



HENDERSON[®]
S T A T E U N I V E R S I T Y

OFFICIAL BID SHEET

DATE: 6-9-17

BID NUMBER: 17-31

FIRM CONTRACT

INVITATION

Bids must be signed in Ink. Unsigned bids will not be considered.

Bids are invited for Pool Renovation for Henderson State University. Removal & Disposal of existing Liner is to be a part of this Invitation For Bid. Sealed Bids must be returned to Womack Hall, room 208, no later than 2:00 PM, Monday, June 26, 2017 at which time all bids will be opened publicly and read. Inquiries concerning this bid should be directed to Tim Jones at 870-230-5117 phone or email jonest@hsu.edu.

BID

I hereby certify that I have read and understand the terms and conditions stated within the bid documents and that my bid is submitted in accordance herewith:

Name: _____

Signed: _____

Company: _____

Title: _____

Address: _____

Date: _____

Telephone: _____

Email: _____

DESCRIPTION

Total

Option I – Plaster Make Over..... Unit Cost \$

Option II – Liner Replacement..... Unit Cost \$

Prices shall be all inclusive, demolition of existing, replacement including all shipping charges.
DELIVERY & INSTALLATION MUST BE COMPLETED NO LATER THAN September 1, 2017.

HENDERSON STATE UNIVERSITY

INVITATION FOR BID

Introduction

This Invitation for Bid, hereinafter referred to as IFB, is an invitation to Licensed General Contractors for Swimming Pool Renovation - to prepare and submit quotes to Henderson State University (HSU). Bids should be prepared simply and economically to provide a straightforward, concise response to the requirements set forth in the IFB. It is the intent of the staff coordinating this IFB to provide equal and objective information and assistance to all bidders concerned. A signed Bid must be received by the HSU Purchasing no later than 2:00PM June 26, 2017.

Scope of Request

The purpose of the IFB specified herein is to furnish all labor, materials and equipment necessary to complete the requested Swimming Pool Resurfacing or furnish and install a PVC Liner replacement at the Wells Health, Physical Education and Recreation facility on the campus of Henderson State University, Arkadelphia, Arkansas. Either process will require the removal of the existing PVC Liner and padding/backing and make necessary repairs to existing pool. It is the intent of these specifications to call for complete, finished work, ready for use by HSU. Markings, Lane Lines, Targets etc. must be fully addressed in your bid.

Terms and Conditions of Bid

To be considered, bidders must include as part of their bids all of the provisions of this IFB using the format described herein. An official authorized to bind the bidder to the proposal must sign bids (in ink). If the bidder submits standard terms and conditions with the bid, and if any section of those terms is in conflict with the laws of the State of Arkansas, the State laws shall govern. Bidder's standard terms and conditions may need to be altered to adequately reflect and include all of the conditions of this Invitation for Bid, the bidder's proposal, and Arkansas State Law.

Bid Requirements

One (1) signed original and one (1) complete copy of the bidder's quote must be submitted.

Bidder References

Bidders must supply at least three (3) references (including contact person(s) and telephone numbers). A negative reference may disqualify an offer.

Other Conditions and Requirements

The successful bidder shall at all times observe and comply with all federal and state laws, local laws, ordinances, orders, decrees, and regulations existing at the time of or enacted subsequent to the execution of this contract which in any manner affect the completion of the work. The successful bidder and surety shall indemnify and save harmless the agency(HSU) and all its officers, representatives, agents and employees against claim or liability arising from or based upon the

violation of any such law, ordinance, regulation, order or decree, whether by himself, his employees, or his subcontractors.

Prime contractor shall be licensed by the Arkansas State Contractor's Licensing Board.

In each instance where the total bid submitted by the licensed prime contractor exceeds \$50,000.00, all prime contractors, as a condition to perform work for and in the State of Arkansas shall use not other subcontractors except those license by the State Contractor's Licensing Board and qualified in: (a) Mechanical (indicative of heating, air conditioning and ventilating), (b) Plumbing, (c) electrical (indicative of wiring and illuminating fixtures), and (d) Roofing and Sheet Metal work (indicative of roofing application). In the event the prime contractor is qualified and licensed by the Arkansas State Contractor's Licensing Board, he may use his own forces to perform those tasks listed herein as subcontractors in one or more of the trades listed.

When the prime contractor makes a definite decision regarding the subcontractors he intends to use, they must be listed in the blank spaces provided. It shall be a violation of Arkansas Code 22-9-204 for any prime contractor to submit a bid listing unlicensed contractors or to use unlicensed contractors on a public work project.

Subcontractor's List (If Base Bid Price Exceeds \$50,000.00)

_____	_____
_____	_____
_____	_____
_____	_____

Substance Testing

A part of HSU's policy for contract workers that will be on campus for an extended period of time, a background check and substance testing is required. We realize that most contractors already have this as their hiring policy and therefore, HSU will accept these checks. No one shall be cleared to work without them or if a negative test exists.

Damaged Materials

Damaged materials and material not conforming to the specifications and drawings may be rejected by HSU or HSU's representative at anytime non-conformities are discovered until final acceptance of the work. Removal of rejected materials and replacement shall be without additional cost to HSU.

Reservation

This IFB does not commit Henderson State University or the State of Arkansas to award a contract, to pay any costs incurred in the preparation of a bid in response to this request, or to procure or contract for services or supplies.

Installation

All aspects of the job shall be in strict compliance with the industry standards as well as the requirements of the manufacturer for each product used.

Job Site Administration

HSU/Owner shall regularly review the work as it progresses;

1. Weekly or even daily inspections to verifying percentage of completion can be expected on this project.
2. Project Coordinator, Len Nicosia or his designated assistant, who will be on call for questions, approvals, etc. and who will make random visits to the job site to verify work is in accordance with contract documents requirements.

Personnel/Property Protection

The contractor shall provide all necessary means to protect state and other personnel at the project site. Where required in executing the work, the contractor shall provide the necessary barriers, signs, fences, etc., to protect personnel and property in executing the work. Proper precaution shall be made to protect adjoining property, autos, glass areas, etc., when carrying out the work. Protect all shrubs, plants, lawn, trees, etc., as required.

Construction Period and Completion Date

Work may begin July 1 2017 and MUST be completed by September 1, 2017 (absolute last day). HOWEVER, if this schedule is not feasible, HSU will postpone the installation until Spring of 2018. Time schedule will be a consideration for making an award. Please state whether you can complete the project within this time frame.

During the contract period, parking areas may be in use and occupied. While the work is in progress, confine construction operations, materials and equipment with the immediate vicinity of the areas involved (subject to the approval of the Owner at all times), and do not unreasonably obstruct or interfere with any phase of the Owners activities. Said work shall be prosecuted regularly, diligently and uninterrupted to completion. Liquidated damages shall be assessed for delays in accordance with the following schedule based on the contract amount:

<u>Amount of Contract</u>	<u>Liquidated Damages Per Day</u>
Less than \$ 25,000.00	\$150.00
Less than \$ 50,000.00	\$250.00
Less than \$100,00.00	\$350.00
Less than \$500,00.00	\$550.00

Award

Award will be made by the issuance of a Purchase Order from Henderson State University. Upon receipt of notice of the acceptance of the above base bid, the bidder will deliver a Performance and Payment Bond in the amount of 100% of the accepted bid as security for faithful performance of this contract and payment of all persons performing labor or furnishing equipment in connection with this contract.

SWIMMING POOL RESURFACING SPECIFICATIONS (Plaster and Liner Replacement)

Bidders are urged to visit the job site to examine the scope of work to be performed. It shall be the contractors' responsibility to confirm dimensions and make measurements to provide a complete job.

The pool is 56' wide and 75' 1" long and is 12' deep at deepest end, 4' deep at shallow end. Currently, the pool has a (PVC) vinyl liner system, which consists of the vinyl liner itself, the underlying felt membrane, adhesive and other attached components. It shall be the responsibility of the contractor to remove and properly dispose of this entire vinyl system. Owner's dumpster shall NOT be used for disposal.

Option I: If Plaster is to be renovated:

Stainless Steel Gutters shall be pressure tested at the beginning of the job. Any needed repairs will be charge by a time and material. Please state hourly rate for per man hour, as well as expected materials unit cost. HSU site manager shall be present as pressure tests are performed.

Contractors will prepare the original underlying pool surface to be re-plastered by removing any loose or separated areas of plaster (hollow spots) then will sandblast or mechanically the remainder of the existing plaster finish to provide a clean and solid foundation surface. The contractor for their protection will cover drains, water inlets, gutters, lane markers, and targets during renovation. The contractor in the course of the job shall repair any existing damage to ceramic tile lane markers and targets. Any items needing replacement such as frames around light fixtures, etc. shall be provided by the contractor and shall be of proper construction and suitable for the purpose intended. During the job the contractor will practice good housekeeping procedures and will promptly and properly dispose of construction debris. HSU dumpsters shall not be used for any quantity for any reason.

To insure adequate adhesion of the new plaster to the old plaster, the contractor will apply a bonding agent according to the manufacturer's directions, on to the existing plaster. Bonding agent shall be or equal to Multicoat Scratch Kote System, from Multicoat Products. Manufacturer's literature on all products to be used must be submitted with bid, and must be used according to the manufacturer's directions, on the existing plaster.

Contractor will replaster the surface of the pool with the manufacturer's recommended mixture of white Portland cement and white marble dust (suggested brand; Marcite Plaster Finish). The new surface will be of uniform thickness of not less than 5/8" and will be feathered to meet drains, water inlets, gutters, lane markers, and targets smoothly. The new surface will be uniformly White in color.

Marcite is a pool plaster manufactured from a calcareous base aggregate composed of the following:

- a. Portland cement ASTM Ci50, Type I, Waterproofed white. Only one brand of cement shall be used. Mixing of brands will not be acceptable. Approved manufacturers are LehighWhite and Federal White cement.
- b. Marble sand: Clean, pure white in color and free of all organic and inorganic matter injurious to plaster. Approved products are Georgia Marble and Wyoming Marble.
- c. Silicone Shield Admixture, Formula S100w, a white powdered hydrophobic dispersant that matches the color of white cement. The powder is hydrophobic; it does not blend

with water. In a cement mixture the powder disperses and blends like a finely ground aggregate. The admixtures function is to fill the microscopic voids and pores of the material with the chemically inert, bacteria fighting, water repellent, cement to exhaust its gasses and hydrate naturally under water. It must completely repel water and cannot break down under chemical attack. The silicone is free of solvents, completely dry and non-reactive with acids and chlorine. Its white crystalline structure must not change form, discolor, break down, or escape the matrix. The plaster becomes water repellent from its base through to its cream layer. Formula S100w is a permanent barrier that negates corrosive and erosive effects of water.

- d. Water: Clean fresh potable and free of amounts of oils, acids, alkalis and organic matter injurious to plaster.

The Contractor, using a good quality epoxy paint (black), will apply depth markers on each side of the pool to duplicate the existing depth markers on the vinyl liner. Protective coverings from drains, water inlets, etc. are to be removed by contractor, when replastering is complete. Contractor is to insure that the pool area is free of any left over debris and will inform the owner, in writing, when the job is complete.

Specifications and MSDS for each product used must be submitted with bid.

Job shall be completed and made ready for use (including fill time) no later than August 21, 2017.

The new pool surface shall be fully guaranteed against flaking or chipping for a minimum of two years from date of final acceptance by the owner.

Option II: If Liner is replaced:

Stainless Steel Gutters shall be pressure tested at the beginning of the job. Any needed repairs will be charge by a time and material. Please state hourly rate for per man hour, as well as expected materials unit cost. HSU site manager shall be present as pressure tests are performed.

PVC MEMBRANE SWIMMING POOL LINING SYSTEM

These specifications are not proprietary or intended to limit competition. To the contrary, the purpose of this specification is to establish the **minimum** performance and quality standards. The use of this specification **does not preclude** other manufacturers or suppliers from bidding. In fact, the use of a comprehensive and detailed specification ensures that HSU receives the expected quality and performance required from such a system.

Part one –RELATED DOCUMENTS

The provision of the Notice to Bidders, Instructions to Bidders, Proposals, General Conditions, Supplementary Conditions, General Requirements, related Sections and other Divisions of these documents if used as part of this project are included as a part of this Section as though bound herein.

1.1 SUMMARY

- A. It is the intent of this specification to describe the installation of a complete reinforced PVC membrane lining system specifically designed and formulated for use in swimming pools. The system shall consist of two layers of flexible PVC totally encapsulating a polyester inner reinforcement in combination with required accessory items to complete the installation. The sections of material shall be fuse bonded together at the site to form a watertight continuous membrane lining. The system shall be installed in accordance with the configuration as detailed on the drawings, including all necessary equipment within this specification. Individual rolls of reinforced PVC membrane shall be custom fitted and welded together at the job site using hot air welding techniques. Upon completion, the system shall provide a waterproof, yet flexible membrane, complete with all necessary fittings, attachments, flange transitions and markings.
- B. The performance characteristics and installation qualifications as established herein reflect the minimum requirements for any membrane system to be utilized on this project. Systems not meeting the minimum requirements established for this project will not be considered.
- C. This specification includes, but is not limited to, the following components:
- D. Flexible PVC membrane
- E. Slip-resistant reinforced PVC membrane
- F. Separator fleece
- G. PVC steel edging & sheets
- H. Galvanized, Polymer and/or Stainless Steel edging & sheets
- I. Sanitizing agents
- J. Transition flanges
- K. Edge sealants
- L. Adhesives
- M. Refer to Section _____, Alternates, for alternates that may affect the Work of this Section.
- N. This Specification describes PVC Membrane Lining System. Should the requirements of this specification contradict any other section of the project specifications, this section shall govern.

1.2 Scope of Work:

- A. Work Included: The work specified herein and as indicated on the drawings includes, but is not necessarily limited to, furnishing all the labor, materials, equipment, appliances, services and drayage to all the operations related to the fabrication and installation of the

PVC Membrane System. The Work shall be as herein specified and as denoted on the accompanying drawings.

- B. Related Work and Responsibilities; Contractor to provide a complete job, ready to be used by owner.

1.3 DEFINITIONS

- A. References Standards: Certain applicable reference standards are incorporated herein to the extent such references are relevant, with the latest revision applicable including, but not limited to:
 - 1. Fabrication standards:
 - ASTM - American Society for Testing Materials
 - ANSI - American National Standards Institute
 - NSF - National Sanitation Foundation
 - 2. The following are utilized as applicable:
 - NCAA - National Collegiate Athletic Association
 - FINA - Federation Internationale de Natation Amateur
 - USS - United States Swimming Incorporated
- B. The intent of these specifications is not to establish specific quantities, amounts, or dimensions. Thus, the reference to “one”, “each”, “an”, “a”, or like wording is for semantic purposes only. Unless specifically stipulated otherwise, provide materials, equipment, and items as detailed on the drawings or as reasonably required for complete, operational PVC Membrane System installation(s).

1.4 SUBSTITUTIONS

- A. The PVC Membrane System has been the subject of a detailed investigation, and the design and operation of adjoining equipment and systems is based upon the specified membrane system. All base bids shall include only that equipment and systems listed herein or subsequently approved by addendum. The Owner reserves the right to reject any and all substitutions without cause and for any reason whatsoever, and the contractor is obligated to provide only the products, equipment or systems as described by the specified manufacturer.

1.5 TRADE NAMES

- A. When a particular manufacturer’s product, system or brand name is designated in the project documents, either in the drawings, specifications or addenda thereto, only such designated products or systems by the named manufacturer may be provided.
 - 1. When reference is made in the project documents to trade names, brand names or the products of a particular manufacturer, such references are made solely to indicate what products or systems may be furnished under the base bid and are not intended to restrict competition. Should any bidder desire to use products, systems or trade or brand names that are different from those mentioned in the project documents, application for the approval of such different products, systems, trade names or brand names must be submitted with bid in writing.
 - 2. The burden of proving acceptability rests with the applicant and any application for approval must be accompanied with adequate and sufficient technical data, drawings

and details to clearly and convincingly establish beyond all doubt that the proposed product or system meets or exceeds all express requirements of the project documents.

3. Unless requests for approval of other products, systems, trade names or brand names have been received and approvals have been published by addendum, only such designated products or systems by the named manufacturer may be provided.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate all work activities and installation of the PVC Membrane System with other building components and the work activities of other trades

1.7 DRAWINGS: There are no drawings for this project. A site visit is strongly suggested.

1.8 SUBMITTALS

- A. Upon notice to proceed under this Contract, installation details and submittal documents shall be provided, fully illustrating the materials and procedures to be utilized. These details and submittal documents, once accepted by the Owner or Owner's Representative, shall be the basis for the fabrication, installation and inspection.
- B. Product Data: Submit manufacturer's technical information and product data including basic materials and installation instructions for the PVC Membrane System including the following:
 1. List each material finished and application and cross-reference to the shop drawing(s).
 2. Provide dimensional shop drawings showing all pertinent dimensions.
- C. Program and Procedures: Prepare and submit a summary of the installation program which involves scheduling, preparation and installation procedures, quality control and project close-out. Submit to architect for approval.
- D. Submit comprehensive operations and maintenance manuals. Include recommendations for corrective action of typical situations that may be encountered.
 1. Submit recommended and required values for swimming pool water chemistry and other operational aspects of maintaining the swimming pool facilities.
 2. Maintenance Instructions and Maintenance Program: Provide complete descriptive information detailing proper care, maintenance and cleaning of the system.

1.9 QUALITY ASSURANCE

- A. This is a performance specification. The complete and functional reinforced PVC membrane system, as specified herein and shown on the drawings, is to be the basis for receiving bids. While it is not the intent of these specifications to, in any way, limit competition or restrict the bidder in the preparation of their bid, the bidder shall offer products and materials in literal compliance with these specifications. The bidders are cautioned that offering products or systems failing to meet these specifications will be considered non-responsive.
- B. The PVC Membrane System shall be the product of a firm having at least ten (10) years experience in the design, manufacture or installation of PVC Membrane Systems used in swimming pool, aquatic or water feature applications. The firm also must have at least ten (10) installations of similar projects currently in satisfactory operation for no less than three

(3) years. All systems shall be in compliance with the code requirements that govern in the State of the installation.

1. **In the event an alternate manufacturer's system is approved, all contractors will be so advised per addendum prior to bid opening to allow for inclusion of such a system or equipment in their bids. In the absence of approval for an alternate manufacturer, only the specified manufacturer's system may be incorporated in the project.**

2. Listing or subsequent approval of a particular manufacturer as an approved manufacturer does not constitute acceptance of the manufacturer's standard configuration, materials, or equipment, except as they specifically meet or can be made to conform to the requirements defined in this specification. Any bid shall be assumed to include any and all costs to change, modify or otherwise comply fully with the requirements of this specification. Claims for additional compensation to comply with these specifications after bid for any reason whatsoever will not be considered. Only materials, equipment, or systems that absolutely comply with these specifications in all regards will be accepted. Any substitute systems from alternate manufacturers shall be in compliance with all requirements of these specifications.

C. Warranty: The PVC Membrane System shall be guaranteed for workmanship, materials and performance for a period of ten (10) years with an option extended warranty for 15-years. This warranty shall not include or cover abusive or improper treatment to the PVC Membrane System by others either during construction or when operational.

D. A sample copy of the warranty statement in accordance with these specifications must be provided prior to approval.

1.10 DELIVERY, STORAGE AND HANDLING:

A. The PVC Membrane System components shall be delivered to the job site adequately packaged to prevent damage. Unloading and storage shall be executed by the Contractor. The materials shall not be stacked or stored in any manner which could cause damage or deformity. Site assembly or fabrication of any part of the PVC Membrane System without the complete coordination and supervision of the manufacturer or his representative is strictly prohibited.

1.11 Project Site Conditions:

A. The project site shall be in accordance with the Manufacturers' technical bulletins. Access for the installation of the PVC Membrane System will be provided by others.

B. All surface preparation necessary to produce a reasonably smooth, firm, clean and dry surface shall be completed prior to the onset of installation. The surface must be free of angular materials, bubbles, voids and large cracks. These irregularities shall be filled with suitable patching material or covered with galvanized or stainless steel sheet as detailed on the drawings. Tar, oil, or petrochemical compounds must be removed or isolated. Surface preparation is part of this contract.

1.12 COORDINATION:

A. The manufacturer shall provide complete descriptive information detailing the design, construction and installation. The contractor shall include all costs for visits to the project site to coordinate various aspects of design, construction, installation and commissioning of the lining system. Coordination shall include the cost for aspects of the installation and to

coordinate manufacturing, testing and commissioning programs with the main contractor(s), and other suppliers. Such visits shall take place immediately upon notice to proceed to enable all contractors to be briefed, and a complete production and installation program to be established.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. Manufacturer: Natare Corporation, Indianapolis, Indiana or RenoSys Corporation. All bids shall include only PVC Membrane Lining Systems from these manufacturers.
- B. The system specified is based upon either Swimming Pool Membrane Systems, which are proprietary products of these manufacturers. The characteristics, standards and criteria listed herein have been established as the minimum acceptable values for any membrane product to be offered on this project. As all aspects and equipment within the pool system have been designed to utilize this system, products not approved and listed prior to bidding as meeting the minimum requirements listed will not be accepted as that could adversely affect the performance of the system.
- C. If alternate systems are approved prior to bidding, all bidders will be notified by addendum.
- D. Source Limitations: Provide all PVC Membrane System components through one source from a single manufacturer.

2.2 Materials

- A. Ensure that all materials used are compatible with the swimming pool environment, and that these materials are supplied as a system.

2.3 Components and Equipment

- A. Flexible Reinforced PVC Membrane: The flexible PVC membrane shall be installed to the dimensions detailed on the drawings and as required. The membrane shall consist of two (2) layers of PVC fuse, bonded to a polyester mesh substrate. The membrane shall be no less than 60.0 mil in thickness (.060-inch/1.5 mm), and shall conform strictly with the following chemical and physical properties as listed herein. Only those membranes specifically formulated for swimming pool use shall be considered. Roofing membranes, general waterproofing membranes, and vinyl liners shall not be acceptable. Additionally, only those swimming pool membranes meeting or exceeding the following ASTM test values, substantiated by independent documentation from a certified testing laboratory, shall be acceptable. The membrane shall be furnished in a color scheme as detailed by the drawings or in a standard color as selected by the owner.
- B. The flexible PVC membrane shall be furnished with a proprietary acrylic polymeric MicroShield coating to resist abrasion, staining, UV deterioration and microbial action. The polymeric coating shall be Natare MicroShield™ coating or Renolit AklorPlan 2000.

C. *Chemical and Physical Properties:

Thickness:	60 mil	ASTM D374C
Specific gravity:	1.22 g/cc	ASTM D792/method A
	MD166 lb./in – XD160	
Yield tension:	lb./in	ASTM D638
Yield elongation:	MD 60% - XD 60%	ASTM D638
Break tension:	MD 95 lb./in - XD 90 lb./in	ASTM D638
Break elongation:	MD 110% - XD 104%	ASTM D638
Secant modulus	MD 1352 psi - XD 1125 psi	ASTM D5323 (100%):
Tear resistance:	MD 25 lb. - XD 24.7 lb.	ASTM D1004- Die C
Low temp. brittleness	-50°C – Pass	ASTM D1790
Water absorption:	<.79%	ASTM D570
Puncture Resistance:	125 lbs	ASTM D4833
Ply Adhesion	24 in/2 in.	ASTM D413
UV Resistance: Tensile Strength @ Yield	MD 12% - XD 16%	ASTM D4355
Fungal and Bacteria Resistance	No growth, staining or discoloration	ASTM G21-96
Resistance to Chemicals	Excellent resistance	ASTM D543
	(Cyanuric Acid, Sodium Dichloroisocyanurate, Trichloroisocyanuric acid, Calcium Hypochlorite, Sodium Hypochlorite with 12 ppm solution)	Procedure I (73.4 F) for 7 days
MD = machine direction; XD = cross machine direction *Average values plus or minus 10%		

D. Slip Resistant Flexible Reinforced PVC Membrane: A slip resistant reinforced PVC membrane, 67.0 mil in thickness (.067-inch/1.7 mm) and identical in chemical and physical properties to the flexible reinforced PVC membrane described above, which includes a specifically designed embossed surface suitable for high traffic areas, shall be installed as detailed on the drawings. The slip-resistant surface shall be certified by independent ASTM Laboratory testing to comply with the requirements of ASTM C1028. Furnish in the color scheme as detailed by the drawings or as selected by the owner.

E. Separator Fleece: The interior surfaces of the swimming pool shall be covered with an engineered polyester fleece separator, a minimum of 125.0 mil in thickness (.125-inch/3.175 mm), weighing at least 10 ounces per square yard. The fleece separator must be resistant to freeze, thaw, moisture, soil-chemical abrasion, or ultraviolet deterioration and shall conform strictly to the following chemical and physical properties. All fleece separators shall be certified and guaranteed to be free of foreign materials, which could potentially be damaging to the liner.

F. Chemical and Physical Properties (Property Unit Value Test)

Weight:	10 oz./sq.yd.	ASTM D5261
Thickness:	125 mils	ASTM D5199
Grab Strength:	305 lbs	ASTM D4632
Grab Elongation:	60%	ASTM D4632
Trapezoid Tear Strength:	100 lbs	ASTM D4533
Puncture resistance:	130 lbs	ASTM D4833

Mullen Burst Strength:	510 psi	ASTM D3786
Water Flow Rate:	80 gpm/ft	ASTM D4491
Permittivity:	1.07 sec ⁻¹	ASTM D4491
Permeability:	0.34 cm/sec	ASTM D4491
AOS:	70/0.210 sieve size/mm	ASTM D4751

- G. PVC Steel Edging: A PVC-coated steel sheet, at least 20 gauge with PVC laminated on one side shall be used to form edges, angles, corners, or other transitions where a firm surface is necessary to weld the PVC membrane.
- H. Stainless Steel and Polymer Sheet: At least 20-gauge stainless steel or polymer sheet shall be used as required for reinforcement, shaping, or separation as required. It shall be installed over expansion joints when sealants or caulking have been installed.
- I. Sanitizing Agents: Sanitizing agents, formulated from a mixture of halogenated organic compounds, and specifically designed for this purpose, shall be applied to the pool surface, beneath the pool liner, to prevent the growth of microbes or fungus.
- J. Transition Flanges: Compression flanges fabricated of rigid, white polymer, 1/4 inches thick, shall be furnished at all membrane penetrations or openings to the swimming pool. All transition flanges shall be secured with stainless steel anchoring systems.
- K. Edge Sealant: Liquid PVC edge sealant solution shall be applied to all free material edges after welding. This process is to provide a properly detailed edge on material lap joints if stainless steel skirt is not selected.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. The supervising representative or installer shall verify that the site conditions are in accordance with the Manufacturers' requirements, shop drawings and/or technical bulletins and are suitable for the installation of the membrane.

3.2 Preparation

- A. Surface preparation shall be completed prior to the commencement of installation. The surface shall be reasonably smooth without oil or tar-based materials present. Deteriorated surfaces or voids shall be filled with cementitious patching compounds. Areas immediately surrounding fittings, lights, and other transitions or entrances to the pool shall be sound and suitable for drilling of 1/2 inch diameter anchor holes for the installation of the PVC compression flanges.

3.3 Installation and Application

- A. All work to be performed by skilled technicians having adequate experience with, and specific training in, the field welding and fabrication of flexible PVC swimming pool membrane systems. Additionally, to ensure the overall integrity of the installation, the installing crew shall be supervised by a crew leader having had no less than two (2) years experience in the application of PVC membrane systems on at least five (5) pool projects similar in size and scope to this project.
- B. To ensure the integrity of the membrane installation and to secure a single source of responsibility for any required warranty service, all membrane system installation personnel shall be full-time, regular employees of the prime bidder, system manufacturer or shall be a factory trained licensee of the Manufacturer. No sub-contractor or independent membrane

installers shall be utilized without prior approval. The contractor shall be required to submit installers experience with any proposed alternate systems in writing to the consultant for approval prior to project bid.

- C. If awarded the job, the Contractor shall submit the personnel and supervisor's experience in writing to the for approval prior to award of contract
- D. All work is to be performed in accordance with the manufacturer's technical bulletins. Should the requirements of these bulletins contradict this or any other section of the specifications, the procedures called for in the bulletins shall govern. The work under this section shall be performed by or directed by an authorized licensee of the system manufacturer so that the complete installation will function in accordance with the intent of these specifications.
- E. (Optional) Connection to existing perimeter gutter systems: When installing the PVC Membrane System in swimming pool or aquatic facilities with existing stainless steel perimeter gutter systems, a 12 gauge T-304 stainless steel compression skirt shall be continuously welded to the stainless steel gutter system.
- F. The compression skirt shall be fabricated as detailed on the drawings and shall provide a smooth, uninterrupted surface onto which the membrane shall be compressed. The PVC membrane and a silicone impregnated sponge gasket shall be compressed between a rigid PVC profile and the compression skirt through the installation of 1/4"-20 stainless steel screws, located no greater than 3" O.C. A semi rigid interlocking cap strip shall be installed over the PVC profile to finish the installation. Due to the critical nature of insuring a positive, permanent and enduring watertight seal between the PVC membrane and the stainless steel gutter system, only those systems incorporating a fully welded, stainless steel membrane compression skirt will be allowed.
- G. One method of meeting these requirements is furnished to owner in bid package and shall be available under license for use by any contractor installing a PVC Membrane System in a swimming pool facility.
 - 1. (Optional) The PVC membrane contractor is responsible for pressure testing the existing stainless steel gutter supply tube and hydrostatic testing of the return trough prior to installing the compression skirt to ensure that the gutter system is watertight.

3.4 Sequence of Work

- A. Attach the fleece to the pool wall and/or the bottom with the appropriate adhesives in the amounts adequate to secure the fleece. Isolate deteriorated surfaces of voids, cracks, or any other areas with moisture proof composition board or galvanized sheet (20-gauge) as required.
- B. As required for the configuration of the pool, the flexible reinforced PVC membrane shall be securely welded to PVC coated steel, which has been attached to the pool surface with appropriate anchors approximately four (4) inches (100-mm) on center.
- C. Install PVC coated steel or shaped galvanized sheet as necessary to form angles, edges, corners, or other transitions.
- D. Weld the flexible reinforced PVC membrane in accordance with the procedures established by the manufacturer. The joints shall be hot air welded with a minimum of two (2) inches of overlap. Probe all seams with a hand-held lance or air lance to ensure complete welding. Completely close the seam edge using a PVC edge sealing compound.
- E. All seams in the membrane shall be one-piece, single overlap seams. Patching and overlaying of multiple layers of the membrane material is not acceptable. All material sections are to be applied in full roll widths and lengths except where pool conditions dictate otherwise. No scrap or short-roll material is to be utilized in the membrane installation. To minimize visible seams, the membrane is to be applied to the pool walls in horizontally oriented sheets. Applying the membrane to the pool walls in vertically oriented sheets is not acceptable. Any areas of the membrane which are damaged during installation are to be completely removed and replaced with new material. There are to be no visible patches on the completed membrane.
- F. Apply special markings, targets, lines, etc., are to be duplicated from existing markings, targets, lines, etc. or as specified. The owner's representative is to provide detailed instructions as to necessary markings at job site.
- G. After installation of the PVC membrane, apply an appropriate elastomeric or equivalent sealant to all transitions between construction materials, utilizing only sealants suitable for submerged application, and compatible with the flexible reinforced PVC membrane.
- H. All inlets, outlets, drains, underwater lights, skimmers, stanchion posts, and other required membrane penetrations shall be fitted with rigid PVC compression flanges securely anchored to the pool structure to ensure a watertight seal. The "wrapping and clamping" of the membrane material around stanchion posts, ladder rails, and other protrusions through the membrane will not be considered acceptable. Only rigid compression flanges shall be utilized for all membrane penetrations.
- I. The PVC membrane shall be continuous throughout recessed steps and any other recessed areas in the pool wall. Compression flanging around recessed steps will not be considered acceptable.

3.5 Adjusting & Cleaning

- A. After installation is complete, "broom" clean all surfaces. Remove all scraps, debris, or construction material and dispose of properly....not in HSU or HSU rented containers.

3.6 Field Quality Control

- A. Limit access to the project site to minimize possibility of damage to the membrane. Materials and equipment shall not be dragged across the surface of the liner or allowed to

slide down the slopes. All parties working on the liner shall wear soft soled shoes. Immediately following installation, verify completion and testing of all seams. Retesting may be necessary to ensure complete sealing.

- B. Upon completion of installation and testing, the completed PVC Membrane System shall be hydrostatically tested by filling the pool or water feature to the typical operating level and operating all systems for a period of 6 hours without evidence of leakage.

3.7 Demonstration and commissioning

- A. Provide at least three full sets of bound operation and maintenance manuals which fully detail the proper system operation and maintenance techniques.
- B. In the company of the Owner's representative, inspect the completed installation, make final adjustments, place the system in operation and give operating instructions relative to its care and use.
- C. Prepare a complete "Project Completion Report and Warranty Application," documenting the proper completion of the project, training of Owner's personnel, and application for warranty. Provide to Owner's representative for review and signature prior to turning over project to Owner.

Owner will be responsible for completely draining the pool before work can begin. Upon completion of the contractor's work, owner will inspect the pool and re-fill pool to normal operation when job is completed in a satisfactory manner.

OTHER CONDITIONS AND REQUIREMENTS

The successful bidder shall at all times observe and comply with all federal and state laws, local laws, codes, ordinances, orders, decrees, and regulations existing at the time of or enacted subsequent to the execution of this contract which in any manner affect the completion of the work. The successful bidder and surety shall indemnify and save harmless the agency(HSU) and all its officers, representatives, agents and employees against claim or liability arising from or based upon the violation of any such law, ordinance, regulation, order or decree, whether by himself, his employees, or his subcontractors.

Inquiries concerning this job shall be made to Mr. Len Nicosia 870-230-5179 at Henderson State University.

RESERVATION

This IFB does not commit the University to award a contract, to pay costs incurred in the preparation of a bid in response to this request, or to procure or contract for services or supplies. Henderson State University reserves the right to accept or reject, any bid received as a result of the IFB, if it is in the best interest of the University to do so.

BID OPENING

To be considered, bids must be delivered with the envelope clearly marked **BID 17-31**, no later than the date and hour indicated on page one to the following address:

If Mailed:

Henderson State University
Purchasing Department
1100 Henderson Street
P.O. Box 7894
Arkadelphia, AR 71999-0001

If Hand Delivered:

Henderson State University

Purchasing Department
Womack Hall, Room 208
Arkadelphia, AR

Bids shall be publicly opened and announced at that time, and become public information under the laws of the State of Arkansas.

FAX BIDS CANNOT BE ACCEPTED