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FOLDER 5 – BIM ESSAY

DIPLOMA THESIS
DIPLOMOVÁ PRÁCE

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Abstract

These diploma theses focus in understanding what pro and cons of using the newest BIM technology could be.

The BIM process was adopted during all main designing phases: desing concept, detail design and least but not last facility management.

Keywords

BIM, BIM Manager, BIM Specialist, BIM Coordinator, Dimensions, Workflow

Abstrakt

Tato diplomová práce je zaměřená na porozumění, jaké klady a zápory přináší používání nejnovějších BIM technologií.

Proces BIM byl přijat ve všech hlavních fázích projektování: koncepce návrhu, detailní návrh a v neposlední řadě správa zařízení.

Klíčová slova

BIM, BIM Manager, Specialista BIM, Koordinátor BIM, Rozměry, Pracovní postup

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1 Introduction

BIM is an abbreviation for "Building Information Modeling" or and is defined by the National Institutes of Building Science as the "digital representation of physical and functional characteristics of an object". BIM cannot be thought as a software, program or a product but must be understood as a process for programming, designing, building and maintaining a construction that uses an information model, that contains all the information which cover its entire life cycle, from designing to construction, up to its demolition and disposal.

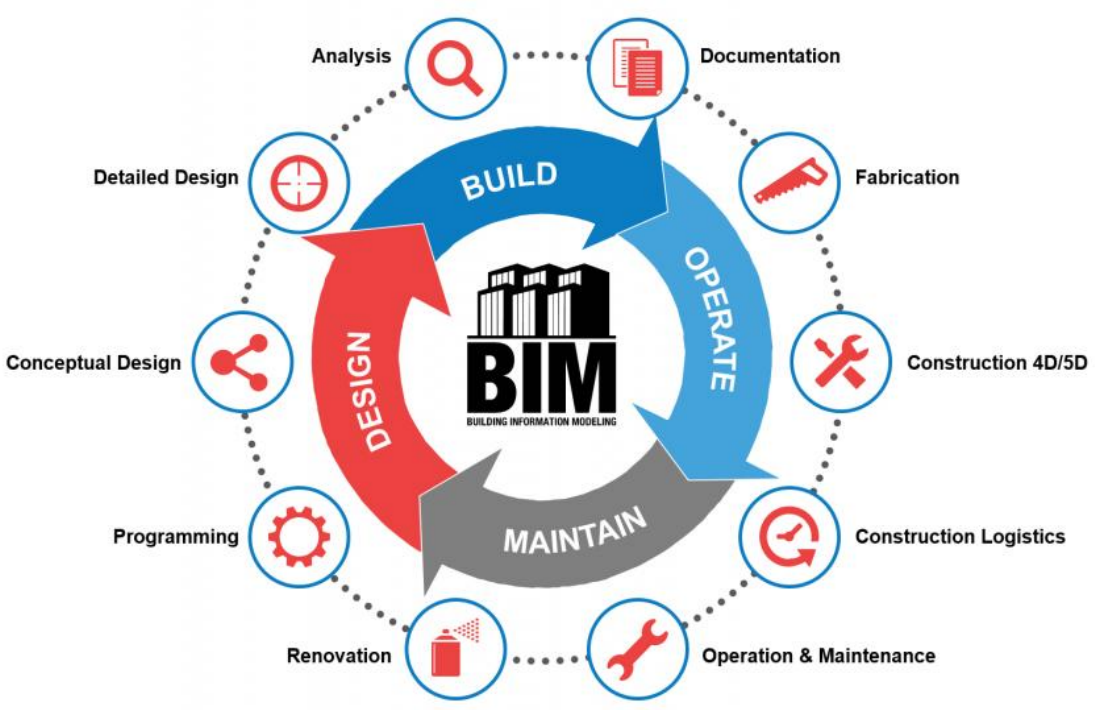
BIM was created to overcome the need for efficient collaboration between designers of different disciplines, effective interoperability at the software level and easier integration between processes.

BIM is in fact a highly collaborative method as it allows you to enrich the design with useful information at every stage, and several disciplines.

The peculiarity of Building Information Modeling is therefore that of being able to recreate a virtual twin building model that is not just a three-dimensional representation of the future building, but an information, multidisciplinary, shared model in continuous evolution and never out-of-date.

2 BIM process

The work methodology on which BIM is strictly connected and based to the use of software capable of generating specific virtual models for each individual discipline (In my study case the main BIM software used for such operation is Autodesk Revit). The ability of designers to produce interoperable data is therefore guaranteed by compatibility with the IFC (Industry Foundation Class) format classified as 3D image files, which also contain other technical information.



Picture 1 BIM process
Source: www.syspro.it/wordpress/en/services-2/bim/

BIM technology also offers greater process efficiency and productivity for several issue that might occur during the design and construction process:

- Reduction of the margin of error,
- Reduction of time-design process
- Interoperability with a wide spread of softwares.
- Huge data information of the building
- Clearer information data
- Better process control

The implications and positive effects of BIM therefore affect not only the design of the work (concept design, sharing of the project idea with the client and executing companies, planning, simulation of models, assessment of sustainability) but even the realization of the work (control and management of costs and times, re-

duction of unplanned work) and the maintenance and management of the work (facility management).

3 BIM APPLICATION

The BIM technology can be applied, as previously said, to different and wide disciplines. In my study case BIM technology is used to model and consequently data extraction for the only Architectonical - structural elements and management of the project information.

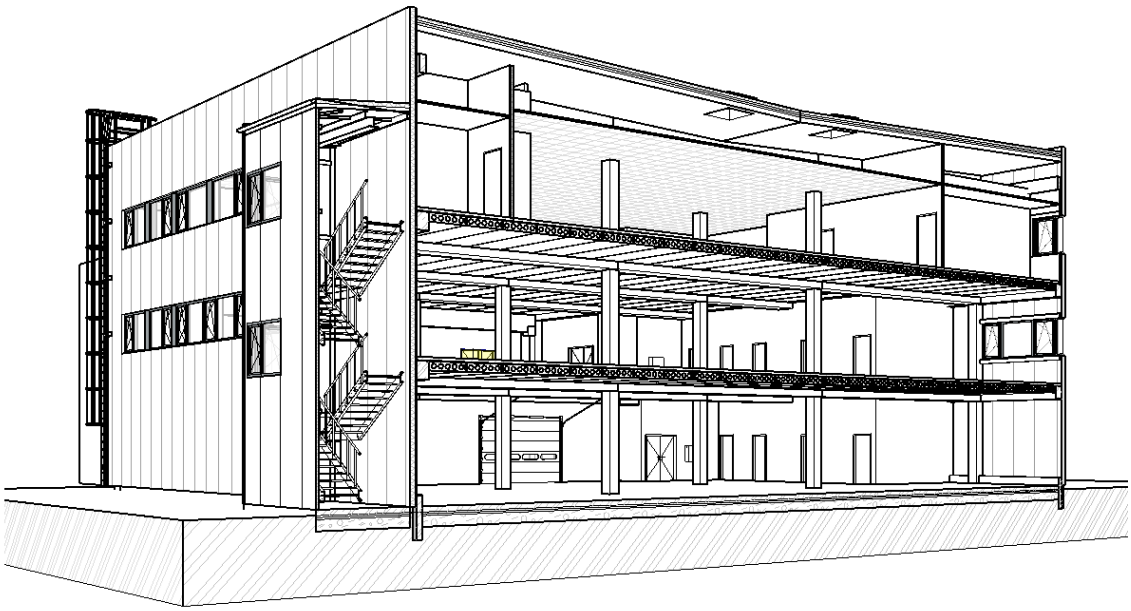
The Plumbing system is modelled by a different BIM specialist and the HVAC system by different company so not case of my personal study.

3.1 Architectonical project

Concerning architectural discipline, I notice greater efficiency than a non BIM design work since I am able to construct a virtual 3D model and view every aspect related to the design, without neglecting anything, at the top of all element collisions that must be solved during projecting.

Also considering the fact that all the project elements, structural and architectonical, are parameterized, I am able to automatically create plans, elevations, sections, prospective views, with a result of a sensibly time saving documentations.

Each modification done into the virtual model reflects an automatic and dynamic mutation of all the project documents, such as sheets and schedules; this means an increase in productivity and highly reduce the probability of making mistakes. Transferring the project quickly without loss of quality, allows those who work in BIM mode to provide their contact persons with all the information necessary for the continuation of the project, guaranteeing their validity at all times.



Picture 2 Architectonical project
Source: Own work in program Autodesk Revit

Some BIM software are also equipped with "Real Time Rendering" technology, Revit is equipped with a Virtual render plug-in so called Escape, with which it is possible to obtain a non time consuming photorealistic renderings of architecture in real time. Conclusion is that advantages of this new designing approach are evident.

3.2 Structural design

Concerning structural discipline, thanks to the BIM integration with the structural calculation software (In my study case Robot structural analysis) it is therefore easy to add structural information (pillars, beams, materials, reinforcements, etc.).

It is possible to link the BIM model with an out of the box structural and analytical software, perform the calculation and make changes in beam and columns cross section – material if the structure does not comply with the resulting internal forces.

This particularly procedure is another great advantage in using BIM but not deeply studied in this diploma theses because related to a different field of study.

3.3 Project management

It is becoming increasingly important for project managers in the civil and construction sectors knowing and using intelligently for the benefit of the quality of their work the digitalization trends of the building sector.

By means of the BIM methodology it is now possible to continue the abandoned research path for organization and development of processes, through the deeply search for data quantity and quality. In this field, decision-making process and quality of information carried out by projects nowadays is crucial for a firm to stay in the market.

In the Data Information Knowledge Wisdom pyramid, simply known as DIKW pyramid, once you can obtained the data and information, a good level of knowledge of processes can link into an higher level of atomization, development and organization.

Therefore, Project Management will benefit from the implementation of BIM and through specific training, it will be clear for each role, how to relate to the rest of the team and how to best use the BIM tools available.

Not everyone is able to reach higher knowledge of the BIM process, therefore there are several professions and roles in that are strictly related to their erudition of the procedure itself.

4 BIM ROLES

BIM technology is applied to the entire life cycle of a building therefore a massive number of professions, in all level, are in need to achieve such result. A pyramidal structure organization of knowledge and related responsibilities is in need too in order to provide costumers a "well oiled" design process.

It is natural, therefore, to expect that BIM in construction will generate new professional figures with specific tasks and skills.

The new figures required to coordinate, manage and implement these processes are complex one, who must have distinctly multidisciplinary requirements. There are many professional figures subgroups related to BIM professions but those can be grouped into 3 macro roles such called:

- BIM Specialist;
- BIM Coordinator;
- BIM Manager.

4.1 BIM Specialist

The figure of the BIM Specialist must be able to use the software for the realization of a BIM project according to his discipline competence (architectural, structural, plant, environmental and infrastructural) and is able to understand and use the technical and operational company documentation for the production of elaborate and models.

4.2 BIM Coordinator

The figure of the BIM Coordinator is able to coordinate the work on one or sundry specific disciplines within the project (e.g. architecture, structures, systems, etc.).

Likewise is able to use the software tools in need to coordinate drafting documentation and project management.

BIM Coordinator is also responsible for BIM authoring software for the various disciplines (architecture, structures, plants, etc.).

He works in collaboration with BIM Managers. He is able to understand, process, update the technical and operational background of software in order to produce documentation sheets and 3D models, related to specific firm demand. He coordinates the information content of the models by working in close collaboration with the BIM Managers.

4.3 BIM Manager

The higher position of BIM professional is covered by the BIM Manager. He is the main team organizer, a transversal figure who must be able to manage and coordinate multidisciplinary BIM projects and the drafting, control and manage-

ment of the BIM project through the coordination of all the professionals who participate.

The BIM manager is responsible for managing and coordinating information for suppliers ad external companies involved in all the design stages.

He is responsible for the implementation of BIM processes and strategy, the preparation of technical and operational documentation for the production of designs and models (standards and procedures).

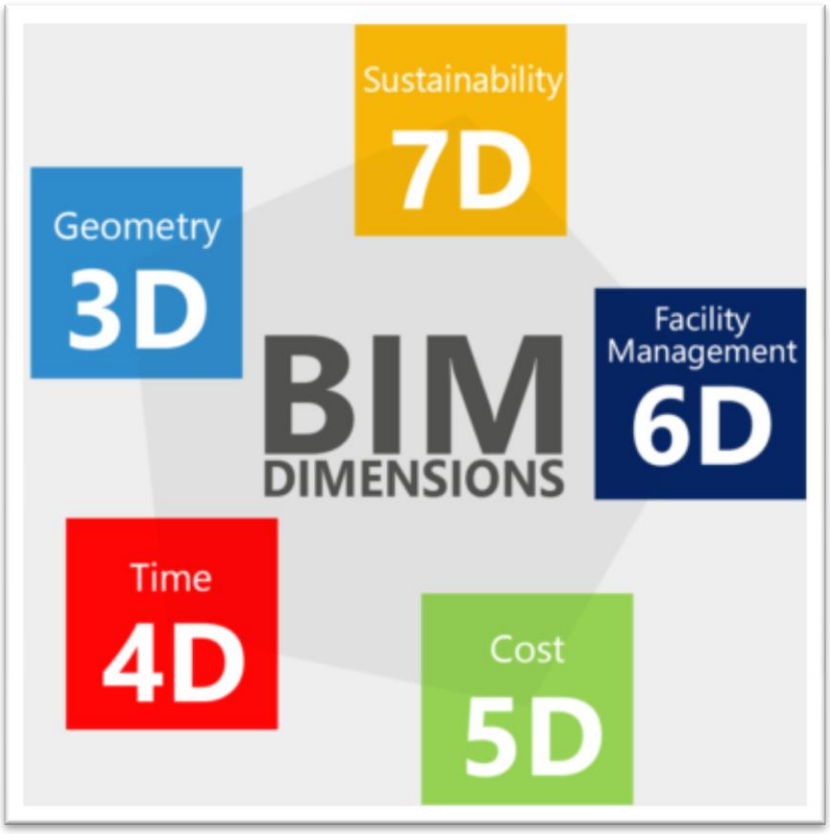
BIM Manager is also able to use the software tools necessary for the coordination of the drafting, control and management of the BIM project. He knows the main features and methods of use of BIM authoring software for the preparation of BIM models for multiple disciplines (architectural, structural, plant engineering, environmental). He must also work in close collaboration with the Project Manager and define the information content and detail levels of the models, designs and objects of the graphic models. In medium-large sized companies it is typically supported by at least one BIM Coordinator for each project, while in reality smaller ones personally coordinate the work of the BIM Specialists.

5 BIM DIMENTIONS

In BIM proces the concept of dimension has a wider meaning. The dimensions of BIM allow schematizing the ideal potential what the computerization of the project is capable of. In fact, it is possible to extrapolate, combine and analyze data concerning aspects that go beyond traditional architectural modelling.

The UNI EN ISO 16739:2017, which are the european BIM standards, when dealing with the management section of the information document, adopt this classification of dimensions:

- 3D: three-dimensional modelling
- 4D: time management
- 5D: economic management
- 6D: life cycle and maintenance
- 7D: sustainability



Picture 3 BIM DIMENSIONS
Source: www.buildingincloud.net/bic-6d/

5.1 3D modelling

Using cutting-edge tools for a 3D digital model of the building work allows us to attain higher level of graphic detail design, guaranteeing a realistic rendering.

The migration from 2D modelling to 3D modelling allows the composition of intelligent parametric objects, so called families, capable of be modified instantly. Those parameters range from several object properties e.g. geometrical information to material composition.

3D modelling is not solving just the issue related to model aspect but The problems that can be solved in the design phase are not limited to those relating to the rendering of the model as such, considered disconnected from the rest of the technical disciplines involved, but also contemplate the interaction of the various actors / disciplines that this methodology has per se in its nature.

3D modelling became handy in terms of "model checking management activity which is expressed of two distinct operations:

- -code checking, that is, checking the compliance of the model with design and regulatory requirements
- -the clash-detection. It is a preventive analysis of geometrical conflicts that might occur during modelling process. Clash detection may be executed within main BIM programme or with out of the box programme (e.g. Naviswork)

5.2 4D time management

BIM-4D modelling helps designers to mange related tasks during construction process and improves their control and conflict detection.

After associate construction components and the construction times, it is possible to obtain the Timeline and timetable in order to control and manage all the followed construction phases.

Each work activity must be defined by a start date and an end date or deadline, then associated with the specific 3D component and eventually displayed in as a chrono-program or through an ongoing graphic that shows the evolution of the project, from the construction phase to the work completed.

For new construction projects, 4D models can be used to manage process times, combining time planning with location-based planning, providing and avoiding interruptions between the different teams, as well as checking the correct sequence of activities. The innovation that depends on the use of BIM technology lies in the fact that it is possible to share information or design changes in real time, avoiding a significant amount of human errors dependent on the passage of information over time.

5.3 5D costs analysis

5D modelling is used to extract work cost estimation and analysis. The fifth dimension of BIM works in compliance with both, 3D model and the BIM-4D, allowing stakeholders to view the design progress and have full control of costs over time.

From the virtual model it is possible to obtain schedules and metric calculations automatically; in fact each 3D component of the project, once inserted in the BIM space, is recorded in all its forms and quantities.

5.4 6D facility management

Facility management is the integrated management of space services (space planning), people (concierge, cleaning) and things (systems), not included in the main activities of an organization.

The use of BIM-oriented processes in the field of Facility Management, allows the visualization, knowledge of the location and relationships between the various disciplines of the 3D model, architectural, structural and plant engineering fields. The Facility Management makes the data and information included in the model usable both during the design and execution phases, so as to guarantee its management over time and implement maintenance phases when verified as necessary.

The 6D modeling allows to obtain and store the data relating to the activities, the state of the components, the specifications, the maintenance, installation, management manuals, guarantees and so on.

The use of this technology guarantees the simplest and most efficient management of the replacement and maintenance of the parts, the optimization of the verification and adaptation to the compliance specifications during the life cycle of the asset and also provides the information base for the management of suppliers and subcontractors of the individual component of the plant.

5.5 7D SUSTENABILITY

The concept of "sustainable development" is defined not as the only well-being condition achievement, but is seen as the urgency of converging the exploitation of natural resources, the direction of investments, the orientation of technological development and efforts institutional towards a path that satisfies today's needs in a balanced way as well as future ones.

Therefore, the adoption of a methodology that "obliges" the planning of processes and that opens the building organism to simpler management will make it possible to make the analytical processes involved today in the assessment of the concept of sustainability of a structure more performing.

The use of BIM-7D technology allows estimating and managing the energy parameters of the project in a more complete and accurate way compared to those

previously estimated in the design process. By inserting these data it is in fact possible to obtain energy simulations, making sustainable design easier and faster. These processes in fact allow analyzing, from the first design phase, the building's performance, thus allowing to adopt the most suitable technical solutions to guarantee a lower energy consumption, guaranteeing the sustainability of the project.

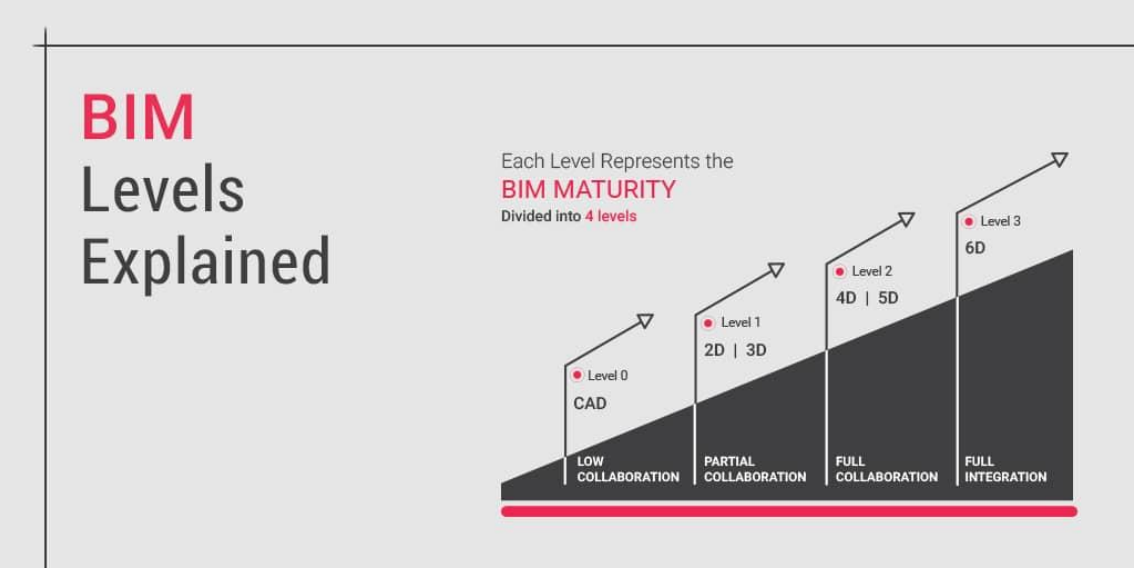
Using BIM in the design process can therefore allow you to support the choices related to the geo-referencing aspects of the site, orientation, shape, construction, materials and consumption, but also the impact of the climate (wind, radiation and specific lighting), the necessary resources, the thermal losses of the building, as well as the presence of thermal bridges.

6 BIM LEVELS

Nowadays there is no doubt that collaboration work is the key. The more is the co-operation between project stakeholders, the more fluent is the teamwork.That is why project stakeholders must be aware of all BIM maturity levels, in which they belong and what they can achieve.

Shared collaboration, e.g. architectonical and structural project, can be grouped into four levels, know as BIM maturity levels. Higher level translates into higher collaboration between parties.

Maturity levels are strictly linked to BIM dimensions, which were previously described.



Picture 4 BIM levels explained
Source: www.united-bim.com/bim-maturity-levels-explained-level-0-1-2-3/

6.1 BIM level 0 (Low collaboration)

It is the first achievable step in the information generation process. It is related to a no level of cooperation.

During this phase, the drawings and shared information carried out documents thanks the help of the only paper and non-interoperable electronic documents. CAD drawings might be used during Level 0, but with no shared models.

Majority of technicians belong to Level 0 of BIM, matter-of-fact even using BIM oriented softwares they are not able to interact with each other.

6.2 BIM level 1 (Partial collaboration)

Sprinkling professional firms are upgrading their work to this level. CDE, acronym of Common Data Environment, usually an on-line company server, is used as Data Sharing Environment.

A CDE is an online shared data content where all the necessary data is stored for the project to be collected and managed.

Briefly BIM level 1 is focused on the delicate process of transition from the old CAD information to 2D and 3D. Notwithstanding the existence of a common data environment, the models are not distributed among the different parties.

6.3 BIM level 2 (Full Collaboration)

The main goal during this level phase is the method how information is shared between the various stakeholders.

In this stage two new dimensions are introduced: 4D, time management and 5D economical management – budget calculation.

BIM level 2 focuses mostly to the collaboration process. Nevertheless, it is not necessary for all team members to be involved in the project to operate on the same 3D CAD models but everyone is allowed to use a separate CAD model. The BIM level 2 core is the existence of a common file type (e.g. an rvt. Revit or an Industry Foundation Classes file IFC) which contains all the necessary information.

In this way, all the parts involved to certain project can have a wide overview of all the available data and modify it accordingly. Thanks to this, I am able to put together a unified BIM model. Last, but certainly of utmost importance, is that the CAD software, which each individual discipline profession uses, must have the ability to export to common file types (e.g. IFC). Better is if all the projectors use same BIM related programme (e.g. Autodesk Revit).

Eventually we can assume that the team elements work in a coordinated way, each on its own model but aiming on a connected and shared model.

6.4 BIM Level 3 (Full Integration)

BIM Level 3 is the ultimate goal for AEC sector. Its main focus is reach full information integration so called iBIM in a cloud-based environment. Common shared model is the way to achieve so. The model will be available and accessible to anyone involved in the project. Besides, the various parts that control the project must modify and/or add their own information.

So Level 3 reflect, for now, the highest method achievable for a firm: a single model to work in. This file will become the precious stone to be shared and stored in a cloud, and then the figures involved in the project used access the same information. The project team in real time checks the effects of the individual actions on the model.

It will be easy to extrapolate the whole history of a building and to have under control, its design and its construction, from costs to maintenance.

7 CHASE STUDY: MULTIFUNCTIONAL BUILDING

7.1 Description of the building

The purpose of the project is to build an hall for production and storage, complete with the entire floor of the company's administrative workplace. The building is designed with three floors, operationally interconnected (doors and secitonal doors) with the existing warehouse hall and closely adjacent to it. Part of the new building on the ground floor is extended by the extension of the production area from the existing hall. In this part, the building objects are spatially linked.

In the first floor will be located mainly warehouse of materials and products. Part of the 1st floor will be spatially connected with the production premises in the existing hall. In the hall will be stored the material of input components needed for the production of LED lighting fixtures. There will also be an operating block with social facilities and an entrance hall.

On the 2nd floor will be located the production of LED lighting units (automatic production lines and manual workplaces) and operating block with social facilities. The 3rd floor will serve as the administrative workplace of the company (offices, offices with rest rooms, day room and meeting rooms) with sanitary facilities and outdoor terrace.

7.2 Programme and used technology.

The programs used during the property design process just described are naturally connected to the BIM process. Autodesk Revit is the program used for modelling, documentation preparation and data collection.

Autodesk Robot structural analysis is instead the program used in order to obtain the analytical calculation of the structure internal forces. From this I obtained the preliminary sizing of the prefabricated structural skeleton.

Structural analysis will not be the main topic of this thesis.

For the interference check between model elements I use the tool in Revit so called interference check. Naviswork can be utilized for a more detailed and precise interference check. In this particularly work not Revit out-of the box tools were applied.

I use Precast (a Revit plug in) to model the precast horizontal element divisions, Spirrol panels and Steel plug in for the steel structure terrace floor support.

7.3 Workflow procedure

Organization is the key; therefore before starting modelling, it is necessary to consider carefully which workflow has to be followed.

First step is the creation of simply, understandable and effective Template.

Template has a different file extension then project (template rte. File extension rtv. Project files extension). It means that, each time a new project is modelled, a template must be selected.

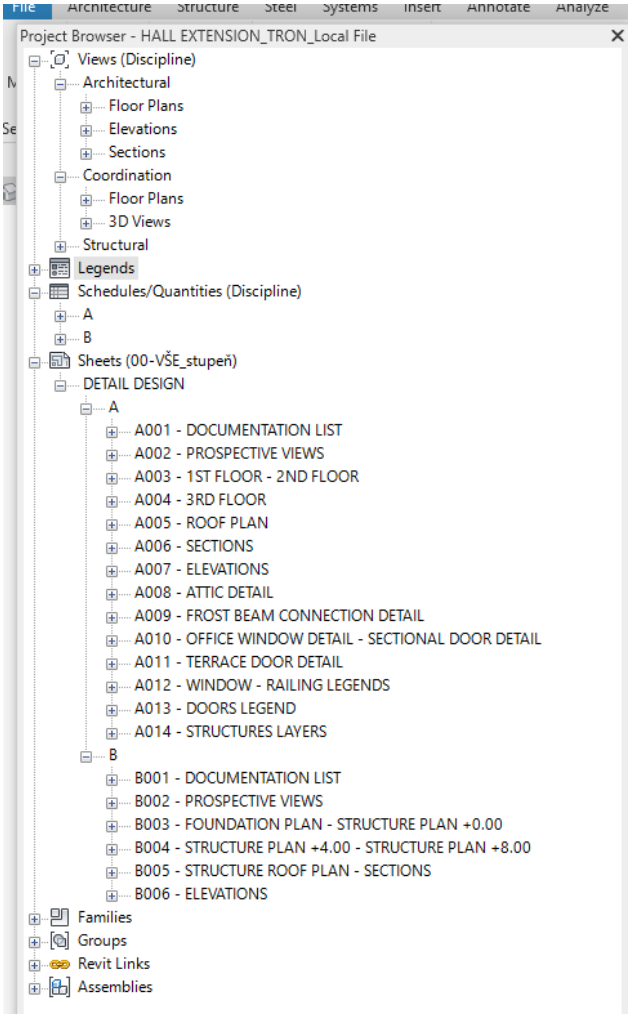
There are several preset templates, but the goal is aiming to a template configuration reflecting company standards.

7.4 Template

Template must be well organised in order to not have further problem in design process, especially when several stakeholders are involved into the same project. In this theses the discipline designer are the only architectural and structural, so that I will describe just in a nutshell what is not related to these specific disciplines.

7.5 Project browser organization

Project Browser is the main programme tile containing all the project elements. It is divided into: Views, legends, schedules, Sheets and eventually Revit links.



Picture 5 Naming convention
Source: Own work in program Autodesk Revit

7.6 Naming convention

First step is to give a naming convention to views. For floor plan I use the initial numbering related to floor plan number (e.g. 01 – First Floor) and assign the view to the correct discipline (e.g. structural – architectural – coordination).

Assigning the view, whilst projecting, to correct discipline is crucial because elements are displayed differently accordingly view discipline.

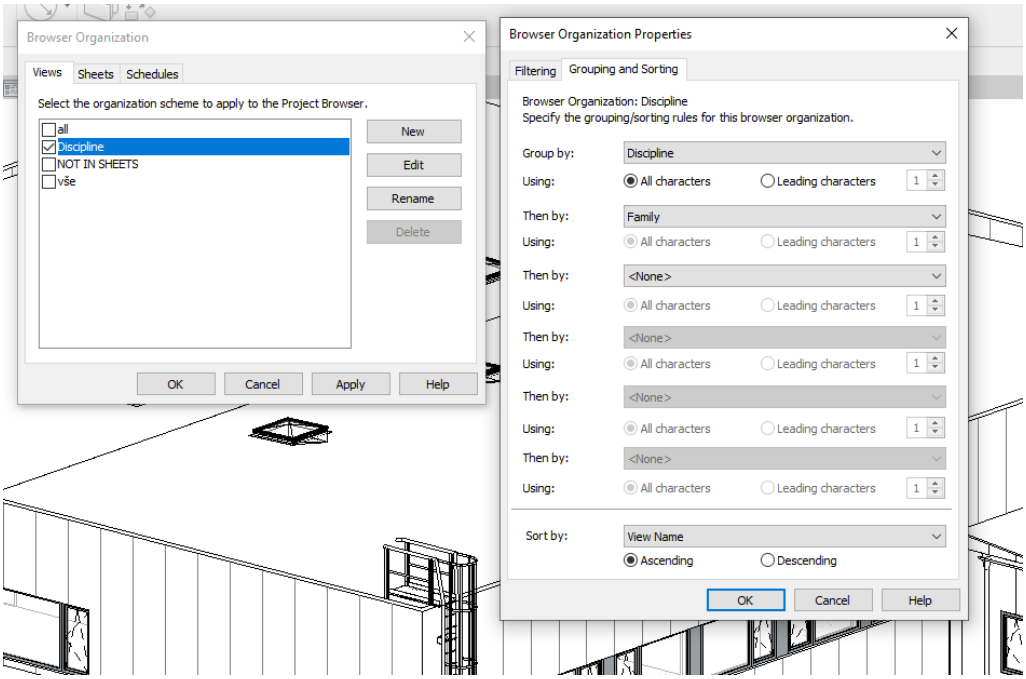
Once given proper view name convention, it is necessary filter and sort project browser in order to not confuse users and logically sort the view.

7.7 Project Browser Sorting

In study case template I sort the views first fully by discipline and secondly by view type (e.g. Floor plan, elevation, section, drafting view). In this way I can track easily

in which discipline the views belong. If more users are involved into project design I create a project parameter assigned to each view so called Owner. Each view will be dedicated to discipline designer surname and sorting will be by Owner, then discipline and eventually view type.

To each owner can be related several discipline (e.g. BIM Coordinator).



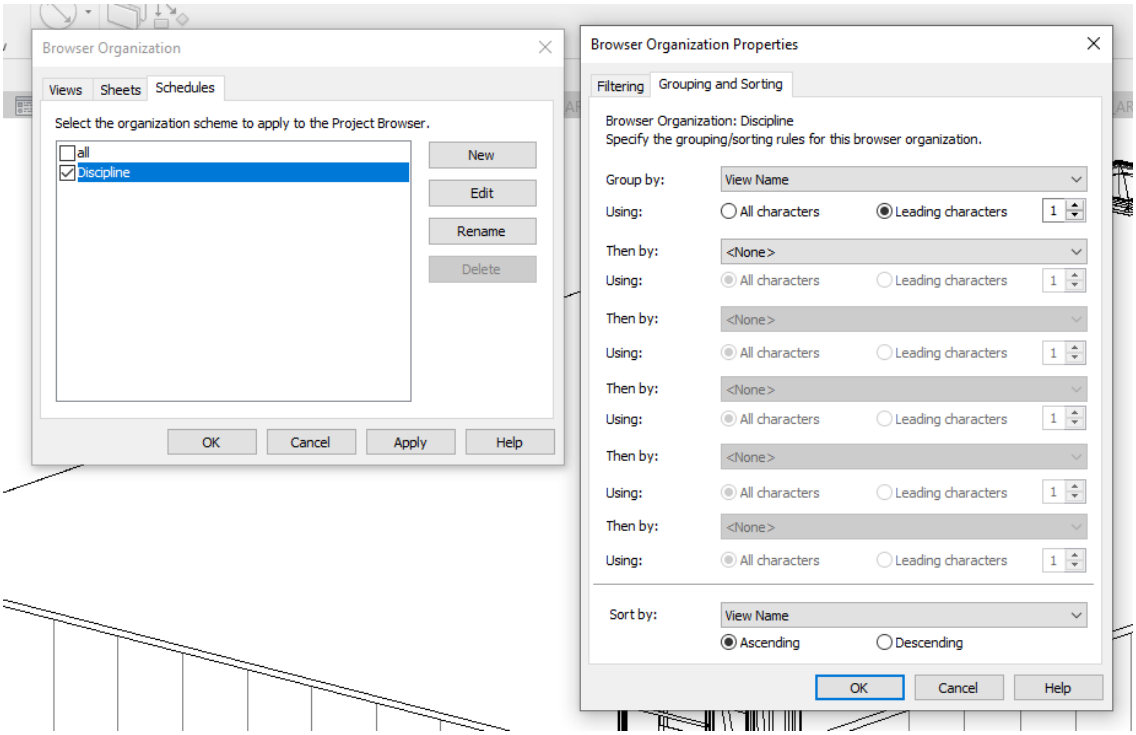
Picture 6 Project browser sorting
Source: Own work in program Autodesk Revit

7.8 Legends

Legends cannot be sorted and filtered as the view. For this reason I assign a Key Letter per each discipline (e.g. A for Architecture legends, B structural legends). Thereby even if not sorted, all the legends linked to a determinate discipline are visually connected.
Eventually I code name the legends assigning the sheets name to which they belong e.g. A_001_Wall Legend, where 001 is the sheet number.

7.9 Schedule

Schedules, can be sorted and filtered like the views. I assign, as previously did with Legends, same key letter.

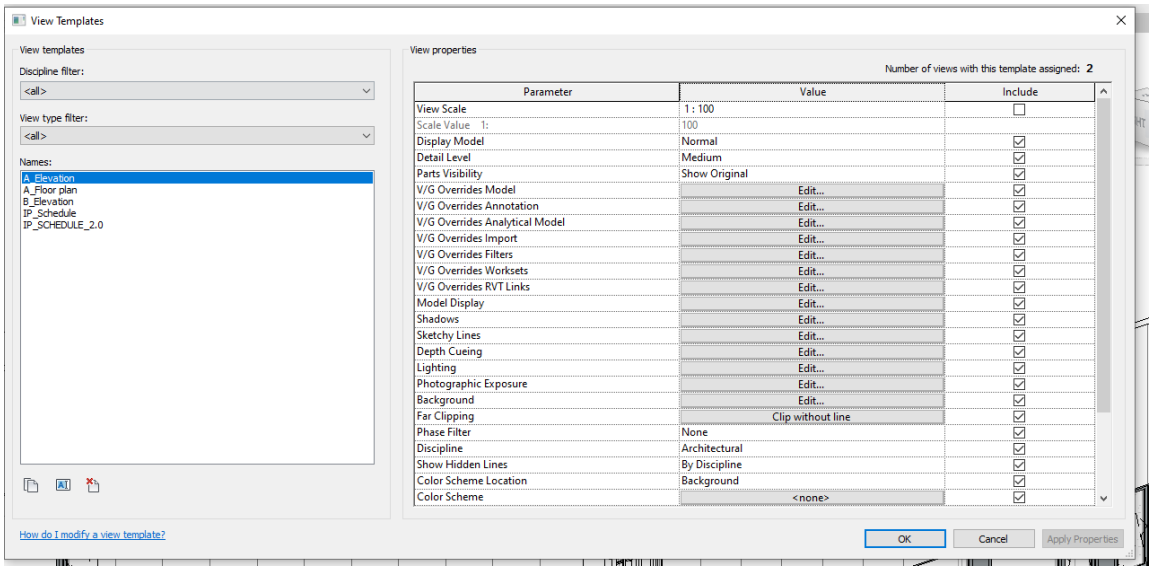


Picture 7 Schedule
Source: Own work in program Autodesk Revit

7.10 View Template

Once created, the view and specified correct naming and discipline, can be allocate to a certain View template. The view template contains all view information. I use view template rarely because after being designated to a view, it has to be disabled in order to make changes.

I give a view template as soon as the view is ready and if there are several views with same characteristics (e.g. Elevations, sections). I name View template accordingly designated discipline capital Key letter followed by view type and if necessary a comment or description (e.g. B_Elevation_1:100).



Picture 8 View template
Source: Own work in program Autodesk Revit

7.11 Annotation families

Annotation and tag families reflect company standards annotation color, line style, thicknesses and text type, usually Arial Narrow.

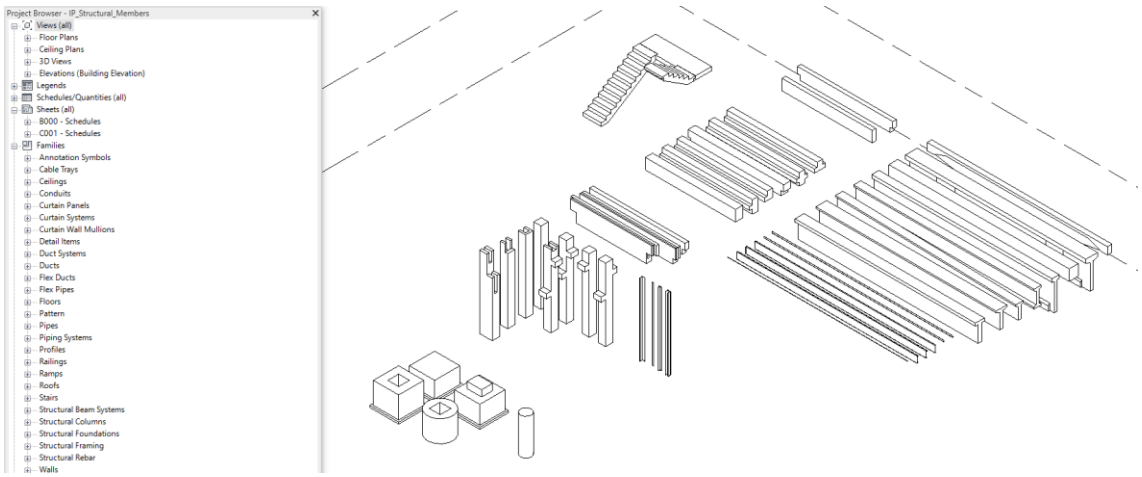
7.12 Sheets

Sheets are numbered following same rule of Legends and schedules. They are sorted at first by its design phase name (e.g. Building permit, Detail design) and consequently by their key capital letter.

8 PROJECT FAMILIES

By my personal experience, in miscellaneous project model, there are a huge number of redundant families. Families must be originated in the way to be easily parametrizable, efficiently scheduled and "light" in term of parameters number information (they must not contain unnecessary data).

To do so, I create a dummy project, for both disciplines, that contain families used in projects. These specific families can be modified for project requirements and loadable in further projects.



Picture 9 Project families content
Source: Own work in program Autodesk Revit

9 WORKFLOW – COLLABORATION

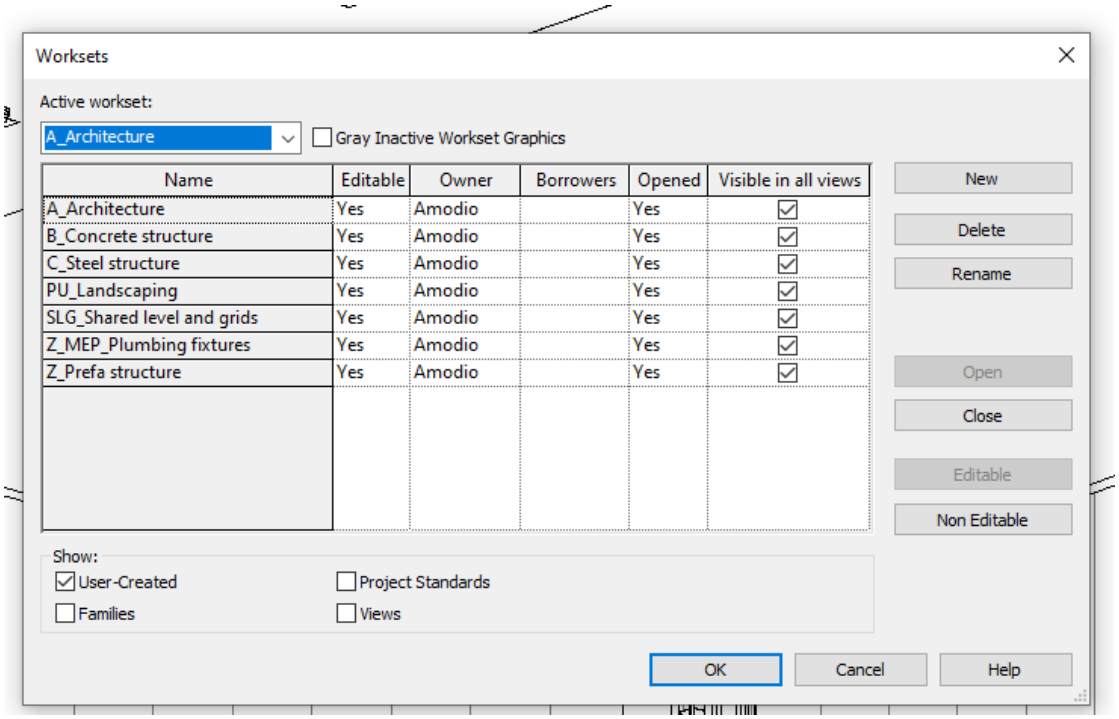
Main advantages related to BIM technology is wide collaboration with parts. In this theses I describe a workflow for bigger project and applied to study case.

In order to have a full collaboration and real time project data it is necessary to create a Central model.

A Central model contains all the elements information. Once started a central model automatically a backup file is created and, most important, the collaboration tab is available.

In next step I create Workset linked to a specific discipline. In this way it is easier to track all model elements and filter accordingly modeller needs. In my specific case I set three main worksets: A_Architecture, B_Concrete structure, C_Steel structure. All the elements must belong to his proper workset.

Afterward a several number of Local file can be created. All the local users are able to synchronizing its local file with the central and update it constantly during design process.



Picture 10 Workset
Source: Own work in program Autodesk Revit

10 ADVANTAGES AND DISANTVANTAGES OF BIM TECHNOLOGY

BIM process is doubtless giving to a company design more pros then cons, but likewise all new process methods, it has his advantages and disadvantages.
I have examined BIM methodology in three different macro phases design:

- -Concept design
- -Detail design
- -Facility management.

10.1 Concept design

During design concept I have encountered several advantages:

- -Creation of a single and unique 3D model (Central model) which encloses all design disciplines implies better control.
- -Faster and more accurate preliminary bills of quantities and consequently initial building material price cost.
- -Automatic interference checks using the collaboration tab.

One main cons is that an articulated and complex database must be created during concept design, which is more time consuming and requires more skilled designer then traditional methods.

10.2 Detail design

During this phase BIM technology can be very handy for two main aspects:

- -The computations are dynamic and automatic. The software is able to extrapolate and update at any time quantities and schedules.
- -The complete erase of errors and calculation inconsistency that might occur due to distractions.

On the other hand traditional method has greater chance of errors and inconsistencies due to manual calculation of quantities and all the calculation must be manually modified every time variations in the project occur, increasing the risk of inaccuracies and mistakes.

10.3 Facility Management

BIM technology provides a complete model, building and facilities information and helps to monitor the project throughout its life cycle in order to intervene with scheduled maintenance, whilst in traditional method the management phase is completely missing of the life cycle and maintenance is left often randomly and

activated only when issues occur. This aspect affects significantly the performance of the building itself.

11 Conclusions

After analyzing of the advantages and disadvantages related to the three main stages of the process, previously described, BIM process has more pros then the traditional one.
It is evident that the BIM methodology offers, compared to the traditional one, greater possibilities.

However, the traditional procedure, especially during the concept design phases can be, at first thought, handy and simpler process, but, even if carried out correctly in every step, it does not reflect an innovative process that links into greater efficiency than would be obtained using BIM methodology instead.

Therefore, I wanted to point to the management of the building's life cycle, as this phase is not always taken into consideration during the design and construction process. In Building Information Modelling, control of the management phase can be considered as one of the main purposes, which allows reducing building costs and increasing efficiency.

The pro of BIM in this phase, in fact, compared to the traditional process, is that considers the project not completed with the end of the works, but an open work for all its life cycle.

However, the three-dimensional modelling with the BIM of every architectural detail it is not an easily manageable procedure. In traditional method we solve just some particular detail, whilst in BIM process the entire model must be as accurate as possible in order to carry out not affected by errors information. In fact, it is possible to proceed along several ways.

The first consists in deciding not to completely abandon the CAD processing, a sort of hybrid procedure, but to use the CAD method to design construction details, hand in hand with the parametric model and streamlining the graphic drafting of the detailed drawings; but this operational mode ends up in decreasing added value taken from BIM.

A second way, which is considered as the most used practice at an international level, involves the creation of detailed components. A detailed component is a 2 dimensional parametric family that is utilizable to produce detail drawing in lower scale. In this second way it is possible to create not parametrical family, but a twin detail element taken from CAD procedure in a completely analogous to traditional manual drawing techniques. This can be considered as step forward that aim to a complete parametric detail component.

This middle way represents a good compromise between the traditional and new process, although it cannot be a complete expression of the BIM methodology. The middle way can be applied to those companies that belong in a transaction BIM maturity level.

The third way is to make these detailed components intelligent and parametric, in order to be able to describe and classify them to guarantee that

univocal reading essential to rationalize the information relating to each element that makes up the construction.

The last one is undoubtedly the ideal approach to BIM in terms of information about the model and its usability. Surely it is really time consuming but it can generate quicker design process for future. It also has to be considered as an investment and its benefit must be evaluated.

It is clear, therefore, that the advantage in the use of the tools and the BIM method is directly proportional to the information reproduced in the model and skills of the users. Not all the building elements shall be modelled consequently a modelling criteria must be decided at the very first stage of designing e.g. what has to be modelled and its Return of investment.

In conclusion designers should change point of view and try not to consider BIM just as another rendering tool but to utilize it as an useful tool for information exchange during the construction sector chain, from documentation product techniques to information on the building life cycle.

It is not simply a matter of transaction on using new software or changing designing concept, but much more. Considering the fact that main purpose of BIM procedure is to centralize all the information, a firm can reduce drastically the time in need.

Today we find ourselves with a traditional method that is not perfect, but which we are more aware of and which we know will surely be the result we want to achieve, in times that can be easily estimated based on experience. Probably reticence compared the use of a new methodology is caused by an underlying fear that obscures the undeniable advantages.

After overcoming the initial fear and change mindset, BIM methodology is the best designing companion a firm can have till now.

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