1860: Gas and coal tar production started at the turn of the century and was followed various industrial factories.

1889: South Metropolitan Gas works opened; closure of the works in 1985.

1960: Container shipping started.

1981: Docklands Development Corporation was created to manage the redevelopment of waterfront areas.


1996: The Richard Rogers Partnership won a competition for the master planning of new sustainable community.


1997: Ralph Erskine, in collaboration with Hunt Thompson Associates, won design competition.

1999: Greenwich Millennium Village began construction.

2002: First phase completed. Apartments included the ecological park, large artificial lake, and school and health center designed by Edward Cullinan.

Architects Stephen Proctor and Andrew Matthews have been responsible for the second phase, which consists of 450 residential units arranged around three garden squares.
The Greenwich Millennium Village is located on the Greenwich Peninsula, was polluted by industry, and populated by unused areas of car park and empty roads.

Architect Ralph Erskine created a master plan that set new standards of sustainable architecture and planning.

His innovative plan integrates homes, roads, services, shops, transport, and leisure facilities into an ecologically friendly whole.

The plan works for the people and, with the individual at its center, the village is human in scale. The village attempts to create a more intelligent way of living using the latest environmentally friendly technologies.

Erskine set technical targets such as reduction in energy, water consumption, domestic waste, car use and construction waste, and construction and maintenance costs.
Surroundings

Phase 1.
Ralph Erskine & HTA

Phase 2.
Stephen Proctor and Andrew Matthews

Millennium Dome, 2001, Richard Rogers

Eco–Super Store, Sainsburys, Chetwood Associates

Elementary School
- Site Area: 72 acres (29 hectares)
- Floor area: 33,469m² (residential), 4,500m² (commercial)
- Units: 79 apartments + 298 single, detached houses
- Density: 172 rooms/acre
- Parking Spaces: 1,435
- Stories: 4–13 stories
- 1–3 bedroom flats and maisonettes housing type

• 1 Pedestrian Walkway to Millennium Dome
• 2 Community Center/Telecommunications Center
• 3 Artificial Lake and Water Reservoir
• 4 Garden Square and Underground Parking
• 5 Public Facilities, CHP

Dramatic elevations of barrel-vaulted roofs, using traditional materials, adding Erskine’s trademark color and texture.

Courtyard type is one of the classic London “garden square” concepts.
To maximize connections to the environment, they enjoy balconies, terraces, or sundecks, some fronting the lake, others with dramatic views toward the Thames Barrier.

Express a strong vernacular context and views from the waterfront.
Along with the extensive use of glass, materials include split bricks contrasted with colored plaster, corrugated panels, wood cladding, and zinc sheet.

The colors help break down the scale of the façade.
Landscape plan

Pedestrian Network to the Millennium Dome

Landscape in the Courtyard

Greenwich Yacht Club Ecology Park

Pedestrian Walkways

Pedestrian Network to the Millennium Dome
Occupants can customize their apartments with sliding interior walls.

The light and spacious Scandinavian interior design features full-height windows and some double-height rooms.
Phase 2 Model

Pedestrian Walkway

Phase 2 Architects: Stephen Proctor and Andrew Matthews

Sun Shadings

Townhouse Plan
• Reduction of water consumption by 30%.

• 30–40% of the wood and aluminum construction waste was recycled.

• The concrete frame provides a thermal mass, reducing energy consumption. Aluminum was chosen for its recycling qualities and long life.

• Cedar for the rain screens was obtained from sustainably harvested sources and has an excellent maintenance record. These cedar louvers are also sun shades and windbreaks, and they provide the gardens with visual privacy.

• Take maximum advantage of climatic factors. The buildings were purposely shaped and positioned to moderate the effect of easterly winds and to make full use of the sun for both light and heat.

• The 80% reduction in energy is achieved through a combination of local electricity generation, improved insulation, and energy-efficient devices.

• To generate its own power locally, the village uses a combined heat and power (CHP) system, which provides central heating, hot water, and electricity.

• Greenwich Millennium Village saves £150,000 by cutting construction waste.

<table>
<thead>
<tr>
<th>Water Reduction Components</th>
<th>Water Saving</th>
<th>Cumulative Saving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient Showers</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Efficient dishwasher and</td>
<td>5%</td>
<td>6%</td>
</tr>
<tr>
<td>Washing Machine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Efficient Taps</td>
<td>4%</td>
<td>12%</td>
</tr>
<tr>
<td>Dual Low Flush Water Closets</td>
<td>9%</td>
<td>21%</td>
</tr>
<tr>
<td>Grey Water Recycling</td>
<td>14%</td>
<td>35%</td>
</tr>
</tbody>
</table>
• Site Selection
  Restored contaminated industrial land
  Rehabilitated brownfield

• Transportation
  Public transport system (shuttle bus) located at center of residential area within five minutes walk
  Jubilee line and South Eastern Railway located near the site
  Workable street, Green corridors, and pedestrian network
  Residents’ participation in community development
  Founded village trust for management and maintenance

• Site Development
  Preserve existing ecology and animal habitat
  Provide a diverse complex of wetland habitats

• Urban Design
  Plan for mixed-use commercial, business, and residential area
  Segregation of vehicles and pedestrians
  Priority is given to pedestrians and cyclists.
  Bike storage
  Support carpooling or vanpooling
  Reduce the visual impact of parked cars by locating them under the landscaped courtyards.
Sustainable Approaches: Energy and Resources

- Improved insulation
- 80% reduction in primary energy consumption
- 50% reduction in energy use
- Renewable energy, such as wind and solar sources
- Selection of sustainable materials, with preference for local materials
- Low-energy embodied materials, 50%
- Potable water use reduction by 30%
- Comprehensive water management system
- Combined heat and power plant which was to have used biomass fuel.
• Zero CO₂ emission material, construction methods, and building operation

• Minimized solid waste during construction and building operation.

• Make sure that responsibility for individual wastes.

• Separation of specific waste

• Reduction in on-site waste (50%)

• Building waste recycling (80%)

• Cleaning and recycling of gray water by the natural circulating system in wetlands, ponds, and reservoir.

• Conserve existing natural, restore damaged land to promote biodiversity.

• Hill walk and bank for protecting winter wind and preserving natural ecology

CHP Plant on the Site

Concept Drawing of Gray Water Recycling
Sustainable Approaches: Indoor Environment & Humanity

- Low Emission Zone to control parking
- High efficient mechanical building equipment
- High perimeter walls to protect from harsh winter winds
- Small windows and dense wall on the north side
- The south sides open to the sun with expansive windows, covered galleries, and balconies
- Natural lighting plan
- Appropriate shading devices
- Carefully laid out to reduce to a minimum traffic noise by double-glazing, buffer zone

- Home office
- Adjustable and flexible plans according to life cycle
- Revolution in the design of homes exploiting intelligent systems
- Virtual village and exhibition on aspects of sustainable urban communities using internet.
What is the program delivering?
6,000 quality new homes by 2010
Nearly 9,000 new homes in total
More than 70,000 sq m commercial floor space
More than 1,000 new jobs
Over £770m private sector investment attracted
£165m investment by English partnerships
Five new primary schools, one improved pre-school, and one secondary school
Seven new community buildings
Three new health centers

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<http://www.gold.ac.uk/world/millen/planning/ecovillage.html>