HUB

Making places for people and trains

David Lawrence

Luke O'Donovan

Photographer's Notes

One of the perks of working with Network Rail is the travel; through photographing so many stations between this book and its predecessor LINK, I've been afforded the privilege of visiting most cities in Britain. Both books were produced on a tight timeline, and as a result I rarely had the chance to spend more than about an hour in any one location, but through my experiences of stations - the architecture, the people, the train window views from the journey there, I was always able to get a strangely vivid impression of each place I went to. In many ways railway stations are a microcosm of the cities, towns and villages that we live in, and I like to think that collectively the photographs I've produced form a time capsule of what life in Britain looks like today. In simpler terms, stations reflect a big part of how we live and who we are, and as such are quite a big deal.

Photographing standardised stations should in theory be an easy task, when by nature they're all supposed to be the same. The reality of what I found is that no two stations are ever quite identical, and that over time they've all developed their own quirks, beyond what the original architects could have imagined. Stations in Cheshire that were designed before the internet now host Amazon delivery lockers, and all across the country small stations have become libraries, cafes, galleries, and much more. More so now than ever in the age of austerity, railway stations are a massively valuable asset to communities.

On my travels I encountered the good, bad, and ugly of railway architecture, but what I was pleasantly surprised to see almost everywhere I visited was the civic pride that both railway staff and the wider public have for the railways. I came close to missing several trains going over archive pictures with station attendants, or chatting with passers by about local history, and of course listening to a few pitches on why their local station is the most deserving of funding for an upgrade. This sense of pride was clearest to see through community design interventions at a number of the small stations I visited - in the children's play area at Sanderstead, the book exchange at Chelsfield, or Christmas decorations made by local schoolchildren at Elmers End. My photography throughout this book taps into some of these ideas about the life that standardised stations have taken on beyond their original design intent. The book started as an architectural project, but the more stations I visited, the more I began to appreciate how much of the magic of a great station comes from everything else - people, community and place.

As Network Rail launches a competition for a new standardised station design, I hope that the successful designers are able to harness all of these powers. To twist the words of the late great Jane Jacobs, stations have the capability of providing something for everybody, only because, and only when, they are created by everybody.

Luke O'Donovan

Network Rail owns over 2500 stations (and manages 20 of the largest stations). This book shows how rail transport operators have designed station buildings which can be made quickly and economically, and have worked to provide the best environment for travellers.

HUB
Making places for people and trains

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Foreword
Simon Jenkins

Contents

Network Rail

Network Rail owns over 2500 stations which are the gateway to the UK's railway for millions of people across Britain - the majority of these stations are small to medium in size. This is our first retrospective publication of a selection of these stations which were originally designed to be made quickly and economically, while attempting to provide the best environment for passengers. It documents the rich and diverse portfolio of the stations we currently have across our estate covering those built at the birth of the passenger railway in the 1800's through to building systems developed in the early 2000's.

This publication has been undertaken through our continued collaboration between Luke O'Donovan and David Lawrence, and we are very grateful for their combined work in reviewing and recording the diversity of architectural typologies and contexts of these featured stations.

I lead Network Rail's Buildings and Architecture team and we are implementing a programme to elevate the importance of design for Network Rail's built environment. We have embedded a design framework into Network Rail processes which includes the Network Rail independent design panel, development and publication of design principles, and the introduction of a suite of built environment design guidance. This has contributed to Network Rail receiving the accolade of RIBA Client of the Year in 2019.

I have used design competitions to help Network Rail reinvigorate its approach to design - as part of this we will be launching an RIBA International Design Competition which aims to challenge and re-imagine what a 'station' could become as the interface between communities and the 21st century rail system, and that can be integrated in different suburban and rural contexts.

I would like to thank Sir Peter Hendy, Chairman and Andrew Haines, CEO, who have continued to provide their support to elevate the importance of good design within Network Rail, together with Frank Anatole, Principal Architect and Ian Grimes, Principal Engineer who have supported me in leading on our Buildings and Architecture design programme.

Anthony Dewar
Professional Head Buildings
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Foreword

The Victorian railway station ranked with the church and the town hall as a community's most important building. The station master was on a par with the vicar and the doctor. The building was not just a point of arrival and departure as well as a commercial hub. It was a frontier post, emotional as much as physical, between any settlement and the outside world. How it looked mattered.

More than anywhere else in Europe, Britain's 19th-century stations took on the character of their communities. Most were built at a time of stylistic upheaval, from the 1840s to the 1860s, and were left to jobbing architects and subcontractors to decide how they should appear. The overriding need was to build fast. Yet the result was a high standard and often exhilarating stylistic variety.

There were seaside villas (Brighton), stately homes (Huddersfield), rural cottages (Eggesford), monastic colleges (Hereford) and French chateaux (Slough). Early builders wanted stations to reassure passengers that trains were safe, as at Manchester's homely Liverpool Road. Later they demanded stations of confidence and grandeur, such as Euston and Newcastle. The chosen language wavered from Italianate to gothic, baronial to baroque, Queen Anne to neo-classical. British stations – if not termini – remain the most diverse and truly 'local' in the world.

Almost non-existent was any requirement for corporate identity or design. Brunel was left by the Great Western to employ Elizabethan at Temple Meads and Italianate at Paddington, though he imposed some uniformity in his smaller halts. For the Eastern Counties, Sancton Wood produced stations for its towns, not its corporate masters. So did J.R.Scott, producing neo-Georgian, baroque and art deco for the Southern Railway. Only rarely, as on the Settle-Carlisle line, did companies produce corporate pattern books. Even then, the style was pleasantly contextual, as were James Miller's Highland chalets for the Caledonian railway.

This tradition collapsed with nationalisation after the 1940s. New stations were few and far between. Such eccentricities as Manchester's Oxford Road, inspired by Sydney opera house, were rare exceptions. Stations degenerated into cheap 'bus-shelter vernacular', soon to become derelict and vandalised. British Rail architecture was, to put it mildly, not good. A station that turns its back on its local market and sees only a distant corporate HQ is inviting disrespect. The same has recently been true of poorly designed footbridges, tunnels, ramps and canopies – though stately Gleneagles shows that quality is possible.

This book is an effort to resolve the struggle between economy and architectural character. I believe it is a struggle that must never lose sight of the latter, of context and locality. Railways have enjoyed a return to public favour. The surge in suburban commuting is equalled by the remarkable revival of the so-called heritage and leisure sector. The reality is taking root, that the popularity of a railway is not confined to the convenience of getting from A to B. It embraces the visual pleasure of the journey, notably of its start and finish. A station building is not just a utility. It should always say welcome and farewell.

Over the course of history stations, like churches, have had their ups and downs. But they will not go away. They are temples of mobility that will be with us forever. They should be designed with that in mind.

Sir Simon Jenkins

Introduction

We may not notice the railway station at all, unless it is uncomfortable or unpleasant in some way: it is just there to get us from street to train. That is the purpose of the station, a point on a route where we access transport, meet friends or family, shop or collect purchases. The railway station is best when it represents an invitation to travel. It must help the traveller go from city, town or rural area to train, and from train to destination. Stations should be comfortable, helpful, safe, and easy to use by everyone. Stations are our home for the time we wait for our train or the visitors who will arrive or depart by train.

The station is a vital hub for communities of every scale and type. It is a special kind of public space. Whilst high streets decline in the face of virtual retail and social media, the station remains a vital physical presence as a civic landmark. It is the threshold between the (usually) public and social space of the city, town or village, and the particular commercial and private space of the railway operator. A station provides shelter for the business of travel, and for passenger comfort and convenience. The feel and atmosphere of the environment outside and within the building are important for passengers and as good publicity for the train operator.

Through the twentieth century railway operators developed or adopted new systems for mass-producing station buildings. The operators worked with notable architects and skilled industrial designers. Some systems of mass-production were inventive and elegant; others were crude but cheap. Ultimately the former, State-owned British Rail purchased bus shelter structures for areas where passenger numbers could not justify anything more specialised. This book reviews all the main systems used through the twentieth century. It also considers some earlier examples, and more recent work by Railtrack and Network Rail. Now, beginning a new decade, fresh ideas for standard stations are emerging. We look forward to encountering them somewhere on a future journey, as the railway station continues to evolve.

Denham Golf Club
Charlbury
Mortimer
Goostrey

Historic Precedents

Historic Precedents

British Victorian and Edwardian stations reflected the aspirations and financial status of the private companies which built them. Architectural designers, structural engineers and surveyors employed by those companies worked to make buildings suggesting permanence and success, and an assurance of safety and reliability. Where money for stations was limited, basic materials were assembled to make simple shelters for the fundamental activities of buying travel tickets and waiting for trains.

Many railway operators attempted some coherence in design, as a way of generating what we now know as brand image or corporate identity: a shared style which would remind and reassure the public that they were travelling with a reliable, familiar organisation. Deploying similar buildings at various sites allowed the structures to be mass-produced to an agreed standard, ensuring identical facilities across networks, and a more straightforward approach to construction and maintenance. Building designs were based on various contemporary architectural styles of Victorian Britain, including interpretations of Italianate styling, pavilions or pagodas, and timber sheds displaying hybrid English and Indian influences. Both 'wet' and 'dry' construction methods have been used. Wet construction included brick or stone stations built on site with mortar joints below tiled roofs, and reinforced concrete moulded/cast on site. Dry construction has included several innovative designs for prefabrication: building parts (sometimes called a 'kit of parts') made to standardised specifications away from the railway and shipped to site by rail or road for fast assembly.

Isambard Kingdom Brunel (1806–59), designing for the original (1835–1948) Great Western Railway, recognised that the nature of the station as shelter requires a unique addition: a covered area extending between building and train. This canopy, modelled on the verandas attached to houses in climates where shaded outdoor space is required, has remained the dominant, defining feature of the British railway station in every scale from small stopping place to major terminus. Mortimer (Berkshire) is a good example of Brunel's solution for a universal small station made with standard components. Charlbury (Oxfordshire, 1853) is similar, but uses predominantly 'dry' construction - timber. Architects working for Britain's railway operators have continued to exploit the form of the canopy, making it appear light or heavy, thin or thick, monolithic or made of multiple elements.

When engineer Joseph Paxton (1803–65) designed the iron and glass 'Crystal Palace' pavilion for London's Hyde Park to house the Great Exhibition of 1851, rail transport was only

Brunel's GWR station buildings can still be found at Mortimer and Charlbury (right). Detail at Mortimer (far right).

a few decades old. Paxton's experience came from producing horticultural buildings. These did not require unique architectural features, but they did benefit from the manufacture of standardised parts to create different sizes and forms without unnecessary expense. Most importantly, Paxton's designs created bright, weatherproof shelters for people. The earliest railway companies knew that they had to discover a new architecture for their passenger buildings, one which could feature 'a series of different architectural treatments applied to a standard station plan' (Barman 1950: 23). Railway trains were built using standard parts too, in factories. Could the manufacture of station buildings be done in a similar way? Prefabricated station buildings were cheaper and quicker to produce than brick or stone types. They were also easier to repair because individual parts could be replaced from a supply of spare components. If station circumstances changed, the entire prefabricated building could be moved to another location. By the 1870s railway companies had adopted mass-production of wooden buildings; by the start ofthe First World War in 1914, bolt-together stations had been devised and deployed across Britain.

'Corrugated iron' - sheet from corrugated galvanised steel, gave builders one of the first truly universal materials featuring the potential as a walling or roofing surface, and inherent structure. In time this product would be widely used: for bungalows in northern India, churches in western America, and for municipal, industrial and agricultural buildings internationally. From 1907 the Great Western Railway made an elegant prefabricated shelter for deployment across its network in England and Wales. Frequently these small 'pagoda' buildings would be the only structure at a small station. They could be made in different sizes, enclosing only a passenger waiting space, or staff/office space and a waiting area. 'Pagoda' shelters remained in use at many locations for some decades. Corrosion of the corrugated iron could be repaired by patching, but if damage was extensive the shelter could be replaced. Many have been demolished as railway routes closed; some have been retained in public use or at railway preservation sites.

Many railway companies saw the economic and publicity value of standardised structures made predominantly with timber. Cheap to make by craftspeople with non-specialist knowledge, they could be used in places where foundations were of poor quality, painted in whatever colour schemes the railway promoted, and could easily be relocated if travel patterns or operating needs changed. Smaller structures of this type were entirely of wood, with metal fixings. Medium-sized and larger versions would commonly use decorative metal brackets or mores sophisticated structures to support the canopies over access routes and platform passenger waiting areas.
A timber ticket office at Goostrey (Cheshire) was restored in 2019.

The 'pagoda' waiting shelters and ticket office at Denham Golf Club are listed as Grade II Buildings by Historic England (formerly English Heritage) for their special architectural or historic interest.

Mortimer

Denham Golf Club

Marsh Lane & Strand Road
Stonebridge Park
West Hampstead
Queen’s Park

LMS ‘Unit’ Station

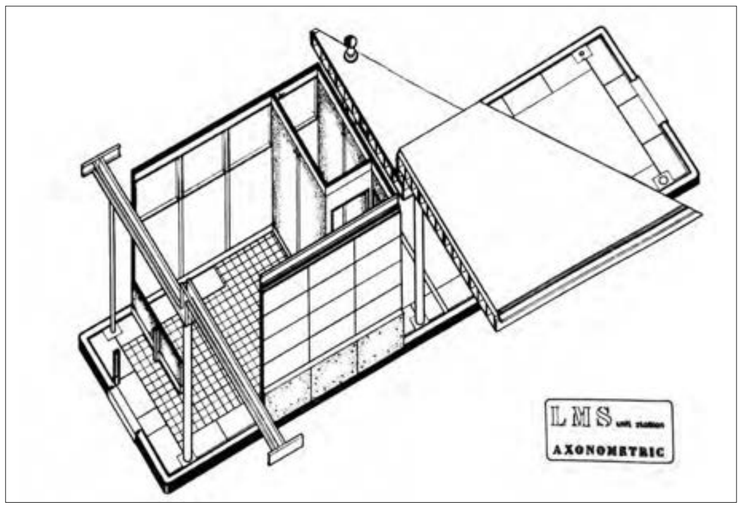
LMS ‘Unit’ station

Leslie (later Sir Leslie) Martin (1908–2000) and his wife Sadie Speight (1906–92) designed a timber framed school at Hartford (Cheshire, 1938), which used standard components to test the idea of building with ready-made structures. Martin joined the Development Section of the London, Midland and Scottish Railway in 1939. The Section provided its organisation with a universal design service, including architecture, building and passenger vehicle interior design, furniture, textile and industrial design. Importantly, it researched types of station, planning and production of buildings, types of structure and their performance, wear and maintenance of materials and finishes, lighting and plumbing, and furnishings. From this data specifications were produced to develop standardised building designs. The Second World War brought the opportunity to research and implement the mass-production of several hundred buildings across the London, Midland and Scottish Railway network, particularly to provide workers’ canteens. Knowledge from this endeavour enabled Leslie Martin and his team to create an almost fully prefabricated building they named the ‘Unit’ station.

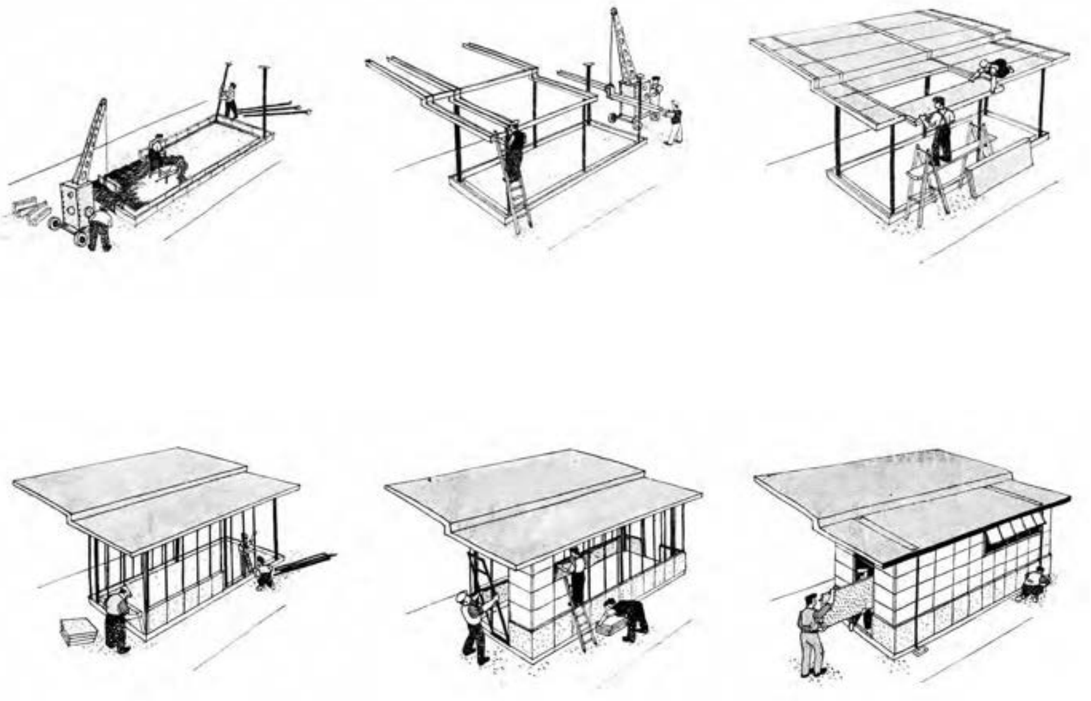
The ‘Unit’ station was influenced by a pavilion for the Barcelona International Exhibition of 1929. Designed by Ludwig Mies van der Rohe (1886–1969), the pavilion had a gridded plan for the positioning of structural supports: this was adopted for the ‘Unit’ station. This grid could be extended without affecting the design concept. Also like the Barcelona pavilion, the ‘Unit’ station columns would carry a flat roof, allowing walls and space dividers to be independent of the structure. The utility of this approach was evident to the Development Section: a grid plan to connect a series of structures, and standard frames around which enclosures could be configured to the needs of passenger flow and railway operation at a variety of locations. Design criteria for the ‘Unit’ station are still relevant. Technical specifications would include the potential for manufacture of buildings in large quantities. High-performance, standard materials and components with good resistance to the particular environment of the railway guided innovation. Aesthetics of building form and detail were balanced with the efficiency of building up, and if necessary knocking down and moving, the structure. Three examples of the ‘Unit’ station were built during 1945–48, at Queen’s Park (London), Marsh Lane & Strand Road (Liverpool), and Stonebridge Park, (London).

The London, Midland and Scottish Railway ‘Unit’ station prototype being tested at Queen’s Park (London), 1946. It was later moved to West Hampstead (London), where it continued in use for another fifty years.

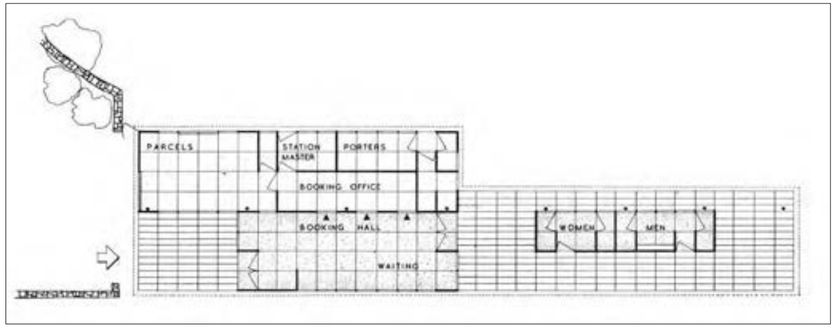
London, Midland and Scottish Railway ‘Unit’ station axonometric drawing. The ‘Unit’ station comprised a welded steel frame, combining wall supports with an integral roof and cantilevered platform canopy structure. Factory-made concrete u-shaped blocks formed a continuous foundation for the steel frame and a duct for the pipes and cables of the building services. If electricity, gas or water services were repaired or changed, the duct would accommodate these alterations. Vitreous enamelled steel panels in standard sizes provided the exterior wall cladding, fixed to the structure with standard components. Similar pre-decorated panels were clipped to the frame for the interior lining. Stressed-skin boxes - made like hollow wood doors - formed the roof-canopy elements under a weatherproof membrane.



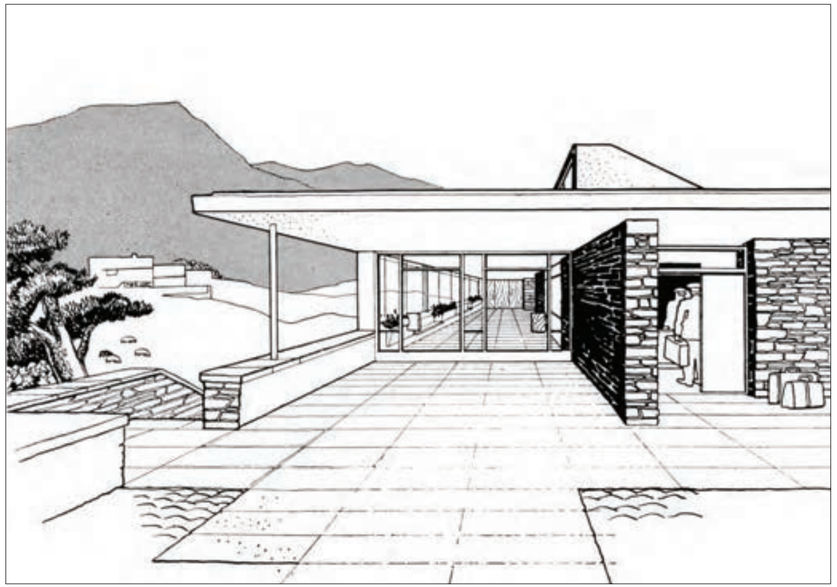
Three workers could quickly assemble the ‘Unit’ station from ready-made parts delivered by rail.



The regular plan of the ‘Unit’ station could be adapted to a variety of settings, such as town or country, inland or coastal, stone or brick built.



After the ‘Unit’ station, which was fabricated almost entirely using ‘dry’ construction, the Leslie Martin-led team at the London, Midland and Scottish Railway proposed similar, standard forms for stations across the network. They would be made using materials appropriate to the local context: brick and wood, stone and wood, or all-wood. Design of these standardised stations is clearly influenced by the open-plan ideas of Frank Lloyd Wright and Ludwig Mies van der Rohe. Perspective of the proposed station for Hathersage (Derbyshire, 1948).



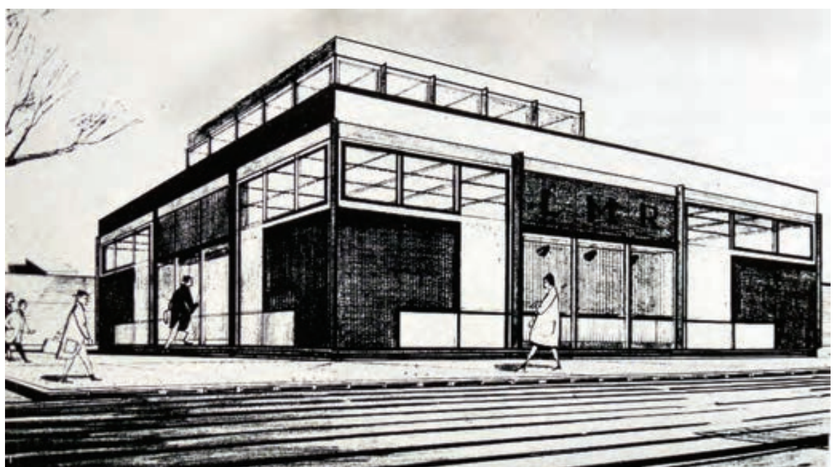
East Didsbury
Heald Green
Sandbach
Burnage

Mod-X

Mod-X

System building suited sectors of industry where quick, standardised buildings could provide modern facilities of a uniform style. Electrification of the West Coast Main Line between London and Liverpool, and of suburban routes around Manchester in Lancashire and Cheshire, required a considerable number of stations to be replaced or renewed quickly. This was an opportunity to resume innovation in prefabricated railway buildings. Like the wartime 'Unit' station, these would be planned on a grid of rectangular units. Main station buildings comprised pairs of columns arranged to form several squares in a 'U' shape around a ticket hall atrium. Main station buildings contained ticket sales, staff offices, public lavatories, stores rooms, and cycle storage. Setting the roof over the ticket hall atrium half a storey higher than the single storey surrounding building, provided a clerestory to light the public areas. For platform buildings made with Mod-X pairs of vertical supports would be aligned in a single row to form the number of units required. Each pair would support both the transverse internal partitions, and the steel, wood, cement board or glass perimeter walls. Glass panels placed high in the buildings' platform side walls featured the station name. Lighting from within the buildings advertised the name panels at night.

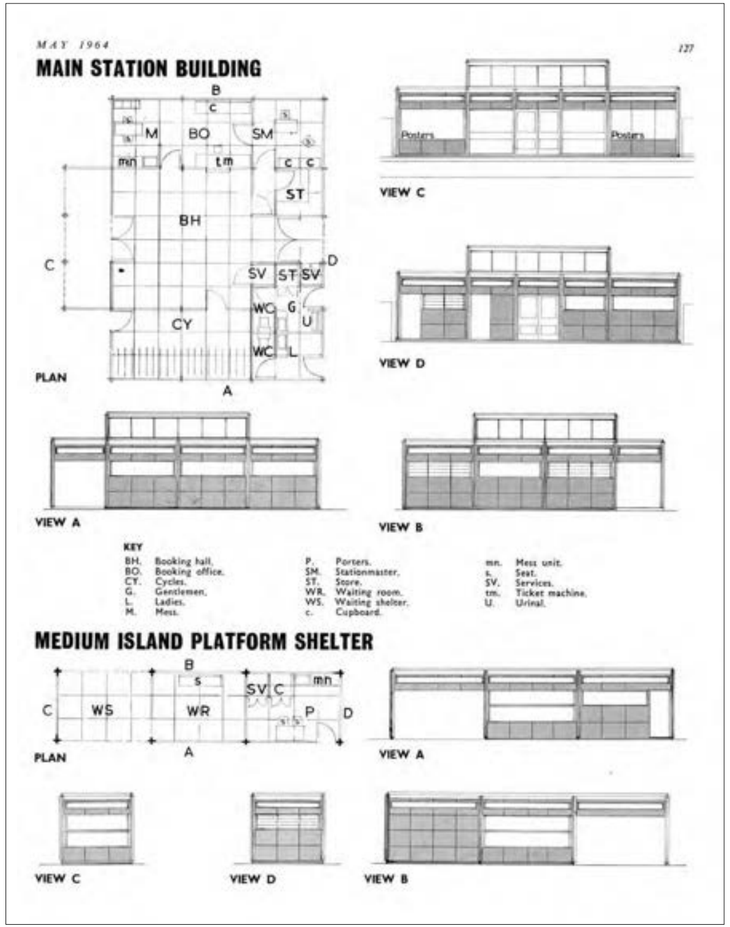
Concept drawing for a Mod-X prefabricated station building, here with the addition of a clerestory booking hall tower. This design shares its appearance with a house designed by German architect Hans Scharoun (1893–1972) in 1927 using prefabricated timber panels.



Prototype for the Mod-X system at East Didsbury (Greater Manchester, 1959). This is a complete station building delivered by rail for rapid assembly from a set of parts. The building frame is clad in hardwood, with wall and partition panels of glass, moulded vitreous enamelled-steel, and wood, plastic-faced wood and cement sheet. Upper wall sections are formed of glass to brighten the interior spaces. The cantilevered canopy has its own integral structure of folded plastic laminate-faced plywood panels acting as beams for rigidity.

Sandbach, Cheshire, 2020. The flexibility of the Mod-X system is proved by its survival over half a century, even when rebuilt with brick panels to the original aluminium frame (also at Holmes Chapel, Cheshire). In the Mod-X Mark II prefabrication system, some buildings have the frame set forward to make a small porte-cochère canopy over the entrance.

The Mod-X buildings devised by British Rail's London Midland Region architecture team advanced the innovation of a modular system, by which many configurations of station were possible. Ludwig Mies van der Rohe's Barcelona pavilion of 1929 continued to be an influence: for Mod-X the structural columns were of cruciform pattern similar to those used in Barcelona. The railway architects chose this pattern because it would allow walls and partitions to be connected to all or any of the four sides of each column according to the layout of spaces.



Sandbach

Heald Green

Burnage

East Didsbury

Heald Green (top), East Didsbury (bottom)

East Didsbury (top), Heald Green (bottom)

Burnage (top), Sandbach (bottom)

Berrylands
Forest Hill
Meopham
Aylesham
Brockley
Charlton
Catford
Wool

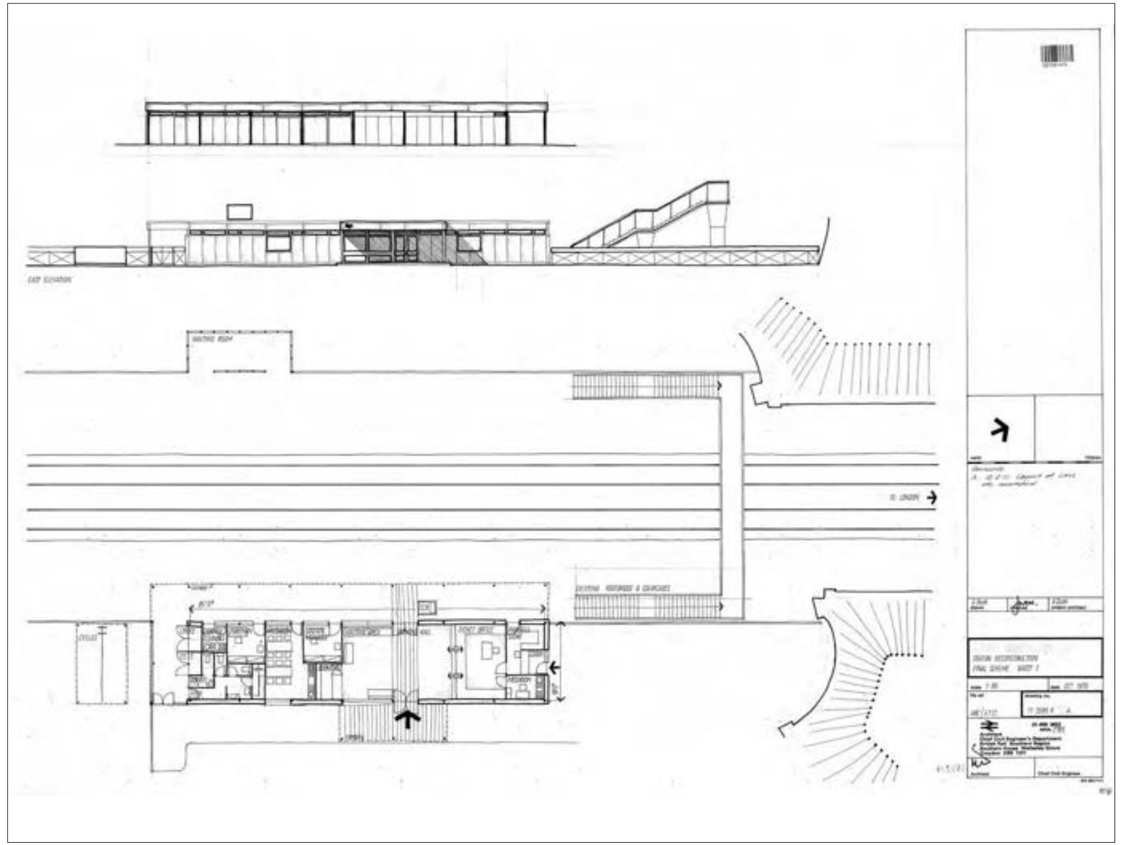
CLASP

CLASP

British Rail's Southern Region operated stations and trains from Kent to Cornwall, and in London's south eastern, southern and south western suburbs. A programme to replace 400 decayed, dirty or outdated station buildings in ten years from about 1965, without sufficient money to design new stations at every location, led to the Region's architects selecting an existing building system called CLASP (Consortium of Local Authorities Special Programme). CLASP used prefabricated concrete panels of standardised dimensions for exterior walls, and timber/glass panels for interior partitions, to make simple, mostly single-storey, structures of rectangular plan. Walls could be configured according to the operating needs of a station. A range of wall panels included blank concrete types, some with high clerestory windows for lavatories or private offices, others with half-height windows below the clerestories for ticket halls and waiting areas, or the concrete could be omitted entirely in favour of fully-glazed fixed windows, or functioning doors. The Southern Region built more than thirty CLASP stations; the system found limited use on other parts of the railway network.

Slade Green (Greater London) booking hall, 1968.

Technical drawings for a CLASP station at East Grinstead, made in 1970



Aylesham

Berrylands

Meopham

Wool

Wool

Brockley

Charlton

Catford

Aylesham

Brockley (top), Meopham (bottom)

Charlton (top), Aylesham (bottom)

Wool (top), Forest Hill (bottom)

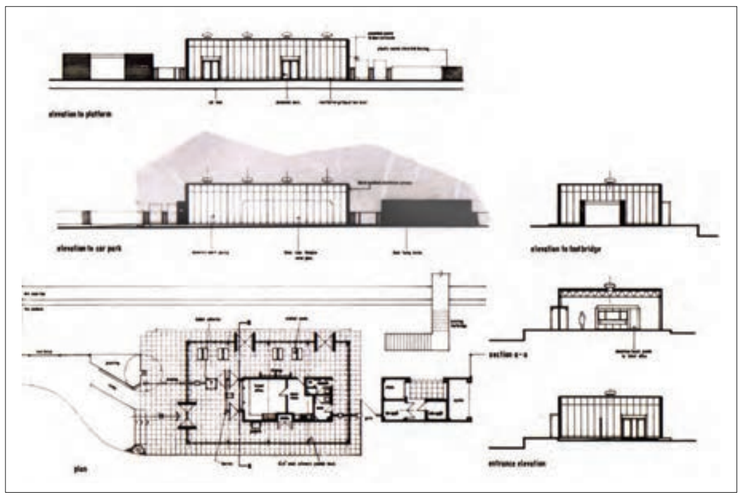
Berrylands (top), Catford (bottom)

Stoke Newington
Wood Street
Elmers End
Camberley
Sevenoaks
Streatham
Chelsfield
Maze Hill
Bedford
Radlett
Liss

Design for the Seventies

Advocacy of steel in construction – by steel manufacturers, and of central heating and ventilation – by equipment producers – and finally of glass manufactured to both insulate and control heat gain, all encouraged architects to adopt the aesthetic of apparently self-supporting glass box buildings, as the ultimate expression of an idealised urban future. This dream was not at all new - it had been around in designers' drawings since the early twentieth century waiting for material technology and structural engineering to make it a reality.

British Rail's Southern Region was dissatisfied with the results of its CLASP project. Noticing a station made by the Eastern Region at Bishop's Stortford (Hertfordshire), in the style of Ludwig Mies van der Rohe's mid-western American office buildings, Southern Region architects produced the 'D70 - Design for the 'seventies'. In the D70 and its several variants developed by British Rail across Southern and Eastern operating regions, structures giving internal support to the single-storey glazed station buildings took two forms. One featured horizontal beams spanning the space in one direction between perimeter columns; the second comprised a three-dimensional 'space frame' of interconnecting struts. Examples of the first type can be seen at Camberley (Surrey), Chelsfield (Greater London), Elmers End (Greater London), Liss (Hampshire), Maze Hill (Greater London), Sevenoaks (Kent - not in original form), Streatham (Greater London), and Wood Street, Walthamstow (Greater London). Buildings with space frame roof structures include Bedford (Bedfordshire), Gatwick Airport (Surrey), and Radlett (Hertfordshire).



'D70' station building at Liss (Hampshire, 1972) in plan, section, and elevation views. The concept behind this design is for a 'room within a glass-house', where one person could survey the station from the booking office, and with transparency of walls to improve personal safety.

Bedford Midland (now known simply as Bedford) station exterior, concourse, travel centre and ticket office.

Chelsfield

Camberley

Camberley

Chelsfield

Liss

Radlett

Bedford

Camberley

Elmers End

Chelsfield

Maze Hill

Streatham

Streatham

Maze Hill (top), Sevenoaks (bottom)

Chelsfield (top), Liss (bottom)

Radlett (top), Bedford (bottom)

Stoke Newington (top), Wood Street (bottom)

Kings Norton
Northfield
Five Ways
University
Bournville
Selly Oak

Neo-Vernacular Brick

Neo-Vernacular Brick

The strategic Cross-City route through central Birmingham opened May 1978, with a series of brick stations designed by John Broome at British Rail. Broome wanted the buildings to have a consistent appearance, through use of material and form. Brick suited the trend for a more traditional look - following a wider reaction against the steel and concrete of the 1960s. The simplicity of form implied that these stations were to be unpretentious additions to the suburban landscape.

The brick stations in use throughout the Birmingham Cross-City route all employ a standardised architectural style in the buildings themselves, but each individual station interacts with the urban realm according to the local context. Selly Oak and Northfield are accessed through the station car parks, whilst University, Five Ways and University open directly onto busy streets.

At Bournville, where the platforms are at a higher level, the brick ticket hall provides a welcoming street presence for the station. The station uses a shade of brick which is sympathetic to its suburban context, and relies on its distinctive silhouette and bold signage to stand out to travellers.

University

Five Ways

Kings Norton

University

Bournville (top), Northfield (bottom)

University (top), Selly Oak (bottom)

Five Ways (top), Kings Norton (bottom)

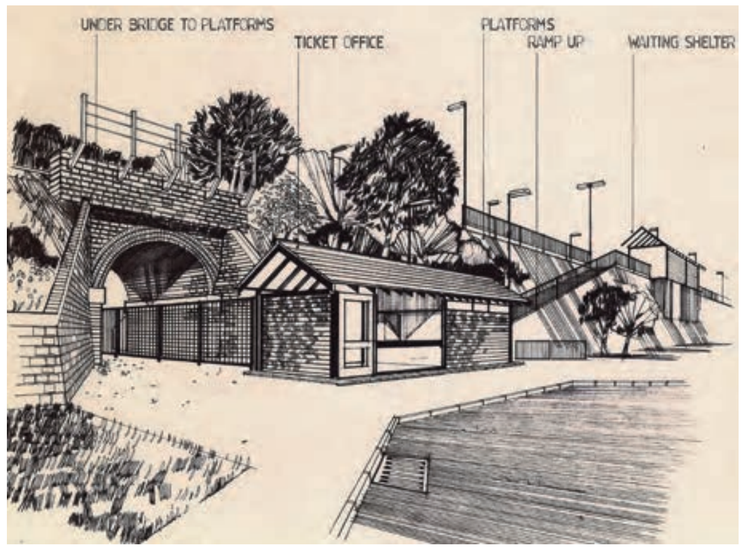
Ravensbourne
Kings Langley
Sanderstead
Staplehurst
Hackbridge
Trowbridge
Headcorn
Marden

‘Very Small Building for the 90s’

‘Very Small Building for the 90s’

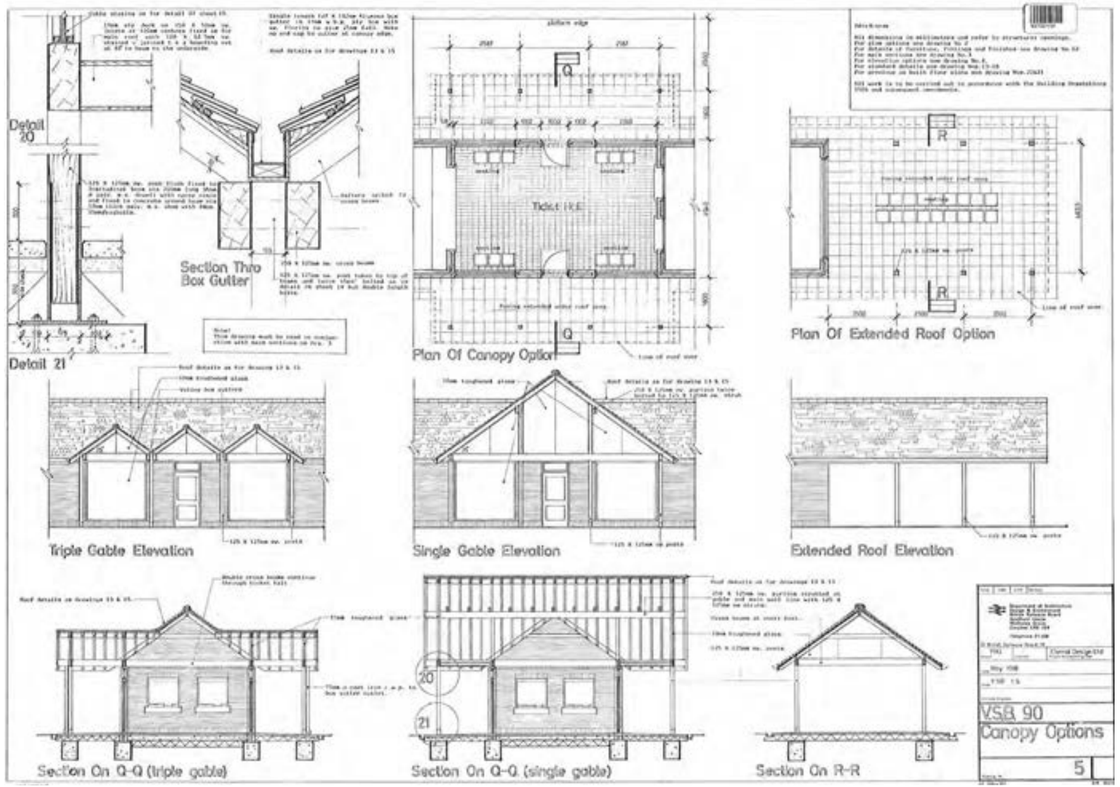
Through the 1970s conservation groups had argued that buildings should respect tradition and be made well. Local authority planning departments took an increasingly conservative approach to how architects used building materials. Railway stations, a very visible, fixed aspect of the landscape, would be expected to conform to revised guidelines for appearance and context; these were biased towards the outward manifestation of a traditional or vernacular architectural style. Documented completely by a set of only 21 drawings, the VSB90 modular building system made possible a wide range of plan forms and material finishes, whilst maintaining control of building standards and external appearances. In time the VSB90 concept was shared with other British Rail operating sectors, resulting in new plain brick buildings under pitched or hipped roofs as replacements for outdated facilities at many railway stations.

Some variations on the VSB90 design can be seen at Headcorn (Kent), Kings Langley (Hertfordshire), Lower Sydenham (London), Marden (Kent), Martin’s Heron (Berkshire), Ravensbourne (London), Swanwick (Hampshire), Thirsk Junction (North Yorkshire), Trowbridge (Wiltshire), and Winnersh Triangle (Berkshire).

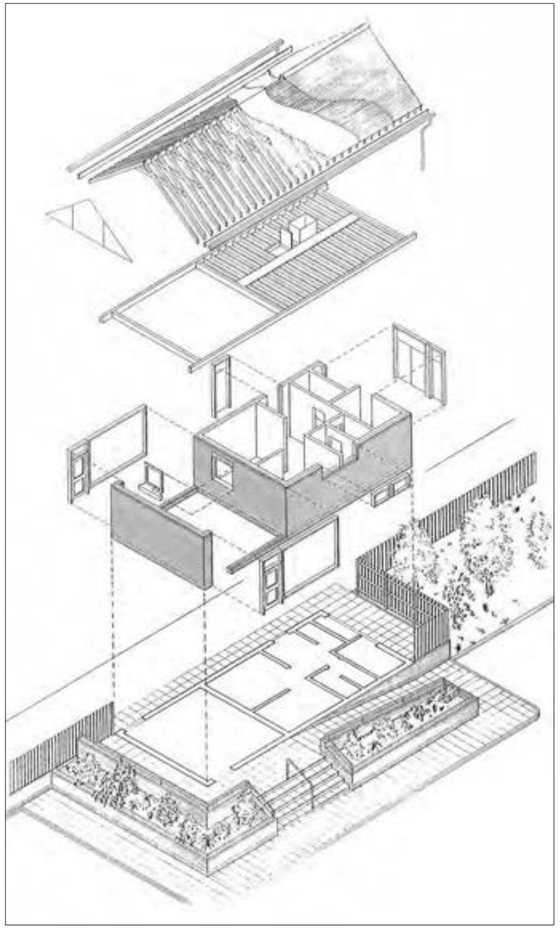


Perspective for the VSB90 prototype building at Loddon Bridge (Berkshire), opened as Winnersh Triangle in 1986.

In its most elegant and original form the VSB90 has a slate roof with exposed beam running the length of the floor plan and exposed timber roof trusses inside the booking hall. The space of the roof eaves is glazed to give the roof an appearance of floating over the brick and stained timber walls.



The requirement to meet planning controls for appearance caused designers of the VSB90 system to specify brick walls and tiled roofs - traditional materials and 'wet' wall construction. The type of brick and tile could be varied according to the local context. Roof design took inspiration from traditional buildings too, offering, for example, suggestions for one large gable at either end of the structure, a single transverse gabled roof, or a grouping of three or more subsidiary gables. A covered waiting area could be formed by extending the roof on a series of posts. The plan options show that many permutations of building were possible within the aesthetic constraints. In the 'minimal accommodation' option, only a ticket office with one sales window and associated staff spaces would be provided. The most extensive building would be formed by a large ticket hall/waiting area, 'tenanted' kiosk retail unit, public toilets, ticket office and various staff spaces [Staplehurst]. Reflecting an increasing understanding of accessibility needs, approaches to the building could include steps and ramps integrated into the landscaping with planted areas.



Marden

Sanderstead

Kings Langley

Sanderstead

Ravensbourne

Sanderstead

Staplehurst (top), Kings Langley (bottom)

Hackbridge (top), Headcorn (bottom)

Trowbridge (top), Sanderstead (bottom)

Hampton Wick
Homerton
Barnes

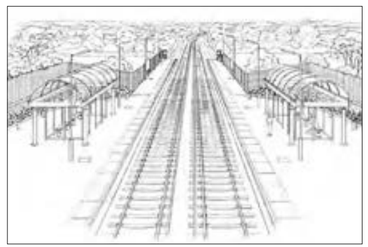
Adaptable Shelter

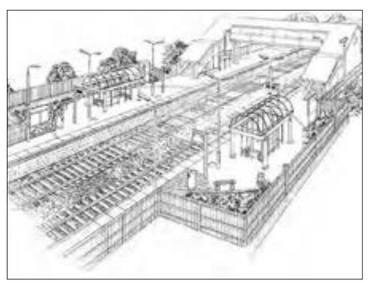
Adaptable Shelter

Towards the end of the 1980s British Rail operating sector Network SouthEast commissioned a passenger shelter design from Hodge Associates. The aim was to provide - on a limited budget - a distinctive and resilient building which would look right in the industrial context of the railway. This is another example of prefabrication, in cast steel for structure and seating, with glass or plastic for the roof and wind screens. Using a collection of standard parts, the system proved sufficiently flexible to form small passenger shelters or complete station buildings. In many cases the Hodge shelter was the only structure on a platform, and in British Rail's terms it was the station building. Many are still in use across south east England in 2020.

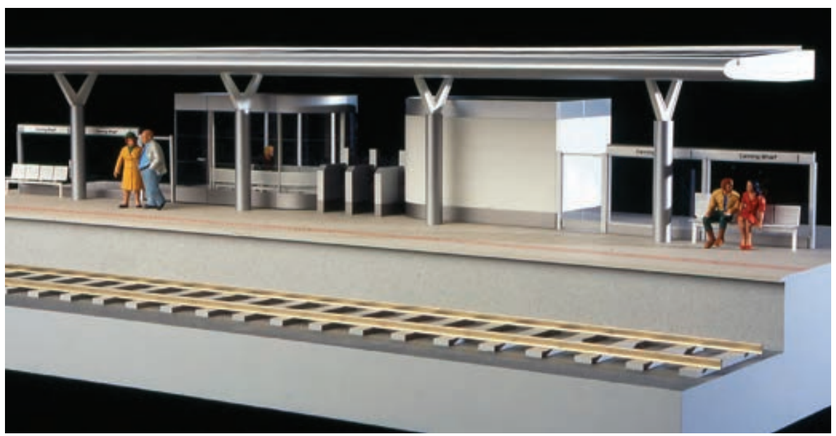
For their modular station design exercise, Railtrack used a cantilever structure similar to that of the 1945 London, Midland and Scottish Railway 'Unit' station.

Waiting shelter with barrel vault roof at Brondesbury Park, London (right). Artist's impressions of Hodge Associates shelters with barrel vault roof (left).





The 'Canning Wharf' initiative was devised in the mid 1990s by former British Rail architects working with Railtrack Property. It represented a completely modular system which envisaged the simplest of facilities, to which more accommodation components could be added to suit passenger numbers and needs. Although it remained a concept, 'Canning Wharf' was developed by Network Rail and Macemain+Amstand to become the Modern Facilities At Stations scheme which produced many new station buildings across the network from 1999.



Hampton Wick

Barnes

Homerton

Templecombe
Cumbernauld
Trent Valley
Cwmbran
Trefforest
Lichfield
Uckfield
Shotton
Blairhill

Macemain+ Amstad

Macemain + Amstad

Where there are insufficient resources to procure fully architect-designed stations, producers of modular structures Macemain + Amstad offer a range of prefabricated examples. There are small shelters giving cover for a ticket machine, and complete buildings which contain ticket office and waiting area, all made with stainless steel and toughened glass. Almost all of the construction and interior finishes are handled at the production facility, so that the buildings can be delivered for quick completion by little more than bolting the modules together.

In some instances, a more bespoke solution is required. For Cumbernauld (North Lanarkshire), and Blairhill (North Lanarkshire), Douglas Lawson of IDP Architects incorporated a canopy into the designs. Materials used in the projects have a lifespan of sixty years.

A complete modular station building at Templecombe (Somerset) made using the Macemain + Amstad system.

Macemain + Amstad station buildings are designed to be commissioned quickly and simply. They can be assembled for use in four hours. Cumbernauld (North Lanarkshire), installed in 2014.

Hassocks (top), Wool (bottom)

Coulsdon Town (top), Berkswell (bottom)

Barnes

Lichfield Trent Valley

Shotton

Cwmbran

Lichfield Trent Valley

Trefforest

Cumbernauld

Blairhill

Blairhill

Cumbernauld

Blairhill (top), Cumbernauld (bottom)

Templecombe (top), Shotton (bottom)

Trefforest (top), Cwmbran (bottom)

Buckshaw Parkway
Mitcham Eastfields
Coulsdon Town
Greenhithe
Berkswell
Hassocks
Uckfield
Corby

Network Rail Modular Station

Network Rail Modular Station

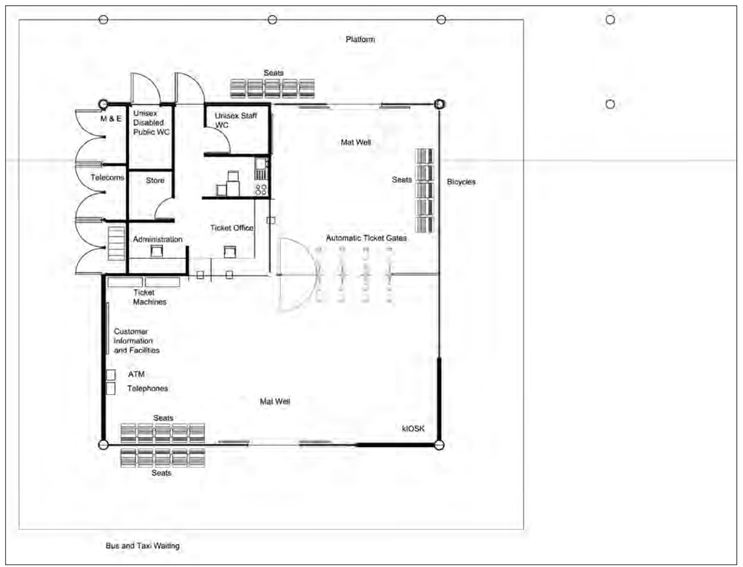
We have seen how series or sets of similar railway station buildings are commonly characterised by a rectangular block form below a flat roof. This is a result of systematised assembly systems and a desire to promote the aesthetic of modernity. Network Rail's Modular Station proposal developed by architect Robert Thornton and John Fellows would make possible standardised buildings, for new sites and where better facilities were needed to reflect increases in passenger volumes and expectations. A further aim was that through standard station designs Network Rail could ensure a high level of building quality to accommodate contemporary technology and commercial activities and create a consistent positive environment to enhance passenger perceptions across the railway network. As the London, Midland and Scottish Railway 'Unit' station had allowed for an extendable planning grid, with the roof independent of the structures it sheltered, so the Network Rail Modular Station too could be configured in many ways without negatively affecting the structural or visual integrity of the building-canopy combination. To maintain uniformity and allow flexibility a limited number of cladding materials was proposed for the rain screen walls: stove-enamelled or powder-coated metal, smooth/textured stainless steel; glazed ceramic tiles or terracotta block, hardwood, or framed or planar glass. Roof overhangs featured smooth, uninterrupted soffits made to taper to their thinnest at the canopy edges. The edges themselves were designed with 'aerofoil' cross sections 'so as to appear of minimal dimension.' Roofs could contain photovoltaic cells, ventilation and other equipment, and rainwater management systems.

Both horizontal and vertical dimensions could be varied without altering the unity of the building design. By keeping the columns at the corners, the enclosed space was free for any internal layout. Paired columns formed the base canopy supports, enabling permutations of shelter over waiting areas, ticket machines and automatic ticket gates with the potential for incremental growth using the same system. A consistent form of canopy united the various elements provided at the station.

The Modular Station concept scheme was published in 2006, as part of a twenty-five year plan. It would focus on 'Large Feeder' (category C), 'Medium Staffed' (category D), and 'Small Staffed' (category E) stations, with provision for local un-staffed stations with relatively low footfall. There are several built examples including Corby (Northamptonshire, 2007–8), Greenhithe (Kent), Mitcham Eastfields (London, 2007–8), and Uckfield (East Sussex, 2010). Smitham (London, 2010, now known as Coulsdon Town) is a simplified version of the concept. Paul Beaty-Pownall designed Hassocks (West Sussex, 2013) to replace a CLASP building. Buckshaw Parkway is a later interpretation. West Hampstead Thameslink by Adam Brown of Landolt+Brown (London, 2011) showed how the design ideas could be further developed.

At Hassocks (West Sussex) the building is extended over a rectangular plan, and a deep canopy added to give weather protection at a lower level. Hassocks is a development of the Modular Station which uses panels bolted onto stainless steel columns. In this way, the building becomes very flexible and could be altered for different uses over time.

A plan drawing from August 2006 showing the public and private areas of a Network Rail modular station.



Uckfield

Buckshaw Parkway

Buckshaw Parkway

Coulsdon Town

Berkswell

Mitcham Eastfields

Hassocks

Buckshaw Parkway


Fire exit
2020
DESTINATION
LOCO COCO
COFFEE
Hot and Cold
Snacks&drinks

Corby


Corby

Corby

Buckshaw Parkway (top), Corby (bottom)

Uckfield (top), Coulsdon Town (bottom)

Mitcham Eastfields (top), Greenhithe (bottom)

Berkswell (top), Hassocks (bottom)

Appendix

Colour in the Station Environment

Railway operators have always used colour as an additional means of branding their environments: both the passenger trains and the static buildings. Colour is chosen for various reasons. In contemporary railway environments particular hues and shades will be selected for visibility by all uses, and to highlight safety or direction information. Colour may be selected perhaps in relationship to the local context of the station, because of the need to reduce maintenance costs whilst keeping the station bright and pleasant to use, or to express a particular architectural style. Here we show colours used for station buildings in Britain during the twentieth century.

Transport operators know the value of consistent colour schemes in buildings. Like all good brands, the use of standardised colour in decorations and signs implies an assured standard of service, and communicates a positive familiarity to travellers. Network SouthEast, operating trains in the period before British Rail was sold into private ownership, preferred bright, traditional colours on a clean white background.

Liverpool Street, 2018.

Private railway operators 1923–47

Traditional railway colours relied on easily available pigments, limiting colour schemes for station exteriors and interiors to combinations of green, blue or brown with variants of cream, broken white or stone.

Leslie Martin and colleagues at the London, Midland and Scottish Railway favoured colour contrasts like red with green and dark blue or chocolate brown to give depth and solidity to an interior. For the unit station, bright, clean colours were selected. This would achieve a balanced colour relationship in all parts of the station. Items to be easily seen by the public carried a brighter colour.

Great Western Railway

Southern Railway

London, Midland and Scottish Railway

London and North Eastern Railway

London, Midland and Scottish Railway experimental colours 1946–48

British Rail 1948–65

Archrome colours, devised by architects as a complete range for use in post-1945 school interiors, also suited railway stations. British Railways' architects selected contrasting shades such as bright green and yellow to animate station interiors.

British Rail 1965–97

As part of the revised national corporate identity system, British Rail favoured only black and white, with some highlights of blue and red, for the entire network during the years 1965–85. Many stations were not modernised and retained older colour schemes.

Operating sector InterCity (1982–97) preferred dark grey, silver or light grey, and red. Operating sector Network SouthEast (1986–97) added red, blue and grey from the BS4800 range to the British Rail colour palette of black and white. From 1991 operating sector Regional Railways (1989–97) specified dark green, blue and red, one of which would be used as the theme colour for a station. Nine base colours offered background shades. For particular details off-white, blue, red, yellow and turquoise could be used as spot colours. White featured extensively too, for walls and the terrazzo material which replaced asphalt-based materials as a floor covering.

British Rail 1965–85

InterCity 1982–97

Network SouthEast 1986–97

Regional Railways 1989–97

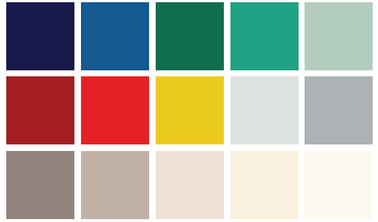


Image Sources

Collection David Lawrence
20, 21, 22, 23, 26, 29, 38, 55, 84.

Macemain+Amstad
105 (top); Michael Papps: 98 (right).

Network Rail
39, 54, 85, 86, 98, 99 (left).

References

Anon, *London Architectural monographs: Liverpool Street Station* (London: Academy Editions, 1978).

John Betjeman, *London's Historic Railway Stations* (London: John Murray, 1972).

Christian Barman, *An Introduction to Railway Architecture* (London: Art and Technics, 1950).

Christian Barman, *Next Station: A Railway Plans for the Future* (London: George Allen & Unwin, 1947).

Gordon Biddle and Jeoffry Spence, *The British Railway Station: A Pictorial History* (Newton Abbot: David & Charles, 1977)

Marcus Binney and David Pearce [eds.], *Railway Architecture* (London: Bloomsbury Books, 1985).

Michael Bowers and Patrick Watters, *Railway Styles in Building* (London: Almark Publishing, 1975).

Gordon A. Buck, *A Pictorial Survey of Railway Stations* (Sparkford: Oxford Publishing Company, 1992).

Linda Clarke, John Ives, Stuart Rankin and Paul Simons, *Aspects of Railway Architecture* (London: British Railways Board, 1984).

James Cousins, *British Rail Design* (Copenhagen: Danish Design Council, 1986).

Nick Derbyshire, with an introduction by Colin Amery, *Liverpool Street: a station for the twenty-first century* (Cambridge: Granta Editions, 1991).

Brian Edwards, *The Modern Station: New Approaches to Railway Architecture* (London and New York: Taylor & Francis, 1996).

Nick Jardine, *British Railway Stations in Colour: For the Modeller and Historian* (Hinckley: Midland Publishing, 2002).

David Lawrence, *Underground Architecture* (Harrow Weald: Capital Transport, 1994).

David Lawrence, *Bright Underground Spaces: The Railway Stations of Charles Holden* (Harrow Weald: Capital Transport, 2008).

David Lawrence, *British Rail Architecture 1948–97* (Manchester: Crécy Publishing, 2018).

Chris Leigh, *GWR Country Stations* (London: Ian Allan, 1981).

Carroll L. V. Meeks, *The Railroad Station: an Architectural History* [first published 1956] (Secaucus, New Jersey: Castle Books, 1978).

J. M. Richards, *The Functional Tradition in Early Industrial Buildings* (London: The Architectural Press, 1958).

Jeffrey Richards and John M. MacKenzie, *The Railway Station: A Social History* (Oxford: Oxford University Press, 1986).

Simon Jenkins, *Britain's 100 Best Railway Stations* (London: Penguin, 2017).

John Minnis, *Britain's lost railways: a commemoration of our finest railway architecture* (London: Aurum Press, 2017).

National Rail Design Guidelines (London: ATOC Ltd., January 2014).

Network Rail Station Design Group, Network Rail Modular Station Concept Development: Draft Report (London: Network Rail, 2006).

Andrew Saint, *Not Buildings but a Method of Building…: The achievement of the post–war Hertfordshire School Building Programme* (Hertford: Hertfordshire Publications, 1990).

Wolfgang Schivelbusch, [translated by Anselm Hollo], *The Railway Journey: Trains and Travel in the 19th Century* (Oxford: Basil Blackwell, 1980).

Gavin Stamp, *'Early Twentieth-Century Stations', in* Julian Holder and Steven Parissien [eds.], *Studies in British Art 13: The Architecture of British Transport in the Twentieth Century* (New Haven & London: Yale University Press, 2004), pp 23–46.

Jacquey Visick, *British Rail Architecture, Design and Environment* (London: British Railways Board, 1989).

Nigel Wikeley & John Middleton, *Railway Stations: Southern Region* (Seaton: Peco Publications & Publicity, 1971).

Trevor Wilson and Boaz Yariv, *Station Design Principles for Network Rail* [Document no. BLDG-SP80-002] (n. p.: Network Rail, 2015)

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Simon is a journalist and author. He writes weekly for the Guardian and has edited the Evening Standard and The Times. He was chairman of the National Trust from 2008-14 and previously deputy chairman of English Heritage. He served on the boards of British Rail and London Transport in the 1980s, during which time he founded the Railway Heritage Trust. Among his books on architecture and history is his survey of Britain's Hundred Best Stations.

Dr David Lawrence
David is an architectural historian and associate professor in historic building conservation. He studies and writes about places where people, design and movement meet. David is the author of Underground Architecture (1994), Always a Welcome (1999), A Logo for London (2000, 2013), Bright Underground Spaces (2008), Food on the Move (2010), British Rail Designed 1948-97 (2016), and British Rail Architecture 1948-97 (2018). David contributed the introduction to the Network Rail book LINK (2019).

Luke O'Donovan
Luke is an emerging artist and producer, specialising in architectural photography. Much of Luke's work examines infrastructure within contemporary townscapes, and he held his first solo exhibition on infrastructure with the London Festival of Architecture (LFA) in 2018. In 2019, he photographed 100 footbridges for the Network Rail book 'LINK'. Luke's work has been exhibited at institutions including the Royal Academy of Arts, and is regularly featured in architectural publications. Luke is currently working on a long term project documenting the last coal power stations in the UK, co-curating an exhibition for LFA 2020, and launching a new grant/mentorship to support young people from under-represented backgrounds starting a career in architectural photography.

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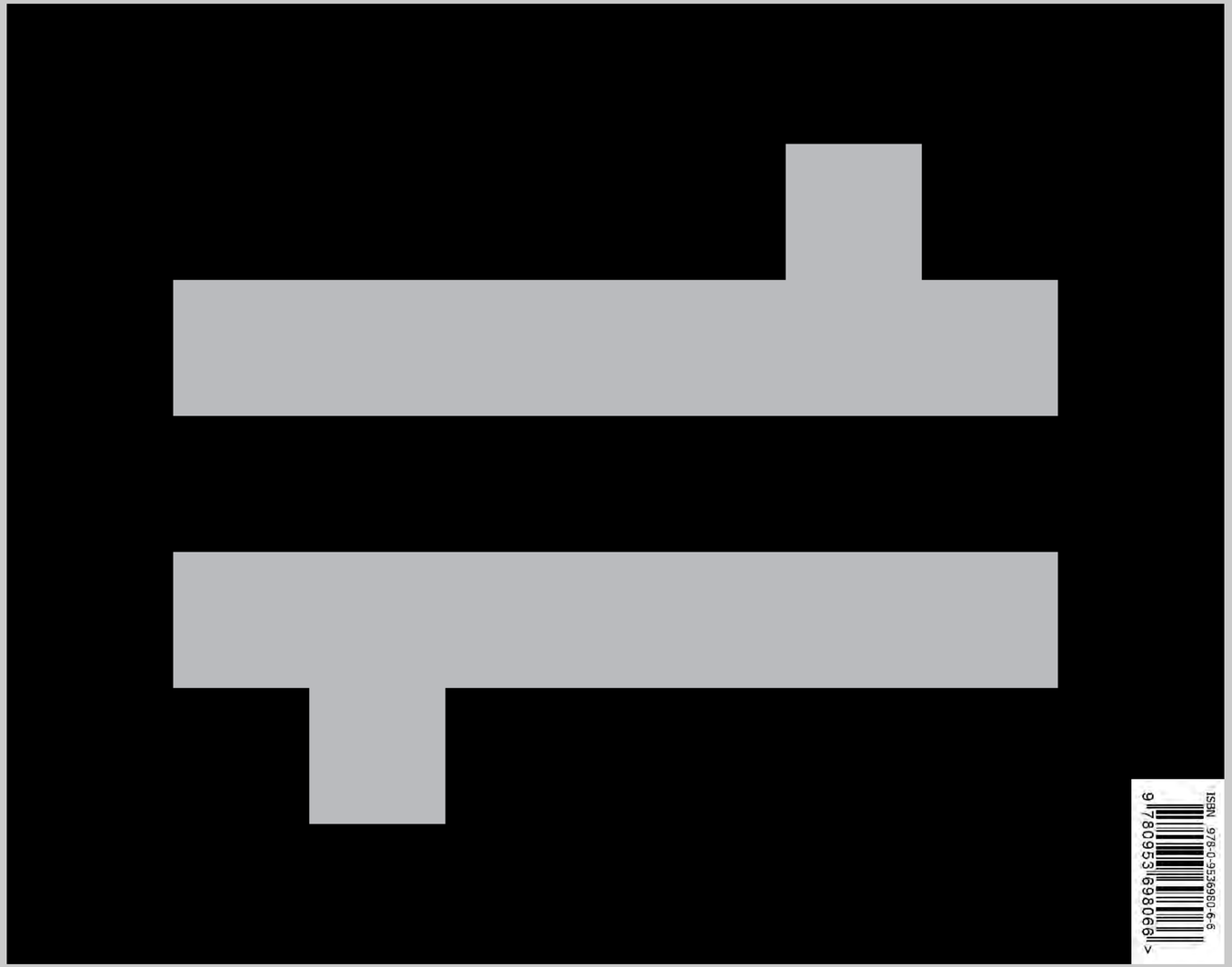
Rail Alphabet 2
This publication is the first to use Network Rail's new font named Rail Alphabet 2. It has a strong family resemblance to the original Rail Alphabet lettering, designed in the Sixties, by Margaret Calvert and Jock Kinneir. An important feature being the use of upper and lowercase black letters on a white background, for signs.

Rail Alphabet 2 is a continuation and evolution of the original Rail alphabet and also that of New Rail Alphabet. Rail Alphabet 2 has been designed by Margaret Calvert in collaboration with Henrik Kubel. The font system consists of a single weight for signs and a family of 3 font weights with accompanying Italics, specifically engineered for text use. The font retains the overall proportions of the original alphabet but has been crafted in a lighter weight to compliment Network Rail's new way-finding system (designed by Spaceagency). The construction of the letters are sharper and slightly more condensed, aiding legibility and saving space.



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