



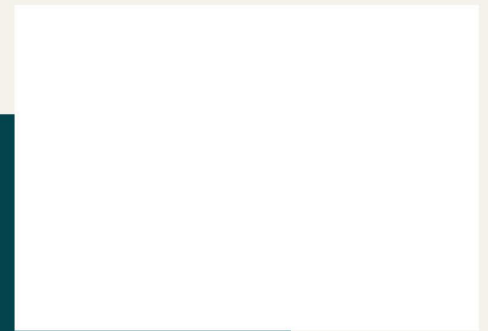
# Supporting Sustainability Statement The Planning Consultancy

Project address

Church End,  
Stocking Pelham,  
Hertfordshire,  
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# Introduction

ATSPACE recognises it has a responsibility to the environment beyond legal and regulatory requirement. We are committed to reducing environmental impact and continually improving our environmental performance as an integral part of our business strategy and operating methods.

ATSPACE have been instructed by PCL to carry out the specified designs and implementations for the application of a New Dwelling at the proposed site of Church End, Stocking Pelham, Hertfordshire.

This a supporting statement to show the measures that will be taken into the sustainability and energy usage of the said development. It outlines the opportunities for reducing carbon output/energy demand through optimizing fabric fit out and using renewable energy.

It is not intended as detailed design advice and is purely for the demonstration of the relevant reduction requirement.

As such data and information should only be treated as INDICATIVE at this stage of the process. Further investigation can be undertaken when more accurate and detailed information is required on specific measures.

# The Approach



## Fabric First


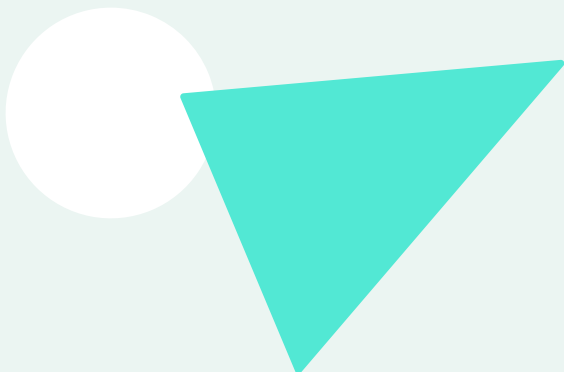
Focus on the durability of the materials and target the fabric first approach to optimise performance and lifelong value of the dwelling. The 'fabric first' approach prioritises the energy efficiency of a property right from conception, at the start of the design and development process, as opposed to considering it as an afterthought or 'add-on' to ensure properties meet building requirements.

## Sustainable Build Methods

A consideration to a Sustainable build methods and approach to complement the fabric first approach. With these considerations taken into effect we are optimising all possible areas to develop a high performing design that not only carries a sustainability green credentials but will last the lifespan of the build.

## Biodiversity in New Home Developments

When planning new home developments, it is important to consider the potential impact on biodiversity and take steps to minimise that impact.



# Fabric First

As the name implies, a 'fabric first' design prioritises the efficiency of the building's structural components and materials over those of the mechanical and electrical building services.

## High performing insulation

Insulation in your home provides resistance to heat flow and lowers your heating and cooling costs. Properly insulating your home not only reduces heating and cooling costs, but also improves comfort.



What we are proposing  
High performing insulation offers a range of benefits for buildings, including:

**Energy efficiency:** One of the main benefits of high performing insulation is that it improves the energy efficiency of a building. Insulation helps to reduce heat transfer, which means that less energy is required to maintain a comfortable indoor temperature. This can lead to significant savings on energy bills and reduced carbon emissions.

**Improved indoor comfort:** Insulation helps to keep indoor temperatures consistent, reducing the impact of outside weather conditions on the indoor environment. This can lead to improved comfort levels for occupants, with less need for heating or cooling.

**Noise reduction:** Insulation can also help to reduce noise transfer between different areas of a building, making it a more comfortable and peaceful environment for occupants.

**Reduced moisture and condensation:** High performing insulation can help to reduce moisture and condensation within a building. This can help to prevent issues such as mould growth and structural damage, improving the overall health and longevity of the building.

**Increased property value:** Buildings with high performing insulation are often more attractive to buyers and renters, as they offer improved energy efficiency and indoor comfort. This can lead to increased property value and higher rental yields.

## Consideration for type of insulation

Choosing the correct high performing insulation for a new build home requires careful consideration of a range of factors. Here is a methodology to help guide the process:



**Determine the insulation requirements:** The first step is to determine the insulation requirements for the new build home. This will depend on factors such as the location, climate, building design, and building materials. Local building codes and energy efficiency standards can also provide guidance on the required R-value (a measure of insulation effectiveness) for different areas of the building envelope.

**Consider the insulation types:** There are several types of insulation available, including batts and rolls, blown-in, spray foam, and rigid foam. Each type has its own benefits and drawbacks, so it is important to consider factors such as R-value, cost, ease of installation, and environmental impact when choosing the best option.

**Assess the environmental impact:** When choosing high performing insulation, it is important to consider the environmental impact of the materials used. Look for insulation that is made from renewable or recycled materials, and that has a low embodied energy (the energy required to produce and transport the insulation).

**Determine the installation requirements:** The installation requirements for high performing insulation can vary depending on the type of insulation chosen. Consider factors such as the available space, the complexity of the building design, and the required level of air sealing when choosing the best option.

**Evaluate the cost and performance:** Finally, consider the cost and performance of the insulation options. Look for insulation that offers the best combination of cost, performance, and environmental impact, while also meeting the required R-value and installation requirements.

Overall, choosing the correct high performing insulation for a new build home requires a careful evaluation of a range of factors. By following a structured methodology, it is possible to find the best insulation option for the specific needs of the building, while also minimizing the environmental impact and staying within budget.

## High performing windows with insulated frames

Using high performing windows with insulated frames can provide several benefits, including:

**Energy efficiency:** High performing windows with insulated frames can help reduce energy consumption by preventing heat transfer through the windows. This can result in lower heating and cooling costs and a more comfortable indoor environment.

**Noise reduction:** Insulated frames can also help reduce outside noise levels, making your home or building a quieter place to be.

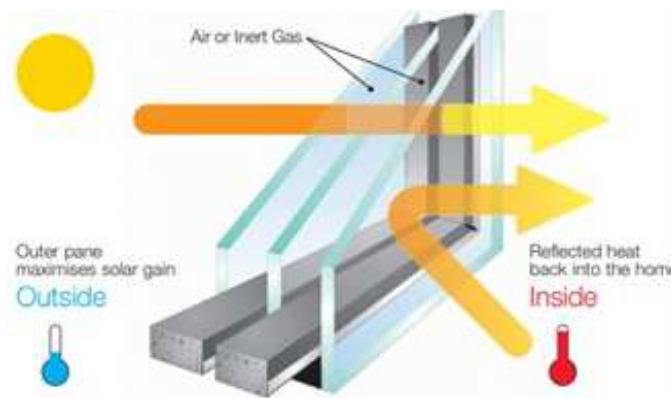
**Increased comfort:** By reducing heat transfer and minimizing drafts, high performing windows with insulated frames can help create a more comfortable indoor environment, regardless of the season.

**Better indoor air quality:** Insulated frames can also help prevent moisture from entering the building, reducing the risk of mould and mildew growth and improving indoor air quality.

**Improved durability:** High performing windows with insulated frames are often made with durable materials that can withstand harsh weather conditions and last longer than standard windows.

Triple glazed windows achieve A++ rating for their efficiency. Triple glazing is 24% more efficient with a  $U_w$  rating of 0.99 compared to 1.3 for the best double glazing. Upgrading from old double glazing to triple glazing can expect 60% more energy efficiency.

Overall, using high performing windows with insulated frames can provide a range of benefits that improve the comfort, energy efficiency, and durability of your home or building.



## Thermal bridging

Minimising thermal bridging.

This is the movement of heat across an object that is more conductive than the materials around it. The conductive material creates a path of least resistance for heat. Thermal bridging can be a major source of energy loss in homes and buildings.

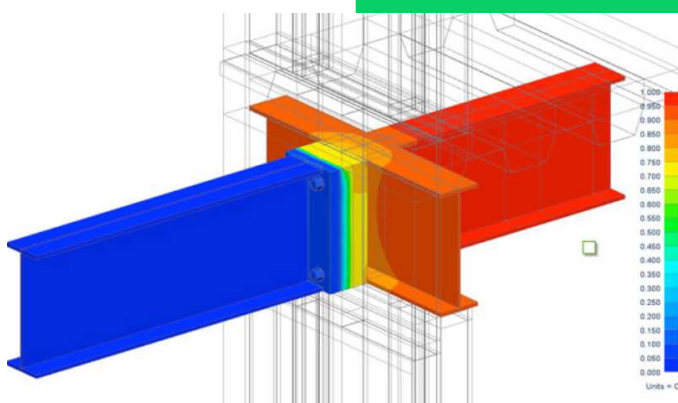
A property that has no thermal bridging can have several benefits, including:

**Improved energy efficiency:** Thermal bridging can cause heat loss through walls, floors, and roofs, leading to increased energy consumption and higher energy bills. By eliminating thermal bridging, a property can become more energy-efficient, reducing its carbon footprint and saving on energy costs.

**Enhanced comfort:** Thermal bridging can create cold spots and drafts in a building, which can lead to discomfort for occupants. By eliminating thermal bridging, a property can maintain a consistent temperature throughout, ensuring greater comfort for occupants.

**Improved indoor air quality:** Poorly insulated buildings can allow moisture to build up, leading to mould growth and poor indoor air quality. By eliminating thermal bridging, a property can reduce the risk of moisture buildup and improve indoor air quality.

**Increased lifespan of the building:** Thermal bridging can cause damage to building materials over time, reducing the lifespan of a property. By eliminating thermal bridging, a property can reduce the risk of damage to building materials and increase its lifespan.





## Solar gain

Taking advantages using solar gain with in your new build development. Using solar gain in a new build development can offer several advantages, including:

**Reduced energy costs:** By using solar gain, a property can reduce its reliance on traditional heating systems, which can result in lower energy bills for homeowners or tenants.

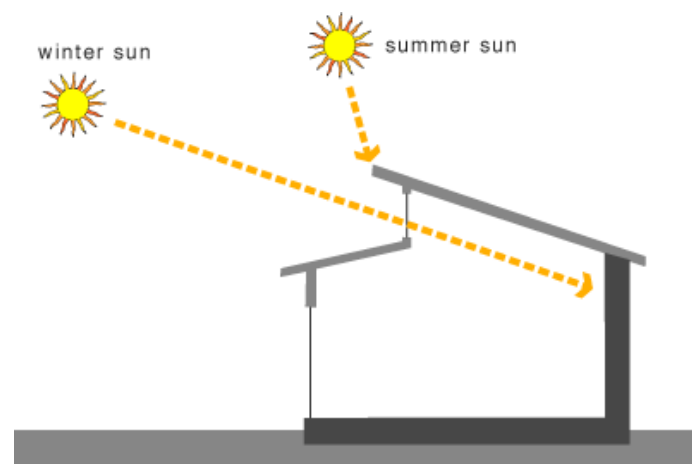
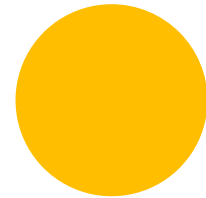
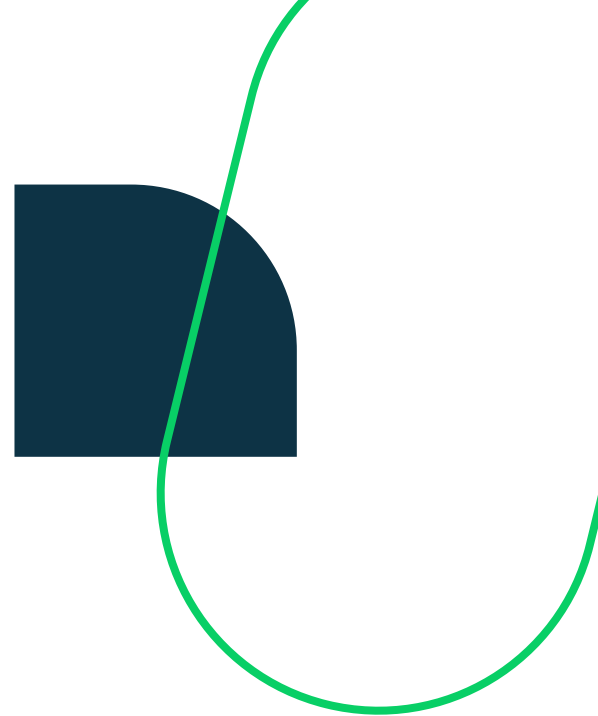
**Improved energy efficiency:** Solar gain can improve the energy efficiency of a building by reducing the amount of energy needed to maintain a comfortable temperature inside. This can lead to a smaller carbon footprint and a more environmentally friendly building.

**Increased comfort:** Solar gain can help to maintain a comfortable indoor temperature by providing passive heating during colder months. This can lead to increased comfort for occupants without the need for additional heating systems.

**Better natural lighting:** Solar gain can also provide natural lighting to a property, reducing the need for artificial lighting during the day. This can save energy and create a more pleasant living or working environment.

**Reduced maintenance costs:** Traditional heating systems can require regular maintenance and repair. By relying on solar gain, a property can reduce its maintenance costs and potentially increase the lifespan of its heating systems.

**Attractive to potential buyers or renters:** Properties that incorporate sustainable design features, such as solar gain, may be more attractive to potential buyers or renters who are looking for environmentally friendly and cost-effective properties. This can potentially increase the value of the property and make it easier to sell or rent.



## Air tightness

A proposal of a super air tight development that avoids heat loss as it means less uncontrolled air movement in and out of the building. Less heat loss also means your heating system will work more efficiently, thereby reducing heating bills and energy wastage.

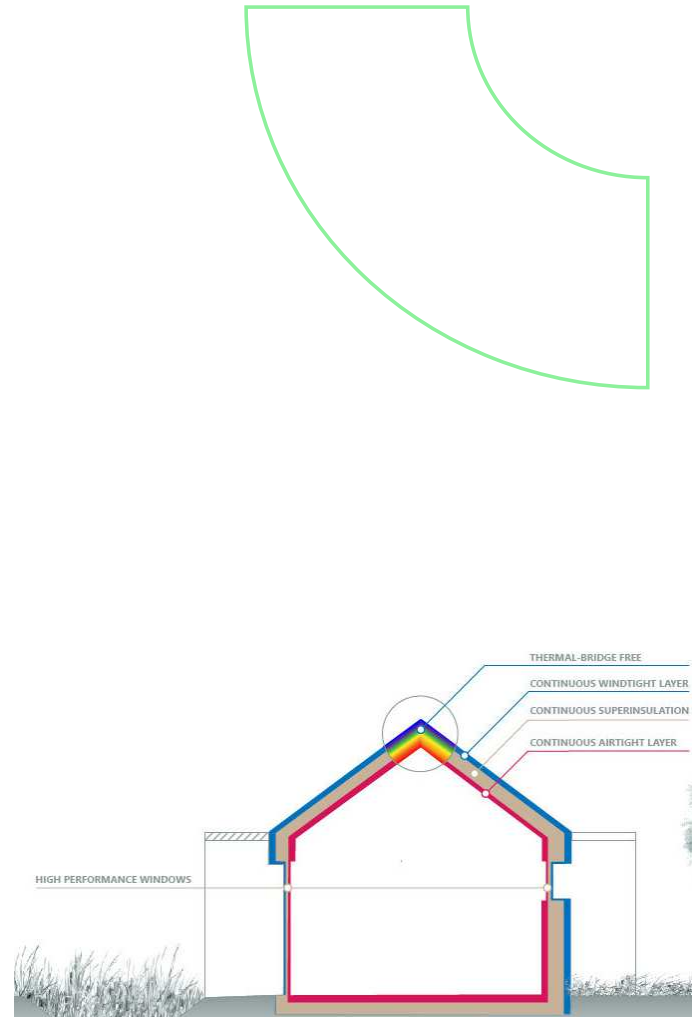
Achieving an airtight dwelling involves a combination of design, construction, and testing measures to ensure that the building envelope is sealed and free of air leaks. Here are the steps typically involved in creating an airtight dwelling:

**Design:** The design phase is critical for ensuring an airtight dwelling. The building design should include features such as proper insulation, vapor barriers, and air barriers to prevent air leaks.

**Construction:** During the construction phase, attention to detail is important. All joints and seams must be sealed properly to prevent air leaks. This includes sealing around windows and doors, as well as sealing any gaps or cracks in the building envelope.

**Testing:** After construction is complete, the building must be tested to ensure it is airtight. This is typically done using a blower door test, which measures the air tightness of the building. If any leaks are found, they must be identified and sealed.

**Maintenance:** Once the building is airtight, it is important to maintain it properly to ensure that it remains that way. Regular inspections should be performed to check for any new leaks or damage that could compromise the building envelope.



Some specific methods that can be used to achieve an airtight dwelling include:

- Using air barriers, such as house wrap or taped sheathing, to prevent air leaks.
- Installing properly sealed and insulated doors and windows.
- Ensuring that all ductwork is properly sealed and insulated.
- Using high-quality insulation materials to prevent heat transfer through the building envelope.
- Eliminating all unnecessary holes and penetrations in the building envelope.
- Using gaskets or sealants to seal around electrical boxes, plumbing penetrations, and other openings in the building envelope.

By following these steps and using these methods, it is possible to create an airtight dwelling that is energy-efficient, comfortable, and healthy to live.



## Ventilation

Airtight buildings and ventilation are both crucial elements of building design, and they play complementary roles in ensuring indoor air quality, occupant comfort, and energy efficiency.

Airtight buildings prevent the infiltration of outdoor air, which can introduce pollutants, allergens, and moisture into the indoor environment. Airtightness also reduces heat loss and heat gain through the building envelope, leading to significant energy savings and improved thermal comfort. However, airtight buildings can also lead to poor indoor air quality if proper ventilation measures are not taken.

Ventilation helps to remove indoor air pollutants and moisture, ensuring a healthy and comfortable indoor environment. It also provides fresh air to occupants, which can improve cognitive function, productivity, and overall well-being. Furthermore, proper ventilation can help to reduce energy use by enabling the use of natural ventilation and reducing the need for mechanical cooling and heating.

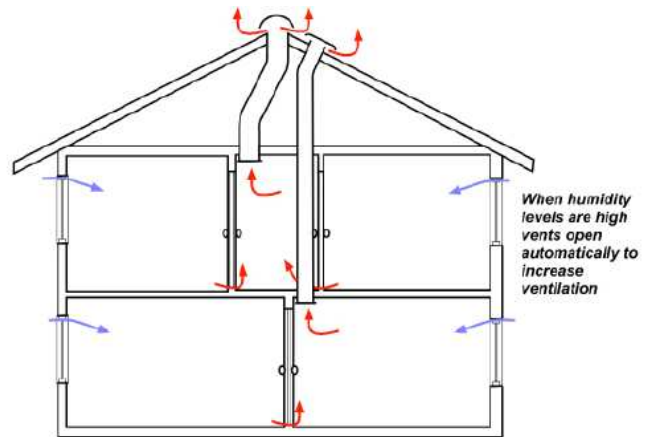
Overall, the importance of airtight buildings and ventilation cannot be overstated in achieving a sustainable and healthy indoor environment. A holistic approach that considers both airtightness and ventilation in building design is necessary to optimize energy efficiency, indoor air quality, and occupant comfort.

MVHR (mechanical ventilation with heat recovery) is an important technology for ensuring good indoor air quality and energy efficiency in new developments. Here are some of the key benefits of using MVHR in new builds:

**Improved indoor air quality:** MVHR systems provide a constant supply of fresh, filtered air into the building, while also removing stale air and pollutants. This helps maintain a healthy indoor environment and reduces the risk of health problems such as allergies, asthma, and respiratory infections.

**Energy efficiency:** By recovering heat from the outgoing air, MVHR systems can help reduce the amount of energy required to heat the building. This can result in lower energy bills and a smaller carbon footprint.

**Comfort:** MVHR systems provide a consistent supply of fresh, filtered air throughout the building, which can help maintain a comfortable and consistent indoor temperature and reduce drafts.



**Noise reduction:** MVHR systems are designed to be quiet and unobtrusive, which can help reduce noise levels in the building.

**Compliance with building regulations:** Many building regulations require new developments to meet certain standards for indoor air quality and energy efficiency. MVHR systems can help meet these requirements and ensure compliance with regulations.

Overall, MVHR systems are an important technology for new developments that prioritize indoor air quality, energy efficiency, and compliance with building regulations. They provide a range of benefits that can help create a healthy and comfortable indoor environment while also reducing energy costs and carbon emissions.



# Sustainable Build Methods

Sustainable building materials are an essential component of modern construction practices. By using environmentally friendly and socially responsible building materials, you can reduce your project's carbon footprint and minimize your impact on the planet.



In this section, we will discuss how you can use sustainable building materials on your development project.

## Choose renewable materials:

Renewable materials are materials that are grown or produced in a sustainable manner, such as bamboo, cork, and straw. These materials are renewable because they can be replenished within a short time, and they don't deplete natural resources. Using renewable materials in your development can significantly reduce your carbon footprint and promote sustainability.

**Use recycled materials:** Recycling is a crucial aspect of sustainability, and incorporating recycled materials into your construction project is an excellent way to reduce waste and promote sustainability. Recycled materials can include wood, glass, metal, plastic, and concrete, among others. By using recycled materials, you can help divert waste from landfills and promote a circular economy.

## Choose non-toxic materials:

Building materials can contain harmful chemicals that can negatively impact

the environment and human health. Non-toxic materials are free of harmful chemicals and are safer for both the environment and humans. Examples of non-toxic materials include low-VOC paints, formaldehyde-free insulation, and natural sealants.

**Incorporate natural materials:** Natural materials, such as stone, wood, and clay, are not only sustainable but also add a sense of warmth and beauty to any building. These materials are sourced from the earth and can be replenished without depleting natural resources. Incorporating natural materials into your development project can help promote sustainability and enhance the building's aesthetic appeal.

**Choose local materials:** Choosing locally sourced materials can help reduce the carbon footprint associated with transportation and promote the local economy. Locally sourced materials are often readily available and can be delivered quickly, reducing the need for long-distance transportation.

In conclusion, sustainable building materials are essential components of modern construction practices. By incorporating renewable materials, recycled materials, non-toxic materials, natural materials, energy-efficient materials, and locally sourced materials, you can promote sustainability and reduce your carbon footprint. Remember, sustainable building is not just about using environmentally friendly materials; it's also about designing and building structures that are socially responsible and promote a better future for all.

## No dig foundation technology

No-dig foundation technology, also known as trenchless technology, is a method of installing underground utilities or building foundations without the need for excavation or extensive disturbance to the soil. Instead, specialized equipment is used to bore or drill a hole in the ground and create a pathway for the utilities or foundation to be installed.

One of the main benefits of no-dig foundation technology is that it reduces the environmental impact of construction projects. By eliminating the need for excavation, there is less disturbance to the surrounding ecosystem, including plant and animal life. Additionally, no-dig technology helps to reduce the amount of waste produced during construction, as there is less soil and debris to dispose of.

Other benefits of no-dig foundation technology include:

**Reduced project timeline:** No-dig technology can be completed more quickly than traditional excavation methods, reducing the overall project timeline.

**Cost savings:** No-dig technology often requires less labour and equipment than traditional excavation methods, resulting in cost savings for construction projects.

**Improved safety:** Since no-dig technology involves less excavation and earth-moving equipment, there is a lower risk of accidents and injuries on construction sites.

**Better quality control:** No-dig technology allows for greater precision and control during installation, resulting in higher quality foundations and utility installations.

Overall, no-dig foundation technology offers many benefits to the environment and construction industry, making it a popular choice for modern construction projects.



## Cutting edge building techniques

There are several cutting-edge building techniques that can be used to build more sustainable and energy-efficient homes. Here are a few examples:

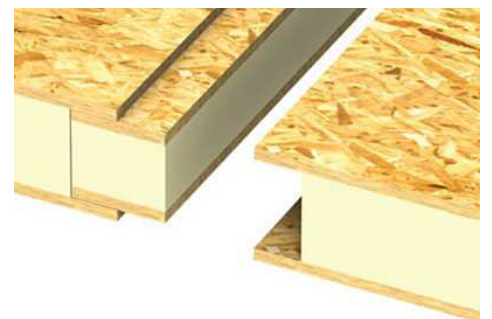
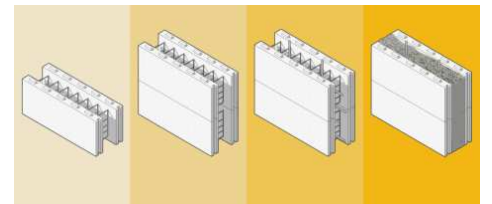
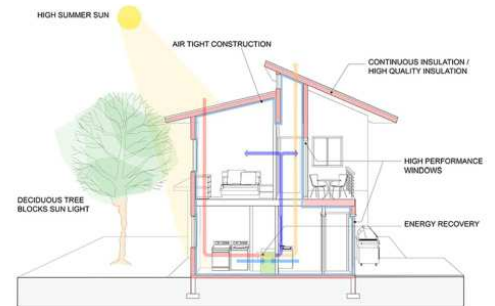
**Passive House Design:** Passive House design principles involve designing homes to maximize the use of natural resources such as sunlight, wind, and natural ventilation. This approach can significantly reduce energy consumption and increase occupant comfort.

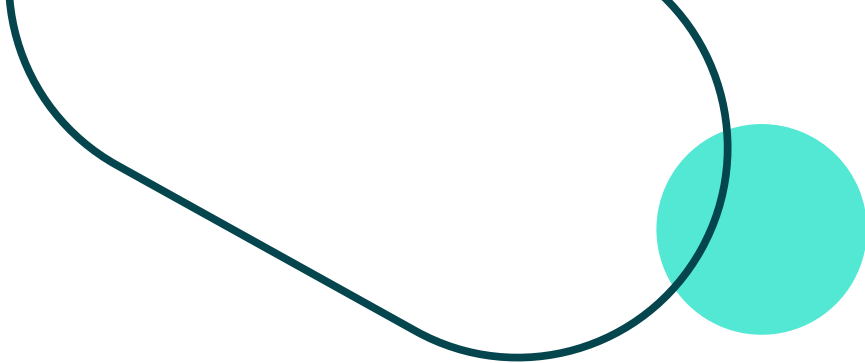
### Insulated Concrete Forms (ICFs):

ICFs are made from a combination of foam insulation and concrete, which provides excellent insulation and soundproofing. They are durable, energy-efficient, and can withstand severe weather conditions.

**Green Roofing:** Green roofs are covered with vegetation, which provides insulation and absorbs rainwater. They can help reduce energy costs, improve air quality, and provide habitats for wildlife.

**Structural Insulated Panels (SIPs):** SIPs are made from a combination of foam insulation and engineered wood or steel. They provide excellent insulation and can be used to create highly energy-efficient homes.

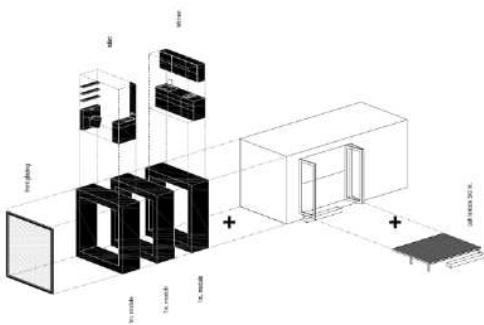




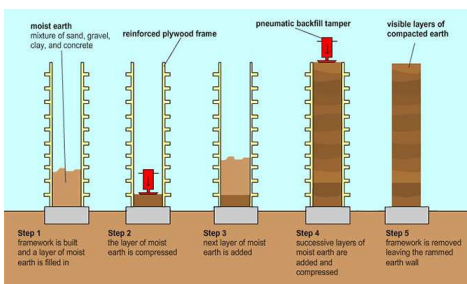
**3D Printing:** 3D printing technology can be used to create customized building components with minimal waste. It can also be used to recycle materials, such as plastic waste, into building components.



**Net-Zero Energy Homes:** Net-zero energy homes are designed to produce as much energy as they consume. They typically incorporate features such as solar panels, geothermal heating and cooling, and energy-efficient appliances.



**Prefabricated Homes:** Prefabricated homes are built offsite in a factory and then transported to the building site for assembly. This approach can significantly reduce waste, increase efficiency, and improve quality control.



**Rammed Earth:** Rammed Earth form works are built up and then multiple layers of moist earth mixed with cement are poured and compressed in form. This approach absorbs heat throughout the day and releases the heat nocturnally, meaning it has a high thermal mass. Can be locally sourced and helps regulate humidity.

**Tyre Foundations (possible alternative foundation method):** Tyre foundations create a new use for old tyres. They are built upwards from levelled subsoil and filled with pea-shingle. Reducing the need for concrete in construction, whilst recycling old tyres.

## Water conservation

Water conservation is an essential aspect of sustainable building design, especially in new build developments. Here are some ways in which water conservation can be incorporated into new build developments and their impact on the environment:

**Low-flow fixtures:** Installing low-flow fixtures such as faucets, showerheads, and toilets can significantly reduce water usage in new build developments. These fixtures use less water than traditional fixtures, which can help conserve water and reduce the demand on local water supplies.

**Greywater systems:** Greywater systems can be used to collect and treat wastewater from sinks, showers, and washing machines for non-potable uses such as flushing toilets or watering landscaping. This approach can reduce the demand for freshwater and reduce the amount of wastewater sent to treatment facilities.

**Rainwater harvesting:** Rainwater harvesting systems can be used to collect and store rainwater for non-potable uses such as irrigation or toilet flushing. This approach can reduce the demand for freshwater and reduce the amount of stormwater runoff that can contribute to erosion and pollution.

**Permeable pavement:** Permeable pavement can be used for driveways, sidewalks, and parking lots to reduce stormwater runoff and allow water to infiltrate into the ground. This approach can help replenish local groundwater supplies and reduce the risk of flooding.

**Landscaping design:** Landscaping design can be optimized to reduce water usage and improve water efficiency. This can include selecting drought-resistant plants, using drip irrigation, and designing landscapes to capture and use rainwater.

The impact of these water conservation techniques can be significant. They can reduce the demand for freshwater, reduce the energy needed to treat and transport water, and reduce the amount of wastewater and stormwater runoff. Additionally, these techniques can help mitigate the effects of drought and climate change by ensuring that water resources are used efficiently and sustainably. Overall, incorporating water conservation techniques into new build developments can have a positive impact on the environment and the communities that rely on them.





## Energy Star appliances

Energy Star certified appliances are designed to be more energy-efficient than standard appliances, which can result in significant energy savings over the life of the appliance. Here are some ways that Energy Star appliances can have a positive impact on new build homes:

**Energy savings:** Energy Star appliances can use up to 50% less energy than standard appliances, which can result in significant energy savings for homeowners. This can also translate to lower energy bills and reduced greenhouse gas emissions associated with energy production.

**Improved indoor air quality:**

Energy Star appliances are designed to operate more efficiently, which can lead to improved indoor air quality. For example, Energy Star-certified ventilation fans can help reduce indoor humidity levels and improve air quality by removing pollutants and moisture from the air.

**Increased comfort:** Energy Star-certified heating and cooling systems can provide better temperature control and improved comfort compared to standard systems. They can also help reduce noise levels and provide a more consistent temperature throughout the home.

**Reduced environmental impact:**

Energy Star appliances can reduce greenhouse gas emissions associated with energy production, which can help mitigate the effects of climate change. Additionally, some Energy Star-certified appliances, such as refrigerators, may use refrigerants that are less harmful to the environment than traditional refrigerants.

**Potential resale value:** New build homes with Energy Star appliances may have a higher resale value, as they are seen as a desirable feature by many homebuyers who prioritize energy efficiency and sustainability.

Overall, incorporating Energy Star appliances into new build homes can provide significant benefits, including energy savings, improved indoor air quality, increased comfort, reduced environmental impact, and potential resale value.

## Smart technology

Smart technology can have a significant impact on the environmental sustainability of new homes. Here are some ways that smart technology can benefit the environment:

**Energy efficiency:** Smart technology can help homeowners reduce energy consumption by automatically adjusting temperature settings, lighting, and other appliances based on occupancy and usage patterns. For example, smart thermostats can learn a homeowner's schedule and adjust the temperature accordingly to minimize energy usage.

**Water conservation:** Smart technology can also help reduce water usage in new homes. Smart irrigation systems can use weather data to adjust watering schedules and amounts, while smart faucets and showerheads can regulate water flow to minimize waste.

**Waste reduction:** Smart technology can help reduce waste in new homes by monitoring food expiration dates and suggesting recipes to use up ingredients before they spoil. Additionally, smart appliances can reduce packaging waste by automatically ordering groceries and household items when supplies run low.



**Improved air quality:** Smart technology can help improve indoor air quality by monitoring humidity levels, pollutants, and allergens. Smart air purifiers and ventilation systems can adjust air flow and filtration to maintain healthy air quality.

**Renewable energy integration:** Smart technology can help homeowners integrate renewable energy sources such as solar panels into their homes more effectively. Smart energy management systems can optimize the use of renewable energy sources, minimize energy waste, and ensure the most efficient use of available energy.

Overall, smart technology can help reduce the environmental impact of new homes by improving energy efficiency, conserving water, reducing waste, improving air quality, and integrating renewable energy sources. By adopting smart technologies, new homes can become more sustainable, comfortable, and cost-effective.



## Renewable technologies

There are several renewable energy sources available for new build homes, each with their own advantages. Here is a list of renewable energy sources and their benefits for new build homes:

**Solar energy:** Solar panels can be installed on rooftops or in gardens to harness energy from the sun. The advantages of solar energy for new build homes include:

- Reduced energy bills
- Lower carbon footprint
- Increased home value
- Government incentives and tax credits

**Wind energy:** Wind turbines can be installed on properties with enough open space and consistent wind speeds to generate electricity. The advantages of wind energy for new build homes include:

- Lower energy bills
- Lower carbon footprint
- Potential income from selling excess electricity back to the grid
- Government incentives and tax credits

**Geothermal energy:** Geothermal systems use the heat from the earth to heat and cool homes. The advantages of geothermal energy for new build homes include:

- Reduced energy bills
- Lower carbon footprint
- Increased home value
- Long lifespan with low maintenance costs

**Hydroelectric energy:** Hydroelectric systems generate electricity using moving water, such as a stream or river. The advantages of hydroelectric energy for new build homes include:

- Low carbon footprint
- Potential income from selling excess electricity back to the grid
- Long lifespan with low maintenance costs

**Biomass energy:** Biomass systems burn organic matter, such as wood pellets, to generate heat and electricity. The advantages of biomass energy for new build homes include:

- Lower energy bills
- Lower carbon footprint
- Reduced waste by using organic matter as fuel

## Air/ground source heat pumps

Air source and ground source heat pumps offer several advantages for new build homes. Here are some of the benefits of using these systems:

### Advantages of air source heat pumps

**Energy efficiency:** Air source heat pumps can provide up to three times more energy than the amount of electricity they consume, making them highly energy efficient.

**Cost-effective:** Air source heat pumps can significantly reduce heating and cooling costs, resulting in lower energy bills and long-term cost savings.

**Low carbon footprint:** Air source heat pumps are a low-carbon heating system that can help reduce greenhouse gas emissions and contribute to a more sustainable future.

**Easy installation:** Air source heat pumps are relatively easy to install and can be installed in homes with limited space.

**Low maintenance:** Air source heat pumps require minimal maintenance, making them a convenient and cost-effective heating and cooling solution for new build homes.

### Advantages of ground source heat pumps

**Energy efficiency:** Ground source heat pumps are highly energy efficient, providing up to four times more energy than the amount of electricity they consume.

**Cost-effective:** While ground source heat pumps have a higher upfront cost than air source heat pumps, they can provide significant long-term cost savings on heating and cooling bills.

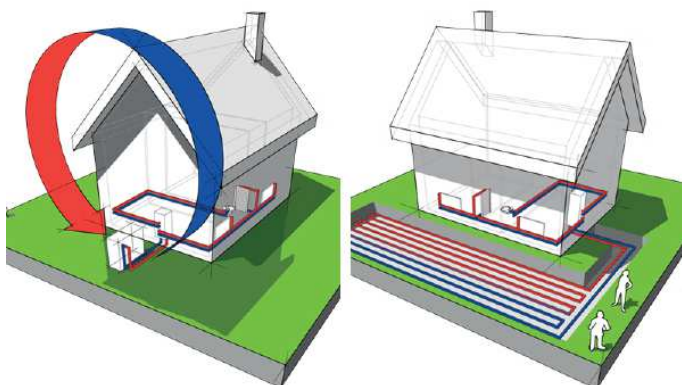
**Low carbon footprint:** Ground source heat pumps are a low-carbon heating system that can help reduce greenhouse gas emissions and contribute to a more sustainable future.

**Durability:** Ground source heat pumps have a long lifespan of up to 25 years and require minimal maintenance, making them a reliable and cost-effective heating and cooling solution for new build homes.

**Space-saving:** Ground source heat pumps are typically installed underground, making them a space-saving option for new build homes with limited space.

Overall, both air source and ground source heat pumps offer several advantages for new build homes, including energy efficiency, cost-effectiveness, low carbon footprint, and low maintenance requirements. These systems can help homeowners reduce their energy bills and contribute to a more sustainable future.

Renewable energy sources offer several benefits for new build homes, including reduced energy bills, lower carbon footprint, increased home value, and potential income from selling excess electricity back to the grid. Additionally, renewable energy sources can help homeowners reduce their dependence on non-renewable energy sources and contribute to a more sustainable future.



Air Source Heat Pump

Ground Source Heat Pump

## Communal ground sourced heat pumps

The shared ground loop is installed as a series of boreholes, central to either a community of houses or serving one large building of multiple dwellings.

Similar to a standard ground source heat pump system, the ground loop runs on a continuous cycle through the ground, absorbing thermal energy. The ground loop then provides this thermal energy (typically between temperatures of 50° and 120°) to individual heat pumps connected to the shared ground loop system. Each heat pump is then responsible for raising the heat to a temperature that's suitable to be used in the property's central heating system.

### Advantages of a shared ground loop

**Independence:** Individual heat pumps powered by their own electrical supply allow independent control over bills, whilst allowing them to adjust the system to personal preferences.

**Cost savings:** Cost of installing shared ground loop is less than an individual system. Less work is needed throughout to keep costs to a minimum.

**Versatility:** Suited to any building and can be expanded at any time in the future. Boreholes can be distributed flexibly to ensure the ground doesn't become overworked.

## The comfort of silence

The Daikin Altherma 3 H HT has been designed for lower acoustic levels to meet the needs of urban areas and homeowner expectations. Quiet Mark certified, it operates at whisper-quiet levels for maximum acoustic comfort.

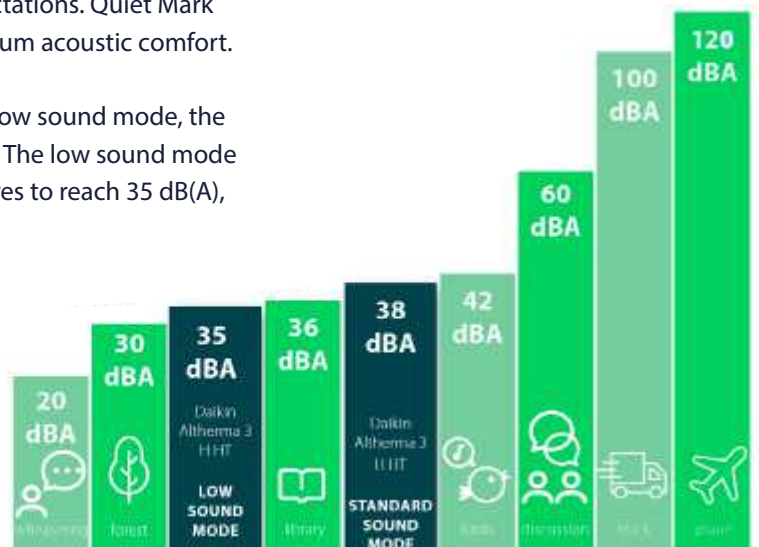
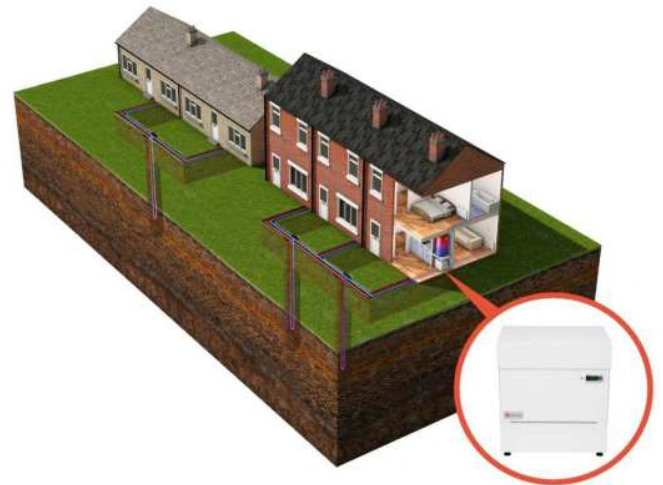
The system offers enhanced flexibility by providing a low sound mode, the unit produces a sound pressure of 38 dBA at 3 metres. The low sound mode reduces the pressure even further by 3 dB(A) at 3 metres to reach 35 dB(A), representing a real reduction of half the sound level.

**Resilience:** Each heat pump is entirely independent of one another, so should a heat pump go down or need maintenance, no other heat pump is affected.

### Benefits of a shared ground loop to occupants

**Lower bills:** Bill payers will realise significantly lower bills as part of a shared ground loop system  
Heating and cooling option: Excess heat during summer can be recovered and used to recharge the ground.

**Low maintenance:** Heat pumps are very low maintenance and have a life span of 20-30 years.



# Biodiversity in New Home Developments



## What's going wrong? How can the way we build houses help solve the problem?

Over time, there have been more and more threats to wildlife in the UK. A report by the RSPB shows that the number and range of many wildlife species in the UK have dropped by 58% since the 1970s.

Recognising that protecting and encouraging biodiversity should be a top priority. By putting the short-term and future success of wildlife at the centre of the planning and building and building process by:

- Giving wildlife a safe environment in which to thrive.
- Retaining existing natural features and habitats wherever possible.
- Rewilding areas.

## How can we make biodiversity our top priority?

The government wants to build 300,000 new homes each year in England. As this project moves forward, it is more important than ever to protect and improve biodiversity. We are dedicated to making homes and neighborhoods that people love to live in. To us, that means creating great homes and great places that are designed and built for better living now and in the future.

## What makes a new development wildlife-friendly?

You might see a number of green features in our development that are meant to support a healthy natural environment:

- Hedges are great places for many arrays of species to live.
- Wildlife highways, such as holes in walls and fences that are carefully placed.
- Biodiverse roofs that help the plants that are native to the site.
- Verges with a wide variety of grasses, wildflowers, shrubs, and trees.
- Sustainable Drainage
- Rain gardens to absorb water and attract a wider range of wildlife.

## Benefits to homeowners?

People often say that living near nature is good for people's physical and mental health and for making communities that are healthy and happy. The facts support that.

According to a survey by the Mental Health Foundation, 65% of adults in the UK say that being close to nature makes them feel better.

And an RSPB/YouGov survey found that 87% of people thought that living closer to places with lots of wildlife and nature would be a good thing.

So, making developments with a lot of different kinds of plants and animals can have a hugely positive effect on people's day-to-day lives, as well as on the environment.

Here are some key steps in a biodiversity methodology for new home developments:

**Site assessment:** Conduct a thorough assessment of the site to identify any habitats or species that may be present. This may involve surveys for plants, animals, and habitat types, as well as an assessment of any potential impacts from the development.

**Design and layout:** Use the results of the site assessment to inform the design and layout of the development. Consider options such as preserving existing habitats, creating new habitats, or providing wildlife corridors between areas of habitat.

**Ecological mitigation measures:** Implement ecological mitigation measures to minimize the impact of the development on biodiversity. This may involve measures such as creating new habitats, providing nest boxes or bat roosts, or planting native vegetation.

**Monitoring and management:** Monitor the site after construction to ensure that the ecological mitigation measures are effective and to identify any potential issues that may arise. Implement management practices as necessary to ensure the ongoing health of the biodiversity on the site.

**Engagement and education:** Engage with the community to raise awareness about the importance of biodiversity and the steps being taken to protect it. Provide educational materials and opportunities for community members to learn about the biodiversity on the site and how they can help to protect it.

**Productive green spaces:** Implement areas in homes for produce growth for each household reducing the need for food transportation. Provide education about the natural environment and fresh produce to all ages. Modern farming techniques could be used as well as more traditional methods.

Overall, a biodiversity methodology for new home developments should aim to minimize the impact of the development on biodiversity while also providing opportunities to enhance biodiversity on the site. By taking a proactive and comprehensive approach to biodiversity, developers can create sustainable and environmentally friendly communities that benefit both people and wildlife.



## In Summary

A holistic approach to sustainability and the implementation of a Fabric First Methodology, which includes High Performance Insulation, High Performing Windows and Insulated Frames, Air Tightness, Thermal Bridging, Solar Gain, and Ventilation, are crucial to the creation of a sustainable and environmentally friendly housing development. Our Sustainable building methods and approaches, including the use of Sustainable building materials, no-dig foundation technology, cutting-edge building techniques, Water conservation, Energy-efficient appliances, Smart technology, Renewable energy, and Biodiversity in new home developments, will further improve the project's sustainability. These efforts will not only improve the environment, but they will also result in long-term cost savings for homes, making this a wise investment for both the present and the future.





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