If access to water tank fill tower is blocked by the hose bed cover, then a hinged door will be provided in it so that tank may be filled without raising cover doors.

Chrome grab handles and four (4) gas filled cylinders will be provided to assist in opening and closing the cover. A handrail is provided at the rear, in the center of the support, to assist in opening the cover.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

HOSEBED END FLAP

A pair of black vinyl flaps shall be installed on the rear, one for each of the aluminum treadplate hose bed covers.

Each vinyl flap shall have three (3) nylon tie down straps, with quick release thumb spring buckles. Fasnap model 207668 stainless steel buckles shall be attached to the flaps. These vinyl end skirts shall be installed directly to the hosebed frame.

Rubber coated hooks and stainless steel footman loops shall secure the end skirts/bed covers to the main body.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

RUNNING BOARDS

A running board will be provided on each side of the front body to allow access to the backboard/crosslay storage area. The running boards will be designed with a grip pattern punched into .125" bright aluminum treadplate material providing support, slip resistance, and drainage.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TAILBOARD

The tailboard will be designed as a space saving work platform provided at the rear of the body. The platform will fold up to reduce overall truck length, angle of departure, and create a clean safe working platform by keeping rain, snow, and ice off the platform during transit.

The platform should be approximately 35.50" wide x 21.00" deep. When folded up, the platform will be the lower section of the rear compartment door. The external surface of the platform will be covered in aluminum treadplate. When folded down, the platform will provide a stepping surface with a rated capacity of 500 pounds.

A handrail will be provided on each side of the rear compartment for safe access to the platform.

The rear wall will be covered in smooth aluminum.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TOW BAR

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

Tow bar will be fabricated of 1.00" CRS bar rolled into a 3.00" radius.

Tow bar assembly will be constructed of .38" structural angle. When force is applied to the bar, it will be transmitted to the frame rail.

Tow bar assembly will be designed and positioned to allow up to a 30-degree upward angled pull of 17,000 pounds, or a 20,000-pound straight horizontal pull in line with the centerline of the vehicle.

Tow bar design will have been fully tested and evaluated using strain gauge testing and finite element analysis techniques.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

COMPARTMENTATION

Body and compartments will be formed sheet metal fabricated of .125", 5052-H32 aluminum with a tensile strength range of 31,000 to 38,000 psi. Body will be of welded construction to ensure greatest longevity with no visible welds in compartment interior.

Welded construction will consist of 1.00" x .38" engineered plug weld holes that control the size, location, and the amount of weld required. The bodies will be assembled and welded from engineered prints that call out the size, location, and type of weld required. These prints will be available upon request.

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

Circular fender liners will be provided. For prevention of paint chips and ease of suspension maintenance the fender liners will be formed from brush finished 304L stainless steel, be unpainted, and removable for suspension maintenance.

Compartment flooring will be of the sweep out design with the floor 1.00" higher than the compartment door lip.

Drip protection will be provided above the doors by means of aluminum extrusion, or formed bright aluminum treadplate.

The top of the compartment will be covered with bright aluminum treadplate rolled over the edges on the front, and rear. These covers will have the corners "TIG" welded.

Top side compartment covers will not be used to form the compartment ceilings, but rather they will be a separate component.

All screws and bolts, which are not Grade 8, will be stainless steel and where they protrude into a compartment will have acorn nuts on the ends to prevent injury.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

UNDERBODY SUPPORT SYSTEM

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

The backbone of the body support system will begin with the chassis frame rails which is the strongest component of the chassis and is designed for sustaining maximum loads. The support

system will include lateral frame rail extensions that are formed from .375" 80k high strength steel and bolted to the chassis frame rails with .625" diameter Grade 8 bolts. The vertical and horizontal members of the frame rail extensions are to be reinforced with welded gussets and extend to the outside edge of the body. The lateral frame extensions will be electro-coated for superior corrosion resistance.

The "floating substructure" will be separated from the lateral frame extensions with neoprene elastomer isolators. These isolators will reduce the natural flex stress of the chassis from being transmitted to the body, and absorb road shock and vibration.

The isolators will have a broad load range, proven viability in vehicular applications, be of a fail safe design and allow for all necessary movement in three (3) transitional and rotational modes.

The neoprene isolators will be installed in a modified "V" three (3)-point mounting pattern to reduce the natural flex of the chassis being transmitted to the body. A minimum of twelve (12) 2.55" diameter isolators will be provided, four (4) under each front compartment and two (2) under each rear side compartment. A minimum of four (4) 3.50" diameter isolators will be provided under the rear compartment.

A design with body compartments simply hanging/sitting on the chassis in an unsupported (cantilever) fashion will not be acceptable.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

AGGRESSIVE WALKING SURFACE

All exterior surfaces designated as stepping, standing, and walking areas will comply with the required average slip resistance of the current NFPA standards. Documentation of the material meeting the standard will be provided at time of delivery.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LOUVERS

All body compartments will have a minimum of one (1) set of automotive style, dust resistant louvers pressed into a wall. The louvers will incorporate a one way rubber valve that provides airflow out of the compartment and prevents water and dirt from gaining access to the compartment. Each louver should be approximately 3.00" wide x 8.50" tall. Compartments over the wheel will not have louvers.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TESTING OF BODY DESIGN

Body structural analysis will be fully tested. Proven engineering and test techniques such as finite element analysis and strain gauging have been performed with special attention given to fatigue life and structural integrity of the body and substructure.

The body will be tested while loaded to its greatest in-service weight.

The criteria used during the testing procedure will 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 on 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 the actual testing techniques will be made available upon request.

FEA will have been performed on all substructure components.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

COMPARTMENTATION, DRIVER'S SIDE

A full height, roll-up door compartment ahead of the rear wheels will be provided. The pump operator's panel will be located in this compartment. The interior dimensions of this compartment should be approximately 62.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment should be approximately 59.00" wide x 54.50" high.

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

A roll-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment should be approximately 60.00" wide x 23.00" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment should be approximately 57.00" wide x 23.00" high.

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

A full height, roll-up door compartment behind the rear wheels will be provided. The interior dimensions of this compartment should be approximately 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment should be approximately 49.00" wide x 54.50" high.

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

All compartments will include a drip pan below the roll of the door.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

COMPARTMENTATION, PASSENGER'S SIDE

A full height, jump off compartment with a roll-up door ahead of the rear wheels will be provided, as convenient large storage compartment for often used items for the crew. The interior dimensions of this compartment should be approximately 62.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment should be approximately 59.00" wide x 54.50 high.

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

A roll-up door compartment over the rear wheels will be provided. The interior dimensions of this compartment should be approximately 60.00" wide x 23.00" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The clear door opening of this compartment should be approximately 57.00" wide x 23.00" high.

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

A full height, roll-up door compartment behind the rear wheels will be provided. The interior dimensions of this compartment should be approximately 52.00" wide x 54.50" high x 25.88" deep. The area behind the roll up door spool will be notched for exterior storage or larger capacity water tank tee. The depth of the compartment will be calculated with the compartment door closed. The compartment interior will be fully open from the compartment ceiling to the compartment floor and designed so that no permanent dividers are required between the upper and lower sections. The clear door opening of this compartment should be approximately 49.00" wide x 54.50" high.

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

All compartments will include a drip pan below the roll of the door.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ROLL-UP DOOR, SIDE COMPARTMENTS

Six (6) compartment doors will be installed on the side compartments, double faced, aluminum construction, painted one color to match the lower portion of the body and manufactured by AMDOR™ brand roll-up doors or equivalent substitute.

Door(s) will be constructed using 1.00" extruded double wall aluminum slats which will feature a flat smooth interior surface to provide maximum protection against equipment hang-up. The slats will be connected with a structural driven ball and socket hinge designed to provide maximum curtain diaphragm strength. Mounting and adjusting the curtain will be done with a clip system that connects the curtain to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.

Each slat will incorporate weather tight recessed dual durometer seals. One fin will be designed to locate the seal within the extrusion. The second will serve as a wiping seal which will also allow for compression to prevent water ingression.

The doors will be mounted in a one-piece aluminum side frame with recessed side seals to minimize seal damage during equipment deployment. All seals including side frames, top gutters and bottom panel are to be manufactured utilizing non-marring materials.

Bottom panel flange of roll-up door will be equipped with two cut-outs to allow for easier access with gloved hands.

A stainless steel lift bar shall be provided for opening door. It shall be located at the bottom of door and have latches on the outer extrusion of the door frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door. The lift bar will be located at the bottom of door with striker latches installed at the base of the side frames. Side frame mounted door strikers will include support beneath the stainless steel lift bar to prevent door curtain bounce, improve bottom seal life expectancy and to avoid false door ajar signals.

All injection molded roll-up door wear components will be constructed constructed of Type 6 Nylon.

Each roll-up door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door (garage door style) will not acceptable.

The header for the roll-up door assembly will not exceed 4.00".

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

The roll up door's exterior base clear coat paint finish will carry a limited (5) five year warranty against blistering, peeling, bubbling, lack of adhesion.

The roll-up shutter (with exception of wear items) will be warranted against manufacturing or material defects for a period of (10) ten years as evidenced by the original date of sale.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

<u>COMPARTMENTATION, REAR</u>

A roll-up door compartment above the rear tailboard will be provided.

Interior dimensions of this compartment should be approximately 36.75" wide x 43.38" high x 25.88" deep in the lower 35.00" of height and 15.75" deep in the remaining upper portion. Depth of the compartment will be calculated with the compartment door closed.

A removable access panel will be furnished on the back wall of the compartment.

Rear compartment will be open to the rear side compartments. The transverse opening should be approximately a minimum of 22.00" wide x 28.75" high.

Clear door opening of this compartment should be approximately 33.50" wide x 34.38" high.

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

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ROLL-UP DOOR, REAR COMPARTMENT

The rear compartment will have a swing down tailboard as the lower section of the door and a roll door for the upper section. The door will be, double faced, aluminum construction, satin aluminum and manufactured by AMDOR™ brand roll-up doors or equivalent substitute.

The door will be constructed from an aluminum box section preventing loose equipment from jamming the door from the inside. The doors will be mounted in a one-piece aluminum door track / side frame, top gutter with non-marring seals.

The curtain will be constructed of 1.00" aluminum double wall slats. The slats will be connected with a continuous ball & socket hinge joint designed to prevent water ingression.

Between each slat will be weather tight recessed dual durometer seals. This inner seal is not visible to detract from appearance of door.

Mounting and adjusting the curtain will be done with a clip system that connects the curtain slats to the balancer drum allowing for easy tension adjustment without tools. The slats will be mounted in reusable slat shoes with positive snap-lock securement.

A stainless steel lift bar shall be provided for opening door. It shall be located at the bottom of door and have latches on the outer extrusion of the door frame. A ledge shall be supplied over lift bar for additional area to aid in closing the door. The lift bar will be located at the bottom of door and have latches on the outer extrusion of the doors frame. A ledge will be supplied over lift bar for additional area to aid in closing the door. Door striker will include support beneath the lift bar to prevent door curtain bounce.

The door will be manufactured with all wear component material constructed of Type 6 Nylon.

Each roll-up door will have a 3.00 inch diameter balancer/tensioner drum to assist in lifting the door (garage door style) will not acceptable.

The header for the roll-up door assembly will not exceed 4.00".

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

The roll up doors exterior paint finish will have a limited 5 year warranty against blistering, peeling, bubbling and lack of adhesion..

The roll-up shutter will be warranted against manufacturing or material defects for a period of **10 years.**

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

HATCH COMPARTMENTS

Hatch compartments with two (2) lift-up, top opening hatch doors will be provided above the driver and passenger side body compartments. Each hatch compartment will extend the full length of the side body compartmentation and should be approximately 21.00" wide x 22.00" maximum depth. The compartments will extend the full length of the side body compartmentation except for an approximately 20.00" recessed step area at the rear of the compartment on the access ladder side.

Sides of the compartments will be constructed of the same material as the body and painted job color on the outside panels.

Top of the compartments will be constructed of bright aluminum treadplate.

Two (2) lift-up, bright aluminum treadplate doors will be provided on the top of each hatch compartment. Each door will have a lever handle with a slam style latch to hold the doors in the closed position.

These double pan doors will have lipped edges with a rubber seal for weather resistance.

Doors will be hinged on the outboard side and will be held open with pneumatic stay arms.

The compartments will have a 3/4" drain that extends to below the body.

Ribbed rubber matting will be provided on the compartment floor to stop wet equipment from sitting in water pools.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PULL-OUT TRAY

There will three (3) slide-out trays, without sides, and a capacity of 500 pounds provided. Capacity rating will be in the extended position.

The tray will be constructed of .19" aluminum. The tray will be painted to match the compartment interior.

Slides will be General Device ball bearing type for ease of operation and years of dependable service.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for it will be located at the front of the tray for ease of use with a gloved hand.

Tray location will be D-1 P-1 D-3.

A heavy-duty assembly will support the body under the compartment floor. It will be attached to the chassis frame for load transfer and to reduce stress on body.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PULL-OUT ADJUSTABLE HEIGHT TRAY

There will be one (1) slide-out tray with 2.00" sides and a capacity of 500 pounds provided. Capacity rating will be in the extended position.

Slides will be equipped with ball bearings for ease of operation and years of dependable service.

The tray will be painted to match the compartment interior.

Tray location will be D-3.

Automatic locks will be provided for both the "in" and "out" positions. The trip mechanism for it will be located at the front of the tray for ease of use with a gloved hand.

Each tray will be adjustable up and down within the compartment.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SLIDE-OUT/TILT-DOWN TRAY

There will be one (1) slide-out tray provided.

The capacity rating (in the extended position) will be 215 pounds minimum.

Approximately two-thirds of the tray will slide-out from its stored position and will tilt 30 degrees down from horizontal. The vertical position within the compartment will be adjustable.

Construction will consist of .188" thick aluminum for the tray bottom and end, and special aluminum extrusions for the tray sides, front and tracks. The tray will be painted to match the compartment interior.

The tray corners will be welded for strength and rigidity.

The tray will be equipped with ball bearing rollers for smooth operation.

Two spring loaded locks will be provided at the front of the tray, one on each end.

Rubber padded stops will be provided for both the in out tray position.

The tray(s) will be located in P-2.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SLIDE OUT TOOLBOARD

A slide out aluminum tool board will be provided. It will have a painted finish to match the compartment interior.

It will be a minimum of .188" thick with .203" diameter holes in a pegboard pattern with 1.00" centers between holes.

A 1.00" x 1.00" aluminum tube frame will be welded to the edge of the pegboard.

The board will be mounted on a General Device track on the bottom to allow easy extension and retraction with a maximum tool load of 250 lb.

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

The tool board will be mounted stationary within the compartment.

There will be (1) one provided.

The tool board(s) will be located D-2.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MOUNTING, STOKES BASKET

Mounting will be provided for a stokes basket above the crosslays. A sheet metal enclosure will be fabricated with aluminum treadplate doors that allow the basket to be removed from either side of the truck. The enclosure will be removable for plumbing access.

The size of the stokes basket will be to be provided.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MOUNTING TRACKS

There will be recessed tracks installed vertically to support the adjustable shelf(s).

Tracks will not protrude into any compartment in order to provide the greatest compartment space and widest shelves possible.

The tracks will be provided in each compartment except for the one that contains the pump operator's panel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ADJUSTABLE SHELVES

There will be six (6) shelves, with a minimum capacity of 500 pounds provided. The shelf construction will consist of aluminum with 2.00" sides. Each shelf will be painted Spatter Gray or equivalent substitute as standard. Each shelf will be infinitely adjustable by means of a threaded fastener, which slides in a track.

The shelves will be held in place by .12" thick stamped plated brackets and bolts.

The location of the six (6) shelves will be TBD.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

RUB RAIL

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

Trim will be 3.00" high with 1.50" flanges turned outward for rigidity.

The rub rails will not be an integral part of the body construction, which allows replacement in the event of damage.

Rub rails will be attached with bolts and spaced from the body with isolators that will help to absorb any moderate impact without damaging the body.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

BODY FENDER CROWNS

Polished stainless steel fender crowns will be provided around the rear wheel openings.

A brushed stainless steel unpainted fender liner will be provided to avoid paint chipping. The liners will be removable to aid in the maintenance of rear suspension components.

A dielectric barrier will be provided between the fender crown fasteners (screws) and the fender sheet metal to prevent corrosion.

The fender crowns will be held in place with stainless steel screws that thread directly into a composite nut and not directly into the parent body sheet metal to eliminate dissimilar metals contact and greatly reduce the chance for corrosion.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

HARD SUCTION HOSE

Two (2) ten foot lengths of hard suction hose will be provided.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

HOSE TROUGHS

Two (2) troughs for a hard suction hose will be stacked vertically and installed on to the passenger's of the hosebed.

Both troughs will be constructed of stainless steel.

Troughs will be unpainted.

A velcro strap will be provided at the rear of each trough to retain the hose.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

AIR BOTTLE STORAGE INSERT

A total of four (4) inserts will be provided for the air bottle storage compartments.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

AIR BOTTLE STORAGE (Double)

A total of four (4) air bottle compartments will be provided. . The air bottle compartment will be approximately 15.00" wide x 7.50" tall x 26.00" deep. A stainless steel door with a chrome plated latch will be provided to contain the air bottle. A dielectric barrier will be provided between the door hinge, hinge fasteners and the body sheet metal.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

EXTENSION LADDER

There will be a 24', two (2) section, aluminum, Duo-Safety, Series 900-A, or equivalent substitute, extension ladder provided.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ROOF LADDER

There will be a 14' aluminum, Duo-Safety, Series 775-A, or equivalent substitute, roof ladder provided.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LADDER STORAGE

The ladders will be stored inside the upper section of the driver's side compartments or equivalent substitute location. This ladder rack will reduce the depth of the upper section in the side compartments.

A partition will be installed inside the compartment on the side of the rack to allow for equipment storage and to conceal the ladders.

The ladders will be banked in separate storage troughs.

The ladder storage assembly will be fabricated of stainless steel track channels to aid in loading and removal of ladders.

Rear of the ladder storage area will have a vertically hinged smooth aluminum door with lift-and-turn latches to contain the ladders.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

FOLDING LADDER

One (1) 10' aluminum, Series 585-A Duo-Safety, or equivalent substitute, folding ladder will be installed in a U-shaped trough inside the ladder storage compartment.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PIKE POLE, 8'

One (1) pike pole, 8' long Akron with a fiberglass handle, will be provided and located ladder comp.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PIKE POLE, 6'

One (1) pike pole, 6' long Akron with a fiberglass I-beam shaped handle, will be provided and located ladder comp.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PIKE POLE/FOLDING LADDER COMPARTMENT

One (1) pike pole compartment will be provided, recessed in the upper, inside part of body compartment on the driver's side. The compartment will be equipped with two (2) aluminum tubes

to hold two (2) pike poles and a stainless steel trough for the folding ladder. The door will be made of smooth aluminum and have a lift and turn latch.

One (1) compartment will be provided, recessed in the upper, inside part of body compartment on the passenger's side for storage of long handle tools. The door will be made of smooth aluminum and have a lift and turn latch.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LADDER, TOP ACCESS

A wide easy climbing access ladder, constructed of aluminum rungs and extruded aluminum rails, will be provided on the right side at the rear of the apparatus. The inside climbing area of the ladder should be approximately 13.75" wide

The lower section of the ladder will be retractable into the upper section to eliminate interference with the rear FMVSS lights. When lowered the bottom rung will be lower than the body, approximately 16.00" to 20.00" from the ground to allow a lower first step height.

The ladder will be slanted when in use for easy access, and fold against the body for storage to reduce the overall length. Corrosion resistant, stainless steel spring-loaded locks will hold the ladder in place.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP

The pump system will be used specifically for firefighting and for pump and roll operations.

The following pump specifications may be substituted with specifications of comparable performance and capabilities.
Pump will be a 1500 gpm single stage midship mounted centrifugal type, mounted below the cab. The pump will have a 15% reserve capacity to allow for extended time between pump rebuild. To ensure efficient pump/vehicle design the capacity to weight ratio will not be less than 1.5:1.

The pump casing will consist of three (3) discharge outlets, one (1) to each side in line with the impeller and one (1) to the rear. The pump casing will incorporate two (2) water strippers to maintain radial balance.

Pump will be the class "A" type.

Pump will be certified to deliver the percentage of rated discharge from draft at pressure indicated below:

- 100% of rated capacity at 150 psi net pump pressure.
- 70% of rated capacity at 200 psi net pump pressure.
- 50% of rated capacity at 250 psi net pump pressure.

The pump will have the capacity to deliver the percentage of rated discharge from a pressurized source as indicated below:

- 135% of rated capacity at 100 psi net pump pressure from a 5 psi source.

Pump body will be fine-grained gray iron. Pump will incorporate a heater/cooling jacket integral to the pump housing.

The impeller will be high strength vacuum cast bronze alloy accurately machine balanced and splined to a 10 spline stainless steel pump shaft for precision fit, exceptional durability, and efficiency. Double replaceable reverse flow labyrinth type bronze wear ring design will help to minimize end thrust. The impeller will be a twisted vane design to create higher lift.

The pump will include o-ring gaskets throughout the pump.

Deep groove radial type oversize ball bearings will be provided. The bearings will be protected at the openings from road dirt and water with an oil seal and a water slinger.

The pump will have a flat, patterned area on the top of the pump intake wye to allow standing for plumbing maintenance. The main inlet manifold will be 6.00" in diameter and will have a low profile design to facilitate low crosslays and high flows.

For ease of service, the pump housing, intake wye, impeller, mechanical seal, and gear case will be accessible from above the chassis frame by tilting the cab. The intake wyes will be removable without having to remove the main intake casting. Removal of the main inlet wyes will provide access to the impeller, mechanical seal, and wear ring.

The tank to pump line and the primary discharge line will be the only piping required to be removed for overhaul.

For ease of service and overhaul there will be no piping or manifolding located directly over the pump.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP MOUNTING

The following pump mounting specifications may be substituted with specifications of comparable performance and capabilities.

Pump will be mounted to the chassis frame rails as specified by the apparatus builder to minimize wheelbase and facilitate service, using rubber isolators in a modified V pattern that include two (2) central mounted isolators located between the frame rails, and one (1) on each side outside the frame rails. The mounting will allow chassis frame rails to flex independently without damage to the fire pump. Each isolator will be 2.55" in total outside diameter and will be rated at 490 pounds. The pump will be completely accessible by tilting the cab with no piping located directly above the pump.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MECHANICAL SEALS

Silicon carbide mechanical seals will be provided. The seals will be spring loaded and self-adjusting. The seals will have a minimum thermal conductivity of 126 W/m*K to run cooler. Seals will have a minimum hardness of 2800 kg/mm2 to be more resistant to wear, and have thermal

expansion characteristics of no more than 4.0 X106mm/mm*K to be more resistant to thermal shock.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP GEARCASE

Pump gearcase will be a pressure-lubricated gearcase to cool, lubricate, and filter the oil. The gearcase will include an auxiliary PTO opening. The gearcase will be constructed of lightweight aluminum, and impregnated with resin in accordance to MIL Spec MIL-I-17563. A dipstick, accessible by tilting the cab, will be provided for easy fluid level checks. A filter screen will be provided for long life.

The gearcase will consist of two (2) gears to drive the pump impeller and one (1) for the auxiliary PTO.

The auxiliary PTO opening will provide for the addition of PTO driven accessories.

The pump will be driven through the rear engine power take-off and clutch. The rear engine power take-off drive **shall be live at all times to allow for pump and roll applications.**

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

CLUTCH

The clutch shall incorporate a heavy-duty electric clutch mounted directly to the front of the pump to engage and disengage the pump without gear clash. The clutch will be a multiple disc design for maximum torque. The clutch will be fully self-adjusting to provide automatic wear compensation, and consistent torque throughout the life of the clutch. Positive engagement and disengagement will be provided through a high efficient and dependable magnetic system to assure superior performance. The clutch will have a 500 lb-ft rating. Clutch will be of a time-tested design used in critical military applications.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMPING MODE

Pump will provide for both pump and roll mode and stationary pumping mode.

Stationary pumping mode will be accomplished by stopping the vehicle, setting the parking brake and engaging the water pump switch on the cab switch panel. The transmission will shift to "Neutral" range automatically when the parking brake is set. The "OK to Stationary Pump" indicator will also illuminate when the parking brake is set. If the vehicle is equipped with a foam system or CAFS system, these systems will be engaged from the cab switch panel as well.

Pump and roll mode will be accomplished by the use of the main pump and will not require the use of a secondary pump. Pump and roll mode will use the same operation sequence as stationary pumping mode with a few additional steps. After the vehicle is setup for stationary pumping, the operator will leave the cab and set-up the pump panel to discharge at the desired outlet(s). Upon returning to the cab, the operator will disengage the parking brake. An "OK to Pump & Roll" indicator will illuminate on the cab switch panel. First gear on the transmission gear selector will be

selected by the operator for pump and roll operations. The operator as needed will apply the foot throttle. Pump and roll mode will be maintained unless the transmission shifts out of first gear.

Stopping either stationary pumping mode or pump and roll mode will be accomplished by pressing the "Water Pump" switch down to disengage the pump.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP SHIFT

Pump will be engaged in not more than two steps, by simply setting the parking brake, which will automatically put the transmission into neutral, and activating a rocker switch in the cab. Switches in the cab will also allow for water, foam, or CAFS if equipped, and activate the appropriate system to preset perimeters. The engagement will provide simple two-step operation, enhance reliability, and completely eliminate gear clash. The shift will include the indicator lights as mandated by NFPA. A direct override switch will be located behind a door in the lower pump operator's panel. The switch will automatically disengage when the door is closed.

As the parking brake is applied, the pump panel throttle will be activated and deactivate the chassis foot throttle for stationary operation.

Pump and roll operation will be available by releasing the parking brake with the pump in the pumping mode. Releasing the parking brake will activate the chassis foot throttle, and deactivate the pump panel throttle. To protect from accidental pump overheating, the pump will automatically disengage when the truck transmission shifts into second gear.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TRANSMISSION LOCK UP

Transmission lock up is not required as transmission will automatically shift to neutral as soon as the parking brake is set.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

AUXILIARY COOLING SYSTEM

A supplementary heat exchange cooling system will be provided to allow the use of water from the discharge side of the pump for cooling the engine water. A water-to-coolant heat exchanger will be used.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

INTAKE RELIEF VALVE

An Akron relief valve or equivalent substitute will be installed on the suction side of the pump preset at 125 psig.

Relief valve will have a working range of 75 psig to 200 psig.

Outlet will terminate below the framerails with a 2.50" National Standard hose thread adapter and will have a "do not cap" warning tag.

Control will be located behind an access door at the right (passenger's) side pump panel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PRESSURE CONTROLLER

A pressure governor will be provided. An electric pressure governor will be provided which is capable of automatically maintaining a desired preset discharge pressure in the water pump. When operating in the pressure control mode, the system will automatically maintain the discharge pressure set by the operator (within the discharge capabilities of the pump and water supply) regardless of flow, within the discharge capacities of the water pump and water supply.

A pressure transducer will be installed in the water discharge of the pump. The transducer continuously monitors pump pressure sending a signal to the Electronic Control Module (ECM).

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

In the RPM mode, the governor can be activated after vehicle parking brake has been set. When in this mode, the governor will maintain the set engine speed, regardless of engine load (within engine operation capabilities).

In the pressure mode, the governor system can only operate after the fire pump has been engaged and the vehicle parking brake has been set. When in the pressure mode, the pressure controller monitors the pump pressure and varies engine speed to maintain a precise pump pressure. The pressure controller will use a quicker reacting J1939 database for engine control. (Excluding Cat engines)

A preset feature allows a predetermined pressure or rpm to be set.

A pump cavitation protection feature is also provided which will return the engine to idle should the pump cavitate. Cavitation is sensed by the combination of pump pressure below 30 psi and engine speed above 2000 rpm for more than five (5) seconds.

The throttle will be a vernier style control, with a large control knob for use with a gloved hand. A throttle ready light will be provided adjacent to the throttle control. A large .75" RPM display will be provided to be visible at a glance.

Check engine, and stop engine indicator lights will be provided for easy viewing.

Large .75" push buttons will be provided for menu, mode, preset, and silence selections.

The water tank level indicator will be incorporated in the pressure governor.

A fuel level indicator will be incorporated in the pressure controller.

A pump hour meter will be incorporated in the pressure controller.

The pressure controller will incorporate monitoring for engine temperature, oil pressure, fuel level alarm, and voltage. Pump monitoring will include, pump gearcase temperature, error codes, diagnostic data, pump service reminders, and time stamped data logging, to allow for fast accurate trouble shooting. It will also notify the driver/engineer of any problems with the engine and the

apparatus. Complete understandable messages will be provided in a 20-character display, providing for fewer abbreviations in the messages. An automatic dim feature will be included for night operations.

The pressure controller will include a USB port for easy software upgrades, which can be downloaded through a USB memory stick, eliminating the need for a laptop for software installations.

A complete interactive manual will be provided with the pressure controller.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PRIMING PUMP

Priming pump will be a positive displacement vane type, electrically driven, and conforming to standards outlined in NFPA pamphlet #1901.

One (1) priming control will open the priming valve and start the priming motor.

Primer will be environmentally safe and self lubricating.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP MANUALS

Two (2) pump manuals from the pump manufacturer will be furnished in compact disc format with the apparatus. The manuals will cover pump operation, maintenance, overhaul, and parts.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PLUMBING

All inlet and outlet plumbing, 3.00" and smaller, will be plumbed with either stainless steel pipe or synthetic rubber hose reinforced with high-tensile polyester braid. Small diameter secondary plumbing such as drain lines will be stainless steel, brass or hose.

Where vibration or chassis flexing may damage or loosen piping or where a coupling is required for servicing, the piping will be equipped with victaulic or rubber couplings.

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

All lines will drain through a master drain valve or will be equipped with individual drain valves. All individual drain lines for discharges will be extended with a hose to drain below the chassis frame.

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

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MAIN PUMP INLETS

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

Main pump inlets will not be located on the main operator's panel and will maintain a low connection height by terminating below the top of the chassis frame rail.

The main pump inlets will have National Standard Threads with a long handle chrome cap.

The caps shall be incorporated with a thread design to automatically relieve stored pressure in the line when disconnected.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

VALVES

All ball valves will be Akron Brass () or equivalent substitute. The Akron valves will be the 8000 series heavy-duty style with a stainless steel ball and a simple two-seat design. No lubrication or regular maintenance is required on the valve.

Valves will have a ten (10) year warranty.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

INLET (Left side)

On the left side pump panel will be one (1) 2.50" auxiliary suction, terminating in 3.00"National Standard Hose Thread. The auxiliary suction will be provided with a strainer, chrome swivel and plug.

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

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ANODE, INLET

A pair of sacrificial zinc anodes will be provided in the water pump inlets to protect the pump from corrosion.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

INLET CONTROL

Control for the side auxiliary inlet(s) will be located at the inlet valve.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

INLET BLEEDER VALVE

A .75" bleeder valve will be provided for each side gated inlet. The valves will be located behind the panel with a swing style handle control extended to the outside of the panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. The water discharged by the bleeders will be routed below the chassis frame rails.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TANK TO PUMP

The booster tank will be connected to the intake side of the pump with heavy duty 4.00" piping and a quarter turn 3.00" valve with the control located at the operator's panel. A rubber coupling will be included in this line to prevent damage from vibration or chassis flexing.

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

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TANK REFILL

A 1.50" combination tank refill and pump re-circulation line will be provided, using a quarter-turn full flow ball valve controlled from the pump operator's panel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE OUTLETS (Left Side)

There will be two (2) discharges with a 2.50" valves on the left side of the apparatus, terminating with a male 3.0" National Standard hose thread adapter. Discharges will be located below the cab, and will be no higher than the top of the chassis frame rail. Discharges will not be located on the pump operator's panel. Lever controls will be provided at the valve.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE OUTLETS (Right Side)

There will be one (1) discharge with a 2.50" valve on the right side of the apparatus, terminating with a male 3.0" National Standard hose thread adapter. The discharge will be located below the crew cab, and will be no higher than the top of the chassis frame rail. The discharge will be electrically controlled at the pump operator's panel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE OUTLET, 4.00"

There will be a 4.00" discharge outlet with a 4.00" Akron () valve body installed on the right side of the apparatus, below the cab, and will be no higher than the top of the chassis frame rail

terminating, with a male 4.00" National Standard hose thread. This discharge outlet will be electrically controlled at the pump operator's control panel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

FRONT BUMPER TURRET DISCHARGE

There will be an Elkhart Sidewinder #8494-01 () or equivalent substitute front bumper turret piped to the center of the front bumper extension. The monitor will be installed so the cab can be tilted without removing the monitor.

A constant flow 95 GPM nozzle Elkhart #5000-14 () or equivalent substitute will be provided. A switch for straight of fog pattern will be provided inside the cab.

The turret will have a horizontal rotation of 180 degrees and operate from 90 degrees above to 60 degrees below horizontal. The horizontal rotation and automatic oscillation will be driven by a 12 volt DC direct drive motor/actuator.

The turret will be remotely controlled from a control box located in the cab, between the driver and passenger. A joy stick control will be provided for water on/off, monitor left/right, monitor up/down, and solid or disperse pattern.

Plumbing will consist of 2.00" piping and flexible hose according to the design requirements of the chassis.

An electrically controlled 2.00" full flow ball valve will be used.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE OUTLET (Rear)

There will be one (1) discharge piped to the rear of the hose bed on passenger's side installed so proper clearance is provided for spanner wrenches or adapters. Plumbing will consist of 2.50" piping along with a 2.50" full flow ball valve with the control from the pump operator's panel. Discharge will terminate with 3.0" NST thread. Discharge piping will be schedule 10 304L welded or formed stainless steel and routed through the water tank.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE OUTLET (Hosebed)

There will be one (1) discharge outlet piped to the front of the hose bed, in the D/S bed. Plumbing will consist of 3.00" schedule 10 304L welded or formed stainless steel piping along with a 2.50" full flow ball valve with the control from the pump operator's panel. Discharge will terminate with 3.0 " NST thread.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE CAPS

Chrome plated, rocker lug, caps with chains will be furnished for all side discharge outlets.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

OUTLET BLEEDERS

A .75" bleeder valve will 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 will be located behind the panel with a swing style handle control extended to the outside of the side pump panel. The handles will be chrome plated and provide a visual indication of valve position. The swing handle will provide an ergonomic position for operating the valve without twisting the wrist and provides excellent leverage. Bleeders will be located at the bottom of the pump panel. They will be properly labeled identifying the discharge they are plumbed in to. The water discharged by the bleeders will be routed below the chassis frame rails.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ELBOWS, REAR OUTLETS

The 2.50" discharge outlets, located at the rear of the apparatus, will be furnished with a 2.50"(F) National Standard hose thread x 2.50"(M) National Standard hose thread, chrome plated, **3.00" (M) 45 degree elbow.**

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

4.00" CAP, LARGE DIAMETER OUTLET

The large diameter outlet will have a National Standard hose thread adapter with a 4.00" rocker lug chrome plated cap and chain.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DISCHARGE OUTLET CONTROLS

The discharge outlets will incorporate a quarter-turn ball valve with the control located at the pump operator's panel. The valve operating mechanism will indicate the position of the valve or an indicator will be provided to show when the valve is closed.

The passenger side discharges will be controlled by an Akron 9315 Navigator controller or equivalent substitute with the manual override located on the passenger side pump panel. All other outlets will have manual swing handles that operate in a vertical up and down motion. These handles will be able to lock in place to prevent valve creep under pressure.

In addition to valve position, each Akron 9315 Navigator controller or equivalent substitute will include a pressure display.

The controller unit will have solid state electronics to provide easy, two (2) button open and close valve position capability with valve position indicator lights, and current limiting valve motor stopping capability. The unit will be in water resistant brass housing and will come with all required installation cables and harnesses.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DELUGE RISER

A 3.00" deluge riser will be installed above the pump in such a manner that a monitor can be mounted and used effectively. Piping will be installed securely so no movement develops when the line is charged. The riser will be gated and controlled at the pump operator's panel. A 2.50" valve will be provided. The deluge riser will allow flow for 1000 GPM. This outlet will have two (2) supply lines tied together to allow proper water flow in the water only operation and the water/foam operation. The water/foam piping will include a 2.50" ball valve and it will be plumbed into the foam system.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TELESCOPIC PIPING

The deluge riser piping will include a 18.00" Task Force Model XG18 Extend-A-Gun , or equivalent substitute, extension.

This extension will be telescopic to allow the deluge gun to be raised 18.00" increasing the range of operation.

A triangular bracing structure will be installed to support the piping. Aluminum tread plate will be placed on the forward side of the bracing structure.

A position sensor will be provided on the telescopic piping that will activate the "do not move vehicle" light inside the cab when the monitor is in the raised position.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MONITOR

An Akron Model 3431 Apollo Hi-Riser monitor () or equivalent substitute will be properly installed on the deluge riser. A fixed mounting base and a portable base with one (1) 5.00" Storz inlet will be provided.

A position sensor will be provided on the monitor that will activate the "do not move apparatus" light inside the cab when the monitor is in the raised position.

The monitor will be painted to match the body.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

NOZZLE, DELUGE

Akron model #2499 Quad Stacked pyrolite deluge tips () or equivalent substitute will be provided.

The tip sizes will be 1.375", 1.50", 1.75", and 2.00".

This will include an Akron 3488 or equivalent substitute pyrolite stream shaper.

The deluge riser will have male National Pipe Threads for mounting the monitor.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

CROSSLAY HOSE BEDS

Two (2) crosslays with 1.50" outlets will be provided. Each bed to be capable of carrying 200 feet of 1.75" double jacketed hose and will be plumbed with 2.00" i.d. schedule 10 304L welded or formed stainless steel pipe and gated with a 2.00" quarter turn ball valve. Threaded pipe will not be acceptable. Crosslays will be low mounted with the bottom of both crosslay trays no more than 11.00" above the frame rails for simple, safe reloading and deployment.

Outlets to be equipped with a 1.50" National Standard hose thread 90-degree swivel located in the hose bed so that hose may be removed from either side of apparatus.

The crosslay controls will be at the pump operator's panel.

A removable tray will be provided for the crosslay hosebed. The crosslay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. Trays will be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the trays to hold the trays in place during transit.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DEADLAY HOSE BED

One (1) deadlay without plumbing, will be provided above the pump compartment capable of carrying 200' of 2.5" hose.

The deadlay will be located directly above the lower 1.5" crosslays.

A removable tray will be provided for the deadlay hosebed. The deadlay tray will be constructed of black poly to provide a lightweight sturdy tray. Two (2) hand holes will be in the floor and additional hand holes will be provided in the sides for easy removal and installation from the compartment. The floor of the trays will be perforated to allow for drainage and hose drying. Tray will be held in place by a mechanical spring loaded stainless steel latch that automatically deploys upon loading the tray to hold the trays in place during transit.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

CROSSLAY HOSE RESTRAINT

Heavy black nylon webbing will be provided across the ends of the crosslays.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

HUSKY 12 FOAM SYSTEM or equivalent substitute

A foam proportioning system will be provided that is an on demand, automatic proportioning, single point, direct injection system suitable for all types of Class "A" & "B" foam concentrates, including the high viscosity (6000 cps), alcohol resistant Class B foams. Operation will be based on direct measurement of water flow, and remain consistent within the specified flows and pressures. The

system will automatically balance and proportion foam solution at rates from 0.1% to 9.9% regardless of variations in water pressure and flow, up to the maximum rated capacity of the foam concentrate pump.

The design of the system will allow operation from draft, hydrant, or relay operation. This will provide a versatile system to meet the demands at a fire.

System Capacity
The system will have the ability to deliver the following minimum foam solution flow rates at accuracies that meet or exceed NFPA requirements at a pump rating of 250 PSI.

200 GPM @ 6%

400 GPM @ 3%

1200 GPM @ 1%

Class B foam setting in .1 % increments from .1% to 1%. Typical settings of 1%, .5% and .3% (Maximum capacity will be limited to the plumbing and water pump capacity)

Control System
The system will be equipped with a digital electronic control display located on the pump operators panel. Push button controls will be integrated into the panel to turn the system on/off, control the foam percentage, direct which foam to use on a multi-tank system, and to set the operation modes (automatic, manual, draft, calibration, or flush).

The percent of injection will have presets for class A and class B foam. These presets can be changed at the fire department as desired. The percent of injection will be able to be easily changed at the scene to adjust to changing demands.

In order to minimize the use of abbreviations and interpretations, system information will be displayed on the panel by way of .50 tall LEDs that total fourteen characters (two lines of 7 each). System on and foam pump on indicator lights will also be included. Information displayed will include mode of operation (automatic, manual, draft, calibration, or flush), foam supply selected (Class A or Class B), water total, foam total, foam percentage, remaining gallons, and time remaining.

The control display will direct a microprocessor, which receives input from the systems water flow meter while also monitoring the position of the foam concentrate pump. The microprocessor will compare the values of the water flow versus the position/rate of the foam pump, to ensure the proportion rate is accurate. One (1) check valve will be installed in the plumbing to prevent foam from contaminating the water pump.

Low Level, Foam Tank
The control head will display a warning message when the foam tank in use is below a quarter tank.

Hydraulic Drive System
The foam concentrate pump will be powered by a hydraulic drive system, which is automatically activated, whenever the vehicle water pump is engaged. A system that drives the foam pump via an electric motor will not be acceptable. A large parasitic electric load used to power the foam pump can cause an overload of the chassis electrical system.

Hydraulic oil cooler will be provided to automatically prevent overheating of the hydraulic oil, which is detrimental to system components. The oil/water cooler will be designed to allow continuous system operation without allowing hydraulic oil temperature to exceed the oil specifications.

The hydraulic oil reservoir will be of four (4) gallons minimum capacity and will also be of sufficient size to minimize foaming and be located to facilitate checking oil level or adding oil without spillage or the need to remove access panels.

Foam Concentrate Pump

The foam concentrate pump will be of positive displacement, self-priming; linear actuated design, driven by the hydraulic motor. The pump will be constructed of brass body; chrome plated stainless steel shaft, with a stainless steel piston. In order to increase longevity of the pump, no aluminum will be present in its construction.

A relief system will be provided which is designed to protect the drive system components and prevent over pressuring the foam concentrate pump

The foam concentrate pump will have minimum capacity for 12 gpm with all types of foam concentrates with a viscosity at or below 6000 cps including protein, fluoroprotein, AFFF, FFFP, or AR-AFFF. The system will deliver only the amount of foam concentrate flow required, without recirculating foam back to the storage tank. Recirculating foam concentrate back to the storage tank can cause agitation and premature foaming of the concentrate, which can result in system failure. The foam concentrate pump will be self-priming and have the ability to draw foam concentrate from external supplies such as drums or pails.

External Foam Concentrate Connection

An external foam pick-up will be provided to enable use of a foam agent that is not stored on the vehicle. The external foam pick-up will be designed to allow continued operation after the on-board foam tank is empty. The external foam pick-up will be designed to allow use with training foam or colored water for training purposes.

Panel Mounted Strainer / External Pick-Up Connection

A bronze body strainer / connector unit will be provided. The unit will be mounted to the pump panel. The external foam pick-up will be one (1) - 1.00" male connection with chrome-plated cap integrated to a 2.00" strainer cleanout cap. A check valve will be installed in the pick-up portion of the cleanout cap. A basket style stainless steel screen will be installed in the body of the strainer / connector unit. Removal of the 2.00" cleanout cap will be all that is required to gain access to and remove the stainless steel basket screen. The strainer / connector unit will be ahead of the foam concentrate pump inlet port to insure that all agent reaching the foam pump has been strained.

Pick-Up Hose

A 1.00" flexible hose with an end for insertion into foam containers will be provided. The hose will be supplied with a 1.00" female swivel NST thread swivel connector. The hose will be shipped loose.

Discharges

The foam system will be plumbed to two (2) crosslays, front outlet, front turret, and rear discharge.

System Electrical Load

The foam proportioning will not impose an electrical load on the vehicle electrical system any greater than five (5) amps at 12VDC.

Tank Selector
An electric valve will be used for the foam supply valve. The foam supply valve will be controlled at the foam system control head for ease of operation. The supply valve will be electric, remote controlled, to eliminate air pockets in the foam tank supply hose.

Maintenance Message
A message will be displayed on the control head to advise when system maintenance needs to be performed. The message will display interval for cleaning the foam strainer, cleaning for the water strainers, and changing the hydraulic oil.

Flush System
The system will be designed such that a flush mode will be provided to allow the system to flush all foam concentrate with clear water. The flush circuit control logic will ensure the foam tank supply valve is closed prior to opening the flush valve. The flush valve will be operated at the foam system control head for ease of operation. The valve will be electrically controlled and located as close to the foam tank supply valve as possible. A manual flush drain valve will be labeled and conveniently located.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REFILL, SINGLE FOAM TANK
The foam system's proportioning pump will be used to fill the Class B foam tank. This will allow use of the auxiliary foam pick-up to pump the foam from pails or a drum on the ground into the foam tank. A foam shut-off switch will be installed in the fill dome of the tank to shut the system down when the tank is full. The fill operation will be controlled by a mode in the foam system controller stating TANK FILL. While the proportioner pump is filling the tank, the controller will display FILL TANK. When the tank is full, as determined by the float switch in the tank dome, the pump will stop and the controller will display TANK FULL.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

FOAM SYSTEM TRAINING
The fire department will order [Vehicle, Qty, Training, D] with this foam system. The operation of the foam system will be demonstrated at the plant where the apparatus was manufactured.

This demonstration will include:

- A review of the foam system manual, emphasizing key areas
- A walk around review of the system components on the finished truck
- A hands-on foam system start-up and foam discharge session
- Instructions on the use of the manual overrides
- A demonstration explaining the proper way to shutdown and flush the foam system.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

FOAM CELL

The foam cell shall be an integral portion of the polypropylene water tank. The cell shall have a capacity of 75 gallons of foam with the intended use of Class "B" foam. The brand of foam stored in this cell shall be 3M. The foam cell shall have a screen in the fill dome and a breather in the lid.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

FOAM TANK DRAIN

A system of 1.00" foam tank drains will be provided, integrated into the foam systems strainer and tank to foam pump valve management system. The tank to pump hoses running from the tank(s) to the panel mounted strainer will 1.00" diameter. The foam system controller will have a mode that allows for a given foam valve to be opened at will. Flow of foam from the tank valve to the strainer will be usable as a tank drain mode.

An adaptor will be supplied, that allows the 1.00" foam intake screen to assembly to be used as a drain outlet. The standard supplied 1.00" foam pick up hose will be attached to the screen assembly by way of the adapter. The drain mode will allow the operator to open and close the tank valve as required from the control head, to drain foam and re-fill foam containers through the connected hose, without foam spillage beneath the vehicle.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP CONTROL PANELS (Left Side Control)

Pump controls and gauges will be located midship at the left (driver's) side of the apparatus and properly identified.

The main pump operator's control panel will be completely enclosed and located in the forward section of the body compartment, to protect against road debris and weather elements. The pump operator's panels will be no more than 31.00" wide, and made in four (4) sections with the center section easily removable with simple hand tools. For the safety of the pump operator, there will be no discharge outlets or pump inlets located on the main pump operators panel.

Layout of the pump control panel will be ergonomically efficient and systematically organized. The upper section will contain the master gauges. This section will be angled down for easy visibility. The center section will contain the pump controls aligned in two horizontal rows. The pressure control device, engine monitoring gauges, electrical switches, and foam controls (if applicable) will be located on or adjacent to the center panel, on the side walls for easy operation and visibility. The lower section will contain the outlet drains.

Manual controls will be easy moving 8" long lever style controls that operate in a vertical, up and down swing motion. These handles will have a 2.25" diameter knob and be able to lock in place to prevent valve creep under any pressure. Bright finish bezels will encompass the opening, be securely mounted to the pump operator's panel, and will incorporate the discharge gauge bezel. Bezels will be bolted to the panel for easy removal and gauge service. The driver's side discharges will be controlled directly at the valve. There will be no push-pull style control handles.

Identification tags for the discharge controls will be recessed within the same bezel. The discharge identification tags will be color coded, with each discharge having its own unique color.

All remaining identification tags will be mounted on the pump panel in chrome-plated bezels.

All discharge outlets will be color coded and labeled to correspond with the discharge identification tag.

The pump panels for the midship discharge and intake ports will be located ahead of the body compartments with no side discharge or intake higher than the frame rail. The pump panels will be easily removable with simple hand tools.

A recessed cargo area will be provided at the front of the body, ahead of the water tank above the plumbing.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP PANEL CONFIGURATION

The pump panel configuration will be arranged and installed in an organized manner that will be agreed upon by SFO Staff.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP AND GAUGE PANEL

The pump operators panel and gauge panels will be constructed of stainless steel with a brushed finish. The pump panels on the driver and passenger's side will be constructed of stainless steel with a brushed finish.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP AND PLUMBING ACCESS

Simple access to the plumbing will be provided through the front of the body area by raising the cab for complete plumbing service and valve maintenance. Access to valves will not require removal of operator panels or pump panels. Access for rebuilding of the pump will not require removal of more than the tank to pump line and a single discharge line. This access will allow for fast, easy valve or pump rebuilding, making for reduced out of service times. Steps will be provided for access to the top of the pump.

Access to the pump will be provided by raising the cab. The pump will be positioned such that all maintenance and overhaul work can be performed above the frame and under the tilted cab. The service and overhaul work on the pump will not require the removal of operator panels or pump panels. Complete pump casing and gear case removal will require no more than removal of the intake and discharge manifolds, driveline, coolers and a single discharge line. The pump case and gear case will be able to be removed by lifting upward without interference from piping and be removable in less than 3 hours.

Engine monitoring graduated LED indicators will be incorporated with the pressure controller.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

GAUGES, VACUUM and PRESSURE

The pump vacuum and pressure gauges will be silicone filled and manufactured by Class 1, Inc.

The gauges will be a minimum of 4.00" in diameter and will have white faces with black lettering, with a pressure range of 30.00"-0-600psi#.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

The pump pressure and vacuum gauges will be installed adjacent to each other at the pump operator's control panel.

Test port connections will be provided at the pump operator's panel. One will be connected to the intake side of the pump, and the other to the discharge manifold of the pump. They will have 0.25 in. standard pipe thread connections and non-corrosive polished stainless steel or brass plugs. They will be marked with a label.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PRESSURE GAUGES

The individual "line" pressure gauges for the discharges will be Class 1 interlube filled.

They will be a minimum of 2.00" in diameter and have white faces with black lettering.

Gauge construction will include a Zytel nylon case with adhesive mounting gasket and threaded retaining nut.

Gauges will have a pressure range of 30"-0-400psi#.

The individual pressure gauge will be installed as close to the outlet control as practical.

This gauge will include a 10 year warranty against leakage, pointer defect, and defective bourdon tube.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

WATER LEVEL GAUGE

An electric water level gauge will be incorporated in the pressure controller that registers water level by means of 9 LEDs. They will be at 1/8 level increments with a tank empty LED. The LEDs will 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 will have a warning flash when the tank volume is less than 25%, and will have "Down Chasing LEDs when the tank is almost empty.

The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MINI SLAVE UNIT

An electric water level gauge will be provided in the cab that registers water level by means of 5 LEDs. They will be at 1/4 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180-degree of clear viewing.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

FOAM LEVEL GAUGE

An electric foam level gauge will be provided on the operator's panel that registers foam level by means of 9 LEDs. There will also be a mini foam level gauge with 5 LEDs in the cab. They will be at 1/8 level increments with a tank empty LED. The LEDs will be a bright type that is readable in sunlight, and have a full 180 degree of clear viewing. The gauge will match the water level gauge in the pressure controller.

To further alert the pump operator, will have a warning flash when the tank volume is less than 25%, and will have Down Chasing LEDs when the tank is almost empty.

The level measurement will be ascertained by sensing the head pressure of the fluid in the tank or cell. This method provides accuracy with an array of multi-viscosity foams.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SIDE CONTROL PUMP OPERATOR'S/PUMP PANEL LIGHTING

Illumination will be provided for controls, switches, essential instructions, gauges, and instruments necessary for the operation of the apparatus and the equipment provided on it. External illumination will be a minimum of five (5) foot-candles on the face of the device. Internal illumination will be a minimum of four (4) foot lamberts.

The pump panels will be illuminated by a light on each side of the back of the cab.

The pump operator's panel will utilize strip lighting at the forward doorframe and an overhead light.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ELECTRICAL HARNESS INSTALLATION

To ensure rugged dependability, all 12-volt wiring harnesses installed by the apparatus manufacturer will conform to the following specifications:

SAE J1128 - Low tension primary cable

SAE J1292 - Automobile, truck, truck-tractor, trailer and motor coach wiring

SAE J163 - Low tension wiring and cable terminals and splice clips

SAE J2202 - Heavy duty wiring systems for on-highway trucks

NFPA 1901 - Standard for automotive fire apparatus

FCR 571.302 - Flammability of interior materials for passenger cars, multipurpose passenger vehicles, trucks and buses (Title 49 - Transportation)

SAE J1939 - Serial communications protocol

SAE J2030 - Heavy-duty electrical connector performance standard

SAE J2223 - Connections for on board vehicle electrical wiring harnesses

NEC - National Electrical Code

SAE J561 - Electrical terminals - Eyelet and spade type

SAE J928 - Electrical terminals - Pin and receptacle type A

FCR 571.108 - Federal Motor Vehicle Safety Standards Lamps, reflective devices, and associated equipment. (Title 49 - Transportation)

Wiring will be run in loom or conduit where exposed, and have grommets or other edge protection where wires pass through metal. Wiring will be color, function and number coded. Wire colors will be integral to each wire insulator and run the entire length of each wire. Harnessing containing multiple wires and uses a single wire color for all wires will not be allowed. Function and number codes will be continuously imprinted on all wiring harness conductors at 2.00" intervals. Exterior exposed wire connectors will be positive locking, and environmentally sealed to withstand elements such as temperature extremes, moisture and automotive fluids. Electrical wiring and equipment will be installed utilizing the following guidelines:

(1) All wire ends not placed into connectors will be sealed with a heat shrink end cap. Wires without a terminating connector or sealed end cap will not be allowed.

(2) All holes made in the roof will be caulked with silicon. Large fender washers, liberally caulked, will be used when fastening equipment to the underside of the cab roof.

(3) Any electrical component that is installed in an exposed area will be mounted in a manner that will not allow moisture to accumulate in it. Exposed area will be defined as any location outside of the cab or body.

(4) For low cost of ownership, electrical components designed to be removed for maintenance will be quickly accessible. For ease of use, a coil of wire will be provided behind the appliance to allow them to be pulled away from the mounting area for inspection and service work.

(5) Corrosion preventative compound will be applied to non-waterproof electrical connectors located outside of the cab or body. All non-waterproof connections will require this compound in the plug to prevent corrosion and for easy separation of the plug.

(6) Any lights containing non-waterproof sockets in a weather-exposed area will have corrosion preventative compound added to the socket terminal area.

(7) All electrical terminals in exposed areas will have DOW 1890 protective Coating applied completely over the metal portion of the terminal.

(8) Rubber coated metal clamps will be used to support wire harnessing and battery cables routed along the chassis frame rails.

(9) Heat shields will be used to protect harnessing in areas where high temperatures exist. Harnessing passing near the engine exhaust will be protected by a heat shield.

(10) All braided wire harnesses will have a permanent label attached for easy identification of the harness part number and fabrication date.

(11) All standard wiring entering or exiting the cab will be routed through sealed bulkhead connectors to protect against water intrusion into the cab.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

BATTERY CABLE INSTALLATION

All 12-volt battery cables and battery cable harnessing installed by the apparatus manufacturer will conform to the following requirements:

SAE J1127 - Battery Cable

SAE J561 - Electrical terminals, eyelets and spade type

SAE J562 - Nonmetallic loom

SAE J836A - Automotive metallurgical joining

SAE J1292 - Automotive truck, truck-tractor, trailer and motor coach wiring

NFPA 1901 - Standard for automotive fire apparatus

Battery cables and battery cable harnessing will be installed utilizing the following guidelines:

(1) All battery cables and battery harnesses will have a permanent label attached for easy identification of the harness part number and fabrication date.

(2) Splices will not be allowed on battery cables or battery cable harnesses.

(3) For ease of identification and simplified use, battery cables will be color coded. All positive battery cables will be red in color or wrapped in red loom the entire length of the cable. All negative battery cables will be black in color.

(4) For ease of identification, all positive battery cable isolated studs throughout the cab and chassis will be red in color.

(5) For increased reliability and reduced maintenance, all electrical buss bars located on the exterior of the apparatus will be coated to prevent corrosion.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ELECTRICAL COMPONENT INSTALLATION

All lighting used on the apparatus will be, at a minimum, a two (2) wire light grounded through a wired connection to the battery system. Lights using an apparatus metal structure for grounding will not be allowed.

An operational test will 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 will be recorded and provided to the purchaser at time of delivery.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

STEP LIGHTS

There will be two (2) Ri-Tar, Model M27HW2 Super LED, or equivalent substitute, step lights will be provided at the rear to illuminate the tailboard/step area.

These step lights will be actuated with the perimeter scene lights.

All other steps on the apparatus will be illuminated per the current edition of NFPA 1901.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REAR FMVSS LIGHTING

The rear stop/tail and directional lighting will consist of the following:

Two (2) Whelen model 60R00BRR () or equivalent substitute red LED stop/tail lights.

Two (2) Whelen, Model 60A00TAR () or equivalent substitute amber LED populated arrow turn light.

These lights will be installed at the rear of the truck in a polished housing.

Four (4) red reflectors will be provided.

A Weldon, Model 23882-2600-00 () or equivalent substitute, license plate bracket will be mounted on the driver's side above the warning lights. A Weldon, Model 9186-23882-30 () or equivalent substitute, step lamp will illuminate the license plate.

Two (2) Whelen, Model: 60C00VCR () or equivalent substitute, LED backup lights will be provided.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REAR ID/MARKER DOT LIGHTING

The three (3) identification lights located at the rear will be installed per the following:

Truck-Lite, model 33740R (3) or equivalent substitute lamp LED cluster recessed into the body.

The center lights will be as close to the vertical centerline and as high as practical.

Centers spaced not less than six (6) inches or more than twelve (12) inches apart.

Red in color.

All at the same height.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REAR ID/MARKER DOT LIGHTING

Two (2) red Truck-Lite model 33050R () or equivalent substitute, recessed LED lights, located as high and as close to the outside as possible facing the rear.

Two (2) red Truck-Lite model 33050R () or equivalent substitute, recessed LED lights, located at a minimum of 15" above the ground and as far to the rear as practical facing the side.

Two (2) red reflex reflectors will be located on the rear of the truck facing to the rear. One (1) each side, as far to the outside as practical, at a minimum of 15", but no more than 60", above the ground.

Two (2) red reflex reflectors will be located on the side of the truck facing to the side. One (1) each side, as far to the rear as practical, at a minimum of 15", but no more than 60", above the ground.

Per FMVSS 108 and CMVSS 108 requirements.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LIGHTING BEZEL

Two (2) Whelen, model CAST4V () or equivalent substitute, four (4) light aluminum housings will be provided for mounting four (4) Whelen 600 lights.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MAP LIGHT

There will be one (1) Sunnex, Model HS762-00 Swivel Joint () or equivalent substitute halogen adjustable map lights with a switch control on base of light installed per direction.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LIGHT, INTERMEDIATE

There will be one (1) pair, of Truck-Lite, Model: 60115Y () or equivalent substitute, amber, LED, turn signal, marker lights furnished, one (1) each side, horizontally in the rear fender panel.

A stainless steel trim will be included with this installation.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

"DO NOT MOVE APPARATUS" INDICATOR

A flashing red indicator light, located in the driving compartment, will be illuminated automatically per the current NFPA requirements. The light will be labeled "Do Not Move Apparatus If Light Is On".

The same circuit that activates the Do Not Move Apparatus indicator will activate a pulsing alarm when the parking brake is released.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MESSAGES, DISPLAY, Do Not Move Truck

There will be fourteen (14) possible messages displayed on the "Do Not Move Truck" screen, of the information center. The messages will designate the specified location of what open doors or other applicable options are not in the stowed position (parking brake has been released).

The following messages will be displayed:

DS Cab Door Open (Driver Side Cab Door Open)

PS Cab Door Open (Passenger's Side Cab Door Open)

DS Crew Cab Door Open (Driver Side Crew Cab Door Open)

PS Crew Cab Door Open (Passenger's Side Crew Cab Door Open)

DS Body Door Open (Driver Side Body Door Open)

PS Body Door Open (Passenger's Side Body Door Open)

Rear Body Door Open.

Ladder Rack Not Stowed

Deck Gun Not Stowed

L Tower Not Stowed (Light Tower Not Stowed)

Hatch Door Open

Stabilizer Not Stowed

Steps Not Stowed

Handrail Not Stowed

Any other device that is opened, extended, or deployed that creates a hazard or is likely to cause damage to the apparatus if the apparatus is moved, will show up in the flashing warning box after the parking brake is disengaged.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

COMPARTMENT LIGHTING

There will be seven (7) compartments with Amdor or equivalent substitute LED compartment light strips. The strips will be centered vertically along each side of the door framing. The compartments with these strip lights will be located each compartment.

Any remaining compartments will include 6.00" diameter Truck-Lite, Model: 79384 or equivalent substitute, lights in each enclosed compartment. Each light will have a number 1076 one filament, two wire bulb.

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

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

HATCH COMPARTMENT LIGHTING

Amdor "Luma" or equivalent substitute strip light will be mounted on the interior, hinged side of each door.

Opening the hatch compartment door will automatically turn this hatch compartment lighting on.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PUMP COMPARTMENT LIGHT

A pump compartment light will be provided inside the plumbing area.

A .125" weep hole will be provided in each light lens, preventing moisture retention.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PERIMETER SCENE LIGHTS, CAB

There will be a weatherproof light provided for each cab door. Lighting will be designed to provide illumination on areas under cab and crew cab exit areas, which will be activated automatically when the exit doors are opened, by the door jam switch. The light is an integral part of the inside door panel.

The lighting will be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas which personnel climb in or out of the apparatus or descend from the apparatus to the ground level.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PERIMETER SCENE LIGHTS, BODY

There will be a total of four (4) Truck-Lite, Model 44042C () or equivalent substitute, LED lights provided on the apparatus. Each light will consist of a 4.00" weatherproof LED light, rubber mount, and pigtail kit.

The lights will be mounted in the following locations:

Two (2) lights will be provided under the rear step area.

One (1) light will be provided each side under the pump panel running boards.

The lighting will be capable of providing illumination at a minimum level of two (2) foot-candles on ground areas within 30.00" of the edge of the apparatus in areas designed for personnel to climb onto the apparatus or descend from the apparatus to the ground level.

The lights will be activated by a parking brake control and switch in cab.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SCENE LIGHTS

There will be one (1) Whelen, Model 90C0ENZR () or equivalent substitute Gradient LED scene light(s) with chrome flange installed at the rear of the truck, installed on the upper body.

A control for the light(s) selected above will be the following:

A switch at the driver's side switch panel

A switch at the rear of apparatus on the driver's side

No additional switch location

No additional switch location

These lights may be load managed when the parking brake is set.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SCENE LIGHTS

There will be four (4) Whelen, Model M9ZC () or equivalent substitute LED scene light(s) with chrome flange(s) installed on the side of the apparatus, each corner of the upper body, two each side.

A control for the light(s) selected above will be the following:

A switch at the driver's side switch panel

A switch at the rear of apparatus on the driver's side

No additional switch location

No additional switch location

These lights may be load managed when the parking brake is set.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REAR WORK LIGHTS

One (1) pair of Code 3® model 41*15 50 watt or equivalent substitute scene lights will be installed at the rear of the body to the outside of rear compartment. The lights will have a prismatic inner lens to redirect light downward 15 degrees.

The lights will be providing with a flange.

The lights will be controlled by a control from the driver side switch panel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

AIR HORN SYSTEM

One (1) Grover air horn, or equivalent, will be provided and installed in the front bumper, recessed front bumper P/S. The air horn system will be piped to the air brake system wet tank utilizing .38" tubing. A pressure protection valve will be installed to prevent the loss of air, in the brake system.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

AIR HORN CONTROL

The air horns will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ELECTRONIC SIREN

A "Code 3", model 3692, electronic siren or equivalent substitute with noise canceling microphone will be provided.

NFPA 1901, Section 13.9.1.1 requires the siren manufacturer to certify the siren as meeting the requirements of SAE J1849, *Emergency Vehicle Sirens.*

Siren head will be located on a swivel bracket mounted on the engine tunnel so that it is accessible to both the driver and officer. The swivel bracket will be capable of rotating a minimum of 180 degrees.

The electronic siren shall be activated by a foot switch on the officer's side and by the horn button in the steering wheel.

The driver shall have the option to control the siren or the horn from the horn button.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SPEAKER

There will be one (1) speaker provided. Each speaker will be a Federal, Model ES100, 100 watt or equivalent substitute. Each speaker will use a Federal, Model ESFMT recess mount polished trim ring. Each speaker will be connected to the siren amplifier.

The speaker(s) will be recessed in the front bumper on the driver's side.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MECHANICAL SIREN, (Auxiliary)

A Federal Q2B () siren or equivalent substitute will be furnished. A siren brake button will be installed on the switch panel.

The control solenoid will be powered up after the emergency master switch is activated.

The mechanical siren will be recessed in the front bumper on the left side. The siren will be properly supported using the bumper framework.

The mechanical siren will be actuated by two (2) foot switches, one (1) located on the officer's side and one (1) on the driver's side.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

MICROPHONE HEADSETS

A Setcom 1300 headset/intercom system with headsets shall be provided and installed by the vendor at its factory for each of the crew members and be capable of interfacing with the aviation band and fire department's radios. The driver and officers headset shall have transmit, receive and intercom capability. The other crew members shall receive and intercom only, no transmit capability. This is used at the San Francisco International Airport.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TWO WAY RADIO

The following radio equipment shall be provided and installed by the vendor at its factory. The vehicle is to have provisions for radio installation with 12 volt (50amp) buss connections terminating in an area to be determined at the pre-build conference.

One (1) TMS-100 VHF/AM Mobile Transceiver system aviation band radio. Frequency range 117.975-138.000 MHz model TIL 90-6R Dash mounted includes part #861605-2, serial #5684 frequencies: 121.800 MHz TX-RC, 124.250 MHz TX-RC, 120.500 MHz TX-RC, 121.500 MHz TX-RC, 118.850 MHz Receive only, 135.450 MHz Receive only.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

WARNING LIGHTS

A LED lightbar will be mounted on the cab roof.

The length will be 82.00"

The lightbar will include the following:

Six (6) red flashing forward facing LED modules.

Two (2) clear flashing forward facing LED modules.

Two (2) red flashing front corner LED modules.

One (1) red flashing driver end LED module.

One (1) red flashing pass end LED module.

All the lenses will be clear.

One (1) switch located in the cab, on the switch panel, will control this lightbar.

To meet NFPA requirements, the clear warning lights will be disabled when the parking brake is set.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

SIDE ZONE LOWER LIGHTING

Six (6) Whelen model 60*02F*R () flashing "Super" LED lights or equivalent substitute will be located at the following positions:

Two (2) lights, one (1) each side on the bumper extension - red Super LED/red lens each side.

Two (2) lights, crew cab - red Super LED/rd lens each side.

Two (2) lights, over rear wheels - red Super LED/red lens each side.

The lights will be controlled by a lighted switch on the cab instrument panel.

These lights will be installed with three (3) pairs of flange kits.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REAR ZONE LOWER LIGHTING

Two (2) Whelen model 60*02F*R () or equivalent substitute flashing "Super" LED warning lights will be located at the rear of the apparatus, required to meet or exceed the lower level optical warning and optical power requirements of NFPA.

The color of these lights will be red Super LED/red lens.

One (1) switch in the cab on the switch panel will control these lights.

These lights will be installed without a flange.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

WARNING LIGHTS (Rear and Side upper zones)

Six (6) Whelen Super LED (or equivalent substitute lights will be provided to meet the NFPA upper zone B, C and D lighting requirements:

The following lights will be provided at the rear upper bulkhead, facing the rear of the truck (Upper zone C):

One (1) Whelen model 90**5FR Super LED () or equivalent substitute light each side as high and as far to the outside as practical, and will be provided with flange kit.

The color of these lights will be red Super LED/red lens.

Two (2) Whelen model 60*02F*R Super LED () or equivalent substitute lights located upper at the rear, above the scene lights, one at each corner of the body, outboard of the scene lights and will be provided with 6E or 64 flange kit.

The color of these lights will be amber Super LED/amber lens.

The following lights will be provided at the rear side upper corners of the side sheet facing the side of the truck (Upper zone B and D):

One (1) Whelen model 90**5FR Super LED () or equivalent substitute light each side and will be provided with a flange.

These lights will be red Super LED/red lens each side.

Per NFPA, the lights will be switched on by a lighted switch on the instrument panel and all lights will be active whenever the switch is on.

The rear warning lights will be mounted on stainless steel brackets with all wiring totally enclosed. These brackets will also support the clearance/marker lights.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

TRAFFIC DIRECTING LIGHT

There will be one (1) Whelen model TAL85 or equivalent substitute, approximately 46.81" long x 2.84" high x 2.24" deep, amber LED () traffic directing light installed at the rear of the apparatus.

The Whelen model TACTLD1 () or equivalent substitute control head will be included with this installation.

The auxillary warning mode will be activated with the control head only.

This traffic directing light will be recessed with a smooth aluminum trim plate at the rear of the apparatus as high as practical. The trim plate will match the chevron striping on the rear of the truck.

The traffic directing light control head will be located in the driver side overhead switch panel in the right panel position.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

ELECTRICAL SYSTEM GENERAL DESIGN for ALTERNATING CURRENT

The following guidelines will apply to the 120/240 VAC system installation:

General

Any fixed line voltage power source producing alternating current (ac) line voltage will produce electric power at 60 cycles plus or minus five (5) cycles.

Except where superseded by the requirements of NFPA 1901, all components, equipment and installation procedures will conform to NFPA 70, National Electrical Code (herein referred to as the NEC).

Line voltage electrical system equipment and materials included on the apparatus will be listed and installed in accordance with the manufacturer's instructions. All products will be used only in the manner for which they have been listed.

Grounding

Grounding will be in accordance with Section 250-6 "Portable and Vehicle Mounted Generators" of the NEC. Ungrounded systems will not be used. Only stranded or braided copper conductors will be used for grounding and bonding.

An equipment grounding means will be provided in accordance with Section 250-91 (Grounding Conductor Material) of the NEC.

The grounded current carrying conductor (neutral) will be insulated from the equipment grounding conductors and from the equipment enclosures and other grounded parts. The neutral conductor will be colored white or gray in accordance with Section 200-6 (Means of Identifying Grounding Conductors) of the NEC.

In addition to the bonding required for the low voltage return current, each body and driving or crew compartment enclosure will be bonded to the vehicle frame by a copper conductor. This conductor will have a minimum amperage rating of 115 percent of the nameplate current rating of the power source specification label as defined in Section 310-15 (amp capacities) of the NEC. A single conductor properly sized to meet the low voltage and line voltage requirements will be permitted to be used.

All power source system mechanical and electrical components will be sized to support the continuous duty nameplate rating of the power source.

Operation

Instructions that provide the operator with the essential power source operating instructions, including the power-up and power-down sequence, will be permanently attached to the apparatus at any point where such operations can take place.

Provisions will be made for quickly and easily placing the power source into operation. The control will be marked to indicate when it is correctly positioned for power source operation. Any control device used in the drive train will be equipped with a means to prevent the unintentional movement of the control device from its set position.

A power source specification label will be permanently attached to the apparatus near the operator's control station. The label will provide the operator with the information detailed in Figure 19-4.10.

Direct drive (PTO) and portable generator installations will comply with Article 445 (Generators) of the NEC.

Over current protection

The conductors used in the power supply assembly between the output terminals of the power source and the main over current protection device will not exceed 144 inches. (3658 mm) in length.

For fixed power supplies, all conductors in the power supply assembly will be type THHW, THW, or use stranded conductors enclosed in nonmetallic liquid tight flexible conduit rated for a minimum of 194 degrees Fahrenheit (90 degrees Celsius).

For portable power supplies, conductors located between the power source and the line side of the main over current protection device will be type SO or type SEO with suffix WA flexible cord rated for 600-volts at 194 degrees Fahrenheit (90 degrees Celsius).

Wiring Methods

Fixed wiring systems will be limited to the following:

- Metallic or nonmetallic liquid tight flexible conduit rated at not less than 194 degrees Fahrenheit (90 degrees Celsius)

or

- Type SO or Type SEO cord with a WA suffix, rated at 600 volts at not less than 194 degrees Fahrenheit (90 degrees Celsius)

Electrical cord or conduit will not be attached to chassis suspension components, water or fuel lines, air or air brake lines, fire pump piping, hydraulic lines, exhaust system components, or low voltage wiring. In addition the wiring will be run as follows:

- Separated by a minimum of 12 inches (305 mm), or properly shielded, from exhaust piping

- Separated from fuel lines by a minimum of six (6) inches (152 mm) distance.

Electrical cord or conduit will be supported within six (6) inches (152 mm) of any junction box and at a minimum of every 24 inches (610 mm) of continuous run. Supports will be made of nonmetallic materials or corrosion protected metal. All supports will be of a design that does not cut or abrade the conduit or cable and will be mechanically fastened to the vehicle.

Wiring Identification

All line voltage conductors located in the main panel board will be individually and permanently identified. The identification will reference the wiring schematic or indicate the final termination point. When pre-wiring for future power sources or devices, the unterminated ends will be labeled showing function and wire size.

Wet Locations

All wet location receptacle outlets and inlet devices, including those on hardwired remote power distribution boxes, will be of the grounding type provided with a wet location cover and installed in accordance with Section 210-7 "Receptacles and Cord Connections" of the NEC.

All receptacles located in a wet location will be not less than 24 inches (610 mm) from the ground. Receptacles on off-road vehicles will be a minimum of 30 inches (762 mm) from the ground.

The face of any wet location receptacle will be installed in a plane from vertical to not more than 45 degrees off vertical. No receptacle will be installed in a face up position.

Dry Locations

All receptacles located in a dry location will be of the grounding type. Receptacles will be not less than 30 inches (762 mm) above the interior floor height.

All receptacles will be marked with the type of line voltage (120-volts or 240-volts) and the current rating in amps. If the receptacles are direct current, or other than single phase, they will be so marked.

Listing

All receptacles and electrical inlet devices will be listed to UL 498, Standard for Safety Attachment Plugs and Receptacles, or other appropriate performance standards. Receptacles used for direct current voltages will be rated for the appropriate service.

Electrical System Testing

The wiring and associated equipment will be tested by the apparatus manufacturer or the installer of the line voltage system.

The wiring and permanently connected devices and equipment will be subjected to a dielectric voltage withstand test of 900 volts for one (1) minute. The test will be conducted between live parts and the neutral conductor, and between live parts and the vehicle frame with any switches in the circuit(s) closed. This test will be conducted after all body work has been completed.

Electrical polarity verification will be made of all permanently wired equipment and receptacles to determine that connections have been properly made.

Operational Test per Current NFPA 1901 Standards

The apparatus manufacturer will perform the following operation test and ensure that the power source and any devices that are attached to the line voltage electrical system are properly connected and in working order. The test will be witnessed and the results certified by Underwriters Laboratories.

The prime mover will be started from a cold start condition and the line voltage electrical system loaded to 100 percent of the nameplate rating.

The power source will be operated at 100 percent of its nameplate voltage for a minimum of two (2) hours unless the system meets category certification as defined in the current NFPA 1901 standard.

Where the line voltage power is derived from the vehicle's low voltage system, the minimum continuous electrical load as defined in the current NFPA 1901 standard will be applied to the low voltage electrical system during the operational test.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

GENERATOR

The apparatus shall be equipped with a complete electrical power system. The generator shall be a Harrison Model MCR Stealth 8.0 kW Hydraulic unit or equivalent substitute. The wiring and generator installation shall conform to the present National Electrical Codes Standards of the National Fire Protection Association. The installation shall be designed for continuous operation without overheating and undue stress on components.

Generator Performance

- Continuous Duty Rating: 8,000 watts
- Nominal Volts: 120/240
- Amperage: 68 @ 120 volts, 34 @ 240 volts
- Phase: Single
- Cycles: 60 hertz
- Engine Speed at Engagement: Any (Field Switch)

- RPM range: 900 to 3,000 (hydraulic pump)

The generator shall be driven by a transmission power take off unit, through a hydraulic pump and motor.

The generator shall include an electrical control inside the cab. The hydraulic engagement supply shall be operational [Generator Interlocks].

An electric/hydraulic valve shall supply hydraulic fluid to the clutch engagement unit provided on the chassis PTO drive.

Generator Instruments and Controls

To properly monitor the generator performance a digital meter panel shall be furnished and mounted next to the circuit breaker panel. The meter shall indicate the following items:

- Voltage
- Amperage for both lines
- Frequency
- Generator run hours
- Over current indication
- Over temperature indication
- "Power On" indication
- Two (2) fuse holders with two (2) amp fuses (for indicator light protection)

The meter and indicators shall be installed near eye level in the compartment. Instruments shall be flush mounted in an appropriate sized weatherproof electrical enclosure. All instruments used shall be accurate within +/- two (2) percent.

Generator Wiring

The system shall be installed by highly qualified electrical technicians to assure the required level of safety and protection to the fire apparatus operators. The wiring, electrical fixtures and components shall be to the highest industry quality standards available on the domestic market. The equipment shall be the type as designed for mobile type installations subject to vibration, moisture and severe continuous usage. The following electrical components shall be the minimum acceptable quality standards for this apparatus:

Wiring

All electrical wiring shall be fine stranded copper type. The wire shall be sized to the load and circuit breaker rating; ten (10) gauge on 30 amp circuits, 12 gauge on 20 amp circuits and 14 gauge on 15 amp circuits. The cable shall be run in corner areas and extruded aluminum pathways built into the body for easy access.

Load Center

The main load center shall be a Cutler Hammer or equivalent substitute with circuit breakers rated to load demand.

Circuit Breakers

Individual breakers shall be provided for all on-line equipment to isolate a tripped breaker from affecting any other on-line equipment.

LIGHT TOWER

A Will-Burt Night Scan Chief Model NS 2.3-6000 OPT () or equivalent substitute light tower will be provided. This light tower will include four (4) 1500 watt flood lights and extends to 7.5'.

The light tower will be installed on the rear crew cab roof.

The control will be a panel mount controller located on the driver side pump panel.

A label will be provided at the operator's location to indicate mast operation instructions, warning information, extended tower height from the ground and bulb replacement data.

This tower will be connected to the Do Not Move Truck Indicator in the cab.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

KUSSMAUL () or equivalent substitute AUTO EJECT FOR SHORELINE

One (1) shoreline receptacle will be provided to operate the dedicated 120-volt circuits on the truck without the use of the generator.

The shoreline receptacle (s) will be provided with a NEMA 5-20, 120 volt, 20 amp, straight blade Kussmaul Super auto eject plug with a yellow weatherproof cover. The cover is spring loaded to close, preventing water from entering when the shoreline is not connected.

The unit is completely sealed to prevent road dirt contamination.

A solenoid wired to the vehicle's starter is energized when the engine is started. This instantaneously drives the plug from the receptacle.

An internal switch arrangement will be provided to disconnect the load prior to ejection to eliminate arcing of the connector contacts.

The shoreline will be connected to battery charger.

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

The shoreline receptacle will be located on the driver side of cab, above wheel.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LOOSE EQUIPMENT

The following equipment will 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.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PAINT - BODY PAINTED TO MATCH CAB

The exterior custom cab and body painting procedure will consist of a seven (7) step finishing or equivalent substitute process as follows:

1. Manual Surface Preparation - All exposed metal surfaces on the custom body will be thoroughly cleaned and prepared for painting. Surfaces that will not be painted include all chrome plated, polished stainless steel, anodized aluminum and bright aluminum treadplate. Each imperfection on the exterior metal surface will be removed or filled and then sanded smooth for a smooth appearance. All seams will be sealed before painting.

2. Chemical Cleaning and Treatment - The aluminum surfaces will be properly cleaned using a 4-phase, high pressure and high temperature acid etching system. All steel surfaces will be properly treated using a 3-phase, high temperature, cleaning/phosphatizing system. Surfaces are chemically cleaned to remove all dirt, oil, grease and metal oxides to ensure the subsequent coatings bond well. An ultra pure water final rinse of 25 parts per million solids or less, will be applied to final rinse all metal surfaces at the conclusion of the metal treatment process. This final rinse ensures all chemical residues are removed and that no minerals, (salts), from the water dry onto the metal surface and remain under the primers and topcoats. These salts can lead to blistering and under film corrosion.

3. Primer/Surfacer Coats - A minimum of two (2) mil dry, (.002), of two component urethane primer/surfacer will be hand applied to the chemically treated metal surfaces to provide a strong corrosion protective base coat and to smooth out the surface. The primer is a high solids and low VOC paint.

4. Hand Sanding to Ultra Fine Finish The primer/surfacer coat is lightly sanded with mild abrasive paper to an ultra smooth finish. This hand finish process is critical to produce the smooth mirror like finish in the topcoat.

5. Sealer Primer Coat A two- (2) component sealer primer coat is applied over the sanded primer to again build toward the final smooth finish. This layer of primer sealer also gives additional corrosion protection.

6. Topcoat Paint Two (2) coats of an automotive grade, two component acrylic urethane paint are applied to provide the lasting beauty and durability. The acrylic urethane topcoat contains a clear coat resin chemistry that creates the high gloss and depth of image. This type of topcoat provides the best resistance against acid rain and other more common chemicals.

7. Clearcoat - Two (2) coats of an automotive grade two (2) component urethane will be applied. Lap style doors will be clear coated to match the body. Roll-up doors will not be clear coated and the standard roll-up door warranty will apply.

A cyclic corrosion test, (General Motors test GM-9540), of 40 cycles will be required before making changes to the exterior coating process. Exterior coating systems, (excluding the undercarriage components), must achieve a 1/16 or less maximum creep from the scribe for aluminum and an 1/8 or less maximum creep from the scribe for galvanneal after 40 cycles in the General Motors GM-9540 test.

Each batch of color topcoat, together with the finish painted vehicle, is tested for precise color match. Visual color match will be checked following ASTM D-1729, (American Standard Testing

Methods), procedures using CIE, (International Commission on Illumination), D75 Northern Daylight light source. Instrumental color match will follow ASMT D-2244 procedures with a maximum delta E of 1.0 for whites, 1.4 for yellows, blues, greens and 1.5 for reds.

All removable items such as brackets, compartment doors, door hinges, trim, etc. will be removed and painted separately to insure paint behind all mounted items. Body assemblies that cannot be finish painted after assembly will be finish painted before assembly.

The cab will be two-tone, with the upper section painted #10 white along with a shield design on the cab face and lower section of the cab and body painted #40 lime green.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PAINT - ENVIRONMENTAL IMPACT

Contractor will meet or exceed all current State (his) regulations concerning paint operations. Pollution control will include measures to protect the atmosphere, water and soil. Controls will include the following conditions:

- Topcoats and primers will be chrome and lead free.

- Metal treatment chemicals will be chrome free. The wastewater generated in the metal treatment process will be treated on-site to remove any other heavy metals.

- Particulate emission collection from sanding operations must have a 99.99% efficiency factor.

- Particulate emissions from painting operations will be collected by a dry filter or water wash process. If the dry filter means is used, it must have an efficiency rating of 98.00%. Water wash systems will be 99.97% efficient.

- Water from water wash booths will be reused. Solids will be removed mechanically on a continual basis to keep the water clean.

- Paint wastes are disposed of in an environmentally safe manner. They are used as fuel in kilns used in the cement manufacturing process - thereby extracting energy from a waste material.

- Empty metal paint containers will be cleaned, crushed and recycled to recover the metal.

- Solvents used in clean-up operations will be collected, recycled on-site, or sent off-site for distillation and returned for reuse. Residue from the distillation operation will be used as fuel in off-site cement kilns.

Additionally, the finished apparatus will not be manufactured with or contain products that have ozone depleting substances. Contractor will, upon demand, present evidence that his manufacturing facility meets the above conditions and that it is in compliance with his State EPA rules and regulations.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PAINT CHASSIS FRAME ASSEMBLY

The chassis frame assembly will be painted black 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 will be painted black are frame rails, cross members, axles, suspension, steering gear, fuel tank, body substructure supports, miscellaneous mounting brackets, etc.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

PAINT, COMPARTMENT INTERIOR

The compartment interior will be painted with a gray spatter finish or equivalent substitute for ease of cleaning and to make it easier to touch up scratches and nicks.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REFLECTIVE STRIPES

Three (3) reflective stripes will be provided across the front of the vehicle and along the sides of the body. The reflective band will consist of a 1.00" white stripe at the top with a 1.00" gap then a 6.00" white stripe with a 1.00" gap and a 1.00" white stripe on the bottom.

The reflective band provided on the cab face will be below the headlights on the fiberglass or on the bumper.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

CHEVRON STRIPING, REAR

There will be alternating chevron striping located on the rear-facing vertical surface of the apparatus. The entire rear surface, excluding the rear roll up door and swing down tailboard, will be covered.

The colors will be red and yellow diamond grade.

Each stripe will be 6.00" in width.

This will meet the requirements of NFPA 1901, 2009 edition, which states that 50% of the rear surface will be covered with chevron striping.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

"Z" JOG IN REFLECTIVE STRIPE

There will be one (1) "Z"-shaped jog/s provided in the reflective stripe design.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

REFLECTIVE STRIPE, CAB DOORS

A 4.00" x 24.00" white reflective stripe will be provided across the interior of each cab door. The stripe will be located approximately 1.00" up from the bottom, on the stainless steel door panel.

This stripe will meet the NFPA 1901 requirement.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LETTERING
The lettering will be totally encapsulated between two (2) layers of clear vinyl.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

LETTERING
Forty-one (41) to sixty (60) genuine gold leaf lettering, 3.00" high, outlining and shading will be provided.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

DECAL INSTALLATION
There will be one (1) pair of decals furnished by the fire department and applied by the apparatus manufacturer.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**

CAB GRILLE DESIGN
An American flag design will be painted on the cab grille.

COMPLY: ☒ **Y for YES** ☐ **E for Exception**