BIM in Building Projects

Good Samaritan Hospital

Puyallup, Washington, United States

Good Samaritan Hospital	
Site retaining wall	33,000sf (3,000m²) permanent soil nailed walls
Parking garage	4-story, 380 parking stalls
Central utility plant	2 × 1,500t chillers
	2 × 2,500kVA diesel engine generators
Jacking pit and	Jacking pit for 12ft (3.7m) diameter × 120ft (37m)
utility tunnel	long underground steel pipe utilidor
Patient care tower	9-story, 360,000sf (34,000m²), 160 inpatient beds,
	40 ED beds, 8 ORs, diagnostic imaging,
	express services
Links	300ft (91m) long links/bridges to existing facility

"In relation to the design and construction of our new 360,000sf (34,000m²) patient care tower addition to our older hospital buildings, dating back as early as the 1950's, the facilities team has appreciated, and is learning, that the use of BIM in this project not only bridged the information loss associated with handing a project from design team to construction team, but now to the hospital. BIM allowed each group in each phase of the project to add to and reference back to all the information they acquired during their period of contribution to the BIM model. BIM is beginning to prove its influence in enhancing our ability to manage our new facilities."

Allison M. Garr, Fache
Administrator, Campus Development, MultiCare Health System

On the Good Samaritan Hospital Expansion project in Puyallup, Washington, the designers used the first component of BIM, model-based design, to quickly and accurately convey the design to the owner. A memo of understanding was agreed upon by all members of the design team to use Revit 3-D modeling software.

The implementation of Revit Modeling in lieu of traditional construction documents allowed the owner to better understand the intention of the design before the facility was built. At Good Samaritan Hospital the architects and engineers performed weekly design updates to a central file transfer site to give all the team members access to the most current information. Skanska downloaded that information every week and separated it by floor into 2-D and 3-D AutoCAD backgrounds for subcontractor use.

At the same time Skanska maintained an exact record of every page of every contract document throughout its lifespan and alerted the design team if a new portion of the model design was impacting anything that was already contracted in a previous document release. In addition, Skanska maintained our own Revit structural model that incorporated all the latest structural RFIs (request for information) and was used for self-performed concrete lift drawings and rebar detailing as well as structural backgrounds for mechanical, electrical and plumbing (MEP) coordination.

At Good Samaritan Hospital Skanska recognized that the modeling needs for designers and contractors were different. Thus, Skanska incorporated an integrated approach to the design. Skanska and the mechanical and electrical subcontractors started their own 3-D modeling efforts very early in the process.

Using Navisworks software the construction team regularly compared the current architectural model with the current as-built structural model and the current subcontractor MEP models. Collisions were detected early in the project and often before the actual designs were complete. This greatly reduced the potential for time-consuming field fixes and delays. In addition it allowed pre-fabrication of large sections of systems that would historically have taken much longer in the field.

Timely and accurate communication of quality control issues and work to complete among all members of the team, including subcontractors, has always proven to be a challenge. This challenge becomes even greater on fast-track projects when all activities are compressed and stacked in order to meet the deadline. To assist in streamlining and providing more efficient communication, Skanska utilized notebook computers in the field to access relevant portions of this information along with shop drawings, RFIs and hard-copy documents. The team maintained "live" work-to-complete lists and performed quality control checks using the same information that was available in the model.