

# Installation Situation of Tactile Walking Surface Indicators in Israel

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## Abstract

We have been dealing with the problem of inappropriate setup for tactile walking surface indicators in the world and reported a detail research report, and have had activities to amend the situation. The installation method of tactile walking surface indicators that are developed in Japan and exported has not been clear even in our country, and the wrong installation in Japan has spread all over the world. In this research, we focused on the installation status of tactile walking surface indicators in Israel (Jerusalem and Tel Aviv).

**Keywords:** tactile walking surface indicators, inappropriate setup, Israel

## I. INTRODUCTION

Tactile walking surface indicators are blocks with projections which the visually impaired can 'read' with white sticks and through tactile perception through the soles of their feet [1]. They can recognize what kind of blocks are installed in which places and get the information for avoiding dangers and which direction they should go in.

They were installed in Japan for the first time in 1967, and gradually installed in various areas for trial by local municipalities and groups of the visually impaired people. In addition, the indicators had been spreading around the world from when people visited Japan to inspect the barrier-free systems.

According to the survey regarding the visually impaired by the International Association of Traffic and Safety, 89% of the people answered "helpful" to the question, whether the tactile walking surface indicators are useful for their movement [2]. The survey shows that the people desire the system to be installed in a wide range of places, such as main pavements (sidewalks), crossings, platforms of stations, subway stations, around public facilities, bus stops and various places including stairs, etc.

We have published a few researches on the installation situation of tactile walking surface indicators in various countries and areas in the world and its issues to be solved [3]~[8]. From those results, many of the actual installations of the tactile walking surface indicators were incorrectly or inconsistently installed.

In this thesis, we researched the installation of tactile walking surface indicators in Israel, which has interaction with the

Western nations and Japan in a welfare aspect, and point out the issues of installed tactile walking surface indicators based on the field research.

## II. METHOD

### (1) Researched area

The city center, airports, subway stations, and business facilities in Jerusalem and Tel Aviv, which are major cities in Israel.

### (2) Researchers and procedure

The researchers were authors. As a procedure, we used a method of "field work to find barriers" [9] for finding inappropriate tactile surface indicators. Three researchers (different from authors) who study barrier free have evaluated whether the inappropriate tactile walking surface indicator found by authors are barrier or not. The research was done in March 2017.

## III. RESULTS

### (1) The installation method

There were 20cm square warning blocks and directional blocks. They were tiles, pounded hobnails, or rubber indicators.

There were 2 to 3 lines of warning blocks installed in front of a cross walk (Picture 1). From the warning blocks, 2 to 3 lines of directional blocks were installed to the center of the side walk or on the other edge. It means that when people with visual difficulties find directional blocks while walking, following the directional blocks on the roadside will lead them to the cross walk. Similar to the installation in Japan, directional blocks are indicating the direction of the cross walk (Picture 2).

Directional blocks were installed only in front of the cross walk and there were not many installed as they were in Japan. It means that directional blocks in Israel do not have the function of leading people with visual difficulties. Although it is rare, there were blocks that have the function of guidance in front of public facilities (Picture 3).

Although there were few areas, some stairs and escalators had warning blocks installed at the beginning and the end (Picture 4, 5). Also, directional blocks were installed at the market (Picture 6) and shopping mall (Picture 7) in Tel Aviv. They both lead to the elevator.



**Picture 1:** In Jerusalem

Three rows of warning blocks in the size of 15cm square were set up in front of the crosswalk. The pole for the traffic light push button was arranged on top of warning blocks.



**Picture 2:** In Jerusalem

Directional blocks in front of the crosswalk were set up to indicate the direction of the crosswalk. The way they were set up was appropriate.



**Picture 3:** In Tel Aviv

White directional blocks were set up in front of public facilities. Black warning blocks were set up on the intersection of the directional blocks.



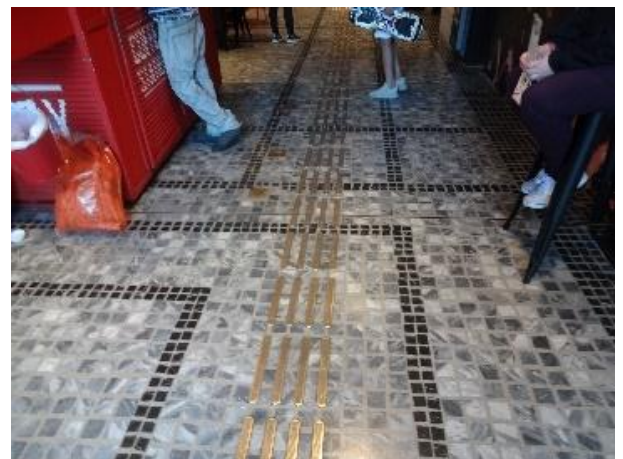
**Picture 4:** In Tel Aviv

Warning blocks were set up on the top and the bottom of the stairs at the entrance of the park in Tel Aviv. However, there were rarely set up at the stairs in Israel.



**Picture 5:** In Tel Aviv

Warning blocks were set up at the beginning and the end of escalator in the shopping mall in Tel Aviv. However, it is too far from the escalator.



**Picture 6:** In Tel Aviv

Directional blocks were set up at the local market.





**Picture 7:** In Tel Aviv

Directional blocks set up in the shopping mall in Tel Aviv was 60cm in width.

**(2) In front of the cross walk**

Warning blocks were not always installed on the whole width of the cross walk (Picture 8). This installation method is different from Japan's. It means that they were installed in a way that bicycles, buggies, cars do not have to go over the warning blocks when they cross the cross walk.

There were some areas where push button and sound signal for people with visual difficulties were installed at the cross walk (Picture 9). There were many of them installed in the center of Jerusalem and Tel Aviv. The device shown in Picture 10 has a button on the front and when the pedestrian sign turns green, the arrow on the top vibrates and make clicking sound. As the click rhythm become quicker, it is closer to turning red.

**(3) In front of the star and escalator**

It is clear that the function of tactile walking surface indicators declines unless they are installed on top of a manhole. In Japan, tactile walking surface indicators are installed on top of most manholes. There were areas in Tel Aviv where blocks were not installed on a fairly large manhole (Picture 11). On the other hand, warning blocks made with metal plate was put on a manhole in Jerusalem (Picture 12).



**Picture 8:** In Jerusalem

There were some areas where many sidewalks had warning blocks set up partway across the crosswalk instead of the whole way across so wheelchairs and strollers can go. The way they were set up was appropriate.



**Picture 9:** In Tel Aviv

Push buttons for people with visual difficulties were often set up on the right side of the warning blocks in front of a crosswalk.



**Picture 10:** In Tel Aviv

Push button for people with visual difficulties. When the pedestrian light turns green, the arrow shaped bump on the top vibrates or make clicking noise.



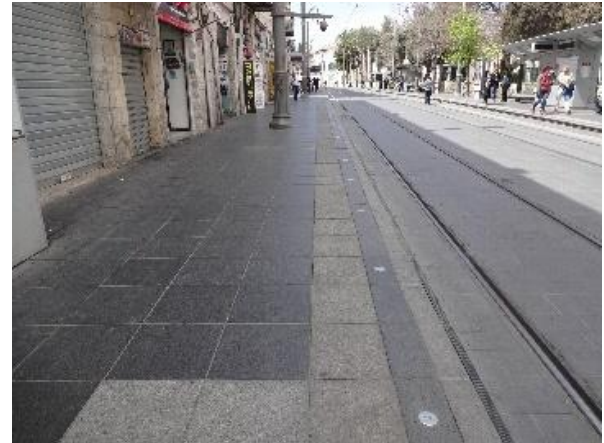
**Picture 11:** In Tel Aviv

Directional blocks were not set up on a utility access hole.



**Picture 12:** In Jerusalem

Warning blocks were set up on top of a utility access hole. Whether they are set up on a utility access hole or not seemed to be undetermined.



**Picture 13:** In Jerusalem

Warning blocks were not set up on the platform of a streetcar. However, tiles with bumpy and rough surface were set up in the area where warning blocks were normally set up.

#### **(4) In the railway station**

(including on the platform)

Unique tiles were installed on the platform of a street car stations in Jerusalem. The platform of a street car station is long (Picture 13). Along the long length, coarse rocks, unlike the dot shaped blocks as seen in Japan, were installed at 20cm from the edge of the platform as warning blocks (Picture 14). These rocks were used only on the platform of the street car stations in Jerusalem. Also, directional blocks were installed on the platform to indicate the street car doors (Picture 15). Directional blocks are not installed at all the doors, but one door per cart.



**Picture14:** In Jerusalem

Rough tile on the platform. They were set up instead of warning blocks.

There were unique directional blocks in the railway station of Tel Aviv. Sheets with different texture than the tiles around with no bumps on the surface were installed as warning blocks (Picture 16). They were black or yellow sheets with rough surface with a lot of friction. There were dot shaped blocks installed as warning blocks in the intersection of directional blocks (Picture 17).

On the platform of a railway station, 20cm width warning blocks were installed at 60cm from the edge of the platform. There was no landmark that indicated the location of the train door (Picture 18).

#### **(5) At the bus station**

Unique tactile walking surface indicators were installed at the bus stations in Jerusalem. 20cm directional blocks were installed across on the whole length of the side walk by the bus stop (Picture 19, 20). It was not at all the bus stops in Jerusalem, but most bus stops in the city center had these blocks installed.



**Picture 15:** In Jerusalem

Directional blocks were set up on the platform to show where the doors of the train are.





**Picture 16:** In Tel Aviv

Blocks in the railway station. There were no bumps on the surface and it was a sheet with a rough surface.



**Picture 19:** In Jerusalem

Directional blocks with the width of 20cm were set up on the sidewalk of a bus stop and warning blocks were set up on the road side in Jerusalem.



**Picture 17:** In Tel Aviv

Blocks in the railway station. The direction was given with the sheet with rough surface and blocks with round bumps were used for the intersection.



**Picture 20:** In Jerusalem

A bus stop



**Picture 18:** In Tel Aviv

Platform of a railway station. Warning blocks with the width of 20cm were set up 60cm from the edge of the platform. There was no landmark to show the location of the doors.

### (6) Tactile walking surface indicators that was used for other than its purpose

There were tactile walking surface indicators that was used for other than its purpose. There were 20cm width dot shaped blocks at the edge of the plantation on the side walk in the center of Jerusalem (Picture 21). There were many plantations but they were installed only here so we evaluated that it is not for warning. Also, there were 60cm width warning block in the children's park in Tel Aviv (Picture 22). At the direction of warning blocks, there were swings so if you go beyond the block, there is a danger of bumping into a swing that a child is on. However, it was the only place where tactile walking surface indicators were installed in this park so they were not for people with visual difficulties but installed for general people to warn the dangerous zone.

#### IV. DISCUSSION

A wider introduction of the tactile walking surface indicators is definitely desirable, but it is necessary for the visually impaired people to be taught the meanings of the blocks (they have to understand that certain types of blocks mean a turning point or that they are in front of a pedestrian crossing). It is meaningless if the installation of the blocks are installed in a way that doesn't help those people to correctly recognize their present location and direction to walk. According to the survey by the International Association of Traffic and Safety [2], more than half of the visually impaired people demand a way of installation to be immediately standardized because of the dangers. It shows that the proper standardized installation is urgently required.



**Picture 21:** In Jerusalem

A tree planted on a sidewalk in the center of Jerusalem. Warning blocks with the width of 20cm were set up around it. The way they were set up was unnecessary.



**Picture 22:** In Tel Aviv

Warning blocks with the width of 60cm were set up around the swing in a children's park.

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