

vabi

elements

**DYNAMIC SIMULATION
MODELLING**



Optimal Building Design with Vabi Elements

Vabi Elements facilitates goal-based discussions from initial concept to design completion, ensuring a building best meets the needs of your client.

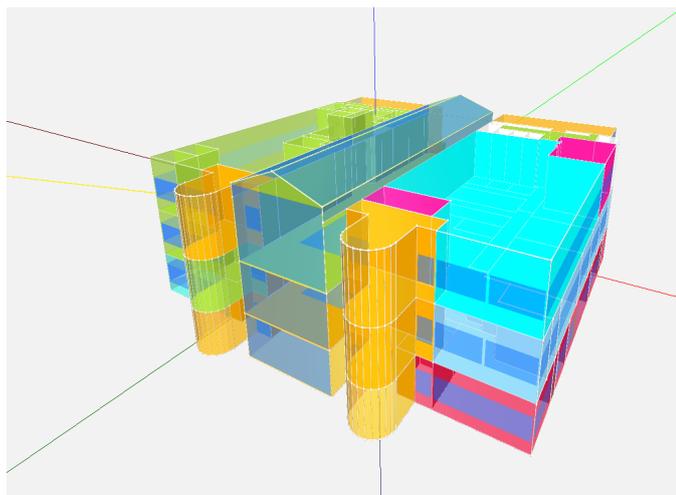
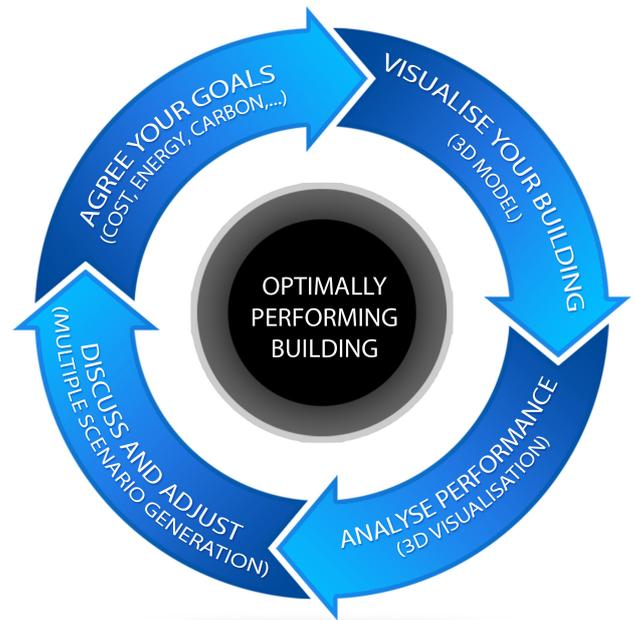
Vabi Elements enables performance-driven building design; encompassing cost, energy efficiency, comfort, productivity and health.

The impact of changes in design or building performance targets are visualised in Vabi Elements with 3D building models; enabling the creation of multiple design iterations and discussion points at all stages of design.

The powerful 3D modelling tools provide a continuous insight into the effect of design changes.

Results are displayed in the software in a range of tables, graphs, diagrams and 3D visualisations. Comprehensive result outputs can be combined to provide tailored reports to your specific needs.

The Client/consultant Partnership with Vabi Elements



3D visualisation of HVAC system distribution in Vabi Elements

Vabi Elements grows with you

Vabi Elements has an intuitive user interface which allows the building geometry to be drawn into the software. Geometry can also be automatically imported and converted to a 3D model from an IFC file import using our BIM Connect module; thus fast-tracking productive use. Other import methods include CAD file import, tracing over image files (.pdf/.jpg) and SketchUp import. No geometry is too complex for Vabi Elements.

Vabi's technology provides a consistent platform for assessing multiple aspects of building performance, at a room, zone or whole building level. Vabi Elements works with a central library of typical material, service and building templates, such as offices, schools or hospitals. The library and its templates are customisable so can be extended and adapted to suit your needs.

Vabi Elements and BIM

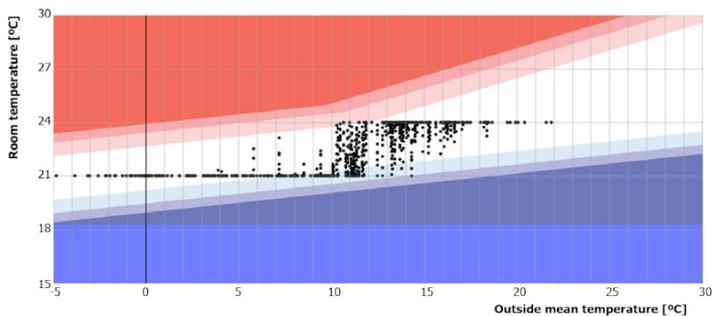
Vabi Elements integrates with the BIM process and enables intelligent, performance-based design decisions to be made from day one. Vabi Elements is compatible with leading vendor formats and open standards. The software can identify geometry inconsistencies when automatically importing from the IFC format. This technology integrates smoothly into the BIM process.

Vabi Elements can be regarded as the performance calculation engine for BIM workflows; enabling the design, retrofitting and maintenance of optimally performing buildings.

Hour-by-hour Analysis and Simulation

Vabi Elements dynamic simulation modelling can provide an indication of thermal comfort and overheating risk according to the approaches outlined in CIBSE Guide A:

- Indoor air, mean radiant and operative temperature over time.
- Prediction of thermal comfort expressed in Predicted mean vote (PMV)/Predicted percentage dissatisfied (PPD) index according to ISO 7730, corresponding comfort classes for PMV 0.2, 0.5 and 0.7.
- Overheating risk assessment according to benchmark summer temperatures and peak indoor temperatures when in operation.
- Adaptive approach to thermal comfort for office buildings with bands of comfort temperatures.



Comfort temperature bands for thermal comfort

Effects of low temperature radiant heating systems are also taken into account.

Vabi Elements Dynamic simulation modelling

- Minimise costs and carbon whilst optimising your building's performance
- Thermal comfort assessment
- Assessment of indoor climate and productivity in offices
- Calculation accuracy
- Performance calculation engine for BIM workflows
- Powerful 3D visualisation
- Multiple design scenario analysis
- IFC and major vendor compliant

Vabi Elements DYNAMIC SIMULATION MODELLING is compliant with the international and Dutch versions of BESTE ST, the ANSI/ASHRAE Standard 140-2001 and Energie Diagnose Referentie ISSO publication 54

The BESTEST (Building Energy Simulation Test) is developed by the International Energy Agency (IEA SHC) and is required by several national organisations such as NREL, ASHRAE, CIBSE and IBPSA.

Vabi Elements is a 3D-enabled, integrated solution where the building performance of design variants can be simulated, with the results viewed and compared against real-world designs.

This visualisation of geometry, inputs and performance results aids understanding and helps communication. Informed design decisions can then be made.

Vabi Elements provides you with an optimal understanding of building performance; ensuring a building best meets the needs of your client.



About Vabi

Established in 1972, Vabi is the market leader in the Netherlands for building performance modelling software. Vabi was founded as part of the Dutch Government's Research Institution, (TNO) serving as the Centre of Expertise on Building Service Calculations.

Our continually expanding customer base exceeds 2000 clients in the engineering and building owners markets; from international blue-chip organisations to small practices.

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