



Wadworth Brewery, Devizes

Preliminary SAP Report

Prepared for: Backhouse Housing

Date: 17 November 2025

This document provides a summary of the design SAP inputs that affect the carbon dioxide emissions of the dwellings.

The following housetypes have been assessed:

- Block B End – Plot 1
- Block J End – Plot 31
- Block Q

There may be elements not described in this document that are applicable to other housetypes.

The specification described is subject to change dependent on bespoke psi values, and the completion of the design SAPs assessments for the whole site.

Document History and Status

Document Control			
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Revision Details			
Version	Date	Pages affected	Comments
0	16 Jul 25	-	-
1	17 Nov 25	All	Ground floor changed from Spantherm to Jetfloor Lighting to apartments changed to downlighters (6W, 550lm) Flat roof constructions updated Bespoke psi values for junctions E16 and E18 input for apartments A, M, N and P Constructions for wall between a dwelling and an unheated corridor/stairwell input SFS infill construction and psi values added for Block Q

Fabric Specification

Ground floor: U value of 0.12W/m²K. Kappa of 135.0kJ/m²K

Forterra Jetfloor Grey: 75mm screed (1.150W/mK), 150mm EPS 125 overlay sheet (0.030W/mK), 150mm prestressed beam and EPS infill block (0.030W/mK).

Exposed timber floor (including floor between a dwelling and a garage): U value of 0.20W/m²K.

22mm chipboard (0.130W/mK), 245mm mineral wool insulation (0.044W/mK) between timber joists, 15mm Gyproc Fireline board (0.240W/mK).

Garage within insulated fabric i.e. the garage walls are to be insulated.

Exposed concrete floor to apartments (including floor between a dwelling and an unheated area such as a bin store): U value of 0.15W/m²K.

Construction TBC.

External wall_brick_3 storey houses: U value of 0.22W/m²K. Kappa of 57.2kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm 7.3N/mm² aircrete block (0.180W/mK, 715kg/m³), 125mm Knauf Supafil insulation (0.034W/mK), 102.5mm brick outer leaf.

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

Cavity wall between a dwelling and a garage: U value of 0.22W/m²K. Kappa of 57.2kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm 7.3N/mm² aircrete block (0.180W/mK, 715kg/m³), 125mm Knauf Supafil insulation (0.034W/mK), 100mm dense block (1.130W/mK).

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

Garage within insulated fabric i.e. the garage walls are to be insulated.

Internally insulated wall between a dwelling and a garage: U value of 0.37W/m²K.

63mm insulated plasterboard (R2.300m²K/W) on dabs, 140mm dense block (1.130W/mK).

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

Garage within insulated fabric i.e. the garage walls are to be insulated.

Dormer cheeks: U value of 0.32W/m²K.

13mm plasterboard (0.190W/mK), vapour barrier, 100mm PIR insulation (0.022W/mK) between timber studwork, 9mm plywood (0.130W/mK), roofing membrane.

Party wall to houses: U value of 0.00W/m²K. Kappa of 76.6kJ/m²K

Fully filled and sealed. 12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm 7.3N/mm² lightweight aggregate block (1500kg/m³), cavity fully filled with Supafil Party Wall insulation, 100mm 7.3N/mm² lightweight aggregate block (1500kg/m³), 12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs.

External wall_brick_apartments (except Block Q and ground floor level of Block N&P and M): U value of 0.19W/m²K. Kappa of 57.2kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm 7.3N/mm² aircrete block (0.180W/mK, 715kg/m³), 147.5mm Knauf Supafil insulation (0.034W/mK), 102.5mm brick outer leaf.

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

External wall_brick_apartments (ground floor level of Block N&P and M): U value of 0.20W/m²K. Kappa of 81.1kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm dense block (1.130W/mK, 2000kg/m³), 147.5mm Knauf Supafil insulation (0.034W/mK), 102.5mm brick outer leaf.

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

External wall_brick_apartments (Block Q): U value of 0.18W/m²K. U-value to be provided by Knauf

Construction to be confirmed. 2 x 12.5mm Knauf Fire Panel (0.240W/mK), VCL, 100mm Knauf OmniFit Slab 32 (0.032W/mK) betweel SFS stud, 12.5mm Knauf Windliner (0.243W/mK), breather membrane, 100mm Knauf Rocksilk RainScreen Slab (0.034W/mK), 50mm unventilated cavity, 102.5mm brick outer leaf.

Stainless steel fixings to RainScreen Slab specified with a cross section of 23.8mm² at 4.94 per m².

External wall at concrete column_brick_apartments (except Block Q): U value of 0.17W/m²K. Kappa of 7.7kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³), 25mm PIR insulation (0.022W/mK) between 50mm timber battens, 200mm reinforced concrete column (2.300W/mK, 2300kg/m³), 147.5mm Knauf Supafil insulation (0.034W/mK), 102.5mm brick outer leaf.

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

External wall at concrete column_brick_apartments (Block Q): U value of 0.27W/m²K. Kappa of 93.2kJ/m²K U-value to be provided by Knauf

Construction to be confirmed. 2 x 12.5mm Knauf Fire Panel (0.240W/mK) on dabs, 200mm reinforced concrete column (2.300W/mK, 2300kg/m³), 12.5mm Knauf Windliner (0.243W/mK), breather membrane, 100mm Knauf Rocksilk RainScreen Slab (0.034W/mK), 50mm unventilated cavity, 102.5mm brick outer leaf.

Stainless steel fixings to RainScreen Slab specified with a cross section of 23.8mm² at 4.94 per m².

External wall_cladding_apartments (except Block Q): U value of 0.19W/m²K. Kappa of 57.2kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm 7.3N/mm² aircrete block (0.180W/mK, 715kg/m³), 147.5mm Knauf Supafil insulation (0.034W/mK), 100mm dense block (1.130W/mK), ventilated air layer behind cladding.

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

External wall_cladding_apartments (Block Q): U value of 0.18W/m²K. U-value to be provided by Knauf

Construction to be confirmed. 2 x 12.5mm Knauf Fire Panel (0.240W/mK), VCL, 100mm Knauf OmniFit Slab 32 (0.032W/mK) between SFS stud, 12.5mm Knauf Windliner (0.243W/mK), breather membrane, 100mm Knauf Rocksilk RainScreen Slab (0.034W/mK), 50mm unventilated cavity, 100mm dense block (1.130W/mK), ventilated air layer behind cladding.

Stainless steel fixings to RainScreen Slab specified with a cross section of 23.8mm² at 4.94 per m².

External wall at concrete column_cladding_apartments (except Block Q): U value of 0.17W/m²K. Kappa of 7.7kJ/m²K

12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³), 25mm PIR insulation (0.022W/mK) between 50mm timber battens, 200mm reinforced concrete column (2.300W/mK, 2300kg/m³), 147.5mm Knauf Supafil insulation (0.034W/mK), 100mm dense block (1.130W/mK), ventilated air layer behind cladding.

Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

External wall at concrete column_cladding_apartments (Block Q): U value of 0.27W/m²K. Kappa of 93.2kJ/m²K U-value to be provided by Knauf

Construction to be confirmed. 2 x 12.5mm Knauf Fire Panel (0.240W/mK) on dabs, 200mm reinforced concrete column (2.300W/mK, 2300kg/m³), 12.5mm Knauf Windliner (0.243W/mK), breather membrane, 100mm Knauf Rocksilk RainScreen Slab (0.034W/mK), 50mm unventilated cavity, 100mm dense block (1.130W/mK), ventilated air layer behind cladding.

Stainless steel fixings to RainScreen Slab specified with a cross section of 23.8mm² at 4.94 per m².

Wall between dwelling and unheated corridor (except Block Q): U value of 0.28W/m²K. Kappa of 83.7kJ/m²K

12.5mm Gyproc Soundbloc (0.250W/mK, 824kg/m³) on dabs, 100mm dense block (1.130W/mK, 2000kg/m³), 100mm Knauf Earthwool insulation (0.035W/mK), 100mm dense block (1.130W/mK, 2000kg/m³), 12.5mm Gyproc Soundbloc (0.250W/mK, 824kg/m³) on dabs.

Insulation with lapped or sealed joints. Wall ties specified as Ancon Staifix HRT4 at 2.50 per m². No windposts to penetrate the wall insulation layer.

Wall between dwelling and unheated corridor (Block Q): U value of 0.21W/m²K. U-value to be provided by insulation supplier

Construction to be confirmed. 2 x 15mm Gyproc Soundbloc (0.250W/mK), 70mm Gypframe stud at 600 centres fully filled with Isover Acoustic Partition Roll (0.043W/mK), 50mm Isover Acoustic Slabs (0.036W/mK), 70mm Gypframe stud at 600 centres fully filled with Isover Acoustic Partition Roll (0.043W/mK), 2 x 15mm Gyproc Soundbloc (0.250W/mK).

Wall between dwelling and unheated stairwell (except Block Q): U value of 0.28W/m²K. Kappa of 83.7kJ/m²K

12.5mm Gyproc Soundbloc (0.250W/mK, 824kg/m³) on dabs, 100mm dense block (1.130W/mK, 2000kg/m³), 100mm Knauf Earthwool insulation (0.035W/mK), 200mm reinforced concrete (2.300W/mK, 2300kg/m³), 12.5mm Gyproc Soundbloc (0.250W/mK, 824kg/m³) on dabs.

Wall between dwelling and unheated stairwell (Block Q): U value of 0.30W/m²K. U-value to be provided by insulation supplier

Construction to be confirmed. U-value could be achieved through installation of 100mm Isover Acoustic Slabs (0.036W/mK) on Gypliner Single on the inside of the reinforced concrete core.

Party wall to apartments (except Block Q): U value of 0.00W/m²K. Kappa of 81.1kJ/m²K

Fully filled and sealed. 12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs, 100mm dense block (1.130W/mK), cavity fully filled with Supafil Party Wall insulation, 100mm dense block (1.130W/mK), 12.5mm Gyproc Wallboard (0.190W/mK, 616kg/m³) on dabs.

Party wall to apartments (Block Q): U value of 0.00W/m²K.

Fully filled and sealed. Steel frame. All cavities to be filled with insulation.

Roof (insulation at rafter level): U value of 0.16W/m²K

63mm insulated plasterboard (R2.300m²K/W), 120mm PIR insulation (0.022W/mK, emissivity of 0.05) between timber rafters, ventilated cavity.

Stainless steel fixings to insulated plasterboard specified with a cross section of 10.5mm² at 15.0 per m².

Dormer roof: U value of 0.22W/m²K.

15mm plasterboard (0.190W/mK), 150mm PIR insulation (0.022W/mK) between timber joists, 25-50mm unventilated cavity between timber firings, 9mm plywood (0.130W/mK), roofing membrane.

Flat roof to houses: U value of 0.14W/m²K

12.5mm Gyproc Wallboard (0.190W/mK), 200mm air layer between timber joists, timber firings, 18mm OSB (0.130W/mK), VCL, 150mm PIR insulation (0.022W/mK), single ply roofing membrane.

Stainless steel fixings to PIR insulation specified with a cross section of 7.5mm² at 8.5 per m².

Flat roof to apartments: U value of 0.12W/m²K. Kappa of 89.3kJ/m²K

12.5mm Gyproc Soundbloc (0.250W/mK, 824kg/m³) on metal frame ceiling system, 225mm reinforced concrete (2.300W/mK), timber firings, 18mm OSB (0.130W/mK), VCL, 170mm PIR insulation (0.022W/mK), single ply roofing membrane.

Stainless steel fixings to PIR insulation specified with a cross section of 7.5mm² at 8.5 per m².

External windows

Double glazed low-e windows with a U value of 1.20 W/m²K, a glazing g value of 0.72 and 0.70 frame factor.

External french doors/ patio doors/ bi fold doors/ fully glazed doors

Double glazed low-e windows with a U value of 1.20 W/m²K, a glazing g value of 0.72 and 0.70 frame factor.

Rooflights

Double glazed low-e windows with a U value of 1.30 W/m²K, and a window g value of 0.46.

Solid external doors

U value of 1.00W/m²K.

Door between a dwelling and a garage

U value of 1.20W/m²K.

Door between a dwelling and a corridor

Default U value of 3.00W/m²K.

Airtightness:

All plots are to be air tested. All plots are to achieve an air permeability of equal to or less than 4.00m³/(h.m²)@50Pa.

Non-repeating thermal bridges:

Default psi values have been used with the exception of the details listed in Tables 1, 2, and 3.

Table 1: Non default psi values to houses

Junction Number	Description of Junction	Psi value (W/m ² K)	Source
E1	Heavy duty lintel	0.396	From Catnic lintel brochure. Heavy/extra heavy duty lintels (CH/CX) – specified to doors over 2.1m width only
E2	Hi-Therm+ lintel	0.066/0.064	Hi Therm+ lintel to all windows and doors under 2.1m width
E3	Sill	0.034	H+H - Cavalok cavity closer (p.99)
E4	Jamb	0.038/0.037	H+H - Cavalok cavity closer (p.102)
E5	Ground floor to external wall	0.060	TBC by Bison Forterra
E6	Intermediate floor within a dwelling	0.002	Knauf - KI_PSI_E6_SF34_0001
E11	Eaves (insulation at rafter level)	0.047	H+H (p.127)
E13	Gable (insulation at rafter level)	0.059/0.066	H+H (p.134)
E15	Flat roof with parapet	0.200	TBC by bespoke psi value calculation
E16	Corner (normal)	0.037/0.045	Knauf - KI_PSI_E16_SF34_0001
E17	Corner (inverted)	-0.086/-0.095	Knauf - KI_PSI_E17_SF34_0001
E18	Party wall between dwellings	0.034/0.036	Knauf - KI_PSI_E18b_SF34_0001
E20	Exposed timber floor	0.039/0.046	Knauf - KI_PSI_E20_SF34_0001

Junction Number	Description of Junction	Psi value (W/m ² K)	Source
E21	Exposed timber floor (inverted) to cavity wall between a dwelling and a garage	0.100	TBC by bespoke psi value calculation – Erban to provide fee
E21	Exposed timber floor (inverted) to internally insulated wall between a dwelling and a garage	0.050	TBC by bespoke psi value calculation – Erban to provide fee
E23	Balcony/terrace within a dwelling. Balcony support penetrates wall insulation.	0.100	TBC by bespoke psi value calculation
P1	Party wall ground floor	0.035	TBC by Bison Forterra
P5	Party wall – roof (insulation at rafter level)	0.104	H+H (p.180)
R3	Jamb of roof window	0.056	R3_Jamb of roof window_Highworth Ph2_01
R4	Ridge (vaulted ceiling)	0.050	TBC by bespoke psi value calculation – Erban to provide fee
R9	Roof to wall (flat ceiling) – where dormer wall meets dormer roof	0.050	R9_Dormer roof to dormer wall_BH_01

Table 2: Non default psi values to apartments A, M, N, P

Junction Number	Description of Junction	Psi value (W/m ² K)	Source
E2	Hi-Therm+ lintel	0.065	Hi Therm+ lintel to all windows and doors
E3	Sill	0.038	H+H - Cavalok cavity closer (p.99)
E4	Jamb	0.041	H+H - Cavalok cavity closer (p.102)
E7	Party floor between dwellings (in blocks of flats)	0.038	H+H (p.121)
E15	Flat roof with parapet (top floor)	0.200	TBC by bespoke psi value calculation
E15	Flat roof with parapet (floor below top floor)	0.200	TBC by bespoke psi value calculation
E16	Corner (normal) without concrete column	0.042	Knauf - KI_PSI_E16_SF34_0001
E16	Corner (normal) with concrete column	0.030	E16_Corner (normal)_WB_01

Junction Number	Description of Junction	Psi value (W/m ² K)	Source
E17	Corner (inverted) without concrete column	-0.089	Knauf - KI_PSI_E17_SF34_0001
E17	Corner (inverted) – wall between dwelling and corridor/stairwell	-0.119	Recognised – MFF-100-E17-01
E18	Party wall between dwellings with concrete column	0.039	E18_Party wall between dwellings_WB_01
E18	Party wall between dwellings – wall between dwelling and corridor/stairwell	0.057	Recognised – MFF-100-E18-03
E23	Balcony within a dwelling	0.300	TBC by bespoke psi value calculation
E23	Balcony between dwellings	0.150	TBC by bespoke psi value calculation
P4	Party wall to flat roof	0.050	TBC by bespoke psi value calculation

Table 3: Non default psi values to apartment Q

Junction Number	Description of Junction	Psi value (W/m ² K)	Source
E2	Lintel	0.006	R.O.I: Ope – Lintel (cavity closer to have thermal resistance of 3.94m ² K/W or better)
E2	Lintel to door between dwelling and corridor	0.050	TBC by bespoke psi value calculation
E3	Sill	0.012	R.O.I: Ope – Sill (cavity closer to have thermal resistance of 3.13m ² K/W or better)
E4	Jamb	0.023	R.O.I: Ope – Jamb (cavity closer to have thermal resistance of 3.94m ² K/W or better)
E4	Jamb to door between dwelling and corridor	0.050	TBC by bespoke psi value calculation
E7	Party floor between dwellings (in blocks of flats)	0.140	TBC by bespoke psi value calculation
E14	Flat roof (wall to corridor)	0.050	TBC by bespoke psi value calculation
E15	Flat roof with parapet (top floor)	0.200	TBC by bespoke psi value calculation
E15	Flat roof with parapet (floor below top floor)	0.200	TBC by bespoke psi value calculation

Junction Number	Description of Junction	Psi value (W/m ² K)	Source
E16	Corner (normal) without concrete column	0.075	R.O.I: Corner
E16	Corner (normal) with concrete column	0.090	TBC by bespoke psi value calculation
E17	Corner (inverted) without concrete column	-0.045	R.O.I: Inverted Corner
E18	Party wall between dwellings with concrete column	0.050	TBC by bespoke psi value calculation
E23	Balcony within a dwelling	0.300	TBC by bespoke psi value calculation
E23	Balcony between dwellings	0.150	TBC by bespoke psi value calculation
P4	Party wall to flat roof	0.050	TBC by bespoke psi value calculation

Building Services

Primary space and water heating to Block B – Plot 1 **TBC by heating designs**

- Vaillant aroTHERM plus 7kW&AI (pcdb index no: 108523)
- Pump in heated space
- Radiators and underfloor
- Flow temperature 45°C
- Time and temperature zone control
- Vaillant uniSTOR HP VIH RW GB 250 BES 236 litre cylinder with a 1.41kWh/day heat loss and a 2.4m² heat transfer area. Cylinder in heated space with independent time control and cylinder stat. Fully insulated primary pipework

Primary space and water heating to Block J – Plot 31 **TBC by heating designs**

- Vaillant aroTHERM plus 5kW&AI (pcdb index no: 108475)
- Pump in heated space
- Radiators and underfloor
- Flow temperature 45°C
- Time and temperature zone control
- Vaillant uniSTOR HP VIH RW GB 200 BES 191 litre cylinder with a 1.22kWh/day heat loss and a 1.4m² heat transfer area. Cylinder in heated space with independent time control and cylinder stat. Fully insulated primary pipework

Primary space and water heating to apartments **TBC by heating designs**

- Quantum QM100 RF high heat retention storage heaters
- Controls for high heat retention storage heaters
- CURV 360 HPP200M7 air sourced hot water cylinder

Ventilation to houses **TBC by ventilation designs**

- System 3 – continuous decentralised mechanical extract system with flexible ducting. Vent Axia Lo-Carbon NBR dMEV C 100/125 extract fans are to be installed in all wet rooms (kitchens, bathrooms, en-suites, utility rooms, and WCs).

Ventilation to apartments **TBC by ventilation designs**

- System 3 – continuous centralised mechanical extract system with flexible ducting. Vent Axia MVDC-MS A extract fans are to be installed in all wet rooms (kitchens, bathrooms, en-suites, utility rooms, and WCs).

Electricity tariff

- Standard. Smart electricity meters fitted.

Lighting to houses

- B22 Pendant bulbs (7.3W, 806lm) and GU10 spotlight bulbs (3.6W, 345lm) installed as to be shown on the M&E layouts.

Lighting to apartments

- Downlighters (6W, 550lm) to be installed as to be shown on the M&E layouts.

Water use

- Less than or equal to 125 litres per person per day.

Showers

- Showers with a flow rate of 9 litres/minute to be installed in the bathrooms, en-suites and shower rooms of each dwelling.

Heat recovery technologies

- None

Solar photovoltaic (PV) panels

- None