OPENBIM

SUPPORTING EVIDENCE
Because of specified information and modeling standards, site crew had all the information in the models at their disposal. IFC models were exported automatically from Revit using RTV Exporter, using always the same setting, which removed human errors when managing multiple models.

Model quality was checked then with BIMcollab ZOOM and SimpleBIM.

**BENEFITS**
- Models contained only the crucial and accurate information.
- No information overload.
- Model were constantly updated.
Earthworks analysis

**Terrain modelling**
- Cut & fill analysis

**Geotechnical profiles**

**DESCRIPTION**
- Quick Design, Visualise & Analyse cycle
- Multiple iterations >20

**Visualising:**
- Earthworks technology,
- Phasing
- Geotechnical profiles

Results visualized as IFC model. No software expertise needed for end users - easy to understand.

**BENEFITS**
- Support in the decision making regarding foundation technology
- Avoiding problems with ground water level
- Cost & time optimization
Issues management

**DESCRIPTION**
- Model Quality Control
- Clash Detection
- Design Review

All Issues (quality, design and clashes) were BCFs created in Revit, BIMcollab ZOOM or BIMcollab online platform and synchronized to the platform.

**BENEFITS**
- Central issue register and management
- BCFs were exchanged seamlessly between different software.
BCFs were used to share the information about dates of completed elements. These information were imported via excel to Revit and then to updated IFC model. After adding that information to the model, the site crew could visualize the progress of works.

**BENEFITS**

- Possibility to find the date of each element pouring.
- Quick check of finished elements.
- Faster way to get data about works progress.
- Possibility to generate quantity schedules for settlements with subcontractors.
In terms of estimated contracts, an inherent risk is the amount of work to be done. The use of BIM models for the quantity take-off during the Investment, allowed us to avoid additional annexes in the multiple areas. Collecting quantitative information from the model is definitely less time-consuming than preparing a quantity take-off on the basis of 2D documentation. The time saved was used to increase control over subcontractors, analyse documentation, prepare micro-tenders as part of contracting individual construction works.

**BENEFITS**

- Time reduction for quantity take-offs – average 75%
- Quick check of budget progress report in division to each elements
- Acceptance of the work done based on BIM models
- No annexes for contracts for works with BIM-base QTO
4D scheduling

4D schedule for construction sequencing study

DESCRIPTION
- Using OpenBIM Synchro Pro software for construction sequencing study and connecting schedule with the model for 3 separate buildings.
- Visualizing the division into construction parts and specific element categories.
- Verification of the project deadline.

BENEFITS
- Enabling every team member to access visualisation through video clips and Synchro Open Viewer.
- Interoperability through IFC and XML.
- No software expertise needed to use the 4D model and analyse the schedule.
Dalux Field was very helpful in quality management and on-site issue registration. By this tool, we could create tasks for our sub-contractors with localization, photo, and short description. Then we send it by the app to the sub-contractor works manager or the owner, and they immediately get the information in their smartphones. This way of communication turned out to be more effective and creates zero paper waste.

**BENEFITS**
- Standardized data structure from IFC models (buildings, level, spaces)
- Cooperation
- Time savings
- Mobility
- Better quality of communication (all information needed)
- Eco-friendly
Field management

Issues registration

Data reading from IFC model

- Field management
  - Issues registration
  - Data reading from IFC model

- Issues registration
  - Usterka
    - Osoba odpowiada za niską korytkę kablowe
    - Lokalizacja:
      - Szkoła RZUT OGÓŁNY
      - Szkoła
    - Ostateczny termin: 9 mar 2020

- Data reading from IFC model
  - Bieżące
    - UST.404
      - Ostateczny termin: 9 mar 2020
      - naprawić działkę po instalacji
    - BHP.OBS.175
      - Niewłaściwa praca na drabinie
      - Ostateczny termin: 3 mar 2020
    - BHP.OBS.174
      - Niewłaściwa praca na drabinie
      - Ostateczny termin: 3 mar 2020
    - UST.405
      - Zarysowana podstawa klapki dyfonowej
      - Ostateczny termin: 3 mar 2020
    - BHP.OBS.173
      - Niewłaściwa praca na rusztowaniu
      - Ostateczny termin: 2 mar 2020
    - PORZ.14
      - Ostateczna rozwalona na korytarzu
      - Ostateczny termin: 26 lut 2020
    - UST.403
      - Ostateczny termin: 28 lut 2020
      - Zarysowana podstawa klapki dyfonowej
      - Ostateczny termin: 28 lut 2020
Field management

Statues for issues at the end of project

DESCRIPTION

Graph below, symbolize performing tasks in time. Tasks in progress are the orange one, tasks reported by subcontractor to be done/fixed (yellow one) and task finished and accepted by general constructor (green one). Conclusion that we obtain from the shape of the different colours means that the communication between different project participants was on very high level.

BENEFITS

• Each task was created with relation to geometry of IFC model on the platform
• Cooperation
• Time savings
• Mobility
• Better quality of communication (all information needed)
Field management

- Acceptance of works
- OHS observations
- RFI & Tasks from construction site
“Using digital BIM in case of modeling information about building, ensuring continuous and immediate access to project information, its costs, schedules, risks and taking corrective actions”

Tasks and programmes in OHS and Environment report: “Extend use of solutions from the project to all construction sites – to produce and use less paper and be more eco-friendly.

Score 100: „Implemented digital BIM OHS on site reporting”