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1 Undershaft – The City of London's New Skyscraper Where the Public Comes First

「1 Undershaft」–以人为先的伦敦金融城新摩天大楼

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Eric Parry established Eric Parry Architects in 1983. Under his leadership, the practice has developed a reputation for delivering beautifully crafted and well considered buildings that respond to their context. London has been the focus and the setting for most of Parry's work. In 2006, he was elected Royal Academician (RA) and was later awarded the honorary degree of Doctor of Arts from the University of Bath in 2012. Parry is currently leading the team developing the design for 1 Undershaft.

Eric Parry 在1983年成立Eric Parry Architects。公司在他领导下，成为了举世闻名的建筑师事务所，以精美和细致的建筑风格见称。Parry一直以伦敦为事业基地，他于2006年当选为皇家艺术研究院院士，并于2012年获英国巴斯大学（University of Bath）颁授艺术荣誉博士学位。Eric带领项目团队开发1 Undershaft 大楼的设计。

Nick Jackson
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Nick Jackson joined Eric Parry Architects in 1990 after completing his architectural education at the University of Cambridge. In 1994 he moved to Kuala Lumpur to set up a regional office working on projects in Malaysia and Singapore. Since 1998, after returning to London, he has worked on a range of award winning hotel, residential, and commercial projects. He has maintained connections with South East Asia as the practice has collaborated with partners in Malaysia, and more recently has supported the EPA regional office in Singapore. Working alongside Parry, Jackson is leading the team developing the design for 1 Undershaft.

Nick Jackson 在剑桥大学完成了他的建筑学学位后，于1990年加入Eric Parry Architects。 1994年，他迁到吉隆坡设立地区办事处，并参与马来西亚和新加坡等地的项目。自1998年返回伦敦后，他参与了一系列屡获殊荣的酒店、住宅及商业项目。他与东南亚的客户和项目关系密切，包括与马来西亚的合作伙伴合作，并支援Eric Parry Architects在新加坡的地区办事处。Jackson与Parry合作带领项目团队开发1 Undershaft 大楼的设计。

Tanya Parkin
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Tanya Parkin was a project architect for 5 Aldermanbury Square, from its pre-planning stages through to its 2007 completion. The project was also shortlisted for the Stirling Prize. As an Associate, she worked to planning 120 Fenchurch Street, a large office development in London that encompasses a publicly accessible roof garden, as well as the recently completed No. 8 St. James's Square. The office development and the adjacent listed private residence by Edwin Luytyens are both located in the heart of the St. James's Conservation Area.

Tanya Parkin 是伦敦5 Aldermanbury Square项目的建筑师，曾参与项目规划前期至2007年完工阶段的工作。曾入围英国皇家建筑师学会斯特林奖。此外，她曾参与120 Fenchurch Street项目规划阶段的设计，该项目为伦敦金融城内一项大型的写字楼发展项目，项目包括公共天台花园。Parkin 最近完成了St James's Square 8号规划阶段的设计工作，该写字楼项目位于St James's文物保护区的中心位置，邻近历史建筑Edwin Luytyens私人住宅。

Abstract | 摘要

The paper will describe the aims underpinning the proposed development at 1 Undershaft in the City of London. The project will be exemplary in putting the public first, featuring a new square at the tower base and offering the capital's highest free viewing gallery at the crown. Additionally, 1 Undershaft will be one of the tallest buildings in the City of London, establishing a new benchmark for high rise development in London for the next decade by providing flexible, high-quality, open-planned office accommodations within an elegant tapered form expressed through its unique external structural corten mega-frame. At ground level, the building is elevated to open up the public space, creating an animated public realm with a lowered landscaped court and retail gallery. Transfer zones within the building sky lobbies continue the public activity of the building.

Keywords: City, Eric Parry, London, Tower, and Undershaft

本文将介绍位于伦敦金融城拟建的「1 Undershaft」大楼。这将是一个以人为先的新摩天大楼，大楼底部建有新的公共广场，并在顶部设有市内最高的公共开放观景廊。「1 Undershaft」大楼将成为伦敦金融城最高的建筑，它将为未来十年伦敦的高层建筑定立新标杆，通过其独特的外部结构巨型支架，展现优雅的形态，并提供高品质、灵活的开放式写字楼空间。大楼在地面开辟一个公共空间，配合园景区和零售区，创造充满动感的公共环境。大楼内的空中大堂作为转乘区，持续为建筑物提供公共的互动空间。

关键词：城市、Eric Parry、伦敦、塔楼、Undershaft

No. 1 Undershaft will be the tallest building in the eastern cluster of tall buildings in the City of London. The City's skyline is a complex and rapidly evolving story of opportunity and constraint. To date, it is made up of buildings of two camps: those that have autonomous forms – like the Gherkin or the stalled Helter Skelter – and those shaped by viewing corridors determined by St. Paul's Cathedral – like the Scalpel or the Cheesegrater. As a group, they lack a central building to settle the existing and future choreography of tall buildings. This is perhaps most significant for the workers, citizens, and aldermen of the City at ground level, as developments can leave scars like meteor strikes on the medieval street pattern.

Our design of 1 Undershaft responds to these two issues of the skyline and the street, reconciling urban complexities with a clear and ambitious public realm located at the top and base of the building. This is mediated by the seven expressed structural braces of the tower, with a proportion of height to width that is seven to one, and supports 73 floors (Figure 1).

伦敦金融城将新添一座摩天高楼，名为「1 Undershaft」，将跻身成为伦敦城东部地区第一高楼。伦敦金融城的天际线是百花齐放而且急速变化的。迄今为止，伦敦金融城的建筑分为两个主流，一类是自由设计、外型独特的大厦，如Gherkin和Helter Skelter，另一类是受到圣保罗大教堂景观局限而设计的大厦，如Scalpel和Cheesegrater。在众高层建筑之中，缺乏了一座中央大楼来设定现有和未来的高层建筑的布局。除此之外，对建筑工人、市民及市政委员来说，最重要的是让他们为历史陈久的街道留下光辉的痕迹。

我们的设计回应了城市天际线和街景局限的问题，解决了城市的复杂性，包括在大楼的顶部和底部划分明确和大型的公共空间。大厦采用七个交叉支撑结构来支撑73层高楼，其高宽比例为7：1（图1）。

小结

该项目包括73层的办公楼，以及底层和地下LG层的改良型公共区域。大楼顶部为一

Summary

The scheme consists of a 73-story office building with an enhanced public realm space at the top, ground, and lower ground levels.

- 154,100 square meters (1,658,700 square feet) gross external area
- 128,780 square meters (1,386,200 square feet) gross internal area of office space
- 2,005 square meters (21,500 square feet) of gross internal retail space at lower ground floor
- 1,200 square meters (12,900 square feet) of gross internal restaurant space at level 70
- 2,810 square meters (30,200 square feet) of gross internal publicly accessible viewing gallery and education center at levels 71-72 and associated entrance lobby at basement-level B1
- A public realm space of 1.6 acres
- Six disabled parking bays
- 1,664 cycle parking spaces and associated cyclist facilities

The new building will create high-quality office accommodation in flexible open-plan floors to meet the requirements of the next generation of businesses within the City of London. The new office will have generous floor to ceiling heights, as well as high-levels of natural light and fresh air intake to provide a healthier working environment than is possible within the existing building. It is designed with sustainability and efficiency at its helm, minimizing the waste of materials, energy, and water throughout its lifetime.

Additionally, the new building will provide extensive public spaces, creating a community that is truly open and accessible to all. A viewing gallery is located at the top of the building, which provides 360-degree views of London and an education center large enough to accommodate two learning rooms for school-sized classes to visit and engage with London. A separate public restaurant is located on the floor beneath the viewing gallery.

History and Urban Context

The Rise of London's Skyline

London as a whole is the amalgam of two cities: to the east, the City of London was built on Roman foundations created during

Figure 1. 1 Undershaft, view of the proposed new building with other consented schemes within the Eastern Cluster. (Source: Eric Parry Architects & DBOX)
图1. 1 Undershaft，伦敦东区其他同意方案提出的新大楼。（来源：Eric Parry 建筑师事务所以及DBOX）

个可以自由出入的公共观景廊，观景廊下方则是一个公共餐厅。

- 共154,100平方米（1,658,700平方英尺）的室外区域
- 共128,780平方米（1,386,200平方英尺）的室内办公区
- 共2,005平方米（21,500平方英尺）的地下LG层室内零售区
- 第70层1,200平方米（12,900平方英尺）的室内餐饮区
- 第71、72层的公共观景廊和教 育中心及地下B1层入口大厅共计2,810平方米（30,200平方英尺）
- 1.6英亩的公共区域
- 6个残障人士专用停车位
- 1,664个自行车停车位及相关设施

这栋新大楼将提供灵活、开放、高质量的办公空间，以满足伦敦未来的商务需求。办公层有极高的天花、高水平的自然光和新风入口，以提供比现有建筑更健康的工作环境。该大楼以可持续性和高效性为设计原则，使其在使用期间尽可能减少材料、能源和水资源的浪费。

此外，该大楼还将提供大面积的公共区域，打造一栋真正向所有人开放的大楼。大楼的顶部为观景廊，可360度欣赏伦敦的景色；还提供一个教育中心，内设两间学习室，供学生前来参观，更好地了解伦敦。观景廊下一层则为一个独立的公共餐厅。

历史和城市文化

伦敦城市天际线的崛起

伦敦是由两个城市的基础上发展建立起来的：伦敦东面的伦敦城始建于公元一世纪的罗马帝国，伦敦西面的西敏寺市在公元11世纪由皇室创立。围绕这两个中心及之间的土地，以至泰晤士河以南的地区，都拥有不同且复杂的行政分组，现由Canary Wharf在伦敦码头区的建设开发把整个金融区连结起来。当英王威廉一世(William the

Figure 2. Claes Jansz. Visscher, View of London from South Bank (Jodoricus Hondius II, 1616), etching. (Source: Image placed in the public domain courtesy of the Library of Congress)
图2. Claes Jansz. Visscher，从南岸看伦敦（Jodoricus Hondius II, 1616），蚀刻版画。（来源：用于公共领域的图片由Library of Congress提供）

the 1st century AD, while to the west, the City of Westminster was conceived by royalty in the 11th century AD. Surrounding these two centers, and filling the spaces between and south of the river Thames, is a complex grouping of supportive and competitive Boroughs – now joined by the financial district of Canary Wharf developed on the footprint of London's Docklands. When William the Conqueror successfully established Norman rule of England towards the end of the 11th century, he was judicious in building the Tower of London at the eastern approach of the Thames to the City of London – not within the city boundaries – and he gave to the City its freedom to continue its mercantile work in perpetuity. This strong sense of independence persists, most radically represented in contemporary terms by the seismic shift in the City of London's skyline. This mercantile grip on the City, evidenced through its political structure of Corporation, Livery companies, and Aldermen, was again flexed after the great fire of 1666 when royal attempts were made to iron out its medieval street pattern – and rapidly rebuffed.

Within the City, as Claes Visscher's view of London of 1616 vividly depicts (Figure 2), St. Paul's Cathedral dominates the skyline as the umbilical connection of London Bridge does the ground. This balance continued, and has been repeatedly depicted as such since. The importance of a clear horizon around the dome of St Paul's has been legislated for by a series of viewing corridors within which height is carefully controlled.

In light of global competition and demand, the City of London has adapted, within the constraints of its street pattern and skyline, to define areas appropriate for taller buildings, thus giving rise to a very particular topographical idea – the Eastern Cluster. It was defined by a forward thinking planning department at the Corporation of London in agreement with wider London's political body, including the Mayor.

The Site and Surrounding Area

Within the Eastern Cluster, the proximity of adjacent existing and proposed buildings was of the utmost importance in the development of design ideas for 1 Undershaft. Factors such as the overall grouping of buildings, their proximity to one another, and the significant heritage of surrounding streets, markets, churches, and adjacent conservation areas places considerable constraints on any proposal (Figure 3). The existing 28-story building has five levels of basement beneath the tower, whilst the remaining area of the site has an extensive two-story basement under the plaza known as St. Helen's Square. This basement area contains car parking, loading bays, storage, and vegetated areas accessed by aggressively intrusive vehicle ramps immediately adjacent to the Church of St. Helen's Bishopsgate.

The site centers London's financial and insurance industries, with its southern edge bounded by Leadenhall Street. On the southern side of Leadenhall Street is the Grade I listed Lloyd's Building, designed by Richard Rogers (1986). At the southeast corner, St. Mary Axe and Lime Street meet Leadenhall Street, also the location of one of the busiest pedestrian crossings in the City. On the southeast corner of the junction is the site of a

Conqueror）在公元11世纪末成为英格兰国王后，便开始于泰晤士河东面建造伦敦塔。他选择不在城市边界内建设伦敦塔的做法是明智的，因为他让伦敦金融城的建筑布局可以一直自由地发展出来。这种强烈的独立意识，持续通过不断转变的伦敦金融城天际线呈现出来，并且在1666年伦敦大火后城市能够迅速复元中得到证实。

在金融城内，就如Claes Visscher的名作生动地描绘了1616年的伦敦市（图2），圣保罗大教堂在城市天际线中成为焦点，与地面的伦敦大桥互相辉映。这种建筑平衡持续地、反复地呈现至今。围绕圣保罗大教堂附近的建筑物高度已经被立法规管，以确保圆顶周围景观不会被遮盖。

在全球的竞争和热切需求下，伦敦金融城已适应了在街道格局和城市天际线的限制范围内，确定适合建设更高建筑的区域，而这也崛起了非常特殊的高层商业开发区布局 – 伦敦城东区(Eastern Cluster)，该称号由伦敦规划部门提出，并受到广泛的政治团体包括市长接纳。

项目工地与周边地区

在伦敦城东区内，邻近现有的建筑和拟

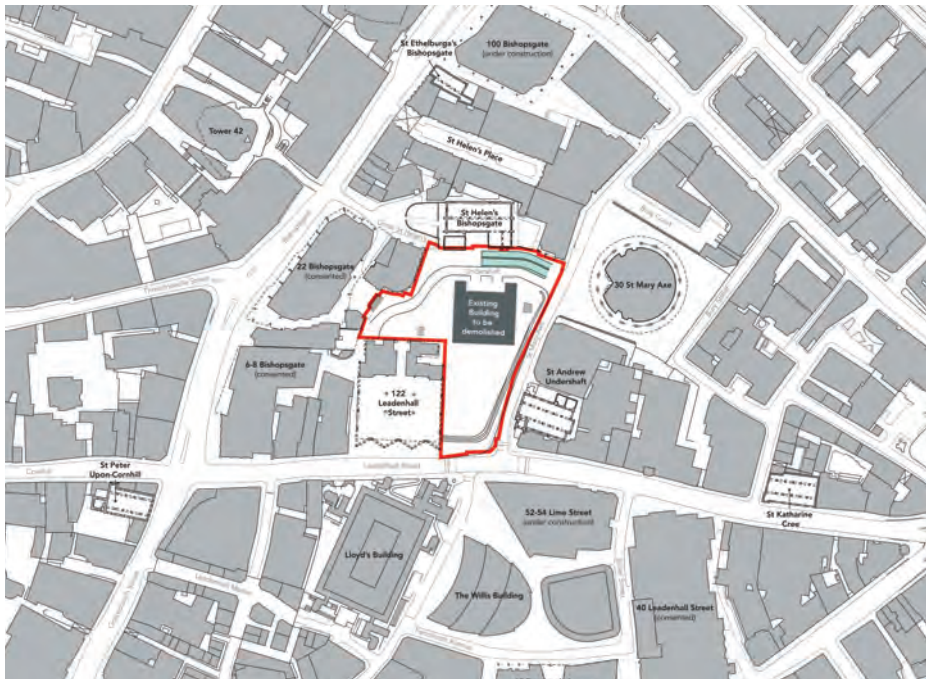

Figure 3. Existing site plan. (Source: Eric Parry Architects)
图3. 现时的项目工地规划。（来源：Eric Parry 建筑师事务所）

38-story under-construction building known as the Scalpel (52-54 Lime Street).

The easternmost edge of the site is bounded by St. Mary Axe. At the southern end is the church, St. Andrew Undershaft, constructed circa 1532. Further north, opposite the junction of St. Mary Axe and Undershaft, is 30 St. Mary Axe, known as the Gherkin and designed by Foster and Partners (2003).

The northern edge of the site is bounded by the St. Helen's Place Conservation Area and the Grade I listed St. Helen's Church which dates back to 1210, in addition to Great St. Helen's, the short road leading from Bishopsgate to the Churchyard to the east of the Church. A pedestrianized paved area connects Great St. Helen's to Undershaft. At the northeast corner is 1 Great St. Helen's, occupied by the insurance company Hiscox. In addition to the two churches immediately adjacent to the site, St. Ethelburga is located just to the north of St. Helen's Place, while to the southwest is St. Michael and Cornhill, and beyond to the northwest is St. Botolph without Bishopsgate Church.

Running across the northern part of the site is Undershaft. The name derives from the shaft of the maypole that, until the middle of the 16th century, was traditionally set up in the space opposite St. Andrew Undershaft. The road provides access to the service entrances for 6-8 Bishopsgate and 122 Leadenhall Street.

The western edge of the site is bounded by a set of steps leading up to the site of the recently consented 22 Bishopsgate and 122 Leadenhall Street – known as the Cheesegrater and completed in 2014. To the southwest of the site is the close-knit townscape of the Leadenhall Market Conservation Area and the ancient lanes of Lime Street and Cullum Street. With its narrow passageways, this historic setting dramatically contrasts the larger-scale 122 Leadenhall Street and other emerging tall buildings.

People and Transport

The majority of the working population travels daily into this area during the week, meaning that during the weekends and at night, there is limited occupation within the City of London. Consequently, the majority of pedestrians in the area will be business workers.

The historic Leadenhall Market and The Royal Exchange, with established retail, cafés, and restaurants, attract workers and tourists to the community. Neighboring 30 St. Mary Axe and the Grade I listed Lloyds building also effectively brings pedestrian traffic to the immediate area. Additionally, the Tower of London World Heritage Site is located within one kilometer of the site.

The site is well-served by public transport links and proximal to a number of major transport stations, including train stations at Fenchurch and Liverpool Streets, and Moorgate. The nearby tube stations are Aldgate, Bank, Monument, and Liverpool Street.

The site is surrounded by the primary routes of Bishopsgate and Leadenhall Street, and the tertiary one-way St. Mary Axe. Significant pedestrian flows from the nearby stations occur in morning and evening peak periods, during which pedestrians cross the site from the northwest, the east, and the south. There are also high levels of pedestrian movement at lunchtimes. The pedestrian crossing on Leadenhall Street, near the junction of St. Mary Axe and Lime Street, is one of the busiest crossings in the area.

Local Impact – Future Workstyles within the City

The proposed building recognizes the continued growth of the City of London as the financial center of Europe, with 1 Undershaft leading the next generation of buildings in both representing and securing the ongoing reputation and growth of the City. The City has forecasted a growth of 50,000 new jobs within the Square Mile between 2013 and 2023 (Future Workstyles and Future Workplaces within the City of London March 2015).

The Future Workstyles report describes the demand for new buildings and the changing nature of the office environment that will be required to sustain the City's economic growth. Future offices will have to provide better floor to ceiling height, quality of daylight, and ventilation than has been previously considered an acceptable standard. There will need to be an allowance for significant amenity spaces within buildings for tenants to occupy, including quality dining, exercise, and relaxation spaces, thereby creating the collaborative environment that is central to retaining effective staff in the future economy.

The report also highlights the importance of a high-quality public realm being brought forward in parallel, as future generations will begin to expect a similar standard of external environment as the one they enjoy within the new generation of buildings.

The building also acknowledges the importance of culture within the City. As well as providing spaces for the public at street level, it will offer a generous space at its crown for a

议的建筑对「1 Undershaft」大楼的设计至为重要。在设计考虑上，整个建筑群内大厦之间的距离，以至街道、市场、教堂和邻近保护区的重要遗产等都受到限制（图3）。现有的28层高大楼内设有五层地库，工地内著名的圣海伦广场(St Helen's Square）之下另建有两层的地库广场 。该地库广场包含停车场、卸货区、仓储区及工厂区，并设有车道直达紧邻的圣海伦主教门教堂(Church of St Helen's Bishopsgate)。

项目工地位处伦敦金融业和保险业的中心地带。工地南边以Leadenhall Street为界。在Leadenhall Street南侧是一级历史建筑Lloyd's Building，于1986年由英国著名建筑师Richard Rogers设计。在St Mary Axe东南面、Lime Street和Leadenhall Street的交界是当地最繁忙的行人过路处之一，其东南面是正在兴建中的38层高大楼——Scalpel（Lime Street 52–54号）。

工地东边以St Mary Axe为界，南面是1532年建成的St Andrew Undershaft教堂。往北面方向，在St Mary Axe及Undershaft交界，St Mary Axe 30号的位置是由Foster + Partners建筑事务所于2003年设计的Gherkin大楼 。

工地北边以St Helen's Place保护区及圣海伦教堂(St Helen's Church)为分界。圣海伦教堂为一级历史建筑物，其历史可追溯到1210年。东北面是Great St Helen 1号，为保险公司Hiscox的办公大楼。除了两座教堂紧邻工地，圣海伦广场北面是St Ethelburga，西南面是St Michael和Cornhill，西北面后方是St Botolph。

工地北部是Undershaft，这个名字来自对面在16世纪中建设的St Andrew Undershaft。该段道路提供了Bishopsgate 6–8号及Leadenhall Street 122号的入口。

工地西边可步行至最近宣布建设的Bishopsgate 22号大楼，以及于2014年落成的Leadenhall Street 122号Cheesegrater大楼。工地西南面是历史城镇景观保护区Leadenhall Market，以及Lime Street和Cullum Street的古老小巷。这个历史悠久的位置，加上狭窄的街道，与大型的Leadenhall Street 122号大楼 和附近新建的高层建筑有着强烈的对比。

人流和交通

大多数的工作人口每天都会来到这个区域。这也意味着，伦敦金融城在周末和夜间人流较稀少。因此在该区域的大部分行人皆是上班族。

历史悠久的Leadenhall Market和皇家交易所(The Royal Exchange)，提供了零售、

free public viewing gallery, education center, and restaurant.

Urban Character

At ground level, the building is raised to enable the public realm to extend across the site and under the building. The public realm includes a below-ground level, where extensive new retail space and restaurant space is provided. The public access to the viewing gallery is also located at this lower level, within a dedicated and spacious entrance lobby. The ovoid opening in the ground-level public realm provides light into, and a visual link with, the level below. Incorporated within this opening is a dedicated cycle ramp which sweeps down to provide access to the basement-level B2.

Access to the main office reception is via five escalators, all of which provide connections from the public realm to the elevated double-height reception space 12 meters above ground. A combination of single-decker and double-decker high-speed lifts connect the reception space to the office floors directly, or via two transfer zones which also provide amenity zones for tenants' benefit.

In order to maximize the public space at ground level, opening vistas from north to south (Figure 4 & 5), three key design ideas coalesced: first, the existing vehicle ramp needs to be removed and replaced by vehicle lifts accessing a service and recycling bay in the basement; second, the primary lift and service core of the building needs to be shifted away from a center core location to a side core placed at the western edge of the available site; and thirdly, the plan area of the tower needs to be enlarged within the available site into a square with four corner supports to minimize the need for central piers.

Figure 5. Public realm section. (Source: Eric Parry Architects)
图5. 公共空间部分。（来源：Eric Parry 建筑师事务所）

咖啡馆和餐馆，吸引上班族和游客前往该区。邻近的St Mary Axe 30号大厦和一级历史建筑Lloyds Building也吸引游客慕名前来，世界遗产伦敦塔也在工地1公里的范围内。

项目位置拥有完善的公共交通网络，附近有各类的大型车站，包括位于Fenchurch Street、Liverpool Street和Moorgate的火车站，以及附近Aldgate、Bank、Monument和Liverpool Street的地铁站。

项目被往来Bishopsgate 和Leadenhall Street的主要道路及St Mary Axe单程路包围。附近的车站在早晚高峰时段有显着的人流：行人从西北面、东面和南面路经此地。在午膳时间也有大量的人流经过，行人横过Leadenhall Street，St Mary Axe及 Lime Street的交界，是该地区最繁忙的行人路之一。

本地的影响 – 伦敦金融城未来的工作环境

拟建的「1 Undershaft」大楼进一步确定了伦敦金融城的持续增长，巩固了其作为欧洲金融中心的地位，并引领新一代的建筑，让伦敦金融城继续不断壮大。伦敦金融城预计在2013至2023年间新增5万个就业职位。(资料来源：2015年3月出版的《伦敦金融城未来的工作环境》<Future Workstyles and Future Workplaces within the City of London>

《伦敦金融城未来的工作环境》报告指出城市寻求新建筑物和不断转变的办公室环境，有助维持可持续的城市经济增长。未来对办公室的要求标准将会较现时可接受的程度更高，例如更高的天花、更多的日照和更佳的通风系统。同时，也需要为用家提供更多的舒适空间，如餐饮区、运动场地及休闲空间，以创造优质的工作环境，吸引优秀的人才进驻。

该报告还提出了高品质公共空间的重要性，因为预计下一代将会期待新建筑物的内外环境是一致的。

「1 Undershaft」大楼也重视伦敦金融城的文化，因此在地面街道提供公共空间、在大楼的顶部提供宽敞的空间来增设免费的公共观景廊、教育中心和餐厅。

城市个性

首层的提高使公共区域可扩展至整个地上区域及地下层。 此公共区域包括地下一层，提供了广阔的新商业空间及餐饮空间。公众进入景观廊的通道也位于此地下层，设有宽敞的专用入口大厅。位于地面的公共区域椭圆形开放入口的设计方便地下区域的采光，并提供开阔的视野。入口内设有专门的自行车环形斜坡，可通向地下二层。

共有五台自动扶梯连接公共区域至离地面12米、两层高的办公大堂。再搭乘单轿厢或双轿厢高速电梯可从办公大厅直达办公层，或通过转换层的换乘电梯到达办公附属设施层，这也为租户带来了便利。

为了最大化利用地面的公共空间，拓宽由北往南的视野（图4、5），于设计中结合了三个关键设计理念：首先，用车辆升降机替代了现有的车辆坡道，于地下层的维修和回收车辆运输；第二，大楼主要的电梯和设施管道布置从中央核心筒移至可用区域的西侧；第三，通过正方形的四角支

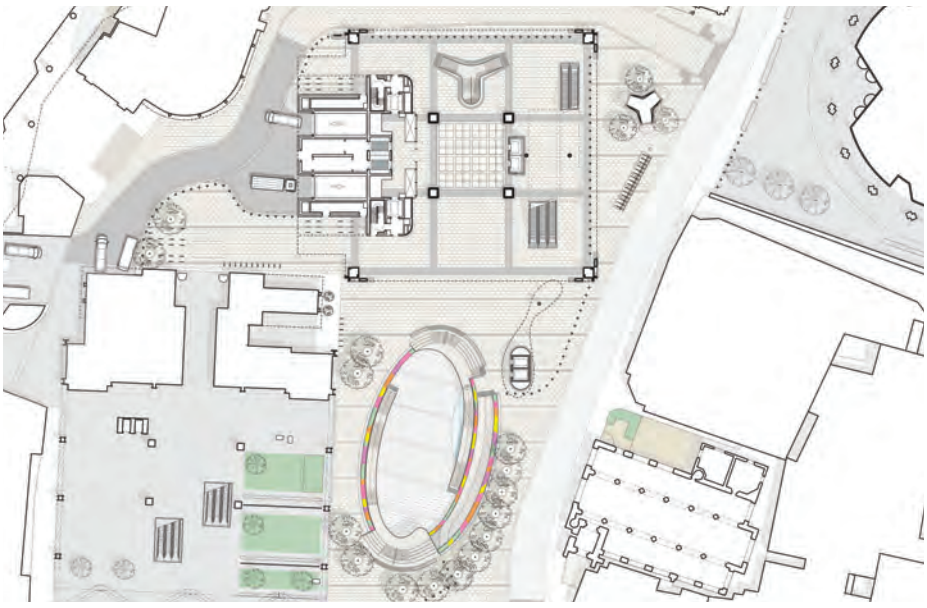

Figure 4. Public realm landscape plan. (Source: Eric Parry Architects)
图4. 公共空间景观规划。（来源：Eric Parry 建筑师事务所）

Figure 6. View of the lower court from the restaurant space. (Source: Eric Parry Architects & DBOX)
图6. 从餐厅位置看较低的区域。（来源：Eric Parry 建筑师事务所以及DBOX）

The simplicity of the structural idea echoed the ambition for the haptic presence within the earlier described complex urban setting. The surrounding neighbors of the cluster are predominantly glass-skinned, with a variety of high performance unitized systems and examples of separated double-layered glass construction. Their structures are either veiled or entirely concealed behind these. Therefore, they all have a tendency towards a dark tonality accented by an underlying green chromatic range.

The side core arrangement adds to the required structural capacity of the envelope and the need for bracing to stiffen a form of the intended relative slenderness and height of the structure. Like the marvelous pragmatic structural solutions for many earlier 20th century industrial buildings (externally braced water cooling towers for instance), the expression of the bracing became a driving aesthetic for the exterior of the building. Following this idea was a desire that the bracing should be materially expressed, rather than overclad, necessitating a non-ferrous or weathering steel solution. The choice of the latter follows several innovative projects that have involved both metallurgic and fire protection research and development to enable the expression and presence of the material. Likewise, a series of our commercial projects have involved recessive façades to create both a material presence other than glass and solar control.

Within the depth of the extended bracing of 1 Undershaft, are continuous horizontal bands of white vitreous enamel brise-soleil shrouding

撑扩大可用区域内的规划面积，减少中心支柱的使用。

简单的结构理念与早期描述的复杂城市环境中的触感呈现目标相呼应。该地带周围的建筑大部分为玻璃外墙，采用各种高性能的系统及分离式双层玻璃构建。这些建筑结构或笼罩或整体隐蔽于玻璃内。因此，这些建筑均倾向于采用暗色调并搭配基础绿色系列。

位于建筑侧边的布置增强了建筑围护结构的承载能力，以及加强了预期相对长径及高度的支撑需要。这类似于许多20世纪早期的工业建筑使用的非常实用的结构方案，例如在建筑外用水冷却塔支撑结构，这种支撑形式驱动了当时建筑外观的审美。这种观念带来的需求是，支撑结构应通过具体材质来实施而不被覆盖，这可以是运用有色金属或耐候性钢板。通过几个冶金研发及消防安全研发的革新性项目，运用实现材质的结构支撑表达物质的存在。同样地，本公司许多商业项目已采用隐性特征的建筑物外观立面，同时构建出除玻璃外的材质支撑，以及太阳能控制。

在「1 Undershaft」外扩支撑层中，由整体玻璃支持的连续水平排列的白色搪瓷遮阳板笼罩此项目（图6、7）。铁锈暗红色耐候性钢板交叉结构和建筑角柱部分将与反光的白色遮阳板形成鲜明对比，加以简单的建筑形式，突显出与伦敦城东部地区其他建筑材质的差异。

塔楼随著高度往上而逐渐变窄 。若延续塔楼高度，侧边最终将在建筑高度的十倍高处相交于一点，距离伦敦地平面2940米。由于建筑随著高度往上而逐渐变窄，各层平面也随之变化（图8、9）。

Figure 7. View of St Helen's Square from the south. (Source: Eric Parry Architects & DBOX)
图7. 从南面看St Helen’s 广场。（来源：Eric Parry 建筑师事务所以及DBOX）

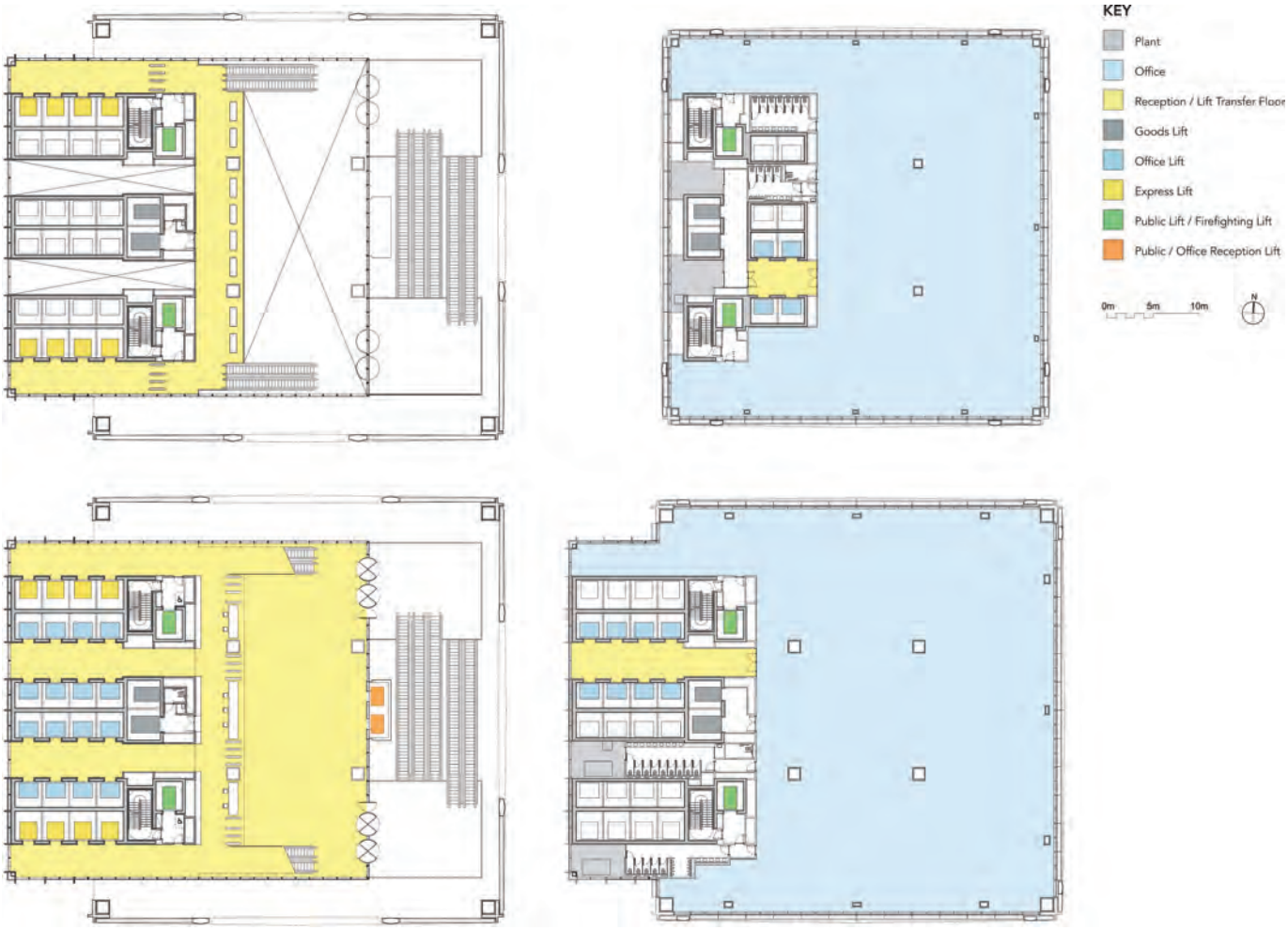

Figure 8. Plans. (Source: Eric Parry Architects)
图8. 规划图。（来源：Eric Parry 建筑师事务所）

the envelope, removed yet supported by the unitized glass systems (Figure 6 & 7). The combination of the deep absorbent rust-red of the weathering steel bracing and corner sections will contrast sharply with the reflective white of the brise-soleil, together marking the simple form of the building against the materiality of the other buildings in the Eastern Cluster.

The sides of the tower taper slightly over its height. If the lines were to be extended beyond the height of the tower, they would eventually converge at a point ten times the height of the building – 2,940 meters above London. As the building gently tapers over its entire height, each floor plan varies accordingly (Figure 8 & 9).

The tower comprises seven cross braces, with the lowest three spanning over 12 floors and the upper four spanning 10 floors. Through nodes, the external braces transfer the horizontal loads into a structural frame within the building envelope. The structural members externally and internally reduce in size as they progress up the building, further accentuating the perspective effect of the tower's taper. The loading from the internal perimeter columns to the four main corner columns is transferred at

塔楼外立面由7个交叉支撑围护组成，最低处的3个交叉支撑围护各跨度12层高，高处的4个交叉支撑围护各跨度10层高。外部支撑用过各节点将水平荷载转移到建筑外体内的结构框架，建筑内部的结构柱尺寸随高度往上而减小，更着重突出塔锥的视觉化效果，内部边柱及四角柱的荷载转移到建筑底部，增加了建筑底柱的尺寸。

重要的是这种转移减少了公共广场区域垂直柱的数量，使地面及地下层的公共区域更少地受视感和体感影响（图10）。

核心筒位于建筑西侧，大约比正面幕墙高出10米。这背部幕墙反映出该区域核心筒的功能及布局的各种容纳条件（图11）。

垂直运输系统

为了使这栋细长、美观的大楼能够提供高品质的弹性空间，做好电梯系统的设计至关重要。电梯的高效运送能力是项目成功的基本因素。根据此大楼的规模和高度，采用空中大堂转换层是最好的解决方案。这在其他地方很常见，但在伦敦这还是第一个采用空中大堂转换层的项目。

大楼西侧的偏移中心的核心筒将设置电梯井道。其中，49层以下的电梯井道设在大楼的背部。48层到49层之间的转换层可连

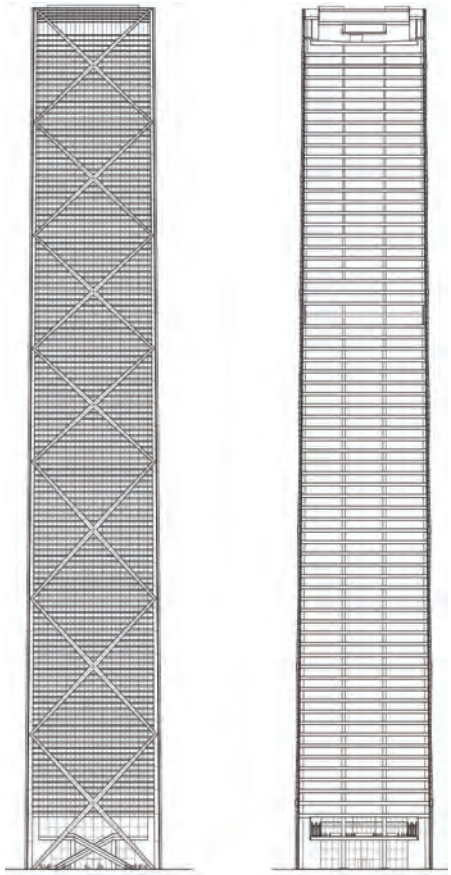

Figure 9. East elevation and section. (Source: Eric Parry Architects)
图9. 东面立面图及截面图。（来源：Eric Parry 建筑师事务所）

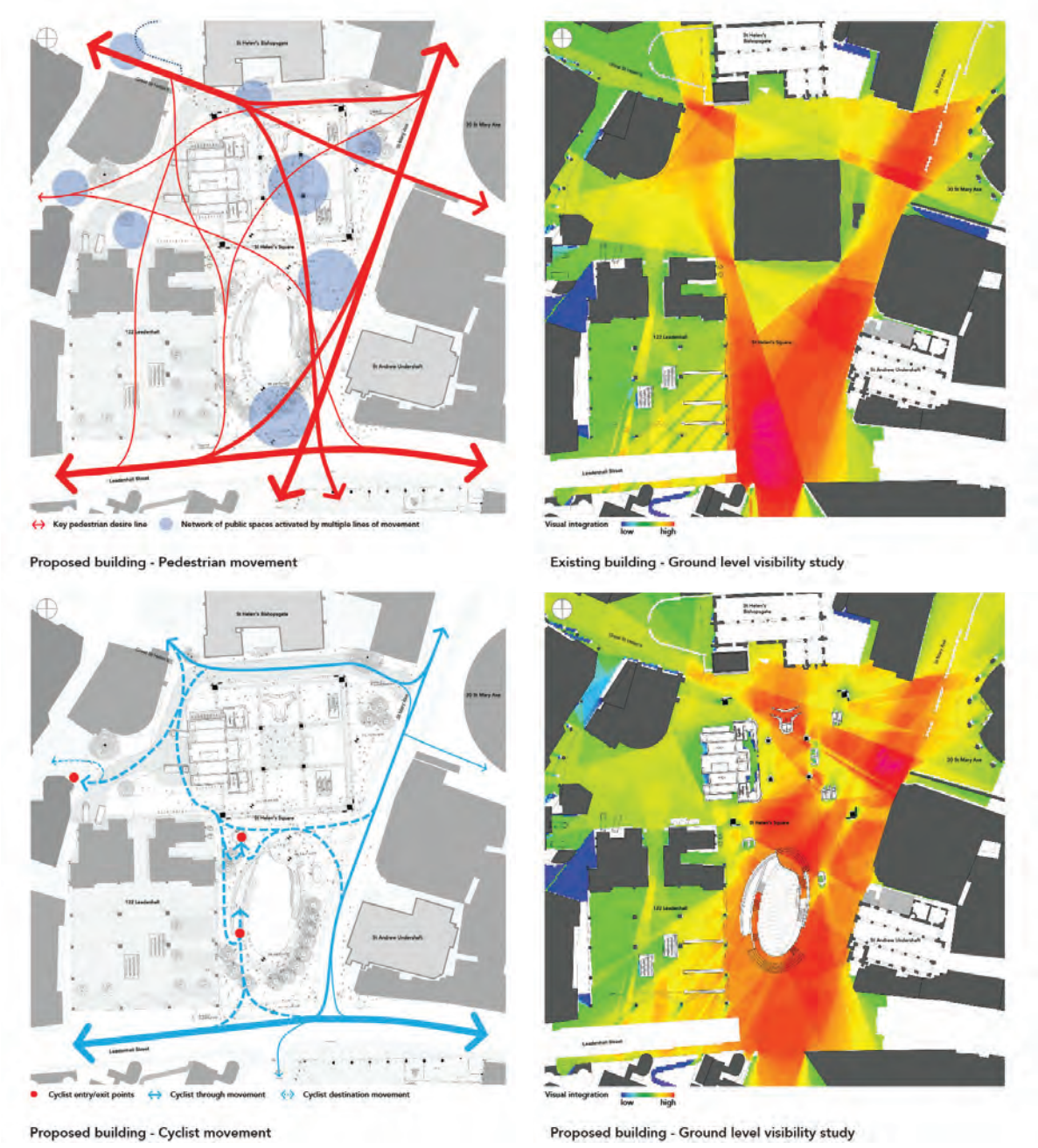

Figure 10. Transport diagrams. (Source: Eric Parry Architects & Space Syntax)
图10. 交通图表。（来源：Eric Parry 建筑师事务所以及Space Syntax）

the base of the building, increasing their size. Critically, this transfer enables the public realm, at both ground and lower levels, to be less interrupted visually and physically by reducing the number of vertical columns within the new public square (Figure 10).

The core forms the western elevation of the building, protruding by approximately 10 meters from the face of the main façade. The façade of this "backpack" reflects a variety of conditions that need to be accommodated for due to the function and layout of the core in that area (Figure 11).

Vertical Transport

To achieve the objective of creating a slender and elegant building capable of providing high-quality flexible spaces, it was imperative that the lifting strategy should complement

接背部与大楼中间的核心筒。中央核心筒内的电梯服务50层至69层。核心筒的多样安排是为了适应六个电梯分区，并考虑不同电梯分区的电梯坑和机房的变化。这就形成了典型的办公室平面布置。

该大楼共有六个电梯分区，办公室人员通过选定目的楼层进入相应分区的客梯。除了服务于办公楼层的电梯外，还有独立的公共电梯。公共电梯以大约350人/小时的速度把人员带到公共观景廊。公共电梯始于地下LG层的主入口区域，可直接到达71层和71层低层的观景廊、教育中心及展览区，以及70层的公共餐厅。

顶层的公共体验

这个公众观景台将是全伦敦最高的观景平台，且具备独特的教育以及文化特色（图12）。 在离地面285米的平台上，人们可以360度无死角地俯瞰伦敦的全景。这

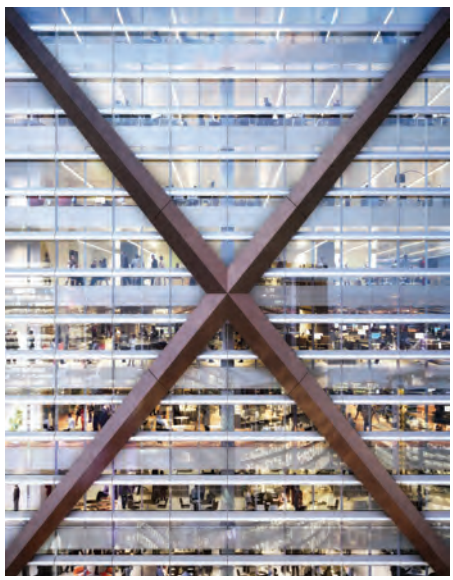

Figure 11. F açade study. (Source: Eric Parry Architects & DBOX)
图11. 幕墙研究。（来源：Eric Parry 建筑师事务所以及DBOX）

Figure 12. View of the top of the building and public gallery levels. (Source: Eric Parry Architects & DBOX)
图12. 大楼顶部及公共廊。（来源：Eric Parry 建筑师事务所以及DBOX）

the design approach. The efficient vertical transportation of people up the building is fundamental to the success of the scheme, therefore a lift strategy based on the use of intermediate skylobby transfer floors was selected as the best solution for the size and height of the building. While common in other parts of the world, this will be the first building in London to adopt this type of approach.

The offset core to the west of the building houses its lifts. Up to level 49, the lift shafts are contained in the backpack to the tower. At levels 48 and 49, the transfer floor connects the backpack to the central core within the square form of the building. This core contains the lifts serving levels 50 to 69. The core arrangement varies to accommodate six lifting zones and incorporates the associated lift pits and motor rooms where the lift zones change. This informs the layout of the typical office floor plans.

There are six lifting zones. The office occupant will enter a passenger lift serving the allocated lifting zone, which is dependent on their destination level. In addition to the lifts serving the office floors, separate public lifts will take around 350 people every hour to the public viewing gallery. The lifts start from the main entrance area to the viewing gallery at the lower ground-floor level and connect directly to level 71, which serves as the lower level of the viewing gallery, as well as the education center and exhibition space. The public lifts also serve a restaurant space at level 70.

Public Experience at the Top

The public viewing gallery will be the highest in the city and have a unique educational and cultural focus (Figure 12). It offers public access to levels 71 and 72 at 285 meters above ground, providing for spectacular unobstructed 360-degree views of the city. The education center and learning rooms are at level 71, and a separate public restaurant is provided on the floor below the viewing gallery at level 70.

Access to the public spaces at the top of the building will be free to all visitors. The entry to the viewing gallery, education center, and restaurant is located next to the retail gallery at the below-ground level. Sufficient space is provided for security checks and waiting areas needed for an attraction of this nature. Access is located here to avoid interference with the pedestrian movements across the square at ground level. The public will travel up to the arrival space at level 71, directly from the lower ground entrance lobby via two lifts.

As part of the viewing gallery, an education center is proposed with two classroom spaces designed to help school parties learn about the history of London and how the capital has developed. It will support young visitors in their learning and help them understand the views across London from the gallery.

On entry to the arrival lobby, visitors ascend gentle ramps to the north or south up to the highest level of the building. The generous width of the routes allow people space to pause and look out, or take the time to

个观景台设在71楼和72楼，教育中心和学习室则在71层的低层，独立的公众餐厅则设在观景台下方的70层。

通往大楼顶部公共区域的通道将免费向所有游客开放。该通道的入口设在地下LG层商场旁。鉴于该观景台必将具有强大的吸引力，入口旁还将设有大面积的安检区和等候区。通道入口设于地下LG层是为了避免对首层广场的人流造成干扰。公众可直接在地下LG层的入口大厅搭乘电梯（共两部）上至71层的抵达区。

教育中心作为观景台的一部分，将提供两间教室，帮助学生团体学习伦敦的历史和发展。它将有助于这些学生的学习，并帮助他们更好地了解从观景台可以欣赏到的伦敦景观。

到了抵达区之后，人们可通过南面或北面的缓坡上到最高层 。这段斜坡很宽，人们将有足够的空间停留观赏，或利用这个时间探查观景台另一边的知讯。随着高度的变化，人们可以最大化地欣赏外面的景色。

设置观景台和教育中心的初衷是希望其可以与伦敦博物馆之类的机构共同发展与实施。方案在文化、传承和教育方面获得伦敦金融城的支持，并且与伦敦金融城的文化战略相辅相成。

目前，该项目业主和伦敦博物馆正为了共同的目标——即打造伦敦金融城最高的公众观景台而携手合作。双方当前正在思考如何将公共空间用作教育设施，来达成伦

investigate the information and gallery on the other side. The continuous journey moves through spaces of varying heights, maximizing the views outwards until culminating in the central diorama at the upper level.

The intent for the viewing gallery and education center is that it would be developed and implemented in conjunction with a suitable body, such as the Museum of London. The cultural, heritage and educational aspect is supported by the City of London and is complimentary to the City of London's Cultural Strategy.

Currently the client and the Museum of London are working together on a shared ambition to deliver London's highest public viewing gallery and education space in 1 Undershaft. Both parties are currently looking at how the public space could work as an education facility to support the Museum's charitable aims and ambition to reach every London schoolchild.

From the top of the tallest building in the City of London students would be able to see for miles around and the hope is that using the Museum of London's extensive expertise, the capital's children will be able to learn about the past, present and future of the city from this vantage point. The Museum's proposed involvement is consistent with the principles of the Cultural Hub which includes a commitment to delivering the highest quality education, outreach and learning to those visiting the City.

Sharon Ament, Director of the Museum of London, said: "The Museum of London is proud to be working with Aroland Holdings to explore how together we could utilize the Museum's expertise to establish a world-class educational offer that delivers genuine public benefit for London."

The scheme aims to provide a public realm at the ground plane of the highest quality and the tallest building in the City of London, at the center of the Eastern Cluster. An outstanding public space is proposed at its apex, extending the public experience.

The intent is to create an efficient, refined and timeless building: a building of exceptional quality when seen from anywhere within London, both at close quarters, in glimpsed views and in the grander set piece of London's skyline.

敦博物馆希望惠及伦敦所有学生的慈善目的。

在这栋伦敦金融城最高楼的顶部，学生们可以观赏到方圆数英里范围内的景致。通过伦敦博物馆的大量专业资源，学生们还可以在这个有利位置了解这座城市的过去、现在和未来。博物馆提出的参与方案也与文化中心的原则相一致，即向伦敦金融城的访客提供最高品质的教育、学习和延展服务。

伦敦博物馆的总监Sharon Ament如此说到：

“伦敦博物馆很荣幸可以跟Aroland Holdings 一起探索如何利用博物馆的专业资源建立一个世界级的教育中心，为伦敦的公众带来独一无二的益处。”

该项目将在这座位于伦敦城东区核心区、伦敦金融城最具品质、最高的大楼的地平面提供一个公共区域。按提议将在大楼的顶部建一个独特的公共空间，延展公众的体验。

该项目的目的在于打造一个高效、精致、永恒的大楼：从伦敦的任何一个角落都可以看见的拥有超凡品质的大楼，无论是近看、远看还是作为伦敦天际线的一部分。