

AN ORDINANCE **50511**

REPEALING CHAPTER 54 OF THE UNIFORM BUILDING CODE OF 1970, AS AMENDED; ADOPTING THE SAFETY STANDARDS OF THE CONSUMER PRODUCT SAFETY COMMISSION AS STATED IN TITLE 16 PART 1201 OF THE CODE OF FEDERAL REGULATIONS AND SETTING ADDITIONAL STANDARDS.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAN ANTONIO

SECTION 1. Chapter 54 of the Uniform Building Code of 1970, as amended, is hereby repealed and the following is hereby adopted as Chapter 54 of the Uniform Building Code of the City of San Antonio.

SECTION 5401.1 SCOPE

The provisions of this chapter prescribe the safety requirements for glazing materials used or intended for use in any of the following architectural applications.

1. Storm doors or combination doors.
2. Doors
3. Bath tub doors and enclosures.
4. Shower doors and enclosures.
5. Glazed panels.
6. Sliding glass doors (patio type).

SECTION 5402.1 SAFETY STANDARDS

The safety standards adopted by the Consumer Product Safety Commission for Architectural Glazing Materials (hereinafter referred to as CPSC Standards) as contained in Title 16 Code of Federal Regulations Part 1201 are hereby adopted as the Building Code of the City of San Antonio. Three copies of the SAFETY STANDARDS FOR ARCHITECTURAL GLAZING MATERIALS, TITLE 16 Code of Federal Regulations Part 1201 marked "Exhibit A" are incorporated herein by reference for all intents and purposes, have been filed in the office of the City Clerk, pursuant to Section 17 of the City Charter, for permanent record and inspection. The standards for materials other than safety glazing material must meet the requirements of this chapter.

SECTION 5402.2 IDENTIFICATION

All safety Glazing Materials subject to the Consumer Product Safety Standards shall bear a permanent label as prescribed therein. All other glass shall bear the manufacturer's labels, except that upon approval by the Director of Building and Zoning; the labels may be omitted provided the glazing contractor supplies an affidavit if requested, that glazing is in accordance with the City Code

SECTION 5402.3 WIND LOADS

All elements of exterior glazed openings, including panes, panel supporting elements, and opening surrounds shall be capable of withstanding the following wind loads, acting either inward or outward.

<u>Height in Feet</u>	<u>Horizontal load Lb./Sq. Ft.</u>
Less than 30	15
Over 30 to 50	20
Over 50 to 100	25
Over 100 to 500	30
Over 500 to 1200	35
Over 1200	40

Table 54-A, marked EXHIBIT C" is incorporated herein by reference for all intents and purposes.

SECTION 5402.4 Allowable Sizes Non-Standard Setting

Glass supported on other than all sides, such as on 3 sides, 2 sides or cantilevered, shall be allowed, if warranted, only if the selection is supported by rational analysis, shop drawings, and specifications prepared by the glass manufacturer, or optionally, by test data run by independent testing laboratories supporting the assurance of the intended application. Formal approval must be subject to the review of the Building Official.

SECTION 5402.5 Supporting Members

Glass supporting shall be considered adequate when the deflection of the supporting member at design loads does not exceed $1/175$ of the span of the member.

SECTION 5402.6 Edge Engagement

(A) Glass to $3/16$ " in thickness shall be considered adequately engaged if an edge clearance of not less than $1/8$ " and an edge lap of not less than $1/4$ ", including a $1/16$ " maximum water shed inclusion is provided by the glass setting. Glass to $3/8$ " in thickness shall be considered adequately engaged if an edge clearance of not less than $1/4$ " and an edge lap of not less than $3/8$ ", including a $1/16$ " maximum water shed inclusion is provided. Glass settings for glass over $3/8$ " thick will be of an edge clearance and lap as recommended by the glass manufacturer. For explanation of edge terminology. Detail 54-B, marked "EXHIBIT B", is incorporated herein by reference for all intents and purposes.

(B) Plastics shall be installed observing maximum deflection, edge clearances, and edge laps as indicated in Chapter 52, Plastics.

SECTION 5402.7 Other Exterior Glass

(A) Spandrel glass, if not insulated and installed above walking surfaces, above the first floor will have a factory applied safety backing material to meet GSA specification 4-0885.

(B) Jalousie strips may be made of annealed glass, not less than $7/32$ " thick, not more than 48" long.

(C) Wired glass may be installed in keeping with the provisions outlined in Part V of this Code, provided its use does not conflict with current CPSC Standards.

SECTION 5402.7-1 Exceptions to Section 5401.1

Sliding mirror "reach-in" closet doors, revolving doors, 3/4 hour fire rated doors having wired glass, and overhead garage type doors (when not used as a public passage way) are exempted from CPSC Standards and ordinary glazing materials may be used. Residential greenhouses are subject to Section 5402.10 (A) 1.

SECTION 5402.8 Safety Glazing Materials

(A) Safety Glazing Materials including fully tempered glass, laminated glass and plastics meeting CPSC Standards and strength requirements of Section 5402.4 and Chapter 52 Uniform Building Code will be used in residential, commercial, and other buildings in doors, including storm and combination doors and rolling or sliding patio doors and stationary panels, bath tub and shower doors or enclosure, and glazed panels defined as follows:

1. Any fixed or operating glazed panel, any portion of which is within 12" of a vertical door jamb and below door head height in residential buildings and
2. In commercial and other types of buildings having fixed or operating glazed panels,
 - a. Any portion of which is within 48" of a vertical door jamb and below door head height, except when an interior permanent wall intervenes
 - b. Or any such panels having all four of the following characteristics
 - (1.) Having an area of over 9 square feet
 - (2) Having a bulkhead less than 18" in height above the adjacent walking surface
 - (3) Having walking surfaces on both sides of the glazed panel that are within 12" of each other, in elevation
 - (4) If each walking surface is within 36" of the vertical plane of the glazed panel
3. In commercial or other types of buildings having glazed panels above the first floor with both of the following characteristics
 - a. Being over 12" in width
 - b. Having a bulkhead less than 18" in height above the walking surface.

SECTION 5402.8-1 Alternate to Section 5402.11 (A) 2.b

If a horizontal member is built into the frame or if a visual barrier, as a chair rail, is firmly attached to the frame at an elevation of not less than 24" nor more than 36" above the higher walking surface, ordinary glazing materials may be used. The horizontal framing member or chair rail must have a minimum vertical dimension of 1 1/2".

SECTION 5402.8-2 Alternate to Section 5402.8 (A-3)

A horizontal framing member or a visual barrier shall be supplied in accordance with Section 2304 of the Uniform Building Code and the use of ordinary glazing materials will be allowed.

SECTION 5403.1 DEFINITIONS

The definition of terms used in Title 16 Code of Federal Regulations Part 1201.2 shall be applicable in this chapter unless otherwise stated.

SECTION 5404.1 OTHER PROVISIONS

This Chapter shall be subject to the standards and provisions of Part V and Chapter 52 of the Uniform Building Code as Amended wherever applicable.

PASSED AND APPROVED this 8th day of March, 1979.

Lila Cockrell

M A Y O R

ATTEST:

Anna J. Rodriguez
Asst. City Clerk

APPROVED AS TO FORM:

Tom Finlay
for City Attorney

79-11

ITEM NO. 40

AVIATION	
BUDGET & RESEARCH	1
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CITY WATER BOARD	
CITIZEN ACTION & PUBLIC INFORMATION	
COMMERCIAL RECORDER	1
CONVENTION BUREAU	
CONVENTION CENTER	
ECONOMIC & EMPLOYMENT DEVELOPMENT	
EQUAL EMPLOYMENT OPPORTUNITY	
FINANCE DIRECTOR	1
ASSESSOR	
CONTROLLER	1
TREASURY DIVISION	
FINANCE-GRANT SECTION	
INTERNAL AUDIT	
PROPERTY RECORDS	
FIRE CHIEF	
HEALTH DIRECTOR	
HEMISFAIR PLAZA	
HUMAN RESOURCES	
LEGAL - CITY ATTORNEY	
LIBRARY DIRECTOR	
MARKET SQUARE	
MUNICIPAL COURTS	1
PARKS & RECREATION DEPT.	
PERSONNEL DIRECTOR	1
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MEETING OF THE CITY COUNCIL DATE: MAR 8 1979

MOTION BY: Steen SECONDED BY: Cisneros

ORD. NO. 50511 ZONING CASE _____

RESOL. _____

COUNCIL MEMBER	ROLL CALL	AYE	NAY
HENRY G. CISNEROS PLACE 1		✓	
JOE WEBB PLACE 2		✓	
HELEN DUTMER PLACE 3		✓	
FRANK D. WING PLACE 4		✓	
BERNARDO EURESTE PLACE 5		<i>absent</i>	
RUDY C. ORTIZ PLACE 6		<i>absent</i>	
JOE ALDERETE, JR. PLACE 7		✓	
PHIL PYNDUS PLACE 8		✓	
ROBERT N. McDANIEL PLACE 9		✓	
JOHN STEEN PLACE 10		✓	
LILA COCKRELL PLACE 11 (MAYOR)		✓	

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§ 1145.5

Consumer Product Safety Act (CPSA) rather than under the Federal Hazardous Substances Act (FHSA) because of the desirability of avoiding possibly lengthy resource-consuming, inefficient rulemaking proceedings under the FHSA and because of the availability of civil penalties under the CPSA for knowing noncompliance.

(b) Therefore, consumer patching compounds containing respirable free-form asbestos are regulated under CPSA.

[42 FR 63354, Dec. 15, 1977]

EFFECTIVE DATE NOTE: Section 1145.4 becomes effective January 16, 1978.

§ 1145.5 Emberizing materials (embers and ash) containing respirable free-form asbestos; risk of cancer associated with inhalation of asbestos fibers.

(a) The Commission finds that it is in the public interest to regulate the risk of cancer associated with inhalation of asbestos fibers from artificial emberizing materials (embers and ash) containing respirable free-form asbestos under the Consumer Product Safety Act (CPSA) rather than under the Federal Hazardous Substances Act (FHSA) because of the desirability of avoiding possibly lengthy, resource-consuming, inefficient rulemaking proceedings under the FHSA, and because of the availability of civil penalties under the CPSA for knowing noncompliance.

(b) Therefore, artificial emberizing materials (embers and ash) containing respirable free-form asbestos are regulated under the CPSA.

[42 FR 63354, Dec. 15, 1977]

PART 1201—SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS

Sec.

- 1201.1 Scope, application and findings.
1201.2 Definitions.
1201.3 General requirements.
1201.4 Test procedures.
1201.5 Certification and labeling requirements.
1201.6 Prohibited stockpiling.
1201.7 Effective date.

Title 16—Commercial Practices

AUTHORITY: Secs. 2, 3, 7, 9, 14, 19, Pub. L. 92-573, 86 Stat. 1212-17; (15 U.S.C. 2051, 2052, 2056, 2058, 2063, 2068).

SOURCE: 42 FR 1441, Jan. 6, 1977, unless otherwise noted.

EFFECTIVE DATE NOTE: Part 1201 becomes effective in accordance with the provisions of § 1201.7.

§ 1201.1 Scope, application and findings.

(a) Scope. This Part 1201, a consumer product safety standard, prescribes the safety requirements for glazing materials used or intended for use in any of the following architectural products:

- (1) Storm doors or combination doors.
(2) Doors.
(3) Bathtub doors and enclosures.
(4) Shower doors and enclosures.
(5) Glazed panels.
(6) Sliding glass doors (patio-type).

It also requires that these architectural products which incorporate glazing materials be constructed with glazing materials that meet the requirements of this part. The safety requirements are designed to reduce or eliminate unreasonable risks of death or serious injury to consumers when glazing material is broken by human contact.

(b) Application. This Part 1201 shall apply to glazing materials for use in the architectural products listed in paragraph (a) of this section and to those architectural products listed in paragraph (a) of this section if they are made with or incorporate glazing materials. The standard applies to glazing materials and architectural products incorporating glazing materials that are produced or distributed for sale to or for the personal use, consumption or enjoyment of consumers in or around a permanent or temporary household or residence or in recreational, school, public, or other buildings or parts thereof. This Part 1201 applies only to those glazing materials manufactured after the effective date of the standard; and to those architectural products identified in paragraph (a) of this section that are manufactured after the effective date of the standard. Thus, architectural products identified in paragraph (a) of this section manufactured after the ef-

Chapter II—Cons

fective date of the corporate glazing comply with the poses of this stat persons who as are considered t the architecture paragraph (a) of tural glazing r products listed i section and use not subject to Part 1201. Wh scribes a test whether glazi this Part 1201 requirements of t ard itself does a ufacturer test a products subje obligations of form testing an of the Consum and certifica will be establi making proc Commission in procedures set to determine products subje the requireme

(c) Exemption icts, material from this Part

(1) Wired g other assembl of fire, where required by a municipal fire this exemption uary 6, 1980.

(2) Louvers o
(3) Openings a 3 inch diam pass;

(4) Leaded g individual piec greater than 3'

(5) Glazing i glazed panels

(6) Commer glazed doors.

(d) Findin nature of the designed to e Commission f the risks of in signed to eli follows:

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fective date of the standard must incorporate glazing materials that comply with the standard. For purposes of this standard, fabricators and persons who assemble glazed panels are considered to be manufacturers of the architectural products listed in paragraph (a) of this section. Architectural glazing materials used in the products listed in paragraph (a) of this section and used in mobile homes are not subject to the provisions of this Part 1201. While this Part 1201 prescribes a test method to determine whether glazing materials subject to this Part 1201 standard meet the requirements of the standard, the standard itself does not require that a manufacturer test any glazing materials or products subject to the standard. All obligations of manufacturers to perform testing are imposed by section 14 of the Consumer Product Safety Act and certification regulations which will be established by a separate rule-making proceeding. However, the Commission intends to use the test procedures set forth in this Part 1201 to determine whether materials and products subject to the standard meet the requirements of the standard.

(c) *Exemptions.* The following products, materials and uses are exempt from this Part 1201:

(1) Wired glass used in doors or other assemblies to retard the passage of fire, where such door or assembly is required by a federal, state, local or municipal fire ordinance, except that this exemption shall terminate on January 6, 1980.

(2) Louvers of jalousie doors;

(3) Openings in doors through which a 3 inch diameter sphere is unable to pass;

(4) Leaded glass panels where no individual piece of glass has an area greater than 30 square inches;

(5) Glazing materials used as curved glazed panels in revolving doors;

(6) Commercial refrigerated cabinet glazed doors.

(d) *Findings*—(1) *The degree and nature of the risk of injury the rule is designed to eliminate or reduce.* The Commission finds that the nature of the risks of injury this standard is designed to eliminate or reduce are as follows:

(i) Lacerations, contusions, abrasions, and other injury or death resulting from walking or running into glazed doors or sliding glass doors believed to be open or glazed panels mistaken as a means of ingress or egress, or pushing against glazing material in doors or glazed panels in an attempt to open a door.

(ii) Lacerations, contusions, abrasions, and other injury or death resulting from accidentally falling into or through glazed doors, sliding glass doors, glazed panels, bathtub doors and enclosures and shower doors and enclosures.

(iii) Lacerations, contusions, abrasions, and other injury or death resulting from the act of installing, replacing, storing or otherwise manipulating glazing material in doors, sliding glass doors, glazed panels, bathtub doors and enclosures and shower doors and enclosures, or from broken glazing material in doors, sliding glass doors, glazed panels, bathtub doors and enclosures and shower doors and enclosures. The Commission estimates that 73,000 injuries associated with architectural glazing materials in the architectural products within the scope of this standard were treated in hospital emergency rooms during 1975, and that about 2,400 of these injuries required the patients to be hospitalized. Extrapolating to total injuries in the United States the Commission further estimates that approximately 190,000 injuries were associated with architectural glazing products covered by this standard. Although injuries occur at any age, children aged 14 and under appear to be at particular risk of injury since as a group they represent approximately half the injuries while comprising less than 30 percent of the population. Lacerations are the most common injuries associated with architectural glazing materials and account for 72 percent to 93 percent of the injuries associated with the architectural products identified in paragraph (a) of this section. These lacerative injuries span a broad spectrum of severity and extent of body part affected. During 1975, an estimated 200 injuries were treated in emergency rooms for lacerations over 25 to 50 percent of the victims' bodies and over 7,000 persons

were treated for lacerations to the head or face. On the basis of all injury information available to the Commission, it is apparent that the severity of the injuries associated with architectural glazing materials ranges from minor cuts to damage to tendons, nerves, muscles, and blood vessels resulting in extensive surgery. Peripheral nerve injuries result in varying degrees of loss in sensation and motion which may never be restored completely. Tendon and muscle injuries may involve loss of movement. Some victims of architectural glazing material incidents are disfigured, and sustain emotional trauma as well. Severing of arteries and veins has led to death. One way of quantifying the extent of the public health problem relating to injuries associated with products is to estimate the total number of disability days resulting from the injuries. Using average days of restricted activity by age for specific injuries and body parts (Vital and Health Statistics, Series 10, Number 57, National Center for Health Statistics, U.S. Department of Health, Education, and Welfare), it is estimated that about 230,000 days of restricted activity resulted from injuries associated with architectural products which were treated in emergency rooms alone.

(2) *The approximate number of consumer products, or types or classes thereof, subject to the standard.* The types of glazing materials affected by or subject to the standard are laminated glass, tempered glass, wired glass, organic-coated glass, annealed glass, and plastics. Architectural products that incorporate the aforementioned glazing materials that are also affected by or subject to the standard are: storm doors or combination doors, doors, bathtub doors, and enclosures, shower doors and enclosures, glazed panels and sliding glass doors (patio-type) (see paragraph (a) of this section). The Commission has estimated that 13 to 16 percent of the total market for glazing material incorporated in products within the scope of the standard will be affected by the standard. Most of the glazing subject to the standard is currently covered by state safety glazing legislation. To date, more than 30 states have enacted

safety glazing legislation, but this legislation is neither consistent nor completely uniform among states. Annual markets for the architectural products which incorporate glazing material and that are within the scope of the standard have been estimated by the Commission in terms of square feet of glazed area and number of units. The market for glazing material incorporated in products within the scope of the standard was estimated to be 234.8 million square feet in 1975. These figures are discussed in the Economic Impact Statement, pp. 3-7, and Appendix A to the Economic Impact Statement, pp. 18-30, which are available for review in the Office of the Secretary of the Commission, Washington, D.C. 20207.

(3) *The need of the public for the architectural glazing material and products incorporating that glazing material subject to the standard, and the probable effect of the standard upon the utility, cost or availability of those products to meet the need of the public—*(i) *The need of the public for the architectural glazing materials and products incorporating that glazing material.* The need of the public for architectural products within the scope of the standard incorporating glazing material is substantial since these products serve such functions as transmission of light, visual communication, protection from weather, ventilation, and indoor climate control, and since reasonable substitutes for these products do not exist as a group. Each of the types of glazing material subject to the standard has individual properties which meet public needs, although one type of glazing material is often an acceptable substitute for another.

(ii) *Probable effect of the standard upon the cost of architectural glazing materials and architectural products incorporating the glazing material to meet the need of the public for the products.* The probable cost effects of the standard for architectural glazing materials are listed below.

(A) The cost impact of the standard on consumers will be concentrated in those states with no present state safety glazing legislation. In those states, the average increase in cost per

housing start resulting from the standard is estimated to be \$30 to \$50, or approximately one percent of the price of a new house; and the cost of remodeling and replacement is estimated to be in the range of \$100 per household annually.

(B) The increased cost of glazing material for nonresidential structures will probably be paid ultimately by consumers through higher prices of goods and services. Generally, the increased cost is not passed to consumers directly, but is spread over the life of nonresidential structures. The increased cost to consumers of glazing material in nonresidential structures will probably be spread over time to an annual cost of approximately \$1.10 per square foot in states with no safety glazing legislation and \$0.20 to \$0.50 in the other states. In states with state legislation, the impact of the standard on construction and new construction will be near zero, since glazing is currently covered by state glazing legislation.

(C) The probable effect of the standard on the various glazing materials within the scope of the standard will differ. The retail price of glass used in some categories will probably increase by one percent per square foot for laminated glass to consumers. The cost to consumers of tempered glass, organic-coated glass, and plastics is not expected to increase because of the standard. The standard is available to the Commission that the technology for producing wired glass which meets the standard is not available. See Appendix A of the Economic Impact Statement, pp. 18-30, for incremental cost calculations by product category and application.

(iii) *Probable effect of the standard upon the utility of architectural glazing materials and architectural products incorporating the glazing materials to meet the need of the public for the products.* The probable effect of the standard in regard

housing start resulting from the standard is estimated to range from \$30 to \$50, or approximately one-tenth of one percent of the price of a typical new house; and the cost for residential remodeling and replacement is expected to be in the range of \$0.25 to \$0.30 per household annually.

(B) The increased cost of glazing material for nonresidential uses will be paid ultimately by consumers through higher prices of goods and services. Generally, the increased cost of glazing is not passed to consumers immediately, but is spread over the life of the nonresidential structure. Therefore, the increased cost to consumers for glazing material in nonresidential structures will probably rise slowly over time to an annual level of approximately \$1.10 per household in states with no safety glazing legislation and \$0.20 to \$0.50 per household in the other states. In many of the states with state regulations, the impact of the standard on residential construction and new housing prices will be near zero, since most of the glazing is currently covered by the state glazing legislation.

(C) The probable effect of the standard on the various glazing materials within the scope of the standard will differ. The retail price of laminated glass used in some Category II applications will probably increase by 10 to 15 percent per square foot. The incremental cost to consumers for ungraded laminated glass is estimated to be approximately \$0.14 per household, annually. The cost to consumers for tempered glass, organic-coated glass, and plastics is not expected to increase because of the standard. Information available to the Commission indicates that the technology needed for producing wired glass which can comply with the standard is not readily available. See Appendix A of the Economic Impact Statement, pp. 45-56, for the incremental cost calculation by product category and application.

(iii) *Probable effect of the standard upon the utility of architectural glazing materials and architectural products incorporating the glazing materials to meet the need of the public for the products.* The probable effect of the standard in regard to the utility of

architectural glazing materials and the architectural products incorporating glazing material should be to increase the utility of the products. The basic effect of the standard would be the substitution of certain safer glazing materials for annealed glass in certain architectural products. The Commission believes that such a substitution would increase utility for most consumers because of the usually increased durability of the glazing material that complies with the Commission's standard, and the knowledge that the product incorporating the glazing material is safer. There will be disutility for those consumers who prefer non-complying wired glass and organic-coated glass when these materials become unavailable for certain applications due to their likely inability to comply with the standard. However, the share of the glazing material market claimed by organic-coated and wired glass is small.

(iv) *Probable effect of the standard upon the availability of architectural glazing materials and architectural products incorporating the glazing materials to meet the need of the public for the products.* The Commission finds that the proposed standard should not have impacts of significant magnitude on the availability of architectural products within the scope of the standard, since domestic production capacity appears to be sufficient to handle any increased demand for glazing material to be used in those products. In addition, an increased demand for raw materials necessary to manufacture glazing materials that comply with the standard will be small in comparison to the volume of raw materials currently used for glazing for the products that will be subject to the standard. Furthermore, no major change in demand for the architectural products subject to the standard incorporating glazing materials which would affect production is expected. The Commission finds that, in the absence of technological advances, certain glazing materials will no longer be available for particular applications. Unless technological advances are made, wired glass will be unavailable for use in the architectural products within the scope of the standard with

the exception of fire door applications where special provisions of the standard apply. Similarly, organic-coated glass which has the film applied to annealed glass at the factory may no longer be available for Category II products due to an inability to pass those impact test provisions of the standard. The availability of glass replacement glazing in residential applications may be reduced, since plastic glazing often will be the only economical material available to consumers when immediate replacement is needed.

(4) *Any means of achieving the objectives of the standard while minimizing adverse effects on competition or disruption or dislocation of manufacturing and other commercial practices consistent with the public health and safety.* The Commission has considered other means of achieving the objective of the standard, but has found none that it believes would have fewer adverse effects on competition or that would cause less disruption or dislocation of manufacturing and other commercial practices, consistent with the public health and safety. For the glazing industry in general, the disruptions and dislocations of existing manufacturing and commercial practices due to the standard are expected to be minor. However, it is possible that individual segments of the glazing materials industry are likely to be adversely affected by the standard. Specifically, there is likely to be disruption to the wired glass market, the organic-coated glass market and, to a lesser extent, to the laminated glass market. Manufacturers of wired glass will face a serious problem because technological improvements in the product will need to be made before wired glass can be used in Category I applications and because it probably will not be usable at all in Category II applications (see § 1201.2(a) (3) and (4) of the standard), since there appears to be little prospect at this time of developing a wired glass product capable of withstanding the Category II, 400 foot pound impact test prescribed in § 1201.4 of the standard. Laminated glass currently used for Category I applications can meet the 150 foot pound impact test requirements, but not all laminated

glass currently used for Category II applications can meet the 400 foot pound impact test requirements. The price increase for technologically upgrading laminated glass will be borne by consumers. The Commission believes, however, that the competitive impact of the proposed changes would not severely weaken the position of laminated glass in the market place. The wired glass, organic-coated glass, and laminated glass markets affected by the standard are small in relation to the entire industry. The standard is not expected to have an appreciable impact on foreign or domestic competition. Increased competition is expected between primary glass temperers and regional temperers, with primary temperers taking an increased share of the original storm door, sliding door, bathtub enclosure and shower door markets. Sales of nonresidential glazing for major nonresidential buildings will remain with the primary glass companies. The regional temperers are expected to handle almost all the tempering of glazing for smaller nonresidential buildings. Thus, they will gain some of this market at the expense of local dealers and distributors. However, the distributors and dealers probably will operate as order takers for the smallest jobs. It is expected that glazing distributors and dealers will experience reduced market shares in both the residential and nonresidential new glazing markets. This will occur as a result of the transfer of business to the primary glass manufacturers and regional temperers, since tempered glass must be produced to size and it is not feasible to keep in inventory all sizes which might be needed.

(5) *Summary finding.* The Commission finds that there are unreasonable risks of injury associated with architectural glazing materials used in the architectural products listed in paragraph(a) of this section. In assessing the question of whether unreasonable risks of injury or injury potential are associated with architectural glazing materials, the Commission has balanced the degree, nature and frequency of injury against the potential effect of the standard on the ability of architectural glazing materials to meet

the need of the public for the standard on the availability of architectural glazing materials to meet the Commission finds that including its effect is probably necessary to meet the unreasonable risks associated with architectural materials and that the proposed standard is in the public interest.

§ 1201.2 Definitions.

(a) As used in this section:

(1) "Annealed glass" means glass that has been subjected to controlled cooling prior to manufacture to control stresses so that it can be cut or fabricated. Regular float, sheet, rolled or tempered surface glass is not annealed glass.

(2) "Bathtub door" means assemblies of glass doors that are installed or immediately surrounding a bathtub.

(3) "Category I products" means any of the following products:

(i) Storm doors that contain no structural material greater than 0.83 square meter on one side of the panel.

(ii) Doors that contain a piece of glazing material greater than 9 square feet (0.83 square meter) of glazing material.

(iii) Glazed partitions that contain a single piece of glazing material greater than 9 square feet (0.83 square meter) of glazing material.

(4) "Category II products" means any of the following products:

(i) Shower doors

(ii) Bathtub doors

(iii) Sliding glass doors

(iv) Storm doors that contain structural material greater than 0.83 square meter on one side of the panel.

the need of the public and the effect of the standard on the cost, utility, and availability of architectural glazing materials to meet that need. The Commission finds that this standard, including its effective date, is reasonably necessary to eliminate or reduce the unreasonable risks of injury associated with architectural glazing materials and that promulgation of the standard is in the public interest.

§ 1201.2 Definitions.

(a) As used in this Part 1201:

(1) "Annealed glass" means glass that has been subjected to a slow, controlled cooling process during manufacture to control residual stresses so that it can be cut or subjected to other fabrication. Regular polished plate, float, sheet, rolled, and some patterned surface glasses are examples of annealed glass.

(2) "Bathtub doors and enclosures" means assemblies of panels and/or doors that are installed on the lip of or immediately surrounding a bathtub.

(3) "Category I products" means any of the following architectural products:

(i) Storm doors or combination doors that contain no single piece of glazing material greater than 9 square feet (0.83 square meters) in surface area of one side of the piece of glazing material.

(ii) Doors that contain no single piece of glazing material greater than 9 square feet (0.83 square meters) in surface area of one side of the piece of glazing material.

(iii) Glazed panels that contain no single piece of glazing material greater than 9 square feet (0.83 square meters) in surface area of one side of the piece of glazing material.

(4) "Category II products" means any of the following architectural products:

(i) Shower doors and enclosures.

(ii) Bathtub doors and enclosures.

(iii) Sliding glass doors (patio type).

(iv) Storm doors or combination doors that contain any piece of glazing material greater than 9 square feet (0.83 square meters) in surface area of one side of the piece of glazing material.

(v) Doors that contain any piece of glazing material greater than 9 square feet (0.83 square meters) in surface area of one side of the piece of glazing material.

(vi) Glazed panels that contain any piece of glazing material greater than 9 square feet (0.83 square meters) in surface area of one side of the piece of glazing material.

(5) "Distributor" means a person to whom a consumer product is delivered or sold for purposes of distribution in commerce, including persons cutting glazing material to size, except that such term does not include a manufacturer or retailer of such product.

(6) "Distribution in commerce" means to sell in commerce, to introduce or deliver for introduction into commerce, or to hold for sale or distribution after introduction into commerce.

(7) "Door" means an assembly that is installed in an interior or exterior wall; that is movable in a sliding, pivoting, hinged, or revolving manner of movement; and that is used by consumers to produce or close off an opening for use as a means of human passage.

(8) "Fabricator" means any person who assembles or otherwise incorporates glazing materials into an architectural product listed in § 1201.1(a). A fabricator is considered a manufacturer as defined in paragraph (a)(16) of this section.

(9) "Glass" means a hard, brittle, amorphous substance produced by fusion, usually consisting of mutually dissolved silica and silicates that also contains sods and lime. It may be transparent, translucent, or opaque.

(10) "Glazed panel" means a glazing material used in any building listed in § 1201.1(b) that is:

(i) In residential buildings, any piece of operable or nonoperable glazing material adjacent to a door whose nearest vertical edge is within 12 inches (31 centimeters) from the door in a closed position, and whose bottom edge is below the level of the top of the door; or

(ii) In all buildings other than residential buildings, any piece of operable or nonoperable glazing material adjacent to a door whose nearest verti-

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cal edge is within 48 inches (1.2 meters) from the door in a closed position and whose bottom edge is below the level of the top of the door; or

(iii) In all buildings other than residential buildings, all panes not described in paragraph (a)(10)(ii) of this section where:

(A) The lowest edge of the glazing material is less than 18 inches (46 centimeters) above any floor or any walking surface; and

(B) The exposed glazing material in such panel exceeds 9 square feet (0.3 square meters); and

(C) There is a walking surface on both sides, either of which is within 36 inches (92 centimeters) of such panel and the horizontal planes of such walking surfaces are within 12 inches (31 centimeters) of each other.

(iv) Not included in the definition of glazed panels are:

(A) Panels where an intervening interior permanent wall is between the door and the panel(s) described in paragraph (a)(10)(ii) of this section;

(B) Panels described in paragraph (a)(10)(iii) of this section that have a horizontal member such as a piece of the framing or permanent chair rail no less than 1½ inches (4 centimeters) in width, which is located between 24 and 36 inches (61 and 91 centimeters) above the walking surface.

(11) "Glazing material" means plastics, glass, including annealed glass, organic-coated glass, tempered glass, laminated glass, wired glass; or combinations thereof where these are used:

(i) In openings through the architectural products listed in § 1201.1(a), or

(ii) As the architectural products themselves, e.g. glazed panels or unframed doors.

(12) "Jalousie door" means a door (as "door" is defined in paragraph (a)(7) of this section) having an opening glazed with operable, overlapping louvers. Each louver is one of a series of overlapping pieces of glazing material designed to admit ventilation and light but exclude rain and is typically operated by a crank and gear mechanism.

(13) "Laminated glass" means glazing material composed of two or more pieces of glass, each piece being either tempered glass, heat strengthened

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glass, annealed glass or wired glass, bonded to an intervening layer or layers of resilient plastic material.

(14) "Leaded glass" means a decorative composite glazing material made of individual pieces of glass whose circumference is enclosed by lengths of durable metal such as lead or zinc and the pieces of glass are completely held together and supported by such metal.

(15) "Manufacture" means to manufacture, produce or assemble.

(16) "Manufacturer" means any person who manufactures, fabricates or imports a glazing material or architectural product listed in § 1201.1(a) that incorporates glazing material.

(17) "Mirror" means a treated, polished or smooth glazing material that forms images by the reflection of light.

(18) "Mobile home" means a structure transportable in one or more sections, which is eight body feet (2.4 body meters) or more in width and is thirty-two body feet (9.7 body meters) or more in length, and which is built on a permanent chassis and designed to be used as a dwelling with or without a permanent foundation when connected to the required utilities.

(19) "Other buildings or parts thereof" means buildings or parts thereof (other than residential, school, public, or recreational buildings) in which all or part of the building is open to the public with or without specific invitation. Included are buildings or parts thereof such as banks and recreational or retail facilities in a building and multiuse buildings that contain residential units.

(20) "Organic-coated glass" means a glazing material consisting of a piece of glass, coated and bonded on one or both sides with an applied polymeric coating, sheeting, or film.

(21) "Patio door" (See "sliding glass doors (patio-type)" in paragraph (a)(31) of this section).

(22) "Permanent label" means a label that will remain permanently legible and visible after installation of the glazing material and that would be destroyed in attempts to remove it from the glazing material and includes (but is not limited to) sandblast, acid etch, hot-stamp, and destructible polyester labels.

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(23) "Plastic" means a material of organic glazing material consisting of two or more laminated or coextruded combination of such material with reinforcement material fiber or flakes.

(24) "Private label" means the owner of a brand or label of a consumer product bears a private label for the manufacturer, distributor, or fabricator, distributor, or fabricator of such glazing materials in such product.

(25) "Public building" means a building of public assembly including (but not limited to) a place of worship, or

(26) "Recreational building" means a building used for recreation purposes including (but not limited to) a theater, stadium, amusement park building

(27) "Residential building" means a building, permanent or temporary, such as a single-family dwelling, including (but not limited to) a house, apartment, mobile home, dormitory, hotel, sanitarium, or other building used as a dwelling for one or more persons or families, which is attached to or appurtenant to such area of all residential buildings as lobbies and other areas are included with "other buildings or parts thereof" in paragraph (a)(19) of this section. For purposes of this section, a mobile home as defined in § 1201.1(a)(18) of this section is a residential building.

(28) "Retailer" means a person to whom a consumer product is sold for purchase or sold for purchase by such person as a term retailer in such product cuts glazing materials.

(29) "School building" means a building designed for the conduct of educational activities which includes the classroom, administrative offices, eating and sleeping quarters, gymnasiums, gymnasiums, and other structures associated with

(23) "Plastic" means a single sheet of organic glazing material, a combination of two or more such sheets laminated or coextruded together, or a combination of such sheets and reinforcement material in the form of fiber or flakes.

(24) "Private labeler" means an owner of a brand or trademark on the label of a consumer product which bears a private label, and includes any fabricator, distributor, or installer who cuts certified and permanently labeled glazing materials into smaller pieces.

(25) "Public building" means a building of public assembly or meeting including (but not limited to) a museum, place of worship, or restaurant.

(26) "Recreational building" means a building used for recreational purposes including (but not limited to) a theater, stadium, gymnasium, amusement park building or library.

(27) "Residential building" means a building, permanent or temporary, such as a single or multifamily residence, including (but not limited to) a house, apartment building, lodging home, dormitory, hotel, motel, hospital, sanitarium, and nursing home, used as a dwelling for one or more persons or families and any structure which is attached to, a part of, or appurtenant to such a building. Public areas of all residential buildings, such as lobbies and other common facilities, are included within the definition of "other buildings or parts thereof" in paragraph (a)(19) of this section. For purposes of this Part 1201, a mobile home as defined in paragraph (a)(18) of this section is not considered to be a residential building.

(28) "Retailer" means a person to whom a consumer product is delivered or sold for purposes of sale or distribution by such person to a consumer; the term retailer includes a person who cuts glazing material to size for consumers.

(29) "School building" means a building designed primarily for the conduct of educational instruction and includes the classrooms, libraries, administrative offices, auditoriums, eating and sanitary facilities, stadiums, gymnasiums and all other structures associated with such buildings.

(30) "Shower door and enclosure" means an assembly of one or more panels installed to form all or part of the wall and or door of a shower stall.

(31) "Sliding glass door (patio-type)" means an assembly of one or more panels, at least one of which is suitably movable for use as a means of human ingress or egress. The term includes the nonmovable and movable panels of such assembly.

(32) "Storm door (or combination door)" means a movable assembly, used in tandem with an exterior door to protect the exterior door against weather elements and/or to improve indoor climate control.

(33) "Tempered glass" means a piece of specially heat treated or chemically treated glass that cannot be cut, drilled, ground, or polished after treatment without fracture. When fractured at any point, if highly tempered, the entire piece breaks into small particles.

(34) "Wired glass" means a single piece of annealed glass that contains wire embedded in the body of the glass.

(35) "Commission" means the Consumer Product Safety Commission.

(b) Definitions given in the Consumer Product Safety Act, and not repeated in this section, are applicable to this Part 1201.

(c) Test methods and recommended practices published by the American Society for Testing and Materials (ASTM), and referred to in this Part 1201, are hereby incorporated by reference into this Part 1201.

(d) Test methods and recommended practices published by the American National Standards Institute (ANSI) and referred to in this Part 1201, are hereby incorporated by reference into this Part 1201.

(e) Laminated glass manufactured on or after July 6, 1977 through December 3, 1977 may be incorporated into Category II products as defined in § 1201.2(a)(4) through July 5, 1978, if

(1) The laminated glass conforms to ANSI Z97.1-1972 or 1975; and

(2) The laminated glass is permanently labeled to indicate that it conforms to ANSI Z97.1-1972 or 1975 or is accompanied by a certificate in accordance with section 14(a) of the CPSA.

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certifying conformance to ANSI Z97.1-1972 or 1975.

(f) Architectural products identified in §1201.2(a)(4) manufactured between July 6, 1977 and December 3, 1977 incorporating laminated glass in accordance with §1201.7(d) may be distributed and sold without restriction.

[42 FR 1441, Jan. 6, 1977, as amended at 42 FR 31166, June 20, 1977; 42 FR 61860, Dec. 7, 1977]

EFFECTIVE DATE NOTE: The provisions of paragraph (a)(3) were partially stayed at 42 FR 40188, Aug. 9, 1977, and paragraphs (a)(4) and (13) were temporarily stayed at 42 FR 42195, Aug. 22, 1977.¹

§ 1201.3 General requirements.

(a) All glazing materials to which this standard applies, as described in § 1201.1, shall meet the impact and environmental test requirements in § 1201.4, and shall be labeled by manufacturers in accordance with § 1201.5.

(b) Glazing materials used in architectural products not listed in

§ 1201.1(a) are not subject to this Part 1201.

§ 1201.4 Test procedures.

(a) *Types of tests*—(1) *Impact test.* Specimens shall be struck as prescribed by paragraph (d)(1) of this section using equipment specified by paragraphs (b) (1) and (2) of this section. Results of the impact test are to be interpreted in accordance with paragraph (e)(1) of this section. The test specimens shall be selected in accordance with paragraph (c) (1) and (2) of this section.

(2) *Accelerated environmental durability tests.* Each specimen of glazing material subject to this Part 1201 shall be tested in accordance with the accelerated tests referenced in table 1, "Accelerated Tests" of this section. However, tempered glass, wired glass, and annealed glass are not required to be subjected to the accelerated environmental durability tests.

TABLE 1.—Accelerated tests (applicable paragraphs)

Glazing material	Specimen	Test equipment	Exposure	Criteria for passing
Laminated glass.....	Sec. 1201.4(c)(1) and (c)(3)(i).	Sec. 1201.4(b)(3)(i).	Sec. 1201.4(d)(2)(i).	Sec. 1201.4(e)(2)(i).
Organic-coated glass....	Sec. 1201.4(c)(1) and (c)(3)(ii)(B).	Sec. 1201.4(b)(3)(ii).	Sec. 1201.4(d)(2)(ii)(B).	Sec. 1201.4(e)(2)(ii)(B).
Plastics.....	Sec. 1201.4(c)(1) and (c)(3)(ii)(A).	Sec. 1201.4(b)(3)(ii).	Sec. 1201.4(d)(2)(ii)(A).	Sec. 1201.4(e)(2)(ii)(A).
Plastics (indoor).....	Sec. 1201.4(c)(1) and (c)(3)(iii).	Sec. 1201.4(b)(3)(iii).	Sec. 1201.4(d)(2)(iii).	Sec. 1201.4(e)(2)(ii)(C).
Tempered glass.....	Exempt.....	Exempt.....	Exempt.....	Exempt.
Wired glass.....do.....do.....do.....	Do.
Annealed glass.....do.....do.....do.....	Do.

(3) Separate testing is required for different glazing materials or for differences within a type of glazing material that could noticeably affect performance in the impact or environmental durability tests. Such differences could include (but are not limited to): Nominal thickness or thick-

¹ASTM test methods and recommended practices are approved by, published by, and available for purchase from the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pennsylvania 19103.

nesses, method of manufacture (in appropriate cases), types and amounts of additives, and composition of base materials and adhesives.

(b) *Test equipment*—(1) *Impact test frame and subframe.* (See figures 1, 2, 3, and 4.) (i) The impact test frame shall be constructed to minimize movement and deflection of its members during testing. For this purpose, the structural framing and bracing members shall be steel angles 3 inches by 5 inches by ¼ inch (7.7 centimeters by 12.7 centimeters by 0.7 centimeters) or

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other sect or greater

(ii) The welded or corners an nate met) shall be so

(iii) The test speci be reinfor terial is sh other mat the test sp neoprene

(iv) Any used to s test frame secure and in the sub tered whe

(v) Pres shall be c sion of th tween 10 nal thick ing meth clamps sh greater (meters) a on any ed of the nee of the sub proprie shown in

(2) *Imp* be a leat figure 5 c be filled to a tota bly bef of 100 pe kilogram be left in hole cut ing the r be either metal re pulled o with a c that the moved. 3 normal a bag shall inch (1.3 ment re tape. (F

(ii) Th as show be made

other sections and materials of equal or greater rigidity.

(ii) The structural framing shall be welded or securely bolted at the corners and braced by one of the alternate methods shown in figure 1 and shall be securely bolted to the floor.

(iii) The subframe for securing the test specimen on all four edges shall be reinforced at each corner. The material is shown as wood in figure 3, but other materials may be used provided the test specimen will contact only the neoprene strips.

(iv) Any reasonable means may be used to secure the subframe to the test frame so long as the mounting is secure and the pressure on the glazing in the subframe is not significantly altered when the subframe is removed.

(v) Pressures on the test specimen shall be controlled, and the compression of the neoprene strips shall be between 10 and 15 percent of the original thickness of the neoprene. Securing methods such as wing bolts and clamps shall be uniformly spaced no greater than 18 inches (45 centimeters) apart with no fewer than two on any edge. To limit the compression of the neoprene and prevent distortion of the subframe, metal shims of an appropriate thickness shall be used as shown in figures 3 and 4.

(2) *Impactor.* (i) The impactor shall be a leather punching bag as shown in figure 5 of this section. The bag shall be filled with No. 7½ chilled lead shot to a total weight of completed assembly before taping, as shown in figure 5, of 100 pounds ± 4 ounces (45.36 ± 0.11 kilograms). The rubber bladder shall be left in place and filled through a hole cut into the upper part. After filling the rubber bladder, the top should be either twisted around the threaded metal rod below the metal sleeve or pulled over the metal sleeve and tied with a cord or leather thong. Note that the hanging strap must be removed. The bag should be laced in the normal manner. The exterior of the bag shall be completely covered by ½ inch (1.3 centimeters) wide glass filament reinforced pressure sensitive tape. (Figure 5).

(ii) The impactor shall be supported as shown in figure 2. Provisions shall be made for raising the impactor to

drop heights of up to 48 inches (1.22 meters). At its release it shall have been supported so that the pin going through its center was in line with the steel cable. The impactor shall not wobble or oscillate after its release.

(3) *Environmental durability test equipment—(i) Boil test.* Two containers of water shall be provided with means to maintain one at 150° ± 5° F (66° ± 2° C) and the second at a slow boil at atmospheric pressure. The containers shall be large enough to accept a rack holding three specimens, each 12 inches (30 centimeters) square, of the glazing material in a vertical position. The rack shall be positioned so that each specimen is surrounded by at least one inch (2.5 centimeters) of water.

(ii) *Simulated weathering test.* The equipment shall be a xenon arc (water-cooled) Weather-Ometer employing a lamp rated at 6500 watts and automatic light monitoring and control systems. Borosilicate inner and outer filters shall be used. An appropriate water spray cycle shall be used. Operating procedures shall be in accordance with ASTM G 26-70, "Standard Recommended Practice for Operating Light- and Water-Exposure Apparatus (Xenon-Arc Type) for Exposure of Nonmetallic Materials," April 13, 1970, as augmented for plastics by ASTM D 2565-70, "Standard Recommended Practice for Operating Xenon-Arc Type (Water-Cooled) Light- and Water-Exposure Apparatus for Exposure of Plastics," Procedure B, June 12, 1970.

(iii) *Indoor aging test.* A test chamber large enough to contain four specimens of size used in the impact test (see paragraph (c)(2) of this section) shall be used. Hangers shall be provided to support the specimens vertically with a minimum of 4 inches (11 centimeters) of separation for air circulation. The chamber shall be capable of maintaining 140° F (60° C) at 95 percent relative humidity during testing.

(c) *Test specimens—(1) Condition of specimens.* All specimens shall be tested as supplied by the manufacturer, following removal of any temporary protective masking materials. No tests shall be commenced before the

specimens have been stored in the laboratory for 4 hours. Specimens shall be arranged to permit free circulation of air to all surfaces during this period.

(2) *Impact specimens.* Impact specimens shall be of the largest size manufactured up to a maximum width of 34 inches (86 centimeters) and a maximum height of 76 inches (1.9 meters). Specimens shall be tested for each nominal thickness offered by the manufacturer.

(3) *Environmental durability specimens*—(i) *Boil test.* Three pieces 12 inches by 12 inches (30 centimeters by 30 centimeters) with nominal thickness identical to those submitted for the impact test shall be used.

(ii) *Weathering tests*—(A) *Plastics.* Not less than 10 plastic specimens ½ inch by 5 inches (1.3 centimeters by 12.7 centimeters) by nominal thickness identical to those submitted for the impact test shall be used.

(B) *Organic-coated glass*—(1) *Orientation specified.* Six organic-coated glass specimens 2 inches by 6 inches (5 centimeters by 15 centimeters) by nominal thickness identical to those submitted for the impact test shall be used.

(2) *Orientation unspecified.* Nine organic-coated glass specimens, 2 inches by 6 inches (5 centimeters by 15 centimeters) by nominal thickness identical to those submitted for the impact test shall be used except that when the glazing material is symmetric across its thickness, six specimens may be used.

(iii) *Indoor service.* Four additional samples identical to those submitted for the impact test.

(d) *Test procedures*—(1) *Impact test procedure.* Each specimen shall be struck within 2 inches (5 centimeters) of its geometric center with the impactor dropped from a single height, designated according to the product category. Specimens for Category I shall be impacted one time from a drop height of 18 to 18½ inches (458 to 470 millimeters). Specimens for Category II shall be impacted one time from drop height of 48 to 48½ inches (1.22 to 1.23 meters). For all specimens that are not symmetric from surface to surface, an equal number of specimens

shall be impacted on each side. For glazing materials which will be evaluated by paragraph (e)(1)(iii) of this section, this impact test procedure is not required.

(2) *Environmental durability test procedures*—(i) *Boil test.* The specimens shall be immersed in the 150 F (66° C) water for 3 minutes. They shall then be quickly removed and immersed in the boiling water and left there for 2 hours. The specimens shall then be removed, cooled, and dried for examination as specified in § 1201.4(e)(2)(i) of this standard.

(ii) *Accelerated weathering test.* The specimens shall be retained in the Weather-Ometer (paragraph (b)(3)(ii) of this section) for a period of 1200±1 hours, and exposed to a radiant flux of 50 microwatts per square centimeter (12 calories per second per square centimeter) while monitoring at a wavelength of 340 nanometers.

(A) *Plastics.* Five of the specimens shall be exposed to radiation and five shall be kept in darkness at 73° F (23° C) for use as controls.

(B) *Organic-coated glass*—(1) *Orientation specified.* Three specimens shall be mounted with the surface that is intended to be oriented indoors faced away from the radiation source; the other three specimens shall be kept in darkness at 73° F (23° C) for use as controls. Materials so tested shall be labeled according to § 1201.5(c) of this Part 1201.

(2) *Orientation unspecified.* Three specimens shall be mounted with one of the surfaces toward the radiation; three specimens shall be mounted with the other surface toward the radiation, and three specimens shall be kept in darkness at 73° F (23° C) for use as controls. When the glazing material is symmetric across its thickness, three specimens shall be irradiated.

(iii) *Indoor aging test.* The specimens shall be hung in the test chamber for 10 complete cycles (480 hours). The procedure shall be in accordance with procedure A of ASTM D 756-56, "Test for Resistance of Plastics to Accelerated Service Conditioning," September 10, 1956, (Reapproved 1971) except that during the humid phase of the cycle the relative humidity shall be maintained at 95 percent.

(e) *Interpretation of Impact test.* A glazing material qualified for Category I and Category II. A glazing material shall pass the impact test if it meets the requirements listed in paragraph (v) of this section.

(i) When broken, cracks and openings shall be measured through the sample through a millimeter sphere, weight (1.81±0.08 kg) placed (not dropped) and permitted to rest for one second. The sample after impact shall be placed, while in the frame, in a horizontal position with the 31 centimeter diameter opening directly beneath.

(ii) When broken, cracks and openings shall be selected and measured subsequent to the impact. More than three square inches of the original surface poses of this test shall be a portion of the original surface which is determined as the smallest possible area. The test specimen shall be examined for cracks or exposures.

(iii) The specimen shall be tested (A) a modulus of rupture of 750,000 psi as measured by the standard Method of Test for Properties of Plastics and

(B) a Rockwell C hardness (scale) less than 78 on the ASTM D 789 "Standard Method of Test for Rockwell Hardness of Hardened Steel and Cast Irons" (1965).

(iv) The specimen shall be tested within the surface area of the impact caused by the impactor.

(v) The specimen shall be tested

(e) *Interpretation of results*—(1) *Impact test.* A glazing material may be qualified for use in both Category I and Category II products if it meets the impact requirements for Category II. A glazing material shall be judged to pass the impact test if the specimen tested meets any one of the criteria listed in paragraphs (e)(1) (i) through (v) of this section:

(i) When breakage occurs (numerous cracks and fissures may occur) no opening shall develop in the test sample through which a 3 inch (76 millimeter) diameter solid steel sphere, weighing 4 pounds ± 3 oz (1.81 ± 0.08 kilograms), passes when placed (not dropped) in the opening and permitted to remain for a period of one second. For this criterion, the sample after being impacted shall be placed, while remaining in the subframe, in a horizontal, impact side up position with a minimum of one foot (31 centimeters) of free space immediately beneath the specimen.

(ii) When breakage occurs, what appear to be the 10 largest particles shall be selected within 5 minutes subsequent to the test and shall weigh no more than the equivalent weight of 10 square inches (64 square centimeters) of the original specimen. For the purposes of this section "particle" means a portion of a broken test specimen which is determined by identifying the smallest possible perimeter around all points in the portion of the broken test specimen, always passing along cracks or exposed surfaces.

(iii) The specimen has:

(A) a modulus of elasticity less than 750,000 psi (5,170 megapascal) when measured by ASTM D 790-71, "Standard Method of Test for Flexural Properties of Plastics," October 29, 1971, and

(B) a Rockwell hardness (M or R scale) less than 140 when measured by ASTM D 785-65 (Reapproved 1970), "Standard Method of Test for Rockwell Hardness of Plastics and Electrical Insulating Materials," August 31, 1965.

(iv) The specimen does not remain within the subframe and no breakage is caused by the impactor.

(v) The specimen does not break.

(2) *Environmental durability tests*—(i) *Boil test.* The glass itself may crack in this test, but no bubbles or other defects shall develop more than $\frac{1}{2}$ inch (12 millimeters) from the outer edge of the specimen or from any crack that may develop. Any specimen in which the glass cracks to an extent that confuses the interpretation of the results shall be discarded, and another specimen shall be tested in its stead.

(ii) *Accelerated weathering tests*—(A) *Plastics.* (1) Plastic specimens shall be evaluated before and after exposure as described in Method B, "Simple Beam (Charpy-Type) Test," of ASTM D 256-73, "Test for Impact Resistance of Plastics and Electrical Insulating Materials," November 27, 1973. The exposed specimens shall be tested with the exposed surface subjected to tension. In the case of thin materials, the span of the specimens shall be reduced to 2 inches (50 millimeters) to avoid having the specimens bend enough to slip between the supports without breaking. For materials that will not break on this 2 inch (50 millimeters) span the specimens shall be notched across the $\frac{1}{2}$ inch (12 millimeters) surface prior to exposure. The notch shall be a 45 degree angle and the radius at the bottom shall be 0.010 ± 0.002 inch (0.25 ± 0.04 millimeters). The thickness of the material beneath the notch shall be uniform within ± 0.002 inch (± 0.05 millimeters) for all specimens and shall not be less than 70 percent of the specimen thickness. During exposure the notch shall face the radiation source.

(2) Plastic materials shall be acceptable if the impact strength is not reduced by more than 25 percent during exposure. Some discoloration is permissible, but defects other than this discoloration shall not be permissible. No bubbles or other noticeable decomposition shall be permissible in the irradiated portion.

(B) *Organic-coated glass.* Specimens shall be judged satisfactory if they pass both the adhesion test and the tensile test described below in paragraph (e)(ii)(B) (1) and (2) of this section.

(1) *Adhesion test (organic-coated glass only)*—(i) *Specimens.* The specimens for this test are the 2 inch by 6

inch (5 centimeters by 15 centimeters) weathered specimens and the control specimens. The specimens shall be conditioned just prior to the performance of the adhesion test at $73^{\circ} \pm 6^{\circ}$ F ($23^{\circ} \pm 3^{\circ}$ C) and 50 ± 5 percent relative humidity for 24 hours.

(ii) *Apparatus.* The test apparatus shall consist of a constant-rate-of-extension-type (CRE) tensile tester with the moving crosshead set to move at 12 inches per minute (5 millimeters per second) and load range such that the average pull force will fall at 30 to 50 percent of full scale. A cutter shall be used containing new razor blades for cutting 1 inch (25 millimeter) wide specimens of the organic coating on the glass. The razor blades shall be used one time only.

(iii) *Procedure.* Using the razor cutter, cut a straight, 1 inch (25 millimeter) wide strip of the organic coating in the lengthwise direction of the glass specimen along and within $\frac{1}{4}$ inch (6 millimeters) of one edge. Peel back, cleanly and evenly, about 2 inches (50 millimeters) of one end of the 1 inch (25 millimeters) wide organic strip. Attach a strip of reinforced pressure sensitive tape to the side of the organic strip opposite the adhesive, to extend this free end to about 8 inches (200 millimeters) in length. Place the end of the glass panel from which the organic strip was removed in the lower clamp of the tensile tester and the free end of the tape in the upper clamp. Peel the remainder of the organic strip from the glass mechanically and obtain a record of the pull force value. Determine and record the average pull force value for each specimen from the chart. Weathered and control specimens are to be tested alternately.

(iv) *Interpretation of results.* The organic-coated glass adhesion shall be judged satisfactory if the average pull force for the weathered specimens is no less than 90 percent of the average pull force for the control specimens.

(2) *Tensile strength test (organic-coated glass only).* (i) The specimens for this test are the same 2 inch by 6 inch (5 centimeter by 15 centimeter) specimens used in the adhesion test.

(ii) *Apparatus.* The CRE tensile tester shall be used with the moving

crosshead set to move at 2 inches per minute (0.8 millimeter per second) and the load range such that the specimens will break at 30 to 60% of full scale. A cutter shall be used containing new razor blades for cutting $\frac{1}{2}$ inch (12 millimeter) wide specimens of the organic coating on the glass. The razor blades shall be used one time only.

(iii) *Procedure.* Using the $\frac{1}{2}$ inch (12 millimeter) razor cutter, cut a straight strip of the organic coating in the lengthwise direction of the glass specimen for the full 6 inch (15 centimeter) length. Carefully peel this strip from the glass panel and test it for breaking strength in the tensile tester.

(iv) *Interpretation of results.* The organic coating tensile strength shall be judged satisfactory if the average tensile value of the weathered specimens is no less than 75 percent of the average of the control specimens. Weathered and control specimens are to be tested alternately.

(C) *Plastic (indoor service).* Specimens shall be judged satisfactory if, after the indoor aging test (paragraph (d)(2)(iii) of this section), they again pass the impact test (paragraph (d)(1) of this section).

§ 1201.5 Certification and labeling requirements.

(a) Manufacturers and private labelers of glazing materials covered by this Part 1201 shall comply with the requirements of section 14 CPSA (15 U.S.C. 2063) and regulations issued under section 14.

(b) Any glazing material that for accelerated environmental durability tests meets only the requirements of § 1201.4(e)(2)(ii)(C) entitled "Plastic (indoor service)" shall bear the statement "INDOOR USE ONLY" as part of a permanent label.

(c) Organic-coated glass that has been tested for environmental exposure from one side only must bear a permanent label on the coating stating "GLAZE THIS SIDE IN" and shall bear in the central 50 percent of the surface area the following message in letters at least $\frac{1}{4}$ inch (7 millimeters) high: "SEE PERMANENT LABEL FOR IMPORTANT MOUNTING INSTRUCTION." The latter message shall be attached to either side of the

glazing by ensure the place until in

§ 1201.6 Prohibitions

(a) *Stockpiling.* This section means means the affected date of issue the FEDERAL date set rate significant in paragraph the rate at a base period (c)(2) of this

(b) *Prohibition.* and import fabricators, porters of a ified in § 1 glazing materials with the re 1201 into s date of issue the FEDERAL date set rate greater tion or in period (def this section wired glass assemblies s intended to when such are require or municip of product may be inc than 10 per

(c) *Definition.* § 1201.6:

(1) "Rate of change" means

glazing by any means which shall ensure the message will remain in place until installation.

§ 1201.6 Prohibited stockpiling.

(a) *Stockpiling.* For the purposes of this section, the term "stockpiling" means manufacturing or importing the affected products between the date of issuance of this Part 1201 in the FEDERAL REGISTER and the effective date set out below in § 1201.7 at a rate significantly greater (prescribed in paragraph (b) of this section) than the rate at which the affected products were produced or imported during a base period (prescribed in paragraph (c)(2) of this section).

(b) *Prohibited acts.* Manufacturers and importers of glazing materials, fabricators, and manufacturers or importers of architectural products specified in § 1201.1(a) who incorporate glazing material shall not incorporate glazing materials which do not comply with the requirements of this Part 1201 into such products between the date of issuance of this Part 1201 in the FEDERAL REGISTER and the effective date set out in § 1201.7 below at a rate greater than the rate of production or importation during the base period (defined in paragraph (c)(2) of this section) plus ten percent. For wired glass used in doors or other assemblies subject to this Part 1201 and intended to retard the passage of fire, when such doors or other assemblies are required by a federal, state, local or municipal fire ordinance, the rate of production during the base period may be increased annually by no more than 10 percent.

(c) *Definitions.* As used in this § 1201.6:

(1) "Rate of production (or importation)" means the total number of af-

ected architectural products incorporating glazing material not complying with this Part 1201 manufactured or imported during a stated base period.

(2) "Base period" means, at the option of the manufacturer or importer, any period of 180 consecutive days prior to January 6, 1977, said period to be selected within an interval which begins July 6, 1975.

§ 1201.7 Effective date.

The effective date of this Part 1201 shall be July 6, 1977 except:

(a) For glazing materials used in doors or other assemblies subject to this Part 1201 and intended to retard the passage of fire, when such doors or other assemblies are required by a federal, state, or local or municipal fire ordinance, the effective date shall be January 6, 1980.

(b) Architectural glazing materials manufactured before July 6, 1977 may be incorporated into architectural products listed in § 1201.1(a) through July 5, 1978, if

(1) The architectural glazing material conforms to ANSI Z97.1-1972 or 1975, and

(2) The architectural glazing material is permanently labeled to indicate it conforms to ANSI Z97.1-1972 or 1975 or is accompanied by a certificate certifying conformance to ANSI Z97.1-1972 or 1975.

(c) Architectural products manufactured between July 6, 1977 and July 5, 1978 incorporating glazing material in accordance with § 1201.7(b), may be distributed and sold without restriction.

[42 FR 31166, June 20, 1977]

NOTE: Incorporation by reference provisions were approved by the Director of the Federal Register on December 30, 1976, and those materials are on file at the office of the Federal Register.

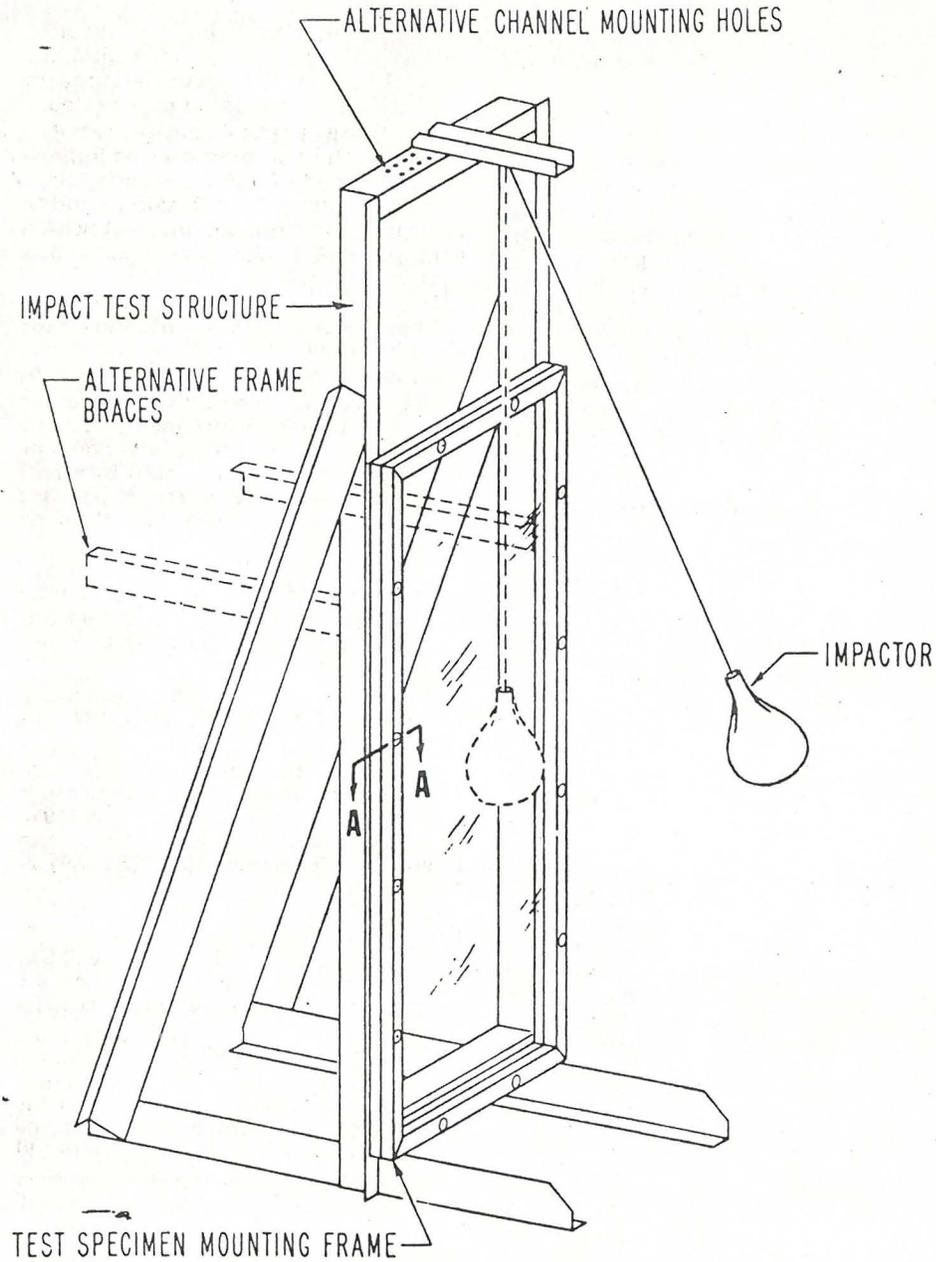


FIG I-GLASS IMPACT TEST STRUCTURE

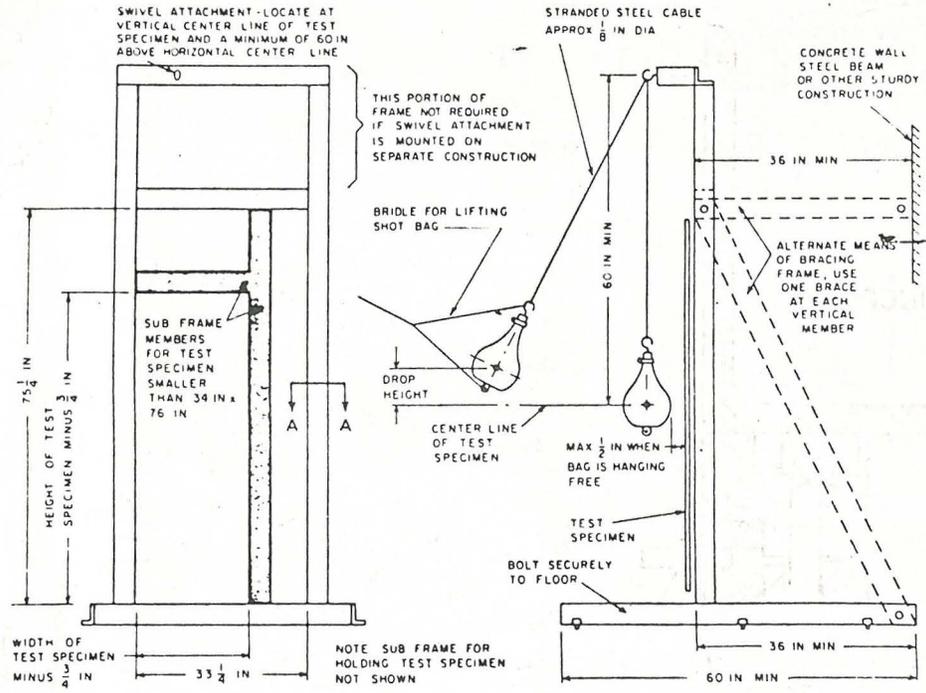


FIG 2—TEST FRAME

ACTOR

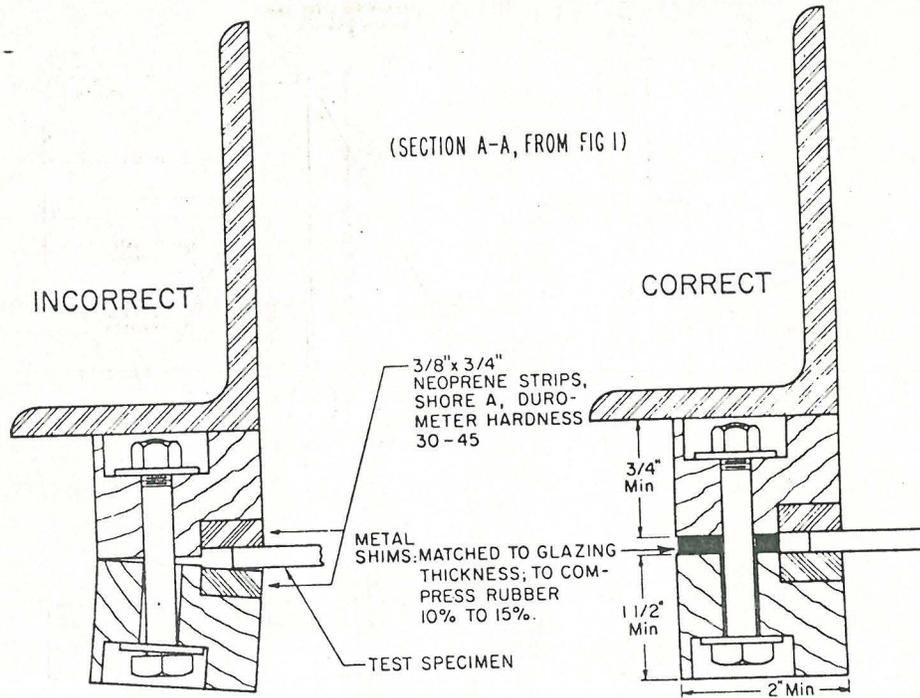


FIG 3-PROPERLY & IMPROPERLY CLAMPED TEST SPECIMEN (> 1/8" THICK)

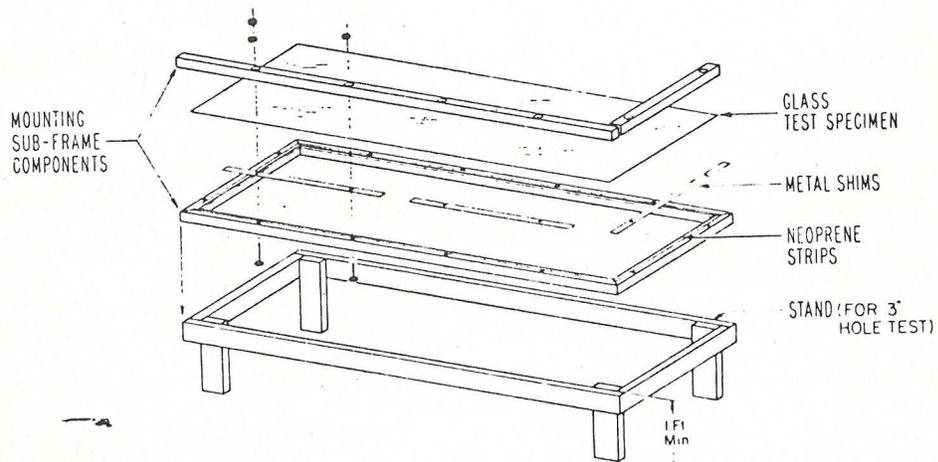


FIG 4-GLASS TEST SPECIMEN MOUNTING SUB-FRAME (EXPLODED) & STAND

PART

Sec.
1202.1
1202.2
1202.3
1202.4
1202.5
me

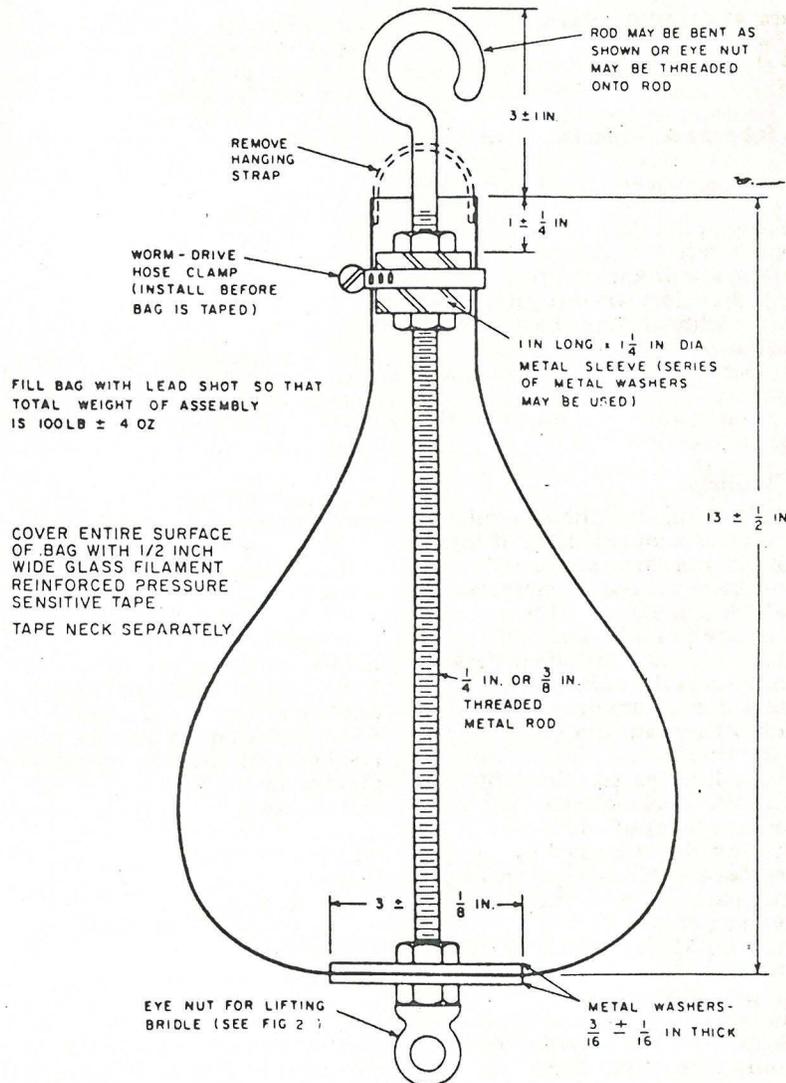


FIG 5-IMPACTOR

PART 1202—SAFETY STANDARD FOR MATCHBOOKS

Subpart A—The Standard

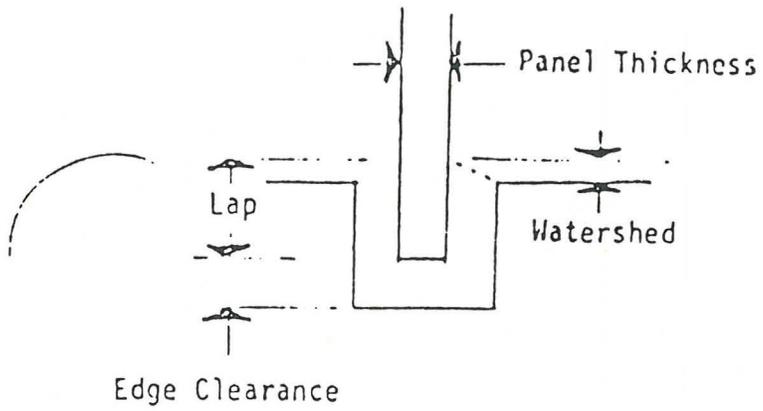
- Sec.
- 1202.1 Scope and effective date.
- 1202.2 Findings.
- 1202.3 Definitions.
- 1202.4 Matchbook general requirements.
- 1202.5 Matchbook performance requirements.

- Sec.
- 1202.6 Test procedures for general and performance requirements.
- 1202.7 Certification.
- 1202.8 Marking.
- 1202.9 Prohibited stockpiling.

AUTHORITY: Secs. 2, 3, 7, 9, 14, 16, and 19, Pub. L. 92-573, 86 Stat. 1212-17; 15 U.S.C. 2051, 2052, 2056, 2058, 2063, 2065, and 2068.

RECIMEN
SHIMS
NE
FOR 3"
HOLE TEST)

EXHIBIT B



Detail 54-B Clearance and Lap Detail

EXHIBIT C

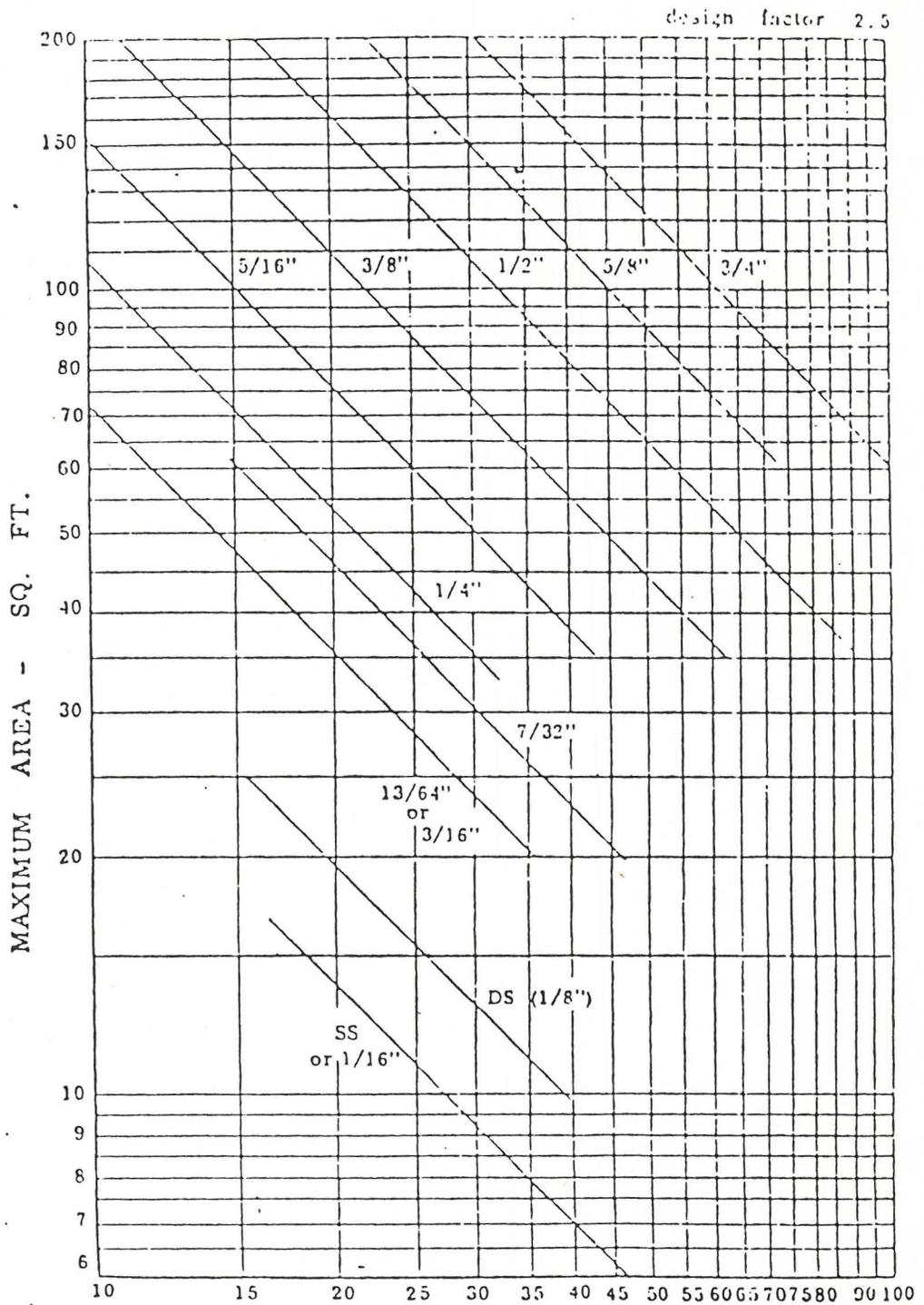


TABLE 54-A DESIGN LOAD DATA CHART - ANNEALED GLASS

Type of Glass	Strength Relationship Factors
Fully Tempered	4.0
Heat Strengthened	2.0
Metal Edged Double Glazed Plate, Rolled, or Sheet	1.5
Laminated	1.0
Wired	0.6
	0.5

The strength relationship factors may be used as is convenient, by:

1. Dividing the wind load by the strength relationship factor and using the resulting load to determine area allowed in Table 54 A.
2. Determining the area and thickness required for annealed glass and multiplying the area by the strength relationship.

CITY OF SAN ANTONIO

Interdepartment Correspondence Sheet

AGENDA ITEM NO. 40

TO: CITY COUNCIL

FROM: JANE MACON, CITY ATTORNEY, by LUIS R. GARCIA, FIRST ASSISTANT CITY ATTORNEY

COPIES TO: GEORGE D. VANN, JR. DIRECTOR OF BUILDING AND ZONING

SUBJECT: ADOPTION OF SAFETY STANDARDS FOR ARCHITECTURAL GLAZING MATERIALS.

Date MARCH 1, 1979

SUBJECT

A request by the Department of Building and Zoning and the Glass Industry to codify the safety standards for architectural glazing materials by adopting present Federal Standards and adding other safety features necessary for the protection of the public.

BACKGROUND INFORMATION

The consumer Product Safety Commission under the authority granted by Public Law 92-573 adopted certain safety standards for architectural glazing materials preempting most of the provisions of Chapter 54 of the Uniform Building Code of the City of San Antonio. These standards are more specifically set out in Title 16 Part 1201 of the Code of Federal Regulations (42 Federal Regulations 1441). The Glass Industry in the City of San Antonio has requested that Chapter 54 of the Uniform Building Code be repealed and replaced by the new safety standards.

SECTION BY SECTION ANALYSIS

1. Section 5401.1 and 5402.2 are mandatory specifications under the U.S. Statute.
2. Sections 5402.3 thru 5402.6 and 5402.7(B) are the same provisions covered under the old Chapter 54 not preempted by Public Law 92-573.
3. Sections 5402.7 (a) and (c) are added features for high rise buildings which in effect prevent broken spandrel glass from falling on pedestrians. This is a new feature not covered by federal statute.

CITY COUNCIL
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4. Sections 5402.8, 5402.8-1 and 5402.8-2 are mandatory specifications under the Federal Statute.

5. Paragraph number 3 of Section 5402.8 is designed to protect persons above the first floor if there is glass from floor to ceiling by keeping persons from walking thru the glass. This is a real safety feature not covered by the Federal Law.

FINANCIAL DATA

There will be no cost to the City in implementing this ordinance.

CONCLUSIONS AND RECOMMENDATIONS

It is our recommendation that the City Council pass and approve this ordinance because it will increase the safety features of the Uniform Building Code.

JANE MACON
CITY ATTORNEY



LUIS R. GARCIA
FIRST ASSISTANT CITY ATTORNEY

APPROVED:


CITY MANAGER

Affidavit of Publisher

THE STATE OF TEXAS, }

COUNTY OF BEXAR
CITY OF SAN ANTONIO }

Before me, the undersigned authority, on this day personally appeared Irene Palencia, who being by me duly sworn, says on oath that s_{he} is Office Supervisor of the Commercial Recorder, a newspaper of general circulation in the City of San Antonio, in the State and County aforesaid, and that the Ordinance #50511 hereto attached has been published in every issue of said newspaper on the following days, to-wit: March 13, 1979.

AN ORDINANCE 50511
REPEALING CHAPTER 54 OF THE UNIFORM BUILDING CODE OF 1970, AS AMENDED; ADOPTING THE SAFETY STANDARDS OF THE CONSUMER PRODUCT SAFETY COMMISSION AS STATED IN TITLE 16 PART 1201 OF THE CODE OF FEDERAL REGULATIONS AND SETTING ADDITIONAL STANDARDS.
PASSED AND APPROVED THIS 8TH DAY OF MARCH, 1979.
/s/ LILA COCKRELL
MAYOR
ATTEST:
/s/ NORMA S. RODRIGUEZ
Asst. City Clerk

Irene Palencia

Sworn to and subscribed before me this 13th Day of March, 1979.

Tom Marie Sales

Notary Public in and for Bexar County,
Texas