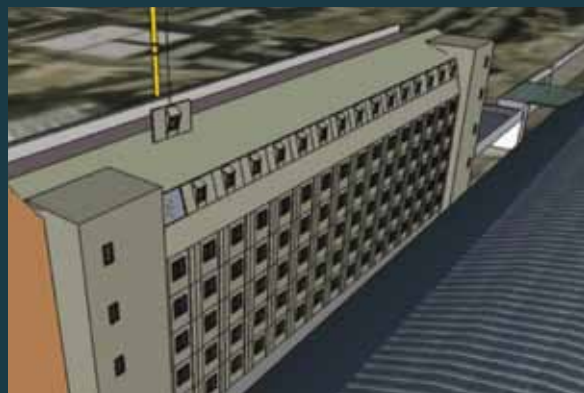




CGIs: Lakesmere



Left: The panels were pre-fitted with fixing brackets and windows and factory clad in sustainable, natural zinc to sympathetically blend with the original building.



Left & below left: Up to four mansard (roof) or 12 flat wall panels came in at a time by low loader in planned construction sequence. The panels were carefully craned into position over the top of the building, lowered and then secured to the steel frame using a minimum of fixings.

Above (both): Lakesmere translated the Architect's drawings into a 3D animated model of the site area so that every aspect – such as site access, deliveries and positioning of the mobile tower crane – could be identified and planned to the smallest detail before arriving on site.

Below: Lakesmere installed one wall panel every thirty minutes – around six times faster than traditional methods of insulated wall construction.



project's insurers, fire proof board was added around the edge of the SIP. The panels were then pre-fitted with fixing brackets and windows and factory clad in sustainable, natural zinc from supplier Roles Broderick to sympathetically blend with the original building.

Lakesmere collaborated with Architects RHWL and English Heritage to establish the critical 'traditional' details that were appropriate to complement the listed building. For example, English Heritage specified the width of the trays between the vertical, crimped, standing seams in the zinc cladding. Sample panels – almost full size – were provided for approval.

The company had to work with an existing steel frame structure, as constructed by Laing O'Rourke. "It's not unusual for us to be presented with a steel design and to have no input," says Lakesmere's Business Development Manager Brent Tyrrell. "But we surveyed the steel frame very thoroughly to give a clear idea of what our product would have to cope with."



Photos: Lakesmere

Right: Twenty two roof panels incorporating dormer windows were craned into position on the western elevation in just three days.

Far right: Due to the method of construction, the joining seams between the panels were slightly wider than the other vertical seams. This created an extra 'feature' that had to be approved by English Heritage as it had not appeared in the original concept.



Photos: Lakesmere

Right & far right: Lakesmere installed a total of 126 modular panels, covering 1,800m² of facade. The whole cladding operation was carried out in the time it would normally take just to erect scaffolding.

The pre-fabricated method of installing the wall cladding increased safety and reduced the potential damage to the adjacent structures at the very busy, tight St Pancras site. In addition, the control offered by factory manufacture provided significant improvements to quality, resulting in far greater programming certainty. However, delivery and installation of the panels still presented several logistical challenges that required very close coordination with the Galliford Try Site Team – in particular Idris Foster-Edwards, who was responsible for the package.

Lakesmere translated the Architect's drawings into a 3D animated model of the site area so that every aspect – such as site access, deliveries and positioning of the mobile tower crane – could be identified and planned to the smallest detail before even arriving on site.

Up to four mansard (roof) or 12 flat wall panels came in at a time by low loader in planned construction sequence. The panels were carefully craned into position over the top of the building, lowered and then secured to the steel frame using a minimum of fixings.

Lightweight dry construction methods of installation provide a watertight envelope much faster than traditional methods. At St Pancras, Lakesmere

installed one wall panel every thirty minutes – around six times faster than traditional methods of insulated wall construction. Twenty two roof panels incorporating dormer windows were craned into position on the western elevation in just three days. Lakesmere installed a total of 126 modular panels, covering 1,800m² of facade. The whole cladding operation was carried out in the time it would normally take just to erect scaffolding.

St Pancras was a milestone for Lakesmere. "It was the first time we had prefabricated a panel that could be hoisted straight up onto a wall," says Brent Tyrrell. And, as a direct result of the West Wing project, Lakesmere and Hemsec have been able to develop a new modular product called Thru-wall. This is an entirely new SIPS concept, in that it provides an off-site roofing and cladding solution incorporating industry standard external finishes. Thru-wall has been recognised by the prestigious Construction News Awards, becoming the first ever winner of the new Product Innovation category.

The successful outcome at St Pancras clearly demonstrates the many advantages of off-site manufacture. It is also testament to the good working relationships between all concerned. As Brent Tyrrell says: "Off-site solutions can only happen in a collaborative spirit." ■



"IT WAS LIKE PLAYING THE COMPUTER GAME 'DOOM'! ALTHOUGH WELL MANAGED AND SAFE, THE SITE WAS DARK, COLD AND INHOSPITABLE. THERE WERE ENDLESS CORRIDORS, WITH DEMONS AND GARGOYLES MEETING YOU AT EVERY TURN."
DEREK GALLOWAY, MD OF INTERIOR FIT OUT SPECIALISTS MARTEK

"It was like playing the computer game 'Doom'!" That's how Derek Galloway, MD of interior fit out specialists Martek describes his first experience of the St Pancras Chambers site. "Although well managed and safe, the site was dark, cold and inhospitable. There were endless corridors, with demons and gargoyles meeting you at every turn."

There were indeed many challenges ahead for the company given the task of fitting bathrooms in a building that had been designed and constructed before the advent of the flushing toilet.

Martek is a bespoke joinery and interior fit out contractor with a diverse range of manufacturing facilities at their New Addington production site in Surrey. This off-site capability made them an ideal choice for the St Pancras project. In addition, Martek had previously worked with Simon Frawley on a prestigious £150m residential project for St James Homes at Kew. At St Pancras they were originally contracted to work on the residential areas but then,

having proved their credentials, they received a further £2.3m package for the hotel areas.

The services to the bathrooms were already in place when Martek arrived on the site in April 2009 and these, to a large extent, determined room layout. It had been difficult enough for Galliford's teams to "shoe-horn a modern heating and ventilation system into a building that is 150 years old," as Derek Galloway puts it. However, in April 2010 a decision was made to upgrade the hotel specification. This meant accommodating more baths and showers. Martek had to suggest modifications to the services and were also asked to provide detailed design drawings for the upgrade, leading to practical construction solutions for all the bathrooms.

The Grade I listing dictated that attachments to the original structure should be kept to a minimum. This meant, for example, that there could be no tiling of the original walls. Therefore, for each room, a pod – 'room within a room' – had to be individually cont...

Above & right: Room pods – 'rooms within rooms' – during construction and completed. Note that the false walls are not attached to the ceiling. In the example on the right, the bathroom is situated behind the partition that forms the headboard for the bed.



Photo copyright Martek Contracts



FACTS AND FIGURES

COMPANY NAME

Martek Contracts

CORE SERVICES

Joinery, solid surface fabrication; high quality finishes.

PROJECT ASPECT(S) WORKED ON

Residential and Hotel.

CONTRIBUTION TO PROJECT

Supplied and fitted bespoke bathrooms, shower rooms, separate toilets and en-suites in all 66 residential apartments – a total of 116 bathrooms. Supplied and fitted 33 bathrooms in main (Chambers) Hotel and 18 bathrooms in Barlow House Hotel. Also fitted out 2 bathrooms unsuitable for pre-fabricated pods in the new West Wing. Specialist joinery and fit out in all 'Heritage rooms' – key bedroom suites – including 'Presidential' and 'Stairs' Suites; fit out of public area toilets and Gents Grooming Salon.

NUMBER IN INSTALLATION TEAM

Average 20 – joiners, tilers, plumbers, electricians and decorators – plus Project Manager Natalia Burda; Contracts Director Steve Ivin and 2 Site Managers: John Carroll (Residential) and Spencer Jeff (Hotel).

FURTHER INFORMATION

www.martek.co.uk



Photos: Copyright Martek Contracts

Photo: Janina Holubecki

Above: At the quarry in Italy, the team's challenge was to select marble for each individual room back at St Pancras.

Inset: A block of marble at the quarry with an area polished off to aid selection. (This sample was thought to have too much veining so another source had to be found.)

Left: A number of elements - such as the Gents Grooming Salon - were made at Martek's off-site production facility.

Top left & right: Finished Hotel bathrooms. Martek supplied and fitted 116 bathrooms.

constructed on site. The walls of the room pod could then receive any surface treatment.

Subsequent on-site work included application of wall tiles; installation of floor tiling (incorporating heat pads); connection of sanitary ware pipe-work to main service risers and joinery for all the bathroom cabinets.

In spite of the individual nature of the rooms in the listed building, there were some repetitive elements in the bathrooms and other areas that Martek were able to manufacture off-site. These included some pieces of joinery; the Gents Grooming and vanity units; niche shelving and bench seating. Off-site manufacture ensured a consistency of quality, together with all the other benefits of off-site – such as less site impact and less waste. All the timber used was FSC certified.

The bathrooms in the hotel were tiled with Arabescato Faniello marble, imported from Northern Italy. At the quarry, the team's challenge was to select marble for each individual room back at St Pancras.

Grade I listing and hotel upgrade aside, the old building still had plenty of tricks up its sleeve. "The architects couldn't possibly foresee all the structural issues at the outset. As work progressed, discoveries were made that forced alterations to the original designs," explains Project Manager Natalia Burda.

With the programme changing on a weekly basis, she says that a very good working relationship with Galliford Try helped her team to overcome the site's challenges. The most helpful activities were the site walks and workshops with the Design Team – enabling them, room by room, to highlight problems and plan ahead. These were carried out once a week with Galliford Try and almost daily with Martek's own sub-contractors towards the end of the project.

"All the Martek staff who worked on St Pancras have moved forward," says Derek Galloway. "The project has helped them learn about Health and Safety, project management and working in a very complex environment." On the technical side, Martek used a lot of marble at St Pancras and he is positive about the benefits. "We understand marble a lot better now – especially some of the jointing systems and processes."

Perhaps most useful of all, the project allowed Martek to test their logistics. "You can't just turn up in a van!" he says. "Planning had to be first-rate."

Though some of the challenges were enormous, Derek Galloway thinks that working on a project with as much kudos as St Pancras Chambers is good for everyone involved. ■



"IT WAS QUITE DAUNTING TO THINK THAT WE HAD TO WORK ON 500 DISMANTLED FIREPLACES WITHOUT GETTING THEM MIXED UP OR LOST!"

CHRIS GLADWELL, CONTRACT MANAGER
PAYE STONEMWORK & RESTORATION



PAYE's specialist knowledge of construction techniques and materials used in historic structures has been put to good use on many important buildings: for example, the Tower of London and Houses of Parliament. They had worked with Galliford Try before on The Grove Hotel, Watford and 68 King William St. London. Being specialists in the adaptation of historic buildings, PAYE were a natural choice for St Pancras.

St Pancras is one of Chris Gladwell's favourite London buildings. His first impressions of this "Cathedral to the railway" were that: "The stone was in pretty good condition. It seemed to have survived the neglect quite well. However, there were some exceptions: for example, grooves had been carelessly cut into some columns to accommodate a suspended ceiling." Chris was also dismayed to discover that some of the most elegant columns, made from Connemara Green and Cork Red polished limestone, had been covered with beige paint!

In terms of logistics, the most challenging conservation task was the dismantling and subsequent re-assembly of the hotel's stone fireplaces. These had to be removed to allow EMCOR – PAYE's principal interface – to install services and extractor fans and flues in the chimneys. Raised floors were also installed, accommodating services underneath. In their new, raised positions, the fireplaces are supported by stainless steel corbel brackets.

"It was quite daunting to think that we had to work on 500 dismantled fireplaces without getting them mixed up or lost!" says Chris. For each fireplace, a schedule of work was agreed between PAYE and Architects RHWL. To make tracking the fireplaces easier, they were kept as near as possible to their original location. This also minimised lifting and moving. (Due to the complexity of the St Pancras project, an English Heritage-driven 'Heritage Tracker Document' logged where every piece of original stone was at all times.)

Above & right: PAYE carried out the internal stone cleaning and repair, shown here on the Grand Staircase and corridors in the residential apartments.



FACTS AND FIGURES

COMPANY NAME

PAYE Stonework & Restoration

CORE SERVICES

The cleaning, conservation and repair of the fabric of historic buildings.

PROJECT ASPECT(S) WORKED ON

Residential and Hotel (Chambers building).

CONTRIBUTION TO PROJECT

Specialist knowledge of construction techniques and materials used in historic structures. Removal of stone mullions from some windows to create apertures for hoists (later reversed); repair and restoration of fire-damaged stone screen in entrance foyer/Gilbert Scott Lounge Bar; internal stone cleaning and repair, including the dismantling and re-assembly of 500 stone fireplaces.

NUMBER IN INSTALLATION TEAM

Contract Manager Chris Gladwell; Site Manager Andrew Kennedy plus a maximum of 20 experienced operatives: Carver Masons (2-3), Fixers (up to 8), Cleaners (4-5) and Restorers (2-3).

FURTHER INFORMATION

www.paye.net



Above: With nothing but this postcard-sized picture as a guide, PAYE staff had to lay out the remaining pieces of the burnt screen and then recreate it in AutoCAD (detail below).



Photo: Janina Holubecki



Photo: Janina Holubecki



Above: Detail of stonework showing cleaned area. Trials and samples were essential to see what would work.



Photos: PAYE Stonework & Restoration

Above (both): It was difficult to find an alternative for the Cork Red limestone featured on the original screen. However, after inspecting several blocks of Kerry Red in Irish quarries, one of the correct colour was eventually found.

PAYE staff had to lay the remaining pieces out and then draw the new screen in AutoCAD. From a few original fragments, they created moulds and templates, which were sent to their stone carving workshops in Chippenham. Carving took 8-10 weeks, and the work was checked regularly. Exemplars of every detail – flowers, gothic capitals, scroll ends – were produced and these all had to be signed off. Most of the original screen had been too badly damaged by the heat to be re-used. Therefore, apart from a few fragments of the capitals, which could be retained and indented, the screen was made of new stone.

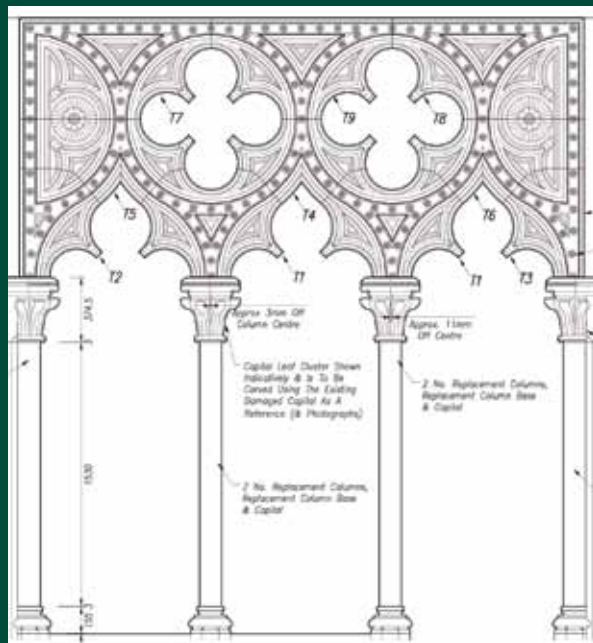


Photo: Bob Ryan/Galliford Try



Photos: PAYE Stonework & Restoration



Top: PAYE received a commendation in the Natural Stone Awards 2010 for the quality of workmanship on the restored screen.

Middle: Carving in progress.

Above: A structural relieving arch above the screen was used to support the weight of the screen components as they were lifted into place.

Middle: Fireplace before restoration. They all had to be removed to allow services, extractor fans and flues to be installed in the chimneys.

Above: Cleaning of stone fireplace. PAYE dismantled and re-assembled some 500 stone fireplaces!

Cleaning of most of the internal stonework, including the Grand Staircase, was carried out using the JOS/TORC technique. The JOS system uses a low pressure vortex of air, inert calcite powder and relatively small quantities of water. The calcite cleaning medium, being softer than the stone itself, removes dirt without damaging the stone. To remove the beige paint from the polished limestone columns, sodium hydroxide poultices were applied, covered with cling film and left for 24 hours. The softened paint debris could then be scraped off. Chris says that, when cleaning stone, trials and samples are essential to see what will work.

Before Galliford Try took on the hotel restoration project, an internal fire extensively damaged the gilded stone screen in what is now the Gilbert Scott Lounge Bar. Chris Gladwell recalls his first encounter with what was left of the screen: "We arrived after the fire to find the charred fragments of the screen. It was like a big jigsaw puzzle, where half the pieces are missing and the others are broken. And we had nothing but a postcard-sized picture as a guide for recreating it!"

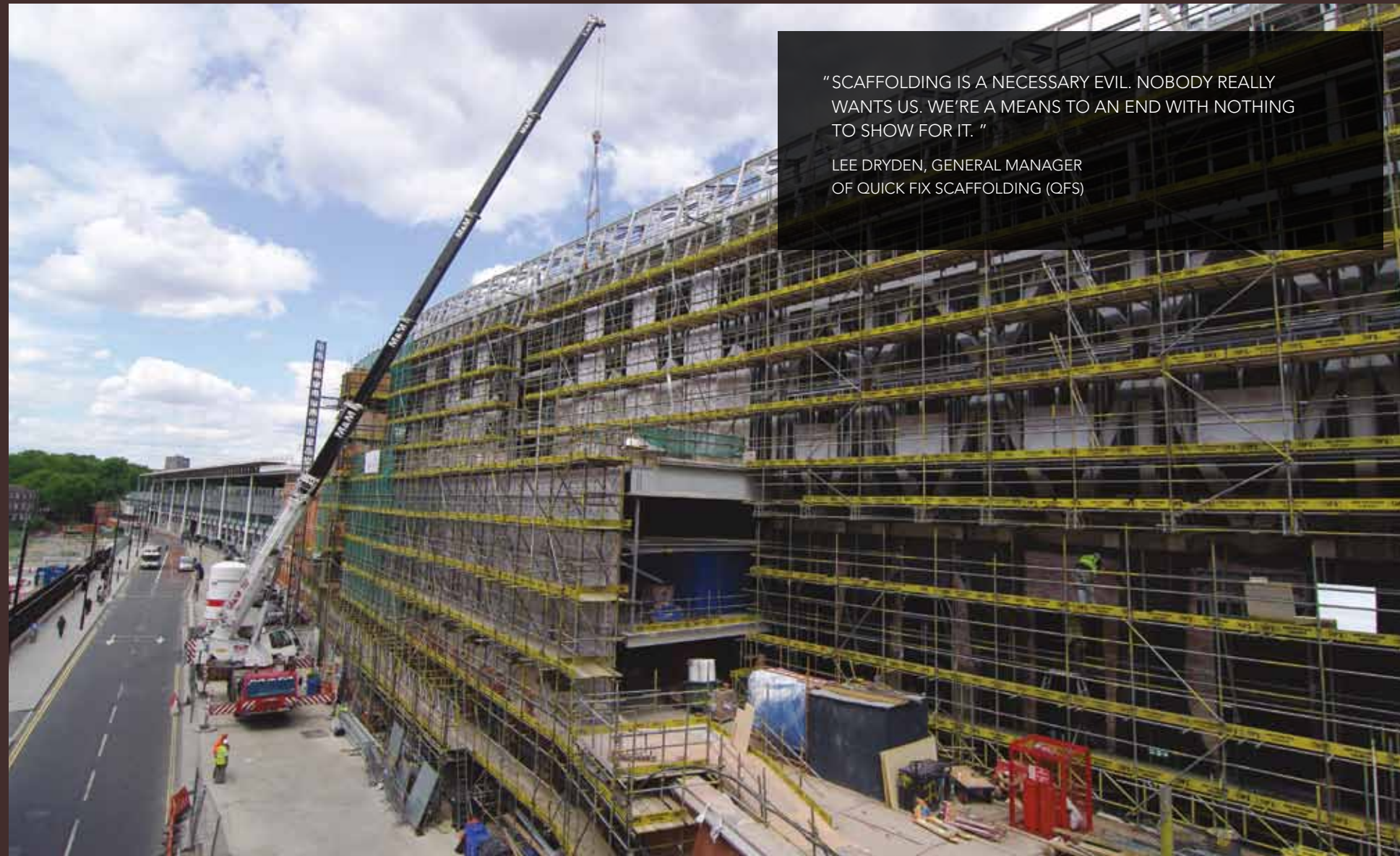
One of the main challenges presented by the St Pancras stonework restoration was finding replacements for materials that are no longer available. For example, the screen's original columns were of very rare Cork Red limestone. It was difficult to find an alternative for this as the closest modern alternative, Kerry Red, tends to be more brown than red. However, after inspecting several blocks of this stone in Irish quarries, one of a reddish hue was eventually found to be a close match.

The Kerry Red limestone columns were subsequently carved in situ in Ireland. This off-site manufacture greatly reduced the volume of stone that needed to be transported to the site, making the process more sustainable. Furthermore, the accuracy of the CAD drawing ensured a minimum of waste when carving.

With each column weighing 400kg, installation of the new screen also proved challenging. The components of the new stone screen had to be inserted into the existing stone frame. This problem was elegantly solved by utilising a structural relieving arch above the screen. The infill was taken out to create a gap and the arch could then support the weight of the components as they were lifted into place. PAYE received a commendation in the Natural Stone Awards 2010 for the quality of workmanship on the screen. ■

Right: Scaffolding for the construction of the West Wing; Barlow House roof works.

Below: Hoist arrangements and scaffold around the Penthouse on the Euston Road elevations.



"SCAFFOLDING IS A NECESSARY EVIL. NOBODY REALLY WANTS US. WE'RE A MEANS TO AN END WITH NOTHING TO SHOW FOR IT."

LEE DRYDEN, GENERAL MANAGER OF QUICK FIX SCAFFOLDING (QFS)



Photo: Paul Bourne, QFS

"Scaffolding is a necessary evil. Nobody really wants us. Unlike brickwork and other finishes, we're a means to an end with nothing to show for it," says Lee Dryden, General Manager of Quick Fix Scaffolding (QFS). However, the complex scaffolding solutions employed by QFS at St Pancras Chambers actually demonstrated as much attention to detail as the painstaking building conservation work they enabled.

QFS had previously worked with Galliford Try on several other projects. Combined with experience of other prestigious 'heritage' projects, such as Marlborough House and Windsor Castle, this track record made them a natural choice for St Pancras.

Being sole supplier meant that all other contractors working on the project used QFS scaffolding. Liaison with other trades was therefore a key task: QFS had to deal with 25 Galliford Try Package Managers across the site. Excellent communication between all parties was of the utmost importance.

Because of the complexity of the site and the frequently changing programme, QFS set up a permanent office at St Pancras for the duration of the project and were allocated a storage area, where a large stock of materials could be kept on site – almost equivalent to having a second yard. This enabled them to respond very quickly to the other contractors' changing needs, thus minimising down-time.

Right: At its peak, the project required 40 QFS operatives working seven days a week on the various elements, both internal and external.



Photos: Paul Bourne, QFS



FACTS AND FIGURES

COMPANY NAME

Quick Fix Scaffolding (QFS)

CORE SERVICES

Scaffolding ('Providing safe access and egress solutions').

PROJECT ASPECT(S) WORKED ON

New build and listed building; internal and external. (Sole suppliers of scaffolding.)

CONTRIBUTION TO PROJECT

Erected scaffolding for all other contractors to gain access to work areas. Used 250,000 ft of scaffold tube and 150,000 scaffold fittings. Carried out 200+ 'Toolbox Talks' for own and other operatives. Delivered 109 hours of on-site training. Underwent 75 external Health & Safety audits.

NUMBER IN INSTALLATION TEAM

Generally 25-30 on site; 40 maximum. Senior Supervisor Paul Bourne; Senior Foreman Brian Clarke; Junior Foreman Carl Byford. Contracts Manager Anthony Noble visited the site twice a week or more.

FURTHER INFORMATION

www.quickfixscaffolding.com

“Scaffolding isn’t as generic as people think,” says Paul Bourne, Senior Supervisor at St Pancras. “We had to keep a very wide range of materials on site – much wider than for any other project – with many non-standard items, particularly load-spreaders.”

QFS are justifiably proud of their commitment to Health and Safety (H&S). They use only qualified staff and maintain very high standards of training and supervision. Rather than police themselves, they have chosen to use an independent H&S Auditor – Film set specialists Media Safety, – considered to have particularly stringent standards. The twice-monthly audits are unannounced and a report is sent to the main contractor, in this case Galliford Try. Lee Dryden believes that this commitment “makes us stand out in an industry where it’s so easy to cut corners”.



Photo: Paul Bourne, QFS

Above left: Scaffolding and hoists on the main elevation facing Euston Road.

Below & below left: The podium floor slab’s low loading value meant that the scaffold for the West Wing brickwork had to be trussed out, using double alloy beams supported by a large ‘horse’ in the undercroft. A typical section scaffold design is shown below.

After consultations between QFS Scaffolding, Arup, Newton Design and Galliford Try it was calculated that the steel structure of the West Wing would have to take the brunt of the scaffold loads as the Podium was not capable of supporting such a high load.



Photo: Paul Bourne, QFS

Below: As an alternative to drilling holes in the listed building, window openings were used to tie the scaffold instead.



Photo: Bob Ryan/Galliford Try

Left: When working on windows, a small exterior ‘truss-out’ was supported internally by a much larger ‘horse’. The exterior structure had to have netting, so the design of the internal structure also had to allow for wind loading.

Inset: To prevent accidental damage while moving many tons of scaffolding material around the site, plastic caps were used on all tubes that came into contact with the building.

Due to the structural peculiarities of the old building, the floor loading values given by the Engineer were very low – 5 kN (kilonewtons) per square metre. The erection of a standard birdcage exceeded this value. Thus, intelligent design solutions to spread the load were called for.

There was no data available on loading values for the prestigious Grand Staircase, so the only solution was to design a structure that placed virtually no load on it at all!

Erecting scaffolding for the brickwork of the new-build West Wing turned out to be far from straightforward, due to the low loading value for the Podium floor slab. The roofing contractors required their scaffolding to be erected promptly – but gaps then had to be made in the structure retrospectively to enable the bathroom pods to be craned in.

NASC guidance prescribes a tie pattern to secure scaffolding. However, the Architect and English Heritage did not want ties installed where the guidelines indicated. In order to comply with scaffolding guidance, QFS utilised previously installed drop-in anchor ties. These old ties were first pull-out tested to ensure they were safe to be used. Another solution was to use window openings to tie the scaffold, as opposed to drilling more holes in the listed building. Only as a last resort were new holes drilled and this process had to be agreed with the Architect, English Heritage and Camden Council.

Lee Dryden had always known that the St Pancras project would involve careful working, time constraints, access and egress problems and frequent programme changes. But he was confident that QFS had the ability to constantly review, re-structure and rearrange their activities accordingly. This flexibility, combined with excellent communication between the Galliford Try Team and their contractors, was a key factor in the success of the project. ■

SCHEME ARCHITECTS
RHWL

In the mid 1990s, architects RHWL had led the design team which won a London and Continental competition for the redevelopment of St Pancras Chambers. As a Grade 1 listed heritage building, it was a real challenge successfully to both restore the original fabric and create a 5-star Hotel for clients Manhattan Loft Corporation (MLC), London Continental Railways and Marriott Hotels.

A critical success factor has been the vision and drive of Harry Handelsman, MLC's founder, and the creativity of his professional advisers, including RHWL Architects, Richard Griffiths Architects, Aecom (services), Arup (structural engineers) and Gleeds (project management). MLC's Royden Stock (now the Hotel's resident historian and guide) and their clerk of works Brian Duffus were instrumental to the project's success.

John Simpson was RHWL's Director in charge of the restoration from 2005 to 2011. He recalls that each element was different – there were some twenty types of cornice, for example. He also recalls unexpected discoveries: although condition surveys existed, areas being 'soft stripped' often revealed features requiring specialist conservation or repair works, e.g. plasterwork or panelling.

The complexity of restoration is illustrated by Geoff Mann, retired RHWL Director:

"We'd scrape off a layer of paint and find six more underneath – so which one counted as original?" Les Broer worked on the first designs as RHWL's design team leader in 1997 and was key in the 2004 planning application to Camden. The original planning and Listed Building Consent application ran to some twenty three A3 volumes.



Photo: Tim Crocker



"IT IS A REAL ACHIEVEMENT AND AN ACCOLADE FOR ENGLISH CRAFTSMANSHIP. I THINK IT LOOKS AMAZING."
HARRY HANDELSMAN, FOUNDER, MANHATTAN LOFT CORPORATION.

Above: Main Hotel lobby following restoration.

Above left: Residential apartment in the Clock Tower.

Left: Heritage corridors in the listed building, before and after restoration.

Right: Grand Staircase - before and after restoration.

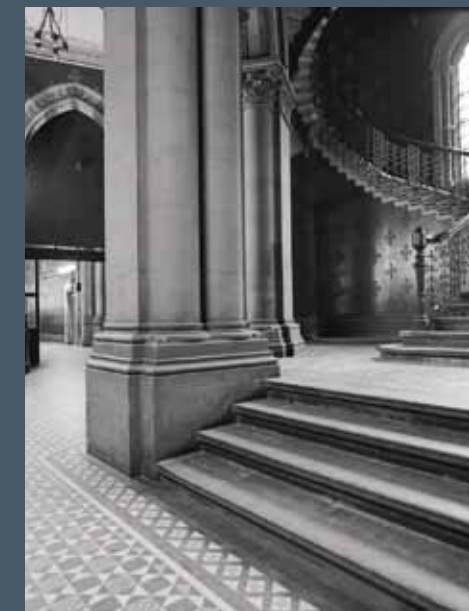


Photo: Tim Crocker



RHWL's intention was to create contemporary spaces whilst preserving the building's character. It was vital to preserve the fabric and existing volumes.

"The interventions are contemporary in design and do not compete with the historic", says Les. "Instead of demolition, there is restoration, re-creation, and sensitive intervention."

For example, on the upper levels, roof trusses have been revealed as a feature and mezzanines have been inserted to create two- and three-level apartments.

Jane Hilling was Site Architect for the project's duration. As English Heritage's 'approved supervisor', Jane's early work involved condition surveys of fireplaces, doors and windows. Quantifying and recording the work required for 500 doors was, according to Jane:

"A major task – not least as it had to be done in such a way that a quantity surveyor and the supply chain could give a firm price!"

Jane stresses the importance of regular, open dialogue with English Heritage, Camden Council and the client, and developing a positive and trusting relationship; one benefit being to allow part of the adjacent British Library land to be deemed 'part of the site' for the purposes of storage. Jane explains:

"This relaxation enabled the storage of stone and fireplaces which, in turn, freed up space in the main Chambers building."

English Heritage became confident about the team's sensitive approach as the contract progressed, and this enabled Jane to sign off 'day to day' method statements, saving valuable approval time.

Fire compartmentation was a key issue. Whilst an innovation in 1870, the Moreland floor construction did not meet modern day fire protection standards. To safeguard the original decorations and heritage plasterwork, a combination of a high pressure mist sprinkler system and intumescent paint spray-applied over the lath and plaster ceilings was agreed.

Above: Main Hotel entrance following restoration.

Top right: Grand Staircase - before and after restoration.

Middle: Heritage rooms in the listed building – one is now a celebrity restaurant. Shown before and after restoration. The line on the wall denotes the location of suspended ceilings for British Rail's offices!

Right lower: Ladies' Smoking Room - before and after restoration.

John Simpson describes the decision to use chimney flues for air movement to kitchens and bathrooms as "a major breakthrough", though they were not prepared for the significant number of flues blocked by dead pigeons and builders' rubble from the roof repairs in the 1990s. Rodding and radar surveys were used to clear most flues; in one case, a transistor radio was tied to a piece of string and lowered down the chimney to locate the blockage audibly!

John Simpson recalls the "unforgiving" structure of the existing building, especially in relation to the services strategy. The building's major shortcoming was a lack of toilets – and modern plumbing, lifts, wiring, heating and ventilation had to be installed.

"Wet services and drainage to the hotel and apartments were fundamental issues," affirms Jane Hilling. "We had to establish zones where service

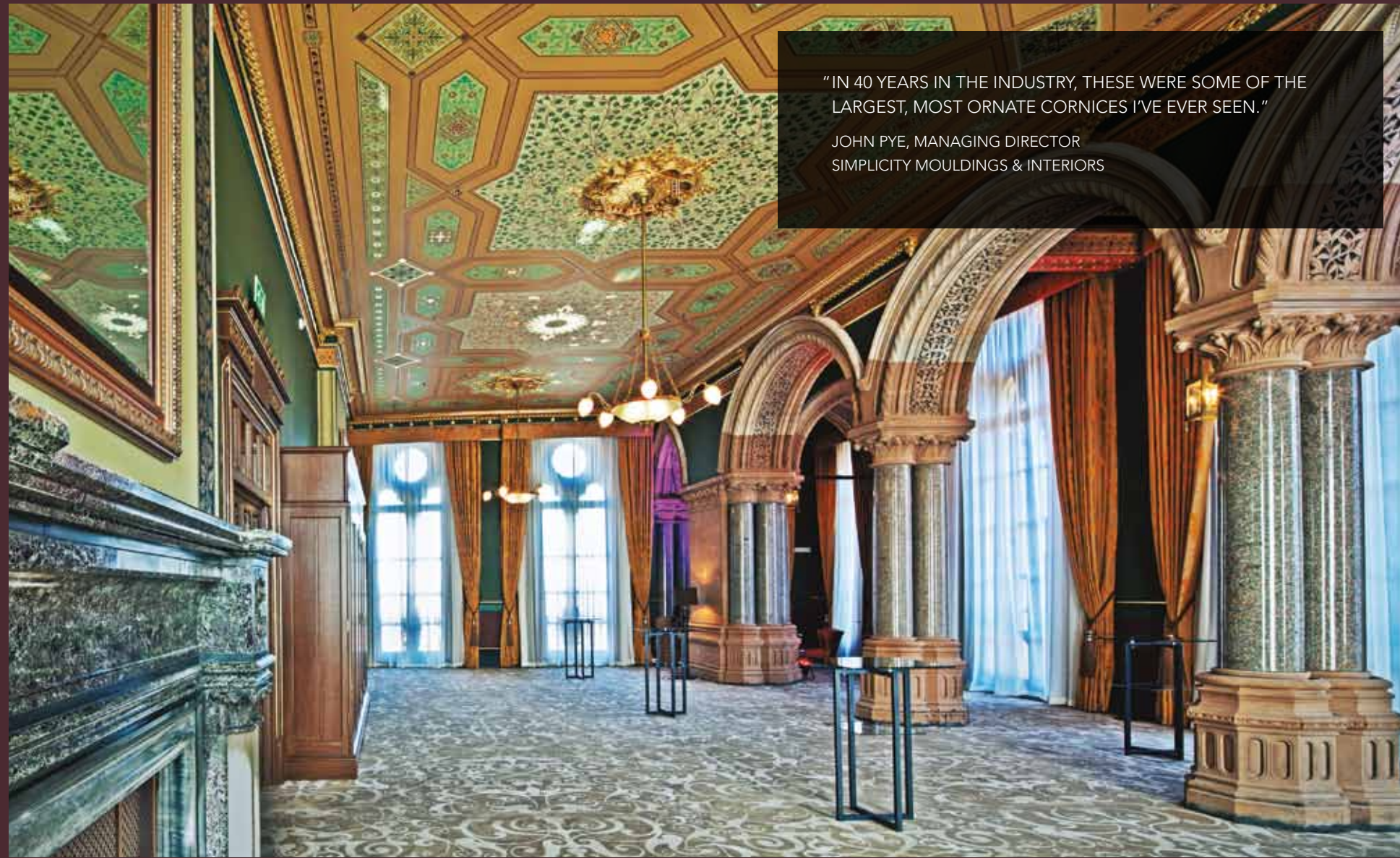
routes could run, and it was these paths that dictated parameters for builders' work."

St Pancras is clearly a restoration project that Jane is very proud of. The transformation is so notable that she would like to have left, somewhere, a single room completely untouched – in its original distressed state. "If today's paying guests could witness the true extent of the refurbishment work done, they would be even more amazed by what we have all achieved."

Manhattan Loft Corporation's founder, Harry Handelsman had asked the question: "Do we still have the talent to do this?" He now firmly says the answer is yes. "It is a real achievement and an accolade for English craftsmanship. I think it looks amazing." ■



Photo: Tim Crocker



"IN 40 YEARS IN THE INDUSTRY, THESE WERE SOME OF THE LARGEST, MOST ORNATE CORNICES I'VE EVER SEEN."
JOHN PYE, MANAGING DIRECTOR
SIMPLICITY MOULDINGS & INTERIORS

Managing Director John Pye summarises the work his company did at St Pancras: "If it was there before in plaster, we put it back." However, this was a job quite unlike any other that the Simplicity Plasterers had encountered.

Simplicity had a brief to "save everything possible that can be saved". And not only was the scope of the job immense, but the decorative plaster features themselves had been designed on a grand scale. "In 40 years in the industry, these were some of the largest, most ornate cornices I've ever seen," says John.

Furthermore, the badly damaged existing ceilings, cornices and walls were to be restored using 'historic' materials and techniques. Project Manager Anthony Dark says that in 27 years in the plastering business, he had never used the traditional materials before St Pancras. So, before starting, Simplicity had to extensively research the old lime plastering materials and techniques and then train their operatives.

The skills needed are similar but the traditional materials have different properties. "Luckily, the plasterers loved working with the old materials," says John Pye.

Simplicity had based their initial price on the Hirst survey, (see page 21-24) but this had to be revised as more and more defects revealed themselves.

In general, the ceilings were riven lath tacked to timbers and finished with three coats of lime plaster containing horse hair. Simplicity's own survey revealed that the plaster had de-bonded from the laths in many areas. Every wall on the project would require some attention, ranging from total re-plastering to hole and crack repair. Due to the introduction of modern services, a considerable number of chasing works would also need repair.

Above: Finished Ladies' Smoking Room.

Above left: Simplicity's repair of heritage plaster ceilings included the building's iconic Grand Staircase

Right: Early surveys: badly damaged ceilings and building fabric in the Chambers building, now Hotel Club Lounge.

Below: Revealing the finished heritage plasterwork - moulds were made to enable accurate replication.



FACTS AND FIGURES

COMPANY NAME

Simplicity Mouldings & Interiors

CORE SERVICES

Specialists in fibrous plaster, GRG (glass-reinforced gypsum) plaster and historic restoration.

PROJECT ASPECT(S) WORKED ON

Residential and Hotel – Chambers building.

CONTRIBUTION TO PROJECT

Repair or replacement of all heritage plaster ceilings, walls and decorative features (including those of the Grand Staircase and Penthouse) using traditional lime plaster materials and techniques.

NUMBER IN INSTALLATION TEAM

Managing Director John Pye, Project Manager Anthony Dark plus a team of 20 Plasterers.

FURTHER INFORMATION

www.simplicitymouldings.co.uk



Above: Extensive plaster damage in the Club lounge.

Right: Simplicity had to extensively research the old lime plastering materials and techniques and then train their operatives. The skills needed are similar but the traditional materials have different properties.



Far right: The lime plaster was mixed on site in a pan mixer and steam-treated horsehair was added. Hirst Conservation checked the mixes regularly.



Right: New laths tacked to timbers.

Right: Ceiling plaster work in progress in the Club Lounge.



Far right: Cornices were over 1m deep in the Ladies' Smoking Room. Typical cornice section length is 2.5m and there were 22 different cornice types.



Above (top): Finished Hotel heritage bedroom.



Above: Restored staircase to residential apartments.

Photos: Bob Ryan/Galliford Try



Right: In the case of very large cornices, the backing was made separately and the ornate details attached later, once in situ. Most mouldings were made at Simplicity's factory in Dartford.

Far right: Creating a new cornice.



Photo: Simplicity Mouldings & Interiors



Lime was procured from the Cornish Lime Company – supplied ready mixed with sand in bulk to the Simplicity factory. Here, it was decanted into plastic tubs, which could be carried two at a time. Simplicity could deliver thirty tubs to site in their own small van, which helped with their logistics.

Once on site, the lime plaster was re-mixed in a pan mixer and steam-treated horsehair was added. Hirst Conservation checked the mixes regularly.

The traditional plastering materials presented their own challenges, the most important of these being drying times. The first layer or 'pricking up coat' has to be left to 'carbonate' – absorb carbon dioxide – and air dry naturally for 28 days. "The face might look dry, but the plaster that has been forced through the gaps between the laths – the 'rivet' – still needs to dry," explains Anthony Dark. Then the 'floating coat' needs another two weeks to dry, though the final finish coat dries very quickly. Very accurate records of drying times had to be kept – in effect, an auditable trail.

When it is too cold (i.e. below 4 degrees C) the plaster can't be applied. In the winter of 2009/10, Anthony had to monitor the temperature on a daily basis. For two to three weeks, they couldn't do any plastering at all!

Some of the ceilings were very big – notably that of the Ladies' Smoking Room. Virtually every room had cornices – there were over twenty different types; those on the ground and first floors being particularly large and ornate. For example, cornices were over 1m deep in the Ladies' Smoking Room. Typical cornice section length was 2.5m. Some of the cornice repairs could be carried out in situ, but the larger, more ornate ones required latex 'squeezes' to be taken and moulds made to enable replication at Simplicity's factory in Dartford – off-site manufacture having the advantage of better quality control. Replication was often required where a room had been divided. In the case of very large cornices, the backing was made separately and the ornate details attached later, once in situ; for example in the Function Room/Gallery.

Approximately 100 Ceiling roses were refurbished or replaced. In some rooms, where the lighting had been upgraded, extra roses were made to match existing. One very large rose had to be made in four quadrants.

The fire-damaged area presented a big challenge and an investigative approach was needed. The plaster had been cracked by heat and the cornice had to be wire-brushed where heat had blistered the surface.

It was a requirement of English Heritage that the existing fabric of the building was retained as far as practically possible. For example, holes in the original ceilings were repaired and cracks cut out and filled. Where the future of a plaster ceiling was in the balance, a decision had to be made based on the condition of the timbers: if the timber support and laths were rotten, removal and reinstatement would be required.

To retain sagging ceilings, Simplicity developed a stabilising technique that involved penny washers being screwed to the ceiling at a frequency of 9 per m². This system was used in the Pre-Function Suite, Ladies' Smoking Room and Gilbert Scott Lounge Bar.

John Pye says that the St Pancras job was a "Good learning curve for everyone." The company was particularly keen to invest in training its apprentices to use lime plaster and had three apprentices in the team at any one time, all at different stages of their apprenticeship.

By introducing their plasterers to traditional materials and techniques – that were once used in every building but now only historic buildings – the company is getting more big heritage jobs. On the strength of work done at St Pancras, Simplicity have won contracts at Somerset House and King's Cross Station Western Range. ■

Right and below: Early surveys showed that the general condition of the floors was poor and neglected with many previous, unsympathetic repairs.



Photo: Trevor Caley Associates



Trevor Caley Associates have carried out meticulous mosaic conservation work on several prestigious heritage buildings – for example St Paul’s Cathedral, the Albert Hall and Albert Memorial. Being well used to working on Grade I listed structures, they already had a good relationship with English Heritage. At St Pancras, they carried out initial trials and tests on the original floor tiling, which was excellent preparation for the work that was to follow.

Project Manager Gary Bricknell says that St Pancras was an unusual conservation job for the company, in that alterations to the building were creating the need for large areas of restoration. This contrasts with their more usual working environments, where normal wear and tear is the only degradation factor at work. “Compared with, say, St Paul’s Cathedral, St Pancras was basically a building site, which made it quite a different job.”

Trevor Caley were first asked to tender for the restoration of a massive, geometric-tiled common corridor in the Residential area on the 2nd floor. “Disheartening” is how Gary describes the situation when he first walked on site. “The general condition of the floors was poor and neglected. Previous, unsympathetic repairs included tiles being taken out and put back upside down.”

After the 2007 fire, sheets of ply wood had been used to cover up many original features and, with much of the tiled floor obscured, estimating the actual amount of work required was challenging. It was clear that the installation of services would require the removal and reinstatement of many areas of floor tiling; but with no real certainty about what remained hidden, the job could only be priced on the likely scope of the work.

“THE JOB WAS LARGE ENOUGH TO MAKE IT WORTH INVESTING £10,000 IN NEW TILE CUTTING EQUIPMENT”
GARY BRICKNELL, COMPANY DIRECTOR / PROJECT MANAGER
TREVOR CALEY ASSOCIATES



Photo: Tim Crocker

Above & below: Heritage corridor, featuring mosaic floor tiling – before and after restoration work! More than 500m² of tiling was conserved and reinstated.

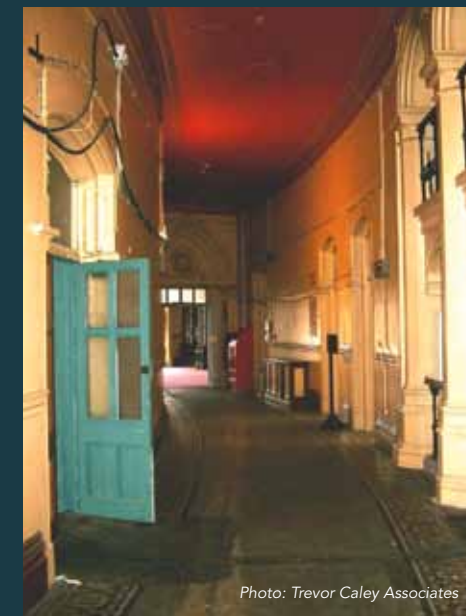


Photo: Trevor Caley Associates

FACTS AND FIGURES

COMPANY NAME

Trevor Caley Associates

CORE SERVICES

Mosaic design, execution and conservation.

PROJECT ASPECT(S) WORKED ON

Hotel – Chambers building.

CONTRIBUTION TO PROJECT

Conservation and reinstatement of geometric and encaustic floor tiling in Residential Apartments and Chambers Hotel. A total of more than 500m² of reinstated tiling.

NUMBER IN INSTALLATION TEAM

Between 2-4 on site: Company Director/Project Manager Gary Bricknell plus Mosaicists Steve Farndale, Tony Goodall, Neil Philips, and Sam Blackman.

FURTHER INFORMATION

www.tcamosaic.co.uk



Photos: Trevor Caley Associates

Above (both): Installation of services required the removal and subsequent reinstatement of many areas of floor tiling. 90% of the original tiles were salvaged and re-used.

Before any conservation work could begin, the existing condition of the floor tiling was recorded and recommendations made. Specific areas of tiling were then removed to make access for services. Damaged areas were also identified and removed. The salvaged tiles were to be reinstated back in the same location: this required a lot of very accurate record keeping.

The complexity of the St Pancras project meant that the company had to use digital technology to a far greater extent than on any previous job. The Trevor Caley staff on site were all issued with digital cameras and laptop computers so that conservation records could be created quickly and easily. The information also fed directly into applications for payment. "It was the only way to manage it. Costs would have been far greater if we'd continued to do all the recording manually," says Gary Bricknell.

The building's Grade I listing dictated that as much original material as possible should be retained. The Trevor Caley team had already developed highly effective ways of removing tiles without damaging them, and were thus able to salvage and re-use an unprecedented 90% of the original tiles. The removal techniques were refined still further as the St Pancras job progressed.



Photos: Janina Holubecki

Below: Tile specialists Craven Dunnill recreated both geometric and encaustic tiles from original samples. They were carefully colour-matched. Some colours had to be specially made. The development cost of producing a replica encaustic tile is £500. Thereafter, each replica tile of the same design costs £25. £30,000 was spent to produce 15 different encaustics and 50+ different coloured and shaped geometric tiles.

Middle & above: Trevor Caley invested £10,000 in laser-guided tile cutting machinery to cut the backs off salvaged tiles, thus allowing for the thickness of the new bedding adhesive.

Right: The tiles were reinstated back in the same location. This required a lot of very accurate record keeping.



Right: Working on the large floor mosaic in the Gilbert Scott Lounge bar.



Photos: Trevor Caley Associates

The salvaged tiles were taken to the company's Northamptonshire workshop. First, all old mortar and face grout was removed. Then, using a laser-guided tile cutting machine, the backs were cut off all the tiles to allow for the thickness of the new bedding adhesive.

"The job was large enough to make it worth investing £10,000 in new tile cutting equipment," says Gary. "Where possible, we try to automate jobs. We fabricate off-site in our workshop as much as we can - it's a much more controlled environment."

Only 10% of the original tiles were beyond repair. Replica ones were manufactured at Craven Dunnill tile works in Shropshire. Both geometric and encaustic tiles were recreated from original samples. The replica tiles were carefully colour-matched, with some colours having to be specially made. The development cost of producing a replica encaustic tile is £500. Thereafter, each replica tile of the same design costs £25. £30,000 was spent to produce 15 different encaustics and 50+ different coloured and shaped geometric tiles.

Ardex bedding adhesives and face grouts were used to reinstate the tiles - the initial trials and tests having concluded that mortars should be cement-based to be compatible with the substrates.

Reinstatement required careful coordination, particularly as all other contractors had to use the floors. In order to rise to this challenge, the team had to be flexible in approach. In some instances, they had to use rapid-setting adhesives so that the other trades could use the area - often as little as three hours later. Where necessary, they made protection ramps over areas being worked on. During the last few weeks of the project, they found that the only solution was to work outside of normal working hours.

On completion of the Apartments' corridor, the Trevor Caley team of mosaicists then worked on all the geometric and encaustic tiling on the platform level and first and second floors of the Hotel.

Full conservation and restoration of a large floor mosaic in the Gilbert Scott Lounge Bar was not economically feasible. The mosaic was instead stabilised and covered, with a 10' x 3' section restored to its former glory and left uncovered.

Gary Bricknell says that he never expected St Pancras to generate so much work for his company. "The project seemed to grow exponentially over a short period of time. What started as a £20-30,000 package ended up being £400,000!" There was also a useful side-effect: "As a direct result of the St Pancras project, Trevor Caley Associates have now entered the digital age!" ■



PROJECT DIRECTOR:
SIMON FRAWLEY

KEY ISSUES

- PROJECT TEAM MANAGEMENT AND QUALITY
- COST MANAGEMENT
- REVENUE RELEASE AND PHASING
- STAKEHOLDER CONFIDENCE
- STRONG PARTNERSHIPS
- FLEXIBILITY FOR CHANGE

Simon's first task was assembling his main project team which he led for three years until the St Pancras Renaissance Hotel opened on 5 May 2011. He saw the following staff attributes as vital:

- GOOD TECHNICAL UNDERSTANDING;
- PROBLEM-SOLVING SKILLS; AND
- AN ABILITY TO WORK AS PART OF A LARGE PROJECT TEAM.

Valuable early input came from Senior Project Manager Stuart Meyrick-Brook, on the pre-construction stage. Simon oversaw sixty procurement, administrative, design management and cost management staff.

"Right from the start, there was pressure on budgets for both the residential and the hotel elements. Considerable value engineering was necessary in order to agree the cost plan. My team looked at ways to utilise off-site construction; of greatest significance on the hotel was introducing pre-fabricated bathroom pods and panellised wall units in the new West Wing, gaining substantial savings in time and cost compared to the planned traditional design."

PHASING AND DELIVERY STRATEGY

To be achievable, the project needed to release revenue quickly, delivering the residential section for occupation before the hotel. Our strategy was to divide the residential areas into vertical sections - accessed via fire fighting lifts and staircases from the station. This kept residents segregated from the construction works, but with all appropriate compartmentation in place to satisfy the Building Control Officer and the Fire Control Officer. There were major benefits of phasing in this way, with each phase containing typical apartments of each type. This enabled early design feedback and continuous improvement.

STAKEHOLDER RELATIONSHIPS

On a project of this complexity and with such cost sensitivity, it was vital to build a trusting, open working relationship with the client, Manhattan Loft Corporation (MLC). A significant milestone in MLC's confidence in Galliford Try came when we successfully handed over early the enabling works for the station opening. This helped MLC meet their commitments to London Continental Railways.

"Our phasing strategy and my team's approach to buildability and quality when constructing the prototype apartment also helped build confidence. Through this process, we fixed the scope of works and budgets. We then met the first sectional handover dates, despite numerous variations. The handover of the first 20 apartments was crucial to funding and overall project momentum."

PARTNERSHIPS

"A key partner was English Heritage and we gained their respect and support by demonstrating our methods of sampling and quality management. They appreciated our respect for the building and our general approach to the project."

On such a prestigious scheme with a lot at stake, it was important to have reliable, experienced and sympathetic supply chain partners. The task was to select a highly capable team, robust enough for a complex three year project and then to manage them effectively. More than one supplier for similar works was appointed to provide healthy competition, and to allow us to agree enhanced works where suppliers were performing well and when the scope and strategy shifted.

"Management of change was critical - I had daily sessions with site-management and sub-contractors to ensure speedy transmission of key issues - e.g. changes to work schedules, health and safety implications and revised deadlines".

The sheer volume of changes and work variations needed careful management and effective, timely communication. In regular cost appraisal meetings with the client, cost consultants and professional team, all potential variations, programme impacts and budgets costs were analysed and agreed. Only then were instructions issued and authorised to proceed. Flexibility of approach was vital. ■



Above: The fully restored Grand Staircase, leading to the residential apartments.



Top: Residential apartment. Releasing the residential units early brought in revenue quickly.



Above: The Euston Road elevation of St Pancras Chambers.



**COMMERCIAL DIRECTOR:
 GLEN HARDING**

MSc Construction Law: MCI Arb, FCI OB

KEY ISSUES

- TOTAL CONTROL OF ALL FINANCIAL MATTERS
- SUPPLIER AND SPECIALIST CONTRACTOR EVALUATION AND MANAGEMENT
- ACHIEVING VALUE FOR MONEY

Glen was responsible for pricing all works; negotiating the final price; controlling finances during the build programme; and agreeing the final account; reporting directly to Galliford Try's Managing Director.

"This job was too risky and sensitive for experiments. Procurement took place against the background of the banking crisis: loans were reduced, but banks also wanted guarantees."



Above: Glen ensured maximum value for money from the West Wing scaffolding by giving all potential users the chance to influence the design to make sure it would meet their needs.

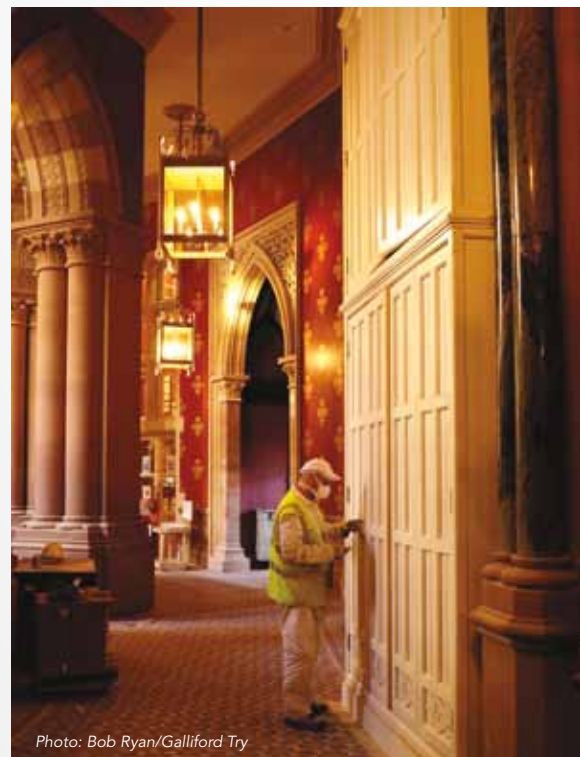


Photo: Bob Ryan/Galliford Try

Above: Atlantic Contract's operatives were hand-picked from their 180 carpenters in the south east division.



Above: Martek put together a package to do the entire fit out of the 150 Chambers bathrooms. This package was more expensive than using individual trades, but the 'invisible' cost-saving – fewer managers, less coordination, reduced risk of damage, and a single source of responsibility – made them cheaper in the long run.



Photo: Lakesmere

Above: Lakesmere's off-site manufacturing capability meant that significant costs were saved on scaffolding for the cladding.



Above: Restored Presidential suite, Hotel

"The funders were looking for high levels of certainty. Interviews were held with all major sub-contractors, who also had to provide warranties."

"The choice of specialist contractors was crucial for successful project delivery. I looked hard at suppliers' track records: they had to be tried and tested and have sufficient resources."

There were 175 sub-contractors in total, requiring careful management and administration. They were divided up into trade categories and each then became the responsibility of one of Glen's ten 'Package Surveyors' who dealt with different trades, rather than areas of the building.

For example, QFS were site-wide scaffolding contractors and, though they dealt with ten different area managers, they only had to deal with one surveyor (There were 3,500 individual scaffolds for the surveyor to agree a price on!).

Part of Glen's role was to evaluate alternative solutions in terms of their value for money. For example, Lakesmere's cladding product was, in theory, more expensive than a traditional solution. But their innovative off-site manufacturing technique meant they could do the job without scaffold, saving £50,000 and thus making it cost-neutral. They could also do the job much faster without having to erect scaffold, which kept us on programme.

"It was one of the best value for money decisions we made".



SENIOR PROJECT MANAGER:
EUGENE McCORMICK

MSc Civil Eng; B Eng Civil Eng

KEY ISSUES

- SERVICES CO-ORDINATION
- SUSTAINABILITY
- LOCAL ECONOMY

Eugene took responsibility for the Hotel's new build West Wing; Barlow House; Taxi Rank, Ticket Hall and the West Chambers basement to 1st floor. The early days of the Hotel project were very challenging. It was clear that the main issue was services co-ordination, and the management of many unknowns. A strict protocol had to be followed and the time this took to establish had to be factored in.

"For example, the M&E Consultant issued the information and from this, Emcor – the sub-contractor – produced drawings. These were sent to the Design Team, Architect, M&E Consultant and Structural Engineer for comment; routes might be agreed or rejected. In Front of House areas, the Interior Designer would also have an opinion. Meanwhile, the Client might change the specifications!"



Above & right: All services for the hotel and residential apartments go through the Taxi-Rank, now the Hotel reception and lobby.

The new build West Wing achieved a 'very good' overall BREEAM rating. English Heritage's philosophy to retain as many of the original materials and structures as possible did result in the project's most sustainable aspect: the 'recycling by default' of the original floorboards, doors and fireplaces in the Chambers building. In addition, much of the timber hoarding and protection boards were re-used several times.

There was no on-site parking so everyone travelled in by public transport. The project also used local labour as much as possible. And, through the iCAM Supply Scheme, several local Camden and Islington-based contractors – K&M McLoughlin, Wyse group, Farnham Joinery and others – benefited from the opportunities created.

The whole Galliford Team had a particularly good relationship with Manhattan Loft's clerk of works Brian Duffus and their project managers. Eugene cites this as one of the project's critical success factors. He thinks that other factors were the careful selection of an 'A Team' of skilled suppliers and Galliford Try's flexible and collaborative approach.

"Galliford Try integrated into the team very well. We got through it together."

There are two aspects of the job that Eugene is particularly proud of:

"The services co-ordination in the Taxi Rank: all services for the hotel and residential apartments go through it. There's a maze of pipe-work under that floor! I would also add the Ladies' Smoking Room, because of the aesthetics and the 'journey' – it represents a whole year's work."

Below & left: The Ladies' Smoking Room, before and after restoration. Bottom: The Hotel's new-build West Wing.



Photo: Janina Holubecki



SENIOR PROJECT MANAGER:
BOB RYAN

KEY ISSUES

- SCALE / LOGISTICS - TOO LARGE TO "WALK THE JOB IN A DAY"
- BESPOKE SPECIFICATIONS
- PROBLEM SOLVING FOR BUILDABILITY

At St Pancras Bob was responsible for the residential element and the Chambers Hotel guest rooms and associated corridors. Starting out as a carpenter and joiner, he has spent a total of 47 years in the construction industry, although nothing he had come across before could measure up to St Pancras:

"It was physically the biggest job I've ever seen – quite daunting. You couldn't walk the job in a day!"

However, the early decision to break the project down into smaller elements was, in Bob's opinion, one of the main factors in making it achievable.

"The zoning of the Residential areas was a stroke of genius."



Above: Early release of the Residential Apartments raised revenue that benefited the overall project.

In addition to the project's scale and complexity, the building's individuality was also challenging.

"Normally, before you get to a job, you have an idea of room layout. Here, we didn't. Every single room was different. So there were many different problems, but no generic solutions. Everything was bespoke."

It was decided to use a room by room approach. Bob held creative workshops in each of the 67 apartments: the professional team and subcontractors literally sat round a table and, together with the Architect, developed working solutions for each space. He found that this collaborative approach worked extremely well.

"All had a part to play; it generated a good team spirit and lifted morale. And it led to practical, buildable solutions from the Architect. We started in the apartment under the clock tower and ended in room 529, the one at the top of the Grand Staircase – where no load could be put on the domed ceiling underneath."

The project threw up some interesting challenges that stretched the team's problem solving skills. For example, a fall arrest system was needed for work on the roof, but the chimneys' brickwork would not take the required load. Bob came up with the idea of putting steel collars around the chimneys. These also served to strengthen the stacks and were left in place for planned maintenance work.



Above: Residential Apartment following restoration - each needed a bespoke approach.

Bob found putting his team together a very satisfying task. He is particularly proud of the fact that he was instrumental in getting several trainees on the project. As he puts it:

"Making sure you had the right team was the most important thing. We also gave youngsters the golden opportunity to work at St Pancras."



Above: Bob Ryan is particularly proud of the fact that he was instrumental in getting several trainees to work on the project.

GALLIFORD TRY
THE TEAM



Simon Frawley
Project Director



Glen Harding
Commercial Director



Eugene McCormick
Senior Project Manager



Bob Ryan
Senior Project Manager



Alex Hill
Section Manager



Andy Hall
M&E Manager



Aru Murugesu
Site Manager



Ashley Epps
Site Manager



Barry Clissold
Construction Manager



Brendan Cronin
Site Manager



Charlie Driver
Site Manager



Crawford Donachie
QS



Daniel Van-Rooyen
Logistics Manager



Dave Bull
Site Manager



David Graham
QS Consultant



Des Dobbin
HS&E Manager



Doug Van-Santen
Design Manager



Edward Hipkin
Design Coordinator



Frank Wilson
Site Manager



Gabriela Constantin
Secretary and Document
Controller



Galip Pinar
Project Engineer



Gary Sinden
QS Consultant



Gary Vidler
QS



Gavin Hale
Site Manager



George Bingham
Trainee QS



Gurpreet Cheema
QS



Henry Osei
Management Trainee



Idris Foster-Edwards
Design Manager

Project professional team: Architect: RHWL - Conservation architect: Richard Griffiths Architects - QS: Gleeds - Project Manager: Gleeds - M&E: Faber Maunsell (AECOM) - Structural Engineers: Arup and AKS Ward - Hotel Interior designer: GA Design International.