

**NOTE: Accepting options to purchase cut-a-way chassis shuttle buses with seating arrangements for 16 ambulatory and 2 to 4 wheelchair positions. Purchaser may designate wheelchair positions in the front left; across the rear of the bus; or allowing for more positions with the use of flip style seats.**

## 1.0 General

1.1 Purpose: The purpose of these specifications is to describe a mid-sized transit bus, which will be used to transport passengers in both rural and urban areas.

1.2 Intent: It is the intention of this specification to describe a vehicle of substantial and durable construction in all respects. Particular attention is given to features that will provide the safest possible vehicle for transporting people. These features include a steel cage that surrounds the passengers to protect them during accidents. Altoona test results required to be furnished as a part of this bid.

## 1.3 Requirements

- (a) The vehicle is to be equipped with a gas-fueled engine (diesel engine optional).
- (b) The chassis is to be the heaviest duty available with all possible options to make it a heavy-duty vehicle.

## 1.4 Completeness

- (a) Any part or detail that makes the vehicle complete and ready for service shall not be omitted, even though such part or detail is not mentioned in these specifications.
- (b) The price quoted in any proposal submitted shall include all items of labor, materials, tools, equipment and other costs necessary to fully complete the manufacture and delivery of the bus pursuant to these specifications.

## 1.5 Conformity

All units or parts not specified shall be manufacturer's best quality and shall conform in materials, design, or workmanship to the best practice known in the automotive industry. All parts shall be new and in no case will used, reconditioned or obsolete parts be accepted. The parts on all vehicles provided by the same manufacturer should be interchangeable.

## 1.6 Testing

Complete bus and all working and moving parts and operating devices shall be thoroughly tested and put in proper operating condition by the manufacturer.

## 1.7 Materials

All materials used in conversion of the bus shall conform in all respects to American Society of Testing Materials, Society of Automotive Engineers or similar association standards. Materials used shall be of first quality and shall be exactly duplicated in manufacture, design and construction on each bus.

1.8 Quantity

Minimum one (1) vehicle to be purchased with (8) eight options to purchase additional vehicles for a maximum of (8) eight vehicles per specification. In addition, KPTA/RTEC has the right to assign a portion of the contract awarded, to allow other transit agencies to purchase any remaining options.

1.9

Failure of RTEC/KPTA to specifically identify Federal and State regulations in its specification does not relieve the bidder of the responsibility to meet them.

2.0 Dimensions

Build as Wide Body

Wheelbase: Minimum 176" Maximum 190"

Body Warranty: 6 years/60,000 Miles Structural Warranty

Engine: Gas

Transmission: Five (5) speed overdrive automatic

Overall Height 110" +/-3"

Interior Height 80" +/- 2"

Overall Length 307" +/-5"

Interior Length Maximum 201"

Exterior Width 95" +/- 2"

Interior Width 92" +/- 2"

GVWR: 14,500 lbs.

Rear Axle Ratio: 4:10

1st Step Height 11" +/- 1" (Maximum)

12" Deep Step Minimum)

Alternator: Minimum 225 AMP OEM

Tires: LT 225/75R16E

Wheels: 16"

Std. Dash A/C 13,500 BTU minimum

Rear A/C 68,000 BTU minimum output with dedicated compressor minimum 2-fan skirt mounted condenser

Std. Dash Heat 20,000 BTU, Rear Heat 35,000 BTU

2.1 Front Passenger Door

The front passenger door must be 32" x 80" minimum with 30" clear opening in the step area between grab handles, electric operated from driver seat.

2.2 Rear Door

Rear emergency door with 2 (two) windows (top and bottom) and ajar buzzer.

2.3 Driver Door

Driver step or running board mounted at driver door, attached to the frame of the vehicle. Step must be heavy-duty aluminum or stainless steel to withstand a load of 400 pounds with no movement.

2.4 Seating

16 ambulatory passengers, 2-4 wheelchair stations, one driver.

2.5 Radio

AM/FM with CD, front and rear speakers.

2.6 Clock

Mounted in dash or included with radio

3.0 Engine

The engine shall be a 6.2 liter V8 gasoline, minimum. Engine to be front mounted.

3.1 Engine shall be furnished with a large capacity full flow oil filter easily reached and replace without removal of any major component.

3.2 The entire electrical system shall be alternator type. Battery terminals and alternator terminals shall be clearly marked to avoid misconnection and subsequent damage to the charging system.

3.3 The engine compartment shall be insulated from the passenger compartment, so as to absolutely minimize coach interior noise level, heat and fumes.

3.4 Battery ground to be located on frame in same location as batteries with grounding bolt to be installed through existing hole in chassis frame. Minimum 4 gauge ground wire.

4.0 Cooling System

4.1 Radiator fan shall maintain engine temperature not to exceed two hundred and twenty five degrees Fahrenheit (225 F).

4.2 Engine Oil Cooler;

4.3 Heavy Duty Transmission Cooler;

5.0 Fuel System

5.1 Fuel tank shall be a minimum thirty-seven (37) U.S. gallon capacity internally baffled to prevent surging and rigidly supported by at least two (2) supports arranged for easy removal.

5.2 An engine mounted fuel filter is required with replaceable-type elements, if available from the chassis manufacturer.

5.3 Must include a fuel pump access panel in the floor of the bus.

6.0 Exhaust System

6.1 The vehicle shall be equipped with a street side exhaust system that meets United States Government noise level and exhaust emission (smoke and noxious gases) requirements.

6.2 There shall be a heat shield between the tail pipe and the fuel tank.

## **7.0 Transmission**

7.1 Transmission shall be a 5-speed overdrive automatic, power shift, hydraulic drive type. Transmission shall be equipped with a dipstick to check fuel level. The transmission shall be installed such that removal as a unit without disturbing engine drive is possible.

7.2 Transmission shift lever shall be interlocked with starting motor to prevent engagement of starter in any gear position other than neutral or park.

## **8.0 Front Suspension**

8.1 Axle Capacity 4,600 pounds minimum. The heaviest available shock absorbers shall be provided; 1 3/8 inch diameter minimum.

8.2 Front suspension shall be equipped with a stabilizer bar.

8.3 Four-wheel alignment (caster, camber, toe-in and thrust angle) shall be done on completed bus prior to delivery. Provide a copy of the alignment report with the vehicle.

## **9.0 Rear Axle and Final Drive**

9.1 Conventional construction, truck-type rear axle, utilizing heavy tubes pressed into cast center section or one-piece casting is preferred. Ring gear should be bolted, not riveted to differential carrier.

9.2 Ratio is 4:10 to 1 (Low speed performance is more important than high speed in this application).

9.3 The heaviest available shock absorbers shall be provided, 1 3/8 inch diameter, minimum.

## **10.0 Propeller Shaft**

10.1 The propeller shaft should be a minimum three and one half inches (3 ½") heavy-duty type utilizing one or more Spicer needle bearing universal joints or equivalent. Drive shaft shall have a heavy duty guard to prevent it from striking the floor of the bus or the ground in the event of a tube or universal joint failure.

## **11.0 Steering**

- 11.1 Power Steering with tilt and automatic cruise control required.
- 11.2 Steering mechanism shall be self-centering, requiring little or no effort to bring the vehicle back to straight-ahead position after turning.
- 11.3 All steering linkage wear points, including tie rod ends, shall be fitted with lubrication fittings and replaceable bushings or inserts.

## **12.0 Brakes**

- 12.1 Two braking systems are required. Service Brakes shall be dual hydraulic, power assisted, disc front and rear. Braking system shall be adequate for the GVWR of the vehicle.
- 12.2 Notwithstanding the requirements of 12.1 above, the braking system shall be the heaviest duty OEM available.
- 12.3 Parking brake shall be foot operated.
- 12.4 4 Wheel Anti lock Brakes.

## **13.0 Wheels** (Dual Rear):

- 13.1 Vehicles shall be equipped with the heaviest duty available ventilated pressed OEM steel wheels, 16" diameter and 6" width, single front and dual rear, including spare. All wheels are to be interchangeable and equipped with chrome/stainless bolted on wheel simulators.

## **14.0 Tires**

- 14.1 Successful bidder shall supply size LT 225/75R16E; steel belted radial tires with all weather tread design. Spare tire mounted on wheel of same size and brand shall be shipped loose inside the vehicle.
- 14.2 Inner dual wheels shall have air valve extensions.

## **15.0 Bumpers and Grille Trim**

- 15.1 The front bumper, grille and trim shall be the chassis manufacturer's standard chrome.
- 15.2 The rear bumper shall be a minimum 10 gauge 7" wide built in recessed step style steel bumper with non-skid surface.
- 15.3 Bumpers shall be fastened directly to the chassis frame to allow shock from impact to be transmitted directly to the chassis frame.

## **16.0 Electrical System and Components**

- 16.1 The electrical systems and equipment shall comply with all applicable FMVSS and shall also conform to all the applicable SAE recommended standards and

practices. All electrical and electronic components shall be selected to minimize electrical loads thereby not exceeding the vehicles generating capacity.

All electrical system components and wiring shall be readily accessible through access panels for checking and for maintenance. All switches, indicators, and control shall be located and installed in a manner that facilitates easy removal and servicing. All exterior housings of lamps and fixtures shall be corrosion resistant and waterproofed. The harness supplying the rear lights shall be hermetically sealed including terminals and connection points.

- 16.2 One (1) alternator of at least 225 amps OEM.
- 16.3 Dual OEM batteries having a 750 CCA minimum each, one installed in an easily accessible location in the Auxiliary Battery slide tray in passenger side skirt panel and one battery located under the hood in factory location. Cables from front battery to rear shall be minimum 4 gauge, with rear circuit breakers/ junction block installed inside the rear battery box.
- 16.4 The switch panel mounted on the dashboard within easy reach of the driver, shall incorporate all switches including, but not limited to, the following: passenger compartment, light switch, rear air conditioning switch, rear heater switch. These switches shall be back lighted for easy night operation.
- 16.5 The electrical system shall incorporate a warning light and audible buzzer, located either on the switch panel or the dashboard, to show when a door is ajar.
- 16.6 The Electronic Body Circuit Panel with Self-Diagnostic Capabilities located above driver door in an ABS non-conductive enclosure with door. This circuit panel must be separate and distinct from the vehicle chassis circuits. All wiring provided by the bus manufacturer should be copper and conform to all the SAE J1292 requirements.
- 16.7 Wiring - All general-purpose wiring shall be vinyl insulated and shall meet SAE standards. Each wire shall be color, number and function coded. These numbers and functions should appear at a minimum of 6" intervals the entire length of the wire.
- 16.8 The wiring shall be routed in a split open-type loom. All looms and wiring shall be secured to the body or frame with straps in order to prevent sagging and movement which results in chafing, pinching, snagging, or any other damage.
- 16.9 All harness and wiring terminals shall terminate at appropriate junction terminals set in baked or molded plastic material. All wiring and end connectors shall be of the soldered, hand, or machine-staked type.
- 16.10 All wiring devices, switches, and etc., except circuit breakers, shall be rated to carry at least 125% of the maximum ampere load for which the circuit is protected. There shall be a master electrical component panel located inside the bus. Circuit breakers shall be of the manual reset type and designed specifically for each circuit.

16.11 All switches supplied by the bus manufacturer shall employ permanently engraved labels. These shall be backlit. Decals or other "stick-on" type labels are NOT ACCEPTABLE.

16.12 Dual horns shall be furnished and installed so as to be protected from wheel wash.

### **17.0 Instruments and Controls**

17.1 The following instruments are to be provided:

- Voltmeter
- Oil pressure gauge
- Fuel tank level gauge
- Engine temperature gauge
- Headlight high beam indicator
- Directional signal and flasher action light

All instruments are to be grouped on a single panel in full view of the driver with no instruments obstructed by controls, trim panels or other appurtenances and arranged in a consistent and uniform manner.

17.2 The following controls, in addition to the normal steering, braking and transmission functions are to be provided:

- Column mounted turn signal lever
- Emergency flasher facing driver and clearly visible
- Door control at driver's location
- Master exterior light switch
- Separate switch and temperature controls for driver heaters and defrosters
- Two-speed wiper control - with intermittent feature
- Windshield washer
- Passenger compartment lights

### **18.0 Body Construction**

18.1 The body structure shall be built as an integral unit adequately reinforced at all joints and corners where stress concentration may occur to adequately carry required loads and withstand road shock.

18.2 The side and end framing shall be so designed and constructed that they will carry their proportion of the stresses around these openings. All posts in body side and roof sections shall be of durable box construction securely fastened to the under frame structure so that the entire frame shall act as one unit without any movement at the joining. The end posts shall be designed to resist wear.

18.3 The vehicle body structure must incorporate a full jig-welded steel body framing for floor front, rear, sidewalls and roof including above the driver.

18.4 The vehicle floor assembly shall be a lateral body support structural design, incorporating longitudinal stringers welded on a maximum of 16" spacing and a perimeter structure of steel angle.

- The entire floor assembly shall be a jig welded steel structure, equivalent of the following: Lateral G-Channel Crossbeam: shall be 2.0"x 4.8" 14 gauge cold rolled steel, reinforced at each mounting point. Longitudinal support members shall be C-Channel 1"x 1 ½ " and 1"x 3 ½ " 12 gauge hot rolled steel. The floor assembly perimeter structure shall be 1 1/4"x 2" 12 gauge hot rolled steel angle. In the wheelchair lift position a minimum 11 gauge steel plate approximately 20" x 56" shall be welded to the floor assembly for strength.
- 18.5 The sidewall structure shall be a combination of and/or equivalent of the following: All vertical support columns shall be 1"x 2" 18 gauge hot rolled steel, formed box channel with reinforcing groove and/or 1"x 2" 16 gauge hot rolled steel tube. All non-supporting members shall be 1"x 1" 16 gauge hot rolled steel tube and/or 1"x 1" 16 gauge hot rolled steel C-Channel.
  - 18.6 The sidewall structure and polystyrene core shall be uniformly bonded to all interior and exterior substrates and finish panels over the entire panel surface, thereby creating an integrally structured composite wall panel.
  - 18.7 The roof structural support members shall be the equivalent of 16 gauge hot rolled steel hot section roof bows 1 ½" high x 3 3/8" wide with an 18 gauge hot rolled steel reinforcing cap plate attached to the open side of each bow.
  - 18.8 The roof structure and polystyrene core shall be bonded to all interior and exterior substrates and finish panels over the entire panel surface; thereby creating an integral structured composite roof panel.
  - 18.9 The entire body steel cage frame (floor, walls, roof, front and rear) shall be securely welded together to provide an integral one-piece body structure. Fastening of floor to sidewalls to roof by any means other than welding will not be acceptable.
  - 18.10 Any method of construction that is accomplished without welding or that result in other than the level of quality as defined above will not be acceptable. The purchaser will be the final judge if the proposed structural construction is acceptable.
  - 18.11 Before or after assembling, all steel body parts shall be given a thorough multiple stage anti-corrosion treatment. Zinc chromate prime paint shall be applied to all steel.
  - 18.12 The body shall be bolted to the chassis through rubber isolator bushings as provided by the chassis manufacturer. Welding of any-body understructure to the chassis frame will not be permitted.
  - 18.13 The exterior roof material shall be seamless one piece fiberglass reinforced plywood (FRP). The sidewall and roof shall be joined at the roof gutter above the windows. All panels shall be installed so that they will shed water, that is, the leading panel shall be lapped over the following panel and in no case shall the sealing of the panels be dependent on caulking alone. Aluminum exterior sidewalls shall be insulated from the sidewall structure to prevent electrolysis.

Side panels below the floor line shall be aluminum easily removable for service and repair. .060 Aluminum exterior skin.

- 18.14 Inside walls and ceiling shall be insulated. The insulation shall be minimum 1" thick high-density polystyrene. All nuts, bolts, clips, washers, clamp and like fasteners shall be zinc or cadmium plated, or phosphate coated to prevent corrosion.
- 18.15 Wheel housings shall be of steel construction, 11-gauge minimum. Wheel housings are to be constructed and adequately reinforced to prevent deflection. Ample clearance shall be provided for tires under load and operating on both smooth and rough terrain.
- 18.16 Access doors shall be provided where necessary to service transmission, engine, and radiator, battery, and air conditioning components. Auxiliary Battery slide tray in passenger side skirt panel.
- 18.17 The entire body frame under structure of the vehicle is to be fully undercoated with non-flammable resin-type material, polyoleum or equivalent, applied at the time of manufacture.
- 18.18 Any bright metal exterior trim shall be stainless steel, polished aluminum, or chrome plated.
- 18.19 Must be undercoated and corrosion warranted.

#### **19.0 Door**

- 19.1 The entry door shall be fully encompassed by an integrally welded steel door surround. The complete door surrounds and header shall be a minimum 14 gauge steel, and will incorporate the step well, and be installed in the body as a single unit. The step well shall be minimum 10 gauge steel with each step being no higher than 10".
- 19.2 The door shall have a full clear opening width of at least thirty inches (30") and a full height of at least eighty inches (80"). An extension of the basic van door is not acceptable.
- 19.3 The passenger entry door shall be located directly across from the driver at a 90-degree angle for maximum viewing of entryway.
- 19.4 The entry door shall be a two-leaf full-view tempered glass, outward opening type, power operated, and controlled from the driver's seat.
- 19.5 At the meeting edges of each door leaf, a rubber seal shall be installed so that the edges form a tight overlapping seal when closed.
- 19.6 A 1 1/4" stainless steel clad grab bar and padded stanchion shall be securely fastened to both sides of the interior of the doorway parallel to steps to assist in entering or exiting the vehicle.

19.7 Dual lift doors shall be installed at the wheelchair entry with top window and pneumatic door shocks to hold door open while wheelchair lift is being operated.

19.8 Top Rear Amber Flashing Lights that operate when the wheel chair lift is in use.

## **20.0 Windshield and Windows**

20.1 The windshield is to be a one-piece design as provided by the chassis manufacturer. Windshield shall be **tempered** tinted safety glass.

20.2 The driver's window shall be **roll down type made of tempered safety glass**.

20.3 The side passenger windows shall be transit type, as opposed to the school bus type. It is desired to maintain a transit type appearance, and school bus windows will not be accepted. Passenger windows must be capable of opening to ensure ventilation. Windows shall be an upper T-Sliding design.

20.4 The view (eye) level shall be measured from the top of the side windows. This view level shall be a minimum of 62" measured from the floor. The bottom of the window shall not be above the level of the seat back.

20.5 One emergency escape window must be provided on each side of the bus. In addition, red lights are to be over the windows to show these locations.

20.6 Emergency windows must be clearly labeled and operating instructions must be clearly visible. All windows shall be designed and installed in compliance with FMVSS 217.

20.7 All passenger windows must be safety glass with an AS-3 marking. Windows are to be dark tinted to a maximum of 31% light transmission.

20.8 All passenger windows shall be installed in black powdered or anodized aluminum frames, or the equivalent. Each side window shall be a minimum of 108" perimeter dimension.

20.9 A top window will be in wheel chair door for the wheelchair passenger view.

20.10 A window at top and bottom will be located in the door at the rear of the bus.

## **21.0 Windshield Wipers**

21.1 Heavy-duty electric two-speed windshield wipers controlled by a variable speed (intermittent) switch shall be furnished.

## **22.0 Heater**

22.1 The heating system shall have at least two (2) unit type heaters, one (1) located in the driver's area (chassis supplied) and one (1) in the passenger area. Output of the passenger heater shall be at least 35,000 BTU's. A cut-off water valve shall be installed.

22.2 Heaters are to be individually controlled by three (3) position switches; low, high, and off, and be controlled from the switch panel.

22.3 Provisions shall be made for windshield defrosting adjustable output within reach of the driver.

### **23.0 Air Conditioning**

23.1 Automotive in-dash type front air conditioning and a separate rear auxiliary air conditioning system shall be provided. The rear air conditioning shall have separate controls within reach of the driver.

### **24.0 Interior Lighting**

24.1 The basic interior bus lighting configuration shall include: a driver's compartment dome light, instrument panel lights, switch panel backlighting, LED lights for the passenger area, and a step well light that adequately illuminates the step well area with the door open and will be wired to automatically activate when the passenger door is opened.

### **25.0 Exterior Lighting**

25.1 All exterior lights must meet State and US DOT requirements.

25.2 Dual rectangular LED headlamps of sealed beam type are required with high and low beam.

25.3 Directional signals shall meet all Federal Motor Vehicle Safety Standards front and rear. Directional signals shall be operated by lever on left side of steering column.

25.4 In addition to directional signals, rear lamps shall consist of red stop/tail lights.

25.5 A circuit shall be provided for the directional signals which, when on, will cause them to function as traffic hazard warning signals.

25.6 The flasher unit for directional signals and emergency flashers shall be replaceable from inside the vehicle and shall be a simple plug-in unit.

25.7 A LED license plate light shall be provided on the rear of the vehicle.

25.8 Two (2) back-up lights shall be provided.

### **26.0 Flooring**

26.1 The floor sub-structure shall be covered with minimum 5/8" CD exterior grade plywood. The underside of the floor shall be sealed with a material to prevent moisture intrusion. All edges must be sealed.

26.2 Floor covering shall be slip resistant vinyl flooring, constructed with aluminum oxide, silicon carbide and optional PVC chip blended throughout a high quality

- vinyl wear surface (top coating is not acceptable). Backing to be polyester/cellulose material with fiberglass fiber reinforced center scrim for additional durability. Bacteriostats will be incorporated providing all exposed surfaces with excellent anti-bacterial properties, minimum thickness of 2.2 millimeters. Altro Transflor or equivalent.
- 26.3 The entire floor will be a uniform thickness throughout the vehicle, eliminating the need for ribbed surfaces, while exceeding the ADA minimum slip resistance standard rating of .06 static coefficient of friction under dry or wet conditions. Installation of the floor covering shall be done in a manner so that the flooring rolls up the side wall of the vehicle to the seat track. There shall be no seams for water to penetrate the floor where the wall meets the floor.
- 26.4 Seams are to be heat welded to provide a permanent waterproof seal against water penetration leading to premature sub-floor failure or curling leading to possible tripping hazards.
- 26.5 Landing area and step edgings are to be yellow safety vinyl edging. Edging is to be heat welded to the main floor and step treads to provide for a long lasting seam.
- 27.0 Interior**
- 27.1 The interior is to provide a pleasant, aesthetically pleasing atmosphere. School bus-type interior is not acceptable.
- 27.2 Interior walls shall provide **fiberglass reinforced plywood (FRP)** finish that is durable, easily cleaned and coordinates with the vehicles interior color scheme and eliminate outside noise.
- 27.3 The headliner shall be covered with **fiberglass reinforced plywood (FRP) that coordinates with the vehicle interior color scheme.**
- 27.4 All stanchions shall be 1 1/4" stainless steel clad and shall be securely fastened into structural members at all mounting points. Stanchions shall not be mounted to sheet metal, fiberglass or other non-reinforced areas.
- 27.5 A vertical stanchion and padded modesty panel shall be installed in the entry way at the rear of the step well. A driver stanchion with tinted barrier must be installed.
- 27.6 A driver's sun visor shall be provided.
- 27.7 A large driver's storage area must be available in the bulkhead.
- 28.0 Seats**
- 28.1 The driver's seat shall be cloth upholstery color coordinated with the passenger seats and have retractable seat belt. The driver's seat shall be high back, adjustable fore and aft and it shall have a right hand flip-up armrest.

- 28.2 All seats shall be semi-contoured or pleated type bench seats. All seats shall use Featherweight or approved equal mid high seating with floor and wall track. It is not desired to obtain a school bus type seat.
- 28.3 All seats shall provide a minimum seat width of 17" per passenger or 34" for each two (2) passenger seats. Seat backs are to be a minimum 33" in height measured from the floor to the top of the back of the seat.
- 28.4 Seat cushion depth shall be a minimum of 18". All seats shall be covered with a transit quality vinyl. Seats shall be foam padded and shall be constructed with no-sag spring bottom suspension. It is not desired to obtain plywood bottoms.
- 28.5 Seats shall be spaced on a minimum of 32" seat centers allowing 17 ½" minimum leg space between the front of the bottom cushion and the back of the next forward seat.
- 28.6 Under the seat mounted retractable seat belts at all seating positions. The seat belts must be usable with standard infant/toddler seats and meet ADA and FMVSS requirements.
- 28.7 **Three (3) 24" seatbelt extensions** to be included with each vehicle.
- 28.8 Padded Grab/assist handles shall be mounted on top of all seats.
- 28.9 Flip-up arm rests shall be mounted on the aisle side of each bench.

**29.0 Safety Equipment**

- 29.1 Each vehicle will be equipped with a 16-unit first aid kit, bloodborne pathogens clean-up kit, 5-lb. fire extinguisher, three (3) triangle reflectors and **two (2) seatbelt cutters**. These items should be properly placed and secured.
- 29.2 The bidder shall provide a reverse direction alarm.
- 29.2 The bidder shall provide Back-up Sonar.

**30.0 Mirrors**

- 30.1 Right hand and left hand fully adjustable outside rear view mirrors shall be provided. Non-corrosive single mount break away with convex 7" x 13" in size.
- 30.2 A rear view mirror shall be installed for driver's view of the interior with convex.
- 30.3 Rear window 'van eyes' shall be provided.

**31.0 Mud Flaps**

- 31.1 Mud flaps shall be installed behind the front and rear wheels.

**32.0 Exterior Paint**

32.1 The bidder shall quote in accordance with the purchaser's existing fleet paint design. Exterior color to be White unless purchaser chooses another color at time of order. Interior color(s) to be specified by purchaser. Specific information regarding exact paint design will be provided to the bidder upon request. Purchaser may make changes to this color scheme when placing order.

**33.0 Miscellaneous Technical Specifications**

33.1 There shall be no sharp corners on the unit that will cause injury to passengers. All corners that can cause injury shall be rounded or padded.

33.2 Welds shall be relatively free of slag inclusions and undercut. Fillet welds size shall be equal to the thickness of the least of the joined parts.

33.3 Conduit (1.75" diameter minimum) must be enclosed in ceiling close to wall on driver's side, the length of the bus.

33.4 No wires shall be visible on the exterior or interior of the bus.

33.5 The body shall be free of all cracks, dents, and defects due to metal fatigue or physical damage.

**34.0 Warranty**

34.1 Chassis Manufacturer will provide a minimum of three (3) year or 36,000 miles parts and labor and corrosion warranty to cover all components and parts of the vehicle. It is the purpose of these specifications to provide a bus body that will provide many years of service. The Conversion Company if different from the Chassis Manufacturer shall warranty the bus body structure for a period of at least five (5) years.

**35.0 Wheelchair Lift Equipment**

35.1 Wheelchair lift, Braun NCL919FIB or approved equal, shall meet ADA regulations. The wheelchair lift shall include a platform with a minimum clear width of 34" and a minimum clear length of 51". The wheelchair lift shall incorporate an emergency method of operating if the power to the lift fails. The wheelchair lift shall include handrails on both sides of the platform and safety strap (ADA 38.21). Wheelchair lift shall be grounded to the chassis frame with minimum 4 gauge copper wire.

35.2 The wheelchair lift controls shall be interlocked with the vehicle brakes, transmission, or door, or shall provide other appropriate mechanism or systems, to ensure that the vehicle cannot be moved when lift is not stowed. (ADA 38.23 b.2) Wheelchair Interlock to Contain LED Panel with Self Diagnostic Capabilities.

- 35.3 Wheelchair lift door shall be a double door and provide a minimum clear opening height of 71".
- 35.4 Wheelchair lift doors shall have top window.
- 35.5 Dual lift doors with pneumatic door shocks to hold door open while wheelchair lift is being operated.
- 35.6 Illumination of the wheelchair lift platform shall be accomplished with dual exterior **LED** lights with single Interior **LED** light located below window level and shielded to protect the eyes of entering and exiting passengers (ADA 38.31).
- 35.7 Wheelchair lift door(s) shall incorporate a light on the dash to indicate that the door(s) are not closed. An interior **LED** light shall activate when the door(s) are open to illuminate the wheelchair loading or unloading. (ADA 38.31)
- 35.8 A passenger safety lap strap shall be mounted on the lift.
- 35.9 American Disabilities Act (ADA) regulations shall supersede all requirements included in these specifications.

**36.0 Wheelchair Securement Area**

- 36.1 Two (2) wheelchair securement areas shall be available.
- 36.2 Wheelchair securement areas must have a clear floor area of 30" by 48" for each securement position. Front loaded wheelchair positions will be aligned with the wall, placing one securement position in front of the other behind the driver's area not to block the aisle. Rear side wheelchair positions shall be side by side and provide ample floor clearance 30"x48" each with adequate space for assistance with securing tie downs, minimum 66"x50".
- 36.3 Wheelchair must be secured in a forward facing position. (ADA 28.23 d.4)
- 36.4 Wheelchair securement must include a seat belt and shoulder harness for the wheelchair occupant mounted on each side of the rear door with L-Track adjustments. These belts shall not be used in lieu of a device that secures the wheelchair itself. (ADA 38.23 d.7) Must be fully retractable with metal housing. Ratchet type tie-downs are not acceptable. Q-Straint fully automatic QRT deluxe retractor (dual knobs) mounted onto L track fitting or approved equal.
- 36.5 The vehicle must have a pouches mounted to hold the devices while not in use.
- 36.6 American Disabilities Act (ADA) regulations shall supersede all requirements included in these specifications.