+357 96 030922
info@marketpublishers.com

Bendable Concrete Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Engineered Cementitious Composites, Strain-Hardening Cementitious Composites, Others), By Fiber Type (Polyvinyl Alcohol (PVA) Fibers, Polypropylene (PP) Fibers, Steel Fibers, Glass Fibers, Basalt Fibers, Others), By Application (Residential, Commercial, Industrial, Government and Public Infrastructure), By Region, and By Competition, 2020-2030F

https://marketpublishers.com/r/B11F172C58CAEN.html
Date: July 2025
Pages: 185
Price: US$ 4,500.00 (Single User License)
ID: B11F172C58CAEN

Abstracts

Market Overview

The Global Bendable Concrete Market was valued at USD 12.77 Billion in 2024 and is expected to reach USD 99.20 Billion by 2030 with a CAGR of 40.52% during the forecast period.

The global Bendable Concrete Market is gaining momentum as a cutting-edge segment within the construction industry, driven by the need for high-performance, sustainable, and resilient building materials. Also known as Engineered Cementitious Composites (ECC), bendable concrete is designed to exhibit significant ductility and strain capacity while maintaining strength and durability. Unlike conventional concrete, which tends to crack and fail under stress, bendable concrete can undergo deformation without compromising structural integrity, making it ideal for earthquake-resistant infrastructure, high-traffic roads, and long-lasting building components. This characteristic is

+357 96 030922
info@marketpublishers.com

particularly valuable in regions prone to seismic activity, extreme climate changes, or heavy structural loads, which is fueling its adoption across both developed and developing economies.

The market growth is propelled by increasing investments in infrastructure modernization, especially in Asia-Pacific and North America. Government initiatives to enhance disaster-resilient infrastructure, coupled with growing urbanization and smart city projects, are supporting demand. Additionally, the growing emphasis on sustainability and the reduction of lifecycle costs in construction is encouraging the use of bendable concrete due to its crack-control and self-healing potential, which reduces maintenance frequency and material waste. Technological advancements, such as the integration of polyvinyl alcohol (PVA) fibers and other synthetic reinforcements, are improving the cost-effectiveness and performance of bendable concrete, encouraging its wider commercial adoption. Universities and research institutions, especially the University of Michigan, have played a key role in developing ECC technologies, and collaborations between academia and industry continue to accelerate innovation in this field.

Key Market Drivers

Rising Demand for Earthquake-Resistant Infrastructure

The increasing frequency and severity of earthquakes have emphasized the importance of constructing resilient infrastructure using materials that can withstand seismic shocks. Bendable concrete, with strain capacities of up to 3–5%, compared to just 0.01% in traditional concrete, offers a reliable solution for such conditions. Its ability to flex rather than crack under stress makes it ideal for use in seismic zones.

According to the United Nations Office for Disaster Risk Reduction (UNDRR), over 6,800 natural disasters were recorded globally between 2000 and 2023, with earthquakes accounting for 22% of the fatalities. Countries like Japan, the U.S., China, and Indonesia—major construction markets—lie in high-risk seismic zones. For instance, Japan has over 2,000 seismic events recorded annually, making flexible materials critical for safety. The United States Geological Survey (USGS) notes that more than 143 million Americans live in areas with moderate to high seismic risk. In India, the National Disaster Management Authority (NDMA) classifies nearly 58% of the landmass as vulnerable to moderate or severe earthquakes.

Bendable concrete is already being tested and deployed in earthquake-resistant

+357 96 030922
info@marketpublishers.com

buildings, bridges, and tunnels in seismic-prone regions like California, Sichuan, and Istanbul. Furthermore, data from the World Bank shows that USD35–45 billion is invested annually in disaster-resilient infrastructure globally, and materials like ECC are increasingly prioritized in this spending. As cities strive to build back better post-disaster, the adoption of such flexible materials will accelerate, positioning bendable concrete as a critical enabler of long-term structural resilience.

Key Market Challenges

High Initial Production Costs

One of the most significant challenges hampering the widespread adoption of bendable concrete is its high initial production cost. The core component that gives the material its flexibility—polyvinyl alcohol (PVA) fibers—is considerably more expensive than traditional concrete reinforcements like steel bars or polypropylene fibers. The cost of PVA fiber ranges between USD4,000 to USD6,000 per metric ton, depending on quality and region, which significantly increases the overall cost of ECC formulations.

Moreover, bendable concrete requires a highly controlled mixing process to ensure uniform fiber distribution, precise rheology, and optimal performance. These specialized procedures necessitate advanced equipment and trained labor, increasing operational expenses for construction firms. Studies have shown that the cost of ECC per cubic meter is roughly 3 to 5 times higher than standard concrete, limiting its use to high-value or mission-critical infrastructure projects.

The absence of large-scale mass production also prevents economies of scale from being achieved. Many regional suppliers lack access to consistent and affordable fiber sources, driving up procurement costs and lead times. In developing economies, the affordability issue is further intensified due to constrained public budgets and limited private sector willingness to experiment with premium materials.

While lifecycle cost benefits and reduced maintenance expenses can offset the initial investment over time, these long-term savings are often not prioritized by developers facing short-term budget constraints. Until material costs drop—either through fiber innovation, local sourcing, or government subsidies—the high upfront expenditure will continue to pose a major barrier to mainstream market penetration of bendable concrete.

Key Market Trends

+357 96 030922
info@marketpublishers.com

Expansion of Applications Beyond Traditional Infrastructure

Originally limited to bridges, tunnels, and seismic retrofitting, bendable concrete is now being adopted across a broader range of applications, including residential construction, 3D printing, architectural facades, military structures, and even furniture and product design. This diversification is driven by the material's aesthetics, flexibility, and performance advantages, particularly in environments that demand both form and function.

In residential construction, ECC is being used in thin precast panels, driveways, and shear walls due to its durability and reduced maintenance. In Japan, high-rise buildings in Tokyo and Osaka have started integrating ECC into shear walls to improve seismic performance without increasing weight. In the UAE, architects are exploring ECC for curved decorative facades due to its bend radius capability of up to 5 cm without cracking.

The rise of 3D concrete printing (3DCP) is also accelerating demand for bendable formulations. Unlike traditional concrete, ECC's high tensile strain capacity and non-brittle failure mode make it suitable for layer-by-layer deposition. Several companies in Europe and the U.S. have successfully printed structural elements using ECC mixtures, reducing material use by 20–30% while improving geometric freedom.

In defense applications, ECC is being investigated for use in blast-resistant shelters, protective barriers, and military-grade bunkers. Tests conducted by the U.S. Army Corps of Engineers have shown that ECC panels can absorb and redistribute impact energy more effectively than conventional concrete, with a 35–45% reduction in spall damage.

As new use cases emerge across civilian, commercial, and defense sectors, the global bendable concrete market is evolving from niche use to a versatile building material with cross-industry appeal.

Key Market Players

Holcim Group

CEMEX S.A.B. de C.V.

+357 96 030922
info@marketpublishers.com

Sika AG

Saint-Gobain

Forta Corporation

Nycon Corporation

Fibercon International Inc.

Kuraray Co., Ltd.

China National Building Material Group Corporation

TAIHEIYO Cement Corporation

Report Scope:

In this report, the Global Bendable Concrete Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Bendable Concrete Market, By Type:

Engineered Cementitious Composites

Strain-Hardening Cementitious Composites

Others

Bendable Concrete Market, By Fiber Type:

Polyvinyl Alcohol (PVA) Fibers

Polypropylene (PP) Fibers, Steel Fibers

Glass Fibers

+357 96 030922
info@marketpublishers.com

Basalt Fibers

Others

Bendable Concrete Market, By Application:

Residential

Commercial

Industrial

Government and Public Infrastructure

Bendable Concrete Market, By Region:

North America

United States

Canada

Mexico

Europe

Germany

France

United Kingdom

Italy

Spain

South America

Brazil

+357 96 030922
info@marketpublishers.com

Argentina

Colombia

Asia-Pacific

China

India

Japan

South Korea

Australia

Middle East & Africa

Saudi Arabia

UAE

South Africa

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Bendable Concrete Market.

Available Customizations:

Global Bendable Concrete Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

+357 96 030922
info@marketpublishers.com

Detailed analysis and profiling of additional market players (up to five).

+357 96 030922
info@marketpublishers.com

Contents

+357 96 030922
info@marketpublishers.com

6. NORTH AMERICA BENDABLE CONCRETE MARKET OUTLOOK

+357 96 030922
info@marketpublishers.com

7. EUROPE BENDABLE CONCRETE MARKET OUTLOOK

+357 96 030922
info@marketpublishers.com

8. ASIA PACIFIC BENDABLE CONCRETE MARKET OUTLOOK

+357 96 030922
info@marketpublishers.com

9. MIDDLE EAST & AFRICA BENDABLE CONCRETE MARKET OUTLOOK

+357 96 030922
info@marketpublishers.com

10. SOUTH AMERICA BENDABLE CONCRETE MARKET OUTLOOK

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: Bendable Concrete Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Type (Engineered Cementitious Composites, Strain-Hardening Cementitious Composites, Others), By Fiber Type (Polyvinyl Alcohol (PVA) Fibers, Polypropylene (PP) Fibers, Steel Fibers, Glass Fibers, Basalt Fibers, Others), By Application (Residential, Commercial, Industrial, Government and Public Infrastructure), By Region, and By Competition, 2020-2030F

Product link: https://marketpublishers.com/r/B11F172C58CAEN.html

Price: US$ 4,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/B11F172C58CAEN.html