State of New Hampshire
Division of Procurement and Support Services
Bureau of Purchase and Property
25 Capitol Street, State House Annex
Concord, NH 03301-6398

Date: **4/8/16**

Bid No.: **190-16**

Date of Bid Opening: **4/22/16**
Time of Bid Opening: **10:00 AM (EST)**

YOU MAY EMAIL YOUR BID TO ALAN HOFMANN AT: EMAIL PRCHWEB@NH.GOV

BID INVITATION FOR: VEHICLE – FIRE TRUCK

[Insert name of signor]_____, on behalf of _____ [insert name of entity submitting bid (collectively referred to as "Vendor") hereby submits an offer as contained in the written bid submitted herewith ("Bid") to the State of New Hampshire in response to BID # 190-16 at the price(s) quoted herein in complete accordance with the bid.

Vendor attests to the fact that:

1. The Vendor has reviewed and agreed to be bound by the Bid.
2. The Vendor has not altered any of the language or other provisions contained in the Bid document.
3. The Bid is effective for a period of 180 days from the Bid Opening date as indicated above.
4. The prices Vendor has quoted in the Bid were established without collusion with other vendors.
5. The Vendor has read and fully understands this Bid.
6. Further, in accordance with RSA 21-I:11-c, the undersigned Vendor certifies that neither the Vendor nor any of its subsidiaries, affiliates or principal officers (principal officers refers to individuals with management responsibility for the entity or association):
   a. Has, within the past 2 years, been convicted of, or pleaded guilty to, a violation of RSA 356:2, RSA 356:4, or any state or federal law or county or municipal ordinance prohibiting specified bidding practices, or involving antitrust violations, which has not been annulled;
   b. Has been prohibited, either permanently or temporarily, from participating in any public works project pursuant to RSA 638:20;
   c. Has previously provided false, deceptive, or fraudulent information on a vendor code number application form, or any other document submitted to the state of New Hampshire, which information was not corrected as of the time of the filing a bid, proposal, or quotation;
   d. Is currently debarred from performing work on any project of the federal government or the government of any state;
   e. Has, within the past 2 years, failed to cure a default on any contract with the federal government or the government of any state;
   f. Is presently subject to any order of the department of labor, the department of employment security, or any other state department, agency, board, or commission, finding that the applicant is not in compliance with the requirements of the laws or rules that the department, agency, board, or commission is charged with implementing;
   g. Is presently subject to any sanction or penalty finally issued by the department of labor, the department of employment security, or any other state department, agency, board, or commission, which sanction or penalty has not been fully discharged or fulfilled;
   h. Is currently serving a sentence or is subject to a continuing or unfulfilled penalty for any crime or violation noted in this section;
   i. Has failed or neglected to advise the division of any conviction, plea of guilty, or finding relative to any crime or violation noted in this section, or of any debarment, within 30 days of such conviction, plea, finding, or debarment; or
   j. Has been placed on the debarred parties list described in RSA 21-I:11-c within the past year.

This document must be signed by a person who is authorized to legally obligate the responding vendor. A signature on this document indicates that all State of New Hampshire terms and conditions are accepted by the responding vendor and that any and all other terms and conditions submitted by the responding vendor are null and void, even if such terms and conditions have terminology to the contrary. The responding vendor shall also be subject to State of New Hampshire terms and conditions as stated on the reverse of the purchase order.

Authorized Signor's Signature _____ **Authorized Signor's Title** _____

NOTARY PUBLIC/JUSTICE OF THE PEACE

COUNTY: _____ **STATE:** _____ **ZIP:** _____

On the _____ day of _____, 2016, personally appeared before me, the above named _____, in his/her capacity as authorized representative of _____, known to me or satisfactorily proven, and took oath that the foregoing is true and accurate to the best of his/her knowledge and belief.

In witness thereof, I hereunto set my hand and official seal.

_____ **(Notary Public/Justice of the Peace)**

My commission expires: _____ **(Date)**

Form P31-A

Unless specifically amended or deleted by the Division of Procurement and Support Services, the following General Terms and Conditions apply to this Bid and any resulting Purchase Order or Contract.

GENERAL CONDITIONS AND INSTRUCTIONS:

NATURE OF, AND ELIGIBILITY TO RESPOND. This bid invitation is submitted in accordance with Chapter 21-1, and rules promulgated thereunder, and constitutes a firm and binding offer. A bid may not be withdrawn unless permission is obtained from the Bureau of Purchase and Property.

Bids may be issued only by the Bureau of Purchase and Property and are not transferable.

SAMPLES AND DEMONSTRATIONS. When samples are required they must be submitted free of costs and will not be returned. Items left for demonstration or evaluation purposes shall be delivered and installed free of charge and shall be removed at no cost to the State. Demonstration units shall not be offered to the State as new equipment.

BIDS. Bids must be received at the Bureau of Purchase and Property before the date and time specified for the opening. Bids must be submitted on this bid form or exact copies and must be typed or clearly printed in ink. Corrections must be initialed. Bids are to be made less Federal Excise Tax and no charge for handling unless required by law.

SPECIFICATIONS. Vendors must submit on items as specified. Proposed changes must be submitted in writing and received at the Bureau of Purchase and Property at least five (5) business days prior to the bid opening, unless otherwise specified in the RFB timeline. Vendors shall be notified in writing if any changes to the specifications are made.

AWARD. The award will be made to the responsible Vendor submitting a conforming bid meeting specifications at the lowest cost unless other criteria are noted in the bid. Unless otherwise noted, the award may be made by individual items.

If there is a discrepancy between the unit price and the extension, the unit price will prevail.

When identical low bids are received the award will be made in accordance with the Administrative Rules.

Discounts will not be considered in making award but may be offered on the Invoice for earlier payment and will be applicable on the date of completion of delivery or receipt of Invoice, whichever is later. On orders specifying split deliveries, discounts will apply on the basis of each delivery or receipt of Invoice, whichever is later.

PATENT INFRINGEMENT. Any responding vendor who has reason to believe that any other responding vendor will violate a patent should such responding vendor be awarded the contract shall set forth in writing, prior to the date and time of opening, the grounds for his belief and a detailed description of the patent.

ASSIGNMENT PROVISION. The responding vendor hereby agrees to assign all causes of action that it may acquire under the antitrust laws of New Hampshire and the United States as the result of conspiracies, combinations, or contracts in restraint of trade which materially affect the price of goods or services obtained by the state under this contract if so requested by the State of New Hampshire.

FEDERAL FUNDS. This Division of Plant and Property Management, under RSA 21-1:14, VIII shall assure the continuation or granting of federal funds or other assistance not otherwise provided for by law by following the Federal Procurement Standards.

STATE'S OPTIONS: The Bureau of Purchase and Property reserves the right to reject or accept all or any part of any bid, to determine what constitutes a conforming bid, to award the bid solely as it deems to be in the best interest of the State, and to waive irregularities that it considers not material to the bid.

PUBLIC INFORMATION: The responding vendor hereby acknowledges that all information relating to this bid and any resulting order (Including but not limited to fees, contracts, agreements and prices) are subject to these laws of the State of New Hampshire regarding public information.

PERSONAL LIABILITY: The responding vendor agrees that in the preparation of this bid or the execution of any resulting contract or order, representatives of the State of New Hampshire shall incur no liability of any kind.

PROOF OF COMPLIANCE. The responding vendor may be required to supply proof of compliance with proposal specifications. When requested, the responding vendor must immediately supply the Bureau of Purchase and Property with certified test results or certificates of compliance. Where none are available, the State may require independent laboratory testing. All costs for such testing certified test results or certificate of compliance shall be the responsibility of the responding vendor.

FORM OF CONTRACT. The terms and conditions set forth in any additional Terms and Conditions by the Bureau of Purchase and Property are part of the bid and will apply to any contract awarded the responding vendor unless specific exceptions are taken and accepted and will prevail over any contrary provisions in Terms and Conditions submitted by the responding vendor.

CONTRACT TERMS AND CONDITIONS

1. The State of New Hampshire, acting through the Division of Procurement and Support Services, engages the firm or individual ("the Vendor") to perform the services and/or sale of goods, described in the attached State documents, if any, and the Vendor's bid or quotation, both of which are incorporated herein by reference.

2. COMPLIANCE BY VENDOR WITH LAWS AND REGULATIONS. In connection with the performance of this agreement, the Vendor shall comply with all statutes, laws, regulations, and orders of federal, state, county or municipal authorities which shall impose any obligation or duty upon the Vendor, including, but not limited to civil rights and equal opportunity laws.

3. TERM. The contract, and all obligations of the parties thereunder, shall become effective on a specified date and shall be completed in their entirety prior to a specified date. Any work undertaken by the Vendor prior to the effective date shall be at his sole risk and, in the event that the contract shall not become effective, the State shall be under no obligation to reimburse the Vendor for any such work.

4. CONTRACT PRICE. The contract price, a payment schedule and a maximum limitation of price shall be as specified by the bid invitation and the Vendor's bid. All payments shall be conditioned upon receipt, and approval by the State, of appropriate vouchers and upon satisfactory performance by the Vendor, as determined by the State. The payment by the State of the Contract Price shall constitute complete reimbursement to the Vendor for all expenses of any nature incurred by the Vendor in the performance by the Vendor and complete payment for the Services. The State shall have no other liability to the Vendor.

5. DELIVERY. If the vendor fails to furnish items and/or services in accordance with all requirements, including delivery, the state may re-purchase similar items from any other source without competitive bidding, and the original vendor may be liable to the state for any excess costs.

6. INVOICING. All invoices must be in triplicate showing Order Number, Unit and Extension Prices and discounts allowed. A separate invoice shall be submitted for each order. Unless otherwise noted on the invitation to bid or purchase order, payment will not be due until thirty (30) days after all services have been completed, or all items have been delivered, inspected and accepted or the invoice has been received at the agency business office, whichever is later.

7. PERSONNEL.

7.1. The Vendor shall disclose in writing the names of all owners (5% or more), directors, officers, employees, agents or subcontractors who are also officials or employees of the State of New Hampshire. Any change in this information shall be reported in writing within fifteen (15) days of their occurrence.

7.2. The person signing this agreement on behalf of the State, or his or her delegee ("Contracting Officer") shall be the State's representative for purposes of this agreement. In the event of any dispute concerning the interpretation of this agreement, the Contracting Officer's decision shall be final.

8. EVENT OF DEFAULT; REMEDIES.

8.1. Any one or more of the following acts or omissions of the Vendor shall constitute an event of default hereunder ("Events of Default"):

8.1.1. failure to deliver the goods or services satisfactorily or on schedule; or

8.1.2. failure to submit any report required hereunder; or

8.1.3. failure to perform any of the other covenants and conditions of this agreement.

8.2. Upon the occurrence of any Event of Default, the State may take any one, or more, or all, of the following actions:

8.2.1. give the Vendor a written notice specifying the Event of Default and requiring it to be remedied within, in the absence of a greater or lesser specification of time, thirty (30) days from the date of the notice; and if the Event of Default is not timely remedied, terminate this agreement, effective two (2) days after giving the Vendor notice of termination; and

8.2.2. give the Vendor a written notice specifying the Event of Default and suspending all payments to be made under this agreement and ordering that the portion of the Contract Price, which would otherwise accrue to the Vendor during the period from the date of such notice until such time as the State determines that the Vendor has cured the Event of Default, shall never be paid to the Vendor; and

8.2.3. set off against any other obligation the State may owe to the Vendor any damages the State suffers by reason of any Event of Default; and

8.2.4. treat the agreement as breached and pursue any of its remedies at law or in equity, or both.

9. WAIVER OF BREACH. No failure by the State to enforce any provisions hereof after any Event of Default shall be deemed a waiver of its rights with regard to that Event, or any subsequent Event. No express failure of any Event of Default shall be deemed a waiver of any provision hereof. No such failure or waiver shall be deemed a waiver of the right of the State to enforce each and all of the provisions hereof upon any further or other default on the part of the Vendor.

10. VENDOR'S RELATION TO THE STATE. In the performance of this agreement the Vendor is in all respects an independent Vendor, and is neither an agent nor an employee of the State. Neither the Vendor nor any of its officers, employees, agents or members shall have authority to bind the State nor are they entitled to any of the benefits, workmen's compensation or emoluments provided by the State to its employees.

11. ASSIGNMENT AND SUBCONTRACTS. The Vendor shall not assign, or otherwise transfer any interest in this agreement without the prior written consent of the State. No work required by this contract shall be subcontracted without the prior written consent of the State. If a vendor is unable to complete delivery by the date specified, he must contact the using agency. However, the agency is not required to accept a delay to the original delivery date. All deliveries are subject to inspection and receiving procedure rules as established by the State of New Hampshire. Deliveries are not considered accepted until compliance with these rules has been established. State personnel signatures on shipping documents shall signify only the receipt of shipments. All deliveries shall be FOB Destination.

12. INDEMNIFICATION. The contractor shall defend, indemnify and hold harmless the State, its officers and employees, from and against any and all losses suffered by the State, its officers and employees, and any and all claims, liabilities or penalties asserted against the State, its officers and employees, by or on behalf of any person, on account of, based on, resulting from, arising out of (or which may be claimed to arise out of) the acts or omissions of the Vendor. Notwithstanding the foregoing, nothing herein contained shall be deemed to constitute a waiver of the sovereign immunity of the State, which immunity is hereby reserved to the State. This covenant shall survive the termination of this agreement.

12.1 PATENT PROTECTION. The seller agrees to indemnify and defend the State of New Hampshire from all claims and losses resulting from alleged and actual patent infringements and further agrees to hold the State of New Hampshire harmless from any liability arising under RSA 382-A:2-312(3). (Uniform Commercial Code).

13. TOXIC SUBSTANCES. In compliance with RSA 277-A known as the Workers Right to Know Act, the vendor shall provide Material Safety Data Sheets with the delivery of any and all products covered by said law.

14. NOTICE. Any notice by a party hereto to the other party shall be deemed to have been duly delivered or given at the time of mailing by certified mail, postage prepaid, in a United States Post Office addressed to the parties at the addresses given below.

15. AMENDMENT. This agreement may be amended, waived or discharged only by an instrument in writing signed by the parties hereto.

16. CONSTRUCTION OF AGREEMENT AND TERMS. This agreement shall be construed in accordance with the laws of the State of New Hampshire, and is binding upon and inures to the benefit of the parties and their respective successors and assigns.

17. ADDITIONAL PROVISIONS. The additional provisions (if any) have been set forth as Exhibit "A" hereto.

18. ENTIRE AGREEMENT. This agreement, which may be executed in a number of counterparts, each of which shall be deemed an original, constitutes the entire agreement and understanding between the parties, and supersedes all prior agreements and understandings relating hereto.

BID INVITATION FOR: VEHICLE – FIRE TRUCK

PURPOSE:
The purpose of this bid invitation is to establish a contract(s) in the form of a purchase order(s) for supplying the State of New Hampshire with the item(s) indicated in the "Offer" section of this bid invitation, in accordance with the requirements of this bid invitation and any resulting order. This will be a one-time order with delivery required to the location indicated in the F.O.B. section of this bid invitation.

INSTRUCTIONS TO VENDOR:
Read the entire bid invitation prior to filling it out. Complete the pricing information in the "Offer" section (detailed information on how to fill out the pricing information can be found in the "Offer" section); complete the "Vendor Contact Information" section; and finally, fill out, sign, and notarize page 1 of the bid invitation.

BID SUBMITTAL:
All bids must be submitted on this form or an exact copy, must be typed or clearly printed in ink and must be received on or before the date and time specified on page 1 of this bid under "Bid closing". Interested parties may submit a bid to the State of New Hampshire Bureau of Purchase and Property by **email to PRCHWEB@NH.GOV**. All bids must be clearly marked with bid number, date due and purchasing agent's name.

IF YOU ARE EXPERIENCING DIFFICULTIES EMAILING YOUR BID OR YOU WISH TO VERIFY THAT YOUR BID RESPONSE HAS BEEN RECEIVED, PLEASE CALL (603) 271-2201 AND ASK A PURCHASING ASSISTANT FOR ASSISTANCE OR TO CHECK ON THE STATUS OF YOUR BID RESPONSE.

TIMELINE:
The timeline below is provided as a general guideline and is subject to change. Unless stated otherwise, consider the dates below a "no later than" date.

4/8/2016	Bid Solicitation distributed on or by
4/14/2016	Last day for questions, clarifications, and/or requested changes to bid
4/22/2016	10:00 AM (EST) Bid Opening
5/6/2016	Estimated Notification of Award to apparent low bidder.

GOVERNING TERMS AND CONDITIONS:
A responding bid that has been completed and signed by your representative will constitute your company's acceptance of all State of New Hampshire terms and conditions and will legally obligate your company to these terms and conditions.

A signed response further signifies that from the time the bid is published (bid solicitation date and time) until a contract is awarded, no bidder shall offer or give, directly or indirectly, any gift, expense reimbursement, or honorarium, as defined by RSA 15-B, to any elected official, public official, public employee, constitutional official, or family member of any such official or employee who will select, evaluate, or award the RFB.

Furthermore, a signed response signifies that any terms and/or conditions that may be or have been submitted by the Vendor are specifically null and void and are not a part of this bid invitation or any awarded purchase order, even if said terms and/or conditions contain language to the contrary.

PUBLIC DISCLOSURE OF BID SUBMISSIONS:
Generally, all bids and proposals (including all materials submitted in connection with them, such as attachments, exhibits and addenda) become public information upon the effective date of a resulting contract or purchase order. However, to the extent consistent with applicable state and federal laws and regulations, as determined by the State, including, but not limited to, RSA Chapter 91-A (the "Right-to-Know" Law), the State will attempt to maintain the confidentiality of portions of a bid that are clearly and properly marked by a Vendor as confidential. Any and all information contained in or connected to a bid or proposal that a Vendor considers confidential must be clearly designated in a manner that draws attention to the designation. The State shall have no obligation to maintain the confidentiality of any portion of a bid, proposal or related material, which is not so marked. Marking an entire bid, proposal, attachment or sections thereof confidential without taking into consideration the public's right to know will neither be accepted nor honored by the State. Notwithstanding any provision of this RFP/RFB to the contrary, pricing will be subject to public disclosure upon RFB opening, regardless of whether or not marked as confidential. If a bid or proposal results in a purchase order or contract, whether or not subject to approval by the Governor and Executive Council, all material contained in, made part of, or submitted with the contract or purchase order shall be subject to public disclosure.

If a request is made to the State by any person or entity to view or receive copies of any portion of a bid or proposal, and if disclosure is not prohibited under RSA 21-I: 13-a, Vendors acknowledge and agree that the State may disclose any and all portions of the bid, proposal or related materials which is not marked as confidential. In the case of bids, proposals or related materials that contain portions marked confidential, the State will assess what information it believes is subject to release; notify the Vendor that the request has been made; indicate what, if any, portions of the bid, proposal or related material will not be released; and notify the Vendor of the date it plans to release the materials. The State is not obligated to comply with a Vendor's designation regarding confidentiality.

By submitting a bid or proposal, the Vendor agrees that unless it obtains and provides to the State, prior to the date specified in the notice described in the paragraph above, a court order valid and enforceable in the State of New Hampshire, at its sole expense, enjoining the release of the requested information, the State may release the information on the date specified in the notice without any liability to the Vendor.

Notwithstanding RSA 91-A:4, no information shall be available to the public, or to the members of the general court or its staff concerning specific responses to this bid invitation from the time this bid is published until the closing date for responses.

From the closing date of the bid until the award is made is considered "quiet time." Bidders may not discuss their bid or anything specifically pertaining to the bid with any State entity (other than personnel from the Bureau of Purchase and Property) including the requesting/customer agency(ies). If found in violation of this part, the bidder shall be found non-compliant and will no longer be allowed to proceed in the award process.

VENDOR CERTIFICATIONS:
All Vendors must be duly registered as a vendor authorized to conduct business in the State of New Hampshire.

- STATE OF NEW HAMPSHIRE VENDOR APPLICATION: Prior to bid award, Vendors must have a completed Vendor Application Package on file with the NH Bureau of Purchase and Property. See the following website for information on obtaining and filing the required forms (no fee: *http://DAS.NH.Gov/Purchasing*

REQUEST FOR CHANGES AND/OR CLARIFICATION:
Any Questions must be submitted by an individual authorized to commit their organization to the Terms and Conditions of this bid. Submissions must clearly identify the bid Number, the Vendor's name and address and the name of the person submitting the question. Any questions, clarifications, and/or requested changes must be received in writing at the Bureau of Purchase and Property no later than 4:00 PM as listed in the timeline above. Questions shall not be submitted to anyone other than the Purchasing Agent or his/her representative. Bidders that submit questions verbally or in writing to any other State entity or State personnel shall be found in violation of this part and may be found non-compliant.

Questions must be submitted by E-mail to Alan Hofmann at the following address: alan.hofmann@nh.gov

ADDENDA:
In the event it becomes necessary to add to or revise any part of this bid prior to the scheduled submittal date, the NH Bureau of Purchase and Property will post on our web site any Addenda. Before your submission and periodically prior to the RFB closing, **check the site for any addenda** or other materials that may have been issued affecting the bid. The web site address is *http://das.nh.gov/Purchasing/vendorresources.asp.*

BID PRICES:
Bid prices must be in US dollars and must include delivery and all other costs required by this bid invitation. Special charges, surcharges, or fuel charges of any kind (by whatever name) may not be added on at any time. Any and all charges **must be built into your bid price** at the time of the bid.

PAYMENT:
Payments shall be made via ACH. Use the following link to enroll with the State Treasury:
http://www.nh.gov/treasury/Divisions/DocsForms/Tforms.htm?inc=P

AWARD:
The award shall be made to the responsible Vendor meeting the criteria established in this RFB and providing the lowest cost in total. The State reserves the right to reject any or all bids or any part thereof and add/delete locations to the contract price. If an award is made it shall be, in the form of a State of New Hampshire Purchase Order.

BID RESULTS:
Bid results may be viewed when available, once the award has been made, on our web site only at: http://das.nh.gov/purchasing.

For Vendors wishing to attend the bid Opening: **Names of the Vendors submitting responses and pricing will be made public**.

TERMINATION:
The State of New Hampshire shall have the right to terminate the purchase contract at any time by giving the successful Vendor a thirty (30) day written notice.

REQUISITION NO.: 162585

RETURNED GOODS:
The successful Vendor must resolve all order and invoice discrepancies within five business days from notification. Products returned due to quality issues, duplicate shipments, over-shipments, etc. must be picked up by the successful Vendor within ten business days of notification with no restocking or freight charges, and must be replaced with specified products or the agency will be refunded/credited for the full purchase price. Unauthorized substitutions for any products are not allowed.

Standard stock products ordered in error by the State of New Hampshire must be returned for full credit within fifteen business days of receipt. Products must be in re-saleable condition (original container, unused) and there will be no restocking fee charged for these products. The using agency will be responsible for any freight charges to return these items to the successful Vendor.

SPECIFICATION COMPLIANCE:
Vendor's offer must meet or exceed the required specifications as written. The State of New Hampshire shall be the sole determining factor of what meets or exceeds the required specifications.

Unless otherwise specified by the Bureau of Purchase and Property in this bid invitation document, all products and equipment offered by the Vendor must be new (and of the current model year, if applicable); shall not be used, rebuilt, refurbished; shall not have been used as demonstration products and equipment, and shall not have been placed anywhere for evaluation purposes.

OFFER:
Successful Vendor hereby offers to sell the required items to the State of New Hampshire at the following price(s):

QTY	UNIT	DESCRIPTION	DELIVERED UNIT COST
1	EACH	**NEW**, VEHICLE- FIRE TRUCK AS PER THE FOLLOWING MINIMUM N. H. FIRE ACADEMY SPECIFICATIONS	$_____

Delivery Time:
Successful Vendor agrees to complete delivery of items within 240 days after receipt of Purchase Order or sooner. Prices offered must include all products and delivery costs.

QTY	UNIT	DESCRIPTION	DELIVERED UNIT COST
1	EACH	**DEMONSTRATOR**, VEHICLE- FIRE TRUCK WITH LESS THAN 750 HOURS AND LESS THAN 12,500 MILES AND AS PER THE ATTACHED MINIMUM NH FIRE ACADEMY SPECIFICATIONS	$_____

Delivery Time:
Successful Vendor agrees to complete delivery of items within 60 days after receipt of Purchase Order or sooner. Prices offered must include all products and delivery costs.

OPTION:

DEDUCTION FOR CUSTOM BRANDING ON APPARATUS

Custom branding will be allowed on sides of apparatus. Branding may include manufacturer and/or dealer. Size of branding, placement on apparatus, and design and layout are to be mutually agreed upon. The State of New Hampshire reserves the right to reject any custom branding.

$ _____

DIAGNOSTIC SOFTWARE

Diagnostic software for the chassis, engine, ABS/ATC/RSC/ESC, transmission and multiplex system. This shall include all of the cables/adapters needed. This shall include 1 year of manufacturer updates and online support.

$ _____

VENDOR CONTACT INFORMATION:

The following information is for this office to be able to contact a person knowledgeable of your bid response, and who can answer questions regarding it:

_____	_____	_____
Contact Person	Telephone Number	Toll Free Telephone Number
_____	_____	_____
Fax Number	E-mail Address	Company Website

_____
Vendor Company Name

_____
Vendor Address

NH FIRE ACADEMY SPECIFICATION FOR ENGINE

Report: Complete Amp draw report, engine installation certification and any other reports listed in the bid that are due shall be submitted upon delivery.

IN SERVICE DATE:
The in service date of the vehicle (including the start of all warranties) shall be the date of delivery. Once the vehicle is delivered, there shall be time allowed to train. Training shall be at the NH Fire Academy for one full day with date and time agreeable to both NH Fire Academy and the Vendor.

Any Vendor that does not comply with the submission requirements shall be considered "as non-responsive" and no further review will take place by the State of New Hampshire.

CONSTRUCTION/DELIVERY TIME
The State of New Hampshire is requesting a maximum construction/delivery period of not more than 240 days from the State's issuance of a purchase order.

DELIVERY:
The engine shall be delivered under its own power to assure adequate break-in while under warranty. It shall first be transported to the local service facility, where final inspection and preparation will be performed, including mounting of related equipment. Training shall take place at the NH Fire Academy in Concord, NH.

INTENT OF SPECIFICATIONS
It is the intention of the State of New Hampshire to purchase a new Custom Style Fire Engine Vehicle that complies with all federal and state requirements and that it is inspected and complies with NFPA 1901, 2009 or 2016 edition, along with the Federal Motor Vehicle Safety Standards (FMVSS) rules and regulations. The vehicle shall be 100% free from any deficiencies.

The State of New Hampshire shall require the vehicle including the chassis to be constructed in North America.

MINIMUM REQUIRED STANDARDS:
The highest degree of quality, both in the materials and in the building processes, is required for the emergency medical vehicle being proposed. At a minimum the manufacturer being proposed must meet all current mandated design standards in effect at the date of the proposal submission. All current Federal Motor Vehicle Safety Standards (FMVSS) must be met.

MANUFACTURER
The Vendor shall be able to perform warranty repairs on any component that is not supplied/manufactured by the Vendor, such as: chassis, pump, tank, etc.

Component manufacturer (by company name):

Chassis: _____

Modular Body: _____

Fire Pump: _____

Tank: _____

Electrical Wiring System: _____

WARRANTY:
The bid shall include all warranties that are required in the following detailed specification. All warranties must have specific time duration and shall define warranties on specific components. The minimum acceptable warranty periods are noted at the end of the specifications under warranty page.

In the blank lines the Vendor shall note the terms of the warranties that apply to the manufacturer being proposed. List any prorations or exclusions for each warranty. If more space is needed then the Vendor may attach with the bid a page titled: "Warranty Proration or Exclusion" and further explanation can be completed on that page.

FRAME WARRANTY

Proposed warranty term: _____ Years/_____ Miles

Prorations or exclusions: _____

FRONT NON-DRIVE AXLE WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

REAR AXLE WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

ANTI-LOCK BRAKE SYSTEM & AUTOMATIC TRACTION CONTROL WARRANTY

Proposed warranty term: _____ Years/_____ Miles

Prorations or exclusions: _____

ENGINE WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

TRANSMISSION WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

CHASSIS WARRANTY

Proposed warranty term: _____ Years/_____ Miles

Prorations or exclusions: _____

PUMP WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

STAINLESS STEEL PLUMBING WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

WATER TANK WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

BODY WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

WARRANTY - PAINT AND CORROSION

Proposed warranty term: _____ Years

Prorations or exclusions: _____

UNDERCOAT WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

LAMMINATION WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

ELECTRICAL WARRANTY

Proposed warranty term: _____ Years

Prorations or exclusions: _____

For verification of the completed warranty terms stated above the Vendor must include printed manufacturer's warranty certificates that meet or exceed the minimum required periods stated above.

The State of New Hampshire will not permit a warranty to be pro-rated and shall be transferable for the duration of the warranty term. All warranties shall be from the manufacturer and not the distributor or service center. No changes or modifications to a warranty shall be considered by the State of New Hampshire.

In the event a warranty repair requires the vehicle to return to the factory; Vendor will be responsible for all cost incurred.

SERVICE AVAILABILITY:

The State of New Hampshire shall require a general service center to be within a ***125 mile*** radius of 98 Smokey Bear Boulevard, Concord, NH 03305. Convenience and experience will be determining factors in defining acceptable service.

A service facility within a radius as described below will be required. Personnel performing the service shall be trained by the manufacturer and a letter from the manufacture listing the service centers level of factory training shall be submitted within 5 days of notification they are the apparent low bidder. The State of New Hampshire may consider a firm that provides on-site repair/maintenance services to the State of New Hampshire.

Radius from Concord, NH: _____

Facility name: _____

Address: _____

City: _____ State: _____

Contact: _____

Phone #: 1-(____)-____-_____

Training Description: _____
_____
_____
_____
_____
_____

Road Service Capability Yes _____ No _____

List field repair capability: _____
_____
_____
_____
_____
_____

ENGINEERING SUPPORT:
Due to the complexity of the design of the vehicle, bids will be accepted only from manufacturers that utilize well-defined engineering techniques. Computer Aided Design (CAD) drawings of both the cab and overall layout of the body will be mandatory.

At a minimum these drawings shall include all exterior elevations (4 views), pump housing/plumbing and an aerial view. All options and elements required within these specifications shall be depicted on the prints.

The drawings, as submitted, shall accurately depict the exact vehicle that is being proposed.

SPECIFICATION DESIGN:
The following specifications were created by the State of New Hampshire to meet the new Fire Engine Vehicle. It is not the intention of the State of New Hampshire to exclude any manufacturer from submitting a bid on these specifications.

The specifications including any required equipment or features are identified by brand name. The Vendor shall note that the use of brand names within this document is meant to describe a required level of quality or performance. The Vendor may substitute equipment or features provided that the substitutions meet the intent of the specification. The Vendor shall note, however, that substitute components shall be included in the list of exceptions and shall only be accepted if the required component is not available through the manufacturer. All requests for approved equals shall be submitted before 4:00 PM on 4/14/16

Exceptions should be listed per the following bid completion requirements.

STATEMENT OF COMPLIANCE
The apparent low bidder shall include a statement of NFPA 1901, 2009 or 2016 edition compliance. This must state that the vehicle proposed shall and will meet the full requirements laid out in NFPA 1901, 2009 or 2016 edition. This statement must be signed by the dealership rep, manufacturer's rep, and an engineer from the manufacturer.

CHASSIS SPECIFICATIONS

GENERAL CHASSIS SPECIFICATIONS
The truck shall be a new or demonstrator chassis. The chassis shall meet the requirements for NFPA 1901, 2009 or 2016 edition and be designed for severe service operation.

CHASSIS GVWR
The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Agency.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus. The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed manufacturer's specifications.

GVWR certification shall be included at time of delivery and acceptance.

CAB

The cab shall be crew cab, with a minimum of 4 person design, fully insulated tilt style. The cab provided shall be a new, all aluminum or galvanized steel constructed cab. The cab shall meet the NFPA 1901, 2009 or 2016 edition requirements. Cab width shall be a minimum of 94" wide. Commercial cab is not allowed.

CAB TILT SYSTEM

The cab shall tilt a minimum of 45 degrees for ease of servicing. It shall be equipped with a positive locking mechanism (service lock) to hold the cab in the full tilt position. The cylinders shall have a safety mechanism at the base to prevent the cab from falling in the event of a hydraulic hose failure.

An electric-over-hydraulic cab tilt pump shall be supplied. This pump shall have a remote control for cab tilting operation.

The chassis shall also have a manual back-up cab tilt system as well. This system can be part of the electronic-over-hydraulic system or a separate system.

CAB TILT INTERLOCK

The cab lift system shall have a cab tilt interlock. The cab tilt shall not be able to be activated unless the master battery switch is in the on position with the parking brake set.

FRAME

The frames shall have single or double rails with highest yield strength offered by manufacturer. Frame shall be of appropriate length and width to accommodate the maximum GVWR of the vehicle. Frame cross members, frame mounted brackets, battery boxes and suspension shall hot-dipped galvanized to prevent corrosion. The running gear shall be painted black. The running gear shall consist of: axles, drivelines, air tanks, steering gear, fuel tank and drag link.

Galvanized frame components shall carry a 100% lifetime structural and corrosion warranty.

TOW HOOKS

Two (2) steel tow eyes shall be installed under the front bumper and attached directly to the front frame members.
Two (2) steel tow eyes shall be installed at the rear of the body and attached directly to the rear frame members.

OIL SEALS

Premium oil seals shall be provided on the front axle. The spindles shall be equipped with transparent covers for oil level inspection.

SHOCK ABSORBERS

Heavy-duty telescoping shock absorbers shall be provided on the front suspension.

REAR AXLE

The axle shall be a locking differential with a switch located in the cab. A magnetic drain plug shall be provided in the housing.
Suspension system shall be an air ride suspension system or equivalent. The rear drive axle assembly shall be painted black.

OIL SEALS

The rear axles shall be equipped with premium oil bath type wheel seal.

BRAKE SYSTEM

The system shall be a dual air brake system and meet or exceed the design and performance requirements of current FMVSS-121.

ANTI-LOCK BRAKE SYSTEM

The vehicle shall be equipped with an anti-lock braking system.

AUTOMATIC TRACTION CONTROL

An anti-slip feature should be included with the ABS. The Automatic Traction Control shall be used for traction in poor road and weather conditions. The Automatic Traction Control shall act as an electronic differential lock which shall not allow a driving wheel to spin, thereby supplying traction at all times. There shall be a manual inner-axle lock-up switch and a all-wheel (locking differential) switch located in the cab. The ABS electronic control unit (ECU) shall work with the engine ECU, sharing information concerning wheel slip. Engine ECU shall use information to control engine speed, allowing only as much throttle application as required for the available traction, regardless of how much the driver is asking for.

RSC/ESC CONTROL

The vehicle shall be equipped with the latest in systems in Roll Stability Control (RSC) and Electronic Stability Control (ESC). The RSC system shall have at a minimum: steering wheel position sensor, vehicle yaw sensor, lateral accelerometer, and individual wheel brake controls.

AUXILIARY BRAKING

A combination 2 speed engine/exhaust brake is to be installed with the controls located on the instrument panel within easy reach of the driver. The driver shall be able to turn the engine brake system on/off and have a high and low setting. The engine brake shall be installed in such a manner that when the engine brake is slowing the vehicle the brake lights are activated. The ABS system shall automatically disengage the auxiliary-braking device, when required.

AIR COMPRESSOR, BRAKE SYSTEM

The air compressor shall have a minimum of 18 cubic feet per minute output.

ENGINE

The engine shall be a Fire Service model with the following criteria:

- 2013 EPA compliant
- 360 HP (minimum)
- 1,000 ft-lb torque (minimum)
- Standard equipment on the engine shall include the following:
- Turbocharger
- Engine coolant pre-heater/block heater, oil pan heater with plug receptacle located near driver's door. This plug shall be switched and tied into the shore line system

ENGINE INSTALLATION CERTIFICATION

The manufacturer shall provide a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The approval of the engine installation shall be at full horsepower rating in a continuous duty application under all operating conditions, including road and pump. No type of automatic horsepower reduction feature shall be allowed. There shall be no exception to any portion of the engine installation certification. Nonconformance shall lead to immediate rejection of bid. The certification is not required if the chassis manufacturer is the manufacturer of the engine.

EXHAUST SYSTEM

The exhaust system will be installed in accordance with the engine manufacturer's requirements and meet all Environmental Protection Agency and State noise level requirements. Exhaust system components will be securely mounted and easily removable.

The diesel particulate filter/muffler will be fabricated from stainless steel and of a size compatible with the engine exhaust discharge.

Exhaust tubing will be a minimum of 16 gauge stainless steel from the turbocharger on the engine to the inlet of the diesel particulate filter. Any flexible exhaust tubing will be HDT stainless steel type. To minimize heat build-up, exhaust tubing within the engine compartment will be wrapped with an insulating material. Material will be held in place with worm gear type clamps.

An exhaust diffuser will be provided to reduce the temperature of the exhaust as it exits the tailpipe.
The computer controlling the engine will be programmed in such a manner that it will not allow the engine to go into regen mode while the fire pump is engaged. Separate "regeneration" enable and prohibit switches will be provided under the dash board on the driver's side. Each switch will be provided with a spring loaded protective cover and will be clearly marked as to function.

The exhaust tailpipe extending from the muffler (DPF) to the side of the vehicle will be constructed from 16-gauge aluminized steel tubing.

The stainless steel exhaust system shall be RH mounted and exit in front of the rear axle. The exhaust system shall have a Neiderman System installed in the vehicle to include: proper exhaust tip, magnetic plate mounted on the side of the body, and control module installed in the vehicle.

INFORMATION DATA SHEET

There shall be a data sheet containing the following information:

- All fluid types and quantities
- All grease types/grades
- All filter types (OEM filter numbers and quantities of each)
- Belt numbers
- Air pressure for front and rear tires
- Wheel nut torque
- Engine/Transmission/Pump/Axle/Tank model and serial numbers
- Brake Pad& Rotor OEM Part Numbers
- Vehicle Identification Number
- Builders ID number
- Paint codes
- Pump valve rebuild kits listed per intake/discharge

HIGH IDLE

An electric elevated/high idle switch shall be provided. The switch shall be installed, at the cab instrument panel for activation/deactivation. The high idle shall be operational only when the parking brake is on and the truck transmission is in neutral.

ENGINE COOLING SYSTEM

Radiator and the complete cooling system shall meet or exceed engine manufacturer's cooling system standards. Cooling system capacity shall exceed all cooling requirements specified by the engine manufacturer under all truck operating conditions. It shall have a built-in low coolant sight glass and an electronically controlled low coolant display mounted on the instrument panel. An integral surge and de-aeration tank shall be provided to optimize the cooling system for all operating conditions. A drain valve shall be located at the lowest point of the cooling system and at other points to permit complete flushing of the coolant from the system. A heavy-duty fan, shrouded by shields that permit only fresh cool air through the radiator, shall draw in cooling air. Radiator shall be of the serpentine design and bonded together by the patented "beta-weld" process for increased strength, longer road life and solder-bloom corrosion protection. Radiator shall be mounted in a manner to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven ground. Radiator core shall be compatible with commercial antifreeze solutions. Cooling system shall exhibit rapid warm-up without use of radiator shutters. A remote mounted large capacity coolant expansion/recovery tank shall be supplied. Tank shall have means of viewing coolant without removing cap (ie: clear tank or sight tube).

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit. The system shall also contain a coolant spin on filter located in an accessible location for service. Silicone hose shall be used for all engine coolant lines, and be installed by the chassis manufacturer, no exception to using silicone hoses. Hose clamps shall be stainless steel "constant torque type" to prevent coolant leakage. They shall react to temperature changes in the cooling system and expand or contract accordingly while maintaining a constant clamping pressure on the hose.

FUEL TANK

The fuel tank minimum capacity shall allow the vehicle to perform the NFPA annual pump test-150 psi test for a minimum of 6.0 hours without fueling. A drain plug shall be provided in a low point of the tank(s) for drainage. The tank shall meet all FHWA 393.67 requirements.

Tank straps shall be stainless. Tank mounting brackets shall be galvanized.

FUEL SHUTOFF

A shutoff valve shall be installed in the fuel line, near the filter(s).

FUEL PRIMER

An electronic or manual fuel primer shall be installed after the last fuel filter.

TRANSMISSION
An ALLISON Model 3000EVS series electronic torque converting, automatic transmission with 5th generation controls shall be provided. The transmission shall include an integral oil level sensor and transmission fluid check on the touch pad. One (1) PTO openings shall be located on the converter housing to allow for PTO. A transmission temperature gauge shall be installed on the cab instrument panel. The push button shift module shall be mounted to right of driver on console. Shift position indicator shall be indirectly lit for after dark operation. A transmission oil pan magnet shall be provided in the oil pan.

Castrol "TRANSYND" or an equivalent synthetic TES 295 transmission fluid will be utilized to fill the 3000 EVS transmission.

TRANSMISSION COOLER
External transmission oil cooler shall be provided.

DRIVELINE
Drivelines shall be a heavy-duty metal tube and be equipped with grease able universal joints. The shafts shall be dynamically balanced before installation. A splined slip joint shall be provided in each drive shaft.

STEERING
The power steering shall incorporate a heavy-duty hydraulic pump with power steering gears with integral pressure and flow control. The steering wheel shall be minimum diameter of 16" and be capable of tilting and telescoping. The system shall include a remote mounted tank with integrated filter.

TIRES AND WHEELS
Front tires shall be manufacturer recommended for mission defined. The tires shall be mounted on 22.5" polished aluminum rims with a ten (10) stud, flanged nut metric mount. Rear tires shall be manufacturer recommended for mission defined (must be M+S tread). The tires shall be mounted on 22.5" polished aluminum rims with a ten (10) stud, flanged nut metric mount. Front and rear hub and nut chrome style covers shall be provided. A visual tire pressure monitoring system shall be provided on the tires (i.e. cat's eye system)

MUD FLAPS
Mud flaps shall be installed behind the front and rear wheels of the truck. The mounting hardware shall be stainless (no exceptions).

CRASH TESTING CERTIFICATION
To ensure the safety of the cab occupants and cab integrity, proof of third party testing will be provided. The cab will be certified for SAEJ2422 side impact, SAEJ2420 with ECER29 cab front impact, and ECER29 cab roof strength. NO EXCEPTIONS.

The State of New Hampshire shall require verification of the construction techniques used throughout the building process. All testing must meet the minimum standards of both the latest adopted NFPA 1901 standard along with the Federal Motor Vehicle Safety Standards (FMVSS).

All testing must be performed by a testing agency that is independent of the manufacturer and approved by the State of New Hampshire.

INSTRUMENTATION
The following gauges and controls shall be furnished:

- Voltmeter gauge with external warning lights and buzzers
- Tachometer
- Speedometer/odometer
- Fuel gauge
- Engine Oil pressure Gauge with low oil pressure to activate red warning light and a steady tone alarm.
- Air Pressure Gauges: two (2) gauges, one (1) for the front and the other for the rear brake pressure. Low air pressure to activate a red warning light and a steady tone alarm.
- Transmission Oil Temperature Gauge. High transmission oil temperature activates a red warning light and a steady tone alarm.
- Engine Coolant Temperature Gauge. High engine temperature activates a red warning light and a steady tone alarm.
- Air cleaner restriction gauge with reset
- Engine Hour Meter
- Engine Oil Temperature
- Exhaust Pyrometer
- Brake Application Gauge

The following items shall be standard as part of the cab:

- *Heater/AC and defroster controls (front and rear)*
- *Headlight switch*
- *LED cab marker lights*
- *High idle switch*
- *Self-cancelling turn signal switch (arm)*
- *Windshield wiper/washer control*
- Two (2) Electric intermittent windshield wipers (wet arm) with remote washer fluid container shall be provided with that meet FMVSS and SAE requirements.
- *Headlight dimmer and hazard switch*
- *Parking brake controls*
- *Differential lock switch*
- *Two (2) 12-volt 20 Amp power outlets-constant hot*
- *Center-mounted dome light with left and right hand map lights for driver + officer seat*
- *Center mounted dome light located for the rear seats*
- *Manual Reset Circuit Breakers with 12-volt negative ground*
- *A pillar mounted grab handles on both pillars for the front seats*
- *Exterior mounted B pillar grab handles (full length stainless handles with chrome hardware)*
- *B pillar mounted grab handles on both pillars for the rear seats*
- *Exterior mounted C pillar grab handles (full length stainless handles with chrome hardware)*
- *Grab handles shall be provided on each door*
- *Horn button control: center of steering wheel*
- *Cab sound insulation*
- *Data link connector*

CAB DOORS

The cab entry and egress shall be designed for a firefighter in full turnout gear. Each door shall open a minimum of ninety degrees to afford the firefighter maximum space.
The door windows shall have interior and exterior glass weather seals to prevent the influx of exterior air.
The doors shall have exterior and interior paddle type latches for ease of opening with a gloved hand. The paddle latches are to have a rubber gasket, on the outside, separating the handle from the finished painted surface.

FRONT/REAR CAB DOORS

The cab front doors shall be of the full-length design enclosing the entire step area of the cab

CAB GLASS

AS-1 safety laminate glass shall be used in a two piece, wrap around design with a minimum 3500 square inches of windshield area for maximum visibility. The windshield shall have the style of a one-piece assembly with the practical installation of two pieces for lower replacement cost. The windshield shall be readily available from a nationally recognized automotive glass manufacturer that maintains local distribution outlets.

All glass shall be tinted.
All fixed glass shall be installed with a one-piece triple locked rubber lacing material.

CAB INTERIOR UPHOLSTERY

The seats will be upholstered with heavy duty material resistant to oil, grease and mildew.

CAB INSULATION

The cab shall be insulated to provide the quietest cab possible. The cab shall have no more than 75 dBA at any time during vehicle operation. Sound levels will be checked during the final inspection at the factory prior to delivery to the dealer.

CAB SEATING

A seat with high back, integrated headrest shall be provided in the cab for the driver. The seat shall have 4.00" of height adjustment. The seat shall be furnished with three (3) point shoulder type seat belt. The seat belt shall be furnished with automatic retractor. Extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position. Seat belt shall be extended length and red in color.

SCBA style seats shall be provided in the cab for the officer and positions in the rear of the cab. The seat shall be furnished with three (3) point shoulder type seat belt. The seat belt shall be furnished with automatic retractor. Extension shall be provided with the seat belt so the male end can be easily grasped and the female end easily located while sitting in a normal position. Seat belt shall be extended length and red in color. SCBA seats shall be required to have NFPA compliant WALKAWAY brackets that shall include a QLM-U-USM pull release.

The WALKAWAY brackets shall include a pull release mounted in the upper portion of the seat.

SEAT BELT WARNING DEVICE
A seat belt warning device shall be installed.

"DO NOT MOVE APPARATUS" WARNING LIGHT WITH AUDIBLE ALARM
A red flashing warning light with an integral audible alarm, will be functionally located in the cab to signal when an unsafe condition is present such as an open cab door or body compartment door, an extended ladder rack, or any other device which is opened, extended or deployed which may cause damage to the apparatus if it is moved.

This light will be activated through the parking brake switch to signal when the parking brake is released. This light will be labeled "DO NOT MOVE APPARATUS WHEN LIGHT IS ON".

CAB HEATER/AC
The heater/defroster ventilation shall be built into the design of the cab dash instrument panel.
The heater ducts shall be vented in a manner to provide heat directed towards the driver and the passenger. Heater defroster controls shall be located on the cab dash within easy reach of the driver. The defroster ducts shall be designed to provide maximum defrosting capabilities for the front cab windows. The defroster shall be of the climate control type where as the AC will assist in defogging the windows.

A high performance air conditioning system shall be furnished inside the cab. The air conditioning system shall perform as follows:

In 100 degree Fahrenheit ambient temperature with 50 percent relative humidity and at maximum compressor speed, the cab and crew cab shall cool down to 75 degrees Fahrenheit within 30 minutes. Actual test results from the manufacturer of the air conditioning system, verifying this performance requirementshall be submitted 5 days after notification of the apparent low bidder.

The evaporator units shall have an adequate BTU rating to meet the performance specifications. The air conditioning system shall have adjustable air outlets incorporated into the cab dash at both the driver and passenger positions.

The air conditioner refrigerant shall be R-134A, installed by a certified technician.

The insulation shall be covered with a vinyl liner or a metal panel painted to match the interior.

Fresh air filter for the HVAC system shall be provided.

MIRRORS
The mirrors and brackets shall be bright style west coast with convex and shall also be remote control for both mirrors. Driver and passenger side mirrors shall be thermostatically controlled and adjustable with remote control convenient to the driver. LED clearance lights shall be provided on both mirrors. A bright style down-view mirror mounted on the passenger door shall also be supplied.

FRONT BUMPER
A chrome plated steel bumper shall be attached to the front of the frame. Front tow hooks shall be recessed into the bumper, provided that adequate room is provided in the cutouts. Upper and lower mounting plate hardware for the license plate shall be included on this bumper.

FRONT CONSOLE
A console shall be fabricated to coordinate with the interior cab color. Room shall be provided on the face of the console for installation of radio(s), light controls, switches and siren controls.

LASER ALIGNMENT
The chassis shall have a laser alignment performed at the factory or factory service center before delivery. The alignment shall take place with the truck loaded to the best of the manufacturer's ability (to include water in the tank).

FLUID CHECK ACCESS
The apparatus shall be designed so that the operator could perform all recommended daily maintenance checks easily without the need for hand tools.
The apparatus shall be designed so the operator can check all chassis fluids to include (oil, transmission, power steering, windshield washer) without tilting the cab or removing any components. Access door may be provided to gain access to these fluids

Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

EMS STORAGE CABINET

A storage compartment with dimensions of approximately 41" high x 26" wide x 25" deep shall be conveniently located in the cab.

The cabinet shall be a welded aluminum assembly, welded into the cab structure with the cabinet interior and exterior painted to match the interior color of the cab.

A LED compartment light shall be provided on left side of the cabinet at the ceiling.

The EMS cabinet shall be provided with a ROM or Gortite roll up door.

ALUMINUM SHELVES - ADJUSTABLE - EMS CABINET

Two (2) adjustable aluminum shelves shall be installed and shall have a flange 1-1/2" deep and a minimum material thickness of .190" up to 30" in length. Each shelf shall be fully adjustable in height and held in place by extruded uprights.

Two (2) LED light(s) shall be installed, one beneath each shelf. The cabinet lighting shall be activated by the door switch.

ROAD SAFETY KIT

A road safety kit will be furnished with the following equipment:

2 1/2 lb. B-C fire extinguisher
Triangle safety reflectors

APPARATUS BODY SPECIFICATION

APPARATUS BODY DESIGN AND CONSTRUCTION

The apparatus body shall be built of stainless steel or aluminum and shall be designed for Fire Service use only. The body design shall be fully tested with proven engineering and test techniques such as finite element analysis, stress coating, and strain gauging shall have been performed with special attention given to fatigue life and structural integrity of compartments and body support system.. All welding of body support system shall be accomplished by welders certified to the standards of the American Welding Society for the metals being used.

All metal work shall be free of sharp edges, objects or corners. Body width shall be completely modular in design, allowing transfer of body components to a new chassis in the event of an accident or wear. The modular design shall also facilitate ease of repair or replacement of major or minor body parts.

OVERALL HEIGHT

The overall height of the completed chassis and mounted body to include all of its components shall not exceed 11'6" empty.

MODULAR BODY REQUIREMENTS

The entire body shall be fabricated using precision holding fixtures to ensure accurate dimensions. The body assembly shall be securely bolted to the sub-frame utilizing steel certified Grade 8 bolts.
The sub-frame shall be bolted to the chassis frame utilizing certified Grade 8 bolts. There shall be no welding of components to the chassis frame.

Pop rivets or metal screws shall not be used in any part of the structural body build up. All fasteners shall be stainless steel bolts with self-locking nuts of the proper size and strength for the required application.

Major body components shall consist of right and left body sides, and rear facing compartments. The pump module is to be completely separate from the main body to prevent damage due to flexing.

ADDITIONAL FEATURES

The rear step shall be no less than 8" deep with fabricated stainless steel corners; the clearance lights shall be recessed into corners. Three (3) additional LED clearance lights shall be recessed into the center of the rear step. The rear step shall be fully removable without disturbing other body components to facilitate repair or replacement.

RUB RAIL CONSTRUCTION

Rub rails shall be affixed to the side of the apparatus beneath each compartment except the over the wheel compartments.

REAR TAILBOARD

A rear tailboard minimum 18" deep shall be provided at the rear from stainless steel meeting NFPA 1901 step requirements. The tailboard shall provide protection for the side body compartments and shall provided recessed mounting for the rear marker lights. It shall be bolted to the rear support structure.

COMPARTMENT DESIGN AND CONSTRUCTION

All compartments shall be of sweepout design and shall be bolted together. Recessed round head bolts and locking nuts shall be applied with torque wrench set with proper torque rating for each fastener. Wherever possible, body bolts shall be hidden from plain view for appearance and ease of apparatus cleaning.

COMPARTMENT VENTILATION

Each compartment shall be provided with a laser cut louver to provide adequate ventilation.

WATER TANK CAPACITY

The tank shall have a capacity of 500 or greater U.S. gallons (L Shaped tank).

WATER TANK CONSTRUCTION

The tank shall be an L shaped tank to allow for a low hose bed off the rear of the apparatus. The tank shall have a rated capacity in U.S. gallons, complete with lifetime warranty. The tank manufacturer shall mark the tank and furnish notice that indicates proof of warranty. The purpose of the notice is to inform department personnel who store or use the tank that the unit is under warranty.

TANK SUMP AND CONNECTIONS

There shall be one (1) sump standard per tank. The sump shall have a minimum 3" FNPT threaded outlet on the bottom for a drain plug. This shall be used as a combination cleanout and drain. All tanks shall have an anti-swirl plate located above the dip tube.

TANK LID & FILL TOWER

The tank shall have a combination vent and fill tower. The tower shall have a 1/4" thick removable screen and a hinged-type cover. Inside the fill tower, there shall be a two 6" vent pipes and one 6" overflow pipe. One vent pipe shall be plumbed to the front of the tank and the other vent pipe shall be plumbed to the rear of the tank.

APPARATUS BODY HOSEBED

The intent of this hose bed is to provide a hose bed at the lowest height possible to allow for ease when stretching hose. The hose bed shall be constructed in such a manner that will prevent damage to fire hose. The hosebed shall comply with the current NFPA requirements. The hose bed shall have the capacity for 800 feet of 4" Large Diameter Hose, 300 feet of 3" double jacketed hose, 300 feet of 2-1/2" double jacketed hose and 400 feet of 1-3/4" double jacketed hose. The interior of the hosebed shall be free of projections such as nuts, sharp edges or brackets that may damage hose.

An aluminum extrusion shall be installed over the rear opening of the hosebed to protect the body from wear. The hosebed bottom shall be fitted with removable slatted, ribbed 6" heavy-duty extruded aluminum floorboards.

Four (4) movable hose bed dividers shall be provided. These partitions shall be capable of being moved using standard ASE size socket or wrench.

LEFT SIDE COMPARTMENT DIMENSIONS FORWARD OF WHEEL WELL

There shall be one (1) rescue style, full height, and reduced depth compartment ahead of the rear wheels. This compartment shall have three (3) full depth adjustable shelves.

LEFT SIDE COMPARTMENT DIMENSIONS ABOVE WHEEL WELL

There shall be one (1) high side reduced depth compartment centered over the rear wheels.

LEFT SIDE COMPARTMENT DIMENSIONS REAR OF WHEEL WELL

There shall be one (1) rescue style, full height, and reduced depth compartment behind the rear wheels. This compartment shall have two (2) full depth adjustable shelves.

DOOR CONSTRUCTION – LEFT/RIGHT SIDE

All side doors shall be provided with a ROM or Gortite roll up door. A single piece top drip rail shall be provided with a seal to prevent dirt and moisture from entering the compartment when the door is fully closed. The bottom of each door shall also be provided with a seal. All body compartments shall have a minimum of one (1) laser cut, louvered vent to provide the proper airflow inside the compartments.

RIGHT SIDE COMPARTMENT DIMENSIONS FORWARD OF WHEEL WELL

There shall be one (1) low side compartments ahead of the rear wheels. This compartment shall have one full depth adjustable shelf.

RIGHT SIDE COMPARTMENT DIMENSIONS REAR OF WHEEL WELL

There shall be one (1) low side compartments ahead of the rear wheels. This compartment shall have one full depth adjustable shelf.

FUEL FILL - SIDE BODY

The fuel fill shall be located in the rear fender area on the left side of the apparatus body. The spring loaded fuel fill door shall have "Diesel Fuel" marked on the door. There shall be a vent line from the fuel tank to beneath the fuel cap to aid in fueling of the truck.

STAINLESS STEEL TREADPLATE, COMPARTMENT TOP EXTERIOR BODY

The exterior top of the body compartments shall be covered with 304 stainless steel tread plate.

FOLDING STEPS

Folding steps shall be provided on the front and rear of the apparatus body. Steps shall be provided and in installed per NFPA requirements

REAR HANDRAILS

Handrails shall be installed to the rear of the apparatus in a manner that maximizes hose bed width and minimizes hose bed height.

LADDER RACK

A ladder rack shall be installed in such a manner that maximizes hose bed width and minimizes hose bed height. The ladder rack shall carry the following items: one 24 foot aluminum ladder, one 14 foot aluminum roof ladder, one 10 foot attic ladder. The switch for this rack shall be located on the right side rear of the body and shall have a spring loaded switch cover to prevent accidental operation. This switch shall be weather resistant.

The ladders mentioned above shall be provided with the apparatus. Type of ladders to be listed in the bid.

WHEEL BLOCKS

The vehicle shall be equipped with two wheel chocks with horizontal brackets mounted under the body in front of the left side rear axle.

DRI-DEK MATTING - SHELVES/TRAYS & COMPARTMENTS

All compartments and trays shall be covered with Dri-Dek mat or equivalent for improved ventilation that shall also provide a non-slip surface.

TOP MOUNT PUMP/PUMP HOUSING

PUMP COMPARTMENT

The pump compartment shall be separate from the hose body and compartments so that each may flex independently of the other. The pump compartment shall be mounted onto the chassis through rubber biscuits in a four point pattern to allow for a chassis frame twist.

Pump compartment, pump, plumbing and gauge panels shall be removable from the chassis in a single assembly. The pump compartment shall be a modular design.

A framework shall provide the support for the mounting of the pump lower panels. A structure shall be provided as a support behind all control push-pull handles enabling a firm foundation for operation of the valve control.

RUNNING BOARDS

The running boards shall be separate from the hose body, compartments, and pump compartment so that each may flex independently of the other and to allow water to flow freely away from the running board area. Separation of the running boards and support structure from the hose body, compartments and pump compartment is desired to provide field service of the running board without major repairs to the pump compartment in the event of an accident. The steel running board supports shall be bolted directly to the chassis frame rails to provide proper support. The running board step surface shall be covered in Laser Grip stainless steel meeting NFPA 1901, 2009 or 2016 edition for step requirements.

DUNNAGE COMPARTMENT OVER PUMP

There shall be a dunnage compartment furnished on top of the pump module. The floor shall be bolted in place and removable for access to the fire pump components for major service using SAE fasteners.

PUMP CONTROL PANELS

All pump controls and gauges shall be located on top side of the apparatus and properly identified. The layout of the pump control panel shall be ergonomically efficient and systematically organized. The gauge panel shall contain a panel for mounting of all instruments, engine monitoring system, and pressure control system.

OPERATOR'S PLATFORM

The minimum width shall be 30" between the cab and pump compartment. Any voids between the back lower section of the cab and the walking surface shall be filled with acceptable material to limit heat off the engine during pumping operations.

PUMP PANEL IDENTIFICATION TAGS

All discharges shall have color-coded plastic identification tags, with each discharge having its own unique color. Color-coding shall include the labeling of the outlet and the drain for each corresponding discharge.

MASTER GAUGES

The pump master vacuum and pressure gauges shall be 4-1/2" in diameter with white dial face gauges with black lettering and markings.

The master vacuum gauge shall be a compound style gauge with a vacuum/pressure range of -30" - 0 - 200 psig with the dial face of the gauge labeled in black INTAKE.

The master pressure gauge shall be provided with a range of 0-400 psig and the dial face of the gauge labeled in black DISCHARGE.

The gauges shall be fluid filled with pulse and vibration dampening "Interlube" to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to -40 degrees F. The cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area. The gauge accuracy for the gauge shall be plus or minus 1% of full scale per ANSI B40.1, Grade 1A.

To prevent internal freezing and to keep contaminants from entering the gauge, the stem and bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

MASTER GAUGE TEST PORTS

Adjacent to each gauge there shall be a pressure tap to provide simultaneous readings of the vacuum and pressure exerted on the individual gauge.

Master gauge test ports shall be mounted on the face of the pump panel to allow for easy access during pump testing.

PRESSURE GAUGES

Each line pressure gauge shall be mounted immediately above the control for the corresponding valve. The individual line *pres*sure gauges for the discharges shall be 2-1/2" in diameter with white dial face gauges with black lettering and markings. The gauges shall be a pressure style gauge with a pressure range of 0 - 400 psig.

The gauges shall be fluid filled with pulse and vibration dampening Interlube to lubricate the internal mechanisms to prevent lens condensation and to ensure proper operation to -40 degrees F. The cases shall be temperature compensated with an internal breathing diaphragm to permit fully filled cases and to allow a rigid lens with a distortion free viewing area. The gauge accuracy for the gauge shall be plus or minus 2% mid-scale, plus or minus 3% balance, per ANSI B40.1, Grade 1A.

To prevent internal freezing and to keep contaminants from entering the gauge, the stem and bourdon tube shall be filled with low temperature oil and be sealed from the water system using an isolating diaphragm located in the stem. A bright metal bezel shall be supplied for resistance to corrosion and to protect the lens and case from damage.

All line pressure gauges shall be mounted adjacent to the corresponding discharge control tee handles.

All pressure gauge supply lines shall be plumbed and supported to allow proper draining to prevent water from being trapped and frozen.

PUMP MANUFACTURER AND MODEL

The pump shall be a Hale Q-MAX or Waterous 1500 GPM topmount pump.

PUMP MOUNTS

Extra heavy duty pump mounting brackets will be furnished. These will be bolted to the frame rails in such a position to perfectly align the pump so that the angular velocity of the drive line joints will be the same on each end of the drive shaft. This will assure full capacity performance with a minimum of vibration. Mounting hardware will utilize Grade 8 bolts.
Pumps which are not mounted directly to the frame will not be considered. Under no circumstance will the pump function as a frame cross member.

PUMP TRANSMISSION

The pump transmission shall be assembled and tested at the pump manufacturer's factory. Pump transmission shall be of sufficient size to withstand up to 16,000 lbs. ft. of torque in road operating conditions. The pump transmission shall be designed with ample capacity for lubrication reserve and to maintain the proper operating temperature.

The pump ratio shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected. If gearbox is equipped with a power shift, the shifting mechanism shall be a heat- treated, hard-anodized aluminum power cylinder, with stainless steel shaft. An in-cab control for rapid shift shall be provided that locks in road or pump.

Three green warning lights shall be provided to indicate to the operator when the pump has completed the shift from Road to Pump position. Two green lights to be located in the truck driving compartment and one green light on pump operator's panel adjacent to the throttle control. All lights to have appropriate identification/instruction plates.

PUMP RATING AND TEST REQUIREMENTS

The pump shall be of a size and design to mount on the chassis rails of commercial and custom truck chassis, and have the capacity of 1500 gallons or greater per minute (U.S. GPM), NFPA1901 rated performance. The pump shall deliver the percentage of rated discharge at pressures indicated below:

PRIMER

The pump shall be furnished with a primer.

PNEUMATIC PUMP SHIFT

The pump shift shall be air operated and shall incorporate an air double action piston to shift from road to pump and back. A manual or electric operated pump shift mechanism is not acceptable. The pump shift switch shall be mounted in the cab and identified as "AIR PUMP SHIFT" and include instructions permanently inscribed on the pump shift switch plate. The in-cab operating valve uses a spring loaded locking collar to prevent it from accidentally being moved.

The pump shift control assembly shall incorporate an indicating light system, which will notify the operator when the shift has been completed to PUMP and when the chassis transmission is in correct pumping gear.

The switch that activates the lights must be mounted on the pump transmission and positioned so that the pump shift arm activates the switch only when the shift arm has completed its full travel into PUMP position. An additional indicator light shall be provided adjacent to the throttle control at the pump operator's panel to indicate a completion of the pump shift.

PUMP SHIFT OVERRIDE

There shall be a manual override on the pump shift. The override control shall be activated from the lower left side of the pump panel.

MECHANICAL SEAL

The fire pump shall be provided with a mechanical pump seal. The mechanical seal shall be two inches in diameter and shall be spring loaded, maintenance free and self-adjusting. Mechanical seal construction shall be a carbon sealing ring, stainless steel coil spring, Viton rubber boot, and a tungsten carbide seat with Teflon backup seal.

ANODE SYSTEM

To reduce the effect of galvanic action the pump shall be equipped with two zinc (2) anodes. One anode is to be installed on the inlet (suction) side of the system and one anode is to be installed on the pressure (outlet) side of the system.

The tank shall also have an anode system installed to reduce the effect of galvanic action on the pump.

PRESSURE GOVERNOR

The apparatus will be equipped with an electronic pressure governor and monitoring display kit will be installed. The kit will include a control module, intake pressure sensor, discharge pressure sensor, and cables.

SUCTION PRESSURE RELIEF VALVE

A 2-1/2" NPT, adjustable relief valve shall be installed on the suction side of the pump and be preset at 125 psig. The relief valve shall have a working range of 50 psig to 200 psig. The valve shall be of stainless steel construction and include a stainless steel spring and rubber seat. The valve shall be normally closed and shall limit pressure in the pumping system. When excessive intake pressures are received, the water shall be directed below the body. The discharge side of the intake relief valve shall be plumbed to the right side below the running boards, away from but, visible to the pump operator, and shall terminate with an unthreaded pipe.

PLUMBING

All inlet and outlet plumbing, 3.00" and smaller, shall be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with hi-tensile polyester braid. Larger inlets and outlets shall be stainless steel. Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping shall be equipped with Victaulic couplings. All lines shall be equipped with individual drain valves. All individual drain lines for discharges shall be extended with a hose to drain below the chassis frame. All water carrying gauge lines shall be of flexible polypropylene tubing, and shall gravity drain when not in use. No rubber hose shall be more than 10 feet in length.

MASTER DRAIN

The apparatus shall be equipped with a Manual Master Pump Drain for draining of the lower pump cavities, volute and selected water-carrying lines and accessories. The all brass and stainless steel construction allows for operation up to 600 psi.

RIGHT SIDE STEAMER INLET

There shall be one inlet furnished on the right side pump panel. The suction inlet shall have 6" NST thread. A 2-1/2" NPT, relief valve shall be installed and be preset at 125 psig. The suction inlet shall have a removable strainer provided inside the external inlet. The controls shall be located on pump panel. A manual crank shall be proved with the valve.

SUCTION CAP

The right side suction inlet shall be equipped with a long handled cap capable of withstanding 500 PSI.

LEFT SIDE STEAMER INLET

There shall be one (1) inlet furnished on the right side pump panel. The suction inlet shall have 6" NST thread. A 2-1/2" NPT, relief valve shall be installed and be preset at 125 psig. The suction inlet shall have a removable strainer provided inside the external inlet. The controls shall be located on pump panel. A manual crank shall be proved with the valve.

SUCTION CAP

The left side suction inlet shall be equipped with a long handled cap capable of withstanding 500 PSI.

FRONT STEAMER INLET

There shall be one (1) steamer inlet furnished on the front of the apparatus. The suction inlet shall have 6" NST thread. The suction inlet shall have a removable strainer provided inside the external inlet.
Manual drain valves shall be installed on either side of the valve.

SUCTION CAP

The front suction inlet shall be equipped with a long handled cap capable of withstanding 500 PSI.

AUX. SUCTION INTAKE

A 2-1/2" independent gated suction intake shall be provided on the right side pump panel. Intake shall be provided with a quarter-turn valve and control. The intake shall have a 3/4", quarter-turn drain valve with handle. The auxiliary suction valve shall have a push-pull type control handle located adjacent to the valve. The 2-1/2" intake shall have chrome plated straight adapter with removable internal screen and a chrome plated plug with end chain.

RIGHT SIDE DISCHARGES

The right side of the pump panel shall contain three (3) discharges. Two (2) 2-1/2" discharges and one (1) 4" full flow discharge.
The 2-1/2" discharge outlets shall have a 2-1/2" quarter-turn swing-out valve. The discharges shall be provided with chrome plated 30-degree discharge elbow with 2-1/2" NST threads that extends through the pump panel.

The 4" discharge outlet shall have a 4" hand wheel crank valve. The discharge shall be provided with 30-degree discharge elbow with 4" NST threads that extends through the pump panel. This discharge shall have a 4" Stortz fitting.

DISCHARGE CAP

Two (2) 2-1/2" rocker lug cap with lug vent and chain shall be furnished for the discharge outlet.

DISCHARGE CAP

One (1) 5" Stortz caps with lug vent and chain shall be furnished for the discharge outlet.

LEFT SIDE DISCHARGES

The left side of the pump panel shall contain Two (2) discharges. Two (2) 2-1/2" discharges

The 2-1/2" discharge outlets shall have a 2-1/2" quarter-turn swing-out valve. The discharges shall be provided with chrome plated 30-degree discharge elbow with 2-1/2" NST threads that extends through the pump panel.

DISCHARGE CAPS

Two (2) 2-1/2" to 1-1/2" rocker lug caps with lug vent and chain shall be furnished for the discharge outlet.

REAR PRECONNECT - RIGHT SIDE

There shall be one (1) 2 1/2" discharge outlet located on the passenger side rear of the body below the hose bed. There shall be a chrome plated NST adapter that extends through the rear of the body. The discharge shall be provided with a chrome plated 30-degree discharge elbow.

DISCHARGE CAP

One (1) chrome plated, 2-1/2" to 1-1/2" rocker lug caps with lug vent and chain shall be furnished for the discharge outlet.

REAR PRECONNECT - LEFT SIDE

There shall be one (1) 2-1/2" discharges outlet located on the driver side rear of the body below the hose bed. There shall be a chrome plated NST adapter that extends through the rear of the body. The discharge shall be provided with a chrome plated 30-degree discharge elbow.

DISCHARGE CAP

One (1) 2-1/2" to 1-1/2" rocker lug caps with lug vent and chain shall be furnished for the discharge outlet.

DECK MONITOR

A manual pre-piped, removable deck gun, capable of flows up to 1250 GPM shall be mounted on the 3" riser. The monitor shall be capable of 360 degree rotation when deck mounted. The monitor shall be equipped with a stream shaper and model quad stacked tips.

TRIPLE CROSSLAY HOSEBED

Two (2) crosslays, both with a 1-1/2" male NST outlet shall be provided. The outlet shall be equipped with a 2" polished stainless steel 90 degree swivel with 1-1/2" male NST thread located in the hosebed so that hose may be removed from either side of the apparatus.

One (1) crosslay with a 3" male NST outlet shall be provided. A 3" quarter turn ball valve shall be used to control water flow. The outlet shall be equipped with a 3" polished stainless steel 90 degree swivel with 3" male NST thread located in the hosebed so that hose may be removed from either side of the apparatus.

The 1-1/2" crosslay beds shall be capable of carrying a minimum of two hundred feet (250') of 1-3/4" double jacketed hose with a pistol grip nozzle. The 3" crosslay beds shall be capable of carrying a minimum of two hundred feet (200') of 2-1/2" double jacketed hose with a pistol grip nozzle. The crosslay controls shall be mounted on the operator's panel. A 3/4" quarter-turn drain valve shall be plumbed into the discharge side of each valve. The drain valve controls shall be located at the lower edge of the pump panel.

BALL VALVES

All intake/discharge ball valves shall be manual control 1/4 turn Elkhart, Akron or Class 1 heavy duty swing out valve (non-lubricated) with stainless steel ball unless specified otherwise.

STAINLESS STEEL VALVE CONTROL LINKAGES

All manual valve controls shall have control rod linkages constructed of 1/2" stainless steel rod or pipe and shall implement heavy ball swivel joints and clevises for smooth valve operation.

Plain, painted or coated control rods are not acceptable.

TANK TO PUMP

The tank to pump piping shall be capable of delivering water to the pump at a rate of five hundred (500) gallons per minute. This flow shall be sustained while pumping to a minimum of 80% of the certified tank capacity with the apparatus on level ground. No exceptions are allowed to this section.

The tank to pump line shall run straight, without elbows, from the pump to the front face of the water tank and down into the tank sump. A rubber coupling shall be included in this line to prevent damage from vibration or chassis flexing. The tank to pump line shall be plumbed with 3" Schedule 40 stainless steel high pressure pipe.

A 3" ball valve shall be furnished from the tank to the pump complete with a flexible connection and shall be enclosed in the pump compartment. The 3" valve shall be stainless steel and have an interior stainless steel ball and shall have a locking manual control handle located on pump operator's panel. A built-in check valve shall be provided in the tank to pump supply line to prevent the unintentional back filling of the water tank through the line.

TANK REFILL

A 2" tank refill line shall be provided using a quarter-turn full flow ball valve controlled from the pump operator's panel with a manual locking handle. The tank refill shall be plumbed with high pressure flexible piping and high pressure flexible piping stainless steel couplings.

1" TANK SUMP DRAIN

A 1" drain shall be provided in the bottom of the tank sump to fully drain the tank. The drain shall use 1" stainless steel piping or synthetic rubber hose reinforced with hi-tensile polyester braid with a 1" valve. The control for the valve shall be remoted to the driver's side of the apparatus just under and behind the side rub rail. The drain control handle shall be labeled "TANK DRAIN".

ENGINE COOLER

A gated discharge line shall be installed to provide water from the fire pump to the chassis supplied heat exchanger to assist in engine cooling during pumping operations. The heat exchanger line shall be controlled at the pump operator's panel with a valve.

THERMAL RELIEF VALVE

A Thermal Relief Valve shall be provided on the pump. Discharge of this line shall be in obvious location to the pump operators station. Discharge directly under the middle of the vehicle will not be allowed.

PUMP HOUSE HEATER

A 65,000 BTU, automotive type hot water heater shall be provided and mounted in the fire pump compartment. The heater shall be connected to the truck engine coolant system and have shutoff valves in both the feeder and return lines. Heater shall include a 12 volt fan with a weather tight switch located at the pump operator's panel. Heater shall be mounted to the pump panel using rubber isolation spacers to limit road and pump vibration. The heater shall be mounted in a location that does not interfere with the service repair of the pump or any associated valves and lines.

PUMP PANEL LIGHTING

The pump operator's panels (road and curb side) shall be supplied with a LED light system. LED strip lights with a stainless steel hood shall be mounted across the top of the pump panel gauges and controls.

LED strip lights with a stainless steel hood shall be provided on each side of the pump module above the side panels. All pump module lighting shall illuminate when the vehicle is placed in park or in pump mode.

WATER TANK INDICATOR

A high visibility LED tank indicator gauge shall be installed at the pump panel. The indicator shall show the volume of water in the tank on a minimum of four (4) easy to see super bright LEDs. A wide view lens over the LEDs shall provide for a viewing angle of 180 degrees. The indicator case shall be waterproof. Low water warnings shall include flashing LEDs at 1/4 tank, down chasing LEDs when the tank is almost empty, and an output for an audio alarm. Wiring shall be weather resistant and have automotive type plug-in connectors.

FOAM SYSTEM

A foam system shall be supplied on the apparatus. The apparatus shall be equipped with an automatic electronically controlled, direct injection, rotary gear pump, and discharge side foam proportioning system. Foam proportioning operation shall be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The foam system shall be mounted to allow ease of service.

The complete foam proportioning system shall include the following:

1) Foam Pump
2) Control System
3) Foam Concentrate Strainer
4) Integral Check Valve/Injector Fitting.
5) Flow meter
6) Control Cables
7) Low Tank Level Switch
8) Water Discharge Check Valves

FOAM PUMP

The foam proportioning system shall be compatible with Class A foam concentrates. The foam proportioning system shall be capable of delivering the rated foam concentrate flow with the above mentioned foam concentrate type. The foam proportioning system shall be based on an electric motor driven, rotary gear foam concentrate pump.

The foam pump/motor assembly shall be permanently attached to an apparatus mountable base plate. A foam concentrate flow meter shall be integral to the foam concentrate pump. The foam concentrate flow meter shall provide a signal to the electronic control unit to make sure the proper amount of foam concentrate is injected into the discharge stream. The entire base plate mounted assembly shall have electrical components sealed to NEMA 4X or equal for mounting in the apparatus pump compartment or any suitable location on the apparatus.

FOAM CONCENTRATE STRAINERS

Field serviceable foam concentrate strainers shall be provided in the foam concentrate suction line. When the strainer shall not be subject to flushing water pressure a plastic bodied in-line strainer shall be used. The strainer body shall be constructed of plastic with a stainless steel mesh screen and shall be compatible with Class A foam concentrates. A shutoff valve shall be provided to enable isolation of the strainer for service. The strainer shall be mounted in the pump compartment. The strainer shall be a low pressure device and shall not be subject to flush water pressure.

PUMP OPERATION HOURMETER

A pump hour meter shall be supplied. The hour meter shall be environmentally sealed to prevent moisture from entering the instrument. The face shall provide a display of the total cumulative hours of pump engagement. Hour meter shall be located on the exterior of the pump panel.

ELECTRICAL SPECIFICATION

BATTERY COMPARTMENTS

Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab. The batteries shall be mounted for ease of service and access. Batteries shall be capable of being accessed without tilting of the cab and shall not require the use of any tools to access. Heavy-duty battery cables shall be used to provide maximum power to the electrical system. All of the battery cables shall be color-coded and terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.

BATTERY CHARGER/AUTO EJECT

A combination 45 amp remote battery charger with internal battery saver shall be provided. A display bar graph, indicating the state of charge, shall be located next to shoreline plug-in. The battery charger shall be wired to the 120-volt shoreline to activate automatically when power is connected. A Kussmaul super auto eject shall be provided with red cover.

MASTER BATTERY SWITCH

A master battery switch, to activate the battery system, shall be provided inside the cab within easy reach of the driver. An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.

JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers shall be installed in an accessible spot that does not require the cab to be raised. This shall location allow enough room for easy jumper cable access. Jumper stud covers shall be provided. A tag shall be provided for positive/negative terminals.

POWER AND GROUND STUDS

Three (3) power studs shall be provided in the electrical component compartment for two-way radio equipment. These shall be directly wired to the chassis batteries; grounding to the frame will not be accepted. The batteries shall be wired so that the ground feed and the positive feed to the radios shall be connected at opposite ends of the battery bank. This will allow the entire bank to serve as a filter.
The wiring for these studs shall follow the section on EMI/RFI Protection. The studs shall consist of:

RADIO MOUNTED AREA:

Stud #1 shall be 12-volt 100-amp fused, power
Stud #2 shall be 12-volt 100-amp fused, ground.
Stud #3 shall be 12-volt 20-amp, controlled by ignition switch.

All studs shall have a protective covers to prevent possible arcing from servicing and shall be marked as to amperage and feed/ground.

Preference is to mount the radio behind the driver on the operator's equipment box and place the remote radio head on the dog house.

NFPA WARNING PACKAGE

A NFPA compliant emergency warning light package shall be provided in the color red.

SIREN INSTALL

One (1) NFPA compliant siren system shall be furnished. Siren speaker to me flush mounted in front bumper.

REAR SCENE LIGHTS

Install two (2) Whelen 13 degree 900 Series 24 Diode LED Scene lights shall be installed. Each light shall include the optional chrome flange. These lights are to be activated by the "rear scene light" switch located in the cab and automatically when vehicle is placed in reverse.

SIDE SCENE LIGHTS

Six (6) LED Scene lights shall be installed. These lights are to be activated by the "right and left scene light" switches located in the cab. The rear two lights (one on either side) shall be activated when the vehicle is placed in reverse. The lights shall be laid out as follows:

Two (2) on the roadside mounted as forward and rear of the body
Two (2) on the curbside mounted as forward and rear of the body.
Two (2) on the cab between the front and rear doors on either side.

PUMP COMPARTMENT WORK LIGHT

The pump compartment shall have two (2) weather tight sealed clear LED work lights to provide illumination of the pump compartment. The light shall have a weather resistant, toggle style on/off switch located inside the pump compartment adjacent to the left service door area. The power for the pump module light shall be switched thru the battery master switch.

PUMP PANEL LIGHTING

The pump operator's panel shall be supplied with a LED light system. All pump module lighting shall illuminate when the parking brake is engaged.

LED MARKER LIGHTS

LED marker lights shall be installed on the entire apparatus body.

TAIL LIGHTS, L.E.D.

One (1) set L.E.D. lights shall be installed on the rear of the vehicle as designated. They shall include L.E.D. stop/tail and turn signals. The backup lights shall be LED.

LICENSE PLATE LIGHT WITH BRACKET

Two (2) license plate mounting brackets and LED lights shall be provided. The light and bracket shall be located on the front and rear of the apparatus.

COMPARTMENT LIGHTING

Each compartment shall be adequately illuminated. Compartments that have shelves shall be illuminated above and below shelf. Using only one light shall not be permitted in compartments that have shelves.

Opening the compartment door shall automatically turn compartment lighting on and shall turn on a warning light in cab when the parking brake is not applied. Switches shall be weather resistant.

BACK-UP ALARM

A solid-state electronic audible back-up alarm that actuates when the truck is shifted into reverse shall be provided.

RADIOS

Mount antennas at factory to eliminate pulling apart the interior of the cab after vehicle leaves the factory.

PAINT & GRAPHICS

PAINT

All removable items such as brackets, doors, door hinges, trim, etc. shall be removed and painted separately to insure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly. The chassis/body exterior shall have no mounted components prior to painting to assure full coverage of metal treatments and paint to the exterior surfaces of the cab.

The entire body shall be painted job color red. The lower cab shall be painted red, the upper cab (pillars up) painted white, and the chassis frame, running gear components, battery boxes, air tanks shall be painted black (minus components that are galvanized) . Exact paint locations are TBD at pre-build conference.

TOUCH-UP PAINT

One (1) pint of each exterior color paint for touch-up purposes will be supplied when the apparatus is delivered to the end user.

UNDERCOATING

Factory installed undercoating on the entire chassis and body shall be applied. The intent of the undercoating is to prevent environmental effects of corrosion on the cab and body.

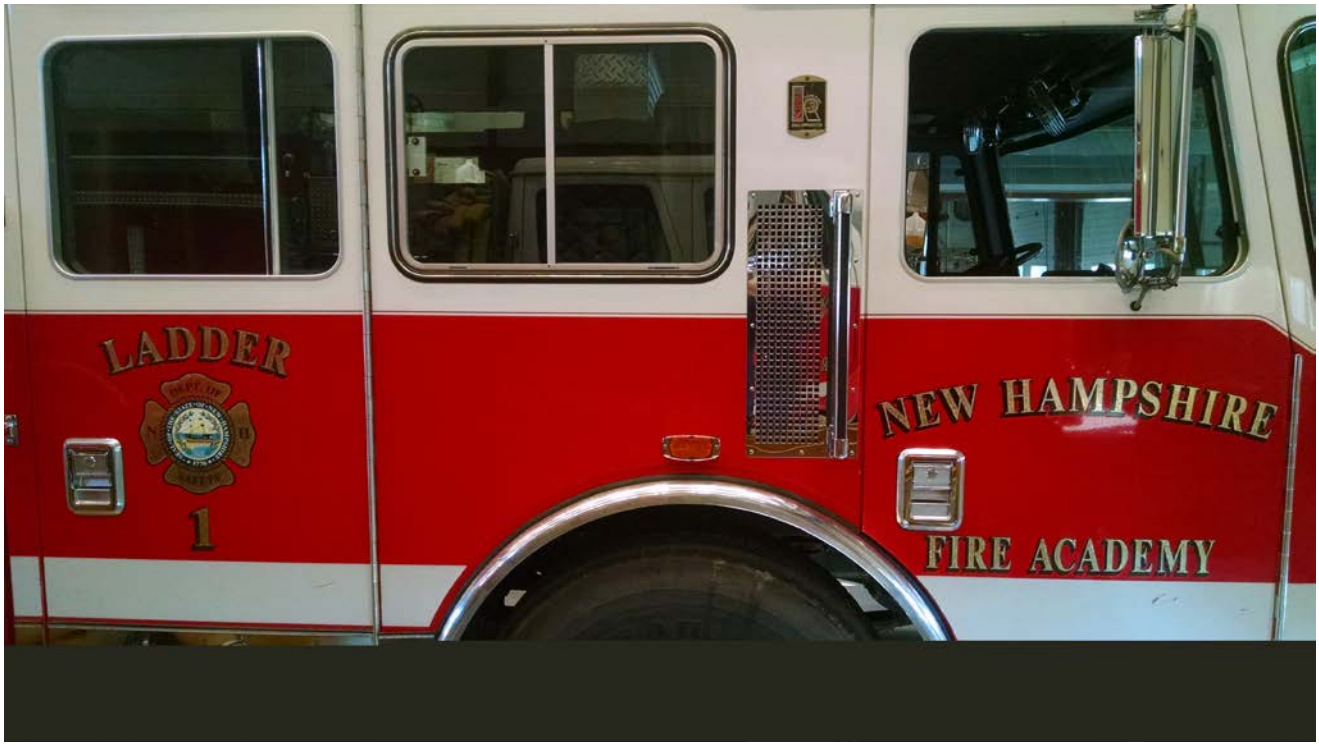
ELECTROLYSIS CORROSION CONTROL

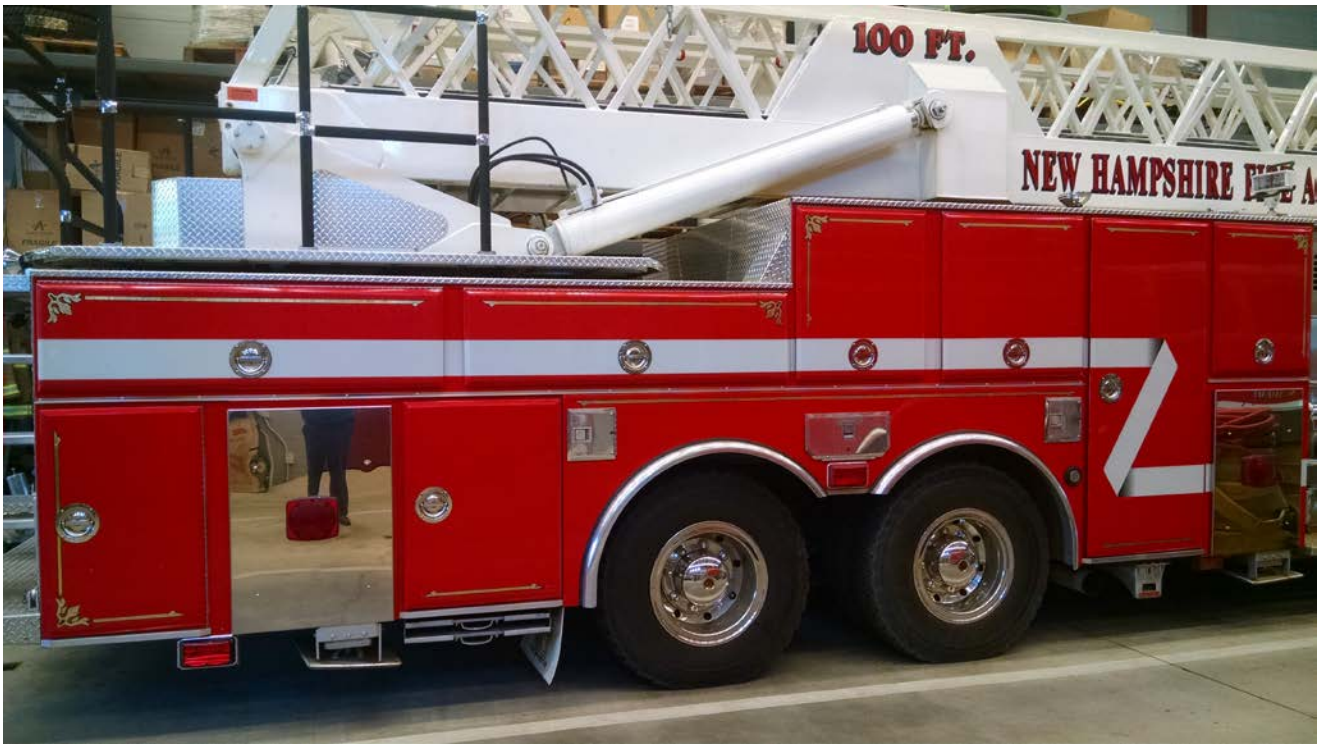
The apparatus shall be assembled using ECK or electrolysis corrosion control, on all high corrosion potential areas, such as door latches, door hinges, trim plates, fenderettes, etc. This coating is a high zinc compound that shall act as a sacrificial barrier to prevent electrolysis and corrosion between dissimilar metals. This shall be in addition to any other barrier material that may be used.

REFLECTIVE STRIPING

A 6" white reflective stripe shall be placed around the vehicle. Exact location is TBD at pre-build conference. This striping must meet the full NFPA 1901 requirement.

Red and yellow chevron style safety striping shall be installed on 50% of the rear of the apparatus. These stripes shall be 6" wide.





FINALIZATION & DETAILING

Prior to delivery of the vehicle, the interior and exterior be cleaned and detailed. The finalization process detailing will include installation of NFPA required labels, checking fluid levels, sealing and caulking required areas of the cab and body, rust proofing, paint touch-up, etc.

WARRANTY

FRAME WARRANTY

The frame rails, cross members and brackets shall be guaranteed for a lifetime against defects in design, material, workmanship, or rust, excluding accident or abuse and corrosion. A copy of the manufacturer's warranty shall be included at the time of delivery and acceptance.

FRONT NON-DRIVE AXLE WARRANTY

The non-drive axle system shall have a **three (3) year** parts and labor warranty.

REAR AXLE WARRANTY

A **three (3) year** parts and labor warranty shall be provided with this axle, plus an additional **two (2) years** of parts only coverage. A **one (1) year** parts and labor warranty for wheel seals shall be provided. The seal warranty shall apply to the standard wheel seals and shall not apply to another specified seal. If other seals are specified, the warranty shall be parts only.

ANTI-LOCK BRAKE SYSTEM & AUTOMATIC TRACTION CONTROL WARRANTY

The ABS/ATC system shall come with a **three (3) year or 300,000-mile parts and labor** warranty provided by the system manufacturer.

ENGINE WARRANTY

The engine shall have a **five (5) year Fire Service Warranty** to include parts, labor and towing (maintenance components such as belts, hoses, filters are excluded).

TRANSMISSION WARRANTY

The transmission shall have a **five (5) year Fire Service Warranty** covering 100% parts labor and towing. The warranty is to be provided by Allison Transmission.

CHASSIS WARRANTY

The chassis shall be supplied with the following warranty coverage (unless longer term is expressed in other sections of this spec): **basic vehicle limited warranty of 24 months/100,000 miles; major components warranty of 60 months/300,000 miles; cab structure perforation, and corrosion warranty of 120 months/300,000 miles.**

FIRE PUMP WARRANTY

The fire pump shall carry the manufacturer's **five year warranty** covering defective parts and workmanship. A copy of the pump manufacturer's warranty policy shall be provided with the completed apparatus.

STAINLESS PLUMBING WARRANTY

The Vendor shall warrant that the stainless steel plumbing manufactured by the Vendor (the "body"), under normal use and with normal maintenance, will remain free from structural defects for a period of **ten (10) years** from the date that the motor vehicle was first placed in service.

WATER TANK WARRANTY

The water tank is to be free from defects in material and workmanship for the normal **service life** of the apparatus in which the water tank is installed. If a tank has a defect in material or workmanship covered by the warranty, the tank manufacturer shall repair at their cost, by authorized personnel or authorized third parties. The tank manufacturer shall make an effort to effectuate repair within 48 hours following initial notification of a covered defect. The tank manufacturer shall make a reasonable effort to repair tank at most convenient location to end user. The tank manufacturer shall reimburse all reasonable costs associated with rendering the tank accessible for repair, including, but not limited to, removal and reassembly of the hose bed floor.

BODY STRUCTURAL LIMITED WARRANTY

The bidder shall warrant that the apparatus body manufactured by the bidder (the "body"), under normal use and with normal maintenance will remain free from structural defects for a period of **ten (10) years** from the date that the motor vehicle was first placed in service.

WARRANTY - PAINT AND CORROSION

The cab and body exterior paint finish shall be warranted against blistering, peeling, bubbling, corrosion, lack of adhesion or any other manufacturing or material defect for a minimum period of **ten (10) years**. Paint shall be covered 100% for at least ten (10) years. Environmental effects shall not void the warranty. A copy of the manufacturer's warranty shall be included with the bid. The bidder shall warrant that the apparatus body manufactured by the bidder (the "body"), under normal use and with normal maintenance will remain free from corrosion defects for a period of fifteen (15) years from the date that the motor vehicle was first placed in service. A body shall be considered to have "corrosion defects" if it is found by the bidder to have perforation caused by corrosion under normal use and with normal maintenance.

UNDERCOAT WARRANTY

The undercoating shall carry a **five (5) year** unlimited mileage warranty against defects in material and workmanship.

LAMINATION WARRANTY

The manufacturer shall provide a **three (3) year** warranty against defects in material and workmanship with the graphics process. A copy of the fire apparatus manufacturer's warranty shall be included with the bid.

ELECTRICAL WARRANTY

A **ten (10) year** electrical warranty against defects in material and workmanship with the electrical components. A copy of the fire apparatus manufacturer's warranty shall be included at the time of delivery and acceptance.

REPORTS/DIAGRAMS/MANUALS/TESTS

MANUALS, SERVICE

Two (2) operator/service manuals containing **all** parts, diagrams, schematics, operation and service information on all components of this specification shall be provided with the completed unit. Two (2) electronic manuals shall be provided with the completed unit. The manual shall be specifically for the model being purchased. It shall not be a generic manual for a multitude of different chassis.

CIRCUIT PROTECTION AND CONTROL DIAGRAM

As built schematics and diagrams shall be provided for all systems provided on the apparatus to include all electrical, pump, chassis, and other systems. **Only as built drawing will be accepted.**

AMP DRAW REPORT

The bidder shall provide, at the time of bid and delivery, an itemized print out of the expected amp draw of the entire vehicle's electrical system.

The manufacturer of the apparatus shall provide the following:

- *Documentation of the electrical system performance tests.*
- *A written load analysis, which shall include the following:*
- *The nameplate rating of the alternator.*
- *The alternator rating under the conditions specified per:*
- *NFPA 1901.*
- *The minimum continuous load of each component that is specified per:*
- *NFPA 1901.*
- *Additional loads that, when added to the minimum continuous load, determine the total connected load.*
- *Each individual intermittent load.*

The bidder per NFPA 1901, shall provide all of the above listed items.

ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer shall provide at the time of bid, a letter from the engine manufacturer stating they approve of the engine installation in the bidder's chassis. The approval of the engine installation shall be at full horsepower rating in a continuous duty application under all operating conditions, including road and pump. No type of automatic horsepower reduction feature shall be allowed. There shall be no exception to any portion of the engine installation certification. Nonconformance shall lead to immediate rejection of bid. The certification is not required if the chassis manufacturer is the manufacturer of the engine.

PUMP CERTIFICATION TEST

The pump shall be certified by the pump manufacturer to the requirements of NFPA 1901 prior to delivery to the apparatus manufacturer. A completed report shall be supplied with the vehicle.

THIRD PARTY UL CERTIFICATION TEST

A third party apparatus performance/pump test shall be completed once the entire apparatus is completed prior to final delivery to the State of New Hampshire. A completed report shall be supplied with the vehicle. The third party inspection and testing company must be ISO accredited. Copy of third party's ISO accreditation shall be submitted at the time of delivery and acceptance.

ACCEPTANCE TEST

An acceptance test shall be completed prior to delivery. This test shall incorporate all aspects of the vehicle to include pump performance testing and shall meet the requirements of the NFPA Annual Pump Test. This test must be completed at the NH Fire Academy's pump test location (Concord, NH area). A completed report of the Annual NFPA Pump Test shall be supplied with the vehicle. At the time of final acceptance test the vehicle shall meet the full NFPA 1901, 2009 or 2016 edition standard.