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### § 223.13 Requirements for existing cabooses.

(a) Cabooses, other than yard cabooses, built or rebuilt prior to July 1, 1980, which are equipped in the forward and rearward end facing glazing locations of the windshield with a glazing material that meets the criteria for either portion of the impact testing required for a Type I test under the provisions of appendix A of this part, will not require the installation of certified glazing in the windshield location except to replace windshield glazing material that is broken or damaged.

(b) Cabooses, other than yard cabooses, built or rebuilt prior to July 1, 1980, which are equipped in all side facing glazing locations with a glazing material that meets the criteria for either portion of the impact testing required for a Type II test under the provisions of appendix A of this part, will not require the installation of certified glazing in the sidefacing glazing locations except to replace sidefacing glazing material that is broken or damaged.

(c) Except for yard cabooses and cabooses equipped as described in paragraphs (a) and (b), cabooses built or rebuilt prior to July 1, 1980, shall be equipped with certified glazing in all windows after June 30, 1984.

(d) Each caboose subject to the provision of paragraph (c) of this section, which, as a result of an act of vandalism, has a window that is broken or damaged so that the window fails to permit good visibility shall be equipped with certified glazing in the following manner:

(1) If the broken window is a part of the windshield, all of the forward and rearward end facing glazing locations must be replaced with certified glazing within 30 days of the date of breakage or damage.

(2) If the broken window is a part of the sidefacing window, all of the sidefacing glazing locations must be replaced with certified glazing within 30 days of the date of breakage.

(Sec. 209 of the Federal Railroad Safety Act, 94 Stat. 957 (45 U.S.C. 438); §1.49(m) of the regulations of the Office of the Secretary of Transportation, 49 CFR 1.49(m))

[44 FR 77352, Dec. 31, 1979, as amended at 48 FR 24083, May 31, 1983; 48 FR 56956, Dec. 27, 1983]

### § 223.15 Requirements for existing passenger cars.

(a) Passenger cars built or rebuilt prior to July 1, 1980, which are equipped in the forward and rearward end facing glazing locations of the windshield with a glazing material that meets the criteria for either portion of the impact testing required for a Type I test under the provisions of appendix A of this part will not require the installation of certified glazing in the windshield location except to replace windshield glazing material that is broken or damaged.

(b) Passenger cars built or rebuilt prior to July 1, 1980, which are equipped in the sidefacing glazing locations with a glazing material that meets the criteria for either portion of the impact testing required for a Type II test under the provisions of appendix A of this part, will not require the installation of certified glazing except to replace sidefacing glazing material that is broken or damaged.

(c) Except for passenger cars described in paragraphs (a) and (b), passenger cars built or rebuilt prior to July 1, 1980, shall be equipped with certified glazing in all windows and a minimum of four emergency windows after June 30, 1984.

(d) Each passenger car subject to the provisions of paragraph (c) of this section which as a result of an act of vandalism, has a window that is broken or damaged so that the window fails to permit good visibility shall be equipped with certified glazing in the following manner:

(1) When the broken window is a part of the windshield, all of the forward and rearward end facing glazing locations shall be replaced with certified glazing within 30 days of breakage.

(2) When the broken window is a part of the sidefacing window, the glazing in

that individual sidefacing glazing location shall be replaced with certified glazing within 30 days of the date of breakage.

(Sec. 209 of the Federal Railroad Safety Act, 94 Stat. 957 (45 U.S.C. 438); sec. 1.49(m) of the regulations of the Office of the Secretary of Transportation, 49 CFR 1.49(m))

[44 FR 77352, Dec. 31, 1979, as amended at 48 FR 24083, May 31, 1983; 48 FR 56956, Dec. 27, 1983]

### § 223.17 Identification of equipped locomotives, passenger cars and cabooses.

Each locomotive, passenger car and caboose that is fully equipped with glazing materials that meet the requirements of this part shall be stencilled on an interior wall as follows:

''Fully Equipped FRA Part 223 glazing'' or similar words conveying that meaning in letters at least ⅜ inch high.

[45 FR 49271, July 24, 1980]

## APPENDIX A TO PART 223—CERTIFICATION OF GLAZING MATERIALS

As provided in this part, certified glazing materials installed in locomotives, passenger cars, or cabooses must be certified by the glazing manufacturer in accordance with the following procedures:

a. General Requirements

(1) Each manufacturer that provides glazing materials, intended by the manufacturer for use in achieving compliance with the requirements of this part, shall certify that each type of glazing material being supplied for this purpose has been succcessfully tested in accordance with this appendix and that test verification data is available to a railroad or to FRA upon request.

(2) The test verification data shall contain all pertinent original data logs and documentation that the selection of material samples, test set-ups, test measuring devices, and test procedures were performed by qualified personnel using recognized and acceptable practices and in accordance with this appendix.

b. Testing Requirements

(1) The material to be tested (Target Material) shall be a full scale sample of the largest dimension intended to be produced and installed.

(2) The Target Material shall be representative of production material and shall be selected on a documented random choice basis.

(3) The Target Material shall be securely and rigidly attached in a fixture so that the fixture's own characteristics will not induce test errors.

(4) The Target Material so selected and attached shall constitute a Test Specimen.

(5) The Test Specimen will then be equipped with a Witness Plate that shall be mounted parallel to and at a distance of six inches in back of the Target Material. The Witness Plate shall have at least an area which will cover the full map of the Target Material.

(6) The Witness Plate shall be an unbacked sheet of maximum 0.006 inch, alloy 1100 temper O, aluminum stretched within the perimeter of a suitable frame to provide a taut surface.

(7) The Test Specimen will be positioned so that the defined projectile impacts it at an angle of 90 degrees to the Test Specimen surface.

(8) The point of impact of the defined projectile will be within a radius of 3″ of the centroid of the Target Material.

(9) Velocity screens or other suitable velocity measuring devices will be positioned so as to measure the impact velocity of the defined projectile within a 10% accuracy tolerance, with test modifications made to guarantee that the stipulated minimum velocity requirements are met.

(10) The Test Specimen for glazing material that is intended for use in end facing glazing locations shall be subjected to a Type I test regimen consisting of the following tests:

(i) Ballistic Impact in which a standard 22 caliber long rifle lead bullet of 40 grains in weight impacts at a minimum of 960 feet per second velocity.

(ii) Large Object Impact in which a cinder block of 24 lbs minimum weight with dimensions of 8 inches by 8 inches by 16 inches nominally impacts at the corner of the block at a minimum of 44 feet per second velocity. The cinder block must be of composition referenced in American Society for Testing and Materials (ASTM) Specification C33L or ASTM C90.

(11) The Test Specimen for glazing material that is intended for use only in side facing glazing locations shall be subjected to a Type II test regimen consisting of the following tests:

(i) Ballistic Impact in which a standard 22 caliber long rifle lead bullet of 40 grains in weight impacts at a minimum of 960 feet per second velocity.

(ii) Large Object Impact in which a cinder block of 24 lbs minimum weight with dimensions of 8 inches by 8 inches by 16 inches nominally impacts at the corner of the block at a minimum of 12 feet per second velocity. The cinder block must be of the composition referenced in ASTM C33L or ASTM C90.

(12) Three different test specimens must be subjected to the ballistic impact portion of these tests.