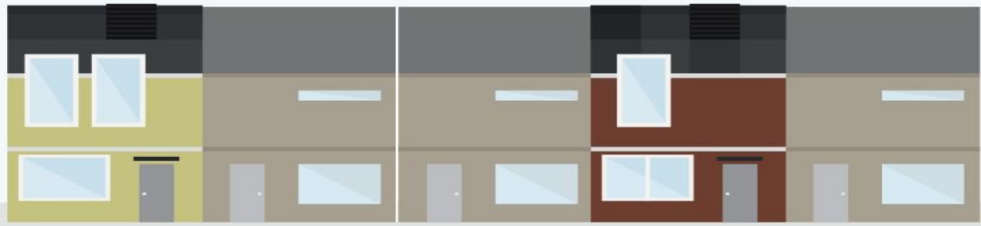


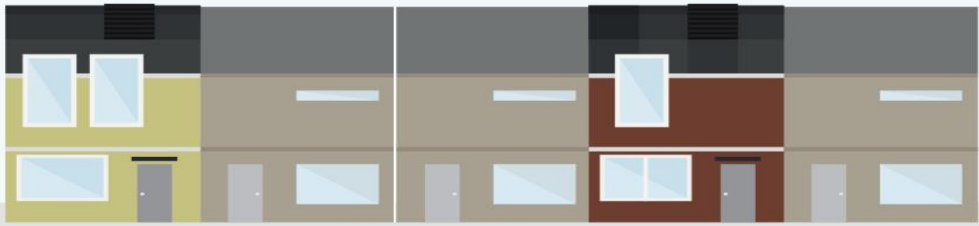
MORE-CONNECT

BIM APPLICATION

Dr.sc.ing. Modris Dobelis
Dr.sc.ing. Anatolijs Borodinecs

RESULTS

MORE — CONNECT

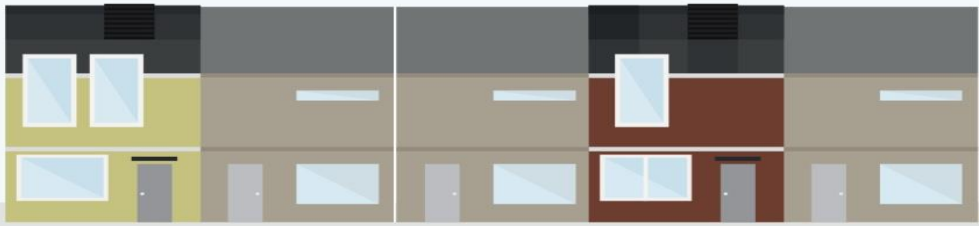


BIM APPLICATION

- Reduction of architectural project design time;
- Precise building dimensions;
- Data on vertical deviations;
- Data mitigation between all involved parties;
- Quality of production and construction process;

OPTIMIZATION OF BIM WORKFLOW

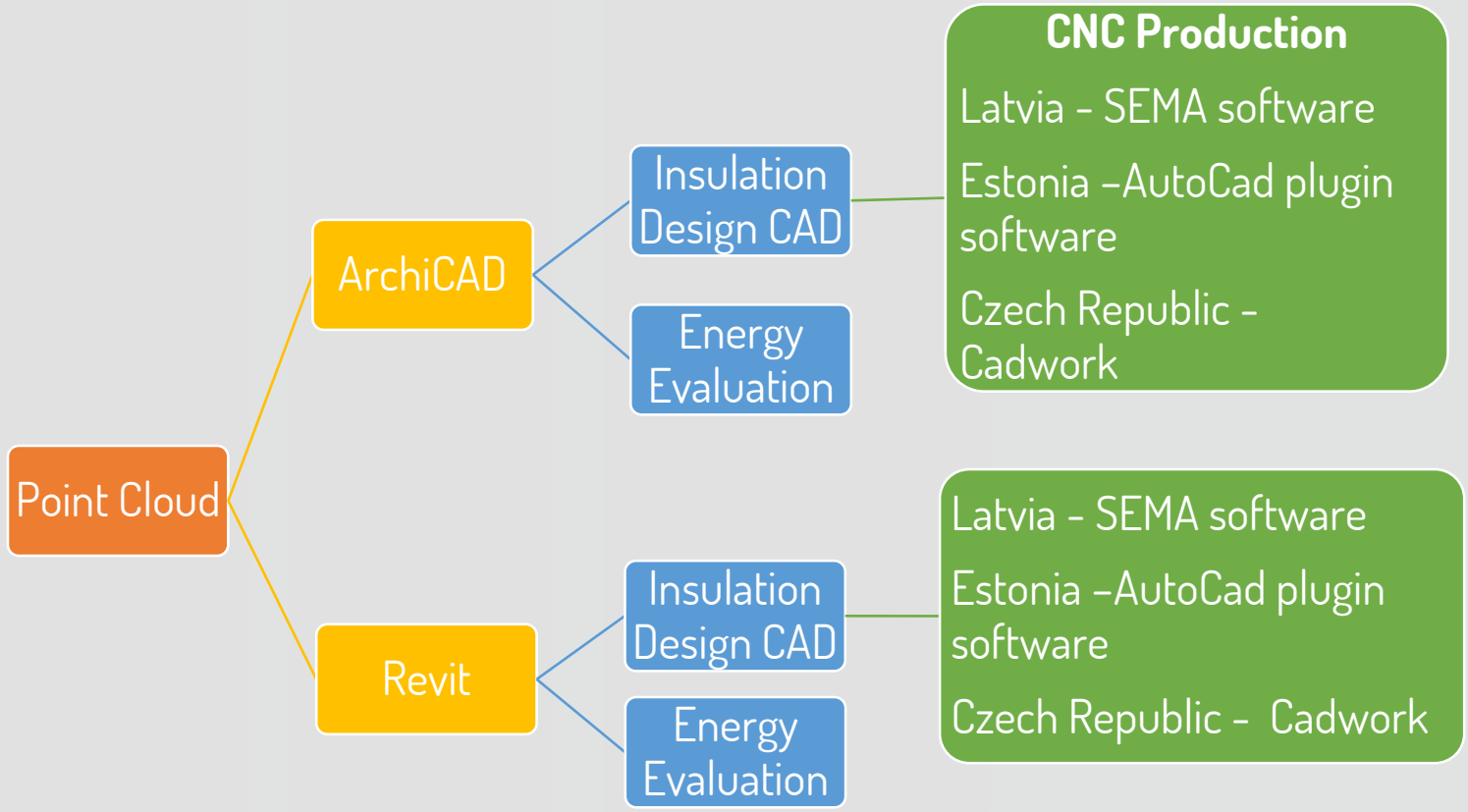
MORE — CONNECT



SCAN

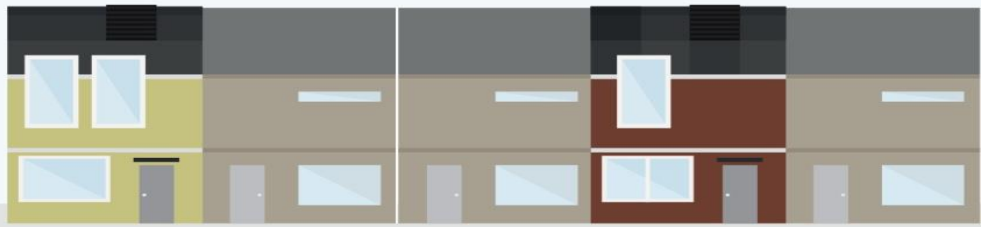
3D BIM MODEL

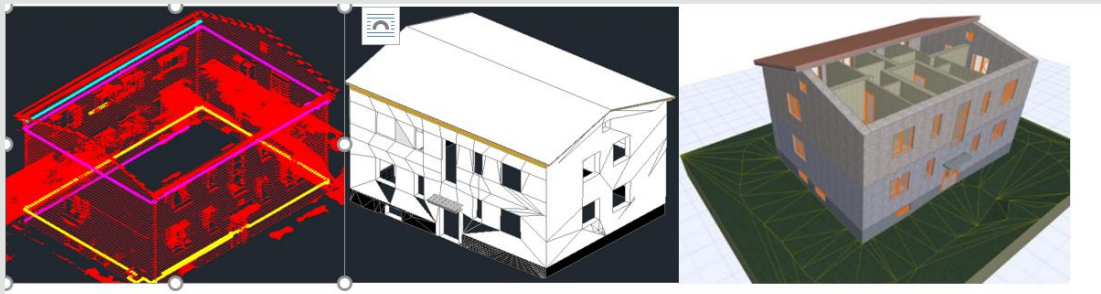
INSULATION OPTIMIZATION



RESULTS

MORE — CONNECT

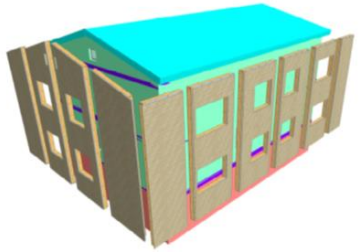


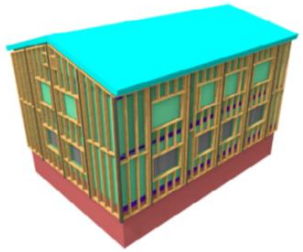


a) 3D point cloud

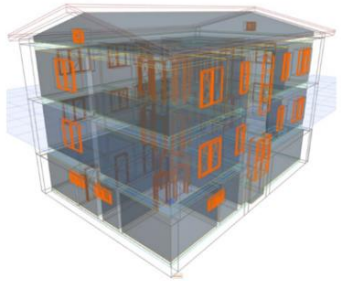
b) intermediate 3D building model

c) final building model





d) development of panel layout



e) Thermal blocks for energy simulation

MANUAL

- From seperate points
- Create object (walls, windows, doors)
- Average time consumption, easy but does not reflect real situation

SEMIMANUAL

- From cross sections
- Create mesh, smartsurface or solid elements
- Convert to object (walls, windows, doors)
- fast, easy, shows real situation, convertations problems

AUTOMATICAL

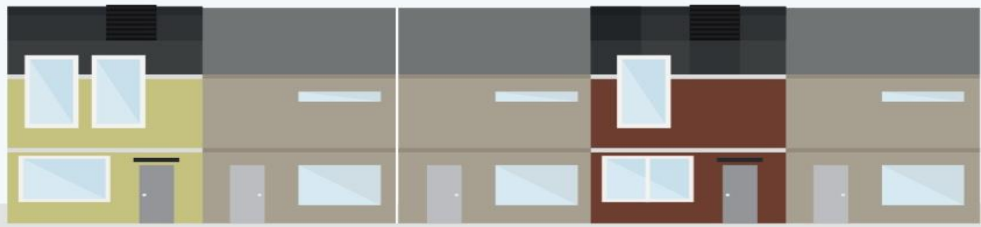
- Create mesh
- Correcting the mesh
- Convert to object
- fast, but needs a lot of work for correcting the mesh and to divide into seperate object types
- Shows real situation

FROM PHOTOS (AUTOMATICALLY)

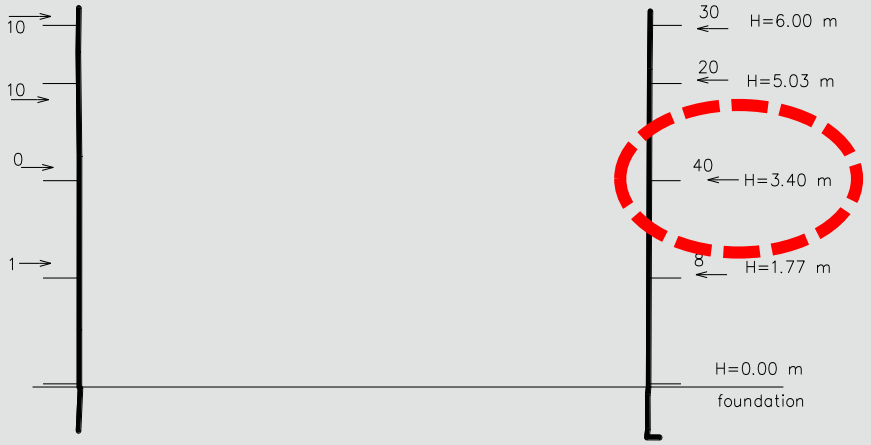
- Create mesh
- Divide mesh to seperate
- Correcting the mesh
- Convert to object
- VERY complicate, a lot of photos and correction works are needed

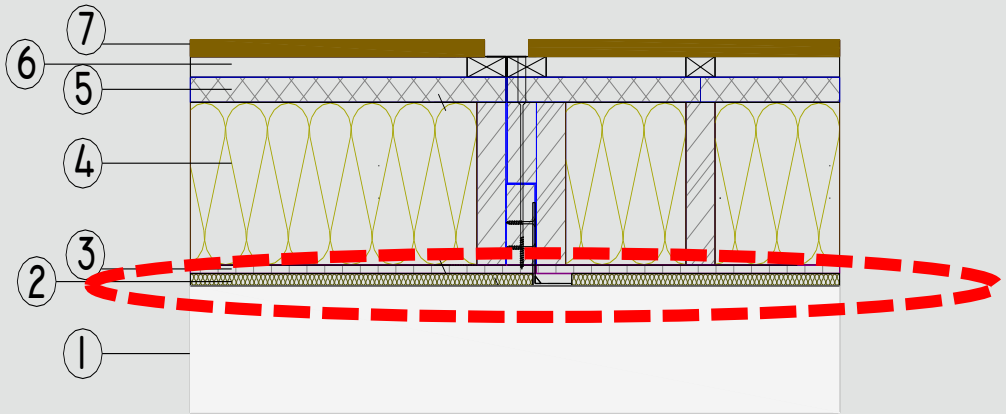
DATA ON BUILDING PROPERTIES

MORE — CONNECT

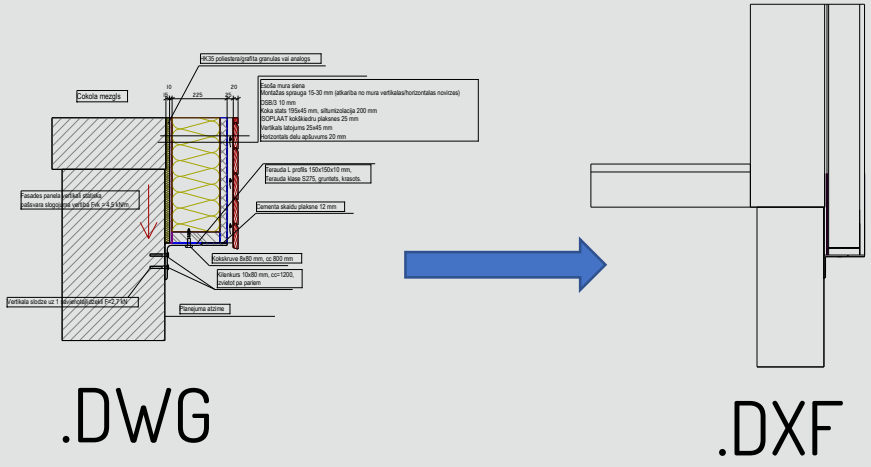


Vertical deviations



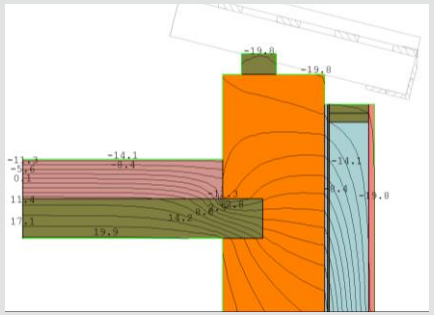


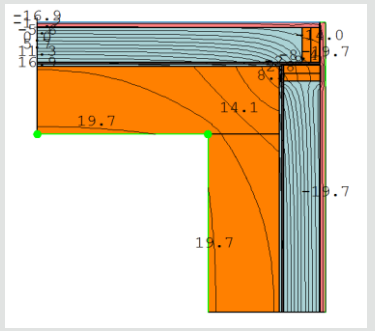
Evaluation of thermal bridges



.DWG

.DXF





. THM

SUMMARY OF GEO CLUSTERS EXPERIENCE

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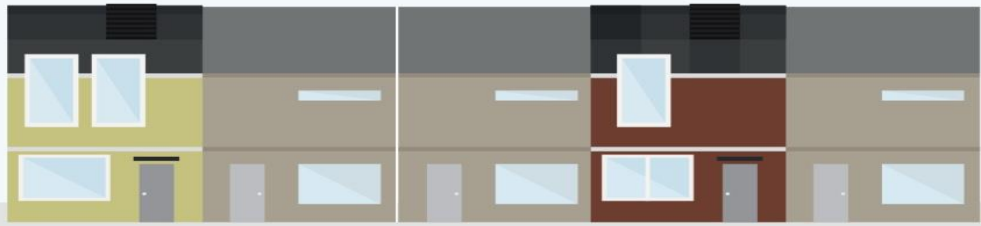
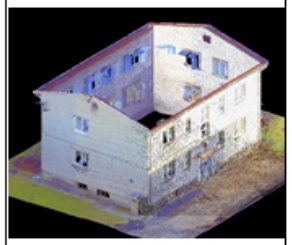
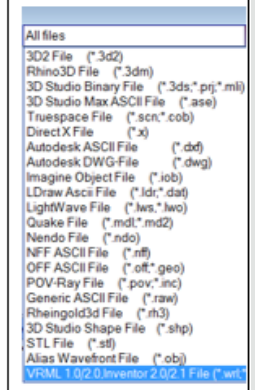
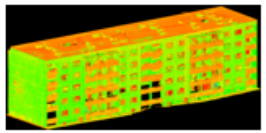
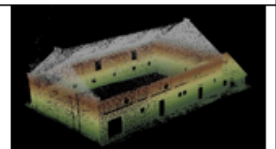
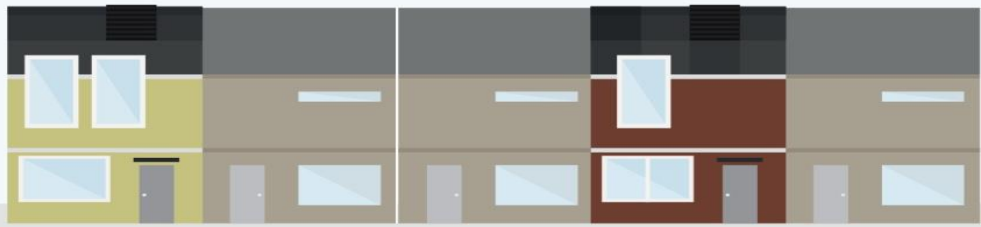
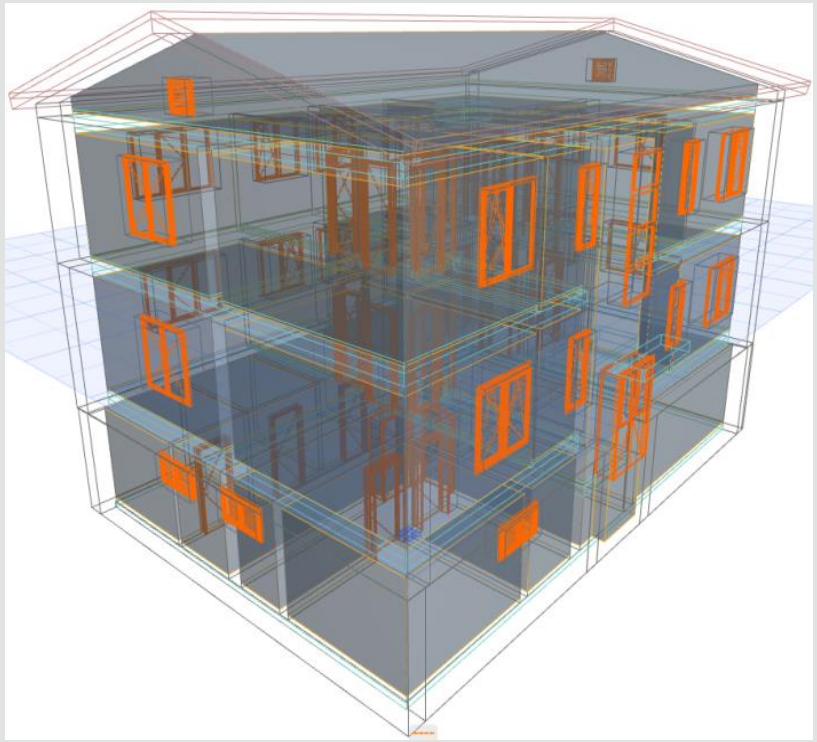
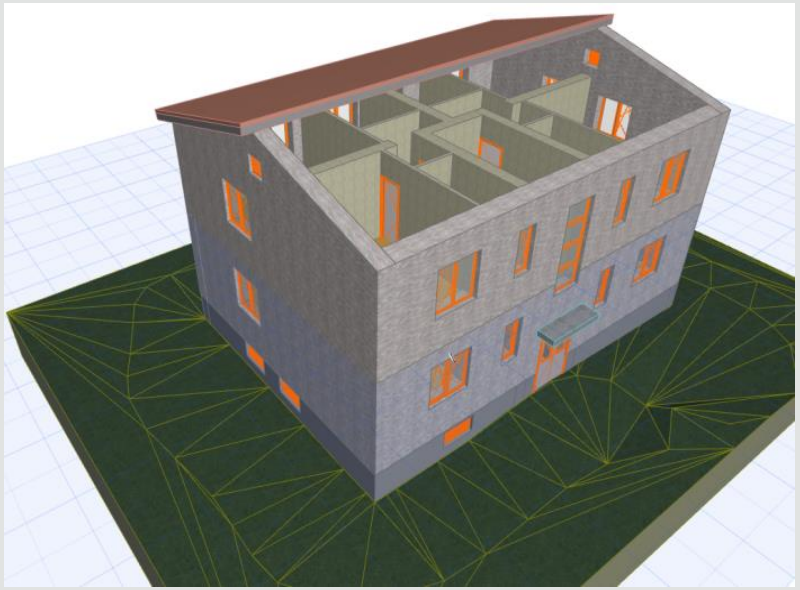


Project location, Provide two letter country code	Sample of the building's point cloud representation Please, insert one illustrative picture of scanned building (other please put in the attachment)	Total net area of the building, m²	Equipment used for 3D scanning and software	Number of scan stations	Total onsite scan time, hours	Point cloud size, format and size	Software used to transfer point cloud into 3D building model ArchiCAD, REVIT, other – what?; native format of resulting model, size	Creation of 3D BIM model					External energy evaluation software	Potential software to be used for machinery/production (CNC)	
								Automatic, Semi-automatic or Manual	Name of add-on or plug-in if used Provide short description of the procedure	Total time spent on model creation, hours	Internal energy evaluation module	Export file format used	Name	Name	Acceptable import formats
LV	 original scanned file used *.pts, ~3.9 GB	559	Scaner FARO 3D 120 ; Software Faro Scene and Leica Cyclone	9	6	*.e57, ~682 MB	ArchiCAD, *.pln, ~10 MB	Manual	Manual tracing with point cloud in background	~16, depends on experience and building complexity	EcoDesigner STAR	*.ifc	IDA ICE (currently not all information correctly imported from original file)	SEMA (dot no accept data import from *ifc file)	 IFC
						*.rcs, ~1 GB	Revit, *.rvt, ~4 MB no windows recognized by external sowtware	Manual	Manual tracing with point cloud in background	~16? Depends on experience and building complexity	MagicCad and RIUSKA * *extra cost*				
EE		773	Leica ScanStation C10; Software Leic Cyclone	10	6	*pts ~900MB	Revit *.rvt	Manual	Manual tracing	The model was based on drawings	MagicCad and RIUSKA * *extra cost*	*.ifc	IDA ICE (currently not all information correctly imported from original file)	AutoCad plugin software "Seina Paneel"	
CZ		576	Surphaser 25HSX; Geomagic Studio	9	6	*.las, ~190MB	Autodesk Recap360, Autodesk Revit	Manual	Manual tracking	~10	Autodesk Insight360	*.ifc	Autodesk Green Building Studio	CadWork	Btl dxf ifc

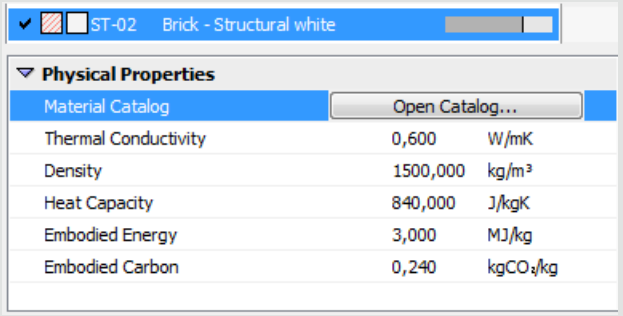




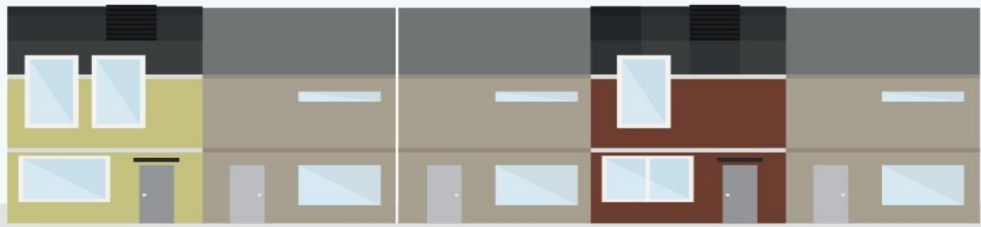
Visual validation of identified 3D spaces (gray) combined in thermal blocks

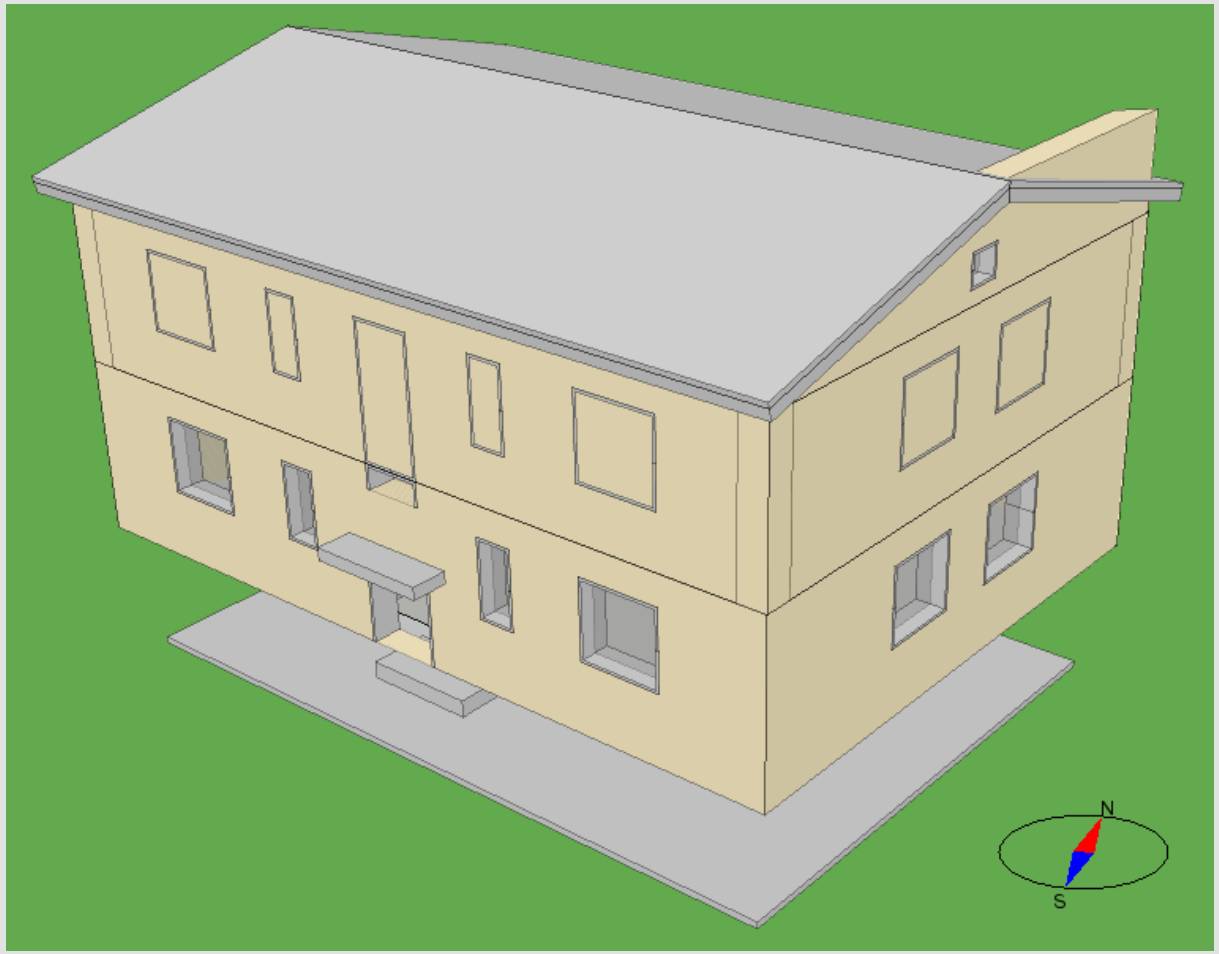


BIM model of residential building including terrain modelled in ArchiCAD



The interface for the definition of physical properties of the building material for structural white brick wall





The imported BIM model file in *.ifc format into IDA ICE (Indoor Climate and Energy) software shows some missing walls (foundation), missing entrance doors and windows, and corrupted geometry (wall not trimmed below roof).

TIME FRAME FOR ESTONIAN CASE BUILDING

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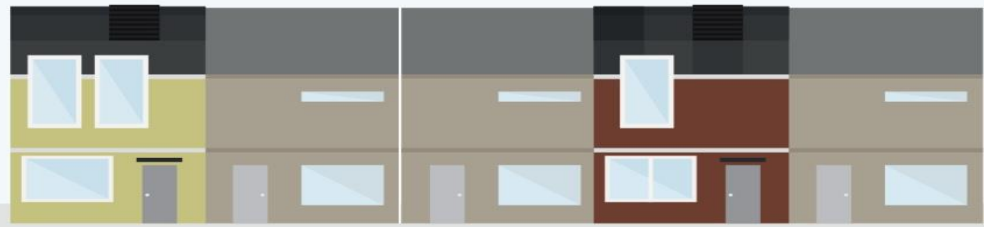
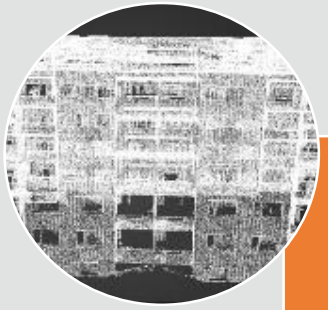


Mounting of the panels - up to 3 weeks

Arhitectural project - 4 months

20hours for point cloud processing and 3D building model



3D scanning:
6hours on-site work;
10 scanning stations;

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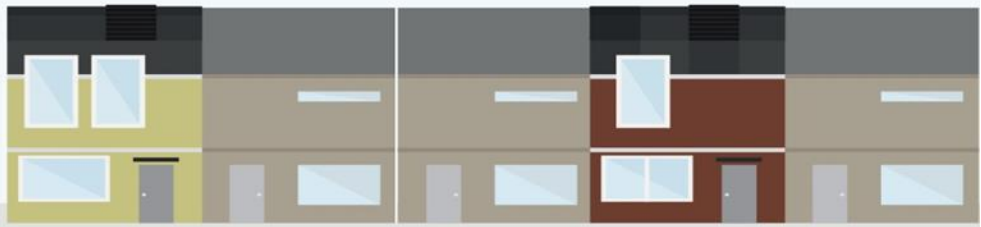

Thank you for you attention

www.more-connect.eu

Linkedin: **more-connect** group

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