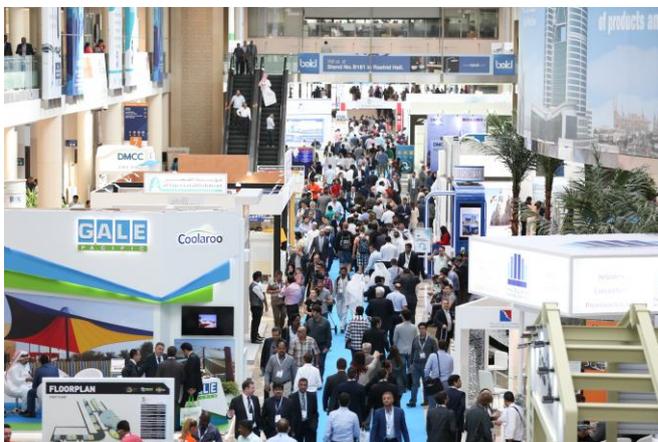


Press Release
For Immediate Release

Buoyant Outlook As Regional Governments Target US\$100 Billion Spending Spree On Infrastructure Projects

Infrastructure boom in the UAE and GCC presents a huge opportunity for industry professionals attending Middle East Concrete and PMV Live 2016



Dubai, UAE, 3 November 2016: The Middle East Concrete and PMV Live events – part of The Big 5 2016 at Dubai's World Trade Centre from 21-24 November - will be held against the backdrop of some of the world's largest and most lucrative infrastructure projects.

The outlook remains extremely positive as regional governments continue to splash out on flagship developments to meet the needs of a growing population and the

increasing demands of tourism. Multi-billion dollar infrastructure initiatives such as Dubai Expo 2020 and the FIFA World Cup 2022 in Qatar have already presented a huge opportunity for worldwide construction companies.

The GCC governments are looking to spend US\$604 billion in the next three years which will include US\$100 billion on infrastructure projects. They are also targeting private-public partnerships to safeguard project continuity in the region.

As well as the Expo and World Cup events, airports in the region are set to expand hugely by 2020 to keep up with the demands of increasing passenger numbers and cargo traffic. In addition, investment is pouring into road and railway construction projects such as the Route 2020 Metro expansion in Dubai.

Elsewhere, and already under construction are the Qatar National Rail Scheme and the Riyadh Light Rail Network. In Bahrain plans are afoot to build a rapid transport network and in Makkah, Saudi Arabia, the construction of the Mekkah-Madina Railway Link (MMRL) is out to tender.

There are more than US\$12 billion worth of theme park projects in the GCC at a range of stages, from planning to under construction. Added to that are a host of recreational projects such as museums, a zoo, a library, cultural centres and theatres.

Middle East Concrete and PMV Live will be an ideal platform from which to network with the movers and shakers across the Gulf region responsible for some of the major developments that are now taking place. Furthermore, it is a chance for investors to seal a few money-spinning deals.

Exhibitors secured some incredible sales at the Middle East Concrete and PMV Live events last year including Techmatik who sold a concrete block machine for US\$ 2.7 million; MB Crusher who sold two crushers for US\$85,000 and Basalt Rock Composite who won the overall prize at the 2015 Gaia Awards worth US\$50,000 for its basalt fibre-based rebar.



Mr James Meltz, the event director said: “This region remains a hotbed of infrastructure investment because the governments are still sanctioning muscular development projects to keep up with the massive pace of change taking place. This is all in line with the aim of the National Agenda for the UAE to be among the best in the world in the quality of airports, ports, road infrastructure, and electricity.

“The scope therefore for infrastructure investors is huge with a buoyant outlook for the construction industry for a number of years to come. This year alone there is a US\$17 billion increase in infrastructure contracts awarded by the GCC with the UAE likely to register the highest contractor awards in 2016 worth a staggering US\$6.3 billion.”

Middle East Concrete and PMV Live, organised by dmg events Middle East, Asia & Africa, are the biggest and most prestigious infrastructure and heavy machinery events in the Middle East bringing key regional and international industry leaders under one roof at the New Za’abeel Halls 4-6 at the Dubai World Trade Centre.

Thousands of state-of-the-art and ground-breaking technologies, as well as revolutionary ideas will



be showcased by over 400 exhibitors from 40 countries to 32,000 international participants searching for products that can save money, energy, reduce emissions, and minimise waste.

What is more, there will be a strong educational element with over 50 free-to-attend and CPD certified workshops and technical seminars delivered by industry experts who will be highlighting the market’s current trends, challenges, opportunities and best practices.

Hear from Antonio Nanni, one of our speakers, about Fabric Reinforced Cementitious Matrix (FRCM) Composites for Infrastructure Strengthening"

FRCM: A new tool in the concrete and masonry repair toolbox

Ongoing improvements in concrete materials promise to increase the lifespan of infrastructure components, improve safety and resilience, and reduce maintenance needs. New and novel materials can have a significant impact on the durability and long-term environmental and economic benefits for civil structure projects across the Middle East. According to Dr. Antonio Nanni, Chair of the Department of Civil, Architectural and Environmental Engineering at the University of Miami and



speaker at the upcoming Middle East Concrete 2016 in Dubai, UAE, the challenge is to bring new life to existing structures using alternative techniques for the rehabilitation important to the safety and preservation of the infrastructure.

For the past 30 years, Dr. Nanni has studied concrete and advanced composites-based systems as the principal investigator on a number of projects sponsored by federal and state agencies and private industry in the United States. His research in materials and structures has impacted the work of several technical committees in the U.S. and abroad. He is also the co-director of two federally funded centers: NSF Industry/University Cooperative Research Center for the Integration of Composites into Infrastructure, and the U.S. Department of

Transportation's University Transportation Center on Research on Concrete Applications for Sustainable Transportation.

At his workshop titled "*Fabric Reinforced Cementitious Matrix (FRCM) Composites for Infrastructure Strengthening*" taking place on Monday 21 November 2016 at Middle East Concrete at the Dubai World Trade Centre, attendees will discover the fundamental properties of FRCM as a strengthening material system, its advantages and how it has been used in projects around the world.

"Perhaps the greatest technical challenge we face in this day and age is that of maintaining the safety and structural integrity of our building stock - from the transportation infrastructure to nuclear power plants," explains Dr. Nanni who, as a structural engineer, is interested in the structural performance and field application of construction materials, including monitoring and renewal, and the sustainability of buildings and civil infrastructures.

"Our society and our economy need it, but the challenge becomes even greater because of the expectations of the general public. Even though most structures have already exhausted (and rather successfully) their intended design life, we are required to inject new life into them, oblivious of their obsolescence," he adds.

According to Dr. Nanni, an FRCM is a composite material consisting of one or more layers of cement-based matrix reinforced with dry fibers in the form of open mesh or fabric. The cement-based matrixes are typically made of combinations of portland cement, silica fume, and fly ash as the binder. When adhered to concrete or masonry structural members, they form an FRCM system that acts as supplemental, externally bonded reinforcement.

"FRCM is rising on the horizon as one of the possible tools in the concrete and masonry repair toolbox," says Dr. Nanni. "Its advantages are similar to those of fiber reinforced polymer (FRP) composites (i.e. strength, lightness and ease of application), but also include compliance with the substrate, heat resistance and long-term durability. Commercial projects undertaken in Europe and the U.S. are a demonstration of the system's potential."

The extreme environment in the Arabian Gulf, characterised by its extreme high temperature, severe humidity, and high chloride content in soil and concrete materials, is the main cause of corrosion in the reinforcing steel bars in concrete structures. Condition surveys on reinforced concrete (RC) structures in the Gulf showed an alarming condition of deterioration denoted by a

reduced lifespan of the structures of between 10-15 years. Coastal structures suffered from extensive carbonation and chloride attack, which caused reinforcement corrosion, cracks, and concrete spalling after 10 years of their age.

“The cost of rehabilitation and strengthening is usually estimated in the millions of dollars and, therefore, looking for a reliable technique to confront corrosion consequences represents a challenge for both researchers and practicing engineers in the region,” Dr. Nanni explains.

Currently there are no RC-strengthening applications in the Gulf region using FRCM, says Dr. Nanni. However, The Qatar Foundation has funded an important research program on this project led by the University of Qatar.

From a design perspective, there are many things that should be considered when using FRCM. The American Concrete Institute (ACI) has published an important document that addresses the use of FRCM: ACI 549.4R-13 *“Guide to Design and Construction of Externally Bonded Fabric-Reinforced Cementitious Matrix (FRCM) Systems for Repair and Strengthening Concrete and Masonry Structures.”*

“This guide addresses the history and use of FRCM system repair and strengthening, their unique material properties and recommendations on their design, construction, and inspection,” says Dr. Nanni. “Guidelines are based on experimental research, analytical work, and field applications.”

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