

Bus, Class A Transit, Accessible, 24 Passenger, ADA Fixed Route

Bus, accessible, twenty-four (24) passenger, meeting all Federal requirements for ADA Fixed Route, new and of current model, equipped as advertised by the manufacturer, to meet or exceed the following **MINIMUM** specifications:

Proposed Bus:

Manufacturer: _____ **Model:** _____

Class: _____ **Total GVWR:** _____

Ambulatory seating capacity **with no** wheelchair(s) (*exclusive of driver*): _____

Ambulatory seating capacity **with one (1)** wheelchair (*exclusive of driver*): _____

Ambulatory seating capacity **with two (2)** wheelchairs (*exclusive of driver*): _____

Non-Restrictive Clause: Any use of brand name or equal within this specification is to be considered a reference for the purpose of describing the standard of quality, performance, and characteristics desired. It is not intended to limit or restrict competition.

The bidder must respond to each of the following statements. Specifications listed are minimum requirements that must be met in order for a bidder to qualify for an award. A "YES" response means the bidder guarantees that they meet or exceed the requirement. A "NO" response means the bidder cannot meet the requirement and will not be considered. The bidder must supply printed literature that shows compliance with each requirement of the Specifications and, if on inspection, an item is found not to be in compliance, the unit(s) will be rejected.

Descriptive literature shall be furnished to substantiate the details specified throughout this bid.

Scope: The purpose of these specifications is to set forth minimum requirements for a commercially produced accessible Class A type bus, meeting FTA (Federal Transit Administration) standards, capable of seating a minimum of eighteen (18) ambulatory forward-facing passengers (sixteen (16) fixed seats and two (2) single foldout seats or one (1) double foldout seat), with a minimum GVWR (Gross Vehicle Weight Rating) of 14,000 pounds. Vehicle shall be equipped to accommodate two (2) wheelchair positions. Vehicle shall be fully tested at the Pennsylvania State bus testing facility in Altoona, Pennsylvania according to the applicable FTA minimum service life requirement.

Federal, State, and Automobile Manufacturers' Association (AMA) laws, regulations, standards, and specifications concerning the production of utility vehicles or components thereof as related to environmental protection and safety in operations as are in effect on the date of Request for Bid (RFB) shall be construed to form a part of these specifications.

Vehicle components, assemblies, and accessories shall be standard production items, unless otherwise specified herein. The vehicles and all allied equipment shall be designed to permit ready accessibility for maintenance purposes with minimal disturbance of other components or assemblies. The term "heavy-duty" is used to quantify quality or capacity that is normally supplied with the standard production item. All vehicles supplied under this specification shall be in full compliance with applicable Federal Motor Vehicle Safety Standards as established by the U.S. Department of Transportation.

SPECIFICATIONS

Chassis:

Wheelbase: 176 inches minimum

Wheelbase (inches): _____

Comply Yes/No: _____

Engine: The engine furnished shall be of heavy-duty design and construction having, at minimum, eight-cylinders, forward mounted, V-type gasoline fueled, 6.4 liters of displacement, 350 hp net SAE rated in accordance with SAE J-245, 400 lb-ft torque. The engine shall be equipped with oil bath or replaceable element dry type air cleaner and replacement element full flow oil filter. The engine shall meet the current Federal regulations and EPA emissions standards. It shall be the manufacturer's low compression type as recommended for operation on unleaded or low lead gasoline.

Number of Engine Cylinders: _____

Net Horsepower (hp): _____

Torque (lb-ft): _____

Comply Yes/No: _____

Transmission: Transmission is to be fully automatic, 6-speed, minimum, with auxiliary cooler, American manufactured model. The transmission shall be the heaviest duty truck-type model provided by the manufacturer matched to the engine horsepower and GVWR of the vehicle. Gear ratios shall provide "near even splits" for jerk-free operation and shall be ideally matched to the performance curve of the particular engine.

Number of Speed: _____

Comply Yes/No: _____

Axle/Suspension: Both the front and rear axles shall be load rated for design distribution so that they are capable of carrying the loads upon them during all conditions of transit operation, including anticipated loads and stresses. The vehicle shall be designed to carry a maximum transit load (GVWR) which shall include the curb weight of the bus, a full load of passengers, and the driver (calculation of passengers' weight averaged at 150 pounds each). Bidder shall indicate a maximum number of passengers, both seated and standing, that the vehicle can carry.

Bidder shall furnish with Bid full signed certification along with supporting documentation on ability to meet the said specifications and shall indicate certified curb weight and GVWR load rating based on axles, suspension system, shock absorbers, and tires.

Front axle shall be of standard heavy-duty design. The rear wheel bearings shall be oil lubricated.

Axle ratio shall be such as to provide at least 70 MPH road speed with full load on level surface (mechanical governor not acceptable). Drive shaft shall be capable of transmitting maximum torque generated by the engine and transmission to the rear axle. A guard for the shaft is required.

Heavy-duty shock absorbers shall be installed on both the front and rear of the chassis. The suspension shall be strengthened as needed to prevent any listing or leaning to the side of the vehicle on which the lift is located, if applicable.

The suspension system shall be designed to maximize control and roll, and prevent excessive body lean-in turns. Front stabilizer bar shall be furnished (if available from chassis manufacturer). Springs shall have the following capacities:

- a. Front axle rating – 5,000 lbs. (minimum)
- b. Rear axle rating – 9,600 lbs. (minimum)
- c. GVWR weight – 14,000 lbs. (minimum)

Front Axle Type: _____ Front Axle Rating (lbs): _____

Rear Axle Type: _____ Rear Axle Rating (lbs): _____

Gear Ratio: _____

Comply Yes/No: _____

Cooling System: The radiator shall be heavy-duty and have sufficient capacity to properly cool the engine in heavy, rural-type transit service without the addition of coolant throughout a normal day's operation. Engine fan may be driven by gears from the engine camshaft.

The cooling system shall be of a pressurized type. Manufacturer's standard OEM hosing or approved equal shall be used throughout the cooling system. All-weather type coolant shall be utilized to protect to a minimum of -20°F.

Radiator or filler neck shall be equipped with a safety pressure release cap and shall be positioned to readily permit checking and adding coolant from outside the vehicle.

Comply Yes/No: _____

Exhaust System: The exhaust system must be leak-proof and designed and constructed to minimize fire hazard. All parts must be made of corrosion resistant materials. Flexible tubing may not be used between engine and muffler.

Exhaust tail pipe shall be installed as high as possible from the ground. Exhaust gases or waste heat shall be discharged to the rear of the bus and shall exit roadside (driver side of the vehicle). The exhaust tail pipe shall be adequately supported, extend to the back of the bus, and have a turndown at the end so that exhaust gases do not discolor any part of the vehicle body.

The system shall be securely fastened and routed to protect components from hazards. There shall be a galvanized steel heat shield between exhaust system and floor. System shall conform to the requirements of Federal Motor Carrier Safety Regulations.

Comply Yes/No: _____

Fuel System: The fuel tank(s) shall have a minimum capacity of fifty-five (55) gallons for gasoline fuel. The tank(s) shall be made of heavy-gauge steel, treated to prevent rusting throughout the life of the vehicle. The tank(s) shall be mounted outside of the passenger compartment of the vehicle. The filler pipe or neck shall be free of any obstructions and meet industry standards.

The fuel system shall be internally baffled to prevent surging, and shall be rigidly supported and arranged for easy removal. The fuel system must meet Federal standards.

Number of fuel tanks: _____ Capacity per fuel tank (gal): _____

Comply Yes/No: _____

Electrical System: The electrical system shall be a 12-volt system with a 12-volt starting motor and have an alternator with a minimum rating of 225 amps. Minimum of two (2) full-size commercial transit type heavy-duty 12-volt batteries, of equal size (750 CCA minimum) and capacity, having a combined total minimum 1,500 CCA. One or both batteries shall be mounted in a pull-out drawer located behind the passenger door. All material used in the electrical system shall be of the highest available quality. The battery system shall be adequate for all electrical loads and demands. Battery system cables, charging, service life, venting, storage, voltage drop, and installation shall follow SAE recommended practices as well as the criteria outline in 49 CFR § 393.30. Alternator must have sufficient capacity to charge above the demand rate with full load, air conditioning, wheelchair lift, and other equipment operating when engine is at idle, with a minimum alternator capacity of 225 amps.

All electrical wiring in the vehicle shall be of sufficient size to carry the required currents without excessive voltage drop. All wiring shall be SAE J1128 type GXL wiring covered with split loom, convoluted tubing to protect wiring from chaffing and other mechanical damage. Wiring shall be color and function coded. All wire connectors shall be OEM type (or equivalent) locking plastic moldings with brass or copper terminals. All circuits, including main power feed, shall be protected by manual reset circuit breakers.

All electrical components shall be designed to function effectively under both normal driving conditions and conditions of high amperage at idle speeds.

A schematic shall be affixed inside the master panel, identifying which breaker controls which component or fixture (for bus body).

Paper and cotton braid wrap is not acceptable. Wiring in engine compartment shall be insulated to protect it from engine heat. Cables and wiring shall be held in place with rubber-covered clamps.

All cable and wiring diagrams are to be marked showing the codes used.

Two (2) heavy-duty, 12-volt electric horns shall be provided and installed in a location protected from wheel wash.

Electrical devices, switches, and gauges shall be located such that they will not create a fire hazard during normal operation or in the event of failures. All electrical motors, with the exception of the starter, shall be readily accessible for service including directional lights, defroster, and door buzzer.

A battery disconnect switch shall be located in either the driver's area or the battery compartment.

Vendor shall provide a 12-volt power outlet.

Alternator Manufacturer: _____ Amperage Rating: _____

Battery (CCA): Each: _____ Combined: _____

Comply Yes/No: _____

Instrument Panel and Control Switches: A separate instrument panel shall be conveniently located in front of the driver and adequately lighted. It shall include, at a minimum, the following instruments:

- a. Reliable road speed indicator with odometer
- b. Oil pressure gauge
- c. Ammeter or voltmeter gauge
- d. Fuel gauge
- e. Headlights high beam indicator light
- f. Engine temperature (hot engine) gauge
- g. Left and right turn signal indicators

The chassis manufacturer shall provide and cover instrument panel with plastic covering or equivalent in order to provide protection from precipitation from time of manufacture until body is mounted.

Warning lights and buzzers shall be provided to indicate low oil pressure and engine overheating.

A control switch panel shall be located in the driver's compartment and shall be designed for simplification of electrical controls and shall be inclined for easy access to control switches. Separate switches shall control the front heater, rear heater(s), and defrosting motor.

Normal control of electrical units, except turn signals, hazard flasher, and horn, shall be through positioning of the main control switch, if applicable.

Comply Yes/No: _____

Steering: Steering mechanism shall be equipped with an integral power steering unit constructed to allow the operator to easily steer the bus and to minimize road shock and vibration. Steering wheel/column shall be tilting for operator comfort and safety and include speed (cruise) control.

Comply Yes/No: _____

Brakes: The service brakes shall be heavy-duty power hydraulic disc-type brakes with electronic Anti-lock Braking System, and shall comply with the latest motor vehicle safety standards in effect. Wearable brake parts shall be

heavy-duty and shall be designed to be compatible with axles, tires, other suspension components, and GVWR requirements.

The parking brake may be either combined with the emergency spring braking system or mechanically operated by the driver. The system shall be adequate to hold a fully loaded bus on a 20% grade.

Bidder shall furnish with Bid, full information and specifications of braking system.

Comply Yes/No: _____

Wheels and Tires: Wheels and tires shall be sized according to OEM chassis specifications. Tires shall be all season, tubeless, steel-belted radial ply. There shall be single wheels on the front and dual wheels on the rear. All wheels and tires shall be interchangeable, of equal size and rating. The combined load rating of wheels and tires shall meet or exceed the minimum GVWR of the vehicle. One spare tire and rim shall be provided, mounted (if possible) to the vehicle, and shall be identical in size and manufacture to other tires. A valve stem extender on the inner wheels shall be provided so the tire pressure can be easily checked and adjusted. Mud flaps shall be provided behind both sets of rear wheels. Tires and wheels shall be properly balanced and aligned.

Tire Size (including load index and speed rating): _____

Comply Yes/No: _____

Lubrication: Full and complete lubrication as furnished in regular commercial production units shall be provided. High-pressure hydraulic fittings shall be provided where needed. Fittings shall be located to permit ease of access.

All exposed lubrication fittings shall be masked or otherwise protected at the time of painting and undercoating.

Comply Yes/No: _____

Fast Idle Solenoid: A fast idle solenoid or equivalent shall be installed on the vehicle. The system must permit higher engine RPMs while the vehicle is at rest without need of the driver to continuously depress the accelerator pedal. With transmission in Park, and parking brake set, fast idle will automatically increase RPMs to a pre-set level when a low voltage condition is detected.

Comply Yes/No: _____

Body, Interior, and Accessories

General Dimensions:

- Overall Width: 96 inches maximum
Overall Width (inches): _____
- Overall Height: 127 inches maximum (with air conditioner)
Overall Height (inches): _____
- Ground to First Step: 12 inches maximum
Ground to First Step (inches): _____
- Step Depth: 8.5 inches minimum
Step Depth (inches): _____
- Individual Riser Height: 9.5 inches maximum
Individual Riser Height (inches): _____

Comply Yes/No: _____

Interior Dimensions: Passenger Compartment of Body

- Height: 72 inches minimum

Height (inches): _____

- Center Aisle Width: 13 inches minimum

Center Aisle Width (inches): _____

- Hip-to-Knee Space: 27 inches minimum

Hip to Knee Space (inches): _____

Comply Yes/No: _____

Wheel Housing and Stepwell: Wheel housing shall be steel or aluminum construction providing ample clearance of front wheel while steering. Wheel housing and fenders must be constructed so as to permit removal of wheel hub assemblies as a unit. Wheel housing shall be protected against corrosion with undercoating.

Stepwells are to be of heavy-duty steel or aluminum construction with adequate reinforcement to prevent deflection. They shall be adequately fastened to and supported by the body. Steps and risers shall be in accordance with general dimensions as noted and shall conform to Federal regulations governing elderly and handicapped vehicles.

Stepwells shall be lighted and shall have a first entry step no higher than 12 inches above the ground. Individual risers shall not exceed 9.5 inches. The steps shall have a minimum depth of 8.5 inches and shall be continuous for the full width of the door opening.

Comply Yes/No: _____

Running Board: A running board shall be installed on the driver's side of the vehicle. The running board shall be of one-piece construction, rattle free, and extend from the rear of the front wheel to the rear of the driver's door. The minimum usable step depth shall be 8 inches.

Comply Yes/No: _____

Bumper and Tow Hooks: Standard front and rear bumpers shall be provided.

A minimum of two (2) rear tow hooks, with the hooks and their mountings of sufficient strength to tow the vehicle, shall be provided and securely attached to the vehicle's understructure. Tow hooks shall be located so that no damage occurs to the vehicle when in tow.

Comply Yes/No: _____

Hood: Shall have lock release from inside the vehicle, easily accessible to the driver. If tilt-type design, hood must have some form of external locking device.

Comply Yes/No: _____

Body Structure: Welded steel cage construction is required. Fiberglass reinforced plastic (FRP) may be used in combination with steel cage construction.

The steel cage construction shall be hot rolled low-carbon steel, tubular with steel roof rails welded to the body sidewall assemblies with a one-piece FRP or steel roof.

The frame shall be designed to correspond with or exceed standard practice performance criteria for vehicles of this type and for the vehicle weight and anticipated loads and stresses.

Sidewalls shall be constructed of FRP or galvanized steel panels, welded or bonded to the steel frame. Note: Aluminum sheeting on the steel frame is not acceptable.

The sidewall bottom rails shall be 16 gauge hot rolled carbon steel, tubular 'Z' configuration, welded to the sidewall studs at 16 inches on center and welded to the side panel 12 inches on center at assembly. Inner sidewall rail shall be 11 gauge structural angle iron welded 16 inches on center and bolted to frame at assembly using 7/16 inch hardened bolts with lock nuts.

Buses built with honeycomb composite construction will not be considered for this RFB.

A detailed structural drawing of the cage construction shall be submitted with the Bid. The drawing will include the size, gauge, and spacing of all structural components.

The body and under structure shall be built as a unit, adequately reinforced at all joints and corners where stress concentration may occur. Design shall be adequate to ensure safe and successful operation of the bus in a heavy traffic, stop-and-go, fully loaded operation.

The side and end framing shall be so designed and constructed that they will carry their proportion of the stresses. All posts in the body side and roof sections shall be durable channel or box construction securely fastened to the under-frame structure so that the entire frame shall be as one unit without any movement at the joints. The end post shall be designed to resist shear. Outside body construction shall consist of sectionalized lower body (skirt) panels with a rub rail at approximately the floor line. The panels shall be constructed of material designed to resist damages from scrapes and impact, and shall be fastened to the frame in such a manner as to facilitate rapid and economic replacement.

Roof construction shall be of sufficient strength and stiffness to prevent vibration, drumming, or flexing in service, and shall be equivalent to the strength of the bus side wall. The roof shall be constructed of welded galvanized steel or one piece FRP design.

All exterior joints and seams shall be protected by an application of caulking compound of zinc-chromate type or similar material. The body and roof shall be thoroughly water-tested and made tight to prevent leakage. Outside body panels that are welded construction do not require caulking.

Before assembly, all metal body parts shall receive a thorough multiple state anti-corrosion treatment.

The vehicle body shall be attached to the chassis frame in such a manner as to prevent shifting or separation of the body from the chassis under severe operating conditions.

Interior surfaces of body panels and posts, if welded after prime painting and covered by trim materials, shall receive an additional coat of primer as added protection against corrosion. All nuts, bolts, clips, washers, clamps, and like fasteners shall be zinc or cadmium plated or phosphate coated to prevent corrosion.

The entire body frame understructure of the vehicle is to be fully undercoated, in compliance with EPA regulations, with nonflammable resin type polyolefin material or equivalent, applied at time of manufacture. Automotive quality undercoating is not satisfactory.

The body shall be of sufficient strength to support the entire weight of the fully-loaded vehicle on its top or side, if overturned. A copy of the FMVSS 220 roll over protection test results shall be available and submitted if requested.

The vehicle body shall be fully insulated in the roof and all body panels to deaden sound and reduce vibrations and heat transfers.

The sidewalls of the vehicle shall be fully insulated with fiberglass or other fire-resistant and/or fire retardant insulation material to a minimum R-value of 6.

The roof of the vehicle shall be fully insulated with fiberglass or other fire-resistant and/or fire retardant material to a minimum R-value of 5.

Adequate insulation shall be provided throughout the roof and sidewall area together with engine heat riser for efficient management of heat and noise reduction. Insulation must be fire-resistant and/or fire retardant.

Access door shall be provided in front, inside, or side of bus to service transmission, engine, radiator, batteries, and electrical compartment.

Comply Yes/No: _____

Floor and Floor/Step Covering: Subfloor shall be constructed of minimum 5/8 inch marine plywood, six ply, APA certified exterior grade AB, suitably treated with rot proofing and flame-retardant materials. Flooring shall be securely attached to frame members. All edges shall be properly sealed to prevent entrance of moisture.

A water-tight seal shall be provided at the junction of the floor covering with the sidewall panels and wheel housings; and shall be firmly attached to the floor and conform closely to the floor, sidewall and wheel housings. Alternative methods to ensure a water-tight seal may be used with prior approval.

The entire wooden floor shall be properly prepared for application of rubber floor covering material having anti-skid properties. The entire area shall be covered with rubber cement before application of floor covering. Flooring material shall be transit-grade quality rubber covering. The color is to be coordinated with the interior color scheme.

Step treads shall be of matching, 3/16 inch thick ribbed treads of molded rubber. Integrally molded white nosings are to be furnished on all edges, including floor level. A white line shall be provided across the center aisle at the rear of the driver's seat.

A metal fuel tank access panel shall be provided in the floor over the fuel tank connections.

Step Tread Thickness (inch): _____

Floor Covering Manufacturer: _____

Floor Covering Make/Model (description): _____

Comply Yes/No: _____

Interior Paneling, Dash and Instrument Panel, and Ceiling: All interior walls and doors shall be paneled and covered with an easily maintained material. All panels shall be the same color and coordinated with the interior colors of the vehicle.

The dash and instrument panel shall be finished to coordinate with the interior color scheme of the vehicle.

Ceiling shall be covered with transit grade carpeting that coordinates with the interior color scheme of the vehicle.

Comply Yes/No: _____

Stanchions and Grab Rails: All stanchions and grab rails shall be 1.25 inch diameter, stainless steel tubing. Fittings shall be constructed of stainless steel, cast aluminum, or approved equal corrosion resistant material. Fittings should be constructed in such a manner as to prevent rattling.

All stanchions and grab rails shall be attached to structural posts or cross members of the roof to ensure maximum strength and stability.

A continuous, full-length overhead grab rail shall be provided on both sides of the vehicle. The grab rail shall be located so that seated passengers are free from crowding by standees. The grab rail shall be securely attached to the ceiling. Grab rail end shall terminate at the ceiling connectors of elbows, and exposed ends are to be avoided.

A vertical stanchion shall be mounted from the floor and/or seat level to the ceiling grab rail at the right rear of the driver's seat with a horizontal guard also being provided.

Vertical stanchions shall be mounted from floor and/or seat level to the ceiling grab rail at the inside corner of each stepwell with a horizontal handrail extended from the stanchion to the body side. A right-hand grab rail shall be provided forward of the entrance door and curved to form a horizontal handrail at the entrance and connected to a vertical stanchion.

A modesty panel shall be installed in front of the right passenger seat.

A floor to ceiling partition made of acrylic panel glass shall be installed behind the driver's seat.

All sharp edges, protruding fasteners, brackets, etc. that can cause injury or damage clothing must be eliminated.

Comply Yes/No: _____

Doors: Front entry door will be provided on the right side of the vehicle. The door will be double-opening split entrance type built on a tubular steel or aluminum frame welded together with a full exterior facing of tinted safety glass. Door will have a minimum horizontal opening of 28 inches with minimum height of 78 inches from top of first step to door header, and must be manually operated, unless door is removed from driver's area. If removed from driver's area, door must be electro-mechanical. Pneumatic is not acceptable. All doors shall be equipped with a locking device when closed.

Door shall be pocket-type to provide optimal seal. A soft rubber cushion at least 2 inches in width shall be attached to the meeting edges. Assist handles shall be mounted on both sides of the stairwell. Doors, door wells, and seals are to be constructed to prevent drafts and entry of water, to the extent practical. Doors and door openings shall comply with current Federal regulations.

Emergency exits complying with FMVSS 217 shall be provided. These exits may be push-out windows, rear emergency door, and/or roof exit.

Front Entry Door – Horizontal Opening Width (inches): _____

Method of Operation (Manual, Electro-Mechanical): _____

Comply Yes/No: _____

Windows: Windshield is to be fixed-type 1/4 inch tinted, laminated safety plate glass (FMVSS 205-compliant) set in heavy rubber channels.

All windows, including emergency escape windows, shall be designed and installed in compliance with FMVSS 217.

All window glass shall be of the safety type and shall be tinted. All window glass shall conform to FMVSS 205.

The driver shall be provided with an openable window on the left side. The driver's side window must be equipped with a locking device on the inside, unless it is the type which is rolled (i.e., cranked) up and down from the inside. If a driver entrance door is provided, the driver's side window shall be mounted in the driver entrance door.

Passenger side windows will be of transit design. School bus type windows will not be accepted. Vertical mullions between side windows, including trim, will not exceed 11 inches. Passenger side windows shall be sealed-type, with a top horizontal T-slide opening section. The opening section will be a minimum 6 inches in height and will provide a minimum opening area of 56 square inches. Positive locking latches will be provided. Each side window will be glazed with 1/8-inch minimum tempered safety glass.

All operable windows shall open and close freely with a tight fit when closed.

Side and rear windows (including emergency exit windows) shall be tinted a neutral color, complementary to the exterior color scheme. Maximum solar energy transmittance will not exceed 37%, as measured by ASTM E424, and luminous transmittance will be no more than 31%, as measured by ASTM D1003.

A minimum of two (2) hinged emergency escape windows shall be provided on each side of the bus. A rear emergency escape window shall be provided. Each emergency escape window shall be clearly labeled with 1" letters (minimum), be marked with a red light above the window, and have operating instructions clearly visible. Each emergency window shall have an audible alarm which will activate when the emergency latch is released.

Side window dimensions shall be 720 square inches, minimum.

Rear emergency escape window shall be 1,050 square inches, minimum.

Transition windows shall be provided in the area immediately in front of the entry door. The window area shall be a minimum of 300 square inches.

Passenger Side Window Dimensions (square inches): _____

Emergency Escape Side Window Dimensions (square inches): _____

Emergency Escape Rear Window Dimensions (square inches): _____

Comply Yes/No: _____

Heating and Defrosting System: The heating system shall consist of a minimum of two (2) units; one front unit located in the driver's area, and one rear unit (65,000 BTU minimum) so located as to uniformly heat the bus.

The front unit shall have one large heater core and two (2) heavy-duty blowers to provide sufficient heated air for defrosting of the windshield and for heating the bus. Circulation blowers shall be controlled by a three-position switch (off, low, high) on the driver's control panel.

An outlet shall be provided near the driver to allow heated air to the driver's area. A lever or knob shall control the distribution of heated air between the defroster plenum chamber and the bus heating outlet(s). The control shall be located conveniently for the driver.

The bus heating units shall be located per manufacturer's recommendations so as to provide 65°F inside temperature in an empty bus, evenly distributed, at 0°F ambient temperature. All controls should be located on the driver's control panel.

Combustion-type heaters shall not be permitted.

The manufacturer shall add the required amount of permanent all-weather coolant after heaters have been connected to protect the cooling system to -20°F.

All heaters and associated hardware shall meet SAE standards and practices, and shall meet the applicable criteria of 49 CFR § 393.77.

Comply Yes/No: _____

Air Conditioning and Ventilation: A complete air conditioning system shall be of a size capable of providing adequate cooling and dehumidifying capacity for passenger comfort. The system must be capable of maintaining a 75°F interior temperature with a full load of passengers, with an ambient temperature of 95°F and 60% relative humidity. Vehicle must have factory installed front air conditioning system.

A minimum 90,000 BTU air conditioning system shall be provided. The air conditioning system shall be equal to or better than, in standard quality, design, and performance, a system consisting of the following:

- one (1) GEN V EM-3 evaporator
- two (2) excel CM-2 condensers

- one (1) each OEM and TM-21 compressor for a combined minimum displacement of 19 cubic inches.

Hose and hose fittings shall be in compliance with SAE standard J-2064.

Bus shall be equipped with an automatic fast idle system with manual override and time-out canceling.

Multiple cool air outlets shall be provided to evenly distribute cool air for passenger and operator comfort.

All controls for air conditioning shall be located on the driver's control panel.

Bidder shall furnish complete details of the air conditioning system proposed for this vehicle with the Bid.

The condenser fans, if mounted under the chassis, shall have adequate mud/debris shields.

A ventilator in front of the driver, capable of providing ample direct ventilation for the brake and acceleration pedal area during summer operation shall be provided. The ventilator shall have a non-porous seal. It shall be an easy-to-operate control and accessible to the driver.

A driver's windshield fan shall be provided in the driver's area which is capable of providing forced air circulation to the driver. The fan shall be operated with an on-off switch, and the fan direction shall be adjustable.

BTU: _____

Comply Yes/No: _____

Interior Lighting: The instrument panel shall be indirectly lighted.

The stepwell(s) shall be adequately illuminated. The door step light should automatically engage when the door is opened. Door step lighting not engaging automatically, but turning on with outside lighting is acceptable. The stepwell and doorway immediately adjacent to the driver shall have at least 2-foot candles of illumination measured on the step tread.

Adequate lighting shall be provided to illuminate the center aisle.

Comply Yes/No: _____

Exterior Lighting: All exterior lighting must comply with Federal and State regulations. Exterior lighting shall include the following, at a minimum:

- Sealed beam headlights with high and low beam
- Front and rear directional signals, operated by a lever on the left side of the steering column and of the self-canceling type
- Two (2) white or clear backup lights in the rear of the vehicle
- Rear-mounted red combination braking and tail lights
- Rear center-mounted red brake light located on the center line of the bus below or above rear window
- Single white rear license plate light
- Front and rear clearance lights
- Minimum of six (6) reflectors: two red on rear, one red near rear of each side, one amber near front of each side
- Front and rear identification markers, amber front and red rear
- All marker and clearance lights shall have armor or protective material

Brake, tail, rear signal, marker, and clearance lights shall be LED.

A switch shall be provided to operate all directional signals simultaneously as an emergency warning signal.

Comply Yes/No: _____

Seats: Passenger seats and restraints shall meet or exceed all applicable Federal Motor Vehicle Safety Standards, including FMVSS 207, 209, and 210 requirements. A minimum of sixteen (16) forward facing fixed passenger seats shall be provided. Two (2) forward facing single or one (1) double foldout seat(s) with seatbelts shall be provided in the wheelchair securement area. Seating will be mid back, upholstered with Level III vinyl. Each seat shall have a steel frame construction with legs, seat belt anchorage, and attachment hardware. Fixed passenger seats shall be comparable to Freedman Feather Weight. Double foldout seat shall be comparable to Freedman mid back three step folding seat.

Certified test reports for the specific model of seat being used shall be submitted with the Bid.

The seat bottom foam cushion shall be a minimum of 4 inches thick at the front edge, tapering to a minimum of 3 inches at the rear of the cushion. The seat back foam will be a minimum of 2 inches thick. All seat covering material and foam shall be fire retardant and low toxicity meeting minimum requirements of FMVSS 302. Double seats shall not be less than 35 inches wide, single seats shall not be less than 17.5 inches wide, and rear bench seat shall extend the full interior width of the vehicle. Seat cushion depth shall be a minimum of 16 3/4 inches. Seat suspension shall be 'no-sag' or 'flex-o-lator' type system.

Seats shall be track mounted, with the track welded to the vehicle frame. Seat pedestal shall be offset a minimum of 5" inboard of the seat aisle side edge to eliminate potential tripping hazard. The pedestal shall be anchored in accordance with the seat manufacturer's recommendation.

All passenger seats shall be mounted with a minimum of 27 inches hip-to-knee spacing. School bus seats are not acceptable.

A seat belt shall be provided for each seated passenger. Two (2) 24-inch seat belt extensions shall be provided.

The driver's seat shall be of standard manufacture transportation quality with retractable seat belt and full range of adjustments without the use of tools. The seat cushion and back shall contain spring supports and foam padding. The seat shall be upholstered in OEM transit grade perforated vinyl. Seat frame and pedestal are to be covered with non-reflective paint. The seat must meet chassis manufacturer specifications for seating position (SRF – Seating Reference Point).

Fixed Passenger Seats:

Manufacturer: _____

Size: _____

Arrangement (must attach diagram or photo): _____

Foldout Seats:

Manufacturer: _____

Size: _____

Arrangement (must attach diagram or photo): _____

Comply Yes/No: _____

Mirrors: Heated, remote controlled, fully adjustable outside rear view mirrors, complying with all FMVSS, shall be installed on each side of the vehicle. Each mirror shall be constructed with a retractable frame designed to prevent damage by bus washer equipment. The unit shall have a minimum of one (1) 6 inch by 9 inch (minimum) flat mirror and one convex mirror per side. Stick-on types of mirrors are not acceptable.

A 4 inch by 16 inch (minimum) rectangular inside rear mirror shall be installed for the driver's view of the bus interior.

An internal rear-view mirror, 6 inch in diameter minimum, shall be mounted at the right front of the bus at the windshield headliner.

All mirror mountings shall be sufficiently rigid to prevent distortion from vibration.

Exterior mirrors shall meet SAE recommended standards and 49 CFR § 393.80.

Comply Yes/No: _____

Accessories and Equipment: All standard equipment including, but not limited to:

- Four (4) complete sets of keys
- Sun visor – manufacturer's standard, adjustable for the windshield in front of the driver and for the driver's side window
- Windshield wipers/washer – two (2) heavy-duty, self-parking, electrically operated windshield wipers; windshield washers with a one gallon (minimum) reservoir; system located for easy inspection, maintenance, filling, and removal

Comply Yes/No: _____

Emergency Equipment: A safety kit shall be furnished with the vehicle that includes, at a minimum, the following equipment:

- One (1) 5 lb. fire extinguisher
- One (1) seat belt cutter
- One (1) 25 unit first aid kit
- Three (3) triangle safety reflectors
- OSHA-approved body fluid clean-up kit
- CPR kit to contain gloves, gown, eye shield, face mask, disposable bag, anti-viral/anti-bacterial cleansing towelettes
- Six (6) 30-minute road flares

All emergency equipment shall be mounted to the vehicle so that it is easily accessible by the driver, and will not interfere with passenger movement or comfort when not in use. None of the equipment shall be mounted on a door.

Comply Yes/No: _____

Backup and side view camera system: This system shall be complete with a crystal clear color digital 7 inch TFT-LCD (thin-film-transistor liquid-crystal display) monitor with distance grid lines and mirror image capability, two side CCD cameras with 120 degree viewing angle and 50 feet infra-red night vision, one heavy-duty CCD 130 degree angle backup camera with 18 built-in infra-reds, and all wires, connectors, and mounts to make the system operational. The system shall be completely weather proof with an IP68 rating, shock resistant, a 20G impact rating, and a full one-year warranty (minimum).

Comply Yes/No: _____

Backup Warning Alarm: A smart alarm system which is activated upon engagement of the reverse gear of the vehicle, is audible above normal outdoor sounds, and meets Federal requirements. The back-up warning alarm shall be mounted on the rearmost part of the vehicle and protected from water and road spray.

Comply Yes/No: _____

Exterior Finish and Color: Cab and body shall be manufacturer's standard white. After final assembly, all surfaces requiring paint shall be thoroughly cleaned and primed. Application shall be in accordance with the procedure recommended by the paint manufacturer. The finished surface shall be free of dirt, runs, and other imperfections.

Comply Yes/No: _____

Photo: A photo of the vehicle shall be provided with the Bid. A brochure is acceptable if the bus photo is identical to the bus being quoted.

Comply Yes/No: _____

ADA Fixed Route Accessibility

100% ADA Fixed Route Accessibility: Bus shall include all ADA fixed route requirements as outlined by Federal Regulation CFR 49 Part 38

Comply Yes/No: _____

Wheelchair Lift: Lift must be ADA approved and comply with FMVSS 403 and 404. Lift shall be located on right side of vehicle, and be fully automatic with backup pump and rails. Lift doors shall be same material and thickness as body sidewalls. Lift doors shall have a t-latch system for holding the door open while in use. Lift shall include a fully automated lift interlock system.

Lift shall have a minimum lift capacity of 1,000 lbs. and a minimum platform width of 34 inches.

Wheelchair Lift:

Manufacturer: _____

Model: _____

Capacity (lbs): _____

Platform Width (inches): _____

Comply Yes/No: _____

Wheelchair/Restraint System Lock-Down: Vehicle shall be equipped with two (2) forward facing wheelchair securement and occupant restraint systems. The wheelchair lock-down securement/occupant restraint system shall be Q'Straint Q-8100-A1-L; Sure-Lok Retractor System for L track; or approved equal. When the wheelchair space(s) is not being used, there shall be either two (2) forward facing single or one (1) double foldout seat(s) available for use by ambulatory passengers (see 'Seats' Section).

A storage box or pouch for the lock-down devices and seat belts, when not in use, shall be provided and mounted close to the wheelchair locations, but not in an area that would interfere with passenger traffic.

Wheelchair lock-down/restraint system:

Manufacturer: _____

Model: _____

Comply Yes/No: _____

Chime System: Pull cord or touch strip

Comply Yes/No: _____

PA System: Public address system to include a minimum of two inside and one outside speakers

Comply Yes/No: _____

Destination Sign(s): Front and boarding side destination signs will be electronic, LED, providing adequate daytime and nighttime visibility and easily programmable for multiple locations, such as Twin Vision, Transign, Hanover, or approved equal. The purchasing entity will furnish readings (6 Maximum) at time of order to be pre-programmed by

the vendor. The manufacturer's name and model number must be shown and must meet ADA fixed route requirements.

Manufacturer: _____

Model: _____

Comply Yes/No: _____

Additional ADA Fixed Route Equipment: List and describe additional equipment included to make the bus 100% ADA fixed route accessible:

OPTIONAL EQUIPMENT

The **optional equipment** listed in this section may be selected **in addition to** the standard vehicle specification requirements outlined above in **an ALL, NONE or SOME manner in any combination**. The complete vehicle together with all standard and optional equipment chosen must meet or exceed any and all applicable State and Federal laws, rules, and regulations including those issued by FMVSS, FTA, FHWA and other applicable safety regulations.

Driver Barrier: A transparent floor-to-ceiling, sidewall-to-sidewall barrier shall be installed behind the front seating area to separate the driver's area from the rear passenger compartment. The barrier shall be made from clear polycarbonate and shall not impact driver visibility. Design intent is to minimize the spread of disease-carrying airborne particles (breaths, coughs, and sneezes).

Note: When this option is chosen, the driver barrier will replace the standard driver partition listed above in the "Stanchions and Grab Rails" section.

Barrier Material: _____

Barrier Thickness: _____

Comply Yes/No: _____

Passenger Partition: A transparent passenger partition/sneeze guard in a fixed, stationary position shall be installed on the back of each passenger seat/headrest separating each row of passengers. Design intent is to shield passengers from airborne particulates (breaths, coughs and sneezes) to the front and back of them while in a seated position.

Partition Material: _____

Partition Thickness: _____

Comply Yes/No: _____

Hand Sanitizer Station: A touchless/automatic hand sanitizer dispenser shall be mounted at each passenger entry door for passengers to use upon entering and exiting the vehicle. The dispenser shall either be of a refillable type or use readily accessible off-the-shelf type replaceable sanitizer cartridges.

Comply Yes/No: _____

Fare Box: A transit-type fare box shall be installed, and shall readily handle paper currency as well as coins. Fare box shall include an extra vault.

Manufacturer: _____

Model: _____

Comply Yes/No: _____

ADDITIONAL REQUIREMENTS

Service: Vehicle is to be delivered to a licensed Mississippi dealer (see note toward end of the Additional Requirements section) fully assembled and ready to operate. Factory or factory trained dealer representative is to check equipment on delivery and demonstrate to project personnel operational, service, and preventive maintenance requirements.

Final vehicle assembly records and quality control assurances shall be supplied upon delivery.

Acknowledge Yes/No: _____

Authorized Local Dealer: Authorized dealer within the State of Mississippi (include dealer name, contact person, address, and telephone number):

Acknowledge Yes/No: _____

Workmanship: Workmanship throughout the vehicle shall conform to the highest standard of commercially accepted practice for the class of work and shall result in a neat and finished appearance. The design of the body and equipment which the manufacturer proposes to furnish must provide a vehicle of substantial and durable construction in all respects.

Welding procedures, welding materials, and qualifications of operators shall be in accordance with standards of the American Society for Testing and Materials and the American Welding Society. All welds visible to the public shall be ground smooth after welding to present a smooth, workman-like appearance. Where metal is welded to metal, the contact surface shall be neatly finished.

All exposed surfaces and edges shall be smooth, free from burrs and other projections, and shall be neatly finished. All exposed bolts shall be covered or protected in some manner.

All parts shall be new. Used, reconditioned, or obsolete parts will not be accepted.

Manufacturer shall submit with the Bid a detailed description and specifications of the frame structure, roof structure, and side sheathing, with particular reference to materials used. All vehicles procured through this contract shall be exact duplicates in design, manufacture, and construction.

Acknowledge Yes/No: _____

Replacement Parts: A supply of replacement parts for the vehicles purchased must be guaranteed by the bidder for a minimum of five years from the date of purchase. Bidder shall keep parts books and manuals up-to-date for a minimum of five years from date of purchase by issuing revised pages or otherwise notifying the State of new or superseding parts and maintenance practices.

Acknowledge Yes/No: _____

Motor Vehicle Standards: The manufacturer shall certify that the bus complies with all U.S. Department of Transportation safety standards for buses and Interstate Commerce requirements for motor buses operated in interstate commerce that are applicable as of the date of manufacture.

The bus shall comply with all requirements of the laws of the State of Mississippi as to lighting equipment and all warning and safety devices.

The manufacturer shall certify that the bus conforms to the air pollution control standards set by the Federal Transit Administration for motor vehicles to be used on FTA projects.

Acknowledge Yes/No: _____

Tests and Testing: The complete vehicle and all working and moving parts and operating devices shall be thoroughly tested and put in operating condition by the manufacturer.

The roof, windows, windshield, and compartment doors of all vehicles shall be water tested in an approved manner, and any leaks found shall be repaired in a workman like manner.

The manufacturer/vendor shall not attach any dealer identification, advertising, or similar material to the vehicle. Prior to acceptance of vehicle by MDOT, the manufacturer shall service and adjust vehicle for operation to include, as a minimum the following:

- a. Focusing lights
- b. Tuning engine
- c. Adjusting accessories
- d. Checking electrical, braking, and suspension systems
- e. Charging battery(s)
- f. Inflating tires
- g. Balancing all wheels, including spare
- h. Completely lubricating engine, chassis, and operating mechanisms with recommended grades of lubricants for the ambient temperature at point of delivery
- i. Servicing cooling system with permanent type antifreeze and summer coolant for -20°F
- j. Servicing windshield washer with fluid and approved additives
- k. Filling of fuel tank upon delivery

Acknowledge Yes/No: _____

Warranty: Chassis warranty shall be a minimum of 36 months or 36,000 miles on the mechanical components of the vehicles, and a minimum of 12 months warranty on the alternator. Body warranty shall be a minimum of 12 months or 12,000 miles.

Tires shall be covered with the warranty that is standard to the industry, at a minimum. The lift system (if applicable) shall be covered by a warranty providing that, at a minimum, all replacement parts and repairs to the lift system (including lift platform mechanisms, power unit and controls) needed due to defects in material or workmanship shall be furnished and installed promptly without charge by authorized service representatives within the first year or first 12,000 miles after final delivery of the vehicle.

Clearly stated terms and conditions of all manufacturer warranties shall be included with the Bid. Any and all materials, specialty equipment, or accessories that prove defective in normal operation within the warranty period shall be replaced or repaired by the manufacturer free of any and all cost to the vehicle operator, including all material, labor, and transportation costs. Warranty replacement and/or repairs shall be furnished promptly by the successful bidder within a time period not to exceed thirty days. **The bidder shall provide written assurance with the Bid regarding warranty repairs.**

The delivering dealer will have sole warranty responsibility (all components) for the first ninety days after acceptance of vehicle.

The manufacturer shall provide, with the Bid, a list of warranty service locations within the State of Mississippi for all components of the vehicle (A/C, body, chassis, electrical, wheelchair ramp, wheelchair tie downs, etc.) which may need warranty repair beyond the first ninety days.

Acknowledge Yes/No: _____

Inspection: MDOT reserves the right to inspect all material and workmanship at all times during the process of vehicle assembly.

Final inspection and acceptance of the vehicle(s) covered by these specifications shall be made by MDOT.

Acknowledge Yes/No: _____

Delivery: Based on reasonable production time and with due consideration to unforeseen circumstances, the State shall expect that delivery on initial unit(s) covered by these specifications will be made within one hundred twenty (120) days of placement of purchase order and the remainder of the units one hundred eighty (180) days, unless otherwise specified in the Request for Bid (RFB).

Acknowledge Yes/No: _____

FOB Point: For RFB purposes, all vehicles shall be delivered FOB Mississippi dealer. "Caravan" or "driveway" deliveries straight from the manufacturer will not be accepted. A pre-delivery in-service inspection shall be performed by the vendor before delivery to MDOT. Each unit shall be delivered completely assembled and ready to operate.

Acknowledge Yes/No: _____

Documents: Each vehicle shall be delivered with completed Certificate of Origin, tag application, warranty, and any other necessary credentials.

Final vehicle assembly records and quality control assurances shall be supplied upon delivery.

Acknowledge Yes/No: _____

Literature: Technical manuals: The following **shall be provided upon delivery** for each vehicle delivered. These items shall be provided "as built" for each individual unit delivered. Each of these items shall be kept up-to-date for a minimum of five years.

- a. Operator's manual
- b. Service/maintenance manual
- c. Parts book
- d. Parts interchange manual
- e. Wiring schematic diagram
- f. Schematics/drawings for all accessories and equipment not listed in operator's manual

Acknowledge Yes/No: _____

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NOTE: Any company manufacturing, up-fitting, and/or selling a finished motor vehicle in the State of Mississippi must be in compliance with the rules and regulations of the Mississippi Motor Vehicle Commission (MMVC) prior to the Bid review.

A copy of licenses as required by the MMVC should be supplied with the Bid. Licenses will be verified prior to award.

Mississippi Dealer's License Number: _____

MMVC Manufacturer's License Number (where applicable): _____

Application and contact information may be attained through the MMVC website: <https://www.mmvc.ms.gov/>

Acknowledge Yes/No: _____

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Vehicle Title or Certificate of Origin: To be assigned to the receiving project with applicable name and address

Lienholder: The following shall be listed as the **1st Lienholder on the Title Application:**

Mississippi Department of Transportation
Public Transit Division 6101
401 North West Street
Jackson, MS 39201-1010

To be mailed to:
Mississippi Department of Transportation
Public Transit Division, 6101
P.O. Box 1850
Jackson, MS 39215-1850

Acknowledge Yes/No: _____