

# Definition: Building complexity Exposure Draft 2020

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**Building complexity** means those attributes that are complicated or organisational, which increase the likelihood of non-compliance in a situation where the safety and/or health consequences of that non-compliance would be significant. Table 2 defines the *building complexity* levels from level 0 to level 5.

#### Note:

The defined term *building complexity* is not currently used in the NCC. *Building complexity* does not affect a building or *plumbing* or *drainage* installation, or its design, unless the definition is applied in the future by the NCC or in legislation.

#### Table 2 Building complexity levels

Complexity level	Building types					
0	Non-complicated building without organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a very low number of vulnerable occupants (10 or less)					
1	Non-complicated building with organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a very low number of vulnerable occupants (10 or less)					
1	Complicated building without organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a very low number of vulnerable occupants (10 or less)					
1	Non-complicated building without organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a large number of vulnerable occupants (more than 10)					
1	Non-complicated building without organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a very low number of vulnerable occupants (10 or less)					
2	Complicated building with organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a very low number of vulnerable occupants (10 or less)					
2	Non-complicated building with organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a large number of vulnerable occupants (more than 10)					
2	Complicated building without organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a large number of vulnerable occupants (more than 10)					
2	Non-complicated building with organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a very low number of vulnerable occupants (10 or less)					
2	Complicated building without organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a very low number of vulnerable occupants (10 or less)					
2	Non-complicated building without organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a large number of vulnerable occupants (more than 10)					
3	Complicated building with organisational attribute(s) designed to accommodate a low number of occupants (100 or less) including a large number of vulnerable occupants (more than 10)					
3	Complicated building with organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a very low number of vulnerable occupants (10 or less)					
3	Non-complicated building with organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a large number of vulnerable occupants (more than 10)					
3	Complicated building without organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a large number of vulnerable occupants (more than 10)					
4	Complicated building with organisational attribute(s) designed to accommodate a large number of occupants (more than 100) including a large number of vulnerable occupants (more than 10)					
5	Building essential to post-disaster recovery or associated with hazardous facilities whose failure poses a catastrophic risk to a very large number of people (more than 1000)					

#### Note:

For the purposes of Table 2 the following apply:

- 1. A complicated building is a building which has one or more of the following attributes:
  - (a) For Volumes One and Two, constructed using innovative materials or systems, where compliance is demonstrated by a *Performance Solution*.
  - (b) Structurally complex or outside of established and codified design principles.
  - (c) An *effective height* of more than 50 m.
  - (d) Located in an area of high natural hazard risk or high environmental risk.
- 2. Organisational is where a building has one or more of the following attributes:
  - (a) Complex procurement arrangements, including design and construct, but not traditional contractual models or own, build and operate structures.
  - (b) A building system (or systems), relevant to structural, fire or life safety, which necessitate special maintenance or inspection and testing requirements.
- 3. Vulnerable occupants are occupants who require assistance to evacuate the building during an emergency, and include the following:
  - (a) Children in an *early childhood centre*.
  - (b) Residents of an aged care building or residential aged care building.
  - (c) People with a disability in a *residential care building*.
  - (d) Patients in a *health-care building*.

#### Explanatory information:

The key criteria that determine the level of safety and health risk in buildings are:

- Potential consequences in terms of the number of occupants exposed (N).
- The vulnerability of those occupants (V).

The key criteria that determine the likelihood of error in design or construction are:

- The complication of the building design, construction and material used (C).
- The organisational (O) factors, including the ownership structure, the method of procurement and the future maintenance requirements for life safety systems.

Levels of *building complexity* are:

- Level 0: No criteria present.
- Level 1: One criterion present.
- Level 2: Two criteria present.
- Level 3: Three criteria present
- Level 4: Four criteria present.
- Level 5: Post-disaster recovery buildings or hazardous facilities.

Figure 2 illustrates the decision process to determine the *building complexity* of the subject building.

## **EXPOSURE DRAFT**

-	ilding complexity deci	-				
Start	Consequences (N) N>100	Vulnerability (V) V>10	Complication (C) (elevated)	Organisational (O) (elevated)	Number of Criteria	Complexity leve of building
В	uilding essential to post-d	isaster recovery c	r associated with I	nazardous facilities		5
				Yes	4	4
			Yes	No	3	3
		Yes	No	Yes	3	3
				No	2	2
	Yes			Yes	3	3
		No	Yes	No	2	2
			No	Yes	2	2
Start				No	1	1
				Yes	3	3
			Yes	No	2	2
		Yes	No	Yes	2	2
	No			No	1	1
				Yes	2	2
		No	Yes	No	1	1
			No	Yes	1	
				No	0	0

### Table 3 Typical examples

Complexity level	Typical building examples
0	Class 1a single dwelling
1	Class 1a single dwelling located in a bushfire prone area
1	Conventional 4 storey concrete frame Class 5 office building
1	Small hospice
2	Concert hall
2	Shopping centre
3	30 storey Class 2 residential building procured by a design and construct contract
4	30 <i>storey</i> Class 2 residential building, containing an <i>early childhood centre</i> , procured by a design and construct contract
5	State emergency management control centre