



Severn Trent Water moves to Coventry

Severn Trent Water has moved to a new centre, designed by architects Webb Gray & Partners, in Coventry. Totalling 170,000 ft² plus a car park, the new seven-storey purpose-built offices were opened in 2010, with 1700 staff being transferred there from a number of different locations in the Midlands. The development enabled Techrete to display its skills in creating the external envelope for main contractor BAM Construct UK Ltd.

The office wings are conceived as masonry sleeves open to the west and east with punched openings to the north and south elevations as appropriate to the orientation. The colour and texture chosen for the masonry elements was a direct response to the white buildings surrounding the site.

Altogether, Techrete supplied and installed 518 units (6415m²) – 450 for the main building and 68 for the car park – ranging in weight up to 14.5 tonnes. The original concept for the car park was to include a Gabion form of construction using

continued on page 2

Chairman's comment

by Stephen Maddalena

On behalf of the Architectural Cladding Association, I should like to welcome a new member – Thorp Precast Ltd. Based in Staffordshire, the company specialises in the design, manufacture and erection of structural precast concrete components and architectural cladding. Architectural components manufactured include panels faced with brick, natural stone and granite as well as wet-cast reconstituted stone cladding and dressings with a variety of finishes and colours. The company – which is a member of the Structural Precast Association – also produces a range of structural components including vertically cast cross-walls, beams, columns, slabs, stairs, bridge and terrace units, and bespoke prestressed units.

Among recent and current projects being carried out by Thorp are: West Herts College, Watford; North Kent Police Station, Gravesend; 5 Piccadilly Place, Manchester; RSC Theatre, Stratford; Southend Dive Centre's new dive tower; and the Esplanade at Dover. Two of these – North Kent Police Station and 5 Piccadilly Place – were awarded High



Commendations in the annual British Precast awards.

What all of these demonstrate is the company's ability to produce high-quality facade panels, particularly using facing bricks, as for example at the Royal Shakespeare Theatre's 36m-high Theatre Tower which, in the client's words, "exceeded all expectations". For the ACA, the new member brings additional diversity into the highly respected arena of architectural precast cladding.

This issue of Facade features a range of projects that illustrate the versatility of precast concrete. To view further examples in previous editions of Facade please visit www.architectural-cladding-association.org.uk

Decomo invests in quality

Decomo has recently seen its commitment to the Environmental Management System (EMS) rewarded by ISO 14001 certification, underlining its dedication to the environment and to sustainable development.

The certification reflects a continuing investment policy to bring the Mouscron site into compliance and to hone the performance of its architectural concrete manufacture. For example, Decomo has invested both in wastewater recycling and in rainwater recovery, and introduced computer monitoring of the consumption of electricity, water and gas. At the same time, the company has equipped itself with electric vehicles for transporting and manoeuvring manufactured elements on site, and invested in equipment for waste recovery throughout the company.

Managing director Johan Verwee summed up the changes by saying "The new certification combined with our policy of innovation will increase our competitiveness and consolidate our position among European market leaders."

continued from front cover

local stone for the external walls. However, Techrete was able to source the same sandstone that features on Coventry Cathedral to produce large stone-faced precast concrete cladding panels with dramatic effect.

External panels were acid-etched and the nominal 20mm joints sealed by mastic. The sealant was specified with a shadow gap, making it a deliberate feature of the façade. Rain run-off is mainly responsible for the movement of dirt on a building's façade and, in combination with the porosity of the material, determines whether the surface will be soiled or washed clean. The mix for the precast Techrete elements has a high cement content and low water/cement ratio, creating a durable panel with very low absorption rate. Details such as window sills and junctions were carefully designed to influence the flow of water on the façade and help in shedding water. Horizontal and vertical coursing lines were also introduced to reduce the apparent size of the individual panels and to avoid large uninterrupted surfaces.



Kendrew Quadrangle, St John's College, Oxford

The St John's College Oxford (founded in 1555) has definite affinity to the use of architectural precast concrete, as previous developments on the site – such as the extension to the Senior Common Room in 2005, the award-winning Garden Quad completed in 1993 and as far back as the Thomas White building during the 1970s – demonstrate.

Set within a conservation area, and adjacent to listed buildings and medieval walls, the Kendrew Quadrangle building consists of four storeys above a large basement, the lower floors housing the café, library and teaching spaces. The upper floors provide 60 student bedrooms and six flats for college Fellows.

This unique project provided Decomo with the opportunity to collaborate with MJP architects, Price & Myers engineers and local main contractors Kinglerlee in the delivery of high-quality exposed architectural precast elements. Structural load-bearing and non-structural precast were supplied, mostly in white acid-etched concrete incorporating Dolomite limestone aggregates for a clean crisp look.

White load-bearing precast columns (rectangular and circular) and sandwich panel walls were used for the visually exposed structure at ground and basement levels, installed by Decomo in sequence with the in-situ concrete framework on site.

To the facades of the main accommodation above were double-storey-high, top-hung cladding columns and spandrel units, erected after the curtain walling had been installed. This meant that units had to be carefully lowered between the building frame, finished wooden fascia and standing scaffolding.

Externally, white precast was again used for the pergola columns, lawn edgings, bench seating and other landscaping details. Additionally, some GRC soffit panels (matching the white concrete) were provided to areas where access to services behind would be required, and hence a light and demountable material was the logical solution.

Among the most striking features and most challenging aspects to this contract were the four main staircases, servicing the corners of the building. The south stairs consisted of a vertical load-bearing outer drum from basement level to third floor. Stair risers were straight flights with curved quarter landings around an open square well, supported off the four curved precast vertical external walls. Loads from the flights pass down the stair in a helix, increasing towards the base and shed laterally into the wall elements. These stairs rise as independent freestanding towers, linked to the main building via steel frame bridge landings at each floor level.

The north stairs were more complex, as they only serve the first to third floors, with just the central circular precast core passing through the ground floor down to foundations. The spiral stair flights and landings were cast integrally with the circular core units, which were stacked and stitched together on site. The entire outer precast drum walls – finished internally in beige pigmented concrete to comply with building regulations and with handset stone externally – are hung from a large precast cruciform structure at roof level.



The Kendrew Quadrangle surrounds a large old beech tree in the centre of the courtyard. Ensuring the tree came to no harm during construction added another dimension to the complexity of working within the confines of this small site. Throughout the build, the close coordination with the other contractors was of paramount importance, to guarantee the job was completed to a high standard and delivered on time.



An arresting building!



The new Northumbria Police Headquarters in North Shields is a large administrative building linked to a circular custody suite with 40 cells. Located on Middle Engine Lane, Wallsend, this state-of-the-art facility is the base for up to 300 North Tyneside police officers and is the first new police station to be built by Northumbria Police Authority for Northumbria Police in ten years. With the capital resources in place, and through careful financial planning, the Authority was able to buy the land in October 2006. Work began on the site in April 2009 and on 8 November 2010 the building became operational.

The structure of the building is almost entirely concrete, used in its many forms, with the cladding cell enclosure units all precast. After prolonged discussions with Ryder Architects and other members of the design team, Techrete secured the trade contract for these precast elements, which entailed the reconstructed stone cladding to both the main building and cell external walls and ancillary work such as the boundary wall and garage.

This was a very successful project which has already been awarded the LABC Northern Region Building Excellence Award.

Guide to flexibility

Whilst the NHBC Foundation's guide titled "Part L 2010 – where to start: An introduction for housebuilders and designers" serves as a useful guide, the examples of wall constructions it includes are described as being "representative approaches" only with the intention "very much to allow builders flexibility in how they might choose to comply".

So what other approaches merit consideration as alternatives to the examples of brickwork?

Architectural precast concrete has been used for many decades to clad new buildings in the UK. Its full potential in terms of appearance and quality are increasingly being recognised as evidenced, in particular, by many of high-rise residential developments that have recently appeared and continue to be built in our cities. With an almost limitless choice

of shapes and sizes, colour and textures, finishes and facings, architectural precast concrete is a very versatile cladding material. It is also inherently robust, durable and fire resistant and its density additionally provides efficient and economic acoustical insulation. As importantly, it is a sustainable cladding solution.

The manufacture of precast panels takes place in low energy, resource efficient and low waste production facilities, managed and staffed by a skilled and innovative workforce. Quality management systems ensure that high standards of craftsmanship, both visually and dimensionally, are consistently achieved. Panels, which may also include off-site framed and glazed window apertures, are then delivered on a just-in-time basis for hoisting directly to their final fixing positions in order to avoid the needs for double-handling and temporary storage at site. Methods for their safe and

efficient installation at site are not usually dependent upon the need for an external scaffold. Although sometimes overlooked by environmental modelling, these efficiencies also serve to reduce the impacts of the construction process.

So how do architectural precast cladding panels comply with Part L 2010?

Storey-height precast concrete wall cladding panels are typically 150mm thick and can be delivered to site with insulation fixed to their back face in order to enhance their thermal performance. A 60mm thickness of insulation with a lambda value of say 0.022W/mK would correspondingly be sufficient to achieve a "U" value of 0.28W/m²K.

Alternatively, the cladding panel may include the insulation as a core between two wythes of concrete in the form of a sandwich panel. Although a sandwich panel is marginally thicker overall, its inner concrete wythe contributes to the thermal mass of the building thereby helping reduce peak heating and cooling loads. This inner wythe may also be designed as a load-bearing element in the structural frame of the building.



A landmark building

The new office development at Woodcock Street is the largest by Birmingham City Council for over 100 years. Boasting a host of energy-saving features, it has 20,000m² of floor space spread over five floors and will accommodate more than 2000 city council staff, who are due to move in from November 2011 onwards. With its main entrance opening out onto Woodcock Street, it has been designed to raise the standard of what has been conventionally expected of local authority office accommodation.



The building is arranged in three main blocks around two central full-height atria to the rear. The main services core runs the full length of the building, with a double-height 'street' at ground and first floor to the front, and two secondary full-height atria to the front elevation.

The building is designed to be rated as 'Excellent' according to British Research Establishment Environmental Assessment Method (BREEAM, 2006) standards and to have a B Energy Performance Rating.

The ACA's newest recruit, Thorp Precast, has been responsible for the detail design,

manufacture, delivery and installation of more than 300 precast panels for the external facades. Faced with 1500m² of Jura limestone, 2800m² of stack-bonded 440mm-long modular clay bricks and 300m² of granite, the panels were installed to meet the demands of a fast-track programme without the need for external scaffolding, while simultaneously giving excellent value for money. The use of natural stone in both the exterior and piazza and the landscaped area to the front of the building exhibit both quality and sustainability,

The precast cladding panels were delivered on a just-in-time basis to suit site progress for offloading and installation to minimise any need

for double handling or temporary storage.

The use of large panels weighing up to 24 tonnes significantly cut down on the number of units to be fixed to the primary structural frame which in turn dramatically reduced overall construction programme. All panels were installed using a mobile crane by one four-man fixing gang, generating little or no site wastage.

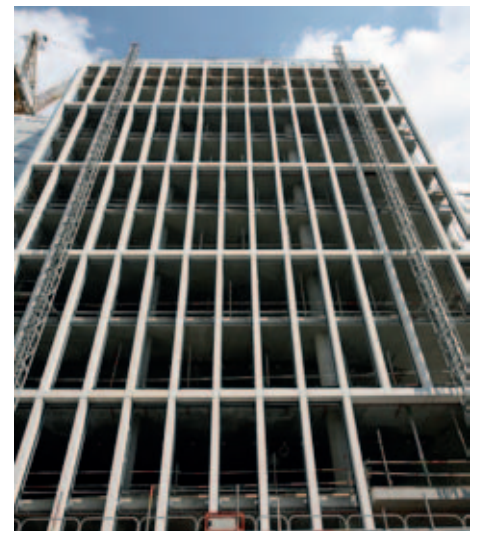
Featuring seven sustainability features ranging from combined heating and power (CHP) through to rainwater harvesting, the Woodcock Street development is said to be the most environmentally friendly council building ever commissioned.

Designing to a T – and a U

Number 10 East Road is a large mixed-use scheme located just north of the Old Street roundabout in central London. In addition to office space, it comprises accommodation for 680 students, a 238-room hotel and ground-floor retail units.

Designed by Lifschutz Davidson and being constructed by Ardmore, its 11-storey hotel block features reconstructed stone precast concrete units for its external cladding in the form of vertical fin and horizontal spandrel sections. Design, manufacture, delivery and installation are by The Marble Mosaic Co Ltd.

To determine the most cost-effective solution, a number of panelisation schemes based on larger units were considered to reduce the number of units to be fixed and so minimise the on-site installation period and demand on the limited availability of site crange. This resulted in a U-shaped precast concrete unit, consisting of two 7.2m double-storey fins connected by an 1250mm-wide spandrel section, alongside an inverted T-shaped unit with a double-storey fin and two spandrel sections. These units were designed to be suspended from the intermediate floor levels using CFS's Facing Panel Anchor system. They were cast using a concrete mix with crushed Dolomite stone and white cement with lightly textured sparkling white acid-etched surface.



When awarded the subcontract in September 2010, Marble Mosaic's Stephen Maddalena said "We are delighted for the opportunity to extend our working relationship with Ardmore Group following the successful completion of Building D at St George Plc's Imperial Wharf development". Incidentally, Ardmore has since awarded the company the precast cladding contract for Building J2 at St George Plc's Chelsea Creek scheme in London.

May the force be with you

Carillion are nearing the completion of another building for Ask Goodman at Central Park in Manchester. Designed by Aedas, it will house the new divisional headquarters for Greater Manchester Police.

From the outset, Aedas's vision for its external cladding was one of crisp, clean and consistent panels, simply detailed and manufactured to a high standard, to grace the building's external facade. This has been achieved using precast concrete units, typically in the form of storey-height wall panels and grid-width spandrels, cast using a concrete mix of crushed Dolomite

stone and white cement and finished by acid-etching to achieve a lightly textured surface and a sparkling white appearance.

The detail design, manufacture, delivery and installation of the precast cladding panels was carried out by The Marble Mosaic Co Ltd in accordance with the recommendations of



BS8297:2000. They were delivered with insulation factory-fixed to their back faces to enhance thermal performance and on a 'just in time' basis to avoid site congestion. With the precast cladding totalling 2125m², some 370 panels weighing up to 5 tonnes each were produced with the company also providing crange for installation on site.



A product association of
British Precast

Architectural Cladding Association

60 Charles Street,
Leicester LE1 1FB.
Tel: 0116 253 6161
Fax: 0116 251 4568
www.architectural-cladding-association.org.uk

Member Companies

Decomo UK Ltd,
180-186 Kings Cross
Road,
London, WC1X 9DE.
Tel: 0207 689 8058
www.decomo.be
Contact: James
Donington.

*The Marble Mosaic
Company Ltd*
Winterstoke Road
Weston-super-Mare,
BS23 3YE.
Tel: 01934 419941
www.marble-mosaic.co.uk
Contact: Stephen
Maddalena.

Techrete (UK) Ltd,
Warren Court, Feldspar
Close, Warren Park
Way, Enderby,
Leics, LE4 5SD.
Tel: 0116 286 5965
www.techrete.com
Contact: David Kennell.

Thorp Precast Ltd,
Apedale Road,
Chesterton, Newcastle-
Under-Lyme ST5 6BN
Tel: 01782 561155
www.thorpprecast.co.uk
Contact: Harvey Thorp.