Building Better Begins with Making Better



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Sustainability and environmental impact of a building depends on the materials its made from. How the materials are produced, how much energy and water the process consume and what is left behind in the process, all matter immensely. As we observe World Habitat Day and World Architecture Day, conversations naturally turn towards better cities, safer homes and more sustainable buildings. But the sustainability of our built environment cannot be separated from the industries that supply it.

Ceramics, for example, is a resource-intensive industry. High-temperature kilns, drying processes, minerals and water are all essential to production. Traditionally, waste generated along the way has been treated as an unavoidable consequence. Yet if we are serious about creating more sustainable habitats, we must also question how the materials used to build them are made.

Nature offers a useful model. Water evaporates and returns as rain. Organic matter decomposes and enriches the soil. Resources move through cycles rather than ending as waste. Manufacturing, by contrast, has long followed a linear model: take, produce, use and discard.

At DBL Ceramics, this thinking led to Project Circular Flow, an effort to examine whether materials, water, energy and production by-products could remain useful for longer.

Waste heat from ceramic kilns, which operate at temperatures exceeding 1,200 degrees Celsius, can be recovered and redirected into other production processes. Water can be treated and circulated instead of being used only once. Ceramic dust can be collected and reused to manufacture small-format tiles from recycled material. Sludge from water treatment has also inspired TileChalk, which turns production residue into chalk and educational materials for underprivileged schools.



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These initiatives point towards a broader idea. Sustainable architecture does not begin only with the design of a building. It also depends on the systems behind the materials that architects and builders specify.

For Bangladesh, this matters increasingly as cities expand, construction demand grows and pressure on energy, water and raw materials intensifies. Architects, manufacturers, policymakers and researchers therefore have a shared role in shaping the next generation of the built environment.

We often describe sustainability as an additional cost. But unused energy is a cost. Discarded material is a cost. Wasted water is a cost. A circular approach is ultimately about using resources more intelligently.

The buildings of tomorrow will be judged not only by how they look or function, but also by the resources required to create them. If we want better habitats, we must look beyond the finished building. We must also rethink the industries that make those buildings possible.

Engineering resilience into every structure

As Bangladesh's cities expand vertically and infrastructure becomes more complex, the materials that hold those structures together are taking on greater importance. In a country exposed to natural hazards, structural resilience begins long before construction is complete — with the quality, strength and consistency of the materials being used.

For AKS, that focus begins with the way steel itself is produced.

The company uses Electric Arc Furnace (EAF) technology to produce refined steel while controlling impurities that may affect structural performance. This is combined with Advanced Thermo-Mechanically Treated, or TMT, technology to manufacture rebars designed to provide both strength and ductility.

That combination is particularly important in structures designed for seismic resilience. Rather than strength alone, reinforcing steel must also be capable of deforming and absorbing energy without sudden fracture. AKS manufactures earthquake-resistant grade rebars to international quality standards, positioning material performance as an integral part of safer construction.

Its manufacturing capacity has also received international recognition. At its Sitakunda plant, AKS secured a Guinness World Records™ title for producing the most steel rebars in one minute, manufacturing 52 rebars measuring 108 metres each within 60 seconds. The achievement highlighted the company's High-Speed Delivery system and broader investment in modern steelmaking technology. AKS has achieved Superbrands Award for four consecutive years, reflecting sustained consumer trust and brand strength in the Bangladeshi market.

More recently, the company introduced B700C-R, which AKS describes as the strongest rebar grade manufactured in Bangladesh to date. Designed for applications requiring high strength, ductility and reliability, the grade is aimed particularly at high-rise buildings and critical infrastructure, where greater load-bearing capacity and structural resilience are key considerations.

According to the company, local production of such high-grade rebar can also reduce dependence on imported materials for demanding construction applications.

Alongside product development, AKS has incorporated a number of environmental measures into its Sitakunda manufacturing facility. These include solar power and rainwater harvesting, as well as Water Treatment Plants and closed-loop systems that allow process water to be treated and reused. A Fume Treatment Plant manages emissions, while waste and by-product recovery systems are intended to minimise material loss.

As Bangladesh continues to build for a denser and more climate- and disaster-conscious future, structural safety will increasingly depend on decisions made at the material stage. Through advanced steelmaking, higher-performance rebar and more resource-conscious production, AKS is seeking to make resilience part of that foundation.

Use of Suitable Bricks and Blocks in Building Construction

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Building construction is a carefully planned process in which the quality and suitability of every material affect the durability, safety and appearance of the finished structure. Among the earliest and most important decisions is the selection of bricks and blocks for different parts of a building.

No single type of masonry unit is suitable for every application. The choice depends on factors such as structural requirements, location, exposure to weather and the intended function of a wall. For this reason, architects, engineers and building owners need to understand where different grades and types of bricks and blocks should be used.

First-class burnt-clay bricks are among the highest-quality conventional masonry units. Their relatively uniform shape, strength and surface finish make them suitable for quality masonry, including exposed work where appearance is important. Properly manufactured bricks can also provide durable external walls capable of withstanding prolonged exposure to sun and rain.

Regular clay bricks remain widely used for general masonry and wall construction. Their suitability, however, depends on the quality of the bricks and the requirements of the particular building.

Modern construction is also making greater use of alternative masonry units. Concrete blocks, including hollow varieties, can be used for walls and partitions depending on their specification and structural design. Hollow clay blocks are similarly useful as lightweight infill or partition walls within framed structures. Because lighter walling materials can reduce dead load, they can offer advantages where reducing unnecessary structural weight is a design priority.

Lower grades of bricks also have limited applications. Second-class bricks may be considered for less critical or concealed masonry, subject to engineering requirements. Third-class bricks, because of their lower quality, should generally be restricted to applications where their limitations do not compromise structural performance.



Over-burnt bricks, commonly known as Jhama bricks in Bangladesh, have traditionally been used in applications such as soling and, when appropriately processed and specified, as aggregate in certain construction works. Their characteristics differ considerably from standard walling bricks, making correct application particularly important.

Ultimately, good construction depends not merely on using high-quality materials, but on using appropriate materials in the right places. Building height, structural load, environmental exposure and wall function should all guide material selection.

A durable and safe building therefore begins with informed specification. When architects and engineers select bricks and blocks according to their properties and intended use, material efficiency improves, unnecessary loads can be reduced and the building is better equipped to perform as intended throughout its lifespan.

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