

Minimum

Standards

for

School Buses

1959 REVISED EDITION

020774

MINIMUM STANDARDS FOR SCHOOL BUSES

1959 Revised Edition

Recommendations of
NATIONAL CONFERENCE ON SCHOOL TRANSPORTATION

Sponsored by

American Association of School Administrators, NEA
Council of Chief State School Officers
Department of Rural Education, NEA
National Commission on Safety Education, NEA
U. S. Office of Education

Administered by

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The 1959 National Conference on School Transportation also adopted recommendations published under the title *Selection, Instruction, and Supervision of School Bus Drivers: Recommended Policies and Practices*. Copies of this publication are available from the National Education Association for 50 cents each, subject to the same conditions as noted above for *Minimum Standards for School Buses*.

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OBJECTIVES AND GUIDING PRINCIPLES

Since the first National Conference on school bus standards in 1939, certain objectives and guiding principles have had a vital role in the development of the minimum standards for school buses. These objectives and guiding principles have been reaffirmed and emphasized at the subsequent National Conferences in 1945, 1948, 1951, 1954, and 1959. The two major objectives, *safety* and *economy*, along with the following principles, have served as guideposts for making decisions on the minimum standards and in arriving at sound and common agreement.

Objectives

The transportation of pupils in safety and comfort on *safe, economical* vehicles can be assured through adequate state regulations governing school bus construction.

Safety includes all those factors relative to school bus construction which may directly or indirectly affect the health, welfare, and safety of pupils transported.

Economy includes the construction, procurement, operation, and maintenance of school buses at the lowest cost, consistent with the health and safety of pupils.

Guiding Principles

1. Uniform state school bus standards should
 - a. be consistent with the objectives of safety and economy
 - b. eliminate the construction of unsafe buses
 - c. reduce conflicting standards wherever possible among states in the interest of production efficiency and lower costs
 - d. specify exact dimensions where necessary to increase the efficiency of volume production
 - e. eliminate unnecessary luxury consistent with the health, welfare, and safety of pupils transported.
2. Any adaptation of the nationally recommended minimum standards should be made by the states only in order to permit desirable adjustments to local needs and only when such adaptations do not
 - a. basically conflict with the recommended national minimum standards
 - b. otherwise unduly increase production costs.
3. Uniform state standards for school buses should specify results desired in terms of safety and economy, and these performance specifications must be defined when this is necessary to make the regulations enforceable.
4. Provisions should be made for periodic review and revision of uniform state standards for school buses through cooperation of the states.

side of chassis frame so that center line of battery shall be 52 inches back of cowl, and no part of battery shall extend above top of chassis frame.

Exception—small vehicles

1. Same as Item 1 above.
2. No bus shall be equipped with battery of less than 50 ampere hours at 12 volts, measured at 20-hour rate.
3. a. Same as Item 3a above.
b. ~~Item 3b does not apply.~~

Exception—transit and metropolitan vehicles
Item 3b does not apply.

Brakes —

1. Four-wheel brakes, adequate at all times to control bus when fully loaded, shall be provided.
2. Foot or service brakes shall, at all times, be capable of stopping complete unit (*i.e.*, wet chassis weight,¹ plus body weight, plus driver's weight, without pupils) from speed of 20 miles per hour in not more than 30 feet, such distance to be measured from point at which movement of service brake pedal or control begins. Tests for stopping distance shall be made on substantially level (not to exceed plus or minus 1 percent grade), dry, smooth, hard surface that is free from loose material.
3. a. Chassis shall be equipped with auxiliary brake capable of locking rear wheels and capable of holding vehicle on any grade on which it is operated under any conditions of loading on a surface free from snow or ice. Operating controls of such auxiliary brake shall be independent of operating controls of service brakes.
b. Under test conditions outlined in Item 2 above, auxiliary brake shall be capable of stopping vehicle from speed of 20 miles per hour in measured distance of 50 feet.
4. ~~Chassis designed for any~~ bus body of 48³⁶ or greater basic pupil capacity shall be equipped with full compressed-air brakes, vacuum-actuated power or assistor-type brakes, or compressed-air-over-hydraulic brakes. (See table under Body sizes, page 22.)
 - a. Such installation shall be made by authorized representative of chassis or brake manufacturer and shall conform to recommendation of that manufacturer.
 - b. Hydraulic line pressure shall not exceed recommendation of chassis or brake manufacturer.
 - c. Total reservoir capacity (see Item d(1) below) shall be at least 1,650 cubic inches for full compressed-air systems, and at least 1,000 cubic inches for vacuum-actuated systems and for compressed-air-over-hydraulic systems.

¹ With oil, water, and full tank of fuel.

- d. Buses having full compressed-air systems shall be equipped with
 - (1) at least two reservoirs (or one vessel divided into two compartments) connected in series
 - (2) safety valve mounted on first reservoir to protect air-brake system against excessive air pressure and check valve mounted in optional location
 - (3) air gauge mounted on instrument panel to register air pressure in air-brake system (see Instruments and instrument panel, page 19)
 - (4) audible low-pressure indicator to warn driver if air pressure in air-brake system falls below 60 pounds per square inch.
- e. Buses having vacuum-actuated or compressed-air-over-hydraulic systems shall be equipped with check valve located between source of supply and reservoir.

Bumper, front —

1. Front bumper shall be furnished by chassis manufacturer as part of chassis.
2. Front bumper must extend to outer edges of fenders at bumper top line (to assure maximum fender protection) and be of sufficient strength to permit pushing vehicle of equal gross weight without permanent distortion to bumper, chassis, or body.

Exception—transit and metropolitan vehicles

Same as above except that front bumper shall be furnished by body manufacturer.

Bumper, rear — see page 23.

Clutch —

Clutch torque capacity shall be not less than 10 percent in excess of maximum net torque output of engine. All chassis of 48 and 54 pupil capacity buses shall be equipped with clutch of 11-inch minimum diameter. Chassis of 60 and greater pupil capacity buses shall be equipped with clutch of 12-inch minimum diameter or clutch of equivalent performance.

Color —

Chassis, including wheels and front bumper, shall be black;² hood, cowl, and fenders shall be in national school bus chrome.³ (See page 42.)

Drive shaft —

Drive shaft shall be protected by metal guard or guards to prevent it from whipping through floor or dropping to ground if broken.

² Federal Standard No. 595, black enamel #17038. Color chips, each 3" x 5" are available at 5 cents each from General Services Administration, Business Service Center, Region 3, 7th and D Streets, S. W., Washington 25, D. C.

³ Federal Standard No. 595, chrome yellow enamel #13432. Color chips, each 3" x 5", are available at 5 cents each from source given in footnote 2.

3. Holes in top or bottom flanges of frame side rails shall not be permitted except as provided in original chassis frame. There shall be no welding to frame side rails except by chassis or body manufacturer.

Frame lengths — See table under Body sizes on page 22.

Fuel tank —

1. Fuel tank shall have minimum capacity of 30 gallons, be made of 16-gauge terneplate or equivalent, and be mounted directly on right side of chassis frame entirely outside body.
2. Flexible gasoline- and oil-proof connection shall be provided at engine end of fuel feed line.
3. Tank shall be equipped with adequate baffles.
4. Engine supply line shall be taken from top of tank.
5. Drain plug of at least ¼-inch diameter shall be located in center of bottom of tank.
6. Fill-pipe cap shall be of such design as to minimize spillage of fuel when bus turns corners in either direction. If venting of fuel tank is done other than through fill-pipe cap, cap shall be of nonvented type.²

Note: Measurements shown below are for guidance of chassis manufacturers and serve only to prevent need for replacement of original tank. Inspectors concerned with state or local approval of vehicle need not consider them unless tank does not fit.

- a. Tank shall not extend in height above side member of chassis.
- b. Distance from center line of chassis to outside of tank shall not be more than 39 inches.
- c. Bottom of tank shall not be more than 14 inches below top of frame.
- d. Distance from cowl to front of tank shall be 42 inches minimum.
- e. Distance from cowl to center of fill-pipe cap shall be 57 inches.
- f. Distance from center line of chassis to center of fill-pipe cap shall be 44 inches with plus or minus tolerance of ½ inch permitted.
- g. Center of fill-pipe cap shall be 1 inch below top of frame with plus or minus tolerance of ¼ inch permitted.

Exception—small vehicles

Fuel tank shall be mounted, filled, and vented outside body.

Exception—transit and metropolitan vehicles

1. Fuel tank shall have minimum capacity of 30 gallons, be made of 16-gauge terneplate or equivalent, and be mounted away from left side of bus entirely outside passenger compartment.
2. Bottom of tank shall not be exposed below skirt of body side paneling. (See Item 5 under Construction, page 25.)

² See provisions for fuel systems in current *Motor Carrier Safety Regulations* of Interstate Commerce Commission, obtainable from U. S. Government Printing Office, Washington 25, D. C. Price, 30 cents.

3. Engine supply line shall be taken from upper portion of tank and shall be adequately protected.
4. Drain plug of at least ¼-inch diameter shall be located in bottom of tank.
5. Fill-pipe cap shall be entirely outside passenger compartment.

Generator or alternator —

Generator or alternator with rectifier shall have maximum output of at least 35 amperes with either low cut-in or charge-at-idle type (12-volt system), and shall be ventilated, voltage-controlled, and current-controlled.

Note: If electrical load is increased through addition of heater motors, electric windshield wipers, defrosters, etc., refer to page 45 of Appendix for guidance in selecting generator of adequate capacity.

Exception—small vehicles

Generator or alternator with rectifier shall have maximum output of at least 30 amperes with 12-volt system, and shall be ventilated, voltage-controlled, and current-controlled.

Governor —

Governor is permissible and where used shall be approved by chassis manufacturer.

Exception—transit and metropolitan vehicles

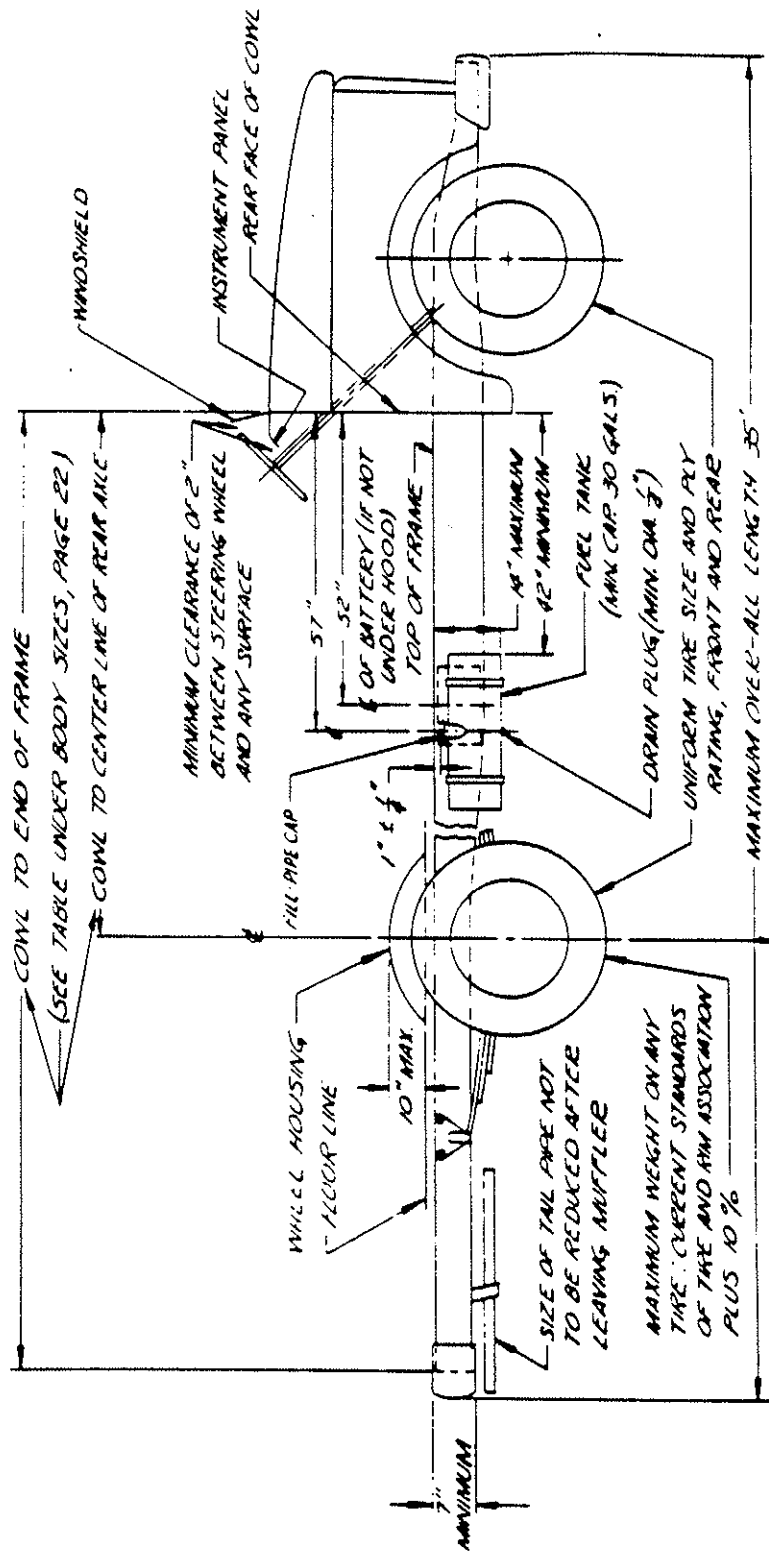
When engine is remotely located from driver, governor shall be installed to limit engine speed to maximum revolutions per minute recommended by engine manufacturer, or tachometer shall be installed so engine speed may be known to driver.

Horn —

1. Bus shall be equipped with horn or horns of standard make, each horn capable of producing complex sound in band of audiofrequencies between approximately 250 and 2,000 cycles per second and having total sound level of 110 decibels within these frequency limits when measured at point on axis of horn 3 feet from exit of horn.
2. Sound-level measurements shall be made with meter that complies with American Standard Z24.3-1944, or current revision thereof, as promulgated by American Standards Association, Inc.⁶ Measurement shall be made with meter set to flat response (C weighting network).
3. Sound-level measurements shall be made with horn or horns installed on bus. There shall be no reflecting walls or obstacles other than ground and vehicle closer than 100 feet from horn during sound-level measurements.

⁶ 10 East 40th Street, New York 16, New York.

Prepared especially for this publication by
Automobile Manufacturers Association



75% MAXIMUM GROSS VEHICLE WEIGHT
(EXCEPTION: 1 CA' TRANSIT AND
N/C TROPOLITAN VEHICLES SEE PAGE 21)

CHASSIS ELEVATION

Exception—small vehicles

Springs that are regular equipment on vehicle to be purchased may be used.

Steering gear —

1. Steering gear shall be approved by chassis manufacturer and designed to assure safe and accurate performance when vehicle is operated with maximum load and at maximum speed.
2. Steering mechanism shall provide for easy adjustment for lost motion.
3. No changes shall be made in steering apparatus which are not approved by chassis manufacturer.
4. There shall be clearance of at least 2 inches between steering wheel and cowl instrument panel, windshield, or any other surface.
5. Power steering is permissible if approved by chassis manufacturer.

Tires and rims —

1. Tire and rim sizes, based upon current standards of Tire and Rim Association,* shall be required.
2. In order to allow for reasonable tolerance, total weight imposed on any tire shall not be greater than 10 percent above current standard of Tire and Rim Association.
3. Dual rear tires shall be provided on all vehicles.
4. All tires on given vehicle shall be of same size and ply rating.
5. Spare tire, if required, shall be suitably mounted in accessible location outside passenger compartment.

Exception—small vehicles

Same as above, except that dual rear tires are not required.

Transmission —

1. Transmission shall be synchromesh or constant-mesh type. It shall be of sturdy construction, and input torque capacity shall be at least 10 percent above maximum net torque developed by engine. Its design shall provide not less than four forward and one reverse speeds.
2. Automatic transmissions are permissible.

Exception—small vehicles

Three-speed transmissions are acceptable.

Weight distribution —

Weight distribution of fully loaded bus on level surface shall be such that not more than 75 percent of gross vehicle weight is on rear tires and not more than 35 percent is on front tires.

Exception—transit and metropolitan vehicles

With engine inside front of body: If entrance door is ahead of front

* Current standards may be obtained from Tire and Rim Association, 2001 First National Tower, Akron 8, Ohio, or from tire manufacturers.

wheels, not more than 75 percent of gross vehicle weight shall be on rear tires nor more than 50 percent on front tires. If entrance door is behind front wheels, not more than 75 percent of gross vehicle weight shall be on rear tires nor more than 40 percent on front tires. With engine in rear: Not more than 75 percent of gross vehicle weight shall be on rear tires nor more than 40 percent on front tires.

The Bus Body

Aisle —

1. Minimum clearance of all aisles, including aisle (or passageway between seats) leading to emergency door, shall be 12 inches. (See Item 2f under Doors, page 26.)
2. Aisle supports of seat backs shall be slanted away from aisle sufficiently to give aisle clearance of 15 inches at tops of seat backs.

Exception—transit and metropolitan vehicles

With engine inside front of body: Minimum distance between stanchion at rear of entrance step-well and engine cover shall be 14 inches measured at floor level.

Battery — see Item 3 under Battery on page 11.

Body sizes —

Bodies for conventional body-on-chassis type vehicles shall be limited to lengths shown in table below. Sizes are based on 27-inch center-to-center spacing between rows of forward-facing seats, over-all width of 96 inches, center aisle width of 12 inches, and average rump width of (a) 13 inches for 3-3 seating plan and (b) 15 inches for 3-2 seating plan. Body lengths are measured from back of cowl to rear of body at floor level.

Number of rows of seats	Pupil capacity		Maximum body length (in inches)	Minimum measurement, cowl to center line of rear axle (in inches)	Minimum measurement, cowl to end of frame (in inches)
	3-3 plan; rump width of 13 inches	3-2 plan; rump width of 15 inches			
4	24	20	174	102	174
5	30	25	187	123	187
6	36	30	215	126	215
7	42	35	243	142	243
8	48	40	272	160	272
9	54	45	301	192	301
10	60	50	330	211	330
11	66	55	355	229	355

Exception—small vehicles

Small vehicle may vary in capacity up to 23 pupils, may be narrower

than large vehicle, and body may have been converted from one originally manufactured for other purposes.

Exception—transit and metropolitan vehicles

Measurements in preceding table do not apply.

Book racks —

1. Book racks, if installed, shall be provided above side windows within range from front cross-seat to rear transverse seat except across or above emergency door.
2. Racks shall be free of projections likely to cause injury.

Bumper, front — see page 13.

Bumper, rear —

1. Rear bumper shall be of pressed steel channel at least 3/16 inch by 7 inches.
2. It shall be fully wrapped around to both sides and shall be so attached as to prevent hitching of rides.
3. It shall be attached to chassis frame and braced with material of impact ratio comparable to that of bumper material.

Exception—small vehicles

1. Rear bumper shall be furnished by chassis manufacturer as part of chassis.
2. Rear bumper shall be of sufficient strength to permit vehicle being pushed without permanent distortion to bumper, chassis, or body.

Exception—transit and metropolitan vehicles

Rear bumper shall be of sufficient strength to permit fully loaded vehicle being pushed without permanent distortion to bumper or body. It shall be so designed as to prevent hitching-to or riding-on and shall be long enough to protect full width of body.

Ceiling — see Insulation and Interior on page 31.

Chains — see Item 4 under Wheel housings on page 39.

Color —

1. School bus body including hood, cowl, and fenders shall be painted uniform color, national school bus chrome,⁹ according to specifications available from General Services Administration. (See page 42.)
2. Rear bumper and lettering shall be black.¹⁰
3. Body trim, if used, shall be black.¹⁰

⁹ Federal Standard No. 595, chrome yellow enamel #13432. Color chips, each 3" x 5", are available at 5 cents each from General Services Administration, Business Center, Region 3, 7th and D Streets, S.W., Washington 25, D. C.

¹⁰ Federal Standard No. 595, black enamel #17038. Color chips, each 3" x 5", are available at 5 cents each from source given in footnote 9.

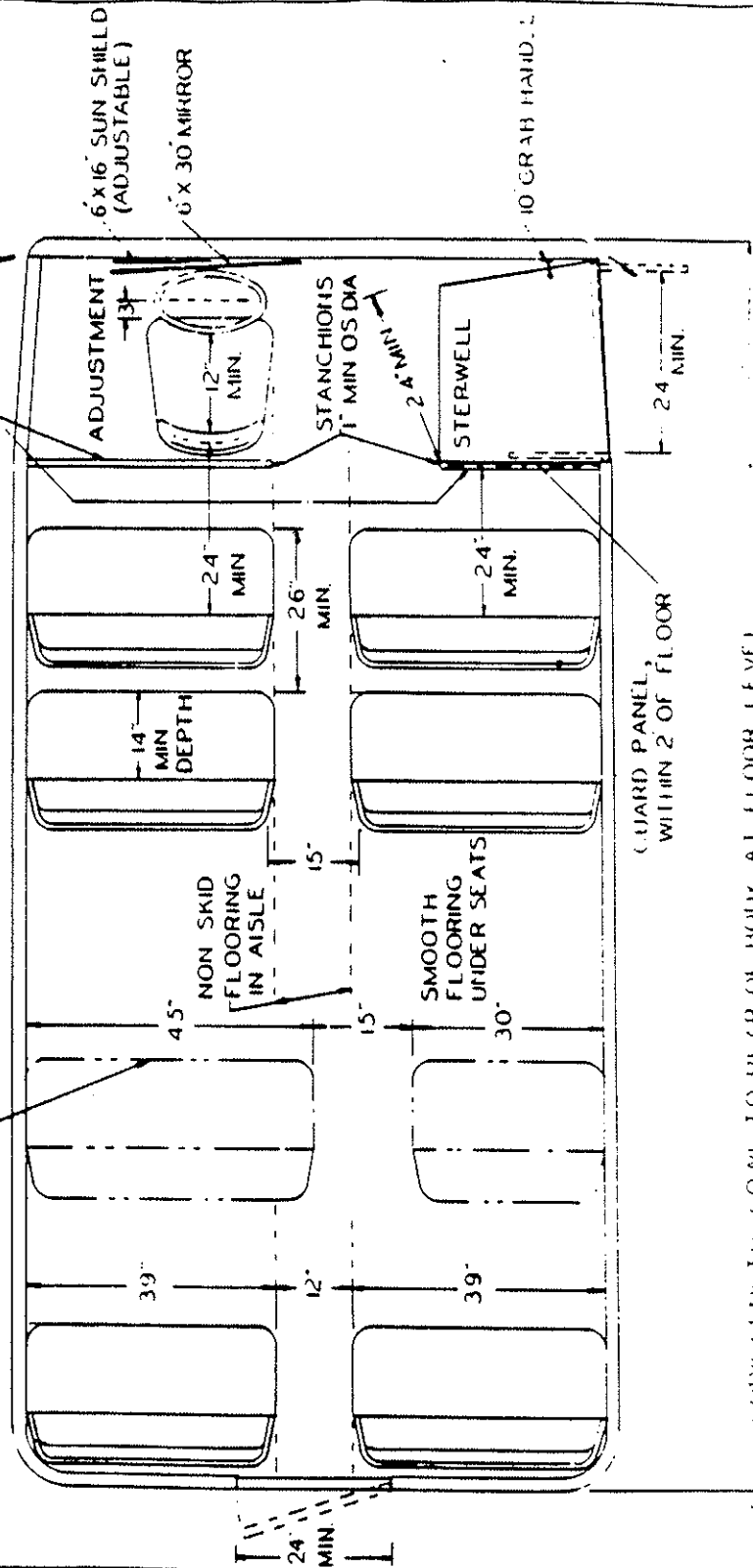
Prepared especially for this publication by
School Bus Body Manufacturers' Association

BODY PLAN

OPTIONAL 3-2 SEATING

GUARD RAILS
APPROX. 30" ABOVE FLOOR

EXTERIORS 50 SQ. IN. EA.



GUARD PANEL,
WITHIN 2' OF FLOOR

BODY LENGTH, COME TO REAR OF BODY AT FLOOR LEVEL.
SEE TABLE UNDER BODY SIZES, PAGE 22

Construction —

1. Construction shall be all-steel or other metal with strength at least equivalent to all-steel as certified by bus body manufacturer.
2. Construction shall provide reasonably dustproof and watertight unit.
3. Bus body (including roof bows, body posts, and floor) shall be of sufficient strength to support entire weight of fully loaded vehicle on its top or side if overturned. It shall have sufficient frame members (strainers, stringers, etc.) in roof structure and corners to provide adequate safety and to resist damage on impact. As evidence that bus body meets this standard, manufacturer shall furnish, for each current body model, certification in duplicate (unless more are requested by state department of education) that bus body meets School Bus Body Manufacturers' Association *Static Load Test Code for School Bus Body Structure*.¹¹ Consideration of impact resistance shall be a prime factor in body design in compliance with *Code* requirements. Copies of *Code* shall be furnished in duplicate (unless more are requested by state department of education) by School Bus Body Manufacturers' Association to each state department of education. State department of education shall, in turn, transmit *Code* and certification for each current body model to each other state agency responsible for development or enforcement of state standards for school buses. (See pages 46-7.)
4.
 - a. Floor shall be of metal at least equal in strength to 14-gauge steel or of 5-ply plywood at least 5/8-inch thick and found by standard test to be at least equal in strength to 14-gauge steel, provided it equals or exceeds properties of exterior-type Douglas fir plywood, B-B Grade, as specified in standard issued by U. S. Department of Commerce.¹²
 - b. All openings between chassis and passenger-carrying compartment made due to alterations by body manufacturer must be sealed. (See Openings, page 19.)
5. See Item 2 of Exception for transit and metropolitan vehicles under Fuel tank, page 16.

Exception—small vehicles

Item 3 does not apply to small vehicles not manufactured specifically as school buses.

Item 4a: Floor on small vehicles not manufactured specifically as school buses shall be manufacturer's standard.

Defrosters —

Defrosters, if required, shall be of sufficient capacity to keep wind-

¹¹ Copies available from School Bus Body Manufacturers' Association, An Industry Division of Truck Body and Equipment Association, Inc., 401-402 Washington Board of Trade Building, 1616 K Street, N. W., Washington 6, D. C.
¹² *Commercial Standard CS45-55 for Douglas Fir Plywood* (amended 1959). A Recorded Voluntary Standard of the Trade, obtainable from U. S. Government Printing Office, Washington 25, D. C. Price, 15 cents.

shield clear of fog, ice, and snow. This may be done by using fans or by taking heat directly from approved heater.

Doors —

1. Service door:

- a. Service door shall be power or manually operated, under control of driver, and so designed as to afford easy release and prevent accidental opening. When hand lever is used, no parts shall come together so as to shear or crush fingers.
- b. Service door shall be located on right side of bus opposite driver and within his direct view.
- c. Service door shall have minimum horizontal opening of 24 inches and minimum vertical opening of 65 inches.
- d. Service door shall be of split type or sedan type. (Split-type door includes any sectioned door which divides and opens inward or outward.) If one section of split-type door opens inward and other opens outward, front section shall open outward.
- e. Lower as well as upper panels shall be of approved safety glass. (See Item 1 under Windshield and windows, page 39.) Bottom of lower glass panel shall not be more than 35 inches from ground when bus is unloaded. Top of upper glass panel shall not be more than 6 inches from top of door.
- f. Vertical closing edges shall be equipped with flexible material to protect children's fingers.
- g. There shall be no door to left of driver. (This shall not be interpreted to conflict with Item 2a below.)

2. Emergency door and emergency window:

- a. Emergency door shall be located in center of rear end of bus or in rear half of left side of bus if engine is so located as to make it impossible to place door in center of rear end.
- b. Emergency door shall have minimum horizontal opening of 24 inches and minimum vertical opening of 48 inches measured from floor level.
- c. Emergency door shall be hinged on right side if in rear end of bus and on front side if on left side of bus. It shall open outward and shall be labeled inside to indicate how it operates.
- d. Upper portion of emergency door shall be equipped with approved safety glass, exposed area of which shall not be less than 12 inches in height and 20 inches in width. (See Item 1 under Windshield and windows, page 39.)
- e. There shall be no steps leading to emergency door.
- f. No seat or other object shall be so placed in bus as to restrict any part of passageway leading to either rear or left-side emergency door to opening smaller than rectangle of 12 inches in width and 48 inches in height, measured from floor level.
- g. When not fully latched, emergency door shall actuate signal audible to driver by means of mechanism actuated by latch.

- h. Words "EMERGENCY DOOR," both inside and outside in letters at least 2 inches high, shall be placed directly above emergency door.
- i. If emergency door is located on left side of bus:
 - (1) Window at rear shall be designed as emergency exit and shall be no smaller than 16 inches in height and 54 inches in width on buses 80 inches or more in width; it shall be no smaller than 16 inches in height and 48 inches in width on buses less than 80 inches in width. Window shall be hinged from top and devised and operated to insure against accidental closing in emergency.
 - (2) Paneling is required to cover space between top of rear divan seat and inside surface of emergency window at rear.
- j. Words "EMERGENCY EXIT," in letters at least 2 inches high, shall be placed directly above emergency window on inside and directly below it on outside.
- k. Both emergency door and emergency window shall be designed to open from inside and outside bus and shall be equipped with fastening device which may be quickly released but is designed to offer protection against accidental release. Control from driver's seat shall not be permitted. Provision for opening from outside shall consist of nondetachable device so designed as to prevent hitching-to, but to permit opening when necessary.

Exception—small vehicles

Substitute following standards for those above:

- 1. Service door shall be located to right of driver and shall be manually controlled from driver's seat by over-center control for bus-type conveyance.
- 2. Emergency door:
 - a. Emergency door shall be located in center of rear end of bus and shall be equipped with fastening device for opening from inside and outside body, which may be quickly released but is designed to offer protection against accidental release. Metal guard shall be placed over door control on inside. Control from driver's seat shall not be permitted. Provision for opening from outside shall consist of device designed to prevent hitching-to, but to permit opening when necessary.
 - b. Door shall open either vertically or horizontally. When vertical-type door is used, there shall be unobstructed aisle at least 12 inches wide.
 - c. Emergency door shall be marked "EMERGENCY DOOR" on inside.
 - d. There shall be no steps leading to emergency door.
 - e. No seat or other object shall be placed in bus which restricts passageway to emergency door to less than 12 inches.

Electrical system —

- 1. Battery—see page 11.

2. Generator or alternator—see page 17.
3. Lamps and signals—see page 31.
4. Wiring—see page 40.

Fire extinguisher —

1. Bus shall be equipped with at least one dry-chemical type fire extinguisher of at least 2½-pound capacity, mounted in extinguisher manufacturer's bracket of automotive type, and located in driver's compartment in full view of and readily accessible to driver.
2. Fire extinguisher shall bear label of Underwriters' Laboratories, Inc.,¹³ showing rating of not less than 4-B:C.¹⁴

First-aid kit —

1. Bus shall carry Grade A metal first-aid kit and Type II contents conforming to specifications as set forth in current Federal Specification GG-K-391a,¹⁵ mounted in full view and in accessible place in driver's compartment.
2. Number of units and contents shall be designated by proper state authorities from following GG-K-391a table:

Item	16- unit	24- unit	36- unit
Bandage compress, (sterile gauze pads) 4-inch..	2	2	5
Bandage compress, (sterile gauze pads) 2-inch..	1	1	3
Adhesive absorbent bandage (adhesive tape)			
1-inch	2	3	4
Triangular bandage, 40-inch	1	2	4
Gauze bandage, 4-inch	1	2	2
Absorbent-gauze compress	1	2	2
Burn compound, ¼-ounce	2	2	1
Burn compound, ⅜-ounce	—	—	2
Eye-dressing unit	—	1	1
Antiseptic applicators (swab type) (iodine or nitromersol tincture N.F. or thimersol N.F.).....	2	3	4
Ammonia inhalants	1	1	2
Ammonia ampules	—	1	2
Wire splints	1	2	2
Tourniquet and forceps	2	2	2

Floor — see Construction on page 25.

Floor covering —

1. Floor in underseat area, including tops of wheel housings, driver's compartment, and toeboard, shall be covered with fire-resistant floor-covering material of type commonly used in passenger transportation

¹³ 207 East Ohio Street, Chicago 11, Illinois.

¹⁴ 4-B:C denotes amount of chemical needed to extinguish 4-square-foot type B fire (flammable liquid) or type C fire (electrical).

¹⁵ Obtainable from General Services Administration, Business Service Center, Region 3, 7th and D Streets, S.W., Washington 25, D. C. Price, 15 cents.

equipment. Floor covering shall be of rubber or linoleum and shall have minimum over-all thickness of 0.125 inch. (Linoleum floor covering shall be made with oxidized linseed-oil binder having cork filler and placed on burlap or felt backing.)

2. Floor covering in aisle shall be of aisle-type rubber or linoleum, non-skid, and wear-resistant. If of linoleum, or rubber without ribs, it shall have minimum over-all thickness of 0.125 inch. If of ribbed material, minimum over-all thickness shall be 0.140 inch measured from tops of ribs. (Linoleum floor covering in aisle shall be as described in Item 1 above.)
3. Floor covering must be permanently bonded to floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be of type recommended by manufacturer of floor-covering material. All seams must be sealed with waterproof sealer.

Exception—small vehicles

Floor covering on small vehicles not manufactured specifically as school buses shall be manufacturer's standard.

Heaters —

1. Where heaters are required, they shall be of hot-water or combustion type.
2. If only one heater is used, it shall be of fresh-air or combination fresh-air and recirculating type.
3. If more than one heater is used, additional heaters may be of circulating type.
4. Where hot-water heaters are used, they shall bear name plate rating of School Bus Body Manufacturers' Association *Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment*.¹⁶ plate to be affixed by heater manufacturer. Copies of *Code* shall be furnished in duplicate (unless more are requested by state department of education) by School Bus Body Manufacturers' Association to each state department of education. State department of education shall, in turn, transmit such *Code* to each other state agency responsible for development or enforcement of state standards for school buses. (See pages 46-7.)
5. All combustion-type heaters shall be approved by Underwriters' Laboratories, Inc.¹⁷
6. If combustion-type heaters are used, they shall be installed on new buses by body manufacturers and on buses now in operation by authorized dealers or by authorized garages.¹⁸

¹⁶ Copies available from School Bus Body Manufacturers' Association, An Industry Division of Truck and Body Equipment Association, Inc., 401-402 Washington Board of Trade Building, 1616 K Street, N. W., Washington 6, D. C.

¹⁷ 207 East Ohio Street, Chicago 11, Illinois.

¹⁸ See requirements for combustion-type heaters in current *Motor Carrier Safety Regulations* of Interstate Commerce Commission, obtainable from U. S. Government Printing Office, Washington 25, D. C. Price, 30 cents.

7. Heaters shall be capable of maintaining inside temperature of 50 degrees Fahrenheit at average minimum January temperatures as established by U. S. Department of Commerce, Weather Bureau,¹⁹ for area in which heater is required.

Identification —

1. Body shall bear words "SCHOOL BUS" in black letters at least 8 inches high on both front and rear of body or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Lettering shall conform to "Series B" of Standard Alphabets for Highway Signs.²⁰
2. Words "STOP ON SIGNAL" may be painted on rear of bus. Word "STOP" by itself shall not be used.
3. Only signs and lettering approved by state law or regulation, limited to name of owner or operator and any number necessary for identification, shall appear on sides of bus.

Inside height —

Minimum inside body height shall be 70 inches measured at any point on longitudinal center line from front vertical bow to rear vertical bow.

Exception—small vehicles

Standard does not apply.

Insulation —

Ceilings and walls shall be insulated with proper materials to deaden sounds and to reduce vibrations. If thermal insulation is used, it shall be fire-resistant material of type approved by Underwriters' Laboratories, Inc.²¹

Interior —

1. Interior of bus shall be free of all unnecessary projections likely to cause injury. This standard requires inner lining on ceilings and walls.
2. Ceilings over aisles shall be free of all projections.

Lamps and signals —

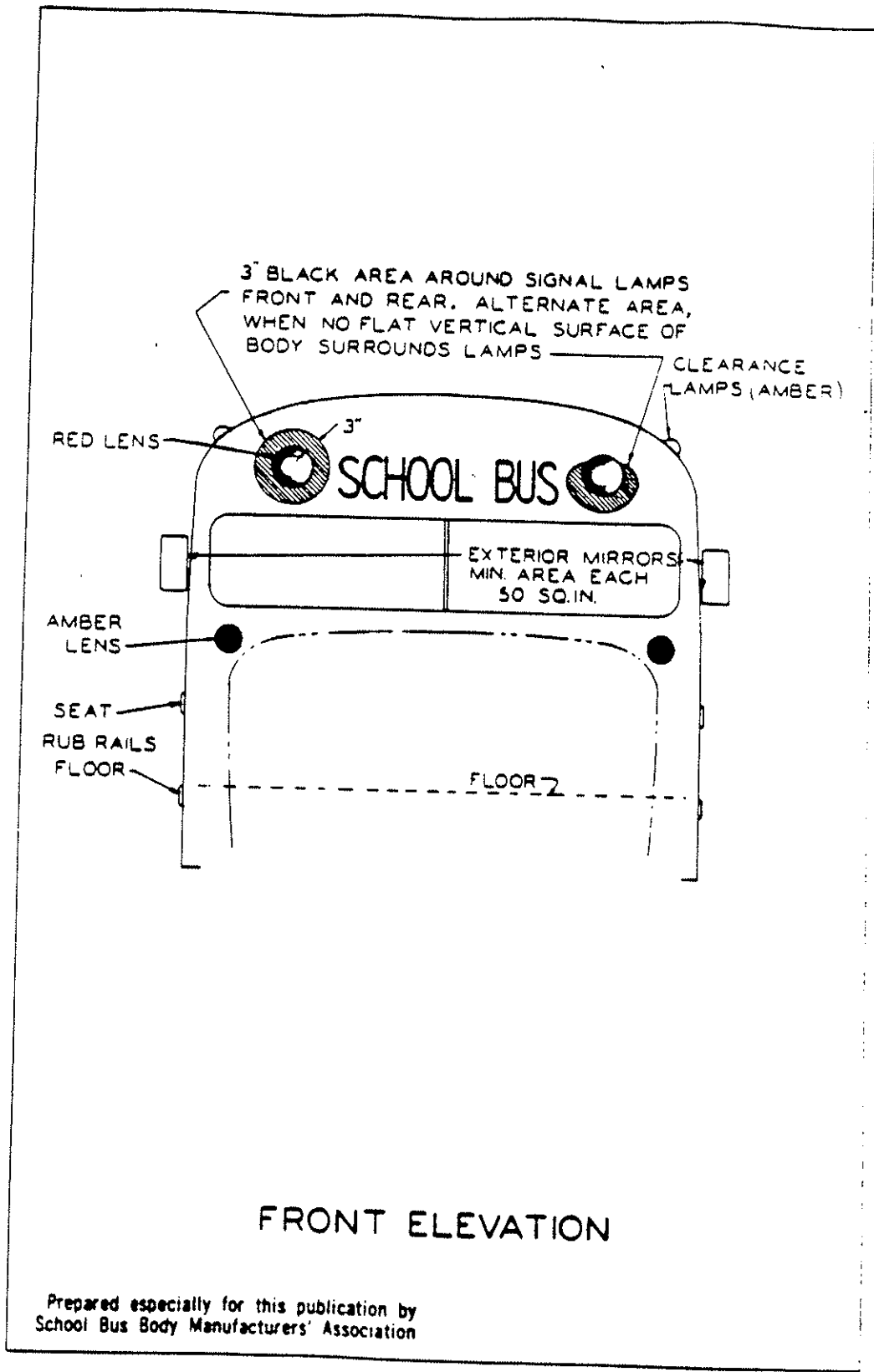
1. All lamps and their installation shall conform to current standards and recommendations of Society of Automotive Engineers.²²
2. Head lamps: Bus shall be equipped with head lamps and fuses or circuit breakers.

¹⁹ Washington 25, D. C.

²⁰ Designed by U. S. Bureau of Public Roads for Joint Committee on Uniform Traffic Control Devices. A full-scale layout (40 inches over-all length) of words "SCHOOL BUS" as here specified, with suggestions for application, is available from National Commission on Safety Education, 1201 Sixteenth Street, N. W., Washington 6, D. C. Price, 50 cents. One copy of this layout may be used repeatedly as guide for placing specified lettering on buses.

²¹ 207 East Ohio Street, Chicago 11, Illinois.

²² 485 Lexington Avenue, New York 17, New York.



3. Clearance and side-marker lamps: Clearance and side-marker lamps (amber at front, red at rear) shall be mounted as high as possible on permanent structure of bus and in such manner as to indicate extreme width of body. Clearance lamps and side-marker lamps may be in combination.
4. Tail and stop (brake) lamps:
 - a. Bus shall be equipped with two tail lamps and two stop (brake) lamps not in combination, emitting red light plainly visible for distance of 500 feet to rear. Stop (brake) lamps shall have light intensity at least equal to Class A, Type I turn-signal units as established by Society of Automotive Engineers.²³
 - b. Tail lamps shall be mounted not less than 40 inches from surface on which vehicle stands. Stop (brake) lamps shall be as high as practicable but below window line, and spaced as far apart laterally as practicable but not less than 3 feet. Measurements shall be taken from lamp centers.
5. License-plate lamp: Bus shall be equipped with rear license-plate illuminator. This lamp may be combined with one of tail lamps.
6. Interior lamps: Interior lamps shall be provided which adequately illuminate aisle and step-well.
7. School bus alternately flashing red signal lamps:

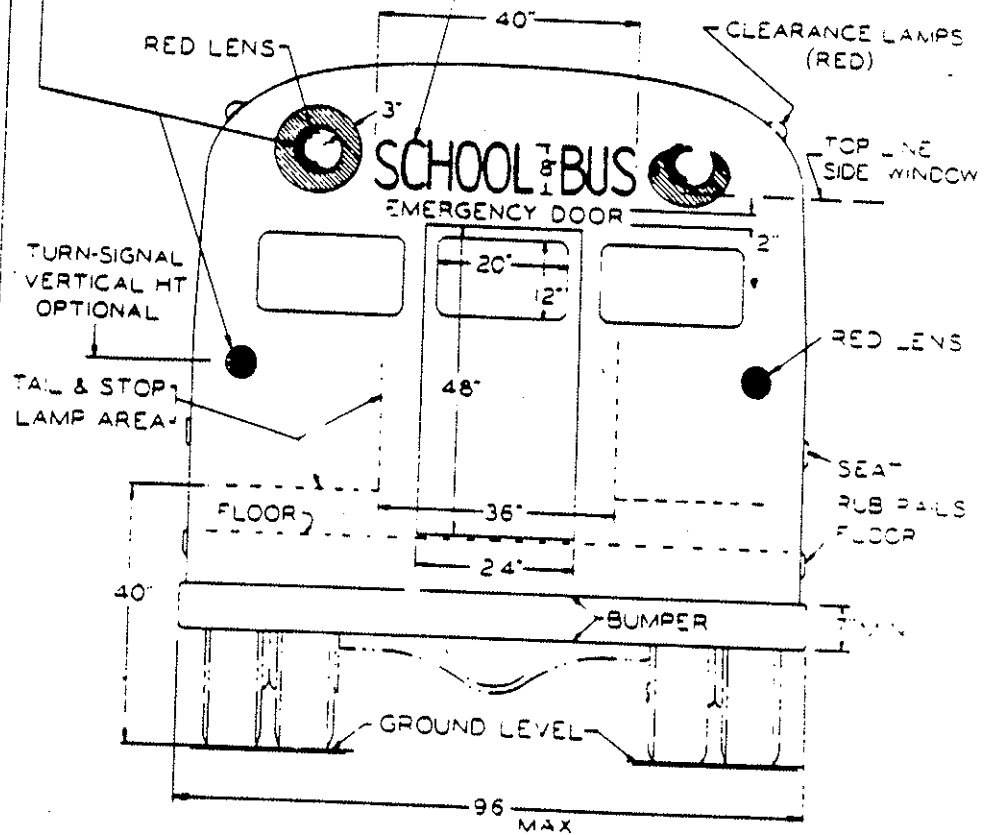
Definition: School bus alternately flashing red signal lamps are lamps mounted at same horizontal level, intended to identify vehicle as school bus and to inform other users of highway that such vehicle is stopped or about to stop on highway to take on or discharge school children.

 - a. Bus shall be equipped with two red lamps at rear of vehicle and two red lamps at front of vehicle, which shall be controlled by manually actuated switch and shall flash alternately at rate of 60 to 120 cycles per minute. No brake-operated switch shall be permitted.
 - b. There shall be visible or audible means of giving clear and unmistakable indication to driver when signaling system is turned on.
 - c. Installation recommendations:
 - (1) Each signal lamp shall be mounted with its axis substantially parallel to longitudinal axis of vehicle.
 - (2) Front and rear signal lamps shall be spaced as far apart laterally as practicable, but in no case shall spacing between lamp centers be less than 3 feet.
 - (3) Location of front signal lamps shall be such that they can be clearly distinguished when headlamps are lighted on lower beam.
 - (4) Signal lamps shall be mounted at front above windshield and at rear so that lower edge of lens is not lower than top line of side window openings.

²³ 485 Lexington Avenue, New York 17, New York.

SIGNAL LAMPS AND TURN
 SIGNAL LAMPS SPACED
 AS FAR APART LATERALLY
 AS PRACTICAL BUT NOT
 LESS THAN 3 FEET
 (FRONT AND REAR)

SERIES 'B' LETTERING
 STANDARD ALPHABET FOR
 HIGHWAY SIGNS-BLACK
 (FRONT AND REAR)



REAR ELEVATION

Prepared especially for this publication by
 Automobile Manufacturers Association

- (5) Vision of front signal lamps to front and of rear signal lamps to rear shall be unobstructed by any part of vehicle from 10 degrees above to 10 degrees below horizontal and from 20 degrees to right to 20 degrees to left of center line of vehicle.
 - (6) Area around lens of each alternately flashing red signal lamp and extending outward approximately 3 inches shall be painted black.²⁴ In installations where there is no flat vertical portion of body immediately surrounding entire lens of lamp, circular or square band of black²⁴ approximately 3 inches wide, immediately below and to both sides of lens, shall be painted on body or roof area against which signal lamp is seen (from distance of 500 feet along axis of vehicle).
8. Turn-signal units: Bus shall be equipped with Class A, Type I turn-signal units that meet specifications of Society of Automotive Engineers.²⁷ These signals must be independent units.
 9. Flags and flares:
 - a. School bus shall carry at all times at least two red cloth flags not less than 12 inches square and means for mounting for use in warning traffic in event of prolonged stops on highway.
 - b. Bus shall carry at least three liquid-burning flares or red electric lanterns, or at least three red emergency reflectors, to be displayed according to state law in event of prolonged stops on highway. Liquid-burning flares must be carried in leakproof metal box or carried outside body compartment.

Mounting —

Chassis frame shall extend to rear of rear body cross member.

Over-all width —

Over-all width of bus shall not exceed 96 inches.

Posts — see Construction on page 25 and Item 2 under Windshield and windows on page 39.

Rear vision —

1. Interior clear-view mirror shall be 6 by 30 inches over-all, to afford good view of pupils and roadway to rear. If not metal-backed and framed, mirror shall be of laminated plate safety glass.²⁸ It shall have rounded corners and protected edges.
2. Two exterior clear-view, rearview mirrors shall be provided, one to

²⁴ Federal Standard No. 595, black enamel #17038. Color chips, each 3" x 5", are available at 5 cents each from General Services Administration, Business Service Center, Region 3, 7th and D Streets, S. W., Washington 25, D. C.

²⁵ 485 Lexington Avenue, New York 17, New York.

²⁸ Current *Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways* (Z26.1), obtainable from American Standards Association, Inc., 10 East Fortieth Street, New York 16, New York.

left and one to right of driver. Area of each mirror shall be not less than 50 square inches over-all. Each mirror shall be firmly supported and adjustable to give driver clear views past left rear and right rear of bus.

Rub rails —

Two rub rails of ample strength to resist impact and to prevent body crushing shall be provided on each side of body. They shall be applied to full outside length of body: on left side from windshield post to rear corner radius and on right side from service door to rear corner radius. One rail shall be located approximately at seat line and one approximately at floor line. Pressed-in or snap-on rub rails do not satisfy this requirement.

Exception—small vehicles

Standard does not apply to small vehicles not manufactured specifically as school buses.

Sanders —

Where required or used, sanders shall:

1. Be of hopper cartridge-valve type.
2. Have metal hopper with all interior surfaces treated to prevent condensation of moisture.
3. Be of at least 100 pounds (grit) capacity.
4. Have cover, on filler opening of hopper, which screws into place sealing unit airtight.
5. Have discharge tubes extending to front of each rear wheel under fender.
6. Have no-clogging discharge tubes with slush-proof, non-freezing rubber nozzles.
7. Be operated by electric switch with telltale light mounted on instrument panel.
8. Be exclusively driver-controlled.
9. Have gauge to indicate hoppers need refilling when they are down to one-quarter full.

Seats —

1. All seats shall have minimum depth of 14 inches.
2. In determining seating capacity of bus, allowable average rump width shall be:
 - a. 13 inches where 3-3 seating plan is used
 - b. 15 inches where 3-2 seating plan is used.(See table under Body sizes, page 22.)
3. All seats shall be forward-facing and shall be securely fastened to that part or parts of bus which support them. (See Item 2 under Aisle, page 22.)
4. No bus shall be equipped with jump seats or portable seats.

5. Forward-most pupil seat on right side of bus shall be located so as not to interfere with driver's vision, not farther forward than guard rail behind driver or rear of driver's seat when adjusted to its rear-most position.
6. Minimum center-to-center seat spacing shall be 26 inches. Distance between driver's seat when adjusted to its rear-most position and front face of seat-back of forward-most pupil seat on left side of bus shall not be less than 24 inches measured at cushion height.
7. Padding and covering on all seats shall be of such materials as will not flash or explode upon contact with spark or open flame.
8. Minimum distance between steering wheel and back rest of driver's seat shall be 12 inches. Driver's seat shall have fore-and-aft adjustment of not less than 3 inches and shall be strongly attached.
9. Minimum of 36-inch headroom for sitting position above top of undepressed cushion line of all seats shall be provided. Measurement shall be made vertically not more than 7 inches from side wall at cushion height and at fore-and-aft center of cushion.
10. Backs of all seats of similar size shall be of same width at top and of same height from floor and shall slant at same angle with floor.
11. Where grab handles on seats are used, they shall be enclosed.

Exception—small vehicles

Substitute following standards for those above:

1. All seats shall be securely fastened to body of vehicle.
2. Seats shall be covered with fire-resistant padding material and comfortably upholstered with adequate padding.
3. Jump seats or portable seats shall not be used.
4. Seat beside driver, if regular equipment or installed by vehicle manufacturer, may be used for pupil seating. It shall be securely fastened to body and shall be so constructed as not to interfere with pupils entering or leaving vehicle.
5. Allowable average rump width in determining seating capacity of bus shall be 13 inches.
6. All seats shall be at least 14 inches in over-all depth.
7. If forward-facing seats are used, they shall be so placed that distance from center to center measured at top center of backs shall be not less than 26 inches.
8. If longitudinal seats are used, only two shall be installed and distance between front edges of seat cushions shall be at least 20 inches.
9. Back rest for each longitudinal seat shall measure at least 8 inches vertically and shall be so mounted that its top edge is at least 12 inches above seat.

Stanchions and guard rails —

1. Vertical stanchion shall be installed at right rear corner of driver's seat in such position as neither to interfere with adjustment of driver's seat nor to obstruct 12-inch aisle. Guard rail, approximately 30 inches above floor, and so placed as not to interfere with fore-

Tailpipe —

Tailpipe shall not extend beyond rear bumper. (See Item 2 under Exhaust system, page 15.)

Undercoating —

Entire underside of body, including floor members and side panels below floor level, shall be coated with fire-resistant, asphalt-base or rubber-base undercoating material, applied by spray method, at least $\frac{1}{8}$ -inch thick, in order to seal, to deaden sound, to insulate, and to prevent oxidation.

Ventilation —

1. Body shall be equipped with suitable, controlled ventilating system of sufficient capacity to maintain proper quantity of air under operating conditions without opening of windows except in extremely warm weather.
2. If static-type exhaust roof ventilators are desired, they shall be installed in low-pressure area of roof panel.

Exception—small vehicles

Standard does not apply to small vehicles not manufactured specifically as school buses.

Wheel housings —

1. Wheel housings shall be of full open type.
2. Wheel housings shall be attached to floor sheets in such manner as to prevent any water or dust from entering body.
3. Inside height of wheel housings above floor line shall not exceed 10 inches.
4. Wheel housings shall provide clearance for dual wheels as established by National Association of Chain Manufacturers.²⁷

Exception—small vehicles

Standard does not apply to small vehicles not manufactured specifically as school buses.

Width — see Over-all width on page 35.

Windshield and windows —

1. All glass in windshield, windows, and doors shall be of approved safety glass,²⁸ so mounted that permanent mark is visible, and of sufficient quality to prevent distortion of view in any direction.
2. Windshield shall be large enough to permit driver to see roadway clearly, shall be slanted to reduce glare, and shall be installed between front corner posts that are so designed and placed as to afford minimum obstruction to driver's view of roadway.

²⁷ 111 West Washington Street, Chicago 2, Illinois.

²⁸ See current *Safety Code for Safety Glazing Materials for Glazing Motor Vehicles Operating on Land Highways* (Z26.1), obtainable from American Standards Association, Inc., 10 East Fortieth Street, New York 16, New York.

3. Each full side window shall provide unobstructed emergency opening at least 9 inches high and 22 inches wide, obtained either by lowering of window or by use of knockout-type split-sash window.
4. All exposed edges of glass shall be banded.

Windshield washers —

Windshield washers shall be optional but, where required, they shall conform to body manufacturer's recommendations as to type and size for bus on which they are to be used.

Windshield wipers —

Bus shall be equipped with two positive-action windshield wipers of vacuum, air, or electric type.

Wiring —

1. All wiring shall conform to current standards of Society of Automotive Engineers.²⁹
2. Circuits:
 - a. Wiring shall be arranged in at least eight regular circuits, as follows:
 - (1) head, tail, stop (brake), and instrument panel lamps
 - (2) clearance lamps
 - (3) dome and step-well lamps
 - (4) starter motor
 - (5) ignition and emergency door signal
 - (6) turn-signal units
 - (7) alternately flashing red signal lamps
 - (8) horn.
 - b. Any of above combination circuits may be subdivided into additional independent circuits.
 - c. Wherever heaters and defrosters are used, at least one additional circuit shall be installed.
 - d. Wherever possible, all other electrical functions (such as sanders and electric-type windshield wipers) shall be provided with independent and properly protected circuits.
3. A separate fuse or circuit breaker shall be provided for each circuit except starter motor and ignition circuits.
4. All wires within body shall be insulated and protected by covering of fibrous loom (or equivalent) which will protect them from external damage and minimize dangers from short circuits.
5. All light circuits shall be such as to provide, as nearly as possible, bulb design voltage at light-bulb terminals.
6. Wires shall be fastened securely at intervals of not more than 24 inches. All joints shall be soldered or joined by equally effective connectors.

Exception—small vehicles

Wiring shall be manufacturer's standard.

²⁹ 485 Lexington Avenue, New York 17, New York.

APPENDIX

Development of National Standards for School Bus Construction

The National Conference on School Bus Standards, sponsored by the National Council of Chief State School Officers and held at Columbia University in 1939, pioneered in the development of nationally recommended standards for the construction of school buses.

1945 National Conference on School Transportation

In 1945, a National Conference on School Bus Standards, sponsored by the National Council of Chief State School Officers and administered by the NEA National Commission on Safety Education, was held at Jackson's Mill, West Virginia, to revise certain existing standards and develop others which were felt to be essential. The general policies for this Conference were worked out with the Chief State School Officers under the direction of a planning committee. In addition to revising the standards developed earlier, the 1945 Conference set up standards for small vehicles to meet the needs of schools in sparsely settled areas.

1948 National Conference on School Transportation

The primary purpose of the 1948 Conference, also held at Jackson's Mill, West Virginia, was to develop standards for the selection and training of school bus drivers. On the advice of state transportation officials and school bus manufacturers, however, it was decided that one day of the Conference be devoted to revising certain sections of the 1945 revised edition of *School Bus Standards*. A significant step at the 1948 Conference was the adoption of flashing lights (now called school bus alternately flashing red signal lamps) in preference to the stop signal arm. A special committee of transportation officials worked jointly with the Society of Automotive Engineers on the specifications for the flashing lights. Several adjustments and revisions were made in other parts of the standards. The two publications resulting from the 1948 Conference were: *Minimum Standards for School Buses* (1948 revised edition) and *Standards and Training Programs for School Bus Drivers*.

1951 Interim National Conference on School Transportation

In 1950, at the request of the National Council of Chief State School Officers, an Interim National Conference on School Transportation, administered by the NEA National Commission on Safety Education, was held in Washington, D. C. The recommendations of this Interim Conference were published as *Tentative Minimum Standards for Transit and Metropolitan Types of School Buses*.

1954 National Conference on School Transportation

At the request of the National Council of Chief State School Officers, the NEA National Commission on Safety Education administered the 1954 Conference which was held at Michigan State University in East Lansing. Among the purposes of the 1954 Conference were the following:

Revision of the 1948 *Minimum Standards for School Buses*; revision of the 1951 *Tentative Minimum Standards for Transit and Metropolitan Types of School Buses*; development of recommendations for extended educational uses of school buses; consideration of the so-called "school bus stop law" and other laws and regulations on which national uniformity is desirable; and development of recommendations to further the training of school bus drivers.

The published report of this Conference was titled *Minimum Standards for School Buses*. 1954 revised edition.

1959 National Conference on School Transportation

Following a request in 1957 of the Council of Chief State School Officers that another national conference on school transportation be held as soon as practicable, the NEA National Commission on Safety Education held four regional conferences during 1958 to identify problems in need of national conference consideration. Representatives of 39 state education departments, together with staff of the U. S. Office of Education and of the Commission, attended these regional meetings.

After a meeting of the Conference steering committee early in 1959, six study committees were appointed and brought together in Washington, D. C., during June to consider problems resulting from the regional meetings of the previous year and to develop proposals for consideration at the national level. These study committees were ably assisted in their work by technical consultants from the School Bus Body Manufacturers' Association (An Industry Division of Truck and Body Equipment Association, Inc.); Automobile Manufacturers Association; Society of Automotive Engineers; Underwriters' Laboratories, Inc.; Tire and Rim Association; American Association of Motor Vehicle Administrators; National Committee on Uniform Traffic Laws and Ordinances; and National Bureau of Standards of the U. S. Department of Commerce.

Technical consultants from the same groups and representatives of many other national organizations participated in the National Conference on School Transportation held in October 1959 at the University of Kansas in Lawrence. For the first time at any such national conference an exhibit of school bus components and related equipment was held in which nearly 20 companies took part.

The 1959 National Conference developed and adopted recommendations for this 1959 revised edition of *Minimum Standards for School Buses*: revised the 1949 Conference publication on school bus drivers and gave it a new title—*Selection, Instruction, and Supervision of School Bus Drivers: Recommended Policies and Practices*;^{*} and recommended changes in and additions to the *Uniform Vehicle Code* which have been submitted for consideration to the National Committee on Uniform Traffic Laws and Ordinances.

National School Bus Chrome

The color known as National School Bus Chrome was designated as such by the 1939 National Conference on School Bus Standards. The National Bureau of Standards of the U. S. Department of Commerce assisted in developing this color and its colorimetric specification.

At the time of the 1954 National Conference on School Transportation, the color chips for National School Bus Chrome provided by the National Bureau of Standards were designated as follows: TT-C-595, #1305. Starting March 1, 1956, chips of the color that passes the same specifications for chromaticity and daylight reflectance as required for National School Bus Chrome were designated thus: Federal Standard No. 595, #13432. Color chips of the color now identified as #13432 are available at 5 cents each from General Services Administration, Business Service Center, Region 3, Seventh and D Streets, S. W., Washington 25, D. C.

^{*} Copies are available from the National Education Association, 1201 Sixteenth Street, N.W., Washington 6, D. C. Price, 50 cents.

All vehicles hereafter purchased or placed in use for the transportation of pupils, whether owned or hired by the school district, shall conform to standards prescribed by the State Council of Education. Such standards when promulgated by the State Council of Education, may be revised not oftener than once each year, and whenever new requirements are made, they shall be published at least six months before they shall become effective, and shall apply only to vehicles thereafter purchased or put in use. (School Laws of Pennsylvania, Article XIV, Section 1406.)

4. State departments of education, in those states which have not already placed upon some state department the responsibility of setting up state rules and regulations for school buses, should use the first opportunity to request their legislatures to place this responsibility upon the state department of education.

Uniform Vehicle and Traffic Regulations

The need for uniform state legislation on a nationwide basis concerning vehicles and traffic was formally recognized in 1924 when the Secretary of Commerce called the first National Conference on Street and Highway Safety. During the following two years a committee appointed by that Conference drafted the *Uniform Vehicle Code*.^{*} This *Code* represented a compromise reached after a study of all state statutes on vehicles and traffic and became a distillation of the best thought and practice in the field. Judges, prosecutors, lawyers, police, motor vehicle administrators, educators, traffic engineers, safety specialists, business people, and others have participated in developing successive revisions of the *Uniform Vehicle Code*.

Numerous professional and other groups, both official and non-official, recommend adoption of the *Uniform Vehicle Code* by all states. Although much progress has been made, a great deal more is needed to assure reasonable uniformity of the vehicle and traffic laws among all the states.

For a number of years the National Committee on Uniform Traffic Laws and Ordinances has carried forward the work of revising the *Code* to keep it up to date. As a result it meets changing conditions, improved techniques, and advances in the design of highways and vehicles.

The 1945 National Conference on School Transportation recommended uniform traffic regulations regarding school transportation and proposed a change in the *Uniform Vehicle Code* regarding overtaking and passing school buses. The National Committee on Uniform Traffic Laws and Ordinances reviewed the proposed change and suggested a further revision of the pertinent section of the *Code*. After studying the suggested revision, the 1948 National Conference on School Transportation approved it and, in addition, recommended that flashing lights be used on school buses. The *Code* was subsequently revised to include provisions both on overtaking and passing school buses and on special lighting equipment on school buses. Thus, efforts of the National Committee on Uniform Traffic Laws and Ordinances and the National Conference on School Transportation were combined in support of agreed-upon objectives.

Although the 1954 Conference discussed many problems which uniform state laws could help solve, it took no official action regarding recommendations for changes in the *Uniform Vehicle Code*. However, the Conference authorized the appointment of a committee to work on the matter of uniform traffic regulations affecting school transportation.

The combined efforts of state education departments and the National Committee on Uniform Traffic Laws and Ordinances on school transportation matters

^{*} Most recent revision obtainable from National Committee on Uniform Traffic Laws and Ordinances, 711 Fourteenth Street, N. W., Washington 5, D. C. Price, \$1

can bring about more uniform state laws that will greatly enhance the safety of the millions of pupils who ride daily to and from school in buses.

The *Uniform Vehicle Code*, as revised in 1956, defines a school bus and includes provisions relating to the minimum age of school bus drivers, overtaking and passing school buses, special lighting equipment on school buses, identification of school buses, and the authority of state boards of education to regulate the design and operation of school buses.

The 1959 National Conference on School Transportation recommended several changes in and additions to the *Uniform Vehicle Code* which were forwarded to the National Committee on Uniform Traffic Laws and Ordinances for consideration in connection with revision of the *Code*.

Suggested Method for Estimating Generator Capacity

Constant Load		Intermittent Load	
Equipment	Approximate average current draw (amperes)	Equipment	Approximate average current draw (amperes)
Ignition	2.50	Four alternately flashing signal lamps (2 lighted at once)*	6.00
Head lamps (dual low beam)	6.85	Turn-signal units	3.00
Tail lamps	0.82	Step-well and four interior lamps	4.20
Clearance lamps	2.52	Two stop (brake) lamps	3.00
Flasher motor	3.00	Electric windshield wiper motor	7.00
Instrument panel	0.80	Electric fuel pump	3.00
Left-hand driver's heater (two motors)....	18.00	Emergency door buzzer	1.00
Left-hand driver's heater (one motor)	9.00	Interior lamps in excess of four, added draw per lamp	0.90
Right-hand driver's heater (one motor)	9.00		
Defroster fan	3.00		
Left-hand defroster	8.00		
Right-hand defroster	8.00		

(Note: Horn is not included because of its limited use.)

The above values show (in amperes) the approximate average draw of current for typical constant-load and intermittent-load equipment items. The draw for any specific item will vary depending on make and model of the equipment. For more accurate values, the manufacturer's specifications should be consulted.

To determine the electrical load (in amperes) for a typical school bus, the following formula is recommended:

$$\text{Constant load} + 35\% \text{ of intermittent load} = \text{total load.}$$

TITLES AND ADDRESSES OF PRINCIPAL STATE SCHOOL OFFICERS

(for use by manufacturers in furnishing information to state departments of education)

Superintendent of Education State Department of Education Montgomery 4. ALABAMA	Superintendent of Public Education State Department of Education Baton Rouge 4. LOUISIANA
Commissioner of Education State Department of Education Juneau. ALASKA	Commissioner of Education State Department of Education Augusta. MAINE
Superintendent of Public Instruction State Department of Public Instruction Phoenix. ARIZONA	Superintendent of Schools State Department of Education Baltimore 1. MARYLAND
Commissioner of Education State Department of Education Little Rock. ARKANSAS	Commissioner of Education State Department of Education Boston 16. MASSACHUSETTS
Superintendent of Public Instruction and Director of Education State Department of Education Sacramento 14. CALIFORNIA	Superintendent of Public Instruction State Department of Public Instruction Lansing 2. MICHIGAN
Commissioner of Education State Department of Education Denver. COLORADO	Commissioner of Education State Department of Education St. Paul 1. MINNESOTA
Commissioner of Education State Department of Education Hartford 15. CONNECTICUT	Superintendent of Public Education State Department of Education Jackson. MISSISSIPPI
Superintendent of Public Instruction State Department of Public Instruction Dover. DELAWARE	Commissioner of Education State Department of Education Jefferson City. MISSOURI
Superintendent of Public Instruction State Department of Education Tallahassee. FLORIDA	Superintendent of Public Instruction State Department of Public Instruction Helena. MONTANA
Superintendent of Schools State Department of Education Atlanta. GEORGIA	Commissioner of Education State Department of Education Lincoln 9. NEBRASKA
Superintendent of Public Instruction Department of Public Instruction Honolulu. HAWAII	Superintendent of Public Instruction State Department of Education Carson City. NEVADA
Superintendent of Public Instruction State Department of Education Boise. IDAHO	Commissioner of Education State Department of Education Concord. NEW HAMPSHIRE
Superintendent of Public Instruction Office of the Superintendent of Public Instruction Springfield. ILLINOIS	Commissioner of Education State Department of Education Trenton 25. NEW JERSEY
Superintendent of Public Instruction State Department of Public Instruction Indianapolis 4. INDIANA	Superintendent of Public Instruction State Department of Education Santa Fe. NEW MEXICO
Superintendent of Public Instruction State Department of Public Instruction Des Moines 19. IOWA	Commissioner of Education State Education Department Albany 1. NEW YORK
Superintendent of Public Instruction State Department of Public Instruction Topeka. KANSAS	Superintendent of Public Instruction State Department of Public Instruction Raleigh. NORTH CAROLINA
Superintendent of Public Instruction State Department of Education Frankfort. KENTUCKY	Superintendent of Public Instruction State Department of Public Instruction Bismarck. NORTH DAKOTA
	Superintendent of Public Instruction State Department of Education Columbus 15. OHIO

Superintendent of Public Instruction
State Department of Education
Oklahoma City 5. OKLAHOMA

Superintendent of Public Instruction
State Department of Education
Salem. OREGON

Superintendent of Public Instruction
State Department of Public Instruction
Harrisburg. PENNSYLVANIA

Commissioner of Education
State Department of Education
Providence 8. RHODE ISLAND

Superintendent of Education
State Department of Education
Columbia. SOUTH CAROLINA

Superintendent of Public Instruction
State Department of Public Instruction
Pierre. SOUTH DAKOTA

Commissioner of Education
State Department of Education
Nashville 3. TENNESSEE

Commissioner of Education
Texas Education Agency
Austin 11. TEXAS

Superintendent of Public Instruction
State Department of Public Instruction
Salt Lake City 14. UTAH

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