Silicon Structural Glazing Market Assessment, By Type [Four-Sided Structural Glazing, Two-Sided Structural Glazing, Slope Glazing, Stepped Glass Glazing, U-Shaped Glazing, Total Vision Systems Glazing, Others], Material [Glass Panels, Aluminium Structural Framing, Silicon Sealants, EPDM], End-use [Commercial, Public, Residential], By Region, Opportunities and Forecast, 2017-2031F

Market Report | 2024-04-19 | 218 pages | Market Xcel - Markets and Data

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Report description:

Global silicon structural glazing market size was valued at USD 35.59 billion in 2023, expected to reach USD 63.43 billion in 2031, with a CAGR of 7.49% for the forecast period between 2024 and 2031. The market is driven by the demand in the construction industry for modern and aesthetically pleasing architectural designs that offer structural integrity.

Structural glazing involves the use of silicon sealants to attach glass, metal, or other materials to the structure of a building, creating a seamless and visually appealing exterior. Its market includes manufacturers, suppliers, and service providers catering to the construction and architectural sectors.

The global construction industry's sustained growth, particularly in developing economies, has led to a surge in demand for building materials, including silicon structural sealants. This rise is further fueled by the increasing focus on energy efficiency in buildings. Silicon sealants contribute significantly to this by creating tighter building envelopes, thereby reducing air leakage and improving thermal insulation, ultimately lowering energy consumption and aiding compliance with stricter environmental regulations.

Furthermore, advancements in technology have yielded a new generation of silicon sealants with superior properties. These sealants boast enhanced durability, weather resistance, and flexibility, making them the preferred choice for diverse construction projects. Additionally, the aesthetic considerations of modern architecture, often featuring large glass facades, necessitate the use of strong and visually compatible sealants, a characteristic that silicon sealants readily fulfill. Owing to this notable companies are launching innovative silicon structural sealants.

For instance, in 2023, DOW launched DOWSIL 995 Silicone Structural Sealant which is a one-part adhesive specifically designed for bonding glass and other building materials in structural applications. It boasts several key features like strong adhesion and flexibility with the ability to accommodate movement in the structure by up to 50%.

Stringent Energy Standards and Code Requirements Driving the Market Growth

Stringent energy standards and code requirements are driving the market growth in the silicon structural glazing industry by necessitating the adoption of energy-efficient building practices. Silicon structural glazing, with its ability to create well-insulated and weather-resistant building envelopes, aligns with these standards. As regulations demand higher energy performance, architects and builders turn to advanced glazing solutions to meet these requirements. The market benefits from the increased demand for high-performance building materials that contribute to energy efficiency, reduced environmental impact, and compliance with evolving building codes.

For instance, many regions such as North America and Asia-Pacific, have implemented energy codes that mandate strict thermal performance standards for buildings. Silicon structural glazing systems play a crucial role in meeting these standards by providing effective insulation, minimizing heat loss, and enhancing overall energy efficiency. It is especially significant in climates with extreme temperatures, where maintaining a comfortable indoor environment is essential.

Furthermore, certain building codes emphasize the importance of sustainable construction practices. Silicon structural glazing supports sustainability goals by facilitating the incorporation of large glass surfaces, optimizing natural light utilization, and reducing the need for artificial lighting during daylight hours. It aligns with energy efficiency requirements and contributes to a more environmentally friendly construction approach.

For instance, internationally, ASTM publishes various standards related to sealants and glazing materials used in SSG, like ASTM C1329 which specifies standard specifications for silicon sealants and ASTMc1600 which specifies standard specifications for weathering resistance of sealants.

Surging Demand for Office Spaces in Commercial Sector Contribute to Higher Revenue Share

The increasing demand for office space is contributing to a higher revenue share in the silicon structural glazing market due to several factors like architectural trends, the need for natural light and open concepts, energy efficiency, urbanization, and commercialization.

For instance, according to Colliers India, office space demand in India surged in the last quarter of 2023, with a 92% increase in leasing activity compared to the same period in 2022. The growth driven by both corporations and co-working operators, pushed the total annual leasing for 2023 to 58.2 million square feet, a 16% increase over the previous year. The report by Colliers India highlights significant growth in major cities like Bengaluru (up 58%), Chennai (up over 400%), and Delhi-NCR (up 61%) compared to the final quarter of 2022. This positive trend suggests a continued recovery and potential growth in India's office space market.

Therefore, modern office designs often incorporate extensive use of glass facades and curtain walls, utilizing silicon structural glazing for a sleek and contemporary appearance. The architectural trend boosts the demand for these glazing solutions.

Moreover, the emphasis on creating work environments with ample natural light and open spaces is driving the adoption of large glass surfaces. Silicon structural glazing facilitates the construction of such designs, contributing to its increased usage in office buildings.

Additionally, with the growing focus on sustainable and energy-efficient office spaces, silicon structural glazing helps optimize daylighting, reducing the need for artificial lighting. It aligns with environmental regulations and energy efficient standards, further driving its adoption. More importantly, as urban areas continue to grow, there is an ongoing need for commercial spaces, including offices. The surge in commercial development projects leads to an increased requirement for advanced glazing solutions like silicon structural glazing.

Europe to Dominate the Global Silicon Structural Glazing Market

Europe has asserted its dominance in the global market, primarily driven by a burgeoning construction industry in key countries like the United Kingdom, Germany, Italy, and France, leading to an upsurge in the adoption of self-cleaning glasses. Projects supported by the European Commission, which has allocated EUR 60 million in funding for approximately 570 construction projects, the region is poised to contribute a higher revenue share in the coming years. The adoption of self-cleaning glasses in various commercial sector projects is further propelling the demand for silicon structural glazing.

For instance, The Bridge skyscraper under construction in Warsaw, which will have 40 storeys and a height of 174 m is using

silicon structural glazing DOWSIL 993 and weather sealing silicons DOWSIL 791 and DOWSIL 796 provided by Proventuss Polska for block facades.

Impact of COVID-19

Global silicon structural glazing market experienced significant impacts from the COVID-19 pandemic. As the virus spread globally, strict lockdowns and restrictions disrupted construction activities, leading to project delays and a slowdown in the building sector, especially the commercial sector. The initial phases of the pandemic saw a decrease in non-essential construction projects, as businesses faced uncertainties and financial constraints.

Supply chain disruptions and logistical challenges further hampered manufacturing and distribution processes. Additionally, the economic downturn prompted a cautious approach among consumers and businesses, impacting investment decisions in construction projects. However, the market demonstrated resilience as the construction sector gradually adapted to new norms and safety protocols. The emphasis on sustainable and energy-efficient building materials remained strong.

Moreover, as construction activities resumed and economic recovery efforts gained momentum, the market witnessed a gradual rebound. The government's initiatives to stimulate the economy through infrastructure projects and the resurgence of construction projects contributed to the market's recovery.

Key Players Landscape and Outlook

Market leaders are heavily investing in developing economies due to burgeoning opportunities in these regions. Developing nations often experience rapid urbanization and increased construction, driving demand for commercial spaces like offices, which further boosts the silicon structural glazing market. These investments aim to capitalize on the growing awareness of sustainable building practices and the need for energy-efficient solutions. Market leaders recognized the potential for widespread adoption in these regions, positioning themselves to meet the rising demand for glazing technologies. The strategic focus enables them to establish a strong presence and contribute to the sustainable development of emerging economies.

For instance, in 2023, Saint-Gobain announced greenfield and brownfield investments in Tamil Nadu, India, taking the total investment in the state to INR 8000 crores. The company is setting up manufacturing facilities across different business segments including Silicon Structural Glazing.

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