Liverpool Everyman Theatre: BREEAM Case Study

The Liverpool Everyman is a new theatre for an internationally regarded producing company. The scope of work includes a 400 seat adaptable auditorium, a studio for youth, education and community activities, a large rehearsal room, public foyers, catering and bar facilities, along with supporting offices, workshops and ancillary spaces. The entire façade is a large, collaborative work of public art.

The Everyman holds an important place in Liverpool culture. The original theatre, converted from the 19th century revivist chapel, had served the city well as a centre of creativity, conviviality and dissent (often centred in its subterranean Bistro) but by the new millennium the building was in need of complete replacement to serve a rapidly expanding production and participation programme. The design team's brief was to design a technically advanced and highly adaptable new theatre that would retain the friendly, demotic accessibility of the old building, project the organisation's values of cultural inclusion, community engagement and local creativity, and encapsulate the collective identity of the people of Liverpool. The new building occupies the same historic city centre site in Hope Street, immediately adjacent to Liverpool's Catholic cathedral and surrounded by 18th and 19th century listed buildings, so a balance of sensitivity and announcement in the external public realm was a significant design criterion. Another central aspect of the brief was to design an urban public building with exceptional energy efficiency both in construction and in use.

The building makes use of the complex and constrained site geometry by arranging the public spaces around a series of half levels, establishing a continuous winding promenade from street to auditorium. Foyers and catering spaces are arranged on three levels including a new Bistro, culminating in a long piano nobile foyer overlooking the street. The auditorium is an adaptable thrust stage space of 400 seats, constructed from the reclaimed bricks of the chapel and manifesting itself as the internal walls of the foyers. The building incorporates numerous creative workspaces, with a rehearsal room, workshops, an audio visual studio, a Writers' Room overlooking the foyer, and EV1 - a special studio dedicated to the Young Everyman Playhouse, education and community groups. A diverse disability group has monitored the design from the outset.

Externally, red brick was selected for the walls and four large ventilation stacks, giving the building a distinct silhouette and meshing it into the surrounding architecture. The main west facing elevation of the building is as a large-scale public work of art consisting of 105 moveable metal sunshades, each one carrying a life-sized, water-jet cut portrait of a contemporary Liverpool resident. Working with local photographer Dan Kenyon, the project engaged every section of the city’s community in a series of public events, so that the completed building can be read as a collective family snapshot of the population in all its diversity. Typographer and artist Jake Tilson created a special font for a new version of the iconic red 'Everyman' sign, whilst regular collaborating visual artist Antoni Malinowski made a large painted ceiling piece for the foyer, to complement an internal palette of brickwork, black steel, oak, reclaimed Iroko, deeply coloured plywood and pale in situ concrete.

Sustainability

The Everyman has been conceived from the outset as an exemplar of sustainable good practice. An earlier feasibility study had considered replacing the Playhouse and Everyman in a much larger and more expensive building on a new site, but Haworth Tompkins argued for the importance of continuity and compactness on the original site. Carefully dismantling the existing structure, the nineteenth century bricks were salvaged for reuse as the shell of the new auditorium and the majority of other material were recycled for use elsewhere. As it was not possible to acquire a bigger site and demolish more adjoining buildings, it was necessary to make efficient use of the site footprint. Together with the client team the space brief was distilled into its densest and most adaptable form.

Having minimised the space and material requirement of the project, the fabric was designed to achieve a BREEAM Excellent rating, unusual for an urban theatre building. Natural ventilation is used for all the main performance and workspaces.
Key design features of the building

In the auditorium, outdoor air is supplied to the audience without the need for mechanical assistance for the majority of the summer and all through the autumn and spring. This is achieved by drawing in air from an inlet to the rear and using the thermal mass of the large plenum under the workshop floor for pre-cooling. An air-source heat pump allows incoming air to be heated or cooled when necessary with fan assistance for smaller winter air volumes or as a boost during exceptionally high temperatures.

The air is then supplied to the space through an arrangement of openings behind and below the seats. The people and lighting help to warm the air, making it buoyant, and causing it rise to high level. From here, it is carried away through an acoustically attenuated exhaust plenum integrated within the technical gallery level to the exhaust chimneys.

The chimney’s height above the intake is required to achieve the stack effect and ensure the air flow is predominantly up and out.

Section of the building showing the ventilation strategy of the auditorium.

Computer CFD (computational fluid dynamics) model of the auditorium used by Waterman Building Services to study the air flow.

BREEAM Case Study: Liverpool Everyman Theatre
The four brick chimneys at the top of the building to take the hot air out of the auditorium.

EV1 also has a street level intake, feeding floor grills, and has chimney slots for extract. The rehearsal room is ventilated by roof windcatchers, supplemented with opening terrace doors. The foyers are vented via opening screens and a large lightwell.

The fully exposed concrete structure (with a high percentage of cement replacement) and reclaimed brickwork walls provide excellent thermal mass, while the orientation and fenestration design optimize solar response - the entire west façade is designed as a large screen of moveable sunshades. Offices and ancillary spaces are ventilated via opening windows. The basement bistro is the only principal space to be mechanically ventilated.

Section of the building showing the ventilation strategy for EV1 Studio, Rehearsal Room and Foyer.
Out of the low carbon energy systems considered, Gas Fired CHP was selected so that the electrical output compliments the pattern of use of year round hot water demand for catering, showers etc. Rainwater is harvested to provide a proportion of WC flushing demand.

The front of house and auditorium house lighting schemes use entirely low energy LED fittings. The design of the auditorium provides a large degree of flexibility to allow it to adapt to future artistic and technical demands.

The building has taken almost a decade of intensive teamwork to conceive, achieve consensus, fundraise, design, and build, and the design will ensure a long future life of enjoyment by a diverse population of artists, audiences and staff.

Key Data

- **BREEAM Rating and score**  
  Excellent – 70.2%
- **Basic Building Cost**  
  £2,300/m²
- **Services Costs**  
  £500/m²
- **External Works**  
  £310/m²
- **Gross floor area**  
  4,690 m²
- **Total area of site**  
  0.161 hectares (1610 m²)

- **Function areas and their size (m²)**
  
  - Foyer  
    237
  - Box Office / reception  
    18
  - Offices  
    301
  - Meeting Rooms  
    82
  - Green Rooms  
    58
  - Rehearsal Room  
    147
  - Ancillary Offices  
    23
  - Writers’ Room  
    28
  - Bar servery  
    18
  - Above ground bar/bistro  
    95
  - Above ground kitchen  
    17
  - Below ground bar/bistro  
    182
  - Below ground kitchen  
    69
  - Bar  
    51
  - Workshop  
    170
  - Auditorium  
    472
  - Recording studio  
    11
  - EV1 studio  
    144
  - Control Room  
    20
  - Dressing Rooms  
    69
  - Changing/locker rooms  
    38
  - Wardrobe  
    116
  - Laundry  
    11
  - Stage Door reception  
    13

- **Area of circulation (m²)**  
  675
- **Area of storage (m²)**  
  212

BREEAM Case Study: Liverpool Everyman Theatre
· Predicted electricity consumption 86.76 kWh/m²
· Predicted fossil fuel consumption - 186.51 kWh/m²
· Predicted energy generation by CHP 29.18 kWh/m²
· Predicted water use - 628 m³/person/year
· % of predicted w.c. Flush water use to be provided by rainwater 45%

· The steps taken during the construction process to reduce environmental impacts included:
  Recycling of over 90% of demolition waste
  Recycling of 89% of construction waste
  Monitoring the sites energy and water use and impact of transport to site
  A biodiversity champion on the site team to prevent harm to any flora and fauna
· The project has contributed to the following social or economically sustainable measures:
  Employment and training of apprentices in the construction process.
  Creating a fully accessible public building.
  Creating space for the everyman to continue and expand education and community work.
  Providing workspace to support local writers.

Design Team Credits

Architect: Haworth Tompkins
Interiors and Furniture Design: Haworth Tompkins with Citizens Design Bureau
Client: Liverpool and Merseyside Theatres Trust
Contractor: Gilbert-Ash
Project Manager: GVA Acuity
Quantity Surveyor: Gardiner & Theobald
Theatre Consultant: Charcoalblue
Structural Engineer: Alan Baxter & Associates
Service Engineer: Watermans Building Services
CDM Coordinator: Turner and Townsend
Acoustic Engineer: Gillieron Scott Acoustic Design
Catering Consultant: Keith Winton Design
Access Consultant: Earnscliffe Davies Associates
BREEAM assessor: Brian Whitehead, Clancy Consulting Ltd
Collaborating Artist: Antoni Malinowski
Typographer: Jake Tilson
Portrait Photographer: Dan Kenyon