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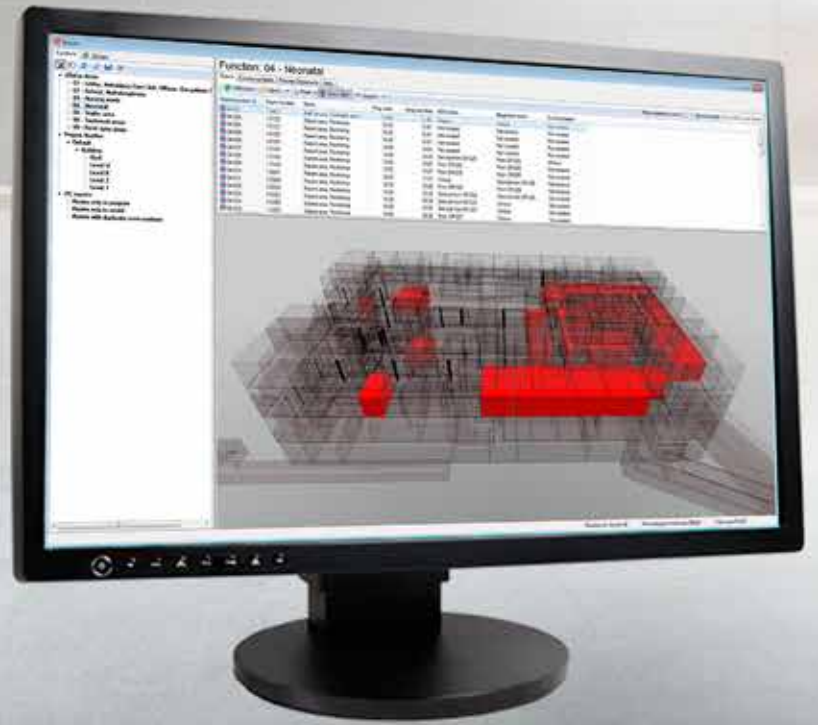


dRofus® is a unique, cloud based tool for planning, program validation and data management.

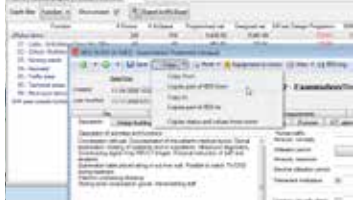
dRofus® can handle all building types, including large projects where several design models needs to be synchronized to a central database.

dRofus® has a strong connection to the Autodesk® Revit® suite and extensive support for IFC.

Cover photo: Kilden Performing Arts Centre, Norway.
Planned with dRofus®
PHOTO: OLAV BREEN

TAKE CONTROL OF YOUR PROJECT INFORMATION

dRofus is a unique tool for planning, program validation and data management in building projects.



Cloud based

dRofus' cloud based solution allows everyone to work on the same set of data regardless of their location. This provides a platform for collaboration between all dRofus users on your projects. Design teams, clients, end users, equipment planners and contractors can all share the latest version of the core project data.

Interacts with the Autodesk® Revit® suite

Structure, organize and plan all departments, rooms, areas, room data sheets, furniture, equipment and finishes, and link this directly to the architects and engineering design tools. Our configurable plug-in to Autodesk® Revit®architecture and MEP offers fast and secure synchronization and instant validation of departments, rooms, furniture and equipment.

Flexible work flows

dRofus is flexible and supports different workflows. You can work with data driven design where you build your models based on the detailed program and requirements in dRofus.

Or, you can use dRofus as a backend to the design tool and synchronize objects and information from design to dRofus for reporting, program validation, data management, overview and control.

Data management

With dRofus, you can control and manage project data across several design models. Create your own configurations for data flow between dRofus and Autodesk® Revit®, and synchronize all models to the database with the same configuration.

Extensive support for buildingSMART/IFC

dRofus can import and export data with the IFC format, and you can export data as a COBie compliant IFC file.
With the built in viewer, dRofus can visualize all design files from the IFC format.

IFC model server

dRofus has embedded a special edition of a model server from Jotne EPM Technology AS®, Norway (http://www.epmtech.jotne.com/jotne-epm-technology-as.241684.no.html)

This technology makes it possible to achieve new and valuable features, and enables new work flows. Everyone with access to dRofus can, with one click, see and analyze the detailed design for the whole project in the viewer without any additional software installed.
Program validation can be executed and reported automatically across all models for

- Rooms in program vs. rooms in model(s)
- Programmed area vs. designed area per room, department, building and project.
- Furniture and equipment in model(s) vs. planned furniture/ equipment in the program
- Occurrences of objects in the model(s)

Track changes

All data entries and updates in dRofus are saved in an extensive log. When making changes directly in dRofus and when synchronizing the changes from the design tools, dRofus keeps track on "who, what, when and why". These features are included in all modules of the software. You can also use filters and print reports, search in the log and roll back the program to a specific date to see previous status.

Reports

You can export all your data to Word, Excel, PDF and IFC. Create your own custom PDF report templates with a sophisticated report design tool. Customize the new templates and upload them back into dRofus as new project reports that everyone in your project can use.

A major hospital project

Svend G. Hvid
Architect MAA / Technical project manager
The DNU Consultancy Consortium

The construction of the New University Hospital in Aarhus (DNU), Denmark, is currently the largest construction project in Northern Europe. The project covers more than 4 million square feet, and dRofus stores the data for more than 13,000 rooms. The DNU Consortium provides a full range of multi-disciplinary consultancy services; building programs, user dialog processes, design, tender, construction management and HSE. C.F. Moller AS and CUBO AS are the design architects. The BIM model of the project comprises approx. 350 Revit Architecture, MEP and Structure design files.

Why did the DNU project choose dRofus as their program and data management tool?

In light of the size and complexity of the project, it was essential for us to select a set of IT tools based on databases which could support value creation and efficient project execution while at the same time ensuring:

- Well-organized management and utilization of the vast volume of project data throughout every stage of the project, from programming to as-built and O&M delivery
- Full traceability of all changes to project data
- Minimal sources of error and the capacity to execute rational, digitalized quality assurance processes

We had knowledge of dRofus from our work on major hospital projects in Norway and decided that dRofus was the correct choice to make, in combination with the other IT tools based on databases which we have chosen to use; Revit, Bdoc and Sigma.

Can you describe the work flows as to how DNU uses dRofus

We have established a continuous digital work flow from program-

The DNU project is currently the largest construction project in Northern Europe
PHOTO: C. F. MØLLER

ming to delivery of as-built and O&M documentation. All program data and requirement specifications for buildings and installations at room level are recorded in dRofus and make up a significant part of the basis for BIM engineering. The total design/engineering data is compiled in BIM using Revit, the building part descriptions are prepared in Bdoc and the unit prices in Sigma.

For the tendering process, data is withdrawn from dRofus, BIM in Revit and Bdoc and tender lists are generated in Sigma, after which the tender request is submitted on a digital tender platform.

Program data and design/engineering data are updated consecutively up to the stage for digital delivery of as-built and O&M documentation to the operating organization.

What are your experiences of the implementation process?

If we are to make a good start on the project, it is essential in the initial stages to establish data structure and nomenclature and to clearly define roles and responsibilities and work procedures for all parties involved in the project. Working with dRofus and the other database based IT tools differs from traditional processes in our industry in that they demand more resources for planning and preparations during the initial stages. We are then able to harvest the benefits of this work in subsequent stages in that we have established a more rational and efficient work process and have a lower error margin.

In your opinion, what are the major benefits of using dRofus?

With dRofus, all parties involved in the project have easy and well-organized access to the total program data for the project, the equipment data and detailed requirement specifications for buildings and installations at room level. This is particularly important for our project, where design and execution will take many years and where personnel and parties involved will change throughout the project.

Another important tool is room function numbering which clearly links room data in dRofus to the room's position in BIM.

dRofus is an efficient tool for planning, budgeting and control of purchases and receipt of medico-technical equipment and the other equipment categories for the hospital.

A global design company

Greg Schleusner
Architect / Firm Wide BIM Manager
HOK

HOK is a global architectural firm that specializes in planning, design and delivery solutions for buildings and communities. Through its collaborative network of 24 offices worldwide, the firm serves diverse clients within the corporate, commercial, public and institutional markets. HOK is committed to developing resources and expertise to help lead the world toward sustainable communities and building environments.

Why did HOK choose dRofus as their program and data management tool?

HOK chose dRofus as part of a wide-ranging buildingSMART international research project that started in 2008.

We evaluated several tools on the market at that time. While the program still had a few limitations it was determined that dRofus had the best set of tools on which more functionality could be developed. From that point on, we began working with dRofus to develop what we believed to be key features in the product to start our broader implementation.

Can you describe the work flows as to how HOK uses dRofus?

HOK uses dRofus in three major capacities with others under continuous development. The most fundamental capacity is for the process of Program Validation. This is simply the comparison of the building spatial program against the design. On more complex projects, we typically use dRofus to develop Room Data Sheets and furniture specifications. We are

HOK's competition-winning design concept for the new University at Buffalo School of Medicine and Biomedical Sciences building.

PHOTO: HOK

increasingly interested in the use of dRofus' model server and broader data management tools such as TIDA for our preferred FM Handover platform. These tools are important as they allow us to use open standards such as IFC and COBIE which provide flexibility in relation to varying client requirements.

How broad is HOK's implementation of dRofus, and what are your experiences from the implementation process?

HOK has used dRofus on roughly 70 projects. These include a wide range of uses as described above. There are several key points that are important to both us and the industry as data becomes more and more valuable to projects and owners. Firstly, dRofus is the first database tool that we are introducing to the majority of our design staff. Previously, our project specialists were in charge of database tools used for design management. With this change comes a need to both make the process simple but also educate staff on some key concepts relating to data management. The other main outcome of the implementation is the need to plan what information is to be managed. Some project types will require specialists to manage large amounts of data, but with planning and proper setup prior to major work kicking off, dRofus can streamline that process without adding complexity.

In your opinion, - what are the major benefits of using dRofus?

The major benefits of dRofus include scalability and flexibility. With the large number and variety of project types with which we work, it has proved adaptable to our various needs. People often adapt work flows to software, but that often results in a suboptimum use of the software. dRofus has proven via long standing features that it has the capacity to work in various ways. Recent developments, including its ever-expanding connection to Revit, have allowed for adaptations, flexibility and significant growth.

A public owner

Frode Mohus
Domain Coordinator – Chief Engineer M.Sc.
Statsbygg, Oslo, Norway

Statsbygg is a public sector administration company governed by the Ministry of Government Administration, Reform and Church Affairs. Statsbygg provides appropriate, functional premises to public sector enterprises, as well as realizing prevailing sociopolitical objectives in relation to architecture, governmental planning interests, preservation of heritage sites and the environment.

Why did Statsbygg choose dRofus as their program and data management tool?

We were searching for tools that could help us specify our client requirements in building construction projects as a MODEL that could be shared, and by using OPEN exchange standards between ourselves, the design team, the constructors, and the FM managers. We had some prior but separate experience of the open IFC (Industry Foundation Classes) BIM standard and from using dRofus in traditional projects (without BIM) – and the combination of IFC support and the dRofus functionality made it quite clear that dRofus could provide us with a powerful tool.

Can you describe the work flows as to how Statsbygg uses dRofus?

The spatial and functional programming is carried out in dRofus, and exported to IFC as our requirement model, captured as space objects with requirement properties.

The architect's designed spaces are then synchronized with dRofus for comparison with

The new opera house in Oslo is a Statsbygg project. Planned with dRofus.
PHOTO: ANNE-BRITT SVINNSET / SHUTTERSTOCK

the programmed spaces – any deviations tracked, and our spatial program updated with accepted "design rooms".

This enables us to keep track even of comprehensive changes during design and construction – all the time comparing solutions to requirements. In some projects, the FF&E module of dRofus is also used extensively to plan and track fixed project equipment and end user equipment that affect the building design. We use the TIDA module to collect FM documentation for systems and components installed in the projects, which are then handed over to our FM managers. The new IFC import support in TIDA enables us to utilize the IFC design models as our basis when the constructors are requested to document their systems and components.

How broad is Statsbygg's implementation of dRofus, and what are your experiences from the implementation process?

We try to use dRofus in as many business processes as possible to harvest the fruits of open BIM and an integrated planning tool like dRofus. Statsbygg's processes range from requirement specifications, to design and construction quality control, and finally maintenance and operation (M&O) tasks during the entire lifecycle of our 2,350 buildings. dRofus is an advanced planning tool and it takes more than 10 minutes to learn and master the program. Statsbygg has invested a substantial number of manhours in internal training and testing, but now we can make active use of a growing number of functions in most of our operational projects.

In your opinion, what are the major benefits of using dRofus?

The combination of integrated and very powerful planning functions, synchronization functions for continuous comparisons of "required" and "delivered" areas and equipment during the entire building process, and wholehearted support for open BIM standards like IFC makes it a very valuable tool for us as a client and operator.