Experience Sharing on Green BIM technologies to Deliver Sustainable Projects in Asia

By Dr Benny Chow, Director of Sustainability, Aedas

Sustainable design is the ‘Green DNA’ fully integrated in the design process of Aedas. We believe that sustainable design is for the health, comfort and long-term financial benefits of the project owners and users.

Aedas has a dedicated inhouse research and development (R&D) team, consisting members from multi-disciplinary backgrounds including design architects, building services engineers, academic researchers and building scientists, to focus on sustainable design and Green BIM technologies development. The team is usually involved since the early design stage of a project, as we share the same philosophy of Pareto’s Principle – The 80-20 Rule. We believe that 80% of the major design decisions are determined in the first 20% of the design process. The impact and opportunity on environmental / sustainable design will be efficient and cost effective during the early design stage.

THR350 is an excellent example demonstrating our effort. The project is located in Hong Kong with a large glazing area on the north facade to maximise daylight and cross ventilation, while minimising solar heat gain at the same time. Servicing spaces such as kitchen, bathroom and storage space are located on both ends with opaque facade to protect the habitable space from overheating. These design strategies have been perfectly integrated with architectural design.

Passive design strategies have been fully explored and integrated with the architectural idea to improve the health and comfort of the owners and/or residents, as well as the property value. Key passive strategies include optimised building orientation and internal layout of habitable space, facade treatment and external shading, daylight and skylight, cross ventilation and high performance glazing system. We also employed Green-BIM in the design process to enhance productivity and precision. These strategies contribute to the success of this award-winning residential project and its performance in terms of comfort, health and energy savings does exceed the owner’s initial expectation.

As a pioneer, Aedas’ R&D team has applied Green-BIM technology in most of our projects. Our design teams build the computer models which we use the Green-BIM platform to conduct a series of computer simulations, including Computational Fluid Dynamics (CFD) study, building solar heat gain and daylight access. The results will be fed back to the design teams for design revisions and optimisation. The Green-BIM technology enhances the productivity and accuracy of our design work; and more importantly, it offers scientific evidence and confidence to the design teams and clients that the optimised designs will perform better.

BIM can improve productivity and reduce errors during the design stage. It also reduces conflicts and changes during construction to avoid rework and minimize construction waste generation. As a result, it speeds up the delivery of building and reduces cost. These benefits are already well-known in the building industry.

To build a better world for our children is one of the most major driving forces for us to focus on sustainability.