

Friday, 19 December 2025
REF: 1709GE-01

Paul Rogers
CMS
26 Martingate Centre
Corsham
SN13 0HL

Dear Paul,

RE: Structural Statement –Chiesi roof solar and façade proposals

Following the structural inspection carried out on the property 1, Bath Road Industrial Estate, Bath Rd, Chippenham SN14 0AB on the 24th Jun, the following outlines the key findings with relation to the suitability of roof mounted solar panels and a self-supporting façade to the main elevation.

Roof Solar:

The existing roof construction was found to be consistent thought the building and comprising of composite insulated roof panel system spanning between cold rolled Z section purlins. These in turn span between primary steel portal frames spaced regularly along the length of the building.

A new roof solar array would typically be installed above the existing finishes with a direct fixing to the purlins below.

Full details of the existing condition are as follows:

- Purlins were observed to be a Kingspan Multibeam section arranged in a double span arrangement. The section size was measured at 175x65 however the weight could not be assessed and so the lightest catalogue weight is assumed conservatively.
- Purlins span 6m between steel frames and are at 1.5m c/c with a double member at the ridge.
- Portals frames are observed to be constructed from UB254 x 145 primary rafters and UB305 x 127 columns jointed with hunched moment connections at all nodes. The lightest catalogue section in each members size is assumed conservative.
- The frames clear span 10m with 5m eaves height and a 25deg pitch to the roof.

An analysis of the current purlin condition using Kingspan Catalyst program was undertaken for both a combined snow and wind loading and wind and access loading regime. The results indicate that for the building size, location and arrangement, the current purlins are at 97% utilisation when the smallest section is assumed. This occurs in a maintenance access load case with 0.6kN/m² maintenance load assumed.

An analysis of the current frames using a 2D finite element model indicate that for the same critical loading case, the frames are at a very low level of utilisation on account of a deflection governing design.

In the proposed condition, an additional services load of 0.2kN/m² is applied in combination with a reduced maintenance loading to reflect the restriction in access solar on the roof would present. This has again been

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considered in both a combined snow and wind as well as a wind and maintenance condition. The results indicate that for the building size, location and arrangement, the current purlins remain with design load limits in all load combination provided the access load is reduced from 0.6kN/m to 0.45kN/m.

An analysis of the current frames under the same increased loading categorisation using a 2D finite element model indicate that the frames remain at a very low level of utilisation. Comparing deflections of the structure under current and proposed conditions indicates that the proposals would have a negligible impact on the deflection with the wind forces being by far the dominant condition.

In consideration of the wider structure and foundations, the addition of solar on the roof is negligible to all the existing other structural systems of the building.

The roof is therefore considered to be suitable for a typical solar array installation affixed to the existing purlins providing the reduced maintenance loading value of 0.45kN/m² is incorporated to the building operation and maintenance manual.

Freestanding façade:

The buildings existing façade comprises a composite insulated panel system spanning between cold rolled horizontal restraint beams providing lateral and vertical support. These span between the columns of the steel portal frames.

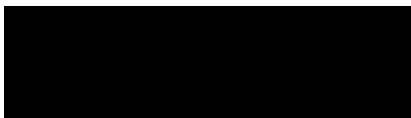
The existing structure by inspection would not be suitable to support the vertical loads of a new façade system and therefore a self-supporting façade would be required with its own foundations and load bearing frame to support the new finishes.

As the overall form of the building would not be significantly altered, the horizontal wind loading on the new façade would be equivalent to the current façade and therefore it is suitable to retain the new façade to the existing building for horizontal stability. This would not significantly change the loading condition on the existing building and so not require alterations to the existing structure beyond the new fixings.

A proposal for the self-supporting façade is indicated in 1709GE - SK001 – Façade scheme.

In summary, it is concluded that the existing building is both structurally suitable for roof mounted solar and for a self-supporting façade addition with only minor alterations.

Yours Sincerely



Joe Williams
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Associate