



**Shepley** Engineers Ltd

# Shepley Engineers

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# Restoration.

April 2025

About us

# What we do.

## Sheffield Fabrication and Coating Facility

Centrally based near Sheffield with easy access to the M1 motorway, Shepley Engineers offers full turnkey services for delivery of both fabrication/welding and coatings & Iron Restoration Consultancy. We are located within a close proximity of several accredited material suppliers.

We offer full engineering design through to full project management and engineering support with capacity to meet demanding deadlines. Our health & safety and environmental culture is of the highest standard and subject to constant assessment at the highest level.

To ensure our workshops are efficient and effective we have a policy of being open and honest with our clients and aim to offer cost efficiency and value.

We have a modern 4200m<sup>2</sup> workshop facility consisting of 7 work bays. Bays 2 to 5 are utilised for fabrication and welding works. Each bay has a 5 ton overhead with bay 3 having one 5-ton crane and one 10-ton crane giving capacity and flexibility to undertake a wide range of tasks. Bay 6 has a manual blast booth 16m x 6m again equipped with a 5-ton overhead crane. Bay 7 features two 10 tonne cranes for unloading up to 20te.

## Accreditations.



**ISO 9001**

Quality Management



**ISO 14001**

Environmental Management



**BS EN 1090**

Fabrication and Assembly of  
steel & aluminium structures



**ISO 3834**

Fusion Welding



**Achilles**

Supply Chain Risk Management



**CHAS**

Contractor Health & Safety Scheme

## Sheffield Paint Facility

Specialist Coating Capability Bays 8 and 9 are the prep and coating application areas, Bay 9 has four paint booths, each 7.5m x 9m and can deliver a wide range of coating systems simultaneously, we can apply any coating system (We can offer zinc metal spraying in one booth) and are also able to apply intumescent fireproofing systems if required. We have the flexibility to modify the existing paint shop layout to provide a single paint booth 22m x 9m. This also has a 5-ton overhead crane.

Shepley Engineers follow exacting standards to ensure we meet a paint manufacturer's requirements and guarantee of coating performance: ISO 8501, ISO 8502, ISO 8503, ISO 8504. To ensure a quality job all our painters are accredited to the Industrial Coating Applicators Training Scheme and the process is under constant scrutiny of one of our two qualified painting inspectors.

## Design Capability

We take our clients information and our in-house site engineers surveys and create 3D models of areas and buildings prior to embedding our new fabrication 3D models to the area, thus giving us the opportunity to ensure accuracy of new to existing interfaces.

Our models, CGI's and virtual tours provide our client team, architects, and structural engineers with an overview of individual schemes. General arrangement and detailed engineering drawings are produced for technical review and approval prior to our fabrication/manufacturing stage.

# Our work Case Studies.



**Kings Cross Triplets**



**St Pancras Station**



**Elizabeth Tower**



**Tollcross Conservatory**



**Manchester Town Hall**



**Royal Botanic Gardens**

# Case Study

# Elizabeth Tower.

## Cast Iron Roofs

The refurbishment of the cast iron roof on Elizabeth Tower involved the removal and refurbishment of over 3300 cast iron components that were all surveyed, given unique ID numbers and carefully removed for off site refurbishment. The castings varied from around 5kg up to 500kg and all were processed in the same manner.

The refurbishment works was undertaken at SELs dedicated Restoration facility where each component was blast cleaned to safely remove the lead-based paint and then surveyed to assess condition.

From the assessment a repair was agreed with the client and for components that were deemed beyond repair they were cast as new like of like components by SELs foundry supply chain.

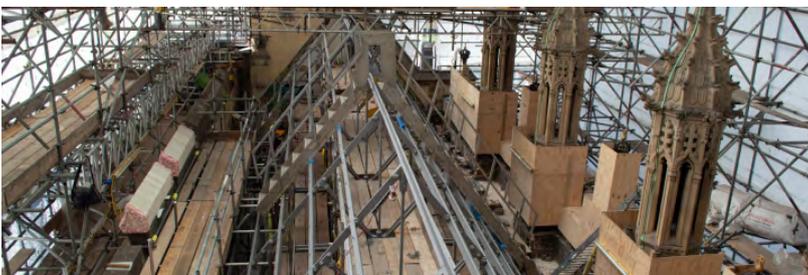
Once the restoration was completed the components were painted to specification at SELs restoration facility and send back to site where they were carefully refitted back into their original locations.

SEL also undertook site structural repairs once the clients structural engineers identified defects.

### Key information

- Over 3300 cast iron components refurbished during the process
- The Project lasted just over Two and a half years
- SEL site team was maintained around 8 restoration operatives
- SELs workshop team including coatings team was maintained around 10Nr Operatives.
- New castings were sources from 2 foundries that worked closely with SEL to maintain quality and programme.
- SEL used our experienced team members who were experienced with working on heritage cast and wrought iron roof projects to maintain the care and quality deserving of Elizabeth Tower.

SEL used our vast experience of similar projects to assist the clients team, architects and structural engineers and strived to suggest solutions to any problems that were encountered based on experience and knowledge. Repairs consisted on none visual brazing and filling and some visual over plating repairs as approved by the client team to save existing components. New castings were produced to match the existing only when the component was beyond repair and agreed with the client team.





## Case Study

# Elizabeth Tower.

## Bronze Window Refurbishment

The Bronze window refurbishment Project included the removal, refurbishment and reinstallation of over 135 existing and newly fabricated windows across over 10 levels within Elizabeth Tower. Shepley Engineers were also responsible for the fabrication and refurbishment of key access and safety components including walkways, guardrails and access platforms. Window casements, where possible, were removed in their entirety and returned to our specialist restoration facility. The existing windows were extremely delicate, so each casement required high levels of care when handling and transferring to ensure no damage was caused at any stage.

Once windows were returned to our refurbishment facility, each component was assessed and the Client team advised of advised refurbishment works accordingly. Once a final scope was agreed, we progressed with the gentle cleaning and removal of defective coatings before undertaking requisite straightening, adjusting and replacement works as required. Whilst many of the windows across the Project were broadly similar in construction, each individual window was ultimately unique to its given location and installation, such that every window required bespoke care and review in order to ensure that every component could be returned to its original location in a sufficiently refurbished state.

Other works completed across the Project include the refurbishment, replacement and new fabrications of various bespoke metalwork components, including floor grilles, stairwell handrails, guardrails and structural support elements.

### Value Engineering

With SELs extensive knowledge of heritage metalwork, including similar window works completed across the broader Parliamentary Estate, we were well placed to review and advise our Client on the levels of works available to them and the net benefits of each element of work.

We have significant experience working with highly bespoke and unique structures and metalwork components. These years of experience are absolutely vital in allowing us to utilise non-standard techniques and repair strategies to best advise our Client.

We were therefore able to ensure that our Client get best value for money on every element of work and that unnecessary expenditures were minimized throughout.

### Collaborative working

Heritage works require a high level of collaborative working. Due to the nature of the works, there is rarely an off-the-shelf solution available. We therefore utilise our broad and extensive experience of working on unique heritage structures to collaborate closely with Design Teams, Client Teams and other specialist contractors in order to provide the best possible solutions at every opportunity.

SEL embrace the close working relationships required to carry out these Projects and strive to maintain an open, honest and forthcoming environment throughout which is vital for successful delivery. We explored all available design and repair solutions with our Project and Client Teams to ensure that all repairs conducted to the windows and other components were carried out sympathetically and that all existing elements were retained wherever possible.

- Newly fabricated elements and components were produced to match the existing only when the component was beyond repair and agreed with the client team.

There were a number of new additional windows required on the Project which were designed and fabricated in close collaboration with the Design Team to ensure that any new windows were in keeping with the existing elements and sympathetic to the heritage of Elizabeth Tower.

# THE PROCESS

## Refurbishment Key Stages

**01**

Remove glazing and  
survey condition



**02**

Remove frame and  
repair / clean



**02a**

Remove frame and  
repair / clean



**03**

Re-fit cleaned frame  
and re-glaze



## Case Study

# Tollcross Conservatory.

Tollcross Conservatory is a B-Listed cast iron structure, also known as the Winter Gardens. Originally built in 1870, in 2010 it faced major storm damage and in 2011 was closed to the public permanently. Prior to its renovation approval, it sat on the 'register of buildings at risk in Scotland'.

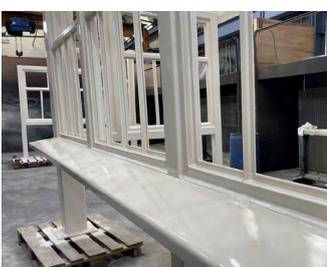
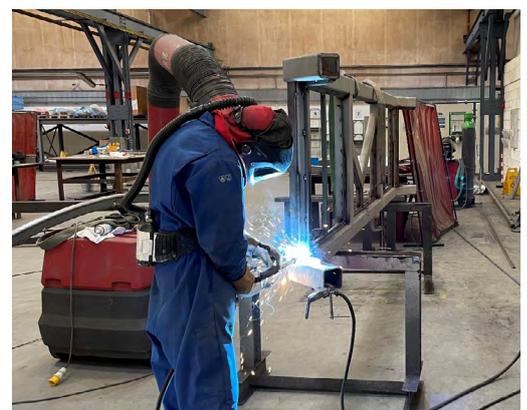
Shepley Engineers were responsible for all elements of restoration, from de-glazing, dismantling, shotblasting, painting and re-fitting. Where possible, as many pieces of existing cast iron were refurbished, however the sections that couldn't be shotblasted and restored were fabricated and painted at the Sheffield workshop. Around 25 tonnes of new steel was used in the restoration.

The Conservatory had a timber frame which made up 60% of the structure of the building, and prior to dismantling of the timber structure Shepley undertook extensive site surveys. These surveys enabled our in-house team to design a new mild steel structure to replicate as closely as possible the original timber structure and one that would fit into and onto the two wings which were made from cast and wrought iron. All drawings were offered for final approval and around 120 drawings were produced showing fabrication details, general arrangement and interfaces

The cast and wrought iron constituted the remaining 40% of the existing structure, which was refurbished on site by Shepley's specialist painting team. Where the remaining structure could not be salvaged the new mild steel structure was fabricated and painted off site and then fitted into and onto the remaining cast and wrought iron structure.

There was extensive workshop and site welding of each new mild steel component. Each new component or module that was fabricated off site at the Sheffield restoration workshop was built and tested in a mock-up at the workshop to ensure they fit correctly before they were sent to site. The modules were built as large as possible in the Shepley workshop to aid the site refit and were delivered to site across 8 deliveries then lifted into place using a subcontract crane team working under Shepley management.

Once the component fit was proved, and following final QA and NDT checks of both dimensional and visual aspects and compliance to the specification, the components were blast cleaned and painted to specification in Shepley's own paint workshop.





## Case Study

# St Pancras Station.

St Pancras Station was opened in 1868 and is one of the wonders of Victorian engineering. The station was built by the Midland Railway Company (MRC) to connect London with some of England's major cities. The iron and glass roof of the Barlow Shed was a bold innovation, and at the time of its construction it was the largest single span roof in the world, measuring 240m long, 75m wide and 30m high. It contains 14,080 glass panels and spans the length of two football pitches.

It was recognised that the station required a refurbishment in the early 2000's to bring it in to a new age and enable it to become the terminal for Channel Tunnel trains.

Shepley Engineers worked on the station and were responsible for several major work packages with a value of over £17m. Works carried out involved the faithful repair and replication of corroded and damaged elements of the Barlow shed, as well as in the chambers and undercroft areas below the train tracks.

Work began in 2003, and a 110-strong Shepley team was employed at the peak of the work. More than 12,000 wrought iron rivets needed to be replaced by Shepley, and as we were not allowed to use hot techniques, we needed to design and deploy machinery to remove the rivets to not damage the surface of the iron fabric.

A variety of other works were completed, including conducting surveys, in situ cast lintels, fabric removal, installation of supporting steelwork such as overhead line supports and polished stainless steel shop fronts.





## Case Study

# Royal Botanic Garden Edinburgh.

This is an ongoing project that involves Shepley Engineers Ltd working with Balfour Beatty to refurbish and restore the Victorian Palm House at The Royal Botanical Gardens in Edinburgh.

The project involves the survey and recording, and carefully removing iron 'Cladding' components (such as gutters, handrails, walkways etc) from the main iron structure. This iron cladding components are then removed from site and refurbished in SELs off site restoration facility. Each component that is removed is given its own unique ID reference that means the component can be tracked through the project and ultimately be refitted into the same location it was removed from.

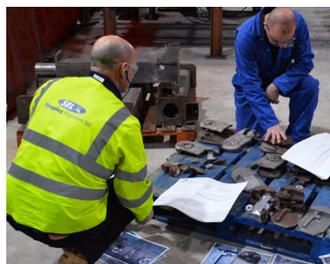
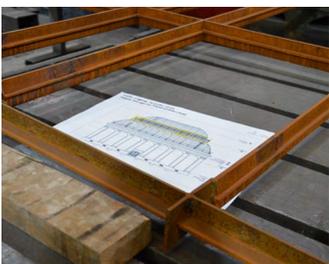
The offsite refurbishment of these components is to first safely remove all of the lead paint that covers them and then post the paint removal, the detailed inspection and report of each components condition. Following the inspection a combination of architectural and or structural repairs will be agreed and undertaken and when components are deemed beyond repair, they are replaced with new like for like replacement components.

SEL work closely with BB and the appointed project architects and structural Engineers to offer SEL's experience and input for repairs and solutions and to problem solve issues that arise on historic structures.

Once the workshop mechanical repairs are completed the components are recoated to the project paint specification at SELs off site paint facility ready to be sent back to site. The workshop also fabricates or modifies castings or iron components for site structural repairs so they can be sent to site and fitted by SELs site mechanical team.

Onsite works, post the removal of the components from the main iron roof and support structure, is to remove the lead paint via blast cleaning under strict working with lead H&S guidelines, then to undertake surveys and structural repairs and recoating the structure to the project paint specification.

Once the structural repairs are completed and the structure re-painted then the iron 'cladding' components that have been refurbished at SELs workshop will be carefully refitted into the same place as they were removed from following the tagging system by SELs site mechanical team.





## Case Study

# Manchester Town Hall.

Manchester Town Hall opened in 1877 and is an international significant landmark. It's grade 1 listed and considered to be one of the masterpieces of Victorian architecture. The building is cherished by the people of the City who view it as the civic heart of Manchester. There has recently been a requirement to restore and repair it to ensure that it can continue to fulfil its duties and demands.

Shepley Engineers were proud to be a designated subcontractor, responsible for the restoration of over 500 iron and lead framed windows, each comprising of several individual leaded panels. Working closely with Reyntiens Glass Studio as Consultants, the Shepley restoration team received expert advice and training from one of the UK's most experienced stained glass manufacturers. They continued to work alongside us, overseeing out glaziers in order to provide a finished article that closely resembles the quality of work which Reyntiens are renowned for.

Across the 2 year Project lifespan, our self-delivery restoration team removed the windows and the damaged stained glass, which were delivered to our bespoke custom glazing studio acquired and setup specifically for this Project.

All individual elements were then surveyed and reviewed for damage and flaws which could benefit from repair. This would involve the careful shotblasting of all metal frameworks supporting the windows prior to undertaking sympathetic repairs to the frames as required, ready for the reinstallation of glass and windows throughout.

In total, there were 2973 individual leaded panels across the Project, with over 1700 being cleaned and repaired in situ and over 850 being removed entirely for repair off-site.

We have worked with John Reyntiens across several Projects previously, such as the restoration works within the Houses of Parliament, on the quarried leaded light windows on Elizabeth Tower. Our collaborative approach enables us to work together, sharing best practice and giving the best overall outcome for the Client, whilst providing the highest delivery of the Project.





LENSER

OUR TOWN

# Case Study

# Kings Cross Triplets.

Shepley Engineers undertook the restoration of the Grade 2 Listed Triplets Gas Holders, constructed from a combination of cast and wrought iron. The combined structures contained 123 cast iron columns each in excess of 10m long and weighing on average 10t each, this, coupled with all the connecting lattice works presented a large-scale restoration & painting project, works were carried out off site in the workshop.

All components were placed in a strictly controlled area with specifically built racking to ensure historic component protection and maximum efficiency of space. All components were subjected to an initial pre-blast where historic lead-based paint was removed to expose the base material, all blasting operations and exposure to lead based paint remnants were carried out in a controlled environment and to strict H&S guidelines and RAMS.

All structural cast columns required major structural repair works, in one case a full column repair sleeve was applied to re-build the columns structural integrity. A large majority of the wrought iron lattice beams had suffered over years from lack of maintenance, the endplates were badly corroded and needed replacements along with repairs to the interconnecting lattice beam outer angle structure. All repair types were of a mechanically fixed over-plate design as instructed by the engineering team.

Following repair of each component the goods were final blast cleaned prior to applying the corrosion protection system; the system was a 3-part coating system made up of a primer base coat zinc phosphate primer, a mid-coat of micaceous iron oxide and a top coat of high performance acrylic urethane gloss finish.

All paints, along with wet and dry film thicknesses, were specified by the client team coatings advisors and paint manufacturers.

On completion of the coating system application and curing period, the components were transported back to the yard-based racking systems for storage until requested for delivery to site by client team. The storage racking at this stage was wrapped using 'Envirowrap' to protect the batch of components from weathering for up to 18 months.

The components processed were up to 8 tonnes in weight and up to 10mtrs in length, each component required strategic handling and movements to both protect the workforce and the heritage material.

Columns required lifting cradles and strict 7-point lifts for structural integrity protection. All lifting, handling and movements of products were controlled via training and strict method statements and risk assessments.

Each weekly delivery was met, Shepley further assisted in the extraction of goods from racking systems and loading to the sub-contractor appointed transport, working heavily throughout each week in preparation for trailer hitching for multiple despatches. All components prior to despatch were checked and signed for as handover to the re-erection team appointed by the client team.





## Case Study

# Fulham Gasholder 2.

Shepley Engineers were engaged throughout the design phase of the former Fulham Gasworks site. Our involvement with this Project in the initial stages was to assist with the development of a refurbishment strategy for the Grade 2 listed Gasholder No.2 which dates from 1829 and is the worlds oldest known surviving gasholder.

This refurbishment strategy formed a part of the Planning submissions for statutory authorities and utilised to ultimately gain Listed Building Consent.

Throughout our engagement, we sought to liaise as closely as possible with all parties throughout the process in order to ensure that a fully comprehensive solution was provided which satisfied all requirements and alleviated any concerns within stakeholders.

Initially, we developed a full refurbishment strategy for the Project which identified a sequence, methodology and timescale for the removal, refurbishment and reinstallation of all components in line with the outline specification and requirements of a provisional Project Brief from statutory authorities. This methodology was based on our vast experience across similar Projects and bespoke Cast Iron works and sought to provide the most sympathetic and practicable solution in order to satisfy all parties and Project requirements.

After the production of our initial outline methodology, and across the course of approximately 12 months, we would engage in monthly meetings and reviews with members of the Design Team, Historic England and the Local Authority, during which we would seek to utilise our specialist heritage engineering expertise to advise the Design Team, Client and Stakeholders.

This engagement involved the full and ongoing review of the outline Methodology, alongside all potentially viable alternative solutions as well as the benefits or otherwise of each alternative. In addition, our involvement was important to the broader sequencing of the Project as we were able to advise the Team on the viability of alternatives by utilising our experience as a Principle Contractor alongside our Specialist Heritage experience. The combination of this expertise provided us with an unique ability to provide full oversight of the proposed changes to any heritage works as well as identifying key risks or issues in the broader Project scope, thereby allowing us to advise on not only the technical viability of options, but also the cost and time implications of each proposal.

This mixture of skills and experience placed us in a position whereby we could provide insight from the viewpoint of several distinct disciplines and mitigate the time and cost impact of engaging with multiple specialists or consultants. Having myriad skillsets in-house also allowed us to provide a nimble and extremely reactive service to the Client Team whereby we could amend and revise all information within short timescales and to any changing requirements. In doing so, we were able to keep the momentum throughout the process and ensure the ultimate production of a fully comprehensive application which satisfied all stakeholders and relevant parties.





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STORES

Restoration Team  
SEL  
Sopley Engineers Ltd

# A top-drawer health and safety record.

We are proud of our health, safety, security and environmental performance. Achievements in this area remain the number one corporate objective and this is actively supported from the executive board, down through the entire organisation. We are fully aware of the need for continuous improvement and we actively support ongoing development of our compliance and assurance systems. We have achieved Gold RoSPA awards every year since the late 1990's, and to date we have achieved 18 million working hours without a RIDDOR reportable accident on the Sellafield site.

## Sector Award

In 2022 Shepley Engineers were awarded the Highly Commended in the Engineering Services Sector Award.

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## Patron's Award

In 2024 Shepley Engineers were awarded a Patron's Award by RoSPA (Royal Society for the Prevention of Accidents), for 28 consecutive RoSPA Gold Awards

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## Order of Distinction

As of 2024 Shepley Group member PPS Electrical currently boast 24 years consecutive RoSPA Gold Awards

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## President's Award

As of 2024 Shepley Group member West Cumberland Engineering have won 12 consecutive RoSPA Gold Awards





**Doing our bit  
environmentally  
and socially.**

# We strive to make a difference.

We understand the impact our business has on our local communities and the environment. We are committed to utilising our resource to ensure the communities we serve are self-sustainable, through our Skills Academy, training and development programme and local SME Spend.

## Environmental in numbers

EV Chargers  
**10**

Renewable tariffs  
**100%**

Landfill diversion  
**100%**

Fleet Using HVO  
**88%**

Estimated CO2 saved  
**200te**

## Social impact in numbers

Hours volunteering  
**1,250+**

Grant Donations  
**£12,000**

Individual donations  
**£5,500**

Initiatives supported  
**51**

Work Experience Days  
**95**

# Get in touch.



## Shepley Engineers

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 Shepley Group

 Shepley Engineers Ltd



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