From a BIM based school project Aurinkokivi towards a comprehensive city model

PROJECT SUMMARY

Aurinkokivi is one of the largest new construction projects in the City of Vantaa, Finland, for the years to come. This multi-functional building is expected to be completed in the fall of 2016 and will include an elementary school, daycare center, maternity clinic, and music and art classes.

BIM-based implementation of the project follows Vantaa's strategy to completely digitalize, information-manage, 3D-visualize and model their city. Aurinkokivi Service Center was chosen as a pilot project, because of its fixed scope and timeframe. All project participants were required to utilize BIM.

STAKEHOLDERS

OWNER

Vantaa is the fourth largest city in Finland with over 214.000 inhabitants. 10.500 employees work for the municipality with an annual budget of 1.5 billion € and annual investments exceeding 100 million €. Vantaa's Land Use, Building and Environmental Department takes care of development and feasibility of land policy, housing policy and environmental policy. In 2016 the department's budget included costs of 189 million €, income of 204 million €, investments of 87 million € and the city had 650 employees. Vantaa plans to completely digitalize, information-manage, 3D-visualize and model their city.

CONTRACTOR

Fira is a young and innovative growth company in the construction industry. Fira develops and implements service-oriented construction projects for both companies and the public sector. The company's turnover was €136 million in 2015. Typical projects include business and office premises, care facilities, industrial premises and power plants, parking solutions and demanding underground structures. BIM is an integral part of Fira's current project delivery methodology. Currently there are more than 20 trained BIM champions in Fira and their expertise is largely based on methods which were developed and verified during the Aurinkokivi project.

Fira Fiksumpaa rakentamista

THE ROLE OF BIM AND 5D

According to Vantaa's strategy all new construction projects are designed with BIM. Behind the strategy is a desire to improve and develop processes and cost efficiency as well as improve design quality and accuracy. In addition to individual property owner benefits, storing the information in digital format allows the city to provide open source data of the city infrastructure for developers which can be used further to improve the services and create new business opportunities for the ordinary citizens.

For the Aurinkokivi project, all project participants were required to utilize BIM. This did not only concern the designers but it was also a requirement for the construction and HVACE contractors. Additionally the

supplementary detailed design executed by some of the construction contractor subcontractors was required to be executed in BIM format.

BIM facilitates a transparent and collaborative daily way of working which improves overall delivery of multiple subcontracts, enables more efficient working flows and reduces the quality environment and transparent way to make decisions for the best of the project by includ-ing all the stakeholders in the decision making process deviations. All in all BIM when used correctly facilitates more meaningful and motivating working

The construction was carried out within estimated cost budget and schedule. Also every BIM project complements to the 3D city model. The designs were of high quality and the construction site work of prime quality. Outstanding benefits of BIM in supporting the decision making process by providing high quality information in an easily understandable format was a key to excellent execution of the project. The city model is currently being expanded piece by piece to cover the whole city. Vantaa has invested heavily in modeling tools and has even purchased a drone for photo scanning purposes.

PRESENTORS

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