Dazzling new interior

The public and the media have been giving rave reviews to the revamped Hoog Catharijne shopping mall in Utrecht, the Netherlands. Phase one was recently completed and has since taken its place in the city scenery for shoppers and commuters on their way to Utrecht Central Station. Meanwhile, BAM Bouw en Techniek and BAM Infra Civiel are preparing for phase two of the project. They are stripping existing shop units, removing technical installations and demolishing an old corridor. Phase two is scheduled for completion in late 2018.

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Digital journey of discovery

BAM opened its doors during Girls’ Day, an event held every year in the Netherlands as a means of introducing girls to the world of exact sciences and technology. BAM offered girls the opportunity to experience how virtual and augmented reality are shaping the world of technology. At the BIM Center (of BAM Advies & Engineering) girls could design their own school building and walk through its virtual model with the help of the Oculus Rift and the HoloLens. Elsewhere, girls were introduced to drones and BIM 360 Field software. Further activities included welding glass fibre, pouring concrete, doing science experiments with cola and lemons, and building spaghetti towers.

Girls’ Day

Giant pipe for Panama

BAM International has towed a 333-metre long cooling water pipe from Norway to the Costa Norte LNG project in Panama – a six-week journey across the North Sea, Atlantic Ocean and Caribbean Sea.

The project comprises the construction of a LNG jetty, a berthing platform, dolphins and a cooling water intake and outfall structure. The pipe was towed from the fjord where it was manufactured and, upon arrival, ballasted with concrete blocks and sunk to the seabed.
From the Board

One BAM Values

CEO Rob van Wingerden: ‘A toolbox full of shared values’

Proactive ownership
‘I take the initiative to prevent, rather than fix’

Open collaboration
‘I share, so we all gain’

Scalable learning
‘I ask, listen and support, so that we learn collectively’

Predictable performance
‘I deliver what I promise’

‘The way we behave towards each other, the extent to which we feel at home in the Group ... it is our values that uphold BAM’s unique culture. A culture that forms the foundation under our strategy house and thereby contributes to the results of the Group. Our One BAM Values tell us who we are and what we stand for. They guide our behaviour and apply to each and every one of us. How they translate into concrete behaviours may depend on our position or the specific situation we are in.

Proactive ownership is about acting with the aim to prevent problems from occurring rather than trying to fix them when it’s too late. Sadly, the latter still happens all too often. Showing initiative is the much better option. Proactive ownership means taking responsibility for our work while taking into account the interests of BAM.

Open collaboration is about more than sharing knowledge and experience. Instead of keeping things to yourself – perhaps to avoid embarrassment – it’s much better to share openly. No problem is ever yours alone. Appreciate each other’s qualities and make use of each other’s diverse knowledge and experience. Together we make a difference!

Working at BAM means learning something new every day. Don’t try to reinvent the wheel, but ask your colleagues to share their knowledge and pass that knowledge forward. Whatever your question or your problem, chances are that someone has dealt with it before.

Scalable learning means continuous growth of knowledge.

Predictable performance is something we can all translate to our own work situation: What promises have I made to others and how do I keep them? If a promise proves impossible to keep, speak up as soon as you can.

Practising these four values will inevitably lead to results in terms of safety, quality, sustainability and of course profitability!

These values deserve to have our continuous attention. They will for example be important guidelines in the training programmes of BAM Business School. Neatly arranged like tools in a toolbox they are – under all circumstances – always readily available.’

First of seven Irish courts

BAM Ireland is entering the final construction stage of a new courthouse in Drogheda, County Louth (north of Dublin). The building is one of seven courthouses in the Courts PPP bundle comprising new build/ refurbishments/ extensions across seven locations, which sits on a landmark site adjacent to the River Boyne, comprises two courtrooms, offices, meeting rooms and custody facilities. After completion, BAM FM Ireland will be responsible for the maintenance and management of the building with a 25-year contract period.
Worldwide BAM Safety Day 2017 on Tuesday 10 October:

The value of safety

Every one who is employed by BAM – whether on a permanent or a temporary contract or as a subcontractor – has the right to return home from work safe. A right, however, isn't necessarily a guarantee, as we can see from a number of fatal incidents on BAM sites in the recent past.

These have again highlighted the main safety risks, which deserve our unwavering attention:

1. Working at heights;
2. Working with moving equipment;
3. Lifting and hoisting operations;
4. Electrical installations, cables or pipes that are live or situated in unknown or unexpected locations;
5. Working near risk zones such as water and traffic.

On the occasion of BAM Safety Day 2014 we called these risks ‘The Big Five’. To this day, they are the main causes of our most serious safety incidents.

• The ‘value’ of working safely is translated first of all in terms of the human factor > ‘Hearts’;
• Secondly, the whole project team benefits from safe working methods, in which cooperation and sharing of know-how play a crucial role > ‘Minds’;
• Thirdly, the economic value of safety can be expressed in a good project outcome > ‘Money’.

In summary, there are three dimensions to the ‘value of safety’: hearts, minds and money. This theme will be further developed as BAM prepares this year’s Safety Day.

To stay up to date of the latest developments, check www.bamsafety.com.
Creating the future in Dubai

BAM International along with BAM Ireland has commenced construction of the Museum of the Future in Dubai.

The museum was initiated by His Highness Sheikh Mohammed bin Rashid Al Maktoum, Vice President and Prime Minister of the United Arab Emirates and Ruler of Dubai. An incubator for ideas, a driver for innovation and a showcase for the future of science and technology, the museum will comprise exhibition spaces, offices and laboratories. With a total height of 78 metres, the building will have a floor area of 30,000 m². The metal-clad museum building will sit on a landscaped hill-like three-floor podium and will feature intricate window designs in the form of Arabic calligraphy. Fittingly, the museum building will be built using the latest in technology. The whole of the building process, down to the level of site organisation and logistics routes, has been pre-visualised in a 4D BIM model. The building has, so to speak, been fully built in virtual reality before the first spade broke ground.

BAM will hand over the project to client Meraas Holding in mid-2019.

Bored tunnel for rainwater

In the Belgian town of Sint-Pieters-Woluwe, near Brussels, a joint venture of BAM Contractors, Wayss & Freytag Ingenieurbau and Denys, is realising an underground rainwater basin. The project involves boring a tunnel below the town centre that is 470 metres in length and has an internal diameter of approximately five metres. Contract value is over fourteen million euros, with a two-thirds share for BAM. Storage capacity will be 8,000 m³. Handover to the client, Vivaqua, is scheduled for late 2019.

Second project in Carlsberg City

BAM Danmark has been awarded the design and build contract for a 7,300 m² office building, Harild Hus. The client is project developer Carlsberg Byen P/S. The office will be built on the site of the Danish brewer Carlsberg, which is being completely redeveloped. Harild Hus is situated near the European School project, which is currently under construction by BAM Danmark. Harild Hus has six floors. Architects are Vilhelm Lauritzen Arkitekter and NORD Architects Copenhagen. BAM Danmark will complete the project in November 2018.
In Lübeck and Kiel: Two hospitals, one project

As BAM Group’s specialists in health care projects, BAM Deutschland is an important partner in the Group’s Healthcare Collaboration Team. The company was also the logical choice for the project to realise the University Hospital of Schleswig Holstein (UKSH), which consists of two hospital buildings in the cities of Lübeck and Kiel.

With 2,400 beds, UKSH is Germany’s second-largest university hospital. BAM PPP PGM and BAM Deutschland together with Vamed are ensuring the hospital is fully up to date in a massive construction and renovation programme, in which BAM Deutschland has the responsibility for the technical realisation.

The scope of the project also comprises the efficient operation of the hospital. ‘BAM and Vamed together are responsible for the design, construction, financing and technical operations of both buildings’, says René Naumann, Project Manager for BAM Deutschland in Lübeck. ‘The contract value for the design and construction stage is over five hundred million euro. The service contract runs for a period of 29 years, which began in 2015 and is in the hands of the specially established FMSH.’

The new construction part of the contract comprises a floor area of 71,000 m² in Kiel and 67,500 m² in Lübeck. In a second part of the project, a further 100,000 m² is undergoing extensive renovations. Both parts of the project are being approached in two phases: Construction takes place in phase one. Phase two, renovations, follows after commissioning of the new buildings. Rotating the various departments will be one of the main logistical challenges.

In March the Bolands Quay Development Group selected BAM Ireland as the preferred bidder for the construction of the Bolands Quay Development in Dublin’s south docklands.

As an Irish-based construction company, BAM Ireland has consistently worked to enhance the local economy and improve the quality of life for the residents of the local area. The company’s involvement in the development will contribute to the city’s growth and development.

Bolands Quay in Dublin

In March the Bolands Quay Development Group selected BAM Ireland as the preferred bidder for the construction of the Bolands Quay Development in Dublin’s south docklands.

Designed by Dublin’s leading architectural practice, Burke Kennedy Doyle, Bolands Quay will provide three new landmark buildings comprising approximately 36,853 m² of office, residential, retail and cultural space. In addition, consultants Llewch and Argo have been retained as part of the overall development implementation team.

The project will be delivered in the fourth quarter of 2018 and five hundred construction jobs will be created in the process. The development will also involve the renovation of a number of protected mill buildings and the creation of a new civic plaza looking onto the waterfront at Grand Canal Dock.

A new pedestrian bridge will link the plaza to Ringsend Road. On completion, Bolands Quay will accommodate up to 2,500 workers.

Commenting on the contract award, Theo Cullinan, BAM Ireland CEO said: ‘We are very pleased to have completed this agreement, which will allow us to build a world-class office building in an exceptional commercial and residential space. Ireland needs world-class office buildings to attract international investment and BAM is uniquely positioned in terms of experience and expertise to deliver the landmark projects the country needs to compete on the world stage. A

George Markusman

Ian Hubbard

As the one Irish company that specializes in operating in the worldwide market, BAM International is the natural partner when its sisters wish to leverage their specific expertise outside the home countries. George Markusman, Managing Director: ‘We can be their launching platform, while we can also strengthen our position as a global leader in nearshore marine works and other specialist niches. The guide behaviour regarding collaboration in the Group strategy is ‘I share, so we all gain’. By learning from each other and by combining our specific strengths we can increase our chances in new markets and seek out better opportunities in the ones we’re already in. In other words: doing collaboration better will help us to new and better things.’

Within the Management Board of the BAM Group, George Markusman has taken on the role of sponsor of collaboration. The Board plays a natural connecting role between BAM sisters seeking to collaborate. Its members, all senior managers of the operating companies, are involved as sponsors of specific themes and/or as members of steering committees for areas of collaboration such as the tunneling, hospital and stadium initiatives.

Among the BAM operating companies, BAM N Wattl in the UK is taking a slightly different approach to international collaboration: it has set up a whole new business unit for collaboration, headed by Ian Hubbard.

Hubbard: ‘When we reviewed the international market, we found an appetite from the UK Government to promote overseas exports of UK businesses. We were convinced that BAM N Wattl fits their profile: we have a track record of delivering complex civil engineering projects across a range of sectors including water, highways, rail and renewable energy. All of these are key focus sectors for the government. While this substantial market was available, we were aware that BAM N Wattl did not have the overseas experience or track record to proactively capitalise on these opportunities while managing the inherent risks. We were also aware, however, that BAM International has a wealth of such experience. In terms of concrete projects there are several that we are currently pursuing, including the rehabilitation of the water supply system in Freetown, Sierra Leone, a road project in Uganda, a port in Dubai and a forensic lab in Jakarta, and we are part of the BAM consortium that is pursuing the prestigious Sydney metro scheme. We were very pleased also to win our first prestigious contract, namely the British Antarctic Survey construction partnership framework. A successful start to our collaboration!’
Smart hat avoids micro sleep

BAM Nuttall has tested technology that measures construction workers’ levels of tiredness. Hardhats have been fitted with a headband with sensors. The test is mainly aimed at operators of vehicles and other equipment.

BAM Nuttall is conducting the test together with Australian company SmartCap. ‘We are open to technological solutions that improve the health and safety of our employees’, says Colin Evison, BAM Nuttall’s Head of Innovation. ‘When we heard about the successful application of SmartCap’s Life system for vehicle operators in the Australian mining sector, we contacted them to find out if their technology could also be used on construction sites.’

The Life system consists of a headband with built-in sensors that measure brain activity. The data collected can be used to determine levels of tiredness or even fatigue, which could cause a risk of so-called micro sleep: sleep episodes of under thirty seconds that may occur unexpectedly during monotonous activities.

The sensors send their information via Bluetooth to the Life App on an operator’s smartphone, which will give off a fatigue alert if necessary. Evison: ‘We recently completed tests with five units on our rail framework contract in Wales. It’s too early to draw conclusions, but in any case we are creating awareness of the risk of fatigue on site. Many employees are insufficiently aware of the risks this involves.’

Parking with a twist at Eindhoven Airport

A multi-storey car park with a twist is boosting the level of services at Eindhoven Airport in the southern Netherlands. In their successful bid for the project, BAM Infra and BAM Bouw and Techniek came up with a smart phased approach.

Services at the multi-purpose building aren’t limited to parking cars: at ground level the multi-purpose building houses the airport’s public transport terminal and a McDonald’s restaurant. Most of the second floor is reserved for a kiss-and-ride zone, while the three upper layers provide the actual parking area. The total number of spaces available is 780, most of them for short-term parking.

Several are fitted with electric charging points.

‘Construction is taking place on the existing P1 parking area, which will be operational throughout the project’, says Project Manager Cyril Barendse (BAM Infra). The architectural design, provided by De Bever Architecten, complements the airport’s existing buildings: the terminal and hotel.

‘Curves dominate the façade, while flat ceilings and sparingly used columns enhance the sense of space at the parking levels’, says Jan Verhamme, Cyril’s counterpart at BAM Bouw en Techniek.

‘There is zero repetition in the positioning of the ramps and design grids are rotated from floor to floor. In this building with a twist, construction is much more than a simple stacking job. But there’s the digital design to rely on, which has everything down to the last detail, including the thousands of anchors for the metal cladding.’

BREEAM

Design and construction of the multi-purpose building meet the criteria of ‘Very Good’ BREEAM certification. Verhamme: ‘We have developed the design from final to construction design with the assistance of BAM Advies & Engineering. Also we’re working with many regional parties, which has significantly reduced transport kilometres and emissions. Finally, we’ve taken great care to minimise packaging materials.’

The multi-purpose building will be operational in mid-2017.

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New terminal in DP World’s flagship Jebel Ali Port

Ahead of schedule, BAM International and BAM Ireland have achieved substantial completion of their work on Terminal 4 for DP World in Jebel Ali Port, Dubai, United Arab Emirates. DP World is one of the world’s leading port operators. Phases 1 and 1b/2 have been part of an overall expansion project to increase container-handling capacity to 22.1 million containers in 2018.

Starting in June 2014, BAM has been involved in the construction of 2,300 metres of quay wall on a newly reclaimed island just off the Dubai coast. First, access to the island was created by building a 440-metre dual carriageway bridge and adjacent 3.5-kilometre causeway. Included in the contracts was the installation of all quay furniture, the land reclamation to create the seventeen hectares of yard and access road, and the dredging work to provide for the access channel.

Diving team

Large volumes of underwater work on the Terminal 4 project prompted the decision to set up an in-house BAM diving team. Taking the work for the Jebel Ali Terminal as their first priority, the team now consists of fifty internationally certified commercial divers. Together, they are able to run three separate diving operations 24/7.

Safety till the end

BAM’s safety performance on this project has been exemplary and BAM International is determined to keep it that way – even during the final stages, when human psychology means the risk of complacency increases. In order to maintain safety awareness at the desired level, special end-of-project measures include the appointment of safety leaders. Always present on site in their high-visibility vests, these selected colleagues have received special training and are authorised to take charge in ensuring on-site safety till the very last minute.
New report reveals benefits of circular business models for the built environment

Arup and BAM have launched a study exploring the benefits that circular business models (CBMs) offer stakeholders within the built environment sector. The report, supported by the Ellen MacArthur Foundation (EMF) as part of the framework of the CE100 programme, proposes a shift in the way the construction value chain has historically been managed. Adapting CBMs presents financial, social and environmental benefits.

According to the ING Economics Department, the market for a circular economy is growing and it is estimated that over the next ten years, this will boost economic growth by up to four per cent. The switch to a circular economy will also impact business models that will need to be designed with future uses in mind; all members of the value chain need to work with different business models, and levels of incentivisation. Among them, clients benefit near the longer term with better performance and higher residual values of their asset. So far, we haven’t seen a single solution, but have experimented with several – each solution needs to be tailored to its situation’, says Nitish Magdani, Group Director of Sustainability at BAM Bouw en Techniek, in collaboration with Honeywell, is about to make Amsterdam ArenA smarter. Through the stadium, countless sensors will be feeding the building management system with data that forms the basis for predictable, information-driven maintenance, resulting in lower costs of operation and reduced energy consumption.

A smarter Amsterdam ArenA

BAM Bouw en Techniek, in collaboration with Honeywell, is about to make Amsterdam ArenA smarter. Throughout the stadium, countless sensors will be feeding the building management system with data that forms the basis for predictable, information-driven maintenance, resulting in lower costs of operation and reduced energy consumption.

Under the founder contract, BAM Bouw en Techniek has from the start carried responsibility for the management and maintenance of Amsterdam ArenA. ‘This contract was recently extended for another ten years. In addition, Honeywell and BAM have joined Amsterdam ArenA’s innovation platform as strategic partners. Our next move has everything to do with the Internet of Things and Big Data’, says Jaap Hazeleger, Director of BAM Bouw en Techniek. ‘We will be collecting and analysing sensor data throughout the ArenA. This contract has everything to do with the Internet of Things and Big Data’, says Jaap Hazeleger, Director of Sustainability at BAM Bouw en Techniek. ‘We will be collecting and analysing sensor data throughout the ArenA. This contract has everything to do with the Internet of Things and Big Data’, says Jaap Hazeleger, Director of Sustainability at BAM Bouw en Techniek. ‘We will be collecting and analysing sensor data throughout the ArenA. This contract has everything to do with the Internet of Things and Big Data’, says Jaap Hazeleger, Director of Sustainability at BAM Bouw en Techniek.

The report highlights how innovation (including digital platforms, product passports, 3D printers and tagging sensors) will play a key role by enabling CBMs. Material databases will be created to store the information required to facilitate their later reuse and demonstrate their residual value throughout time and at the end of a building’s life-cycle. In addition, platforms like Building Information Modelling will become crucial to bring together people, processes and technology to achieve circular efficiency and performance. New models of governance and regulatory models will also be required, to ensure investments are supportive of CBMs.

Rapid ramp-up for Tesla

Tesla is rapidly expanding its European network of superchargers. With extra short installation times, the EV Desk of BAM Infra Energie & Water is proving a valuable partner to the innovative carmaker.

At the moment, a typical rapid charging station comprises four superchargers, offering charging points to eight cars. ‘As more and more Tesla cars hit the road, we’ll also see stations with twelve to sixteen charging points’, predicts Roy Kat, Team Manager of the EV Desk. ‘In just thirty minutes, superchargers ramp up battery cell capacity to eighty per cent, enough for 270 kilometres of sheer driving pleasure. The entire value chain needs to work together for mutual gain. CBMs will also be required, to ensure investments are supportive of CBMs.’
Maintenance for and Techniek and infrastructure utility building for BAM work in two distinct markets: BAM companies involved generally is not as easy as it may sound. The in a single 3D model. This, however, in this integral project, all working across an extensive site. BAM FM’s energy division – BAM Energy – will also support the University’s energy management team to achieve its target of five per cent energy consumption.

A unified language to get from 3D TO 5D

Keeping track of a project’s cash flow from day to day on the basis of its planning. That, in a nutshell, is what 5D is about. A pilot in the Netherlands shows that 5D can be the next step in the digitalisation of the construction process. Even if there are still a few hurdles to take.

The pilot is being conducted in the redevelopment of the Driebergen-Zeist railway station area (near Utrecht). It involves a connection between the 3D model, project planning (4D) and project costs.

Wim van Willegen, who leads the project from the BIM Center at BAM Advies & Engineering: ‘Many BAM disciplines are involved in this integral project, all working in a single 3D model. This, however, is not as easy as it may sound. The BAM companies involved generally work in two distinct markets: utility building for BAM Bouw and Techniek and infrastructure for BAM Infra. Different client requirements result in differences in the way they develop their 3D models. In order to create unity in our model we have chosen to take codes from utility building as our starting point. These are supplemented with regard to the infra parts of the project. It’s important to agree on a clear standard.’

New position
Angela van der Hoek, a BIM specialist at BAM Infraconsult: ‘The final step from 4D to 5D especially requires that we all speak the same language. This is something that transcends the project level – it requires decisions at the level of the operating companies. We have the technology, but will have to decide the distribution of responsibilities. As we’re creating a system that describes and connects all the different elements of a project, we are basically using each other’s data. A logical step would be to appoint someone in a new position above or between existing disciplines, whose job it is to ensure the interchangeability of data within a standardised process. This is one of the issues currently under consideration within the Digital Construction community.’

New contracts

British train depots
BAM Nuttall has been awarded a contract by Stadler Rail Services UK to construct a train depot in Kirkdale and to refurbish to modern standards an existing depot in Birkenhead North. The Kirkdale facility will include washing and stabling facilities, a maintenance shed with run-through tracks, office space, and a simulator suite. The depot works are due to be completed in 2019.

Healthcare framework
The ProCure 22 Framework will let 4.5-5.5 billion euro worth of health projects in England over a four-year period. BAM Construction is one of six UK contractors to be appointed for demonstrating expertise across design, construction and facilities management of healthcare estates. The framework plays to BAM’s strengths of collaborative construction with its open book processes that enable project teams to focus on adding value. Since winning a place in October 2016, BAM has been confirmed as preferred bidder on three projects totalling 28 million euro for NHS trusts across the country.

Quayside Project
Poole Harbour Commissioners (PHC) has appointed BAM Nuttall as the main contractor for a ten million pound project to provide the commercial port with a new two-hundred-metre long deep water quay. The new quay will need approximately 1,800 tons of steel piles, all of which will be delivered by sea. In addition, the majority of the material reclamation fill is to be taken directly from the port’s maintenance dredging scheme. The project, which is due for completion by the end of 2017, will ensure that the Port remains competitive with facilities that can accommodate a much wider range of shipping and marine activities.

Printed by: Royal BAM Group nv
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Photography De Beeldredaktie, Babet Hogervorst, Lorrie Lousberg
Design: Boulogne Jonkers Vormgeving, Zoetermeer
Printing: MediaCenter Rotterdam