



Green Façades – Enabling Low Carbon Buildings

Green Pro Conference, Hyderabad
GBC 2022

Venugopal R
Manager – Design
Saint Gobain India Private Ltd.

AGENDA

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IMPORTANCE OF EMBODIED CARBON

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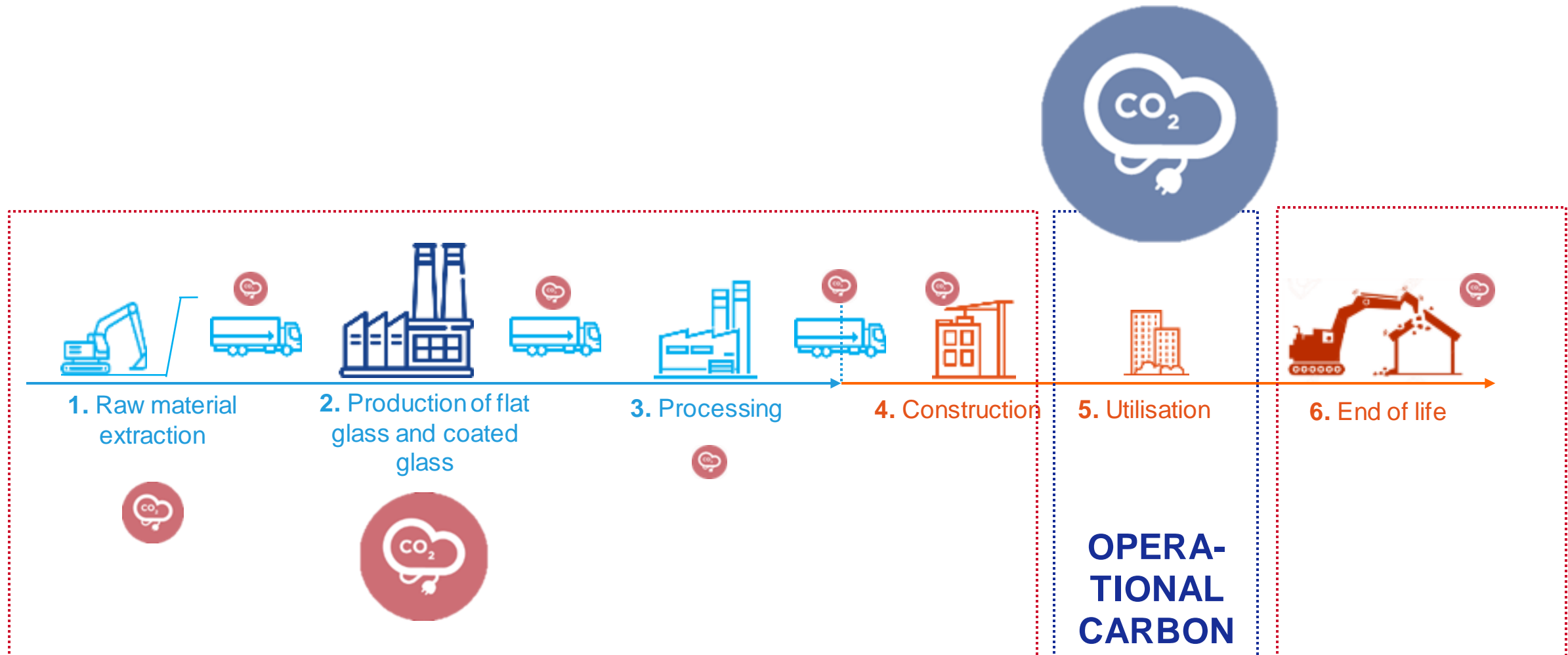
05

CLOSING REMARKS AND Q&A



CARBON – FROM THE GLASS LENS

CARBON EMISSIONS DURING THE ENTIRE BUILDING GLASS LIFE CYCLE



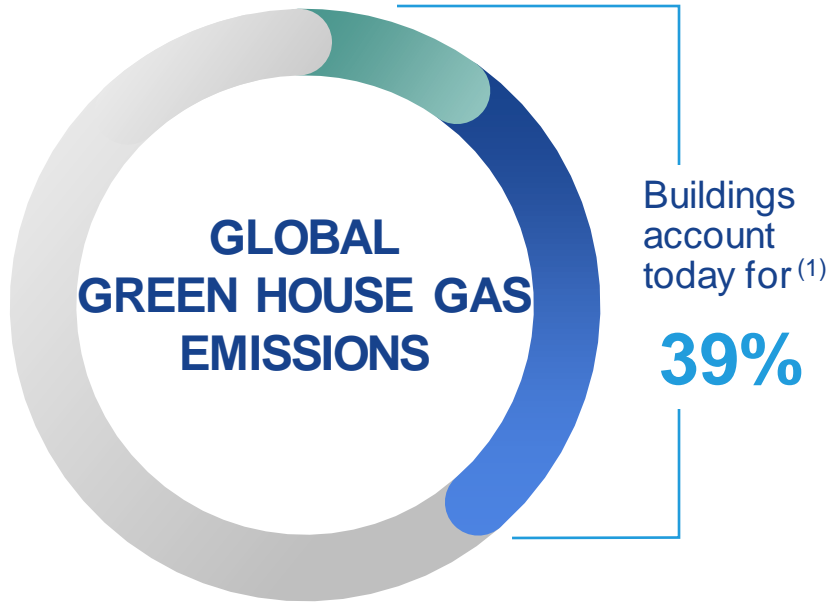
EMBODIED CARBON

SAINT-GOBAIN GLASS

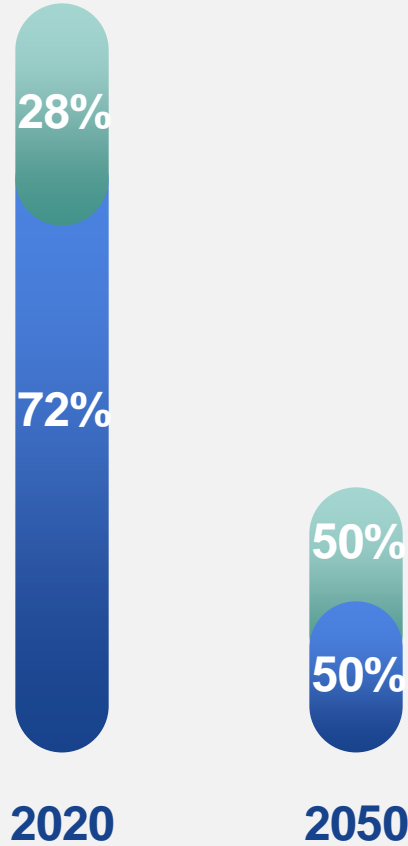
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IMPORTANCE OF EMBODIED CARBON

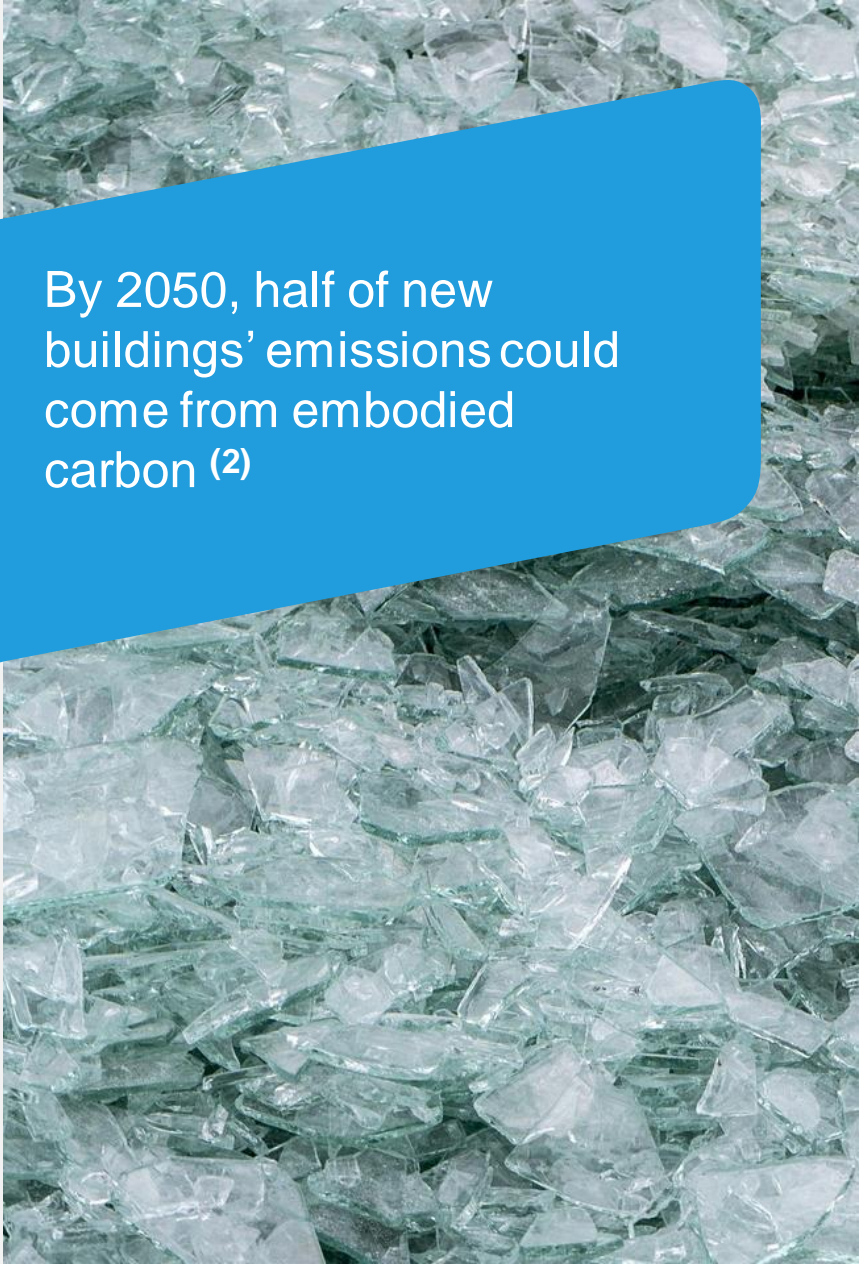


(1) Global Alliance for Buildings and Construction, Global Status Reports 2017
 (2) Architecture 2030, Why the Building Sector?, 2019



● Operational carbon ● Embodied carbon

By 2050, half of new buildings' emissions could come from embodied carbon ⁽²⁾





**Global trends:
Thresholds are coming**

< X kg

CO₂ eq / m²
(of horizontal surface)

EMBODIED CARBON OF THE BUILDING

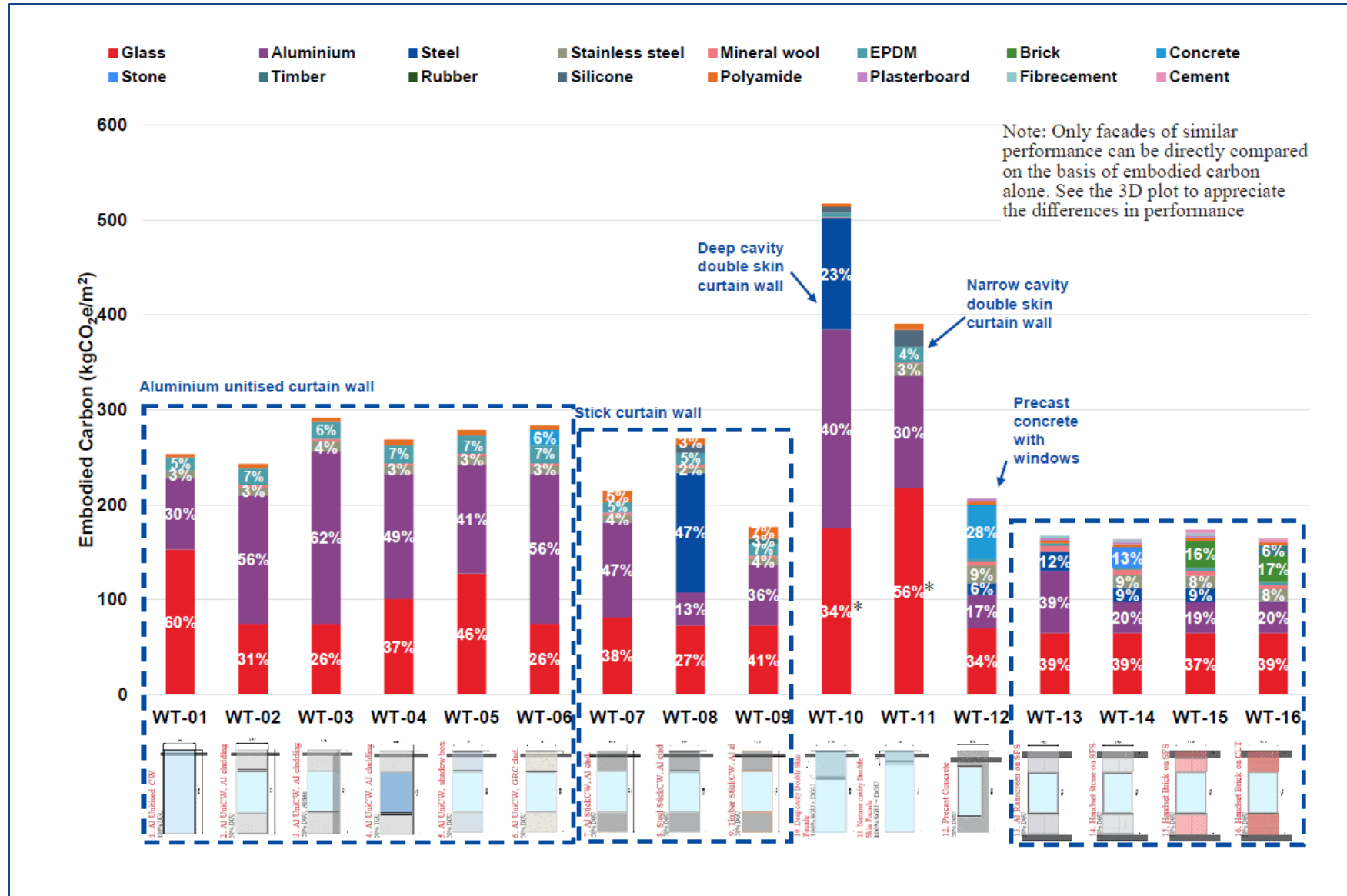


- <https://www.building.co.uk/whole-life-carbon/whole-life-carbon-facades/5078620.article>
- <https://www.britishland.com/sites/british-land-corp/files/press-release/pdf/embodied-carbon-real-estate.pdf>

SAINT-GOBAIN GLASS

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MATERIAL BREAKDOWN ANALYSIS OF THE EMBODIED CARBON



GLASS = 24 to 60% of the facade (1)

ARUP



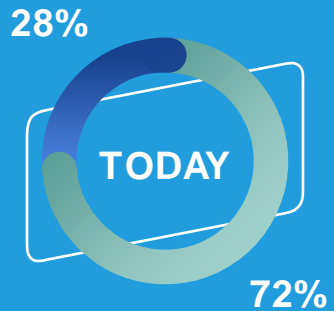
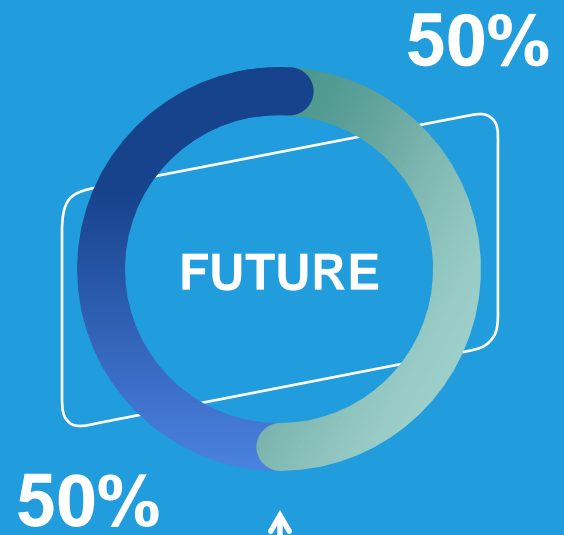
(1) Understanding the carbon footprint of facades and the role of glass – Study by ARUP & Saint Gobain

EMBODIED CARBON OF THE BUILDING GLASS CONTRIBUTION

4-12%
glass



10-20%
façade



● Embodied carbon ● Operational carbon

HOW DO WE REDUCE EMBODIED
CARBON FOOT PRINT OF GLASS?

**INCREASE
RECYCLED
CONTENT**

+

**IMPLEMENT
SUSTAINABLE
INDUSTRIAL
PRACTICES**

+

**SUBSTANTIAL
R&D EFFORT**

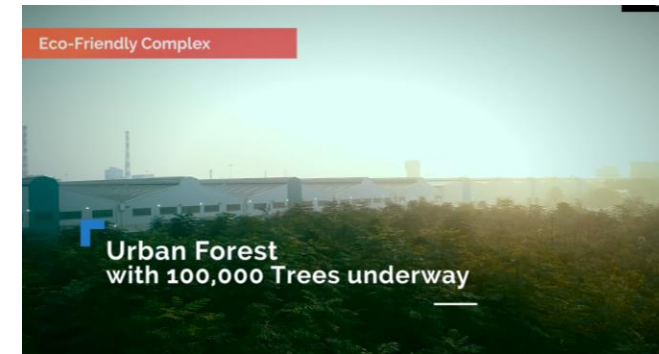
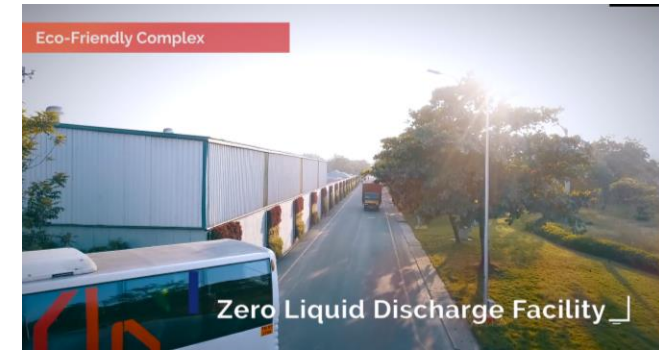


**SAINT-GOBAIN GLASS
RECYCLING**

**Efforts to increase our recycled
content**



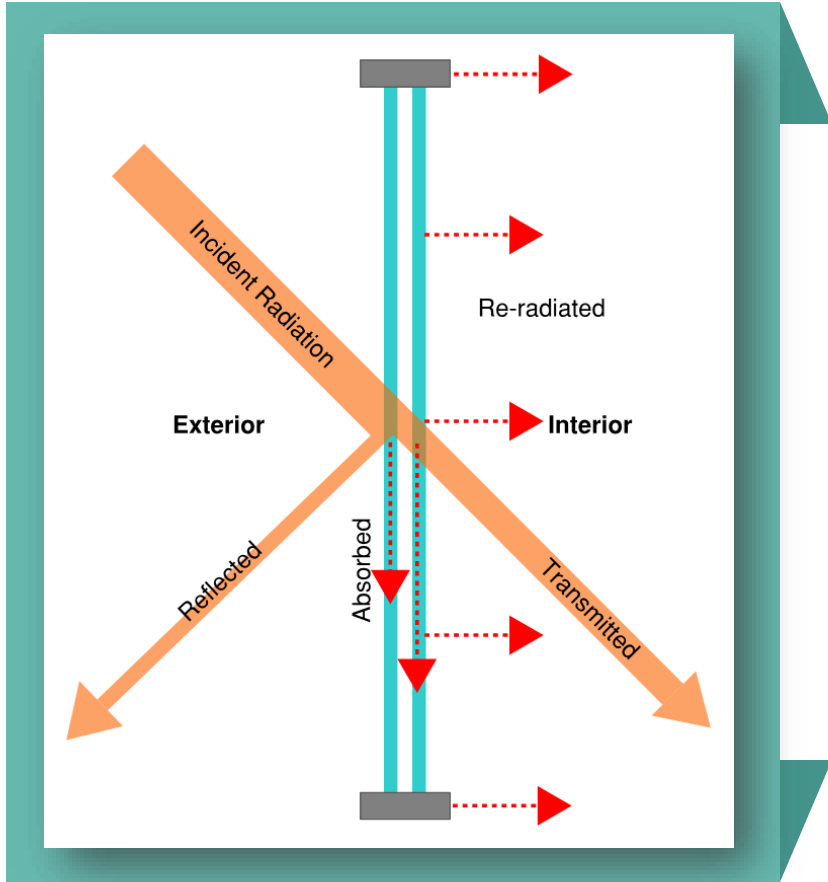
OUR SUSTAINABILITY INITIATIVES AT WORLD GLASS COMPLEX, INDIA





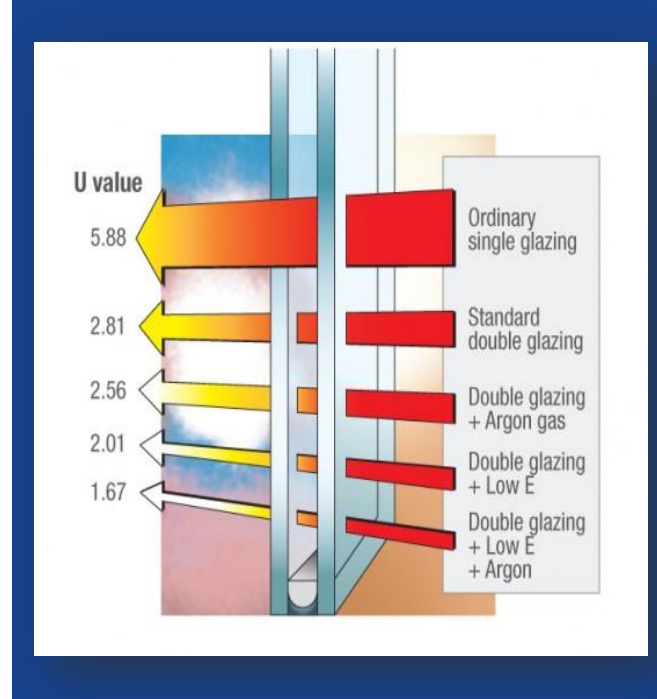
GLASS AND OPERATIONAL CARBON

PERFORMANCE PARAMETERS OF GLASS



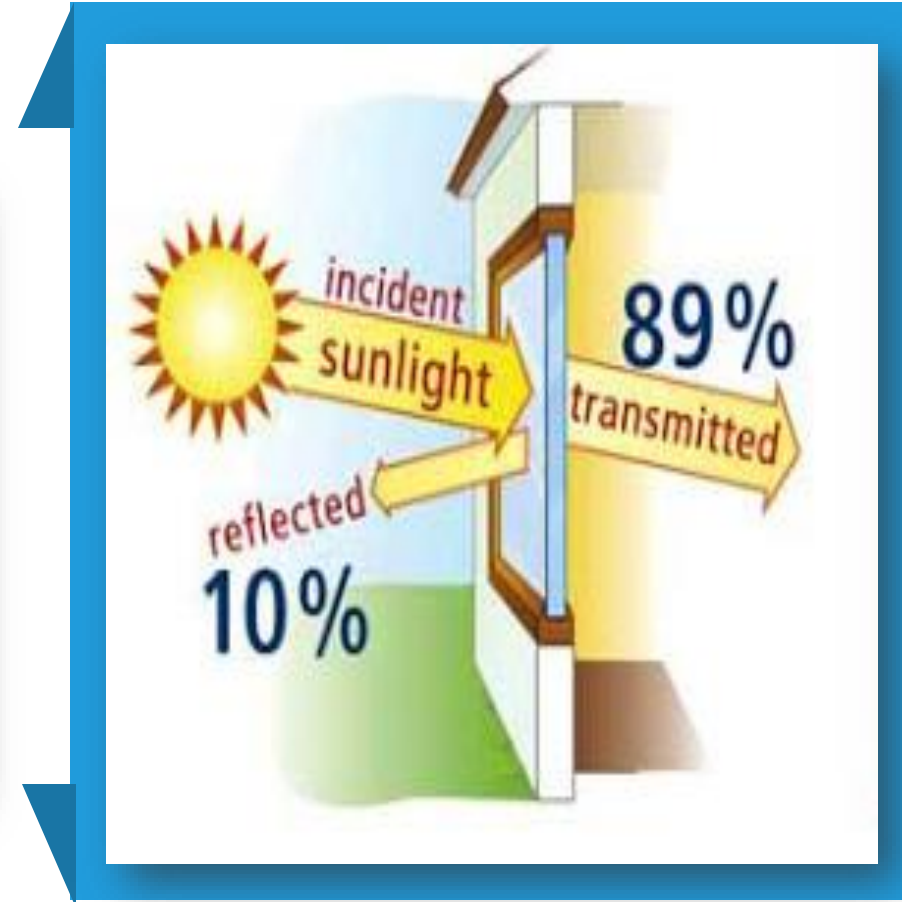
Solar Factor

Measures Direct Heat being allowed by the glass



U- Value

Measures Indirect Heat being allowed by the glass



Light Transmission

Measures Light being allowed by the glass



INNOVATIONS IN GLASS

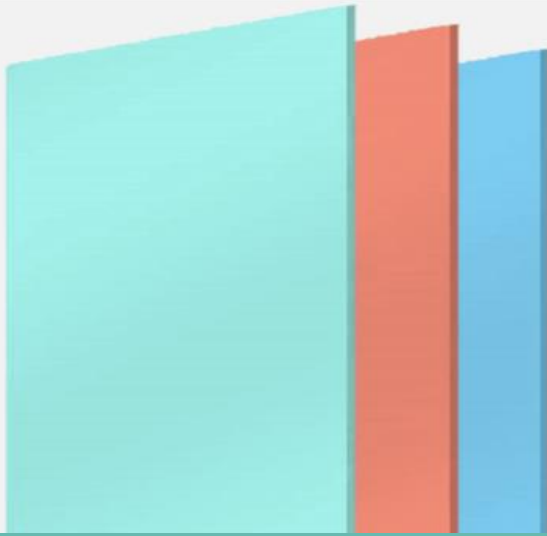


SG IMAGINE

DIGITAL MOCKUP OF GLASS



FOOTPRINT GENERATED BY A MOCKUP



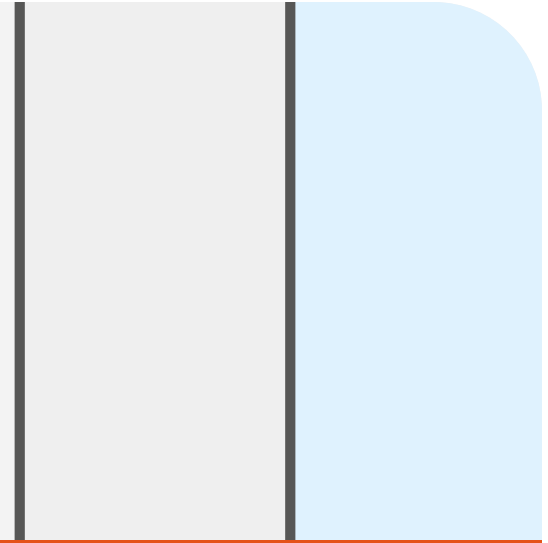
PROCESSING OF GLASS PANELS AT THE PROCESSING FACILITY

- Energy required for processing glass samples
- Wastages in glass sheets



TRANSPORTATION OF THE PANELS TO THE SITE

- Fuel and transportation costs for merely 2-3 panels
- In case of unavailability of glass nearby, mock up samples may be transported across 500-1000 kms



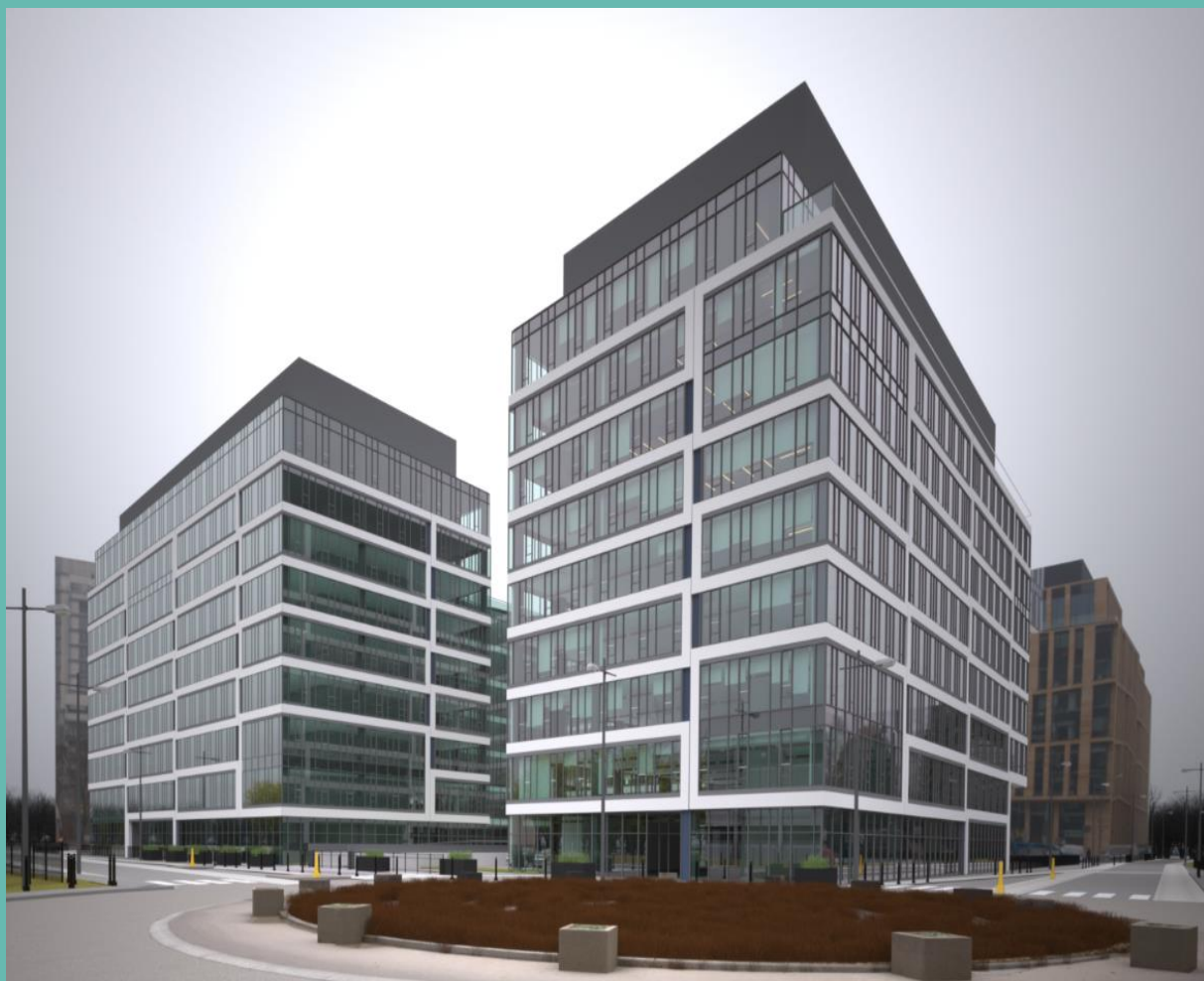
MOCK UPS INSTALLATION AT THE SITE

- Post glass selection, all other glass panels are discarded
- Sometimes due to multiple iterations in the process, there is a sizeable loss of material and human effort

THIS IS THEREFORE NOT A SUSTAINABLE METHOD OF GLASS SHADE SELECTION

SG IMAGINE – ACCURATE PHYSICO REALISTIC VISUALISATION

REAL VS RENDER



REAL VS RENDER



REAL VS RENDER



REACH OUT TO OUR TEAM FOR A DIGITAL MOCKUP OF YOUR BUILDING

INPUTS REQUIRED FOR PHYSICO-REALISTIC RENDERING



Plans



Elevations



Rendered
images



Site images



Façade
details



Sections



3D Model



SMART GLAZING – ELECTROCHROMIC TECHNOLOGY



Bowie State University

**Center for Natural Sciences,
Mathematics, & Nursing**

Bowie, MD

A visually striking all-glass design in the center of campus was transformed by the use of SageGlass to control the daylight in the space and improve the occupant experience.

Bowie State University

Center for Natural Sciences,
Mathematics, & Nursing

Bowie, MD

Innovation in response to customer needs

SageGlass has pushed the boundaries of Electrochromic technology



SageGlass®

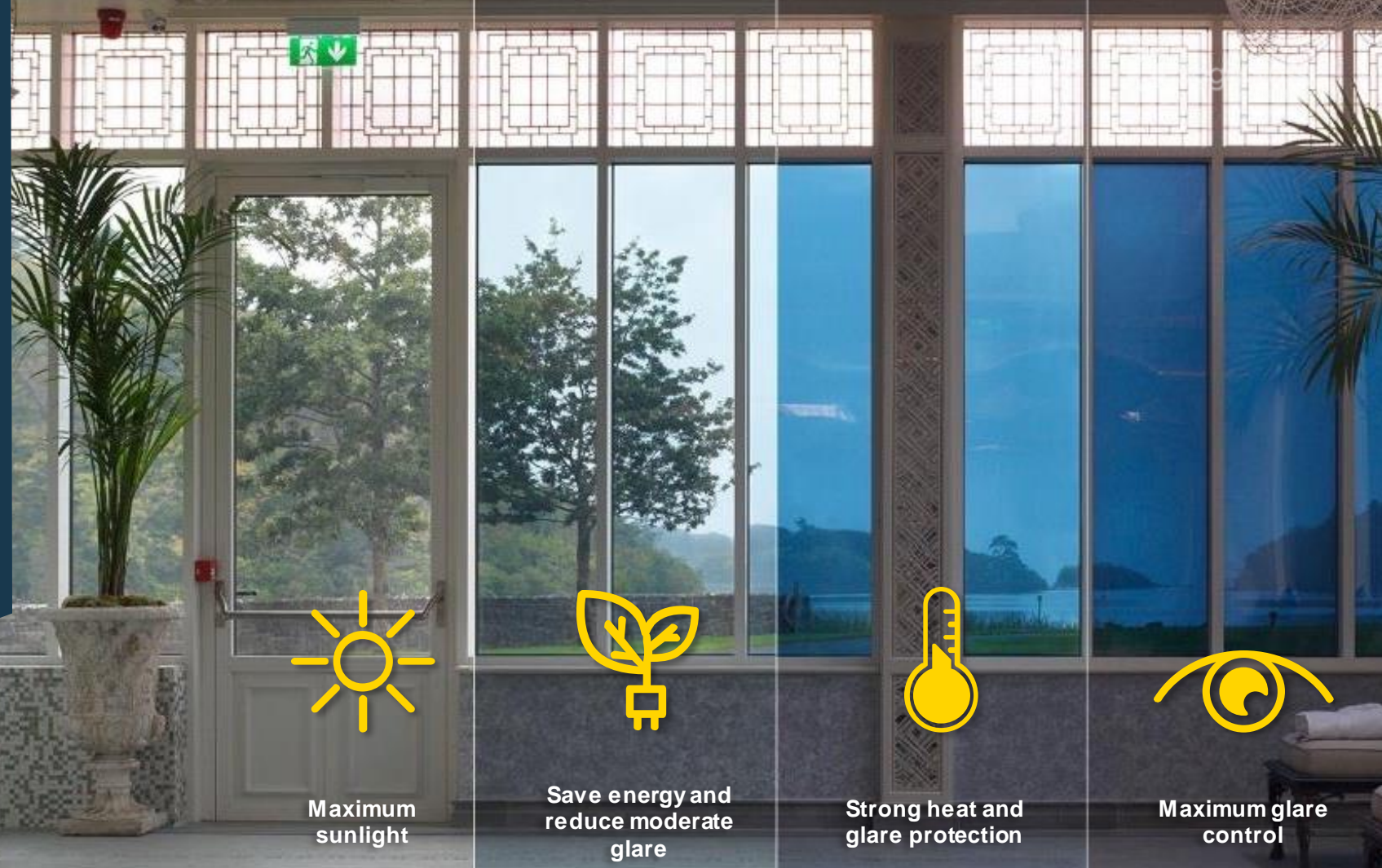
- Glare control without shading devices
- Intelligent daylight management
- Views and connection to the outdoors
- Potential for green label points
- Automatic and manual control



SageGlass Harmony®

- One-of-its-kind Gradient tint
- Precise solar control
- Excellent interior color rendering
- Proper circadian lighting levels

Intelligent algorithm selects the right tint level for occupant comfort and well-being



Maximum sunlight



Save energy and reduce moderate glare



Strong heat and glare protection



Maximum glare control

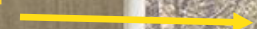
	CLEAR	LIGHT	MID	FULL
VISIBLE LIGHT TRANSMISSION	60%	18%	6%	1%
SOLAR HEAT GAIN COEFFICIENT	0.41	0.15	0.10	0.09
UV TRANSMISSION	0.4%	0.2%	0.1%	0.0%

Indicates the performance of typical 1" IGU with Argon gas fill. Performance data will vary based on product configuration chosen

GLARE CONTROL
WHERE NEEDED

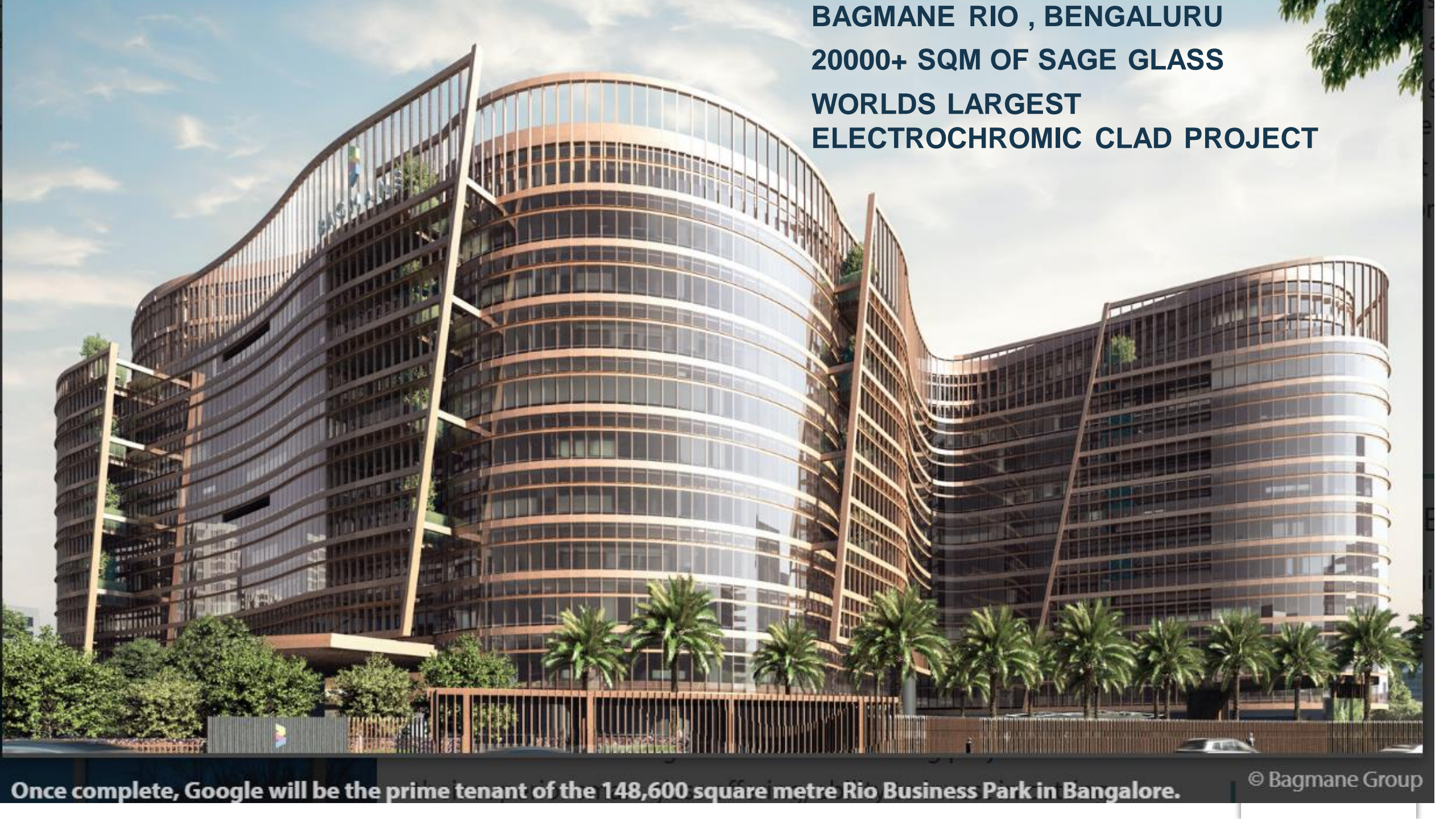


DAYLIGHT
FOR GOOD CRI &
CIRCADIAN LIGHTING



SageGlass Harmony[®]

SageGlass Harmony[®] balances need for glare control, color rendering, Circadian Lighting and energy savings



BAGMANE RIO , BENGALURU
20000+ SQM OF SAGE GLASS
WORLDS LARGEST
ELECTROCHROMIC CLAD PROJECT

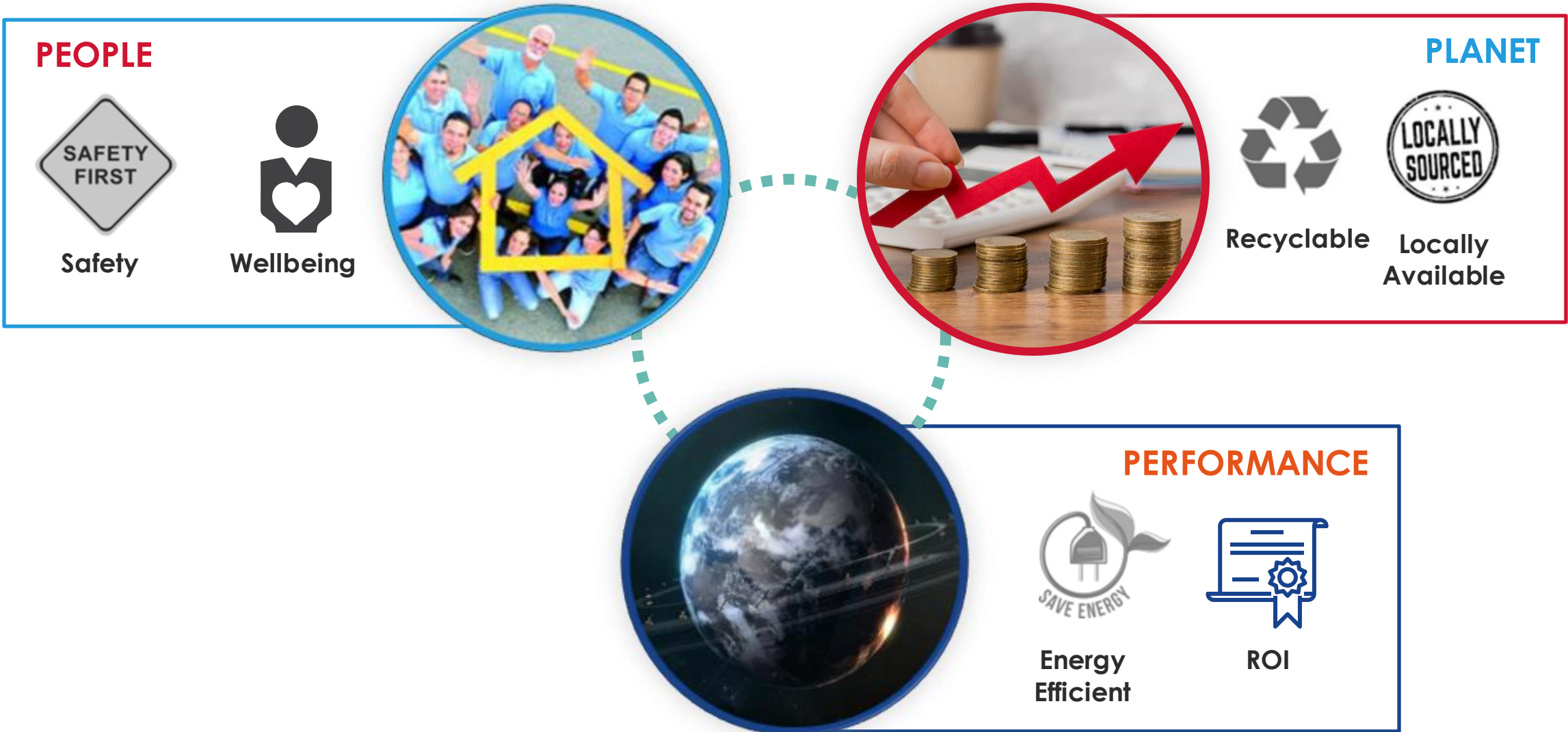
Once complete, Google will be the prime tenant of the 148,600 square metre Rio Business Park in Bangalore.

© Bagmane Group



CLOSING REMARKS

TRIPLE BOTTOMLINE OF SUSTAINABILITY

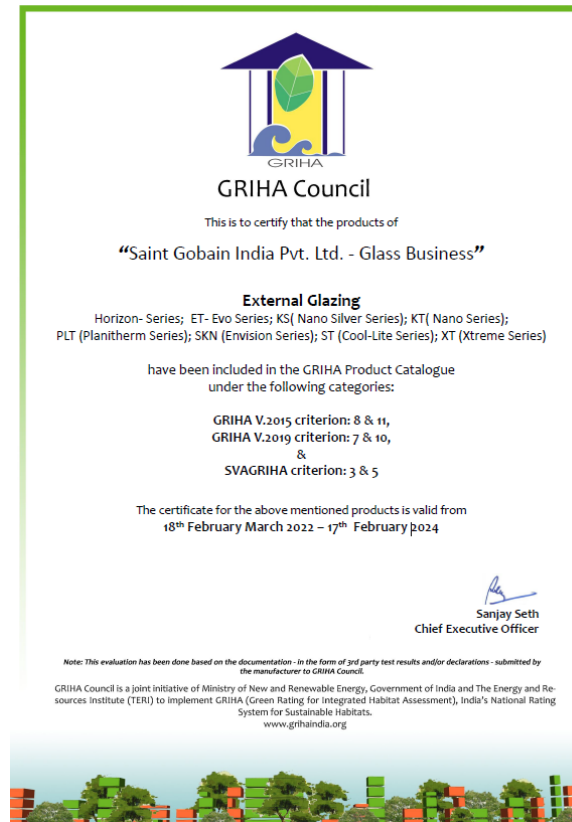


PRODUCT CERTIFICATIONS

GREEN PRO – PRODUCT LABEL



GRIHA- PRODUCT LABEL



SAINT-GOBAIN GLASS

ENVIRONMENTAL PRODUCT DECLARATION



SAINT-GOBAIN

SAINT GOBAIN AND SUSTAINABILITY!



BE THE WORLDWIDE LEADER IN LIGHT & SUSTAINABLE CONSTRUCTION



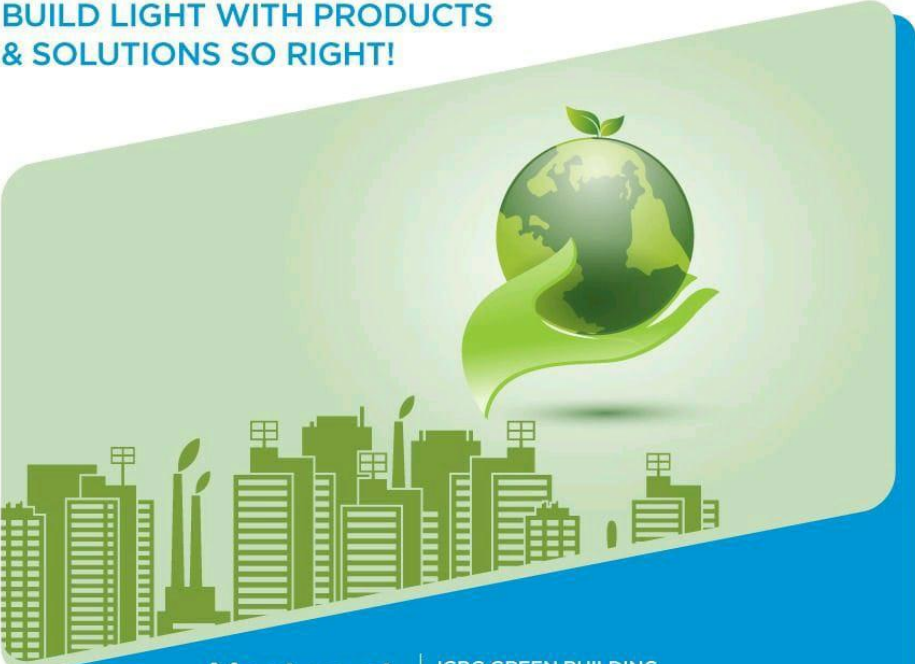
2050
NET ZERO CARBON

CARBON NEUTRALITY

MEET US AT STALL NO 35!



BUILD LIGHT WITH PRODUCTS
& SOLUTIONS SO RIGHT!



Meet us at
Stall no. 35

IGBC GREEN BUILDING
CONGRESS 2022, Hyderabad
20-22 October, 2022
Hyderabad International
Convention Centre

SAINT-GOBAIN GLASS



SAINT-GOBAIN GLASS





TIME FOR QUESTIONS