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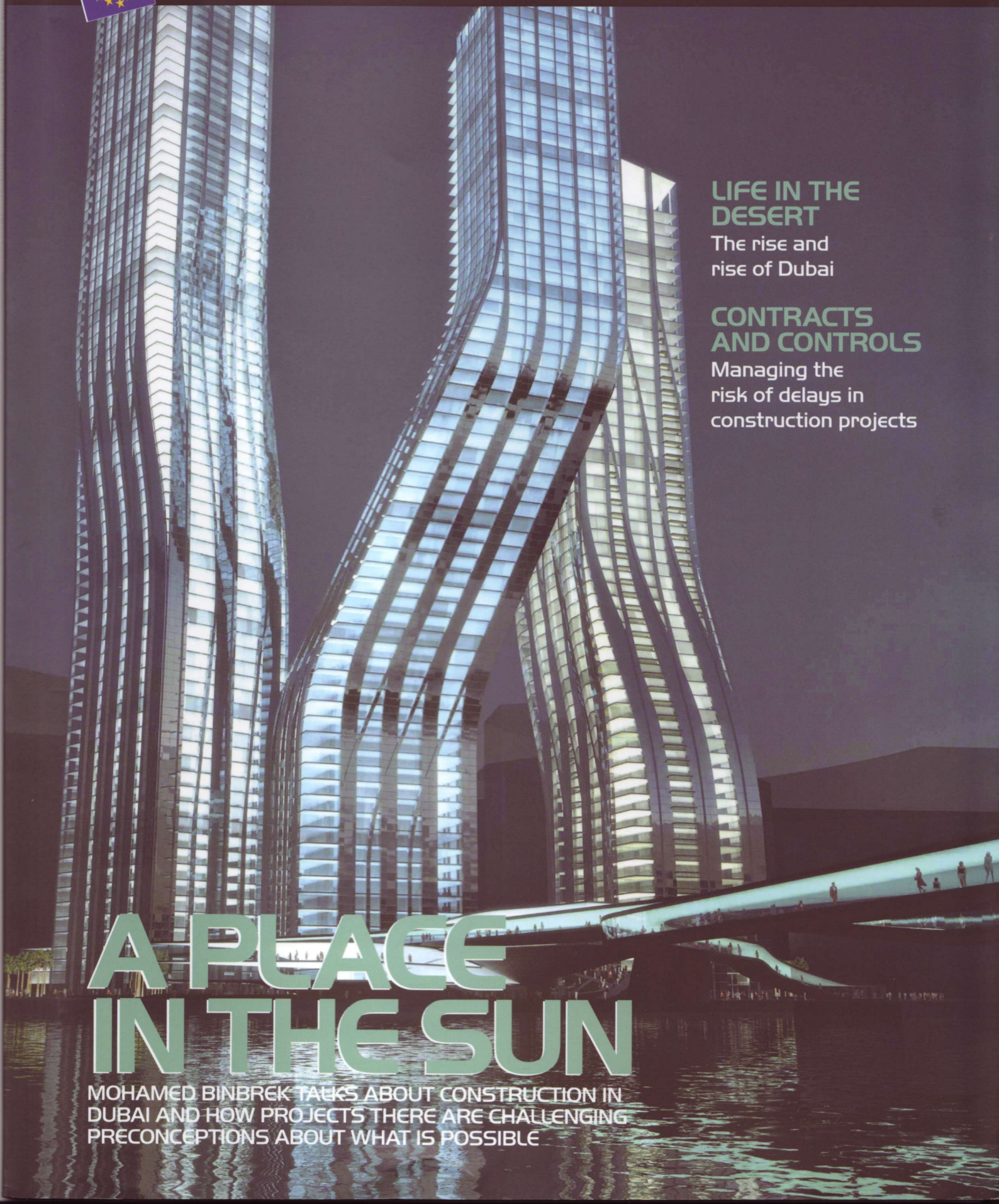


LIFE IN THE DESERT

The rise and rise of Dubai

CONTRACTS AND CONTROLS

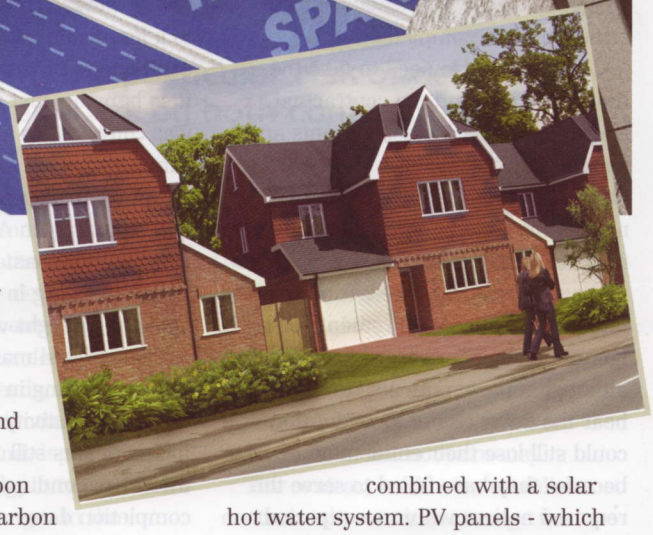
Managing the risk of delays in construction projects

A PLACE IN THE SUN

MOHAMED BINBREK TALKS ABOUT CONSTRUCTION IN DUBAI AND HOW PROJECTS THERE ARE CHALLENGING PRECONCEPTIONS ABOUT WHAT IS POSSIBLE

RAISE THE ROOF

Glen Addy looks at the move away from traditional roofing in the construction industry



Today's construction industry faces numerous social, political, technological and economic challenges, largely fuelled by the need to reduce carbon emissions, to combat climate change, as well as the modern day demand to improve aesthetics and speed of build.

The roof is just one element of a building's construction, but it is a very important one. Be it a house, school, church, mosque, health or leisure centre, adopting innovative roofing techniques can help developers to attain energy efficiency, while also reducing cost of labour due to speed of fix. A prestigious looking roof can also be achieved by using the right system and material.

Today's housing providers - indeed, the construction industry in general - increasingly need to think about sustainability. Earlier this year, Communities Secretary Ruth Kelly unveiled details of a new international challenge for house builders to design and build flagship zero-carbon and low carbon communities. The Carbon Challenge, which will be run by English Partnerships, calls on developers to raise standards of design, construction, energy and water use and waste disposal so that these techniques can be used in the future as a benchmark for mainstream development. It also seeks to meet rising expectations from the public for more sustainable communities, which offer them reduced bills and a higher quality of housing design.

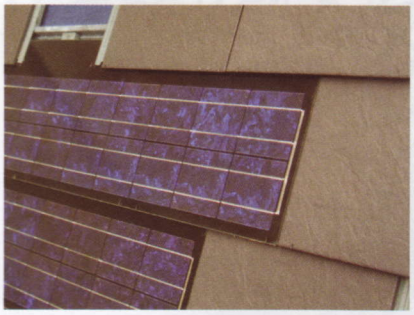
One way roofing can help meet this Carbon Challenge is by incorporating solar photovoltaic (PV) panels, combined with a solar hot water system. PV panels - which consist of one or two layers of a semi-conducting material, usually silicon - work by converting solar energy into electricity, even on a cloudy day. When light hits the solar PV panels on the roof, it creates an electrical field across the layers, causing electricity to be generated. This power can be used throughout the household in the same way as electricity from a mains supply is used to power all appliances and lighting. Once installed, a solar PV system provides free, and most importantly inflation-proof, clean electricity for 30 years or more.

A solar hot water system, meanwhile,

incorporates glass solar slates, which are an alternative to a conventional roof covering when re-roofing a building. They provide an output of solar heated water, which may be used for hot water, space heating, pool heating and process heat purposes.

This system operates by solar fluid circulating through black absorber panels under glass slates on the roof, which is heated by the sun. The fluid does not freeze as it contains anti-freeze, and does not boil because the system is pressurised. The fluid is circulated by a solar pump or controller unit, which transfers the heat through pipes to where it is required. Importantly, this system will integrate with all commonly used heating systems.

So why are so few construction companies incorporating these solar systems into their roofing plans, when they can clearly solve the energy requirements of house builders and other sections of the industry? In my view, this is largely due to the perceived complexity of installation - a perception that could be easily reversed if



information was more readily available.

Another obstacle to the uptake of solar roofing systems has been the issue of cost. Again, widespread education is required to inform construction professionals that government grants are available. The Low Carbon Building Programme, for example, offers grants for solar heating installations. The availability of such funding needs to be more widely communicated, as quickly as possible.

The crux of the matter is that people in our industry need to start adopting new roofing techniques right now, to ensure success and longevity - or risk being left behind. By moving away from traditional systems, developers can achieve improved energy efficiency, better value for money, as well as durability, which is essential to cope with the harsh weather conditions suffered by many areas of Europe.

When announcing The Carbon Challenge, Ruth Kelly said: "I encourage British and overseas builders to come up with bold and innovative ways to kick-start the drive towards zero carbon in ten years."

This invitation should be noted and acted upon, particularly when considering that buildings in the UK, using power generated by burning fossil fuels, typically contribute a massive 50 per cent to UK CO2 emissions directly and indirectly. The construction industry needs to sit up and take responsibility for its contribution to these emissions and start using new roofing techniques to increase energy efficiency and sustainability.

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CASE STUDY

The UK house building industry faces increasing demand from central government to generate more housing, and quickly, some would say at the price of good architectural design.
The appropriate roofing system used with natural slate can tackle both issues at once.

Nu-lok's innovative 'no nails' roofing system, for example - which replaces traditional wooden battens with a lightweight galvanised steel grid system - was used last summer by Windsor Homes plc for its Manor Chase housing development in Englefield Green, Surrey.

The system incorporates uniquely designed link channels containing a high-grade steel clip for securing the leading tile edge, locked into place between steel battens.

A complex mix of hips, valleys, verges, ridges and mono ridges at Manor Chase, alongside the small window at the top of each property, was a stern test for the capabilities of any roofing system, but Nu-lok worked closely with Windsor Homes to create a prestigious result.

The first property took a week to have the ceramic roof tiles fitted. This duration was mostly due to the contractors not having the correct tools initially. Once they had the right cutters, the next two roofs took half the time and all three properties, with a total roof area of 500m², were completed within a fortnight.

The speed of installation was enhanced by not having to use nails to fix the tiles in place. No nails also eliminated the danger of breaking tiles, which is an added cost benefit. During the job, the tiles were delivered in boxes, shrink-wrapped in pallets. Therefore, they didn't take up much space and it was easier to plan for their storage.

As a unique dry fixing system requiring no cement, Nu-lok avoids the need for re-pointing in the future. This also gives it a sharper, more appealing aesthetic quality.
On completion, the roof was not only more structurally stable, but also used less roofing product than conventional solutions whilst providing durability, weather resistance and easy maintenance.
Ian Rostron, Building Director for Windsor Homes, commented: "It's a fantastic system, very progressive with tremendous flexibility. It's also extremely cost effective. Nu-lok were very adaptable and eager to pitch in with us to work out solutions together. It was a great collaborative effort.

I feel it's a modern and efficient solution for today's building requirements. We all want to be quicker, cheaper and more effective and Nu-lok has a very short learning curve."