

Accessibility Design Research: Redesign of the Canterbury Square

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Abstract. Accessibility for disabled individuals in urban environments is a fundamental aspect of inclusive design and social equity. When investigating a suitable site for this redesign project as a group, it is found some iconic outdoor barrier-free designs. Conducted the research in China, the examples include ramps, curb ramps, blind access, and other auxiliary facilities, and most of the specific relevant technologies should comply with the relevant provisions of the Code for Barrier-free Design of Urban Roads and Buildings. Despite progress in awareness and legislation, many cities around the world still face significant challenges in providing adequate access for disabled people. This essay will explore the current state of accessibility for disabled individuals in cities, focusing on the barriers they encounter, and the efforts being made to overcome them. Subsequently, this essay will also examine several exemplary architectural designs that prioritize accessibility and inclusivity, providing real-world examples of innovative solutions that enhance the quality of life for disabled individuals, which give insight into the ongoing redesign project of the Canterbury Lane Square near the Canterbury City Centre.

Keywords: Canterbury Square, accessibility design, blind sidewalk.

1. Introduction

Accessibility designed for the disabled can be found almost everywhere nowadays. When investigating a suitable site for this redesign project as a group, one found some iconic outdoor barrier-free designs. Conducted the research in China, the examples include ramps, curb ramps, blind access, and other auxiliary facilities, and most of the specific relevant technologies should comply with the relevant provisions of the *Code for Barrier-free Design of Urban Roads and Buildings*.

Despite advancements in architectural design and accessibility regulations such as these, many cities around the world still struggle to provide adequate access for disabled individuals. One of the primary challenges is the presence of physical barriers such as uneven sidewalks, lack of ramps, narrow doorways, and inaccessible public transportation systems. According to a report by the World Health Organization, approximately 15% of the world's population lives with some form of disability, and they often encounter obstacles in navigating urban environments [1]. Additionally, social barriers such as stigma and discrimination contribute to the exclusion of disabled individuals from public spaces and facilities. Limited access to education, employment opportunities, and recreational activities further exacerbate inequalities faced by the disabled community in cities. In urban environments globally, disabled individuals often encounter various barriers that limit their mobility and participation in society. Physical barriers such as inaccessible public transportation, lack of ramps and elevators, narrow doorways, and uneven sidewalks pose significant challenges for disabled individuals, particularly wheelchair users. Furthermore, social barriers such as stigma, discrimination, and lack of awareness contribute to the marginalization of disabled individuals, hindering their full integration into urban life. Despite legislative efforts such as the *Americans with Disabilities Act* in the United States and the *Disability Discrimination Act* in the United Kingdom, implementation and enforcement remain inconsistent, resulting in uneven accessibility standards across different cities and regions [2]. As a result, many disabled individuals continue to face significant challenges in navigating urban environments and accessing essential services and amenities.

2. Analysis

First, Ramps are used to connect the different heights of the ground space. It is popular among people, especially the disabled and the elderly. The ramp should be located in a convenient and eye-catching location close to the stairs and without many detours, with the international accessibility sign displayed. The design of ramp can be designed into a straight line, L shape or U shape according to different situations. The ramp should give priority to the convenience of use, and the linear shape is its basic shape, saving labour and time, and has a wide range of adaptability in many places. According to the degree of ground height difference, the size of the open area and the surrounding environment, and other factors, the design of the ramp form can be designed into L shape or U shape. The width of the ramp should generally be no less than 1.5 meters, which is to avoid the risk of falling due to the inclination of the centre of gravity of the wheelchair on the slope. The ramp should not be designed as a round or arc, and the ratio of the horizontal length of the ramp to the vertical climb height should not be less than 12 to 1, and double handrails at 85 centimetres and 65 centimetres higher than the ramp surface should be set (Figure 1).

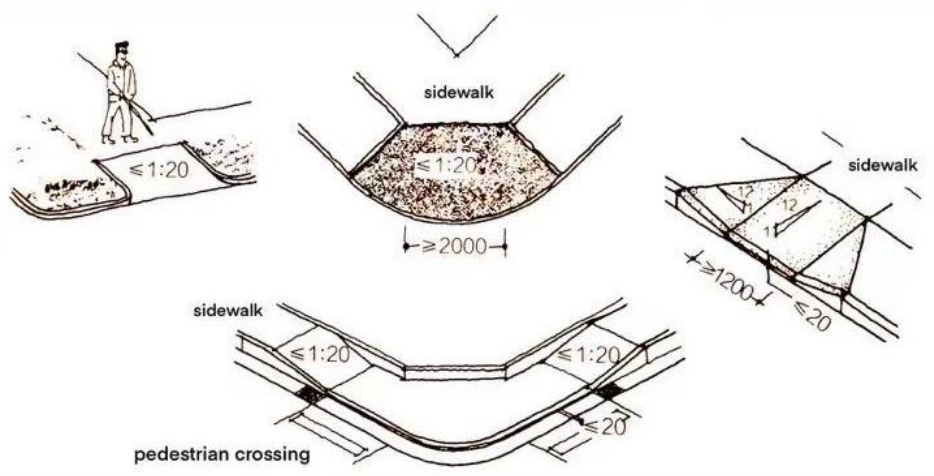


Fig. 1 Curb ramp

For the second example, in terms of the landscape environment, to facilitate the passage of pedestrian and persons with disabilities in wheelchairs through the intersection, the edge of the crosswalk or between the sidewalk and the vehicle lane, where the curb is disconnected, the curb ramp shall be set without omission to achieve the accessibility of the whole line (Figure 2). The basic forms of curb ramp can be divided into two forms: one side curb ramp and three-sided ones. Among these two forms of curb ramp, one sided curb ramp is more convenient to use.

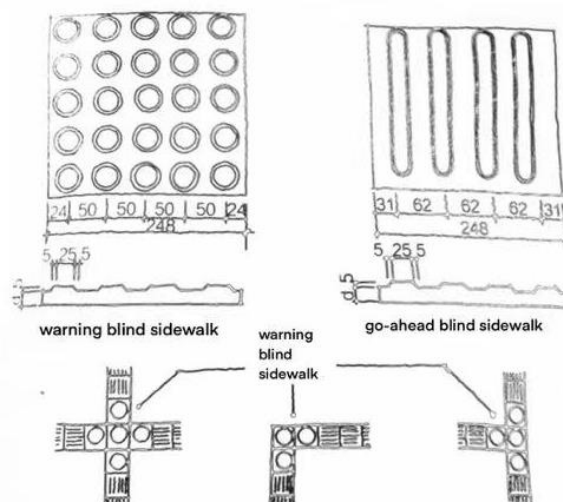


Fig. 2 Blind sidewalk

Lastly, tactile pavement should be installed on the sidewalks of city squares, pedestrian streets, etc. Its function is to inform the visually disabled person of the specific location of the facility and help the visually disabled people understand the surrounding situation. The location and direction of the blind path provided by the sidewalk shall facilitate the safe walking of visually disabled people and smooth access to the barrier-free facilities. This pavement is composed of ground prompt blocks.

Despite these challenges, there are examples of innovative architectural designs that prioritize accessibility and inclusivity for disabled people, for example, The High Line Park in New York City, in terms of accessibility, it has been carefully designed to accommodate visitors with disabilities, ensuring that everyone can enjoy its amenities and attractions. It features accessible entrances with ramps and elevators at various points along its route, allowing wheelchair users to access the elevated walkway seamlessly [3]. The pathways are wide and level, providing ample space for wheelchair manoeuvrability. Additionally, the park's surface materials are smooth and even, further enhancing accessibility for wheelchair users. Across park, there are numerous seating and rest areas strategically located along the pathway. These areas feature benches and seating options that are designed to accommodate individuals with mobility impairments. The seating areas are spaced out adequately, allowing wheelchair users to rest and enjoy the park's scenery comfortably [3]. Throughout the Park it offers various amenities, such as restrooms, water fountains, and food vendors, that are designed to be accessible to visitors with disabilities. The restrooms are equipped with accessible features, including wide doorways, grab bars, and accessible sinks. Water fountains are positioned at wheelchair-accessible heights, and food vendors have counters and seating areas that are accessible to wheelchair users [3]. The park features interpretive signage and audio guides that provide information about its history, architecture, and flora. These resources are designed to be accessible to individuals with visual or hearing impairments. The signage incorporates large, high-contrast text and tactile elements, while the audio guides offer audio descriptions and explanations of key points of interest [3]. This park also offers a diverse range of programming and events throughout the year, including art installations, performances, and educational activities. The park strives to ensure that its programming is inclusive and accessible to visitors with disabilities. Events are held in accessible locations, and accommodations such as sign language interpretation and assistive listening devices are provided as needed [3].

Another example is the significant improvements in accessibility of the Times Square in New York City, it went under a big renovation to ensure that it is welcoming and inclusive for everyone, including people with disabilities, such as wheelchair users. Times Square features wide, accessible pathways that allow for easy navigation by wheelchair users. Ramps and elevators are available at various entrances to provide access to the square for individuals with mobility impairments [4]. The square provides designated accessible seating areas where wheelchair users can comfortably enjoy the vibrant atmosphere and events. These seating areas are strategically located throughout Times Square to offer convenient access to amenities and attractions [5]. Tactile paving is installed in key areas of Times Square to assist visually impaired visitors in navigating the space safely. Additionally, clear signage with high-contrast text and symbols provides directions and information about accessible facilities, such as restrooms and transportation options [5]. Times Square also has a variety of events and performances that are inclusive and accessible to people with disabilities, for example, people can enjoy small businesses like street performers or participate in organized activities. The square strives to ensure that its programming accommodates the needs of all visitors, including wheelchair users, by providing accessible seating options and assistive listening devices [5]. The accessibility of Times Square is an ongoing priority at the moment, with continuous efforts to identify and address any barriers to access. The Times Square Alliance, in collaboration with city agencies and disability advocacy groups, works to implement accessibility enhancements and improvements based on feedback from visitors with disabilities [5].

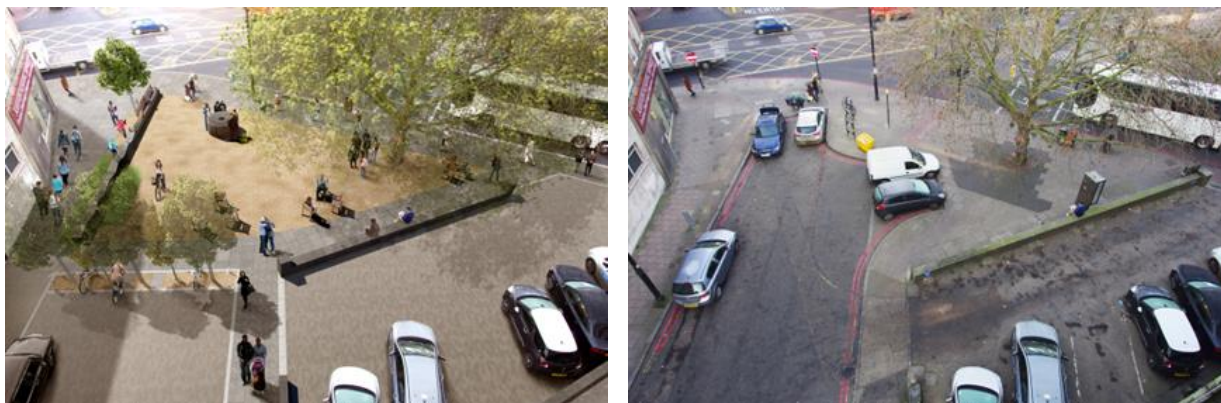


Fig. 3 Design site comparison

After the famous precedent studies, some research on some other precedent studies, came across this example by LB Lambeth Architects, called Canterbury Square Urban Realm. The reason this is one of the precedent studies is that this project also transforms a relatively small open space into a wheelchair friendly Square (Figure 3). The situation here is very similar to chosen site, as stated on their website: ‘The area had been surfaced entirely in asphalt and was dominated by parked cars offering little opportunity to relax, play or socialize. The space had one major asset, however, a large mature London Plane tree roughly at its center, which created a focal point for the design.’

3. Suggestion

Through the questionnaire survey, this research started the redesign of a local square called Canterbury Lane Square. The site, from one building to the other spans across 28m wide and 35m long (Figure 4).

This area is a small square surrounded by buildings. Some of them are private flats such as Burgate Flats, and others are either public facilities or Shops. Such as public toilets and restaurants. The restaurant is facing the square, and next to it is an opening to the main road on the other side. The Public Toilet is located at the north of the square, which is under the supervision of Canterbury Council, which means it can be altered. There is also a church right across the road to the north of the square.



Fig. 4 Size of Canterbury Lane Square

The site is very convenient to the locals since it’s located in the city center (Figure 5). Considering people who go shopping might get tired during their time in this area, the only place with public chairs to sit on is the main street across the city center. While the seats are convenient, but the tables are missing since it is a busy street. Therefore, wheelchair users or people who have their hands full might not enjoy the chair as much as others.

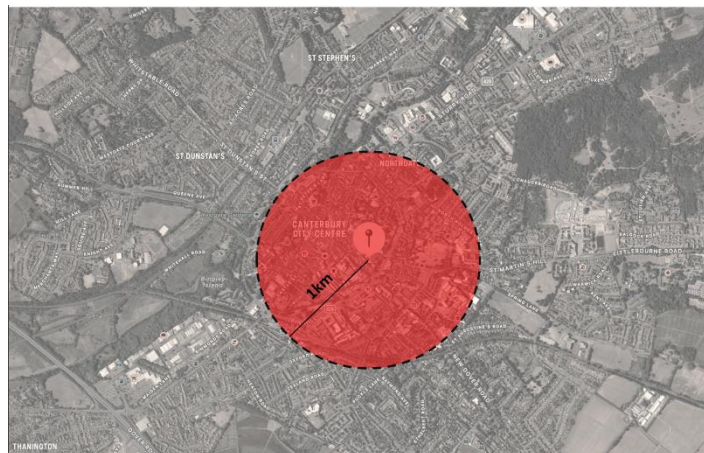


Fig. 5 Location of Canterbury Lane Square

Here the picture is the toilet on the site (Figure 6). The adjustment made first of all is removing the central party wall and leave the entrance part of the structure open, whilst replacing the stairs with ramps which is about 50 centimetres long with a gradient of 1.12. The reason for leave the entrance part of the building open is by doing so the wheelchair users can access this facility easier without having to block the way. Another change made to the design is by covering the male entrance at the rear of the building with a corridor. This way the toilet will be off the picture from the square's point of view.



Fig. 6 The design of the toilet

The next picture depicts a wooden pergola covering what would be the resting area (Figure 7). The table and the seats here are shown in a form of a picnic table. However, a part of the chair is missing, which allows people with wheelchair to slot themselves in, and enjoy the table. This is a kind of table and seat design specifically to fit the need of the wheelchair users.

The biggest changes are the total pavement area and the central focus point of the site. It increased the pavement area, and had it fill up across the entire parking area, so that it is in one piece. This

allows the wheelchair users to navigate around the square easier, and to people with visual disabilities, this means that the tactile pavement stays on the sidewalk, therefore, reduce the possibility of accident for them when crossing the site.

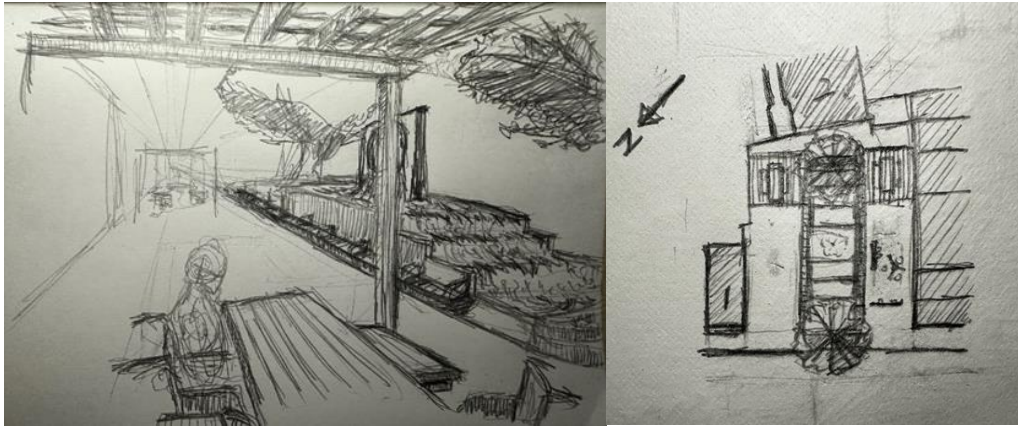


Fig. 7 The design of resting area

The central focus point of the square in the redesign revolves around the original tree in the middle of the parking area. Having a mirrored tree to achieve symmetry, satisfies the more greenery requirement from the questionnaire.

There was another request from the questionnaire, which was to have a water feature. Hence, took reference from Pancras Square in London, which based its water feature on the topography of the site.

Utilizing the height differences between each platform it forms several small waterfalls, together with the self-circulating fountain in the middle of the pool, it is visually satisfying and practical.

4. Conclusion

To summarize, accessibility is a fundamental aspect of ensuring equal rights and opportunities for individuals with disabilities. While progress has been made in improving accessibility standards globally, there is still much work to be done to address existing barriers, improving the imperfect designs and create truly inclusive environments for all individuals. It is essential that accessibility considerations are integrated into all aspects of urban planning and development, in order to create more inclusive and equitable cities for future generations.

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