pitTGA Planungstools

Integrated software solutions for seamless planning – everything from a single source!

pitTGA Planungstools

Efficiency from the first sketch to the final material takeoff.

A building evolves step by step – from the initial idea to the completed material takeoff. For all these phases, you need powerful tools that turn your vision into reality. You will find exactly these tools and solutions with us.

For more than 30 years, our experts in the D-A-CH region have been supporting planners, architects, and engineers in mastering the challenges of planning, constructing, and operating buildings.

Our Services at a Glance:

✓ **Seminars & Webinars:** Practical expertise delivered first-hand – tailored and hands-on.
✓ **Consulting:** Customized advisory services to provide optimal support for your projects.
✓ **Project Assistance:** We support you in the successful implementation of your construction projects.

…and much more!

Our MEP planning tools:

With our specialized software solutions, you can optimize every step of your planning process.

pitCAD ULTIMATE — 2D/3D and openBIM planning tool for building construction, building services engineering, and facility management throughout the entire lifecycle of the asset.

SOLAR COMPUTER — Powerful calculation software for building services engineering (MEP).

AUTODESK — Market-leading tools such as AutoCAD and Revit for precise CAD and BIM.

SOLAR COMPUTER®

Our reliable partner since 1989.

Calculation software
for building and plant design.

SOLAR-COMPUTER develops and distributes calculation software for building and plant design in the fields of building physics, heating, plumbing, HVAC, ventilation, energy, and cost efficiency.

Typical users include **professional engineers, technicians, architects, energy consultants,** and **surveyors** in planning and consulting offices, as well as professionals in c**onstruction companies, industrial departments,** and **public institutions**. The software is modular and consists of around 25 individual programs that can be combined project-specifically, similar to a construction kit. In addition, the software can be integrated into all types of BIM processes and supports efficient planning from design through facility management.

A standards-compliant calculation of your planned building installations is essential. With SOLAR-COMPUTER programs, you have the right tools at hand to achieve this.

**Building Physics** | **Heating/ Cooling** | **HVAC/ Ventilation** | **Plumbing** | **CAD/ BIM** | **Energy/ Cost Efficiency**

Over 40 years ago, the first SOLAR-COMPUTER programs were developed with the aim of making calculations for buildings and technical building equipment (TBE) consistently and transparently usable. Close contacts with standards committees, research institutions, and industry ensure practical relevance and a constant state-of-the-art.
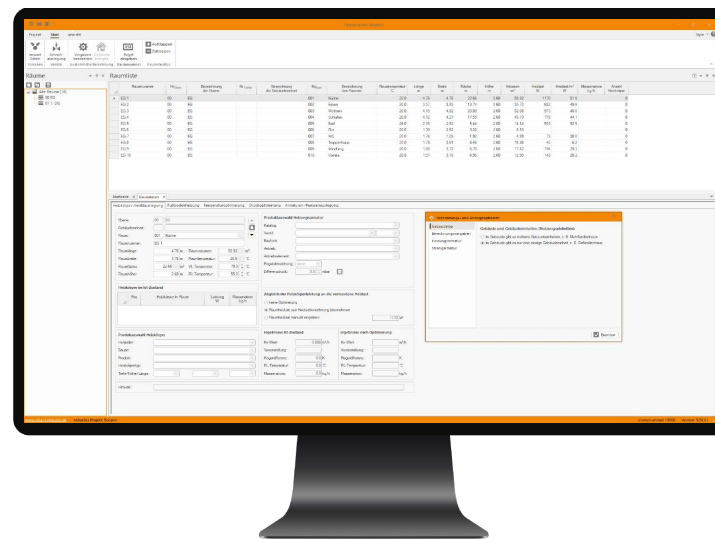
Versatile Installation Options

Starting with Windows 10, SOLAR-COMPUTER software can be installed on PCs, in networks, or on servers. You can use the programs either for a limited period or indefinitely. The management of installation paths for programs, master data, and projects is flexible and straightforward. Version statuses can be easily monitored online and updated as needed. External programs, such as manufacturer pump design software, can also be integrated into the SOLAR-COMPUTER workspace.

Fair and Flexible Licensing

SOLAR-COMPUTER offers a fair licensing structure: users can assemble a software package according to their needs from around 25 available programs. Depending on usage, licenses can be purchased for a single program or multiple programs. License costs are based only on the programs used simultaneously—regardless of how many workstations can access the software. If you need additional programs or licenses, your package can be expanded at any time.

Effective Project Management

SOLAR-COMPUTER simplifies project management: all data and results from the programs used in a project are consolidated in a central „Project Directory." You can easily create, copy, rename, or delete project directories. User-friendly dialogs are available for editing global project data such as client, address, or remarks.

In addition, SOLAR-COMPUTER enables the documentation of project progress with dates and notes. Documents such as scanned acceptance protocols can also be easily integrated into the project directory. A special feature is the creation of „Archive Projects," which include all versions of the manufacturer datasets used. This allows archived projects to be easily reproduced later. Archive Projects are also ideal for secure and efficient data exchange with external planning partners.

With these versatile features, SOLAR-COMPUTER provides an efficient solution for project management and software licensing—flexible, clear, and user-friendly.

General

Planning Reliability Through Software Validation

Some complex VDI guidelines include validation examples. SOLAR-COMPUTER fully complies with these and certifies this with a legally valid conformity statement.

SOLAR-COMPUTER Concepts

„Autonomous," „Connected," and „Integrated" are the key concepts describing how a user can work with SOLAR-COMPUTER software. The choice always depends on the specific project and lies with the user.

In „autonomous working," the user operates independently of CAD systems or BIM platforms.

Project data relevant to calculations can be quickly and easily recorded, edited, and documented with supporting results, either in tabular form or with graphical assistance.

In connected working, the user establishes a link between drawings/models and SOLAR-COMPUTER calculations.

Project data relevant to calculations can be quickly and easily recorded, edited, and documented with supporting results, either in tabular form or with graphical assistance.

A more efficient approach is a software-supported direct data link between the 3D CAD building model and SOLAR-COMPUTER calculation programs.

Key components of this connection include background validation algorithms and partially automated, partially dialog-driven adjustment functions that ensure the continuity of the link. When both CAD and calculation applications are active simultaneously, objects are interconnected. For example, clicking a row in a SOLAR-COMPUTER results table immediately zooms to the corresponding objects in the drawing and highlights them—and vice versa. The integrated working mode requires the SOLAR-COMPUTER "GBIS" tool and certain features of the CAD solution.

The „integrated" working mode goes beyond connected working and offers the best possibilities for BIM-efficient planning.

SOLAR-COMPUTER dialogs for checking or editing data are integrated directly into the CAD interface. Calculation-relevant object data, boundary conditions, and results are fully and synchronously managed in the databases of both the CAD and SOLAR-COMPUTER software, regardless of which system the data is entered in.The integrated working mode requires, in addition to GBIS, certain features of the CAD solution, as available in Revit (Autodesk).

Overview of SOLAR-COMPUTER Calculations

Building Physics

- Building Components – U-Value [B02]
  - Add-on Module: Climate-Related Moisture Protection [B02.DD]
- Dynamic Heating Load Calculation VDI 6020 [H38]
  - Application Northern Hemisphere [H38.Nord]
  - Application Worldwide [H38.Welt]
- Raumtool 3D [K12]
  - IFC Extension for Room Tool 3D [K12.IFC]
  - Area Evaluation According to DIN 277 [K12.277]

Heating

- Heizlastberechnung EN 12831-1 [H73]
- Dynamische Heizlastberechnung VDI6020 [H38]
  - Anwendung nördliche Welthalbkugel [H38.Nord]
  - Anwedung weltweit [H38.Welt]
- Trinkwasser-Erwärmungsanlagen EN 12831-3 [H74]
- Fußbodenheizung EN 1264 [H13]
- Heizungs− und Kaltwassernetz inkl. Schema Editor [H60]
- Heizkörperauslegung EN442, VDI 6030 [H10]
  - Kühlkörperauslegung [H10.Kühl]

Cooling

- Cooling Load and Room Temperature VDI 2078/6007 [W38]
  - Application Northern Hemisphere [W38.N]]
  - Application Worldwide [W38.W]

Annual Energy Demand Calculation

- Simulation and Energy Requirement VDI 2067-10 / 6007 [W38.TRY]

Ventilation

- Residential Ventilation DIN 1946-6/18017-3 [L47]
- Airflow Calculation According to Various Standards [L40]
- Duct Network Pressure Loss / Balancing [H39.DRU]
- Duct Measurement VOB/DIN 18379 [H39.AUF]
- Duct Measurement ÖNorm H6015 Excel-Based [H6015]

Sanitary

- Drinking Water DIN 1988-300 including Schematic Editor [S90]
- Drainage DIN EN 12056 / DIN EN 752 / DIN 1986-100 including Schematic [S89]

Energy Efficiency

- Building Energy Efficiency GEG / DIN V 18599
  - Module: Energy Report DIN V 18599
  - Module: Individual Renovation Roadmap
  - Module: Economic Efficiency Calculation According to DIN 18599
  - Module: Sample Systems DIN V 18599

Business Economics

- Economic Efficiency Calculation VDI 6025/2067-1 [K80]

CAD/BIM

- 3D Raumtool
  - IFC Extension for 3D Room Tool [K12.IFC]
  - Area Evaluation According to DIN 277 [K12.277]
- Calculations with AutoCAD Architecture / MEP
- Calculations with Revit
- openBIM
- Calculations with pitCAD
- Calculations with Other CAD Programs

Services

- Webinars
- Seminars
- Project Support / Consulting
- Online Data Set Service
- Software Service Agreement
- Support Center

Building Physics

Building Components – U-Value [B02]

Program for calculating and managing all types of building components for tasks in building construction and technical building equipment. Free management of building materials and components. Calculation of U-values based on layer composition. Support for numerous special cases, including air spaces, transparent, and opaque components. Layer thickness optimization. Components with known U-values, composite components. Temperature profile with dew point analysis.

Add-on Module: Climate-Related Moisture Protection [B02.DD]

Add-on module for the program "Building Components – U-Value Calculation": calculates climate-related moisture protection according to DIN 4108-3 for layered building components. Continuous verification of the moisture balance, including condensation and evaporation amounts, during component processing. Detailed tabular or graphical documentation of the conditions within the layers for winter or summer cases. Allows calculations with custom boundary conditions for all kinds of special cases.

- ✓ Calculation according to DIN EN ISO 6946 (OENORM, SIA)
- ✓ Building materials according to DIN 4108-4, DIN EN ISO 10456 (OENORM, SIA)
- ✓ Free management of building materials, including density, heat capacity, etc.
- ✓ Editing components with or without layer structure
- ✓ Composite components, e.g., façades, ceilings
- ✓ Windows according to DIN EN ISO 10077-1 (tabular/detail methods)
- ✓ U-value calculation from temperature measurement data
- ✓ Special cases, e.g., ventilated air layers, attic/roof spaces
- ✓ Optimization of layer thicknesses for a given U-value
- ✓ Special verifications, e.g., transmittance values
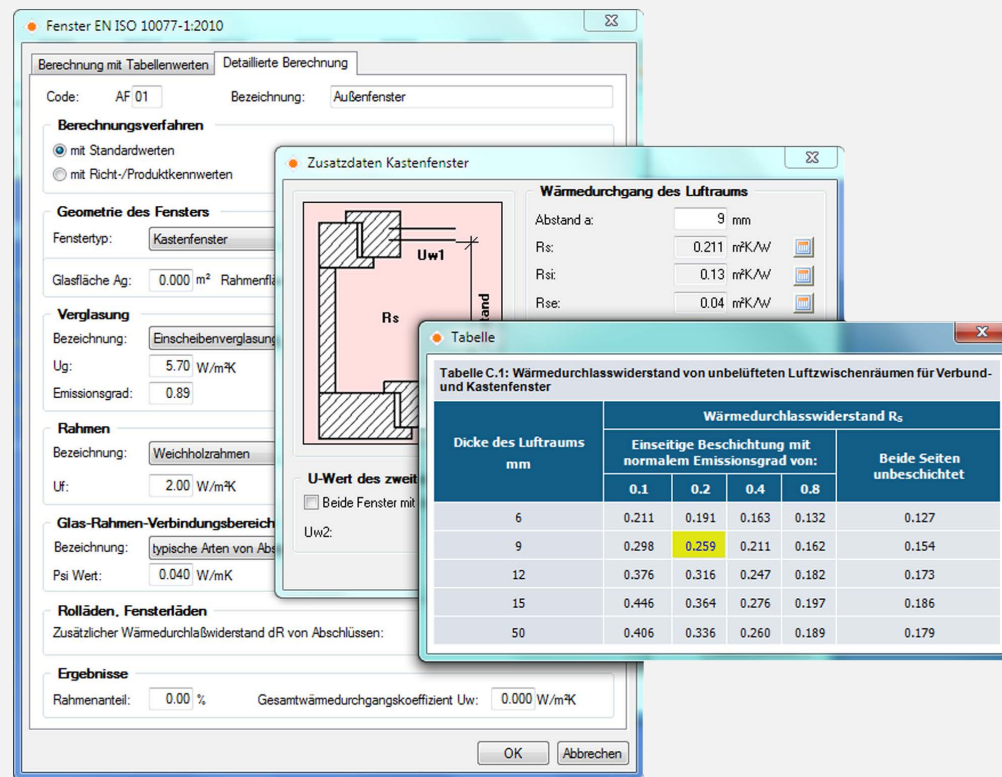- ✓ Versatile outputs, including graphical temperature profiles

Fig. 1 *Editing the Special Case "Box Window" According to **EN ISO 10077-1**. Similar graphical and tabular input aids are also available for special components according to **EN ISO 6946**.*
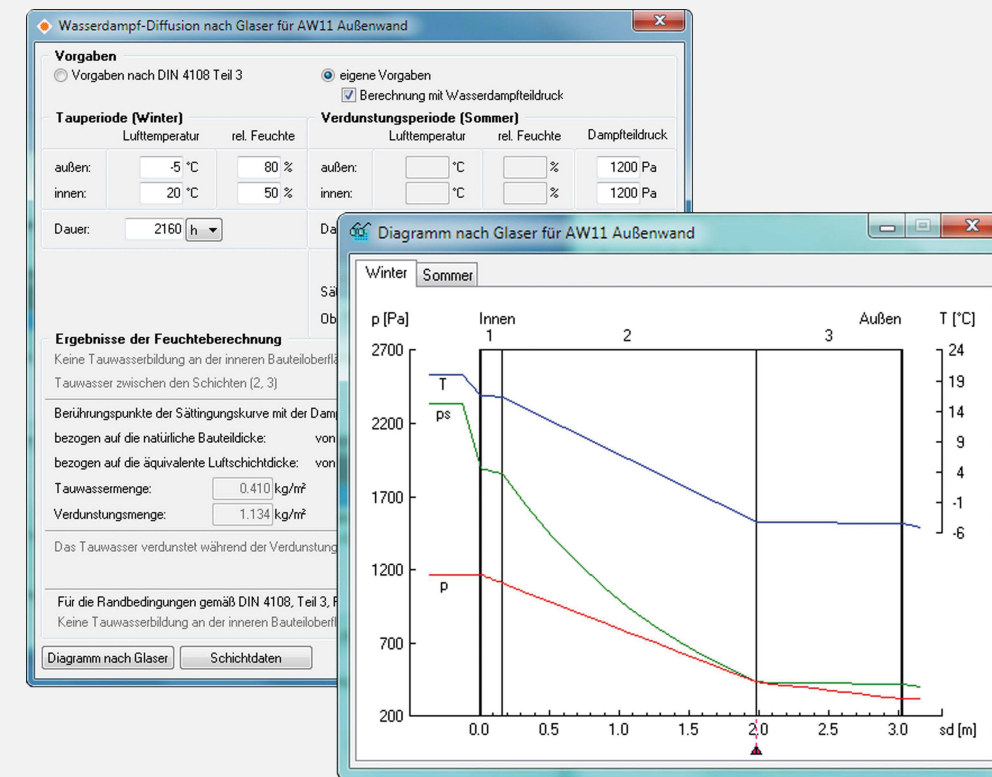

Fig. 2 *Optional Display of Detailed Results of the Moisture Balance and Glaser Diagram During the Editing of Layered Building Components*

Building Physics

ThermCalc – Thermal Bridge Calculation [K13]

Program for calculating the Psi-values of 2D thermal bridges according to DIN EN ISO 10211 using the finite element method, and for calculating f-values for moisture analyses regarding condensation and mold formation according to DIN 4108-2. Includes a thermal bridge catalog. Numerous tools for efficient work and integrated planning with building physics and building programs complete the software package.

- ✓ Detailed thermal bridge calculation according to DIN EN ISO 10211
- ✓ Minimum thermal insulation requirements according to DIN 4108-2 (2013)
- ✓ Building material data according to DIN 4108-4 or DIN/ÖNORM ISO 10456
- ✓ Free editing of thermal bridge elements using polygons
- ✓ Scaling, if necessary, in the background of existing constructions

- ✓ Option to retrieve standard thermal bridges from the catalog according to DIN 4108-2 Annex 2 or reference examples in DIN EN ISO 10211
- ✓ Powerful trimming tools for polygons and element edges
- ✓ Automatic generation of a FEM mesh
- ✓ Adjustable mesh spacing and iteration steps
- ✓ Psi-value calculation with required computational accuracy
- ✓ Optional calculation of f-values
- ✓ Visualization of critical areas for condensation and mold formation
- ✓ Standards-compliant documentation with tabular and graphical representations
- ✓ Import option for layer structures from U-value calculation
- ✓ Export of the Psi-value list for heating load calculations as well as EnEV / DIN V 18599
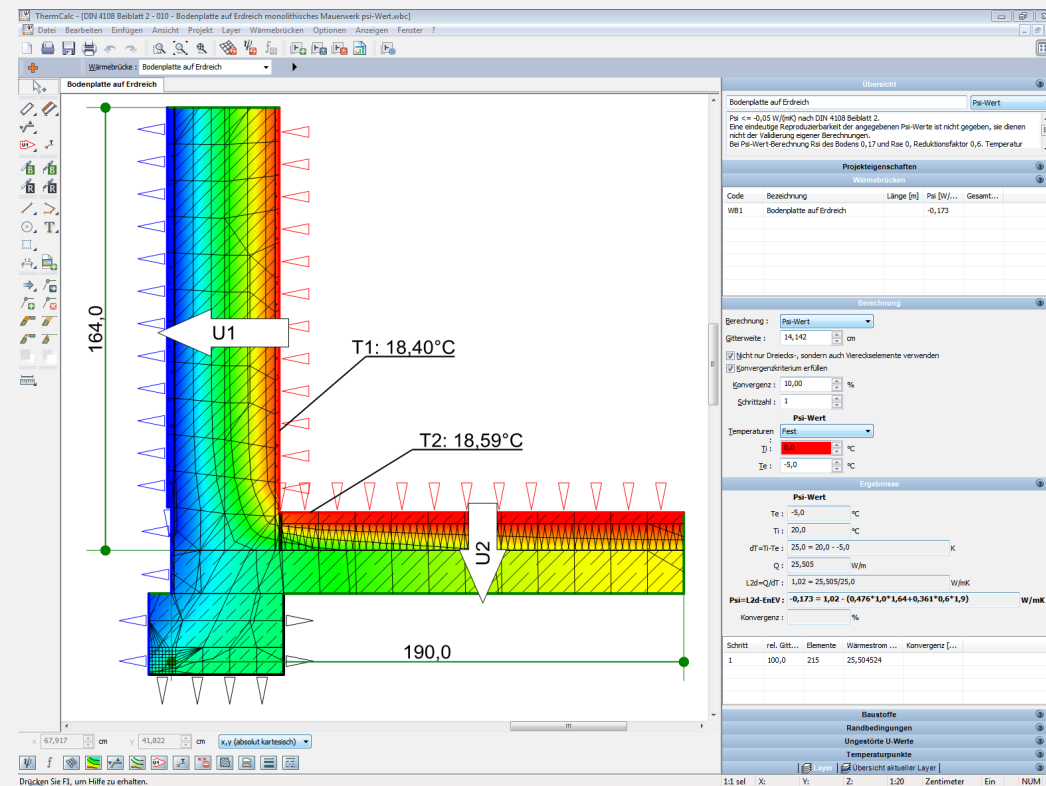- ✓ Export of thermal bridge constructions as DXF or DWG files

Fig. 3 *Dialog for calculating a 2D thermal bridge (ground slab against soil). Display of the thermal bridge with isotherms, FEM mesh, and temperatures at selected surface points.*

Building Physics

Summer Thermal Protection DIN 4108-2 [B40]

Program for calculating, checking, and verifying summer thermal protection according to DIN 4108-2 through thermal building simulation of individual rooms. Detailed consideration of sun shading, shading devices, reflection, types of glazing, etc. User-friendly operation thanks to simulation boundary conditions preset according to the standard. Graphical, tabular, and combined verifications according to the standard, as well as numerous additional verifications of the building's thermal-dynamic behavior.

✓ Integration of simple or composite building components from U-value calculation
✓ Easy adjustment of preset values for transparent components, including sun shading, shading devices, horizon, and ground reflection
✓ Convenient management of rooms with neighbor relationships
✓ Standard-compliant verifications as well as informative checks for +2 K and +4 K temperature increases
✓ Statistics of hourly room and operative temperatures
✓ Data linkage with building programs for EnEV / DIN V 18599 and heating and cooling load according to VDI 2078 / 6007
✓ Import of building data from RoomTool 3D / IFC
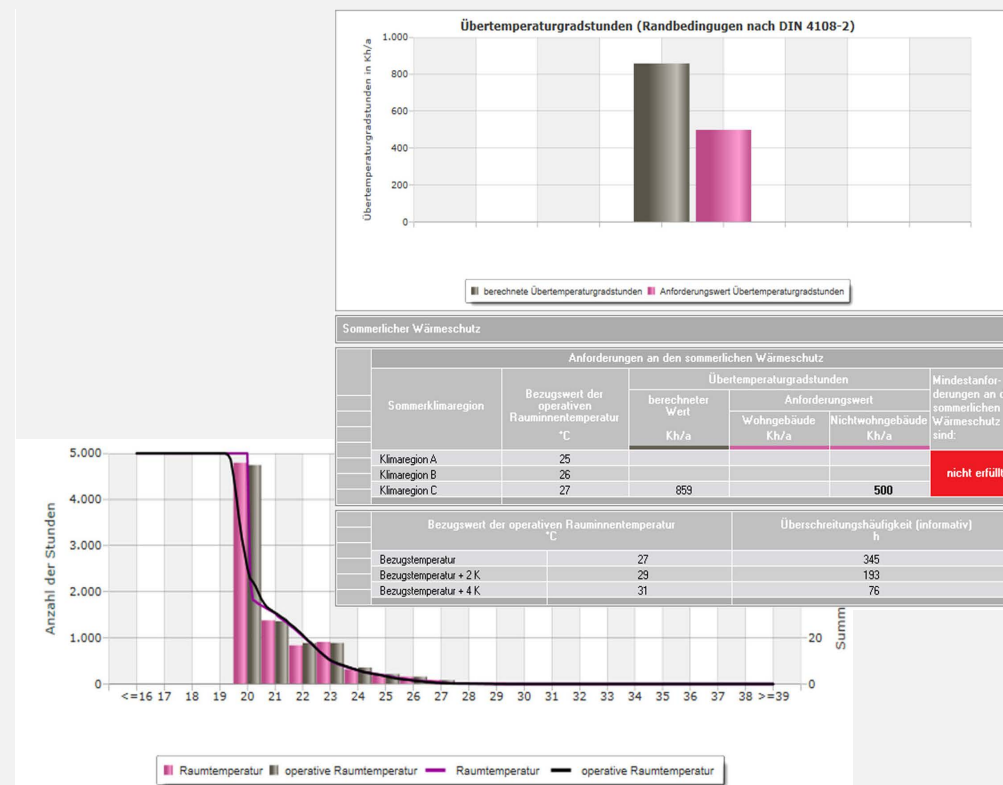✓ Upgradeable to the program "Thermal Building Simulation VDI 2067-1 / 6007"

Fig. 4 *Annual degree-hours of excess temperature for room and operative temperatures for verifying summer thermal protection according to DIN 4108-2 using thermal building simulation with standard boundary conditions.*

Heating

Heating Load Calculation EN 12831-1 [H73]

Program for calculating the heating load according to EN 12831-1 for projects of any type and size, with national additions for Austria, Germany, or Switzerland. Optional tabular quick processing or integration of the calculation into a CAD interface with intelligent zoning. Detailed support for standard-specific requirements and special cases. Result presentation as documentation as well as in numerous adjustable graphics suitable for consulting purposes.

- ✓ EN 12831-1 (EPDB module m3-3 room heating load) including national additions
- ✓ Ground/soil calculation according to DIN EN ISO 13370
- ✓ Ventilation zones as a group of interconnected rooms
- ✓ Special case of multiple building units connected by air

- ✓ Adjustable "room number generation rule" when importing from BIM platforms
- ✓ Boundary conditions according to standard, customized, or for +3 K increased indoor temperature
- ✓ Detailed ventilation heat losses, including balanced ventilation
- ✓ Standard and design heating loads for system dimensioning
- ✓ Graphical, tabular, or textual result checks during processing
- ✓ Data and result documentation in the form of print outputs
- ✓ Calculate, manage, and compare project variants
- ✓ Versatile options for integration into BIM workflows: project import from BIM platforms, RoomTool 3D, Green Building, IFC, etc.
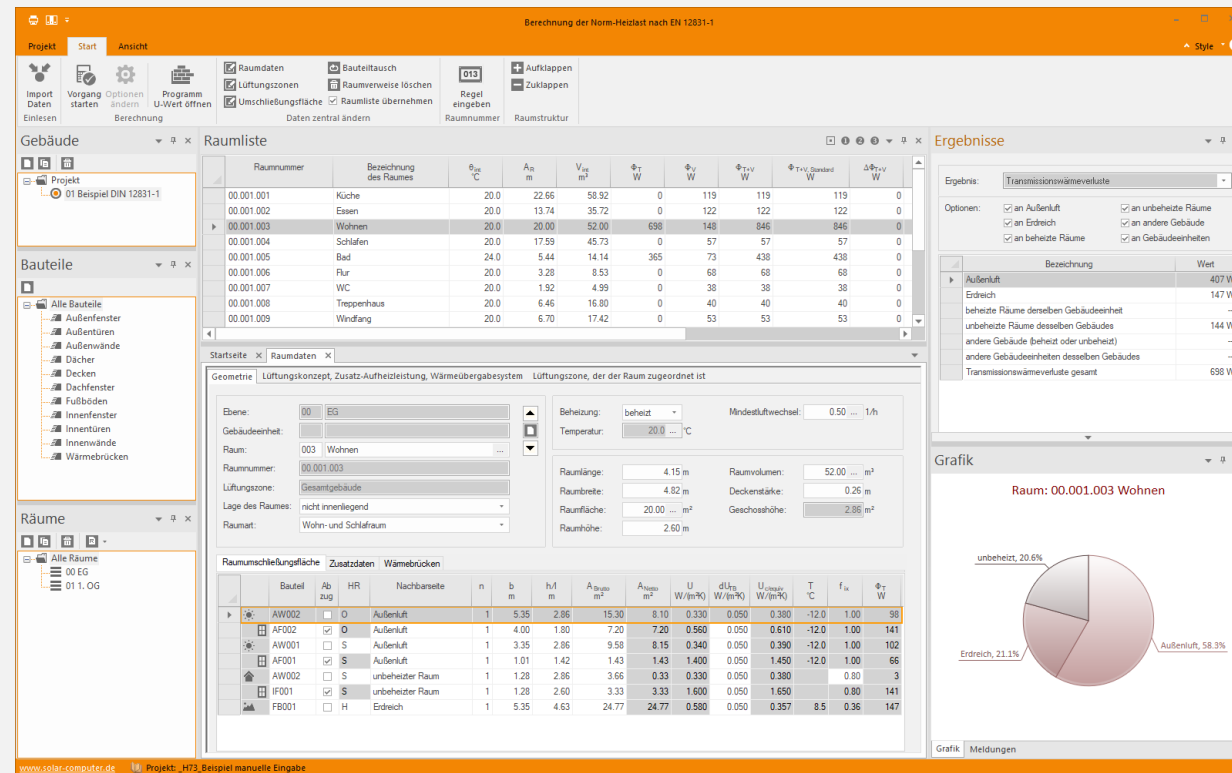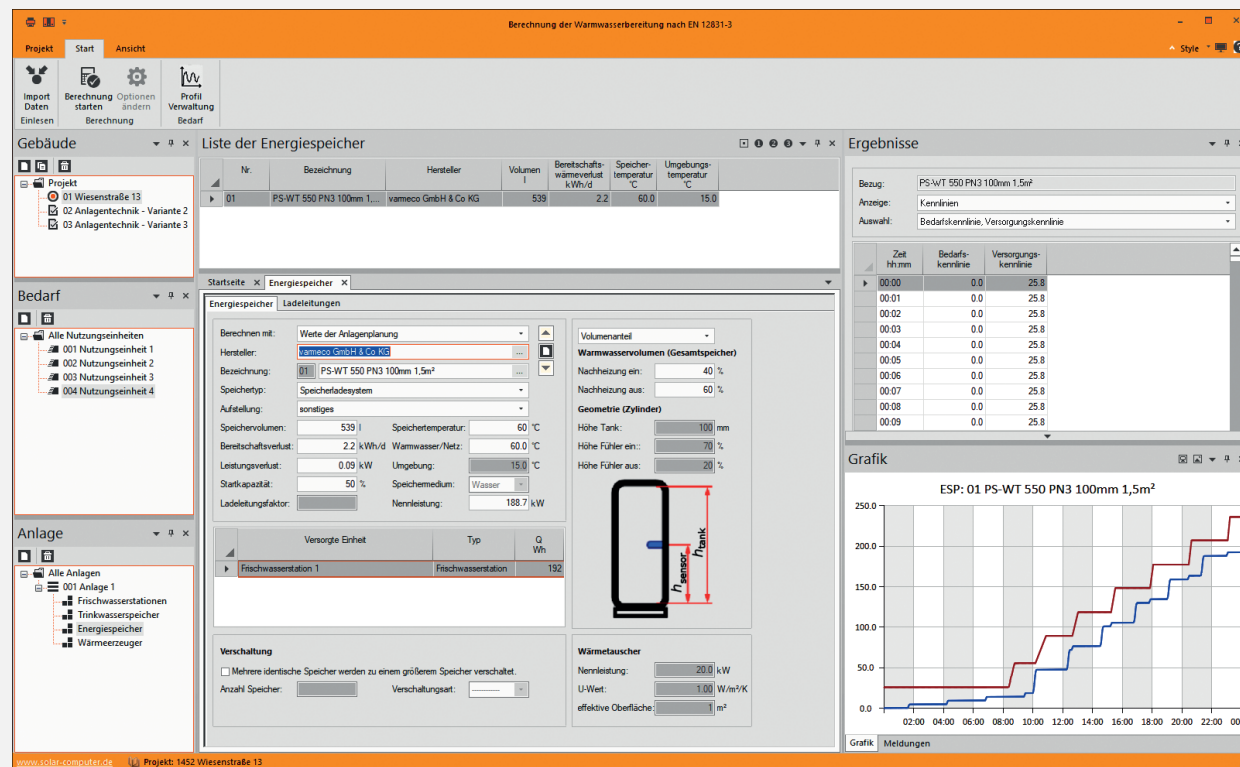- ✓ Option for interactive bidirectional planning with various CAD systems

Fig. 5 *User interface with Backstage view, Quick Access Toolbar, Ribbon bar, and switchable editing dialogs with docked task panes for building elements and results.*

Heating

Dynamic Heating Load Calculation VDI 6020 [H38]

Program for calculating the design heating load according to the requirements of VDI 6020 using the room model according to VDI 6007-1. Calculation of the Heating Design Period (HDP) and the Heating Design Days (HDD) for the selected location. Both aperiodic cases with HDP and periodic conditions can be calculated under the boundary conditions of the building, heating system, and operating times. Interfaces for combining the calculations with CAD applications (BIM workflows).

Available only in conjunction with "Building Components – U-Value" module.

✓ Thermal-Energy Hourly Simulation, Climate Influence of Urban Centers
✓ Import of U-values including layer structure, automatic calculation of thermal storage capacity
✓ Angle-dependent solar radiation, daylight-dependent lighting contro
✓ Various conditioning for different operating schedules
✓ Interaction between building and system
✓ Fast and easy program control via animated SOLAR-COMPUTER building diagram
✓ Graphical instant check of load profiles
✓ Parameterized graphics (curves, bars, pie charts), zoomable trend graphs
✓ Individually structured print jobs, validation conformity statement
✓ CAD import from RoomTool 3D / IFC, GBIS / Revit / AutoCAD MEP

Add-on Modules: Northern Hemisphere and Worldwide [H38.World]

Add-on modules for the programs "Dynamic Heating Load Calculation VDI 6020, Cooling Load / Annual Simulation VDI 2078, Energy Demand VDI 2067-10, and Summer Thermal Protection" for standard-compliant calculation of projects outside Austria and Germany. The software is based on the latest knowledge and standards.

The programs are based on the guidelines for cooling load (VDI 2078, Edition 2015-06), energy demand of buildings for heating, cooling, humidification, and dehumidification (VDI 2067-10, Edition 2013-09), calculation of dynamic heating load (VDI 6020), and the

calculation of transient behavior of rooms and buildings (VDI 6007 Part 1 and 2, Editions 2012-08, and Part 3, Edition 2015-06) with extended algorithm applicability for all locations in the northern hemisphere north of the Tropic of Cancer (Item No. H38.NORD) as well as all locations worldwide (Item No. H38.WELT). Validation is performed according to VDI 6020, Edition 2022-12, "Requirements for Thermal-Energy Calculation Methods for Building and System Simulation" for all validation examples.

✓ Add-on Module for Dynamic Heating Load Calculation (H38)
✓ TRY climate files included
✓ Microclimate of urban centers
✓ Applicable to buildings, zones, or individual rooms
✓ Simulation of interactions between building physics and technical building systems (TBS)
✓ Verification of all types, including trends, annual profiles, etc.

Fig. 6 *Verification of the design heating load in an hourly profile according to VDI 6020 for a room on the HDP day (Heating Design Period).*

Heating

Domestic Hot Water Heating Systems EN 12831-3 [H74]

Calculation of domestic hot water heating systems, including demand, heating load, and storage volume according to EN 12831-3 for residential and non-residential buildings of all types. Using the cumulative curve method, energy demand and supply curves for heated domestic water are compared over the course of a day. User-friendly operation with standard or manufacturer catalogs, free profile management, system configurator, and graphical controls. Extensive verifications.

Versions available for Germany, Austria, and Switzerland.

✓ Demand load profiles Annex B1, Varmeco catalog
✓ Full profile management in all details
✓ Import interfaces VDI 3805-3 and -20
✓ Demand calculation organized by usage units
✓ "System Configurator" as a working aid
✓ Cumulative curve graphics during processing

Fig. 7 *User interface with Backstage view, Quick Access Toolbar, Ribbon bar, and switchable editing dialogs with docked task panes for building elements and results.*

Heating

Radiator Design [H10]

Basic program for designing radiators and convectors with or without fans for new constructions and renovations, as well as for recalculating or converting existing radiators. Design heating load can be calculated according to static heating load per DIN EN 12831-1 or dynamic heating load per VDI 6020 / 6007, optionally including thermal comfort according to VDI 6030-1. Variants, visualizations, and many other tools for efficient work.
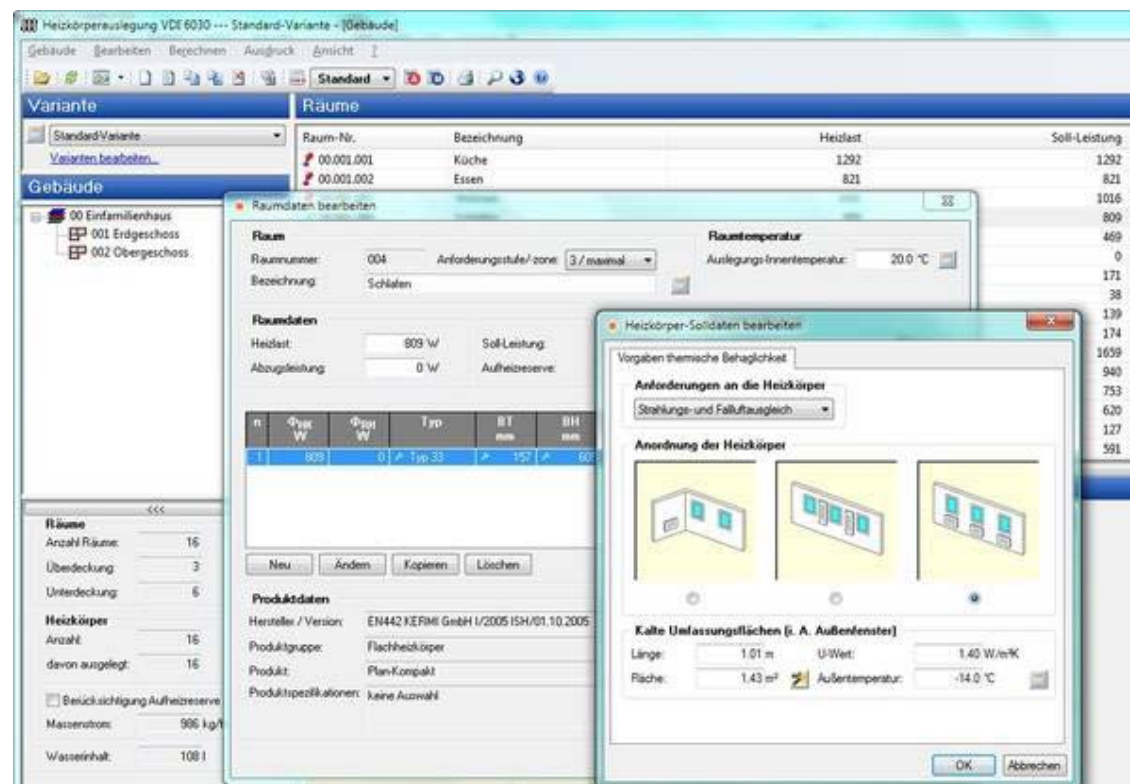

Fig. 8 *If required, each level of the desired thermal comfort can be set individually for each room.*

- ✓ Manufacturer datasets VDI 3805-6
- ✓ Brands and assortments combinable within a project
- ✓ Radiator design conventional or considering thermal comfort criteria according to requirement levels 1 to 3 of VDI 6030
- ✓ Optional supply air and radiation compensation
- ✓ Save typical "design profiles"
- ✓ Automatic quick design, with fast and easy comparison of alternatives
- ✓ Performance distribution automatically or manually
- ✓ Recalculate or convert existing radiators
- ✓ Consideration of pressure rating, surface availability, connection type, and connection variant
- ✓ Central data modification function
- ✓ Consideration of heating-up reserve via separate radiator or by increasing supply temperature or mass flow
- ✓ Determination of the actual return temperature
- ✓ Accessories automatically according to manufacturer specifications
- ✓ Mass list for bill of quantities or offer
- ✓ Balance diagram or graphical result representation
- ✓ Import/Export GBIS / Revit / AutoCAD MEP
- ✓ Data linkage with heating load, piping network, and surface heating

Cooling Case Extension

With the "Cooling Radiator Add-on Module" (Item No. H10.KÜHL), the program can be extended to design cooling convectors with or without fans, including a cooling load import interface.

Heating

Underfloor Heating EN 1264 [H13]

Design of a surface heating system based on manufacturer data. Optional "preliminary quick design" from building/room corner data. Possibility for detailed planning including deducted and built-over areas, edge zones, supply lines, integrated heating circuits, surface divisions, etc. Optimization of supply temperature and material consumption, determination of remaining heat demand. Material list with article numbers.

✓ Verification of critical rooms and supply temperature optimization
✓ Automatic generation of edge zones, integrated or separate edge zones
✓ One-click quick design including heating circuit division
✓ Automatic heating circuit division when pressure loss or pipe length limits are exceeded
✓ Heating circuits with fixed dimensions, e.g., consideration of screed joint
✓ Series connection of heating circuits, e.g., vestibule / WC / corridor
✓ Calculation and optional crediting of heat from flowing supply pipes
✓ Adjustment and valve presetting project-specific or per heating circuit manifold
✓ Graphical assignment of heating circuits to manifold connections
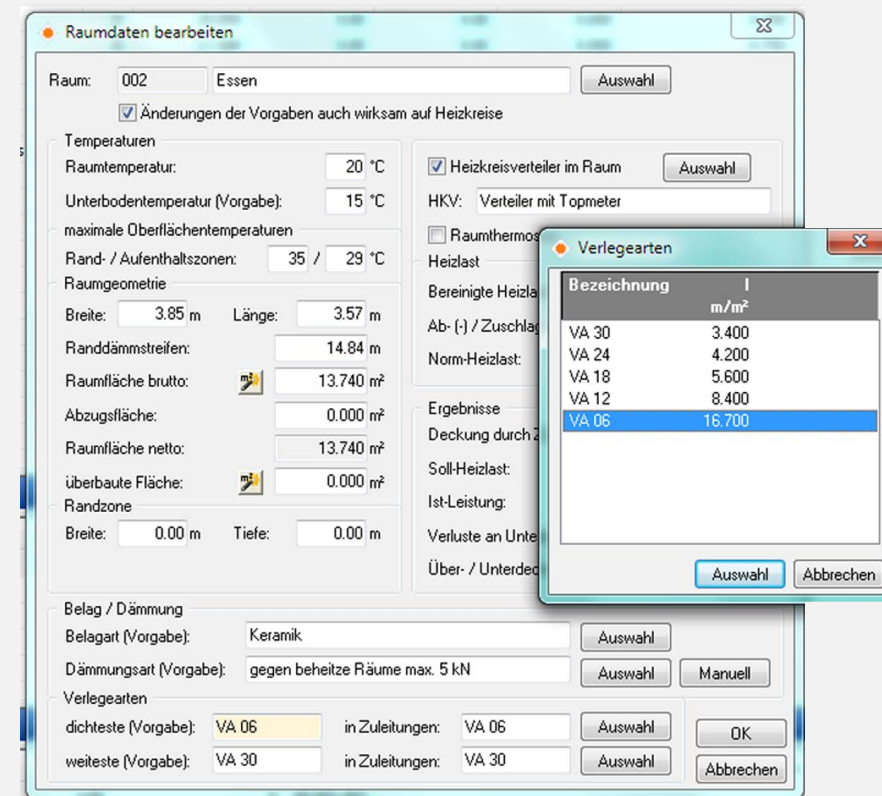✓ Data linkage with radiator and piping network calculation

Fig. 9 *The automatically determined required insulation and installation type can be checked in detail and, if necessary, modified. Define sub-areas, e.g., rooms with different underfloor temperatures.*

Heating

Heating and Cold Water Networks Including Schematic Editor [H60]

Program for planning symmetrical and asymmetrical heating pipe networks for projects of various types and complexity. Fast and easy data entry and editing in a 2D pipe network schematic using intelligent functions for hydraulic circuits. Exchangeable and combinable with custom and product-neutral standard catalogs as well as data from imported VDI 3805 manufacturer datasets.

Data can be captured in the schematic or BIM-integrated in 3D.

- ✓ Optional data entry in schematic or in 3D (see BIM)
- ✓ Flow-dependent calculation of ζ (zeta) values
- ✓ Monitoring of hydraulic logic during data entry
- ✓ Throttle circuits, mixing, diversion circuits, etc.
- ✓ Hydraulic bypasses, buffer tanks, and boilers in parallel or cascade configuration
- ✓ Pressure balancing of heating circuits, subsections, and ring mains
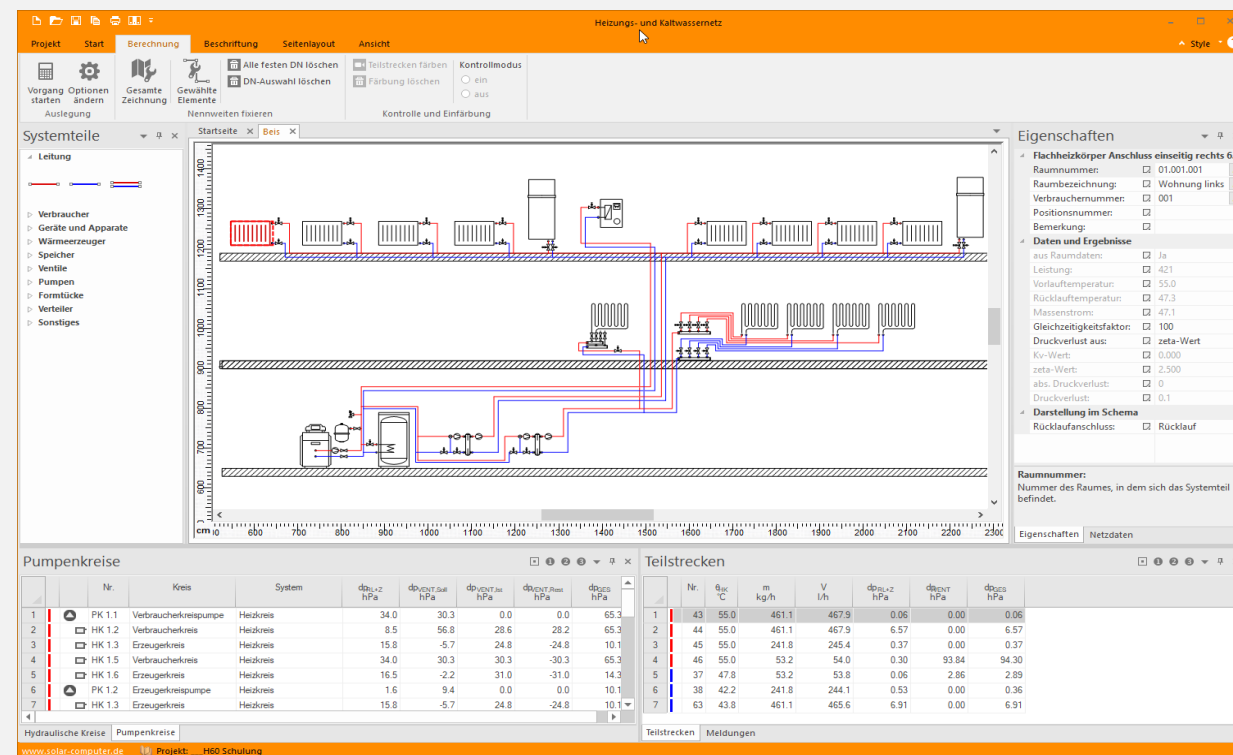
Fig. 10 *Drawing functions, assigning properties, and generating hydraulic circuits, pump circuits, and subsections.*

Cooling

Cooling Load and Room Temperature According to VDI 2078 / 6007 [W38]

Calculation of the transient behavior and maximum cooling load of rooms and buildings in Germany and Austria according to VDI 2078. Calculation of dynamic hourly room temperatures and operative temperatures considering all influencing factors such as geometry, building physics, occupancy, internal and external loads, and operating conditions.

Available only in conjunction with "Building Components – U-Value" module.

- ✓ VDI 2078, VDI 6007 Parts 1 to 3
- ✓ Verification of the maximum cooling load for CDP and CDD
- ✓ Special case: periodically stabilized state
- ✓ Concrete core activation (cooling ceilings) according to VDI 6007-1 Annex C1
- ✓ Special applications, e.g., façades, sun shading, etc.
- ✓ Approximately 40 configurable verification tables/graphics

Add-on Modules: Northern Hemisphere and Worldwide [W38.World]

Add-on modules for the program "Cooling Load / Annual Simulation VDI 2078, Energy Demand VDI 2067-10, and Summer Thermal Protection" for standard-compliant calculation of projects outside Germany. The software is based on the latest knowledge and standards.

The programs are based on the guidelines for cooling load (VDI 2078, Edition 2015-06), energy demand of buildings for heating, cooling, humidification, and dehumidification (VDI 2067-10, Edition 2013-09), and the calculation of transient behavior of rooms and buildings (VDI 6007 Parts 1 and 2, Editions 2012-08, and Part 3, Edition 2015-06) with extended algorithm applicability for all locations in the northern hemisphere north of the Tropic of Cancer (Item No. W38.NORD) as well as all locations worldwide (Item No. W38.WELT). Validation is performed according to VDI 6020:2022-12, "Requirements for Thermal-Energy Calculation Methods for Building and System Simulation" for all validation examples.

- ✓ Add-on Module for Cooling Load (W38)
- ✓ TRY climate files included
- ✓ Microclimate of urban centers
- ✓ Applicable to buildings, zones, or individual rooms
- ✓ Simulation of interactions between building physics and technical building systems (TBS)
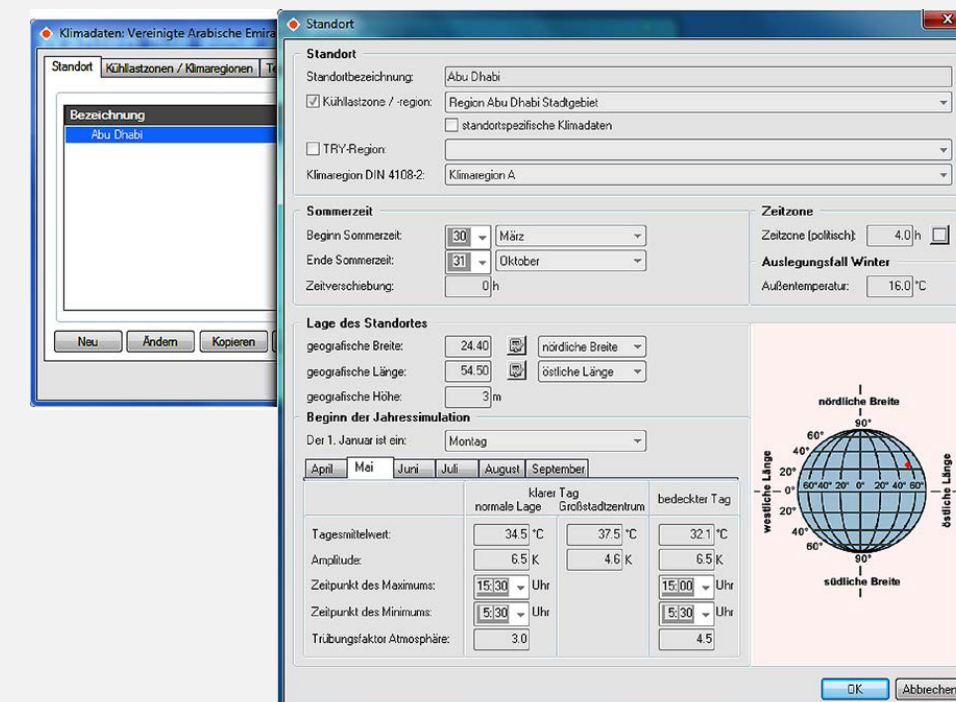- ✓ Verification of all types, including trends, annual profiles, etc.


Fig. 11 *Visualization of internal load data over the course of a day during room data processing.*

Fig. 12 *Dialog for managing location data for all sites in the northern hemisphere north of the Tropic of Cancer.*

Annual Energy Demand

Simulation and Energy Demand VDI 2067-10 / 6007 [W38.TRY]

Thermal-energy annual simulation according to VDI 2078 / 6007 and calculation of energy demand for heating, cooling, humidification, and dehumidification according to VDI 2067 Part 10. Calculation of dynamic hourly values considering all influencing factors such as geometry, building physics, occupancy, internal and external loads, and operating conditions. Includes verification of summer thermal protection and frequency of room temperature exceedances.

Available only in conjunction with dynamic heating load calculation VDI 6020 or cooling load calculation VDI 2078 / 6007.

✓ Add-on Module for Cooling Load (W38)
✓ TRY climate files included
✓ Microclimate of urban centers
✓ Applicable to buildings, zones, or individual rooms
✓ Simulation of interactions between building physics and technical building systems (TBS)
✓ Verification of all types, including trends, annual profiles, etc.
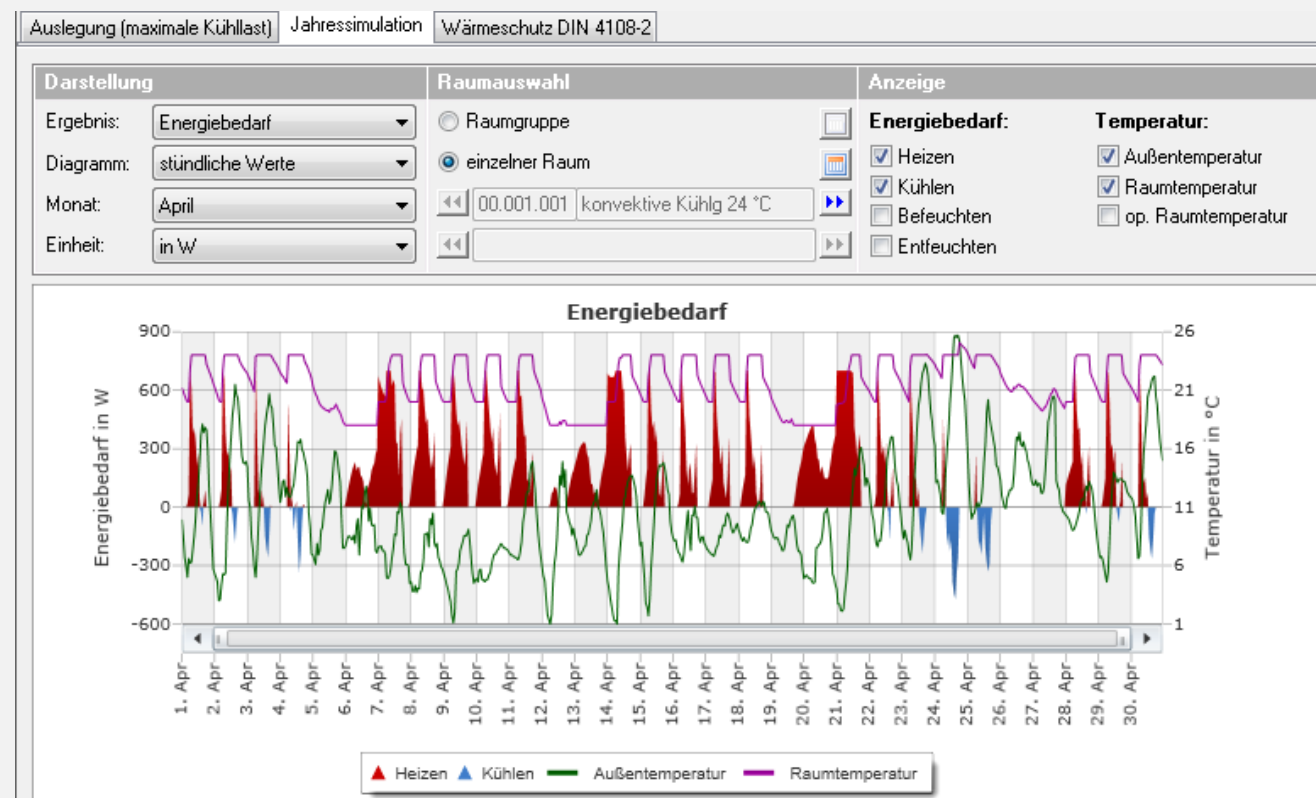
Fig. 13 *Hourly values of the annual simulation for heating and cooling energy as well as the outdoor temperature.*

Ventilation

Residential Ventilation DIN 1946-6 / 18017-3 [L47]

Program for conveniently checking the necessity of a ventilation concept and calculating ventilation measures in residential buildings with or without windowless rooms according to DIN 1946-6 and DIN 18017-3. Ventilation measures for systematic, user-independent ventilation of apartments can be represented quickly, easily, and safely, particularly for combined systems and buildings with multiple ventilation zones within a single usage unit. Fully compatible with EnEV and BIM building models.

✓ Special case: usage zones composed of multiple ventilation zones
✓ Combined ventilation systems, e.g., hybrid ventilation
✓ Form-based verifications according to the annexes of DIN 1946-6
✓ Airflow plan for applications according to DIN EN 12831-1

Airflow Calculations [L40]

Fast and easy calculation of supply and exhaust air volumes for rooms in residential and non-residential buildings of all types according to various DIN and EN standards, VDI guidelines, and other regulations.

✓ Ventilation of Non-Residential Buildings DIN EN 16788-1/3
✓ HVAC in Hospitals DIN 1946-4
✓ HVAC in Laboratories DIN 1946-7
✓ Sports and Multi-Purpose Halls DIN 18032-1
✓ HVAC for Kitchens VDI 2052
✓ HVAC for Garages VDI 2053-1
✓ HVAC for Retail Spaces VDI 2082
✓ Technical Building Services in Swimming Pools / Indoor Pools VDI 2089-1
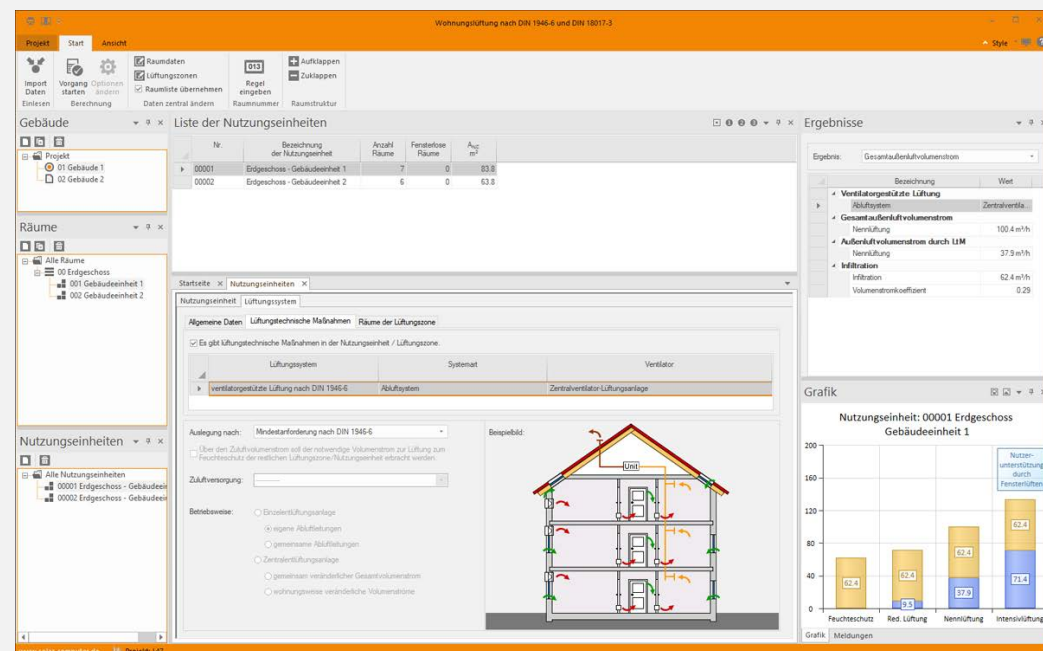✓ Workplace Directive

Fig. 14 Program interface with ribbon bar, project navigation, list and workspace areas, and results sections.
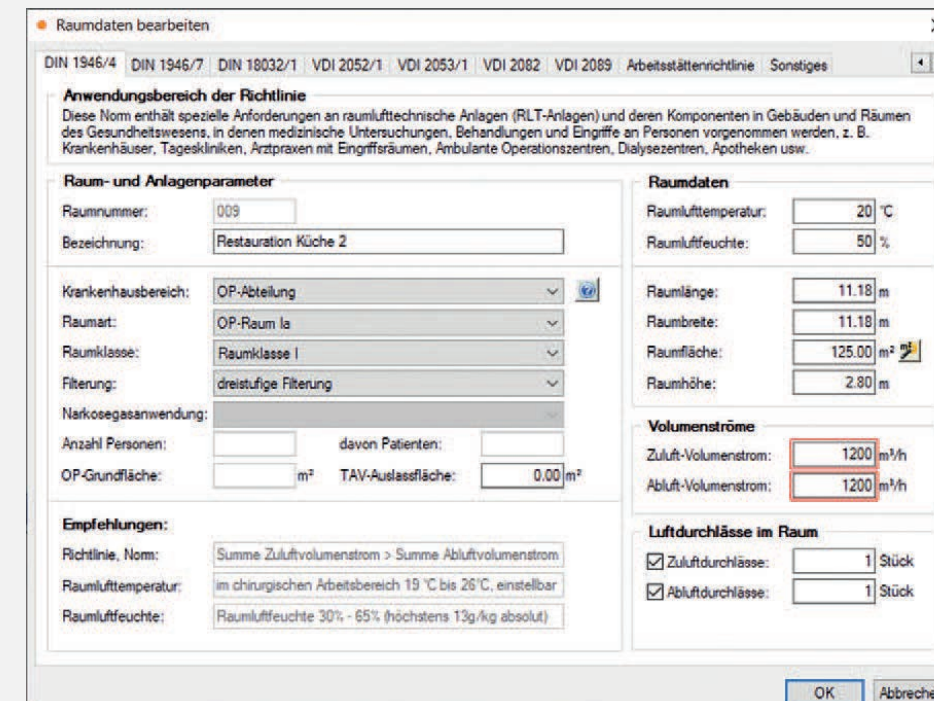

Fig. 15 Dialog for quick and easy calculation of supply and exhaust airflows for rooms in buildings of all types according to various DIN, EN, and VDI standards and guidelines.
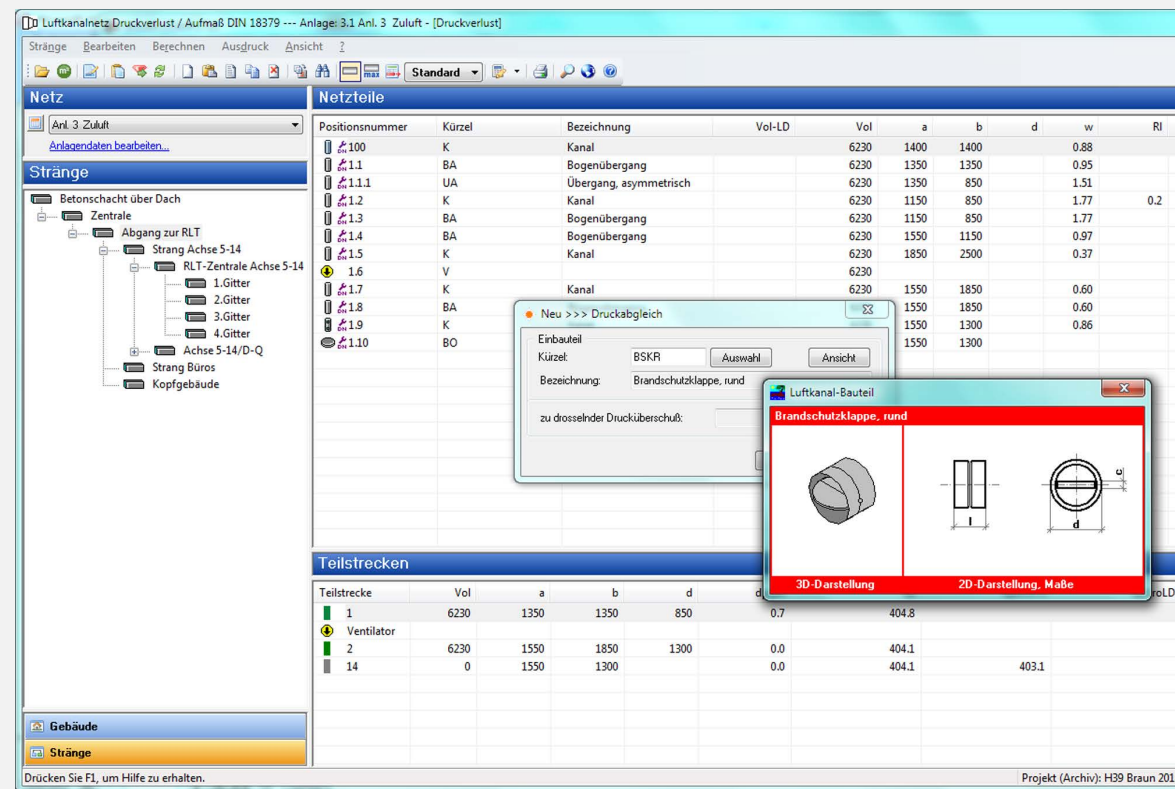
Ventilation

Air Duct Pressure Loss / Balancing [H39.DRU]

Program for calculating pressure losses in supply and exhaust air systems with rectangular, round, oval cross-sections, and combined duct components. Used for sizing, balancing, recalculating, optimizing, and simulating. Fast, easy, and reliable operation with real duct components, runs, assemblies, or subnetworks. Clear workflow with visualized network structure. Option to switch to duct measurement mode.

✓ Complete Pipe / Fitting Set DIN 18379
✓ AT and CH versions, free management of network components
✓ Formula editor with syntax checking
✓ Exact pressure loss calculation based on flow / zeta value
✓ Automatic subsection detection from network structure
✓ Pressure balancing, throttling, fan pressure

Fig. 16 *Inspecting and editing the runs, subsections, and network components of an air duct system for calculating pressure loss and balancing. Fully integrated with duct measurement mode.*

Ventilation

Air Duct Network Measurement [H39.AUF]

Measurement and billing of air duct systems of all types and sizes. Item lists can be quickly, easily, and securely created and structured in any order with graphical support. Marking function for separate calculation and evaluation, e.g., by planning or construction sections, rooms, or building parts. Option to switch to pressure loss calculation and balancing.

✓ Duct components as above
✓ Calculation formulas for material and insulation
✓ Dimensional variables for permissible value ranges
✓ Optional editing in list or linked duct network
✓ Billing by length and quantity of various types
✓ Weight, prices, fabrication/installation times, etc.

Air Duct Measurement DIN 18379 or ÖNORM H6015 in EXCEL [H6015]

Versatile measurement program for air duct systems of all types and sizes.

Item lists can be quickly, easily, and safely created and structured in any order with graphical support.

Data entry is done via input forms for rectangular and round ducts as well as equipment. Evaluations are carried out by running meters or square meters of duct and insulation material according to the two different standards, depending on the version.
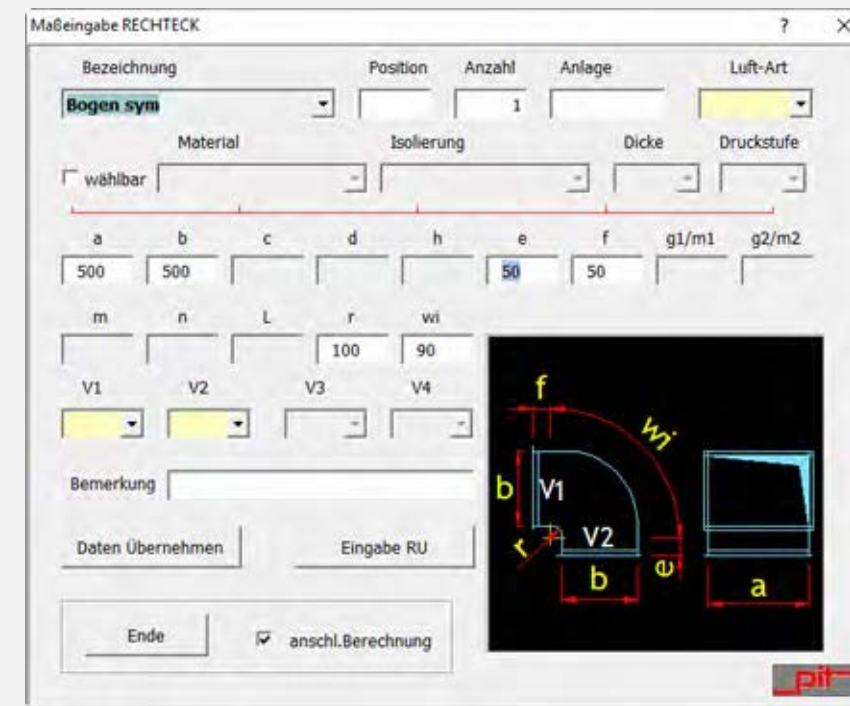

Fig. 17 Measurement item list of air duct network components with detailed dialogs for components and fittings.

Fig. 18 Input form for duct component.

Sanitary

Potable Water DIN 1988-300 including Schematic Editor [S90]

Calculation and design of potable water installations according to DIN 1988-300 for projects of all types and complexity in residential and non-residential buildings.

Free management of system components. Exchangeable and combinable with your own and product-neutral standard catalogs as well as data from imported manufacturer datasets according to VDI 3805-17, -20, and -29.

Optional data entry in schematic mode or BIM-integrated in 3D.

✓ DIN 1988-200 and -300, VDI 6023, DVGW 551 / 553
✓ Combining neutral catalogs and VDI 3805
✓ "Series" for designing mixed assortments
✓ Automatic generation of subsections
✓ Installations of all types with tees / manifolds
✓ Flow dividers, ring mains, circulation, blending
✓ Pressure balancing, neutral pressure points in rings
✓ Resistance coefficients dependent on nominal diameter
✓ Single- or multi-stage balancing
✓ Simulation of thermal disinfection
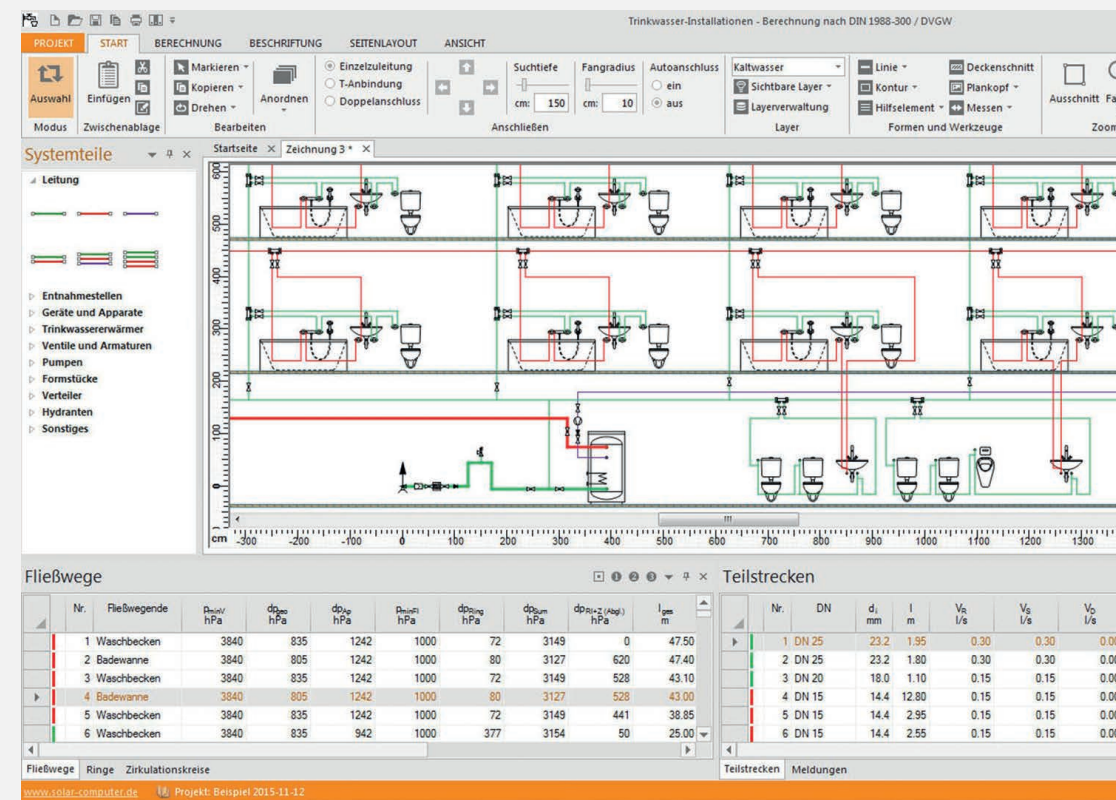✓ Play simulation and protocol
✓ Cold water circulation

Fig. 19 *Efficient data entry and editing in the potable water schematic with intelligent drawing functions, including automatic generation of subsections and assignment of properties.*

Sanitary

Drainage DIN EN 12056 / DIN EN 752 / DIN 1986-100 including Schematic [S89]

Calculation and verification of building and site drainage for residential and non-residential buildings of all types and sizes according to current standards. Continuous tabular and graphical control displays with editing capabilities. Extensive master data for boundary conditions and system components according to standards. Import interface VDI 3805.

Optional data entry in schematic mode or BIM-integrated in 3D.

- ✓ All systems/piping types described in the standards
- ✓ Ventilation, including bypass/secondary ventilation
- ✓ Sewage/mixed water and rainwater drainage
- ✓ Pipe sizing according to standard or actual values
- ✓ Roof/emergency drainage, overload, flooding
- ✓ Automatic alerts for critical parameters
- ✓ Visualized results during processing
- ✓ Various outputs in A4 portrait/landscape formats
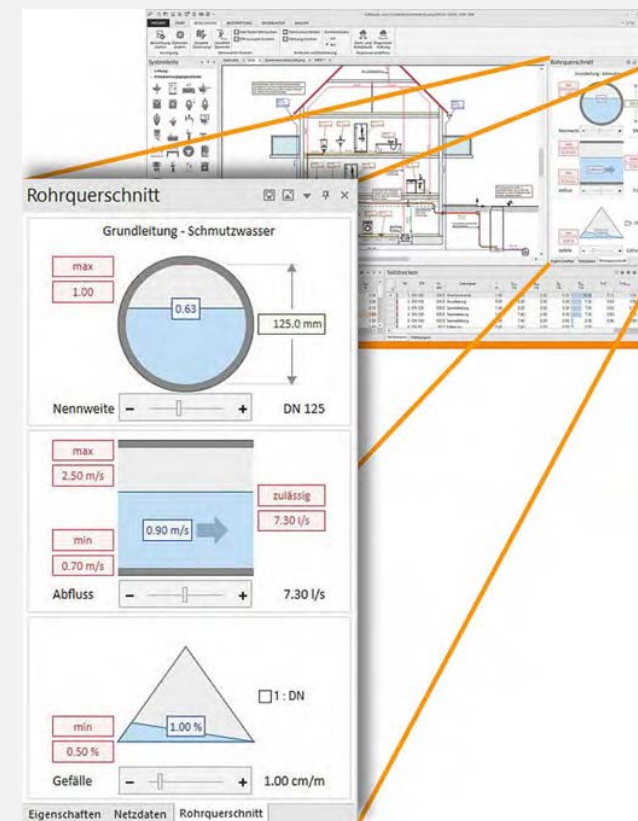- ✓ Schematic drawings for print or export

Fig. 20

Energy Efficiency

Building Energy Efficiency according to GEG / DIN V 18599 [B56]

Software package for calculating, checking, and verifying the energy efficiency of zones and systems in residential and non-residential buildings of all types, sizes, and complexity according to GEG / DIN V 18599. Convenient operation within the building and system schematics with numerous editing aids. Extensive verifications of all types in the form of customizable tabular or graphical summaries or monthly balances. Various interfaces, including eLCA, GDAS (?), BSI (?). Upgradeable as needed with additional applications such as energy reports for residential and non-residential buildings, individual renovation roadmap (iFSP), verification for federal funding (BEG) for non-residential building energy consulting, etc.

Fig. 21 *Energy performance certificate according to GEG / DIN V 18599.*

✓ DIN V 18599 Parts 1–11
✓ DIN EN ISO 52022-1 (solar protection), etc.
✓ All types of building components, including transparent insulation
✓ Double façades, ground contact, etc.
✓ Free structuring from envelope surfaces of zones/rooms
✓ Neighboring relationships
✓ Optional generation of zones from rooms
✓ Editing in graphical building/system schematic
✓ Support for all system types according to DIN V 18599
✓ Heating, multiple boiler and complex HVAC systems, solar, heat pumps, CHP, PV, wind, fuel cells
✓ Adjustable detail level of verifications
✓ Approx. 60 tabular/graphical verifications
✓ Verification of CO_2 emissions for building applications
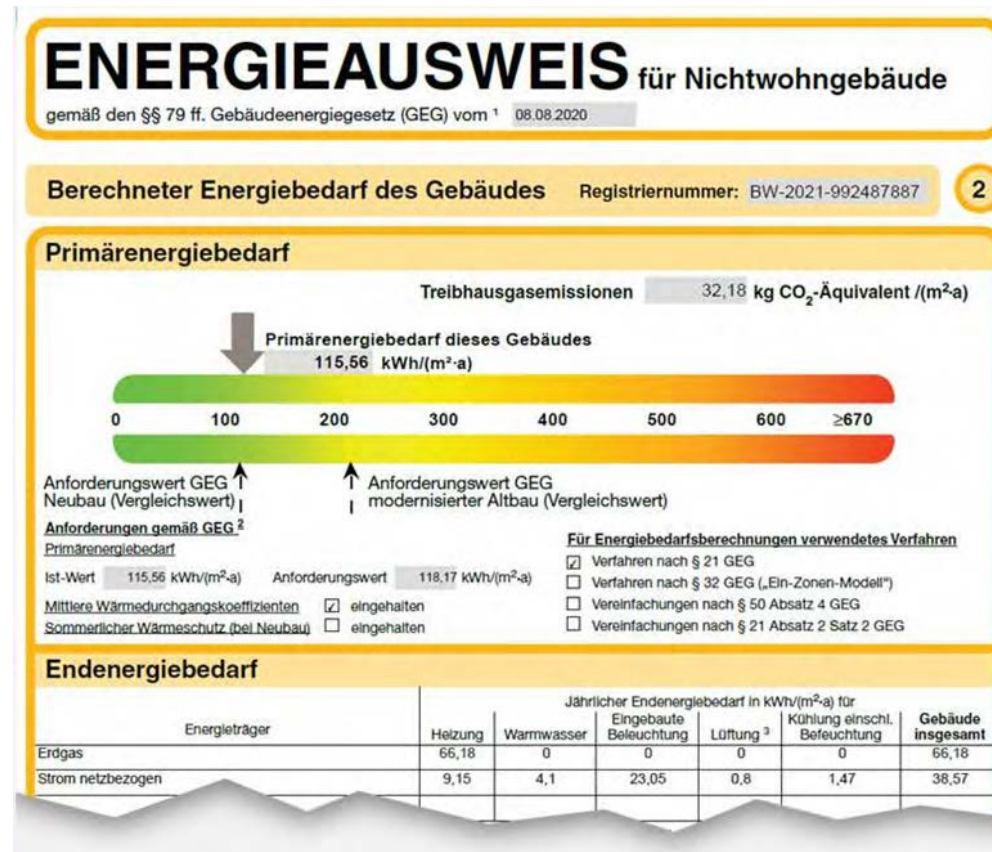✓ Official BBSR print application

Energy Efficiency

Energy Report for Residential and Non-Residential Buildings [B56.EB]

Generate energy reports for residential and non-residential buildings from DIN V 18599 projects. The energy report includes a cover page, table of contents, texts, tables, and graphics as a Word document and is fully customizable. Various template options for residential and non-residential buildings are available, including templates for residential building energy reports according to the Bafa guideline. Custom report templates can also be created.

✓ Add-on Module for Building Energy Efficiency according to GEG / DIN V 18599
  Non-Residential Building Templates according to Federal Funding (BEG)
✓ New construction, stepwise / renovation "in one go"
✓ Automatic text examples with placeholders
✓ Customizable layout

Individual Renovation Roadmap [B56.ISFP]

Based on complete project data and calculation results, a nationwide standardized individual renovation roadmap (iSFP) can be created for residential buildings of all types, e.g., as a supplement to an energy performance certificate according to GEG.

✓ Add-on Module for Building Energy Efficiency according to GEG / DIN V 18599
✓ Official dena print application according to GEG / BEG
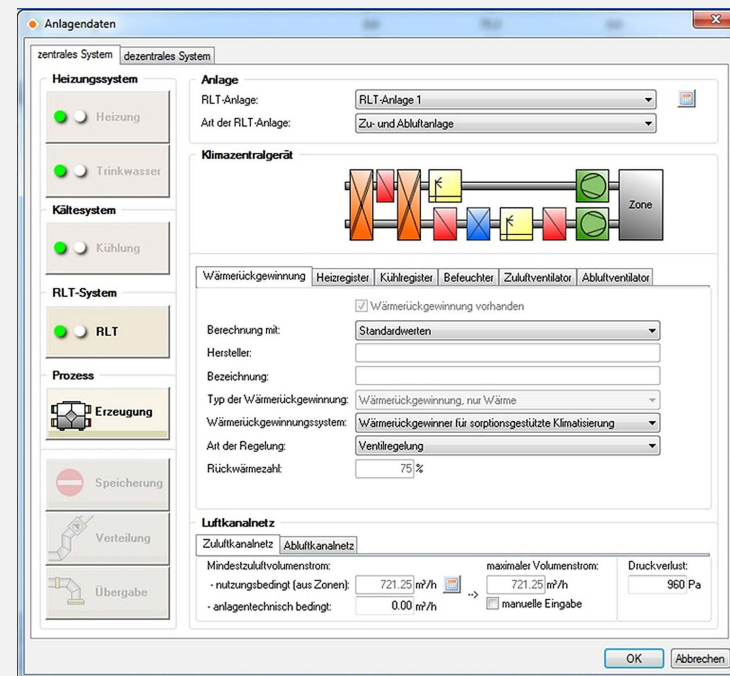✓ Automatic renovation components

Fig. 22 *Dialog for editing the heating/ cooling generator data according to DIN V 18599 for a non-residential building as part of the verification process according to GEG.*
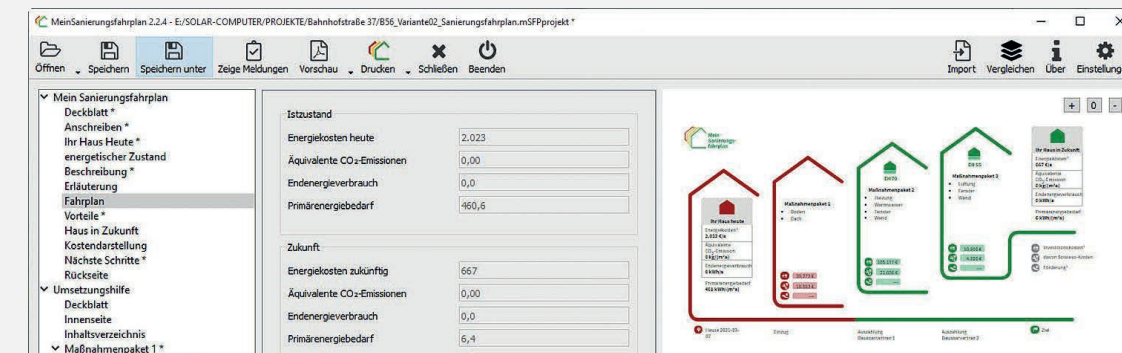

Fig. 23 *"My Renovation Roadmap 2.2.0" dialog of the BBSR print application based on GEG and BEG.*

Energy Efficiency

Cost-Effectiveness Calculation [B56.WI]

Standard-compliant cost-effectiveness calculation for structural, technical system, or combined modernization measures for existing buildings, or planning alternatives compared to the standard in new construction. Payback method according to VDI 6025 and VDI 2067-1.

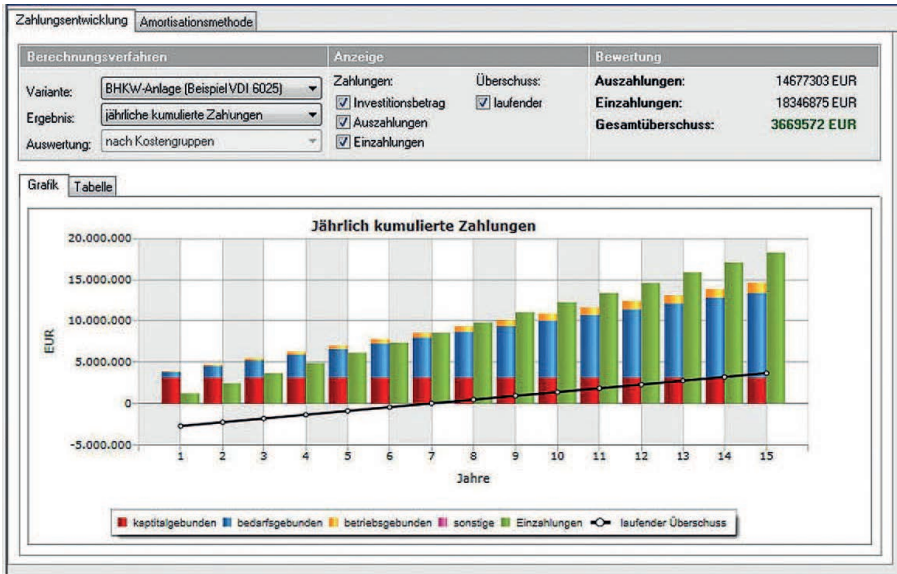✓ Add-on Module for Building Energy Efficiency according to GEG / DIN V 18599

Fig. 24 *Representation of the payment schedule for a renovation proposal, switchable to a payback verification according to VDI 6025. Technical system components and cost types according to VDI 2067-1.*

Template Systems 18599 [B56.MA]

Simplified entry of system data by retrieving and managing template systems from the SOLAR-COMPUTER master data.

✓ Add-on Module for Building Energy Efficiency according to GEG / DIN V 18599

Consumption-Based Energy Certificate for Residential and Non-Residential Buildings according to GEG [V56]

Program for quickly and easily calculating consumption-based energy certificates in accordance with the Building Energy Act (GEG) for residential and non-residential buildings, as well as for recalculating older projects. Annual consumption data for heating and, if applicable, electricity can be recorded for freely selectable standard billing periods. Results can be checked during data entry or as a preview in the integrated official print application. DIBt online registration.

✓ Postal-code-specific assignment of DWD climate data
✓ Freely selectable month for the start of the consumption period
✓ Hot water determination optionally by calculated, measured, or design value
✓ Energy carrier can be changed during the consumption period
✓ Date-specific recording of electricity consumption for non-residential buildings
✓ Option to record modernization proposals
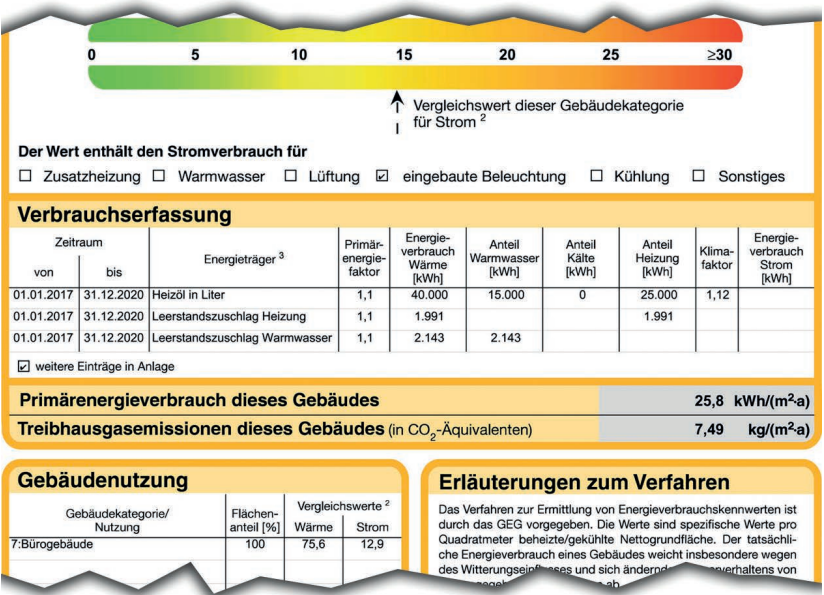✓ All verifications, including CO_2 equivalent

Fig. 25 *Consumption-based energy certificate (excerpt) according to GEG for a residential or non-residential building, including verification of greenhouse gas emissions (CO_2 equivalent).*

Business Economics

Economic Efficiency Calculations VDI 6025 [K80]

Software for calculating and verifying the economic efficiency of investment projects of all types using the annuity method according to VDI 2067-1 and additional dynamic methods (net present value, payback period, internal rate of return) according to VDI 6025. Takes into account change rates, periodic variables, and risk assessments. Investment projects can be freely managed or combined. Free management of classification frameworks. Import interface according to DIN V 18599.

- ✓ Construction Costs according to DIN 276-1
- ✓ All boundary conditions, including limit value considerations
- ✓ Investment projects consisting of multiple components
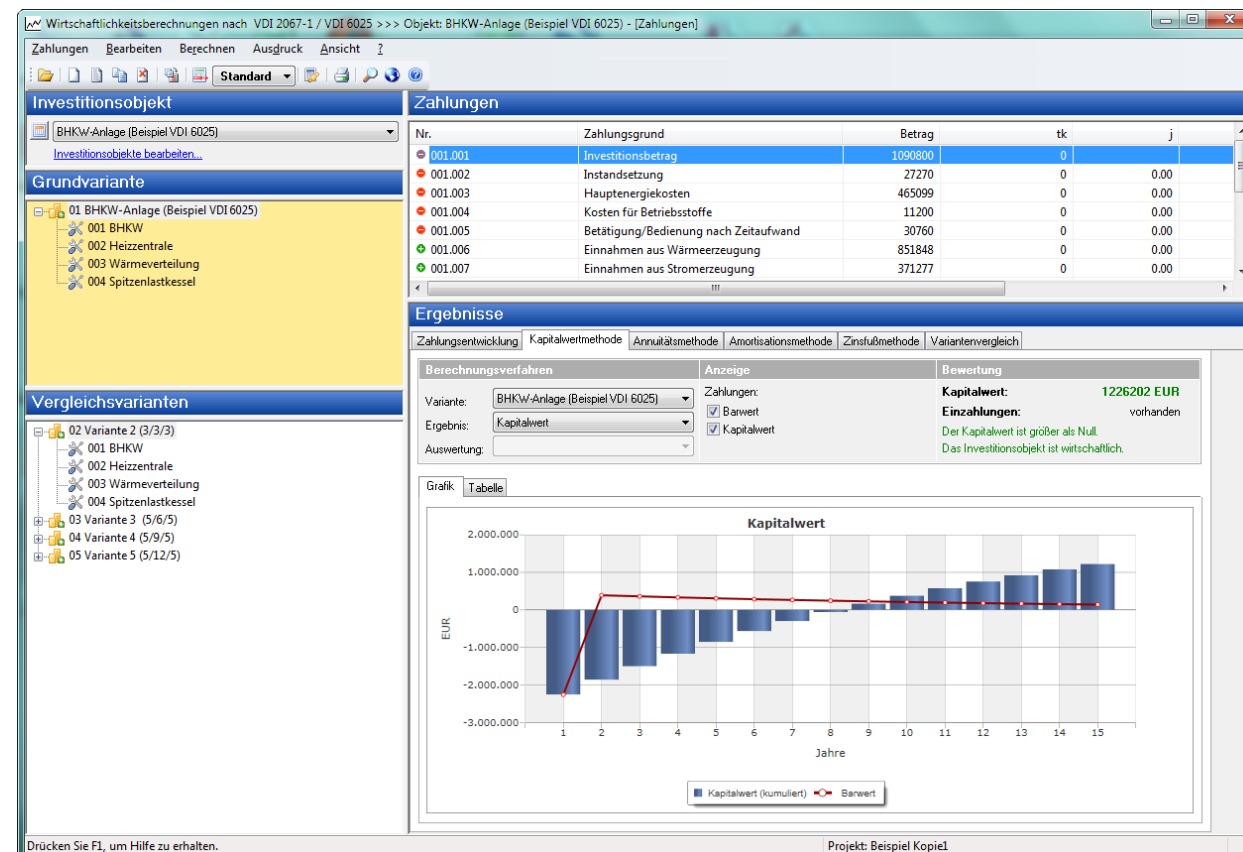- ✓ Comparison analyses with over 20 configurable verification types

Fig. 26 *Project processing with variants and the "Net Present Value Method" tab displayed. Used to visualize cumulative net present values and the present value progression. Additional tabs are available for the annuity, payback, and internal rate of return methods, as well as for cash flow development and variant comparisons.*

CAD/BIM

3D Room Tool [K12]

The 3D Room Tool is software for the fast, simple, and reliable graphical capture of building data according to the European dimensioning standard, for further processing in SOLAR-COMPUTER calculation programs. Data capture takes place in project layers with transparency over a background layer, which displays the floor plan from a CAD or other source in DXF, DWG, PDF, or image file format.

3D Room Tool – DIN 277 Analysis

An add-on module for the "3D Room Tool" software for determining net room areas and volumes according to DIN 277 from 3D models. Applications include, among others, KfW funding applications in the context of sustainability.

IFC Extension for 3D Room Tool [K12.IFC]

An add-on module for the "3D Room Tool" software for importing drawing data in the IFC standard. The data can be directly adopted, and the building can be displayed in 3D. Any existing inconsistencies in the drawings can be easily corrected to enable building calculations according to EnEV / DIN V 18599, heating load EN 12831, cooling load VDI 2078, and other standards and guidelines. Export of drawing data in the IFC standard is also possible.

Integrated Calculation in Conjunction with Revit

For optimal integrated drawing and calculation, a user requires, in addition to Revit and SOLAR-COMPUTER calculation programs, only the four SOLAR-COMPUTER tools "GBIS.*I-Rev" for the disciplines B (Building), H (Heating), S (Sanitary), and V (Ventilation), depending on the need.

As described below, all ribbons and dialogs of the tools are fully integrated into the Revit interface.
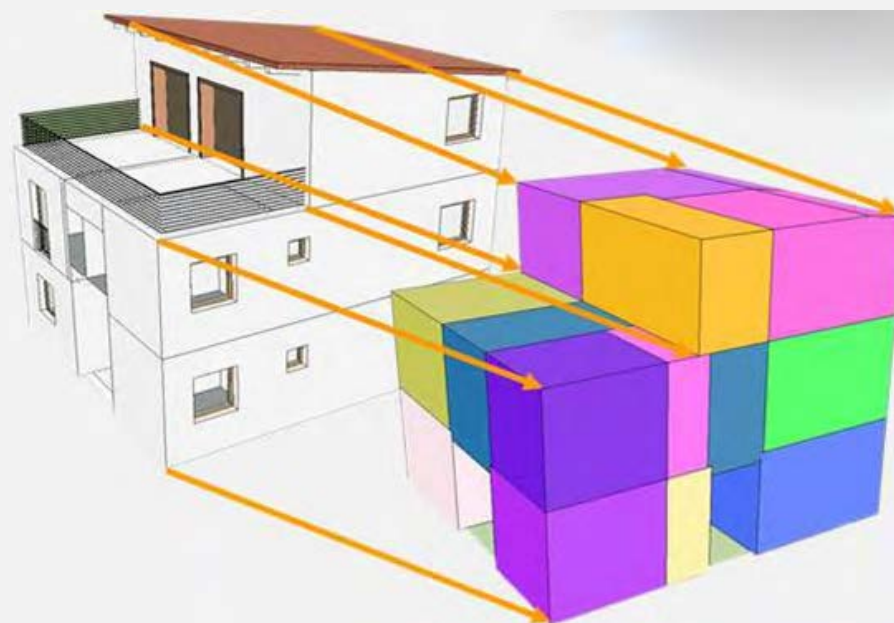

Fig. 27 3D view of an imported or newly drawn architectural model in the "3D Room Tool." The tool recognizes rooms and building physics components with adjacent room relationships and adjusted dimensions, as required for SOLAR-COMPUTER calculations.
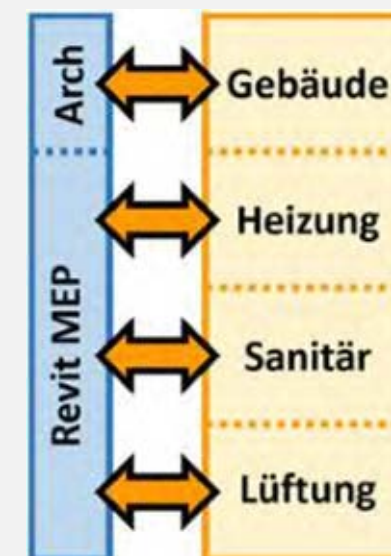

Fig. 28 SOLAR-COMPUTER calculation programs for all disciplines can be integrated into Revit using four SOLAR-COMPUTER tools.

CAD/BIM

GBIS Building Integrated for Revit [GBIS.BI-Rev]

Tool for integrating SOLAR-COMPUTER building calculations into Revit:

- ✓ Building Energy Efficiency GEG / DIN V 18599
- ✓ Heating load EN 12831-1 including national annexes
- ✓ Cooling load VDI 2078 / 6007 / DIN 2067-10 including upgrades
- ✓ Dynamic heating load VDI 6020 / 6007

Fig. 29

GBIS.Schema for Revit [GBIS.Schema]

For those who want to draw an MEP network in Revit and connect it to standards-compliant calculations, this GBIS module provides the appropriate functionalities. The module significantly reduces drawing work by providing access, in addition to the standard "Revit drawing content," to the "Schema Family Browser," which is included with the module. The browser is organized by discipline and contains all typical objects found in MEP schematics for various trades. All objects also include properties for automated connection with SOLAR-COMPUTER calculations.

In the GBIS drawing view, the drawn network can be further edited with various functionalities to make it "calculation-ready." The "Correct Pipe Lengths" function allows for comfortable adjustment to real dimensions. Using "Component Lists," elbows and fittings that are usually not drawn in the schematic can be automatically added. The "Consumer Import" function provides access to any existing calculation documentation for radiators, underfloor heating, and wall heating circuits. Additional functionalities correspond to those of 3D planning with the GBIS modules *.SI-REV and *.HI-REV. Once the starting point is defined, integrated calculation can be performed.

The following programs can be integrated:

- ✓ Building and Site Drainage DIN EN 12056 / 752 / DIN 1988-100
- ✓ Drinking Water Installation DIN 1988-300
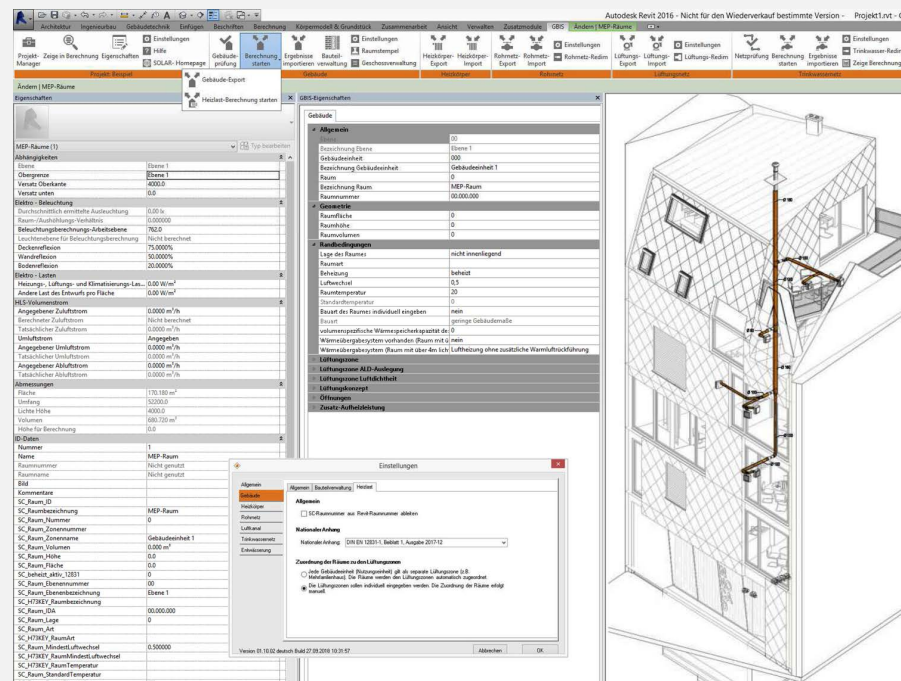- ✓ Heating / Cold Water Pipe Network

CAD/BIM

GBIS Sanitary Integrated for Revit [GBIS.SI-Rev]

Tool for integrating SOLAR-COMPUTER building calculations into Revit:

- ✓ Drinking Water Installation DIN 1988-300 [S90]
- ✓ Building and Site Drainage DIN EN 12056 / 752 / DIN 1986-100 [S87]

GBIS Heating Integrated for Revit [GBIS.HI-Rev]

Tool for integrating SOLAR-COMPUTER heating system calculations into Revit:

- ✓ Radiator Design VDI 6030 [H09]
- ✓ Underfloor / Wall Heating [H13]
- ✓ Heating / Chilled Water Pipe Network Calculation [H60]

GBIS Ventilation for Revit [GBIS.V-Rev]

Tool for calculating ventilation systems in SOLAR-COMPUTER calculation programs in combination with Revit:

- ✓ Airflow Calculations according to Various Standards [H39.VOL]
- ✓ Duct Network Pressure Loss / Balancing [H39.Druck]
- ✓ Duct Quantity Survey [H39.Auf]

Fig. 30

Fig. 31 GBIS ribbons, GBIS properties, and SOLAR-COMPUTER calculation program dialogs are fully integrated into the Revit interface. Examples: Heating Load EN 12831-1, Heating Pipe Network, Drinking Water Installation DIN 1988-300.

CAD/BIM

GBIS Sanitary for Revit Fabrication [GBIS.S-Rev.Fab]

Tool for integrating SOLAR-COMPUTER sanitary system calculations into Revit:

✓ Drinking Water Installation DIN 1988-300 [S90]
✓ Building and Site Drainage DIN EN 12056 / 752 / DIN 1986-100 [S87]

GBIS Heating for Revit Fabrication [GBIS.H-Rev.Fab]

Tool for integrating SOLAR-COMPUTER heating system calculations into Revit:

✓ Radiator Design VDI 6030 [H09]
✓ Underfloor / Wall Heating [H13]
✓ Heating / Chilled Water Pipe Network Calculation [H60]

GBIS Ventilation for Revit Fabrication [GBIS.V-Rev.Fab]

Tool for calculating ventilation systems in SOLAR-COMPUTER calculation programs in combination with Revit:

✓ Airflow Calculations according to Various Standards [H39.VOL]
✓ Duct Network Pressure Loss / Balancing [H39.Druck]
✓ Duct Quantity Survey [H39.Auf]

openBIM

Revit users sometimes face the challenge of having to base their work on an IFC model—a task that is often tedious or even impossible if the building model derived from the IFC is not "calculation-ready." This problem is well known in the industry. The "GBIS IFC Manager" provides a solution: an independent SOLAR-COMPUTER tool that operates separately from the calculations.
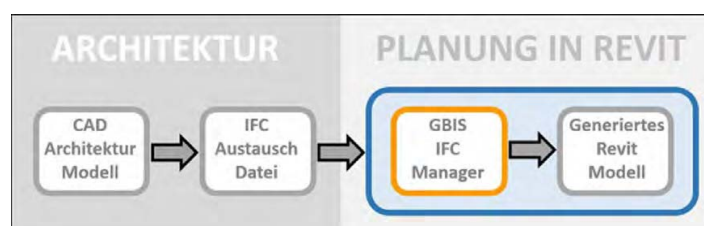
Fig. 32 BIM Process from Architectural Model to a Lean, MEP-Ready Revit Model Using the SOLAR-COMPUTER Tool "GBIS IFC Manager".

GBIS IFC Manager for Revit [GBIS.IFC]

Intelligent tool for extracting calculation-relevant data from IFC files of any type or source to create "lean" Revit models for efficient integration of building and MEP calculations. Features a convenient IFC viewer with adjustable rotation point, sectioning, and navigation within the IFC model. Global mapping of IFC classes to Revit categories. Refined, specific class mapping and selection of required data through freely definable and combinable formation rules.

✓ Revit-Integrated Tool
✓ Launch from the Revit ribbon bar
✓ Walkthrough view of the (sectioned) model
✓ Mapping of IFC classes to Revit categories
✓ Recognition of real rooms for MEP applications
✓ Formation rules for general IFC classes
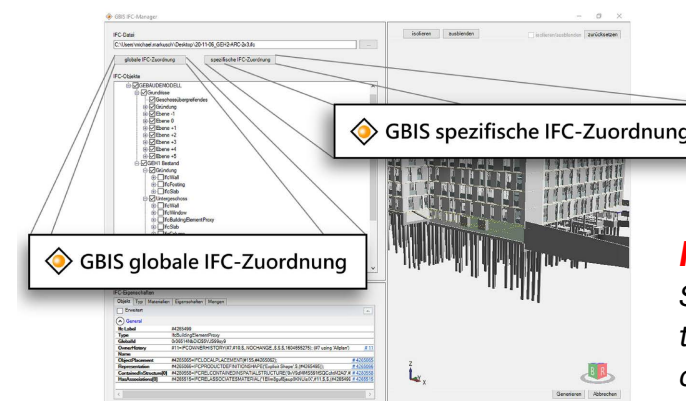✓ Automatic filtering of IFC coverings, etc.

Fig. 33 *Interface of the Revit-Integrated GBIS IFC Manager. Shows IFC objects, IFC properties, and a 3D model view with walk-through option. Sub-dialogs for global and specific mapping of IFC classes to Revit categories..*

Various SOLAR-COMPUTER Functions

are included in the GBIS SOLAR-COMPUTER Tools (GBIS.BI-Revit, GBIS.HI-Revit, GBIS.SI-Revit, GBIS.V-Revit), including the SOLAR-COMPUTER Component Manager.
The Component Manager provides functions for partially automated and partially dialog-driven assignment of all relevant building model components to components used in SOLAR-COMPUTER building physics calculations. Standardized codings (AW, IW, etc.) are automatically determined based on the component's location within the building and its various types.

Additional Managers:

✓ Level and Room Manager
✓ Properties Manager
✓ Underfloor Heating Manager
✓ Schema / 3D Manager, etc.

CAD/BIM

Calculations in Conjunction with AutoCAD MEP / Architecture

Similar to Revit, SOLAR-COMPUTER calculations can also be linked with AutoCAD Architecture / MEP using four GBIS tools for the disciplines B (Building), H (Heating), S (Sanitary), and V (Ventilation). Due to the more limited integration capabilities of AutoCAD compared to Revit, the available functionalities are somewhat reduced.
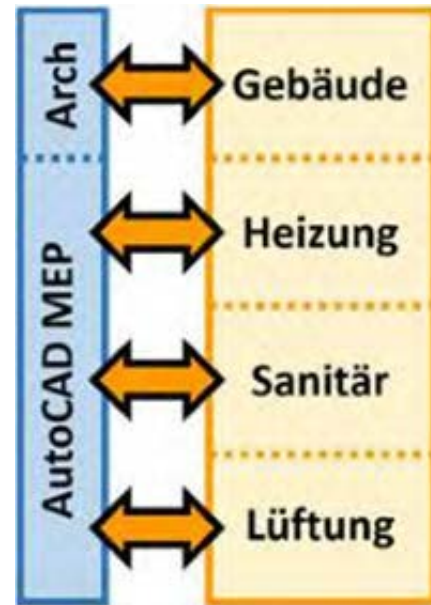
Fig. 34 *Similar to Revit, SOLAR-COMPUTER calculations can be intelligently linked with AutoCAD using four GBIS tools.*

GBIS Building for AutoCAD Architecture/MEP [GBIS.B]

Tool for intelligently linking AutoCAD Architecture and AutoCAD MEP with the SOLAR-COMPUTER building programs:

- ✓ Building Energy Efficiency GEG / DIN V 18599
- ✓ Heating Load EN 12831-1 including national annexes
- ✓ Cooling Load VDI 2078 / 6007 / DIN 2067-10 including upgrades
- ✓ Dynamic Heating Load VDI 6020 / 6007

GBIS Heating for AutoCAD MEP [GBIS.H]

Intelligent link between AutoCAD MEP and the SOLAR-COMPUTER heating programs:

- ✓ Radiator Design VDI 6030 [H09]
- ✓ Underfloor / Wall Heating [H13]
- ✓ Heating Pipe Network Calculation [H59]

GBIS Sanitary for AutoCAD MEP [GBIS.S]

Intelligent link with the sanitary calculations:

- ✓ Drinking Water Installation DIN 1988-300 [S89]
- ✓ Building and Site Drainage DIN EN 12056 / 752 / DIN 1986-100 [S86]

GBIS Ventilation for AutoCAD MEP [GBIS.V]

Tool for calculating ventilation systems in SOLAR-COMPUTER calculation programs with AutoCAD MEP:

- ✓ Duct Network Pressure Loss / Balancing [H39.Druck]
- ✓ Duct Quantity Survey [H39.Auf]
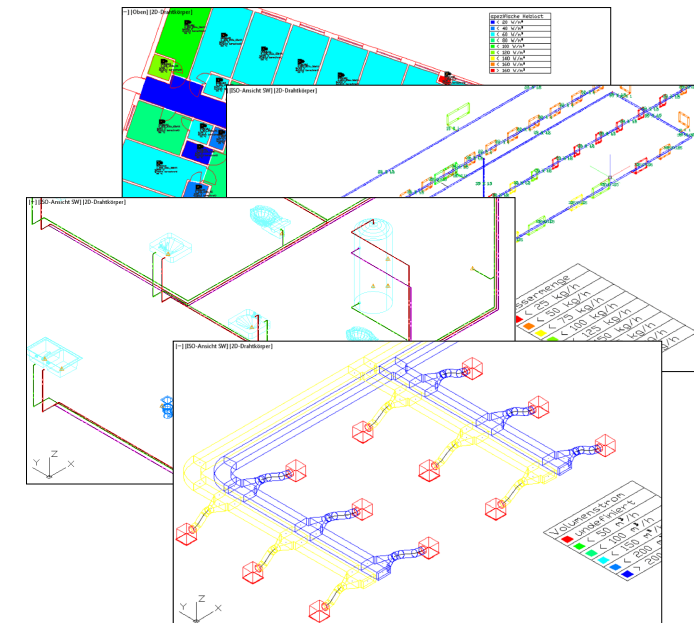- ✓ Airflow Calculations according to Various Standards [H39.VOL]

Fig. 35 *Project Examples for Intelligent Integration of SOLAR-COMPUTER Calculations with AutoCAD Architecture or AutoCAD MEP.*

CAD/BIM

pitCAD

Unlike with conventional CAD programs, in pitCAD you do not draw with lines, but with objects. This not only saves a significant amount of time but also offers a wide range of evaluation possibilities. You can work with different sections and views, as well as perform various area and quantity calculations. The cumbersome layer definition is also handled automatically by the program.

There are no limits to your planning, as pitCAD offers a fully scalable level of detail: whether schematic, 2D drawing, or 3D model—you are free to choose. pitCAD can optionally support you in all planning phases: from presenting the design concept, through detailed planning, to project management. pitCAD comes with an extensive symbol library that can be accessed during planning. With a single click, you can incorporate comprehensive information into your planning documents, providing valuable data throughout the various planning stages. -> you are free to choose. pitCAD can optionally support you in all planning phases: from presenting the design concept, through detailed planning, to project management. pitCAD comes with an extensive symbol library that can be accessed during planning. With a single click, you can incorporate comprehensive information into your planning documents, providing valuable data throughout the various planning stages.
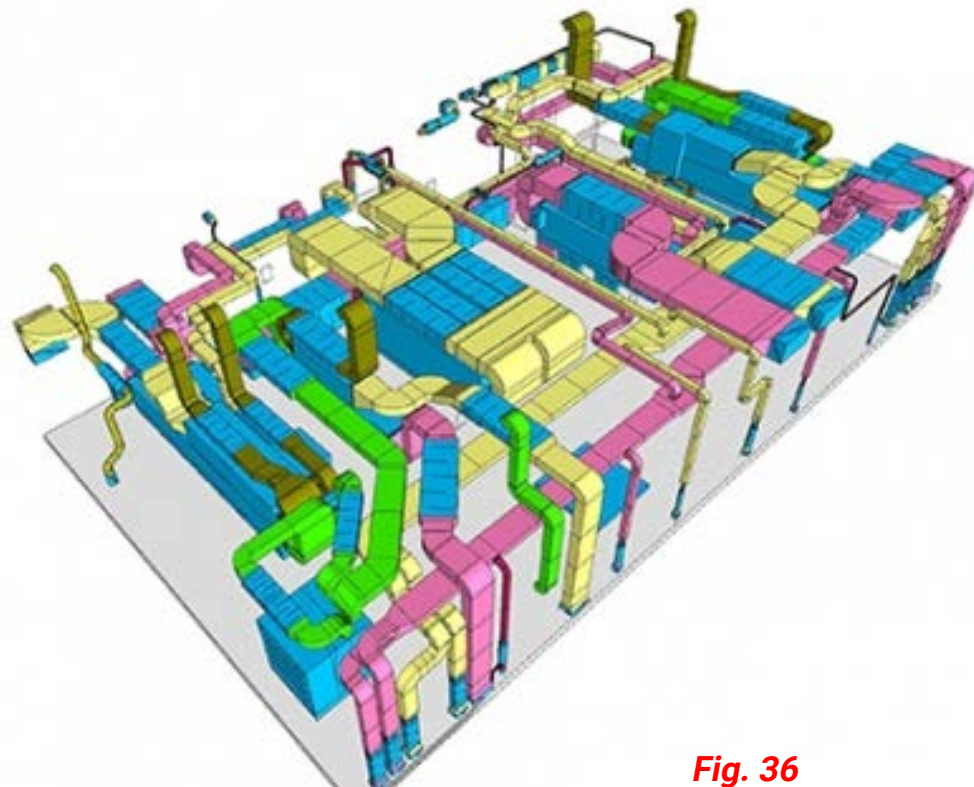
Calculations with pitCAD

Transfer the room structure and/or data for heating load, heat demand, and cooling load calculations, even from the 2D view. Import the calculation results back into the drawing. Transfer radiators to the radiator design module, adjust heating surfaces, modify connections, and update labels in the drawing. Network data can be transferred to pipe network calculations, with labeling of pipes and symbols imported into the drawing. For duct quantity surveys and pressure loss calculations, duct runs, equipment, and air outlets are imported directly from the drawing.

Fig. 36

pitCAD Ultimate

The Full-Fledged openBIM Authoring Tool for
Architecture, MEP, and Facility Management.

pitCAD
Ultimate

All in One CAD/BIM Solution
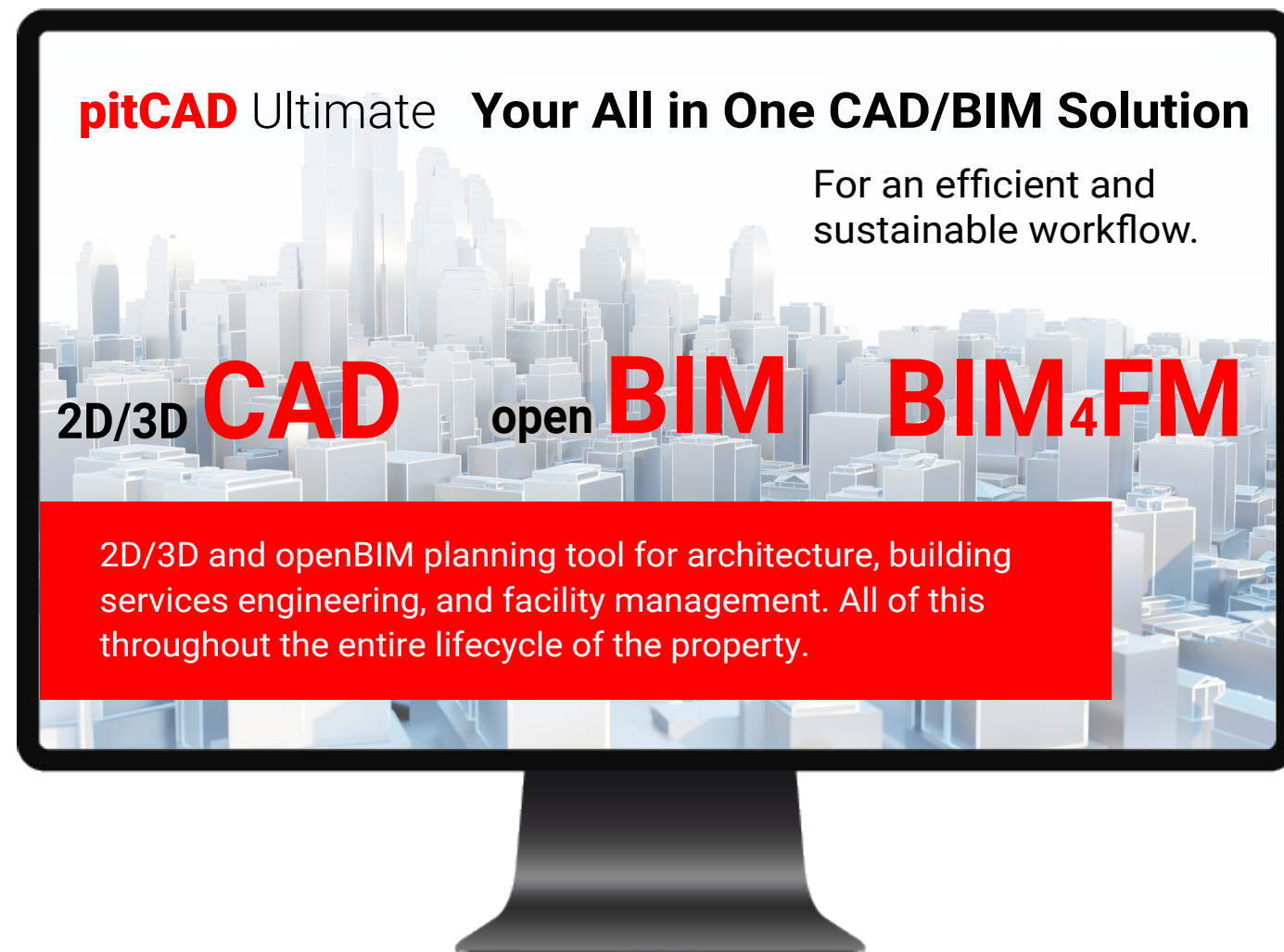### for Efficient and Sustainable Planning

Combines pit-cup's extensive experience within building technology planning and facility management to create an integrated 2D/3D CAD/BIM planning tool over the entire life cycle of a building. And all of this with an integrated CAD/BIM core.

✓ **A planning tool ⇌ A contact person**
✓ **One-time license costs (single-user or network license)**
✓ **Full CAD/BIM functionality**

#1 MEP Planning Tool for 2D/3D

#2 openBIM Authoring Tool

#3 BIM4FM Integration

pitCAD Ultimate **Your All in One CAD/BIM Solution**

For an efficient and sustainable workflow.

2D/3D CAD **open BIM** **BIM₄FM**

2D/3D and openBIM planning tool for architecture, building services engineering, and facility management. All of this throughout the entire lifecycle of the property.

pitCAD ULTIMATE **Basis**
All in One 2D/3D Planning Tool

Top Features
✓ Full-Fledged 2D/3D Planning Tool for Building Design
✓ Modern user interface for intuitive operation
✓ Wide range of tools for 2D planning and 3D modeling (drawing or modeling, editing, labeling, referencing, visualization, import/export, sheet output, etc.)
✓ Based on a consistent DWG platform
✓ Fully integrated into the pitEcoSystem+
✓ No additional CAD base application required
✓ Modular structure
✓ One-time licensing costs
✓ Available as a single-user or network license

pit 365 Maintenance & Support
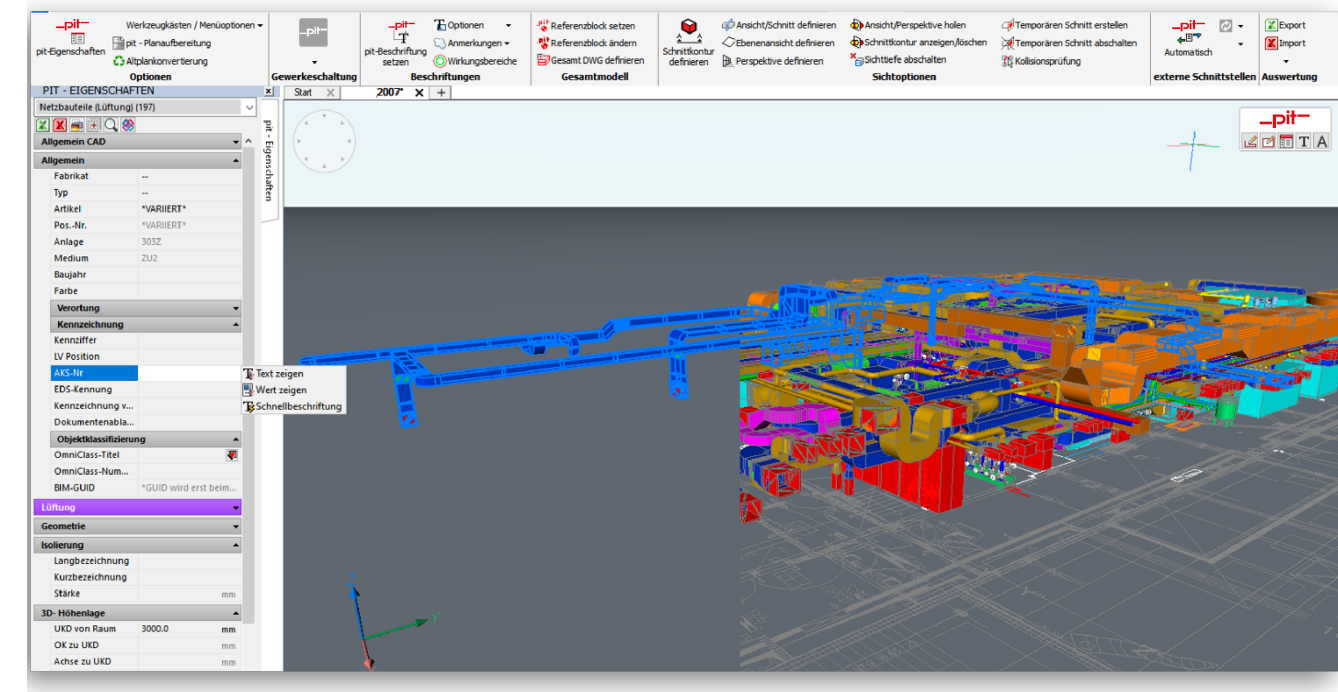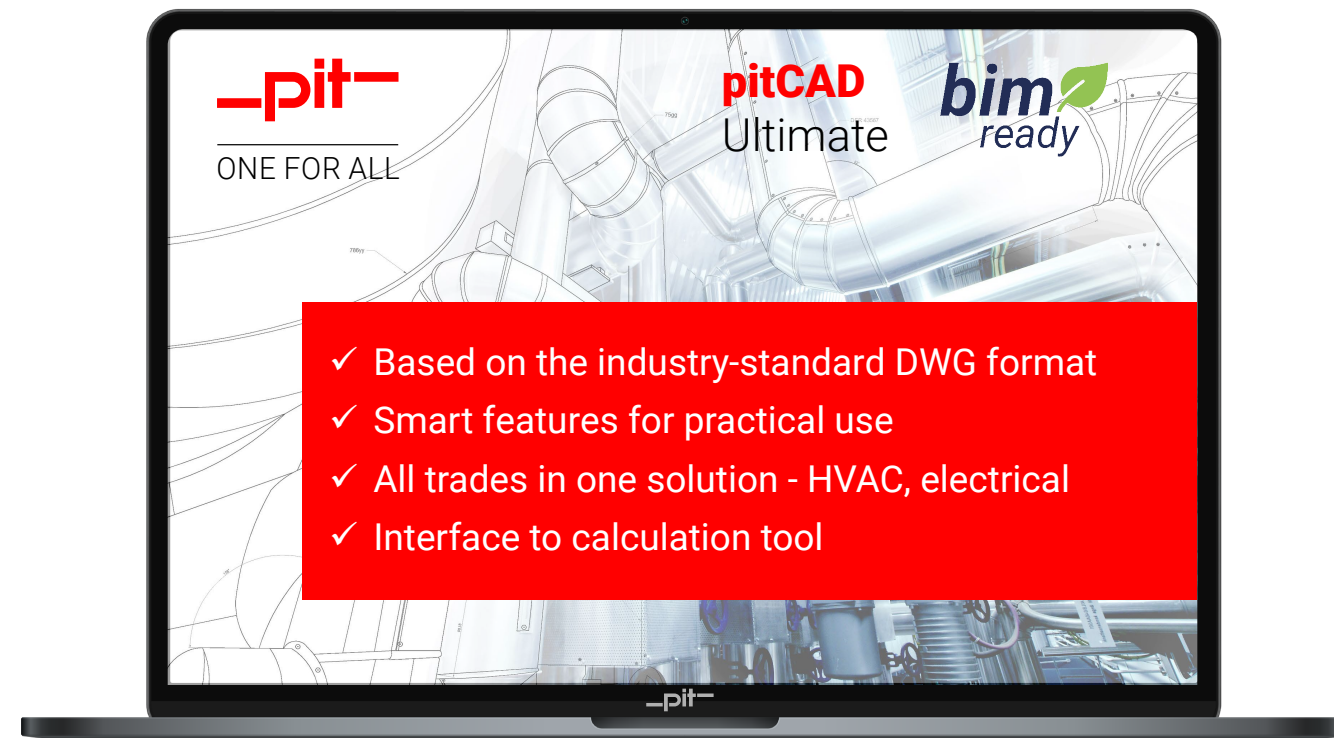
pitCAD ULTIMATE
Modular kit

Expansion modules for flexible customization of pitCAD Ultimate to meet your individual requirements

Modules
➢ BIM
➢ Communicator
➢ Heating and Sanitary
➢ Ventilation
➢ Electrical
➢ SOLAR-COMPUTER
➢ BIM4FM

pit 365 Maintenance & Support

pitCAD Ultimate

- ✓ Based on the industry-standard DWG format
- ✓ Smart features for practical use
- ✓ All trades in one solution - HVAC, electrical
- ✓ Interface to calculation tool

pitCAD Ultimate in a nutshell

- ✓ Classic 2D/3D planning in a familiar DWG environment
- ✓ 3D BIM modeling in DWG
- ✓ Smart, AI-based BIM modeling features
- ✓ Consistent user interface for all disciplines (HVAC, Electrical)
- ✓ Intuitive input concept with pitKlick
- ✓ Intelligent connection of the SOLAR-COMPUTER calculation software
- ✓ Area conversion tool for heating/cooling load calculation and for EnEV verification
- ✓ Complete IFC interoperability (IFC 2x3, IFC 4)
- ✓ Collaboration based on BCF
- ✓ Performant model editing through a lean data model
- ✓ Model preparation and drawing derivation
- ✓ Quantity export to Excel
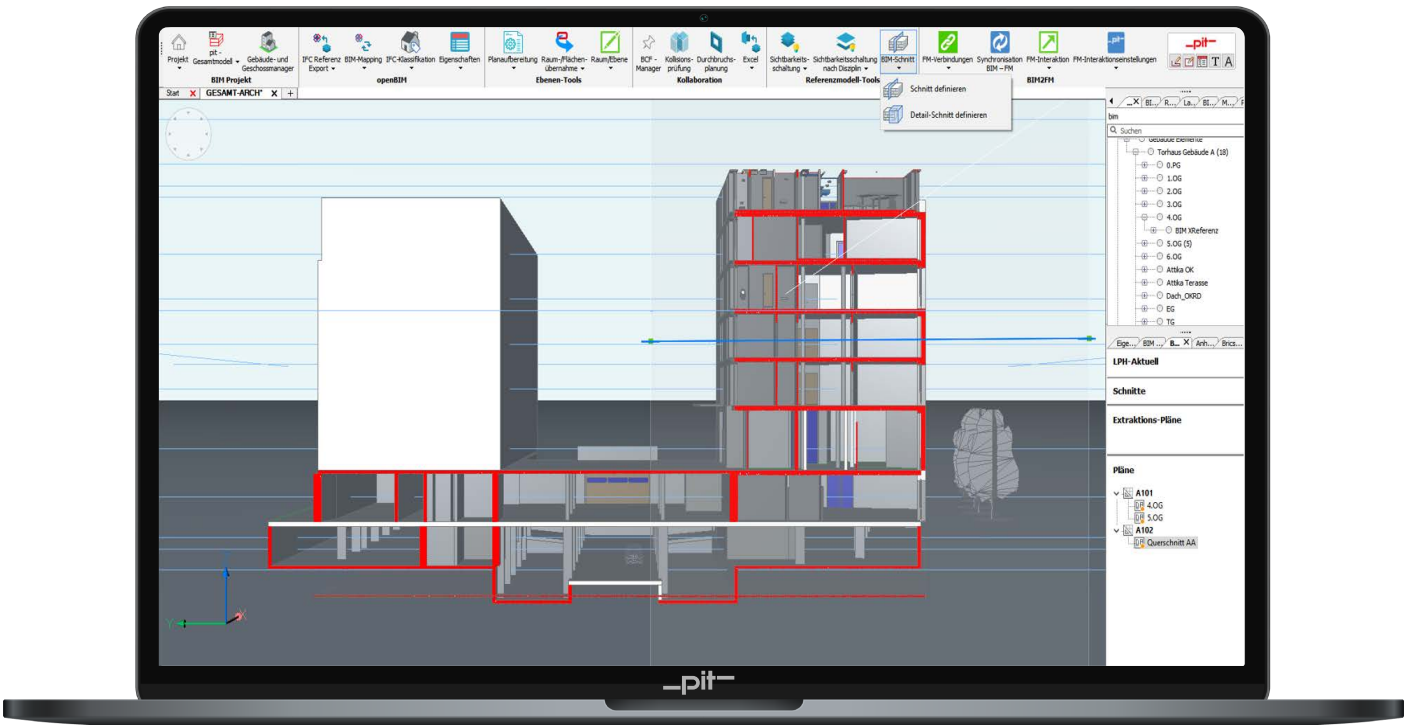- ✓ Fully integrated into the pitEcoSystem+ (plan, build, operate)
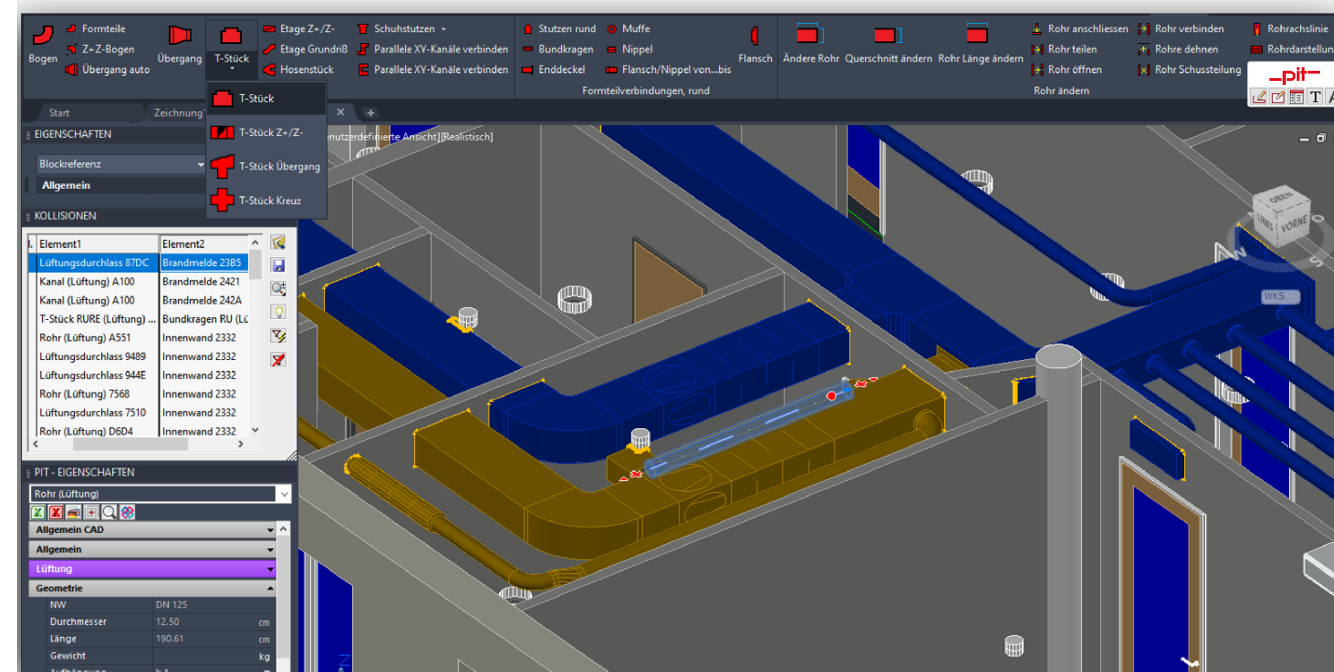
pitCAD Ultimate

The fully-fledged openBIM authoring tool for architecture, MEP and facility management.
Consistent planning tool across the entire real estate life cycle and basis for the digital TWIN.

pitCAD Ultimate in a nutshell

- ✓ BIM modeling in DWG
- ✓ Smart, AI-based BIM modeling features
- ✓ Full IFC interoperability (IFC 2x3, IFC 4)
- ✓ Simple mapping to different classification systems such as CAFM-Connect
- ✓ Import of Revit models
- ✓ Collaboration on the basis of BCF
- ✓ Performant model editing through a lean data model
- ✓ Model preparation and drawing derivation
- ✓ Fully integrated into the pitEcoSystem+ (design, build, operate)
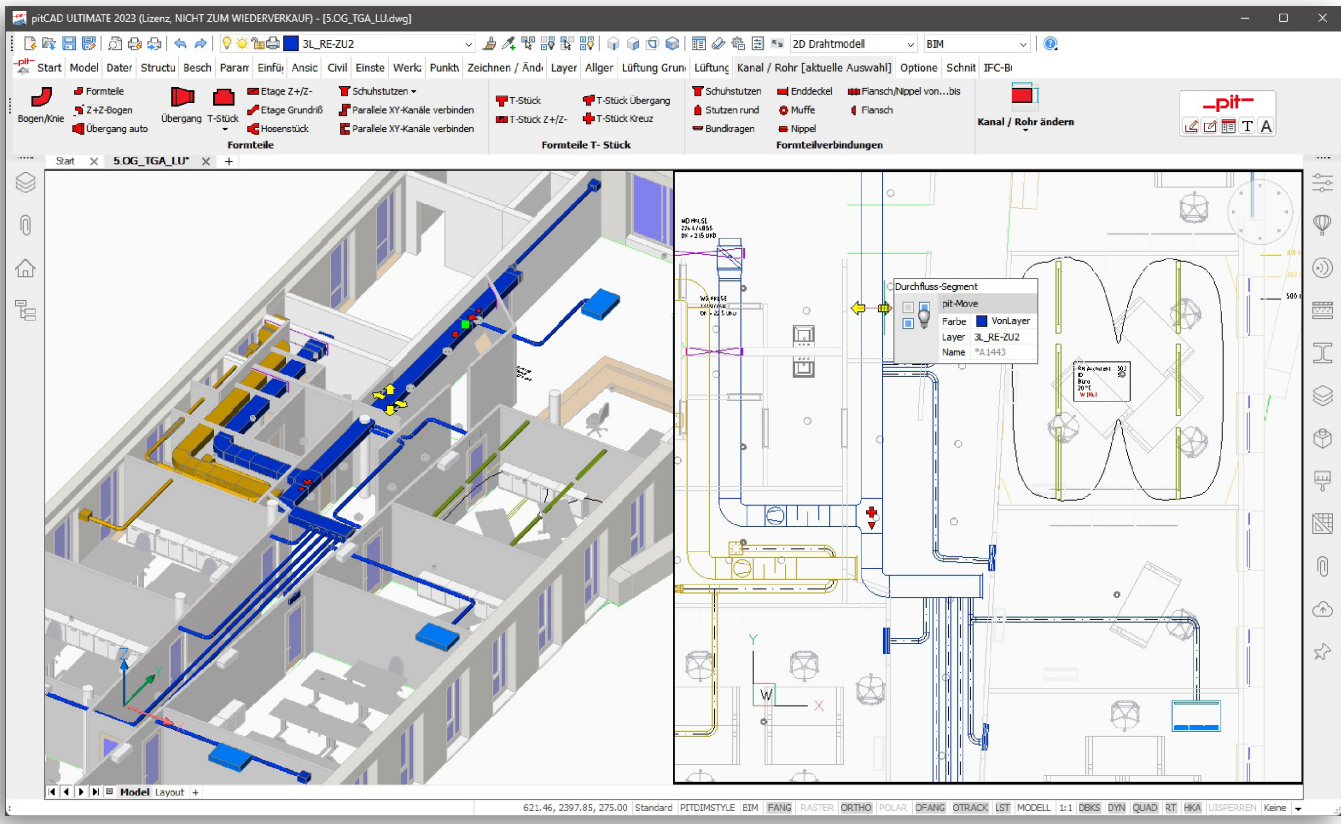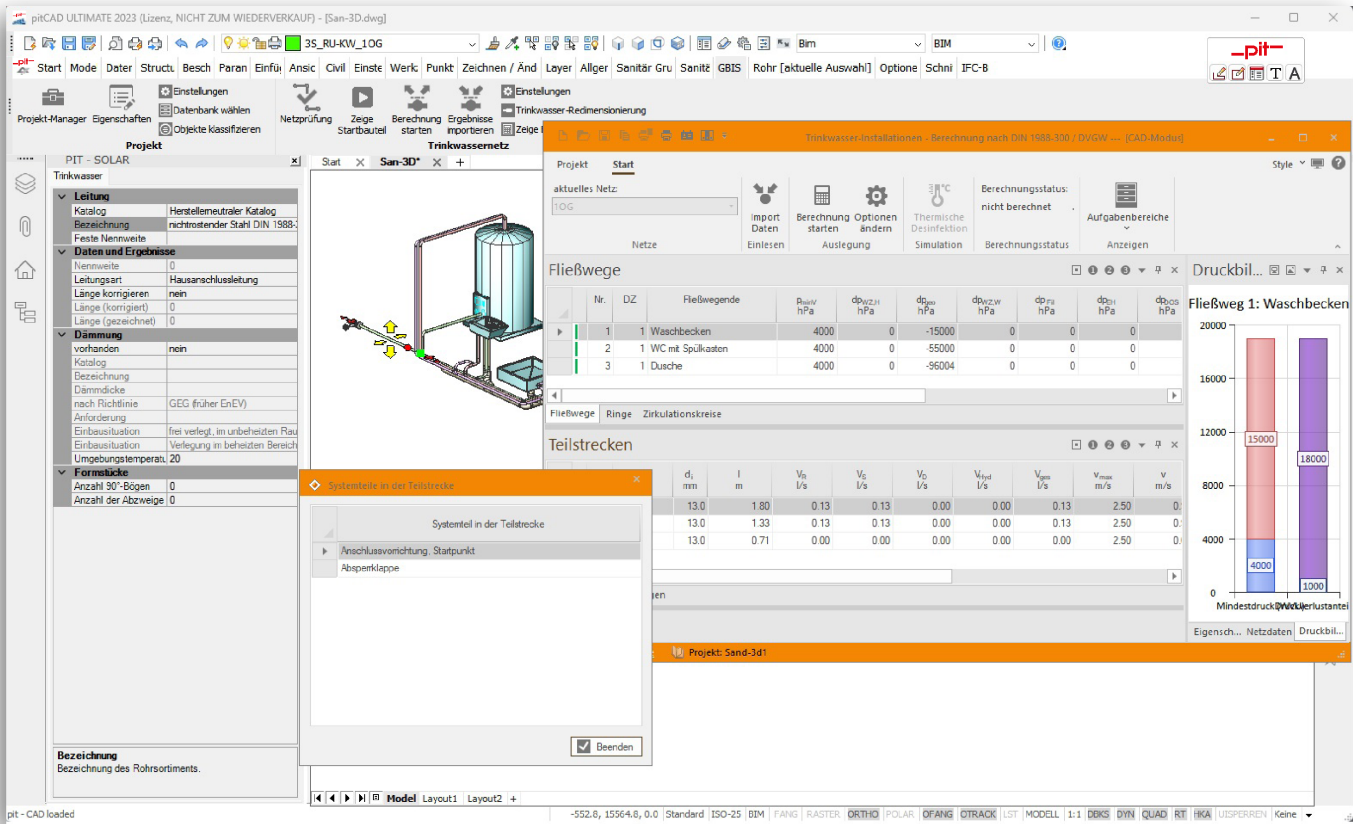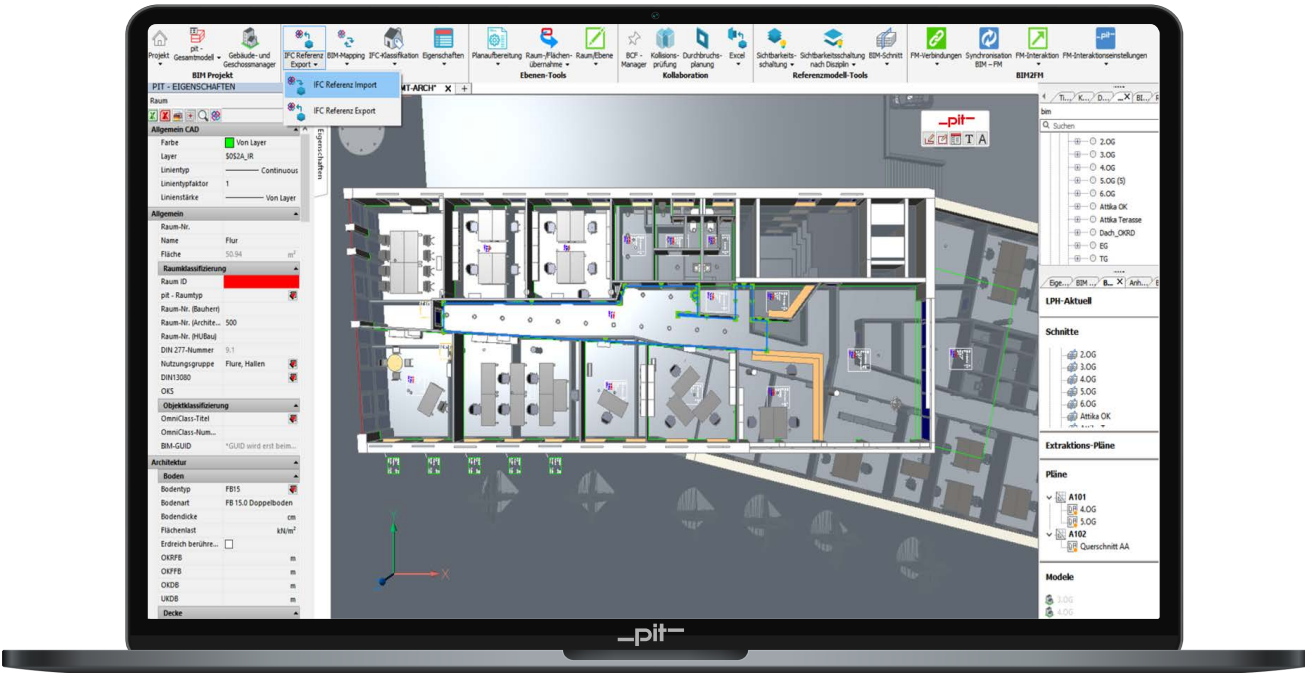
BIM4FM with pitCAD

Vollständige Datenintegration ohne Informationsverlust von der ersten Planungsphase in pitCAD Ultimate bis in den Immobilienbetrieb mit pitFM.
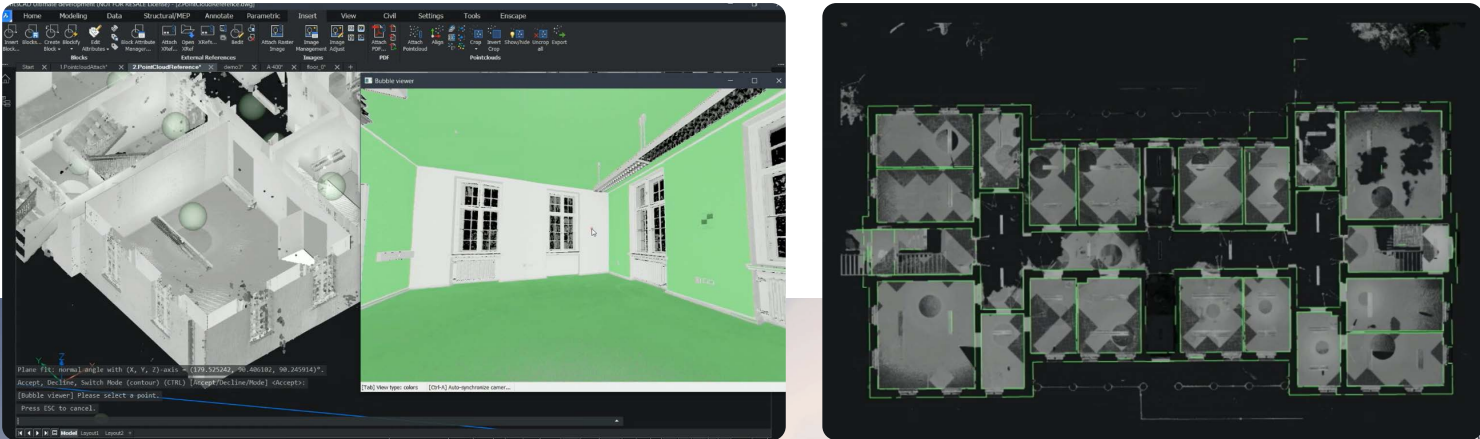
SCAN2BIM

With just a few mouse clicks from the point cloud to the intelligent 3D model. Smart tools for digitizing your inventory.

Room: Meetingroom
Room_Id: R_235
Usage: NUF2.3
Area: 115 m²
Status: Available for booking

Equipment: Full air conditioning unit Meeting zone
Obj_Id: RLT_301
Installation location: Technical center
Status: Operational

BIM4FM with pitCAD Ultimate – Made Simple

✓ Smart mapping functionalities to link as-built and FM models
✓ Support for various classification systems (IFC, CAFM Connect, etc.)
✓ Model preparation and integration for pitFM (geometry and semantics)
✓ Generation of high-performance 2D floor plans and schematics
✓ Linking of geometry and semantics in pitFM
✓ Modeling tool for renovations and modifications in existing buildings
✓ Support for IFC 2x3 and IFC 4, as well as import of Revit models
✓ Preparation of 3D scan data (point clouds)
✓ Automatic floor detection
✓ Derivation of 2D floor plans (area detection, polygonization)

Der pitCAD Ultimate Modules kit

Our CAD solution grows with your requirements and tasks. Therefore, we have chosen a modular approach in development. You only purchase the modules that you actually need to accomplish your tasks.

pitCAD ULTIMATE

The stable CAD basis for your planning tasks, whether 2D or 3D. And all in a familiar DWG environment.

BIM

3D BIM modeling with AI-based features for efficient work in openBIM projects. Supports IFC2x3, IFC4 and BCF. A variety of modeling features for the planning phase as well as Scan2BIM functionalities for BIM in existing buildings.

Communicator

Import and export of 3D CAD data from common CAD applications (imports seamlessly geometry and PMI data).

Heating and plumbing

Smart features for heating and sanitary planning. Supports schematic, floor plan, 2D/3D pipe construction.

BIM4FM

Seamless integration of the BIM information model (geometry and alphanumerics) into the CAFM system pitFM. Smart mapping features and support for various classification standards such as IFC or CAFM-Connect.

SOLAR-COMPUTER

Intelligent connection of the calculation software from SOLAR-COMPUTER. Supports, among other things Heating/cooling load calculation.

Ventilation

Smart features for MEP ventilation planning. Supports schematic, floor plan, 2D/3D system design, sections and perspectives.

Electric

Smart features for MEP electrical planning. Supports 2D/3D installation diagrams and circuit diagrams.

Your sustainable 2D/3D planning tool for the entire life cycle, from the initial planning phase in the BIM project to construction in existing buildings with Scan2BIM.

AUTODESK   Our Reliable Partner Since 1992

2D/3D and openBIM design tool
for building construction, building services engineering, and facility management

pit GmbH (formerly Ing. Günter Grüner GmbH) has been authorized to distribute Autodesk GmbH products since 1992. Our experts support you with outstanding know-how and competent consulting and training in all areas related to AutoCAD, AutoCAD MEP, Revit, and BIM.

In combination with pitFM and SOLAR-COMPUTER MEP calculations, we provide you with comprehensive end-to-end solutions for designing, constructing, and operating buildings.

An Overview of Our Autodesk Solutions

- ✓ **AutoCAD LT**
- ✓ **AutoCAD Including Specialized Toolsets** (includes AutoCAD, AutoCAD Architecture, AutoCAD MEP, Raster Design, Map 3D, Plant 3D, Mechanical, Electrica)
- ✓ **Revit LT**
- ✓ **Revit**
- ✓ **Navisworks**
- ✓ **BIM Collaborate**
- ✓ **BIM Collaborate Pro**
- ✓ **Architecture, Engineering & Construction Industry Collection** (includes: AutoCAD, AutoCAD Architecture, AutoCAD MEP, Civil 3D, Electrical, Map 3D, Plant 3D, Raster Design, Revit, Navisworks Manage, Vehicle Tracking, 3ds Max, AutoCAD 360 Pro, Formit 360 Pro, InfraWorks 360, Insight 360, ReCap 360 Pro)

Autodesk® AutoCAD®

AutoCAD is one of the world's leading CAD systems for precise 2D and 3D design. With flexible tools and customizable features, you can create impressive designs down to the smallest detail. Thanks to TrustedDWG™ technology, connected cloud solutions, and mobile applications, collaboration and the exchange of design data are reliable and efficient.

Autodesk® Revit

Revit is the ideal tool for Building Information Modeling (BIM). It offers extensive features for the planning, design, and management of construction projects, with a strong focus on creating intelligent 3D models and enabling seamless collaboration among all project stakeholders.

Autodesk® Navisworks

Navisworks supports you in coordinating complex construction projects. With features for combining different 3D models, performing clash detection, and managing project schedules, it helps you optimize your workflows and ensures that all project stakeholders stay aligned.
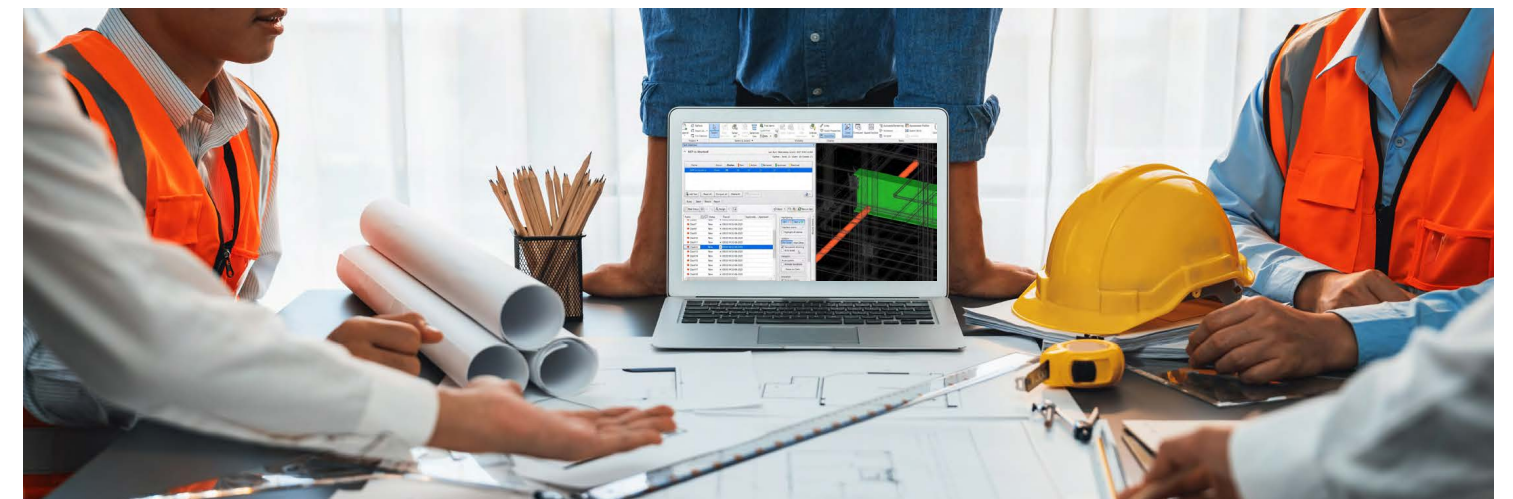
More from Our Product Portfolio

pitFM One for All

Our CAFM solution pitFM stands for an open system architecture based on the latest technologies with three customized interfaces and complete openBIM integration.

- ✓ GEFMA 444 certified process solution
- ✓ Individually adaptable to your requirements
- ✓ Select a sector-specific version if required:
  Public sector, industry, facility services and health care

Standardized
Standardized FM processes certified according to GEFMA 444. For your security when selecting suitable CAFM software.

Open
Open system architecture for easy connection of third-party applications such as DMS, ERP, CAD/BIM or GLT.

Modular
Thanks to its modular structure, pitFM grows with your requirements. From a simple room book to a company-wide cloud solution.

Sustainable
A centralized solution with a consistent data model. Three interfaces and complete BIM integration.
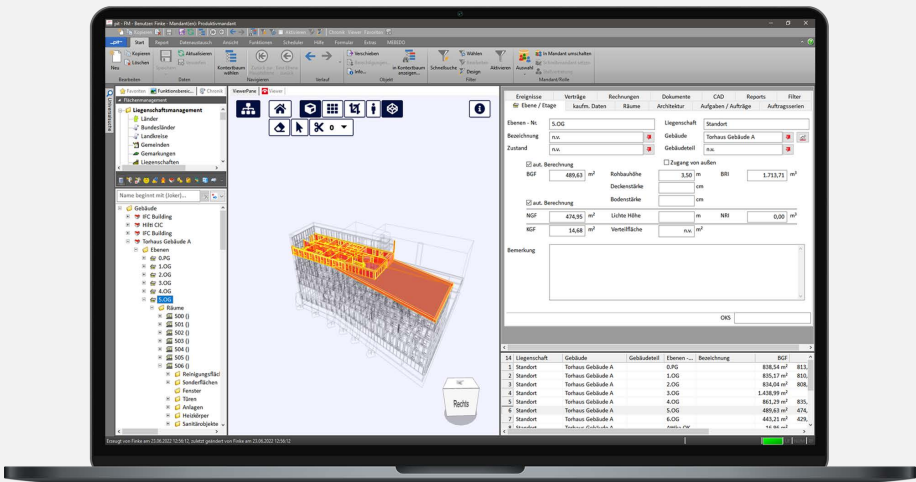
Custom fit
With the user always in focus, pitFM can be flexibly adapted to your individual needs. From the industry solution to the tailor-made application.
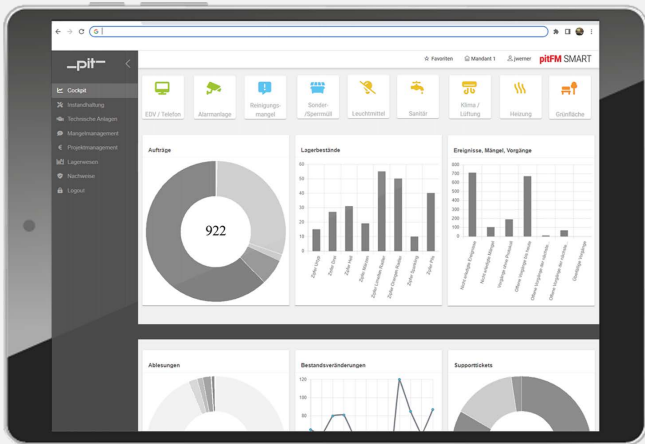
Data driven
Consistent data model across the entire entire life cycle of the building. Based on industry standards such as e.g. IFC or CAFM-Connect.
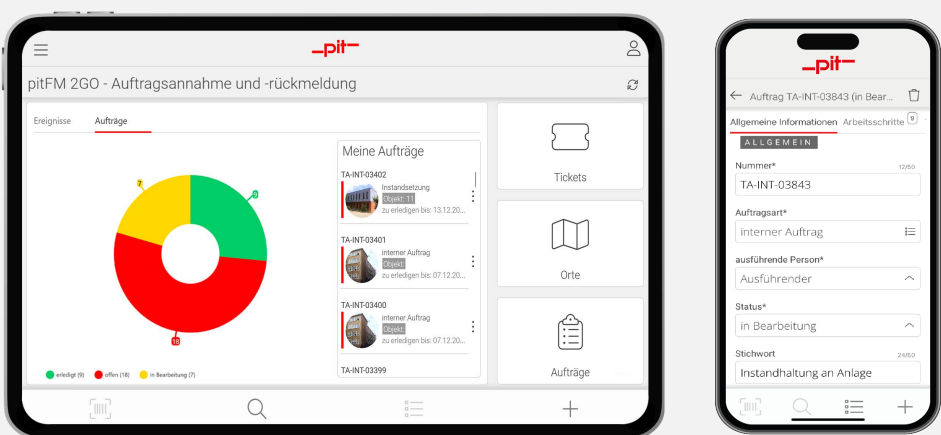

pitFM EXPERT

pitFM SMART

pitFM 2GO

pitENERGY

A smart solution for sustainable energy management in building operations.
ISO 50001 certified energy management solution for measurable sustainability in your company.

#Energy management
(ISO 50001)

#Environmental management
(ISO14001/EMAS)

#Climate management
(ISO 14064)

Data Collection

- ✓ 200 interfaces for the integration of third-party applications (meters, sensors and data loggers, smart metering systems, BMS and DCS, weather data, etc.)
- ✓ State-of-the-art technology (RESTAPI, BACnet, LORA, OPC etc.)
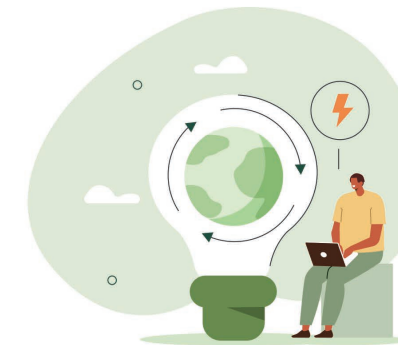- ✓ Automated energy data acquisition

Energy Monitoring

- ✓ Automated monitoring of your consumption
- ✓ Pattern recognition based on the latest AI technology
- ✓ Self-learning system - optimization with continuous usage duration
- ✓ Consideration of influencing factors such as weekdays, vacations, public holidays or outside temperature

Consumption Analysis

- ✓ Formation of EMS-relevant key figures through EnPIs (Energy Performance Indicators)
- ✓ Integrated dashboard
- ✓ CO_2 life cycle assessment
- ✓ Export interface (PDF, MS-Word and CSV)
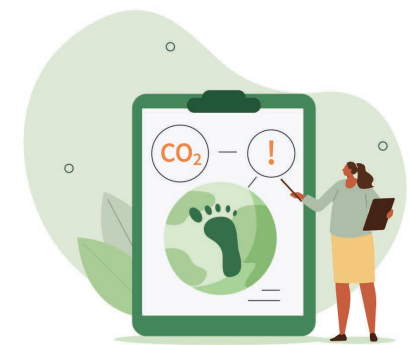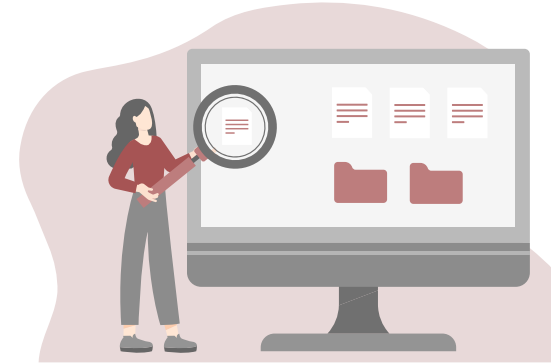- ✓ Part of the pitEcoSystem+

Services

Seminars

Users can schedule individual or group training sessions with us. These sessions take place either online, on-site, or at one of our branches (Telfs, Neufelden, Vienna, Wiener Neudorf).

To book a training session, simply contact us at: **office@pit.de**

Online Data Set Service

Approximately 250 manufacturer data sets, tested for functionality by SOLAR-COMPUTER and compliant with the VDI 3805 / ISO 16757 standard, are available on the SOLAR-COMPUTER website for searching and, if needed, downloading. A single click in the user program is enough to check for updates and, if necessary, start an update.
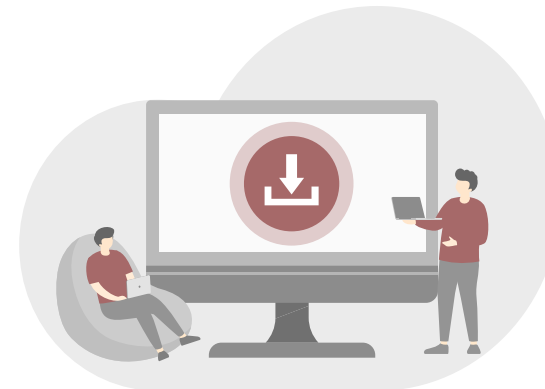
Webinare Webinars

A regular schedule of paid webinars is an important part of our offerings for both prospects and customers.

All webinar content is up-to-date and focuses on developments in standards, software, or the BIM environment.

You can find our webinar dates at: **https://pit.de/services/akademie/**

Program Service Agreement (PSA)

This contract covers support and regular software updates, including a detailed update manual. Updates are available via a download link.

The agreement also provides preferential conditions for software upgrades to successor programs, for example in the event of significant changes to standards.

Project Support and Consulting

pit GmbH stands for practical experience and professional expertise, whether through a personally scheduled on-site appointment or online via computer connection (Microsoft Teams or TeamViewer) over the Internet.

Support Center

You can reach our knowledgeable support staff at the following phone number. Support is free of charge for customers with an active Program Service Agreement.

From Austria: +43 5262 65762-0
From Germany: +49 89 5475758-0

Leading companies rely on our products and services

Selected References

ENGINEERING FIRMS

Mayer AG · Woschitz Engineering ZT GmbH · IBDG Ingenieurbüro für Haustechnik GmbH · Ingenieurbüro Kainz Planungs GmbH · Haustechnik Planungsgesellschaft für Ver- und Entsorgungsanlagen GmbH · KCE Kühn Consulting Engineering GmbH · Wärme-Technik GesmbH · ZFG – Projekt GmbH · Ing. Grillenberger GmbH & Co. KG · Allplan Ges.m.b.H. · BHM Ingenieure Engineering & Consulting GmbH · Planungsteam E-Plus GmbH · IPRO-KWI Verwaltungsaktiengesellschaft · A3 JP – Haustechnik GmbH & Co KG · ILF Beratende Ingenieure GmbH · TBH Ingenieur GmbH · Ingenieurbüro Greiner + Partner · M & P Ingenieurbüro Mahr & Partner GmbH · VAMED Engineering GmbH · InPlan Ingenieure GmbH · Siemens Gebäudemanagement & Services GmbH · plankraft Stefan Fetz

CONTRACTORS

Ing. Haas GmbH · BABAK Gebäudetechnik GmbH · Caverion · Bacon Gebäudetechnik · Small Wärme-, Klima- und Sanitäranlagen GmbH · Ortner GesmbH · ENGIE Gebäudetechnik GmbH · Markus Stolz Ges. m.b.H. & Co.KG · Johann Reinalter KG · Susen & Löffler GmbH · Riegg & Spiess Haustechnik GmbH & Co. KG · Hübl Haustechnik GmbH · Pfrimer & Mösslacher Heizung, Lüftung, Sanitär GmbH

CONTACT US!

Do you have a question or suggestion?

Our specialists in **CAD/BIM** and **MEP planning tools** are ready to provide expert support!

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**Digital solutions for sustainable
real estate management.
From planning to building operation.**

One for All