BIM REQUIREMENTS AND GOALS WITH BIM PLANNING FROM A BUILDER'S PERSPECTIVE

19th CADENAS Industry Forum 2018

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AGENDA

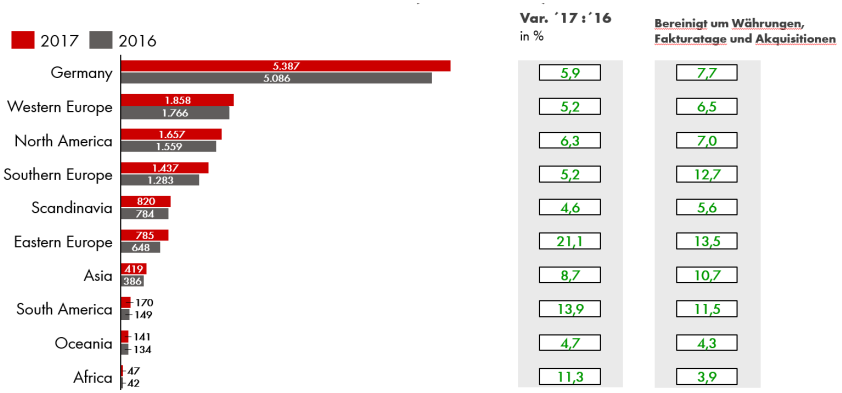
- Presentation of Adolf Würth GmbH & Co. KG
- Presentation of Obermeyer Planen + Beraten GmbH
- Definition of roles and requirements for builders
- BIM Product Configurator Varicon powered by CADENAS

PRESENTATION OF ADOLF WÜRTH GMBH & CO. KG

PRESENTATION OF ADOLF WÜRTH GMBH & CO. KG

Adolf Würth GmbH & Co. KG

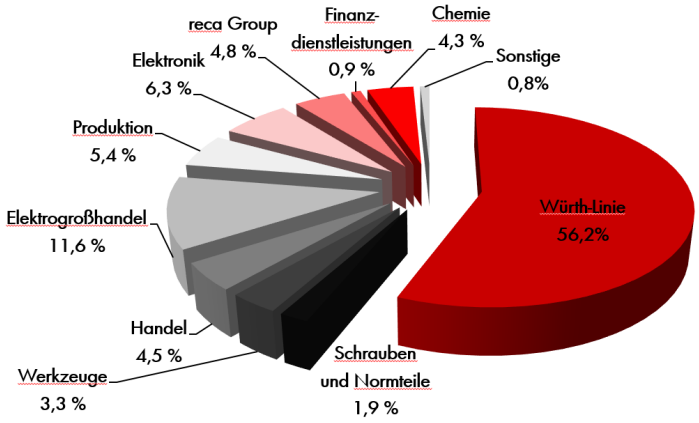
- More than 6,800 employees (2017)
- More than 125,000 products
- Approx. € 1.8 billion in sales (2017)
- Over 450 branch offices (2017)



Regional sales development YTD DECEMBER, EXTERNAL, IN MILLION EUR (preliminary)

Würth Group

- More than 74,159 employees (2017)
- More than 400 individual companies in 80 countries (2017)
- Approx. € 12.7 billion in sales (2017)

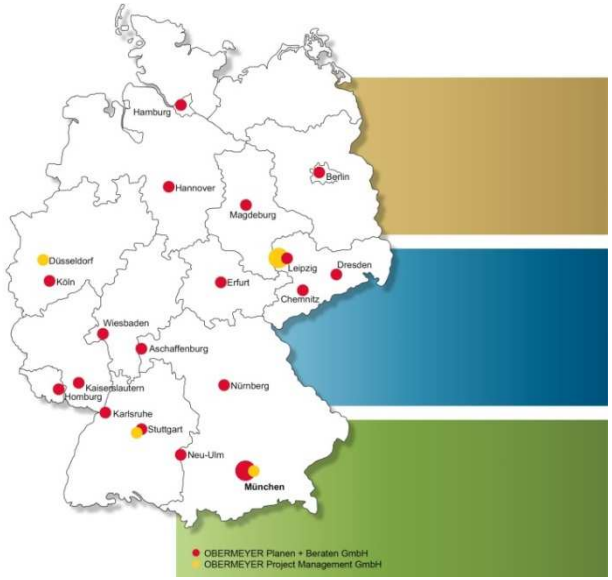


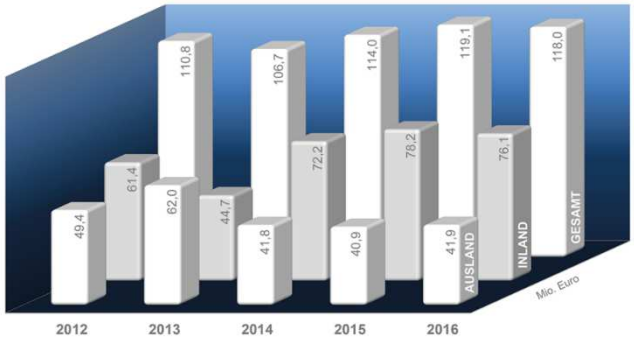
BUSINESS UNITS OF THE WÜRTH GROUP SHARE OF SALES IN %, YTD DECEMBER 2017 (preliminary)

PRESENTATION OF OBERMEYER PLANEN + BERATEN GMBH

PRESENTATION OF OBERMEYER PLANEN + BERATEN GMBH

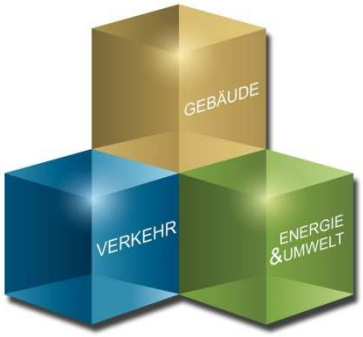
- Founded in Munich in 1958
- One of the largest independent consultancies in Germany
- More than 850 employees at 19 locations across Germany
- Core business: Integrated planning as well as technical planning elements
- Certified according to ISO 9001 since 1997
- Application of ISO 50001 in 2016





Preliminary result
2017
110 million

VERANTWORTUNG
FÜR ALLE BEREICHE DER
BAUPLANUNG



DEFINITION OF ROLES AND REQUIREMENTS FOR BUILDERS

Project Participants - Stakeholders

- In general, a distinction can be made between requisitioners and consumers

- Builder
- Planner
- Construction company
- Controller
- Consultants
- Authorities
- Suppliers
- Users

....

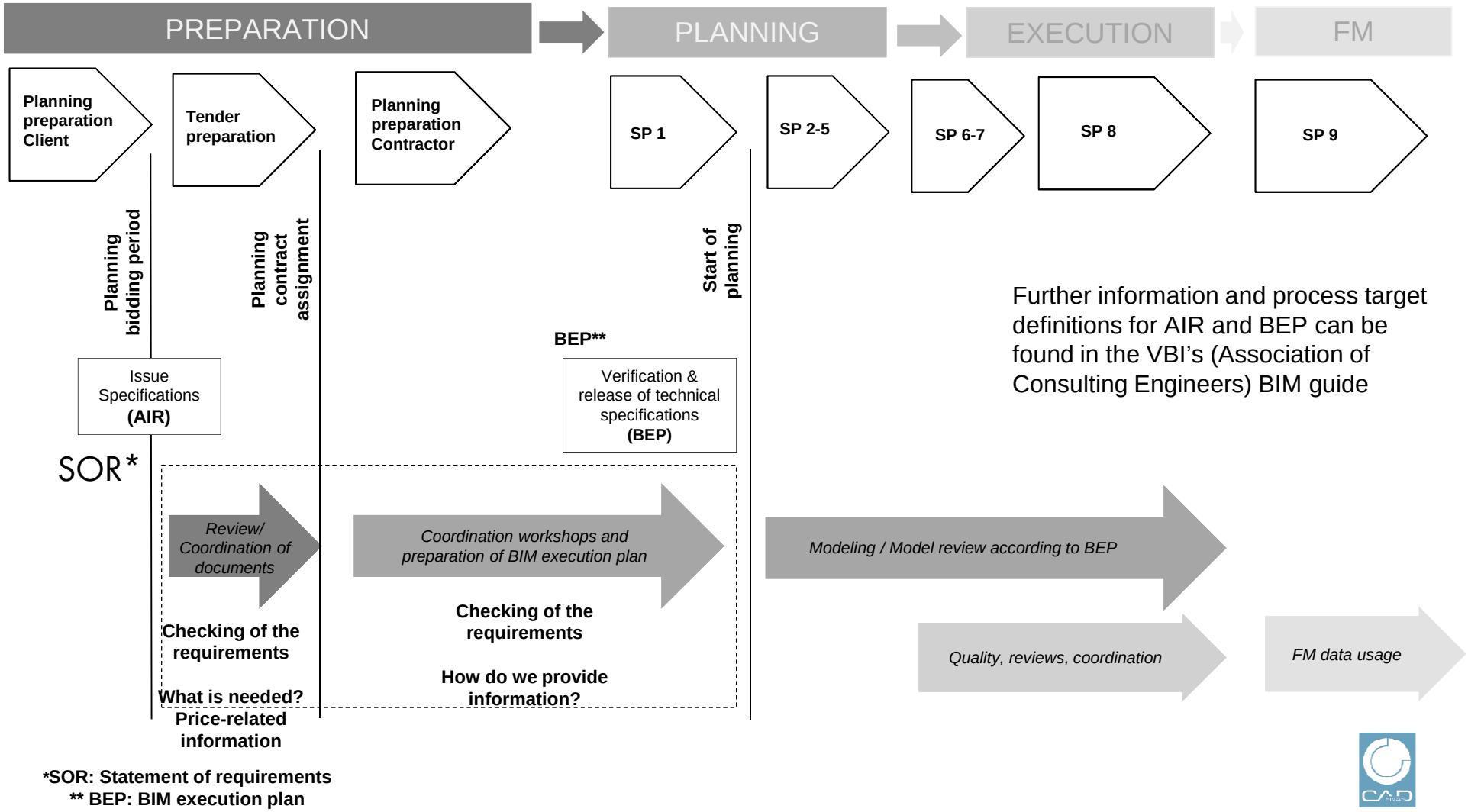
Each player, project participant, stakeholder pursues their own interests and acts accordingly.
They attempt to influence the project (in a positive manner).
However, they themselves can be influenced by third parties.

Project Participants – Summary of Construction Reform Commission

For this reason, joint specifications are needed now more than ever - "rules of the game".
As summarized in the "10 commandments" of the Construction Reform Commission!

1. Cooperative planning as a team
2. First plan, then build
3. Risk management and risk assessment in budget
4. Award contract to the most economical choice, not the cheapest
5. Partnership
6. Extrajudicial dispute resolution
7. Mandatory economic feasibility studies
8. Clear processes and responsibilities
9. Greater transparency and monitoring
10. Use of digital method-building information modeling

Project phases with classification AIR and BEP



Further information and process target definitions for AIR and BEP can be found in the VBI's (Association of Consulting Engineers) BIM guide

*SOR: Statement of requirements
** BEP: BIM execution plan

BEP – Central Document for Managing the Project


OBERMEYER

BIM-ABWICKLUNGSPLAN (BAP)

OBERMEYER

INHALTS VERZEICHNIS

OPB Projek
Datum: 20.1
Ort: Münch
Version: V0

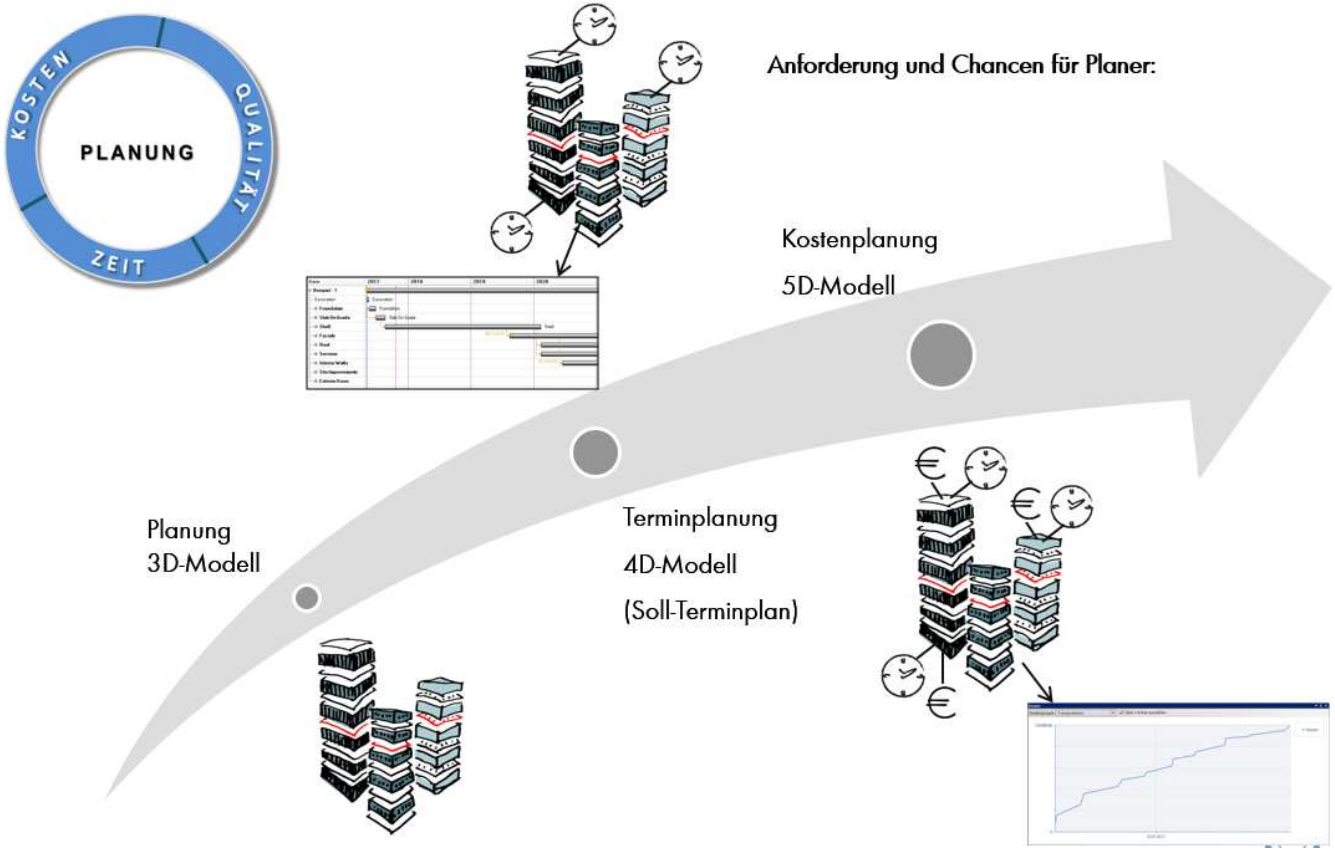
INHALTSVERZEICHNIS

OBERMEYER

- At the end of the process, the BEP serves as a central, universally valid document, specifying who is to provide whom with what when and in what quality.
- All participants have to be prepared to invest time and thought into the project before getting started!
- Each project has its own individual demands, which need to be identified and recorded together with the objectives.
- Further information and process target definitions for AIR and BEP can be found in the VBI's (Association of Consulting Engineers) BIM guide

Several demands, challenges and opportunities for some of the project participants are illustrated on the following slides.

Requirements for Participants



In order to achieve these objectives, OBERMEYER has developed its own BIM strategy and restructured the company accordingly.
This involves researching and conducting BIM pilot projects for the Federal Ministry of Transport and Digital Infrastructure (BMVI) and collaborating with committees and associations.

Requirements for Participants

Anforderung und Chancen für Ausführende:

Kostencontrolling und Abrechnung;

Earned-Value-Analyse

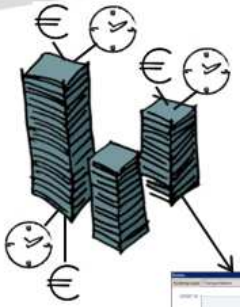
5D-Modell

Ausführung und

As-Build Modell

Termincontrolling

4D-Modell



Requirements and Opportunities for Participants

General demands and opportunities for builders, users and operators:

- Define **central BIM objectives** in conjunction with the business processes
- Raise **acceptance** among employees
- Plan **training requirements**
- Develop **structures** and authorities
- **Develop project strategy**
- Define **requirements**
- **Include** mid tier

- **AIR**
- Contents and qualities **for FM**
- **Review** of models
- Planning talks in model via **VR**
- Invoicing via model. Early **cost certainty.**
- High **information content** regarding project status

Requirements and Opportunities for Würth

Requirements and opportunities for Würth as the builder:

- Develop a **BIM strategy** taking into account the organizational implementation.
- Convert **product portfolio into BIM objects** for leading software providers.
- Provide **data according to LOD/LOI** and requirements of respective participants.
  Minimize volume of data with regard to the following aspects:
  - Formats, contents and level of detail available for BIM objects
  - Manner in which product portfolio can be prepared for BIM world
  - Data that should be integrated into BIM objects
  - Technical formats that are suited for this purpose
- Create BIM objects, adjusted to take into account:

  Diverse **user groups and areas of application**
  (Planners have different requirements than operators, builders or executors)
  Service phases
  Standards, regulations
  Languages

Requirements and Opportunities for Würth

Requirements and opportunities for Würth as the builder:

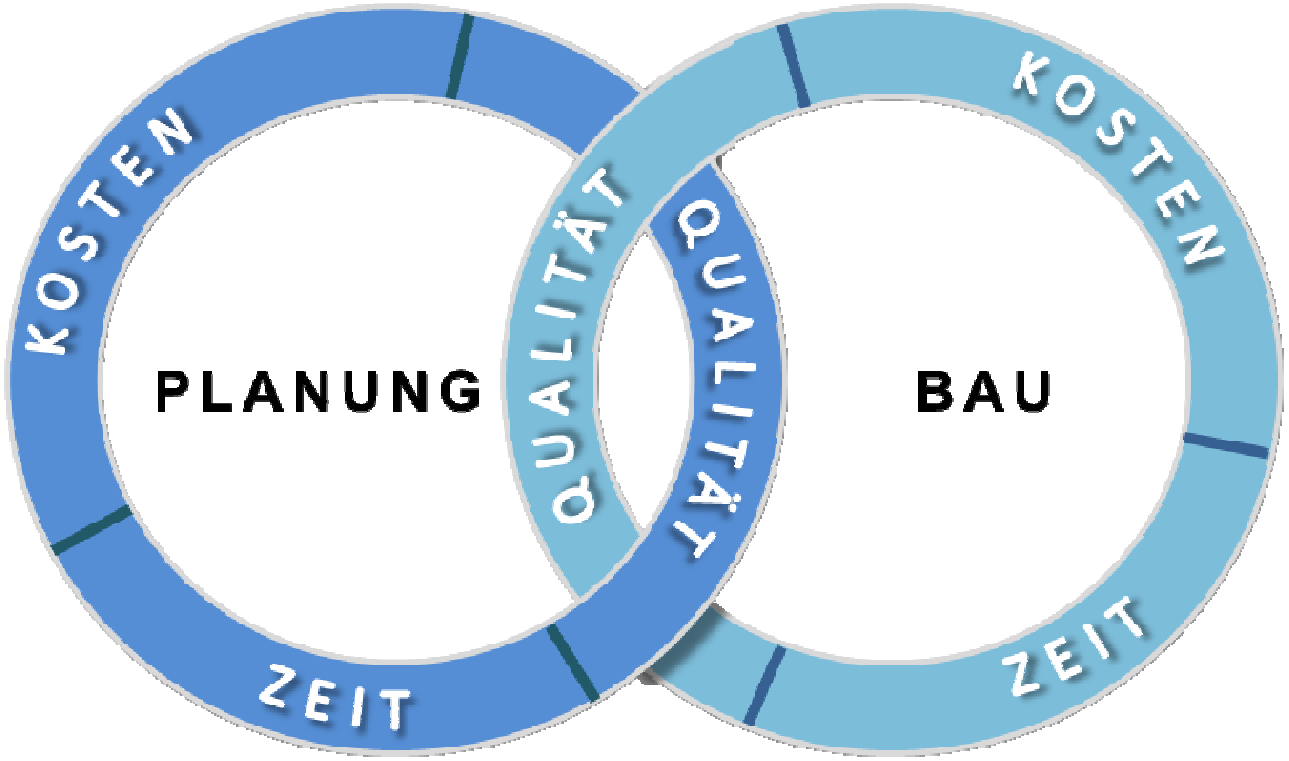
- Easier **access to data** and objects via website, BIM portal, etc.
- Present **advantages of own** products with the aim of improving understanding and outlining benefits for third parties
- Guarantee **services** performed by competent and trained personnel
- Adapt to **buying behavior** of market
- Deal with **"product neutrality"**
- Internal and external **communication**
- Earlier involvement and therefore **part of early planning** and not just part of execution
- Provide **specific data and objects** that are compatible with one another and ensure planning security and cost certainty
- Providing objects with the corresponding standards, approvals, specifications and costs means **transparency** and confidence
- Establish partnerships with other manufacturers
- "Modern" business orientation, while remaining attractive employer

Requirements and Opportunities for Würth

- For Würth, this can mean linking all processes, from the design and planning phase of a construction project to manufacturing, installation, usage, maintenance, and even recycling.
- **Simulations and calculations** for specific components, for example, are based on exact data and must not rely on assumptions

Requirements for Participants

- Everyone has to be aware of the fact that the planning and construction are linked.
- **More than ever**. This promotes and demands the BIM methodology.



BIM CONTRACTOR AWKG

Objective: Provide 3D models of all technically relevant components and products in the project, including information regarding performance indicators, condition, quality, properties and circumstances.

Vision: Establish Würth as a leading BIM partner for our customers in the C-part sector.

Prerequisite: All relevant sectors, individuals and organizations in the Würth Group – especially product development, product management, IT, marketing, logistics, technical offices, etc. – contribute to implementing our vision and our objective.

Strategy / Method: Analyze relevant internal Würth processes with the aim of optimizing them and digitalizing them where possible.

Consistent reflection to continually improve internal processes in pilot projects with select customers in order to determine practicality.

Implement several Würth construction projects using BIM methodology to gain experience and use that to develop a best-practice BIM procedure.

Würth's Dual Role as a Builder / Product Manufacturer

Prerequisites:

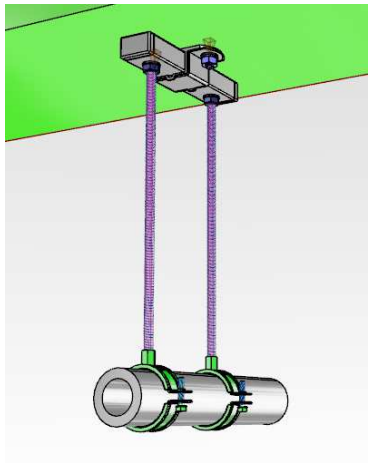
- Define rules and methods and compile information based on standardized processes
- Knowledge regarding subsequent use of this information
- All tasks have to be coordinated when performed -> joint work
- Ensure shape and quality -> reuse information without redesigning or modifying

BIM PRODUCT CONFIGURATOR VARICON POWERED BY CADENAS

VARICON INTERACTIVE PRODUCT CONFIGURATOR

Objective of interactive product configurator

DESIGN and **DERIVE** detailed, rule-based fastening solutions for building technology in an **INTERACTIVE** and **COMPREHENSIVE** manner



VARICON INTERACTIVE PRODUCT CONFIGURATOR

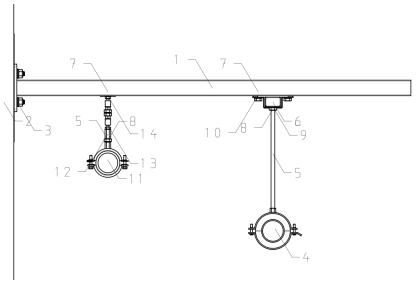
Advantages of interactive product configurator

- Easy to use
- Quick to assemble
- User friendly without profound knowledge of CAD applications and technical regulations
- No CAD software required

VARICON INTERACTIVE PRODUCT CONFIGURATOR

Features

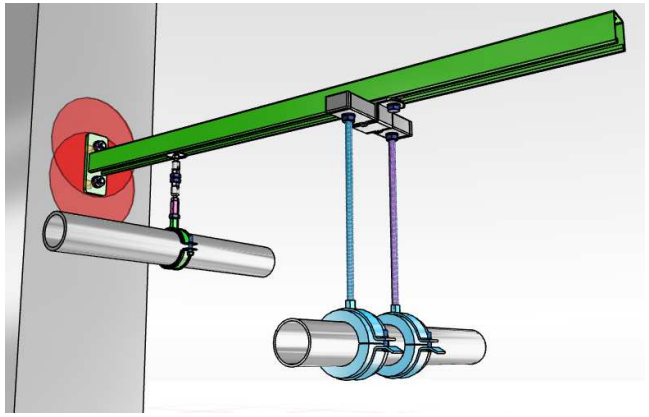
- Export bills of materials to Excel
- Configurations defined for list of balances for specific items
- CAD export (ACAD 2D/3D, Inventor, REVIT, Microstation, SolidWorks, and much more)
- Export drawings with dimensions and integrated bill of materials
- 3D PDF export
- Generate specification text (as of expansion phase 3)



VARICON INTERACTIVE PRODUCT CONFIGURATOR

Areas of application

- Technical building equipment



Target groups

Expansion phase 1 & 2:

- Würth technical sales
- Würth technical back office

Expansion phase 3 and on:

- Executing companies
- Technical planner

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60 JAHRE | 1958–2018

WÜRTH

THE DRIVE:
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