

Dannatt, Johnson Architects LLP

Adaptation of the former Royal Naval College buildings to meet the functional and technical requirements of a modern university



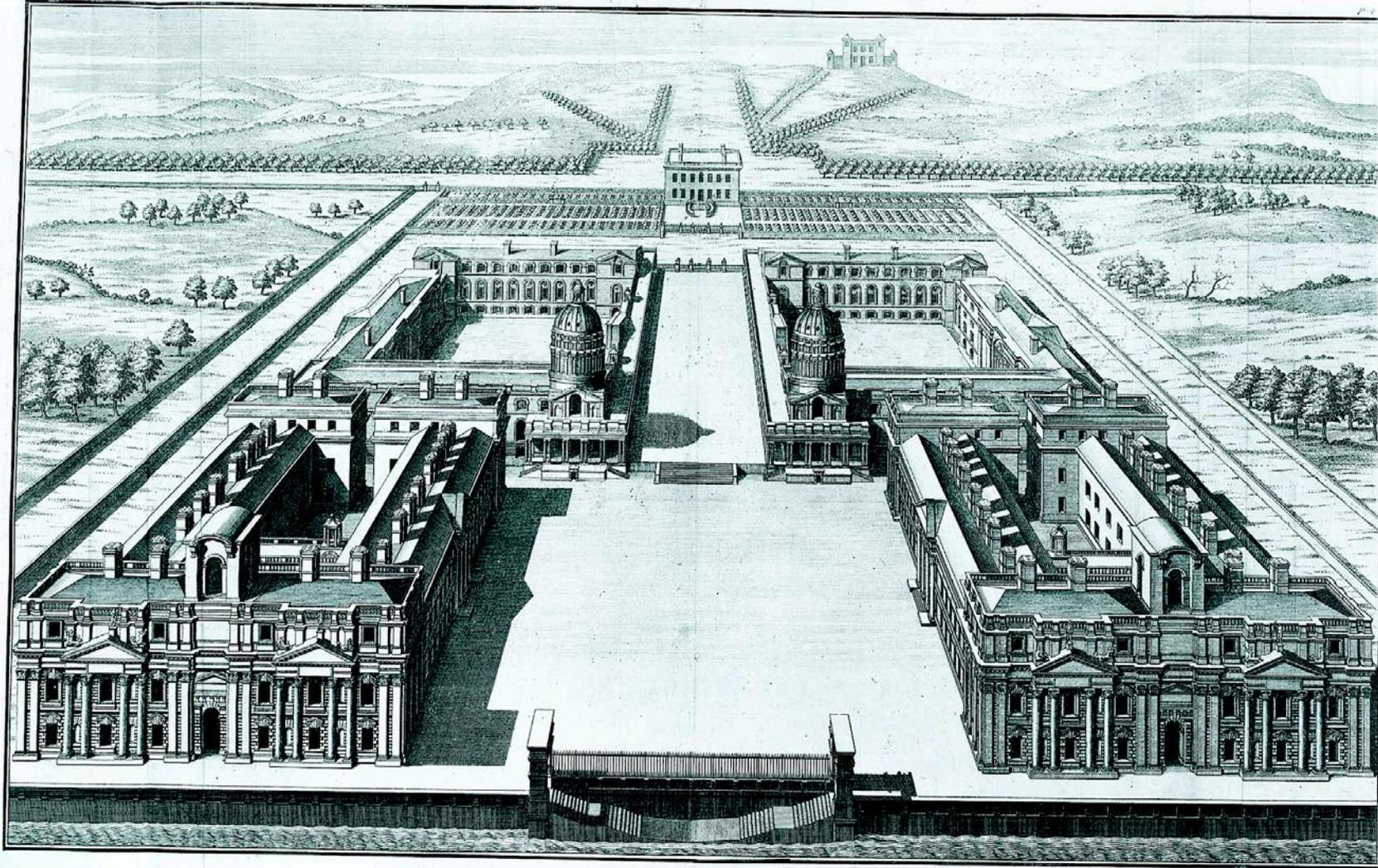
Presented by:
Jonathan Parry

Founding of the site

The freeholder of the site is Greenwich Hospital, a crown Charity established in 1694 under the names of King William and Queen Mary.

For

'The reliefe and support of Seamen serving on board the Shipps and vessells belonging to the Navy Royallwho by reason of Age, Wounds or other disabilities shall be uncapable of further serviceand be unable to maintain themselves.'



G. Campbell Delin.

The prospect of the Royall Hospital at Greenwich, to the River Thames.

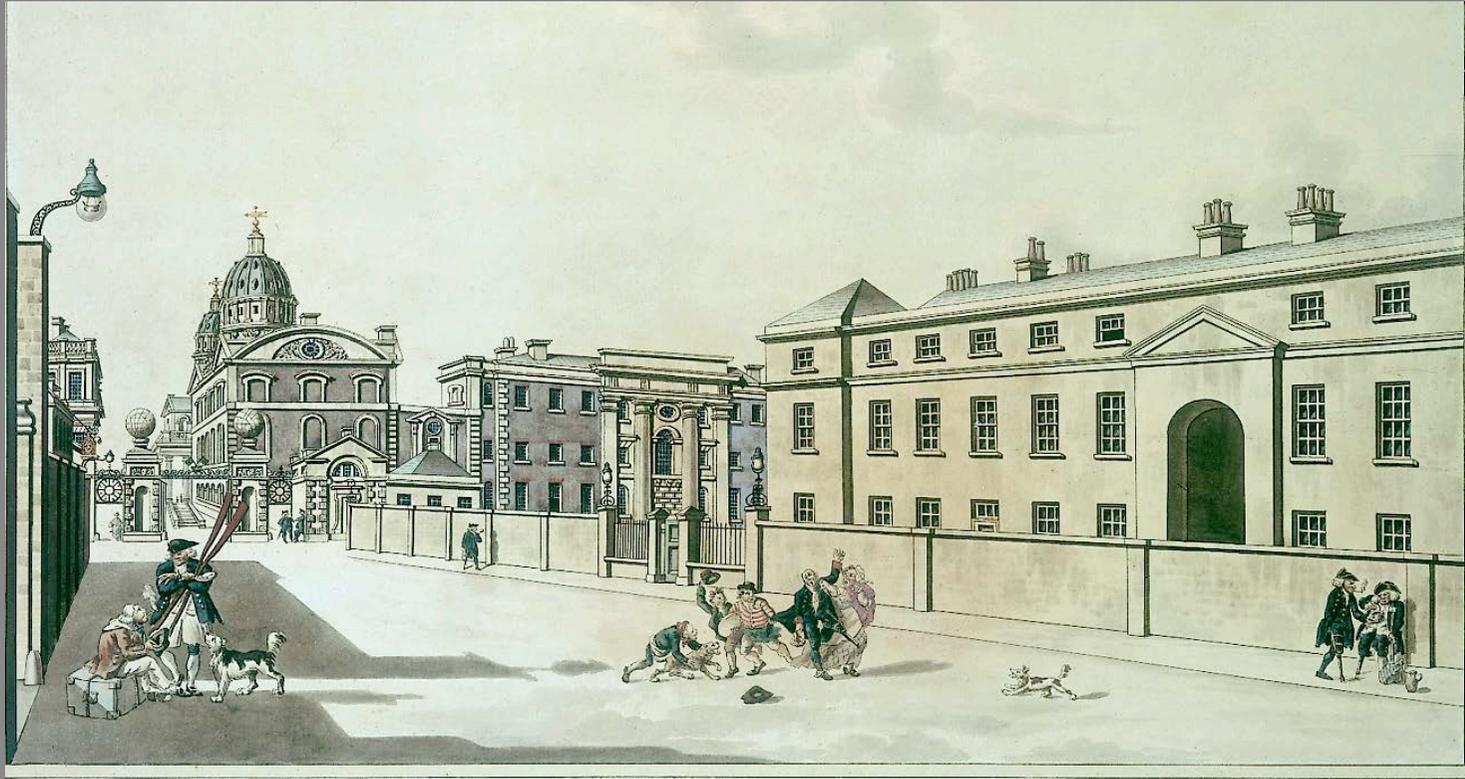
H. Hulsbergh Sculp.

Housing of Navy Veterans

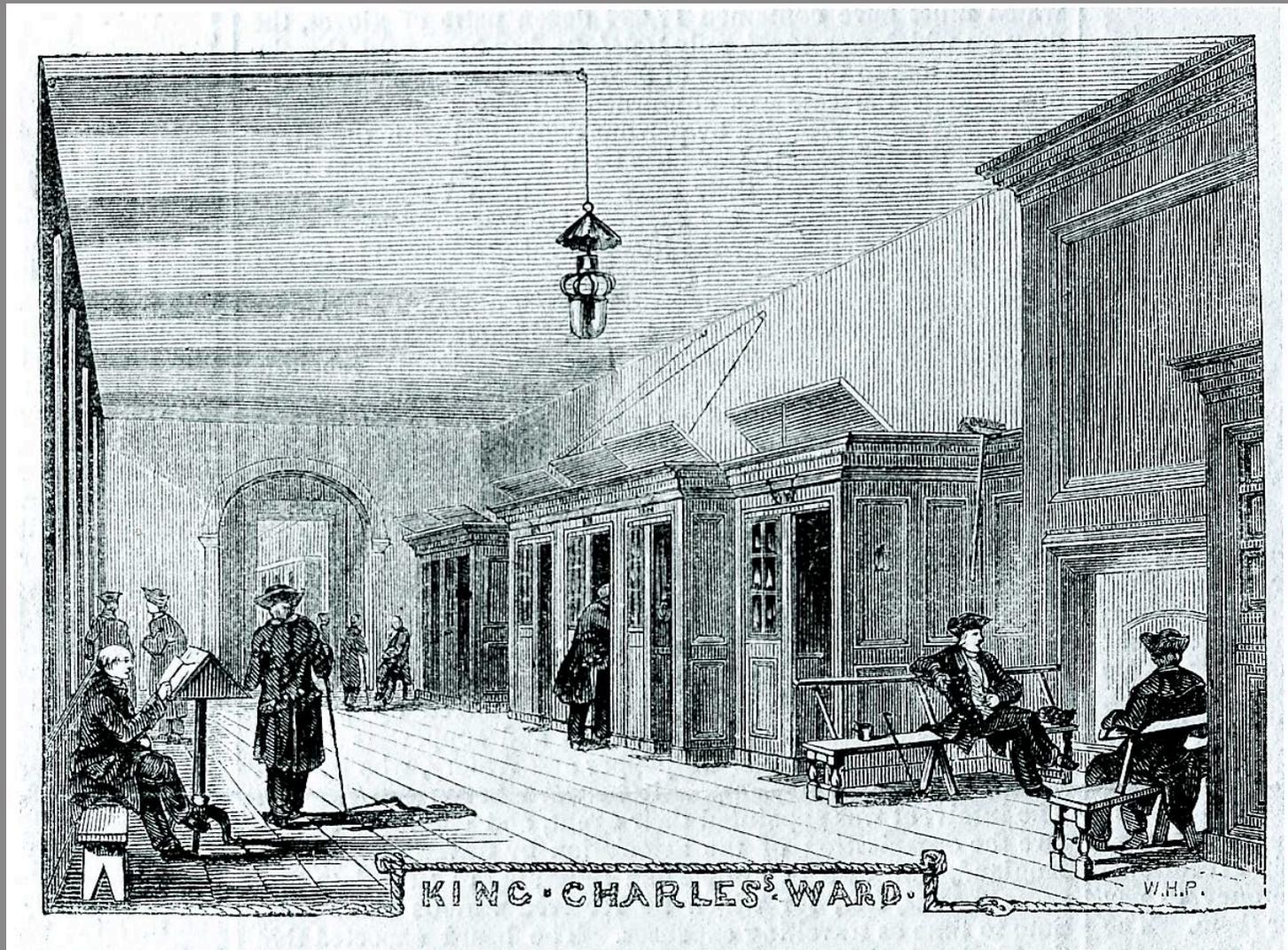
1696 - 1751: The buildings were constructed on the site of the Tudor Palace of Placentia in four phases



1764 - 1768: The dedicated infirmary by James 'Athenian' Stewart constructed to the west of the main buildings.



Buildings met their purpose of housing veterans of the Royal Navy until 1869



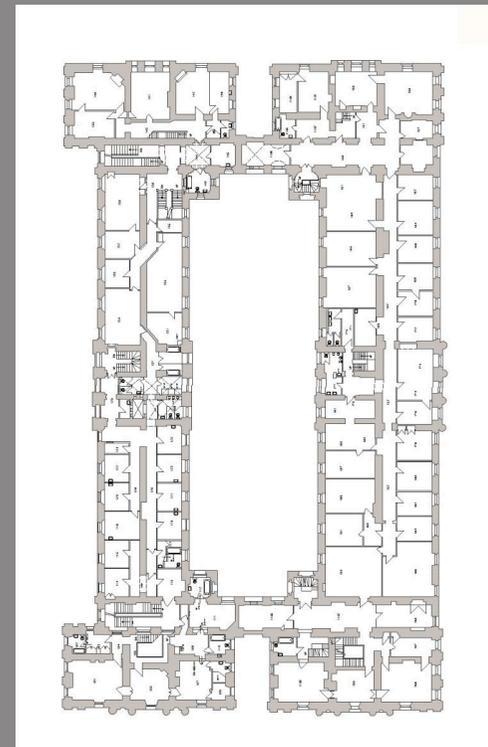
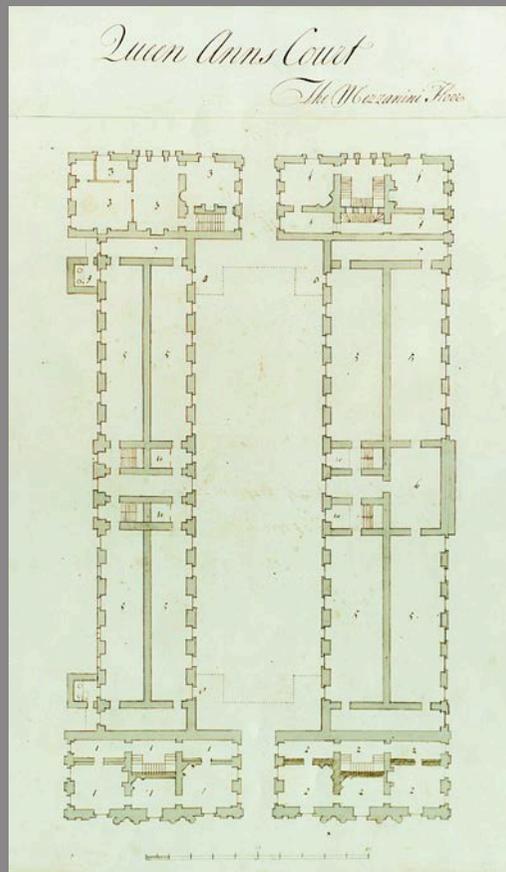
The Royal Naval College

From 1873 the buildings were occupied by the Royal Naval College which transferred to Greenwich from Portsmouth.

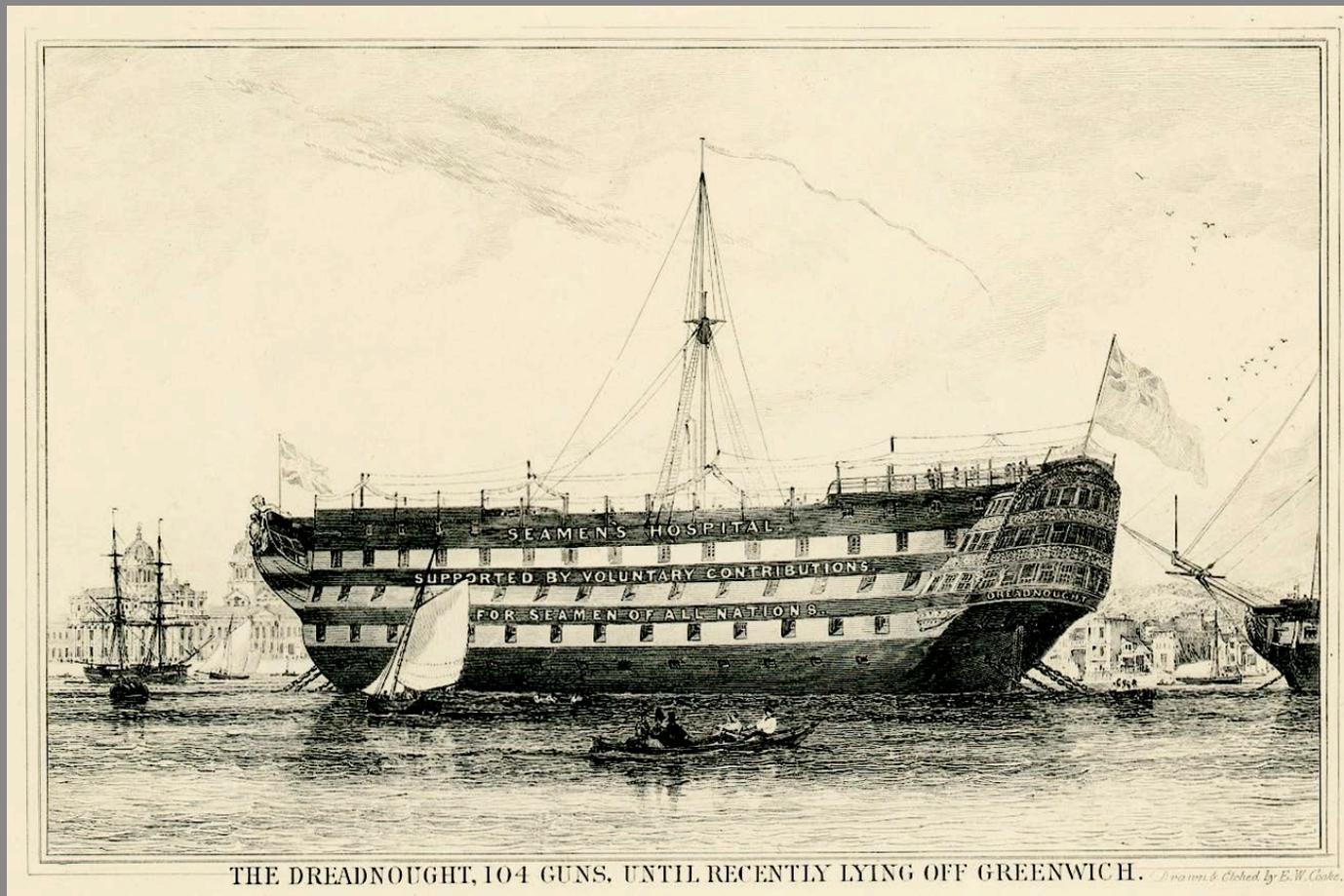
Buildings were converted to suit the new functions, living accommodation was maintained in Queen Mary along with the riverside apartments for senior officers in Charles and Anne. The open wards in Anne housed the Naval museum.

Alterations for original Naval College use

Many of the spaces were partitioned to provide class rooms and accommodation. The spine walls to the north side of the west range of Anne were cut away to establish lecture theatres.



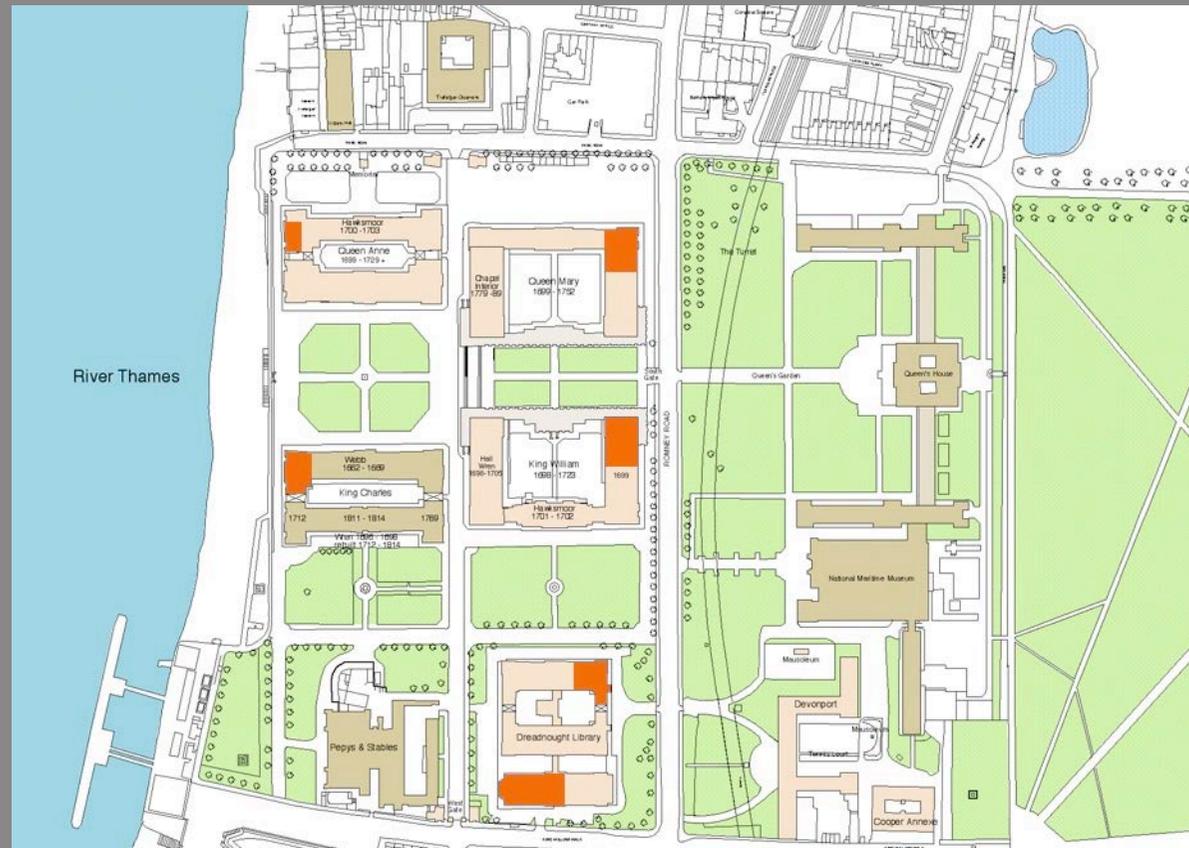
1870: The Infirmary was taken over by the Seaman's Hospital Society dedicated to the medical care and welfare of merchant seamen And renamed the Dreadnought Seamen's hospital after the medical hulks used previously for the purpose and moored in the Thames.



THE DREADNOUGHT, 104 GUNS, UNTIL RECENTLY LYING OFF GREENWICH. *Designed & Etched by E. W. Cooke.*

War 1939-44

Serious damage to the Infirmary and Queen Mary building in 1940 by enemy action: The roofs and face of Queen Anne and King William also damaged later in the war.



Post-War Naval use

Buildings continued to be adapted for use by the Navy, under crown immunity from the planning system. Adaptations included the installation of nuclear reactor in William, in the South East range, removal of contra flowing stairs in Queen Mary to install lift to all floors and general servicing.

1983: Buildings served as Joint Defence College.

End of Government control.

1986 : The Infirmary by James 'Athenian' Stewart was closed and left un-occupied, lack of use and maintenance led to it being entered on the English Heritage At Risk Register.



1995 : The main part of the Naval college site was determined to be inadequate for the activities of the Joint Services Defence College and the Secretaries of State for defence and national heritage issued invitations for expressions of interest from organisations able to propose appropriate uses for the buildings.

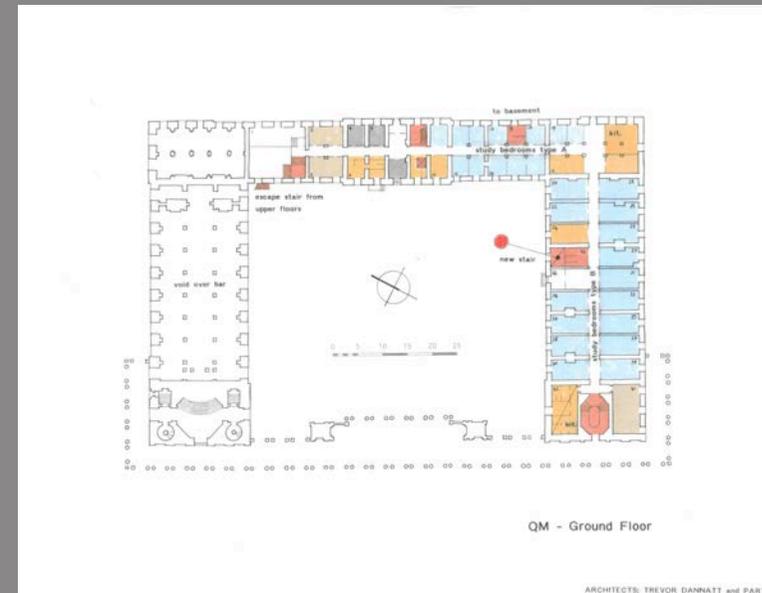
As part of vacation of the buildings the Ministry of Defence embarked on a series of works to begin to meet requirements of regulations including addition of some escape stairs, decommissioning and removal of the training reactor and decontamination of the affected areas of the King William Building.



University interest in the site.

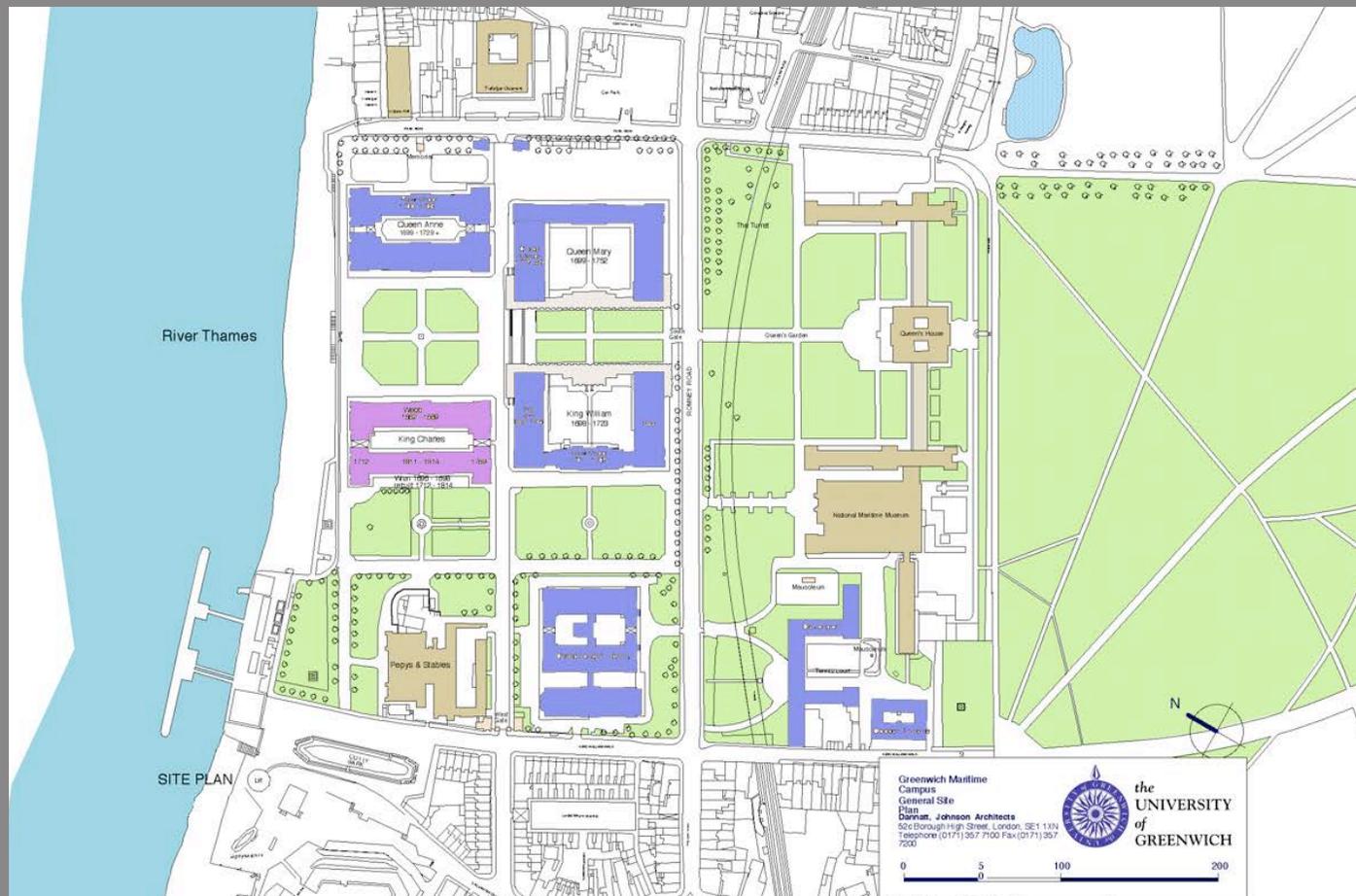
Greenwich University were already looking looking for a presence in Greenwich, at the Dreadnought Seamen's Hospital, when the potential for the acquisition of the main Royal Naval College buildings was announced.

Dannatt Johnson assisted the University with strategic master-planning advice that helped inform their bids for the reuse of the historic buildings.



1997 : The Greenwich Foundation for the Royal Naval College
- a charitable trust was established in and given responsibility for the site

Three of the primary buildings are leased to the University of Greenwich
with the forth being leased to Trinity College of Music.



Master-planning Greenwich University buildings

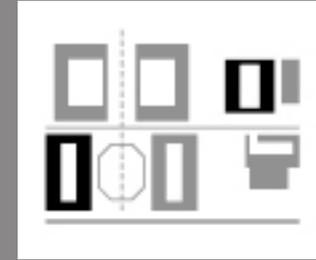
The proposed uses within the buildings were very much a function of the types of spaces available and the order in which the buildings were to be vacated by the Joint Defence College.

Large wards and compromised spaces could contain classrooms and Lecture theatres.

Cellular residential accommodation could provide suitable spaces for offices.

Vertical communications could be located in areas already compromised with services risers and inserted staircases.

Phase 1 Queen Anne & Dreadnought

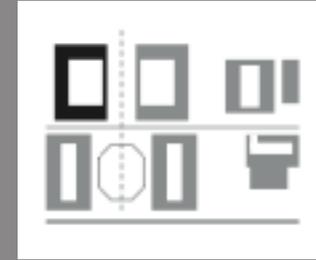


Vacated first, provided the offices for the senior management and academic base along with teaching facilities.



At the same time the Dreadnought was restored and provided the new campus with its learning resource centre and computing facilities.

Phase 2 Queen Mary

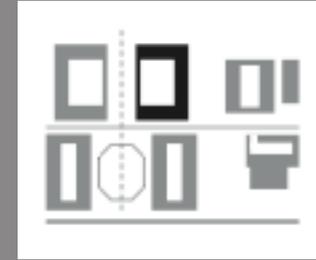


The Officers' accommodation block was initially considered to be re used for the same purpose during initial discussions, however due to the cellular nature of most of the spaces was converted to provide offices and school administration accommodation.



The under provision of power required for the University was also addressed by the construction of a new subterranean transformer chamber beside the east gate lodge.

Phase 3 King William



Additional Lecture Theatres, Teaching Spaces and computing facilities



Queen Mary: Fourth floor Computing suite.

Adapting the buildings.

The tight time scale for occupation required a design and build approach to procurement of the services installation for the contractor.

This required considerable time and input was invested at concept stage to achieve a well-engineered and maintainable services installation with appropriate routes and specific and generic interventions agreed with the monument inspectors.

The contractor had some flexibility in the final installation on the basis that only existing services routes could be used and any deviation required the specific agreement of the Design Team and an application for scheduled monument consent.

Buildings incorporate a completely new
'backbone' of services.

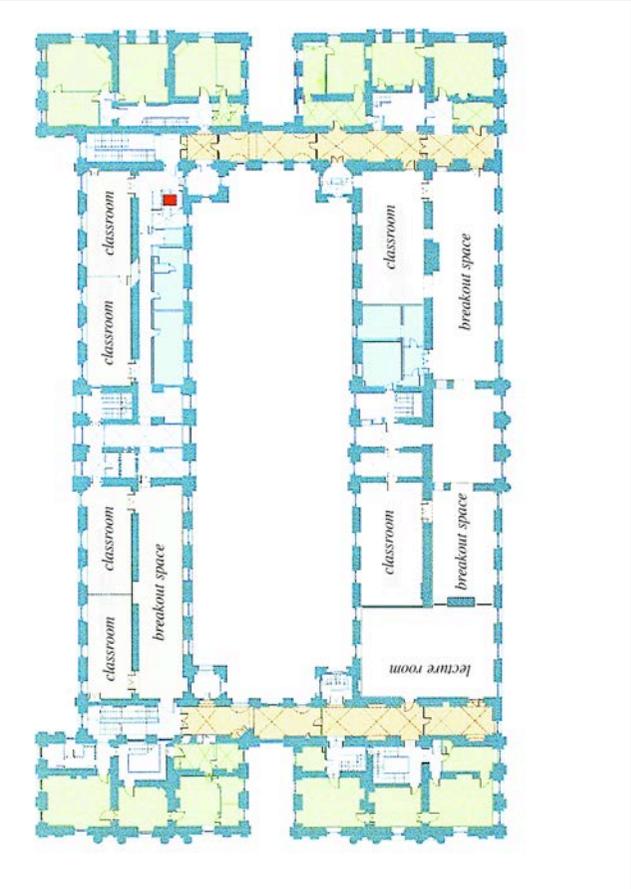
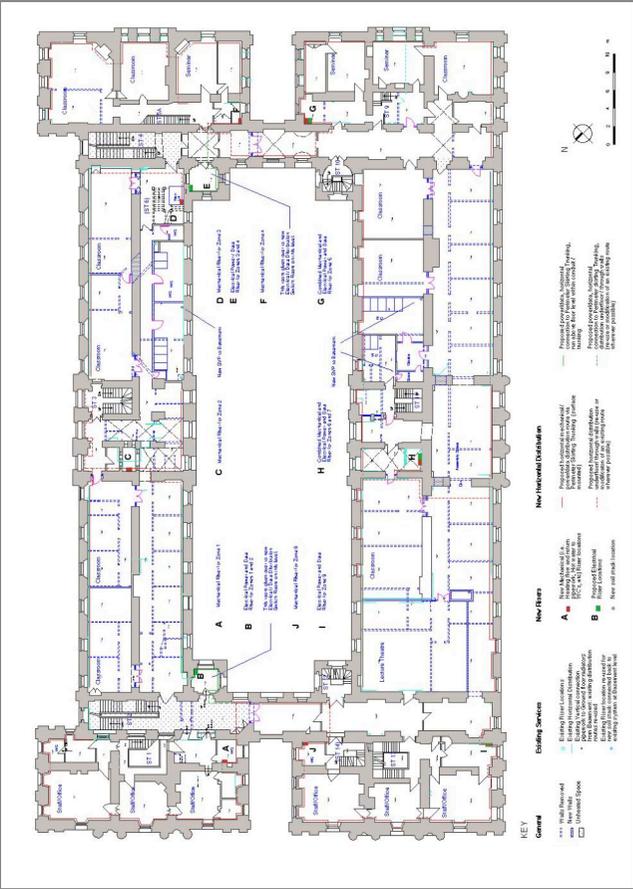
including:

IT infrastructure,
electrical distribution,
sophisticated audio visual systems and
radio fire and intruder alarm systems

The buildings are linked via fibre optic cables to the site wide Building Management System (BMS), providing energy efficient control of lighting and mechanical plant.

Queen Anne.

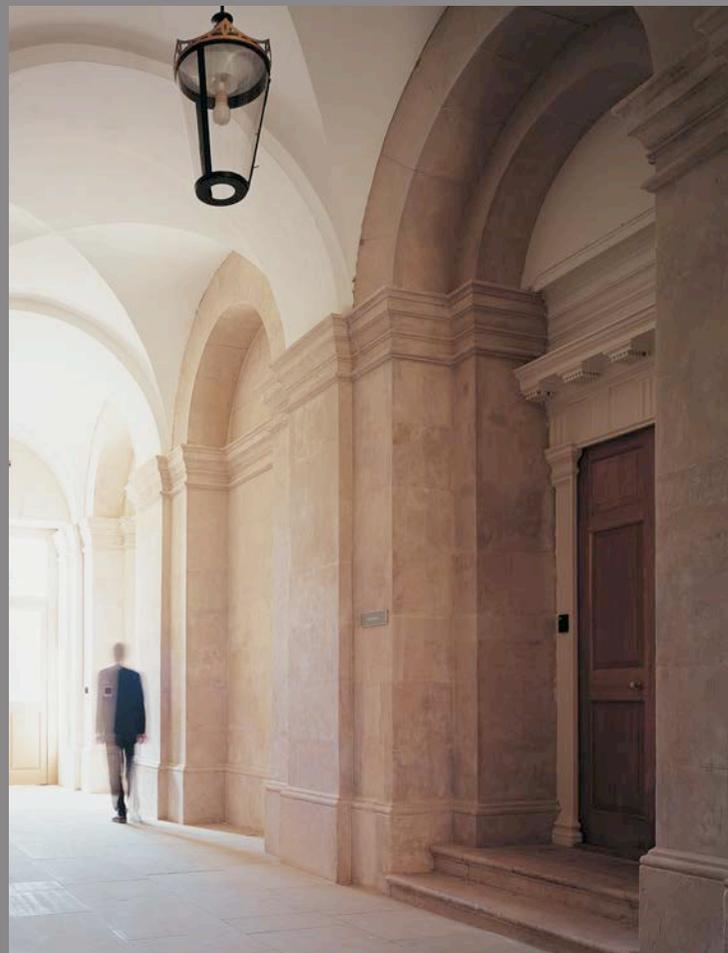
The initial challenge was to remove the inappropriate accretions of the last 300 years where the Navy had adapted the building to changing requirements, adaptation of the ward spaces, to their larger forms to provide teaching rooms and breakout spaces.



With the services engineers we reviewed all existing and potential services routes through the building with a view to reducing the numbers of vertical service risers and keeping horizontal pipe lengths to a minimum.







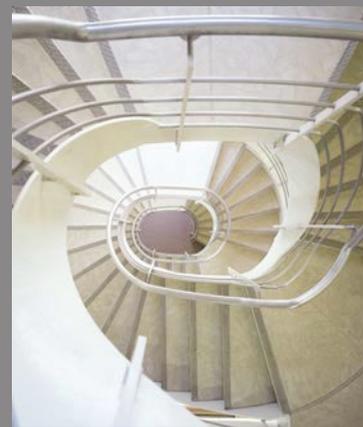
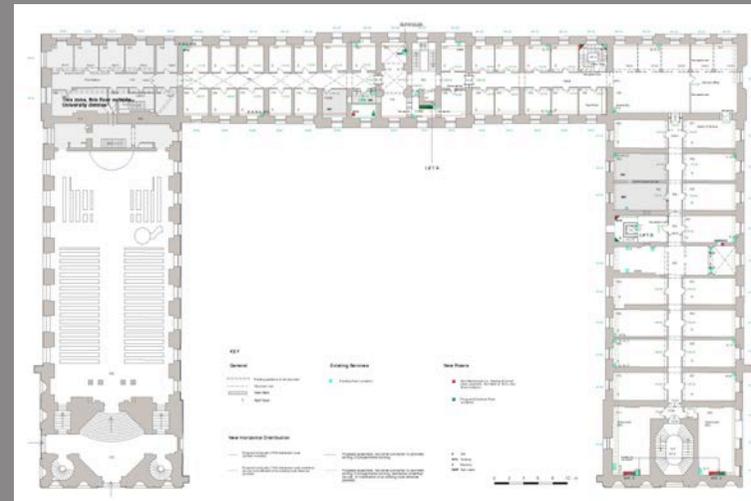


Queen Mary

The tendency of the Navy was to compartmentalise and sub divide. This process was reversed by the University that reopened the clerestory lighting into the corridors reducing the reliance on artificial light.



Number of service risers locations
in the building reduced by 50%.



Existing Services routes reused.



New service routes to be reversible and require minimal alteration to the existing fabric.



King William

The adaptations during occupation by the Royal Naval College Department of Nuclear Science made it one of the most compromised of the buildings and the open spaces were suitable for a number of high capacity lecture theatres and computer rooms.

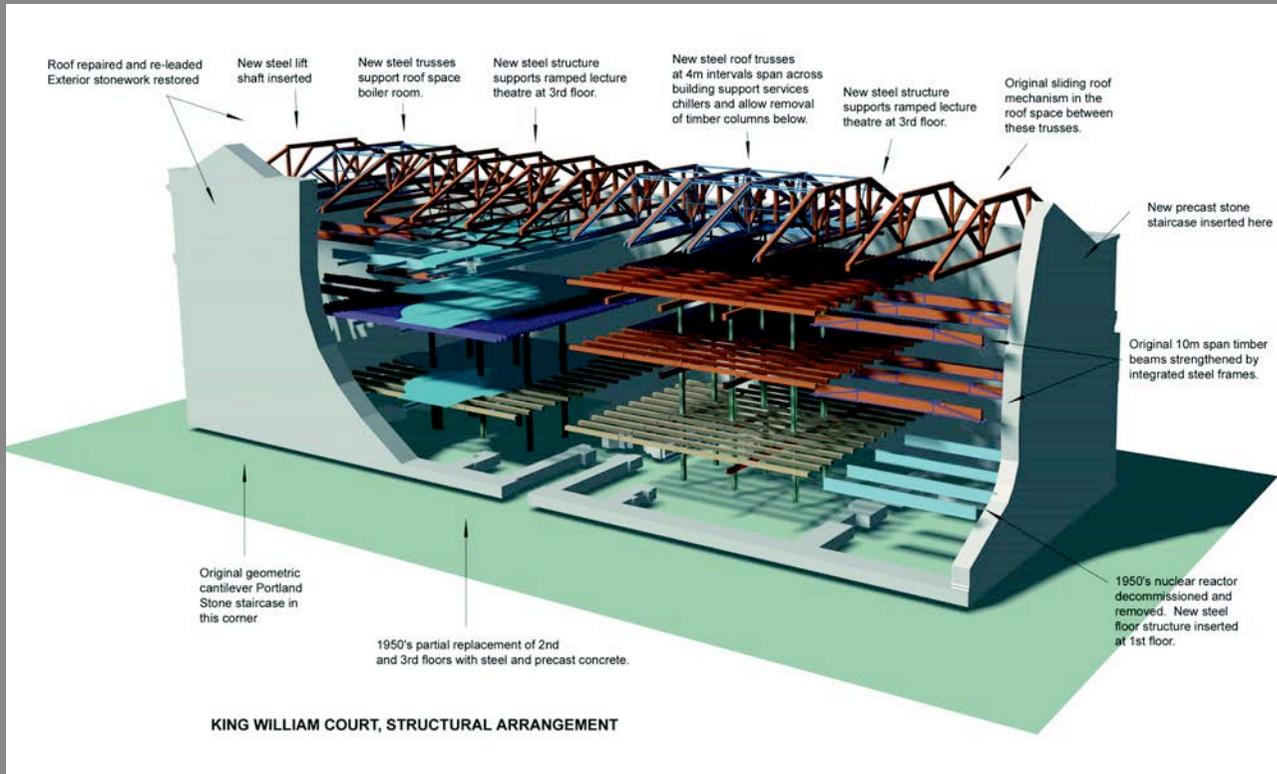
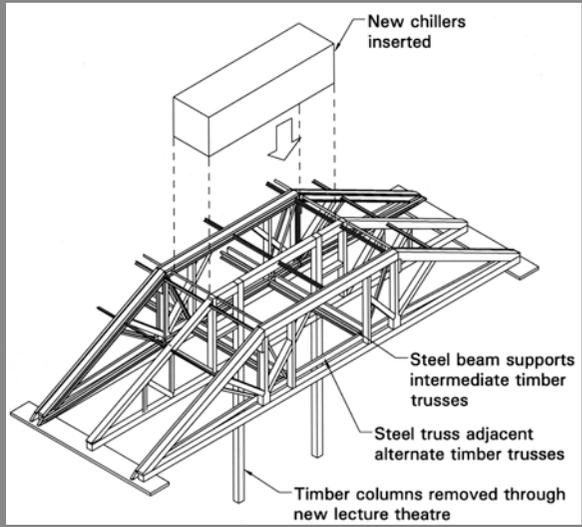




The building has been completely re-serviced, including provision of several plant rooms and a new boiler room in the roof.



The resultant need for mechanical ventilation and air conditioning services to be integrated as part of the refurbishment to the satisfaction of English Heritage.





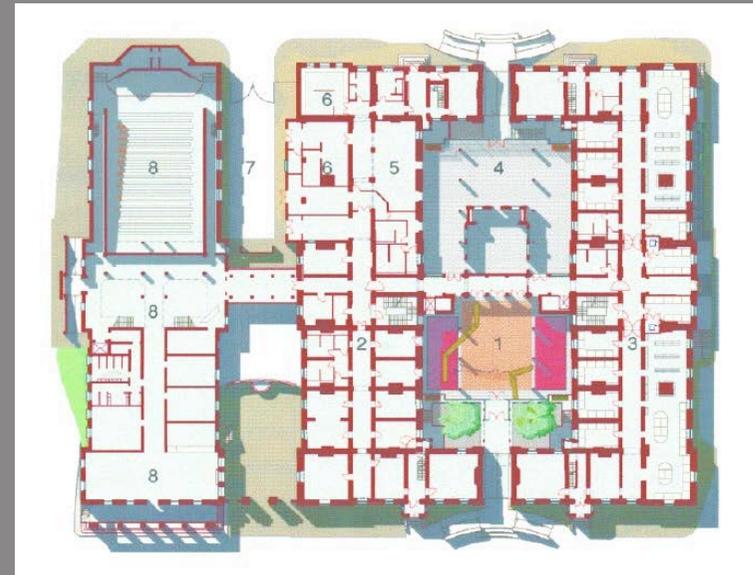
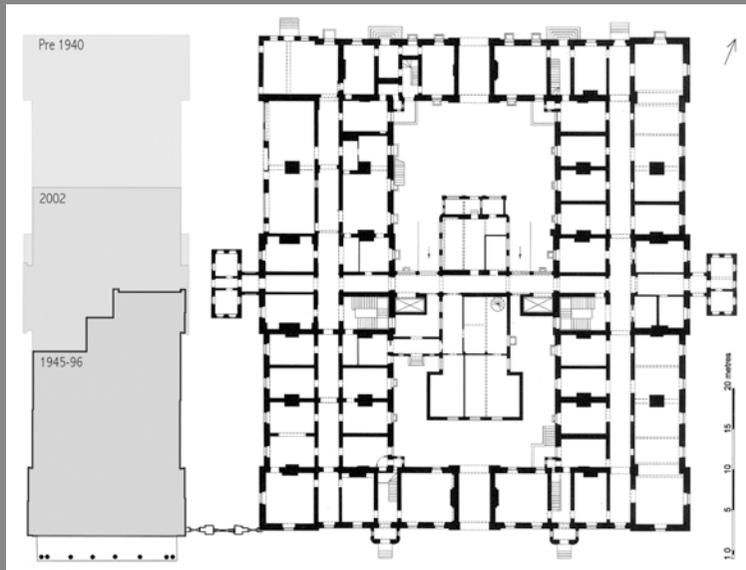
No new openings could be formed within the external fabric, so all existing dormers and roof openings have been adapted, and the South Range chimneys rebuilt without internal divisions to form new air handling intakes and exhausts. A recessed 'well' for cooling condensers has been formed above internal laylights, where at one time there was roof glazing.

Flues were checked for continuity, some were used as routes for ductwork, others left to provide spaces with natural ventilation.



The Dreadnought

Many of the internal walls between wards, and those on to the corridor, were removed over the life of the Hospital to create larger wards and other medical requirements, such as operating theatres, in the early 20th century. The renovation just completed has retained many of these more open areas, as well as the surviving four-bed wards







Future strategies for carbon reduction at the Maritime Greenwich Campus.

The University has initiated a carbon reduction program across its organization.

Target

30% reduction on 2009 levels by 2015

40% reduction on 2009 levels by 2020

Changes to the current installation at the Royal Naval College to meet their overall targets include:

Engineering:

Thermostatic controls to all heaters

Improve on the existing zoned control on the BMS and provide a link to the lighting

Variable speed drives on the heating system

Improve on ventilation requirements and performance, possibly removing some of the existing units

Considering removal of server rooms from site to new purpose built installation off site

Improve lighting controls from PIR to microwave sensing units

Boiler replacement program commencing in 4-5 years, with possible early replacement of burners for more efficient units.

Training and software improvements:

Raise staff awareness of issues and improve training

Software to PCs to enable switch off remotely controlled via signal across university network

Fabric improvements:

(Largely outside the control of the University as facades, windows and roof are the responsibility of the foundation)

Minimal areas where the University can apply insulations within the roof void

Thermal elements considered weak that the University would address if there were no obstacles

Windows: via either secondary glazing or improvement of seals