

How BIM can help you build fast?

Engineering Contracting Company shows how BIM helped reduce the delivery schedule in Nshama's Rawda project in Dubai.



Feb 03, 2019



Often times it is rare for projects to be completed on time. And when a project is completed way ahead of schedule. It is something to be noticed and acknowledged.

Engineering Contracting Company has achieved significant progress in the construction of Rawda and UNA, two residential communities launched by Nshama in Town Square Dubai.

ECC will complete the Rawda project, currently 3.2% ahead of schedule, in a timely manner and within budget due to the successful adoption and implementation of Building Information Modelling (BIM) technology. The involvement of ECC Group's associated companies – Abanos (interior fit-out

and joinery firm) and PMI (Prime Metal Industries), enabled greater collaboration throughout the project. The timely manner in finalising materials coupled with excellent communication between the contractor, developer and consultant played an integral role in the early completion of the project.

Kamal Farah, director of ECC Group, says: “We have adopted BIM here [in this project]. BIM may be not required but it helps facilitate the coordination and collaboration between all the parties in the project. It helps in identifying clashes.”

When asked about the use of BIM in all of ECC’s projects, Kareem Farah, CEO of ECC, said: “We are using BIM within the group. Even if it is not a requirement in the contract we will apply it ourselves because it will benefit us at the end of the day, and in turn the project. We have an in-house BIM department.”

Kareem says that through BIM “things are more visual”. The firm at the moment explores using augmented reality and virtual reality. He explains: “Augmented reality is when you are in a room that hasn’t been completed. You put on the goggles and see where the pipes and the walls will be. You can visually see the clash before it happens. With virtual reality when you are at the site, you can wear the goggles and it visually transfers you on to the project.”

According to Kareem, the construction sector has always been far behind when it comes to technology compared to other sectors. He says: “In ECC and ECC group, we are planning to be ahead of the game and we make sure we are at the forefront in utilising these technologies to benefit the buildings.”

Kamal adds that it is not just the contractor that has to adopt technology but the entire supply chain. Then there is also the developer that values and understand technology. He says: “We see developers as partners. We don’t see them as clients. We focus mainly on the project and delivering the project.”

Fred Durie, CEO of Nshama, adds, by saying that there is a dearth of good MEP contractors, and that it is important to maintain a good partnership. Durie says: “Nshama is a master developer and we rely on our partners to bring our project to fruition. We are very lucky that we have ECC working on Rwada and Una. I have worked with ECC for over 15 years, I can safely say that they the highest class of contractors in Dubai.

“Town Square Dubai has evolved as an established residential community offering customers the opportunity to move to an owned-home lifestyle. Rawda and UNA are new residential launches in Town Square Dubai that have gained positive market response. We are committed to delivering these residences as per schedule and work with leading contracting companies to achieve our goal.”

Rawda offers direct access to the Town Square Park that spans an area of over 50,000 m² and features several retail outlets and cafes.

UNA, on the other hand, is a complete design-and-build project of ECC. “We are involved at very early stages for UNA,” Kareem says, implying that the entire MEP works will be done in-house through its sister company United Masters Electromechanical.

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BIM in all

ECC has been using BIM in all of its projects within the group. Kareem says: “The more you bring BIM into your company, the more you will learn about it. To begin with, it has a high initial cost but then you put yourself ahead of everybody else. [Through BIM] you speed up the project, and you will find clashes at an earlier stage.”

“Even for changes, BIM can be adopted very quickly. The model will be able to tell you that these are the consequences of these changes. Perhaps, the MEP systems might be affected and you will instantly be able to see that rather than having a team of people to go and look through all the drawings and see the implications of these changes.”

Ahmed AbouAlfa, BIM department manager, at ECC, explains in more detail. AbouAlfa says that it is very important to involve all stakeholders at an early stage. He says: “BIM is building virtually before you are building at the real site. You should involve construction managers, project engineers, planners, cost controllers, and even the suppliers when it comes to BIM. You must involve all stakeholders before going into design. If there is no collaboration from an early stage, there could be a delay in project completion. So it is not

about the technology but the attitude of the people you are dealing with. We should understand the benefits and advantages of the technology.”

Through the use of BIM there is less additional work as it helps avoid 60% to 70% of problems. AbouAlfa says that BIM is not 100% error-free. “It is not a clash-free model. There are still human errors. We are not working with robots here.”

However, with BIM, it is much easier to convince clients and consultants. AbouAlfa says that to have an accurate BIM model it takes three to five months, but the output will be great.

Going inhouse and lean

Kareem says that the UNA project is design and build, and that it is completely done inhouse. “When you do everything inhouse, you have more control over the resources. Your quality is better and your time is better managed. We don’t always go with inhouse companies. We like to give some work outside. We have strategic partners when it comes to subcontractors who we like to work with and they are like our sister company. We like to mix it up a little.”

Kareem says that the firm uses lean principles in its operations. He says: “We are adopting the whole Kaizen philosophy which came from Toyota.” Kaizen is the Japanese word for “improvement”. In business, kaizen refers to activities that continuously improve all functions and involve all employees from the CEO to the assembly line workers. It also applies to processes, such as purchasing and logistics, that cross organisational boundaries into the supply chain. It has been applied in healthcare, psychotherapy, life-coaching, government, and banking.

“We are trying to be the first company to bring this [Kaizen philosophy] in a contracting company. I believe we are the first company to receive a certificate for it here. The market is becoming more mature. Companies need to be more efficient here to survive.”

ECC was awarded the ‘Lean Principles Awareness and Applications’ certification by the Lean Gulf Institute recently, reflecting its ongoing commitment to operational efficiency.

The ECC certified team are successfully applying all aspects of lean principles into its organisational processes, resulting in sustaining its forward-thinking employee culture.

Lean principles enable organisations to facilitate greater profitability and internal growth by emphasising quality and highlighting inefficiencies. The principles follow a simple four step process: plan, do, check, act.

Identifying problems is the key first step, followed by testing potential solutions from which results can be gathered. Once compiled, the most efficient solution is then applied to the processes. Overall, lean principles complement ECC's reputation for quality in alongside establishing new industry benchmarks.

Kareem says: "Lean principles help identify which inefficient processes are hindering project delivery and creating needless waste. On average, waste accounts for 57% of a construction crew's time, which heavily affects delivery and budgets. Companies in the market are generally not as efficient as they once were. We are investigating new methods to improve our own processes to provide a significant advantage."

Lean Principles create progressive work environments and, when implemented, facilitate continual improvements by reducing non-value-added costs. By concentrating on process improvement rather than cost reduction, project control virtualisation rather than reports and empowering and respect of employees, the transformational change resulted in increasing value to client and reduction of non-value-added costs and waste.

ECC is among the first companies in the UAE to implement the principles, with the contracting firm establishing a new industry benchmark across the region.

Through the use of BIM and lean principles, ECC has managed to stay ahead of the curve.