LATITUDES INTERNATIONAL DESIGN CHALLENGE 2015-16

London 51° 30′ N
Design Challenge

Resilient working environments: carving the city for small businesses in London

Submitted by:
University of Westminster | MSc Architecture and Environmental Design
Point of contact:
Dr Rosa Schiano-Phan, Dr Nasser Golzari
Thematic Area:
Adaptation Design

Resilient working environments: carving the city for small businesses in London

Introduction

The site-specific relationships between climate, urban context, user function, and their architectural expression are the basis for any sustainable architectural design. This brief invites students to explore innovative ways of working in London with the goal of producing novel building typologies that are able to meet occupant needs in current and future climatic scenarios.

The largest demand for office space in London is currently from small businesses; however there is a lack of affordable rentable office space for small businesses and start-up companies and freelance designers, generally in London and more specifically in central London. Currently, un-employment is high for young professionals in these fields due to lack of access to amenities, workspace, and financial resources (Labour Force Survey, 2013). In response to this demand, the trend of shared and/or co-working spaces has developed and is growing on a global scale. People are getting smarter about how they get efficient use out of a work environment, which has been enabled by the technological evolution of wireless networks, 3G and virtual storage (Strauss, 2013). London's population is increasing, and according to the IPCC's A1B climate change scenario, this trend is projected to continue. There is a lack of urban plots for development in central London, and thus response to this trend has largely been investigated through horizontal expansion in the suburbs. The urban heat island effect, defined as the increased temperature of urban air due to the replacement

Figure 1 and 2: Examples of shared business spaces in London.

of vegetation with constructed surfaces, is one of the consequences of increasing urban density. Intensification of vegetated areas has the potential to degrease the air temperature in cities by 2-3°C, making the preservation and development of comfortable outdoor spaces important to improving the urban environment (Greater London Authority, 2006). The proposed brief calls for flexible shared office spaces and design studios for small businesses and freelance designers. The built form should provide an affordable centrally located workspace that promotes innovation and collaboration through sharing-oriented flexible and adoptable construction.

Climate

In order to develop an understanding of both the climate of London, and the microclimatic conditions affecting the site, weather data extracted from Meteonorm v.7 for the London Central Weather Station has been provided. As demonstrated by the graph of London's average annual conditions, the climate is moderate, with cool winters and warm summers. The dry bulb temperature on a typical winter day can range from 4°C – 10°C, and 16°C - 23°C in the summer. The moderate climate offers a high potential for the implementation of passive heating and cooling strategies. Wind predominantly comes from the south west; an important consideration when planning the location and orientation of air inlets for natural ventilation strategies, and for providing protective structures in the urban context which is often influenced by localised turbulence and unpredictable wind patterns. Global vertical radiation on south-facing façades is higher than on all other orientations for all seasons excluding the summer. A north-south oriented building could thus take advantage of high solar gains in the winter when they are beneficial in providing a necessary source of heat for the building, and reduced solar gains in the summer when risk of over-heating is at its peak. As shown by the frequency of skies extracted from S@tel-light, intermediate skies are the most common sky-type experienced in London, which indicate a variability in the cloud cover and hence daytime availability of direct solar radiation. As greenhouse gas emissions continue to rise, there are several changes that are projected to occur that will have important implications for the design of passive buildings. The Intergovernmental Panel on Climate Change (IPCC) has projected three climate change scenarios with increasing severity.

For the purpose of this brief, students are invited to consider the moderate change scenario (A1B), which assumes rapid growth

Daily average temperature for London for 1989 and 2080s Medium-High scenario

in economies and renewable energy technologies, a global population peak in 2050, a 1.1-2.9°C temperature increase, and a 0.18-0.38m rise in sea level. (IPCC, 2014). A warmer London climate is expected to have drier summers with an increased frequency of heat waves. (IPCC, 2014). Although energy demand for heating is expected to decrease, higher summer temperatures will make over-heating of increasing concern. This change will require more intensive and adaptable passive cooling strategies and reduced dependence on mechanical cooling systems. The A1B climate file extracted from Meteonorm projects a reduction in the amount of beneficial solar gains reaching the south facade in winter, and a higher amount of solar radiation in summer when they are less desirable. Heavy precipitation events are expected to increase, however according to this scenario there will be a decrease in summer rainfall. These changes would result in a limited water supply in summer, and more frequent flooding and storm events, making rainwater harvesting and drainage of increasing importance to building design.

Detailed brief

The selected site is located at 2 Triton Square, Regent's Place, on Euston Road in the borough of Camden, London NW1. 2 Triton Square currently houses the head office for Santander Bank, and is adjacent to Regent's Plaza, a public/recreational space designed by the property management company British Land to improve community integration. Based on identified current and projected trends pertaining to lifestyle, technology, population, economics, and climate change in the British capital, the brief focuses on shared co-work space that provides facilities for small start-up businesses, artisans, freelance designers, and technical professionals. These users were identified based on (a) the lack of affordable workspace in central London, (b) the high demand of office space by small businesses, (c) the lack of facilities made available to young professionals, and (d) the evolution of technologies including wireless networks and virtual storage which eliminate the requirement for a permanent or fixed office space. Focusing on the requirements of a diverse range of users informed the central design concepts which the brief invites to develop are largely based on incorporating flexibility and adaptability into the built form. The provision of spaces with multiple functions - and easily reconfigurable spaces - is also important for accommodating the various activities and requirements for each user typology.

The proposed designs could equally focus on a limited vertical expansion of the existing buildings at Triton Square as well as redevelopment of the existing open spaces in Regent's Place plaza. The proposals should however not be detrimental to the current environmental conditions of the area or detract from the current functions of Triton Square as a community space. The proposals could include outdoor rooftop spaces, gardens, shading structures to provide aesthetic value,

Figure 3 and 4: Arial view of Regent's Place plaza and Santander Building, London

Figure 5: Plan of proposed site in Regent's Place and Roof of Santander Bank

contribute to the reduction of the urban heat island effect, and will provide protection from the wind and sun to prolong the amount of time in a year when it is comfortable for people to stay outside. In the summer, the outdoor space could also function as a social space for private events/hire as a secondary source of income for the other buildings.

The brief encourages exploration of a new typology of workspace and 'creative hub', where tenants are allowed to move in and out on short notice, and structural delineations between different companies are transparent they should be able to change, move and adopt components of the internal spaces. This can be done by incorporating more inventive, light and easily movable non-structural elements as well as having seasonal and collective shared facilities. In addition there should be casual social and green spaces designed to encourage collaboration and engagement with the community through public events.

Resources

- Greater London Authority (2006) London's Urban Heat Island: A Summary for Decision Makers, London: Greater London Authority. [online] Available from: http://legacy.london.gov.uk/mayor/environment/climate-change/docs/UHI_ summary_ report.pdf
- Intergovernmental Panel for Climate Change. (2014) Emissions Scenarios. [online] Available from: http://www.ipcc.ch/ipccreports/sres/emission/index.php?idp=2
- Office for National Statistics. (2013) Labour Force Survey, London: Office for National Statistics. [online] Available from: http://www.ons.gov.uk/ons/index.html.
- Strauss, K. (2013) Why Co-Working Spaces Are Here To Stay, London: Forbes Magazine. [online] Available from: http://www.forbes.com/sites/karstenstrauss/2013/05/28/why-coworking-spaces-are-here-to-stay/.

Main points of contact:

Dr Rosa Schiano-Phan

Mail to:R.Schianophan@westminster.ac.uk

Dr Nasser Golzari

Mail to:N.Golzari@westminster.ac.uk

University of Westminster | Faculty of Architeture and Built Environment | MSc Architecture and Environmental Design