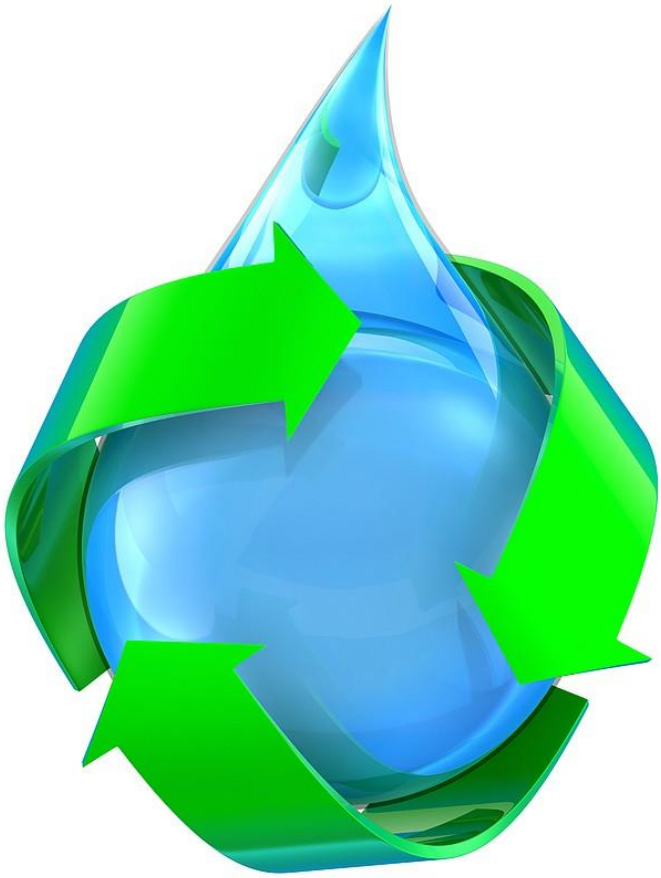
WATER EFFICIENCY – CODE FOR SUSTAINABLE HOMES

FOR THE ERECTION OF A SINGLE STOREY, 1-BEDROOM SINGLE DWELLING



LAND ADJACENT TO PEGASUS COURT, 105 ST. PANCRAS WAY, LONDON, NW1 0RA

PREPARED BY: ABP ARCHITECTURAL SERVICES LIMITED

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1.0 Introduction

1.1 The objective of this report is to provide and document a safe working procedure for the proposed works at Land adjacent to Pegasus Court site, and for the effective practise for water efficiency to the proposed dwelling.

1.2 The report is in accordance to the approved Planning Permission reference 2015/2810/P.

1.3 This report must be read in conjunction with the Code of Sustainable Homes.

1.4 The report will be revised by ABP Architectural Services Limited when there is a requirement to change the working method for any reason.

1.5 Information contained in the document and associated risk assessment will be passed on to the main contractor and form part of the health and safety toolbox retained on site. It will be reinforced at daily toolbox talks, weekly briefings, when there is a change to the method of work.

1.6 A copy of this report and any subsequent revisions will be issued to the Principal Contractor for inclusion.

1.7 Due consideration has been given to the competency of our work force who we consider to have adequate training, knowledge, experience and the appropriate personal qualities to carry out the work specified within the scope.

2.0 Background Strategy

1.1 The level of water demand from new and existing housing and other properties will Have a direct impact on the water balance in the environment, and on the carbon footprint of water supply and wastewater treatment. The study area and indeed the whole Camden area water supply is classified as being under serious water stress (Environment Agency 2007) and consequently requires the highest levels of water efficiency activity. Reginal plans identify that approximately 11,000 new homes will be built in the borough between 2008 and 2026. The interaction of development planning and water resource management is therefore a key issue fir the region and it is important that the development should not be committed without secure water supplies in place.

1.2 It is therefore appropriate that the council should adopt and implement a Water Demand Management Strategy to promote water efficiency and manage demand, in new and existing homes, in non-household properties, and in other activities throughout the borough. In managing water demand the environmental impact of water supply, including the carbon footprint, should also be considered.

1.3 Government guidance and legislation, both national and regional, and proposals in the Council's Core Strategy set targets and aspirations for water use now and in the future. This includes for example Defra's Future Water Strategy, the Code for Sustainable Homes, and the East of England Plan. Anglian Water Services (AWS) supply water to the area and are therefore a key stakeholder in development and implementation of this Strategy.

3.0 The Water Calculator Methodology

1.1 The following document sets out the water calculation methodology for assessing the whole house potable water consumption in new dwellings. The calculation method is to be used to assess compliance against the water performance targets in Building Regulations 17.K and the Code for Sustainable Homes (referred to in this document as the Code) as set out below. It is not a design tool for water supply and drainage systems. It is also not capable of calculating the actual potable water consumption of a new dwelling. Behaviour and changing behaviour can also have an effect on the amount of potable water used throughout a home.

Performance target	Maximum consumption of potable water (litres/person/day)
17.K Compliance	125
Code for Sustainable Homes (Level 1/2)	120
Code for Sustainable Homes (Level 3/4)	105
Code for Sustainable Homes (Level 5/6)	80

1.2 The calculation method requires the use of water consumption figures provided from manufacturers product details. Before the assessment can be carried out, figures will need to be collected from manufacturers product information to determine the consumption of each terminal fitting, including:

a. WCs

I. Flushing capacity for the WC suite including consumption at full and part flush for dual flush WCs.

II. Where multiple WCs are specified with various flushing capacities, the average effective flushing volume must be used as set out in section 2.5.

b. Bidets

I. Bidets are excluded from the Water Efficiency Calculator for new dwellings due to their minimal water consumption, and although there is insufficient research to quantify this consumption, anecdotal evidence shows that there is evidence that bidets often displace other water consumption rather than increase consumption.

c. Taps

I. Flow rate of each tap, at full flow rate in litres per minute measured at a dynamic pressure of 3±0.2 bar (0.3±0.02 MPa) for high pressure (Type 1) taps, or at a dynamic pressure of 0.1±0.02 bar (0.01±0.002 MPa) for low pressure (Type 2) taps (BS EN 200:2008, sanitary tapware, single taps an combination taps for supply systems of type 1 and 2. General technic specifications) including any reductions achieved with flow restrictions.

II. Where multiple taps are to be provided (e.g. separate hot and cold taps) the flow rate of each tap will be needed in order to calculate an average flow rate in accordance with section 2.5.

III. For ‘click taps’ and other taps with a ‘water break’, the manufacturer’s stated full flow rate should be used to perform calculations (measured as described above). Do not use the flow rate at the break point. A factor for percentage of flow rate is already assumed within the use factor for taps. There is currently no research to provide a separate use factor for ‘click taps’ so a standard use factor is applied.

IV. Taps on baths should not be included in the calculation as the water consumption from bath taps is taken account of in the use factor for baths.

d. Baths

I. Total capacity of the bath to overflow, in litres (excluding displacement, this is already included in the use factor for baths).

II. Where multiple baths are specified with various capacities, the average must be used as set out in section 2.5.

III. Jacuzzis are not included in the water efficiency calculator as they are generally not filled on a daily basis and their water consumption over a year is minimal.

e. Dishwashers

I. Litres per place setting derived from the figures quoted on the EU Energy Label.

II. Where no dishwasher is to be provided and therefore consumption figures are unknown, a figure of 1.25 litres per place setting must be assumed.

III. Where multiple dishwashers are specified with various consumptions, the average must be used as set out in section 2.5.

f. Washing Machines

I. Litres per kilogram of dry load derived from the figure quoted on the EU Energy Label.

II. Where no washing machine is to be provided and therefore consumption figures are unknown, a figure of 8.17 litres per kilogram must be assumed.

III. Where multiple washing machines are specified with various consumptions, the average must be used as set out in section 2.5.

g. Showers

I. Flow rate of each shower at the outlet using cold water (T ≤ 30˚ C), in litres per minute measured at a dynamic pressure of 3±0.2 bar (0.3±0.02 MPa) for high pressure (Type 1) supply systems, or at a dynamic pressure of 0.1±0.05 bar (0.01±0.005 MPa) for low pressure (Type 2) supply systems (BS EN 1112:2008, Sanitary tapware. Shower outlets for sanitary tapware for water supply systems type 1 and 2. General technical specifications).

II. Where multiple showers are specified with various flow rates, the average must be used as set out in section 2.5.

h. Water Softeners (where present)

I. Percentage of total capacity used per regeneration cycle.

II. Water consumed per regeneration cycle (litres).

III. Average number of regeneration cycles per day.

IV. Number of occupants (based on two occupants in the first bedroom and one occupant per additional bedroom assuming 2 occupants in studio flats).

V. Water softeners that do not have a water consumption such as electromagnetic types, are not included in the calculation.

i. Waste Disposal Units (where present)

I. Where present, a standard consumption of 3.08 litres per person per day must be assumed.

j. External Taps

I. Flow rates of external taps are not included in the calculation as a fixed allowance of five litres per person per day is assumed for external water use in 17.K. The Code considers water use as part of a separate issue Wat 2, External Water Use.

1.3 In some cases, rain and greywater recycling may be used as a means of reducing water consumption to achieve higher water efficiency performance levels. This may be needed where options for improving the efficiency of terminal fittings (taps, WCs etc.) has been maximised and further savings are still needed in order to meet the higher levels of the Code for Sustainable Homes. Rainwater recycling may also be used as a means of reducing surface water runoff and has potential to contribute to achieving Code issue Sur 1. The details required to determine the savings that can be made using these systems are as follows:

a. Greywater

I. Manufacturer or system designer details on the percentage of used water to be recycled, considering the storage capacity of the system.

II. The volume of recycled water collected from waste bath, shower and wash hand basin, dishwasher and washing machine usage, with the volume collected calculated in accordance with Table 1 or Tables 4.3, 4.4 and 4.5.

III. The consumption of fittings where greywater is to be used in accordance with Table 1 which can include WCs and washing machines or Tables 4.1 and 4.2 where greywater is just being used in a proportion of fittings.

b. Rainwater (in accordance with BS8515)

I. Collection area.

II. Yield co-efficient and hydraulic filter efficiency.

III. Rainfall (average mm/year).

IV. Daily non-potable water demand.

1.4 In Large water consuming installations such as swimming pools and Jacuzzis where the water is replaced over a greater time interval do not need to be included as part of the water calculations for 17.K or for the Code. The Code does however assess such fittings as part of Issue Wat 2, External Water Use.

4.0 The Water Demand Management Strategy

4.1 Policies for New Housing:

4.1.1 The Camden Council will require all new private sector housing to be built to Code for Sustainable Homes Level 4 with respect to water consumption from April 2012 and will encourage designs that meet the highest CSH Level 6 water consumption targets.

4.1.2 The Camden Council will need to introduce a policy into the Development Framework to require this water use target.

Comment: this is a more ambitious target that the current Building Regulations (which require all houses to be built to CSH Level 2), but a lower target than that set for new social housing which the Homes and Communities Agency will require to meet CSH Level 6 from April 2015.

This CSH Level 3/4 water consumption target of 105 1/person/day is approximately equivalent to the policy set by the Mayor of London (Mayor of London, 2008) for all new residential development of 110 1/person/day including outside use.

CSH Level 3/4 water consumption can be achieved in the design of all houses with the installation of water efficient appliances such as spray and aerated taps and showerheads, smaller baths, and low flush and/or dual flush toilets. To achieve Level 5/6 of the CSH some form of water re use e.g. rainwater harvesting or greywater re use, will be required. Rainwater and greywater re use contribute to sustainable urban drainage strategies which are required by PPS25 for all new developments over 1ha, and by the Council's Core Strategy for smaller sites.

The Environment Agency confirmed that they support all initiatives aimed at reducing water use, and would wish to see low flush toilets, low flow showerheads, water butts for garden areas and other water efficient appliances installed in all new homes.

4.1.3 The Council will encourage developers to include rainwater harvesting or greywater re-use in their designs. We in intend to do this of the proposed approved scheme (2015/2810/P). Where a design is submitted without either, the developer will need to explain and justify what technological or other constraints prevent this. The balance between demand management and carbon footprint will need to be considered in relation to greywater and rainwater re use.

4.1.4 The Council will review the water consumption targets in conjunction with changes to CSH and Building Regulations and will consider introducing the highest CSH target of 80 1/person/day by 2015.

4.1.5 The Council will alert developers at an early stage in the planning process, to the need to include water efficiency, including rainwater harvesting and grey water re use, in design. They will advise developers where to find guidance on water efficient and sustainable design of new homes. For homes to be

CSH certified they must be assessed at the Planning Application stage and post-completion, by trained assessors. The CSH scheme is operated by the Building Research Establishment, BRE.

4.1.6 Thames Water Utilities Services have a policy for metering new housing, and the council support this. The Environment Agency confirmed that they will expect to see all new houses metered in the TWU supply area.