

21.14.4 Water

The following features will be considered to reduce water consumption:

- very low flush WCs (3.5litres) see section 21.13.4
- aerator taps
- rainwater for flushing toilets
- shower instead of or as well as baths

Advice on low water uses appliances (dishwashers, washing machines) will be given.

21.14.5 Waste

Composting bins will be provided in the gardens of the houses for composting organic kitchen waste.

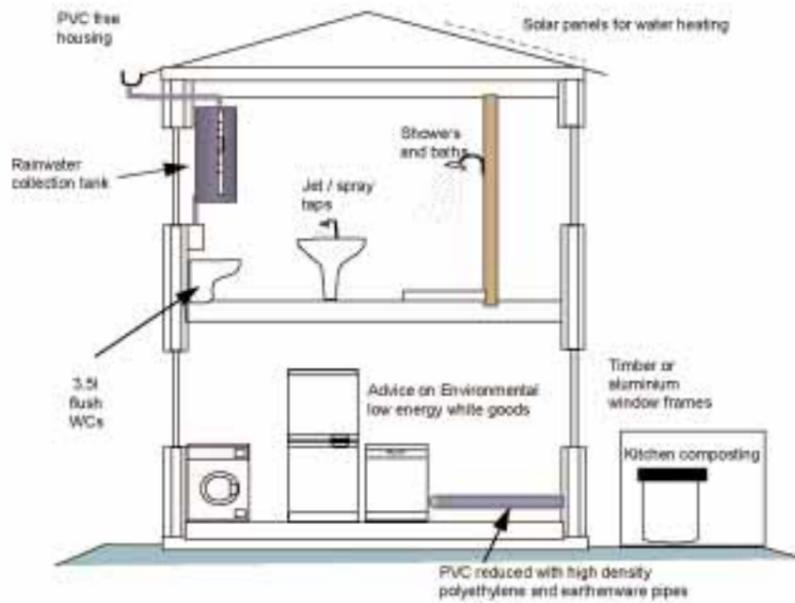


Figure 4 - Beyond Best Practice Innovation 5% of Houses

21.15. BEYOND BEST PRACTICE - EXPERIMENTAL - 1% OF HOUSES

21.15.1 Energy

Solar Electric

Photovoltaic technology (PV) will be incorporated into the development. The following are suggested possible applications for this technology:

- on the roofs of houses to match specific loads such as fridges or for charging electric buggies. Electric buggies can be used by the disabled for going to and from the shops.
- PV street or park lights.
- PV bus shelters which use the electricity produced to operate system which provide information on buses routes and schedules similar to those used in underground systems.

Low energy appliances

The formation of co-operatives to share appliances will be encouraged. It is possible to share with others many, though not all of, our modern amenities and save resources required to make and run them while retaining personal living space. This allows for spreading limited resource into areas like home entertainment. With ever changing family structures, particularly single parent families, willing participants can derive social benefits of more contact and interaction.

21.15.2 Health

Hypoallergenic housing

Some of the units in the 1% of experimental housing would be fitted with mechanical ventilation with heat recovery and filtration to form units of hypoallergenic housing. These houses would also have no soft furnishings and all areas where the build up of dust is likely would be avoided.

Housing for the disabled

Some of the units would be fitted with automated door and window openings for disabled as well as voice activated heating and lighting controls.

21.15.3 Materials

The following materials could be used in some of the units:

- low maintenance green roofs
- transparent insulation
- bamboo flooring, flooring made from recycled material such as car tyres.

In addition one unit would be constructed entirely of recycled or waste material.

21.15.4 Water

The following features will be specified to reduce water consumption further:

Grey water recycling

Water will be collected from hand basins and baths and reused in the houses for flushing toilets. Investigation of appropriate systems would need to be undertaken to ensure reliability and applicability.

Composting WCs

Composting WCs will be specified in some units. These systems need to be maintained carefully so co-operation of the occupants is essential.

Reedbeds

An area would be allocated for demonstrating a system of reedbeds where waste water is treated naturally.

21.15.5 Transport

Car free housing

Areas would be designated as car free housing.

21.15.6 Waste

Kitchen wormerys would be provided for composting organic kitchen waste.

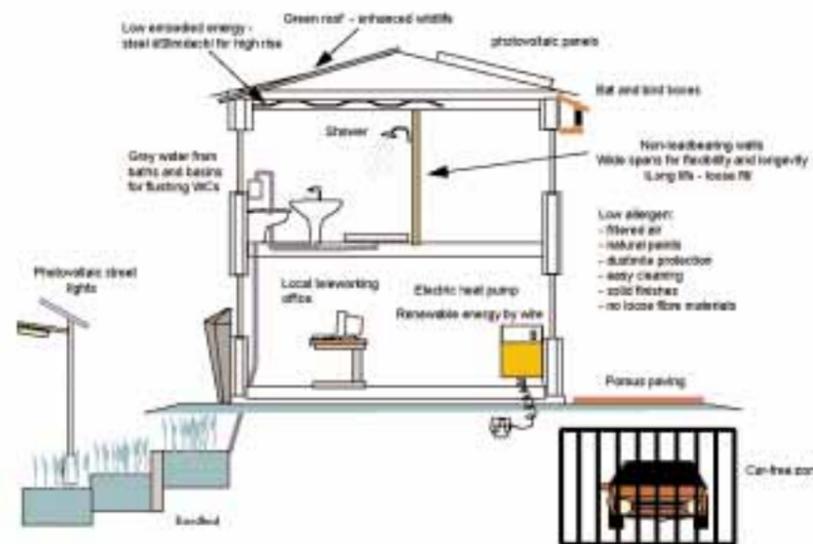


Figure 5 - Beyond Best Practice: Experimental - 1% of Houses

21.16. IMPLEMENTATION OF THE STRATEGY

All the energy and environmental features outlined in this report are recommended for inclusion in the development. There should however be a distinction made between features which can easily be incorporated irrespective of site characteristics and those which are site dependent. For example solar water heating panels can easily be fitted on most housing provided there is no overshadowing, however designing houses to optimise solar gain by correct orientation is restricted when building on sites where site boundaries and transport routes are already well defined.

Some of the features whilst providing the facility for carrying out a process need the full co-operation of the occupants and/or the local government for the full benefit to be realised. For instance there is little point in providing bins for separating waste unless the infrastructure is created and maintained for collecting and dealing with this waste. It is equally important that occupants are well educated on the benefits of separating waste and how to do it.

Other features such as water butts would only be beneficial if the water collected is used constructively by the occupants.

There are therefore a number of features included in this report which need careful consideration as to how they would be incorporated into the design in practice.

For example the inclusion of co-operative housing in the experimental stage as a way of reducing energy consumption and including tenant involvement in the construction of their dwelling would require occupants to be selected at an early stage and become an integral part of the process.

The energy and environmental strategy must be integrated into the design process and given a high priority in order to ensure that the features are considered at an early stage and driven through to the end of the project.

Once they are in place a structure would need to be set up to ensure that the full benefits of the systems are realised. Ideally this would be in the form of a local group with an interest in this area who could be responsible for implementation of the systems and education of new occupants as well as continuous "profile raising" amongst existing occupants.

21.17. ENVIRONMENTAL STANDARDS FOR OTHER BUILDING TYPES

In addition to the housing on the development there will also be office buildings, high street offices, shops, education buildings and leisure buildings. These buildings will not specifically be under Ballymun Regeneration Ltd control, but will be by joint venture and development agreement. These buildings will be required to meet high standards of environmental design as set out by the Building Research Establishment Environmental Assessment Method (BREEAM).

BREEAM sets best practice criteria for a range of building related environmental issues. These range from global warming resulting from energy use in the building, to whether or not the lighting system will cause flicker or glare. Building specifications are compared to these criteria at the design stage and a certificate is awarded. The certificate shows which of the criteria have been met and provides a rating of the building's performance in terms of fair, good, very good or excellent. The environmental issues are grouped under three headings; global, local and indoor. The rating awarded is based on obtaining a minimum number of credits in each of these sections. There are BREEAM assessments for the following building types.

Office Buildings

All office buildings will be required to obtain a rating of "Excellent" under the BREEAM scheme for New Office Designs [3], the current version is 1/93, however this is due to be updated and the offices should be assessed under the version which is current at the time of design. In cases where strict control over temperature is required in the offices, due to commercial pressures, and air conditioning is therefore necessary, a rating of "Very Good" will be required.

Industrial Buildings

All industrial buildings will be required to obtain a rating of "Excellent" under the BREEAM scheme for New Industrial Units [4], the current version is 5/93, the units should be assessed under the version which is current at the time of design.

Educational Buildings

The educational building will be required to adhere to the guidelines outlined in the report entitled "Environmental assessment of schools" [5].

Superstores and supermarkets

If they are any superstores or supermarkets constructed as part of the development they must achieve 22 out of the 32 credits available under the BREEAM scheme for new superstores and supermarkets [6].

At present there are no environmental assessment methods for small retail units or leisure buildings, however the designers should demonstrate that they have followed environmental "Best Practice" in terms of both energy efficiency and overall environmental impact.

21.18. REFERENCES

- [1] Building Research Establishment Report Environmental Standard - Homes for a Greener World, BR278
- [2] Handbook of Sustainable Building - An Environmental Preference Method for Selection of Materials for Use in Construction and Refurbishment (Anink, Boonstra and Mak, 1996). Published by James and James.
- [3] Building Research Establishment Report BREEAM/New Offices, Version 1/93, an environmental assessment for new office designs (1993 BR234)
- [4] Building Research Establishment Report BREEAM/New Industrial Units, Version 5/93, an environmental assessment for new industrial, warehousing and non food retail units. (1993 BR252)
- [5] Schools Environmental Assessment Method (SEAM) - Department for Education and Employment, Building Bulletin 83.
- [6] Building Research Establishment Report BREEAM Version 2/91, an environmental assessment for new superstores and supermarkets. (1991 BR207).

