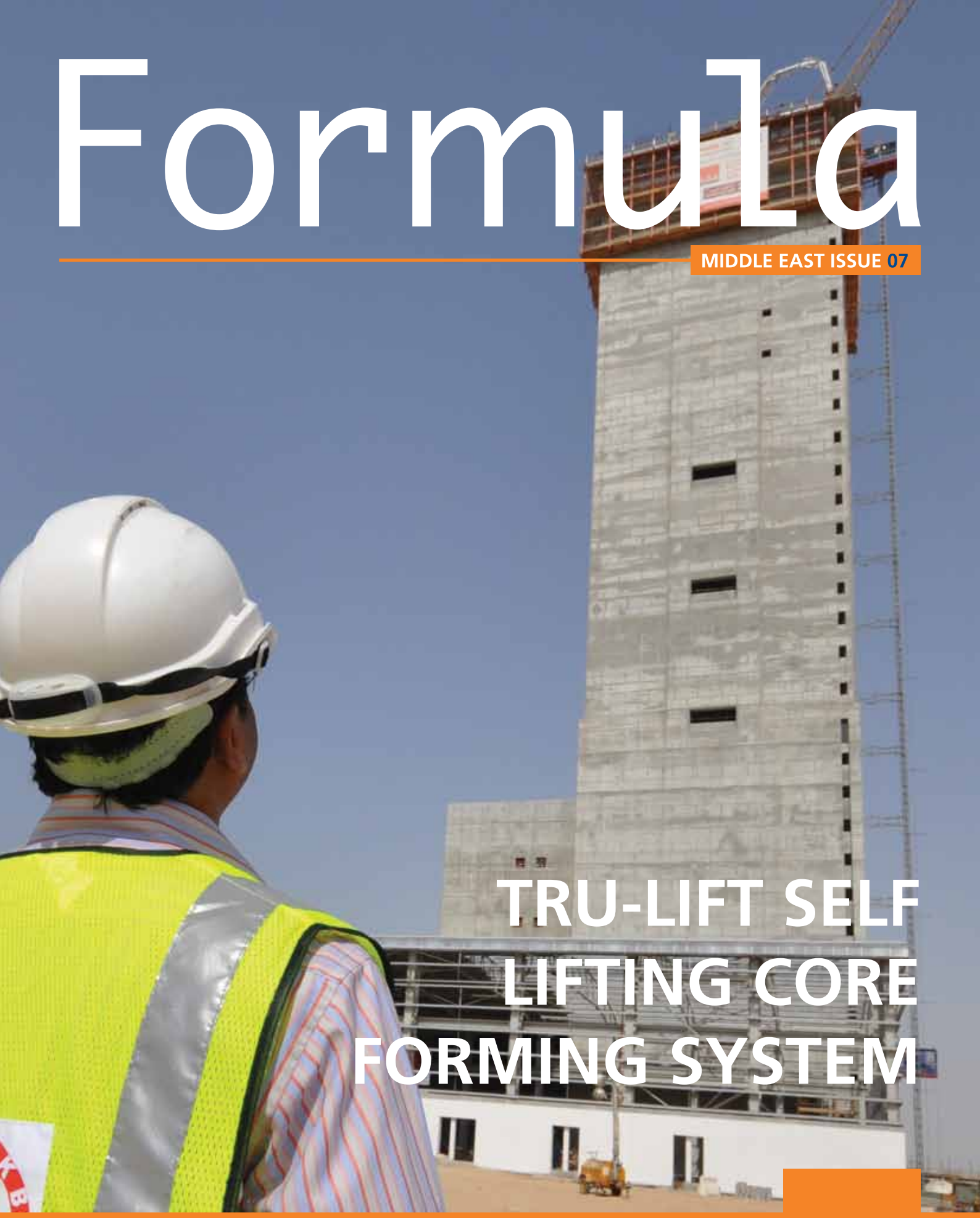
Formula

MIDDLE EAST ISSUE 07



TRU-LIFT SELF LIFTING CORE FORMING SYSTEM

ALSO IN THIS ISSUE... SITRA BRIDGES, OMAN LAUNCH, BASRA SPORTS STADIUM, THE YAS HOTEL, QUEEN'S AWARD, AND MAFRAQ INTERCHANGE

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EDITOR VIEWPOINT

Hello and welcome to the seventh issue of Formula Middle East magazine. As everyone involved in the industry knows 2010, following on from 2009, has been a tough time for construction and building specialists. However, despite the problematic circumstances RMD Kwikform has continued to make progress and has been working on significant and innovative projects throughout the MENA region.

In this issue we will be looking at the projects RMD Kwikform has been involved in recently, beginning with the crucial Sitra Bridge infrastructure project in Bahrain, that will reduce travel time and congestion in one of the country's busiest areas.

Other vital infrastructure projects we will be covering are the Mafraq Interchange in Abu Dhabi, currently the largest infrastructure project in the UAE and the Lusail light Rail Transit system, that will serve the future residents of the new Lusail City currently under construction in Qatar. But if sport is your thing why not kick off your read on page 7 to find out how RMD Kwikform is supporting the dreams of Iraq football fans with the construction of Iraq's Basra Sport City Stadium project.

We will also be exploring RMD Kwikform's more innovative and groundbreaking design projects. The new to the Middle East - Tru-Lift self climbing core formwork system has been used for the first time in the construction of a complex tower for Dubai based specialist cable manufacturer, Ducab, while the complex design of the shroud for the formula one Yas Hotel project is revealed in these pages.

There is also big news from within the company with the opening of RMD Kwikform's brand new branch in Oman, as well as our great news about being awarded the 2010 Queen's Award for Enterprise in International Trade, which has given a real boost to both the Middle East and global operations.

If you are interested in and want any more information on the projects RMD Kwikform is involved in around the world, you can find in depth articles on Formula Online, linked from www.rmdkwikform.com/formula_online or view exciting videos on our new TV channel www.rmdkwikform.tv.

As usual, if you have a project you feel should be featured in coming editions of Formula or Formula Online, don't hesitate to send in your suggestions. Your opinions and views are always welcome; just contact a member of the editorial team at the bottom of the page.

Until the next edition, we hope you enjoy the read.

Katharine Hughes
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RMD Kwikform Middle East

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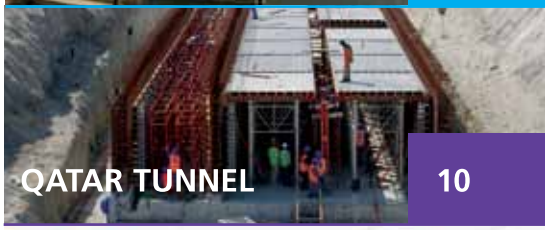
IN THIS ISSUE



BAHRAIN FIRST FOR RMD KWIKFORM WITH OPENING OF BD64 MILLION SITRA BRIDGES REPLACEMENT PROJECT

RMD Kwikform's Bahrain team are celebrating the successful completion and opening of the crucial BD 64 million Ministry of Works funded Sitra Bridges infrastructure project, that is set to cut travel time and congestion in one of the busiest parts of the island. Including a 3-level grade-separated intersection at Umm Al-Hassam, a first for Bahrain, the project has transformed journeys for thousands of island residents.

As one of the most important traffic links in the country's road network, linking Sitra and Manama in Bahrain, the previous Sitra Bridges had reached the end of their service life and could no longer cope with increased traffic volumes.

The dual two-lane roads and the at-grade junctions, therefore needed to be replaced by a dual three lane highway, complete with a 3-level grade-separated intersection at Umm Al-Hassam. This new configuration was designed to provide excess capacity for the heavy morning and afternoon rush hour traffic loads, which exceed 6,000 vehicles per hour.

In order to maintain traffic flow and services, the new bridges and utility conduits were built alongside the existing ones and switched out on completion. For main contractor Berhad Gamuda, the key to achieving these goals was to ensure the formwork and shoring was up to the challenge.

Following a competitive tender process, RMD Kwikform was awarded the formwork and shoring contract to assist in the construction bridges and flyover sections. Key to successful creation of the new dual three lane highway, was marrying the needs of the tight programme and budget, with the requirement for minimum disruption to the existing road network. For RMD Kwikform's engineering team, headed by Shekhar Sawant, in order to achieve these goals, practical yet safe design solutions were required.

It was the trust and interaction with main Berhad Gamuda that was so important as Shekhar explains: "The scope of the project was to build a brand new dual three-lane highway, a 3-level grade-separated intersection at Umm Al-Hassam and at-grade signalized intersections at the entrance to Nabih Saleh Island and at North Sitra. What Berhad Gamuda were looking for was an equipment supplier that could support them both technically and logistically to supply formwork and shoring solutions to key parts of the project.

"With East to South and North to South flyovers making up a large proportion of the new highway and underpasses used in other areas, the range of equipment

"What Berhad Gamuda were looking for was an equipment supplier that could support them both technically and logistically to supply formwork and shoring solutions to key parts of the project."

required was significant. Special parts and complex detailing also required specific engineering attention. With over 1,050 tons of equipment used over a three year period, the scale of project management and delivery required a huge amount of planning and onsite support, in the form of RMD Kwikform Site Assistance Technicians all of which helped the project programme time."

For RMD Kwikform there were various phases to the project, one was the 12m high, 1.2m thick Umm Al-Hassam Underpass walls, which were created using a single sided climbing formwork system. This was then followed by the use of Rapidshor shoring in a modular format as backpropping to transfer the additional loads applied on to the underpass slab from the flyover deck supports.

But it was the flyovers themselves that required the most equipment and engineering support. Both the East to South and North to South flyover bridge deck falsework required the use of complex side forms in order to achieve the design requirements. With Rapishor shoring supporting Superslim Primary and GTX Secondary beams used for the complex bridge deck, complete with wedge shaped side forms, the varying width of the flyover decks were achieved.

Shekhar: "When we looked at the deck design and overall structure in layman's terms it varied in both cross section and length. Therefore in order to achieve this complex shape, we had to design special hinge connections that could cater for the various slopes of side forms and interconnect with the overall Rapidshor support system. Each hinge had to be robust enough to be reused multiple times from one structure to the next, across both of the flyovers. They also had to be flexible enough to cope with varying heights of the Rapishor system from 4m to 14m.

"In order to achieve this complex shape, we had to design special hinge connections that could cater for the various slopes of side forms and interconnect with the overall Rapidshor support system."

"In all the success of the project came down to designing simple modular support systems that were complemented by specially designed parts."

"With the length of the East to South flyover measuring 390 linear metres, with six spans from abutment to abutment and the length of East to North flyover measuring 185 linear metres, with 5 spans from abutment to abutment, a total of 475 linear metres of flyover had to be constructed to complete the project."

In addition to the flyover and underpass systems used, RMD Kwikform also supplied over 280 tons of side form formwork consisting of combination of Kwikstage, Rapidshor Support with Soldier and Special Shaped Steel Walers to support GTX Beams and plywood to form Complex Profile for the construction of the Marine bridges.

Shekhar concluded: "In all the success of the project came down to designing simple modular support systems that were complemented by specially designed parts that made the erection and dismantling process simple, safe and time efficient. Through working closely with the main contractor and our support with training and supervision onsite we were able to achieve the goals to create a modern and sustainable project with a built in life of over 120 years."

For more information on the project visit www.sitrabridge.info.

AMBASSADOR OPENS NEW OMAN OFFICE

Dr Noel Guckian, British Ambassador to Oman, officially opened RMD Kwikform Oman L.L.C. on the 13th November 2010 the latest RMD Kwikform Company to open for business in the Middle East.

Prior to the opening, RMD Kwikform had supported the Omani construction industry through a representative office in Muscat, backed by the Regional Operations unit in the UAE.

This shift from representative offices to a fully operational business unit with facilities, people, service and products on the ground is a strategic move to ensure RMD Kwikform is best positioned to support and meet its customers' needs, as they look to participate and deliver exciting new construction projects across Oman.

RMD Kwikform Oman's Resident Director, Steve Phillips commented: "It was great to be able to officially launch the new office with the support of Ambassador Dr Noel Guckian, as it really made the occasion special and rewarding for our staff that have worked so hard to make it happen.

"As a locally established business we will be able to achieve so much more and give our customers a much better service. Having first started supplying equipment to the Sultanate around 20 years ago, we have built up a solid reputation amongst contractors servicing the market as a business renowned for excellence in formwork and shoring design. Through this significant investment and our new business status, we now have a fully operational presence that allows us to offer our customers a more enhanced, reliable and responsive service."

"Through this significant investment and our new business status, we now have a fully operational presence that allows us to offer our customers a more enhanced, reliable and responsive service."

Expertise has been brought in from across the RMD Kwikform global network to drive and support the success of RMD Kwikform's new business, two key appointments being Steve Phillips, Resident Director and Andy Teesdale, Regional Sales Manager.

Having previously worked in the Middle East and more recently been involved in running the RMD Kwikform's operations in the Philippines, Steve Phillips brings

a wealth of knowledge to his new role and the challenge of establishing and developing the Omani business. Gaining valuable experience working in the UK, before transferring to RMD Kwikform UAE in 2005, Andy Teesdale will play a key role in developing relationships with existing and new customers across Oman and a pivotal role in ensuring RMD Kwikform provides and delivers the highest level of service.

Steve continued: "In practical terms, our new depot situated in Al Barka, will stock RMD Kwikform's core product ranges. So not only will this enable us to service projects quicker and more efficiently, we will be able to add real value through providing customers with an option to rent equipment to service their shorter term needs.

To support the new business, RMD Kwikform Oman L.L.C has engaged a dedicated and experienced team of engineers and sales professionals and operational support staff, to service customer needs from project consultancy through to project delivery.

Steve: "The new team are looking to provide equipment demonstrations to heighten the awareness of what RMD Kwikform's products and services can offer our customers in terms of efficiency and safety. They will also be able to show how RMD Kwikform can help to meet tight construction programs with cost effective formwork and falsework solutions, tailored specifically to project and customer needs."

Steve concluded: "So no matter what a project demands our first aim is to end up with a satisfied customer and that's what I, Andy and our team in Oman are all about really....making a positive difference to our customers and becoming their partner of choice"

For further information on RMD Kwikform Oman L.L.C. products and services visit www.rmdkwikform.com/ae, call +968 244 96037 or email rmd.oman@rmdkwikform.com

RMD KWIKFORM SCORES IN IRAQ WITH BASRA SPORTS CITY STADIUM PROJECT

Equipment and engineers from formwork and falsework specialist, RMD Kwikform are supporting the dreams of up to 65,000 Iraqi football fans, after being selected by construction specialist Abdullah A. Al-Jiburi contracting, to support it in the construction of the new Basra Sports City Stadium in Iraq.

Constructed for the Iraq Ministry for Sports and Youth, work for the impressive new complex which is set to host the 21st Gulf Cup, commenced onsite in September 2009. Abdullah Al Jiburi General Contracting Company then started bringing in over 3,000 tonnes of RMD Kwikform Kwikstage and Rapidshor shoring, to support the main concrete construction of the 65,000 seater stadium, in January 2010.

In addition to RMD Kwikform's falsework, column, wall and beam formwork, steel Superslim soldiers and GTX timber beams, were also supplied to the project. Due to the tight schedule of just 32 months, getting the formwork and falsework solution right, were all key to the completion of the project on time.

Project Manager for Abdullah Al Jiburi General Contracting Company Abdul Hussain explains: "Being such a high profile project for Iraq, we needed to make sure that before we reached the formwork and falsework stage, we had the right equipment, designs and support. Having worked with RMD Kwikform on a number of projects, we know they have the resources to support our team on the ground and can react quickly to any changes".

"Identifying the correct amount of equipment, getting it to site quickly and setting up a storage facility was complex. Here we have benefitted from input on the project from RMD Kwikform, who share best practice techniques on equipment management that help to save both time and money."

Regional Export Sales Manager for RMD Kwikform, Alexis Potter commented: "As a business we have been working in Iraq for a number of years, but it is our partnership with Abdullah Al Jiburi General Contracting Company, that has led to increasing success within Iraq. It is this partnership and our proven engineering experience in delivering large stadia work that ultimately led to us being awarded the prestigious Basra Sports City Stadium job".

"Because the Basra Sports City Stadium is a high profile government project, it is constantly analysed, so for Abdullah Al Jiburi General Contracting Company, working with RMD Kwikform really pays off due to our focus on health and safety. No matter the location, we adhere to our own global health and safety system based on industry leading standards and practices."

ENGINEERING DESIGN CHALLENGES

Overcoming the challenges of the structure's construction were key to its timely delivery. One of the more challenging elements of the project involved supporting large beams at level 7 and 8 of the stadium off the much lighter main concourse level.

Alexis: "For this particular part of the structure, the engineering team had to create solutions that could support numerous operations. These included the casting of a 1.4m deep beam at level 7, including a beam cantilever just over 9m in length. A sloping raker beam from the edge of the cantilever was also required up to level 8 to secure the overall frame."

"The falsework system had to be designed for cumulative loading from levels 7 and 8 off the lighter structure below. Rapidshor falsework used in conjunction with Superslim soldier spreader beams, were used as the primary support system up to the underside of level 7".

"In the delivery of this project, we will achieve an important goal for RMD Kwikform having played a part in a landmark project that will put a very proud nation back on the sporting excellence map."

"On completion of level 7, with the primary support system remaining undisturbed, the raker beams up to level 8 were supported off a framework of Kwikstage Propping and Superslim Soldiers, an integral feature in resisting sliding forces induced by the sloping soffit. Beam side forms, soffits and columns at these levels were formed using steel Superslim Soldiers, GTX timber beams and recoverable Rapid Bar Ties."

With the formwork and shoring phase of the project on schedule for completion in late 2011, the overall complex is due to be opened to the public in late 2012, ready for the 21st Gulf Cup in December 2012.

Alexis concluded: "In the delivery of this project, we will achieve an important goal for RMD Kwikform having played a part in a landmark project that will put a very proud nation back on the sporting excellence map."

For more information on this and other projects from RMD Kwikform visit: www.rmdkwikform.com/ae

RMD KWIKFORM MIDDLE EAST LIFTS THE SHROUD ON ABU DHABI'S THE YAS HOTEL

RMD Kwikform Middle East creates the most innovative and challenging grid-shell shroud support system the world has ever seen.

Designed using specially developed 3D software, the heavy-duty Megashor system was used to support 911 node points required for the installation of a landmark steel ladder and glass paneled shroud structure covering The Yas Hotel.

When RMD Kwikform Middle East was awarded the contract to support a new 217-metre grid-shell shroud - an expanse of sweeping, curvilinear forms, constructed of steel and 5,096 pivoting diamond-shaped glass panels - the business took on one of the most innovative and exciting structures in the world.

For primary contractor Al Futtaim Carillion, working for developer ALDAR Properties, the requirement for a formwork and falsework based temporary works system that could safely support no fewer than 911 different node points throughout the grid-shell shroud design was essential to the project delivery.

For RMD Kwikform, the design and practical execution of the formwork and falsework temporary works support were the two most challenging elements to the project.

Darren Ellwood, General Manager, UAE explains: "The end goal of the project that has now been completed was to have a steel and glass shroud that would cover the Marina Hotel, a two tower 499 room structure that was built on either side of the Abu Dhabi Formula One race track.

"With very few companies able to take on a job of a scale and complexity, never before seen in the heat of the Middle East, we recognised the only way we would be able to make it a success was to base the whole system design around our Megashor heavy-duty shoring product."

Once RMD Kwikform's design team saw the 3D models of the Waagner Biro designed grid-shell, the team began the design process in July 2008. Working closely with Al Futtaim Carillion they presented several solutions to supporting grid shell while ensuring there was as much access as possible along the bottom of the structure.

Darren: "This was made more difficult due to the grid-shell's location, connecting to the hotel which also incorporated a man-made marina. This meant some of the grid-shell had to be supported on dry land and other parts from the much deeper marina. It was this factor that determined the only product we could use was Megashor, as we had to come up as high as 40 metres.

"The next challenge to overcome was how to get the equipment in such volumes to the site. Logistically this meant sourcing a massive amount of material with more than 2,600 tonnes of product required in total. To meet these needs we shipped in Megashor from other RMD Kwikform group companies across the globe"

TOWERING SUPPORT

Due to the varying height and nature of the grid-shell shroud, Megashor towers were erected on jacks with varying leg section lengths from 90mm to 5400mm used to meet the very precise levels required.

At any one time, up to 64 Megashor towers were in use on the site, erected and dismantled to be moved onto the next section in modules.

Commenting on the design of the Megashor towers, Harprit Dogra, RMD Kwikform Middle East Project Manager said: "Thanks to Megashor's capability to withstand leg loads of 1000kN per leg, we were able to space the towers far enough apart. This meant the client could bring in various equipment and modules/pods for the hotel, while we were still assembling the temporary works above, making best use of space"

Once erected, each Megashor tower weighing up to 8 tonnes was capable of supporting at least 1000kN. With each steel ladder making up the shroud, weighing up to 30 tonnes, the challenge for RMD Kwikform engineers was to design a solution that would ensure the millimetre accurate positioning (zero tolerance) and installation of each of the 217 steel ladders. With each ladder having at least 4 multiple node points, no fewer than 911 individual node points had to be safely secured in position.

Harprit Dogra: "Because each node point support required a zero tolerance approach, which is virtually impossible on a building site, the key to the success of the formwork and falsework system was the use of our new 3D modeling software called Locus. This allowed us to model and perfect the whole design approach before equipment even arrived on site (all clashes were cleared due to 3D modeling prior to erection).

"For the off slab support, we came up with a simple 'A Frame' design. The 'A Frame' was built out of Superslim Soldiers using left and right hand jacks and a special node point, which allowed us to pick up the relevant points on the grid-shell.

MEGATRUSSES APPROACH ALLOWS WORK TO CONTINUE BELOW

"When we moved onto the connection point between the hotels the client wanted to be able to have access to as much of the site as possible. Therefore, instead of erecting towers between the two hotels, we were able to keep the bridging space open by designing a Megatruss and R700 girder arrangement across the span.

"Made up of lengths of Megashor, the truss, supported by Megashor towers was able to span the 27 metre gap, whilst giving support to the Rapidshor 'birdcage' above. In a similar fashion R700 girders were used to create support platforms on top of the Megashor towers and Megatrusses.

"Fixed on top of the Megashor was a Rapidshor shoring 'birdcage' arrangement, designed to support and incorporate the node point used to help position the steel ladder sections into place. The 'birdcage' structure was inherently strong and capable of dispersing the load evenly from the all important node point, through to the Megashor towers.

"With each node point representing a different angle and position, due to the complexity of the grid-shell, each individual node point required its own bespoke shoring support. Therefore each node point had an individual drawing and plan for erection identified in 3D relative to the overall structure.

"The node point was the main load bearing connection, where the grid-shell members came together. Each of the 271 steel ladders has up to 7 node points to support, which are later removed after loose members are welded between ladders.

" For this part of the project, our engineering team used our 3D software to design the node point, ensuring once manufactured it could cope with the environmental and practical challenges of the job at hand."

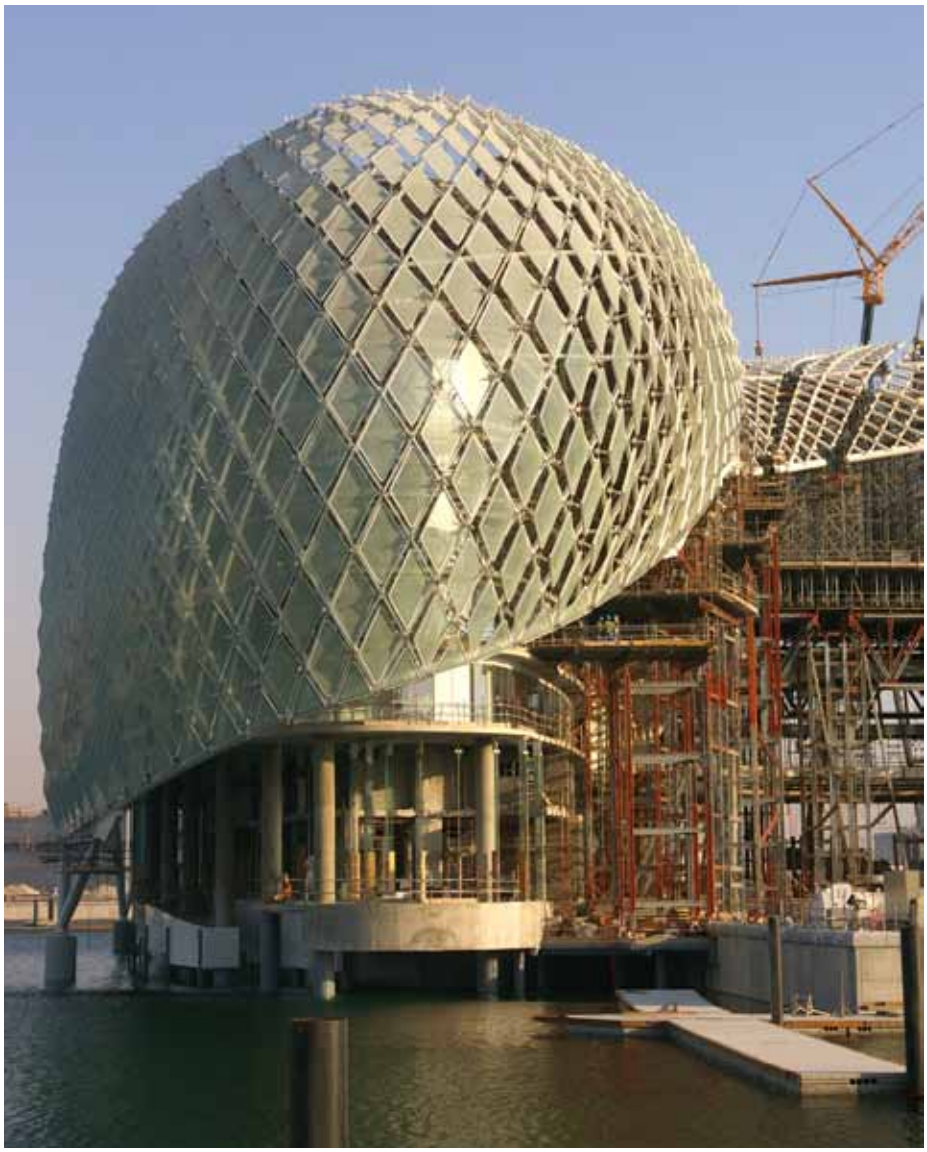
"Our requirements were so complex that there were not many companies who would have had the capability to design the works, let alone provide the proven materials and resources required to meet the timescales. It was for these reasons that we chose to work with RMD Kwikform."

AL FUTTAIM CARILLION VIEW - MEETING THE PROJECT NEEDS

For primary contractor Al Futtaim Carillion, getting The Yas Hotel's two towers ready to the tight timescale, was a challenge in itself. Adding the grid-shell shroud to the overall build made the project delivery even more complex as Martin Reeve, Project Design Director for Al Futtaim Carillion explains: "We were awarded the project in December 2007 on a very fast track nature, to build the hotel with its aesthetic iconic type grid-shell cloak, which posed in itself huge engineering challenges.

"Our requirements were so complex that there were not many companies who would have had the capability to design the works, let alone the ability to provide the proven materials and resources required to meet the timescales. It was for these reasons that we chose to work with RMD Kwikform, as they were able to prove they had the experience, design capabilities and most importantly access to the equipment we needed to make the project a reality."

Having lit up the Formula One Etihad Airways Abu Dhabi Grand Prix in 2009 the hotel continues to be enjoyed by thousands of F1 enthusiasts and visitors to the region.



RMD KWIKFORM SOLUTION KEEPS TUNNEL CONSTRUCTION ON TRACK AND ON TIME FOR QDVC'S LUSAIL LIGHT RAIL TRANSIT PROJECT

RMD Kwikform is building on its tunnelling experience in Qatar and the Middle East, supporting Qatar Diar Vinci Grand Projects Joint venture (QDVC), with the construction of a 6.5km tunnel.

The tunnel will accommodate trains lines for the QAR 680m Phase 2B of the Lusail Light Rail Transit system, serving the residents of the new Lusail City, which is currently under construction in Qatar.

Having already supported the construction of tunnels on the first phase of the Lusail Light Rail Transit System, known as the Lusail LRT, RMD Kwikform has designed an integrated formwork and shoring solution for the second phase of the project. Involving a wide range of its equipment and specials, designed and fabricated especially for the project, the solution is being used to construct the first 6.5km of the eventual 18.1km long tunnel.

Tasked with achieving a four day turn around cycle, critical for the programme time targets of the project, RMD Kwikform designed, fabricated and supplied six complete sets of formwork and shoring, that could be used to cast the 1.2 metre thick slabs and walls monolithically.

Measuring 14 metres in length, each tunnel set used lightweight aluminium Alshor Plus shoring that was made up into specialist travellers. This in turn supported Superslim Soldier steel primary and GTX wooden secondary beams to form the tunnel roof slab. With Megashor heavy-duty shoring used as back propping, Superslim Soldiers and GTX beams completed the overall design for the construction of the tunnel walls, creating a complete travelling tunnel set.

In addition to the tunnel construction phase of the project, RMD Kwikform has also been commissioned to design and supply all shoring and formwork to the tunnel pumping stations and vent shafts.

Commenting on the contract and tender process, Les Ridsdale RMD Kwikform General Manager for Qatar said: "We have now been on the ground in Qatar for 11 years and in that time we have developed a very high level of experience and competence in tunnelling, in addition to being involved with other major infrastructure and building works.

"This experience was particularly important in winning this job, as it was an extremely competitive tender process. Having proven our expertise on the construction of the New Doha Airport Tunnel in 2008/09, we were able to demonstrate how this experience, combined with our technical knowledge, commercial awareness and local base could benefit the project.

"Throughout the tender process, what was most important to QDVC was ensuring they selected a formwork and shoring provider that could help them achieve their programme safely, on budget and that could be trusted not to let them down. Having won the tender I think they were confident that we were that business."

"We have now been on the ground in Qatar for 11 years and in that time we have developed a very high level of experience and competence in tunnelling, in addition to being involved with other major infrastructure and building works."

Challenged with completing the tunnel in just 12 months, once QDVC had awarded the contract to RMD Kwikform, engineers were able to put the finishing touches to concept designs to identify the amount of equipment needed to support the job. This was then sourced both locally from its Qatar yard, with additional equipment brought in from the UAE.

Now well into the project, the tunnel sets are achieving the cycle times desired by QDVC, with RMD Kwikform staff onsite assisting with the movement and management of the each section, whilst making sure each site operative knows how to use the system.

BOOST FOR MIDDLE EAST AS RMD KWIKFORM WINS QUEEN'S AWARD

RMD Kwikform received a big boost to its Middle East operations thanks to a recent visit to its UK head office from Her Royal Highness Princess Anne, who presented the prestigious 'Queen's Award for Enterprise International Trade 2010' to its divisional managing director Steven Dance.

Awarded to RMD Kwikform in recognition of its achievements in growing its global trade outside the UK and in particular in the Middle East, the 'Queen's Award for Enterprise International Trade 2010' is World renowned for its promotion of excellence.

Commenting on boost the Queen's Award will give to the Middle East business, Steven Dance, RMD Kwikform Divisional Managing Director said: "The award win has been an incredibly positive recognition of the work RMD Kwikform personnel have achieved across the World and comes at a really important stage of our development in the Middle East region. The Queen's Award itself relates to the performance of the business over the last 6 years, which has been a significant time of growth for the Middle East business."

"It comes just as we are opening up the business still further, with the announcement of our new office in Riyadh, Saudi Arabia. Being a globally recognised award, it will support this strategic and significant move into what is one of the most developing markets in the region for RMD Kwikform services and equipment. Being able to display the logo and talk about the reasons we won the award, will also help build relationships with new and existing customers. It will further strengthen our reputation with customers of major building and infrastructure projects and certainly help to promote our activity.

In Saudi Arabia in particular, the Queen's Award boost will help to promote RMD Kwikform's recent investment in new offices, yards and people, that have been put in place to support the market, as Andreas Gathmann, Managing Director responsible for Saudi Arabia, North Africa and Levant, comments: "As we have proven with the Queen's Award, our successful formula for working in the region really does make a difference. By putting the resources in place so that customers and projects benefit from on-the-ground expertise and support, we will continue to build on our award winning success. So whether it is Saudi Arabia or other parts of the region, we are well placed to assist customers with the full range of projects, that they are working on."

" The award win has been an incredibly positive recognition of the work RMD Kwikform personnel have achieved across the world and comes at a really important stage of our development in the Middle East region. The Queen's Award itself relates to the performance of the business over the last 6 years, which has been a significant time of growth for the Middle East business."

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TRU-LIFT SELF LIFTING CORE FORMING SYSTEM USED FOR FIRST TIME IN MIDDLE EAST

The new Tru-Lift system has been used in the Middle East for the first time for the construction of a specialist 151 metre concrete cable tower for Dubai Cable manufacturer, Ducab's brand new manufacturing facility. Located just outside Dubai, the multi-million pound factory will produce high voltage cable for the distribution of electricity. Due to the size of the cables a specialist tower was needed to assist with the cable winding packaging process.

"This is one of the most complex types of tower you can construct and therefore a huge first test for the Tru-Lift system."

Commenting on the project, Arul Raja, RMD Kwikform Sales Manager for Dubai and NE said: "Being the first time ever we have used the new Tru-Lift system, we have had to work very closely together with the whole Khansaheb team, to understand the job and how we could help from both an engineering and practical site support perspective.

"Our engineering team have worked hand in hand with the Khansaheb project team to design in specific site related safety to the system and ensure it met the needs of the project. For example for the first 100m the tower wall thickness is 700mm. For the remaining 40m the thickness is reduced to 400mm so the system itself had to be flexible enough to adapt to these changes.

"Interestingly enough this is one of the most complex types of tower you can construct and therefore a huge first test for the Tru-Lift system in the Middle East. Essentially the tower itself is a very large core with restricted access, meaning the slabs are formed inside the structure once the tower itself is cast. This was why when we introduced Khansaheb to the Tru-Lift self lifting system, they immediately saw its potential to help them with the job.

Having reached the full height, the tower, which is situated next to the busy Sheikh Zayed road, has already become a major landmark and thanks to the speed of its erection Khansaheb's client, Ducab is extremely happy with its progress. Commenting on its use of Tru-Lift and working with RMD Kwikform, Khansaheb Project Manager N. Venkatesan said: "We had a major challenge for this project and a very competitive tender. We were successfully awarded the contract because we were able to bring down the construction time for the project substantially.

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"Having never constructed a tower of this type, size and scale before the make or break for the project was the selection of the right self climbing core forming system. Having looked at competitor systems and worked with RMD Kwikform throughout the tender stage, we felt the Tru-Lift system was definitely right for the application. Initially we were looking at taking 4 days to complete a 4 metre pour, but due to the time constraints of the project, we looked to RMD Kwikform to help us reduce this programme time.

"What really made a difference was the site supervisors RMD Kwikform provided. This was instrumental in getting the teams on the ground up to speed. With erection training, checking and general support, we were able to come to grips with the system very quickly which was again crucial to programme delivery."

Through working with the engineering team, we explored a range of potential solutions and by understanding the tolerances of the system, opted for a special self-compacting concrete. By working 24 hours a day, we were able to bring down the time from pour to striking and moving from 4 to 2.5 days, a dramatic difference.

"The only way this could be achieved was by working hand in hand with RMD Kwikform staff. For every pour and every lift they supported us with a team member onsite, no matter what the time of day, 3am in the morning or 10pm at night.

"RMD Kwikform's engineering team also supported us well supplying every single drawing required in a timely fashion. But what really made a difference was the site supervisors RMD Kwikform provided. This was instrumental in getting the teams on the ground up to speed. With erection training, checking and general support, we were able to come to grips with the system very quickly which was again crucial to programme delivery.

"We have worked with RMD Kwikform now for many years and we recognise that they invest a great deal of time to support our business. Whether it is throughout a project of this type, at the very conceptual stage or just keeping us informed of what is going on in the market, the relationship we have is very valuable. Both businesses benefit and I think the professional way we work together is a true reflection of how delivering growth together can work, no matter where you are in the world."

Concluding, Paul Williams, Managing Director – Arabian Gulf and India said: "By working closely together throughout the project, the RMD Kwikform and Khansaheb project teams have been able to push the boundaries of construction and in particular programme time delivery, in what is a very competitive market.

This first test of Tru-lift, following its recent launch, proves that through engineering development and working in partnership with our customers, we can provide them with an innovative core formwork solution, bringing an important new addition to our product range. We now have a much

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greater understanding of how we can help to deliver complex core formwork projects in what are challenging environments, on time and on budget."

Remember to keep an eye on www.rmdkwikform.tv RMD Kwikform's online TV channel for videos on this and other exciting RMD Kwikform project from across the globe.

MAFRAQ INTERCHANGE TAKES SHAPE IN ABU DHABI

RMD Kwikform Middle East has supplied an estimated 100,000m³ of its Rapidshor shoring product, in addition to specialist bespoke formwork and falsework solutions for the construction of three bridges on Abu Dhabi's Mafraq Interchange.

As the largest infrastructure project currently in Abu Dhabi, the Mafraq Interchange will consist of four lanes in each direction, allowing traffic to run from North to South and ease congestion East to West, replacing the two lane interchange unable cope with the traffic.

For primary contractors China Civil Engineering and Contracting Co, the main challenge was the rapid construction of three bridges in the design.

China Civil Engineering and Contracting Co. opted to part purchase and part hire the equipment, as it could be reused. In addition to the Rapishor system, special components were designed and manufactured for the wing walls, with SuperSlim primary and GTX secondary Beams used to support the plywood deck.

Rapidshor was used for the two arched fly overs in the design, and then re-used to construct the first and second spans of 'Bridge 10'.

Using the Alshor Plus platform, site staff instructed crane operators to manoeuvre beams safely without damaging the pier heads. Once in place, the 200 linear metres of Paraslim were erected onto the side of the beams to form the parapet of the 4-lane structure, which was then cast in concrete.

Elpidio Aspillaga, RMD Kwikform's sales engineer commented: "The challenge came with the design of two formwork and falsework solutions. The first required a solution to allow the system to follow the wing profile of the bridge. To make this as easy as possible, 440 units of cranked Superslim soldier were created".

"On a repetitive bridge such as this, reducing cycle time was important. By using a cantilever design, the side units could be removed early in the striking process and reassembled at the next stage."

"Because the deck edge was in parts over 22 metres off the ground and had to follow the curvature of the bridge, the formation of the Superslim Soldier deck edge falsework had to take into account how it would be supported by the Rapidshor shoring, whilst being able to form the correct angles".

"Our engineers had to connect regular Superslim beams and the cranked Superslim Soldiers together, whilst ensuring the desk edge support could withstand the concrete pressures. To make the connection a standard pin connector was used to link the Superslim soldiers".

"The approach was designed to speed up the process, allowing the forms to be erected at ground level. This made for little adjustment of the units when placed along the bridge edge shoring".

"On a repetitive bridge such as this, reducing cycle time was important. By using a cantilever design, the side units could be removed early in the striking process and reassembled at the next stage".

"Because the Superslim beams were now rigidly connected, the overhanging Superslim beam at the top of the deck edge falsework had to be further supported, as the horizontal and vertical forces placed upon the beams by the concrete would not have been held by the beam alone".

"Therefore a second part of the deck edge support system had to be designed to brace the Superslim beams against each other. The solution was the application of 440 specially oversized turnbuckles. They delivered a longer prop with a larger diameter tube, increasing the capacity. The new turnbuckles are also adjustable in length to cope with the variations between each Superslim section and to allow for adjustments once the units are in place."

To speed up construction further, wing form sections were pre-assembled then safely lifted into place using a crane operated Alshor Plus C Hook.

Elpidio: "Using the Alshor Plus C Hook means the wing forms only have to be assembled once, and can be moved and reused. This has resulted in significant time and cost savings across the project."

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