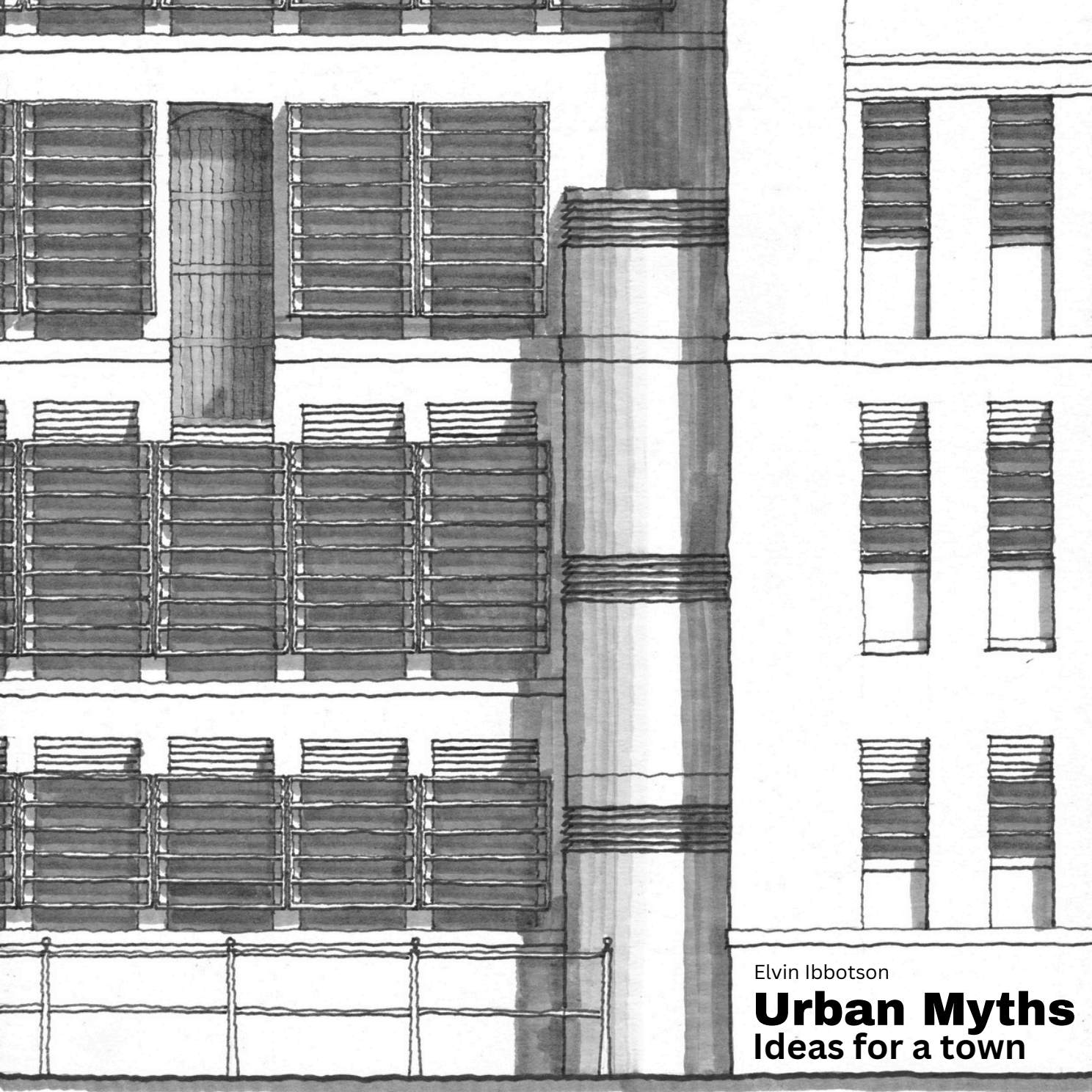


Elvin Ibbotson

Urban Myths

Ideas for a town

Urban Myths

Ideas for a town

Elvin Ibbotson

This is about the future, or at least a possible future. It is about a fairly typical midlands town. Nothing here is true. It is myth. These are stories of not-yet-true but perfectly feasible changes to this town in the foreseeable future - say five, ten or twenty years from now. A mythical future for a town - urban myths.

The town is real. The buildings and sites in the stories are real. I have not named the town but anyone who knows it well will recognize it and will be able to identify some of the places.

This is a time of rapid change. The ways we live in town are changing with high street shops closing as we buy stuff online, closed banks become hairdressers or bars, rental bikes litter streets, low-traffic neighbourhood and ultra-low emission zones are busy with gig economy workers delivering food by e-bike. Living and working are changing with the covid pandemic and work-from-home causing an exodus to the coast and countryside, half-empty office blocks, then soaring fuel prices and cost of living, rising costs of rural properties driving local youngsters into the cities, then rising interest rates and rents and falling house prices fuelling the housing crisis. And always there, above all these short-term fluctuations, the climate crisis and global warming.

The imaginings here show ways an ordinary town can adapt, with a mixture of public and private money and initiatives, to reduce energy needs, improve quality of life, transition from fossil fuels to renewable electricity, and cope with a warming climate.

The town is home to some of the first large mill buildings or the industrial revolution and the largest of these is the town's most significant landmark. It is powered by renewable hydro-electric energy from a water turbine in the water that once turned the mill machinery. It is one of several factory buildings and the town's largest supermarket whose roofs have been used to site large arrays of photovoltaic solar panels. Several of the buildings have 'sawtooth' roofs with glazing on the north face making the south-facing slope ideal for solar panels. These installations provide free power to the buildings and, on sunny days, far more than the buildings themselves require, allowing the excess to feed into the grid.

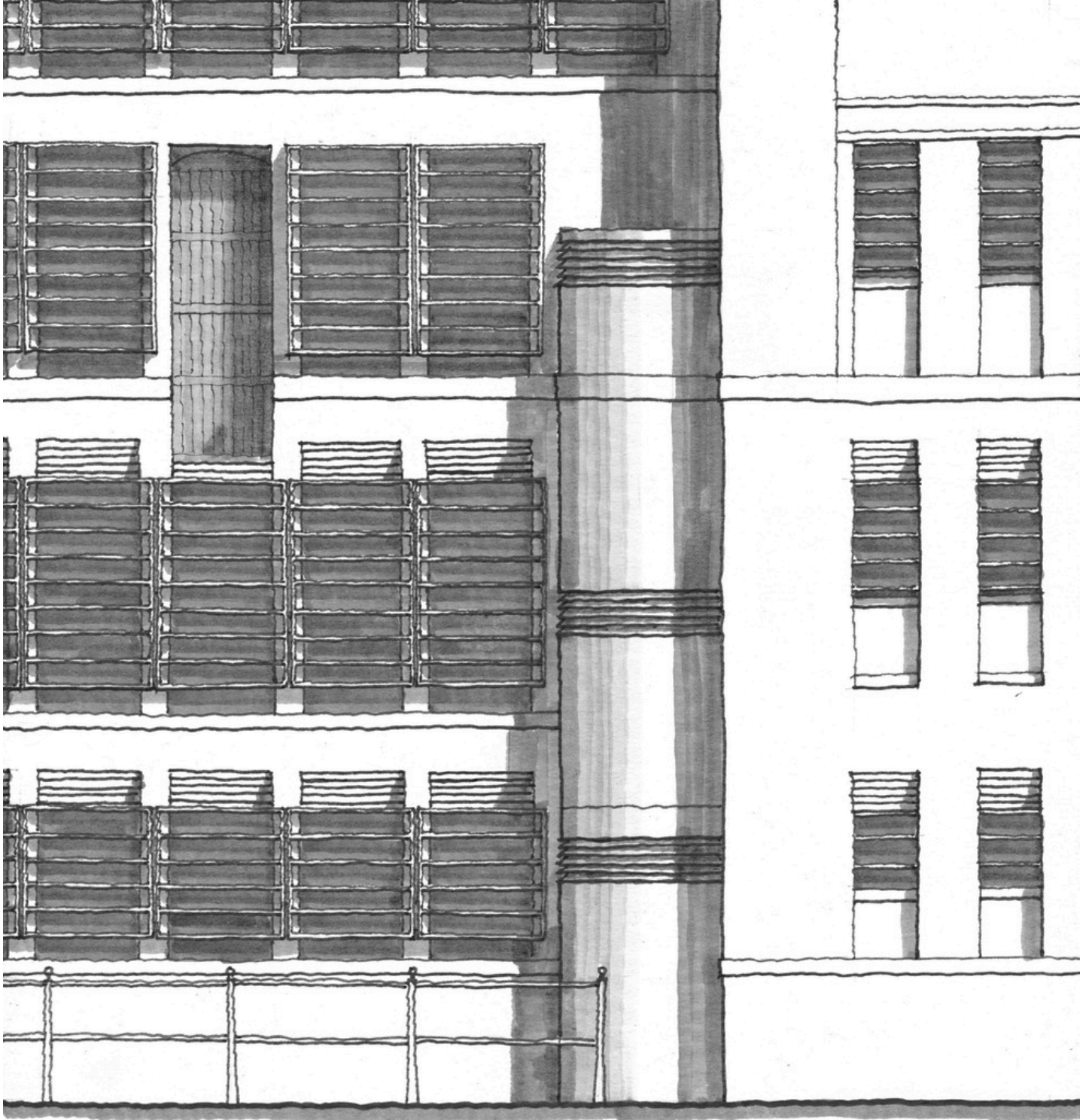
The largest mill building no longer houses water-powered spinning, weaving and knitting machines but is very solidly built in brick and iron to resist fire which destroyed the first mill buildings on this site. Listed and a valuable part of Britain's industrial and architectural heritage, the mill was ideal for upgrading to provide valuable space relevant to today's needs. The building was lined with insulation and triple-glazed replacement windows fitted throughout.

Sustainable power provided by the hydro-electric turbine and the solar panels on the roof is stored in batteries and runs the heat pumps and heat-recovery ventilation systems to keep the occupants comfortable, and the heat pumps are not ground-source or air-source but take their heat from the waters of the river running past the site.

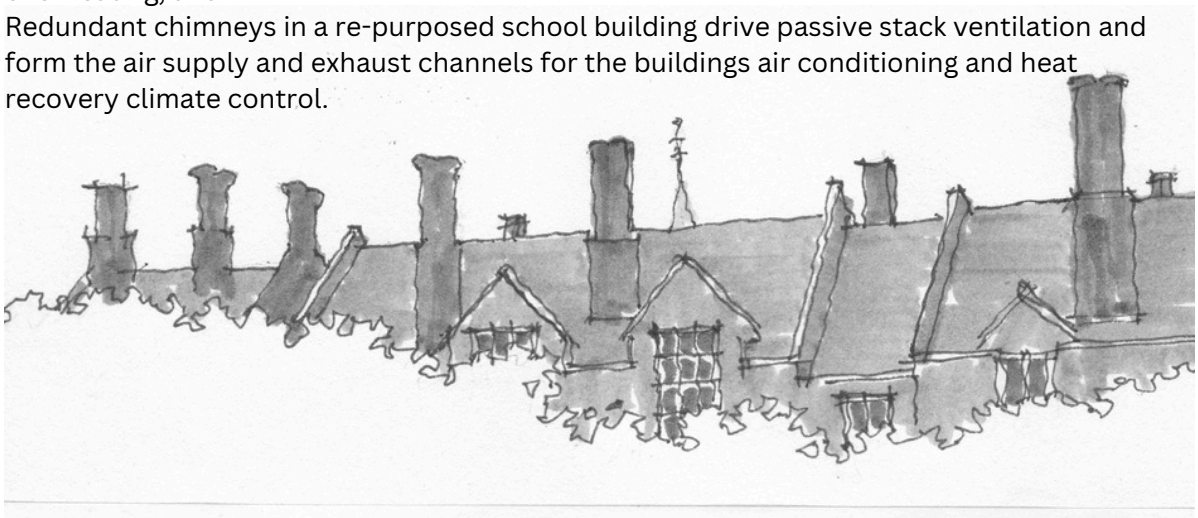
There are apartments on the upper floors with a winter garden, a shared gym, games rooms and cinema in the core of the building. Two of the floors have been converted to office use and there are top-lit artists' studios and craft workshops on the top floor. On the ground floor there is a coffee bar and sandwich shop.

Windows on the south face have been fitted with brise soleil which provide shade from the heat of summer to avoid overheating while allowing the low winter sun to penetrate, brightening up the interiors and providing passive heating. Being separate from the brick structure and the windows themselves, these sun-break louvres do not damage the original fabric, making them acceptable to historic building and planning controls, while their crisp, clean design brings the building up to date visually - a harmony of modern technology and history.

The extreme temperatures of summer 2022 brought new problems to Britain. For the first time temperatures were so high for so long that overheated buildings became unlivable, people had to seek shelter in cooler buildings and significant numbers of people died from the heat. Air conditioning is not yet widely used in domestic buildings and anyway adds to power demands and global warming. Solar shading, in the form of overhanging roofs, brise soleil, shutters and tree planting are much better ways to alleviate the problems, and this building is just one of many in the town that have had relatively cheap and simple interventions to shade south-facing glazing. Mechanical ventilation with heat recovery systems not only save heat losses in winter but, in combination with reversible heat pumps, can cool the air when shading alone is not enough.



Elsewhere in the town...
South-facing three-storey row houses and, behind them, homes for the elderly in a converted commercial building were equipped with motorised solar panels which adjust from near vertical in winter to catch the low winter sun while allowing it to reach windows and light and warm the rooms, to a 45 degree angle in midsummer when the sun is high in the sky to maximise energy generation while shading windows from direct sunlight to avoid overheating, and...
Redundant chimneys in a re-purposed school building drive passive stack ventilation and form the air supply and exhaust channels for the buildings air conditioning and heat recovery climate control.



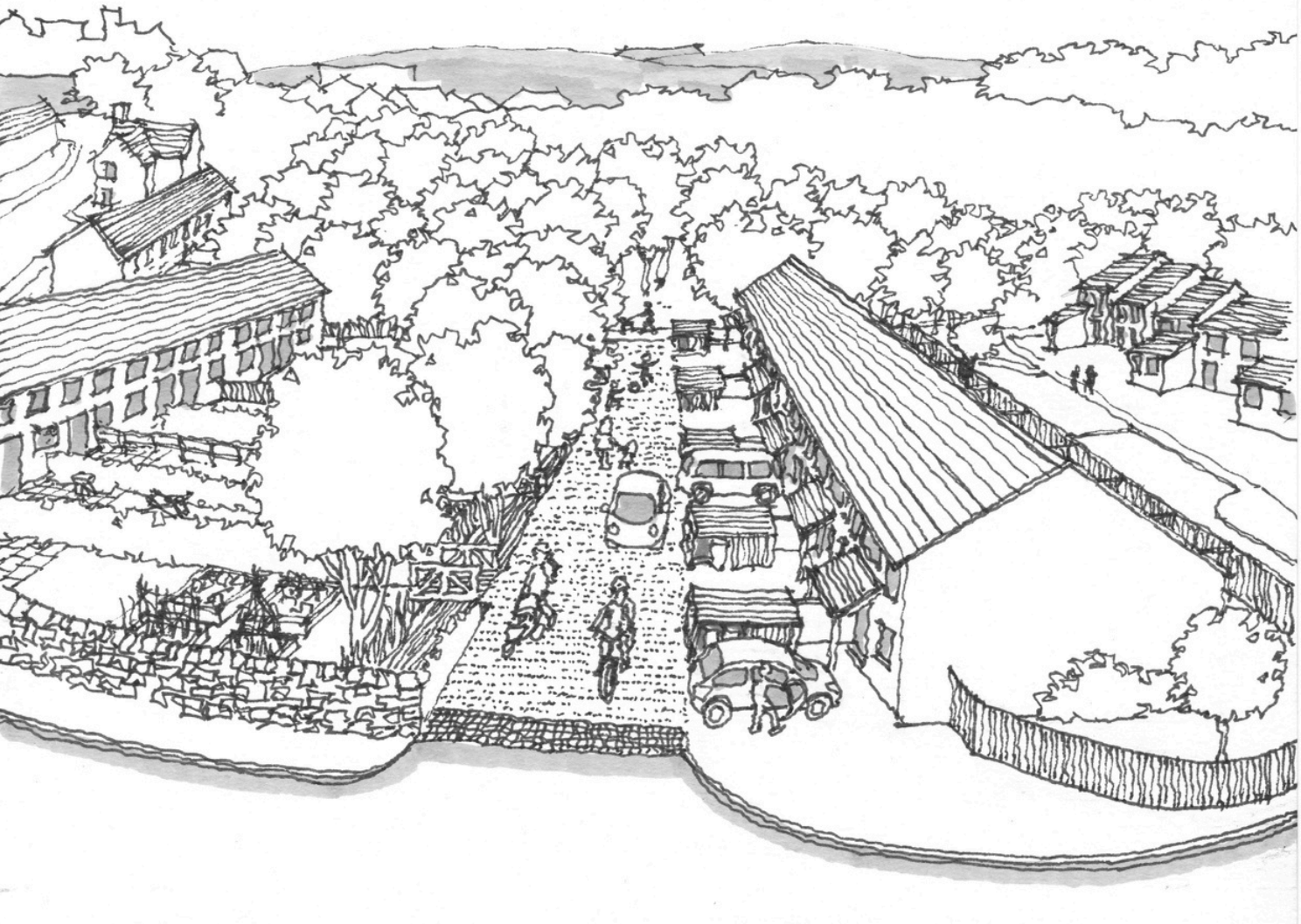
On the south-east side of the town centre, between two small earlier groups of homes, two or three cheap and tired workshops were demolished and the site of a defunct car business cleared to make space for two rows of affordable homes.

Fifteen two-storey row houses each have an entrance and a car space on the north side, reached from a new street shared by low-speed cars, walkers, bikes and scooters, and a garden on the south side with a gate onto the next street.

The north row comprises six three-bedroom family houses and the south row had nine two-bedroom homes with smaller gardens.

The northern street runs along the north boundary of the scheme while the southern street runs next to a brook lined by mature willows and other trees.

Both streets are just wide enough for two cars to pass and are block-paved allowing rainwater to soak away. They have granite-sett rumble strips where they meet the road to emphasis that they are safe spaces shared by all users. Three footbridges cross the brook, each giving access to two of the prvate gardens. At the end of each street is a pathway and access to the town's park, and a children's play space is shared with the older row of homes to the south. While being affordable, the homes are in easy walking distance to the town centre as well as right next to it's biggest green space.



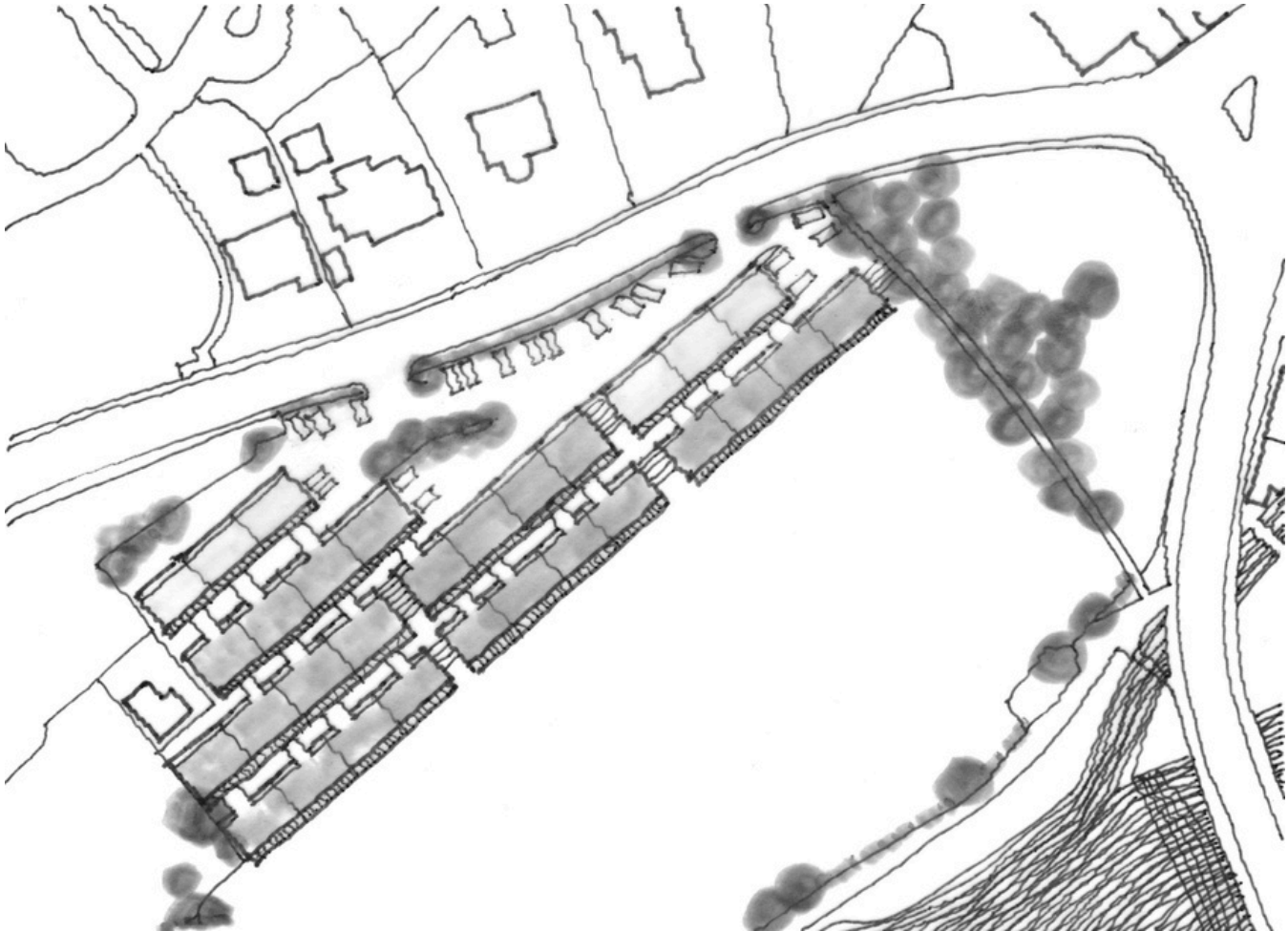
Row houses are not only economical and space-saving but very energy-efficient, sharing most of their perimeters with the neighbours, and this orientation, with south-facing gardens and living spaces, gives the most benefit from sunshine and passive heating, with parking and easy access from the street and opportunity for social interaction with neighbours in both streets.

Many, probably most new-build houses are detached, and a detached house is what many aspire to. This may be because of the lack of off-street parking and the difficulty of accessing the back gardens of traditional terrace housing with minimal front gardens and back gardens backing onto each other, plus the nuisance of noise through the party wall from neighbours in semi-detached homes. But row houses like those here have less than half the external wall surface of detached houses, greatly reducing energy bills, and a solidly-built, soundproof party wall costs a fraction of the price of two external walls. On any site, more row houses than detached houses can be built, and the built form is fundamentally more urban; semi-detached and detached houses suggesting suburban living.

With new row houses it is easy to accommodate off-site parking (and home electric car charging) while having an access street between every row, as here, gives access to both front and back of the houses and allows every row to have the best orientation. The streets are narrow - just wide enough for two cars to pass but more than enough for walking or cycling - and have texture to the paving to emphasise the change from the tarmac roads. Narrower roads naturally encourage slower speeds. There are no kerbs or pavements and street lengths are short, so the street space is clearly shared by all and not exclusively for cars. The street is more convenient, pleasanter, uses less land, is cheaper to construct and just as safe as a conventional residential street.

From the 1950s through the sixties and seventies local authorities built new homes, tenants paid reasonable rents and councils had a reliable income. Then right-to-buy sold of these homes and home ownership grew but local authorities more or less gave up building council houses and lost a valuable source of income. Social housing was largely by housing associations and was inadequate for the demands. More rental was in the private sector and housing became less and less affordable. But now government is funding more affordable homes, providing work for the building industry and and stimulating growth in the country's economy.

On the north side of the river, less than ten minutes walk from the town centre, a steep south-facing grass bank ran down to a flat meadow reaching to the riverside path. There were big houses across the road and further up the hill on the same side. It was not a 'brownfield' site but its location made it better suited to urban than agricultural use and it was decided to build a development of high-density low-rise social housing not unlike some imaginative council housing schemes built in the 1970s. The scheme takes advantage of the slope and the southern aspect to effectively increase the space available by using green roofs as garden space. As the terraces of homes step down the slope, upper rows can access gardens on the roofs of the rows below.

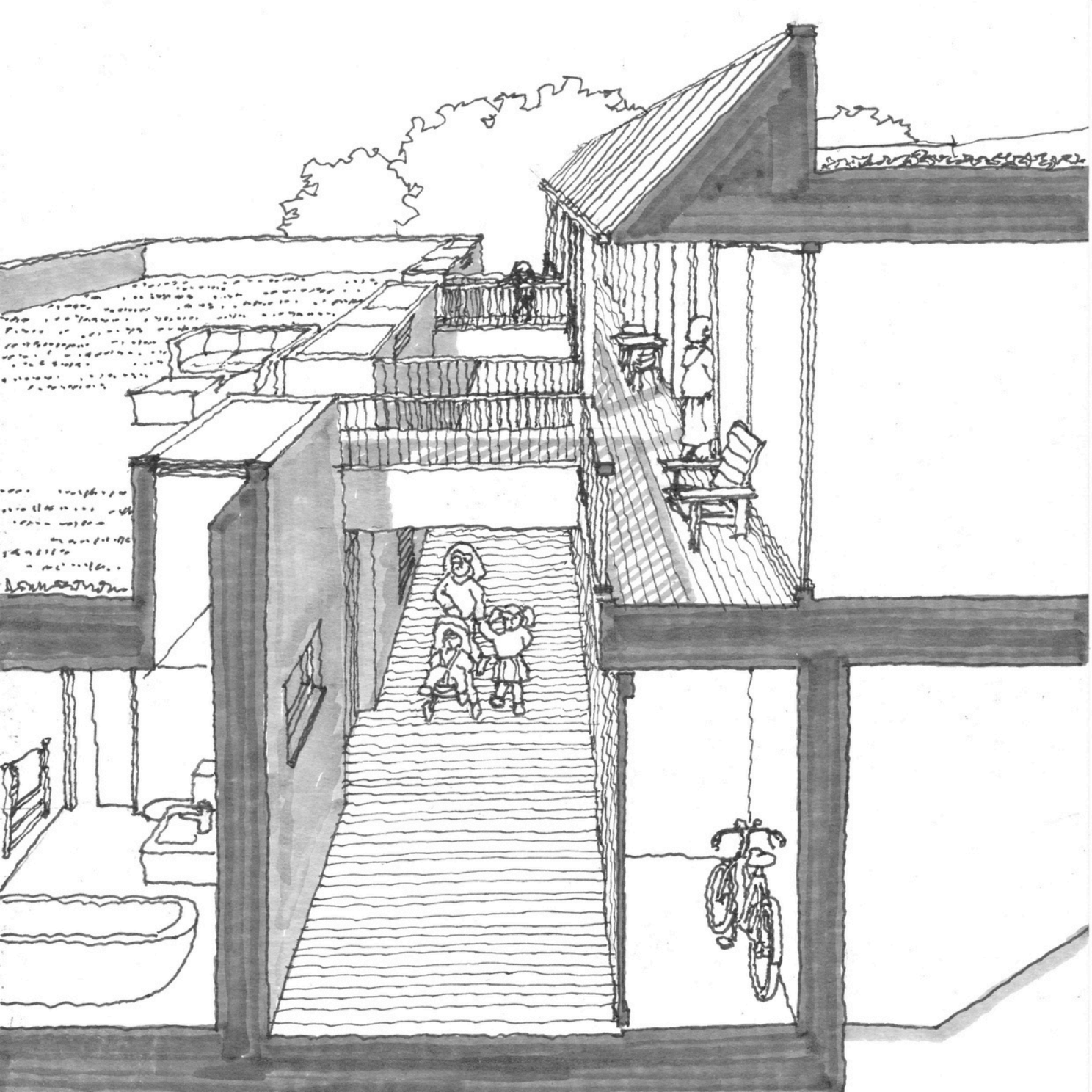


Car ownership has started to decline in recent years, replaced to some extent by active travel using bikes and cargo bikes, tiny electric city cars for local travel, and buses, trams and trains for longer journeys, while planning rules that used to require generous car parking provision now limit it to reduce the impact of the car on towns and encourage use of public transport. Here there is parking for one car per house within a short walking distance. Bikes and even tiny electric cars can share the paths at each terrace level.

Each house is reached along a path on its north side. Bedrooms and bathrooms are on this side, lit by small windows and rooflights running along the north edges of the green roofs. Living areas are on the south side with fully-glazed walls opening onto south-facing verandahs shaded and sheltered by solar photovoltaic panels along the south edges of the roof terraces. Each house in the upper terraces has bridge access from its verandah to the green roof garden terrace over the terrace below, while the lowest terrace of houses have direct access to a small new urban park for the town extending to the riverside path. Steps between each section of terrace lead down from the car parking on the north side to the park to the south. Across the paths, opposite each house, are bin storage, space for deliveries and storage for bikes. The houses have heating and ventilation equipment incorporating heat pumps and heat recovery, fed by grilles in their north walls and between the rooflights.

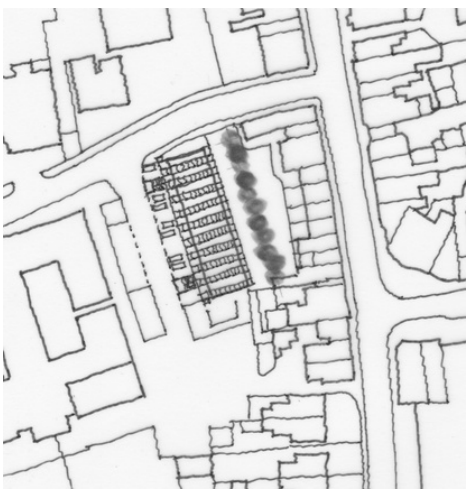
The homes terraces were formed with minimal excavation and concrete using mass timber for walls, floors and roof structure. A light covering of soil on the roof terraces supports sedum, grass, fern and moss gardens and alpines. The solar panels on the south edges and the rooflights along the north edges act as safety walls and the gardens are shared, though families 'colonise' the areas near their own bridges with flower pots and garden furniture.

The riverside park is a valuable resource for the town as well as these homes, while an existing path along the east edge of the site leads to the bridge over the river and into town. Glimpsed from the higher ground to the south west the green roof terraces stepping down the steep slope might suggest to a more fanciful mind paddy fields on Chinese mountainsides.
.

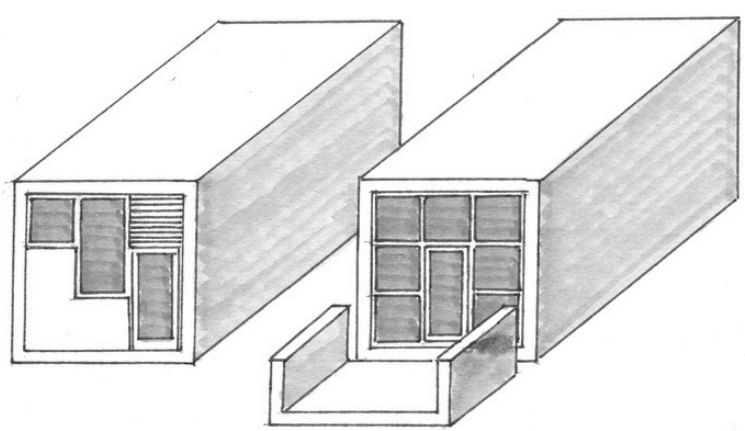


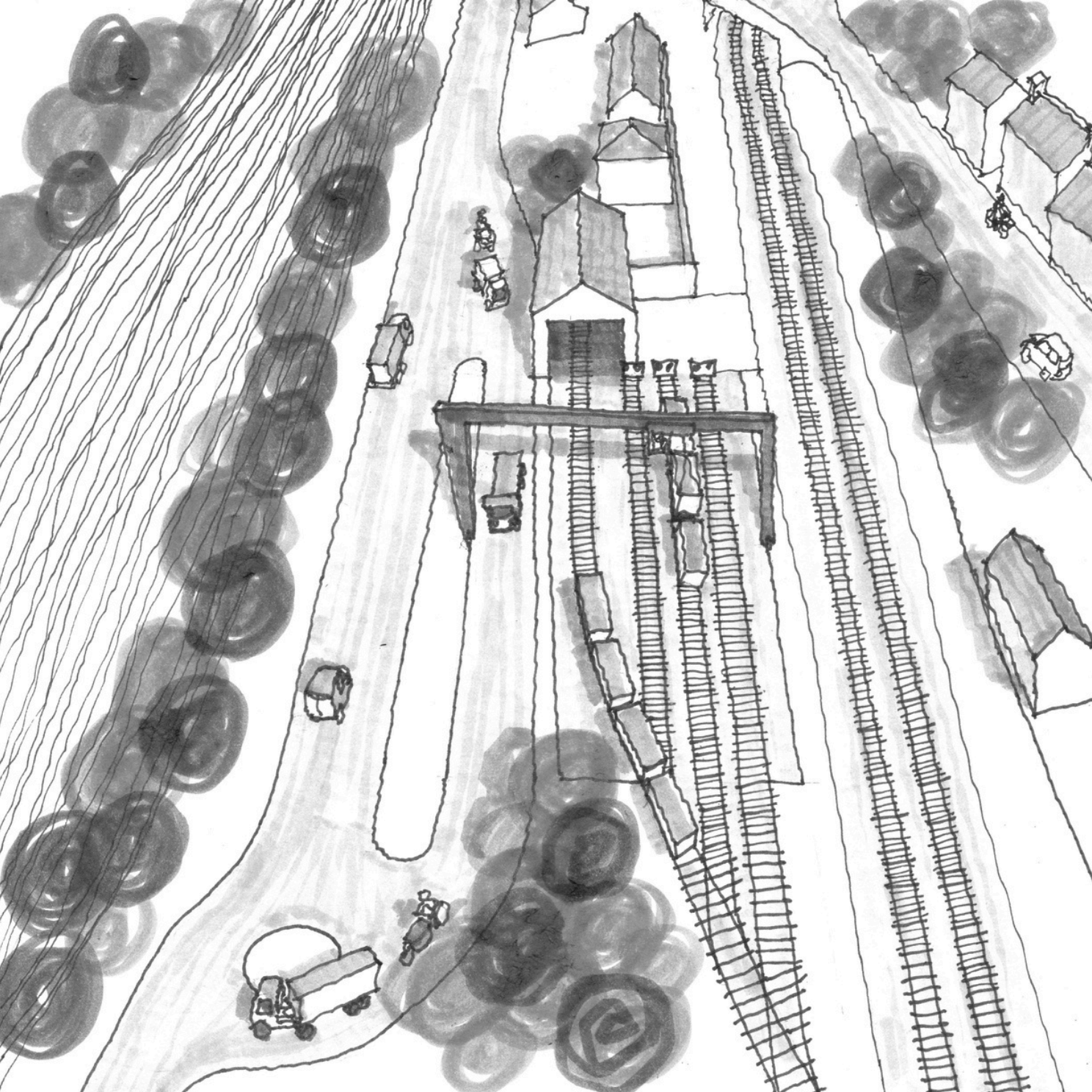
In the centre of the town a disused factory has been converted and extended creating a new library and a care home, both rehoused from older, less adequate accommodation. A tranquil public space connects to the busy shopping area and a development of affordable housing is just around the corner.

The town is surrounded by estates of family homes and has plenty of smaller, more affordable properties suitable for smaller households, often with lower incomes. On an empty plot opposite the library, thirty factory-made micro-homes have been stacked three high to provide ultra-affordable starter homes for single people or couples. Just 3m wide and 10m deep but with generous 3m ceiling heights, these 'capsule homes' are accessed by stairs and decks built of prefabricated laminated timber posts and beams and cross-laminated timber (CLT) panels. On the entrance side is a kitchen with a small table while at the other end is the living space with space for a desk, separated by a room divider from the bedroom space. Between is a wet room and a laundry cupboard. The upper floors have 'clip-on' CLT balconies with glass fronts overlooking a shared garden with a row of flowering cherry trees. Residents can easily reach all the facilities they need on foot and there are excellent bus and rail services to travel further, so cars are a luxury rather than a necessity, but there is some parking along the front.



Each self-contained apartment has its own heat-recovery ventilation system incorporating a small heat pump. Rows of solar panels on the roof, combined with battery storage and a sophisticated energy management system provide virtually free energy to the homes, which, together with very low council tax ratings makes them economical to run as well as to buy or rent.





A ten minutes walk south of the town centre, where the main road crosses over the railway, is the site of the town's first railway station. The station is now right in the heart of town and a new freight interchange has been created on vacant land between the river and the railway. Here, east of the river and west of the trunk road, the main railway line runs parallel to a service road leading to where several logistics companies base their warehouses, offices and trucks.

Imaginative, forward-thinking policies agreed, almost miraculously, by government agencies and railway unions have seen a revolution in the operation of the country's railways. While the ambitions of developing self-driving cars and trucks had foundered on the difficulties posed by pedestrians and animals, faded road markings, fog, snow and ice, and the need to steer and navigate in a hopelessly variable road system, it was realised that automation was far easier for rail traffic, steered by rails and points along a relatively simple and rational network free from children, dogs and bicycles. Electric self-propelled rail trucks carrying freight in shipping containers are programmed with their destination and communicate with each other and with the AI-equipped rail network management software which controls their speed and routes them to their destination by switching points, all automatically and with minimal human oversight. Fewer drivers are required but the massively increased use factor and traffic enabled by automation provides skilled work for network supervisors, providing more jobs and better incomes.

At the town's freight hub, cranes transfer shipping containers from rail to trucks provided by the logistics companies who also handle smaller items and pallets in the restored and updated railway shed. Goods which are not taken away by truck are transferred to small electric delivery vans and cargo bikes for 'last mile' delivery in the town. These integrate safely and quietly into the mixed use partly-pedestrianised streets of the town centre and reduce the need for cumbersome vans and lorries. While rail freight has become far more efficient and economical, shifting goods traffic away from the congested road network to a greener, less intrusive rail system.

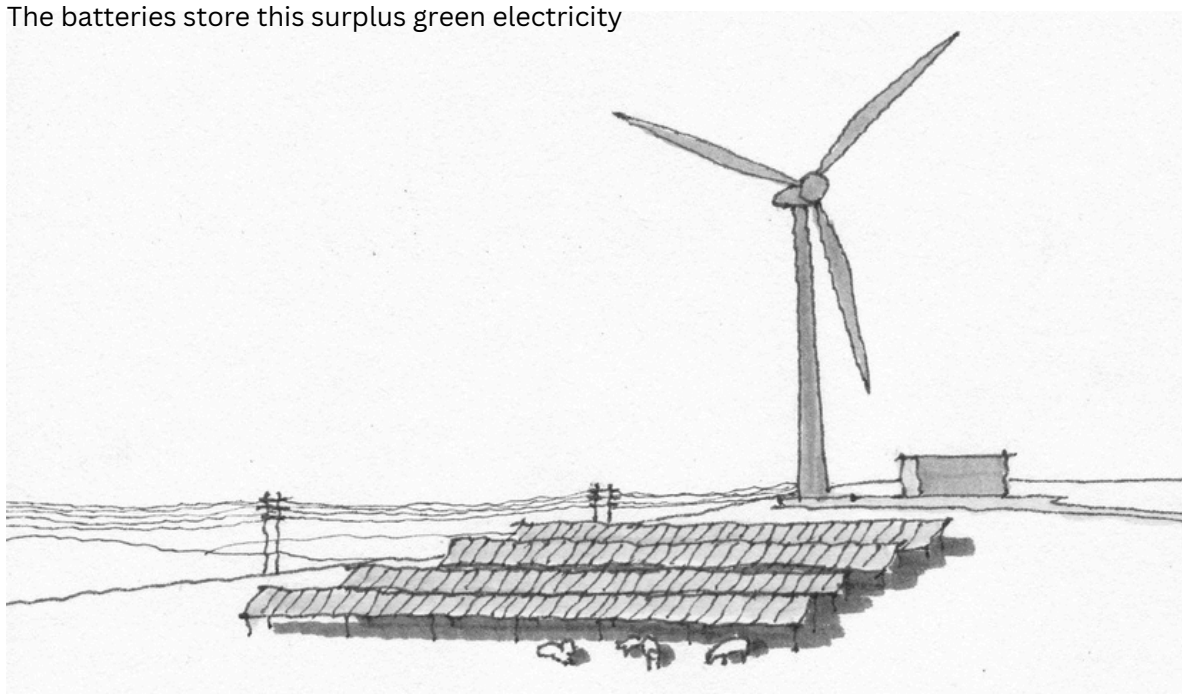
The world has started to recover from its infatuation with the motor car which is finally taking its place as just one mode of transport in a rich mix of rail, trams, buses, underground, bikes and the newer ebikes, cargo bikes and small, quiet city cars and delivery vehicles, plus of course, just walking!

Roads are no longer reserved for cars and trucks, with people confined to narrow pavements and cyclists risking serious injury and feeling the need to resort to fluorescent clothing and flashing lights. Major roads have parallel cycle paths while all urban streets have speed and zoning controls limiting cars and trucks while providing sufficient space and appropriate surfaces to allow pedestrians, bikes and small electric vehicles to mix safely. High streets have been revitalised and towns are quieter, cleaner and more convenient.

The town sits to the east of a river with hills all round. On high ground to the north west, several farms already had their own small wind turbines. Here and at two more locations, one north east of the town and one to the south east, large wind turbines have been erected. More than 100m higher than the town centre and around 2km distant, but close to high-voltage power distribution lines they connect to, these turbines supply clean, low-cost electricity to the town and the national power grid.

Two of these sites also have solar fields - arrays of south-facing has been solar panels raised clear of the ground to allow sheep to graze on the north-west site or market gardening in the south east. Again, the proximity of the HV lines makes these locations viable.

Close to two of the town's electricity substations large-scale battery storage has been installed - in a redundant workshop building at one site and in shipping containers on a waste ground at the other. The wind doesn't always blow and the sun doesn't always shine, but often it is both windy and sunny and more power is being generated than is required. The batteries store this surplus green electricity



about this picture book

The ideas here are a product of a career as an architect, and particular interests in housing, energy, climate and urban design.

From childhood comics onwards I have valued pictures over plain text and will look at the pictures first when I open a new book. I have drawn all my life and enjoy drawing buildings. There are more of my drawings and other booklets at my website. Scan the QR code or go to... www.elvinibbotson.uk

elvinibbo