

**INDIAN CONSUMERS
ARE READY FOR
GREEN BUILDINGS
AND GREEN
MATERIALS**



Build Ahead research finds that residential consumers are willing to pay 5-10% premiums for green buildings, and office occupiers are willing to pay >15% for green buildings; but building material producers and real estate developers must work to remove misconceptions and improve supply and access to green buildings to meet this latent demand.

At a Glance

- Middle-income residential consumers in Tier-1 Indian cities are willing to pay 5-10% premiums for green buildings and sustainable materials.
- Of these, residents in Mumbai have the highest appetite for sustainability in home purchase decisions — they are >70% more likely to select a building with quality-of-life features, such as access to greenery and clean indoor quality, than residents in Delhi, Ahmedabad, and Hyderabad.
- Corporate occupiers increase the size of premium they are willing to accept as emissions savings increase – even considering 25-50% premiums for net zero buildings.
- To capitalise on this existing demand, developers and building materials producers must focus on addressing and emphasising the co-benefits of green buildings and materials.

Insights into consumer demand for green products, especially green building materials and green buildings, are extremely limited in India. This is particularly true for the burgeoning middle-class segment. Through our research, it's clear that middle-income residents in Tier 1 cities are concerned about environmental quality and already have demand for green buildings and materials. The problem is they are hampered by misconceptions about price, availability, and uncertainty around product quality.

On the other hand, demand for green office buildings is much better documented, with many corporations in major cities already occupying green certified spaces. But communication gaps between corporate real estate decision-makers and their company sustainability targets can result in roadblocks to green office selection. For corporations to make meaningful progress towards net zero futures, they must ensure consistent communication around decision-making and send the right demand signals to developers.

Build Ahead is business-led initiative that seeks to enable the decarbonisation of the built environment in India. Launched in August 2022, Build Ahead comprises some of India's largest and most influential organisations across the cement and glass value chains, including: Godrej Construction, Ultratech Cement, Saint Gobain, JSW, JLL, Lodha, and SED Fund. Build Ahead's approach is to catalyse collaborative action across the value chain to accelerate the use of low carbon building materials in India and reduce the embodied carbon footprint of the built environment.

BACKGROUND

In 2023, Build Ahead performed two consumer surveys targeting residential and office occupiers in India to examine demand for green buildings and low carbon materials. We sought to understand whether consumers are aware of these options, what drives their demand, and what can be done to accelerate it.

The first consumer survey involved 1,142 respondents across lower-middle- and middle-income groups in 5 established and up-and-coming cities: Ahmedabad, Bhubaneswar, Delhi (including Noida and Gurugram), Hyderabad, and Mumbai. The second survey was administered to 26 corporations with offices in India through the support of JLL, a founding Build Ahead member and expert in corporate real estate.

Half of the building stock that India is expected to have in 2030 has yet to be built. The exponential growth of urban spaces and building stock means there is an urgent need to deeply integrate sustainability into the built environment. But common rhetoric often assumes the average Indian resident is not ready to pay for sustainability. Building materials producers and real estate developers hesitate to invest in green products because they don't see a ready market. **Our results indicate residential consumers are willing to pay 5-10% premiums for green buildings, and office occupiers are willing to pay more – even up to 25-50% premiums for near or net zero emission buildings.**

WHAT DO CONSUMERS CARE MOST ABOUT?

They both care about sustainability, but the two consumer segments do behave differently and have different priorities. Because most office occupiers lease, rather than buy their office spaces, and the residential consumers included in our survey were current or future home buyers only, their sustainability priorities deviate. Notably, **office occupiers are more concerned with addressing operational emissions, achieving cost reductions, and having green certifications.** On the other hand, **residential consumers are concerned about environmental and construction quality**, i.e., access to clean air and greenery, durable construction materials, and working with reputed, trustworthy developers.

To meaningfully grow demand for green buildings and materials, developers and materials producers must augment and emphasise benefits to consumers by addressing their key concerns.

Residential Consumers

- Better air quality (esp. indoor air quality)
- Access to greenery
- Health outcomes (e.g., through non-toxic materials)
- Trustworthy developers
- Strong, high-quality construction materials

Office Occupiers

- Access to renewable energy
- Achieving operational efficiency and cost-savings
- Building sustainability ratings
- Smart features

RESIDENTIAL CONSUMERS

Surprisingly, we don't find that demographic factors such as age, income, education level, and current sustainability engagement have a significant impact on residents' sustainability preferences for green buildings or materials.

However, geography is a significant influence. Broadly, respondents have similar preferences to their fellow citizens, meaning localised cultural trends and level of urban development are a strong influence. While Delhi routinely suffers from an air quality index (AQI) that is 3x worse than the other geographies considered, all 5 cities exceed unhealthy AQI levels on an annual basis. This level of adverse environmental impact may have some impact on consumer preferences but significantly worse impact, e.g., in Delhi, does not lead to greater demand than other cities. It seems more likely that cosmopolitanism and exposure to global media has more of an influence on demand for sustainability products. For example, our findings show that Mumbai residents have the highest willingness to pay, but markets such as Delhi, Ahmedabad, and Hyderabad are not far behind, whereas Bhubaneswar has no willingness to pay.

Part of the challenge in quantifying this demand in India's middle-income segment is the relatively low awareness of climate change or terms such as sustainability and emissions. But we know that most urban Indians encounter environmental issues in their immediate surroundings, whether it be air or water pollution or waste. So in our survey, we wanted to address their concerns without obfuscation through language. We avoided referring to emissions, climate change, or sustainability – focusing instead of tangible practices and outcomes.

EXISTING SUSTAINABILITY ENGAGEMENT

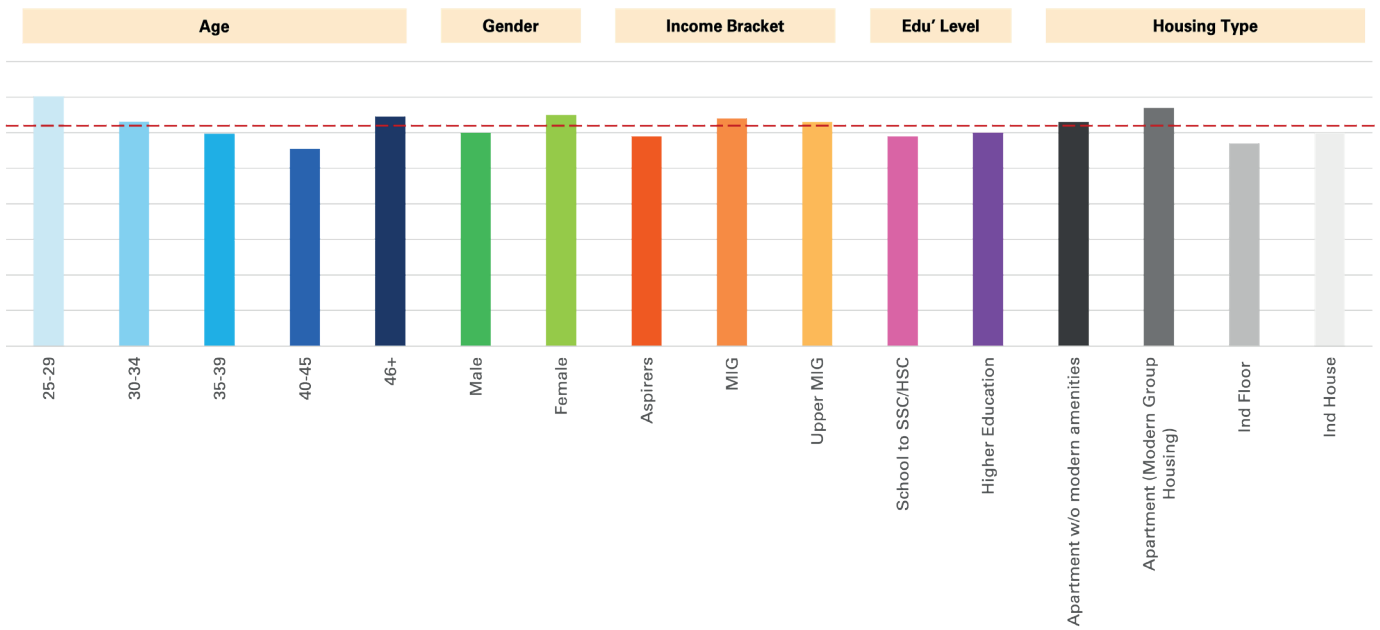
To understand the extent to which residential consumers engage in sustainability in their daily lives, we offered several practices and we asked respondents to indicate their level of engagement with each.

- **Individual pollution:** reducing individual pollution through efforts such as carpooling, walking, or cycling
- **Green spaces:** creating and promoting green spaces within one's home, complex, or surrounding areas
- **Waste management:** engaging in waste management practices such as waste segregation, recycling, and composting
- **Water management:** engaging in water management activities such as rainwater harvesting or installing efficient plumbing
- **Energy efficiency:** purchasing and installing energy efficient or star-rated appliances such as refrigerators, air conditioners, or washing machines
- **Sustainable materials:** using environmentally friendly materials in home building construction
- **Renewable energy:** installing renewable energy sources such as solar panels

Across all categories, approximately 62% of respondents state a high level of engagement, with demographic factors like age, income, gender, income, education level, and housing type having little influence on level of engagement.

Figure 1. Sustainability Engagement by Age, Gender, Income Level, Education Level, and Housing Type¹

Age, gender, income, education level, and housing type have little impact on respondent’s engagement with sustainability practices.

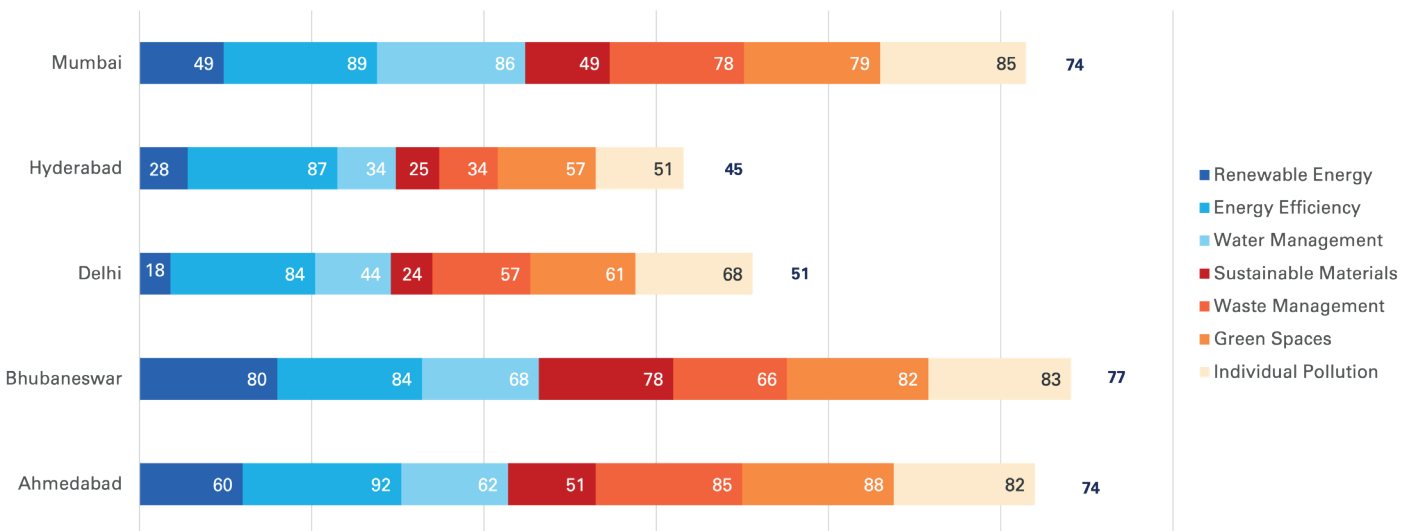


On the other hand, level of engagement differed considerably by geography. Respondents in Bhubaneswar reflected the highest level of engagement, followed closely by those in Ahmedabad and Mumbai.

Figure 2. Sustainability Engagement – by Geography²

Most respondents claim to engage in sustainability practices in their daily lives, tending to use energy efficient appliances, opting for low carbon transportation methods, and investing in creating green spaces within and around their homes.

KEY: % respondents with high sustainability engagement



¹ Question: To what extent are you engaging in the following practices – individual pollution reduction through carpooling, walking, cycling etc.; creation and promotion of green spaces within one’s complex; waste management such as recycling; green building materials use in a home; water management practices such as rainwater harvesting or efficient plumbing; energy efficiency appliances’ use; renewable energy use. Numbers reflect percentages.

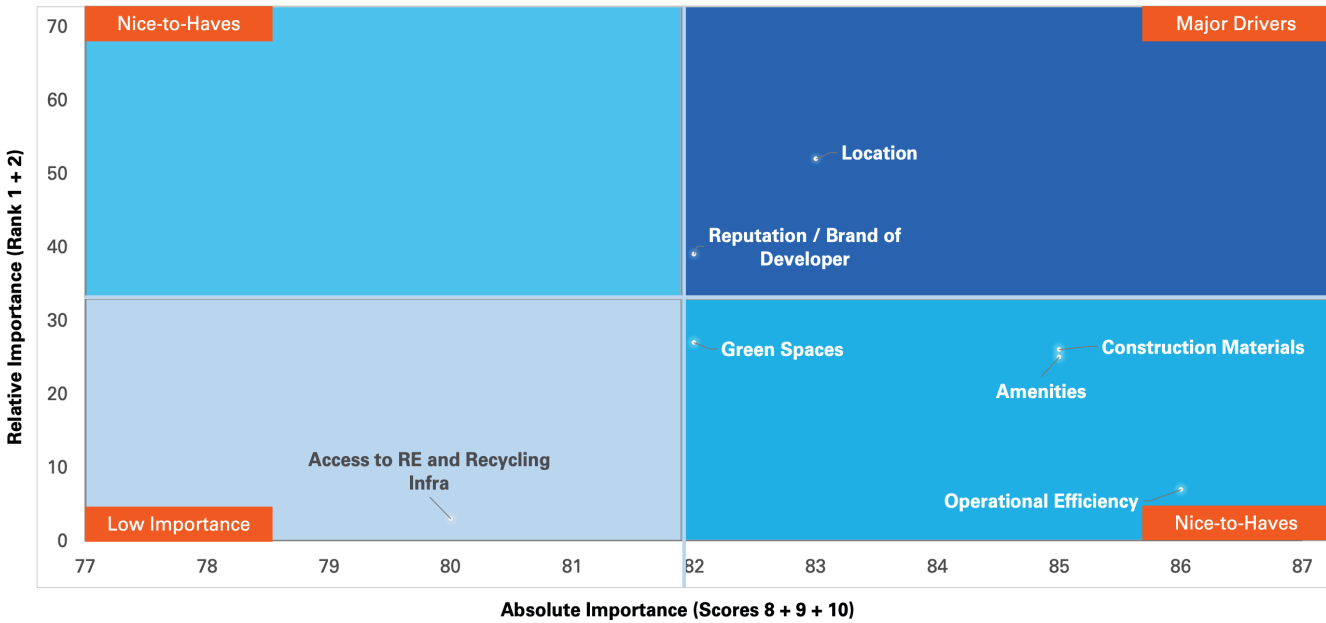
² Numbers reflect percentages of respondents that claim a high engagement with each sustainability practice.

FACTORS IN PROPERTY PURCHASE DECISION-MAKING

When respondents rank property purchase considerations by absolute and relative importance, it's no surprise that location comes out on top, followed by the developer brand / reputation. Factors like access to amenities (e.g., gym, pool, parking garage, garden, balcony/terrace), green spaces, use of high-quality construction materials, and operational efficiency rank highly in absolute terms, but lower in relative terms, suggesting they're nice-to-haves. In all cases, access to renewable energy and recycling infrastructure are the lowest priority.

Figure 3. Factors driving Property Purchase Decisions³

Respondents tend to value access to green spaces and amenities, and quality of construction materials highly after location.

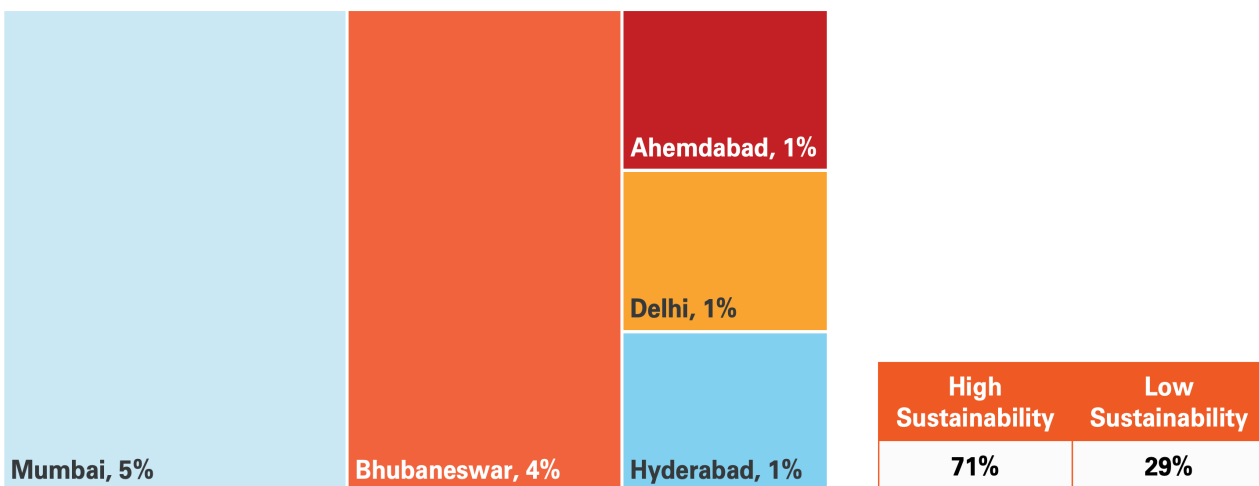


GREEN BUILDING AWARENESS & RELEVANCE

Despite good sustainability engagement, 88% of respondents have no awareness of green buildings. Within the 12% that claim some awareness, nearly three-quarters state a high level of sustainability engagement and most live in Mumbai or Bhubaneswar. Less than half of this 12% are familiar with green certifications.

Figure 4. Awareness of Green Buildings – By Geography and Existing Level of Sustainability Engagement

Of the 12% of respondents who have some awareness of the concept of green buildings, the majority are in Mumbai, and nearly three-quarters claim to already have high sustainability engagement in their daily lives.

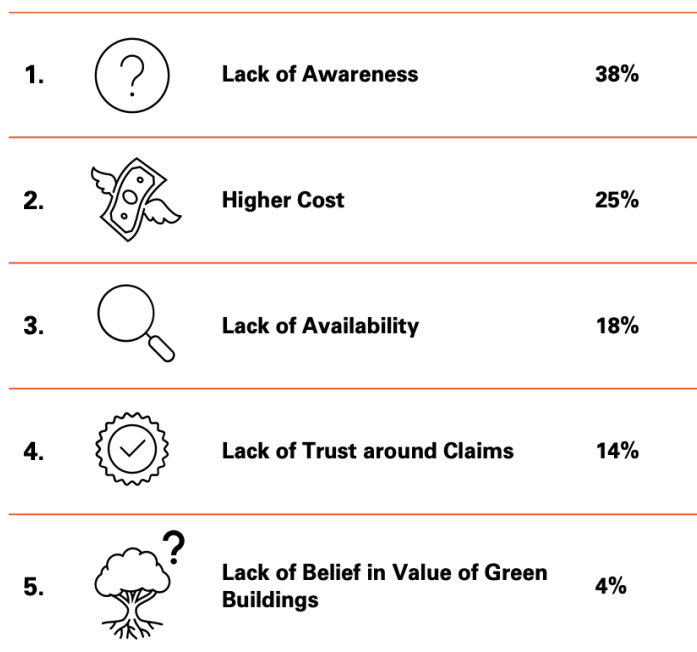


³ Respondents ranked factors in absolute terms (1-10 with 10 being most important) and relative to other factors. Scores were then mapped onto a matrix to reveal major drivers, nice-to-haves, and low importance factors. Axis numbers reflect percentages.

Encouragingly, the subset of respondents that are aware of green buildings associate them with positive attributes such as strength, luxury, and cutting-edge technology. This is particularly reassuring given the common misconceptions around quality that low carbon materials, like blended cement, face relative to Ordinary Portland Cement (OPC).

Figure 5. Perceptions around barriers to green building uptake

Those who have some existing awareness of green buildings believe lack of consumer awareness, perceptions around high costs, and a lack of supply contribute to slow uptake.



However, these consumers assume the greatest barriers to green building adoption are lack of consumer awareness, perceptions around high costs, and a lack of available stock. While our survey results confirm low overall consumer awareness, other misconceptions should be debunked.

In 2022, India already had significant green certified floor area, with over 10,600 certified projects and over 800 million certified square feet⁴. India currently ranks third globally in terms of LEED green certified square footage⁵, which, though largely office space⁶, represents promising growth and enormous potential for residential green buildings.

Additionally, while premiums for green buildings can range anywhere between 3-20%⁷, they also come with energy and water savings that can convert to 30-40% utility bill savings⁸. Premiums are also correlated with supply, so an increase in supply should result in lower premiums.

But if consumers are unaware of the benefits of choosing a green building, they are less likely to engage with the concept, even if they have a bigger supply pool to choose from.

This was made clear once we provided all respondents with information about green buildings and then asked them to consider whether such buildings might be relevant to their needs.

68% of respondents agreed that the concept was very or extremely relevant to them. Respondents in Bhubaneswar and Hyderabad, on the other hand, had more tepid reactions. This disinterest was driven by their expectations of prohibitively high costs, lack of supply, and some scepticism around the feasibility of sustainability claims.

⁴ Build Ahead analysis based on LEED, TERI-GRIHA, and IGBC data

⁵ "The Top 10 Countries for LEED demonstrate that green building is a truly global movement", USGBC, February 2023

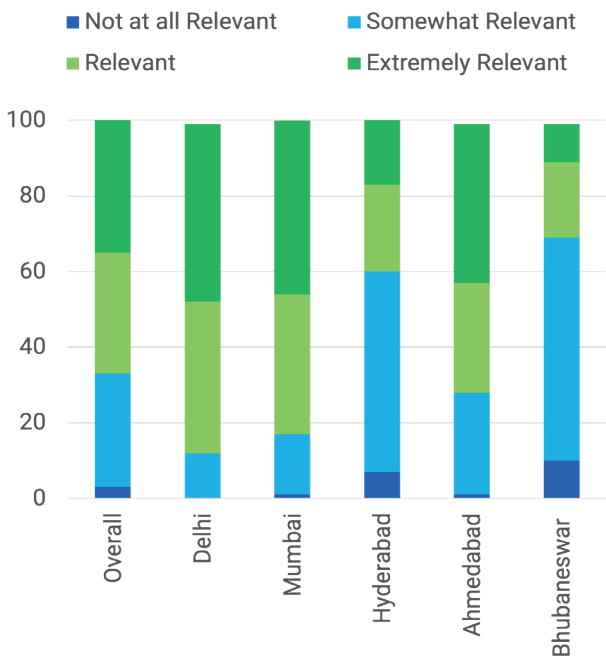
⁶ "A green thumbs up for Indian office markets", JLL, October 2023

⁷ Higher ranges are for more advanced certifications such as Gold or Platinum certified buildings, "The Value of Sustainability", JLL, 2022

⁸ "IGBC Net Zero Energy Buildings Rating System", IGBC, 2018

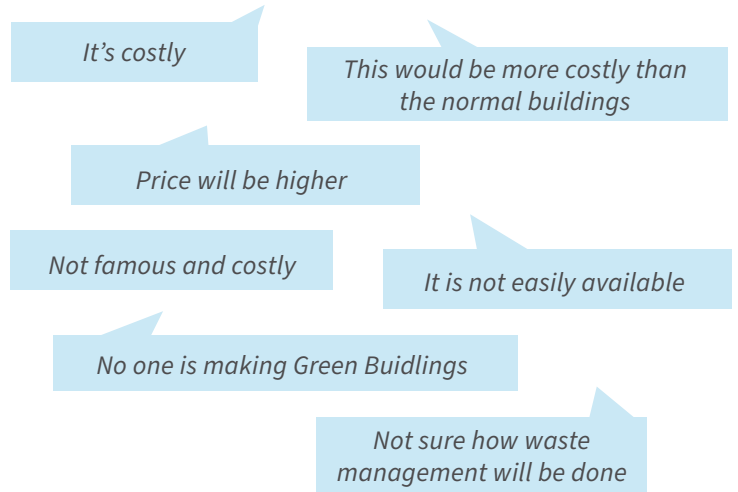
Figure 6. Relevance of Green Buildings – By Geography

Respondents were presented with a concept card explaining what green buildings are before being asked whether the concept would be relevant to their needs. Most respondents agree that green buildings are relevant for them.



Meanwhile, respondents in Hyderabad and Bhubaneswar express some scepticism about the relevance of the concept due to:

1. Expectations of high costs,
2. A lack of availability and awareness, and
3. Uncertainty on how green claims will be achieved



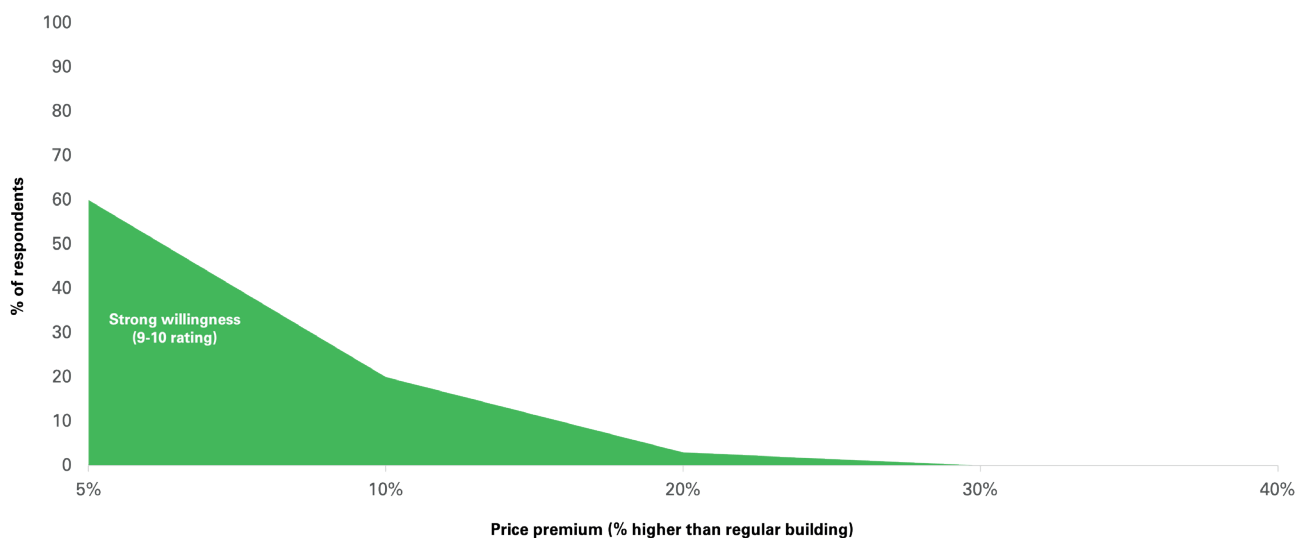
More work must be done to directly relate and communicate the benefits of green building to consumers' needs.

WILLINGNESS TO PAY

To see how much stated demand would translate into willingness to pay, we opted for two approaches – an explicit and implicit approach. The first was a direct question on how much premium respondents were willing to bear for green buildings. Through this approach, we find that 60% of respondents have an appetite to pay 5% premiums, a proportion that reduces to 20% at the 10% premium mark and declines sharply beyond that.

5% is not insignificant wiggle room for developers to consider when marketing green buildings. A 10% increase in upfront cost comes with 30-40% savings on energy and water bills and can be made more palatable with a green home loan from housing finance companies like IIFL and HDFC.

Figure 7. Stated Willingness to Pay Premiums⁹



⁹ Respondents were asked to give a rating between 1-10 for how willing they would be to take on each level of premium.

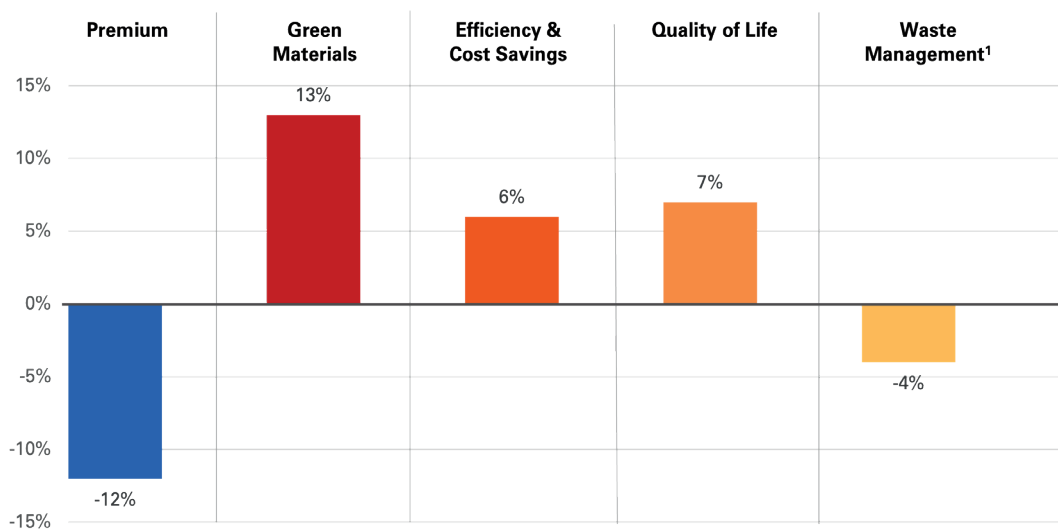
The second was a discrete choice experiment for which respondents were presented with 10 cards with 3 building options each. Each building option was comprised of 5 components: % premium, green materials, % cost savings, quality of life, and waste management as shown in Figure 8. These components were varied across the 10 card to isolate consumer preferences.

Figure 8. Attribute and Variable Options in Discrete Choice

| Component | Options | # of Options |
|-----------------------------|---|--------------|
| Premium | 0%; 10%; 20%; 30% | 4 |
| Green Materials | Regular; Mixed; All Green (e.g., recycled steel, green cement, green/fly ash bricks) | 3 |
| Efficiency and Cost Savings | 10%; 20%; 30%; 40% | 4 |
| Quality of Life | Views of Nature; Decreased Noise Pollution; Improved Indoor Air Quality | 4 |
| Waste Management | Collection; Segregation; Composting | 3 |

Overall, respondents demonstrate demand for green features but a decrease in likelihood of selecting options with premiums greater than 10%. Interestingly, options that offered green materials resulted in a 13% increase in probability of selection.

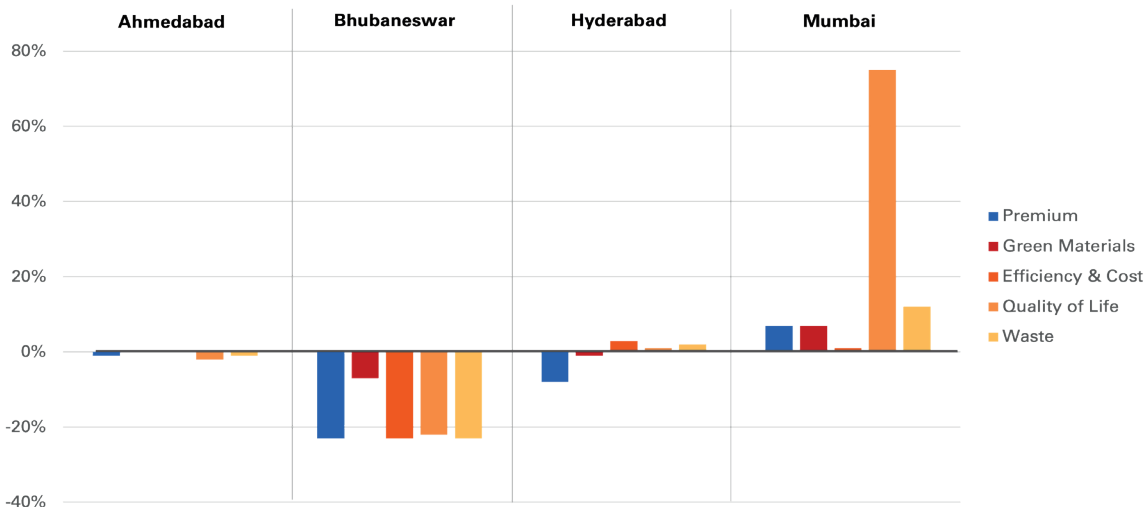
Figure 9. Implicit Preferences for Green Features



Respondents in Mumbai have the strongest appetite for green features, particularly “quality of life” features such as cleaner indoor air quality, access to green spaces, and reduced noise pollution. Respondents in Delhi, Ahmedabad, and Hyderabad have similar preferences and willingness to pay, with favourable reactions to sustainability.

Between the explicit and implicit willingness to pay exercises, **a premium of between 5-10% is acceptable for residential consumers** in these cities. Developers and architects should not shy away from investing in green construction and design and should look to obtain green certifications. With buyers’ concerns around environmental health indicators and their desire for reputed, trusted materials and developers, **the investment into green features and sustainability guarantees can only serve to benefit forward-thinking real estate players.**

Figure 10. Implicit Preferences for Green Features – Delhi as a Baseline



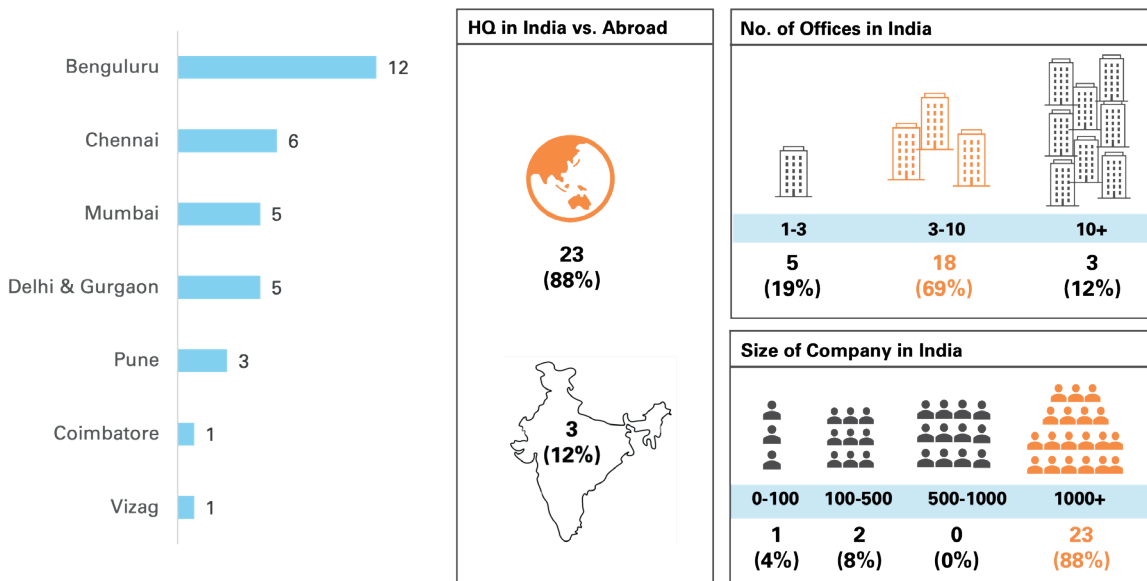
On the other hand, despite stating higher sustainability engagement and preferences, respondents in Bhubaneswar have the lowest demand for green features. This is consistent with the level of urban development in Bhubaneswar relative to other surveyed cities and suggests a greater need for demand priming. Developers operating in similar Tier 2 cities should invest in campaigns to help consumers understand what green buildings are and how they can positively impact environmental indicators and reduce operational costs. This will be critical to get ahead of projected construction and reduce the environmental impact of the built environment in up and coming cities.

OFFICE OCCUPIERS

With the support of JLL, a Build Ahead founding member, we surveyed real estate decision-makers in 26 corporations with offices in India. In India, corporations have driven the green building market, with 42% of Grade A office stock in India’s top 7 cities already being green certified and commanding average premiums of 13%¹⁰.

With these headwinds in mind, we looked to better understand what drives this demand.

Figure 11. Respondent Profile – Office Location, HQ location, # Offices in India, # Employees
Most respondents are headquartered abroad but have >3 offices and >1000 employees in India



¹⁰ “A green thumbs up for Indian office markets”, JLL, October 2023.

Figure 12. Respondents with Green Certified Office Spaces

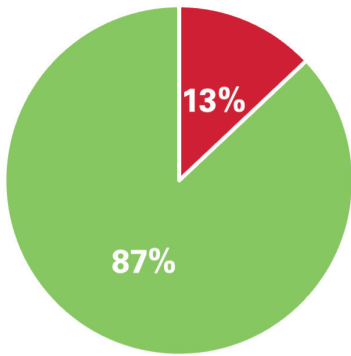


Figure 13. Office Occupiers – Sustainability is an Important Criterion After Price and Location

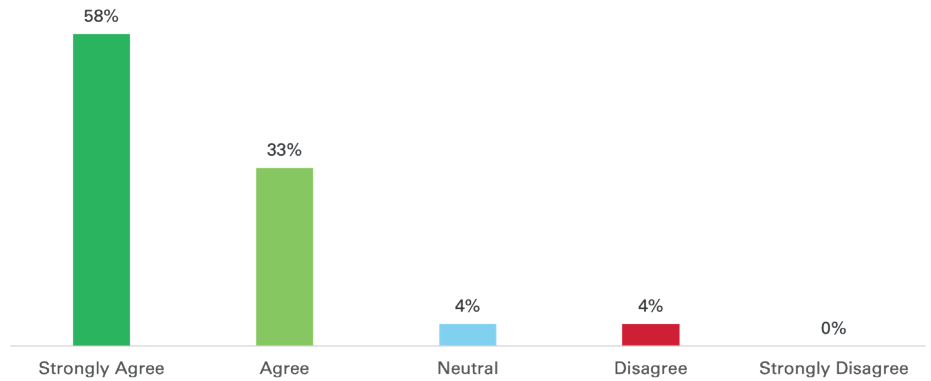


Figure 14. Office Occupiers – Motivations for Green Building

Office occupiers are primarily motivated to lease green buildings because of their Board-level agenda and their sustainability targets.

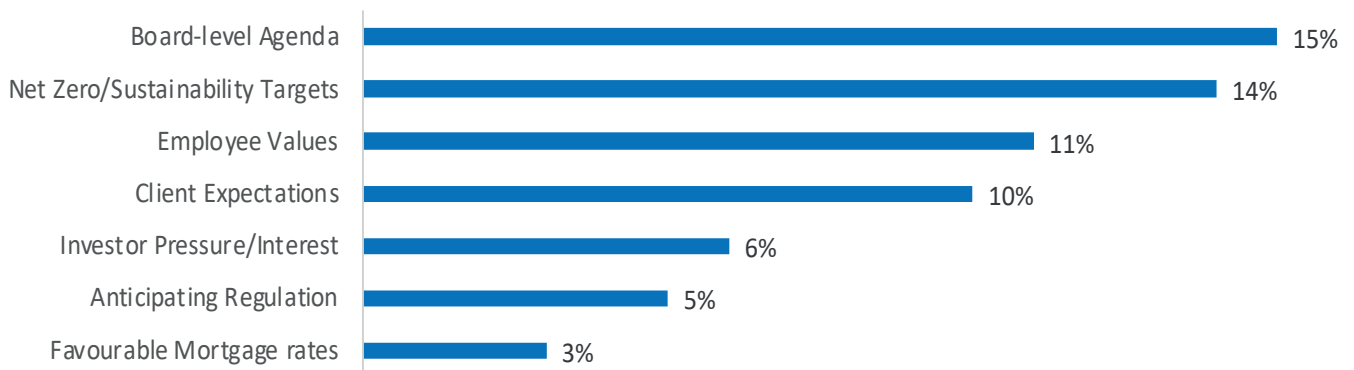


Figure 15. Office Occupiers – Priority Green Features

Office occupiers tend to be driven by cost-saving features such as renewable energy and features that drive operational efficiency, as well as green certifications or ratings that prove progress towards their targets.



87% of respondents already occupy green office spaces and consider sustainability to be a key criterion after price and location. This is largely driven by the board-level agenda and by sustainability targets. Employee values are also an important consideration in their decision-making.

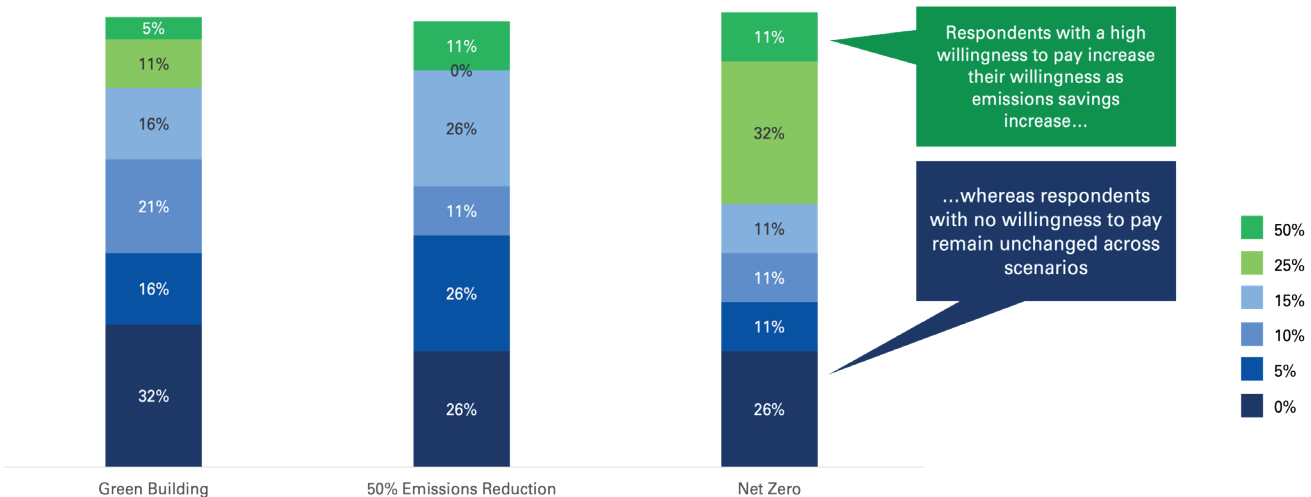
Unlike residential consumers, office occupiers want access to renewable energy and are less driven by access to green spaces. Given their sustainability goals, it's unsurprising that they seek sustainability guarantees to prove progress towards targets. Similarly, because most of these occupiers lease rather than buy, they are keen to see operational efficiency and the conversion of those efficiencies into cost savings.

Interestingly, the respondent group is split into two distinct categories. The larger group, 74%, is made up of those willing to take on premiums. This group increases the size of the premium they are willing to pay as emissions savings increase. This is consistent with previous research, which finds 7 in 10 Indian office occupiers are willing to accept premiums¹¹.

On the other hand, the unwilling group remain unmoved by additional emissions savings. When we dig further into this 26%, we find that several respondents report their company as having no sustainability reduction and reporting targets, when public information on those same companies indicates otherwise. This disconnect between top-down targets and operational decision-makers' awareness of those targets is a crucial bottleneck. It's vital that values and targets are clearly and consistently communicated within corporates, especially to decision-makers. Without this alignment, companies can lock themselves into leases that significantly slow down their progress towards net zero.

Figure 16. Office Occupiers – Willingness to Pay Across Emissions Saving Scenarios

Office occupiers with some willingness to pay for green buildings increase the size of premium they are willing to absorb as emissions savings go up. On the other hand, unwilling respondents are unaffected by increased emissions savings.



¹⁰ "Sustainable real estate: India's response to a greener future", JLL, April, 2022.

THE MARKET IS READY FOR GREEN BUILDINGS AND MATERIALS

There is plenty of scope for real estate developers, architects, and building material producers to target residential and corporate occupiers with green buildings and materials. Instead of shying away from providing sustainable options, the ecosystem should work together to create a greater supply and to effectively communicate the many benefits of opting to go green. Thinking about what the consumer cares about – access to greenery, clean air, reliable materials, and operational savings – and emphasising how green products can help achieve those outcomes will be a critical way forward.



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