Probuild
Energy Efficiency Specialists

PRE-APPLICATION

7th June 2018

The Wishing Well,
23 Tatlers Lane, Aston End, Herts SG2 7HL

registered LABC
Passivhaus Trust MEMBER
UK GREEN BUILDING COUNCIL Member
DEA / NDEA 3&4
FMB
TRUST MARK Government Endorsed Standards www.trustmark.org.uk
Build Assure

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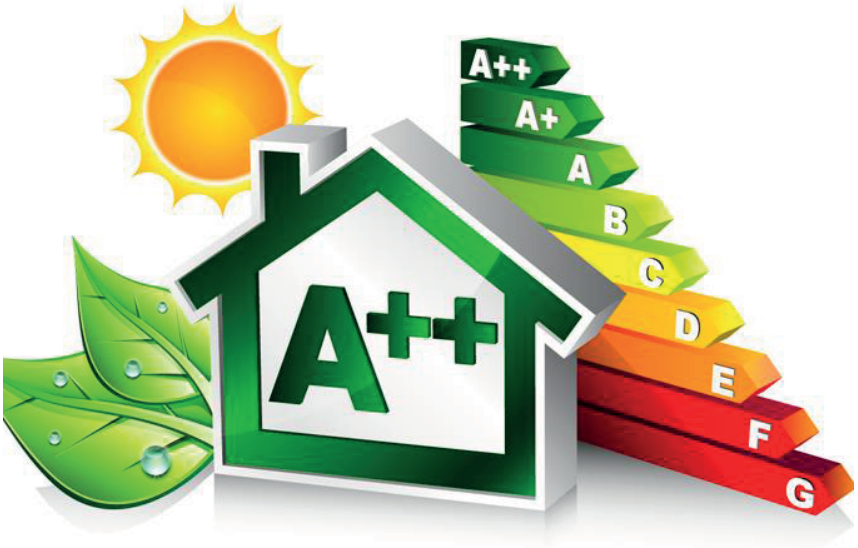
1. INTRODUCTION

The Applicant–

Mr Bradley Kelly, of Probuild Ltd '*Energy Efficiency Specialists*', The Wishing Well, 23 Tatlers Lane, Aston End, Herts SG2 7HL. http://www.probuildltd.co.uk/

My wife and I, together with our children moved from just outside the Aston Village Parrish, to 23 Tatlers lane, Aston End in May 2015. My 80-year-old mother now also lives in our home at so that we can care for her. My two eldest children attended Aston St Marys school many years back, and my youngest 9-year-old still attends the school. I myself also grew up playing around Aston Village prior to the Poplars developments. Therefore, I have a strong connection with Aston and this is my permanent home. I am not an outside developer simply wishing to develop for the sole reason of financial gain at any cost or anyone's expense. My intention is to create a home which is a long-term benefit to my family, the community, greenbelt and environment.

23 Tatlers Lane was purchased in 2015 with full knowledge that it is a dated, inefficient house and large plot of land (The land is just under acre and is in the Greenbelt area) which requires a lot of investment (time and money) to upgrade and improve then maintain the site to at least current standards. I, however, wish to go beyond current standards and create an innovative '*home for 2050'* as per *the Climate Change Act*



I have been the Director of a small, local company called Probuild Ltd which has been successfully trading since 2004 and have created 46 new homes in Hertfordshire alone. I also recently set up Thermoception Ltd (energy efficient infrared heating specialists) http://thermoception.com/ which is a unique, beneficial and efficient heating technology with a strong future in improving wellbeing and reducing carbon

Probuild have grown to now provide a variety of services in the construction industry ranging from Project Management, Contracting, Own developments, Designers, Energy Efficiency Consultants and Turnkey solution providers, Domestic Energy Assessor (DEA) and Non-Domestic Energy Assessor (level 3 & 4 NDEA)

Probuild main area of expertise is the **energy efficiency, sustainable and renewables** of new build and improvements/upgrades of existing domestic and commercial properties and are members of **Passivhaus** trust and **UK Green Building Council** promoting sustainable and energy efficiency in construction

I am passionate about the environment, sustainability and energy efficiency in construction and have formed relationships and partnerships with a vast network of manufacturers, experts and suppliers to source and provide best solution methods and products suitable for specific situations which reduce carbon emissions, lower energy usage, reduce waste, improve build methods and materials, and ultimately create beneficial wellbeing homes of the future.

My specialised work, plus growing up locally and living in the village with my family has allowed me to understand and appreciate the difficulties and demands surrounding housing needs, the importance of the community plus achieving all of this whilst protecting or improving the environment. I believe that this gives me the advantage of **'thinking outside the box**' or solely as a 'developer' who has a mission geared around profit. Being able to see the pros and cons from many aspects and to ultimately provide best solutions which serve the purpose and benefit many

2. Government calls for innovation in new homes

Ministers have called on the construction industry to embrace the latest innovations in building techniques, in order to make sure the country will benefit from the good quality homes it needs.

It is a directive of this Government to fix the broken housing market and address the housing crisis by ensuring 300,000 new homes are built in England by the mid-2020s. These homes need to be of good quality and design and embrace the latest innovations to ensure the homes are valuable into the future.

The housing white paper published in February 2017 set out the government's ambition to give communities a stronger voice in the design of new housing, and to drive up the quality and character of new development, building on the success of neighbourhood planning. It is crucial to ensure local support for the new communities, and recent research says that seven out of ten people would support new residential development if buildings are well-designed and in keeping with their local area.

To this end, the Government has hosted an industry summit to promote government and industry collaboration and innovation. Industry leaders, including local authority planners, developers and design professionals, attending the Design Quality Conference shared their expertise to ensure how homes look becomes just as important as the number delivered.

Ministers will focus on how developers can use better quality design in order to win over both communities and new generations of first-time buyers, who expect the highest quality homes before parting with their hard-earned deposits.

The event builds on previous government action to ensure new homes are built using quality materials and design methods, as set out in the recently published draft National Planning Policy Framework.

The document, which is currently out to consultation, outlines requirements for design guides and codes to feature prominently in new Local Plans, significant consideration to be given to existing local character as well as setting out the density of developments that meet the needs and expectations of the community.

The conference also saw speakers from the Royal Institute of British Architects, Stephen Lawrence Trust, The Princes Foundation, Historic England and Homes England, as well as other experts with experience in delivering excellent build quality for new and existing communities.

3. INNOVATIVE PLAN

To demolish the existing dated & inefficient dwelling.

In its place….. design, and create a **very special, Innovative**, **bespoke**, **aesthetically pleasing**, **truly exceptional, zero carbon, energy-plus** building, using **sustainable** materials, **passivhaus** standards and the most appropriate **renewable** technology, plus be constructed using sustainable **off-site modular** and **ICF** build methods.

In addition, the landscape and gardens will play an equally important role being designed to create **organic produce** grown from onsite **recycled irrigation** and **compost** along with the **replanting of trees, plants, shrubbery** and creating areas to encourage **natural habitats** to develop and thrive better than if left.

Each dwelling and landscape designed to **work in harmony and enhance the immediate setting of the surroundings** providing immediate and more importantly, **long term benefits to the environment and community, whilst serving the role of preserving the Greenbelt.**

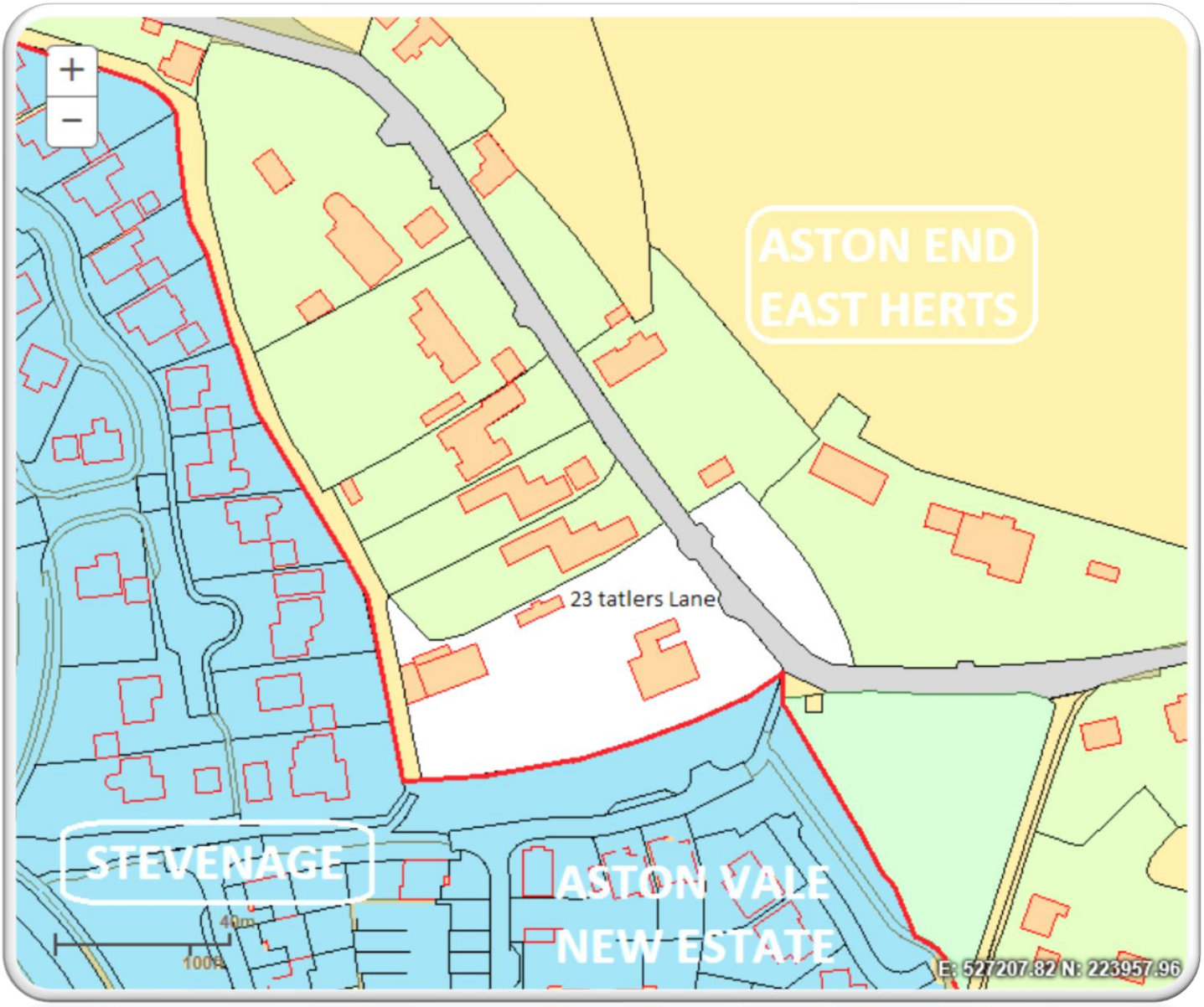
Setting the highest benchmark and 'Creating and promoting zero carbon and energy-plus wellbeing 2050-ready homes of the future' to which the local community, school, colleges and interested parties can gain understanding and awareness through site presentations

- **SUSTAINABLE OFF SITE MODULAR PLUS ICF BUILD FOR SPEEDY ONSITE CONSTRUCTION**
- **100% RENEWABLE ENERGY**
- **REDUCING ENERGY CONSUMPTION**
- **NZED - ZERO CARBON HOMES OF 2050**
- **PROTECTING AND BENEFITING THE ENVIRONMENT**
- **MANGING BIODIVERSITY**
- **PRESERVING THE GREENBELT PRINCIPLES**
- **RECYCLING ONSITE WASTE AND REDUCE WASTE COLLECTION**
- **INOVATIVE & EXCEPTIONAL ECO HOME WITH LOW MAINTENANCE AESTHETICALLY PLEASING DESIGN**
- **'FABRIC FIRST' PASSIVHAUS STANDARDS**
- **100 % ENERGY EFFICIENT LIVING**
- **EDUCATION & AWARENESS TO LOCAL COMMUNITY AND OTHER PARTIES**
- **HEALTHIER WELLBEING HOMES MEETING NEEDS OF MODERN DAY CONVENIENCE LIVING**
- ON-SITE EXOTHERERMIC ANAEROBIC DIGESTER
- ON-SITE WATER BOREHOLE PROVIDING CHEMICAL FREE WATER
- **LANDSCAPE DESIGNED FOR OWN PRODUCE USING IRREGATION WASTE PRODUCT AND COMPOST**
- **DESIGNED FOR NATURAL HABITAT TO THRIVE**

4. LOCATION

23 TATLERS LANE, ASTON END, HERTFORDSHIRE SG2 7HL

[Image 1]



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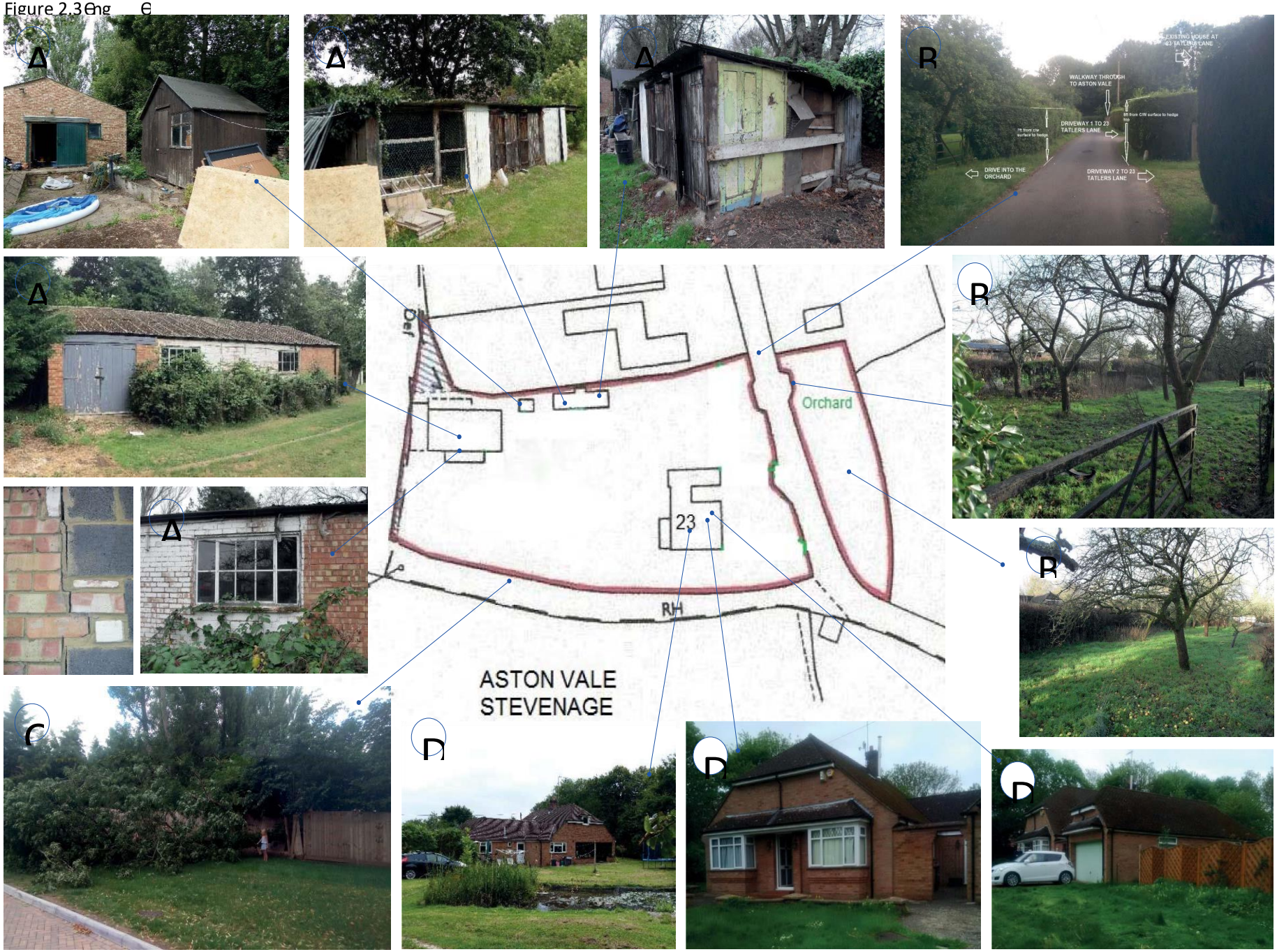


5. INNOVATIVE ZERO-CARBON, PASSIVHAUS, ENERGY- PLUS OPPORTUNITY

This particular plot and location provides many of the required qualities which are appropriate for a bespoke, flagship, innovative ENERGY PLUS, PASSIVE HOUSE development.

Current building regulations PART L is becoming more stringent with regards to improving thermal efficiency of the fabric/envelope of buildings which are measured in u-values. Home appliances, lighting and water use are also having to meet new targets to reduce energy consumption or waste. So yes, new builds are heading in the right direction by becoming more energy efficient.

However, todays current standards may be making steps in the right direction for energy efficiency improvement but fall someway short of the ideal target of zero carbon and wellbeing living.

Code 6 of the code for sustainable homes which was withdrawn in 2015 was undeniably the perfect, albeit unrealistic end target set in such a short timeframe of 2016 as too many uncontrollable factors prevented this from being realistically achieved.

The **European Commission Energy Performance of Buildings Directive** requires all new buildings to be nearly zero-energy by the end of 2020. Brexit will allow the UK to set its own targets policies, however the UK will not wish to fall behind other european countries performance

2050-ready homes

The Climate Change Act means that the UK still has a legal obligation to achieve at least an 80% reduction in the carbon emissions from our homes by 2050. Therefore, we need to be building homes now that are 2050 ready.

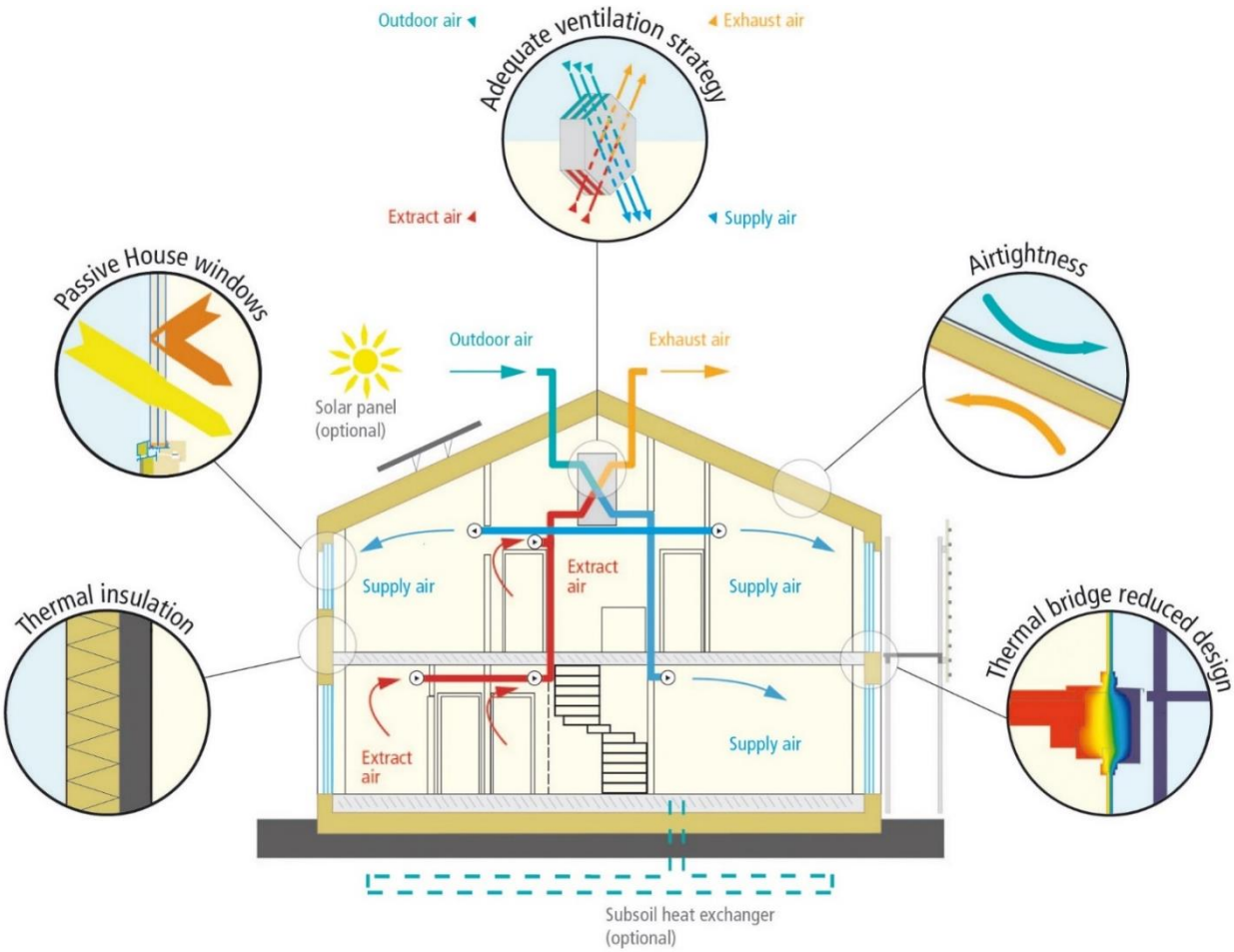
Authorities, designers, architects, developers and the end users can all be pro-active and play their part in helping to achieve the ideal living of today and the future.

As per **2. Government calls for innovation in new homes** above, Ministers have also called on the construction industry to embrace the latest innovations in building techniques, in order to make sure the country will benefit from the good quality homes it needs.

5a. What is a Passivhaus, Zero carbon, Energy-Plus,

Passive house

Passive house (German: *Passivhaus*) is a rigorous standard for energy efficiency in a building, which reduces the building's ecological footprint. The ‘fabric first’ approach results in ultra-low energy buildings that require little energy for space heating or cooling. Passive design is not an attachment or supplement to architectural design, but a design process that integrates with architectural design.



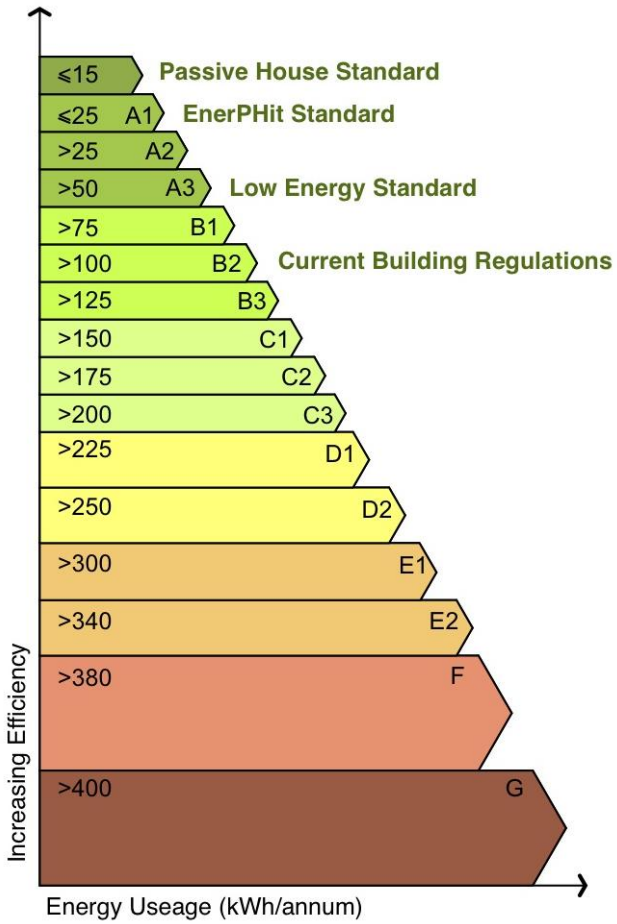
The following five basic principles apply for the construction of Passive Houses:

1. Thermal insulation

All building components of the exterior envelope of the house must be very well-insulated with (U-value) of 0.15 W/(m²K) at the most, i.e. a maximum of 0.15 watts per degree of temperature difference and per square metre of exterior surface are lost.

2. Windows

The window frames must be well insulated and typically thermally broken triple glazed with a U-value of 0.80 W/(m²K) or less, with g-values around 50% (g-value= total solar transmittance, proportion of the solar energy available for the room).



3. Ventilation heat recovery

Efficient heat recovery ventilation is key, allowing for a good indoor air quality and saving energy. In Passive House, at least 75% of the heat from the exhaust air is transferred to the fresh air again by means of a heat exchanger.

4. Airtightness of the building

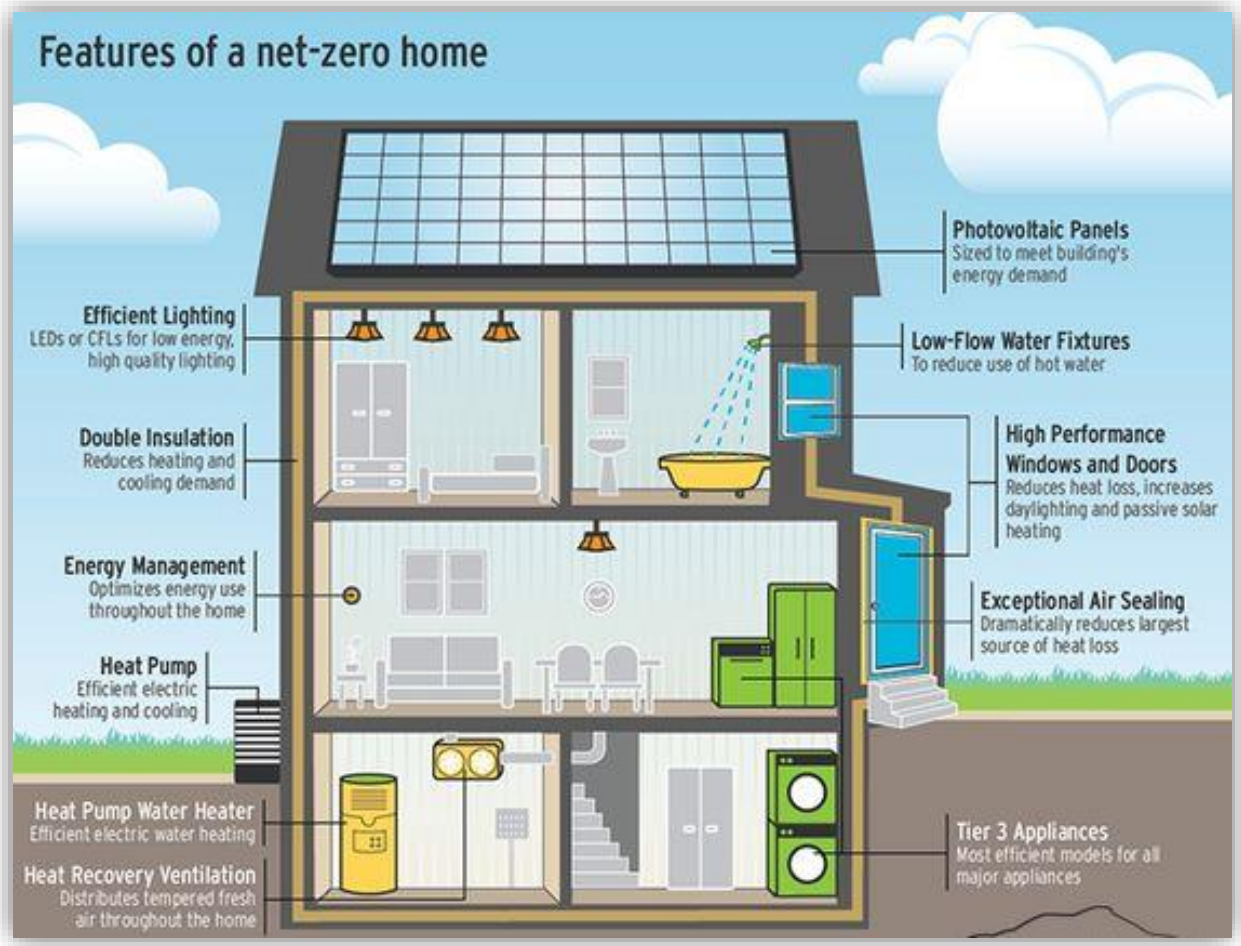
Uncontrolled leakage through gaps must be smaller than 0.6 of the total house volume per hour during a pressure test at 50 Pascal (both pressurised and depressurised).

5. Absence of thermal bridges

All edges, corners, connections and penetrations must be planned and executed with great care, so that thermal bridges can be avoided. Thermal bridges which cannot be avoided must be minimised as far as possible.

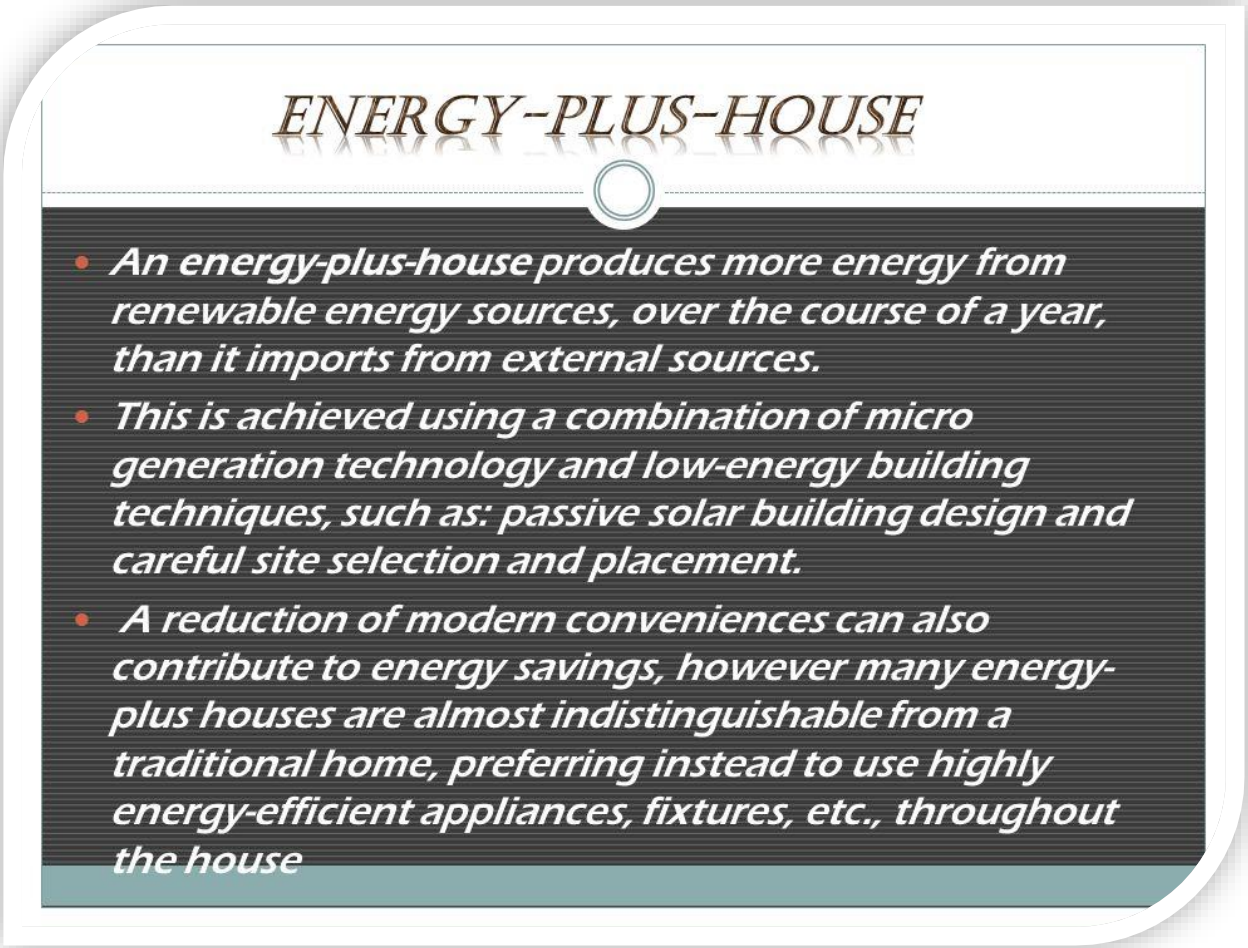
Zero-energy house

A **zero-energy building**, is a building with zero net energy consumption, meaning the total amount of energy used by the building on an annual basis is roughly equal to the amount of renewable energy created on the site, or in other definitions by renewable energy sources elsewhere.. They do at times consume non-renewable energy and produce greenhouse gases, but at other times reduce energy consumption and greenhouse gas production elsewhere by the same amount.



Energy Plus House

An energy-plus house (also called: Plus-Energy House, Efficiency-Plus House) is the ultimate house which goes one stage further than a zero energy house as it produces more energy from renewable energy sources, over the course of a year, than it imports from external sources. This is achieved using a combination of microgeneration technology and low-energy building techniques, such as: passive solar building design, insulation and careful site selection and placement.



6. MODULAR OFF-SITE CONSTRUCTION or ICF

Two of the most efficient, sustainable and beneficial construction methods are modular (off-site and delivered to site for speedy) or ICF (Insulated Concrete Form). These construction methods both offer benefits that outweigh traditional construction methods.

6.1 modular

1: Speed of build
Modular building projects can be completed 30-50% quicker than traditional construction methods.

2: Off-site construction
Modular buildings are constructed off-site in modules and are then brought to your site in flat-packed panels, ready to build.

3: Minimal impact on area / neighbours
minimal impact and disruption.

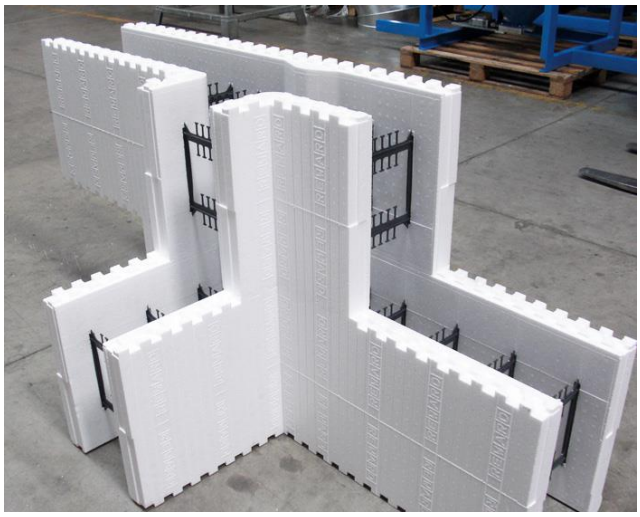
4: sustainable Eco-friendly materials and less waste
Modular buildings are kind to the environment – they are built with eco-friendly building materials and are leading the market with the use of recycled materials. The off-site construction process ensures less waste, too.

5: Attractive bespoke design
One of the main advantages of building modular is the bespoke design, which means that each building is tailored to the specific needs, Thanks to innovative and practical design, using the best quality sustainable building materials, and inclusion of renewables at design stage means modular constructions are an extremely attractive

6: High and consistent quality construction
The nature of indoor construction means that quality and safety is guaranteed, and the building materials are protected from moisture and weather during the construction process.

7: Durable and low maintenance materials
Modular buildings are constructed with the most durable building materials to ensure that the modular construction is built to last. The materials used for internal walls improve sound insulation and fire-proofing, and modular building structures are extremely airtight which ensures their energy-efficiency.

6.2 ICF



1. **Speed of build**
   Up to 40% faster to build ICF Wall than a traditional wall

2. Saves on life cycle costs by dramatically reducing energy usage

3. **Low Maintenance**

4. **High Thermal Value**

5. **Air tight** to assist with passive house

6. **R-Values** greatly reduce heating and cooling consumption

7. **Sustainable** and produced with **recycled materials**

8. Leaves **little waste** on the jobsite and in landfills

9. No depletion of forests; saves precious natural resources

10. **50% stronger** due to the slower curing process

11. Superior **sound** proofing

12. Protection from fire, terrorism and vandalism

7. GREENBELT & VERY SPECIAL CIRCUMSTANCES

PARAGRAPH 87 & 88 NPPF stating *"inappropriate development is by definition harmful to the greenbelt and should not be approved except in VERY SPECIAL CIRCUSTANCES"*

Although not being utilised, the wording of **PARAGRAPH 55** which promotes sustainable development in rural areas best describes my proposal: -

- **'exceptional quality or innovative nature of the design'**.
- ***'Be truly outstanding or innovative, helping to raise the standards of design more generally in rural areas'***

✓ Reflect the highest standards in architecture
✓ Significantly enhance the immediate setting
✓ Be sensitive to the defining characteristics of the local area

Examples of exceptional architectural quality or innovative design which 23 Tatlers Lane will replicate

Such an innovative and exceptional, aesthetically pleasing design, zero carbon, energy-plus to passivhaus standards which supports a 100% electric car, plus puts no strain on services as self-generating power and onsite water borehole, along with the improved landscape and biodiversity will make this **very special circumstances**

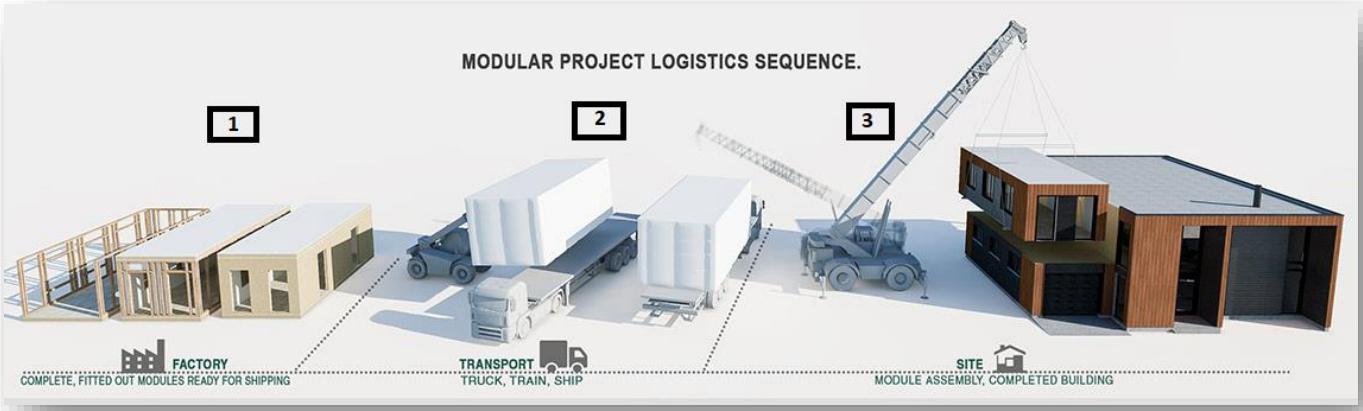
8. USE OF RENEWABLES & SUSTAINABLES FOR 23 TATLERS LANE

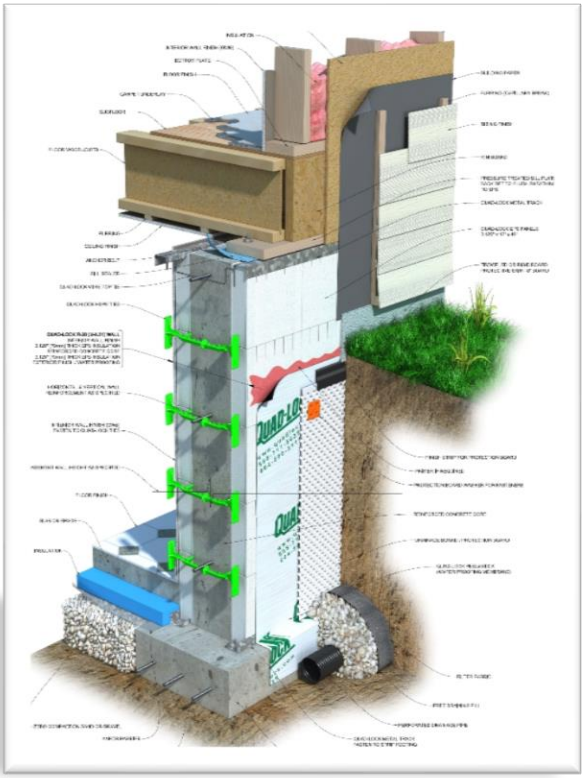
Renewable & Sustainable: The homes are fully sustainable and make use of best renewable energy products, materials and methods to enable the properties to require minimal energy whilst generating as much onsite zero carbon energy as possible so exert no great additional strain on the infrastructure of services and amenities in the area.

Materials: The combination of different sustainable materials applied will blend with the natural landscape. Timber, green-walls and roof, natural stone, tiles, render, metals

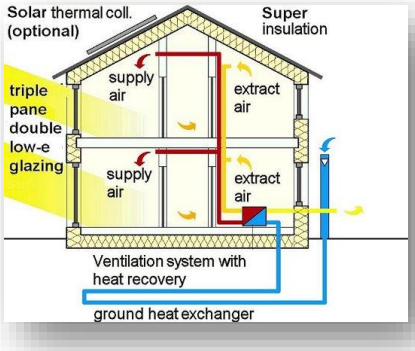
Reply from EHDC dated 23rd Feb 2016: ***'There is no objection in principle to a more modern approach and the use of green walls, timber cladding, stone and tiles'***

Modular off-site super-structure: Designed, built in a factory, and transported to site for speedy erection. This reduces waste, only uses sustainable materials, and allows the build to be erected and water tight within weeks.





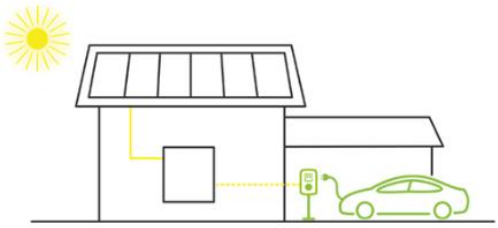
BASEMENT: Insulated Concrete Form (ICF) is a speedy and efficient method of construction which has benefits of being air tight, water tight, thermally efficient and sustainable



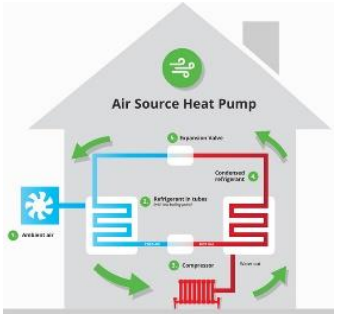
Certified Passivhaus which are highly insulated, airtight, cold bridge free structures that require minimal heating and improved wellbeing. Passive homes help towards achieving a zero-carbon target

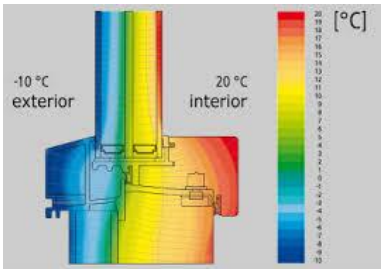
PV Solar and lithium battery storage: The home produce on site energy which will be sufficient to power each property during the days and most evenings and night time (via battery storage), plus have the added option of supplying excess energy back into the grid via the feed in tariff.

Electric car charging points. To encourage and promote the use of electric vehicles, each house will have its own charging point



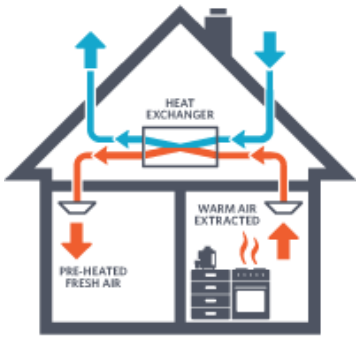
Solar hot water or air/ground source heat pump: The water and heating will be heated through solar energy or heat pump





Windows: All windows and doors will be triple glazed to 0.8 u value minimum

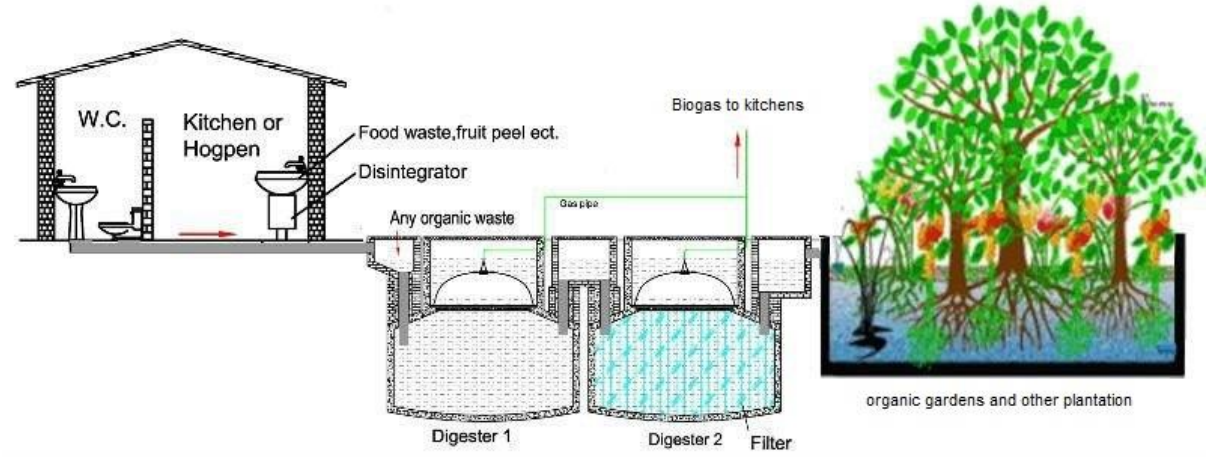
MVHR The home also uses heat recovery ventilation to guarantee fresh air circulation without losing its temperature, which together with being air tight and designed with solar gain, mean that radiators are not required



Kitchen Garden The external gardens are also an important part of the total eco aspect, as it will incorporate an easily manageable 'kitchen garden' to grow on-site low maintenance organic produce. The garden will have compost from onsite waste

Recycling: Probuild unique recycling design allows the occupiers to conveniently and directly separate their waste from the kitchen into the NHDC bins or compost without carrying the waste outside and disposing into the appropriate bins

NATURAL ON SITE SEWAGE TREATMENT (Anaerobic Digester)



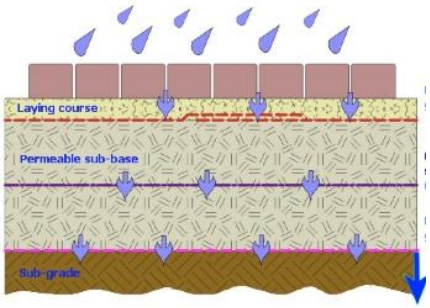
The sewage / waste from each property will be treated on-site through an anaerobic digester system which allows naturally occurring micro-organisms to grow and degrade the waste water including solids. This underground system therefore requires no pipework connection to the network. **The four by-products from the digester plant will therefore be:**

1/ **Electricity** for power and lighting

2/ CH4 (**Methane gas**) to be used for cooking

3/ **Recycled water** for general use (is not suitable for drinking) only for irrigation by the above mentioned Netifim system or something similar.

4/ High grade **fertiliser** that will be free of almost all heavy metals. The fertiliser can be drawn off as either a dry powder or as liquid slurry; the liquid slurry concentration can be adjusted at the time of removal.



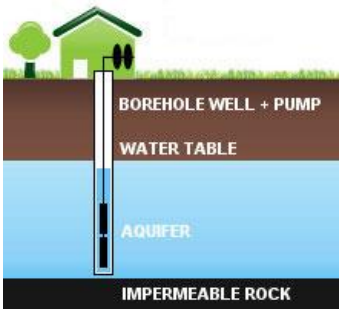
SUDS: Hardstands for vehicles and pedestrian footpaths are permeable to assist in reducing surface water run-off and allows rainwater to penetrate back into the ground.

A++ rated appliances and 100% LED lighting:_All appliances will be energy efficient, and the lighting will be LED throughout with room sensors where appropriate which control the room lighting

Water limiters on outlets: All water outlets (taps, showers) will have controls to reduce the volume of water discharge, plus ensure that water will not be wasted

This build will create awareness for other house owners to apply energy efficiency measures and encourage them to have a keen interest for living a healthy and environmentally aware lifestyle with modern day convenience living taken into account.

The area of Aston provides the water for Stevenage and surrounding villages via the underground aquifers. Housing developments puts strain on the existing water distribution infrastructure. An onsite study has confirmed that an onsite borehole will be able to provide chemical free water to the dwellings.



Natural Habitats and Re-planting: The landscape and gardens play a key role and will consist of local wood to form walls. This provides home for many species of insect and wildlife. Many of the existing trees on the existing site are diseased and many have fallen (as per photographic evidence already provided plus the survey provided). New planting of fruit trees which will create an improved biodiversity.

9. APPLICATION HISTORY & BALANCING EXERCISE

Within the Metropolitan Greenbelt, unless **very special circumstances** can be demonstrated that **outweigh any harm caused**, residential development is **inappropriate.**

My proposal will provide enough support that will demonstrate beyond doubt that this scheme is the highest level of **very special circumstances** and designed to **not cause harm,** but better still, to **improve** the environment and Greenbelt.

Previous pre-applications have been submitted to East Herts

DATE	EVENT	EHDC REF	KEY FEEDBACK & SUMMARY
26th January 2016	1st PRE-APP		
23rd February 2016	EHDC RESPONSE	M/16/0022/MPREAP	Not in accordance with Local Plan Policy GBC1 or the NPPF and amount to inappropriate development within Greenbelt
28th April 2016	2ND PRE-APP		
20th May 2016	EHDC RESPONSE	M/16/0091/MPREAP	Not in accordance with Local Plan Policy GBC1 or the NPPF and amount to inappropriate development within Greenbelt
8th June 2016	3RD PRE-APP EMAIL TO EHDC		
8th June 2016	REPLY EMAIL FROM EHDC		'I would initially comment that in my view, I agree that a dwelling of the design required to achieve the eco status may not be best sited between the existing property and the neighbour, whereas the site opposite, would have more opportunity to accommodate such a dwelling, or perhaps a replacement dwelling(s)'.
24th June 2016	EHDC RESPONSE	M/16/0091/MPREAP	Non-linear layout considered harmful to character Suggested additionally demo of existing house and rebuild to enable the bungalow to better match with wider character I would need to demonstrate that the orchard plot for the bungalow would not appear intrusive and cramped Must demonstrate the very special circumstances, plus that the proposals would clearly outweigh harm to Greenbelt Suggestion that the eco / stainability could be replicated anywhere and is commonly encouraged within any residential development Advised to consider Policy ENV8 re annexes

I have taken on board the advice from the previous three pre-apps along with guidance from experts specialising in sustainability construction, renewable manufacturers, sustainable and biodiversity consultants and specialist planning consultancy advice plus applying the latest updates in the UK regarding 'truly sustainable and renewable energy new builds' and the environment specific to the GREENBELT.

I now present a tailored proposal which I believe to not only satisfy all criteria in terms of GBC1 or the NPPF 87 & 88 Greenbelt, but which pushes the boundaries by setting the highest standards in future homes by designing and creating flagship, innovative, exceptional, future homes which benefit the environment, community and owner.

10. PROPOSAL

I wish to pursue along the most recent East Herts suggested route of: -

1/ complete demolition and rebuild of my existing house, plus

2/ a special and unique appropriately sized infill dwelling for my elderly mother on my orchard plot of land.

The rebuild and new dwelling to have own kitchen gardens, planting and creation of natural habitable areas.

The proposal and designs for each has taken into account the solar gain, natural light, orientation, use of materials and renewables, location, landscape, existing street view and wider character, disruption and long term beneficial improvements rather than harm

The energy-plus buildings will be aesthetically pleasing and specially designed using sustainable materials that merge with the landscape

11. FINAL DETERMINING FACTORS TO DATE

(following three previous pre-apps)

[a] LOCATION, LAYOUT & DESIGN FOR THE INFILL BUNGALOW

Pre-App 2 was submitted to explore and determine the most appropriate location for my mother's bungalow. Following discussions with East Herts, 4 site locations were identified and presented as potential options.

East Herts advised that a '***dwelling to be sited within the parcel of land opposite No. 23 (The Orchard) I would comment that strictly in terms of layout, there appears to be no particular concerns'***

However, '***linear layout was important to be retained in this instance'***. Therefore, initially suggesting the most appropriate location would be between my existing house and the neighbours as per [image 2]

However, then agreed that ***'the Orchard plot would have more opportunity to position an eco-status dwelling providing it can be demonstrated that a dwelling here would not appear intrusive and cramped'***

[image 2] Option East Herts initially suggested to stay in keeping with linear form

[Image 2] demonstrates how a new infill dwelling between the existing house and neighbours may indeed comply with linear form criteria but is in fact not actually the most appropriate solution. The existing three adjacent dwelling are the only dwellings in Aston End which are clumped close together with limited space between and this layout is not a true reflection of the Aston End wider character as it reduces the visual openness.

East Herts key comments: -

23rd Feb 2016: letter

Dwelling to be sited within the parcel of land opposite No. 23 (The Orchard) ***'I would comment that strictly in terms of layout, there appears to be no particular concerns'***

20th May 2016: - letter

'*given the eco credentials of such a design and build, siting it comfortably between the two existing properties would be difficult'*.

'***in principle, the demolition of the existing property and rebuild would be more appropriate and not appear harmful to the wider character of the locality, given that it lies at the end of the road'***.

8th June 2016 – email

'I would initially comment that in my view, I agree that a dwelling of the design required to achieve the eco status may not be best sited between the existing property and the neighbour, whereas the site opposite, would have more opportunity to accommodate such a dwelling, or perhaps a replacement dwelling(s)'.

24th June – letter

'Some concern was raised in my earlier email in terms of the size of the orchard plot; However, I note that you have annotated that the width is comparable to those in the locality and it would therefore be for you to demonstrate that a dwelling here would not appear intrusive and cramped'

In terms of the factors relating to orientation, surrounding, location, space, layout, design, solar gain, landscape, the segregated and unused Orchard Plot would be the most appropriate location for a NZED PASIVE ENERGY-PLUS bungalow.

Furthermore, all of the above East Herts comments and guidance also concludes that the orchard plot of land is indeed a suitable location as it remains in keeping with with the grain of the street, matches the linear form, and the plot size is appropriate. In addition, this plot of land has many decayed trees which have either fallen or been removed.

Most appropriate location for bungalow

[image 3]

[image 4]


Tatlers Ln
SCOUT HUT
49
34
Tatlers Ln
39
32
37
35
33
31
Tatlers Ln
30
proposed dwelling
BARN
23
Tatlers Ln
BARN
28
Tatlers Ln
15
17
Tatlers Ln
2
Tatlers Ln
1
Walnut Tree Cl
Cooper's Cl
Cooper's Cl
N

[b] LINEAR FORM (with or against grain) / PATTERN OF DEVELOPMENT

Image 5 demonstrate that the 50m front width of the orchard plot is comparable to the existing properties along that side and length of Tatlers Lane (35m, 55m and 50m) and therefore remains in keeping. When discussing the various 'most suitable locations of such a build' the correspondence from East Herts stated: ***"I agree that a dwelling of the design required to achieve the eco status may not be best suited between the existing property and the neighbour, whereas the site opposite, would have more opportunity to accommodate such a dwelling"***

[Image 5]

The orchard plot is more suitable site for a low level, non-intrusive infill dwelling which blends with the immediate landscape, improves biodiversity, fits with linear form and pattern of development and which like all other existing dwellings on the northern side of Tatlers Lane is considerably hidden behind existing high hedge in keeping with the area.

[Image 6]

The typical Tatlers Lane street view consists of mature high hedges either side of the road of 7 ft and over above road level . There will be absolutely no change to this view, as the existing hedge remains untouched, and the existing double gated entrance remains in the same position. There is therefore no aesthetic alteration.

[c] SCALE/SIZE OF PLOT/SIZE OF DWELLING

The size of the proposed dwelling against the land width and size is in proportion to other homes along the road

As already demonstrated the visual aspect from the street view will be similar to the existing homes, albeit this dwelling will be less intrusive due to its low roof, green walls and design to fit in with the landscape and will therefore not appear intrusive or cramped see [image 3]

The segregated orchard plot is 482m2 of which with a small, single storey dwelling is proportioned more than adequate to allow for the existing double width entrance to a driveway and off road parking for parking for at least two cars (owner will have 1 x electric vehicle), a large kitchen garden for own grown produce, plus replanting of fruit trees (to replace the decayed ones) plus creation of natural habitats. All of which can be better maintained

[d] PARKING/ACCESS

There is already an existing double width gated entrance to the site, and therefore, no additional access is required. [image 7]

11. EDUCATION AND AWARENESS

I would like to use this opportunity to offer education and awareness to the local community, and any interested parties such as schools, colleges and professional bodies through invitations for on-site presentations

This project can be a leaning tool to help people to gain knowledge and confidence first hand to apply energy efficiency to their own homes

Probuild are members of passivhaus trust, UKGBC and FMB and all have expressed a keen interest to follow and publish the build procedure and write a blog.

Aston St Marys

Education to school children is the best form of getting the message across. This will include Recycling, using energy efficiency in the home, ways of applying and using renewable energy according to the location and type of property, thermal insulation of the envelope of a building, sustainable materials, how to minimise waste in construction, the modern wellbeing of properties according to modern living standards and lifestyle, construction sustainability, greenbelt protection, environment, biodiversity and organic food produce.

Parish Council & Local Community

In villages such as Aston, the vast majority of homes are of an age which are below the current standards of energy efficiency. The government schemes over the years such as wall and loft insulation and solar roof panels or the green deal are just some basic schemes which have helped reduce our carbon footprint. Many of these schemes were short lived, only financially beneficial to companies who jumped on the bandwagon (like solar panel installers) and did not entirely benefit the user or the environment. First hand, proven and local information, education and support, will assist home local owners to confidently identify themselves where beneficial improvements and long-term savings can be made to their own homes. Also, ways in which truly sustainable improvements can be applied

Local Colleges

It is important to educate and encourage our future users, designers, consultants, building specialists and trades persons to automatically think sustainable. Sustainability and carbon footprint are terms which we all hear, but, only small steps are being made to train the very people who will be responsible for the UKs future construction.

13. Example of Probuild developments in Herts including an eco-new build

As a contractor and developer Probuild has created 46 new dwellings in Hertfordshire (own plus for clients).

Most recently Project Manged and contracted to complete the conversion of 38 Apartments in Hitchin, (36 flats and 2 new builds at Latchmore Court, Hitchin) which included certain energy efficiency installations such as heat recovery units, FAR infra red heating, Infra red boilers, energy efficient water storage, improved u-values to the building envelopes, and has also over the years build a houses in Hitchin, Ashwell, 3 bungalows in Letchworth, and created 2 flats in Baldock.

4 Claybush Road, Ashwell is an example of a demolition of an old and dated property which was beyond affordable improvements, and the complete new design re-build in the NHDC area. From concept, Probuild worked jointly with Bond Chartered Architects, Royston and achieved a stunning 359m2 floor area contemporary A-rated SAP energy home. (*Probuild also built the neighbouring property at number 6 which is a modern, yet more traditional looking property*). This A rated eco property at number 4 is a modern design chosen to fit in with the natural gradient of the land and boasts an envelope of walls at 0.12 u-value [W/m2 K], hybrid standing seam zinc roof at 0.11 u-value [W/m2 K] and insulated block floor at 0.12 u-value [W/m2 K]. In addition to the thermally efficient building envelope, the property also has triple glazing of 0.8 u-value, 4 kw PV solar with 7.2kwh lithium battery storage, LED lighting and energy efficient electrics such as sensors throughout.

Completed modern energy efficient property

Energy Performance Certificate

SAP

4, Claybush Road, Ashwell, BALDOCK, SG7 5RA

Dwelling type:	Detached house	**Reference number:**	8196-5331-6139-8927-6953
Date of assessment:	27 November 2015	**Type of assessment:**	SAP, new dwelling
Date of certificate:	27 November 2015	**Total floor area:**	359 m²

Use this document to:

- Compare current ratings of properties to see which properties are more energy efficient

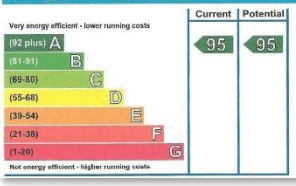
Estimated energy costs of dwelling for 3 years:	£ 2,721

Estimated energy costs of this home

	Current costs	Potential costs	Potential future savings
Lighting	£ 369 over 3 years	£ 369 over 3 years	Not applicable
Heating	£ 1,863 over 3 years	£ 1,863 over 3 years	
Hot Water	£ 489 over 3 years	£ 489 over 3 years	
Totals	**£ 2,721**	**£ 2,721**	

These figures show how much the average household would spend in this property for heating, lighting and hot water. This excludes energy use for running appliances like TVs, computers and cookers, and any electricity generated by microgeneration.

Energy Efficiency Rating



The graph shows the current energy efficiency of your home.

The higher the rating the lower your fuel bills are likely to be.

The average energy efficiency rating for a dwelling in England and Wales is band D (rating 60).

4, Claybush Road, Ashwell, BALDOCK, SG7 5RA
27 November 2015 RRN: 8196-5331-6139-8927-6953

Energy Performance Certificate

Summary of this home's energy performance related features

Element	Description	Energy Efficiency
Walls	Average thermal transmittance 0.12 W/m²K	★★★★★
Roof	Average thermal transmittance 0.11 W/m²K	★★★★★
Floor	Average thermal transmittance 0.12 W/m²K	★★★★★
Windows	High performance glazing	★★★★★
Main heating	Boiler and underfloor heating, mains gas	★★★★☆
Main heating controls	Time and temperature zone control	★★★★★
Secondary heating	Room heaters, wood logs	—
Hot water	From main system	★★★★☆
Lighting	Low energy lighting in all fixed outlets	★★★★★
Air tightness	Air permeability 5.7 m³/h.m² (as tested)	★★★★☆

Thermal transmittance is a measure of the rate of heat loss through a building element; the lower the value the better the energy performance.
Air permeability is a measure of the air tightness of a building; the lower the value the better the air tightness.

Current primary energy use per square metre of floor area: 29 kWh/m² per year

Low and zero carbon energy sources

Low and zero carbon energy sources are sources of energy that release either very little or no carbon dioxide into the atmosphere when they are used. Installing these sources may help reduce energy bills as well as cutting carbon. The following low or zero carbon energy sources are provided for this home:

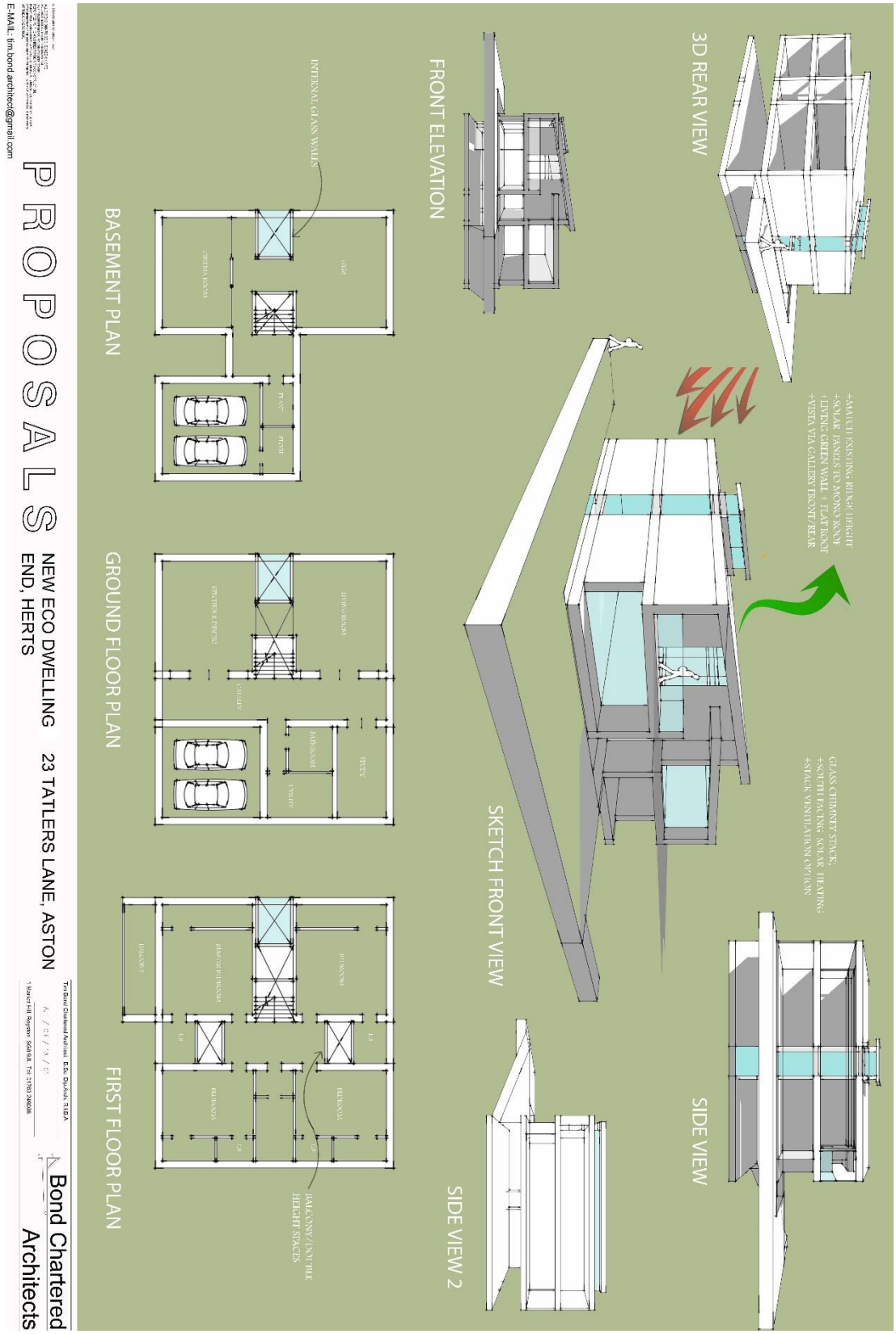
- Biofuel secondary heating
- Solar photovoltaics

Recommendations

None.

14. BASIC ARCHITECTURAL DESIGN GUIDE

14a. Main house rebuild



14b. Bungalow

The orchard plot bungalow is specifically designed to blend in with the rural environment. The bungalow will be plotted to not make an impact and not be over bearing from the Road nor any other property view (which is helped by the plot being surrounded by the existing high hedges). The roofline of the bungalow will be kept as low as possible and be below the existing height of the trees on site and surrounding structures.

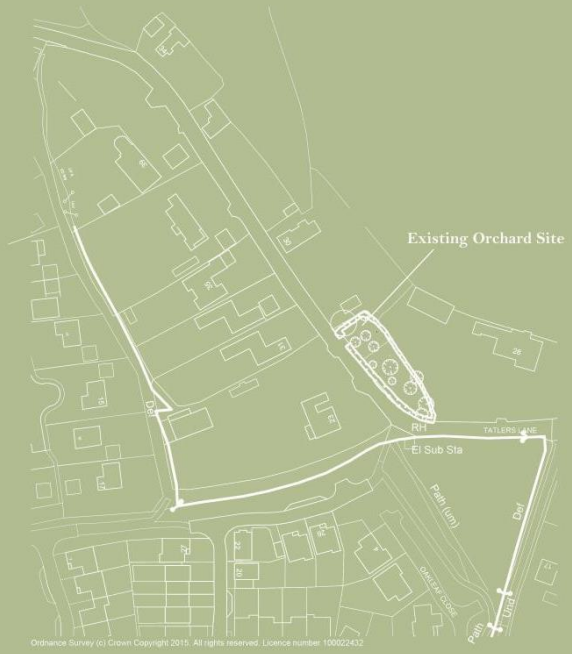
As many of the apple trees will be retained and pruned with intent for them to produce edible apples which can be donated. The land will be best utilised by the creation of organic kitchen gardens, replanting and manageable landscape to encourage natural habitats.

The design of the external facade is to be a mixture of timber vertical cladding in boarding, (this reflects and reinstates the bark from the old trees found in the orchard), render, slate and stone and metal such as zinc. In addition to being a sustainable and eco-friendly material which is built off site. The use of green walls and grass sedum roofs have been incorporated to enhance the greenery projected from the existing meadow, hedgerows and tree canopies with in the plot. Large format glass is used to allow daylight to filter in to the property whilst utilising passive solar gain through advances in glass technology.

The accommodation is primarily designed to serve one level making it ideal for my mother or wheelchair users. The proposed dwelling will also have a basement floor level accessed via a lift.

Street Scene - Tatlers Lane - South 1:200

Location Plan 1:1250



Site Plan 1:1000

Street Scene - Tatlers Lane - West

Proposed Site Plan 1:100

- ✓ 100% SUSTAINABLE
- ✓ 100% RENEWABLE ENERG
- ✓ PRODUCING OWN ELECTRICITY, WATER AND GAS
- ✓ OFF GRID
- ✓ PROTECTING AND BENEFITING THE ENVIRONMENT
- ✓ RECYCLING ONSITE WASTE AND REDUCE WASTE COLLECTION
- ✓ CONTEMPORY LOW MAINTENANCE DESIGN TO BLEND WITH THE ENVIRONMENT
- ✓ ZERO CARBON
- ✓ ENERGY PLUS
- ✓ ON SITE ORGANIC PRODUCE
- ✓ ACHIEVING THE BIODIVERSITY BALANCE
- ✓ ENERGY EFFICIENT LIVING
- ✓ PREVENTING POLLUTION
- ✓ PROMOTING HEALTHIER WELLBEIN AND COMMUNITY
- ✓ MEETING NEEDS OF MODERN DAY CONVENIENCE LIVING

The many benefits include:

• Much better indoor air quality — comfortable humidity levels, low CO_2 levels because of comfort ventilation, with optimum ventilation flowrates calculated for each room

• Increased thermal comfort -- highest level of interior comfort of any building, with all surfaces equally warm (including the windows), no drafts (ever), no setbacks, no temperature swings. All aspects to assist the mental and physical health & wellbeing of occupants

• Superior sound insulation -- extraordinary airtightness levels, triple-pane glass and thick insulation also provide superior sound insulation — Passive Houses are very quiet indoors!

• Almost-unbelievable energy efficiency- The passive house construction along with the renewables provide the best efficiency on the market including 100% led lighting

• Development material waste- great planning and care is applied to limit the waste of materials

• Reduced ecological footprint / carbon emission zero (ZEB)- renewable energy with zero carbon, recycling waste plus on-site organic produce.

• More durable — detailed and advanced design, better building components, proven building science

• Almost no maintenance — very simple mechanical systems compared to normal construction along with low maintenance materials.

• Sustainable, environmentally friendly build & living —zero energy consumption and durable construction

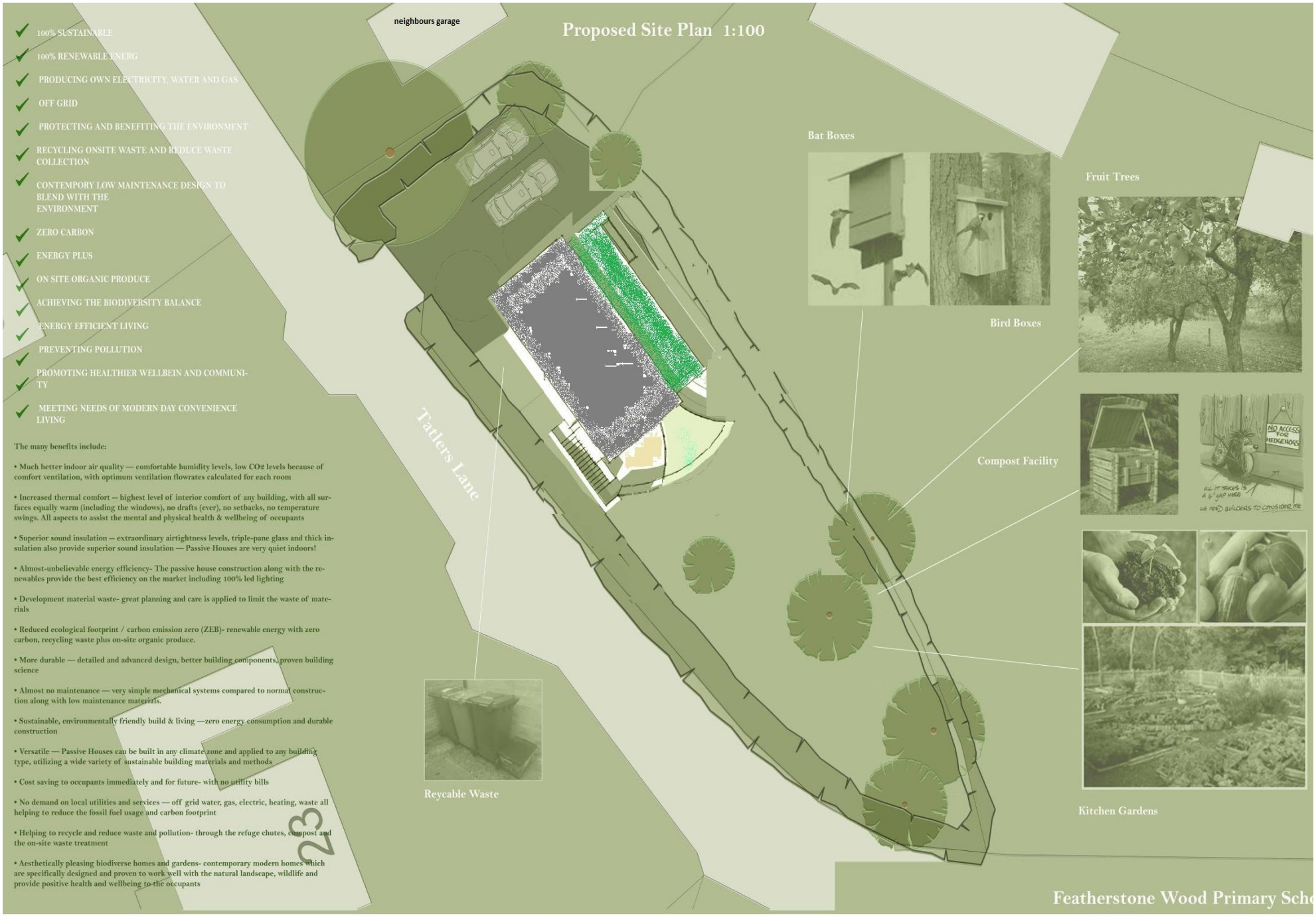
• Versatile — Passive Houses can be built in any climate zone and applied to any building type, utilizing a wide variety of sustainable building materials and methods

• Cost saving to occupants immediately and for future- with no utility bills

• No demand on local utilities and services — off grid water, gas, electric, heating, waste all helping to reduce the fossil fuel usage and carbon footprint

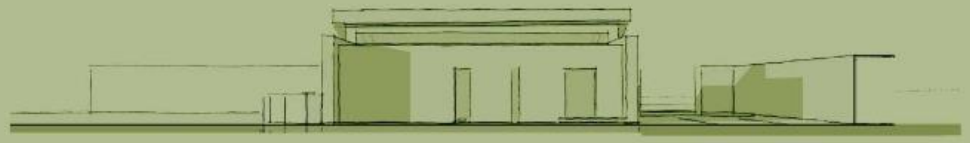
• Helping to recycle and reduce waste and pollution- through the refuge chutes, compost and the on-site waste treatment

• Aesthetically pleasing biodiverse homes and gardens- contemporary modern homes which are specifically designed and proven to work well with the natural landscape, wildlife and provide positive health and wellbeing to the occupants



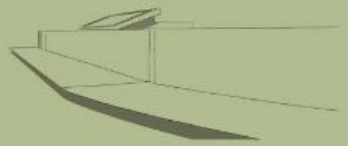
23

Street Scene - South



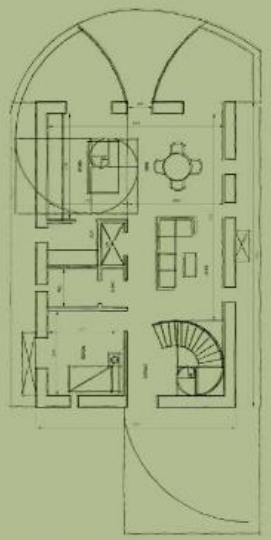
North Elevation 1:100

East Elevation 1:100

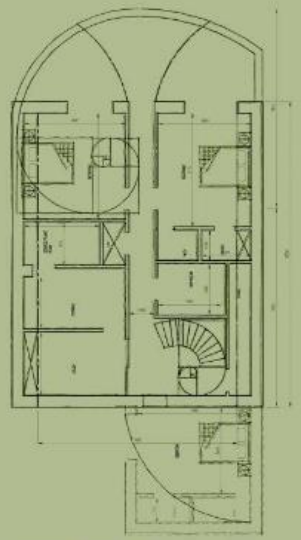


Sketch - Orchard - Street View

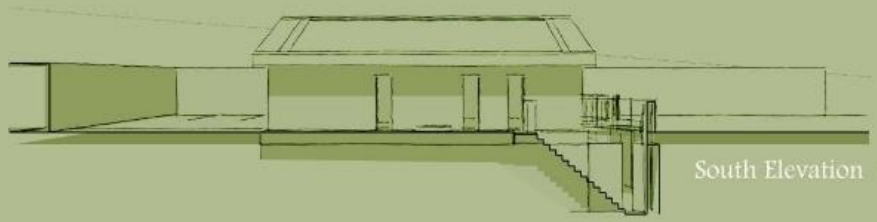
West Elevation 1:100



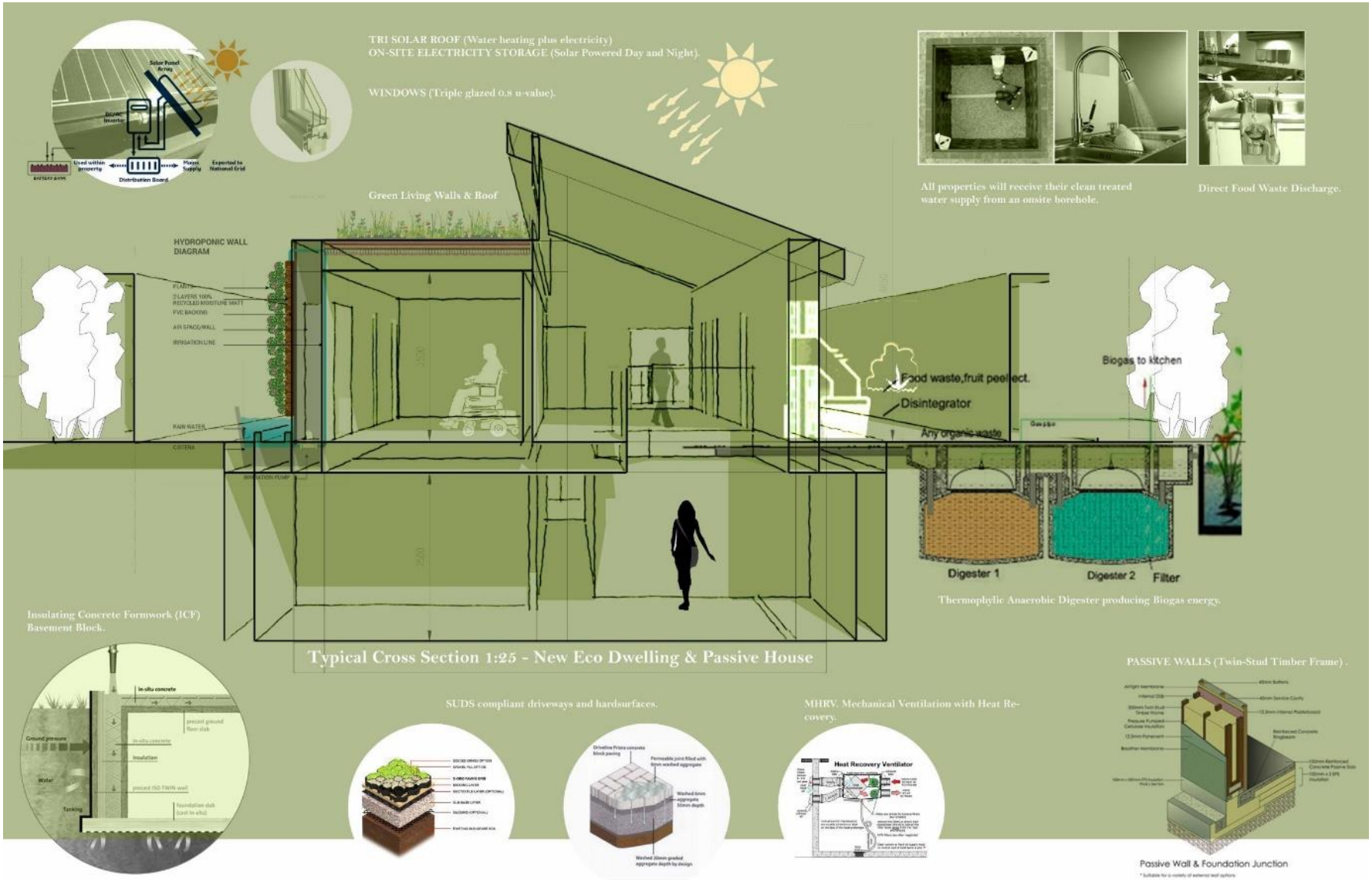
Ground Floor Plan 1:100



First Floor Plan 1:100



South Elevation 1:100


TRI SOLAR ROOF (Water heating plus electricity)
ON-SITE ELECTRICITY STORAGE (Solar Powered Day and Night).
WINDOWS (Triple glazed 0.8 u-value).
Solar Panel Array
Inverter
Used within property
Distribution Board
Mains Supply
Exported to National Grid
Green Living Walls & Roof
HYDROPONIC WALL DIAGRAM
PLANTS
2 LAYERS 100% RECYCLED MOISTURE MATT
PVC BACKING
AIR SPACE/WALL
IRRIGATION LINE
RAIN WATER
CISTERN
IRRIGATION PUMP
All properties will receive their clean treated water supply from an onsite borehole.
Direct Food Waste Discharge.
Food waste,fruit peel ect.
Disintegrator
Any organic waste
Biogas to kitchen
Digester 1
Digester 2
Filter
Thermophylic Anaerobic Digester producing Biogas energy.
Insulating Concrete Formwork (ICF) Basement Block.
Typical Cross Section 1:25 - New Eco Dwelling & Passive House
In-situ concrete
Ground pressure
Water
Tanking
precast ground floor slab
Insulation
precast ISO-TWIN wall
foundation slab (cast in situ)
SUDS compliant driveways and hardsurfaces.
Driveline Prisma concrete block paving
Permeable joint filled with 6mm washed aggregate
Washed 6mm aggregate 50mm depth
Washed 20mm graded aggregate depth by design
MHRV. Mechanical Ventilation with Heat Recovery.
Heat Recovery Ventilator
PASSIVE WALLS (Twin-Stud Timber Frame) .
Passive Wall & Foundation Junction

15. SUMMARY

MISSION

My mission is to set the very highest benchmark in 2050-homes by working with East Herts and Hertfordshire Building Futures and promoting such an innovative scheme.

The dwellings are bespoke designed, and the orchard dwelling is being purpose built to serve my mother's needs whom currently resides at 23 Tatlers Lane with my family. This proposal will therefore be for local family and not for profit re-sale).

Being my own home and having my own mother live in the orchard dwelling also offers the opportunity to easily arrange for interested parties (local community, schools, colleges, experts) an opportunity to understand the various ways in how we can improve existing properties in a sustainable manner by allowing invited parties to see first-hand how renewables and sustainability truly works. Having my own mother living in the orchard plot will also allow me to effectively monitor the properties performance in terms of efficiency, biodiversity, carbon footprint and any other effects in the longer term.

IN PRINCIPLE

EHDC have already provided guidance which implies that the rebuild of the existing house, and a new build for my mother on the site opposite is favourable in principle. The layout and pattern of development have been addressed along with demonstrating that the orchard plot would not appear intrusive or cramped. The additional benefits which can be offered to the community and environment has also been demonstrated. I therefore believe that there is sufficient weight to favour such a unique proposal.

NPPF

Aston village allows for appropriate infill development and as such has recently approved a contemporary infill in Stringers Lane, Aston. Im aware that Tatlers Lane, in Aston End is outside the main Aston village boundary, however, my specific site at Tatlers Lane is now no longer considered an isolated Hamlet as it once was many years ago. There is a shop at Aston End, Public house with restaurant, and school which my daughter still attends within walking distance. Plus with Aston Vale new housing development being built right up against my boundary line, along with access, there is now close services in Stevenage (shops, facilities and bus routes). I therefore

consider the orchard built to be also considered as an appropriate infill, and the rebuild of the existing house to be appropriate under NPPF

VERY SPECIAL CIRCUMSTANCES

This scheme should be assessed on its own merits. The innovative, very highest design, specification, location and the improvements and benefits resulting from the homes and the landscape provide a flagship for how ENERGY-PLUS (homes of 2050) are **very special circumstances**.

Following the feedback from this latest pre-application, my next step will be to have open discussions with local neighbours to explain the proposal, and arrange a presentation to the parish Council, PACE, to obtain feedback which will form part of the full application. (As mentioned, this is my long-term home and community). The local school and colleges along with other professional bodies will then be offered the opportunity to attend site presentations at build stages

16. APPENDICES

- Probuild Eco Homes - *A Guide to*
- Preliminary Ecological Appraisal – *CSa Environmental Planning*
- Bat Survey – *CSa Environmental Planning*
- Tree Survey – *Ian Keen obo CSa Environmental Planning*
- Site Survey Drawings