

INSTALSYSTEM 5 – NEW MODULES AND INSTALLATION SYSTEMS

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Evolution of the design process and the growing popularity of new installation systems, which are a response to the increasingly higher and more diverse expectations of investors and designers, have resulted in new modules and installation systems in the *InstalSystem 5* package.

Radiant cooling systems

Module for designing cooling systems, already available in previous version *InstalSystem 4* (but limited to convection systems), has been extended by the possibility of designing radiant cooling systems located on floors, walls or ceilings. Depending on the priority, it is possible to size the installation and select its parameters to cover heating demand (with determination of cooling output) or alternatively to cover cooling demand. Detailed and mostly created automatically documentation enables the analysis of installation parameters and elements.

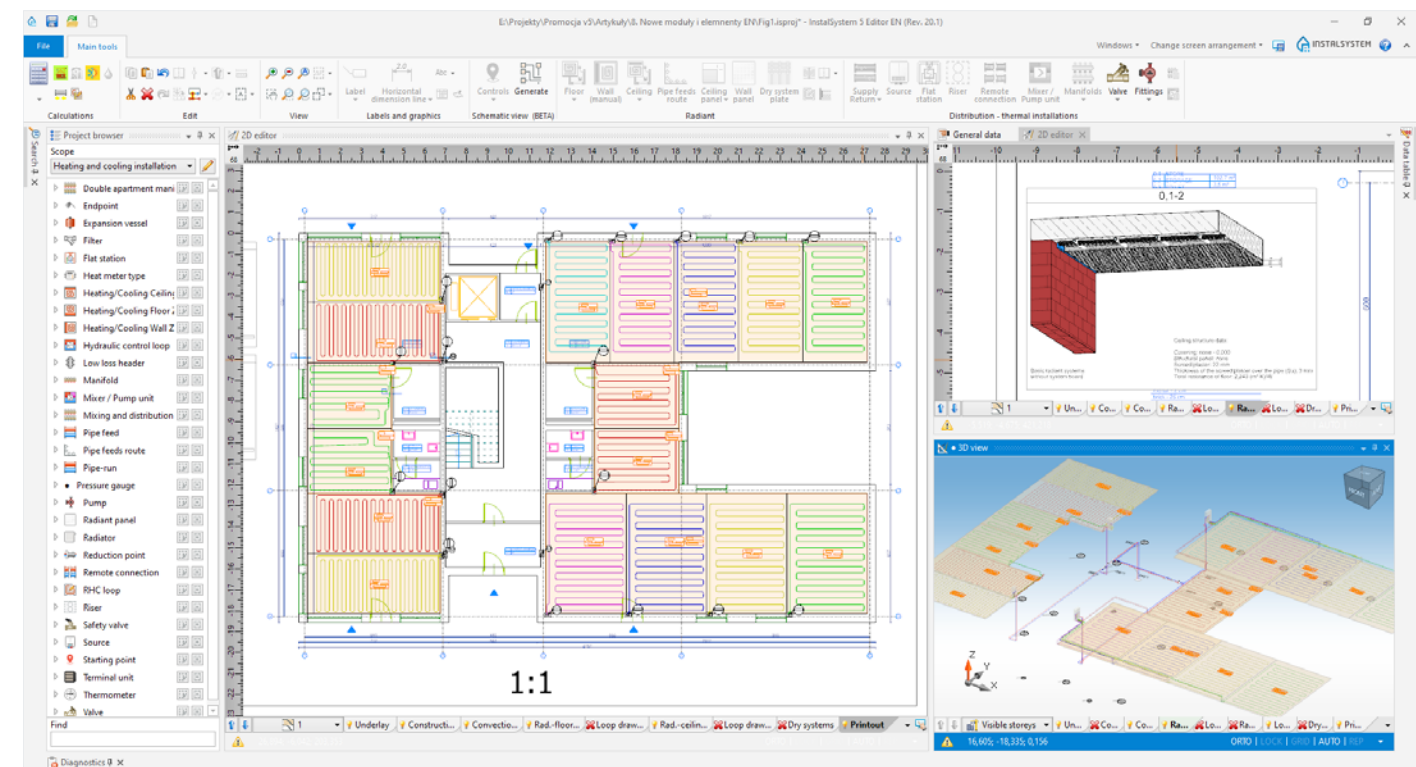
Wall and ceiling panels

Catalogues of prefabricated wall and ceiling panels can be used in the design of both heating and cooling installations. These solutions are becoming increasingly popular due to the ease and speed of assembly, lower thermal inertia compared to traditional surface systems and increasingly affordable prices. An interesting and increasingly practiced solution is the installation of panels on slanted roof in attics adapted for residential purposes.

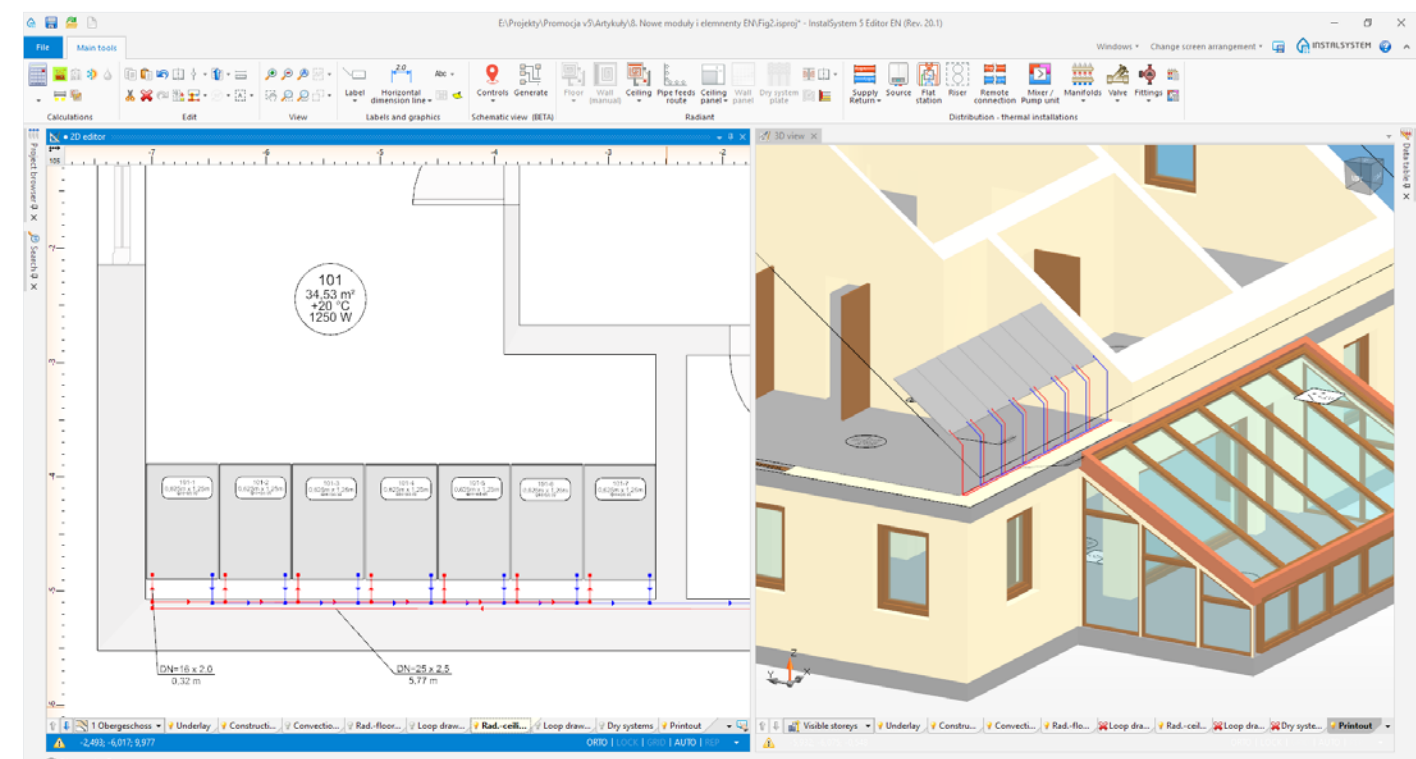
Suspended steel radiators

Designing heating (or cooling) installation in the objects with large area (e.g. hall, warehouse, etc.) is a challenge due to necessity to optimize energy consumption in relation to ensuring acceptable comfort parameters. Standardly applied air heating systems (e.g. air heaters – in a program simulated by the „Terminal unit” element) are increasingly being replaced by more comfortable and energy-saving water radiation systems. A characteristic advantage of radiation systems is the possibility of lowering the internal air temperature without losing comfort, which significantly affects energy saving and heating costs. Arrangement of radiators in the object is facilitated by the „Zone of panels” tool, which, based on the manufacturer’s „know-how” or guidelines of the designer, automatically fills the indicated area with radiators. Next the flows are calculated and the installation is hydraulically balanced to obtain required heating (or cooling) output.

→ Watch that short video!



1 Example ceiling cooling installation



2 Heating and cooling panels mounted on slanted roof

Flat stations

Residential district heating stations, also known as flat stations, are used for individual preparation of domestic hot water and supplying heat to the heating installation in the apartment. Thanks to the integration of all calculation modules in *InstalSystem 5* package, you can design heating and water supply installations using flat stations as never before. Depending on the adopted scenario and available calculation modules, the required hot water outflow can be specified directly by typing the value or can be calculated by a water supply module, based on the selected calculation standard. The calculations include aspect of supply (primary) network dimensioning (risers, source and buffer tank) taking into account flat stations non-simultaneous operation in hot water heating mode.

Hydraulic control loops

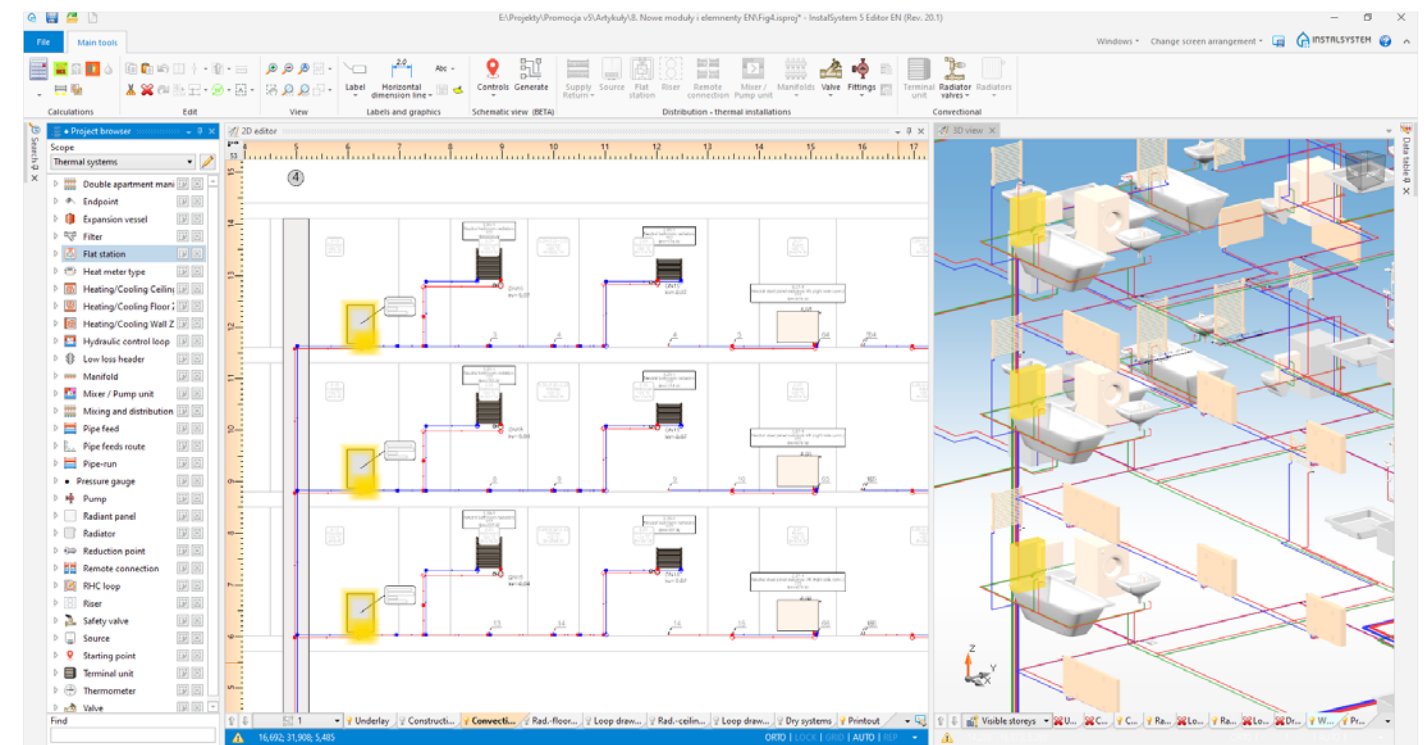
Correct balancing and regulation of flows in cooling and heating system requires advanced

engineering knowledge and designer experience. The multitude and variety of valve types offered by different manufacturers make the task even more difficult. The growing number of catalogues of predefined hydraulic control loops support designer in this challenging task. Predefined control loops already known from previous version InstalSystem 4, offered by leading valve manufacturers, are developed and supplemented with new possibilities in version 5. Prepared on the basis of the manufacturer's guidelines, predefined hydraulic control loops take into account a number of aspects related to the correct selection of valve types, their size, their settings and the required pump head. This extraordinary and unique function allows the designer to perform very advanced balancing in an extremely easy way, consistent with the best knowledge and recommendations of leading manufacturers of balancing and regulating valves.

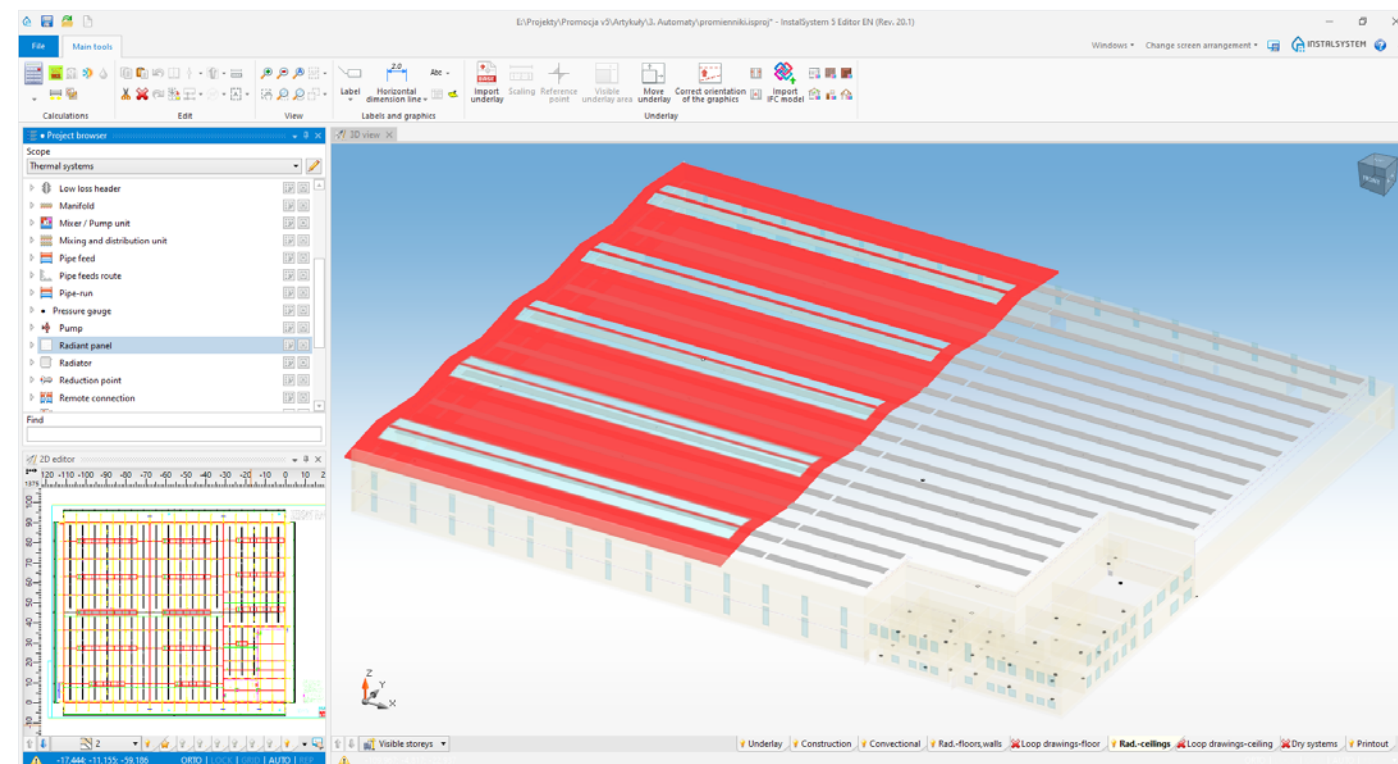
BIM

The multidimensional benefits of using BIM (Building Information Modeling) at the stage

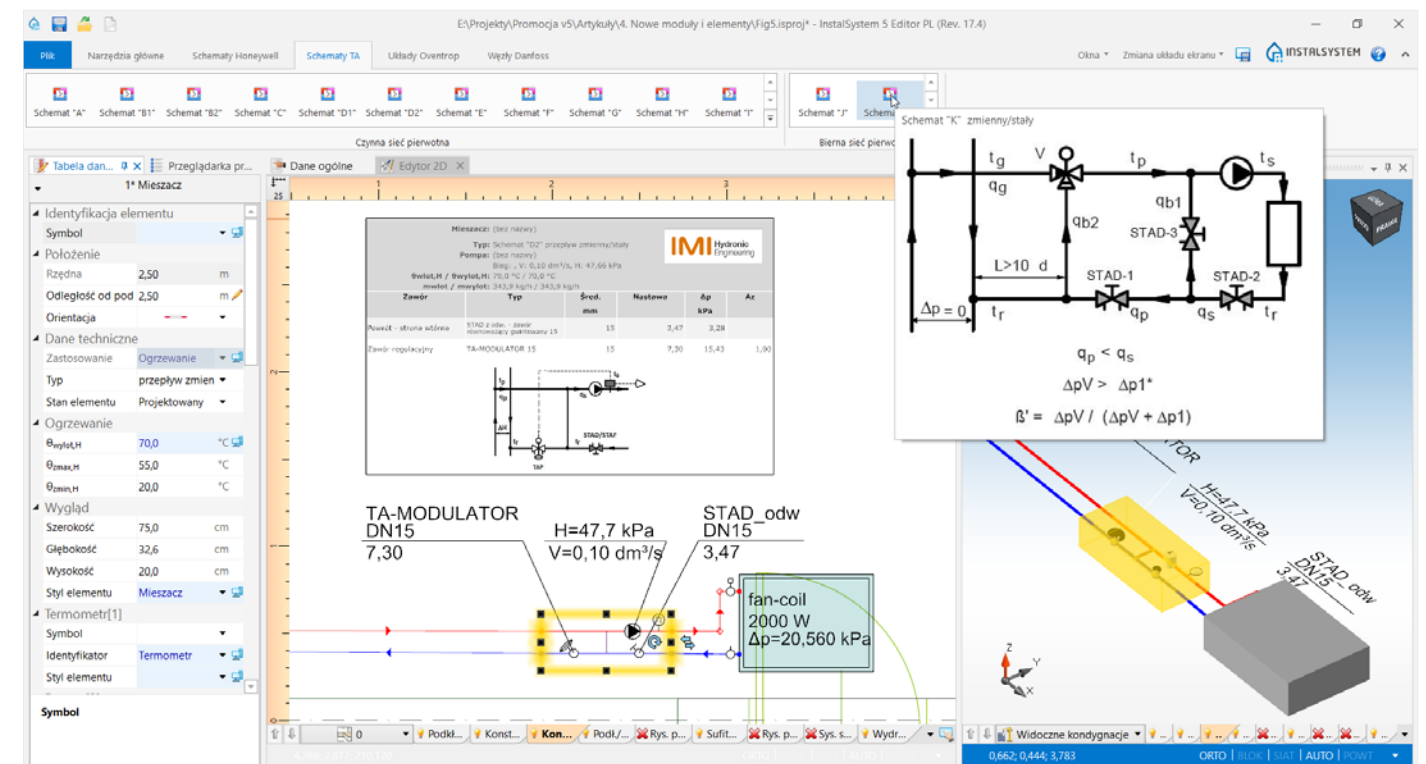
of building design are indisputable. This progressive revolution also naturally affects the design process of indoor installations.



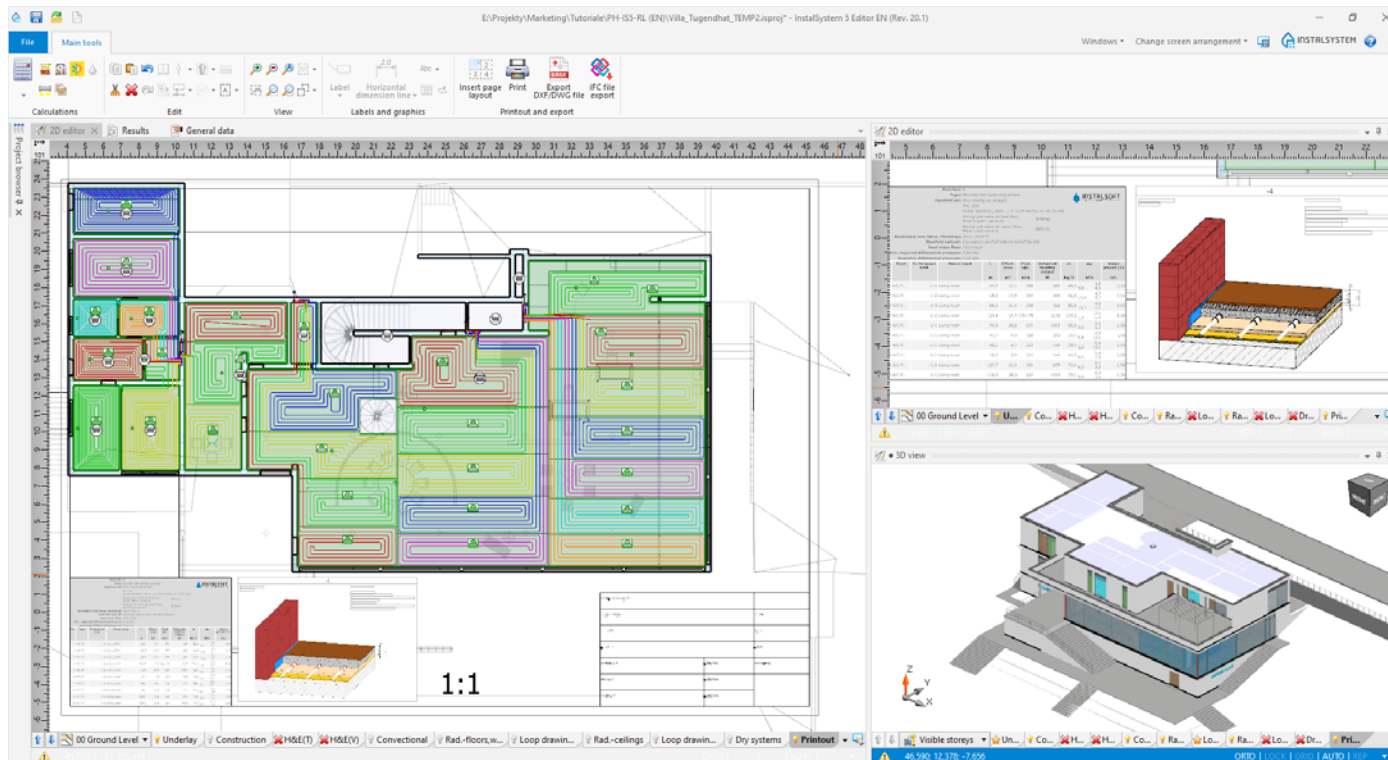
4 Flat stations in 3D model and automatically generated schematic view



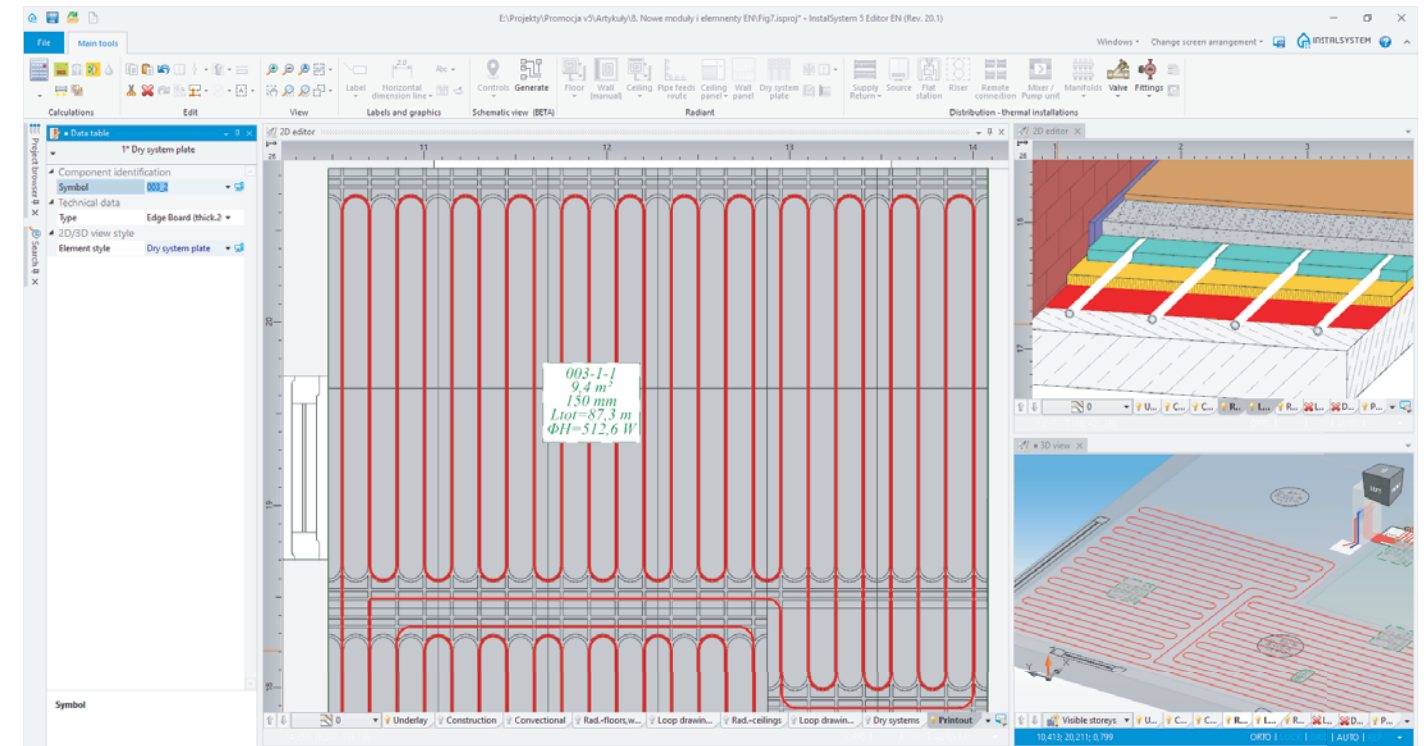
3 Suspended ceiling steel radiators in a warehouse



5 Example control loops of TA in Polish language version



6 Example underfloor heating installation designed in a model of the building from IFC file



7 Module for dry system boards arrangement

Further development of open BIM formats (e.g. gbXML, IFC) should result in the exchange of rising amount of data between architectural and engineering applications. Thanks to this, it will be possible to reduce the number of repetitive activities performed by various participants in the design process, and to detect and resolve conflicts faster, which will improve quality, shorten implementation time and reduce investment costs.

The InstalSystem 5 package currently allows to import building model with building elements (walls, windows, doors, etc.), installations and other building equipment (e.g. furniture) from and IFC 2x3 and IFC4 formats. Model of the building thus created, can be used to design the installations, calculate heat demand and export designed installations back to IFC file or print or export drawings to the selected format (e.g. DWG, PDF). Further development is

carried out in the field of BIM communication, which will result in the possibility of exporting building structure (e.g. rooms with their parameters) created in *InstalSystem 5* to IFC format. Further development will depend on market needs, degree of BIM implementation in design practice and on the development of the most popular BIM data exchange formats.

Module for manual arrangement of dry system boards

In buildings where use of traditional underfloor heating systems with wet screed is not possible, so-called dry systems with a pipe placed in the grooves of specially prefabricated panels (most often with additional heat emission radiators) are applied. Dry systems were already supported by the previous generation of the InstalSystem package. Version 5 offers new module for manual arrangement of dry

system boards. Using the variants of the panels available in the manufacturer's catalogue, assisted by special program modes (AUTO, ORTO), it is possible to arrange and adapt the panels in rooms, and then lay underfloor heating loops. The program performs complete thermal and hydraulic calculations for such an installation. Thanks to the possibility of trimming and further use of the panels, the bill of materials does not contain excess elements.

Summary

Number of new modules, development of those that were already available in the previous generation – InstalSystem 4 – and the efforts put into accelerating the design process and increasing the ergonomics of work, resulted in the creation of the tool, which can meet the highest expectations of designers from various countries.

More detailed information about the program's functions can be found on our YouTube channel and in HelpSystem platform. Please download free trial version and share your opinion on the program and expectations about its further development

