



Project Summary

Organization:
ASGC

Solution:
Construction

Location:
Dubai, United Arab Emirates

Project Objective:

- To prepare 4D construction planning and scheduling.
- To produce 4D BIM documentation for easier handover.

Products Used:
SYNCHRO Pro

Fast Facts

- The Coca-Cola Arena (formerly the Dubai Arena) is a new, multipurpose arena that spans half a million square feet and an approximate 20,000-people capacity.
- It will be the only all-purpose indoor and air-conditioned arena of its size in the region.
- ASGC chose SYNCHRO Pro to create a visual representation of the construction schedule for all project stakeholders to communicate.

ROI

- With SYNCHRO Pro, weekly progress meetings were reduced from three hours to 45 minutes, saving a total of 544 hours.
- SYNCHRO Pro improved the team's time management on the steel structure's construction and delivery, saving about two weeks and corresponding costs.
- Opened in June 2019, it has already become the "go-to" venue for large-scale international music concerts, sporting events, and other entertainment events.

ASGC Constructs Dubai's First and Largest Fully Air-conditioned, Multipurpose Indoor Arena

SYNCHRO™ Pro Provided 4D Planning and Scheduling, Saving Two Weeks on Construction

Revitalizing Downtown Dubai

Committed to creating and delivering unique experiences, the Coca-Cola Arena (formerly the Dubai Arena) is a new, state-of-the-art multipurpose arena. Spanning an area of half a million square feet and with an approximate capacity of 20,000 people, the arena is set to enhance Dubai's leisure and entertainment offering. It will become the "go-to" venue for large-scale international music concerts, sporting events—such as hockey and basketball—and other entertainment events.

To properly manage the many steps and workflows of this project, ASGC was tasked with providing 4D construction planning and scheduling. The organization comprises of several companies that offer construction services and manufacturing facilities for various construction materials, each one a market leader in its own sphere of expertise. Established in 1989, ASGC is best known for delivering turnkey projects in the United Arab Emirates. The organization has been involved in landmark projects across diverse sectors, such as residential, commercial, leisure, hospitality, healthcare, education, social infrastructure, and industrial.

Constructing an Adaptable, Multipurpose Arena

The Coca-Cola Arena will be the only all-purpose indoor and air-conditioned arena of its size in the region. The arena allows for sporting events to be held 12 months of the year, including the hot summer months. It will also boast an advanced infrastructure, allowing it to accommodate mega-events. The arena has 17,000 seats and can be arranged to allow end-stage, in-the-round, and intimate events, including concerts, shows, and gala dinners. The main area features four levels; the first and fourth levels have fixed seating while the second and third levels include hospitality suites. An extra tier of seating can be added because of automated retractable seating on the bowl floor, allowing for an arena layout that

can change depending on the scale of the event.

Strategically located at City Walk, with close proximity to the Dubai International Airport and accessible via the Dubai Metro, the new venue will be at the heart of Dubai's latest urban lifestyle destination. It will be surrounded by a plethora of hospitality, food and beverage, entertainment, and shopping options. Ground has been broken for the project and construction was completed in the last quarter of 2018.

Managing 4D Construction for Better Decision-making

ASGC chose SYNCHRO Pro as the platform where it could prepare the 4D construction planning and scheduling. "We have decided to use SYNCHRO Pro because it is one of the leading virtual design and construction (VDC) software in the market, which provides endless solutions and options to build a comprehensive construction simulation. You can also depend on SYNCHRO Pro as a planning application for your projects," said Tamer Elgohari, senior VDC engineer at ASGC. The project team created a visual representation of the construction schedule, which was used as a way for all project stakeholders to communicate on the project. The representation also helped facilitate weekly, monthly, and quarterly meetings. For the meetings, ASGC generated monevoring reports of the site progress, sharing the actual vs. planned schedule and approved baseline. By having these reports, the project team could see how construction was progressing and streamline decision-making.

Another key feature of the SYNCHRO Pro models was project management before beginning construction even began. ASGC created a 3D BIM model of the project so that team members could visually detect clashes and review them alongside the schedule progress, showing how fixing these clashes would affect the project schedule. Detecting these clashes early saved the team time and cost. The model also provided construction simulations of scenarios and

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*– Tamer Elgohari
Senior VDC Engineer
ASGC*

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comparisons, which could be done before any work on the construction site. ASGC could track and control materials while also manage site logistics, using the information provided by the site project team. These capabilities allowed ASGC to adequately plan activities on the site. Safety plan analyses and simulations ensured that the site was safe for all participants, meeting all standards by the local official legislation and conditions.

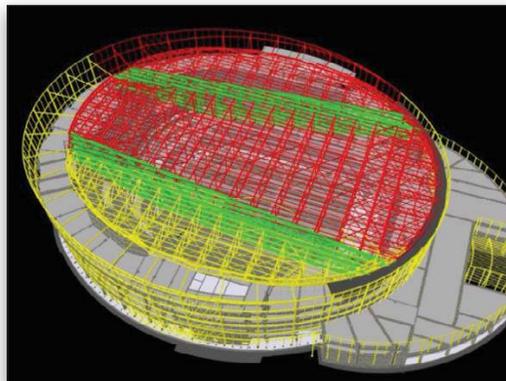
Improving Communication to Save Time and Cost

During construction, ASGC used SYNCHRO Pro's 4D construction planning and scheduling to improve communication. The construction team could actively participate and provide instantaneous and continuous feedback, resulting in performance improvement. The team simulated engineering progress to highlight the shop drawing approval stages, supply chains, and processes. The time risk analyses included data directly from the site team, making it accurate for better on-site decision-making. As-built 4D

models created in SYNCHRO Pro made it easier for the team to manage the facilities.

ASGC also produced 4D BIM documentation that includes 3D and 4D BIM models received over the contract period. All project documents, including RFIs, clash reports, and logs, were housed in one place for easier handover. These documents, coupled with the team's integration of new technologies, show how advancing digital construction can significantly benefit projects. "SYNCHRO Pro has been a competitive advantage for us over the rest of the competitors in the market," explained Elgohari.

By using SYNCHRO Pro, weekly progress meetings were reduced from three hours to 45 minutes because of 4D simulation, saving a total of 544 hours for the site team. The 4D construction planning and scheduling application improved the team's time management on the steel structure's construction and delivery, saving about two weeks and corresponding costs. The venue opened in June 2019 and has already hosted many internationally renowned events.



Baseline 4D simulation vs. aerial drone imagery of the Mohammed Bin Rashid Library for the same date.



The integration of new technologies—such as mixed reality, drones, and gaming engines—gives team members new and innovative ways to understand and manage the project.

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