The Tichenham Inn, 11 Swakeleys Road, Ickenham, UB10 8DF

Water Efficiency

Policy DMEI 10 of the Hillingdon Local Plan Part 2 – Development Management Policies (2020) states that all new residential development should be designed to meet a water consumption rate of no more than 105 litres/person/day.

Subsequently, calculation of the average water use of the proposed dwellings has been carried out using the Government's National Calculation Methodology set out in The Water Efficiency Calculator for New Dwellings (2009) using a generic design specification for the dwellings. The results are presented in Table 1.

Table 1. Water Efficiency Calculation

Installation Type	Unit of Measure	Capacity/ flow rate	Use Factor	Fixed Use (L/person/day)	L/person/day
WC (dual flush)	Full flush vol.	4.0	1.46	0.00	13.54
	Part flush vol.	2.6	2.96	0.00	
Taps (excl. kitchen/utility)	Flow rate (litres/min)	4.0	1.58	1.58	7.90
Bath (shower also present)	Capacity to overflow (litres)	180	0.11	0.00	19.80
Shower (bath also present)	Flow rate (litres/min)	9.0	4.37	0.00	39.33
Kitchen/utility sink taps	Flow rate (litres/min)	6.0	0.44	10.36	13.00
Washing machine	Litres/kg dry load	8.17 (default)	2.1	0.00	17.16
Dishwasher	Litres/place setting	1.25 (default)	3.6	0.00	4.50
Waste disposal	Litres/use	0	3.08	0.00	0.00
Water softener	Litres/person/day	---	1.00	0.00	0.00
		Total calculated use (litres/person/day)			115.2
		Normalisation factor			0.91
		Total internal water consumption (litres/person/day)			**104.9**

The development will ensure that the maximum internal water use in each individual dwelling is limited to 105 L/person/day. This will be achieved by the use of low flow rate taps and showers (fitted with flow limiters where necessary), dual flush WCs and low capacity baths. It is not planned to install rainwater harvesting or greywater systems as the required level can be achieved without the use of rainwater or greywater. External rainwater butts connected to a down pipe will be provided for garden watering.

The proposal fully meets the requirements of the relevant section of Policy DMEI 10.

Water Efficiency Calculator

Site Address	11 Swakeleys Road
	Ickenham
	UB10 8DF

Dwelling number / Type	Flat 1

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)*	0	*4.42*	0.00	0.00
WC (dual flush)	Full flush volume *(litres)*	6	*1.46*	0.00	8.76
	Part flush volume *(litres)*	3	*2.96*	0.00	8.88
WC (multiple fittings)	Average effective flushing volume *(litres)*	0	*4.42*	0.00	0.00
Taps (excluding kitchen / utility room taps)	Flow rate *(litres / min)*	5	*1.58*	1.58	9.48
Bath (where shower also present)	Capacity to overflow *(litres)*	185	*0.11*	0.00	20.35
Shower (where bath also present)	Flow rate *(litres / min)*	8	*4.37*	0.00	34.96
Bath only	Capacity to overflow *(litres)*	0	*0.50*	0.00	0.00
Shower only	Flow rate *(litres / min)*	0	*5.60*	0.00	0.00
Kitchen / Utility room sink taps	Flow rate *(litres / min)*	6	*0.44*	10.36	13.00
Washing Machine	*(Litres / Kg dry load)*	5.333	*2.10*	0.00	11.20
Dishwasher	*(Litres / place setting)*	0.875	*3.60*	0.00	3.15
Waste disposal unit	*(Litres / use)*	0	*3.08*	0.00	0.00
Water softener	*(Litres / person / day)*	0	*1.00*	0.00	0.00

(5)	**Total Calculated use** *(litres / person / day)*	**109.78**
(6)	Contribution from greywater *(litres / person / day)*	0
(7)	Contribution from rainwater *(litres / person / day)*	0
(8)	Normalisation factor	0.91
(9)	**Total water consumption** (Code for Sustainable Homes) *= [(5)-(6)-(7)] x (8) (litres / person / day)*	**99.90**
(10)	External water use	5.00
(11)	**Total water consumption (Building Regulation 17.K)** *= (9)+(10) (litres / person / day)*	**104.90**
	RESULT	**PASS**

Water Efficiency Calculator

Site Address	11 Swakeleys Road
	Ickenham
	UB10 8DF

Dwelling number / Type	Flat 2

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)*	0	*4.42*	0.00	0.00
WC (dual flush)	Full flush volume *(litres)*	6	*1.46*	0.00	8.76
	Part flush volume *(litres)*	3	*2.96*	0.00	8.88
WC (multiple fittings)	Average effective flushing volume *(litres)*	0	*4.42*	0.00	0.00
Taps (excluding kitchen / utility room taps)	Flow rate *(litres / min)*	5	*1.58*	1.58	9.48
Bath (where shower also present)	Capacity to overflow *(litres)*	185	*0.11*	0.00	20.35
Shower (where bath also present)	Flow rate *(litres / min)*	8	*4.37*	0.00	34.96
Bath only	Capacity to overflow *(litres)*	0	*0.50*	0.00	0.00
Shower only	Flow rate *(litres / min)*	0	*5.60*	0.00	0.00
Kitchen / Utility room sink taps	Flow rate *(litres / min)*	6	*0.44*	10.36	13.00
Washing Machine	*(Litres / Kg dry load)*	5.333	*2.10*	0.00	11.20
Dishwasher	*(Litres / place setting)*	0.875	*3.60*	0.00	3.15
Waste disposal unit	*(Litres / use)*	0	*3.08*	0.00	0.00
Water softener	*(Litres / person / day)*	0	*1.00*	0.00	0.00

(5)	**Total Calculated use** *(litres / person / day)*	**109.78**
(6)	Contribution from greywater *(litres / person / day)*	0
(7)	Contribution from rainwater *(litres / person / day)*	0
(8)	Normalisation factor	0.91
(9)	**Total water consumption** (Code for Sustainable Homes) *= [(5)-(6)-(7)] x (8) (litres / person / day)*	**99.90**
(10)	External water use	5.00
(11)	**Total water consumption (Building Regulation 17.K)** *= (9)+(10) (litres / person / day)*	**104.90**
	RESULT	**PASS**

Water Efficiency Calculator

Site Address	11 Swakeleys Road
	Ickenham
	UB10 8DF

Dwelling number / Type	Flat 3

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)*	0	*4.42*	0.00	0.00
WC (dual flush)	Full flush volume *(litres)*	6	*1.46*	0.00	8.76
	Part flush volume *(litres)*	3	*2.96*	0.00	8.88
WC (multiple fittings)	Average effective flushing volume *(litres)*	0	*4.42*	0.00	0.00
Taps (excluding kitchen / utility room taps)	Flow rate *(litres / min)*	5	*1.58*	1.58	9.48
Bath (where shower also present)	Capacity to overflow *(litres)*	185	*0.11*	0.00	20.35
Shower (where bath also present)	Flow rate *(litres / min)*	8	*4.37*	0.00	34.96
Bath only	Capacity to overflow *(litres)*	0	*0.50*	0.00	0.00
Shower only	Flow rate *(litres / min)*	0	*5.60*	0.00	0.00
Kitchen / Utility room sink taps	Flow rate *(litres / min)*	6	*0.44*	10.36	13.00
Washing Machine	*(Litres / Kg dry load)*	5.333	*2.10*	0.00	11.20
Dishwasher	*(Litres / place setting)*	0.875	*3.60*	0.00	3.15
Waste disposal unit	*(Litres / use)*	0	*3.08*	0.00	0.00
Water softener	*(Litres / person / day)*	0	*1.00*	0.00	0.00

(5)	**Total Calculated use** *(litres / person / day)*	**109.78**
(6)	Contribution from greywater *(litres / person / day)*	0
(7)	Contribution from rainwater *(litres / person / day)*	0
(8)	Normalisation factor	0.91
(9)	**Total water consumption** (Code for Sustainable Homes) *= [(5)-(6)-(7)] x (8) (litres / person / day)*	**99.90**
(10)	External water use	5.00
(11)	**Total water consumption (Building Regulation 17.K)** *= (9)+(10) (litres / person / day)*	**104.90**
	RESULT	**PASS**