U.S. General Services Administration

Federal Standard 833S

SCHOOL & WORK BUSES

TYPE A

TYPE D – REAR ENGINE

TYPES C & D – FRONT ENGINE

FULL-ELECTRIC

July 7, 2023

Note: This document covers both 200 (Basic) Series and 300 Series requirements

1. SCOPE, PURPOSE, & CLASSIFICATION

1.0 SCOPE

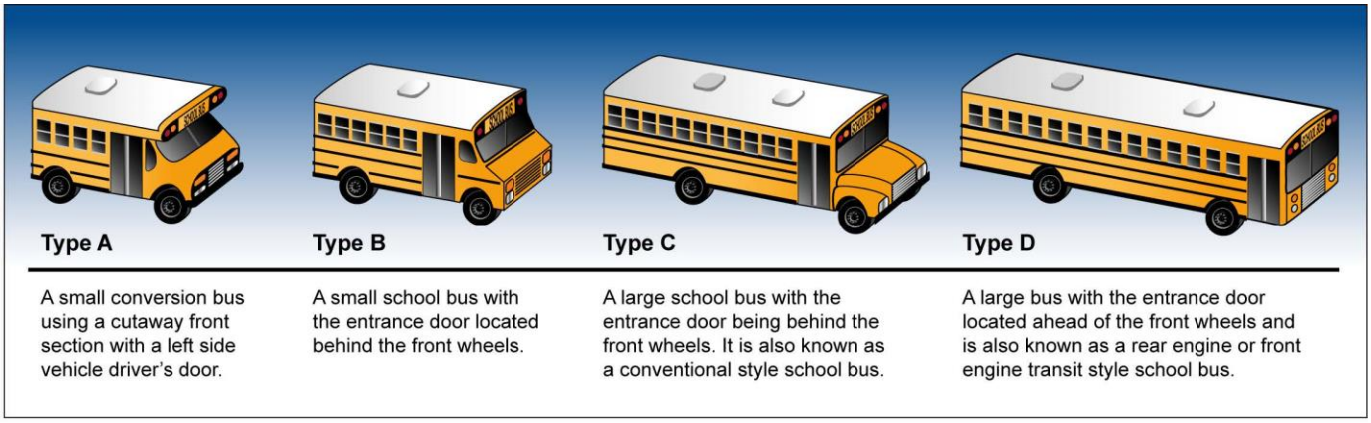
This standard is intended to simplify competitive procurement of school and adult work buses for the federal fleet. The Government takes no exemptions to the laws and regulations for vehicles used on public roads and highways.

1.2 APPLICATION

This Standard does not include all varieties of the commodity indicated by the title but is intended to cover those vehicles generally acquired by the Government. Buses with standardized components and equipment are highlighted in this Standard. A selection of coded optional additional systems and equipment are included for agencies, divergent geographic and operational related needs.

1.3 COVERAGE OF BUS TYPES

The types of buses covered by this standard are listed below. Optional equipment appears in section Appendix A and beneath each relevant section in the requirements.
The item descriptions, minimums, options, and manufacturer data can be viewed on this website: www.gsa.gov/automotive. Click on the link for all standards and refer to Federal Standard 833.



Source: GAO presentation of 2015 National School Transportation Specifications and Procedures. | GAO-17-209

1.4 SCHOOL BUS VS ADULT WORK BUS

An adult work bus has essentially the same body as a regular school bus, however it's interior and safety features are designed for adults. It can be a less expensive alternative for transportation for applications where comfort is not paramount. The differences in requirements between the two are thoroughly outlined in this document and will be marked when necessary.

1.4 200 vs 300 SERIES

The 300 series buses are an "engineer's recommended build", whereas the 200 series buses are more of a "bare minimum build" intended for agencies who may be on a tighter budget. The 200 series buses are still held to very high performance and safety standards; however, they may have reduced comfort and long-term durability when compared to a 300 series build. The differences in requirements between the two are thoroughly outlined in this document and will be marked when necessary.

1.4 CLASSIFICATIONS

- The individual bus configuration classifications are referred to by a Standard Item Number (SIN)

202C - 24 CHILDREN, TYPE A, SCHOOL BUS, BASIC
220A - 28 ADULT, TYPE C, WORK BUS, BASIC
220C - 42 CHILDREN, TYPE C, SCHOOL BUS, BASIC
221A - 36 ADULT, TYPE C, WORK BUS, BASIC
221C - 54 CHILDREN, TYPE C, SCHOOL BUS, BASIC
222A - 40 ADULT, TYPE C, WORK BUS, BASIC
222C - 66 CHILDREN TYPE C, SCHOOL BUS, BASIC
230A - 32 ADULT, TYPE D FRONT ENGINE, WORK BUS, BASIC
232A - 44 ADULT, TYPE D FRONT ENGINE, WORK BUS, BASIC
232C - 72 CHILDREN, TYPE D FRONT ENGINE, SCHOOL BUS, BASIC
236A - 32 ADULT, TYPE D REAR ENGINE, WORK BUS, BASIC
236C - 54 CHILDREN, TYPE D REAR ENGINE, SCHOOL BUS, BASIC
238A - 44 ADULT, TYPE D REAR ENGINE, WORK BUS, BASIC
238C - 78 CHILDREN, TYPE D REAR ENGINE, SCHOOL BUS, BASIC
301C - 14 CHILDREN, TYPE A, SCHOOL BUS
302C - 24 CHILDREN, TYPE A, SCHOOL BUS
302E - FULL-ELECTRIC, 24 CHILDREN, TYPE A, SCHOOL BUS
304C - 30 CHILDREN, TYPE A, SCHOOL BUS
320A - 28 ADULT, TYPE C, WORK BUS
320C - 42 CHILDREN, TYPE C, SCHOOL BUS
320E - FULL-ELECTRIC, 42 CHILDREN, TYPE C, SCHOOL BUS
321A - 36 ADULT, TYPE C, WORK BUS
321C - 54 CHILDREN, TYPE C, SCHOOL BUS
321E - FULL-ELECTRIC, 40 ADULT, TYPE C, WORK BUS
322A - 40 ADULT, TYPE C, WORK BUS
322C - 66 CHILDREN, TYPE C, SCHOOL BUS
322E - FULL-ELECTRIC, 66 CHILDREN, TYPE C, SCHOOL BUS
323E - FULL-ELECTRIC, 36 ADULT, TYPE C, WORK BUS
324E - FULL-ELECTRIC, 54 CHILDREN, TYPE C, SCHOOL BUS
330A - 32 ADULT, TYPE D FRONT ENGINE, WORK BUS
332A - 44 ADULT, TYPE D FRONT ENGINE, WORK BUS
332C - 72 CHILDREN, TYPE D FRONT ENGINE, SCHOOL BUS
332E - FULL-ELECTRIC, 44 ADULT, TYPE C, WORK BUS
336A - 32 ADULT, TYPE D REAR ENGINE, WORK BUS
336C - 54 CHILDREN, TYPE D REAR ENGINE, SCHOOL BUS
338A - 44 ADULT, TYPE D REAR ENGINE, WORK BUS
338C - 78 CHILDREN, TYPE D REAR ENGINE, SCHOOL BUS
338E - FULL-ELECTRIC, 44 ADULT, TYPE D REAR MOTOR, WORK BUS
339E - FULL-ELECTRIC, 78 CHILDREN, TYPE D REAR MOTOR, SCHOOL BUS
343E - FULL-ELECTRIC, 20 ADULT, LOW-FLOOR, SHUTTLE BUS, LIGHT-DUTY

2. APPLICABLE DOCUMENTS

2.1 FEDERAL SPECIFICATION

2.1.1 **ADA Transportation Vehicle Accessibility Guidelines (ADA) 36 CFR Part 1192**
2.1.2 **Federal Motor Vehicle Safety Standards (FMVSS) 49 CFR Part 571**
2.1.3 **Federal Motor Carrier Safety Regulations (FMCSR) 49 CFR Part 393**
2.1.4 **A-A-393A Commercial Item Description Extinguishers, Fire, Dry-Chemical**

2.2 NON-GOVERNMENT STANDARDS

2.2.1 ***Society of Automotive Engineers (SAE) Standards and Recommended Practices***

- J163 Low Tension Wiring and Cable Terminals and Splice Clips
- J198 Windshield Wiper Systems- Trucks, Buses, and Multipurpose Vehicles
- J381 Windshield Defrosting Systems Test Procedure and Performance Requirements
- J551 Performance Levels and Methods of Measurement of Electromagnetic Compatibility of Vehicles
- J516 Hydraulic Hose Fittings
- J537 Storage Batteries
- J561 Electrical Terminals-Eyelets and Spade Type
- J588 Turn Signal Lamps for Use on Motor Vehicles Less than 2032 mm in Overall Width
- J589 Turn Signal Switch
- J673 Automotive Safety Glasses
- J686 Motor Vehicle License Plates
- J695 Turning Ability and Off Tracking-Motor Vehicles
- J844 Nonmetallic Air Brake System Tubing
- J910 Hazard Warning Signal Switch
- J1127 Battery Cable
- J1128 Low Tension Primary Cable
- J1149 Metallic Air Brake System Tubing and Pipe
- J1292 Automobile, Truck, Truck-Tractor, Trailer, and Motor Coach Wiring
- J1908 Electrical Grounding Practice
- J2064 R134a Refrigerant Automotive Air-Conditioning Hose
- J2188 Commercial Truck and Bus SAE Recommended Procedure for Vehicle Performance Prediction

2.2.2 ***American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE)***

- A03 Handbook, Chapter 9, Surface Transportation
- 37 Standard Methods of Testing for Rating Unitary Air-Conditioning and Heat Pump Equipment
- 41.1 Standard Methods for Temperature Measurement
- 41.2 Standard Methods for Laboratory Airflow Measurement
- 41.3 Standard Method for Pressure Measurement

2.2.3 ***American Trucking Association, Inc.***

- Technology and Maintenance Council (TMC) RP 803

2.3 ORDER OF PRECEDENCE

In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. However, nothing in this document supersedes applicable laws and regulations unless a specific exemption has been obtained

3. REQUIREMENTS

3.1 AXLES

3.1.1 DRIVE AXLE

-The vehicle maximum road speed shall be electronically governed between 68 and 75 mph. Type A buses do not need to meet this requirement if their speed is unable to be governed.

-Differential and bearing lubrication shall be synthetic grease/fluid.

-A metal display tag shall be added to the differential fill plug indicating synthetic fluid.

3.1.2 DRIVESHAFT

-Driveshaft protection shall comply with FMCSR 393.89

3.1.3 FRONT AXLE

-Wheel bearings and axle spindles shall be oil lubricated with a window for visual determination of oil level on non-drive axles or "Lubed for Life" permanently sealed unitized hubs shall be provided.

-Bearing lubrication shall be synthetic grease/fluid.

-A metal display tag shall be added to hub indicating synthetic fluid requirement. The tag is not required for unitized hubs with non-serviceable bearings.

3.1.4 GROSS AXLE WEIGHT RATING

-The Gross Vehicle Weight Rating (GVWR) and individual axle Gross Axle Weight Rating (GAWR) shall not be exceeded when loaded with the specified number of passengers and baggage including the driver.

-GAWR calculation shall reflect maximum weight ratings as advertised by axle manufacturer and no higher rating of components shall be acceptable.

3.2 BODY & CHASSIS

3.2.1 BODY CONSTRUCTION

-School buses shall meet the requirements of the NSTSP and the State to which it is delivered unless otherwise amended herein.

-The following requirements shall apply to all buses furnished under this standard unless otherwise amended herein:

·FMVSS 571.220 & FMVSS 571.221

3.2.2 BODY EXTERIOR

-Exterior sidewalls shall comply with FMVSS 571.221.

-Tires shall not protrude beyond exterior body sidewall. Composite rubber fender extensions can be used to cover tire edge.

3.2.3 BODY EXTERIOR LENGTHS

-Overall length measurements indicated in Auto Standards shall be from the rear most to front most body or component surface. Length measurement shall include bumpers.

3.2.4 BODY EXTERIOR WIDTH

-This measurement shall be taken from the exterior vertical body surface of the primary body skin panel.

3.2.5 BODY FASTENER APPLICATION

-All fasteners shall be corrosion resistant.

3.2.6 BODY INTEGRITY

-The body, floor, roof, and panel joints shall be water and air resistant.

-All body seams shall be sealed and not permit dust or fume entry into passenger compartment.

-Body, hinge, and mirror mounting points shall be reinforced to prevent cracking and fastener or fastener device pull out.

3.2.7 BODY MOUNTING

-Cushion material shall be utilized between body and frame. Body can be floated but shall not include wooden spacer blocks.

-Reinforcements or filler blocks shall be used where mounting devices might otherwise deform frame flanges.

-Mounting devices shall utilize fasteners that will minimize loosening, but which may require regular scheduled tightening.

-Interface of chassis and body, including all electrical, fluid, mechanical systems, and mounted equipment shall be in full accordance with the chassis manufacturer's "Body Builders Book" and published equipment technical data.

3.2.8 BODY STRUCTURE

-Wood shall not be used for structural framing.

3.2.9 CAPACITY DECAL

-An instruction decal shall be applied to the forward bulkhead visible to all passengers and driver. The lettering shall be not less than 1-1/2 inch in height and in strong contrast to the interior background color.

-The message can be in a single line or two lines and must state "No Standees Permitted" or "No Standees" and "Maximum Passenger Capacity XX" or "Capacity XX Passengers". The two XX's shall represent the passenger capacities specified as standard and optional.

-Multiple decals can be used to accommodate this requirement with one displaying the no standees instruction statement and another displaying passenger capacity.

3.2.10 CORROSION PROTECTION

-All hardware shall be corrosion resistant.

-Fastener materials shall be compatible with materials being fastened.

-No bare metal permitted.

-All joints and connections of dissimilar metals shall be insulated to minimize effects of galvanic corrosion.

3.2.11 CURB WEIGHT

-The curb weight shall include the weight of the chassis and body with all attachments, accessories, standard and optional equipment, a full complement of fuel, lubricants, coolants.

3.2.12 INSULATION (300 Series Only)

-All bus and chassis manufacturer standard and optional insulation packages shall be supplied as standard and shall comply with FMVSS 571.302.

-Buses shall have all available firewall insulation

-Insulation as installed in bus shall have a minimum R-value of 5.

-When using insulation that is not spray urethane:

·The insulation material shall not be exposed to moisture including but not limited to wash downs.

·The insulation material shall not be exposed to the exterior including under bus body.

·The insulation material shall not be used in any manner for which it was not originally designed.

-Insulation shall fill all cavity areas and voids in:

·Outer and inner walls

·Outer and inner roof

·Roof bow hat section

·Front and rear caps

3.2.13 MAINTENANCE

-The design of the bus and optional equipment shall permit access for routine servicing and shall permit access for replacement and adjustment of component parts and accessories with minimal disturbance of other components and systems.

-Interior hinged and fastener-secured access panels and doors for maintenance must:

·Use common tools to open and be flush with the surrounding materials.

·Be sealed to prevent entry of fumes and water into passenger compartment.

3.2.14 MUD FLAPS

-Rubber composition mud flaps at all wheel ends shall extend to within 3 to 7 inches off the ground when suspension is at normal operating height and at curb weight.

3.2.15 PASSENGER CAPACITY

-The bus should be able to accommodate the number of passengers specified for the SIN in the minimum requirements on Federal Vehicle Standards

3.2.16 PASSENGER COMPARTMENT INTERIOR DIMENSIONS

-Interior height should be measured from the floor to center peak of ceiling. Measurement minimum shall be maintained between the first and last vertical roof bows.

3.2.17 PAYLOAD AND GROSS VEHICLE WEIGHT

WORK BUS

-The payload weight for adult passengers shall be calculated using 215 pounds per person and 215 pounds for the driver. These ratings include provisions for parcels and shall be considered an even weight distribution throughout the body.

-Wheelchair positions shall be calculated using 300 lbs. for each wheelchair position specified. When a wheelchair position includes convertible seating, the 215 pounds per seated person shall be included in the calculation instead of 300.

SCHOOL BUS

-The payload weight for child passengers shall be calculated using 120 pounds per child and 215 pounds for the driver. Wheelchair positions shall be calculated using 300 lbs. for each wheelchair position specified.

3.2.18 RAIN SPLASH CONTROL

-Rain gutters, hoods, or lips shall be provided to prevent water from the roof flowing onto the passenger doors, side windows, and the door boarding area.

3.2.19 SOUND LEVEL

-The interior sound level when measured in accordance with FMCSR 393.94 shall not be greater than 82db. This requirement is expanded to include any location within the passenger compartment.

300 SERIES ONLY

-All noise reduction methods available from body and chassis manufacturer shall be added to the standard package.

3.2.20 TOWING DEVICES

-Front and rear towing devices shall be furnished.

-Front devices can be deleted if the chassis manufacturer incorporates a frame crush zone that prohibits attachment of the towing devices.

-If the bus cannot be lifted with the furnished hooks or loops without damaging body panels or the frame, a warning label shall be permanently affixed to the frame area immediately next to the towing devices and clearly visible to tow truck operator during recovery procedures.

-Warning label shall be in high contrast to its surroundings to provide immediate recognition. The warning label shall read in bold letters no smaller than ¼ inch, "DO NOT LIFT BUS WITH TOW EYES. TOW EYES FOR FLAT GROUND MANEUVERING ONLY."

-Complete towing instructions shall be furnished with the operator's manual.
-Rear towing device(s) shall not provide a toehold for unauthorized riders

3.2.21 UNDERCOATING

-Underbody, fenders, skirts, and wheel-wells shall be undercoated. The exceptions to this requirement are plastic or polymer exterior parts not subject to deterioration or damage from road splash and debris.

3.3 BRAKES

3.3.1 AIR BRAKES

-The brake system, complete with all necessary components shall include:

·Air Storage Tanks " shall be appropriately rated for application and mounted in such a way to maintain drains at the lowest point for proper water evacuation.

·Automatic Moisture Ejector " the first air storage tank (wet tank) after the air dryer shall be equipped with a heated, automatic, moisture-ejector. All other air tanks shall be equipped with a brass or stainless steel, ¼-turn ball valve drain. The moisture ejector shall be protected from debris damage or accumulation by shielding.

·Air Dryer " An appropriate air dryer must be furnished and installed to minimize the amount of moisture and other contaminants that make it to the air tanks

3.3.2 SERVICE BRAKES

-Dust shields shall be furnished for all drum brake assemblies.
-Chassis OEM Antilock Brake System shall be furnished.

3.4 DOORS AND WINDOWS

3.4.1 EMERGENCY EXITS

-Emergency doors shall be indicated complying with Delivery State requirements.
-Emergency exits shall comply with FMVSS 217.
-Emergency doors shall be indicated by a red LED lamp visible to passengers but that does not reflect or cause glare on inside of windshield.

3.4.2 KEYS

-Exterior access panels to the engine compartment, battery compartment, doors, and storage compartments shall be keyed. All locks of similar design shall be keyed alike. Passenger entry and exit doors can be electronically or mechanically locked. For rear engine buses, an exit window will suffice.
-Duplicate keys shall be furnished with each bus.

3.4.3 PASSENGER DOORS

-Shall comply with the delivery State requirements and comply with ADA requirements.
-Shall comply with FMVSS 217
-Passenger door shall comply with ADA requirements.

3.4.4 PASSENGER WINDOWS

-Shall comply with FMCSR 393.61, 393.62, 393.63, FMVSS 217, and FMCSR393.92.

-Provided with fingertip control, permitting ready opening and adjustment to various desired openings.

-Rattle proof and, when closed, waterproof and windproof.

-Driver's window(s) shall open to permit use for signaling and ventilation.

-All windows shall be fitted with latching devices.

3.4.5 STEPS

-Shall comply with ADA guidelines.

-The material chosen for the stepwell construction must be compatible with the surrounding body structure.

-Square vertical leading edge of stepwell shall have a flat surface to provide a positive seal where doors contact stepwell or otherwise provide a positive seal for doors to prevent intrusion of water, dirt, wind, etc.

-Galvanized steel, stainless steel, or aluminum can be used to construct the passenger stepwell.

300 SERIES ONLY

-Step tread surface shall be pebble face with white pebble nosing and backed by a polymer coating. Metal backed tread material shall not be used due to possible galvanic corrosion.

-Abrasion and cut resistant insulating material shall be used to cover the interior stepwell vertical surfaces. A two-part material consisting of soft backing with cut and tear resistant surface can be used. Flooring material shall not be considered an insulating material unless it is backed by a sound and heat insulator. The complete insulating product must be tested per CFR49, Part 571.302 and meet FMVSS 302. The material chosen must meet the following attributes:

·Resistant to staining and discoloration from typically used cleaning chemical and foot traffic.

·The outer surface must be smooth or slightly textured and not readily hold dirt.

·Resistant to abrasion and cuts.

·Recommended by the material manufacturer for intended purpose.

3.4.6 SUN VISORS

-Visor adjustment shall not require the use of hand tools

-Finger hold type knobs shall be installed on all fasteners needed to make position adjustments

-Adjustable sun visors shall be provided for windshield and all windows in driver's area.

3.4.7 TINTING

-Chassis manufacturer's tinted windshield shall be furnished.

-Windows on the bus sides and in the rear door shall be tinted a neutral color, complementary to the bus exterior.

3.4.8 WINDSHIELD DEFROSTING

-Shall comply with FMVSS 571.103, FMCSR 393.79, and SAE J381

3.4.9 WINDSHIELD WIPING AND WASHING

-Shall comply with FMCSR 393.78, and SAE J198

-Wiper and washer shall be electrically powered

3.5 ELECTRICAL

3.5.1 120-VOLT SHORE POWER (WITH 120VAC INTERIOR OPTIONAL EQUIPMENT ORDER)

-All powered components requiring alternating current (ac) shall operate on 120-volt (v), 60 Hz.

-The power inlet connector shall be polarized and of the grounding type and shall be listed as suitable for the purpose.

-The power inlet connector shall be in a weatherproof housing with a spring-loaded and gasket sealed cover.

-The inlet connector shall be constructed and installed to guard against inadvertent contact by persons with parts made live. The inlet connector shall be provided with a grounding pole with a first to make and last to break contact. The supply equipment shall have sufficient rating to supply the load served.

-All electrical and heating materials shall be listed or labeled by a Nationally Recognized Testing Laboratory i.e.: UL/CSA/ETL and shall be installed in accordance with both the manufacturers' instructions and the National Electrical Code.

3.5.2 ALTERNATOR

-The maximum alternator RPM rating shall not be exceeded at the top governed engine RPM.

-The output values must meet or exceed those listed in the Minimum Requirements for each Standard Item.

3.5.3 AUXILIARY INTERIOR POWER RECEPTACLE

-Shall be 12-volt powered with 10-amp minimum supply located in the driver's area.

-Receptacle shape shall be like cigar lighter.

3.5.4 BATTERIES

-Batteries shall be mounted in a fully enclosed box on a self-draining roll-out tray made of a material intrinsically resistant to damage or corrosion due to battery acid exposure and capable of supporting the full weight of the batteries without assistance.

-Minimum of three, Group 31, maintenance-free batteries (Type A buses can have only the OEM standard batteries)

-All components within the battery compartment shall be protected from battery electrolyte and gas corrosion.

-Only battery cables shall be connected to batteries.

-Battery cables shall be routed through dedicated holes in battery box independent of each other and insulated from abrasion by grommets.

-No spliced battery cables permitted. Cables shall be one-piece, stranded conductor with protective covering (jacket) pigmented red to indicate positive and black to indicate negative and shall be run from the positive battery terminal of the leading battery directly to the starter solenoid.

3.5.5 BATTERIES

-The tray shall roll out sufficiently to allow for complete visual inspection and service of terminals without removing battery cables.

-Batteries shall be mounted in a fully enclosed box or have a cover made of a material intrinsically resistant to damage or corrosion due to battery acid exposure

-Hood-mounted OEM batteries meet the specification above

-The placement of the batteries should allow for complete visual inspection and service of terminals without removing battery cables.

- All components within the battery compartment shall be protected from battery electrolyte and gas corrosion.

3.5.6 ELECTRICAL SYSTEM

-Shall comply with SAE J163, J561, J589b, J910, J1127, J1128, J1292, FMCSR 393.28, 393.29, 393.31.

-All electrical and electronic components, including, but not limited to switches, connectors, terminal strips, relays, circuit breakers, fuses, fusible links, lamps, indicators, appliances, etc. shall be clearly identified and shown in as-built wiring diagrams and schematics to be furnished and provided with each bus order. This information can be supplied by electronic means as well as in paper copy. When information is made available via electronic format all necessary program downloads shall be provided at no charge with no limit to service life.

-All wires shall be color-coded or permanently marked no less than every 6-inches the entire length of the wire for identification with easily read numbers and/or letters and routed in Nylon-6 split-loom. Multi-conductor cabling and ground wires do not need to be covered in split loom.

-All wires and cables furnished by chassis and bus manufacturer shall be stranded high-temperature crosslinked polyethylene insulation.

-The use of ribbon cables is permitted only when used in the interior of control modules and computers.

-All wiring (including grounds), connecting terminals, relays, and switches shall be rated to carry at least 120 percent of the maximum ampere load for which the circuit is protected.

-No more than three ground wires or cables are permitted per grounding stud.

-All grounding locations shall be accessible for inspection and repair.

-In addition to grounds rated to carry the full load, RF grounding of the bus body shall be furnished to the chassis with a minimum 19 mm (3/4"), braided and tinned, ground strap with soldered ends that are secured to clean metal surfaces, with star washer, on the body and frame and sealed with non-hardening, battery terminal type sealer.

- Electrical system shall incorporate master panels for current limiting devices and other electronic devices and be in areas that provide easy access but not require underbody access or removal of other components for inspection and service of components contained within. No current limiting devices or relays shall be located outside of electrical panels. The only exceptions to this requirement are the fuses and relays that are specifically required to be located inside battery box by the powered component manufacturer and those that are an integral part of a large component or device.

-All overcurrent protection devices shall be securely mounted, easily removable, and readily accessible for inspection, replacement, resetting if required, and service.

-All wiring between the chassis and body shall be connected to terminal strip(s), block(s), or multi-pin connector(s) and all shall be readily accessible for checking and service. All connections interior and exterior susceptible to moisture exposure shall be sealed. Wiring harness junctions shall use multi-pin watertight connectors.

-The body and accessory electrical equipment shall be interfaced to chassis in accordance with chassis manufacturer's recommendations.

-All electrical loads shall be disconnected from battery power when the ignition is in the off position. Loads required to be powered under FMVSS, memory functions, and those operated by momentary contact switches may remain powered.

-All wiring shall be installed in a manner that does not stress the conductor, insulation, terminal ends, connectors, appliances, or switches and provides enough slack at terminal ends to allow for the removal of light assemblies and other components for repair.

- All unnecessary additional wire length shall be removed. The exception to this requirement is allowed when prescribed resistance is required in wire length by interconnected components and controls or a predestined wiring harness that cannot be easily or commonly shortened to the appropriate length. When this exception applies, excess length shall be neatly wrapped and secured to prevent damage or abrasion during use.

-All electrical components and wiring shall be accessible through panels that are installed to facilitate easy removal and servicing.

-All lights or powered components mounted on hinged covers or doors shall have a flex loop secured at both ends to allow for normal opening of cover without damaging wires

-All wiring harnesses shall be in protected locations and kept at least 15 cm (6 in.) away from exhaust system components unless properly protected by a heat shielding.

-All wiring harnesses shall be rigidly supported at distances not greater than 20-inches by one or more of the following to prevent sagging and movement which results in abrasion, chafing, pinching, snagging, or any other damage. All plastic materials shall be UV resistant, and metal supports corrosion resistant:

·P-clamps– Clamps shall be corrosion resistant with a neoprene, Viton, or silicone insulator.

·Saddle-supports – Formed metal support with smooth radius edges designed to carry no less than twice the weight of the harness it supports.

· Cable clamps – Die-formed, radius-edge, corrosion-resistant metal cable clamps and can only be used in bus interior or engine compartment in areas not subject to wetting by rain or road spray. Plastic clamps can only be used in areas not exposed to heat that could exceed their working limits.

·Button-cable ties – Saddle Mounts and button ties utilizing cable ties (Hellerman-Tyton or equivalent) are an acceptable method of supporting chassis and body wiring and hoses. Cable ties shall be UV resistant, and the support method used shall be rated for at least twice the weight of the component supported.

·Nylon tie-wraps with push-wings are an acceptable method of securement in completely enclosed spaces (inside roof and walls). Method must be rated for at least twice the weight of wire supported.

-All apertures in vehicle shall be grommeted for passing wiring through. Exception to this requirement:

·If surface mount light fixture is centered over a hole in body skin no less than 3/4 inch in diameter and the hole has been die punched with a radius edge painted or coated completing a smooth edge incapable of abrading wire. No drilled or bored holes are acceptable for this exception.

·All body penetrations shall be sealed with an elastomeric sealing compound if grommeting alone cannot provide a tight seal against the entry of water, fumes, or dust into the passenger compartment.

·Electrical circuit board panels and components that are susceptible to accidental contact shall have a protective cover, shield, or enclosed/dedicated compartment to prevent accidental shorts that can result in injury, fire, or damage to the electrical system.

-All electric motors shall be turned off and the audio-visual equipment sound output silenced by a single switch located in easy reach of the driver and labeled to the effect of "Noise Cancel".

3.6 ELECTRONICS/AUDIO

3.6.1 RADIO

-AM/FM with USB, Aux, or Bluetooth Input radio shall be furnished.

-Minimum of two premium quality speakers shall be provided for every 3 rows of seats.

300 SERIES ONLY

-AM/FM with USB, Aux, or Bluetooth Input radio shall be furnished with an integrated public address system consisting of a handheld microphone with button control.

3.7 ENGINE ACCESSORIES (N/A TO FULL-ELECTRIC SINS)

3.7.1 AIR CLEANER (300 Series Only)

-Single stage, dry type.

-Two stage, dry type.

-Manual reset, progressive type air restriction indicator included in the engine intake air system.

3.7.2 AUTOMATIC ENGINE IDLE SHUTDOWN (N/A to Type A)

-Engine shall shutdown automatically after a 300 second idle period when the transmission is in the neutral position. Shutdown command can be overridden when the air conditioning is switched to on.

3.7.3 COOLANT HEATER (300 Series Only)

-All engines shall be equipped with a 120-volt AC coolant heater located in the engine block. Heater shall be engine manufacturer's standard or optional equipment.

3.7.4 HIGH-IDLE CONTROL (DIESEL ENGINES ONLY)

-Automatic engine high-idle control shall:

·Be preset to operate at an elevated rate not to exceed the maximum rate permitted by engine manufacturer.

·Operate (engage) when switched to the "ON" position, the parking brake applied, and the transmission in "NEUTRAL" or "PARK" (applicable to design furnished).

·Operate (engage) when the air conditioning is operating and the transmission in "NEUTRAL" or "PARK".

·Not rely on manual on/off switch position to elevate idle. A low voltage sensing controller can be used to accommodate this requirement in lieu of immediate idle up when A/C is activated.

·Disengage when the parking brake is released, service brake pedal is pressed or the transmission in gear position is selected.

3.7.5 HOUR METER (DIESEL ENGINES ONLY)

-All diesel-powered buses shall be equipped with hours of operation readout readily accessible without the use of special equipment and located in the dash panel or in the engine compartment.

3.8 ENGINES (N/A TO FULL-ELECTRIC SINS)

3.8.1 AIR POLLUTION CONTROL

-The vehicle and engine shall confirm to 40 CFR Subchapter C-Part 86“Control of Emissions from New and In-use Highway Vehicles and Engines,” as evidenced by an EPA certificate of compliance.

-Vehicles shall also comply with all pollution control requirements for the State of destination.

-Certificates of compliance shall be made available upon request.

3.8.2 COOLING SYSTEM

-Cooling system shall be charged with extended life coolant.

-All coolant hoses and lines shall meet or exceed the requirements of SAE J20 D2.

-Silicone hoses shall not be used in the passenger compartment.

-All hoses and lines shall be securely attached with constant-torque, constant-tension, or thermoplastic clamps. Hoses and lines shall not be permitted to rub components that may eventually lead to a coolant leak.

-Passenger compartment heater hoses shall be equipped with full-flow valves located in a protected location to permit complete shutoff of engine coolant flow to heating units.

-The location of any manual valves shall be indicated with a label stating the purpose of the valves such as "Heater Shutoff Valves" and located to be visibly obvious.

3.8.3 ENGINE COMPARTMENT

-Engine compartment shall be readily accessible for servicing and routine maintenance of engine and engine components.

-All fluid locations shall be accessible with standard funnels, pour spouts, and automatic dispensing equipment.

-All lubricant sumps shall be fitted with magnetic-type external, drain plugs if available from the component manufacturer as standard or optional.

3.9 EXTERIOR

3.9.1 CONSPICUITY

SCHOOL BUS ONLY -Yellow-reflecting-yellow reflective material two inches in width complying with the requirements of FMVSS 131, Table 1 shall be used to outline all emergency exit windows and doors and the perimeter of the rear of the bus. If there is not enough room to properly apply the two-inch reflective material, the width can be reduced to not less than ¾-inch. -Additional markings such as signs stating "SCHOOL BUS" shall be of the material, shape, size, and verbiage as required by the State to which it will be delivered unless otherwise specified on the purchase order. -Activity buses shall use white-reflecting-white reflective material with the same requirements of a. b. and c. above -The sides of the bus shall be taped with the same material as used to outline the emergency exits and extend the length of the bus body and be located between the floor line and the beltline
WORK BUS ONLY -White-reflecting-white tape two inches in width complying with the requirements of FMVSS 131, Table 1 shall be used to outline all emergency exit windows and doors and the perimeter of the rear of the bus. If there is not enough room to properly apply the two-inch reflective material, the width can be reduced to not less than ¾-inch.

3.9.2 EXTERIOR MIRRORS

-Exterior mirrors shall be corrosion resistant stainless steel or composite plastic.

-Mirror mounting hardware shall be made of corrosion resistant materials.

-Mirror systems shall comply with FMVSS 571.111

300 SERIES ONLY

-Motorized remote controlled and heated surfaces with controls located in driver's area for both flat and convex mirrors, including cross-view mirrors. Heat and position control switch(s) shall be "Marked to Indicate Function" and located in the driver's area. Heating function shall be automatically deactivated when the ignition switch is turned to the "OFF" position. A Pictogram can be used to identify mirror switches and functions.

3.9.3 EXTERIOR PAINT

WORK BUS

-The standard exterior color of buses shall be bright white unless otherwise specified by an option

SCHOOL BUS

-The standard exterior color of buses shall be school bus yellow as per Delivery State Requirements.

SCHOOL & WORK 300 SERIES ONLY

-Roof shall be painted bright white unless prohibited by state requirements.

3.9.4 LICENSE PLATES

-Front and rear license plate mounting provisions shall be furnished and comply with SAE J686.

3.9.5 OTHER PLATES AND DECALS

-Dealer identification decals and placards shall not be applied to vehicle exterior. Bus manufacturer decals are permitted so long as they do not interfere with other required or specified markings.

3.10 FLOOR

3.10.1 FLOOR CONSTRUCTION

-Interior sub-floor shall be metal, covered with plywood.

-All wood and wood product ends shall be sealed and securely fastened to the metal stringers prior to be covered with matting.

-All surfaces exposed to weather shall be coated with a waterproofing substance such as undercoating or epoxy surfaces.

-All floor fasteners shall be of corrosion resistant materials.

300 SERIES ONLY

-Interior sub-floor shall be metal, covered with not less than a minimum of 5/8-inch nominal thickness, marine grade plywood, with all ends sealed. Alternative synthetic materials may be acceptable.

-Top surface must be not less than a grade B with bottom no worse than a grade C.

3.10.2 FLOOR COVERINGS

-The under-seat floor area shall be covered with standard smooth matting.

-The aisle and the entrance area shall be covered with standard ribbed matting.

300 SERIES ONLY

-The under-seat floor area shall be covered with not less than 0.125-inch-thick smooth matting.

-The aisle and the entrance area shall be covered with not less than 0.185-inch ribbed matting.

3.10.3 WHEEL-HOUSINGS

-Wheel-housings, which protrude into the passenger compartment, shall be covered with the same matting used under the seats or a material equal in durability as the flooring material. The wheelhouse shall be designed in shape and strength so it may be used as a footrest.

3.11 FUEL (N/A TO FULL-ELECTRIC SINS)

3.11.1 FUEL SYSTEM

-All diesel engines shall be furnished with a fuel/water separator with the following attributes:

-Replaceable filter element or cartridge rated no larger than 30 microns.

-Drain valve that allows for water and debris to be drained from lowest point of unit.

-Water sensor for warning light.

-The separator can be remote mounted or internal to the engine

-Shall comply with FMCSR 393.65, FMCSR 393.67, and FMCSR 393.69

300 SERIES ONLY

-A manual fuel priming pump for recharging fuel system after filter changes shall be furnished when available from the OEM chassis manufacturer or engine manufacturer and located for easy access and service.

-Heated with thermostatic control

3.11.2 FUEL TANK(S)

-When the tank filler cap is located behind body skin, a hinged access door shall be furnished.

-Fuel fill(s) shall permit filling of tank(s) with only the nozzle end of the fuel handle.

-Fuel filler cap(s) shall be attached with a cable or chain to prevent loss.

-Fuel type shall be indicated on the body skin immediately next to fill cap or on the inside face of the fuel fill door. The words "Ultra Low Sulfur Diesel" must be included when applicable.

3.12 INTERIOR

3.12.1 AIR CONDITIONING INSTALLATION

-System components shall not interfere with or adversely affect chassis OEM and bus body systems, components, function, reliability, and fit.

-Installation of the evaporator(s) and ancillary equipment inside the vehicle shall be mounted away from the head impact zone as specified in FMVSS 222.

-System shall be installed on the assembly line in accordance with the A/C manufacturer's documented instructions.

-All lines, hoses, cables, wires, and harnesses shall be rigidly supported at distances not greater than 20-inches. Cable ties or straps of any kind shall not be used to support any lines or hoses. UV-resistant cable ties are acceptable only for bundling.

-All line, hose, cable, and wires shall pass-through grommeted holes.

-All body penetrations shall be sealed with an elastomeric sealing compound if grommeting alone cannot provide a tight seal against the entry of water, fumes, or dust into the passenger compartment.

-All mounting hardware shall be stainless steel or other corrosion resistant materials.

-No sheet metal screws shall be used in mounting equipment within contact of hoses.

-System charging and monitoring access ports shall be in areas where they will not be subject to damage from foreign objects while bus in motion. Ports shall be readily accessible without the need to remove components or permanently secured panels.

3.12.2 AIR CONDITIONING PERFORMANCE

-The BTUH/HR capacities shall be based upon the SAE individual component ratings including compressor, evaporator, condenser, and all ancillary refrigeration components.

-The evaporator shall be tested at 80 degrees F dry bulb/ 67-degree F wet bulb in 37 degrees F saturated evaporating refrigerant temperature versus air entering the evaporator.

-Condenser shall be tested at 95 degrees F with saturated refrigerant temperature as 45 degrees delta T.

-The following test must be used to validate air-conditioning performance:

·The bus must be heat soaked to 100 degrees F for not less than two hours in a controlled environment prior to testing.

·A relative humidity of 50% shall be maintained in the test chamber during testing.

·The system must cool the interior of the bus from 100 degrees F to 70 degrees F in no more than 30 minutes with the engine at an elevated RPM and all standard components of the bus and climate control system installed during the test.

·Interior temperature must be measured at not less than three points inside the bus along the centerline and located four feet above the floor.

·The minimum three points of measure shall be (1) three feet above the center pint of the horizontal driver seat surface, (2) at the longitudinal midpoint of the body, and (3) three feet forward of the aisle end.

·The temperature probes inside the bus must be within +/3 degrees F of the average temperature at the conclusion of the test.

3.12.3 AIR CONDITIONING SYSTEM

-Refrigerant compressor shall be a V-Type four or six cylinder or screw type compressor with an oil sump independent of the refrigerant system.

-The system capacity must be calculated as follows: (1) add together all evaporator capacities, (2) add together all condenser capacities, (3) add all compressor capacities. The BTUH/HR capacity stated must be the lowest added value.

-The system shall be electronically controlled and have the capability of self-diagnostics.

-Evaporator fan speed control and thermostat setting shall be digital and located in driver area.

-Minimum diagnostic outputs and system protections shall include high pressure, low pressure.

-Automatic tensioning compressor drive belt(s).

-All air shall pass through the evaporator filter system.

-Condensation drains shall be enough to evacuate all water accumulated in evaporator and prevent standing water.

-All system components subject to corrosion from moisture shall be aluminum, copper, stainless steel, galvanized, or epoxy coated.

-Condenser(s) shall be roof or skirt mounted.

-Evaporators can be free blow, ducted, or a combination to attain an even air flow and temperature environment.

300 SERIES ONLY

-The air conditioning system must have the system manufacturer's recommend filter/drier

-The chassis manufacture's dash defroster system shall not be tapped into as part of the passenger compartment cooling.

-The passenger compartment air conditioning system, excluding the OEM dash unit, must have the system manufacturer's recommended filter/drier

-Bus manufacturer's highest output BTUH/HR system shall be furnished as standard.

-The compressor input RPM must not be exceeded at full engine RPM.

3.12.4 CEILING

-Ceiling panels shall be manufacturer's standard

300 SERIES ONLY

-Ceiling panels shall be perforated steel sheets for interior noise reduction and painted white to light

-Ceiling panels shall be painted white to light grey unless State requirements direct otherwise. The area below the windows shall be covered with textured metal galvanized steel or aluminum.

3.12.5 DRIVER'S AREA

-Driver's area shall include as a minimum:

·Shall comply with FMCSR 393.51

·All switches and controls shall be marked with easily read identifiers

·Ignition switch

·Push button start is acceptable if the power supply to the switch is controlled by a keyed switch or electronic recognition.

·Tilt and telescoping steering wheel/column

·Cruise control

·Engine coolant temperature indicating display

·Engine coolant temperature overheat warning light

·Low coolant level alarm buzzer

·Engine oil low pressure warning light

·Transmission temperature display or overheat warning light
·Fuel level indicating gauge
·Water in-fuel warning light
·Engine hour meter
·Transmission selector
·Air pressure gauge and warning buzzer

3.12.6 HEATING

-Passenger compartment heating shall be provided using heat exchangers integrated into the air conditioning system or by auxiliary coolant-to-air heat exchangers with integral mounted fans to provide circulation in addition to the integral dash system.

-When heating is not incorporated into the air conditioning system it shall include a minimum of two heat exchangers with one mounted in proximity of the rear wall and a second nominally mid ship.

300 SERIES ONLY
-All buses shall have a means of heating the air in the passenger door stepwell.

3.12.7 INTERIOR MIRROR

-Minimum of one non-glare type mirror shall be mounted inside the bus with a reflective surface area of not less than 80 square inches with rounded corners. Driver shall be able to view complete passenger compartment through interior mirror.

3.12.8 STOWAGE COMPARTMENT

-The bus manufacturer's largest forward bulkhead compartment shall be furnished. Compartment shall be used to store the fire extinguisher, and safety triangles.

-If all components will not reasonably fit, GSA Engineering will determine a suitable location in conjunction with the manufacturer during the first production vehicle inspection.

3.12.9 WALLS

-Standard interior walls shall be painted white to light grey. The area below the windows shall be covered with textured metal galvanized steel or aluminum.

3.13 LIGHTS AND LIGHTING

3.13.1 EXTERIOR LIGHTING

- All buses shall be equipped with an auxiliary side marker/ turn signal combination lamp positioned below the passenger windows, forward of the side midpoint, to the rear of the passenger door and driver's side window.

-All exterior lights shall be grounded with an insulated wire.

-The ground lead shall not be secured by the lamp fixture mounting screws or hardware.

-A terminal shall be attached to the wires by a simple mechanical crimp-type process that conforms to SAE J163.

-Ground terminal lugs shall be solder plated, cadmium, tin or zinc plated.

-Ground terminals should be clustered and shall be accessible for servicing.

-A serrated paint-cutting terminal shall be utilized to make proper contact when used on painted surfaces.

-When two wire lights are not commercially available, then ground return connections may be made to vehicle structure, frame or engine using the ground-return system (one wire systems per SAE J1292).

-Lights and reflectors shall not be mounted on rub rails or vehicle bumpers unless recess protected.

-All lights or powered components mounted on hinged covers or doors shall have a flex loop secured at both ends to allow for normal opening of cover without damaging wires.

-Clearance lamps shall be low-profile design or body recessed to prevent damage from tree limbs. -Armor shields shall not be supplied to protect lighting unless supplied commercially as standard equipment.

-All exterior housings of lamps, switches, electronic devices, and fixtures shall be corrosion resistant and weatherproofed.

300 SERIES ONLY

-All exterior lights on the vehicle shall comply with ADA 1192.31, FMVSS 571.108, FMVSS 131, FMCSR 393.11, 393.19, 393.20, 393.22, 393.23, 393.24, 393.25, 393.26, 393.31, and SAE J589, and J910.

-The following exterior lighting shall be Light Emitting Diode (LED): rear tag, tail, stop, turn, clearance, and door area ground/curb illumination.

-Exclusions to LED requirement are wheelchair door area and ground lighting, headlamps, and other lights that cannot be replaced by a LED due to a design only available in incandescent or when multiple LED assemblies cannot be used to take the place of an incandescent fixture due to space limitations.

-LED lighting shall have a minimum 5-year warranty.

-Reflectors must be a sticker type flexible material. The sticker must use cube corner elements to reflect light such as 3M Diamond Grade. Rigid plastic stick on or screw-on reflectors are not permitted.

-All buses shall be equipped with three-wire combination side marker/turn signal lamps.

-The lamp shall be positioned below the passenger windows, nominally center of body or forward to the rear of the passenger door and driver's side window.

-A two wire LED marker lamp can be used in place of the three-wire combination light so long as the illumination spread is nominally 270 degrees wide and the lamp is configured to operate as a marker continuously and then flash when driver requested, acting as a side turn signal.

-Ground and step illumination shall be furnished to meet ADA guidelines. Lamps shall activate when the passenger entry or exit door is open.

3.13.2 INTERIOR LIGHTING

-Bus manufacturer's standard equipment dome lights equaling not less than one lamp per seated row or maximum lighting achieved through the use of LEDs.

-Minimum of one dome light over the driver area controlled independently of other interior lighting with a separate switch.

-Interior illumination shall meet or exceed requirements of ADA 1192.31

3.14 SAFETY

3.14.1 BUMPERS

-Front and rear bumpers shall be manufacturer's standard metal

-Bumpers shall not contact body

-Bumpers shall be painted, e-coated, or anodized on all sides prior to installation.

-Back surface of bumper can be epoxy primed in the absence of top coating if not visible during normal operation.

3.14.2 CONTROL CROSSING ARM (SCHOOL BUS ONLY)

-The control crossing arm requirement remains firm and shall not be superseded by State requirements.

-Looped wire arms are prohibited.

-Arm shall extend when red stop lights of the 8-way lamp system activate.

3.14.3 EMERGENCY EQUIPMENT

-Fire extinguisher mounted convenient to the driver.

-The fire extinguisher shall have an Underwriter's Laboratory rating of 2A 10 B:C or greater, shall be a minimum 5 pounds, shall have a hose, shall include a metal safety pin and wire, and shall conform to type I or type II, class 2, size 5 of A-A-393.

-The fire extinguisher shall permit visual determination of charge.

-Minimum of 10-unit type first-aid kit shall be furnished.

-Fire extinguisher furnished shall comply with the requirements of the State in which the bus will be operated.

-First aid kit shall comply with the requirements of the State in which the bus will be operated.

-Shall comply with FMCSR 393.95 and the Delivery State requirements.

3.14.4 FLASHING SIGNAL LAMP SYSTEM (300 SERIES SCHOOL BUS ONLY)

-LED 7-inch diameter or equivalent size red and amber lamps required.

-Lamp system installation and function shall comply with NSTSP requirements.

-Visors or hoods, black in color, with a minimum depth of four inches shall be furnished.

-Flasher/control module shall be solid state circuitry.

-State requirements for the type of illumination used shall take precedence if specially listed in their specifications document

3.14.5 STANCHIONS, BARRIERS, AND GRAB RAILS

-Barrier panels shall be furnished between the stepwell and the passenger seats and immediately behind the driver's area.

-The installation of the driver's barrier shall not interfere with the full reward motion of the driver's seat.

-ADA compliant handrails are required at the front and rear of the passenger entrance shall be arranged to safely assist passengers entering or leaving the bus

-All stanchions and grab rails shall be ADA compliant stainless steel, epoxy coated, or padded injection-foam covered tubing. If padded tubing is used, the foam must meet all FMVSS requirements and be vandal resistant transit quality material. Opaque barriers shall be covered with the same material as the wall covering unless formed from injection molded plastic.

-All stanchions, barriers and grab rails shall be attached to tapping plates in walls, floor, and ceiling if no structural members are available.

3.14.6 STOP SIGNAL ARM (SCHOOL BUS ONLY)

-Stop signal Arm shall comply with Delivery State Requirements

-Stop signal arm shall comply with SAE J1133.

-Arm mechanism shall be solid state operation.

-SMI 7-series.

-State requirements for the type of illumination used on the Stop Signal Arm shall take precedence if specifically listed in their specifications document.

300 SERIES ONLY

-Arm shall extend when red stop lights of the 8-way lamp system activate.

-Shall be equipped with two clustered LED lamps.

3.15 SEATS

3.15.1 DRIVER'S SEAT

·Back recline
·Seat tracks
·Seat height adjust
-The following features must be furnished as standard equipment:
·Right movable arm rest
·3point belt system

300 SERIES ONLY
·Grey weave fabric
·Triple Adjustable lumbar
·Adjustable bolsters
·Front cushion adjuster
·Rear cushion adjuster
·Adjustable cushion length
·Back recline minimum recline 9 inches or 23 degrees from full upright position with seat set in the center of seat track travel.
·Seat tracks minimum seat travel must be 7 inches.
·Seat height adjust with air cylinder suspension
·The driver's seating position must accommodate a 95th percentile male which is 6 feet 2 inches tall and weighs 223 pounds and a 5th percentile female at 5 feet tall and 110 pounds.
-For Type A buses, the OEM's premium cloth seat can be provided and does not need to meet every requirement above

3.15.2 PASSENGER SEATS

WORK BUSES

-Hip-to-knee room, measured from the front of one seat back horizontally across the highest part of the seat cushion, at the center of the seat, to the seat back or panel immediately in front shall be no less than 27-inches at all forward facing seating positions.

-Foot room, measured at the floor forward from a point vertically below the front of the seat cushion to an obstruction such as the driver barrier, shall be no less than 12 inches.

-Seats immediately behind the wheel housings may have foot room reduced, provided the wheelhouse is shaped so that it may be used as a footrest.
-3-point restraints shall be supplied if required under FMVSS for bus GVWR.
-Passenger seating shall comply with FMVSS 571.217 and 222 seating and leg room requirements.

SCHOOL BUSES
-Passenger seating shall comply with Delivery State requirements.
-Passenger seating shall comply with school transport requirements.

-Standard seating shall be a 39-inch-wide bench unless otherwise directed by State requirements.

-Seat cover shall be State required material and color.

-Hip-to-knee room shall be as specified at all seating positions, measured from the front of one seat back horizontally across the highest part of the seat cushion, at the center of the seat, to the seat back or panel immediately in front.

3.16 SUSPENSION

3.16.1 GROSS VEHICLE WEIGHT RATINGS

-Vehicle GVWR's shall be the chassis manufacturer's published ratings.

-Component and vehicular ratings shall not be increased to meet the requirements of this Specification.

-When published ratings are not available, verification of rating shall be made available upon request by the Government.

3.17 TIRES AND WHEELS

3.17.1 TIRES

-Shall comply with FMVSS 571.119 and 571.120

-Tubeless, steel belted radial tires with highway tread and a minimum speed rating of 75 mph.

3.17.2 WHEELS

-Wheel/Tire size and ply rating shall be the same for all wheels/tires.

-Shall be manufacturer's standard color

3.18 TRANSMISSION (N/A TO FULL-ELECTRIC SINS)

3.18.1 PERFORMANCE

-Transmission shall be automatic with a minimum of 5 forward speeds.

-Transmission ratings shall be selected to meet or exceed the maximum horsepower and torque ratings for the engine specified. the net torque capacity and the net power rating of the Transmission shall meet or exceed the output ratings of the engine in all gears.

-Fluid shall be synthetic if available from OEM. Allison transmissions shall be equipped with TES-295 approved fluid. Transmission shall be labeled on its exterior to indicate the type of fluid installed.

3.19 ELECTRIC DRIVE (FULL-ELECTRIC SINS ONLY)

3.19.1 ELECTRIC DRIVE

-The electric drive system shall provide power to enable the proposed buses to meet the defined top speed and operate all accessories, while still maintaining passenger comfort and providing a smooth ride. electric drive input torque rating shall exceed motor output torque. the drive system shall be rated to operate at the GVWR of the bus.

-The electronic drive shall have on-board diagnostic capabilities, be able to monitor functions, store and time stamp out-of-parameter conditions in memory and communicate faults and vital conditions to service personnel. The electronic drive shall contain built-in protection software to guard against severe damage. A diagnostic reader device connector port, suitably protected against dirt and moisture, shall be provided in the driver's area.

3.19.2 BUS INTERFACE

-The system controller shall be the point of interface to the bus electrical platform and the preferred communication path shall be serial data (J-1939, CAN). The system controller shall also be capable of communication to a variety of on-board device controllers, including but not limited to, ABS, drive motor(s), and other.

3.19.3 DRIVER INTERFACE

- Driver interface shall include state of charge, range remaining, distance traveled, and average efficiency (kWh per mi). All interfaces shall be ergonomically designed.

3.19.4 ENERGY STORAGE SYSTEM

-The Energy Storage System (ESS) shall be of a commercial design. The ESS shall be designed, sized, and selected to ensure that the bus performance specifications, compatibility with charging, and other related requirements are met or exceeded, bearing in mind cost benefit and reliability variables as they relate to the characteristics of the different battery types. The power source for the vehicle shall be derived from established battery technology purpose built for bus propulsion applications that has a field-proven track record of safe, reliable, and durable operation in similar traction applications.

-The energy storage system shall be composed of batteries along with associated power electronics interface and controls, and diagnostic systems. The energy storage devices used, and their arrangement shall be selected and sized to meet bus performance specifications and design goals, including long cycle life, low life-cycle cost, safety, maintainability, durability, and simple, robust diagnostics.

-The energy storage system shall monitor and control the operating conditions within each module, including voltage, current, and temperature. This system shall include over-current and over-temperature protection features that disconnect current to and from the energy storage modules in the event of an over- temperature or over-current condition, and de-rating performance (limits current) in the case of an over temperature condition.

-The energy storage system shall be capable of being replaced.

-Offerors shall include complete descriptions of all life-cycle testing procedures used to validate the life of batteries used at the proposed charging rates, charge durations, and expected ambient temperatures and operating profiles. Offerors shall include documented results of life cycle testing and certification of battery life cycle testing by independent testing agency.

3.19.5 THERMAL MANAGEMENT

-If necessary, to maintain thermal management of the energy storage system under the ambient operating conditions required herein, the energy storage system shall be furnished with a self-contained, manufacturer approved, cooling system dedicated only to the thermal management of the energy storage system. A warning light shall be supplied on the driver's panel indicating abnormal operational conditions (i.e.: excessive battery compartment temperature, loss of airflow, loss of power) within the energy storage device cooling system. This cooling system shall be rated to provide the required thermal management under the ambient operating conditions required herein and shall be manufactured and installed in compliance with the specifications and requirements of the manufacturer.

3.19.6 ELECTRICAL SAFETY SYSTEM

-A high voltage interlock monitoring and activation system shall be used to determine intentional or unintentional opening of high voltage circuits or enclosures and automatically neutralize all devices capable of or producing high voltage power. This system shall be fully compliant with SAE J1673, SAE J2344, and other applicable standards, and shall be active when the master run switch is in the OFF/CL/ID position and shall monitor all components and associated cabling within the system. When the master run switch is in the RUN/night position, the monitoring system shall provide an audible and visual warning on the driver's panel and provide for automatic shutdown of the high voltage system if a shutdown event occurs. The high voltage system includes all bus platforms operating above 50 VDC or 25 VAC and any variety of modulated currents to/from power electronic converters.

-An electrical isolation fault detecting system shall monitor the level of isolation between the high voltage system (positive and negative) and the bus chassis. The designed safety characteristics shall be supplemented using properly labeled and located safety tags and plates in accordance with SAE J1654 and J1673.

-The High-Voltage (HV) battery system design shall be a holistic integrated system with safety set as the absolute top priority. The HV cables shall utilize industry standard shielding and insulation, cabling shall be routed and secured to avoid chafing with other cables and components. The HV battery system shall also require a low-voltage interlock circuit that will automatically de-energizing the HV system if a HV box is opened. If the vehicle is in use while this happens, the HV system can be de-energized on key off. The vehicle controls system shall monitor all major components inside each battery pack as well as provide an overall battery system controller and an overall bus system controller.

3.19.7 ENERGY STORAGE SYSTEM CHARGING

-The energy storage unit shall be isolated from the passenger compartment to prevent any intrusion of liquids or gasses relating to the energy storage unit into the passenger compartment. At least one charging inlet shall be provided.

3.20 PROPULSION SYSTEM (FULL-ELECTRIC SINS ONLY)

3.20.1 PROPULSION SYSTEM

The bus shall be powered by a battery electric propulsion system. Function and operation of the bus shall be transparent to the bus driver and passengers. The Contractor shall assure that the bus structure can successfully accept the installation of the propulsion system. At a minimum, the propulsion system shall comply with applicable local, state, and/or federal emissions and useful life requirements, as a zero-emission bus.

3.20.2 PROPULSION SYSTEM SERVICE

The propulsion system shall be arranged so that accessibility for all routine maintenance is assured. No special tools, other than dollies and hoists, shall be required to remove the propulsion system or any subsystems. Contractor shall provide all specialty tools and diagnostic equipment required for maintaining the Propulsion System in accordance with Special Tools List.

3.20.3 PRIMARY TRACTION MOTOR

The bus shall have a permanent magnet (PM) traction motor.

3.20.4 PROPULSION SYSTEM CONTROLLER (PSC)

The PSC regulates energy flow throughout system components to provide motive performance and accessory loads, as applicable, while maintaining critical system parameters (e.g., voltages, currents, temperatures, etc.) within specified operating ranges. The controller shall monitor and process inputs and execute outputs as appropriate to control the operation of all propulsion system components. The overall propulsion system and PSC shall include and manage support systems such as, steering, air, etc.

The PSC shall be the hub for all propulsion system device to device communication, to include traction motors, energy storage, charging equipment and power switching electronics, and interface to other vehicle systems via SAE J1939 or other CAN networks that follow SAEJ1939. The PSC shall provide the following functionality:

Storage of the application file necessary to execute propulsion system commands Storage of the buses data file generated on a day-to-day basis, to include Incidents and alarms, monitoring and diagnostics information, & wireless communications

The system shall include current / power sensors at strategic locations throughout the propulsion system.

The system shall include sensors at strategic locations, such as, temperature, voltage, pressure.

The system shall protect the traction motor(s) against progressive damage. The system shall monitor conditions critical for safe operation and automatically de-rate power and/or speed.

The system shall include a sub-system capable of monitoring the level of connectivity between all propulsion components and associated cabling/connectors to the buses chassis and low (12/24) voltage systems to insure isolation. The energy storage module shall have automatic means/devices of disconnect and one manual capable of interrupting the positive and negative connections within the module enclosure and rated for disconnect at maximum current.

The system shall have an interlock that prevents engagement when the charger is connected to the traction battery.

The PSC shall be equipped with an electronically controlled management system, compatible with multiplex wiring systems and either 12-or-24volt electrical systems.

3.20.5 POWER ELECTRONICS/INVERTER

The PSC shall execute instructions and system commands to the propulsion system components via a power electronics inverter. Circuitry for this device (s) shall include all necessary fuses/breakers such that the conductors, components and bus are adequately protected and safe. Connection points shall be labeled to avoid mismatch.

3.20.6 ENERGY STORAGE SYSTEM

The primary charging of the energy storage system shall be provided from a stationary charging station conforming to all UL standards and SAE J1772 CCS. The energy storage system shall also make use of regenerative braking. The Energy Storage System shall comply with UN/DOT 38.3 orUL2580 or UL1642 requirements for lithium batteries or similar standards for non-lithium batteries.

The Contractor shall deliver the buses with an installed, fully functioning ESS. The ESS shall be fully formed, installed, and tested in accordance with the manufacturer's recommended practices. The ESS design, including containers, module bracing systems, thermal-management systems, battery-management systems, watering/venting systems, interconnections, fusing, and traction- controller and charger interfaces shall be completely described in the proposal. The proposal shall include a detailed analysis of expected battery performance in the Design Operating Profile.

The charge cycle and cycle life shall be stated in the proposal and a life-cycle cost analysis of the proposed battery system in the specified application shall be provided.

Offerors shall include complete descriptions of all life-cycle testing procedures used to validate the life of batteries used this application at the proposed charging rates, charge durations, and expected ambient temperatures and operating profiles. Offerors shall include documented results of life cycle testing.

3.20.7 ENERGY STORAGE SYSTEM SAFETY

The Energy Storage System shall be installed to optimize interior space and vehicle weight distribution. The ESS shall be load distributed within the bus to equalize weight between the wheels on the same axles and to achieve appropriate weight distribution between axles so as not to adversely affect handling of the bus. The ESS shall be positioned to maintain safety and not be impacted in side-impact crash scenarios.

3.20.8 COOLING SYSTEM

The cooling system shall be of sufficient size to maintain power electronics and the ESS at safe continuous operating temperatures, in accordance with the power electronics system component manufacturers' cooling system requirements and recommendations.

The cooling system shall be automatically controlled under normally encountered operating and charging conditions. Thermal management shall be continuously monitored during all periods of charge and discharge with appropriate safety interlocks installed to react to adverse conditions as stated in SAE-J1772.

Air intakes shall be properly positioned and configured to minimize the intake of water, road dust, and debris and shall be adequately filtered.

In the event of a failure of the cooling system while charging and keyed on, the charge system shall be disabled and a visual alert shall be activated on the dashboard, the reset of which shall require the deliberate action of maintenance personnel. In the event of a failure of the cooling system during bus operation, an audible and visual alert shall be activated on the dashboard, the reset of which shall require the deliberate action of maintenance personnel.

3.20.9 REGENERATIVE BRAKING

The bus shall have a regenerative braking system to aid in the reduction of wear on the brakes and to help extend the range of the vehicle through energy recapture. The vehicle shall employ regenerative braking as the accelerator pedal is completely released.

3.20.10 REGENERATIVE BRAKE MANAGEMENT

The system shall include a means of maintaining dynamic braking (braking retardation) that is designed to prevent overcharging of the batteries. This same feature may be a component of the overall liquid cooling system loop and offer a means of supplementing heat for use at the main HVAC heater core and/or defroster.

3.21 MISCELLANEOUS

3.21.1 OPERATION MANUALS & 1398 FORM

-Operation manuals shall be furnished with each bus.

-The Contractor shall fully complete and affix a GSA Form 1398 to the vehicle in the Driver's area. The exact location shall be agreed upon during the First Production Vehicle Inspection by both the Contractor and GSA Quality Assurance Branch Representative assigned to the facility

3.21.2 SERVICING AND ADJUSTING

-Prior to acceptance of the vehicle by the Government, the Contractor shall inspect, service and adjust each vehicle for operational use in accordance with an approved manufacturer's prescribed pre-delivery servicing form.

- The in-transit mileage accumulation on vehicles driven from the assembly plant to the receiving location shall be recorded and the start of warranty coverage adjusted to begin once the bus reaches the destination address.

-Full-electric vehicles shall be trailered to the destination address and shall be driven on-site for a minimum distance of 25 miles prior to acceptance of the vehicle.

-The areas to be inspected and adjusted, if necessary, shall include as a minimum:

·All fluids and fuel tank(s) shall be full.

·Alignment of headlights.

·All engine adjustments.

·Electrical and brake systems.

·Filling and charging of batteries.

·Alignment of front wheels.

·Inflation of all tires.

·Complete lubrication of body, chassis, engine and running gear with grade of lubricants recommended for the ambient air temperature at the delivery point.

·Servicing of the cooling system with a solution of ethylene glycol type antifreeze and water in equal parts by volume.

·Servicing of the windshield washer reservoir with water and appropriate additives.

3.22 GENERAL WORKMANSHIP REJECTION STANDARDS

The following shall be reason for rejection:

·A rough, sharp, or unfinished edges, burrs, seams, corners, joints, cracks, and dents. Sharp corners and edges shall be either rounded or padded to prevent injury to personnel.

·Interior cleanliness: vehicle interior should not contain trash or manufacturing debris (spare screws, bolts, rivets, etc.).

·Panels, non-uniform with edges that are not radiused, beveled, etc.

·Final stage manufacturer's paint shall be free of dirt, runs, sags, orange peel, "fisheyes", blisters, bubbles, chips, scratches, cracks, gouges, over-spray, peeling, chemical stains, water spots, and any other imperfection or lack of complete coverage.

·Body panels or components that are uneven, unsealed, or contain cracks, dents or have voids.

·Misalignment of body fasteners, glass, viewing panels, light housings, items with large or uneven gaps or spacing and doors, body panels, and hinged panels.

·Improper body design or interface with the chassis that could cause injury during normal use or maintenance.

·Improperly fabricated, routed, supported, or secured hoses, wires, wiring harnesses and mechanical controls.

·Loose, vibrating, abrading body parts, components, or subassemblies.

·Interference of chassis components, body parts, doors, etc.

·Leaks of any gas or fluid lines, (AC, coolant, oil, etc.)

·Sagging, non-form fitting upholstery or padding.

·Incomplete or incorrect application of rust proofing/undercoating.

·Inappropriate or incorrect use of hardware, fasteners, components, or methods of construction.

·Incomplete or improper welding, riveting. Welded, bolted, and riveted construction utilized shall be in accordance with the highest standards of industry using certified welders.

·Improper body design or interface with the chassis substructure that could cause injury during normal use or maintenance, and which fail to provide access to perform routine or mandatory repairs or maintenance on vehicle electrical and mechanical systems. In addition, the improper combination of options by their combination and installation are inherently incompatible regarding function or safety.

·Visual deformities and equipment malfunctions.

·Lack of uniformity and symmetry where applicable.

·Unsealed appurtenances or other body components, gaskets, etc.

·All exterior surfaces shall be smooth and free of wrinkles and dents.

·In addition, any deviation from the requirements or any other item, whether stipulated herein, that affects form, fit, function, durability, reliability, safety, performance, or appearance shall be cause for rejection.

3.23 IDENTIFICATION OF VEHICLES

The Contractor must show the applicable GSA Purchase Order number on the carrier's freight bill or other document used in the delivery of vehicles awarded f.o.b. destination under this solicitation. This information is essential to the consignee for identification purposes. Vehicles will not be accepted by the Government without this identifying number

3.24 CERTIFICATE OF ORIGIN OR BILL OF SALE

The manufacturer's Certificate of Origin or Bill of Sale for each vehicle procured shall be provided to the purchasing agency. The front of the document shall show the applicable RPN number shown on the Motor Vehicle Delivery Order. Non-OEM resellers must reassign the document to the purchasing agency listed in the Consignee Mailing Address shown on the Motor Vehicle Delivery Order. The document shall be forwarded to the Consignee Mailing Address shown on the Vehicle Delivery Order prior to shipment. Vehicle title/registration and safety/emission tests are the responsibility of the requisitioning agency.

3.25 WARRANTY REQUIREMENTS

Warranties in this document are in addition to any statutory remedies or warranties imposed on the Contractor. Consistent with this requirement, the Contractor shall warrant and guarantee to the Government each complete bus vehicle and specific subsystems and components according to the following provisions. The Contractor shall be fully responsible for warranty administration for all warranty periods. The Contractor shall have an authorized service representative assigned to assist the Government warranty administration.

3.25.1 COMPLETE BUS VEHICLE

The Contractor shall warranty and guarantee the bus for the same time and mileage durations as publicly published and furnished to non-Government buyers. The Contractor shall be responsible for all defects, parts failure, or malfunction due to design, construction or installation errors, defective workmanship, and missing or incorrect parts. The warranty period shall begin upon delivery and acceptance at the final delivery point and exclusive of accumulated drive away mileage. The Contractor shall be fully responsible to ensure the bus is delivered free of defects and in ready of use condition at the time of delivery. If the vehicle is found to have deficiencies the Contractor will resolve those prior to final delivery.

3.25.2 SUBSYSTEM AND COMPONENTS

If the Contractor receives from any supplier or subcontractor additional warranty coverage on the whole or any component of the vehicle, in the form of time and/or mileage including any pro rata arrangements, or the Contractor generally extends to his commercial customers a greater or extended warranty coverage, including anti-corrosion, powertrain, or emission, the Government shall receive corresponding warranty benefits if warranted by their manufacturer for a period longer than that required by the contract.

3.26 EXCEPTIONS TO WARRANTY

The warranty shall not apply to scheduled maintenance items and items furnished by the Government, except as far as such equipment may be damaged by the failure of a part or component for which the Contractor is responsible.

3.27 DETECTION OF DEFECTS

If the Government detects a defect within the warranty periods, it shall promptly notify the Contractor's representative. Additionally, warranty repairs shall begin no more than three business days or 5 calendar days after vehicle has been presented for repairs. If the repairs have not been approved by the Contractor within that period of 10 days, the Government shall consider the contractor, and it's authorized service center in breach of the contract, and the government may exercise all remedies including, but not limited to, seeking a third party to repair the vehicles and demand reimbursement for all related expenses from the contractor that sold the vehicle to the government.

3.28 SCOPE OF WARRANTY REPAIRS

-The offeror must disclose all restrictions placed upon the Government to comply with the warranty coverage.

-The offeror must operate a factory authorized parts and service center (to include 3rd party factory approve cross service agreement subcontractors) within a 100-mile geographic radius of the destination delivery location to support the commercial warranty. The contractor is required to disclose whether they can meet this requirement within five (5) working days of the receipt of the requisition/order to the contracting officer/contracting specialist.

-The offeror must disclose whether they offer towing and transport services at no cost to the Government during the factory warranty period. If there is an additional charge for this service, the offeror must indicate the per mile transport charge.

-All factory installed components that have a commercial warranty that exceeds the Federal minimum "bumper to bumper" commercial warranty provided by the manufacturer, shall be itemized by part/component noun name and manufacturer.

3.29 FLEET DEFECTS

A fleet defect is defined as cumulative failures of any kind in the same components in the same or similar application where such items are covered by the warranty and such failures occur within the warranty period in at least 10 percent of the vehicles delivered under this contract. The Government shall have final approval of corrections or changes under these conditions.

3.30 INTENDED USE

The Government in transporting personnel or cargo intends the vehicles covered by this Standard for general non-tactical use. Intended operation is on paved roadways with some semi-improved road surface use.

3.31 REPAIR PARTS AND SERVICE

Continuous operation of the buses is of utmost importance. It is necessary that the Contractor be able to render prompt service by furnishing a list of branch offices or agencies where complete stocks of repair parts are maintained and can be secured within a reasonable time after ordering by part number from the manufacturer's part books. Parts such as body panels, window assemblies excluding glass panels and windshields, doors, seats, seat covers, engines, and transmissions must be shipped within 30 days from order. All other parts must be shipped within 10 days from order. Parts shall be available for a period not less than 10 years from the date of delivery.

3.32 DOMESTIC USE

When vehicles are used within the fifty States of the United States, the District of Columbia, Puerto Rico, American Samoa, Guam, The Republic of Palau, the Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, the Republic of the Marshall Islands , and the Virgin Islands, the warranty shall include the furnishing, without cost to the Government (FOB contractors nearest dealer or branch to vehicle's location or station), of new parts and assemblies to replace any that failed or malfunctioned within the warranty period. In addition, when the Government elects to have the work performed at the contractor's plant, branch, dealership, or with the contractor's approval (i) to correct the supplies itself; or (ii) to have them corrected by a commercial garage facility; the cost of the labor involved in the replacement of the failed or malfunctioned parts or assemblies shall be borne by the contractor.

3.33 FOREIGN USE

When vehicles are used outside the fifty States of the United States, the District of Columbia, Puerto Rico, and the Virgin Islands, the warranty shall include the furnishing of new parts or assemblies to replace any returned to the Contractor by the Government that failed or malfunctioned within the warranty period. The replacement parts or assemblies shall be delivered by the Contractor to the port of embarkation in the United States operator may locate and read it easily.

4. QUALITY ASSURANCE & WARRANTY

4.1 VERIFICATION

The Contractor shall verify compliance to the requirements herein prior to first vehicle production release. Verification may be in the form of drawings, instructions, test results, vendor documentation, certifications, or design analytical data. Acceptance of designs by the Government does not relieve the Contractor from responsibility to meet all the requirements and specifications herein, whether reviewed by the Government or not. It shall be the Contractor's responsibility to assure all production documentation results in the production of vehicles that follow these requirements and specifications.

4.2 FIRST PRODUCTION VEHICLE INSPECTION

The first vehicle produced under this Standard for each Standard Item Number shall be inspected by the Contractor at his plant under the direction and in the presence of Government representatives.
The purpose of the inspection shall be to confirm vehicle conformance with the contract.
Acceptance of the first production vehicle shall not constitute a waiver by the Government of its rights under the provisions of the contract.

4.2.1 VEHICLE WEIGHT

The vehicle shall be weighed to determine the curb weight and the distribution on the front and rear axles.

4.2.2 ROAD TEST

Vehicle shall be examined, and road tested by the Contractor, less payload, on highways and roads for not less than 10 miles to assure that the vehicle will operate in accordance with the contractual requirements

4.2.3 WATER SPRAY TEST

All buses must be water tested. The manufacturer's standard test shall be used. The Government reserves the right to require more stringent testing if in-service water issues are encountered. The frequency of testing may be reduced, and the process modified at the discretion of the GSA Industrial Operations Analyst based on a history of previous successful tests.

There shall be no significant water leakage into the bus interior or exterior compartments with the following exceptions:

- A minimal amount of water can enter at the passenger entry and exit door seals so long as there is a designed path to move the water out of the bus without the door having to be opened and the water shall no collect or puddle at any point. The bottom step shall be the only one location in the well area to get wet when water does enter during normal operation of the bus.
- A minimal amount of water can enter at any window that is not a fixed-position, non-vented type. Water that enters from a slider rail or at a glass pane joint must be routed through a deliberately designed exit path and not puddle or allow the passenger compartment to get wet. Water that has entered must not flow across glass surfaces at any time

4.2.4 FAILURE

Failure of the first production vehicle to meet requirements of the contract shall be cause for the Government to refuse acceptance of all vehicles under contract until corrective action has been taken.

4.3 INSPECTION OF PRODUCTION VEHICLES

The Contractor's inspection system shall at a minimum assure that the vehicle conforms to the physical and dimensional requirements and is capable of meeting performance requirements specified herein.
For each vehicle under contract, the Contractor shall make available to the Government, at the point of final acceptance records acceptable to the Government indicating that the servicing, adjusting, and water spray test have been accomplished.

5. NOTES

5.1 ORDERING DATA

This standard reflects information on commercially available buses which have been segregated into classes to provide for competitive acquisition. This information is reflected as side-by-side model comparisons on the General Services Administration's website. Purchasers must use the AUTOCHOICE web site accessible at: www.gsa.gov/automotive to select vehicles, colors, and delivery options.

5.2 DEVIATION FROM FEDERAL STANDARD

An Agency requesting a vehicle or equipment not identified in Auto Choice should consult with the Contract Specialist for the assigned commodity to determine availability. All requests for systems and equipment not identified in the Standard are reviewed by GSA Engineering to determine the appropriate application.

5.3 CHANGES AND NOTICES

Requests for changes or additions to the Federal Vehicle Standard, along with rationale, should be sent to the General Services Administration, 1800 F St NW, Washington, DC 20006, for appropriate action. The requesting agency will be informed of the action taken.
Military Review Activities:

- Air force 84-99
- Army – AT – CE
- Navy – YD – MC
- Defense Logistics Agency
- CIVIL COORDINATION & PREPARING ACTIVITY:
- GSA-FSS-FFAE
- CIVIL AGENCY REVIEWING ACTIVITIES:
- Agriculture-FS-ARS-NRCS-APHIS
- DC Government
- Interior BLM-Reclamation
- State AID
- Transportation – CG
- Treasury – IRS – Sec. Svc. – Customs – ATF
- Energy – BPA
- Commerce – NOAA
- Justice – INS, FBI
- EPA, TVA, VA
- Army – Air Force Exchange Service

Smarter Solutions

This document may be downloaded at no cost from the Internet at:
WWW.GSA.GOV/AUTOMOTIVE

Comments, information, and questions should be sent to:
Chief, Automotive Engineering & Commodity Management Branch (QMDAA)
Office of Motor Vehicle Management
General Services Administration
1800 F St NW
Washington, DC 20006
Telephone: 703.605.2277