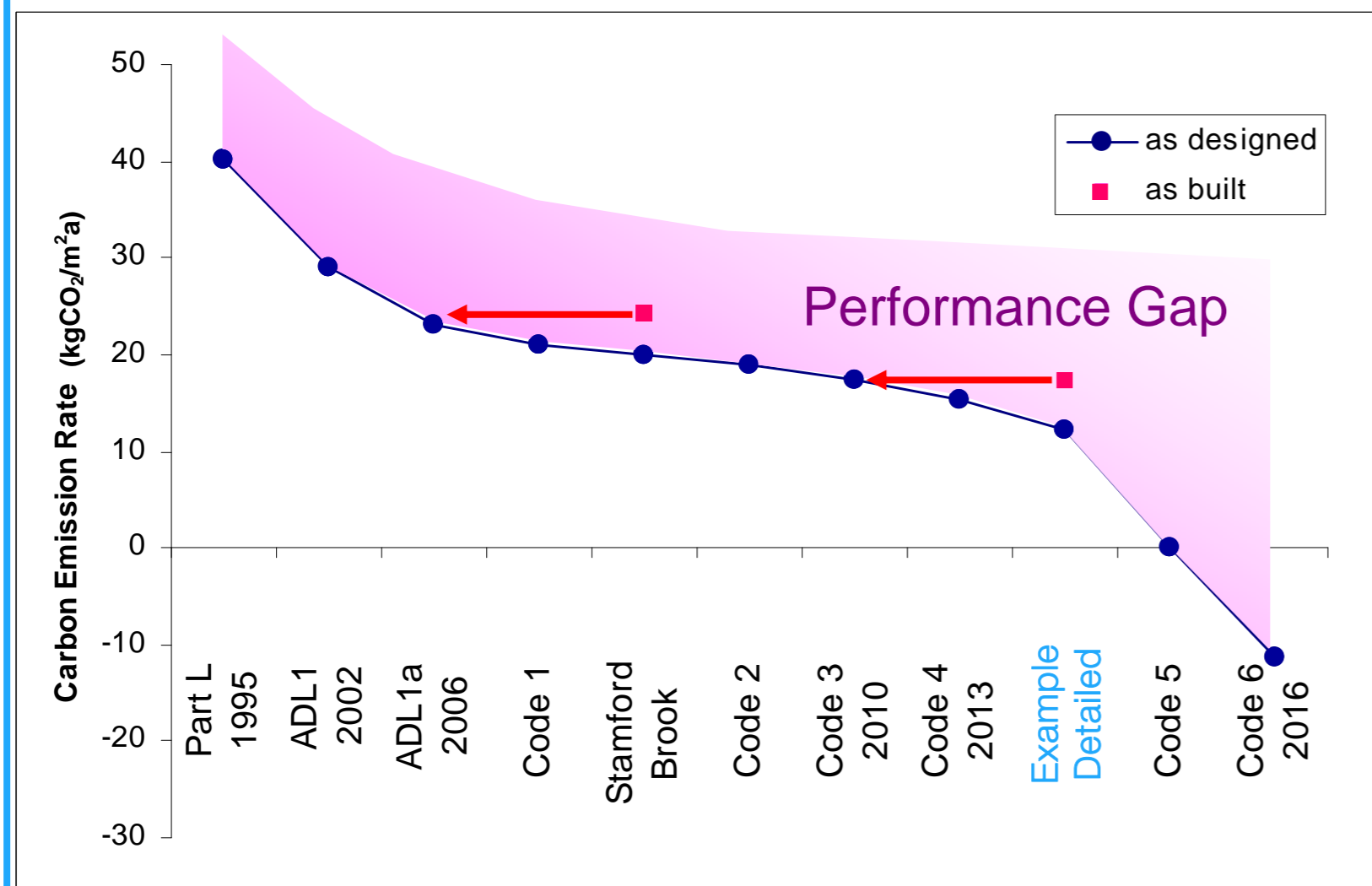


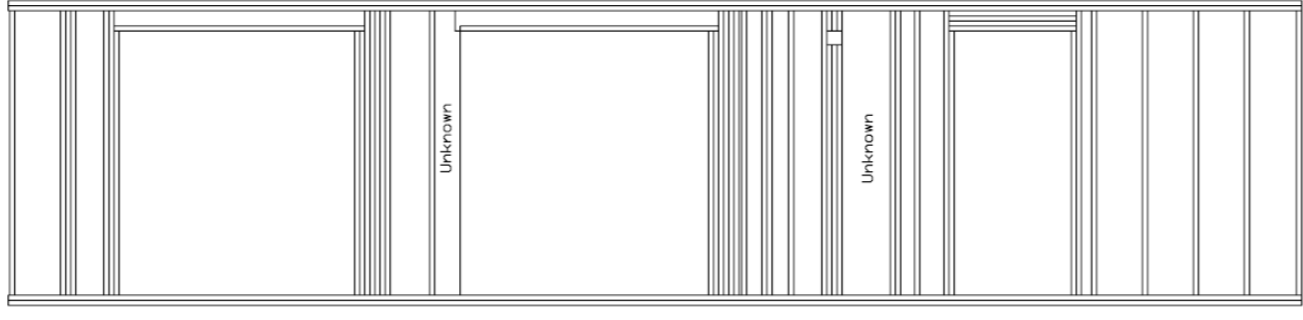




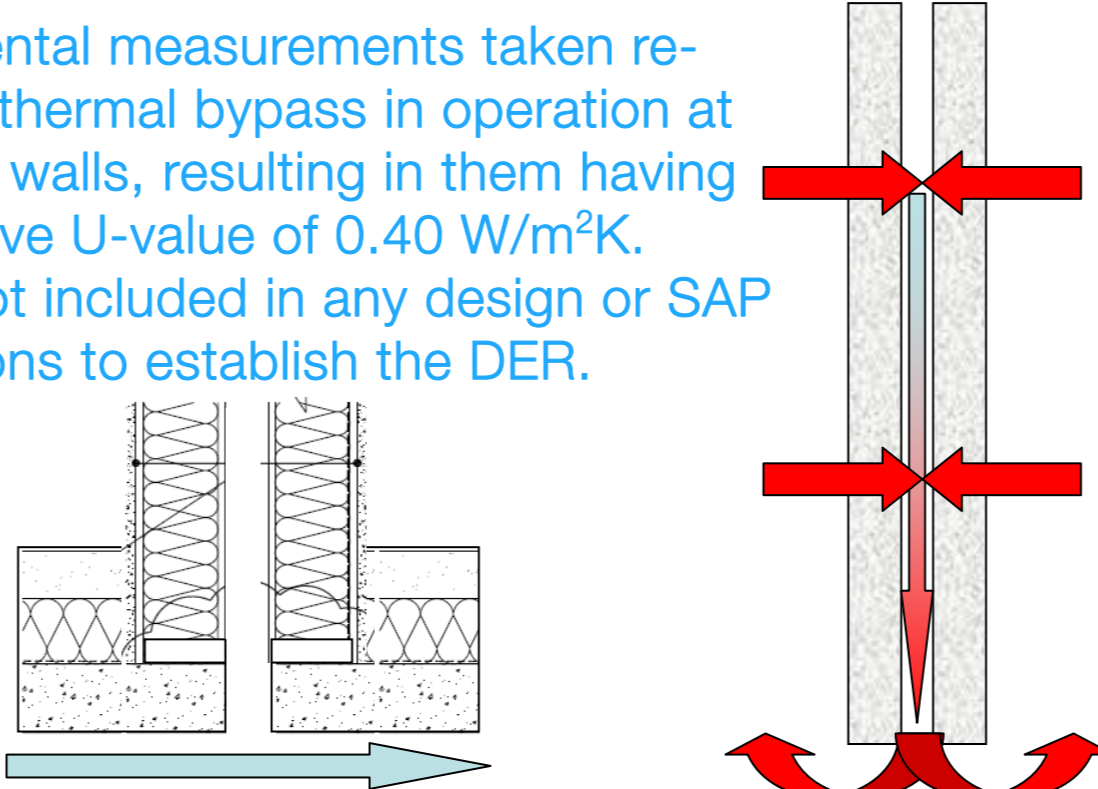

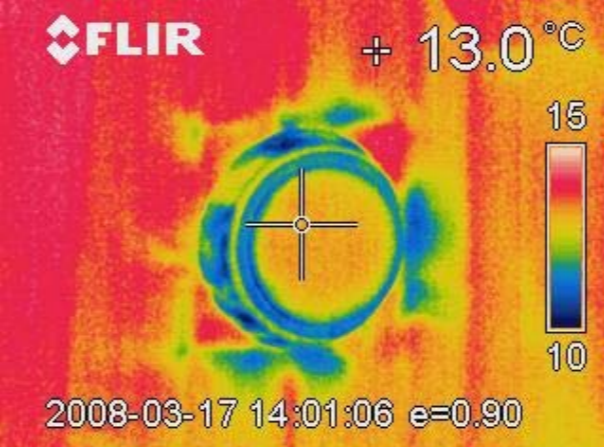
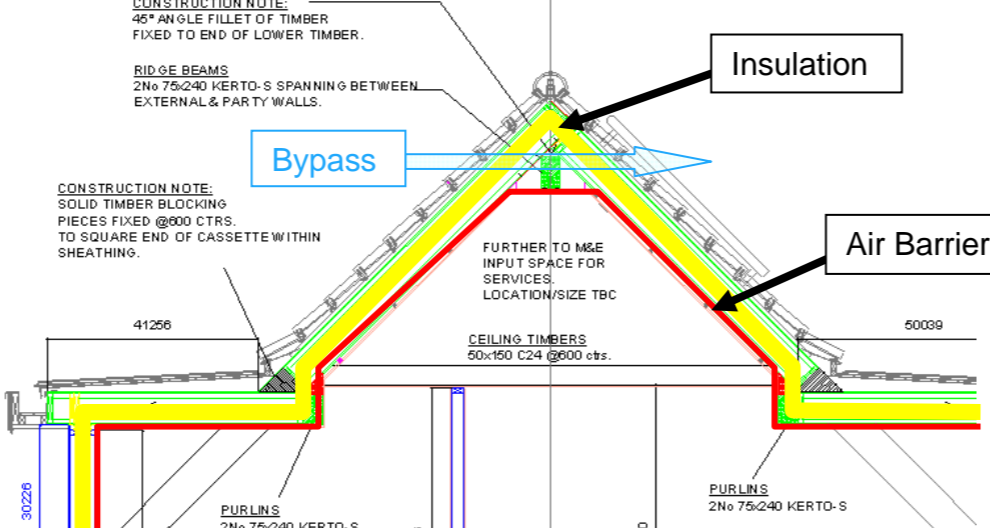

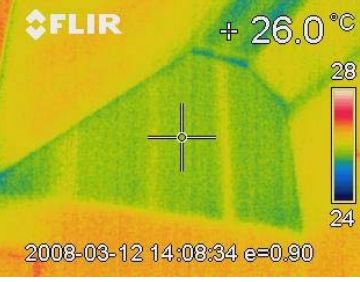
## Nominal vs Realised Fabric Performance - An MMC Example



The Stamford Brook field trial showed that even in dwellings considered well-constructed by UK standards, fabric performance may be well below that designed.

The gap between nominal and realised fabric performance is not limited to traditional methods of construction, but can occur in any type of build. The example detailed below is a mid-terrace property, constructed using a closed panel timber frame structure, with a high degree of manufacture performed off-site.

In this case, a dwelling designed to between Code For Sustainable Homes levels 4 & 5 actual performed as a level 3 property based on fabric alone (the Stamford Brook value also included system inefficiencies).

Detail	Design Value	Observations from site	Realised Value	Increase in Heat Loss
Floor U-value	0.20 (W/m²K)	Floor construction completed prior to research team involvement	0.20 (W/m²K)	0.0
Wall U-value	0.18 (W/m²K)	 Timber Fraction: Nominal = 2.4%, Real = ~25%	0.30 (W/m²K)	+3.8 (W/K)
Roof U-value	0.13 (W/m²K)	 <ul style="list-style-type: none"> <li>Increased timber fraction</li> <li>Settlement of cellulose insulation in transit in sloping roof sections</li> <li>Incomplete fill of mineral fibre insulation in flat roof sections</li> </ul>	0.15 (W/m²K)	+1.5 (W/K)
Window U-value	1.50 (W/m²K)	Original design had a "whole window" U-value of 1.5 W/m²K. The installed windows had a "centre-pane" U-value of 1.5, a whole window value of 2.0.  	2.00 (W/m²K)	+9.1 (W/K)
Party Wall U-value	0 (W/m²K)	 Experimental measurements taken revealed a thermal bypass in operation at the party walls, resulting in them having an effective U-value of 0.40 W/m²K. This is not included in any design or SAP calculations to establish the DER. 	0.40 (W/m²K)	+55.2 (W/K)
Thermal Bridging y-value	0.08 (W/m²K)	 The default y-value for accredited construction details was assumed in the design calculations, even though there are no such details for this type of construction. 	0.15 (W/m²K)	+11.3 (W/K)
Total Fabric Heat Loss	64.9 (W/K)	Additional thermal bypasses were identified but not included in these calculations.   	145.8 (W/K)	+80.9 (W/K)