

### Skilling India: Construction sector demand and supply

Insights based on currently available data on construction sector

**Research findings | September 2022** 

An initiative of



#### About Construction Skill Development Council of India



Construction Skill Development Council of India is a 'Non-Profit Organization', registered under Section 8 of the Indian Companies Act 2013.

Construction Skill Development Council of India (CSDCI) has been constituted under the mandate of National Skill Development Corporation (NSDC) which is one of its own Public Private Partnership Organization in India to promote skill development. As an apex 'Sector Skill Council' for the Construction Industry, CSDCI operates under the aegis of National Council for Vocational Education & Training (NCVET), National Skill Development Corporation (NSDC) and the Ministry of Skill Development & Entrepreneurship (MoSDE) to build competencies which nurture employability and facilitate employment opportunities and that which go to build a sustainable economic activity besides making India a 'Skill Capital of the World' as envisioned by our Prime Minister Shri Narendra Modi.

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### 1 | Overview of the construction industry

### **1.1 Driven by large scale infrastructure & real estate investments and launch of marquee projects, India's construction industry is growing rapidly**

The construction industry in India has seen rapid growth in the recent past, driven by increased infrastructure investments and rapid urbanization. Construction industry contributes 9% of India's GDP employing **around 50 million people** across rural and urban areas **(second largest employer in india).** Between FY 2011 and 2019, the total Gross Value Added grew by **4% CAGR.** However, this growth is not homogeneously spread across the country. For instance, **only 5 states** - Maharashtra, Tamil Nadu, Gujarat, Karnataka, and Uttar Pradesh - **contributed around 50%** to the sector's total GVA in 2019-20.



construction industry annually (INR Bn)

Figure 2: State-wise proportion of the industry's total GVA (2019-2020)

Moreover, a consistent policy-level focus on flagship initiatives targeting large-scale investment in real estate and infrastructure and factors like rapid economic growth, urbanisation, and enabling regulations, has the potential to further contribute to the industry's future growth



Infrastructure projects under Gati Shakti, AMRUT, and the Smart Cities Mission, in the form of **14 SEZs**, **6 ports**, **3 mega ports**, and **600 railway stations**, also provide fertile ground



The real estate industry, by itself, is expected to reach over **USD 1Tn by 2030**, contributing over 14% to the country's GDP



A renewed focus on industrial growth, under the Make in India scheme, has also drawn investments into the construction of **11 industrial corridors** 



By 2025, the Indian construction industry is expected to be the **third largest** in the world, with a total size of USD **1.4Tn** 



Between 2000 and 2021, the construction industry received the **second highest amount of FDI** in the country



The industry makes up over **9% of the country's GDP**, with its gross value added (GVA) increasing at a **CAGR of 4%** between FY 2011 and 2019

# **1.2** However, availability of skilled labour coupled with emerging trends like greening, rapid digitisation are posing financial and operational challenges for the Industry

This rapid growth in the demand for construction operations has resulted in a subsequent increase in demand for construction workers as well. As per some estimates, the sector today requires around 91 million workers, which is 45% more than today's existing workforce. Additionally, the industry has been facing a range of traditional and emerging disruptions that are impacting its ability to deliver on the growing demand consistently. These span across four key areas:

				Construction companies	Construction workers	Skilling ecosystem
Α	Poor supply of skilled labour	75%	of the workforce in the industry is unskilled <sup>1</sup>	Cost overruns, project delays, and limited productivity	Stagnation in overall wages and limited bargaining power	Growing need to train semi-skilled workers to skilled workers
B	Growing focus on Sustainability and Greening	22%	of India's total annual CO <sub>2</sub> emissions are from the construction industry <sup>2</sup>	Higher need to create Green and sustainability jobs	Increased skill gap for workers	Growing need for skilling agencies to update course curriculum
С	Digitisation of construction operations	66%	of construction companies plan to prioritise digitisation <sup>3</sup>	Higher short term costs in procurement and integration	Increased skill gap for workers	Growing demand for digital skilling by micro-contractors and workers
D	Extensive use of sub-contracting engagements	85%	of all construction workers are engaged through labour sub-contracting <sup>2</sup>	Project delays, limited productivity, and risks of unethical worker treatment	Delayed payments and poor provision of amenities at sites	Increasing need to train small and micro-contractors in ethical management
E	High levels of informality with limited focus on worker safety, living conditions and social security	25%	of all occupational fatalities in India come from the construction industry <sup>5</sup>	Low productivity and minimal retention of workers	Poor health and safety conditions and financial precariousness	Increasing need to train small and micro-contractors in ethical management

In light of these multi-faceted disruptions in the industry and growing demand for construction workers, it is essential to study the demand supply mismatch in greater detail by mapping spatial differences in construction projects and supply of workers, assessing the capacities of domestic construction entities, and the existing skilling ecosystem and the workforce challenges being faced overall.

### 2 | About the research

#### **2.1** A desk research of available data was conducted in the past few weeks to review India's construction landscape and map demand and supply of labor

	Identifying demand hotspots	Identifying labour supply hotspots	Studying the landscape of construction companies	Planned outcomes of national level desk research
Why?	To capture geographic and sectoral trends in labour demand in the country and highlight pockets of unmet demand	To understand the presence of construction workforce - skilled, semi-skilled, and unskilled - across states and districts	To examine the spread of construction companies across India and identify geographies that provide an entrepreneurial ecosystem	<ul> <li>Identify key supply and demand geographies for <u>conducting primary</u> <u>research</u></li> </ul>
How?	<ul> <li>State-wise data on planned investments in the construction industry was collected, tabulated and validated.</li> <li>The planned investment was, then, used to estimate the requirement of for construction workers</li> </ul>	<ul> <li>State-wise data on the construction workforce present in each state and district was collected, tabulated and validated.</li> <li>State-wise migration data was captured to estimate the places of origin of this workforce.</li> </ul>	• State and district-wise data on MSMEs in the construction industry was collected and tabulated.	<ul> <li>Assess the mismatch between the demand of construction labour and the supply of labour across states to inform skilling probes</li> <li>Develop deeper understanding on the mismatch</li> </ul>

#### 2.2 The desk research was conducted to provide a country level overview of the construction industry towards the following objectives of CSDC\*

- Improve construction skilling ecosystem by enabling informed decision making backed by data
   At present all information regarding skill gaps is based on projections, estimates and expert opinions and doesn't take into account recent trends in innovation and new age skills.
- Bring alignment between needs of industry and trainings imparted by the skilling ecosystem
   Identify gaps in availability of workforce by types of skills and requirements of the construction industry through primary research exercise and make informed decisions
- Understand the specific needs and challenges faced by construction sector entities with respect to workforce skills

Construction sector stakeholders include construction companies (infrastructure and real estate), labour contractors, skilling partners and construction sector workers. There is a need to understand the specific challenges faced by each of these stakeholders and design relevant programs.

• Create a unified data repository of construction activity dataset

In order to transform the construction sector, it is necessary to create a repository of data which includes information on construction projects taking place all over the country, labour requirements by type of project and workforce availability

### 3 | Demand clusters and hotspots

What is the planned construction related investment and how is it spread?

# 3.1 Planned construction worth ~INR 99 tn in the country is distributed unevenly across sectors, with three of them planned to accumulate over 50% of the total investment

Publicly available data suggests over INR 99 trillion of investment in the construction industry is planned over the next 4-5 years. Additionally, this investment is expected to emerge unevenly on a sectoral as well as a geographical level. For instance, only three sectors - Roads and Bridges, Affordable Housing (for low-to-middle income groups), and Irrigation, are estimated to bring in over 50% of the total planned investment. Flagship schemes like the Gati Shakti and the Pradhan Mantri Awaas Yojana (PMAY) account for over 50% of this planned investment.

#### Figure 3: Sector-wise mapping of the total planned construction investment

- Due to the extensive involvement of flagship schemes like Gati Shakti and PMAY, and the extensive use of the Rural Infrastructure Development Fund, sectors like Roads & Bridges, Affordable Housing and Irrigation are expected to draw the most investment
- Moreover, a significant proportion of private housing investments is also expected to expand the residential real estate sector

#### Figure 4: Scheme-wise mapping of the total planned construction investment

- While flagship schemes like Gati Shakti, Pradhan Mantri Awas Yojana and the Smart Cities Mission form a huge proportion of government's investments, private investments in the housing market are also significant
- Additionally, 36% of all planned investment is estimatedly locked within individual projects that are not included any flagship schemes.



# 3.2 ~60% of the total planned construction-related investments of INR 99 Tn is concentrated in 7 states in total, predominantly spanning Central and Southern India



Similarly, around 60% of the total planned public investment is expected to span only seven states, highlighting targeted and concentrated development in certain regions. As figure 5 reveals, Central India and the South-Eastern coast seem to be key hotspots for the estimated planned investment.

#### Figures 5: State-wise split of planned construction investment (in INR Bn)

- States like Maharashtra, Tamil Nadu, Andhra Pradesh, and Uttar Pradesh are expected to attract higher investments in sectors like Roads and Bridges and Affordable Housing
- On the other hand, the Irrigation sector is likely to draw the most investments in Madhya Pradesh, Karnataka, and Telangana

**3.3** While infrastructure forms ~80% of all planned investments across states, States like Gujarat and Kerala are outliers and highlight the diverse set of existing priorities



Proportion of real estate and infrastructure investment in total planned investment Infrastructure

📕 Real Estate

#### Figure 6: State-wise planned construction sector investment (LHS, in INR Bn) and split between real and infrastructure investment (RHS, in percentage)

- Over 80% of all planned investment is in the infrastructure sector, with the remaining 20% focusing on real estate construction
- However, outliers to this overall trend exist throughout. For example, planned real estate in Gujarat is 40% of the total planned investment, whereas, for Kerala, it is as little as 11%

**3.4** Within states, concentrated pockets of investment in specific districts exist that highlights an overall trend towards focused development of chosen locations to act as a hubs



#### Figures 7 and 8: District-wise split of planned construction investment (in INR Bn)

- Unlike the state-level view, the district-level view highlights the presence of individual pockets of high investment across different states. These include Mumbai (in Maharashtra), Chennai (in Tamil Nadu), Guntur (in Andhra Pradesh), Lucknow (in Uttar Pradesh), Bhopal (in Madhya Pradesh), and Bangalore Urban (in Karnataka).
- Moreover, all these districts represent locations of rapid urbanisation and growth in their respective states

# 4 | Landscape of construction entities

What is the existing landscape of construction entities like?

# 4.1 The industry is largely informal and overall market capitalisation across BSE and NSE indices indicates concentration with 10 construction companies contributing over 75%

Existing information is available for (i) publicly listed construction companies, and (ii) enterprises registered on the Medium, Small, and Micro Enterprises (MSMEs) Udyam portal. Publicly listed construction companies contribute around 3% of market capitalization (market cap) and 75% of total market cap is concentrated in only ten major companies.



\* A detailed list of top 20 infrastructure and real estate companies is available in Annexure B

# 4.2 Despite the high informality, over 5.5 lakh MSMEs are registered in construction sector; data on number of MSMEs per INR Billion of planned investment shows geographic disparity



Our ongoing research overlays the geographic location of construction companies and enterprises registered on the MSME Udyam portal on the state-level view of planned investment (from figure 5) for further analysis (figures 12 and 13). This exercise highlights a stark distinction between well-performing and lagging states. For instance, Haryana contains over 13 MSMEs for every 1 billion of planned investment in the state, whereas, states like Meghalaya, Andhra Pradesh, Nagaland, and Sikkim are home to only 0-2 MSMEs per billion of planned investment. This highlights a significant dearth of on-ground implementing entities in lagging states, which hinders their ability to realise their full growth potential in the industry.



Figure 13: Leading and lagging Indian states/UTs in terms of number of MSMEs for every 1Bn of planned investment

# 4.3 Similarly, their presence varies significantly across the breadth of construction activities, with around a quarter of them working in construction of buildings



# 4.4 Moreover, MSMEs across different geographic locations focus on different activity types, influenced by regional labour context, local demand, and available resources



### 5 | Supply hotspots for construction labor

How are construction workers currently spread out?

# 5.1 Out of a total estimated 48 million+ construction sector workers in India, over 50% reside in 6 destination states alone - pointing at an uneven spread of the available workforce

After analysing the overall planned investment for the industry and the landscape of construction entities, the next focus area for the ongoing research is to identify key supply hotspots for the construction workforce in the country. As is the case with the planned investment in the country (figure 5), the construction workforce is also spread unevenly throughout the country, working largely in Northern and Eastern India (figures 16 and 17).

This diversity across states is further visible when one looks at the distinction between the state-level views of high-skilled, mid-skilled and low-skilled workers.



Figures 16 and 17: State-wise view of the construction workforce's 'Existing place of occupation' as per Periodic Labor Force Survey, Gol

- The state-level view of the workforce denotes a disproportionate distribution of the available labour force.
- This assessment also reveals a mismatch between the estimated demand of construction workforce in a State (as calculated using figure 5) and the available workforce in that State to address that demand. This is elaborated further in the next section.



#### **5.2** However, a closer look at the workforce's skill levels reveals a strong geographic deviation due to a range of factors

As figures 18-20 reveal below, while high-skilled labour is concentrated in West and South India, mid-skilled and low-skilled counterparts predominantly work in East and North India respectively. This hints at a relationship between the type of available job roles in each state and external factors, like those of literacy, incomes, etc. For instance, while states like Rajasthan and Maharashtra account for a quarter of high-skilled construction workers in the country, Uttar Pradesh, alone, comprises of a fifth of low-skilled workers.



Figures 18-20: State-wise spread of high-skilled, mid-skilled, and low-skilled construction workers in India, respectively (L to R)\*

#### 5.3 Similar to the demand trends, the presence of construction workers is concentrated in specific districts with higher activity



\* A detailed list of job roles that are considered high-skilled, mid-skilled, and low-skilled are listed in the Annexure C

### 6 | Insights on demand-supply mismatch

How does the demand for the construction workers match up with availability?

# 6.1 According to our estimates, Indian states require over 90 Mn construction workers. However, ~47% of this demand is not fulfilled by the existing workforce supply.



Having estimated the planned investment for the construction industry and the state-level view of the existing workforce, the ongoing study is trying to gauge the mismatch between the two, if any. Working with the assumption that the labour intensity (roughly, the number of workers required to produce one unit of value) remained constant across all projects in a state, the immediate demand of workers can be broadly estimated from the earlier estimated planned investment figures. The adjacent figure highlights the total required workforce in the country to deliver the planned construction projects across sub-sectors. Presently, the industry requires 91 million workers, while the current workforce is only around 50 million workers. This highlights an estimated gap of over 45%.

6.2 The disparity between the states' planned investments and the available construction workforce points to low mobility of construction workers and need for local skilling.



Additionally, this demand-supply mismatch also varies across states and UTs. Figure 22 denotes the state-wise proportion of the demand for construction workforce that is unmet by the existing workforce. Specifically, north-eastern states appear to be facing the highest deficit in their construction workforce, with states like Sikkim (91% shortage), Arunachal Pradesh (89% shortage), Manipur (88% shortage), Mizoram (82% shortage), and Nagaland (76% shortage) lagging behind. For instance, while our estimates suggest that Sikkim requires around 4,10,000 workers currently, there are only about 40,000 operating in the state based on the latest Government of India's labor force survey. In contrast, a few states are also experiencing the opposite trend. Kerala, for example, has an immediate estimated requirement for around 1.82 million workers. However, the number of workers currently operating in the state seem to be around 2.26 million.

These findings about the demand and availability of the construction workforce highlights two key insights:

- A first level of mismatch between the demand and supply exists between states. The case of Kerala's surplus workforce and Sikkim's deficit workforce is a classic example of the same. This points to the fact that we need to study the current migration patterns more closely to understand the existing barriers to their inter-state mobility and to lower these barriers in the long-run.
- Secondly, and more importantly, there is an overall deficit between the total construction workers required and the existing workforce in the country. This highlights the need for a robust skilling ecosystem in the country, which could potentially create avenues for the available construction workforce to expand in a dignified and secure manner across all job roles.

This gives rise to the question: What is the status of construction skilling in India?

#### 6.3 States with more skilling institutes do not necessarily rank higher when weighed against the available construction workforce in those states

Finally, the study is trying to map the geographical spread of the skilling ecosystem in the country to assess its capacity with respect to the availability of the construction workforce. This exercise was undertaken by i) mapping the presence of skilling and academic institutes and ii) estimating the number of skilling institutes per 10000 construction workers for each state/ UT in India.

According to figure 23, which presents a picture of the percentage of skilling institutes in each state, around 80% of all skilling institutes (including Industrial Training Institutes (ITIs), National Skill Training Institutes (NSTIs), and Training Centres/Training Providers (TCs/TPs)) are present in only ten states, with Uttar Pradesh, alone, accounting for about 23% of the total. On the other hand, the spread of academic institutes that provide construction-related education, are more evenly distributed, with the top 10 states accounting for 56% of the total number.





Figure 25: Number of skilling institutes India (NSTIs/TCs/ITIs) per 10000 construction workers (information only available for states)

Furthermore, a second level of analysis estimated the number of skilling institutes per 10,000 construction workers working in each state. As highlighted in figure 15, although Uttar Pradesh has the most number of skilling institutes, it only has 13 institutes per 10,000 workers working in that state. Similarly, while Karnataka has only 9% of skilling institutes, in absolute, it has over 22 skilling institutes per 10,000 construction workers working there. This type of evaluation allows us to assess all the states in a relative manner, highlighting the leading and lagging candidates.

Although figure 25 provides us with a view of the states' capacity of skilling up existing construction workers, in order to calculate their ability to address the demand-supply mismatch, it needs to be superimposed on the deficit of construction workers in each state (as depicted in figure 22).

# 6.4 In conclusion, satisfying the existing demand-supply mismatch requires a sustainable skilling ecosystem, which is currently burdened unevenly across the states



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As is evident from figure 26, North-Eastern states currently face an extensive shortage of skilling institutes, as compared to the gap in these states. For instance, while, India, as a whole, faces a gap of over 1000 workers per skilling institute, the number shoots up steeply for states like Arunachal Pradesh at 7000 workers, Assam at 7300, Mizoram at 9000, Manipur at 14600, and Meghalaya at 19000 workers per skilling institute. Conversely, although Western and Southern states also face a high gap in the available construction workforce (from figures 24 and 25), a significant presence of training institutes reduces the skilling burden in these states.

Figure 26: State-wise gap in the required construction workforce per skilling institute (information only available for states)

### 7 | Way Forward

Overall, these available statistics, together with growing investments in infrastructure and real estate, highlight the need to study the country's construction skilling landscape in more detail to achieve the following objectives -

- Generate detailed insights that can **address the prevailing data-asymmetry around demand-supply of workers** in the available data sets
- Identify and map the emerging needs and demand for construction skills
- Understand State/UT-wise patterns and trends in construction workforce nature and availability
- Study the impact of various large scale schemes and infrastructure programs on the demand for construction workers across the country
- Explore the needs of the traditional skill clusters to help them upskill and re-skill as required
- Review the existing supply set up for construction-related skilling to meet the emerging and new age demands

Doing the above, necessitates a bottom-up assessment to map the construction industry's overall functioning and requirements through field-level exercise with the variety of stakeholders that dot this critical industry including contractors and sub-contractors, construction workers, design consultants, MSMEs and large construction companies, and last, but not the least, the last-mile skilling providers and training partners.

Enabling construction industry through suitable data relevant for skilling-upskilling and reskilling is not only necessary to maximize the impact of large scale investments that are expected to propel India on rapid growth path but also important to improve the quality of projects and well-being of workers who form the backbone of this industry.

### 8 | Annexure

#### Annexure A | Detailed note on usage of sources across tracks

Tracks	Activities	Methodology	Sources	
<b>Track 1:</b> Identifying labour demand hotspots	Capturing available data on current and planned investments	<ul> <li>Data was downloaded, scraped, or extracted from multiple online sources</li> <li>Gathered data was cleaned and uniformised in Microsoft Excel</li> <li>Tabulated data was analysed for gaps, which were filled through a second set of sources</li> <li>Cleaned data sets were transformed using Tableau 2022.2</li> </ul>	<ul> <li>India Investment Grid - project cost</li> <li><u>Rural Infrastructure Development Fund</u> - sanctioned Ioan amount</li> <li><u>Pradhan Mantri Awas Yojana (Urban)</u> - current investment</li> <li><u>Pradhan Mantri Awas Yojana (Gramin)</u> - total fund allocation</li> <li><u>National Housing Bank</u> - cumulative disbursement of individual housing Ioans</li> <li>Scheme-level data from Jal Jeevan Mission, Smart Cities Mission, Swachh Bharat Mission 2.0, AMRUT, and Gati-Shakti scheme</li> </ul>	
	Calculating the construction component in the total project cost	<ul> <li>Construction sectors were organised according to total investment value</li> <li>2-3 DPRs across the top-16 sectors (which formed over 95% of the total investment amount) were chosen and analysed to identify the proportion of construction cost in the total project cost</li> <li>These proportions were averaged to arrive at a single value for the top sectors</li> <li>An average of the top sectors was, then, applied across all the other sectors</li> </ul>	<ul> <li>Detailed project reports found on <u>ministry</u> <u>websites</u></li> <li>Randomised Google searches using pre-determined specific keywords</li> </ul>	
	Estimating the labour demand from the planned construction investment	<ul> <li>Data on the Gross State Value Added (GSVA) for the construction industry was captured across all the states</li> <li>Data on available construction workforce was captured across all the states</li> <li>For each state, the two data points were used to calculate labour intensity, i.e. the workforce needed to produce per unit GSDP</li> <li>This value of labour intensity was used to estimate the workforce-in-demand across each state</li> <li>The total workforce-in-demand was divided by the median duration of planned investments (~4 years) to identify the immediate workforce demand</li> </ul>	<ul> <li><u>RBI's Handbook of Indian Statistics - GSVA</u> values (2019-20)</li> <li><u>Periodic Labour Force Survey's unit-level data</u> - construction sector workforce (2019-20)</li> </ul>	
<b>Track 2:</b> Identifying labour supply hotspots	Capturing available data on current available construction workforce	<ul> <li>Data on construction workforce - skilled, semi-skilled, and unskilled - was captured</li> <li>Gathered data was collected and uniformised on Microsoft Excel</li> <li>Tabulated data was compared with and validated through other sources on estimating the workforce</li> <li>Cleaned data sets were transformed using Tableau 2022.2</li> </ul>	<ul> <li><u>Periodic Labour Force Survey's unit-level data</u> <ul> <li><u>construction sector workforce (2019-20)</u></li> </ul> </li> <li><u>Raiya Sabha unstarred question No. 2486</u> <ul> <li>(24.03.2022)</li> </ul> </li> <li><u>e-Shram dashboard - total registrations</u></li> </ul>	
	Estimating mismatch between labour demand and supply	<ul> <li>Labour gap was calculated for all states by subtracting available construction workforce from required construction workforce</li> <li>Cleaned data sets were transformed using Tableau 2022.2</li> </ul>	<ul> <li>Internal estimated calculations - required construction workforce (2019-20)</li> <li>Periodic Labour Force Survey's unit-level data - available construction sector workforce (2019-20)</li> </ul>	
Track 3: Studying the landscape of construction companies	Capturing available data on the landscape of construction entities	<ul> <li>Data on market capitalisation and enterprise value for different sectors was downloaded for the BSE/NSE indices</li> <li>Unit-level data - name, address, state, district, and activity type - of all MSMEs in the construction industry was scraped using Octoparse 8</li> <li>Gathered data was cleaned and tabulated using Microsoft Excel</li> <li>Cleaned data sets were transformed using Tableau 2022.2</li> <li>Data on market capitalisation and enterprise value for different sectors.</li> <li>Value Research Online - data on market cap on BSE and NSE</li> <li>Udvam Registration Portal - MSME unit-level data</li> </ul>		

### Annexure B | Proportion of market capitalization across the top-20 construction companies - Infrastructure and Real Estate

Infrastructure companies			Real Estate companies		
Sr. No.	Company	Proportion of market	Sr. No.	Company	Proportion of market
1.	Larsen & Toubro Ltd.	68.3%	1.	DLF Ltd.	26.1%
2.	GMR Infrastructure Ltd.	6.1%	2.	Macrotech Developers Ltd.	15.9%
3.	IRB Infrastructure Developers Ltd.	3.6%	3.	Godrej Properties Ltd.	11.1%
4.	G R Infraprojects Ltd.	3.6%	4.	Oberoi Realty Ltd.	9.2%
5.	KNR Constructions Ltd.	2.1%	5.	Phoenix Mills Ltd.	6.5%
6.	PNC Infratech Ltd.	1.9%	6.	Prestige Estates Projects Ltd.	5.2%
7.	Rail Vikas Nigam Ltd.	1.9%	7.	National Standard (India) Ltd.	3.4%
8.	Rites Ltd.	1.6%	8.	Brigade Enterprises Ltd.	3.1%
9.	NCC Ltd.	1.0%	9.	Sunteck Realty Ltd.	2.2%
10.	Ircon International Ltd.	1.0%	10.	Mahindra Lifespace Developers Ltd.	1.9%
11.	HG Infra Engineering Ltd.	1.0%	11.	Sobha Ltd.	1.8%
12.	Engineers India Ltd.	1.0%	12.	NBCC India Ltd.	1.6%
13.	Man InfraConstruction Ltd.	0.9%	13.	Swan Energy Ltd.	1.5%
14.	Ahluwalia Contracts (India) Ltd.	0.8%	14.	Indiabulls Real Estate Ltd.	1.0%
15.	Dilip Buildcon Ltd.	0.8%	15.	Hemisphere Properties India Ltd.	0.9%
16.	J Kumar Infraprojects Ltd.	0.7%	16.	Ganesh Housing Corporation Ltd.	0.8%
17.	Ashoka Buildcon Ltd.	0.6%	17.	Puravankara Ltd.	0.6%
18.	Hindustan Construction Company Ltd.	0.5%	18.	Kolte Patil Developers Ltd.	0.6%
19.	Welspun Enterprises Ltd.	0.4%	19.	Anant Raj Ltd.	0.5%
20.	Reliance Industrial Infrastructure Ltd.	0.4%	20.	Omaxe Ltd.	0.5%

#### Annexure C | Detailed list of skill-specific job roles

Skill level	Job roles
High-skilled	<ul> <li>Architects, Engineers and Related Professionals (includes architects, civil engineers, surveyors)</li> <li>Managerial staff and other office workers</li> <li>Physical and Engineering Science Technicians (includes draughtsmen, technicians, computer assistants etc)</li> </ul>
Mid-skilled	<ul> <li>Building Finishers and Related Trades Workers (includes roofers, floor layers, plumbers, electricians)</li> <li>Building Frame and Related Trades Workers (includes masons, carpenters etc)</li> <li>Machine &amp; plant operators, assembles &amp; drivers (includes crane operators, concrete mixer operators, etc)</li> <li>Metal, Machinery and Related Trades Workers (includes welders and flame cutters, sheet metal workers etc)</li> <li>Other Craft and Related Trades Workers</li> <li>Painters, Building Structure Cleaners and Related Workers (includes painters, varnishers and cleaners)</li> <li>Precision, Handicraft, Printing and Related Trades Workers (includes glass makers, engravers, etc)</li> </ul>
Low-skilled	Construction labourers, cleaners, etc.

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