

All Fields marked with \* are mandatory.

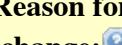
<b>Change Request #:</b>	313
<b>Assigned OGC Document #:</b>	13-089
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<b>Document Name/Version:</b>	*City Geography Markup Language (CityGML) Encoding Standard / 2.0
<b>OGC Project Document:</b>	*12-019

If this is a revision of a previous submission and you have a Change Request Number, then check here:

Enter the CR number here:

Enter the Revision Number that you are revising here:

<b>Title:</b> 	* [CityGML SWG] Revision of the CityGML LOD-concept
<b>Source:</b> 	* Karlsruhe Institute of Technology
<b>Work item code:</b> 	
<b>Category:</b> 	* <input type="button" value="C (Functional modification of feature)"/>

<b>Reason for change:</b> 	<p>*</p> <p>Though the CityGML LOD concept is frequently used, it has a number of severe shortcomings:</p> <ol style="list-style-type: none"> <li>1.) Geometry/semantics: The LOD only determines a geometrical modelling style and a certain degree of geometrical correspondence between model and real object, but says nothing about the actual semantic modelling depth.</li> <li>2.) Interior/exterior: The interior components of buildings or tunnels can only be modelled in one LOD, representing a geometrical model with highest accuracy (LOD4). Furthermore, a representation of interior components is only possible when simultaneously the exterior components are represented with highest geometrical resolution. These requirements hamper the usage of CityGML in many application areas like emergency responses or indoor routing (CR 215/OGC 12-044).</li> </ol>
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	<p>3.) <b>LOD-definitions:</b> The CityGML LODs are only defined for the Building module, but the terms LOD0 → LOD4 are used in all other thematic areas mostly without further explanation. Some examples: what is the →geometrical LOD← of a Land Use classification, which objects are modelled with a LOD 4 (interior) representation for a SolitaryVegetationObject or WaterBody?</p> <p>4.) <b>Completeness:</b> The concept of a LOD0 representation (point, line, 2D or 2.5D surface geometry) is very general and useful in all thematic areas, but actually available in only some of them.</p>
<b>Summary of change:</b> 	<p>*</p> <p>It is proposed to perform a major revision of the CityGML LOD concept:</p> <ol style="list-style-type: none"> <li>1.) The terms LOD x (with exception of LOD 4) should be kept as rough indicator for the model structure, but they are complemented by additional metadata specifying geometric and semantic modelling depth, accuracy, etc.</li> <li>2.) Instead of one LOD4 representation for all thematic areas, the new concept should allow different geometrical and semantical representations of interior components (interior LODs) in those modules where the →interior← concept makes sense. The combination of different interior and exterior LODs should be possible.</li> <li>3.) The meaning of LODs and the corresponding set of metadata should be specified separately for every thematic area.</li> <li>4.) For every thematic area, a suited LOD0 representation should be possible.</li> </ol>
<b>Consequences if not approved:</b> 	Limited support of many important application fields by CityGML
<b>Clauses affected:</b> 	<p>*</p> <p>Open for consideration</p>
<b>Additional Documents affected:</b> 	
<b>Supporting Documentation:</b> 	<p>Some ideas on a revised LOD concept (restricted on the Building module) can be found in:</p> <p>Marc-O. Löwner, Joachim Benner, Gerhard Gröger, and Karl-Heinz Häfele: New Concepts for Structuring 3D City Models – An Extended Level of Detail Concept for CityGML Buildings; Computational Science and Its Applications – ICCSA 2013, Springer Lecture Notes in Computer Science 7973, pp. 466 – 480 (2013).</p>

<b>Comments:</b> 	
<b>Status:</b> 	Assigned 
<b>Assigned To:</b> 	CityGML SWG 
<b>Disposition:</b> 	Referred 