

Restoration of WW2 Control Tower, Bovingdon Airfield, Chesham Road, Bovingdon, HP3 0NP

Overview of Site History

Bovingdon Airfield is a former Royal Air Force Station located near the village of Bovingdon, Hertfordshire.

During the Second World War, the airfield was used by the Royal Air Force (RAF) and the United States Army Air Forces (USAAF) Eighth Air Force.

At the end of World War II, many thousands of Americans returned home via Bovingdon in its role as the base of their European Air Transport Service.

At the end of World War II, Bovingdon became an airport serving London before Heathrow Airport was built. The airfield also played its part in the 1948-9 Berlin airlift and featured in a number of World War II films during the 1960s.

Flying ceased at the airfield in 1969 and the airfield was shut down in 1972.

The building's shell still stands today but many parts of the building no longer exist such as windows and doors, metal balustrades and the roof level glazed Viewing Tower.



Control Tower as Existing (November 2021)

Planning Application 20/03194/MFA

The landowner of the former Airfield was granted planning permission in November 2021 for use of the site for film making and the former Control Tower as office space and/ or as film set.

Condition 7 of this application outlines the requirement to 'restore the Control Tower to its original (WW2) appearance'.

Overview of Brief and Design

The applicant would like the Control Tower to be used as a 'Welcome Hub and Office' for the Film Studios. It will be considered the heart of the Airfield site and will be the first port-of-call for any visitors to the site such as film studio executives and key stakeholders.

The applicant asked that the building be modern, functional, welcoming and largely open plan. It was also important that the design should also be extremely sympathetic to original building. It is likely that the use of the building may evolve and change over the lifetime of the Airfield, so flexibility is key.

Structural Stability

A structural visual inspection survey was carried out on the Control Tower in November 2021 by MMP Design LLP (Consulting Engineers).



Control Tower as Original (date unknown)

The Control Tower

The Control Tower was built in 1941/2 and was instrumental in the Airfield's navigation.

It was built in an Art Deco Moderne style of architecture characterised by low, horizontal and asymmetrical massing, flat roofs with no eaves, smooth, white walls, simple and repetitive fenestration and metal balustrades.

The building fell into disrepair following the closure of the airfield in 1972 and was damaged a few years later by earth-moving equipment.



3d Model: Front View during Design Development



3d Model: Rear View during Design Development



3d Model: Bird's Eye View during Design Development



3d Model: Front View during Design Development

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It was found that the building was indeed in a poor state of repair. MMP concluded their report as follows:

'As the building has not been watertight for a long time and some of the damaged external walls have not been laterally restrained, these walls may have a reduced capacity to support the proposed loadings. It is also envisaged that the existing foundations would have to be enhanced to eliminate any further settlement of the building.'

'Given the age and condition of the building, the amount of required demolition, replacement of the defective building elements and the potential for hidden defects in the foundations and walls, it is envisaged that most of the building would have to be demolished and re-built.'

'It is therefore concluded that it would be more economical and energy efficient to demolish the building and provide a new-build replica building.'

This report was discussed with the planners at Dacorum Borough Council and it was agreed that the existing Control Tower would be in-the-main rebuilt as a 'replica' building.

Design Process

An extensive design process was carried out with a number of design iterations being considered by the architect, consultants and applicant - see images within this report demonstrating some of the iterations explored.

The design was developed in plan, elevation and 3D throughout and useful conversations were had with the planners during the process which helped to inform the final design.

Internal Design

The internal layout of the Control Tower has been designed to satisfy the client's original brief whilst ensuring that it takes cues from the legibility and organisational pattern of the original building's design. Spaces have been located within the envelope to ensure that the original door and window locations are honoured in terms of positioning and orientation. The layout has also been designed to ensure that current regulations and relevant guidance for offices are met in terms of areas such as sanitary accommodation, accessible spaces, fire escape routes and plant space for MEP equipment.

From the highly legible entrance to the North side of the building, a light, airy welcoming Entrance / Reception Area leads into a public Ground floor Gallery Area where photographs and memorabilia from the Airfield are to be displayed.

The Entrance Area also features a small Cafe Area where people working within the Film Studios can come for informal meetings and refreshments.

A large Conference Room also features at Ground Floor level to accommodate film executives and small-scale screenings. This room can be divided into two to allow increased flexibility in the floor plan.

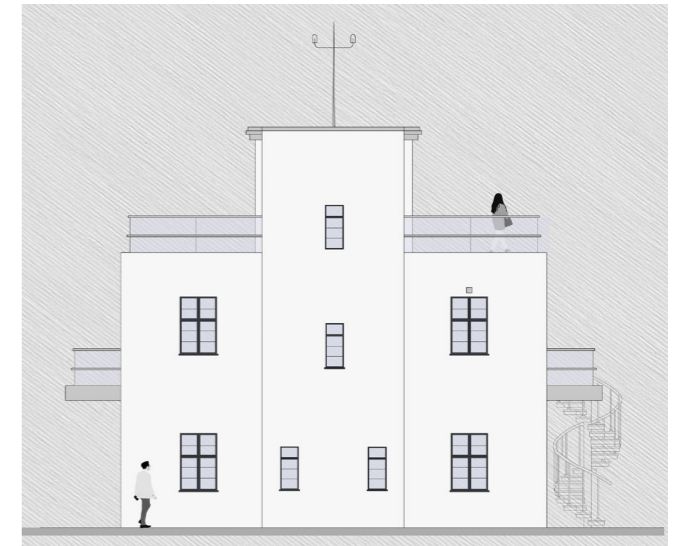
An open staircase leads up through a double height space from the Entrance Area to an Open Plan Office Area above which features direct access out onto the First Floor Roof Terrace Area overlooking the runway beyond. A separate office is also featured at First Floor level which can also be used as a meeting room, again to maximise flexibility.



Coloured Render of Side Elevation



Coloured Render of Front Elevation



Coloured Render of Rear Elevation



Coloured Render of Side Elevation



3d View of Reception Area leading to Double Height Space during Design Development



3d View of First Floor Office and Double Height Space during Design Development

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A secondary staircase is located within the tower to the rear and this leads up on the Second Floor Roof Terrace and glazed Viewing Gallery. From this vantage point, views can be enjoyed onto the runway and to the countryside beyond.

A series of WCs and kitchenettes/tea-points are proposed throughout the building as well as showers for cyclists.

Accessibility

Level access has been designed in to the entirety of the Ground Floor and a DDA accessible lift is proposed to the rear of the building to ensure access to all three floors, including the external spaces, is possible. An accessible WC/shower is also proposed on the Ground Floor.

External Spaces

External spaces featured heavily in the original Control Tower as these were used as viewing platforms for the runways. Both the First Floor and Second Floor viewing platforms will be reinstated as external Terraces for the enjoyment of the building's occupants and visitors. An external spiral staircase is also proposed from First

Floor terrace for increased access, flexibility and fire escape purposes.

External Design and Fabric

The areas of the external envelope that are to be rebuilt will be highly insulated to ensure that a 'fabric-first' approach is adopted. This is important in cutting carbon emissions through reducing building loads before any services are introduced.

From visual and measured surveys of the existing building and from original photographs, we have ensured that the original window and door openings have been retained where possible and that the original Crittall-style of glazing with glazing bars to match the original have been used.

The height of the Control Tower has been increased a little to allow for modern-day services allowances and a lift over-run to the rear which is essential to ensure that the entire building is accessible to all.

Materials

We only have access to black & white images of the original Control Tower so have looked at paint remains

from the existing tower to establish what colours were used; an off-white render and dark grey for the crittall-style windows.

This colour palette and 'streamlined' style was used extensively on later Art-Deco Moderne style houses and some public & commercial buildings in the UK in the 1930s / 40s.

Where possible, existing bricks will be retained from the original Control Tower and re-used to form internal exposed-brickwork walls.

Reinstatement of Original Features

A number of original features have been proposed for reinstatement on the Control Tower:

- Crittall-style windows and doors. These will be double-glazed as a minimum to improve efficiency
- Metal Balustrades to Roof Terraces. These have been designed to appear similar to the original but will have a glazed panel behind to prevent falling
- Numerical Display Panel to East-facing Elevation
- Roof level glazed Viewing Tower
- Aviation Weather Vane to top of glazed Viewing Tower

Heating and Cooling

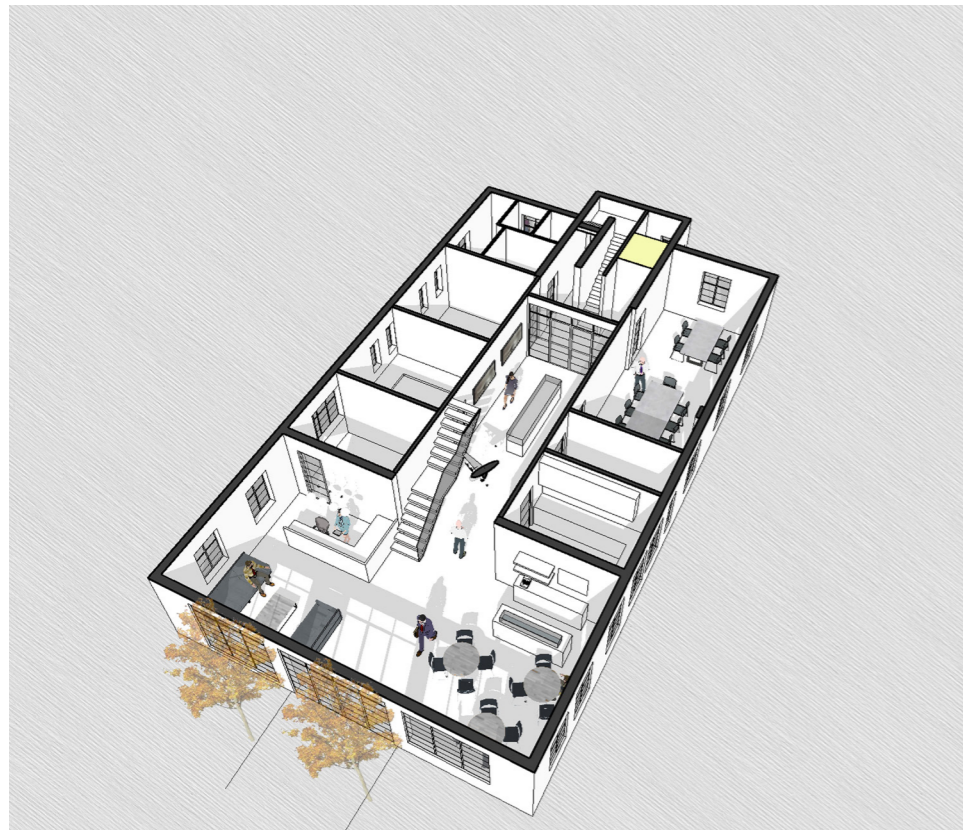
An electrically driven heating and cooling system has been selected in response to the progressive decarbonisation of the electricity grid, with a view to reducing the carbon consumption of the heating and cooling system by avoiding use of fossil fuels. Apart from being a highly efficient system, this solution was selected to minimise any aesthetic interference with the appearance of the Control Tower.

A small separate external plant room is proposed to the South East of the Control Tower to house the VRF plant.

Conclusion

The proposals outlined for the Control Tower ensure that this new facility will provide high-quality, well-considered working accommodation in a key setting for the Film Studios.

Its design is modern, accessible and highly flexible yet respects and celebrates the design of the original Control Tower ensuring that it remains a key player in the Borough's heritage.



3d Model: Ground Floor Axonometric View during Design Development



3d Model: First Floor Axonometric View during Design Development



3d Model: Roof Axonometric View during Design Development