

# VREVAL

## Export models to Collada file with Lumion From Revit views to Unity and VREVAL

Edited by

M.Sc. Olaf Kammler

[olaf.kammler@uni-weimar.de](mailto:olaf.kammler@uni-weimar.de) | InfAR - Bauhaus-Universität Weimar | 06/2021

# 1. PREPARING 3D VIEWS IN REVIT

## Goal

To run a VR evaluation, the participant will move through a virtual environment.

One way to creating a virtual environment is to use a CAD software like Autodesk Revit.

In Revit an environment can be designed and displayed through different design options, level of details and phases.

The environment can be exported in partial models. In the virtual environment that gives the freedom of displaying only the elements and parts which the participant should see for the given task.

Working with partial models also helps to achieve better display performance for user experience. Mostly, not all models need to be displayed in high detail, because the participant will not come close to all elements in high resolution.

## Step 1

To create a single or partial virtual environment, we use "what you see in the Revit 3D view" with what we export.

Hide all objects which should not be visible in the virtual environment.

Objects should be only visible in one of the exported views. If they overlap, the surfaces will flicker and distract the participant.

Later, you can tag the views with the tags "urban", "architecture" or "scenery" on the VREVAL online platform.

*Example: Naming 3D Views*



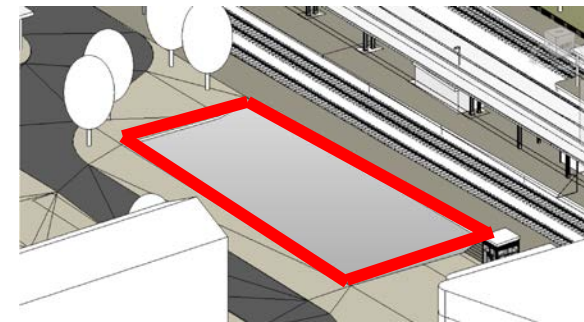
## Step 2

Hide all Markers in any 3D views which will be exported.

The VREVAL markers are uploaded directly to the platform via a Dynamo script (See Marker Preparation tutorial) and should not be duplicated in any of the models.

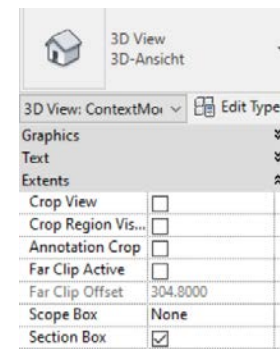
## Tip

To create a cut out in a toposurface, use the site tool **Split Surface**

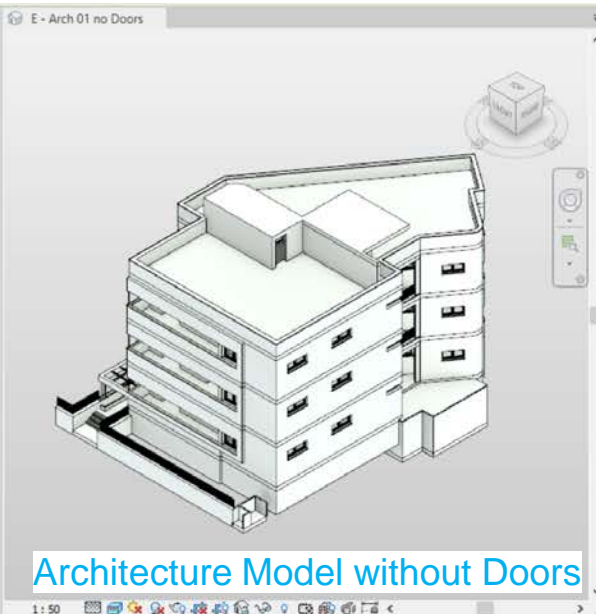


**Options or Phases** can help to organize different design variants. The advantage is that specific options or phases can be chosen to be shown in selected views. Design options can be at the same location and participant can view from same location different design options if selected. (e.g. doors open, doors closed = two options)

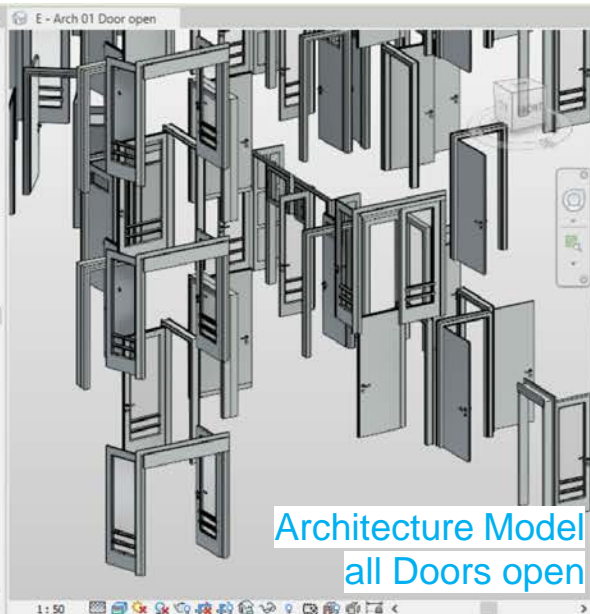
**Section Boxes** can be used for defining the area of context model which will be exported. Large context models can slow down the VR computer.



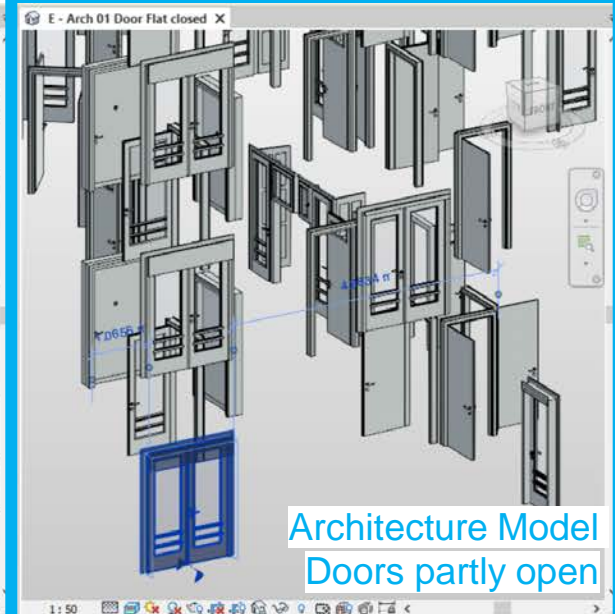
# EXAMPLE: PREPARED 3D VIEWS FOR EXPORT



Architecture Model without Doors



Architecture Model all Doors open



Architecture Model Doors partly open

Properties

W\_1\_1

Doors (1)

Constraints

Level 00-Floor\_OK

Sill Height 0,0000 m

Construction

Frame Type

Materials and Finishes

Frame Material

Finish

Dimensions

Opening 0,00°

Opening\_sec 0,00°

Shadow\_Opening 0,3000 m

Identity Data

Image

Comments

Mark TU 306

Design Option Main Model

Phasing

Phase Created Door Flat closed

Phase Demolished Door 1. Floor open

Data

FM Reinigungsgruppe

FM Reinigungszyklus

Other

flügel1

flügel2

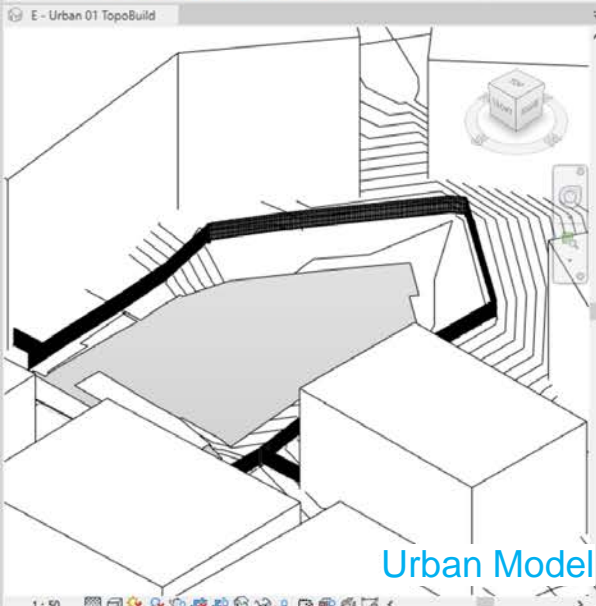
Head Height 2,1000 m

Phasing

Project Phases Phase Filters Graph

	Name
1	1937
2	Door open
3	Door Flat closed
4	Door 1. Floor open

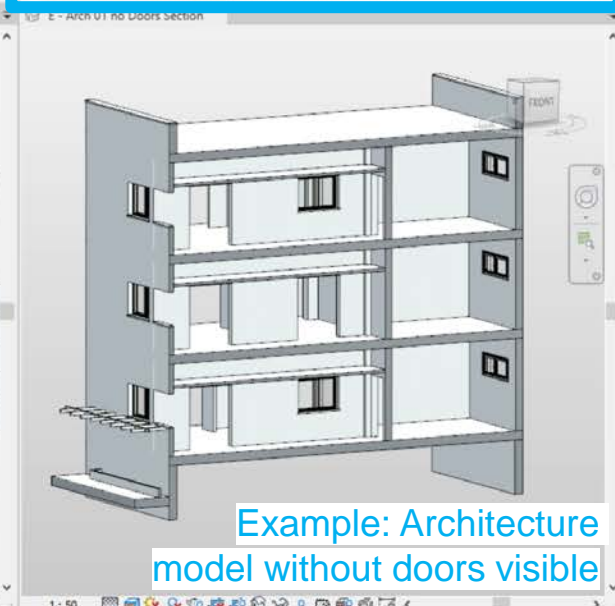
Doors are copied to different phases (align to same place). Doors are created in current phase and demolished in next phase.



Urban Model



Scenery: Furniture 3. Floor



Example: Architecture model without doors visible

Properties

3D View 3D-Ansicht

3D View: E - Arch 01 Door Flat closed

Constraints

Graphics

Extents

Camera

Identity Data

Phasing

Phase Filter Planansicht Endstand

Phase Door Flat closed

3D View Settings for showing specific phase

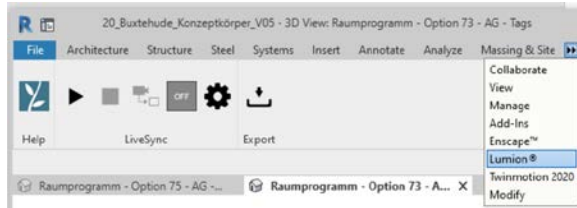
## 2. EXPORT COLLADA FILES

### Step 1

To export a Collada file (.dae), the plug-in **Lumion** must be installed.

To plug-in can be downloaded through the app store of Autodesk.

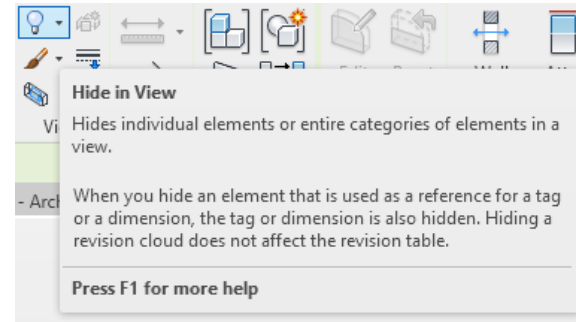
It is free of charge (June 2021)



### Step 2

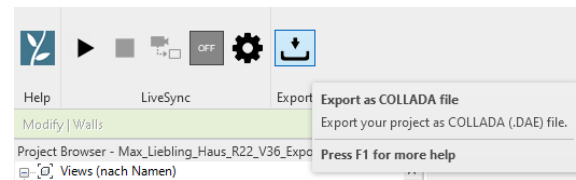
Open the view to export.

Check that all **markers are hidden** in the opened view.



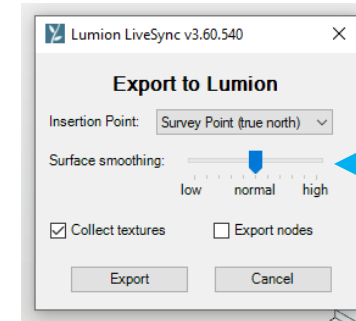
### Step 3

Open the ribbon tab "Lumion" and . Choose "Export".



### Step 4

Select the following settings.



User defined

#### Insertion Point

*Survey Point (true north)*

Survey Point will be origin. Model will be oriented to true north

*Base Point (project north)*

Base Point will be origin. Model will be oriented to project north (rotated by user defined rotation degree)

By default use Survey Point with true north. Light simulation will be more accurate and represent realistic light.

#### Surface smoothing

This parameter will control the surface detail for the export.

- Low: less surfaces / low performance system requirements
- High: many surfaces / high performance system requirements

Enable **Collect Textures** to export all used textures in Revit view.

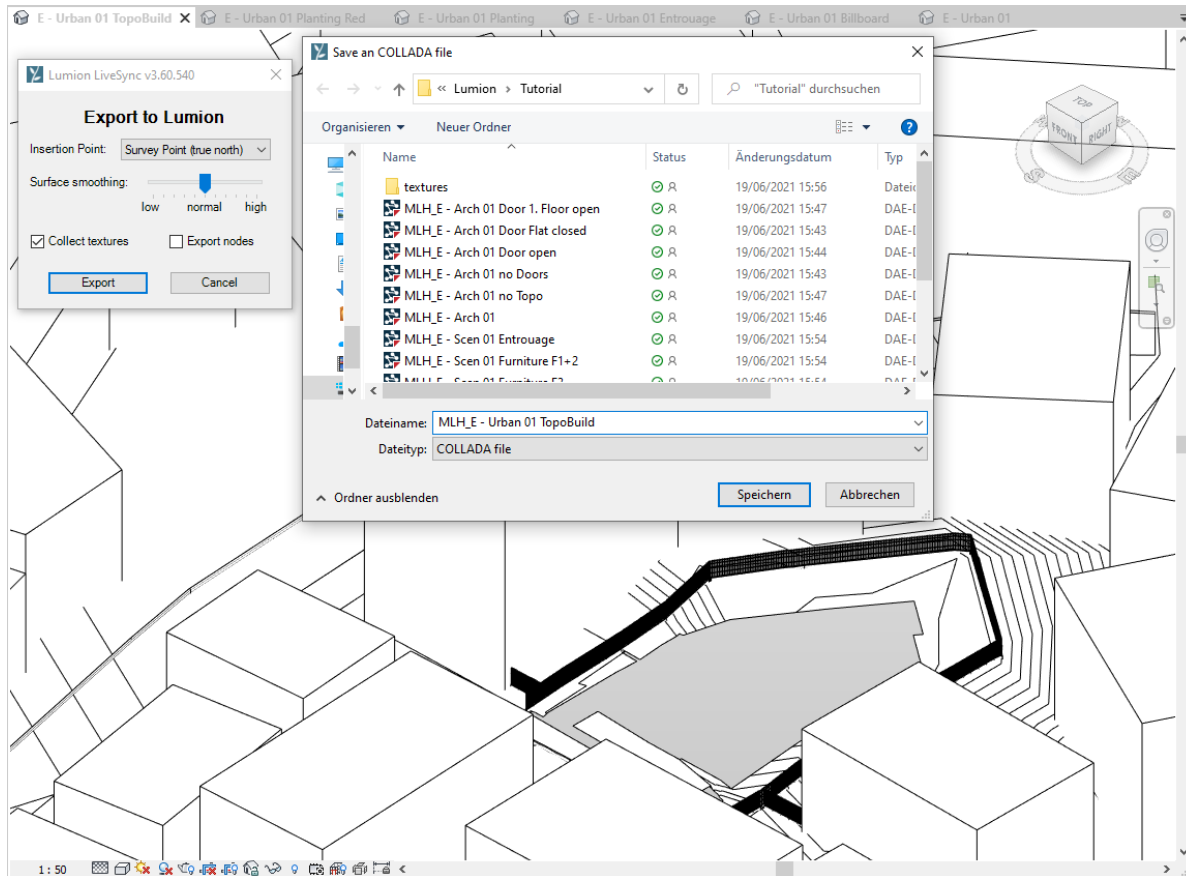
## 2. EXPORT COLLADA FILES

### Step 5

Export.

Choose a recognizable file name.

In this case, same name as Revit view was chosen.



### Step (6+)

Repeat the entire export process until all partial models to be used in the virtual environment are exported.

**Do not use Period "." (dot) in Export Names!**

## 3. NEXT STEPS

### ***Next Steps ...***

Create Asset Bundle of all partial models using Unity and upload Asset Bundle to VREVAL Platform.

*(explanation in next tutorial)*