

## Electrical

PanelCAD facilitates all the steps in the modeling process of an electrical distribution - defining its electrical panels, loads, cables, power transformers). Model set-up is quick, thanks to a number of predefined values for each new entity and a large library of materials. PanelCAD solves the model, calculates each panel's absorbed power and the cable dimensions, the voltage drop and the feeders' materials (fuses, switches etc.).

Every low-voltage cable is calculated based on the tables and the correction factors of the HD384 standard. For medium voltage cables the VDE0298 standard is used. Short circuit voltage is calculated in kA for every point of the network.

As every load in a project is categorized (lighting, air-conditioning, elevators etc.), PanelCAD can sum each category's loads to calculate the installed power, the absorbed power (through the simultaneity factor) and thus select the appropriate power transformer, capacitors bank, diesel generator set or UPS from the library.

### Drawings and reports

Production of single-line diagrams with the installation and panel construction details, block diagram, symbols legend, substation single-line diagram, panels list, calculation results, material lists.

### Libraries

Symbols, medium- and low-voltage electrical materials, feeders, incomers, medium-voltage cubicles, cables, power transformers, motors, UPS, diesel generators and more are provided.



## Heating

In ThermoCAD, calculation of heat loss is done according to EN 12831, ASHRAE or DIN 4701. Results are shown for each level and room.

Twin pipe systems are modelled by specifying one or more loops. Each loop is defined by the rooms it passes through. ThermoCAD solves the piping simulation model for each loop and selects the types of radiators to be used. If a calculation result is outside the predefined boundaries it is marked accordingly for easy inspection.

### Underfloor (EN 1264)

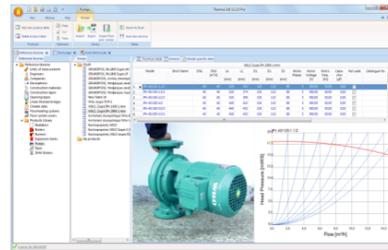
You can assign one or more underfloor circuits for each room. The circuit's dimensions and positioning are specified directly on the floorplan. ThermoCAD calculates the floor surface's temperature and solves the circuit's piping simulation. On the calculation result sheets red marks indicate the points that need your attention.

### Balancing

For single-pipe and underfloor systems ThermoCAD automatically sets each circuit's valves. For every valve it calculates its kv value and the number of required turns (from its closed setting).

### Boiler room

ThermoCAD calculates and selects the correct boiler, burner, expansion tank, circulator pump etc. For the circulator pump it also shows the operation point on its characteristic curves.



## Energy performance

Practical simulation software—the kind that gets results—must be straightforward to use regardless of your modeling experience, while being constructive and powerful enough to achieve your objectives. We've incorporated these qualities into EpaCAD.

Complex 3D models of a building's shell can quickly be constructed without advanced CAD skills. The model defines geometry, shading, construction types and materials, openings, thermal bridges, energy flows (heating, cooling, lighting, ventilation), DHW and renewables. All this input is fed into the calculation engine which implements the ISO 13790 methodology to calculate the annual energy consumption and class.

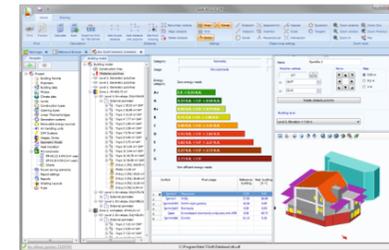
Energy saving scenarios can then easily be added to study improvements in efficiency and calculate ROI times.

### Visualized results

Energy performance results are visualized with graphs and charts, detailed drawings of insulation, shading, shell facades, and openings. EpaCAD produces a large number of reports that document the building's energy characteristics and the calculation results.

### Parameterization

EpaCAD has been designed from the ground up to allow for easy parameterization of national standards.



**TiSoft**

# Powerful tools for building installations design

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# What is the most efficient way to design building installations?

This question has been a permanent guideline for the development of our suite of applications. As the European and international standards (such as the ISO 13790, EN 12831, VDE 0298) have to be applicable to all types of installations and technical solutions worldwide, their content is extensive, complex and not presented in a ready-to-use format. Therefore they cannot be considered as working handbooks but only as reference documents.

Moreover, the design process is often long and laboriously repetitive. It requires a large number of calculations, simulations, decisions that need to be made early on, and finally the production of detailed construction drawings and reports.

Surely, all these call for a software tool. But why rely on add-ons for CAD applications? Most of the tools that come as add-ons require advanced CAD skills and intricate editing which can be error-prone or time-consuming at best.

The large amount of hard work that goes into making an efficient design, the frequent references to textbooks and the fine print can be distracting and interrupt your workflow.

In order for the design process to be efficient and productive while at the same time ensuring compliance to the standards, the designer has to be assisted with guidelines, simulation and drawing tools, reference information, lists of materials available in the market and proven design templates readily available at hand.

# Powerful, practical, integrated tools!

TiSoft's applications were developed to address these requirements. We implemented each one as a stand-alone application that brings together the right set of tools, integrating drawing editors, controls for easy and intuitive modeling, libraries of materials and concise documentation.

## User-friendly

Easy-to-use, streamlined interface that gives you full insight and control over the design process as it groups actions and information to ensure unobstructed workflow. The help window on the right "follows" you along as you navigate between each group of parameters and provides you with relevant information.

## Reporting and automatic production of drawings

Detailed construction drawings, easy to edit later if needed, are produced automatically. A large number of reports extensively document your design.

## Libraries

Every installation relies on hardware, materials and appliances. Therefore each application comes with a library of materials available in the market (e.g. pipes, radiators, boilers, cables, switchgear materials etc.). The libraries are fully user editable and you can easily add or import new materials.

## Rapid response technical support

Highly skilled engineers provide technical support via telephone, email or remote connection to your computer. Additionally, our online knowledge base provides a comprehensive database of answers to just about any design question you may have.

## TOOLS

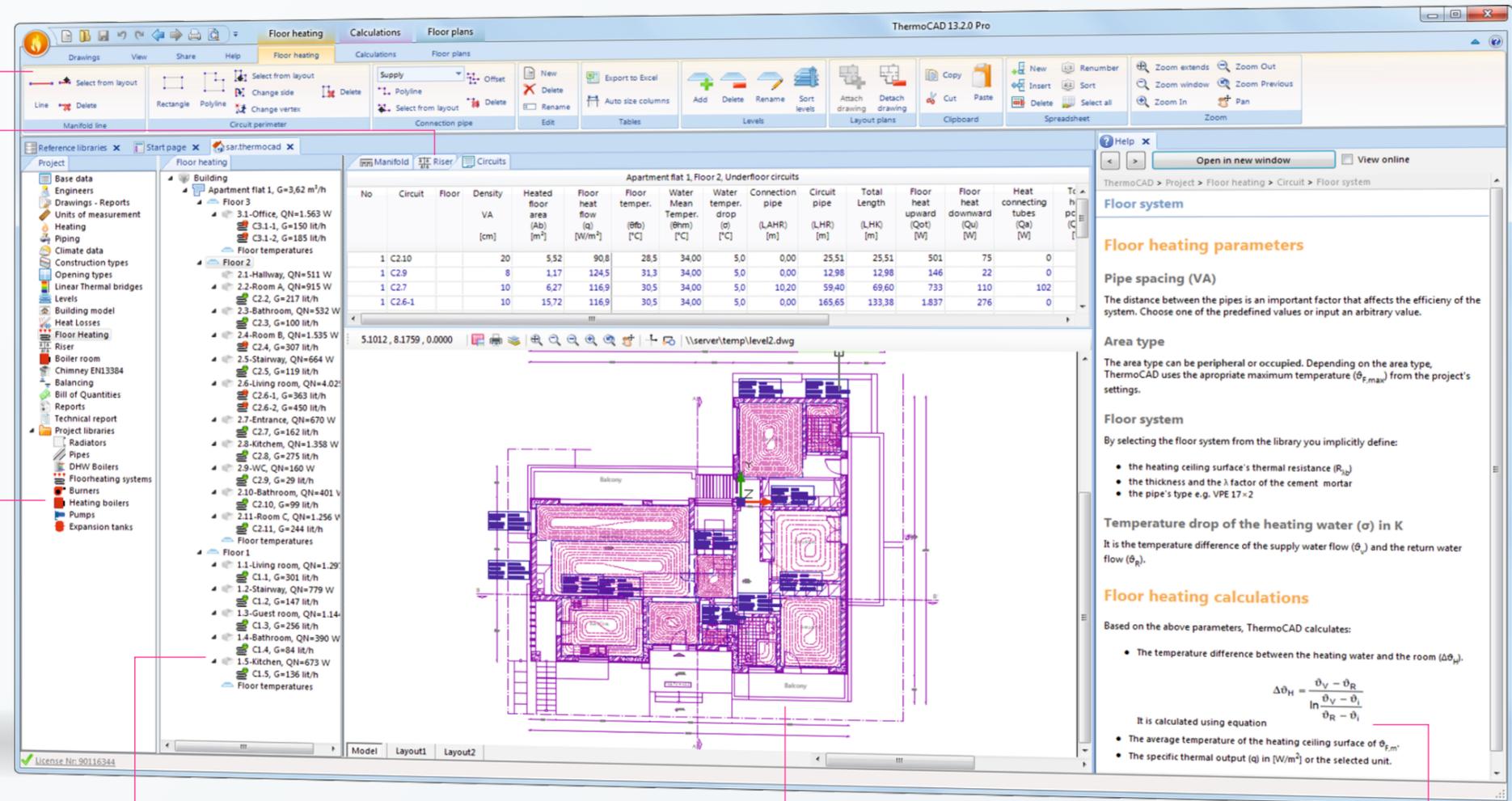
All the available actions for each group of parameters are presented as tools at the top of the work area. The tools are organized into tabs and groups.

## INPUT/EDITING

The necessary data is entered into tables, text boxes or forms. Most of the parameters that need to be specified have predefined values that depend on the type of the installation.

## NAVIGATION TREE

As the large number of parameters and actions to be taken can be confusing, they are organized in groups with each group represented as a node in the navigation tree. This not only provides easy navigation between the groups but also serves as a guideline for the workflow.



## BUILDING MODEL

The building is modeled with a hierarchical list of nodes. Each node represents a real-world entity e.g. floor, apartment flat, room, pipe circuit, etc.

## INTEGRATED CAD EDITOR

No need for a separate CAD application. Every application has a fully-featured CAD editor (compatible with DWG, DXF and other popular formats) everywhere you need to draw, measure or simply view drawings.

## DYNAMIC HELP

The help topic on the right "follows" you as you navigate in the project's groups of parameters. It gives directions and explanations of what you see, referencing information in the underlying standards.