

## BUILDING DESIGN

This assessment scheme covers the processes of structural design, detailing, assembly, execution on site and (where relevant) maintenance of buildings. The scheme recognises that all buildings are unique and is therefore an assessment of company procedures and processes. The assessment scheme has been developed to cover buildings constructed from an assembly of modules, or from prefabricated steel panels. Foundations, concrete cores and any other reinforced concrete elements are outside the scope of SCI assessment.

This building design assessment scheme is not accredited by UKAS.



### SCI Assessment

This building design assessment scheme is operated by SCI following the same principles of evidence-based assessment as SCI's product certification schemes. The scheme is recognised by warranty providers (such as NHBC) as partially fulfilling their technical requirements. When combined with product certification, gaining SCI assessment for the design of a building forms a comprehensive package of reassurance for end clients and warranty providers. SCI's building design assessment scheme has been developed with input from manufacturers, designers, clients, specifiers and regulators.

### Design assessment scheme

Product certification is not appropriate for the design of a building, since each building design is unique. The focus of SCI's assessment scheme is therefore on the formalised and documented procedures adopted by the building designer and applied to all designs. Detailed requirements are documented in BD001. The design procedures must be submitted in the form of a system manual, with supporting evidence including typical building designs. This evidence is rigorously and impartially assessed by competent SCI staff. The design activity is also subject to a technical audit to verify the documented procedures are followed.

Subject to a satisfactory assessment and audit, SCI will issue a certificate confirming that the building design procedures are appropriate for the scope of structures undertaken, that the procedures are applied correctly in design and accord with the requirements of BD001. Regular surveillance reviews and audits are undertaken to confirm that the design procedures remain in conformity with BD001.

### Typical submissions

The evidence required for assessment includes:

- A system manual
- Design methodology
- Test reports (if relevant)
- Material specifications
- Test reports
- Comprehensive procedures Factory
- Comprehensive typical details

The technical scheme document describing the requirements for the assessment of the building design process is available from the SCI. The following sections indicate the requirements, which follow the Basic Requirements for Construction Works (BCRW).

### **Mechanical resistance and stability – BRCW1**

Buildings must be designed (to a recognised code) with adequate safety against structural collapse and unacceptable deformation. This requirement demands evidence of design criteria, structural analysis and verification of resistance. The stability system, lateral load-carrying system, connections between building components, the robustness strategy and transfer of loads to the foundations must be addressed.

### **Safety in case of fire – BRCW2**

The building must be designed in such a way that the resistance is adequate for a specific period of time and the spread of fire and smoke is limited. This will generally involve verification at elevated temperatures, together with evidence of the performance of components and assemblies subject to fire. Junctions between components, penetrations, fire stopping, fire protection, detailing round openings and the classification of elements used in the building must all be addressed.

Since many of the details of fire protection and fire stopping are completed on site, site quality control procedures, inspection procedures and records will be assessed.

### **Hygiene, health and environment – BRCW 3**

This requirement primarily concerns the risk of condensation and secondly that the materials used are not susceptible to damp.

Cladding details, vapour control layers, breather membranes, the effect of any thermal bridges, the insulation specification and construction details will be assessed.

The requirements will generally require a thermal analysis of the completed building, with material specifications and construction details.

### **Safety in use – BRCW 4**

Depending on the specified use and construction details, walls and floors may be required to have resistance against impact loads. Test evidence will be required to demonstrate the construction meets any specified duty grade (walls) or impact class (floors) unless this has been demonstrated by the product assessment.

### **Protection against noise – BCRW 5**

Walls and floors of a completed building must be demonstrated to provide adequate resistance against airborne sound and sound due to impact. An assessment of both the airborne sound insulation and impact sound insulation will be required.

### **Energy economy and heat retention – BCRW 6**

An assessment of the thermal insulation for the intended use and location of the building will be required, as will an assessment of the air permeability of the building.

Details of the arrangements to minimise thermal bridging will be assessed.

### **Sustainable use of natural resources – BCRW 7**

Buildings must be designed and built in such a way that the use of natural resources is sustainable, which demands that materials used must have appropriate durability. The evidence required will generally comprise material specifications and typical construction details.

### **Technical audit**

BD001 requires that comprehensive documentation of the building design processes must be submitted for review prior to undertaking an audit of the design process. The design processes must address competence, management of software and records, change control, communication of design requirements and design review.