AVALON GLOBAL RESEARCH

AGR Knowledge Services Private Limited

International Copper Association India

Copper Alliance

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Stakeholders, Approvals and Compliances Mapping for Buildings in India

Executive Summary

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1. Objective of the Study

The primary aim was to understand the various kinds of approvals and compliances required for a building along with responsibility-wise stakeholder mapping.

1.1 Research Objective

The main objective was to identify key approvals needed and the mechanism involved for a new building construction project, compliances and government authorities involved. The idea was also to understand the nature of the compliances in terms of voluntary and involuntary implementation. Focus was also on understanding the stakeholder's role, responsibility and practices followed. Additionally, emerging trends in terms of adoption and implementation of EV charging infrastructure as well as green building & ECBC certification also needed to be studied in detail.

1.2 Approach

Selection of Cities

Around 28 cities spread across 13 cities including major metros, tier 1 cities, tier 2 cities as well as a few tier 3 cities and towns were identified based on the scale of ongoing infrastructure and construction activity.

Key Stakeholders

Primary interviews were conducted with developer/ builders, liaisoning architect, project management consultants, construction companies, independent consultants, regulatory authorities to understand the dynamics of the approvals and the overall compliances mechanism. Interaction and assessment of the roles of each stakeholder was undertaken to understand their involvement in terms of their responsibilities and exchange of information between different entities.

Additional Scope

Special focus was given to mapping of approval process for electrical installations and documents required for approvals. All the personnel and stakeholders related to electrical approvals were identified and their respective roles were mapped end to end.

Secondly, process of Green Building Certification and ECBC certification have been structured along with identification of authorities responsible for certification. Developments pertaining to notification of latest ECBC codes have also been recorded and mapped.

Lastly, all the gaps and areas of improvements highlighted by each stakeholder and authorities involved have been tabulated appropriately for further analysis. Root-cause analysis for the overall building approval process has also been tabulated for identification of key areas of concerns and improvements.

2. Classification of Projects

The entire framework of the approval process has been divided mainly into two categories – high-risk building projects and low/medium risk building projects.

Various parameters are considered for differentiating between a high-risk and a low-risk building, with plot area and height being considered the most critical ones.

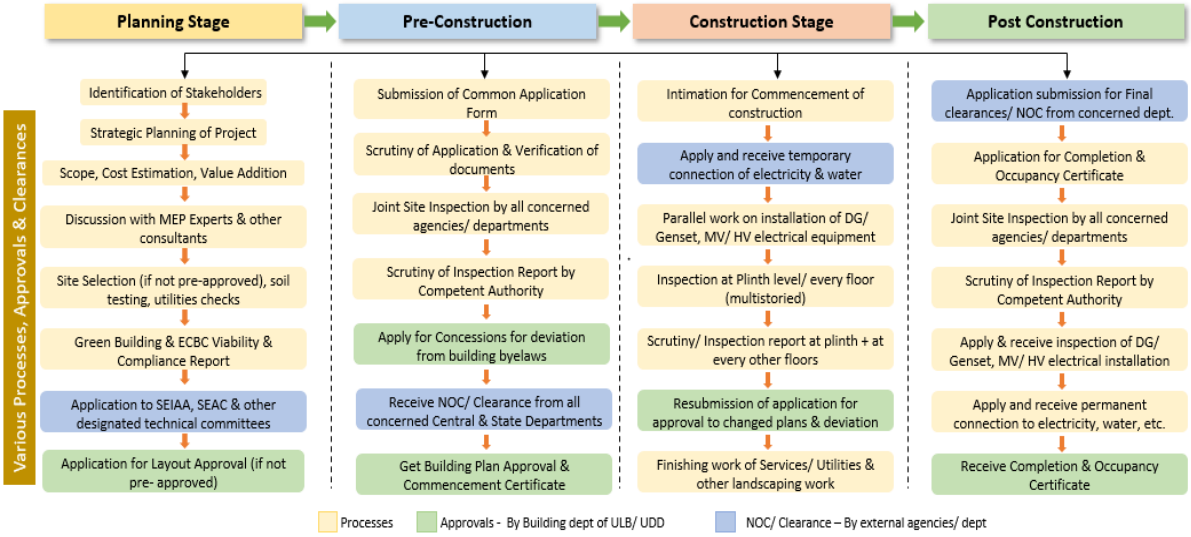
Table 1: Classification of Building Projects

	High-Risk Buildings	Low/ Moderate Risk Building
Type of Structure	• Building structures such as offices, shopping complex, hospitals, residential complexes, and township developments fall under the high-risk category	• These projects are mostly residential mid-rise and individual plot/ home buildings
Classification Parameter*	• Residential complexes and buildings having a plot area ranging from 20,000 sq. m. – 1,50,000 sq. m. and/ or height (above 15 m.) of proposed building come under the high-risk category	• The buildings have a plot area well within 100-300 sq. m. and height well below 15 meters
Stakeholders	• Owner/ builder • Licensed Architect • Geo-technical Engineer • Licensed Plumber • Licensed Electrical Contractor • MEPF Consultants	• Owner/ builder • Licensed Architect • Licensed Plumber • Licensed Electrical Contractor
Approving Authority	• Multiple state-level, national-level authorities, and government departments such as Urban Local Body, State Development Authority and/ or Municipal Corporations are involved	• The plans for these projects are usually self-certified by any licensed architect/ engineer authorized or registered under state municipal/ urban local body. • No additional NOCs are sought or needed
Other NOC/ Clearance	• Most common yet critical NOCs required during approval process are Chief Fire Officer NOC, Lift NOC, Pollution Control Board, Electrical inspectorate (for HV/LV installations), etc. • Clearance from Ministry of Environment, Forest, and Climate Change becomes critical in case of project with plot area greater than 20,000 sq. m.	• Only in few cases or subject to state laws, Fire NOC is mandatory during application for occupancy certificate

3. Building Approval Process

The building approval process usually consist of four stages – Planning Stage, Building Plan approval/ Commencement Certificate (Pre-Construction), Plinth Inspection (Construction), Building completion/ Occupancy Certificate (Post Construction).

Figure 1: Snapshot of High-Risk Building Approval Process



Planning Stage

In the planning stage, different stakeholders required in the project execution are identified and onboarded. Building plans and various other service plans are prepared by the architect with the inputs from different consultants. Layout approval is mandatory for any large project construction or where layout or allotted land is not pre-approved. Due to magnitude of the project, environment impact assessment becomes critical along with multiple state authorities (MoEFCC, SEIAA, SEAC).

Building Plan Approval

For the approval of building plans and commencement certificate, all the plans along with requisite documents are submitted to the building permission department through a centralized portal. Joint site inspections are carried out to scrutinize the documents with that of actual plot. Various NOC required are collected from concerned departments through the portal itself. Online submission of application is preferred mostly in Metros, Tier1 cities and a few Tier 2 cities. Scrutiny of the application is stringent across Metro and Tier 1 cities, and somewhat flexible across Tier 2, Tier 3 cities. Site visit for inspection is carried out stringently only in Metros and Tier 1 cities, whereas it is not undertaken mandatorily across other cities.

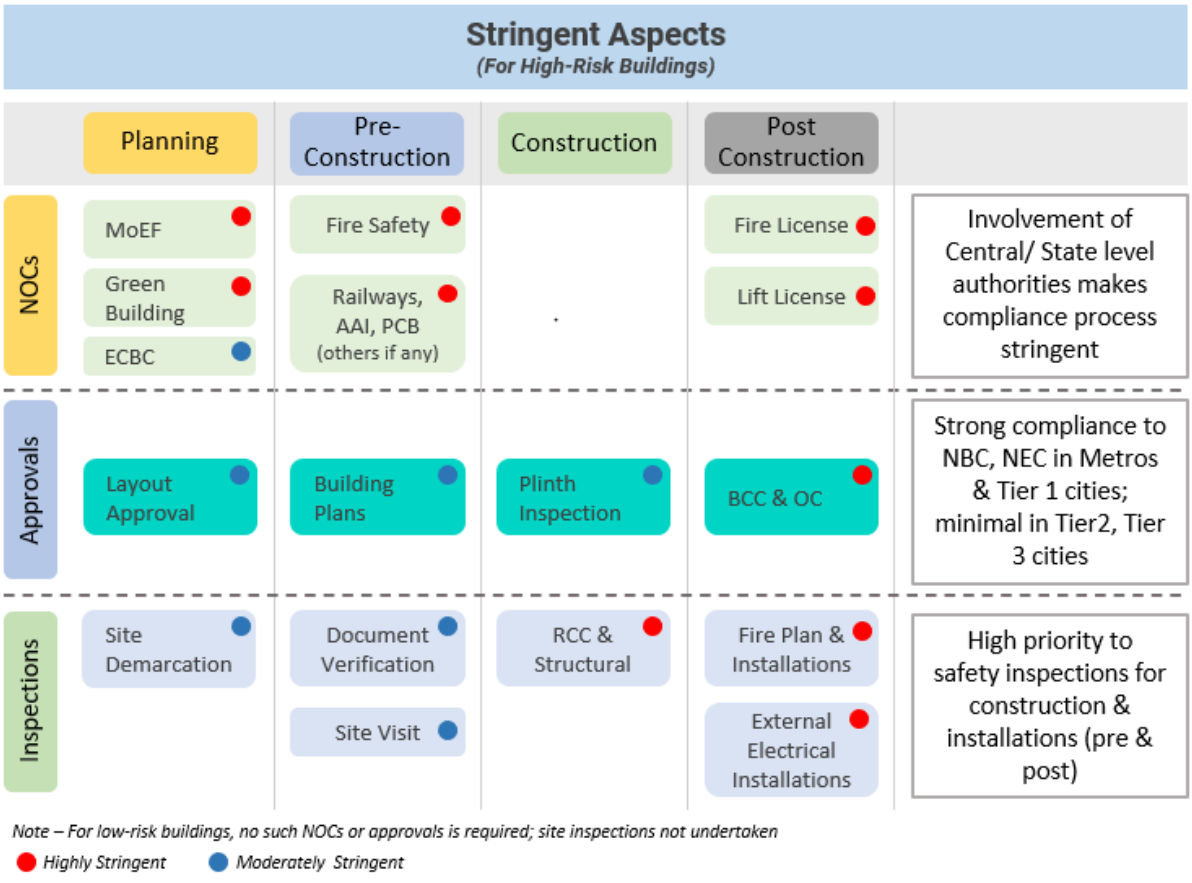
Plinth Inspection

Post construction of plinth, intimation (application) of plinth construction along with plinth completion report and structural stability report is provided by the architect to the building department. Notice for commencement or plinth completion is done for all type of buildings except bungalows & low-risk buildings. Intimation of construction commencement is mostly submitted in metros and few Tier 1 cities. No such intimation is provided in Tier 2 and Tier 3 cities once the building permit is received prior to commencement of construction. Plinth level inspection is stringent across Metros and many Tier 1 cities; inspection in many Tier 2 and Tier 3 cities are not much regular and comprehensive.

Building completion/ Occupancy Certificate

Completion/ occupancy certificate is issued only after compliance verification through joint site inspection of all concerned personnel. Application for BC & OC is usually submitted through online portals across Metros and Tier 1 cities due to updated systems. Many architects have encountered issues while submitting applications due to technical glitches in the system. Site inspection is stringent in Metros, Tier 1 cities, and few Tier 2 cities; it may not be comprehensive in Tier 3 cities due to low criticality.

Figure 2: Stringency in High-Risk Project



Note: NBC – National Building Code; NEC – National Electrical Code

4. Electrical Installations and Approvals

A licensed electrical contractor registered under the Licensing Board of the state electrical inspectorate/ dept. is responsible for getting approvals and safety certificate w.r.t. installation of LT/HT equipment, gensets, CPPs, etc.

Electrical drawings & plans for external equipment are certified by an assigned electrical inspector and approved by the Electrical Inspector. External installations are commissioned by electrical inspectorate after thorough inspection and safety compliance.

For independent homes and low-risk buildings, electrical inspectors are not involved in the overall building approval process. Usually all plans (internal) are self-certified by the registered architect for the purpose of drawing approval. The entire electrical works in the building is executed by a licensed electrical contractor registered under the state electrical inspectorate. The completion report along with an affidavit is prepared by the contractor and submitted along with the approved building plans towards issuing occupancy certificate.

Current Scenario

Across cities, internal electrical installations and related safety inspections are still not comprehensive and stringent in nature. Awareness regarding NBC, NEC and IS 732 (installation standards) is high only in Metros & Tier 1 cities. Despite awareness, strong compliance is missing in internal electrical plans & installations (scrutiny & inspection). High priority is reserved for structural aspect of plans (compliance to DCR) & external electrical installations only.

Figure 3: Loopholes/ Gaps in Electrical Approvals

Loopholes/ Gaps

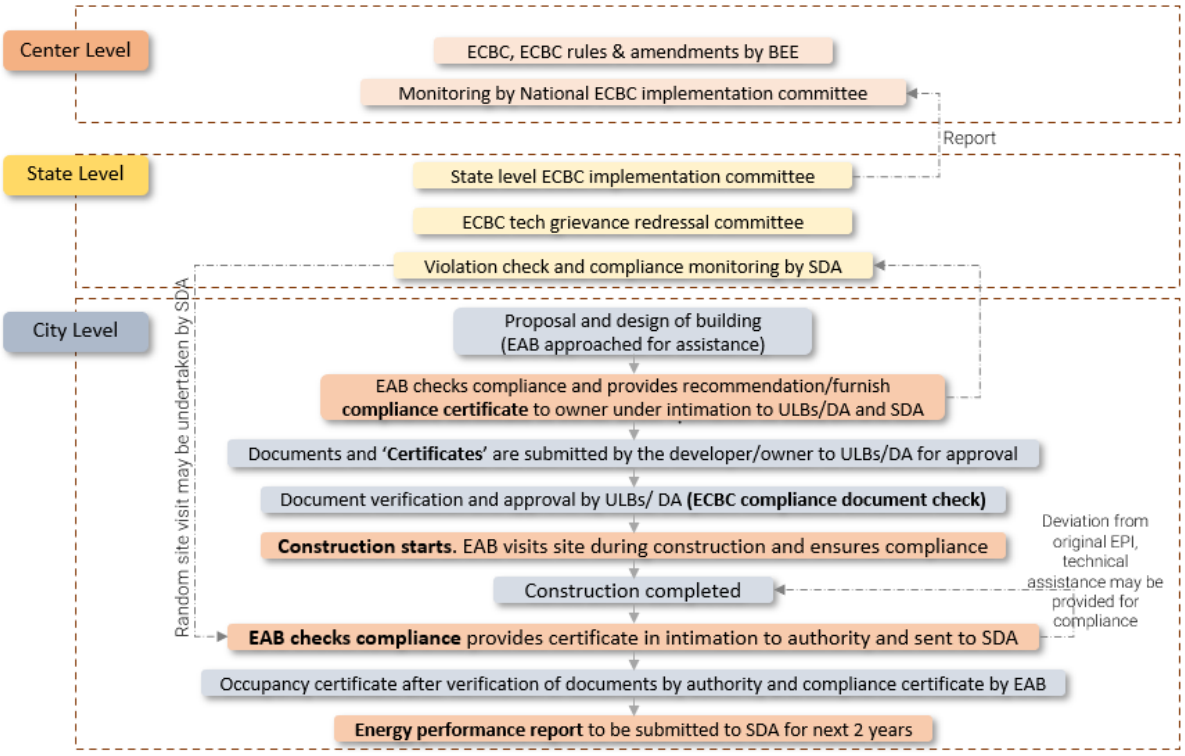
	Concerns	Solution
Electrical Consultant	• Involved in Metros & Tier 1 cities. • Lack recognized certification/ license.	• Should be certified/ licensed by a State Authority for liability
Licensed Electrical Contractor	• No significant involvement in electrical plan/ design • Only executes the plans.	• Must be responsible & included in design phase of electrical plans
Scrutiny of Internal Electrical Plans	• Lack of dedicated electrical personnel/ expert in approval bodies for verification.	• Should be scrutinized by Elec. Inspectorate. • For strict adherence to NBC, NEC.
Inspection of Internal Electrical Installations	• No strict inspection post installation. • Approval on basis of self certification by Licensed EC.	• Dedicated Electrical Engr. (Elec. Inspectorate) to ensure stringent inspection for approval

5. Green Building & ECBC Certification

BEE has assigned SDAs at state level as the prime authority for implementation and enforcement of ECBC 2017 through the ULBs, UDDs, and municipal bodies with support from Licensed ECBC assessors, architects, and engineers.

The Code is mandatory for buildings/ building complexes that have a connected load of more than 100kW, or contract demand of more than 120 kVA, and recommended for all commercial buildings with conditioned area >500 m^2. States like Karnataka, Andhra Pradesh and Telangana have included the ECBC compliance procedure in the state online building approval process. Licensed ECBC third party assessor verifies project details and inspects for ECBC compliance and issue compliance certificates.

Figure 4: ECBC Certification Process



Current Scenario

With ECBC 2017 adoption by most of the states, the central government, BEE along with SDAs are pushing for adoption of Residential ECBC at private homes and residential complexes for energy efficiency. Draft Industrial ECBC norms are in the formulation stage that is being prepared by the Bureau of Energy Efficiency with support from industry experts. Despite continuous push by central and state agencies, few states are yet to draft the state centric byelaws or notify ECBC 2017 in the state gazette. Lack of leadership at state level and inadequate technical assistance with respect to enforcement guidelines are the primary reasons for slow adoption.

6. EV Charging Infrastructure (EVCI)

The authority to amend and implement EV related policy actions have been distributed between State and Central authorities subject to the degree and type of amendment.

In case of permit approval process of commercial electric vehicles, charging stations, electric vehicle manufacturing infrastructure, state-level authorities have been designated as the key authorities for implementation of EV-related policy action. Comparatively, authorities at central, state as well as city level have been designated to amend and implement revisions in the building code to incorporate provision for charging infrastructure.

Based on the occupancy pattern and the total parking provisions in the premises of the various building types, charging infrastructures shall be provided only for Electric Vehicles (EVs), which is currently assumed to be 20% of all 'vehicle holding capacity'/'parking capacity' (Including 2-wheelers and personal vehicles) at the premise. Additionally, the building premise will need an additional power load, equivalent to the power required for all charging points in a Public Charging Stations (PCS) to be operated simultaneously.

Any Public Charging Stations (PCS) installed at Public/Private areas or building premises of any category that caters to commercial mode of charging of EVs shall be deemed as a Public Charging Station and shall have to install the minimum requirements of chargers as specified in the Guidelines dated 14.12.2018 of Ministry of Power (MoP).

7. Conclusion

Coupled with poor adherence to provisions in NBC and NEC in case of Low-Risk buildings, lack of stringent inspection during construction & OC approval is apparently the main problem in the overall building approval process. Additionally, there is visible unaccountability in Lift safety inspections in certain states due to lack of state lift act.

Proponent Level

Deliberate deviations are made by the Architects in the building plans of low-risk buildings to undergo regularization process. Availability of regularization option has led to a substantial rise in the number of buildings with significant deviations from NBC & NEC. Self-certification of low-risk buildings by licensed architect as part of fast-track approval mechanism may lead to overlooking of few deviations in the building plans. Moreover, annual maintenance contract for lifts and associated inspections have been assigned to recognized firms instead of a state-level authority.

Building Department Level

Irregularities and deviations in the buildings have become more prominent post adoption of fast-track approval mechanism. Lack of mandatory site visits by designated authorities as well as poor inspection for compliance in low-risk building adds to the existing problem. Moreover, affidavits and undertakings by the concerned stakeholder don't result in the desired level of efficacy & transparency in the submission and building plan approval process.

Policy Level

Lack of specific provisions in byelaws demarcating accountability and role of stakeholder designated for each field (for building inspection) has led to discrepancy and unaccountability in the approval process. Currently, building byelaws lack legal provisions with serious penalties applicable to deviations during execution. As a result, stakeholders involved in the approval process don't adhere stringently to the existing provisions in the building byelaws.

AVALON
GLOBAL RESEARCH

India Office

1st Floor, Kalpataru Point, Kamani Marg,
Sion (East), Mumbai 400 022,
Maharashtra, India.

☎ : +91-22-66132600
: +91-22-66132681
✉ : info@avalonglobalresearch.com
: avalonglobalresearch.com

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