

6 ANALYSIS & RESULTS

ADO and TM59 standards for predominantly naturally ventilated dwellings apply during the annual occupied period.

To demonstrate compliance with ADO and TM59, the adaptive method has been followed whereby two criteria are tested for compliance. A dwelling that fails either of the following criteria is deemed to be at an unacceptable risk of overheating:

- Criteria 1:**
For living rooms, kitchens and bedrooms: the number of hours during which DT is greater than or equal to one degree (K) during the period May to September inclusive shall not be more than 3 per cent of occupied hours. (CIBSE TM52 Criterion 1: Hours of exceedance).
- Criteria 2:**
For bedrooms only: to guarantee comfort during the sleeping hours the operative temperature in the bedroom from 10 pm to 7 am shall not exceed 26 °C for more than 1% of annual hours. (Note: 1% of the annual hours between 22:00 and 07:00 for bedrooms is 32 hours, so 33 or more hours above 26 °C will be recorded as a fail).

Dwelling Results

Criterion 1

Room name	Occupied hours	No. hours DT 1°K	% Occupied hours DT 1°K	Criterion 1 Check
PT1 – 01 – 05 - GF Living	1989	41	2.1	Pass
PT1 – 01 – 05 - Dining	1989	40	2.0	Pass
PT1 – 01 – 05 - Living/Kitchen	1989	55	2.8	Pass
PT1 – 02 – 01 - Double Bedroom	3672	5	0.1	Pass
PT1 – 02 – 05 - Living Room	1989	20	1.0	Pass
PT1 – 03 – 01 - Single Bedroom	3672	9	0.2	Pass
PT1 – 03 – 05 - Double Bedroom	3672	0	0.0	Pass
PT2 – 01 – 05 - Living	1989	14	0.7	Pass
PT2 – 01 – 05 - Kitchen	1989	35	1.8	Pass
PT2 – 02 – 01 - Double Bedroom	3672	4	0.1	Pass
PT2 – 02 – 05 - Living Room	1989	7	0.4	Pass
PT2 – 03 – 01 - Single Bedroom	3672	8	0.2	Pass
PT2 – 03 – 05 - Double Bedroom	3672	0	0.0	Pass
PT3 – 01 – 01 - Living	1989	9	0.5	Pass
PT3 – 01 – 01 - Kitchen	1989	23	1.2	Pass
PT3 – 02 – 01 - Double Bedroom	3672	4	0.1	Pass
PT3 – 02 – 04 - Living Room	1989	9	0.5	Pass
PT3 – 03 – 01 - Single Bedroom	3672	8	0.2	Pass
PT3 – 03 – 02 - Double Bedroom	3672	0	0.0	Pass
PT7 – 01 – 01 - Living/Dining	1989	14	0.7	Pass
PT7 – 01 – 03 - Kitchen	1989	16	0.8	Pass
PT7 – 02 – 01 - Bedroom 2	3672	0	0.0	Pass
PT7 – 02 – 02 - Bedroom 1	3672	12	0.3	Pass
PT9 – 01 – 01 - Kitchen/Dining	1989	44	2.2	Pass
PT9 – 01 – 07 - Living Room	1989	29	1.5	Pass
PT9 – 02 – 01 - Double Bedroom 2	3672	2	0.1	Pass
PT9 – 02 – 02 - Double Bedroom 1	3672	2	0.1	Pass
PT9 – 02 – 02 - Double Bedroom 1	3672	14	0.4	Pass

Table 4 - ADO (Criteria 1) Results

Criterion 2

Room name	Occupied hours	No. hours DT 1°K	% Occupied hours DT 1°K	Criterion 2 Check
PT1 – 01 – 05 - GF Living	N/A	N/A	N/A	N/A
PT1 – 01 – 05 - Kitchen	N/A	N/A	N/A	N/A
PT1 – 01 – 05 - Dining	N/A	N/A	N/A	N/A
PT1 – 02 – 01 - Double Bedroom	6	0	6.0	Pass
PT1 – 02 – 05 - Living Room	N/A	N/A	N/A	N/A
PT1 – 03 – 01 - Single Bedroom	9	0	9.0	Pass
PT1 – 03 – 05 - Double Bedroom	15	10	25.0	Pass
PT2 – 01 – 05 - Living	N/A	N/A	N/A	N/A
PT2 – 01 – 05 - Kitchen	N/A	N/A	N/A	N/A
PT2 – 02 – 01 - Double Bedroom	5	0	5.0	Pass
PT2 – 02 – 05 - Living Room	N/A	N/A	N/A	N/A
PT2 – 03 – 01 - Single Bedroom	8	0	8.0	Pass
PT2 – 03 – 05 - Double Bedroom	11	9	20.0	Pass
PT3 – 01 – 01 - Living	N/A	N/A	N/A	N/A
PT3 – 01 – 01 - Kitchen	N/A	N/A	N/A	N/A
PT3 – 02 – 01 - Double Bedroom	5	0	5.0	Pass
PT3 – 02 – 04 - Living Room	N/A	N/A	N/A	N/A
PT3 – 03 – 01 - Single Bedroom	8	0	8.0	Pass
PT3 – 03 – 02 - Double Bedroom	13	10	23.0	Pass
PT7 – 01 – 01 - Living/Dining	N/A	N/A	N/A	N/A
PT7 – 01 – 03 - Kitchen	N/A	N/A	N/A	N/A
PT7 – 02 – 01 - Bedroom 2	5	0	5.0	Pass
PT7 – 02 – 02 - Bedroom 1	9	3	12.0	Pass
PT9 – 01 – 01 - Kitchen/Dining	N/A	N/A	N/A	N/A
PT9 – 01 – 07 - Living Room	N/A	N/A	N/A	N/A
PT9 – 02 – 01 - Double Bedroom 2	3	0	3.0	Pass
PT9 – 02 – 02 - Double Bedroom 1	6	0	6.0	Pass

Table 5 - ADO (Criteria 2) Results)

The results demonstrate that all occupied spaces across all blocks and dwellings pass the requirements of the Approved Document O and CIBSE TM59.

This is primarily a result of the presence of the following passive design measures:

- Openable windows during the daytime and nighttime.
- Continuous whole house ventilation (MVHR) to all habitable rooms, including kitchen, bedrooms, living spaces and bathrooms.
- Highly insulated building envelope.
- High-performance solar control glazing all around to limit solar gains.

7 MODEL IMAGES

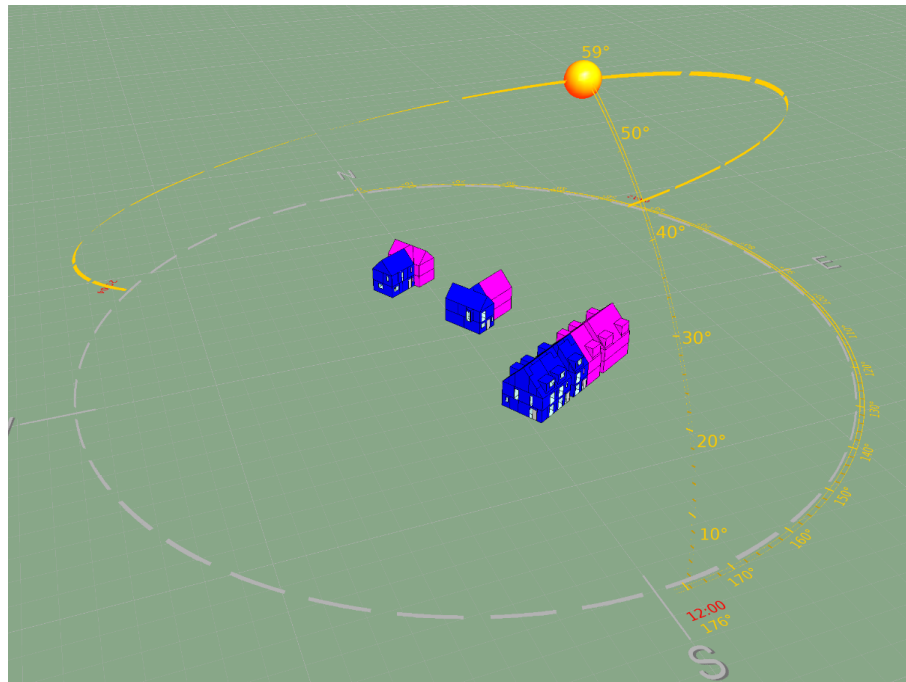


Figure 2 - Orientation View

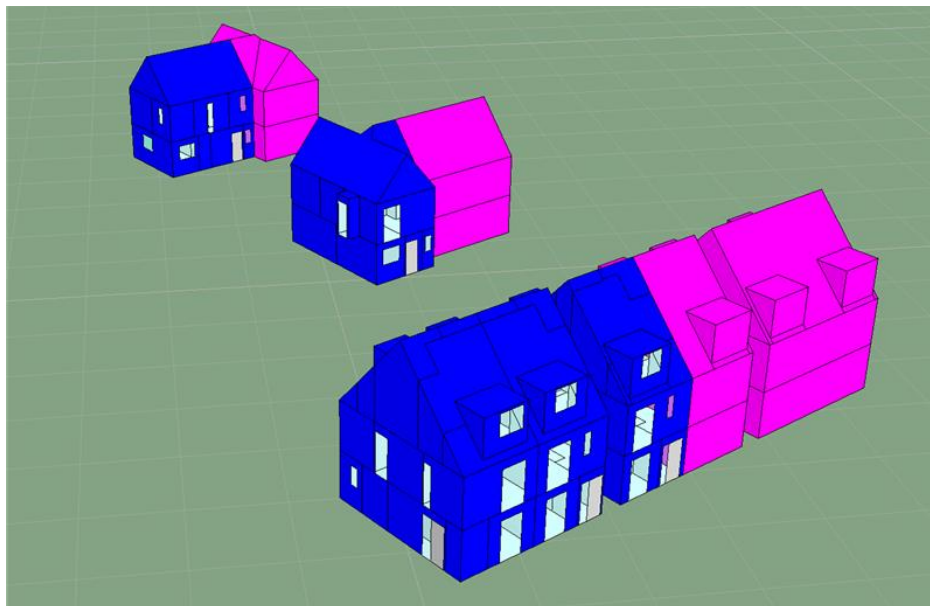


Figure 3 - Modelled Dwellings

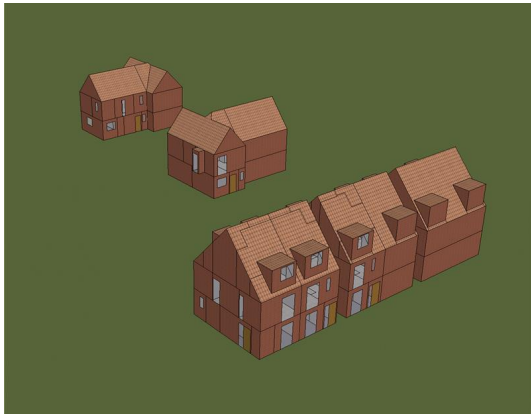


Figure 4 - SOUTH ELEVATION

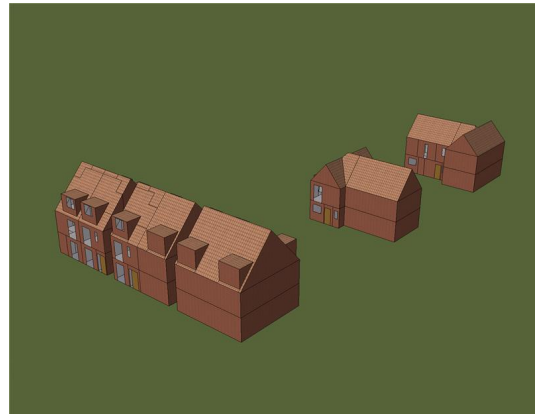


Figure 5 - EAST ELEVATION

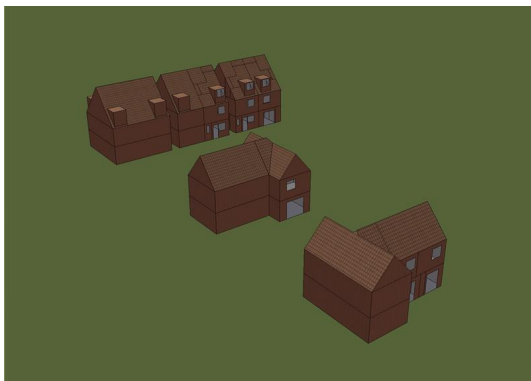


Figure 6 - NORTH ELEVATION



Figure 7 - WEST ELEVATION