DiKon

DigitalKonvergens

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Specification of Building Parts

– for 3D Models based on point clouds (Scan to BIM)

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Version 2024-08-30

Contents

Introduction

This specification aims to outline general guidelines for developing 3D models of buildings based on point clouds, with the goal of creating a clear understanding of as-built documentation among stakeholders. This version updates the building parts specifications from the previous publication to prevent misunderstandings or misinterpretations.

The need for this specification arises from that lack of accurate documentation in projects. As-built documentation provides an accurate representation of a building or structure, which is essential for further project development, up-to-date records, and maintenance.
Given the growing demand for as-built 3D models, it is crucial to clearly define the content of these models, including the reliability of building parts, their geometric representation, and the associated property data, thereby ensuring consistency and accuracy across documentation.

This specification follows the structure and format of DiKon's Specification of Building Parts - for selected building parts in building models. However, this document serves as a comprehensive guide tailored specifically for Scan to BIM projects. This distinction will facilitate more accurate, efficient, and relevant project outcomes, aligning with the specific needs and expectations of Scan to BIM projects.

We would like to express our deepest thanks to Niras A/S for their contributions and expertise, which have made this publication possible. Their dedication and commitment to the project have been essential in achieving the highest standards of quality and innovation. We look forward to future collaborations.

Definitions and related terminology

Level of Detail (LOD) specifies the required information about model elements that must be included in the as-built model. LOD for building parts includes:

Level of Reliability (LOR) describes the reliability of the information provided for the building part and its properties.

- Type variation: To the nearest 25 [mm]
  - For example, a wall measured to be 995 [mm] thick will be rounded to the nearest 25 [mm] increment, resulting in a value of 1000 [mm].
- Tolerance in placement: 30 [mm]
  - For example, a wall will be placed within 30 [mm] of its actual position.
- Tolerance in slope: 1:100
  - For example, a 10-meter-long floor with a rise from one end to the other of less than 10 [cm] will not be modelled with a rise. A rise equal to or greater than 10 [cm] will be modelled.

Level of Geometry (LOG) describes the building parts' geometric representations and the extent of secondary components/parts.

- Generic Level
  - Generic geometry in simplified shapes, excluding details.
- Type Level
  - Defined geometry including minimal details, divided into overall types.
- Detailed Level
  - Well-defined geometry including details, divided into detailed types.

Level of Information (LOI) describes the building parts' properties contained in, linked to, or in some other way connected.

- Associated Properties
  - Includes data which is visually identifiable by viewing point cloud data or images.

LOD levels

A given LOD level (Level of Detail) indicates the level of the geometric representation, property data, and reliability of these.

This publication's Level of Geometry (LOG) may resemble DiKon's Specification of Building Parts - for selected building parts in building models. However, the Level of Information (LOI) required for Scan to BIM is significantly lower. Therefore, to avoid confusing it with other LOD specifications, this publication uses its own ranking with LOW, MEDIUM and HIGH. LOD levels consist of a predefined composition of a matching level for LOR, LOG and LOI. For example, LOD LOW consists of LOR LOW, LOG LOW and LOI LOW.

LOD LOW defines building parts modelled with generic objects with associated properties.
LOD MEDIUM defines building parts modelled as specific types of objects with associated properties.
LOD HIGH defines building parts modelled as detailed types of objects with associated properties.
LOD CUSTOM specification accommodates any special requirements or demands of the project, that may have not been accounted for by standard LOD for corresponding building parts. All details and additions within this category must be clearly defined in the LOD CUSTOM column and agreed upon between the parties involved.

An example of LOD CUSTOM might be insulation on technical installations. Since the thickness of insulation cannot be precisely defined, pipes are modelled with the maximum diameter including insulation. If the project requires indication of such, it can be agreed, for instance, that a standard thickness of insulation (e.g., 25 mm) will be applied to all pipes, and the pipe diameter will be adjusted to fit the point cloud data.

Usage

For selected building parts, in LOD levels LOW, MEDIUM and HIGH there are specifications for LOR, LOG and LOI. In some cases, the specifications are for specific building parts, in other cases the specifications apply to a group of building parts.

For projects with varying LOD requirements for each category, a checkbox is provided under each LOD level to specify the one used for the project. Any changes or additions to the specification must be clearly indicated and described in the LOD CUSTOM column.

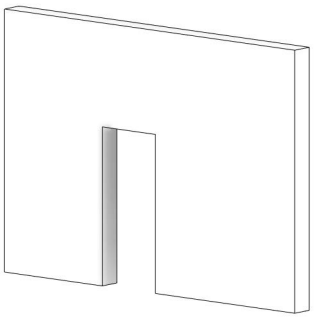
General guidelines for modelling

1) Each category's specification takes precedence above the general guidelines.
2) Building models must be modelled with 3D objects.
3) Objects that are not relevant for the project must not occur.
4) Insultation is not modelled as separate component, as it is included in the maximum outer dimension of the host object.
5) If DWG underlay is used, the model must be placed according to the underlay with True North set and coordinates acquired from the point cloud.
6) If the building project deals with several buildings, each building must be modelled in a separate file. Multiple building models use shared coordinates.
7) Objects must be modelled by using the correct tools (E.g., wall tool, floor tool, window tool, etc.).
8) Objects must always be related to the floor/level they belong to.
9) Objects spanning several levels must be divided at each level. Except for technical systems and glass- /system walls.
10) Objects must generally not overlap or clash, i.e., no objects entirely or partly inside each other.
11) Horizontal cut planes are set to 1500 mm from a defined level.
12) The point cloud is only to be unloaded and not removed.
13) New types of objects must be named according to the project naming convention.
14) If the dimension of an object is unknown or estimated the following parameters must be checked. (Set to Yes):
    a. Dimension unknown (e.g., wall where only one side is scanned)
    b. Dimension estimated (e.g., where only part of the object appears from scanning)
15) If an object is unknown the following parameter must be checked. (Set to Yes):
    a. Type unknown (e.g., an object cannot be identified as a certain category)

Specification for Wall

Applies to load bearing walls, and non-load bearing walls

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm] **Tolerances in slope:** 1:100	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm] **Tolerances in slope:** 1:100	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm] **Tolerances in slope:** 1:100	**Type variation:** **Tolerances in placement:** **Tolerance in slope:**
LOG LOW & LOG MEDIUM & LOG HIGH			**LOG CUSTOM**
GENERIC LEVEL & TYPE LEVEL & DETAILED LEVEL			CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES



Walls modelled as a single generic object without layers.

Interior walls are modelled from floor level to the floor separation above.
Exterior walls are split for each level.
Ensure that the inside/outside of the wall is properly set.

Protrusions and recesses are not modelled.
Openings above 350 [mm] diagonally are modelled with a tolerance of +/-**LOR** in dimension and location, excluding LOD LOW.

If the difference between two opposite external walls is less than 0.2°, in the point cloud, these must be modelled as parallel.
If the difference between two opposite external walls is more than 0.2°, in the point cloud, these should follow the point cloud.

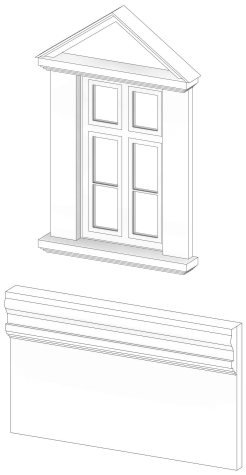
If the corner angle is between 89.5° and 90.5°, the corner must be modelled perpendicularly.

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Façade Decoration and Ornament

Applies to all decorations and ornaments

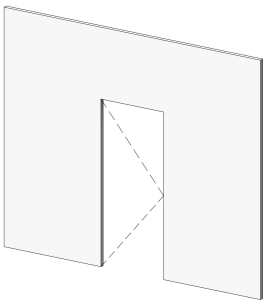
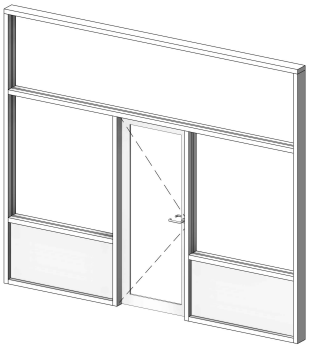
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Not applicable for LOD LOW	Not applicable for LOD MEDIUM	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL	TYPE LEVEL	DETAILED LEVEL	CUSTOM LEVEL
Not applicable for LOD LOW	Not applicable for LOD MEDIUM	 Fixed-mounted fixtures and decorations on the façade are modelled. Protrusions and recesses over 100 [mm] are modelled.	
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Not applicable for LOD LOW	ASSOCIATED PROPERTIES Not applicable for LOD MEDIUM	ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Glass- / System Wall

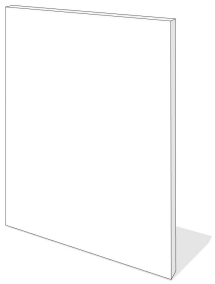
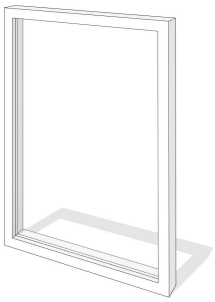
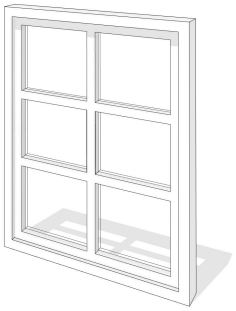
Applies to all composite system walls with and without glass

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm] **Tolerance in slope:** 1:100	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm] **Tolerance in slope:** 1:100	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm] **Tolerance in slope:** 1:100	**Type variation:** **Tolerances in placement:** **Tolerance in slope:**
LOG LOW	**LOG MEDIUM & LOG HIGH**		**LOG CUSTOM**
GENERIC LEVEL  Glass / System walls, including generic placement and size of openings and panels are modelled in maximum outer contour divided into main types.	TYPE LEVEL & DETAILED LEVEL  Glass / System walls, including grid with division of panels, openings, and profiles are modelled in maximum outer contour divided into types.		CUSTOM LEVEL
Ensure that the inside/outside of the wall is properly set. If the difference between two opposite external walls is less than 0.2°, in the point cloud, these must be modelled as parallel. If the difference between two opposite external walls is more than 0.2°, in the point cloud, these should follow the point cloud. If the corner angle is between 89.5° and 90.5°, the corner must be modelled perpendicularly.			
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

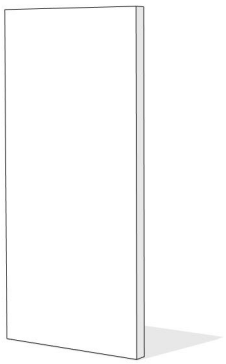
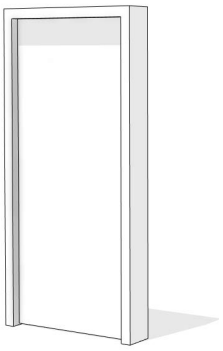
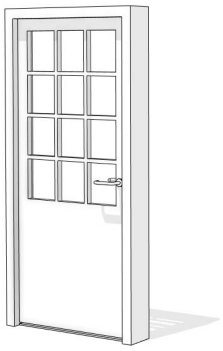
The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Window
Applies to all windows as well as panes and filler panels

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Windows are modelled in rough dimensions. The opening direction of window is not set.	TYPE LEVEL  Windows are modelled in rough dimensions with frames divided by types. The opening direction of window is not set.	DETAILED LEVEL  Windows are modelled in rough dimensions with frames, mullions and sashes divided by types. The opening direction of window is not set.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI
The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

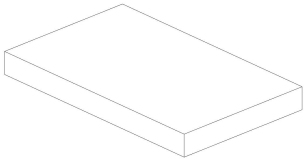
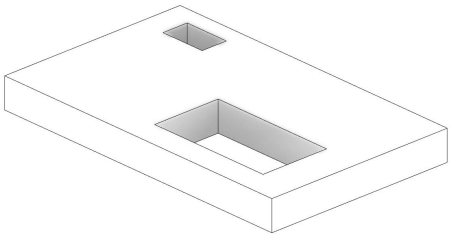
Specification for Door
Applies to interior and exterior doors

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Doors are modelled in rough dimensions. The opening direction is specified where it can be determined with certainty.	TYPE LEVEL  Doors modelled with frame and differentiated between glass and solid. The opening direction is specified where it can be determined with certainty.	DETAILED LEVEL  Doors are modelled with frame, infill, handle and differentiated between glass and solid. The opening direction is specified where it can be determined with certainty.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type name Height Width Depth	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI
The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Floor

Applies to generic floor assemblies at all levels of design

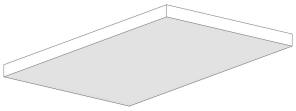
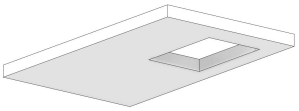
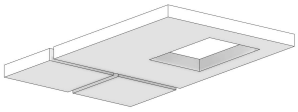
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm] **Tolerance in slope:** 1:100	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm] **Tolerance in slope:** 1:100	**Type variation:** **Tolerances in placement:** **Tolerance in slope:**
LOG LOW	**LOG MEDIUM & LOG HIGH**		**LOG CUSTOM**
GENERIC LEVEL  Floor separations modelled as a single generic object without layers. The floor object can be a consistent surface across the level. Sloped floors are not modelled with a slope.	TYPE LEVEL & DETAILED LEVEL  Floor separations modelled as a single generic object without layers. Openings above 350 [mm] diagonally are modelled with a tolerance of +/- **LOR** in dimension and location. The floor object can be a consistent surface across the level.		CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Ceiling

Applies to ceilings

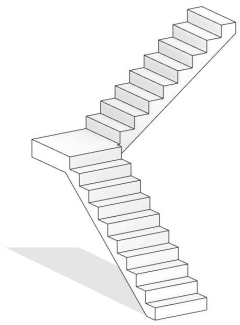
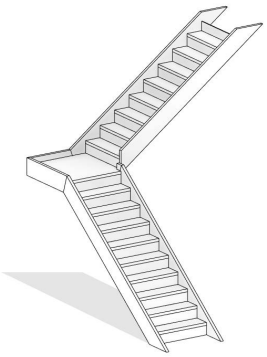
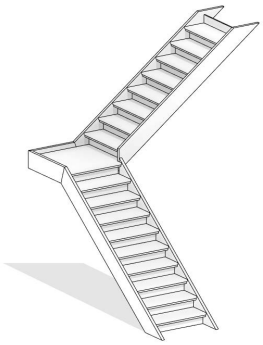
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Ceilings modelled as a single generic object without layers. The ceiling object can be a consistent surface across the level.	TYPE LEVEL  Ceilings modelled as a single generic object without layers. Openings above 350 [mm] diagonally are modelled with a tolerance of +/-**LOR** in dimension and location.	DETAILED LEVEL  Ceilings modelled as a single generic object without layers. Openings above 350 [mm] diagonally are modelled with a tolerance of +/-**LOR** in dimension and location. Ceilings are separated by wall penetrations.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Stair and Ramp

Applies to in-situ and prefabricated stairs and ramps

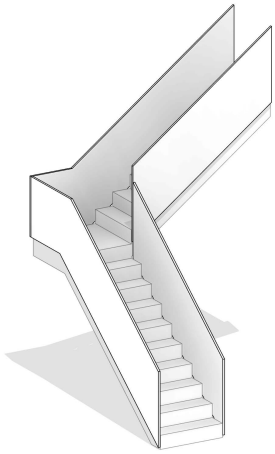
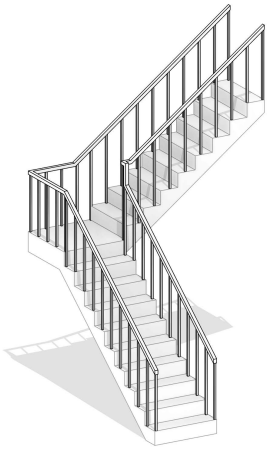
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL	TYPE LEVEL	DETAILED LEVEL	CUSTOM LEVEL
			
Stairs and ramps modelled as simple geometry in max. outer dimensions.	Stairs and ramps are modelled in max. outer dimensions divided into overall types. Treads and risers are modelled in a simplified geometry. Major support elements (stringers) are included.	Stairs and ramps are modelled in max. outer dimensions divided into types. Support elements, treads and risers are modelled in accurate geometry, including nosing.	
	Stairs are modelled with the correct number of treads and risers. If risers differentiate in height, first and last riser height should be correct as well as the landing height.		
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Railing

Applies to railings in general

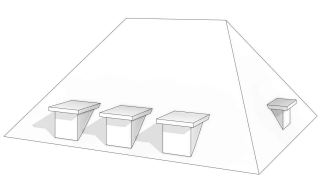
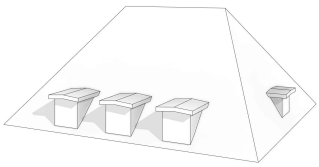
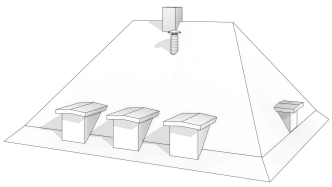
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Not applicable for LOD LOW	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL	TYPE LEVEL	DETAILED LEVEL	CUSTOM LEVEL
Not applicable for LOD LOW	 Railing is modelled in max. outer geometry in exact height divided into types. Balusters are not modelled.	 Railing is modelled in max. outer geometry with rails and balusters divided into types and profiles. Rails are modelled in exact height. Balusters are modelled in uniform spacing for best fit, with first and last precisely positioned.	
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Not applicable for LOD LOW	ASSOCIATED PROPERTIES Type Name Height Length	ASSOCIATED PROPERTIES Type Name Height Length	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Roof

Applies to roofs and overhangs

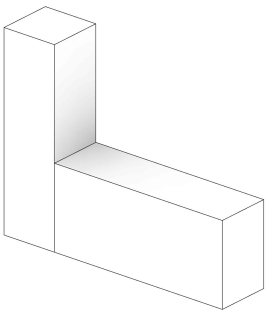
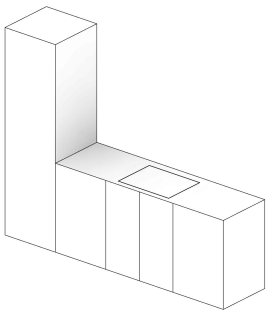
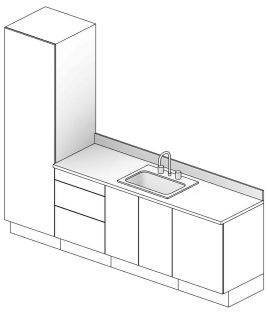
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm] **Tolerance in slope:** 1:10	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm] **Tolerance in slope:** 1:100	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm] **Tolerance in slope:** 1:100	**Type variation:** **Tolerances in placement:** **Tolerance in slope:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Roof modelled in max. dimensions divided by overall types, incl. larger openings. Gutters and downpipes are not modelled	TYPE LEVEL  Roof modelled in max. dimensions divided by types, incl. larger openings. If the roof flares out at the bottom (a combination roof) and the difference between slopes is less than 5 degrees, the roof is modelled to align with the main slope. Gutters and downpipes are not modelled	DETAILED LEVEL  Roof modelled in max. outer dimensions divided into types, including large openings, details such as sofit/fascia board, and roof components such as chimneys. All slopes are modelled. Gutters and downpipes are not modelled	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES Type Name Thickness	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Furniture & Fitting

Applies to furniture, fittings and casework

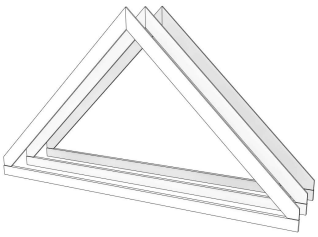
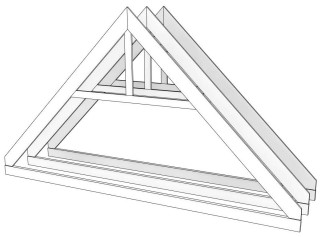
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Furniture is modelled in max. outer geometry divided by overall types.	TYPE LEVEL  Furniture is modelled in max. outer geometry divided by overall types incl. indication of plumbing fixtures.	DETAILED LEVEL  Furniture is modelled in max. outer geometry divided by detailed types incl. plumbing fixtures, countertop and plinths.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES Type Name Height Width Depth	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Rafter

Applies to load bearing roof constructions consisting of rafters

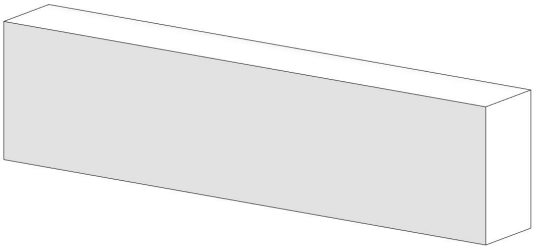
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Not applicable for LOD LOW	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL	TYPE LEVEL 	DETAILED LEVEL 	CUSTOM LEVEL
Not applicable for LOD LOW	Visible rafters are modelled in max. outer dimensions divided into overall types, where only top and bottom chords are modelled.	Visible rafters are modelled in max. outer dimensions divided into overall types including chords, collar ties and web.	
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Not applicable for LOD LOW	ASSOCIATED PROPERTIES Type Name Height Width	ASSOCIATED PROPERTIES Type Name Height Width	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Foundation

Applies to line and point foundations

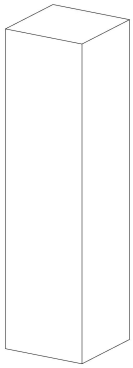
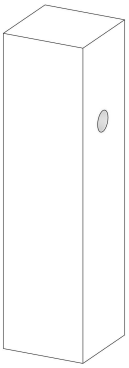
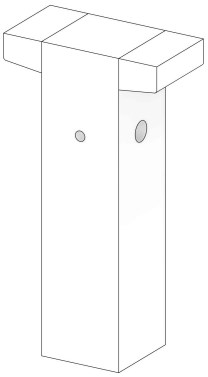
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL & TYPE LEVEL & DETAILED LEVEL			CUSTOM LEVEL
			
Foundations are modelled as generic objects, divided by overall types and positioned beneath external walls. The thickness of the foundation is determined by the wall above it unless clearly visible or specified otherwise. The default depth of the foundation is set to 1 meter below the basement level.			
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES	ASSOCIATED PROPERTIES	ASSOCIATED PROPERTIES	ASSOCIATED PROPERTIES
Type Name	Type Name Thickness	Type Name Thickness	

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Column

Applies to structural cast-in-place, precast and timber load-bearing columns

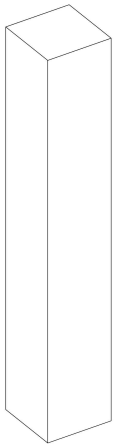
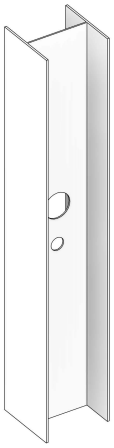
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Columns are modelled in max. outer dimensions divided into main types.	TYPE LEVEL  Columns are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 200 [mm] are modelled.	DETAILED LEVEL  Columns are modelled following the cross-sectional profile. Visible protrusions and recesses are modelled. Visible holes for installations with a diagonal greater than 100 [mm] are modelled.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Width Length	ASSOCIATED PROPERTIES Type Name Width Length	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Steel Column

Applies to structural steel load-bearing columns

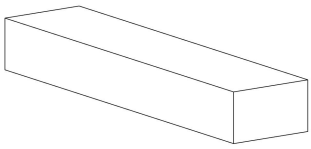
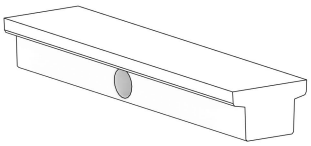
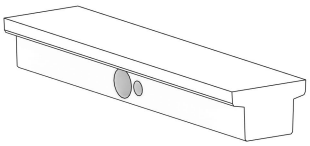
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Steel columns are modelled in max. outer dimensions.	TYPE LEVEL  Steel columns are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 200 [mm] are modelled.	DETAILED LEVEL  Steel columns are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 100 [mm] are modelled.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Width Length Thickness	ASSOCIATED PROPERTIES Type Name Width Length Thickness	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Beam

Applies to structural cast-in-place, precast and timber load-bearing beams

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Beams are modelled in max. outer dimensions.	TYPE LEVEL  Beams are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 200 [mm] are modelled.	DETAILED LEVEL  Beams are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 100 [mm] are modelled.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Height Width	ASSOCIATED PROPERTIES Type Name Height Width	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Steel Beam

Applies to steel structural load-bearing beams

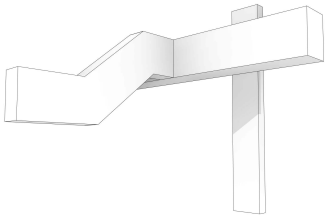
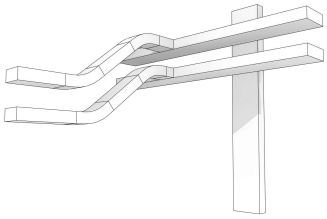
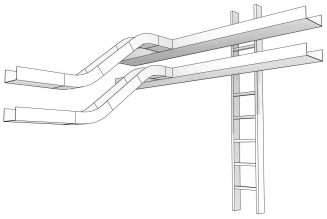
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL Steel beams are modelled in max. outer dimensions.	TYPE LEVEL Steel beams are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 200 [mm] are modelled.	DETAILED LEVEL Steel beams are modelled following the cross-sectional profile. Visible holes for installations with a diagonal greater than 100 [mm] are modelled.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Height Width Thickness	ASSOCIATED PROPERTIES Type Name Height Width Thickness	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Electrical Routing

Applies to cable trays & ladders, installation channels, cable ducts etc.

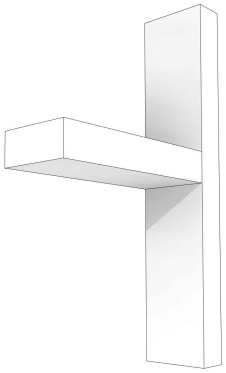
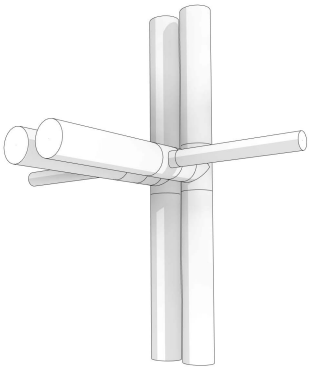
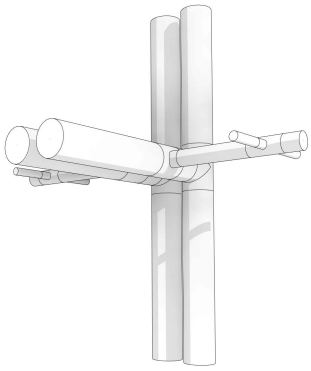
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Routings are modelled as common generic volume objects for all installations in max. outer geometry. Routing is placed closest to the overall linear run. Deflections and supports are ignored.	TYPE LEVEL  Routings are modelled in max. outer dimensions divided by overall types. Junctions and transitions are not modelled excl. elbows. Routing is placed correctly at the beginning and end of the run. Deflections and supports are ignored.	DETAILED LEVEL  Routings are modelled in outer dimensions divided by detailed types. Junctions and transitions are modelled. Routing is placed correctly at the beginning and end of the run. Deflections and supports are ignored.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Width Height	ASSOCIATED PROPERTIES Type Name Width Height	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Ventilation Routing

Applies to ducts and duct fittings

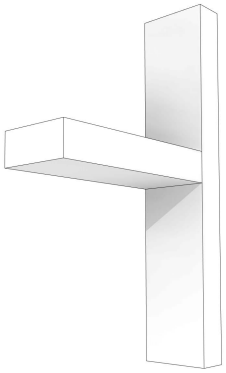
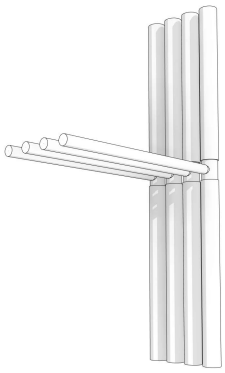
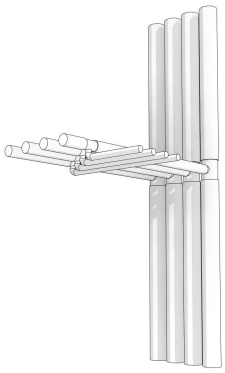
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Routings are modelled as common generic volume objects for all installations in max. outer geometry. Routing is placed closest to the overall linear run. Deflections and supports are ignored.	TYPE LEVEL  Visible routings equal or greater than 100 [mm] diagonally are modelled in maximum outer duct dimensions. Insulation is not modelled as a separate component, as it is included in the maximum outer duct dimension. Junctions and transitions are modelled. Routing is placed correctly at the beginning and end of the run. Deflections and supports are ignored.	DETAILED LEVEL  Every visible routing is modelled in maximum outer duct dimensions.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Width Height Radius	ASSOCIATED PROPERTIES Type Name Width Height Radius	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for Plumbing and Pipe Routing

Applies to all piping systems

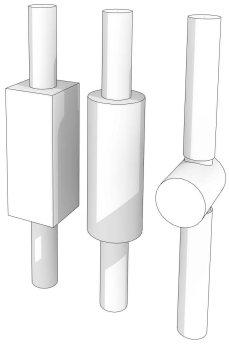
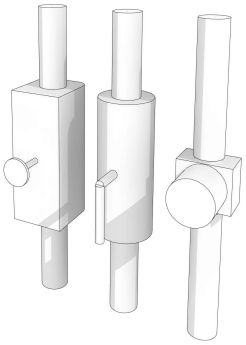
LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Routings are modelled as common generic volume objects for all installations in max. outer geometry. Routing is placed closest to the overall linear run. Deflections and supports are ignored.	TYPE LEVEL  Visible round pipelines equal or greater than 50 [mm] in diameter are modelled as pipes in maximum outer dimension. Insulation is not modelled as a separate component, as it is included in the maximum outer pipe dimension. Junctions and transitions are modelled. Routing is placed correctly at the beginning and end of the run. Deflections and supports are ignored.	DETAILED LEVEL  Visible round pipelines equal or greater than 25 [mm] in diameter are modelled as pipes in maximum outer dimension.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Radius	ASSOCIATED PROPERTIES Type Name Radius	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for MEP Component

Applies to all types of components for MEP systems that are place onto a routing (valves, pumps, dampers, diffusers, etc.)

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Not applicable for LOD LOW	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL Not applicable for LOD LOW	TYPE LEVEL  Components with a dimension of at least 250 [mm] are modelled as generic volume objects in max. outer dimensions. Insulation is not modelled as a separate component, as it is included in the maximum outer component dimension. Components are modelled with connectors. Deflections and supports are ignored.	DETAILED LEVEL  Components with a dimension of at least 100 [mm] are modelled with defined geometry in max. outer dimensions.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Not applicable for LOD LOW	ASSOCIATED PROPERTIES Type Name Width Height Thickness Radius	ASSOCIATED PROPERTIES Type Name Width Height Thickness Radius	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

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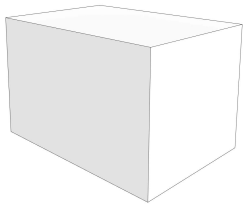
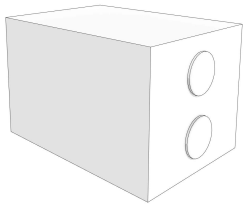
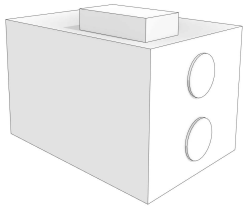
Specification for MEP Equipment

Applies to all types of MEP equipment and systems.

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm]	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm]	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm]	**Type variation:** **Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Fixed MEP equipment with a dimension of at least 500 [mm] is modelled as generic volume object in max. outer dimensions. Deflections and supports are ignored.	TYPE LEVEL  Fixed MEP equipment with a dimension of at least 500 [mm] is modelled as generic volume object in max. outer dimensions. MEP equipment is modelled with connectors. Deflections and supports are ignored.	DETAILED LEVEL  Fixed MEP equipment with a dimension of at least 250 [mm] is modelled as generic volume object in max. outer dimensions.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Type Name	ASSOCIATED PROPERTIES Type Name Width Height Thickness Radius	ASSOCIATED PROPERTIES Type Name Width Height Thickness Radius	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

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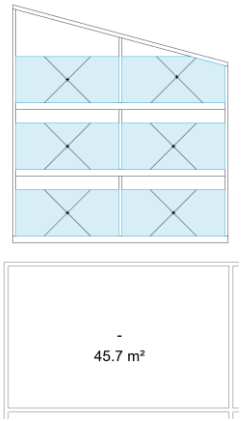
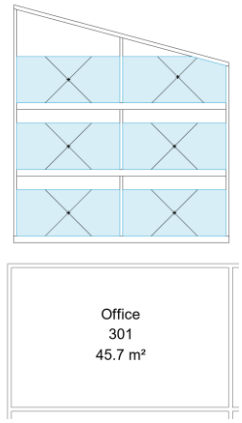
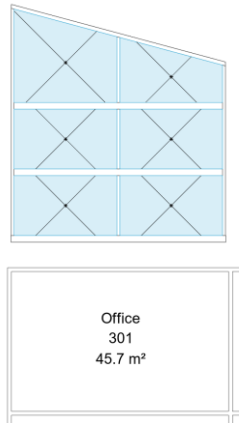
Specification for Rooms

Applies to room objects bordered by constructions.

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Tolerances in placement: 50 [mm]	**Tolerances in placement:** 30 [mm]	**Tolerances in placement:** 20 [mm]	**Tolerances in placement:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL  Room is set within bounding walls with a fixed height.	TYPE LEVEL  Room is set within bounding walls with a fixed height. Room numbers are set according to the project naming convention. (no identical room numbers).	DETAILED LEVEL  Room is set within bounding walls with a height adjusted for ceiling height.	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES Net Area [m^2]	ASSOCIATED PROPERTIES Net Area [m^2] Room Number Room Name	ASSOCIATED PROPERTIES Net Area [m^2] Room Number Room Name	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

The above delivery requirements must be seen in relation to services selected in the Description of services for Building and Landscape 2018 (EN) (YBL2018). By selecting both the 9.8 Digitalisation of existing conditions in YBL2018 and the above LOD DK levels, the levels LOR, LOG and LOI are mandatory for each model element. See also the instructions for this publication.

Specification for
Applies to

LOD LOW	LOD MEDIUM	LOD HIGH	LOD CUSTOM
☐	☐	☐	☐
LOR LOW	**LOR MEDIUM**	**LOR HIGH**	**LOR CUSTOM**
Type variation: To nearest 50 [mm] **Tolerances in placement:** 50 [mm] **Tolerance in slope:** 1:100	**Type variation:** To nearest 25 [mm] **Tolerances in placement:** 30 [mm **Tolerance in slope:** 1:100	**Type variation:** To nearest 10 [mm] **Tolerances in placement:** 20 [mm] **Tolerance in slope:** 1:100	**Type variation:** **Tolerances in placement:** **Tolerance in slope:**
LOG LOW	**LOG MEDIUM**	**LOG HIGH**	**LOG CUSTOM**
GENERIC LEVEL	TYPE LEVEL	DETAILED LEVEL	CUSTOM LEVEL
LOI LOW	**LOI MEDIUM**	**LOI HIGH**	**LOI CUSTOM**
ASSOCIATED PROPERTIES	ASSOCIATED PROPERTIES	ASSOCIATED PROPERTIES	ASSOCIATED PROPERTIES

Delivery specification from the Danish ARK and FRI

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