

Gravicon Oy

Gravicon Oy (former Studio HEMA, founded 1990) operates as an IT consultant and developer for building industry. We are specialized in Building Information Modeling (BIM) consulting services and solutions. We are consulting our customers in BIM in various types of projects; most recent in this field have been the Helsinki Music Centre, Performing Arts Centre in Kristiansand, Norway, Espoo Hospital and Centre for Senior Citizens, the renovation of the Finnish National Opera and several renovation projects in the historical centre of Helsinki. Our tasks in these projects vary from defining the overall specifications for the BIM work in the project to actually creating the BIM models. Often we also act as BIM manager in the project.

Our key strengths are experience in architectural design projects, pioneer position in BIM, understanding of the design and construction processes, and long term knowledge in application development. We support many different BIM design tools such as ArchiCAD, Revit and AutoCAD Architecture and currently we use solely Microsoft .NET Framework in our development. This combination of architectural and IT skills gives us a unique position in the market and can benefit both architects and building owners.

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Gravicon tasks in Building Information Modeling (BIM)

Oulun Tietotalo II (Oulu, Finland), 2002

Client: Architect Office VPL arkkitehdit

Tasks: BIM consulting for the architect; testing and guidelines for IFC data transfer

Oulun Tietotalo II, 2003

Client: Enterprie Ltd

Tasks: Conversion of Architect BIM for Facility Management system

Kiasma, Museum of Contemporary Arts (Helsinki, Finland), 2004

Client: Enterprie Ltd

Tasks: Modeling of complex wall geometry for the Facility Management BIM

VTT Information Technology House, 2004

Client: Rapal Oy

Tasks: BIM coordination

Helsinki Music Centre (Helsinki, Finland), 2004 – today

Helsinki Music Centre is one of the major building projects of the decade in Finland. The overall cost for the project is more than 150 M€ and the total area is more than 35 000 sqm. The acoustical and technical requirements have been extremely high and BIM has had a key role both in design and construction. The project will be finished early 2011.

Client: Architect Office LPR arkkitehdit

Tasks: BIM coordination and management for the architects

BIM modeling from the early sketches to in situ detailing (with BIM)

Spatial program management and integration with BIM

in addition several other BIM related tasks

Performing arts Centre (Kristiansand, Norway), 2005 – today

The Performing arts Centre in Kristiansand is a very ambitious project. It is a nice example of the of the so called 'wow architecture' movement, hence both the economical and the structural management have been very challenging. BIM has been used widely in the design phase for cost estimation, structural analysis and studies of design variations. The overall cost for the project is more than 150 M€ and the project will be finished 2012.

Client: Architect Office ALA

Tasks: BIM coordination and management
BIM modeling from the early sketches to in situ detailing (with BIM)
Spatial program management and integration with BIM
Quantity take-offs from the architects BIM
plus several other BIM related tasks

Avia Tower (Vantaa, Finland), 2007 – 2009

Avia Tower is an office block rising 100 meters above sea level in the business area close to Helsinki City Airport in Vantaa. It's tilted front façade and use of sun panels in the elevations adds a little extra to the tower.

Client: Architect Office Davidsson

Tasks: BIM coordination and management
Conversion of the 2D drawings to BIM

Renovation of Finnish Parliament (Helsinki, Finland), 2009 – today

One of the largest renovation projects at the moment in Finland is the renovation of the Finnish Parliament. Spanning over 100 000 sqm in several buildings over the City Centre, this is extremely complex project. BIM is used for measured models of the existing buildings, coordination of different disciplines, scheduling the construction phases and so on. The project will be finished late 2020's.

Client: Architect Office Helin & Co

Tasks: BIM coordination and management

Renovation of European School, Bulevardi 18 (Helsinki, Finland) 2008 – 2009

Originally built 1885 the former School for Girls was one of the first renovation projects of historical buildings in Finland where BIM was used for the design and construction.

Client: Senate Properties

Tasks: BIM coordination and management
Conversion of the measured BIM (Revit model) to architectural BIM (ArchiCAD model)

Sturenkatu 2A-Kulttuuritalo (Helsinki, Finland) 2008 – 2009

Client: Senate Properties

Tasks: BIM coordination and management

Renovation of the Ministry of Agriculture and Forestry, (Helsinki, Finland), 2008 – today

Ministry of Agriculture and Forestry is located in the historical city centre next to the Helsinki Cathedral. This project represents the first generation of renovation projects of historical buildings where BIM has been used. This is also one of the first renovation projects where the constructor has been using BIM in some level for the coordination of the construction work.

Client: Senate Properties

Tasks: BIM coordination and management

Renovation of the Ministry of Transport and Communication (Helsinki, Finland) 2008 – today

Ministry of Transport and Communication is also located in the city centre of Helsinki. Also this project represents the first generation of renovation projects of historical buildings where BIM has been used. As the building is actually combination of several buildings built in several different ages, BIM has helped the constructor to coordinate the work on site.

Client: Senate Properties

Tasks: BIM coordination and management

Renovation of Building D14 in Suomenlinna (Helsinki, Finland), 2008

Client: Senate Properties
Tasks: BIM coordination and management

Helsinki University of Technology, Metsämiehenkuja 10 (Otaniemi, Espoo), 2008

Client: Senate Properties
Tasks: Conversion of the 2D drawings to BIM

Renovation of Kaikukatu 5 (Helsinki, Finland), 2009

Client: Architect Office Heikkinen-Komonen
Tasks: Conversion of the 2D drawings to BIM

Sami Cultural Centre, (Inari, Finland) 2009 – today

Client: Senate Properties
Tasks: BIM coordination and management

HAKA6 , renovation of Hakaniemenranta 6 (Helsinki, Finland), 2009

Client: Senate Properties
Tasks: Conversion of the as-built architectural BIM energy simulation model

Espoo Hospital and Centre for Senior Citizens, (Espoo, Finland) 2009 – today

One of the major projects of the next decade in Finland, the new Espoo Hospital and Centre of Senior Citizens, is a challenging arena for contemporary utilization of BIM. As the new way of working in a BIM based environment is developing fast at the moment, this project wants benefit in all aspects from this development in design and later in the life-cycle of the building. The total area will be over 60 000 sqm and it is estimated to be finished in middle of the 2020's.

Clients: City of Espoo
Architect Office K2S
Tasks: BIM coordination and management (both for the owner and the architect)
BIM modeling
Spatial program management and integration with BIM
Quantity take-offs from the architects BIM
plus several other BIM related tasks

Renovation of quarter K4 Elefantti, (Helsinki, Finland) 2009 – today

In the very heart of the historical centre, this block represents the delicate part of Helsinki. The project includes the oldest multistory building built of stone in Helsinki. The program combines offices, stores, café and a large exhibition space for the City Museum. Among other tasks, BIM will be used to help to fit in the mechanical installations in order to achieve the indoor climate standards that are required for the exhibition space as well as modern offices.

Client: City of Helsinki
Tasks: BIM coordination and management

Renovation of Sofiankatu 4 Helsinki, (Helsinki, Finland) 2010 –

At Sofiankatu 4 – next to the quarter K4 – lays the Helsinki City Museum administration and exhibition premises. The historical building will be renovated between to meet the modern standards for office and exhibition spaces.

Client: City of Helsinki
Tasks: BIM coordination and management

Renovation of National Opera, (Helsinki, Finland) 2009 – today

The Finish National Opera, opened 1993, is scheduled to undergo a major renovation of the mechanical systems in the mid 2020's. The design process of this project was started by conversion of the old 2d drawings to BIM.

Client: Senate Properties
Architect Office HKP
Tasks: Conversion of the 2D drawings to BIM

Specifications for a BIM project, (Estonia) 2010

Client: Riigi Kinnisvara, Estonia

Tasks: Requirements and specifications for a BIM project

Guidelines

Autodesk Architectural Desktop BIM guidelines

Client: Autodesk / Senaatti Properties

Tasks: Autodesk Architectural Desktop 3.3
Autodesk Architectural Desktop 2004&2005&
Autodesk Architectural Desktop 2006

GSA Building Information Modeling Guidelines

Client: Solibri Inc. / GSA

Tasks: Consulting for Solibri Inc.

BIM Guidelines for Building Renovations

Client: Senaatti Properties

Tasks: Building Information Modeling Guidelines for renovation projects

Application Development

iLink For ADT

Client: Tocosoft (Tocoman)

Tasks: BIM quantity take-off plug-in in for Autodesk Architectural Desktop (ADT) using .NET Framework and ADT .NET API.

Rapalstudio

Client: Rapal Oy

Tasks: CAD application for the rental area management system in .NET Framework and utilizing web services interface.

Rotonda MTO

Client: ALA Architects Ltd.

Tasks: Quantity take-off application for AutoCAD Architecture utilizing .NET Framework and xml technologies. Application generates quantities of building parts from the building information model.

Rotonda Rooms

Client: LPR arkkitehdit Oy

Tasks: Roomdata management system for architectural designs using the .NET Framework. System runs both in AutoCAD Architecture and Windows-only environment linking the BIM model to a custom xml database.

Rakennuslostus Net

Client: Rakennustieto Oy

Tasks: .NET application for linking the architectural BIM to web based Building Specifications system. Our role has been the development of the common xml schema used in the data transfer thru web services interface and implementation of Autodesk Architecture and Autodesk Revit plug-ins for the system.

Research

Virtual Project 2000 – Integrated Design Process / TEKES

SPADEx – IFC Space Data Export / TEKES

ProIT – Guidelines for Building Information Modeling / Rakennusteollisuus RT

RakennuslostusNet – Research and development of the xml Schema / Rakennustieto Oy