Design Stage Water Efficiency Report Part G

Client: Arminas Panavas

Site: 31 The Green
Richmond
TW9 1LX

Proposals: Conversion of an existing Grade II listed building from an office space into one dwelling

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Report Details:

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1. Introduction

From 6th April 2010 Part G of the building regulations came into force. The document has been set out to recognise the requirements for Sanitation, Hot water and water efficiency. Where this report concentrates on Water Efficiency of dwellings based on section 17.K.

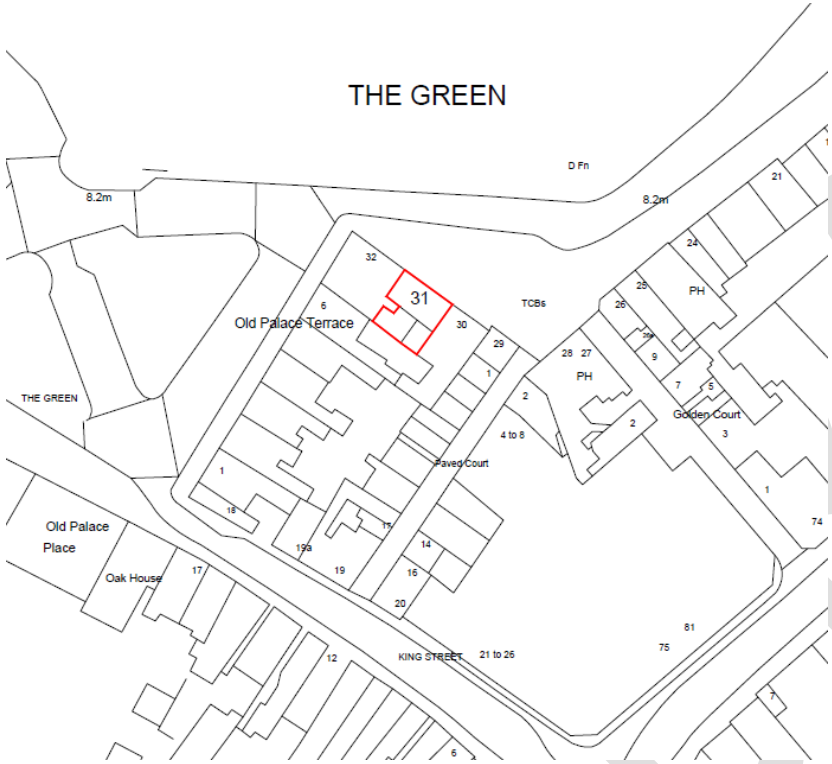
The calculator tool has been designed to comply with the 'Water Efficiency Calculator for New Dwellings' and Approved Document Part G Building Regulations 2000 (as amended).

The proposed dwelling will need to achieve a 110 L/person/day saving indoor water use based on Richmond Councils adopted national Building Regulations 'higher standard' for water consumption.

The below table shows the step change in CO2 emissions and Water efficiency based on the Code for Sustainable Homes. The Code for Sustainable Homes is being phased out, however the issue 'Wat 1' has been incorporated into the Building regulations and is proposed that future water efficiency targets will be brought in to force.

	Minimum Entry Requirements		
Code Levels	Energy Improvement over target emission rates	Water Litres / person / day	Total points score out of 100
Level 1	Compliance with Part L of the Building Regulations 2010 required	Compliance with Part G of the Building Regulations 2010 required	36
Level 2	Compliance with Part L of the Building Regulations 2010 required	Compliance with Part G of the Building Regulations 2010 required	48
Level 3	0%	105	57
Level 4	25%	105	68
Level 5	100%	80	84
Level 6	Zero Carbon	80	90

2. Existing and Proposed Development



The site is located at 31 The Green, Richmond, TW9 1LX

The site is to provide the conversion of an existing Grade II listed building from an office space into one dwelling with a kitchen, WCs, bath and shower.

3. Water Efficiency Background

Fresh water is a fundamental resource and demand is higher than ever; it is being used at an increasing amount every day. This is in turn has an increasing environmental impact on the climate change and lifestyle. Reduced water use will also have an impact on reducing CO2 emissions and greenhouse gasses from water industries. To help mitigate these risks and reduce the effects of climate change, there are several actions that could be taken.

Water tariffs are making people more aware of these issues, but this alone is not enough.

All new build dwellings are now required to have a water efficiency assessment carried out to comply with building regulations. The aim of this is to have more efficient indoor water fittings installed.

Local councils have taken further steps to investigate incentives to encourage retrofitting of efficient appliances in the existing housing stock. Where they are using WAT 1 of the CSH 1 as targets levels to go beyond building regulations and make a bigger positive impact on water efficiency in homes.

The government is taking steps towards water suppliers and water users to continue to implement water efficiency measures and should continue to innovate and adapt to meet particular circumstance.

Consumers can reduce their water usage employing water efficiency practises in their home, such as turning the water off while brushing teeth or running washing machines only when they are full.

4. Water Fittings Details

The below water figures are what will be required to comply with the requirement of 110L/person/day. These figures can vary when installed, but the water calculation should be carried out before the installation of the fittings to make sure the target of 110L/person/day is still achievable.

Table 1 Water Fittings

Taps	Litres	Number of fittings
Basin Taps	5	2
Kitchen Tap	6	1

Showers	Flow rate (Litres)	Number of fittings
Shower	8	1

Baths	Capacity to over flow (Litres)	Number of fittings
Bath	170	1

Dishwasher	Litres / place / setting	Number of fittings
Dishwasher (Default)	1.25	1

Washing machine	Litres / Kg/ Dry load	Number of fittings
Washing machine (default)	8.17	1

WC's	Flush (Litres)	Number of fittings
WC	4 to 2.6	2

Water Calculation Result

Assessment reference	Dwelling reference	Total Water Consumption (litres / person / day	Compliance
11206	31 The Green	106.3	YES

* The requirement is for there to be less than 110L/person/day to comply.

Water Efficiency Calculator for new dwellings

Installation Type	Unit of Measure	Capacity/Flow rate (1)	Use Factor (2)	Fixed use (litres/person/day) (3)	Litres/person/day = [(1)x(2)] + (3) (4)
WC (single flush)	Flush Volume (litres)		4.42	0.00	0
WC (dual flush)	Full flush Volume (litres)	4	1.46	0.00	5.84
	Part flush Volume (litres)	2.6	2.96	0.00	7.70
WC (multiple fittings)	Average effective flushing Volume (litres)		4.42	0.00	0
Taps (excluding kitchen/utility room taps)	Flow rate (litres/min)	5.00	1.58	1.58	9.48
Bath (where shower also present)	Capacity to overflow(litres)	170.00	0.11	0.00	18.70
Shower (where bath also present)	Flow Rate(litres / minute)	8.00	4.37	0.00	34.96
Bath Only	Capacity to overflow(litres)		0.50	0.00	0
Shower Only	Flow Rate (litres/minute)		5.60	0.00	0
Kitchen/Utility room sink taps	Flow rate (litres/minute)	6.00	0.44	10.36	13.00
Washing Machine	(Litres/kg dry load)	8.17	2.1	0.00	17.157
Dishwasher	(Litres/place setting)	1.25	3.6	0.00	4.5
Waste disposal unit	(Litres/use)	☐ Present	3.08	0.00	0
Water Softener	(Litres/person/day)		1.00	0.00	0
	(5)	Total Calculated use (litres/person/day) =SUM(column 4)			111.34
	(6)	Contribution from greywater (litres/person/day)			0
	(7)	Contribution from rainwater (litres/person/day)			0
	(8)	Normalisation factor			0.91
	(9)	Total internal water consumption = [(5)-(6)-(7)]x(8) (litres/person/day)			101.32
	(10)	External water use			5.0
	(11)	Total water consumption (Building Regulation 17.K) =(9)+(10)(litres/person/day)			106.3

5. Conclusion

The proposals are for the conversion of an existing Grade II listed building from an office space into one dwelling at 31 The Green, Richmond, TW9 1LX

In line with Richmond Councils adopted national Building Regulations 'higher standard' for water consumption, the development will need to achieve a 110 L/person/day water efficiency through the provision of water efficient systems.

Through the incorporation of water efficient fittings, the above results in a potential overall figure of 106.3 L/person/day. This design figure is therefore within the requirement for a 110 L/person/day Building Relegation (Part G) requirement.