Supplier shall furnish two chillers operating in unison with each refrigeration skid having two compressors and two refrigerant circuits, 4 systems total. or approved equal/better, and as described in the specifications below. The supplier must meet each of the following requirements with the proposed system.

TRUE ENERGY EFFICIENCY IS CRITICAL FOR THIS INSTALLATION. THE CONTRACTOR SHALL BE REQUIRED TO DOCUMENT THE ENERGY EFFICIENCY RATIO (Co-efficient of performance.) OF THE SYSTEM PROPOSED. CALCULATIONS SHALL BE BASED UPON THE AVERAGE 8 ½ MONTH SEASON OF THE RINK, AND THE REFRIGERATION SYSTEM'S PERFORMANCE WITH CHANGES IN AMBIENT TEMPERATURES.

IT IS CRUCIAL THAT THE SYSTEM PROVIDE NO GREATER THAN THE ESTIMATED SUMMER C.O.P., AND PERFORM AT, OR BETTER THAN, THE ESTIMATED WINTER DESIGN C.O.P. VALUES LISTED BELOW. THE C.O.P. VALUES FOR THE SYSTEM SHALL BE CALCULATED FROM THE OPERATION OF THE ENTIRE SYSTEM, INCLUDING COMPRESSORS, CIRCULATION PUMPS, CONDENSER FANS, RINK PIPING SYSTEM, AND ALL OTHER COMPONENTS WHICH AFFECT ENERGY CONSUMPTION. MANUFACTURER PERFORMANCE DATA SHEETS, AS WELL AS C.O.P. CALCULATIONS MAY BE REQUESTED FOR DOCUMENTATION.

Bidders are expected to provide a system designed for a C.O.P. of no greater than 1.248 KW per Ton of refrigeration produced by the equipment.

The following shall be mandatory on all refrigeration systems considered:

- ☐ Variable Speed Pump System for providing variable secondary fluid flow rates in accordance with refrigeration capacity control.
- ☐ Multiple compressors, assured back-up reliability at all times. Four (4) compressors, minimum with four refrigerant circuits.
- ☐ Dual independent refrigerant circuits on each refrigerant skid.
- ☐ Low KW in rush required to reduce electrical demand.
- ☐ Vibration isolation,
- ☐ Sound-deadening compressor discharge mufflers.
- ☐ Integral, pre-wired control panel with microprocessor control with remote access capability.
- ☐ Automated and Manual transfer (Lead/Lag) switch feature.
- ☐ Multiple step capacity control.
- ☐ Open access to components for ease of service.
- ☐ Flooded dual evaporator on each chiller skid, fully insulated.
- ☐ Ozone Safe 134A, R-513, or R-507 operation.
- ☐ Compressor crankcase heaters.
- ☐ Replaceable core liquid line filter/driers.
- ☐ Split water cooled condenser refrigerant circuit design.
- ☐ Control voltage transformer.
- ☐ Freezestat evaporator protection.

- ☐ Microprocessor for complete system control and status.
- ☐ Flow switch protection.
- ☐ Single point power hookup.
- ☐ Adjustable time delay between compressor starts.
- ☐ Hour meter recording for each compressor.
- ☐ Service and alarm history maintained in the unit mounted microprocessor.
- ☐ Individual compressor circuit breakers.
- ☐ Liquid refrigerant level control valves.
- ☐ Liquid line sightglass/moisture indicator.
- ☐ Fuse/breaker control circuit protection.
- ☐ Active oil separation system and safeties.
- ☐ Each chiller skid is to be provided with rubber isolation mounting pads of at least 3" in height to assure a vibration free installation.
- ☐ High/low refrigerant pressure/temperature & oil pressure readouts in microprocessor.
- ☐ Cooling Tower Applications shall be provided with micriprocess controlled water regulating valve – one per chiller skid.
- ☐ Cooling Tower shall be sized for 1% wet bulb design.

#### **High Performance Rink Chiller (HPRC) SPECIFICATIONS:**

FURNISH 2 (TWO) FACTORY ASSEMBLED, MULTIPLE ACCESSIBLE SCREW COMPRESSOR LIQUID CHILLER PACKAGE. THE SYSTEM SHALL HAVE A MINIMUM CAPACITY OF 104 TONS (52 TONS PER SKID) USING R-134a. UNITS SHALL COOL 720 GPM EACH OF 40 %, BY VOLUME PROPYLENE GLYCOL SOLUTION FROM 18 DEGREES TO 14 DEGREES FAHRENHEIT WHEN OPERATING AT 14 F DEGREES FAHRENHEIT.

CONSTRUCTION AND RATINGS SHALL BE IN ACCORDANCE WITH THE LATEST ARI, STANDARD 590, AND SHALL COMPLY WITH ANS-B9-1 SAFETY CODE, NATIONAL ELECTRIC CODE, AND APPLICABLE ASME & ASHRAE GUIDELINES.

#### **COMPRESSORS**

Shall be screw type, serviceable, semi-hermetic ( open drive upon request ) type as manufactured by Mycom, Frick, or approved equivalent or better (four total, two per skid). Compressors shall be equipped with suction and discharge service valves, automatic reset high pressure relief valve, internally discharged check valve, compressor inlet screens for all gas and liquid inlet ports, immersion type crankcase heaters, high efficiency oil separator with oil control system, oil reservoir with oil level glass, internal forced oil lubrication, discharge mufflers, a large primary oil filter followed by a 3 micron oil filter, external air cooled oil cooler, thermal/over voltage protection, high/low/oil pressure tappings for gauges & pressure controls, Compressor motor windings shall be cooled by suction gas passing over the motor windings.

Each compressor shall be factory mounted on vibration isolators, supplied with an operating oil charge, shall have a factory installed contactor, and protected with a manual reset, ambient insensitive magnetic

circuitbreaker, and solid state power module for constant voltage monitoring of all three phases during operation. The circuitbreaker, and operational sequence of the power module, shall open all three (3) phases should an overload occur on any phase.

Each compressor shall be protected against lubrication failure by a differential pressure type oil failure control which shall provide a 120 second time delay upon start up to prevent nuisance cutouts. Oil failure switches shall be manual reset type, and shall shut down the individual compressor it protects upon a reduction in pressure differential.

Each refrigerant circuit shall have a high pressure and low pressure control, which shall shut down both compressors. High pressure control shall monitor the discharge (high) side of the system and shall have a manual reset. The low pressure control shall be automatic reset and shall monitor the suction (low) side of the system and operate in an automatic pumpdown sequence.

## **EVAPORATOR**

Shall be shell & tube type with two (2) flooded refrigerant circuits. Seamless 1/2" O.D. extended surface area copper tubes shall be rolled into the tube sheets. The shell shall be insulated with two (2) layers of 3/4" thick Armaflex type insulation, or equal. It also shall be equipped with one (1) inlet and one (1) outlet chilled water flange connection, and shall have a secondary side air bleeder tapped into the highest point on the shell, and a drain valve on the bottom. Secondary fluid pressure drop shall not exceed the prescribed amount at the design flow rate. "Flooded" type chillers are not acceptable. The Chiller barrel/Evaporator must be specifically designed and selected for this design criteria. Systems which are merely modified air conditioning units, or units not specifically designed for a 4 or less degree secondary fluid differential will not be acceptable.

## **ELECTRICAL (Chiller plant)**

Each unit shall be supplied with a factory installed, pre-wired control panel with high, low, & oil pressure controls, low water temperature cutout, multiple step brine temperature controller, flow switch protection (field wired to terminals), and necessary timers, compressor breakers & contactors, control relays, and adjustable fan cycle controls for either and air cooled condenser or evaporative condenser selection. The control panel shall have a "power on" indicator light and a "run" indicator light for each compressor. A manual transfer switch shall be provided for reversing of lead & lag refrigerant circuits. Additionally, a manual transfer switch shall be provided to reverse lead & lag compressors within each refrigerant circuit.

Each refrigerant circuit shall have a manual pump down switch, and a pump down jog switch for shutdown and service capability. The electrical sequence shall be designed so as to permit automatic system re-start should a power failure occur without damage to the system. A 210 second time delay, and pumpout sequence of the chiller, to prevent system slugging, must be provided for the restarting sequence with reintroduction of electrical power to the unit.

The unit shall operate on 480 volts 3 phase electrical service. The unit mounted control transformer shall provide 115 VAC, 60 cycle, single phase power to the control circuit. A control power circuitbreaker, and primary & secondary control fuses shall be installed as required.

## **WATER COOLED CONDENSERS**

Water cooled chillers shall feature a water cooled condenser for each refrigerant circuit. Dual circuit chillers shall feature two condenser circuits. The condensers shall be factory mounted and piped as part of the chiller skid. The condenser shall be a shell & tube type unit equipped with integral-finned copper tubes, and shall have removable heads.

The tubes shall be roller expanded into a tube sheet. Epoxy, non-serviceable type condensers will not be acceptable. Construction shall comply with applicable ASME code. Each condenser shall be constructed to provide positive sub-cooling of the liquid refrigerant and be sized/designed for low condensing operation. A pressure relief valve, purge cock, and liquid refrigerant shut off valve shall be provided on each condenser. Isolation and by-pass valves shall be included for normal servicing and isolation of each primary component within the condenser package.

Fan staging shall be controlled with adjustable pressure controls, set to maintain the lowest possible condensing temperature at any given ambient temperature. This shall also be accomplished with the least amount of fans to match the design approach conditions of the condenser to avoid excess fan operation. The settings shall also consider winter operation to avoid tower freeze-up.

The system shall operate with a "floating" head pressure in order to reduce the compressor KW consumption and increase volumetric capacity of each compressor during periods when the ambient temperature is below the maximum design ambient of the condenser. The refrigeration piping system shall be engineered in such a fashion as to prevent the occurrence of liquid line flashing at reduced head pressure. Equally, the refrigeration unit in its entirety shall be designed so that the added volumetric capacity of the compressors at low head pressures results in a significant increase in actual tonnage production.

Systems which must maintain a consistent head pressure in order to eliminate liquid line flashing and/or reduction in suction pressures, regardless of ambient temperature variations, shall not be acceptable, as they do not meet the efficiency requirements of this installation.

The Chillers equipped with the water cooled condensers shall be factory fabricated and shipped to the job site as a single, self-contained unit. Single condensers split for dual circuit operation are not acceptable.

## **COOLING TOWER**

Supplier shall furnish an EVAPCO LSTE-4112 Cooling Tower or approved equal or better. The unit shall be oversized to provide for a low approach operation of wet bulb temperature versus condensing temperature.

The Cooling Tower unit shall be provided with staged fan operation. With axle fans, either a multiple fan arrangement or two speed fan drive can be employed. Centrifugal Blower units shall be equipped with VFD fan motor for reduced blower HP requirements at under-normal operation.

## **VARIABLE FLOW RATE PUMPING SYSTEM FACTORY ASSEMBLED SKID**

A variable flow rate pumping system shall also be furnished by the Supplier. The variable flow pump skid is to be mounted on the existing brine pump pad..

Piping manifolds, service valves, check valves, pipe insulation, an electrical pump control panel, and electrical motor leads to be installed and ready for operation.

This design feature **must** provide a dedicated brine fluid flow rate for each stage of refrigeration capacity. Resistance through the entire secondary, or brine, piping system shall be calculated and applied to each stage design. Each stage of capacity shall maintain a three (3) degree Fahrenheit temperature differential through the evaporator when the system is operating at the design brine temperature. Systems which have varied brine temperature differentials at each stage of refrigeration capacity shall not be acceptable. Those designs which utilize undersized pumps and exceed the above prescribed temperature differential shall not be considered, as such designs must operate at lower compressor suction pressures to compensate for reduced pump flow.

System shall be provided with a pre-wired electrical control panel, including automatic control of pump staging, pump starters with thermal overload protection, properly sized pump breakers, a single point power hookup, and a terminal strip for interface with the rink chiller control panel. The pump control panel shall derive its control power from the rink chiller control transformer. The use of a separate control power source shall not be acceptable.

The control panel face shall be equipped with Hand/Off/Auto switches, and operation indicator lights for each pump.

Systems which do not provide automatic variable flow in accordance with refrigeration capacity shall be unacceptable. The use of a single, variable speed pump shall not be considered an acceptable equivalent to the specified system.

## GENERAL SYSTEM DESIGN PERFORMANCE SPECIFICATION:

HIGH PERFORMANCE RINK CHILLER MODEL #	2- 100 HP Units w/ 4 compressors
REFRIGERATION MINIMUM CONNECTED HP:	270 HP
COMPRESSOR & MOTOR SPEED - RPM:	1750
COMPRESSOR TYPE:	Screws
REFRIGERANT TYPE:	R-513, R-507, R-134a
SECONDARY FLUID:	40 % PG
TOTAL GALLONS SECONDARY FLUID REQ'D:	approx 3500 (exg)
FULL LOAD REFRIGERATION TONNAGE:	102
SECONDARY FLUID DESIGN TEMP F.:	14 & 18
SECONDARY FLUID GPM @ 100% CAPACITY:	720 GPM @ 120 FT. HD.
SECONDARY FLUID GPM @ 50% CAPACITY:	360 GPM @ 45 FT. HD.
COMPRESSOR SAT. SUCTION TEMP F.:	11 F
COMPRESSOR MAX CONDENSER TEMP F.:	95 0 F
NUMBER OF EQUALLY SIZED MOTORS:	4 @ 50 HP EACH
ELECTRICAL CONDITIONS:	480/3/60
RINK PIPING SYSTEM:	existing concrete floor
CONDENSER DESIGN WET BULB F.:	74
COOLING TOWER FAN # HP:	7.5
NUMBER OF COOLING TOWERS	1
COOLING TOWER TONNAGE RATING EACH:	135
COOLING TOWER WTR PUMP HP:	10 HP existing
COOLING TOWER DESIGN WET BULB F.:	74
BRINE PUMP MAXIMUM BHP @ 100% CAPACITY:	20 BHP

## BRINE (propylene Glycol) AND CONDENSER PIPING REQUIREMENTS:

Brine piping shall be installed in accordance with the project design drawings. The contractor shall use SCH 80 PVC (polyvinyl chloride) pipe with solvent weld or flanged connections. PVC flanges must be SCH 80. Other fittings for PVC connections may be SCH 40, provided stress, vibration, or actual pipe weight does not exceed manufacturer's published limitations for the fitting used. The contractor shall be required to follow all accepted piping practices with the installation. Pipes shall be true & level, and shall be properly braced and supported as required.

Service valves shall be installed at the suction and discharge side of each pump, at the inlet and outlet of the strainer, and in the supply and return lines for isolation of the rink piping system, should it become necessary. Service valves shall be lug type butterfly valves, minimum 125 lb. rating, as manufactured by Nibco Co., or approved equal or better.

A check valve shall be installed at the discharge of each brine pump to prevent circulation through non-operating pumps. Check valves shall be silent type lug checks, minimum 125 lb. rating as manufactured by Nibco Co., or approved equal or better.

After completion of the piping installation in strict compliance with the project drawings, the system shall be pressure tested with compressed air to a minimum of 30 PSI for two (2) hours. The piping system shall then be charged with the prescribed secondary fluid solution, air purged, and insulated as indicated in the project drawings.

## **WARRANTY**

The supplier shall warrant the High Performance Rink Chiller system to be free from defects in material and workmanship, under normal use and service for a period of one (1) year from the date of acceptance.

## **SECTION 3 -B     HEAT RECLAIM SYSTEM**

In accordance with the project drawings, each chiller skid is to feature two (2) brazed plate heat exchangers sized to work as desuperheaters for each of the four refrigerant circuits. The desuperheaters will be sized at approximately 60,000 btuh each to serve as preheat to the building/resurfacer hot water system. The desuperheaters will be piped in such a manner to eliminate oil logging or liquid refrigerant backflow to the compressors. A by-pass line will be installed on the refrigerant circuit to permit system operation without refrigerant passing through the desuperheater if needed.

Proper piping practices are to be used to ensure the pipe connections are stress free from the systems vibration and normal operation. Thermometer wells and thermometers to be provided where shown on the drawings.

Fractional HP pumps for each chiller pair of desuperheaters shall be provided. Fractional HP pumps shall be all brass or stainless steel construction to avoid corrosion. Each pump identified as P1 & P2 shall be 24 gpm at the foot head determined by the supplier for the system pressure drop.

The P1 pump will be activated whenever compressor 1 or 2 are activated on chiller skid one.

The P2 pump will be activated whenever compressor 3 or 4 are activated on chiller skid two.

Piping shall be type L copper which is silver soldered together or made with crimp clamp connections. Pumps are to be fitted with suction strainers, check valves, service valves, and pressure gauges. An LED indication light to be provided at each pump junction box for easy owner verification of operation.

Materials for the water connection and distribution points for the two 250,000 BTUH water heaters shall be supplied to match the configuration on the project drawings. The intent is to convert one hot water tank to a pre-heat storage tank. The thermostat for the tank used for storage will be adjusted down to the lowest setting possible to prevent it from operating as a heater while still providing the owner the option to use it as a water heater if needed or desired.

-end of section-

## **SECTION 5            REPLACEMENT BOILER FOR HEATING SYSTEM**

Existing unit to be replaced with a boiler of equal or better performance and of equal or better efficiency. Existing unit is a Burnham gas fired boiler rated at 330 BTUh in and 264 BTUh out.

All materials (boiler, piping, insulation, flue piping, valves, gauges, controls, control wiring, fasteners and commodities) to be supplied within \$24,500 Allowance Value (See Section 8)

This unit is NOT connected to or a part of the heat reclaim system.

-end of section-

## SECTION 6-A

## DESICCANT DEHUMIDIFICATION

Furnish, and deliver one CDI Model DH 138 or one EI Model E5000 dehumidifier (or approved equal or better).

### Standard features to include:

- ☐ Totally pre-engineered ready-to operate package for outdoor applications.
- ☐ Packaged control system complete with unit mounted blowers and direct gas fired re-activation system.
- ☐ Installation only requires main electrical hook-up, gas connection, wiring of remote humidistat, and supply and return ductwork.
- ☐ Operates with a titanium gel desiccant wheel with drive system.
- ☐ All components shall be serviceable through service doors.
- ☐ Units include all required controls, starters, safety devices, and wiring to comply with NEC.
- ☐ Unit comes with mounted disconnect for simple three phase connection.
- ☐ Unit is guaranteed against defects in material and workmanship for one year from date of shipment.
- ☐ Provide RAM indoor air quality unit in rink to monitor and control for CO, CO2, and NO2. A remote panel shall be located in the ice resurfacer room for control and interlock with alarms and building exhaust system.

### GENERAL UNIT SPECIFICATIONS

Nominal Moisture Removal ( 50 deg F./45% RH )	115 lb/hr
Supply Fan	7.5 hp
Wheel Quantity	1
Reactivation Fan	3 hp
Process Air Flow - Max (460/3/60 FLA-MAX )	5,000 CFM
Natural gas	300 MBH

## SECTION 6-B

## DEHUMIDIFICATION DUCTWORK INSTALLATION

Exterior ductwork shall be insulated and weatherproofed

Interior ductwork to be un-insulated spiral duct at the location depicted on the drawings. Ductwork may be of constant diameter or may reduce in diameter as air flow permits. Outflows shall be adjusted so that equal volume flows from each. Provide telltales at each register.

Exterior ductwork to be minimum 24 ga, externally insulated and weatherproofed.

Ductwork, hangers, insulation, membrane waterproofing, straps, hangers, fasteners and commodities to be supplied per \$24,000 allowance value (see Section 8).

Dehumidification Unit to be supplied as part of rink mechanical systems base bid.

## **SECTION 6-C                      AIR QUALITY MANAGEMENT SYSTEM**

Provide system within \$27,500 electrical allowance value (see section 8). Sensor(s) shall be mounted at top of glass height within the rink space. Sensor shall monitor CO<sub>2</sub>, CO and NO and shall be interlocked with the make-up air intake fan in the South gable end of the rink so that fan activates when unacceptable levels of gasses is present and will shut off fan when levels return to normal.

Sensor shall also read Relative Humidity and and be interlocked with and shall activate the Dehumidifier until pre-set level is reached.

Sensor shall have an audible and visual alarm.

All installation work by others.

-end of section-

## **SECTION 7                      NOT USED, INTENTIONALLY LEFT BLANK**

### **SECTION 8.                      SUPPLEMENTAL MATERIALS OVERVIEW. ALLOWANCE VALUES.** **Furnish and deliver (to installing contractor) the following:**

8-A. Refrigeration supplemental materials. Allowance Values.

In addition to the refrigeration equipment specified in sections 3-A, 3-B, 5 and 6, include the following allowances in your bid:

- **Supplemental refrigeration materials. \$14,000**
  - All brine piping to/from chiller skid and pump skid and existing floor inclusive of valves, fittings, insulation, gauges, fasteners and commodities needed for a COMPLETE installation of the chiller plant and to make connections to existing floor piping and new brine pumps.
  - Condenser water piping from existing condenser pumps to/from chiller and desuperheaters inclusive of valves, fittings, insulation, gauges, fasteners and commodities.
  - Piping from new cooling tower to existing cooling tower pumps,

- **Electrical and Control Wiring materials. \$27,500**
  - All gear, wire, breakers, commodities etc. required to complete the electrical work at the chiller plant. Note Sheet 9, Power Feeder Diagram
  - All gear, wire, breakers, commodities etc. required to complete the electrical work at the cooling tower and roof mounted dehumidifier
  - All wire, gauges, T-stats, sensors, monitors, fasteners and commodities for low voltage control wiring for the chiller, the cooling tower and the dehumidifier.
- **Plumbing and gas piping Materials. \$24,500**
  - New Boiler for Zamboni and Domestic Water and associated copper piping, flue, insulation, valves, gauges and commodities.
  - Copper piping to/from Desuperheaters at chillers to reconfigured hot water system.
  - Gas piping as required for Dehumidifier
- **Ductwork. \$24,000**
  - Spiral and plain ductwork at Dehumidifier
  - Insulation and waterproofing for exterior ductwork.
  - Hangers, fasteners and commodities required to complete this work..

# REPORTS

## **LEAD LABORATORY REPORT**

**EMSL Analytical, Inc.**

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com / bostonlab@emsl.com>**EMSL Order:** 131702483**Customer ID:** EAFI66**Customer PO:****Project ID:****Attention:** Chris Eustis

EFI Global, Inc.

155 West Street, Suite 6

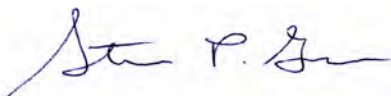
Wilmington, MA 01887

**Phone:** (781) 801-7464**Fax:** (978) 688-5494**Received Date:** 06/09/2017 11:17 AM**Analysis Date:** 06/09/2017**Collected Date:****Project:** 98350-06293 / 295 Totten Pond Rd, Waltham, MA**Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
02A 131702483-0001	Roof - Black Tar and Gravel	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
02B 131702483-0002	Roof - Black Tar and Gravel	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01A 131702483-0003	Boiler Room - White Fiberglass Material	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01B 131702483-0004	Boiler Room - White Fiberglass Material	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Elizabeth Stutts (4)

  
Steve Grise, Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL998919, Maine Bulk Asbestos BA039

Initial report from: 06/09/2017 14:14:09

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 786-5974

<http://www.EMSL.com>[cinnaminsonleadlab@emsl.com](mailto:cinnaminsonleadlab@emsl.com)

EMSL Order: 201705727

CustomerID: EAFI66

CustomerPO:

ProjectID:

Attn: **Chris Eustis**  
**EFI Global, Inc.**  
**155 West Street, Suite 6**  
**Wilmington, MA 01887**

Phone: (978) 688-3736  
Fax: (978) 688-5494  
Received: 06/12/17 9:40 AM  
Collected: 6/9/2017

Project: **98350-06293****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
Pb01	201705727-0001	6/9/2017	6/12/2017	<0.0080 % wt
Site: Blue paint				

Phillip Worby, Lead Laboratory Manager  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Initial report from 06/12/2017 13:55:23

## Michael E. Waterman, PE.

STRUCTURAL ENGINEERING  
2A Austin Kelly Lane  
Southborough, MA. 01772

tel. 508-229-3100  
mw@michaelwaterman.com  
www.michaelwaterman.com



May 11, 2017

Richard Southgate  
Southgate Consulting  
85 Westen Avenue  
Essex, MA 01929

Ref: **Waltham Ice Rink**  
Waltham, MA

### STRUCTURAL REPORT

On May 11, 2017, I visited the existing building to observe the condition of an existing exposed structural steel support structure that is currently supporting an existing mechanical unit. The proposal is to replace the existing unit with a new unit of similar size and weight.

The support structure consists of structural steel round columns, with lateral diagonal bracing, and steel wide flange beams. The condition of the existing steel is fair. There is rusting of the steel throughout, severe in a few isolated spots. However the overall condition is adequate for continued use.

The existing steel should be sandblasted to bare steel, removing all rust, any severely damaged spots should be reinforced with welded steel plates, to be determined once the cleaning of the steel is complete. Then all steel should be painted with a galvanizing ZRC paint..

If there are any questions or comments please contact me.

Signed,

---

Michael E. Waterman, PE.

155 West Street  
Suite 6  
Wilmington, MA 01887  
T: 978-688-3736  
TF: 800-659-1202  
F: 978-688-5494  
www.efiglobal.com



June 15, 2017

Mr. Nick Abruzzi  
Director, Parks & Recreation  
City of Waltham  
510 Moody Street  
Waltham, Massachusetts 02453

**RE: Limited Pre-Renovation Asbestos & Lead Paint Survey  
Veterans Memorial Skating Rink  
295 Totten Pond Road  
Waltham, Massachusetts  
MA OSD Contract Number: OSD-DCAMM PRF67  
EFI Project No. 98350-06293**

Dear Mr. Abruzzi:

EFI Global, Inc. (EFI) performed a limited pre-renovation asbestos and lead paint survey on the roof, exterior water holding tank, and in the boiler room (Project Area) of the Veterans Memorial Skating Rink located at 295 Totten Pond Road in Waltham, Massachusetts (Site).

## **SURVEY PROCEDURES**

EFI asbestos inspector, Mr. Christopher Eustis, conducted the site visit and asbestos testing on June 9, 2017. Samples of suspect ACMs identified during the survey were collected and submitted under chain of custody protocol to EMSL Analytical, Inc. (EMSL) of Woburn, Massachusetts, a Massachusetts-licensed laboratory. EMSL is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP) for bulk asbestos fiber analysis which is administered by the National Institute of Standards and Testing (NIST). The samples were analyzed using polarized light microscopy (PLM) with dispersion staining via EPA's "Method for the Determination of Asbestos in Bulk Building Materials" (EPA/600/R-93/116). Asbestos concentrations for the samples were determined by visual area estimation. Commonwealth of Massachusetts asbestos regulations define an ACM as any material containing greater than or equal to one percent asbestos.

EFI also collected a paint chip sample of the paint on the water holding tank for lead analysis. Lead analysis was conducted by EMSL using atomic absorption spectrometry (AAS) in accordance with US EPA method SW846-7420.

## **SURVEY RESULTS**

### Asbestos

The following suspect ACMs sampled by EFI were reported by EMSL as containing no detectable concentration of asbestos:

- White fiberglass sealant
- Black tar and gravel

A copy of the laboratory report prepared by EMSL is presented in Attachment A. .

### Lead Paint

EMSL reported that the blue paint on the water holding tank contained a lead concentration of <0.080% by weight. This lead concentration is below the US EPA regulatory limit of 0.5% by weight, which is the threshold for classification as a “lead based paint.”

See the Regulatory Discussion below for additional regulatory implications. A copy of the laboratory report prepared by EMSL is presented in Attachment B.

## **REGULATORY DISCUSSION**

OSHA defines any detectable concentration of lead in paint as a potential lead exposure hazard to workers performing construction or demolition work that disturbs these surfaces, as even small concentrations of lead can result in unacceptable employee exposures. The level of exposure varies based upon the lead concentration, method of removal, and other workplace conditions. Since these conditions can vary greatly, the OSHA Lead Construction Standard (29 CFR 1926.62) requires exposure monitoring or the use of historical or objective monitoring data to ensure that employee exposures do not exceed the OSHA action level of 30 micrograms per cubic meter of air ( $\mu\text{g}/\text{m}^3$ ) and the OSHA permissible exposure limit (PEL) of 50  $\mu\text{g}/\text{m}^3$ .

OSHA requires that contractors monitor employee exposures if coated surfaces with paint containing lead are impacted during construction or demolition. Contractors and employers of staff who may disturb these materials are obligated to perform a negative exposure assessment in accordance with OSHA regulations to document that exposure to lead does not exceed the OSHA action level and the PEL.

OSHA states that the employer must treat employees as if they would be exposed above the PEL until the employer 1) performs an exposure assessment that documents that employees are not exposed above the PEL or 2) can supply prior data regarding the same type of work which may exempt them from the standard. The OSHA Lead Construction Standard applies to many construction activities including the following:

- manual demolition of structures, manual scraping, manual sanding, and use of heat gun where lead-containing coatings or paints are present;

- abrasive blasting enclosure movement and removal;
- power tool cleaning;
- lead burning;
- using lead-containing mortar or spray painting with lead-containing paint;
- abrasive blasting, rivet busting, or welding, cutting, or burning on any structure where lead-containing coatings or paint are present;
- cleanup activities where dry expendable abrasive are used; and
- any other task the employer believes may cause exposure in excess of the PEL.

The contractor must provide respiratory protection, protective work clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until an exposure assessment has determined that the work activity will result in an exposure below the PEL. Additional requirements under the standard include a written compliance program, as well as, record keeping.

The contractor must also characterize and dispose of all dust, debris, and blast media in accordance with US EPA and Massachusetts Department of Environmental Protection regulations. This includes waste characterization of dust, debris and blast media generated during paint removal activities via the toxicity characteristic leaching procedure (TCLP).

## **CONCLUSIONS**

The suspect ACMs sampled by EFI were reported by EMSL as containing no detectable concentration of asbestos.

The lead concentration within the blue paint on the water holding tank is very low and less than the US EPA regulatory limit of 0.5% by weight for classification as a "lead based paint." As stated above, the OSHA Lead Construction Standard considers any concentration of lead to be a potential for worker exposure, if materials coated with paint containing lead are disturbed during renovation or demolition activities.

## **RECOMMENDATIONS**

If suspect ACMs other than the above-referenced materials are identified during renovation activities, EFI recommends that they be sampled by a Massachusetts-licensed asbestos inspector and analyzed by a Massachusetts-licensed asbestos analytical laboratory.

It is recommended that construction or demolition personnel conducting work at the facility comply with applicable OSHA Lead Construction Standard requirements during all construction activities at the Site.

## **LIMITATIONS**

EFI's survey was limited to those portions of the Project Area accessible by reasonable and ordinary means. EFI did not perform destructive testing and investigations to identify suspect ACMs within the facility. EFI's inspection did not include an evaluation of underground foundation

damp-proofing, transite water/sewer piping, and materials that may be present behind solid walls/ceilings and within mechanical and electrical equipment at the facility.

EFI is pleased to provide environmental consulting services to the City of Waltham. If you have any questions regarding the contents of this report, or require additional information, please do not hesitate to contact Sean Cassidy at 978-886-3712. Thank you for the opportunity to serve your environmental needs.

Sincerely,  
**EFI Global, Inc.**



Christopher Eustis  
Environmental Scientist



Sean Cassidy, CIEC  
District Manager

Attachments:

Attachment A - Asbestos Laboratory Report  
Attachment B - Lead Laboratory Report  
Attachment C - Photographs

**ATTACHMENT A**  
**ASBESTOS LABORATORY REPORT**

**EMSL Analytical, Inc.**

5 Constitution Way, Unit A Woburn, MA 01801

Tel/Fax: (781) 933-8411 / (781) 933-8412

<http://www.EMSL.com / bostonlab@emsl.com>**EMSL Order:** 131702483**Customer ID:** EAFI66**Customer PO:****Project ID:****Attention:** Chris Eustis

EFI Global, Inc.

155 West Street, Suite 6

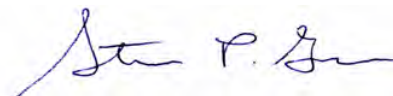
Wilmington, MA 01887

**Phone:** (781) 801-7464**Fax:** (978) 688-5494**Received Date:** 06/09/2017 11:17 AM**Analysis Date:** 06/09/2017**Collected Date:****Project:** 98350-06293 / 295 Totten Pond Rd, Waltham, MA**Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy**

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
02A 131702483-0001	Roof - Black Tar and Gravel	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
02B 131702483-0002	Roof - Black Tar and Gravel	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01A 131702483-0003	Boiler Room - White Fiberglass Material	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
01B 131702483-0004	Boiler Room - White Fiberglass Material	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Analyst(s)

Elizabeth Stutts (4)

  
Steve Grise, Laboratory Manager  
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Samples received in good condition unless otherwise noted. Estimated accuracy, precision and uncertainty data available upon request. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Reporting limit is 1%

Samples analyzed by EMSL Analytical, Inc. Woburn, MA NVLAP Lab Code 101147-0, CT PH-0315, MA AA000188, RI AAL-107T3, VT AL988919, Maine Bulk Asbestos BA039

Initial report from: 06/09/2017 14:14:09



131702483

187 Ballardvale St, Suite A215  
Wilmington, MA 01887  
Tel: 978-688-3736  
Tel: 800-659-1202  
Fax: 978-688-5494  
www.efiglobal.com

## BULK SAMPLE CHAIN OF CUSTODY FORM

Your Name: Chris Eustis	Bill to: Same
Company: EFI Global	Address:
Address: 155 West St.	
Suite 6	City/State: Zip:
City/State: Wilmington, MA Zip: 01887	PO #:

## Project Information

Project #/Name: 98350-06293 295 Totten pond rd. Waltham, MA	
Results To: Christopher_Eustis@efiglobal.com	Tel: (978) 688-3736
Alternate: Sean_Cassidy@efiglobal.com	Fax: (978) 688-5954

## Requested Turnaround Time

RUSH <input checked="" type="checkbox"/>	1 Day <input type="checkbox"/>	2 Day <input type="checkbox"/>	3 Day <input type="checkbox"/>	5 Day <input type="checkbox"/>
Stop at first positive <sup>bhr</sup> Y <input checked="" type="checkbox"/> or N <input type="checkbox"/> Analyze all plaster and joint compound samples				

## Media and Methodology

PLM - BULK	<input checked="" type="radio"/> EPA 600/R-93/116	<input type="radio"/> Point Count	<input type="radio"/> Gravimetric
------------	---	-----------------------------------	-----------------------------------

SAMPLE ID	HA #	TYPE OF MATERIAL	LOCATION	QUANTITY
02A,B		Black tar and gravel	Roof	
01A,B		white fiberglass mat	Boiler room	

Total Number of Samples Submitted: 4

Chris Eustis

## Signatures

Relinquished By:	Date: 6/9/17 Time:
Received By:	Date: Time:
Relinquished By:	Date: JUN 09 2017 Time:
Received By:	Date: 6/11/17 Time:

**EMSL Analytical, Inc.**

200 Route 130 North, Cinnaminson, NJ 08077

Phone/Fax: (856) 303-2500 / (856) 786-5974

<http://www.EMSL.com>[cinnaminsonleadlab@emsl.com](mailto:cinnaminsonleadlab@emsl.com)

EMSL Order: 201705727

CustomerID: EAFI66

CustomerPO:

ProjectID:

Attn: **Chris Eustis**  
**EFI Global, Inc.**  
**155 West Street, Suite 6**  
**Wilmington, MA 01887**

Phone: (978) 688-3736  
Fax: (978) 688-5494  
Received: 06/12/17 9:40 AM  
Collected: 6/9/2017

Project: **98350-06293****Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)\***

<i>Client Sample Description</i>	<i>Lab ID</i>	<i>Collected</i>	<i>Analyzed</i>	<i>Lead Concentration</i>
Pb01	201705727-0001	6/9/2017	6/12/2017	<0.0080 % wt
Site: Blue paint on Water Tower				

Phillip Worby, Lead Laboratory Manager  
or other approved signatory

\*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.008 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Cinnaminson, NJ NELAP Certifications: NJ 03036, NY 10872, PA 68-00367, AIHA-LAP, LLC ELLAP 100194, A2LA 2845.01

Report Amended: 06/13/2017 12:02:25 Replaces the Initial Report 06/12/2017 13:55:28. Reason Code: Client-Change to Sample ID

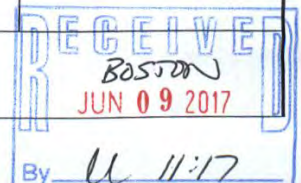
# Lead (Pb) Chain of Custody

## EMSL Order ID (Lab Use Only):

261705727

PHONE:  
FAX:

Company: <b>EFI Global</b>		EMSL-Bill to: <input type="checkbox"/> Different <input checked="" type="checkbox"/> Same If Bill to is Different note instructions in Comments**	
Street: 155 West Street		Third Party Billing requires written authorization from third party	
City: <b>Wilmington</b>	State/Province: <b>MA</b>	Zip/Postal Code: <b>01887</b>	Country: <b>US</b>
Report To (Name): <b>Chris Eustis</b>		Telephone #:	
Email Address: <b>Christopher_Eustis@efiglobal.com</b>		Fax #:	Purchase Order:
Project Name/Number: <b>98350-06293</b>		Please Provide Results: <input type="checkbox"/> FAX <input type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: <b>MA</b>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input checked="" type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week			
*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide			
Matrix	Method	Instrument	Reporting Limit
Chips <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm <sup>2</sup> <input type="checkbox"/> ppm	SW846-7000B	Flame Atomic Absorption	0.01%
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter
Wipe* <input type="checkbox"/> ASTM <input type="checkbox"/> non ASTM <input type="checkbox"/> *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe
	SW846-6010B or C	ICP-AES	1.0 µg/wipe
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)
Wastewater Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)
Drinking Water Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter
Other:			
Name of Sampler: <b>Chris Eustis</b>		Signature of Sampler: <i>[Signature]</i>	
Sample #	Location	Volume/Area	Date/Time Sampled
<b>Pb01</b>	<b>Blue paint connector for car</b>		<b>6/9/17</b>
Client Sample #'s: <b>-</b>		Total # of Samples: <b>1</b>	
Relinquished (Client): <i>[Signature]</i>	Date: <b>6/9/17</b>	Time:	
Received (Lab): <i>[Signature]</i>	Date: <b>6/12/17</b>	Time:	
Comments:			



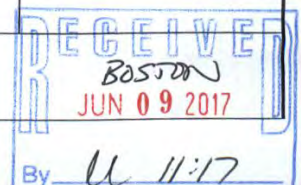
# Lead (Pb) Chain of Custody

## EMSL Order ID (Lab Use Only):

261705727

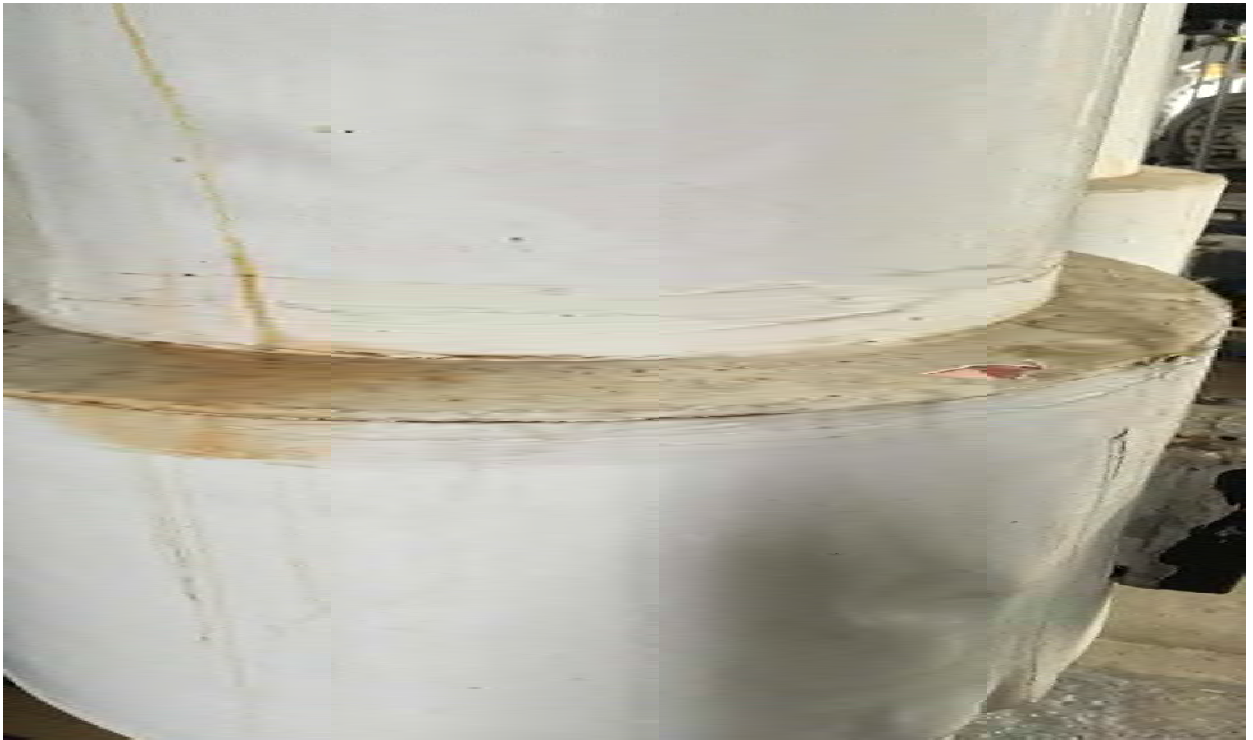
PHONE:  
FAX:

Company: <b>EFI Global</b>		EMSL-Bill to: <input type="checkbox"/> Different <input checked="" type="checkbox"/> Same If Bill to is Different note instructions in Comments**	
Street: 155 West Street		Third Party Billing requires written authorization from third party	
City: <b>Wilmington</b>	State/Province: <b>MA</b>	Zip/Postal Code: <b>01887</b>	Country: <b>US</b>
Report To (Name): <b>Chris Eustis</b>		Telephone #:	
Email Address: <b>Christopher_Eustis@efiglobal.com</b>		Fax #:	Purchase Order:
Project Name/Number: <b>98350-06293</b>		Please Provide Results: <input type="checkbox"/> FAX <input type="checkbox"/> E-mail <input type="checkbox"/> Mail	
U.S. State Samples Taken: <b>MA</b>		CT Samples: <input type="checkbox"/> Commercial/Taxable <input type="checkbox"/> Residential/Tax Exempt	
Turnaround Time (TAT) Options* - Please Check			
<input type="checkbox"/> 3 Hour <input checked="" type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week			
*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide			
Matrix	Method	Instrument	Reporting Limit
Chips <input checked="" type="checkbox"/> % by wt. <input type="checkbox"/> mg/cm <sup>2</sup> <input type="checkbox"/> ppm	SW846-7000B	Flame Atomic Absorption	0.01%
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter
	NIOSH 7300 modified	ICP-AES/ICP-MS	0.5 µg/filter
Wipe* <input type="checkbox"/> ASTM <input type="checkbox"/> non ASTM <input type="checkbox"/> *if no box is checked, non-ASTM Wipe is assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe
	SW846-6010B or C	ICP-AES	1.0 µg/wipe
	SW846-7000B/7010	Graphite Furnace AA	0.075 µg/wipe
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)
	SW846-1131/SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)
	SW846-7010	Graphite Furnace AA	0.3 mg/kg (ppm)
	SW846-6010B or C	ICP-AES	2 mg/kg (ppm)
Wastewater Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.7	ICP-AES	0.020 mg/L (ppm)
Drinking Water Unpreserved <input type="checkbox"/> Preserved with HNO <sub>3</sub> pH < 2 <input type="checkbox"/>	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)
	EPA 200.8	ICP-MS	0.001 mg/L (ppm)
TSP/SPM Filter	40 CFR Part 50	ICP-AES	12 µg/filter
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter
Other:			
Name of Sampler: <b>Chris Eustis</b>		Signature of Sampler: <i>[Signature]</i>	
Sample #	Location	Volume/Area	Date/Time Sampled
<b>Pb01</b>	<b>Blue paint connector for car</b>		<b>6/9/17</b>
Client Sample #'s	-		Total # of Samples: <b>1</b>
Relinquished (Client): <i>[Signature]</i>	Date: <b>6/9/17</b>	Time:	
Received (Lab): <i>[Signature]</i>	Date: <b>6/12/17</b>	Time:	
Comments:			



**ATTACHMENT C**  
**PHOTOGRAPHS**

## Photographs



White fiberglass sealant



Boiler room



Tar and gravel roof

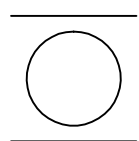
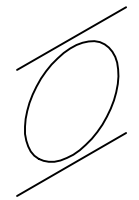
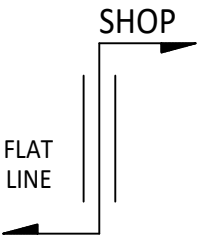
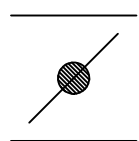
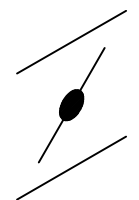
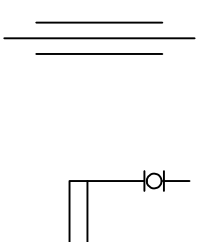
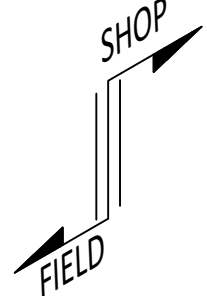
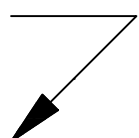
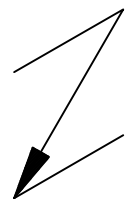

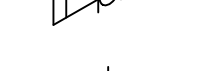
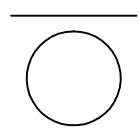

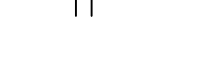
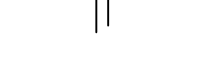

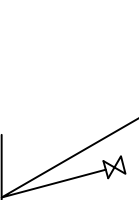



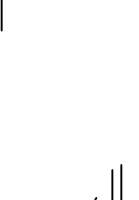

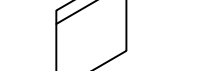

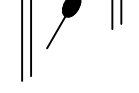






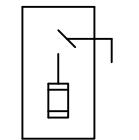
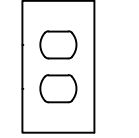
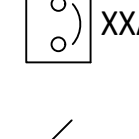
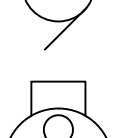
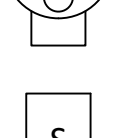
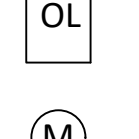
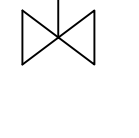
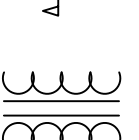


## **DRAWINGS**

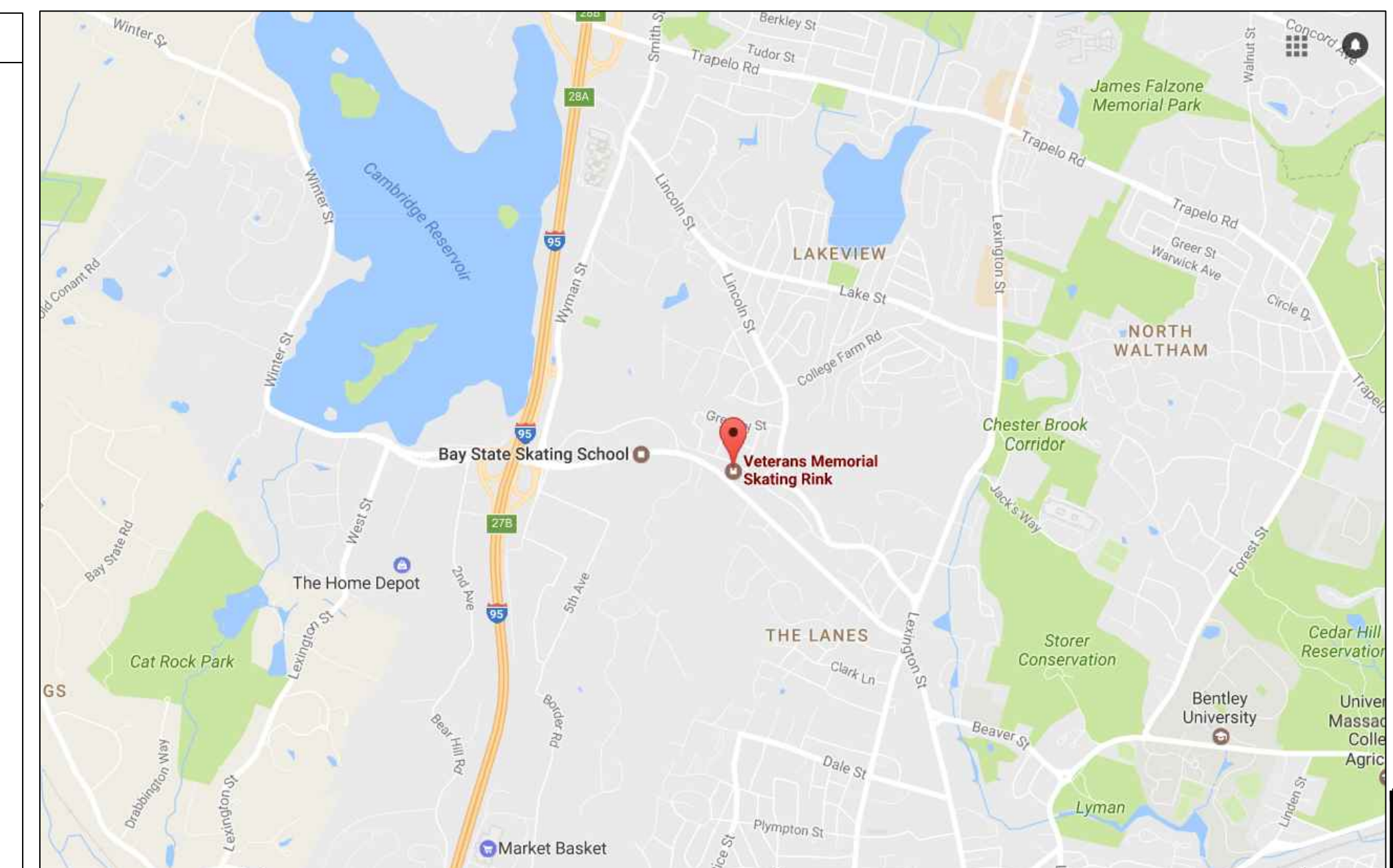
City of Waltham  
VETERAN'S MEMORIAL RINK

295 TOTTEN POND ROAD, WALTHAM MA

EQUIPMENT ONLY

# MECHANICAL UPGRADE PROGRAM

TYPICAL PLUMBING SYMBOLS		TYPICAL ELECTRICAL SYMBOLS	
<p><u>FLAT LINE</u></p> 	<p><u>ISOMETRIC</u></p> 	<p>SHOP</p> 	<p>FLANGE CONNECTION DESIGNATING SHOP &amp; FIELD BREAK</p>
		<p>FLAT LINE</p> 	<p>FIELD</p> 
			<p>UNION</p> 
			<p>SIGHT GLASS ASSEMBLY</p> 
			<p>FLANGE</p> 
			<p>THERMOMETER</p> 
			<p>PRESSURE GAUGE</p> 
			<p>FLOW SWITCH</p> 
			<p>REDUCER</p> 
			<p>DISCONNECT</p> 
			<p>RECEPTACLE</p> 
			<p>XXA</p> 
			<p>MOTOR</p> 
			<p>EXHAUST FAN</p> 
			<p>SET</p> 
			<p>OVERLOAD</p> 
			<p>MOTORIZED REGULATING VALVE</p> 
			<p>FLOW SWITCH</p> 
			<p>TRANSFORMER</p> 



## DRAWING LIST

- COVER PAGE
- FLOOR PLAN
- DEMO PLAN
- NEW EQUIPMENT
- DETAIL 1-A
- DETAIL 2-A
- DEHUMIDIFIER DETAILS
- POWER FEEDER
- CONDENSER WATER
- GLYCOL LOOP
- HEAT RECLAIM

CJL Engineering

232 Horner Street  
Johnstown, PA 15902

Southgate Consulting

85 Westen Avenue  
Essex, MA 01929

PAGE 1 OF 12

## WALTHAM VETERAN'S RINK

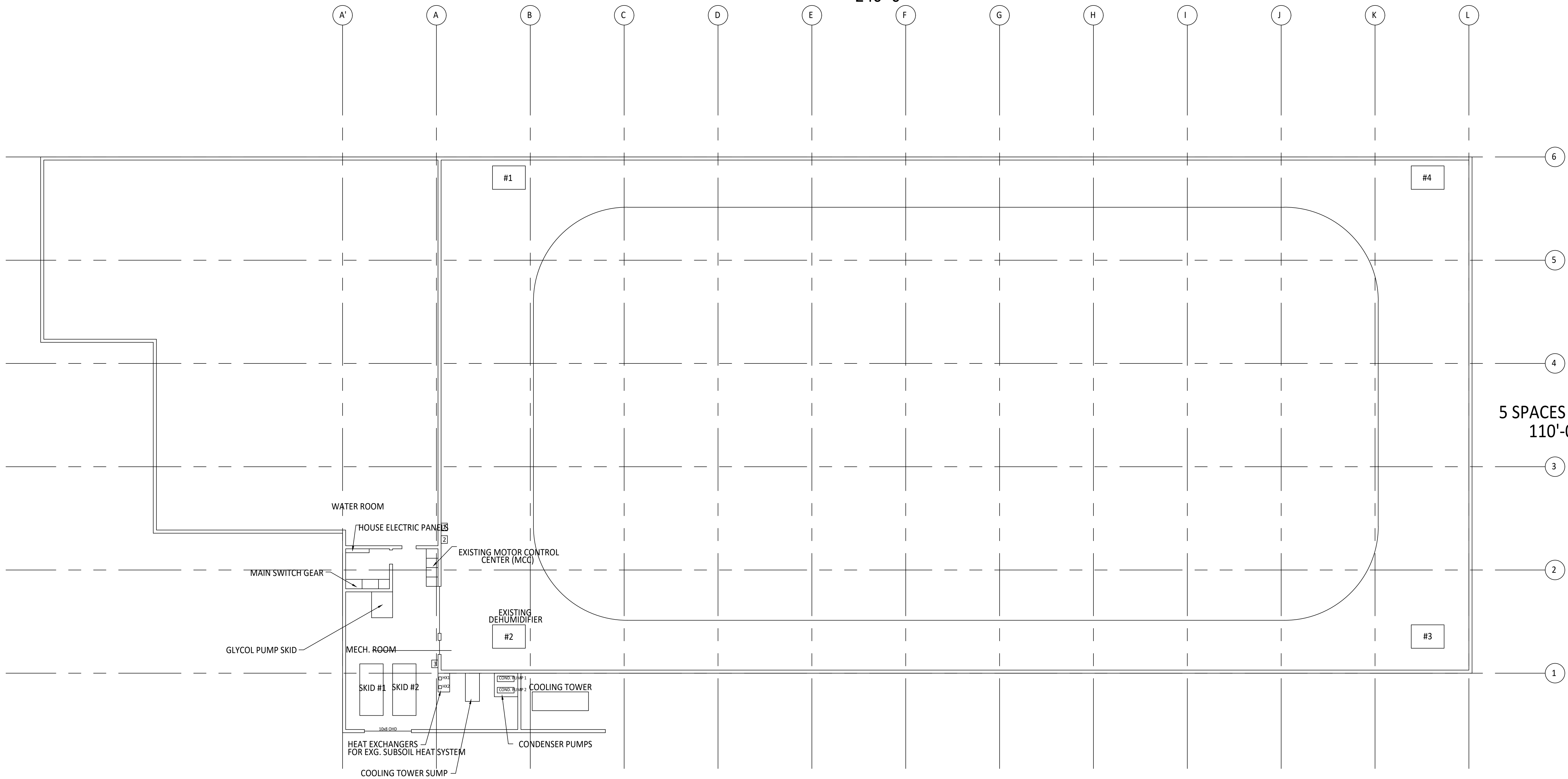
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS

# COVER SHEET

/2/2017

12 SPACES AT 20'  
240'-0"

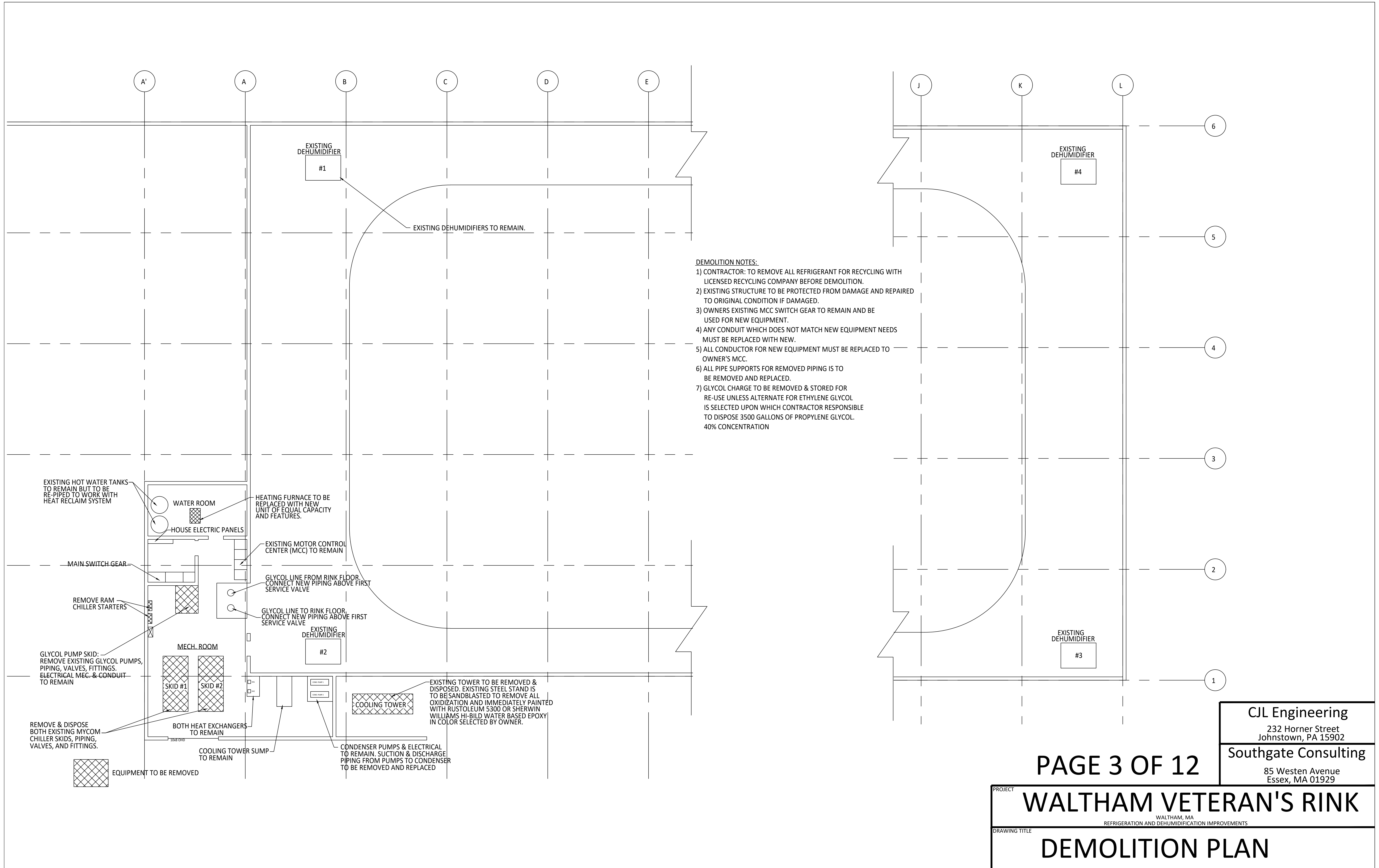
5 SPACES AT 22'  
110'-0"



PAGE 2 OF 12

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PROJECT  
**WALTHAM VETERAN'S RINK**  
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS  
DRAWING TITLE  
**EXISTING FLOOR PLAN**



ELECTRICAL ROOM

NEW GLYCOL  
PUMPS

MECH. ROOM

1

55  
TON

ELECTRICAL

2

NEW CHILLER  
SKIDS

3

55  
TON

ELECTRICAL

4

NEW MECHANICAL ROOM  
SCALE: N.T.S

HX1

HX2

TOWER SUMP

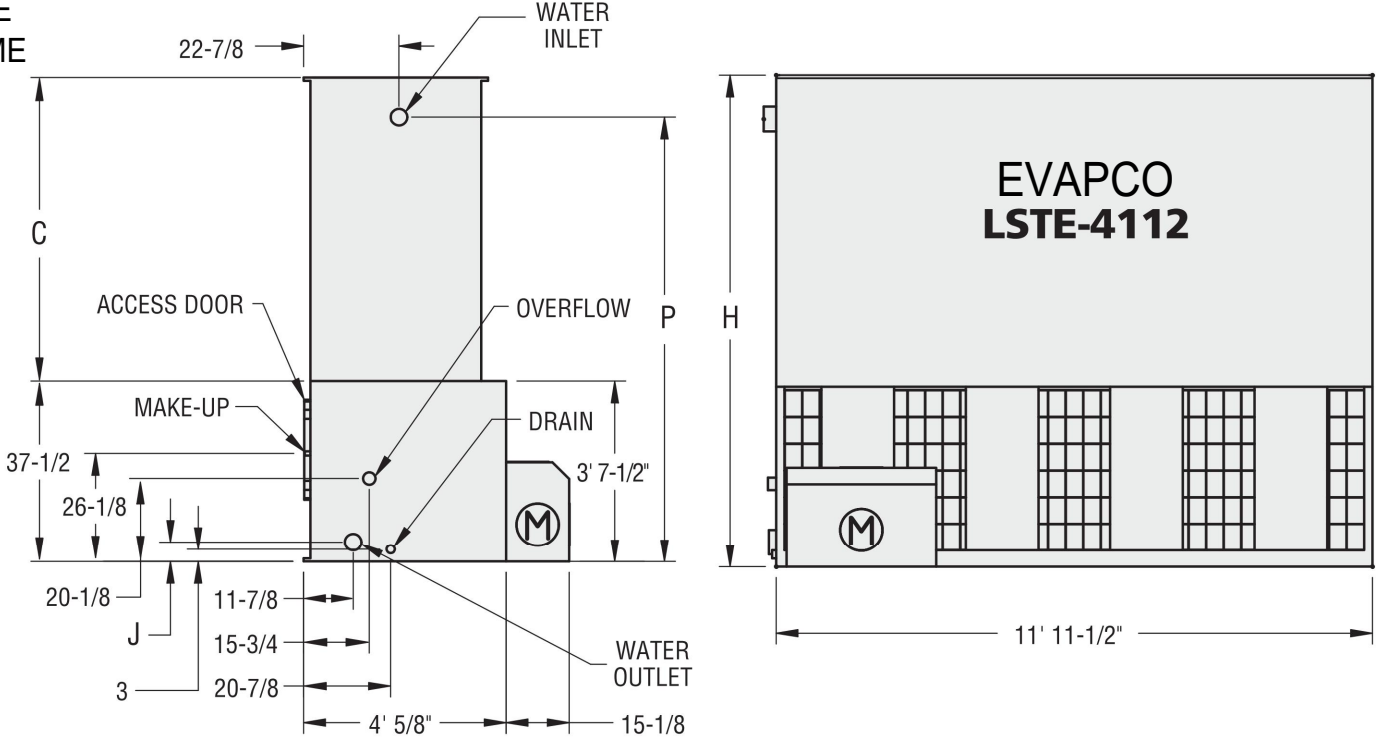
COND. PUMP 1

COND. PUMP 2

NEW COOLING TOWER

ENGINEERING DATA & DIMENSIONS

AT CONTRACTOR'S OPTION, A  
SUBSTITUTE COOLING TOWER OF  
EQUAL OR GREATER PERFORMANCE  
MAY BE USED. EXISTING STEEL FRAME  
MAY REQUIRE MODIFICATION  
IF A SUBSTITUTE TOWER IS USED.



SMALL CENTRIFUGAL FAN MODELS

LSTE-4112

MODEL NO.	WEIGHT (LBS.)		NO. FANS	FAN MOTOR HP*	AIR FLOW CFM	DIMENSIONS				CONNECTIONS (IN.)				
	SHIPPING	OPERATING				H	P	C	J	WATER IN	WATER OUT	MAKE UP	DRAIN	OVER FLOW
LSTE-4112	2,930	4,240	4	10	24,400	8' 10-3/8"	7' 11-7/8"	5' 2-7/8"	6"	6"	6"	1"	2"	3"

- NOTES:
1. An adequately sized bleed line must be installed in the cooling tower system to prevent build-up of impurities in the recirculated water.
  2. Connections smaller than 6" are MPT. Connections 6" or larger are Beveled For Weld/Grooved for mechanical coupling (BFW/Grooved).
  3. Do not use catalog drawings for certified prints. Dimensions are subject to change.
- \* For external static pressure up to 1/2", use next size fan motor.

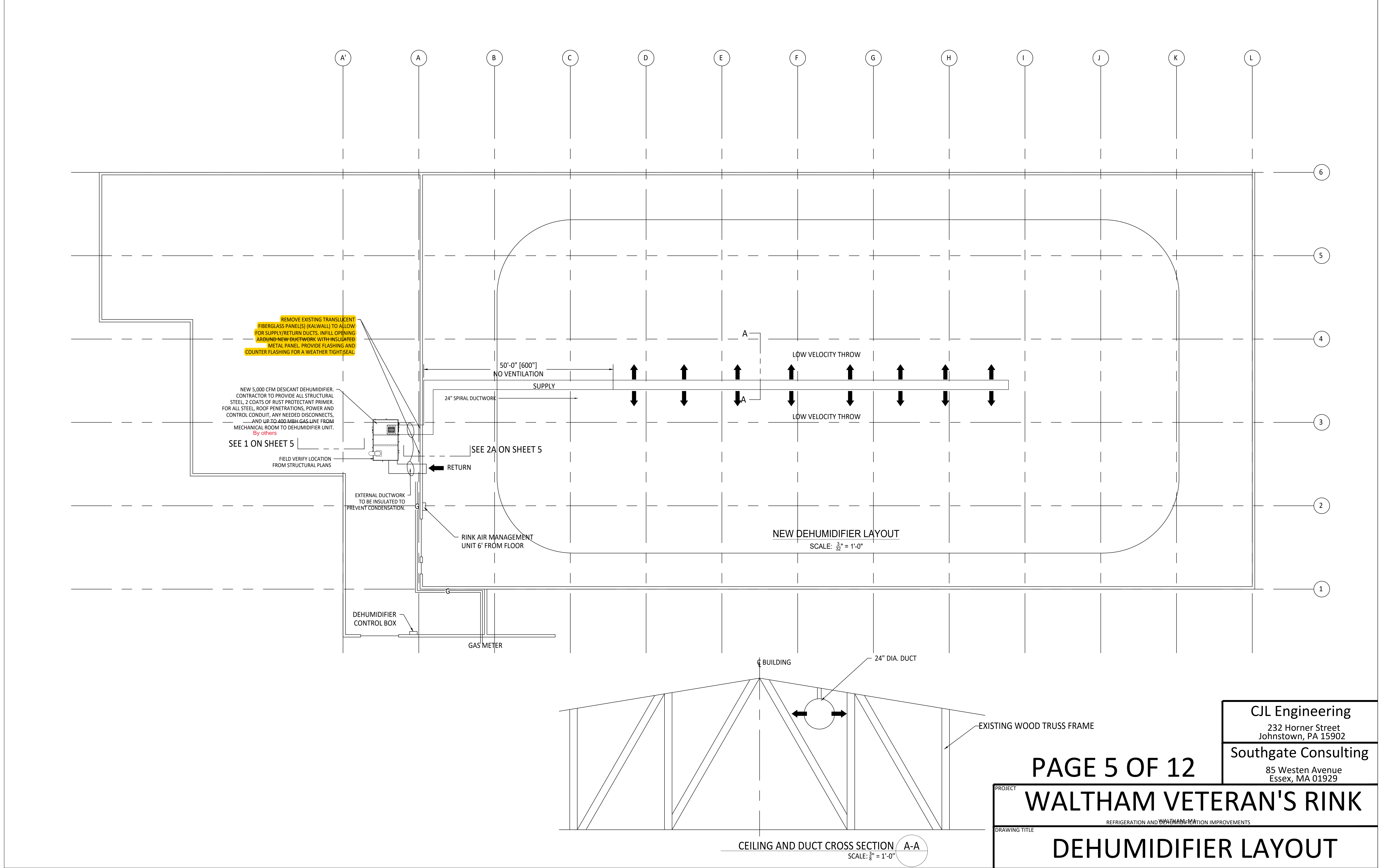
PAGE 4 OF 12

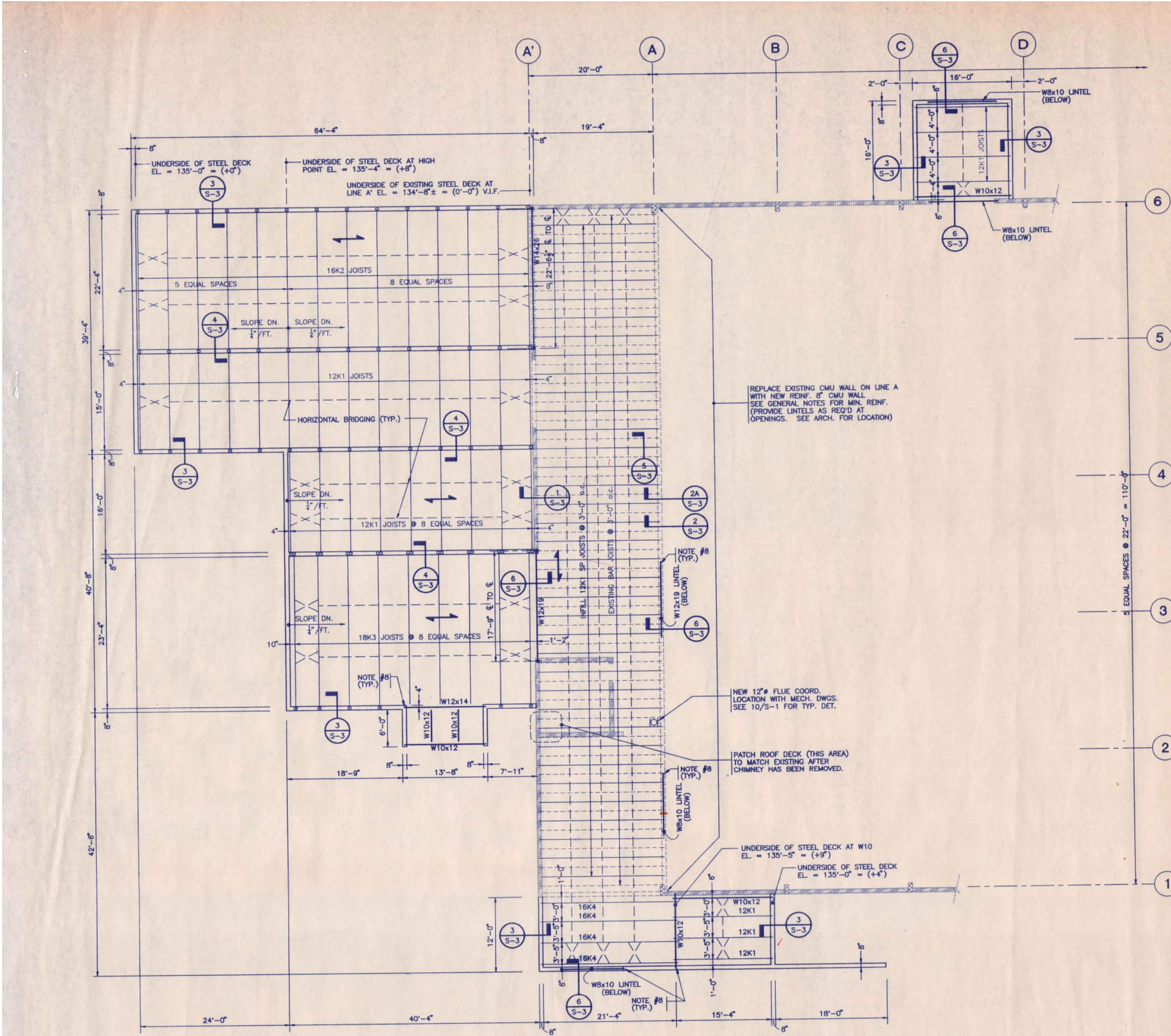
WALTHAM VETERAN'S RINK  
WALTHAM, MA  
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS

NEW EQUIPMENT LAYOUT

CJL Engineering  
232 Horner Street  
Johnstown, PA 15902

Southgate Consulting  
85 Westen Avenue  
Essex, MA 01929



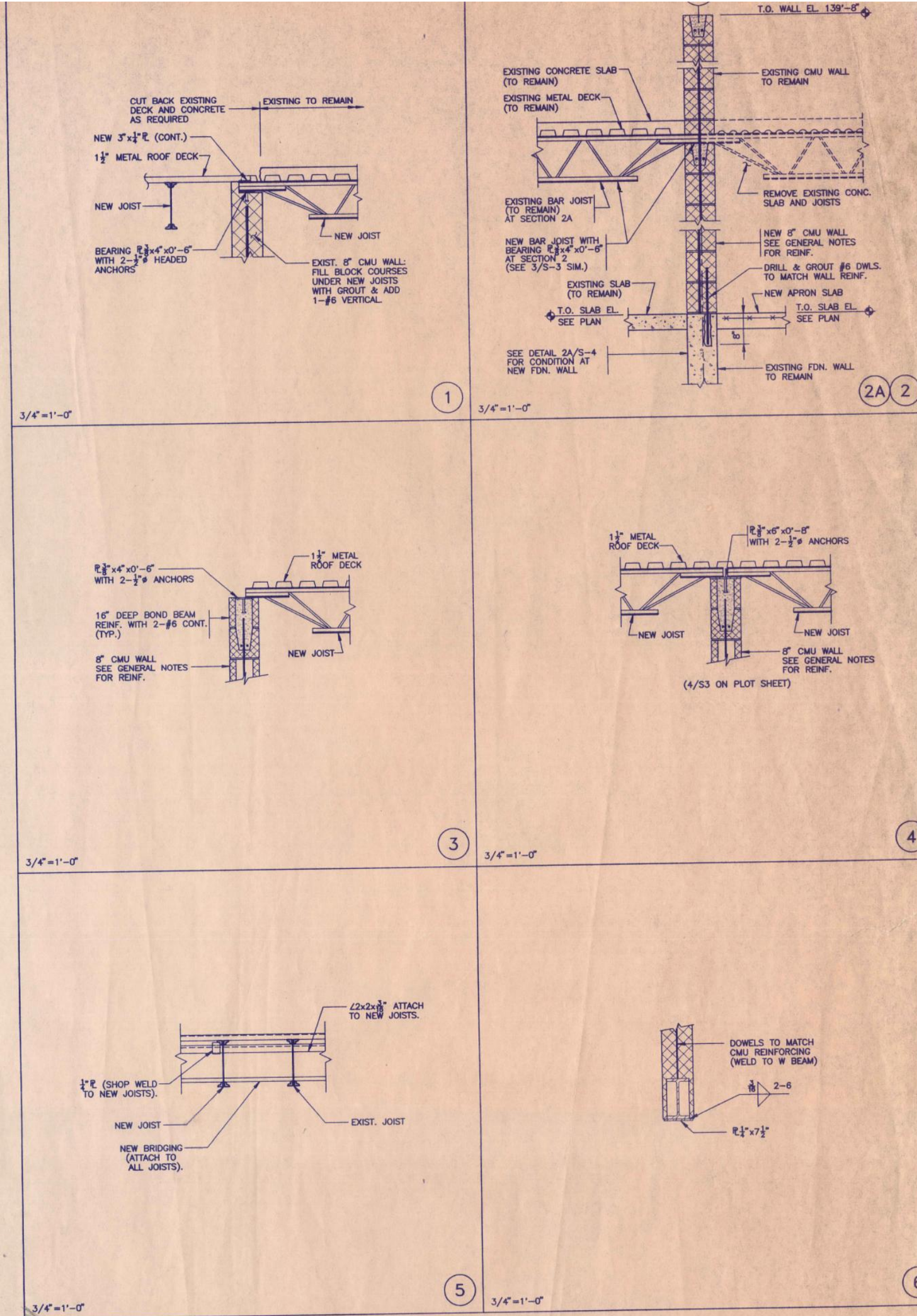
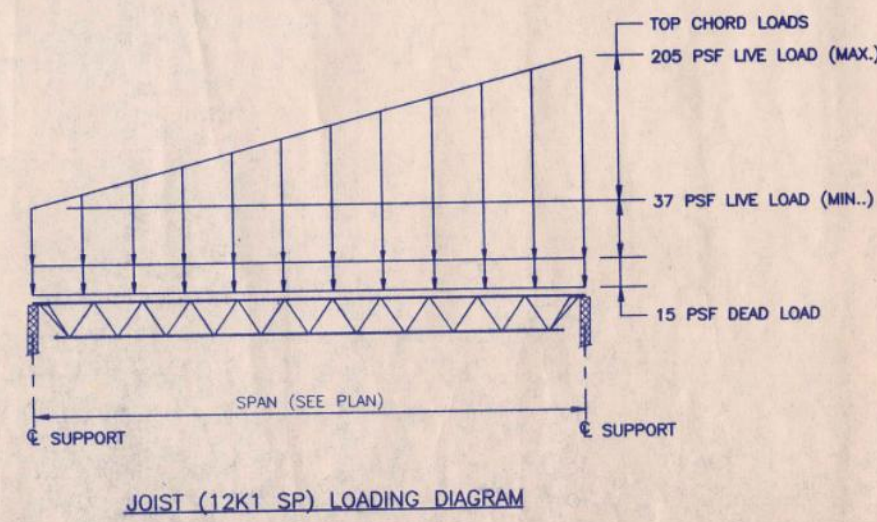


**1 ROOF FRAMING PLAN**

SCALE 1/8" = 1'-0"

**NOTES:**

1. TOP OF STEEL (UNDERSIDE OF DECK) SHALL BE EL. 134'-0" UNLESS OTHERWISE INDICATED. THUS (8'-0"). ALL JOISTS SUPPORTING JOISTS TO BE 2 1/2" BELOW T.O.S. EL. INDICATED.
2. INDICATES SPAN DIRECTION OF 1 1/2"x20 GALVANIZED TYPE "B" METAL ROOF DECK.
3. JOISTS SHALL BE DESIGNED FOR A NET UPLIFT LOAD OF 7 PSF (DUE TO WIND). PROVIDE ADDITIONAL BRIDGING AS REQUIRED.
4. (E) INDICATES EXISTING STRUCTURE.
5. ROOF FRAMING MUST BE ADJUSTED TO SUIT MECHANICAL UNITS TO BE INSTALLED. SIZE AND LOCATION OF MECHANICAL UNITS TO BE DETERMINED.
6. "x" INDICATES ASTM A572 GRADE 50 SHAPES.
7. "V.I.T." INDICATES ITEMS TO BE VERIFIED IN FIELD.
8. WIDEFLANGE SECTIONS MUST HAVE 6" MIN. BEARING ON CMU. CMU SUPPORTING WIDEFLANGE SECTIONS MUST HAVE 2-#6 VERT. x FULL HEIGHT OF WALL.



NO.	REVISION	DATE

PROJECT NO. WDC95098.32	CONTRACT NO. DC1
RENOVATIONS AND ADDITIONS TO	VETERANS' MEMORIAL RINK
THE COMMONWEALTH OF MASSACHUSETTS	
DIVISION OF CAPITAL PLANNING AND OPERATIONS	
OFFICE OF FACILITIES MANAGEMENT	
ROOF FRAMING PLAN AND DETAILS	
ARCHITECTS	ENGINEERS
SHAMES MAN & MOORE ASSOC.	ROJAS ASSOCIATES, INC.
1000 MASSACHUSETTS AVE.	225 SUMMIT STREET
CAMBRIDGE, MA 02138	BOSTON, MA 02210
DRAWN BY	CHECKED JDC
DATE	DATE
OCTOBER 23, 1996	OCTOBER 23, 1996

DRAWING NO. S-3

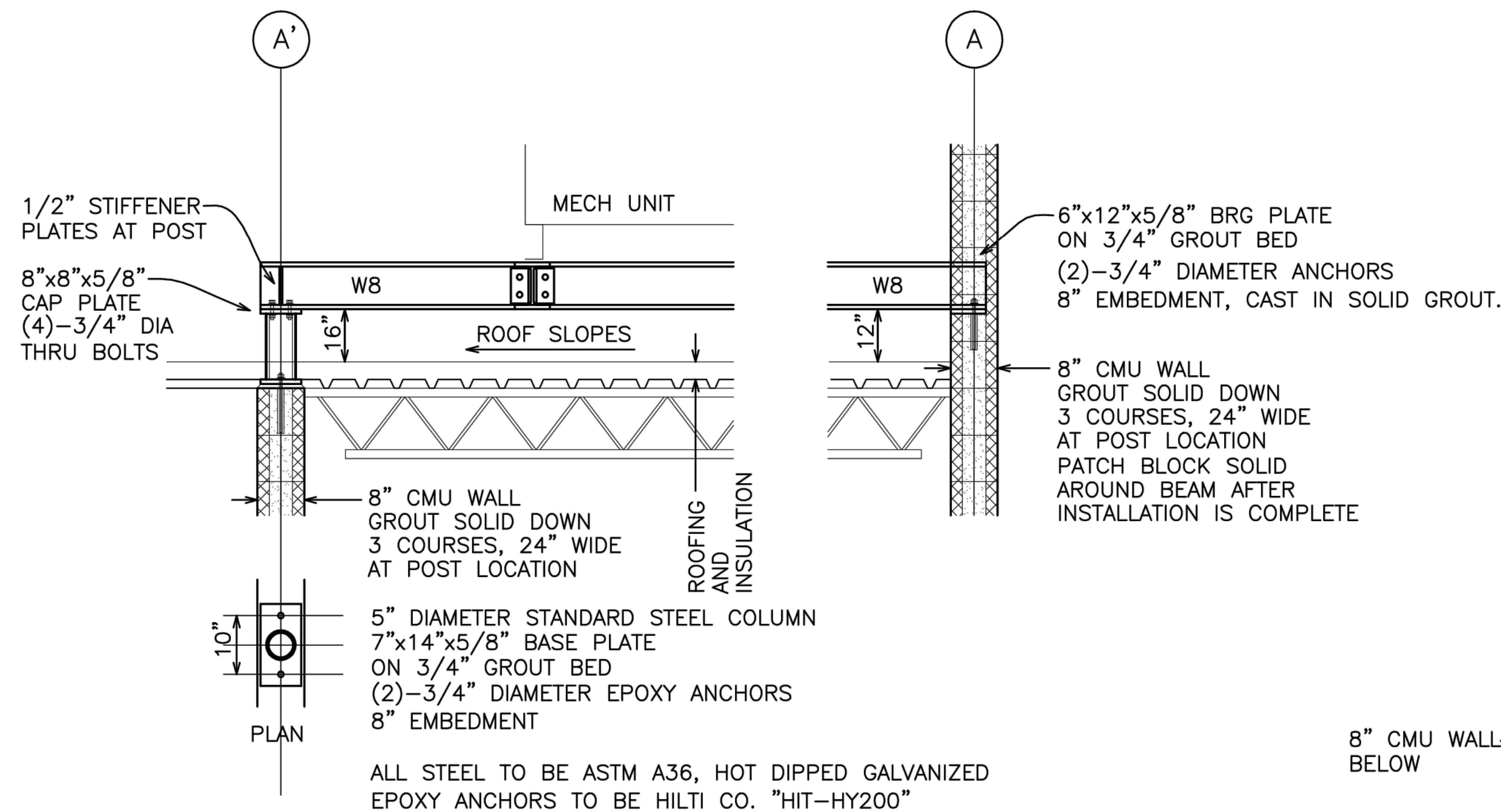
CJL Engineering  
232 Horner Street  
Johnstown, PA 15902  
Southgate Consulting  
85 Western Avenue  
Essex, MA 01929

Michael E. Waterman, PE. 

STRUCTURAL ENGINEERING

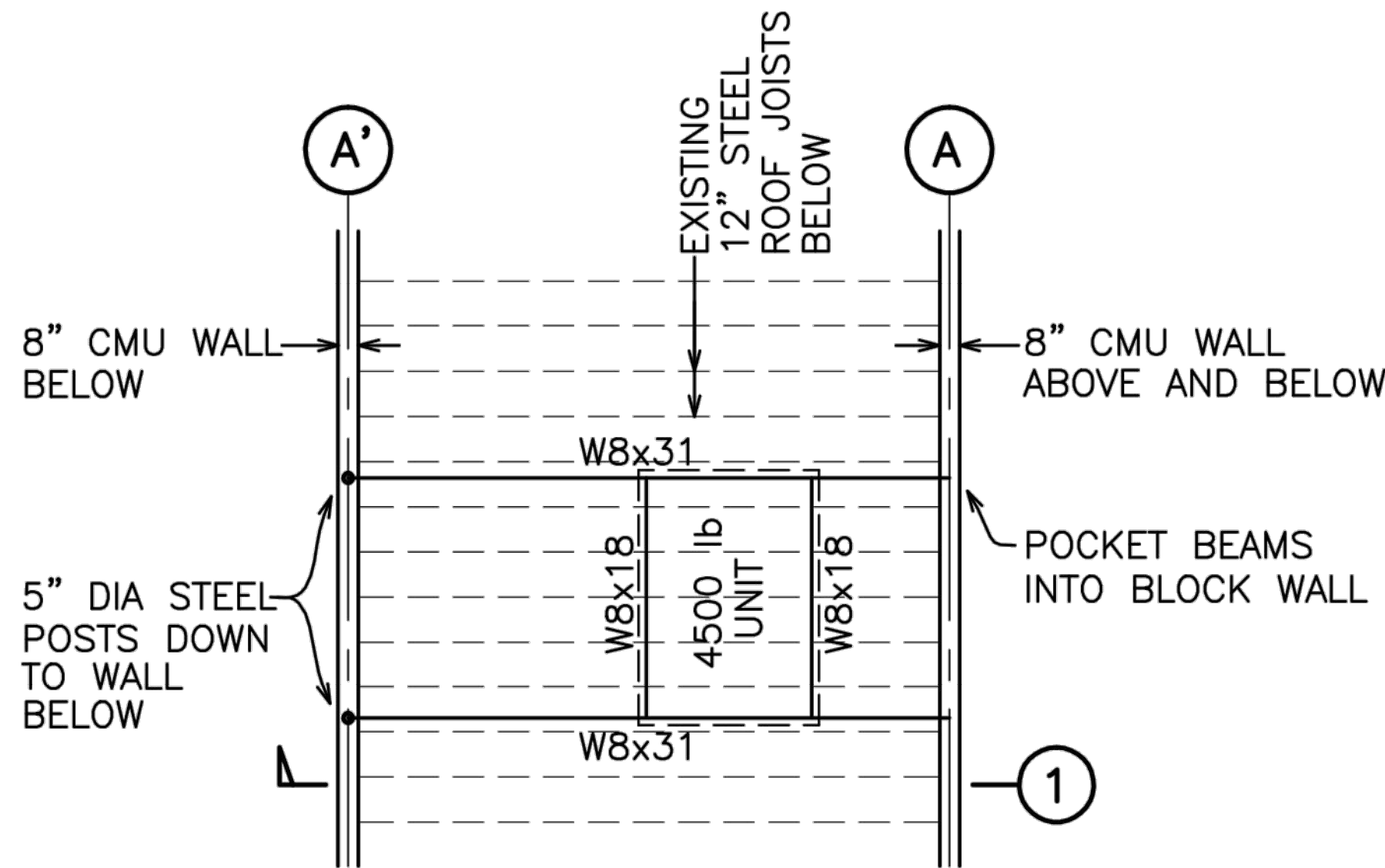
www.michaelwaterman.com

Project:	Veterans Rink Mechanical Unit Support
Location:	Waltham, MA
Description:	Unit Support Framing
Date:	March 15, 2017
Sheet:	SSK-1



NOTE:

REMOVE EXISTING BALLAST ROOFING MATERIAL AND INSULATION AT EACH LOCATION. CUT DECK ONLY ENOUGH TO PERFORM WORK. RE-INSULATE, INSTALL ROUND "DEK-TITE" FLASHING AND RESTORE ROOFING AND BALLAST.



ROOF PLAN  
SCALE: 1/8"=1'-0"

1 SECTION THRU MECHANICAL UNIT SUPPORT  
SCALE: 1/2"=1'-0"



CJL Engineering

232 Horner Street  
Johnstown, PA 15902

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PAGE 7 OF 12

WALTHAM VETERAN'S RINK

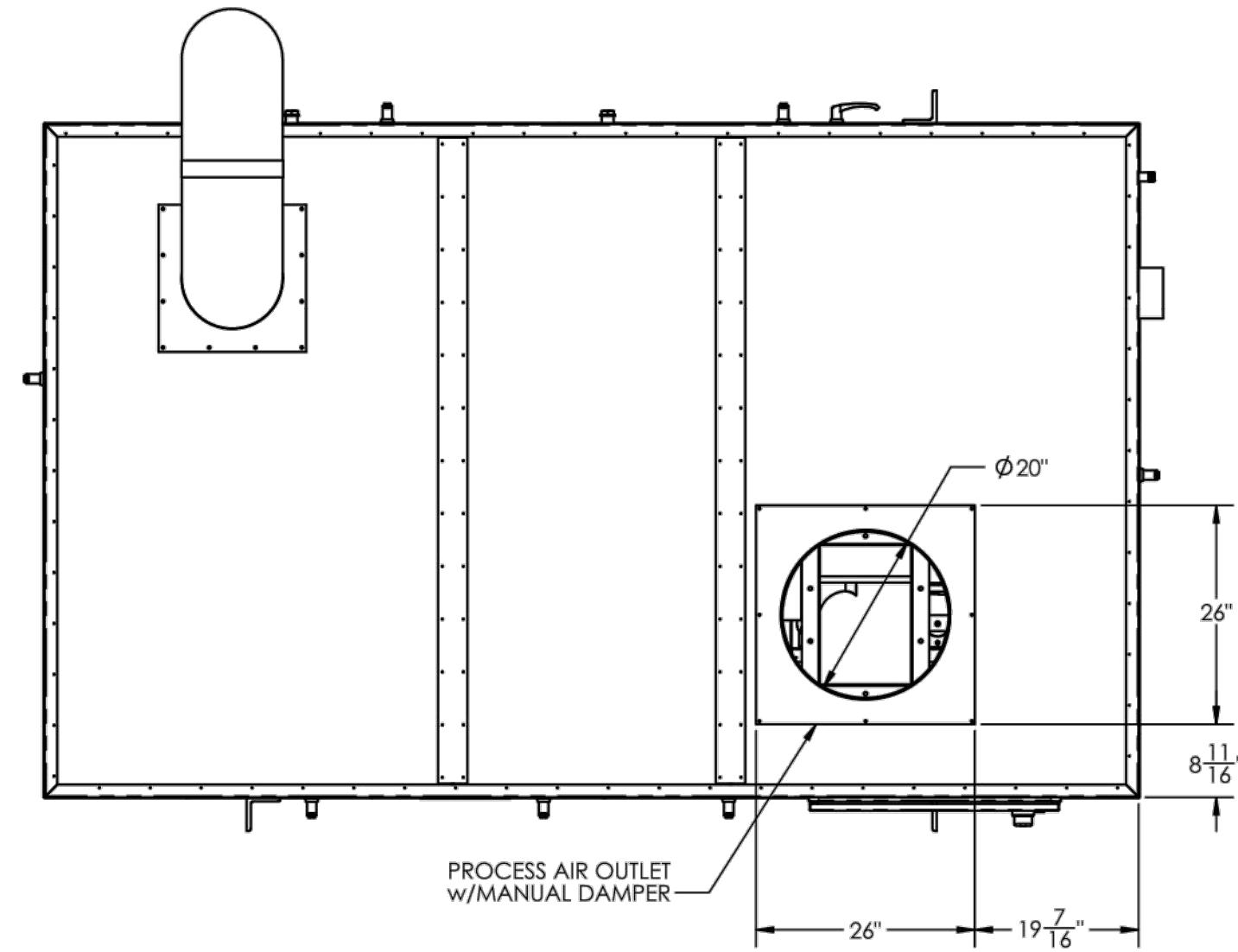
WALTHAM, MA  
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS

PROJECT

DRAWING TITLE

STEEL FRAME AT DEHUM ROOF SUPPORT

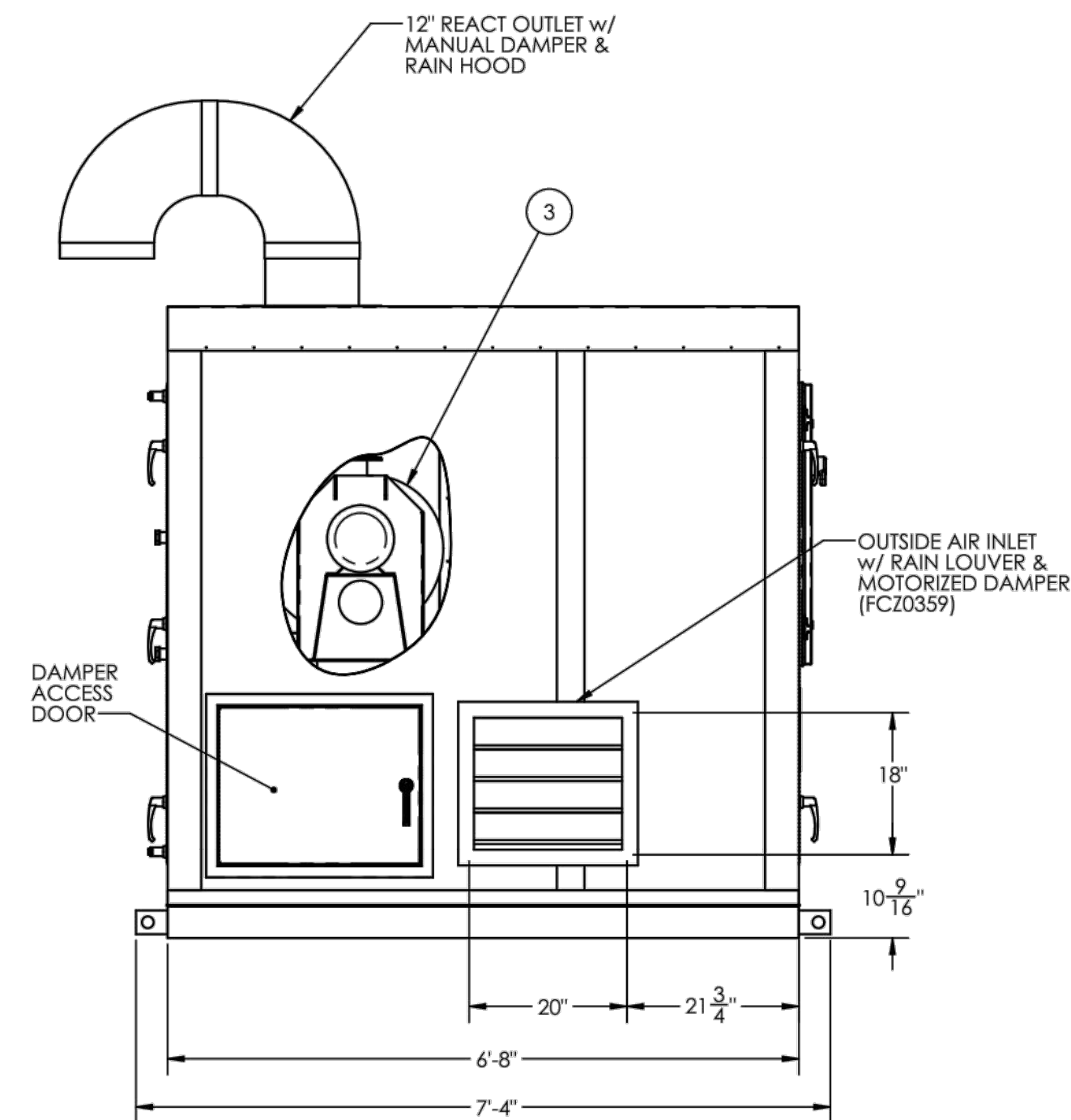
- NOTES :
- 1) AN OBSERVATION WINDOW IS PROVIDED FOR VISUAL INSPECTION OF ROTATING DESICCANT ROTOR.
  - 2) ALL FILTERS TO BE EASILY REMOVABLE BY MEANS OF ACCESS PANELS, FOR CLEANING OR REPLACEMENT.
  - 3) UNLESS OTHERWISE NOTED, PROVIDE 40" CLEARANCE AROUND THE ENTIRE UNIT FOR SERVICE. EXCEPTION: PROVIDE 48" CLEARANCE FOR ACCESS TO CONTROL PANEL ENCLOSURE.
  - 4) UNIT IS SUITABLE FOR OUTDOOR INSTALLATION.
  - 5) PROCESS SIDE OF UNIT AND ASSOCIATED DUCTWORK TO BE METAL INSULATED PANEL CONSTRUCTION, 2" POLYISO/ POLYURETHANE INSULATION EXPANDED-IN-PLACE WITH EMBOSSED ALUMINUM EXTERIOR AND SMOOTH SURFACE ALUMINUM INTERIOR. NO-THRU-METAL DESIGN.
  - 6) REACTIVATION SIDE OF UNIT AND ASSOCIATED DUCTWORK TO BE INSULATED WITH 1" THICK FOIL FACED FIBERGLASS INSULATION. INSULATION FOIL FACE IS EXPOSED TO REACTIVATION AIR STREAM.
  - 7) THE HEIGHT FROM THE BASE OF THE BRY-AIR SKID TO THE SUPPLIED DISCONNECT SWITCH IS SHOWN ON THIS DRAWING. THE PARTY RESPONSIBLE FOR APPROVAL OF THESE DRAWINGS MUST VERIFY HEIGHT IS ACCEPTABLE WITH LOCAL CODES AND BUILDING AUTHORITIES. HEIGHT SHOWN DOES NOT TAKE INTO CONSIDERATION IF THE EQUIPMENT WILL BE INSTALLED ON A PAD OR PLATFORM.
  - 8) EQUIPMENT MUST BE SUPPORTED AT A MINIMUM UNDER EACH LIFTING EYE TO PREVENT EXCESSIVE BOWING OF THE UNIT BASE.



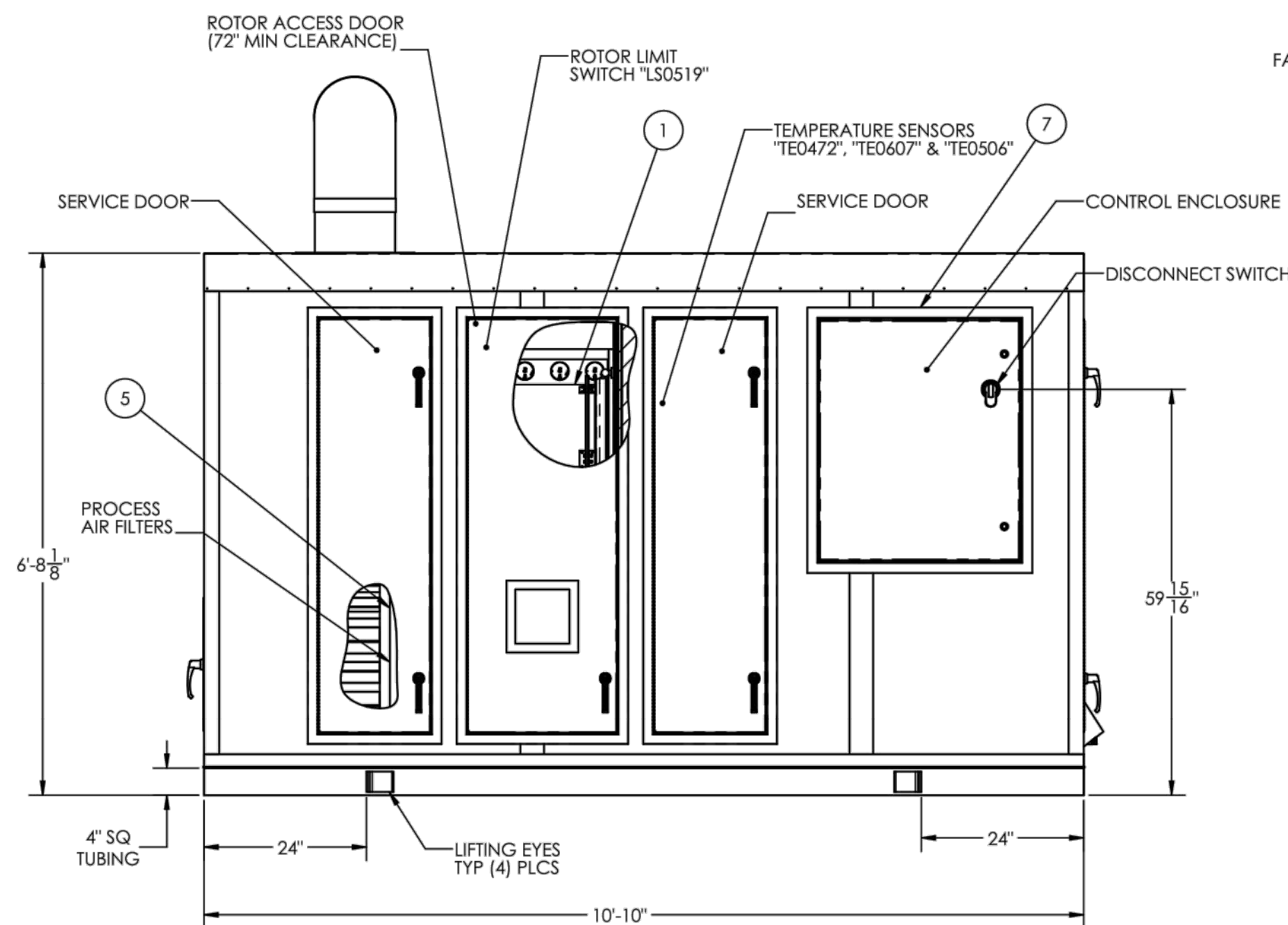
PLAN VIEW

COMPONENT LIST		
ITEM	QUAN	MODEL
11		VFB-50-G4 INDUSTRIAL DEHUMIDIFIER
		UNIT CONTAINS ONE DESICCANT ROTOR (P/N 36812)
		NOMINAL SYSTEM CFM : 5000
		NOMINAL RETURN AIR CFM : 4000
		NOMINAL MAKE-UP AIR CFM : 5000 CAPABLE
		NOMINAL REACTIVATION CFM : 1250
		DESICCANT ROTOR SPLIT (270/90/0), ROTOR SPEED 8 RPH (7MIN-30SEC/REV)
1		ROTOR DRIVE MOTOR, 1/20 HP, 7.5 RPM, 230/3/60 (P/N 37255)
2	1	PROCESS AIR FAN (P/N 215122-A020)
		16 3/16" WHEEL, SQ BACKWARD INCLINED, ARRG. 4 (DIRECT DRIVE)
		CWUB ROTATION AND DISCHARGE, 95% WIDTH
		5,000 CFM @ 5.22" TSP (1.50" E.S.P.), 3,262 RPM @ 8.5 BHP, SET VIA VFD
		10 HP MOTOR, 215 T FRAME, 3,450 RPM, TEFC, 460/3/60
3	1	REACTIVATION AIR FAN (P/N 215122-A021)
		12 1/4" WHEEL, HD BACKWARD INCLINED, ARRG. 4 (DIRECT DRIVE)
		CCWTH ROTATION AND DISCHARGE, 60% WIDTH
		1250 CFM @ 5.23" TSP (0.75" E.S.P.), 3,450 RPM @ 1.75 BHP
		2 HP MOTOR, 145T FRAME, 3,450 RPM, TEFC, 460/3/60
4		REACTIVATION HEAT SOURCE: DIRECT FIRED NATURAL GAS
1		12" BURNER, 270 CFH, 276,750 BTUH
5	5	PROCESS INLET AIR FILTER :
		12" x 24" x 2" (P/N 27215) - DISPOSABLE 30% EFF
6	1	REACTIVATION INLET AIR FILTER :
		24" x 24" x 2" (P/N 30277) - DISPOSABLE 45% EFF, HIGH TEMPERATURE
7	1	MAIN CONTROL PANEL ENCLOSURE
		36" x 30" x 8" NEMA TYPE 4, UL APPROVED

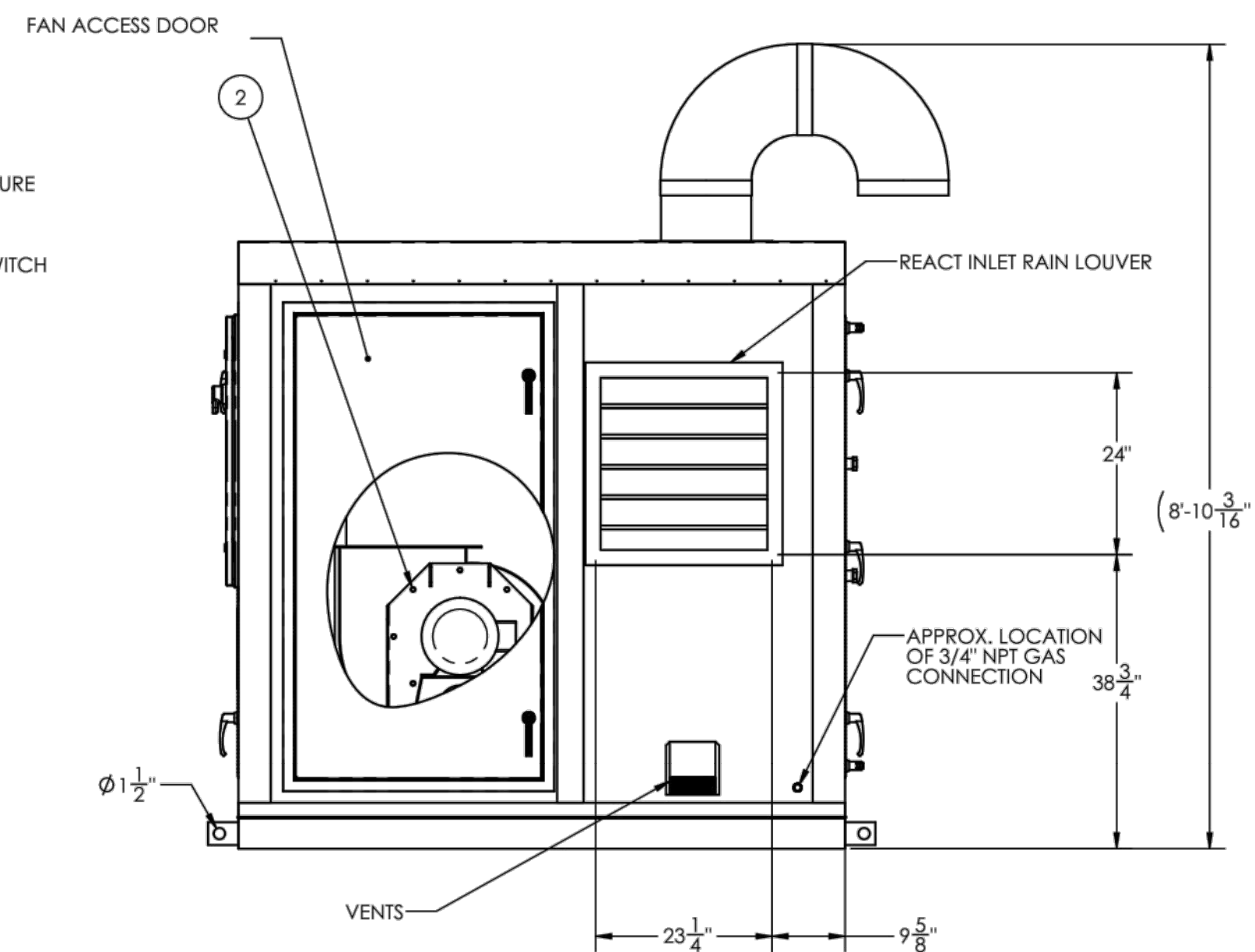
ESTIMATED EQUIPMENT WEIGHT 3,800 LBS



LEFT ELEVATION VIEW



FRONT ELEVATION VIEW



RIGHT ELEVATION VIEW

\*SUGGESTED DEHUMIDIFIER UNIT.  
ALTERNATIVE UNITS SHOULD BE  
OF EQUAL OR BETTER PERFORMANCE.  
STEEL DUNNAGE MAY NEED TO BE  
MODIFIED TO SUIT ACTUAL UNIT.

		NAME		DATE		TITLE:				
		DRAWN JPI		11/5/15		Waltham Ice Arena				
		CHECKED								
		UNLESS OTHERWISE SPECIFIED:								
CUSTOMER:		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± 1/16" ANGULAR MATCH ± 30 DEGS BEND ± 1/32 DEG TWO PLACE DECIMAL ± 0.01" THREE PLACE DECIMAL ± 0.001"				SIZE	DWG. NO.	REV		
						D		B		
						SCALE 1:16			WEIGHT:	SHEET 1 OF 2
CUSTOMER #917										

CJL Engineering

232 Horner Street  
Johnstown, PA 15902

Southgate Consulting

85 Westen Avenue  
Essex, MA 01929

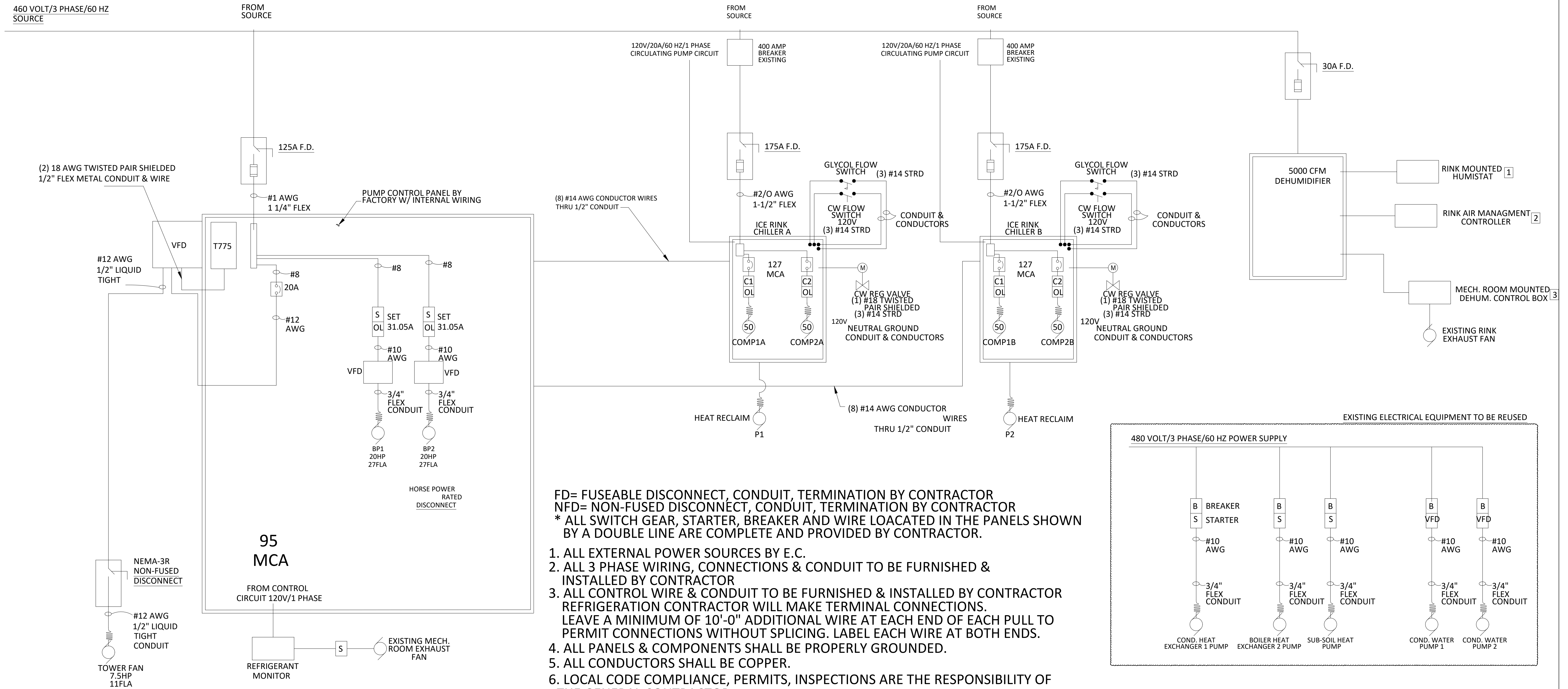
PAGE 8 OF 12

WALTHAM VETERAN'S RINK

WALTHAM, MA  
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS

DRAWING TITLE

DEHUMIDIFIER DETAILS



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PROJECT **WALTHAM VETERAN'S RINK**

WALTHAM, MA  
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS

DRAWING TITLE

**POWER FEEDER**

CJL Engineering

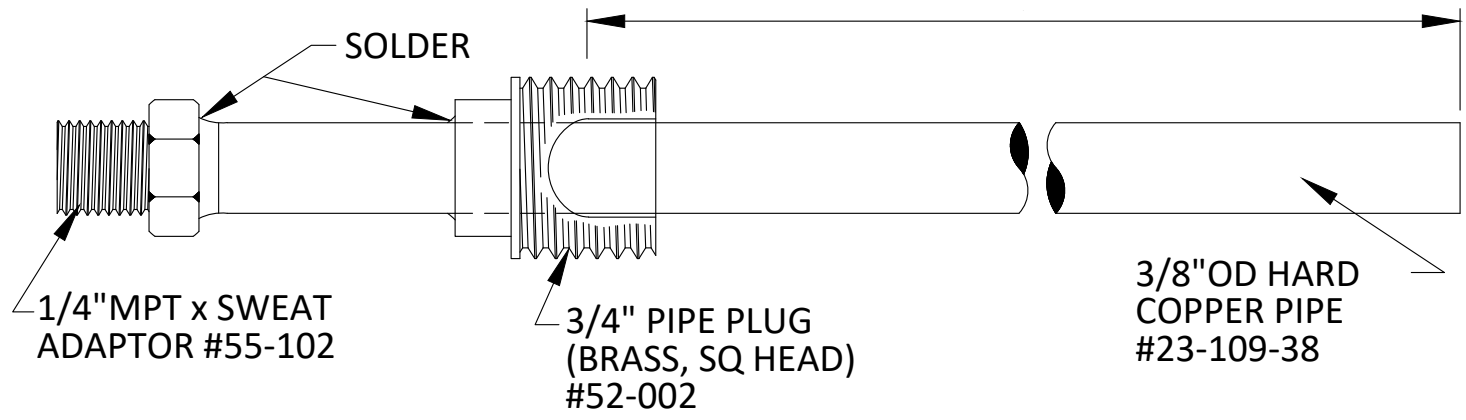
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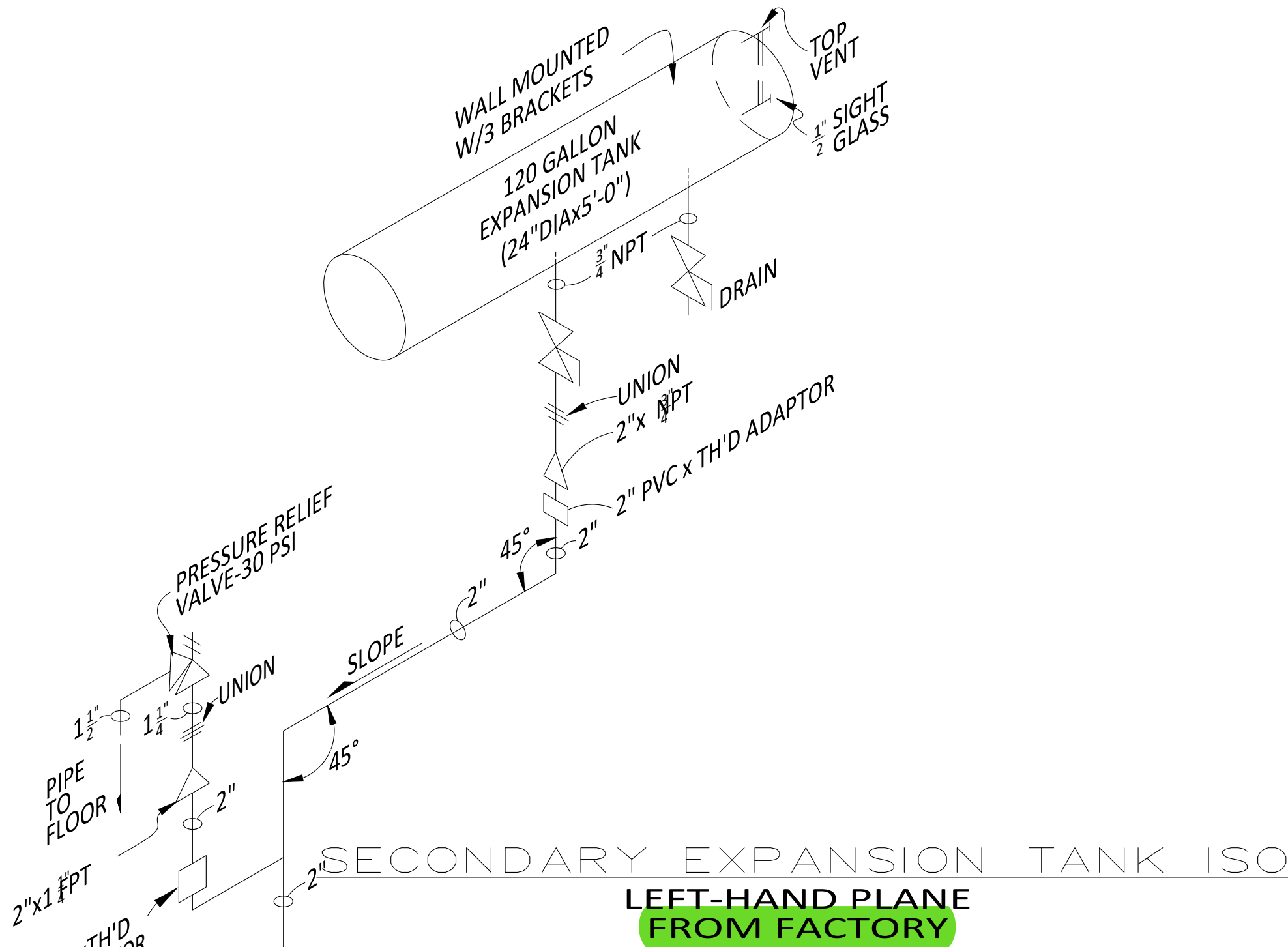
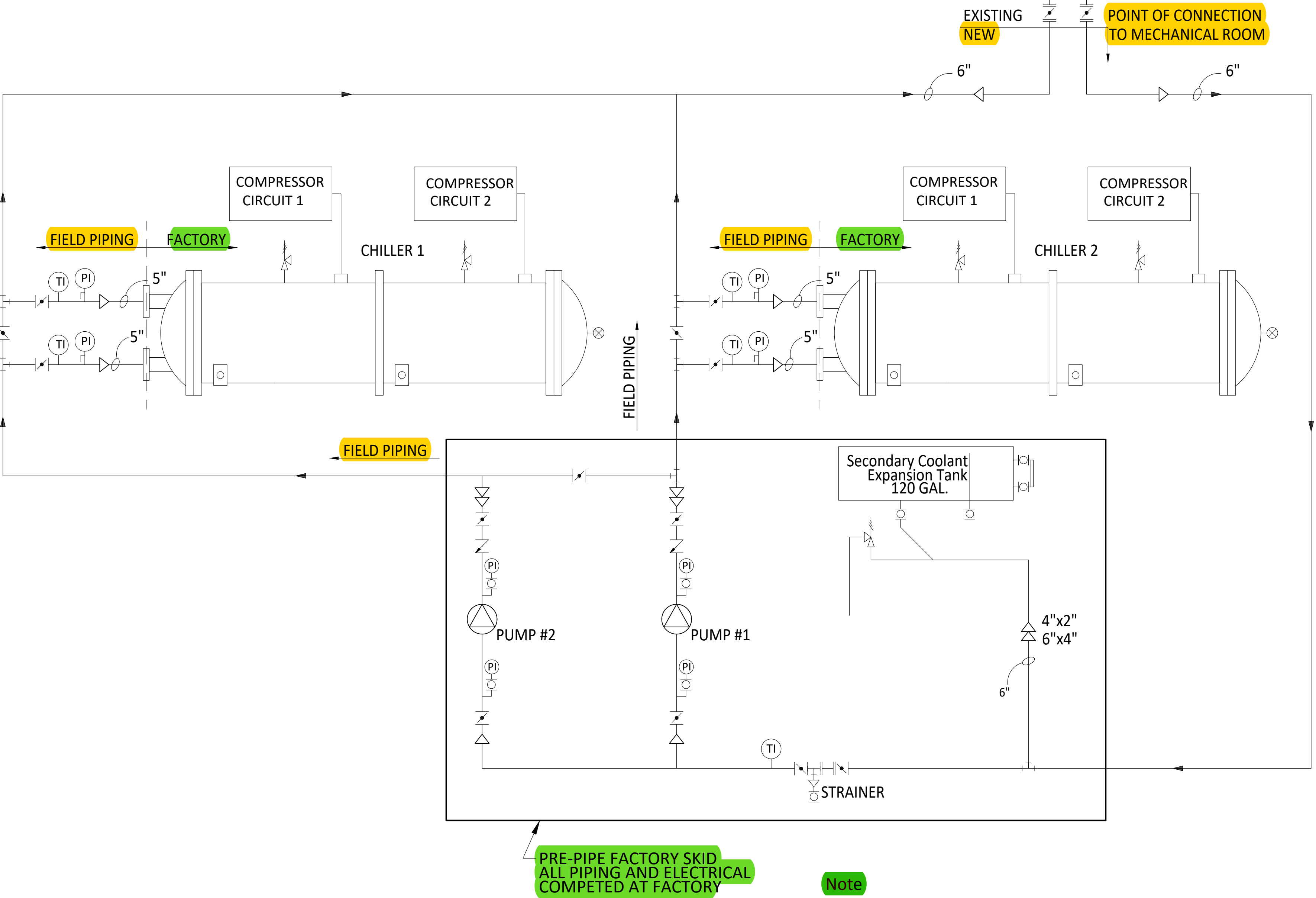
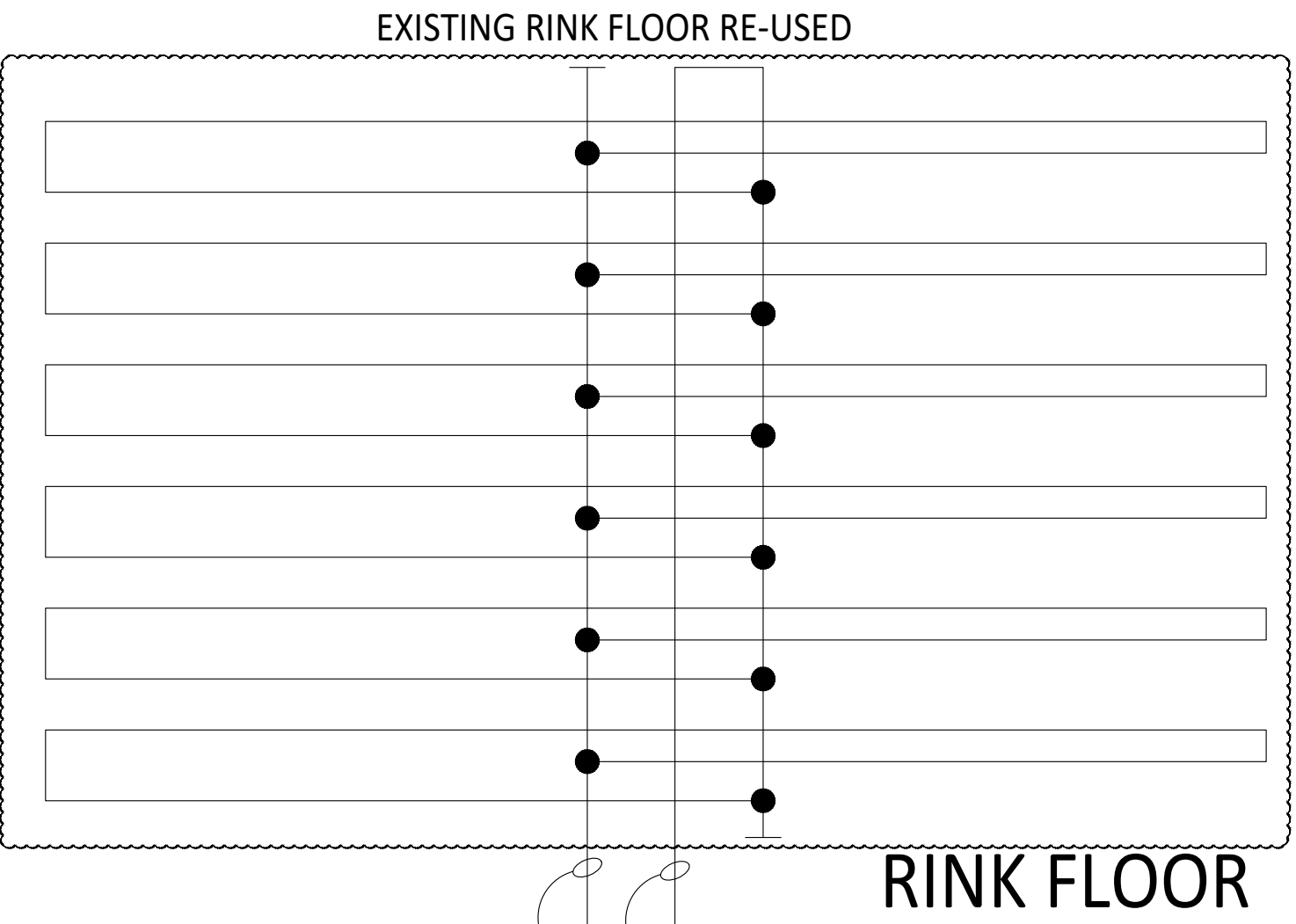
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ADDITIONAL MAT'L (NOT SHOWN)  
(1) 1/4" FPT BALL VALVE



BREATHER  
120 GAL (24" DIA) EXPANSION TANK



\* ALL REFRIGERANT PRESSURE RELIEF VALVES TO BE HARD PIPE EXHAUSTED TO OUTDOOR IN ACCORDANCE WITH CODE.

NOTES:

- 1) BRINE PUMP SCHEDULE:  
BP2 -- 20 HP; 360 GPM @ 120 FT. HD.; ON VFD.  
BP1 -- 20 HP; 360 GPM @ 120 FT. HD.; ON VFD.
- 2) ALL SECONDARY PIPING & FITTINGS SHALL BE SCH 80 PVC.
- 3) LOCATE PIPE HANGERS MINIMUM 6'-0" ON CENTER. PIPES TO BE INSTALLED PLUMB & LEVEL, EXCEPT WHERE NOTED OTHERWISE.
- 4) CHECK VALVES TO BE SILENT (NON-SLAM) TYPE.
- 5) INSULATE ALL PIPING, FITTINGS, VALVES, PUMP HOUSINGS, EXPANSION TANKS, ETC. WITH 3/4" TH'K ARMAFLEX INSULATION OR EQUAL. JOINTS & SEAMS TO BE SEALED WITH SUITABLE ADHESIVE SO AS TO CREATE A CONTINUOUS VAPOR BARRIER.
- 6) PIPE HANGERS SHALL NOT BREAK INSULATION BARRIER.
- 7) ONE INCH (1") MANUAL AIR VENT TO BE INSTALLED IN 6" DIA. STAND PIPE, MINIMUM 8" ABOVE VERTICAL DOWN LEGS IN PIPING, SO AS TO CREATE AN AIR COLLECTION POINT FOR VENTING.
- 8) LOCATE EXPANSION TANK AS HIGHEST POINT IN SYSTEM.

Revision date 01-02-2018.  
Highlighted for demarcation  
between factory and field piping.

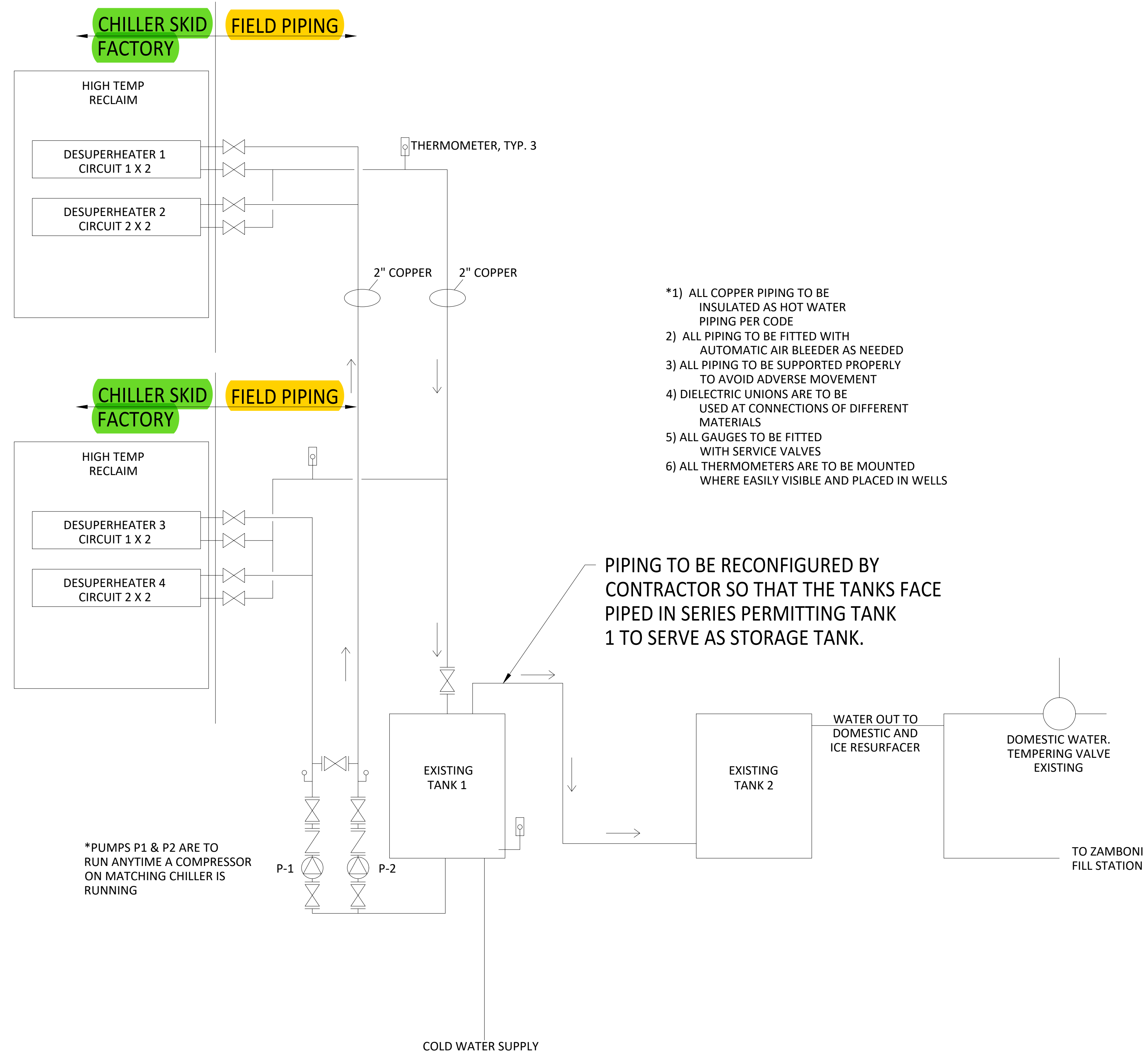
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WALTHAM VETERAN'S RINK

WALTHAM, MA  
REFRIGERATION AND DEHUMIDIFICATION IMPROVEMENTS

GLYCOL LOOP



- \*1) ALL COPPER PIPING TO BE INSULATED AS HOT WATER PIPING PER CODE
- 2) ALL PIPING TO BE FITTED WITH AUTOMATIC AIR BLEEDER AS NEEDED
- 3) ALL PIPING TO BE SUPPORTED PROPERLY TO AVOID ADVERSE MOVEMENT
- 4) DIELECTRIC UNIONS ARE TO BE USED AT CONNECTIONS OF DIFFERENT MATERIALS
- 5) ALL GAUGES TO BE FITTED WITH SERVICE VALVES
- 6) ALL THERMOMETERS ARE TO BE MOUNTED WHERE EASILY VISIBLE AND PLACED IN WELLS

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