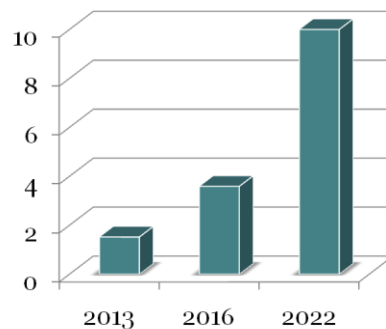




MARKET OVERVIEW FOR GREEN BUILDINGS

GREEN BUILDING FOOT PRINT IN INDIA

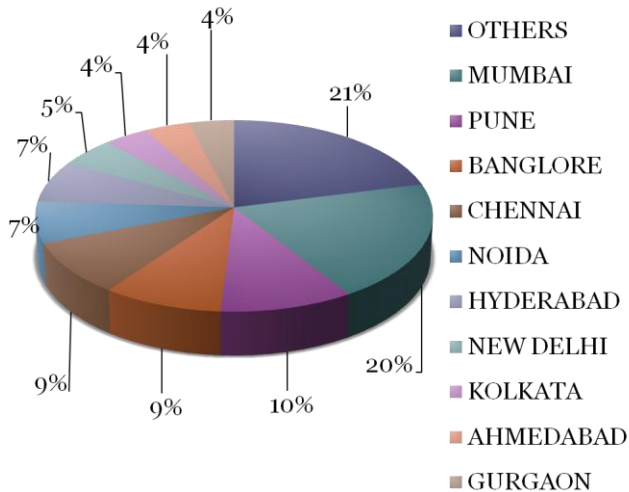
1. Both IGBC and GRIHA provide green building certification in India.
2. The total registered green footprint of India (4.5 billion sq.ft) is the second largest in the world after USA which is 13.8 billion sq.ft. of LEED certification spaces.
3. The market size of green building in India is expected to grow to 10 billion sq.ft in 2022 from the current 4.5 billion sq.ft.
4. Only 7.1% of the projects registered are certified.



CITY WISE DISTRIBUTION OF CERTIFIED GREEN BUILDINGS

- In terms of city level distribution, Mumbai has the maximum number of green buildings registered followed by Pune and Bangalore.

- Green rating is not just restricted to projects in Tier I and II cities, there are certified buildings in Tier III cities like Indore, Nagpur and Coimbatore as well.



BENEFITS OF GOING GREEN

- In India out of all the projects certified only 13-22% are residential projects. This percentage is expected to increase significantly over the next 3-5 years on account of the number of projects registered with IGBC and GRIHA are currently in the process of certification.

- Government regulations in India have mostly concentrated on commercial buildings till date as they are the largest consumers of energy due to the use of HVAC systems and 24 hrs power backup.

- However with the development of the high-rise residential buildings and large residential townships energy usage on residential buildings is also increasing.

- Developers are willing to go for green building certification only if they are assured of a premium on sale price for green projects and buyers are reluctant to pay the premium due to lack of evidences for saving in operational cost in the absence of structured monitoring system post construction.

PROJECT DETAILS

- Location: Tathawade, Near Bhumkar Chowk, Wakad
- Land Area: 16,000 sq.m.



NORMS AND COST IMPACT

CASE STUDY LAND AREA: 4 acre

SALABLE AREA: 300000 sq.ft.

BUILDING CONFIGURATION: 1) 5 residential buildings (P+12)
2) 1 commercial complex (G+3)
3) Club house with sports area

SR. NO.	DESCRIPTION	MAXIMUM POINTS	AMOUNT
1	Site Selection	1	NIL
2	Protect existing trees	4	15000
3	Soil Conservation	2	540000
4	Orientation of buildings	4	NIL
5	Reduce Hard Paving	2	900000
6	Outdoor Lighting	1	900000
7	Create utility corridors	3	NIL
8	Worker safety/ health / sanitation	2	900000

SR. NO.	DESCRIPTION	MAXIMUM POINTS	AMOUNT
9	Reduction in air pollution	2	1800000
10	Reduction in Landscape Water Demand	3	500000
11	Reduction in Water Use	2	NIL
12	Efficient Water Use During Construction	1	360000
13	Maximize daylight without heat	8	5100000
14	Energy Performance Index	16	NIL
15	Utilization of fly-ash	6	NIL
16	Low energy materials	4	NIL
17	Low-energy materials in interiors.	4	2600000
18	Renewable energy (RE)	8	3000000

SR. NO.	DESCRIPTION	MAXIMUM POINTS	AMOUNT
19	Solar based water heating system	3	2800000
20	Waste water treatment	2	4200000
21	Recycle of waste water and rainwater harvesting	5	7500000
22	Waste Reduction	1	NIL
23	Waste Segregation	1	100000
24	Storage and disposal of waste	1	2500000
25	Waste recovery	2	2100000
26	Use of low-voc paints	3	NIL
27	Minimize ozone depleting substance	1	NIL
28	Ensure water quality	2	NIL

SR. NO.	DESCRIPTION	MAXIMUM POINTS	AMOUNT
29	Noise levels	2	25000
30	Tobacco and smoke control	1	NIL
31	Access for disabled people	1	NIL
32	Energy audit	1	100000
33	Metering and O&M	2	750000
34	Innovation	4	Will vary
Total			54390000
Consultancy fees			400000
GRIHA registration and site visits			200000
GRAND TOTAL			5,49,90,000

SUMMARY

Additional Cost for **5 star rating (94 points) : Rs. 381 lacs** i.e. Rs. 127/- per sq.ft

Additional Cost for **4 star rating (85 points) : Rs. 320 lacs** i.e. Rs. 107/- per sq.ft

Additional Cost for **3 star rating (76 points) : Rs. 239 lacs** i.e. Rs. 80/- per sq.ft

Total mandatory points : 26 Additional Cost: Rs. 121 lacs

No. of points without any additional cost : 33

Hence, Total points = 33+26 = 59 1 star rating Cost : 121 lacs

**•EXISTING MONETORY BENEFIT
(DEVELOPER)**

Balcony/staircase/passage/terrace/ LMR
Premium: Rs. 350 lacs

For GRIHA 5 star rebate : 50% : Rs.175
lacs

For GRIHA 4 Star rebate: 40% : Rs. 140
lacs

For GRIHA 3 Star rebate: 30%: Rs. 105
lacs



**EXISTING MONETORY BENEFIT TO THE
CUSTOMERS**

Annual property tax for 1000sq.ft. apartment (PCMC
B Ward) : Rs. 13/sq.ft

Rebate for 5 star rating: 10%
Rebate for 4 star rating: 8%
Rebate for 3 star rating: 5%



However, 10% rebate is given if property tax is paid in
advance.

Customer can choose any one of the above discount.

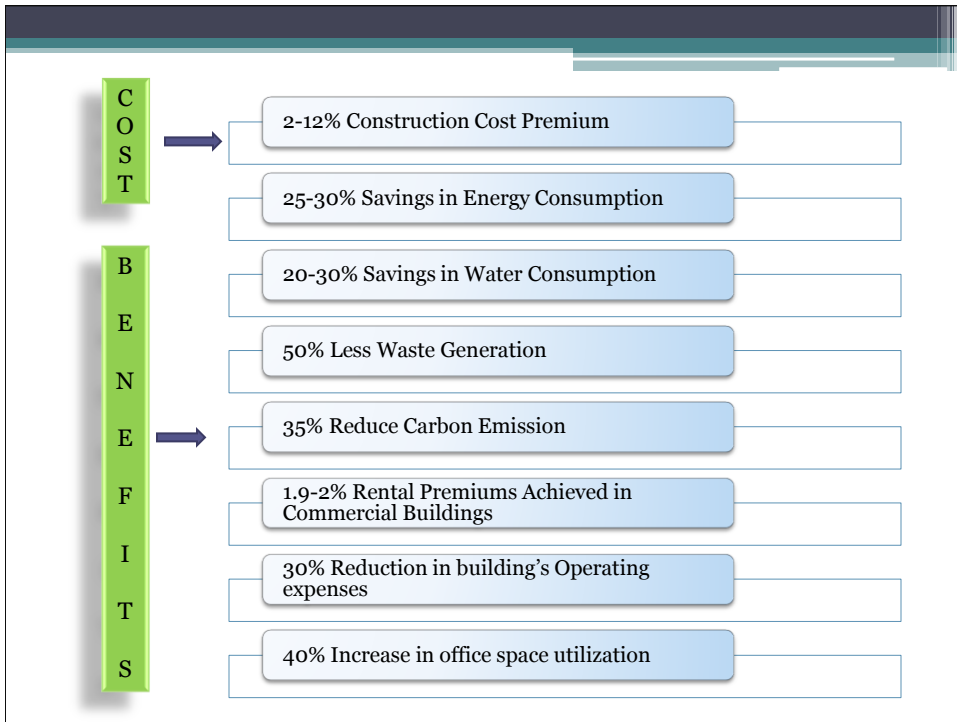
MAINTENANCE COST

Maintenance cost for the entire project:
Rs. 4/sq.ft./month



PERCEIVED BUSINESS BENEFITS TO GREEN

- 8-9% Operating cost decreases
- 7.5% Building value increases
- 6.6% Return on Investment
- 3.5% Occupancy ratio increases
- 3% Rent ratio increases



OTHER INTANGIBLE BENEFITS

REDUCED COSTS

- Fewer Call backs
- Increased customer satisfaction
- Increased referral rate

INCREASED REVENUE

- Higher close rates
- More sales

HIGHER PROFITS



CONSUMER BENEFITS

- Healthier indoor Benefits
- More comfortable
- More durable
- 30-60% more energy efficient
- More environmental responsible

SOME CASE STUDIES



Kalpataru Square in Mumbai is
Set to **reduce** its **water**
consumption by 30%



WIPRO saves 40% energy worth 1 crore rupees on a 1,75,000 sq.ft. building every year

GRIHA INCENTIVES

- Uttar Pradesh Housing and urban Planning Department: GRIHA incentives
- Haryana Government :GRIHA incentives
- Pune Municipal Government (PMC): GRIHA incentives
- Pune Municipal Corporation (PMC): SVA GRIHA Incentives
- Government of West Bengal, Department of Municipal Affairs: GRIHA Incentives
- Incentives for Green Campus by MNRE
- Sikkim Adopts GRIHA
- Additional 5% free of cost FAR for GRIHA projects in Rajasthan
- Fast track environmental clearance for GRIHA pre-certified projects
- NOIDA and Greater-NOIDA
- Pimpri -Chinchwad Municipal Corporation: GRIHA Incentives
- Pimpri -Chinchwad Municipal Corporation: SVA GRIHA Incentives
- SIDBI announces concessional rate of interest for GRIHA projects
- Additional 5% free of cost FAR for GRIHA projects in Punjab
- Ministry of Urban Development, Government of India announces free of cost 1%-5% extra ground coverage and FAR for GRIHA projects



INCENTIVES: EFFECTS ON F.S.I AND ENVIRONMENT

According to an article in the Pune Mirror published by TOI following were the points observed:

- With a view to promote Green Buildings the State Government-Maharaashtra has introduced incentives in the FSI for developers.
- The state has made provisions to offer 3-7 % incentives on the basic FSI based on the ratings awarded by the Green Building Systems in India (GRIHA).
- In the Development Control Rules (DCR) the state has mentioned to promote energy efficiency within the existing buildings in urban areas.
- Waste generation and its management also contribute to the key urban sustainability issues. Therefore, the GRIHA will develop a rating system for retrofitting existing buildings to improve sustainability and energy performance.
- The Green Buildings shall be entitled for incentive FSI as below:
 1. GRIHA 3 star/IGBC silver or equivalent rating: 3% incentive on basic FSI
 2. GRIHA 4 star/IGBC gold or equivalent rating: 5% incentive on basic FSI
 3. GRIHA 5 star/IGBC Platinum or equivalent rating: 7% incentive on basic FSI
- The incentive FSI will be awarded after pre-certification from empanelled agency. This FSI shall be exclusive of the limits specified in the DCPR.

- In case the developer fails to achieve the committed ratings as per the pre-certification at the time of final occupancy, a penalty shall be imposed at the rate 2 times of the land cost as per ASR for the incentive FSI for the rating not achieved.





APPEAL

TO POLICY MAKERS

Monetary benefits for 4/5 star ratings:

1. Full rebate on premiums paid to sanctioning body
2. Increased property tax rebate for customers
3. Concession on stamp duty for customers
4. Waive off registration charges
5. Increased FSI so as to incentivise developers to go for higher ratings.

TIME BENEFITS FOR 4/5 STAR RATINGS

- Priority and time based approval from sanctioning body
- Allow start of construction for area below 2000 Sq.m.
- Deemed approval from SEAC and direct hearing at SEIAA

