Comprehensive Assessment Systems of Universal Design Achievements for Offices (CASUDA)

The 2nd International Conference for Universal Design in Kyoto 2006
October 24, 2006
Kyoto International Conference Hall

Hidekazu Sawada (Shimizu Corporation)
Shiro Nitanai (Japan Post)
Structure of Evaluated Items

- **Base building**
  - Site entrance
  - In-site walkway
  - Parking
  - Walkway from parking
  - Carriage porch
  - Building entrance
  - Entrance hall
  - Reception
  - Lobby
  - Corridor
  - Stairway
  - Elevator
  - Rest room
  - Pantry

- **Fitting-out**
  - Zoning
    - Layout
    - Workstation
    - Work-support area
    - Information-management area
    - Life-support area
    - Light environment
    - Interior plan
    - Signage

- **Operation**

UD comprehensive index
## Items Evaluated for “Site Entrance”

### (1) Fundamental requirements

<table>
<thead>
<tr>
<th>Score</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>At least one entrance is equal to or greater than 80 cm and less than 120 cm.</td>
</tr>
<tr>
<td>4</td>
<td>All entrances are greater than 90 cm, and at least one entrance is greater than 120 cm.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item</th>
<th>Minimum requirements</th>
<th>General technical or social standards</th>
<th>Highest technical or social standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of entrance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All entrances are less than 80 cm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At least one entrance is equal to or greater than 80 cm and less than 120 cm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All entrances are greater than 90 cm, and at least one entrance is greater than 120 cm.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stairway or steps</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stairway or steps exist, and slope or elevated device is not installed.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stairway or steps do not exist, or slope or elevated device is installed when stairway or steps exist.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(not evaluate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(not evaluate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation of entrances for people and vehicles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not separated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(not evaluate)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(not evaluate)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### (2) Viewpoints of UD

<table>
<thead>
<tr>
<th>Degree of Consideration</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>not at all</td>
<td>0</td>
</tr>
<tr>
<td>to some extent</td>
<td>1</td>
</tr>
<tr>
<td>to a great extent</td>
<td>2</td>
</tr>
</tbody>
</table>

- Ensure smooth continuity from outside site
- Establish site entrance in place where it is well recognized from roads and a right direction is taken in returning
- Present signs of building name and entrance that are well recognized from far
- Presence of visual obstacles of access by cars due to signs and plants
- Separately establish entrance and exit for cars
- Install auditory or light warning system that informs of car access
- Ensure sufficiently wide entrance for cars, pedestrians, and bicycles to access building
- Install guiding device
## Scoring Method for Fundamental Requirements

### Normalization by range of the total (maximum – minimum)

<table>
<thead>
<tr>
<th>Site Entrance</th>
<th>Score</th>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of entrance</td>
<td>3</td>
<td>All entrances are less than 80 cm.</td>
<td>At least one entrance is equal to or greater than 80 cm and less than 120 cm.</td>
<td>All entrances are greater than 90 cm, and at least one entrance is greater than 120 cm.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stairway or steps</td>
<td>3</td>
<td>Stairway or steps exist, and slope or elevated device is not installed.</td>
<td>Stairway or steps do not exist, or slope or elevated device is installed when stairway or steps exist.</td>
<td>(not evaluate)</td>
<td>(not evaluate)</td>
<td></td>
</tr>
<tr>
<td>Installation of door</td>
<td>5</td>
<td>Difficulty for wheelchair users with passing through</td>
<td>Use at least one automatic or sliding door, or door easy for wheelchair users to pass through among doors installed at entrances, and remain flat before and after the door</td>
<td>Fulfil level 3 for all doors installed at entrance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Separation of entrances for people and vehicles</td>
<td>1</td>
<td>Not separated</td>
<td>Separated</td>
<td>(not evaluate)</td>
<td>(not evaluate)</td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL=** 12

---

Evaluate what percent of possible considerations was conducted
### Scoring Method for Viewpoints of UD

#### Use of Score Ratio (SR)

<table>
<thead>
<tr>
<th>Site Entrance</th>
<th>Score</th>
<th>Degree of Consideration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure smooth continuity from outside site</td>
<td>1</td>
<td>not at all</td>
</tr>
<tr>
<td>Establish site entrance in place where it is well recognized from roads and a right direction is taken in returning</td>
<td>2</td>
<td>to some extent</td>
</tr>
<tr>
<td>Present signs of building name and entrance that are well recognized from far</td>
<td>0</td>
<td>to a great extent</td>
</tr>
<tr>
<td>Presence of visual obstacles of access by cars due to signs and plants</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Separately establish entrance and exit for cars</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Install auditory or light warning system that informs of car access</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ensure sufficiently wide entrance for cars, pedestrians, and bicycles to access building</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Install guiding device</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

Total = 9

SR = Total / Maximum of total = 9 / 16 = 0.56

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th><strong>Level 3</strong></th>
<th>Level 4</th>
<th>Level 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ≤ SR &lt; 0.2</td>
<td>0.2 ≤ SR &lt; 0.4</td>
<td><strong>0.4 ≤ SR &lt; 0.6</strong></td>
<td>0.6 ≤ SR &lt; 0.8</td>
<td>0.8 ≤ SR</td>
</tr>
</tbody>
</table>
Weights of Evaluated Items

- **Base building** (0.38)
  - Zoning (0.09)
  - Layout (0.09)
  - Workstation (0.13)
  - Work-support area (0.09)
  - Information-management area (0.09)
  - Life-support area (0.10)
  - Light environment (0.13)
  - Interior plan (0.14)
  - Signage (0.15)

- **Operation** (0.27)
  - Site entrance
  - In-site walkway
  - Parking
  - Walkway from parking
  - Carriage porch
  - Building entrance
  - Entrance hall
  - Reception
  - Lobby
  - Corridor
  - Stairway
  - Elevator
  - Rest room
  - Pantry

- **UD comprehensive index**

- **Viewpoints of UD**

- **Fundamental requirements**
Evaluation of Building A

- UD Comprehensive Index: 3.32

<table>
<thead>
<tr>
<th>Category</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base Building</td>
<td>3.39</td>
</tr>
<tr>
<td>Fitting-out</td>
<td>3.49</td>
</tr>
<tr>
<td>Operation</td>
<td>3.00</td>
</tr>
</tbody>
</table>
**Evaluation of Base Building**

- Site entrance
- In-site walkway
- Parking
- Carriage porch
- Building entrance
- Entrance hall
- Reception
- Lobby
- Stairway
- Elevator
- Pantry
- Rest room

- **Site entrance**: Width of entrance is ensured.
- **In-site walkway**: The separation of pedestrians and cars is required.
- **Parking**: The separation of pedestrians and cars is required.
- **Carriage porch**: Roof on the passage is not established.
- **Building entrance**: The door is heavy.
- **Entrance hall**: More consideration is required for the kitchen.
- **Corridor**: Sufficient area is ensured.
- **Elevator**: The roof is established.
- **Rest room**: The door is heavy.
- **Pantry**: Prevention measures for collision against glass door are required.
• Signs for evacuation are not easily recognized.
• Visual sign in emergency is not established.

• Workstations conform to the guideline issued by the Ministry of Health, and Labour and Welfare.

• Guidelines regarding lighting quality are satisfied.

• The door is heavy.
• Communication means in emergency are not established.
Ordering of UD renovation is possible.
UD Rating by UD Comprehensive Index

Possibility of diffusing UD through market by means of UD rating
Background

- Necessity of comprehensive assessment systems of UD achievements for continual improvement
- Use of UD guideline compiled by JFMA
Referred Laws and Standards

- Building Standards Law
- Accessible and Usable Building Law
- UD Guideline of Tokyo Metropolitan Government
- Guideline for Occupational Health Management in VDT Work (Ministry of Health, and Labour and Welfare)
- Prevention Measures against Passive Smoking (Ministry of Health, and Labour and Welfare)
- Guideline for Prevention Measures against Smoking in Working Environments (Ministry of Health, and Labour and Welfare)
- Guideline for Instruction regarding Color Vision Problems (Ministry of Education, Culture, Sports, Science, and Technology)
- CASBEE (Comprehensive Assessment System for Building Environmental Efficiency)
UD Guideline

- Describes base building, fitting-out, and operation

- Composed of two perspectives:

  (1) Fundamental requirements

  - Conditions that must be fulfilled regardless of costs, such as legal compliance and employees’ safety

  (2) Viewpoints of UD

  - More desirable conditions for making workers safer, more satisfied, and more productive
  - Extracted from the seven principles of UD
1. Fundamental requirements

- Level 1 fulfills such minimum requirements as the Building Standards Law
- Level 3 is suitable for general technical or social standards
- Level 5 is intended for the highest technical or social standards

2. Viewpoints of UD

- Point 0: not considering UD at all
- Point 1: considering UD to some extent
- Point 2: considering UD to a great extent