



Structural Checklist for Building Warrant Applications

On behalf of Shetland Islands Council, a consulting engineer undertakes a checking role to review structural calculations and details submitted for Building Warrant to ensure compliance with relevant / current codes of practice for small scale applications such as domestic alterations, extensions etc.

By submitting calculations to Shetland Islands Council the onus is on the Agent and their Engineer to demonstrate proposals comply with relevant / current codes of practice. It is not within the consulting engineer's remit to undertake check calculations should there be areas of concern, details missing etc. and/or make engineering judgements.

The information submitted to the consulting engineer should as a minimum include, but not necessarily, be limited to the below:

- A set of clear and legible engineering drawings and/or overmarks of the architectural drawings to confirm all structural specifications, details etc. so a contractor can undertake the proposed works and relevant third parties can undertake inspections to confirm the works have been undertaken in accordance with contract drawings.
- A set of clear, legible and accurate calculations undertaken to current codes of practice to confirm, by calculation, all of the proposed engineering specifications and details.
- Where contractor designed elements are shown, design intent details, specifications, calculations etc. must be provided so that all assumptions made by the Engineer are fully considered by any specialist supplier. Generally, the only example of a contractor designed element that will be accepted is roof trusses. The inclusion of glazing, steelwork connections, timber stairs and barriers (both internal and external) etc. should be provided by the Engineer.
- All works should be undertaken in strict accordance with contract drawings and specifications. Should there be any deviation the onus is on the Agent and the Engineer to submit an amendment to warrant for all changes.

In reviewing the above, we would highlight the consulting engineer's review of the engineering submission is purely ascertaining structural conformity against relevant / current codes of practice for Building Warrant purposes. The return of comments, or indeed no comments, does not relieve the Engineer of their responsibility and liability to their Client should they have made errors and/or there are omissions in their drawings, details, calculations etc.

An example of information that we expect to be provided is as listed on the subsequent pages:



Drawings must include the following:

<p>A set of clear and legible engineering drawings and/or overmarks of the architectural drawings to confirm all structural specifications such that a contractor can undertake the proposed works.</p>	
<p>Drawings must include 1:5, 1:10 construction details for elements contractors require to undertake. Details must be project specific and cover all aspects needed by the contractor.</p> <p>For example, for foundations we would expect to see standard foundation details, details for underbuilding, lintel details over underbuilding services, consideration of foundation formation level relative to incoming services, an indication on the tie in details to connect new foundations to existing etc.</p> <p>For any timber frame superstructure, we would expect typical kit interface connections for roof trusses to head binder, head binder to top rail, top rail to studs, studs to bottom rail, bottom rail to floor panel inclusive of load transfer of wind loads into floor diaphragm, fixing of soleplate to underbuilding etc.</p>	

Calculations must be provided and comply with the following:

<p>Calculations must be clear, legible and accurate.</p>	
<p>Contain a table of contents.</p>	
<p>All pages to be titled, numbered and signed.</p>	
<p>A detailed Methodology on how the building/structural elements will be analysed and designed should be included as an introduction with an account of how the building will function structurally to withstand all vertical and horizontal loads.</p>	
<p>Codes must be current. The use of withdrawn codes will not be accepted.</p>	
<p>A list of components that are required to be designed and any specific design requirements of the various structural elements should be highlighted.</p>	
<p>If Contractor designed elements are proposed, full details and calculations to be provided as part of the submission.</p>	
<p>A breakdown of all dead loads to be provided with reference to proposed roof and floor build ups proposed on the architectural details.</p>	
<p>A breakdown of all imposed horizontal and lateral loadings to be provided. References to the relevant British Standards and any other relevant documents/codes where characteristic loads were obtained are listed and referred to where used.</p>	
<p>Project specific ground conditions, wind loading and snow loading to be used.</p>	
<p>The location of each structural component being designed should be shown via an overmark drawing and sketches of the relevant details.</p>	



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A summary of the envisaged ground conditions provided to demonstrate sub-soils and/or existing structures are adequate to support applied loads	
All information used in the structural design is provided (e.g., Geotechnical Investigation report, site survey information etc.)	
Where works to alter an existing property are proposed, an appraisal of the existing structure needs to be provided.	
Where slappings are proposed calculations need to be provided to confirm not only the specification of the support beam but also any strengthening needed to address local / global stability issues to resist lateral loads.	

By submitting calculations, the onus is on the Agent and their Engineer to demonstrate proposals comply with relevant / current codes of practice. We would reiterate it is not within the consulting engineer's remit to undertake or check calculations should there be areas of concerns, details missing etc. and/or make any engineering judgements. Should a submission be insufficient the consulting engineer will request the Engineer makes a fresh submission.