Edun Villa Windows Meet IECC 2024 Thermal-Break Rules

Edun Details Thermal-Break Profiles and Insulation Specifications for Villa Windows Under Updated IECC 2024 Requirements



Logo for Foshan Nanhai Edun Home Technology Co., Ltd.

CALIFORNIA , CA, UNITED STATES, September 29, 2026 / EINPresswire.com/ -- FOSHAN, Guangdong, China, September 29, 2026 — Foshan Nanhai Edun Home Technology Co., Ltd. (brand: Edun), a manufacturer of high-end aluminum alloy system doors and windows headquartered in Foshan, Guangdong Province, has detailed the engineering specifications behind its villa window and door range at a point when metal window frames face new insulation mandates in North America. Company product data lists profile wall thicknesses from 1.4 mm to 2.0 mm, wind load resistance of up to 5,440 Pa, water tightness of up to 1,050 Pa, sound insulation of 37 dB, and U-values as low as 1.2 W/²·K across its EDUCE and EDUN series.

Code pressure moves thermal breaks into the specification

The 2024 International Energy Conservation Code (IECC), published by the International Code Council, requires that metal frames for residential windows and doors incorporate a thermal break to limit thermal bridging and condensation. In the United States, ENERGY STAR Version 7.0 sets a U-factor threshold of 0.22 in northern climate zones, a level that generally requires triple-pane glazing, a thermally broken frame, or both in high-end residential construction.

Market research firms tracking the category estimate the global windows and doors market at

between USD 211.04 billion and USD 229.90 billion in 2025, with projections of USD 363.23 billion by 2035, according to Fortune Business Insights and Market Research Future. Asia-Pacific accounted for approximately 44.6% of that market in 2024, Market Research Future reports. Separately, Industry Research projects the global aluminum doors and windows market will reach USD 119.86 billion by 2035 at a CAGR of 5.01%, with aluminum windows representing 65% of inventory units.

For coastal villa projects, the constraint set is wider still. Hurricane impact-resistant windows are governed by wind-borne debris standards, and Global Growth Insights expects that US-linked market to reach USD 28.65 billion by 2035. Suppliers targeting these projects must document frame strength, water management and glass build-up rather than rely on general performance claims.

Profile design: multi-cavity thermal breaks and 1.4–2.0 mm walls

Thermal performance in an aluminum window begins with the profile section. Edun's product documentation specifies Xingfa aluminum alloy as the base material across the range, combined with multi-cavity thermal break strips. In the EDUN 108 SERIES sliding door, the specification adds a 65 mm thermal break strip and insulation foam.

Profile wall thickness in the documented range runs from 1.4 mm in the EDUCE 50 SERIES glass louver, through 1.6 mm in the EDUCE 77 SERIES bi-fold door and 1.8 mm in the EDUCE 55, EDUCE 80, EDUCE 102 and EDUCE 106 awning windows and the EDUCE E80 casement window, to 2.0 mm in the EDUCE 100 hinge door, the EDUCE 110 sliding door and sliding window, the EDUCE 138 and EDUCE 208 sliding doors, and the EDUN 80, EDUN 108, EDUN 125 and EDUN 150 series. The company states that its production system accommodates 1.4 mm to 2.0 mm profiles and multiple glass specifications, with parameters adjusted on demand.

A thermal break separates interior and exterior aluminum surfaces with a low-conductivity material, interrupting the path that would otherwise carry heat directly through the frame. Multi-cavity sections add enclosed air chambers that slow heat transfer and increase section stiffness — a factor that matters most in large villa openings, where long sliding panels and wide fixed panes concentrate structural load on relatively slim sight lines.

Glazing: Low-E triple units and U-values down to 1.2 W/²·K

Glass specification determines much of the final U-value. Edun's villa-oriented series list Low-E triple glazing units of 6+12+6+12+6 mm in the EDUN 108 SERIES sliding door, the EDUN 80 SERIES casement window, the EDUN 80 SERIES hinge door and the EDUN 80 SERIES bi-fold door; 10+16A+10 mm in the EDUN 150 SERIES lift sliding door; 10+18A+10 mm in the EDUN 125 SERIES narrow sliding door; and 5+12A+5 mm, 5+20A+5 mm, 5+27+5 mm and 6+12A+6 mm variants across the EDUCE range. Laminated and tempered options include 4+0.76+4 mm and 8 mm glass in the EDUN 60 SERIES French door and the EDUN 100 SERIES retro sliding door.

The resulting ratings differ by model and by destination market. For North American series, the company lists Uw 1.2 W/²·K for the EDUN 108 SERIES sliding door, Uw 1.4 W/²·K for the EDUN 80 SERIES casement window and hinge door, Uw 1.5 W/²·K for the EDUN 125 SERIES narrow sliding door, and Uw 1.7 W/²·K for the EDUN 150 SERIES lift sliding door and EDUN 80 SERIES bi-fold door.

For Australian series, the documentation reports WERS Uw values of 2.5–3.0 W/²·K for the EDUCE 102 SERIES awning window, 3.0–3.5 for the EDUCE 80 SERIES awning window, 3.1–6.1 for the EDUCE 110 SERIES sliding door, the EDUCE 138 SERIES sliding door and the EDUCE 208 SERIES sliding door, 3.5–6.4 for the EDUCE 110 SERIES sliding window, 3.7–6.2 for the EDUCE 100 SERIES hinge door, and 4.6–6.9 for the EDUCE 55 and EDUCE 106 awning windows.

Sealing: multi-layer EPDM seals and water tightness up to 1,050 Pa

Wind and water performance depends on the sealing architecture rather than on the frame alone. Edun's product data specifies EPDM sealing strips and sealing accessories, with multi-layer sealing described in the company's project documentation as the mechanism behind waterproofing and sound insulation performance.

Water tightness ratings in the published range run from 200 Pa for the EDUCE 110 SERIES sliding door to 1,050 Pa for the EDUN 80 SERIES hinge door, with 720 Pa listed for the EDUN 108 SERIES sliding door, the EDUN 80 SERIES casement window, the EDUN 150 SERIES lift sliding door, the EDUN 125 SERIES narrow sliding door and the EDUN 80 SERIES bi-fold door.

Wind load resistance is listed at 5,440 Pa for the EDUN 108 SERIES sliding door; 5,040 Pa for the EDUN 80 SERIES casement window and hinge door; 3,600 Pa for the EDUN 150 SERIES, EDUN 125 SERIES and EDUN 80 SERIES bi-fold door; 1,600 Pa for the EDUCE 110 SERIES sliding door; and 1,200/4,000 Pa for the EDUCE 102 SERIES awning window. Sound insulation of 37 dB is recorded for the EDUN 108 SERIES sliding door, the EDUN 80 SERIES casement window and hinge door, the EDUN 150 SERIES lift sliding door, the EDUN 125 SERIES narrow sliding door, and the EDUN 80 SERIES and EDUCE 77 SERIES bi-fold doors.

Hardware and controls complete the assembly

Hardware determines how consistently a sealed and thermally broken assembly performs over its service life. Edun documentation names HOPPE, SIEGENIA, GIESSE, Roto, CMECH, VBH and KIN LONG components across its series, together with European standard hardware on the EDUN 80 SERIES hinge door and heavy-duty reinforced sliding hardware on the EDUCE 208 and EDUCE 110 sliding doors.

For security-oriented specifications, the company's project documentation lists smart hardware options for enhanced security, and the EDUCE awning window series lists fiberglass or stainless

steel security mesh as a standard configuration option. On the manufacturing side, the company states that it operates a research and development team of 30 engineers and has achieved 128 patent results.

Certification records anchor the compliance claims

Third-party records give the specification a verifiable baseline. The company holds a StandardsMark Licence, certification number SMK41423, issued by SAI Global Assurance against AS 2047-2014, with an issue date of 18 January 2024 and an expiry date of 17 January 2029. The certification covers aluminum doors and windows and excludes installation.

For North America, the company holds a CSA Certificate of Compliance, certificate number 80232082 with master contract number 607661, issued by CSA Group against AAMA/WDMA/CSA 101/I.S.2/A440-17, CSA A440S1:19 and CSA A440.2:19, issued 1 November 2024. The EDUN 108 SERIES sliding door is additionally listed as CSA Energy Star certified.

Elsewhere, the company holds a UAE Class 6 trademark registration, number 427568, issued by the United Arab Emirates Ministry of Economy – Trade Marks Department on 23 July 2024, and a Malaysia Class 6 trademark registration, number TM2024038788, issued by the Intellectual Property Corporation of Malaysia (MyIPO) on 9 July 2025. Both cover metal doors, windows and accessories. The EDUCE 50 SERIES glass louver is listed as AS2208 certified.

Specification reference: key villa models

EDUN 108 SERIES — Sliding Door. Profile thickness 2.0 mm; glass 6+12+6+12+6 mm; wind load resistance 5,440 Pa; sound insulation 37 dB; water tightness 720 Pa; Uw 1.2 W/²·K; CSA Energy Star certified. Materials: Xingfa aluminum alloy, Low-E triple glazing, 65 mm thermal break strip, insulation foam, KIN LONG hardware.

EDUN 80 SERIES — Casement Window. Profile thickness 2.0 mm; glass 6+12+6+12+6 mm; wind load resistance 5,040 Pa; sound insulation 37 dB; water tightness 720 Pa; Uw 1.4 W/²·K. Materials: Xingfa aluminum alloy, Low-E triple glazing, HOPPE hardware, multi-cavity thermal break strip, EPDM sealing strip.

EDUN 80 SERIES — Hinge Door. Profile thickness 2.0 mm; glass 6+12+6+12+6 mm; wind load resistance 5,040 Pa; sound insulation 37 dB; water tightness 1,050 Pa; Uw 1.4 W/²·K. Materials include European standard hardware and multi-cavity thermal break strip.

EDUN 150 SERIES — Lift Sliding Door. Profile thickness 2.0 mm; glass 10+16A+10 mm; wind load resistance 3,600 Pa; sound insulation 37 dB; water tightness 720 Pa; Uw 1.7 W/²·K.

EDUN 125 SERIES — Narrow Sliding Door. Profile thickness 2.0 mm; glass 10+18A+10 mm; wind load resistance 3,600 Pa; sound insulation 37 dB; water tightness 720 Pa; Uw 1.5 W/²·K.

EDUN 80 SERIES — Bi-fold Door. Profile thickness 2.0 mm; glass 6+12+6+12+6 mm; wind load resistance 3,600 Pa; sound insulation 37 dB; water tightness 720 Pa; Uw 1.7 W/²·K.

EDUN 60 SERIES — French Door. Profile thickness 2.0 mm; glass 8 mm / 4+0.76+4 mm; Uw customized; tempered or laminated glass options.

EDUN 100 SERIES — Retro Sliding Door. Profile thickness 2.0 mm; glass 8 mm / 5+7+5 mm; thermal break strip and retro-style hardware.

EDUCE 102 SERIES — Awning Window. Profile thickness 1.8 mm; glass 5+12A+5 mm; wind load resistance 1,200/4,000 Pa; WERS Uw 2.5–3.0 W/²·K; SIEGENIA hardware; fiberglass or stainless steel security mesh.

EDUCE 208 SERIES — Sliding Door. Profile thickness 2.0 mm; glass 5+12A+5 mm; WERS Uw 3.1–6.1 W/²·K; heavy-duty reinforced hardware; EPDM sealing strip.

EDUCE 110 SERIES — Sliding Window. Profile thickness 2.0 mm; glass 5+12A+5 mm; WERS Uw 3.5–6.4 W/²·K; SIEGENIA hardware.

EDUCE 77 SERIES — Bi-fold Door. Profile thickness 1.6 mm; glass 5+27+5 mm; sound insulation 37 dB; WERS Uw 1.7 W/²·K.

EDUCE 50 SERIES — Glass Louver. Profile thickness 1.4 mm; 6 mm glass; AS2208 certified.

Procurement constraints buyers should verify

Order rules differ by buyer type. Company capability data lists a minimum order of 15 square metres for villa projects, and minimum orders of 200 square metres or 500 square metres for contractors. Monthly capacity is given as 80,000 square metres of doors and windows, with a lead time of 15 days. Customization covers size, glass, shape and colour, and quality control is described as 100% manual inspection rather than statistical sampling. After-sales support covers package transportation and package installation guidance.

The company reports an export ratio of 50%, with markets in the United States, Canada, Australia, Southeast Asia, the Middle East and Africa, and states that it manufactures under its own brand. Buyers comparing aluminum villa window and door suppliers should treat the published U-values, wind load ratings and water tightness figures as the comparable layer of the specification, and the certification numbers as the traceable layer.

Market impact: reference projects and demand drivers

Deployed projects listed by the company include a 263 m² recreation facility in the United States,

a 238 m² hotel project spanning Saudi Arabia and Indonesia, and villa installations of 77 m² across Australia, the UAE, Saudi Arabia, Indonesia, Malaysia and the United States, each reported with a service life of at least 20 years.

Those references matter commercially because they place fixed performance ratings inside identifiable building types: hospitality projects test acoustic and thermal consistency across repeated room modules, while villa installations test large openings, coastal exposure and long-term weather sealing. For importers and project specifiers working to IECC 2024, ENERGY STAR Version 7.0 or AS 2047-2014 requirements, the practical comparison is between documented ratings and the compliance record behind them.

Company statement

In its corporate profile, Edun states that it adheres to a “quality first, innovation-driven” approach and describes its mission as “keeping the world away from noise and ensuring family safety.” The company also states that it participates as a main compiling unit in the formulation and promotion of industry standards in China and serves as the supervisory chair unit of the Guangdong Doors and Windows Association.

Outlook

Thermal-break mandates and tightening U-factor thresholds shift villa window specification from a design preference to a compliance requirement in North America, and a comparable dynamic is visible in Australia through AS 2047-2014 and WERS-style performance disclosure. Suppliers with traceable certification numbers, published U-values and consistent sealing data are better positioned to answer project questionnaires without qualification. Edun's published range, spanning 1.4 mm to 2.0 mm profiles and Uw values from 1.2 W/²·K upward, is now documented against that standard.

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