



SOBHA Ltd

Jagadish Nangineni, Managing Director

“The key to move forward in the direction of decarbonization and sustainability is to have access to innovations and emerging technologies at affordable costs.”

The lifecycle of a building typically involves the early product stage, construction stage, operation stage, and end-of-life or demolition stage. It is important to identify key contributors to carbon emissions during each stage. Embodied carbon associated with raw material extraction, transportation and product manufacturing, carbon emission due to transportation of products to construction site, and operational carbon are amongst the most important sources of carbon during a building's life cycle.

Advantages of backward integration

SOBHA is India's only backward integrated real-estate company with its own Concrete Products Division (CPD), Glazing & Metals Division (SGML), Interiors Division (SIL) and Mattresses Division. Keeping in mind that most of our projects are in Bengaluru, having these facilities in and around the city significantly reduces the carbon associated with transportation over long distances. We reduce the carbon associated with extraction by increasing recycling in our products. For instance, our concrete products have Ground Granulated Blast-furnace Slag (GGBS) - an industrial waste that reduces requirement of virgin materials and associated carbon for their extraction. Around 60% of the operational energy requirement of our factories SGML and

SIL are catered to by on-site renewables in the form of Solar PV. Besides, around 80% of the operational energy of our corporate office is catered through offsite renewables. In all our projects we provide Solar PV, hot water systems, energy efficient lighting and equipment to reduce operational energy.

One other aspect rarely touched upon with respect to operational energy is the energy associated with pumping municipal water to buildings. At our SOBHA City Thrissur, the entire water requirement of the project is met with harvested rainwater and STP treated water. The project has been recognized with 'Net Water Positive (Platinum)' rating under IGBC's Net Zero Water rating system. The project serves as an excellent example of water conservation and operational carbon reduction.

As we move forward, we would like to keep an eye out for emerging technologies and materials that will contribute to reducing carbon emissions. We believe our backward integrated model gives us a unique advantage to evaluate and adapt at a faster pace.

Waste identification & management

At SOBHA, waste management, including identification of waste, generation potential, and the management thereof, are prioritized and planned at the design stage itself. During the construction phase,

waste is segregated and stored separately. Construction waste is reused at sites for backfilling or temporary structures to the extent possible. With the use of shuttering system, every effort is made to ensure that concrete wastage is at a minimum. Excess waste is diverted either to our Concrete Products Division and recyclable wastes are sold to authorized vendors for recycling. During the operation phase of a project, the wastes are initially sorted out into biodegradable and non-biodegradable wastes. Biodegradable wastes are treated in a composting system in-situ and the compost is used as manure in the green areas of the projects. The intent, both during construction and operation phases, is to minimize the waste reaching landfills. We have used precast technology at the SOBHA Dream Acres project to help reduce wastage because the entire process is done in a manufacturing environment.

Carbon credit policy as incentive

Carbon credit systems in India are not currently regulated. Having a specific carbon credit mechanism for the construction industry and incentivizing low carbon construction is indeed a great idea. With regards to developing standard carbon emission calculators accurately measuring emissions, this can be done through industry bodies such as CREDAI or CII. These industry associations can then



Sobha Ltd - Solar PV2



Sobha - Solar MCB

collaborate with local bodies to incentivize low carbon construction.

Collaboration for collective incentive

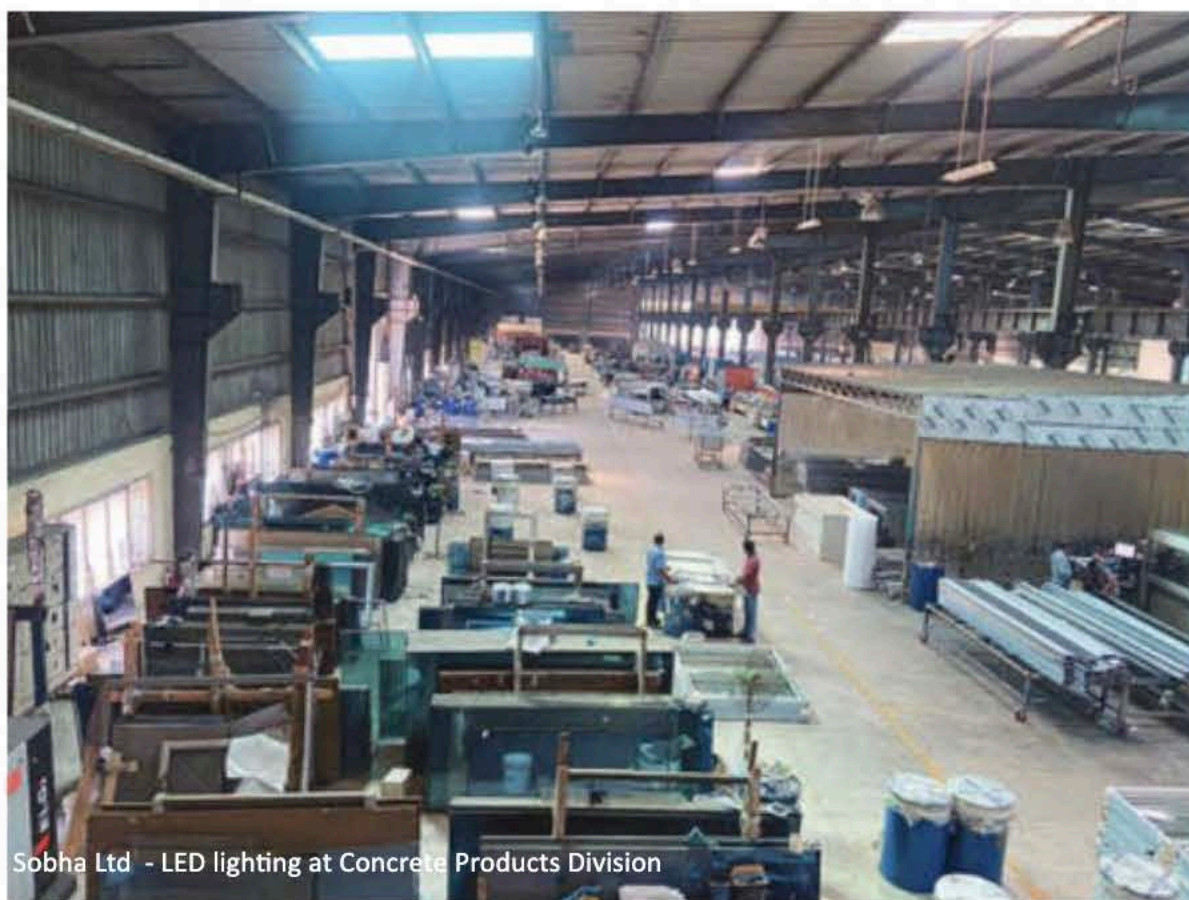
We believe that as we move forward, collaboration will achieve greater good for all. Industries can collaborate through bodies like CREDAI or CII. In fact, CII is already doing substantial work in this area through the IGBC of which we are

one of the founding members. In the construction industry, the key to move forward in the direction of decarbonization and sustainability is to have access to innovations and emerging technologies at affordable costs. The centralized bodies can play a significant role in generating awareness about technologies which will lead to their faster adoption and make them available at reduced costs, sooner than later.

Challenges contractors face

Awareness, education and training in low carbon design and construction, availability and access to materials and technology at affordable costs, are the major challenges in transitioning to a low carbon construction. At our construction projects, we are focusing on lowering demand for primary resources through design and process optimization (including reduced waste, improved building footprints, and limited overspecifications). We are increasing closed-loop circularity for materials and components (including increased usage of scrap material and reduced recycling-yield losses). Using generative design to create outcome-based designs that help frame and clarify how different materials and design choices can lower GHG emissions.

Many projects are moving towards standardization / modularization in construction which reduces significant amount of waste and helps in reduced usage of raw materials. Scientifically designed rainwater harvesting system will reduce freshwater demand from outside which in turn helps in reduced carbon footprint due to transportation/electricity. Smart water meters will help end-users to use water judiciously and will also help in identifying leakages.



Sobha Ltd - LED lighting at Concrete Products Division