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**Unplasticized polyvinyl chloride
(PVC-U) profiles for fabrication of
windows and doors**

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Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by PVC Windows Industries Association (P.W.A)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS A 5558**:2010), which has been technically revised.

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NOTE Based on Article 9 of the Supplementary Provisions to the Unfair Competition Prevention Act etc., any submission of proposal, or employment of procedures such as deliberation by the Japanese Industrial Standards Committee under the previous Industrial Standardization Act shall be deemed to have been conducted pursuant to the provision of Article 12, paragraph (1) of the revised Industrial Standardization Act.

Unplasticized polyvinyl chloride (PVC-U) profiles for fabrication of windows and doors

Introduction

This Japanese Industrial Standard was established in 2010 and has been revised at this time to make the following modifications to the previous edition: addition of requirement and test method for strength of welded corners and; change of Charpy impact test procedure.

No corresponding International Standard has been established at this point.

1 Scope

This Standard specifies the requirements for profiles mainly composed of unplasticized polyvinyl chloride (PVC-U) that are intended for fittings such as windows and doors (hereafter referred to as plastic fittings).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS A 1415 *Methods of exposure to laboratory light sources for polymeric material of buildings*

JIS B 7507 *Vernier, dial and digital callipers*

JIS B 7512 *Steel tape measures*

JIS B 7513 *Precision surface plates*

JIS B 7516 *Metal rules*

JIS B 7524 *Feeler gauges*

JIS B 7721 *Tension/compression testing machines—Calibration and verification of the force-measuring system*

JIS K 6740-2 *Plastics—Unplasticized poly (vinyl chloride) (PVC-U) moulding and extrusion materials—Part 2: Preparation of test specimens and determination of properties*

JIS K 6911 *Testing methods for thermosetting plastics*

JIS K 7111-1 *Plastics—Determination of Charpy impact properties—Part 1: Non-instrumented impact test*

JIS K 7161-2 *Plastics—Determination of tensile properties—Part 2: Test conditions for moulding and extrusion plastics*

JIS K 7171 *Plastics—Determination of flexural properties*

JIS K 7206 *Plastics—Thermoplastic materials—Determination of Vicat softening temperature (VST)*

JIS K 7350-4 *Plastics—Methods of exposure to laboratory light sources—Part 4: Open-flame carbon-arc lamps*

JIS L 0804 *Grey scale for assessing change in colour*

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions apply.

3.1

window profiles

profiles used for fabrication of sashes and doors, among other plastic fittings, that are installed at the exterior of a building

3.2

inner window profiles

profiles used for indoor-side fabrication of sashes and doors, among other plastic fittings, that are installed at the exterior of a building

3.3

main profiles

window profiles (see **3.1**) or inner window profiles (see **3.2**) which are used for main members of plastic fittings, including the frame, stile, mullion, transom, vertical mullion, intermediate mullion and sash bar

3.4

auxiliary profiles

window profiles (see **3.1**) and inner window profiles (see **3.2**) which are not main profiles (see **3.3**)

3.5

extruded profiles

main profiles (see **3.3**) and auxiliary profiles (see **3.4**) which are produced by extrusion moulding of PVC-U material

3.6

coextruded profiles

main profiles (see **3.3**) and auxiliary profiles (see **3.4**) which are produced by separate extrusion of PVC-U and other materials, and subsequent lamination of the extrudates

3.7

outdoor-side surface

that surface of a plastic fitting which is visible from outside the building

3.8

indoor-side surface

that surface of a plastic fitting which is visible from inside the building

3.9

warp

curving of the main profile (see **3.3**) or auxiliary profile (see **3.4**) in the extrusion direction

3.10

virgin material

unused PVC-U material intended for extrusion moulding of extruded profile (see **3.5**), and unused PVC-U and other materials intended for coextrusion moulding of coextruded profile (see **3.6**)

3.11

recycled material

granular or powdery material obtained by crushing the extruded profiles (see **3.5**), coextruded profiles (see **3.6**), extruded profiles obtained from plastic fittings, or coextruded profiles obtained from plastic fittings

3.12

corner welding

construction of a plastic fitting using main profiles (see **3.3**) where the profile ends, cut at an angle to the extrusion direction, are heated and bonded together under pressure at a prescribed angle

3.13

corner welder

device capable of manufacturing plastic fittings by corner welding (see **3.12**)

3.14

weld burr

molten residue of PVC-U material on the weld surface of a profile produced by corner welding (see **3.12**)

4 Classification and symbols of profiles

Classification and symbols of profiles shall be as follows.

- a) The profiles shall be classified according to the use of plastic fitting as shown in Table 1.

Table 1 Classification of profiles according to use of plastic fitting

Classification	Symbol
Window profile	O
Inner window profile	I

- b) The window profiles and inner window profiles are classified according to whether they are main or auxiliary profiles as shown in Table 2.

Table 2 Classification of profiles according to whether they are main or auxiliary profiles

Classification	Symbol
Main profile	M
Auxiliary profile	A

- c) The main and auxiliary profiles are classified according to extrusion method as shown in Table 3.

Table 3 Classification of profiles according to extrusion method

Classification	Symbol
Extruded profile	P
Coextruded profile	C

- d) The extruded profiles and coextruded profiles are classified according to type of material as shown in Table 4.

Table 4 Classification of profiles according to type of material

Type of material	Symbol
Virgin material	E
Recycled material	R

5 Materials

The materials used for extruded profiles and coextruded profiles, when tested in accordance with the method specified in Annex A, shall comply with requirements in Table 5.

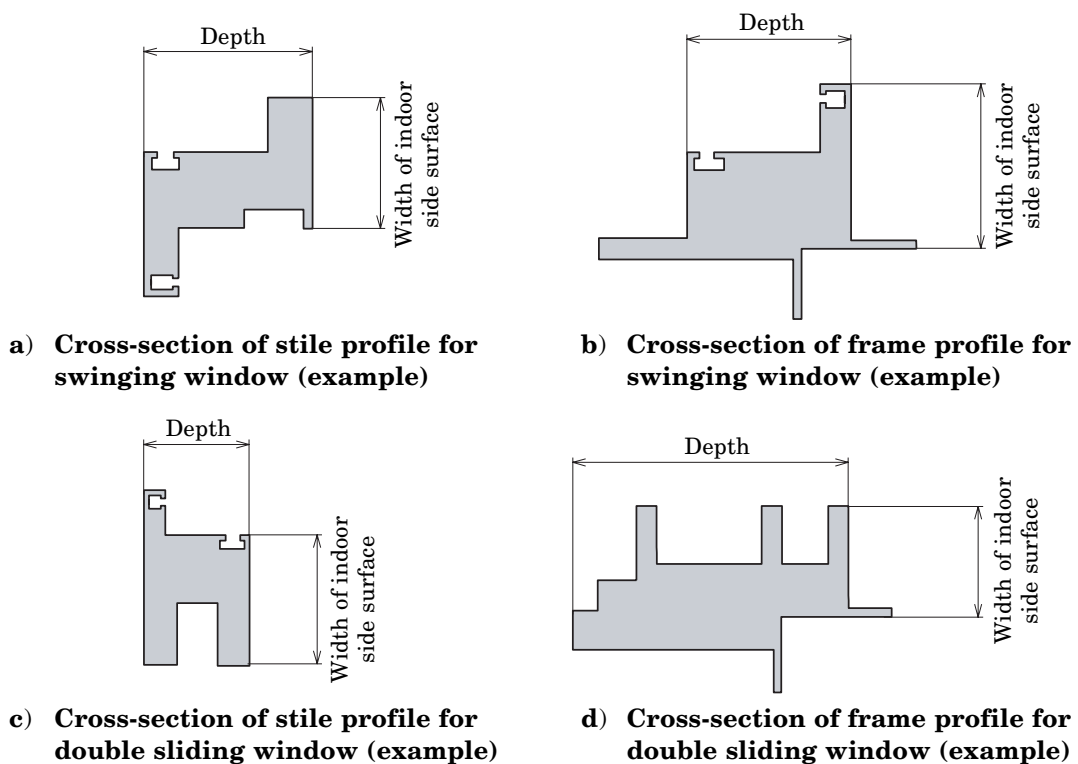
NOTE The single-notch edgewise parallel testing which was specified in the previous edition (**JIS A 5558:2010**) is provided in Annex B for users' convenience.

Table 5 Materials

Item			Criteria
Vicat softening temperature			83 °C min.
Tensile yield stress			36.8 MPa min.
Bending elastic modulus			2 000 MPa min.
Charpy impact value ^{a)}	Window profile	23 °C	45.0 kJ/m ² min.
		−10 °C	18.0 kJ/m ² min.
	Inner window profile	23 °C	30.0 kJ/m ² min.
		−10 °C	12.0 kJ/m ² min.
Burning resistance	Extruded profile		Incombustible ^{b)}
	Coextruded profile		Class HB ^{c)}
Notes ^{a)} See Annex A for temperature conditions of this test.			
^{b)} All three test pieces shall prove to be incombustible when tested in accordance with 5.24 of JIS K 6911 .			
^{c)} All three test pieces shall conform to Class HB when tested in accordance with Method C specified in 5.24 of JIS K 6911 . Flame going out before reaching the 25.4 mm mark is also considered as conformance.			

6 Dimensions of profiles

The width and depth dimensions of indoor-side surfaces of window profiles and inner window profiles are shown in Figure 1.

**Figure 1 Width and depth dimensions of indoor-side surfaces**