TEXT
LAURA MALIGHETTI
PHOTOS
MORLEY VON STERNBERG

BRENT CIVIC CENTRE
LONDON, UK

HOPKINS ARCHITECTS

WWW.HOPKINS.CO.UK

Morley von Sternberg

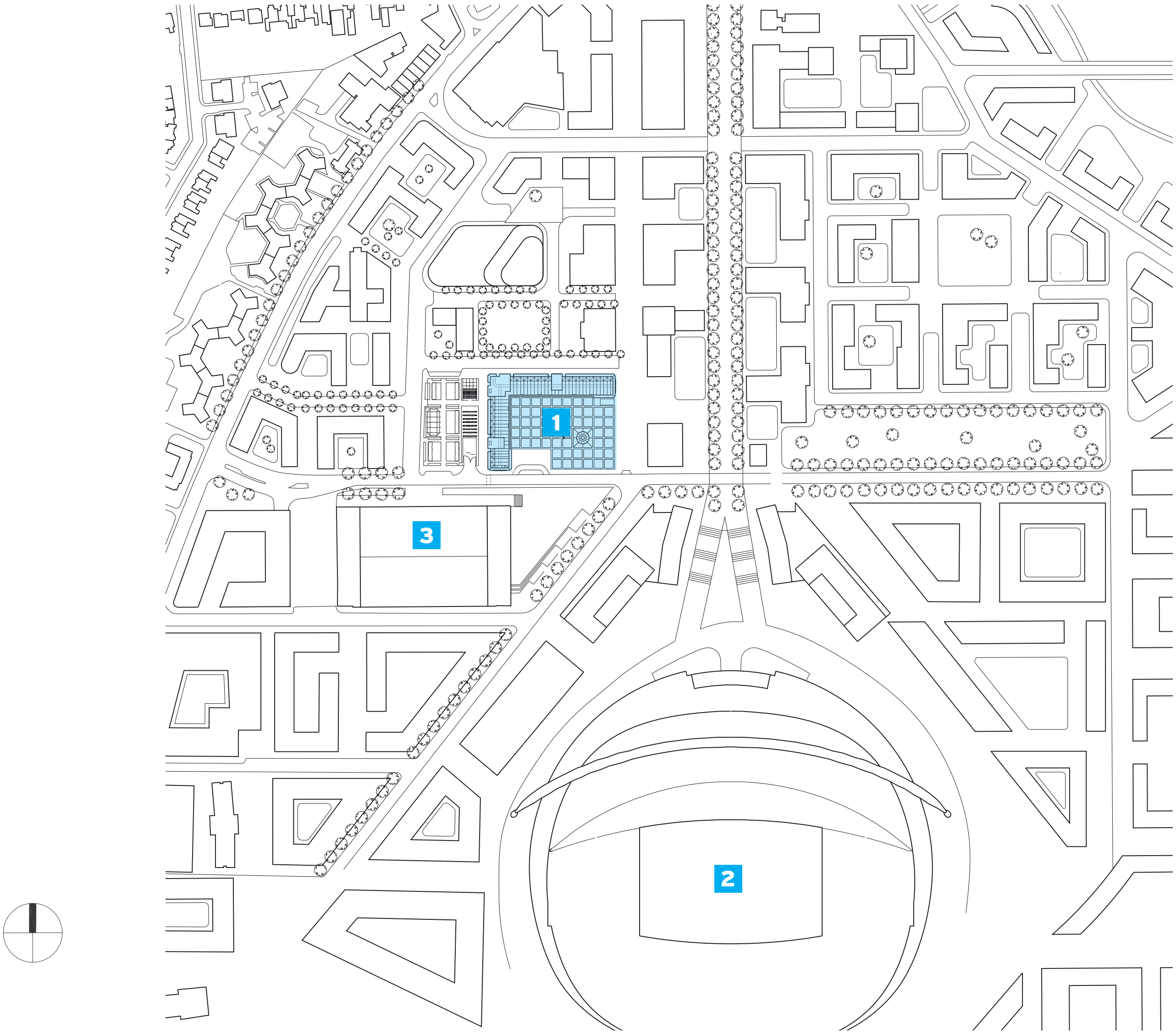
architectural design:
Hopkins Architects

client:
The London Borough of Brent

construction period:
2011 - 2013

gross area:
40,000 m²

cost:
demolition/external works:
2,73 million €
construction:
77,77 million €
fit-out: 35.5 million €



Planimetria generale. Scala 1:500

General plan. Scale 1:500

1. Brent Civic Centre
2. Wembley Stadium
3. Wembley Arena

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Il Centro Civico di Brent è un edificio polifunzionale ad alta efficienza energetica che riunifica sotto uno stesso tetto gli uffici amministrativi, i dipartimenti comunali e molti servizi pubblici destinati alla comunità prima dispersi in 17 fabbricati. Il progetto riprende e sviluppa il riuscito modello messo a punto nel 2009 dallo studio Hopkins con il centro servizi di Hackney. La politica di centralizzazione e ammodernamento degli uffici e dei servizi della municipalità di Brent ha permesso di liberare i vecchi immobili, che sono stati in parte alienati e in parte riconvertiti ad altri usi. L'operazione, nel suo complesso, e l'elevata efficienza energetica dell'edificio in fase di costruzione e di esercizio, hanno permesso di ottenere un risparmio nei costi di gestione che ammonta a oltre 2,5 milioni di sterline l'anno.

Il complesso è un elemento chiave per la rigenerazione della caotica area di Wembley in cui si addensano, a breve distanza, due edifici di richiamo per grandi folle: lo Stadio di Wembley e la Wembley Arena, un edificio anni Quaranta con struttura di calcestruzzo armato oggi utilizzato per ospitare concerti, eventi sportivi e spettacoli.

Il nuovo Centro Civico fronteggia lo stadio e costituisce la cornice di una piazza triangolare di nuova costruzione che riordina l'insieme delle preesistenze. Esso è costituito da due corpi: a nord e a est un blocco a L di 10 piani destinato ad accogliere gli uffici amministrativi; a sud e ovest un corpo più basso che ospita le funzioni civiche. Espressivo e monumentale, questo blocco si contraddistingue per la sua conclusione con un tamburo circolare di 5 piani che rivela l'importanza pubblica della costruzione e, al contempo, si relaziona alla forma circolare dell'arena.

I due corpi sono collegati da un atrio (non riscaldato) di 8 piani caratterizzato da una copertura pneumatica in triplo strato di ETFE. Aperto, accogliente e accessibile, il foyer d'ingresso nell'atrio monumentale costituisce il cuore del centro civico. Da qui l'edificio rivela la sua configurazione interna con schematica chiarezza permettendo ai visitatori di orientarsi senza esitazione.

Al piano di ingresso sono collocati la reception, un caffe/ristorante e gli ambienti per le unioni civili. Questi ultimi spazi si aprono a ovest su un piccolo

Il fronte ovest verso gli uffici

The west elevation towards the offices

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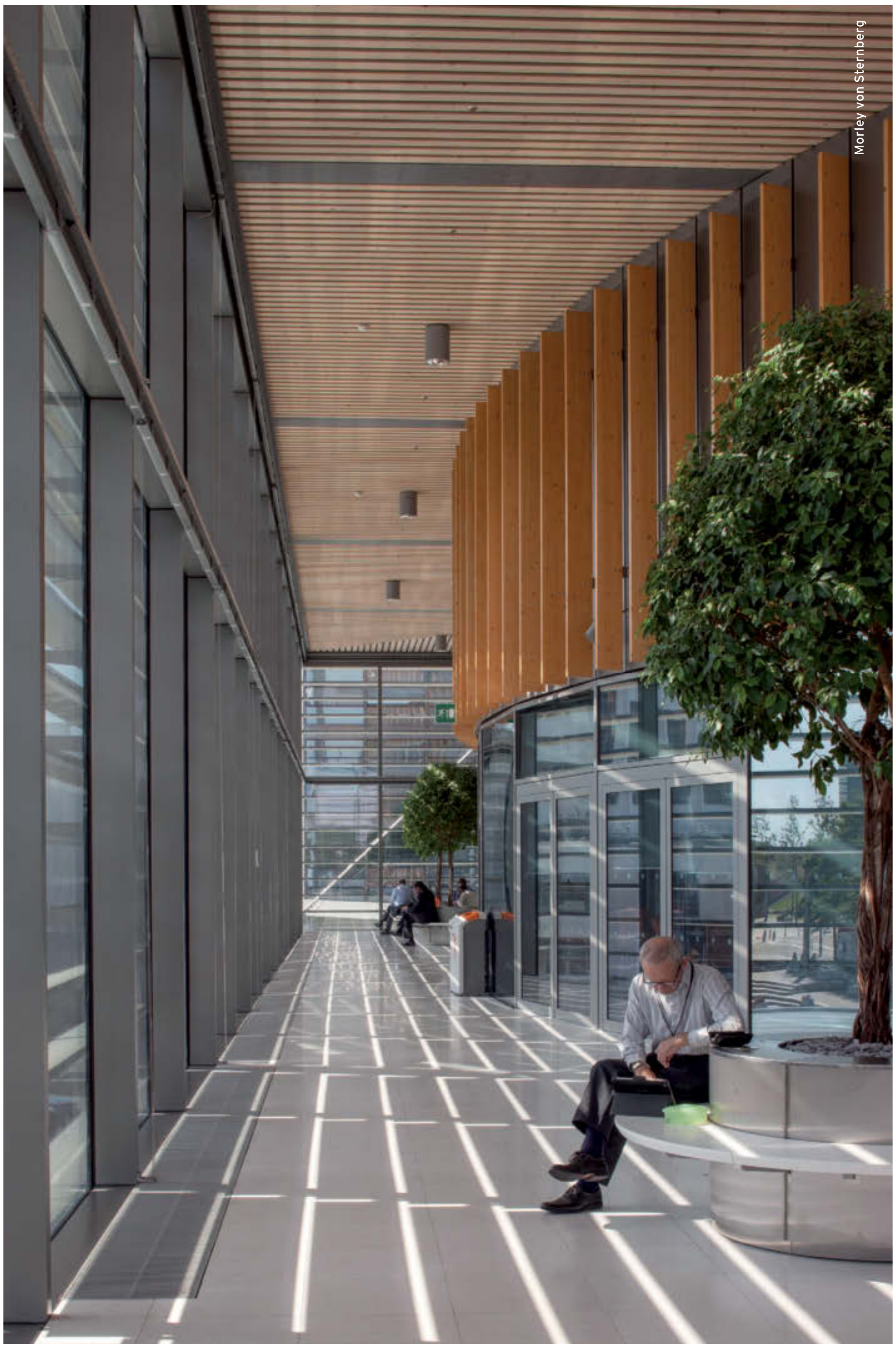


Lo spazio a doppia altezza della biblioteca al piano terra

The double height space of the ground floor library

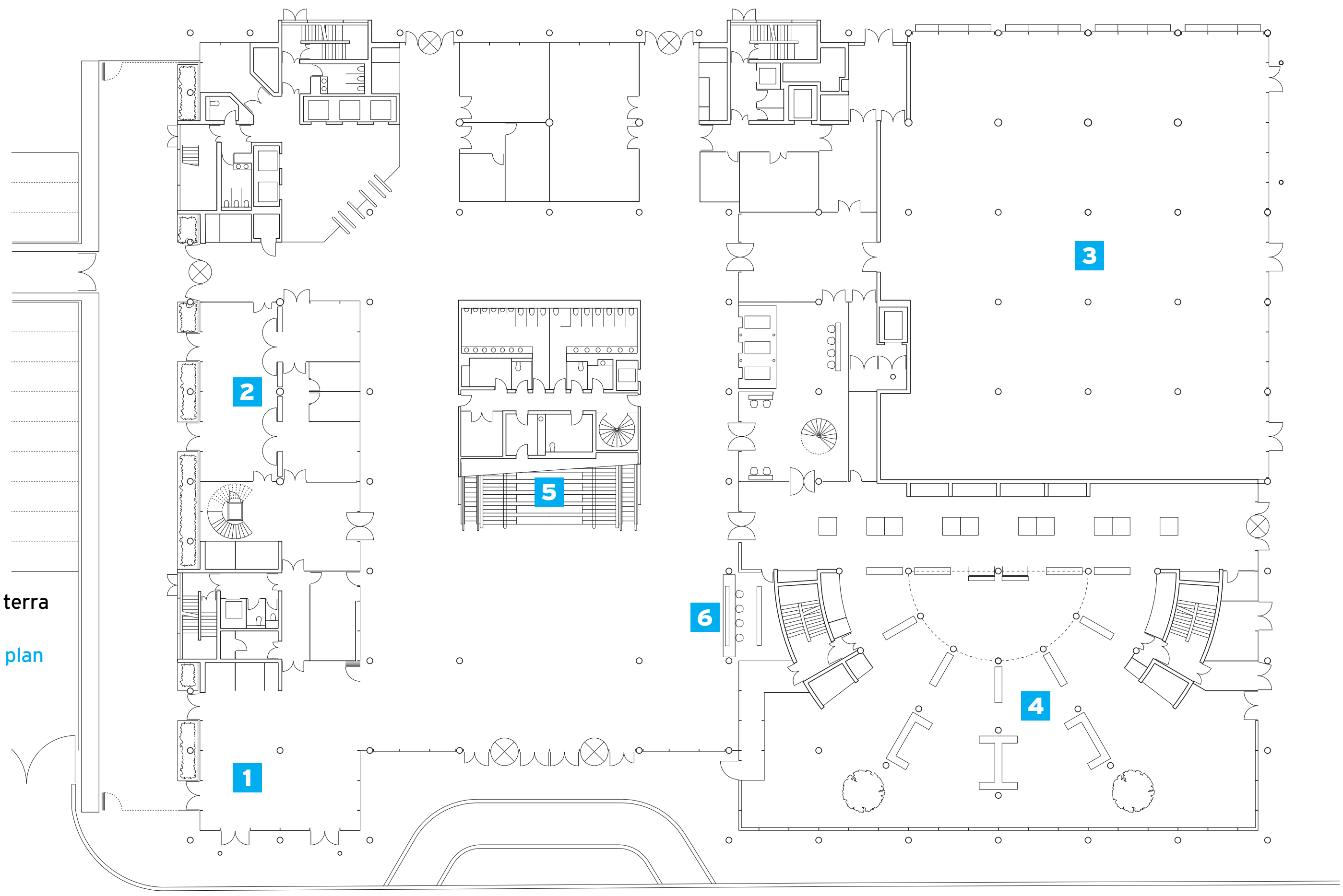
Interno del giardino d'inverno al primo piano

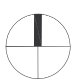
Inside the winter garden on the first floor

parco progettato dal paesaggista Gillespies, che può essere utilizzato come prolungamento dello spazio interno per dare una ulteriore scenografia alle cerimonie tenute all'interno dell'edificio. Il piano terra ospita, inoltre, alcuni spazi commerciali (i cui affittuari sono scelti in base all'utilità dei servizi offerti alla comunità) e, a est, una piccola biblioteca (di circa 2.000 m^2) agevolmente accessibile da un secondo ingresso, che rende l'edificio praticabile anche quando la piazza antistante è invasa dai tifosi della Wembley Arena. Una scala monumentale allineata con l'ingresso principale conduce al livello mezzanino. Fiancheggiata da scale mobili, lo scalone ha una larghezza tale da ospitare, nella parte centrale, alcune sedute utilizzabili per incontri informali o per assistere agli eventi occasionalmente ospitati nell'atrio.
I collegamenti verticali sono, invece, raggruppati in un blocco nell'angolo posteriore dell'atrio, hanno una scenografica struttura di acciaio enfatizzata da un vivace colore rosso che ricorda i connettivi verticali progettati dallo studio Hopkins per l'Evelina Children Hospital (Arketipo N.6/2005). Al primo piano, una galleria a tripla altezza avvolge su tre lati l'atrio e distribuisce le diverse funzioni. Da qui avviene l'ingresso al tamburo circolare che si caratterizza per la sua forma e per il suo rivestimento in pannelli di alluminio con lamelle verticali di legno lamellare, un richiamo a quelle di calcestruzzo armato della Wembley Arena. Il tamburo contiene, al piano terra, la Community Hall: un grande ambiente di forma circolare, flessibile, frazionabile all'occorrenza con partizioni scorrevoli per ospitare conferenze, banchetti, ricevimenti nuziali e i popolari Tea Dance per oltre 1.000 persone. L'ambiente è coperto da un solaio a piastra di calcestruzzo armato a vista finemente realizzato (i giunti delle

Pianta piano terra
Scala 1:600

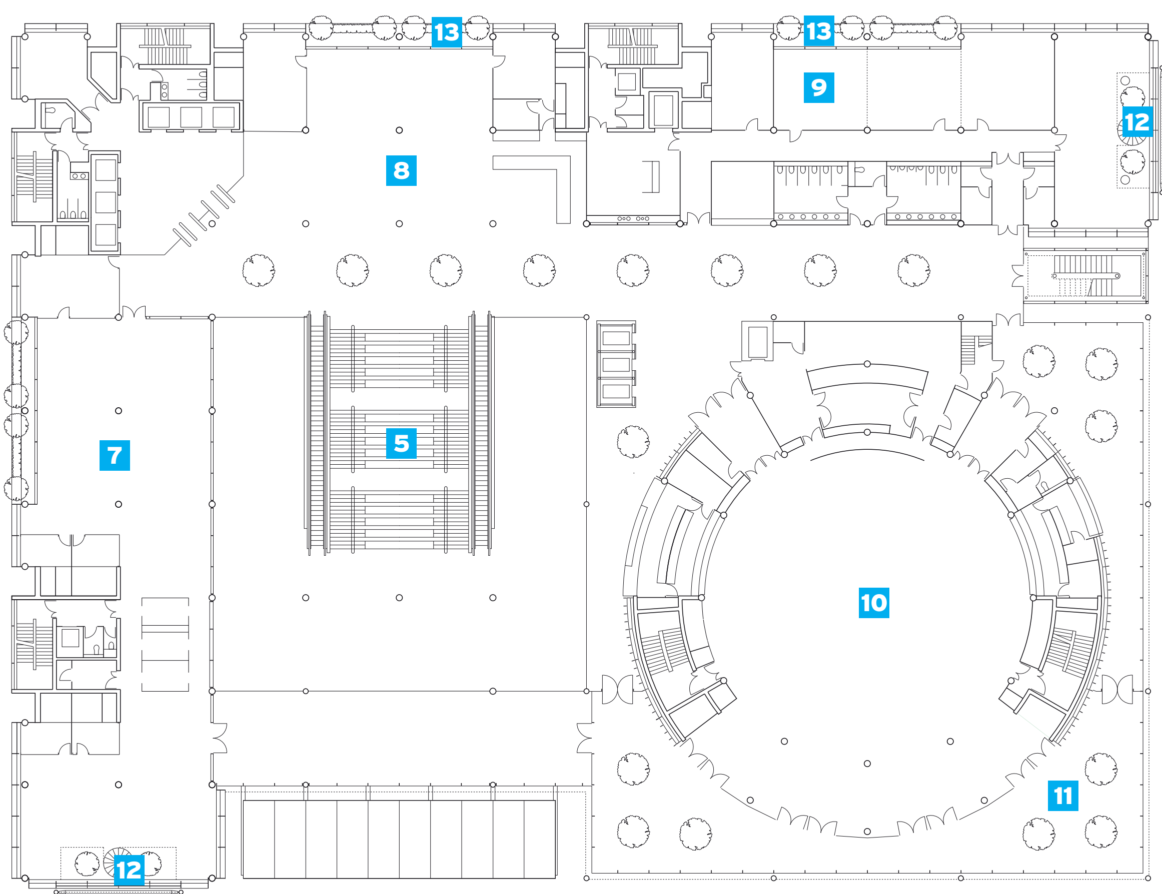
Ground floor plan
Scale 1:600





Pianta piano primo
Scala 1:600

First floor plan
Scale 1:600



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1. caffè / ristorante
2. wedding suite
3. negozi
4. biblioteca
5. scale anfiteatro
6. reception
7. amministrazione
8. caffetteria
9. formazione
10. community hall
11. giardino d'inverno
12. piccolo atrio
13. loggia

1. café / restaurant
2. wedding suite
3. retail
4. library
5. amphitheatre stairs
6. reception
7. administration
8. café
9. training
10. community hall
11. winter garden
12. mini atrium
13. balcony

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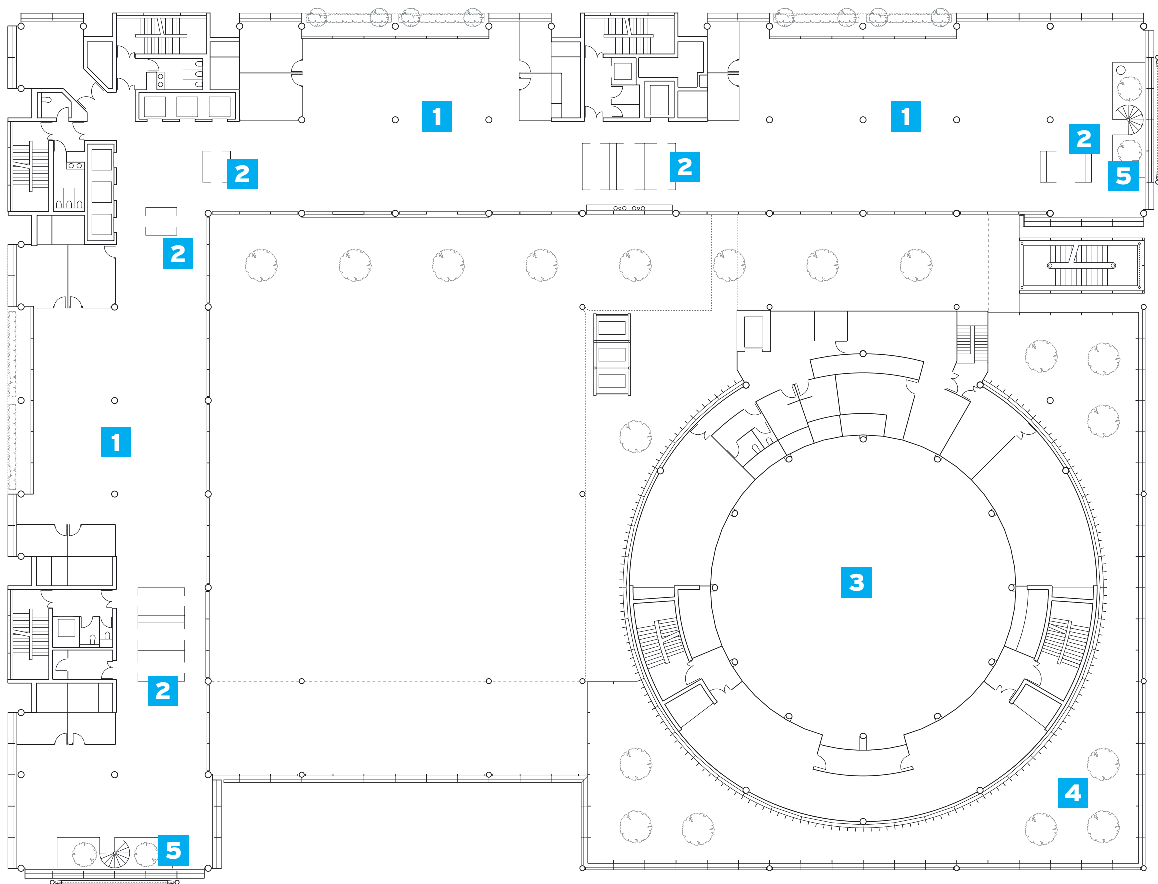
La Community Hall durante un Tea Dance
The Community Hall during a Tea Dance

casseforme sono radiali per sposarsi meglio con la forma circolare della stanza), sostenuto da capriate metalliche per liberare completamente l'ambiente dagli ingombri strutturali. Per mezzo di ampie vetrate, esso si apre a sud su un grande giardino d'inverno che si affaccia sullo Stadio di Wembley. Al piano superiore si sviluppa, su una superficie in pianta di circonferenza più piccola, la Civic Hall. Lo spazio a quadrupla altezza è sormontato da un oculo vetrato che consente un generoso e scenografico ingresso della luce naturale dall'alto. L'ambiente è destinato a ospitare le riunioni del Consiglio, le cerimonie per la cittadinanza e può essere configurato sia in un assetto formale che informale. La sala ha un rivestimento in pannelli acustici di legno che le conferiscono un aspetto caldo e accogliente. Sul suo perimetro, distribuite da un corridoio circolare, sono disposte le sale per le commissioni destinate a riunioni private. Anche queste hanno un assetto flessibile e sono predisposte per essere frazionate a piacimento in rapporto al numero dei partecipanti. Gli uffici avvolgono, sul retro e sul fianco ovest, il tamburo contribuendo, al contempo, a definire il perimetro dell'atrio monumentale; occupano una superficie di 18.870 m² in grado di accogliere 1.600 postazioni di lavoro destinate a uno staff di circa 2.000 persone. Questi corpi, a prevalente pianta libera, hanno una profondità di 15 metri che consente a ogni postazione di godere della luce naturale proveniente dal doppio affaccio, quello nord verso la via pubblica e quello a sud verso l'atrio monumentale. La dimensione in pianta del corpo di fabbrica degli uffici è studiata infatti affinché le postazioni di lavoro siano tutte posizionate entro 7 metri dalle finestre riducendo così la necessità di utilizzo della luce artificiale. Le facciate sono pensate per ottimizzare lo sfruttamento estensivo

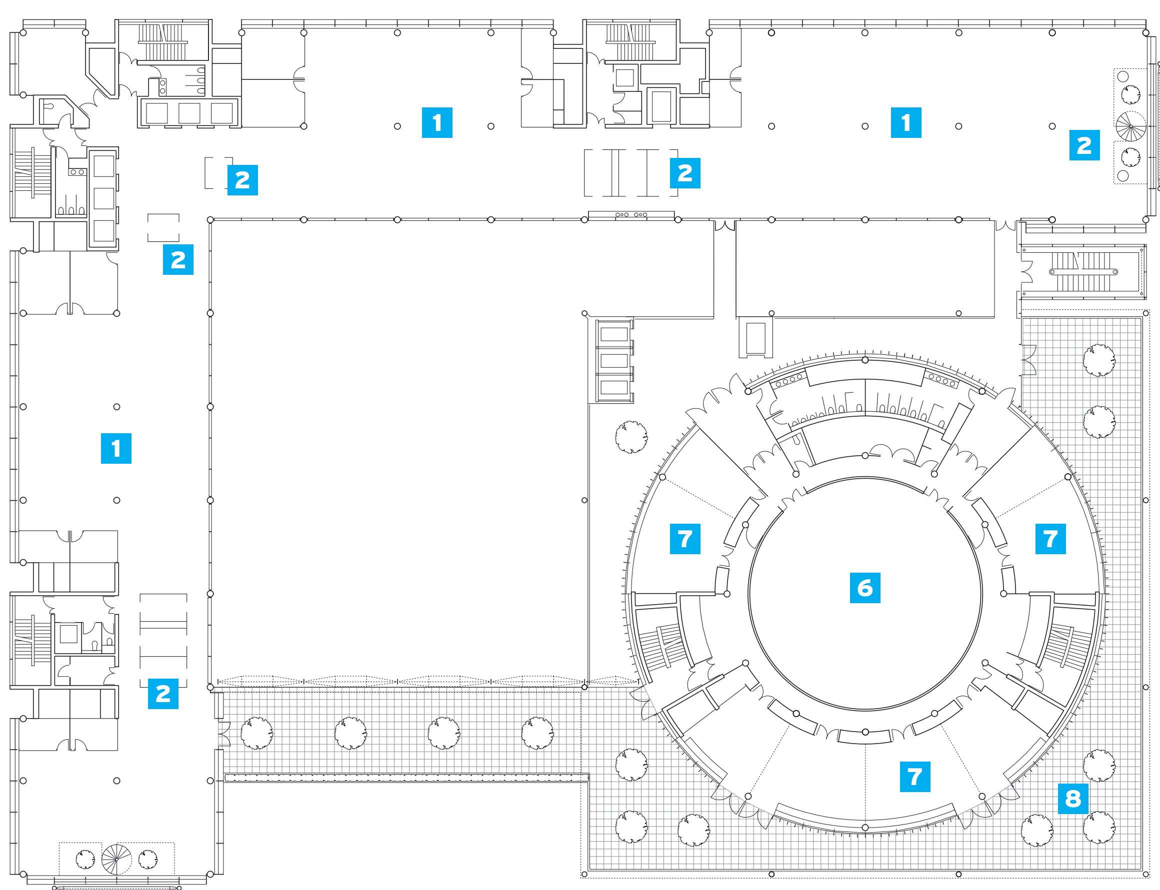
Pianta piano
secondo
Scala 1:600

Second Floor plan
Scale 1:600



Pianta piano terzo
Scala 1:600

Third floor plan
Scale 1:600



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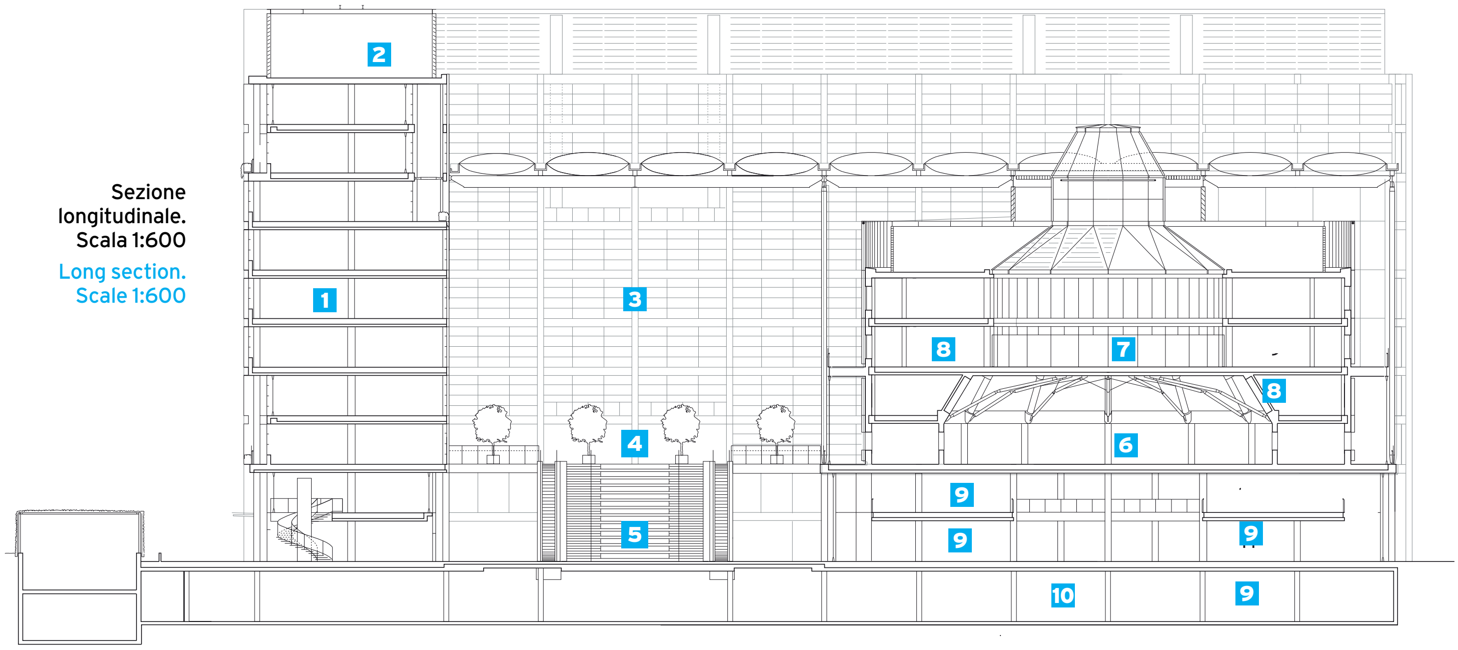
1. amministrazione
2.punto ristoro
3. community hall
- vuoto
4. giardini d'inverno
- vuoto
5. piccolo atrio
6. civic hall
7. sale per le commissioni
8. terrazzo

1. administration
2. tea point-lockers
3. community hall
- void
4. winter garden
- void
5. mini atrium
6. civic hall
7. committee rooms
8. terrace

Sezione longitudinale. Scala 1:600

Long section. Scale 1:600

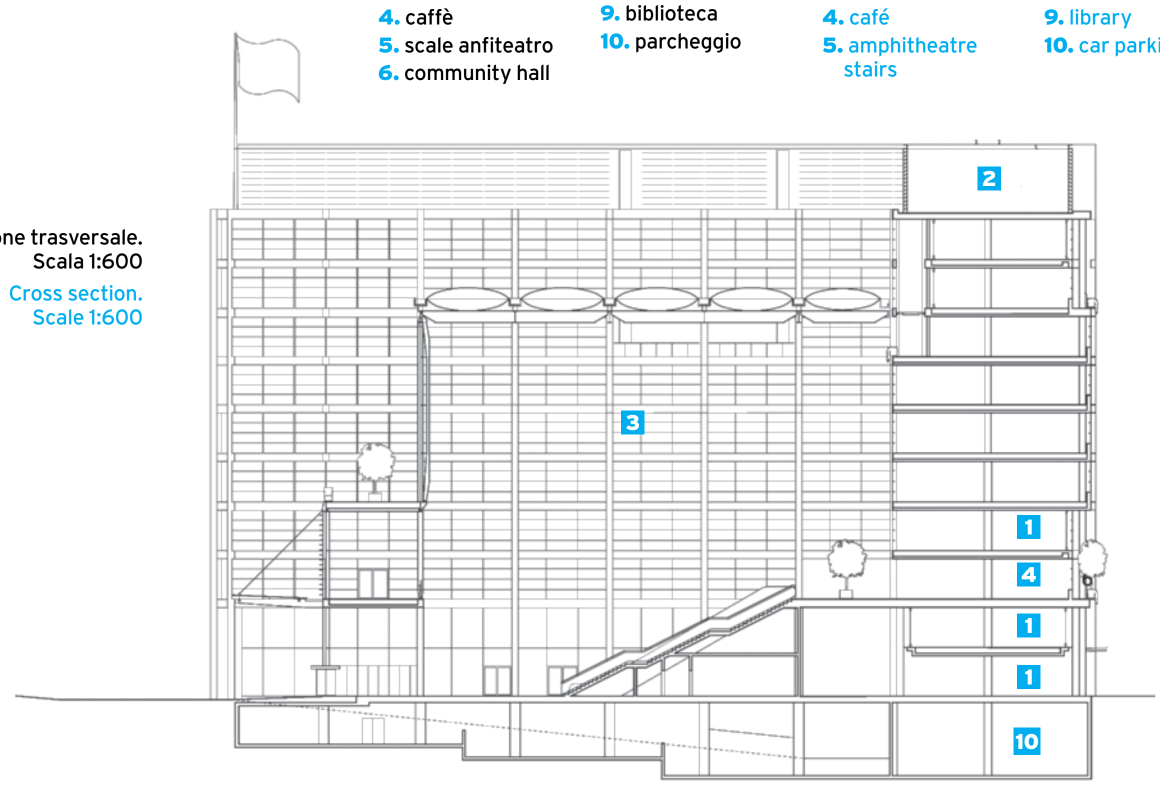


1. amministrazione
2. locale impianti
3. atrio
4. caffè
5. scale anfiteatro
6. community hall
7. civic hall
8. sale per le commissioni
9. biblioteca
10. parcheggio

1. administration
2. plant room
3. atrium
4. café
5. amphitheatre stairs
6. community hall
7. civic hall
8. committee rooms
9. library
10. car parking

Sezione trasversale. Scala 1:600

Cross section. Scale 1:600



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dell'illuminazione e della ventilazione naturale. Le superfici vetrate hanno la porzione inferiore apribile per la ventilazione naturale e quella superiore controllata automaticamente per la ventilazione meccanica controllata.

REFERENCES

• F. MARA, **WEMBLEY ASSEMBLY: BRENT CIVIC CENTRE BY HOPKINS**, ARCHITECTS' JOURNAL, 8/1/2013, VOL. 238 ISSUE 5, PP. 30-38.

• E. WOODMAN, **BRENT CIVIC CENTRE BY HOPKINS ARCHITECTS**, BDONLINE, 15 OCTOBER, 2015.

• BREEAM, **MAN 9 - PUBLICATION OF BUILDING INFORMATION. BRENT CIVIC CENTRE CASE STUDY**, NOVEMBER, 2013.

Il trattamento delle facciate trasparenti è il frutto di una attenta modellazione che ha portato all'ottimizzazione di lamelle e sistemi frangisole esterni per il controllo del guadagno solare e la prevenzione di indesiderati fenomeni di abbagliamento.
Le pareti verso l'atrio monumentale alternano porzioni trasparenti a porzioni opache in pannelli acustici di legno. Un trattamento speciale gli conferisce l'aspetto di una facciata esterna, marcando la sensazione di essere in una via urbana quando si percorre la galleria al primo piano che distribuisce le funzioni collocate nei due blocchi in cui si articola l'edificio.

Morley von Sternberg

L’atrio d’ingresso con lo scalone monumentale

The entrance atrium with the monumental staircase

DESIGNERS

Localizzazione - Location: London, UK

Progetto archiettonico - Architectural design: Hopkins Architects

Committente - Client: The London Borough of Brent

Progetto strutture e impianti - Structural engineer and M&E consultant: AECOM

Responsabile del progetto - Project management and quality surveyor: Turner & Townsend Project Management

Architettura del paesaggio - Landscape architecture: Gillespies

Periodo di costruzione - Construction period: 2011 - 2013

Superficie lorda - Gross area: 40,000 m²

Costo - Costs:
demolizioni/lavori esterni - Demolition/external works: 2.73 million €
costruzione - construction: 77.77 million €
allestimenti - fit-out: 35.5 million €

CONTRACTOR

Impresa principale - General Contractor: Skanska

Impianti meccanici, elettrici e idrici - Mechanical, electrical, & plumbing engineering: Skanska Rashleigh Weatherfoil

SUPPLIERS

Impiantistica - MEP: Fulcro

Facciate - Cladding: Yuanda

Copertura di ETFE - ETFE Roof: Novum (& Wedding Garden Canopy)

Struttura di calcestruzzo - Concrete frame: Mitchellson

Struttura di acciaio - Structural steel: Bourne Steel

Falegnameria - General joinery: JJ Sweeney

Falegnameria specializzata - Specialist joinery: Benchmark, J.J. Sweeney

Carpenteria architettonica - Architectural metalwork: A.W. Jeffreys

Sistemi di partizione - Partition systems: WRR (SAS system)

Ascensori e scale mobili - Lifts and escalators: Kone

Paesaggio - Landscape: Willerby

Pavimentazioni - Floorin: Kinspan, Gormley, Axiom

Porte - Doors: JJ Sweeney, Assa Abloy, Anglian

Segnaletica - Signs: Signage: Modulex

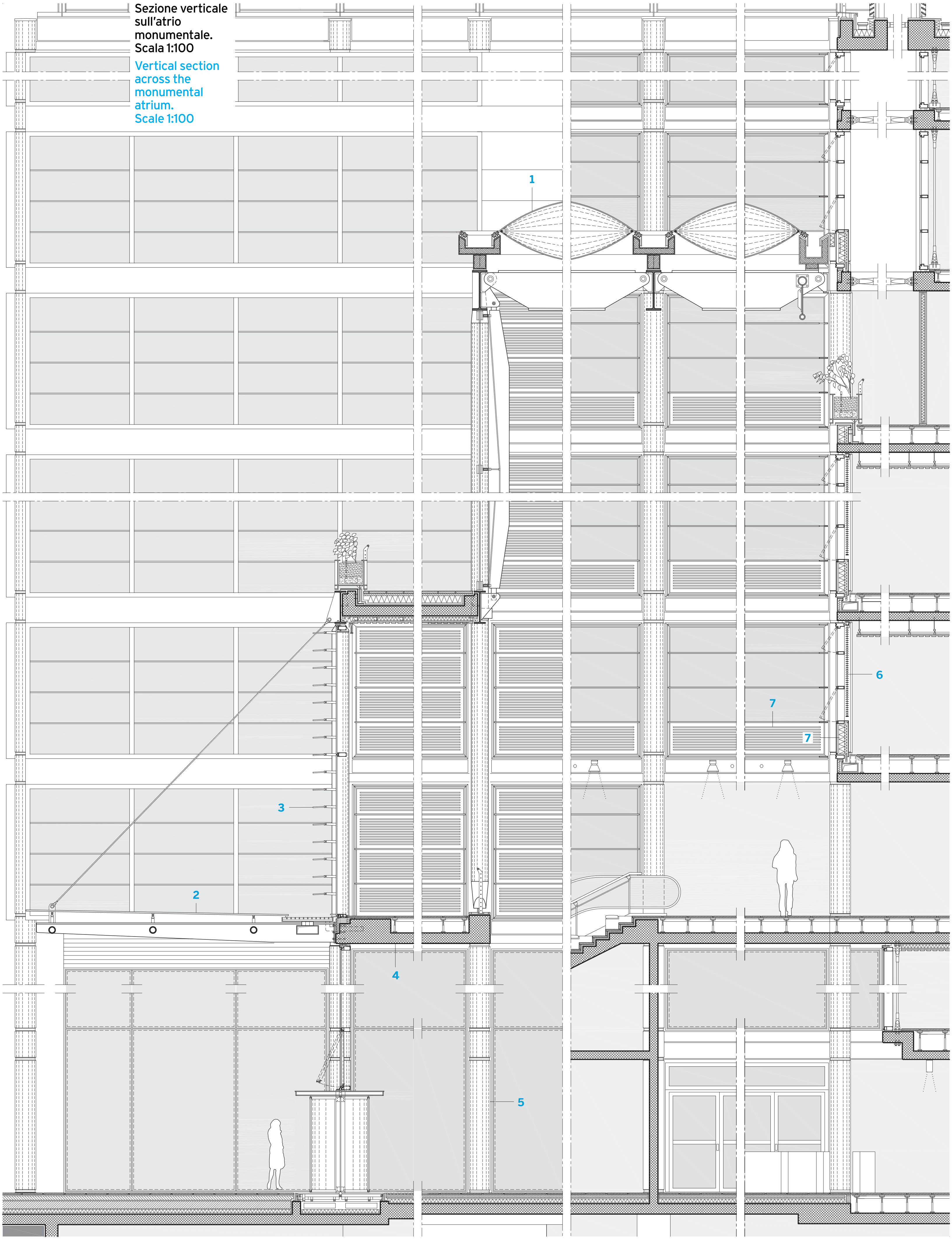
Copertura canalizzazioni - Duct cladding: Lee Warren

Scale elicoidali - Spiral staircases: Spiral Construction

Certificazione BREEAM - BREEAM certification: Skanska Environmental

Sezione verticale sull'atrio monumentale. Scala 1:100

Vertical section across the monumental atrium. Scale 1:100



Stefano Ravasio

1. **copertura pneumatica** in triplo strato di ETFE
2. **pensilina di vetro** stratificato di sicurezza
3. **lamelle frangisole** di alluminio
4. **solaio** di calcestruzzo armato a vista (200 mm)
5. **colonna di calcestruzzo** armato a vista isolata sul lato interno (Ø 800 mm)
6. **lamelle di alluminio** per oscuramento interno
7. **rivestimento:** pannelli acustici di legno

1. **pneumatic roof** made of a triple ETFE layer
2. **canopy** made of safety stratified glass
3. **aluminium Brise soleil**
4. **bare faced** reinforced concrete slab (200 mm)
5. **bare faced** reinforced concrete column insulated on the internal side (Ø 800 mm)
6. **aluminium blades** for internal shading
7. **cladding**: wooden acoustic panels

ZOOM 1

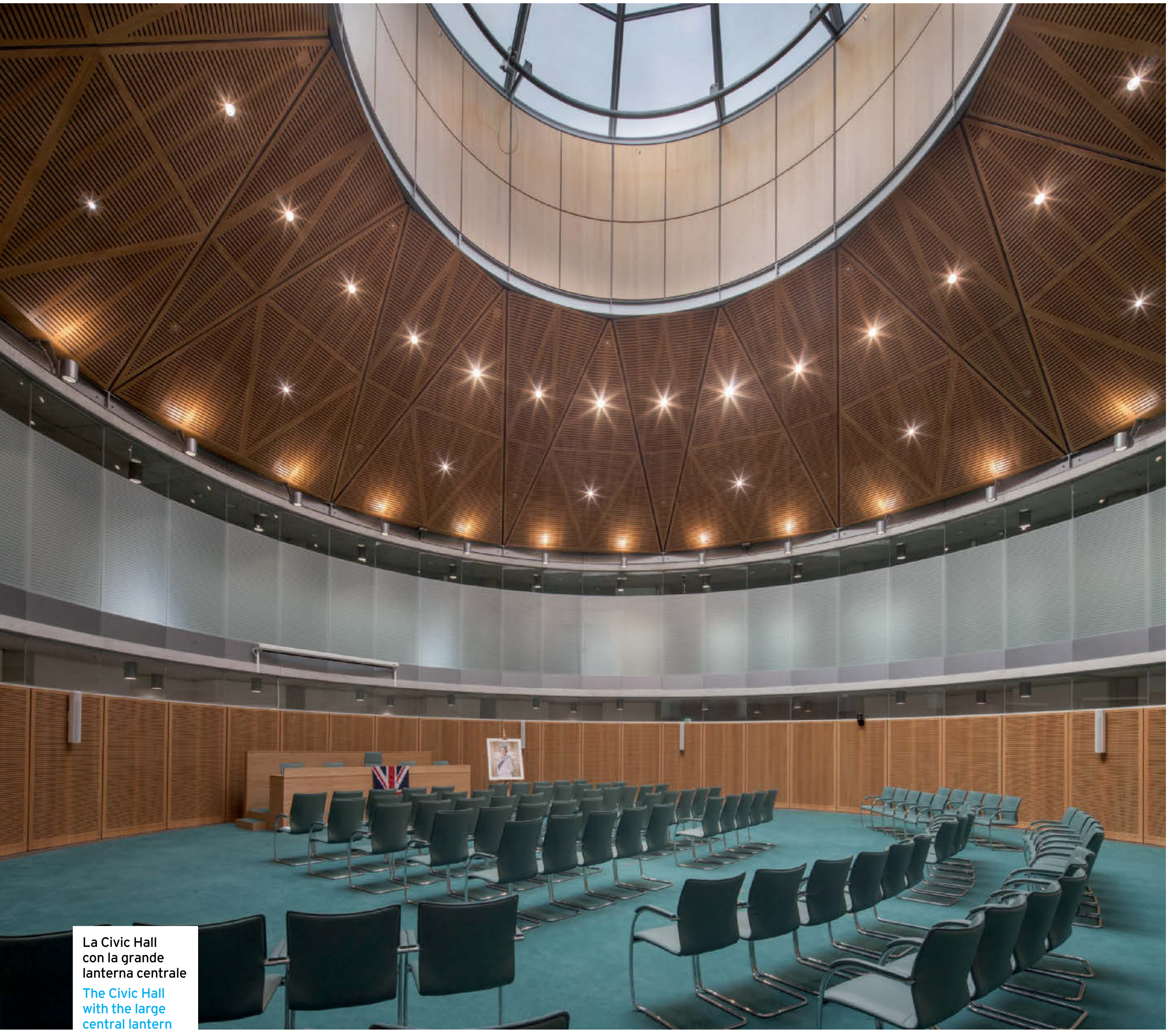
SOSTENIBILITÀ LUNGO TUTTO IL CICLO DI VITA
SUSTAINABILITY ALONG THE ENTIRE LIFE CYCLE

Gli obiettivi di sostenibilità che sottendono il progetto sono raggiunti grazie alla modellazione di un involucro ad alte prestazioni, allo sfruttamento di illuminazione e ventilazione naturale, alla selezione di materiali a basso impatto ambientale e di provenienza locale e, infine, alla scelta di un impianto di cogenerazione che utilizza un biocarburante liquido di seconda generazione ottenuto dai residui dell'olio di pesce, altrimenti destinati all'incenerimento. Tutti fattori che hanno contribuito a ridurre di circa il 70% i consumi energetici complessivi rispetto a un edificio tradizionale della stessa tipologia, con un valore di emissioni nell'ambiente di soli 8,5 $kgCO_2/m^2$ anno (circa il 33% in meno rispetto a un edificio convenzionale).
L'80% dei prodotti è dotato di etichettatura ambientale; la loro selezione è il risultato di un meticoloso processo di analisi LCC (Life Cycle Costing). Questo ha portato, per esempio, a ridurre rispetto alle ipotesi iniziali lo spessore dei solai a piastra di calcestruzzo armato utilizzando il metodo del post tensionamento e aggregati derivanti al 50% da riciclo. Il team di progetto ha lavorato con il programma NISP (National Industrial Symbiosis Programme) per individuare i mercati esterni che potrebbero riutilizzare o riciclare i rifiuti a progetto e ridurre quelli che di norma dovrebbero essere mandati in discarica.
Le finiture, dove possibile, sono state eliminate, privilegiando materiali lasciati a vista (come il calcestruzzo ampiamente utilizzato per strutture e solai), e, dove necessarie, sono state selezionate per la loro robustezza, manutenibilità e per l'assenza o il basso contenuto di composti organici volatili (VOC).
La copertura dell'atrio in ETFE, a parità di prestazioni, è stata scelta in alternativa a una vetrata per la sua leggerezza, che consente di minimizzare la dimensione delle strutture metalliche di supporto e, di conseguenza, l'energia grigia incorporata nell'edificio.
Il Brent Civic Centre è certificato BREEAM Outstanding sia nella fase di costruzione (punteggio 92,5%) che in quella di esercizio (punteggio 93,3%). Grazie alla sua alta sostenibilità è stato insignito del BREEAM Awards 2015.

L'atrio al primo piano

The atrium on the first floor


Morley von Sternberg

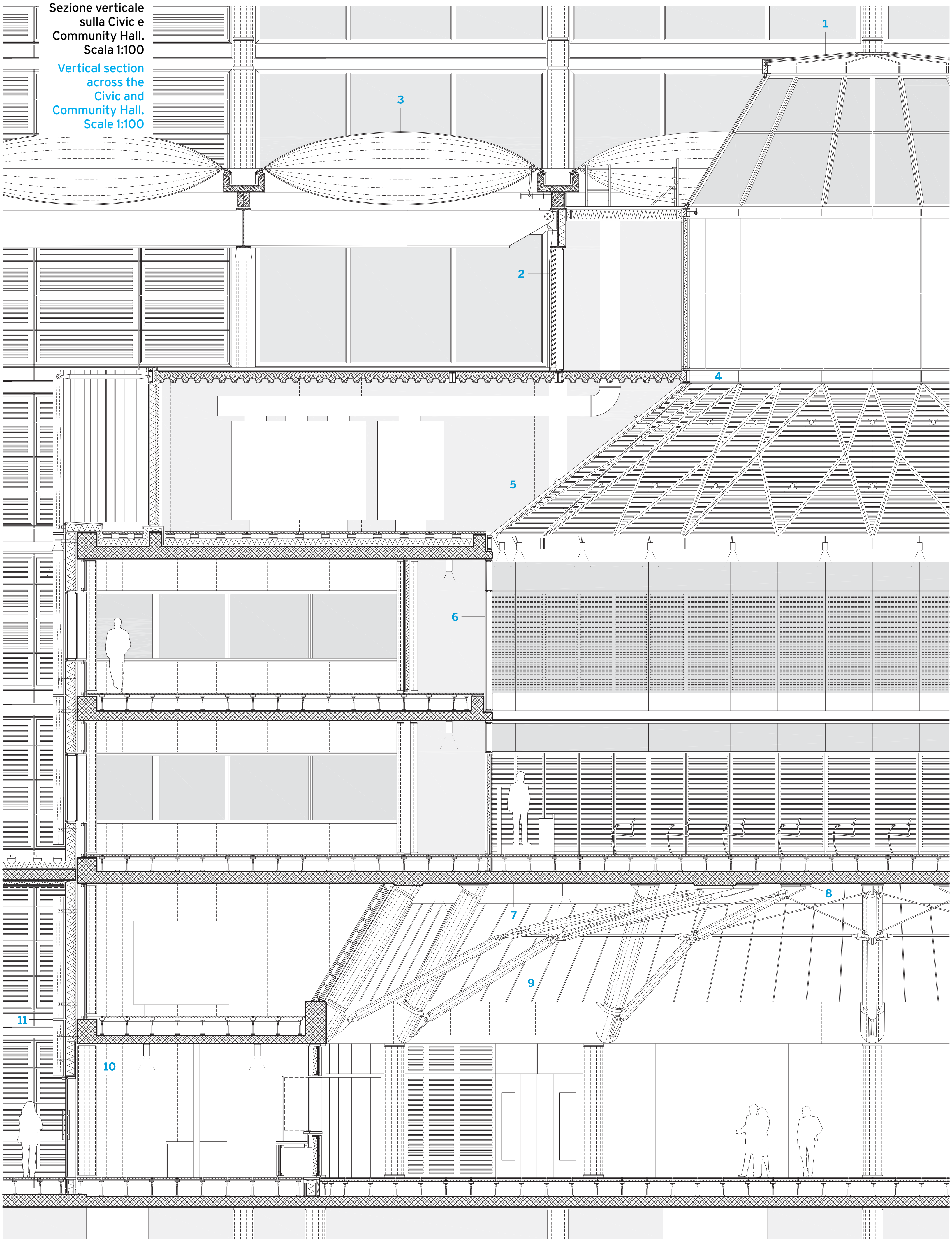


La Civic Hall con la grande lanterna centrale

The Civic Hall with the large central lantern

1. **lucernario:** struttura in profilati metallici e vetro camera
2. **lamelle frangisole esterne**
3. **copertura pneumatica** in triplo strato ETFE
4. **profilo a L curvo** di acciaio galvanizzato
5. **pannello acustico** in legno supportato da profili metallici con illuminazione a incasso
6. **sistema di partizione** in doppio vetro a giunti siliconati
7. **solaio di calcestruzzo** armato a vista realizzato con casseri radiali (200 mm)
8. **nodo di connessione** di calcestruzzo armato fibrorinforzato a vista con piatto di connessione per puntone metallico
9. **struttura metallica:** puntoni, tiranti e contraffissi per il supporto del solaio
10. **pannello sandwich curvo** con finitura alluminio, fissato su montanti curtain wall di alluminio (250 mm)
11. **lamella verticale** di legno (250 mm)

1. **roof light:** metallic profiles frame and double glazing
2. **external brise soleil**
3. **pneumatic roof** made of a triple ETFE layer
4. **L-shaped curved profile** made of galvanised steel
5. **wooden acoustic panel** supported by metallic profiles with sunk-in lighting
6. **partitioning system** made of double glazing with silicon joints
7. **bare faced** reinforced concrete slab built with radial formworks (200 mm)
8. **connection joint** made of bare faced fibre-reinforced concrete with connection plate for metal prop
9. **metal structure:** props, rods and braces to support the floor
10. **curved sandwich panel** with aluminium finish, connected onto curtain wall aluminium props (250 mm)
11. **vertical blade** made of wood (250 mm)



Sezione verticale sulla Civic e Community Hall. Scala 1:100

Vertical section across the Civic and Community Hall. Scale 1:100

Stefano Ravasio

of the two extremities of the city in a bit more than 30 minutes with 200 meters trains capable of carrying up to 1500 passengers split in ten carriages. To complete the line, nine new stations have been built: Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel, Canary Wharf, Custom House and Woolwich, as well as the refurbishment of the Abbey Wood Station.
Similarly to the tube station nearby designed by Sir Norman Foster, also the Canary Wharf Crossrail station is built over water and it develops over six levels, four of which underground and two above water.
Work began in May 2009 with the construction, in the waters of the North Dock, of a 250x30 m caisson, created with a new silent piling system. About 1000 piles and 350,000 tons of reinforced concrete have allowed the construction of a box from whose internal compartment 98 million litres of water have been extracted to leave space for the new station.
The structure has been constructed with a top down method, starting from the North Dock bed (10 meters below water level) up to an overall depth of 28 meters.
The structure, renamed Crossrail Place, allows the connection between the residential area of Poplar and the Canary Wharf financial district, which used to be separated by the North Dock, and covers a footprint 256 meters long with a width variable between 25 and 30 meters. The two deepest levels house the railway platform and the ticket hall; the roof wraps like a protective shell the building and it encloses the entrances to the new station, four levels of shops, cafes and restaurants. The promenade, which runs through the roof of the retail spaces, stops at the extremities with two pavilions. This level can be accessed from the ground thanks to two connecting bridges and acts like an urban bond between Poplar and Canary Wharf. The top level includes a park design to remind of a boat full of unusual and exotic specimens coming from all over the world; the garden is organised around a central walk surrounded my multiple shorter paths going in different directions and which offer to the visitors a sensation of escape from the surrounding urban environment.
The plants have been selected as a reminder of the maritime environment of the area and most of these come from the countries visited by English tradesmen during the 19th century to promote the sale of the ships which used to be built in the ten West India Dock.
The building can be therefore identified as multi-use complex capable of optimising the spaces and condensing in one single container a diverse mix of urban elements which will allow the use of the station throughout the day; in the evening infact the study of particular lighting settings, will attract people in a public welcoming space, in line with the developing commercial district in which it is located.
From a compositional point of view, the building presents a dichotomic duality constituted by the geometrical and technological complexity of the roof as well as the essentiality of the built basement.
The characterisation of the project is however identified with roof solution in which the wooden profile and the ETFE cushions give a technological aspect which is in contrast with the surroundings. This solution contributes to create a microclimate suitable for the garden below while controlling in a passive way the temperature and humidity conditions of the areas below. The attention towards the floral component, combined with the human perspective, lead to the development of a technological solution capable of recreating a comfortable and liveable environment all year round. In the central portion there is an open space: the roof has been interrupted to allow the access of natural light and of rain to supply for a natural irrigation of the garden.
The wooden structure of the roof, which represents one of the largest uses of glulam timber in the UK, opens us also along the sides and at the extremities to allow the views of the water and of the surrounding roads while recalling the poetic image of the ships which used to populate the docklands in strong contrast with the glass and steel towers around.
The apparent simplicity of the geometry of the roof disguises the complex design-modelling-production process, result of a progressive integrated design which lead to the final configuration of the system: wooden structure and envelop have been conceived like a single package, optimised while pushing to the dimensional limit the ETFE cushions. Using the 3D modelling, each structural element has been designed, calculated and directly sent to the factory to be manufactured thus reducing to the minimum adjustments on site.

ZOOM 1
GEOMETRICAL COMPLEXITY AND GLULAM TIMBER

“A fusion of architecture, engineering and sophisticated 3D modelling,” this is how Foster + Partner have described the structure of the new station.
A frame of glulam timber beams designs a barrel vault which embraces the entire building, from the lower reinforced concrete box up to 30m above the park. The roof is composed of a series of coupled glulam timber triangles, oriented along the horizontal axis of the building. The diagonals, also made of glulam timber, have generally a 24x61 cm rectangular section (which over the projections reaches 24x73 cm); they follow the shape of the roof with different inclination angles and generate, in the cross section, the geometry of a semi-elliptical arch. The east and west extremities generates two 30m projections over the water.
In the open central area, in correspondence of the third line of horizontal beams, there are steel rods with a 20 mm diameter for the lateral stabilisation of the diagonal props. At the extremity of each of the projections, a steel tubular profile with a double curve (End Ring Beam) runs parallel to the wooden diagonals acting as a structural reinforcement for the entire roof.
The roof is connected to the reinforced concrete box below via a series of 1.5m long projecting steel tubular profiles.
Overall the structure is composed of 1525 elements, 1414 of which are glulam timber beams class GL24h and GL28h. The remaining 111 elements are galvanised steel rectangular profiles used in correspondence of the station’s hot air outlets where there could be a possible formation of condensation.
The beams have a 9m maximum length. All the elements are linear with the exception of the 4 beams at the extremities which are curved. 564 pre-welded galvanised steel elements (with 348 types of connections) allow the roto-translation of the glulam timber beams creating the spiralling aspect of the roof.

ZOOM 2
ETFE: TRANSPARENCY AND LIGHTNESS

“The geometric timber lattice is designed to unify the three different functions of the building in a single architectural expression. The advantage of using timber was that it could be economically and efficiently machined to follow the complex geometry that evolved to meet the development parameters, creating a technically advanced enclosure.” Ben Scott, Partner, Foster + Partners
The glulam timber lattice supports large triangular pillows made of ETFE which give to the building a dynamic aspect.
ETFE is a plastic material, far lighter than glass (about 1% of the weight) but capable to transfer about the 95% of sun light.
The large pillows used for the Canary Wharf Station are made of two membranes, between which there is pressurised air, fixed onto an aluminium frame. The pillows are provided with valves connected to a pressurisation system, thanks to this the air enclosed between the membranes in kept at such a pressure to resist against wind and snow loads.
The air is kept pressurised via a constant flow of air with the minimum energy consumption. The distribution network about the glulam timber beams, parallel to the beams themselves, is concealed from the public’s view. The air also de-humidified to avoid the creation of condensation inside the pillows.
The presence of air between the two membranes gives the envelop an efficient level of thermal insulation.
In correspondence to the portion of open space, the timber beams are finished with aluminium flashings.
A watertight aluminium extrusion, bespoke design for this building, allowed a quick installation of the ETFE pillows in the different orientations reducing to a minimum the operations on site. To make the installation simpler, a solution has been adopted whereby the supporting brackets to the structure of the pillows are all the same height in the building. This solution has allowed for the upper surface of the beams to be defined based on the width of the aluminium extrusions which compose the frame.
The conditions needed to support the ETFE film have been the driving factor in determining the tolerances allowed for the aluminium frame, for the brackets and for the main frame.

BRENT CIVIC CENTRE
LONDON, UK
HOPKINS ARCHITECTS

TWO VOLUMES CONSTITUTE THE NEW CIVIC CENTRE WHICH ACTS LIKE THE FRAME OF A TRIANGULAR SQUARE WHICH PUTS IN ORDER ALL THE EXISTING BUILDINGS.
THE ENTRANCE IS VIA A MONUMENTAL ATRIUM WHICH CONSTITUTES THE HEART OF THE COMPLEX: AN EIGHT STOREY VOLUME COVERED BY PNEUMATIC MEMBRANE MADE OF A TRIPLE ETFE LAYER.

The Brent Civic centre is a multi-functional building with a high energy efficiency which combines under one roof the administrative offices, the council departments and many community public services which used to be spread across 17 buildings. The policy of centralisation and modernisation of the offices and services promoted by Brent Council allowed to free the old assets which has been in part sold and in part reconverted to different use. The overall operation and the high energy efficiency of the building during construction and use, allowed to achieve a saving in management costs of about 2.5 million pounds per annum.
The complex is a key element for the regeneration the chaotic Wembley area which concentrates, within a short distance, two venues which attract large crowds: the Wembley Stadium and the Wembley Arena, a 1940’s building with a

reinforced concrete structure which is currently used for concerts, sport events and shows.

The new Civic centre overlooks the stadium and acts like a frame to a newly-built triangular square while putting the existing structures in order. It is composed of two volumes: on the north and east a L-shaped 10 storey block to house the administrative offices; to the south and west a lower block for the council functions. This block, which is expressive and monumental, can be distinguished for its top 5 storey circular drum which reveals the public importance of the building and, at the same time, can relate to the circular shape of the arena.

The two blocks are connected by a eight-storey atrium with a triple ETFE pneumatic roof. Open, welcoming and accessible, the entrance foyer of the monumental atrium is the heart of the Civic centre. From here the building reveals its internal configuration with schematic clarity allowing the visitors to find their directions without hesitation.

At the entrance level there are the reception, a cafe/restaurant and the areas for the civil weddings. There are also some retail spaces (whose retailers have been chosen on the basis of how useful they can be to the community) and, on the east, a small library (about 2.000 m2) which can be easily accessed from a second entrance, making the building accessible even when the square is flooded by the supporters of the Wembley Arena. A monumental staircase, aligned with the main entrance, leads to the mezzanine level. The staircase, with adjacent escalators, is so wide to include, in the central part, some seats which can be used for informal meetings or to watch those events which occasionally take place in the atrium.

The vertical connections are instead grouped in the back corner of the atrium, they have a scenic steel structure emphasised by a vibrant red colour which reminds of the vertical connections designed by Hopkins for the Evelina Children Hospital.

On the first floor, a triple height gallery wraps the atrium on three sides and distributes the different functions. From here there is the entrance to the circular drum which is characterised for its shape and its cladding made of aluminium panels with laminated wood vertical blades, a reminder of the reinforced concrete fins of the Wembley Arena. The drum contains, on the ground floor, the Community Hall, a large circular space, flexible and which can be divided, when needed, with sliding partitions for conferences, banquets, wedding receptions and the popular Tea Dance for more than 1000 people. The space is covered by a reinforced concrete plate with fine finishes (the joints of the formworks are radial to be better suitable with the circular shape of the room) supported by metal spans to free the area completely by structural obstructions. Using large windows, it opens up towards the south in a large winter garden overlooking the Wembley stadium.

The Civic Hall develops on the upper floor, over an area with a smaller circumference. The quadruple height space is surmounted by a glazed eye which allows a generous and scenic entrance of natural light from the top. The space is aimed to house the Council's meetings, public ceremonies and it can

be configured in a both formal and informal arrangement. The hall is finished with wooden acoustic panels which give it a warm and welcoming look. On its perimeter, distributed by a circular corridor, there are the halls to be used for private functions. These have also got a flexible aspect and are arranged to be divided as needed depending on the number of participants.
The offices wrap the drum at the back and on the western side, contributing at the same time to define the perimeter of the monumental atrium; they occupy an area of 18.870 m2 capable of including 1600 workstations for 2000 staff. These volumes, with a predominantly free-flow plan, are 15m deep allowing to every workstation to benefit from natural light coming from the double front, the one on the north over the public road and that on the south towards the atrium. The glazed surfaces have openeable portions to natural ventilation as for as for the mechanical one.
The treatment of the transparent facades is the result of a careful modelling which led to the optimisation of the blades and the external brise soleil systems for the control of the solar gains and for the prevention of the undesirable glaring effects.
The walls of the monumental atrium alternate transparent and opaque portions made of wooden acoustic panels. A special treatment gives them the look of an external façade highlighting the sensation of being on an urban street when walking through the gallery on the first floor which distributes the functions located in the two blocks of the building.

ZOOM
SUSTAINABILITY ALONG THE ENTIRE LIFE CYCLE

The sustainability objectives at the base of the project have been achieved thanks to the modelling of the high performance envelope, to the use of natural lighting and ventilation, the selection of low environmental impact and locally sourced materials and, ultimately, the choice of a co-generation system which uses a second generation liquid bio-fuel obtained by fish-oil residues which would have been burned instead. These are all factors which have contributed to reduce of about 70% the overall energy consumption compared to a traditional building of the same type with an emission value in the environment of only 5 $kgCO_2/m^2$ year (about 33% less than a conventional building).
The 80% of the products is provided with environmental labelling; their selection is the result of a meticulous Life Cycle Costing analysis process. This lead, for example, to reduce in relation to the initial assumptions the thickness of the reinforced concrete slabs using a post-tensioning system and aggregates coming from recycling for the 50%. The project team worked with the National Industrial Symbiosis Programme to identify those external markets which could have re-utilised or re-cycled the project waste and to reduce those which typically would have been sent to landfill. The finishes, where possible, have been removed, preferring bare faced materials (such as concrete largely used for structures and floors), and, where needed, they have been selected for their robustness, maintainability and the absence or low content of volatile organic components.
The ETFE roof over the atrium, compared with similar performance, has been preferred to a traditional glazed roof for its lightness which allows to minimise the dimension of the supporting steel structures and, as a result, the grey energy accumulated in the building.
The Brent Civic Centre has been certified BREEAM Outstanding both during construction (92.5% score) and use (93.3% score). Thanks to its high sustainability the project received the BREEAM Award 2015.

MATERIALS AND SYSTEMS
TEXTILES AND POLYMERIC, THE MATERIALS OF THE FUTURE

Textiles and polymeric films constitute an as yet unexplored range of construction materials and contain elements of innovation capable of driving forward the current and deep-rooted assumptions in our thinking about the skin of the buildings in the broadest sense of the word.
In modernity every object that corresponds to our ideal of beauty and performativity, whether on a small or large scale, has a seamless structure; it is sinuous, durable, cleanable, and, in the best of cases, even interchangeable. This desire is real if we think of the many practical objects around us in our everyday lives; objects that express the levels of well-being we have now acquired. This scenario is still partly in the future if we look instead at the skin of our buildings, where discontinuities are often unavoidable, in both transparent and opaque surfaces, and in the different components with which a given surface is treated. Over time, such discontinuities become weaknesses in the building's protective system and can undermine the level of durability and ongoing performance for which the building was designed.
Textiles and polymeric film, by virtue of their ease of preparation and weldability, constitute an as yet unexplored range of construction materials and contain elements of innovation capable of driving forward the current and deep-rooted assumptions in our thinking about facades, roofs and, in general, the skin of buildings in the broadest sense of the word. Like a sophisticated garment cut and sewn to measure, a textile skin can adapt to even the more complicated and unusual structural systems and spatial configurations offered by contemporary ingenuity.
This range of hyper-lightweight materials results from a design, production and construction process that is also much more time-efficient compared to systems that make use of conventional materials. This is very advantageous in situations where the time between approval of the idea and implementation of the project is kept to a minimum, perhaps as little as 3-6 months. Finally, a building featuring a textile skin that may weigh at most a few kg/ m^2 cannot exploit a mass that it does not have, for the purpose of seeking balance, nor can it insulate an inside from an outside: this may be a limitation in some circumstances, but a suitable design of multilayer solutions can prove to be a sound strategy to overcome the problem of low transmittance of the individual layers of fabric. In other cases the radiative effect of the sun on thin membranes can convey linguistic choices and maximise daylight gain while reducing the need for artificial lighting systems.
Basically, all these aspects give a measure of how different a design path has to be in order to best exploit the potential of coated textiles, transparent film, shading screens, translucent flexible insulating mats, as well as low-emission, self-cleaning, flame-retardant membranes, or finally, highly innovative 3D and 4D knitted textiles.
Adequate technical information on the wide range of composite and mono-component membranous materials available today from manufacturers can support designers in their choices. This can apply both to temporary and permanent buildings and both to new construction and restoration projects – to say nothing of the enhancement and safeguarding of cultural heritage.
It should be remembered that membrane solutions, based on textiles and polymers can be decisive factors with respect to other material ranges in terms of performance and costs, especially in these two cases:
1. when the architecture has to be a temporary installation, of rapid installation and easy removal after use, and hopefully even reusable after the first use cycle;
2. when the buildings are permanent and of great light; in this case, the large areas free from structural elements can be exploited for their mechanical strength and also for the characteristics of transparency and constructive clarity that comes from the thinness of the materials; this in fact is the cornerstone of their architectural qualities.
In the former case, the diaphragm is usually used mono-layer and the designer must consider choosing the best textile or multifunctional film solution, capable of incorporating all expected performance in a few millimetres or even microns of composite layer: core mechanical strength of the textile, durable and water-resistant coating, special surface lacquers for specific requirements, such as low-e, TiO2, PVDF lacquers.
In the second case the use of multi-layer solutions is common, allowing adequate thermal and acoustic insulation of closed spaces; also used are solutions in pneumatic cushions that exploit the transparency of the ETFE films and calibrate the solar gain through aluminium or copper-based printed layers incorporated in the film itself.
These two areas of research are in the end the most likely incubators of innovation, both in terms of new materials being introduced in the field of architecture and in terms of improving the performance of materials already known.
The new frontiers of textile architecture most certainly include:
1. the integration of lighting systems directly into the membranous or filmic layer or in the constructive component; think for example of the integration of OLEDs into the pneumatic cushions of ETFE, but also the more futuristic printing of organic photovoltaics on membranes and on films placed on coverings;
2. technological advancement in the production of ETFE and EFEP flora-polymer films, which provide reduced environmental impact during the process stage and, above all, give rise to the possibility of imparting photo-luminescence to films useable in architecture;
3. technological advancements in membranes whose coatings are becoming more designer-customisable in the face of special requirements: of interest in this regard are PVDF lacquers applied to PES/PVC membranes to make them more durable and also low emission treatments applied to one side of the membranes of different materials;
4. the development of new ultralight textiles that combine a hyper-resistant fabric like Dyneema with a very light, air-resistant and fire-retardant coating such as PU, or that exploit the deformability of a knitted fabric, subsequently protected by a PU layer to obtain an easily tensionable membrane suited also to installation in situations not perfectly planned in advance;
5. the integration of nanostructured materials in textiles, such as aerogel, to create constructive systems that are insulated but still light-translucent.