AMALGAMATED SUGAR COMPANY

PROJECT MANUAL
Evaporator Project

TWIN FALLS, ID FACTORY

VEi PROJECT NO. E24140

BID PACKAGE FOR
BUILDING CONSTRUCTION
CIVIL & STRUCTUAL
BUILDING ELECTRICAL

VEi GLOBAL, INC.
7791 HIGHLAND MEADOWS PKWY, SUITE E
FORT COLLINS, COLORADO 80528
Phone: 970.224.7377 Fax: 970.224.7378

JUNE 2025

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SECTION 00 11 00

INVITATION TO BID

1. Amalgamated Sugar Company by invitation offers the opportunity to bid on the work associated with the Evaporator Project.
2. The work shall be bid as one Prime Contract.
3. Bids shall be received by:
   Bryce Stanger
   Amalgamated Sugar Company
   Twin Falls, ID
   Phone: 208-735-5438
   Email: BStanger@amalsugar.com
4. Until **12:00 P.M. MST on Wednesday July 23rd, 2025** when the bids will be opened privately.
5. All bids shall be in accordance with the provisions of the Instructions to Bidders and bid documents.
6. Addenda will be provided to each Bidder. Individual Bidders are responsible for verifying that all addenda have been received.
7. Bidding Contractors shall have a current State of Idaho Contractor's License.

End of Section

SECTION 00 21 00
INSTRUCTIONS TO BIDDERS

1. RECEIPT AND FORM OF BIDS

   A. Refer to the Invitation to Bid for provisions related to the Bid Submittal procedures.

   B. Bids shall be submitted on the unaltered Bid Form, included within this document, and shall bear the original signature of an authorized agent of the Bidder.

2. DEFINITIONS

   A. Bidder is a qualified person or entity who submits a Bid.

   B. Bid Documents include the Invitation to Bid, Instructions to Bidders, Bid Form, Schedule of Values, other form documents and the Contract Documents.

   C. Contract Documents consist of the Contract Agreement, Conditions of the Contract (general, supplementary and other conditions), Drawings, Specifications Manual, and all Addenda issued prior to the opening of bids.

   D. All definitions set forth in the General Conditions of the Construction Agreement or in other Contract Documents apply similarly to documents required for bidding.

   E. Addenda are written or graphic instruments issued by the Engineer prior to execution of the Contract. Addenda modify or interpret Bid Documents by additions, deletions, clarifications or corrections. Addenda become a binding part of the Contract Documents.

   F. Bid is a complete and properly signed proposal to perform the work or designated portion defined within the Bid Documents as the base, to which work may be added or from which work may be deleted for sums stated as alternate bids or unit prices.

   G. Sub-bidder is a qualified person or entity who submits a proposal to other prime Bidders for labor and/or materials pertaining to a specific portion of the work.

3. BIDDER'S INTENT - By submitting a bid, Bidder represents that:

   A. The Bidder has reviewed and understands the Bid and Contract Documents and prepares and submits its proposal in complete accordance with them.

B. The Bidder proposes to perform the Work in conformance and cooperation with other portions of the Work which are bid concurrently or separately under other prime Contracts.

C. The Bidder has visited the site of the Work, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's personal observations with requirements of the proposed Contract Documents.

D. The Bid is based upon materials, equipment and systems required by the Bid and Contract Documents without exception.

4. SUBSTITUTIONS

A. To obtain approval to use unspecified products, Bidder shall submit written requests according to provisions and requirements specified within Section 01 25 00 - Substitutions.

5. EXAMINATION OF DRAWINGS, SPECIFICATIONS AND SITE OF WORK

A. Bidders shall carefully examine all Bid Documents, Drawings, Specifications (including Addenda), and the construction site to obtain first-hand knowledge of existing conditions. Successful Bidders will not be allowed additional compensation for work arising from conditions which can be determined by examining the site and documents.

6. INTERPRETATION OR CORRECTION OF BID DOCUMENTS

A. Bidder shall examine the work areas and local conditions, and shall promptly report errors, inconsistencies, or ambiguities to the Engineer.

B. Bidders and sub-bidders who require clarifications or interpretation of the Bid Documents shall submit a written request to VEi Global sufficiently in advance of the bid date to allow for written interpretations.

7. ADDENDA

A. Direct all questions pertaining to the work to Amalgamated Sugar. Replies will be issued to all Bidders of Record as Addenda and shall become part of the Work. The members of the design team (including the Owner, Engineer and other representatives) will not be bound by or responsible for oral clarifications. Questions received less than 72 hours prior to the bid opening cannot be answered.

B. The final addendum, if required, will be issued approximately 48 hours prior to the bid opening, unless a subsequent addendum is necessary to change the time or date of bid opening.

C. It is the responsibility of each Bidder to verify that all Addenda have been received. Bidders shall be bound by all Addenda.

8. BID PREPARATION

A Bids shall be submitted on one unaltered, identical copy of the Bid Form included within the Bid Documents and accompanied by one identical photo duplicate. All blank lines on the original shall be filled in by typewriter or manually in ink. Where indicated by the form content, sums shall be expressed both in words and numerical format, and in the case of a discrepancy, the amount written in words shall govern.

B. Each bid shall include the legal name of the Bidder and a statement indicating whether the Bidder is a sole proprietorship, partnership, corporation or other legal entity. Bids shall be signed by a person or persons legally authorized to bind the Bidder to a Contract. A bid by a corporation shall further include the date of incorporation and affix the corporate seal. A bid submitted by an agent shall have a current Power of Attorney attached, certifying the agent's authority to bind the Bidder.

9. CONSTRUCTION AGREEMENT

A. The successful Bidder will be required to execute a Construction Services Agreement or Construction Agreement when awarded the Project (see Section 00 72 00).

B. The Bidder shall submit any and all exceptions to the Construction Agreement Terms and Conditions with its bid. Failure to submit any exceptions to these Terms and Conditions at the time of bid submittal shall be considered as unconditional acceptance of the Construction Agreement by the Bidder.

10. SCHEDULE OF VALUES

A. The Owner requires a Schedule of Values for the Project from each Bidder at the time of bid submittal.

B. Each of the line items and categories within the Schedule of Values are to be filled in with the appropriate quantities, hours and costs for the Project. The total at the bottom of this form shall correspond to the Total Base Bid for the Project.

C. Demolition of structural steel, roofs, and concrete should be itemized separately to aid in invoicing. Removal of process equipment is not considered demolition and should not be included in the demolition cost line item(s). These requirements are due to changes in IRS rules regarding demolition costs.

D. The Schedule of Values is included in Section 00 41 00 – Bid Form.

11. TIME AND MATERIAL RATES

A. Each Bidder shall submit its Time and Material Rates with its proposal. The T&M Rates shall include Labor rates, Construction Equipment rates, markup on Material, Subcontracts and Services, and a fixed cost per labor hour for Small Tools & Consumables.

12. T&M DAILY LABOR REPORTS

A. The successful Bidder will be required to provide Daily Labor Reports in support of additional work performed on a Time and Material Basis. The Daily Labor Reports shall contain the name of each worker, hours worked, a description of the work performed, the location of the work, equipment used and materials required.

B. The Daily Labor Reports shall be submitted to the Construction Manager each day for verification and approval of the previous day's work.

13. CONSTRUCTION SCHEDULE

A. The successful Bidder will be required to submit its Construction Schedule within ten (10) days after Notice of Award or prior to mobilization and the start of work, whichever is earliest (see Section 01 32 00).

14. SUBMISSION OF BIDS

A. All documents shall be submitted by email addressed to the Owner:

Bryce Stanger
Amalgamated Sugar Company
Twin Falls, ID
Phone: 208-735-5438
Email: BStanger@amalsugar.com

B. Place the following information in the lower left-hand corner of the Bid Envelope:

"Evaporator Project"
Bidder's name
Return address for Bidder's place of business

Bid envelope contents:

1. One (1) completed copy of the Bid Form and one (1) photocopy duplicate.

2. A completed copy and photocopy duplicates of Bidder's Schedule of Values, Time & Material Rates and Bid Checklist (see Section 00 43 00).

3. Signatures, seals and powers-of-attorney as specified herein.

Bids shall be delivered to the designated location prior to the required time and date of bid submittal. Bidder assumes full responsibility for timely delivery of bids. Oral or telephone bids are invalid and will not receive consideration. Bids may be faxed or emailed on or before the bid due date and shall be followed with a mailed paper copy.

15. MODIFICATION OR WITHDRAWAL OF BIDS

A. Bidders may withdraw bids at any time before the required time and date of bid submittal. Verbal modifications are not permitted, but bids may be withdrawn and resubmitted in person prior to the required time and date of bid submittal.

16. REJECTION OF BIDS

A. Owner reserves the right to reject any or all bids.

B. The Owner reserves the right to disqualify any bid upon evidence of collusion or other unlawful practices by the Bidder.

17. ACCEPTANCE OF BIDS (CONTRACT AWARD)

A. It is the intent of the Owner to award a Contract for the Work on the basis of Base Bid or combination of Base Bid and such alternates which produce the most complete project as desired by the Owner within the allowable budget. The Owner reserves the right to accept any bid, and to reject any or all bids for good cause, or to negotiate Contract terms with the lowest responsible Bidder, when such action is deemed by the Owner to be in its best interest.

B. Each Bidder shall be prepared, if requested by the Owner, to present evidence of qualifications and financial ability to fulfill the terms of the Contract.

18. EXECUTION OF AGREEMENT

A. The Contract Agreement shall be between the Owner and the Contractor.

B. Within seven (7) days after Notice of Contract Award, the successful Bidder shall provide State Tax Clearance forms and evidence of specified insurance coverage. All insurance policies must be approved by the Owner before Notice to Proceed.

C. Within seven (7) days after receipt of the Construction Agreement, the successful Bidder shall sign and deliver all required copies of the Construction Agreement to the Owner.

19. NOTICE TO PROCEED

A. Notice to Proceed will be issued approximately seven (7) days after acceptance of bids, or as soon as practicable.

20. COMPLETION

A. All work of this Contract shall be Substantially Complete as noted on the Project Milestone Schedule included in Section 01 32 00.

End of Section

SECTION 00 41 00
BID FORM

Bids For: Amalgamated Sugar Company
Twin Falls, Idaho
Evaporator Project – Building

To: Bryce Stanger
Amalgamated Sugar Company
Twin Falls, ID
Phone: 208-735-5438
Email: BStanger@amalsugar.com

1. Pursuant to and in compliance with the Invitation to Bid and the proposed Contract Documents relating to the work of all prime bid packages for the Project, including receipt of Addenda numbered:

   _____, _____, _____, _____, _____;.

   (List all addenda received, regardless of the number of spaces provided.)

   the undersigned, having become thoroughly familiar with the terms and conditions of the proposed contract documents and with local conditions affecting the work, proposes and agrees to fully perform the work within the stated time and in strict accordance with the Contract Documents, including all labor, materials, equipment, tools, supplies, services and supervision, for the sum of money stated in this Bid Form. The completion date as indicated within the Milestone Schedule must be achieved to facilitate system start-up. Each Prime Contractor shall include in its bid, the cost for shift or overtime work, if required, to meet the specified completion date.

2. In submitting this bid, the undersigned acknowledges agreement with the following:

   A. The undersigned is a lawfully authorized agent of the Bidder.

   B. Upon written Notice of Award, Bidder will provide evidence of insurance coverage, and the signed, executed Agreement within the prescribed time.

   C. Upon execution of the Agreement, Bidder will commence work upon Notice to Proceed, in accordance with the Milestone Schedule.

   D. Upon execution of the Agreement, Bidder will assure the specified work will be Substantially Completed within the time and according to the provisions of these documents.

3. If written notice of the acceptance of this bid is mailed or delivered to the undersigned within thirty (30) days after the date of bid opening, or at any other time thereafter before it is withdrawn, the Bidder will execute all required documents in a timely manner according to these instruments.

4. Notice of Award or requests for additional information may be addressed to the undersigned at the address set forth below.

5. If Bidder is a corporation, indicate in the space below the legal name of the corporation, State of incorporation, and names of president and secretary; if a partnership, list the name of firm and names of all individual co-partners comprising the firm; if an individual, list the first and last names in full.

6. The Bidder, being thoroughly familiar with these documents and conditions surrounding the proposed work and affecting the cost of the work, and being familiar with the Bidding Documents, Contract Agreement, all conditions of the Contract, Drawings, Specifications, and Addenda, hereby propose to furnish all labor, material, equipment, tools, supplies, services and coordination to construct the following portion of the above named Project in accordance with the Contract Documents, within the time set forth for the total sum of:

1.0 Base Bid – ASC Evaporator Project – Building Package

_____ Dollars $_____
Base Bid
(Sales Tax not included)

_____ Dollars $_____
Total Sales Tax Amount for Base Bid

_____ Dollars $_____
Total Bid
(Sales Tax included)

Note: All values requested shall be provided or bid may not be accepted.

This proposal is made by _____,

an individual / partnership / corporation (write in applicable term), _____

by the undersigned acting as authorized agent of the Bidder.

SIGNED _____DATE _____

List officers or partners (if applicable per Paragraph 5 above):

(SEAL, if by a Corporation)

End of Section

AMALGAMATED SUGAR COMPANY
TWIN FALLS, ID
EVAPORATOR PROJECT

TIME & MATERIAL RATES:

Labor Rate Schedule

Labor Classification	Straight Time (per hour)	Overtime (per hour)
	$	$
	$	$
	$	$
	$	$
	$	$
	$	$
	$	$
	$	$
	$	$

Equipment Rate Schedule

Description	Hourly	Daily	Weekly	Monthly

Reimbursable Costs

Material - Actual Cost plus _____ % Markup

Subcontract - Actual Cost plus _____ % Markup

Services - Actual Cost plus _____ % Markup

Small Tools & Consumables $ _____ per hour

Attach additional pages as needed

ASC - TWIN FALLS
EVAPORATOR PROJECT
BUILDING PACKAGE - SCHEDULE OF VALUES

Description of Work	Quantity	Units (CY, TN, EA, etc.)	Labor Hours	Labor Cost	Material Cost	Subcontract/ Other Cost	Total Cost
Building & Pipe Rack Construction							
00 General							
Mobilization	1	LS					$0.00
Demobilization	1	LS					$0.00
02 Civil Site							
Excavation		CY					
Backfill Foundations		CY					
Rigid Pavement (Concrete)		SF					$0.00
Site Grading and Cut		CY					$0.00
Site Grading and Fill		CY					$0.00
Helical Piles for Pipe Rack	1	LS					$0.00
03 Structural							
Steel Framing Building (Painted)		TN					$0.00
Steel Framing Pipe Rack (Painted), includes demo through existing floors		TN					$0.00
Steel Secondary Structure (Girts)		TN					$0.00
Grating		SF					$0.00
Metal Decking		SF					$0.00
Steel Stairs w/ Pan Treads for Concrete		Riser					$0.00
CMU Walls		SF					$0.00
Roofing		SF					$0.00
Wall Panels		SF					$0.00
Hand Rail		LF					$0.00
Toe Plate		LF					$0.00
Wall Foundations		CY					$0.00
Column Foundations - Building		CY					$0.00
Column Foundations - Pipe Rack, includes demo of existing concrete		CY					$0.00
Overhead Rollup Doors	1	Ea					$0.00
Slabs on Grade		SF					$0.00
Sump pit, trench drains and floor drains - stainless steel lined	1	LS					$0.00
Elevated Concrete Slabs		SF					$0.00
Doors - Includes new building man doors, interior and exterior.		Ea					$0.00
Painting - Priming of Structural Steel, Reinforcements, Pipe Supports, and Touch Ups.	1	LS					$0.00
04 Mechanical							
Bathroom, including fixtures, lighting, plumbing	1	LS					$0.00

ASC - TWIN FALLS
EVAPORATOR PROJECT
BUILDING PACKAGE - SCHEDULE OF VALUES

Description of Work	Quantity	Units (CY, TN, EA, etc.)	Labor Hours	Labor Cost	Material Cost	Subcontract/ Other Cost	Total Cost
Set Evaporators and Vapor Separators	1	LS					$0.00
05 Electrical							
Complete feeds to MCC	1	LS					$0.00
Lighting & receptacles, including lighting panel, exit signs	1	LS					$0.00
Install building and equipment grounding out of concrete	1	LS					$0.00
Cranes to Erect the new Evaporator Bldg.	1	LS					$0.00
Cranes to set the new Evaporators and Vapor Sepreators	1	LS					$0.00
Balance of items not listed above	1	LS					$0.00
Testing Laboratory Services (Concrete Testing, AI services can Xray Testing)	1	LS					$0.00
Construction Equipment (Not Including Cranes)	1	LS					$0.00
General Conditions	1	LS					$0.00
Sales/Use Tax	1	LS					$0.00
BASE BID TOTAL				$0.00	$0.00	$0.00	$0.00

ASC – TWIN FALLS
EVAPORATOR PROJECT

BID CHECKLIST

	Required Bid Submittals	Initial and Submit Item with Bid
☐	Bid Form	
☐	Schedule of Values	
☐	Time & Material Rates	
☐	List of Subcontractors / Suppliers (below)	
☐	Bid Checklist	

	Bid Submittals - As Needed	Initial and Submit Item with Bid
☐	Exceptions to Construction Agreement	
☐	Bid Clarifications & Exclusions	

	Acknowledgement of Requirements	Initial to Acknowledge
☐	Idaho Contractor's License	
☐	AISC Certified Steel Fabricator	
☐	AWS D1.1 Certified Structural Welders - Steel	
☐	ASME Certified Welders – Equipment / Pipe	
☐		

No.	Subcontractor / Supplier	Discipline / Scope of Work
1		
2		
3		
4		
5		
6		

*This form shall be submitted with the Bid.

MASTER SERVICES AGREEMENT

Parties	Amalgamated Sugar Company an Oregon cooperative corporation ("Owner")	("Contractor")
Contact Information	Name: Phone: FAX: Email:	Name: Address Phone: FAX: Email:
Effective From / To ("Term")	From to	

THE PARTIES AGREE AS FOLLOWS:

1. Engagement.

a. Subject to all of the terms and conditions set forth in this Master Services Agreement ("**Agreement**"), Contractor will provide the labor and incidental materials as set forth in a Scope of Work in the form attached hereto as Exhibit A and executed by authorized representatives of Owner and Contractor (each a "**Scope of Work**"), and Contractor accepts such engagements and agrees to perform such Scopes of Work, as may be mutually agreed to by Owner and Contractor.

b. Owner shall issue a separate purchase order to Contractor for all or part of a Scope of Work ("**Order**"). All Orders and Scopes of Work are incorporated into this Agreement by reference.

c. Any deviation from or modification to a Scope of Work must be agreed to by Owner and Supplier in a writing signed by authorized representatives of both Owner and Supplier (a "**Change Order**"). The applicable Order may, at Owner's discretion, be revised to reflect the parties' agreement.

d. Contractor shall begin performing the individual Scopes of Work on or before the date specified to begin work in the Order or Scope of Work document and shall diligently perform the Scope of Work to completion unless earlier terminated or unless extended by the specific written agreement of the parties.

2. Compensation. Contractor's compensation and the schedule of payment shall be specified in each Scope of Work. Except as otherwise required by law, Contractor shall pay all applicable taxes and fees.

3. Invoicing. Unless otherwise specified in a Scope of Work, all invoices, including final invoice, must be submitted to Owner within 30 days after completion of the work described

in each Scope of Work. Contractor shall: (i) submit an invoice to Owner at the address set forth above; (ii) provide any documentation that Owner may reasonably request to verify the invoice; and (iii) separately disclose and add any taxes imposed on the work and payable by Owner by law to the amount of each invoice unless Owner provides Contractor with appropriate evidence of a tax exemption claimed for the relevant jurisdiction(s).

4. Payment. Owner shall pay all undisputed invoices within 30 days of receipt. Owner may set-off any amount due and payable to it from and against amounts held to the credit of Contractor on any account, whether under this Agreement or otherwise, without prejudice to any other rights or remedies available to Owner under this Agreement or otherwise. Payment shall not constitute acceptance of, or a waiver of Owner's rights with respect to, any nonconforming work.

5. Contractor's Responsibilities. Contractor represents that it is, and that at all times during performance of each Scope of Work it shall be, fully experienced and properly qualified, licensed, equipped, organized and financed to perform the Scope of Work. Contractor shall (i) provide all labor, materials, equipment, tools, vehicles, supervision and resources necessary to complete the Scope of Work, (ii) obtain and pay for all permits, inspections, licenses, fees and deposits as necessary to complete the Scope of Work, (iii) comply, and shall ensure that the Scope of Work complies, with all Applicable Laws, licenses, permits, best industry standards, and other requirements, and (iv) maintain complete and accurate records with regard to the Scope of Work and this Agreement for at least three (3) years after final acceptance by Owner and provide Owner access at all reasonable times to all such records for examination, copying and audit. Contractor shall bear the risk of loss for the work until Owner accepts all work performed under each Scope of Work.

6. Cooperation. Contractor's performance of the Scopes of Work may occur alongside or be dependent upon the concurrent performance of services by Owner or others. If applicable, Contractor shall fully cooperate and coordinate with Owner and others to assure orderly and expeditious performance and completion of each Scope of Work and other projects. Contractor shall notify Owner in writing of any actual or apparent deficiencies or defects in such other services or projects that render it unsuitable for performance of a Scope of Work. Failure of Contractor to so notify Owner shall constitute acceptance by Contractor of such other work as suitable for performance of a Scope of Work in accordance with this Agreement, except as to latent defects that may subsequently be discovered in such other services or projects.

7. Work Area. Contractor shall take all precautions that are necessary to prevent injury, damage or loss to (i) any persons on the work site and other persons who may be affected thereby; (ii) the work and materials and equipment to be incorporated therein, whether in storage on or off the site, and (iii) other property at the site or adjacent thereto.

8. Safety; Environment. Contractor, its suppliers and subcontractors shall perform the Scopes of Work subject to and in accordance with the applicable facility or plant security and safety rules in effect from time to time during the performance of the Scopes of Work. Contractor acknowledges that it alone has the responsibility to supervise, control and enforce all applicable work and safety rules as to its own employees, suppliers and subcontractors and that the facility rules establish only a minimum level of acceptable conduct. Contractor shall not allow any employee of Contractor, a supplier or a subcontractor to perform any portion of a Scope of Work without first holding required and/or appropriate safety orientations. In the event it detects any unsafe condition or practice, Contractor shall immediately stop work and correct the situation.

Contractor's neglect or refusal to take immediate corrective action shall be deemed a material breach of this Agreement. Contractor shall not bring hazardous materials, waste, rubbish or surplus materials onto Owner sites without Owner's written consent. Contractor shall provide Owner with all required warnings and safety information pertaining to permitted goods prior to delivery onsite.

9. Inspection. Owner may inspect and test Contractor's work at all times. Owner's inspection or failure or delay to inspect shall not relieve Contractor of responsibility for performance of the work in accordance with this Agreement and the applicable Scope of Work or impair Owner's right to reject defective or non-complying items or affect any other right or remedy afforded to Owner under this Agreement or by law, notwithstanding Owner's knowledge of the defect or non-complying performance, its substantiality, or the ease of its discovery.

10. Warranty. Contractor warrants that: (i) the work shall be performed in a workmanlike and skillful manner; (ii) the work shall in all respects be of first-class quality, free from all faults and defects in workmanship, material, design (other than a defect in any design provided by Owner) and title, (iii) the work will comply with the Agreement and Scope of Work requirements; and (iv) all materials, equipment and other items incorporated in the work or consumed in the performance of the work shall be new and of the most suitable grade for the purpose intended. This warranty shall continue until the expiration of the later of one year after acceptance by Owner of all of the work under a Scope of Work or such longer period as may be specified elsewhere in this Agreement or a Scope of Work (the "**Warranty Period**"). At its sole expense, Contractor shall promptly correct any noncompliance and remedy any damage to other parts of the work or any other property resulting from such noncompliance to Owner's satisfaction ("**Correction**") during the Warranty Period. The Warranty Period for any Correction shall be one year after acceptance by Owner of the Correction.

11. No Liens. Contractor waives any lien rights it may otherwise have and shall promptly pay (and secure the discharge of any liens asserted by) all persons and entities furnishing labor, equipment, materials or other items in connection with the performance of the Scopes of Work.

12. Rights in Property. All materials, information, property and other items accumulated or developed in connection with Scopes of Work (including, but not limited to, the Exhibits, drawings, specifications, designs, completed work and work in progress), together with all rights associated with ownership of such items (such as copyright and patent rights), shall become the property of Owner when so accumulated or developed, whether or not delivered to Owner. To the extent Contractor uses any pre-existing intellectual or other property in connection with the performance of the Scopes of Work, Contractor grants to Owner a worldwide, non-exclusive, perpetual, irrevocable, royalty free, fully paid up, sub-licensable right to use all such property in connection with the work, including without limitation concepts, methods, processes, products, writings and other items (whether or not copyrightable or patentable).

13. Insurance. Contractor shall, at its own expense, procure and maintain in full force and effect during the performance of this Agreement and each Scope of Work (and for any additional periods herein specified) through companies and agencies satisfactory to Owner and in such specific forms as shall be reasonably required by Owner, the insurance listed on **Exhibit B**. Each subcontractor employed by Contractor in the performance of the Scopes of Work must be covered by insurance of the same character and in the same amounts as Contractor, unless Owner

and Contractor mutually agree that reduced coverage is adequate due to the nature of the particular subcontracted work. Contractor shall provide Owner with certificates of insurance from each of its subcontractors before their part of the Scope of Work commences. Contractor waives all rights and claims against Owner and any of Owner's agents and employees for damages caused by perils that are or could be covered by the insurance required by this Agreement. Contractor shall require, as a condition to working on a Scope of Work, similar written waivers from all its subcontractors and sub-subcontractors. This waiver shall apply to all deductibles and/or self-insured retentions applicable to the required or any other insurance maintained by the Contractor or its Subcontractors. These insurance provisions are independent of the indemnity provisions of this Agreement.

14. Indemnity and Release. Contractor releases and shall defend, indemnify and hold harmless Owner, its subsidiaries and affiliates, and each of their respective shareholders, directors, officers, employees, representatives and agents from and against any and all claims, costs, losses, liabilities, damages, fines, and expenses of any nature (including, without limitation, reasonable attorneys' fees and costs) that arise out of or relate to, directly or indirectly, any actual or alleged: (i) defect in the work described in a Scope of Work, (ii) fault, negligence, strict liability or product liability of Contractor in connection with a Scope of Work or this Agreement, (iii) infringement or misappropriation of any intellectual property right by any work performed in connection with a Scope of Work or this Agreement, (iv) any lien asserted by any employee, subcontractor or supplier of Contractor upon any property of Owner, or (v) any breach of or default under this Agreement or a Scope of Work by Contractor. CONTRACTOR WAIVES ANY IMMUNITY, DEFENSE OR PROTECTION UNDER ANY WORKERS' COMPENSATION, INDUSTRIAL INSURANCE OR SIMILAR LAWS.

15. Term; Termination. This Agreement shall be effective and remain in full force and effect for the Term. By written notice, Owner may terminate all or any part of this Agreement and/or any Order or Scope of Work at any time. Upon such termination, (i) Owner may take possession of or use of any completed or partially completed portion of the Scopes of Work, and (ii) Contractor shall be entitled to receive, as its full compensation, payment for only that portion of the compensation attributable to any work satisfactorily performed prior to termination, less any advances or other payments already made to Contractor.

16. Independent Contractor. Contractor is, and shall act as, an independent contractor (and not as the agent or representative of Owner). Subject to compliance with the requirements of this Agreement, Contractor shall perform each Scope of Work in accordance with its own methods and be fully responsible for the acts, omissions, conduct and performance of its employees, subcontractors or independent contractors. Notwithstanding the foregoing, Owner reserves the right (i) to establish Contractor's working hours, including the right to limit Contractor's access to Owner's facility or plant, to the facility or plant's ordinary business hours, and (ii) to preapprove all of Contractor's employees and subcontractors before they enter Owner premises and revoke the same at any time, in Owner's sole discretion. Owner has the right at any time and for any reason to reject or to have Contractor remove Contractor's employees from performing a Scope of Work under this Agreement upon notice to Contractor. Upon such notice, Contractor shall replace the Contractor employee(s). In the event of any staffing change, Owner shall not be charged for the time required to train the replacement. The amount of noncompensatory training time, if any, shall be mutually determined by Contractor and Owner's representative.

17. Assignment; Successor. Contractor shall not assign or subcontract all or any part of this Agreement or a Scope of Work without Owner's written consent. No assignment or subcontracting shall relieve Contractor from its responsibility for performance of a Scope of Work or any other Agreement obligations.

18. Notices. Any notice or other communication shall be (i) in writing (ii) delivered to the intended recipient at the address and to the attention of the party specified above or as updated from time to time and (iii) effective upon receipt.

19. Cumulative; Non-waiver. The rights and remedies of Owner set forth herein are cumulative and in addition to any other rights or remedies afforded to Owner by law. Owner's failure or delay to exercise any rights or remedies provided herein or at law shall not be construed as a waiver of Owner's right to assert or rely upon any such provisions or rights in that or any other instance; rather, the same shall remain in full force and effect.

20. Entire Agreement. This Agreement, each Scope of Work, and each Order embody the entire agreement, and supersedes any and all prior agreements, between Owner and Contractor regarding the work described in this Agreement and each Scope of Work. It may not be amended except by written instrument signed by the party to be bound thereby.

21. Inconsistency. In the event of any conflict or inconsistency between the provisions on the face of a Order, Scope of Work or the provisions of this Agreement, the governing order of precedence shall be: (i) Order (not including Owner's standard purchase order Terms and Conditions), (ii) Scope of Work, and then (iii) this Agreement, with respect to the interpretation of that Scope of Work. Any additional, conflicting or different terms proposed by Contractor shall have no force and effect unless Owner agrees to such terms in writing.

22. Compliance with All Laws: Contractor shall at all times and at its own expense: (i) comply with all applicable federal, state, and local laws, regulations, rules and governmental orders, applicable to its performance under this Agreement (including, without limitation, maintaining in full force all licenses, permits, authorizations, registrations and qualifications from all applicable governmental departments and agencies) ("**Applicable Laws**"); (ii) abide by the requirements of 41 CFR 60-741.5(a) and 41 CFR 60-300.5(a) applicable to performance under this Agreement; (iii) certify that work under this Agreement and each Scope of Work complies with Sections 6, 7 & 12 of the Fair Labor Standards Act and related U.S. Dept. of Labor regulations; (iv) comply with all Owner safety policies and procedures pursuant to this Agreement; and (v) comply with Owner's Supplier Code of Conduct available on Owner's website at *www.amalsugar.com* as may be amended from time to time.

23. Contractor Management System. Contractor must maintain at its own expense, a subscription to ISNetworld or such other contractor management system as Owner may designate in writing.

24. Applicable Law, Attorneys' Fees. The laws of the State of Idaho, excluding choice of law principles, govern this Agreement. The prevailing party in any action brought by either party to enforce the terms and conditions of this Agreement shall be entitled to receive from the other party the prevailing party's reasonable costs and expenses of such action, including attorneys' fees and expert witness fees incurred in connection with such action.

25. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original and of which taken together shall constitute but a single instrument.

Facsimile execution of this Agreement shall be legal, valid and binding execution and delivery of this Agreement.

Signature page follows

Owner and Contractor have caused their duly authorized representatives to execute this Agreement in the space provided below.

Agreed to by:

Party	Amalgamated Sugar Company	[INSERT CONTRACTOR]
Signature		
Print		
Title		
Date		

EXHIBIT A
Form of Scope of Work

SCOPE OF WORK NO. _____
TO MASTER SERVICES AGREEMENT

This Scope of Work No. **[Insert SOW No.]** ("**Scope of Work**") is dated as of **[Insert Date]**, by and between Amalgamated Sugar Company, an Oregon cooperative corporation ("**Owner**") and **[Insert Contractor Entity]** ("**Contractor**") under and pursuant to that certain Master Services Agreement dated **[Insert Agreement Date]** ("**Agreement**"), by and between Contractor and Owner. All capitalized terms not defined herein shall have the meanings ascribed in the Agreement. The terms of the Agreement are incorporated in this Scope of Work by this reference.

1. Scope of Work. The following is a description of the services to be performed by Contractor under this Scope of Work ("**Services**"):

[Insert Description of Services]

2. Owner's Site Details.

[Insert Site name, address, and special considerations.]

3. Standards for the Work: Contractor shall perform the Services under this Scope of Work in accordance with the following:

[Insert special Specifications and Standards for the Services.]

4. Project Managers. The project managers for the Services to be performed under this Scope of Work shall be as follows:

Contractor:	Owner:
[Insert information for Contractor representative.]	**[Insert information for Owner representative.]**

5. Performance Schedule. Contractor shall perform the Services under this Scope of Work in accordance with the schedule set forth below.

[Insert description of performance schedule for the Services.]

6. Rates. Contractor shall be compensated under this Scope of Work for the Services as set forth below.

[Insert description of compensation for the Services.]

Agreed to by:

Party	Amalgamated Sugar Company	[INSERT CONTRACTOR]
Signature		
Print		
Title		
Date		

EXHIBIT B
INSURANCE REQUIREMENTS

Contractor shall carry the following insurance policies in the following amounts and with the following terms and conditions:

Worker's Compensation

Minimum Required Limits	▪ Worker's Compensation - Statutory Limits ▪ Employer's liability: - $1,000,000 Each Accident for Bodily Injury by Accident - $1,000,000 Each Employee for Bodily Injury by Disease - $1,000,000 Aggregate Policy Limit for Bodily Injury by Disease
Required Terms and Conditions	▪ NCCI Workers Compensation and Employers Liability Insurance Policy form ▪ Waiver of Subrogation in favor of Owner and all other Indemnitees in the Agreement.

Commercial General Liability: The Contractor will maintain Commercial General Liability insurance covering all operations by or on behalf of the Contractor on an occurrence basis against claims for bodily injury, property damage (including the loss of use thereof), personal injury and advertising injury. Such insurance will have these minimum limits, terms and conditions:

Minimum Required Limits	▪ $2,000,000 General Aggregate Per Project ▪ $2,000,000 Premises, Products and Completed Operations Aggregate ▪ $2,000,000 Bodily Injury/Property Damage Per Occurrence ▪ $2,000,000 Personal Injury and Advertising Injury Limit *(Limits may be a combination of Primary and Umbrella/Excess policies)*
Required Terms and Conditions	▪ ISO Commercial General Liability Policy (Occurrence Form) ▪ Products and Completed Operations coverage maintained for at least two years after contract completion ▪ Blanket Contractual Liability (included in ISO form) ▪ Independent Contractors (included in ISO form) ▪ Cross Liability and Severability of Interest (included in ISO form) ▪ Explosion, Collapse and Underground (XCU) coverage (included in 1993 ISO form) ▪ Personal Injury and Advertising Injury (included in ISO form) ▪ Incidental Medical Malpractice (included in ISO form) ▪ Owner included as Additional Insured as noted below for ongoing and completed operations ▪ Provide that the general aggregate limit applies separately to this location where the Services will be performed ▪ Waiver of Subrogation in favor of Owner and all other Indemnitees in the Agreement

Automobile Liability: The Contractor will maintain Business Auto Liability covering liability arising out of any auto (including owned, non-owned and hired autos).

Minimum Required Limits	▪ $1,000,000 Combined Single Limit Each Accident
Required Terms and Conditions	▪ ISO Business Auto Policy or Equivalent ▪ Owner included as Additional Insured as noted below ▪ Waiver of Subrogation in favor of Owner and all other Indemnitees in the Agreement. ▪ Covering all owned, hired, and non-owned automobiles

Professional Liability (Errors and Omissions): The Contractor will purchase and maintain Professional Liability insurance.

Minimum Required Limits	▪ $2,000,000 Each Claim and Annual Aggregate
Required Terms and Conditions	▪ Insured's Interest in Joint Ventures (if applicable) ▪ Punitive Damages Coverage (where not prohibited by law) ▪ Limited Contractual Liability ▪ Retroactive Date Prior to Start of Services ▪ Extended Reporting Period of 24 Months or More ▪ No Pollution Exclusion

"Amalgamated Sugar Company and its affiliates" will be designated as an Additional Insured to the CGL and Automobile Liability as evidenced by copy of the endorsement or policy form attached to the Certificate of Insurance. If providing Services on Owner facilities, the Additional Insured endorsement will be applicable to Contractor's "operations" for Owner. The coverage provided to the Owner under the Contractor's commercial general liability policy shall be provided by a policy provision or an endorsement which is as least as broad as CG 20 10 07 04 (ongoing operations) in combination with CG 20 37 07 04 (completed operations). Notwithstanding the foregoing, Contractor shall provide ISO Form B - CG 20 10 11 85 or equivalent coverage where available from its carrier. The above required liability limits can be provided by any combination of primary and umbrella/excess insurance policies. To the extent that umbrella/excess coverage is used to satisfy the limits of coverage required hereunder, the terms of such coverage shall be follow form to, or otherwise at least as broad as, the primary underlying coverage, including amending the "other insurance" provisions as required so as to provide additional insured coverage on a primary non-contributory basis and will be subject to vertical exhaustion before any other primary, umbrella, or any other insurance obtained by Owner will be triggered. Contractor will provide Owner with a Certificate of Insurance and endorsements or policy forms, including but not limited to endorsements or policy forms providing additional insured coverage and permitting waiver of subrogation, evidencing compliance with the above as soon as administratively possible. The failure of Owner to demand such certificate shall not waive Contractor's obligation to provide such certificate and coverages. Contractor will provide Owner at least 30 days' written notice prior to its cancellation of coverage. Contractor shall ensure that its subcontractors have insurance coverage and endorsements consistent with the above, including the additional insured, primary and non-contributory and waiver of subrogation requirements, with the exception of policy limits. Contractor shall cause its and its subcontractors' insurance companies to waive rights of subrogation against Owner and its affiliates, and Contractor acknowledges that this waiver was

mutually negotiated. The Contractor's coverage naming Owner as additional insured shall include an endorsement specifying that the Contractor's coverage is primary and non-contributory to any other coverage available to Owner, including, without limitation, coverage maintained by Owner wherein Owner is the named insured, and that no act or omission shall invalidate the coverage. Insurance companies providing coverage for Contractor and its subcontractors will have an A.M. Best's rating of no less than B+ VII. All insurance or self-insurance of Owner and its affiliates will be excess of any insurance provided by Contractor or subcontractors.

Any self-insured retention or deductible in excess of $10,000 must be declared and is subject to Owner's approval. Funding of deductibles and/or self-insured retentions maintained by Contractor shall be the sole responsibility of Contractor, including any deductible or self-insured retentions applicable to coverage afforded to Owner or other required additional insureds.

In specifying minimum Contractor insurance requirements, Owner does not represent that such insurance is adequate to protect Contractor from loss, damage or liability arising from its work. Contractor is solely responsible to inform itself of types or amounts of insurance it may need beyond these requirements to protect itself. Notwithstanding anything to the contrary in this Agreement or in this Exhibit B, if the Contractor has procured any insurance coverage and/or limits (either primary or on an excess basis) that exceed the minimum acceptable coverage and/or limits set forth in this Exhibit B or elsewhere in the Agreement, the broadest coverage and highest limits actually afforded under the applicable policy(ies) of insurance shall be considered the coverage and limits that are required by this Agreement and such coverage and limits shall be provided in full to the additional insureds and indemnified parties under this Agreement. The Parties expressly intend that the provisions set forth in the Agreement and in this Exhibit B shall be construed as broadly as permitted to be construed by applicable law to afford the maximum insurance coverage available under the Contractor's insurance policies.

Any acceptance of policies or certificates of insurance by Owner, or failure of Contractor to provide policies or certificates of insurance, shall in no way limit or relieve Contractor of its duties and responsibilities in this Agreement.

SECTION 01 11 00
SUMMARY OF WORK

PART 1 – GENERAL

1.1 The following provides a Summary of the Work included in the Project. A detailed listing of work included in this Contract Package is contained in this Section and within the Schedule of Values included in Section 00 43 73

A. The Contractor shall review all drawings, specifications and lists to determine the work required to complete this Project.

B. Lists contained within these specifications define the responsibility for work required to complete this Project. The lists are as follows:

1. Section 01 11 00 – Equipment List
2. Section 01 11 00 – Drawing Register
3. Section 40 05 01 – Piping Line List
4. Section 40 05 06 – Piping Specialties List
5. Section 40 05 50 – Control Valve and Manual Valve Lists
6. Section 40 05 97 – Tie-In List
7. Section 40 42 00 – Equipment Insulation List
8. Section 40 70 00 – Instrument List

C. SCOPE OF WORK:
This Contract consists of the following work:

1. Demolition will be required in areas where new pipe rack columns conflict with existing conditions. Demolition of old foundations in the area of the new evaporator building will also be required. Major equipment demolition is not included at this time.

2. New foundations and structural steel will be installed to create a new evaporator building south of the existing turbine generator building. See drawing package for complete scope of work and specifications.

3. A pipe rack to support new piping from the existing evaporators to the new evaporator building is included in the building drawing package. Piping by others.

4. The Contractor will be responsible for all the work required to receive and unload two new evaporators including their associated vapor separators and install them in the new building.
A. The evaporators are due to arrive on site at the beginning of 2026.

B. The bottom section of the evaporator is set on the 2nd floor structural steel of the new building. It is welded to the steel. The contractor shall field weld the evaporator in place to the building steel.
C. The upper section of the evaporator has connections to the roof for lateral support. The contractor shall make those connections while completing the roof.
D. The vapor separators sit north of the main evaporator bodies on legs that contact the 2nd floor steel. Concrete is left open around the legs.
E. There are also plate and frame heat exchangers that will sit on the 2nd floor concrete; however, it is not required that they be placed in the building before it is completed. There will be an overhead door and lifting beam if not placed during construction.
F. Only equipment that must be installed with the installation of the building is required by this contractor, heater and pump installation by others.

The work will be bid as one Prime Contract.

1.2 RELATED REQUIREMENTS

A. All conditions of the Contract.

B. The Contractor shall provide the following:
1. Submittals per Section 01 33 23
2. Submittal Schedule per Section 01 32 00
3. Project Schedule per Section 01 32 00

C. Due to the quantity of work required for Construction, Contractors may be required to work overtime to complete the work. The overtime costs shall be included within the Bidder's proposal.

1.3 PROJECT PHASES, SCHEDULE & WORK SEQUENCE

All work in the area of the new evaporator building can begin as early as building permitting allows. With consideration of being ready to receive the new evaporators upon their delivery (2nd floor steel completed and braced to support evaporators).

Work inside the factory needs to be scheduled around the factory campaign schedule.

- 2025 Juice Campaign: Now to Sept. 9th, 2025.
  - During the juice campaign some equipment will continue operating.
- 2025 Factory Shutdown: June 16th to June 20th, 2025
  - All uncompleted work requiring equipment shutdown must be made substantially complete in this time period. Some work

including insulation and work not required to operate the factory will be excluded from this requirement of completion.

- 2025 Slice Campaign: Sept 9th, 2025 to April 15th, 2026 All equipment and piping inside the factory is in use during this period and no demolition can occur. Any work that can be performed will be allowed and is encouraged so long as it does not interfere with production.

1.4 PURCHASING, DELIVERY, STORAGE AND HANDLING

A. Contractor shall be responsible for receiving, offloading, storing out of the weather and handling the new evaporators and vapor separators as they are delivered.

B. All equipment items on the Equipment List are either removed, reused, or new.

C. All equipment and materials required to complete the job that are not listed as supplied by Owner shall be supplied by Contractor.

PART 2 – PRODUCTS

2.1 CONTRACTOR FURNISHED EQUIPMENT – See Equipment List for Owner and Contractor supplied Equipment. Contractor shall provide submittals to the Owner and Engineer for approval.

A. All Equipment is Owner furnished as noted on the Equipment List.

2.2 OWNER FURNISHED EQUIPMENT – See Equipment List for Owner and Contractor supplied Equipment.

A. **Evaporators and vapor separators:** See the equipment drawings provided by the Evaporator manufacturer. The Contractor shall be responsible for unloading and all transport of the components on site. It is the Contractor's responsibility to perform all lifting and supply rigging for the evaporator components to assemble and set in place.

PART 3 - EXECUTION

A. Equipment requiring concrete base pads shall be as shown on the Structural Drawings. The General/Mechanical Contractor shall supply the materials and install the concrete base pads per the drawings.

B. Equipment supplied with bases or mounting pads installed on existing concrete will need holes drilled in the concrete flooring or bases and anchor bolts set in epoxy as a part of the installation process. Anchor bolts and related hardware, epoxy and cementitious grout for all equipment noted above are to be supplied and installed by the Contractor.

C. All bolts required to attach equipment to structural steel or concrete shall be supplied by the Contractor.

D. All structural steel and equipment shall be shimmed, leveled and grouted by the Contractor responsible for the structural steel and equipment installation, unless specified otherwise. All shims and grout materials shall be furnished and installed by the responsible Contractor.

E. The Contractor shall be responsible for identifying, locating, and installing all floor and wall penetrations (and sleeves) required for piping installation in existing and new floors to be installed within this Project.

F. The work included in this Section shall be inclusive of all functions including labor, materials, welding supplies, tools and equipment (crane, lifts, welders, scaffold, etc.) required for the complete installation and assembly of each piece of equipment.

G. The Contractor responsible for the supply of equipment shall be as noted on the Equipment List.

H. Each piece of equipment and its components either Owner-Furnished or Contractor-Furnished will be delivered by the supplier to the project site. The specified Contractor responsible for each piece of equipment will receive, offload, store out of the weather and handle all components as they arrive and through the installation.

   The Contractor shall prepare and submit a Receiving Report to the Owner within five (5) days of receipt of Owner Furnished Equipment. If any Owner Furnished equipment is found to be damaged or missing parts and a corresponding Receiving Report has not been received within the required time, the Contractor shall be responsible for the cost of repairs and or replacement. These provisions shall also apply to Owner furnished materials received by the Contractor.

End of Section

DRAWING INDEX

No	Date	Created By	Chkd By	Approved By	Revision
C	6/23/2025	SC			ISSUED FOR BID
B	5/9/2025	SC			Update for General Construction Bid Package
A	12/20/2024	JPL			Start of Drawing List

Client: Amalgamated Sugar Co
Project: Evaporator Project
Location: Twin Falls, ID
Engineering Co: VEi Global, Inc.
VEi Project No.: E24140

ITEM NO.	DRAWING NUMBER	DRAWING TYPE	REV. NO.	REV DATE	COMMENTS
1		**DRAWING SHEET INDEX**			
2					
3					
4		**STRUCTURAL DRAWING SHEET INDEX**			
5	S0.00	STRUCTURAL ABBREVIATIONS, SYMBOLS AND LEGEND, AND STRUCTURAL SHEET INDEX	C	6/20/2025	
6	S0.01	GENERAL NOTES AND STRUCTURAL SPECIFICATIONS	C	6/20/2025	
7	S0.02	GENERAL NOTES AND STRUCTURAL SPECIFICATIONS	C	6/20/2025	
8	S0.03	GENERAL NOTES AND STRUCTURAL SPECIFICATIONS	C	6/20/2025	
9	S0.04	GENERAL NOTES AND STRUCTURAL SPECIFICATIONS	C	6/20/2025	
10	S0.11	COMPONENT AND CLADDING DIAGRAM AND TABLES	C	6/20/2025	
11	LS1.11	FOUNDATION AND SLAB ON GRADE PLAN	C	6/20/2025	
12	S1.01	FOUNDATION AND SLAB ON GRADE PLAN	C	6/20/2025	
13	S1.02	COLUMN, PIER, AND BASEPLATE SCHEDULE	C	6/20/2025	
14	S2.01	STRUCTURAL STEEL FRAMING PLANS	C	6/20/2025	
15	S2.02	STRUCTURAL STEEL FRAMING PLANS	C	6/20/2025	
16	S2.03	STRUCTURAL STEEL FRAMING PLANS	C	6/20/2025	
17	S2.12	ROOFING AND DRAINAGE PLAN	C	6/20/2025	
18	S3.01	CONCRETE DETAILS AND SECTIONS	C	6/20/2025	
19	S3.02	CONCRETE DETAILS AND SECTIONS	C	6/20/2025	
20	S3.03	CONCRETE DETAILS AND SECTIONS	B	6/20/2025	
21	S4.01	BRACED FRAME ELEVATIONS	B	6/20/2025	
22	S4.02	BRACED FRAME ELEVATIONS	B	6/20/2025	
23	S4.11	BUILDING ELEVATIONS	C	6/20/2025	
24	S4.12	BUILDING ELEVATIONS	C	6/20/2025	
25	S5.01	STRUCTURAL STEEL FRAMING DETAILS AND SECTIONS	C	6/20/2025	
26	S5.02	STRUCTURAL STEEL FRAMING DETAILS AND SECTIONS	C	6/20/2025	
27	S5.03	STRUCTURAL STEEL FRAMING DETAILS AND SECTIONS	C	6/20/2025	
28	S5.04	STRUCTURAL STEEL FRAMING DETAILS AND SECTIONS	C	6/20/2025	
29	S5.05	STRUCTURAL STEEL FRAMING DETAILS AND SECTIONS	B	6/20/2025	
30	S5.11	STAIR DIAGRAMS AND DETAILS	C	6/20/2025	
31	S5.12	STAIR DIAGRAMS AND DETAILS	C	6/20/2025	
32	S6.01	TYPICAL MASONARY DETAILS AND SECTIONS	C	6/20/2025	
33	S7.01	ROOFING AND PARAPET DETAILS	C	6/20/2025	
34	S7.02	WALL PANEL DETAILS	C	6/20/2025	
35	S7.03	DOOR OPENING DETAILS AND SECTIONS	C	6/20/2025	
36					
37		**ELECTRICAL DRAWING SHEET INDEX**			
38	E.20	LIGHTING AND RECEPTACLE PLAN - GROUND LEVEL EL. 107'-0	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
39	E.21	LIGHTING AND RECEPTACLE PLAN - SECOND LEVEL EL. 127'-0	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
40	E.22	LIGHTING AND RECEPTACLE PLAN - ROOF LEVEL EL. 158'-2"	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
41	E.23	LIGHTING AND RECEPTACLE PLAN - ROOF MEZZANINE LEVEL EL. 167' - 177'	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
42	E.24	LIGHTING DETAILS & LUMINAIRE SCHEDULE	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
43		PANEL DRAWING			
44	E.30	GROUNDING ELECTRODE SYSTEM	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
45	E.31	GROUNDING DETAILS	A	6/18/2025	INCLUDED IN BUILDING CONTRACTOR SCOPE
46					
47					
48					
49		**MECHANICAL DRAWING SHEET INDEX**			
50	D01	COVER SHEET	B	6/23/2025	
51	D02	MECHANICAL - LEGEND SHEET	B	6/23/2025	
52	D03	INSTRUMENTATION AND CONTROLS LEGEND SHEET	B	6/23/2025	
53	L01	MECHANICAL EQUIPMENT LAYOUT 1st FLOOR	B	6/23/2025	
54	L02	MECHANICAL EQUIPMENT LAYOUT 2nd FLOOR	B	6/23/2025	
55	M11	MECHANICAL PIPING LAYOUT 1st FLOOR	B	6/23/2025	
56	M12	MECHANICAL PIPING LAYOUT 2nd FLOOR	B	6/23/2025	
57	M13	MECHANICAL PIPING LAYOUT 3rd FLOOR	B	6/23/2025	
58	M14	MECHANICAL PIPING LAYOUT 4th FLOOR	B	6/23/2025	
59	M15	MECHANICAL PIPING PLAN VIEW	B	6/23/2025	
60	M16	MECHANICAL PIPING PLAN VIEW	B	6/23/2025	
61	M21	MECHANICAL PIPING SECTION VIEWS	B	6/23/2025	
62	M22	MECHANICAL PIPING SECTION VIEWS	B	6/23/2025	

ITEM NO.	DRAWING NUMBER	DRAWING TYPE	REV. NO.	REV DATE	COMMENTS
63	M23	MECHANICAL PIPING SECTION VIEWS	B	6/23/2025	
64	M24	MECHANICAL PIPING SECTION VIEWS	B	6/23/2025	
65	M31	MECHANICAL PIPING SUPPORT PLAN 1st FLOOR	A	6/23/2025	
66	M32	MECHANICAL PIPING SUPPORT PLAN 2nd FLOOR	A	6/23/2025	
67	M33	MECHANICAL PIPING SUPPORT PLAN ROOF	A	6/23/2025	
68	M41	MECHANICAL PIPING SUPPORT SECTION VIEWS	A	6/23/2025	
69	M42	MECHANICAL PIPING SUPPORT SECTION VIEWS	A	6/23/2025	
70	M61	VTK-16F1 / VTK-16G1 EVAP 1 & 2 PIG	B	6/23/2025	
71	M62	VTK-58D / VTK-58E TJ HTR PIG	B	6/23/2025	
72	M63	VTK-16H1 TJ HTR FLASH TANK	B	6/23/2025	
73	M64	PIPE GUIDE ON EVAPORATOR HEAD	B	6/23/2025	
74	M65	MECHANICAL PIPE SUPPORT DETAILS SHT 1	B	6/23/2025	
75	M66	MECHANICAL PIPE SUPPORT DETAILS SHT 2	B	6/23/2025	
76	M67	MECHANICAL PIPE SUPPORT DETAILS SHT 3	B	6/23/2025	
77	M68	MECHANICAL PIPE SUPPORT DETAILS SHT 4	B	6/23/2025	
78	M69	MECHANICAL PIPE SUPPORT DETAILS SHT 5	B	6/23/2025	
79	M70	MECHANICAL PIPE SUPPORT DETAILS SHT 6	B	6/23/2025	
80					
81					
82		**PIPING AND INSTRUMENTATION DIAGRAM DRAWING SHEET INDEX**			
83	5066-09T	P&ID - THIN JUICE HEATERS - EVAPORATION BUILDING	J	6/23/2025	
84	5066-10T	P&ID - 1ST EFFECT EVAPORATOR	I	6/23/2025	
85	5066-11T	P&ID - 2ND EFFECT EVAPORATOR	I	6/23/2025	
86					
87					
88		**ISOMETRIC DRAWING SHEET INDEX**			
89		PIPING ISOMETRICS - COVER SHEET (11x17 ONLY)		In Progress	
90		PIPING ISOMETRICS - ??? SHEETS (11x17 ONLY)		In Progress	
91					
92					

EQUIPMENT LIST

No	Date	Created By	Chkd By	Revision
F	6/23/2025	S. Conrad		ISSUE FOR BID

Client: Amalgamated Sugar Company
Project: Evaporator Project
Location: Twin Falls, ID
Engineering Co: VEi Global, Inc.
VEi Project No.: E24140
VEi Document No.: E24140-Evaporator Project-EQUIPMENT LIST

ITEM	DWG. NO.	TAG	DESCRIPTION	STATUS	WEIGHT	MANUFACTURER	MODEL	SUPPLIED BY	INSTALLED BY	INSULATED BY	IN-SERVICE DATE	DELIVERY DATE	NOTES
1	P7-959 & P7-962A	VEV-61B	#1 Evaporator with Vapor Separator	NEW		Harris Thermal		TASCO	Building Contractor	Contractor			62,000 SqFt
2	P7-959 & P7-962A	VEV-61C	#2 Evaporator with Vapor Seperator	NEW		Harris Thermal		TASCO	Building Contractor	Contractor			62,000 SqFt
3		VHE-58P	Exhaust Steam Thin Juice Heater	NEW		Alpa Laval	T25-MFG	TASCO	Mech. Contractor	N/A			
4		VHE-58Q	1st Vapor Thin Juice Heater	NEW		Alpa Laval	T25-MFG	TASCO	Mech. Contractor	N/A			
5		VHE-58R	2nd Vapor Thin Juice Heater	NEW		Alpa Laval	T25-MFG	TASCO	Mech. Contractor	N/A			
6		VP-61AA1	1st Effect Recirc Pump	NEW		Summit	2175 10x12-22	TASCO	Mech. Contractor	N/A			250 HP
7		VP-61AA2	1st Effect Recirc Pump Spare	NEW		Summit	2175 10x12-22	TASCO	Mech. Contractor	N/A			250 HP
8		VP-61EE1	2nd Effect Recirc Pump	NEW		Summit	2175 10x12-22	TASCO	Mech. Contractor	N/A			250 HP
9		VP-61EE2	2nd Effect Recirc Pump Spare	NEW		Summit	2175 10x12-22	TASCO	Mech. Contractor	N/A			250 HP
10		VP-61FF1	2nd Effect Thin Juice Transfer Pump	NEW		Summit	2196 4x6-10	TASCO	Mech. Contractor	N/A			50 HP
11		VP-61FF2	2nd Effect Thin Juice Transfer Pump Spare	NEW		Summit	2196 4x6-10	TASCO	Mech. Contractor	N/A			50 HP
12		VP-16AA1	Evap #1 Condensate Pump	NEW		Summit	2196 4x6-10	TASCO	Mech. Contractor	N/A			10 HP
13		VP-16AA2	Evap #1 Condensate Pump Spare	NEW		Summit	2196 4x6-10	TASCO	Mech. Contractor	N/A			10 HP
14		VP-16BB1	Evap #2 Condensate Pump	NEW		Summit	2196 4x6-10	TASCO	Mech. Contractor	N/A			10 HP
15		VP-16BB2	Evap #2 Condensate Pump Spare	NEW		Summit	2196 4x6-10	TASCO	Mech. Contractor	N/A			10 HP
16		VTK-16F1	#1 Evap Condensate Pig	NEW				TASCO	Mech. Contractor	Contractor			
17		VTK-16G1	#2 Evap Condensate Pig	NEW				TASCO	Mech. Contractor	Contractor			
18		VTK-58E	1st Vapor TJ Heater Condensate Pig	NEW				TASCO	Mech. Contractor	Contractor			
19		VTK-58D	Exhaust TJ Heater Condensate Pig	NEW				TASCO	Mech. Contractor	Contractor			
20		VTK-16H1	TJ Heater Condensate Flash Tank	NEW				TASCO	Mech. Contractor	Contractor			
21		VP-18E1	TJ Heater Condensate Flash Tank Pump	NEW		Summit	2196 2x3-6	TASCO	Mech. Contractor	N/A			10 HP
22		VP-18E2	TJ Heater Condensate Flash Tank Pump Spare	NEW		Summit	2196 2x3-6	TASCO	Mech. Contractor	N/A			10 HP
23			Condensate Sugar Monitoring System	NEW		ChemTreat	Radar system - panel mounted	TASCO	Vendor	N/A			
24		VP-61GG1	Evaporator Sump Pump A	NEW	42 lb.	KSB	GIW ZW65-290	TASCO	Mech. Contractor	N/A			20HP
25		VP-61GG2	Evaporator Sump Pump B	NEW	42 lb.	KSB	GIW ZW65-290	TASCO	Mech. Contractor	N/A			20HP
26		VPIT-61AA	Evaporator Sump	NEW				Contractor	Mech. Contractor	N/A			
27		VFIL-61AA1	Juice Catch-All / Strainer	NEW				TASCO	Mech. Contractor	Contractor			1st Effect Recirc Pump
28		VFIL-61AA2	Juice Catch-All / Strainer	NEW				TASCO	Mech. Contractor	Contractor			1st Effect Recirc Pump Spare
29		VFIL-61EE1	Juice Catch-All / Strainer	NEW				TASCO	Mech. Contractor	Contractor			2nd Effect Recirc Pump
30		VFIL-61EE2	Juice Catch-All / Strainer	NEW				TASCO	Mech. Contractor	Contractor			2nd Effect Recirc Pump Spare
31			Pump seal water conditioning systems	NEW		TASCO Supplied	Multiple	TASCO	Mech. Contractor	N/A			Quantity of 12, Follow API Plan-53-A, ASC will supply components
32			Safety showers including eyewash	NEW		TASCO Supplied	#151720	TASCO	Mech. Contractor	N/A			Quantity of 2, indoor units
33			Hose Reels	NEW		TASCO Supplied		TASCO	Mech. Contractor	N/A			Quantity of 3
34													
35													
36	Notes:												

SECTION 01 25 00
SUBSTITUTIONS

PART 1 - GENERAL

1.1 This Section provides for the Substitution of products not specified by name or by reference within these Specifications.

A. Where a proprietary material or method is specified, the intention is to establish a standard of quality, performance or size and not to exclude another product of equal merit. Substitutions will be considered for approval provided such request for substitution is made in strict conformance with provisions of this Section prior to the date of issuance of a final addendum before the Bid Opening.

B. Approved Equal and Substitutions:

1. Where the term “Approved Equal” is shown, approval must be obtained through the following procedure before the product can be incorporated into the work.

2. Where the Contractor chooses to use an item approved for bidding as above, but other than the one shown on the Drawings or named in the Specifications, Contractor shall be responsible for coordinating any necessary changes in other work and shall bear the cost of such changes.

3. Only products named in the Specifications or approved in writing by addendum prior to the bid will be permitted in the Work. The opinion of the Engineer with respect to product equivalence, acceptability and approval shall be final

4. Products approved according to the provisions of this Section shall, in any event, meet or exceed the descriptive qualities, features and performance standards originally specified for the item, whether or not stated so within the approval.

5. Any item specified by reference to a Commercial Standard, Federal Specification, trade association standard or other similar standard shall comply with all product attributes specified therein.

C. Contractors seeking approval are encouraged to use the attached form and to submit their request sufficiently in advance of the Bid Due Date to allow for thorough review and approval.

End of Section

REQUEST FOR SUBSTITUTION

PROJECT: (Owner)
(Project)
(City, State)

Request Date: Request No.: Bid Due Date:

We hereby submit for your consideration the following product in lieu of the specified line item for the above referenced project:

Section Number	Spec Section Title	Line Item Number:	Specified Item

Proposed substitution: _____

_____

Complete technical data, including laboratory test results, are attached. Yes _____ No ____

Identify, in detail, changes to the work described on the Drawings and specified which would be required to properly substitute the proposed product.

Does the substitution affect dimensions shown on the Drawings or in the detail manual? Yes ___
No ___

Describe: _____.

Does the substitution affect any other trade? Yes ____ No ____

What are the differences between the proposed substitute item and the specified item?

_____

_____

Submitted by:

_____
(Signature)

_____
Firm

_____
Address

_____
Date

_____
Telephone

_____
Date

Response of Engineer:

_____Request is approved for bidding subject to compliance with the specification, and an addendum will be issued.

_____Approval cannot be granted because the request did not reach this office within the specified time.

_____Approval cannot be granted at this time.

_____Prior approval is not required for the substitution of this item.

_____
Engineer's Signature

SECTION 01 26 13
REQUESTS FOR INFORMATION

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Procedure for use in preparing and processing of Requests for Information (RFI).

1.2 RELATED SECTIONS:

A. Section 01 26 63 - Change Orders: Procedures for changes to the work.

1.3 PURPOSE:

A. The purpose of the Request for Information is to provide the Contractor with a means of receiving and documenting additional information or clarification from the Owner or Engineer. RFIs may include technical, commercial or work coordination questions. RFIs are an important means of written communication and documentation on a Project and they are to be promptly and accurately processed.

1.4 RESPONSIBLITIES:

A. The Contractor is responsible for issuing RFIs on the Project and the Owner or Engineer is responsible for promptly responding to each RFI. Contractor RFIs are to be prepared, issued, and processed in accordance with the following.

1. All Contractor questions to the Owner or Engineer involving technical and commercial matters and work coordination issues must be documented by a Request for Information and submitted to the Owner / Engineer for response.

2. Each RFI Form is to be completed to the full extent possible. It is very important the RFI be signed and dated by each Party.

3. Each RFI is to be sequentially numbered. Each Contractor shall utilize a separate and unique numbering system for its RFIs. The Contractor's RFI numbering system shall be agreed upon by the Contractor and Owner or Engineer.

4. An RFI Log shall be maintained to ensure that each RFI is recorded and processed in a timely manner.

5. The RFI Log shall be issued by the Contractor each week prior to the Weekly Construction Meeting. RFIs which have been issued but not answered by the Owner or Engineer are to be discussed at the Weekly Construction Meeting.

6. The Owner or Engineer shall provide a response to each RFI within three (3) working days of receipt of the Contractor's RFI. Time is of the essence on a Project and verbal responses by the Owner or Engineer are acceptable, provided

a written response to the RFI is returned to the Contractor within twenty-four (24) hours of the verbal response.

7. A copy of each completed RFI and response shall be provided to the Contractor, Owner and Engineer.

8. If a completed RFI results in additional costs or savings, see Section 10 26 63 - Change Orders.

1.5 FORMAT:

A. Request for Information form included at the end of this Section.

End of Section

	REQUEST FOR INFORMATION	**Date:**	
		RFI No:	

Project:		**Document Ref. No.:**	
Contractor Name:		**Originator Name:**	
Engineer / Construction Mgr:		**Date Response Requested By:**	

INFORMATION REQUESTED

☐ **Proposal Included**

Originator Signature:	**Date:**	**Concurrence:**	**Date:**

RESPONSE

☐ **Proposal Requested**

Engr. / CM Signature:		Owner's Representative Signature:	
Date:		Date:	

SECTION 01 26 63
CHANGE ORDERS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Documentation of changes in the Work, Contract Sum and Contract Time.

B. Change Procedures - Proposal Requests and Change Requests

C. Documentation of Changes and Allowable Costs – Lump Sum and T&M

D. Execution of Change Orders.

E. Correlation of Change Orders

1.2 RELATED SECTIONS:

A. Section 00 43 43 – Time & Material Rates

B. Section 00 72 00 – Construction Agreement – Change Orders
Contract terms and conditions pertaining to changes in the Work, Contract Sum and Contract Time.

C. Section 01 29 00 – Applications for Payment

D. Section 01 25 00 - Substitutions

1.3 SUBMITTALS:

A. Contractor shall submit the name of the individual authorized to act on behalf of the Contractor in all matters concerning the Work; including approvals, receiving documents containing changes to the Work and notifying other Contractor personnel and Subcontractors of changes to the Work.

B. Contractor shall prepare and submit proposals within five (5) calendar days of receipt of a Proposal Request.

1.4 CHANGE PROCEDURES:

A. The Engineer or Construction Manager shall notify the Contractor of changes in the Work which may or may not require an adjustment to the Contract Sum or Contract Time.

B. The Engineer or Construction Manager may issue a Proposal Request to the Contractor which includes a detailed description of the Work and revised or additional Drawings and Specifications. The Contractor shall, in response to the Proposal Request, prepare and submit its proposed change in Contract Cost and Contract Time

within five (5) working days. The Contractor's Lump Sum proposal shall include all labor, material, tools, equipment, supplies, services and supervision required to perform the Work. The Contractor's proposal may also include a specified period during which the proposal shall remain valid.

C. The Engineer or Construction Manager may authorize or direct the Contractor to proceed with the performance of Work on a Time & Material Basis. The Contractor shall maintain detailed records of the Time and Material Work and provide documentation required to substantiate the cost of the Work. The cost of Time & Material work shall be determined in accordance with the Time & Material Rates provided with the Contractor's Bid (see Section 00 43 43).

D. The Contractor may propose a change by submitting a Change Request to the Engineer or Construction Manager. The Contractor's Change Request shall include a complete description of the proposed change in the Work and the effect on the Contract Sum and Contract Time. The Change Request shall also include the reason for the change, a description of its effect on the Work, the effect on the Work by separate or other contractors, if applicable, and complete and thorough documentation in support of the change. Any proposed substitutions shall be in accordance with Section 01 25 00 – Substitutions.

E. The form to be used for Proposal Requests and Change Requests is included at the end of this Section

1.5 DOCUMENTATION OF CHANGES IN CONTRACT SUM AND CONTRACT TIME:

A. The Contractor's Lump Sum Change Proposal for additional or deleted Work shall include itemized costs and supporting documentation, which consists of but is not limited to the following:

1. Labor, material, equipment, tool and consumable costs
2. Labor hours, material quantities and equipment
3. Material and equipment quantities.
3. Overhead and profit.
4. Justification for any change in Contract Time.

B. Upon completion of a Time & Material Change, the Contractor shall determine the total cost of the Work and submit it to the Owner for approval. The cost shall be based on the Contractor's T&M Rates and itemized information contained in supporting documentation, which shall be submitted by the Contractor. The supporting documentation shall include, but not be limited to the following:

1. Daily timesheets containing:
   a. date work was performed
   b. description of work performed
   c. individuals who performed the work
   d. hours worked by each individual
   e. signature of Owner or Construction Manager verifying the additional work

2. Invoices or receipts for material, equipment, subcontracts and services used in the work.

C. The Contractor shall designate the amount of Contract Time (in days) associated with each Change in the Work. Note: increases or decreases in Contract Time shall only be valid for work which is directly on the Critical Path of the Contractor's Project Schedule.

D. Allowable Change Order Costs:

1. The allowable markup for the Contractor's overhead and profit on additive and deductive Changes shall not exceed fifteen percent (15%). The Contractor's total overhead and profit markup shall be applied to Changes as defined below.

2. No Contractor markup will be allowed on Sales and Excise Taxes.

3. The following costs shall be included within the Contractor's markup for overhead as set forth in the Contract Conditions except as noted below:
   a. Contractor Superintendent's time shall be prorated to the Change Order work based on the total number of hours worked each day by the Contractor's crews.
   b. Overtime work by the Contractor's crews shall be prorated to the Change Order work. All hours worked on a Change Order will not be paid as overtime unless approved by the Owner.
   c. The General Conditions of the Contract shall be included under the allowable overhead markup for Change Orders. These items shall include office staff, project managers, telephone charges, sanitation facilities, etc.

1.6 EXECUTION OF CHANGE ORDERS:

A. The Contractor shall not proceed with the Work contained in a Proposal Request or Change Request until approval has been received from the Owner.

B. Approval of the Proposal Requests and Change Requests must be signed by the Contractor, Owner and Construction Manager.

C. The Owner will process a Change Order for the signed Proposal Requests and Change Requests.

1.7 CORRELATION OF CHANGE ORDERS:

A. The Contractor shall revise the Schedule of Values included with its Applications for Payment to include each approved Change Order. Each Change Order shall be listed as a separate line item on the Schedule of Values and the Total Contract Sum shall be adjusted accordingly.

B. The Contractor shall revise its Project Schedule and to include any change in Contract Time for work items affected by Change Order. The revised Project Schedule shall be submitted to the Owner, Engineer and Construction Manager.

C. The Contractor shall record the changes to the Work on the As-Built Drawings and submit them to the Owner as required by the Construction Agreement.

End of Section

1020 36th St SW
Fargo, ND 58103
Phone: 701.277.8300
Fax: 701.277.9300

VEi PROJECT # E24140 **OWNER PROJECT #**

PROPOSAL REQUEST / CHANGE REQUEST

Amalgamated Sugar Company
EVAPORATOR PROJECT

CONTRACTOR:
PROPOSAL REQUEST NUMBER:
CHANGE REQUEST NUMBER:

DATE ISSUED:
ISSUED BY:
PHONE:
EMAIL:

Required Reviews Prior to Issue			
CM Review		Name & Date	
Engineer Review		Name & Date	
Owner Review		Name & Date	

Engineer Use Only
Added Scope: Y / N

DESCRIPTION OF WORK:

Contractor to provide all labor, material, tools, equipment, supplies, services and supervision required to perform the following Work.

Provide itemized cost of the Work, including but limited to labor hours, labor and material costs, consumables and markups.

Provide required documentation in support of costs and submit itemized "ADD" and "DEDUCT" costs separately.

COST ADJUSTMENT FOR THE WORK: **ADD:** $ **DEDUCT:** ($)

THE CONTRACT TIME WILL BE: ( ) INCREASED ( ) DECREASED BY ( ) DAYS ( ) UNCHANGED

APPROVED: ☐

REJECTED: ☐

CONTRACTOR REPRESENTATIVE **DATE**

OWNER REPRESENTATIVE **DATE**

OWNER REPRESENTATIVE **DATE**

*** Proposal Requests are required to be returned within five (5) working days of the date issued.**

SECTION 01 29 00
APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Procedure for preparation and submittal of Applications for Payment.

1.2 RELATED SECTIONS:

A. Construction Agreement: Contract Price, Invoices, Payment and Retainage

B. Section 01 26 63 - Change Orders: Procedures for changes to the Work.

C. Section 01 32 00 - Progress Schedules: Progress Report

1.3 FORMAT AND CONTENT:

A. Schedule of Values

1. The Schedule of Values shall be the basis of the Construction Manager's review and approval of the Contractor's Applications for Payment.

2. The Schedule of Values shall be submitted to the Construction Manager for approval within ten (10) days of Contract Award.

3. The Contractor shall coordinate preparation of its Schedule of Values for the Work with its Construction Schedule.

4. Use the Continuation Sheet included at the end of this Section or a similar form.

a. Provide a breakdown of the Contract Sum in sufficient detail to facilitate evaluation of Applications for Payment in conjunction with Contractor's Progress Reports. Principal subcontract amounts are to be broken down into several line items.

b. The total shall equal the Contract Sum.

c. Demolition of structural steel, roofs, and concrete are to be listed separately. Removal of process equipment is not considered demolition and should not be included in the demolition line item cost. These requirements are due to IRS rules regarding demolition costs.

1.4 PREPARATION AND SUBMITTAL:

A. Submit Applications for Payment in typewritten or electronic format. The forms at the end of this Section or similar may be used.

B. Submit monthly or at intervals specified by the Construction Manager.

C. Execute Contractor certification by signature of an authorized officer.

D. Continuation Sheets shall contain each Schedule of Value line item. Provide dollar values in each column for each line item of work performed and for stored materials. Amounts are to be rounded to the nearest whole dollar.

E. List each approved Change Order as a separate line item on the Continuation Sheet, including Change Order number and dollar value

   1. Change Orders less than $5,000 in total value will be paid when all work under the Change Order is 100% complete, as determined by Construction Manager.

   2. For Change Orders in excess $5,000 or which will take an extended period of time to complete, the request for and subsequent payment shall be based on the percentage of the Change Order work completed.

F. Submit three (3) copies of each Application for Payment.

G. Submit an Affidavit and appropriate lien waivers with each Application for Payment for each item on which payment was made the previous month. Lien waivers shall reflect the same unit measurement of work performed as the Contractor's initial breakdown and the previous month's request. See Construction Agreement Exhibit F for Contractor's Affidavit form.

H. Monthly payment will be based on percentage of work completed as reviewed and approved by the Construction Manager.

1.5 SUBSTANTIATING DATA:

A. When Construction Manager requires additional information to substantiate approval, submit data in support of amounts in question.

End of Section

SECTION 01 31 00
COORDINATION & MEETINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Jobsite coordination and meetings necessary to coordinate the progress and work of various separate Contracts.

1.2 PRE-CONSTRUCTION MEETING:

A. Contractor shall meet with the Owner and Engineer to review procedural matters. This meeting will be held prior to the start of construction operations on the site.

1.3 WEEKLY PROJECT COORDINATION MEETINGS:

A. Construction Manager will establish and conduct weekly meetings at the jobsite with the Prime Contractors and Owner for the purpose of reviewing the progress of the work and to discuss coordination matters. The day and time of the meeting shall be mutually agreeable to all parties.

B. A representative of each Prime Contractor shall be required to be present at the weekly meetings to report on Contractor's safety, planned and actual labor force, hours of work, work activities and progress; and to address significant issues and coordination of the work.

C. To the extent practicable, Contractor shall notify the Construction Manager of meeting agenda items 24 hours in advance of the project meeting.

D. Construction Manager shall prepare minutes of each project meeting and provide copies to the Owner and each Prime Contractor.

End of Section

SECTION 01 32 00
PROGRESS SCHEDULES

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Submittals

B. Schedule Format

C. Schedule Content

D. Schedule Development

E. Schedule Updates

F. Progress & Reporting

G. Milestone Schedule

H. Power Outage Schedule

I. Project Schedule

1.2 RELATED SECTIONS:

A. Section 00 43 73 – Schedule of Values

B. Section 01 11 00 – Summary of Work

C. Section 01 29 00 – Applications for Payment

E. Section 01 33 23 – Shop Drawings, Product Data and Samples (Submittals)

1.3 SUBMITTALS:

A. Submit Project Schedule to the Owner and Engineer for review and comment as specified below.

1.4 SCHEDULE FORMAT:

A. Prepare schedules with Critical Path Method Scheduling Software that is compatible with Microsoft Project Software.

B. Prepare paper or electronic (pdf format) copies of schedule as a horizontal bar chart (Gantt Chart) with a separate bar for each work activity, identifying the first workday of each week.

C. Sheet size: minimum 8½ x 11 inches.

1.5 SCHEDULE CONTENT:

A. Coordinate development of schedule with Milestone Schedule activities and dates below, Schedule of Values (Section 00 43 73) and the Project Schedule, if included at the end of this Section.

B. Show complete sequence of construction activities and Project Milestones with planned Start and Finish dates for each activity and milestone.

C. Clearly identify Critical Path activities.

D. Identify, sort and organize work of separate phases, plant areas or other logically grouped activities.

E. Provide sub-schedules as necessary to define critical elements of the Schedule.

F. Resource load each activity with budget labor hours (Contractor and each Subcontractor's hours are to be included and separately identified).

1.6 SCHEDULE DEVELOPMENT & SUBMITTAL:

A. Upon Notice of Contract Award, the Contractors shall prepare and submit a detailed schedule of planned construction progress in accordance with the Format and Content requirements defined above.

B. The Contractor's schedule is required for coordination of the work with other Prime Contractors and Factory Operations and Maintenance activities.

C. The Contractor's schedule shall be submitted to the Owner, Engineer and Construction Manager within ten (10) working days after Contract Award or prior to the start of work, whichever is the earliest

D. A Master Schedule shall be developed for this Project. The Project Master Schedule shall integrate the work of all Prime Contractors on the Project and shall be jointly prepared by the Contractors, Owner, Engineer and Construction Manager.

E. The Contractor's Schedule shall contain Project Milestone, Procurement, Construction and Startup activities, including Start and Finish dates for the Contractor's activities and those of its Subcontractors. The Project Critical Path shall be clearly identified on the schedule. The Contractor's schedule shall include detailed work sequences, Contractor work interfaces and activity relationships; and shall be resource loaded with budget labor hours corresponding to the Contractor's Schedule of Values.

F. The Contractor shall be required to attend and participate in up to four (4) working schedule review meetings to develop a comprehensive resource loaded Project Master Schedule. The schedule development meetings shall be attended by representatives of the Contractor, Owner, Engineer and Construction Manager.

A. The cost to participate in the schedule development meetings shall be included in the Contractor's bid.

B. After review and comments by the other Contractors, Owner, Engineer and Construction Manager, the Contractor shall revise the schedule as necessary and resubmit it within five (5) working days.

G. The Project Master Schedule shall be compiled, completed and approved by the Owner, Engineer and Construction Manager a minimum of two (2) weeks prior to the start of construction.

1.7 SCHEDULE UPDATES:

A. The Contractor shall update the percentage of completion and actual and projected start and finish dates for each schedule activity.

B. The construction schedule shall be updated weekly, unless approved otherwise by the Owner and Construction Manager.

C. The Contractor shall clearly identify activities modified since the previous schedule update and submittal.

C. The Contractor shall provide a narrative description, as necessary, defining problem areas and anticipated delays and their impact on the Project Schedule. Report corrective action taken or proposed, and their effects and the effect of changes on the schedules of separate contractors.

1.8 PROGRESS & REPORTING:

A. The Contractor shall prepare and submit a Progress Report to the Owner and Construction Manager each week. The weekly period ending day (Friday or Saturday) on which the Progress Reports are to be based and issued shall be mutually agreed upon prior to the start of construction by the Contractor, Engineer, Construction Manager and Owner.

B. The Progress Report shall contain a detailed listing of budget hours, work progress completed during the reporting period (expressed in percentage complete and earned hours) and actual hours expended by the Contractor and its Subcontractors during the period.

C. The Contractor shall submit an updated Project Schedule each week with the Progress Report. The schedule submittal shall consist of paper copies, an electronic copy (pdf) and an electronic backup file of the Primavera-compatible schedule.

D. The actual progress and actual labor shall be compared to the planned progress and labor to assess the status of the Project and determine if any corrective actions are required to meet the Project Schedule dates.

1.9 MILESTONE SCHEDULE:

A. The project work shall be completed in accordance with the following Milestone Dates:

Bid Package Issued _____
Pre-Bid Meeting _____

Bids Due	_____
Award Contract	_____
Begin Construction	_____
Factory End of Slice Date – Current Campaign	_____
Juice Campaign	_____
Boilers are cold – No steam	_____
Substantial Completion of Project	_____

2.0 UTILITY OUTAGE SCHEDULE:

A. Planned outages:
(Electric power not available in Factory during these dates)

- None Scheduled

End of Section

SECTION 01 50 00
TEMPORARY CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Temporary electrical, lighting, phone service and sanitary facilities.

B. Temporary barriers, and protection of the Work.

C. Field office, storage facilities, parking, progress cleaning, and smoking.

1.2 TEMPORARY ELECTRICITY:

A. The Owner shall supply all wiring, transformers, and panels as necessary to maintain temporary lighting where necessary.

B. The Owner shall supply all temporary wiring, transformers, panels, outlets, etc. as necessary to provide 120 VAC power outlets and 480 VAC welder outlets in and around work areas. The 120 VAC outlets shall be located such that 100 feet extension cords will be adequate to cover most areas. Welder outlets shall be located such that 100 feet lead cables will be adequate to cover most areas.

C. Actual electrical usage charges shall be paid by the Owner.

D. The Contractor shall be responsible for temporary power supply during Planned Plant Power Outages (see Section 01 32 00).

1.3 TELEPHONE SERVICE

A. The Contractor shall be responsible for all costs associated with telephone connection and service as required for its use.

1.4 BARRIERS:

A. The Contractor shall provide and maintain barriers to prevent unauthorized entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.

B. The Contractor shall protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.5 PROGRESS CLEANING:

A. The Contractor shall be responsible to maintain construction work areas free of waste materials, debris, rubbish and all materials from the demolition process. Contractor shall maintain the site in a clean and orderly and safe condition at all times.

B. The Contractor shall be responsible to remove any rubbish and broom clean all construction areas on a bi-weekly basis. Contractor shall also provide sufficient receptacles for collection of waste materials. The cost for the weekly clean-up, rental of waste receptacles and offsite disposal of waste materials is the responsibility of the Contractor.

1.6 FIELD OFFICE AND STORAGE FACILITIES:

A. The Contractor shall be responsible for all costs associated with its needs or requirements for a field office and storage facilities for tools and materials.

B. The site location for the field office and storage facilities shall be designated by the Owner.

1.7 TEMPORARY SANITARY FACILITIES:

A. The Contractor shall provide and maintain required sanitary facilities for each sex based on requirements for the total number of its workers as they will not have access to Owner's facilities. The cost for these facilities shall be paid by each Contractor.

1.8 PARKING

A. Contractor personnel shall only park vehicles in designated areas of the site as indicated within the Drawings or as specified by the Construction Manager.

1.9 SMOKING:

A. Smoking is not permitted in any of the Owner's Buildings or any of the Contractor's facilities. Smoking is only permitted on the factory site in locations designated by the Construction Manager.

2.0 OTHER SERVICES AND DEVICES:

A. The Contractor shall provide appropriate types and numbers of portable fire extinguishers in the area of their construction operations and in the temporary field office.

B. The Contractor's personnel shall not have access to the Owner's vending machines in the lunchroom. No eating will be allowed in the lunchroom. The Contractor must provide an eating area for its employees.

End of Section

SECTION 02 41 00
DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Work included: Shore existing utilities and existing facilities as required for installation of new construction shown on Drawings and Specifications. Demolish and remove from the site those items indicated on the drawings and specifications not noted for relocation or reuse. Protect all utilities equipment and facilities including underground portions as shown on the drawings and specifications. Construct temporary weatherproof and/or GMP clean walls and barriers to separate the construction area from finished product handling and packaging areas of the factory that will remain in operation during construction.

B. Related contract documents:

1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, all Supplementary Conditions, and Sections in Division 0 and 1 of these specifications.

C. Related documents:

1. See drawings for area affected including items scheduled for removal. Also, see summary of work for general demolition overview.
2. This contractor shall coordinate so that all trades demolition is performed at the same time.
3. If demolition will affect ongoing owner operations or utility services, provide relocation of such services prior to demolition.

D. Bidders shall visit the site to make their own assessment of types of construction and the amount of work required.

1.2 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this section.

B. Furnish all labor, tools, and machines and perform all operations necessary to complete all demolition work shown and hereinafter specified or as required to carry all work in the contract to satisfactory completion.

C. The Contractor shall protect the Owner's property from the elements. Any damage to the Owner's property shall be restored or replaced by the Contractor. Replacement shall be to the original quality level prior to demolition and at no expense to the Owner.

D. The Contractor shall provide and maintain barricades, shelters, lights, and warning

signals necessary for warning and protection of the public during the progress of the work. They shall meet the requirements of State and Federal Safety agencies and local building codes. The Contractor shall continuously maintain barriers, barricades and all other devices until safe access is restored and shall remove the same upon completion of this work.

PART 2 - PRODUCTS

2.1 DEMOLITION (No materials specified all equipment shall be furnished by Contractor)

2.2 SHORING

A. Temporary shoring for utilities and structures not specifically shown on drawings, but required for completion of the project, shall be by Contractor. Such shoring shall meet all federal and state safety codes and shall be maintained until construction of permanent facilities can support the loads required.

2.3 TEMPORARY CLOSURES

A. Provide temporary barricades constructed of reinforced plastic, plywood, insulation and wood framing to separate existing site areas from all construction and demolition.

B. Provide a construction fence, lighted and unlighted reflective warning signs and barrier warning tape and locking gates outside the perimeter of the structure to prevent access and protect the public at all areas of the demolition.

PART 3 - EXECUTION

3.1 SURFACE CONDITIONS

A. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

B. Note that drawings indicate approximate location, size, dimensions, inverts and elevations, etc., of existing utilities and structures. Contractor shall verify all existing information prior to commencing work affected by or in the vicinity of existing items..

3.2 SHORING

A. Provide shoring as required. Ensure that shoring is installed in vertical alignment. Provide warning barriers to prevent disturbance of work. Remove when no longer required.

3.3 DEMOLITION

A. Using only the means and equipment approved for this purpose by the governmental agencies having jurisdiction (AWAIR)(OSHA), demolish and

completely remove from the job site the existing construction designated to be removed.

B. Items called for reuse shall be reinstalled under the Section where the type of work is called for to be completed unless otherwise noted. See plans for items reused.

C. Demolished material, unless otherwise noted, shall be the property of the Contractor and shall be completely removed from the job site. No accumulation of debris will be permitted.

1. Salvaged or reused materials and equipment noted or items specified salvaged shall be carefully removed and handled with care to minimize damage.
2. Transportation of debris shall be on rubber tired trucks or carts and shall be properly covered to minimize spread of dust.
3. Surface items shown to be demolished on plan shall include removal of any or all underground materials, mechanical or electrical lines, conduit or equipment associated with item.

D. Use all means necessary to prevent dust from becoming a nuisance to the public and to adjacent properties and to other work being performed on or near the site.

END OF SECTION

SECTION 09 91 00
PAINTING AND LABELING

PART 1 - GENERAL

1.01. DESCRIPTION

A. Work included:

1. Provide all labor, material and equipment as required to prepare substrates and to prime and finish paint interior and or exterior surfaces of the following:
   a) Handrail – see 05120 and 05500.
   b) Doors & Frames (color as selected by Owner)
   c) Piping systems – Uninsulated Carbon Steel
   d) Pipe supports – Carbon Steel

2. The Painting Contractor shall examine the specifications for the various other trades and shall thoroughly familiarize himself with all their provisions regarding their painting. All surfaces that are left unfinished by the requirements of other specifications shall be painted or finished as a part of this contract.

C. Work not included:

1. Do not include painting or priming which is specified under other Sections.

2. Metal surfaces of anodized aluminum, stainless steel, chromium plates, copper, bronze, nickel, Monel metal and similar finished materials will not require painting under this Section except as may be specified herein.

3. Do not paint any moving parts of operating units; mechanical or electrical parts such as valve operators, linkages, sinkages, sensing devices, and motor shafts, unless otherwise indicated.

4. Do not paint over any required labels or equipment identification, performance rating, name or nomenclature plates.

D. Definitions: The term "paint", as used herein, means all coating systems materials including primers, emulsions, epoxy, enamels, sealers, fillers, and other applied materials whether used as prime, intermediate, or finish coats.

1.02 QUALITY ASSURANCE

A. Standards: Comply with standards specified in this Section.

B. Qualifications of manufacturer: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Engineer.

C. Qualifications of workmen:

1. Provide at least one person who shall be present at all times during execution of

the work of this Section, who shall be thoroughly familiar with the specified requirements and the materials and methods needed for their execution, and who shall direct all work performed under this Section.

2. Provide adequate numbers of workmen skilled in the necessary crafts and properly informed of the methods and materials to be used.

3. In acceptance or rejection of the work of this Section, the Engineer will make no allowance for lack of skill on the part of workmen.

D. Paint coordination:

1. Provide finish coats that are compatible with the prime coats used.

2. Review other Sections of these Specifications as required, verifying the prime coats to be used and assuring compatibility of the total coating system for the various substrates.

3. Upon request, furnish information on the characteristics of the specific finish materials to ensure that compatible prime coats are used.

4. Provide barrier coats over noncompatible primers or remove the primer and reprime as required.

5. Notify the Engineer in writing of anticipated problems in using the specified coating systems over prime coating supplied under other Sections.

1.03 SUBMITTALS

A. General: Comply with provisions of Section 01340 Submittals.

B. Submit Manufacturers' data.

1. Complete materials list of all items proposed to be furnished and installed under this Section.
2. Manufacturers' specifications and other data required to demonstrate compliance with the specified requirements.

3. For information only, submit two copies of manufacturer's specifications, including paint analysis and application instructions for each material. Indicate by transmittal that a copy of each manufacturer's instructions has been distributed to the applicator.
   a) Submit one copy of manufacturer’s Material Safety Data Sheets (MSDS) for each type of coating to the jobsite for posting.

4. Provide manufacturers standard color charts for selection of colors by Owner. Upon receipt of review comments, make all revisions and corrections, and resubmit if so required.

1.04. PRODUCT HANDLING

A. Delivery of materials: Deliver all materials to the job site in original, new, and unopened containers bearing the manufacturer's name and label showing at least the following information:

1. Name or title of the material.

2. Fed. Spec. number, if applicable.

3. Manufacturer's stock number.

4. Manufacturers' name.

5. Contents by volume for major constituents.

6. Thinning instructions.

7. Application instructions.

8. Color.

B. Storage of materials: Provide proper storage to prevent damage to, and deterioration of, paint materials.

C. Protection:

1. Protect and store all paint products in an environment that maintains a steady temperature above 50 degrees F.

2. Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

3. All soiled or used rags, waste, and trash must be removed from the building each night, and every precaution taken to avoid the danger of fire.

4. The painting contractor shall protect surfaces and objects inside and outside the building, as well as the grounds, lawns, shrubbery, and adjacent properties against damage.

D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Engineer and at no additional cost to the Owner.

1.05 JOB CONDITIONS

A. Surface temperatures: Do not apply solvent-thinned paints when the temperature of surfaces to be painted and the surrounding air temperature are below 45 degrees F, unless otherwise permitted by the manufacturer's printed instructions as approved by the Engineer.

B. Weather conditions: Do not apply paint in snow, rain, fog, or mix; or when the relative humidity exceeds 85%, or to damp or wet surfaces; unless otherwise permitted by the

manufacturer's printed instructions as approved by the Engineer. Applications may be continued during inclement weather within the temperature limits specified by the paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.01 PAINT MATERIALS

A. This specification is based on use of Hi Solids Polyurethane Acrolon 218 HS paint manufactured by Sherwin Williams. Equal products manufactured by Benjamin Moore, Pratt & Lambert, Glidden and Pittsburgh may be approved.

B. General: Provide the best quality grade of the various types of coatings as regularly manufactured by paint materials manufacturers approved by the Engineer. Materials not displaying the manufacturer's identification as a standard best-grade product will not be acceptable.

C. Durability: Provide paints of durable and washable quality. Do not use paint materials that will not withstand normal washing as required to remove pencil marks, ink, ordinary soil, and similar material without showing discoloration, loss of gloss, staining, or other damage.

D. Colors and glosses: The Engineer will select colors to be used in the various types of paint specified and will be the sole judge of acceptability of the various glosses obtained from the materials proposed to be used in the Work.

E. Amalgamated Sugar requires the following color scheme for uninsulated carbon steel piping

1. per ANSI A13.1

Label Color	Text Color	Example	Pipe Contents
Red	White	Red	Firefighting
Orange	Black	Orange	Toxic or corrosive
Yellow	Black	Yellow	Flammable, combustible or oxidizing
Gray	Black	Gray	Steam; or steam condensate, boiler feedwater, or other hot water
Green	White	Green	Potable, cooling, or other cold or tepid water
Blue	White	Blue	Compressed air
Purple	White	Purple	To be defined by the user
White	Black	White	To be defined by the user
Brown	White	Brown	To be defined by the user
Black	White	Black	To be defined by the user

2. Unique Colors for Amalgamated

Light Gray with Black Lettering
Thin juice, thick juice, Steam less than 45 psig
Yellow with Black Lettering
Steam 45psig or greater (include steam pressure for example “400psi Steam”)
Orange with Black Lettering
Acids
Tan with Black Lettering
Process Drain
White with Red Lettering
Carbon Dioxide (CO_2)
White with Black Lettering
Vacuum
Purple with White Lettering
Milk of Lime
Green with White Lettering
Culinary

F. Undercoats and thinners: Provide undercoat paint produced by the same manufacturer as the finish coat. Use only the thinners recommended by the paint manufacturer and use only to the recommended limits. Insofar as practicable, use undercoat, finish coat, and thinner material as parts of a unified system of paint finish.

2.02 LABELING

A. Stainless Steel, Insulated Pipe (including insulated carbon steel), PVC, HDPE and Copper. Color the background at each label according to the above paint colors.

B. Label Size as per ANSI A13.1

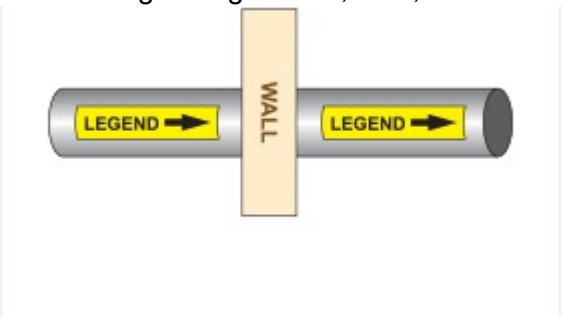
Outside Diameter of Pipe or Covering	Length of Color Field	Letter Height
0.7 in-1.3 in (18-33 mm)	8 in (203 mm)	0.5 in (13 mm)
1.4 in-2.4 in (34-61 mm)	8 in (203 mm)	0.7 in (19 mm)
2.5 in-6.7 in (62-170 mm)	12 in (305 mm)	1.3 in (32 mm)
6.8 in-10 in (171-254 mm)	24 in (610 mm)	2.5 in (64 mm)
Over 10 in (Over 254 mm)	32 in (813 mm)	3.5 in (89 mm)

C. Type of label

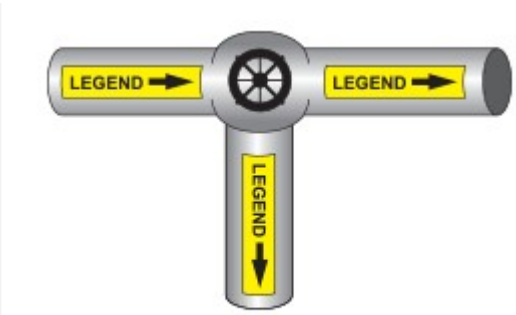
0.7” to 2.4” Outside Diameter of Pipe or Pipe Covering
use self-adhesive pipe labels
Greater than 2.4”
paint background color and stencil content

D. Pipe marking content
Flow Direction
Pipe Contents

E. Label placement
a. Within 10’ of coming through a wall, floor, or into/out of a vessel



b. For Tees and branches place label within 10’ and label flow arrows for all branches



c. Along pipe run, maximum length between pipe labels 50’, placement near valve preffered.

2.03 APPLICATION EQUIPMENT

A. General: For application of the approved paint, use only such equipment as recommended for application of the particular paint by the manufacturer, and as approved by the Engineer.

B. Compatibility: Prior to actual use of application equipment, use all means necessary to verify the proposed equipment is actually compatible with the material to be applied and that the integrity of the finish will not be jeopardized by use of the proposed application

equipment.

2.04 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first-quality of their respective kinds, and as selected by the Contractor subject to the approval of the Engineer.

PART 3 - EXECUTION

3.01 SURFACE CONDITIONS

A. Inspection: Prior to installation of the work of this Section, carefully inspect the installed work of all others and verify that all such work is complete to the point where this installation may properly commence. Verify that painting may be completed in strict accordance with the original design and with the manufacturers' recommendations as approved by the Engineer.

B. Discrepancies:

1. If any surface to be finished cannot be put in proper condition for finishing by customary cleaning, sanding, and puttying operations, the painting contractor shall immediately notify the general contractor or the Engineer in writing to rectify any unsatisfactory finish resulting.

2. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.
3. Commencement of work indicates acceptance of prior work and responsibility for unsatisfactory finish resulting from and prior to work.

3.02 MATERIALS PREPARATION

A. General:

1. Mix and prepare painting materials in strict accordance with the manufacturers recommendations as approved by the Engineer.

2. Store materials not in actual use in tightly covered containers.

3. Maintain containers used in storage, mixing, and application of paint in a clean condition, free from foreign materials and residue.

B. Stirring: Stir all materials before application to produce a mixture of uniform density, and as required during the application of materials. Do not stir into the material any film that may form on the surface. Remove the film and, if necessary, strain the material before using.

3.03 SURFACE PREPARATION

A. General:

1. Perform all preparation and cleaning procedures in strict accordance with the paint manufacturer's recommendations as approved by the Engineer.

2. Remove all removable items that are in place and are not scheduled to receive paint finish or provide surface-applied protection prior to surface preparation and painting operations.

3. Following completion of painting in each space or area, reinstall the removed items by using workmen skilled in the necessary trades.

4. Clean each surface to be painted prior to applying paint or surface treatment.

5. Remove oil and grease with clean cloths and cleaning solvents of low toxicity and a flash point in excess of 38 degrees C (100 degrees F), prior to start of mechanical cleaning.

6. Schedule the cleaning and painting so that dust and other contaminants from the cleaning process will not fall onto wet newly painted surfaces.

7. At completion of work, the painting contractor shall remove from the premises all surplus painting materials and all debris created by him, he shall remove all splatters and leave his part of the work in a clean and finished condition.

B. Surface Preparation of Materials:

1. Previously Coated Surfaces (SW-6): Maintenance painting will frequently not permit or require complete removal of all old coatings prior to repainting. However, all surface contamination such as oil, grease, loose paint, mill scale, dirt, foreign matter, rust, mold, mildew, mortar, efflorescence and sealers must be removed to assure sound bonding to the tightly adhering old paint. In addition, glossy surfaces of old paint films must be clean and dull before repainting. Thorough washing with an abrasive kitchen cleanser will clean and dull in one operation or, wash thoroughly and dull by sanding. Remove sanding dust. Spot prime all bare areas with the appropriate primer. Recognize that any surface preparation short of total removal of the old coatings may compromise the service length of the system. Always check for compatibility of the previously painted surface with the new coating by applying a test patch of 2-3 square feet. Allow to dry thoroughly, check adhesion.

2. Pipe support steel and miscellaneous steel shall be cleaned by the surface preparation method described below.
    a) Power Tool Cleaning (SW-15): Removal of loose rust, loose mill scale and loose paint to degree specified, by power tool chipping, descaling, sanding, wire brushing and grinding.

3.04 PAINT APPLICATION

A. General:

1. Slightly vary the color of succeeding coats. Do not apply additional coats until the complete coat has been inspected and approved. Only the inspected and approved coats of paint will be considered in determining the number of coats.
2. Sand and dust between enamel coats to remove all defects visible to the unaided eye from a distance of five (5) feet.

3. On all removable panels and all hinged panels, paint the backsides to match the exposed sides.

B. Drying:

1. Allow sufficient drying time between coats. Modify the period as recommended by the material manufacturer to suit adverse weather conditions.

2. Oil-base and oleo-resinous solvent-type paints shall be considered dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

C. Brush application: Brush out and work all brush coats onto the surfaces in an even film. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, and other surface imperfections will not be acceptable.

D. Spray application:

1. Conventional or airless spray application is approved for any surfaces which:
   a) Brush or roller application would be inferior.
   b) Coating specified requires spray application.
   c) Paint color texture and gloss are consistent or uniform in one space or surface or can be isolated to prevent migration of paint types or colors.
2. Wherever spray application is used, apply each coat to provide the equivalent hiding of brush-applied coats. Do not double back with spray equipment for the purpose of building up film thickness of two coats in one pass.

E. Completed work shall match the approved Samples of color, texture, and coverage. Remove, refinish, or repaint all work not in compliance with specified requirements.

3.05 PAINTING SCHEDULE

A. Paint colors shall be selected from samples provided by the contractor from product ranges as provided by mentioned manufacturers. Submit samples.

B. Products manufactured by Sherwin Williams, Pratt and Lambert, Benjamin Moore, PPG and Fuller O'Brien are also acceptable as long as they match the type of product specified.

1. All paint types must be FDA approved.

2. Handrails, stairs and steel beam within 7'-0" of floors must be painted with OSHA

approved colors.

C. On all previously painted or primed products Contractor shall apply a primer.

1. Where the primer or existing paint is not epoxy but the surface is to receive epoxy paint; painting contractor shall use Surface Preparation Method SSPC-SP3 Power Tool Cleaning, found in execution part of this specification. To the entire surface bare and previously painted apply one coat of Sherwin Williams Corothane I Aluminum to achieve a minimum DFT (dry film thickness) of 2.0 mils.

D. Where the existing paint or the primer is an epoxy product, Use Surface Preparation Method SSPC-SP3 Power Tool Cleaning, found in execution part of this specification. To all bare metal then apply one coat of Sherwin Williams inorganic zinc clad II to achieve a minimum DFT (dry film thickness) of 4.0 mils. Use a color to match finish coat

3.06 PAINTING PRODUCTS

A. Existing or New Steel (Pipe supports, etc.): Surface prep shall be Hand Tool Cleaning or Power Tool Cleaning SP-2 or SP-3 whichever is required.

1. Primer (if required): 1 coat Sherwin Williams inorganic zinc clad II.
Minimum DFT = 3.0 mils.

2. Intermediate coat: Sherwin Williams Macropoxy 646
5-10 mils brush or roll

3. Finish: Sherwin Williams Hi Solids Polyurethane Acrolon 218 HS or approved equal to achieve a minimum DFT of 3.0 mils.

END OF SECTION

SECTION 40 05 01
PIPE AND PIPE FITTINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Pipe and pipe fittings.

B. Gaskets

1.2 RELATED SECTIONS

A. Section 40 05 06 – Piping Specialties

B. Section 40 05 17 – Supports Anchors and Seals

C. Section 40 05 50 – Valves

D. Section 40 05 97 – Mechanical Identification

1.3 REFERENCES

A. ASME - Boiler and Pressure Vessel Codes, SEC 9 - Qualification Standard for Welding and Brazing procedures, Welders, Brazers, and Welding and Brazing Operators.
B. ASME B16.3 - Malleable Iron Threaded Fittings Class 150 and 300.
C. ASME B16.5 - Raised Face Flanges and Flanged Fittings.
D. ASME B16.9 – Factory Made Wrought Buttwelding Fittings
E. ASME B16.11 – Forged Fittings, Socket Welded and Threaded
F. ASME B16.20 – Metallic Gaskets for Pipe Flanges
G. ASME B16.21 – Non-Metallic Flat Gaskets for Pipe Flanges
H. ASME B16.25 – Buttweld Ends
I. ASME B31.3 – Process Piping

1.4 DELIVERY, STORAGE, AND HANDLING

A. Materials delivered and placed in storage must be stored with protection from the weather, excessive humidity variation, excessive temperature variation, dirt, dust and/or other contaminants. Proper protection and care of material before, during and after installation is the Contractor's responsibility.

B. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.

C. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS – Piping specifications follow this Section.

2.2 GASKETS

A. Refer to Piping Material Specifications and Line List for gasket selections.

B. The Contractor shall furnish and install all gaskets and accessories as shown and required on the mechanical drawings.

PART 3 - EXECUTION

3.1 PREPARATION

A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous and stainless pipe.

B. Remove scale and dirt on inside and outside before assembly.

C. Prepare piping connections to equipment with flanges or unions.

D. Keep open ends of pipe free from scale and dirt. Whenever work is suspended during construction protect open ends with temporary plugs or caps.

E. After completion, fill, clean, and treat systems.

3.2 INSTALLATION

A. Route piping in an orderly manner, plumb and parallel to building structure, and maintain gradient as shown on piping plans and elevation drawings.

B. Sleeve pipe passing through partitions, walls, and floors. Refer to Section 01 73 29 – Cutting and Patching.

C. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.

D. Provide clearance for installation of insulation and access to valves and fittings.

E. Slope steam piping one inch in 40 feet (0.25 percent) in direction of flow. Use eccentric reducers to maintain bottom of pipe level.

F. Prepare supports and accessories ready for finish painting.

G. Bypass piping will be completely assembled before the straight pipe run is completed to not create a “c-clamp” effect.

H. Install valves with stems upright or horizontal, not inverted.

I. All direct-reading indicator devices, thermometers, and pressure gauges shall be installed so that they can be easily read from floor level or nearby platforms and are readily accessible for maintenance and service.

3.3 CARBON STEEL PIPE (WELDED JOINTS)

A. Piping systems furnished by the Contractor shall be complete with all joints welded and finished as specified hereinafter.

B. Install carbon steel piping systems in accordance with the drawings.

C. Preparation for welding:

1. Only weld procedures which have been qualified under ASME Section IX and only welders who have successfully completed performance qualification tests per ASME Section IX on these qualified procedures shall be utilized in pipe fabrication.

2. All materials shall be dry and protected from the weather during welding.

3. Base metals shall be preheated before welding in temperatures below 32 degrees F.

4. Weld joints shall be accurately fitted and cleaned of all foreign material prior to welding.

5. Weld reinforcement on both sides of the weld shall be smooth, uniform and no greater than 1/16 inch in height.

6. Weld concavity and undercut shall not be acceptable on either side of the weld.

7. Welding joints shall have a root opening of 1/16 inch after tack welding.

8. Backing rings or consumable insert rings shall not be used unless approved by the Engineer.

9. Workmanship shall be of high quality & appearance. All welds shall be cleaned of slag.

3.4 STAINLESS STEEL PIPE (WELDED JOINTS)

A. Piping systems furnished by the Contractor shall be complete with all joints welded and finished as specified hereinafter.

B. Install stainless steel piping systems in accordance with the drawings.

C. Preparation for welding:

1. Only weld procedures which have been qualified under ASME Section IX and only welders who have successfully completed performance qualification tests per ASME Section IX on these qualified procedures shall be utilized in pipe fabrication.

2. All materials shall be dry and protected from the weather during welding.

3. Base metals shall be preheated before welding in temperatures below 32 degrees F.

4. Weld joints shall be accurately fitted and cleaned of all foreign material prior to welding.

5. All equipment used in welding preparation shall be covered or faced with material that will prevent mild steel particles from contaminating the surfaces and joints of the stainless steel material.

6. Whenever the use of grinding wheels is required, only those that have been used solely for stainless steel shall be permitted.

7. Metal 10 USS gauge (.141 inch) and under may be welded using a square butt or may be beveled as required for a particular welding process.

8. Gap between Welding Ends:

Plate Thickness	Gap
.0625 inch and less	Tight
.078 inch to .625 inch	Plate Thickness x .25

9. Joint alignment shall be performed with mechanical devices and shall be free of depressions and bumps. Heat shall not be used in the alignment of joints.

10. Purging with nitrogen on bench welds and pasting on field welds is required.

11. Only inert gas shielded welding process, GTAW (TIG), shall be used to perform stainless steel welds.

12. Filler Materials: Only extra low carbon (ELC) filler metals shall be used for welding stainless steel. For 304L stainless steel piping, use 308L filler material. For 316L stainless steel piping, use 316L filler material.

13. Filler metal shall be added to all welds to provide a cross section of weld metal equal to or greater than the parent metal. All butt welds shall be 100% penetrated and the weld reinforcement on the backside is to be smooth, uniform and no greater than 1/16 inch in height.

14. Weld concavity and undercut shall not be acceptable on either side of the weld.

15. Workmanship shall be of high quality & appearance. All welds shall be cleaned of slag. All residues, oxide and heat stain are to be removed from any type of field weld and the adjacent affected areas using stainless steel wire brushes.

3.5 STEEL AND STAINLESS-STEEL PIPE (THREADED JOINTS)

A. For threaded joints, use standard, right hand tapered full depth threads on piping and apply a manufacturer's recommended joint compound to male threads only before installation.

B. Remove cuttings and foreign matter from inside of pipe.

C. Thoroughly clean all pipe, fittings, valves, specials, and accessories before installing.

3.6 PVC & CPVC PIPE (SOLVENT – CEMENTED JOINTS)

A. Joints shall be solvent welded in accordance with ASTM D2564-12 and ASTM D2855.

B. Nominal pipe sizes shall be as indicated on the P&ID.

3.7 INSTRUMENT AIR PIPING

A. All instrument air piping shall be in accordance with Piping Specification S1E or other approved press fit 304SS tubing. (If rerouting existing air lines that are galvanized, use pipe spec C1G for this service)

B. Contractor shall field route all ½ inch instrument air piping/tubing from the primary header to all air actuated valves. Utilize poly tubing per the control valve detail on the mechanical drawings to connect to the valve.

3.8 GASKETS

A. Clean all flange faces to be free of dirt, grease or welding burrs before installing gaskets.

B. Gaskets shall not be over tightened or compressed in an uneven manner. Bolt stress should not exceed that recommended by ANSI B16.5 Raised Face Flanges and Flanged Fittings. Use the gasket manufacturer's torque specification for tightening.

C. Apply Permatex brand Anti-Seize Industrial 80208 to all gaskets prior to bolt-up and to all flange bolt threads.

End of Section

LINE LIST

D	2025.06.23	SC			ISSUE FOR BID
No	Date	Created By	Chkd By	Approved By	Revision

Client: Amalgamated Sugar Company
Project: Evaporator Project
Location: Twin Falls, ID
Engineering Co: VEi Global, Inc.
VEi Project No.: E24140
VEi Document No.: E24140-ASC EVAPORATOR PROJECT-LINE LIST

Item	Size	Fluid	PID	SEQ	Spec	Insul	Type	Insulated By	Status	Actual From	Actual To	Rating	Gasket	In-Service Date	Note
1	12"	TJS	09T	001	S1A	2"	JACKET	CONTRACTOR	NEW	TIE-IN 09T01	VEV-61B	150			
2	12"	TJS	09T	002	S1A	2"	JACKET	CONTRACTOR	NEW	12"-TJS-09T-001-S1A-2"	VHE-58R	150			
3	12"	TJS	09T	003	S1A	2"	JACKET	CONTRACTOR	NEW	VHE-58R	12"-TJS-09T-001-S1A-2"	150			
4	12"	TJS	09T	004	S1A	2"	JACKET	CONTRACTOR	NEW	12"-TJS-09T-001-S1A-2"	VHE-58Q	150			
5	12"	TJS	09T	005	S1A	2"	JACKET	CONTRACTOR	NEW	VHE-58Q	12"-TJS-09T-001-S1A-2"	150			
6	12"	TJS	09T	006	S1A	2"	JACKET	CONTRACTOR	NEW	12"-TJS-09T-001-S1A-2"	VHE-58P	150			
7	12"	TJS	09T	007	S1A	2"	JACKET	CONTRACTOR	NEW	VHE-58P	12"-TJS-09T-001-S1A-2"	150			
8	12"	TJS	10T	008	S1A	2"	JACKET	CONTRACTOR	NEW	12"-TJS-09T-001-S1A-2"	14"-JE1-10T-011-S1A-2"	150			
9	18"	JE1	10T	009	S1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	VP-61AA1 & VP-61AA2	150			
10	16"	JE1	10T	010	S1A	2"	JACKET	CONTRACTOR	NEW	VP-61AA1 & VP-61AA2	VEV-61B	150			
11	14"	JE1	10T	011	S1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	VEV-61C	150			
12	18"	JE2	11T	012	S1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	VP-61EE1 & VP-61EE2	150			
13	16"	JE2	11T	013	S1A	2"	JACKET	CONTRACTOR	NEW	VP-61EE1 & VP-61EE2	VEV-61C	150			
14	14"	JE2	11T	014	S1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	VP-61FF1 & VP-61FF2	150			
15	8"	JE2	11T	015	S1A	2"	JACKET	CONTRACTOR	NEW	VP-61FF1 & VP-61FF2	TIE-IN 11T02	150			
16	42"	EXS	10T	016	C1A	2"	JACKET	CONTRACTOR	NEW	TIE-IN 10T03	VEV-61B	150			
17	8"	EXS	10T	017	C1A	2"	JACKET	CONTRACTOR	NEW	42"-EXS-10T-016-C1A-2"	VHE-58P	150			
18	42"	VP1	10T	018	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B (VAPOR SEP.)	VEV-61C	150			
19	10"	VP1	10T	019	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	VHE-58Q	150			
20	48"	VP2	11T	020	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C (VAPOR SEP.)	TIE-IN 11T04	150			
21	14"	VP2	11T	021	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	VHE-58R	150			
22	8"	JE1	10T	022	S1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B (VAPOR SEP.)	VEV-61B	150			
23	8"	JE2	11T	023	S1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C (VAPOR SEP.)	VEV-61C	150			
24	6"	CD2	09T	024	C1A	2"	JACKET	CONTRACTOR	NEW	VHE-58R	VTK-16H1	150			
25	14"	JE1	11T	025	S1A	2"	JACKET	CONTRACTOR	NEW	14"-JE1-10T-011-S1A-2"	14"-JE2-11T-014-S1A-2"	150			
26	6"	CD1	09T	026	C1A	2"	JACKET	CONTRACTOR	NEW	VHE-58Q	VTK-58E	150			
27	4"	CD1	09T	027	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-58E	VTK-16H1	150			
28	6"	CDE	09T	028	C1A	2"	JACKET	CONTRACTOR	NEW	VHE-58P	VTK-58D	150			
29	4"	CDE	09T	029	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-58D	VTK-16H1	150			
30	10"	CDE	10T	030	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	VTK-16F1	150			
31	10"	CDE	10T	031	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	VTK-16F1	150			
32	12"	CDE	10T	032	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-16F1	VP-16AA1 & VP-16AA2	150			
33	8"	CDE	10T	033	C1A	2"	JACKET	CONTRACTOR	NEW	VP-16AA1 & VP-16AA2	TIE-IN 10T06	150			
34	3"	VP2	11T	034	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-16H1	14"-VP2-11T-021-C1A-2"	150			
35	10"	CD1	11T	035	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	VTK-16G1	150			
36	10"	CD1	11T	036	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	VTK-16G1	150			
37	12"	CD1	11T	037	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-16G1	VP-16BB1 & VP-16BB2	150			
38	8"	CD1	11T	038	C1A	2"	JACKET	CONTRACTOR	NEW	VP-16BB1 & VP-16BB2	TIE-IN 11T07	150			
39	10"	CD2	11T	039	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-16H1	VP-18E1 & VP-18E2	150			
40	8"	CD2	11T	040	C1A	2"	JACKET	CONTRACTOR	NEW	VP-18E1 & VP-18E2	TIE-IN 11T08	150			
41	20"	VP1	11T	041	C1A	2"	JACKET	CONTRACTOR	NEW	42"-VP1-10T-18-C1A-2"	TIE-IN 10T13	150			
42				042											ELIMINATED / NOT USED
43	2"	INC	09T	043	C1A	2"	JACKET	CONTRACTOR	NEW	6"-CD2-09T-024-C1A-2"	3"-INC-09T-044-C1A-2"	150			
44	3"	INC	09T	044	C1A	2"	JACKET	CONTRACTOR	NEW	2"-INC-09T-043-C1A-2"	Atmosphere	150			
45	2"	INC	09T	045	C1A	2"	JACKET	CONTRACTOR	NEW	6"-CD1-09T-026-C1A-2"	3"-INC-09T-044-C1A-2"	150			
46	2"	INC	09T	046	C1A	2"	JACKET	CONTRACTOR	NEW	6"-CDE-09T-028-C1A-2"	3"-INC-09T-044-C1A-2"	150			
47	1"	VP1	09T	047	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-58E	10"-VP1-10T-019-C1A-2"	150			
48	1"	EXS	09T	048	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-58D	8"-EXS-10T-017-C1A-2"	150			
49	3"	INC	10T	049	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	Atmosphere	150			
50	3"	INC	10T	050	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61B	3"-INC-10T-049-C1A-2"	150			

Item	Size	Fluid	PID	SEQ	Spec	Insul	Type	Insulated By	Status	Actual From	Actual To	Rating	Gasket	In-Service Date	Note
51	2"	EXS	10T	051	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-16F1	42"-EXS-10T-016-C1A-2"	150			
52	10"	LPC	10T	052	C1A	2"	JACKET	CONTRACTOR	NEW	TIE-IN 10T05	VEV-61B	150			Emergency Water to Evaporators
53	10"	LPC	10T	053	C1A	2"	JACKET	CONTRACTOR	NEW	10"-LPC-10T-052-C1A-2"	VEV-61C	150			Emergency Water to Evaporators
54	4"	WAW	10T	054	C1A	2"	JACKET	CONTRACTOR	NEW	10"-LPC-10T-052-C1A-2"	VEV-61B (VAPOR SEP.)	150			
55	4"	WAW	11T	055	C1A	2"	JACKET	CONTRACTOR	NEW	4"-LPC-10T-054-C1A-2"	VEV-61C (VAPOR SEP.)	150			
56	2"	VP1	11T	056	C1A	2"	JACKET	CONTRACTOR	NEW	VTK-16G1	42"-VP1-10T-018-C1A-2"	150			
57	3"	INC	11T	057	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	Atmosphere	150			
58	3"	INC	11T	058	C1A	2"	JACKET	CONTRACTOR	NEW	VEV-61C	3"-INC-11T-057-C1A-2"	150			
59	4"	LPC	11T	059	C1A	2"	JACKET	CONTRACTOR	NEW	4"-CDE-09T-029-C1A-2"	QUENCH TANK SUMP	150			
60	8"	CD1	11T	060	C1A	2"	JACKET	CONTRACTOR	NEW	8"-CD1-11T-038-C1A-2"	VPIT-61AA	150			
61	6"	WWA	10T	061	C1A	2"	JACKET	CONTRACTOR	NEW	VPIT-61AA	TIE-IN 10T14	150			
62	3"	PLA	09T	100	C1A	0"	N/A	N/A	NEW	TIE-IN 09T09	FIELD ROUTED	150			
63	2"	WAW	09T	101	C1A	0"	N/A	N/A	NEW	TIE-IN 09T10	FIELD ROUTED	150			Tempered Water, using Wash Water abbreviation
64	3"	FYR	09T	102	C1A	2"	JACKET	CONTRACTOR	NEW	TIE-IN 09T11	FIELD ROUTED	150			
65	2"	CTY	09T	103	S1A	2"	JACKET	CONTRACTOR	NEW	TIE-IN 09T12	FIELD ROUTED	150			Culinary Water, using City Water abbreviation

Piping Material Specification

Material:	A53 GrB ERW
Class:	150# RF
Service Limits	285 psig @ 100F
	200 psig @ 400F

SIZE	PIPE	FITTINGS
1/4" - 2"	Sch 40, ASTM A106 GrB, SMLS	3000# Socket-Weld Forged Carbon Steel, ASTM A105, ASME B16.11
2 1/2" - 24"	Std SCH, ASTM A53 GrB or API5L ERW	Butt-Weld Carbon Steel, Std Wt, ASTM A234, ASME B16.9
26" - 60"	Std SCH, ASTM A53 GrB or API5L ERW	Butt-Weld Carbon Steel, Std Wt, ASTM A234, ASME B16.9 or (min. 3 Weld) Mitred Bends

SIZE	BRANCHES	FLANGES
1/4" - 2"	Reducing Tee , 3000# Sockolet or 3000# Half Coupling	Forged Carbon Steel, ASTM A105, ASME B16.5, 150# RF, Socket-Weld
2 1/2" - 24"	Weldolet , ERW Butt-Weld Reducing Tee or Stub-In (with Repad if required)	Forged Carbon Steel, ASTM A105, ASME B16.5, 150# RF, Slip-On or Weldneck **3
26" - 60"	ERW Butt-Weld Reducing Tee or Stub-In (with Repad if required)	Forged Carbon Steel, ASTM A105, ASME B16.47 Series A, 150# RF, Weld Neck **3

SIZE	BOLTING	UNIONS
1/4" - 2"	A193 B7 Bolts, W/ASTM A194 2H Nuts	3000# Socket-Weld, A105 ANSI B16.11, W/SS Joint Seats
2 1/2" - 24"	A193 B7 Bolts, W/ASTM A194 2H Nuts	N/A
26" - 60"	A193 B7 Bolts, W/ASTM A194 2H Nuts	N/A

SIZE	GATE VALVE	GLOBE VALVE	CHECK VALVE	BALL VALVE	BUTTERFLY VALVE	KNIFE GATE
1/4" - 2 1/2"	142SW, 142S	242SW, 242S	342S, 342SW	610S, 612S, 613S, 630S, 632SW, 670S, 672SW	N/A	N/A
2 1/2" - 24"	140F, 140W	240F, 240W	320F, 340F	620F**7, 671F	707F / 708F / 709F **3	401F
26" - 60"	140F	N/A	N/A	N/A	707F / 708F **3	401F

SIZE	PLUG VALVE	IN LINE STRAINERS (PERMANENT)	TEMPORARY START UP STRAINERS	
1/2" - 2"	882F**8	991		
2 1/2" - 24"		Specialty Item	992	Mack Iron, Conical Wire Mesh, 150# RF, CS, Wafer Type, 20
26" - 60"		Specialty Item	994	Mack Iron, Perforated Basket, 150# RF, CS, Wafer Type, 20

GASKETS		PAINTING SPECIFICATION
F	1/8" Thk Spiral Wound Flexitalic, 316SS or 304SS Graphite Filled, CGI Style with inner ring	
B	1/8" Thk Synthetic Red Rubber, Garlock Style 22	
G	1/8" Thk Garlock Blue-gard Style 3000	
H	1/8" Thk Garlock Blue-gard Style 3200	
E	1/8" Thk Off-White Gylon, Garlock Style 3510	

SPECIAL EXECUTION **	REVISION UPDATE
**1: On Flat face flanges use full face gaskets.	Rev P: Added 140W valve
**2: Underground piping to be wrapped and coated with coal tar epoxy.	Rev Q: Remove 881F & 881S
**3: Weld Neck flanges required on all butterfly valves and fitting welds.	Rev R: Add 613S
**4. Screwed fittings are only as required.	Rev. S: Add 882F
**5. Caustic Service requires PWHT and seal-welding on all threaded connections.	Rev T: Modified Branch Table & 26"+ flanges and bolts revised
**6.	Rev U: Modified >24" flanges
**7. Use only for level transmitter isolation.	
**8. Use only for natural gas service.	
Note 1: All Welding, Testing and Inspections to be per ASME B31.3 (See Piping Line List for Specific Instructions)	

Corrosion Allowance = 1/8"	7/6/2022	Rev U	SPEC- C1A

PIPING SPECIFICATION - C1A
150# CARBON STEEL FLANGES

BRANCH CONNECTION TABLE

BRANCH SIZE	HEADER SIZE																				
	42	36	30	24	20	18	16	14	12	10	8	6	4	3	2.5	2	1.5	1	0.75	0.5
0.5	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	RS	RS	RS	TS
0.75	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	RS	RS	TS	
1	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	RS	TS		
1.5	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	TS			
2	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RW	RW	TS				
2.5	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T					
3	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	T						
4	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T							
6	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T								
8	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T									
10	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T										
12	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T											
14	SSI	SSI	SSI	SSI	RW	RW	RW	T												
16	SSI	SSI	SSI	SSI	RW	RW	T													
18	SSI	SSI	SSI	SSI	RW	T														
20	SSI	SSI	SSI	RW	T															
24	SSI	SSI	RW	T																
30	SSI	RW	T																	
36	RW	T																		
42	T																			

T = Tee (Butt Weld)
TS = Tee (Socket)
RW = Reducing Tee (Butt Weld)
RS = Reducing Tee (Socket)
TOL = Threadolet
SOL = Sockolet
WOL = Weldolet
RSI = Reinforced Stub-In
SSI = Simple Stub-In

Notes:
Threadolets may also be used in place of SOL if branch is an instrument connection or drain.
Reinforced Stub-In (RSI) will be required (in place of SSI) if the service conditions require reinforcement.

Piping Material Specification

Material:	A312-304L SS
Class:	150# RF
Service Limits	

SIZE	PIPE	FITTINGS
1/2" - 2"	Sch 40S, ASTM A312-304L SS, ERW	3000# Socket-Weld, ASTM A182F-304L SS, ANSI 16.11
2 1/2" - 24"	Sch 10S, ASTM A312-304L SS, ERW	ERW Sch 10S, Butt-Weld, ASTM A403-304L SS, ANSI 16.9

SIZE	BRANCHES	FLANGES
1/2" - 2"	Socket Weld Reducing Tee or Reducing Insert	ASTM A182F-304L SS, ANSI B16.5, 150# Raised Face, Socket-Weld
2 1/2" - 24"	Weldolet or ERW Butt-Weld Reducing Tee, or Stub In **3	MSS Type-A SCH10 304L Stub End w/ ASTM A182F-304L SS (or A105 FS) ANSI B16.5 150# Lap-Joint Flange or RFSO Flanges or RF Weld Neck Flanges

SIZE	BOLTING	UNIONS
1/2" - 2"	A193 B7 Bolts, W/ASTM A194 2H Nuts	3000# Socket-Weld, A182-304L SS, ANSI B16.11 W/SS Joint Seats
2 1/2" - 24"	or A193 B7 Bolts, W/ASTM A194 2H Nuts	N/A

SIZE	GATE VALVE	GLOBE VALVE	CHECK VALVE	BALL VALVE	BUTTERFLY VALVE	KNIFE GATE
1/2" - 2"	144SW	N/A	372SW, 372S	610S , 612S, 613S, 630S, 632SW, 670S, 672SW	N/A	N/A
2 1/2" - 24"	170F	N/A	320F, 370F	671F, 620F**5	707F / 708F / 709F	401F

SIZE	PLUG VALVE	IN LINE STRAINERS (PERMANENT)	TEMPORARY START UP STRAINERS	
1/2" - 2"	880F	989		
2 1/2" - 24"		Specialty Item	992	Mack Iron, Conical Wire Mesh, 150# RF, CS, Wafer Type, 20

GASKETS		PAINTING SPECIFICATION
E	1/8" Thk Off-White Gylon, Garlock Style 3510	
F	1/8" Thk Spiral Wound Flexitalic, 316SS or 304SS Graphite Filled, CGI Style with inner ring	
G	1/8" Thk Garlock Blue-gard Style 3000	

SPECIAL EXECUTION **	REVISION UPDATE
**1: On Flat face flanges use full face gaskets.	Rev J:Added 372S check valve
**2: Screwed fittings are only as required.	Rev K: Added 670S, 672SW
**3: Stub In connections may require a repad under higher pressure conditions.	Rev L: Add Gasket Type F
**4.	Rev M: Removed AFR from flanges
**5. Use only for 3" level transmitter isolation.	Rev N: Add 613S
	Rev O: Revised Branch Table
Note 1: All Welding, Testing and Inspections to be per ASME B31.3 (See Piping Line List for Specific Instructions)	Rev P: 144SW was 172SW

Corrosion Allowance = 0"	3/22/2022	Rev P	SPEC- S1A

PIPING SPECIFICATION - S1A
150# STAINLESS STEEL FLANGES

BRANCH CONNECTION TABLE

BRANCH SIZE \ HEADER SIZE	24	20	18	16	14	12	10	8	6	4	3	2.5	2	1.5	1	0.75	0.5
0.5	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	RS	RS	RS	TS
0.75	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	RS	RS	TS	
1	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	RS	TS		
1.5	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	RS	TS			
2	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	SOL	TS				
2.5	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T					
3	SSI	SSI	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	T						
4	SSI	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T							
6	SSI	SSI	SSI	SSI	SSI	RW	RW	RW	T								
8	SSI	SSI	SSI	SSI	RW	RW	RW	T									
10	SSI	SSI	SSI	RW	RW	RW	T										
12	SSI	SSI	RW	RW	RW	T											
14	SSI	SSI	RW	RW	T												
16	SSI	RW	RW	T													
18	RW	RW	T														
20	RW	T															
24	T																

T = Tee (Butt Weld)
TS = Tee (Socket)
RW = Reducing Tee (Butt Weld)
RS = Reducing Tee (Socket)
TOL = Threadolet
SOL = Sockolet
WOL = Weldolet
RSI = Reinforced Stub-In
SSI = Simple Stub-In

Notes:
Threadolets may also be used in place of SOL if branch is an instrument connection or drain.
Reinforced Stub-In (RSI) will be required (in place of SSI) if the service conditions require reinforcement.

SECTION 40 05 06
PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Expansion Joints (Flexible Connectors)

B. Hoses

C. Steam Traps

D. Roof Drains

E. Floor Drains

F. Hose Reels

G. Safety Equipment

H. Steam Unit Heaters

I. Site Flow Indicators

J. Rupture Discs

K. Instrument Air Line Tubing and Fittings

1.2 RELATED SECTIONS:

A. Section 40 05 01 - Pipe and Pipe Fittings

B. Section 01 25 00 – Substitutions

C. Section 01 33 23 - Shop Drawings, Product Data and Samples

1.3 REFERENCES:

A. ASME B31.9 – Building Services Piping

1.4 SUBMITTALS

A. Contractor to provide submittals for Contractor furnished equipment per Section 01 33 23 – Shop Drawings, Product Data and Samples.

1.5 DELIVERY, STORAGE, AND HANDLING:

A. Deliver, store, protect and handle products on site.

B. Receive items on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary caps and closures for piping specialties. Store until time of installation.

D. Protect piping and equipment from entry of foreign materials by temporary covers until completing sections of the work during installation.

PART 2 – PRODUCTS – All items shall be listed on the Piping Specialties list following this Section. The Piping Specialties list indicates the responsible party for the supply and the installation of each component.

2.1 Expansion Joints (Flexible Connectors)

A. All expansion joints shall be furnished by the Owner and Contractor installed.

B. Refer to mechanical drawings for installation details.

2.2 SS Braided Hoses

A. All SS braided hoses shall be Owner furnished and Contractor installed.

B. Hoses shall be rated for a minimum of 350°F at 150 psi.

2.3 Steam Traps:

A. All steam traps will be furnished by the Owner and Contractor installed.

B. All steam traps require line strainers furnished and installed by the Contractor. Strainers shall be Y-Type, Spirax Sarco CT-60 or approved equal.

C. Refer to mechanical drawings for details.

2.4 Roof Drains

A. Roof drains shall be supplied & installed by the Contractor.

B. Roof drains shall be Josam Model 21500 drains with 3” no hub connection.

C. Refer to architectural, structural, and mechanical drawings for installation details.

2.5 Floor Drains (Floor Sinks)

A. Floor drains shall be supplied & installed by the Contractor. Mechanical Contractor shall coordinate with the General Contractor to locate the position of the drains.

B. The floor drains shall be *MIFAB FS1920-FL-3-83-150* SS sanitary floor drains with 12” x 12” square top, 3” no hub outlet, full SS grate and frame and perforated stainless-steel sediment basket. Use ¾” grate (-175 suffix in place of -150) in heavy equipment (e.g., forklift, equipment carts etc.) traffic areas. Alternate drains by approval only.

C. Refer to mechanical and structural drawings for installation details.

2.6 Hose Reels:

A. Hose reel stations shall be supplied and installed by the Contractor.

B. Reelcraft Model# CA38112M Hand Crank Hose Reel with adjustable drag. 100’ ¾” hose capacity.

Specifications on reel, hose and fittings:
Capacity: 100’ 3/4" ID hose, 1000 psi
Hose: ¾” I.D ContiTech Gorilla 500 psi Air and Water Hose (Yellow) x 100 ft long
Spray Water Gun: Dixon BWSG Hot water spray gun
Swivel connector 1/2 inch npt x 3/4 inch GHT - Dixon BMA974
GH Fitting: Westward 4X072 ¾” npt to ¾” GH fitting

2.7 Safety Equipment

A. Combination Drench Shower/Eyewash Stations shall be supplied and installed by the Contractor. Model #S193140A1BAAA00 as manufactured by Bradley. The eye wash unit includes a plastic showerhead with 10” diameter yellow plastic shroud. Plastic eyewash bowl with eyewash head attached to a chrome plated brass yoke. 1” shower ball valve and ½” eyewash face/eye wash valve activated with stainless steel pull rod handle. The unit will be furnished with galvanized pipe fittings with a yellow polyurethane coating to resist corrosion. Bolted to floor with floor flange.

2.8 Steam Unit Heaters

A. Steam unit heaters shall be supplied and installed by the Contractor.

B. New York Blower Model B-120 corrosion resistant and hot dip galvanized coils.
Capacity: 172MBH at 150 psig steam
CFM: 1,950
Motor: 1/4HP, 115/230 VAC single phase. TEFC motor

C. Refer to mechanical drawings for installation details and placement.

2.9 Site Flow Indicators

A. All site flow indicators shall be furnished by the Owner and Contractor installed.

B. Refer to mechanical drawings for installation details.

2.10 Rupture Discs

A. All rupture discs shall be furnished by the Owner and Contractor installed.

B. Refer to mechanical drawings for details.

2.11 Air Line Fittings on automatic valves and devices requiring instrument air.

A. For all pneumatic automatic and control valves, use Parker brand plastic fittings to connect polyethylene tubing to brass valves and actuator bodies. At the ½ inch brass valve, use Parker male connector 4-8FBZ (NPT). For taps on the actuator, use male connector 4-4FBZ (NPTF).

B. For all pneumatic automatic and control valves, use Arrow Pneumatics filter (part number F300-02 FW) on each control air line to actuator.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install specialties in accordance with manufacturer's instructions.

B. Mechanical Contractor to install all piping specialties wherever shown on Mechanical P&ID, plan, or elevation drawings.

C. Mechanical Contractor shall provide and install all flanges, bolts, and gaskets.

D. Provide support and equipment required to control expansion and contraction of piping.

E. The Contractor shall field verify all dimensions prior to purchasing and fabrication of piping specialty items.

End of Section

PIPING SPECIALTIES LIST

								Client:	ASC
								Project:	Evaporator Project
								Location:	Twin Falls, ID
								Engineering Co:	VEi Global
A	6/23/2025	SC			ISSUE FOR BID			**VEi Project No.:**	E24140
No	**Date**	**Created By**	**Chkd By**	**Approved By**	**Revision**			**VEi Document No.:**	E24140 PIPING SPECIALTIES LIST

ITEM	PID	TAG	SIZE	DESCRIPTION	SUPPLIED BY	MANUFACTURER	MODEL #	STATUS	NOTES
1	5066-10T	EXP-01	18"	EXPANSION JOINT	ASC	PATHWAY		NEW	
2	5066-11T	EXP-02	18"	EXPANSION JOINT	ASC	PATHWAY		NEW	
3	5066-09T	-	6"	SITE GLASSES	ASC	JACOBY-TARBOX	910-FA	NEW	QTY of 3
4	-	-	-	FLOOR DRAINS - 2nd FLOOR	CONTRACTOR	MIFAB	FS1920-FL-3-83-150 SS	NEW	QTY of 6 Ref. Drawings SEE SPEC 40 05 06
5	-	-	-	ROOF DRAINS	CONTRACTOR	JOSAM	21503-22	NEW	QTY of 12 Ref. Drawings SEE SPEC 40 05 06

SECTION 40 05 07
SUPPORTS, ANCHORS AND SEALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Pipe and equipment hangers and support specifications.

B. Equipment bases and supports.

C. Piping sleeves and seals for floors, walls and roofs.

D. Flashing and sealing equipment and pipe stacks.

1.2 WORK INCLUDED IN THIS SECTION

A. Placement of sleeves in concrete formwork.

B. Placement of wall sleeves.

C. Sealing of pipe penetrations through concrete.

1.3 RELATED SECTIONS

A. Section 40 05 01 - Pipe and Pipe Fittings.

1.4 REFERENCES

A. ASME B31.9 - Building Services Piping.

B. ASME B31.1 - Power Piping.

PART 2 - PRODUCTS

2.1 PIPE HANGERS AND SUPPORTS

A. All clevis supports and clamps shall be galvanized.

B. Refer to mechanical detail drawings for specific pipe support details.

C. All welded attachments to structural steel, including welded attachments for pipe supports, shall be professionally primed and painted to match structural steel. Cover all welding burn areas of steel.

2.2 FLASHING

A. Metal Flashing: 26 gage (0.5 mm) thick galvanized steel.

B. Metal Counterflashing: 22 gage (0.8 mm) thick galvanized steel.

2.3 SLEEVES

A. Sleeves for all piping, ductwork, and chutes through concrete floors: 1/4 inch thick, stainless steel, 4 inch high above finished floor, flush with bottom of concrete, anchor studs embedded in concrete, grouted and sealed at concrete to sleeve interface. Piping insulation and jacket shall be continuous.

B. Sleeves for pipes through walls: 18 gage (1.2 mm) thick galvanized steel.

C. Sleeves for pipes through existing brick walls shall require saw cutting the brick walls and installing a bent plate frame. See Mechanical Drawings for details.

PART 3 - EXECUTION

3.1 INSTALLATION

A. All interior pipe sleeves shall be large enough in diameter to provide at least two (2) inch of clearance around pipe insulation jacket.

B. All exterior pipe sleeves shall be large enough for insulation to penetrate and then seal weathertight.

3.2 INSERTS

A. Provide inserts/anchor studs for placement in concrete formwork.

B. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.

3.3 PIPE HANGERS AND SUPPORTS

A. The Contractor shall provide and install all outdoor pipe supports as indicated on the drawings. The Steel Erection Contractor shall verify all rack elevations with the Mechanical Contractor prior to installation. It is the Steel Erection Contractor's responsibility to ensure all pipe racks are installed at the height required for piping installed by the Mechanical Contractor. The pipe support details are shown on the drawings. The Mechanical Contractor shall furnish and install tee supports on insulated piping as shown on the drawings.

B. The Mechanical Contractor shall provide and install all pipe supports and hangers necessary for the support of interior piping and additional support required for exterior piping that is not installed by the Steel Erection Contractor. The Mechanical Contractor shall install pipe shoes where possible on piping larger than 3" diameter and supported by the nearest new and existing steel at spans no greater than listed below. Use clevis hangers as necessary to support pipe when direct structural support from steel is not possible. If necessary, the Mechanical Contractor shall support piping

from the floor or columns with galvanized steel angle iron at spans no greater than listed below. If supporting from the floor, the Mechanical Contractor shall supply footpads and grout (1" minimum).

Maximum Spans for Support of Piping

½"	6 feet
1'	7 feet
1-1/2"	9 feet
2"	10 feet
3"	12 feet
4"	14 feet
6"	17 feet
8"	19 feet
10"	22 feet
12"	23 feet
14"	25 feet
16"	27 feet
18"	28 feet
20"	30 feet
24"	32 feet

C. The Mechanical Contractor shall furnish and install the following clevis hangers.

1. Clevis hangers shall be PHD Clevis Hanger, Fig. 454, hot dipped, galvanized with electro-galvanized hardware.

2. Galvanized threaded rod for hangers. Rods shall be the size specified by clevis manufacturer and shall be double nut fastened to clevis.

3. The Contractor shall be responsible for drilling all support brackets, structural steel, etc. for installation of threaded rod and clevis hangers.

4. Use hangers with 1½ inch minimum vertical adjustment.

5. See Mechanical Drawing details for proper pipe clevis hanger installation.

D. Support vertical piping at every floor.

E. The Mechanical Contractor shall supply and install the following insulation protection saddles.

1. Insulation protection saddles shall be PHD Manufacturing Pipe Saddle Fig. 651 (1 inch insulation), Fig. 653 (1½ inch insulation), and Fig. 654 (2 inch insulation) or approved equal. The saddles shall be hot dipped galvanized.

2. The Contractor shall weld the saddles to all insulated pipe at all supports or clevis hangers. The Piping Line List indicates the pipes to be insulated and insulation thickness.

3.4 FLASHING

A. MECHANICAL WALL SLEEVES

1. The Mechanical Contractor shall be responsible for providing wall openings for new piping penetrations through existing walls, sheet metal and concrete. The Mechanical Contractor shall provide and install flexible flashing and metal counterflashing around opening where piping penetrates walls and caulk weathertight.

2. The General Contractor shall be responsible for providing wall openings for new and existing piping wall penetrations through new walls, sheet metal and concrete. The General Contractor shall provide and install flexible flashing and metal counterflashing around opening where piping penetrates wall and caulk weathertight.

B. ELECTRICAL WALL SLEEVES

1. The Electrical Contractor shall be responsible for providing wall openings for new conduit penetrations through existing walls, sheet metal and concrete. The Electrical Contractor shall provide and install flexible flashing and metal counterflashing around opening where conduit penetrates walls and caulk weathertight.

2. The General Contractor shall be responsible for providing all wall openings for new and existing conduit wall penetrations through new walls, sheet metal and concrete. The General Contractor shall provide and install flexible flashing and metal counterflashing around opening where conduit penetrates wall and caulk weathertight.

3.5 CONCRETE SLEEVES

A. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.

B. All structural floor sleeves shall be ¼ inch 304L stainless steel and shall extend four (4) inches above the finished floor.

C. MECHANICAL FLOOR SLEEVES

1. The Mechanical Contractor shall be responsible for furnishing all structural floor sleeves for new and existing piping penetrations. The General Contractor shall be responsible for installing and caulking watertight all structural floor sleeves for new and existing piping penetrations for new concrete areas. The General Contractor shall coordinate the floor sleeve locations with the Mechanical Contractor. The Mechanical Contractor shall provide the opening, install, grout and caulk watertight all structural floor sleeves for all pipe penetrations through existing concrete floors.

2. The General Contractor shall be responsible for providing the opening, furnishing, installing, grouting and caulking watertight all structural floor sleeves for new and existing chute and hopper penetrations in new and existing concrete floors.

D. MECHANICAL WALL SLEEVES

1. The Mechanical Contractor shall be responsible for furnishing all structural wall sleeves for new and existing piping penetrations. The General Contractor shall be responsible for installing all structural wall sleeves for new and existing piping penetrations for new concrete and masonry wall areas. The General Contractor shall coordinate the wall sleeve locations with the Mechanical Contractor. The Mechanical Contractor shall provide the opening, install, grout and caulk watertight all structural wall sleeves for all pipe penetrations through existing concrete and masonry walls.

2. Pipe Penetrations through concrete requiring watertight sealing shall be a combination of “SikaSwell S” polyurethane waterstop and “Speed Plug” quick setting hydraulic cement or equal.

3. Pipe Penetrations through concrete requiring flexible weatherproof sealing shall use “Sikaflex-15LM” high performance elastomeric sealant or equal.

E. ELECTRICAL FLOOR SLEEVES

1. The Electrical Contractor shall be responsible for furnishing all structural floor sleeves for new and existing conduit penetrations. The General Contractor shall be responsible for installing and caulking watertight all structural floor sleeves for new and existing conduit penetrations for new concrete areas. The General Contractor shall coordinate the wall sleeve locations with the Electrical Contractor. The Electrical Contractor shall provide the opening, install, grout and caulk watertight all structural floor sleeves for all conduit penetrations through existing concrete floors.

F. ELECTRICAL WALL SLEEVES

1. The Electrical Contractor shall be responsible for furnishing all structural wall sleeves for new and existing conduit penetrations. The General Contractor shall be responsible for installing all structural wall sleeves for new and existing conduit penetrations for new concrete and masonry wall areas. The General Contractor shall coordinate the wall sleeve locations with the Electrical Contractor. The Electrical Contractor shall provide the opening, install, grout and caulk watertight all structural wall sleeves for all conduit penetrations through existing concrete and masonry walls .

End of Section

SECTION 40 05 00
VALVES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Manually actuated valves.

B. Control/actuated valves.

C. Check valves.

1.2 RELATED SECTIONS

A. Section 40 05 01 – Pipe and Pipe Fittings

B. Section 40 42 00 – Mechanical Insulation

1.3 RECEIVING, STORAGE, AND HANDLING

A. Receive, store, protect and handle products on site.

B. Receive valves on site in shipping containers with labeling in place. Inspect for damage.

C. Provide temporary protective coating on cast iron and steel valves.

D. Protect valves from entry of foreign materials by using temporary covers.

PART 2 - PRODUCTS:

2.1 Valve List to follow this Section. All valves are Owner furnished unless noted otherwise.

2.2 ANTI-SEIZE

A. Apply Permatex brand Anti-Seize Industrial 80208 to all gaskets prior to bolt up and to all flange bolt threads.

PART 3 - EXECUTION:

3.1 PREPARATION

A. Remove scale and dirt on inside and outside before installation.

3.2 INSTALLATION

A. Install in accordance with the Manufacturer's instructions.

B. The Mechanical Contractor is responsible for installation of all valves shown on Mechanical Drawings and to provide and install all flanges, bolts and gaskets.

C. Provide clearance for installation of insulation and access to valves and fittings.

D. Install valves with stems vertically up or horizontal, not inverted.

E. Valves indicated on the valve list as having chain wheels shall be installed in the orientation required for the chain wheel to be operated by chain from below. Chain wheels and chain shall be mounted on the valve and chain shall be cut to length to hang down to a height of 48" above the floor.

F. The Mechanical Contractor shall connect instrument air to pneumatic operators and install all tubing and necessary fittings for valve actuators.

G. The Electrical Contractor shall connect conduit and wiring and terminate all electronic and/or electrically driven operators.

End of Section

CONTROL VALVE LIST

Amalgamated Sugar

No	Date	Created By	Chkd By	Approved By	Revision
A	2025.06.23	SC			ISSUE FOR BID

Client: ASC
Project: Evaporator Project
Location: Twin Falls, ID
Engineering Co: VEi Global
VEi Project No.: E24140
VEi Document Name: E24140 CONTROL VALVE LIST

ITEM NO.	VALVE NO.	P&ID NO.	LINE NO.	VALVE SPEC	VALVE STATUS	DESCRIPTION AND CONN TYPE	SIZE (IN)	FLUID SERVICE	VALVE MANUF.	VALVE MODEL#	ACTUATOR TYPE	CONTROL TYPE	ACTUATOR MANUF.	ACTUATOR MODEL#	FAIL POS.	LIMIT SWITCHES	LOCKABLE	NOTES
1	AVP109T01	5066-09T	10"-VP1-10T-019-C1A-2"	708F	NEW	VALVE, BUTTERFLY, LUGGED	10"	1ST VAPOR			PNEUMATIC	DISCRETE						
2	AVP209T01	5066-09T	14"-VP2-11T-021-C1A-2"	708F	NEW	VALVE, BUTTERFLY, LUGGED	14"	2ND VAPOR			PNEUMATIC	DISCRETE						
3	CEXS09T01	5066-09T	6"-EXS-10T-017-C1A-2"	240F	NEW	VALVE, GLOBE, FLG	6"	EXHAUST STEAM	MASONEILAN	CAMFLEX II ROTARY	PNEUMATIC	ANALOG			CLOSED	YES		
4	CEXS10T01	5066-10T	36"-EXS-10T-016-C1A-2"	708F	NEW	VALVE, BUTTERFLY, LUGGED	36"	EXHAUST STEAM	ADAMS	MAK SERIES TRIPLE OFFSET	PNEUMATIC	ANALOG	Rotork	GP-085C-435A/C7	CLOSED	YES		
5	CJE111T01	5066-11T	12"-JE1-10T-011-S1A-2"	690F	NEW	VALVE, BALL, SEG. V, FLG	12"	JUICE FROM 1ST EFFECT			PNEUMATIC	ANALOG						
6	CLPC10T01	5066-10T	10"-LPC-10T-052-C1A-2"	708F	NEW	VALVE, BUTTERFLY, LUGGED	10"	EMERGENCY WATER			PNEUMATIC	ANALOG						
7	CLPC11T01	5066-11T	10"-LPC-10T-053-C1A-2"	708F	NEW	VALVE, BUTTERFLY, LUGGED	10"	EMERGENCY WATER			PNEUMATIC	ANALOG						
8	CCD111T02	5066-11T	2"-CD1-09T-027-C1A-2"	690F	NEW	VALVE, GLOBE, FLG	2"	1ST VAPOR CONDENSATE	SULLIVAN PROCESS CONTROLS		PNEUMATIC	ANALOG			CLOSED			
9	CCD211T18	5066-11T	8"-CD2-11T-040-C1A-2"	690F	NEW	VALVE, BALL, SEG. V, FLG	8"	2ND VAPOR CONDENSATE			PNEUMATIC	ANALOG						
10	CCDE11T02	5066-11T	2"-CDE-09T-029-C1A-2"	690F	NEW	VALVE, GLOBE, FLG	2"	EXHAUST STEAM CONDENSATE	SULLIVAN PROCESS CONTROLS		PNEUMATIC	ANALOG			CLOSED			
11	AWAW10T03	5066-10T	2"-WAW-10T-054-C1A-2"	671F	NEW	VALVE, BALL, FLG	2"	WASH WATER			PNEUMATIC	DISCRETE				?	?	
12	AWAW10T06	5066-10T	2"-WAW-10T-054-C1A-2"	671F	NEW	VALVE, BALL, FLG	2"	WASH WATER			PNEUMATIC	DISCRETE				?	?	
13	AWAW11T03	5066-11T	2"-WAW-11T-055-C1A-2"	671F	NEW	VALVE, BALL, FLG	2"	WASH WATER			PNEUMATIC	DISCRETE				?	?	
14	AWAW11T06	5066-11T	2"-WAW-11T-055-C1A-2"	671F	NEW	VALVE, BALL, FLG	2"	WASH WATER			PNEUMATIC	DISCRETE				?	?	
15	SRV10T001	5066-09T	42"-EXS-10T-016-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
16	SRV10T002	5066-09T	42"-EXS-10T-016-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
17	SRV10T003	5066-09T	42"-EXS-10T-016-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
18	SRV10T004	5066-09T	42"-EXS-10T-016-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
19	SRV10T005	5066-09T	42"-EXS-10T-016-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
20	SRV10T006	5066-09T	42"-EXS-10T-016-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
21	SRV10T007	5066-09T	42"-VP1-10T-018-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
22	SRV10T008	5066-09T	42"-VP1-10T-018-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
23	SRV10T009	5066-09T	42"-VP1-10T-018-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
24	SRV10T010	5066-09T	42"-VP1-10T-018-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
25	SRV10T011	5066-09T	42"-VP1-10T-018-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
26	SRV10T012	5066-09T	42"-VP1-10T-018-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
27	SRV11T013	5066-10T	48"-VP2-11T-020-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
28	SRV11T014	5066-10T	48"-VP2-11T-020-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
29	SRV11T015	5066-10T	48"-VP2-11T-020-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
30	SRV11T016	5066-10T	48"-VP2-11T-020-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
31	SRV11T017	5066-10T	48"-VP2-11T-020-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						
32	SRV11T018	5066-10T	48"-VP2-11T-020-C1A-2"	SRV	NEW	SAFETY RELIEF VALVE, FLANGED	6"x8"	EXHAUST STEAM	KUNKLE	6252KRP01-LS SET@45	SPRING	SRV						

MANUAL VALVE LIST

Amalgamated Sugar

No	Date	By	Chkd By	Approved By	Revision
0	05.20.2025	SC			ISSUE FOR BID

Client: ASC
Project: Evaporator Project
Location: Twin Falls, ID
Engineering Co: VEi Global
VEi Project No.: E24140
VEi Document No.: E24140 MANUAL VALVE LIST

ITEM NO.	VALVE NO.	P&ID NO.	LINE NO.	VEi SPEC	TASCO SPEC	VALVE STATUS	DESCRIPTION AND CONN TYPE	SIZE (IN)	FLUID SERVICE	VALVE MANUF.	VALVE MODEL#	ACTUATOR TYPE	CHAIN WHEEL (Y/N)	CHAIN LENGTH (FT)	LOCKABLE (Y/N)	NOTES
1	HCD109T01	09T	6"-CD1-09T-026-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
2	HCD109T02	09T	6"-CD1-09T-026-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
3	HCD109T03	09T	4"-CD1-09T-027-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
4	HCD109T05	09T	6"-CD1-09T-026-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
5	HCD109T06	09T	6"-CD1-09T-026-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
6	HCD109T07	09T	6"-CD1-09T-026-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
7	HCD109T08	09T	6"-CD1-09T-026-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
8	HCD109T09	09T	6"-CD1-09T-026-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
9	HCD209T01	09T	6"-CD2-09T-024-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
10	HCD209T02	09T	6"-CD2-09T-024-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	2ND VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
11	HCDE09T01	09T	6"-CDE-09T-028-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
12	HCDE09T02	09T	6"-CDE-09T-028-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	EXHAUST CONDENSATE	APOLLO	SERIES 215	LEVER				
13	HCDE09T03	09T	4"-CDE-09T-029-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
14	HCDE09T05	09T	6"-CDE-09T-028-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
15	HCDE09T06	09T	6"-CDE-09T-028-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
16	HCDE09T07	09T	6"-CDE-09T-028-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
17	HCDE09T08	09T	6"-CDE-09T-028-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
18	HCDE09T09	09T	6"-CDE-09T-028-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
19	HEXS09T01	09T	8"-EXS-10T-017-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST STEAM	VELAN	VEE-2000	LEVER				
20	HEXS09T02	09T	1"-EXS-09T-048-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	EXHAUST STEAM	VELAN	VEE-2000	LEVER				
21	HEXS09T03	09T	8"-EXS-10T-017-C1A-2"	708F	BU-04	NEW	BUTTERFLY VALVE, FLANGED	8"	EXHAUST STEAM	APOLLO	TRI LOK TRIPLE OFFSET	GEAR	Y	8		
22	HINC09T01	09T	2"-INC-09T-043-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
23	HINC09T02	09T	3"-INC-09T-044-C1A-0"	708F	BU-04	NEW	BUTTERFLY VALVE, FLANGED	3"	INCONDENSABLE GAS	APOLLO	TRI LOK TRIPLE OFFSET	GEAR				
24	HINC09T03	09T	3"-INC-09T-044-C1A-0"	708F	BU-04	NEW	BUTTERFLY VALVE, FLANGED	3"	INCONDENSABLE GAS	APOLLO	TRI LOK TRIPLE OFFSET	GEAR				
25	HINC09T04	09T	2"-INC-09T-045-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
26	HINC09T05	09T	2"-INC-09T-046-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
27	HTJS09T01	09T	12"-TJS-09T-002-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR				
28	HTJS09T02	09T	12"-TJS-09T-001-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR				
29	HTJS09T03	09T	12"-TJS-09T-003-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR	Y	5		
30	HTJS09T04	09T	12"-TJS-09T-004-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR				
31	HTJS09T05	09T	12"-TJS-09T-001-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR				
32	HTJS09T06	09T	12"-TJS-09T-005-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR	Y	5		
33	HTJS09T07	09T	12"-TJS-09T-006-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR				
34	HTJS09T08	09T	12"-TJS-09T-001-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR	Y	5		
35	HTJS09T09	09T	12"-TJS-09T-007-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR	Y	5		
36	HTJS09T10	09T	12"-TJS-09T-002-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
37	HTJS09T11	09T	12"-TJS-09T-002-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
38	HTJS09T12	09T	12"-TJS-09T-003-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
39	HTJS09T13	09T	12"-TJS-09T-003-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
40	HTJS09T14	09T	12"-TJS-09T-004-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
41	HTJS09T15	09T	12"-TJS-09T-004-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
42	HTJS09T16	09T	12"-TJS-09T-005-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
43	HTJS09T17	09T	12"-TJS-09T-005-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
44	HTJS09T18	09T	12"-TJS-09T-006-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
45	HTJS09T19	09T	12"-TJS-09T-006-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
46	HTJS09T20	09T	12"-TJS-09T-007-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
47	HTJS09T21	09T	12"-TJS-09T-007-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
48	HTJS09T22	09T	12"-TJS-09T-002-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
49	HTJS09T23	09T	12"-TJS-09T-003-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
50	HTJS09T24	09T	12"-TJS-09T-004-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
51	HTJS09T25	09T	12"-TJS-09T-005-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
52	HTJS09T26	09T	12"-TJS-09T-006-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
53	HTJS09T27	09T	12"-TJS-09T-007-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
54	HVP109T01	09T	10"-VP1-10T-019-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR	VELAN	VEE-2000	LEVER				
55	HVP109T02	09T	1"-VP1-09T-047-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	1ST VAPOR	VELAN	VEE-2000	LEVER				
56	HVP109T03	09T	10"-VP1-10T-019-C1A-2"	708F	BU-04	NEW	BUTTERFLY VALVE, FLANGED	10"	1ST VAPOR	APOLLO	TRI LOK TRIPLE OFFSET	GEAR	Y	6		
57	HVP209T01	09T	14"-VP2-11T-021-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR	VELAN	VEE-2000	LEVER				
58	HVP209T02	09T	14"-VP2-11T-021-C1A-2"	708F	BU-04	NEW	BUTTERFLY VALVE, FLANGED	14"	2ND VAPOR	APOLLO	TRI LOK TRIPLE OFFSET	GEAR	Y	10		
59	HCDE10T01	10T	12"-CDE-10T-032-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	EXHAUST CONDENSATE	APOLLO	SERIES 215	GEAR				
60	HCDE10T02	10T	12"-CDE-10T-032-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
61	HCDE10T03	10T	12"-CDE-10T-032-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	EXHAUST CONDENSATE	APOLLO	SERIES 215	GEAR				
62	HCDE10T04	10T	12"-CDE-10T-032-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				

ITEM NO.	VALVE NO.	P&ID NO.	LINE NO.	VEI SPEC	TASCO SPEC	VALVE STATUS	DESCRIPTION AND CONN TYPE	SIZE (IN)	FLUID SERVICE	VALVE MANUF.	VALVE MODEL#	ACTUATOR TYPE	CHAIN WHEEL (Y/N)	CHAIN LENGTH (FT)	LOCKABLE (Y/N)	NOTES
63	HCDE10T05	10T	8"-CDE-10T-033-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
64	HCDE10T06	10T	8"-CDE-10T-033-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
65	HCDE10T07	10T	8"-CDE-10T-033-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	EXHAUST CONDENSATE	APOLLO	SERIES 215	GEAR	Y	7		
66	HCDE10T08	10T	8"-CDE-10T-033-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
67	HCDE10T09	10T	8"-CDE-10T-033-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
68	HCDE10T10	10T	8"-CDE-10T-033-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	EXHAUST CONDENSATE	APOLLO	SERIES 215	GEAR	Y	7		
69	HCDE10T11	10T	8"-CDE-10T-033-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	EXHAUST CONDENSATE	APOLLO	SERIES 215	GEAR	Y	12		
70	HCDE10T12	10T	8"-CDE-10T-033-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	EXHAUST CONDENSATE	APOLLO	SERIES 215	GEAR	Y	12		
71	HCDE10T13	10T	VEV-61B	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
72	HCDE10T14	10T	VEV-61B	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
73	HCDE10T15	10T	3/4"-CDE-10T-031-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
74	HCDE10T16	10T	3/4"-CDE-10T-031-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
75	HCDE10T17	10T	3/4"-CDE-10T-031-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
76	HCDE10T18	10T	3/4"-CDE-10T-031-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
77	HCDE10T19	10T	3/4"-CDE-10T-031-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST CONDENSATE	VELAN	VEE-2000	LEVER				
78	KCDE10T01	10T	8"-CDE-10T-033-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	8"	EXHAUST CONDENSATE	MUELLER	SURE CHECK 72H					
79	KCDE10T02	10T	8"-CDE-10T-033-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	8"	EXHAUST CONDENSATE	MUELLER	SURE CHECK 72H					
80	HCTY10T01	10T	1"-CTY-09T-103-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	CITY WATER	VELAN	VEE-2000	LEVER				
81	HEXS10T01	10T	42"-EXS-10T-016-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	EXHAUST STEAM	VELAN	TE-150 MEMORY SEAL	LEVER				
82	HEXS10T02	10T	42"-EXS-10T-016-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	EXHAUST STEAM	VELAN	VEE-2000	LEVER				
83	HEXS10T04	10T	2"-EXS-10T-051-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	EXHAUST STEAM	VELAN	VEE-2000	LEVER				
84	HFMO10T01	10T	1"-FMO-10T-105-S1C-0"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	FOAM OIL	VELAN	VEE-2000	LEVER				
85	HFMO10T02	10T	1"-FMO-10T-105-S1C-0"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	FOAM OIL	VELAN	VEE-2000	LEVER				
86	HFMO10T03	10T	1/2"-FMO-10T-105-S1C-0"	610S	BA-01	NEW	BALL VALVE, THREADED	1/2"	FOAM OIL	VELAN	VEE-2000	LEVER				
87	HINC10T01	10T	3"-INC-10T-049-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	3"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
88	HINC10T02	10T	2"-INC-10T-049-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
89	HINC10T03	10T	3"-INC-10T-050-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	3"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
90	HINC10T04	10T	3"-INC-10T-050-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
91	HJE110T27	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
92	HJE110T01	10T	18"-JE1-10T-009-S1A-2"	620F		NEW	INST ISOLATION, FLANGED	3"	JUICE FROM 1ST EFFECT EVAP	PBM	TIH-E5L-A	LEVER				
93	HJE110T02	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
94	HJE110T03	10T	18"-JE1-10T-009-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	18"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR				
95	HJE110T04	10T	18"-JE1-10T-009-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	18"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR				
96	HJE110T05	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
97	HJE110T06	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
98	HJE110T07	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
99	HJE110T08	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
100	HJE110T09	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
101	HJE110T10	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
102	HJE110T11	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
103	HJE110T12	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
104	HJE110T13	10T	16"-JE1-10T-010-S1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	1"	JUICE FROM 1ST EFFECT EVAP	VELAN	TE-150 MEMORY SEAL	LEVER				
105	HJE110T14	10T	16"-JE1-10T-010-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
106	HJE110T15	10T	16"-JE1-10T-010-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	12		
107	HJE110T16	10T	16"-JE1-10T-010-S1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	1"	JUICE FROM 1ST EFFECT EVAP	VELAN	TE-150 MEMORY SEAL	LEVER				
108	HJE110T17	10T	16"-JE1-10T-010-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
109	HJE110T18	10T	16"-JE1-10T-010-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	12		
110	HJE110T19	10T	16"-JE1-10T-010-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	16"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	5		
111	HJE110T20	10T	14"-JE1-10T-011-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
112	HJE110T21	10T	14"-JE1-10T-011-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	10		
113	HJE110T22	10T	VEV-61B	620F		NEW	INST ISOLATION, FLANGED	3"	JUICE FROM 1ST EFFECT EVAP	PBM	TIH-E5L-A	LEVER				
114	HJE110T23	10T	VEV-61B	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
115	HJE110T24	10T	VEV-61B	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
116	HJE110T25	10T	18"-JE1-10T-009-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
117	HJE110T26	10T	8"-JE1-10T-022-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR				
118	KJE110T01	10T	16"-JE1-10T-010-S1A-2"	320F		NEW	CHECK VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	MUELLER	SURE CHECK 72H					
119	KJE110T02	10T	16"-JE1-10T-010-S1A-2"	320F		NEW	CHECK VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	MUELLER	SURE CHECK 72H					
120	HLPC10T01	10T	10"-LPC-10T-053-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	GEAR				
121	HLPC10T02	10T	10"-LPC-10T-053-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	GEAR				
122	HLPC10T03	10T	10"-LPC-10T-053-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	LOW PRESSURE CONDENSATE	VELAN	VEE-2000	LEVER				
123	HLPC10T04	10T	10"-LPC-10T-053-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	GEAR				
124	HLPC10T05	10T	10"-LPC-10T-052-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1-1/2"	LOW PRESSURE CONDENSATE	VELAN	VEE-2000	LEVER				
125	KLPC10T01	10T	10"-LPC-10T-053-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	MUELLER	SURE CHECK 72H					
126	HTJS10T01	10T	12"-TJS-09T-001-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR				
127	HTJS10T02	10T	12"-TJS-10T-008-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR	Y	12		
128	HTJS10T03	10T	12"-TJS-10T-008-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	THIN JUICE (SOFT)	VELAN	VEE-2000	LEVER				
129	HTJS10T04	10T	12"-TJS-10T-008-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	THIN JUICE (SOFT)	APOLLO	SERIES 215	GEAR	Y	10		
130	HVP110T02	10T	20"-VP1-10T-041-C1A-2"	708F	BU-04	NEW	BUTTERFLY VALVE, FLANGED	20"	1ST VAPOR	APOLLO	TRI LOK TRIPLE OFFSET	GEAR				
131	HVP110T03	10T	VEV-61B	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR	VELAN	VEE-2000	LEVER				
132	HVP110T04	10T	VEV-61B	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR	VELAN	VEE-2000	LEVER				
133	HWAW10T01	10T	4"-WAW-10T-054-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	WASH WATER	APOLLO	SERIES 215	LEVER				
134	HWAW10T02	10T	4"-WAW-10T-054-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
135	HWAW10T04	10T	4"-WAW-10T-054-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
136	HWAW10T05	10T	4"-WAW-10T-054-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
137	HWAW10T07	10T	4"-WAW-10T-054-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
138	HWWA10T01	10T	6"-WWA-10T-061-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	WASTE WATER	APOLLO	SERIES 215	LEVER				
139	HWWA10T02	10T	6"-WWA-10T-061-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	WASTE WATER	APOLLO	SERIES 215	LEVER				
140	KWWA10T01	10T	6"-WWA-10T-061-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	6"	WASTE WATER	MUELLER	SURE CHECK 72H					
141	KWWA10T02	10T	6"-WWA-10T-061-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	6"	WASTE WATER	MUELLER	SURE CHECK 72H					
142	HCD111T01	11T	4"-CD1-09T-027-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
143	HCD111T03	11T	4"-CD1-09T-027-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	1ST VAPOR CONDENSATE	VELAN	TE-150 MEMORY SEAL	LEVER				
144	HCD111T04	11T	12"-CD1-11T-037-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	GEAR				
145	HCD111T05	11T	12"-CD1-11T-037-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
146	HCD111T06	11T	12"-CD1-11T-037-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	GEAR				

ITEM NO.	VALVE NO.	P&ID NO.	LINE NO.	VEI SPEC	TASCO SPEC	VALVE STATUS	DESCRIPTION AND CONN TYPE	SIZE (IN)	FLUID SERVICE	VALVE MANUF.	VALVE MODEL#	ACTUATOR TYPE	CHAIN WHEEL (Y/N)	CHAIN LENGTH (FT)	LOCKABLE (Y/N)	NOTES
147	HCD111T07	11T	12"-CD1-11T-037-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
148	HCD111T08	11T	8"-CD1-11T-038-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
149	HCD111T09	11T	8"-CD1-11T-038-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
150	HCD111T10	11T	8"-CD1-11T-038-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	GEAR	Y	9		
151	HCD111T11	11T	8"-CD1-11T-038-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
152	HCD111T12	11T	8"-CD1-11T-038-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
153	HCD111T13	11T	8"-CD1-11T-038-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	GEAR	Y	9		
154	HCD111T14	11T	8"-CD1-11T-038-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	GEAR				
155	HCD111T16	11T	VEV-61C	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
156	HCD111T17	11T	VEV-61C	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
157	HCD111T18	11T	SUGAR MONITORING EQUIP	610S	BA-01	NEW	BALL VALVE, THREADED	3/8"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
158	HCD111T19	11T	8"-CD1-11T-060-S1C-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	1ST VAPOR CONDENSATE	APOLLO	SERIES 215	GEAR				
159	HCD111T20	11T	3/4"-CD1-11T-036-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
160	HCD111T21	11T	3/4"-CD1-11T-036-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
161	HCD111T22	11T	3/4"-CD1-11T-036-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
162	HCD111T23	11T	VTK-16G1	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
163	HCD111T24	11T	3/4"-CD1-11T-036-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
164	KCD111T01	11T	8"-CD1-11T-038-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	8"	1ST VAPOR CONDENSATE	MUELLER	SURE CHECK 72H					
165	KCD111T02	11T	8"-CD1-11T-038-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	8"	1ST VAPOR CONDENSATE	MUELLER	SURE CHECK 72H					
166	HCD211T01	11T	6"-CD2-09T-024-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	2ND VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
167	HCD211T02	11T	6"-CD2-11T-039-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	2ND VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
168	HCD211T03	11T	6"-CD2-11T-039-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
169	HCD211T04	11T	4"-CD2-11T-040-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
170	HCD211T05	11T	4"-CD2-11T-040-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
171	HCD211T06	11T	4"-CD2-11T-040-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	2ND VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
172	HCD211T07	11T	6"-CD2-11T-039-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	6"	2ND VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
173	HCD211T08	11T	6"-CD2-11T-039-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
174	HCD211T09	11T	4"-CD2-11T-040-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
175	HCD211T10	11T	4"-CD2-11T-040-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
176	HCD211T11	11T	4"-CD2-11T-040-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	2ND VAPOR CONDENSATE	APOLLO	SERIES 215	LEVER				
177	HCD211T12	11T	6"-CD2-09T-024-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
178	HCD211T13	11T	6"-CD2-09T-024-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
179	HCD211T14	11T	6"-CD2-09T-024-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
180	HCD211T15	11T	SUGAR MONITORING EQUIP	610S	BA-01	NEW	BALL VALVE, THREADED	3/8"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
181	HCD211T16	11T	6"-CD2-09T-024-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
182	HCD211T17	11T	6"-CD2-09T-024-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR CONDENSATE	VELAN	VEE-2000	LEVER				
183	KCD211T01	11T	4"-CD2-11T-040-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	4"	2ND VAPOR CONDENSATE	MUELLER	SURE CHECK 72H					
184	KCD211T02	11T	4"-CD2-11T-040-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	4"	2ND VAPOR CONDENSATE	MUELLER	SURE CHECK 72H					
185	HCDE11T01	11T	4"-CDE-09T-029-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	EXHAUST CONDENSATE	APOLLO	SERIES 215	LEVER				
186	HCDE11T03	11T	4"-CDE-09T-029-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	EXHAUST CONDENSATE	VELAN	TE-150 MEMORY SEAL	LEVER				
187	HCTY11T01	11T	1"-CTY-09T-103-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	CITY WATER	VELAN	VEE-2000	LEVER				
188	KCTY11T01	11T	1"-CTY-09T-103-S1A-2"	X		NEW	BACKFLOW PREVENTOR	1"	CITY WATER	?	?					
189	KCTY11T02	11T	1"-CTY-09T-103-S1A-2"	X		NEW	BACKFLOW PREVENTOR	1"	CITY WATER	?	?					
190	HFMO11T01	11T	1/2"-FMO-10T-105-S1C-0"	610S	BA-01	NEW	BALL VALVE, THREADED	1/2"	FOAM OIL	VELAN	VEE-2000	LEVER				
191	HINC11T01	11T	3"-INC-11T-057-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	3"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
192	HINC11T02	11T	3"-INC-11T-057-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
193	HINC11T03	11T	3"-INC-11T-058-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	3"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
194	HINC11T04	11T	3"-INC-11T-058-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	INCONDENSABLE GAS	VELAN	TE-150 MEMORY SEAL	LEVER				
195	HJE111T01	11T	14"-JE1-10T-011-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	10		
196	HJE111T02	11T	14"-JE1-10T-011-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	10		
197	HJE111T03	11T	14"-JE1-10T-011-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
198	HJE111T04	11T	14"-JE1-10T-011-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	12"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	10		
199	HJE111T05	11T	14"-JE1-11T-025-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	10		
200	HJE111T06	11T	14"-JE1-10T-011-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	10		
201	HJE111T07	11T	14"-JE1-10T-011-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 1ST EFFECT EVAP	VELAN	VEE-2000	LEVER				
202	HJE111T08	11T	14"-JE1-10T-011-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 1ST EFFECT EVAP	APOLLO	SERIES 215	GEAR				
203	HJE211T01	11T	18"-JE2-11T-012-S1A-2"	620F		NEW	INST ISOLATION, FLANGED	3"	JUICE FROM 2ND EFFECT EVAP	PBM	TIH-E5L-A	LEVER				
204	HJE211T02	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
205	HJE211T03	11T	18"-JE2-11T-012-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	18"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	LEVER				
206	HJE211T04	11T	18"-JE2-11T-012-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	18"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	GEAR				
207	HJE211T05	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
208	HJE211T06	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
209	HJE211T07	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
210	HJE211T08	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
211	HJE211T09	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
212	HJE211T10	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
213	HJE211T11	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
214	HJE211T12	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
215	HJE211T13	11T	16"-JE2-11T-013-S1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	1"	JUICE FROM 2ND EFFECT EVAP	VELAN	TE-150 MEMORY SEAL	LEVER				
216	HJE211T14	11T	16"-JE2-11T-013-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
217	HJE211T15	11T	16"-JE2-11T-013-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	16"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	LEVER	Y	12		
218	HJE211T16	11T	16"-JE2-11T-013-S1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	1"	JUICE FROM 2ND EFFECT EVAP	VELAN	TE-150 MEMORY SEAL	GEAR				
219	HJE211T17	11T	16"-JE2-11T-013-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
220	HJE211T18	11T	16"-JE2-11T-013-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	16"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	12		
221	HJE211T19	11T	16"-JE2-11T-013-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	16"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	LEVER	Y	5		
222	HJE211T20	11T	14"-JE2-11T-014-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
223	HJE211T21	11T	14"-JE2-11T-014-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	LEVER	Y	10		
224	HJE211T22	11T	14"-JE2-11T-014-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	GEAR				
225	HJE211T23	11T	14"-JE2-11T-014-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
226	HJE211T24	11T	14"-JE2-11T-014-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	14"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	GEAR				
227	HJE211T25	11T	14"-JE2-11T-014-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
228	HJE211T26	11T	8"-JE2-11T-015-S1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	1"	JUICE FROM 2ND EFFECT EVAP	VELAN	TE-150 MEMORY SEAL	GEAR				
229	HJE211T27	11T	8"-JE2-11T-015-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
230	HJE211T28	11T	8"-JE2-11T-015-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	GEAR	Y	9		

ITEM NO.	VALVE NO.	P&ID NO.	LINE NO.	VEI SPEC	TASCO SPEC	VALVE STATUS	DESCRIPTION AND CONN TYPE	SIZE (IN)	FLUID SERVICE	VALVE MANUF.	VALVE MODEL#	ACTUATOR TYPE	CHAIN WHEEL (Y/N)	CHAIN LENGTH (FT)	LOCKABLE (Y/N)	NOTES
231	HJE211T29	11T	8"-JE2-11T-015-S1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	1"	JUICE FROM 2ND EFFECT EVAP	VELAN	TE-150 MEMORY SEAL	LEVER				
232	HJE211T30	11T	8"-JE2-11T-015-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
233	HJE211T31	11T	8"-JE2-11T-015-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	LEVER	Y	9		
234	HJE211T32	11T	8"-JE2-11T-023-S1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	8"	JUICE FROM 2ND EFFECT EVAP	APOLLO	SERIES 215	GEAR				
235	HJE211T33	11T	VEV-61C	620F		NEW	INST ISOLATION, FLANGED	3"	JUICE FROM 2ND EFFECT EVAP	PBM	TIH-E5L-A	LEVER				
236	HJE211T34	11T	VEV-61C	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
237	HJE211T35	11T	VEV-61C	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
238	HJE211T36	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	1/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
239	HJE211T37	11T	18"-JE2-11T-012-S1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	JUICE FROM 2ND EFFECT EVAP	VELAN	VEE-2000	LEVER				
240	KJE211T01	11T	16"-JE2-11T-013-S1A-2"	320F		NEW	CHECK VALVE, FLANGED	16"	JUICE FROM 2ND EFFECT EVAP	MUELLER	SURE CHECK 72H	GEAR				
241	KJE211T02	11T	16"-JE2-11T-013-S1A-2"	320F		NEW	CHECK VALVE, FLANGED	16"	JUICE FROM 2ND EFFECT EVAP	MUELLER	SURE CHECK 72H	LEVER				
242	KJE211T03	11T	8"-JE2-11T-015-S1A-2"	320F		NEW	CHECK VALVE, FLANGED	8"	JUICE FROM 2ND EFFECT EVAP	MUELLER	SURE CHECK 72H	GEAR				
243	KJE211T04	11T	8"-JE2-11T-015-S1A-2"	320F		NEW	CHECK VALVE, FLANGED	8"	JUICE FROM 2ND EFFECT EVAP	MUELLER	SURE CHECK 72H	LEVER				
244	HLPC11T01	11T	10"-LPC-10T-053-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	GEAR				
245	HLPC11T02	11T	10"-LPC-10T-053-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	LEVER				
246	HLPC11T03	11T	10"-LPC-10T-053-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	2"	LOW PRESSURE CONDENSATE	VELAN	VEE-2000	LEVER				
247	HLPC11T04	11T	10"-LPC-10T-053-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	LEVER				
248	HLPC11T05	11T	4"-LPC-11T-059-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	GEAR				
249	HLPC11T06	11T	4"-LPC-11T-059-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	LEVER				
250	HLPC11T07	11T	4"-LPC-11T-059-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	LOW PRESSURE CONDENSATE	APOLLO	SERIES 215	GEAR				
251	KLPC11T01	11T	10"-LPC-10T-053-C1A-2"	320F		NEW	CHECK VALVE, FLANGED	10"	LOW PRESSURE CONDENSATE	MUELLER	SURE CHECK 72H	LEVER				
252	HVP111T01	11T	3/4"-VP1-10T-018-C1A-2"	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	1ST VAPOR	VELAN	VEE-2000	LEVER				
253	HVP111T02	11T	2"-VP1-11T-056-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	1ST VAPOR	VELAN	TE-150 MEMORY SEAL	LEVER				
254	HVP211T01	11T	3"-VP2-11T-034-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	3"	2ND VAPOR	APOLLO	SERIES 215	GEAR				
255	HVP211T03	11T	VEV-61C	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR	VELAN	VEE-2000	LEVER				
256	HVP211T04	11T	VEV-61C	610S	BA-01	NEW	BALL VALVE, THREADED	3/4"	2ND VAPOR	VELAN	VEE-2000	LEVER				
257	HWAW11T01	11T	2"-WAW-11T-055-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
258	HWAW11T02	11T	4"-WAW-10T-055-C1A-2"	708F	BU-01	NEW	BUTTERFLY VALVE, FLANGED	4"	WASH WATER	APOLLO	SERIES 215	LEVER				
259	HWAW11T04	11T	2"-WAW-11T-055-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
260	HWAW11T05	11T	2"-WAW-11T-055-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				
261	HWAW11T07	11T	2"-WAW-11T-055-C1A-2"	671F	BA-01	NEW	BALL VALVE, FLANGED	2"	WASH WATER	VELAN	TE-150 MEMORY SEAL	LEVER				

VEi GLOBAL - VALVE SPECIFICATION - FEBRUARY 19, 2024

Valve	Type	Class	Ends	Manufacturer	Size	Fig. No.	MATERIAL		
							Body	Disc	Seat
100S	Gate	125	S	Crane	½ - 3"	428	Brz	Brz	Brz
		125	S	Powell	1/2"- 3	500	Brz	Brz	Brz
102S	Gate	150	S	Crane	1/4" - 2"	490	Iron	Brz	Brz
		150	S	Powell	1/4" - 2"	3460	Iron	Brz	Brz
110F	Gate	125	F	Crane	2½"-36"	465½	CI	CI	Brz
		125	F	Powell	2½"-36"	1793	CI	CI	Brz
140F	Gate	150	F	Crane	2½"-24"	47	Cast S	SS	Hardfaced
		150	F	Powell	2½"-60"	1503	Cast S	13%Cr-CS	Stellite
		150	F	Walworth	2½"-36"	5202RF-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
140W	Gate	150	BW	Crane	2½"-24"	47.5	Cast S	SS	Hardfaced
		150	BW	Powell	2½"-60"	1503	Cast S	13%Cr-CS	Stellite
		150	BW	Walworth	2½"-36"	5202WE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
141F	Gate	300	F	Crane	2½"-24"	33	Cast S	SS	Hardfaced
		300	F	Powell	2½"-30"	3003	Cast S	13%Cr-CS	Stellite
		300	F	Walworth	2½"-24"	5206RF-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
141W	Gate	300	BW	Crane	2½"-24"	33.5	Cast S	SS	Hardfaced
		300	BW	Powell	2½"-60"	3003	Cast S	13%Cr-CS	Stellite
		300	BW	Walworth	2½"-36"	5206WE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
142S	Gate	800	S	Vogt	½"-2½"	12111	Forg S	FS	Hardfaced
		800	S	Smith	½"-2"	0800-O	Forg S	420SS	Stellite
142SW	Gate	800	SW	Vogt	½"-2 ½"	SW12111	Forg S	FS	Hardfaced
		800	SW	Hancock	½"-2 ½"	950W	Forg S	420SS	Stellite
		800	SW	Smith	½"-2"	O800C	Forg S	420SS	410SS/Stellite
144S	Gate	800	S	Vogt	½"-2½"	12401	316SS	316SS	Hardfaced
		800	S	Smith	½"-2"	0800	316SS	316SS	316SS/Stellite
		600	S	Aloyco	½"-2"	4210	A351 CF3M	A351 CF8M	A351 CF3M
144SW	Gate	800	SW	Vogt	½"-2 ½ "	SW12401	316SS	316SS	Hardfaced
		800	SW	Smith	½"-2"	0800	316SS	316SS	316SS/Stellite
		600	SW	Aloyco	½"-2"	4214	A351 CF3M	A351 CF8M	A351 CF3M
170F	Gate	150	F	Crane	2½"-24"	117	A351 CF3M	A351 CF8M	A351 CF3M
		150	F	Powell	2½"-24"	2456	A351 CF8M	A351 CF8M	A351 CF8M
172F	Gate	600	F	Crane	2"-24"	76	Cast S	13%Cr-SS	Stellite
		600	F	Powell	2"- 30"	6003FE	Cast S	13% Cr-SS	Stellite
		600	F	Newco	2"- 24"	16F-CB2-PS	Cast S	13% Cr-SS	Hardfaced
172W	Gate	600	BW	Crane	2"-24"	76.5	Cast S	13%Cr-SS	Stellite
		600	BW	Powell	2"- 30"	6003WE	Cast S	13% Cr-SS	Stellite
		600	BW	Newco	2"- 24"	16W-CB2-PS	Cast S	13% Cr-SS	Hardfaced
200S	Globe	150	S	Crane	½"-2"	14½-P	Brz	SS	SS
		150	S	Powell	½"-2"	2600	Brz	SS	SS
210F	Globe	125	F	Crane	2½"-10"	351	CI	Brz	Brz
		125	F	Powell	2½"-12"	241	CI	Brz	Brz
220F	Globe	150	F	Neles	½"-4"	Series ZXC	316SS	17-4PH + HC	Hardfaced
240F	Globe	150	F	Crane	2"-14"	143	Cast S	13%Cr-SS	Hardfaced
		150	F	Powell	2"-20"	1531	Cast S	SS / CS-13%Cr	SS/Stellite
		150	F	Walworth	2"-12"	5275RF-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
240W	Globe	150	BW	Crane	2"-14"	143½	Cast S	13%Cr-SS	Hardfaced
		150	BW	Powell	2"-20"	1531WE	Cast S	SS / CS-13%Cr	SS/Stellite
		150	BW	Walworth	2"-12"	5275WE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
241F	Globe	300	F	Crane	2½"-12"	151	Cast S	13%Cr-SS	Hardfaced
		300	F	Powell	2½"-24"	3031	Cast S	SS / CS-13%Cr	SS/Stellite
		300	F	Walworth	2½"-14"	5281RF-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
241W	Globe	300	W	Crane	2½"-12"	151½	Cast S	13%Cr-SS	Hardfaced
		300	W	Powell	2½"-12"	3031	Cast S	SS / CS-13%Cr	SS/Stellite
		300	W	Walworth	2½"-16"	5281WE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
242S	Globe	800	S	Vogt	½"-2 ½ "	12141	Forg S	FS	Hardfaced
		800	S	Smith	½"-2"	OG80-O	Forg S	420SS	Stellite
242SW	Globe	800	SW	Vogt	½"-2"	SW12141FHF	Forg S	Hardfaced	Hardfaced
		600	SW	Edward	½"-2"	848Y	Forg S	Stellite	Stellite
		600	SW	Hancock	½"-2"	5500W	Forg S	420SS	Stellite
		800	SW	Smith	½"-2"	OG80-O	Forg S	420SS	Stellite
244S	Globe	800	S	Vogt	½"-2 ½ "	12501	316SS	316SS	Hardfaced
		600	S	Aloyco	½"-2"	4310	A351 CF3M	A351 CF8M	A351 CF3M
244SW	Globe	800	SW	Vogt	½"-2 ½ "	SW12501	316SS	316SS	Hardfaced
		600	SW	Aloyco	½"-2"	4314	A351 CF3M	A351 CF8M	A351 CF3M
272F	Globe	600	F	Crane	2"-8"	171	Cast S	13%Cr-SS	Hardfaced
		600	F	Powell	2"-16"	6031FE	Cast S	SS / CS-13%Cr	SS/Stellite
		600	F	Walworth	2"-8"	5295FE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
272W	Globe	600	BW	Crane	2"-8"	171½	Cast S	13%Cr-SS	Hardfaced
		600	BW	Powell	2"-16"	6031WE	Cast S	SS / CS-13%Cr	SS/Stellite

Valve	Type	Class	Ends	Manufacturer	Size	Fig. No.	MATERIAL		
							Body	Disc	Seat
		600	BW	Walworth	2"-8"	5295WE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
280S	Needle	800	S	Swagelok	1/4"-1 "	GU Series	316SS	316SS	PTFE
302S	Check	200	S	Crane	½"-2"	36	Brz	Brz	Brz
		200	S	Powell	½"-2"	560	Brz	Brz	Brz
		200	S	Walworth	½"-2"	W 420	Brz	Brz`	Brz
310F	Check	125	F	Crane	2"-24"	373	CI	Brz	Brz
		125	F	Powell	2"-18"	559	CI	CI	Brz
		125	F	Walworth	2"-24"	W928FS	CI	Brz	Brz
320F	Check	150	F	BJ Champion	2"-24"	150# short pattern	A351 CF8M	A351 CF8M	304SS
		150	F	Crane	2"-24"	Uni-Chek	304SS	304SS	304SS
		150	F	Bray/Rite	2"-24"	Model 210	A351 CF8M	A351 CF8M	304SS
340F	Check	150	F	Crane	2"-24"	147	Cast S	13%Cr-SS	Hardfaced
		150	F	Powell	2"-36"	1561	Cast S	SS	Steel/Stellite
		150	F	Walworth	2½"-30"	5341RF-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
341F	Check	300	F	Crane	2"-24"	159	Cast S	13%Cr-SS	Hardfaced
		300	F	Powell	2"-36"	3061	Cast S	SS	Steel/Stellite
		300	F	Walworth	2"-24"	5344RF-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
		300	F	Edward	2½"-16"	1392	Cast S	Stellite	Stellite
342S	Check	800	S	Vogt	½"-2"	S701 (Swing Check)	Forg S	13%Cr-CS	Hardfaced
		800	S	Smith	½"-2"	SW80	Forg S	13%Cr-CS	Hardfaced
342SW	Check	800	SW	Vogt	½"-2"	SWS701	Forg S	13%Cr-SS	Hardfaced
		800	SW	Hancock	½"-2"	5540W	Forg S	420SS	Stellite
		800	SW	Edward	½"-2"	838Y	Forg S	Hardened SS	Stellite
342W	Check	600	BW	Crane	2"-12"	175½	Cast S	13%Cr-SS	Hardfaced
		600	BW	Powell	1"-30"	6061 WE	Cast S	13%Cr-CS	Steel/Stellite
		600	BW	Walworth	2½"-16"	5350WE-UT	Cast S	13%Cr-SS	Cobalt/Hard- faced
		600	BW	Edward	2½"-6"	690Y	Cast S	Stellite	Stellite
370F	Check	150	F	Powell	2"-8"	2342	316SS	316SS	316SS
		150	F	Powell	10"-12"	2633	316SS	316SS	316SS
		150	F	Aloyco	2½"-24"	377	316SS	316SS	316SS
372S	Check	800	S	Vogt	½"-2"	S718	316SS	316SS	Stellite
		800	S	Crane	½"-2"	B-3673XU-T	316SS	316SS	Stellite
		600	S	Ladish	½"-2"	5670	316SS	316SS	316SS
372SW	Check	800	SW	Vogt	½"-2"	SW718	316SS	316SS	Stellite
		800	SW	Crane	½"-2"	B-3673XU-W	316SS	316SS	Stellite
		600	SW	Ladish	½"-2"	5671	316SS	316SS	316SS
381F	Check	150	F	SPEARS	3/4" - 8"	Swing Check	PVC / CPVC	PVC / CPVC	EPDM / Viton
		150	F	Asahi	¾ - 8"	Swing Check	PVC	PVC	EPDM
381SW	Check	150	SW	SPEARS	1/2" - 4"	True Union Swing Check	PVC / CPVC	PVC / CPVC	EPDM / Viton
		150	SW	Asahi	1/2" - 4"	True Union Swing Check	PVC	PVC	EPDM
401F	Knife Gate	150	F	Orbinox	2"-24"	Series 20	CF8M	AISI 316	AISI 316
		150	F	Fabri-Valve	2"-24"	C/F37	304 SS	304 SS	304 SS
		150	F	Fabri-Valve	30"-36"	C37L	CI	304 SS	304 SS
		150	F	DeZurik	2"-36"	KGC	304 SS	304 SS	304 SS
510F	Diaphragm	150	F	ITT Engineered Valves	½"-8"	DIA-FLO - Weir Cast Steel Valve	CS/WCB	must specify liner	& diaphragm materials
511F	Diaphragm	150	F	ITT Engineered Valves	½"-2"	DIA-FLO - Weir Plastic Valve	PVC/CPVC	EPDM	EPDM
600S	Ball	150	S	Apollo	½"-2"	9A-100	Brz	Brz-Cr	RTFE
		150	S	Nibco	½"-2"	T560-BR-*-20	Brz	Brz	RTFE
601S	Ball	150+	S	Apollo	½"-3"	70-140	Brz	SS	RTFE
		150+	S	Nibco	½"-3"	S580-70-66 (solder)	Brz	SS	RTFE
610S	Ball	150+	S	Jamesbury	½"-2"	Series 3000	316SS	316SS	PTFE
		150+	S	FNW	½"-2"	200A (Full Port)	A351 CF8M	A351 CF8M	RTFE
		150+	S	Apollo	1/4"-2"	96-100	A351 CF8M	316SS	RPTFE
611S	Ball	150+	S	Jamesbury	½"-2"	Series Eliminator 9F	CS/WCB	A351 CF8M	PTFE
		150+	S	FNW	½"-2 ½"	221A (Full Port)	CS/WCB	316SS	RTFE
		150+	S	Apollo	½"-2 ½"	72-140	CS/WCB	316SS	RPTFE
612S	Ball	150+	S	Jamesbury	½"-2"	Series Eliminator 9F	316SS	316SS	PTFE
		150+	S	FNW	½"-2 ½"	220A (Full Port)	A351 CF8M	A351 CF8M	RTFE
		150+	S	Apollo	1/4"-3"	76-100	A351 CF8M	316SS	RPTFE
613S	Ball	150+	S	Jamesbury	1/2"-3"	Series 6F	A351 CF8M	316SS	PTFE
		150+	S	Apollo	1/4"-3"	76F-100 (full port)	A351 CF8M	316SS	RPTFE
619S	Ball	150+	S	Swagelok	1/8"-3/4"	40G series	316SS	316SS	PTFE
620F	Instrument Isolation ball	150+	F	PBM	3"	TIH-E5L-A	316SS	316SS	RTFE
		150							

Valve	Type	Class	Ends	Manufacturer	Size	Fig. No.	MATERIAL		
							Body	Disc	Seat
630S	Ball	150+	S	Jamesbury	½"-2"	Series 3A-3600	A351 CF8M	316SS	PTFE
		150+	S	FNW	½"-2 ½"	360A (Full Port)	A351 CF8M	316SS	RPTFE
		150+	S	Apollo	1/4"-2"	85A-100	A351 CF8M	316SS	PTFE
632SW	Ball	150+	SW	Jamesbury	½"-2"	Series 3C-3600	A351 CF8M	316SS	PTFE
		150+	SW	FNW	½"-2 ½"	360ASW (Full Port)	A351 CF8M	316SS	RPTFE
		150+	SW	Apollo	1/4"-2"	85A-200	A351 CF8M	316SS	PTFE
640S	Ball	150+	S	Jamesbury	½"-2"	Series 3A-2236	CS/WCB	316SS	PTFE
		150+	S	Apollo	3/4"-2 ½"	84A-140	CS/WCB	A351 CF8M	RPTFE
642SW	Ball	150+	SW	Jamesbury	½"-2"	Series 3C-2236	CS/WCB	316SS	PTFE
		150+	SW	Apollo	3/4"-2 ½"	84A-240	CS/WCB	A351 CF8M	RPTFE
650S	Ball	5000	S	Stauff	1¼"-2"	FBV	Forg S	Brz-Cr	Delin
651S	Ball	2000	S	Stauff	½"-1"	BBVM	Forg S	Brz-Cr	Delin
670S	Ball	600+	S	Jamesbury	½"-2"	Series 4A-3600	316SS	316 SS	RTFE
		600+	S	Apollo	½"-2"	85B-100	A351 CF8M	316 SS	RTFE
		600+	S	Xomox	3/4"-2"	536RSE	A351 CF8M	316SS	PTFE
671F	Ball	150	F	Jamesbury	1/2"- 10"	Series 7000	A351 CF8M	316 SS	PTFE
		150	F	Worcester	2"- 10"	Series 51	A351 CF8M	316 SS	RTFE
		150	F	Apollo	2"-10"	87A-100	A351 CF8M	316 SS	PTFE
672SW	Ball	600+	SW	Jamesbury	½"-2"	Series 4C-3600	316SS	316SS	RTFE
		600+	SW	Apollo	½"-2"	85B-200	A351 CF8M	316 SS	RTFE
		600+	SW	Xomox	½"-2"	536RSW	A351 CF8M	316SS	RTFE
680F	Ball	150	F	Asahi	½"-6"	Duo Block Type 21 TU	PVC / CPVC	PVC / CPVC	PTFE
681SW	Ball	SCH80	SW	Spears	½"-3"	True Union 2000	PVC / CPVC	PVC / CPVC	PTFE
690F	Ball	150	F	Neles	1"-20"	RE Series V-port	A351 CF8M	AISI 329 + Chromium	AISI 316 + Cobolt
707F, 707W	Butterfly - Resilient Seat	150	F, W	Bray	2"-48"	Series 30,31 & 33,36	Ductile Iron	A351 CF8M	EPDM
		150	F, W	Center Line	2"-36"	RS Series	Ductile Iron	A351 CF8M	EPDM
		150	F, W	Ebro	2"-36"	Z014-A, Z011-A	Ductile Iron	A351 CF8M	EPDM
708F, 708W	Butterfly - High Performance	150	F, W	Jamesbury	3"-36"	Series 815L, 815W	A351 CF8M	316SS	Reinforced PTFE
		150	F, W	Bray	3"-36"	Series 41, 40	A351 CF8M	A351 CF8M	Reinforced PTFE
709F, 709W	Butterfly - Metal Seat	150	F, W	Neles	3"-16"	Neldisc LW & LG	A351 CF8M	A182 gr F316	Incoloy 825
711F	Butterfly	150	F	SPEARS	1½"- 12"	722311LC	PVC / CPVC	PVC / CPVC	EPDM or Viton
		150	F	Asahi	1½"- 8"	Type 57 (new)	PVC	PVC	EPDM
		150	F	Bray	2"-12"	Series 23	PTFE/ A 351CF8M	PTFE/ A 351CF8M	PTFE
880F	Plug	150	F	Xomox	1"-12"	Series 061 Tufline	Ductile Iron	Ductile Iron	N/A
							PFA Liner	PFA Liner	
882F	Plug	125	F	Homestead	1"-6"	Series 600 Lubricated	Cast Iron	Cast Iron	N/A
882S	Plug	125	S	Homestead	1/2"-2"	Series 600 Lubricated	Cast Iron	Cast Iron	N/A
988	Strainer (Y-Type)	250	S	Spirax Sarco	1/2"-2"	IT	Cast Iron	304 SS	304 SS
		250	S	Apollo	1/2"-2"	YCT	Cast Iron	304 SS	304 SS
989	Strainer (Y-Type)	600	S	Spirax Sarco	1/2"- 2"	SSY	316 SS	316 SS	316 SS
990	Strainer (Y-Type)	300	S	Spirax Sarco	1/2"-2"	BT-60	Bronze	304 SS	304 SS
		300	S	Conbraco	1/2"-2"	59	Bronze	304 SS	304 SS
		300	S	Armstrong	1/2"-2"	F-SC-300	Bronze	304 SS	304 SS
991	Strainer (Y-Type)	600	S	Spirax Sarco	1/2"-2"	CT-60	Cast S	304 SS	304 SS
		600	S	Velan	1/2"-2"	SCR-1500	Cast S	304 SS	304 SS
		600	S	Armstrong	1/2"-2"	B-SC-600	Cast S	304 SS	304 SS
992	Startup Strainer (cone)	150	F	Mac- Iron	2"-24"	PC-RF-20		304 SS	
993	Startup Strainer (cone)	300	F	Mac – Iron	2" – 24"	PC-RF-20		304SS	
994	Startup Strainer (basket)	150	F	Mac – Iron	2"-24"	PB-RF-20		304 SS	
995	Startup Strainer (basket)	300	F	Mac - Iron	2"-12"	PB-RF-20		304 SS	
996	Strainer (Y-Type)	150	SW	SPEARS	1/2"-2"	YS22P / YS32P	PVC / CPVC	316 SS	316 SS

Valve	Type	Class	Ends	Manufacturer	Size	Fig. No.	MATERIAL		
							Body	Disc	Seat
997	Strainer (Y-Type)	150	F	SPEARS	1/2”-2”	YS23P / YS33P	PVC / CPVC	316 SS	316 SS
998	Startup Strainer (basket)	150	F	SPEARS	1/2”-8"	BS33P / BS33P	PVC / CPVC	316 SS Basket	316 SS

NOTES:

1	Valves highlighted in red text shall be considered the default valve selection unless otherwise noted.								
2	Gear operators shall be used for the following valve in size ranges indicated								
	Gate Valves		Class	125≥ 26"					
			Class	150≥ 24"					
			Class	300≥ 14"					
			Class	600≥ 8"					
	Ball Valves		Class	150 & 300≥ 6"					
	Butterfly Valves		Class	150 & 300 >6"					
	Globe Valves		Class	All Rating≥ 10"					
3	Valve manufacturers and catalog numbers shown are suggested only. Substitutes for the valves shown may be submitted for approval.								
	Complete technical information on valves must be submitted with quotation to the owner for approval.								

SECTION 40 05 97
MECHANICAL IDENTIFICATION

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Nameplates.

B. Tags.

C. Pipe Identification.

1.2 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 40 05 01 – Pipe and Pipe Fittings

PART 2 - PRODUCTS

Not used.

PART 3 – EXECUTION

3.1 TIE-IN TAGS

A. Tie-in points in existing piping will be marked for the Contractor to aid in locating Tie-In points.

3.2 PIPE DESIGNATION

A. New piping is numbered by line size, fluid class and piping specification shown on P&IDs and Plan Drawings.

B. All Owner furnished valves shall be shipped with stainless steel tags and have the valve I.D. number stamped on tag for easy identification.

C. The Tie-in List indicates which Contractor is responsible for the connection. It also provides information regarding the connection type and description.

End of Section

TIE-IN LIST

						Client: ASC
						Project: Evaporator Project
						Location: Twin Falls, ID
						Engineering Co: VEi Global
F	2025.06.23	SC			ISSUED FOR BID	**VEi Project No.:** E24140
No	**Date**	**Created By**	**Chkd By**	**Approved By**	**Revision**	**VEi Document No.:** E24140 TIE IN LIST

ITEM	PID#	TAG	SIZE	LINE #	CONNECTION TYPE	SERVICE	NOTE
1	5066-09T	09T01	10"	12"-TJS-09T-001-S1A-2"	FLANGED	THIN JUICE (SOFT)	
2	5066-11T	11T02	10"	8"-JE2-11T-015-S1A-2"	FLANGED	THIN JUICE (SOFT)	
3	5066-10T	10T03	42"	42"-EXS-10T-016-C1A-2"	FLANGED	EXHAUST STEAM	
4	5066-11T	11T04	48"	48"-VP2-11T-020-C1A-2"	FLANGED	2ND VAPOR	
5	5066-10T	10T05	10"	10"-LPC-10T-052-C1A-0"	FLANGED	LOW PRESSURE CONDENSATE	Emergency Water
6	5066-10T	10T06	8"	8"-CDE-10T-033-S1C-2"	FLANGED	EXHAUST CONDENSATE	
7	5066-11T	11T07	8"	8"-CD1-11T-038-S1C-2"	FLANGED	1ST VAPOR CONDENSATE	
8	5066-11T	11T08	8"	8"-CD2-11T-040-S1C-2"	FLANGED	2ND VAPOR CONDENSATE	
9	5066-09T	09T09	3"	3"-PLA-09T-100-C1A-0"	FLANGED	PLANT AIR	
10	5066-09T	09T10	2"	2"-WAW-09T-101-C1A-0"	BUTTWELD	WASH WATER	Tempered Water
11	5066-09T	09T11	3"	3"-FYR-09T-102-C1A-2"	BUTTWELD	FIRE WATER	
12	5066-09T	09T12	2"	2"-CTY-09T-103-S1A-2"	FEMALE THREADED	CITY WATER	Culinary Water
13	5066-10T	10T13	20"	20"-VP1-10T-41-C1A-2"	FLANGED	1ST VAPOR	
14	5066-10T	10T14	6"	6"-WWA-10T-061-C1A-2"	BUTTWELD	WASTE WATER	Sump Water

SECTION 40 42 00
MECHANICAL INSULATION

PART 1 - GENERAL

1.1 SCOPE:

A. This Section contains the mechanical piping and equipment insulation requirements specified herein and as indicated on the Mechanical "M," P&IDs, Demolition and Construction Drawings. The insulation of piping and equipment as described in this Section is the responsibility of the Mechanical Contractor.

1.2 WORK INCLUDED:

A. Equipment Insulation – see Equipment Insulation List at the end of this section.

B. Piping Insulation – See Section 40 05 01 – Piping Line List

C. Duct Insulation – see Section 40 13 00 – Duct List

D. Adhesive, tie wires, tapes, fitting covers, jacketing etc. as required for application indicated.

1.3 RELATED WORK:

A. Section 01 11 00 – Summary of Work

B. Section 40 05 01 – Pipe & Pipe Fittings

C. Section 40 13 00 – Ductwork

1.4 REFERENCES:

A. ASTM

B. NAIMA (North America Insulation Manufacturers Association)

1.5 SUBMITTALS:

A. Submit shop drawings in accordance with Section 01 33 23 – Shop Drawings, Product Data and Samples.

B. Clearly indicate complete material data, flame and smoke ratings, "K" factors, jacket material, application method, density and temperature rating.

1.6 REQUIREMENTS:

A. Deliver material to job site in original non-broken factory packaging, labeled with Manufacturer's density and thickness.

B. Perform work at ambient and equipment temperatures as recommended by the adhesive Manufacturer.

PART 2 - PRODUCTS

2.1 ADHESIVES, ATTACHMENTS AND INSULATION MATERIALS:

A. Maximum composite fire and smoke hazard ratings shall be 25 for flame spread, 50 for smoke developed and 50 for fuel contributed. Adhesives shall be waterproof.

B. Weld-Attachment Anchors Pins and Washers: Pin length sufficient for insulation thickness indicated.

1. Carbon steel equipment applications use: Copper Coated steel pins for capacitor discharge welding and galvanized steel speed washer.

2. Stainless steel equipment applications use: 304 stainless steel pins for capacitor discharge welding and galvanized steel speed washers.

3. Welded pin holding capacity: 100 lb (45 kg) for direct pull perpendicular to the attached surface.

C. Caulk sealant compound shall be non-shrinking, permanently flexible, non-volatile, water & UV resistant, and rated for temperature ranges between -50 to 400 deg F.

2.2 PIPING INSULATION:

A. The pipe insulation shall be molded heavy density, one-piece insulation made from inorganic glass fibers bonded with thermosetting resin with an ASJ jacket. The insulation shall be rated for use for piping systems operating in a range from -20 degrees F to +650 degrees F.

B. Fittings shall be insulated to the same thickness and material as the adjoining insulation. The insulation fittings shall be preformed for all pipe sizes through 24 inch.

C. Aluminum jacketing and fitting covers shall have a stucco embossed finish. A clear coating is applied to the outside for corrosion protection and a colored moisture barrier coating is applied to the interior to resist electrolytic decomposition. The aluminum jacketing material thickness shall be:

Pipe Size	Material Thickness
Through 30 inch	0.020

2.3 DUCT INSULATION:

A. Insulation

1. The duct insulation shall be unfaced, Type 1280 Owens Corning High Temperature Industrial Board Insulation, MinWool-1200 Industrial Insulation Group Industrial Board, or approved equivalent mineral wool with 8 pound density (8 lb/ft^3). Thickness varies from 2" to 3" as specified in the Equipment Insulation List at the end of this Section

B. Jacketing

1. Jacketing of all exterior located duct shall be .020" thick flat stucco embossed stainless steel.

2. Jacketing of all interior located flat surface duct shall be 0.020 inch thick stucco embossed aluminum.

C. Banding

1. 020" thick x 1/2" wide Series 300 stainless steel banding shall be used for securing insulation on round duct.

2. 020" thick x 3/4" wide Series 300 stainless steel banding shall be used for securing duct jacketing on round duct.

D. Anchor Pins

1. 304 Stainless Steel pins and galvanized steel speed washers shall be used to secure insulation on flat surfaces of square or rectangular duct.

2.4 EQUIPMENT INSULATION:

1. Equipment shall be insulated as specified below.

2. Insulation shall be fiberglass equal to Insul-Quick as manufactured by Owens Corning. The insulation shall be rated for use for operating temperatures to 650º F. The insulation thickness shall be as indicated in the Equipment Insulation List.

3. The insulation jacket shall be 0.032 inch thickness, stucco embossed finish aluminum jacketing. A clear coating is applied to the outside for corrosion protection and a colored moisture barrier coating is applied to the interior to resist electrolytic decomposition.

2.5 REMOVEABLE/REUSABLE INSULATION COVERS: (Not Required)

2.6 ACCEPTABLE MANUFACTURERS:

A. Owens Corning

B. Johns Manville

C. Knauf or approved equal

D. Envirotrol, Inc. (For Ceramic Coatings)

2.5 HEAT TRACING (Not Required)

PART 3 - EXECUTION

3.1 PREPARATION:

A. Do not install covering before piping and equipment has been tested and approved.

B. Prior to insulating piping and equipment, verify installation is in accordance with Contract Documents. Verify systems have been cleaned, tested, inspected and approved by Engineer's representative prior to insulating.

C. Ensure surfaces are clean and dry prior to insulation. Ensure insulation is dry before and during application.

3.2 PIPING INSULATION INSTALLATION:

A. Refer to Piping Line List to identify lines requiring insulation and required insulation thickness.

B. Install piping thermal insulation products in accordance with Manufacturer's written instructions and in compliance with recognized industry practices.

A. Install insulation over pipe hangers and fit around hanger for continuous coverage.

B. Do not insulate valves, unions, site glass, flanges and flexible connections. Stop insulation 3 inches away from flanges to allow space for bolt removal. Cap the exposed end of the insulation with a finished jacket (aluminum) at all locations where the insulation would be exposed.

C. Caulking or other approved vapor barrier mastic shall be used on joints in the aluminum jacketing to make watertight. Pop rivets shall be used to attach the jacketing. Screws will not be permitted.

3.3 EQUIPMENT INSULATION INSTALLATION:

A. Install tank thermal insulation products in accordance with manufacturer's written instructions and in compliance with recognized industry practices.

B. Do not insulate manholes, handholes, cleanouts, ASME stamp, or manufacturer's nameplate. Provide capped edge at interruptions of insulation. DO NOT REMOVE

ASME PLATE AND MOUNT ON INSULATION SURFACE! Hold insulation back where required for bolt removal at piping connections or as required at instrumentation devices.

C. Provide removable insulation sections to cover parts of equipment which must be opened periodically for maintenance; include metal vessel covers, fasteners, flanges, frames and accessories.

D. Tank insulation
    a. Apply insulation by wrapping around cylinder and cutting material 3 inches longer than circumference to provide a lap. Remove extra fiberglass at the lap and staple with outward clinching staples 2 inches on center. Matching pressure sensitive tape shall then be applied to the circumferential joints on hot applications and to both the circumferential and longitudinal joints for below ambient conditions. For some applications, 3/4 inch stainless steel band 12 inches on center may be required.

    b. Cap the exposed end of the insulation with a finished jacket (aluminum) and seal with caulking at all locations where the insulation would be exposed.

C. Install 0.032 inch thickness, stucco embossed finish, clear coat jacketing on the tank. Jacketing shall be installed in accordance with manufacturer's recommended instructions. Caulking or other approved vapor barrier mastic shall be used on joints in the aluminum jacketing to make watertight. Pop rivets shall be used at joints. Screws will not be permitted. Use caulking at joints to make watertight.

3.4 DUCT INSULATION INSTALLATION

A. Refer to Duct List (Section 40 13 00) for required duct insulation thickness.

B. Install duct insulation products in accordance with Manufacturer's written instructions and in compliance with recognized industry practices.

C. Where required, stop insulation 3 inches away from flange connections to allow space for bolt removal. Cap the exposed end of the insulation with a finished jacket at locations where the insulation would be exposed.

D. Round Duct Insulation

1. Apply mineral wool insulation by wrapping around cylinder and cutting material 3 inches longer than circumference to provide a lap. Remove extra insulation at the lap and staple with outward clinching staples 2 inches on center. Secure insulation with 1/2 inch stainless steel banding 12 inches on center.

2. Cap the exposed end of the insulation with a finished jacket and seal with caulking at all locations where the insulation would be exposed

3. Install jacketing and secure with 3/4 inch stainless steel banding. Caulking or other approved vapor barrier mastic shall be used on joints in the jacketing to make watertight. Pop rivets shall be used at joints. Screws will not be permitted.

E. Square or Rectangular Duct Insulation

1. Attach mineral wool insulation to duct surfaces with anchor pins and galvanized steel speed washers.

2. Install jacketing and secure with screws to subgirts or channels installed on the duct surface by the Contractor. Caulking or other approved vapor barrier mastic shall be used on joints in the jacketing to make watertight.

3.5 HEAT TRACE INSTALLATION (Not Required)

End of Section

SECTION 40 70 00
MECHANICAL – INSTRUMENTATION DEVICES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Electrical Instruments

B. Temperature & Pressure Indicators

1.2 RELATED SECTIONS

A. Section 01 11 00 – Summary of Work

B. Section 40 05 50 – Valves

C. Instrument List

PART 2 - PRODUCTS

2.1 Electrical Instrument List to follow this page. Owner will furnish all instruments indicated on the Electrical Instrument List.

2.2 Pressure/Temperature Indicator List to follow this page. Owner will furnish all instruments indicated on the Pressure/Temperature Indicator List.

PART 3 - EXECUTION

A. The Mechanical Contractor shall be responsible for receiving and storing all instrumentation on the Electrical Instrument List and the Pressure/Temperature Indicator List from when it arrives on site until installation. Provide a weather tight Storage area for these instruments.

B. The Mechanical Contractor is responsible to install all temperature and pressure gauges as indicated on the lists that follow this section and per Manufacturer's instructions to ensure complete operability.

End of Section

SECTION 40 81 00
MECHANICAL SYSTEMS TESTING

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Testing of piping systems.

B. Certification of Welders.

1.2 RELATED SECTIONS

A. Section 40 05 01 – Pipe and Pipe Fittings

1.3 PIPING SYSTEMS TESTING

A. All mechanical systems must be visually acceptable to be leakproof and fully functional. Hydrostatic or pneumatic testing of piping systems may be required as indicated on isometric drawings. When piping systems are in operation, the Contractor is responsible for the repair of all leaky joints in the piping systems.

1.4 WELDER CERTIFICATION

A. All welds shall be made by competent skilled welders thoroughly familiar with the class of work included herein. Only welders certified for the specific weld type shall be used on work required herein.

B. All Welder Certifications shall be submitted upon the Owner's request before the welder performs any welding on this Project. Contractor shall submit Welders Certification of Compliance in accordance with ASME BPVC Section IX.

1.5 WELD TESTING

A. The Contractor shall be solely responsible for the quality of welding performed and shall remove and repair any welding that is substandard or rejected by the Owner or Engineer.

B. Welds will be visually inspected by the Owner or Engineer. Welds found to be visually unacceptable by the Owner or Engineer may be inspected by means of radiographic (X-ray) testing in accordance with ASME B31.3 or API 1104.

C. The Owner will provide the services of an independent testing laboratory to perform radiographic testing of welds. If the tested welds are found to be defective, the Contractor will be responsible for 100% of the cost of repairing and retesting its welds.

End of Section

SECTION 41 08 12
PRECISION ALIGNMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Shaft to Shaft Alignment - This Section covers the requirements for the alignment of driver and driven shafts.
B. Pulley & Sprocket Alignment - This Section covers the requirements for the alignment of drive and driven pulleys and sprockets.

1.2 RELATED SECTIONS

A. Section 01 11 00 - Summary of Work
B. Section 01 11 00 - Equipment List

PART 2 - ALIGNMENT TOOLING

2.1 Shaft to Shaft Alignment – All shaft to shaft alignments must be completed using precision computerized laser alignment tooling. The device must be capable of measuring Angular and Offset Misalignment and providing corrective solutions. Approved tooling includes but is not limited to:

A. VibrAlign Shaft Hog
B. SKF TKSA
C. Fluke
D. Aligneo
E. Easy-Laser
F. Optalign
G. Permalign
H. Rotalign
I. Shaftalign
J. Smartalign
K. Approved Equivalent
L. Others by approval

2.2 Pulley & Sprocket Alignment – All pulley to pulley and sprocket to sprocket alignments must be completed using precision laser alignment tooling. Approved tooling includes but is not limited to:

A. Gates Drivealign
B. Gates EZ Align
C. SKF TKBA
D. Vibralign Belt Hog
E. PowerLine
F. FAG Top-Laser
G. Approved Equivalent
H. Others by approval

**Note – tooling must be capable of alignment of both pulleys and sprockets.

PART 3 - ALIGNMENT TOLERANCES

3.1 Shaft to Shaft Alignment – per table below.

Rotational Speed (RPM)	**Angularity** (mils/10")	**Offset** (mils)	**Spacer Shaft or Disc coupling** (mils/in)
600	10.00	5.00	2.00
900	8.00	4.00	1.60
1200	6.50	3.25	1.20
1800	4.00	2.50	0.80
3600	2.50	1.25	0.40
7200	1.50	0.75	0.20

Maximum Soft Foot (for **all** Rotational Speeds) = **2.0 mils**

** 1.0 mil = 0.001 inch

3.2 Pulley & Sprocket Alignment

A. Pulley Alignment - The total displacement from either pulley rim face to a straight edge placed across shaft centerlines must be LESS THAN 0.010 inch per foot of spacing between shaft centerlines.

B. Sprocket Alignment – The total displacement from either pulley rim face to a straight edge placed across shaft centerlines must be LESS THAN 0.005 inch per foot of spacing between shaft centerlines.

PART 4 - DOCUMENTATION

4.1 The following requirements shall be met for documentation of all alignments:

A. All alignment results shall be documented on forms provide by Owner or Construction Manager.

B. Each individual alignment requires its own alignment form.

C. Forms shall be signed and dated by the technician who completed the alignments and copies shared with the Owner and Construction Manager.

End of Section

EQUIPMENT ALIGNMENT LOG

Equipment Name/Tag#: _____ **Date:** ___/___/___

Aligned By (name): _____ **Contractor Name:** _____

Alignment Type: **[ ]**-COUPLED SHAFT (_____RPM) **[ ]**-PULLEY **[ ]**-SPROCKET

Coupled Shaft Specifications – see table ➡

** Max Soft Foot – All Speeds = 2.0 mils*

*** 1.0 mil = 0.001 inch*

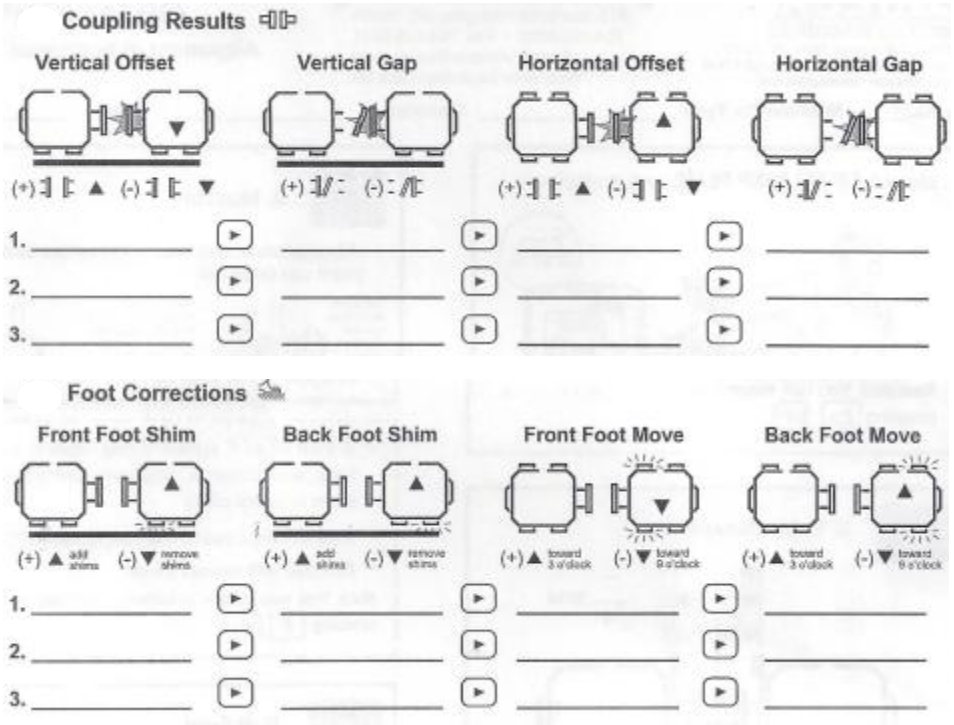
Rotational Speed (RPM)	Angularity (mils/10")	Offset (mils)	Spacer Shaft or Disc coupling (mils/in)
600	10.00	5.00	2.00
900	8.00	4.00	1.60
1200	6.50	3.25	1.20
1800	4.00	2.50	0.80
3600	2.50	1.25	0.40
7200	1.50	0.75	0.20

Pulley Alignment Specification: Max gap straight edge to face <.010" per foot of spacing between shaft centerlines.

Sprocket Alignment Specifications: Max gap straight edge to face <.005" per foot of spacing between shaft centerlines.

COUPLED SHAFT RESULTS Drive Equipment Type_____ Driven Equipment Type_____

*****CIRCLE FINAL ALIGNMENT MEASUREMENTS***



PULLEY & SPROCKET RESULTS Aligned by: [ ]-Laser [ ]-Straight Edge

Record results here if aligned by straight edge: Shaft Spacing _____ Straight Edge Gap _____

[ ] Moved Drive Equipment (motor/gearbox) [ ] Moved Drive Pulley or Sprocket

[ ] Moved Driven Equipment (gearbox/pump) [ ] Moved Driven Pulley or Sprocket