SUSTAINABLE WORKSPACES AND INDIAN BUSINESS ENVIRONMENT

VISION FOR FUTURE

JUNE 2022

Confederation of Danish Industry

STRATEGIC PARTNERSHIP AGREEMENT

DANISH ASSOCIATION OF ARCHITECTURAL FIRMS

MINISTRY OF FOREIGN AFFAIRS OF DENMARK

IGBC

Confederation of Indian Industry

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This publication is an attempt to demonstrate learnings captures from the project ***Improving sustainability of urban areas, buildings, and workplaces in India*** which was conducted with the ambition to contribute to sustainable development of urban areas and workplaces in India and to promote responsible business conducts among stakeholder in the building and construction sector. The goal has been to enhance productivity, physical health and well-being of occupants and employees as well as contribute to resource efficiency and reduction in adverse environmental impacts.

Published by:

CII – Indian Green Building Council
Survey # 64, Kothaguda Post,
RR District, Hyderabad – 500 084, India
www.igbc.in

DI India
3rd Floor, Unit, Town Centre 2,
305A, Andheri - Kurla Rd, Mumbai – 400059, India
www.di.dk

Design and Production:

INI Press
71-72, Titanium, Corporate Road, Satellite,
Ahmedabad- 380015, India
www. inidesignstudio.com

Printed in India

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CONTENTS

UN Sustainable Development Goals 2030

Much of India's development agenda is mirrored in the Sustainable Development Goals. Our national plans are ambitious and purposeful; Sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet.

- Shri Narendra Modi, Hon. Prime Minister of India, at the United Nation Sustainable Development Summit (2015)

“CII - IGBC advocates that wellness is an extremely powerful element. It can play a significant role in occupant engagement, productivity, safety, creativity and innovation. Adopting health and well-being concepts improves the built environment and boosts business performance”

- Mr. K.S. Venkatagiri,
Executive Director, Confederation of Indian Industry

PREAMBLE

Denmark and India have been partnering on various fronts including sustainability, development, and economic cooperation. Both the countries have been placing priority on main streaming sustainability in the development process, by collaborating through exchange of ideas, technology, and research.

Furthering the partnership, the Confederation of Danish Industry (DI) and the IGBC Ahmedabad Chapter of Confederation of Indian Industry (CII) have pursued a collaborative research project that identifies the role of green buildings in Indian business environment and creating better economic opportunities. The project is titled - Improving sustainability of urban areas, buildings, and workplaces in India.

As like-minded organisations DI and CII have cooperated for decades facilitating the connection between stakeholders from India and Denmark. During a Strategic Partnership Agreement (SPA) scoping visit in May 2018 to Gujarat, a connection was established

Signing of MOU between DI and CII - IGBC.

DI and IGBC teams at CII - IGBC's annual flagship event - Green Building Congress, 2018 held at Hyderabad.

between DI and the representatives of the local IGBC Ahmedabad Chapter in Ahmedabad. Subsequent dialogue between the parties and exchange of experiences related to the green building movement led to the signing of a MoU in September 2018 paving the way for a research project. Later, a Danish Industry Team attended IGBC's annual flagship event - Green Building Congress 2018, held at Hyderabad.

Danish Association of Architectural Firms (DAAF) which is a member of DI, represents the professional expertise related to the objective of this project. Experts from DAAF are representing the know-how and experience which is considered critical for the success of the project just as the local experience and expertise represented by members of IGBC are vital for transfer and adaptation of knowledge to an Indian context.

THE STRATEGIC PARTNERSHIP AGREEMENT – SPA

In 2017, DI entered into a Strategic Partnership Agreement with the Danish Ministry of Foreign Affairs to support the Danish Strategy for development aid in the period 2018-2021.

As part of the agreement, DI formed the Labour Market Consortium (LMC) with the United Federation of Workers in Denmark (3F) and the Danish Trade Union Development Agency (DTDA). The consortium makes use of the experiences from the Danish labour market model to support improvements of labour market conditions and private sector growth in developing countries and emerging markets. The LMC has active partnership in 25 countries around the globe.

The Consortium focuses on four main areas:

- An organized labour markets
- Social dialogue
- Better framework conditions, and
- Competitive companies, operating in a sustainable and responsible manner

Four areas that promote development – for the benefit of both the partner countries and Denmark. Areas that are also contained in the UN's Sustainable Development Goal 8 about decent work and sustainable economic growth. A stable and productive labour market, both public and private, with decent jobs is also the foundation for the fulfilment of other Sustainable Development Goals.

Partnerships

DI and the other partners in the consortium always work in partnerships with sister organisations by linking our experience from Denmark with our partners' knowledge of the local context. The partners are thus the main drivers of change, but the LMC can contribute to this development using the experiences from Denmark.

DI always work through equal and mutually respectful partnerships with like-minded organisations. Collaboration happens through exchange of ideas, experience and knowledge, as well as advisory assistance and joint international advocacy.

Green transition as a key focus area

The focus of the engagement in each of the partner countries varies depending on which consortium partner leads the intervention, the capacities and priorities of our local partner organisations, and the context, country, or region in which the engagement takes place.

The green transition is, however, a key priority as it will be a key competitive parameter in the future. Countries that are not willing to or capable of implementing green policies and practices risk being excluded from the global value chains and hence loose the potential for creating the necessary local jobs. As such, the LMC works for Green and just transition, with specific emphasis on the following priorities:

- Ensuring social dimension related to green and just transition, including focus on workers' rights, social dialogue, social security, up- and re-skilling, promotion of new and decent jobs.
- Support the business community's green engagement in introducing new green technologies within areas such as energy, water, environment, food, and health. With a focus on the social and environmental responsibility of companies within sustainable global value and supply chains, decent jobs, and living conditions.
- Developing green skills at all levels through skills upgrading, education, and training relevant for the green transition, with a special emphasis on just transition.

The SPA agreement has just been renewed and the new agreement runs for the period 2022-2025.

BRIEF ABOUT PROJECT PARTNERS

Confederation of Indian Industry (CII)

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization. For more than 125 years, CII has been engaged in shaping India's development journey and works pro-actively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness and business opportunities for industry through a range of specialized services and strategic global linkages.

With 62 offices, including 10 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with 350 counterpart organizations in 133 countries, CII serves as a reference point for Indian industry and the international business community.

Indian Green Building Council (IGBC)

The Indian Green Building Council (IGBC), part of the Confederation of Indian Industry (CII) was formed in the year 2001. The vision of the council is, "To enable a sustainable built environment for all and facilitate India to be one of the global leaders in the sustainable built environment by 2025".

The council offers a wide array of services which include developing new green building rating programmes, certification services and green building training programmes. The council also organises Green Building Congress, its annual flagship event on green buildings.

The council is committee-based, member-driven and consensus-focused. All the stakeholders of construction industry comprising of architects, developers, product manufacturers, corporate, Government, academia and nodal agencies participate in the council activities through local chapters. The council also closely works with several State Governments, Central Government, World Green Building Council, bilateral multi-lateral agencies in promoting green building concepts in the country.

Confederation of Danish Industry (DI)

The Confederation of Danish Industry (DI) is Denmark's largest, most representative and most influential business and employers' organization. DI represents more than 19.000 member companies, covering manufacturing as well as service industries across sectors such as transport, energy, IT, health, trade, building and construction and professional services.

DI is operating based on a core belief that a strong society needs strong companies – just as strong companies benefit from a strong society. Companies are crucial to maintaining the prosperity of all Danes, and to achieving societal goals such as a clean and carbon neutral society. Therefore, DI is committed to achieving a Danish society in growth and balance.

DI's mission is to help Danish companies win, both at home and abroad. This is done through 3 main work-streams:

- Activities to improve business regulation at local, national, European and international level in daily dialogue with national and international stakeholders.
- Providing members with numerous services and a variety of relevant networks.
- Negotiating collective agreements with the Danish labour unions – a crucial function in the strong Danish labour market model – and DI advise members on labour and employment law.

The success of Danish companies in global markets is crucial for Denmark's economy. Exports account for more than one third of all Danish income. Every day, DI helps Danish companies turn global opportunities into successful business results – locally, nationally and internationally.

DI participates actively in numerous partnerships domestically as well as internationally, and long-term partnerships and knowledge sharing is considered an essential way of working with key stakeholders pursuing long term and mutual beneficial results.

DI has over 750 employees at our main office in Copenhagen, Denmark. Furthermore, we have offices in Brussels, Mumbai, Chennai, Munich, New York, Sao Paolo, Shanghai and Washington.

Danish Association of Architectural Firms (DAAF)

Danish Association of Architectural Firms is a trade association with approx. 700 member firms. The association is managed by a board, an executive committee and a secretariat headed by a CEO. DAAF's work is based on the strategy 2022-2026 'We shape a sustainable future'.

Architecture is an essential part of our welfare society and a condition for cities, urban spaces, landscapes, housing and workplaces being able to support the good life in Denmark. Danish architectural firms – whether big or small – are widely recognized in Denmark and internationally and are rooted in a tradition where we keep an overall perspective without compromising on a high artistic level.

DAAF focus on helping and providing consultancy to members, and a significant part of the work involves safeguarding the members' commercial interests and influencing the regulatory framework through the political system. When it comes to green transition DAAF believes that an enormous and uncultivated business potential exists for architectural firms, which can be nurtured by ambitious goal setting and intelligent regulation."

ACKNOWLEDGMENT

We are extremely thankful to our case study partners for collaborating with us for the project and sharing their valuable insights, experiences and data for the purpose of this report.

These organisations not only facilitated knowledge sharing for the project, but also opened up their office spaces and gave insights into the way they work and integrate sustainability in their workspaces and business operations.

CASE STUDY PARTNERS

Outdoor Spaces at Ankit Gems

ACRONYMS

CEO – Chief Executive Officer
CII – Confederation of Indian Industry
CSR – Corporate Social Responsibility
DAAF – Danish Association of Architectural Firms
DGU – Double Glazing Unit Glass
DI – Confederation of Danish Industries
DTDA – Danish Trade Union Development Authority
ECBC – Energy Conservation Building Code
ESG – Environmental, Social and Governance
GIFT – Gujarat International Finance Tec-City
GHG – Green House Gas
HOF – House of Furniture
HR – Human Resource
IEQ – Indoor Environment Quality
IGBC – Indian Green Building Council
ILO – International Labour Organization
ISO – International Organization for Standardization
IGBC LEED India – Leadership in Energy and Environmental Design
LMC – Labour Market Consortium
MNC – Multi National Company
NGO – Non-Governmental Organisation
MoSPI – Ministry of Statistics and Programme Implementation
P.V. Installation – Photo Voltaic Installation
RWH – Rain Water Harvesting
SDG – Sustainable Development Goals
SPA – Strategic Planning Agreement
UN – United Nations
VOC – Volatile Organic Compound
WHO – World Health Organisation

This project is a great example that change and development happens through exposure and dialogue between diverse stakeholders with an explorative mindset. Bringing together experts from different fields made it possible to establish new insights about the dynamics and interdependence between employee well-being, workspaces and business performance.

- Bente Toftkaer Nielsen, Director, DI-India

EXECUTIVE SUMMARY

INTRODUCTION

The correlation between a sustainable workspace, employees' productivity & well-being, and business performance has been an area of interest for the researchers as well as the industry. Work environment has both positive and negative impact on the psychological well-being of the employees. A positive, encouraging, and healthy work environment leads to productive output. Alongside the tangible benefits in terms of long-term cost cutting and reduction in environmental impacts, sustainable workspaces offer enormous intangible benefits for the occupants by enhancing their physical, intellectual, and social well-being.

If these benefits are captured and demonstrated, a large number of organizations would be interested in adopting the green building concepts in their buildings or choosing the green buildings for their operations, accelerating the vision under United Nations Sustainable Development Goal 8, "Decent Work and Economic Growth".

Presently there is no model or framework available to capture these benefits at the individual occupant/ employee level and demonstrate the larger benefits at the organization level. Such a framework or set of guidelines can facilitate development of comprehensive business case for green building projects and showcase their importance not only the environmental benefits, but also social and economic value that they bring.

The report envisages to document and showcase, through case studies, the value that is created by integrating sustainability in workspace design and in business operations and develop a framework that defines the relationship between sustainability, business performance, employee well-being in the Indian business scenario.

The report delves into finding answers to following questions:

- What leads/inspires businesses to incorporate sustainable or green features in the workplace?
- How does the business benefit from incorporating sustainable strategies in workplace?

The project framework leads an inquiry on the interrelationship between a workplace, employees or the users, and the business performance. For a comprehensive assessment, a diverse set of case studies were selected from Ahmedabad region. A careful selection of Certified and Non-certified workspaces, from three different typologies was done. Diverse group of workplaces with commonality in their commitment to adoption of sustainable practices in their workspaces as well as their policy and vision were identified. Further, these were the cases that have showcased exemplary commitment in integrating sustainability in their workspace and business operations. Being prominent entities in their respective sector, these cases displayed the capability to emerge as examples that can lead the overall vision and guide the sustainability thought into businesses. Detailed interviews, workshops and site visits were conducted with the Case Study Partners.

SELECTED CASE STUDIES

CORPORATE OFFICE BUILDING - Tenant Occupied	CORPORATE OFFICE - Interiors	MANUFACTURING FACILITY
Shapath IV	Deloitte, Shapath V	Ankit Gems
Shapath V	GIFT House	Astral Pipes
GIFT One Tower	Venus Infrastructure	HOF
	Shivalik House	Prashant Group
		Secure Meters

REPORT FINDINGS

The report indicates that sustainability in select cases is driven by three forces; one, where sustainability is ingrained in the company philosophy; second, the brand value and market positioning thrusts greater action towards integrating sustainability; and third is the technology and compliance driven manifestation.

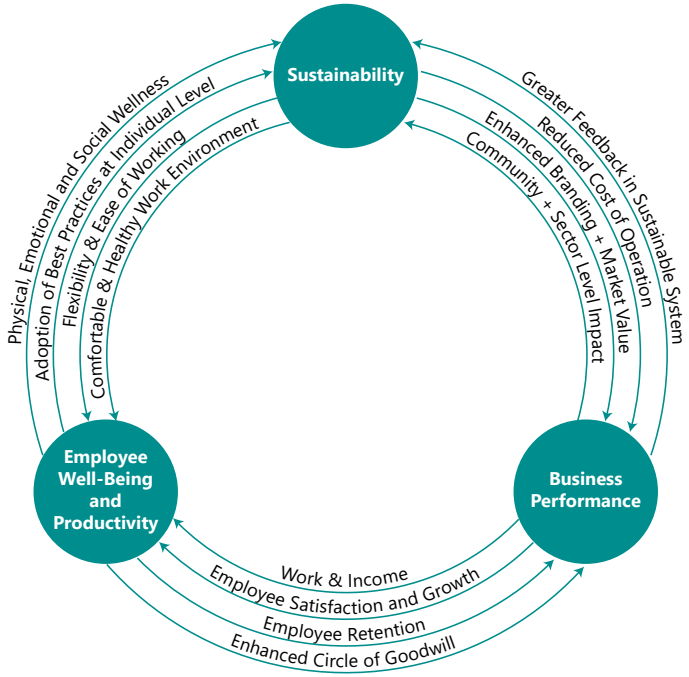
SUSTAINABILITY AS AN ORGANIZATIONAL PHILOSOPHY	A. Sense of community and social security B. Rooted in traditional beliefs and systems
GREEN AS BRAND VALUE	A. Getting high value occupants B. Improved market visibility C. Increased demand in space per person D. Green building is understood as futuristic building
SUSTAINABILITY AS A REQUIREMENT	A. Technology driven B. Market driven

KEY TAKEAWAYS:

- Sustainability in workspace gets manifested in parameters beyond the quantifiable resource efficiency parameters, offering access to daylight, well- planned working

stations, ventilation, outdoor views, thermal comfort, and access to open and enabling spaces for interaction and other activities, making them healthy and happy workspaces.

- Most of the businesses that have integrated sustainability in their workspace design and operations are people centric, with their business sensibility inclined towards well-being and human resource development.
- From the study, it is inferred that a sustainable workspace attracts greater market visibility, high value occupants and higher investors.
- A sustainable workspace is also understood to be a healthier and livable workspace. It is acknowledged to play an important role in employee well-being.
- Sustainable workspaces, along with enhanced employee well-being and business operations, generate significant tangible as well as intangible value for the business.
- The tangible value (profitability) in business operations is enhanced through the quantifiable and identifiable impacts in form of resource efficiency and cost savings.
- Enhanced market credibility and edge in branding as a sustainable workspace is amongst the important drivers for intangible and direct contribution of sustainability to boost business performance. It is also seen that sustainable workspaces increase the trust factor of end users in terms of quality of product, thus impacting the business positively.
- Sustainable workspaces are also enabling spaces, allowing businesses to adapt to different situations, offering flexibility in working, especially during challenging times like the pandemic.
- Working in enabling, healthy and comfortable environment has a positive impact on employee retention and in attracting new talent, making these businesses the preferred employers and enlarging their circle of goodwill.
- Integrating sustainable practices in business creates a multiplier effect, paving the path to achieve the UN-SDGs, reduce greenhouse gas emissions and contribute significantly to national net zero targets at the broader level.



Decoding the Correlation between Sustainability, Employee Well-Being & Productivity and Business Performance

The study reveals that there is a missing link for ascertaining the role of sustainable parameters on the business performance. What is needed is a tool that can help the businesses understand the dynamics that leads to intangible value creation or quantify it to empirically understand how it helps their growth. Such a tool will not only encourage the businesses to adopt sustainability in their workspaces and operations but will also go a long way in encouraging a sustainable growth that is not measured only in terms of the output, but also mainstreams the impact on employment and productivity.

Atrium at Shivalik Shilp, Ahmedabad.

INTRODUCTION

BUILDING SECTOR AND WORKPLACES IN INDIA

The past two decades have seen a transformative change in the Indian building sector. As the forces of globalisation affected the lifestyles, the building usage and building design has also undergone change. From rapid construction to an emergence of new building trends, the urban India has seen a significant change in the real estate sector.

With the phenomenon of rapid urbanisation along with the push factors such as favourable demographics, policy reforms undertaken and sound macro-economic dynamics, India has emerged as one of the fastest growing economies in the world. The Indian real estate holds immense significance in the Indian economy, being the third largest after agriculture and manufacturing. (KPMG, 2022)

Despite the outbreak of the second wave of the Corona virus (COVID-19) pandemic, according to MoSPI, the construction industry in India registered a year-on-year (YoY) growth of 68.3% in real terms in the second quarter of 2021. The industry is further expected to keep growing at annual growth of 15%. (India Construction Trends and Opportunities Report 2021-2025, 2021)

With the increase in the real estate investments in Indian cities, a forward growth is simultaneously observed in the corporate sector of real estate along with. Retail, Hospitality and Commercial real estate are growing significantly, providing the much-needed infrastructure for India's growing needs.

Formation of the Indian Green Building Council by CII in 2001 has changed the facet of green buildings in India. The council's activities such as rating systems, local chapters,

capacity building programmes have accelerated the green building movement in India and gained tremendous impetus over the years.

Despite of the fact, the current stock of green buildings in India is only 5% of the total buildings in India, showcasing massive market potential of green buildings in India. (India Green Building Market Opportunity Outlook 2020, 2016)

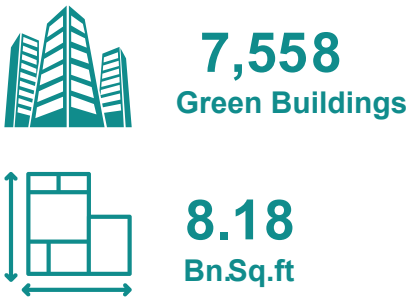


Fig. 1 - Green Building Projects in India
Source: https://igbc.in/igbc/

The green floor space in the country is on the rise. According to Indian Green Building Council, there are 7,558 Registered Projects and a 8.18 Bn. Sq. Ft. green building footprint. It may take some time, but green buildings could become a norm for all new developments if things remain on track. (Dhir, 2021)

WORKPLACES – IMPORTANCE AND ROLE IN SOCIETY BUILDING

The pandemic brought to the forefront the ability and advantages of working remotely, thereby paving way for a Hybrid model of working. However, employees still want to come back to workspace, with a flexibility in timing, primarily to connect with their colleagues. It is the "social experience" of the workspace that is still keeping the workspaces alive. This factor underlines the significance of workspaces in a society at large. These spaces and buildings serve not only to generate employment and run the economy of the countries, but also provide an important function of giving a platform to interact, connect and collaborate. An enabling workspace thus facilitates the atmosphere where people can thrive, be productive, and enhance their overall quality of life.

> **Finding ways to achieve sustainability and inclusion and growth will pay off in benefits for society and expanding economic prosperity for all.**

- McKinsey Global Institute, 2021

Workspaces play an equal role in business and employee productivity, as the brand value and reputation of the company. Workspace is where you spend more than 1/3 of your lives. (Bhardwaj, 2022) A good workspace is significant both for the employer and employee. Organizations reap many benefits from creating more human workspaces, including better employee performance, improved safety and health, and greater worker satisfaction and commitment. This finding is true across industries and applies to blue- and white-collar employees and to small and large organizations. Evidence shows that employees thrive in caring workspaces. Thriving employees are not only satisfied and productive but are also actively engaged in shaping their own and the organization's future.

A green workspace further underlines the value that the built form can bring to its users. An IGBC study in 2017, titled "Impact of Green Buildings on Occupants' Well-being", indicated that green buildings support healthier and happier living. Facilitating thermal comfort, optimum illumination and noise levels, proximity to green and open spaces, and ergonomics, green buildings significantly contribute to providing a comfortable working environment to their occupants.

Whilst the demand for sustainable workspaces is driven by the need for healthy and environmentally responsive workspaces, the process of creating a sustainable workspace requires employee engagement and a level of awareness and education. There is an opportunity to provide not just a workspace that reduces operational costs whilst increasing

Fig. 2 - Components of a good workplace

staff productivity – a sound business case; but to engage the community in pursuing a responsible approach to our environment; providing the opportunity to change cultural behaviour on a daily basis throughout the workspace and broader community. (Jackson, 2009)

EMERGING TRENDS / CHANGING SCENARIOS

In the recent times, it has become widely understood and established that the environment you work in, defines the quantum of output and individual health and well-being. The impact of COVID-19 pandemic has led to a realisation that offices need to be more adaptive in nature in order to create a sustainable workspace.

Most of the companies and their employees have recognised the pro's and con's of working remotely during the pandemic. As we navigate through times, the future of work has been widely debated and speculated. While the sociability of the office is indeed missed, increased time spent indoors is expected to enable the transition to flexible spaces, that will provide the businesses and employees the required agility to continue operations seamlessly. (Anarock, 2022) Trends across diverse driving forces of an ideal workspace have been noted to understand the shift in workspace and associated environment in India.

Employees themselves today recognise the need for and importance of enabling working spaces. Studies indicate that today's workforce now expects benefits beyond the monetary compensations and may even be willing to bargain monetary benefits with some perks that can enhance the overall quality of the working ambience and comforts. (Byars, 2018)

Thus, reading the sentiment of the users, companies are adopting innovative workspace strategies that combine cost management and space efficiency with features especially focussed on talent retention. This trend is likely to influence the businesses' choice and decision-making regarding workspace location and design, primarily driven by need for building market image and ability to retain talent. (CBRE & CII, 2017)

Trends in design and layout

The trends in design and layout of the office space in the current times have been greatly influenced by the advent of pandemic. Before the pandemic struck, the office spaces

in India were going through a cultural shift. There was a transition towards informal spaces for interaction, collaborative areas within the open-office layout to encouraging teamwork. Openness in layout, spaces for interaction and facilitation called by various names such as breakout area, informal meeting area, collaborative spaces, and agile areas, had been emerging with the vision to infuse teamwork and brainstorming. (Design, 2019)

The way the office is designed, and the space is laid out is often considered a reflection of company's culture and vision. Over the last few years, there has been a paradigm shift of office furniture designs owing to technological advancements among other dynamics. The interior design and layout of workspaces is driven by ergonomics, flexibility, smart / IT enabled, and eco-friendly materials. The sustainable materials have been a popular trend in India not only for its environmental benefits but also due to its aesthetic value that reflects in the rustic and natural look of the office furniture. (Prasad, 2019)

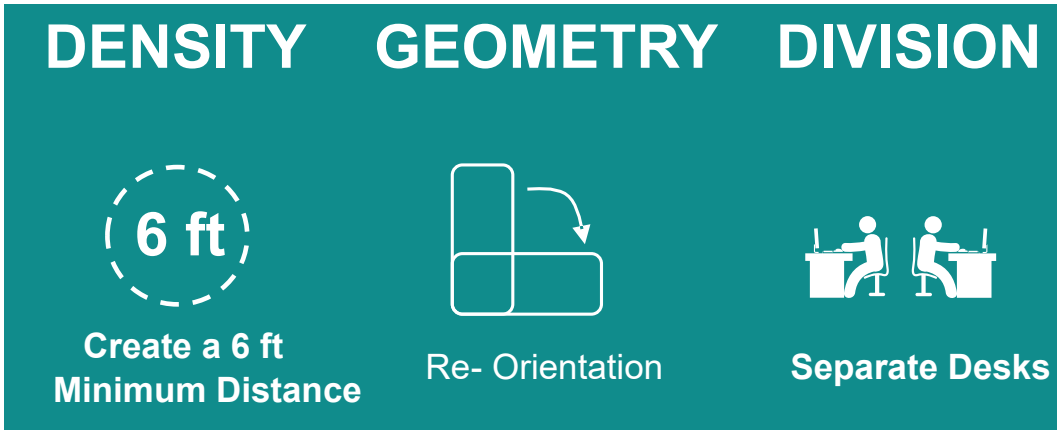


Fig. 3 - Probable changes in workspace design in Post-Pandemic Times; Based on Ivranston, 2022

Post pandemic, the focus is on productivity and well-being (Gensler 2021) The Pandemic has in many ways emerged as the chief designer of office spaces in the future. Workspaces are at a point of inflection where it is confronted with dual challenge of collaborative productive work along with the concerns of health and safety of employees. (Anarock, 2022) More focus of the office space design is in the areas of seating layout, seating management, communication, and project management tools.

Market driven trends

In addition to the design and layout changes in office spaces, the market forces are observed to have a significant influence on the office spaces, typology and workspace culture and environment. A study of several market reports suggests emergence of several ideologies that shape the present day corporate and manufacturing spaces. It suggests that following trends shall dominate the commercial and corporate real estate in the post-pandemic era.

As per the market studies and real estate reports, **HYBRID OFFICE WORK MODEL** trends have seemed to be the most convenient and suitable option for corporate office in the post pandemic times. It incorporates a mix of in-office & remote work in an employee's work schedule. (Anarock, 2022) Allowing for flexibility in working conditions, this model pushes the limits of traditional working methods, without affecting employee productivity or cost enhancement. Well supported by the market trends, this model of work environment is duly accepted by a significant share of employees, as suggested by a linked in survey by (Anarock, 2022).

On the other hand, the phenomena of **CO-WORKING SPACES,** has been evolving long before the initiation of hybrid concept of work culture. However, it has remained un-organized and localized for a long duration. It is only in the past couple of years co-working spaces have emerged as an innovative trend of cost optimization and effective and efficient workspace management. India is at the cusp of a co-working revolution with several large players spread across the country.

> **India's Professional workforce reported high effectiveness while working remotely – as the workplace reopens, productivity and well – being will be top mind.**

According to Gensler India Workplace Survey 2021

Billed as the fourth industrial revolution, technology has become deeply entrenched in our everyday lives. It has also become a key differentiator in the way companies conduct business operations. The changing facets of companies work culture and emphasis on sustainability enhancement have also led to development of **TECH-ENABLED ENVIRONMENT AND SPACES**. Integration of modern technology with AI assisted job roles and office environment is envisaged to be a common sight, to enhance the productivity and sustainability of workspaces.

Offices and manufacturing units are constantly evolving to accommodate the employees, without hampering the productivity and sustainability of the space. As a result of it, a focus is developed on creation of **OPEN SUSTAINABLE SPACES** in the work areas. Incorporation of sustainable materials in the developing commons areas of workspace, installation of indoor plants, efficient air conditioning is turning out to be primary areas of focus in the present times, enhancing the health and well-being of the employees in tandem with the overall productivity of the organization.

Considering the current scenario, **RETROFITTING AND RE-PURPOSING** is also taken up by many office spaces. The Judicious use of available spaces and retrofitting of properties, to ensure safe physical distancing and to accommodate all the users, have become crucial. Additionally, eliminating the need to develop additional space, the alternative use of existing space through re-purposing is an emerging trend in the industry.

Flexibility as a concept have had a sudden emergence in Indian working culture, to accommodate the needs of human well-being and keep the business running. While the flexibility to work remotely have enhanced social sustainability, the **FLEXIBLE LEASE TERMS** is assumed to have strengthen the economic/financial sustainability of the businesses. The pre-pandemic lease terms were infamous for rigid terms and conditions and non-flexible payment plans. However, the pandemic has altered the way the world works, so has the working style of lease providers.

In addition to all the trends that market have said of influencing the workspaces in India, a special attention is pinned down to **MENTAL WELL-BEING**, (Mathur, 2022) This is leading to the provision of diverse areas within office spaces to relive the stress of the employees and which makes the employees feel at ease.

Sustainability in workplaces

Integrating sustainability trends in commercial design is no longer something that a company strives for. It has become a standard practice for companies to go green and embrace the environment. (Sharma, 2021) Green rating systems such as IGBC ratings are further main-streaming the sustainable thought in development.

The drive towards sustainability has also been fuelled by the employees, especially the younger generation, who want to work for companies and organizations that focus on sustainability. Thus, attracting and retaining talent, along with a good market image, companies are foraging to reduce carbon emissions and focus on sustainability.

Various types of workspaces in the country, ranging from offices to warehouses, manufacturing units and data centres, are embracing green standards. This is being further accelerated by the increasing presence of global brands that are close to or have achieved net zero carbon emissions. (Sethi, 2022)

Corporate Office of Venus Infrastructure, Ahmedabad

The pandemic has also brought forth the significance of integrating well-being in the built environment. There is further a significant step-up towards moving beyond green, that encompasses the broader framework of sustainability. In this framework, the manifestation is beyond the physical building parameters that ensure resource efficiency.

The new paradigm integrates the measurable green features of the built environment with the characteristics that make a space more livable, interactive, ergonomic, healthy and thereby, more productive, and happy. In this changing scenario, it becomes imperative to understand the value and efficiency created by sustainable workspaces. This value – Social, Economic and Environmental – is created through direct and indirect influences of the construction and physical development. An identification of this value generated through the life cycle of the workspace shall not only help integrate the SDG agenda in corporates business operations but will also widen the job creation potential, increased productivity.

Today, green building certifications are not only associated with energy-efficient, environment-friendly building design but are also recognized as useful tools for creating a healthier working environment for the inhabitants of our buildings and public spaces. Around the world, green buildings are being created in line with resilience-enhancing designs, technologies, materials, and overall best practices. One thing that all green buildings have in common is their unwavering commitment towards making a difference to their communities by implementing green strategies that conserve energy, reduce and reuse waste or water and promote sustainable practices that lead to reduction of carbon emissions. (Kapoor, 2021)

However, the case turns out to be varied in case of Indian perspective. Studies indicate that Indian users adopt green practices downstream, but do not see it as an upstream solution to protect their health and thereby enhancing business productivity. Further, the misconception associated with the costs of green building construction continue to be a deterrent.

This thought needs to be revolutionised and upgraded. Business and workspace developers must realise the true meaning and benefits of adopting sustainable workspace. The top ways to motivate them and consumers to embrace and demand green buildings is by going through health. **HEALTH IS THE NUMBER ONE MOTIVATOR FOR GREENER BUILDINGS**, so bringing in buildings as part of the pandemic conversation is truly an opportunity. The second highest motivating point is showing employees how they'll be more productive. And the third, which is unique to Indians, is there's a real sense of pride in place and being in a green building and feeling like that is powerful and meaningful — pride that the building owners have invested in them in this way and invested in their health. (Trierweiler, 2021)

According to a report by McKinsey Global Institute, the business shifts made during the pandemic could yield greater productivity. Extending operational advances made during the pandemic across entire supply chains can amplify productivity gains.

As COVID_19 recedes, world leaders have an opportunity to focus on improving lives and livelihoods by pursuing three enormous goals: **GROWTH, SUSTAINABILITY, AND INCLUSION**. At times these goals reinforce and enhance each other, while at other times they counteract each other. So, while many agree on the aspiration, trade-offs often become the focus—sustainability or growth, inclusion or sustainability.

> **Acceleration of Digitization and Automation and Other Operational Adjustments that Businesses made to Adapt During the Pandemic could Enhance Productivity and Economic Growth.**

(McKinsey Global Institute, 2021)

RELEVANCE OF GREEN WORKPLACES

Workplace and productivity

The culture of living and working is undergoing accelerating social and technological changes. (Clements-Croome, 2001) Organizational environment plays an essential role for the employees. The quality of environment in the workspace may simply determine the level of employee's motivation, subsequent performance, and productivity. (Hamdi, 2017) Poor workspace environment contributes to absenteeism. Additionally, hazardous work environment may also degrade the health and well-being of the employees especially the bottom level employees, who are exposed to a higher level of infectious work environment. Over the past 20 years, the association between built environment and health, well-being and performance has attracted increasing research interest. (Xie, 2017)

It generally comprises both of physical working conditions of the place as well as the policy framework, overall vision, and mission of the firm. Work environment consists of the office buildings, its furniture and layout as well as the physical conditions under which employees operate. it is also concerned with the external factors to the business which the office serves, the industry or other activities within which the business lies, the custom and laws of the community within which they operate. (Shimawua, 2017)

Work environment has both positive and negative impact on the psychological well-being of the employees. A positive, encouraging, and healthy work environment definitely lead to an enhanced productive output. Over the time as the perceptions of workspace environments are evolving, the spaces are now realised as labs for productive work with an optimally managed environment. (Anarock, 2022). However, a lot is yet to be explored.

The "success" for a business may be defined by two aspects – Reduced Costs and Value Addition. While value addition is driven by a range of parameters such as product quality, innovation, client services, employee retention, quality of life, perceived value, and so on;

Cost reduction comes under a singular head of operational efficiency. Despite being a lone parameter, operational efficiency has emerged as the most important design driver for green buildings. While this may largely be attributed to the ease of measurement and documentation, it is also due to the fast and visible results of resource efficiency in a business. (Heerwagen, 2000).

Alongside the tangible benefits in terms of long-term cost cutting and reduction in environmental impacts, green buildings offer enormous intangible benefits for the occupants by enhancing their physical, intellectual, and social well-being. These benefits at the individual occupant's level culminates to a larger benefit for the organization. World Health Organisation (WHO) highlights the importance of Wellness and defines 'Health as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'. Wellness is an extremely powerful element that can play a significant role in occupant engagement, productivity, talent retention, creativity and innovation.

As the studies begin to document the impact of green buildings on productivity, there is need to assess the level of acknowledgement and understanding that businesses have of the potential impact that sustainable workspace can have on their productivity and business performance.

In a broad framework, the feedback cycle between growth and sustainability is based on the understanding that without sustainability, there cannot be a long-term, tenable view on growth. And that sustainability requires prosperity that can pay for the transitions needed which will be fuelled by adequate growth. (Strenfels, Fracis, Madgavkar, & Smit, 2021). This interrelationship, however, is yet to be mapped and understood at the individual business and building level. That is, whether there is an appreciation of the value that sustainable parameters feed back into the growth cycle of their business, and that green built environment facilitates business growth, is yet to be understood.

PROJECT INTENT AND BACKGROUND

The UN Sustainable Development Goals 2030 acknowledge that green buildings contribute to at least nine out of the seventeen goals identified in the framework. In some cases, the role of green built environment is direct and quantifiable, while in most other cases, the green buildings offer enormous intangible benefits for the occupants in terms of enhancement in their physical, intellectual and social well-being.

If these benefits are captured and demonstrated, large number of organizations would be interested in adopting the green building concepts in their buildings or choose the green buildings for their operations. This larger adoption of the green concepts in turn would significantly contribute for sustainable urban development and the all the nine identified SDG's of the United Nations.

Goal 8, Decent Work and Economic Growth, can greatly be accelerated through measures such as greening of workspaces, emphasis on clean production facilities and safer working environments, creation of green jobs, recalibrating market forces for sustainable development and development of green economies.

The ILO defines decent work as "work that is productive and delivers a fair income, security in the workspace and social protection for families, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men." (ILO, 2022).

How people 'function' and 'feel' within personal and social circles strongly reflects the kind of environment they live in. The way people 'function' reflects their connection with their surroundings. Therefore, the built environment plays a vital role in health & well-being of the occupants and should be closely knitted with people centric design.

However, measurement and quantification of the qualitative indicators of "decent work" remains a challenge for researchers (Green Jobs Assessment Institutions Network, 2017). These are affected by a complex mix of built space, operational policy and overall management and vision of the business.

The only framework available is for the measurement of environmental impacts of a building and whether it can be classified as green building or not. But the major question, as represented by Hugh Byrd and Eziaku Onyeizu Rasheed is that, whether the Standard IEQ metrics representative of a good working environment? Without these questions

Fig. 4 - UN Sustainable Development Goals
Source: https://www.worldgbc.org/green-building-sustainable-development-goals

> **What is needed is an estimate for a triple bottom line that can support development of a sustainable business case including a life-cycle perspective and the value created for multiple stakeholders.**

being answered, a green building is any more productive than a reasonably well designed non-green building is difficult to ascertain. (Rasheed, 2016)

Presently there is no model or framework available to capture these benefits at the individual occupant/ employee level and demonstrate the larger benefits at the organization level. If these benefits are captured and turned into (Green building) guidelines that can be applied by organisation to ascertain the benefits, it will generate wider scale support for sustainable development of buildings and built environment, for the benefits of occupants and society at large.

This missing framework or set of guidelines can facilitate development of comprehensive business case for green building projects and showcase their important for not only the environmental benefits, but also social and economic value that they bring, similar to the way green building rating systems provide a comprehensive case for the resource efficient buildings and resultant cost saving in building operations.

The project envisages to develop a tool – as a standard, to measure the value created by the built form and link it with the existing regulatory and policy framework. This shall not only help integrate the SDG agenda in corporates business operations but will also widen the job creation potential and increased well-being.

OBJECTIVES OF THE PROJECT

The project started off with initial objective of developing a framework that enables development of more **comprehensive business cases** for green building projects aiming at improving the **productivity, physical health, intellectual** and **social well-being** of occupants.

However, as the project progressed and the global pandemic set in, the activities re-oriented and adapted to address the new emerging concerns with respect to workspace, working patterns and productivity. Hence, the redefined objectives of the project are:

- Document and showcase, through case studies, the value that is created through integration of sustainability in workspace design and in business operations, and develop a framework that defines the relationship between sustainability, business performance, employee well-being in Indian business scenario.
- Run **dissemination activities** to ensure **awareness and implementation** of this framework among enterprises involved in **developing urban areas** in India, e.g., real estate developers, engineering companies, architectural firms as well as among decision makers, e.g., state official, investors, and inhabitants of urban areas.

The overall ambition with this project is to **contribute to sustainable development of urban areas and workspaces in India and to promote responsible business conducts** among stakeholder in the building and construction sector. **The goal is to enhance productivity, physical health and well-being of occupants and employees as well as contribute to resource efficiency and reduction in adverse environmental impacts.**

“Economic growth is important, so is the environment. Integrating sustainable measures in our workspaces can help balance both these aspects. Besides resource efficiency, it has an immense impact on the health and well-being of employees, resulting in higher productivity and talent retention.”

- Sameer Sinha, Chairman, IGBC-Ahmedabad Chapter, Managing Director, Savvy Infrastructure

“Successful companies are excellent at creating shared value through stakeholder dialogue. To tap into the superpower of motivation among employees, companies must be serious about how they learn from employee insights, also when it comes to enhancing the workplace. What works? What doesn’t? How can we improve our workplace and organization together?”

- Ar. Peter Andreas Sattrup, Head of Sustainability, Danish Association of Architectural Firms

INTERNATIONAL PERSPECTIVES

WHAT ARE THE SECRETS TO GREAT WORKPLACES?

Understanding how the qualities of buildings and spaces affects people can lead to new business performance insights and change the way we invest in the built environment and workspaces.

How does the design of workplaces – in this study specifically factories and offices – contribute to employee well-being and business performance? And more generally, how does the design of places, buildings and spaces create value in the widest possible sense – contributing to realization of the United Nations' Sustainable Development Goals?

The Danish Association of Architectural Firms is delighted to engage with our colleagues in the Indian design, construction and real estate sector at the IGBC and CII in a continued conversation on how design excellence can improve life conditions and contribute to business and societal development considering the United Nations' Sustainable Development Goals. We are keen to learn more about the Indian business and societal context, and glad to have the opportunity to share some of the insights from our work regarding sustainability of the built environment from a European perspective in exchange. While the disruption caused by the Covid19 pandemic meant that no one worked as they normally would do, one thing we certainly learned from the pandemic, is that the usage of space really matters.

Despite clear differences in the Indian and Danish context when it comes to aspects such as geography, culture, and the societal development changes we face, we are absolutely convinced that there is a strong potential for collaboration, particularly with a

view to improve life conditions through the built environment while identifying pathways that allow us to mitigate the perils of climate change, ecosystem loss and resource depletion in the future. These challenges require collaboration at an unprecedented global scale, building capacity and knowledge to accelerate the green transition. This is a monumental challenge if we think of the urgent problem of overshooting Earth's capacity of regenerating ecosystems and resources, which is also why we should be quite humble and careful about using the terms sustainable or green in any absolute sense. But what we can do is to recognise and incentivise steps in the right direction. We need to redefine how we think of value to include both social, environmental and economic dimensions, from the short term of present demands to the long term of ensuring the needs of future generations, following the classic United Nation's Brundtland report definition of sustainable development.

As the pressures of climate change, ecosystem disruption and resource shortages due to human activities become even more evident and require urgent action at all levels, businesses find themselves at the heart of the green transition. We believe, based on the experience of Danish architectural firms and industrial companies in general, **that those who contribute to sustainable development will thrive and become even more competitive for the future**. The key to sustainable value creation in the built environment is in our view a process of identifying needs and using design to maximise the benefits to as wide a range of stakeholders as possible including the surrounding communities. At the same time costs and the use of resources should be managed wisely, identifying pathways and circular economy strategies to eliminate the present problem of overshooting Earth's capacity to regenerate the resources that we use.

Sharing knowledge and learning from each other is key to mutual success, and in light of India's rapid development we believe that insights leading to scalable solution can provide benefits at a huge scale. By participating in this project, we aim at contributing to SDG#8 Decent Work and Growth by examining how a range of companies in Gujarat use

the design of their workplaces to underpin their business philosophies aimed at ensuring employee well-being, motivation and productivity. If we can identify what makes people thrive and design places that underpin activities, they find meaningful and desirable, we can create better value when collaborating with our stakeholders in the built environment and possibly contribute to sustainable development.

At the Danish Association of Architectural Firms, we have been asking ourselves how the design of the built environment creates value to investors, users and communities for some years now, building a collection of case studies, documenting the value created by architectural interventions, describing some of the processes that underpin the creation of shared value successfully. This effort proved much more difficult than we imagined, since until very recently practically no one in the entire construction industry returned to their projects after they are handed over, to find out how they affect people, businesses, or communities – in short: how the projects create value to their many stakeholders and society at large. That is a major blind spot, which means that critical knowledge and opportunities to improve conditions and performance are lost for both investors, building owners and user and society at large. But why are these questions so fundamentally important?

Through our collection of Danish case studies, we learned that the benefits can be dramatically improved, for instance improving urban life conditions or assisting patients' recovery in health facilities. But **the interesting thing is that costs are not necessarily higher, the more benefits you achieve. Some projects show that great user satisfaction can be achieved at reduced economic costs while cutting carbon emissions by more than half compared to conventional solutions**. It is mainly a question of how much energy and time invested in the preparation and design phase of project development, whether it is renewing an existing building or new buildings. **The point is that the preparation and design phases cost next to nothing in the perspective of a building's life cycle**, and thus the crucial strategic decisions that will

affect building performance and users' experiences for the many years that follow should address the design aspect.

Construction is costly, of course, but the cumulative costs of building operation, maintenance, adjustments, and replacement of parts over time is of a much higher order. But what if the design and quality of the environment enhances people's health and well-being which usually is correlated to productivity? For most businesses, even a tiny increase in productivity of staff supported by the design quality of the workplace, is worth so much more than what was invested in designing the workspace. The issue is that these benefits materialise over time and are rarely measured or even evaluated. **If we really want to improve business performance, we need to revisit projects to study how they create value to the businesses and their employees. As a business owner – wouldn't you like to know how your physical environment is an asset to the way your organisation works?**

To help solving this loss of knowledge and business opportunity the Danish Association of Architectural firms published a guide (based on Danish case studies): ARCHITECT – Document your value creation, that enables architect and their clients and collaboration partners in the building industry to be much more precise about how to create value and communicate it with consistency. **The backbone of the studies that lead to the guide is stakeholder engagement through the preparation, design and use stages of a project, taking great care that the different value perspectives are integrated in solutions that create shared value for investors, users and the community.** That is what successful architectural interventions do, in the short term and long term.

To know what people find valuable, you need to ask them what they think, and study what they do (which can be very different from what they think they do). The methodology therefore introduces surveys, interviews and questionnaires as means to assess and sometimes quantify specific aspects of what works or does not work for the occupants

and identify qualities that they find significant for them to thrive. There can of course be issues that need careful consideration for the research to be credible and worthwhile. For this methodology to work a certain level of trust is needed, that information will be handled, interpreted, and communicated correctly, and this can be difficult to achieve if there are differences in the power positions of the different stakeholders, which is almost always the case. Nevertheless, to identify solutions that create shared value, these diverse views necessarily have to be integrated in the solutions to create a sense of ownership and identification.

Based on the learning from the Danish study we believe it is of utmost importance to have these conversations about how we create shared value together, as individuals, as organisations, as businesses, as a society, and we look forward to continuing these conversations with our Indian partners on how we can accelerate societal development and the green transition of the built environment together.

Podium Terrace at Shivalik Shilp, Ahmedabad.

APPROACH AND METHODOLOGY

THOUGHT FRAMEWORK

A sustainable building/workspace creates value in multiple spheres. It renders environmental, economic, and social benefits for its owners as well as the users. Studies indicate that a sustainable building also generates value for business performance. While the environmental and economic value created by a sustainable workspace is quantifiable and well documented, it is the intangible value created in form of social benefits, employee well-being and business productivity that is difficult to identify, appreciate, measure, and document.

The project places itself in the life-cycle of a building where the interplay between the 'cost incurred' and the 'value created' changes as the life of a building, or a workspace as in this project, progresses. It is understood that over time, the circle of value that the building generates enlarges and spreads beyond the costs that are incurred. Refer figure 5. Knowing the extent of value generated is imperative to justify the costs. In case of a sustainable workspace, the project argues that the value generated goes much beyond what can be measured.

At the second level, the project draws upon the senses-body-mind approach that correlates the physical, emotional, intellectual, and social functions of a person to his or her surroundings and overall quality of life. The approach centres itself in the five elements of nature and their manifestation in the built forms. It is understood that the way the elements manifest themselves in a building has an impact on the health and well-being of the building user, refer figure 6.

In absence of tools that can help businesses identify and measure this intangible value generation, it is interesting to note that many businesses build upon their sustainability

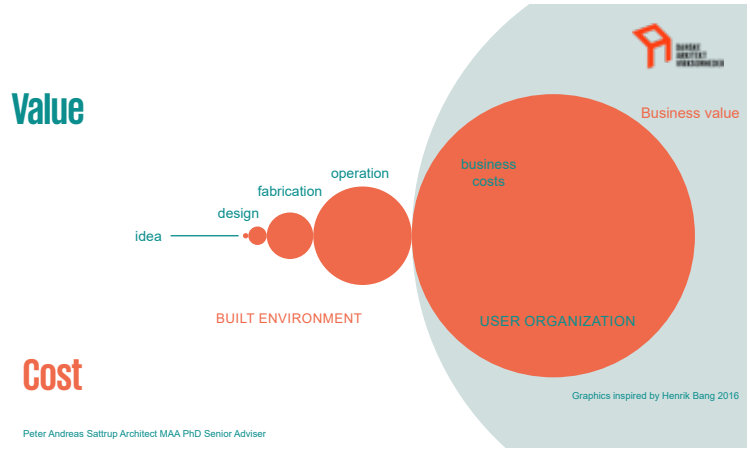


Fig. 5 - Value Creation by Architectural Design
Source: (Sattrup 2017)

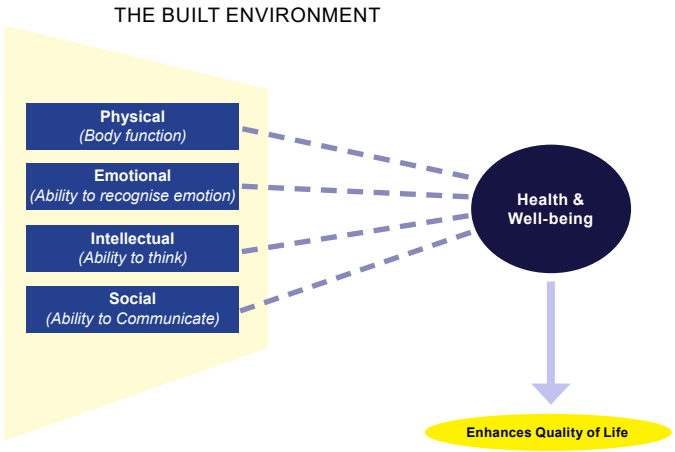


Fig. 6 - A holistic 'Whole Body Mind' approach
Based on IGBC Health and Well-being Rating for Occupants (Pilot Version)

quotient not only in the building design, but also in their operations and policies. These are the businesses that see value in adopting sustainable designs and methods, developing healthy work environments and catering to the employee well-being. They have been able to identify the benefits these practices bring to their business overall. However, what inspires or drives them to incorporate sustainability in their workspace is unknown. What are they able to see beyond the given and documented environmental and economic benefits that largely transpire in form of resources conservation and thereby operational cost? An understanding of this tacit information that helps businesses create value for their overall growth and productivity shall open the way to identify the parameters that create value and further be able to develop tools that can help measure this intangible benefit.

GUIDING QUESTIONS

- **What leads / inspires businesses to incorporate sustainable or green features in the workplace?**
- **How does the business benefit from incorporating sustainable strategies in workplace?**

Methods

The methodology evolved as the project delved deeper into the guiding questions. While, what was needed to be asked and explored was formulated, it was an explorative journey to establish the "who to ask" and "how" for the project.

Workspaces are of different typologies – corporate offices, industrial units, construction sites, co-working spaces, and so on. Each type comes with its unique challenges, working

environment, and requirements. From this pool of the workspaces, the project first required to identify the right case studies that shall offer us the insights into their working space as well as operational policy.

At the second level, the project streamlined the process, including the tools for collecting information, implementation methodology and methods for mapping and analysing the information to arrive at comprehensive takeaways and case studies that can showcase the benefits of sustainable practices for Indian businesses.

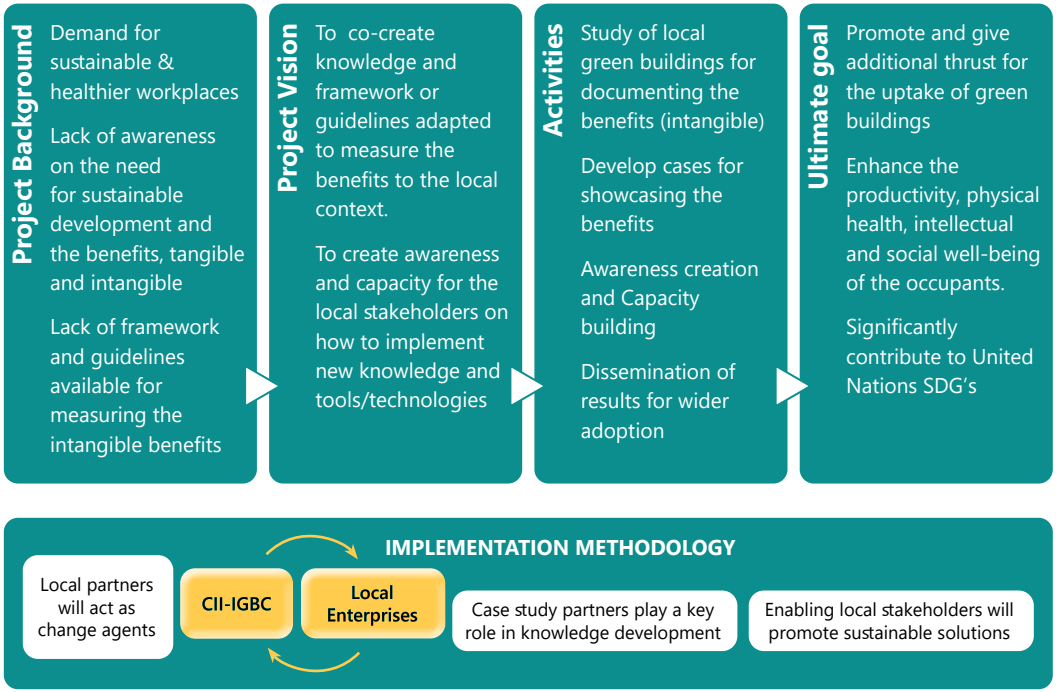


Fig. 7 - Implementation Methodology for the project

The project was also conscious of the geographical implications on the workspaces, their spatiality, and operational systems. Hence, as a pilot, a conscious selection of case from Gujarat region was made with IGBC Ahmedabad Chapter acting as the Local Partner. The entire process has been exploratory and adaptive to the changes and challenges that were faced in the due course of the project. Figure 8 represents the implementation methodology of the project.

IDENTIFYING THE CASE STUDIES

Identification of the appropriate case study was important as insights and data received from them was going to be representation of the business scenario for the region. Hence it was important to choose a sample that is illustrative of all types of workspaces and can showcase the comprehensive picture as well as type-specific scenario for different workspaces. As the first step, broad categories of the workspaces were listed out and from these, the most prominent ones were identified, and a group of workspaces with diversity in its functioning and businesses are selected. In all of these, one thing that was common was their commitment to and adoption of sustainable practices in their workspaces as well as their policy and vision.

Corporate Office Building - Tenant Occupied

These are the building cases that have been built on green principles, whether certified or non-certified. These buildings may be owned and occupied by a single business or may have multiple occupancy. In each of the case, they showcased the value of green that their users associated with. While for the single occupancy building, the case studies showcased the value that a sustainable workspace brings to the business and vice versa, in the multi-occupancy buildings, it was interesting to note user perspective of what drives them to locate within a sustainable ecosystem and how they align with it.

Corporate Office - Interior

These are the cases that have integrated sustainable solutions and work environment within their office space. Regardless of whether the cases are in a green building or not, their individual efforts to mainstream sustainability in their internal environment exemplified a different set of commitment and the value they perceived in doing the same.

Manufacturing Facility

Manufacturing facilities bring to front a contrasting working environment where the diversity in work profile of the users is varied and their ability to move around and be flexible with space is driven and at the same time constrained by the manufacturing process. Safety standards in workspace are a norm in such workspaces, however, these case studies went beyond the standards and adopted sustainable and green features at multiple levels, presenting an interesting insight into their vision and business case for sustainability and employee well-being.

Further in each category, a **CAREFUL SELECTION OF CERTIFIED AND NON-CERTIFIED BUILDINGS** was done to capture the role of green rating systems vis-à-

CORPORATE OFFICE BUILDING - Tenant Occupied	CORPORATE OFFICE - Interiors	MANUFACTURING FACILITY
Shapath IV	Deloitte, Shapath V	Ankit Gems
Shapath V	GIFT House	Astral Pipes
GIFT One Tower	Venus Infrastructure	HOF
	Shivalik House	Prashant Group
		Secure Meters

Table 1 - Selected Case Studies

vis the organisational philosophy and vision towards building sustainable workspaces that are also healthy and productive.

CONNECTING AND PROGRAMMING

From the database, a careful selection of Case Study partners was done based on some pre-established criteria. These were the cases that have showcased exemplary commitment in integrating sustainability in their workspace and business operations. Being prominent entities in their respective sector, these displayed the capability to emerge as examples that can lead the overall vision and guide the sustainability thought into businesses.

The process involved continued interactions with the case study partners. The methodology based itself on an implementation framework which recognised the Case Study Partners play a key role in knowledge generation and its dissemination. The local partners facilitated the connections and interaction through the course of the project. The project team was to act as the change agent that shall facilitate the process through documentation of the case studies and channelising the takeaways to reach out to the larger audience.

This was done through a series of interviews and informal interactions with the leadership of the each of the Case Study Partners. Focussed workshops were conducted with varied user groups in the Case study Partners. These included workshops with the facility managers and the operations teams, with the Human Resource Managers, and a focussed interactive session with the CEO's of these businesses. The workshops emerged as a very productive tool for interaction and knowledge sharing.

The insights from the workshops were further cemented by the elaborate site visits to each of the case study partners. The site visits brought in a fresh perspective and detailed understanding of the workspace environment and the corporate vision. The visits also gave an opportunity interact informally with the user groups and get a deeper sense of

how enabling workspaces can have direct and indirect impact on the productivity of the employees, thereby furthering the business growth.

DEVELOPMENT OF MODEL FRAMEWORK

Continued interactions with the various project actors, including the project team, discussions with the experts and the case study partners helped draw out multi-faceted relationship between the "how" and "why" of sustainable practices in workspace designs and business operations and its impact on the employees and overall business performance.

Based on the initial interactions, the fact that there is a three-way communication between these elements was clearly established. What needed to be understood and documented was what are these channels of communication that help the case studies add value to their business performance and employee well-being.

The development of model led to breaking down the guiding questions into specific queries:

- How does sustainable workspace design facilitate employee's well-being and health?
- What impact do sustainable practices make on the business performance?
- What is the level of acknowledgement and appreciation of these practices among the building users, that is the employees who use the workspace?
- What are the mechanisms through which employee well-being contribute to business performance?
- Does sustainable design & practice enable companies to adapt to different situations?

The project inquiry thus focused on answering these questions and identifying and explaining the channels of communication between the three parameters of sustainability, business performance and employee well-being.

MODEL FRAMEWORK

The project is based on the interrelationship between a workplace, employees or the users, and the business. The model showcases that each of these three parameters interact amongst themselves in a direct interface and holistically as well, where one affects the other and their cumulative performance affects the overall productivity of the business.

Based on this model, it is further understood that while some businesses are able to recognize the interrelationship between workplace, employee well-being and productivity, others may experience it but still not be able to identify the direct link. It is this experience that, when documented, can help identify the various paths through which sustainable practices feed growth back into the business.

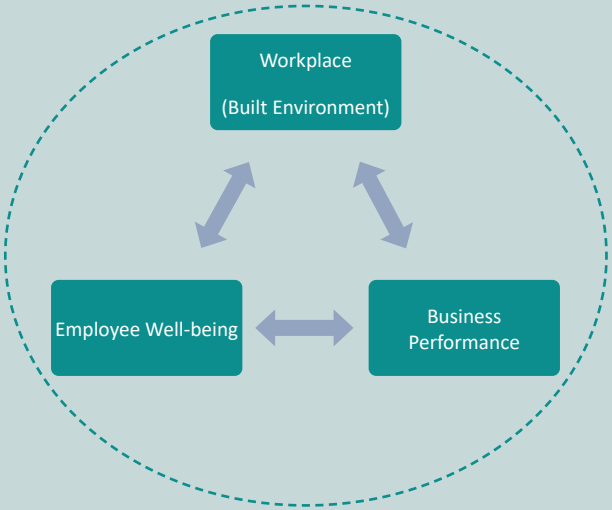


Fig. 8- Components of Model Framework for the project

TOOLS FOR ANALYSIS

The project is footed on a strong and comprehensive Qualitative analysis of the responses and information that have been received from the Case Study Partners. A thorough mapping of the responses received in the workshops conducted along with the background information of each Case Study organisation forms the base of the analysis. This has been built upon by mapping the organisational philosophy and vision as was reflected in the detailed interactions and interviews with the Leadership of the companies. The inferences were then backed up by the data from site evidences and user interactions.

CHALLENGES

The process was also faced with hurdles and tests. It was a challenge **BRINGING THE CASE STUDY PARTNERS UNDER CONFIDENCE** and communicating the relevance of the project. At some places, the project faced initial roadblocks due to reluctance of the Case Study Partner. This was primarily due to the lack of communication channels and an evolving understanding of the project objectives. There was misconception regarding certification as an objective or green assessment, or at places, both. However, once the communication channels were streamlined, the Case Study Partners were extremely collaborative and opened up their knowledge base and eventually their workspaces for us to engage, observe and analyse.

The **PANDEMIC AND CONSEQUENT LOCK-DOWN** presented a big challenge, that not only put the project on hold for some time, but also led to a change in the course of inquiry and realignment in methodology for study. From lock-down that forced everyone indoors, to changed focus of the organisations as they dealt with the impacts of the pandemic and their later reluctance in opening up for conversations and site visits, everything led to a change in course of action.

With workspaces being closed or functioning in remote-working mode, the empirical data on building performance and user experience of their workspace was severely compromised. There was a complete **REALIGNMENT IN THE WAY THE BUSINESSES WERE OPERATING** for many months. Even when the heat of the pandemic reduced, the return to "Business-as-Usual" was very slow and in some cases not envisioned. This forced a change in methodology, as the project refocussed its inquiry and assessment based largely on qualitative analysis and detailed narratives that were built from the multiple interactions through interviews, workshops and questionnaire surveys.

As new dimensions of working were being discovered, the balance between sustainable workspaces and health and role of the former on the latter also become relevant and the **TRIANGULATION BETWEEN HEALTH, WORKPLACES, AND PRODUCTIVITY WITHIN THE LARGER CONTEXT OF SUSTAINABILITY**. The methodology adapted itself to address the newly emerged questions and their relevance within the thought framework of the project.

The inquiry expanded to understand the need for flexibility at the workspace and the methods of adaptation at the physical space level, as well as at the policy level. It became interesting to see how the space and operations responded to the new dimensions and how the businesses worked towards ensuring both productivity as well as employee well-being. The project eventually adapted to the new normal and made most of the experience and learnings that pandemic brought to front.

Campus of Prashant Group of Companies, Ahmedabad

GREEN IN INDIAN BUSINESSES

WHAT DOES IT MEAN?

The answer to the question posed above may vary from company to company, however a common ground seen in all case studies for inculcating green elements in the office design is to maximise the efficiency and develop a great working environment.

Reports suggest that nearly one-third of total office space in six major cities of the country are certified green buildings. In its report 'Indian real estate's ESG (environmental, social and governance) landscape and its progress to a sustainable future', property consultant CBRE has analysed office stock for the top six cities (Delhi-NCR, Mumbai, Pune, Hyderabad, Bangalore and Chennai) to ascertain the status of green-certified stock in these cities. (The Economic Times)

In case of Indian businesses "green buildings are often viewed as a brand value" for the companies. The main focuses of these companies is to Attract **"High value occupants"**, and in turn increase their profit-making chances. This may have resulted in the **"Increased market visibility**" of the companies, however the event of pandemic has also led to **Increased demand of per person** space and reinforced the need for safe and healthy work environments.

Sustainability ranks among the **top three considerations** alongside location and rentals for occupiers while leasing real estate as occupiers and investors of commercial real estate agree that real estate will be a game changer in achieving net zero carbon goals, (Kailash Babar 2022)

DECODING SUSTAINABILITY IN INDIAN WORKPLACES – CASE STUDY ANALYSIS FROM GUJARAT REGION

Sustainability in Indian workspaces is widely understood in terms of the quantifiable manifestation in the built form with the green building features and elements for instance rainwater harvesting system or rooftop solar panels, etc. This section investigates beyond these tangible aspects of workplaces in Indian context with a lens of overall design and operational set up in the building space. The study reveals that **"Green" may not always be sustainable and "Sustainable" may not always be accounted for in the Green Ratings.** That is, integrating sustainability renders benefits that go beyond the

Fig. 9 - Manifestation of Sustainability in the Indian Workplaces

measurement of any of the existing rating systems and hence, it becomes interesting to map what drives the businesses to adopt sustainability.

Indian companies are moving beyond the traditional concept of green built masses towards true sustainability and are following sustainable business and workplace development model without being certified as a green building/facility.

As an organizational philosophy companies such as Prashant group, H.O.F, Savvy group and many others have sustainability as a deep rooted ideology in their working culture. It enables the businesses to set out a larger vision that is driven by "good practices as a way of life" and not only for resources efficiency. For instance, it is the organisational philosophy of Prashant Group of industries which has enabled development of a lush

HOF

HOF is a manufacturer of ergonomically designed office furniture. The continuous efforts to innovate their furniture design, to provide quality and sustainable products to the users as well as the organizational philosophy to develop sustainable societies have enhanced company reputation to a great extent. The recycling of waste fabric into something useful was initiated with a purpose to reduce waste generation at the factory. As part of this CSR initiative, the company donates the waste fabric and old sewing machines to rural communities This not only facilitated employment in the communities around the facility, but also played a significant role in development of valuable social capital for the company itself. This idea to work for the well-being of the community at large was very well supported by all the board members of the family run organization. It is the trust and encouragement to innovative ideas that has consequentially impacted lives of several rural communities including many women help groups and NGOs.

green industry unit amidst a concrete industrial area of the city, celebrating the vibrant micro-ecosystem of flora, fauna and machinery in their campus and valuing their spaces for the employees. Further this philosophical vision of the company to contribute back to the society have encouraged them to take up large scale CSR activities, in turn creating a social footprint, empowering local communities through job creation, enhancing the overall sustainable development of the society.

Many of the case study partners believe that the employees working for them are of utmost importance. Focussing the company development alongside the development of their employees, is what has led to adoption of the sustainability as a concept for them. The sense of community development with a focus of employee well-being has led to the long-term overall growth of the company in the market.

Sustainability in business practices and workspace development also found its roots in **the vision to lead the market and enhance the brand value** for specific sectors. The real estate developers including Savvy Group, Shivalik and Venus Infrastructure, have integrated green and certified buildings in their portfolio and as market leaders, they have set an example for other players in the industry. These extra ordinary developments in the markets have eventually, become landmark projects with high value occupants. For instance, Shapath V, the first green building of Ahmedabad, owing to its lead in innovation of sustainable building design has emerged as a visionary market leader in the sector of sustainable commercial spaces, and has gained significant market visibility which consequentially attracted high value occupants including Deloitte and Crowne Plaza.

These Case Study Partners show a clear focus on catering to the market demands, be it by being the trend setters or by catering to the user demands. For instance, in the case of Deloitte, the office space design and functioning at one hand is driven by the corporate commitment to green, and on the other hand, there is an equal emphasis to create spaces and systems that caters to their millennial users and their aspirations.

Venus Infrastructure

Venus Infrastructure is one of the leading real estate developer companies in Ahmedabad. The company's commitment to the environment enables creation of sustainable built form designs in their projects. Their journey of developing sustainable built features began with experimentation on their own projects. Over the time, the lack of awareness about the same among the end user was noticed. Being one of the leaders of the industry, the company acknowledged as their duty to build the industry which takes upon the responsibility of teaching the clients and training the users and make a transition for sustainable lifestyle. This is realised through inclusion of green features of the project in its brochure. Further, the sales pitch for their properties also includes description of sustainable features of the building to create awareness amongst the end users on the qualities and benefits of adopting sustainable offices and homes.

Additionally, Venus Infrastructure has developed their corporate office interiors on the principles of sustainability. The intent was to develop an interactive and meaningful office space which brings in positive energy in the employees and sensitizes them towards conservation of resources. The company found value in developing their workspace with green features as specified in the rating systems, but also going beyond that to ensure employee comfort and well-being. Thus, colourful and spacious work areas well-lit with daylight and quirky quotes in different places found their way in this vibrant workplace.

The rise of global concerns on sustainability and environmental concerns, supported by emergence of policy frameworks and other institutional systems such as green ratings, has further cemented this visionary thought, encouraging the market leaders to integrate sustainability in their own sectors, respectively. Realizing the benefits of sustainable

development on the health and well-being of building occupants, over the time, a gradual shift is observed in their corporate work cultures and offices as well.

While the philosophy and vision was the initiation point for several case study partners for the development of sustainable workplaces, It has been further deepened into the company functioning as a result of **requirement from the associated market players**. For instance, the need to maintain the international clientele, Astral Pipes recently initiated documentation of the sustainable production process incorporated. These associations and urge to grow the company financially, has pushed a few of the case companies to think about the inclusion of sustainability in the product design, manufacturing and sale processes.

Astral Pipes

Astral Pipes is a leading PVC pipe manufacturing companies in the country, with an aim to bring a reform in plumbing and drainage systems in India and values that take care of employee safety, product excellence, and teamwork. Apart from the leadership's intent to develop the company as a "good place to work", adoption of sustainability at the plant, is also an outcome of the strict requirement from the fellow market players. The documentation of sustainable features of the facility and products was initiated as a requirement of international clientele. Product innovations were further encouraged by the demand from the developers of green buildings. In order to keep this chain of sustainability going, and to multiply the impact in the market, the company developed a distributor platform, imparting knowledge about sustainable products amongst distributors. As a futuristic vision, the company also intend to conduct technical training courses on efficient use of the products and enhancement of the overall life cycle of the products through its appropriate use.

Working Pods at Venus Infrastructure Corporate Office, Ahmedabad

LEADERSHIP VIEWS ON DEVELOPMENT OF SUSTAINABLE WORKSPACES

Further to investigate deep into the corporate philosophy and vision for sustainability, several workshops were conducted with CEOs, HR managers, and operations teams to understand the efforts taken by them to develop safe and sustainable workplace for their employees during the time of pandemic and in a normal scenario as well. Interactive workshops with the CEO of the case study partners were conducted to capture their vision on the interrelations of the sustainable built forms, employee well-being and business performance.

While opining about the significance of the built form on business performance, a notably high importance was laid upon the availability of flexible workplace layout which allowed for remodelling of the space and improve the team dynamics whenever required. Followed by which, the attractive location and visual appearance and image of the built form were considered to have moderate impact on business performances. While the parameters such as energy efficiency, climate impacts, resiliency, certification and awards, (widely acknowledge parameters for green buildings) were of lesser concern in their relation to the company's business performance. It is understood that these parameters ranked low

- More connectivity to outdoor views, good day light, flexible working space
- Green environment that allows for co-relation with the nature during heavy production processes to inspire all occupants
- Hot desks, permanent partial WFH
- Flexible and compact workspace with more open space

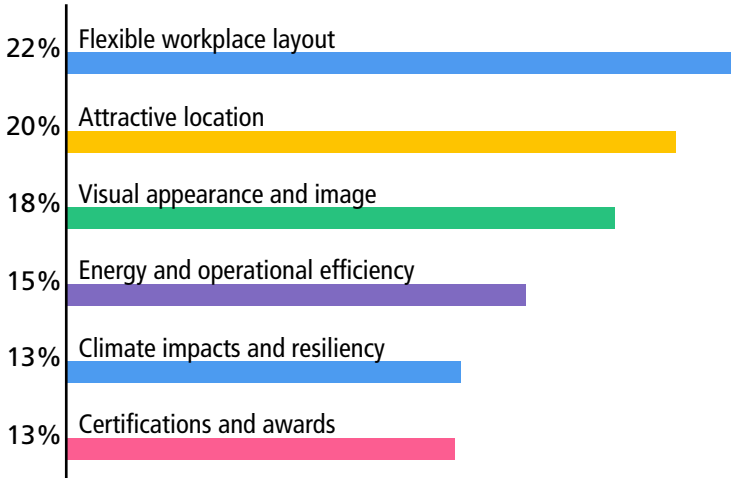


Fig. 10 - Importance of the built environment and its factors on business performance

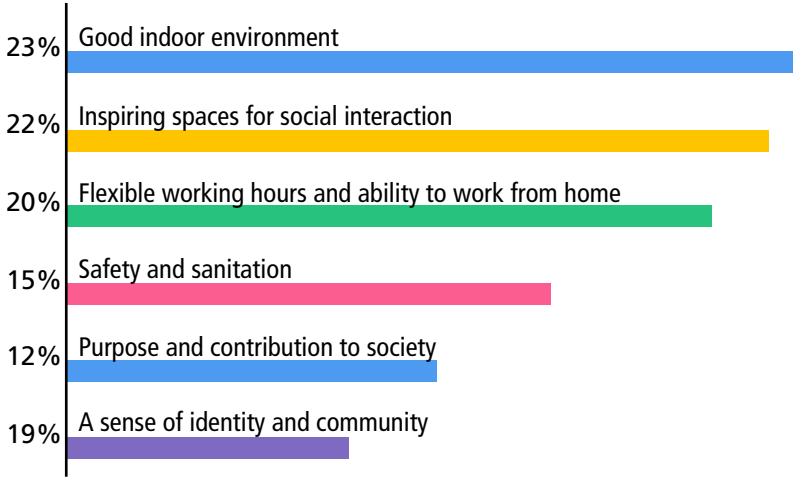


Fig. 11 - Interrelation of company's built environment with the employee well-being

in comparison, primarily because these have found their way into the standard practices for building construction and business operations.

Subsequently, later on analysing the outputs of the workshops, it was revealed ergonomic factors such as good indoor work environment, quality spaces that encourage social interactions are understood of having a significantly higher correlation with the employee well-being and thus business performance. On the flip-side the employee well-being elements such as safety and sanitation, sense of identity and communication and their contribution to the society are understood to be loosely correlated with the business performance.

The company leadership envisions future workspaces as a place with enhanced interface with nature, which is designed to incorporate passive daylight uses, and advanced technological features of modern days. Further it was also acknowledged that the companies, in order to become sustainable in the longer run, will transition to adopt flexibility in the space and place of work.

Upon inquiring into the leadership's vision about sustainable buildings and practices in relation to the business performance, the sentiment was omnipresent that the workplaces are spaces where an employee spends a significant amount of his day, these space therefore should recognise the comfort of the employees and make them feel as it is their second home.

Moreover, sustainable workspaces comforts people within the building and in turn creating a work environment of ease, thereby reducing the chances of mistakes in the work and aids in improvement of the overall work quality of the company.

Additionally, from the company's business point of view, it was understood that Sustainable practices and certification helps getting more business. In the initial stages integration

of green building features makes economic and financial sense in terms of the green feature of the building aid in cost cutting and efficient utilisation of the investment and other resources. Over the time, looking at the tangible and intangible benefits, it becomes demand and necessity in the industry and the entire industry has to match the said demand and in turn more business.

LEARNINGS FROM THE PANDEMIC

When delving into productivity and space design, pandemic presented a unique case portraying a complete transformation in the way these companies were working and the way their space was being used. From working remotely for months, to staggered presence in office and coming back to full attendance in the workspaces, the offices and manufacturing facilities experienced the entire cycle. The question to ask here was:

1. How did the organisation ensure productivity during the pandemic?
2. What role did the workspace play in ensuring continued employment, productivity and safety for its users?

The responses were different for the corporate offices and manufacturing facilities, given the very difference in the way they function. However, what was uniform was the sensibility in each of the case study partner to stretch beyond normal for catering to the needs and care of their employees. It was a strong reflection of their corporate philosophy, be it through innumerable measures adopted for well-being of their employees or by making changes to their spaces to ensure safety.

EXPERIENCES FROM THE MANUFACTURING UNITS

ACTIONS TO ENSURE EMPLOYEE WELL-BEING & PRODUCTIVITY DURING PANDEMIC

- Working in Reduced Capacity/in shifts
- Adopting Work from Home Policy
- Upgrading Hygiene and Sanitation
- Monitoring Indoor environment and Employee Well-being
- Realigning Workplace Layout
- Virtual Meetings, Reducing Use of Meeting Rooms
- Encouraging Employees to carry own food and essentials

HIGHLIGHTS

- **Re-aligning workspaces worked well during the pandemic**
- **Mix of work from home and staggered or reduced timings were helpful during pandemic**
- **Up-gradation in sanitisation, hygiene and improved indoor air quality that was undertaken during pandemic are here to stay in future as well**
- **Biophilic space design will be a significant feature for workspace designs in future**
- **Work from home was only a temporary action taken and will not be a permanent solution**
- **Measuring the productivity while working from home for the office staff was a challenge**

INSIGHTS FROM MANUFACTURING FACILITIES

Due to the very nature of manufacturing process, remote working was not an option for these companies. Thus, during the lockdowns, these companies experienced a dip in productivity. Like most other companies, there was a gradual return to workspace in the later phases. However, the companies extended a full support to their employees to help them see through the difficult times, from timely salaries to appointment of panel of doctors for their employees, free facility for oxygen concentrators, and distribution of monthly groceries.

The space dynamics and its impact on ensuring safety and productivity came into play once the employees returned to the workplaces. What stood out was the inherent safe and healthy spatial layout of these facilities that made their employees comfortable and rather eager to come back. As was experienced at the Prashant Group, their employees were said to have felt safer while at work, than in their own homes. The spacious layouts, healthy indoor air quality, ventilation and green spaces made the employees feel safe and healthy while at work during the pandemic. The flexible layout of spaces facilitated adapting to the different needs and requirements. For instance, the large cafeteria space in Secure Meters was converted into a Covid care facility for their employees. A work for home and staggered attendance policy was put in place for the staff with desk job profiles.

EFFECTIVENESS OF THE ACTIONS UNDERTAKEN

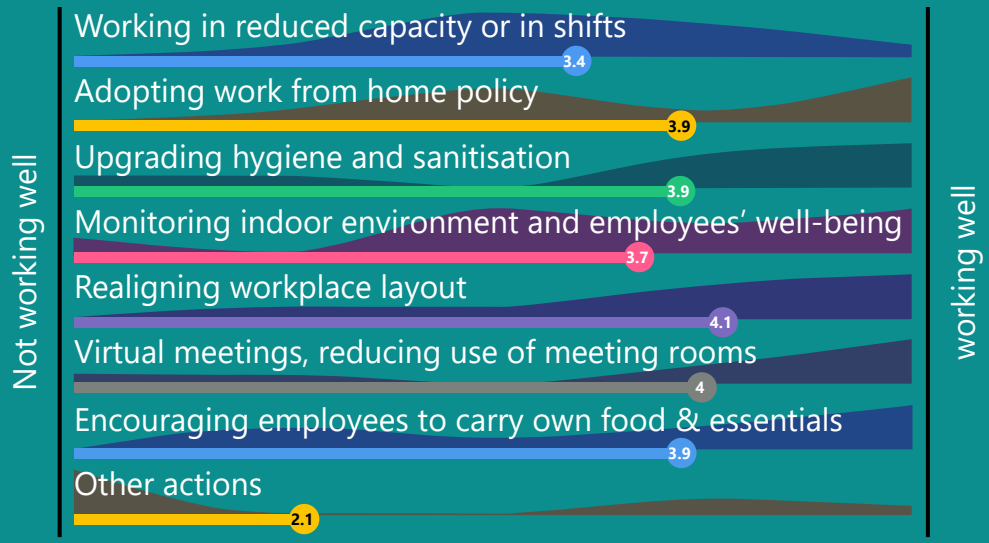


Fig. 12 - Effectiveness of the actions undertaken by the companies during pandemic to ensure employee well-being and productivity

ACTIONS EXPECTED TO CONTINUE POST-PANDEMIC

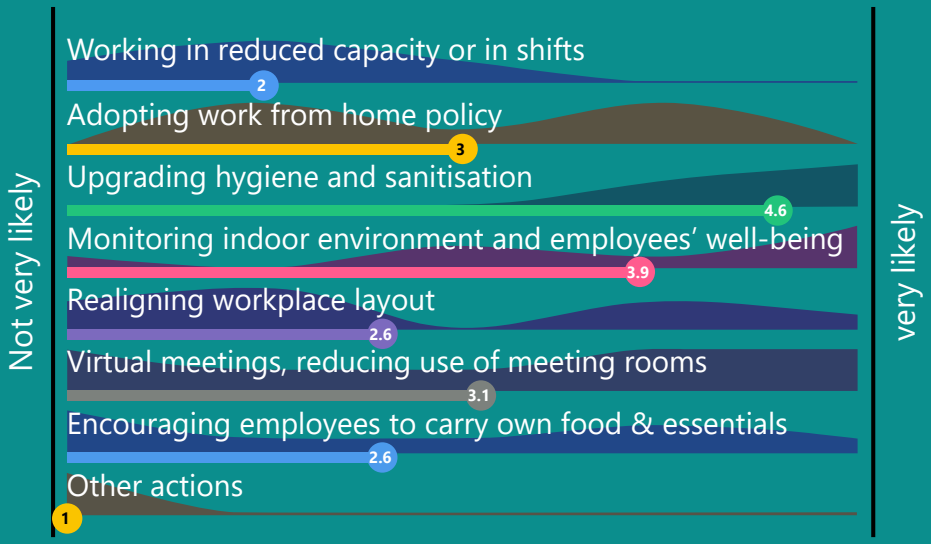


Fig. 13 - Actions expected to be continued post-pandemic by the companies to ensure employee well-being and productivity

EXPERIENCES FROM CORPORATE FIRMS

ACTIONS TO ENSURE EMPLOYEE WELL-BEING & PRODUCTIVITY DURING PANDEMIC

- Working in Reduced Capacity/in shifts
- Adopting Work from Home Policy
- Upgrading Hygiene and Sanitation
- Monitoring Indoor environment and Employee Well-being
- Realigning Workplace Layout
- Virtual Meetings, Reducing Use of Meeting Rooms
- Encouraging Employees to carry own food and essentials

HIGHLIGHTS

- **Workplace layout and design that ensures ample space for each employee, access to fresh air and light creates a positive work environment**
- **Pandemic has shown the way to be able to connect and collaborate virtually. Hence, Work from home and flexible working will be here to stay, as will be the virtual meetings**
- **The hygiene and sanitisation standards that made inroads during the pandemic shall become the new norms for all workplaces**

INSIGHTS FROM CORPORATE FIRMS

The dynamics of the corporate offices and workspaces were driven by their ability to adapt to work from home and the robustness of their systems to ensure seamless working online. During the lock-down phase almost all of the corporate offices transitioned to remote working mode, and they were able to continue productive engagement of their employees. This reflected the robustness of the office design system that enabled catering to the IT demands and ensure smooth working. Based on this flexibility, these companies were also able to delay the requirement of coming back to office for most of their employees. Companies like Deloitte continued to be working online for many months. During these times, as active effort was made by most organisation to keep the employees engaged and involved.

The return to office in these companies was gradual and staggered. A distinct approach to ensure safe working environment was seen, such as, installation of AQMs that displayed the air quality at various places in the building, as seen in Shapath V, glass partition walls to ensure people are isolated, special travel guidelines for the employees, etc. The challenge faced in some cases was of the office space layout, that had been designed as an open office to encourage collaboration and communication. This became a deterrent during the pandemic for employees to come back to office for the fear of exposure.

EFFECTIVENESS OF THE ACTIONS UNDERTAKEN

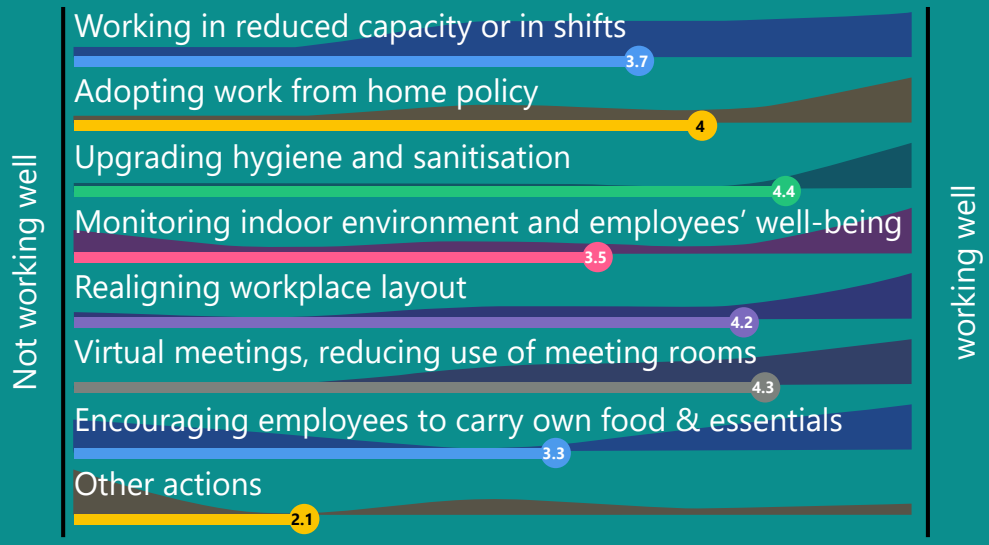


Fig. 14 - Effectiveness of the actions undertaken by the companies during pandemic to ensure employee well-being and productivity

ACTIONS EXPECTED TO CONTINUE POST-PANDEMIC

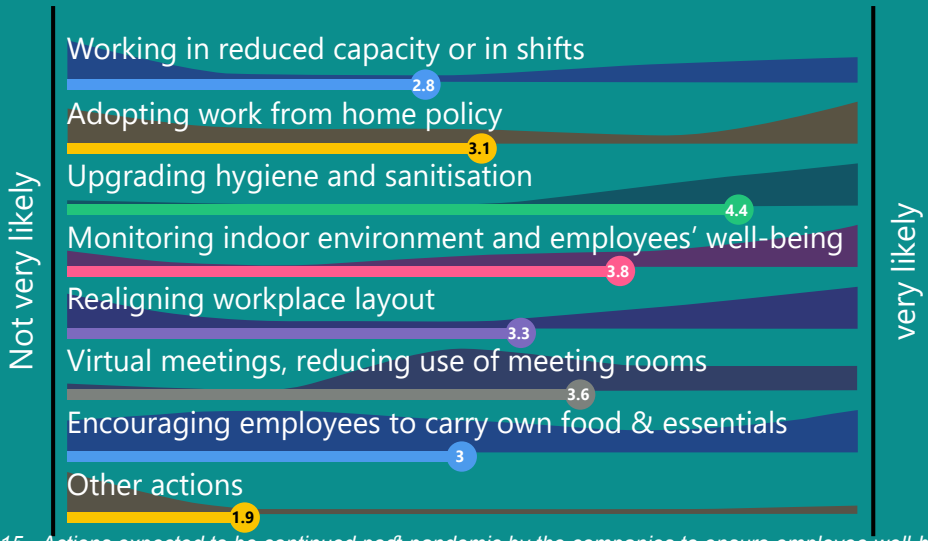


Fig. 15 - Actions expected to be continued post-pandemic by the companies to ensure employee well-being and productivity

EMPLOYEES PERSPECTIVE

Building occupants can provide the unique lens of inquiry into the impact of built environment on the productivity and well-being. When the project initiated, the methodology had outlined a detailed survey and analysis of employees' relationship with their workspaces and the impact on their output at work and general well-being.

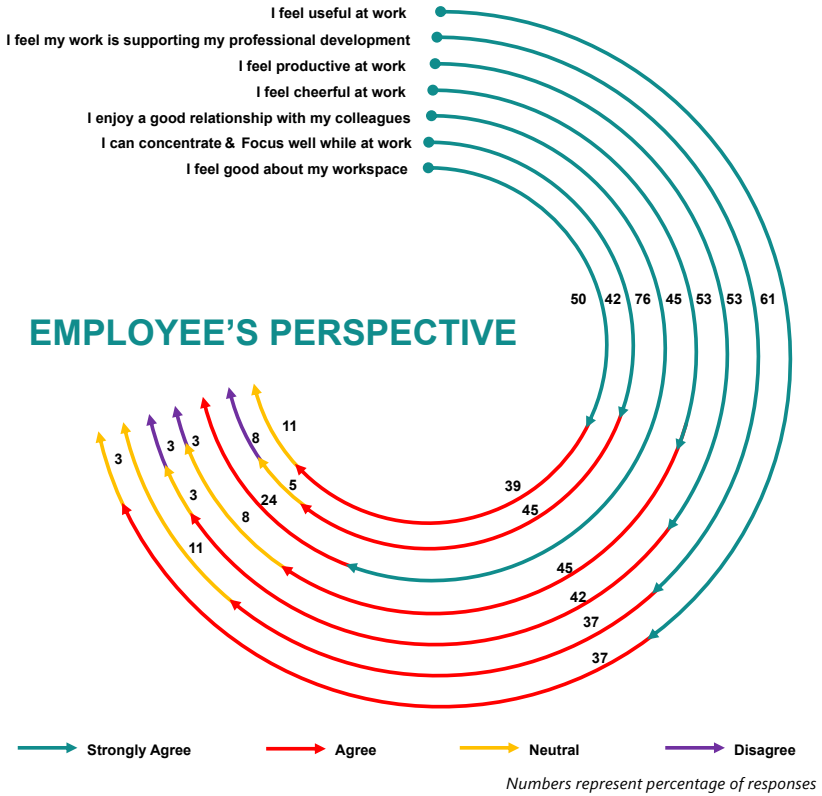


Fig. 16 - Employees Perspective about their workplace

But as the pandemic hit, the relationship underwent a drastic change, where the employees were no longer in their usual work setups. Asking them to recall how they felt in their working space would have been clouded by judgemental and non-empirical responses. Further, the relationship between employer and employee also witnessed a landmark change, with all organisations, going over and above to cater to their employees' well-being and to ensure their jobs, salaries and productive involvement.

In this scenario, there was a need to assess the emotional quotient of the employee's engagement and productive involvement with their workspace. To assess the same, several discussions and workshops were conducted, survey forms were circulated to the employees of selected case study partners to obtain employee's perspective, asking the employees to rate their views about their workplace. Most of the organisations had returned to working from office when the survey was conducted, thus the responses were expected to be based upon the fresh experiences of the employees.

As inferred from the response representation in figure-16, the employees have a positive and productive dynamics with their workplace. It was a collective response that the workplace allowed them to develop a healthy relationship with their colleagues. Additionally, work from offices for some helped to divert their minds from the stressful situations at home and feel cheerful, work with dedication and concentration, with more productivity. It was also noted in various interactions that employees felt energetic and enthusiastic to go to work.

The individual self-esteem and confidence were significantly high among the employees with most of them finding themselves capable of contributing productively to their work, and also charting their own professional growth. What emerges prominently is that the employee engagement is not only an individual relationship with their workspace or the employer; rather it is also a reflection of the healthy relationship that most of them share with their colleagues. Thus, the social and the emotional parameters of well-being also get addressed in their workplaces.

Design shapes physical and spatial experience and has significant impacts on health & well-being, improving quality of life and reducing mental stress. In other words, architecture not only contributes to physical health but also affects our emotional comfort and productivity.

- Jayesh Hariyani, Co-Chair, IGBC-Ahmedabad Chapter, CMD, Senior Principal, INI Design Studio

KEY TAKEAWAYS

- Sustainability in workspace gets manifested in parameters beyond the quantifiable resource efficiency parameters, offering access to daylight, well- planned working stations, ventilation, outdoor views, thermal comfort, and access to open and enabling spaces for interaction and other activities, making them healthy and happy workspaces.
- Most of the businesses that have integrated sustainability in their workspace design and operations are people centric, with their business sensibility inclined towards well-being and human resource development.
- From the study, it is inferred that a sustainable workspace attracts greater market visibility, high value occupants and higher investors.
- A sustainable workspace is also understood to be a healthier and livable workspace. It is acknowledged to play an important role in employee well-being.
- Sustainable workspaces, along with enhanced employee well-being and business operations, generate significant tangible as well as intangible value for the business.
- The tangible value (profitability) in business operations is enhanced through the quantifiable and identifiable impacts in form of resource efficiency and cost savings.
- Enhanced market credibility and edge in branding as a sustainable workspace is amongst the important drivers for intangible and direct contribution of sustainability to boost business performance. It is also seen that sustainable workspaces increase the trust factor of end users in terms of quality of product, thus impacting the business positively.
- Sustainable workspaces are also enabling spaces, allowing businesses to adapt to different situations, offering flexibility in working, especially during challenging times like the pandemic.

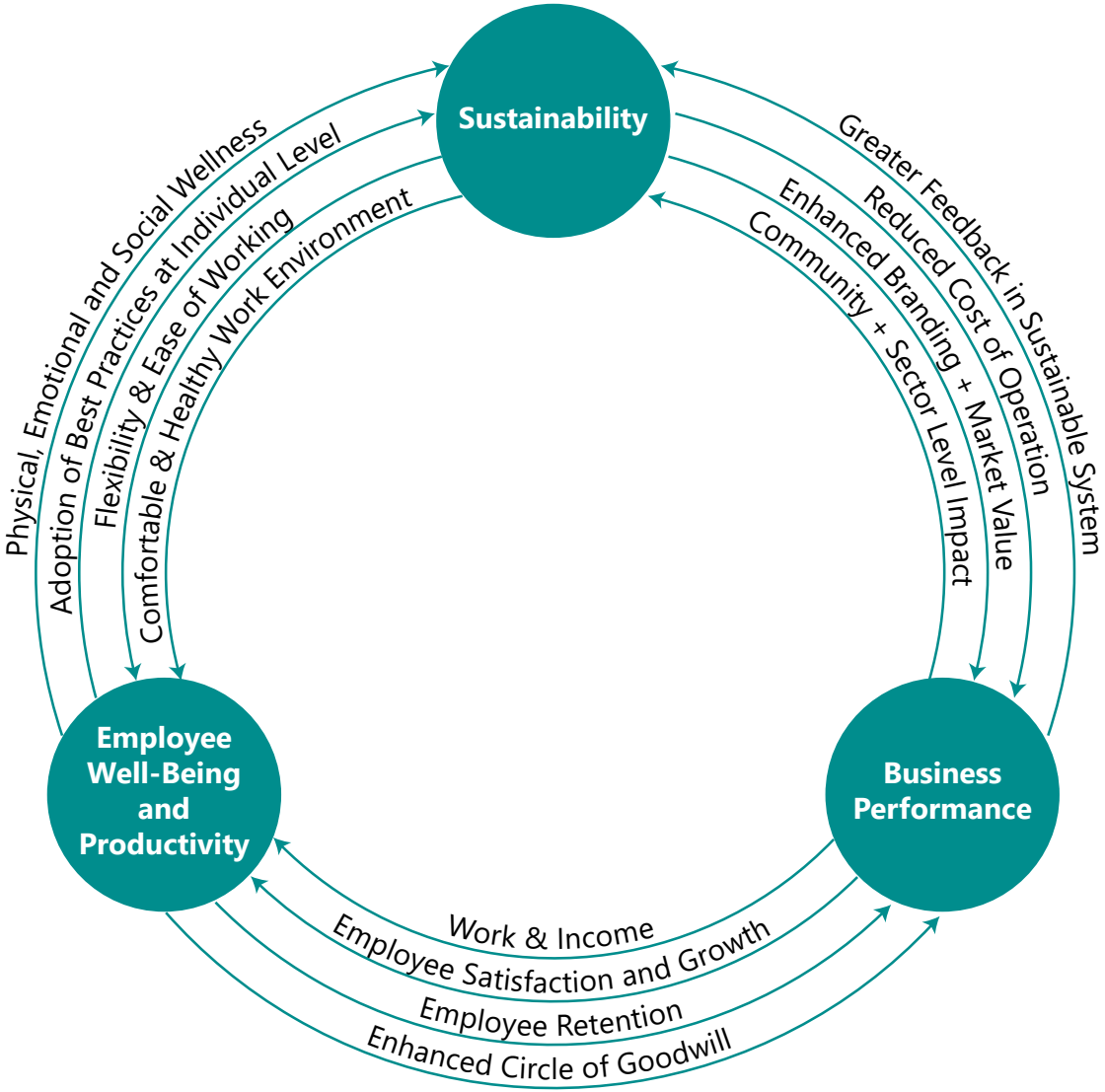


Fig. 17 - Decoding the Correlation between Sustainability, Employee Well-Being & Productivity and Business Performance

- Working in enabling, healthy and comfortable environment has a positive impact on employee retention and in attracting new talent, making these businesses the preferred employers and enlarging their circle of goodwill.
- Integrating sustainable practices in business creates a multiplier effect, paving the path to achieve the UN-SDGs, reduce greenhouse gas emissions and contribute significantly to national net zero targets at the broader level.
- Most of the businesses that have integrated sustainability in their workspace design and operations are people centric, with their business sensibility inclined towards well-being and human resource development.
- Integrating sustainable practices in business creates a multiplier effect, paving the path to meet the UN-SDGs, lower down greenhouse gas emission and contribute significantly to national net zero targets at the broader level.

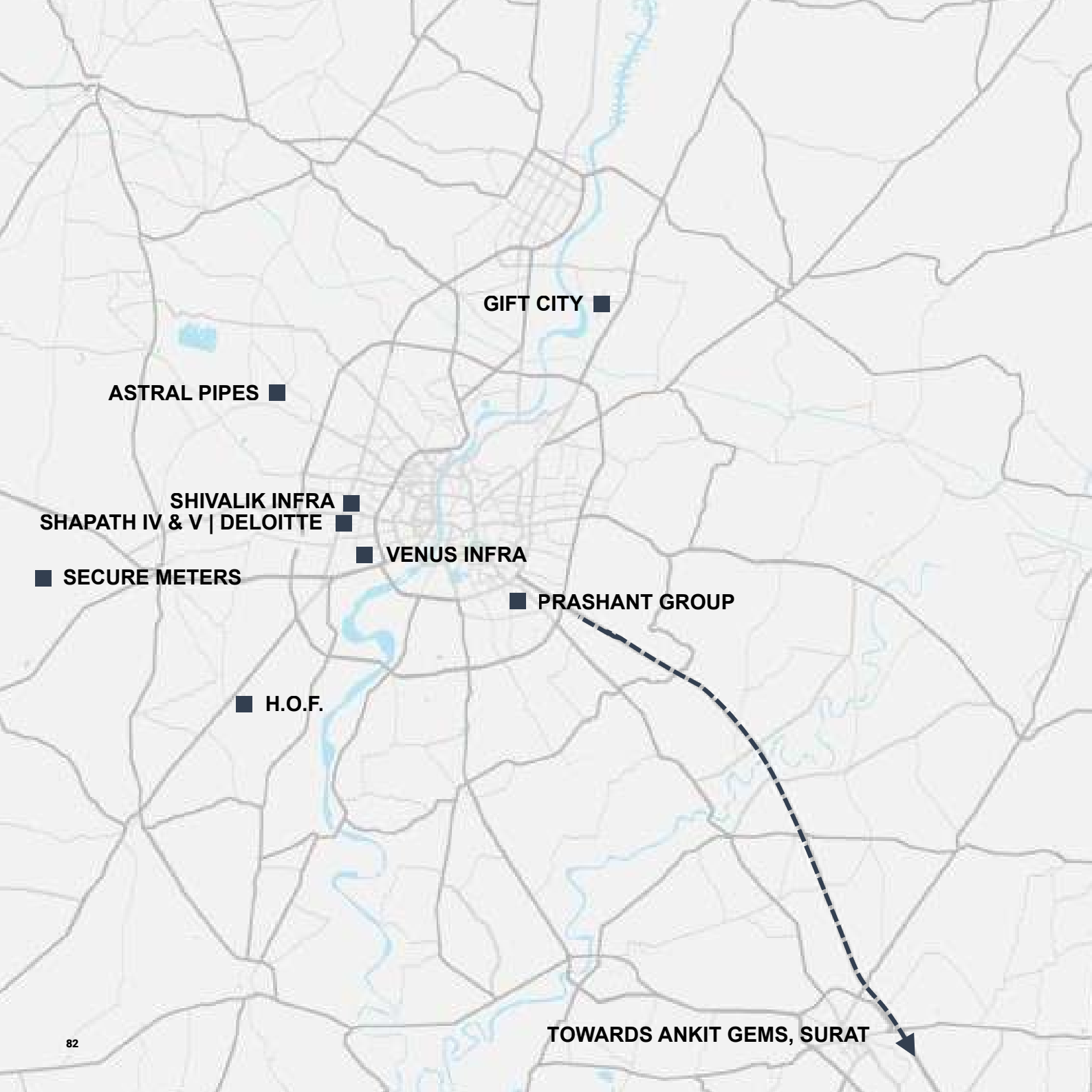
CONCLUDING REMARKS AND WAY FORWARD

The study has been instrumental in lending a comprehensive understanding of the correlation between sustainable design and operations in a workplace, employee well-being and business performance. The learnings suggest that a truly sustainable business goes beyond the quantifiable and identifiable measures and standards of sustainability or "green". For these case studies, sustainability is an overarching concept that includes green building features, creation of people centric spaces and integrated measures for environmental conservation, along with enabling policies and environment-friendly practices. These workplaces also demonstrate a strong connect with the community at large, contributing to the societal growth.

The study, effectively using a case-study approach, attempts to showcase and establish the relationship between sustainability, employee well-being & productivity and the overall business performance. To make an impact at a wider scale, these results need tangible evidence in form of a tool or a rating system that can be employed by individual businesses to assess their performance vis-à-vis the good practices they have integrated in their design.

The rating systems, over the years, have led to a market transformation in the design, construction and operation of workspaces as sustainable facilities, with the adoption and integration of the latest trends and technologies. They have emerged as effective tools for the assessment of tangible parameters of sustainable built environment, specifically for the resource efficiency, alongside evolving and adapting to the new knowledge that is being generated in this domain. Emphasizing upon their acknowledgment of the role of built environment on the health and well-being of occupants, the rating systems have made significant strides to integrate these in their assessments and facilitate development of tangible parameters of assessment.

The study reveals that there is a missing link for ascertaining the role of sustainable parameters on the business performance. What is needed is a tool that can help the businesses understand the dynamics that leads to intangible value creation or quantify it to empirically understand how it helps their growth. Such a tool will not only encourage the businesses to adopt sustainability in their workspaces and operations but will also go a long way in encourage a sustainable growth that is not measured only in terms of the output, but also mainstreams the impact on employment and productivity.


GIFT CITY
ASTRAL PIPES
SHIVALIK INFRA
SHAPATH IV & V | DELOITTE
VENUS INFRA
SECURE METERS
PRASHANT GROUP
H.O.F.
TOWARDS ANKIT GEMS, SURAT

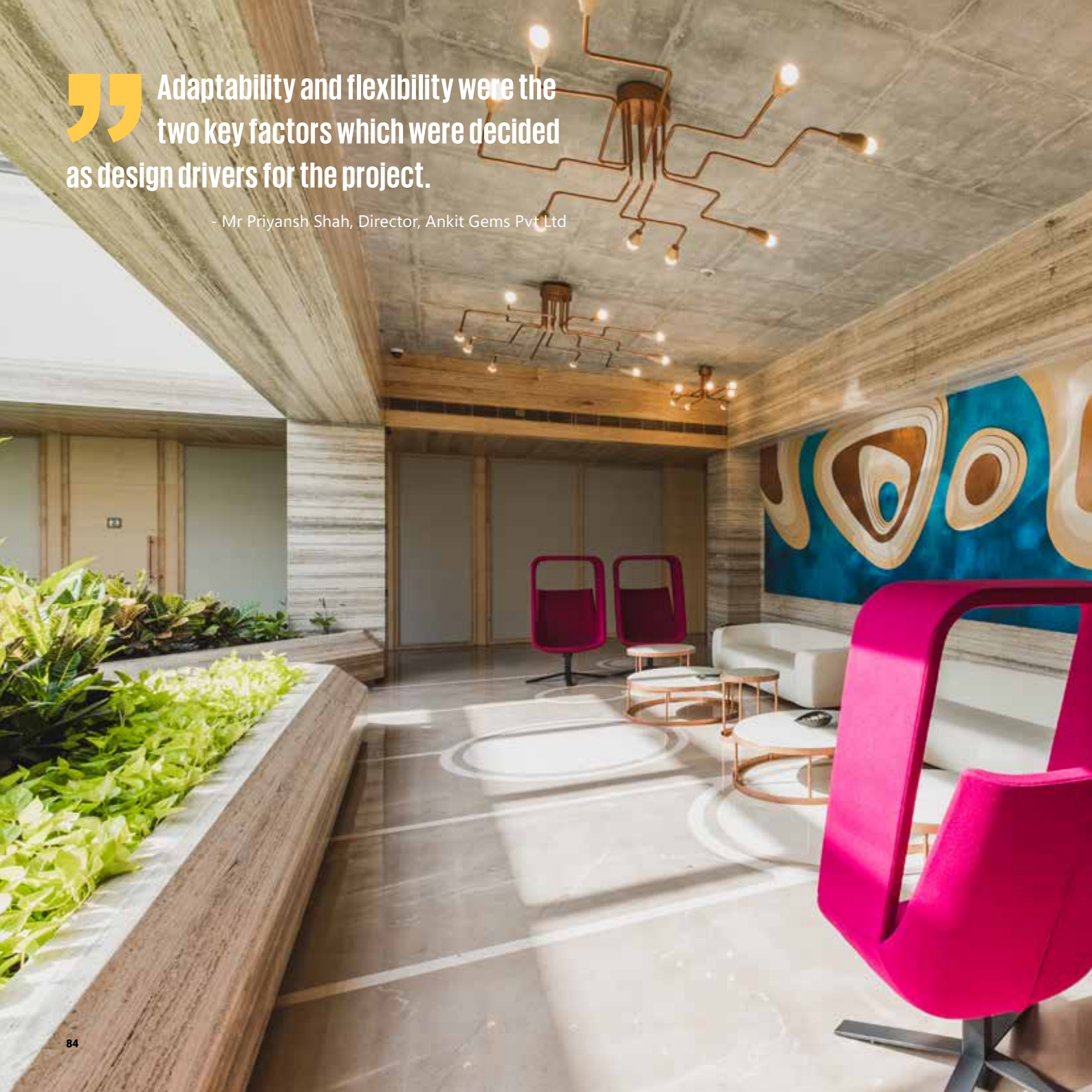
SELECTED WORKPLACES

INTRODUCTION

Group of cases were selected across Gujarat to understand the impacts, benefits and outcomes of manifestation of green workspace development in Indian context. Ten case study partners were identified which represent a healthy mix of diversified workspace and both green certified and non-certified.

The Selected Case Study Partner for the Study include:

1. Ankit Gems, Ichhapore, Gujarat.
2. Astral Pipes, Santej, Kalol INA, Gujarat.
3. Deloitte, Shapath V, Ahmedabad, Gujarat.
4. GIFT House, GIFT City, Gandhinagar.
5. GIFT One Tower, GIFT City, Gandhinagar.
6. HOF, Moraiya, Changodar, Gujarat.
7. Prashant Group, Ahmedabad, Gujarat.
8. Secure Meters, Sanand, Ahmedabad, Gujarat.
9. Shapath IV, Sarkhej - Gandhinagar Highway, Ahmedabad, Gujarat.
10. Shapath V, Sarkhej - Gandhinagar Highway, Ahmedabad, Gujarat.
11. Shivalik House, Ahmedabad, Gujarat.
12. Venus Infrastructure, Ahmedabad, Gujarat.



> Adaptability and flexibility were the two key factors which were decided as design drivers for the project.
>
> - Mr Priyansh Shah, Director, Ankit Gems Pvt Ltd

ANKIT GEMS

MANUFACTURING FACILITY

Ankit Gems is a prominent diamond manufacturing company in Surat, with a vision to be a leading global player, distinguished for their value creation. Ankit Gems believes that contributing to the community is an important duty of a company with the means to influence and improve areas of neglect.

Year of Establishment: 2016

Site Area & Built-up Area: 11,695 Sqm./13,049 Sqm.

No. of Employees: 1,500

Certified/Non-Certified: Certified (IGBC Green Factory Building; Platinum Certification)

Sustainability features Implemented:

- Facility is designed to harvest natural light
- Rainwater percolation wells to capture 100% of the run-off from the site
- Use of water efficient plumbing fixtures
- Use of native and drought tolerant species for landscaping
- Thermal energy storage system to enhance efficiency of chiller system
- Use of high-performance glass to reduce heat gain
- On-site solar PV system
- BMS to monitor process and non-process loads

INTENT

Incorporation of the sustainable built-form and business components at Ankit Gems were essentially done to reduce the energy consumption and associated carbon emissions. Further this decision was also taken to reduce the stress on municipal water supply. Additionally, an informed decision to undertake sustainable business model was made to direct all the CSR activities in alignment with UN sustainability development goals.

MANIFESTATION

The manifestation of sustainable measures at Ankit Gems is observed significantly in the design and layout of the campus facility. It is envisioned to improve the employee productivity by improving the indoor air quality environment. The landscaped courtyard space and seating areas allows for a breathing space for the employees and help in development of an interface for employees with nature.

Passionate about contributing to the society, Ankit Gem's CSR work has helped several underprivileged societies, especially in the areas of education. Through their continuous efforts, the company has positively impacted 10,000+ students till date.

IMPACT

The leadership of the company has ensured that the employees are in sync with the company's sustainability policies through different engagement strategies. This approach helped the manufacturing facility to sustain and also enhance the green measures envisaged for Platinum certification in 2018 under the IGBC Green Factory building rating. By adopting a holistic approach towards sustainability, this factory has set best practices for the local communities to follow and has turned into an ideal case study for all upcoming factories in & around Surat.

The focused orientation and systematic approach towards ESG initiatives is dire need of the day. It is very critical for addressing the climate change and to promote sustainable and regenerative material cycles.

ASTRAL PIPES

MANUFACTURING FACILITY

Astral Pipes offers the widest range of pipes and fittings for various applications including specialized products for infrastructure development. Today, Astral is one of the fastest-growing companies in the category of building materials and has been a distinguished brand. Astral deploys best-in-globe technologies and fulfils the emerging needs of millions of houses and adds extra mileage to India's developing real estate fraternity with the hallmark of unbeaten quality and innovative building materials solutions.

Year of Establishment: 1998

Site Area & Built Area: 1,07,121 Sqm. / 56,957 Sqm.

No. of Employees: 1,200

Certified/Non Certified: Certified (GreenCo, GreenPro)

Sustainability features Implemented:

- Efficient roof envelope with use of insulating material to minimise heat gain
- Energy management system to monitor energy consumption
- Energy efficient pumps to optimise energy consumption
- Insulation jackets for machines to restrict heat loss
- Turbo ventilators to maintain adequate number of air changes
- EHS policy for suppliers


WATER TANK
STORAGE
AREA
RECHARGE
WELL - 3

INTENT

Utmost business ethics and incessant commitment towards adapting better processes have always been top priority at Astral Pipes. The sustainability initiatives taken up by the company stem from three major concerns.

1. **Ensure Worker Safety**
2. **Contribute Towards Creation of a Sustainable Society**
3. **Enhance the value of their business in the market**

It was further fuelled by the changing market scenarios that expedited the manifestation of green and sustainable processes at Astral Pipes, driven by:

a. The Export Client demands for green certified and sustainable products

b. Demand from Developers for green buildings products

MANIFESTATION

1. **Inclusive Workplace Monitoring and Feedback Policy-** A comprehensive set of regulations that includes Health, Safety and Environment Policy, Water Policy, Energy Policy, Waste Management Policy, GHG Policy, ESG Policy, etc., in the organisation, ensures regular monitoring of the sustainable strategies adopted by the company, action plan and additional strategies. Sustainable workplace management at Astral Pipes Facility is ensured through incorporation of Annual Employee Feedback System.
2. **Sensibility and Efforts towards Sustainable Production and Resource Utilization –** Reuse of plastic waste to ensure resource efficiency not only made business sense, but also resonated with the environmental sensibility of the organisational leadership and management. Further, the company has adopted a Strict Supplier policy to maintain the standard and quality of the product.

   Through their facility design, Astral Pipes have showcased a meaningful incorporation of sustainable features in the manufacturing plant. The plant layout and design

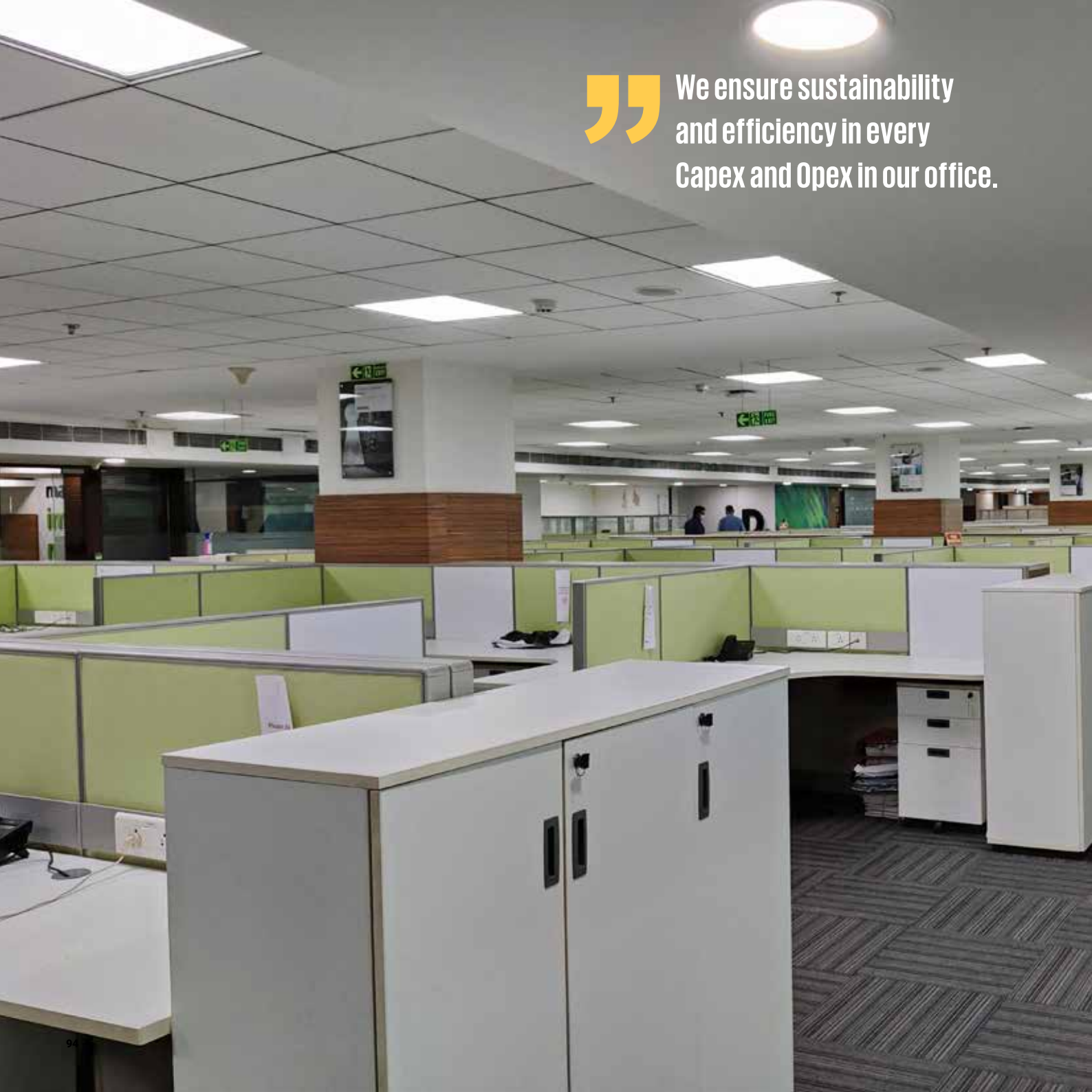

ASTRAL

ensure limited movement of the transportation vehicles around arrival area, reducing substantial amounts of vehicular emissions. The philosophy of creating a sustainable society is realised by contributing back to the society. It is done through a strong CSR policy in the sector of Education, Health Care, Wildlife Conservation and Environment.

3. **Knowledge Dissemination and Trainings –** The Company has invested consciously to train all stakeholders in its business model. Some of the steps taken include:
    a. **Training of Employees** - key for development. The envisioned program helps in imparting new skills to the individuals with the ability to acknowledge and appreciate green quotient and sustainability in the product development process.
    b. **Development of Distributor Platform -** creates awareness amongst the distributor regarding green and sustainable products.
    c. **Formulation of Distributor Training Program by Administration -** creates awareness and demand of green products amongst product supply chain.
    d. **Conducting plumbing certification courses -** It is their belief that by doing so, the company shall have more qualified "ambassadors/ field soldiers" for their products (e.g. Plumber), who shall have adequate knowledge on the use of company's green products.

IMPACT

The adoption of sustainable work culture and production process has benefited the company profoundly beginning with products with enhanced quality, durability, and strength, resource optimization. Improved credibility amongst developers, dealers and end users in the market. To enhance the societal sustainability, the company also undertakes numerous CSR activities which has enhanced the overall brand value of the company. Additionally, numerous activities taken up by the company including training of the employees has definitely improved knowledge on sustainability.


We ensure sustainability
and efficiency in every
Capex and Opex in our office.

DELOITTE AT SHAPATH V

CORPORATE OFFICE- INTERIORS

Deloitte located on 19th floor at Shapath V, first green building of Gujarat, is a leading global provider of audit and assurance, consulting, financial advisory, risk advisory, tax and related services. Despite being a global company with presence in over 150 countries, the shared work culture is the same, which encourages efficient and productive output from its employees.

Year of Establishment: 2015 (Inaugural at Shapath V, Ahmedabad)

Site Area & Built Area: 2,305 Sqm. (Interior floor)

No. of Employees: 200+

Certified/Non Certified: In Process

Sustainability features Implemented:

- Better indoor air quality through MERV 13 filters & CO2 sensors
- Occupancy & daylight sensors to optimise the lighting load
- BMS system to monitor and control major energy consuming equipment
- Use of low flow water fixtures to minimise potable water demand
- Reuse of treated water for flushing
- Interior layouts & workstations have access to natural light
- Advanced smoke control detectors
- 'No plastic' policy
- Use of online software for GHG inventory

INTENT

Deloitte workspaces have been developed on the principal of sustainability, driven by their top management's mandate and further fuelled by the passion of their managing authority for adoption and promotion of green lifestyles. The company management believes in the philosophy that the green building concept is fundamentally about giving people a choice – to contribute and grow the concept. It is a vision to inspire a change in the society and develop sustainable way of living.

On the overall well-being of the employees, Deloitte has made a conscious and informed choice of locating its office within a green building. The overall air quality of the space is further improved through incorporation of indoor plants.

MANIFESTATION

"Green" manifests itself at Deloitte through multiple routes. From space efficiency to resource efficiency and awareness generation, the office constantly strives to champion sustainability.

Workspace design and layout at Deloitte is a reflection of its users. The office work environment is strategically designed for their employees, majority of whom are the millennial crowd, focused on flexible and ergonomic work spaces. "Flexi-workspace" is working efficiently for Deloitte, allowing them to cater to 200+ employees with less than 120 formal desks. Keeping in mind the young users who look for change in workspace settings and wish to move freely around in the space, a comfortable and flexible work environment keeps the users and the machines in office running efficiently.

Apart from efficient utilization of spaces, resource utilization is visibly efficient in the office. Numerous strategies adopted by the office to do so include eliminating use of

paper, developing green program which encourage office users to use staircase once a week, regular training on carbon emission reduction strategies, and many more.

Awareness generation through incorporation of interesting quotes and taglines at numerous places, for example, posters in the wash-rooms stating “one is enough” on the tissue holder, adds quirk while also reinstating the philosophy. Additionally, employee engagement is facilitated through methods such as “Employee oaths” – to promote and lead a sustainable lifestyle, encouraging innovative concepts such “Car pool” and “Bike to work”. Further to make the concept of workspace sustainability more engaging for the employees, the company aspires to identify/appoint champions amongst employees.

Deloitte as an organisation is very much active in promoting sustainability as a lifestyle at large. It is understood that such initiatives shall help the employees realise the significance of a healthy and sustainable lifestyle and shall inspire them to replicate the lifestyle changes beyond workspace too, developing a truly sustainable society.

IMPACT

The office environment, flexibility and choice of place to work at Deloitte is considered as an incentive for the employees to work hard and more efficiently improving the overall productivity of the employees and thus of the business. The organisation has consistently been rated as a preferred employer in the sector.

Furthermore, the trickle-down effect of sustainable practices at office into the individual employees’ lifestyles and their circles has shown a promising social impact. Hence, a larger societal change, slow but steady, is significant.


GT HOUSE

GIFT HOUSE

CORPORATE OFFICE - INTERIORS

GIFT City is India's first operational smart city. The city proposed office spaces, residential, hotels, clubs, retail and various recreational facilities and has been named as the Gujarat International finance Tech - GIFT. GIFT House is an incubation centre.

Year of Establishment: 2016

Site Area & Built Area: 1,143 Sqm. (Interior floor)

No. of Employees: 145

Certified/Non Certified: Certified (IGBC New Building, IGBC Green Interiors)

Sustainability features Implemented:

- Use of high-performance air-conditioning systems
- Offsite renewable energy equivalent for 100% of the annual energy consumption
- Use of certified furniture in office spaces
- Civil & interior materials are sourced locally
- Designed interior spaces with efficient acoustic materials
- 100% of the office spaces achieve daylight and have access to outdoor views
- Indoor plants for better air quality

INTENT

GIFT City was envisioned to be developed as a sustainable and smart city showcasing the green principles in an urban environment. This paved the way for the buildings within to be green and sustainable.

MANIFESTATION

The idea of sustainability is very well incorporated in the built form design of GIFT House. The strategic orientation of the building allows to utilise benefits of daylight from all faces of the building. The floor plan with central courtyard allows for penetration of daylight into the building, while support cross ventilation within internal areas. The city is designed in combination with the latest technology & best global practices in infrastructure.

IMPACT

Integration of green practices and sustainable features in the building have resulted in saving of 19% more energy than a standard ECBC building. The combined design promoting the use of daylight and LED lighting systems improves the overall work, productivity and visual comfort of the employees. Furthermore, the incorporation of shading devices for the buildings lowers solar heat gain thus reducing the overall building's cooling demand.

Climate conscious Building design and construction in GIFT City are the reflection of GIFT City's sustainability embedded master plan, which endorses processes and practices to attain liveability and improve quality of life of citizens.

GIFT ONE TOWER

CORPORATE OFFICE BUILDING - TENANT OCCUPIED

GIFT One Tower is one of the initial developments of GIFT City. The main intention behind development of these towers were to set a benchmark for the kind of developments envisioned at GIFT City.

Year of Establishment: 2013

Site Area & Built Area: 4,800 Sqm./ 57,285 Sqm.

No. of Employees: 1,500

Certified/Non Certified: Certified (IGBC's LEED 2011 for India)

Sustainability features Implemented:

- District cooling system
- Vacuum-based waste management system
- Intelligent building management system
- Energy efficient elevators
- Use of efficient plumbing fixtures to reduce potable water demand

INTENT

The concept of sustainability was incorporated in the design, master plan, and building codes of Gift City to develop a sustainable community. However, it has resulted in a picture wherein the concept the sustainable features of GIFT City are leveraged to enhance the commercial value of the project. The building being part of an overall umbrella of sustainable GIFT City, is mandatorily developed on the principles of green building features. GIFT One Tower, moreover, was one of the first projects developed at the site, therefore, one of the reasons to develop the tower sustainably is to enhance the overall market sale value of the project.

MANIFESTATION

As far as sustainability is concerned, GIFT reflects a sophisticated planning approach to ensure integration of Environmental concerns and Green Buildings, optimum usage of energy, water and construction materials. The tower has incorporated in itself numerous smart and sustainable building features including intelligent building management systems.

At GIFT City, a centralised district cooling system is developed that naturally cools the air with the help of eco-friendly refrigerant, which aids in energy conservation, reducing global warming potential, reducing CO2 emissions, etc. Further a policy has been developed for GIFT City, which requires all the buildings within GIFT City to be green, and all the skilled employees to be trained on green concepts.

IMPACT

The incorporation of sustainability components has undoubtedly led to resource optimisation, high energy efficiency, reduction in polluting GHG, and waste reduction.

Good design and best practices help achieve the quality benchmark in furniture industry and make global associations.

HOF

MANUFACTURING FACILITY

HOF is one of the pioneer manufacturer of ergonomically designed office furniture. HOF helps leading organizations and institutions create workplaces that promote well-being, performance. The company strives continuously to innovate in the area of ergonomic furniture to provide quality and sustainable products to the users.

Year of Establishment: 1986

Site Area & Built Area: 12,460 Sqm. / 22,882 Sqm.

No. of Employees: 180

Certified/Non Certified: Building Non Certified, Products Certified (ISO 14001 (Environment Mgt.), Green Guard Compliance, Green Pro)

Sustainability features Implemented:

- Harvests natural light to reduce dependency on artificial lighting
- Adequate window openings in shop floor to enhance cross ventilation
- LED fixtures to reduce energy consumption
- Turbo ventilators to expel warm air from shop floor
- Use of low flow water fixtures

INTENT

HOF is a company that is very explicit about their social values. The company's vision to diligently develop a quality product for customers, and to achieve benchmark in furniture industry, drives sustainability in their operations and workspace layout.

MANIFESTATION

Innovation and development are the strong values of the company both when it comes to products and the business. The company management believes that diversity is the driver for development and growth. It is reflected in the conscious choice to locate the company facility amidst a diverse market player. This has enabled an exchange of value inputs from people and companies with different perspectives and has helped in the overall growth of the company.

There are no said policies for the incorporation of sustainability in the workspace. However, sustainable measures have been incorporated at every stage of the process of product development and in day-to-day functioning of the company. Resource efficiency in ingrained in the process as reflected in various processes, for example, recycling fabric pieces into bags.

The "open to new ideas" attitude of the company leaders has played an important role in adoption of these practices. Their future plans are to incorporate a "Green Officer" – a full time position which reflects the company's views and expectations about the importance of sustainability as a driver for growth and development of products as well as the company.

The innovative thinking process is also replicated at the product design phase by encouragement of "Quality Driven Product Design" and providing the freedom to explore production of green and sustainable products.

IMPACT

The changes in the traditional work culture of the company were extremely good, including productive and resourceful usage of the waste produced at the factory, consequentially leading towards the sustainable development of the society.

Strong CSR profile of the company contributes to the reputation as responsible and attractive employer. It has also led to an increase in the public value of the company, as it facilitates employment and inclusion of the rural communities around their facility, and also encourage and train them to come and work for the company. Their initiatives towards supporting skill development and self-employment opportunities for women and low-income communities were not initiated for any business incentive, but looking back, these have created a positive growth cycle for the business, giving them an edge in the market and a large dependable employee base.

> **Workplace should feel like a second home. When my employees are comfortable, they will make less errors at work.**
>
> - Mr Prakash Shah, Chairman, Prashant Group of Industries

Prashant Group

MANUFACTURING FACILITY

Prashant group is one of India's prominent and fast-growing Textile Machine manufacturing companies. The main vision of the company is to help global textile weaving industry, achieve its highest level of quality, productivity and cost efficiency. The company considers its employees as its greatest strength. The three words that define Prashant Group are customer-centric, growth-oriented and innovative.

Year of Establishment: 1975

Site Area & Built Area: 72,614 Sqm. / 1,00,000 Sqm.

No. of Employees: 1000+

Certified/Non Certified: Certification In Process

Sustainability features Implemented:

- Extensive vegetation to enhance biodiversity
- Solar PV system to minimise energy demand from grid
- Rainwater harvesting systems to collect and reuse for domestic requirements
- Well-being facilities for building occupants
- Excellent outdoor views

INTENT

Aligned with the principles of **Gandhian Philosophy**, the company exhibits strong values of sustainable and inclusive lifestyle. Built upon the core values of Mr. Prakash Shah, Chairman, sustainable practices are incorporated in everyday functioning of the company to create a good and safe working environment for the employees. Initiated as an inward out perspective on the concept, the current provisions are driven by a need to fulfil documentation requirements from international customer group.

MANIFESTATION

Prashant group is a pioneer case, portraying an excellent example of integration of the workshop facility with its surrounding. The company's greatest source of strength and inspiration lies in its manpower.

The company focus has been directed towards enhancing productivity, cost efficiency and quality, as evident from their state of the art and highly mechanised production systems. However, equally ingrained is the emphasis on employee well-being. While the latter may not reflect in their annual report, but a conversation with the management provides deep insights on the value system of the organisation that lays immense weightage on the well-being of its people. Be it through celebrating their large open space that is often used by the employees for interacting and even for events such as Navratri and Sports competitions; or be it when they stood together with them as a family in the difficult times of Covid 19 Pandemic. As part of their decades old "way-of-working" the management has been providing their employees with monthly rations for their families.

While the policies for employee well-being have not been put in place for enhancing productivity or business growth, their role is nevertheless acknowledged when the

Chairman of the Group, Mr. Prakash Shah, says, "Workplace should feel like a second home. When my employees are comfortable, they will make less errors at work."

The design of the facility is developed to create an interface between the employees and the natural site surroundings. The campus is covered with lush green vegetations and maintained landscape spaces which has over the time become a home to a many birds including peacocks, that are often sighted in the campus.

The facility is understood to have three times more than required RWH system and four times more than standard vegetation density for any industrial campus in the surrounding area. The greenery starkly outweighs the heavy machinery and production process in the campus. Such is the sensibility and ingrained green quotient, that the canteen space where employees often sit to eat their lunch is made of bamboo with lush green walls all around.

As a result of efficient use of natural light and ventilation, dense vegetation, optimal temperatures of the facility is maintained, creating a workable environment for the factory employees. A direct manifestation is seen in the recent strides of the company towards registering the building for green certification.

Prashant Group is a conscientious corporate citizen. It has institutionalized of CSR policies and has taken initiatives in several districts of Gujarat and Bihar in collaboration with various NGOs, in the sectors of rainwater harvesting, education, healthcare and many more. It is one of their prime objective to develop a social footprint which empower local communities, enhancing the overall sustainability of the society.

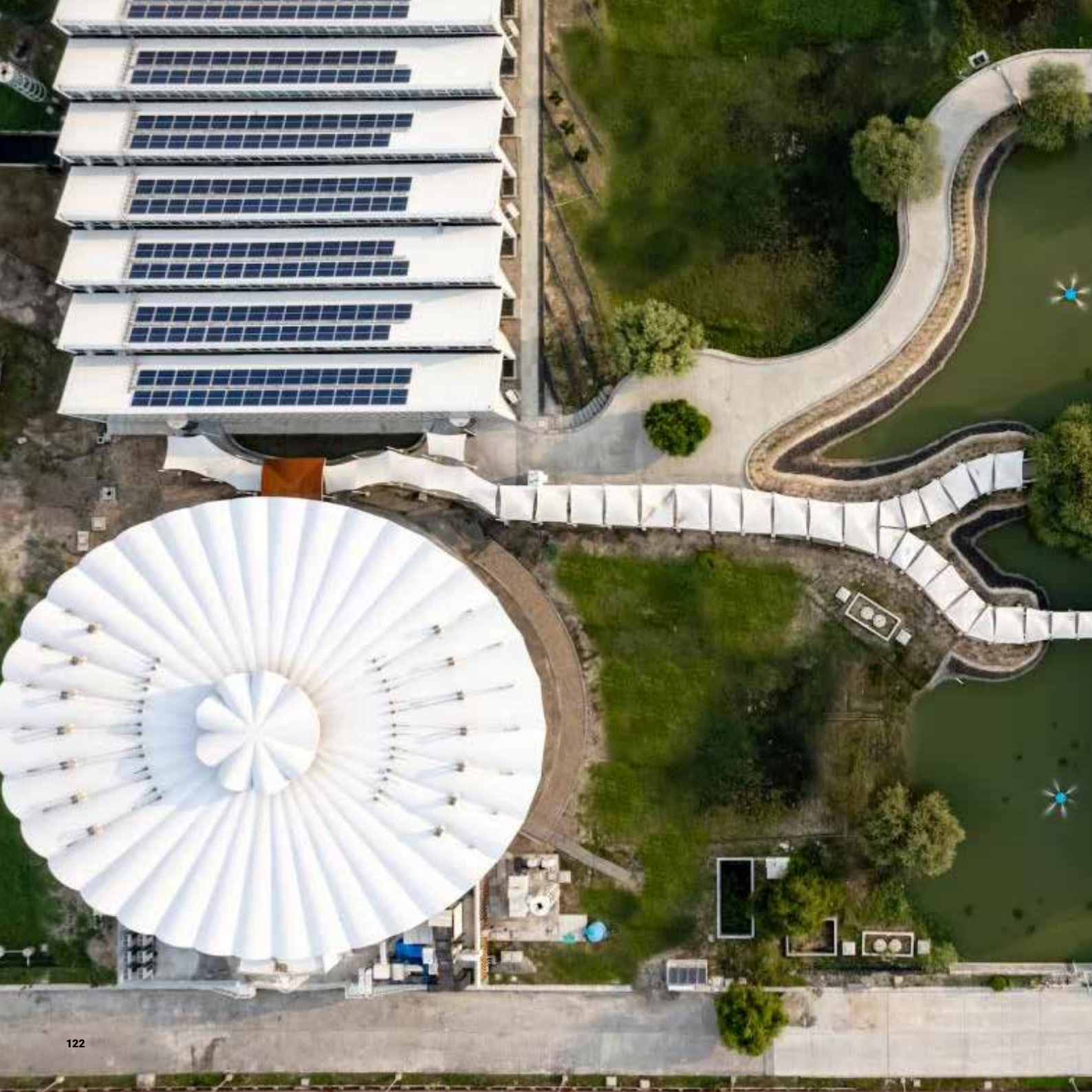
IMPACT

Long term retainment of the employees at Prashant Group is understood to be one of the significant impact of the healthy and enabling workspace that has been developed

here. The comfortable factory working environment is one of the important reasons which made the employees feel safe during the time of a pandemic, to an extent that the employees had asked to continue working from the office during pandemic period. Such an environment has further also inspired the employees to follow green principles.

The green practices adopted in the facility have fundamentally resulted in preservation of existing habitats through conscious efforts, along with the developmental activities. From the market perspectives too, these activities are highly appreciated by international clients and in-turn is enhancing the business value.

The extensive CSR works of the company has led to enhancement of Jobs and livelihood options, in rural areas thereby initiating a social change amongst Indian rural communities.



Secure Meters

MANUFACTURING FACILITY

Secure meters is a family owned and managed business, with a vision to grow a sustainable and responsible business that endures for generations. The company focus on providing simple and complete solutions, with long and enduring customer base. The value of the company lies in creating quality products, integrity and fair business, and long-term endurance. The theme of the building is to "CELEBRATE THE ENGINEERING."

Year of Establishment: 2019

Site Area & Built Area: 21,150 Sqm. / 81,104 Sqm.

No. of Employees: 800+

Certified/Non Certified: Certified (IGBC Green Factory Building; Platinum)

Sustainability features Implemented:

- Solar PV system to minimise dependency on grid
- Use of insulating material in roof to reduce thermal heat gain
- Manufacturing spaces with access to daylight
- RWH pond to collect stormwater
- Task lighting to minimise lighting energy consumption
- Supply of cool air at work plane level to reduce cooling load

> At Secure, we believe that our business can only endure if we focus on a sustainable approach to the market, environment and society at large. This drive is exemplified by our approach to our built environment. The entire team has worked together to achieve this.

- Mr. Ananya Singhal, Joint Managing Director

INTENT

Incorporation of green workspace within the facility of secure meters was a top-down approach, anchored from the authorities at senior management positions. The concern of the management for creating optimal work environment with efficient use of resources, is what led to prioritised development of green building from the initial stages of building design with you use of daylight and safe electricity.

MANIFESTATION

Secure meters is a platinum certified building, an example of what seems to be a perfect illustration of integration of core company values into the concept of green building. The strategic design of the building is developed to create an uplifting work environment and promote staff well-being while reducing energy consumption. Top management believes in and leads their functionality based on the green principles, and hence it didn't come across as something that was done just to please the customers.

The intention of developing sustainable work environment has been well inculcated into the design, and massing of built form at the case site. The layout of pedestrian pathways is developed to accommodate and preserve old trees. Further the orientation of buildings within the site allows for utilization of natural sunlight for a longer time of the day. While on the other hand the strategic orientation of the factory building aid in creation of calm and pleasant factory environment. The spacious spatial design of the workstations additionally enhances the overall work environment for the employees.

IMPACT

Secure meters has adopted state-of-the-art green measures and achieved IGBC Platinum certification for two of their facilities in India at Udaipur & Sanand. The tangible & intangible

benefits achieved through increased energy efficiency, water conservation, well-being of employees, etc. have had a great impact on the company's performance, which led the management to adopt green measures for all the upcoming facilities in India. Additionally, the company has mapped and inferred that the attrition rate is lower due to adoption of green & healthy building features, compared to the other manufacturing units locally.

The flexible design of the built structures allows for its multi-purpose uses. For instance, during the time of Covid, the large canteen space was used to create a single accommodation unit for the employees. This high degree of flexibility to meet the ever-changing needs of workspace, allowed the company to adapt during the pandemic. Furthermore, Building design in integration with modern technology such as thermal insulation for building envelopes and floor cooling system provides a comfortable working environment for the employees.


Tile Stone

SHAPATH IV

CORPORATE OFFICE BUILDING - TENANT OCCUPIED

Shapath IV, the first commercial building of S.G. Highway with the concept of double-height foyer, is a corporate building developed by Savvy group. The building is a non – green certified building with some of the best features of sustainable built-form, realising the company vision to provide value for money to its customers with safety, hygiene, efficiency and aesthetics.

Year of Establishment: 2005

Site Area & Built Area: 6,800 Sqm. / 18,000 Sqm.

No. of Employees: 2,000

Certified/Non Certified: Non Certified

Sustainability features Implemented:

- Efficient design of glass façade to harvest daylight
- Use of LED lighting fixtures
- Indoor plants to maintain better air quality
- Terrace garden to minimise heat island effect
- Water fixtures with flow restrictors to reduce potable water demand

INTENT

Incorporation of sustainable building features in Shapath IV was undertaken to realise the company's ideology to provide value for money to its customer with safety, hygiene, efficiency and aesthetics, fulfilling Savvy group's ideology of building futuristic sustainable buildings.

MANIFESTATION

Planned in 2004, with an intention to incorporate health and well-being features for its occupants, Shapath IV is a non certified building, with the sustainability features, unique green practices.

Savvy group's continuous efforts to provide value for money to customers, has enabled development of first commercial building on S.G. Highway with features such as adequate break out spaces, naturally ventilated and day light lobby areas, energy metering and monitoring devices, informative signages, etc. Furthermore, the building is developed with aesthetically superior façade which maintains the thermal temperature of building interiors. It is the company's belief in making safe, clean, efficient and technologically advanced buildings, which has consequentially resulted in developing the building design from the occupant's perspective rather than the developer's perspective.

IMPACT

Shapath IV is one classic example of non-certified sustainable work space built form. The spatial design of the campus with incorporation of well maintained landscapes, shaded break out spaces, trees, etc. enhances the overall walk ability of the campus. The interactive signage motivates the occupants to take staircase instead of Lift. The continued O&M by the building developer has relived the burdens of the building occupants, encouraging them to continue their lease even after 20 years of the operation.


SHAPATH V
CROWNE PLAZA
CROWNE PLAZA

SHAPATH V

CORPORATE OFFICE - TENANT OCCUPIED

Shapath V is Gujarat's first green and sustainable building along S.G. Highway Ahmedabad, developed by Savvy Group. Savvy Group is a company that believes in changing paradigm of construction industry by adapting innovative technologies, and Shapath V is one such benchmark case for realisation of this company belief.

Year of Establishment: 2012

Site Area & Built Area: 11,499 Sqm. / 76,134.41 Sqm.

No. of Employees: 4,000

Certified/Non Certified: Certified (IGBC's LEED India Core & Shell Gold Rating)

Sustainability features Implemented:

- Carried out sun path analysis to maximise daylight and minimise heat gain
- STP to treat 100% of the wastewater generated
- Energy efficient & high-speed elevators
- High-performance chillers to achieve energy savings in cooling
- Treated fresh air units to supply continuous fresh air in all spaces


SHAPATH V

INTENT

The need for development of Shapath V as a green and sustainable building was emerged to set a standard for sustainable building in the market. The intent was to develop a high-rise building at prime location which is a sensitive to the emerging environmental concerns.

MANIFESTATION

Shapath V, as an outcome of the leadership vision turned out to be Gujarat's first IGBC's LEED India certified building. The approach to development of Shapath V as a sustainable green building is largely market driven, catering to the need of the hour. The building developers acknowledged their responsibilities towards the emerging environmental concerns in the world, as an outcome of which a remarkable building design is developed.

Very well responsive to the local climate and temperatures of the region, the building is strategically oriented for best utilisation of daylight for maximum possible time period of the day. Further to maintain an optimum indoor environment for its occupants, the north façade of the building glazed to take in glare free light. Additionally, the HVAC system of the building supports the use of fresh air for indoor circulation, and maintain the fresh working environment within the building.

Long term sustenance of the green building features is ensured by the building developers themselves. The intent is to ensure a hassle free work culture for the building occupants, resulting into satisfied and happy occupants.

IMPACT

One of the main benefit of developing Shapath V as sustainable building is that, the building at a larger community level has inspired several other developers to go green and

adopt sustainable practices, developing its own niche market for luxurious yet sustainable office spaces. This has recurrently attracted high value occupants including Deloitte and Crowne plaza, proving the case that sustainable buildings have the potential to make more business sense.

Additionally, the green features of the building aids in reduced operational cost due to adoption of green building features. The air quality testing detects airborne diseases improving the health and well-being of its occupants. An example of the same can be showcased in the form of lesser number of observed sick days amongst the occupant companies, owing to continuous supply of fresh air.


A Step Towards Sustainability is a
Step Towards Better & Healthy living.

SHIVALIK HOUSE

CORPORATE OFFICE - INTERIORS

As one of the leading real estate developers, Shivalik group is renowned for its quality and luxurious projects. Investing in the style that never ages, the company develops state of the art real estate masterpiece with unmatched service standards.

Year of Establishment: 1998

Site Area & Built Area: 2,556 Sqm. (Interior floor)

No. of Employees: 55

Certified/Non Certified: In Process

Sustainability features Implemented:

- Regularly occupied spaces achieve maximum daylight
- Break-out spaces & multi-purpose halls for occupant well-being
- Use of eco-labelled furniture for workstations
- Efficient LED lighting fixtures
- 100% of the office spaces have access to outdoor views

INTENT

Shivalik Group saw a shift towards green in recent times. Despite being a fresh and short-term exposure, green concepts have been adopted as it seemed to be the right path to choose for the development of the company. The company course has been essentially moulded towards sustainability to increase business and the "pull" from customers, as it is believed that adoption of green building within the projects will increase the sale price of the projects as compared to conventional projects (Non-Green Buildings).

MANIFESTATION

As the incorporation of green features in the new projects is at the initial stages the focus is more on the basic green elements such as air quality and ability to control cooling systems. It is understood that the active incorporation of green building concepts in the project shall require 4-5 years of experimentation.

Further the dialogue with the company seems to indicate that the company is still collecting experiences about the green concepts and in the process to understand in depth. Based on the earnings from the pandemic, the new office space designed shall accommodate requirements of the employees including co-working space.

IMPACT

The company is collecting experiences of implementing green building concepts and trying to learn. Their initial experiences indicate an enhanced brand value and greater customer appreciation of their products.

> We believe in leaving no stone unturned when it comes to meeting our commitments.
>
> Mr. Rajesh Vaswani, MD

VENUS INFRASTRUCTURE

CORPORATE OFFICE - INTERIORS

Venus Infra is one of the leading real estate developers in Ahmedabad, with a magnanimous journey of three decades. The company focuses on futuristic superior design which nurture investment value as well as adds comfort, luxury and convenience for the users. The company's commitment to the environment enables creation of sustainable built form designs in their projects.

Year of Establishment: 2002

Site Area & Built Area: 929.03 Sqm. (Interior floor)

No. of Employees: 60

Certified/Non Certified: Certified (Corporate Office - IGBC Green Interiors)

Sustainability features Implemented:

- 60% circulation space and ergonomically designed furniture
- Use of low flow water fixtures to reduce municipal water demand
- High-performance air-conditioning equipment
- Use of efficient lighting fixtures
- BMS to monitor and control air-conditioning systems and lighting
- Use of salvaged materials and materials with recycled content

> **Our strong focus to scale new heights in quality has made us leading lifespace creators.**
>
> Mr. Deepak Vaswani, Director

INTENT

Venus Infra is a real estate company with a belief in creating a balance between development and environment. To develop this vision into reality, Venus started incorporation of green building features in their project. Learned through personal experimentations and under the guidance of regional industry leaders, Venus has developed an ideology to invest its funds into developing meaningful and contribute towards better living in the society.

MANIFESTATION

Venus Infra emerged to be one of the leading developer companies in Ahmedabad, who are keen to promote sustainable lifestyle. It is their experimentation and impacts observed in their own offices which have encouraged them to replicate the models in some of their leading projects including Venus Stratum.

The spatial layout of their present corporate office is designed to create naturally daylit office spaces and provide above standard working areas for all its employees. The mechanical ventilation of the office is developed in a manner to channelize flow of fresh air into office spaces. Further, the work environment for the employees is liven up by developing bright and vibrant workspaces through incorporation of plants and colourful interior spaces. This has significantly impacted the overall work efficiency of the employees, creating a win-win situation for both the company and employees.

The strategic use of DGU facade assists in providing effective heat insulation within the building, thereby creating a pleasant work environment for employees. The operations of the office is also made sustainable with small and smart efforts such as use of quotes at different areas of the office to minimise the wastage of resources.

A lot of the end users in the building industry do not know about the benefits associated with sustainable built forms. Acknowledging this, the company feels responsible to create awareness amongst their clients/users about the concept, benefits and qualities of sustainable living. For the same, Venus Infra has developed a handbook on the features of green building incorporated in all the projects.

Further, as a developer company, Venus infra has observed that there is a resistance amongst the building users for the regular operation and maintenance. To ensure continuity in the use and functioning of sustainable features of the building for a longer period they have developed a policy, ensuring that the operation and maintenance of the projects shall be carried out by the developer company itself.

To differentiate themselves from other developer companies in the region, Venus Infra plays a forefront role in creating market awareness about the green buildings. Further attention of a specific clientele group is captured through inclusion of description about green building features incorporated in the project, in the sales pitch.

IMPACT

Creation of positive energy and work enthusiasm amongst the employees, was one of the major impacts observed at Venus Infra Corporate Office. The introduction of fresh air in office environment with vibrant interiors have also resulted into visibly less fatigue and energy levels among the employees during office hours. As the Chairman noted, earlier, afternoons in the office had a distinct tired and lazy vibe, but in the new and improved office space, anytime one walks in the office, there is cheer and high work energy.

A significant impact was also observed in terms of awareness about the green buildings and sustainable lifestyle amongst the end users/consumers. It is observed that the building occupants now pro-actively enquire about the green features of the buildings.

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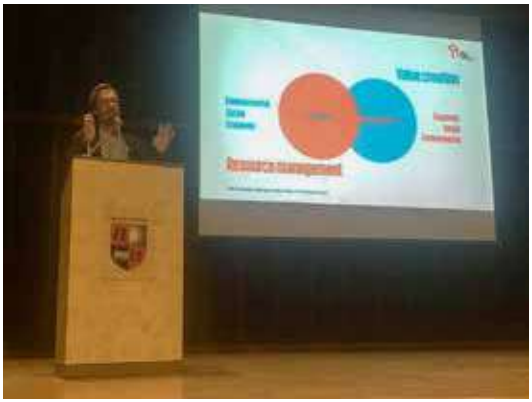
Resource management






PROJECT TEAM

Bente Toftkaer Nielsen
Director, DI-India

Ar. Peter Andreas Sattrup
Head of Sustainability, Danish Association of Architectural Firm

Tobias Hansen
Head of Project Management, DI-India,

Sameer Sinha
Chairman, IGBC-Ahmedabad Chapter
Managing Director, Savvy Infrastructure

Ar. Jayesh Hariyani
Co-Chair, IGBC-Ahmedabad Chapter, CMD, Senior Principal, INI Design Studio

S. Karthikeyan
Principal Counsellor, CII-IGBC

Sampath Kumar Kabothu
Senior Counsellor, CII-IGBC

Ar. Gaurav Pershad
Associate Counsellor, CII-IGBC

Ar. Manisha Shetty
Associate Counsellor, CII-IGBC

Himanshukumar Shah
Manager, CII-IGBC

Dr. Meeta Goel
Project Manager, DI-IGBC SPA Project

Ruchi Gandhi
Project Manager, DI-IGBC SPA Project

Shrujal Patel
Project Co-ordinator

Roota Trivedi
Project Co-ordinator

Shaded pathway at Secure Meters, Sanand Facility

SELECTED CASE STUDIES

1. Ankit Gems, Plot No. F8-F9, Gujarat Hira Bourse Gems & Jewellery Park, Ichhapore, Gujarat-394510.
2. Astral Pipes, Santej Ta, Kalol INA, Gujarat-382721.
3. Deloitte, 19th floor, Shapath-V, Besides Crowne Plaza, Sarkhej - Gandhinagar Highway, Ahmedabad, Gujarat-380015.
4. GIFT House, Block-12, Road I-D, Zone-1, GIFT City, Gandhinagar-382355.
5. GIFT One Tower, Road 5-C, Zone-5, GIFT City, Gandhinagar-382355.
6. HOF, Plot No. C1/2, Steel Town Opp. Nova Petrochem, Sarkhej-Bawla Highway, Vill. Moraiya, Changodar, Gujarat-382213.
7. Prashant Group, Plot No. 4, Phase, 1, Phase I, GIDC Estate, Vatva, Ahmedabad, Gujarat-382445.
8. Secure Meters, E-566, Sanand II Industrial Estate, Road no H, Sanand, Ahmedabad, Gujarat-382110.
9. Shapath IV, Opp Karnavati Club, Sarkhej - Gandhinagar Highway, Ahmedabad, Gujarat-380051.
10. Shapath V, Beside Shapath IV, Opp Karnavati Club, Sarkhej - Gandhinagar Highway, Ahmedabad, Gujarat-380051.
11. Shivalik House, Ramdevnagar Cross Road, Satellite Road, Beside Satellite Police Station, Satellite, Ahmedabad, Gujarat-380015.
12. Venus Infrastructure, 1101, Venus Amadeus, Jodhpur Cross Road, Satellite, Ahmedabad, Gujarat-380015.

APPENDIX

APPENDIX

LIST OF FIGURES

LIST OF TABLES

MINISTRY OF FOREIGN AFFAIRS
OF DENMARK

Confederation of Danish Industry

Confederation of Indian Industry