MUMBAI GROWING TALLER

Ascending to the pinnacle of growth

A 100-year analysis of the Indian elevator industry and how it has become one of the fastest growing markets across the world

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In a recent statement, Otis' Laurent Bruyère stated that the first elevator in India was installed in 1892. Presumably Bruyère's reference was to the elevator installed at the Governor's house in Kolkata by Lord Curzon. Remnants of elevators have also been found in some palaces that out date the Governor's house. Considering that the first safe elevator was invented in 1853, it could be concluded that India was one of the first countries to get access to the technology.

Yet in the subsequent century the Indian elevator industry had very little ambition to introduce new technology or elevator speeds. While the Oberoi Towers and Taj Towers had elevators at 3.5mps, a speed of 2.5mps was considered as the ultimate in high speed and luxury. Other than in Delhi, where Otis' AS Herwadkar and HH Varshenya drove the specifications, a 2.5mps elevator was specified only if the circumstances (not necessarily the building height) forced the decision.

The Commerce Tower and Kalpataru Heights with 2.5mps elevators barely met the 60 seconds norm for fire lifts. The Belvedere Court fared a little better with speeds of 3.5mps. The very high import duties also ensured that technology was accessible only to the hotel chains that enjoyed import subsides.

Most global players were reluctant to set up shop in India. While the small market size was a deterrent, the main discouragement was the low technology market that comprised mainly of low cost manual door lifts. Even today, India has a sizeable manual door elevator market. In contrast neighbouring and less developed countries like Bangladesh and Nepal do not have such low technology elevators

Further, through the last century the general appetite in India for going tall was limited. Kalpataru Heights (144m) and Belvedere Court (149m) completed in 2000 were the closest to reaching for the skies. Not surprisingly the National Building Code of 2005 defined buildings above 24m as being a high rise, which in itself was a revision from the earlier 15m. In contrast the Brihanmumbai Municipal Corporation defined a high rise as being over 70m, which was a reflection that most of the taller buildings in India were being constructed on the island city of Mumbai.

At the turn of the century the Shreepati Group, a company with little construction history, redefined the Indian skyline by launching the 45 floors Shreepati Arcade. With a lot of reluctance the developers decided to consider speeds of 4.0mps, which was a marked upgrade from the 2.5mps elevators originally specified for the building. Shreepati Arcade's claim to being the tallest building in India was usurped by Planet Godrej (3.0mps elevators) in 6 years.

The Imperial Twin towers soon dethroned Planet Godrej. At 6.0mps, the elevators at Imperial led to a quantum leap for a market that considered 2.5mps as high speed. The under construction Palais Royale (300m+) is set to have elevators at 7.0mps, while the India Towers (500m+) and World One (400m+) are supposedly to get elevators of 9.0mps and 8.0mps respectively.

While most of India's tall buildings have been Mumbai centric, other cities have also started launching their tall ambitions. API-IC Tower (450m+) Hyderabad, Gateway Tower (350m+) Gandhinagar, Supernova (300m+) Noida, South City Towers (150m+) Kolkata and Burj Al Hind (140m+) Calicut are some of the buildings listed by Wikipedia.

The opening up of the Indian economy had a positive impact on the Indian elevator industry, as with many other industries. The lowering of trade barriers and acquired appetite for tall amongst the developers was encouragement enough to have the other global majors expanding to India. However the new entrants to the Indian market had to face the might of the well-entrenched players who had large resources at their disposal and reach over the entire country.

While the existing players were comfortable selling single speed (AC1) and 2 speed (AC2) elevators for lower speeds and DC drive or Variable Voltage (ACVV) elevators for higher speeds, the new entrants pushed Variable Frequency (ACVF) elevators, which had by then already become the standard worldwide. Selling "differentiating" technology with higher reliability standards and committing better customer service norms became the entry strategy for the new entrants. This approach forced a paradigm shift within the industry, exposing the Indian user to technologies way before many other advanced countries.

For instance, with a statutory license being issued for the Machine Room Less (MRL) elevator installed in the Nai Disha School in Delhi in early 2000 in India, the country stole a lead over many countries worldwide that were late in absorbing this technology.

India also stole a lead in adopting "Destination Control Systems" (DCS). The Hiranandani Group bought the first destination control elevators in April 1999. By 2003, there were over 70 destination control elevators operational around the country. While DCS solutions were initially limited to one supplier, today almost all the majors have supplied or in the process of supplying their destination control solutions to various projects around India.

With a number of companies having eliminated "geared" machines from their product offering, India has also shown leadership in adopting the more efficient "gearless" machines.

Undoubtedly through most of the first 100 years the Indian elevator and escalator industry has proved to be the proverbial tortoise. The tortoise has outrun the hares by becoming one of the fastest growing markets in the world. With annual sales of over 40,000 units in 2011, forecasted to grow to over 80,000 units by 2016, it is also the second largest elevator market in the world (as per a reference in e-Research Publications). It is therefore not surprising that the country can also now boast of hosting one of the world's largest Elevator and Escalator Expos.

While looking at the Indian elevator industry, it is essential to acknowledge the contributions and sacrifices of the many veterans. Most of these veterans gave so much of themselves to the industry that it is not unusual to hear of stories of weddings and honeymoons having been postponed to attend to an elevator launch. In fact a number of these veterans remained bachelors for life because they just did not have the time or probably because they were too devoted to their first love. It is this dedication and commitment that ensured that the Indian elevator industry has reached this pinnacle. It is only similar dedication and commitment that will ensure that the industry continues serving the users with the assurance that the safest means of transportation is indeed the safest.

The author was instrumental in obtaining the first statutory approval for a MRL elevator in India. He was also responsible for the first projects with DCS elevators in India.

Setting new norms

A look at the evolution of Indian standards as well as the process of writing and revising them

Bureau of Indian Standards is the National Standards body in India which is a Statutory Organization formed through the enactment of BIS Act(1986) working under the aegis of Central Government of India. This is the only organization in India, which has the authority and the obligation to make and revise Indian Standards. BIS is an organization similar to CSA, BSI, ANSI etc.in other countries. As is known worldwide Standards are voluntary and it depends on the users of the standards (private/public/government) which influences the implementation of the standards (International / National).

Hierarchy

There are 14 Division Councils formed by BIS under the Standards Advisory Committee to develop Indian Standards on 14 major fields like Basic and Production Engineering, Chemical, Electrotechnical, Electronics, Food etc. Each Division Council has a number of Technical Committees, known as Sectional Committees working under them, which takes care of specific subject area. The standards developed by the Technical Committees and approved by the Division Council are gazetted by BIS. The respective Technical Committees have the full authority to decide the content of the Indian Standard.

An overview of process of developing an Indian standard (specific to lifts and escalators)

The Concerned Division Council approves the new Subjects taken up for standardization based on recommendation of the Sectional Committees. Standard related to Electrical field is governed by the Electro Technical Division Council (ETDC). There are 37 Technical Committees working under ETDC.

ET 25 Lifts and Escalator Sectional Committee (Technical Committee) has been assigned the work to develop Indian Standards on Lifts and Escalators. The Sectional Committee ET 25 is being represented by Industries, Government Agencies related to Lifts and Escalators, Laboratories, Consumer Agencies and major Consultants and Users. The ultimate aim while preparing/developing a standard is to protect the consumer interest and National Interest. As is prevalent in other countries, all lift and escalator installation and maintenance in India are required to be monitored/approved by the provincial/state government body (Lift Inspectorates) due to high safety factor involved in using these facilities. The Standards developed and published by the BIS are Generic in nature. In addition to Indian standards, the State Lift Inspectorates have their specific requirements, which takes into account various factors like building structures and provincial regulations to name a few while installing either a lift or escalator.

Considering all the above facts, the Sectional Committee ET 25 have been formed and represented by the all stakeholders including various state Lift Inspectorates, Private / Government Lift and Escalator Users, and Manufacturers. The Electrotechnical Division Council appoints the Chairman of the committee keeping in mind that the person who chairs the committee should be knowledgeable in the subject, unbiased and always protects the consumer and national Interest. (Currently Maharastra PWD Chief Engineer has been appointed as the Chairman of this committee). The committee work is coordinated by the Member Secretary who is an officer from BIS and helps the committee in the whole process of formulating the standard.

Different stages of formulation of Indian standards on lifts and escalators

1. Proposal stage / preliminary draft / new work item proposal

The initial stage is the proposal stage. A subject is proposed by a proposer(anybody) along with a technical draft (individual, manufacturing organization, users). The proposal will be placed before the Technical Committee (by calling a meeting) for approval to develop an Indian standard. Depending upon the technical content of the proposal, the Committee may forward the proposal to a Technical sub-committee/Panel for detailed review and comments. At present one of the Panel named as ET 25 /P4_ is chaired by official from Maharashtra PWD. The Technical sub-committee comprises of a team of experts who review, discuss & debate the proposal received and forward their summarized comments to the technical committee. The proposal with comments from the Panel is then discussed at the main ET 25 Technical Committee meeting, coordinated and organized by the Member Secretary where final decision is taken regarding approval of the document.

This is true for revising of an existing standard. Once the ET 25 committee approves, the subject will be taken up for formulation/revision. The Member Secretary circulates the preliminary draft to all the members of ET 25 for comments. .

2. Wide circulation stage

The comments received on the preliminary draft will be discussed in the consequent meeting and any changes agreed upon will be incorporated in the draft. Then the revised draft will now be circulated as a wide circulation document to all the members of Technical Committee, members of ETDC and all those who are interested to get the widest range of comments on the document. The document is also hosted in BIS website and is available for public comments. This stage is very important as this stage decides the major content of the standard.

3. Final draft Indian standard

The comments received on the WC document are discussed in the meeting for any changes. Any changes agreed upon in the main meeting of ET 25 will be incorporated in the draft and after editing sent for printing. The technical committee, who has the final authority to decide and approve the document, may decide to circulate it again if it is found that the document has undergone major technical change since the last circulation.

4. Publication of Indian standard

Once the committee ET 25 finalizes the draft Indian Standard, BIS get the formal approval from the ETDC chairman and publishes the Indian Standard.

It should be noted that the committee always works on consensus. There is no voting as in ISO / IEC.

The whole process of making / publishing a Indian Standard takes on an average of 1-3 years. All the standards published by the committee are reviewed and reaffirmed/revised within 5 years. Amendments are issued from time to time to take care of any technical advancement or change. The committee considers revision only if a whole lot of requirements have to be changed in the standard. Otherwise, any minor changes are taken care by way of issuing amendments. The same procedure regarding formulation of Indian standard enumerated above have to be followed while issuance of any amendments. However, the committee has the authority to issue a document waiving wide circulation stage in case of exigencies and the situation like printing errors.

Every 5 years circulars are sent to all the members listing all the standards which are 5 years old for their views / comments whether the standard should be revised/reaffirmed. If no adverse comments are received the standards are reaffirmed for another 5 years.

The Sectional Committee also has the authority to form sub-committees/panels (The representation / composition decided by the sectional committee) for specific subjects taking into consideration the urgency and specialization of the subject to be dealt with. The subcommittees and panels are small groups, which gives their recommendations. The final decision lies with the sectional committee.

As mentioned earlier, all standards are voluntary and the implementation lies with the concerned authorities (lift inspectorates of State Governments). Though generic requirements are complied by the manufacturers, specific requirements differ from state to state which makes the situation a bit difficult for the manufacturers. However, the state lift inspectorates (members of ET 25) are also being pursued to make a compendium of Lift rules, which augments the standard with minimum variations.