**Section 443.APPENDIX H Mirrors through Rub Rails**

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| a) MIRRORS | | | | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | Every required mirror shall be of reflecting material protected from abrasion, scratching, and corrosion. Mirror shall be firmly installed on stable supports so as to give a clear, stable, reflected view. Mirrors must meet all requirements of 49 CFR 571.111 to provide the required field of view. | |
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|  | | | | Convex crossover mirrors can be combined with either the right or left side safety mirrors provided the convex mirror meets the field of view and size requirements established in this subsection or in 49 CFR 571.111. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Mirrors do not meet requirements; defective; excessively clouded; not securely attached; cracked or broken glass. | |
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|  | 1) Exterior | | |  | |
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|  | | | A) Rear View Driving | PROCEDURES/SPECIFICATIONS: | |
|  | | | |  | |
|  | | | | Shall be mounted outside on the left and right sides of the bus. Must give seated driver a view to the rear along each side of the bus. Must be at least 50 square inches of usable flat rectangular reflecting surface on each side. (49 CFR 571.111) | |
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|  | | | | If the rear view driving mirror does not provide the required field of view, a convex driving mirror must be installed to expand the driving view to the rear. However, the usable flat reflecting surface must be rectangular and must maintain at least 50 square inches. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Rear view driving mirror does not meet requirements; defective; excessively clouded; not adjustable; not securely attached; cracked or broken glass. | |
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|  | | | B) Right Side Safety | PROCEDURES/SPECIFICATIONS: | |
|  | | | |  | |
|  | | | | An outside convex mirror, either alone or in combination with the crossover mirror system, shall give the seated driver a view of the roadway along the right side of the bus between the most forward surface of the right front tire and the rear of the rear bumper. The projected reflecting surface of this convex mirror shall be at least 40 square inches (7⅛ inches diameter if a circle). | |
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|  | | | | Extra-wide angle convex mirror heads are permissible on right front corner only. | |
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|  | | | | Exception: A right safety mirror is optional on a bus manufactured in August 1974 or earlier. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Right side safety mirror does not meet requirements; defective; excessively clouded; not securely attached; cracked or broken glass. | |
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|  | | | C) Left Side Safety (Optional) | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | A convex mirror is required if the left rear view driving mirror system does not give the seated driver a reflected view of the roadway along the left side of the bus between the front edge of the driver's seat (in most forward position) and the rear of the rear bumper. The convex mirror shall be installed so that either alone or in combination with the rear view driving mirror gives the seated driver the proper view. | |
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|  | | | | Exception: A left safety mirror is optional on a bus with chassis manufactured in March 1977 or earlier. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Left side safety mirror does not meet requirements; defective; excessively clouded; not securely attached; cracked or broken glass. | |
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|  | | D) Crossover | |  | |
|  | | | | PROCEDURES/SPECIFICATIONS: | |
|  | | | |  | |
|  | | | | An outside convex mirror shall give the seated driver a view of the front bumper and the area of roadway in front of the bus. The projected reflecting surface of this mirror shall be at least 40 square inches (7⅛ inch diameter if a circle). (49 CFR 571.111) | |
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|  | | | | Exception: If the seated driver of a forward control bus has a direct view of the front bumper and the area of roadway in front of the bus, a crossover mirror is optional. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Crossover mirror does not meet requirements; defective; excessively clouded; not adjustable; not securely attached; cracked or broken glass. | |
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|  | | 2) Interior | | PROCEDURES/SPECIFICATIONS: | |
|  | | | |  | |
|  | | | | All buses purchased during and after September 1974 must have a clear view safety glass mirror, metal backed and framed with rounded corners and edges which shall be padded. Shall afford a good view of the interior and roadway to the rear. | |
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|  | | | | All buses purchased prior to September 1974 must have a rear view mirror. | |
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|  | | | | REJECT VEHICLE IF: | |
|  | | | |  | |
|  | | | | Interior mirror does not meet requirements; defective; excessively clouded; not adjustable; not securely attached; cracked or broken glass. | |
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| b) PAINT REQUIREMENTS | | | | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | *The exterior of the body, excluding required rub rail and lettering, shall be painted a uniform color. National School Bus Glossy Yellow. Required rub rail and lettering must be black. Additional rub rails may either be black or yellow. The front and rear bumpers and wheels may be black or manufacturer's colors. Grilles and hub caps may be a bright finish (chrome, anodized aluminum, etc.). Roofs may be white.* (Section 12-801 of the Illinois Vehicle Equipment Law) | |
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|  | | | | For buses manufactured on or after May 2, 1994, each opening for a required emergency exit must be outlined around its outside perimeter with a minimum 1 inch (2.54 cm.) wide yellow retroreflective tape. This yellow retroreflective tape must be on the exterior surface of the bus. Required yellow retroreflective tape can be located on the rear bumper provided the space between the top of the bumper and bottom of the door is not adequate to accommodate the tape. (49 CFR 571.217) | |
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|  | | | | Optional: A white roof may extend only to within 6 inches above the drip rails on the sides of the body. The front and rear roof caps shall remain National School Bus Glossy Yellow. | |
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|  | | | | Optional: Black area around flashing lights is permitted. Black area must not interfere with "SHOOL BUS" lettering. | |
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|  | | | | Optional: Reflectorized tape is permitted provided it reflects the same color that is applied to and cannot be located on any bumper unless the bus was manufactured on or after May 1, 1994 (see above paragraph). | |
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|  | | | | Exception: Hoods may be lusterless black or lusterless school bus yellow. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Paint does not meet color requirements; paint in poor condition (i.e., faded, peeling or rusted). | |
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|  | | | | Optional black area around flashers interferes with required lettering. | |
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|  | | | | Optional or required reflectorized tape does not meet color requirements. | |
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| c) PROJECTIONS | | | |  | |
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|  | | | 1) Exterior | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | Entire rear of bus must be nonhitchable. | |
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|  | | | | Exceptions: A bus manufactured in October 1978 or earlier is exempt from nonhitchable bumpers. A bus manufactured in August 1974 or earlier is exempt from nonhitchable projections. Every school bus, however, must have a nonhitchable door handle. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Exterior projections do not comply with nonhitchable projection requirements. | |
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|  | | | 2) Interior | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | Interior shall be free of all dangerous projections. | |
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|  | | | | Optional equipment (e.g., video camera) that is located in the bulkhead area of the bus and not flush with the interior walls must meet the following requirements: | |
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|  | | | | A) | Must not interfere with occupant's entering or exiting the bus. |
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|  | | | | B) | Must not be located in driver's head impact zone. |
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|  | | | | C) | Must not obstruct required lettering. |
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|  | | | | Additional projections (e.g., external speakers, air conditioners) located within 59 inches from the floor shall be padded to prevent injury. This includes inner lining of ceiling and walls. Installation of book racks is not permissible. | |
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|  | | | | Exception: All buses purchased prior to September 1974 may be equipped with book racks. However, if book racks are present, they shall be above side windows and shall not extend forward of the front seat or across or above the emergency door. Racks must be free of projections likely to cause injury. | |
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|  | | | | Exception: All buses purchased prior to September 1974 are exempt from padding on interior projections. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Optional equipment in bulkhead does not meet requirements. | |
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|  | | | | Remaining interior projections are not padded (e.g., external speakers). Book racks are present. | |
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|  | | | | Flush mounted speakers are exempt from padding requirements. | |
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|  | | | | For buses purchased prior to September 1974, book racks do not meet requirements. | |
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| d) REFLECTORS | | | |  | |
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|  | 1) Front | | | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | *Two yellow rigid or sheet type (tape) front reflex reflectors shall be attached securely and as far forward as practicable.* (Section 12-202 of the Illinois Vehicle Equipment Law) They shall be located between 15 and 60 inches above the roadway at either fender, cowl, or body and installed so as to mark the outer edge of the maximum width of the bus. No part of the required reflecting material may be obscured by a lamp, mirror, bracket, or any other portion of the bus. No part of the required reflecting material may be more than 11.8 inches (300 mm) inboard of the outer edge of the nearest rub rail (12 inches on a bus with chassis manufactured in March 1977 or earlier). The reflector may be any shape (e.g., square, rectangle, circle, oval, etc.). A rigid type reflex reflector may be any size if permanently marked either DOT, SAE A, or SAE J 594; otherwise, it shall display at least seven square inches of reflecting material (about 3 inch diameter if a solid circle). | |
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|  | | | | A sheet type (tape) reflex reflector may conform to the surface on which it is installed but its forward projected reflecting area shall be at least eight square inches. | |
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|  | | | | Exception: *Buses that measure 80 inches wide or less or that measure 25 feet long or less are exempt.* (Section 12-202(a) of the Illinois Vehicle Equipment Law) | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Missing or damaged reflective material; not located or positioned as required. | |
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|  | 2) Left Side | | | PROCEDURES/SPECIFICATIONS: | |
|  | | | |  | |
|  | | | | *One amber at or near the front and one red at or near the rear. Mounted at a height not less than 15 inches and not more than 60 inches above the surface of the road. On sides of buses 20 feet or more in length, one amber as near center as practicable must also be provided.* (Section 12-202 of the Illinois Vehicle Equipment Law) Minimum three inches in diameter. | |
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|  | | | | REJECT VEHICLE IF: | |
|  | | | |  | |
|  | | | | Missing or damaged reflective material; not located or positioned as required. | |
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|  | 3) Right Side | | | PROCEDURES/SPECIFICATIONS: | |
|  | | | |  | |
|  | | | | *One amber at or near the front and one red at or near the rear. Mounted at a height not less than 15 inches and not more than 60 inches above the surface of the road. On sides of buses 20 feet or more in length, one amber as near center as practicable must also be provided.* (Section 12-202 of the Illinois Vehicle Equipment Law) Minimum three inches in diameter. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Missing or damaged reflective material; not located or positioned as required. | |
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|  | 4) Rear | | | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | *Two red reflectors on rear body within 12 inches of lower right and lower left corners.* (Section 12-202 of the Illinois Vehicle Equipment Law) Minimum three inches in diameter. | |
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|  | | | | Exception: *Buses that measure 80 inches wide or less or that measure 25 feet long or less are exempt.* (Section 12-202(a) of the Illinois Vehicle Equipment Law) | |
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|  | | | | REJECT VEHICLE IF: | |
|  | | | |  | |
|  | | | | Missing or damaged reflective material; not located or positioned as required. | |
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| e) RUB RAILS | | | | PROCEDURES/SPECIFICATIONS: | |
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|  | | | | There shall be one rub rail located approximately at seat level which shall extend from the rear of the entrance door on both sides, except at functioning doors, to a point of curvature at the rear of the body. Rub rails shall be constructed of 16-gauge longitudinally corrugated or ribbed steel, ventilated four inches minimum width, and securely fastened to the body by bolts, rivets, or welding. | |
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|  | | | | Rub rails are not required on Type II service and driver's entrance door; however, if installed, they must meet same requirements as above. | |
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|  | | | | REJECT VEHICLE IF: | |
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|  | | | | Rub rails missing; not firmly attached; incorrect color, or incorrect number of rails. | |

(Source: Amended at 22 Ill. Reg. 15371, effective August 7, 1998)