

Clariti

LET'S TALK GLASS



Dear Readers,

It gives me great pleasure in welcoming you to the first issue of Clariti – a magazine with which we hope to spark off new conversations about glass and all its many dimensions.

Glass, a versatile and sustainable material, is encouraging architects, engineers and interior designers today to go beyond traditional approaches. Its scope has now enlarged from being a mere decorative medium to a flexible structural one. New and higher standards are being set as users rethink glass and expand the boundaries of design.

Every issue of Clariti will explore some of these exciting trends and developments, to help you be a part of the creative capabilities of glass.

In this issue, the Cover Story focuses on Green Buildings, their impact in safeguarding the future of our planet, the effectiveness of glass as a green building material, and how AIS is pioneering the

move towards green living with its External Glazing solutions. The 'Case Study' puts the spotlight on an IT Park in Bangalore that achieved its goals using energy-efficient glass. The section 'Eye Catcher' presents a stunning building made using AIS glass. 'Taloja Plant: The promise of a new dawn' commemorates the achievements of AIS' Taloja Plant and its people. 'AIS Fresh' informs you of the latest AIS products.

We are delighted to bring this issue to you. I hope you find Clariti an interesting read. I look forward to your feedback and hearing your thoughts and opinions.

Let's get talking about glass.
Happy reading!

Vikram Khanna
COO - Architectural Institutional Business,
COO - Consumer Glass,
CMO, CIO

The Green Evolution

The world is moving towards a greener, more eco-friendly way of living. It is therefore only natural that the space where people live and work also reflects this green evolution. The way we build has changed, and glass has made this transformation possible.

For decades, architects and builders around the world have explored ways of designing the 'nearly-Zero Energy' building. Today, modern technology and innovative building materials has made that dream a reality. Builders are offering customers the opportunity to explore a life that's smart, efficient, and above all, sustainable.

Green standards – IGBC and GRIHA

In India, 'green buildings' are rated as per two independent rating systems:

- The Indian Green Building Council (IGBC) rating system, derived from the Leadership in Energy & Environmental Design (LEED) norms developed by the U.S. Green Building Council.
- The Green Rating for Integrated Habitat Assessment (GRIHA), developed by The Energy and Resources Institute (TERI), rates buildings on a comprehensive scale of 34 criteria under various sections.

In about a decade, India has emerged as a leading country in the adoption of Green Building norms.

Aspects of a building considered by IGBC and GRIHA

-  Site selection and sustainability
-  Conservation and efficient utilisation of resources
-  Quality of indoor environment
-  Building operation and maintenance

NBC and ECBC codes

Apart from the above, the Government of India is also enabling environmental conservation through its building codes. The National Building Code (NBC), developed by the Bureau of Indian Standards (BIS), was introduced in 1970. After three amendments, it provides guidelines for regulating construction activities across the country today.

For using glass in buildings, NBC has issued revised norms that are broadly classified under the sections:

- General requirement • Determination of appropriate thickness
- Criteria of human impact safety • Installation • Fire safety
- Energy & Thermal property

The Energy Conservation Building Code (ECBC), created by the Bureau of Energy Efficiency (BEE) and introduced in 2007, offers three distinct compliance approaches:

Prescriptive (Component-based): Each system and sub-system should comply with minimal performance requirements.

Trade-off (System-based): Permitted only between building envelope components – roofs, walls, fenestration, overhangs, etc.

Whole Building Performance: Evaluation is based on a computer model of the proposed design and comparing it to a standard design, with various factors taken into account.

Building green with glass

The extensive use of innovative glass products in today's buildings has helped reduce the need for artificial lighting and thereby minimised energy consumption.

Green buildings cost more to build but have substantially reduced operational costs, compared to conventional buildings. Various types of glazing solutions – internal as well as external – have made spaces more efficient while unlocking new possibilities in design and aesthetics.

Parameters of glass that make it an effective green building material

- Solar Factor / Solar Heat Gain Co-efficient
- Relative Heat Gain • U-Value • Visual Comfort
- Safety • Sound Insulation



AIS has helped developers to achieve LEED/IGBC or GRIHA Certification for their projects in a number of areas, such as energy performance, recycled content, regional materials, natural lighting, sound insulation and safety.

Green solutions from Asahi India Glass Limited

As India's leading integrated glass company, AIS has been at the forefront of moving towards an ecofriendly future. It has pioneered innovations in glass processing technology to develop both single-glazed and double-glazed products with the best 'green' parameters. This is giving developers and their architects greater choice and the ability to explore possibilities. These solutions enhance the aesthetics, efficiency and economics of commercial and residential spaces, compared to traditional building materials.

The future is green

According to IGBC, of 2761 buildings registered with it in India, 516 are certified as green. By 2022, it aims to register 10 billion sq. ft. of green building projects. The idea of green buildings has now gained momentum, with greater use of green materials like glass. The environmental impact of increased construction activity has been on the agenda of Government entities and the Environment Ministry. Building code changes are in the pipeline. Construction houses are striving to obtain sustainability certifications, to ensure a better quality of life and to help conserve the environment.

Living in harmony with nature is the surest way of ensuring a sustainable future for the planet. 'Green buildings' are helping us achieve that ideal.

Case Study

A leading developer in India builds an energy-efficient Technology Park with AIS Ecosense

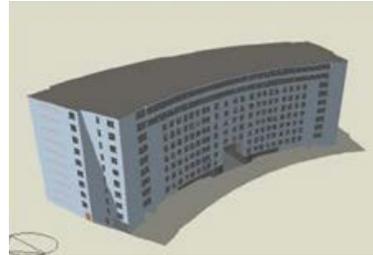
The Client: A leading developer of state-of-the-art Technology Parks for global IT, software and technology enterprises

The Need: To build an IT complex in Bangalore, conforming to ECBC norms, that is cost-effective yet of high quality.

The Solution: Ecosense from AIS (Enhance Solar Control Range – Blue Shade)

The Background

The IT complex is planned as a commercial building with workspaces, circulation areas, service chores and utilities. It is curvilinear, with the longer façades facing east and west. The north and south façades are blocked by service areas and toilets.



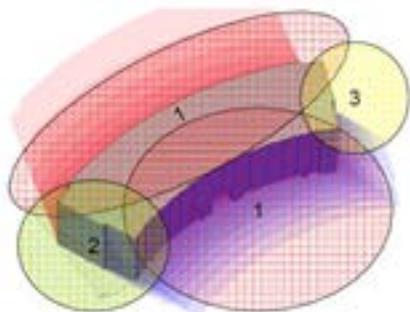
The Scenario

- Building is maintained at 21.1-23.9 °C
- Construction material for walls, roofs, partitions and floors comply with the prescriptive values of ECBC
- HVAC had to match the COP and EER prescribed in ECBC

At the time AIS came into the project, the glass that had already been proposed had a VLT of 17%, SF of 23% and U-Value of 3.7, the basis for which was never determined except that it was solar control glass. Light transmission was very low; also, the client was not satisfied with the aesthetic appeal of the glass colour. The only advantage was that it had a U-Value of 3.7 in a single glazed unit.

The AIS Solution

AIS conducted a Climatic Analysis for Bangalore, which falls in the moderate zone, and Shadow Analysis with a 'whole building simulation' for a year. Four different glasses were used, with simulations for all of them.



The Results

Simulation resulted in the following conclusions:

- With no temperature and weather extremes, U-Value is not a major concern
- Due to the building geometry, the overall energy consumption on account of glass (i.e. artificial lighting and cooling) was not much different for thermal control glasses from the base case
- Glass with SF of 37 and U-Value of 5.7 was as efficient as glass with SF of 25 and U-Value of 3.7 which helped in saving capital costs

Based on this study considering performance parameters, energy-efficiency norms and aesthetics, a blue shade product from the Ecosense Enhance brand of solar control range of high performance glass from AIS was chosen.

Customer Benefits

- Construction cost saved: The client got the right glass which met all requirements, as against the initial proposal which would have cost more
- Running costs saved: Increased VLT of AIS glass reduced the need for artificial lighting, which lowered electricity costs
- An aesthetically pleasing building that met all building and energy norms as per ECBC

“The comprehensiveness of AIS’ solutions didn’t just help us build a world-class, energy-efficient building, but one that was cost-efficient as well.”

- Client

At AIS, every solution has a scientific basis. Studies are conducted at each site to assist the customers in glass selection. The AIS 4G Solutions include glass selection, glass product, glass processing and glass integration, to give clients customised solutions.

More about AIS Ecosense

Ecosense from AIS is a high performance glass portfolio, available in a unique range of 33 nature-inspired shades under the three categories – Enhance (Solar Control range), Exceed (Solar Control Low-E range), and Essence (Low-E range). It helps developers and their architects by:

- Allowing optimum light to pass through a window or facade while radiating, absorbing and reflecting away a large part of near range infra-red heat
- Keeping indoor spaces brighter and cooler



Eye Catcher!

RNA Building, Mumbai, features Enhance Pine solar control glass from the Ecosense range of high performance glass from AIS.

AIS Taloja Plant

The promise of a new dawn

Our Taloja Plant, operational since 1994, finished 19.5 years of successful operations, against the average 15-17 years. This is a record by global standards.

This shut down does not impact AIS' customers or projects, because AIS' soft coat line operations, warehousing, logistics and other functions continue from there.

Our float glass plant in Roorkee continues to run in full swing, producing glass for all our requirements. Our extensive supply chain arrangements, including inventory stocking and insourcing/outourcing plans for glass raw materials, are geared up to satisfy our institutional and distributed market customers.

A similar business model in the automotive market enables us to supply global and Indian OEMs with a 70% market share. We meet the stringent QCDD standards and

operate in a JIT environment, including for large customers where we have over 90% business share and/or are the sole glass supplier.

Taloja may have completed its operational life, but AIS' commitment continues. The promise of quality, service and on-time delivery stays the same, ably supported by our world-class glass manufacturing network.

With AIS, the world of possibilities never ends.

AIS Fresh

AIS expanded its existing portfolio in the architectural segment in the 2nd quarter of 2014, with new products in the Ecosense range.

- Under its high-performance Ecosense Enhance solar control glass range, AIS recently unveiled three more shades – Ivory (Clear), Bluebell (Blue) and Citrus (Green). Developed on the basis of customer requirements, this product helps to reduce direct solar heat transmission and conduction while enhancing privacy due to low visual light transmission properties.
- In the Ecosense Exceed solar control low-E range, the Radiance Plus series and the Lite Plus series have been added to the two existing series, Vision and Brook. These were developed on the basis of customer feedback that they wanted changes in aesthetic values while keeping the energy and light performance constant.

