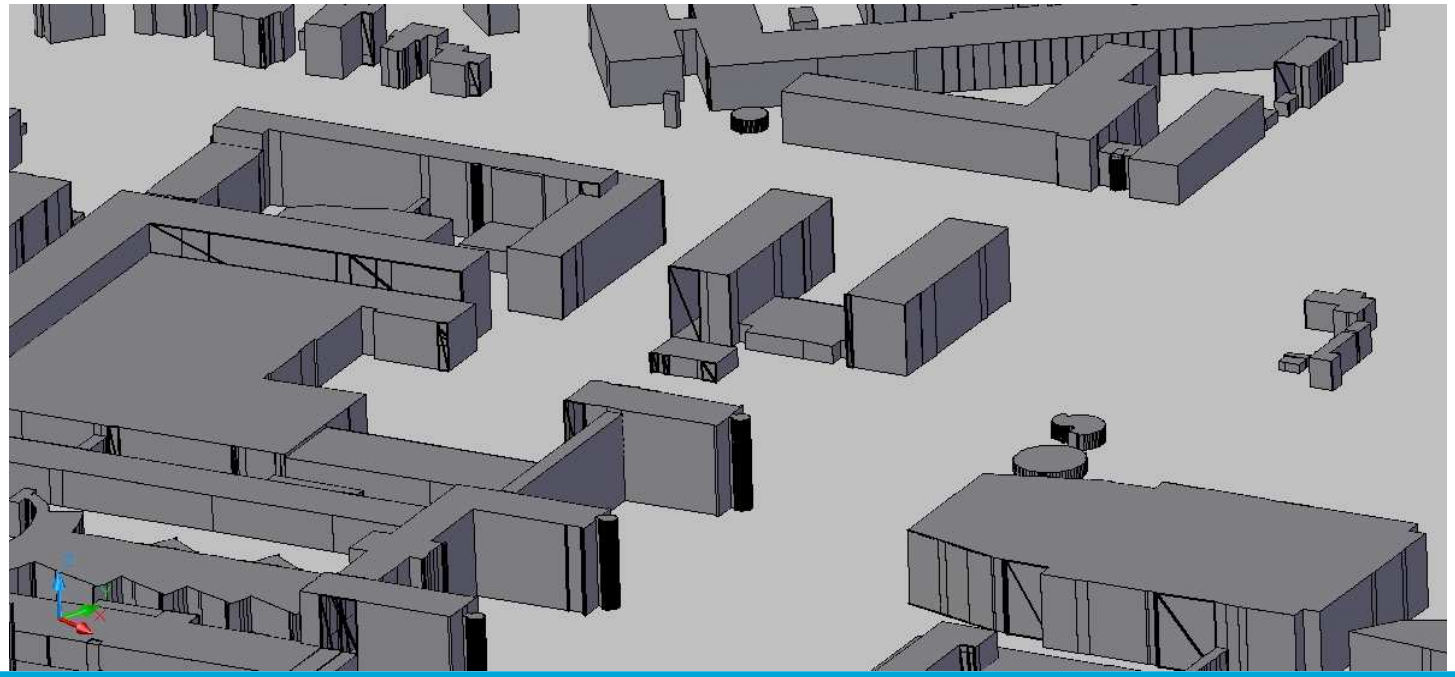
3D Extrusion Model of TU Delft

3D Extrusion using programming language Java

Dave Houben



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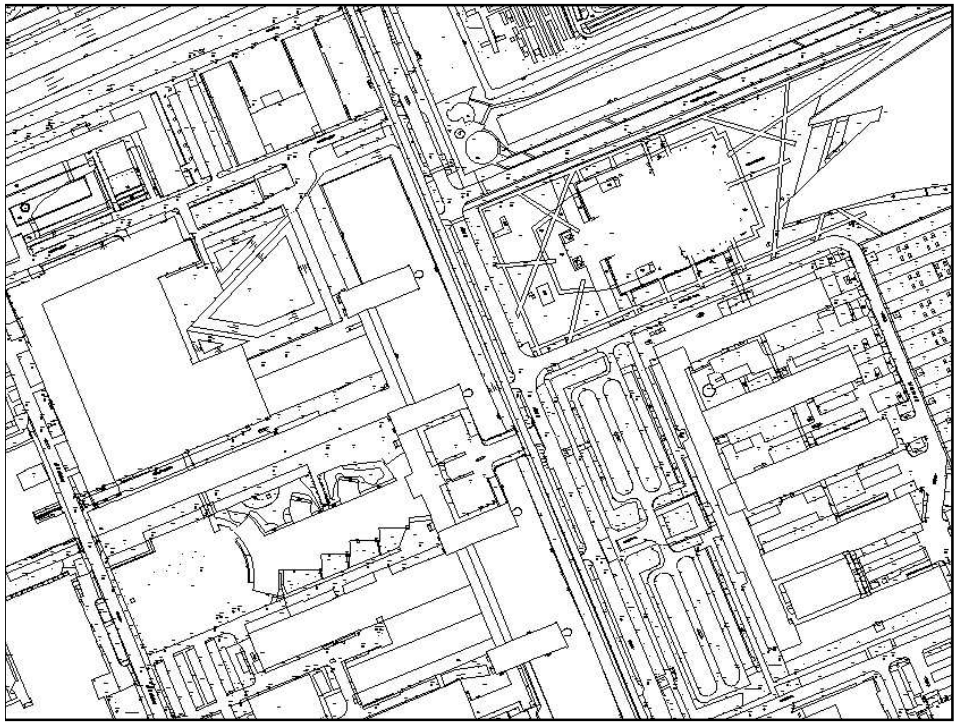
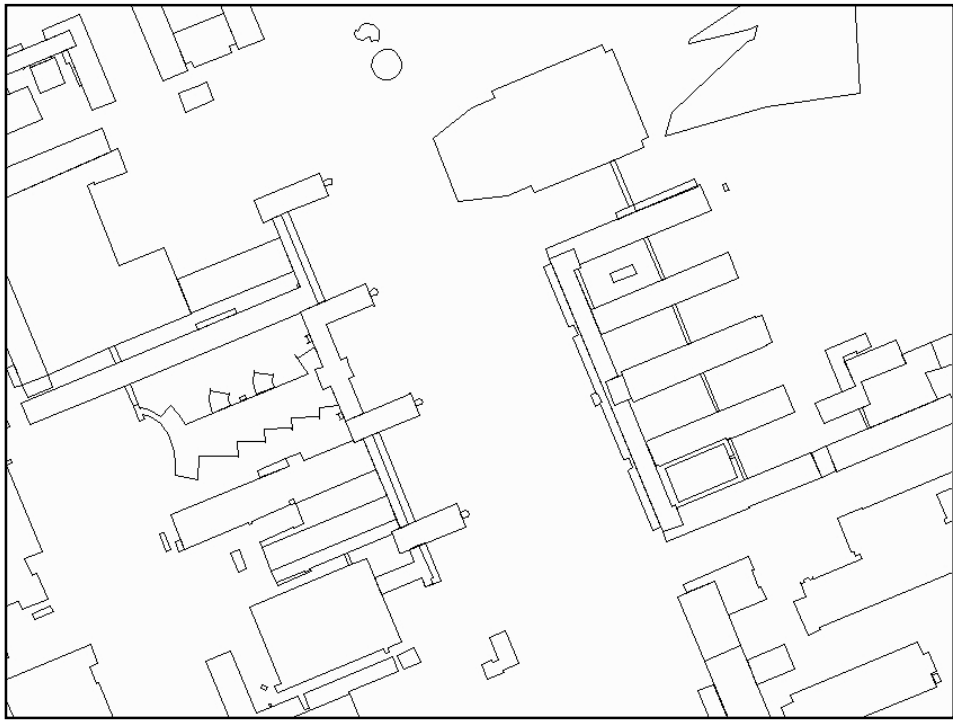
Input data set

Input data set from 2D dwg drawing

- Extracting buildings from the original drawing





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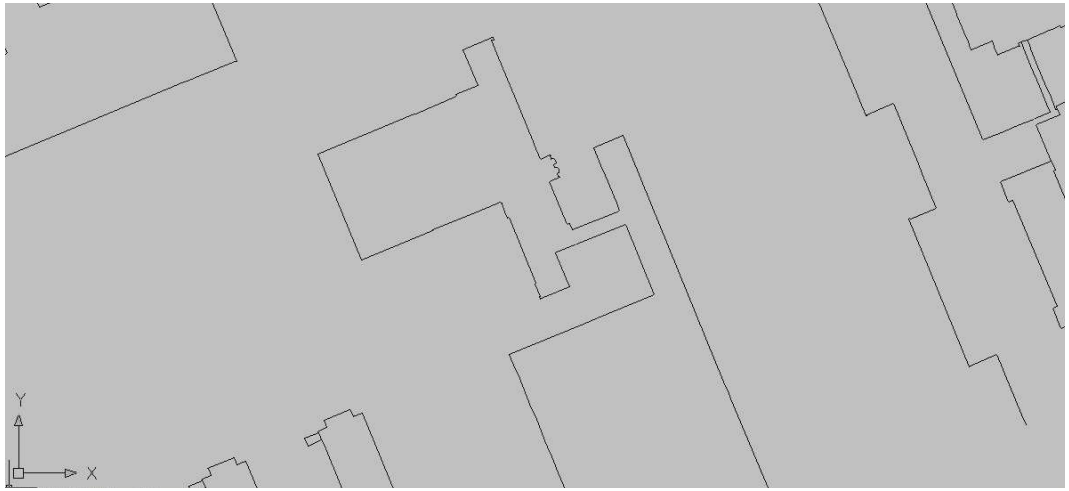
Input data set

Input data set from 2D dwg drawing

- Extracting buildings from the original drawing
- Manipulate data manually and with FME before extrusion
  - Add "missing" geometries to buildings
  - Snap lines to close areas
  - Create polygons
  - Simplify geometry
  - Delete polygon inside polygon
  - Delete unintentional polygons

Input data set – Missing geometry



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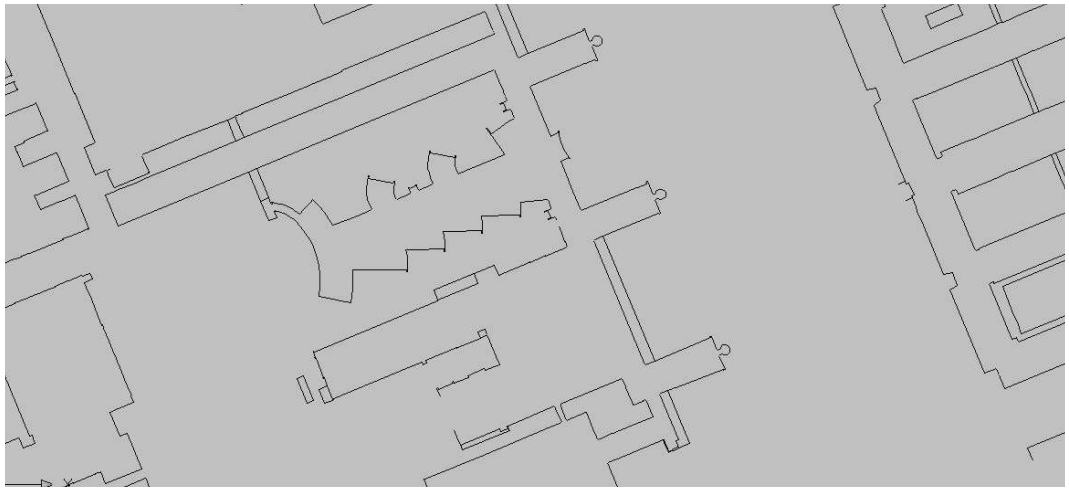
Input data set – Missing geometry



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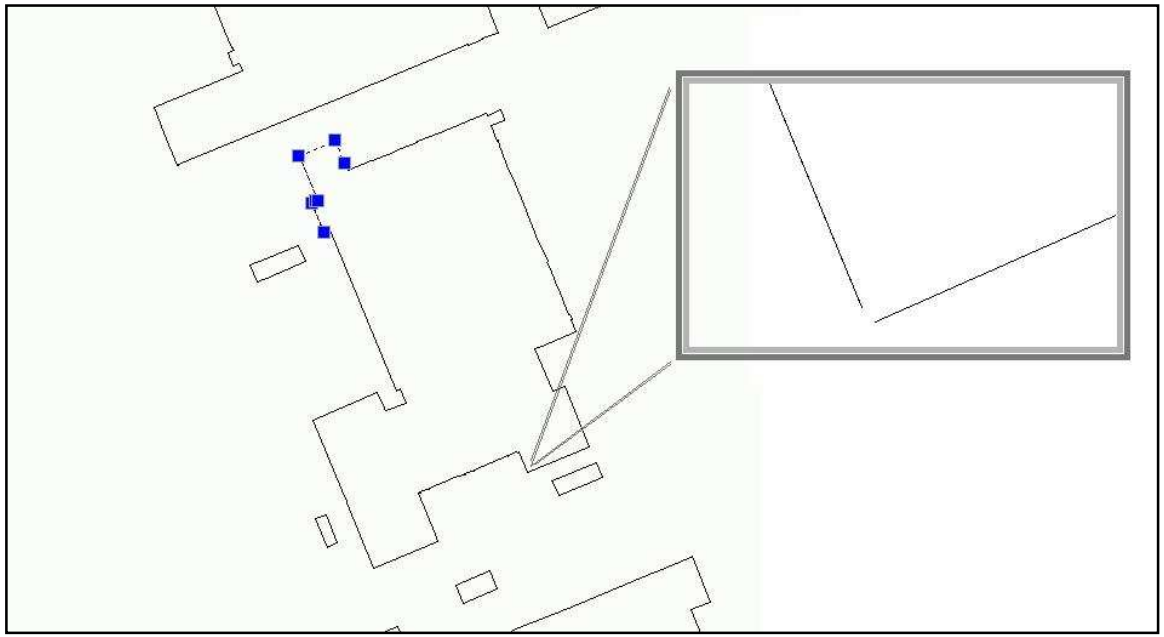
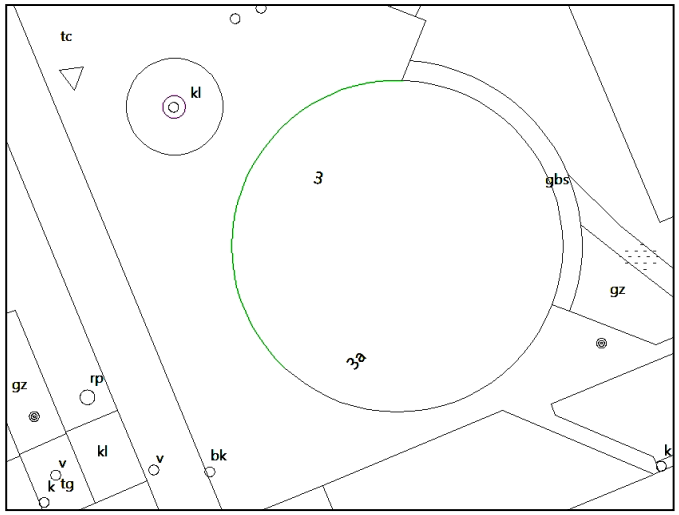
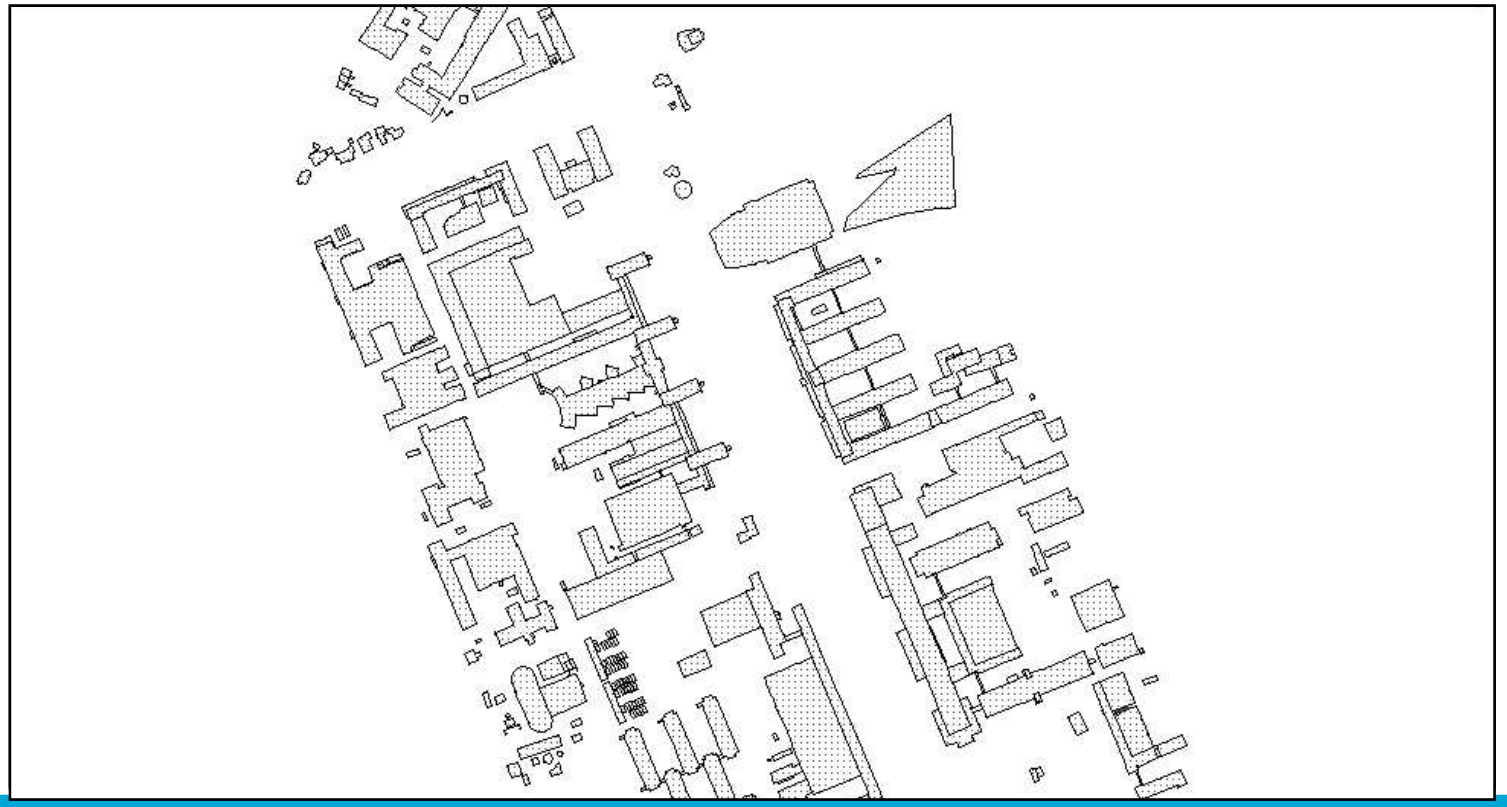
Input data set – Cleaning up





Point in Polygon

3D extrusion using laser elevation data and building polygons from 2D dxf drawing



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Point in Polygon

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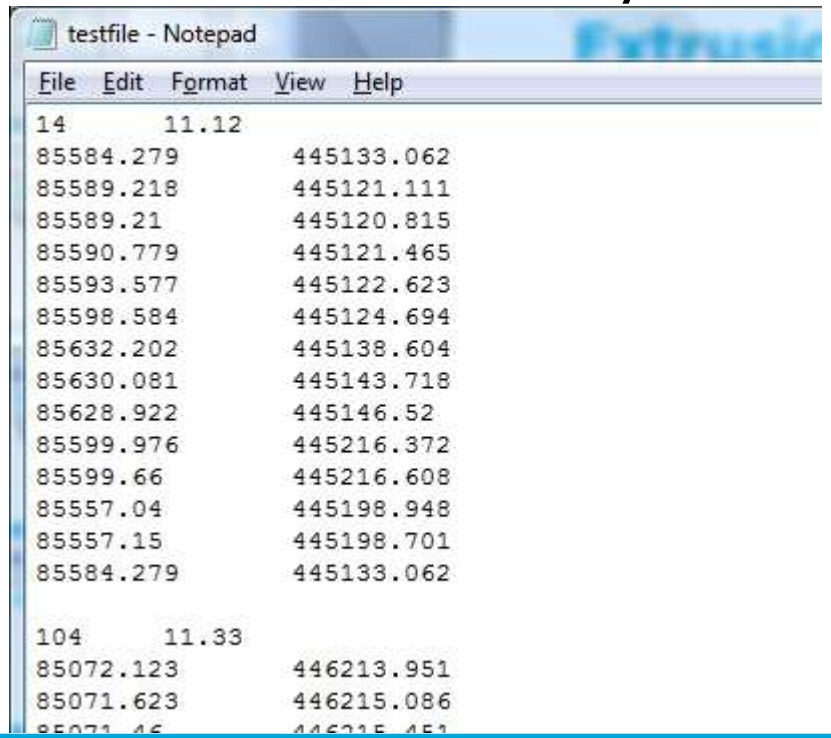
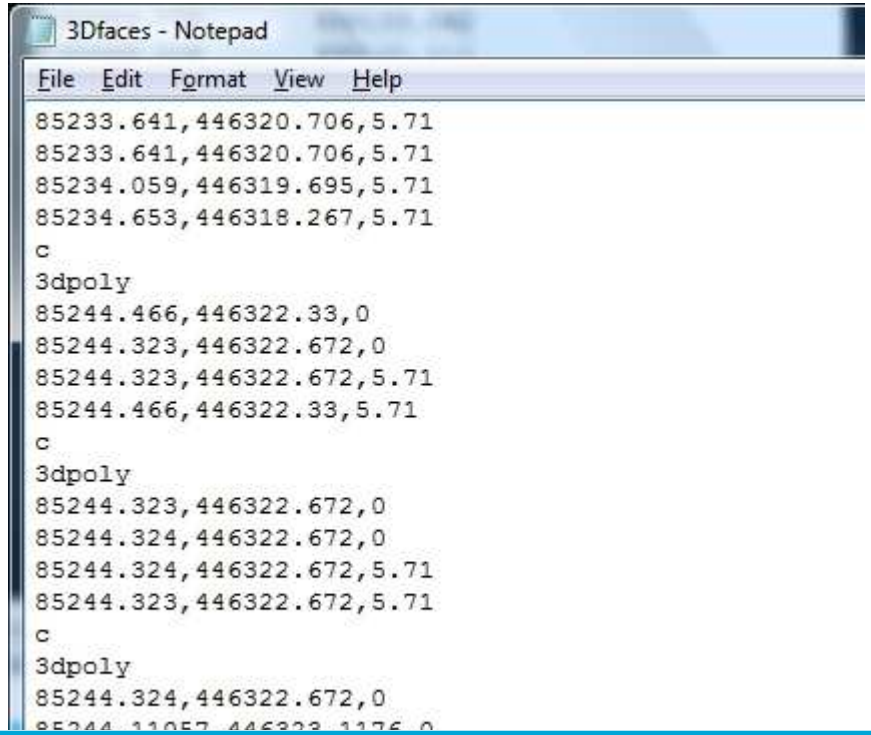
Extrusion to Polylines

Java programming language is used to read the ascii input and create autodesk script output. The script can be read with any autodesk CAD software.





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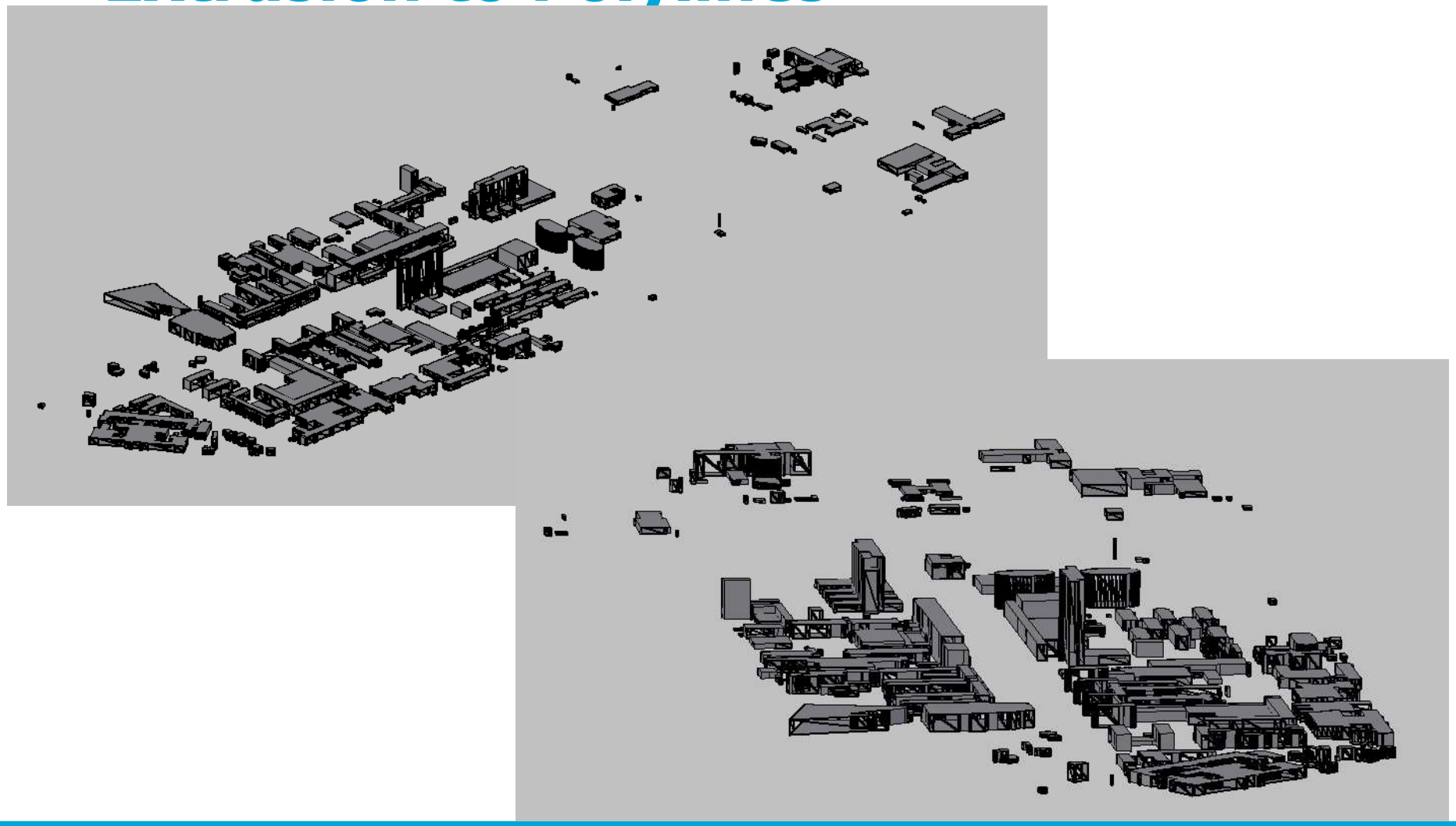
Extrusion to Polylines



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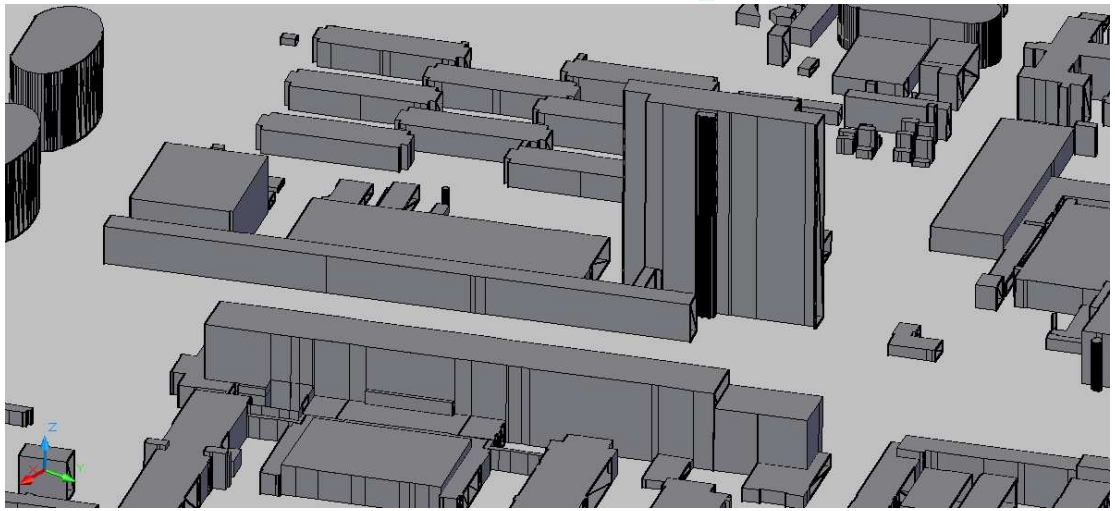
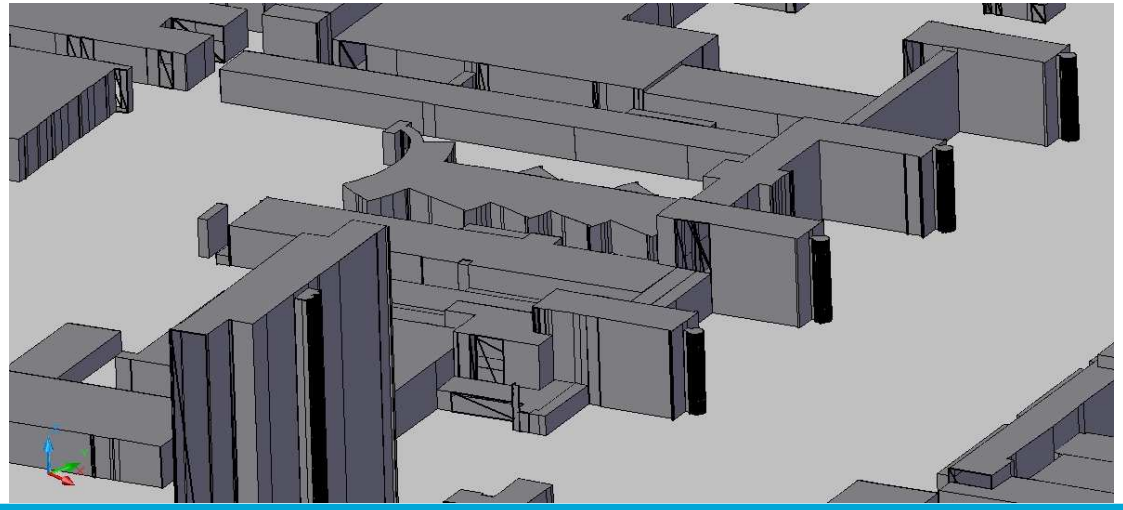
Extrusion to Polylines





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Different data output

- *Output in autocad 3D polylines for input in database*

- Output in special format for TETGEN
  - No intersections between faces
  - No double points because of 1D surfaces

- Output in autocad 3D faces for SketchUp modelling
  - 3D faces only 3 or 4 points, therefore only walls
  - Simplify geometry for textures

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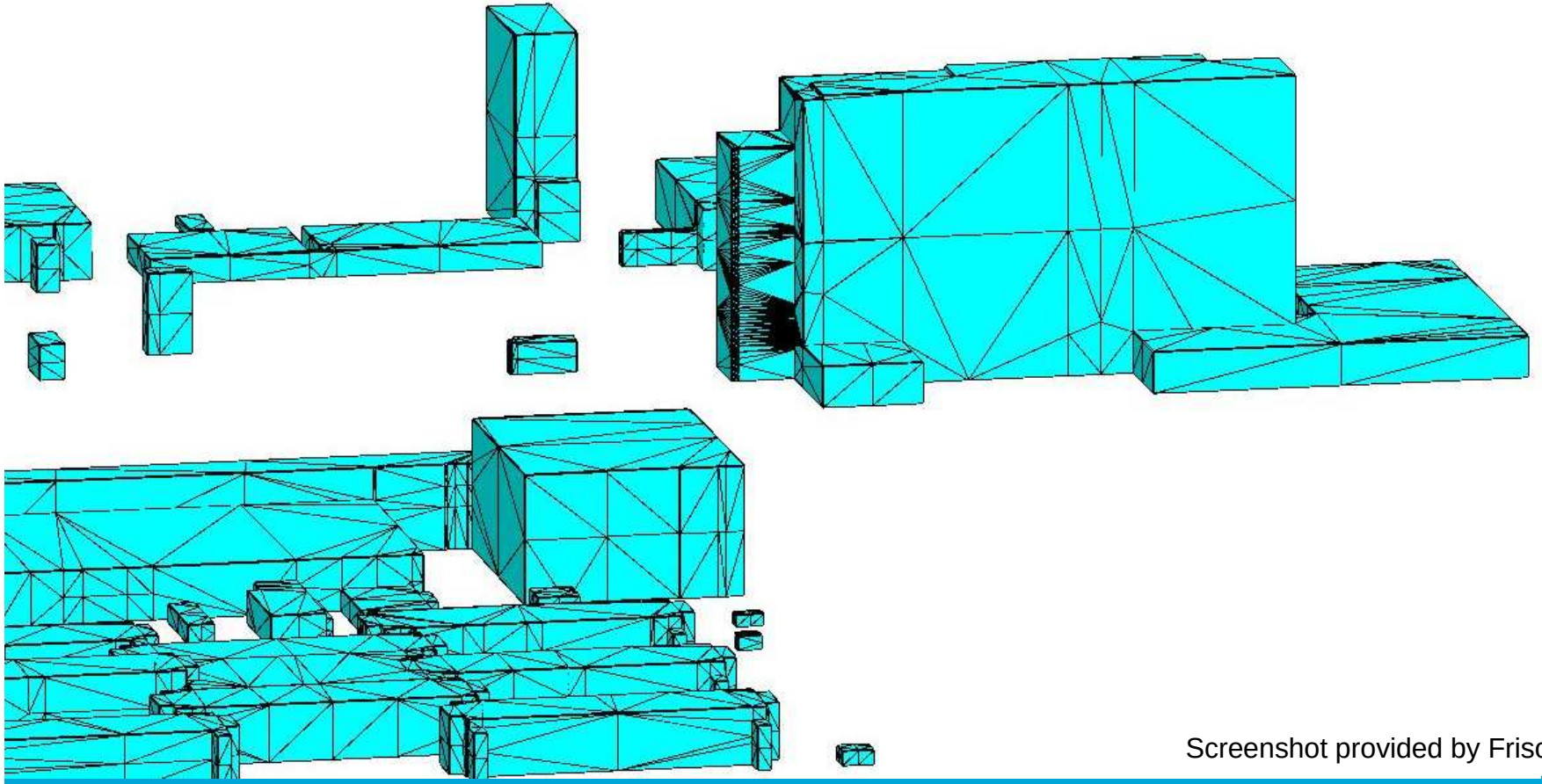
Different data output - Tetgen



Screenshot provided by Friso Penninga

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