FCBS CARBON

Project Number:	HD21016
Project Name:	Bentons Farm
Building Name:	Plot A
Stage:	2
* Est. Year of project completion:	2023
* Sector:	Housing
* Sub-sector:	Single family house
* GIA (m2):	126.00
Assessment date:	20.10.21
Asssessment completed by:	EEABS and DWW Design

* Required for sheet calculations

Stated environmental objectives:

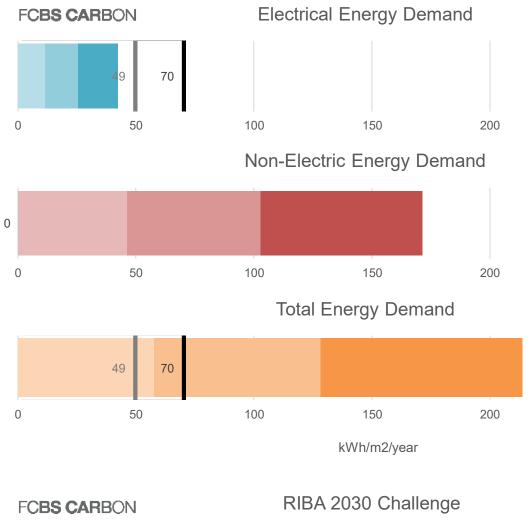
What are the drivers and aims of the assessment?

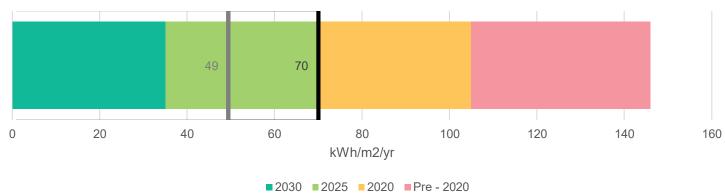
DWW Design have used this tool to provide a design stage estimate of operational and embodied carbon. The driver behind the design decisions made is to ultimately to acheive a medium to high quality design when assessed against the benchmarks in the EFDC Sustainability Checklist for Minor developments. We would like to thank Feilden Clegg Bradley studios for sharing knowledge and allowing us to use this tool.

Notes: The tool is still at a Beta stage and the construction types chosen best represent the design choices however may not be 100% accurate. The tool is intented to be used as a design guide, and is therefore suitably accurate at planning stage. It is not a definite analysis of the entire building which can only be reliabily produced at detailed design stage.

The adjustment factors in the embodied carbon section have been utlisied as advised by the authors of the tool to account for varying factors in the design which are not accounted for in the construction types, such as the use of reclaimed bricks with lime mortar. Please contact DWW to discuss any of the assumptions made in further detail. Project image

Building Details											
Supplied on 0. INPUT Project Details											
Building Name	Building Name Plot A										
Sector	5										
Sub-sector	5, 7										
GIA		126	m2	_							
Subsector Benchmarks											
	kWh/m2/yr										
		Best Practice									
Electrical energy Non-electric energy	43	26 103	11 46	0							
Total energy	214	103	40 58	0							
Total chergy	217	120	00	0							
User inputs required											
Calculation methodology:	Design SAP 2012										
Regulated energy use - ele	ctrical										
Space heating		kWh/m2/yr									
Hot water		kWh/m2/yr									
Cooling		kWh/m2/yr									
Fans and pumps		kWh/m2/yr									
Lighting Other		kWh/m2/yr kWh/m2/yr									
Total		kWh/m2/yr									
Regulated energy use - nor		, y.									
Heating		kWh/m2/yr									
Hot water Other		kWh/m2/yr kWh/m2/yr									
Total		kWh/m2/yr									
Anticipated unregulated en	ergy use - electri	cal									
Computers		kWh/m2/yr									
Server rooms		kWh/m2/yr									
Appliances		kWh/m2/yr									
Other		kWh/m2/yr									
Total	30.1	kWh/m2/yr									
Anticipated unregulated en	ergy use - non-el	ectric									
Cooking	0.0	kWh/m2/yr									
Other		kWh/m2/yr									
Total	0.0	kWh/m2/yr									
Power generation											
Electrical	20.6	kWh/m2/yr									
Non-electric (solar thermal et		kWh/m2/yr									
Total	20.6	kWh/m2/yr									

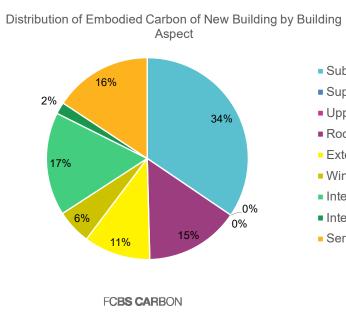


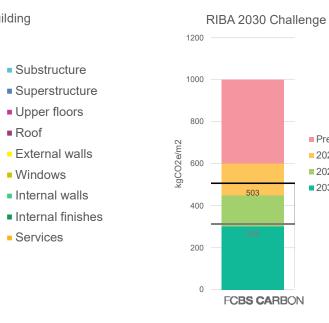


Offset demand
Gross demand



Building Details										
Supplied on 0. INPUT Project Details										
Building Name	F	Plot A								
Sector Housing										
Sub-sector Single family house										
GIA 126 m2										
Associated with selected sub-sector										
Grid size		m								
Partitions factor	1									
RIBA 2030 Challenge Category										
Imposed floor load	1.5	KIN/ITIZ								
User inputs required										
Building perimeter	71	m								
Building footprint	152	m2								
Building width	8	m								
Floor-to-floor height	2	m								
No. storeys ground & above	1									
No. storeys below ground	0									
Glazing ratio	13.2	%								







Building Aspect	Building Element	Material	Existing fabric?	Age if existing?	Adjustment Factor (%)	Component Life (years)	Designed for disassembly?	Estimated Quantity	Units	Life cycle embodied carbon estimate A - C (kgCO2e/m2)	A1 - A3 Biogenic carbon (sequestered kgCO2e/m2)	Potential benefits beyond the system boundary D (kgCO2e/m2)	Assumptions
Substructure	Capping beams	RC 32/40 50% GGBS (2)			77%	100	Yes	24.6		103.5			2 750 x 600 mm beam sections
Substructure	Raft	RC 32/40 50% GGBS (1	New		9%	100	Yes	8.2	-	30.5			7 600 mm raft thickness
Substructure	Lowest floor slab	Beam and Block	New		64%	100	Yes	97.3		19.2			1 RC40/50 110 wide beams with 440mm medium density blocks
Substructure	Ground insulation	EPS	New		38%	100	No	14.4		20.4			0 250 mm insulation thickness
Internal finishes	Floors	Solid timber floorboards	New		54%	100	Yes	68.0		5.0			0 18 mm floorboard thickness
Internal finishes	Floors	Earthenware tile	New		10%	100	No	12.6		1.8			0 10 mm tile thickness
External walls	Facade	Timber Cassette Panel w	New		14%	100	Yes	20.4		13.6			2 T-Stud walls at 600mm centres with external brickwork and stainless steel brickties
External walls	Facade	Timber Cassette Panel w	New		55%	100	Yes	81.6		4.9			7 LVL T-Stud walls at 600mm centres with 30mm thick larch cladding
External walls	Facade Wall insulation	Solid Brick, single leaf	Existing		31% 41%	100 100	Yes No	45.9		1.6 33.7			4 Brick and mortar wall, single leaf 0 250 mm insulation thickness
External walls Roof	Roof	PIR Timber Cassette	New New		41% 64%	100	No	15.2 97.3		6.1			0 Two layers of OSB with timber spacers at 600mm centres
Roof	Roof	Timber Casselle	New		36%	100	Yes	54.7		7.9			3 75 x 200 mm softwood joists, rafters, purlins and ridge. 5m clear span. Joists at 400
Roof	Roof insulation	PIR	New		41%	100	No	15.6		34.6			0 250 mm insulation thickness
Roof	Roof finishes	Fibre cement tile	New		64%	60	No	97.3		19.9			0 4 mm tile thickness, 270% mass increase for tile headlap
Roof	Roof finishes	Ceramic tile	New		36%	100	No	54.7		7.6			0 15 mm average tile thickness, with 100 mm overlap.
Windows	Glazing	Triple Glazing	New		0070	60	No	0.4		16.7			0 Three panes of 6 mm glass
Windows	Window frames	Al/Timber Composite	New			60	No	84.3		11.1			.0 Solid soft wood timber with aluminium external finish
Internal walls	Partitions	Plywood + Timber Studs	New			100	No	273.9		83.2			0 2 x 12.5mm plywood boards on both sides, MDF skirting both sides, timber studs at
Internal finishes	Ceilings	Plasterboard	New		64%	100	No	80.6		2.6			.0 12.5mm platerboard lining applied directly to upper floor/roof structure
Services	Services	Medium	New			60	No	126.0		79.2			0 Medium tech, boilers/ASHP, plus MVHR. (60 kgCO2e/m2 flat rate estimate)
								0.0		0.0	0.0		
								0.0		0.0	0.0	0.	0
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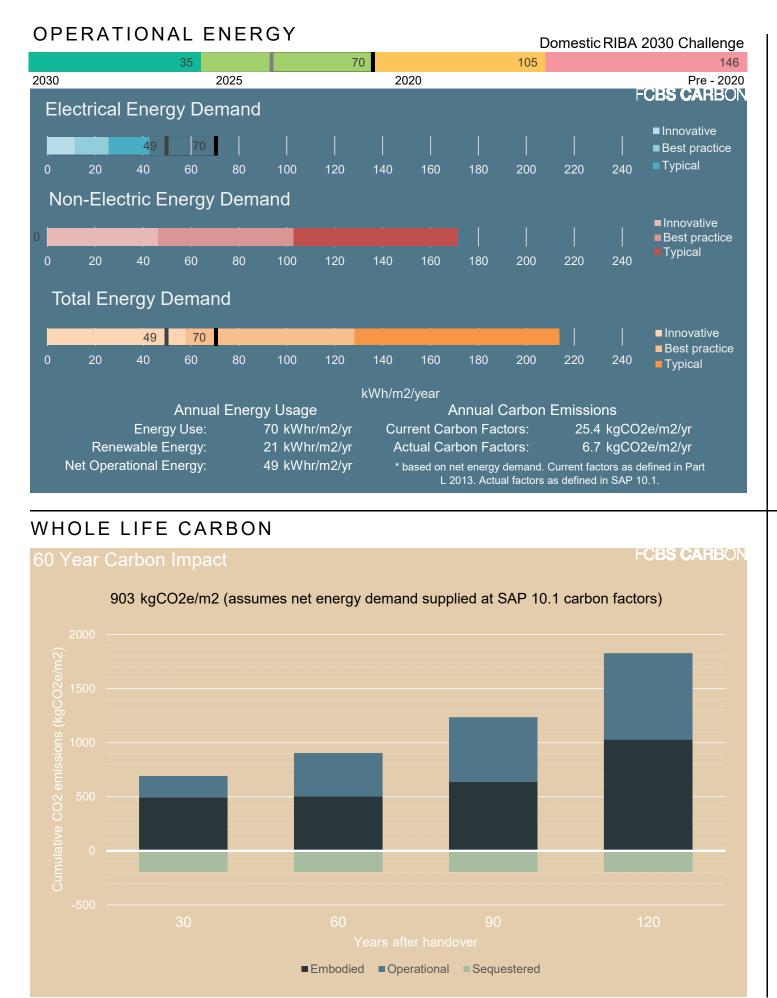
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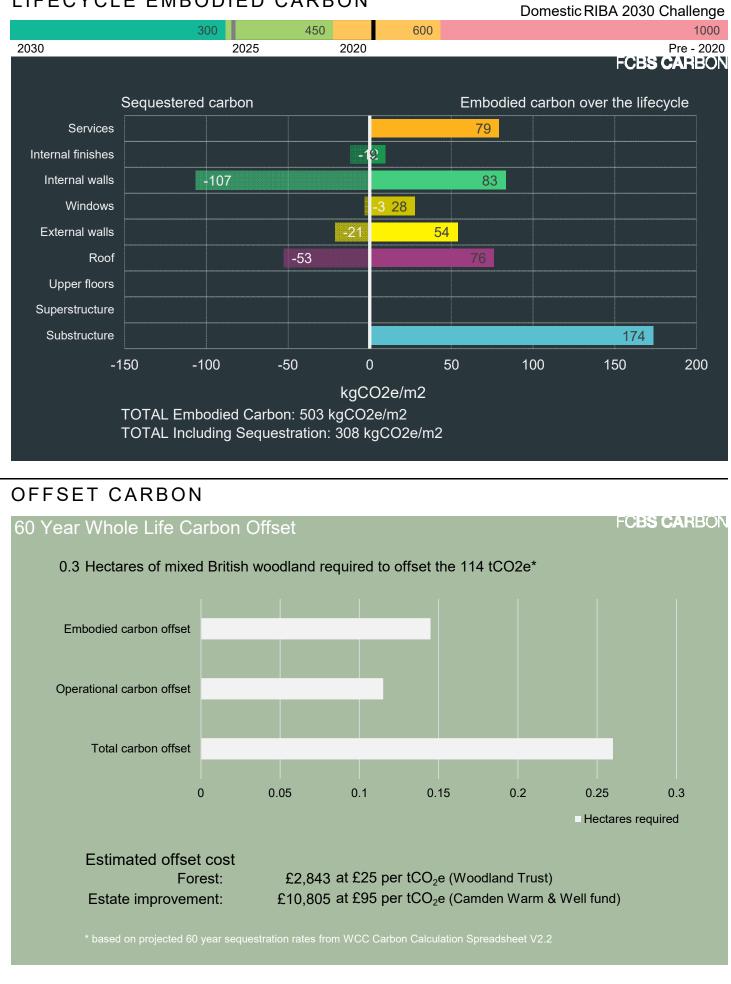
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FCBS CARBON

• Embodied carbon over the



LIFECYCLE EMBODIED CARBON



FCBS CARBON

Project Number:	HD20016
Project Name:	Bentons Farm
Building Name:	Plot B
Stage:	1
* Est. Year of project completion:	2023
* Sector:	Housing
* Sub-sector:	Single family house
* GIA (m2):	122.00
Assessment date:	20.10.21
Asssessment completed by:	EEABS and DWW Design

* Required for sheet calculations

Stated environmental objectives:

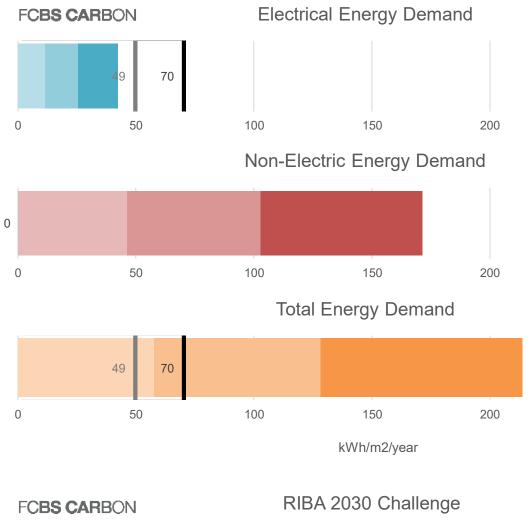
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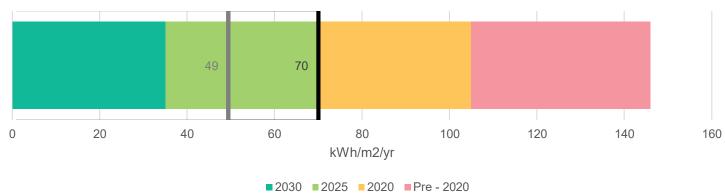
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Sector	5										
Sub-sector	5, 7										
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Subsector Benchmarks											
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		Best Practice									
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Lighting Other		kWh/m2/yr kWh/m2/yr									
Total		kWh/m2/yr									
Regulated energy use - nor		, y.									
Heating		kWh/m2/yr									
Hot water Other		kWh/m2/yr kWh/m2/yr									
Total		kWh/m2/yr									
Anticipated unregulated en	ergy use - electri	cal									
Computers		kWh/m2/yr									
Server rooms		kWh/m2/yr									
Appliances		kWh/m2/yr									
Other		kWh/m2/yr									
Total	30.1	kWh/m2/yr									
Anticipated unregulated en	ergy use - non-el	ectric									
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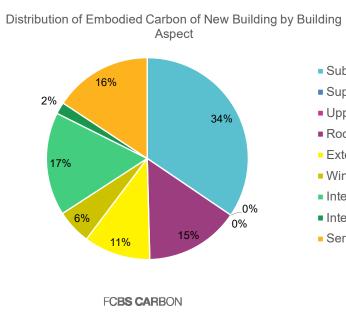


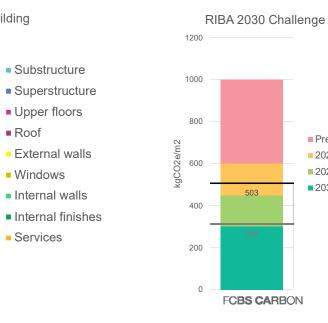


Offset demand
Gross demand



Building Details										
Supplied on 0. INPUT Project Details										
Building Name	F	Plot A								
Sector Housing										
Sub-sector Single family house										
GIA 126 m2										
Associated with selected sub-sector										
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RIBA 2030 Challenge Category										
Imposed floor load	1.5	KIN/ITIZ								
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Building perimeter	71	m								
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Building width	8	m								
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Glazing ratio	13.2	%								







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Substructure	Raft	RC 32/40 50% GGBS (1	New		9%	100	Yes	8.2	m3	30.5	0.0	-25.	7 600 mm raft thickness
Substructure	Lowest floor slab	Beam and Block	New		64%	100	Yes	97.3	m2	19.2	0.0	-16.	1 RC40/50 110 wide beams with 440mm medium density blocks
Substructure	Ground insulation	EPS	New		38%	100	No	14.4	m3	20.4	0.0	0.	0 250 mm insulation thickness
Internal finishes	Floors	Solid timber floorboards	New		54%	100	Yes	68.0	m2	5.0	-11.8	-16.	0 18 mm floorboard thickness
Internal finishes	Floors	Earthenware tile	New		10%	100	No	12.6	m2	1.8	0.0	0.	0 10 mm tile thickness
External walls	Facade	Timber Cassette Panel w	New		14%	100	Yes	20.4		13.6			2 T-Stud walls at 600mm centres with external brickwork and stainless steel brickties
External walls	Facade	Timber Cassette Panel w	New		55%	100	Yes	81.6	m2	4.9	-19.6	-23.	7 LVL T-Stud walls at 600mm centres with 30mm thick larch cladding
External walls	Facade	Solid Brick, single leaf	Existing		31%	100	Yes	45.9	m2	1.6		-18	4 Brick and mortar wall, single leaf
External walls	Wall insulation	PIR	New		41%	100	No	15.2	m3	33.7	0.0	0.	0 250 mm insulation thickness
Roof	Roof	Timber Cassette	New		64%	100	No	97.3	m2	6.1			0 Two layers of OSB with timber spacers at 600mm centres
Roof	Roof	Timber Pitch Roof	New		36%	100	Yes	54.7	m2	7.9	-35.6	-42.	3 75 x 200 mm softwood joists, rafters, purlins and ridge. 5m clear span. Joists at 400
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Windows	Window frames	Al/Timber Composite	New			60	No	84.3	m	11.1			0 Solid soft wood timber with aluminium external finish
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Internal finishes	Ceilings	Plasterboard	New		64%	100	No	80.6	m2	2.6	0.0	0.	0 12.5mm platerboard lining applied directly to upper floor/roof structure
Services	Services	Medium	New			60	No	126.0	m2	79.2	0.0	0.	0 Medium tech, boilers/ASHP, plus MVHR. (60 kgCO2e/m2 flat rate estimate)
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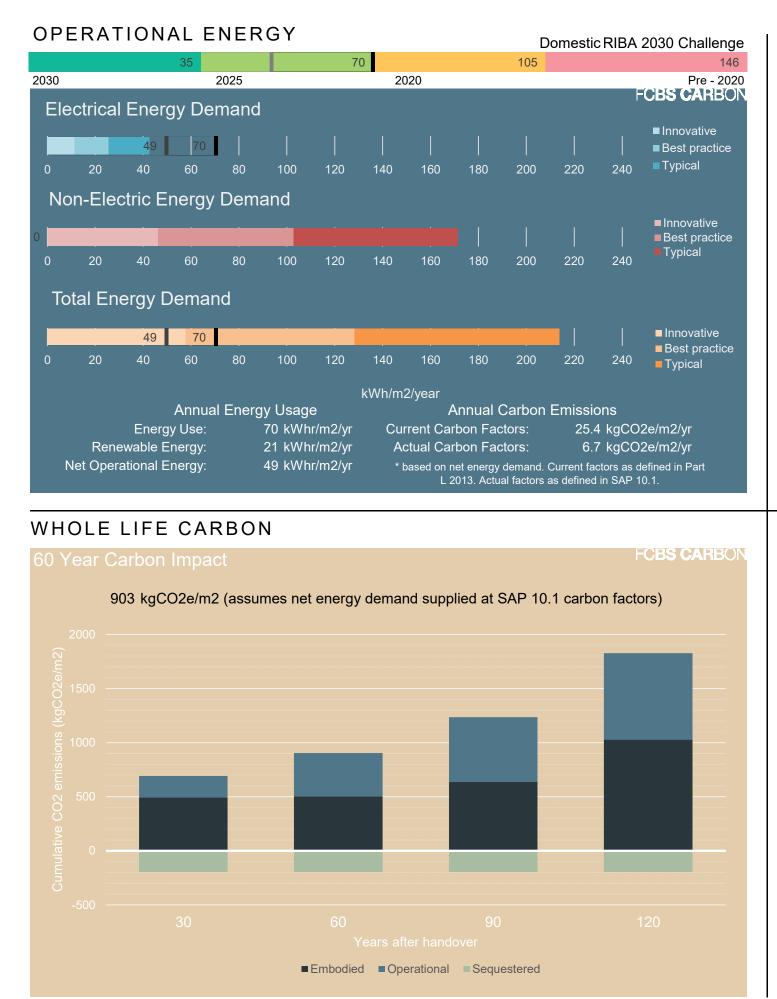
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FCBS CARBON

• Embodied carbon over the



LIFECYCLE EMBODIED CARBON

