

Mr. Sammy Mak

102-104 Kew Road

Richmond

Surrey TW9 2PQ

Water sustainability statement – scheme 2

**Incorporating fittings schedule
and water use calculations**

20/2649 wat rev A

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Estimation of water usage for the development

Background

The proposal consists of the change of use/refurbishment of the two upper floors plus loft space to form seven new apartments (four studio units and three one-bed flats) plus ancillary works following the alteration of the existing building on the development site at 102-104 Kew Road, Richmond, Surrey TW9 2PQ.

All new fittings, brassware and sanitaryware to be provided on the development will be of low flow/aerated or low capacity to ensure that each of the dwellings will meet the requirements of Richmond Council for internal potable water use.

AED Design has been commissioned by Mr. Saher Chaudhry to prepare this 'water sustainability statement' the purpose of which is to show the potable water use of the dwellings to meet the requirements of the building regulations AD Part G (listed below) in line with Planning policy.

Water efficiency

G2, 'Reasonable provision must be made by the installation of fittings and fixed appliances that use water efficiently for the prevention of undue consumption of water'.

Water efficiency of new dwellings

Regulation 36 - (1) 'the potential consumption of wholesome water by persons occupying a new dwelling must not exceed the requirement in paragraph (2).

(2) The requirement referred to in paragraph (1) is either:

- a) 125 litres per person per day; or
- b) In a case to which paragraph (3) applies, the optional requirement of 110 litres per person per day.

(3) This paragraph applies where the planning permission under which the building work is carried out:

- a) Specifies the optional requirement in paragraph (2)(b); and
- b) Makes it a condition that the requirement must be complied with.

1.0 - Analysis of the Site

The site, 102-104 Kew Road, is situated on the south-east side of Kew Road midway between its junctions with Selwyn Avenue and Evelyn Gardens on the outskirts of Richmond town centre.

It consists of the site of an existing commercial use at ground level with a pair of mid-terrace three/four-bedroom dwellings over. The site is generally level and sits within an area of mixed commercial/residential units and it is surrounded by 3/4 storey structures.

To the north-west (front) is 'Kew Road and nos. 147+149 Kew Road, to the north-east is no.106 Kew Road, to the south-east (rear) is the rear garden to no. 2 Selwyn Avenue and to the south-west is no. 100 Kew Road.

The scheme consists of the change of use/refurbishment of the existing three storey building to form seven new apartments (on the two upper floors plus loft space) plus ancillary works to the existing pair of mid-terraced maisonettes.

The proposed units are oriented south-east/north-west with the front of the building (main entrance) facing north-west; the location is sheltered by other buildings to all sides.

2.0 – Water use (assessment)

The calculations (summarised below) have been carried out using the BRE (BREEAM) water calculator based upon the 'planning drawings' supplied by 'Saher Chaudhry' listed below:

Site location plan

| | | |
|-----------------|---|--|
| 102-104KEW/PA1A | - | existing and proposed ground floor plans |
| 102-104KEW/PA2 | - | existing first + second floor plans |
| 102-104KEW/PA3 | - | proposed first + second floor plans |
| 102-104KEW/PA4A | - | existing and proposed loft plans |
| 102-104KEW/PA5A | - | existing and proposed front elevations |
| 102-104KEW/PA6A | - | existing and proposed rear elevations |
| 102-104KEW/PA7A | - | existing and proposed roof plans |

3.0 - Water use (fittings)**Table 1 – schedule of sanitaryware and brassware for dwellings (all plots)**

| Location | Item | Flow rate/capacity |
|---------------|-----------------------|---|
| <u>Flat 1</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |
| | | |
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6.5 l/m |

| | | |
|---------------|-----------------------|---|
| <u>Flat 2</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |
| | | |
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6.5 l/m |

| | | |
|---------------|-----------------------|---|
| <u>Flat 3</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |
| | | |
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6.5 l/m |

| | | |
|---------------|-----------------------|---|
| <u>Flat 4</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |

| | | |
|----------|------------|----------------------------|
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6,5 l/m |

| | | |
|---------------|-----------------------|---|
| <u>Flat 5</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6.5 l/m |

| | | |
|---------------|-----------------------|---|
| <u>Flat 6</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6.5 l/m |

| | | |
|---------------|-----------------------|---|
| <u>Flat 7</u> | | |
| Kitchen | Kitchen taps | Flow restricted to 7.0 l/m |
| | Dishwasher | 4.50 l/place (BREEAM default value used). |
| | Washing machine/dryer | 17.16 l/kg (BREEAM default value used) |
| Bathroom | WC | 4/2.5 litre |
| | Shower | Flow restricted to 9.5 l/m |
| | Basin taps | Flow restricted to 6.5 l/m |

4.0 – Water Use (calculation)

The Potable Water demand is all the water that would be used by the dwellings under pre-determined conditions.

The calculations shown below have been prepared using the BRE (BREEAM) water calculator in conjunction with the schedule of fittings shown in table 1

5.0 – Conclusion

As can be seen from Appendix 1 (table 2) below the dwellings on the development are shown to use an average of 103.75 litres/person/day which meets that required under the building regulations and also meets 'Regulation 36' paragraph (2)(b) which is in line with the enhanced 'optional requirement' of the building regulations.

This shows that all dwellings have an average water use of ≤ 105 litres/person/day and will therefore meet any requirements conditioned by Richmond Council.

Although this is better than the basic requirement of regulation 36, the G (2)(b) maximum target of 105 litre/person/day has been selected for the dwellings to ensure that the development is compliant with the enhanced optional requirement of the building regulations should the development be so conditioned in the planning approval notice.

Appendix 1 - Table 2 internal potable water use calculation

| BREEAM UK Domestic Refurbishment 2014 Wat 01 Calculator v0.1 | | | | | | | | | | | | | | | | | | | | | |
|--|---|---------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Tool Version | | 0.1 | | | | | | | | | | | | | | | | | | | |
| Assessment Reference Number | | 20/2649 | | | | | | | | | | | | | | | | | | | |
| Site Name | | 102-104 Kew Road, Richmond - scheme 2 | | | | | | | | | | | | | | | | | | | |
| WATER EFFICIENCY CALCULATOR (BASIC CALCULATOR) | | | | | | | | | | | | | | | | | | | | | |
| Installation Type | Unit of measure | Type 1 | | Type 2 | | Type 3 | | Type 4 | | Type 5 | | Type 6 | | Type 7 | | Type 8 | | Type 9 | | Type 10 | |
| | | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day |
| Is a dual or single flush WC specified? | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | |
| WC | Full flush volume | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | 4 | 5.84 | Select option: 0.00 | |
| | Part flush volume | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | 2.5 | 7.40 | Select option: 0.00 | |
| Taps (excluding kitchen and external taps) | Flow rate (litres / minute) | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | 6.5 | 11.85 | Select option: 0.00 | |
| | Are both a Bath & Shower Present? | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Shower only | | Click to Select | |
| Bath | Capacity to overflow | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | Click to Select | |
| Shower | Flow rate (litres / minute) | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | 9.5 | 53.20 | Click to Select | |
| | Flow rate (litres / minute) | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | 7 | 13.44 | Click to Select | |
| Has a washing machine been specified? | | No | | No | | No | | No | | No | | No | | No | | No | | No | | Click to Select | |
| Washing Machine | Litres / kg | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | 1 | 17.16 | Click to Select | |
| | Has a dishwasher been specified? | No | | No | | No | | No | | No | | No | | No | | No | | No | | Click to Select | |
| Dishwasher | Litres / place setting | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | 1 | 4.50 | Click to Select | |
| | Has a waste disposal unit been specified? | No | | No | | No | | No | | No | | No | | No | | No | | No | | Click to Select | |
| Water Softener | Litres / person / day | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | 0.00 | | Click to Select | |
| | Calculated Use | 113.4 | | 113.4 | | 113.4 | | 113.4 | | 113.4 | | 113.4 | | 113.4 | | 113.4 | | 113.4 | | Click to Select | |
| Total Consumption | Number of Credits | 103.2 | | 103.2 | | 103.2 | | 103.2 | | 103.2 | | 103.2 | | 103.2 | | 103.2 | | 103.2 | | Click to Select | |
| | Exemplary Credits | 2.5 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | 2.5 | | Click to Select | |
| Minimum level | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | Click to Select | |
| | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | 0 | | Click to Select | |
| BREEAM level | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | BREEAM Excellent | | No Data | |