



BISON SPECIAL PROJECTS

THE PROVEN CASE

**for structural concrete design
and products**





BISON

Leading the precast industry since 1919

Bison leads the way in customer service, technical expertise and design capability. We have accumulated a wealth of knowledge and experience across all sectors since our formation in 1919, and have remained at the forefront of the industry by investing in innovation, technology and our people. Special Projects is the banner under which we place our work in providing solutions for projects that are structurally challenging and push design boundaries. Our unrivalled track record in this area is demonstrated within this brochure, where we have selected key projects from various sectors.

Innovation and sustainability

Bison prides itself on a commitment to innovation and the sustainability agenda across all aspects of the company. This commitment is evident in the £30 million investment in Swadlincote, our Derbyshire factory, which is the most technically advanced and sustainable of its kind in the world. It also stretches to our range of health and safety products, providing benefits in terms of risk mitigation and speed of build.



THE POSSIBILITIES

THE POSSIBILITIES

As the market leader since 1919, Bison is experienced in offering its clients the precast concrete solutions they need to transform their visions into reality. No matter how complex the requirement, Bison prides itself on providing each of those clients with a quality product.

“Bison proved a valued partner on this high profile contract undertaken by Composite Ltd at Coventry Station. The combined strengths of precast concrete and the design and construction expertise from Composite Ltd ensured the project was a success from start to finish.” **Kevin Clarke, Senior Contracts Manager**

ARORA INTERNATIONAL, HEATHROW T5

CLIENT: ARORA DEVELOPMENTS PLC
ARCHITECT: EPR
CLIENT ENGINEER: ROBERT BIRD & PARTNERS
CONTRACTOR: LAING O'ROURKE
PROGRAMME: 32 WEEKS

BRIEF/CHALLENGE:
For this huge 610 bedroom 6 hotel development, one of the largest luxury airport hotels in Europe, Bison designed, manufactured, delivered and erected 30,000m² of bespoke precast concrete products. Tight time scales meant that the Bison team were frequently on site 24 hours a day, seven days a week working on the project, which included features such as full height interlinking glass atriums.



PRODUCT USED:

- PRECAST CONCRETE WALL PANELS
- HOLLOW CORE FLOORS
- PRECAST STAIRCASES
- SOLID COMPOSITE FLOORS
- STRUCTURAL STEELWORK



CLIENT QUOTE:

"I am thrilled to see this project come to life despite the challenges that have faced the team from the outset. Tight time scales designed for completion in sync with the scheduled opening of Terminal 5 have been a considerable pressure, highlighting the professionalism of Bison in tackling these issues head-on and achieving such a magnificent result."

Surinder Arora, Chairman, Arora International Hotels Ltd



RETAIL

BISON FEATURE CASE STUDY TWO

WAITROSE, RICKMANSWORTH

- CLIENT:** COMPOSITE LTD
- ARCHITECT:** MICHAEL AUKETT
- ENGINEER:** WATERMAN PARTNERSHIP
- CONTRACTOR:** KIER SOUTHERN
- PROGRAMME:** 19 WEEKS

BRIEF/CHALLENGE:

To manufacture and deliver the precast concrete elements required for a 544-space multi-storey car park and retail space in accordance with Composite Ltd's design and construction programme.



PRODUCT USED:

- PRECAST CONCRETE COLUMNS
- PRECAST CONCRETE BEAMS
- WALL PANELS
- PRECAST STAIRS
- HOLLOW CORE FLOORS



CLIENT QUOTE:

"As Composite's component supplier, Bison's manufacturing abilities helped to deliver this complex structure and combined well with our design and construction expertise. We were able to co-ordinate their deliveries to suit our requirements on what was a very tight and restricted site."

Ian Brogan, Contracts Manager



APARTMENT SCHEME

SPORT CITY, MANCHESTER

WINNER OSC Awards 'Best use of concrete' 2007

- CLIENT:** COUNTRYSIDE PROPERTIES
- CLIENT ENGINEER:** SCOTT HUGHES DESIGN, MANCHESTER
- CONTRACTOR:** COUNTRYSIDE PROPERTIES
- PROGRAMME:** 13 WEEKS

BRIEF/CHALLENGE:
Complex space planning challenge for multi-storey residential property where an innovative and iconic building was required. Proposed circular design for attractive, usable apartments was made workable by Bison, offering the client practical solutions to the challenges presented.



PRODUCT USED:

- CROSSWALL
- HOLLOW CORE FLOORS
- PRECAST STAIRCASES



BISON FEATURE CASE STUDY THREE

CLIENT QUOTE:

"We specified Bison's products as their team were able to offer us high quality products quickly with a cost-competitive solution. The curve of the outer walls presented manufacturing and construction challenges, but Bison's expertise was evident and their pragmatic engineering solutions ensured the effective delivery of the aspirational design"

Ben Coster, Regional Operations Director, Countryside Properties.



WORLD BUSINESS CENTRE, HEATHROW

CLIENT: BAA LYNTON
PROJECT MANAGER: LAINGS
CONTRACTOR: BIRSE CONSTRUCTION
PROGRAMME: 12 WEEKS

BRIEF/CHALLENGE:
Bison were responsible for the design, manufacture, delivery and erection of the precast concrete elements required for the 60,000 square foot office building which features as the central building in this ambitious development.



PRODUCT USED:

- PRECAST CONCRETE CIRCULAR COLUMNS
- PRECAST BEAMS
- PRECAST STAIRCASES
- PRECAST WALL PANELS
- HOLLOW CORE FLOORS



CAR PARK

BISON FEATURE CASE STUDY FIVE

MANCHESTER ROYAL INFIRMARY

CLIENT: MANCHESTER ROYAL INFIRMARY HOSPITAL
ARCHITECT: TAYLOR YOUNG
CLIENT ENGINEER: GIFFORD LTD
CONTRACTOR: WATES LTD
PROGRAMME: 18 WEEKS

BRIEF/CHALLENGE:
 To design, manufacture, deliver and erect the precast concrete elements required for a seven-storey car park in a city centre location within the tight time scales required.



PRODUCT USED:

- PRECAST CONCRETE COLUMNS
- PRECAST BEAMS
- PRECAST STAIRCASES
- HOLLOW CORE FLOORS
- STRUCTURAL TOPPING



CLIENT QUOTE:

"The eight-storey car park at Manchester Royal Infirmary provides 1,616 spaces for patients, visitors and staff. The car park is one of the largest in Manchester and has received the Park Mark Safer Parking award.

Bison's precast concrete solution was cost effective, in keeping with the surroundings and their proven track record gave us that additional comfort factor. The resulting multi-storey facility has provided the spaces we needed and was opened ahead of schedule."

Dave White, Car Park Operations Manager, Central Manchester and Manchester Children's University Hospitals NHS Trust



WEMBLEY STADIUM

CLIENT: WEMBLEY NATIONAL STADIUM LTD
ARCHITECT: WORLD STADIUM TEAM
CLIENT ENGINEER: MOTT MCDONALD
CONTRACTOR: MULTIPLEX UK

BRIEF/CHALLENGE:

The Bison team effectively designed, manufactured and delivered the major precast elements of the stadium on time and to budget.

CLIENT QUOTE:

“Wembley has been an amazing experience for us all, involving major civil engineering works with an immense building job underneath. It is only when people step inside this vast sporting arena that they will actually realise the magnitude of the project and the very uniqueness of the outstanding national facility that it provides.”

Ashley Muldoon, Director of Construction, Multiplex

PRODUCT USED:

- PRECAST CONCRETE TERRACE UNITS
- STEP UNITS
- VOMITORY WALLS
- PRECAST STAIRCASES
- HOLLOW CORE FLOORS



TWICKENHAM RUGBY STADIUM

CLIENT: THE RUGBY FOOTBALL UNION / ARENA BUILDING CONCEPTS
ARCHITECT: WARD McHUGH ASSOCIATES
CLIENT ENGINEER: ARUP SPORT
CONTRACTOR: JOHN MOWLEM CONSTRUCTION

BRIEF/CHALLENGE:

To manufacture and deliver the major precast concrete components for this imposing structure, within tight budgetary and delivery programmes which Bison met.

CLIENT QUOTE:

“Bison’s products not only met with the Architect’s and Structural Engineers requirement for the lower tier structure to seamlessly match the North, East and West stands, which were built of in situ concrete 10-15 years previously, but also satisfied the need for robustness, durability and fire resistance.

Over 2,200 high-quality precast units manufactured by Bison were incorporated into the construction of the lower tier without any unit being rejected, their efficient delivery arrangements helped ABC Structures to reduce the initial and already demanding 12 week erection period by nearly 4 weeks. ”

Norman Brown, Director, ABC Structures



PRODUCT USED:

- PRECAST CIRCULAR COLUMNS
- RAKER BEAMS
- TERRACE UNITS
- STEP UNITS
- VOMITORY WALLS
- HOLLOW CORE FLOORS



IKEA WAREHOUSE, COVENTRY

CLIENT: THE IKEA GROUP
ARCHITECT: CAPITA RUDDLE WILKINSON
CLIENT ENGINEER: THE BOLTON GROUP
CONTRACTOR: SEVERFIELD ROWEN
PROGRAMME: 18 WEEKS

BRIEF/CHALLENGE:
To design, manufacture, deliver and erect the precast concrete products for the 480,000 square foot structure.



PRODUCT USED:

- PRECAST CONCRETE STAIRS
- LIFT AND STAIRCASE CORE WALLS
- HOLLOW CORE FLOORS



CLIENT QUOTE:

“We were pleased to specify Bison Manufacturing Limited as they can be relied upon to deliver good quality products on time and within budget. On the Ikea project Bison designed and fabricated various thickness floor units to all floor areas, 7 stair flights and also designed, fabricated and erected the concrete wall panels to form 17 lift shafts. This was carried out successfully to allow the store to open to programme”

Geoff Robinson, Project Manager,
Severfield-Reeve Construction



Prisons

The cellular nature of Bison's precast concrete components is ideally suited to prison construction as it allows them to adapt to almost any required design. Bison combines those products with its unparalleled manufacturing capabilities to create bespoke solutions to meet each individual set of requirements.

Included in the product range are such items as Bison's heated and cooled precast concrete slabs. These are ideal for use on prison projects as they provide substantial savings on construction and maintenance costs when compared to conventional air-conditioning systems. The advantageous thermal mass characteristics of concrete can also help create prison environments that remain comfortable without the use of costly air-conditioning

The precast nature of Bison's concrete products generates significant advantages in terms of on-site construction time by eliminating the need for propping, shuttering and concrete pouring. Being made from a non-combustible material they also address the important issue of fire resistance in prison construction by acting as an effective barrier to both fire and smoke.



Schools

Bison's on-site speed of construction advantages bring particular benefits to the schools sector where construction schedules are critical. Propping, shuttering and concrete pouring times are all eliminated and this can enable strict deadlines to be met which might otherwise have been impossible.

Fire resistance is another significant benefit which Bison products bring to school construction, with the non-combustible nature of concrete allowing it to act as a highly effective smoke and fire barrier.

Concrete's inherent thermal mass properties allow the creation of comfortable learning environments without the use of air conditioning and this generates sizeable cost and energy savings for the end-user. Excellent acoustic properties is another positive factor arising from precast concrete's mass and damping qualities, which is particularly important in relation to educational buildings where good acoustics are essential for all learning activities.

The active Fabric Energy Storage (FES) of concrete also reduces carbon dioxide emissions by up to 50% when compared to air conditioning – an important sustainability credential which can often help secure project funding.



PRODUCT RANGE

This brochure details some of the unusual and ground-breaking architectural designs that have been achieved by the use of Bison's products.

Bison's comprehensive selection of flooring solutions range from Hollow Composite, Solid Composite to Hollow Core options. Between them they provide a huge degree of design flexibility and this is again increased when other products, such as Bison's Cross Wall Frames and staircases, are added to the equation. Specialist Stadia products meet the specific requirements of these structures, with high load capacity, durability and strong fire resistance.

The advantages of concrete in general terms means that clients, engineers, architects and contractors alike can benefit. Its high thermal mass results in considerably reduced CO₂ emissions during the life of the building with heating bill reductions of up to 20% and cooling of up to 50%.



The natural strength of the material, its high fire resistance and ability to reduce vibrations are also key points in projects of this scale. When coupled with the flexibility, speed of build and reduced lead times that precast concrete allows, and the support of Bison's dedicated Special Projects team, this product is the optimum solution.

With quality assured right throughout both the standard and bespoke product options architects and engineers have come to rely on the Bison product range as a single source solution for all their structural concrete requirements.

PRODUCT RANGE



BESPOKE CAPABILITY

Bison's position as the market leader allows the company to offer a bespoke manufacturing capability that is second-to-none – one that contributes value-added design and engineering skills to each project and enables customers to turn their designs into reality.

Combining some of the world's most technically advanced in-house fabrication facilities with the skills and experience of its dedicated bespoke fabrication team allows Bison to deliver solutions that satisfy individual customer requirements in a proven and cost-effective manner.

Rigorous quality control systems at every stage of the process ensure that every bespoke product is designed and manufactured to the very highest levels of quality, while specialist delivery capabilities, full installation guidelines and on-site guidance complete the package.



The benefits of precast concrete teamed with experience and innovative forward thinking is where the value of working with Bison is clear.

In addition to the benefits already cited, the added value that comes from working with the market leader can be seen in these advantages:

- Unique developments designed to mitigate injuries improve speed and efficiency:
Lifting hooks - Trailasafe - Bison Air Mat - Hole Covers
- Waste reduction, on-site and in factory
- Bison's experienced specialist engineering support and design team
- Velta Heating and Cooling system - Bison and Velta have joined forces to provide an innovative, sustainable and cost effective floor heating and cooling system which is precast into Bison flooring products

BENEFITS



SERVICE AND SUPPORT

When it comes to supply logistics Bison customers enjoy the sort of unparalleled service that is only available from the true market leader.

Site assessments, stringent manufacturing quality procedures, off-site production capabilities and a specialist national delivery network ensure that Bison's bespoke products arrive on-site, on schedule and exactly as required. Installation assessments mean that quality is guaranteed at this vital stage, while the consideration that Bison gives to the long-term performance and maintenance requirements of our bespoke products mean that they can be relied on to provide many years of outstanding service.

Technical support is another area where Bison excels. We can provide expert guidance on many areas ranging from general product and project planning through to detailed design and regulatory compliance issues. Health and safety is always a key concern for Bison and here the company is able to support customers with a number of different measures which include health and safety assessments, recommended guidelines and a range of dedicated health and safety products.



Bison uses the very latest technologies, ensuring premium customer service from first contact to product delivery. Through close monitoring of logistics, Bison is able to provide a sustainable and highly effective delivery system to meet individual requirements:



SERVICE AND SUPPORT





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LIMITED**

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**PRODUCT BROCHURES
AVAILABLE**

- Concrete Flooring
- Staircases
- Stadia Products
- Crosswalls
- Lattice Flooring
- Beam & Block Flooring
- Safety Systems

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