

MELBOURNE AVENUE RAMSGATE CT12 6JS

green plaque newbuild

ASSESSMENT OUTLINE

DEVELOPMENT

Melbourne Avenue Ramsgate CT12 6JS

PROPERTY TYPE

55 two-, three- and fourbedroom homes available for rent and through shared ownership

DEVELOPER

WW Martin Orbit Homes

ESTATE MANAGEMENT Orbit Homes

ASSESSMENT DATE February 2023

his is a new development in Melbourne Avenue, Newington, Ramsgate, consisting of 55 two-, three- and four-bedroom timber-framed homes.

It is the second collaboration between Kent construction company WW Martin, the main contractor, and Orbit Homes, one of the South East's largest affordable homes providers. Their first joint project was a 64-home development, also in Ramsgate.

Thanet District Council granted planning approval in May 2021. Its approval incorporated several planning conditions covering quality and sustainability elements of the project, over and above the usual building standards for newbuild housing. Many of these elements are outlined in this assessment report.

This is an innovative development. It sets high specification standards; it effectively and efficiently considers the new homes' environmental performance; and it reflects how best to practically implement the project's sustainability elements in its design and construction process.

The result is a housing development that delivers improved local amenity along with significant biodiversity protections. In achieving this, the scheme provides high quality, affordable new homes built to demanding sustainable standards that will help provide for the needs of residents now and in the future.

HEADLINE FEATURES

All units have an **EPC rating of B**¹, each missing an A by just three or four points. These figures are based on works to date and observations made during our site appraisal. Efforts to improve performance will continue up to the completion of construction work. For instance, care will be taken to maximise every homes' air leakage performance.

The Melbourne Avenue development shows how to implement sustainability elements into the design and construction process Each of the new homes' **carbon emissions** ratings is impressive, with assessments showing that the policies and procedures implemented during the design and the build process will achieve considerable reductions in CO² levels, which are 23.12% lower versus comparable newbuilds of a similar building regulation standard.

■ **Biodiversity:** Working with local biodiversity professionals, WW Martin contributed ecological enhancements to the scheme, its planning and overall approach to onsite operations.

For instance, it liaised with Thanet District Council planning officers and arboriculturist specialists to reduce the impact of construction on existing trees and biodiversity.

As planning was granted in May 2021, the scheme is being developed under the 2016 Building Regulations. As such, each of the properties on the Melbourne Avenue development feature the use of a **high-efficiency gas condensing combination boiler** for heating and hot water.

■ **Renewable energy** is also a key feature. **Solar photovoltaic panels** are seamlessly integrated into the roof design of each home. So each homeowner saves on their utility bills,

HEADLINE FEATURES

A whitebeam was one of the trees protected on the site. Its fruit is a favourite of garden birds

with any surplus energy sold back to
the National Grid.

■ Initial calculations show that a three- bedroom property is likely to use **5736kWh of energy a year** on heating, hot water and lighting. At the government's October 2022 pricing cap level of 34p/kWh plus standing charge, this would mean average reductions of 20-22% in energy bills.

Considerable care was given to ensure the **thermal efficiency** of each new home. WW Martin's in-house These are high quality, affordable new homes with innovative sustainable credentials technical team worked extensively with the timber frame supplier to review and upgrade the construction and insulation specification to ensure all the new homes are thermally efficient. The associated **air tightness** tests, carried out on completion, are expected to provide excellent results.

Drainage is a key environmental issue, particularly in coastal areas like Thanet.

The UK's ageing rainwater drainage system is highly vulnerable to storm rushes. These can overwhelm the pumping stations, which are often located on coastal sites.

In view of the likely worst-case storm events and the ongoing impact of climate change, the site was assessed for its future flood risk.

This included the risk of rising sea and river, reservoir, water storage and ground water levels, along with increased surface water runoff and the risk from flooding as the result of drainage system failure.

Working with specialists <u>Fairhurst</u> <u>Engineers</u>, WW Martin developed a site-specific drainage strategy for

HEADLINE FEATURES

the Melbourne Avenue scheme that utilises underground soakaway systems to attenuate² all new surface water produced by the development. This allows the surface water to infiltrate into the ground rather than escape via the existing drainage system.

The use of permeable paving and soft landscaped areas ensure a natural water supply for trees and planted areas, in addition to the critical management of surface water drainage.

■ The development's design promotes the **sustainable use of water**, with each new home equipped with watersaving features – such as low-flow taps, shower heads and low-use toilet cisterns – that deliver high levels of water efficiency without compromising performance.

■ Ensuring the scheme specification minimised the use of **pollutants** was given a high priority focusing on sourcing sustainable materials as part of their **ISO14001** accredited business management system.

The team works with multiple key suppliers of materials and products, and specified the avoidance of **volatile organic compounds** where feasible in, for example, paint and decorating products.

Resin-based composite wood

products were also carefully sourced, and vinyl and carpets have all been chosen with pollutant impact in mind.

Waste management, both on site and in-use, has been carefully considered.

Material storage areas are clearly and securely set out, just-in-time delivery principles are applied for certain materials and clearly demarcated areas for waste and **recycling** are also available.

The methods employed are clearly designed to promote **circular economy** systems without the issues associated with site 'space and waste'.

■ Building materials are all selected from the <u>BRE Green Guide to</u> <u>Construction</u>, a resource that analyses material for their impact relating to several environmental factors.

■ All **timber products** are <u>FSC</u> or <u>PEFC</u> accredited.

Pictured, right: A crate soakaway system, designed to allow surface water to filter into the ground, rather than potentially overwhelm the public drainage system

ABOUT THE DEVELOPERS

WW Martin

Established in 1877. WW Martin has an excellent reputation across the construction industry. Based in Kent, it works extensively for public and private sector clients.

From a Green Plague perspective, WW Martin is clearly committed to industry best practice. The company holds ISO14001 accreditation and follows comprehensive policies and practices to ensure it is best placed to deliver on the most demanding environmental standards.

In addition to investing in its staff and expertise, WW Martin's commitment to local employment and investment is also evident - the vast majority of its subcontractor partners and suppliers on the Melbourne Avenue scheme are Kent based – thus reducing its supply chain's carbon footprint.

WW Martin is clearly a developer that not only follows best environmental practice as it stands today, but also recognises the direction of government policy and its likely impacts on how homes are designed, constructed and lived in over the coming years and decades.

small but pioneering group of business people whose passion was to ensure everyone could live in a good quality, A registered affordable provider, Orbit

provides landlord services to more than 45.000 properties and build around 1,500 high-guality, affordable, safe and sustainable new homes each year.

affordable home.

It is committed to a progressive social policy agenda and playing its part in protecting the environment.

This includes investing in a range of projects that support communities, excellent employment practices.

At the Green Plague, we note that Orbit Homes outlines its environmental sustainability programme, called Orbit Earth, which aims to actively enhance the environment, and create and improve places and spaces in which communities can thrive.

strategy on ensuring

good design remains at

the forefront of its work

A red oak was another of the trees protected on the development. This native of North America is famed for its glorious autumn colour This scheme demonstrates best practice in the application of design, innovation and promotion of environmental standards he Green Plaque newbuild assessment is a new method of looking at environmental performance and sustainability.

In line with the Green Plaque's ethos, it is less about imposing onerous conditions and more about promoting the very good practice that many of our housing constructors follow. We want to reward that commitment.

The assessment is a third-party review administered by Lifecycle Design and peer-reviewed to ensure its scheme summaries are accurate and avoid exaggeration. The aim is to establish a scheme's sustainability credentials with supporting evidence and recognise what the developer has done well while, perhaps, also indicating where improvements could be made in future projects.

Observations

This is a newbuild development of 55 new homes off Melbourne Avenue, Ramsgate, which is due for completion in 2023. It is a mix of two-, three- and four-bedroom properties on a site vacated by Newington Community Infants School when it moved to adjacent land in 2016.

The scheme is situated in a predominantly residential area well-served by local shops, a major supermarket and petrol station, as well as key bus routes and Ramsgate train station. All are within a one-mile radius.

The new homes are conveniently located immediately north of the

new infants school and the Sure Start Early Years Centre. To the west, on the opposite side of Melbourne Avenue, is an area of open space and amenity land, which is equipped with a children's playground, an all-weather multi-court playing surface and a community hall.

All of the new homes at Melbourne Avenue are affordable, available as either shared ownership or via social rent. The provision of much-needed affordable housing is commendable and demonstrates a strong commitment to social sustainability principles.

New housing developments can have a detrimental impact on the environment – this is an inescapable fact. The Melbourne Avenue development does, however, demonstrate best practice in the application of design, innovation and promotion of environmental standards.

Energy use Heating and Hot water

Each new home is equipped with Worcester Greenstar CDi gas combination condensing boiler (pictured right). Under the <u>Energy</u> <u>Related Products Directive</u>, this boiler type rates A, for both space and water heating. This equates to a seasonal efficiency of 89.4% under the latest calibration methodology, making this one of the leading boilers for energy efficiency and carbon control.

The boiler is fitted with a <u>PFGHRD</u> (Passive Flue Gas Heat Recovery

<u>Device</u>), a complementary energysaving system that recovers latent energy from flue gases produced by condensing combination boilers.

The boiler is also fitted with a delayed start sensor. Intelligent delayed start system³ senses ambient room temperature and can delay firing the boiler until necessary, yielding additional energy savings of up to 10% without compromising comfort.

The heating system is also fitted with a permissive interlock, a feature which regulates the water temperature within the heating system to prevent unnecessary use of fuel.

Every radiator within all the properties is also fitted with a thermostatic valve, which allows the resident to individually

control the temperature in any room. This promotes an effective means of controlling temperatures and is key to minimising energy consumption for home owners, helping to promote cost savings to heating costs.

Energy calculations

The Energy Efficiency Rating (EER) is a measure of a home's overall efficiency. The higher the rating, the more energyefficient the home and the lower its fuel bills are likely to be.

The interim EER for Melbourne Avenue averages 88, which equates to a B rating under the SAP assessment process (the government's energy performance calculation method).

These are interim calculations and, as these scores are at the very high end of the rating band, there is every chance that homes may on completion sit in the A-rated band.

It is, however, noted that some additional measures may require significant monetary investment, which may outweigh the associated

ENERGY EFFICIENCY RATING[®]

benefits. There are substantive energy reduction measures incorporated into the homes and the average of EER of 88 is very good. The environmental impact rating is a measure of a home's impact in terms of carbon dioxide (CO²) emissions. The higher the rating, the lower the emissions.

At the point when the scheme was submitted for building regulation approval, when the scheme was progressed to RIBA Stage 4 – the

SAP CALCULATIONS⁷: U-RATINGS⁸

The insulation standards in the units at Melbourne Avenue are very good and show the scheme delivers significant improvements against industry levels. The SAP calculations show the following results:

ELEMENT	MELBOURNE AVENUE U-VALUE	REGULATION MINIMUM U-VALUE
External Walls	0.26	0.30
Floor	0.10	0.25
Roof	0.10	0.20
Openings windows and external doors	1.32	2.00

ENVIRONMENTAL IMPACT (CO²) RATING¹⁰

assumed carbon emissions for the average property on the development were in the region of 15.74kg/CO²/m. This figure is known as the <u>Target</u> <u>Emission Rate (TER)</u>.

However, the scheme's actual average carbon emissions are calculated as significantly lower at nearer 12.19kg/CO²/m². Also known as the <u>Dwelling Emission Rate (DER)</u>, this figure equates to a 22.55% reduction against the target, which is hugely impressive. In this way, Melbourne Avenue demonstrates 'best practice' through the implementation of an effective strategy on building insulation and standards.

The principle of keeping warm air in during the winter and cool air in during the summer is known within the construction industry as 'fabric first'. Following through on the principle helps ensure efficient energy use in the new homes and gives homeowners the ability to realise savings on their utility bills. When we assess the average <u>Heat</u> <u>Loss Parameter (HLP)</u> score for each home, these figures also show excellent results. The HLP figure combines the impact of the external surface area and the insulation value of construction and airtightness.

Rewarding and, therefore, incentivising contractors for achieving lower HLP values encourages the design of efficient build-form, as well as increases in the actual levels of insulation and airtightness. The average HLP within the Melbourne Avenue SAP calculations is around 1.08, which is at the very highest end of the range as determined by the <u>Building Research</u> <u>Establishment</u>.

The energy calculations confirm this further, when the <u>Fabric Energy</u> <u>Efficiency</u> is compared with the target set by building regulations. The insulation efficiency performance of the new homes at Melbourne Avenue is 7.23% better than the average UK newbuild home.

Ventilation and summer over-heating

The ventilation systems deployed at Melbourne Avenue have two facets. Firstly, the ability to allow fresh air in by opening windows, and via trickle vents and roof ventilation cavities.

The scheme has no requirement for ventilation or extraction other than mechanical fans in the bathrooms to maintain compliant overheating standards.

The term 'overheating' refers to discomfort to occupants caused by

the accumulation of warmth within a building. It is a growing problem in the UK due to climate change.

Internal and external lighting

LED lighting provides both energy efficiency and improved performance. External lighting is fitted with daylight and motion sensors to reduce the possibility that lights will be left on unnecessarily and again provide efficient energy use.

Photovoltaic solar panels (PV)

The PV system captures energy from

the sun in an efficient manner. An inverter then converts the energy from the solar cells into electricity for the home.

The renewable energy generated from this system will input into the resident's energy bill, potentially yielding significant cost savings.

Each new home has in the region of 0.5kWp of photovoltaic panels. This scale of installation can produce up to 353kw of electricity in a year.

Reducing water use and run-off

Water is a precious resource, and

any method that reduces its use and ensures it ends up in the right place is a positive environmental asset.

Saving water

The efficient use of water is a feature of all the new homes. As part of this assessment, the calculated water use of below 110litres/person/day is approximately 32litres/person/day below the UK average, which is a significant saving. Based on an average family of four, this represents a saving of 46,720 litres of water per year.

The methods deployed to reduce water use are simple. Each new property is fitted with a water meter, a 6/4litre dual-flush toilet cistern, mediumsized baths, as well products that deliver high levels of water efficiency without compromise to performance – for instance, low-flow rate taps and shower heads.

Care has been taken in the selection of washing machines and dishwashers, where applicable, to ensure water use is fully considered.

Water runoff

Surface water run-off is a key issue. Increasing urban development, combined with a reduction in garden areas, is diverting more water into the main drainage system.

Often very old, these drainage systems are simply not designed to cope with the increased run-off levels. The inevitable consequence is that, when heavier rainfall incidents occur, more water arrives at the water treatment plants and pumping stations, which can then become overwhelmed. The result is that increased levels of water – including that from the sewerage system – is released into a river or the sea.

Before construction began, the Melbourne Avenue site was a largely greenfield site, so it was important that water from the development did not add volume to the surrounding drainage system. The surface water network was divided into two catchments, each with their own infiltration basin located at the low point on the site.

All surface water from the roofs and hard surface areas run into underground attenuation tanks before being attenuated to infiltrate the ground. Filtered to take out any residual pollutants, the soakaways hold the water until it can permeate into the ground in a controlled manner. Calculations have been made to ensure the system constructed can cope with isolated large storm events and the impact of climate change over the next 30 years.

By employing this drainage management plan, the Melbourne Avenue development has been able to attenuate all surface water runoff away from the existing drainage system.

Materials and pollution

The homes at Melbourne Avenue are of timber-frame construction. Once the elements are constructed, they are transferred to the site and erected,

 a process which is both quick and accurate.

The new homes meet the very highest standards as assessed under the Building Research Establishment's Green Guide to Housing Construction.

This assessment considers all elements within a building's materials – everything from the environmental cost of its production through to the product's future recyclability and reusability.

Most construction products achieve at least a C rating and, more usually, an A. For example, uPVC windows may not seem particularly 'green', but, the recyclability of the materials in the windows and doors means this product has a quite low environmental impact and achieves a rating of A.

Decorating products and items, such as floor coverings, have been assessed on relevant regulations, notably their volatile organic compounds (VOC) content and specified as compliant. VOCs can impact on air quality. Certain solids or liquids emit volatile organic compounds (VOCs) as gases. VOCs include a variety of chemicals, some of which may have short- and longterm adverse health effects. These are associated with nitrogen oxides (NOx), which are significant contributors to global warming as well as a hazard to health. NOx is a far more powerful greenhouse gas than carbon dioxide⁴. Insulation materials at Poppy Fields

have also been carefully assessed and specified to consider the environmental impact of their use. Some insulation products can create a potential form of atmospheric pollution.

Foamed insulation products are a risk due to the gassy blowing agents used in their manufacture and their subsequent impact on the environment. These gases are said to have a global warming potential (GWP)⁵. All the blown insulation materials used at Poppy Fields have a low GWP.

All the timber used is either <u>FSC</u>or <u>PEFC</u>-accredited, which means it has been obtained from sustainable sources. The Greenstar boilers in the new homes are categorised as NOx Class 6, meaning they have a total emission less than 40mg/kWh, which are some of the most efficient boilers available.

Refuse and recycling

All the new homes on the Melbourne Avenue development are provided with effective and easy-to-use waste and recycling bins, both internally and externally.

Getting the right waste material in the right place is the key to preventing plastic-pollutant migration to land, river and sea – and the more convenient this is to the resident, the better.

Lifestyle

All new homes are designed to provide good <u>daylighting</u> and a clear view of the sky. Effective daylighting both reduces energy consumption in the winter and provides positive health benefits. Each of the new homes provides the option to accommodate a home-office space. With the increasing need to work
from home, or for children to have a
computer link, broadband is a big part
of our day-to-day lives.

Ofcom confirms that the area is served by several superfast-broadband providers, with download speeds of more than 58MB/sec. At completion, each new home will have access to the BT Openreach fibre broadband network, which is exceptionally efficient. It is also noted that good mobile phone coverage is available in this area. Each new home can safely store up to two bicycles. Regular cycling stimulates and improves your heart, lungs and circulation, reducing your risk of cardiovascular diseases. Cycling strengthens your heart muscles, lowers resting pulse and reduces blood-fat levels. Of course, cycle security is vitally important, so residents can prevent the risk of theft.

All the new homes at Melbourne Avenue comply with building regulations <u>Approved Document Q</u>, which aims to design windows and doors so as to remove the risk of crime. Ensuring residents feel safe and secure in their homes is a huge benefit.

Electric wall sockets are raised, allowing better access to all. This gives residents the opportunity to easily switch off appliances at the socket – maximising the ability to switch an appliance off at the wall and remove the standby modes reduces energy use. It might seem a small issue, but energy experts at Utilita⁶ explain how some televisions can use as much as 10 watts an hour when on standby.

When this is extrapolated, it could equate to an additional 36.5kWh per year which, at current tariff rates, may mean additional energy expenditure of around £12.41 per year. Extend this to other appliances in the home, that unnecessary sum can become significant.

Meanwhile, each new rented home at Melbourne Avenue has an external washing line. The flats have internal tididri lines in the bathrooms. The more we can rely on free solar and wind energy or re-use of produced heating to dry our clothes, the better. Tumble driers or washer driers are some of the least energy efficient appliances in the home.

The new homes also have extremely accurate and versatile heating and hot water controls, allowing residents to precisely set their heating levels.

Melbourne Avenue is also well located for bus services to Margate, Ramsgate and Broadstairs and is a short walk from Ramsgate train station. The new development is also close to two major supermarkets and Westwood

Cross shopping centre, where there is easy access to banks, post office services and medical support. The site is also within the catchment areas to schools and nursery care.

There are around 46 3.6kW electric vehicle (EV) charging points on the new development. Each EV point offers the resident a charging point for their vehicle.

Some of the pods are communal due to layout requirements on the site. According to the manufacturer, these can offer a charging facility 1.6x faster than a standard electric socket, and charges at an average rate of 15 miles (distance) per hour.

Biodiversity

An extensive and thorough ecological site survey considered the development's environmental impact. This included the initial build stages, through to occupancy and then the lifetime period of the new homes, as well as the use by residents, and the provision of flora and fauna that share the site with them.

Additional surveys were also carried out to assess the predominance of bats and reptiles at the site. Of note, pipistrelle bats were identified as potentially roosting in one tree.

Reflecting the findings of these reports and the desire to encourage nature, a variety of bird and bat boxes are to be dotted in and around the trees and hedges. This is to provide foraging areas for bats, in particular.

The development also incorporates

holes to all fencing to provide safe passages for foraging hedgehogs. In partnership with specialist partners, comprehensive landscaping designs were undertaken. Native trees, shrub planting and general plant husbandry will create a natural screen fringed with a canopy of existing mature trees.

Large areas of natural wildflower planting have also been incorporated. As pollinator plants, these wildflower areas help to create an environment that attracts birds, butterflies, insects and, critically, bees. This feature will help pollinator populations, which are currently in decline.

These same landscaped areas will also feature insect and hedgehog hotels, again reflecting the focus on promoting a sustainable, wild environment to enhance biodiversity across the site.

The landscape strategy sensitively

Pipistrelle bats were identified as potentially roosting in a tree within the Melbourne Avenue site addresses the existing established planting and trees on the site. Nine trees were subject to tree protection orders, so works have been sensitively and appropriately undertaken around them.

External lighting has been considerately located to prevent unnecessary incursion into these foraging areas. A specific lighting strategy was implemented to comply with secured-by-design requirements, as well as to limit the impact on foraging wildlife. For instance, low-level musestyle lighting has been specified throughout the development to address this.

Finally, existing substrate has been used on the site to avoid the import of large volumes of soil to site. This policy has reduced the number of large vehicle movements normally involved in the removal of substrate from sites.

Endnotes

- According to <u>figures for 2021</u> from the Department for Business, Energy & Industrial Strategy.
- 2 Attenuation refers to the temporary storage of storm water, for its gradual release into a watercourse or sewer network. The storm water is collected and routed into the sewer in the normal way, except that it uses flow controls to manage the volume that passes through into the main system.
- **3** The Intelligent Delayed Start function is an energy-saving feature which automatically reduces the warm-up time for the heating system. As the weather becomes milder, Intelligent Start will delay the heating start times so that the fuel is not wasted bringing the room up to temperature earlier than necessary.
- 4 The impact of one kilogram of NOx on warming the atmosphere is almost 300 times that of one kilogram of CO². Globally, around 40% of total NOx emissions originate from human activity US Environmental Protection Agency.
- Global warming potential (GWP) is a measure of how much energy the emissions of one ton of a gas will absorb over a given period of time, relative to the emissions of one ton of carbon dioxide (CO²) US Environmental Protection Agency.
- Energy experts at <u>Utilita</u> say some televisions can use as much as 10 watts an hour when on standby.
- 7 The SAP assessment or Standard Assessment Procedure is a process that underpins the Energy Performance Certificate (EPC). An EPC shows potential home buyers or tenants how energy efficient a building is. The EPC contains information on potential energy costs and carbon dioxide emissions.
- 8 A property's thermal transmittance, otherwise known as its U-value, is the rate of transfer of heat through a structure. Simply put: the lower the U-value figure, the lower the heat loss and, therefore, the better its energy and environmental efficiency.

- **9** The energy efficiency rating is a measure of the overall efficiency of a home. The higher the rating, the more energy efficient the home is and the lower the fuel bills are likely to be.
- **10** The environmental impact rating is a measure of a home's impact on the environment in terms of carbon dioxide (CO²) emissions. The higher the rating, the less impact it has on the environment. It is designed to assess and compare the energy and environmental performance of a dwelling, so as to provide accurate and reliable comparisons of its performances within the government's prevailing energy and environmental policy initiatives. See <u>here</u> for further details.

An environmental assessment from

lifecycledesign.co.uk

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