

### Specifications - Intent

The purpose of these specifications is to provide a set of minimum general requirements and test parameters for the manufacturer of an emergency medical care ambulance. The bidder is responsible for understanding that this specification establishes the essential criteria for design, performance, equipment and appearance of the ambulance. This specification requires an all aluminum modular exterior and interior. While the compartment and cabinet exact sizes are not critical, we are attempting to obtain an ambulance much different than any our agency has acquired in the past, so deviations from the specified cabinetry and compartments will need to have thorough explanations, drawings and justifications. While it is not the intent of this specification to preclude any qualified bidder, it must be clear that any bidder deviating in any substantial manner from these specifications will be rejected as non-compliant.

Complies As Written                       Does Not Comply

### Specifications - Requirements

This specification requires the manufacturer to provide a new, commercially produced, medical care vehicle, hereinafter referred to as an "ambulance". Texas is not a "KKK" state per se, however this vehicle shall be manufactured in concurrence with the ambulance design criteria of the National Highway Traffic Administration, U.S. Department of Transportation in Washington DC and the GSA - Federal Ambulance Specification KKK-A-1822(Most current revision). The KKK criteria relating to safety and module size must be followed, but other details can be changed as long as justification is made in the bid document as to the changes. Specifications in the Bid Document that are not KKK compliant shall be bid according to the specifications. If engineering does not feel this is possible, the bidder shall explain fully why they cannot do so. Also, it is recognized that the National Fire Protection Association is nearing completion or has completed their ambulance specification document. Items specified in the bid package that do not comply with the NFPA requirements shall also be noted in the submission. Documentation shall be submitted with the bid that validates the manufacturer's ability to fully comply with KKK-A-1822F.

Complies As Written                       Does Not Comply

### Specifications - Performance

It is the intent of these specifications that the manufacturer of this vehicle has the ability to manufacture a completed ambulance with the exception of the chassis, within their own manufacturing facility. The basic modular body must be built in the manufacturer's facility and shall not be the product of a subcontractor or any company other than the manufacturer. Accessories such as light bars, sirens and other add on components are not considered as basic components of the modular body. The ambulance manufacturer must have significant experience in the construction of modular ambulance bodies and shall have manufactured a minimum of 2500 vehicles.

Complies As Written                       Does Not Comply

### Processes - Manufacturing

Manufacturer shall maintain a full time engineering staff with degreed engineers and shall manufacture the module at their facility. Accountability and quality of the design suffer greatly when the engineering and module construction are done off site.

Safety begins with a well designed and constructed module and is considered next to the chassis the most critical element in over all safety and long-term durability. Manufacturers that have off site engineers and/or have a subcontractor manufacture the module will not be considered.

Complies As Written                       Does Not Comply

### Processes - Repeatability

Since we maintain a fleet of vehicles having multiple vehicles built exactly alike over time is of the utmost importance for crew usage and ordering replacement parts. Because of this it is critical that the manufacturer design 100 % of the vehicle on a CAD (Computer Aided Design) system. All components must be electronically retained so that in the event that a manufactured part has to be remade the original engineered drawing can be utilized. It is expected that 90% of the machining be done on CAM (Computer Aided Machining) capable equipment in order to maintain tight tolerances and achieve repeatability in the event of reordered parts or a new vehicle order.

Complies As Written                       Does Not Comply

### Fuel Consumption - Aerodynamic

The design of the ambulance conversion will promote fuel efficiency and handling stability with an aerodynamic design. The design will reduce the effects of the drag coefficient, side force coefficient, yaw coefficient and the lift coefficient. The drag coefficient effects fuel mileage and engine power requirements. The side force coefficient effects the amount of force exerted on the side of the vehicle in a crosswind and therefore the handling of the vehicle. The yaw angle is critical to vehicle handling (i.e. the greater the yaw angle, the greater the restoring movement) and if the lift angle is positive, it will have a negative effect on the handling by reducing the weight on the front wheels. The exterior body shall be of an aero dynamic design with large radius corners. The elimination of all body seams and as much hardware from the exterior body as possible is desirable. This includes the lower body rub rail, drip rails over individual compartments and a very low profile fender ring.

Complies As Written                       Does Not Comply

### Safety - Design

The ambulance shall be designed and constructed to maximize the safety and security of the occupants. To the greatest extent possible, the interior walls and ceiling of the ambulance shall present a flat surface, free from obstructions. This requirement applies in particular to the surfaces (cabinet fronts, doors, windows, cushion, etc.) that make up the front wall of the patient compartment and the side walls of the patient compartment. The interior of the patient and driver compartments shall be free of all sharp projections. Any cabinets that could be in the attendant or patient head-strike zone shall be angled away from the normal head position. There shall be no sharp corners, padded or unpadded, in the potential head strike zone from any crew seated position. All hangers or supports for equipment, lighting, controls, oxygen regulators and other devices shall be mounted as flush as possible with the surrounding surface. Padding (bolsters) shall be placed at all head areas and obstructions that may prove dangerous to persons moving about in the ambulance. The interior of the patient compartment shall be designed and constructed to minimize containment areas for the incubation of viruses either air borne or transmitted in fluids. All stepping surfaces (i.e. front cab and patient compartment step wells) shall be covered with heavy-duty ribbed rubber matting or other anti-skid material for skid protection. All securing straps, cargo nets and other restraints shall be capable of retaining 10 times the total weight of the equipment or material they are designed to contain. No straps or cargo nets shall be utilized to catch or

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contain crew members. Doors, hatches and covers shall be designed to contain 10 times the weight of the items stored loose behind the door, hatch or cover. Equipment installed in the cab shall be located and mounted in such a way that it shall not interfere with the operation of the driver side and/or passenger side air bag(s) if the vehicle is so equipped. In order to stop carbon monoxide emissions from entering into the interior of the ambulance, no equipment or fixtures are to be mounted on the engine cowling, unless fasteners and method of securing are specifically designed to prevent this problem. Any mounting on cowl shall be done without damaging the integrity of the cowl insulation or heat shield.

Complies As Written                       Does Not Comply

### Fuel Consumption - Payload

Maximum payload is required to achieve greater fuel efficiency, improved braking distance and reduced risk of violating GVWR ratings due to additional unplanned occupants. Therefore it is required where ever possible that material thickness be reduced without harming structural integrity. All specified structural performance tests must be passed and documentation available upon request.

Complies As Written                       Does Not Comply

### Chassis Requirements

The ambulance shall be built on a - 2012 Mercedes Sprinter 3500 Chassis – 144"WB – DRW- 3.0 Diesel OR a 2012 Chevy G3500 159" wheelbase RV cutaway chassis. Pricing must be supplied for each chassis choice. The City recognizes that patient module sizes can differ between these two chassis choices and those different sizes should be clearly marked on CAD drawings and written specifications. The vendor shall maximize interior module space as appropriate based upon the two different chassis.

A detailed chassis specification of each chassis style must be supplies at time of bid response. As many options as possible should be included to maximize crew comfort while maximizing the life of the chassis with the least amount of maintenance.

Complies As Written                       Does Not Comply

### General - Requirements

All materials must meet CMVSS/FMVSS 302 - Flammability testing.

Complies As Written                       Does Not Comply

### General - Material Definitions

All equipment, material and articles required under this specification must be new or fabricated from new materials produced from recovered materials. The term "recovered materials" means materials which have been collected or recovered from solid waste and reprocessed to become a source of raw materials, as opposed to virgin raw materials. None of the above will be interpreted to mean that the use of used or rebuilt products is allowed. The term "heavy duty", when used to describe an item,

means in excess of the usual quality or capacity that is normally supplied as standard production material and represents the most durable item that is commercially available.

Complies As Written                       Does Not Comply

### General - Materials Weight

In order to maintain the maximum payload without sacrificing structural integrity it is required that a minimum of 90% of the exterior body (exclusive of the subfloor) be made of formed sheet aluminum. Extrusions utilized for body corners and door frames tend to be heavier than formed parts as well as being more susceptible to welding cracks due to the type of joining methods used. The formed parts are lighter and more able to absorb long-term flexing of the body.

Complies As Written                       Does Not Comply

### Alloys - Exterior Module

Body Panels: Minimum Sheet Thickness = .091 inches Aluminum Alloy = 5052-H32

Exterior Compartments: Minimum Sheet Thickness = .091 inches Aluminum Alloy = 5052-H32

Entrance Doors: Minimum Sheet Thickness = .125 inches Aluminum Alloy = 5052-H32

Ceiling and Wall tubes: Minimum 2 X 2 X .125 inches Alloy 60601-T6

Complies As Written                       Does Not Comply

### Alloys - Exterior Module

In order to maintain consistency and long-term durability it is required that all aluminum used in the construction of the exterior module skin be of the identical alloy and hardness.

Complies As Written                       Does Not Comply

### Alloys - Module Sub Floor

Sub Floor Tubes and Channels: Minimum Tubes 3 X 2 X .125 inches Alloy 60601-T6    2 X 2 X .125 inches Alloy 60601-T6    1  
X 2 X .125 inches Alloy 60601-T6    2 X 2 X .125 inches Alloy 60601-T6    Channels 3 X 2 X .250 inches Alloy 60601-T6

Complies As Written                       Does Not Comply

### Alloys - Sub Floor Mounting Plates

Cot Mount Plate: .250 Minimum Sheet Thickness Aluminum Alloy = 5052-H32

Attendant Seat Mounts: .250 Minimum Sheet Thickness Aluminum Alloy = 5052-H32

Body Mount Plates: .5 X 3 inch Minimum Thickness Aluminum Alloy 60601-T6

Seat Belt Mounts: .250 X 4 inch Minimum Thickness Aluminum Alloy 60601-T6

Heat Shield: .040 Continuous sheet Aluminum Alloy = 5052-H32

Complies As Written

Does Not Comply

### Alloys - Interior

Cabinets: Minimum Sheet Thickness = .091 inches Aluminum Alloy = 5052-H32

Wall Panels: Minimum Sheet Thickness = .091 inches Aluminum Alloy = 5052-H32

Complies As Written

Does Not Comply

### Welding - Structural Tubes

Tubes shall be structural type In order to have more strength and to create a more consistent gap for weld filling. All ceiling and wall tubes shall have a .375 inch radius. Tubes that have square corners (architectural) are not as strong and do not allow enough weld gap thus reducing weld penetration.

Complies As Written

Does Not Comply

### Welding - Welding Equipment

As mentioned in other parts of this specification consistency and repeatability is of utmost importance. Consequently we require that the manufacture demonstrate their ability to provide highly consistent welds. Welds are critical to the durability and safety of the product. The manufacturer must supply appropriate documentation of their ability to achieve highly consistent welds. We will accept two types of methodologies: 1. All welding is performed with digital welding equipment, that is programmed to the specific type of weld, direction, and metal thickness. 2. They produce documentation that all welders are tested every six months and quality weld samples are tested every month. NO EXCEPTIONS

Complies As Written

Does Not Comply

### Electrolysis Prevention - Isolators

It is absolutely critical that every component attached to the exterior module have a specifically designed isolation process, methodology or component. Because of this it is required that 100 percent of all body holes be cut prior to paint/coating of the

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exterior module. Isolators and inserts have very tight tolerances and consequently all holes must be machine cut on a strippet or milling machine, laser or water jet cutter, or CNC high speed router. Holes that are hand drilled or cut will not be acceptable.

Complies As Written                       Does Not Comply

#### Module – Size

The ambulance module size shall be the following: Module Length= Minimum of 151", Module Width = Minimum of 82.5", Interior Headroom = Minimum of 72". It is realized that the overall size of the module is dependent upon the chassis it is riding on and as such, the module on the Chevy G3500 will be larger than the module on the Sprinter chassis. The attached drawings provide an overall concept of cabinet and compartment design and location. It is realized that the size, location and overall storage capacity will vary depending upon each chassis and the bidder has the ability to utilize space to a premium and offer variations on these drawings that will help achieve the goal of seated attendants able to reach a majority of their equipment and supplies without leaving the seat.

Complies As Written                       Does Not Comply

#### Module - Design

- It is critical that the basic module design have a proven track record and meet the following criteria for consideration of this bid.
- A. Have a design that maximizes the greatest possible payload without ever compromising overall structural integrity and vehicle safety.
  - B. Have a design that has been aerodynamically tested and engineered for reduced fuel consumption and ride stability.
  - C. A design that has been certified beyond the basic requirements of KKK-A-1822 (current revision) and AMD standards 1-26.
  - D. The manufacturer has built a minimum of 2500 vehicles.

Complies As Written                       Does Not Comply

#### Module - Construction

In order to reduce corrosion potential, aid in decal and stripe adhesion and create a more consistence appearance, all panels comprising the exterior module shall be constructed in such a way that the completed module shall be seamless. This can be achieved through forming techniques, precision welding and/or strategic seam placement. The end result shall be a modular body with no visible seams.

Complies As Written                       Does Not Comply

#### Structural Framing - Roll Cage

Independent of the module skin shall be a structural roll cage. This structure shall consist of 2 X 2 X .125 inch tubes 6061-T6, that are welded together creating a continuous structure from floor to ceiling. The ceiling tubes shall be one continuous formed tube that traverse the entire module from side to side and is welded to a horizontal longitudinal tube that traverse the full

perimeter of the module body. For added strength the outside radius shall be formed into all the ceiling tubes. At the vertical corners in the top and at floor level shall also be a 2 X 2 X .125 inch tubes 6061-T6, that is formed to the body radius. All vertical tubes shall be a maximum of 16 inch centers.

Complies As Written                       Does Not Comply

### Structural Framing - Tubing Welding

The tubing shall be welded at every intersection and on three sides creating a minimum of 4 inches of weld length.

Complies As Written                       Does Not Comply

### Body Panels - Walls

All body panels shall be box pan formed construction Entrance doors and exterior compartments shall be formed into the body panels. Extruded frames; due to the fact that they cause seams and are of a different alloy will not be accepted. Body panels shall be welded to the body structure in non exposed areas. The body panels shall be adhered to the structural tubes utilizing structural adhesives and welds where possible and when completed shall have a smooth flat appearance. Flat sheet style construction that slides into or under an extrusion shall not be acceptable due to the difficulty in preventing oxidation and/or electrolysis where visible, exposed joints are present and to eliminate future cracking of paint and decal degradation that occurs at these seams.

Complies As Written                       Does Not Comply

### Body Panels - Panel Attachment

The body panels shall be welded to the tube structure at all door and compartment openings. They shall also be welded to the tube structure at both the upper and lower horizontal perimeter tubes. In areas that will be covered the body panels shall be welded to the tubes. Note: It is critical to achieve as many welded attachment points as possible between the body panel and the tube structure. However the seamless body is paramount importance. Therefore exposed fasteners, weld distortions or extraneous body trim will not be allowed (No Exceptions).

Complies As Written                       Does Not Comply

### Body Panels - Panel Adhesion

Body panels shall also be adhered to the module tubes utilizing two types of adhesives. The first adhesive shall be used for structural attachment. It shall be an industrial panel bonding adhesive that meets FMVSS 301 and Fords Stress Durability test BV-101-07. It shall be used intermittently throughout the module at all high stress points. The second adhesive shall be a Silaprene brand urethane adhesive (or equivalent) and shall be applied throughout the module on both sides of each tube and in all areas where the body panels meet the subfloor.

Complies As Written                       Does Not Comply

### Body Panels - Drip Rail

Because it is required to have the entire module constructed of the same alloy and to eliminate as many seams as possible the drip rails shall be formed into the body panels. It shall run the full length of the module (less the radius) and shall extend a minimum of .75 inches from the module. Drip rail shall be on both sides and rear of the module. Drip rails shall be constructed in a manner to prevent water exiting the drip rails to the front during braking from impacting the rear view mirrors.

Complies As Written                       Does Not Comply

### Sub Floor System - Construction

Sub floor shall be constructed of aluminum tubes and channels that have a minimum of 4 inches of weld at every intersection. Extrusions shall be 6061-T6, the dimensional requirements are: 3 X 2 X .125 Tube 2 X 2 X .125 Tube 1 X 1 X .125 Tube 3 X 2 X .250 Channel It is required that the entire floor be sequentially welded so as not to introduce metal fatigue or structural deformation due to excessive heat. There shall be a minimum of eight (8) lateral structural members that run the full width of the module less the perimeter tube. It is critical that these lateral members are continuous full width sections in order to maintain long term side to side stability and structural integrity. Tying these structural members together shall be four (4) .5 X 3 inch aluminum longitudinal bars. These longitudinal bars shall run parallel to the chassis frame rails and shall act as the chassis to module mounting support plates.

Complies As Written                       Does Not Comply

### Sub Floor System - Pre-stressing

In order to provide minimum weight and maximum strength the sub floor structure shall be designed and built in a mechanical pre-stressed manner. This can be accomplished with a jugged welding fixture or preformed sub floor components. The subfloor shall be assembled with a small degree of arch in the overall shape. After the entire floor is welded together it is expected that the floor shall be flat and level.

Complies As Written                       Does Not Comply

### Sub Floor System - Perimeter Crash Protection

Surrounding the entire perimeter of the sub floor shall be aluminum tubes and or channels to act as energy absorbing structures in the event of a collision. It is especially critical that this crash protection barrier form around all four corners of the module. These tubes shall be formed with the same radius as the body corners.

Complies As Written                       Does Not Comply

### Sub Floor System - Skirt Supports

Areas where there is not a compartment, wheel well, or step well shall have a formed tube that extends to the bottom of the body panel for additional structural support.

Complies As Written                       Does Not Comply

### Sub Floor System - Plastic Fuel Cover

The area where the chassis fuel fill enters body shall be covered with a waterproof molded fuel fill housing. This housing shall be impervious to diesel and gasoline and be completely sealed to prevent fuel and or fumes from seeping into the module.

Complies As Written                       Does Not Comply

### Sub Floor System - Covering

Covering the entire aluminum sub floor shall be a single sheet of .040 aluminum. Due to moisture and carbon monoxide concerns smaller sheets with seams will not be acceptable. It shall be attached to the subfloor frame with a Silaprene adhesive.

Complies As Written                       Does Not Comply

### Sub Floor System – SpaceAge™ Sub Floor

The sub floor shall be constructed of 7/8" thick SpaceAge brand material. The sheet shall be a minimum of 60 X 144 inches to eliminate seams in the main patient area. Seams in these high wear areas tend to separate over time. This product is impervious to moisture and also has an insulation value of R2.0. This flooring structure shall cover 100 percent of the sub floor. Floors that are made of wood or only run a few inches under the cabinetry shall not be accepted.

Complies As Written                       Does Not Comply

### Sub Floor System - Mounting Hardware

Areas of the subfloor where cot mount hardware and attendant seat pedestal are bolted shall be supplied with a .250 inch aluminum plate. These plates shall be securely welded to the aluminum sub structure.

Complies As Written                       Does Not Comply

### Entrance Doors - Rear Doors

Rear Entrance doors shall be designed to allow for medic ease of access when not loading a patient. Therefore if needed, the curbside rear door shall be approximately 20% larger than the street side rear door. The rear doors opening height clearance shall be 65 inches. The rear doors opening width clearance shall be 46 inches. Door openings shall not have any over lapping frames or visible seams.

Complies As Written                       Does Not Comply

### Entrance Doors - Side Door

The side door opening height clearance shall be 73 inches. The side door opening width clearance shall be 30 inches. Door openings shall not have any over lapping frames or visible seams.

Complies As Written                       Does Not Comply

### Entrance Doors - Construction

Doors shall be box pan formed of a single sheet .125 inch 5052-H32 aluminum and shall be a maximum of 2.25 inches thick. They shall be fully welded and ground smooth to provide a seamless door. For added strength the doors shall also have box pan formed braces that are welded to the door in such a manner that they do not show weld distortion marks on the exterior door surface.

Complies As Written                       Does Not Comply

### Entrance Doors - Handles

The doors shall be fitted with all stainless steel polished door handles. Non stainless parts shall have a yellow zinc chromate finish. The door rods shall have formed ends that fit over the pull mechanism in a manner that even if the locking pin were to fail the rod will remain attached to the door pin. Door rods shall be threaded for fine tune adjustments. Cables, fixed length rods, or rods with bends will not be acceptable.

Complies As Written                       Does Not Comply

### Entrance Doors - Hardware

The module entrance doors shall be equipped with two stage rotary latches constructed of high strength, heat treated, steel latch components. This latch must be certified to FMVSS 206 Standards for Personnel restraint Applications. Components shall be zinc electroplated and coated with Everlube or equivalent. Latches shall be bolted in place with 5/16 inch grade 8 bolts. There shall be removable access plates on the interior of the door to gain access to the rotary latches for routine maintenance.

Complies As Written                       Does Not Comply

### Entrance Doors - Hinges

The doors shall be fitted with stainless steel hinges with a minimum pin diameter of .250 inches and a minimum leaf size of 1 inch. Hinge knuckles shall be peened to keep pin from coming out. The doors shall be fitted with 1/4-20 nutserts for bolting of hinges. These nutserts shall be applied to both the doors and the door frames. They shall be bolted in place with 1/4-20 stainless steel bolts.

Complies As Written

Does Not Comply

### Entrance Doors - Insulation

Doors shall be lined with a 3/4 inch thick high density closed cell foam that has both insulation and sound attenuation qualities. It is noted that the entrance doors are constantly being exposed to moisture. Therefore door insulation shall also have an anti-microbial treatment (Microban or equivalent).

Complies As Written

Does Not Comply

### Entrance Doors - Hold Opens

The rear doors shall use Cast Products (or equivalent) aluminum hold opens with replaceable rubber inserts. They shall hold the doors open at a 130 degree angle. Because the high cycle time of the doors the components shall be bolted to both the door and the module with 1/4 20 nutserts. To eliminate long term failure the receiver shall be bolted into a body structure tube. Screw type attachments will not be acceptable. The side door shall be held open with spring driven hold open device.

Complies As Written

Does Not Comply

### Entrance Doors - Door Backs

The entrance door backs shall be .091 aluminum 5052-H32. They shall be fully powder coated white to match the interior. The door itself shall be fitted with nutserts approximately every 12 inches. The door panel shall be bolted in place with coated bolts and isolation washers.

Complies As Written

Does Not Comply

### Entrance Doors - Seals

It is critical to keep moisture out of the interior of the module. Each entrance door shall be equipped with two door seals. One seal will fit flush to the outer most edge and be adhesive backed. This seal will perform two functions; it will stop the initial moisture from entering and will also cut down on wind drag which is a function of the aero dynamic shape and the seamless exterior. Inboard of the door shall be a formed perpendicular flange for a second seal that surrounds all four sides of the door. This flange shall also include small plates at the Nader pins to ensure that the seal completely surrounds the Nader pin opening.

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Since this seal is more susceptible to long term wear and tear it shall be mechanically fastened and be easily replaced.

Complies As Written                       Does Not Comply

Entrance Doors - Maintenance

Entrance doors shall be equipped with reflectors. These reflectors shall be removable and placed in a location that allows for maintenance access to the door latches.

Complies As Written                       Does Not Comply

Entrance Doors - Wire Routing

All doors that require wire routing shall be equipped with stainless steel spring conduits. They shall be .625 inches in diameter and be equipped with a receptacle that allows the spring to easily slide into the door cavity when closed. All wire routing through doors must be done in this manner. No Exceptions.

Complies As Written                       Does Not Comply

Entrance Doors - Safety Exit

In the event of an accident and the door linkage is damaged to the extent the occupant can no longer open the door, manufacturer shall install a safety release at the top and bottom of all entrance doors. No exceptions

Complies As Written                       Does Not Comply

Insulation - Materials

It is critical that the entire module be completely insulated and sealed. This includes the ceiling, all four side walls, the floor and doors. It is required that the various types of insulation be carefully chosen based upon the specific location and the performance required. A one size fits all approach will not be acceptable. Below is a list of the insulation materials and their individual R ratings. These R ratings should be considered a minimum requirement. If an equivalent substitute is being proposed you must submit samples and R value documentation from the supplier.

Ceiling: 2 inch Fiberglass Foil backed Knuff Insulation Board with Ecosse – 1.6 lbs/cu ft - R 8.3

Walls: 2 inch Fiberglass Foil backed Knuff Insulation Board with Ecosse – 1.6 lbs/cu ft - R 8.3

Doors: 3/4 inch Armaflex Sheet – R 3.1 Tubes to Ceiling panels : 1/8 inch Armaflex Sheet – R .51 Tubes to Wall panels : 1/8 inch Armaflex Sheet – R .51

Complies As Written                       Does Not Comply

### Insulation - Sealers

In an effort to make the module as thermally efficient as possible it must be completely sealed on the interior. This includes using a urethane sealer on the entire interior including the full perimeter where the floor and walls meet. There shall be a designated area where the underbody harnesses come up from the floor. It shall have a flanged trim ring to prevent harness chaffing and enable more complete ceiling. Harnesses running up corner radius that are then stuffed with material will not be acceptable.

] Complies As Written

] Does Not Comply

### Paint and Striping – Entire Vehicle

The chassis and module shall be painted according to the attached picture to be identical to the Agency's current vehicle fleet. Paint color choice shall be done in an effort to have the colors be as identical as possible. If Bidder uses a painting process that does not allow two painted colors, the Yellow color shall be done with vinyl graphics and be as reflective as possible. The rear chevron shall be Blue and Yellow reflective graphics as is on our current vehicles. Final color code numbers and graphics selections shall be made at the pre-production meeting.

### Module Coating - Requirement

Due to long term chronic paint problems it shall be required that the manufacturer supply a LIFETIME PAINT WARRANTY with no pro-ration. This purchaser has experienced severe electrolysis, adhesion, bubbling, blistering and hairline cracks. The main requirement of a seamless body and isolators is to aid in reducing several of these paint problems. Through our research we have discovered that powder coating is a far more durable process for applying what is essentially the same material (acrylic urethane). Whether you apply it wet with solvents or dry with heat the material is almost the same. It is acknowledged that there is only one manufacturer currently utilizing this process and in an effort to avoid proprietary specifications we will accept a liquid paint application process under the following conditions:

- A. The bidder supply in writing from the manufacturer that the vehicle will have a LIFETIME paint warranty with no pro-ration.
- B. This warranty will cover only the original owner on the original chassis.
- C. It will cover electrolysis, delaminating, bubbling, cracking, blistering, and chalking. No Exceptions

] Complies As Written

] Does Not Comply

### Module Coating - Finish

In order to prevent scratches, chipping and pitting we are asking that an additive (quartz or equivalent) be put into the paint. We acknowledge that this additive can reduce the smoothness of the finish. As a minimum we will accept #6 or greater on the paint finish chart.

] Complies As Written

] Does Not Comply

### Module Coating - Preparation

Prior to paint application the module shall be completely sanded from 80 to 180 grit. It shall be washed first in a degreasing solution. Secondly a neutralizing agent. Thirdly the module shall be completely covered in an acid etching solution and then finally coated in a solution that reduces long-term corrosion, improves impact resistance and promotes proper adhesion with the finish coat.

Complies As Written

Does Not Comply

### Module Coating - Fillers

As part of the process to eliminate long term corrosion of the paint there shall be no plastic fillers allowed on the finished aluminum body. Plastic fillers (bondo) tend to crack and shrink over time and are therefore unacceptable. The only fillers allowed on the finished aluminum body will be thin walled epoxy fillers. Any defects that occur during the manufacturing process that require thicker type fillers will be unacceptable and the body must be re-welded or the component removed and rebuilt.

Complies As Written

Does Not Comply

### Module Coating - Coverage

Prior to painting all holes including lights, fillers, hardware and all fasteners shall be in the module. No Exceptions. The entire module shall be coated including all door jambs. Vehicles painted with the doors mounted to module during the paint process will not be accepted. Due to the fact that electrolysis can start in one area and travel it is required that the inside of the body panels below the floor line be covered 100 percent. Common residual overspray will not be considered as meeting this requirement. Finally the inside door jams of the entrance doors shall also be covered 100 percent.

Complies As Written

Does Not Comply

### Module Coating - Auditing

Manufacturer must demonstrate a comprehensive auditing system. It is required that every vehicle (including each vehicle on multiple orders) undergoes the following audit tests for vehicles manufactured to this specification:

- A. Orange Peel
- B. Thickness (mil test)
- C. Boil test
- D. Cross hatch

Test cards shall be dated and marked with the specific vehicle identification number. These results shall be supplied at final inspection. No Exceptions

Complies As Written

Does Not Comply

### Module to Chassis Mounting System - Body Mounts

The module shall be mounted to the chassis frame with minimum of ten (10) tie down locations, five (5) down each side symmetrically located. Each mounting location shall consist of a rubber doughnut type system that is securely bolted to the OEM manufacturers frame and the 1/2 inch thick X 3 inch wide aluminum plate that is a welded component of the module sub floor. The bolts utilized shall be 1/2 inch Grade 8 (or equivalent). In order to make the vehicle easier to remount the mounts shall be bolted in such a way as to allow the bolt to be easily removed from the underside of the vehicle without having to cut or modify the bolt, mount or sub structure.

Complies As Written                       Does Not Comply

### Cab to Module Mounting System - Bolting

There a minimum of twenty (20) 1/4-20 bolts fastening the cab and module together. They shall be grade 5 1/4-20 bolts.

Complies As Written                       Does Not Comply

### Cab to Module Mounting System - Seal

There shall be a closed cell neoprene seal placed between the cab and module to prevent electrolytic corrosion and provide a water tight seal.

Complies As Written                       Does Not Comply

### Bumper and Rear Step Construction - Rear Bumper

Mounted on the rear of the vehicle shall be an all aluminum step bumper. It shall be fully welded and constructed to with stand the following forces:

Complies As Written                       Does Not Comply

### Bumper and Rear Step Construction - Bumper Design

The bumper shall be designed in such a way that in case of minor impact the bumper will slide underneath the module and reduce the chances of damage to the module itself. The bumper shall also be designed to be completely bolted to the chassis frame and not welded, so that for maintenance repairs the bumper can be easily removed and replaced.

Complies As Written                       Does Not Comply

### Bumper and Rear Step Construction - Bumper

Bumper shall be constructed of all aluminum materials to maintain weight savings. It shall be fully welded utilizing 2 X 2 inch and 2 X 3 inch tubes, 2 X 3 inch association channel. Also included for added strength will be formed 1/4 inch gusset plates. The outside corners shall be 2 X 2 inch tubes formed with an 8 inch radius for added strength. The outside corners shall be covered in .100 aluminum diamond plate.

Complies As Written                       Does Not Comply

### Bumper and Rear Step Construction - Flip Up Center

The center section will be made of 10 inch non skid aluminum step material. This center section shall have pivot hinges at that allow the step to flip up for patient loading. The center section shall be Powder Coat Painted "Yellow" for step identification and Safety.

Complies As Written                       Does Not Comply

### Bumper and Rear Step Construction - Bumper

The bumper shall be bolted directly to the chassis frame. Welding additional steel to the chassis frame rails will not be acceptable as it adds additional weight and welding tends to weaken the steel frame rail. In addition an isolation material must be supplied between the aluminum bumper and steel frame for electrolysis prevention.

Complies As Written                       Does Not Comply

### Bumper and Rear Step Construction - Rear Bumper

Bolted to the bumper shall be two (2) hard rubber dock bumper guards. They shall measure approximately 2 X 4 inches and be bolted to the outboard sections of the bumper.

Complies As Written                       Does Not Comply

### Module to Cab Access - Window

There shall be a pass thru window between the patient compartment and the chassis cab. Minimum size 18" x 18"

Complies As Written                       Does Not Comply

### Windows – Rear Door Windows

The windows combined shall have a minimum of 650 square inches of glass. They shall be approximately 28 inches tall and have the same width proportion as the doors themselves. The glass shall be dual pane insulated (single pane glass will not be acceptable). Surrounding the glass shall be an aluminum extrusion. Windows shall stamped indicating that they meet the federal safety requirement FMVSS regulation #571.205. The window shall be clamped in place with a flexible seal applied to both the sides of the door.

Complies As Written

Does Not Comply

### Splash Guards and Running Boards - Front

A combination running board and splash guard shall be constructed for the front of the module. It shall be made of 7 inch wide high traction grip strut and .100 diamond plate. It shall be welded as a complete assembly then bolted to the chassis.

Complies As Written

Does Not Comply

### Splash Guards - Rear

The rear of the vehicle shall have splash guards made of .250" high impact rubber backed by .100 diamond plate. Rubber is to hang 5" below diamond plate.

Complies As Written

Does Not Comply

### Fender Flares - Fenders

Vehicle shall be supplied with cast aluminum fender flares. The fender flares shall be powder coat painted to match the body color.

Complies As Written

Does Not Comply

### Wheel Well Liners - Liners

Wheel well liners shall be fully welded aluminum. They shall be lined with high impact, turf like material to reduce road noise.

Complies As Written

Does Not Comply

### Stone Guards - Front

The front of the module shall be supplied with diamond plate stone guards. They shall be formed to match the vehicle radius and be 10 inches high. They shall be attached to the module with isolating body inserts.

Complies As Written                       Does Not Comply

### Stone Guards - Rear

The rear of the module shall be supplied with 10 inch high diamond plate stone guard. It shall be one continuous piece. It shall be formed to match the vehicle radius. It shall be attached to the module using nutserts. Prior to mounting the visible area behind the cutout shall be covered with high reflective blue Reflexite. Cutout shall read: **PARAMEDICS**

Complies As Written                       Does Not Comply

### Fuel Filler - Filler

Mounted to the side of module shall be an all aluminum fuel filler housing. Housing shall be attached using isolating body inserts.

Complies As Written                       Does Not Comply

### License Plate Holder - Provision

Area for license plate shall be provided at the lower curbside or the rear diamond plate using isolating body inserts.

Complies As Written                       Does Not Comply

### Exterior Compartment Construction - Construction

Compartments sidewalls ceilings and floor shall be constructed of sheet aluminum 5050-H32. In order to maintain maximum payload and still meet structural requirements sheet thickness will vary in size dependent upon the specific function of each compartment. Sheet thickness minimum size is .090 inches and maximum size is .1875 inches. (See compartment descriptions for specific sizes)

Complies As Written                       Does Not Comply

### Exterior Compartment Construction – Dimensions

The exterior compartments shall follow the following dimensions.

L1 – 32"W x 73"T (Forward of drivers side, this is the designated electrical / Storage compartment)

L2 – 14 1/2"W x 79"T (Located in the rear drivers side corner, accessed from rear. Designated vertical long board storage)

Complies As Written

Does Not Comply

### Exterior Compartment Doors - Construction

Compartment doors shall be constructed of a single sheet of .125 inch aluminum sheeting 5052-H32. They shall be box panned formed and precision welded to provide a seamless door.

Complies As Written

Does Not Comply

### Exterior Compartment Doors - Handles

The doors shall be fitted with all stainless steel polished door handles. Non stainless parts shall have a yellow zinc chromate finish. Doors over 36 inches tall shall have dual latches. The door rods shall have formed ends that fit over the pull mechanism in a manner that even if the locking pin were to fail the rod will remain attached to the door pin. Door rods shall be threaded for fine tune adjustments. Cables, fixed length rods, or rods with bends will not be acceptable. Doors under 36 inches shall be fitted with a polished stainless steel handle that has the rotary catch mechanism built in the handle. Non stainless parts shall have a zinc chromate finish.

Complies As Written

Does Not Comply

### Exterior Compartment Doors - Hardware

The exterior compartment doors over 36 inches shall be equipped with two stage rotary latches constructed of high strength, heat treated, steel latch components. Components shall be zinc electroplated and coated with Everlube. Latches shall be bolted in place with 5/16 inch grade 8 bolts.

Complies As Written

Does Not Comply

### Exterior Compartment Doors - Hinges

The doors shall be fitted with stainless steel hinges with a minimum pin diameter of .250 inches and a minimum leaf size of 1 inch. Hinge knuckles shall be peened to keep pin from coming out. The doors shall be fitted with quarter twenty nutcerts for bolting of hinges. These nutcerts shall be applied to both the doors and the door frames. They shall be bolted in place with 1/4-20 stainless steel bolts.

Complies As Written

Does Not Comply

### Exterior Compartment Doors - Insulation

Doors shall be lined with a 3/4 inch thick high density closed cell foam that has both insulation and sound attenuation qualities. It is noted that the doors are constantly being exposed to moisture. Therefore door insulation shall also have an anti-microbial treatment (Microban or equivalent).

Complies As Written                       Does Not Comply

### Exterior Compartment Doors - Hold Opens

Full height compartment doors shall be held open with spring loaded hold opens. On doors under 36 inches and tall compartment doors that need to open past 100 degrees shall be fitted with a heavy duty flexible cargo strap and bolted to the door and door frame utilizing 1/4-20 nutserts and metal footman's loops.

Complies As Written                       Does Not Comply

### Exterior Compartment Doors - Door Backs

The entrance door backs shall be .090 aluminum 5052-H32. They shall be fully powder coated white to match the interior. The door itself shall be fitted with nutserts approximately every 12 inches. The door panel shall be bolted in place with coated bolts and isolation washers.

Complies As Written                       Does Not Comply

### Exterior Compartment Doors - Seals

Each compartment door shall be equipped with a door seal. Inboard of the door shall be a formed perpendicular flange for a seal that surrounds all four sides of the door. This flange shall also include small plates at the Nader pin locations to ensure that the seal completely surrounds the Nader pin opening. Since this seal is more susceptible to long term wear and tear it shall be mechanically fastened and be easily replaced.

Complies As Written                       Does Not Comply

### Exterior Compartment Doors - Maintenance

All compartment doors shall be equipped with reflectors. These reflectors shall be removable and placed in a location that allows for maintenance access to the door latches. Doors that open out on the "streetside" of the vehicle shall have automatic on flashing lights, minimum of 3 LED's with an amber lens. Lights shall flash at all times the door is open.

Complies As Written                       Does Not Comply

### Exterior Compartment Coating - Finish

The exterior compartment interiors, doors and door backs shall be coated with the identical material and process used for the exterior module. The interior shall be bright white.

Complies As Written                       Does Not Comply

### Exterior Compartment Coating - Preparation

Prior to paint application the module shall be completely sanded from 80 to 180 grit. It shall be washed first in a degreasing solution. Secondly a neutralizing agent. Thirdly the module shall be completely covered in an acid etching solution and then finally coated in a solution that reduces long-term corrosion, improves impact resistance and promotes proper adhesion with the finish coat.

Complies As Written                       Does Not Comply

### Exterior Compartment Coating - Fillers

As part of the process to eliminate long term corrosion of the paint there shall be no plastic fillers allowed on the finished aluminum body. Plastic fillers (bondo) tend to crack and shrink over time and are therefore unacceptable. The only fillers allowed on the finished aluminum body will be thin walled epoxy fillers. Any defects that occur during the manufacturing process that require thicker type fillers will be unacceptable and the body must be re-welded or the component removed and rebuilt.

Complies As Written                       Does Not Comply

### Exterior Compartment Coating - Coverage

Prior to painting all holes including lights, wire routing, hardware and all fasteners shall be cut into the compartment and doors. No Exceptions. The entire compartment shall be coated.

Complies As Written                       Does Not Comply

### Exterior Compartment Coating - Auditing

Manufacturer must demonstrate a comprehensive auditing system. It is required that every vehicle (including each vehicle on multiple orders) undergo the following audit tests for vehicles manufactured to this specification:

- A. Orange Peel
- B. Thickness (mil test)
- C. Boil test
- D. Cross hatch

Test cards shall be dated and marked with the specific vehicle identification number. These results shall be supplied at final inspection. No Exceptions

Complies As Written                       Does Not Comply

### Streetside Compartment - Electrical Control

This compartment shall be dedicated storage for most electrical control components. It shall have a full height door. The upper portion will be jogged because of the interior action wall. There shall be a removable panel on the jogged portion to enable access to the oxygen and vacuum and electrical components such as switch plates, and 12 VDC outlets. Also mounted in this compartment shall be a complete as built wire and component list and circuit descriptions.

This compartment will also access the main Oxygen tank storage. Oxygen area will be sealed off from electrical area when exterior door is closed.

Complies As Written                       Does Not Comply

### Interior Coating - Requirement

Due to long term problems with high pressure laminates this purchaser is requesting alternative cabinet coverings. We have experienced cracking, chipping, and bubbling with high pressure laminates that have been adhered to wood, metal and synthetic materials. We are requesting that the cabinets, and wall and ceiling panels do not have any type of laminated surfaces. All interior surfaces shall be covered with a powder coat finish that is scratch resistant, impervious to various disinfectant and cleaning solutions. These shall have a minimum 5 year warranty.

Complies As Written                       Does Not Comply

### Interior Coating - Finish

In order to prevent scratches, chipping and pitting we are asking that an additive (quartz or equivalent) be put into the paint. We acknowledge that this additive can reduce the smoothness of the finish. As a minimum we will accept #6 or greater on the paint finish chart.

Complies As Written                       Does Not Comply

### Interior Coating - Preparation

Prior to paint application the panels and cabinets shall be completely sanded from 80 to 180 grit. It shall be washed first in a degreasing solution. Secondly a neutralizing agent. Thirdly they shall be completely covered in an acid etching solution and then finally coated in a solution that reduces long-term corrosion, improves impact resistance and promotes proper adhesion with the finish coat.

Complies As Written

Does Not Comply

### Interior Coating - Coverage

Prior to painting all holes including lights, hardware and all fasteners shall be cut into the panels and cabinets. No Exceptions.

Complies As Written

Does Not Comply

### Interior Cabinet Construction - Design

The main goal of the interior cabinet design is to produce cabinets that are resistant to cracking, denting, bubbling or chipping. The exposed vertical corners shall have a 3 inch radius for safety. The cabinets shall be designed to eliminate as many seams and trim pieces as possible in order to make it easier to clean and disinfect the vehicle.

Complies As Written

Does Not Comply

### Interior Cabinet Construction - Materials

Cabinets shall be constructed of sheet aluminum 5050-H32. In order to maintain maximum payload and still meet structural requirements sheet thickness will vary in size dependent upon the specific function of each cabinet. Sheet thickness minimum size is .040 inches and maximum size is .125 inches. (See cabinet descriptions for specific sizes) Areas that are not structural or not exposed to module interior shall be a synthetic non-hydroscopic material for additional weight reduction and insulation advantages. Material must meet all flammability requirements FMVSS 302.

Complies As Written

Does Not Comply

### Interior Cabinet Windows - Track

The sliding window track extrusion shall be designed to minimize fluid contamination. For this reason the track opening width shall be a maximum of 30 % larger than the thickness of the window itself. For example if the window is .250 inches thick the track opening cannot be larger than .325 inches. The track extrusion shall surround all four sides of the cabinet opening and be felt lined to prevent rattles.

Complies As Written

Does Not Comply