

Self Build Design Code



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The Design Code

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Design Code - Context

This Design Code should be read in conjunction with the MPSS Design and Access Statement, Masterplan Drawing and Whitehead Planning’s Planning Statement. The aforementioned documents set out context, analysis, policy and design for the proposed sustainable self-build development.

The Design Code will set out the parameters and rules for home designs. Where designs meet this Design Code, Cornwall Council should deal with the Reserved Matters Application in a positive and proactive manner with a view to recommending delegated approvals. This Design Code is therefore intended to simplify the Reserved Matters decision process, reduce planning officer’s workload and shorten decision timescales.

General

Designs must comply with the following:

- MPSS Energy Standards
- MPSS Performance Standards (exceeding current Building Regulations)
- MPSS Ecology Standards
- MPSS Design Code
- Planning Conditions

Amendments

Any amendments to this Design Code must be submitted to and approved by the LPA as part of the Reserved Matters Application.



Ashley Vale - Bristol. Self -build community

Design Code - Purpose

This Design Code has been prepared to provide Cornwall Council and prospective Self Builders with the confidence that individual Reserved Matters Applications will be coherent across the site, ensure design quality and standards are adhered to. This approach will lead to a rational design aesthetic that is in keeping with the rural location, newly built self-build dwellings and enhance the landscape and ecological characteristics of the site.

This Design Code will set out parameters for plots, boundaries, height, scale and massing. Guidance is also provided for adjacent neighbouring plots, building projections, materials, colour, roofs, doors and windows and external building materials.

The detailed design for each plot will be determined at a later date via Reserved Matters applications. This Design Code will be used as a material planning consideration.

Design Code - Essence

This Design Code is intended to capture the essence of the scheme; a Flagship exemplar sustainable self-build scheme of local and **national significance**. This development is intended to be upheld as a precedent of how brownfield sites should be developed, together with enhancing our built environment. Objectives include:

- Inspiring and innovative designs retaining regional distinctiveness within the rural context*
- Create a sense of place and neighbourhood with like-minded sustainable self-builders*
- Provide healthy buildings with improved well-being and lifestyle*
- Provide sustainable low energy dwellings exceeding current Building Regulation standards*
- Minimise waste and pollution*
- Prioritise local materials and businesses*
- Encourage working from home*
- Mixed use including Residential, home working and B1/D1 unit*
- Enhanced biodiversity and ecology; development of site with low ecological value (brownfield site).*
- Positive contribution to locality and enhancement of the immediate area*

Design Standard

- Common theme to all houses informed by these standards and Design Code
- Consideration to Passive Solar Design
- Adopt the principles of Passive House Design
- Emphasis on local natural materials and innovation of materials
- Designs to be inspirational, but not alien to local environment (regional distinctiveness)
- Low maintenance
- Dedicated recycling

Energy Standard

- Every building to produce on site generation via renewable sources such as photovoltaics
- Buildings to provide heating and hot water via renewable sources of energy such as biomass, heat pumps, solar and CH&P
- 100% LED lighting or equivalent low energy lighting
- Water conservation measures
- Minimum A rated appliances/white goods
- Working from home encouraged to reduce need to commute to place of work
- Green transport to be encouraged; electric cars, cycling, bus and train
- Integrated building energy management systems inc. post occupancy evaluation

Performance Standard

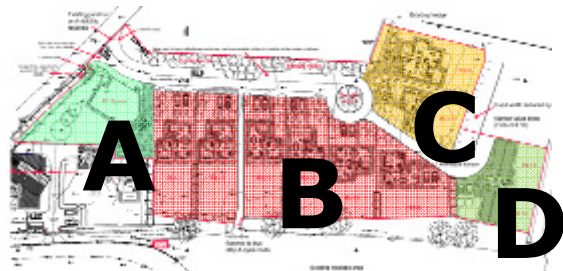
- Design Stage and As Built EPC A ratings to control energy and performance
- Fabric first approach: super insulation and air-tight construction equivalent to “zero carbon”/Code for Sustainable Homes Level 5 (but without need for costly Code assessments).
- Healthy construction fabric using breathable construction
- Natural local materials should be prioritized, immediate locality first, then SW and further a-field where there is no local alternative (FSC or PEFC timber when not UK produced)

Ecological Standard

- To achieve an overall net gain for biodiversity and ensure that eco-system services are not diminished
- Every building to contain at least one appropriately placed bird nest-box, swift box and one bat-box or alternative provision within the building fabric, such as a bat, house sparrow or swift block
- Existing and new ecological features to include enhancements such as stone banks to encourage invertebrates and reptiles and indigenous trees, including the provision of food sources through nuts, fruits, berries and flowers. New soft landscaping to include green spaces, lawns, new hedgerows and ponds
- Boundary features, such as hedgerows will encourage connectivity with the wider countryside and encourage a high level of ‘permeability’ for wildlife across and through the site
- Hedgerow and verge planting schemes will encourage the use of regionally appropriate tree and scrub species
- Permaculture to be encouraged via vegetable gardens for home grown food
- Hard surfaced areas minimised and surface drainage to maintain eco-system services
- A lighting scheme for low light or no light areas will encourage light-averse bat species
- Bio-diverse green roofs encouraged

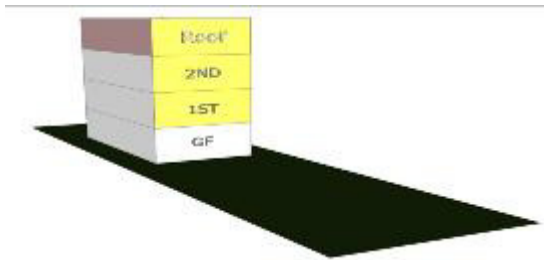
1. Plot Parameters

- Height
- Frontage
- Width
- Plot Parameters (Zone A, B, C & D)
- Boundary Responsibilities



2. Building Fenestration

- Allowable Projections/Recesses
- No projections beyond plot boundaries
- Balconies & Terraces



3. Frontages

- Public Frontages
- Reduce Overlooking



4. Boundaries

- Front Boundaries
- Side Boundaries
- Rear Boundaries



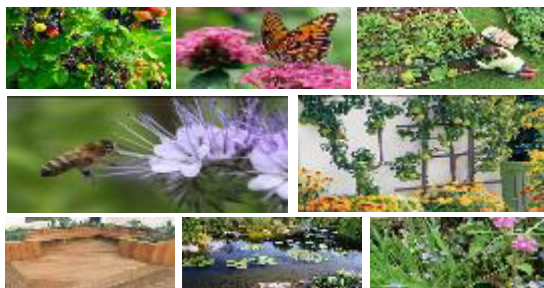
5. Vehicular Parking

- Driveways
- Screening - soft landscaping
- Garages



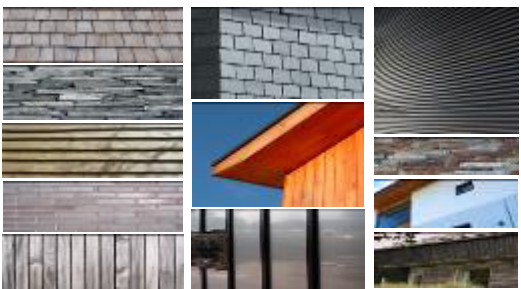
6. Gardens

- Hard Landscaping
- Soft landscaping
- Vegetable Gardens



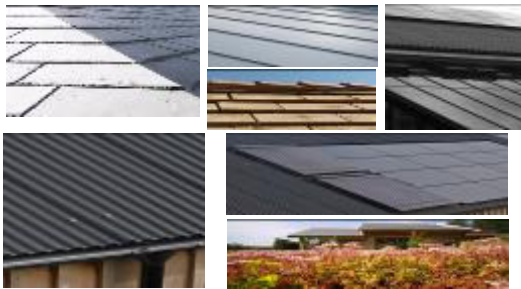
7. External Wall Materials

- Natural & Vernacular
- Rural
- Innovative
- Complimentary



8. Roof Zone & Materials

- Roof Forms and Height
- Rooflights/Windows
- Renewables
- Chimneys/Flues
- Allowable Materials



9. External Joinery

- Windows & Door Performance
- Materials and Type
- Colour
- Security & Maintenance
- Natural Light & Ventilation



10. External Building Details

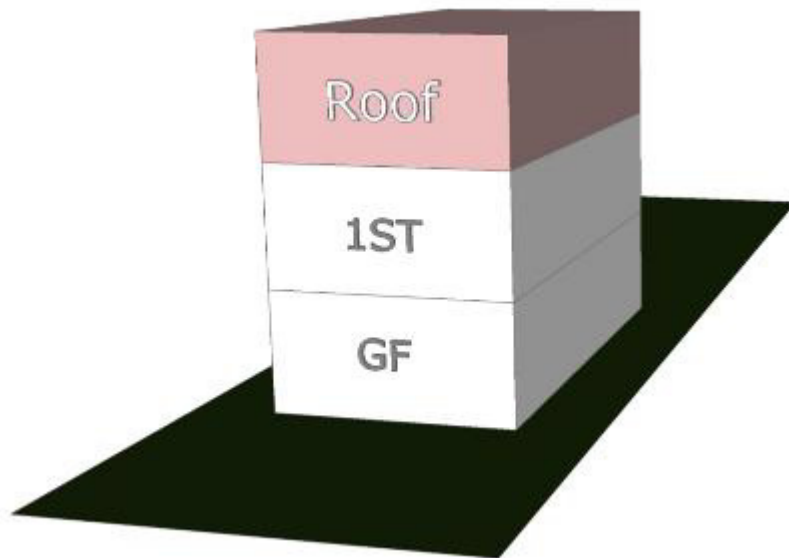
- Renewables and MVHR
- Rainwater Goods
- Soffits & Fascias
- Colour



11. External Building Details

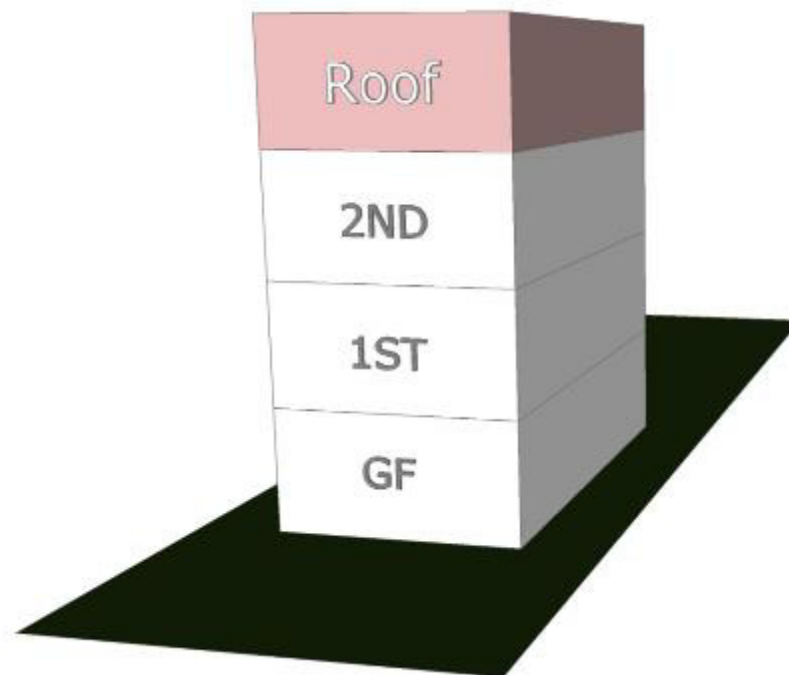
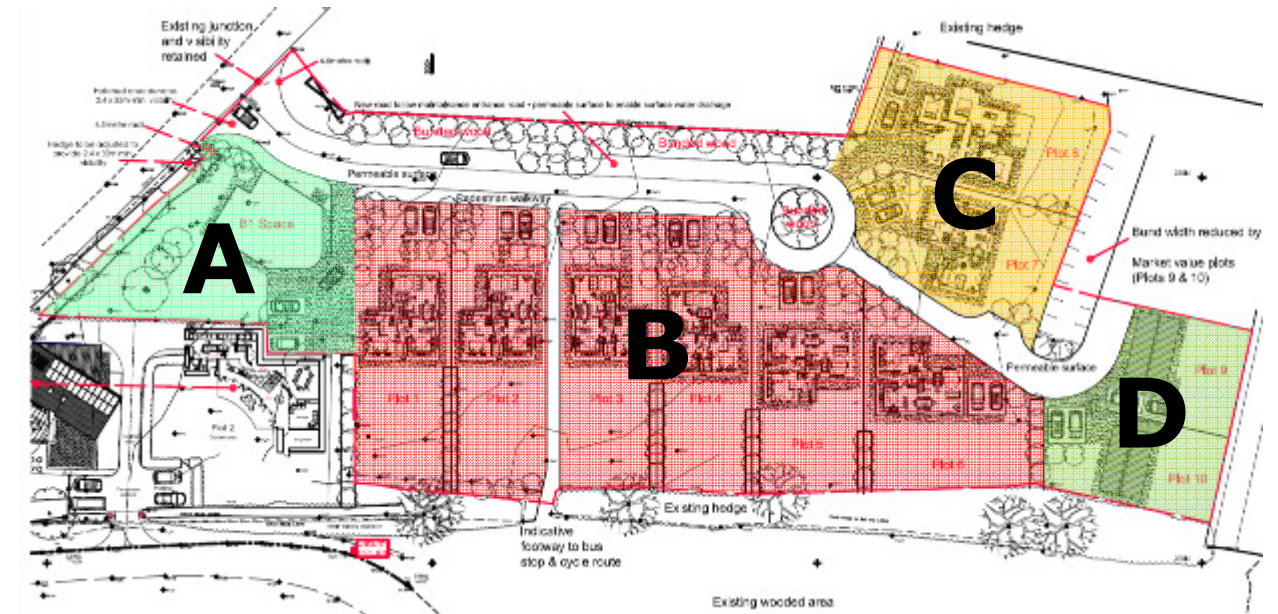
- Post Boxes
- Satellite Dishes and Aerials
- Bins
- Meter Boxes
- Bird and Bat Boxes
- External Lighting





ZONE A & ZONE D

- 2 storeys high max. 6m
- Roof height max. 3m
- Total height to ridge max. 9m
- Width determined by plot size. Buildings to be min. 1.2m from side boundaries
- Depth determined by plot size. Building frontage to be min. 1m from boundaries and min. 5m from rear boundaries



ZONE B & ZONE C

- 3 storeys high max. 9m
- Roof height max. 3m
- Total height to ridge max. 12m
- Width determined by plot size. Buildings to be min. 1.2m from side boundaries
- Depth determined by plot size. Building frontage to be min. 1m from boundaries and min. 5m from rear boundaries

1. Plot Parameters

Design Code Rules

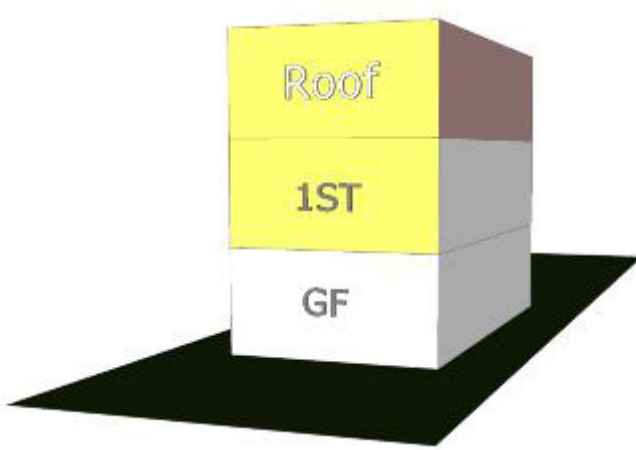
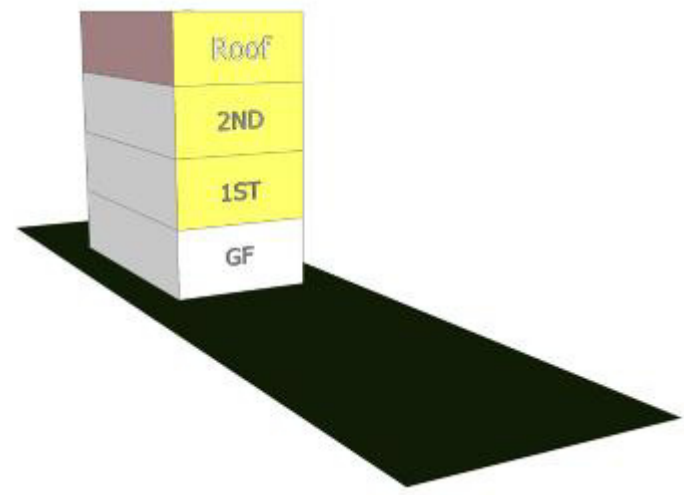
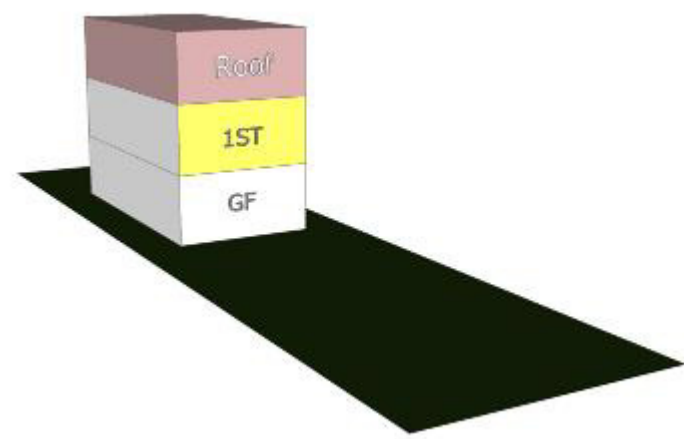
- All Buildings (B1 & Houses) to be over one storey in height
- No four storey buildings permitted
- Roof spaces can be used as habitable spaces
- Basements are permitted

Boundary Responsibilities

- Generally plots are responsible for front, back and right hand side boundaries. Where plots have no adjoining neighbours they will also be responsible for this boundary.

Note: All heights from finished floor levels

Balconies & Terraces



ZONE A

- Rear balconies allowable on 1st floor only
- GF Terraces allowable
- No projections beyond plot boundaries
- No overlooking to existing properties

ZONE B & ZONE C

- Front and rear balconies/terraces allowable to 1st, 2nd and roof to maximise on North East views and southerly views
- GF Terraces allowable
- No projections beyond plot boundaries
- No overlooking to neighbouring properties

ZONE D

- Front balconies allowable on 1st floor and within roof
- GF Terraces allowable
- No projections beyond plot boundaries
- No rear balconies to protect amenity of neighbouring buildings

Projections/Recesses

- **Zone A** - Projections and Recesses allowable to all elevations
- Allowable projections include bay windows, shading devices, canopies, sun spaces and terraces. Balconies and Juliette balconies allowable to 1st floor rear only
- Allowable recesses include windows, shading devices, entrances, canopies, inset balconies and terraces (rear elevation)
- **Zone B & Zone C** - Projections and Recesses as detailed in Zone A allowable to all elevations
- **Zone D** - Projections and Recesses allowable to front and side elevations
- Allowable projections include bay windows, shading devices, canopies, sun spaces and terraces. Balconies and Juliette balconies allowable to yellow shaded area to front only
- Allowable recesses include windows, shading devices, entrances, canopies, inset balconies terraces (front and rear)

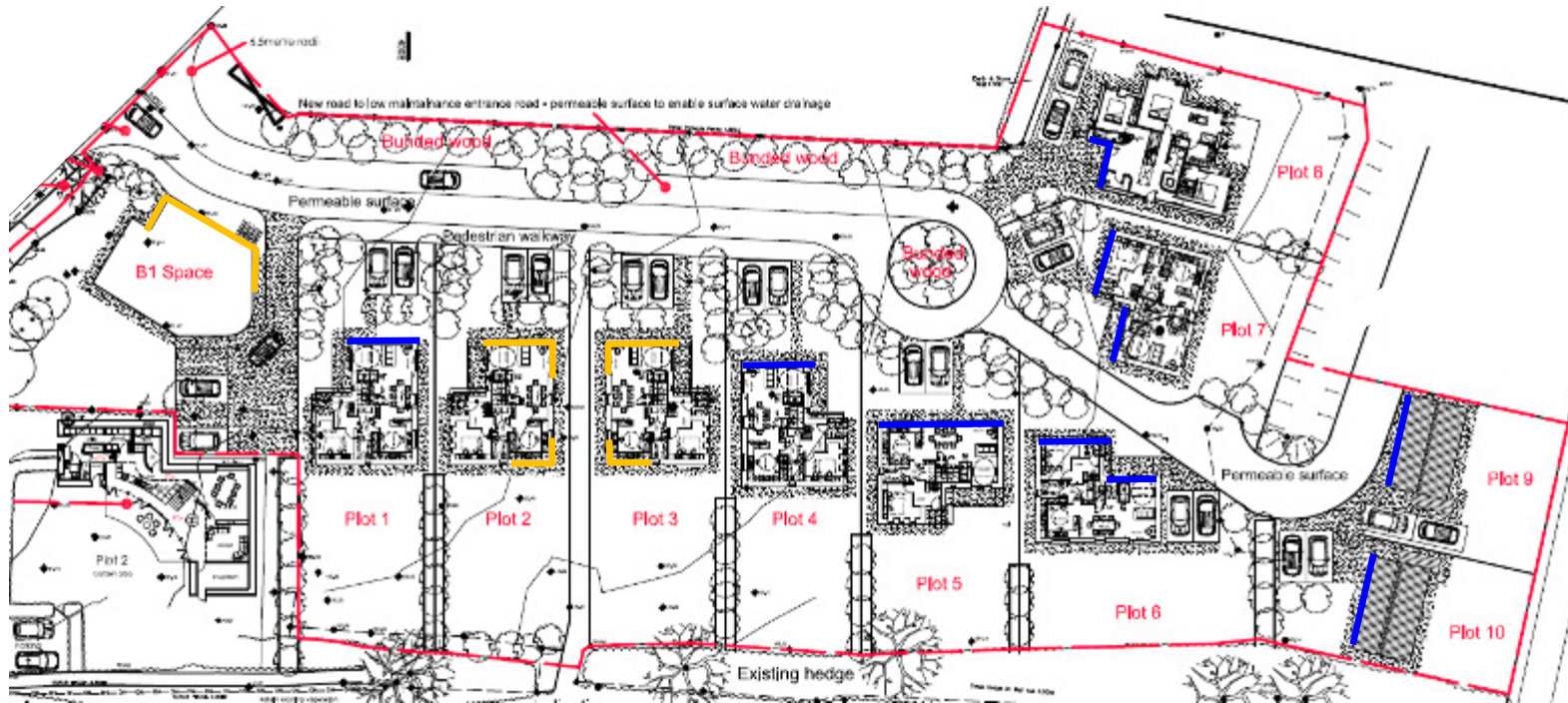
2. Building Fenestration

Design Code Rules

- a. Projections and Recesses must not exceed a maximum of 80% area of the face of the allowable areas described above
- b. Individual Projections and Recesses are not limited to size to encourage diversity, however they should be congruent to neighbouring properties
- c. Projections are not permitted within 0.5m of plot boundaries

Note: All heights from finished floor levels

Frontages



KEY:

Feature Elevations Active Frontages



Neighbouring self build - Feature Elevation & Active Frontage

3. Frontages

Design Code Rules

Feature Elevations (yellow)

- These prominent locations at the vehicular site entrance and pedestrian entrance should include special design features that signify the nature of this exemplar self build development
- Plots 2 and 3 should be designed to create a welcoming pedestrian access. Ideally plot owners should be in discussion with each other through the design process (pre Reserved Matters Submission)

Active Frontages (blue)

- These frontages will be seen from entering the site and should be designed to be welcoming and in keeping with the development ethos

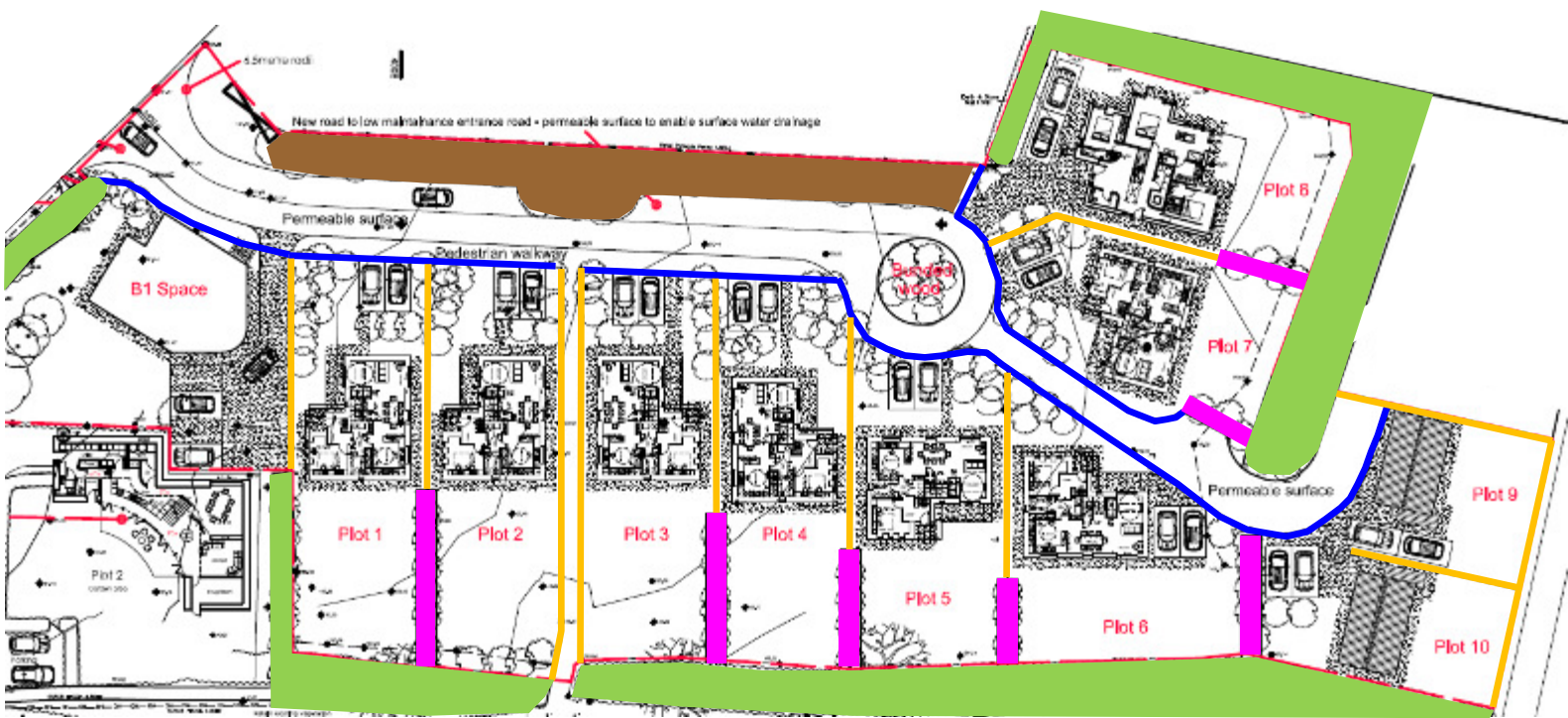
Side Entrances

- Main entrances are not permitted on side elevations

Overlooking

- Where feasible side elevations should be discussed with neighbouring properties when considering windows to reduce overlooking
- Where overlooking is a potential consideration to be given to permanent design solutions such as louvers, opaque glazing or angling fenestration

Boundaries



KEY:

- B1 Boundary
- B2 Boundary
- B3 Boundary
- B4 Boundary
- B5 Boundary

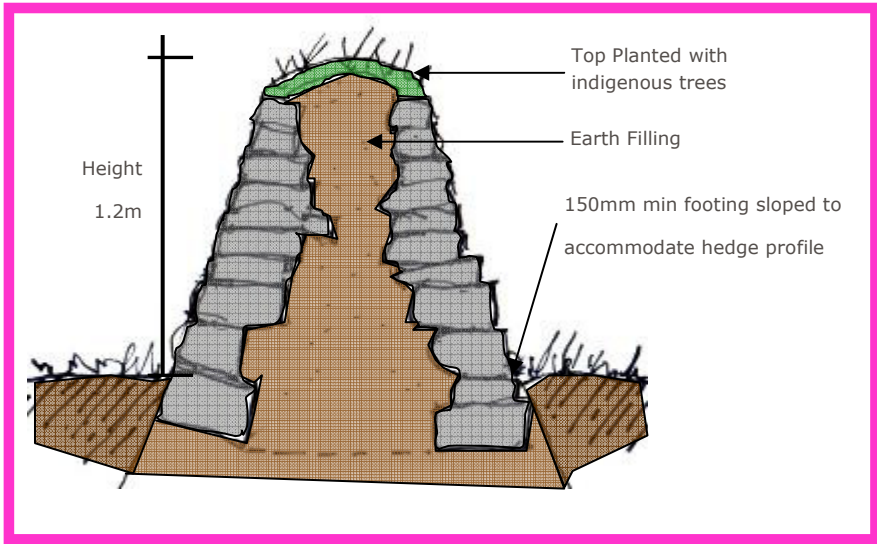
4. Boundaries

Design Code Rules

- a. Plots to comply with boundary treatments B1 - B5 as identified on adjacent plan
- b. Gates to be vertical timber in keeping with fencing and secured to min. 100x100mm timber posts. Exact locations to be confirmed on individual reserved matters applications
- c. Trees, hedges and banks to be in accordance with Code 7 Ecology Mitigation and Enhancement Plan

B3 - Hedges

- Traditional Cornish hedges to separate rear plot boundaries and planted with indigenous tree species.



B1 - VERTICAL FENCING

- 1.8m high from rear to frontage building line
- 1.2m high from frontage building line to road



B2 - WOODED VERGE

- Grass verge with indigenous tree species to create wooded entrance



B4 - GREEN EDGE

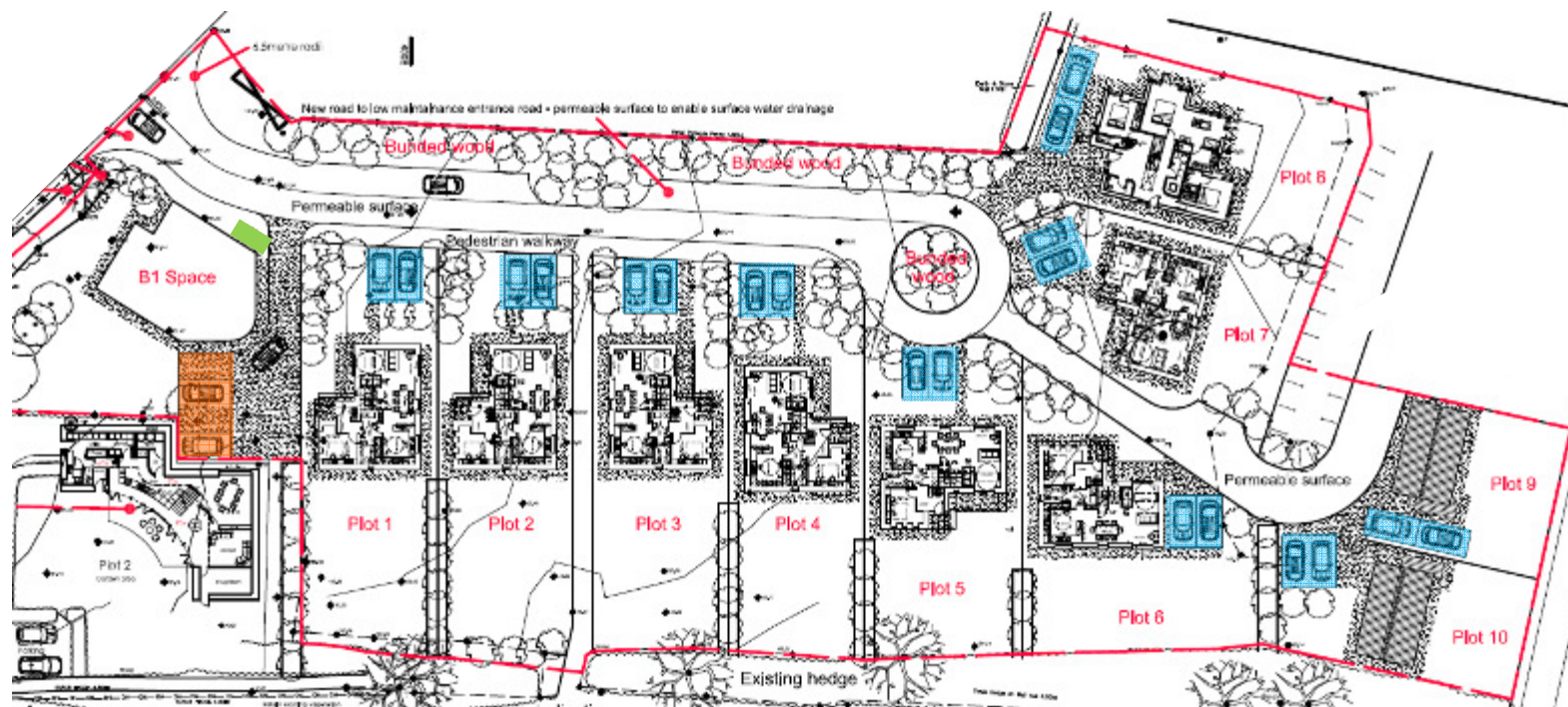
- Existing established hedgerows retained



B5 - WOODED BUND

- Earth bund and trees to create wooded feel and south facing reptile habitat

Vehicular Parking



KEY:



5. Vehicular Parking

Design Code Rules

Dwelling Driveways

- Each Plot is provided with 2 no. allocated car parking spaces within a private driveway as identified on the plan opposite

B1 Unit Parking

- The B1 unit is provided with allocated parking separate from the dwellings and concealed to the rear. Parking location has been planned to minimise vehicular visual impact from entering the site
- Dedicated cycle storage at the front of the building encourages green travel

Screening and soft landscaping

- The layout has been conceived around the need to screen vehicles from persons entering the site via indigenous trees. These must form part of the plot by plot soft landscaping strategy. MPSS management company will dictate suitable tree species to plot owners
- The bundled wood, traffic calming and wooded centrepiece have been designed to create a wooded entrance feel, screen vehicles and encourage wildlife, as per Code 7 Ecology Mitigation and Enhancement Plan

Parking Hard Landscaping

- All vehicular parking bays will be formed using permeable surfaces consisting of free draining gravel/slate chippings on weed control barrier on compacted hardcore base

Garages

- Garages may be integral to the sides of dwellings, but not located or accessed off Feature Elevations or Active Frontages, refer to Section 3. Frontages
- Detached garages are allowable and must be no larger than 4m x 6.5m and 4m in height, i.e. single storey. Detached garages will only be permitted if they are located to the side and not conflicting with Feature Elevations or Active Frontages, refer to Section 3. Frontages



Precedent Wooded Entrance, Screening & Permeable Parking



6. Gardens

Design Code Rules

Hard Landscaping

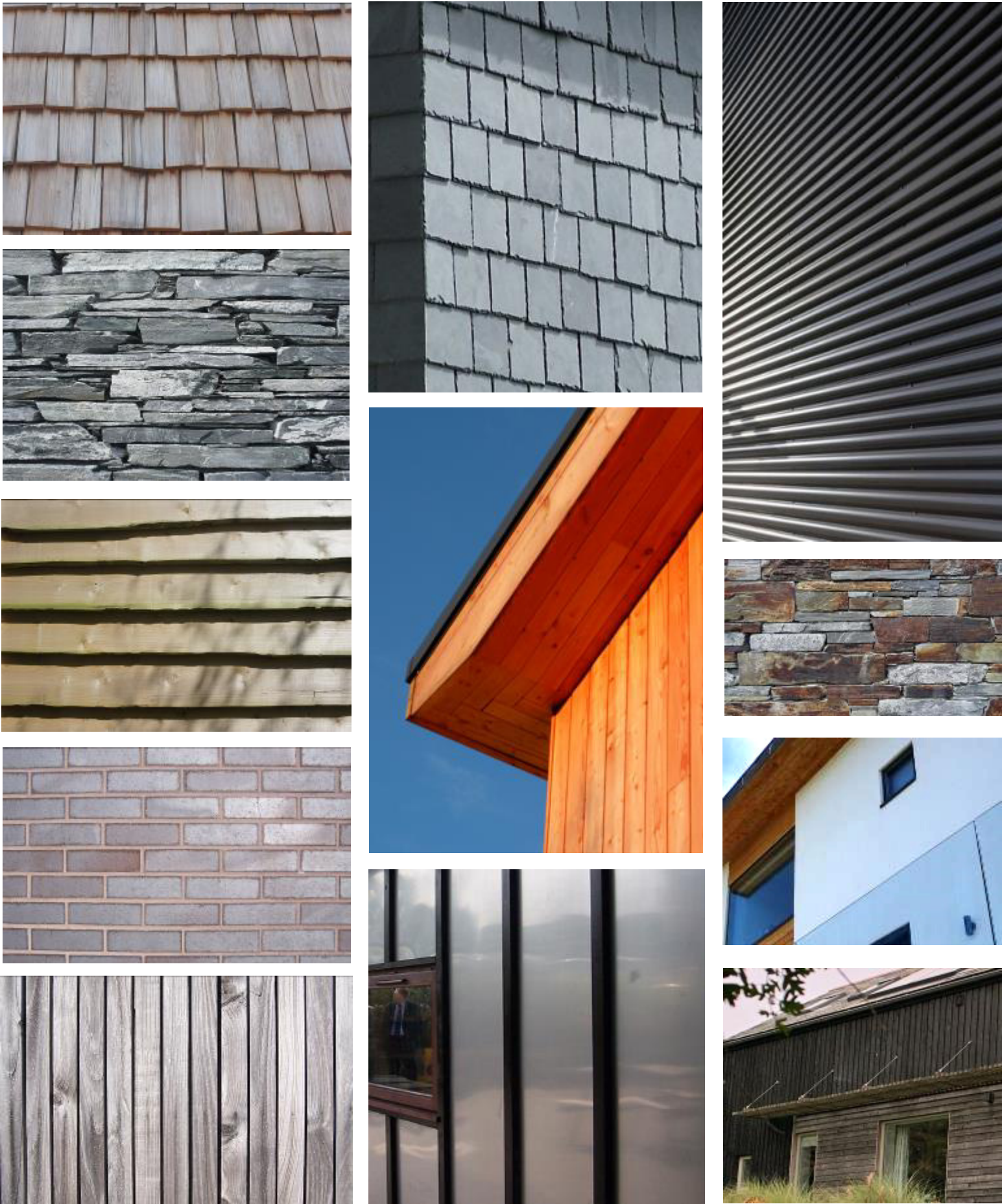
- a. **Patios and Terraces.** Patios and terraces are encouraged so that occupants can engage with the wildlife, garden and lead a healthy lifestyle. Generally plots have rear gardens providing private amenity space with good solar orientation
- b. Patios and Terraces should have maximum dimensions of 5m x 8m draining to on plot soakaways
- c. Decking areas should have maximum dimensions of 5m x 8m

Soft Landscaping

- a. **Front Gardens.** Generally wooded with grass verges as Section 5. Vehicular Parking, with shrubs and lawn beyond. With the exception of Plot 9
- b. **Private Amenity - Rear Gardens.** Rear gardens should incorporate areas laid to lawn. Wildflowers should be encouraged, especially species that will encourage butterflies and bees. Hedgerows, banks and grassland planted with regional plant species, trees and shrubs as defined within Code 7 Ecology Mitigation and Enhancement Plan
- c. Plot owners with established hedgerows will be responsible for maintenance as outlined in Code 7 Ecology Mitigation and Enhancement Plan
- d. Ponds are encouraged for biodiversity, however self builders must take extreme caution when designing ponds where small children may be at risk

Vegetable Gardens

- a. Vegetable and Herb gardens are encouraged on every plot, as are fruit trees. The ability to be able to grow your own food is integral to the sustainable ethos. Managed hedgerows will also allow for foraging



7. External Wall Materials

Design Code Rules

Natural & Vernacular

- a. Primary wall material consideration should be given to natural and traditional vernacular materials such as timber, natural stone, slate, render and in isolated areas brick. Other materials which are made within the UK should be given secondary consideration followed by materials from further afield.
- b. Where natural materials are not specified consideration should be given to where the material are made, what it is made from and what will happen to the material at the end of its life. Materials made from recycled content and which can be easily recycled at the end of their useful life should take precedence.

Rural

- a. Materials commonly associated within rural areas should be prioritised. This will include natural stone, slate, render, brick, timber cladding, fibre cement sheets and profiled steel sheets.

Innovative

- a. Whilst the above sets out preferred materials this Design Code should not restrict the use of material innovation. Examples of this may include stainless steel, copper, zinc and modern cladding systems.

Complimentary

- a. The above palette of materials is not exhaustive but should however be complimentary to the rural nature of the site, existing self builds and in particular buildings immediately neighbouring plots.
- b. Plot owners should actively communicate with other plot owners to ensure materials are complimentary.



8. Roof Zone & Materials

Design Code Rules

Roof Forms and Height

- a. To ensure variety and own identity a variety of roof forms are permitted but must adhere to height parameters for each zone set out in Section 1 Plot Parameters. Suggested roof forms include pitched, mono pitched, flat, curved or a combination of these suggestions.

Rooflights/Windows

- a. Rooflights and roof windows are permitted in all zones.

Renewables

- a. Renewable energy systems are likely to be used on the majority of plots. Roof mounted photovoltaics (PV), solar thermal collectors, ASHP's and Biomass systems are permitted, as are other less known forms of renewable heating systems such as CHP.

Chimneys/Flues

- a. Chimneys, flues and MVHR exhausts are permitted to extend beyond the maximum building heights identified in the specific zone plot parameters.

Allowable Materials

- a. Materials that are natural, vernacular, rural and innovative can all be used. Preference should be given to natural and recycled materials, then UK produced materials and lastly materials sourced from further afield.
- b. Materials commonly associated within rural areas should be prioritised. This will include natural slate, corrugated steel sheets and fibre cement sheets/tiles.
- c. Whilst the above sets out preferred materials this Design Code should not restrict the use of material innovation. Examples of this may include sedum (green & brown roofs), cedar shingles, aluminium, copper, zinc, fibreglass, GRP, single ply membranes and integrated PV.
- d. The above palette of materials is not exhaustive but should however be complimentary to the rural nature of the site, existing self builds and in particular buildings immediately neighbouring plots.
- e. Plot owners should actively communicate with other plot owners to ensure materials are complimentary.



9. External Joinery

Design Code Rules

Windows & Door Performance

- a. Windows and Doors should aim to achieve U-values $<1.0 \text{ W/m}^2\text{K}$, generally Triple glazing will achieve better U-values compliant with Passive House Standards. Due to self build budget this Design Code does not preclude double glazing, however it should be noted that to achieve and EPC A rating it will be unlikely that wholesale double glazing would achieve this Design Codes Core Standard's Performance Standard.

Materials and Type

- a. A variety of window systems are permitted including timber, aluminium clad timber, powder coated aluminium, coloured uPVC and curtain walling.

Colour

- a. Any RAL colour is permitted.

Security & Maintenance

- a. Toughened and or laminated glass to be used where building regulations dictates.
- b. Owners to consider a cleaning and maintenance strategy at the design stage and to include method statements within the Home Information Pack. Inward opening Tilt and Turn windows are recommended for ease of cleaning.
- c. Secured by Design windows are recommended but do not form part of any Design Code Rules.

Natural Light & Ventilation

- a. Building should be designed to maximise natural light for the benefit of occupants health and to reduce the need for artificial lighting. Designs should therefore exceed the building regulation requirements to at least the main living areas.
- b. Natural ventilation is permissible as is Mechanical Ventilation & Heat Recovery (MVHR). MVHR is preferred due to reduced fabric heat loss, recovery of heat, continual filtered ventilation and continual extraction to wet areas.

10. External Building Details



10. External Building Details

Design Code Rules

Renewables and MVHR

- a. Renewables are expected on all buildings. Roof systems are permitted to be roof mounted, semi-recessed and recessed.
- b. MVHR vents through roof are permitted. Vents through walls can be made into features or detailed discretely (as pictured).
- c. Air Source Heat Pumps (ASHP) to be located away from Feature Elevations and Active Frontages (Section 3).
- d. Wind turbines are not permitted.

Rainwater Goods

- a. No white uPVC rainwater goods. Any RAL colour is permitted. Permitted materials include powder coated steel/aluminium, galvanised steel, black/grey uPVC, copper.

Soffits & Fascias

- a. No white uPVC fascias or soffits. Soffits and fascias to compliment roof and wall finishes e.g. timber, aluminium, zinc, copper.

Colour

- a. **Restrictions.** There are no specific colour restrictions, however it is advised that buildings are designed and finished with materials and colours that are complimentary to the rural environment. Natural colours and materials are therefore intended.
- b. **Congrous.** Materials and colours to be in keeping with neighbouring buildings. Plot owners should actively communicate with other plot owners to advocate a degree of visual harmony.
- c. **LPA.** The Local Authority will determine the external appearance including colour with individual Reserved Matters Applications. This Design Code must be given considerable weight in assessing individual designs to ensure that the objectives of this exemplar self build development is met. This Design Code is therefore intended to guide development rather than restrict it.

11. External Building Details



11. External Building Details

Design Code Rules

Post Boxes & Bins

- a. To maintain building fabric performance it is suggested that post boxes are either fixed to buildings or integrated into bin storage. Bin storage can be attached to the building or separated. Where separated from the building ensure it is discreet so as not to detract from the active frontages and feature elevations described in section 3.

Satellite Dishes and Aerials

- a. Aerials are not permitted externally and should be positioned within loft spaces. Satellite dishes should be located on non public elevations and away from active frontages and feature elevations. Where possible locate within valleys, flat roofs and terraces. Consider discreet dishes as pictured left.

Meter Boxes

- a. Meter boxes should be accessible, but discreet. Locate away from active frontages and feature elevations, preferably on side elevations.

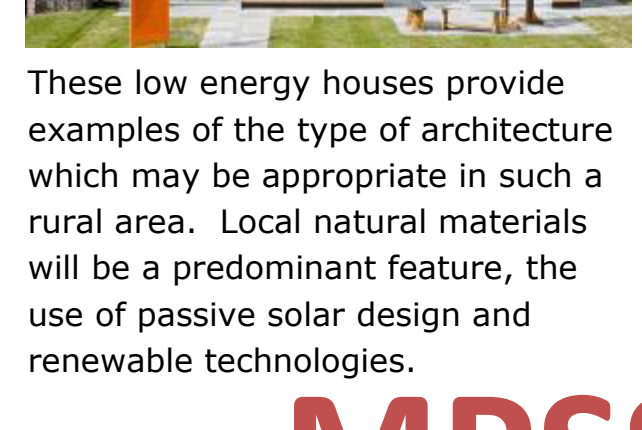
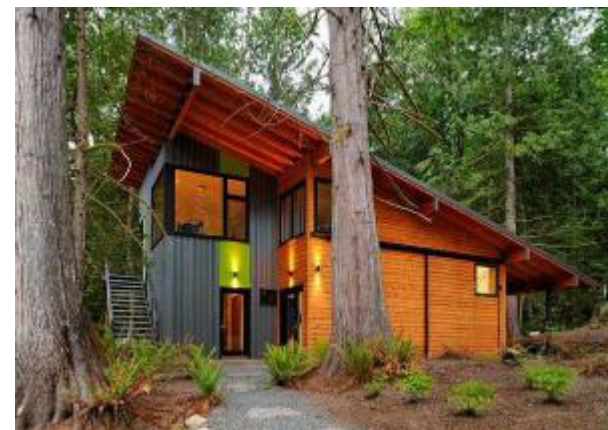
Bird and Bat Boxes

- a. Every building to contain at least one appropriately placed bird nest-box, swift box and one bat-box or alternative provision within the building fabric, such as a bat, house sparrow or swift block.
- b. Building cladding and roof systems should also be designed with bats and birds in mind. Waney edge cladding is a suitable habitat for birds and bats, as pictured left.

External Lighting

- a. External lighting is permitted providing that it minimises light pollution and uses low energy fixtures. Lighting to entrances, rear doors, patios, terraces and pathways are all permitted.

Precedent Buildings



These low energy houses provide examples of the type of architecture which may be appropriate in such a rural area. Local natural materials will be a predominant feature, the use of passive solar design and renewable technologies.



Almere - Netherlands



This innovative experiment in large scale self build involves a 100 hectare space (250 acre) extension to the south west of the city. The land was reclaimed from the sea in the 1950's.

The entire area has been master planned by the local authority into a number of districts. Each of which has around 720 self build plots and by early 2012 around 1000 homes had been built; eventually **some 3,000 self built homes are planned.**

Each of the self build districts is themed – for example there are areas for live/work self build homes; there are terraced areas and **there is a zone for very sustainable homes.** There is also an area set aside for canal side homes, and another for houses with bigger gardens. And there is a zone specifically aimed at housing developers, who assemble collectives of people who want a block of apartments or a terrace of similar homes built for them.

Vauban - Germany



Vauban is a new neighbourhood of around 5,000 inhabitants (2,000 homes) located about four km south of the town centre of Freiburg, Germany.

The 35 ha site was formerly an abandoned French army barrack complex. The buildings were occupied by squatters who objected to the council's original proposals for the site. These initial objections resulted in a good dialogue developing between the City Council and the citizen's association, and led to the creation of "Forum Vauban". It was this organisation that drew up the plans for the overall development of, arguably, Europe's greenest city district. **Vauban has also become one of Europe's biggest and most innovative self build projects.**

Instead of using volume house builders for the development of the new homes, the incoming residents were encouraged to form building co-operatives or 'construction communities' to design and manage the building of their own properties.

Ashley Vale - Bristol



The site was a former 2.1 acre scaffolding yard, near central Bristol. There was a concrete slab over most of the area with a redundant three story office block, two large warehouses and other buildings. Local people wanted to avoid a volume developer building 35 fairly identical houses, so they formed an action group to try to influence the process, and to create the opportunity for local people to build their own homes.

They went on to set up a non-profit making company, limited by guarantee, which purchased the site. The formation of the company was key to enabling the purchase of the site to go ahead, as the land owner wanted to deal with one body and not a collection of self builders. The agreed layout provided for a mixed self-built development, with 20 individual self build plots, and six housing association homes. The redundant office building was planned to be converted into work space and art space, and possibly some accommodation. The planning process was very difficult at the early stages, with the community group being considered as a conventional developer by the city planners. **There was very little flexibility around the fact that the project was trying to develop in a different way, and to create a more sustainable community. It took a persistent approach to get the project to where it is now.**