Design, Access and Heritage Statement

to accompany
Listed Building application for

Solar Panels

to The Control Tower
Little Walden
Essex

Prepared by the owners
Mrs Atkinson Canning and Mr Canning

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Introduction

The Control Tower in Little Walden is a Grade 2 listed building, and was built by the UK Air Ministry towards the end of the Second World War. It has been converted to residential use, but is in need of a number of energy efficiency changes to secure its long-term sustainable future and to reduce its environmental impact.

The Control Tower's energy source is solely electricity for all of its power, hot water and central heating. Therefore a renewable solar power source of electricity provides a particularly high amenity, particularly for a heritage asset constructed as a temporary wartime building.

Design

Design principles: the proposed energy efficiency rooftop addition is designed for zero intervention to the fabric of the building, for minimal impact to the aesthetics and for full reversibility. It is proposed to add a rooftop array of photovoltaic (PV) glass tempered panels to approximately 58 per cent of the flat roof space, below the height of the existing railings. The panels will be mounted on a ballast weighted frame avoiding the need to drill bolts and fixings to the roof. Therefore, there is no permanent intervention to the fabric of the building. The panels selected are high quality from an established European solar panel provider, Eurener. The panels are black all over rather than the standard silver framed, as these are considered to have higher aesthetic value. These will match the colour of the existing railings, through which they will be partially visible.

Amount: 21 panels covering approximately 58 per cent of the flat roof space.

Layout: As advised by the specialist solar panel company, Green Solar World Ltd, the panels will face the south west elevation of the property, which is approximately 30 degrees from south. The panel array will be set back from each edge of the roof to maintain the existing access on all sides (see Appendix A, Design Layout). Access to the roof from the top of the staircase remains free from panels.

Scale: the scale of the new addition is compatible with the energy generation required for the size of the home. The addition will cover approximately 58% of the roof space. The angle of the array allows all panels to sit below the height of the existing railings, and significantly lower than the height of the aerials and flag poles currently in place. The skylight dome is 30 cm high and would sit below the height of the panel array.

Landscaping: no change.

Appearance: No alterations are proposed to the original building. The proposed panels will be partially visible behind and below the railings on the flat roof. Viewing from the north elevation, the rear of 2 panels will be visible. On the west elevation, only the side edge of 6 panels will be visible. As mitigation, the panels will be black, to blend with the railings. Additionally, the tv aerials and sky dish, both standing significantly higher than the original railings, will be removed. The photograph at the front of this statement, recently taken from the B1052, shows a man standing on the roof with a mock-up of a panel.

Context: the Control Tower has an isolated position on the edge of the nearby industrial estate. However, its presence is significant in the landscape.

Use: the building is in use as a dwelling house, a use which will be enhanced by the addition, ensuring its long term survival.

Sustainability: the proposal is fully sustainable by changing the source of power, water, heating and central heating from carbon emitting to fully renewable solar. The Energy Performance rating would increase significantly and contribute to Uttlesford's commitment to achieve net-zero carbon status by 2030. The asset's current Energy Performance Certificate (EPC) recommends the proposed addition of solar panels.

Access and transport

- Access for the disabled: is not relevant to this application.
- Parking, public transport etc.: is not relevant to this application.

Heritage statement

The Control Tower was listed Grade 2, in 2005, and the citation is as follows:
Details
952/0/10046 01-DEC-05 HADSTOCK Control Tower, former Little Walden Airfield GV II Control Tower. 1942. Built to designs of the Air Ministry's Directorate of Works and Buildings, as Office for All Commands design, to Drawing No. 12779/41. Rendered brick with asphalt roof. PLAN: ground floor has watch office to front with duty pilot's rest room, meteorological office, switch room and lavatories to rear; first floor has control room to front, with controller's rest room and signals office to rear, opening onto passage with access to stairs. EXTERIOR: large multi-paned steel casements to front and to flank walls of watch office and control room, providing clear views of the flying field, these having been reduced in size later in the war (to design 343/43). Access from steel stairs on return elevation to concrete balcony with tubular steel railings and with iron columns providing support. Smaller steel casements to rear part of side and rear elevations. Doors to left-hand and rear elevations. INTERIOR: concrete stairs.

HISTORY: Restored and now converted into a house, this stands as an exceptionally complete example of a control tower of a type commonly used on airfields constructed in the Second World War. Some lengths of perimeter track and a section of runway survive, apart from the runway section now absorbed into the B1052. Prefabricated structures including Romney huts and a modified T2 hangar have also survived on the site, but are not recommended for listing. The airfield was used by the USAAF, from April 1944 by 409th Bomb Group and after September by a mixture of bomber and fighter units.

The Control Tower is one of 162 examples built to this Air Ministry design (Watch Office for All Commands), of which 82 now survive. It is one of a very small number which have survived in this degree of preservation - other examples being Alconbury (with operations room attached), Duxford, Dunkeswell, Rougham, Ludham and East Kirkby.

In the second half of the 1930s, increasing attention was being given to the dispersal and shelter of aircraft from attack, ensuring serviceable landing and take-off areas, and the control of movement: the result was the development of the control tower and the planning from 1938 of the first airfields with runways and perimeter tracks. The control tower, which first appeared as a recognisable design in 1934, became the most distinctive and instantly recognisable building associated with military airfields, particularly in the Second World War when they

served as foci for base personnel as they awaited the return of aircraft from operations. This is one of a very small number of control towers on Second World War airfields which are either exceptionally well-preserved or have distinguished operational histories. Their iconic value both as operational nerve centres and as memorials to the enormous losses suffered by American and Commonwealth forces in the course of the Strategic Bomber Offensive has long been recognised. A deserted control tower, for example,
was the focus of the opening scenes of Richard Asquith's film The Way to the Stars (1945), which explored the thoughts of a veteran returning to a deserted airbase, as a ploughshare pulled by a horse team returned land formerly used to wage aggressive war to agriculture.
Michael Bowyer, Military Airfields of East Anglia: Action Stations 1 (Cambridge, 1979), p. 145

Historical context

Control towers were built as temporary buildings not expected to last past the second world war. The design aim was simplicity and consistency for all buildings. This standard specification meant that the towers could be built quickly. The Air Ministry designed plans for standard tower buildings specific to their air force purpose, such as bombers or fighters. Plans were also drawn up for additions to the main building as relevant or needed when built, for example a Uni Seco control room (plan 5966/43). Control towers were designed to be of a utilitarian and modular nature. The building was constructed to a standard architectural plan.

The Control Tower at Rougham shown here is a listed example of a control tower built to the same plan. Due to its fine conservation, this is now a museum.

After 1940, all towers were rendered over brick. All were painted green camouflage, as shown above in the photo of Rougham Control Tower. The term ‘watch office’ was dropped in favour of ‘control tower’ in around 1943. The control tower was not an isolated building in its plot but part of a system of buildings on a working airfield. The tower’s purpose was to have long visual reach in a protected environment so as to monitor weather conditions and safely take-off and land planes. It would have had an observation tower, observation room or other roof system to achieve this. Other environmental and technical items were placed on the roof to support this purpose. The Little Walden Control Tower wartime photo below indicates a range of highly visible items on the roof that reach higher than the railings, such as numbered panels.

Preservation and Conservation History since 1982

The building was derelict when it was converted to a design studio and offices in the late 20th century (UTT/0942/82 refers). It then subsequently became a dwelling house (see UTT/0722/02/FUL Change of use from Design Studio and Office Use to Residential with part office use; and UTT/2059/04/FUL Change of use of Design Studio to dwelling). It is in need of significant investment to preserve it for the future.

Key elements that contribute to the asset's significance include the building's survival as an important part of the buildings making up Little Walden airfield and the historic interest in the wartime use of this base. Although the windows have been replaced, the fenestration has been changed from the original design and the exterior render has been painted white, the exterior form of the building and its fenestration is recognisable as original. However, the interior of the building was completely redesigned in the years preceding the listing, and does not reflect the original layout.

The relationship between the Control Tower and the principal runway of the Little Walden air base is retained by the line of the B1052, from which there are clear views of the north elevation. The south and east elevation are obscured by trees. The west elevation is partially obscured by trees.

Key elements affected by the application

The key elements affected by the application are:

1. External: the roof to have an addition of the solar panel array. The panels are intended to generate renewable energy.
2. Internal: four 'boxes' will be attached to a wall and hidden in a shallow cupboard on the ground floor in a two by two stack. The four wall boxes consist of a Growatt inverter and Givenergy batteries and an AC charger. They are connected to the panels by means of one standard cable. Appendices C and D are photographs to indicate the set up.

The impact on the asset's significance

The impact on the asset's significance relates to the aesthetic value for passers-by and the local community. The asset's value lies in its visual link to the second world war with its purpose of controlling aircraft and forecasting weather. As such, the rooftop has always had an array of viewing, visual and technical additions. Therefore, in terms of the asset's historical significance there is no impact. However, this is a fully reversible impact as the proposed addition is secured by ballast weights. There is no physical harm or mechanical connection to the fabric of the building.

Benefit to the wider public

In addition to ensuring the long term survival of the Control Tower through improving the amenity, the addition of the solar panels will benefit the wider public by reducing the electricity demand on the national grid and by reducing carbon emissions.

See also appendices A to D

Appendix A: Design layout of the solar panel array on the roof, indicating the direction of the panels, the number and the space remaining in relation to the four elevations.
Appendix B: External - photograph of current rooftop items that will be removed as mitigation.

Appendix C: Internal **- p**hotographs modelling internal works for 4 boxes of batteries, charger and inverter which will be installed on the ground floor.
Appendix D: Heritage Listings of Control Towers built to the same Air Ministry design. Appendix D shows the 6 listed control towers that were built to the same architectural design plan as The Control Tower, Little Walden. These evidence how the actual built design varies despite the same architectural plan, particularly in reference to roof tops.

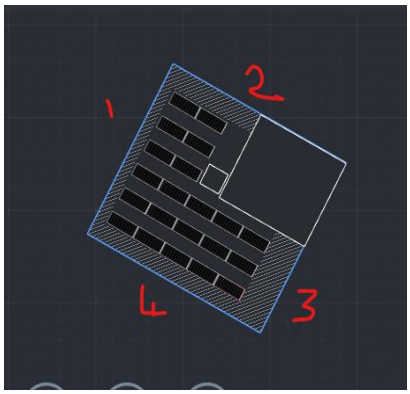
Conclusion
In accordance with 16 (2) of the Planning (Listed Buildings and Conservation Areas) Act 1990, the proposed addition to the Control Tower has minimal impact on the special interest of the listed building because:
i) it causes no harm to the fabric of the building and
ii) it is fully reversible.

In terms of the National Planning Policy Framework (para 202), the addition causes less than substantial harm. This is because it is only partly visible behind and below the existing roof railings, and can be offset by removing some of the technical items currently on the roof. In addition, the proposal will:
i) add substantially to the asset's amenity, thus securing its long term optimum viable use, as well as
ii) provide a sustainable benefit to the wider public by reducing demand on the national grid at a time of national energy crisis and reduce carbon emissions at a time of national and local environmental crisis.

Appendices

Appendix A: design layout – CAD image and google earth image.

1-West elevation (rear of building, but facing and partially visible from the B1052): 6 panels, located1 m from roof edge, with side edge of panels partially visible through railings.
2– North elevation (side, visible from the B1052, with staircase to the roof): 2 panels, located 60 cm from roof edge, rear of both panels partially visible through railings.
3- East elevation (front of building but not visible from the B1052 road) – 180 cm from perimeter, 3 panels, view side face.
4 - South elevation (side, obscured by trees) – 118 cm from perimeter, 5 panels view front face.



Appendix B: External - photographs of current rooftop items that will be removed as mitigation.


Appendix C: Internal – photographs indicating batteries, charger and inverter.

 Modelling internal works as 3 vertically stacked boxes of 2 batteries and charger.	 Groundfloor cupboard space for the internal works as 4 boxes of batteries, charger and inverter to be placed horizontally.

Appendix D: Heritage listings of Control Towers built to the same Air Ministry design:
Watch Office for All Commands

The heritage listing for Little Walden Control Tower cites 82 surviving control towers built to the same Air Ministry design 'Watch Office for All Commands', Drawing No. 12779/41. Six of these are mentioned in the listing as being in a similar 'degree of preservation.' However, Alconbury is cited as one of the six examples and is in fact Air Ministry design 'Bomber Satellite Watch Office', Drawing No. 7345/41, and is clearly a different type of building to Little Walden Control Tower and the other five examples of 12779/41.

The most recent photographs of the five remaining 'watch offices' that are of the same design as Little Walden are shown below. Three are now museums.

1. Rougham
2. East Kirkby
3. Duxford
4. Dunkeswell
5. Ludham

Conclusion: Although the 12779/41 Watch Offices were all built to the same Air Ministry design, they often had additions and variations. The observation rooms varied in style, size and location on the roof. The external staircases were also in different configurations.

Rougham – currently a museum

East Kirkby – currently part of the Lincolnshire Aviation Heritage Museum, iwith visible rooftop equipment.

Dunkeswell – described as in a 'good state of preservation'. Currently used as a clubhouse.

Duxford – currently used as a control tower with an array of rooftop equipment.

Ludham – photo taken 2014. This building had been restored in 2000/01 to become a museum.

Alconbury – incorrectly listed as being of the same design as CT Little Walden and the others here.
Currently used as a library, community and heritage space