V1.0.0

CODE-ACCORD Annotation Strategy

12.04.2023

Contents

1. Sentence Labels

The following labels are selected for the sentence-level annotations.

Table 1 *Sentence labels*

Label	Description
complete-regulatory	A regulatory sentence which expresses a rule and contains all the details itself without any linguistical co-references that are unresolvable within the sentence, references to external sources (e.g., sections, chapters, documents, etc.) or incomplete/ambiguous concepts
other	Any sentence which is not a complete-regulatory sentence

1.1. Sample Annotations

Sample annotations for the sentence level from different building codes/approved documents are provided below.

Table 2 *Sample sentences under the category – 'complete-regulatory'*

ID	Sentence	Document
1	The gradient of the passageway located in an outdoor space may not exceed five per cent.	Accessibility of Buildings – Finnish to English
2	There shall be a horizontal landing with a length of at least 1,500 millimetres at the lower and upper end of the ramp.	Accessibility of Buildings – Finnish to English
3	A fire door must be self-closing and self-bolting.	Fire Safety – Finnish to English
4	In a residential building the sauna, washing and changing facility common to all residents shall be suitable for persons with mobility and functional impairment.	Accessibility of Buildings – Finnish to English
5	Smoke and heat alarms should have a standby power supply, such as a battery (rechargeable or non-rechargeable) or capacitor.	Fire Safety – UK
6	There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	Accessibility of Buildings – Finnish to English
7	If the building has a control system, the toilet facility shall have a security alarm connection to the control.	Accessibility of Buildings – Finnish to English
8	If a fire door is kept open in normal use, it shall be equipped with devices that will close the door in the event of fire.	Fire Safety – Finnish to English
9	However, if the elevation difference is no more than 1,000 millimetres, the ramp may not have a gradient of more than eight per cent.	Accessibility of Buildings – Finnish to English

Table 3 *Sample sentences under the category – 'other'. The 'Reason' column explains the reasons to label each sentence as 'other'.*

ID	Sentence	Document	Reason
10	Conditions relating to the building of which the wall forms part	Structure – UK	Defines a scope – non-regulatory sentence
11	The term 'fire alarm system' describes the combination of components for giving an	Fire Safety – UK	Provides a definition – non-regulatory sentence

	audible and/or other perceptible warning of fire.		
12	This Decree enters into force on 1 January 2018.	Energy Efficiency – Finnish to English	Provides general information – non-regulatory sentence Contains linguistical co-reference (this) – incomplete sentence
13	The ramp referred to in subsection 1 above shall be easily noticeable and straight with a smooth, hard and non-slippery surface, width of at least 900 millimetres and, if the ramp is not connected to a fixed structure, a protective edge of at least 50 millimetres in height.	Accessibility of Buildings – Finnish to English	Refers to an external source (subsection 1) – incomplete sentence
14	The design should be based on identification of the hazards to which the structure is likely to be subjected and assessment of the risks.	Structure – UK	Contains incomplete/ambiguous concepts (hazards) – incomplete sentence
15	Such a parking space shall have a width of at least 3,600 millimetres and a length of at least 5,000 millimetres and be marked with the International Symbol of Access.	Accessibility of Buildings – Finnish to English	Continuation of the previous sentence – incomplete sentence

2. Entity Labels

All sentences labelled as 'complete-regulatory' need to be annotated for entities.

The labels listed in Table 4 are selected for entity labelling.

Entity: An entity is a complete unit that belongs to any of the following categories, comprised of a text span with one or more tokens.
e.g., building, passageway, fire door, residential building, smoke and heat alarms, outdoor space

Note:
A unit formed by multiple tokens is considered a single entity if it is well-known to the targeted domain or if the targeted domain considers it a single unit.
e.g., fire door, residential building, smoke and heat alarms, outdoor space

Otherwise, appropriate entity labels should be provided for the unit after breaking it down into entities.
e.g., boundary of the plot – <property> boundary </property> of the <object> plot </object>

Table 4 *Entity labels*

Label	Description
object	An ontological concept which represents a thing that is subject to a particular requirement
property	Property of an object (e.g., width, height)
quality	Quality or uncountable characteristic of an object/property
value	A standard or a numerical value that defines a quantity

2.1. Sample Annotations

Sample annotations for the entity level from different building codes/approved documents are provided below.

Table 5 *Sample entity annotations. In the 'Entity-labelled Sentence' column, each text span which represents an entity is surrounded by the tags: <entity-label></entity-label>. Also, font colour was applied following the entity colour code in Table 4 for a clear distinction.*

ID	Original Sentence	Entity-labelled Sentence
1	The gradient of the passageway located in an outdoor space may not exceed five per cent.	The <property>gradient</property> of the <object>passageway</object> located in an <object>outdoor space</object> may not exceed <value>five per cent</value>.
2	There shall be a horizontal landing with a length of at least 1,500 millimetres at the lower and upper end of the ramp.	There shall be a <quality>horizontal</quality> <object>landing</object> with a <property>length</property> of at least <value>1,500 millimetres</value> at the <property>lower and upper end</property> of the <object>ramp</object>.
3	A fire door must be self-closing and self-bolting.	A <object>fire door</object> must be <quality>self-closing</quality> and <quality>self-bolting</quality>.
4	In a residential building the sauna, washing and changing facility common to all residents shall be suitable for persons with mobility and functional impairment.	In a <object>residential building</object> the <object>sauna, washing and changing facility</object> <quality>common to all residents</quality> shall be <quality>suitable for persons with mobility and functional impairment</quality>.
5	Smoke and heat alarms should have a standby power supply, such as a battery (rechargeable or non-rechargeable) or capacitor.	<object>Smoke and heat alarms</object> should have a <property>standby power supply</property>, such as a <object>battery</object> (<quality>rechargeable</quality> or <quality>non-rechargeable</quality>) or <object>capacitor</object>.
6	There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	There shall be an <quality>easily noticeable</quality> <object>passageway</object> with a <property>width</property> of at least <value>1,200 millimetres</value> and a <quality>smooth</quality>, <quality>hard</quality> and <quality>non-slippery</quality> <property>surface</property> that <quality>leads to the building</quality> from the <property>boundary</property> of the <object>plot</object> or <object>building site</object> and from the <object>space</object> and <object>area</object> that <quality>serve the use of the building</quality>.
7	If the building has a control system, the toilet facility shall have a security alarm connection to the control.	If the <object>building</object> has a <object>control system</object>, the <object>toilet facility</object> shall have a <object>security alarm

		connection</object> to the <object>control</object>.
8	If a fire door is kept open in normal use, it shall be equipped with devices that will close the door in the event of fire.	If a <object>fire door</object> is <quality>kept open in normal use</quality>, it shall be equipped with <object>devices that will close the door in the event of fire</object>.

3. Relation Labels

All sentences labelled as 'complete-regulatory' need to be annotated for relations.

The labels listed in Table 6 are selected for relation labelling.

Relation: A relation is a link or connection between two entities, according to the text description in a sentence.

Note:
Since relations form between entities, entity labels should be assigned first before the relation labels.

Table 6 *Relation labels*

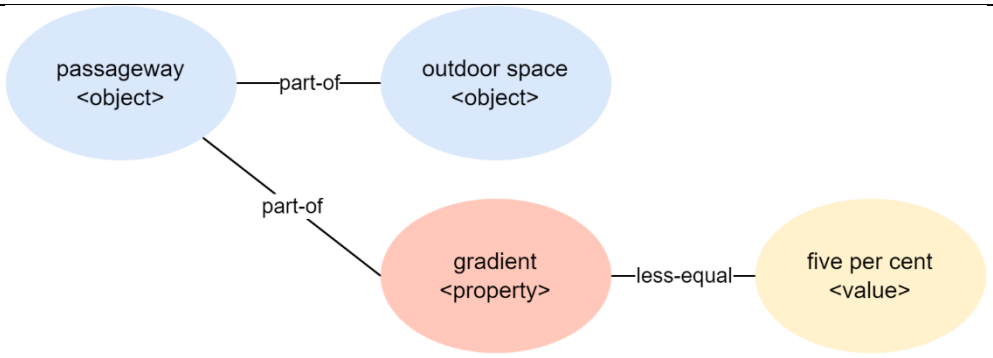
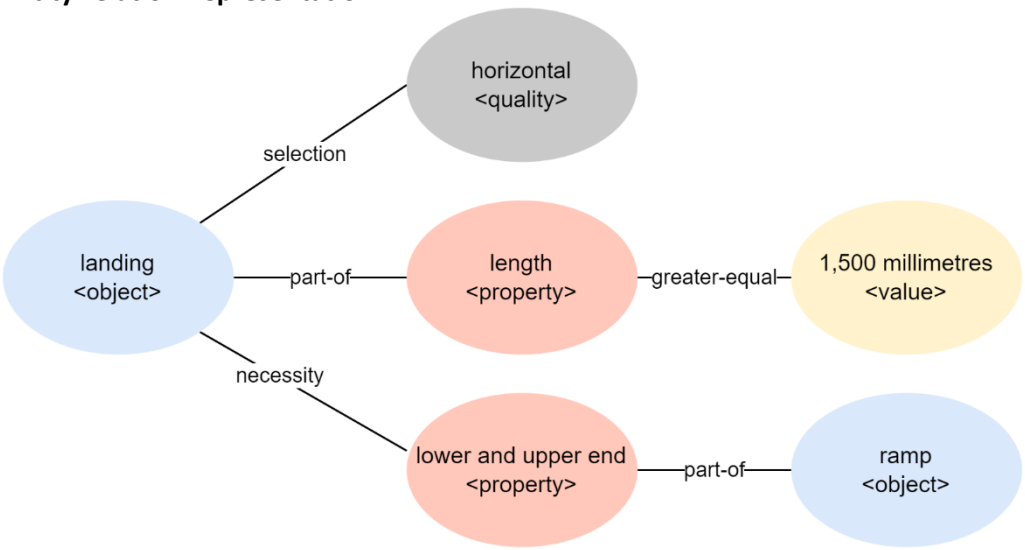
Label	Description
selection	A limit to the scope of an object/property based on another object, a quality or a user
necessity	A qualitative/subjective or existential necessity of an object/property (e.g., should, should have, shall be, etc.)
part-of	Being a part of an object/property
not-part-of	Not being a part of an object/property
greater	A value that should be greater than to
greater-equal	A value that should be greater than or equal to
equal	A value that should be equal to
less-equal	A value that should be less than or equal to
less	A value that should be less than to

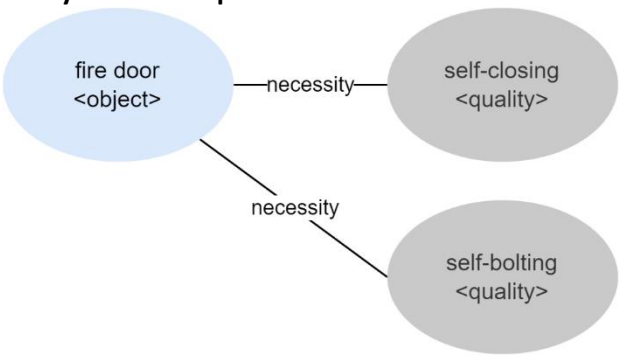
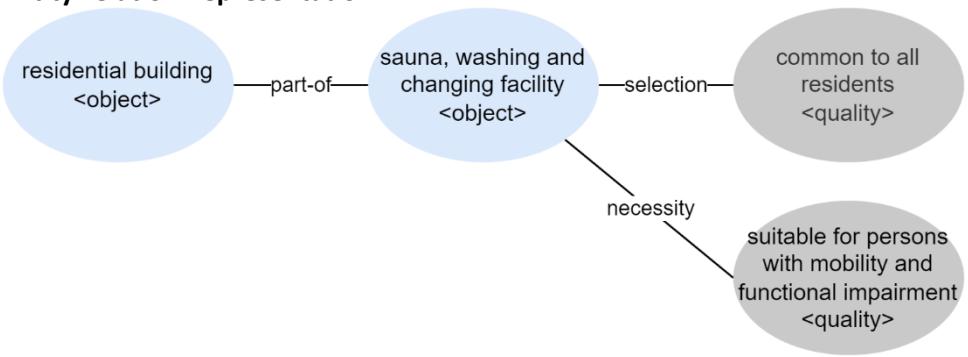
3.1. Sample Annotations

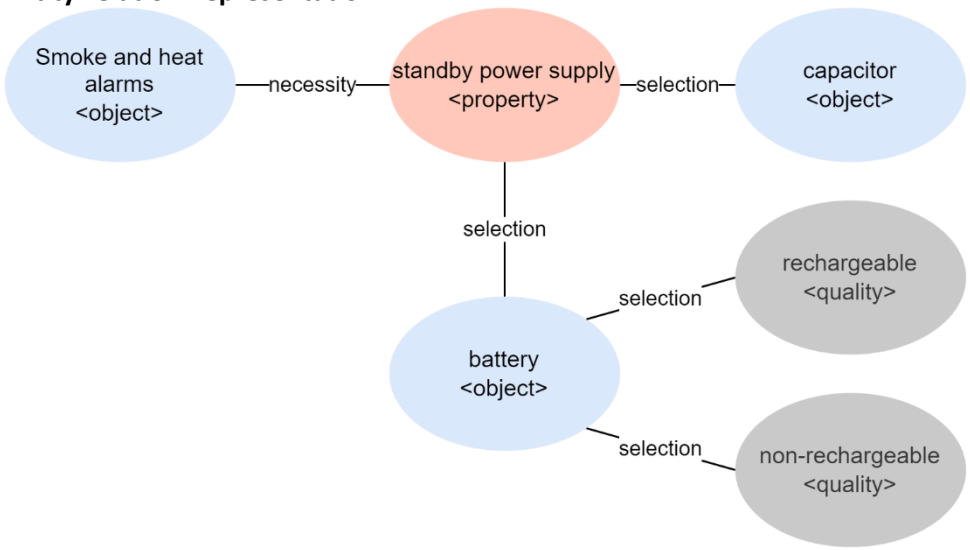
Sample annotations for the relation level from different building codes/approved documents are provided below.

Table 7 *Sample relation annotations. The 'Entity Pairs' column represents the pair of entities which form the relation presented in the 'Relation' column. Similar to the above content, each entity is surrounded by the tags: <entity-label></entity-label> and indicated by the font colour following the entity colour code in Table 4. 'Entity-relation Representation' illustrates the entities and their relations in a connected graph for more clarity.*

ID	Original Sentence	Entity Pairs	Relation
1	The gradient of the passageway located in an outdoor space may not exceed five per cent.	The <property>gradient</property> of the <object>passageway</object> located in an outdoor space may not exceed five per cent.	part-of
		The gradient of the <object>passageway</object> located in an <object>outdoor space</object> may not exceed five per cent.	Part-of
		The <property>gradient</property> of the passageway located in an outdoor space may not exceed <value>five per cent</value>.	less-equal
	Entity-relation Representation		

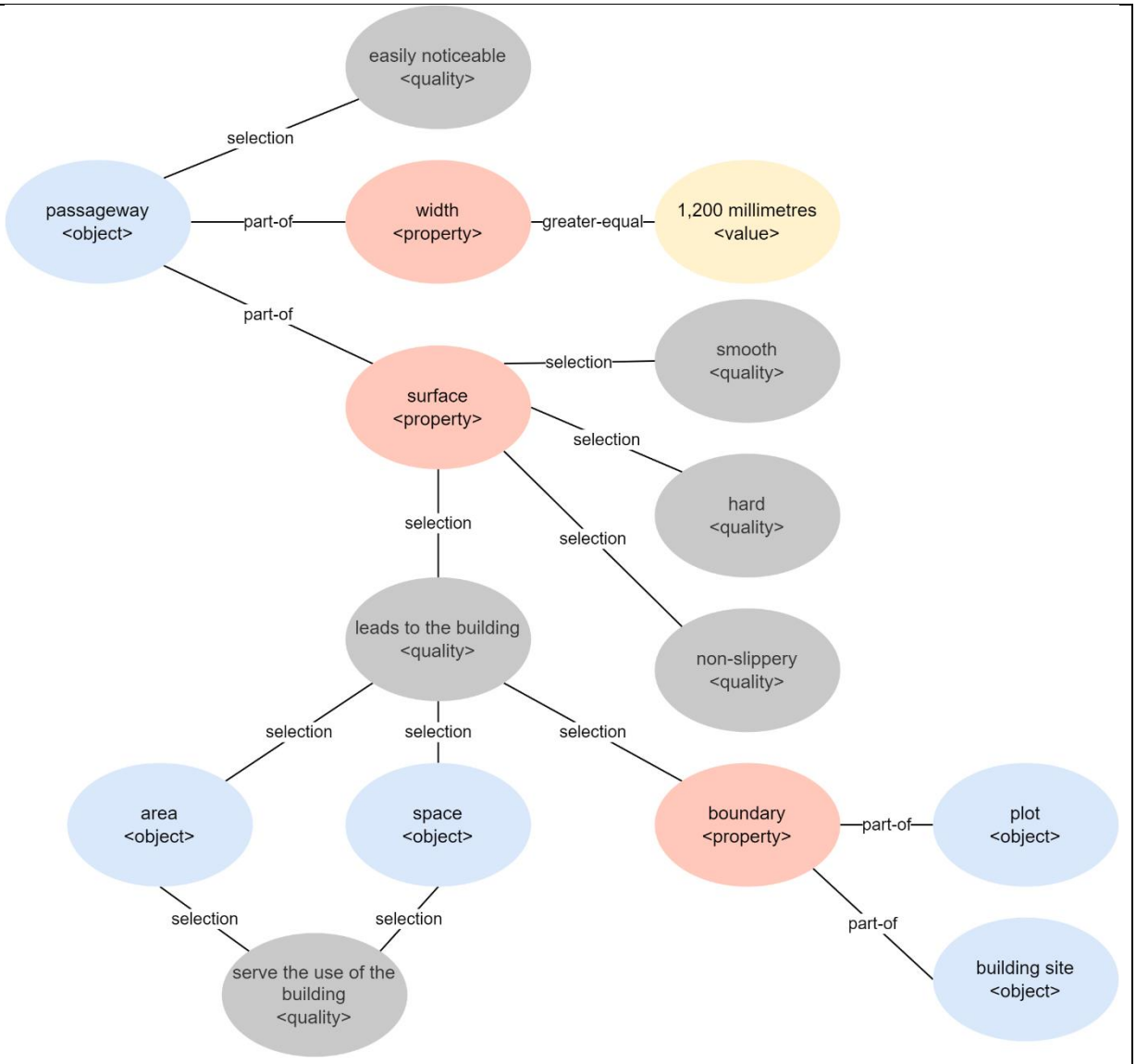
<table>
<tr><td></td><td colspan="3"> 
</td></tr>
<tr><td rowspan="6">2</td><td rowspan="5">There shall be a horizontal landing with a length of at least 1,500 millimetres at the lower and upper end of the ramp.</td><td>There shall be a <quality>horizontal</quality> <object>landing</object> with a length of at least 1,500 millimetres at the lower and upper end of the ramp.</td><td>selection</td></tr>
<tr><td>There shall be a horizontal <object>landing</object> with a <property>length</property> of at least 1,500 millimetres at the lower and upper end of the ramp.</td><td>part-of</td></tr>
<tr><td>There shall be a horizontal landing with a <property>length</property> of at least <value>1,500 millimetres</value> at the lower and upper end of the ramp.</td><td>greater-equal</td></tr>
<tr><td>There shall be a horizontal <object>landing</object> with a length of at least 1,500 millimetres at the <property>lower and upper end</property> of the ramp.</td><td>necessity</td></tr>
<tr><td>There shall be a horizontal landing with a length of at least 1,500 millimetres at the <property>lower and upper end</property> of the <object>ramp</object>.</td><td>part-of</td></tr>
<tr><td colspan="3">Entity-relation Representation
 
</td></tr>
</table>

<table>
<tr><td rowspan="3">3</td><td rowspan="2">A fire door must be self-closing and self-bolting.</td><td>A <object>fire door</object> must be <quality>self-closing</quality>and self-bolting.</td><td>necessity</td></tr>
<tr><td>A <object>fire door</object> must be self-closing and <quality>self-bolting</quality>.</td><td>necessity</td></tr>
<tr><td colspan="3">Entity-relation Representation
 
</td></tr>
<tr><td rowspan="4">4</td><td rowspan="3">In a residential building the sauna, washing and changing facility common to all residents shall be suitable for persons with mobility and functional impairment.</td><td>In a <object>residential building</object> the <object>sauna, washing and changing facility</object> common to all residents shall be suitable for persons with mobility and functional impairment.</td><td>part-of</td></tr>
<tr><td>In a residential building the <object>sauna, washing and changing facility</object> <quality>common to all residents</quality> shall be suitable for persons with mobility and functional impairment.</td><td>selection</td></tr>
<tr><td>In a residential building the <object>sauna, washing and changing facility</object> common to all residents shall be <quality>suitable for persons with mobility and functional impairment</quality>.</td><td>necessity</td></tr>
<tr><td colspan="3">Entity-relation Representation
 
</td></tr>
<tr><td rowspan="3">5</td><td rowspan="3">Smoke and heat alarms should have a standby power supply, such as a battery (rechargeable or non-rechargeable) or capacitor.</td><td><object>Smoke and heat alarms</object> should have a <property>standby power supply</property>, such as a battery (rechargeable or non-rechargeable) or capacitor.</td><td>necessity</td></tr>
<tr><td>Smoke and heat alarms should have a <property>standby power supply</property>, such as a <object>battery</object> (rechargeable or non-rechargeable) or capacitor.</td><td>selection</td></tr>
<tr><td>Smoke and heat alarms should have a standby power supply, such as a <object>battery</object></td><td>selection</td></tr>
</table>

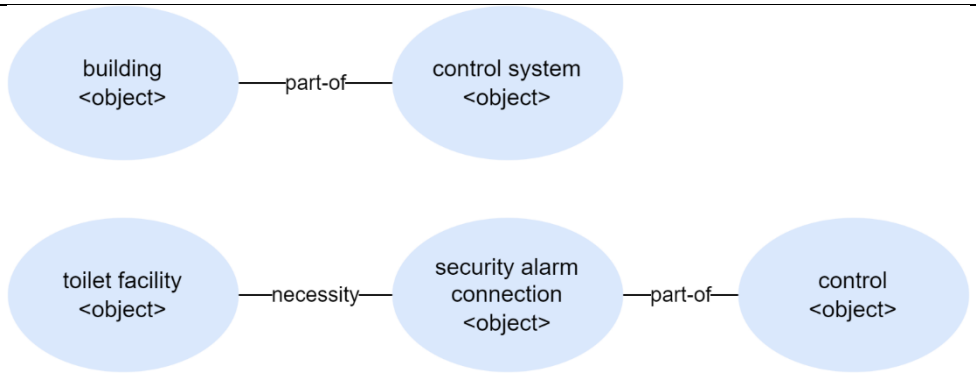
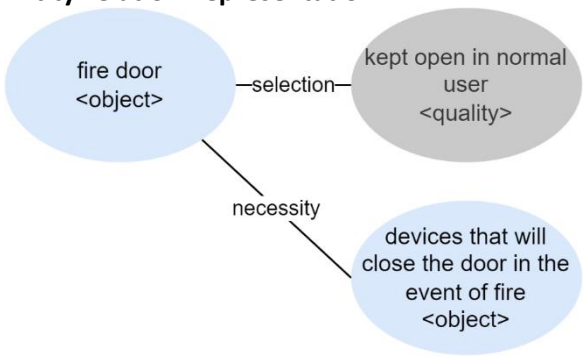
		(<quality>rechargeable</quality> or non-rechargeable) or capacitor.	
		Smoke and heat alarms should have a standby power supply, such as a <object>battery</object> (rechargeable or <quality>non-rechargeable</quality>) or capacitor.	selection
		Smoke and heat alarms should have a <property>standby power supply</property>, such as a battery (rechargeable or non-rechargeable) or <object>capacitor</object>.	selection
	Entity-relation Representation  		
6	There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	There shall be an <quality>easily noticeable</quality> <object>passageway</object> with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	selection
		There shall be an easily noticeable <object>passageway</object> with a <property>width</property> of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	part-of
		There shall be an easily noticeable passageway with a <property>width</property> of at least <value>1,200 millimetres</value> and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	greater-equal
		There shall be an easily noticeable <object>passageway</object> with a width of at least 1,200 millimetres and a smooth, hard and non-	part-of

		slippery <property>surface</property> that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a <quality>smooth</quality>, hard and non-slippery <property>surface</property> that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, <quality>hard</quality> and non-slippery <property>surface</property> that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and <quality>non-slippery</quality> <property>surface</property> that leads to the building from the boundary of the plot or building site and from the space and area that serve the use of the building.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery <property>surface</property> that <quality>leads to the building</quality> from the boundary of the plot or building site and from the space and area that serve the use of the building.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the <property>boundary</property> of the <object>plot</object> or building site</object> and from the space and area that serve the use of the building.	part-of
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the <property>boundary</property> of the plot or <object>building site</object> and from the space and area that serve the use of the building.	part-of
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that <quality>leads to the building</quality> from the <property>boundary</property> of the plot or	selection

		building site and from the space and area that serve the use of the building.	
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that <quality>leads to the building</quality> from the boundary of the plot or building site and from the <object>space</object> and area that serve the use of the building.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the <object>space</object> and area that <quality>serve the use of the building</quality>.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that <quality>leads to the building</quality> from the boundary of the plot or building site and from the space and <object>area</object> that serve the use of the building.	selection
		There shall be an easily noticeable passageway with a width of at least 1,200 millimetres and a smooth, hard and non-slippery surface that leads to the building from the boundary of the plot or building site and from the space and <object>area</object> that <quality>serve the use of the building</quality>.	selection
	Entity-relation Representation		



7	If the building has a control system, the toilet facility shall have a security alarm connection to the control.	If the <object>building</object> has a <object>control system</object>, the toilet facility shall have a security alarm connection to the control.	part-of
		If the building has a control system, the <object>toilet facility</object> shall have a <object>security alarm connection</object> to the control.	necessity
		If the building has a control system, the toilet facility shall have a <object>security alarm connection</object> to the <object>control</object>.	part-of
	Entity-relation Representation		

<table>
<tr><td></td><td colspan="3"> 
</td></tr>
<tr><td rowspan="3">8</td><td rowspan="2">If a fire door is kept open in normal use, it shall be equipped with devices that will close the door in the event of fire.</td><td>If a <object>fire door</object> is <quality>kept open in normal use</quality>, it shall be equipped with devices that will close the door in the event of fire.</td><td>selection</td></tr>
<tr><td>If a <object>fire door</object> is kept open in normal use, it shall be equipped with <object>devices that will close the door in the event of fire</object>.</td><td>necessity</td></tr>
<tr><td colspan="3">Entity-relation Representation
 
</td></tr>
</table>