3D-citymodel

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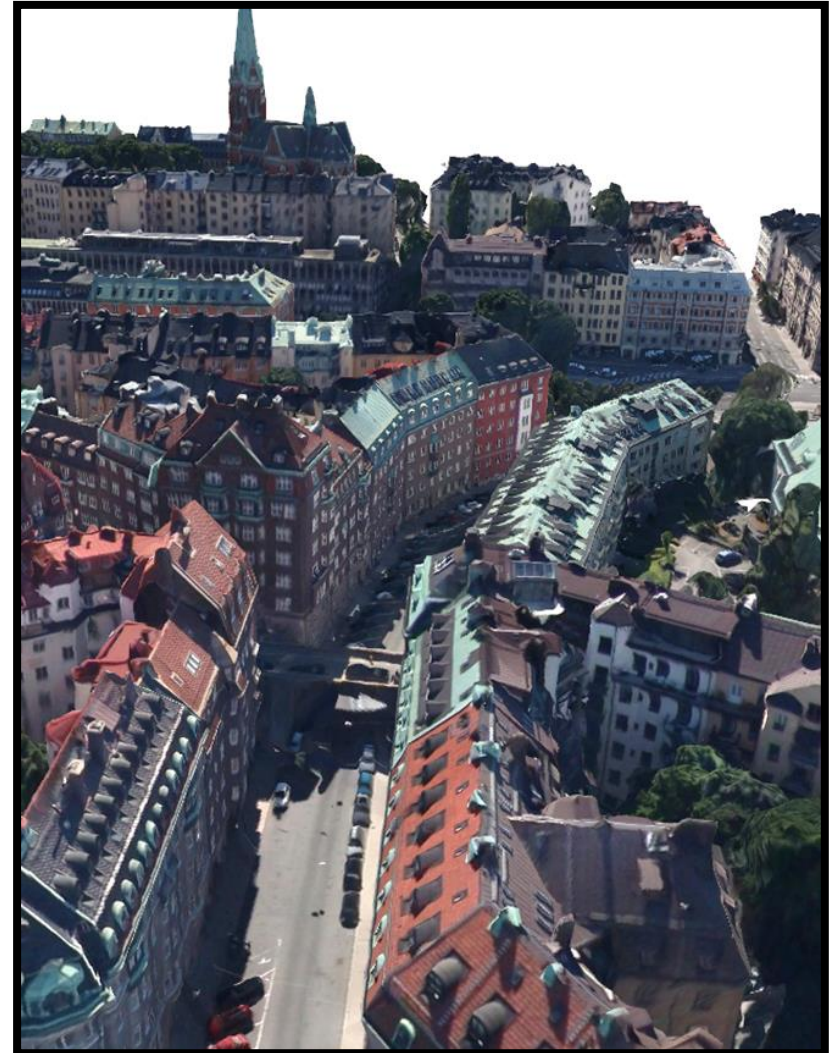
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The Capital of Scandinavia

Existing City Model
– textured mesh model

- Externally produced from oblique aerial imagery captured in 2013.

- The model has become in actual due to the development of the city.

- Hard to update and maintain.

- Quality of realism at close range and from street level is not high enough.

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The need for a new model…

Internal:

- Assistance under meetings and planing.

- Clear communication between all involved in the projekt.

- Faster and easier at resolve right form of new developments.

External:

- Projekts are more defind and reach a wider audience.

- Create a more concrete discussion and dialog.

- Easier for Stockholmare and politicans at pass judgement.

- Communicate how the city is developing the public.
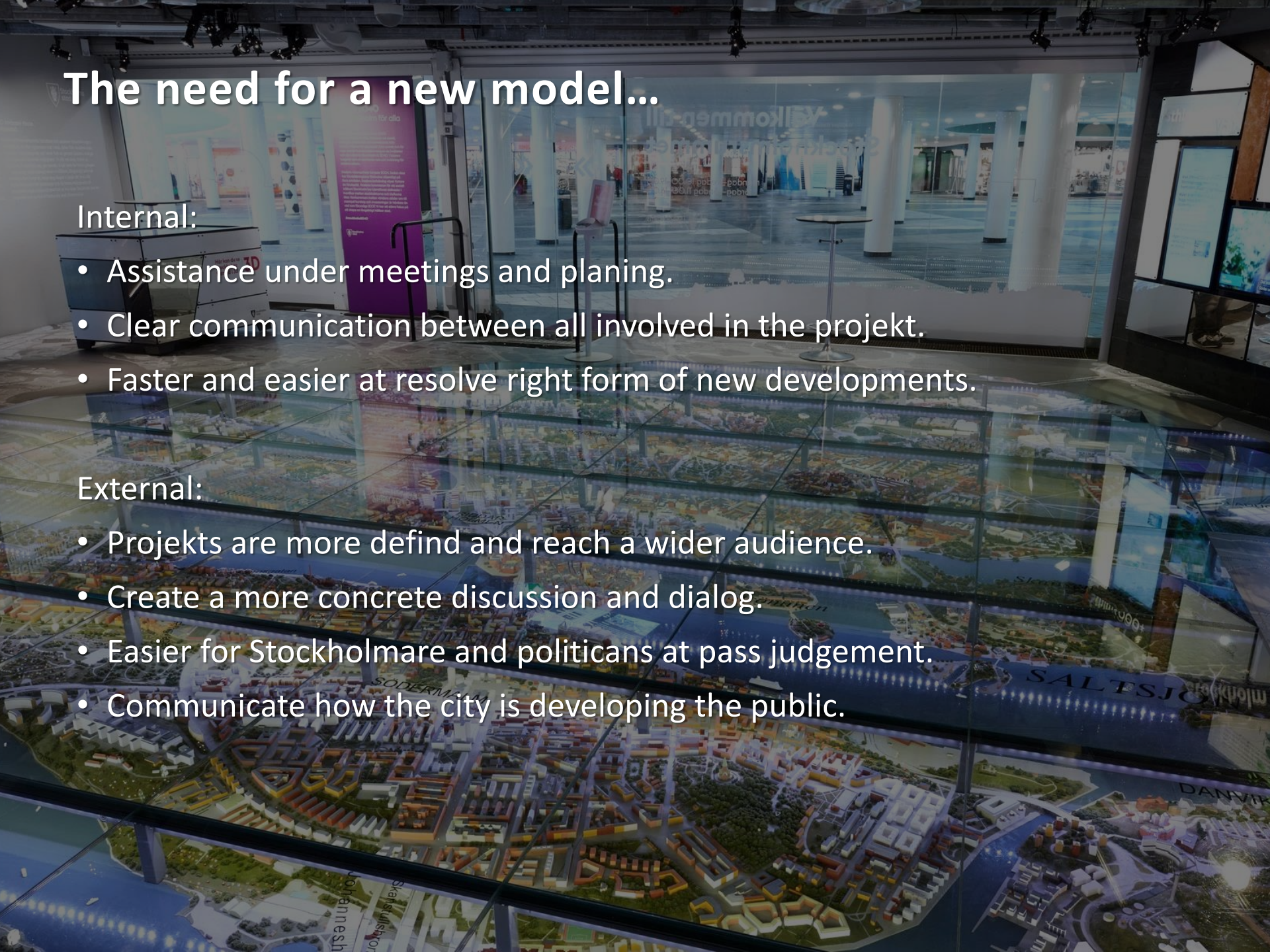
How Stadsbyggnadskontoret uses the 3D-citymodel

- Touchscreen for exhibitions and accessible via the web.

- OpenCities Planner,
Sketchfab for small areas.

- New city development zone visualisations.

- Create visualisations that can be used for VR, AR och 360-vyer.
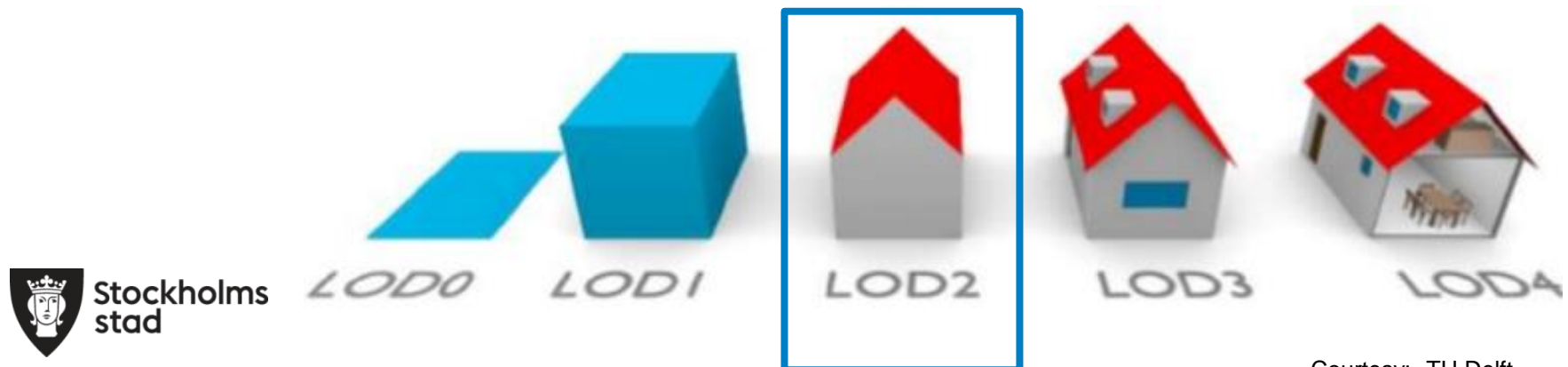

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Developing the new 3D-citymodel

Proposal approved to develop an object based texturised 3D-modell internally from existing data sources and existing software, Microstation and TerraSolid.

Buildings created as objects with simplified roof construction, texturised with true orthophoto and oblique imagery.
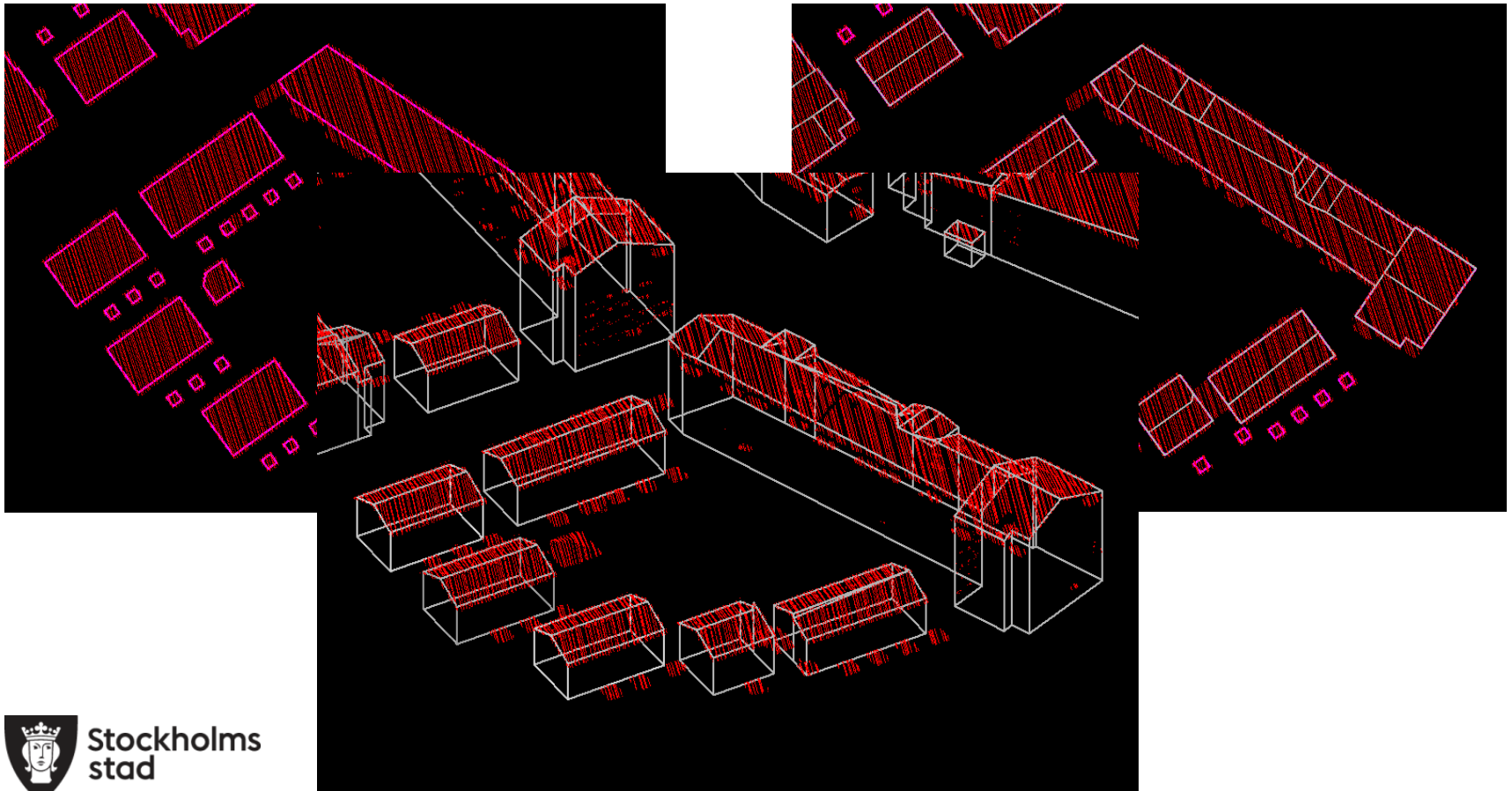
Projects 3 phases:

1. Pilot area

2. Automatic citywide model

3. Manual improvement of the citywide model
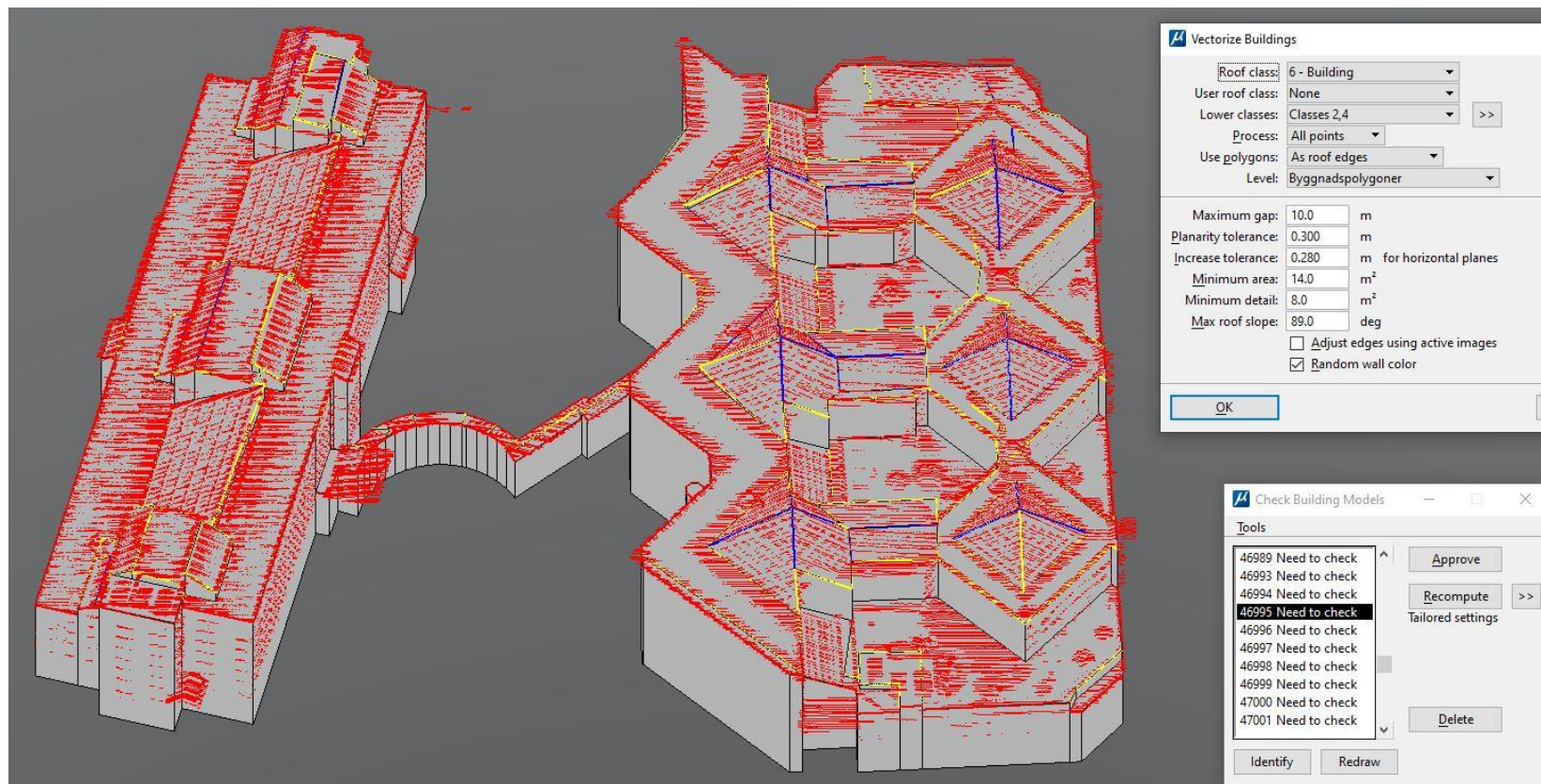

Courtesy:- TU Delft

TerraScan - Automatic building generation

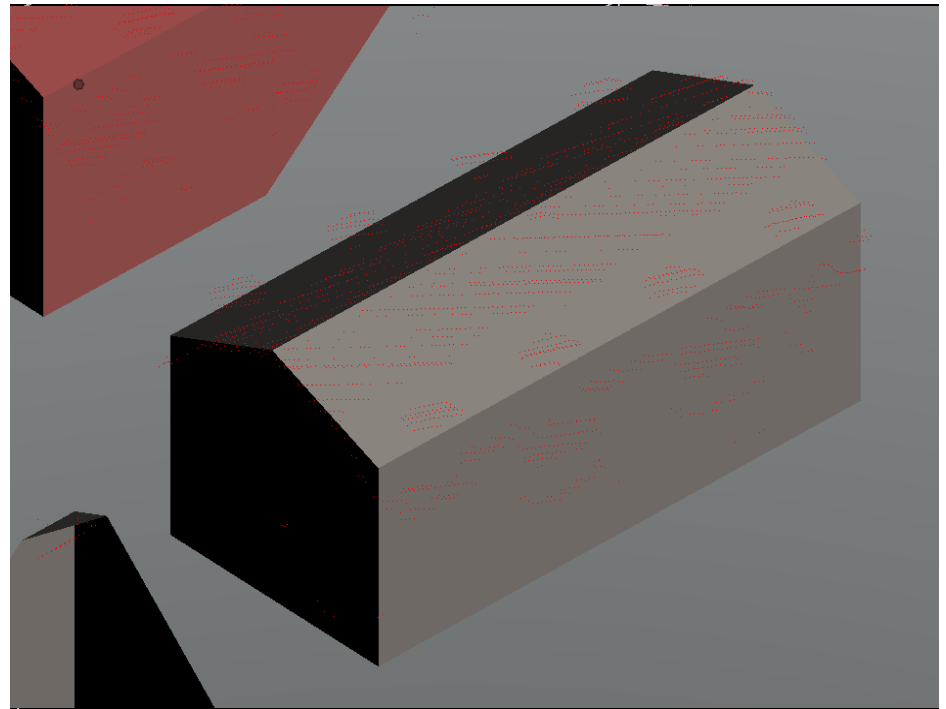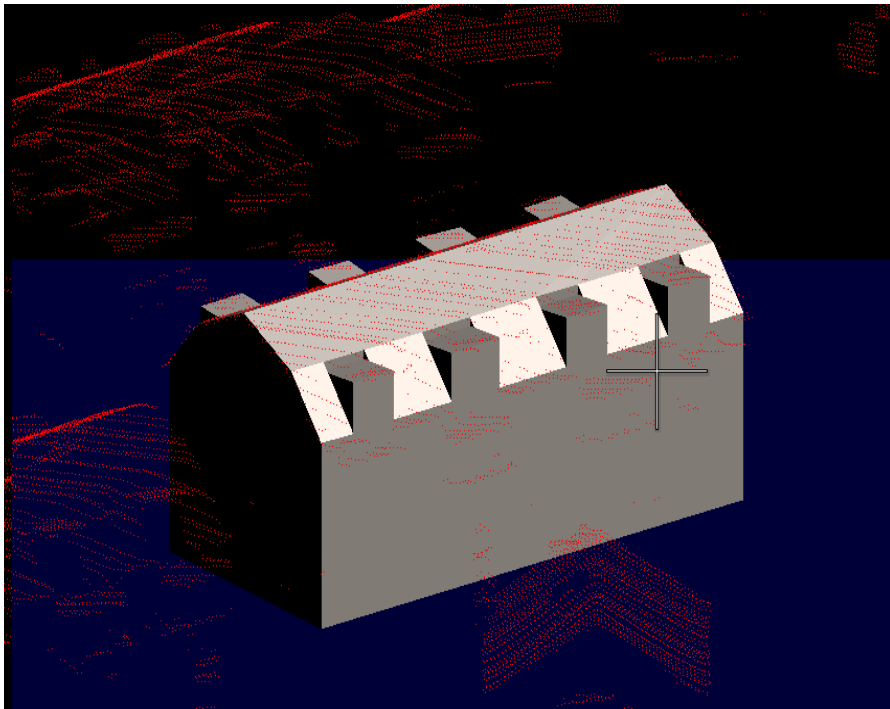Building footprints from the basemap and aerial laser scanning data 12pkt/m².

TerraScan - Automatic building generation

Vectorising buildings

Overproduktion of details = Increased manual corrections

TerraPhoto - Texturisation of buildings

Resultat, jämförelse före/efter

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Where are we

- 105 000 texturised buildings created as cityGML LOD2 Solid objects

- Raster DEM and ortofoto

- Bentley loaded the building models into 3dcityDB

- Published building models, terrain and orthophoto to OCP

- Manual modelling and updating of errors found in the city model

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Difficulties

- Modelling parameters, no one fits all set of parameters. 90% of buildings modelled to a high level

- Export to cityGML from TerraSolid software. FME workspace created. TerraSolid have now created a solution

- Basemap data – footprint standard

- Modelling tools in TerraSolid

- Creation of fully compliant and

  valid cityGML models.

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Next steps

- Modelling of new/updated buildings

- LOD1 texturised buildings

- Bridges (LOD 1 / 2)

- Trees

- Landmark objects - reuse of existing 3D-byggnadsverk

- WMS traffic and environmental department data

- From a visualisations model to 3D GIS – LOD 0 basemap

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Demo

http://stockholm3d.se/textureradmodell