RFB1522595007 ATTACHMENT #5 FIRE TRUCK SPECIFICATIONS

The Iowa Fire Service Training Bureau (FSTB), Iowa's designated State Fire Academy, is seeking bids for a pumper tanker/tender employing the latest engineering practices and the highest quality workmanship. This apparatus shall comply with current and respective NFPA 1901 and applicable Federal Motor Vehicle Safety standards in place at the time of bid submittal. It is the intent of these minimum specifications to describe certain equipment in sufficient detail to obtain competitive proposals from qualified vendors for the furnishing and delivery of said equipment to be used by the Iowa Division of State Fire Marshal, Fire Service Training Bureau. All parts not specifically mentioned which are necessary to provide the described equipment shall be included in the proposal and shall conform in strength and quality or material and workmanship to what is usually provided for the trade in general. Any omissions of components in these specifications are inadvertent and should be included in the proposed apparatus.

Features from several apparatus manufacturers were used to design an apparatus to meet the FSTB's operational response and training needs. Respondents are encouraged to take exceptions where needed. Exceptions shall be evaluated against the intent of the specifications to meet performance requirements.

Certain sections of these specifications include the statements **"NO EXCEPTIONS"** or **"NOT ACCEPTABLE."** These items have been determined to enhance specific performance requirements, or otherwise be in the best interest of the Purchaser. Any bid containing exceptions to or deviations from these particular sections may be rejected by the Purchaser without further consideration.
This fire apparatus shall serve as a front-line fire suppression unit and fulfill the ability to train Iowa's firefighting students in driving/operating fire apparatus as both a pumper and also as a tender/tanker. The apparatus shall fulfill emergency fire response and training needs not only at the State Fire Academy, but shall also serve training needs across the state at regional and state fire schools and other trainings. This apparatus shall be a highly visible unit across the State of Iowa and shall demonstrate and conform to applicable NFPA 1901 standards and be fully functional and capable of first-line fire suppression and tender/tanker operations.

The apparatus shall have a custom cab (cab over engine style with the driver and officer positions ahead of the engine and front axle) with four doors (two doors on each side) and four (4) seating positions that can accommodate four fully equipped firefighters (driver, officer, and two firefighters), chassis, and body. The apparatus is to be no longer than 31 feet in total length (372 inches), have a minimal angle of approach of eight (8.00) degrees have a 1,250 gpm midship-mounted pump, and a minimum of a 1,500 gallon water tank. The chassis shall have a 4 x 2 axle configuration consisting of a single rear drive axle with a front steer axle.

Instructions – Bidder is to complete the following. Fill out items with blanks. Indicate "yes" or "no" on items requesting agreement. If a "no" response is indicated, exception must be noted.

1. INTENT OF SPECIFICATIONS

It shall be the intent of these specifications to cover the furnishing and delivery of a complete fire apparatus. These detailed specifications cover the requirements as to the type of construction, finish, equipment and tests to which the fire apparatus shall conform. Minor details of construction and materials, which are not otherwise specified, are left to the discretion of the manufacturer.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

2. INSTRUCTIONS TO RESPONDENTS

The purchaser's standards for bidding automotive fire apparatus shall be strictly adhered to, and all bid forms and questions shall be complete and submitted with the bid. **Omissions and variations may result in rejection of the bid.**

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction and have been in business for a minimum of 20 years. Furthermore, in order to insure fair, ethical, and legal competition, neither the original equipment manufacturer (O.E.M.) nor parent company of the O.E.M. shall have ever been fined or convicted of price fixing, bid rigging, or collusion in any domestic or international fire apparatus market **(no exception)**.

If a Respondent represents more than one fire apparatus manufacturing company or brands of apparatus, they shall only bid the top of the line product that meets specification. Each Respondent shall furnish satisfactory evidence of their ability to construct the apparatus specified. Any apparatus manufacturer or their parent company who has had a performance bond called in the last 10 years, shall not be eligible to bid. Any bids from these manufacturers shall be rejected.

Any Respondent who fails to submit a set of bid proposal specifications as described above shall render such proposal ineligible for award.

Each bid shall be accompanied by a set of manufacturer's set of specifications consisting of a detailed description of the apparatus, construction methods, and equipment proposed to which the apparatus furnished under contract shall conform and a general schematic or drawing of the proposed apparatus. These specifications shall indicate size, type, model and make of all components, parts and equipment, providing proof of compliance with each item in the purchaser's specifications.

In accordance with the current edition of NFPA 1901 standards, the proposal shall specify whether the Fire Service Training Bureau or apparatus manufacturer/dealership shall provide required loose equipment.

The purchaser's specification shall, in all cases, govern the construction of the apparatus, unless a properly documented exception or deviation was approved by the purchaser. Any bid indicating that the manufacturer's proposal shall supersede the purchaser's specification shall be considered a complete substitute and deemed rejected.

The Purchaser has the right to reject any or all bids, or accept any presented, which meet or exceed these specifications and which the Respondent may deem to be in the best interests of the Purchaser. Items such as a Respondent's history of providing excellent customer service, apparatus maintenance and repair, and professional help and accessibility shall also be taken into consideration as part of the bid review process.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

3. EXCEPTIONS

The Respondent's specifications shall meet, comparably meet, or exceed these specifications. Exceptions shall be allowed if they are equal to or superior to that specified and provided they are listed and fully explained on a separate page. All deviations, no matter how slight, shall be clearly explained on a separate sheet, in the bid sequence, citing the page and paragraph number(s) of the specifications, how the proposal deviation is different, how the deviation meets or exceeds the specifications and why it is necessary, and titled **"EXCEPTIONS TO SPECIFICATIONS"**. The purchaser reserves the right to require a Respondent to provide proof in each case that a substituted item is equal to that specified. The purchaser shall be the sole judge in determination of acceptable substitutes.

Proposals that are found to have deviations without listing them or bids taking total exceptions to these advertised specifications shall be rejected.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

4. GENERAL DESIGN AND CONSTRUCTION

Again and as noted above, the apparatus shall have a custom cab (cab over engine style with the driver and officer positions ahead of the engine and front axle) with four doors (two doors on each side) and four (4) seating positions that can accommodate four fully equipped firefighters (driver, officer, and two firefighters), chassis, and body. The apparatus is to be no longer than 31 feet in total length (372 inches), have a minimal angle of approach of eight (8.00) degrees have a 1,250 gpm midship-mounted pump, and a minimum of a 1,500 gallon water tank. The chassis shall have a 4 x 2 axle configuration consisting of a single rear drive axle with a front steer axle.

The proposed apparatus shall be constructed in such a way to **minimize** third party involvement on engineering, design, service and warranty issues. A Respondent's/manufacturer's use of a third-party cab and chassis combination is allowed and encouraged, but for only those third-party cab and chassis manufacturers that have a long-standing and reputable history of fabricating such within the fire truck manufacturing industry.

The apparatus chassis, cab, and body shall be manufactured in the United States **(no exception)**.

All Respondents shall provide a list of the company, manufacturing location, and engineering source for each individual major component, including but not limited to, the welded cab assembly, the pump house module assembly, the chassis assembly, body and electrical system.

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles. Weight balance and distribution shall be in accordance with the recommendations of the National Fire Protection Association and the Society of Automotive Engineers standards.
The Respondent shall make accurate statements as to the apparatus weight and dimensions.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

5. QUALITY AND WORKMANSHIP

All steel welding shall meet or be equivalent to American Welding Society D1.1-2004 recommendations for structural steel welding. All aluminum welding shall meet or be equivalent to American Welding Society and ANSI D1.2-2003 requirements for structural welding of aluminum. All sheet metal welding shall meet or be equivalent to American Welding Society B2.1-2000 requirements for structural welding of sheet metal. Flux core arc welding to use alloy rods, type 7000, American Welding Society standards A5.20-E70T1.

The manufacturer shall also be certified to operate a Quality Management System under the requirements of ISO 9001. These standards sponsored by the International Organization for Standardization (ISO) specify the quality systems that shall be established by the manufacturer for design, manufacture, installation and service. A copy of the certificate of compliance shall be included with the bid **(no exception)**.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

6. DELIVERY

To ensure proper break-in of apparatus and all components, the apparatus shall be delivered from the place of manufacture to the Fire Service Training Bureau, Johnston, Iowa under its own power. Rail, motor freight, or similar transportation methods are **not acceptable**. During transportation from the factory, the apparatus shall not be used to tow other vehicles, nor shall apparatus be towed, except in case of mechanical failure. Any mechanical failure of apparatus chassis, drive train, or pump system occurring prior to delivery shall be disclosed to Purchaser, in writing, at or before the time of delivery. Failure to disclose any such failure shall constitute default of contract.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

7. DELIVERY REPRESENTATIVE

A qualified representative of the Respondent shall deliver the apparatus and shall remain for a period of 2 full calendar days; to instruct a maximum of five (5) Fire Service Training Bureau personnel in the proper operation and maintenance of the apparatus. The representative shall also be present during performance trials described in these specifications. All transportation, lodging and other expenses incurred by the delivery representative shall be the responsibility of the Respondent.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

8. APPARATUS INSPECTION TRIPS

PRE-CONSTRUCTION CONFERENCE AND PRE-DELIVERY INSPECTION TRIP PAYMENTS

The Respondent shall be responsible for all transportation, lodging and meal expenses of the Purchaser's personnel.

"Inspection trips" shall be conducted for a total of three (3) of the Purchaser's designated employees. **Pre-construction** and **Pre-delivery** trips for each of the personnel shall be provided, one trip for a pre-construction conference, and one trip for pre-delivery inspection. The purchaser shall not be responsible for related expenses incurred by the manufacturer or Respondent. Transportation and lodging arrangements shall be prepared by the Respondent. To ensure the most cost effective rates, all tickets, reservations, and a detailed itinerary for each employee shall be forwarded to the Purchaser not less than twenty-one (21) calendar days prior to departure date.

PRE-CONSTRUCTION CONFERENCE

The pre-construction conference shall take place at the apparatus manufacturer's facility, prior to any fabrication or construction of the apparatus. The conference shall take place prior to ordering of the chassis if the chassis is to be procured from another sub-contractor. One (1) or more factory representatives shall meet with the Respondent or his/her designated representative(s) and the Purchaser's designated representatives, to ensure complete understanding and clarity of these specifications and the contract. At least one (1) full day shall be allowed for the pre-construction conference.

PRE-DELIVERY INSPECTION

The pre-delivery inspection shall take place at the manufacturer's facility, after all fabrication and finishing of apparatus is complete, and prior to delivery of apparatus to Purchaser. Any deviations from these specifications and/or the Respondent’s/manufacturer’s specifications shall be noted, and necessary corrections shall be completed prior to the apparatus leaving the manufacturer's facility. At least two (2) full days shall be allowed to ensure adequate time for a thorough inspection.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

9. MANUALS AND SERVICE INFORMATION

The manufacturer shall supply at the time of delivery, complete operation and maintenance manuals covering the complete apparatus as delivered.

A permanent plate shall be mounted in the driver's compartment which specifies the quantity and type of fluid required including engine oil, engine coolant, transmission, pump transmission lubrication, pump primer and drive axle.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

10. PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus with a continuous run of 10 miles or more under common driving conditions in order to complete performance testing of the fire apparatus. The apparatus shall pass performance testing requirements given the respected apparatus type. And shall be free of any abnormal vibration or noise throughout the operating range of the apparatus. The apparatus shall show no loss of power or overheating during performance testing.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

11. FAILURE TO MEET TEST

In the event the apparatus fails to meet the test requirements of these specifications on the first trial, secondary trials may be made at the option of the Respondent within 30 days of the date of the first trial. Such trials shall be final and conclusive and failure to comply with these requirements shall be cause for rejection. Failure to comply with changes to conform to any clause of the specifications, within 30 days after notice is given to the Respondent of such changes, shall also be cause for rejection of the apparatus. Permission to keep or store the apparatus in any building owned or occupied by the purchaser or its use by the purchaser during the above-specified period with the permission of the Respondent shall not constitute acceptance.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

12. SERVICE AND WARRANTY SUPPORT

To ensure full service after delivery, the Respondent shall be capable of providing service and resolution to the purchaser for any questions, concerns and apparatus questions the purchaser may have.

The Respondent shall show that the company is in a position to render prompt apparatus service and to furnish replacement parts.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

13. SERVICE AND WARRANTY SUPPORT (ADDITIONAL)

To provide an additional layer of service support, the successful manufacturer/dealer shall also provide service facilities that are within a reasonable travel distance from the Iowa Fire Service Training Bureau in Johnston, Iowa.

Each Respondent shall be able to display that they are active in the fire apparatus service business by operating or contracting with a factory authorized service center and parts repository capable of satisfying the warranty service requirements and parts requirements of the vehicle(s) being purchased. The Respondent/dealer shall state the location of this authorized service center. This service center shall have a staff of trained mechanics, well versed in all aspects of service for all major components of the apparatus.

The Respondent/dealer shall be dedicated to providing quality and timely service and provide replacement parts to ensure quick response and minimize apparatus down time. Service parts are to be given priority. The Respondent shall provide detailed documentation of service and replacement part resources.

The Respondent/dealer shall utilize a staff of adequate size and be specifically dedicated to providing customer support and parts for the fielded fleet of vehicles it has produced. The Respondent/dealer shall be capable of providing both in-house and on-site service for the apparatus.

The Respondent/dealer shall employ or contract with certified EVT technicians, not only providing technical expertise in the repair of fire apparatus, but also demonstrating the commitment to service after the sale.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

14. SINGLE SOURCE WARRANTY CLAIMS

The Respondent is responsible for remedying all warranty claims on behalf of the FSTB pertaining to the apparatus to include, but not limited to, the chassis, cab weldment, cab, and pump house (including the sheet metal enclosure, valve controls, piping and operator's panel), pump, engine, transmission, axles, paint, and the electrical system. The goal of this section is for the FSTB to have one "go to" source of resolution for when any issues arise with the apparatus, and to eliminate deflection of responsibility among vendors and third-parties if issues were to arise with the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

15. NFPA STANDARDS AND COMPLIANCY

The apparatus proposed by the Respondent shall meet the applicable requirements of the National Fire Protection Association (NFPA) as stated in current edition at time of contract execution. Fire Service Training Bureau's specifications that differ from NFPA specifications shall be indicated in the proposal as an exception and these exceptions shall be set forth in the Statement of Exceptions.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

16. VEHICLE INSPECTION PROGRAM CERTIFICATION

To assure the vehicle is built to current NFPA standards, the apparatus, in its entirety, shall be third-party, independent, audit-certified through Underwriters Laboratory (UL) that it is built and complies to all applicable standards in the current edition of NFPA 1901. The certification includes: all design, production, operational, and performance testing of not only the apparatus, but those components that are installed on the apparatus **(no exception)**.

A placard shall be affixed in the driver's side area stating the third party agency, the date, the standard and the certificate number of the whole vehicle audit.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

17. PUMP TEST

The pump shall be tested, approved, and certified by Underwriter's Laboratory at the manufacturer's expense. The test results and the pump manufacturer's certification of hydrostatic test; the engine manufacturer's certified brake horsepower curve; and the manufacturer's record of pump construction details shall be forwarded to the Fire Service Training Bureau.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

18. GENERATOR TEST

If the unit has a generator, the generator shall be tested, approved, and certified by Underwriters Laboratories at the manufacturer's expense. The test results shall be provided to the Fire Service Training Bureau at the time of delivery.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

19. BREATHING AIR TEST

If the unit has breathing air, the apparatus manufacturer shall draw an air sample from the air system and certify that the air quality meets the requirements of NFPA 1989, *Standard on Breathing Air Quality for Fire and Emergency Services Respiratory Protection.*

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

20. PAYMENT TERMS

Per Iowa Code § 8A.514 the State of Iowa is allowed sixty (60) days to pay an invoice submitted by a Bidder.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

21. APPROVAL DRAWINGS

A drawing of the proposed apparatus shall be provided for approval before construction begins. The sales representative shall also have a copy of the same drawing. The finalized and approved drawing shall become part of the contract documents. This drawing shall indicate the chassis make and model, location of the lights, siren, horns, compartments, major components, etc.

A "revised" approval drawing of the apparatus shall be prepared and submitted by the manufacturer to the purchaser showing any changes made to the approval drawing.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

22. DRAWING, PUMP OPERATOR'S PANEL

A detailed drawing, to scale, of the pump operator's panel shall be provided at the pre-construction meeting for the purpose of illustrating the locations of controls and discharges on the pump operator's panel. This drawing shall include all of the gauges and controls located on the pump operator's panel as well as any component that shall be located on the panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

23. INTERIOR CAB LAYOUT DRAWING

A drawing of the cab interior layout shall be provided at the pre-construction meeting. The drawing shall show the interior of the cab including all switch panels and mounting locations within the driver and officer areas. The Fire Service Training Bureau shall use the drawings to layout the instrument panel layout, switch layouts, and equipment locations on the drawing. The interior drawing shall be compared to the apparatus for proper interior cab layout.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

24. ELECTRICAL WIRING DIAGRAMS

Electrical wiring diagrams, prepared for the model of chassis and body, shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

25. CHASSIS

The chassis provided shall be a new, tilt-type custom fire apparatus. The chassis shall be designed and manufactured for heavy-duty service, with adequate strength and capacity for the intended load to be sustained and the type of service required of the vehicle.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

26. MAXIMUM OVERALL LENGTH

The maximum overall length of the apparatus shall not exceed 31' (372 inches).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

27. WHEELBASE

The wheelbase of the apparatus shall be appropriate for the apparatus designed, engineered and manufactured, taking into consideration safety, length, width, and weight and handling capabilities of the proposed apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

28. GVW RATING

The gross vehicle weight rating shall be commensurate with the proposed apparatus type.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

29. FRAME

The chassis frame shall be built for use as a straight truck type vehicle and designed for installation of a permanently mounted pump, water tank and other components and accessories required of a pumper-tanker apparatus. The frame shall be reinforced to accommodate the typical fire suppression and tanker operations for an apparatus of this configuration.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

30. FRONT AXLE

The front gross axle weight rating shall be adequate to carry the weight of the proposed apparatus including all equipment and personnel and shall be engineered and manufactured using quality components as dictated by the apparatus type.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

31. FRONT SUSPENSION

The Respondent shall provide the proposed front suspension engineered and appropriate for this type of fire apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

32. SHOCK ABSORBERS

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

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

33. FRONT OIL SEALS

Oil seals with viewing window shall be provided on the front axle.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

34. FRONT TIRES

Front tires shall be Goodyear® or a comparable brand and appropriate for this proposed type and operation of fire apparatus. The tires shall be mounted on Alcoa polished aluminum disc wheels.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

35. TURNING RADIUS REPORT

Supplied with the bid shall be a turning radius analysis of the vehicle being proposed. This analysis shall provide the inside turning radius, the outside turning radius, the curb to curb turning radius, and the wall to wall turning radius.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

36. REAR AXLE

The rear gross axle weight rating shall be adequate to carry the weight of the proposed apparatus including all equipment and personnel and shall be engineered and manufactured using quality components as dictated by the apparatus type.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

37. TOP SPEED OF VEHICLE

A rear axle ratio shall be furnished to allow the vehicle to reach a top speed of between 60-65 mph.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

38. REAR SUSPENSION

The Respondent shall provide the proposed rear suspension engineered and appropriate for this type of fire apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

39. REAR OIL SEALS

Oil seals shall be provided on the rear axle(s).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

40. REAR TIRES

Rear tires shall be Goodyear® or a comparable brand and appropriate for this proposed type and operation of fire apparatus. The tires shall be mounted on Alcoa polished aluminum disc wheels.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

41. TIRE BALANCE

All tires shall be balanced with balancing beads. The beads shall be inserted into the tire and eliminate the need for wheel weights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

42. TIRE PRESSURE MANAGEMENT

There shall be a tire alert pressure management system provided, that shall monitor each tire's pressure. A sensor shall be provided on the valve stem of each tire for a total of six (6) tires.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

43. HUB COVERS (REAR)

A pair of Alcoa brand high hat hub covers shall be provided on rear axle hubs.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

44. CHROME LUG NUT COVERS

Chrome lug nut covers shall be supplied on front and rear wheels.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

45. MUD FLAPS

Mud flaps shall be installed behind the front and rear wheels of the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

46. WHEEL CHOCKS

There shall be one (1) pair of wheel chocks provided.
Heavy Duty, large molded aluminum wheel chock with solid bottom, natural cast aluminum finish.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

47. WHEEL CHOCK BRACKETS

There shall be one (1) pair of wheel chock mounting brackets provided. The brackets shall be mounted on the driver's side of the truck, side by side, under the driver's side front body compartment (LS1) forward of the rear wheels.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

48. ELECTRONIC STABILITY CONTROL

A vehicle control system shall be provided as an integral part of the ABS brake system from Meritor Wabco or an equally comparable brand.

The system shall monitor and update the lateral acceleration (cornering) of the vehicle and compare it to a critical threshold where a side roll event may occur. If the critical threshold is met, the vehicle control system shall automatically reduce engine RPM, engage the engine retarder (if equipped), and selectively apply brakes to the individual wheel ends of the front and rear axles to reduce the possibility of a side roll event.

The system shall monitor directional stability through an electronic lateral accelerometer, steer angle sensor and yaw rate sensor. If spinout or drift out is detected, the vehicle control system shall selectively apply brakes to the individual wheel ends of the front and rear axles to assist in bringing the vehicle back to its intended direction. The operator shall continue to provide steering input in the desired direction as the system compensates.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

49. ANTI-LOCK BRAKE SYSTEM

The vehicle shall be equipped with a Wabco anti-lock braking system or an equally comparable brand. The ABS shall provide a four (4) channel anti-lock braking control on both the front and rear wheels. A digitally controlled system that utilizes microprocessor technology shall control the anti-lock braking system. Each wheel shall be monitored by the system. When any wheel begins to lockup, a signal shall be sent to the control unit. This control unit shall then reduce the braking of that wheel for a fraction of a second and then reapply the brake. This anti-lock brake system shall eliminate the lockup of any wheel thus helping to prevent the apparatus from skidding out of control.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

50. AUTOMATIC TRACTION CONTROL

An anti-slip feature shall 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 that shall not allow a driving wheel to spin, thereby supplying traction at all times. 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. An "off road traction" switch shall be provided on the instrument panel. Activation of the switch shall allow additional tire slip to let the truck climb out and get on top of deep snow or mud.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

51. BRAKES

The service brake system shall be full air type by a reputable and quality brand.

Front brakes shall be disc type with automatic pad wear adjustment appropriate rotors for improved stopping distance.

The rear brakes shall be cam operated with automatic slack adjusters.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

52. BRAKE SYSTEM AIR COMPRESSOR

The air compressor shall be a Cummins/WABCO compressor that can supply the required cubic feet per minute output.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

53. BRAKE SYSTEM

A rapid build-up air brake system shall be provided with all associated components engineered and specific to this proposed apparatus type and design.

To reduce the effects of corrosion, the associated air tank shall be mounted with stainless steel brackets.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

54. BRAKE SYSTEM AIR DRYER

The air dryer shall be a WABCO System Saver (or equally comparable brand).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

55. BRAKE LINES

Color-coded nylon brake lines shall be provided per SAE J2580.

- Supply -Black
- Primary - Green
- Secondary - Orange
- Park – Red

The lines shall be wrapped in a heat protective loom where necessary in the chassis.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

56. AIR INLET

One (1) air inlet with 3D series male coupling shall be provided. It shall allow station air to be supplied to the apparatus brake system through a shoreline hose. The inlet shall be located as part of the cab. A check valve shall be provided to prevent reverse flow of air. The inlet shall discharge into the "wet" tank of the brake system. A mating female fitting shall also be provided with the loose equipment.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

57. AIR TANK DRAINS

Air tank drains shall be mounted at the lowest point on the bottom of the tank for maximum drainage.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

58. ENGINE

The chassis shall be powered by an electronically controlled engine as described below:

Make:	Cummins
Model:	As required and proposed by manufacturer based on design and type of apparatus
Power:	As required and proposed by manufacturer based on design and type of apparatus
Torque:	As required and proposed by manufacturer based on design and type of apparatus
Governed Speed:	As required and proposed by manufacturer based on design and type of apparatus
Emissions Level:	EPA 2021
Fuel:	Diesel
Cylinders:	Six (6)
Displacement:	As required and proposed by manufacturer based on design and type of apparatus
Starter:	As required and proposed by manufacturer based on design and type of apparatus
Fuel Filters:	As required and proposed by manufacturer based on design and type of apparatus

The engine shall include on-board diagnostics (OBD), which provides self-diagnostic and reporting. The system shall give the owner or repair technician access to state of health information for various vehicle sub systems. The system shall monitor vehicle systems, engine and after treatment. The system shall illuminate a malfunction indicator light on the dash console if a problem is detected.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

59. HIGH IDLE

A high idle switch shall be provided, inside the cab, on the instrument panel, that shall automatically maintain a preset engine rpm. A 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. A green indicator light shall be provided, adjacent to the switch. The light shall illuminate when the above conditions are met. The light shall be labeled.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

60. ENGINE BRAKE

An engine brake shall be provided appropriate for the Cummins engine. The brake shall be controlled by a switch on the instrument panel located within easy reach of the driver. The brake shall activate when the switch is on and the accelerator pedal has been released.

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.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

61. CLUTCH FAN

A fan clutch shall be provided. The fan clutch shall be automatic when the pump transmission is in "Road" position, and constantly engaged when in "Pump" position.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

62. ENGINE AIR INTAKE

The engine air intake shall be located above the engine cooling package. It shall draw fresh air from the front of the apparatus through the radiator grille.

A stainless steel metal screen shall be installed at the inlet of the air intake system that shall meet NFPA 1901 requirements.

The air cleaner and stainless steel screen shall be easily accessible.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

63. EXHAUST SYSTEM

The exhaust system shall be engineered and designed so as to meet the requirements of the proposed fire apparatus. A tailpipe diffuser shall be provided to reduce the temperature of the exhaust as it exits. Heat deflector shields shall be provided to isolate chassis and body components from the heat of the tailpipe diffuser.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

64. EXHAUST MODIFICATION

The exhaust pipe shall be brought out from under the body at a 90 degree angle from the truck. The tail pipe shall terminate at the body side and shall be flush with the body side.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

65. RADIATOR

The radiator and the complete cooling system shall meet or exceed NFPA and engine manufacturer cooling system standards.

The radiator shall be compatible with commercial antifreeze solutions.

The radiator assembly shall be isolated from the chassis frame rails with rubber isolators to prevent the development of leaks caused by twisting or straining when the apparatus operates over uneven terrain.

The radiator shall include a de-aeration/expansion tank. For visual coolant level inspection, the radiator shall have a built-in sight glass.

A drain port shall be located at the lowest point of the cooling system and/or the bottom of the radiator to permit complete flushing of the coolant from the system.

Shields or baffles shall be provided to prevent recirculation of hot air to the inlet side of the radiator.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

66. COOLANT LINES

Gates, or Goodyear, or other comparable brand rubber hoses shall be used for all engine coolant lines installed by the engine/chassis manufacturer.

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.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

67. FUEL TANK

A fuel tank recommended by the manufacturer for the design and type of fire apparatus proposed shall be provided and mounted as part of the chassis. It shall be equipped with swash partitions and a vent. To eliminate the effects of corrosion, the fuel tank shall be mounted with stainless steel straps.

A fill inlet shall be located on the left hand side of the body and be covered with a hinged, spring loaded, door that is marked.

The tank shall meet all FHWA 393.67 requirements including a fill capacity of 95 percent of tank volume.

All fuel lines shall be provided as recommended by the engine manufacturer.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

68. DIESEL EXHAUST FLUID TANK

A diesel exhaust fluid (DEF) tank shall be provided and mounted on the driver's side body.

A drain plug shall be provided in a low point of the tank for drainage.

A fill inlet shall be located on the driver's side of the body and be covered with a hinged, spring loaded, door that is marked.

The tank shall meet the engine manufacturer's requirement for 10 percent expansion space in the event of tank freezing.

The tank shall include an integrated heater unit that utilizes engine coolant to thaw the DEF in the event of freezing.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

69. FUEL PRIMING PUMP

A Cummins automatic electronic fuel priming pump shall be integrated as part of the engine.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

70. TRANSMISSION

An Allison automatic transmission shall be provided.

The transmission shall be equipped with prognostics to monitor oil life, filter life, and transmission health. An icon on the shift selector's digital display shall indicate when service is due.

A transmission temperature gauge with red light and audible alarm shall be installed on the cab dash.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

71. TRANSMISSION SHIFTER

A five (5)-speed push button shift module shall be mounted to the right of driver on the console. Shift position indicator shall be indirectly lit for after dark operation.

The transmission ratio shall be determined by the manufacturer based upon the design and type of fire apparatus being proposed.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

72. TRANSMISSION COOLER

A transmission oil cooler shall be provided using engine coolant to control the transmission oil temperature.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

73. TRANSMISSION PROGRAM

The transmission shall shift to neutral when parking brake is set.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

74. DRIVELINE

Drivelines shall be a heavy-duty metal tube and be equipped with universal joints.
The shafts shall be dynamically balanced before installation.

A splined slip joint shall be provided in each driveshaft where the driveline design requires it. The slip joint shall be coated with Glidecoat® or equivalent.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

75. STEERING
Steering gear shall be provided with integral heavy-duty power steering.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

76. STEERING WHEEL
The steering wheel shall be provided, and must have tilting and telescoping capabilities to improve fit for a broader range of driver configurations.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

77. BUMPER
A one (1) piece, polished stainless steel bumper, shall be attached to the front of the chassis frame.

A formed steel channel shall be mounted directly behind bumper for additional strength.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

78. GRAVEL PAN
A gravel pan, constructed of bright aluminum tread plate, shall be furnished between the bumper and cab face.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

79. TOW HOOKS

Two (2) chromed steel tow hooks shall be installed under the bumper and attached to the front frame members. The tow hooks shall not be used for lifting of the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

80. CAB

The cab shall be designed and made specifically for the fire service. The apparatus shall have a custom cab (cab over engine style with the driver and officer positions ahead of the engine and front axle) with four doors (two doors on each side) and four (4) seating positions that can accommodate four fully equipped firefighters (driver, officer, and two firefighters). For reasons of structural integrity and enhanced occupant protection, the cab shall be a heavy duty design.

The crew cab section shall have a raised roof. The overall cab height listed shall be calculated based on a truck configuration with the lowest suspension weight rating, the smallest diameter tires for the suspension, no water weight, no loose equipment weight, and no personnel weight. Larger tires, wheels, and suspension shall increase the overall height listed.

The crew cab shall be a totally enclosed design with the interior area completely open to improve visibility and verbal communication between the occupants.

The cab shall be a full tilt cab style.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

81. CAB ROOF DRIP RAIL

For enhanced protection from inclement weather, a drip rail shall be furnished on the sides of the cab. The drip rail shall be painted to match the cab roof, and bonded to the sides of the cab. The drip rail shall extend the full length of the cab roof.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

82. INTERIOR CAB INSULATION

The cab shall include insulation in the ceiling, insulation in the side walls, and insulation in the rear wall to maximize acoustic absorption and thermal insulation.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

83. FENDER LINERS

Full circular inner fender liners in the wheel wells shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

84. WINDSHIELD

A one (1)-piece panoramic or two (2)-piece safety glass windshield shall be provided. The windshield shall be full cab width and shall provide the occupants with a full view. The windshield shall consist of three (3) layers: outer light, middle safety laminate, and inner light. The outer light layer shall provide superior chip resistance. The middle safety laminate layer shall prevent the windshield glass pieces from detaching in the event of breakage. The inner light layer shall provide yet another chip resistant layer. A custom fit pattern shall be applied on the outside perimeter of the windshield for a finished automotive appearance.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

85. WINDSHIELD WIPERS

Electric windshield wipers with washer shall be provided that meet FMVSS and SAE requirements.

The washer reservoir shall be easily accessible and fillable.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

86. ENGINE TUNNEL

Engine hood side walls shall be constructed and tapered at the top to allow for more driver and passenger elbow room. The engine hood shall be insulated for protection from heat and sound. The noise insulation keeps the dBA level within the limits stated in the current NFPA 1901 standards.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

87. CAB REAR WALL EXTERIOR COVERING (IF APPLICABLE BASED ON TRUCK DESIGN)

The exterior surface of the rear wall of the cab, shall be overlaid with bright aluminum tread plate except for areas that are not typically visible when the cab is lowered.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

88. CAB LIFT

A hydraulic cab lift system shall be provided consisting of an electric powered hydraulic pump, dual lift cylinders, and necessary hoses and valves.

Lift controls shall be located in a convenient location.

The cab shall be capable of tilting enough to comfortably accommodate engine maintenance and removal.

The hydraulic cylinders shall be equipped with a velocity fuse that protects the cab from accidentally descending when the control is located in the tilt position.

For increased safety, a redundant mechanical stay arm shall be provided that shall be manually put in place between the chassis and cab frame when the cab is in the raised position. This device shall be manually stowed to its original position before the cab can be lowered.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

89. CAB LIFT INTERLOCK

The cab lift system shall be interlocked to the parking brake. The cab tilt mechanism shall be active only when the parking brake is set and the ignition switch is in the on position. If the parking brake is released, the cab tilt mechanism shall be disabled.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

90. GRILLE

A grille screen, inserted behind a finished grille surround, shall be provided on the front center of the cab.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

91. MIRRORS

A Retrac, Model 613423, dual vision, motorized, west coast style mirror (or equally comparable brand), with chrome finish, shall be mounted on each side of the front cab door with spring loaded retractable arms. The flat glass and convex glass shall be heated and adjustable with remote control within reach of the driver.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

92. DOORS

There shall be four (4) doors to the cab, two (2) on each side of the cab. The two front cab doors shall each have a window that can roll down completely into the door housing. The two (2) rear or crew cab doors shall each have a window that can roll down completely into the door housing.

A door handle shall be provided on the exterior of each cab door. The exterior handle shall be designed specifically for the fire service to prevent accidental activation, and shall provide deep hand clearance for ease of use with heavy gloved hands.

Each door shall also be provided with an interior flush, open style paddle handle that shall be readily operable from fore and aft positions, and be designed to prevent accidental activation. The interior handles shall provide deep hand clearance for ease of use with heavy gloved hands.
The cab doors shall be provided with both interior (rotary knob) and exterior (keyed) locks exceeding FMVSS standards. The locks shall be capable of activating when the doors are open or closed. The doors shall remain locked if locks are activated when the doors are opened, then closed. Keys shall be supplied to purchaser.

A full length, heavy duty, stainless steel, piano-type hinge shall be provided on all cab doors. There shall be double automotive-type rubber seals around the perimeter of the door framing and door edges to ensure a weather-tight fit.

A grab handle shall be provided on the inside of each cab door for ease of entry.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

93. ELECTRIC OPERATED CAB DOOR WINDOWS

All four (4) cab doors shall be equipped with electric operated windows. The driver's door shall have four (4) switches, one (1) to control each door window.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

94. CAB STEPS

The forward cab and crew cab access steps shall be a full size two (2) step design to provide largest possible stepping surfaces for safe ingress and egress. The bottom steps shall be designed with a grip pattern to provide support, slip resistance, and drainage.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

95. CAB EXTERIOR HANDRAILS

A slip-resistant handrail shall be provided adjacent to each cab and crew cab door opening to assist during cab ingress and egress.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

96. STEP LIGHTS

There shall be six (6) white LED step lights installed for cab and crew cab access steps.

- One (1) light for the driver's access steps.
- Two (2) lights for the driver's side crew cab access steps.
- Two (2) lights for the passenger's side crew cab access steps.
- One (1) light for the passenger's side access step.

The lights shall be activated when the battery switch is on and the adjacent door is opened.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

97. FENDER CROWNS

Rubber fender crowns shall be provided around the cab wheel openings.
Crowns shall be black.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

98. CREW CAB WINDOWS

One (1) fixed window with tinted glass shall be provided on each side of the cab, to the rear of the front cab door. The windows shall be sized to enhance light penetration into the cab interior.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

99. CAB DASH

The driver side dash, switch panel located to the right of the driver, and center console shall be an easily removable high impact resistant polymer cover.

The instrument gauge cluster shall be surrounded with a high impact ABS plastic contoured to the same shape of the instrument gauge cluster.

The officer side dash shall be a flat top design with an upper beveled edge to provide easy maintenance and shall be painted to match the cab interior.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

100. AIR CYLINDER HOLDER(S)

There shall be one SCBA holder, provided in the body. The bracket shall be a one (1) size fits all style and shall accommodate SCBA cylinders from the high pressure 30-minute to the high pressure 60-minute.

The SCBA cylinder bracket(s) shall be located in a body compartment to be determined by the Respondent.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

101. CAB INTERIOR

The cab interior shall be constructed of primarily metal (painted aluminum) to withstand the severe duty cycles of the fire service.

The engine tunnel shall be painted to match the cab interior.

For durability and ease of maintenance, the cab interior side walls shall be painted. The rear wall shall be painted.

Headliner shall be installed in both forward and rear cab sections. Headliner material shall be vinyl. A sound barrier shall be part of its composition. Material shall be installed and securely fastened to interior cab ceiling.

Forward portion of cab headliner shall permit easy access for service of electrical wiring or other maintenance needs.

All wiring shall be placed in metal raceways. Routing through holes in tubing shall not be accepted due to chaffing that installation shall cause.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

102. CAB INTERIOR UPHOLSTERY

The cab interior upholstery shall be black vinyl.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

103. CAB INTERIOR PAINT

The cab interior metal surfaces, excluding the rear heater panels, shall be painted, vinyl texture paint.

The rear heater panels shall be painted, vinyl textured paint.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

104. CAB FLOOR

The cab and crew cab floor areas shall be covered with Polydamp™ acoustical floor mat (or equally comparable brand) consisting of a black rubber facing and closed cell foam decoupler. The floor matting shall not allow for water to be absorbed and offers sound dampening.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

105. DEFROST/AIR CONDITIONING SYSTEM

A ceiling mounted combination heater, defroster and air conditioning system shall be installed in the cab above the engine tunnel area.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

106. CAB DEFROSTER

A heater-defroster unit shall be provided inside the cab. The heater-defrost shall be installed in the forward portion of the cab ceiling. Air outlets shall be strategically located in the cab header extrusion per the following:

- One (1) adjustable shall be directed towards the left side cab window
- One (1) adjustable shall be directed towards the right side cab window
- Six (6) fixed outlets shall be directed at the windshield

The defroster system shall meet or exceed SAE J382 requirements.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

107. CAB/CREW AUXILLIARY HEATER

There shall be one (1) auxiliary heater provided in each outboard rear facing seat risers with a dual scroll blower.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

108. AIR CONDITIONING

An air conditioning system designed and engineered to be appropriate by the manufacturer for the proposed cab design shall be installed.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

109. CLIMATE CONTROL

An automotive style controller shall be provided to control the heat and air conditioning systems within the cab.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

110. GRAVITY DRAIN TUBES

Drain tubes shall be provided for the air conditioning evaporator. The drip pan shall have drain tubes plumbed separately to allow for the condensate to exit the drip pan. No pumps shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

111. SUN VISORS

Two (2) sun visors shall be provided. The sun visors shall be located above the windshield with one (1) mounted on each side of the cab.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

112. GRAB HANDLES

A grab handle shall be mounted on the door post of the driver and officer's side cab door to assist in entering the cab. The grab handles shall be securely mounted to the post area between the door and windshield.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

113. ENGINE COMPARTMENT LIGHT

An engine compartment light shall be installed under the engine hood.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

114. ACCESS TO ENGINE DIPSTICKS

Access to the engine oil and transmission fluid dipsticks must be in convenient locations based upon the apparatus chassis and cab design.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

115. SEATING CAPACITY

The seating capacity in the cab shall be for four (4) fully equipped firefighters.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

116. DRIVER SEAT

A H.O. Bostrom, Sierra, air suspension high back seat (or comparable) shall be provided in the cab for the driver. For increased convenience, the seat shall include a manual control to adjust the horizontal position. To provide flexibility for multiple driver configurations, the seat shall have a reclining and adjustable back.

The seat shall include no additional zip clean covers.

The seat shall be furnished with a 3-point, shoulder type seat belt.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

117. OFFICER SEAT

A HO Bostrom Tanker 350, SCBA air suspension seat (or comparable) shall be provided in the cab for the officer.

The seat shall be provided with a deep cushion and one piece flip up headrest. To ensure safe operation, the seat shall be equipped with a sensor in the seat cushion and belt receptacle that shall activate an alarm indicating the seat is occupied but not buckled.

The seat back shall be an SCBA back style with a 95 degree fixed recline angle. The SCBA cavity shall be adjustable to accommodate different sized SCBA cylinders.

The seat shall include no additional zip clean covers.

The seat shall be furnished with a 3-point, shoulder type seat belt.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

118. REAR FACING LEFT SIDE OUTBOARD SEAT

One (1) rear facing, Bostrom Tanker 350 SCBA seat (or comparable) shall be provided in the left side outboard position in crew cab.

The seat shall be provided with a deep cushion and one piece flip up headrest. To ensure safe operation, the seat shall be equipped with a sensor in the seat cushion and belt receptacle that shall activate an alarm indicating the seat is occupied but not buckled.

The seat back shall be an SCBA back style with a 95 degree fixed recline angle. The SCBA cavity shall be adjustable to accommodate different sized SCBA cylinders.

The seat shall include no additional zip clean covers.

The seat shall be furnished with a 3-point, shoulder type seat belt.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

119. REAR FACING RIGHT SIDE OUTBOARD SEAT

One (1) rear facing, Bostrom Tanker 350 SCBA (or comparable) seat shall be provided in the right side outboard position in crew cab.

The seat shall be provided with a deep cushion and one piece flip up headrest. To ensure safe operation, the seat shall be equipped with a sensor in the seat cushion and belt receptacle that shall activate an alarm indicating the seat is occupied but not buckled.

The seat back shall be an SCBA back style with a 95 degree fixed recline angle. The SCBA cavity shall be adjustable to accommodate different sized SCBA cylinders.

The seat shall include no additional zip clean covers.

The seat shall be furnished with a 3-point, shoulder type seat belt.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

120. FORWARD FACING CENTER CABINET

A forward facing cabinet shall be provided in the crew cab at the center position.

The front of the cabinet shall have one (1) Gortite (or equally comparable brand) rollup door

The cabinet shall include two (2) infinitely adjustable shelves with up-turned lips.

The cabinet shall include no louvers.

The cabinet shall be painted to match the cab interior.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

121. CABINET LIGHT

There shall be one (1) white LED strip light installed on the left side of the interior cabinet door opening and one (1) white LED strip light installed on the right side of the interior cabinet door opening. The lighting shall be controlled by an automatic door switch.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

122. SEAT UPHOLSTERY

All seat upholstery shall be gray/black and be made of waterproof fabric.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

123. AIR CYLINDER HOLDERS

All SCBA type seats in the cab (3) shall have an IMMI SmartDock, SCBA holder. This holder shall be compliant with the current NFPA 1901 standards. The holder seats shall be a "one size fits all" style seat and shall accommodate SCBA cylinders from the high pressure 30-minute to the high pressure 60-minute.

One SCBA air cylinder holder (drivers) shall be mounted in a side compartment of the body of the apparatus and be of a simple design and from a common manufacturer. Location TBD by Respondent.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

124. SEAT BELTS

All cab seating positions shall have red seat belts. The seat belts shall be furnished with a single automatic retractor. To provide quick, easy use for occupants wearing bunker gear, the female buckle

and seat belt webbing length shall meet or exceed the current edition of NFPA 1901 and CAN/ULC - S515 standards.

The 3-point shoulder type belts shall also include the ReadyReach D-loop assembly to the shoulder belt system. The ReadyReach feature adds an extender arm to the D-loop location placing the D-loop in a closer, easier to reach location.

Any flip up seats shall include 3-point shoulder type belts only.

To ensure safe operation, the seat shall be equipped with seat belt sensors in the seat cushion and belt receptacle that shall activate an alarm indicating a seat is occupied but not buckled.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

125. HELMET STORAGE

Helmet storage shall be located in a body compartment.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

126. CAB DOME LIGHTS

There shall be four (4) dual LED dome lights with black bezels provided. Two (2) lights shall be mounted above the inside shoulder of the driver and officer and two (2) lights shall be installed and located, one (1) on each side of the crew cab.

The color of the LED's shall be red and white.

The white LED's shall be controlled by the door switches and the lens switch.

The color LED's shall be controlled by the lens switch.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

127. PORTABLE HAND LIGHTS

NFPA 1901, 2016 edition, section 5.9.4 requires two portable hand lights mounted in brackets fastened to the apparatus.

The two portable hand lights and respective charging stations shall be mounted to be easily accessible and be located in the rear crew area of the cab.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

128. CAB INSTRUMENTATION

The cab instrument panel shall include gauges, telltale indicator lamps, control switches, alarms, and a diagnostic panel. The function of the instrument panel controls and switches shall be identified by a label adjacent to each item. Actuation of the headlight switch shall illuminate the labels in low light conditions. Telltale indicator lamps shall not be illuminated unless necessary. The cab instruments and controls shall be conveniently located within the forward cab section, forward of the driver. The gauge assembly and switch panels are designed to be removable for ease of service and low cost of ownership.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

129. GAUGES

The gauge panel shall include the following ten (10) gauges to monitor vehicle performance:

- Voltmeter gauge (volts):
  - Low volts (11.8 VDC)
  - High volts (15.5 VDC)
- Engine Tachometer (RPM)
- Speedometer MPH (Major Scale), KM/H (Minor Scale)
- Fuel level gauge (Empty - Full in fractions):
- Engine Oil pressure Gauge (PSI):
- Front Air Pressure Gauges (PSI):
- Rear Air Pressure Gauges (PSI):
- Transmission Oil Temperature Gauge (Fahrenheit):
- Engine Coolant Temperature Gauge (Fahrenheit):
- Diesel Exhaust Fluid Level Gauge (Empty - Full in fractions):

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

130. INDICATOR LAMPS

To promote safety, the following telltale indicator lamps shall be located on the instrument panel in clear view of the driver. The indicator lamps shall be "dead-front" design that is only visible when active. The colored indicator lights shall have descriptive text or symbols.

The following telltale lamps shall be present and each telltale lamp shall be colored based upon the design and make/model of the gauge cluster:

- Low coolant
- Trac cntl (traction control) (where applicable)
- Check engine
- Check trans (check transmission)
- Air rest (air restriction)
- DPF (engine diesel particulate filter regeneration)
- HET (engine high exhaust temperature) (where applicable)
- ABS (antilock brake system)
- MIL (engine emissions system malfunction indicator lamp) (where applicable)
- Regen inhibit (engine emissions regeneration inhibit) (where applicable)
- Side roll fault (where applicable)
- Front air bag fault (where applicable)
- Aux brake overheat (auxiliary brake overheat) (where applicable)
- Ladder rack down
- Parking brake
- Stop engine
- Left turn
- Right turn
- Battery on
- Ignition
- Aux brake (auxiliary brake engaged) (where applicable)
- High beam

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

131. ALARMS

Audible steady tone warning alarm: A steady audible tone alarm shall be provided whenever a warning condition is active.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

132. INDICATOR LAMP AND ALARM PROVE-OUT

A system shall be provided which automatically tests telltale indicator lights and alarms located on the cab instrument panel. Telltale indicators and alarms shall perform prove-out when the ignition switch is moved to the on position with the battery switch on.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

133. CONTROL SWITCHES

For ease of use, the following controls shall be provided immediately adjacent to the cab instrument panel within easy reach of the driver. All switches shall have backlit labels for low light applications.

Headlight/Parking light switch: A three (3)-position maintained rocker switch shall be provided.

Panel back lighting intensity control switch: A three (3)-position momentary rocker switch shall be provided.

Ignition switch: A three (3)-position maintained/momentary rocker switch shall be provided.

Engine start switch: A two (2)-position momentary rocker switch shall be provided.

Hazard lights switch: Shall be provided on the instrument panel or on the steering column.

Heater, defrost, and air conditioning: Switches shall be located on a control panel.

Turn signal arm: A self-canceling turn signal with high beam headlight controls.

Windshield wiper control: Switch shall have high, low, and intermittent modes.

Parking brake control: An air actuated push/pull park brake control.

Chassis horn control: Activation of the chassis horn control shall be provided through the center of the steering wheel.

High idle engagement switch: A maintained rocker switch with integral indicator lamp shall be provided.

"OK to Engage High Idle" indicator lamp: A green indicator light shall be provided next to the high idle activation switch to indicate that the interlocks have been met to allow high idle engagement.

Emergency lights: Switching shall be controlled by a single Emergency Master switch which controls all emergency warning lights including light bars, cab warning lights, body warning lights and high beam flash, if applicable.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

134. CUSTOM SWITCH PANELS

The design of cab instrumentation shall allow for emergency lighting and other switches to be placed within easy reach of the operator thus improving safety. There shall be positions for switch panels in the lower instrument console, doghouse and switch panels in the overhead visor console. All switches have backlit labels for low light conditions. Initial locations of these instrument panels are left to the discretion of the Respondent.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

135. DIAGNOSTIC PANEL

A diagnostic panel shall be provided and be easily accessible. The diagnostic panel shall allow diagnostic tools such as computers to connect to various vehicle systems for improved troubleshooting.

The diagnostic panel shall include the following:

- ENGINE/TRANSMISSION/ABS J1939 Diagnostic Port
- ABS Diagnostic Switch and Indicator - The switch and amber indicator shall allow access to diagnostic mode and display of standard ABS system fault blink codes that may be generated by the ABS system
- DPF REGEN (Diesel Particulate Filter Regeneration Switch) (where applicable) shall be provided to request regeneration of the engine emission system. An amber indicator shall be provided on top of the switch that shall illuminate in a "CHECK ENGINE" condition
- REGEN INHIBIT (Diesel Particulate Filter Regeneration Inhibit Switch) (where applicable) shall be provided that shall request that regeneration be temporarily prevented. A green indicator shall be provided on top of the Regen Inhibit switch that shall illuminate when the Regen Inhibit feature is active. Regen Inhibit shall be disabled upon cycling of the ignition switch to the off state.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

136. AIR RESTRICTION INDICATOR

A high air restriction warning indicator light (electronic) shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

137. "DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, shall be illuminated automatically per the current NFPA requirements. The light shall be labeled appropriately.
The same circuit that activates the "Do Not Move Apparatus" indicator shall activate a steady tone alarm when the parking brake is released.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

138. SWITCH PANELS

The built-in switch panels shall be located in the lower console or overhead console of the cab. Switches shall be rocker type with an indicator light, of which is an integral part of the switch.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

139. WIPER CONTROL

Wiper control shall consist of a two (2)-speed windshield wiper control with intermittent feature and windshield washer controls.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

140. SPARE CIRCUIT

There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power
- The negative wire shall be connected to ground
- Wires shall be protected to 15 amps at 12 volts DC
- Power and ground shall terminate officer side dash area
- Termination shall be with 15 amp, power point plug with rubber cover

- Wires shall be sized to 125 percent of the protection

The circuit(s) may be load managed when the parking brake is set.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

141. SPARE CIRCUIT

There shall be one (1) pair of wires, including a positive and a negative, installed on the apparatus.

The above wires shall have the following features:

- The positive wire shall be connected directly to the battery power.
- The negative wire shall be connected to ground.
- Wires shall be protected to 2.0 amps at 12 volts DC.
- Power and ground shall terminate officer side dash area.
- Termination shall be a Blue Sea Systems part number 1016 dual USB charger socket.
- Wires shall be sized to 125 percent of the protection.

This circuit(s) may be load managed when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

142. INFORMATION CENTER

There shall be a LCD display integral to the cab gauge panel provided that shall display the following information:

- Total distance
- Trip distance
- Total hours
- Trip hours
- PTO "A" hours
- PTO "B" hours

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

143. VEHICLE DATA RECORDER

There shall be a vehicle data recorder (VDR) capable of reading and storing vehicle information provided.

The information stored on the VDR can be downloaded through a USB port mounted in a convenient location determined by cab model. A USB cable can be used to connect the VDR to a laptop to retrieve required information. The program to download the information from the VDR shall be available to download on-line.

The vehicle data recorder shall be capable of recording the following data via hardwired and/or CAN inputs:

- Vehicle Speed - MPH
- Acceleration - MPH/sec
- Deceleration - MPH/sec
- Engine Speed - RPM
- Engine Throttle Position - % of Full Throttle
- ABS Event - On/Off
- Seat Occupied Status - Yes/No by Position
- Seat Belt Buckled Status - Yes/No by Position
- Master Optical Warning Device Switch - On/Off
- Time - 24 Hour Time
- Date - Year/Month/Day

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

144. SEAT BELT MONITORING SYSTEM

A seat belt monitoring system (SBMS) shall be provided. The SBMS shall be capable of monitoring up to 4 seating positions indicating the status of each seat position.

The SBMS shall include an audible alarm that shall warn that an unbuckled occupant condition exists and the parking brake is released, or the transmission is not in park.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

145. RADIO ANTENNA MOUNT

There shall be two (2) standard antenna-mounting base(s) installed one (1) on each side on the cab roof with high efficiency, low loss, coaxial cable(s) routed to the radio box. A weatherproof cap shall be installed on the mount.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

146. VIDEO SYSTEM, REAR CAMERA & LCD DISPLAY

A Zone Defense 323-1-4 video system (or equally comparable brand) with wide angle color rear view video camera and 7" color LCD display monitor shall be provided.

The exterior portion of this camera system shall be mounted on the rear of the apparatus and be protected from weather and other exterior elements and provide full and unobstructed views behind the apparatus.

The weatherproof, IP67 rated, camera shall feature a built in microphone and 18 infrared emitters for 0 lux operation. The camera shall be activated with the reverse signal or manually from the monitor. Images shall be displayed in the cab on a color LCD flat panel display with integral camera switcher and integrated speaker permitting audio from the active camera and located centered between the sun visors on a panavise mount or the LCD panel display can be flush mounted in the dog house area for easy view by the driver.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

147. ELECTRICAL POWER CONTROL SYSTEM

A compartment shall be provided in or under the cab to house the vehicle's electrical power and signal circuit protection and control components. The power and signal protection and control compartment shall contain circuit protection devices and power control devices. Power and signal protection and control components shall be protected against corrosion, excessive heat, excessive vibration, physical damage and water spray.

Serviceable components shall be readily accessible.

Circuit protection devices, which conform to SAE standard, shall be utilized to protect each circuit.

All circuit protection devices shall be sized to prevent wire and component damage when subjected to extreme current overload. General protection circuit breakers shall be Type-I automatic reset (continuously resetting) and conform to SAE J553 or J258. When required, automotive type fuses conforming to SAE J554, J1284, J1888 or J2077 shall be utilized to protect electronic equipment.

Power control relays and solenoids shall have a direct current (dc) rating of 125 percent of the maximum current for which the circuit is protected.

Visual status indicators shall be supplied to identify control safety interlocks and vehicle status. In addition to visual status indicators, audible alarms designed to provide early warning of problems before they become critical shall be used.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

148. VOLTAGE MONITOR SYSTEM

A voltage monitor system shall be provided to indicate the status of each battery system connected to the vehicle's electrical load. The monitor system shall provide visual and audio warning when the system voltage is above or below optimum levels.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

149. POWER AND GROUND STUDS

Spare circuits shall be provided in the primary distribution center for two-way radio equipment.

The spare circuits shall consist of the following:

- One (1) 12-volt DC, 30 amp battery direct spare
- One (1) 12-volt DC ground and un-fused switched battery stud located in or adjacent to the power distribution center

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

150. EMI/RFI PROTECTION

The electrical system proposed shall include means to control undesired electromagnetic and radio frequency emissions. State of the art electrical system design and components shall be used to ensure radiated and conducted EMI (electromagnetic interference) and RFI (radio frequency interference) emissions are suppressed at their source.

The apparatus proposed shall have the ability to operate in the electromagnetic environment typically found in fire ground operations. The contractor shall be able to demonstrate the EMI and RFI testing has been done on similar apparatus and certifies that the vehicle proposed meets SAE J551 requirements.

EMI/RFI susceptibility shall be controlled by applying immune circuit designs, shielding, twisted pair wiring and filtering.

The electrical system shall be designed for full compatibility with low level control signals and high powered two-way radio communication systems. Harness and cable routing shall be given careful attention to minimize the potential for conducting and radiated EMI-RFI susceptibility.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

151. ELECTRICAL

All 12-volt electrical equipment installed by the apparatus manufacturer shall conform to modern automotive practices. All wiring shall be high temperature crosslink type. Wiring shall be run, in loom or conduit, where exposed and have grommets where wire passes through sheet metal. Automatic reset circuit breakers shall be provided which conform to SAE Standards. Wiring shall be color, function and number coded. Function and number codes shall be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors shall be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids.

Electrical wiring and equipment shall be installed utilizing the following guidelines:

1. All holes made in the roof shall be caulked with silicon, rope caulk is not acceptable. Large fender washers, liberally caulked, shall be used when fastening equipment to the underside of the cab roof.
2. Any electrical component that is installed in an exposed area shall be mounted in a manner that shall not allow moisture to accumulate in it. Exposed area shall be defined as any location outside of the cab or body.
3. Electrical components designed to be removed for maintenance shall not be fastened with nuts and bolts. Metal screws shall be used in mounting these devices. Also a coil of wire shall be provided behind the appliance to allow them to be pulled away from mounting area for inspection and service work.
4. Corrosion preventative compound shall be applied to all terminal plugs located outside of the cab or body. All non-waterproof connections shall require this compound in the plug to prevent corrosion and for easy separation (of the plug).
5. All lights that have their sockets in a weather exposed area shall have corrosion preventative compound added to the socket terminal area.
6. All electrical terminals in exposed areas shall have silicon (1890) applied completely over the metal portion of the terminal.

All lights and reflectors, required to comply with Federal Motor Vehicle Safety Standard #108, shall be furnished. Rear identification lights shall be recessed mounted for protection. Lights and wiring mounted in the rear bulkheads shall be protected from damage by installing a false bulkhead inside the rear compartments.

An operational test shall be conducted to ensure that any equipment that is permanently attached to the electrical system is properly connected and in working order. The results of the tests shall be recorded and provided to the purchaser at time of delivery.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

152. BATTERY SYSTEM

There shall be four (4) 12 volt batteries that include the following features:

- 950 CCA, cold cranking amps
- 190 amp reserve capacity
- High cycle
- Group 31
- Rating of 3800 CCA at 0 degrees Fahrenheit
- 760 minutes of reserve capacity
- Threaded stainless steel studs

Each battery case shall be a black polypropylene material with a vertically ribbed container for increased vibration resistance. The cover shall be manifold vented with a central venting location to allow a 45 degree tilt capacity.

The inside of each battery shall consist of a "maintenance free" grid construction with poly wrapped separators and a flooded epoxy bottom anchoring for maximum vibration resistance.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

153. BATTERY SYSTEM

There shall be a single starting system with an ignition switch and starter button provided and located on the cab instrument panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

154. MASTER BATTERY SWITCH

There shall be a master battery switch provided within the cab within easy reach of the driver to activate the battery system.

An indicator light shall be provided on the instrument panel to notify the driver of the status of the battery system.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

155. BATTERY COMPARTMENTS

Batteries shall be placed on non-corrosive mats and be stored in well ventilated compartments located under the cab.

Heavy-duty battery cables shall be used to provide maximum power to the electrical system. Cables shall be color coded.

Battery terminal connections shall be coated with anti-corrosion compound. Battery solenoid terminal connections shall be encapsulated with semi-permanent rubberized compound.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

156. JUMPER STUDS

One (1) set of battery jumper studs with plastic color-coded covers shall be included on the battery compartments.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

157. BATTERY CHARGER

There shall be a 45 amp battery charger provided. The battery charger shall be wired to the AC shoreline inlet through an AC receptacle adjacent to this battery charger.

A Kussmaul remote indicator shall be included.

Battery charger shall be located in the cab behind the driver seat.

The battery charger indicator shall be located in the driver's step area.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

158. SHORELINE

There shall be one (1) 20 amp 120 volt AC straight blade inlet(s) NEMA 5-20 with gray cover(s) provided to operate the dedicated 120 volt AC circuits on the apparatus.

The shoreline shall be connected to the battery conditioner.

A mating connector body shall also be supplied with the loose equipment.

There shall be a label installed near the inlet(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency

The shoreline receptacle shall be located on the driver's side of the cab.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

159. BATTERY TRAYS

Formed fit heavy-duty battery trays with drain tubes shall be provided for the batteries to sit in.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

160. ALTERNATOR

A Delco Remy®, model 40SI, alternator (or equally comparable brand) shall be provided. It shall have a rated output current to support electrical system charging and battery replenishment deemed appropriate for the proposed apparatus, as measured by SAE method J56. The alternator shall be connected to the power and ground distribution system with heavy-duty cables sized to carry the full rated alternator output.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

161. ELECTRONIC LOAD MANAGEMENT

An electronic load management (ELM) system that monitors the vehicles 12-volt electrical system, and automatically reduces the electrical load in the event of a low voltage condition and by doing so, ensures the integrity of the electrical system.

The ELM shall monitor the vehicle's voltage while at the scene (parking brake applied). It shall sequentially shut down individual electrical loads when the system voltage drops below a preset value.

Two (2) separate electrical loads shall be controlled by the load manager. The ELM shall sequentially re-energize electrical loads as the system voltage recovers.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

162. HEADLIGHTS

There shall be four (4) rectangular LED lights mounted in the front of the cab (two on each side of the cab grille):

- the outside light on each side shall contain a low beam module
- the inside light on each side shall contain high beam module

The low beam lights shall be activated when the headlight switch is on.

The high beam and low beam lights shall be activated when the headlight switch and the high beam switch is activated.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

163. HEADLIGHT FLASHER

A headlight high-beam flasher shall be installed, to alternately flash the left and right headlight high-beam bulbs in a "wig-wag" pattern.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

164. FRONT DIRECTIONALS

The front directional lights shall be Whelen, Model M6T, amber LED arrow lights. The location of these lights will be determined based upon cab design and the manufacturer proposal.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

165. INTERMEDIATE LIGHT

There shall be two (2) Weldon, Model 9186-8580-29, amber LED turn signal marker lights furnished, one (1) each side, in the rear fender panel. The light shall double as a turn signal and marker light.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

166. CAB CLEARANCE/MARKER/ID LIGHTS

There shall be amber LED lights provided to indicate the presence and overall width of the vehicle in the following locations:

- Amber LED identification lights shall be installed in the center of the cab above the windshield.
- Amber LED clearance lights shall be installed, one (1) on each outboard side of the cab above the windshield.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

167. FRONT CAB SIDE DIRECTIONAL/MARKER LIGHTS

There shall be two (2) Weldon, Model 9186-8580-29, amber LED lights installed front of the cab door, one (1) on each side of the cab.

The lights shall activate as marker lights with the headlight switch and directional lights with the corresponding directional circuit.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

168. REAR CLEARANCE/MARKER/ID LIGHTING

There shall be a LED light bar used as identification lights located at the rear of the apparatus per the following:

- As close as practical to the vertical centerline
- Centers spaced not less than 6.00" or more than 12.00" apart
- Red in color
- All at the same height

There shall be two LED lights installed at the rear of the apparatus used as clearance lights located at the rear of the apparatus per the following:

- To indicate the overall width of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the rear
- All at the same height

There shall be LED lights installed on the side of the apparatus used as marker lights as close to the rear as practical per the following:

- To indicate the overall length of the vehicle
- One (1) each side of the vertical centerline
- As near the top as practical
- Red in color
- To be visible from the side
- All at the same height

There shall be red reflectors located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical.

There shall be red reflectors located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical

Clearance and marker lighting and reflectors applied must meet DOT and be per FMVSS 108 and CMVSS 108 requirements.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

169. REAR FMVSS LIGHTING

The rear stop/tail and directional lights shall be provided. Each lamp kit shall include a lamp, a rubber grommet and a connector plug.

The following light kits shall be provided:

- Two (2) red stop/tail light assemblies.
- Two (2) amber directional light assemblies.

The lights shall be mounted on the rear face of the rear fender compartment.
Two (2) LED backup lamps with grommets shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

170. LICENSE PLATE BRACKET

There shall be one (1) license plate bracket mounted on the rear of the body.

A white LED light shall illuminate the license plate. A painted black light shield shall be provided over the light that shall direct illumination downward, preventing white light to the rear.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

171. BACK-UP ALARM

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

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

172. CAB PERIMETER SCENE LIGHTS

There shall be four lights with white LEDs and 45 degree stainless steel brackets provided per the following:

- one (1) under the driver's side cab access step
- one (1) under the passenger's side cab access step
- one (1) under the passenger's side crew cab access step
- one (1) under the driver's side crew cab access step

The lights shall be activated when the battery switch is on, when the respective door is open and by the same control selected for the body perimeter lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

173. PUMP HOUSE PERIMETER LIGHTS

There shall be two (2) white 12 volt DC LED weatherproof strip lights provided under the pump panel running boards, one (1) each side.

The lights shall be controlled by the same means as the body perimeter lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

174. BODY PERIMETER SCENE LIGHTS

There shall be two (2) 12 volt DC LED strip lights provided at the rear step area of the body, one (1) each side shining to the rear.

The perimeter scene lights shall be activated when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

175. STEP LIGHTS

There shall be four (4) white LED, step lights provided. One (1) step light shall be provided on each side, on the front compartment face and two (2) step lights at the rear to illuminate the tailboard.

These step lights shall be actuated when the ignition switch is on and the parking brake is set.
All other steps on the apparatus shall be illuminated per the current edition of NFPA 1901.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

176. 12 VOLT LIGHTING

There shall be one (1) Whelen® Model P*H2*, 17,750 lumens 12 volt DC light(s) with a combination of flood and spot optics provided on the front visor, centered.

The housing(s) painted parts of this light assembly to be black. The light(s) shall be controlled by a switch at the driver's side switch panel.

These light(s) may be load managed when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

177. 12 VOLT DC SCENE LIGHTS

There shall be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC powered light(s) with white LEDs installed on the cab located, one on passenger side in 10" portion of raised roof above window.

The surface mount housing(s) shall be provided with a black cover.

The light(s) shall be activated by a switch at the driver's side switch panel.

The light(s) may be load managed when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

178. 12 VOLT DC SCENE LIGHTS

There shall be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC powered light(s) with white LEDs installed on the cab located, one on driver's side in 10" portion of raised roof above window.

The surface mount housing(s) shall be provided with a black cover.

The light(s) shall be activated by a switch at the driver's side switch panel.

The light(s) may be load managed when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

179. 12 VOLT LIGHTING

There shall be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC surface mount light(s) installed on the body of the apparatus located, one on passenger side located in the center of the body.

The light(s) shall include housing(s) with a black cover.

The light(s) shall be controlled by a switch at the driver's side switch panel.

The light(s) may be load managed when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

180. 12 VOLT LIGHTING

There shall be one (1) Whelen® Model PCPSM2*, 16,000 lumens 12 volt DC surface mount light(s) installed on the body of the apparatus located, one on driver's side located in the center of the body.

The light(s) shall include housing(s) with a black cover.

The light(s) shall be controlled by a switch at the driver's side switch panel.

The light(s) may be load managed when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

181. HOSE BED LIGHTS

There shall be one (1) Whelen, Model 70C0ELZR, LED light(s) with a Whelen, Model 7EFLANGE, chrome flange installed at the forward hose bed bulkhead located centered high on the front wall of the hose bed. The light(s) shall be mounted with no mounting bracket and with no guard.

The light(s) shall be activated by a cup switch at the rear of the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

182. REAR SCENE LIGHTS

There shall be two (2) Whelen, Model PCPSM1, LED scene lights with chrome trim bezels installed at the rear of the apparatus.

The lights shall be controlled by a switch at the driver's side pump panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

183. WALKING SURFACE LIGHT

There shall be 12 volt DC LED light(s) provided to illuminate the entire designated walking surface on top of the body.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

184. WATER TANK

The apparatus shall have a booster tank with a fill tower (with screen and hinged cover) and shall have a capacity of a minimum of 1500 gallons.

Tank shall be shaped to provide for deep side compartments, allow for thru-the-tank storage compartments for storage of necessary equipment, and to serve as a large sump to limit the amount of undraftable water. This tank shall extend to the rear of the body to keep the overall tank height as low as possible.

Tank shall be baffled in accordance with NFPA Bulletin 1901 requirements.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

185. DIRECT TANK FILL

There shall be two (2) 2.50" Fireman's Friend Inc. semi-automatic tank fill(s) installed and properly labeled at the rear of the water tank, located right side and installed as high as possible.

A 2.50" (F) NST chrome swivel shall be located at the inlet.

A 2.50" chrome plated 30 degree elbow and plug with VLH automatic pressure relieving thread technology shall be provided for the tank fill.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

186. TANK DUMP

A tank dump shall be installed through the center rear body panel in the area over the tailboard.

Dump shall be gated with a square Newton dump valve.

The dump valve shall be as short as possible.

A 180 degree Newton swivel dump chute shall be provided. The chute shall include a Newton telescopic extension to allow the chute to extend past the body side for dumping water.

The water tank design shall include additional support for this chute.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

187. HOSE BED

The hose bed shall be fabricated to accommodate at least 800' of 5" supply hose and 400' of 2.5 inch attack line hose

The hose bed interior shall be painted to match the lower body color.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

188. HOSE BED DIVIDER

One (1) adjustable hose bed divider shall be furnished for separating hose.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

189. HOSEBED HOSE RESTRAINT

A black vinyl hose bed cover shall be furnished.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

190. RUNNING BOARDS

Running boards shall be fabricated of aluminum tread plate.

Each running board shall be supported by welded square tubing and channel assembly, which shall be bolted to the pump compartment substructure.

A splash guard shall be provided above the running board tread plate.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

191. TAILBOARD

The tailboard shall also be constructed and supported as deemed appropriate by the design and engineering appropriate for the proposed apparatus.

The tailboard area shall be a maximum of 12.00" deep and full width of the body.

The outboard sides of the tailboard shall be angled at 45 degrees beginning at the point where the body meets the tailboard at the outboard edge angling rearward to the rear edge of the tailboard.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

192. TAILBOARD CLEARANCE

The center tailboard area must also provide free clearance for use of a Newton dump valve and swivel dump chute.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

193. TOW BAR

A tow bar shall be installed under the tailboard at center of truck.

When force is applied to the bar, it shall be transmitted to the frame rail.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

194. COMPARTMENTATION

Body and compartments shall be fabricated using quality construction materials and methods designed and engineered for this fire apparatus proposal.

Side compartments shall be an integral assembly with the rear fenders.

Circular fender liners shall be provided for prevention of rust pockets and ease of maintenance.

Side compartment flooring shall be of the sweep out design with the floor higher than the compartment door lip.

Drip protection shall be provided above the doors.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

195. UNDERBODY SUPPORT SYSTEM

Due to the severe loading requirements of this pumper-tanker a method of body and compartment support suitable for the intended load shall be provided.

The backbone of the support system shall be the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

196. AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas shall comply with the required average slip resistance of the current NFPA standards.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

197. LOUVERS

Louvers shall be stamped into compartment walls to provide the proper airflow inside the body compartments and to prevent water from dripping into the compartment.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

198. TESTING OF BODY DESIGN

Body structural analysis shall be fully tested. Proven engineering and test techniques such as finite element analysis, stress coating and strain gauging shall be performed with special attention given to fatigue, life and structural integrity of the cab, body and substructure.

Body shall be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure shall include:

- Raising opposite corners of the vehicle tires 9.00" to simulate the twisting a truck may experience when driving over a curb.
- Making a 90 degree turn, while driving at 20 mph to simulate aggressive driving conditions.
- Driving the vehicle at 35 mph on a washboard road.
- Driving the vehicle at 55 mph on a smooth road.
- Accelerating the vehicle fully, until reaching the approximate speed of 45 mph on rough pavement.

Evidence of actual testing techniques shall be made available upon request.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

199. LEFT SIDE COMPARTMENTATION

The left side compartmentation shall consist of three (3) rollup door compartments (LS1, LS2 and LS3).

The interior height of the compartments shall be measured from the compartment floor to the ceiling. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments shall be measured from the back wall to the inside of the door frame.

Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one (1) hand.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

200. RIGHT SIDE COMPARTMENTATION

The right side compartmentation shall consist of a minimum of two (2) rollup door compartments (RS1 and RS2).

The interior height of the compartments shall be measured from the compartment floor to the ceiling. The spool of the rollup door at the top of the compartment takes up some usable space. The depth of the compartments shall be measured from the back wall to the inside of the door frame.

Closing of the door shall not require releasing, unlocking, or unlatching any mechanism and shall easily be accomplished with one (1) hand.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

201. SIDE COMPARTMENT ROLLUP DOOR(S)

There shall be five (5) compartment doors installed on the side compartments. The doors shall be double faced aluminum construction, an anodized satin finish and manufactured by Gortite® or equally comparable brand.

A polished stainless steel lift bar shall be provided for each roll-up door. Lift bar shall be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door.

A heavy-duty magnetic switch shall be used for control of open compartment door warning lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

202. REAR COMPARTMENTATION

A tool compartment shall be provided at the rear of the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

203. REAR COMPARTMENT DOOR

A drop-down door constructed of smooth aluminum with a D-ring latch shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

204. DOOR GUARD

There shall be five (5) compartment doors that shall include a guard/drip pan designed to protect the rollup door from damage when in the retracted position and contain any water spray. The guard shall be fabricated from stainless steel and installed left side rearward compartment, left side over the wheel compartment, left side forward compartment, right side rearward compartment and right side over the wheel compartment.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

205. COMPARTMENT LIGHTING

There shall be five (5) compartment(s) with a single LED compartment light strip. Each light strip shall be centered vertically along the door framing. There shall be one (1) light per compartment. The single light strip shall be in all body compartment(s).

Opening the compartment door shall automatically turn the compartment lighting on.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

206. MOUNTING TRACKS

There shall be five (5) sets of tracks for mounting shelf(s) in LS1, LS2, LS3, RS1 and RS2. These tracks shall be installed vertically to support the adjustable shelf(s), and shall be full height of the compartment. The tracks shall be painted to match the compartment interior.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

207. ADJUSTABLE SHELVES

There shall be four (4) shelves with a capacity of 500 lb. provided.

The location(s) shall be in LS1 at the depth transition point, in RS1 centered between the floor and the ceiling, in RS2 centered between the floor and the ceiling and in LS3 at the depth transition point.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

208. SWING OUT TOOLBOARD

A swing out aluminum tool board shall be provided.

The board shall be mounted on a pivoting device at the back of the compartment on the top and bottom to allow easy movement in and out of the compartment.

The board shall have positive lock in the stowed and extended position.

The board shall be mounted on adjustable tracks from front to back within the compartment.

There shall be One (1) tool board(s) provided. The tool board(s) shall be spatter gray painted and installed LS2.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

209. PEGBOARD

There shall be aluminum pegboard spatter gray painted installed on the back wall of one (1) compartments (LS2).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

210. PORTABLE TANK RACK, HYDRAULIC

A Zico Quic-Lift Model PTS-HA hydraulic rack (or comparable) shall be provided on the body for a portable water tank manufactured by Fol-Da-Tank or equivalent. The rack shall be properly sized to house a 1500 gallon portable tank.

The tank rack controls shall be located in such a manner to allow the operator full view of the area in which the portable tank shall be lowered.

The actuator control shall have a master switch and also be interlocked to prevent operation should a compartment door, in the travel area of the rack, be in the open position.

A smooth aluminum painted job color cover shall be installed on the lowering device to protect the Fol-Da-Tank. This cover shall be installed with the respective mounting kit to allow for flexing.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

211. RACK INTERLOCK AND NOT STOWED INDICATOR LIGHT

An interlock shall be provided to prevent operation of the rack unless the apparatus parking brake has been activated.

A steady red indicator light shall be located on the cab instrument panel and illuminated when the rack is not in the stowed position. The light shall be labeled "Rack". In addition, the "Do Not Move Apparatus" light located in the cab shall be activated when the rack is not in the stowed position.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

212. FLASHING LIGHTS ON RACK

Flashing amber LED lights facing the front and rear shall be provided on the rack and activated whenever the rack is in the down position.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

213. RUB RAIL

Bottom edge of the side body compartments shall be trimmed with a bright aluminum extruded rub rail.

The rear lower edge of the rear compartments shall have an aluminum tread plate rub rail.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

214. BODY FENDER CROWNS

Black rubber fender crowns shall be provided around the rear wheel openings.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

215. BODY FENDER LINER

A painted to match the lower body color fender liner shall be provided. The liners shall be removable to aid in the maintenance of rear suspension components.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

216. HARD SUCTION HOSE

NFPA 1901, 2016 edition, section 5.8.2 requires a minimum of 20 ft. of suction hose or 15 ft. of supply hose.

Hose is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide suction or supply hose.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

217. HOSE TROUGH

One (1) trough for a hard suction hose shall be installed on the top of the compartment, on the left side exterior if a compartment is not available or cannot be made to store it in.

The trough shall be constructed of aluminum, V-shaped and have chrome plated, quarter turn, spring loaded clamps.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

218. HOSE TROUGH

One (1) hard suction hose shall be carried in a trough, mounted inside the ladder storage compartment located on the right side.

The trough shall be constructed of aluminum.

The compartment shall be combined with the ladder storage so there is one door at the rear for all of these items.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

219. HANDRAILS

The handrails on the body shall provide a positive gripping surface.

Handrails shall be provided to meet NFPA 1901 section 15.8 requirements. The handrails shall be installed as noted on the sales drawing.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

220. HANDRAILS

One (1) vertical handrail shall be located on each rear beavertail.

One (1) horizontal knurled handrail shall be provided above the hose bed at the rear of the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

221. EXTENSION LADDERS PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.8.1.2 requires an extension ladder.

The extension ladder is not on the apparatus as manufactured. There shall be one (1) extension ladder(s) provided and installed by the Fire Service Training Bureau.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

222. ROOF LADDER PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.8.1.2 requires a minimum of one (1) roof ladder.

The roof ladder is not on the apparatus as manufactured. There shall be one (1) roof ladder(s) provided and installed by the Fire Service Training Bureau.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

223. LADDER STORAGE

The ladders shall be stored in a thru-the-tank type design and be accessed from the rear of the apparatus.

Each ladder shall be stored vertically in a separate stainless steel storage trough. Each stainless steel trough shall be lined with nylon slides.

The enclosure shall also include a vertically hinged smooth aluminum door with a D-handle latch to access the ladders.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

224. FOLDING LADDER PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.8.1.2 requires a folding ladder.

The folding ladder is not on the apparatus as manufactured. There shall be one (1) 10' aluminum folding ladder provided by the Fire Service Training Bureau.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

225. FOLDING LADDER STORAGE

There shall be storage designated fort a folding ladder and it shall be stored in a thru-the-tank type design and be accessed from the rear of the apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

226. 8' PIKE POLE PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 8 ft. or longer pike pole mounted in a bracket fastened to the apparatus.

The pike pole is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide and mount the pike pole.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

227. 6' PIKE POLE PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) 6 ft. pike pole or plaster hook mounted in a bracket fastened to the apparatus.

The pike pole is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide and mount the pike pole.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

228. PIKE POLE STORAGE

Aluminum tubing shall be used for the storage of two (2) pike poles and shall be located in the ladder storage compartment using a thru-the-tank design. If the head of a pike pole can come in contact with a painted surface, a stainless steel scuff plate shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

229. FOLDING STEPS FRONT OF BODY

Folding steps shall be provided full height on the left side body compartments to provide access to the cargo bed. Steps shall be spaced evenly on the sales drawing. Actual quantity may vary due to pump panel interferences but shall meet the NFPA required maximum stepping height.

They shall each have a non-skid stepping surface.

The steps shall incorporate an LED light to illuminate the stepping surface.

The steps can also be used as a hand hold with openings wide enough for a gloved hand.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

230. LADDER, TOP ACCESS

A climbing access ladder shall be provided on the left side at the rear of the apparatus.

The ladder shall be slanted when in use for easy access, and fold against the body for storage to reduce the overall length.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

231. PUMP COMPARTMENT

The pump compartment may or may not be separate from the hose body and compartments, depending on design and engineering for the proposed apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

232. PUMP CONTROL PANELS (LEFT SIDE CONTROL)

All pump controls and gauges shall be located at the left side of the apparatus and properly identified.

Layout of the pump control panel shall be ergonomically efficient and systematically organized.

Panels shall be removable from the face of the pump panel for ease of maintenance.

Overall design and composition of the pump panel shall offer easy operation, be properly labeled and color-coded, and have control handles suitable for ergonomic operation of the pump.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

233. IDENTIFICATION TAGS

The identification label for each valve control shall be incorporated in the pump panel.

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

All line pressure gauges shall be mounted adjacent to the corresponding discharge control handles for quick identification.

The pump panel on the right side shall be easily removable as well.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

234. PUMP

The fire pump shall be capable of at least a 1,250 gpm capacity, and be a single (1) stage centrifugal type. The pump shall be of a size and design to mount on the chassis rails of a custom truck chassis and have NFPA 1901 rated performance. Pump shall be the class "A" type.

The entire pump shall be tested at the manufacturer's facility to meet hydrostatic and performance benchmarks as outlined by the latest NFPA 1901 standard. The pump shall be free from objectionable pulsation and vibration.

The engine shall provide sufficient horsepower and RPM to enable the fire pump to meet and exceed its performance rating.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

235. PUMP TRANSMISSION

The pump transmission shall be made of a quality casing. The drive unit shall be of ample capacity for lubrication reserve and to maintain the proper operating temperature.

Drive shafts shall be made to withstand the full torque of the engine.

All gears, both drive and pump, shall be made from quality materials, provide accurate gears, have a long life, and be smooth and quiet running.

The pump ration shall be selected by the apparatus manufacturer to give maximum performance with the engine and transmission selected.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

236. PUMPING MODE

An interlock system shall be provided to ensure that the pump drive system components are properly engaged so that the apparatus can be safely operated. The interlock system shall be designed to allow stationary pumping only.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

237. AIR PUMP SHIFT

Pump shift engagement shall be made by a two (2) position sliding collar, actuated pneumatically (by air pressure), with a three (3) position air control switch located in the cab.

Indicator lights shall be provided adjacent to the pump shift inside the cab. Green lights shall indicate the pump shift has been completed and be labeled. The additional green lights shall indicate when the pump has been engaged, and that the chassis transmission is in pump gear.

This indicator light shall be labeled "OK to pump".

The pump shift shall be interlocked to prevent the pump from being shifted out of gear when the chassis transmission is in gear to meet NFPA requirements.

The pump shift control in the cab shall be illuminated to meet NFPA requirements.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

238. TRANSMISSION LOCK-UP

The direct gear transmission lock-up for the fire pump operation shall engage automatically when the pump shift control in the cab is activated.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

239. AUXILIARY COOLING SYSTEM

A supplementary cooling system shall be provided to allow the use of water from the discharge side of the pump for cooling the engine water.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

240. INTAKE RELIEF VALVE

One (1) Trident Air Max intake relief valve(s) shall be installed on the suction side of the pump preset at 125 psig.

The relief valve shall have a working range of 50 PSI to 350 PSI.

The outlet shall terminate below the frame rails with a 2.50" National Standard hose thread adapter and shall have a "do not cap" warning tag.

One (1) adjustable air regulator and pressure indicating gauge shall be located on a common bezel on the left side pump panel to control the intake valve(s).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

241. PRESSURE CONTROLLER

An electronic pressure controller shall be provided.

The pressure controller can be used in two (2) modes of operation, RPM mode and pressure modes.

The controller shall be programmed to turn on/default to RPM setting mode.

The throttle control knob shall be programmed for clockwise rotation to increase engine speed. Individual LED indicators for ok to pump, throttle ready, pressure mode and rpm mode shall be located on the pressure controller for easy viewing.

A pump cavitation protection feature shall also be provided which shall return the engine to idle should the pump begin cavitating.

Other safety features include recognition of low water and no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure controller LCD screen shall be clearly visible and easy to read. The LCD screen and LED intensity shall be automatically adjust for day and nighttime operation. The LCD screen intensity can also be manually adjusted if needed.

The following information shall be provided/displayed on the LCD screen -

- Engine RPM
- Check engine and stop engine warning indicators
- Engine oil pressure
- Engine coolant temperature
- Water pump temperature
- Fuel Level
- Water tank level
- Battery voltage
- Operating mode (RPM or pressure)
- Pressure or RPM setting

On screen messaging show diagnostic and warning messages as they occur. It shall show apparatus information, stored data, and program options when selected by the operator. It shall monitor inputs outputs and support audible and visual warning alarms for the following conditions -

- High battery voltage
- Low battery voltage/engine off

- Low battery voltage/engine running
- High water pump temperature
- Low fuel
- Low engine oil pressure
- High engine coolant temperature
- Water tank out of water (visual alarm only)
- No engine response (visual alarm only)

The pressure controller shall store the accumulated operating hours for the pump and engine. These items are to be displayed within the pressure controller menu.

The pressure controller shall include a USB port on the back of the controller for easy software upgrades if needed.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

242. PRIMING PUMP

There shall be a priming pump conforming to standards outlined in the current edition of NFPA 1901. One (1) priming control shall open the priming valve and start the pump primer.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

243. TEST PLATE

A main pump test plate shall be provided at the left pump operator's panel that states the rated discharges and pressures as determined by the pump certification test.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

244. DRAINS- SPECIAL INSTRUCTIONS

All valves drains/bleeders shall be tapped into the lowest point of each plumbing discharge and inlet. (This includes the ports on each valve as well).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

245. PUMP DRAIN LOCATION

The master pump drain shall be located so that the drain or the drain lines do not interfere with access to the pump transmission fill plug.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

246. PUMP MANUALS

There shall be a total of two (2) pump manuals provided by the pump manufacturer and furnished with the apparatus. The manuals shall be provided by the pump manufacturer in the form of two (2) electronic copies. Each manual shall cover pump operation, maintenance, and parts.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

247. PLUMBING, STAINLESS STEEL AND HOSE

All inlet and outlet lines shall be plumbed with either stainless steel pipe, flexible polypropylene tubing or synthetic rubber hose reinforced with hi-tensile polyester braid. All hose's shall be equipped with brass or stainless steel couplings. All stainless steel hard plumbing shall be a minimum of a schedule 10 wall thickness.

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 or rubber couplings.

Plumbing manifold bodies shall be ductile cast iron or stainless steel.

All piping lines are to be drained through a master drain valve or shall be equipped with individual drain valves. All drain lines shall be extended with a hose to drain below the chassis frame.

All water carrying gauge lines shall be of flexible polypropylene tubing.

All piping, hose and fittings shall have a minimum of a 500 PSI hydrodynamic pressure rating.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

248. MAIN PUMP INLETS

A 6.00" pump manifold inlet shall be provided on each side of the vehicle. The suction inlets shall include removable die cast zinc screens that are designed to provide cathodic protection for the pump, thus reducing corrosion in the pump.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

249. SHORT SUCTION TUBE(S)

The suction tube(s) on the water pump shall have short suction tube(s) installed to allow for installation of adapters, elbows or intake valves without excessive overhang.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

250. MAIN PUMP INLET CAP

The main pump inlets shall have National Standard threads with a long handle chrome cap.

The cap shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

251. VALVES

All ball valves shall be Akron® Brass in-line valves. No lubrication or regular maintenance is required on the valve.

The location of the valve for the one (1) inlet shall be recessed behind the pump panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

252. INLET CONTROL

The side auxiliary inlet(s) shall incorporate a quarter-turn ball valve with the control located at the inlet valve. The valve operating mechanism shall indicate the position of the valve.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

253. LEFT SIDE INLET

There shall be one (1) auxiliary inlet with a 2.50" valve at the left side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

254. RIGHT SIDE INLET

There shall be one (1) auxiliary inlet with a 2.50" valve at the right side pump panel, terminating with a 2.50" (F) National Standard hose thread adapter.

The auxiliary inlet shall be provided with a strainer, chrome swivel and plug.

All auto drain valves shall have maximum clearance and not be lower than associated plumbing. Ensure that drains shall be tucked up as high as possible.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

255. INLET BLEEDER VALVE

A bleeder valve shall be provided for each side gated inlet. The valves shall be located behind the panel with a handle control extended to the outside of the panel. The handles shall provide a visual indication of valve position. The handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders shall be routed below the chassis frame rails.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

256. TANK TO PUMP

The booster tank shall be connected to the intake side of the pump with stainless steel piping and a full flow line valve with the control remotely located at the operator's panel. Tank to pump line shall run straight (no elbows) from the pump into the front face of the water tank and angle down into the tank sump.

A check valve shall be provided in the tank to pump supply line to prevent the possibility of "back filling" the water tank.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

257. TANK REFILL

A 1.50" combination tank refill and pump re-circulation line shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

258. DISCHARGE OUTLET CONTROLS

The discharge outlets shall incorporate a ball valve with the control located at the pump operator's panel. The valve operating mechanism shall indicate the position of the valve.

If a hand wheel control valve is used, the control shall be a stainless steel hand wheel with a dial position indicator built in to the center of the hand wheel.

Any 3.00 inch or larger discharge valve shall be a slow-operating valve in accordance with NFPA 16.7.5.3.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

259. LEFT SIDE DISCHARGE OUTLETS

There shall be two (2) discharge outlets with a 2.50" valve on the left side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

260. LEFT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the left side pump panel shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

261. RIGHT SIDE DISCHARGE OUTLETS

There shall be One (1) discharge outlet with a 2.50" valve on the right side of the apparatus, terminating with a 2.50" (M) National Standard hose thread adapter.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

262. RIGHT SIDE OUTLET ELBOWS

The 2.50" discharge outlets located on the right side pump panel shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected (no exception).

There shall be a 4.00" discharge outlet with a 3.00" valve with a 3.00" ball, installed on the right side of the apparatus, terminating with a 4.00" (M) National Standard hose thread adapter. This discharge outlet shall be actuated with a hand wheel control with position indicator at the pump operator's control panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

263. ADDITIONAL RIGHT SIDE OUTLET ELBOWS

The 4.00" outlet shall be furnished with a 4.00" (F) National Standard hose thread x 5.00" Storz elbow adapter with Storz cap.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

264. REAR DISCHARGE OUTLET

There shall be One (1) discharge outlet piped to the rear of the hose bed, right side, installed so proper clearance is provided for spanner wrenches or adapters. Plumbing shall consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

265. REAR OUTLET ELBOWS

The 2.50" discharge outlets located at the rear of the apparatus shall be furnished with a 2.50" (F) National Standard hose thread x 2.50" (M) National Standard hose thread, chrome plated, 45 degree elbow.

The elbow shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

266. DISCHARGE CAPS/ INLET PLUGS

Chrome plated, rocker lug, caps with chain shall be furnished for all discharge outlets 1.00" thru 3.00" in size, besides the pre-connected hose outlets.

Chrome plated, rocker lug, plugs with chain shall be furnished for all auxiliary inlets 1.00" thru 3.00" in size.

The caps and plugs shall incorporate a thread design to automatically relieve stored pressure in the line when disconnected.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

267. OUTLET BLEEDER VALVE

A bleeder valve shall be provided for each outlet 1.50" or larger. Automatic drain valves are acceptable with some outlets if deemed appropriate with the application.

The valves shall be located behind the panel with a handle control extended to the outside of the side pump panel. The handles shall provide a visual indication of valve position. The handle shall provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders shall be located at the bottom of the pump panel.

They shall be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders shall be routed below the chassis frame rails.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

268. DELUGE RISER

A 3.00" deluge riser shall be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping shall be installed securely so no movement develops when the line is charged. The riser shall be gated and controlled at the pump operator's panel. The outlet shall include an Akron valve with a hand wheel control.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

269. MONITOR/MASTER STREAM DEVICE

The apparatus shall have a monitor/master stream device (manual or electronic/remote) placed atop its body in a location that will allow 360 degree rotation and excellent vertical travel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

270. CROSSLAY HOSE BEDS

Two (2) cross lays with 1.50" outlets shall be provided. Each bed to be capable of carrying 200 feet of 1.75" double jacketed hose and shall be plumbed with 2.00" i.d. pipe and gated with a 2.00" quarter turn ball valve.

Outlets to be equipped with a 1.50" National Standard hose thread 90 degree swivel in a location deemed best by the manufacturer so that hose may be removed from either side of the apparatus.

The cross lay controls shall be at the pump operator's panel.

Note: Two (2) Speedlays (200 feet of 1 ¾ inch attack line and 200 feet of 2 ½ inch attack line) shall also be considered if design and engineering allows near the midship side-mount pump panels and without compromising the maximum apparatus length of 31 feet. The Respondent shall indicate if this is a viable option in their bid proposal.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

271. CROSSLAY COVER

If cross lays are part of the submitted apparatus proposal by the Respondent, an aluminum tread plate stationary cover shall be provided over the cross lay area. Reinforcement, if required, shall be added to provide a walking surface.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

272. FOAM SYSTEM

A foam system shall not be required on this apparatus.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

273. COLOR CODED TAGS

A detailed drawing/chart of the colors used on all of the inlet(s) and outlet(s) shall be provided for the customer to review. The customer shall be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer shall make revisions (if needed) to the drawing per the

customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the colors shall become part of the contract documents.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

274. SPECIAL TEXT/VERBIAGE TAGS

A detailed drawing/chart of the text/verbiage used on all of the inlet(s) and outlet(s) shall be provided for the customer to review. The customer shall be allowed to make changes and/or mark-ups to this approval drawing/chart. The fire apparatus manufacturer shall make revisions (if needed) to the drawing per the customer changes and/or mark-ups as long as the changes are physically possible within a specific product line.

The finalized and signed customer approved drawing/chart of the text/verbiage shall become part of the contract documents.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

275. PUMP PANEL CONFIGURATION

The pump panel configuration shall be arranged and installed in an organized manner that shall provide user-friendly operation.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

276. PUMP AND GAUGE PANEL

The pump and gauge panels shall be constructed of aluminum with a black vinyl finish. A polished aluminum trim molding shall be provided around each panel.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

277. PUMP ACCESS

THE RESPONDENT SHALL INDICATE IN THEIR BID PROPOSAL IF THE LEFT AND RIGHT SIDE PUMP PANELS CAN BE ENCLOSED WITHIN A ROLL-UP DOOR COMPARTMENT OR NOT, BASED ON DESIGN AND ENGINEERING SPECIFICATIONS AND WITHOUT COMPROMISING THE MAXIMUM APPARATUS LENGTH OF 31 FEET.

The left and right side pump panels will be removable should need arise to access the pump itself.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

278. PUMP COMPARTMENT LIGHT

A pump compartment light shall be provided inside the right side pump enclosure and accessible through a door on the pump panel.

Engine monitoring graduated LED indicators shall be incorporated with the pressure controller.

Also provided at the pump panel shall be the following:
- Master Pump Drain Control

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

279. THROTTLE READY GREEN INDICATOR LIGHT

There shall be a green indicator light integrated with the pressure governor and/or engine throttle installed on the pump operator's panel that is activated when the pump is in throttle ready mode.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

280. OK TO PUMP INDICATOR LIGHT

There shall be a green indicator light installed on the pump operator's panel that is activated when the pump is in Ok to Pump mode.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

281. DRAINS, ABOVE RUNNING BOARDS, LS & RS

Both the left side and right side drains shall be installed above the running boards, on the pump panels.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

282. RIGHT SIDE DRAINS

The drains on the right side pump panel shall be located to keep the area under the main pump inlet clear.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

283. DRAINS, LEFT SIDE

The drains on the left side pump panel shall be located to keep the area under the main pump inlet clear.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

284. DRAIN LINES

The drain lines for all discharges shall be located at the bottom of the discharge. The drain lines shall be located at the bottom of the discharge to aid in removal of water.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

285. HANDWHEEL OUTLET CONTROLS

The discharge outlets with hand wheels shall be the deluge control and the added 4" passenger side discharge. The control for two (2) shall be hand wheel control with indicators.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

286. VACUUM AND PRESSURE GAUGES

The pump vacuum and pressure gauges shall be liquid filled.

The pump pressure and vacuum gauges shall be installed adjacent to each other at the pump operator's control panel.

Test port connections shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold of the pump.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

287. PRESSURE GAUGES

The individual "line" pressure gauges for the discharges shall be interlube filled.

The individual pressure gauge shall be installed as close to the outlet control as practical.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

288. FLOWMETER GAUGE

There shall be three (3) Flowminder flowmeters provided, in addition to the pressure gauge, for the two crossways and deluge gun.

The flowmeter shall have a range appropriately suited for the diameter of the discharge and shall have the "totalizer" feature provided, so the total flow can be checked at any time. The flowmeter shall be calibrated with the valve fully open.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

289. WATER LEVEL GAUGE

An electric water level gauge shall be incorporated in the pressure controller that registers water level by means of LED lights. The LEDs shall be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing.

To further alert the pump operator, the gauge shall have a warning flash when the tank volume is less than 25%, and shall have "Down Chasing LEDs when the tank is almost empty.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

290. ADDITIONAL WATER LEVEL GAUGE

There shall be three (3) additional water tank remote LED indicators provided and installed on the driver's side rear of crew door, passenger side rear of crew door, and on the rear of body. The indicators shall show the volume of water in the tank using easy to see super bright LED lights.

It shall have the program capability to adjust the brightness level for day time and night time viewing.

The LEDs can also be programmed for different colors.

This module shall be activated when the parking brake is applied.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

291. STEP/LIGHT SHIELD

There shall be an aluminum tread plate stepping surface and properly reinforced to support a fully equipped firefighter's weight, installed over the pump operator's panel.

- There shall be 12 volt DC white LED lights installed under the step to illuminate the controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus. These lights shall be activated by the pump panel light switch.
- One (1) pump panel light shall come on when the pump is in ok to pump mode.

There shall be a light activated above the pump panel light switch when the parking brake is applied. This is to afford the operator some illumination when first approaching the control panel.

There shall be one (1) white LED, step light provided above this step. The step light shall be activated by the pump panel light switch.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

292. AIR HORN SYSTEM

Two (2) round emergency apparatus style air horns shall be recessed in the front bumper. The horn system shall be piped to the air brake system. A pressure protection valve shall be installed in-line to prevent loss of air in the air brake system.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

293. AIR HORN LOCATION

The air horns shall be located on each side of the bumper, just outside of the frame rails.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

294. AIR HORN CONTROL

The air horn(s) shall be activated by the following:

- Left side foot switch
- Right side foot switch

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

295. ELECTRONIC SIREN

A Whelen®, Model 295SLSA1, electronic siren with noise canceling microphone shall be provided.

This siren to be active when the battery switch is on and that emergency master switch is on.

Electronic siren head shall be located in the center console.

SIREN CONTROL
The electronic siren shall be controllable on the siren head and horn ring only. No foot switches shall be required.

The driver shall have the option to control the siren or the chassis horns from the horn button by means of a selector switch located on the instrument panel.

SPEAKER
There shall be one (1) Whelen, Model SA315P, black nylon composite, 100-watt, speaker with through bumper mounting brackets provided. The speaker shall be connected to the siren amplifier.

The speaker(s) shall be located behind the front bumper on the driver's side.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

296. AUXILIARY MECHANICAL SIREN
There shall be a Federal Signal Model Q2B mechanical siren furnished and installed in the front of the apparatus.

The Q2B shall be chrome finish.

The siren shall have a 2-gauge cable connected to a power solenoid that is connected by a 2-gauge cable ran battery direct to the primary chassis batteries and shall be labeled Q2B+ at the battery. The power solenoid shall only be enabled when the emergency master switch is on.

The siren shall have a 2-gauge ground wire connected to the chassis battery stud. The cable shall be labeled Q2B- at the battery.

The mechanical siren shall be recessed in the front bumper in the center. The siren shall be supported by the bumper framework.

MECHANICAL SIREN CONTROL
When the chassis battery switch is on, and the emergency master switch is on, the Q2B siren shall be activated by the following:

The siren shall be controlled by a 3-position rocker switch located in the cab on the left side switch panel. The switch shall control the siren per the following:

- The momentary top position shall activate the mechanical siren.
- The home middle position shall be neutral.
- The momentary bottom position shall apply the mechanical siren brake.

The siren shall be controlled by a 3-position rocker switch located in the cab on the right side switch panel. The switch shall control the siren per the following:

- The momentary top position shall activate the mechanical siren.
- The home middle position shall be neutral.
- The momentary bottom position shall apply the mechanical siren brake.

The siren brake circuit shall be included with the activation control switch.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

297. CAB ROOF LIGHTBAR

There shall be one (1) Whelen® 56" Justice light bar mounted on the cab roof.
This light bar shall include the following:

- Red, blue and white lights
- The lens color of the light bar shall be clear

There shall be a switch in the cab on the switch panel to control the light bar.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

298. LIGHTS, FRONT ZONE LOWER

There shall be two (2) Whelen® Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights installed on the cab face above the headlights, in a common bezel with the directional lights per the following:

- The driver's side front warning light to be red.
- The passenger's side front warning light to be blue.
- The warning light lens color(s) to be clear.

There shall be a switch in the cab on the switch panel to control the lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

299. SIDE ZONE LOWER LIGHTING

There shall be four (4) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights installed per the following:

- Two (2) lights, one (1) each side on the bumper extension. The left side, side front light to include blue warning LEDs and the right side, side front light to include blue warning LEDs.

- Two (2) lights, one (1) each side on the rear fender panel. The left side, side rear light to include red warning LEDs and the right side, side rear light to include red warning LEDs.
- The warning light lens color(s) to be clear.

There shall be a switch in the cab on the switch panel to control the lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

300. REAR ZONE LOWER LIGHTING

There shall be two (2) Whelen®, Model M6**, 4.31" high x 6.75" wide x 1.37" deep flashing LED warning lights located at the rear of the apparatus per the following:

- The left side rear warning light to include red LEDs
- The right side rear warning light to include blue LEDs
- The warning light lens color(s) to be clear

There shall be a switch in the cab on the switch panel to control the lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

301. REAR UPPER ZONE WARNING LIGHTS

There shall be two (2) Whelen, Model MCFLED2* LED warning beacons provided at the rear of the truck, one (1) each side.

The color of the lights shall be:

- The rear upper light(s) on the driver's side to be red.
- The rear upper light(s) on the passenger's side to be blue.

All lenses shall be clear.

There shall be a switch located in the cab on the switch panel to control the beacons.

These brackets shall also support the clearance/marker lights.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

302. POWER OUTLET STRIP

There shall be one (1) receptacle strip(s) with six (6) 20 amp 120 volt AC straight blade receptacles provided inside the EMS cabinet within the crew cab area.

The strip(s) selected shall be powered from the shoreline inlet through a receptacle located adjacent to the strip(s).

There shall be a label installed near the strip(s) that state the following:

- Line Voltage
- Current Ratting (amps)
- Phase
- Frequency

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

303. LOOSE EQUIPMENT

The following equipment shall be furnished with the completed unit:

- One (1) bag of chrome, stainless steel, or cadmium plated screws, nuts, bolts and washers, as used in the construction of the unit

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

304. NFPA REQUIRED LOOSE EQUIPMENT PROVIDED BY FIRE SERVICE TRAINING BUREAU

The following loose equipment as outlined in NFPA 1901, 2016 edition, section 5.9.3 and 5.9.4 shall be provided by the Fire Service Training Bureau.

- 800 ft. (60 m) of 2.50" (65 mm) or larger fire hose.
- 400 ft. (120 m) of 1.50" (38 mm), 1.75" (45 mm), or 2.00" (52 mm) fire hose.
- One (1) hand line nozzle, 200 gpm (750 L/min) minimum.
- Two (2) hand line nozzles, 95 gpm (360 L/min) minimum.
- One (1) smoothbore of combination nozzle with 2.50" shutoff that flows a minimum of 250 gpm.
- One (1) SCBA complying with NFPA 1981 for each assigned seating position, but not fewer than four (4), mounted in brackets fastened to the apparatus or stored in containers supplied by the SCBA manufacturer.
- One (1) spare SCBA cylinder for each SCBA carried, each mounted in a bracket fastened to the apparatus or stored in a specially designed storage space(s).
- One (1) first aid kit.
- Four (4) combination spanner wrenches.
- Two (2) hydrant wrenches.

- One (1) double female 2.50" (65 mm) adapter with National Hose threads.
- One (1) double male 2.50" (65 mm) adapter with National Hose threads.
- One (1) rubber mallet, for use on suction hose connections.
- Two (2) salvage covers each a minimum size of 12 ft. x 14 ft. (3.7 m x 4.3 m).
- One (1) traffic vest for each seating position, each vest to comply with ANSI/ISEA 207, *Standard for High Visibility Public Safety Vests*, and have a five-point breakaway feature that includes two (2) at the shoulders, two (2) at the sides, and one (1) at the front.
- Five (5) fluorescent orange traffic cones not less than 28.00" (711 mm) in height, each equipped with a 6.00" (152 mm) retro-reflective white band no more than 4.00" (152 mm) from the top of the cone, and an additional 4.00" (102 mm) retro-reflective white band 2.00" (51 mm) below the 6.00" (152 mm) band.
- Five (5) illuminated warning devices such as highway flares, unless the five (5) fluorescent orange traffic cones have illuminating capabilities.
- One (1) automatic external defibrillator (AED).
- Four (4) ladder belts meeting the requirements of NFPA 1983, *Standard on Fire Service Life Safety Rope and System Components* (if equipped with an aerial device).
- If the supply hose carried does not use sexless couplings, an additional double female adapter and double male adapter, sized to fit the supply hose carried, shall be carried mounted in brackets fastened to the apparatus.
- If none of the pump intakes are valved, a hose appliance that is equipped with one or more gated intakes with female swivel connection(s) compatible with the supply hose used on one side and a swivel connection with pump intake threads on the other side shall be carried. Any intake connection larger than 3.00" (75 mm) shall include a pressure relief device that meets the requirements of 16.6.6.
- If the apparatus does not have a 2.50" National Hose (NH) intake, an adapter from 2.50" NH female to a pump intake shall be carried, mounted in a bracket fastened to the apparatus if not already mounted directly to the intake.
- If the supply hose carried has other than 2.50" National Hose (NH) threads, adapters shall be carried to allow feeding the supply hose from a 2.50" NH thread male discharge and to allow the hose to connect to a 2.50" NH female intake, mounted in brackets fastened to the apparatus if not already mounted directly to the discharge or intake.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

305. SOFT SUCTION HOSE PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.8.2.1 requires a minimum of 20' of suction hose or 15' of supply hose shall be carried.

Hose is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide suction or supply hose.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

306. STRAINER PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.8.2.1.1 requires a suction strainer when suction hose is provided.

The strainer is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide the suction strainer.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

307. DRY CHEMICAL EXTINGUISHER PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.9.4 requires one (1) approved dry chemical portable fire extinguisher with a minimum 80-B:C rating mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide and mount the extinguisher.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

308. WATER EXTINGUISHER PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, section 5.9.4 requires one (1) 2.5 gallon or larger water extinguisher mounted in a bracket fastened to the apparatus.

The extinguisher is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide and mount the extinguisher.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

309. FLATHEAD AXE PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) flathead axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide and mount the axe.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

310. PICKHEAD AXE PROVIDED BY FIRE SERVICE TRAINING BUREAU

NFPA 1901, 2016 edition, Section 5.9.4 requires one (1) pick head axe mounted in a bracket fastened to the apparatus.

The axe is not on the apparatus as manufactured. The Fire Service Training Bureau shall provide and mount the axe.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

311. PRE-PAINT DIAGRAM/SCHEMATIC

The manufacturer shall provide purchaser with a diagram/schematic showing the paint scheme and design applied to the apparatus prior to actual application on the apparatus in order to ensure correct paint color and design choices.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

312. PAINT

The exterior custom cab and body painting procedure shall conform to high quality and detail standards as is customary for this trade and as required by the manufacturer of the proposed fire apparatus. Below is an example of a paint process, and exceptions or alternatives to this process are welcome as long as they result in a similar high-end product.

Manual Surface Preparation - All exposed metal surfaces on the custom cab and body shall be thoroughly cleaned and prepared for painting. Imperfections on the exterior surfaces shall be removed and sanded to a smooth finish. Exterior seams shall be sealed before painting. Exterior surfaces that shall not be painted include; chrome plating, polished stainless steel, anodized aluminum and bright aluminum tread plate.

1. Chemical Cleaning and Pretreatment - All surfaces shall be chemically cleaned to remove dirt, oil, grease, and metal oxides to ensure the subsequent coatings bond well. The aluminum surfaces shall be properly cleaned and treated using a high pressure, high temperature 4 step

Acid Etch process. The steel and stainless surfaces shall be properly cleaned and treated using a high temperature 3 step process specifically designed for steel or stainless. The chemical treatment converts the metal surface to a passive condition to help prevent corrosion.

2. Surface Primer - The Surface Primer shall be applied to a chemically treated metal surface to provide a strong corrosion protective basecoat. A minimum thickness of 2 mils of Surface Primer is applied to surfaces that require a critical aesthetic finish. The Surface Primer is a two-component high solids urethane that has excellent sanding properties and an extra smooth finish when sanded.
3. Finish Sanding - The Surface Primer shall be sanded with a fine grit abrasive to achieve an ultra-smooth finish. This sanding process is critical to produce the smooth mirror like finish in the topcoat.
4. Sealer Primer - The Sealer Primer is applied prior to the Basecoat in all areas that have not been previously primed with the Surface Primer. The Sealer Primer is a two-component high solids urethane that goes on smooth and provides excellent gloss hold out when top coated.
5. Basecoat Paint - Two coats of a high performance, two component high solids polyurethane basecoat shall be applied. The Basecoat shall be applied to a thickness that shall achieve the proper color match. The Basecoat shall be used in conjunction with a urethane clear coat to provide protection from the environment.
6. Clear Coat - Two (2) coats of Clear Coat shall be applied over the Basecoat color. The Clear Coat is a two-component high solids urethane that provides superior gloss and durability to the exterior surfaces. Lap style and roll-up doors shall be Clear Coated to match the body. Paint warranty for the roll-up doors shall be provided by the roll-up door manufacturer.

After the cab and body are painted, the color shall be verified to make sure that it matches the color standard.

All removable items such as brackets, compartment doors, door hinges, and trim shall be removed and painted separately if required, to ensure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly shall be finish painted before assembly.

The paint finish quality levels for critical areas of the apparatus (cab front and sides, body sides and doors, and boom lettering panels) are to meet or exceed Cadillac/General Motors GMW15777 global paint requirements. Orange peel levels are to meet or exceed the #6 A.C.T. standard in critical areas.

These requirements shall be met in order for the exterior paint finish to be considered acceptable. The manufacture's written paint standards shall be available upon request.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

313. PAINT - ENVIRONMENTAL IMPACT

Contractor shall meet or exceed all current state regulations concerning paint operations. Pollution control shall include measures to protect the atmosphere, water and soil. Controls shall include the following conditions:

- Topcoats and primers shall be chrome and lead free.

- Metal treatment chemicals shall be chrome free. The wastewater generated in the metal treatment process shall be treated on-site to remove any other heavy metals.
- Particulate emission collection from sanding operations shall have a 99.99% efficiency factor.
- Particulate emissions from painting operations shall be collected by a dry filter or water wash process. If the dry filter is used, it shall have an efficiency rating of 98.00%. Water wash systems shall be 99.97% efficient
- Water from water wash booths shall be reused. Solids shall be removed on a continual basis to keep the water clean.
- Paint wastes are disposed of in an environmentally safe manner.
- Empty metal paint containers shall be recycled to recover the metal.
- Solvents used in clean-up operations shall be recycled on-site or sent off-site for distillation and returned for reuse.

Additionally, the finished apparatus shall not be manufactured with or contain products that have ozone depleting substances. Contractor shall, upon demand, present evidence that the manufacturing facility meets the above conditions and that it is in compliance with respective state EPA rules and regulations.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

314. CAB TWO-TONE PAINT

The cab shall be painted two-tone with the upper section painted black and the lower section painted Red. There shall be a standard two-tone cab paint break provided. The purchaser shall approve paint color and tone selection via diagram/schematic prior to actual painting of apparatus.

There shall be a standard cab shield provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

315. TWO-TONE BODY PAINT

The body shall be painted two-tone with the upper section painted to match the upper section of the cab and the lower section painted to match the lower section of the cab. The body paint break shall be above the body compartment door openings.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

316. PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly shall be finished with a single system black top coat before the installation of the cab and body, and before installation of the engine and transmission assembly, air brake lines, electrical wire harnesses, etc.

Components that are included with the chassis frame assembly that shall be painted are:

- Frame rails
- Frame liners
- Cross members
- Axles
- Suspensions
- Steering gear
- Battery boxes
- Bumper extension weldment
- Frame extensions
- Body mounting angles
- Rear Body support substructure (front and rear)
- Pump house substructure
- Air tanks
- Steel fuel tank
- Castings
- Individual piece parts used in chassis and body assembly

Components treated with epoxy E-coat protection prior to paint (if applicable):

- Two (2) C-channel frame rails
- Two (2) frame liners

The E-coat process shall meet the technical properties shown.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

317. AXLE HUB PAINT

All axle hubs shall be painted to match lower job color.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

318. COMPARTMENT INTERIOR PAINT

The interior of all compartments shall be painted with a gray spatter type paint.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

319. REFLECTIVE STRIPES

Three (3) reflective stripes shall be provided across the front of the vehicle and along the sides of the body. The reflective band shall consist of a 1.00" black stripe at the top with a 1.00" gap then a 4.00" black stripe with a 1.00" gap and a 1.00" black stripe on the bottom.

The reflective band provided on the cab face shall be at the headlight level.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

320. REAR CHEVRON STRIPING

There shall be alternating retro-reflective chevron striping located on the rear-facing vertical surface of the apparatus. The rear surface, excluding the rear compartment door, shall be covered.

The colors shall be red and yellow diamond grade. Colors should be complimentary of the Fire Service Training Bureau emblem and overall apparatus paint scheme.

Each stripe shall be 6.00" in width.

This shall meet the requirements of the current edition of NFPA 1901

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

321. STRIPE ON REAR ACCESS DOORS

There shall be alternating retro-reflective striping located on the rear access doors.

The colors shall be red and yellow diamond grade.

The stripes shall be 6.00" in width and shall match the chevron pattern on the rear body.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

322. CAB DOOR REFLECTIVE STRIPE

A black reflective stripe shall be provided across the interior of each cab door. The stripe shall be located approximately 1.00" up from the bottom, on the door panel.

This stripe shall meet the NFPA 1901 requirement.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

323. LETTERING

The lettering shall be 22 karat gold vinyl.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

324. LETTERING

Forty-one (41) to sixty (60) Sign Gold lettering, 4.00" high, with outline and shade shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

325. LETTERING

Twenty-one (21) to forty (40) Sign Gold lettering, 6.00" high, with outline and shade shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

326. DECAL INSTALLATION

There shall be one (1) pair of decal designs furnished by the Fire Service Training Bureau and applied by the apparatus manufacturer.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

327. FIRE APPARATUS PARTS MANUAL

There shall be one (1) custom parts manual(s) in USB flash drive format for the complete fire apparatus provided.

The manual(s) shall contain the following:

- Job number
- Part numbers with full descriptions
- Table of contents
- Parts section sorted in functional groups reflecting a major system, component, or assembly
- Parts section sorted in alphabetical order
- Instructions on how to locate parts

Each manual shall be specifically written for the chassis and body model being purchased. It shall not be a generic manual for a multitude of different chassis and bodies.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

328. CHASSIS SERVICE MANUALS

There shall be one (1) chassis service manuals on USB flash drives containing parts and service information on major components provided with the completed unit.

The manual shall contain the following sections:

- Job number
- Table of contents
- Troubleshooting
- Front Axle/Suspension
- Brakes
- Engine
- Tires
- Wheels
- Cab
- Electrical, DC

- Air Systems
- Plumbing
- Appendix

The manual shall be specifically written for the chassis model being purchased.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

329. CHASSIS OPERATION MANUALS

There shall be one (1) hard copy and one (1) USB flash drive provided that shall include all of the same information.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

330. GENERAL MATERIAL AND WORKMANSHIP WARRANTY

Each new piece of apparatus shall be provided with an apparatus material and workmanship limited warranty.

The warranty shall cover such portions of the apparatus built by the manufacturer as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

331. ENGINE WARRANTY

A Cummins limited engine warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

332. STEERING GEAR WARRANTY

A limited steering gear warranty shall be provided. A copy of the warranty certificate shall be submitted with the bid package.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

333. CHASISS/FRAME STRUCTURAL INTEGRITY WARRANTY

The chassis frame shall be provided with a material and workmanship limited warranty.

The warranty shall cover the chassis frame as being free from defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

334. FRONT AXLE WARRANTY

A parts and labor warranty shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

335. REAR AXLE WARRANTY

A parts and labor warranty shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

336. ABS BRAKE SYSTEM MATERIAL AND WORKMANSHIP WARRANTY

A limited warranty shall be provided.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

337. CUSTOM CAB STRUCTURAL INTEGRITY WARRANTY

The new cab shall be provided with a material and workmanship limited warranty. The warranty shall cover such portions of the cab built by the manufacturer as being free from structural failures caused by defects in material and workmanship that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

338. BODY MATERIAL AND WORKMANSHIP WARRANTY

Each new piece of apparatus shall be provided with an apparatus material and workmanship limited warranty.

The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

339. PRO-RATED PAINT AND CORROSION

Each new piece of apparatus shall be provided with a pro-rated paint and corrosion limited warranty on the apparatus cab and body and other painted parts. The warranty shall cover painted exterior surfaces of the body to be free from blistering, peeling, corrosion, or any other adhesion defect caused by defective manufacturing methods or paint material selection that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

340. COMPARTMENT LIGHT WARRANTY

A material and workmanship limited warranty shall be provided for the 12 volt DC LED strip lights**.** The warranty shall cover the LED strip lights to be free from defects in material and workmanship that would arise under normal use. A copy of the warranty certificate shall be submitted with the bid package.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

341. TRANSMISSION WARRANTY

The transmission shall have a warranty covering 100 percent parts and labor. The warranty is to be provided by Allison Transmission and not the apparatus builder.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

342. TRANSMISSION COOLER WARRANTY

The transmission cooler shall carry a parts and labor warranty (exclusive to the transmission cooler). A copy of the warranty certificate shall be submitted with the bid package.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

343. WATER TANK WARRANTY

The water tank shall be provided with a material and workmanship limited warranty.
A copy of the warranty certificate shall be submitted with the bid package.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

344. ROLL UP DOOR MATERIAL AND WORKMANSHIP WARRANTY

A roll-up door limited warranty shall be provided. The mechanical components of the roll-up door shall be warranted against defects in material and workmanship. A copy of the warranty certificate shall be submitted with the bid package.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

345. PUMP WARRANTY

The pump shall be provided with a material and workmanship limited warranty. A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

346. PUMP PLUMBING WARRANTY

The stainless steel plumbing components and ancillary brass fittings used in the construction of the water/foam plumbing system shall be warranted. This covers structural failures caused by defective design or workmanship, or perforation caused by corrosion, provided the apparatus is used in a normal and reasonable manner. This warranty is extended only to the original purchaser.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

347. GRAPHICS MATERIAL AND WORKMANSHIP

The graphic lamination shall be provided with a material and workmanship limited warranty. The warranty shall cover the graphic lamination as being free from defects in material, workmanship, fading, and deterioration that would arise under normal use and service.

A copy of the warranty certificate shall be submitted with the bid package (no exception).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

348. VEHICLE STABILITY CERTIFICATION

The fire apparatus manufacturer shall provide a certification stating the apparatus complies with NFPA 1901, current edition, section 4.13, Vehicle Stability. The certification shall be provided at the time of bid.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

349. ENGINE INSTALLATION CERTIFICATION

The fire apparatus manufacturer shall provide a certification, along with a letter from the engine manufacturer stating they approve of the engine installation in the Respondent's chassis. The certification shall be provided at the time of delivery.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

350. POWER STEERING CERTIFICATION

The fire apparatus manufacturer shall provide a certification stating the power steering system as installed meets the requirements of the component supplier. The certification shall be provided at the time of bid.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

351. CAB INTEGRITY CERTIFICATION

The fire apparatus manufacturer shall provide a cab crash test certification with this proposal. The certification shall state that a specimen representing the substantial structural configuration of the cab has been tested and certified by an independent third party test facility. Testing shall meet or exceed the requirements below:

- European Occupant Protection Standard ECE Regulation No.29.
- SAE J2422 Cab Roof Strength Evaluation - Quasi-Static Loading Heavy Trucks.
- SAE J2420 COE Frontal Strength Evaluation - Dynamic Loading Heavy Trucks.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

352. SIDE IMPACT

The same cab shall be subjected to and successfully pass a dynamic preload test that is part of the SAE J2422 test procedure and more closely represents the forces a cab one would see in a rollover incident.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

353. FRONTAL IMPACT

The same cab shall withstand and successfully pass a frontal impact dynamic test in accordance with SAE J2420.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

354. ADDITIONAL FRONTAL IMPACT

The same cab shall withstand all tests without any measurable intrusion into the survival space of the occupant area. There shall be no exception to any portion of the cab integrity certification. Nonconformance shall lead to immediate rejection of bid.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

355. CAB DOOR DURABILITY CERTIFICATION

Robust cab doors help protect occupants. Cab doors shall survive a significant cycle door slam test where the slamming force exceeds 20 G's of deceleration. The Respondent shall certify that the sample doors similar to those provided on the apparatus have been tested and have met these criteria without structural damage, latch malfunction, or significant component wear.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

356. WINDSHIELD WIPER DURABILITY CERTIFICATION

Visibility during inclement weather is essential to safe apparatus performance. Windshield wipers shall survive a durability test in accordance with section 6.2 of SAE J198 *Windshield Wiper Systems - Trucks, Buses and Multipurpose Vehicles.* The Respondent shall certify that the wiper system design has been tested and that the wiper system has met these criteria.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

357. ELECTRIC WINDOW DURABILITY CERTIFICATION

Cab window roll-up systems can cause maintenance problems if not designed for long service life. The window regulator design shall complete a significant number of complete up-down cycles and still function normally when finished. The Respondent shall certify that sample doors and windows similar to those provided on the apparatus have been tested and have met these criteria without malfunction or significant component wear.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

358. SEAT BELT ANCHOR STRENGTH

Seat belt attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat belt anchor design shall withstand 3000 lb. of pull on both the lap and shoulder belt in accordance with FMVSS 571.210 Seat Belt Assembly Anchorages. The Respondent shall certify that each anchor design was pull tested to the required force and met the appropriate criteria.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

359. SEAT MOUNTING STRENGTH

Seat attachment strength is regulated by Federal Motor Vehicle Safety Standards and should be validated through testing. Each seat mounting design shall be tested to withstand 20 G's of force in accordance with FMVSS 571.207 Seating Systems. The Respondent shall certify, at time of delivery, that each seat mount and cab structure design was pull tested to the required force and met the appropriate criteria.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

360. PERFORMANCE CERTIFICATIONS

Cab Air Conditioning

Good cab air conditioning temperature and air flow performance keeps occupants comfortable, reduces humidity, and provides a climate for recuperation while at the scene. The cab air conditioning system shall cool the cab significantly and at a reasonably fast rate. The Respondent shall certify that a substantially similar cab has been tested and has met these criteria.

Cab Defroster

Visibility during inclement weather is essential to safe apparatus performance. The defroster system shall clear the required windshield zones in accordance with SAE J381 Windshield Defrosting Systems Test Procedure and Performance Requirements - Trucks, Buses, and Multipurpose Vehicles. The Respondent shall certify that the defrost system design has been tested in a cold chamber and passes the SAE J381 criteria.

Cab Auxiliary Heater

Good cab heat performance and regulation provides a more effective working environment for personnel, whether in-transit, or at a scene. An auxiliary cab heater shall warm the cab quickly and in a reasonable amount of time and be tested using the coolant supply methods found in SAE J381. The Respondent shall certify, at time of delivery, that a substantially similar cab has been tested and has met these criteria.

AMP DRAW REPORT

The Respondent 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:
        - Applicable NFPA 1901 or 1906 (Current Edition).
    - The minimum continuous load of each component that is specified per:
        - Applicable NFPA 1901 or 1906 (Current Edition).
    - Additional loads that, when added to the minimum continuous load, determine the total connected load.
    - Each individual intermittent load.

All of the above listed items shall be provided by the Respondent per the applicable NFPA 1901 or 1906 (Current Edition).

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____

361. Penalty Clause

Per the 2020 Assistance to Firefighters Grant (AFG) Program, a penalty clause shall be included as part of any AFG program-funded vehicle purchase.

A fully operational and functional high quality fire apparatus free from defects and operational issues and meeting finalized vehicle specifications shall be delivered to the Fire Service Training Bureau within a mutually agreed upon final delivery date. Failure to do so shall result in a $100 per day deduction from the total contracted cost of the apparatus for each day the vehicle is not delivered by the agreed upon contracted date of delivery.

Bidder has read and agrees to this section: **Yes** ☐ **No** ☐

List Exception: _____