



---

Rebecca S. Allen  
Mechanical Option

**The Palestra Building**  
London, England

---



## **Executive Summary Thesis Proposal**

The Palestra Building is a 37,000 square meter office building under construction in the heart of London, England. It is one of the few buildings in London that has full mechanical ventilation due to the poor air quality and high noise pollution caused by its close proximity to an Underground station with connections to lines both above and below grade. This provided many challenges to the design team, in addition to the striking façade created to make this an iconic building. Cooling is provided through a chiller plant located on the roof and consisting of seven 537 kW packaged air-cooled chiller units, six of which run at full load daily, while the seventh serves as a backup unit. Heating is provided through a natural gas-fired central boiler system. The boiler room is located in the basement, and runs on four 800 kW boilers, three of which run at 100% to meet the daily demands while the fourth is a backup during times of maintenance or it can be used as a ‘booster boiler’ to generate the morning warm-up. The air-side ventilation system in the Palestra Building consists of a constant volume system served by seven different air handling units. Four of the AHUs are located on the roof, two are located in the basement plant room, and one is located in the level 1 mechanical space.

The purpose of this report is to propose redesigns of the building’s systems in order to lower the life cycle costs of the building, reduce energy consumption, increase the BREEAM rating, and achieve Approved Document L (2006) compliance several system redesigns have been proposed. BREEAM is the UK’s version of the American LEED rating, and is scored on a percentage scale. Approved Document L (Part L) is published by the Office of the Deputy Prime Minister in England regarding energy regulations for buildings, and is the equivalent of ASHRAE Standard 90.1.



---

Rebecca S. Allen  
Mechanical Option

**The Palestra Building**  
London, England



Each redesign is thoroughly explained and justified in the report, and a tentative schedule for the completion of a full analysis was set. It is important to note that the proposed topics/breadths as well as the time line are subject to change.