



# **School Bus Specifications Writing Committee**

## **State Delegation Ready Proposals**

**Writing Committee Chairperson, Chris Jose, Washington  
17<sup>th</sup> NCST Coordinator, Dan Kobussen, Wisconsin**

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**Proposal Number 1**

**Proposed Change, Page #:65**

**VENTILATION**

**A. AUXILIARY FAN(S), IF INSTALLED, SHALL MEET THE FOLLOWING REQUIREMENTS:**

**Rationale for Change:** Clarify that auxiliary fans status if intended to be a required feature or optional; the language submitted below would confirm the status to be optional not a required feature.

**Fiscal Impact if Any:** None Noted

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**SBS – Proposal Number 2**

**Proposed Change, Page #:51**

**INSULATION (OPTIONAL)**

- A. ~~If~~ **Thermal insulation is specified, it required in roof panels and between side panels of bus body and shall meet the flammability be fire resistant requirements of FMVSS 302, UL approved, with a minimum R-value of 5.5. Insulation shall be installed so as to prevent sagging.**

**Rationale for Change:** Installation of thermal insulation in roof and side panels is common practice in the industry and therefore request removal of optional status.

**Fiscal Impact if Any:** None Noted

## SBS – Proposal Number 3

### Proposed Change, Page #:286

#### BUS BODY HEATING SYSTEM TEST

##### A. Scope

This procedure, limited to liquid coolant systems, establishes uniform cold weather bus vehicle heating system test procedures for all vehicles designed to transport ten (10) or more passengers. Required test equipment, facilities and definitions are included. Defrosting and defogging procedures and requirements are established by SAE J381, *Windshield Defrosting Systems Test Procedure and Performance Requirements—Trucks, Buses, and Multipurpose Vehicles*, and SAE J382, *Windshield Defrosting Systems Performance Guidelines—Trucks, Buses, and Multi Purpose Vehicles*, which ~~are~~ **is** hereby included by reference.

**Rationale for Change:** SAE J382 has been inactive since 9/29/2009 delete reference from this section.

**Fiscal Impact if Any:** None Noted

**SBS – Proposal Number 4**

**Proposed Change, Page #:63**

**TOWING ATTACHMENT POINTS**

Front and ~~or~~ rear towing devices (i.e., tow hooks, tow eyes, or other designated towing attachment points) shall be furnished to assist in the retrieval of buses that are stuck and/or for towing buses when a wrecker with a “wheel lift” or an “axle lift” is not available or cannot be applied to the towed vehicle.

**Rationale for Change:** Clarify that both front and rear towing devices are required.

**Fiscal Impact if Any:** None Noted

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**SBS – Proposal Number 5**

**Proposed Change, Page #:51**

**STEPS**

- A. The first step at the entrance door shall be not less than 10 inches and not more than ~~14-16~~ inches from the ground when measured from the top surface of the step to the ground, ~~based on standard chassis, except that on Type D vehicles, the first step at the entrance door shall be 12 inches to 16 inches from the ground.~~ An auxiliary step may be provided to compensate for the increase in ground-to-first-step clearance. The auxiliary step is not required to be enclosed.

**Rationale for Change:** Combine step heights for all buses to a common range since students of all ages ride all type vehicles.

**Fiscal Impact if Any:** None Noted

**SBS – Proposal Number 6**

**Proposed Change, Page #: New Addition**

**EXTERIOR LIGHTING FOR THE LOADING ZONE (OPTIONAL)**

**If equipped, exterior lamp or lamps will illuminate the area on the right side of the bus beginning at the most forward point on the front bumper and proceeding to the centerline of the rear axle. It should extend from the vertical side of the school bus outward 2 meters**

- (a) Project white light.**
- (b) Allow operation of the lamp system when the alternating flashing warning lamps are activated;**
- (c) With the entrance door and windows closed, should produce a minimum illumination of 10 lux when measured at each point on the grid as displayed in figure 99 on a vertical surface at 0.5 m and 1.0 m above the ground with the orientation of the light meter so that it faces the eye point of the driver or the mirror that the driver could observe that location from.**
- (d) 10 lux at the vertical outside surface of the bus measured at the outer surface of the rubrail of the bus and outward at 1.0 m and 2.0 m and from the most forward point of the front bumper at intervals of every 1 meter proceeding toward the centerline of the rear axle.**
- (e) Direct its light in a manner that prevents the light from shining directly into the right side rear-view mirror and crossover mirror;**
- (f) Turn on when the door is opened; and**
- (g) Turn off approximately 5 sec after the door has closed.**

**Rationale for Change:** To define the minimum requirements for lighting the loading zone during the loading and unloading process. To allow the driver increased visibility of the students in the loading zone.

**Fiscal Impact if Any:** None Noted

**PROPOSED REVISIONS TO THE 17<sup>TH</sup> NATIONAL SCHOOL TRANSPORTATION SPECIFICATIONS AND PROCEDURES (NSTSP)**

Submitted by: School Bus Specifications Writing Committee.

Excerpts from the 2015 NSTSP publication; **inserted language, red, bold & underlined;** ~~deleted language strike through.~~

**SBS – Proposal Number 7**

**Proposed Change, Page #:155**

**J. Using New Technologies and Products**

**MOBILE DATA DEVICE (MDD) (OPTIONAL EQUIPMENT)**

- 1. The Mobile Data Device (MDD) shall be installed in an area that will not block the driver’s field view through the windshield. The MDD shall not block the view of any gauges, mirrors, indicator lights or controls.**
- 2. The MDD shall be securely mounted as to not be a snagging hazard in the student loading area of the service door.**
- 3. Audio and/or visual turn-by-turn instructions from the MDD system are allowed while the bus is being operated. Audible directions shall not use the speakers within the passenger compartment.**

**Rationale for Change:** New technology for drivers.

**Fiscal Impact if Any:** None Noted

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**SBS – Proposal Number 8**

**Proposed Change, Page #:66**

**VENTILATION**

- D. Static-type, non-closeable exhaust ventilation shall be installed in a low-pressure area of the roof body.**

**Rationale for Change:** Replacing the explicit location ‘roof’ with the more general location ‘body’ will allow greater flexibility to body manufactures for incorporating new technology

**Fiscal Impact if Any:** None Noted



## SBS – Proposal Number 9

### Proposed Change, Page #:42

#### FIRE SUPPRESSION SYSTEMS (OPTIONAL)

- A. ~~The chassis manufacturer may provide~~ an automatic fire ~~extinguisher~~ suppression system may be installed. ~~in the engine compartment.~~
- B. Fire suppression system ~~nozzles~~ shall be designed to protect, at a minimum ~~located in the engine-compartment, under the bus, in the electrical panel or under the dash, but they shall not be located in the passenger compartment.~~ The system shall be designed to completely discharge regardless of bus orientation. The system must include a lamp or buzzer to alert the driver that the system has been activated.

**Rationale for Change:** Update to reflect new industry standards for fire suppression systems.

**Fiscal Impact if Any:** None Noted

## SBS – Proposal Number 10

**Proposed Change, Page #: New Addition** - Moved from page 78 (Specially Equipped School Bus Specification)

### **“VEHICLE SAFETY TECHNOLOGY” (OPTIONAL)**

#### **TECHNOLOGY AND EQUIPMENT, NEW**

It is the intent of these specifications to accommodate new technologies and equipment that will better facilitate the transportation of students with special needs. New technology and equipment are acceptable for use in specially equipped vehicles if:

- A. Items do not compromise the effectiveness or integrity of any major safety system. (Examples of safety systems include, but are not limited to, compartmentalization, the eight-lamp warning system, emergency exits and the approved color scheme.)
- B. Items do not diminish the safety of the bus interior.
- C. Items do not create additional risk to students who are boarding or exiting the bus or are in or near the school bus loading zone.
- D. Items do not require undue additional activity and/or responsibility for the driver.
- E. Items generally increase efficiency and/or safety of the bus, generally provide for a safer or more pleasant experience for the occupants and pedestrians in the vicinity of the bus and/or generally assist the driver and makes his/her many tasks easier to perform.

**Rationale for Change:** This will allow a path for technology that is being introduced into the automotive industry to be used in the bus industry.

**Fiscal Impact if Any:** None Noted

## SBS – Proposal Number 11

### Proposed Change, Page #:32

### Proposed Change, Page # or New Addition in the 2015, 16<sup>th</sup> NSTSP Publication:

#### CROSSING CONTROL ARM

- A. School buses ~~may~~ **shall** be equipped with a crossing control arm mounted on the right side of the front bumper. When opened, this arm shall extend in a line parallel to the body side and aligned with the right front wheel.
- B. All components of the crossing control arm and all connections shall be weatherproofed.
- C. The crossing control arm shall incorporate system connectors (electrical, ~~vacuum~~ or air) at the gate and shall be easily removable to allow for towing of the bus.
- D. The crossing control arm shall be constructed of non-corrodible or nonferrous material or shall be treated in accordance with the body sheet metal specification. (See BUS BODY AND CHASSIS SPECIFICATIONS, Metal Treatment.)

**Rationale for Change:** Describe how the item(s) will improve safety, security, health, and/or efficiency of school transportation. All requests shall include appropriate rationale, cost benefit analysis, and risk assessment. Additional pages may be attached to this form. With Crossing control arms mandated in 27 states and utilized within several Contractor fleets, those states without mandate, and more importantly their students, are put at higher risk of related incident / injury when crossing in front of a school bus while loading or unloading. This injustice / inequity is easily rectified giving all students the same safety standards nationally buy the above, simple change. Current generation Crossing Arms not only perform better and last years longer, they are lower in cost when considering bus down time, cost of replacement parts, frequency of part replacement and labor.

**Fiscal Impact if Any:** The estimated cost ranges from \$504-612 per unit depending on whether the crossing arm is electrical or air actuated.

## SBS – Proposal Number 12

### Proposed Change, Page #:54

#### LAMPS AND SIGNALS

- F. An optional white flashing strobe lamp may be installed on the roof of a school bus at a location not to exceed the body length forward from the rear of the roof edge. ~~closer than 12 inches or more than 6 feet from the rear of the roof edge. However, if the bus is equipped with a roof hatch or other roof mounted equipment falling within the above mentioned measurements, the strobe lamp may be located directly behind that equipment.~~ The lamp shall have a single clear lens emitting light 360 degrees around its vertical axis and ~~meeting the requirements of SAE J845.~~ it may not extend above the roof more than the maximum legal height. A manual switch and a pilot lamp shall be included to indicate when the lamp is in operation. Optionally, the strobe lamp may be mounted on the roof in the area directly over the restraining barrier on the driver's side; may be wired to activate with the amber alternately flashing signal lamps, continuing through the full loading or unloading cycle, and may be equipped with an override

When utilizing LED strobe lamps, minimum specifications shall be in compliance per SAE J845 Class 2 requirements

**Rationale for Change:** Class 2 rating offers consistent, brighter light output for improved visibility, then class 3.

**Fiscal Impact if Any:** None Noted

## SBS – Proposal Number 13

### Proposed Change, Page #:44

#### HANDRAILS

~~At least one~~ A handrail shall be installed on the left and right sides of the step well. The handrails shall be a minimum of 1” diameter and be constructed from corrosion resistant material(s). The handrail(s) shall assist passengers during entry or exit and shall be designed to prevent entanglement, as evidenced by the passing of the NHTSA string and nut test.

**Rationale for Change:** Add a forward (right) handrail as a standard. With small children getting on/ off buses with back packs, it will help them to safely enter/ exit a bus.

**Fiscal Impact if Any:** The estimated cost for ranges from \$32- \$240.

## SBS – Proposal Number 14

### Proposed Change, Page #:66

#### WINDOWS

- A. Other than emergency exits designated to comply with FMVSS No. 217 , Bus Emergency Exits and Window Retention and Release, each side window shall provide an unobstructed opening of at least nine inches high (but not more than 13 inches high) and at least 22 inches wide, obtained by lowering the window. One window on each side of the bus may be less than 22 inches wide.
- B. Optional tinted and/or frost-free glazing may be installed in all doors or windows.
- C. Windshields shall comply with federal, state and local regulations.
- D. Roof Hatches: Using the following guideline and conforming to FMVSS 217, a head form moving at a velocity of 2 in/min, a perpendicular force applied directly to the center of the hatch lid should exceed 3100 N (700 lbf) before ANY one of the following conditions can occurs:**
  - a) The roof hatch opens (release mechanism fails).**
  - b) The hatch deforms such that an opening large enough to admit the passage of a 4” sphere is created.**
  - c) The inner surface of the hatch at the center has moved perpendicularly to the undisturbed surface of the hatch a distance equal to the length of the smallest chord along the surface of the hatch passing through the center divided by 4.**

**Rationale for Change:** In order to reduce the likelihood of a student or passenger being ejected from a school bus during an accident or rollover situation, improved child safety, best practices.

**Fiscal Impact if Any:** None Noted

**SBS – Proposal Number 15**

**Proposed Change, Page #:55**

**MIRRORS**

- D. Remote controlled external rear view mirrors ~~may~~ shall be used.

**Rationale for Change:** Require side/ rear view mirrors to be remote adjustable. With many drivers using the same bus, there is a better chance of having mirrors safely adjusted.

**Fiscal Impact if Any:** A remote mirror upgrade varies in cost from \$200-\$510 for both right and left outside rearview mirrors assemblies.

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**SBS – Proposal Number 16**

**Proposed Change, Page #:52**

**LAMPS AND SIGNALS**

**NOTE: ALL EXTERIOR BODY/ CHASSIS LIGHTING, WITH THE EXCEPTION OF HEAD/PARK/TURN COMBINATION ASSEMBLIES SHOULD BE LED LIGHTING.**

- A. Interior lamps which illuminate the aisle and the stepwell shall be provided. The stepwell lamp shall be illuminated by an entrance door-operated switch, to illuminate only when headlamps and clearance lamps are on and the entrance door is open.

**Rationale for Change:** All exterior lighting should be LED except head/park/turn combination assemblies. The lights are far more visible and less likely to be out. I believe safer.

**Fiscal Impact if Any:** None Noted

**SBS – Proposal Number 17**

**Proposed Change, Page #:49**

**IDENTIFICATION**

- A. The body shall bear the words “SCHOOLBUS” in black letters at least eight inches high on both front and rear of the body or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Letters shall conform to “Series B” of Standard Alphabets for Highway Signs. “SCHOOLBUS” lettering shall have a reflective background, or as an option, may be illuminated by backlighting. MFSABs are exempt from these requirements.

**Rationale for Change:** The wording change is requested to ensure illuminated signs are viewed as equal to reflective backgrounds.

**Fiscal Impact if Any:** None Noted

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**SBS – Proposal Number 18**

**Proposed Change, Page #: New Addition**

**(NEW SECTION)**

**ELECTRONIC STABILITY CONTROL**

**ALL TYPE C & D BUSES SHALL COMPLY WITH THE REQUIREMENTS OF FMVSS 136 REGARDLESS OF GVWR.**

**Rationale for Change:** Enhancement to vehicle control.

**Fiscal Impact if Any:** The estimated cost ranges from \$1,700-\$1,900 per unit.

END