American Samoa Power Authority
P.O. Box PPB
Pago Pago, American Samoa 96799
Telephone: (684) 699-3057
Email: procurement@aspower.com
Website: www.aspower.com

REQUEST FOR QUOTATIONS

SUPPLY & DELIVERY OF THREE WATER STORAGE TANKS

RFQ NO. ASPA25.012

Issuance Date: **January 28, 2025**

Closing Date/Time: **March 5, 2025 at 2:00PM**

APPROVED FOR ISSUANCE BY:

WALLON YOUNG F.
ASPA Executive Director

Materials purchased under this contract will be funded with federal grants from the United States Environmental Protection Agency

NOTICE TO OFFERORS

Issuance Date:	**January 28, 2025**
RFQ No.	**ASPA25.012**
Project Name:	**SUPPLY & DELIVERY OF WATER STORAGE TANKS**
Closing Date/Time:	**March 5, 2025 at 2:00PM American Samoa Time**

The American Samoa Power Authority (ASPA) hereby solicits quotations for the SUPPLY & DELIVERY OF THREE WATER STORAGE TANKS. This project is federally funded.

Scope of Purchase. The complete description of required deliverables is listed in the Bid Form.

Documents. Each Offeror must submit their quote in a sealed enveloped address to the Procurement Manager. An original, five (5) copies and one PDF electronic copy of the quote must be received at the ASPA Procurement office no later than 2:00PM on the closing date mentioned above. Quote submittals may also be sent electronically via email to procurement@aspower.com. This Request for Quotes may be viewed online at www.aspower.com.

Questions and/or concerns regarding this RFQ may be directed to:

Renee Leotele Togafau
(684) 699-3057
procurement@aspower.com

The American Samoa Power Authority reserves the right to:

1. Reject all Quotes and reissue a new or amended RFQ;
2. Request additional information from any Offeror submitting a Quote;
3. Negotiate a Contract with the firm selected for award; and
4. Waive any non-material violations of rules set up in this RFQ at its sole discretion.

Approved for Issuance: Wallon Young F., Executive Director

INVITATION TO BID

You are hereby invited to bid for requirements of the American Samoa Power Authority

Bid No.	ASPA25.012	**Closing Date:**	03/05/2025	**Closing Time:**	2:00PM
Description:		**SUPPLY & DELIVERY OF WATER STORAGE TANKS**			

INSTRUCTIONS

1) This REQUEST FOR QUOTE shall require a Cost Quote to be submitted on the bid form included in this package

2) All required submittals, including the Cost Quote must be addressed to the ASPA Procurement Manager at the ASPA Tafuna Compound, or via email to procurement@aspower.com. Hard copies may also be sent to:

American Samoa Power Authority c/o Procurement
P.O BOX PPB
Pago Pago, AS 96799

3) One Original, Five (5) hard copies and one (1) PDF of the complete Quote must be received at the ASPA Procurement Office no later than the date listed above. Hard copies will be required for Quotes exceeding twenty-five (25) pages.

4) Late submittals will not be opened or considered and will be determined as non-responsive.

NOTE TO OFFERORS

This RFQ is subject to the attached General Terms and Conditions of **"RFQ NO. ASPA25.012 – Supply & Delivery of Water Storage Tanks."**

The undersigned offers and agrees to furnish within the time specified, the articles and services at the price stated opposite the respective terms listed on the schedule of the cost quotation. In consideration of the expense to the American Samoa Power Authority in opening, tabulating and evaluating this and other quotes, and other considerations such as the schedule, the undersigned agrees the quotation shall remain firm and irrevocable within **One Hundred Twenty (120)** calendar days from the closing date to supply any and all of the items for which prices are quoted. Offerors may be requested to extend the validity period of their Quotes, on the same terms and conditions, if the internal processes are not finalized with the validity period.

Signed: _____ Date: _____

SPECIAL NOTICE TO PROSPECTIVE OFFERORS

Offerors are reminded to read the Solicitation Instructions and General Terms and Conditions attached to this RFQ to ascertain that all of the following requirements (see RFQ Check List) of the Quotation are submitted in the Quotation envelope at the date and time mentioned in the Invitation to Bid.

- **Quotation Forms**

  - Attachment A – Quote Transmittal Form
  - Attachment B – Bid Form
  - Attachment C – Offeror's Qualification Sheet
  - Attachment D – Disclosure Statement
  - Attachment E– Non-Collusion Affidavit
  - Attachment F – Debarment Certification Form
  - Attachment G –Scope of Work and Specifications

- **Business License**

  Offerors must submit current business AND contractor's license as stated in the General Term and Conditions.

- **Quotation**

To be deemed responsive, the Offeror must include all the items listed above, as well as any additional documents requested via an addendum.

This Notice must be signed and returned in the Quotation envelope. Failure to comply with requirements will mean disqualification and rejection of the Quotation.

I, _____ authorized representative of _____
acknowledge receipt of this special reminder to prospective Offerors together with Quotation Invitation Number: RFQ NO. ASPA25.012 – Supply & Delivery of Water Storage Tanks this
_____ day of _____ 2025.

_____
Offeror's Representative's Signature

TERMS AND CONDITIONS OF THE INVITATION FOR QUOTATIONS

The Quotation must contain two (2) parts. Offerors shall prepare their Quotations in detail accordingly.

1. **Cost Proposal**. The Offeror's Quotation price for all services and materials, including a breakdown of project costs (e.g., estimated costs for materials, cost for labor, shipping, etc…) must be provided on the Bid Form.
2. **Submittals.** Offeror must provide submittals for all materials listed in the Bid Form that are to be supplied.

Quotation. All blank spaces in the Quotation Form must be completed in ink. Prices quoted shall be in United States dollars in both words and figures where required. No changes shall be made in the phraseology of the forms. Written amounts shall govern in cases of discrepancy between the amounts stated in writing and the amounts stated in figures. In case of discrepancy between unit prices and totals, unit prices will prevail. Any Quotation shall be deemed informal which contains omissions, erasure, alterations or additions of any kind, or prices uncalled for, or in which any of the prices are obviously unbalanced, or which in any manner shall fail to conform to the conditions of the Notice to Offerors. The Offeror shall sign the Quotation in the space provided. Quotations containing alterations will be rejected unless the alterations are crossed out and corrections thereof printed in ink or typewritten adjacent thereto and initialed by the person signing the Quotation. In addition, a statement must be furnished with the Quotation signed by the Offeror explaining the correction of the alteration or erasure.

Corporation. If the Offeror is a Corporation, the legal name of the corporation shall be listed on all the required attachments, together with the signature of the officer authorized to sign contracts on behalf of the corporation. The typewritten name shall be inserted with each signature. If the Offeror is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership. If signature is by an agent, other than an officer of a corporation or a member of a partnership, a notarized power-of-attorney must be on file with ASPA prior to opening of Quotations or submitted with the Quotation, otherwise the Quotation will be regarded as not properly authorized.

Alternate Quotations. Alternate Quotations will not be considered unless authorized by the invitation, or via an addendum. Alternate quotations are those offered which do not meet the specification(s) and are not considered approved equal to the item specified.

Submission of Quotations. All interested parties must submit an original, five (5) hard copies and a PDF electronic copy in a sealed envelope, subject to the Terms and Conditions of the Request for Quotations and General Conditions, which are incorporated herein by reference, and such other provisions and specifications are attached or incorporated by reference. Each section proposed must be complete.

If the closing date falls on a weekend, or public holiday recognized by ASPA, the closing date shall be the next business day.

Quote Submission Date & Time	March 05, 2025 at 2:00PM
Location of Submission	ASPA Tafuna Compound Procurement Office P.O Box PPB Pago Pago, AS 96799 procurement@aspower.com

Rejection of Quotations. ASPA, may after opening but prior to award and within the time specified for acceptance, reject any or all Quotations, or the Quotation for any one or more commodities or contracted services included in the proposed contract, when the public interest will be served thereby.

Pre-Quotation Questions. Any pre-quotation questions and/or clarifications shall be submitted in writing to the Procurement Office through electronic mail at procurement@aspower.com. Bidders are prohibited from engaging ASPA officers and employees, other than Procurement staff. All responses will be addressed via an Addendum.

Payment Terms. Net 30 days upon receipt of materials. ASPA reserves the right to reject any quotation that does not meet these terms.

Type of Contract. Services, materials, product or equipment provided and delivered by the Contractor will be performed under a firm fixed-price, lump sum contract agreement. The Contractor, as an independent contractor, shall furnish the necessary equipment, personnel, tools, parts, supplies, insurance, licenses, and all other required items and services and otherwise do all things necessary to meet the requirements specified in these documents to the satisfaction of ASPA on per unit cost basis.

An independent contractor is not an agent, or an employee of ASPA. ASPA will not be held responsible in any way for claims filed by the Contractor or its employees for services performed under the terms of this RFQ or the contract.

Award of Contract. Within thirty (30) calendar days after the opening of the Quotations, unless otherwise stated in the Notice to Offerors, ASPA will accept one of the Quotations in accordance with the section entitled "Basis of Award" below. The acceptance of the Quotation will be by written Notice of Award, mailed or delivered to the office designated in the Quotation. In the event of failure of the lowest responsive and best responsible Offeror to sign and return the award acceptance, with acceptable payment and performance bonds, as prescribed herein, ASPA may award the contract to the next lowest responsive and best responsible, qualified Offeror. Such award, if made, will be made within ninety (90) days after the opening of Quotations. Before a contract is finalized, ASPA may require the selected Offeror to submit a complete statement of the origin, composition, manufacture and availability of replacement parts and services for any or all materials to be used in the work, together with samples. These samples may be subjected to the tests provided for in these contract documents to determine their quality and fitness for the work.

Primary Offeror. The award, if made, may be made to a single Offeror. The selected primary Offeror will be responsible for the successful performance of all subcontractors and support services offered in response to this Quotation. Furthermore, ASPA will consider the primary Offeror to be the sole point of contact regarding contractual matters for the term of the Agreement. The Offeror must no assign financial documents to a third-party without prior written approval by ASPA, and an amendment to the resulting Agreement.

Business License. All Offerors shall be appropriately licensed in accordance within the state, territory, and/or country of the Offeror's origin and shall be skilled and regularly engaged in the general type and capacity of work called for under this RFQ.

Insurance. The Contractor shall obtain the insurance coverage designated herein and pay all costs associated therewith. Such insurance shall be for the coverage of the shipment of materials to ASPA. ASPA does not own goods during shipment.

Basis of Award. Award is made to the lowest responsive and best responsible Offeror providing the best value to the American Samoa Power Authority.

At the time of Quotation opening, each Quotation will be checked for the presence or absence of required information in conformance with the submission requirements of this RFQ. A Source Evaluation Board (SEB) will evaluate each Quotation to determine its responsiveness to the published requirements. The identities and individual scores of the SEB are confidential.

Unless the Procurement Manager determines that satisfactory evidence exists that a "mistake" has been made, as set forth in Procurement Rule § 3-114, Offerors will not be permitted to revise their Quotations after Quotation opening.

Negotiations are not allowed and price is the major determining factor for selection and award.

CRITERIA	POINTS
PRICE	40
SHIPPING/LEAD TIMES	30
PAST EXPERIENCE in providing similar materials	20
ADHERENCE TO RFQ CONDITIONS	10

Quotations will be evaluated according ASPA's Procurement Rules, and criteria set forth in these Quotation documents.

ASPA reserves the right to award by section(s), or item(s), or as a whole package of all sections.

Qualification of Offeror. ASPA may make such investigations as it deems necessary to determine an Offeror's ability to enter into and perform the agreement, and the Offeror shall furnish to ASPA such information and date for this purpose as ASPA may request, or the Offeror may be deemed non-responsive.

Multiple Quotations – Collusion. If more than one Quotation is submitted by any one party or in the name of its clerk, partner or other person, all Quotations submitted by said party may be rejected by ASPA. This shall not prevent an Offeror from submitting alternate Quotations when called for. A party who has proposed prices on materials is not thereby disqualified from quoting prices to other Offerors or from submitting a Quotation directly to ASPA.

If ASPA believes that collusion exists among any Offerors, none of the participants in such collusion shall be considered. Quotations in which the contract prices are unbalanced or unrealistic may be rejected at ASPA's sole discretion.

Offeror's Understanding. Each Offeror must understand and acknowledge the conditions relating to the execution of the work and it is assumed that it will make itself thoroughly familiar with all of the contract documents prior to execution of the contract, and tender documents prior to submission of a Quotation.

Each Offeror shall inform itself of, and shall comply with, federal and territorial statues and ordinances relative to the executing of the work. This requirement includes, but is not limited to, applicable regulations concerning protection of public and employee safety and health, environmental protection, historic preservation, the protection of natural resources, fire protection, burning and non-burning requirements, permits, fees, and similar subjects.

Costs of Transportation. The Offeror will be expected to include in its Quotation, among other things, costs of transporting product, equipment and materials to and from American Samoa.

Equipment Warranty & Maintenance Requirements. All quotes should include the warranty cost of equipment and workmanship warranty, or length of warranty specified in the materials specifications. Warranties shall include the cost of all parts, labor, equipment, shipping, and onsite visits to repair or replace any deficient equipment, material, or workmanship.

Withdrawal of Quotation. Any quotation may be withdrawn prior to the scheduled time for the opening of Quotations by notifying ASPA in a written request. No Quotation may be withdrawn after the time scheduled for opening of Quotations.

Opening and Evaluation of Quotations. Quotations will be opened and recorded by the approved Source Evaluation Board (SEB).

Execution of Contract. Upon receiving a Notice of Award, Contractor must return a signed acceptance of the award by the date and time prescribed in the Notice of Award. A contract and/or Purchase Order will be delivered to the Contractor.

Assignment. The Contractor shall not assign, transfer, convey or otherwise dispose of the award or the contract, or its right, title or interest therein, or its power to execute such contract, to any other persons, firms or corporations without the prior consent in writing of ASPA.

Time Is Of the Essence. Time is of the essence in supplying and delivering the materials required under this RFQ.

RFQ Conditions. This RFQ does not commit ASPA to award a contract, or to pay any cost incurred in the preparation of a Quotation. ASPA reserves the right to:

- Reject any Offeror for being non-responsive, or non-responsible to Quotation requirements contained in this RFQ
- Reject all Quotations and reissue a new or amended RFQ
- Negotiate a contract with the Offeror selected for award; and
- Waive any non-material violations of rules contained in this RFQ

Addendum. ASPA reserves the right to issue any addendum to this RFQ. Offerors shall send ASPA a signed Addendum confirming receipt. In the event that an Offeror fails to acknowledge receipt of any such Addendum, such Offeror's Quotations shall be considered irregular and will be accepted by ASPA only if it is in ASPA's best interest, as determined by ASPA in its sole discretion.

Compliance With Laws. Offerors who are awarded a contract under this solicitation shall comply with the applicable standards, provisions and stipulation of all pertinent Federal and/or local laws, rules, regulations relative to the performance of this contract and the furnishing of goods.

Award, Cancellation and Rejection. Award shall be made to the lowest and best responsible bidder. ASPA reserves the right to waive any more irregularities in the Quotation received. The Procurement Manager shall have the authority to award, cancel, or reject Quotations, in whole or in part for any one or more items if s/he determines it is in ASPA's best interest. It is the policy of ASPA to award contracts to qualified Offerors. ASPA reserves the right to increase or decrease the quantity of the items for award and make additional awards for the same type items based on the Quotation prices for a period of thirty (30) days after the original award.

Offeror's Qualification Data. It is the intention of ASPA to award a contract only to the Contractor who is able to furnish satisfactory evidence that it has the requisite experience and ability and that it has sufficient capital, facilities and plant to enable it to perform the work successfully and promptly and to complete it within the term set forth in the contract. Each offeror shall submit the required information under Attachment D – Offeror's Qualification Form.

Delivery and Remedies for Default. All proposed prices are to include delivery to the place designated by ASPA which shall be the ASPA Tafuna Warehouse. All price Quotations are to be FOB destination. Contractor shall be responsible for filing all claims for damage or loss resulting from shipment, and shall provide timely remedy to ASPA for any loss thereby incurred.

All items covered by this contract shall be subject to inspection and acceptance at destination. Any materials found to be damaged, as well as broken seals on packages or unmarked packages shall be removed and replaced by the Contractor at no cost to ASPA.

In the event any item furnished by the Contractor in performance of the contract should fail to comply with the specifications established as a basis for award of the invitation, ASPA may reject the same, and it shall thereupon become the duty of the Contractor to reclaim and remove the same forthwith without expense to ASPA, and immediately to replace all such rejected items with others conforming to said specifications. Should the Contractor, fail, neglect or refuse to do so, ASPA shall thereupon have the right to purchase in the open market, at the then prevailing price, a corresponding quantity of any such items, and to deduct from any monies due or that may thereafter become due to the Contractor, the difference between the price named in the contract and the actual cost thereof to ASPA. In addition and without limiting any other remedies available to ASPA, the Contractor shall be liable for all losses, costs and expenses incurred by ASPA.

Acceptance of items at destination shall not relieve the Contractor from the obligation to correct any incomplete, inaccurate, or defective deliveries in accordance with these General Conditions. The time of delivery as set forth herein is an integral part of this Invitation and resulting contract. If Contractor fails to make delivery within the time established and agreed upon by both parties, ASPA may, at its option, declare the Contractor to be in default, and its Quotations and resulting contract to be null and void or ASPA shall charge the Contractor a fee of $100 per day until the default has been remedied.

Contractors shall be excused from performing hereunder during the time and to the extent that they are prevented from obtaining, delivering, or performing in the customary way because of fire, strike, act of God, partial or total interruption, providing it is satisfactorily established that the non-performance is not due to fault or negligence of the party not performing.

Offeror shall indicate in its Quotation the lead time for delivering the order to American Samoa. ASPA shall be notified by the vendor if the product ordered cannot be delivered within the time period to give ASPA the opportunity to secure product elsewhere.

ASPA reserves the right to purchase products on open market if vendor cannot supply products within the time specified in this contract.

Prices. All prices in the Quotation shall be firm and not subject to an increase if accepted during the acceptance period. Quotations containing an "escalation clause" will not be considered unless specifically authorized by ASPA in the RFQ. Prices shall be in US Dollars. Quotations received in any currency other than US Dollars, will be converted using the rates assigned by ASPA.

For each item Quotation, a unit price and a total for the quantity must be stated. The unit price shall always control.

All prices shall be CIF Tafuna ASPA Warehouse. The Seller hereunder must at his own expense and risk, transport the goods to the named place and there tender delivery.

Product Guarantee. Products sold under the contract must be guaranteed by the vendor. Orders not filled and partials shall be indicated on the packing list. Vendor shall inform the Procurement Manager of anticipate delivery date for unfilled and partial orders.

New Materials. Except as to any supplies or components which the specifications provide need not be new all supplies and components to be provided under this contract shall be new (not used or reconditioned, and not of such age or so deteriorated as to impair their usefulness or safety), of current production, and of the most suitable grade for the purpose intended.

Return Policy. Products can be returned for full credit within 30 days from the date of purchase. If an item is received damaged or defective, the vendor will replace the item at no charge. Should ASPA encounter a warranty/return issue, the product will be returned to the vendor for full credit or a replacement.

Specifications. All specifications included as a part of this Invitation are designed to set forth the level of quality and performance desired by ASPA, and is intended to be descriptive, not restrictive. Whenever any article, materials, or equipment is described by use of a product or brand name, or by using the name of a manufacturer or vendor, the use of same is for informative purposes only, and the term "or equal" if not inserted, is implied.

Alternate Offers. Offerors may submit alternate offers on items they deem to be equal or superior in quality and performance to the specifications set forth. However, such offers must designate the manufacturer, brand or trade name, and model number of the items offered, and be accompanied by descriptive material in the form of literature, catalog cuts and specifications fully describing the items proposed, and detailing any deviations from the specification established by ASPA. Failure to provide this information will be at Offeror's risk and may be cause for rejection of the items offered.

The responsibility to determine the equivalence of quality and performance of any item offered to the specifications established for this Invitation rests solely with ASPA and its decision shall be final. ASPA reserves the right to require such additional information, samples and, if practicable, demonstration of items.

Warranty. The Contractor warrants:

- that goods, supplies, materials, and equipment covered by this contract conform to the specifications, design, drawings, samples and other descriptions referred to in this contract;
- that such goods, supplies, materials and equipment are free from defects in materials and workmanship, patent or latent; and
- that such goods, supplies, materials, and equipment are fit for ordinary purposes for which they are used, and fit for such particular purposes as the Contractor has reason to know or should know

Conflict of Interest. No member, officer, or employee of ASPA during their tenure or for one year thereafter shall have any interest, direct or indirect in any property included, or any contract for property, materials, or services to be furnished or used in connection with this contract or the proceeds thereof.

Indemnification. Contractor agrees to investigate, defend and hold ASPA harmless from and against any and all loss, damage, liability claims, demands, detriments, cost, charges and expense (including attorney's

fees), and causes of action of whatsoever character which ASPA may incur, sustain or be subjected to, arising out of or in any way connected to the services to be performed by Contractor or subcontractor under this contract and arising from any cause, except the sole negligence of ASPA.

ATTACHMENT A – QUOTE TRANSMITTAL FORM

American Samoa Power Authority

To Whom It May Concern:

The undersigned (hereafter called "Offeror"), _____ (Corporation, Partnership or Individual) hereby proposes and agrees to furnish all the necessary information pertaining to:

Bid No.	RFQ NO. ASPA25.012
Description	SUPPLY & DELIVERY OF WATER STORAGE TANKS

In accordance with the Materials Specification, General Terms and Conditions, and other procurement requirements specified in this document for the prices stated in the itemized quote form(s) attached hereto, plus any and all sums to be added and/or deducted resulting from all extra and/or omitted work in accordance with the unit and/or lump sum prices stated in the itemized Quote form attached hereto.

The undersigned has read and understands the Quote requirements, and is familiar with and knowledgeable of the local conditions with which the materials to be supplied will be used. The Offeror has read the RFQ and General Terms and Conditions attached to ascertain that all of the requirements of the Quote are submitted in the Quote envelope, with an original, one PDF electronic copy, and five (5) hard copies, at the date and time for Quote opening.

Signed	
Date	

ATTACHMENT B – BID FORM

TITLE: **Supply & Delivery of Water Storage Tanks**

RFQ NO: **ASPA25.012**

BIDDER: _____

The undersigned, in compliance with this request for quotes for the "**Supply & Delivery of Water Storage Tanks**", having examined the RFQ documents hereby proposes to furnish all materials, machinery, tools, supplies, equipment and incidentals, in strict accordance with the General Conditions, general requirements, technical provisions, specifications within the time indicated for the following prices of:

DESCRIPTION	QTY	U/COST	TOTAL	SHIPPING/LEAD TIME
BID FORM A – GLASS FUSED TO STEEL BOLTED TANK				
1) Tank #1 (Pago – Vaipito) • Usable Capacity (US Gallons): 440,000 – 480,000 • Nominal Diameter Range (Feet): 44.5 – 45.5 • Nominal Height Range (Feet): 39 – 40	1			
1a. Shipping & Storage Containers for Tank #1 Materials	1			
2) Tank #2 (Pavaiai – Ulutolu) • Usable Capacity (US Gallons): 930,000 – 970,000 • Nominal Diameter Range (Feet): 64.5 – 65.5 • Nominal Height Range (Feet): 39-40	1			
2a. Shipping & Storage Containers for Tank #2 Materials	1			
3) Tank #3 (Pavaiai – Alofa) • Usable Capacity (US Gallons): 760,000 – 800,000 • Nominal Diameter Range (Feet): 62-63 • Nominal Height Range (Feet): 35-36	1			

3a. Shipping & Storage Containers for Tank #3 Materials	1			
			TOTAL COST	
(Total Cost In Words)				
BID FORM B – WELDED TANK				
4) Tank #2 (Pavaiai – Ulutolu) • Usable Capacity (US Gallons): 930,000 – 970,000 • Nominal Diameter Range (Feet): 64.5 – 65.5 • Nominal Height Range (Feet): 39-40	1			
4a. Shipping & Storage Containers for Tank #2 Materials	1			
5) Tank #3 (Pavaiai – Alofa) • Usable Capacity (US Gallons): 760,000 – 800,000 • Nominal Diameter Range (Feet): 62-63 • Nominal Height Range (Feet): 35-36	1			
5a. Shipping & Storage Containers for Tank #3 Materials	1			
		TOTAL COST		
(Total Cost In Words)				

Shipping & Storage Container costs MUST be stated and not lump summed into the unit cost of the tank

The OFFEROR shall submit together with this QUOTATION all other resources, together with a corresponding schedule required to complete the job. QUOTATIONs without the foregoing will be considered non-responsive and may cause the rejection of the QUOTATION at ASPA's sole discretion. All blanks on the QUOTATION Form shall be typewritten or handwritten in blue or black ink.

SUBCONTRACTORS. A list of intended subcontracting firms or businesses together with the type or description of the work to be subcontracted shall be attached to this QUOTATION Form.

IN WITNESS THEREOF, the undersigned has caused this instrument to be executed by its duly authorized officers on this _____ day of_____, 2024.

OFFEROR:

By: _____

Name: _____

Title: _____

ATTACHMENT C – OFFEROR'S QUALIFICATION SHEET

(Please print or type complete all sections. An incomplete section will be considered non-responsive. Use additional sheets if necessary.)

1. Name of Offeror	
2. Name of Official Representative	
3. Business Address/Email:	
4. Telephone, Fax & Official Contact Person	
5. Type of Business Structure	☐ Corporation ☐ Partnership ☐ Joint Venture ☐ Proprietorship

Note: Corporations must complete the recordation of their Articles of Incorporation, which is evidenced by the Certificate of Incorporation issued by the Treasurer of the American Samoa government. Copies of partnership agreements and articles of incorporation should be submitted to the revenue branch along with this application form and relevant documents. Aliens cannot operate sole ownership enterprises, and partnerships with aliens are subject to review by the Immigration Board.

6. Number of Years Offeror Has Been Engaged In Its Current Company Business Under the Present Firm Name Indicated	
7. Type of Work Generally Performed by Offeror	
8. Has Offeror Supplied Similar Materials within the Last 12 months? If yes, state total value of materials supplied, project name and list at least one reference.	

ATTACHMENT D – DISCLOSURE STATEMENTS

I _____ , of _____ ,
(Name of Owner or Partner – All Partners must complete a form) (Name of Company)

the Offeror that has submitted the attached Quotation:

(Complete one of the two following statements)

1. I **have no** immediate relatives (parents, children, siblings or spouse) who are currently employed by ASPA.

_____
(Signed) (Title)

2. I **have** immediate relatives (parents, children, siblings or spouse) who are currently employed by ASPA. Their names and positions are as follows:

Name	**Relationship to Offeror**	**Position in ASPA**

_____
(Signed) (Title)

Note: It is not against ASPA procurement rules for the relatives of ASPA employees to quote on and receive government contracts provided they disclose such relationships at the time of Quotation opening.

ATTACHMENT E – NON-COLLUSION AFFIDAVIT OF PRIME OFFEROR

_____ being first duly sworn deposes and says that:

1. He/She is _____ (Owner, Partner, Representative or Agent)

   of _____ the Offeror that has submitted the attached Quotation

2. S/He is fully informed regarding the preparation and contents of the attached Quotation and of all pertinent circumstances regarding such Quotation

3. Such Quotation is genuine and is not a collusive or false Quotation

4. Neither the said Offeror nor any of its officers, partners, owner, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with any other Offeror, firm or person to submit a collusive or false Quotation in connection with the Contract for which the attached Quotation has been submitted or to refrain from quoting in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Offeror, or to secure through any collusion, conspiracy, connivance, or unlawful agreement any advantage against American Samoa Power Authority or any person interested in the proposed Contract; and

5. The price or prices quoted in the attached Quotation are fair and proper, and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Offeror or any of its agent's representatives, owners, employees, or parties in interest, including this affiant.

STATE OF _____

COUNTY OF _____

This instrument was acknowledged before me this _____ day of _____ 202 ___, by

_____ .

(Name of Signer)

☐ Personally Known

☐ Produced Identification

Type of ID: _____

_____

(Signature Notary)

(Seal)

ATTACHMENT F – DEBARMENT OR SUSPENSION CERTIFICATION FORM

By submitting this offer and signing this certificate, the bidder certifies that company and principals:

1. Are not presently debarred, suspended, proposed for disbarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency
2. Have not, within a three-year period, preceding this bid has been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or Local) transaction of contract under a public transaction, violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
3. Are not presently indicted for or otherwise criminally or civilly charged by a government entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph (2) of this certification;
4. Have not, within a three-year period, preceding this bid had one or more public transactions (Federal, State or Local) terminated for cause or default; and
5. Are not presently listed on the Federal Government Terrorism Watch List as described in Executive Order 13224.

The inability of a bidder to provide the certification required will not necessarily result in denial of participation in this covered transaction. The bidder shall submit an explanation of why it cannot provide the certification. The certification or explanation will be considered in connection with ASPA's determination whether to enter into this transaction. However, failure of the bidder to furnish a certification or an explanation shall be reason for disqualification from participation in this transaction. The bidder shall provide immediate written notice to ASPA if at any time the bidder learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstance.

Bidder's Name:			
Bidder's Address:			
Bidder's Telephone & Email Address:			
Authorized Company Official's Name (Printed:			
Signature of Company Official:			
EIN:		**DUNS #:**	

ATTACHMENT G – SCOPE OF WORK & ADDITIONAL SPECIFICATIONS
(Attached Separately)

AMERICAN SAMOA POWER AUTHORITY
P.O. Box PPB, 1st Airport Road
Pago Pago, American Samoa 96799
Telephone: (684) 699-1234/248-1236
Email: info@aspower.com
Website: www.aspower.com

SUPPY AND DELIVERY OF THREE WATER STORAGE TANKS

PROJECT BACKGROUND

Tank 1 is for the Pago (Vaipito) Water Storage Tank project located in the village of Pago Pago. This tank will help supply water to the Fagasa Pass Tank, Pago village and eastside villages

Tank 2 is for the Toluao Water Storage Tank project on piece of land called "Ulutolu" located in the village of Pavaiai. This tank will help supply water to Tafuna village.

Tank 3 is for the Pavaiai Tank Replacement project. This tank will be the new Pavaiai Tank #1 located on the land called "Alofa". This tank will help supply water to villages of Pavaiai, Mapusagafou and up to Aoloau village.

TANK DESCRIPTIONS

TANK	Tank Project	Capacity Useable Volume Range (Gallons)	Nominal Diameter Range (Feet)	Nominal Height Range (Feet)
1	Pago (Vaipito)	440,000 to 480,000	44.5 to 45.5	39 to 40
2	Pavaiai (Toluao, Ulutolu)	930,000 to 970,000	64.5 to 65.5	39 to 40
3	Pavaiai (Ilaoa, Alofa)	760,000 to 800,000	62 to 63	35 to 36

SCOPE OF WORK

Tank Type

I. Tank 1, the smaller tank, shall be a Glass Fused to Steel Bolted Tank only.

II. Tank 2 and 3, the larger tanks, shall be either a Glass Fused to Steel Bolted Tank, OR a Welded Tank depending on ASPA's final decision after reviewing the quotes. Supplier shall quote for both a bolted tank and a welded tank.

General for All Tanks either Bolted or Welded

1. The supplier must provide each tanks design data.
2. All storage tanks are for public drinking water.
3. The exterior tank color shall be Forest Green and sample color shall be approved by ASPA.
4. ASPA will install the tanks. ASPA will design the foundation.
5. Pallets and/or boxes must be properly wrapped with stretch film and properly and accurately labeled correspondingly with Tank 1 – Vaipito, Tank 2 – Toluao Ulutolu, and Tank 3 – Ilaoa Alofa as appropriate.
6. The shipping storage containers purchased by ASPA shall be accurately labeled Tank 1 - Vaipito, Tank 2 – Toluao Ulutolu, and Tank 3 – Ilaoa Alofa.
7. For each tank, supplier must supply five sealant gun devices/tools to apply sealant.
8. The tank foundations will be a concrete ringwall (installed by ASPA), and the tank must be anchored to the foundation.
9. Under each tank is the typical fiberboard per code, then under the fiberboard shall be a LLDPE liner moisture barrier Titan R30 or approved equal sized to the tank diameter plus 4 FT, then under the liner is a protective nonwoven geotextile Titan TE-6 or approved equal (one roll for each tank). See specs included.
10. The roofs shall be steel bolted glass fused, or welded steel or aluminum geodesic dome roof type by UIG-Everdome or approved equal.
11. Supplier shall indicate expected tank's working lifespan.

General for Bolted Tanks Only

A. To extend the life of the bottom plate, the bottom plate shall be a minimum 4 mm thick.
B. To extend the life of the bolts, after the bolts are covered by the regular bolt sealant material the bolts in addition shall be cover by a corrosion resistant CIM1000 Trowel Grade material at 60 wet mils thick supplied in 1 gallon pails.
C. To extend the life of each tank, they shall come with sacrificial anode Cathodic protection.

General for Welded Tanks Only

A. To extend the life of the bottom plate, the bottom plate shall be a minimum 3/8" thick.
B. To extend the life of the welded tank, the supplier shall include a Cathodic protection system suitable for welded tanks.

WATER TANK COMPONENTS

To be included in the bid proposal for Tanks 1, 2 and 3:

- 12" design freeboard
- Overflow pipe support standoff brackets, HDG CS
- 6" dia Drain Nozzle with 6" projection and blind flange, composed of SS304

- 1 – 24” diameter Manway in tank side shell first ring, composed of HDG CS
- 3/4” dia SS316 MPT – for sampling
- Local Liquid Level Indicator Pressure Gauge Type with a 6” dia Dial and a dual display window displaying the water level in Feet of Water and PSI. All wetted parts are must be composed of SS316. Should Include SS316 needle valve and 90deg SS316 elbow.
- 20” DIA Gravity mushroom vent with insect screen composed of SS304/316
- 30” x 30” Roof Hatch composed of SS304/316
- Exterior vertical caged ladder with climb prevention, SS304/316
- 3FT x 3FT step off platform composed of SS304/316
- HDG CS or JS1000 coated Bolts and Nuts and Washers
- PP Encapsulated head bolts
- NSF 61 approved Sealant as required to compete installation
- (3-6) Grounding lugs SS304/316
- ASTM D1751 fiber board/joint filler between concrete and steel floor
- Wind Girder as required by design calculations, HDG CS
- 18”X18” heavy duty metal overflow drainage grate
- Cathodic Protection
- Tank nameplate
- Anchor bolts, adhesive epoxy of anchor bolts with dispensing gun 23.
- HI PE stamped submittals
- No tank mixer required since inlet is halfway up the tank

To be included in the bid proposal for Tanks 1:

- Inlet nozzle halfway up the tank sidewall. 6” dia Inlet nozzle with 8” projection composed of SS304/316
- 8” dia Outlet nozzle with 8” projection composed of SS304/316
- 8” dia Exterior Overflow Nozzle with 8” projection, composed of SS304/316
- 8” dia PVC sch 40 Overflow pipe with flap valve terminated about 12” above ground
- Full Perimeter handrails and Toe board as per OSHA, composed of SS304/316

To be included in the bid proposal for Tanks 2 and 3:

- Inlet nozzle halfway up the tank sidewall. 8” dia Inlet nozzle with 8” projection composed of SS304/316
- 8” dia Outlet nozzle with 8” projection composed of SS304/316
- 12” dia Exterior Overflow Nozzle with 8” projection, composed of SS304/316
- 12” dia PVC sch 40 Overflow pipe with flap valve terminated about 12” above ground
- For geodesic dome roof, Full Perimeter handrails and Toe board as per OSHA, composed of aluminum

SPECIFICATION SECTION 13210
GLASS-FUSED-TO STEEL BOLTED STORAGE TANKS

PART 1 – GENERAL

1.1 DESCRIPTION

A. CONTRACTOR shall furnish all labor, materials, equipment, and incidentals required to design, fabricate, deliver, erect and test tank constructed of factory prefabricated glass coated, bolt together steel panels. Each tank structure shall include a foundation and other accessory components as described herein.

B. All required tank materials and principal appurtenances shall be supplied by the tank manufacturer.

C. Installation shall be executed by a qualified and experienced erection crew, trained and certified by the tank manufacturer.

D. Tank structures and appurtenances shall be new and not previously used.

1.2 QUALITY ASSURANCE

A. The Supplier shall offer a factory applied Glass-Fused-to-Steel coated bolt together shop prefabricated sectional steel tank.

B. The Supplier will offer a new tank structure as a manufacturer specializing in the design, fabrication and erection of factory applied glass coated, bolted tank systems. Structural design per AWWA D10309std. or the latest code for Bolted Steel Water Storage Tanks.

C. Design and Fabrication Criteria:

1. Except as otherwise shown or specified, all materials, joints, workmanship and all other aspects of the tank and fabrication shall conform to ANSI/AWWA D103 09std. or the latest code hereinafter AWWA D103.

2. Tanks with roofs shall be designed for roof live loads and roof dead loads.

3. Roof Live Load shall be min. **25 psf** (pounds per square foot) as per ASCE 7-16 Section
   4.8.2

4. Snow Loads: The ground snow load shall be **0 psf.**

5. Structure Risk Category: **III**

6. Wind: Tank shall be designed for a basic wind speed of **200 mph** (miles per hour).

a. Importance Factor: **1.0 (Iw)**

c. Exposure Factor **= C**

7. Seismic:

Tank shall be designed for the following seismic conditions:

a. Map Spectral Response:

i. Ss = **0.55**

ii. S1 = **0.18**

b. Seismic Use Group: **II**

c. Seismic Site Class: **D**

d. Seismic Design Cat: **D**

8. Tank Foundation

Shall be designed based on the design recommendations as per project's Geo-technical report.

a. Maximum allowable soils design bearing capacity: should be as per project's Geotechnical report.

b. Site Class: as per project's Geo-technical report.

c. Frost Depth: as per project's Geo-technical report.

d. Note: Foundation design will be carried out by ASPA engineers.

9. Specific Gravity of stored media: **1.0**

10. Pressure:

Water Tanks:

Internal Design pressure Cg: **0.18**

Operating pressure - **Atmospheric (ATM)**

1.3 SUBMITTALS

A. Action Submittals:

Construction shall be governed by the Owner's drawings and specifications showing general dimensions and construction details, after written approval by the Engineer of detailed erection drawings prepared by the tank bidder. There shall be no deviation from the Owner's drawings and specifications, except upon written order from the Engineer.

Submit for approval the following:

a. Copies of detailed tank Design Drawings & Structural Calculations.
Submittals shall be sealed/stamped by a Professional Engineer licensed in the State of HI or CA
Drawings shall include all dimensions, sizes, plate thicknesses, anchorage, nozzle details, and details of all required accessories.

b. Fabrication shall not be started until submitted drawings are approved. When approved, an electronic copy of the submittal information will be returned to the tank manufacturer marked "APPROVED FOR CONSTRUCTION" and these drawings will then govern the work detailed thereon. The approval by the Engineer of the tank supplier's drawings shall be an approval relating only to their general conformity with the bidding drawings and specifications and shall not guarantee detail dimensions and quantities, which remains the tank suppliers'responsibility.

B. Warranty:

If within a period of Five (5) years from date of completion the tank structure or any part thereof including tank coating system shall prove to be defective in material or workmanship upon examination by the manufacturer, the manufacturer will supply a replacement part, will repair, or allow a credit for same.

The tank manufacturer shall provide a standard Maintenance Manual upon approval of the drawings and completion of the tank installation.

PART 2 – PRODUCTS

2.1 GENERAL

A. Tanks shall be manufactured by the following manufacturer:

1. United Industries Group, Inc.
2. Preapproved equal

2.2 TANK

A. Tank Size:

1. Nominal Diameter: Refer to the table above.
2. Nominal Tank Sidewall Height: Refer to the table above.
3. Design Freeboard: 12 inches
4. Usable Tank Capacity: Refer to the table above.
5. Number of Tanks: Refer to the table above.

B. Plates and Sheets:

1. Plates and sheets used in the construction of the tank shell, tank floor and tank roof shall meet or exceed structural requirements of AWWA D103std.

2. Design requirements for High Strength Hot Rolled Carbon Steel shall be ASTM A1011 Grade 50, 55, 60, 65, 70; ASTM A572 Grade 42, 50, 60, 65; or special Enamelable Titanium Rich Hot Rolled Carbon Steel SRT480, 550 that is specifically manufactured for Enameling application with the following mechanical properties:

   SRT480, 550: Titanium (Ti) Rich Hot Rolled Carbon Steel with Min. Ultimate Tensile Strength of 60KSI before firing and Min. Yield Strength of 42KSI after steel firing utilizing min. 30% reduction of steel's published yield strength as outlined by AWWA D103-19 Sections 5.3.2; 5.3.2.1 & 5.3.2.2.

3. Steel plates shall be mechanically rolled in factory to the required tank radius utilizing rolling machines.

4. When Rolled Structural Shapes are used, the design and engineering shall conform to minimum standards of the latest AWWA D.103std.

A. Material shall conform to minimum standards of ASTM A36, Q235

C. Horizontal Wind Girders/Stiffeners: A36, Q235

A. Design requirements for intermediate horizontal wind stiffeners shall be of the Web-truss design type with an extended tail creating multiple layers of stiffener, permitting wind loads to be distributed around the tank.

B. Web truss stiffeners shall be of steel with hot dipped galvanized coating.

C. Rolled steel angle stiffeners are not permitted for use as intermediate horizontal wind stiffeners.

D. The number and size of wind girders shall be determined by the design calculations. Multiple wind girders shall be utilized as determined by the calculations permitting wind loads to distribute uniformly around the tank.

E. Wind girder shall be fabricated of steel with hot dipped galvanized coating.

D. Bolt Fasteners:

A. Bolts used in tank lap joints shall be ½" - 13 UNC- 2A rolled thread, with 4-splines, and shall meet the minimum requirements of AWWA D103, Section 4.2.

B. Bolt Material SAE J429 Grade 8/ASTM A490/ASTM A354, SAE J429 Grade 8

a) Tensile Strength - 150,000 psi Min.

b) Proof Load - 120,000 psi Min.

c) Allowable shear stress with threads excluded from the shear plane: 36,818psi Min.

e) Tank sidewall bolts shall be installed such that the head portion is located inside of the tank and washer and nut are located on the exterior.

E. Bolt Finish

- JS1000 Coating/Plating System by Leland Industries or equal.
- Zinc, mechanically deposited. 2.0 mils minimum - under bolt head, on shank and threads.

F. Bolt Shank

Fully threaded Carriage Type Bolts shall not be permitted.
Bolts shall have a shank.
Threaded portion of the bolt shall not exceed 1” in length and the rest shall be unthreaded bolt shank that is positioned between the tank plates.
All lap joint bolts shall be properly selected such that threaded portions will not be exposed in the "shear plane" between the sheets.
Bolt lengths shall be sized as to achieve a neat and uniform appearance.
Excessive threads extending beyond the nut will not be

G. Bolt Head Encapsulation:

a. High impact polypropylene copolymer encapsulation of entire bolt head up to the shank.
b. Resin shall be stabilized with an ultraviolet light resistant material such that the color shall appear black.
c. The bolt head encapsulation shall be certified to meet the ANSI/NSF Standard 61 for indirect additives.

H. Sealants:

I. The lap joint sealant shall be a one component, moisture cured, polyurethane based elastic sealant. For potable water storage tanks the sealant shall be suitable for contact with potable water and shall be approved by the manufacturer and certified for this use (NSF61), as an indirect additive: such as Manus Bond 75AM or Sikaflex.

II. Sealant shall be used to seal lap joints and bolt connections and edge fillets for sheet notches and starter sheets. The sealant shall cure to a rubber like consistency, have excellent adhesion to glass coating, low shrinkage, and be suitable for interior and exterior use. Neoprene gaskets and tape type sealer shall not be used.

III. Sealant curing rate at 73°F and 50% RH.

Tack-free time: 6 to 8 hours.

Final cure time: 5 to 12 days.

NOTE: Neoprene gaskets and tape type sealer shall not be used.

I. Surface Preparation and Cleaning:

a. After plate fabrication and prior to application of the glass coating system, all sheets/plates shall be steel grit-blasted to SSPC SP-10/NACE2 (Near White Metal) on both sides.

b. The surface anchor pattern shall be not less than 1.0 mil (0.001 inches).

c. All sheets shall be air blasted to remove any latent grit and then coated immediately with a rust preventative material.

J. Sheet Edge Preparation

Prior to glass slurry application all four (4) exposed rectangular continuous sheet edges for each specific sheet radii shall be mechanically rounded in profile resulting in an optimized radius and adhere to The Porcelain Enameling Institute's Technical Manual PEI-101.

All edges shall receive glass coating system approx. 5mils DFT.

K. Glass Coatings; Application and Firing.

a. The tank coating system shall conform solely to Section 12.4 of the latest ANSI/AWWA D103std.
b. The manufacturer shall be currently listed on NSF website (www.nsf.org) as approved and in full compliance with NSF61 and NSF372 standards.

c. Glass coatings to be applied by Wet Spraying and must be fused-to-steel by firing in high temperature oven at min. 1450°F - 1650°F in strict accordance with the ISO 9001 quality control procedures, including firing time, furnace humidity, and temperature control requirements.
d. The tank manufacturers coating process shall employ equipment that evenly coats the sheet surfaces and all (4) exposed sheet edges.
e. Manufacturer shall maintain and use supplementary directional spray nozzles using an automated machine process to consistently coat the sheet edge profiles per PEI 101 standard.
    i. The sheet edges shall be coated with the same Vitreous enamel glass coating system as the sheet surface.
    ii. A base coat of Nickel Oxide (NiO) primer, or a ground coat of glass frit shall contain Nickel Oxide (NiO) primer and it is to be applied to all 6 sides of the sheet.
    iii. A second coat of milled Cobalt Blue or Olive-Green glass shall be applied to both sides of the sheets.
    iv. For NSF61 potable water application a third coat of Titanium Dioxide (TiO2) reinforced glass mixture shall be applied to all interior sidewall and floor, roof sheet surfaces.
    Note: For NSF61 certified tanks the interior coating color shall be White.

f. Glass-Fused-to-Steel Coating Systems shall be min. 7-18 MILS DFT

NOTE:
As per AWWA D103-09 Section 12.4 Glass Coatings - Dry Film Thickness (DFT) of the interior and exterior coating should be minimum 6.0 mils and should not exceed 19.0 mils DFT. In no case dry film thickness (DFT) shall exceed 20mils (500 microns). All plates with DFT over 20mils shall be rejected.

g. **Glass Coating Characteristics:**

- Acid and alkali resistant pH: 6-9
- Hardness: 6.0 (Mohs)
- Adhesion: 3,450 N/cm

h. **Tank Color:**

- Interior:
    - Titanium Dioxide White

- Exterior:
    - Forest Green

i. **Inspections:**

- **Holiday testing per AWWA D103-19std**

I. The maximum voltage of the meter shall not exceed 67.5 volts for wet testing. The sponge shall be dipped in plain tap water as required to keep it uniformly damp, not soaked or dry.
II. Min. 1500V Dry Volt Holiday test on each panel on both sides of every panel.

- Any sheet registering a discontinuity shall be rejected.
- All inside sheet surfaces shall be holiday free.
- Frequency of the test shall be every sheet.

Visible inspection as well as Holiday Detection Test shall be performed on both sides of the glass coated plates. If any unacceptable pinholes are found they shall be repaired i.e. coated second time and Holiday Detection Test shall be performed again on the entire panel.

If upon completion of Holiday repairs still any unacceptable pinholes are found at least on one side of the panel, the entire plate shall be rejected and substituted with the one that has successfully passed Holiday Testing inspection.

- **Measurement of Glass Thickness:**

All coated sheets shall be inspected for mil thickness (Mikrotest or equal). The thickness gage shall have a valid calibration record.

- Interior and Exterior surfaces.
- Glass thickness shall be measured using an electronic dry film thickness gauge (magnetic induction type or equal).
- Frequency of the test shall be every Tenth (10^{th}) sheet.

- **Fishscale Testing:**

- Glass coating shall be tested for fishscale by placing the full-size sheet in an oven at 400 degrees F for one hour.
- Then the sheet will be examined for signs of fishscale.
- Any sheets exhibiting fishscale shall be rejected and all sheets from that gauge lot will be similarly tested.
- Frequency of this test shall be one sheet per gauge lot run minimum.

- **Adhesion Testing:**

- Coating adhesion shall be tested in accordance with ISO 28765 Class 2 or better. Sheet face and sheet edge must meet the same glass quality test.

- **Impact Adherence Testing:**

    - The adherence of the glass coating to the steel shall be tested in accordance with ISO standards. Any sheet that has poor adherence shall be rejected.

L. Tank Foundations and Tank Floors:

1. Tank to be equipped with bolted glass-fused-to-steel floor in full compliance with ASCE 7-16.

2. All steel-bottom tanks shall be supported on a concrete ringwall foundation or full slab concrete foundation.

3. The top of the foundation shall be a minimum of 6-inches above the finished grade.

4. Tank foundation design shall be based on the maximum allowable soil design bearing capacity as determined by the geotechnical report/soils analysis performed by a licensed geotechnical engineer.
   The cost of this investigation and analysis shall not be included in the bid price. Copies of the soil report shall be provided to the bidder prior to bid date by the Owner or Project Engineer.

5. Foundation settlement:

   For Type 1 foundations the total settlement shall not exceed 2”, and the differential settlement shall not exceed 13mm per 10m (1/2” per 32’) of circumference.

   For Type 2 foundations the total settlement shall not exceed 2”, and the differential settlement shall not exceed 13mm per 10m (1/2” per 32’) of circumference. For Type 3 foundations the total settlement shall not exceed 2”, and the differential settlement shall not exceed 13mm per 10m (1/2” per 32’) of circumference.

   For Type 4 foundations the total settlement shall not exceed 2”, and the differential settlement shall not exceed 13mm per 10m (1/2” per 32’) of circumference.

   For Type 5 foundations the total settlement shall not exceed 2”, and the differential settlement shall not exceed 13mm per 10m (1/2” per 32’) of circumference.

   For Type 6 foundations the total settlement shall not exceed 1”, and the differential settlement between the center and edge of the tank shall not exceed 0.5”.

6. **Tank Foundation Type:**

Type 1. Steel-bottom tanks supported on ringwall.

A sand or fine stone cushion at least 3-in. (76-mm) thick shall be provided above the earthen interior under the tank bottom.
The shell to be supported on a minimum 1/ 2 in. (13 mm) thick cane-fiber joint filler meeting the requirements of ASTM D1751.Ringwalls after grouting or before placing the cane-fiber joint filler, shall be leveled within ±1/ 8 in. in any 30-ft circumference under the shell. The levelness on the circumference shall not vary by more than ±1/4 in. from an established plane.

Tolerances on Concrete Foundations.

- Ringwalls and slabs, after grouting or before placing the cane-fiber joint filler, shall be level within +/- 1/8 in. (3 mm) in any 30-ft (9-m) circumference under the shell.
- The levelness on the circumference shall not vary by more than +/- ¼ in. (6 mm) from an established plane.
- The tolerance on poured concrete before grouting shall be +/-1 in. (25 mm).

7. **Finish on Concrete Foundations.**

The top portions of foundations, to a level 6 in. (150 mm) below the proposed ground level, shall be finished to a smooth form finish in compliance with ACI 301. The top corners of the foundation shall be either neatly rounded or finished with a suitable bevel. Any small holes may be troweled over with mortar as soon as possible after the forms are removed.

8. **Tolerances on anchor bolts.**

Anchor bolt location, projection, and embedment tolerance shall be +/- 1/4 in. (6 mm). Anchor bolt plumbness tolerance shall be +/- 3 degrees from vertical.

9. **Foundation edge distance.**

The tops of foundations shall project at least 3 in (76 mm) beyond the tank sidewall, or greater if required by design. In base-setting ring applications, the top of the foundation should project a minimum of 8 in (200 mm) beyond the tank sidewall, or greater if required by design.
When anchor bolts are used, the foundations shall project min. 9 in. (230 mm) beyond the tank.

M. **Nozzles & Accessories:** material as per plans

Standard: Hot-Dip Galvanized CS Optional:

- SS304L
- SS316L

N. Nozzle and Manway Openings:

To be shop located and cut in factory, mechanically rounded prior to glass application and shall receive glass coating system on the edges approx. 5mils DFT.

O. Roof Vent:

Vent - A properly sized atmospheric vent assembly in accordance with AWWA D103 shall be furnished and installed on the roof.

The overflow pipe shall not be considered as a tank vent.

The vent to prevent the entrance of birds and/or animals by including an expanded aluminum screen.

When insect screening is specified, a pressure-vacuum screened vent or a separate pressure-vacuum relief mechanism shall be provided that will operate in the event that the screens frost over or become clogged with foreign material. The screens or relief mechanism shall not be damaged by the occurrence and shall return automatically to the operating position after the clogging is cleared.

P. Steel Cone Type Tank Roof:

1. General:

Tank roofs shall be furnished by the tank manufacturer.

a. Tanks under 58FT in Diameter shall be equipped with 2:12 slope, rafter & structure supported Glass-Fused-to-Steel CS Cone Decks without center column. Roof sheets must be minimum 12GA in thickness.

b. Tanks over 58FT in diameter shall be equipped with a Clear-span self-supporting aluminum geodesic dome roof type by UIG-EVERDOME or pre-approved equal. Roof live loads and dead loads shall be carried by tank sidewalls, without any additional support.

2. Aluminum Geodesic Dome Roof:

Design Standards: ADM2015, AWWA D108-19std, ASCE7-16, IBC 2018.

a. Aluminum dome roofs shall be constructed of non-corrugated, triangular aluminum panels, which are sealed and firmly clamped in an interlocking manner within a fully triangulated aluminum space truss system.

b. Dome roof shall be clear span and designed to be self-supporting from the

periphery structure with primary horizontal thrust contained by an integral tension ring. Dome roof dead weight shall not exceed 3 pounds per square foot of surface area.

c. Dome roof and tank will be designed to act as an integral unit. The tank will be designed to support an aluminum dome roof including all specified live loads.

-

Roof Vent. A properly sized atmospheric vent assembly in accordance with AWWA D103 19 shall be furnished and installed on the roof.
The overflow pipe shall not be considered as a tank vent.
The vent to prevent the entrance of birds and/or animals by including an expanded aluminum screen.

MATERIAL:

All aluminum alloys shall be as defined by the Aluminum Association, ADM 2015 and published in the ALUMINUM STANDARDS AND DATA.

1. **Bolts and Fasteners:**
Bolts shall be 300 series stainless steel per ASTM F593, Alloy Group 1, UNE-EN-ISO 3506 AISI 316 (A4).

Screws shall be aluminum or 300 series stainless steel.

3. **Plates and Sheets:**

Roof panels shall be AA3000 or AA5000 series with 0.050" (1.2mm) thickness
Plate and sheet material shall be aluminum alloy, 3003-H16, 5754-H22/H24, 3105-H154, 6061-T6, 5052-H32, 5052-H36; mill finish AA - M10 as fabricated.
Tension ring gussets shall be 0.3125 inch minimum thickness. Sheet materials shall be 0.050" (1.2mm) minimum thickness.

The aluminum closure panels shall be attached continuously along their edges to the structural members by means of batten bars which engage the panels in an interlocking joint. This batten bar shall also secure an elastomeric weather-seal gasket that shall form a continuous watertight seal along the panel edges.

4. **Structural Shapes**:
Aluminum structural shapes shall be alloy 6082-T6, AA6005A-T6, 6061- T6.
The aluminum structural members shall be a minimum of 4 ½ inches deep.

5. **Internal Columns** – SS316 series stainless steel (if they are used).

6. **Miscellaneous Shapes:**
Miscellaneous aluminum shapes shall be alloy 6061-T6, 6082-T6/T651, 6063-T5.

7. **Gaskets:**

All gaskets shall be Neoprene, EPDM or Silicone. The gaskets must have a 1/8" - ¼"

thickness.

8. **Sealant:**
   All sealants shall be silicone and resistant to ozone and ultraviolet light.

NOTE:
The entire roof structure shall be designed to sustain the loads specified herein, with the stress limitations of the Aluminum Association SPECIFICATIONS FOR ALUMINUM STRUCTURES and/or ADM2015. For members subjected to axial forces and bending moments due to load eccentricity or lateral loads, the combined member stresses shall be determined by adding the stress component due to axial load to the stress components due to bending in both the major and minor axis.
In no case shall the roof be designed for any loads less than those specified by the local building code and/or local amendments.

1. **Dead Load** – The dead load shall be defined as the weight of the structure and all permanently attached to and supported by the structure.

2. **Load Combinations** – As required per ASCE 7-16 Section 2.4.1.

3. **Temperature** - The load combinations listed above shall be considered for a temperature change of 100 degrees F below the installation temperature and 100 degrees F above the installation temperature and for a material temperature range of 40 degrees F below 0 to 160 degrees F above zero.

4. **Panel Design Load** - In addition to the above mentioned loads and load combinations, the aluminum panels shall be designed for a 250 pound load distributed over one square foot at any location and a plus or minus 60psf load distributed over the entire area of any given panel. These loads are to be taken as acting separately from one another and not simultaneously with other design loads.

LIST OF ACCESSORIES FOR AL. DOME ROOF:

- 30" x 30" Roof Access Hatch composed of AL
- Min. 20" dia ATM Gravity vent with AL. insect or bird screen composed of AL
- Eyebolt/Safety Pin/Painters Pin composed of SS304
- Non-Slip traction tape to the apex of the dome roof
- AL. single handrail to the apex of the dome roof
- OSHA approved handrails composed of AL
- SS304 Safety Line

2.3 TANK ACCESSORIES

A. Level Indicator:

1. Manufacturer shall supply and install visual liquid level indicator type on the side of the tank (Float Type or a Pressure Gauge type).

B. Pipe Connections:

1. Where pipe connections are shown to pass through tank panels, they shall be factory located and cut at factory prior to the application of the glass coating system.

2. The manufacturer shall utilize an interior and/or exterior flange assembly and the tank shell reinforcing as required by the project engineer and owner's requirements.

3. A single component urethane sealer shall be applied on any cut panel penetrations or bolt connections.

C. Access Door/Manway:

1. Tank shall be provided with min. One (1) 24 inch diameter manway in first (bottom) ring as shown on Contract Drawings or as per AWWA D103.

D. Identification Plate:

1. A manufacturer's nameplate shall list the tank serial number, tank diameter and height, maximum design capacity, intended storage use, and date of installation. The nameplate shall be affixed to the tank exterior sidewall at a location approximately 5' from grade elevation in a position of unobstructed view.

E. Cathodic Protection System:

1. The manufacturer shall design and supply a passive, sacrificial magnesium cathodic protection system as required.

F. External Overflow Weir and Pipe:

1. Overflow pipe shall be determined by the manufacturer or specified by the Engineer and shall be composed of galvanized CS sch 40 pipe, Schedule 80PVC, SS304 or DI Pipe.

G. Roof Access Hatch:

1. Provide min. One (1) 24 inch x 24 inch access hatch.

H. Ladders:

1. An exterior vertical caged tank ladder shall be furnished and installed as shown on the contract drawings and as per OSHA.

2. Ladders shall be fabricated of carbon steel. Finish shall be hot dipped galvanized or SS304 as specified on the plans.

3. Safety cage and step-off platform every 20FT shall be constructed of galvanized steel. A locking cage gate shall be attached to the bottom of the safety cage, HDG CS or SS as specified on the plans.

2.4 TANK PACKAGING

A. All sheets that pass Factory Inspection and Quality Control checks shall be protected from damage prior to packing for shipment.

B. Suitable non-abrasive packaging sheets shall be placed between each panel to eliminate sheet -to-sheet abrasion during shipment.

C. Individual stacks of panels will be wrapped in heavy mil black plastic and steel banded to special wood pallets built to the roll-radius of the tank panels. This procedure minimizes contact or movement of finished panels during shipment.

PART 3 – EXECUTION

3.1 - ERECTION

A. Except as otherwise shown or specified, Tank shall be erected in accordance with the requirements of AWWA Standard D103 latest edition and manufacturer's recommendations and instructions.

B. Supervisory personnel of the erection crew shall identify themselves to responsible personnel of the Engineer or Inspector upon initially entering the job site.

C. **Tank Foundation:**

1. The tank foundation shall be designed by a certified PE to safely sustain the structure and its live loads.

2. Tank footing design shall be based on the soil bearing capacity given by the geotechnical engineer or as specified in these specifications.

D. **Tank Structure:**

1. Field erection of the glass-coated, bolted-steel structures and components shall be in strict accordance with the procedures established by manufacturer and performed by the manufacturer or an authorized dealer of the tank manufacturer regularly engaged in erection of these tanks.

2. Specialized erection jacks, and other building equipment developed and supplied by the tank manufacturer may be used to erect the tanks as well as scaffolding, wooden ladders, crane, scissor lift and/or others depending on the application and location of tank and tank site, and specific tank dimensions that would provide the best value to the tank owner or the purchaser.

3. Particular care shall be taken in handling and bolting of the glass coated steel tank panels, appurtenances and members to avoid abrasion of the coating system. Prior to liquid test, all surface areas shall be visually inspected. Chips or scrapes in the glass coating shall be repaired per the tank manufacturer's recommended procedure.

4. The placement of the sealant on each panel may be inspected prior to placement of adjacent panels. However, the inspection shall not relieve any responsibility for liquid tightness.

5. No backfill is to be placed against the tank sidewall without prior written approval of the tank manufacturer. Any backfill allowed shall be placed strictly in accordance with the instructions of the tank manufacturer.

3.2 FIELD TESTING

A. Following completion of erection and cleaning of the tank, the structure shall be tested for liquid tightness by filling to its overflow elevation.

B. The erector in accordance with the manufacture’s recommendations shall correct any leaks disclosed by this test.

C. The owner shall furnish water required for testing at the time of tank erection completion, and at no charge to the manufacturer or the appointed tank erector. Disposal of test water shall be the responsibility of the owner.

D. Upon request labor, water and equipment necessary for hydrostatic tank testing shall be included in the contract price of the tank as optional.

3.3 TANK DISINFECTION

A. The tank structure shall be disinfected at the time of testing by chlorination in accordance with AWWA Standard C652 “Disinfection of Water Storage Facilities” or as modified by the manufacturer or the appointed erector.

B. Disinfection shall not take place until tank sealant is fully cured.

C. Acceptable forms of chlorine for disinfection shall be:

1. Liquid chlorine as specified in AWWA C652. (Section 4.2.1).
2. Sodium hypochlorite as specified in AWWA C652. (Section 4.2.2).
3. Calcium hypochlorite (HTH) is not acceptable.

D. Acceptable methods of chlorination per AWWA C652:

1. Section 4.3.1.
2. Section 4.3.1.2 – chemical feed pump only (4.3.1.2).
3. Section 4.3.3.
4. Section 4.3.1.3 is not acceptable

SPECIFICATION SECTION 12201

SACRIFICIAL ANODE CATHODIC PROTECTION SYSTEM OR APPROVED EQUAL

APPLICABLE DESIGN CRITERIA:

The following documents and standards will govern Sacrificial Anode Cathodic Protection system design.
System design will follow the recommendations and requirements of NACE International Standards.

References:

NEC	National Electrical Code
NACE International	Standard SP 03 88 Latest Revision Cathodic Protection for Above Ground Water Storage Reservoirs
AWWA	D106 Sacrificial Design of Cathodic Protection Systems for Water Storage Tanks

Cathodic Protection System Type: Galvanic Magnesium or Zinc Sacrificial Bolt-On Anode type composed of 5lb or 10lb anodes.

CP DESIGN INPUT DATA:

- Water with a resistivity of approximately XXX ohm-cm
- Tank Diameter:
- Tank Height:
- Floor Type: Concrete.
- Tank Type: Bolted Glass-fused to steel.
- Maximum Working water level:

CP SYSTEM CALCULATIONS PROCEDURE:

1. The surface area of the structure is must be known in order to determine the amount of current required to protect the structure.
2. The resistance to electrolyte (water) is the total amount of resistance in ohms (Ω) of the anodes to the electrolyte (water).
3. The resistance of the tank to water is equal to the sum of the resistance of the tank shell to water and that of the coating.
4. The resistance of the tank shell to water is considered to be negligible.
5. Once the required amount of current has been calculated the next step is to calculate the current output of a single anode.
6. The required number of anodes is equal to the total current requirement divided by the current output of a single anode.
7. The life expectancy of the system can be determined theoretically if the amount of current as well as the anode weight and material are known.

Note:

It is important to note that the calculated life expectancy of the system is only an estimate based only the current output of the anodes used. Many other factors may also influence the lifespan of the system.
The calculated life expectancy is based on the current output of the anodes due to the potential difference between the anode metal and structure metal in the given environment.

INSTALLATION INSTRUCTIONS:

- Cathodic protection shall be applied to the submerged inner surfaces and exterior tank shell surfaces.
- Anodes shall be 5lb or 10lb tear drop shaped Magnesium or Zinc anodes.
- Bolt in place anodes by the tank erectors. Install anodes on ½" dia bolts.
- Anode quantity and placement will be given on the anode installation drawing.
- The CP system is to be comprised of anodes evenly spaced over the tank interior and exterior surfaces in an arrangement to be determined by the design.
- Mount anodes using bolts and nuts. Counter rotate nuts to improve anode to tank shell continuity.

CP SYSTEM TESTING INSTRUCTIONS:

- After mounting of the anodes use a test light to determine and confirm continuity of the anode with the tank wall. Use a 1.5volt test light or ohm meter to confirm continuity between anodes and plates, and plates to plates.

NOTEs:

1. BOLT-HOLES THAT WILL BE USED FOR ATTACHMENT OF THE ANODES SHALL BE FREE OF GLASS COATING AND MAY RECEIVE ELECTRICALLY-CONDUCTIVE COMPOUND.

2. GLASS COATING MAY BE REMOVED BY SCRAPING OF THE BOLT AGAINST THE BOLT-HOLE EDGES, USE OF SANDPAPER OR A FILE TOOL.
3. **To provide electrical continuity between the anodes each tank panel between the anodes shall have one bolt hole prepared in the same manner as the bolt hole that receive the anode i.e. tank bolt is in contact with bare steel of the tank panel.**

END OF SECTION

TE-6

6oz CIVIL NONWOVEN GEOTEXTILE

TITAN
BUILD YOUR LEGEND

Titan has provided the containment and erosion control industries with the highest quality geotextiles available. Our nonwoven needle punched geotextiles are manufactured using polypropylene fibers, which are formed into a dimensionally stable network which allows the fibers to maintain their relative position. These products resist ultraviolet deterioration, rotting, biological degradation, and are inert to commonly encountered soil chemicals.

TESTED PROPERTY	TEST METHOD	UNIT ENGLISH (METRIC)	VALUE ENGLISH (METRIC)
Grab Tensile	ASTM D 4632	lbs (N)	160 (712)
Grab Elongation	ASTM D 4632	%	50
CBR Puncture Resistance	ASTM D 6241	lbs (N)	410 (1825)
Trapezoid Tear	ASTM D 4533	lbs (N)	60 (267)
Permittivity*	ASTM D 4491	1/sec	1.5
Water Flow*	ASTM D 4491	gal/min/ft² (l/min/m²)	110 (4482)
Apparent Opening Size (AOS)	ASTM D 4751	US Sieve (mm)	70 (0.212)
U.V. Resistance	ASTM D4355	%/hrs	70/500
TYPICAL ROLL DIMENSIONS			
Roll Width		ft	12.5 x 360 15 x 300
Roll Area		yd²	500
Estimated Roll weight		lbs	200

NOTES:
MARV. Minimum Average Roll Value.
Maximum average roll value ASTM D 4751- AOS.
Mullen Burst ASTM D 3768 has been removed. It is not recognized by ASTM D 35 on Geosynthetics.
Puncture ASTM D 4833 has been removed. It is not recognized by AASHTO M288 and has been replaced with CBR Puncture ASTM D 6241.

***At the time of manufacturing. Handling may change these properties**

Titan Environmental Containment

Toll free: 1-866-327-1957 | info@titanenviro.com | **TitanEnviro.com**

Rev. January 2024

Titan R30 (LLDPE-R)

30mil Scrim Reinforced Geomembrane

TITAN
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Titan R Series is a flexible geomembrane that incorporates polyester scrim, fully enclosed between two layers of linear lowdensity polyethylene (LLDPE). This design results in exceptional toughness, offering high tensile and puncture strength. The combination of premium high-strength LLDPE and dense scrim reinforcement contributes to its impressive durability. Additionally, the geomembrane features a highly stabilized formulation with antioxidants, UV stabilizers, and carbon black, providing excellent long-term protection for exposed and or barrier applications

Coated Fabric Specifications*

Total Thickness	30 ± 2mils (0.69 - 0.76 mm)
Total Weight (Nominal)	18 oz/yd ^{2}(615 g/m^2)
Coating Type	Polyethylene
Sealing Properties	Thermal

TESTED PROPERTY	TEST METHOD		UNIT ENGLISH (METRIC)	VALUE ENGLISH (METRIC)	
				MINIMUM	TYPICAL
Grab Tensile	ASTM D751A	Warp	lbf (N)	220 (979)	280 (1246)
		Fill		220 (979)	280 (1246)
Grab Elongation	ASTM D751A	Warp	%	22	30
		Fill		22	30
Tear Strength, Tongue	ASTM D5884	Warp	lbf (N)	70 (311)	115 (44
		Fill		70 (311)	115 (489)
Puncture, Rod	ASTM D4833		lbs (N)	80 (356)	100 (445)
Ply Adhesion Strength	ASTM D751		lbs/in (N/cm)	20 (35)	30 (52)
Low-Temperature Bend	ASTM D2136		˚F (˚C)	-70 (-56)	-70 (-56)
Abrasion Resistance (H18/1kg)	ASTM D3389		Cycles	5,000	6,000
Ozone Resistance (100pphhm @40˚C)	ASTM D1149			PASS	
Oxidative Induction Time	ASTM D3895 ASTM D5885		Minutes	100 400	150 2400
Hydraulic Conductivity	ASTM E96		cm/sec	1.0 x 10^{-12}	
Seam Shear Strength	ASTM D7747		lbs/in (N/cm)	90 (158)	97 (170)
Seam Peel Strength	ASTM D 6636		lbs/in (N/cm)	20 (35)	36 (63)

NOTES:
*This product is certified to AS4020 and NSF Std 61 for potable water containment.
*This product meets the requirements of GRI GM-25 (Category 3 – Standard) specification.

Titan Environmental Containment

Toll free: 1-866-327-1957 | info@titanenviro.com | **TitanEnviro.com**

Rev. August 2023

C.I.M. Industries Inc.
A Chase Corporation Company

CIM 1000

HIGH PERFORMANCE COATINGS AND LININGS

Information presented here is believed to be accurate, but it is not to be construed as a guarantee of minimum performance. Test performance results are obtained in a controlled laboratory environment under procedures that may not represent actual operating environments.

CHEMICAL RESISTANCE

The following chart is a general guide to the resistance of CIM 1000 to various types of exposure. Although we believe this information to be reliable, C.I.M. Industries has no control over any particular application, installation, or exposure of CIM 1000; and suitable tests should be carried out by the user.

Where chemical concentrations are listed, the designated rating applies to all concentrations up to and including the concentration indicated.

Except as indicated by a footnote, the maximum service temperature is 140°F (60°C) for continuous service.

Consult C.I.M. Industries for additional information regarding chemical resistance.

Acetic Acid, Glacial	S
Acetic Acid, 25%	R2
Acetic Acid, 10%	R
Ammonium Hydroxide, 10%	R2
Biological Oxidation Ponds	R
Chlorine, Saturated Solution in Water	R1
Citric Acid, 10%	R
Copper Sulfate (Sat.)	R
Crude Oil	S
Diesel Fuel	S
Ethylene Glycol (Antifreeze Solution)	R1
Ferric Chloride, 42%	R
Hydrochloric Acid, 10%	R2
Hydrofluoric Acid, 10%	R2
Hydrogen Sulfide, Saturated Solution in Water	R
Hydrogen Sulfide, Vapor Over Sat. Solution	R
Methanol	R1
Nitric Acid, 10%	R2
Nitric Acid, 40%	S
Outdoor Exposure	R
Phosphoric Acid, 10%	R
Phosphoric Acid, 40%	S
Sewage Disposal Plant (Act. Sludge Sed. Tanks)	R
Sodium Hydroxide, 10%	R
Sodium Hydroxide, 50%	R1
Sodium Hypochlorite, 15%	R
Soil Burial	R
Sodium Silicate, 34%	R
Strawberry Juice	R
Sulfuric Acid, 30% or less	R
Trisodium Phosphate, 10%	R
Water, Salt	R
Wine (for floor protection)	R

Footnote:

R Suitable for continuous immersion.
S Suitable for splash and spillage conditions.
R1 Maximum service temperature limited to 80°F.
R2 Maximum service temperature limited to 120°F.

THE INFORMATION PRESENTED IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

CONTACT C.I.M. INDUSTRIES FOR CURRENT INFORMATION.

FOR PROFESSIONAL USE ONLY.

C.I.M. Industries Inc.
A Chase Corporation Company

CIM 1000

HIGH PERFORMANCE COATINGS AND LININGS

COVERAGE CHART — MIXED GALLONS

Dry Thickness (mils)	Wet Thickness (mils)	Gal/SF	SF/Gal	Dry Thickness (mils)	Wet Thickness (mils)	Gal/SF	SF/Gal
20	23	0.014	71	18	20	0.012	80
25	28	0.018	57	22	25	0.016	64
30	34	0.021	47	26	30	0.019	53
35	40	0.025	40	31	35	0.022	46
40	45	0.028	35	35	40	0.025	40
45	51	0.032	31	40	45	0.028	36
50	57	0.035	28	44	50	0.031	32
55	62	0.039	26	48	55	0.034	29
60	68	0.042	24	53	60	0.037	27
65	74	0.046	22	57	65	0.041	25
70	79	0.050	20	62	70	0.044	23
75	85	0.053	19	66	75	0.047	21
80	91	0.057	18	70	80	0.050	20
85	96	0.060	17	75	85	0.053	19
90	102	0.064	16	79	90	0.056	18
95	108	0.067	15	84	95	0.059	17
100	114	0.071	14	88	100	0.062	16
105	119	0.074	13	92	105	0.065	15
110	125	0.078	13	97	110	0.069	15
115	131	0.081	12	101	115	0.072	14
120	136	0.085	12	106	120	0.075	13
125	142	0.088	11	110	125	0.078	13

COVERAGE FORMULAS

$$\text{Gallons Required} = \frac{\text{Theoretical Wet Film Thickness (Mils)} \times \text{Sq.Ft. To Be Covered}}{1604} = \frac{\text{Theoretical Dry Film Thickness (Mils)} \times \text{Sq.Ft. To Be Covered}}{1413}$$

1 MIL = .001 of an inch

CIM Product	Package Size	Actual Mixed Gallons
CIM 1000	5.5 Gallon Pail	5.0 Gallons
CIM 1000 Trowel Grade	5.5 Gallon Pail	4.5 Gallons
CIM 1000 Trowel Grade	1.0 Gallon Can	0.8 Gallons
CIM 1000 Trowel Grade	Dual Cartridges	0.2 Gallons

Coverages are theoretical and do not account for waste, spillage, irregular surfaces, or application technique.

CIM BONDING AGENT

Porous Surface	1 gallon = 300 sq.ft. or .00333 gal/sq.ft.
Non Porous Surface	1 gallon = 600 sq.ft. or .00166 gal/sq.ft.

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