

BIM to Construction Site

Kristoffer Spendrup Bugge (Norway)

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SUMMARY

In this presentation, the authors discuss their experience on construction directly from 3D BIM models. During design phase, all documentation is born digital and integrated straight into BIM modeling software. Preparation phase employs workflows that include all steps for recording and modeling of existing terrain and structures by means of laser scanners, aerial and ground imagery. Building on actual underlay information, decisions are made for placement and design of new structures. Following stages that are integrated in the BIM workflow and discussed in this presentation include: digital 3D design of retaining walls and reinforcement using Dynamo, design of digging areas using Gemini, architectural and structural design of new structures using Revit, design and adaptation of mechanical systems through Inventor, customized solutions for bill of quantities and more. During integration process, all models created are combined into the Navisworks environment. This allows for seamless flow of information between the designers and the contractors. Contractors receive an entire integrated 3D model that they use for the next stages of their work. All information is accessible via the cloud based system Interaxo and once received by the contractors, drawing plans and schedules are instantly updated and instructions are produced for people and machinery on site. In the field, contractors have the possibility to visualize all 3D models and related information into various devices and handheld platforms on site. During this ongoing process, contractors and designers collaborate based on the models and via the cloud and they reefer the building process cycle until project completion. Several advantages of the process, are already readily evident and include the ability to check for collisions in advance, the immediate and accurate calculation of quantities and the possibility to systematically integrate all of the required and produced information in a single system. Also, the utilization of 3D laser scanners and other methods of surveying, the building process is monitored throughout construction and the data acquired are used to update existing models and reefer the following steps of the process. Ultimately, this process will produce a fully integrated and detailed model of the As-built models

that will be possible to use for facility management. During their presentation, the authors discuss all related challenges and benefits and their views for the future of this process.

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