



Energy efficiency elevates ARCHITECTURAL FLAT GLASS applications

In this issue, Glass Technology International explores the current size, trends and growth forecasts of the global ARCHITECTURAL FLAT GLASS market through 2030 as detailed in the Market Analysis Report published by Grand View Research. Here we examine product types, applications, regional dynamics and regulatory factors that are shaping demand - with key insights into the evolving construction landscape as well as the accelerating use of sustainable materials.

MARKET SIZE & TRENDS

In 2023, the global architectural flat glass market reached an estimated value of USD 219.41 billion and

is expected to register a compound annual growth rate (CAGR) of 3.8 percent between 2024 and 2030. This upward trajectory is being driven by renewed economic growth strategies, particular-

ly through construction and infrastructure investments. Additionally, glass' environmentally-friendly properties are helping increase its adoption - particularly within commercial developments.

Architectural flat glass is utilized across a wide array of applications including facades, doors, windows, railings, partitions, patio coverings and sunrooms. Its use in commercial building exteriors is especially prominent due to advantages such as recyclability and aesthetic appeal. For example, Tower Two of the Manhattan West Development in New York was completed in January 2024, showcasing high-performance glass across both towers and emphasizing a clean, sophisticated design. The United States remains among the largest consum-





ers of architectural flat glass - leveraging the material across both residential and commercial projects, including facades, partitions, patio structure and more. Anticipated increases in construction spending throughout the forecast period are likely to further drive product demand across the country. In terms of numbers, construction spending in 2023 was reported at approximately USD 1,978.7 billion - marking a 7.0 percent rise from the previous year's USD 1,848.7 billion. In December 2023 alone, residential construction accounted for

USD 911.7 billion, reflecting a 1.4 percent increase from November's revised total of USD 898.8 billion. The private construction sector's total for 2023 stood at USD 1,541.0 billion, a 4.7 percent increase compared to USD 1,472.4 billion recorded in 2022. The rising number of high-rise residential and office buildings is also anticipated to contribute significantly to market growth over the forecast timeframe. For instance, in January 2024, architecture firm AO and Matteson Capital unveiled plans for the Boardwalk at Bricktown project in downtown





Oklahoma City. If approved, the proposed 1,907-foot tower will become the sixth tallest skyscraper globally and a major architectural landmark in the city's core.

MARKET CONCENTRATION & CHARACTERISTICS

The architectural flat glass industry is currently in a moderate growth phase, though market momentum is accelerating. Demand for base glass, tempered glass and other variants is growing across both the residential and commercial construction sectors, largely owing to lifestyle modernization and rising living standards. The market landscape is considered fragmented, with multiple players contributing to ongoing competition. Many of these emerging companies are forming strategic partnerships and collaborative ventures to enhance their competitive positions. Through such alliances, firms are pooling resources and knowledge to pursue shared goals, better equipping themselves to thrive in a dynamic, fragmented marketplace. These cooperative strategies are aimed at maintaining or expanding market presence amid growing industry competition.

MANUFACTURING

Manufacturing of architectural flat glass is governed by various regulations that may affect operational processes. Agencies such as the Occupational Safety

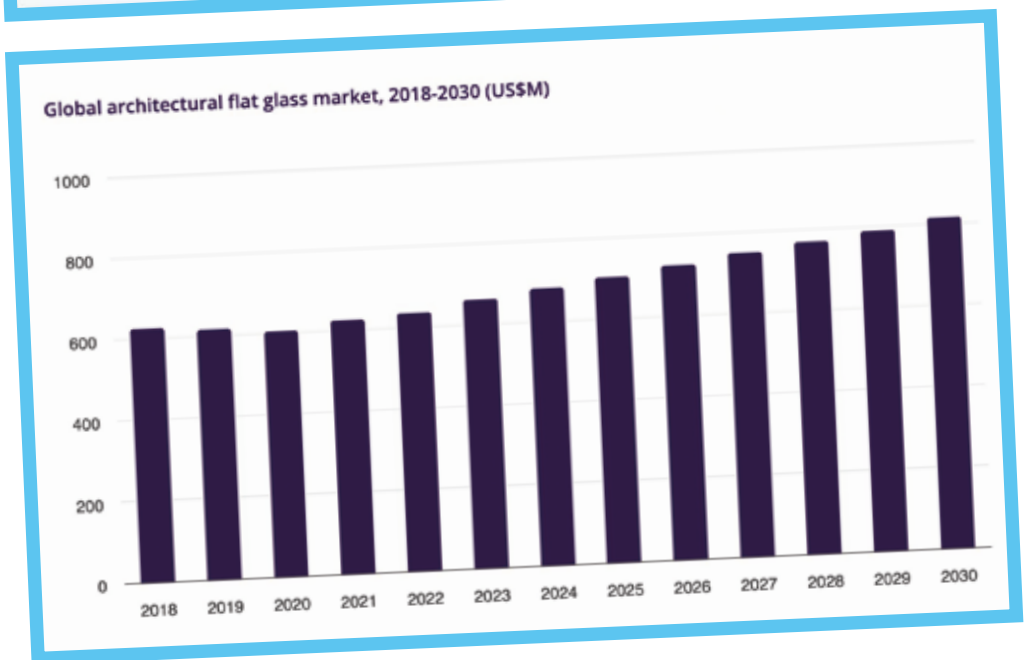
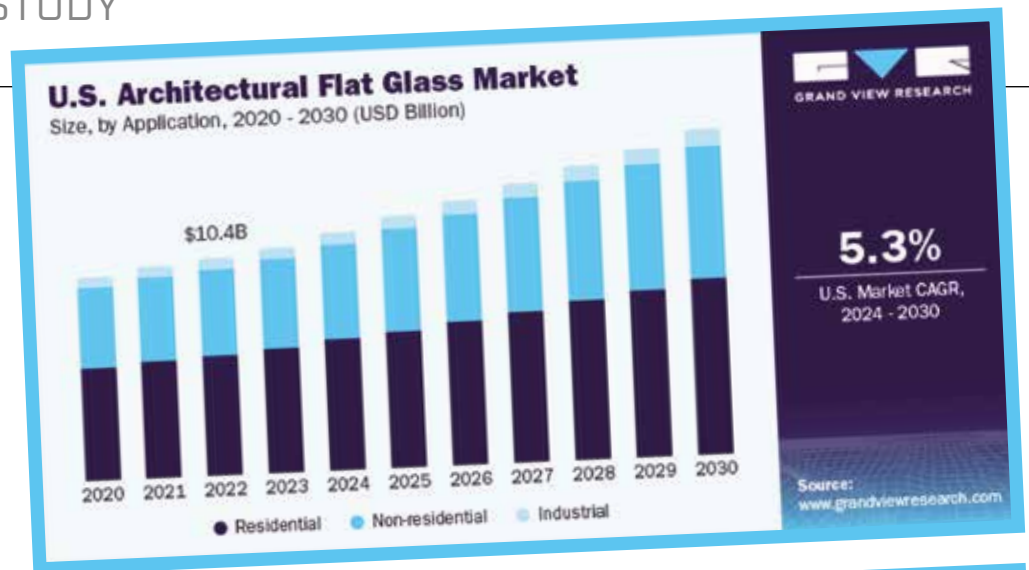
and Health Administration (OSHA) in the U.S. have instituted specific safety standards related to glass production. Additionally, national and local building codes often include detailed requirements regarding the thickness, strength and application of glass for safety compliance. Although architectural flat glass possesses unique properties -including durability, clarity and environmental friendliness- that make it difficult to substitute directly, alternative materials

are sometimes used. Products such as polycarbonate sheets, acrylic sheets and ETFE (ethylene tetrafluoroethylene) film offer similar performance characteristics and cost benefits. However, these materials often fall short in delivering the same visual impact and long-term performance as architectural glass.

PRODUCT INSIGHTS

In 2023, insulated glass accounted for the highest market share by revenue, making up 38.22 percent of total

sales. Its ability to enhance energy efficiency by reducing heat transfer is a key reason for its popularity in modern buildings, as it contributes to lower energy consumption for heating and cooling. Regulatory initiatives emphasizing energy-saving construction methods are further expected to bolster demand for insulated glass in the coming years. Meanwhile, the tempered glass segment is projected to grow at a CAGR of 3.8 percent during the forecast period. This variant offers approximately 2.5



times the strength of regular glass of equivalent thickness, making it ideal for applications subject to environmental or mechanical stress, such as seismic activity, thermal loads, or strong winds. It is frequently used in structural glass installations for both safety and performance.

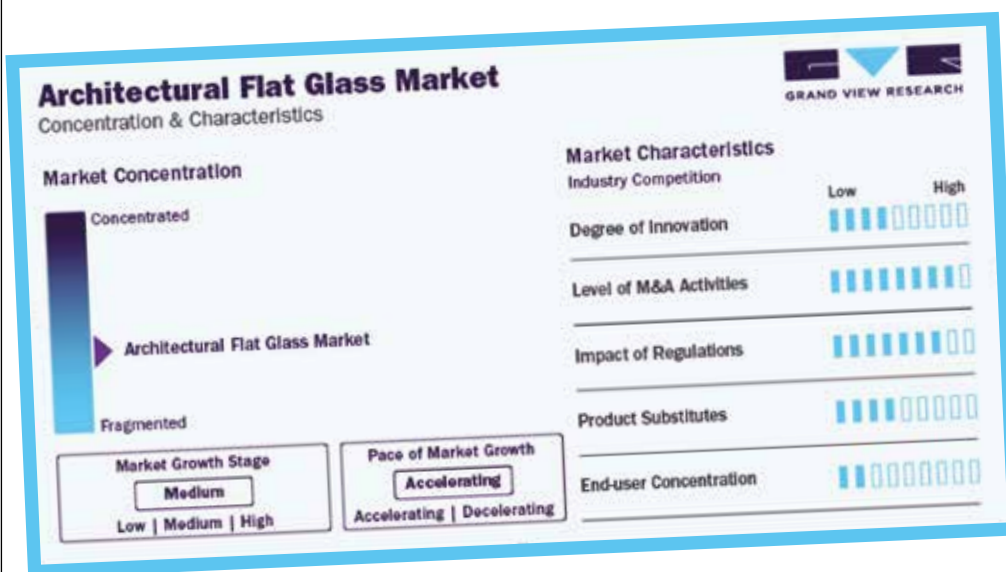
APPLICATION INSIGHTS

By application, the residential sector led the market in 2023 with a revenue share of 54.81 percent. Within residential construction, architectural glass is utilized in a wide range of applications, including windows, balconies, sunrooms, doors and partitions. Due to its aesthetic appeal, long-lasting nature and sustainability features, it is favored for external home applications. The continuous growth in housing construction and renovation is projected to support demand throughout the forecast window. On the other hand, the non-residential segment is forecasted to expand at the highest CAGR. Architectural glass is essential in contemporary commercial design, enabling unique, often custom-built structures. In addition to visual flexibility, the use of energy-efficient glazing in commercial projects helps reduce carbon footprints and contributes to overall building sustainability.

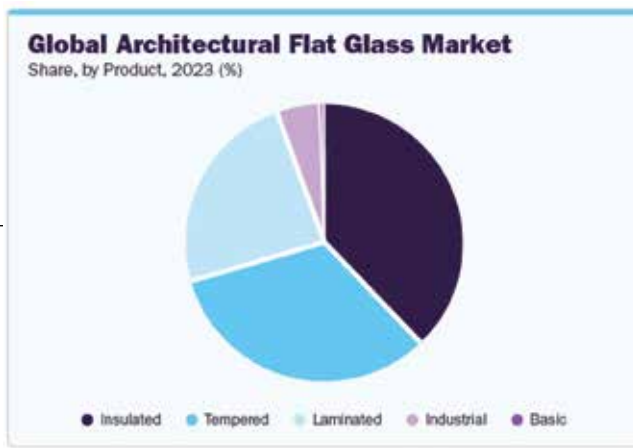
REGIONAL INSIGHTS

North America held over 16.32 percent of the global market share in 2023, with





strong investments in both residential and commercial real estate continuing to drive demand for architectural glass products. In the United States, the market accounted for roughly 30.0 percent of North American revenue last year. This performance reflects strong demand across a broad mix of residential and non-residential building projects, especially those seeking modern, efficient glass solutions.



EUROPE

Within Europe, the architectural flat glass market held a revenue share of 12.88 percent in 2023. Much of this growth stems from regional efforts to develop energy-efficient infrastructure. Germany led the European market, contributing about 15.0 percent to the region's total share. The country's focus on sustainable and environmentally conscious building design has significantly increased demand. In the United Kingdom, the market is expected to grow at the fastest rate among European countries. Government investments in affordable housing initiatives aimed at addressing the national housing shortage are expected to be a strong driver for increased glass usage in the coming years.

CHINA AND ASIA PACIFIC

The Asia Pacific region commanded the largest market share in 2023, accounting for 58.71 percent of global revenues. Rapid urban development, population growth and increased economic activity have led to extensive construction projects requiring modern materials like architectural flat glass. China dominated the Asia Pacific market, representing around 60.96 percent of the region's total share. Rising investments in high-rise commercial and office developments continue to propel demand for architectural glass within the country. India, on the other hand, is recognized as the fastest-growing market in the Asia Pacific. The government's Smart Cities Mission and other infrastructure development initiatives are

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pushing forward demand for quality construction materials, including glass, especially in sectors such as education, government facilities and tourism. In Central and South America, the architectural flat glass market made up 4.77 percent of the global share in 2023. Regional growth is primarily attributed to ongoing expansion within the construction sector. Brazil alone contributed approximately 40.0 percent to this regional market, driven by

infrastructure upgrades and investments in the hospitality and tourism sectors.

MIDDLE EAST AND AFRICA

The Middle East and Africa market held over 7.32 percent of global revenue in 2023. Investments in new industrial parks, business centers and public infrastructure projects are boosting regional demand. Saudi Arabia led the way, representing roughly 22.0 percent of the market in this region. The country's large-scale development initiatives -including Neom, the Red Sea Project and Qiddiya- are key contributors to this strong demand for architectural flat glass.



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