

Project Spotlight



Expo 2020 Dubai, United Arab Emirates

Exhibition Halls – SFRC ground bearing Freeplan® ‘jointless’ floor slab

Expo 2020 is planned to be a celebration of creativity, innovation, humanity and world cultures with a defined theme ‘*Connecting Minds, Creating the Future*’. All involved in the development are committed to building a long-lasting and sustainable legacy.

Twintec Middle East were chosen by Alec Engineering & Contracting to design and build the permanent exhibition hall concrete floor slabs at this historic development.

The benefits of a Freeplan ‘jointless’ SFRC floor slab are well documented when compared to a traditionally designed concrete floor slab. It is more onerous to design and detail a ‘jointless’ slab when you need to incorporate 2,400 manholes within the 44,160m² area, but this is exactly what Twintec did.

Twintec’s in-house design team engineered the slab to accommodate all the complex MEP requirements, providing provision for the kilometres of conduit to

be incorporated into the slab design and construction, resulting in a large panel (30m x 33m) Freeplan ‘jointless’ floor slab with no saw cut joints.

The arranging of the ducting and manholes complexity of the project meant that it was not possible to utilise a Laserscreed (concrete levelling) or Topping Spreader (application of the dryshake hardener) and that a pump would be necessary to deliver concrete to the workforce, all adding to the challenges.

Project Data

End User:	Expo 2020
Contractor:	ALEC Engineering & Contracting
Consultant:	MACE
M ² :	44,160m ²
Pour Days:	28 days
Completion Date:	June 2019

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Twintec's skilled, experienced and quality motivated workforce rose to the challenge and the concrete slab was laid and levelled by hand emphasising their exemplary skill levels and competence. Transgulf Readymix co-ordinated closely with the Twintec Operations Team and in-house Concrete Specialist to provide the optimum concrete mix, best pump and operators for the specific site conditions as well as consistent supply rate of concrete.

"ALEC Management Team, would like to thank Twintec for the professional and efficient manner in which they designed, executed and completed the works.

The innovative design detailing proposed and constructed has accommodated 2,400 manholes within a 'jointless' SFRC floor slab and has ensured a low maintenance high performance floor slab for the client. The completion of the complex concrete floor slab in 28 working days to meet our programme was achieved through excellent communication of all parties on site.

It was a real pleasure to work with a professional and skilled company, such as yourselves, in delivering a quality product."



Craig Griffin, Senior Contracts Manager, ALEC Engineering & Contracting LLC

The skills of the Twintec Operations Team under the control of an experienced Operations Manager familiar with local climatic and working conditions and rigorous quality control meant that the 44,160m² was installed in 28 days with up to 300m³ of steel fibre reinforced concrete (SFRC) being laid each night. As part of the quality control measures the steel fibres were incorporated into the concrete trucks on site, by an experienced Twintec Operative, utilising an in-house built fibre integration machine. This ensured a homogeneous dispersion of the fibres throughout the concrete.

Working on a major construction site such as Expo 2020 brings its own unique challenges; the general contractor's programme, co-ordination with other trades, an extremely busy site and a non negotiable fixed deadline for completion. One of the critical success factors was the willingness of all parties to co-ordinate and work together to achieve the desired end result. The co-ordination by Alec was professional, pragmatic and all inclusive and, together with MACE and associated trades, Twintec were able to design and construct an outstanding floor slab for this unique development.

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