NATIONAL BUILDING CODE AND ACCESSIBILITY FOR PERSONS WITH DISABILITIES IN INDIA

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Abstract

Accessibility and accessible built-environments are crucial for persons with disabilities for their dignified living and descent participation in society. Globally, accessibility of buildings by persons with disabilities is emerging as major concern in view of growing numbers of disabled persons. Rights of Persons with Disabilities Act and National Building Code of India have come up with legal provisions and guidelines for accessibility of buildings and built-environments by persons with disabilities. There have also evolved universal design concept and best practices to enhance physical accessibility of persons with disabilities. This paper has highlighted the importance and benefits of accessibility of buildings for persons with disabilities. It has assessed laws, rules and regulations, and best practices and standards regarding accessibility of buildings. Most importantly, the paper has made a critical analysis of accessibility provisions for persons with disabilities under National Building Code of India and has suggested measures for ensuring accessibility of buildings.

Keywords : *Disability, Accessibility, Building, Universal Design, India*

I. Introduction

AS PER 2011 World Report on Disability more than one billion people, constituting 15 percent of the world's population, experience some form of disability.[1] Every person in fact

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[1] World Health Organization (WHO), *World Report on Disability* (2011), *available at*: https://www.who.int/disabilities/world_report/2011/report.pdf (last visited on February 10, 2021).

experiences and undergoes some disabling condition, initially as children and if (s)he lives longer as elderly person. World Health Organization (WHO) notes that "disability is a part of the human condition", and temporary or permanent impairment will be faced by almost everyone at some point in life.[2] By any definition, it seems the number of disabled people is increasing rapidly.[3] The percentage of persons with disabilities of all ages will increase, especially over the next few decades.[4]

Globally, the rights of persons with disabilities are increasingly becoming a serious concern for all particularly in the context of their increasing number and discrimination and injustice faced by them. Within disability discourse accessibility is now considered the cornerstone for the realisation of the most other fundamental human rights. A legitimate State is considered duty-bound to necessarily ensure and create an accessible environment for persons with disabilities. UN Report on Issues and Emerging Trends related to Advancement of Persons with Disabilities states that equal participation would take place if equalisation of opportunities to participate is provided through measures to enhance accessibility.[5] Accessibility and accessible built-environments are crucial for persons with disabilities for their dignified and independent living through full participation in all aspects of life including access to education, healthcare services and employment opportunities. Accessibility is considered to be addressed when any place, space, item or service, whether physical or virtual, is easily approached, reached, entered, exited, interacted with, understood or otherwise used by persons of varying disabilities.[6]

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[2] United Nations Economic and Social Commission for Asia and Pacific (UNESCAP), *Accessibility for All: Good Practices of Accessibility in Asia and the Pacific to Promote Disability Inclusive Development* 7, ST/ESCAP/2763 (2016).

[3] Ronald L. Mace, Graeme J. Hardie, *et.al.,* "Accessible Environments: Toward Universal Design" 6 (Center for Accessible Housing, North Carolina State University), reprint from W. E. Preiser, J. C. Vischer, *et.al.* (eds.), *Design Intervention: Toward a More Humane Architecture* (Van Nostrand Reinhold, NY, 1991), *available at*: https://projects.ncsu.edu/ncsu/design/cud/pubs_p/docs/ACC%20Environments.pdf (last visited on February 28, 2021).

[4] Office of Housing and Construction Standards, "The Building Access Handbook Building Requirements for Persons with Disabilities from British Columbia Building Code 2012" vii (British Columbia, 2014), *available at*: https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/construction-industry/building-codes-and-standards/guides/2014_building_access_handbook.pdf (last visited on February 16, 2021).

[5] United Nations, "Ad Hoc Committee on a Comprehensive and Integral International Convention on Protection and Promotion of the Rights and Dignity of Persons with Disabilities, Issues and Emerging Trends Related to Advancement of Persons with Disabilities" , A/AC.265/2003/1 (New York, 16-27 June 2003), *available at*: https://www.un.org/esa/socdev/enable/rights/a_ac265_2003_1e.htm (last visited on February 9, 2021).

[6] UN Department of Economic and Social Affairs, "Accessibility and Development: Mainstreaming Disability in the Post-2015 Development Agenda" 3, ST/ESA/350, *available at*: https://www.un.org/disabilities/documents/accessibility_and_development.pdf (last visited on March 8, 2021).

Accessibility for all is recognized as a basic necessity, there are attempts all over the world to ensure this, and barrier-free features are now becoming fundamental to all design concepts.[7] Accessibility of buildings or built-environments has found specific mentions in many important international instruments on disability, such as UN Convention on Rights of Persons with Disabilities (UNCRPD)[8], UN Standard Rules on Equalization of Opportunities for Persons with Disabilities, Biwako Millennium Framework for Action for 2002-2012 of the UN Economic and Social Commission for Asia and the Pacific (UNESCAP), etc. India has also long outlined numerous building bye-laws, regulations, guidelines and standards for accessibility. Specific legal provisions for accessibility were incorporated under the Persons with Disabilities Act (PWD Act*)* 1995. Rights of Persons with Disabilities Act 2016 (enacted in compliance with UNCRPD) and the *National Building Code* of India 2016 have come up with enlarged and new guidelines for accessibility of buildings or built-environments by persons with disabilities. However, making infrastructure accessible requires implementing and respecting standards and guidelines for accessible buildings and facilities.[9] Those who commission, design, construct or manage any part of the built and made environment also have a duty of care to adhere to relevant legislations and regulations including equality legislation, building regulations and health and safety regulations.[10] Such concern for accessibility of the physical environment has led to the emergence of 'universal design' concepts for buildings or built-environments. There are now numerous best practices regarding accessible buildings, parking spaces, parks and facilities for recreational purposes.

This paper has highlighted the importance and benefits of accessibility of buildings and built-environments for persons with disabilities. It has assessed laws, rules and regulations, and best practices and standards regarding accessible structures for buildings and built-environments. It has made an analysis of the universal design concept for promoting the accessibility of buildings and other built-environments. Most importantly, the paper has made a critical analysis of accessibility provisions for persons with disabilities under the National Building

[7] Vijay Motwani, "Introduction", in *Handbook on Barrier Free and Accessibility* (Central Public Works Department, New Delhi, 2014).
[8] It is a legally binding instrument. It was adopted on December 13, 2006, opened for signature on March 30, 2007, and entered into force on May 3, 2008.
[9] AusAID, "Accessibility Design Guide: Universal Design Principles for Australia's Aid Program A Companion Volume to Development for All" 13 (January 2013), *available at*: https://www.dfat.gov.au/sites/default/files/accessibility-design-guide.pdf (last visited on March 20, 2021).
[10] Centre for Excellence in Universal Design, "Building for Everyone: A Universal Design Approach" 6, *available at*: http://universaldesign.ie/Built-Environment/Building-for-Everyone/1-External-Environment.pdf (last visited on March 20, 2021).

Code of India 2016 and has suggested measures for ensuring buildings and built-environments accessible and disabled friendly.

II. Accessibility of Built-Environment and Universal Design

Accessibility of buildings and built-environment fundamentally comprises of four broader categories of architectural design requirements – mobility requirements (in terms of both horizontal and vertical mobilities of people), sensory requirements (for visual and hearing impaired people), visibility requirements (for people with colour blindness and visibility problems), and intellectual/cognitive requirements (in terms of understanding of technical specifications, technical terms, signages, languages, reading of texts, symbols, pictorial information, etc). Accessibility of built-environment is a dynamic concept and it depends on the specific needs and requirements of people using specifically built structures. In general, accessibility elements that need to be considered for any building or built-environment include the following– accessible pathways (particularly for wheel chairs users and visually impaired persons), accessible entrances and exits (including stairs, ramps with specific width and slope), non-slippery surfaces (with tactile surface and contrasting colours of upstairs and downstairs for a person with a visual impairment), handrails, doors and handles, accessible washroom facilities, toilets, parking spaces, walkways, elevators and escalators, telephones, drinking fountains, kitchens, and clear/readable signages that use recognised symbols or pictograms for easy accessibility or mobility within the built-environment. Accessibility guide maps of the built-environment incorporating specific information about the environment or services in accessible formats are also important for any accessible building or built-environment. Signages and communication including appropriate positioning of signages, formats, languages, technical specifications, pictorial representation of services in the front of the facility entrance and signals at important points (such as entrance, exit, information point, etc.) are also very important accessibility elements to consider with. Audio signalling and visual signalling facilities in lifts/ramps/stairs/escalators/etc and at other appropriate places of the building or the built-environment are also crucial, more particularly for safety measures in emergency situations (such as immediate evacuation in case of fire).

Global disability movements and human rights concerns for persons with disabilities over the past few decades have made a significant impact on issues of accessibility of the physical and the built-environment. As a result, the universal design concept has evolved as one of the most important aspects of the architectural design and the built-environment. As the concept of

accessibility becomes more ingrained and familiar, and as more resources become available, it becomes easier to raise standards and attain higher levels of mainstream disability inclusion through an inclusive built-environment.[11] 'Universal design', which is an umbrella concept for barrier-free design, accessible design, inclusive design, and design-for-all, does not necessarily mean that building or architectural design has to follow a uniform design requirement. It has simply laid down universally recognised fundamental design concepts and principles for consideration for any building or built-environment. Building design and requirements may in fact vary from place to place depending on geographical locations and cultures.

Universal design is about designing or constructing an accessible building or built-environment that can be easily accessed by all the users of the building or the built-environment irrespective of their age, gender, size, disability or ability. While the 'universal design' concept has evolved to address the specialised requirements of physical accessibility and therefore equality concerns for persons with disabilities it is gradually turning out to be beneficial for other populations as well – such as the ageing population, children, pregnant women, and temporarily disabled, ill or injured persons.

Builders, designers and architects must understand that any exclusive or separate accessibility features exclusively for persons with disabilities is unwelcome as it nullifies the 'principle of equality' and embarrasses disabled persons in using such exclusive facilities. UN identifies accessibility as a member of the set of global public goods and not a defined benefit for a particular group.[12] The universal design concept addresses this 'non-exclusivity' concern and promotes design aspects for buildings and built-environments that respects all users. Any design aspect that is intended to facilitate accessibility for persons with disabilities should be aesthetically designed in such a manner that non-disabled persons also find it convenient to use the same facility along with the disabled persons.

As a concept, 'universal design' (hereinafter UD) was first used and promoted in the United States by Ronald Mace in 1985 to communicate a design approach that could be utilized by a

[11] *Supra* note 9 at 25.
[12] *Supra* note 6 at 27.

wider range of users.[13] While coining the term 'universal design' in 1985 Mace, a designer on wheelchair, described it as follows: [14]

> [UD is] a way of designing a building or facility, at little or no extra cost, so it is both attractive and functional for all people, disabled or not. The idea is to remove that expensive, "special" label from products and designs for people with mobility problems, and at the same time, eliminate the institutional appearance of many current accessible designs.

In mid-1990s, Mace convened a meeting of accessibility experts at North Carolina State University's Center for Universal Design to craft a new definition and these experts defined UD as "the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaption or specialized design."[15] In line with this definition, Article 2 of the *UNCRPD* defines 'universal design' as "the design of products, environments, programmes and services to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design." *UNCRPD* however adds that 'universal design' shall not exclude assistive devices for particular groups of persons with disabilities where this is needed. According to Barnes, this design for all approach is widely linked to discourses of social inclusion and human diversity.[16] Handicap International supports universal design as an approach for promoting self-reliance, independence and ease of living for persons with disabilities, older people and people without disabilities.[17] The fundamental philosophy behind universal design is the creation of a barrier-free built-environment for all as "an environment that is barrier-free supports the dignity and independence of all people."[18]

Universal design prioritises 'accessibility by design' through intentional efforts by the designer rather than 'accessibility by retro-fitting' of inaccessible buildings or built-environment. At the international, regional and national levels various efforts are being made to inculcate the culture

[13] Elaine Ostroff. "Universal Design: An Evolving Paradigm" 1.5, *available at*: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.642.7529&rep=rep1&type=pdf (last visited on March 10, 2021).
[14] Aimi Hamraie, "Designing Collective Access: A Feminist Disability Theory of Universal Design" 33(4) *Disability Studies Quarterly* (2013), *available at*: https://dsq-sds.org/article/view/3871/3411 (last visited February 16, 2021).
[15] *Ibid*.
[16] Colin Barnes, "Understanding Disability and the Importance of Design for All" 1(1) *Journal of Accessibility and Design for All* 68 (2011).
[17] Handicap International, "General Accessibility Guidelines Iraq – 2016" 2 (2016).
[18] Handicap International, "Guidelines for Creating Barrier-free Emergency Shelters" 1 (February 2009).

of 'accessibility by design' among the builders, designers and architects through the enactment of laws, rules and regulations on building codes and standards. In the late 1990s, the Center for Universal Design came out with seven universal design principles, which are as follows (adopted from Aus AID, 2013): [19]

> Principle 1 - Equitable use: Design that is useful and marketable to persons with diverse abilities; Principle 2 - Flexibility in use: Design that accommodates a wide range of individual preferences and abilities; Principle 3 - Simple and intuitive use: Design that is easy to understand, regardless of the user's experience, knowledge, language skills, or concentration level; Principle 4 - Perceptible information: Design that communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities; Principle 5 - Tolerance for error: Design that minimises hazards and the adverse consequences of accidental or unintended actions; Principle 6 - Low physical effort: Design that can be used efficiently and comfortably and with a minimum of fatigue; and Principle 7 - Size and space for approach and use: Design that provides appropriate size and space for approach, reach, manipulation, and use, regardless of the user's body size, posture or mobility.

Cost Effectiveness in Universal Design

There is a common misconception that universal design for enhancing accessibility of buildings or the built-environment is a costly affair. Contrary to this, universal design is a "sensible and economical way to reconcile the artistic integrity of a design with human needs in the environment."[20] Many studies have come out with the fact that the cost for incorporating universal design is only marginal, involving an additional cost of around one percent of the total building cost if planned, designed and implemented at the outset.[21] According to World Bank, available evidence illustrates that urban infrastructures, facilities and services, if designed and built following accessibility or inclusive 'universal design' principles from the initial stages of planning and design, bear almost no or only one percent additional cost.[22] Studies by the National League of Cities and the United States General Accounting Office have

[19] *Supra* note 9 at 8.
[20] *Supra* note 6 at 31.
[21] *Supra* note 9 at 14.
[22] Harold Snider and Nazumi Takeda, "Design for All: Implications for Bank Operations" 6 (World Bank, 2008), *available* at: http://siteresources.worldbank.org/DISABILITY/Resources/Universal_Design.pdf (last visited on March 20, 2021).

also led to an acceptance of the proposition that accessibility features cost less than one percent, often less than one half of one percent, of the cost of new construction which appears to be insignificant when compared to the costs of decisions related to other considerations such as fire safety, energy efficiency, noise reduction and—perhaps most notably—aesthetics.[23] Simple and careful planning by the designer and builder at the initial stage, depending on the knowledge of the intended users of the building and the built-environment, can in fact simultaneously enhance artistic integrity and accessibility at no additional cost. Far from being distracting, the careful integration of useful *accessibility* features can profitably enrich the visual quality of both exteriors and interiors of buildings (italics mine).[24] Appropriate accessible building design - barrier free for all users - starts with the conviction that such design is functionally useful, necessary, visually interesting, serves not only a small portion of the population but is valuable to all users.[25]

As a concept, 'universal design' for enhancing accessibility for all in fact supports design structures that are cost-effective and that require only marginal cost to incorporate accessibility features. Since accessibility is now the right of people and it is now obligatory to provide physical accessibility to all, designers, architects and builders must plan at the initial stage itself to reduce the cost of accessible building infrastructure projects. Otherwise, retro-fitting of building infrastructure to make the same accessible to all (as per legal requirement) would be a very costly affair at a later stage. According to Snider and Takeda, the cost of making adaptations after a building is completed is far greater and can rise up to five percent or more of the total cost depending on the modification of the architectural features of the building.[26]

Customization in Universal Design

Universal Design respects the culture and tradition of specific countries or locations and there is no hard and fast rule for universal design except the rule that any design structure must be universally acceptable from the perspective of accessibility. Designers and builders are at liberty to adopt local or traditional practices to reduce costs in constructing accessible buildings. To quote Snider and Takeda: [27]

[23] *Supra* note 3 at 21.
[24] Patricia Ladia Falta, "Barrier Free Design for Disabled Persons - Evaluation Framework for Assessing the Quality of Accessibility in Public Buildings" 220, *available at*: https://www.brikbase.org/sites/default/files/EDRA14-Falta-215-222_1.pdf (last visited on February 23, 2021).
[25] *Ibid*.
[26] *Supra* note 22 at 6.
[27] *Id*. at 2.

> Universal design is not a standard, either national or international, but it may include design factors that might ordinarily adhere to national or international standards. Universal design may or may not include standards, but the design must be universally acceptable and usable by the population that will use the specific piece of the built-environment. Universal design does not have hard and fast rules. It is whatever the designer intends for it to be, but it must follow some general principles.

Designers and builders can in fact move ahead and raise the standard of accessibility standards further through innovative accessibility features of buildings or the built-environment they construct. Customers or users of such buildings or built-environment would be willing to pay for additional accessibility features and builders can thus easily offshoot any additional cost incurred by them. Users of good infrastructure pay for the good infrastructure they use (such as toll taxes for good roads in India are paid by the users). There is however a need for proper assessment of the cost-benefit involved in incorporating accessibility features and the end-user must not be burdened unfairly for availing accessibility support services.

Accessible Design and Economic Opportunity

Non-incorporation of universally accessible design is a costly affair for individuals and countries as inaccessibility results in loss of human and opportunity costs. Inaccessible built-environments limit the mobility of persons with disabilities and thereby limit their accessibilities to economic, education, health, social and other opportunities. In absence of accessibility, they are dependent on others to enjoy the benefits of such opportunities. It involves direct or indirect costs to the disabled persons and their family members and loss of opportunity cost in terms of contributing economically to the family, community and the nation as a whole. From a national cost viewpoint, the forced dependency of a large proportion of the increasing population of people with disabilities has resulted in heavy and rapidly escalating economic burdens on government, business, families and taxpayers.[28] Further, costs associated with the exclusion of a single group, namely persons with disabilities, from the labour force could lead to substantial losses, for example, of up to around 7 percent of national GDP.[29]

[28] *Supra* note 3 at 26.

[29] Barbara Murray, "Employment for Social Justice and a Fair Globalization: Overview of ILO Programmes", *available at*: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_140958.pdf (last visited on March 15, 2021).

Cities that depend on a tourism economy are likely to pay high opportunity costs for inaccessible infrastructure and services if they exclude tourists with disabilities, and older persons and parents with young children, who may experience accessibility limitations, who may otherwise visit these destinations.[30] It is estimated that, in economic terms, that by not adapting its inaccessible infrastructures the tourism industry would fail to capture approximately 15- 20 percent of the global market share.[31] Further to quote Snider and Takeda: [32]

> When someone does not have easy access, the time and effort of other helping individuals will have to make up the difference of the lack of universal design, although the whole scale of this cost cannot be easily calculated …. Furthermore, cost of inaccessible infrastructure would be sharply increased by eliminating economic opportunity for a number of individuals. Physical barriers reduce the economic and social output of persons with disabilities and elders, and investments in the removal and prevention of architectural and design barriers are increasingly being justified on economic grounds.

Investments in barrier-free universal design will reduce costs in terms of reduced need for dependency on attendants and human costs on attendants, reduced need to make separate arrangements in keeping a disabled, elderly or ill family member in some other caring institutions or nursing homes, and reduced time and money in finding a new alternative job for such people.

Best Practices of Universal Design for Accessibility

Barrier-free accessibility features are now fundamental to all building design considerations and it is in fact obligatory now on the part of the state, builders, architects, designers to adopt universal design principles in order to ensure accessibility of the buildings and the built-environment. Best practice in universal design is defined as building practices and procedures that comply with universal design principles and provide affordable design practices that meet the needs of the widest possible range of people.[33] As mentioned above, universal design

[30] UN, "Accessibility and Inclusion of Persons with Disabilities in Urban Development", *available at*: https://www.un.org/disabilities/documents/2016/Urban/DESAissuepaperonAccessibilityandInclusionofPersonswithDisabilitiesinUrbanDevelopment.pdf (last visited on March 22, 2021).
[31] *Ibid.*
[32] *Supra* note 22.
[33] Canadian Human Rights Commission, "International Best Practices in Universal Design: A Global Review" 1 (March 2006 (revised edition of August 2007)), *available at*:

principles do not prescribe a uniform standard or a fixed technical specification for making buildings accessible. Technical specifications for constructing accessible building architecture may vary from case to case depending on local conditions, topography and culture of people of a particular country or location.

Accordingly, one best practice of universal design for accessibility of building architecture may not be suitable for people of a different culture, country or location. Some building structures or technical specifications for buildings have nevertheless been considered standard benchmarks from the perspective of universal design considerations. International and regional organisations, national public and local municipal authorities and reputed private builders/ architects/ organisations have come out with their own technical specifications for making buildings accessible to all through the adoption of universal design principles. They have come out with best practices for universal design considerations for various components/elements of the buildings/built-environment. Although there are now numerous examples of 'best practices' of universal design for accessibility some of the technical design specifications have been widely recognised and adopted as examples of 'best practices' of standards and guidelines for making buildings universally accessible to all the users.

At the international and regional levels some of the widely recognised best practices of universal design for accessibility of buildings and built-architectures are: (i) Accessibility for the Disabled: A Design Manual for a Barrier Free Environment – This manual was prepared in 1998 by the Urban Management Department of the Lebanese Company for the Development and Reconstruction of Beirut Central District (SOLIDERE) in collaboration with the United Nations Economic and Social Commission for Western Asia (ESCWA) and with the approval of the Ministry of Social Affairs and the National Committee for the Disabled[34]; (ii) *Promotion of Non-Handicapping Physical Environments for Disabled Persons: Guidelines* – It was published in 1995 by UN Economic and Social Commission for Asia and the Pacific (UNESCAP), Bangkok[35]; (iii) International Standard: ISO

https://digitalcommons.ilr.cornell.edu/cgi/viewcontent.cgi?article=1375&context=gladnetcollect (last visited on March 22, 2021).

[34] "Accessibility for the Disabled: A Design Manual for a Barrier Free Environment", *available at*: https://www.un.org/esa/socdev/enable/designm/index.html (last visited on March 24, 2020).

[35] "Promotion of Non-Handicapping Physical Environments for Disabled Persons: Guidelines", *available at*: https://www.independentliving.org/docs2/escap1995.html (last visited on March 24, 2020).

21542:2011 on *Building Construction: Accessibility and Usability of the Built-environment*, published by International Organization for Standardization (ISO) in 2011.

Countries and local authorities within the countries have also devised their own specific guidelines and standards for accessibility and accessible buildings and built-environment. As far as India is concerned the National Building Code 2016[36], Harmonized Guidelines and Space Standards for Barrier Free Built Environment for Persons with Disability and Elderly Persons[37], and Handbook on Barrier Free and Accessibility 2014[38] are obvious examples of the 'best practices' of accessibility guidelines for buildings. Another example of 'best practices' on accessibility guidelines in the Indian context is the Generic Guidelines for Accessible Monuments under ASI (GAMASI) which has been brought ought by the Ministry of Tourism, Government of India.[39] It has come out with very specific and detailed guidelines for an access route to premises and site entrance gate, guidelines for tactile guiding path, warning tiles and tree gratings and guardrails, guidelines for accessible parking, guidelines for external pathways/circulation and landscape areas, guidelines for internal circulation, guidelines for toilet facilities, guidelines for drinking water facility, guidelines for signage/wayfinding, and standard specifications for a) steps and staircases, b) ramps, c) handrails, d) doors and openings in visitor facilities, e) lift/elevator, h) lighting. Reputed private players in India have also contributed and come out with their own innovative 'best practices' of universal design considerations for accessibility of building infrastructure. For example, ITC Hotels: Responsible Luxury has come out with A Guide to Universal Design in Built-environments: A Guide for Creating Accessible Building Infrastructure for Persons with Disabilities. It was based on 'Universal Design India Principles' conceptualized by the National Institute of Design, Ahmedabad.[40]

III. Accessibility Standards and Guidelines for Buildings and Built-Environment in India

[36] *National Building Code of India 2016* (Bureau of Indian Standards, New Delhi, SP 7: 2016), *available at*: http://mddaonline.in/downloads/MDDALINKS/pdf/nbc.pdf (last visited on September 2, 2021).
[37] *Harmonized Guidelines and Space Standards for Barrier Free Built Environment for Persons with Disability and Elderly Persons* (Ministry of Urban Development: Government of India, February 2016).
[38] Handbook on Barrier Free and Accessibility (Central Public Works Department, New Delhi, 2014).
[39] "Generic Guidelines for Accessible Monuments under ASI (GAMASI)", *available at*: https://www.adoptaheritage.in/pdf/GAMSI-Accessibility%20Guidelines.pdf (last visited on March 24, 2021).
[40] ITC Hotels: Responsible Luxury, "A Guide to Universal Design in Built-environments: A Guide for Creating Accessible Building Infrastructure for Persons with Disabilities", *available at*: https://www.itcportal.com/businesses/hotel-manual.pdf (last visited on September 2, 2021).

As per the 2011 Census of the Government of India, an estimated 2.68 crore Indians (constituting 2.21 percent of the total Indian population) are chronically disabled.[41] This is a very conservative/under-estimated figure as the Census data has adopted a very narrow definition of disability based on seven limited categorisations of persons with disabilities under Persons with Disabilities Act 1995. Census data has excluded several categories of persons with disabilities that would generally fall within the ambit of the definition of disability.[42] Further, it has obviously excluded large number of temporarily disabled persons that arise due to pregnancy, short time injury or illness, old age, etc. Disability activists and international funding agencies invariably state that the number of disabled persons is quite higher than the officially estimated figure, in fact more than 10% of the population. A recent study by NCPEDP and FICCI states: In India, approximately 7-10% of the people live with disabilities and an equal number rapidly acquiring disability on account of medical conditions, accidents and old age.[43] In absolute terms, the number of disabled or temporarily disabled persons is quite high and accordingly the issue of accessibility of buildings or the built-environment should have been a major concern for India. While efforts to make buildings accessible to people with disabilities in India date back to the 1960s there is a lack of awareness on the part of various stakeholders about the need and requirement of improved physical accessibility of the built-environment for the persons with disabilities.

Genesis of Building Codes for Accessibility in India

As far as the individual cases of persons with disabilities are concerned families of disabled persons have traditionally been undertaking accessibility issues through appropriate building structures or built-environment. Urban development or local municipal bodies are long playing important roles in framing specific guidelines and bye-laws for the construction of buildings in cities or urban areas including guidelines and bye-laws on barrier free built-environment. Major issues of accessibilities arise in cases of community or public building infrastructure and mostly in the cases of privately built group housings and private buildings or built infrastructure for businesses, markets, and for various kinds of public utility services. Numerous standards and

[41] Census of India 2011 (Office of the Registrar General & Census Commissioner, Ministry of Home Affairs: Government of India).

[42] The Rights of Persons with Disabilities Act 2016 has widened and enlarged the scope of definition of disability by way of identifying twenty-one categories of disabilities. Census data on number of disabled persons based on these new categorizations of disabilities is not available.

[43] National Centre for Promotion of Employment for Disabled People (NCPEDP) and Federation of Indian Chambers of Commerce & Industry (FICCI), "Structural Framework for Accessible Urban Infrastructure in Smart Cities" 12, *available at*: http://ficci.in/spdocument/22933/Smart_Cities%20new.pdf (last visited on March 22, 2021).

guidelines have been published from time to time in order to improve the physical accessibility of buildings or the built-environment for persons with disabilities. Till the mid-1960s the building bye-laws and regulations of municipal bodies largely regulated the building and construction activities. Most of these municipal building codes and bye-laws however lacked uniformity. From the mid-1960s, particularly after the Third Plan, regulation of building and construction activities got increased attention of the Planning Commission in view of increasing government costs being incurred on such activities. The Planning Commission entrusted Indian Standards Institution (ISI) the responsibility to come out with a National Building Code and the first National Building Code was published in 1970, based on which bye-laws for building and construction activities of municipal bodies and Public Works Departments of various states were revised and updated. In the meantime, before publication of the first *National Building Code*, the ISI already came out in 1968 with Indian standard (IS) code and recommendation on the issue of accessibility of buildings and building facilities for persons with disabilities (IS-4963).

The first National Building Code (NBC) of 1970 incorporated "Annexure D" on special requirement for planning of public buildings meant for use of physically challenged people. This "Annexure D" was of course applicable only in the case of public building construction activities. IS-4963 and the *National Building Code* went through several amendments and revisions from time to time. Second revised version of the *National Building Code* was published in 1983 and the "Appendix-E" of it again came out with special requirement for planning of public buildings meant for use of physically challenged people. Standard building codes under *IS-4963* (titled *Recommendations for Building & Facilities for the Physically Handicapped*) and *National Building Codes* were still applicable to public buildings and public facilities and were not applicable to private buildings. Even within the domain of the public buildings and facilities the codes were very narrow in scope and limited to only few accessibility features or components of the buildings and the built-environment.

Additionally, the codes were limited in scope in the sense that these were intended or targeted for only few categories of disabled persons. They lacked many of the accessibility specific recommendations on design specifications and further, there was no specific criterion for evaluation of accessibility features. The major revision of NBC in 2005 addded certain specific provisions for buildings, services, and facilities for people with disabilities within the buildings or the built-environment. It was applicable to the construction of buildings by Public Works

Departments, other public agencies and private construction companies. However, the accessibility provisions of *NBC* 2005 were still not included in the main text of the document but added only as Annexure to the main document, i. e. Annexure in Part 3, titled, *Special Requirement for Planning of Public Buildings Meant for Use of Physically Challenged* and it was accordingly not considered to be a comprehensive standard of accessibility.

Parallel to ISI (now renamed as Bureau of Indian Standards or BIS), the Central Public Works Department (CPWD) of the Government of India came out with *Guidelines and Space Standards for Barrier-Free Environment* in 1968. It was intended to create public awareness on the accessibility of the built-environment as well as upgradation of building codes to enhance accessibility in the built-environment through some anthropometric design specifications. Most of the accessibility standards under ISI and the CPWD guidelines and standards largely remained recommendary in nature and not mandatory.

Most of the above-mentioned building codes however lacked regulatory or legally enforceable building standards and accordingly compliance of the same was very minimal. Builders and other stakeholders involved in the buildings and construction activities largely remained unaware or ignorant of the accessibility concerns in the buildings and the built-environment at least until the mid-1990s.

Accessibility of the Built-Environment and the PWD Act

In 1995, the Government of India came out with the first comprehensive legal document concerning rights of persons with disabilities, i.e., the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995 (in short PWD Act). Accessibility to public spaces was considered a right for persons with disabilities with the enactment of the PWD Act.[44] The Act stipulates that the Governments, local authorities ensure provisions of barrier-free facilities in all new Government buildings and public utilities, roads and transport. Chapter-VI of the PWD Act promotes health and safety measures and the creation of a non-handicapping environment in places where persons with disabilities are employed. Chapter-VIII of the PWD Act promotes non-discrimination and accessibility in transport, built-environment, etc. Sections 30, 38, 45, 46, 48 of the PWD Act incorporated

[44] Jyotishmita Sarma, "Accessibility to the Built-environment in Delhi, India: Understanding the Experience of Disablement through the Intersectionality Paradigm" 11(2) *Knowledge Management for Development Journal* 106 (2016).

various provisions for addressing accessibility issues for persons with disabilities, including accessibility to buildings and the built-environment. Section 46, Chapter XIII of PWD Act states that there should be no discrimination towards the differently abled in the built-environment. It says that the appropriate Governments and the local authorities shall, within the limits of their economic capacity and development provide for- (a) ramps in public buildings; (b) adaptation of toilets for wheel chair users; (c) braille symbols and auditory signals in elevators or lifts; (d) ramps in hospitals, primary health centres and other medical care and rehabilitation institutions.

However, one of the most disappointing aspects of the PWD Act is that it still did not consider accessibility as a mandatory requirement for the development of built-environment. The provisions on access for people with disabilities in the PWD Act were framed as contingent entitlements, i.e., obligations on the authorities were subject to the proviso 'within the limits of their economic capacity and development'. There was no specific enforcement provision or sanction for the failure of authorities to be proactive in undertaking their obligations under the Act. Further, it was again applicable only in the case of public buildings or the public built-environment. No accessibility standard, specific benchmark or recommended design specification regarding the accessible design of buildings or built-environment was incorporated in the PWD Ac*t*. Most importantly there was also a lack of any accessibility audit under the PWD Ac*t*. Nevertheless, the PWD Act was significant at least in policy measures to promote accessibility of the built-environment.

It may be observed that subsequent to the enactment of the PWD Act in 1995 the issue of accessibility norms for the built-environment increasingly become a matter of concern for different stakeholders. In 1998, the Ministry of Urban Affairs and Employment of the Government of India issued Guidelines and Space Standards for Barrier Free Built-environment for Disabled and Elderly Persons, which acted as a guiding document to central and state authorities in modifying their bye-laws related to public building and construction activities. In 2001 the Office of the Chief Commissioner for Persons with Disabilities came out with a manual of guidelines on *Planning a Barrier Free Environment*. It incorporated specific guidelines to make buildings accessible to persons with physical disabilities, including persons with blindness and visual impairments, speech and hearing impairments. One of the important aspects of this manual is the introduction of access audit for the existing built-environment. In 2002, the Ministry of Urban Development and Poverty Alleviation (Delhi Division) came out

with a notification[45] whereby it modified the 1983 building bye-laws to ensure that the public buildings that are erected in Delhi provide barrier free environment for the persons with disabilities, particularly for persons with non-ambulatory disabilities, semi-ambulatory disabilities, hearing disabilities, and sights disabilities. This modified building bye-laws accordingly came out with specific size and dimension of wheelchairs to be provided in the public buildings for the disabled persons. As far as site planning is concerned the notification provided that the level of the roads, access paths and parking areas shall be described in the plan along with the specification of materials. It says that every building should have at least one access to the main entrance/exit to the disabled, which shall be indicated by proper signage. The modified bye-laws provided specifications for ramp, slopping and selection of floor materials for access path/walkway, curbs, parking spaces (for vehicles), audible signalling devices for visually impaired, etc.

As far as the building requirements are concerned, the above-mentioned notification of the Ministry of Urban Development and Poverty Alleviation (Delhi Division) provided for specified facilities for the buildings for disabled persons including an approach to plinth level, a corridor connecting the entrance/exit for the handicapped, stair-ways, handrail, lift, toilet, drinking water and braille signage in specified facilities. The notification also made refuge provision and alarm switch to deal with an emergency evacuation plan for buildings that may arise due to fire or other disasters These modified building bye-laws are applicable to all buildings, recreation areas and facilities used by the public and not applicable to private domestic residences.

Later on, *National Policy for Persons with Disabilities* 2006 further emphasized the role of barrier-free environment as one that enables people with disabilities to move about safely and freely, and use the facilities within the built-environment. For creation of barrier-free environment, the National Policy for Persons with Disabilities called for the adoption of the following strategies:[46]

[45] Central Public Works Department, "Chapter -22: Relevant extract from Ministry of Urban Development and Poverty Alleviation (Delhi Division) Notification", in *Handbook on Barrier Free and Accessibility* 64-66 (CPWD, New Delhi, 2014).

[46] *National Policy for Persons with Disabilities* 2006 (Ministry of Social Justice and Empowerment: Government of India, 2006), *available* at: http://disabilityaffairs.gov.in/upload/uploadfiles/files/National%20Policy.pdf (last visited on September 2, 2021).

> (i) Public buildings (functional or recreational), transport amenities including roads, sub-ways and pavements, railway platforms, bus-stops / terminals, ports, airports, modes of transports (bus, train, plane and waterways), playgrounds, open space etc. will be made accessible. (ii) Use of sign language (iii) Modification of Curriculum of Architects and Civil engineers will be undertaken to include issues relating to construction of barrier-free buildings. In service training will be provided on these issues to the government architects and engineers. (v) Full adoption of comprehensive building byelaws and space standards for barrier-free built-environment shall be ensured. Effort will be made to ensure adoption of the byelaws and space standards by all the states, municipal bodies and Panchayati Raj institutions in the country. These authorities will ensure that all newly constructed buildings for public use are barrier-free (vii) The Government will ensure that Industrial establishments, offices, public utilities both in public and private sector provide disabled friendly work place for their employees. Safety standards will be developed and strictly enforce (ix) All the buildings, which are for public use, will be audited for its accessibility to persons with disability. There may be a need to develop professionally recognized access auditors whose services would be utilized for the purpose.

However, builders and architects still continued to ignore the barrier-free access of the built-environment particularly in the absence of any mandatory legal requirements.

Consolidation, Revision and Harmonization of Accessibility Standards and Guidelines

In 2014, the CPWD revised its earlier guidelines and came out with a new Handbook on Barrier Free and Accessibility.[47] This Handbook on Barrier Free and Accessibility came out with specific design considerations and recommended design requirements for access route; ramps; dropped kerbs; staircases; handrails; corridor, lobby & pathways; doors; toilets, bathrooms & shower compartments; signage[48]; illumination; lifts; escalators and passenger conveyors; and other building services[49], anthropometrics, accessible car parking spaces. It made provisions for public information or reception counters with detailed information and facilities about the

[47] *Supra* note 38

[48] including signs and international symbols of accessibility to give clear directions, information and instructions for the users of the building

[49] such as easy reachability of switches, socket outlets and controls for lighting and other equipment, including , fire alarm systems, public telephone, etc.

accessible entrance to the building; accessible exit from the building; reserved car parking facilities for disabled persons; location of toilets for disabled persons; and other facilities and service areas. The CPWD Handbook provided for braille and tactile signs, audible signs and colours and luminous contrast for the blind or visually impaired persons. The CPWD guidelines were important steps in standardising accessibility features of building and the built-environment. However, these guidelines were still found to be too simplistic and could not cover many important aspects. Accordingly, in 2015, the BIS came out with a draft of a new revised National Building Code of India incorporating an "Annexure B" on Anthropometrics and Specific Requirements for Barrier Free Buildings and Built-environment.

Standards and guidelines/recommendations issued from time to time were however not made mandatory for builders and developers. Rather, different recommended design considerations and specifications by different authorities led to confusion and ambiguity in the minds of builders and developers. In view of this, the Ministry of Urban Development (MoUD) of the Government of India undertook the major initiative of synchronizing all the existing standards and guidelines. MoUD also started refining and updating the existing standards through the incorporation of internationally recognised universal design principles. Based on this synchronization and updation of existing standards, MoUD initially came out with *Barrier Free Design Guidelines* to guide city authorities while considering or developing public projects[50] and finally, in 2015, the MoUD came out with *Harmonized Guidelines and Space Standards for Barrier Free* Built Environment for Persons with Disability and Elderly Persons. The Harmonized Guidelines of MoUD and the newly revised (draft) NBC 2015 Guidelines are almost similar to one another in terms of recommended design considerations and technical specifications.[51] An effort was made to incorporate stringent standards in these two documents comparable to ISO accessibility standard. Arguments were made to integrate the *Harmonized Guidelines* within the NBC guidelines and the NBC should be the only reference document for all building bye-laws, guidelines for smart cities, green buildings, etc.[52] It is important to note that the latest and revised NBC which was officially published in 2016 (and formally released

[50] Sushil Kumar Solanki and Rachna Khare, "Universal Design Building Standard for India: A Critical Inquiry", in G. Craddock *et. al.* (eds.), *Transforming our World Through Design, Diversity and Education* 672 (2018).
[51] Diversity and Equal Opportunity Centre (DEOC), "Comparison of Different Guidelines for Accessibility of Built-environment in India: A Brief Analysis and Recommendations" 133 (National Centre for Promotion of Employment for Disabled People (NCPEDP), May 2016), *available at*: https://www.deoc.in/wp-content/uploads/2018/03/Comparison-of-Access-Stds-30-May-2016-F.pdf (last visited on March 22, 2021).
[52] *Ibid.*

on March 15, 2017) has come out with standard guidelines for buildings in general and has not incorporated specific standard and accessibility requirements for different types of buildings being designed and developed such as residential buildings, schools, cinema halls, hotels/restaurants, hospitals, offices, auditorium, bus stops, sports arenas, museums, historical buildings, religious places and so on.[53]

In 2017 the Directorate of Education, Government of National Capital Territory of Delhi (NCTD) prepared a Handbook on Barrier Free Access to Schools for Children with Disabilities to ensure barrier free accessibility in the school buildings for children with disabilities. The handbook was prepared by adapting the relevant provisions/guidelines of the Ministry of Urban Development, Government of India and *Handbook on Barrier Free Accessibility* by Central Public Work Department as well as in consultation with the Office of State Commissioner for Persons with Disabilities. It was prepared in compliance with Section 16(ii) of the Rights of Persons with Disabilities Act, 2016 which states that the appropriate Government and the local authorities shall endeavour that all educational institutions funded or recognized by them provide inclusive education to the children with disabilities and towards that end shall make building, campus and various facilities accessible. This Act for the first time also made a legally enforceable mechanism to deal with violation/non-compliance of accessibility provisions in the built-environment. Section 89 of the Act states that any person who contravenes any of the provisions of this Act, or of any rules made there under shall for the first contravention be punishable with fine which may extend to ten thousand rupees and for any subsequent contravention with fine which shall not be less than fifty thousand rupees but which may extend to five lakh rupees. Subsequently, the Government of NCTD issued a circular in May 2019 to all the heads of government schools directing them to maintain/provide/renovate/repair the ramps, railings, modified toilets, tactile tiles, signages *etc*. as per the specifications given in its Handbook on Barrier Free Access to Schools for Children with Disabilities. Through this circular, it directed schools to ensure that no construction is done in the school without ensuring proper ramps, railings, modified toilets, tactile tiles, signages, etc. Further, to build a hospital, theatre, stadium or any other public building in Delhi compliance with the *National Building Code* is mandatory.[54]

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[53] *Ibid.*

[54] Anjlee Agarwal and Andre Steele, "Disability Considerations for Infrastructure Programmes" 10 (March 2016), *available at*: https://assets.publishing.service.gov.uk/media/57a08954ed915d3cfd0001c4/EoD_HDYr3_21_40_March_2016_Disability_Infrastructure.pdf (last visited on September 2, 2021).

In between, the Government of India already launched the flagship programme of the Accessible India Campaign on December 3, 2015. The campaign aims at enhancing the accessibility of built-environment, transport system and information and communication technologies. Ministry of Drinking Water and Sanitation also came out with a Handbook on Accessible Household Sanitation for Persons with Disabilities in December 2015. As part of the Accessible India Campaign (AIC) several government buildings across the country were subjected to accessibility audits which recommended various measures to be adopted to make these buildings accessible through retro-fit of the buildings. Department of Empowerment of Persons with Disabilities (DEPwD) now provides fund for the retro-fitting of the existing government buildings for accessibility. It is however a matter of greater concern that many of the government buildings identified for retro-fitting still remain inaccessible in many respects.

This is despite the fact the Supreme Court of India in the case of *Rajive Raturi* v. *Union of India*[55] issued stringent directions on December 15, 2017 directing State and Central governments to undertake access audit following the accessibility standards prescribed under the Harmonised Guidelines and Space Standards for barrier-free built-environment and to identify specified numbers of government buildings in cities/towns and capital cities across the country and to make specified and targeted numbers of such buildings accessible (through retro-fitting) for persons with disabilities in a phased manner and targeted time period. The Supreme Court also asked for adherence to the provisions of Section 46 of the Rights of Persons with Disabilities Act, 2016 (RPWD Act), under which all government buildings providing any services to the public are to be made fully accessible by June, 2019. The Court directed Bureau of Indian Standards to embed the disability aspect in all relevant parts of revised *National Building Code* and suggested regular updation of the Harmonized Guidelines and Space Standard for Barrier-Free Environment keeping in view the provisions of Disabilities Act, 2016.

The Supreme Court further directed for constitution of Central and State Advisory Boards within a period of three months as per the provisions of Sections 60 and 66 of the *Disabilities Act*, 2016 for effectively implementing the provisions of the said Act. It is also important to

[55] Writ Petition (Civil) Nos. 243 of 2005, 228 of 2006, Judgement Order dated December 15, 2017, a*vailable at:* https://indiankanoon.org/doc/149818296/ & https://indiankanoon.org/doc/5817027/ (last visited on March 22, 2021)

note here that the Supreme Court took strong exception to the lacklustre and indifferent attitude of the States and the Union Territories in complying with the directions contained in its judgment of December 2017 and therefore it again issued strong directions on January 15, 2019 on the same case directing all the defaulting States and the Union Territories to comply with the directives issued earlier and come out with compliance report within three weeks. It is expected that the judiciary in India going to play an important role in the future for the effective implementation of RPWD Act and thereby enhancing physical accessibility by persons with disabilities.

From the above reading it is clear that India has developed numerous standards and guidelines for accessible and barrier free buildings and the built-environment. *National Building Code* 2016 of the BIS, Harmonized Guidelines and Space Standards for Barrier Free Environment for Persons with Disability and Elderly Persons published by Ministry of Urban Development in 2015, the CPWD Handbook on Barrier Free and Accessibility, 2014, and the Rights of Persons with Disabilities Act 2016 have all created a strong foundation for accessibility in the built-environment. The only thing that is missing in this regard is a strong regulatory authority to ensure compliance of accessibility standards.

IV. Accessibility Standards and Guidelines under National Building Code of India 2016 – A Brief Overview

The National Building Code of India 2016 (hereinafter NBC 2016) is now an important national instrument providing comprehensive recommendations and detailed guidelines on the rules and regulations to be followed for constructing buildings both by the public construction agencies/authorities and the private builders/developers. Country-wide movements of the disabled people and disable-rights activists for enactment of new disability legislation in compliance with India's commitment under the UN Convention on the Rights of Persons with Disabilities played important roles in the comprehensive revision of NBC codes in 2016. In fact, the proceedings of the enactment of new disability legislation in India in compliance with UNCRPD and the final enactment of new disability legislation in the form of The Rights of Persons with Disabilities Act 2016 significantly contributed towards the incorporation of new disability specific accessibility provisions under NBC 2016. The Right of Persons with Disabilities Act 2016 (hereinafter RPWD Act 2016) makes accessibility, inclusion and non-discrimination mandatory and under Sections 40, 41, 42, 43, 44, 45, 46 emphasizes on the

accessibility of educational institutions, public buildings, new construction, sanitation facilities, transportation, documents, information, websites and mobile apps, products and services setting defined timelines for each.[56]

The Harmonised Guidelines and Space Standards for Barrier-Free Built-environment for persons with Disability and Elderly Persons brought out by the Ministry of Urban Development and the National Building Codes 2016 together form the foundational bases for ensuring accessibility provisions under the RPWD Act 2016. The accessibility guidelines/standards and recommended technical accessibility features under the NBC 2016 are almost similar to the accessibility provisions/features of the Harmonised Guidelines and Space Standards. NBC 2016 has integrated most of the accessibility standards within its ambit and it is now widely accepted as the most important national document concerning accessibility of the buildings or the built-environment for persons with disabilities (and elderly persons).

Most importantly, the accessibility guidelines/standards of NBC 2016 are legally enforceable under the new RPWD Act 2016. Under Clauses 44, 45 and 46 RPWD Act 2016 provides the following mandate with respect to buildings or the built-environment - Clause 44 states that no establishment shall be granted permission to build any structure if the building plan does not adhere to the standard. The establishment will not be issued a certificate of completion or allowed to take occupation if they do not adhere to the standards. Clause 45 states that all existing public buildings shall be made accessible in accordance with standards within a period of five years. Clause 46 mandates the service providers (including private players) to make the services accessible in 2 years' time. Another very important aspect of the NBC 2016 is that it is applicable to private builders and developers, who are largely undertaking most of the building construction activities. 'Public building' under NBC 2016 in fact means a Government or private building, used or accessed by the public at large, including a building used for educational or vocational purposes, workplace, commercial activities, public utilities, religious, cultural, leisure or recreational activities, medical or health services, law enforcement agencies, reformatories or judicial foras, railway stations or platforms, roadways bus stands or terminus, airports or waterways.

[56] *Supra* note 43 at 6.

Compared to all the previous building codes, *NBC* 2016 has laid down a more comprehensive and detailed provisions/standards for accessibility of buildings giving reference to specific accessibility features in all the important and concerned Parts/Sections of the main body text and not simply as annexures. Clause 13 and Annex-B of Part-3 are the most important sections of *NBC* 2016 that address accessibility issues and accessibility standards in greater detail including the recommended technical specifications of accessibility components/elements of buildings. The "Foreword" of *NBC* 2016 itself recognizes the fact that significant modifications have been incorporated in this revision when it states that "accessibility and universal design for ensuring barrier free environment for persons with disabilities has been emphasized by further reinforcing the provisions to this effect appropriately."

Most importantly, NBC 2016 has incorporated some very crucial provisions concerning accessibility of buildings for persons with disabilities – such as (a) provision for accessibility and universal design specialist/professionals for physical inspection of buildings, (b) provision for periodic accessibility audits to ensure that the buildings remain universally accessible and barrier free for persons with disabilities, (c) issuance of certificate in compliance with building bye-laws and various accessibility aspects of buildings and enforcing compliance of notices to address specific accessibility issues within specific time frame. NBC 2016 has also come out with a detailed anthropometrics and technical requirements for accessibility including recommended accessibility features involving various aspects of the built-environment such as footpath, pathways, approach roads to the buildings, tactile, kerb, ramp (with specified gradients), podium, wheel chair, accessible urinals, washbasins, toilets, and parking, swimming pools, lifts (with audio visual instructional facilities), passages, corridors, stairways, lobbies and entrances, audio visual and emergency warning signalling in case of fire and emergency evacuation, lighting, illumination, colour contrast, staircase, handrail, electrical wall switches/socket outlets, telephone points and TV sockets, door width, control panel, flooring, finishes, handrails, communication systems and information, signs posts and signages, symbols, notices, displayed information, escalators and moving walks, etc.

There is no doubt that the NBC 2016 has made significant revisions and modifications to the existing building codes and has incorporated several important provisions in order to ensure accessibility of the buildings and the built-environment for persons with disabilities. While NBCs (including NBC 2016) in general is recommendary in nature the accessibility provisions under the NBC 2016 are legally binding and enforceable in view of the enactment of the RPWD

Act 2016 (which came into force on April 19, 2017). Read with the RPWD Act 2016, NBC 2016 provides excellent opportunity in ensuring accessibility of buildings or the built-environment for the persons with disabilities. Construction agencies, including private builders and architects, can no longer effort to ignore building codes while designing and constructing new buildings. Existing buildings or the built-environment also has to be made accessible through retro-fitting within the time frame fixed under the *RPWD Act* 2016. Clause 13 and Annexure B of Part 3, where accessibility standards have been detailed, are now more or less similar to ISO Standards 21542 on Accessibility and Usability of the Built-environment.[57]

One of the most important aspects of NBC 2016 is the inclusion of the provision of periodic accessibility audit of public buildings and inclusion of accessibility and universal design specialist in the list of professionals for the design/construction team. Access audit is the first step towards improving accessibility of built-environment and the same needs to be taken up seriously under the legal provisions of RPWD Act 2016. With the enactment of the *RPWD Act* 2016 and *NBC* 2016 in place much more initiatives are still needed to ensure real accessibility of the buildings or the built-environment. There is a need to improve legal enforcement and compliance. Appropriate authorities should be set up under the *RPWD Act* 2016 to address the accessibility issues and standards under *NBC* 2016. There is a need to introduce proper certification of accessibility before issuing regulatory permission for construction of new buildings or group housing projects, etc.

V. Concluding Observations and Suggestions

Accessibility to buildings or the built-environment for persons with disabilities is getting increasing attention globally. Numerous norms, rules, regulations and standard/guidelines have been framed in order to enhance physical accessibility to the built-environment as accessibility is crucial in realising most of the important fundamental rights for persons with disabilities including access to education and health services, employment, etc. India is a party to the international norms, rules and regulations concerning persons with disabilities and it is duty

[57] Diversity and Equal Opportunity Centre (DEOC), "Review of the National Building Code 2016 *vis-à-vis* Accessibility Standards for Persons with Disabilities" 11 (National Centre for Promotion of Employment for Disabled People (NCPEDP), 23rd May 2017), *available at*: https://www.ncpedp.org/sites/all/themes/marinelli/documents/NBCReview%20Report.pdf (last visited on March 22, 2021).

bound to address the issue of accessibility of buildings or the built-environment. *National Building Code* 2016 has come out with comprehensive standards and guidelines concerning accessibility of a building or the built-environment for persons with disabilities. Read with the RPWD Act 2016, NBC 2016 provides excellent opportunity in legally ensuring accessibility of buildings or the built-environment for the persons with disabilities. The successful implementation of accessibility provisions of NBC 2016 will depend on how the various stakeholders are keen on ensuring legal compliance and implementation of the Codes through the application of relevant provisions under RPWD Act 2016. It will depend on how state authorities are willing to enforce accessibility by way of creating enforcement mechanism and appropriate agencies under RPWD Act.

Barrier-free environment is a legal right of persons with disabilities and it is important to bring attitudinal changes among policy makers, architects, engineers, builders, and design professionals about the need for ensuring accessibility. Architects, engineers, builders and designers need to be told that they are legally duty-bound to create an accessible and barrier-free built-environment for persons with disabilities. There is a need to create awareness and popularize the universal design concept among architects, engineers, designers and builders. There is a need to create appropriate authority with a statutory role to oversee design for accessibility as per building bye-laws and regulations. It is also in the interest of the architects, builders and developers to go beyond the recommended national building regulations, raise their accessibility standards and come out with more accessible buildings or built-environment. They can come out with their own innovative and best practices of universally accessible design considerations for buildings. Some recommended measures for ensuring accessibility of the buildings or the built-environment are as follows:

i) While *NBC* 2016 has exclusively dealt with the accessibility of buildings for elderly and persons with disabilities it still remains recommendary in nature. There is a need for exclusive accessibility legislation in order to ensure legally binding accessible buildings or built-environment for persons with disabilities.

ii) There is a need to create statutory authorities such as Accessibility Cells/Boards or Committees involving accessibility and universal design specialists/ experts in order to periodically make access audits of buildings as already outlined under the *NBC* 2016. Central and State level Boards and District level committees constituted under the Right of the Persons with Disabilities Act, 2016 can also be conferred the

same function, till the time separate Accessibility Cells/Boards or Committees get constituted.

iii) Enforce mandatory accessibility certificate for constructing any new building. Mandate accessibility as a clause for all public sector buildings. Building approvals should be linked to the integration of accessibility and universal design as an integral part of the initial design itself.

iv) There is a need to ensure that all the building bye-laws of public works departments of states, municipal and urban bodies are revised, modified and updated in compliance with the accessibility standards under *NBC* 2016.

v) There is a need to involve all the stakeholders including persons with disabilities/ accessibility experts in the framing and decision-making of building projects, including all the construction projects in smart cities and public buildings in urban areas.

vi) Ensure mandatory access audit for all public buildings which are being frequently visited by the public on a large scale. There is a need to ensure accessibility compliance using trained professionals or accessibility experts and invoking penalties for non-compliance.

vii) While accessibility audit is important there is a need to have in place specialized access auditors, access audit checklist, specific compliance guidelines and regulatory frameworks.

viii) Suitable training of professionals is also important to ensure effective implementation of the accessibility standards under *NBC* 2016 in compliance with *RPWD Act* 2016. There is now a need to establish a Research and Training Centre for Accessible Built-environment with the responsibility to provide necessary expertise in the area of accessibility, create awareness and impart training at different levels for appropriate stakeholders- bureaucrats, engineers, architects, designers, IT professionals, access auditors, etc.

Most importantly it is not about plans and specifications for an accessible building but it is more about the specific question of accessibility to all who are likely to be the users of the building or built-environments. Accessibility to buildings or built-environments has to be considered from the perspective of inclusive universal use by all the users keeping in mind the need for growth and development of all.