Establishment of Universal Design Database

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Change of Implementation
Regarding the Formulation of the Standard of Universal Design

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Presentation at ICIS_DA2007
Challenge toward Universal Design

With the advent of an aging society in which there are fewer children, MLIT is promoting the construction of government buildings that everyone, including the elderly and people with disabilities, can safely, smoothly and comfortably use through the introduction of the concept of universal design.
Applied case of a working group
(building profile)

- Location: Hamamatsu city, Shizuoka prefecture, Japan
- Structure type: Steel
- Floors: 12 stories above ground and 2 basement levels
- Total floor area: Approximately 18,700 m²
Design phase

Visiting construction site

Design phase meeting

Comments gathered at the meeting

Proposed plan of location of the commodes

Design phase meeting 2

Coordinator summarizing discussion
Construction phase

Trial use of actual building equipment
(left: elevator, right: universal commode)

Trial use of models
(left: commode, right: sink designed for ostomates)

Group discussions

Comments by advisor
Future issues and further changes in the workshop

- A meeting was held for MLIT staff members from all over Japan who design governmental buildings. As opinions in the workshops were exchanged on how to improve government buildings, it was very productive. Such meetings will be held regularly and a “know-how-database” will be maintained in order to design effective buildings in the future.

- It is important to share a spatial image in the early stages, such as the design phase, even with people who are not specialists in architecture or building design. 3-dimensional viewing software can be effective to make spatial images, instead of using building models or perspective drawings.

- High praise was given by many of the participants on the results of the meeting, thanks to the experience gained through many workshops. The designing work of government buildings is changing; it is becoming an arrangement of several needs from a variety of standpoints. We will continue with our activities in order to provide more satisfaction to citizens regarding government buildings.
Establishment of Universal Design Database

Kumio OYAMA
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Schematic design
Concept planning
Detail design
Improvement of government buildings

Project A
Verification study in construction phase

Project B

Exchanging opinions in programming phase

Design study in programming phase

Operation, management
Feedback of facility information
Review and evaluate the design at meetings

Textured paving blocks should be arranged near the wall, not in the middle of the pathway

Practical case of utilizing feedback information

Concept of Standards for Universal Design (established in March 2006)
Technical requirements for universal design standard

Universal design standard specifies technical requirements for continuous improvement

### Technical requirements

**Moving space**
- Prioritize security and user friendliness for pedestrians
- Simple planning for routes and spaces
- Secure smooth movement for both horizontal and vertical directions
- Maintain margin in space

**Working space**
- Comfortable space
- Size setting for everyone to be used
- Easy to use and understand while operating

**Universal design through the use of hardware**

**Environment**
- Comfortable environmental design matched with physical sense

**Information**
- Use several methods for providing information
- Simple but explicit information
- Linkage to human assistant

**Safety**
- Create disaster prevention and evacuation planning
- Use several methods for providing information
- Secure human assistant system
- Free access and security at the same time
Construction of government buildings, which were reviewed from the Universal Design point of view during each of planning/designing/construction phases, is completing.

For the next step, measures in the facility operation and maintenance stage are getting important.

Evaluation and verification of execution of Universal Design in government facilities built under UD-standard were made on the trial basis from the standpoint of facility users such as the elderly and the people with disability. (UD-Diagnosis)
Outline of UD-Diagnosis

Surveyed facility: Government building 10 Facilities
Number of monitors: 192 in total
Attribute of monitors: listed below

<table>
<thead>
<tr>
<th>Attribute of monitors</th>
<th>Number of monitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elderly</td>
<td>78</td>
</tr>
<tr>
<td>Physical disability</td>
<td></td>
</tr>
<tr>
<td>Visual impairment</td>
<td>30</td>
</tr>
<tr>
<td>Hearing/Speech impairment</td>
<td>27</td>
</tr>
<tr>
<td>Physical impairment</td>
<td>57</td>
</tr>
<tr>
<td>Internal impairment</td>
<td>14</td>
</tr>
<tr>
<td>Intellectual disability</td>
<td>4</td>
</tr>
<tr>
<td>Mental disability</td>
<td>3</td>
</tr>
<tr>
<td>Developmental disorders</td>
<td>8</td>
</tr>
<tr>
<td>High level brain lesion</td>
<td>1</td>
</tr>
<tr>
<td>Pregnant woman/Person accompanying a child</td>
<td>6</td>
</tr>
<tr>
<td>Person whose mother language is not Japanese</td>
<td>3</td>
</tr>
<tr>
<td>Person of ordinary ability (exclude elderly)</td>
<td>41</td>
</tr>
</tbody>
</table>
Surveyed 10 facilities
Result of UD-Diagnosis (trial)

Items pointed out from the user’s point of view

- The post supporting roof and the suspended signboard interfering with the opening of rear hatchback door of welfare vehicles at the parking space
- Difficulty in reading Braille signboard for the person with visual disability because of the height and slope of the signboard

Summary of point of concern regarding Universal Design

<table>
<thead>
<tr>
<th>Attribute of space</th>
<th>Category of evaluation</th>
<th>Subtotal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 External moving space</strong></td>
<td>Entrance of the site (7), Parking lot (8), Walkway (5), Guidance/assistance outside the facility (10), Entrance lobby (4)</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td><strong>2 Internal moving space</strong></td>
<td>Reception/Information desk (14), Corridor (3), Staircase (4), Elevator (7), Room entrance (2), Guidance/Assistance inside the facility (9)</td>
<td>39</td>
<td>100</td>
</tr>
<tr>
<td><strong>3 Working space</strong></td>
<td>Waiting room (2), Lavatory (7), Multifunction lavatory (11)</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td><strong>4 Emergency handling</strong></td>
<td>Emergency handling (6)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>5 Whole of the facility</strong></td>
<td>Whole of the facility (1)</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
Establishment of UD-Database

What is the “Universal Design Database for government facilities”

→ UD-Database

Purpose of UD-Database

Information accumulated in UD-Database

• Result of design review from the Universal Design point of view
• Experience and knowledge of staff members of MLIT Government Buildings Department
Establishment of UD-Database

Function of UD-Database

- Function-1
  Search/Browse/Download of the result of the design review executed with the Universal Design point of view

- Function-2
  Search/Browse of the points of concern regarding Universal Design

- Function-3
  Registration of the comment / Voting function
Establishment of UD-Database

Result of the design review executed with the Universal Design point of view
Future actions

Future effort utilizing UD-Database

1. Further collection/accumulation of the information to the UD-Database

2. Periodic evaluation/organization of accumulated information

3. Establishing the structure for reflecting the significant information to the technical requirement
Future items to be considered

1. Information service of UD-Database to the local municipality
2. Cross-cutting analysis of the result of UD-Diagnosis focusing the purpose/size/user attribute of the facility
3. Establishment of structure to evaluate the information accumulated in the UD-Database
Thank you for your attention